# Full wwPDB X-ray Structure Validation Report ⓘ

Aug 23, 2023 – 11:24 AM EDT

| | | |
|---|---|---|
| PDB ID | : | 3DBH |
| Title | : | Structural Dissection of a Gating Mechanism Preventing Misactivation of Ubiquitin by NEDD8's E1 (APPBP1-UBA3Arg190Ala-NEDD8Ala72Arg ) |
| Authors | : | Souphron, J.; Schulman, B.A. |
| Deposited on | : | 2008-05-31 |
| Resolution | : | 2.85 Å(reported) |

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

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

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

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

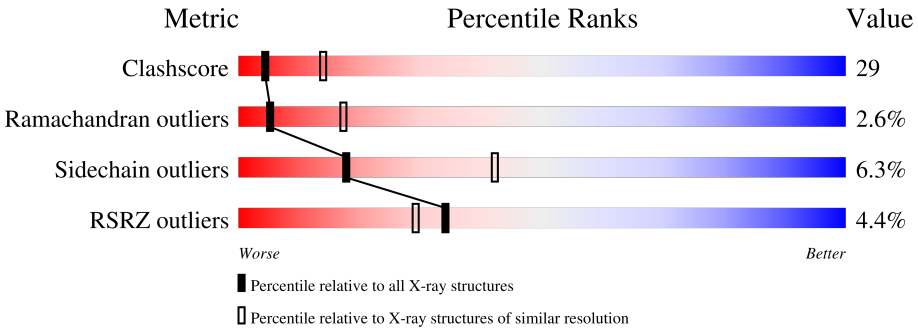
| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.35 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Refmac | : | 5.8.0158 |
| CCP4 | : | 7.0.044 (Gargrove) |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.35 |

# 1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.85 Å.

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




| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|---|---|---|
| Clashscore | 141614 | 3438 (2.90-2.82) |
| Ramachandran outliers | 138981 | 3348 (2.90-2.82) |
| Sidechain outliers | 138945 | 3351 (2.90-2.82) |
| RSRZ outliers | 127900 | 3103 (2.90-2.82) |

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

| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 1 | A | 531 | 2% 56% 39% |
| 1 | C | 531 | 2% 56% 37% 5% |
| 1 | E | 531 | 3% 60% 35% |
| 1 | G | 531 | 4% 55% 37% 5% |
| 2 | B | 434 | 5% 52% 42% 5% |
| 2 | D | 434 | 7% 52% 42% 5% |

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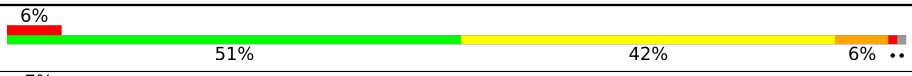
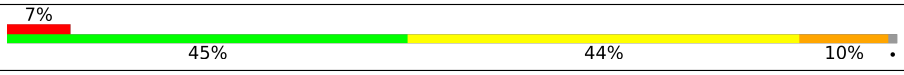
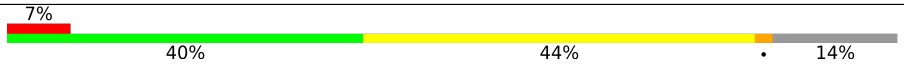
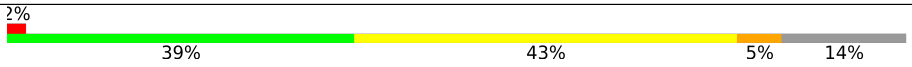
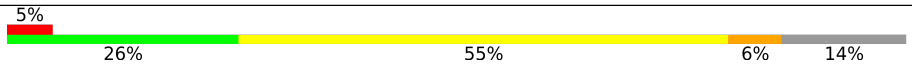
| Mol | Chain | Length | Quality of chain |
|---|---|---|---|
| 2 | F | 434 |   |
| 2 | H | 434 |   |
| 3 | I | 88 | |
| 3 | J | 88 |   |
| 3 | K | 88 |   |
| 3 | L | 88 |   |

## 2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 32578 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called NEDD8-activating enzyme E1 regulatory subunit.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 522 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4138 | 2621 | 704 | 797 | 16 | | | |
| 1 | C | 520 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4125 | 2612 | 702 | 795 | 16 | | | |
| 1 | E | 523 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4136 | 2618 | 705 | 798 | 15 | | | |
| 1 | G | 518 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4113 | 2605 | 700 | 793 | 15 | | | |

There are 28 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| A | -1 | GLY | - | expression tag | UNP Q13564 |
| A | 0 | SER | - | expression tag | UNP Q13564 |
| A | ? | - | ASN | deletion | UNP Q13564 |
| A | ? | - | GLU | deletion | UNP Q13564 |
| A | ? | - | ASN | deletion | UNP Q13564 |
| A | ? | - | GLY | deletion | UNP Q13564 |
| A | ? | - | ALA | deletion | UNP Q13564 |
| C | -1 | GLY | - | expression tag | UNP Q13564 |
| C | 0 | SER | - | expression tag | UNP Q13564 |
| C | ? | - | ASN | deletion | UNP Q13564 |
| C | ? | - | GLU | deletion | UNP Q13564 |
| C | ? | - | ASN | deletion | UNP Q13564 |
| C | ? | - | GLY | deletion | UNP Q13564 |
| C | ? | - | ALA | deletion | UNP Q13564 |
| E | -1 | GLY | - | expression tag | UNP Q13564 |
| E | 0 | SER | - | expression tag | UNP Q13564 |
| E | ? | - | ASN | deletion | UNP Q13564 |
| E | ? | - | GLU | deletion | UNP Q13564 |
| E | ? | - | ASN | deletion | UNP Q13564 |
| E | ? | - | GLY | deletion | UNP Q13564 |
| E | ? | - | ALA | deletion | UNP Q13564 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| G | -1 | GLY | - | expression tag | UNP Q13564 |
| G | 0 | SER | - | expression tag | UNP Q13564 |
| G | ? | - | ASN | deletion | UNP Q13564 |
| G | ? | - | GLU | deletion | UNP Q13564 |
| G | ? | - | ASN | deletion | UNP Q13564 |
| G | ? | - | GLY | deletion | UNP Q13564 |
| G | ? | - | ALA | deletion | UNP Q13564 |

- Molecule 2 is a protein called NEDD8-activating enzyme E1 catalytic subunit.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 2 | B | 432 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 3398 | 2172 | 574 | 635 | 17 | | | |
| 2 | D | 432 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 3402 | 2175 | 575 | 635 | 17 | | | |
| 2 | F | 431 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 3391 | 2169 | 573 | 632 | 17 | | | |
| 2 | H | 431 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 3383 | 2162 | 572 | 632 | 17 | | | |

There are 20 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| B | 9 | MET | - | expression tag | UNP Q8TBC4 |
| B | 10 | LYS | - | expression tag | UNP Q8TBC4 |
| B | 11 | LEU | - | expression tag | UNP Q8TBC4 |
| B | 190 | ALA | ARG | engineered mutation | UNP Q8TBC4 |
| B | 216 | ALA | CYS | engineered mutation | UNP Q8TBC4 |
| D | 9 | MET | - | expression tag | UNP Q8TBC4 |
| D | 10 | LYS | - | expression tag | UNP Q8TBC4 |
| D | 11 | LEU | - | expression tag | UNP Q8TBC4 |
| D | 190 | ALA | ARG | engineered mutation | UNP Q8TBC4 |
| D | 216 | ALA | CYS | engineered mutation | UNP Q8TBC4 |
| F | 9 | MET | - | expression tag | UNP Q8TBC4 |
| F | 10 | LYS | - | expression tag | UNP Q8TBC4 |
| F | 11 | LEU | - | expression tag | UNP Q8TBC4 |
| F | 190 | ALA | ARG | engineered mutation | UNP Q8TBC4 |
| F | 216 | ALA | CYS | engineered mutation | UNP Q8TBC4 |
| H | 9 | MET | - | expression tag | UNP Q8TBC4 |
| H | 10 | LYS | - | expression tag | UNP Q8TBC4 |
| H | 11 | LEU | - | expression tag | UNP Q8TBC4 |
| H | 190 | ALA | ARG | engineered mutation | UNP Q8TBC4 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| H | 216 | ALA | CYS | engineered mutation | UNP Q8TBC4 |

- Molecule 3 is a protein called NEDD8.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 3 | I | 86 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 670 | 416 | 123 | 129 | 2 | | | |
| 3 | J | 76 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 606 | 381 | 107 | 116 | 2 | | | |
| 3 | K | 76 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 606 | 381 | 107 | 116 | 2 | | | |
| 3 | L | 76 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 606 | 381 | 107 | 116 | 2 | | | |

There are 52 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| I | 89 | GLY | - | expression tag | UNP Q15843 |
| I | 90 | SER | - | expression tag | UNP Q15843 |
| I | 91 | ARG | - | expression tag | UNP Q15843 |
| I | 92 | ARG | - | expression tag | UNP Q15843 |
| I | 93 | ALA | - | expression tag | UNP Q15843 |
| I | 94 | SER | - | expression tag | UNP Q15843 |
| I | 95 | VAL | - | expression tag | UNP Q15843 |
| I | 96 | GLY | - | expression tag | UNP Q15843 |
| I | 97 | SER | - | expression tag | UNP Q15843 |
| I | 98 | GLY | - | expression tag | UNP Q15843 |
| I | 99 | GLY | - | expression tag | UNP Q15843 |
| I | 100 | SER | - | expression tag | UNP Q15843 |
| I | 172 | ARG | ALA | engineered mutation | UNP Q15843 |
| J | 89 | GLY | - | expression tag | UNP Q15843 |
| J | 90 | SER | - | expression tag | UNP Q15843 |
| J | 91 | ARG | - | expression tag | UNP Q15843 |
| J | 92 | ARG | - | expression tag | UNP Q15843 |
| J | 93 | ALA | - | expression tag | UNP Q15843 |
| J | 94 | SER | - | expression tag | UNP Q15843 |
| J | 95 | VAL | - | expression tag | UNP Q15843 |
| J | 96 | GLY | - | expression tag | UNP Q15843 |
| J | 97 | SER | - | expression tag | UNP Q15843 |
| J | 98 | GLY | - | expression tag | UNP Q15843 |
| J | 99 | GLY | - | expression tag | UNP Q15843 |
| J | 100 | SER | - | expression tag | UNP Q15843 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|---|---|---|---|---|---|
| J | 172 | ARG | ALA | engineered mutation | UNP Q15843 |
| K | 89 | GLY | - | expression tag | UNP Q15843 |
| K | 90 | SER | - | expression tag | UNP Q15843 |
| K | 91 | ARG | - | expression tag | UNP Q15843 |
| K | 92 | ARG | - | expression tag | UNP Q15843 |
| K | 93 | ALA | - | expression tag | UNP Q15843 |
| K | 94 | SER | - | expression tag | UNP Q15843 |
| K | 95 | VAL | - | expression tag | UNP Q15843 |
| K | 96 | GLY | - | expression tag | UNP Q15843 |
| K | 97 | SER | - | expression tag | UNP Q15843 |
| K | 98 | GLY | - | expression tag | UNP Q15843 |
| K | 99 | GLY | - | expression tag | UNP Q15843 |
| K | 100 | SER | - | expression tag | UNP Q15843 |
| K | 172 | ARG | ALA | engineered mutation | UNP Q15843 |
| L | 89 | GLY | - | expression tag | UNP Q15843 |
| L | 90 | SER | - | expression tag | UNP Q15843 |
| L | 91 | ARG | - | expression tag | UNP Q15843 |
| L | 92 | ARG | - | expression tag | UNP Q15843 |
| L | 93 | ALA | - | expression tag | UNP Q15843 |
| L | 94 | SER | - | expression tag | UNP Q15843 |
| L | 95 | VAL | - | expression tag | UNP Q15843 |
| L | 96 | GLY | - | expression tag | UNP Q15843 |
| L | 97 | SER | - | expression tag | UNP Q15843 |
| L | 98 | GLY | - | expression tag | UNP Q15843 |
| L | 99 | GLY | - | expression tag | UNP Q15843 |
| L | 100 | SER | - | expression tag | UNP Q15843 |
| L | 172 | ARG | ALA | engineered mutation | UNP Q15843 |

- Molecule 4 is ZINC ION (three-letter code: ZN) (formula: Zn).

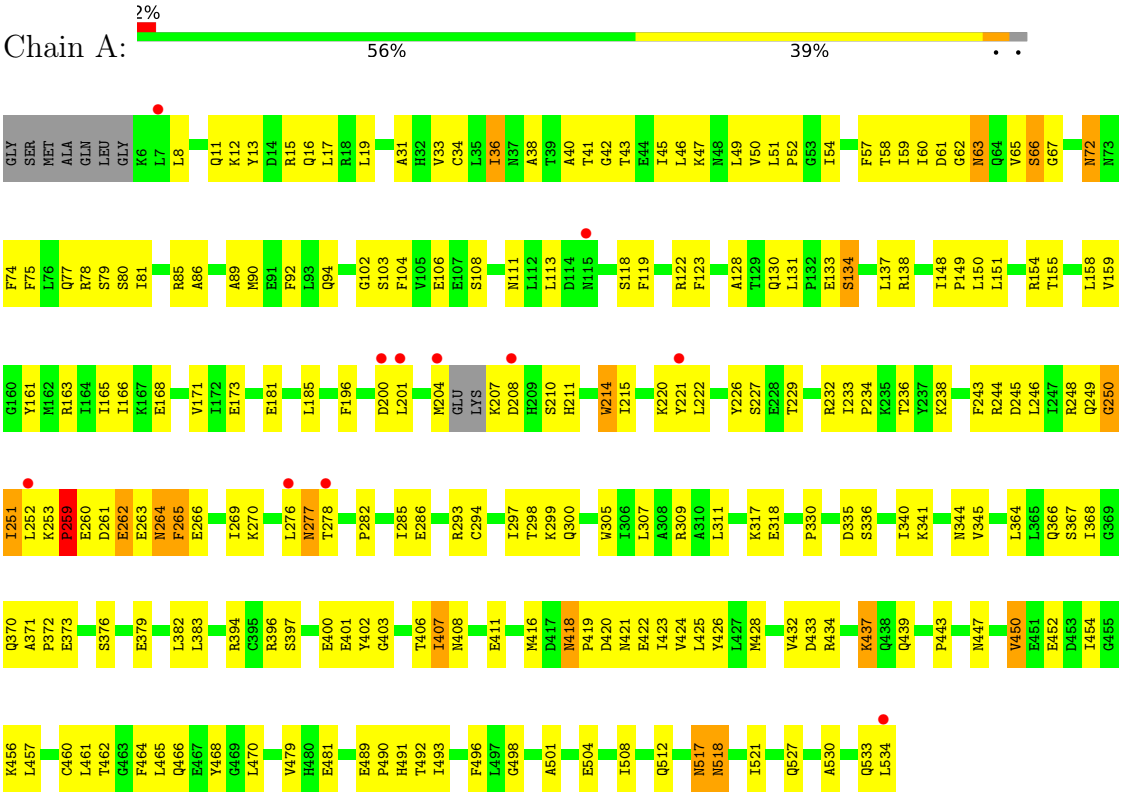
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 4 | B | 1 | Total Zn<br>1 1 | 0 | 0 |
| 4 | D | 1 | Total Zn<br>1 1 | 0 | 0 |
| 4 | F | 1 | Total Zn<br>1 1 | 0 | 0 |
| 4 | H | 1 | Total Zn<br>1 1 | 0 | 0 |

# 3 Residue-property plots (i)

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

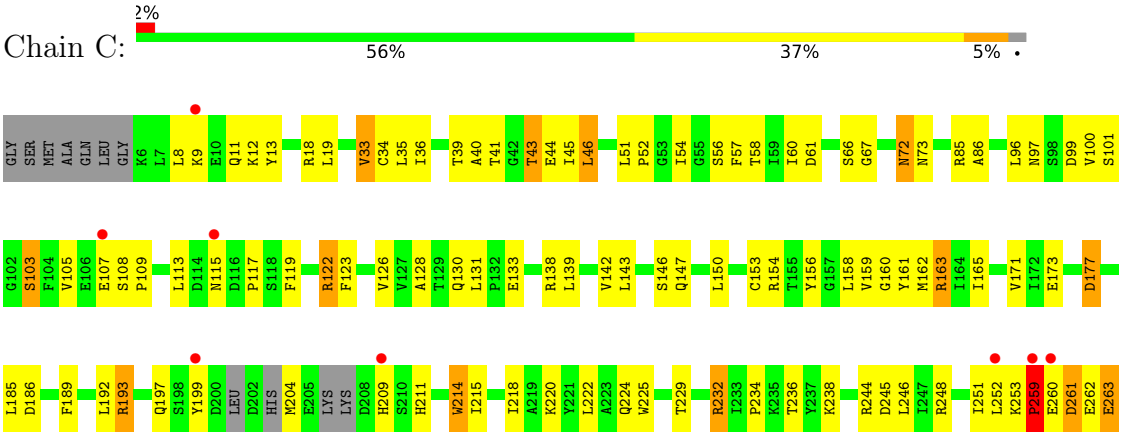
• Molecule 1: NEDD8-activating enzyme E1 regulatory subunit

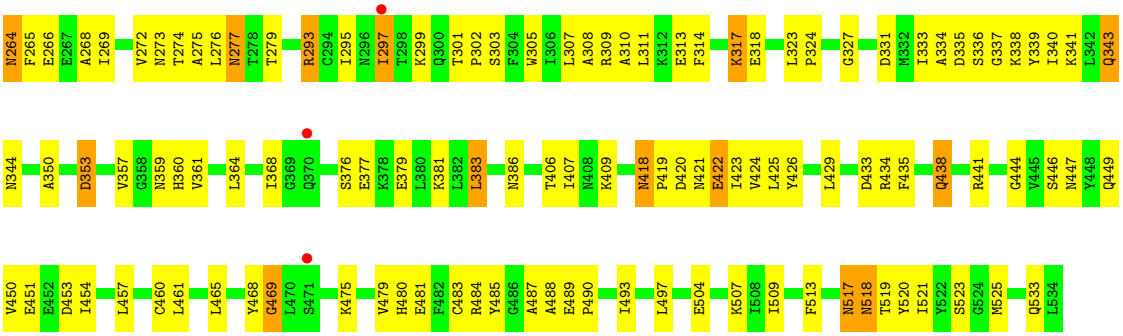
Chain A:




• Molecule 1: NEDD8-activating enzyme E1 regulatory subunit

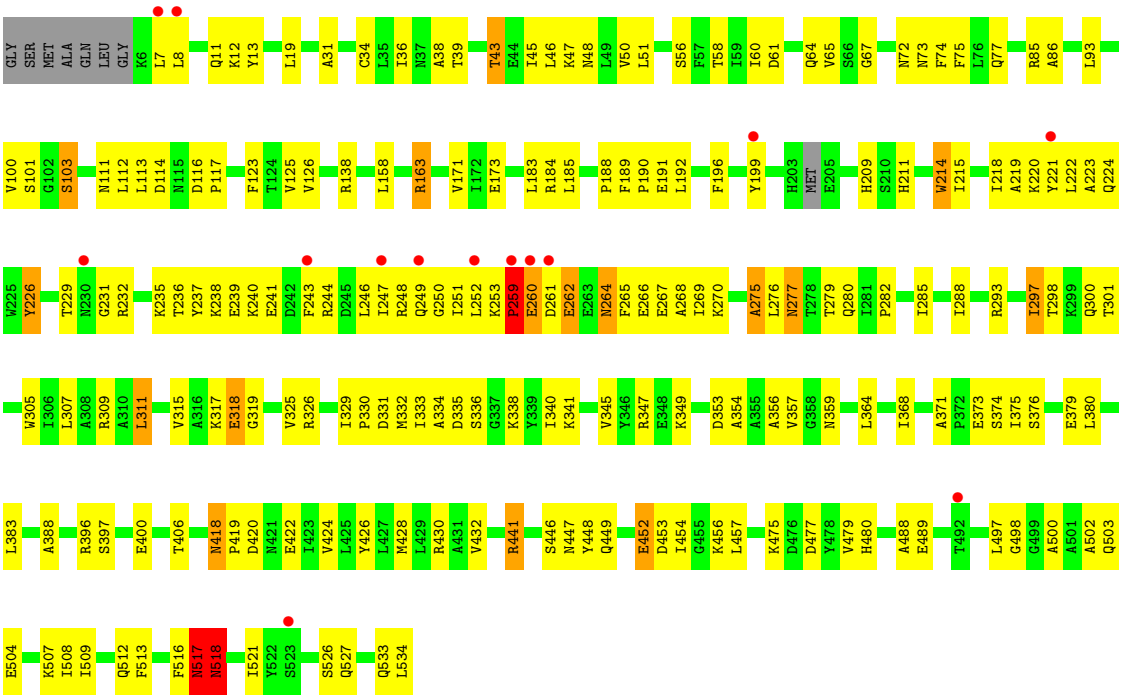
Chain C:





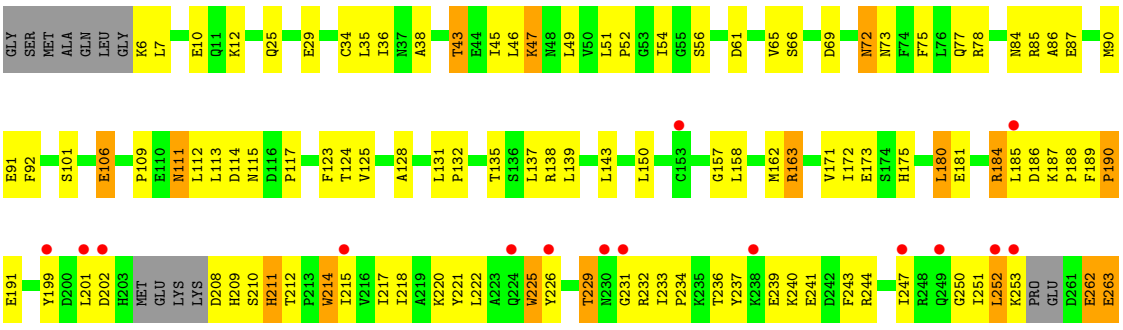
• Molecule 1: NEDD8-activating enzyme E1 regulatory subunit

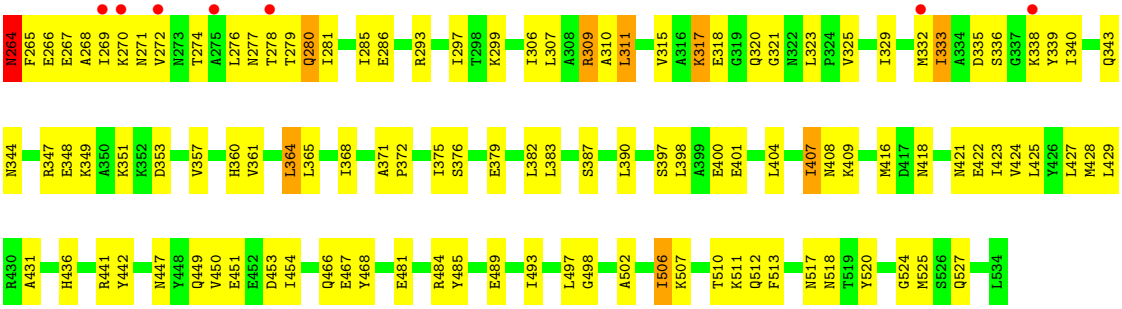
Chain E:



• Molecule 1: NEDD8-activating enzyme E1 regulatory subunit

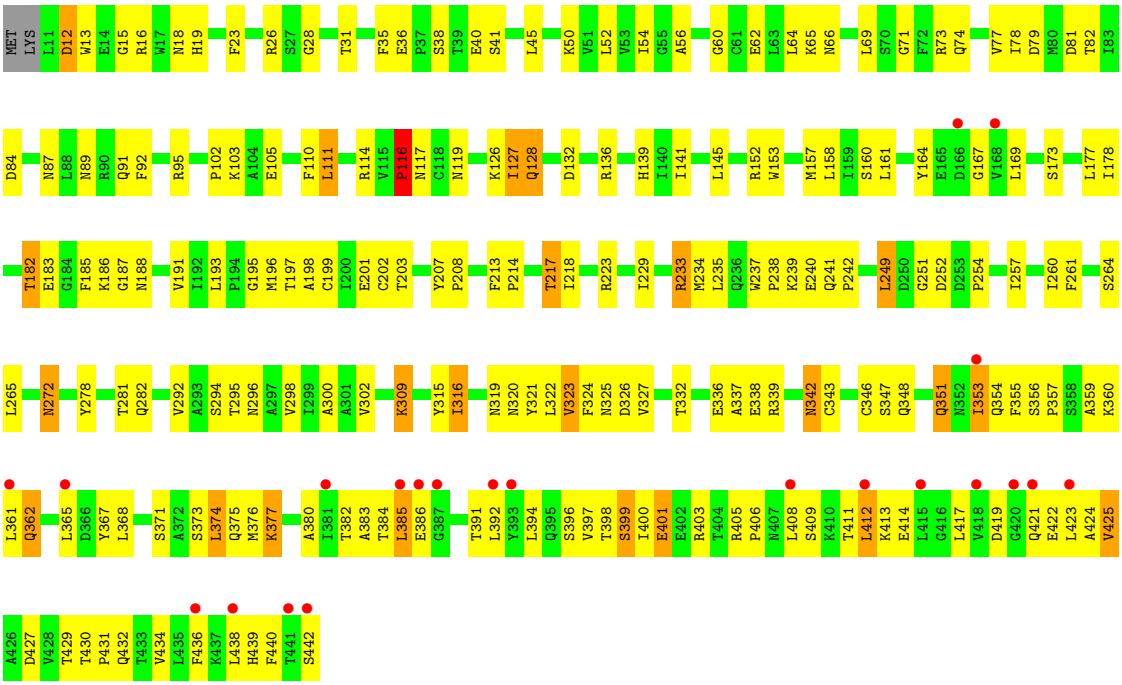
Chain G:





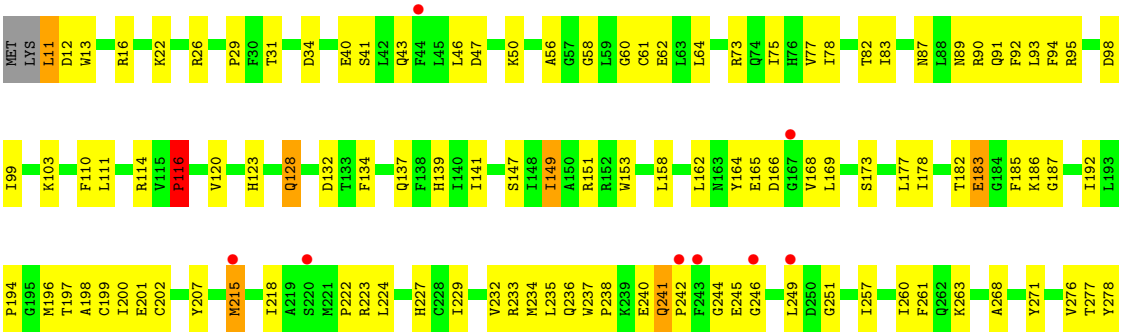
• Molecule 2: NEDD8-activating enzyme E1 catalytic subunit

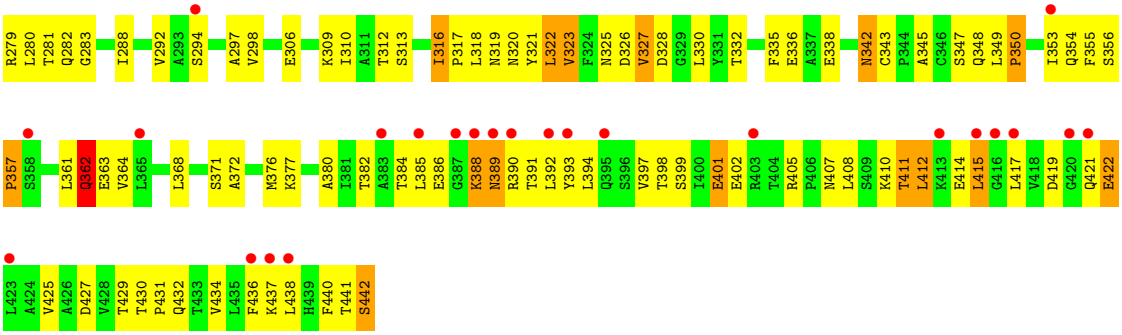
Chain B:



• Molecule 2: NEDD8-activating enzyme E1 catalytic subunit

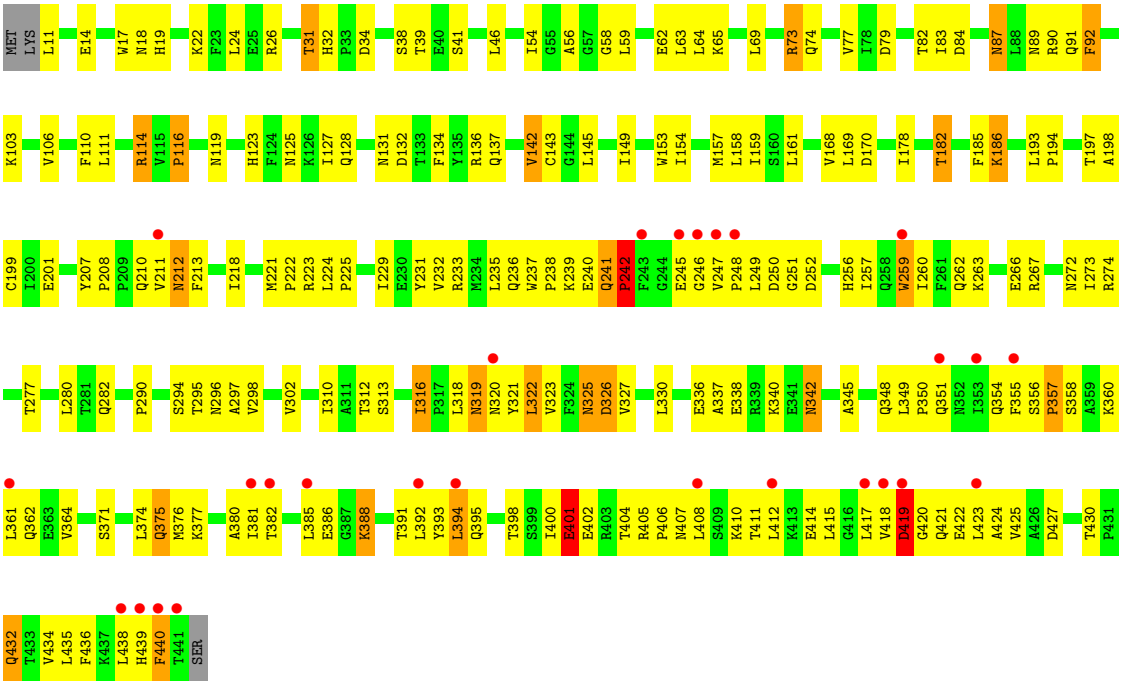
Chain D:





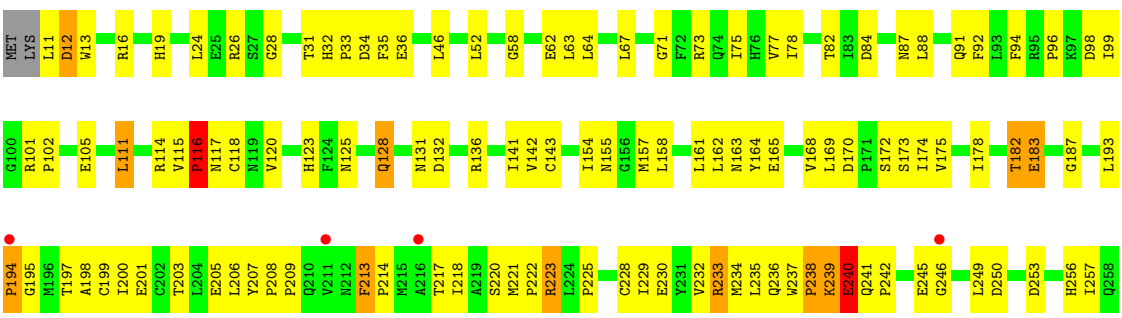
• Molecule 2: NEDD8-activating enzyme E1 catalytic subunit

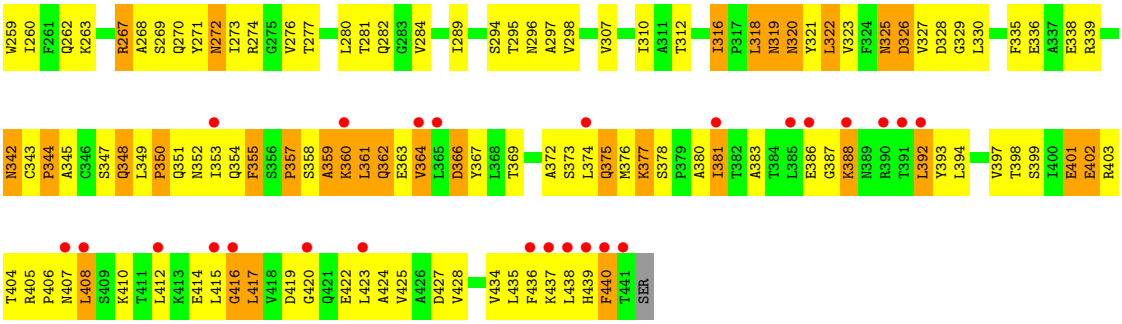
Chain F:



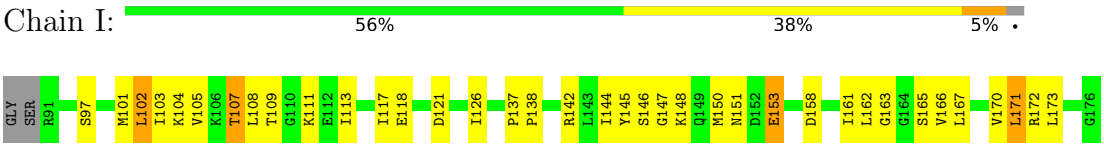
• Molecule 2: NEDD8-activating enzyme E1 catalytic subunit

Chain H:

