# Full wwPDB X-ray Structure Validation Report ⓘ

Aug 9, 2023 – 10:11 PM JST

| | | |
|---|---|---|
| PDB ID | : | 7WRW |
| Title | : | Structure of Deinococcus radiodurans HerA |
| Authors | : | Cheng, K. |
| Deposited on | : | 2022-01-27 |
| Resolution | : | 3.00 Å(reported) |

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

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

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

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

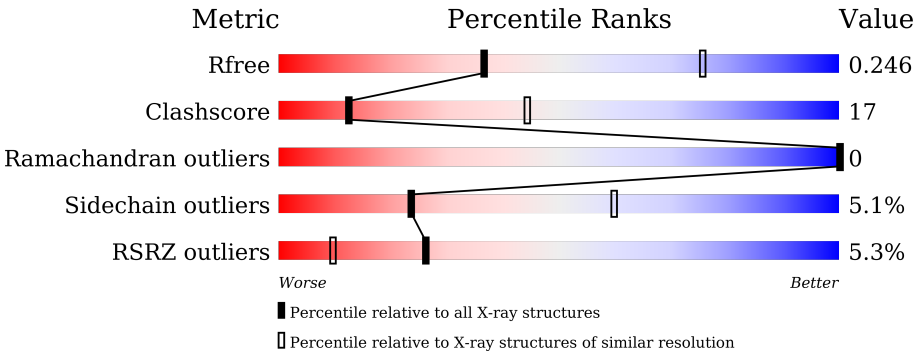
| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.35 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Refmac | : | 5.8.0158 |
| CCP4 | : | 7.0.044 (Gargrove) |
| Ideal geometry (proteins) | : | Engh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

# 1 Overall quality at a glance

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

The reported resolution of this entry is 3.00 Å.

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




| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|---|---|---|
| $R_{free}$ | 130704 | 2092 (3.00-3.00) |
| Clashscore | 141614 | 2416 (3.00-3.00) |
| Ramachandran outliers | 138981 | 2333 (3.00-3.00) |
| Sidechain outliers | 138945 | 2336 (3.00-3.00) |
| RSRZ outliers | 127900 | 1990 (3.00-3.00) |

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 | 618 | 5% 63% 29% • 6% |
| 1 | B | 618 | 4% 69% 24% • 6% |
| 1 | C | 618 | 3% 71% 21% • 6% |
| 1 | D | 618 | 4% 64% 28% • 6% |
| 1 | E | 618 | 6% 63% 29% • 6% |
| 1 | F | 618 | 7% 61% 32% • 6% |

## 2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 27153 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 HerA.

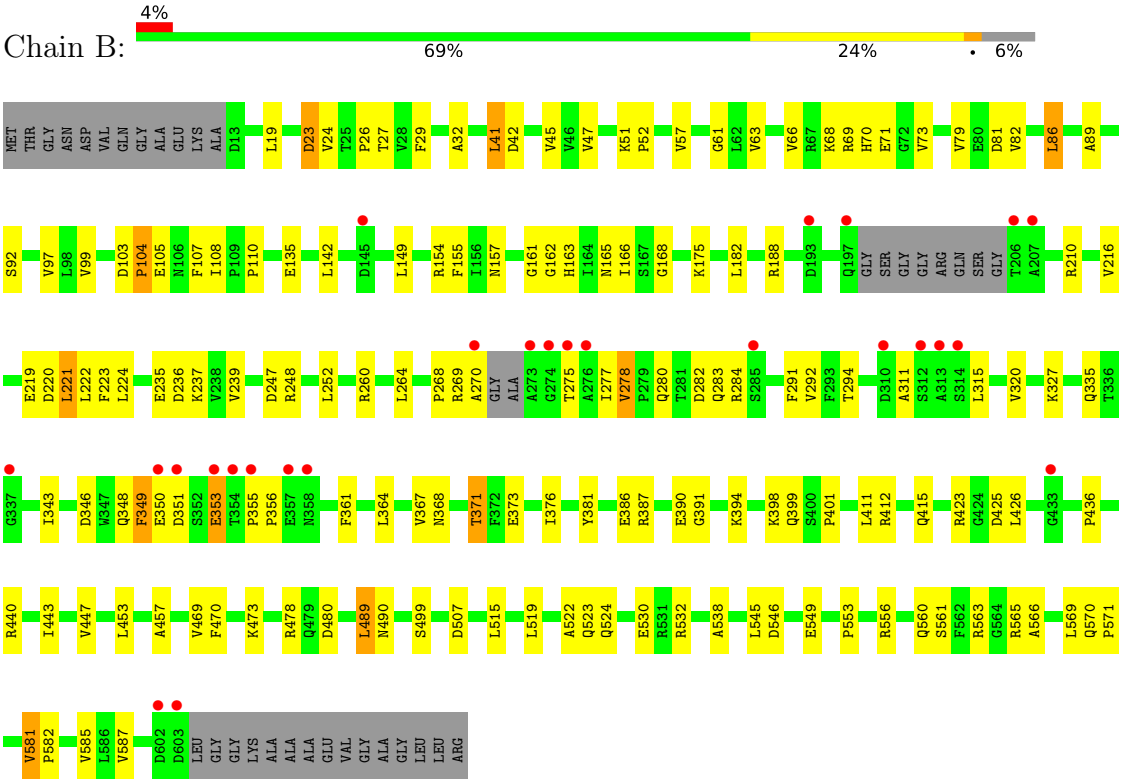
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 581 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4518 | 2867 | 798 | 844 | 9 | | | |
| 1 | C | 583 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4527 | 2872 | 800 | 846 | 9 | | | |
| 1 | F | 583 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4527 | 2872 | 800 | 846 | 9 | | | |
| 1 | D | 583 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4527 | 2872 | 800 | 846 | 9 | | | |
| 1 | E | 583 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4527 | 2872 | 800 | 846 | 9 | | | |
| 1 | A | 583 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 4527 | 2872 | 800 | 846 | 9 | | | |

# 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.