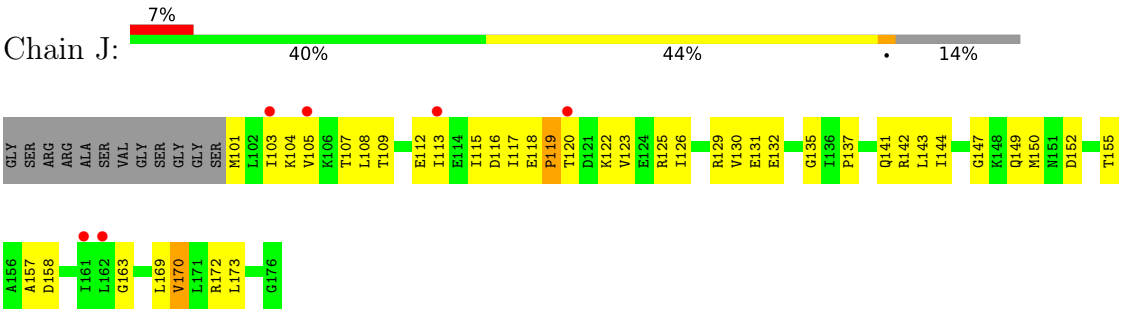




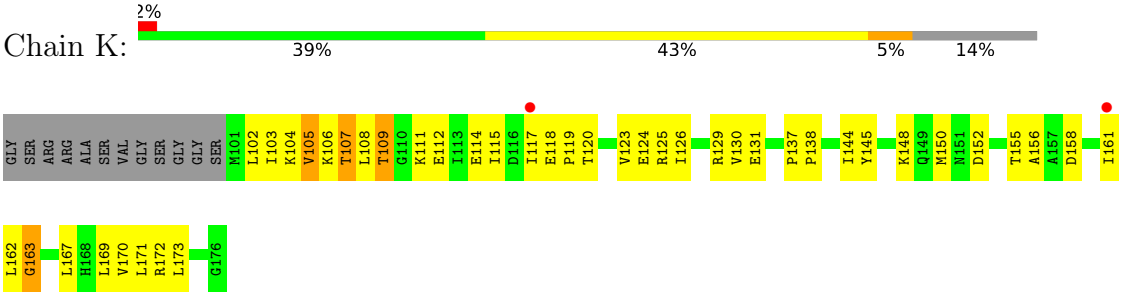

• Molecule 3: NEDD8



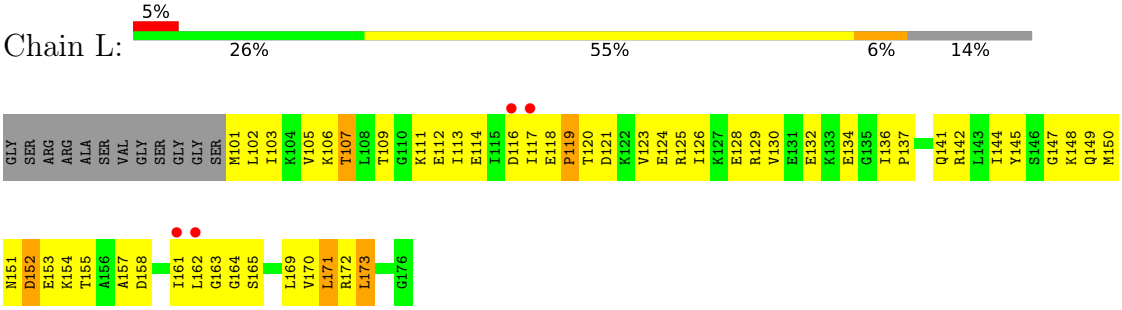

• Molecule 3: NEDD8




• Molecule 3: NEDD8




• Molecule 3: NEDD8



# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 21 21 21 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 135.65Å 198.10Å 210.96Å<br>90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 50.00 – 2.85<br>49.43 – 2.85 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 95.8 (50.00-2.85)<br>88.6 (49.43-2.85) | Depositor<br>EDS |
| $R_{merge}$ | 0.11 | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 2.19 (at 2.86Å) | Xtriage |
| Refinement program | CNS | Depositor |
| R, $R_{free}$ | 0.224 , 0.274<br>0.222 , (Not available) | Depositor<br>DCC |
| $R_{free}$ test set | No test flags present. | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 70.9 | Xtriage |
| Anisotropy | 0.396 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.30 , 57.1 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.49$, $< L^2 > = 0.33$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| $F_o$,$F_c$ correlation | 0.94 | EDS |
| Total number of atoms | 32578 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 88.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.51% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

# 5 Model quality (i)

## 5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 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 | 0.43 | 0/4218 | 0.69 | 0/5706 |
| 1 | C | 0.41 | 0/4203 | 0.65 | 1/5682 (0.0%) |
| 1 | E | 0.47 | 0/4216 | 0.71 | 2/5704 (0.0%) |
| 1 | G | 0.45 | 0/4191 | 0.68 | 1/5668 (0.0%) |
| 2 | B | 0.46 | 0/3476 | 0.76 | 5/4731 (0.1%) |
| 2 | D | 0.47 | 1/3480 (0.0%) | 0.72 | 4/4735 (0.1%) |
| 2 | F | 0.48 | 0/3469 | 0.75 | 4/4723 (0.1%) |
| 2 | H | 0.47 | 1/3461 (0.0%) | 0.72 | 1/4713 (0.0%) |
| 3 | I | 0.44 | 0/675 | 0.78 | 0/899 |
| 3 | J | 0.37 | 0/611 | 0.71 | 0/815 |
| 3 | K | 0.38 | 0/611 | 0.76 | 1/815 (0.1%) |
| 3 | L | 0.36 | 0/611 | 0.72 | 0/815 |
| All | All | 0.45 | 2/33222 (0.0%) | 0.71 | 19/45006 (0.0%) |

All (2) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 2 | D | 388 | LYS | CE-NZ | 6.17 | 1.64 | 1.49 |
| 2 | H | 143 | CYS | CB-SG | -5.08 | 1.73 | 1.81 |

All (19) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 2 | F | 420 | GLY | N-CA-C | -9.28 | 89.91 | 113.10 |
| 2 | B | 12 | ASP | N-CA-C | -8.11 | 89.11 | 111.00 |
| 2 | B | 241 | GLN | N-CA-C | -7.56 | 90.58 | 111.00 |
| 2 | D | 12 | ASP | N-CA-C | -6.68 | 92.95 | 111.00 |
| 2 | B | 385 | LEU | CA-CB-CG | -6.61 | 100.09 | 115.30 |
| 1 | E | 517 | ASN | C-N-CA | -6.53 | 105.39 | 121.70 |
| 2 | D | 13 | TRP | N-CA-C | 6.25 | 127.88 | 111.00 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | E | 518 | ASN | N-CA-C | 6.03 | 127.28 | 111.00 |
| 2 | D | 441 | THR | N-CA-C | -5.95 | 94.94 | 111.00 |
| 2 | F | 419 | ASP | N-CA-C | 5.88 | 126.89 | 111.00 |
| 2 | F | 440 | PHE | N-CA-C | 5.54 | 125.96 | 111.00 |
| 3 | K | 173 | LEU | CA-CB-CG | -5.48 | 102.69 | 115.30 |
| 1 | G | 209 | HIS | N-CA-C | -5.45 | 96.28 | 111.00 |
| 2 | D | 348 | GLN | N-CA-C | 5.44 | 125.69 | 111.00 |
| 1 | C | 259 | PRO | N-CA-C | -5.22 | 98.52 | 112.10 |
| 2 | B | 240 | GLU | N-CA-C | -5.19 | 96.98 | 111.00 |
| 2 | F | 394 | LEU | CA-CB-CG | 5.19 | 127.24 | 115.30 |
| 2 | H | 320 | ASN | N-CA-C | 5.10 | 124.77 | 111.00 |
| 2 | B | 414 | GLU | N-CA-C | -5.03 | 97.41 | 111.00 |

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts (i)

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|---|---|---|---|---|---|---|
| 1 | A | 4138 | 0 | 4080 | 210 | 0 |
| 1 | C | 4125 | 0 | 4065 | 196 | 0 |
| 1 | E | 4136 | 0 | 4065 | 206 | 0 |
| 1 | G | 4113 | 0 | 4058 | 223 | 0 |
| 2 | B | 3398 | 0 | 3377 | 225 | 0 |
| 2 | D | 3402 | 0 | 3388 | 216 | 0 |
| 2 | F | 3391 | 0 | 3372 | 260 | 0 |
| 2 | H | 3383 | 0 | 3351 | 301 | 0 |
| 3 | I | 670 | 0 | 707 | 38 | 0 |
| 3 | J | 606 | 0 | 643 | 42 | 0 |
| 3 | K | 606 | 0 | 643 | 43 | 0 |
| 3 | L | 606 | 0 | 643 | 58 | 0 |
| 4 | B | 1 | 0 | 0 | 0 | 0 |
| 4 | D | 1 | 0 | 0 | 0 | 0 |
| 4 | F | 1 | 0 | 0 | 0 | 0 |
| 4 | H | 1 | 0 | 0 | 0 | 0 |
| All | All | 32578 | 0 | 32392 | 1878 | 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 29.

All (1878) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:D:149:ILE:H | 2:D:149:ILE:HD12 | 1.09 | 1.17 |
| 2:D:357:PRO:HA | 2:D:412:LEU:HD12 | 1.22 | 1.15 |
| 2:F:419:ASP:HB2 | 2:F:438:LEU:HB2 | 1.29 | 1.13 |
| 2:F:241:GLN:HG2 | 2:F:245:GLU:HA | 1.26 | 1.12 |
| 2:F:425:VAL:HB | 2:F:434:VAL:HG13 | 1.31 | 1.10 |
| 2:D:382:THR:HG22 | 2:D:391:THR:HA | 1.28 | 1.06 |
| 1:E:253:LYS:O | 1:E:260:GLU:N | 1.88 | 1.05 |
| 2:H:344:PRO:HG3 | 2:H:374:LEU:HD22 | 1.37 | 1.05 |
| 1:A:248:ARG:HA | 1:A:251:ILE:HG13 | 1.37 | 1.05 |
| 2:F:362:GLN:HG2 | 2:F:408:LEU:HD22 | 1.38 | 1.04 |
| 2:B:412:LEU:HD12 | 2:B:440:PHE:CE2 | 1.94 | 1.03 |
| 2:B:342:ASN:HD22 | 2:B:342:ASN:N | 1.58 | 1.00 |
| 2:H:272:ASN:HD22 | 2:H:272:ASN:N | 1.55 | 1.00 |
| 2:D:320:ASN:HB2 | 2:D:336:GLU:HA | 1.44 | 0.99 |
| 1:C:229:THR:HG22 | 1:C:232:ARG:HB2 | 1.45 | 0.99 |
| 3:L:107:THR:HG23 | 3:L:109:THR:H | 1.27 | 0.98 |
| 2:F:316:ILE:HD12 | 2:F:316:ILE:H | 1.27 | 0.98 |
| 2:H:158:LEU:HA | 2:H:161:LEU:HD12 | 1.45 | 0.97 |
| 2:D:380:ALA:CB | 2:D:394:LEU:HD12 | 1.93 | 0.97 |
| 2:B:361:LEU:HD22 | 2:B:408:LEU:HD23 | 1.46 | 0.97 |
| 2:H:229:ILE:HD13 | 2:H:281:THR:HA | 1.47 | 0.96 |
| 2:B:316:ILE:H | 2:B:316:ILE:HD12 | 1.29 | 0.96 |
| 1:A:163:ARG:CZ | 1:A:518:ASN:HD21 | 1.80 | 0.95 |
| 2:H:316:ILE:H | 2:H:316:ILE:HD12 | 1.31 | 0.95 |
| 2:B:272:ASN:HD22 | 2:B:272:ASN:N | 1.63 | 0.95 |
| 2:D:342:ASN:HD22 | 2:D:342:ASN:H | 1.15 | 0.95 |
| 2:H:338:GLU:HG3 | 3:L:148:LYS:HD3 | 1.47 | 0.95 |
| 2:D:357:PRO:CA | 2:D:412:LEU:HD12 | 1.97 | 0.94 |
| 2:F:423:LEU:HD11 | 2:F:438:LEU:HD21 | 1.47 | 0.94 |
| 2:B:213:PHE:HB2 | 2:B:218:ILE:HD11 | 1.50 | 0.94 |
| 2:B:342:ASN:H | 2:B:342:ASN:ND2 | 1.65 | 0.94 |
| 1:C:39:THR:HG22 | 1:C:489:GLU:OE1 | 1.67 | 0.92 |
| 1:C:253:LYS:O | 1:C:260:GLU:N | 2.02 | 0.92 |
| 1:G:489:GLU:H | 2:H:19:HIS:HD2 | 1.17 | 0.92 |
| 2:H:354:GLN:HE22 | 2:H:439:HIS:HB3 | 1.34 | 0.92 |
| 2:B:400:ILE:H | 2:B:400:ILE:HD12 | 1.35 | 0.92 |
| 2:F:393:TYR:HD1 | 2:F:404:THR:HG1 | 1.10 | 0.91 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:342:ASN:H | 2:H:342:ASN:HD22 | 1.18 | 0.91 |
| 3:K:103:ILE:HG12 | 3:K:117:ILE:HD12 | 1.52 | 0.91 |
| 1:C:277:ASN:C | 1:C:277:ASN:HD22 | 1.73 | 0.91 |
| 2:B:320:ASN:HD22 | 2:B:336:GLU:HG3 | 1.35 | 0.91 |
| 1:G:229:THR:HG21 | 1:G:232:ARG:HH21 | 1.36 | 0.91 |
| 1:E:297:ILE:HB | 1:E:368:ILE:HD11 | 1.53 | 0.90 |
| 1:G:421:ASN:O | 1:G:424:VAL:HG23 | 1.71 | 0.90 |
| 2:F:325:ASN:HD21 | 2:F:327:VAL:HG23 | 1.32 | 0.90 |
| 2:B:412:LEU:HD12 | 2:B:440:PHE:HE2 | 1.31 | 0.90 |
| 2:H:412:LEU:HD23 | 2:H:438:LEU:HD21 | 1.53 | 0.90 |
| 1:A:163:ARG:NE | 1:A:518:ASN:HD21 | 1.68 | 0.89 |
| 1:C:517:ASN:HD22 | 1:C:518:ASN:H | 1.19 | 0.89 |
| 2:H:354:GLN:NE2 | 2:H:439:HIS:HB3 | 1.87 | 0.89 |
| 1:G:447:ASN:ND2 | 2:H:26:ARG:HE | 1.69 | 0.89 |
| 1:E:489:GLU:H | 2:F:19:HIS:HD2 | 1.21 | 0.89 |
| 2:H:58:GLY:H | 2:H:91:GLN:HG2 | 1.35 | 0.89 |
| 2:H:236:GLN:O | 2:H:240:GLU:HB3 | 1.71 | 0.88 |
| 1:C:229:THR:CG2 | 1:C:232:ARG:HB2 | 2.04 | 0.88 |
| 1:A:253:LYS:O | 1:A:260:GLU:N | 2.06 | 0.88 |
| 1:C:299:LYS:HA | 1:C:368:ILE:HG23 | 1.54 | 0.87 |
| 2:F:277:THR:HG23 | 2:F:280:LEU:H | 1.38 | 0.87 |
| 1:E:335:ASP:HB3 | 1:E:338:LYS:HB2 | 1.56 | 0.87 |
| 2:F:32:HIS:CD2 | 2:F:34:ASP:H | 1.92 | 0.87 |
| 3:K:123:VAL:HB | 3:K:152:ASP:HA | 1.53 | 0.87 |
| 1:E:61:ASP:HB3 | 1:E:86:ALA:HB2 | 1.57 | 0.86 |
| 2:B:342:ASN:HD22 | 2:B:342:ASN:H | 0.86 | 0.85 |
| 2:F:325:ASN:ND2 | 2:F:327:VAL:HG23 | 1.92 | 0.85 |
| 2:B:217:THR:HB | 2:B:223:ARG:HH21 | 1.41 | 0.85 |
| 2:F:419:ASP:HB2 | 2:F:438:LEU:CB | 2.07 | 0.85 |
| 2:D:412:LEU:O | 2:D:417:LEU:HB2 | 1.78 | 0.84 |
| 2:F:425:VAL:HB | 2:F:434:VAL:CG1 | 2.08 | 0.84 |
| 3:J:123:VAL:HB | 3:J:152:ASP:HA | 1.58 | 0.84 |
| 2:D:277:THR:HG23 | 2:D:280:LEU:H | 1.42 | 0.83 |
| 1:G:36:ILE:HB | 1:G:128:ALA:HA | 1.58 | 0.83 |
| 2:D:50:LYS:H | 2:D:139:HIS:HD2 | 1.24 | 0.83 |
| 2:F:318:LEU:O | 2:F:319:ASN:O | 1.96 | 0.83 |
| 3:K:107:THR:HG22 | 3:K:109:THR:H | 1.42 | 0.83 |
| 2:B:359:ALA:O | 2:B:412:LEU:HD23 | 1.78 | 0.83 |
| 2:D:380:ALA:HB1 | 2:D:394:LEU:HD12 | 1.60 | 0.83 |
| 2:F:74:GLN:HE22 | 2:F:119:ASN:HD22 | 1.26 | 0.83 |
| 1:C:66:SER:HB2 | 2:H:262:GLN:HE22 | 1.43 | 0.83 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:307:LEU:HB3 | 1:C:383:LEU:HD13 | 1.60 | 0.83 |
| 2:F:134:PHE:O | 2:F:137:GLN:HG2 | 1.78 | 0.83 |
| 2:B:362:GLN:HG2 | 2:B:408:LEU:HB3 | 1.58 | 0.83 |
| 1:C:204:MET:SD | 1:C:252:LEU:HD13 | 2.19 | 0.83 |
| 1:G:184:ARG:NH1 | 1:G:325:VAL:HG22 | 1.94 | 0.82 |
| 1:A:210:SER:HB2 | 1:A:262:GLU:HG3 | 1.60 | 0.82 |
| 1:E:489:GLU:H | 2:F:19:HIS:CD2 | 1.98 | 0.82 |
| 1:A:12:LYS:HE3 | 1:A:13:TYR:CE2 | 2.14 | 0.82 |
| 2:D:405:ARG:O | 2:D:408:LEU:HB2 | 1.78 | 0.82 |
| 2:D:410:LYS:HB2 | 2:D:415:LEU:HD23 | 1.59 | 0.82 |
| 1:A:527:GLN:NE2 | 2:B:302:VAL:HG13 | 1.95 | 0.82 |
| 1:C:446:SER:HB2 | 1:C:449:GLN:HG3 | 1.60 | 0.82 |
| 2:D:412:LEU:HD13 | 2:D:440:PHE:CE2 | 2.14 | 0.81 |
| 2:D:149:ILE:H | 2:D:149:ILE:CD1 | 1.86 | 0.81 |
| 2:D:320:ASN:HD22 | 2:D:336:GLU:HG3 | 1.45 | 0.81 |
| 1:G:489:GLU:H | 2:H:19:HIS:CD2 | 1.99 | 0.81 |
| 2:F:185:PHE:HB3 | 2:F:326:ASP:HB2 | 1.62 | 0.81 |
| 3:L:106:LYS:HG3 | 3:L:112:GLU:HB2 | 1.63 | 0.81 |
| 2:F:410:LYS:HD3 | 2:F:414:GLU:HG3 | 1.61 | 0.81 |
| 1:C:297:ILE:H | 1:C:297:ILE:HD13 | 1.44 | 0.80 |
| 1:G:214:TRP:HB2 | 1:G:268:ALA:HB2 | 1.62 | 0.80 |
| 1:G:215:ILE:H | 1:G:332:MET:HE1 | 1.46 | 0.80 |
| 2:B:394:LEU:HD11 | 2:B:396:SER:OG | 1.80 | 0.80 |
| 1:A:163:ARG:NH1 | 1:A:165:ILE:HG12 | 1.95 | 0.80 |
| 2:B:217:THR:HB | 2:B:223:ARG:NH2 | 1.96 | 0.80 |
| 1:C:261:ASP:O | 1:C:262:GLU:HG3 | 1.81 | 0.80 |
| 2:H:419:ASP:OD2 | 2:H:440:PHE:HB2 | 1.82 | 0.80 |
| 2:F:132:ASP:HA | 2:F:157:MET:HE2 | 1.62 | 0.79 |
| 1:G:450:VAL:O | 1:G:454:ILE:HG13 | 1.81 | 0.79 |
| 2:B:64:LEU:HB3 | 2:B:111:LEU:HD13 | 1.64 | 0.79 |
| 2:B:320:ASN:HB2 | 2:B:336:GLU:HA | 1.63 | 0.79 |
| 2:D:397:VAL:HG12 | 2:D:398:THR:H | 1.45 | 0.79 |
| 3:K:144:ILE:HD13 | 3:K:170:VAL:HB | 1.65 | 0.79 |
| 1:A:236:THR:HG22 | 1:A:238:LYS:H | 1.47 | 0.79 |
| 1:E:333:ILE:HA | 2:F:223:ARG:NH2 | 1.97 | 0.79 |
| 2:F:32:HIS:HD2 | 2:F:34:ASP:H | 1.25 | 0.79 |
| 2:H:392:LEU:HD23 | 2:H:392:LEU:H | 1.48 | 0.79 |
| 2:H:272:ASN:N | 2:H:272:ASN:ND2 | 2.26 | 0.79 |
| 1:G:307:LEU:HB3 | 1:G:383:LEU:CD2 | 2.12 | 0.79 |
| 2:H:203:THR:HB | 2:H:206:LEU:HD12 | 1.65 | 0.79 |
| 1:A:150:LEU:HD23 | 1:A:165:ILE:HD12 | 1.65 | 0.79 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:382:THR:HG22 | 2:B:391:THR:HA | 1.63 | 0.79 |
| 1:C:421:ASN:O | 1:C:423:ILE:N | 2.16 | 0.79 |
| 2:D:64:LEU:HB3 | 2:D:111:LEU:CD1 | 2.13 | 0.79 |
| 1:G:184:ARG:HH11 | 1:G:325:VAL:HG22 | 1.47 | 0.78 |
| 1:E:317:LYS:HB3 | 1:E:318:GLU:OE1 | 1.83 | 0.78 |
| 2:D:64:LEU:HB3 | 2:D:111:LEU:HD12 | 1.65 | 0.78 |
| 2:F:342:ASN:O | 2:F:351:GLN:NE2 | 2.17 | 0.78 |
| 3:J:107:THR:HG23 | 3:J:109:THR:H | 1.49 | 0.78 |
| 2:D:320:ASN:ND2 | 2:D:336:GLU:HG3 | 1.98 | 0.78 |
| 2:H:102:PRO:HG2 | 2:H:105:GLU:HB3 | 1.66 | 0.78 |
| 2:H:350:PRO:HB2 | 2:H:437:LYS:HG3 | 1.65 | 0.78 |
| 2:B:356:SER:CB | 2:B:442:SER:HB3 | 2.14 | 0.78 |
| 2:F:380:ALA:CB | 2:F:394:LEU:HD12 | 2.13 | 0.78 |
| 2:B:357:PRO:HD2 | 2:B:442:SER:O | 1.84 | 0.77 |
| 2:F:418:VAL:O | 2:F:418:VAL:HG13 | 1.83 | 0.77 |
| 1:G:229:THR:HG21 | 1:G:232:ARG:NH2 | 1.97 | 0.77 |
| 2:F:405:ARG:O | 2:F:408:LEU:HB2 | 1.85 | 0.77 |
| 1:G:210:SER:HB3 | 1:G:262:GLU:OE2 | 1.83 | 0.77 |
| 2:D:249:LEU:HD11 | 2:D:260:ILE:HD11 | 1.67 | 0.77 |
| 2:D:357:PRO:HA | 2:D:412:LEU:CD1 | 2.11 | 0.77 |
| 2:H:362:GLN:HA | 2:H:408:LEU:HD22 | 1.65 | 0.77 |
| 2:D:397:VAL:HG12 | 2:D:398:THR:N | 2.00 | 0.77 |
| 2:D:322:LEU:HD12 | 2:D:323:VAL:N | 2.00 | 0.76 |
| 1:E:38:ALA:O | 1:E:85:ARG:HD3 | 1.85 | 0.76 |
| 2:F:357:PRO:HG3 | 2:F:412:LEU:HD12 | 1.66 | 0.76 |
| 3:I:107:THR:HG22 | 3:I:109:THR:H | 1.48 | 0.76 |
| 2:D:232:VAL:HG11 | 2:D:263:LYS:HB2 | 1.68 | 0.76 |
| 1:E:163:ARG:NH1 | 1:E:518:ASN:HD21 | 1.83 | 0.76 |
| 1:G:234:PRO:HA | 1:G:239:GLU:HG2 | 1.66 | 0.76 |
| 1:A:168:GLU:HG3 | 1:A:394:ARG:HE | 1.50 | 0.76 |
| 1:G:211:HIS:O | 1:G:338:LYS:HD2 | 1.85 | 0.76 |
| 1:E:264:ASN:ND2 | 1:E:265:PHE:H | 1.83 | 0.76 |
| 2:F:340:LYS:HB3 | 2:F:342:ASN:HD21 | 1.50 | 0.76 |
| 1:G:332:MET:HG2 | 1:G:339:TYR:HE1 | 1.51 | 0.76 |
| 1:G:397:SER:OG | 1:G:400:GLU:HG3 | 1.85 | 0.76 |
| 2:D:405:ARG:HB3 | 2:D:405:ARG:HH11 | 1.49 | 0.75 |
| 1:G:61:ASP:HB3 | 1:G:86:ALA:HB2 | 1.67 | 0.75 |
| 2:B:353:ILE:O | 2:B:439:HIS:HB2 | 1.86 | 0.75 |
| 2:D:229:ILE:HD13 | 2:D:281:THR:HA | 1.66 | 0.75 |
| 2:D:241:GLN:HG3 | 2:D:245:GLU:HA | 1.65 | 0.75 |
| 2:D:411:THR:O | 2:D:415:LEU:HG | 1.87 | 0.75 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:347:ARG:HH22 | 2:F:274:ARG:NH1 | 1.83 | 0.75 |
| 1:G:266:GLU:HA | 1:G:269:ILE:HD12 | 1.68 | 0.75 |
| 2:F:62:GLU:HG2 | 2:F:297:ALA:HA | 1.69 | 0.75 |
| 2:B:64:LEU:HD21 | 2:B:77:VAL:CG2 | 2.17 | 0.75 |
| 2:F:201:GLU:HG3 | 2:F:345:ALA:HB2 | 1.69 | 0.75 |
| 2:D:149:ILE:HD12 | 2:D:149:ILE:N | 1.95 | 0.75 |
| 1:A:452:GLU:HG2 | 1:A:456:LYS:HE3 | 1.68 | 0.74 |
| 1:A:266:GLU:O | 1:A:270:LYS:HG3 | 1.87 | 0.74 |
| 3:L:107:THR:HG22 | 3:L:111:LYS:H | 1.52 | 0.74 |
| 2:F:342:ASN:HD22 | 2:F:342:ASN:H | 1.34 | 0.74 |
| 1:A:94:GLN:HE22 | 1:A:102:GLY:H | 1.31 | 0.74 |
| 2:D:398:THR:HA | 2:D:401:GLU:HB3 | 1.70 | 0.74 |
| 1:E:253:LYS:O | 1:E:260:GLU:HB3 | 1.88 | 0.74 |
| 1:G:218:ILE:O | 1:G:222:LEU:HB2 | 1.88 | 0.74 |
| 1:G:307:LEU:HD13 | 1:G:383:LEU:HD22 | 1.70 | 0.74 |
| 2:H:373:SER:C | 2:H:374:LEU:HG | 2.08 | 0.74 |
| 2:D:257:ILE:HG21 | 2:D:282:GLN:NE2 | 2.02 | 0.73 |
| 1:G:299:LYS:HE2 | 1:G:368:ILE:O | 1.88 | 0.73 |
| 1:G:263:GLU:O | 1:G:266:GLU:N | 2.20 | 0.73 |
| 3:L:107:THR:HG22 | 3:L:111:LYS:N | 2.03 | 0.73 |
| 2:D:412:LEU:HB3 | 2:D:440:PHE:CZ | 2.23 | 0.73 |
| 2:H:412:LEU:HD22 | 2:H:440:PHE:CE2 | 2.23 | 0.73 |
| 2:B:272:ASN:N | 2:B:272:ASN:ND2 | 2.37 | 0.73 |
| 2:D:185:PHE:HB3 | 2:D:326:ASP:HB2 | 1.71 | 0.73 |
| 2:B:74:GLN:HE22 | 2:B:119:ASN:HD22 | 1.35 | 0.73 |
| 1:C:189:PHE:CE1 | 1:C:192:LEU:HB2 | 2.24 | 0.73 |
| 1:E:297:ILE:HB | 1:E:368:ILE:CD1 | 2.19 | 0.73 |
| 1:E:447:ASN:HD22 | 2:F:26:ARG:HH21 | 1.34 | 0.73 |
| 2:B:427:ASP:HB3 | 2:B:429:THR:HG22 | 1.70 | 0.73 |
| 2:D:50:LYS:H | 2:D:139:HIS:CD2 | 2.07 | 0.72 |
| 2:D:322:LEU:HD12 | 2:D:322:LEU:C | 2.09 | 0.72 |
| 2:D:335:PHE:HE2 | 3:J:170:VAL:HG21 | 1.52 | 0.72 |
| 2:D:327:VAL:HG23 | 2:D:328:ASP:H | 1.54 | 0.72 |
| 1:E:214:TRP:HB2 | 1:E:268:ALA:HB2 | 1.72 | 0.72 |
| 2:H:322:LEU:HD12 | 2:H:323:VAL:N | 2.04 | 0.72 |
| 1:C:507:LYS:HG2 | 1:C:513:PHE:HB2 | 1.70 | 0.72 |
| 1:G:251:ILE:HG23 | 1:G:262:GLU:HB2 | 1.70 | 0.72 |
| 2:H:223:ARG:O | 2:H:273:ILE:HD13 | 1.90 | 0.72 |
| 2:F:318:LEU:HD12 | 2:F:319:ASN:N | 2.05 | 0.72 |
| 1:G:49:LEU:O | 1:G:52:PRO:HD2 | 1.89 | 0.72 |
| 2:H:380:ALA:HB2 | 2:H:394:LEU:HD12 | 1.72 | 0.72 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:320:ASN:ND2 | 2:B:336:GLU:HG3 | 2.05 | 0.72 |
| 2:B:419:ASP:OD2 | 2:B:440:PHE:HB2 | 1.88 | 0.72 |
| 1:E:236:THR:HG22 | 1:E:237:TYR:N | 2.04 | 0.72 |
| 2:H:123:HIS:HB3 | 2:H:125:ASN:HD22 | 1.55 | 0.72 |
| 1:G:226:TYR:CZ | 1:G:233:ILE:HG22 | 2.25 | 0.71 |
| 1:A:489:GLU:H | 2:B:19:HIS:CD2 | 2.07 | 0.71 |
| 1:C:163:ARG:NH1 | 1:C:165:ILE:HG12 | 2.04 | 0.71 |
| 2:D:46:LEU:O | 2:D:73:ARG:HB2 | 1.91 | 0.71 |
| 1:E:43:THR:HG21 | 1:E:73:ASN:OD1 | 1.91 | 0.71 |
| 2:F:350:PRO:HG3 | 2:F:435:LEU:HB2 | 1.72 | 0.71 |
| 1:A:78:ARG:O | 1:A:81:ILE:HG13 | 1.91 | 0.71 |
| 2:H:321:TYR:HE2 | 2:H:323:VAL:HG22 | 1.56 | 0.71 |
| 1:E:61:ASP:OD2 | 1:E:85:ARG:HD2 | 1.91 | 0.71 |
| 2:H:322:LEU:HD12 | 2:H:322:LEU:C | 2.11 | 0.71 |
| 1:E:236:THR:HG22 | 1:E:238:LYS:H | 1.54 | 0.71 |
| 1:E:248:ARG:O | 1:E:251:ILE:HG13 | 1.91 | 0.71 |
| 2:F:64:LEU:HD11 | 2:F:77:VAL:HG21 | 1.73 | 0.71 |
| 2:D:386:GLU:C | 2:D:388:LYS:H | 1.95 | 0.70 |
| 1:E:418:ASN:HD22 | 1:E:419:PRO:HD2 | 1.56 | 0.70 |
| 1:E:426:TYR:HB2 | 1:E:521:ILE:CD1 | 2.21 | 0.70 |
| 2:F:362:GLN:HE21 | 2:F:408:LEU:CD2 | 2.03 | 0.70 |
| 1:G:262:GLU:OE1 | 1:G:262:GLU:HA | 1.90 | 0.70 |
| 1:G:187:LYS:HD2 | 1:G:279:THR:HG21 | 1.73 | 0.70 |
| 2:B:62:GLU:HG2 | 2:B:300:ALA:HB3 | 1.74 | 0.70 |
| 2:B:316:ILE:H | 2:B:316:ILE:CD1 | 2.00 | 0.70 |
| 2:H:380:ALA:CB | 2:H:394:LEU:HD12 | 2.20 | 0.70 |
| 1:G:309:ARG:HG3 | 1:G:364:LEU:HD21 | 1.73 | 0.70 |
| 2:H:405:ARG:HB3 | 2:H:405:ARG:HH11 | 1.56 | 0.70 |
| 2:H:132:ASP:HB3 | 2:H:157:MET:HE1 | 1.74 | 0.70 |
| 1:A:489:GLU:H | 2:B:19:HIS:HD2 | 1.37 | 0.70 |
| 1:G:7:LEU:O | 1:G:7:LEU:HD23 | 1.91 | 0.70 |
| 2:H:325:ASN:HD22 | 2:H:326:ASP:H | 1.40 | 0.70 |
| 2:B:325:ASN:HD21 | 2:B:327:VAL:HG13 | 1.56 | 0.70 |
| 2:B:355:PHE:O | 2:B:440:PHE:HD2 | 1.75 | 0.70 |
| 2:D:380:ALA:HB2 | 2:D:394:LEU:HD12 | 1.71 | 0.70 |
| 1:G:407:ILE:HG23 | 1:G:409:LYS:HG3 | 1.72 | 0.70 |
| 3:L:153:GLU:HA | 3:L:153:GLU:OE2 | 1.92 | 0.70 |
| 2:D:277:THR:HG22 | 2:D:280:LEU:HB2 | 1.73 | 0.70 |
| 1:E:229:THR:CG2 | 1:E:232:ARG:HB2 | 2.22 | 0.69 |
| 1:E:265:PHE:O | 1:E:269:ILE:HG13 | 1.92 | 0.69 |
| 1:G:6:LYS:N | 1:G:6:LYS:HD2 | 2.07 | 0.69 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:376:MET:HB3 | 2:H:427:ASP:OD2 | 1.91 | 0.69 |
| 2:B:430:THR:HG22 | 2:B:432:GLN:H | 1.57 | 0.69 |
| 2:F:361:LEU:HD22 | 2:F:408:LEU:HD23 | 1.73 | 0.69 |
| 2:D:411:THR:H | 2:D:414:GLU:HB3 | 1.57 | 0.69 |
| 2:F:398:THR:O | 2:F:401:GLU:HG3 | 1.91 | 0.69 |
| 1:G:307:LEU:HB3 | 1:G:383:LEU:HD22 | 1.72 | 0.69 |
| 2:F:74:GLN:NE2 | 2:F:74:GLN:HA | 2.07 | 0.69 |
| 2:F:357:PRO:HA | 2:F:412:LEU:HD12 | 1.73 | 0.69 |
| 2:H:233:ARG:HG2 | 2:H:233:ARG:HH11 | 1.56 | 0.69 |
| 2:H:343:CYS:H | 2:H:347:SER:HB3 | 1.57 | 0.69 |
| 2:H:412:LEU:HB2 | 2:H:440:PHE:HZ | 1.57 | 0.69 |
| 2:B:412:LEU:CD1 | 2:B:440:PHE:HE2 | 2.05 | 0.69 |
| 1:A:163:ARG:NE | 1:A:518:ASN:ND2 | 2.41 | 0.69 |
| 1:E:252:LEU:HD12 | 1:E:252:LEU:O | 1.93 | 0.69 |
| 1:C:426:TYR:HB2 | 1:C:521:ILE:HD11 | 1.75 | 0.69 |
| 1:E:418:ASN:HD22 | 1:E:419:PRO:CD | 2.06 | 0.69 |
| 1:G:297:ILE:CG2 | 1:G:368:ILE:HD11 | 2.22 | 0.69 |
| 2:H:381:ILE:H | 2:H:381:ILE:HD12 | 1.58 | 0.69 |
| 1:E:447:ASN:ND2 | 2:F:26:ARG:HE | 1.90 | 0.69 |
| 2:H:207:TYR:CE1 | 3:L:172:ARG:HD3 | 2.28 | 0.69 |
| 3:L:155:THR:HG23 | 3:L:158:ASP:H | 1.58 | 0.69 |
| 2:B:185:PHE:HB3 | 2:B:326:ASP:OD2 | 1.93 | 0.69 |
| 1:C:224:GLN:NE2 | 1:C:246:LEU:HD11 | 2.06 | 0.69 |
| 2:H:352:ASN:HB3 | 2:H:439:HIS:HD2 | 1.56 | 0.69 |
| 1:E:36:ILE:O | 1:E:60:ILE:O | 2.10 | 0.68 |
| 1:G:404:LEU:HD21 | 1:G:467:GLU:HG2 | 1.75 | 0.68 |
| 2:H:178:ILE:HD11 | 2:H:310:ILE:HD12 | 1.74 | 0.68 |
| 2:B:403:ARG:HG3 | 2:B:403:ARG:HH11 | 1.58 | 0.68 |
| 1:C:51:LEU:HD11 | 2:D:92:PHE:HB3 | 1.76 | 0.68 |
| 2:B:13:TRP:CZ3 | 2:B:116:PRO:HG2 | 2.28 | 0.68 |
| 1:C:119:PHE:O | 1:C:122:ARG:HG2 | 1.93 | 0.68 |
| 2:D:357:PRO:HD2 | 2:D:442:SER:CB | 2.24 | 0.68 |
| 2:F:242:PRO:HG3 | 2:F:259:TRP:CZ2 | 2.28 | 0.68 |
| 1:C:128:ALA:HB1 | 1:C:131:LEU:HD11 | 1.75 | 0.68 |
| 2:F:342:ASN:HD22 | 2:F:342:ASN:N | 1.87 | 0.68 |
| 2:H:58:GLY:N | 2:H:91:GLN:HG2 | 2.08 | 0.68 |
| 1:E:34:CYS:HB2 | 1:E:123:PHE:CD2 | 2.29 | 0.68 |
| 1:G:309:ARG:CG | 1:G:364:LEU:HD21 | 2.23 | 0.68 |
| 2:H:84:ASP:H | 2:H:87:ASN:ND2 | 1.91 | 0.68 |
| 1:E:236:THR:O | 1:E:240:LYS:HG3 | 1.94 | 0.68 |
| 2:F:411:THR:H | 2:F:414:GLU:HB3 | 1.56 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:344:PRO:CG | 2:H:374:LEU:HD22 | 2.20 | 0.68 |
| 1:C:158:LEU:HA | 1:C:493:ILE:HG13 | 1.76 | 0.67 |
| 1:C:309:ARG:HD2 | 1:C:313:GLU:OE2 | 1.93 | 0.67 |
| 2:D:357:PRO:HD2 | 2:D:442:SER:HB2 | 1.75 | 0.67 |
| 1:E:340:ILE:HD11 | 2:F:273:ILE:CG1 | 2.23 | 0.67 |
| 1:A:12:LYS:HE3 | 1:A:13:TYR:CZ | 2.29 | 0.67 |
| 1:E:51:LEU:HD11 | 2:F:92:PHE:HB3 | 1.75 | 0.67 |
| 2:F:154:ILE:O | 2:F:158:LEU:HD23 | 1.94 | 0.67 |
| 2:H:162:LEU:HA | 2:H:173:SER:OG | 1.93 | 0.67 |
| 2:H:381:ILE:HD12 | 2:H:381:ILE:N | 2.07 | 0.67 |
| 1:E:376:SER:OG | 1:E:379:GLU:HG3 | 1.95 | 0.67 |
| 1:E:447:ASN:ND2 | 2:F:26:ARG:HH21 | 1.91 | 0.67 |
| 2:H:325:ASN:HD22 | 2:H:326:ASP:N | 1.92 | 0.67 |
| 2:D:241:GLN:HE21 | 2:D:246:GLY:H | 1.41 | 0.67 |
| 2:F:362:GLN:HE21 | 2:F:408:LEU:HD22 | 1.60 | 0.67 |
| 2:H:412:LEU:HD22 | 2:H:440:PHE:HE2 | 1.59 | 0.67 |
| 1:A:61:ASP:OD2 | 1:A:85:ARG:HD2 | 1.94 | 0.67 |
| 1:C:277:ASN:C | 1:C:277:ASN:ND2 | 2.46 | 0.67 |
| 2:B:356:SER:HB2 | 2:B:442:SER:HB3 | 1.76 | 0.67 |
| 1:C:177:ASP:OD1 | 2:D:327:VAL:HG11 | 1.95 | 0.67 |
| 2:F:237:TRP:HB3 | 2:F:238:PRO:HD3 | 1.77 | 0.67 |
| 1:E:218:ILE:O | 1:E:222:LEU:HB2 | 1.95 | 0.67 |
| 1:E:253:LYS:O | 1:E:259:PRO:C | 2.33 | 0.67 |
| 2:F:342:ASN:H | 2:F:342:ASN:ND2 | 1.91 | 0.67 |
| 2:H:357:PRO:HA | 2:H:440:PHE:CE2 | 2.30 | 0.67 |
| 2:H:405:ARG:HB3 | 2:H:405:ARG:NH1 | 2.10 | 0.67 |
| 2:B:214:PRO:HG2 | 2:B:217:THR:HG23 | 1.76 | 0.67 |
| 1:E:426:TYR:HB2 | 1:E:521:ILE:HD11 | 1.77 | 0.67 |
| 1:G:267:GLU:O | 1:G:270:LYS:HG2 | 1.95 | 0.67 |
| 2:H:349:LEU:HB3 | 2:H:350:PRO:HD2 | 1.76 | 0.67 |
| 2:D:236:GLN:HE22 | 2:D:263:LYS:HD2 | 1.61 | 0.66 |
| 1:G:35:LEU:HD22 | 1:G:46:LEU:HD22 | 1.75 | 0.66 |
| 1:A:299:LYS:HG2 | 1:A:368:ILE:O | 1.95 | 0.66 |
| 2:B:50:LYS:H | 2:B:139:HIS:HD2 | 1.41 | 0.66 |
| 1:E:340:ILE:HD11 | 2:F:273:ILE:HG12 | 1.75 | 0.66 |
| 1:G:447:ASN:HD21 | 2:H:26:ARG:HE | 1.43 | 0.66 |
| 1:A:428:MET:HE1 | 1:A:479:VAL:HA | 1.76 | 0.66 |
| 1:C:317:LYS:HB3 | 1:C:318:GLU:OE1 | 1.94 | 0.66 |
| 1:E:253:LYS:O | 1:E:260:GLU:CB | 2.43 | 0.66 |
| 1:E:307:LEU:HB3 | 1:E:383:LEU:HD22 | 1.77 | 0.66 |
| 1:A:77:GLN:HG3 | 1:A:92:PHE:CZ | 2.30 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:F:362:GLN:CG | 2:F:408:LEU:HD22 | 2.19 | 0.66 |
| 3:L:123:VAL:HB | 3:L:152:ASP:HA | 1.76 | 0.66 |
| 2:B:207:TYR:CE2 | 3:I:172:ARG:HG2 | 2.31 | 0.66 |
| 2:D:362:GLN:HG2 | 2:D:408:LEU:HD22 | 1.78 | 0.66 |
| 1:E:489:GLU:N | 2:F:19:HIS:HD2 | 1.94 | 0.66 |
| 2:F:380:ALA:HB2 | 2:F:394:LEU:HD12 | 1.78 | 0.66 |
| 1:G:210:SER:HA | 1:G:264:ASN:OD1 | 1.96 | 0.66 |
| 1:C:113:LEU:O | 1:C:117:PRO:HG3 | 1.95 | 0.66 |
| 2:B:64:LEU:HB3 | 2:B:111:LEU:CD1 | 2.26 | 0.66 |
| 2:B:157:MET:O | 2:B:160:SER:HB3 | 1.96 | 0.66 |
| 2:D:207:TYR:CE2 | 3:J:172:ARG:HG2 | 2.31 | 0.66 |
| 3:J:125:ARG:HD3 | 3:J:129:ARG:HH21 | 1.61 | 0.66 |
| 2:H:377:LYS:HG2 | 2:H:428:VAL:CG2 | 2.26 | 0.66 |
| 2:B:28:GLY:O | 2:B:31:THR:HG22 | 1.96 | 0.66 |
| 2:F:361:LEU:HD22 | 2:F:408:LEU:CD2 | 2.26 | 0.66 |
| 1:A:45:ILE:HG13 | 1:A:498:GLY:HA2 | 1.78 | 0.66 |
| 2:H:118:CYS:SG | 2:H:120:VAL:HG23 | 2.35 | 0.66 |
| 2:H:412:LEU:HB2 | 2:H:440:PHE:CZ | 2.31 | 0.66 |
| 2:B:38:SER:HB3 | 2:B:41:SER:OG | 1.96 | 0.65 |
| 1:C:236:THR:HG22 | 1:C:238:LYS:H | 1.61 | 0.65 |
| 2:D:425:VAL:HB | 2:D:434:VAL:HG13 | 1.78 | 0.65 |
| 1:E:452:GLU:HG2 | 1:E:456:LYS:HE3 | 1.77 | 0.65 |
| 1:C:133:GLU:HG3 | 1:C:433:ASP:HB3 | 1.77 | 0.65 |
| 2:F:340:LYS:HB3 | 2:F:342:ASN:ND2 | 2.12 | 0.65 |
| 2:H:380:ALA:HB1 | 2:H:394:LEU:CD1 | 2.26 | 0.65 |
| 2:H:343:CYS:SG | 2:H:344:PRO:HD2 | 2.36 | 0.65 |
| 3:L:107:THR:HA | 3:L:169:LEU:HD12 | 1.79 | 0.65 |
| 2:B:417:LEU:HD12 | 2:B:421:GLN:NE2 | 2.12 | 0.65 |
| 2:B:153:TRP:CE2 | 2:B:431:PRO:HG3 | 2.31 | 0.65 |
| 2:D:241:GLN:HE21 | 2:D:246:GLY:N | 1.95 | 0.65 |
| 2:F:419:ASP:HA | 2:F:421:GLN:HG2 | 1.77 | 0.65 |
| 1:A:250:GLY:O | 1:A:252:LEU:N | 2.30 | 0.65 |
| 2:B:213:PHE:CB | 2:B:218:ILE:HD11 | 2.27 | 0.65 |
| 3:I:103:ILE:HD11 | 3:I:117:ILE:HD12 | 1.78 | 0.65 |
| 3:L:141:GLN:O | 3:L:142:ARG:HD3 | 1.96 | 0.65 |
| 1:A:282:PRO:HB2 | 1:A:285:ILE:HD13 | 1.79 | 0.64 |
| 1:A:317:LYS:HB3 | 1:A:318:GLU:OE1 | 1.97 | 0.64 |
| 1:E:336:SER:HB2 | 2:F:221:MET:HA | 1.77 | 0.64 |
| 2:F:131:ASN:HD22 | 2:H:131:ASN:HB3 | 1.61 | 0.64 |
| 2:D:414:GLU:HG2 | 2:D:414:GLU:O | 1.98 | 0.64 |
| 2:F:357:PRO:CA | 2:F:412:LEU:HD12 | 2.26 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:208:PRO:HG3 | 3:L:171:LEU:HD11 | 1.79 | 0.64 |
| 2:B:353:ILE:HD11 | 2:B:367:TYR:HE2 | 1.62 | 0.64 |
| 1:A:397:SER:OG | 1:A:400:GLU:HG3 | 1.98 | 0.64 |
| 2:F:357:PRO:CG | 2:F:412:LEU:HD12 | 2.27 | 0.64 |
| 1:A:336:SER:O | 1:A:340:ILE:HG12 | 1.97 | 0.64 |
| 2:B:214:PRO:HG2 | 2:B:217:THR:CG2 | 2.27 | 0.64 |
| 2:B:377:LYS:HE2 | 2:B:377:LYS:O | 1.98 | 0.64 |
| 3:I:117:ILE:HD11 | 3:I:126:ILE:HG23 | 1.80 | 0.64 |
| 2:D:357:PRO:HD2 | 2:D:442:SER:OG | 1.98 | 0.64 |
| 2:F:380:ALA:CB | 2:F:394:LEU:CD1 | 2.76 | 0.64 |
| 1:G:49:LEU:C | 1:G:52:PRO:HD2 | 2.17 | 0.64 |
| 2:H:62:GLU:HG2 | 2:H:297:ALA:HA | 1.80 | 0.64 |
| 2:H:397:VAL:HG12 | 2:H:399:SER:H | 1.63 | 0.64 |
| 2:F:322:LEU:HD13 | 2:F:323:VAL:N | 2.12 | 0.64 |
| 2:F:402:GLU:O | 2:F:406:PRO:HD3 | 1.98 | 0.64 |
| 1:G:211:HIS:HB3 | 1:G:335:ASP:HB2 | 1.80 | 0.64 |
| 1:A:108:SER:HB3 | 1:A:111:ASN:HB2 | 1.80 | 0.64 |
| 2:B:353:ILE:HG23 | 2:B:355:PHE:HD1 | 1.62 | 0.64 |
| 2:B:361:LEU:HB3 | 2:B:408:LEU:HA | 1.78 | 0.64 |
| 2:B:398:THR:HA | 2:B:401:GLU:HB3 | 1.80 | 0.64 |
| 2:D:233:ARG:NH1 | 2:D:234:MET:HB2 | 2.13 | 0.64 |
| 1:E:56:SER:HB3 | 1:E:101:SER:HB2 | 1.80 | 0.64 |
| 2:H:318:LEU:HD12 | 2:H:319:ASN:N | 2.13 | 0.64 |
| 2:H:398:THR:HA | 2:H:401:GLU:HB3 | 1.80 | 0.64 |
| 1:A:58:THR:HA | 1:A:103:SER:O | 1.98 | 0.63 |
| 2:F:54:ILE:HG22 | 2:F:145:LEU:HD21 | 1.80 | 0.63 |
| 2:F:376:MET:HB3 | 2:F:427:ASP:OD1 | 1.98 | 0.63 |
| 2:F:405:ARG:HB3 | 2:F:406:PRO:HD3 | 1.78 | 0.63 |
| 2:H:361:LEU:O | 2:H:364:VAL:HG23 | 1.97 | 0.63 |
| 2:H:412:LEU:HD12 | 2:H:412:LEU:N | 2.13 | 0.63 |
| 1:A:173:GLU:O | 1:A:512:GLN:O | 2.15 | 0.63 |
| 2:B:233:ARG:HH12 | 2:B:234:MET:HB2 | 1.63 | 0.63 |
| 1:G:265:PHE:O | 1:G:269:ILE:HG13 | 1.98 | 0.63 |
| 2:H:373:SER:O | 2:H:374:LEU:HD23 | 1.98 | 0.63 |
| 2:B:419:ASP:HB2 | 2:B:440:PHE:CD1 | 2.33 | 0.63 |
| 3:J:117:ILE:HD11 | 3:J:126:ILE:HG23 | 1.80 | 0.63 |
| 2:H:361:LEU:C | 2:H:363:GLU:H | 2.00 | 0.63 |
| 2:B:400:ILE:H | 2:B:400:ILE:CD1 | 2.11 | 0.63 |
| 2:H:128:GLN:NE2 | 2:H:128:GLN:H | 1.97 | 0.63 |
| 3:L:155:THR:HG22 | 3:L:158:ASP:OD2 | 1.98 | 0.63 |
| 1:E:454:ILE:HD13 | 1:E:480:HIS:ND1 | 2.14 | 0.63 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:178:ILE:HD12 | 2:H:307:VAL:HG22 | 1.79 | 0.63 |
| 1:E:332:MET:O | 2:F:223:ARG:CZ | 2.47 | 0.63 |
| 2:H:267:ARG:HH11 | 2:H:267:ARG:HG3 | 1.64 | 0.63 |
| 2:B:380:ALA:HB1 | 2:B:394:LEU:HD13 | 1.81 | 0.63 |
| 2:F:382:THR:HG22 | 2:F:391:THR:HG23 | 1.81 | 0.63 |
| 1:G:263:GLU:O | 1:G:265:PHE:N | 2.32 | 0.63 |
| 2:H:380:ALA:CB | 2:H:394:LEU:CD1 | 2.77 | 0.63 |
| 2:B:233:ARG:HG3 | 2:B:249:LEU:HD21 | 1.81 | 0.63 |
| 2:D:385:LEU:HD12 | 2:D:390:ARG:HB3 | 1.79 | 0.63 |
| 1:E:173:GLU:O | 1:E:512:GLN:O | 2.17 | 0.63 |
| 1:E:236:THR:HG22 | 1:E:237:TYR:H | 1.62 | 0.63 |
| 1:G:210:SER:HA | 1:G:264:ASN:CG | 2.19 | 0.63 |
| 2:B:380:ALA:CB | 2:B:394:LEU:HD13 | 2.28 | 0.62 |
| 1:C:177:ASP:OD2 | 2:D:186:LYS:NZ | 2.31 | 0.62 |
| 1:E:229:THR:HG22 | 1:E:232:ARG:HB2 | 1.80 | 0.62 |
| 1:G:229:THR:HG22 | 1:G:229:THR:O | 1.99 | 0.62 |
| 3:I:104:LYS:O | 3:I:166:VAL:HA | 1.98 | 0.62 |
| 2:H:249:LEU:HD11 | 2:H:260:ILE:HD11 | 1.81 | 0.62 |
| 2:B:257:ILE:HD13 | 2:B:282:GLN:HG2 | 1.82 | 0.62 |
| 2:B:320:ASN:HB2 | 2:B:337:ALA:H | 1.64 | 0.62 |
| 2:D:327:VAL:HG23 | 2:D:328:ASP:N | 2.15 | 0.62 |
| 1:G:317:LYS:HG2 | 1:G:318:GLU:N | 2.15 | 0.62 |
| 2:H:200:ILE:HD13 | 3:L:172:ARG:NH2 | 2.15 | 0.62 |
| 2:F:393:TYR:HD1 | 2:F:404:THR:OG1 | 1.81 | 0.62 |
| 2:B:217:THR:CB | 2:B:223:ARG:NH2 | 2.63 | 0.62 |
| 2:D:56:ALA:HA | 2:D:60:GLY:HA3 | 1.82 | 0.62 |
| 3:K:107:THR:HG22 | 3:K:109:THR:N | 2.13 | 0.62 |
| 1:G:347:ARG:HH22 | 2:H:274:ARG:HD2 | 1.64 | 0.62 |
| 1:A:66:SER:OG | 1:A:67:GLY:N | 2.31 | 0.62 |
| 2:F:123:HIS:HB3 | 2:F:125:ASN:HD22 | 1.63 | 0.62 |
| 2:F:417:LEU:HA | 2:F:421:GLN:HE22 | 1.65 | 0.62 |
| 2:B:321:TYR:HE2 | 2:B:323:VAL:HG13 | 1.65 | 0.62 |
| 3:I:103:ILE:CD1 | 3:I:117:ILE:HD12 | 2.30 | 0.62 |
| 1:G:158:LEU:HD13 | 1:G:493:ILE:HD11 | 1.82 | 0.62 |
| 2:H:233:ARG:HG2 | 2:H:233:ARG:NH1 | 2.13 | 0.62 |
| 1:E:447:ASN:HD22 | 2:F:26:ARG:NH2 | 1.97 | 0.62 |
| 2:B:343:CYS:O | 2:B:347:SER:HB3 | 1.99 | 0.62 |
| 2:D:356:SER:HB2 | 2:D:442:SER:OG | 1.99 | 0.62 |
| 1:G:360:HIS:O | 1:G:364:LEU:HB2 | 2.00 | 0.62 |
| 2:H:267:ARG:HA | 2:H:270:GLN:HE21 | 1.64 | 0.62 |
| 2:B:365:LEU:HD22 | 2:B:408:LEU:HD21 | 1.82 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:D:389:ASN:OD1 | 2:D:389:ASN:N | 2.34 | 0.61 |
| 1:E:61:ASP:CB | 1:E:86:ALA:HB2 | 2.29 | 0.61 |
| 1:G:293:ARG:HG2 | 1:G:293:ARG:HH11 | 1.65 | 0.61 |
| 1:C:204:MET:SD | 1:C:252:LEU:CD1 | 2.87 | 0.61 |
| 1:E:12:LYS:O | 2:F:89:ASN:HB3 | 2.00 | 0.61 |
| 2:F:410:LYS:HD2 | 2:F:415:LEU:HG | 1.82 | 0.61 |
| 1:A:418:ASN:ND2 | 1:A:420:ASP:H | 1.98 | 0.61 |
| 1:G:87:GLU:O | 1:G:91:GLU:HG3 | 1.99 | 0.61 |
| 1:A:40:ALA:O | 1:A:43:THR:HG22 | 2.00 | 0.61 |
| 2:D:430:THR:OG1 | 2:D:432:GLN:HG2 | 1.99 | 0.61 |
| 2:H:380:ALA:HB1 | 2:H:394:LEU:HD13 | 1.83 | 0.61 |
| 1:A:297:ILE:HD12 | 1:A:297:ILE:N | 2.15 | 0.61 |
| 1:A:163:ARG:HH11 | 1:A:165:ILE:HG12 | 1.66 | 0.61 |
| 1:A:264:ASN:HD22 | 1:A:265:PHE:H | 1.47 | 0.61 |
| 2:B:84:ASP:H | 2:B:87:ASN:ND2 | 1.99 | 0.61 |
| 2:B:425:VAL:HG23 | 2:B:434:VAL:O | 1.99 | 0.61 |
| 1:C:60:ILE:HD11 | 1:C:119:PHE:HE2 | 1.64 | 0.61 |
| 1:G:35:LEU:CD2 | 1:G:46:LEU:HD22 | 2.30 | 0.61 |
| 1:A:207:LYS:O | 1:A:211:HIS:HB2 | 2.00 | 0.61 |
| 2:B:342:ASN:N | 2:B:342:ASN:ND2 | 2.32 | 0.61 |
| 2:B:357:PRO:HA | 2:B:440:PHE:CE2 | 2.36 | 0.61 |
| 2:F:201:GLU:HG3 | 2:F:345:ALA:CB | 2.30 | 0.61 |
| 2:H:32:HIS:CD2 | 2:H:34:ASP:H | 2.17 | 0.61 |
| 2:H:373:SER:O | 2:H:374:LEU:CD2 | 2.49 | 0.61 |
| 3:L:170:VAL:HG13 | 3:L:171:LEU:N | 2.16 | 0.61 |
| 1:A:307:LEU:HD22 | 1:A:383:LEU:HD22 | 1.81 | 0.61 |
| 2:D:312:THR:O | 2:D:313:SER:HB2 | 2.01 | 0.61 |
| 2:D:407:ASN:OD1 | 2:D:415:LEU:HD22 | 2.01 | 0.61 |
| 2:F:74:GLN:HA | 2:F:74:GLN:HE21 | 1.64 | 0.61 |
| 1:G:349:LYS:HE3 | 1:G:353:ASP:OD1 | 2.00 | 0.61 |
| 2:B:233:ARG:NH1 | 2:B:234:MET:HB2 | 2.16 | 0.60 |
| 1:C:12:LYS:HE3 | 1:C:13:TYR:CZ | 2.36 | 0.60 |
| 2:F:225:PRO:O | 2:F:229:ILE:HG13 | 2.01 | 0.60 |
| 2:H:361:LEU:C | 2:H:363:GLU:N | 2.53 | 0.60 |
| 1:A:159:VAL:HG22 | 1:A:425:LEU:HD13 | 1.83 | 0.60 |
| 1:A:166:ILE:HD11 | 1:A:508:ILE:HD13 | 1.83 | 0.60 |
| 1:A:371:ALA:C | 1:A:373:GLU:H | 2.03 | 0.60 |
| 1:C:138:ARG:O | 1:C:142:VAL:HG23 | 2.01 | 0.60 |
| 2:D:62:GLU:HG2 | 2:D:297:ALA:HA | 1.82 | 0.60 |
| 2:H:174:ILE:HG23 | 2:H:194:PRO:HG2 | 1.83 | 0.60 |
| 2:H:272:ASN:HD22 | 2:H:272:ASN:H | 1.44 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:D:342:ASN:HD22 | 2:D:342:ASN:N | 1.90 | 0.60 |
| 1:E:500:ALA:HB1 | 2:F:330:LEU:HD21 | 1.82 | 0.60 |
| 1:A:248:ARG:C | 1:A:250:GLY:H | 2.05 | 0.60 |
| 1:A:403:GLY:O | 1:A:407:ILE:HB | 2.01 | 0.60 |
| 3:L:107:THR:HG23 | 3:L:109:THR:N | 2.08 | 0.60 |
| 3:L:162:LEU:O | 3:L:164:GLY:N | 2.34 | 0.60 |
| 1:A:207:LYS:O | 1:A:211:HIS:CG | 2.55 | 0.60 |
| 1:C:224:GLN:HE22 | 1:C:246:LEU:HD11 | 1.66 | 0.60 |
| 1:E:248:ARG:C | 1:E:250:GLY:H | 2.05 | 0.60 |
| 2:H:234:MET:HG2 | 2:H:235:LEU:HD22 | 1.82 | 0.60 |
| 1:A:63:ASN:ND2 | 1:A:63:ASN:H | 2.00 | 0.60 |
| 1:C:229:THR:HG22 | 1:C:232:ARG:CB | 2.27 | 0.60 |
| 2:H:357:PRO:HA | 2:H:440:PHE:CZ | 2.37 | 0.60 |
| 2:B:203:THR:OG1 | 3:I:172:ARG:NH1 | 2.34 | 0.60 |
| 1:C:447:ASN:ND2 | 2:D:26:ARG:HE | 1.99 | 0.60 |
| 3:J:103:ILE:HD11 | 3:J:117:ILE:HD12 | 1.84 | 0.60 |
| 2:F:32:HIS:HD2 | 2:F:34:ASP:N | 1.96 | 0.60 |
| 2:F:89:ASN:OD1 | 2:F:90:ARG:HG2 | 2.00 | 0.60 |
| 2:F:132:ASP:CA | 2:F:157:MET:HE2 | 2.31 | 0.60 |
| 3:K:155:THR:HG22 | 3:K:158:ASP:CG | 2.21 | 0.60 |
| 3:I:144:ILE:HD12 | 3:I:170:VAL:HB | 1.84 | 0.59 |
| 2:D:380:ALA:HB1 | 2:D:394:LEU:CD1 | 2.30 | 0.59 |
| 2:B:353:ILE:HD11 | 2:B:367:TYR:CE2 | 2.37 | 0.59 |
| 1:C:158:LEU:HD12 | 1:C:525:MET:HG2 | 1.83 | 0.59 |
| 2:F:241:GLN:CG | 2:F:245:GLU:HA | 2.17 | 0.59 |
| 2:F:349:LEU:HD12 | 2:F:349:LEU:N | 2.17 | 0.59 |
| 1:A:366:GLN:C | 1:A:368:ILE:H | 2.04 | 0.59 |
| 2:D:277:THR:HG23 | 2:D:280:LEU:N | 2.17 | 0.59 |
| 2:F:251:GLY:O | 2:F:257:ILE:HD11 | 2.02 | 0.59 |
| 2:F:380:ALA:HB1 | 2:F:394:LEU:CD1 | 2.32 | 0.59 |
| 1:G:307:LEU:HB3 | 1:G:383:LEU:HD21 | 1.81 | 0.59 |
| 1:G:481:GLU:OE1 | 1:G:484:ARG:HD3 | 2.03 | 0.59 |
| 2:B:81:ASP:HB2 | 2:B:103:LYS:HD2 | 1.84 | 0.59 |
| 3:J:117:ILE:CD1 | 3:J:126:ILE:HG23 | 2.33 | 0.59 |
| 2:F:382:THR:OG1 | 2:F:424:ALA:HB3 | 2.02 | 0.59 |
| 2:F:423:LEU:CD1 | 2:F:438:LEU:HD21 | 2.28 | 0.59 |
| 1:G:201:LEU:HG | 1:G:220:LYS:HG2 | 1.83 | 0.59 |
| 2:H:342:ASN:HD22 | 2:H:342:ASN:N | 1.91 | 0.59 |
| 1:A:133:GLU:HG3 | 1:A:433:ASP:HB3 | 1.84 | 0.59 |
| 1:A:428:MET:O | 1:A:432:VAL:HG23 | 2.02 | 0.59 |
| 2:B:405:ARG:HB3 | 2:B:406:PRO:HD3 | 1.84 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:K:125:ARG:O | 3:K:129:ARG:HG2 | 2.02 | 0.59 |
| 1:G:78:ARG:HG3 | 2:H:13:TRP:CE3 | 2.37 | 0.59 |
| 1:G:347:ARG:HH22 | 2:H:274:ARG:HH11 | 1.50 | 0.59 |
| 1:A:264:ASN:HD22 | 1:A:265:PHE:N | 2.00 | 0.59 |
| 2:B:74:GLN:NE2 | 2:B:119:ASN:HD22 | 2.01 | 0.59 |
| 2:B:237:TRP:HB3 | 2:B:238:PRO:HD3 | 1.84 | 0.59 |
| 1:C:108:SER:OG | 1:C:109:PRO:HD2 | 2.03 | 0.59 |
| 1:C:438:GLN:O | 1:C:438:GLN:HG2 | 2.02 | 0.59 |
| 2:D:342:ASN:H | 2:D:342:ASN:ND2 | 1.95 | 0.59 |
| 2:D:382:THR:HA | 2:D:392:LEU:HD13 | 1.83 | 0.59 |
| 2:F:349:LEU:CD1 | 2:F:349:LEU:H | 2.15 | 0.59 |
| 2:H:419:ASP:OD1 | 2:H:420:GLY:N | 2.35 | 0.59 |
| 1:A:46:LEU:O | 1:A:50:VAL:HG23 | 2.03 | 0.59 |
| 2:B:380:ALA:HB2 | 2:B:394:LEU:CD1 | 2.32 | 0.59 |
| 1:C:34:CYS:HB2 | 1:C:123:PHE:CE2 | 2.38 | 0.59 |
| 1:C:61:ASP:OD2 | 1:C:85:ARG:HD2 | 2.03 | 0.59 |
| 1:A:229:THR:CG2 | 1:A:232:ARG:HB3 | 2.32 | 0.59 |
| 1:A:253:LYS:O | 1:A:259:PRO:C | 2.41 | 0.59 |
| 2:H:209:PRO:HD3 | 3:L:142:ARG:NH2 | 2.17 | 0.59 |
| 2:H:225:PRO:HB3 | 2:H:276:VAL:HG22 | 1.84 | 0.59 |
| 1:A:248:ARG:HA | 1:A:251:ILE:CG1 | 2.24 | 0.59 |
| 2:B:356:SER:HB2 | 2:B:442:SER:CB | 2.33 | 0.59 |
| 1:C:434:ARG:HD3 | 1:C:460:CYS:HB3 | 1.83 | 0.58 |
| 2:D:438:LEU:HD21 | 2:D:440:PHE:HE2 | 1.68 | 0.58 |
| 2:F:54:ILE:CG2 | 2:F:145:LEU:HD21 | 2.33 | 0.58 |
| 1:E:266:GLU:HG3 | 1:E:270:LYS:HE3 | 1.85 | 0.58 |
| 2:H:289:ILE:O | 2:H:289:ILE:HG22 | 2.01 | 0.58 |
| 2:H:392:LEU:HD23 | 2:H:392:LEU:N | 2.15 | 0.58 |
| 1:A:36:ILE:HB | 1:A:128:ALA:HA | 1.85 | 0.58 |
| 2:B:320:ASN:CB | 2:B:337:ALA:H | 2.17 | 0.58 |
| 2:H:253:ASP:HB3 | 2:H:256:HIS:HB2 | 1.84 | 0.58 |
| 1:C:311:LEU:HD13 | 1:C:383:LEU:HD21 | 1.84 | 0.58 |
| 2:F:362:GLN:NE2 | 2:F:408:LEU:HD13 | 2.19 | 0.58 |
| 1:C:307:LEU:HB3 | 1:C:383:LEU:CD1 | 2.33 | 0.58 |
| 1:G:56:SER:HB3 | 1:G:101:SER:HB2 | 1.85 | 0.58 |
| 2:F:208:PRO:HG3 | 3:K:171:LEU:HD11 | 1.85 | 0.58 |
| 1:G:347:ARG:HH22 | 2:H:274:ARG:NH1 | 2.01 | 0.58 |
| 2:B:50:LYS:H | 2:B:139:HIS:CD2 | 2.21 | 0.58 |
| 2:D:165:GLU:N | 2:D:168:VAL:O | 2.37 | 0.58 |
| 1:E:196:PHE:CD1 | 1:E:219:ALA:HB1 | 2.39 | 0.58 |
| 2:F:197:THR:CG2 | 2:F:198:ALA:N | 2.67 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:F:401:GLU:OE2 | 2:F:402:GLU:HG3 | 2.04 | 0.58 |
| 2:H:193:LEU:H | 2:H:197:THR:HB | 1.69 | 0.58 |
| 1:A:233:ILE:HD11 | 1:A:276:LEU:HD22 | 1.85 | 0.58 |
| 2:B:235:LEU:O | 2:B:238:PRO:HD2 | 2.04 | 0.58 |
| 1:G:61:ASP:CB | 1:G:86:ALA:HB2 | 2.34 | 0.58 |
| 1:G:241:GLU:O | 1:G:244:ARG:HB2 | 2.03 | 0.58 |
| 1:A:78:ARG:HG3 | 1:A:81:ILE:HD11 | 1.85 | 0.58 |
| 2:B:357:PRO:HG3 | 2:B:440:PHE:CD1 | 2.38 | 0.58 |
| 2:F:131:ASN:HB3 | 2:H:131:ASN:HD22 | 1.68 | 0.58 |
| 3:K:170:VAL:HG13 | 3:K:171:LEU:N | 2.19 | 0.58 |
| 2:H:217:THR:HG22 | 2:H:221:MET:HG3 | 1.84 | 0.58 |
| 2:H:63:LEU:HD22 | 2:H:142:VAL:HG11 | 1.86 | 0.57 |
| 2:B:35:PHE:O | 2:B:36:GLU:HG3 | 2.04 | 0.57 |
| 2:F:357:PRO:HA | 2:F:412:LEU:CD1 | 2.34 | 0.57 |
| 1:G:299:LYS:HG2 | 1:G:368:ILE:HG23 | 1.86 | 0.57 |
| 1:G:423:ILE:O | 1:G:427:LEU:HG | 2.05 | 0.57 |
| 2:H:158:LEU:HD23 | 2:H:161:LEU:CD1 | 2.33 | 0.57 |
| 2:H:201:GLU:HG2 | 2:H:345:ALA:HB2 | 1.86 | 0.57 |
| 2:B:13:TRP:HZ3 | 2:B:116:PRO:HG2 | 1.66 | 0.57 |
| 1:C:113:LEU:HB3 | 1:C:138:ARG:HH21 | 1.69 | 0.57 |
| 2:F:87:ASN:HD22 | 2:F:103:LYS:HE2 | 1.69 | 0.57 |
| 2:F:178:ILE:HD13 | 2:F:178:ILE:N | 2.18 | 0.57 |
| 2:B:412:LEU:HD23 | 2:B:412:LEU:N | 2.18 | 0.57 |
| 1:C:66:SER:HB2 | 2:H:262:GLN:NE2 | 2.16 | 0.57 |
| 2:H:342:ASN:H | 2:H:342:ASN:ND2 | 1.97 | 0.57 |
| 3:I:117:ILE:HG22 | 3:I:118:GLU:N | 2.19 | 0.57 |
| 1:C:126:VAL:O | 1:C:150:LEU:HD12 | 2.04 | 0.57 |
| 1:A:61:ASP:CB | 1:A:86:ALA:HB2 | 2.34 | 0.57 |
| 2:D:241:GLN:HB3 | 2:D:244:GLY:O | 2.05 | 0.57 |
| 3:J:104:LYS:HE3 | 3:J:112:GLU:OE2 | 2.05 | 0.57 |
| 1:E:285:ILE:N | 1:E:285:ILE:HD12 | 2.19 | 0.57 |
| 1:E:500:ALA:HB1 | 2:F:330:LEU:CD2 | 2.35 | 0.57 |
| 2:H:377:LYS:HG2 | 2:H:428:VAL:HG22 | 1.87 | 0.57 |
| 2:H:383:ALA:H | 2:H:392:LEU:HD21 | 1.70 | 0.57 |
| 3:I:142:ARG:HB2 | 3:I:170:VAL:O | 2.05 | 0.57 |
| 2:H:46:LEU:HD23 | 2:H:71:GLY:O | 2.05 | 0.57 |
| 1:C:128:ALA:HB1 | 1:C:131:LEU:CD1 | 2.35 | 0.57 |
| 1:C:185:LEU:HD12 | 1:C:275:ALA:HB1 | 1.86 | 0.57 |
| 2:H:213:PHE:HB2 | 2:H:218:ILE:HD11 | 1.85 | 0.57 |
| 2:H:240:GLU:HG3 | 2:H:240:GLU:O | 2.04 | 0.57 |
| 1:G:481:GLU:OE1 | 1:G:481:GLU:HA | 2.04 | 0.57 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:234:MET:C | 2:H:235:LEU:HD22 | 2.24 | 0.57 |
| 2:B:325:ASN:ND2 | 2:B:327:VAL:HG13 | 2.18 | 0.57 |
| 1:C:34:CYS:HB2 | 1:C:123:PHE:CD2 | 2.40 | 0.57 |
| 1:G:43:THR:HG23 | 1:G:75:PHE:HD1 | 1.70 | 0.57 |
| 2:B:257:ILE:HG22 | 2:B:278:TYR:CE1 | 2.40 | 0.56 |
| 2:B:397:VAL:HG12 | 2:B:399:SER:H | 1.69 | 0.56 |
| 2:D:64:LEU:HB3 | 2:D:111:LEU:HD11 | 1.87 | 0.56 |
| 1:E:356:ALA:O | 1:E:359:ASN:HB2 | 2.05 | 0.56 |
| 3:K:107:THR:CG2 | 3:K:108:LEU:N | 2.68 | 0.56 |
| 1:G:201:LEU:CD2 | 1:G:221:TYR:HE1 | 2.18 | 0.56 |
| 2:H:183:GLU:HB3 | 3:L:173:LEU:HD22 | 1.87 | 0.56 |
| 1:C:295:ILE:O | 1:C:309:ARG:NH2 | 2.34 | 0.56 |
| 1:C:309:ARG:HB3 | 1:C:364:LEU:HD21 | 1.86 | 0.56 |
| 3:J:103:ILE:CD1 | 3:J:117:ILE:HD12 | 2.35 | 0.56 |
| 2:F:419:ASP:OD2 | 2:F:439:HIS:CA | 2.53 | 0.56 |
| 2:B:128:GLN:NE2 | 2:B:128:GLN:H | 2.03 | 0.56 |
| 2:B:178:ILE:HD12 | 2:B:178:ILE:N | 2.20 | 0.56 |
| 2:B:371:SER:C | 2:B:373:SER:H | 2.08 | 0.56 |
| 1:C:51:LEU:HB2 | 1:C:52:PRO:HD3 | 1.88 | 0.56 |
| 2:D:257:ILE:HG21 | 2:D:282:GLN:HE21 | 1.68 | 0.56 |
| 2:H:87:ASN:HB3 | 2:H:91:GLN:CD | 2.26 | 0.56 |
| 2:H:267:ARG:HH11 | 2:H:267:ARG:CG | 2.18 | 0.56 |
| 2:H:402:GLU:HG2 | 2:H:405:ARG:HH22 | 1.70 | 0.56 |
| 3:I:161:ILE:HG23 | 3:I:165:SER:CB | 2.35 | 0.56 |
| 1:C:264:ASN:HD22 | 1:C:264:ASN:N | 2.03 | 0.56 |
| 2:F:136:ARG:NH1 | 2:F:161:LEU:HD22 | 2.20 | 0.56 |
| 2:F:398:THR:HA | 2:F:401:GLU:CG | 2.35 | 0.56 |
| 1:G:268:ALA:HA | 1:G:271:ASN:HD22 | 1.69 | 0.56 |
| 2:H:237:TRP:HB3 | 2:H:238:PRO:HD3 | 1.87 | 0.56 |
| 3:J:101:MET:HE1 | 3:J:119:PRO:HG3 | 1.87 | 0.56 |
| 2:F:199:CYS:SG | 2:F:201:GLU:HB2 | 2.46 | 0.56 |
| 2:F:362:GLN:HE21 | 2:F:408:LEU:CD1 | 2.19 | 0.56 |
| 2:B:229:ILE:HD13 | 2:B:281:THR:HA | 1.87 | 0.56 |
| 1:C:353:ASP:O | 1:C:357:VAL:HG23 | 2.05 | 0.56 |
| 1:E:517:ASN:C | 1:E:517:ASN:HD22 | 2.09 | 0.56 |
| 1:G:502:ALA:O | 1:G:506:ILE:HD12 | 2.06 | 0.56 |
| 2:F:361:LEU:HB3 | 2:F:408:LEU:HD23 | 1.86 | 0.56 |
| 1:G:332:MET:HG2 | 1:G:339:TYR:CE1 | 2.35 | 0.56 |
| 2:H:417:LEU:HD22 | 2:H:438:LEU:HD23 | 1.88 | 0.56 |
| 2:F:257:ILE:HD13 | 2:F:282:GLN:HG2 | 1.87 | 0.56 |
| 1:G:447:ASN:HD22 | 2:H:26:ARG:HH21 | 1.54 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:260:GLU:HG3 | 1:A:261:ASP:HB2 | 1.86 | 0.56 |
| 2:B:15:GLY:HA2 | 2:B:18:ASN:OD1 | 2.06 | 0.56 |
| 1:C:377:GLU:O | 1:C:381:LYS:HG2 | 2.06 | 0.56 |
| 2:D:283:GLY:HA2 | 2:D:288:ILE:HD12 | 1.88 | 0.56 |
| 2:F:207:TYR:CZ | 3:K:172:ARG:HD3 | 2.41 | 0.56 |
| 1:G:527:GLN:OE1 | 1:G:527:GLN:HA | 2.05 | 0.56 |
| 2:H:225:PRO:HB3 | 2:H:276:VAL:CG2 | 2.35 | 0.56 |
| 2:H:355:PHE:O | 2:H:440:PHE:HD2 | 1.89 | 0.56 |
| 1:C:36:ILE:O | 1:C:60:ILE:O | 2.24 | 0.56 |
| 2:D:251:GLY:O | 2:D:257:ILE:HD11 | 2.06 | 0.56 |
| 3:J:118:GLU:HB3 | 3:J:120:THR:HG22 | 1.86 | 0.56 |
| 1:E:183:LEU:CD2 | 1:E:329:ILE:HG22 | 2.36 | 0.56 |
| 1:E:219:ALA:O | 1:E:222:LEU:HB3 | 2.05 | 0.56 |
| 1:G:56:SER:CB | 1:G:101:SER:HB2 | 2.36 | 0.56 |
| 1:G:268:ALA:O | 1:G:272:VAL:HG23 | 2.06 | 0.56 |
| 2:B:64:LEU:HD11 | 2:B:77:VAL:HG21 | 1.88 | 0.55 |
| 2:D:83:ILE:HD13 | 2:D:94:PHE:HB3 | 1.87 | 0.55 |
| 2:D:151:ARG:HB3 | 2:D:200:ILE:HD13 | 1.88 | 0.55 |
| 2:F:361:LEU:HB3 | 2:F:408:LEU:HA | 1.86 | 0.55 |
| 3:K:103:ILE:CG1 | 3:K:117:ILE:HD12 | 2.30 | 0.55 |
| 1:G:281:ILE:HG21 | 1:G:286:GLU:OE2 | 2.06 | 0.55 |
| 1:G:311:LEU:O | 1:G:315:VAL:HG23 | 2.05 | 0.55 |
| 2:H:267:ARG:HA | 2:H:270:GLN:NE2 | 2.21 | 0.55 |
| 1:C:383:LEU:HG | 1:C:383:LEU:O | 2.05 | 0.55 |
| 2:D:405:ARG:HB3 | 2:D:405:ARG:NH1 | 2.20 | 0.55 |
| 1:A:437:LYS:HA | 1:A:437:LYS:HZ3 | 1.71 | 0.55 |
| 1:E:77:GLN:OE1 | 2:F:114:ARG:HA | 2.06 | 0.55 |
| 1:E:418:ASN:ND2 | 1:E:420:ASP:H | 2.05 | 0.55 |
| 1:C:130:GLN:HA | 1:C:154:ARG:HD2 | 1.89 | 0.55 |
| 1:C:303:SER:O | 1:C:307:LEU:HG | 2.07 | 0.55 |
| 1:G:173:GLU:HG3 | 1:G:382:LEU:HD21 | 1.88 | 0.55 |
| 2:H:351:GLN:HB3 | 2:H:436:PHE:CD2 | 2.42 | 0.55 |
| 1:A:416:MET:SD | 1:A:424:VAL:HG22 | 2.47 | 0.55 |
| 2:B:251:GLY:O | 2:B:257:ILE:HD11 | 2.06 | 0.55 |
| 1:G:264:ASN:O | 1:G:267:GLU:HB3 | 2.07 | 0.55 |
| 3:L:119:PRO:O | 3:L:157:ALA:HB2 | 2.06 | 0.55 |
| 1:C:163:ARG:HH11 | 1:C:165:ILE:HG12 | 1.71 | 0.55 |
| 2:D:316:ILE:H | 2:D:316:ILE:HD12 | 1.72 | 0.55 |
| 1:E:12:LYS:HE3 | 1:E:13:TYR:CZ | 2.42 | 0.55 |
| 2:H:201:GLU:HB3 | 2:H:343:CYS:SG | 2.47 | 0.55 |
| 2:H:380:ALA:O | 2:H:425:VAL:HA | 2.06 | 0.55 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:253:LYS:O | 1:A:260:GLU:HB3 | 2.07 | 0.55 |
| 3:I:105:VAL:HG13 | 3:I:113:ILE:HG12 | 1.89 | 0.55 |
| 1:C:488:ALA:C | 1:C:490:PRO:HD3 | 2.27 | 0.55 |
| 3:J:115:ILE:HG22 | 3:J:117:ILE:HG13 | 1.88 | 0.55 |
| 1:E:260:GLU:HG3 | 1:E:261:ASP:HB2 | 1.87 | 0.55 |
| 1:G:208:ASP:HB3 | 1:G:338:LYS:HZ1 | 1.71 | 0.55 |
| 2:H:218:ILE:HD13 | 2:H:230:GLU:HG2 | 1.89 | 0.55 |
| 1:E:46:LEU:HD23 | 1:E:93:LEU:HD13 | 1.87 | 0.55 |
| 1:E:297:ILE:H | 1:E:297:ILE:HD12 | 1.72 | 0.55 |
| 1:G:185:LEU:O | 1:G:188:PRO:HD3 | 2.05 | 0.55 |
| 2:H:250:ASP:HB3 | 2:H:253:ASP:HB2 | 1.89 | 0.55 |
| 2:B:413:LYS:CG | 2:B:413:LYS:O | 2.54 | 0.55 |
| 2:F:361:LEU:HD13 | 2:F:408:LEU:HA | 1.87 | 0.55 |
| 3:L:118:GLU:O | 3:L:120:THR:N | 2.39 | 0.55 |
| 2:B:56:ALA:HA | 2:B:60:GLY:HA3 | 1.89 | 0.55 |
| 1:C:274:THR:HG22 | 3:J:132:GLU:HA | 1.89 | 0.55 |
| 1:C:461:LEU:O | 1:C:465:LEU:HG | 2.07 | 0.55 |
| 1:E:229:THR:HG22 | 1:E:232:ARG:HD2 | 1.89 | 0.55 |
| 1:E:264:ASN:HD22 | 1:E:264:ASN:N | 2.05 | 0.55 |
| 2:H:377:LYS:HG2 | 2:H:428:VAL:HG21 | 1.88 | 0.54 |
| 2:B:229:ILE:HA | 2:B:264:SER:OG | 2.07 | 0.54 |
| 2:B:361:LEU:HD22 | 2:B:408:LEU:CD2 | 2.30 | 0.54 |
| 1:C:305:TRP:O | 1:C:308:ALA:HB3 | 2.07 | 0.54 |
| 1:E:192:LEU:HD12 | 1:E:345:VAL:HG11 | 1.88 | 0.54 |
| 1:E:243:PHE:O | 1:E:247:ILE:HG13 | 2.08 | 0.54 |
| 2:F:87:ASN:ND2 | 2:F:103:LYS:HE2 | 2.21 | 0.54 |
| 2:D:361:LEU:HD23 | 2:D:408:LEU:HA | 1.87 | 0.54 |
| 3:K:117:ILE:HG22 | 3:K:118:GLU:N | 2.23 | 0.54 |
| 2:H:277:THR:HG23 | 2:H:280:LEU:H | 1.73 | 0.54 |
| 2:B:399:SER:HB3 | 2:B:400:ILE:HD12 | 1.89 | 0.54 |
| 2:F:259:TRP:CH2 | 2:F:263:LYS:HG3 | 2.43 | 0.54 |
| 1:G:264:ASN:N | 1:G:264:ASN:HD22 | 2.04 | 0.54 |
| 2:B:164:TYR:CE2 | 2:B:169:LEU:HB2 | 2.43 | 0.54 |
| 1:E:311:LEU:O | 1:E:315:VAL:HG23 | 2.08 | 0.54 |
| 3:K:103:ILE:C | 3:K:103:ILE:HD12 | 2.27 | 0.54 |
| 3:L:113:ILE:HD13 | 3:L:134:GLU:HG2 | 1.90 | 0.54 |
| 1:A:94:GLN:HE22 | 1:A:102:GLY:N | 2.02 | 0.54 |
| 2:B:412:LEU:O | 2:B:417:LEU:HD23 | 2.07 | 0.54 |
| 1:E:347:ARG:HH22 | 2:F:274:ARG:HH11 | 1.55 | 0.54 |
| 2:F:46:LEU:HD22 | 2:F:73:ARG:CZ | 2.38 | 0.54 |
| 2:H:158:LEU:HD23 | 2:H:161:LEU:HD12 | 1.90 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:344:PRO:HB3 | 2:H:374:LEU:HD13 | 1.90 | 0.54 |
| 1:A:72:ASN:ND2 | 1:A:72:ASN:C | 2.61 | 0.54 |
| 1:A:78:ARG:C | 1:A:80:SER:H | 2.10 | 0.54 |
| 2:B:157:MET:HA | 2:B:157:MET:HE3 | 1.90 | 0.54 |
| 1:C:214:TRP:CD1 | 1:C:214:TRP:C | 2.81 | 0.54 |
| 2:D:75:ILE:O | 2:D:120:VAL:HA | 2.08 | 0.54 |
| 2:D:376:MET:HB3 | 2:D:427:ASP:OD1 | 2.06 | 0.54 |
| 1:G:201:LEU:HD11 | 1:G:221:TYR:CD1 | 2.43 | 0.54 |
| 1:C:331:ASP:OD1 | 2:D:223:ARG:HD2 | 2.07 | 0.54 |
| 2:F:419:ASP:OD2 | 2:F:439:HIS:HA | 2.07 | 0.54 |
| 1:A:229:THR:HG22 | 1:A:229:THR:O | 2.07 | 0.54 |
| 2:D:64:LEU:HD21 | 2:D:77:VAL:HG22 | 1.89 | 0.54 |
| 2:D:128:GLN:HE21 | 2:D:128:GLN:H | 1.56 | 0.54 |
| 2:H:336:GLU:O | 3:L:147:GLY:HA2 | 2.08 | 0.54 |
| 3:L:170:VAL:CG1 | 3:L:171:LEU:N | 2.71 | 0.54 |
| 2:B:357:PRO:HA | 2:B:440:PHE:CZ | 2.41 | 0.54 |
| 1:C:441:ARG:NH2 | 1:C:453:ASP:OD1 | 2.40 | 0.54 |
| 1:C:447:ASN:HD21 | 2:D:26:ARG:HE | 1.56 | 0.54 |
| 1:G:47:LYS:HD3 | 1:G:51:LEU:HD12 | 1.90 | 0.54 |
| 1:G:407:ILE:CG2 | 1:G:409:LYS:HG3 | 2.38 | 0.54 |
| 3:I:107:THR:CG2 | 3:I:109:THR:H | 2.17 | 0.53 |
| 1:C:277:ASN:ND2 | 1:C:277:ASN:O | 2.40 | 0.53 |
| 2:F:193:LEU:H | 2:F:197:THR:HB | 1.71 | 0.53 |
| 2:F:197:THR:HG22 | 2:F:198:ALA:N | 2.23 | 0.53 |
| 1:G:293:ARG:HG2 | 1:G:293:ARG:NH1 | 2.20 | 0.53 |
| 1:G:317:LYS:HB3 | 1:G:318:GLU:OE1 | 2.08 | 0.53 |
| 1:C:260:GLU:HG3 | 1:C:261:ASP:CG | 2.29 | 0.53 |
| 2:D:128:GLN:H | 2:D:128:GLN:NE2 | 2.05 | 0.53 |
| 2:D:237:TRP:HB3 | 2:D:238:PRO:HD3 | 1.90 | 0.53 |
| 3:J:155:THR:HG23 | 3:J:157:ALA:H | 1.73 | 0.53 |
| 1:G:43:THR:HG23 | 1:G:75:PHE:CD1 | 2.43 | 0.53 |
| 1:G:252:LEU:HG | 1:G:252:LEU:O | 2.08 | 0.53 |
| 2:H:223:ARG:HH11 | 2:H:223:ARG:HG3 | 1.71 | 0.53 |
| 2:H:402:GLU:C | 2:H:404:THR:H | 2.11 | 0.53 |
| 1:A:368:ILE:CG2 | 1:A:370:GLN:HG3 | 2.37 | 0.53 |
| 1:C:360:HIS:O | 1:C:364:LEU:HB2 | 2.08 | 0.53 |
| 1:E:311:LEU:CD2 | 1:E:383:LEU:HD11 | 2.38 | 0.53 |
| 3:K:123:VAL:HG13 | 3:K:150:MET:HE2 | 1.90 | 0.53 |
| 2:H:360:LYS:HB2 | 2:H:363:GLU:HG3 | 1.91 | 0.53 |
| 1:A:61:ASP:HB3 | 1:A:86:ALA:HB2 | 1.90 | 0.53 |
| 2:F:350:PRO:HB3 | 2:F:435:LEU:C | 2.29 | 0.53 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:117:ASN:O | 2:H:118:CYS:C | 2.47 | 0.53 |
| 1:A:33:VAL:O | 1:A:57:PHE:HA | 2.07 | 0.53 |
| 1:A:163:ARG:HH11 | 1:A:163:ARG:HG2 | 1.72 | 0.53 |
| 1:C:43:THR:HG21 | 1:C:73:ASN:OD1 | 2.08 | 0.53 |
| 1:E:45:ILE:CG1 | 1:E:498:GLY:HA2 | 2.39 | 0.53 |
| 1:G:132:PRO:HG2 | 1:G:135:THR:OG1 | 2.09 | 0.53 |
| 2:H:164:TYR:CD2 | 2:H:169:LEU:HB2 | 2.44 | 0.53 |
| 2:H:220:SER:O | 2:H:222:PRO:HD3 | 2.09 | 0.53 |
| 2:B:102:PRO:HG2 | 2:B:105:GLU:HB3 | 1.90 | 0.53 |
| 2:B:110:PHE:C | 2:B:110:PHE:CD2 | 2.82 | 0.53 |
| 2:B:193:LEU:H | 2:B:197:THR:HB | 1.74 | 0.53 |
| 2:H:236:GLN:HE22 | 2:H:263:LYS:HD2 | 1.74 | 0.53 |
| 1:A:60:ILE:HD11 | 1:A:119:PHE:HE2 | 1.73 | 0.53 |
| 1:A:401:GLU:HG3 | 1:A:534:LEU:OXT | 2.07 | 0.53 |
| 1:A:418:ASN:HD22 | 1:A:418:ASN:C | 2.12 | 0.53 |
| 1:C:35:LEU:HD22 | 1:C:46:LEU:HD22 | 1.90 | 0.53 |
| 1:E:223:ALA:O | 1:E:226:TYR:HD2 | 1.91 | 0.53 |
| 1:E:235:LYS:O | 1:E:240:LYS:HE3 | 2.08 | 0.53 |
| 2:F:186:LYS:HE2 | 2:F:325:ASN:HD21 | 1.74 | 0.53 |
| 3:K:107:THR:CG2 | 3:K:109:THR:HG23 | 2.38 | 0.53 |
| 3:K:156:ALA:HA | 3:K:161:ILE:HD12 | 1.91 | 0.53 |
| 1:G:347:ARG:NH2 | 2:H:274:ARG:HD2 | 2.24 | 0.53 |
| 1:G:447:ASN:ND2 | 2:H:26:ARG:NE | 2.49 | 0.53 |
| 2:H:197:THR:HG22 | 2:H:198:ALA:N | 2.24 | 0.53 |
| 1:A:447:ASN:ND2 | 2:B:26:ARG:HE | 2.07 | 0.53 |
| 1:A:491:HIS:CD2 | 2:B:69:LEU:HD12 | 2.44 | 0.53 |
| 2:F:231:TYR:HD1 | 2:F:235:LEU:HD12 | 1.73 | 0.53 |
| 1:C:457:LEU:HD23 | 1:C:479:VAL:CG1 | 2.39 | 0.53 |
| 2:D:50:LYS:N | 2:D:139:HIS:HD2 | 1.99 | 0.53 |
| 1:E:266:GLU:O | 1:E:270:LYS:HG3 | 2.09 | 0.53 |
| 2:F:419:ASP:OD2 | 2:F:438:LEU:C | 2.47 | 0.53 |
| 3:L:126:ILE:O | 3:L:130:VAL:HG23 | 2.09 | 0.53 |
| 1:A:222:LEU:HG | 1:A:226:TYR:CE1 | 2.44 | 0.53 |
| 1:A:421:ASN:O | 1:A:424:VAL:HG23 | 2.09 | 0.53 |
| 1:C:307:LEU:CB | 1:C:383:LEU:HD13 | 2.37 | 0.53 |
| 2:D:343:CYS:H | 2:D:347:SER:CB | 2.21 | 0.53 |
| 2:B:208:PRO:HD3 | 3:I:172:ARG:O | 2.09 | 0.52 |
| 2:B:355:PHE:O | 2:B:440:PHE:HA | 2.09 | 0.52 |
| 1:C:36:ILE:HD13 | 1:C:60:ILE:HB | 1.91 | 0.52 |
| 1:C:418:ASN:ND2 | 1:C:420:ASP:H | 2.06 | 0.52 |
| 2:D:158:LEU:CD1 | 2:D:177:LEU:HB2 | 2.40 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:D:405:ARG:HH11 | 2:D:405:ARG:CB | 2.20 | 0.52 |
| 1:E:341:LYS:O | 1:E:345:VAL:HG23 | 2.09 | 0.52 |
| 1:A:214:TRP:C | 1:A:214:TRP:CD1 | 2.82 | 0.52 |
| 1:A:423:ILE:O | 1:A:426:TYR:HB3 | 2.09 | 0.52 |
| 1:C:72:ASN:C | 1:C:72:ASN:ND2 | 2.61 | 0.52 |
| 1:C:229:THR:HG21 | 1:C:232:ARG:HB2 | 1.91 | 0.52 |
| 2:D:235:LEU:O | 2:D:238:PRO:HD2 | 2.10 | 0.52 |
| 1:E:264:ASN:ND2 | 1:E:265:PHE:N | 2.56 | 0.52 |
| 1:G:210:SER:CB | 1:G:262:GLU:OE2 | 2.55 | 0.52 |
| 1:G:236:THR:O | 1:G:240:LYS:HG3 | 2.08 | 0.52 |
| 2:H:187:GLY:HA2 | 3:L:173:LEU:HD13 | 1.89 | 0.52 |
| 2:F:185:PHE:HB3 | 2:F:326:ASP:CB | 2.36 | 0.52 |
| 2:H:101:ARG:HB3 | 2:H:102:PRO:HD2 | 1.90 | 0.52 |
| 2:H:158:LEU:HD22 | 2:H:175:VAL:HB | 1.92 | 0.52 |
| 1:A:168:GLU:HG3 | 1:A:394:ARG:NE | 2.23 | 0.52 |
| 2:B:235:LEU:C | 2:B:238:PRO:HD2 | 2.29 | 0.52 |
| 1:C:177:ASP:OD2 | 2:D:186:LYS:CE | 2.57 | 0.52 |
| 1:C:518:ASN:HB2 | 1:C:533:GLN:HA | 1.91 | 0.52 |
| 2:D:405:ARG:NH1 | 2:D:405:ARG:CB | 2.73 | 0.52 |
| 3:J:101:MET:HB2 | 3:J:117:ILE:O | 2.09 | 0.52 |
| 1:E:236:THR:CG2 | 1:E:237:TYR:N | 2.70 | 0.52 |
| 1:E:447:ASN:HD21 | 2:F:26:ARG:HE | 1.55 | 0.52 |
| 2:F:355:PHE:CE1 | 2:F:364:VAL:HG22 | 2.44 | 0.52 |
| 1:C:154:ARG:HB3 | 1:C:161:TYR:HB3 | 1.92 | 0.52 |
| 1:C:214:TRP:CD1 | 1:C:215:ILE:N | 2.77 | 0.52 |
| 1:C:407:ILE:HG23 | 1:C:409:LYS:HG3 | 1.91 | 0.52 |
| 2:D:386:GLU:C | 2:D:388:LYS:N | 2.62 | 0.52 |
| 3:J:144:ILE:HD12 | 3:J:170:VAL:HG11 | 1.91 | 0.52 |
| 1:E:340:ILE:HD11 | 2:F:273:ILE:HG13 | 1.91 | 0.52 |
| 1:G:157:GLY:HA3 | 1:G:485:TYR:CG | 2.45 | 0.52 |
| 2:H:245:GLU:HG2 | 2:H:246:GLY:N | 2.22 | 0.52 |
| 1:A:426:TYR:HB2 | 1:A:521:ILE:CD1 | 2.39 | 0.52 |
| 3:J:117:ILE:HD13 | 3:J:126:ILE:HG12 | 1.91 | 0.52 |
| 1:G:218:ILE:O | 1:G:222:LEU:CB | 2.57 | 0.52 |
| 1:G:226:TYR:CE2 | 1:G:233:ILE:HG22 | 2.45 | 0.52 |
| 2:H:294:SER:O | 2:H:298:VAL:HG23 | 2.10 | 0.52 |
| 2:H:375:GLN:O | 2:H:376:MET:HG2 | 2.08 | 0.52 |
| 1:A:128:ALA:HB1 | 1:A:131:LEU:HD11 | 1.90 | 0.52 |
| 1:A:204:MET:CE | 1:A:208:ASP:HB3 | 2.39 | 0.52 |
| 2:D:320:ASN:ND2 | 2:D:336:GLU:CG | 2.72 | 0.52 |
| 2:D:397:VAL:CG1 | 2:D:398:THR:H | 2.19 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:F:232:VAL:O | 2:F:232:VAL:HG12 | 2.08 | 0.52 |
| 2:H:241:GLN:HB3 | 2:H:245:GLU:HA | 1.91 | 0.52 |
| 2:H:412:LEU:N | 2:H:412:LEU:CD1 | 2.73 | 0.52 |
| 3:L:155:THR:HG23 | 3:L:157:ALA:HB3 | 1.91 | 0.52 |
| 2:B:405:ARG:O | 2:B:408:LEU:HB2 | 2.10 | 0.52 |
| 2:D:73:ARG:HG3 | 2:D:73:ARG:HH11 | 1.74 | 0.52 |
| 1:E:46:LEU:O | 1:E:50:VAL:HG23 | 2.09 | 0.52 |
| 1:E:50:VAL:HG13 | 1:E:100:VAL:HG21 | 1.91 | 0.52 |
| 3:K:155:THR:HG22 | 3:K:158:ASP:OD1 | 2.10 | 0.52 |
| 1:G:226:TYR:HE2 | 1:G:234:PRO:HD3 | 1.75 | 0.52 |
| 1:G:263:GLU:O | 1:G:264:ASN:C | 2.47 | 0.52 |
| 1:G:320:GLN:OE1 | 1:G:320:GLN:HA | 2.09 | 0.52 |
| 2:H:222:PRO:O | 2:H:273:ILE:HD11 | 2.09 | 0.52 |
| 1:A:66:SER:O | 1:A:81:ILE:HG23 | 2.10 | 0.52 |
| 2:B:74:GLN:HE22 | 2:B:119:ASN:ND2 | 2.03 | 0.52 |
| 2:D:237:TRP:CE3 | 2:D:242:PRO:HG2 | 2.44 | 0.52 |
| 1:E:516:PHE:HB3 | 2:F:330:LEU:HD12 | 1.91 | 0.52 |
| 2:F:400:ILE:C | 2:F:402:GLU:H | 2.13 | 0.52 |
| 1:G:214:TRP:O | 1:G:217:ILE:HB | 2.09 | 0.52 |
| 2:B:197:THR:HG23 | 2:B:320:ASN:OD1 | 2.08 | 0.52 |
| 2:B:425:VAL:HG21 | 2:B:436:PHE:CE1 | 2.44 | 0.52 |
| 2:D:412:LEU:HD13 | 2:D:440:PHE:CD2 | 2.44 | 0.52 |
| 1:G:226:TYR:CE2 | 1:G:233:ILE:HA | 2.45 | 0.52 |
| 2:H:164:TYR:CE2 | 2:H:169:LEU:HB2 | 2.45 | 0.52 |
| 2:D:321:TYR:HE2 | 2:D:323:VAL:HG13 | 1.75 | 0.51 |
| 1:E:426:TYR:O | 1:E:430:ARG:HG2 | 2.10 | 0.51 |
| 2:F:157:MET:O | 2:F:157:MET:HE3 | 2.10 | 0.51 |
| 2:H:92:PHE:H | 2:H:92:PHE:HD2 | 1.55 | 0.51 |
| 1:A:77:GLN:HG3 | 1:A:92:PHE:CE2 | 2.45 | 0.51 |
| 1:A:400:GLU:O | 1:A:406:THR:O | 2.29 | 0.51 |
| 2:B:208:PRO:HG3 | 3:I:171:LEU:HD11 | 1.92 | 0.51 |
| 2:B:338:GLU:HG3 | 3:I:148:LYS:HD3 | 1.92 | 0.51 |
| 2:B:403:ARG:HG3 | 2:B:403:ARG:NH1 | 2.25 | 0.51 |
| 2:D:384:THR:HA | 2:D:389:ASN:HB3 | 1.91 | 0.51 |
| 2:F:236:GLN:NE2 | 2:F:263:LYS:HD2 | 2.25 | 0.51 |
| 2:F:236:GLN:O | 2:F:240:GLU:HG2 | 2.10 | 0.51 |
| 3:K:124:GLU:HB2 | 3:K:152:ASP:O | 2.09 | 0.51 |
| 2:H:75:ILE:HB | 2:H:120:VAL:HG22 | 1.93 | 0.51 |
| 1:A:371:ALA:O | 1:A:373:GLU:N | 2.42 | 0.51 |
| 2:D:16:ARG:NH2 | 2:D:116:PRO:HB2 | 2.24 | 0.51 |
| 1:E:236:THR:CG2 | 1:E:237:TYR:H | 2.23 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:527:GLN:OE1 | 2:F:302:VAL:HG13 | 2.10 | 0.51 |
| 2:F:386:GLU:O | 2:F:388:LYS:HG2 | 2.10 | 0.51 |
| 1:A:34:CYS:HB2 | 1:A:123:PHE:CD1 | 2.45 | 0.51 |
| 1:C:457:LEU:HD23 | 1:C:479:VAL:HG13 | 1.91 | 0.51 |
| 2:D:64:LEU:HD21 | 2:D:77:VAL:CG2 | 2.41 | 0.51 |
| 2:D:141:ILE:HD12 | 2:D:158:LEU:HD21 | 1.93 | 0.51 |
| 2:H:228:CYS:SG | 2:H:268:ALA:HA | 2.50 | 0.51 |
| 1:C:331:ASP:HB2 | 2:D:224:LEU:HD11 | 1.92 | 0.51 |
| 1:C:480:HIS:HB2 | 2:D:29:PRO:HG2 | 1.91 | 0.51 |
| 3:J:118:GLU:O | 3:J:120:THR:N | 2.44 | 0.51 |
| 2:F:398:THR:HA | 2:F:401:GLU:HG3 | 1.92 | 0.51 |
| 1:G:344:ASN:O | 1:G:348:GLU:HB2 | 2.09 | 0.51 |
| 1:C:54:ILE:HD11 | 1:C:509:ILE:HD13 | 1.93 | 0.51 |
| 1:C:218:ILE:O | 1:C:222:LEU:HB2 | 2.11 | 0.51 |
| 2:H:349:LEU:HB3 | 2:H:350:PRO:CD | 2.39 | 0.51 |
| 2:H:350:PRO:CB | 2:H:437:LYS:HG3 | 2.39 | 0.51 |
| 1:A:244:ARG:HG2 | 1:A:269:ILE:HG23 | 1.93 | 0.51 |
| 1:A:517:ASN:HD22 | 1:A:517:ASN:C | 2.12 | 0.51 |
| 2:B:187:GLY:CA | 3:I:173:LEU:HD13 | 2.41 | 0.51 |
| 2:D:149:ILE:CD1 | 2:D:149:ILE:N | 2.65 | 0.51 |
| 2:D:392:LEU:N | 2:D:392:LEU:HD12 | 2.26 | 0.51 |
| 1:E:191:GLU:OE2 | 1:E:191:GLU:N | 2.40 | 0.51 |
| 2:F:349:LEU:HD12 | 2:F:349:LEU:H | 1.75 | 0.51 |
| 2:F:349:LEU:N | 2:F:349:LEU:CD1 | 2.74 | 0.51 |
| 1:G:299:LYS:HG2 | 1:G:368:ILE:CG2 | 2.40 | 0.51 |
| 2:H:338:GLU:HG3 | 3:L:148:LYS:CD | 2.31 | 0.51 |
| 2:B:249:LEU:HD13 | 2:B:260:ILE:HD11 | 1.93 | 0.51 |
| 2:B:322:LEU:O | 2:B:322:LEU:HD23 | 2.10 | 0.51 |
| 2:B:368:LEU:HD13 | 2:B:425:VAL:HG11 | 1.93 | 0.51 |
| 2:B:374:LEU:O | 2:B:376:MET:HG3 | 2.11 | 0.51 |
| 1:E:229:THR:CG2 | 1:E:232:ARG:HD2 | 2.41 | 0.51 |
| 2:H:64:LEU:HB3 | 2:H:111:LEU:HD13 | 1.91 | 0.51 |
| 2:H:267:ARG:HD2 | 2:H:271:TYR:CE1 | 2.46 | 0.51 |
| 2:H:422:GLU:O | 2:H:423:LEU:HD23 | 2.11 | 0.51 |
| 1:A:428:MET:CE | 1:A:479:VAL:HA | 2.41 | 0.51 |
| 3:I:117:ILE:HD13 | 3:I:126:ILE:HG12 | 1.92 | 0.51 |
| 1:E:332:MET:O | 2:F:223:ARG:NE | 2.44 | 0.51 |
| 2:F:391:THR:O | 2:F:404:THR:HG21 | 2.11 | 0.51 |
| 1:G:422:GLU:OE1 | 1:G:422:GLU:N | 2.33 | 0.51 |
| 1:G:441:ARG:HH21 | 1:G:449:GLN:CD | 2.14 | 0.51 |
| 2:H:344:PRO:HG2 | 2:H:345:ALA:N | 2.25 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:H:350:PRO:HG3 | 2:H:435:LEU:CB | 2.41 | 0.51 |
| 1:A:60:ILE:O | 1:A:60:ILE:HG22 | 2.11 | 0.51 |
| 1:A:72:ASN:C | 1:A:72:ASN:HD22 | 2.12 | 0.51 |
| 1:A:214:TRP:CD1 | 1:A:215:ILE:N | 2.78 | 0.51 |
| 2:B:64:LEU:HD21 | 2:B:77:VAL:HG22 | 1.93 | 0.51 |
| 1:G:210:SER:HB3 | 1:G:262:GLU:CD | 2.31 | 0.51 |
| 2:H:35:PHE:O | 2:H:36:GLU:HG2 | 2.11 | 0.51 |
| 2:H:87:ASN:HB3 | 2:H:91:GLN:NE2 | 2.26 | 0.51 |
| 2:H:425:VAL:HB | 2:H:434:VAL:CG1 | 2.41 | 0.51 |
| 1:A:113:LEU:HB3 | 1:A:138:ARG:NH2 | 2.26 | 0.50 |
| 1:A:181:GLU:OE1 | 1:A:330:PRO:HD3 | 2.11 | 0.50 |
| 2:D:316:ILE:H | 2:D:316:ILE:CD1 | 2.24 | 0.50 |
| 2:F:430:THR:OG1 | 2:F:432:GLN:HB2 | 2.11 | 0.50 |
| 1:A:201:LEU:HD23 | 1:A:204:MET:SD | 2.51 | 0.50 |
| 1:A:286:GLU:OE1 | 1:A:286:GLU:HA | 2.11 | 0.50 |
| 1:C:209:HIS:CD2 | 1:C:252:LEU:HB2 | 2.46 | 0.50 |
| 1:C:253:LYS:O | 1:C:259:PRO:C | 2.44 | 0.50 |
| 1:E:184:ARG:HD2 | 1:E:325:VAL:HG22 | 1.91 | 0.50 |
| 1:E:199:TYR:O | 1:E:220:LYS:HE2 | 2.12 | 0.50 |
| 1:E:248:ARG:O | 1:E:250:GLY:N | 2.42 | 0.50 |
| 1:E:331:ASP:HB2 | 2:F:224:LEU:HD11 | 1.93 | 0.50 |
| 2:F:235:LEU:O | 2:F:238:PRO:HD2 | 2.10 | 0.50 |
| 2:F:294:SER:O | 2:F:298:VAL:HG23 | 2.10 | 0.50 |
| 1:G:428:MET:O | 1:G:431:ALA:HB3 | 2.11 | 0.50 |
| 2:H:239:LYS:HG3 | 2:H:239:LYS:O | 2.11 | 0.50 |
| 1:C:9:LYS:C | 1:C:11:GLN:H | 2.15 | 0.50 |
| 2:D:232:VAL:CG1 | 2:D:263:LYS:HB2 | 2.39 | 0.50 |
| 1:G:77:GLN:HG3 | 1:G:92:PHE:CZ | 2.46 | 0.50 |
| 2:H:233:ARG:NH1 | 2:H:234:MET:HB2 | 2.27 | 0.50 |
| 2:H:351:GLN:HB3 | 2:H:436:PHE:CE2 | 2.46 | 0.50 |
| 1:A:166:ILE:HD11 | 1:A:508:ILE:CD1 | 2.40 | 0.50 |
| 1:A:277:ASN:HD22 | 1:A:278:THR:N | 2.10 | 0.50 |
| 1:C:444:GLY:O | 2:D:26:ARG:NH1 | 2.43 | 0.50 |
| 2:D:215:MET:HA | 2:D:218:ILE:HD12 | 1.93 | 0.50 |
| 2:D:357:PRO:HG3 | 2:D:440:PHE:CG | 2.47 | 0.50 |
| 1:G:72:ASN:HD22 | 1:G:72:ASN:H | 1.60 | 0.50 |
| 1:G:347:ARG:HH22 | 2:H:274:ARG:CD | 2.24 | 0.50 |
| 2:H:92:PHE:CD2 | 2:H:92:PHE:N | 2.79 | 0.50 |
| 1:C:41:THR:O | 1:C:45:ILE:HG13 | 2.11 | 0.50 |
| 1:C:234:PRO:HB2 | 1:C:276:LEU:HD12 | 1.93 | 0.50 |
| 2:D:178:ILE:HD12 | 2:D:178:ILE:N | 2.27 | 0.50 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:214:TRP:CZ3 | 1:E:332:MET:HG2 | 2.47 | 0.50 |
| 1:G:162:MET:HB3 | 1:G:520:TYR:HB3 | 1.93 | 0.50 |
| 2:H:187:GLY:CA | 3:L:173:LEU:HD13 | 2.41 | 0.50 |
| 1:C:268:ALA:O | 1:C:272:VAL:HG23 | 2.11 | 0.50 |
| 1:C:419:PRO:HB2 | 1:C:475:LYS:HE3 | 1.94 | 0.50 |
| 1:C:488:ALA:O | 1:C:490:PRO:HD3 | 2.12 | 0.50 |
| 2:D:306:GLU:OE2 | 2:D:309:LYS:HD2 | 2.11 | 0.50 |
| 1:G:252:LEU:O | 1:G:252:LEU:CG | 2.57 | 0.50 |
| 1:G:262:GLU:OE1 | 1:G:262:GLU:CA | 2.58 | 0.50 |
| 2:H:242:PRO:HG3 | 2:H:259:TRP:CH2 | 2.46 | 0.50 |
| 3:L:144:ILE:HD12 | 3:L:170:VAL:HG21 | 1.94 | 0.50 |
| 2:B:316:ILE:HD12 | 2:B:316:ILE:N | 2.11 | 0.50 |
| 1:C:327:GLY:CA | 1:C:350:ALA:HB2 | 2.41 | 0.50 |
| 1:C:517:ASN:HD22 | 1:C:518:ASN:N | 1.99 | 0.50 |
| 2:D:277:THR:CG2 | 2:D:280:LEU:H | 2.20 | 0.50 |
| 1:E:285:ILE:CD1 | 1:E:285:ILE:H | 2.25 | 0.50 |
| 1:E:307:LEU:HB3 | 1:E:383:LEU:CD2 | 2.41 | 0.50 |
| 2:F:262:GLN:O | 2:F:266:GLU:HG3 | 2.11 | 0.50 |
| 1:G:210:SER:HA | 1:G:264:ASN:ND2 | 2.26 | 0.50 |
| 2:H:404:THR:O | 2:H:407:ASN:HB2 | 2.11 | 0.50 |
| 2:B:322:LEU:HD23 | 2:B:322:LEU:C | 2.32 | 0.50 |
| 1:C:186:ASP:OD2 | 1:C:279:THR:HB | 2.11 | 0.50 |
| 1:E:446:SER:HB2 | 1:E:449:GLN:HG3 | 1.92 | 0.50 |
| 1:G:215:ILE:H | 1:G:332:MET:CE | 2.20 | 0.50 |
| 1:A:196:PHE:O | 1:A:220:LYS:HE2 | 2.11 | 0.50 |
| 2:B:361:LEU:HD23 | 2:B:361:LEU:C | 2.32 | 0.50 |
| 2:F:386:GLU:O | 2:F:388:LYS:CG | 2.60 | 0.50 |
| 2:H:223:ARG:O | 2:H:273:ILE:HG21 | 2.11 | 0.50 |
| 3:L:117:ILE:HG23 | 3:L:121:ASP:OD1 | 2.12 | 0.50 |
| 1:A:298:THR:CA | 1:A:368:ILE:HD11 | 2.42 | 0.49 |
| 1:C:163:ARG:CZ | 1:C:518:ASN:OD1 | 2.60 | 0.49 |
| 2:D:134:PHE:O | 2:D:137:GLN:HB3 | 2.12 | 0.49 |
| 2:D:397:VAL:CG1 | 2:D:398:THR:N | 2.71 | 0.49 |
| 1:E:297:ILE:HG22 | 1:E:301:THR:HG21 | 1.94 | 0.49 |
| 2:F:321:TYR:OH | 3:K:172:ARG:HG3 | 2.12 | 0.49 |
| 2:F:325:ASN:HD22 | 2:F:326:ASP:N | 2.10 | 0.49 |
| 3:K:107:THR:HB | 3:K:111:LYS:HB3 | 1.94 | 0.49 |
| 1:G:186:ASP:HB3 | 1:G:276:LEU:O | 2.11 | 0.49 |
| 2:H:232:VAL:HG11 | 2:H:263:LYS:HB2 | 1.92 | 0.49 |
| 2:B:182:THR:HG21 | 2:B:296:ASN:OD1 | 2.12 | 0.49 |
| 2:D:368:LEU:HD22 | 2:D:436:PHE:HE1 | 1.76 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:F:213:PHE:HB2 | 2:F:218:ILE:HD11 | 1.93 | 0.49 |
| 2:F:232:VAL:HG11 | 2:F:263:LYS:HB2 | 1.93 | 0.49 |
| 1:G:212:THR:OG1 | 1:G:217:ILE:HD11 | 2.11 | 0.49 |
| 2:H:63:LEU:O | 2:H:67:LEU:HG | 2.11 | 0.49 |
| 2:H:213:PHE:CD1 | 2:H:213:PHE:N | 2.80 | 0.49 |
| 1:A:119:PHE:O | 1:A:122:ARG:HG2 | 2.12 | 0.49 |
| 2:B:188:ASN:OD1 | 3:I:173:LEU:HD12 | 2.13 | 0.49 |
| 1:C:520:TYR:CE1 | 2:D:330:LEU:HB3 | 2.47 | 0.49 |
| 1:E:330:PRO:O | 1:E:332:MET:HG3 | 2.11 | 0.49 |
| 2:F:357:PRO:HA | 2:F:412:LEU:CG | 2.43 | 0.49 |
| 1:G:189:PHE:HB2 | 1:G:190:PRO:HD2 | 1.94 | 0.49 |
| 2:H:257:ILE:HG21 | 2:H:282:GLN:HG2 | 1.94 | 0.49 |
| 1:C:481:GLU:OE1 | 1:C:484:ARG:HD3 | 2.12 | 0.49 |
| 2:F:74:GLN:HE22 | 2:F:119:ASN:ND2 | 2.04 | 0.49 |
| 1:G:315:VAL:O | 1:G:321:GLY:N | 2.43 | 0.49 |
| 1:A:12:LYS:O | 2:B:89:ASN:HB3 | 2.13 | 0.49 |
| 1:A:137:LEU:HD11 | 1:A:402:TYR:CD2 | 2.48 | 0.49 |
| 2:B:183:GLU:HB2 | 3:I:173:LEU:HD23 | 1.94 | 0.49 |
| 2:B:348:GLN:OE1 | 2:B:348:GLN:HA | 2.11 | 0.49 |
| 2:B:380:ALA:CB | 2:B:394:LEU:CD1 | 2.90 | 0.49 |
| 2:B:398:THR:CA | 2:B:401:GLU:HB3 | 2.42 | 0.49 |
| 2:D:236:GLN:HE22 | 2:D:263:LYS:CD | 2.25 | 0.49 |
| 2:D:306:GLU:OE2 | 2:D:317:PRO:HA | 2.12 | 0.49 |
| 2:F:402:GLU:HG2 | 2:F:405:ARG:NH2 | 2.27 | 0.49 |
| 1:G:262:GLU:O | 1:G:265:PHE:HB2 | 2.11 | 0.49 |
| 1:G:441:ARG:NH2 | 1:G:453:ASP:OD2 | 2.44 | 0.49 |
| 2:B:339:ARG:NH2 | 2:B:346:CYS:O | 2.44 | 0.49 |
| 2:D:397:VAL:HG12 | 2:D:399:SER:H | 1.78 | 0.49 |
| 3:J:115:ILE:CG2 | 3:J:129:ARG:HG3 | 2.43 | 0.49 |
| 1:G:173:GLU:O | 1:G:512:GLN:O | 2.31 | 0.49 |
| 1:A:366:GLN:C | 1:A:368:ILE:N | 2.66 | 0.49 |
| 1:A:376:SER:OG | 1:A:379:GLU:HG3 | 2.13 | 0.49 |
| 1:A:434:ARG:NH1 | 1:A:464:PHE:HA | 2.28 | 0.49 |
| 2:B:126:LYS:O | 2:B:128:GLN:N | 2.46 | 0.49 |
| 1:C:18:ARG:HH22 | 2:D:282:GLN:HB2 | 1.76 | 0.49 |
| 1:C:39:THR:CG2 | 1:C:489:GLU:OE1 | 2.52 | 0.49 |
| 1:E:285:ILE:N | 1:E:285:ILE:CD1 | 2.75 | 0.49 |
| 2:F:56:ALA:N | 2:F:79:ASP:OD1 | 2.40 | 0.49 |
| 2:F:83:ILE:CD1 | 2:F:106:VAL:HG21 | 2.43 | 0.49 |
| 1:G:65:VAL:CG2 | 1:G:85:ARG:HA | 2.42 | 0.49 |
| 2:B:74:GLN:NE2 | 2:B:74:GLN:HA | 2.28 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:264:ASN:HD22 | 1:E:265:PHE:H | 1.56 | 0.49 |
| 1:E:374:SER:O | 1:E:375:ILE:HG13 | 2.13 | 0.49 |
| 2:F:385:LEU:HD21 | 2:F:417:LEU:HD12 | 1.95 | 0.49 |
| 2:F:422:GLU:O | 2:F:423:LEU:HD23 | 2.13 | 0.49 |
| 3:K:144:ILE:CD1 | 3:K:170:VAL:HB | 2.41 | 0.49 |
| 1:A:47:LYS:HG3 | 1:A:75:PHE:CZ | 2.47 | 0.49 |
| 2:B:353:ILE:HG23 | 2:B:355:PHE:CD1 | 2.45 | 0.49 |
| 1:C:264:ASN:HD22 | 1:C:264:ASN:H | 1.59 | 0.49 |
| 2:D:361:LEU:C | 2:D:363:GLU:H | 2.16 | 0.49 |
| 3:J:115:ILE:HG22 | 3:J:116:ASP:N | 2.28 | 0.49 |
| 3:K:170:VAL:CG1 | 3:K:171:LEU:N | 2.75 | 0.49 |
| 2:H:350:PRO:HG3 | 2:H:435:LEU:HB3 | 1.94 | 0.49 |
| 2:D:197:THR:HG22 | 2:D:198:ALA:O | 2.12 | 0.49 |
| 1:E:45:ILE:HG12 | 1:E:498:GLY:HA2 | 1.95 | 0.49 |
| 2:H:157:MET:HE3 | 2:H:157:MET:O | 2.12 | 0.49 |
| 3:L:125:ARG:HG3 | 3:L:128:GLU:OE1 | 2.13 | 0.49 |
| 3:L:155:THR:CG2 | 3:L:157:ALA:HB3 | 2.43 | 0.49 |
| 1:A:264:ASN:ND2 | 1:A:265:PHE:N | 2.60 | 0.48 |
| 3:I:102:LEU:O | 3:I:102:LEU:HD23 | 2.13 | 0.48 |
| 3:J:113:ILE:HD11 | 3:J:130:VAL:HG13 | 1.95 | 0.48 |
| 1:G:229:THR:CG2 | 1:G:232:ARG:NH2 | 2.72 | 0.48 |
| 2:H:182:THR:HG21 | 2:H:296:ASN:OD1 | 2.14 | 0.48 |
| 2:H:381:ILE:HA | 2:H:424:ALA:O | 2.13 | 0.48 |
| 2:H:405:ARG:NH1 | 2:H:405:ARG:CB | 2.75 | 0.48 |
| 3:L:118:GLU:C | 3:L:120:THR:H | 2.17 | 0.48 |
| 1:A:8:LEU:HD12 | 1:A:11:GLN:OE1 | 2.13 | 0.48 |
| 2:B:400:ILE:HD12 | 2:B:400:ILE:N | 2.15 | 0.48 |
| 2:F:110:PHE:CZ | 2:F:114:ARG:NH1 | 2.81 | 0.48 |
| 1:G:236:THR:HG22 | 1:G:237:TYR:H | 1.78 | 0.48 |
| 2:H:425:VAL:HB | 2:H:434:VAL:HG13 | 1.95 | 0.48 |
| 1:A:163:ARG:HH12 | 1:A:165:ILE:HG12 | 1.75 | 0.48 |
| 1:A:461:LEU:O | 1:A:465:LEU:HG | 2.13 | 0.48 |
| 1:C:324:PRO:HB3 | 1:C:353:ASP:HB3 | 1.94 | 0.48 |
| 2:F:142:VAL:HG13 | 2:F:178:ILE:HB | 1.95 | 0.48 |
| 2:F:207:TYR:CE1 | 3:K:172:ARG:HD3 | 2.47 | 0.48 |
| 2:F:362:GLN:NE2 | 2:F:408:LEU:HD22 | 2.27 | 0.48 |
| 2:H:11:LEU:HB2 | 2:H:12:ASP:H | 1.43 | 0.48 |
| 2:H:31:THR:OG1 | 2:H:35:PHE:HB3 | 2.13 | 0.48 |
| 1:A:104:PHE:HE1 | 1:A:106:GLU:HG3 | 1.79 | 0.48 |
| 1:C:481:GLU:HG3 | 1:C:485:TYR:CZ | 2.49 | 0.48 |
| 2:D:197:THR:CG2 | 2:D:198:ALA:N | 2.76 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:K:106:LYS:HG2 | 3:K:112:GLU:HB2 | 1.94 | 0.48 |
| 1:G:221:TYR:CD2 | 1:G:247:ILE:HA | 2.48 | 0.48 |
| 1:A:297:ILE:HG22 | 1:A:368:ILE:CD1 | 2.44 | 0.48 |
| 1:C:12:LYS:O | 2:D:89:ASN:HB3 | 2.13 | 0.48 |
| 2:D:393:TYR:CE2 | 2:D:408:LEU:HD11 | 2.49 | 0.48 |
| 1:E:226:TYR:HD1 | 1:E:231:GLY:HA2 | 1.77 | 0.48 |
| 1:E:504:GLU:O | 1:E:508:ILE:HG13 | 2.13 | 0.48 |
| 2:F:231:TYR:CD1 | 2:F:235:LEU:HD12 | 2.48 | 0.48 |
| 1:G:7:LEU:HG | 1:G:10:GLU:OE1 | 2.12 | 0.48 |
| 1:G:497:LEU:O | 1:G:498:GLY:C | 2.52 | 0.48 |
| 2:H:318:LEU:HD12 | 2:H:319:ASN:H | 1.76 | 0.48 |
| 1:A:299:LYS:HA | 1:A:368:ILE:HG13 | 1.95 | 0.48 |
| 3:J:125:ARG:HD3 | 3:J:129:ARG:NH2 | 2.27 | 0.48 |
| 1:E:441:ARG:NH2 | 1:E:453:ASP:OD1 | 2.47 | 0.48 |
| 1:E:526:SER:O | 1:E:527:GLN:HB2 | 2.14 | 0.48 |
| 2:F:213:PHE:CB | 2:F:218:ILE:HD11 | 2.43 | 0.48 |
| 1:G:325:VAL:HG21 | 1:G:349:LYS:CG | 2.43 | 0.48 |
| 1:G:347:ARG:O | 1:G:351:LYS:HG3 | 2.14 | 0.48 |
| 2:H:386:GLU:O | 2:H:388:LYS:HG2 | 2.12 | 0.48 |
| 1:A:294:CYS:HB2 | 1:A:305:TRP:CE3 | 2.49 | 0.48 |
| 2:B:371:SER:C | 2:B:373:SER:N | 2.65 | 0.48 |
| 3:I:117:ILE:CG2 | 3:I:118:GLU:N | 2.76 | 0.48 |
| 1:C:450:VAL:O | 1:C:454:ILE:HG13 | 2.14 | 0.48 |
| 3:J:155:THR:HG22 | 3:J:158:ASP:CG | 2.34 | 0.48 |
| 1:E:34:CYS:HB2 | 1:E:123:PHE:CG | 2.48 | 0.48 |
| 1:G:329:ILE:HD11 | 1:G:343:GLN:HG3 | 1.95 | 0.48 |
| 1:G:347:ARG:NH2 | 2:H:274:ARG:NH1 | 2.61 | 0.48 |
| 2:H:238:PRO:O | 2:H:240:GLU:N | 2.43 | 0.48 |
| 3:L:116:ASP:O | 3:L:117:ILE:HG13 | 2.14 | 0.48 |
| 1:A:78:ARG:O | 1:A:80:SER:N | 2.45 | 0.48 |
| 2:B:391:THR:HG21 | 2:B:400:ILE:HG21 | 1.95 | 0.48 |
| 2:B:422:GLU:HA | 2:B:436:PHE:O | 2.13 | 0.48 |
| 2:D:83:ILE:HD12 | 2:D:98:ASP:HB3 | 1.96 | 0.48 |
| 2:D:349:LEU:N | 2:D:349:LEU:HD23 | 2.28 | 0.48 |
| 1:E:262:GLU:O | 1:E:264:ASN:ND2 | 2.47 | 0.48 |
| 1:G:111:ASN:C | 1:G:111:ASN:OD1 | 2.50 | 0.48 |
| 2:H:316:ILE:HD12 | 2:H:316:ILE:N | 2.15 | 0.48 |
| 3:L:102:LEU:HD21 | 3:L:114:GLU:OE1 | 2.13 | 0.48 |
| 3:I:150:MET:SD | 3:I:167:LEU:HD22 | 2.53 | 0.48 |
| 3:J:135:GLY:O | 3:J:137:PRO:HD3 | 2.14 | 0.48 |
| 1:G:158:LEU:HD12 | 1:G:524:GLY:HA3 | 1.95 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:G:285:ILE:HD11 | 1:G:387:SER:O | 2.13 | 0.48 |
| 2:H:269:SER:C | 2:H:271:TYR:N | 2.67 | 0.48 |
| 2:B:87:ASN:HB3 | 2:B:91:GLN:CD | 2.34 | 0.48 |
| 1:C:36:ILE:CD1 | 1:C:60:ILE:HB | 2.44 | 0.48 |
| 1:C:293:ARG:HH11 | 1:C:293:ARG:CG | 2.27 | 0.48 |
| 2:D:182:THR:CG2 | 2:D:183:GLU:N | 2.77 | 0.48 |
| 1:G:199:TYR:O | 1:G:220:LYS:HE2 | 2.14 | 0.48 |
| 2:H:237:TRP:O | 2:H:242:PRO:HD3 | 2.14 | 0.48 |
| 1:A:419:PRO:O | 1:A:424:VAL:HG21 | 2.13 | 0.47 |
| 3:I:107:THR:HB | 3:I:111:LYS:O | 2.14 | 0.47 |
| 1:C:105:VAL:HG12 | 1:C:107:GLU:H | 1.79 | 0.47 |
| 1:E:253:LYS:O | 1:E:260:GLU:CA | 2.60 | 0.47 |
| 2:F:249:LEU:CD2 | 2:F:260:ILE:HD11 | 2.44 | 0.47 |
| 1:G:317:LYS:HG2 | 1:G:318:GLU:H | 1.78 | 0.47 |
| 2:H:52:LEU:HD11 | 2:H:78:ILE:HG13 | 1.95 | 0.47 |
| 1:A:248:ARG:HG2 | 1:A:269:ILE:CD1 | 2.44 | 0.47 |
| 2:B:392:LEU:N | 2:B:392:LEU:HD23 | 2.29 | 0.47 |
| 1:C:274:THR:CG2 | 3:J:131:GLU:HG2 | 2.44 | 0.47 |
| 1:G:376:SER:OG | 1:G:379:GLU:HG3 | 2.14 | 0.47 |
| 1:C:153:CYS:SG | 1:C:162:MET:HG3 | 2.54 | 0.47 |
| 1:E:185:LEU:CD1 | 1:E:275:ALA:HB1 | 2.43 | 0.47 |
| 1:E:223:ALA:O | 1:E:226:TYR:CD2 | 2.66 | 0.47 |
| 2:F:31:THR:HG23 | 2:F:32:HIS:O | 2.14 | 0.47 |
| 2:F:385:LEU:HA | 2:F:385:LEU:HD23 | 1.55 | 0.47 |
| 1:A:207:LYS:O | 1:A:211:HIS:CB | 2.63 | 0.47 |
| 1:A:297:ILE:HG22 | 1:A:298:THR:N | 2.29 | 0.47 |
| 1:A:418:ASN:ND2 | 1:A:418:ASN:C | 2.68 | 0.47 |
| 2:B:81:ASP:CB | 2:B:103:LYS:HD2 | 2.43 | 0.47 |
| 2:B:196:MET:O | 2:B:339:ARG:HD2 | 2.14 | 0.47 |
| 3:I:161:ILE:HG23 | 3:I:165:SER:HB2 | 1.96 | 0.47 |
| 1:C:115:ASN:HD21 | 1:G:348:GLU:HG3 | 1.79 | 0.47 |
| 2:F:418:VAL:O | 2:F:418:VAL:CG1 | 2.54 | 0.47 |
| 1:G:36:ILE:HG23 | 1:G:109:PRO:HG3 | 1.97 | 0.47 |
| 2:H:165:GLU:N | 2:H:168:VAL:O | 2.47 | 0.47 |
| 1:A:221:TYR:OH | 1:A:250:GLY:HA3 | 2.14 | 0.47 |
| 1:A:252:LEU:HD12 | 1:A:252:LEU:O | 2.15 | 0.47 |
| 1:A:407:ILE:HG23 | 1:A:407:ILE:O | 2.15 | 0.47 |
| 2:B:62:GLU:HG2 | 2:B:300:ALA:CB | 2.44 | 0.47 |
| 2:B:141:ILE:HD12 | 2:B:158:LEU:HD21 | 1.95 | 0.47 |
| 1:C:72:ASN:HD22 | 1:C:73:ASN:N | 2.12 | 0.47 |
| 2:D:398:THR:CA | 2:D:401:GLU:HB3 | 2.41 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:183:LEU:HD23 | 1:E:329:ILE:HG22 | 1.97 | 0.47 |
| 3:K:108:LEU:HD12 | 3:K:108:LEU:HA | 1.70 | 0.47 |
| 1:G:485:TYR:OH | 1:G:525:MET:SD | 2.72 | 0.47 |
| 2:D:279:ARG:O | 2:D:282:GLN:HB2 | 2.14 | 0.47 |
| 2:F:395:GLN:HA | 2:F:401:GLU:HB3 | 1.97 | 0.47 |
| 1:G:409:LYS:HE2 | 1:G:468:TYR:O | 2.14 | 0.47 |
| 2:H:381:ILE:N | 2:H:381:ILE:CD1 | 2.76 | 0.47 |
| 1:A:47:LYS:HG3 | 1:A:75:PHE:HZ | 1.79 | 0.47 |
| 1:A:104:PHE:CE1 | 1:A:106:GLU:HG3 | 2.49 | 0.47 |
| 1:A:229:THR:HG23 | 1:A:232:ARG:HH21 | 1.80 | 0.47 |
| 1:A:426:TYR:HB2 | 1:A:521:ILE:HD11 | 1.96 | 0.47 |
| 2:B:13:TRP:CZ2 | 2:B:16:ARG:HG3 | 2.50 | 0.47 |
| 1:C:139:LEU:HG | 1:C:143:LEU:HD12 | 1.96 | 0.47 |
| 1:C:418:ASN:HD22 | 1:C:419:PRO:N | 2.13 | 0.47 |
| 1:E:191:GLU:H | 1:E:191:GLU:CD | 2.18 | 0.47 |
| 1:E:214:TRP:HB2 | 1:E:268:ALA:CB | 2.43 | 0.47 |
| 1:E:241:GLU:OE1 | 1:E:244:ARG:HD2 | 2.15 | 0.47 |
| 1:E:298:THR:OG1 | 1:E:300:GLN:HG2 | 2.15 | 0.47 |
| 2:F:168:VAL:HG12 | 2:F:169:LEU:N | 2.30 | 0.47 |
| 2:F:316:ILE:HD12 | 2:F:316:ILE:N | 2.11 | 0.47 |
| 2:F:319:ASN:C | 2:F:320:ASN:HD22 | 2.18 | 0.47 |
| 1:G:72:ASN:ND2 | 1:G:72:ASN:C | 2.66 | 0.47 |
| 1:G:325:VAL:HG21 | 1:G:349:LYS:HG2 | 1.96 | 0.47 |
| 2:H:257:ILE:HD13 | 2:H:282:GLN:HG2 | 1.96 | 0.47 |
| 2:H:325:ASN:ND2 | 2:H:327:VAL:HG22 | 2.30 | 0.47 |
| 2:B:13:TRP:CH2 | 2:B:116:PRO:HG2 | 2.50 | 0.47 |
| 2:B:199:CYS:O | 2:B:202:CYS:HB2 | 2.15 | 0.47 |
| 2:D:277:THR:HG22 | 2:D:280:LEU:CB | 2.45 | 0.47 |
| 2:D:343:CYS:H | 2:D:347:SER:HB3 | 1.80 | 0.47 |
| 1:G:112:LEU:C | 1:G:114:ASP:N | 2.67 | 0.47 |
| 1:G:201:LEU:HD11 | 1:G:221:TYR:CE1 | 2.50 | 0.47 |
| 1:G:401:GLU:O | 1:G:407:ILE:HD12 | 2.15 | 0.47 |
| 2:H:193:LEU:HD23 | 2:H:193:LEU:HA | 1.79 | 0.47 |
| 2:H:322:LEU:C | 2:H:322:LEU:CD1 | 2.82 | 0.47 |
| 2:H:357:PRO:HG3 | 2:H:440:PHE:CD1 | 2.50 | 0.47 |
| 1:A:78:ARG:HG3 | 1:A:81:ILE:CD1 | 2.44 | 0.47 |
| 1:A:200:ASP:O | 1:A:204:MET:HG3 | 2.15 | 0.47 |
| 2:D:64:LEU:HD11 | 2:D:77:VAL:HG21 | 1.97 | 0.47 |
| 1:E:240:LYS:HE2 | 1:E:276:LEU:HD12 | 1.96 | 0.47 |
| 2:F:182:THR:OG1 | 2:F:295:THR:HG22 | 2.15 | 0.47 |
| 2:F:186:LYS:HE2 | 2:F:325:ASN:ND2 | 2.30 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:F:325:ASN:HD21 | 2:F:327:VAL:CG2 | 2.14 | 0.47 |
| 1:G:113:LEU:HD21 | 1:G:139:LEU:CD1 | 2.45 | 0.47 |
| 1:G:225:TRP:CD1 | 1:G:225:TRP:C | 2.87 | 0.47 |
| 2:H:249:LEU:CD1 | 2:H:260:ILE:HD11 | 2.44 | 0.47 |
| 3:L:129:ARG:O | 3:L:132:GLU:HB3 | 2.14 | 0.47 |
| 1:A:62:GLY:O | 1:A:63:ASN:O | 2.33 | 0.47 |
| 1:A:155:THR:HG23 | 1:A:493:ILE:HG22 | 1.97 | 0.47 |
| 1:A:201:LEU:HD23 | 1:A:201:LEU:HA | 1.71 | 0.47 |
| 1:C:36:ILE:HB | 1:C:128:ALA:HA | 1.95 | 0.47 |
| 1:C:297:ILE:H | 1:C:297:ILE:CD1 | 2.22 | 0.47 |
| 1:C:299:LYS:HA | 1:C:368:ILE:CG2 | 2.37 | 0.47 |
| 1:E:518:ASN:CB | 1:E:533:GLN:HA | 2.45 | 0.47 |
| 2:F:237:TRP:C | 2:F:239:LYS:H | 2.18 | 0.47 |
| 1:C:335:ASP:HB3 | 1:C:338:LYS:HG3 | 1.97 | 0.46 |
| 1:C:426:TYR:HB2 | 1:C:521:ILE:CD1 | 2.43 | 0.46 |
| 2:D:384:THR:HA | 2:D:389:ASN:HA | 1.96 | 0.46 |
| 1:E:215:ILE:HG13 | 1:E:332:MET:SD | 2.54 | 0.46 |
| 2:F:312:THR:O | 2:F:313:SER:HB2 | 2.15 | 0.46 |
| 2:F:411:THR:OG1 | 2:F:414:GLU:HB2 | 2.14 | 0.46 |
| 2:F:417:LEU:HD12 | 2:F:417:LEU:N | 2.30 | 0.46 |
| 1:G:112:LEU:C | 1:G:114:ASP:H | 2.17 | 0.46 |
| 1:G:507:LYS:HG2 | 1:G:513:PHE:HB2 | 1.97 | 0.46 |
| 2:H:354:GLN:NE2 | 2:H:354:GLN:HA | 2.30 | 0.46 |
| 1:A:462:THR:O | 1:A:466:GLN:HG3 | 2.15 | 0.46 |
| 2:B:186:LYS:HB3 | 3:I:173:LEU:HD21 | 1.95 | 0.46 |
| 3:J:122:LYS:HA | 3:J:155:THR:HA | 1.97 | 0.46 |
| 1:E:47:LYS:HG3 | 1:E:75:PHE:CZ | 2.50 | 0.46 |
| 1:E:67:GLY:HA3 | 2:F:14:GLU:O | 2.15 | 0.46 |
| 2:F:336:GLU:O | 2:F:337:ALA:C | 2.52 | 0.46 |
| 1:E:19:LEU:HG | 2:F:290:PRO:HB3 | 1.96 | 0.46 |
| 1:E:211:HIS:HB3 | 1:E:335:ASP:HB2 | 1.97 | 0.46 |
| 2:F:380:ALA:HB1 | 2:F:394:LEU:HD13 | 1.96 | 0.46 |
| 3:K:125:ARG:HD3 | 3:K:129:ARG:HH21 | 1.80 | 0.46 |
| 1:G:340:ILE:HD11 | 2:H:273:ILE:HG12 | 1.96 | 0.46 |
| 2:H:128:GLN:H | 2:H:128:GLN:HE21 | 1.63 | 0.46 |
| 1:C:199:TYR:O | 1:C:220:LYS:NZ | 2.40 | 0.46 |
| 2:D:335:PHE:CE2 | 3:J:170:VAL:HG21 | 2.42 | 0.46 |
| 1:E:221:TYR:CE2 | 1:E:247:ILE:HA | 2.50 | 0.46 |
| 1:E:236:THR:HB | 1:E:239:GLU:HG3 | 1.97 | 0.46 |
| 1:E:333:ILE:O | 1:E:334:ALA:HB2 | 2.16 | 0.46 |
| 1:E:396:ARG:NH1 | 1:E:534:LEU:C | 2.69 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:397:SER:OG | 1:E:400:GLU:HB2 | 2.15 | 0.46 |
| 2:F:338:GLU:HG3 | 3:K:148:LYS:HG2 | 1.97 | 0.46 |
| 2:F:425:VAL:CB | 2:F:434:VAL:HG13 | 2.23 | 0.46 |
| 2:D:355:PHE:CE1 | 2:D:364:VAL:HA | 2.50 | 0.46 |
| 2:D:412:LEU:HD22 | 2:D:438:LEU:HD21 | 1.97 | 0.46 |
| 1:E:396:ARG:NH2 | 1:E:406:THR:O | 2.48 | 0.46 |
| 3:I:171:LEU:HD12 | 3:I:172:ARG:H | 1.80 | 0.46 |
| 2:D:58:GLY:N | 2:D:91:GLN:HG2 | 2.31 | 0.46 |
| 1:E:58:THR:HA | 1:E:103:SER:O | 2.16 | 0.46 |
| 2:F:325:ASN:HD22 | 2:F:326:ASP:H | 1.62 | 0.46 |
| 2:F:393:TYR:HA | 2:F:404:THR:OG1 | 2.14 | 0.46 |
| 1:G:347:ARG:NH2 | 2:H:274:ARG:HH11 | 2.13 | 0.46 |
| 2:H:52:LEU:HD23 | 2:H:141:ILE:HD12 | 1.97 | 0.46 |
| 2:H:223:ARG:HG3 | 2:H:223:ARG:NH1 | 2.30 | 0.46 |
| 3:L:161:ILE:HG23 | 3:L:165:SER:OG | 2.15 | 0.46 |
| 1:C:19:LEU:HD12 | 2:D:292:VAL:HG13 | 1.98 | 0.46 |
| 2:D:11:LEU:N | 2:D:11:LEU:HD23 | 2.31 | 0.46 |
| 2:D:61:CYS:HB3 | 2:D:93:LEU:HG | 1.98 | 0.46 |
| 2:D:326:ASP:O | 2:D:327:VAL:C | 2.54 | 0.46 |
| 3:J:105:VAL:HG13 | 3:J:113:ILE:HG12 | 1.98 | 0.46 |
| 1:E:243:PHE:CE2 | 1:E:247:ILE:HD11 | 2.51 | 0.46 |
| 1:E:297:ILE:H | 1:E:297:ILE:CD1 | 2.28 | 0.46 |
| 1:E:311:LEU:HD21 | 1:E:383:LEU:HD11 | 1.97 | 0.46 |
| 1:E:418:ASN:HD22 | 1:E:418:ASN:C | 2.19 | 0.46 |
| 2:F:231:TYR:CD2 | 2:F:267:ARG:HD3 | 2.51 | 0.46 |
| 1:G:34:CYS:HB2 | 1:G:123:PHE:CD2 | 2.50 | 0.46 |
| 2:H:335:PHE:CZ | 3:L:144:ILE:HD13 | 2.50 | 0.46 |
| 1:A:16:GLN:HB3 | 2:B:292:VAL:HG12 | 1.98 | 0.46 |
| 1:A:294:CYS:O | 1:A:297:ILE:HD11 | 2.15 | 0.46 |
| 1:A:341:LYS:O | 1:A:345:VAL:HG23 | 2.15 | 0.46 |
| 2:B:320:ASN:HB2 | 2:B:337:ALA:N | 2.29 | 0.46 |
| 2:B:362:GLN:HE21 | 2:B:362:GLN:C | 2.19 | 0.46 |
| 1:C:333:ILE:HA | 2:D:223:ARG:NH2 | 2.30 | 0.46 |
| 2:D:153:TRP:CE2 | 2:D:431:PRO:HB3 | 2.50 | 0.46 |
| 2:D:353:ILE:HG22 | 2:D:354:GLN:N | 2.31 | 0.46 |
| 2:D:412:LEU:O | 2:D:415:LEU:HD12 | 2.15 | 0.46 |
| 2:F:338:GLU:HG3 | 3:K:148:LYS:HA | 1.98 | 0.46 |
| 1:A:368:ILE:HG23 | 1:A:370:GLN:HG3 | 1.98 | 0.46 |
| 2:D:199:CYS:O | 2:D:202:CYS:HB2 | 2.16 | 0.46 |
| 2:F:355:PHE:O | 2:F:357:PRO:HD3 | 2.16 | 0.46 |
| 2:H:348:GLN:HB3 | 2:H:349:LEU:HD12 | 1.98 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:51:LEU:HD11 | 2:B:92:PHE:HB3 | 1.98 | 0.46 |
| 1:A:248:ARG:HG2 | 1:A:269:ILE:HD11 | 1.98 | 0.46 |
| 2:B:355:PHE:O | 2:B:440:PHE:CD2 | 2.63 | 0.46 |
| 2:F:356:SER:O | 2:F:358:SER:N | 2.49 | 0.46 |
| 2:H:203:THR:HB | 2:H:206:LEU:CD1 | 2.42 | 0.46 |
| 2:H:229:ILE:HD12 | 2:H:284:VAL:HG21 | 1.97 | 0.46 |
| 2:B:182:THR:OG1 | 2:B:295:THR:HG22 | 2.15 | 0.45 |
| 2:B:252:ASP:O | 2:B:254:PRO:HD3 | 2.16 | 0.45 |
| 2:B:354:GLN:OE1 | 2:B:439:HIS:HB3 | 2.15 | 0.45 |
| 1:C:54:ILE:HD11 | 1:C:509:ILE:CD1 | 2.46 | 0.45 |
| 2:D:90:ARG:HG2 | 2:D:90:ARG:HH11 | 1.80 | 0.45 |
| 2:D:343:CYS:C | 2:D:345:ALA:H | 2.17 | 0.45 |
| 1:E:185:LEU:O | 1:E:188:PRO:HD3 | 2.16 | 0.45 |
| 2:F:242:PRO:HG3 | 2:F:259:TRP:CE2 | 2.50 | 0.45 |
| 1:G:72:ASN:HD22 | 1:G:72:ASN:N | 2.13 | 0.45 |
| 1:G:335:ASP:HB3 | 1:G:338:LYS:HB2 | 1.98 | 0.45 |
| 1:G:336:SER:HB2 | 2:H:221:MET:HA | 1.97 | 0.45 |
| 1:G:416:MET:C | 1:G:418:ASN:H | 2.20 | 0.45 |
| 2:H:96:PRO:O | 2:H:99:ILE:HG13 | 2.15 | 0.45 |
| 2:H:373:SER:C | 2:H:374:LEU:CG | 2.79 | 0.45 |
| 1:A:74:PHE:CD1 | 2:B:65:LYS:HG3 | 2.51 | 0.45 |
| 1:A:434:ARG:HB3 | 1:A:460:CYS:HB3 | 1.98 | 0.45 |
| 2:B:217:THR:HG21 | 2:B:223:ARG:HH22 | 1.82 | 0.45 |
| 3:K:104:LYS:HG2 | 3:K:114:GLU:HG2 | 1.98 | 0.45 |
| 3:K:107:THR:HG23 | 3:K:108:LEU:N | 2.31 | 0.45 |
| 2:H:12:ASP:OD2 | 2:H:16:ARG:HD3 | 2.16 | 0.45 |
| 2:H:398:THR:HA | 2:H:401:GLU:CB | 2.44 | 0.45 |
| 1:A:19:LEU:HD12 | 2:B:292:VAL:HG13 | 1.97 | 0.45 |
| 2:B:353:ILE:HD13 | 2:B:436:PHE:HD2 | 1.81 | 0.45 |
| 2:D:338:GLU:HG2 | 3:J:147:GLY:O | 2.17 | 0.45 |
| 3:J:149:GLN:HG3 | 3:J:149:GLN:O | 2.16 | 0.45 |
| 2:H:123:HIS:HB3 | 2:H:125:ASN:ND2 | 2.28 | 0.45 |
| 2:H:267:ARG:CG | 2:H:267:ARG:NH1 | 2.79 | 0.45 |
| 2:H:321:TYR:HE1 | 3:L:172:ARG:NH1 | 2.14 | 0.45 |
| 2:H:393:TYR:HA | 2:H:404:THR:HB | 1.98 | 0.45 |
| 1:C:357:VAL:O | 1:C:361:VAL:HG23 | 2.16 | 0.45 |
| 2:D:364:VAL:O | 2:D:368:LEU:HG | 2.17 | 0.45 |
| 2:D:417:LEU:HD23 | 2:D:417:LEU:HA | 1.74 | 0.45 |
| 2:H:136:ARG:HG2 | 2:H:161:LEU:HD22 | 1.99 | 0.45 |
| 2:H:351:GLN:NE2 | 2:H:436:PHE:HE2 | 2.14 | 0.45 |
| 1:C:56:SER:HB3 | 1:C:101:SER:HB2 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:61:ASP:HB3 | 1:C:86:ALA:HB2 | 1.99 | 0.45 |
| 1:C:248:ARG:O | 1:C:251:ILE:HG13 | 2.16 | 0.45 |
| 1:C:339:TYR:HE2 | 1:C:343:GLN:HE21 | 1.63 | 0.45 |
| 2:D:398:THR:O | 2:D:402:GLU:HG3 | 2.16 | 0.45 |
| 2:F:362:GLN:C | 2:F:364:VAL:H | 2.19 | 0.45 |
| 2:F:374:LEU:HD12 | 2:F:374:LEU:O | 2.16 | 0.45 |
| 1:G:45:ILE:HG13 | 1:G:498:GLY:HA2 | 1.98 | 0.45 |
| 1:G:306:ILE:HD13 | 1:G:365:LEU:HD23 | 1.98 | 0.45 |
| 2:H:142:VAL:HG21 | 2:H:307:VAL:HG21 | 1.97 | 0.45 |
| 2:H:360:LYS:HG3 | 2:H:363:GLU:OE1 | 2.16 | 0.45 |
| 1:A:38:ALA:HB2 | 1:A:59:ILE:CG2 | 2.47 | 0.45 |
| 1:A:227:SER:C | 1:A:229:THR:H | 2.19 | 0.45 |
| 1:A:407:ILE:C | 1:A:407:ILE:HD13 | 2.37 | 0.45 |
| 2:B:360:LYS:HA | 2:B:411:THR:HA | 1.99 | 0.45 |
| 1:C:193:ARG:O | 1:C:197:GLN:HG3 | 2.17 | 0.45 |
| 2:D:392:LEU:CD1 | 2:D:392:LEU:H | 2.29 | 0.45 |
| 1:E:513:PHE:N | 1:E:513:PHE:CD1 | 2.83 | 0.45 |
| 2:F:361:LEU:O | 2:F:361:LEU:HD23 | 2.17 | 0.45 |
| 2:F:362:GLN:NE2 | 2:F:408:LEU:CD1 | 2.79 | 0.45 |
| 3:K:118:GLU:O | 3:K:120:THR:N | 2.50 | 0.45 |
| 1:G:201:LEU:CD1 | 1:G:221:TYR:CE1 | 3.00 | 0.45 |
| 2:H:98:ASP:OD1 | 2:H:101:ARG:NH1 | 2.50 | 0.45 |
| 2:H:269:SER:C | 2:H:271:TYR:H | 2.20 | 0.45 |
| 2:H:323:VAL:HG21 | 3:L:170:VAL:HG22 | 1.99 | 0.45 |
| 2:H:415:LEU:O | 2:H:416:GLY:C | 2.55 | 0.45 |
| 1:A:31:ALA:HB3 | 1:A:54:ILE:HD11 | 1.98 | 0.45 |
| 1:C:51:LEU:CB | 1:C:52:PRO:HD3 | 2.46 | 0.45 |
| 1:C:337:GLY:HA2 | 1:C:340:ILE:HD12 | 1.99 | 0.45 |
| 2:D:158:LEU:HD12 | 2:D:177:LEU:HB2 | 1.98 | 0.45 |
| 2:D:187:GLY:CA | 3:J:173:LEU:HD12 | 2.47 | 0.45 |
| 2:D:323:VAL:O | 2:D:332:THR:HA | 2.17 | 0.45 |
| 1:E:282:PRO:HG2 | 1:E:388:ALA:HB1 | 1.97 | 0.45 |
| 2:F:199:CYS:SG | 2:F:201:GLU:N | 2.89 | 0.45 |
| 1:G:226:TYR:O | 1:G:231:GLY:N | 2.48 | 0.45 |
| 2:H:362:GLN:O | 2:H:362:GLN:NE2 | 2.50 | 0.45 |
| 1:C:8:LEU:O | 1:C:11:GLN:HB2 | 2.17 | 0.45 |
| 1:C:314:PHE:CE1 | 1:C:318:GLU:HG2 | 2.52 | 0.45 |
| 2:D:197:THR:HG22 | 2:D:198:ALA:N | 2.30 | 0.45 |
| 2:D:222:PRO:HD2 | 2:D:271:TYR:CE2 | 2.52 | 0.45 |
| 2:D:232:VAL:O | 2:D:232:VAL:HG12 | 2.15 | 0.45 |
| 3:J:155:THR:HG23 | 3:J:158:ASP:H | 1.82 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:F:83:ILE:HD12 | 2:F:106:VAL:HG21 | 1.99 | 0.45 |
| 2:H:178:ILE:HD12 | 2:H:307:VAL:CG2 | 2.45 | 0.45 |
| 2:H:238:PRO:O | 2:H:241:GLN:NE2 | 2.50 | 0.45 |
| 2:H:353:ILE:HD12 | 2:H:367:TYR:CE2 | 2.52 | 0.45 |
| 2:H:362:GLN:HB2 | 2:H:408:LEU:HB3 | 1.98 | 0.45 |
| 2:H:366:ASP:HA | 2:H:369:THR:HB | 1.99 | 0.45 |
| 3:L:102:LEU:HD13 | 3:L:116:ASP:OD1 | 2.17 | 0.45 |
| 1:A:15:ARG:HA | 1:A:15:ARG:HD3 | 1.77 | 0.45 |
| 1:A:185:LEU:HD11 | 1:A:215:ILE:HG23 | 1.99 | 0.45 |
| 1:A:207:LYS:O | 1:A:211:HIS:ND1 | 2.50 | 0.45 |
| 1:A:422:GLU:HG3 | 1:A:530:ALA:HB3 | 1.99 | 0.45 |
| 2:B:272:ASN:HD22 | 2:B:272:ASN:H | 1.58 | 0.45 |
| 2:B:323:VAL:O | 2:B:332:THR:HA | 2.17 | 0.45 |
| 2:D:268:ALA:HB2 | 2:D:276:VAL:HG21 | 1.98 | 0.45 |
| 1:E:518:ASN:HB3 | 1:E:533:GLN:HA | 1.99 | 0.45 |
| 2:B:383:ALA:HB2 | 2:B:423:LEU:HD23 | 1.98 | 0.45 |
| 1:C:58:THR:HA | 1:C:103:SER:O | 2.16 | 0.45 |
| 2:D:361:LEU:HB3 | 2:D:408:LEU:HA | 1.99 | 0.45 |
| 3:J:101:MET:CE | 3:J:119:PRO:HG3 | 2.46 | 0.45 |
| 1:E:430:ARG:NH1 | 1:E:430:ARG:HB3 | 2.32 | 0.45 |
| 2:F:322:LEU:CD1 | 2:F:322:LEU:C | 2.86 | 0.45 |
| 1:G:208:ASP:HA | 1:G:211:HIS:HB2 | 1.99 | 0.45 |
| 2:H:200:ILE:HD13 | 3:L:172:ARG:HH21 | 1.82 | 0.45 |
| 1:A:233:ILE:HG13 | 1:A:234:PRO:HD2 | 1.98 | 0.44 |
| 2:B:197:THR:HG22 | 2:B:198:ALA:O | 2.17 | 0.44 |
| 2:B:197:THR:CG2 | 2:B:198:ALA:N | 2.79 | 0.44 |
| 2:B:380:ALA:HB2 | 2:B:394:LEU:HD12 | 1.98 | 0.44 |
| 1:C:40:ALA:O | 1:C:44:GLU:HG2 | 2.16 | 0.44 |
| 1:E:264:ASN:O | 1:E:267:GLU:HB2 | 2.17 | 0.44 |
| 2:F:242:PRO:CG | 2:F:259:TRP:CZ2 | 2.99 | 0.44 |
| 1:G:310:ALA:CB | 1:G:361:VAL:HG23 | 2.48 | 0.44 |
| 1:A:151:LEU:HD12 | 1:A:163:ARG:O | 2.16 | 0.44 |
| 3:I:170:VAL:CG1 | 3:I:171:LEU:N | 2.80 | 0.44 |
| 1:C:189:PHE:CE2 | 1:C:192:LEU:HD22 | 2.52 | 0.44 |
| 1:C:244:ARG:HH22 | 1:C:273:ASN:HB2 | 1.83 | 0.44 |
| 2:D:429:THR:HG22 | 2:D:430:THR:N | 2.32 | 0.44 |
| 3:K:144:ILE:HD13 | 3:K:170:VAL:CB | 2.41 | 0.44 |
| 1:G:180:LEU:HD23 | 1:G:274:THR:HG23 | 1.98 | 0.44 |
| 2:H:221:MET:H | 2:H:221:MET:HG2 | 1.64 | 0.44 |
| 1:A:49:LEU:O | 1:A:52:PRO:HG2 | 2.17 | 0.44 |
| 2:B:419:ASP:C | 2:B:419:ASP:OD1 | 2.55 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:301:THR:HA | 1:C:302:PRO:HD3 | 1.66 | 0.44 |
| 1:E:184:ARG:HG2 | 1:E:279:THR:OG1 | 2.17 | 0.44 |
| 3:K:103:ILE:HG21 | 3:K:161:ILE:CG2 | 2.47 | 0.44 |
| 1:G:115:ASN:O | 1:G:117:PRO:HD3 | 2.16 | 0.44 |
| 1:G:436:HIS:CD2 | 1:G:442:TYR:CE1 | 3.06 | 0.44 |
| 1:G:447:ASN:HD22 | 2:H:26:ARG:NH2 | 2.15 | 0.44 |
| 2:H:267:ARG:HD2 | 2:H:271:TYR:HE1 | 1.80 | 0.44 |
| 3:L:145:TYR:CE1 | 3:L:165:SER:HB2 | 2.52 | 0.44 |
| 3:L:149:GLN:HG3 | 3:L:149:GLN:O | 2.17 | 0.44 |
| 1:A:282:PRO:CB | 1:A:285:ILE:HD13 | 2.46 | 0.44 |
| 1:A:396:ARG:HD3 | 1:A:534:LEU:O | 2.17 | 0.44 |
| 2:B:161:LEU:O | 2:B:173:SER:HB2 | 2.17 | 0.44 |
| 2:B:411:THR:C | 2:B:413:LYS:N | 2.69 | 0.44 |
| 1:C:113:LEU:HB3 | 1:C:138:ARG:NH2 | 2.33 | 0.44 |
| 1:C:211:HIS:HB3 | 1:C:335:ASP:HB2 | 1.99 | 0.44 |
| 1:E:288:ILE:HG23 | 1:E:305:TRP:CZ3 | 2.52 | 0.44 |
| 1:E:489:GLU:O | 1:E:489:GLU:HG2 | 2.17 | 0.44 |
| 2:F:56:ALA:HB2 | 2:F:77:VAL:HG11 | 2.00 | 0.44 |
| 2:F:404:THR:O | 2:F:407:ASN:HB2 | 2.17 | 0.44 |
| 2:H:342:ASN:O | 2:H:342:ASN:CG | 2.56 | 0.44 |
| 3:L:117:ILE:CD1 | 3:L:126:ILE:HG12 | 2.47 | 0.44 |
| 1:C:262:GLU:O | 1:C:264:ASN:N | 2.51 | 0.44 |
| 1:C:480:HIS:O | 1:C:483:CYS:HB2 | 2.17 | 0.44 |
| 2:D:318:LEU:HD12 | 2:D:319:ASN:N | 2.32 | 0.44 |
| 1:E:116:ASP:N | 1:E:117:PRO:HD3 | 2.33 | 0.44 |
| 1:E:261:ASP:O | 1:E:262:GLU:HG3 | 2.18 | 0.44 |
| 2:F:154:ILE:HG13 | 2:F:158:LEU:HD23 | 2.00 | 0.44 |
| 1:G:114:ASP:HA | 1:G:138:ARG:NH2 | 2.33 | 0.44 |
| 1:G:243:PHE:O | 1:G:247:ILE:HG13 | 2.17 | 0.44 |
| 2:H:132:ASP:O | 2:H:136:ARG:HG3 | 2.16 | 0.44 |
| 3:L:161:ILE:O | 3:L:162:LEU:HD23 | 2.17 | 0.44 |
| 2:B:31:THR:OG1 | 2:B:35:PHE:CB | 2.66 | 0.44 |
| 2:B:207:TYR:O | 3:I:142:ARG:NH1 | 2.51 | 0.44 |
| 1:C:33:VAL:CG1 | 1:C:54:ILE:HG12 | 2.48 | 0.44 |
| 1:E:335:ASP:HB3 | 1:E:338:LYS:CB | 2.38 | 0.44 |
| 1:E:418:ASN:HD22 | 1:E:419:PRO:N | 2.14 | 0.44 |
| 1:E:452:GLU:CG | 1:E:456:LYS:HE3 | 2.46 | 0.44 |
| 2:F:221:MET:N | 2:F:222:PRO:HD3 | 2.33 | 0.44 |
| 2:H:195:GLY:O | 2:H:339:ARG:NH1 | 2.50 | 0.44 |
| 1:A:155:THR:HB | 1:A:489:GLU:HG3 | 2.00 | 0.44 |
| 2:B:13:TRP:NE1 | 2:B:16:ARG:HB2 | 2.32 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:B:351:GLN:CA | 2:B:351:GLN:HE21 | 2.30 | 0.44 |
| 1:C:274:THR:HG21 | 3:J:131:GLU:HG2 | 2.00 | 0.44 |
| 1:C:504:GLU:OE2 | 1:C:507:LYS:NZ | 2.47 | 0.44 |
| 2:D:224:LEU:O | 2:D:227:HIS:HB2 | 2.18 | 0.44 |
| 2:F:232:VAL:HA | 2:F:236:GLN:HB3 | 2.00 | 0.44 |
| 2:H:32:HIS:CG | 2:H:33:PRO:HD2 | 2.53 | 0.44 |
| 2:H:280:LEU:O | 2:H:284:VAL:HG23 | 2.17 | 0.44 |
| 1:A:371:ALA:C | 1:A:373:GLU:N | 2.71 | 0.44 |
| 2:B:64:LEU:HD21 | 2:B:77:VAL:HG21 | 1.96 | 0.44 |
| 2:B:187:GLY:HA2 | 3:I:173:LEU:HD13 | 2.00 | 0.44 |
| 1:C:225:TRP:NE1 | 1:C:234:PRO:HD3 | 2.33 | 0.44 |
| 1:C:263:GLU:O | 1:C:266:GLU:HB3 | 2.18 | 0.44 |
| 2:D:162:LEU:HA | 2:D:173:SER:OG | 2.16 | 0.44 |
| 2:D:392:LEU:HD12 | 2:D:392:LEU:H | 1.81 | 0.44 |
| 1:E:48:ASN:HB2 | 1:E:502:ALA:CB | 2.48 | 0.44 |
| 1:E:317:LYS:O | 1:E:319:GLY:N | 2.51 | 0.44 |
| 2:F:249:LEU:CD1 | 2:F:256:HIS:HB3 | 2.47 | 0.44 |
| 1:G:353:ASP:O | 1:G:357:VAL:HG23 | 2.18 | 0.44 |
| 3:L:124:GLU:HB2 | 3:L:152:ASP:O | 2.18 | 0.44 |
| 1:A:253:LYS:O | 1:A:260:GLU:CB | 2.66 | 0.44 |
| 1:A:298:THR:OG1 | 1:A:300:GLN:HG2 | 2.18 | 0.44 |
| 2:B:351:GLN:HB3 | 2:B:436:PHE:CD2 | 2.53 | 0.44 |
| 2:B:356:SER:CA | 2:B:442:SER:HB3 | 2.48 | 0.44 |
| 1:C:9:LYS:HE2 | 1:C:99:ASP:OD1 | 2.18 | 0.44 |
| 1:C:334:ALA:H | 2:D:223:ARG:HH21 | 1.66 | 0.44 |
| 2:F:351:GLN:HB2 | 2:F:436:PHE:CD2 | 2.52 | 0.44 |
| 2:F:435:LEU:O | 2:F:436:PHE:CD2 | 2.70 | 0.44 |
| 2:F:438:LEU:HD23 | 2:F:438:LEU:HA | 1.75 | 0.44 |
| 1:G:210:SER:N | 1:G:262:GLU:OE2 | 2.51 | 0.44 |
| 1:C:67:GLY:H | 2:H:262:GLN:HE22 | 1.66 | 0.43 |
| 1:C:260:GLU:HG3 | 1:C:261:ASP:OD2 | 2.17 | 0.43 |
| 2:D:240:GLU:O | 2:D:241:GLN:C | 2.56 | 0.43 |
| 2:D:371:SER:OG | 2:D:372:ALA:N | 2.51 | 0.43 |
| 3:J:143:LEU:HB3 | 3:J:150:MET:HE2 | 2.00 | 0.43 |
| 1:E:336:SER:HB2 | 2:F:221:MET:CA | 2.45 | 0.43 |
| 1:G:38:ALA:HB3 | 1:G:85:ARG:CD | 2.48 | 0.43 |
| 2:H:267:ARG:O | 2:H:271:TYR:HD1 | 2.01 | 0.43 |
| 3:L:136:ILE:O | 3:L:137:PRO:C | 2.55 | 0.43 |
| 1:A:408:ASN:OD1 | 1:A:411:GLU:HB3 | 2.18 | 0.43 |
| 3:I:107:THR:C | 3:I:109:THR:H | 2.21 | 0.43 |
| 2:D:147:SER:O | 2:D:151:ARG:HG3 | 2.18 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:340:ILE:HD13 | 2:F:272:ASN:O | 2.18 | 0.43 |
| 1:E:428:MET:O | 1:E:432:VAL:HG23 | 2.18 | 0.43 |
| 3:K:103:ILE:HD11 | 3:K:115:ILE:HG22 | 2.00 | 0.43 |
| 1:G:527:GLN:HG3 | 2:H:318:LEU:HB2 | 1.99 | 0.43 |
| 2:H:31:THR:OG1 | 2:H:35:PHE:CB | 2.66 | 0.43 |
| 2:H:237:TRP:CE3 | 2:H:242:PRO:HG2 | 2.53 | 0.43 |
| 2:H:362:GLN:HG2 | 2:H:408:LEU:HD22 | 2.00 | 0.43 |
| 1:A:276:LEU:HD23 | 1:A:276:LEU:HA | 1.81 | 0.43 |
| 2:B:54:ILE:CG2 | 2:B:145:LEU:HD21 | 2.48 | 0.43 |
| 1:C:488:ALA:HB2 | 2:D:22:LYS:HD2 | 2.00 | 0.43 |
| 1:E:373:GLU:C | 1:E:375:ILE:H | 2.20 | 0.43 |
| 1:G:46:LEU:HA | 1:G:46:LEU:HD12 | 1.72 | 0.43 |
| 2:H:235:LEU:HD22 | 2:H:235:LEU:N | 2.33 | 0.43 |
| 2:H:271:TYR:C | 2:H:272:ASN:HD22 | 2.18 | 0.43 |
| 1:A:490:PRO:HG3 | 2:B:23:PHE:HE1 | 1.84 | 0.43 |
| 1:C:36:ILE:HD13 | 1:C:36:ILE:HA | 1.67 | 0.43 |
| 1:C:299:LYS:HG2 | 1:C:368:ILE:O | 2.19 | 0.43 |
| 2:D:349:LEU:HA | 2:D:350:PRO:HD3 | 1.89 | 0.43 |
| 2:D:422:GLU:HA | 2:D:437:LYS:HA | 2.00 | 0.43 |
| 1:E:163:ARG:HD3 | 1:E:518:ASN:O | 2.18 | 0.43 |
| 1:E:248:ARG:C | 1:E:250:GLY:N | 2.70 | 0.43 |
| 1:E:311:LEU:HD22 | 1:E:383:LEU:HD21 | 2.00 | 0.43 |
| 1:E:418:ASN:ND2 | 1:E:418:ASN:C | 2.71 | 0.43 |
| 1:G:143:LEU:CD1 | 1:G:150:LEU:HD13 | 2.48 | 0.43 |
| 2:H:28:GLY:O | 2:H:31:THR:HG22 | 2.19 | 0.43 |
| 2:H:193:LEU:HA | 2:H:194:PRO:HD2 | 1.73 | 0.43 |
| 1:C:19:LEU:CD1 | 2:D:292:VAL:HG13 | 2.49 | 0.43 |
| 1:C:156:TYR:CE1 | 1:C:487:ALA:HA | 2.54 | 0.43 |
| 2:D:415:LEU:CD1 | 2:D:417:LEU:HG | 2.48 | 0.43 |
| 2:F:266:GLU:O | 2:F:267:ARG:C | 2.57 | 0.43 |
| 1:G:12:LYS:HG3 | 2:H:88:LEU:HB2 | 2.00 | 0.43 |
| 1:G:269:ILE:HG22 | 1:G:269:ILE:O | 2.17 | 0.43 |
| 1:A:366:GLN:O | 1:A:368:ILE:N | 2.52 | 0.43 |
| 2:B:195:GLY:O | 2:B:339:ARG:NH1 | 2.52 | 0.43 |
| 1:C:51:LEU:HA | 1:C:51:LEU:HD23 | 1.75 | 0.43 |
| 2:D:40:GLU:O | 2:D:41:SER:C | 2.56 | 0.43 |
| 2:D:361:LEU:O | 2:D:363:GLU:N | 2.52 | 0.43 |
| 1:E:113:LEU:HD13 | 1:E:138:ARG:CG | 2.48 | 0.43 |
| 1:E:447:ASN:ND2 | 2:F:26:ARG:NH2 | 2.61 | 0.43 |
| 3:K:117:ILE:HD13 | 3:K:126:ILE:HG12 | 2.01 | 0.43 |
| 1:G:191:GLU:CD | 1:G:191:GLU:H | 2.21 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:G:307:LEU:HD21 | 1:G:375:ILE:HG21 | 2.00 | 0.43 |
| 2:H:182:THR:OG1 | 2:H:295:THR:HG22 | 2.19 | 0.43 |
| 2:H:200:ILE:CD1 | 3:L:172:ARG:HH21 | 2.32 | 0.43 |
| 2:H:233:ARG:HH11 | 2:H:233:ARG:CG | 2.26 | 0.43 |
| 2:H:321:TYR:HE2 | 2:H:323:VAL:CG2 | 2.29 | 0.43 |
| 2:H:361:LEU:O | 2:H:364:VAL:CG2 | 2.65 | 0.43 |
| 2:H:402:GLU:CG | 2:H:405:ARG:HH22 | 2.30 | 0.43 |
| 1:A:437:LYS:HA | 1:A:437:LYS:NZ | 2.32 | 0.43 |
| 2:B:52:LEU:HD11 | 2:B:78:ILE:HG13 | 2.00 | 0.43 |
| 2:B:158:LEU:CD1 | 2:B:177:LEU:HB2 | 2.49 | 0.43 |
| 2:B:412:LEU:CD1 | 2:B:438:LEU:HD11 | 2.49 | 0.43 |
| 1:C:160:GLY:HA3 | 1:C:497:LEU:HD11 | 2.01 | 0.43 |
| 1:C:310:ALA:CB | 1:C:361:VAL:HG22 | 2.48 | 0.43 |
| 1:C:341:LYS:O | 1:C:344:ASN:HB2 | 2.19 | 0.43 |
| 2:D:164:TYR:CE2 | 2:D:169:LEU:HB2 | 2.53 | 0.43 |
| 2:D:294:SER:O | 2:D:298:VAL:HG23 | 2.17 | 0.43 |
| 2:F:169:LEU:HD12 | 2:F:170:ASP:N | 2.33 | 0.43 |
| 2:F:223:ARG:O | 2:F:273:ILE:HD13 | 2.18 | 0.43 |
| 2:F:231:TYR:CE1 | 2:F:235:LEU:HB2 | 2.54 | 0.43 |
| 2:H:64:LEU:HD21 | 2:H:77:VAL:HG22 | 1.99 | 0.43 |
| 3:L:103:ILE:HG21 | 3:L:161:ILE:CG2 | 2.49 | 0.43 |
| 3:L:151:ASN:C | 3:L:153:GLU:H | 2.22 | 0.43 |
| 3:L:170:VAL:HG13 | 3:L:171:LEU:H | 1.83 | 0.43 |
| 1:A:234:PRO:HB2 | 1:A:276:LEU:CD1 | 2.48 | 0.43 |
| 2:B:403:ARG:NE | 2:D:166:ASP:OD2 | 2.52 | 0.43 |
| 2:B:417:LEU:HD22 | 2:B:417:LEU:N | 2.33 | 0.43 |
| 3:I:145:TYR:HB2 | 3:I:167:LEU:CD2 | 2.49 | 0.43 |
| 3:I:161:ILE:HD13 | 3:I:167:LEU:HD21 | 2.00 | 0.43 |
| 1:C:189:PHE:CD1 | 1:C:192:LEU:HB2 | 2.54 | 0.43 |
| 1:C:265:PHE:O | 1:C:269:ILE:HG13 | 2.19 | 0.43 |
| 1:E:214:TRP:O | 1:E:218:ILE:HG13 | 2.18 | 0.43 |
| 1:E:517:ASN:O | 1:E:517:ASN:ND2 | 2.44 | 0.43 |
| 2:F:374:LEU:O | 2:F:376:MET:HG3 | 2.18 | 0.43 |
| 2:H:24:LEU:CD2 | 2:H:312:THR:HB | 2.48 | 0.43 |
| 2:H:412:LEU:CD1 | 2:H:412:LEU:H | 2.31 | 0.43 |
| 1:A:130:GLN:OE1 | 1:A:154:ARG:HA | 2.18 | 0.43 |
| 2:B:132:ASP:O | 2:B:136:ARG:HB2 | 2.19 | 0.43 |
| 2:B:152:ARG:NH2 | 2:B:201:GLU:OE1 | 2.52 | 0.43 |
| 1:C:9:LYS:C | 1:C:11:GLN:N | 2.71 | 0.43 |
| 1:C:435:PHE:C | 1:C:435:PHE:CD2 | 2.91 | 0.43 |
| 2:D:78:ILE:HG12 | 2:D:123:HIS:HB2 | 2.00 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:D:95:ARG:HA | 2:D:95:ARG:HD3 | 1.78 | 0.43 |
| 2:H:321:TYR:HE1 | 3:L:172:ARG:HH11 | 1.67 | 0.43 |
| 2:H:380:ALA:HB1 | 2:H:394:LEU:HD12 | 1.94 | 0.43 |
| 2:D:343:CYS:C | 2:D:345:ALA:N | 2.72 | 0.43 |
| 2:F:62:GLU:CG | 2:F:297:ALA:HA | 2.44 | 0.43 |
| 1:G:299:LYS:HA | 1:G:368:ILE:CG2 | 2.49 | 0.43 |
| 1:A:128:ALA:HB1 | 1:A:131:LEU:CD1 | 2.49 | 0.42 |
| 1:A:492:THR:HG22 | 2:B:66:ASN:HB3 | 2.01 | 0.42 |
| 1:A:517:ASN:OD1 | 1:A:533:GLN:NE2 | 2.52 | 0.42 |
| 3:I:101:MET:SD | 3:I:162:LEU:HA | 2.59 | 0.42 |
| 3:I:118:GLU:O | 3:I:121:ASP:HB2 | 2.19 | 0.42 |
| 2:F:385:LEU:HD21 | 2:F:417:LEU:CD1 | 2.49 | 0.42 |
| 1:G:25:GLN:O | 1:G:29:GLU:HG3 | 2.19 | 0.42 |
| 1:G:124:THR:HG22 | 1:G:125:VAL:HG23 | 2.01 | 0.42 |
| 1:G:128:ALA:HB1 | 1:G:131:LEU:CD1 | 2.48 | 0.42 |
| 1:G:466:GLN:O | 1:G:467:GLU:C | 2.58 | 0.42 |
| 2:H:271:TYR:C | 2:H:272:ASN:ND2 | 2.71 | 0.42 |
| 1:A:229:THR:HG22 | 1:A:232:ARG:HB3 | 2.01 | 0.42 |
| 3:I:137:PRO:HA | 3:I:138:PRO:HD3 | 1.94 | 0.42 |
| 2:D:361:LEU:C | 2:D:363:GLU:N | 2.72 | 0.42 |
| 2:F:318:LEU:C | 2:F:319:ASN:O | 2.56 | 0.42 |
| 2:F:322:LEU:CD1 | 2:F:323:VAL:N | 2.80 | 0.42 |
| 1:G:181:GLU:O | 1:G:278:THR:HB | 2.20 | 0.42 |
| 1:A:13:TYR:O | 1:A:17:LEU:HG | 2.18 | 0.42 |
| 1:A:34:CYS:HB2 | 1:A:123:PHE:CE1 | 2.55 | 0.42 |
| 1:A:148:ILE:HA | 1:A:149:PRO:HD3 | 1.92 | 0.42 |
| 2:B:294:SER:O | 2:B:298:VAL:HG23 | 2.19 | 0.42 |
| 2:B:430:THR:HA | 2:B:431:PRO:HD3 | 1.93 | 0.42 |
| 2:D:261:PHE:CD1 | 2:D:278:TYR:HA | 2.54 | 0.42 |
| 1:G:416:MET:C | 1:G:418:ASN:N | 2.72 | 0.42 |
| 1:A:222:LEU:HA | 1:A:222:LEU:HD12 | 1.78 | 0.42 |
| 2:B:158:LEU:HD12 | 2:B:177:LEU:HB2 | 2.00 | 0.42 |
| 2:B:384:THR:C | 2:B:385:LEU:O | 2.55 | 0.42 |
| 1:C:252:LEU:O | 1:C:252:LEU:HD12 | 2.19 | 0.42 |
| 1:C:423:ILE:HG13 | 1:C:423:ILE:O | 2.19 | 0.42 |
| 1:E:224:GLN:HE21 | 1:E:246:LEU:HD11 | 1.84 | 0.42 |
| 1:E:396:ARG:NH1 | 1:E:534:LEU:O | 2.49 | 0.42 |
| 2:F:182:THR:HG21 | 2:F:296:ASN:OD1 | 2.19 | 0.42 |
| 2:F:247:VAL:HA | 2:F:248:PRO:HD3 | 1.88 | 0.42 |
| 2:F:250:ASP:OD2 | 2:F:252:ASP:HB2 | 2.19 | 0.42 |
| 2:F:423:LEU:O | 2:F:435:LEU:HA | 2.19 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:G:279:THR:O | 1:G:280:GLN:HB2 | 2.19 | 0.42 |
| 2:H:352:ASN:N | 2:H:352:ASN:HD22 | 2.16 | 0.42 |
| 2:B:40:GLU:HG2 | 2:B:40:GLU:O | 2.20 | 0.42 |
| 1:E:163:ARG:NH1 | 1:E:518:ASN:ND2 | 2.62 | 0.42 |
| 1:E:357:VAL:HG12 | 1:E:380:LEU:HD11 | 2.02 | 0.42 |
| 2:H:310:ILE:O | 2:H:310:ILE:HG22 | 2.19 | 0.42 |
| 2:B:309:LYS:HG2 | 2:B:315:TYR:HB2 | 2.01 | 0.42 |
| 1:C:57:PHE:C | 1:C:57:PHE:CD1 | 2.93 | 0.42 |
| 1:C:327:GLY:HA3 | 1:C:350:ALA:HB2 | 2.01 | 0.42 |
| 1:E:419:PRO:HB2 | 1:E:475:LYS:HE3 | 2.01 | 0.42 |
| 1:E:457:LEU:HD23 | 1:E:479:VAL:HG13 | 2.01 | 0.42 |
| 2:F:84:ASP:HB3 | 2:F:87:ASN:OD1 | 2.18 | 0.42 |
| 1:G:163:ARG:NH2 | 1:G:518:ASN:HD21 | 2.17 | 0.42 |
| 2:H:84:ASP:H | 2:H:87:ASN:HD21 | 1.66 | 0.42 |
| 2:H:354:GLN:NE2 | 2:H:439:HIS:CB | 2.72 | 0.42 |
| 2:H:398:THR:CA | 2:H:401:GLU:HB3 | 2.49 | 0.42 |
| 1:A:396:ARG:NH2 | 1:A:406:THR:O | 2.50 | 0.42 |
| 2:B:152:ARG:NE | 2:B:201:GLU:OE1 | 2.53 | 0.42 |
| 2:B:233:ARG:HG3 | 2:B:249:LEU:CD2 | 2.47 | 0.42 |
| 1:C:454:ILE:HD13 | 1:C:480:HIS:ND1 | 2.34 | 0.42 |
| 2:D:73:ARG:HG3 | 2:D:73:ARG:NH1 | 2.35 | 0.42 |
| 2:D:322:LEU:C | 2:D:322:LEU:CD1 | 2.81 | 0.42 |
| 1:E:447:ASN:ND2 | 2:F:26:ARG:NE | 2.62 | 0.42 |
| 3:K:162:LEU:HB3 | 3:K:163:GLY:H | 1.65 | 0.42 |
| 1:G:214:TRP:CD1 | 1:G:214:TRP:C | 2.92 | 0.42 |
| 2:H:155:ASN:OD1 | 2:H:199:CYS:HB2 | 2.19 | 0.42 |
| 2:B:239:LYS:HD2 | 2:B:239:LYS:HA | 1.83 | 0.42 |
| 2:D:64:LEU:C | 2:D:111:LEU:HD11 | 2.39 | 0.42 |
| 1:E:125:VAL:HG12 | 1:E:126:VAL:N | 2.34 | 0.42 |
| 3:K:137:PRO:HA | 3:K:138:PRO:HD3 | 1.87 | 0.42 |
| 1:G:66:SER:O | 1:G:69:ASP:HB2 | 2.20 | 0.42 |
| 1:G:236:THR:HG22 | 1:G:237:TYR:N | 2.34 | 0.42 |
| 1:A:282:PRO:CG | 1:A:285:ILE:HD13 | 2.49 | 0.42 |
| 2:B:237:TRP:CE3 | 2:B:242:PRO:HG3 | 2.54 | 0.42 |
| 1:C:67:GLY:H | 2:H:262:GLN:NE2 | 2.18 | 0.42 |
| 1:C:177:ASP:OD1 | 2:D:327:VAL:HG21 | 2.20 | 0.42 |
| 2:D:405:ARG:HG3 | 2:D:408:LEU:HD12 | 2.01 | 0.42 |
| 2:F:24:LEU:CD2 | 2:F:312:THR:HB | 2.49 | 0.42 |
| 2:F:231:TYR:C | 2:F:233:ARG:H | 2.23 | 0.42 |
| 2:F:357:PRO:HG3 | 2:F:412:LEU:CD1 | 2.43 | 0.42 |
| 1:G:281:ILE:CG2 | 1:G:286:GLU:OE2 | 2.68 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:G:333:ILE:H | 1:G:333:ILE:HG13 | 1.59 | 0.42 |
| 2:H:201:GLU:HG2 | 2:H:345:ALA:CB | 2.50 | 0.42 |
| 2:H:213:PHE:O | 2:H:214:PRO:C | 2.58 | 0.42 |
| 3:L:107:THR:CG2 | 3:L:111:LYS:H | 2.27 | 0.42 |
| 1:A:382:LEU:HD12 | 1:A:382:LEU:HA | 1.93 | 0.42 |
| 1:A:468:TYR:HB2 | 1:A:470:LEU:HD11 | 2.02 | 0.42 |
| 2:B:157:MET:HA | 2:B:157:MET:CE | 2.49 | 0.42 |
| 2:B:385:LEU:HD23 | 2:B:385:LEU:HA | 1.56 | 0.42 |
| 1:C:481:GLU:HG3 | 1:C:485:TYR:CE2 | 2.55 | 0.42 |
| 3:J:105:VAL:HG13 | 3:J:105:VAL:O | 2.20 | 0.42 |
| 1:E:38:ALA:C | 1:E:85:ARG:HD3 | 2.40 | 0.42 |
| 2:F:38:SER:HB3 | 2:F:41:SER:OG | 2.20 | 0.42 |
| 2:F:392:LEU:O | 2:F:393:TYR:HB2 | 2.20 | 0.42 |
| 1:G:175:HIS:HD2 | 1:G:512:GLN:O | 2.02 | 0.42 |
| 1:G:201:LEU:HD22 | 1:G:221:TYR:HE1 | 1.85 | 0.42 |
| 1:G:208:ASP:O | 1:G:212:THR:HG23 | 2.20 | 0.42 |
| 1:A:250:GLY:O | 1:A:251:ILE:C | 2.58 | 0.41 |
| 2:B:79:ASP:OD2 | 2:B:81:ASP:HB2 | 2.20 | 0.41 |
| 2:B:361:LEU:HD23 | 2:B:361:LEU:O | 2.19 | 0.41 |
| 1:C:97:ASN:HB3 | 1:C:100:VAL:HG23 | 2.02 | 0.41 |
| 1:C:159:VAL:HG22 | 1:C:425:LEU:HD13 | 2.02 | 0.41 |
| 1:C:425:LEU:HD11 | 1:C:523:SER:HB2 | 2.02 | 0.41 |
| 3:J:123:VAL:CB | 3:J:152:ASP:HA | 2.40 | 0.41 |
| 2:F:69:LEU:HD23 | 2:F:69:LEU:HA | 1.87 | 0.41 |
| 2:F:351:GLN:HB2 | 2:F:436:PHE:CE2 | 2.55 | 0.41 |
| 3:K:169:LEU:HD23 | 3:K:169:LEU:HA | 1.83 | 0.41 |
| 2:H:32:HIS:HD2 | 2:H:34:ASP:H | 1.60 | 0.41 |
| 2:H:270:GLN:HB2 | 2:H:271:TYR:CE1 | 2.55 | 0.41 |
| 2:H:329:GLY:C | 2:H:330:LEU:HD12 | 2.40 | 0.41 |
| 1:A:407:ILE:HD13 | 1:A:408:ASN:N | 2.34 | 0.41 |
| 2:B:324:PHE:HD1 | 2:B:332:THR:HG22 | 1.84 | 0.41 |
| 2:D:187:GLY:HA2 | 3:J:173:LEU:HD12 | 2.03 | 0.41 |
| 3:J:107:THR:HA | 3:J:169:LEU:HD12 | 2.02 | 0.41 |
| 1:E:209:HIS:CD2 | 1:E:252:LEU:H | 2.38 | 0.41 |
| 1:E:241:GLU:OE1 | 1:E:241:GLU:HA | 2.20 | 0.41 |
| 2:F:59:LEU:O | 2:F:63:LEU:HG | 2.20 | 0.41 |
| 1:G:137:LEU:HD23 | 1:G:137:LEU:HA | 1.84 | 0.41 |
| 1:G:251:ILE:O | 1:G:253:LYS:N | 2.52 | 0.41 |
| 2:H:163:ASN:O | 2:H:163:ASN:OD1 | 2.39 | 0.41 |
| 1:A:344:ASN:CG | 1:E:111:ASN:HD22 | 2.24 | 0.41 |
| 1:A:434:ARG:HD3 | 1:A:460:CYS:HA | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:163:ARG:HG2 | 1:C:519:THR:OG1 | 2.21 | 0.41 |
| 2:D:58:GLY:O | 2:D:62:GLU:HB2 | 2.21 | 0.41 |
| 2:D:178:ILE:HD11 | 2:D:310:ILE:HD12 | 2.02 | 0.41 |
| 2:D:233:ARG:HH12 | 2:D:234:MET:HB2 | 1.85 | 0.41 |
| 1:E:240:LYS:HG2 | 1:E:276:LEU:CD1 | 2.51 | 0.41 |
| 1:G:34:CYS:HB2 | 1:G:123:PHE:CG | 2.55 | 0.41 |
| 2:H:46:LEU:O | 2:H:73:ARG:HB3 | 2.20 | 0.41 |
| 2:H:197:THR:CG2 | 2:H:198:ALA:N | 2.83 | 0.41 |
| 2:H:199:CYS:SG | 2:H:201:GLU:HB2 | 2.60 | 0.41 |
| 1:A:249:GLN:HG2 | 1:A:249:GLN:O | 2.20 | 0.41 |
| 1:A:297:ILE:N | 1:A:297:ILE:CD1 | 2.84 | 0.41 |
| 2:B:126:LYS:O | 2:B:127:ILE:C | 2.59 | 0.41 |
| 2:B:191:VAL:O | 2:B:197:THR:HG21 | 2.20 | 0.41 |
| 1:C:335:ASP:OD2 | 1:C:336:SER:N | 2.53 | 0.41 |
| 1:C:376:SER:OG | 1:C:379:GLU:HG3 | 2.20 | 0.41 |
| 1:E:113:LEU:HD13 | 1:E:138:ARG:HG2 | 2.02 | 0.41 |
| 1:E:277:ASN:C | 1:E:277:ASN:HD22 | 2.23 | 0.41 |
| 2:F:58:GLY:N | 2:F:91:GLN:HG2 | 2.34 | 0.41 |
| 2:F:127:ILE:HD12 | 2:F:153:TRP:CE3 | 2.55 | 0.41 |
| 2:F:380:ALA:HB1 | 2:F:394:LEU:HD12 | 1.94 | 0.41 |
| 2:H:205:GLU:OE1 | 2:H:372:ALA:HB1 | 2.20 | 0.41 |
| 3:L:105:VAL:HG13 | 3:L:105:VAL:O | 2.19 | 0.41 |
| 1:E:12:LYS:HE3 | 1:E:13:TYR:CE2 | 2.56 | 0.41 |
| 1:E:354:ALA:O | 1:E:380:LEU:HD21 | 2.20 | 0.41 |
| 2:F:381:ILE:H | 2:F:381:ILE:HG13 | 1.75 | 0.41 |
| 2:F:386:GLU:C | 2:F:388:LYS:N | 2.74 | 0.41 |
| 1:G:43:THR:HG21 | 1:G:73:ASN:OD1 | 2.19 | 0.41 |
| 1:G:84:ASN:CG | 1:G:106:GLU:HG2 | 2.40 | 0.41 |
| 2:H:88:LEU:HD22 | 2:H:94:PHE:O | 2.20 | 0.41 |
| 2:H:335:PHE:CD1 | 2:H:335:PHE:C | 2.94 | 0.41 |
| 3:L:101:MET:CE | 3:L:119:PRO:HG3 | 2.50 | 0.41 |
| 1:A:104:PHE:CD1 | 1:A:104:PHE:C | 2.93 | 0.41 |
| 1:A:155:THR:HG23 | 1:A:493:ILE:CG2 | 2.50 | 0.41 |
| 2:B:73:ARG:HD3 | 2:B:117:ASN:O | 2.21 | 0.41 |
| 2:D:192:ILE:CD1 | 2:D:200:ILE:HG13 | 2.51 | 0.41 |
| 1:E:503:GLN:O | 1:E:507:LYS:HG3 | 2.21 | 0.41 |
| 2:F:193:LEU:HD23 | 2:F:193:LEU:HA | 1.80 | 0.41 |
| 2:F:319:ASN:C | 2:F:320:ASN:ND2 | 2.74 | 0.41 |
| 1:G:128:ALA:HB1 | 1:G:131:LEU:HD11 | 2.03 | 0.41 |
| 1:G:447:ASN:ND2 | 2:H:26:ARG:HH21 | 2.17 | 0.41 |
| 2:H:358:SER:O | 2:H:359:ALA:C | 2.58 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:41:THR:O | 1:A:42:GLY:C | 2.58 | 0.41 |
| 1:A:154:ARG:HB3 | 1:A:161:TYR:HB3 | 2.03 | 0.41 |
| 2:B:13:TRP:CD1 | 2:B:16:ARG:HB2 | 2.56 | 0.41 |
| 2:D:87:ASN:ND2 | 2:D:103:LYS:HE2 | 2.36 | 0.41 |
| 1:E:261:ASP:O | 1:E:262:GLU:CG | 2.69 | 0.41 |
| 2:F:17:TRP:O | 2:F:18:ASN:C | 2.58 | 0.41 |
| 1:G:199:TYR:O | 1:G:220:LYS:NZ | 2.51 | 0.41 |
| 2:H:64:LEU:HB3 | 2:H:111:LEU:CD1 | 2.51 | 0.41 |
| 2:H:316:ILE:H | 2:H:316:ILE:CD1 | 2.08 | 0.41 |
| 2:H:410:LYS:HA | 2:H:414:GLU:OE1 | 2.20 | 0.41 |
| 2:B:45:LEU:HG | 2:B:71:GLY:O | 2.21 | 0.41 |
| 2:B:382:THR:OG1 | 2:B:424:ALA:HB3 | 2.20 | 0.41 |
| 3:I:117:ILE:CD1 | 3:I:126:ILE:HG23 | 2.48 | 0.41 |
| 3:K:145:TYR:CD1 | 3:K:167:LEU:HD23 | 2.55 | 0.41 |
| 1:G:210:SER:C | 1:G:212:THR:H | 2.24 | 0.41 |
| 1:G:425:LEU:O | 1:G:429:LEU:HG | 2.21 | 0.41 |
| 2:H:207:TYR:HA | 2:H:208:PRO:HD3 | 1.93 | 0.41 |
| 2:H:412:LEU:O | 2:H:417:LEU:HB2 | 2.20 | 0.41 |
| 1:A:45:ILE:HG12 | 1:A:501:ALA:HB3 | 2.03 | 0.41 |
| 1:A:54:ILE:HD12 | 1:A:54:ILE:HA | 1.86 | 0.41 |
| 1:A:229:THR:HG21 | 1:A:232:ARG:HB3 | 2.00 | 0.41 |
| 1:A:248:ARG:HG3 | 1:A:248:ARG:NH1 | 2.35 | 0.41 |
| 1:A:434:ARG:HD3 | 1:A:460:CYS:HB3 | 2.03 | 0.41 |
| 1:A:450:VAL:O | 1:A:454:ILE:HG13 | 2.21 | 0.41 |
| 2:B:413:LYS:O | 2:B:413:LYS:HG2 | 2.19 | 0.41 |
| 1:C:204:MET:SD | 1:C:252:LEU:HD22 | 2.60 | 0.41 |
| 2:D:43:GLN:HG3 | 2:D:47:ASP:OD2 | 2.21 | 0.41 |
| 2:D:98:ASP:O | 2:D:99:ILE:C | 2.60 | 0.41 |
| 3:J:118:GLU:C | 3:J:120:THR:H | 2.25 | 0.41 |
| 1:E:65:VAL:HG23 | 1:E:85:ARG:HA | 2.03 | 0.41 |
| 1:E:325:VAL:O | 1:E:326:ARG:C | 2.59 | 0.41 |
| 1:E:347:ARG:NH2 | 2:F:274:ARG:NH1 | 2.61 | 0.41 |
| 1:E:488:ALA:HB2 | 2:F:22:LYS:HG3 | 2.01 | 0.41 |
| 2:F:259:TRP:CZ2 | 2:F:263:LYS:HE3 | 2.56 | 0.41 |
| 2:F:407:ASN:HA | 2:F:410:LYS:HG3 | 2.03 | 0.41 |
| 3:K:107:THR:HG22 | 3:K:109:THR:HG23 | 2.01 | 0.41 |
| 1:G:172:ILE:HA | 1:G:390:LEU:HD23 | 2.02 | 0.41 |
| 1:G:189:PHE:CE1 | 1:G:349:LYS:HB2 | 2.56 | 0.41 |
| 2:H:170:ASP:O | 2:H:173:SER:HB3 | 2.20 | 0.41 |
| 2:H:440:PHE:HD2 | 2:H:440:PHE:HA | 1.79 | 0.41 |
| 1:A:439:GLN:HE21 | 1:A:439:GLN:HB3 | 1.68 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:481:GLU:OE1 | 2:B:315:TYR:OH | 2.28 | 0.41 |
| 1:C:96:LEU:HD23 | 2:D:95:ARG:HH21 | 1.86 | 0.41 |
| 1:C:146:SER:O | 1:C:147:GLN:HB2 | 2.21 | 0.41 |
| 1:E:39:THR:O | 1:E:43:THR:HB | 2.21 | 0.41 |
| 1:E:189:PHE:CZ | 1:E:349:LYS:HG2 | 2.55 | 0.41 |
| 2:F:74:GLN:NE2 | 2:F:74:GLN:CA | 2.72 | 0.41 |
| 2:F:178:ILE:HD11 | 2:F:310:ILE:HD12 | 2.02 | 0.41 |
| 2:F:210:GLN:HG3 | 2:F:210:GLN:O | 2.21 | 0.41 |
| 2:F:212:ASN:HD22 | 2:F:212:ASN:HA | 1.62 | 0.41 |
| 2:F:357:PRO:HG3 | 2:F:440:PHE:CE2 | 2.55 | 0.41 |
| 1:G:340:ILE:CD1 | 2:H:271:TYR:O | 2.69 | 0.41 |
| 2:H:245:GLU:CG | 2:H:246:GLY:N | 2.83 | 0.41 |
| 1:A:504:GLU:O | 1:A:508:ILE:HG13 | 2.21 | 0.40 |
| 3:I:151:ASN:OD1 | 3:I:153:GLU:N | 2.48 | 0.40 |
| 1:C:189:PHE:CZ | 1:C:192:LEU:HB2 | 2.55 | 0.40 |
| 2:D:90:ARG:HG2 | 2:D:90:ARG:NH1 | 2.36 | 0.40 |
| 2:D:162:LEU:HD21 | 2:D:194:PRO:HB2 | 2.03 | 0.40 |
| 1:E:7:LEU:O | 1:E:7:LEU:HD23 | 2.21 | 0.40 |
| 1:E:8:LEU:HD12 | 1:E:11:GLN:OE1 | 2.21 | 0.40 |
| 1:E:114:ASP:OD1 | 1:E:138:ARG:NH2 | 2.53 | 0.40 |
| 1:E:282:PRO:HB2 | 1:E:285:ILE:HD13 | 2.02 | 0.40 |
| 1:E:368:ILE:O | 1:E:368:ILE:CG2 | 2.69 | 0.40 |
| 2:F:87:ASN:HB3 | 2:F:91:GLN:OE1 | 2.21 | 0.40 |
| 2:F:423:LEU:HD11 | 2:F:438:LEU:CD2 | 2.32 | 0.40 |
| 3:K:105:VAL:HG11 | 3:K:130:VAL:HG22 | 2.03 | 0.40 |
| 1:G:187:LYS:HD2 | 1:G:279:THR:CG2 | 2.45 | 0.40 |
| 1:G:226:TYR:HE2 | 1:G:233:ILE:HA | 1.86 | 0.40 |
| 1:G:407:ILE:HG13 | 1:G:408:ASN:N | 2.36 | 0.40 |
| 3:L:106:LYS:HA | 3:L:112:GLU:HA | 2.03 | 0.40 |
| 1:A:229:THR:CG2 | 1:A:229:THR:O | 2.68 | 0.40 |
| 1:C:173:GLU:HA | 1:C:386:ASN:ND2 | 2.37 | 0.40 |
| 2:D:377:LYS:N | 2:D:427:ASP:OD1 | 2.54 | 0.40 |
| 2:D:412:LEU:HB3 | 2:D:440:PHE:CE2 | 2.56 | 0.40 |
| 1:E:31:ALA:HB2 | 1:E:509:ILE:HG23 | 2.02 | 0.40 |
| 1:E:74:PHE:CD1 | 2:F:65:LYS:HG3 | 2.57 | 0.40 |
| 1:E:229:THR:HG22 | 1:E:229:THR:O | 2.21 | 0.40 |
| 1:E:448:TYR:CE1 | 1:E:449:GLN:HG2 | 2.56 | 0.40 |
| 2:F:178:ILE:HD11 | 2:F:310:ILE:CD1 | 2.51 | 0.40 |
| 1:G:285:ILE:HD12 | 1:G:323:LEU:HD11 | 2.04 | 0.40 |
| 1:G:510:THR:O | 1:G:511:LYS:HB2 | 2.22 | 0.40 |
| 2:H:237:TRP:CZ2 | 2:H:249:LEU:HA | 2.57 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:368:ILE:HD12 | 1:A:368:ILE:HA | 1.97 | 0.40 |
| 1:A:496:PHE:CD2 | 1:A:496:PHE:C | 2.94 | 0.40 |
| 1:C:368:ILE:CG2 | 1:C:368:ILE:O | 2.70 | 0.40 |
| 1:C:418:ASN:HD22 | 1:C:418:ASN:C | 2.24 | 0.40 |
| 1:C:468:TYR:O | 1:C:469:GLY:C | 2.60 | 0.40 |
| 2:D:327:VAL:CG2 | 2:D:328:ASP:H | 2.29 | 0.40 |
| 1:E:184:ARG:NH1 | 1:E:325:VAL:HG22 | 2.35 | 0.40 |
| 1:G:297:ILE:HD11 | 1:G:309:ARG:HG2 | 2.03 | 0.40 |
| 2:H:115:VAL:HA | 2:H:116:PRO:HD2 | 1.96 | 0.40 |
| 1:A:447:ASN:ND2 | 2:B:26:ARG:NE | 2.69 | 0.40 |
| 2:B:261:PHE:CZ | 2:B:265:LEU:HD11 | 2.56 | 0.40 |
| 2:D:241:GLN:CG | 2:D:245:GLU:HA | 2.43 | 0.40 |
| 3:J:141:GLN:O | 3:J:142:ARG:NH1 | 2.47 | 0.40 |
| 2:F:24:LEU:HD21 | 2:F:312:THR:HB | 2.03 | 0.40 |
| 2:F:159:ILE:HG22 | 2:F:432:GLN:OE1 | 2.22 | 0.40 |
| 3:K:131:GLU:OE2 | 3:K:138:PRO:HD3 | 2.22 | 0.40 |
| 1:G:72:ASN:HD22 | 1:G:72:ASN:C | 2.24 | 0.40 |
| 1:G:264:ASN:ND2 | 1:G:265:PHE:H | 2.18 | 0.40 |
| 1:G:371:ALA:HA | 1:G:372:PRO:HD3 | 1.90 | 0.40 |
| 2:H:405:ARG:HB3 | 2:H:406:PRO:HD3 | 2.03 | 0.40 |
| 2:H:415:LEU:HD23 | 2:H:415:LEU:HA | 1.92 | 0.40 |
| 1:A:45:ILE:CG1 | 1:A:498:GLY:HA2 | 2.50 | 0.40 |
| 1:A:89:ALA:O | 1:A:90:MET:C | 2.58 | 0.40 |
| 1:A:243:PHE:O | 1:A:246:LEU:HB3 | 2.20 | 0.40 |
| 1:A:457:LEU:HD23 | 1:A:479:VAL:HG12 | 2.02 | 0.40 |
| 1:A:527:GLN:OE1 | 1:A:527:GLN:HA | 2.22 | 0.40 |
| 2:B:356:SER:HA | 2:B:442:SER:HB3 | 2.04 | 0.40 |
| 2:B:412:LEU:CB | 2:B:440:PHE:HZ | 2.35 | 0.40 |
| 1:C:323:LEU:HB3 | 1:C:324:PRO:CD | 2.51 | 0.40 |
| 1:E:45:ILE:HG13 | 1:E:498:GLY:HA2 | 2.03 | 0.40 |
| 1:E:371:ALA:O | 1:E:374:SER:N | 2.53 | 0.40 |
| 1:E:418:ASN:ND2 | 1:E:419:PRO:HD2 | 2.31 | 0.40 |
| 2:F:354:GLN:O | 2:F:355:PHE:CD2 | 2.74 | 0.40 |
| 2:F:381:ILE:HA | 2:F:424:ALA:O | 2.22 | 0.40 |
| 1:G:54:ILE:HD12 | 1:G:54:ILE:HA | 1.93 | 0.40 |
| 1:G:398:LEU:HD12 | 1:G:398:LEU:HA | 1.91 | 0.40 |
| 2:H:321:TYR:CD2 | 2:H:322:LEU:N | 2.89 | 0.40 |

There are no symmetry-related clashes.

## 5.3 Torsion angles (i)

### 5.3.1 Protein backbone (i)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 1 | A | 518/531 (98%) | 442 (85%) | 61 (12%) | 15 (3%) | 4 15 |
| 1 | C | 513/531 (97%) | 448 (87%) | 56 (11%) | 9 (2%) | 8 25 |
| 1 | E | 519/531 (98%) | 465 (90%) | 47 (9%) | 7 (1%) | 12 33 |
| 1 | G | 512/531 (96%) | 437 (85%) | 62 (12%) | 13 (2%) | 5 18 |
| 2 | B | 430/434 (99%) | 373 (87%) | 51 (12%) | 6 (1%) | 11 31 |
| 2 | D | 430/434 (99%) | 366 (85%) | 53 (12%) | 11 (3%) | 5 17 |
| 2 | F | 429/434 (99%) | 359 (84%) | 55 (13%) | 15 (4%) | 3 12 |
| 2 | H | 429/434 (99%) | 347 (81%) | 63 (15%) | 19 (4%) | 2 8 |
| 3 | I | 84/88 (96%) | 76 (90%) | 4 (5%) | 4 (5%) | 2 6 |
| 3 | J | 74/88 (84%) | 67 (90%) | 5 (7%) | 2 (3%) | 5 16 |
| 3 | K | 74/88 (84%) | 66 (89%) | 6 (8%) | 2 (3%) | 5 16 |
| 3 | L | 74/88 (84%) | 64 (86%) | 5 (7%) | 5 (7%) | 1 2 |
| All | All | 4086/4212 (97%) | 3510 (86%) | 468 (12%) | 108 (3%) | 5 17 |

All (108) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 63 | ASN |
| 1 | A | 450 | VAL |
| 2 | B | 116 | PRO |
| 1 | C | 263 | GLU |
| 1 | C | 422 | GLU |
| 1 | C | 518 | ASN |
| 2 | D | 116 | PRO |
| 1 | E | 275 | ALA |
| 2 | F | 116 | PRO |
| 2 | F | 242 | PRO |
| 2 | F | 319 | ASN |
| 2 | F | 348 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | F | 357 | PRO |
| 2 | F | 360 | LYS |
| 2 | F | 419 | ASP |
| 1 | G | 263 | GLU |
| 1 | G | 264 | ASN |
| 2 | H | 116 | PRO |
| 3 | L | 163 | GLY |
| 1 | A | 66 | SER |
| 1 | A | 79 | SER |
| 1 | A | 118 | SER |
| 1 | A | 134 | SER |
| 1 | A | 263 | GLU |
| 2 | B | 127 | ILE |
| 2 | B | 319 | ASN |
| 1 | C | 438 | GLN |
| 1 | C | 451 | GLU |
| 2 | D | 412 | LEU |
| 3 | J | 163 | GLY |
| 1 | E | 190 | PRO |
| 1 | E | 249 | GLN |
| 1 | E | 259 | PRO |
| 1 | E | 318 | GLU |
| 2 | F | 375 | GLN |
| 3 | K | 163 | GLY |
| 1 | G | 190 | PRO |
| 2 | H | 239 | LYS |
| 2 | H | 357 | PRO |
| 2 | H | 361 | LEU |
| 3 | L | 119 | PRO |
| 2 | B | 386 | GLU |
| 3 | I | 147 | GLY |
| 1 | C | 317 | LYS |
| 2 | D | 31 | THR |
| 2 | D | 34 | ASP |
| 2 | D | 132 | ASP |
| 2 | D | 362 | GLN |
| 1 | G | 184 | ARG |
| 1 | G | 250 | GLY |
| 1 | G | 252 | LEU |
| 1 | G | 280 | GLN |
| 1 | G | 317 | LYS |
| 2 | H | 240 | GLU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | H | 320 | ASN |
| 2 | H | 350 | PRO |
| 2 | H | 388 | LYS |
| 2 | H | 403 | ARG |
| 2 | H | 416 | GLY |
| 3 | L | 150 | MET |
| 1 | A | 259 | PRO |
| 1 | A | 367 | SER |
| 2 | B | 399 | SER |
| 3 | I | 146 | SER |
| 1 | C | 232 | ARG |
| 2 | D | 183 | GLU |
| 3 | J | 119 | PRO |
| 2 | F | 92 | PHE |
| 2 | F | 371 | SER |
| 2 | F | 401 | GLU |
| 3 | K | 119 | PRO |
| 1 | G | 211 | HIS |
| 2 | H | 194 | PRO |
| 2 | H | 359 | ALA |
| 2 | H | 360 | LYS |
| 3 | L | 152 | ASP |
| 3 | L | 154 | LYS |
| 1 | A | 65 | VAL |
| 1 | A | 251 | ILE |
| 1 | A | 372 | PRO |
| 1 | A | 443 | PRO |
| 2 | B | 167 | GLY |
| 3 | I | 108 | LEU |
| 1 | C | 259 | PRO |
| 2 | D | 196 | MET |
| 2 | F | 211 | VAL |
| 2 | F | 259 | TRP |
| 1 | G | 106 | GLU |
| 1 | G | 451 | GLU |
| 2 | H | 183 | GLU |
| 2 | H | 238 | PRO |
| 2 | H | 401 | GLU |
| 2 | H | 408 | LEU |
| 3 | I | 163 | GLY |
| 1 | E | 260 | GLU |
| 1 | E | 280 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | G | 229 | THR |
| 2 | H | 172 | SER |
| 2 | H | 387 | GLY |
| 1 | A | 36 | ILE |
| 2 | D | 241 | GLN |
| 2 | D | 327 | VAL |
| 2 | D | 350 | PRO |
| 1 | C | 469 | GLY |
| 1 | G | 407 | ILE |
| 2 | F | 246 | GLY |
| 1 | A | 250 | GLY |
| 2 | F | 194 | PRO |

### 5.3.2 Protein sidechains (i)

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

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|---|---|---|---|---|---|---|
| 1 | A | 452/462 (98%) | 431 (95%) | 21 (5%) | 27 | 56 |
| 1 | C | 451/462 (98%) | 424 (94%) | 27 (6%) | 19 | 45 |
| 1 | E | 450/462 (97%) | 421 (94%) | 29 (6%) | 17 | 41 |
| 1 | G | 450/462 (97%) | 430 (96%) | 20 (4%) | 28 | 58 |
| 2 | B | 377/381 (99%) | 351 (93%) | 26 (7%) | 15 | 38 |
| 2 | D | 378/381 (99%) | 354 (94%) | 24 (6%) | 18 | 42 |
| 2 | F | 376/381 (99%) | 347 (92%) | 29 (8%) | 13 | 32 |
| 2 | H | 374/381 (98%) | 338 (90%) | 36 (10%) | 8 | 22 |
| 3 | I | 73/74 (99%) | 67 (92%) | 6 (8%) | 11 | 29 |
| 3 | J | 67/74 (90%) | 65 (97%) | 2 (3%) | 41 | 72 |
| 3 | K | 67/74 (90%) | 63 (94%) | 4 (6%) | 19 | 45 |
| 3 | L | 67/74 (90%) | 64 (96%) | 3 (4%) | 27 | 57 |
| All | All | 3582/3668 (98%) | 3355 (94%) | 227 (6%) | 18 | 42 |

All (227) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 72 | ASN |
| 1 | A | 134 | SER |
| 1 | A | 158 | LEU |
| 1 | A | 171 | VAL |
| 1 | A | 214 | TRP |
| 1 | A | 245 | ASP |
| 1 | A | 259 | PRO |
| 1 | A | 262 | GLU |
| 1 | A | 264 | ASN |
| 1 | A | 265 | PHE |
| 1 | A | 277 | ASN |
| 1 | A | 293 | ARG |
| 1 | A | 309 | ARG |
| 1 | A | 311 | LEU |
| 1 | A | 335 | ASP |
| 1 | A | 364 | LEU |
| 1 | A | 407 | ILE |
| 1 | A | 418 | ASN |
| 1 | A | 437 | LYS |
| 1 | A | 517 | ASN |
| 1 | A | 518 | ASN |
| 2 | B | 12 | ASP |
| 2 | B | 82 | THR |
| 2 | B | 95 | ARG |
| 2 | B | 111 | LEU |
| 2 | B | 114 | ARG |
| 2 | B | 116 | PRO |
| 2 | B | 128 | GLN |
| 2 | B | 182 | THR |
| 2 | B | 217 | THR |
| 2 | B | 233 | ARG |
| 2 | B | 249 | LEU |
| 2 | B | 272 | ASN |
| 2 | B | 309 | LYS |
| 2 | B | 316 | ILE |
| 2 | B | 323 | VAL |
| 2 | B | 342 | ASN |
| 2 | B | 351 | GLN |
| 2 | B | 353 | ILE |
| 2 | B | 362 | GLN |
| 2 | B | 374 | LEU |
| 2 | B | 375 | GLN |
| 2 | B | 377 | LYS |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 401 | GLU |
| 2 | B | 409 | SER |
| 2 | B | 412 | LEU |
| 2 | B | 425 | VAL |
| 3 | I | 97 | SER |
| 3 | I | 102 | LEU |
| 3 | I | 107 | THR |
| 3 | I | 153 | GLU |
| 3 | I | 158 | ASP |
| 3 | I | 171 | LEU |
| 1 | C | 33 | VAL |
| 1 | C | 43 | THR |
| 1 | C | 46 | LEU |
| 1 | C | 72 | ASN |
| 1 | C | 103 | SER |
| 1 | C | 122 | ARG |
| 1 | C | 163 | ARG |
| 1 | C | 171 | VAL |
| 1 | C | 177 | ASP |
| 1 | C | 193 | ARG |
| 1 | C | 214 | TRP |
| 1 | C | 245 | ASP |
| 1 | C | 261 | ASP |
| 1 | C | 264 | ASN |
| 1 | C | 277 | ASN |
| 1 | C | 293 | ARG |
| 1 | C | 297 | ILE |
| 1 | C | 343 | GLN |
| 1 | C | 353 | ASP |
| 1 | C | 359 | ASN |
| 1 | C | 383 | LEU |
| 1 | C | 406 | THR |
| 1 | C | 418 | ASN |
| 1 | C | 422 | GLU |
| 1 | C | 424 | VAL |
| 1 | C | 429 | LEU |
| 1 | C | 517 | ASN |
| 2 | D | 11 | LEU |
| 2 | D | 82 | THR |
| 2 | D | 110 | PHE |
| 2 | D | 114 | ARG |
| 2 | D | 116 | PRO |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | D | 128 | GLN |
| 2 | D | 149 | ILE |
| 2 | D | 201 | GLU |
| 2 | D | 215 | MET |
| 2 | D | 316 | ILE |
| 2 | D | 322 | LEU |
| 2 | D | 323 | VAL |
| 2 | D | 325 | ASN |
| 2 | D | 342 | ASN |
| 2 | D | 357 | PRO |
| 2 | D | 362 | GLN |
| 2 | D | 389 | ASN |
| 2 | D | 401 | GLU |
| 2 | D | 411 | THR |
| 2 | D | 415 | LEU |
| 2 | D | 419 | ASP |
| 2 | D | 421 | GLN |
| 2 | D | 422 | GLU |
| 2 | D | 442 | SER |
| 3 | J | 108 | LEU |
| 3 | J | 170 | VAL |
| 1 | E | 43 | THR |
| 1 | E | 64 | GLN |
| 1 | E | 72 | ASN |
| 1 | E | 103 | SER |
| 1 | E | 112 | LEU |
| 1 | E | 158 | LEU |
| 1 | E | 163 | ARG |
| 1 | E | 171 | VAL |
| 1 | E | 214 | TRP |
| 1 | E | 226 | TYR |
| 1 | E | 259 | PRO |
| 1 | E | 262 | GLU |
| 1 | E | 264 | ASN |
| 1 | E | 277 | ASN |
| 1 | E | 293 | ARG |
| 1 | E | 297 | ILE |
| 1 | E | 309 | ARG |
| 1 | E | 311 | LEU |
| 1 | E | 353 | ASP |
| 1 | E | 364 | LEU |
| 1 | E | 418 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | E | 422 | GLU |
| 1 | E | 424 | VAL |
| 1 | E | 441 | ARG |
| 1 | E | 452 | GLU |
| 1 | E | 477 | ASP |
| 1 | E | 497 | LEU |
| 1 | E | 517 | ASN |
| 1 | E | 518 | ASN |
| 2 | F | 11 | LEU |
| 2 | F | 31 | THR |
| 2 | F | 39 | THR |
| 2 | F | 73 | ARG |
| 2 | F | 82 | THR |
| 2 | F | 87 | ASN |
| 2 | F | 111 | LEU |
| 2 | F | 114 | ARG |
| 2 | F | 116 | PRO |
| 2 | F | 128 | GLN |
| 2 | F | 142 | VAL |
| 2 | F | 143 | CYS |
| 2 | F | 149 | ILE |
| 2 | F | 182 | THR |
| 2 | F | 186 | LYS |
| 2 | F | 212 | ASN |
| 2 | F | 241 | GLN |
| 2 | F | 242 | PRO |
| 2 | F | 316 | ILE |
| 2 | F | 322 | LEU |
| 2 | F | 325 | ASN |
| 2 | F | 326 | ASP |
| 2 | F | 342 | ASN |
| 2 | F | 375 | GLN |
| 2 | F | 377 | LYS |
| 2 | F | 388 | LYS |
| 2 | F | 401 | GLU |
| 2 | F | 419 | ASP |
| 2 | F | 432 | GLN |
| 3 | K | 102 | LEU |
| 3 | K | 105 | VAL |
| 3 | K | 107 | THR |
| 3 | K | 109 | THR |
| 1 | G | 43 | THR |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | G | 47 | LYS |
| 1 | G | 72 | ASN |
| 1 | G | 90 | MET |
| 1 | G | 111 | ASN |
| 1 | G | 163 | ARG |
| 1 | G | 171 | VAL |
| 1 | G | 180 | LEU |
| 1 | G | 202 | ASP |
| 1 | G | 214 | TRP |
| 1 | G | 225 | TRP |
| 1 | G | 262 | GLU |
| 1 | G | 264 | ASN |
| 1 | G | 277 | ASN |
| 1 | G | 309 | ARG |
| 1 | G | 311 | LEU |
| 1 | G | 333 | ILE |
| 1 | G | 364 | LEU |
| 1 | G | 506 | ILE |
| 1 | G | 517 | ASN |
| 2 | H | 12 | ASP |
| 2 | H | 82 | THR |
| 2 | H | 111 | LEU |
| 2 | H | 114 | ARG |
| 2 | H | 116 | PRO |
| 2 | H | 128 | GLN |
| 2 | H | 154 | ILE |
| 2 | H | 182 | THR |
| 2 | H | 213 | PHE |
| 2 | H | 223 | ARG |
| 2 | H | 233 | ARG |
| 2 | H | 240 | GLU |
| 2 | H | 267 | ARG |
| 2 | H | 272 | ASN |
| 2 | H | 316 | ILE |
| 2 | H | 318 | LEU |
| 2 | H | 319 | ASN |
| 2 | H | 322 | LEU |
| 2 | H | 325 | ASN |
| 2 | H | 326 | ASP |
| 2 | H | 328 | ASP |
| 2 | H | 342 | ASN |
| 2 | H | 344 | PRO |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | H | 348 | GLN |
| 2 | H | 355 | PHE |
| 2 | H | 362 | GLN |
| 2 | H | 364 | VAL |
| 2 | H | 366 | ASP |
| 2 | H | 375 | GLN |
| 2 | H | 377 | LYS |
| 2 | H | 378 | SER |
| 2 | H | 381 | ILE |
| 2 | H | 392 | LEU |
| 2 | H | 402 | GLU |
| 2 | H | 417 | LEU |
| 2 | H | 440 | PHE |
| 3 | L | 107 | THR |
| 3 | L | 171 | LEU |
| 3 | L | 173 | LEU |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (138) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 32 | HIS |
| 1 | A | 37 | ASN |
| 1 | A | 63 | ASN |
| 1 | A | 72 | ASN |
| 1 | A | 197 | GLN |
| 1 | A | 264 | ASN |
| 1 | A | 277 | ASN |
| 1 | A | 320 | GLN |
| 1 | A | 322 | ASN |
| 1 | A | 359 | ASN |
| 1 | A | 370 | GLN |
| 1 | A | 418 | ASN |
| 1 | A | 439 | GLN |
| 1 | A | 447 | ASN |
| 1 | A | 518 | ASN |
| 1 | A | 533 | GLN |
| 2 | B | 19 | HIS |
| 2 | B | 74 | GLN |
| 2 | B | 87 | ASN |
| 2 | B | 128 | GLN |
| 2 | B | 139 | HIS |
| 2 | B | 236 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | B | 241 | GLN |
| 2 | B | 272 | ASN |
| 2 | B | 320 | ASN |
| 2 | B | 325 | ASN |
| 2 | B | 342 | ASN |
| 2 | B | 351 | GLN |
| 2 | B | 362 | GLN |
| 2 | B | 389 | ASN |
| 2 | B | 395 | GLN |
| 3 | I | 149 | GLN |
| 1 | C | 72 | ASN |
| 1 | C | 197 | GLN |
| 1 | C | 209 | HIS |
| 1 | C | 211 | HIS |
| 1 | C | 224 | GLN |
| 1 | C | 264 | ASN |
| 1 | C | 271 | ASN |
| 1 | C | 277 | ASN |
| 1 | C | 320 | GLN |
| 1 | C | 343 | GLN |
| 1 | C | 344 | ASN |
| 1 | C | 359 | ASN |
| 1 | C | 386 | ASN |
| 1 | C | 418 | ASN |
| 1 | C | 439 | GLN |
| 1 | C | 447 | ASN |
| 1 | C | 512 | GLN |
| 1 | C | 517 | ASN |
| 2 | D | 74 | GLN |
| 2 | D | 128 | GLN |
| 2 | D | 139 | HIS |
| 2 | D | 210 | GLN |
| 2 | D | 236 | GLN |
| 2 | D | 241 | GLN |
| 2 | D | 270 | GLN |
| 2 | D | 282 | GLN |
| 2 | D | 320 | ASN |
| 2 | D | 325 | ASN |
| 2 | D | 342 | ASN |
| 2 | D | 362 | GLN |
| 2 | D | 375 | GLN |
| 2 | D | 421 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 2 | D | 432 | GLN |
| 1 | E | 37 | ASN |
| 1 | E | 63 | ASN |
| 1 | E | 64 | GLN |
| 1 | E | 72 | ASN |
| 1 | E | 111 | ASN |
| 1 | E | 115 | ASN |
| 1 | E | 197 | GLN |
| 1 | E | 209 | HIS |
| 1 | E | 211 | HIS |
| 1 | E | 224 | GLN |
| 1 | E | 264 | ASN |
| 1 | E | 271 | ASN |
| 1 | E | 277 | ASN |
| 1 | E | 296 | ASN |
| 1 | E | 359 | ASN |
| 1 | E | 418 | ASN |
| 1 | E | 439 | GLN |
| 1 | E | 447 | ASN |
| 1 | E | 466 | GLN |
| 1 | E | 518 | ASN |
| 2 | F | 19 | HIS |
| 2 | F | 32 | HIS |
| 2 | F | 74 | GLN |
| 2 | F | 125 | ASN |
| 2 | F | 128 | GLN |
| 2 | F | 212 | ASN |
| 2 | F | 236 | GLN |
| 2 | F | 320 | ASN |
| 2 | F | 325 | ASN |
| 2 | F | 342 | ASN |
| 2 | F | 354 | GLN |
| 2 | F | 362 | GLN |
| 2 | F | 375 | GLN |
| 2 | F | 395 | GLN |
| 2 | F | 407 | ASN |
| 2 | F | 439 | HIS |
| 1 | G | 37 | ASN |
| 1 | G | 72 | ASN |
| 1 | G | 115 | ASN |
| 1 | G | 197 | GLN |
| 1 | G | 264 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | G | 271 | ASN |
| 1 | G | 277 | ASN |
| 1 | G | 343 | GLN |
| 1 | G | 344 | ASN |
| 1 | G | 359 | ASN |
| 1 | G | 436 | HIS |
| 1 | G | 438 | GLN |
| 1 | G | 439 | GLN |
| 1 | G | 447 | ASN |
| 1 | G | 517 | ASN |
| 2 | H | 19 | HIS |
| 2 | H | 32 | HIS |
| 2 | H | 74 | GLN |
| 2 | H | 87 | ASN |
| 2 | H | 123 | HIS |
| 2 | H | 125 | ASN |
| 2 | H | 128 | GLN |
| 2 | H | 236 | GLN |
| 2 | H | 258 | GLN |
| 2 | H | 262 | GLN |
| 2 | H | 270 | GLN |
| 2 | H | 272 | ASN |
| 2 | H | 325 | ASN |
| 2 | H | 342 | ASN |
| 2 | H | 351 | GLN |
| 2 | H | 352 | ASN |
| 2 | H | 354 | GLN |
| 2 | H | 362 | GLN |
| 2 | H | 395 | GLN |
| 2 | H | 439 | HIS |
| 3 | L | 140 | GLN |
| 3 | L | 141 | GLN |

### 5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry (i)

Of 4 ligands modelled in this entry, 4 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 Fit of model and data

## 6.1 Protein, DNA and RNA chains

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

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|
| 1 | A | 522/531 (98%) | 0.03 | 11 (2%) 63 60 | 49, 84, 116, 147 | 0 |
| 1 | C | 520/531 (97%) | 0.12 | 11 (2%) 63 60 | 58, 89, 123, 157 | 0 |
| 1 | E | 523/531 (98%) | 0.09 | 14 (2%) 54 50 | 46, 71, 137, 158 | 0 |
| 1 | G | 518/531 (97%) | 0.19 | 22 (4%) 36 31 | 49, 80, 143, 157 | 0 |
| 2 | B | 432/434 (99%) | 0.20 | 22 (5%) 28 23 | 47, 76, 116, 130 | 0 |
| 2 | D | 432/434 (99%) | 0.39 | 32 (7%) 14 10 | 55, 92, 122, 143 | 0 |
| 2 | F | 431/434 (99%) | 0.36 | 27 (6%) 20 15 | 50, 76, 124, 147 | 0 |
| 2 | H | 431/434 (99%) | 0.33 | 29 (6%) 17 13 | 52, 83, 133, 152 | 0 |
| 3 | I | 86/88 (97%) | 0.01 | 0 100 100 | 61, 87, 106, 117 | 0 |
| 3 | J | 76/88 (86%) | 0.42 | 6 (7%) 12 9 | 75, 101, 119, 124 | 0 |
| 3 | K | 76/88 (86%) | 0.16 | 2 (2%) 56 52 | 68, 91, 111, 121 | 0 |
| 3 | L | 76/88 (86%) | 0.44 | 4 (5%) 26 22 | 75, 112, 132, 140 | 0 |
| All | All | 4123/4212 (97%) | 0.21 | 180 (4%) 34 29 | 46, 84, 126, 158 | 0 |

All (180) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 2 | D | 385 | LEU | 6.6 |
| 1 | E | 252 | LEU | 5.6 |
| 1 | C | 259 | PRO | 5.6 |
| 2 | F | 385 | LEU | 5.4 |
| 2 | D | 438 | LEU | 5.1 |
| 1 | E | 259 | PRO | 5.1 |
| 1 | C | 260 | GLU | 5.1 |
| 2 | F | 441 | THR | 4.9 |
| 2 | F | 392 | LEU | 4.8 |
| 3 | L | 116 | ASP | 4.6 |
| 2 | D | 389 | ASN | 4.5 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 2 | H | 407 | ASN | 4.4 |
| 1 | G | 252 | LEU | 4.4 |
| 2 | D | 436 | PHE | 4.4 |
| 3 | L | 161 | ILE | 4.3 |
| 2 | B | 381 | ILE | 4.3 |
| 2 | D | 423 | LEU | 4.2 |
| 1 | C | 252 | LEU | 4.2 |
| 2 | F | 412 | LEU | 4.1 |
| 2 | H | 438 | LEU | 4.1 |
| 2 | B | 361 | LEU | 4.1 |
| 1 | G | 249 | GLN | 4.1 |
| 2 | F | 438 | LEU | 4.0 |
| 1 | G | 201 | LEU | 3.9 |
| 1 | E | 261 | ASP | 3.9 |
| 2 | H | 408 | LEU | 3.9 |
| 2 | F | 353 | ILE | 3.9 |
| 1 | G | 253 | LYS | 3.9 |
| 2 | F | 419 | ASP | 3.9 |
| 2 | D | 388 | LYS | 3.9 |
| 2 | D | 220 | SER | 3.7 |
| 2 | B | 408 | LEU | 3.7 |
| 2 | B | 420 | GLY | 3.6 |
| 2 | F | 417 | LEU | 3.6 |
| 2 | F | 211 | VAL | 3.5 |
| 2 | F | 248 | PRO | 3.5 |
| 2 | H | 441 | THR | 3.5 |
| 3 | J | 103 | ILE | 3.5 |
| 2 | D | 353 | ILE | 3.4 |
| 2 | D | 395 | GLN | 3.4 |
| 2 | B | 385 | LEU | 3.4 |
| 2 | H | 440 | PHE | 3.4 |
| 1 | G | 226 | TYR | 3.3 |
| 2 | D | 392 | LEU | 3.3 |
| 2 | H | 436 | PHE | 3.3 |
| 1 | G | 185 | LEU | 3.3 |
| 2 | D | 415 | LEU | 3.3 |
| 2 | H | 392 | LEU | 3.3 |
| 2 | H | 364 | VAL | 3.2 |
| 2 | B | 438 | LEU | 3.2 |
| 2 | B | 436 | PHE | 3.2 |
| 2 | D | 416 | GLY | 3.2 |
| 1 | A | 208 | ASP | 3.2 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 2 | H | 374 | LEU | 3.2 |
| 2 | F | 381 | ILE | 3.1 |
| 2 | F | 418 | VAL | 3.1 |
| 2 | H | 423 | LEU | 3.1 |
| 2 | H | 412 | LEU | 3.1 |
| 2 | H | 381 | ILE | 3.1 |
| 1 | A | 115 | ASN | 3.1 |
| 2 | D | 390 | ARG | 3.1 |
| 1 | A | 534 | LEU | 3.1 |
| 2 | F | 246 | GLY | 3.1 |
| 2 | B | 353 | ILE | 3.0 |
| 1 | G | 338 | LYS | 3.0 |
| 2 | D | 387 | GLY | 3.0 |
| 2 | B | 166 | ASP | 3.0 |
| 1 | A | 252 | LEU | 3.0 |
| 3 | L | 162 | LEU | 2.9 |
| 1 | G | 230 | ASN | 2.9 |
| 1 | G | 275 | ALA | 2.9 |
| 2 | B | 386 | GLU | 2.9 |
| 2 | D | 243 | PHE | 2.9 |
| 1 | E | 260 | GLU | 2.9 |
| 1 | G | 247 | ILE | 2.8 |
| 1 | A | 276 | LEU | 2.8 |
| 1 | A | 201 | LEU | 2.8 |
| 2 | F | 361 | LEU | 2.8 |
| 2 | B | 412 | LEU | 2.8 |
| 3 | L | 117 | ILE | 2.8 |
| 1 | C | 199 | TYR | 2.8 |
| 1 | G | 153 | CYS | 2.8 |
| 2 | D | 242 | PRO | 2.8 |
| 2 | H | 437 | LYS | 2.8 |
| 2 | F | 243 | PHE | 2.8 |
| 2 | B | 415 | LEU | 2.8 |
| 2 | D | 393 | TYR | 2.8 |
| 2 | F | 439 | HIS | 2.8 |
| 1 | C | 471 | SER | 2.7 |
| 1 | G | 215 | ILE | 2.7 |
| 2 | H | 385 | LEU | 2.7 |
| 1 | E | 230 | ASN | 2.7 |
| 2 | D | 246 | GLY | 2.7 |
| 2 | D | 413 | LYS | 2.7 |
| 1 | E | 249 | GLN | 2.7 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 2 | D | 417 | LEU | 2.7 |
| 2 | H | 365 | LEU | 2.6 |
| 1 | A | 204 | MET | 2.6 |
| 2 | D | 249 | LEU | 2.6 |
| 2 | H | 439 | HIS | 2.6 |
| 2 | F | 440 | PHE | 2.6 |
| 2 | H | 246 | GLY | 2.6 |
| 2 | D | 167 | GLY | 2.6 |
| 2 | H | 360 | LYS | 2.6 |
| 2 | D | 421 | GLN | 2.5 |
| 2 | B | 442 | SER | 2.5 |
| 2 | F | 245 | GLU | 2.5 |
| 2 | H | 194 | PRO | 2.5 |
| 2 | B | 423 | LEU | 2.5 |
| 2 | F | 382 | THR | 2.5 |
| 1 | A | 221 | TYR | 2.5 |
| 2 | F | 423 | LEU | 2.5 |
| 1 | E | 247 | ILE | 2.5 |
| 3 | J | 113 | ILE | 2.5 |
| 1 | G | 272 | VAL | 2.4 |
| 2 | B | 387 | GLY | 2.4 |
| 1 | A | 278 | THR | 2.4 |
| 2 | D | 403 | ARG | 2.4 |
| 2 | F | 394 | LEU | 2.4 |
| 2 | H | 211 | VAL | 2.4 |
| 1 | E | 7 | LEU | 2.4 |
| 2 | B | 418 | VAL | 2.3 |
| 1 | G | 278 | THR | 2.3 |
| 2 | D | 294 | SER | 2.3 |
| 3 | J | 162 | LEU | 2.3 |
| 1 | C | 209 | HIS | 2.3 |
| 2 | B | 168 | VAL | 2.3 |
| 1 | G | 231 | GLY | 2.3 |
| 1 | E | 199 | TYR | 2.3 |
| 1 | E | 243 | PHE | 2.3 |
| 2 | F | 355 | PHE | 2.3 |
| 3 | J | 120 | THR | 2.3 |
| 1 | C | 107 | GLU | 2.3 |
| 1 | C | 370 | GLN | 2.3 |
| 2 | D | 420 | GLY | 2.3 |
| 2 | H | 386 | GLU | 2.3 |
| 2 | H | 388 | LYS | 2.3 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | C | 9 | LYS | 2.2 |
| 2 | H | 216 | ALA | 2.2 |
| 1 | G | 199 | TYR | 2.2 |
| 3 | K | 161 | ILE | 2.2 |
| 2 | H | 415 | LEU | 2.2 |
| 2 | F | 247 | VAL | 2.2 |
| 2 | D | 437 | LYS | 2.2 |
| 2 | F | 259 | TRP | 2.2 |
| 2 | B | 392 | LEU | 2.2 |
| 1 | E | 221 | TYR | 2.2 |
| 2 | H | 390 | ARG | 2.2 |
| 2 | D | 365 | LEU | 2.2 |
| 2 | B | 441 | THR | 2.2 |
| 1 | A | 7 | LEU | 2.2 |
| 2 | D | 215 | MET | 2.2 |
| 1 | G | 332 | MET | 2.1 |
| 1 | G | 224 | GLN | 2.1 |
| 1 | E | 8 | LEU | 2.1 |
| 2 | F | 408 | LEU | 2.1 |
| 2 | B | 421 | GLN | 2.1 |
| 1 | C | 115 | ASN | 2.1 |
| 1 | G | 238 | LYS | 2.1 |
| 2 | B | 393 | TYR | 2.1 |
| 1 | C | 297 | ILE | 2.1 |
| 1 | G | 270 | LYS | 2.1 |
| 1 | G | 202 | ASP | 2.1 |
| 2 | D | 44 | PHE | 2.1 |
| 2 | D | 383 | ALA | 2.1 |
| 2 | H | 353 | ILE | 2.1 |
| 1 | G | 269 | ILE | 2.1 |
| 2 | H | 391 | THR | 2.1 |
| 2 | F | 351 | GLN | 2.0 |
| 3 | J | 161 | ILE | 2.0 |
| 2 | H | 420 | GLY | 2.0 |
| 3 | J | 105 | VAL | 2.0 |
| 2 | H | 416 | GLY | 2.0 |
| 1 | E | 492 | THR | 2.0 |
| 1 | A | 200 | ASP | 2.0 |
| 1 | E | 523 | SER | 2.0 |
| 2 | F | 320 | ASN | 2.0 |
| 3 | K | 117 | ILE | 2.0 |
| 2 | D | 358 | SER | 2.0 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 2 | B | 365 | LEU | 2.0 |

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

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

## 6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

## 6.4 Ligands (i)

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

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 4 | ZN | F | 4 | 1/1 | 0.96 | 0.19 | 74,74,74,74 | 0 |
| 4 | ZN | H | 2 | 1/1 | 0.97 | 0.16 | 84,84,84,84 | 0 |
| 4 | ZN | B | 1 | 1/1 | 0.98 | 0.16 | 79,79,79,79 | 0 |
| 4 | ZN | D | 3 | 1/1 | 0.99 | 0.17 | 93,93,93,93 | 0 |

## 6.5 Other polymers (i)

There are no such residues in this entry.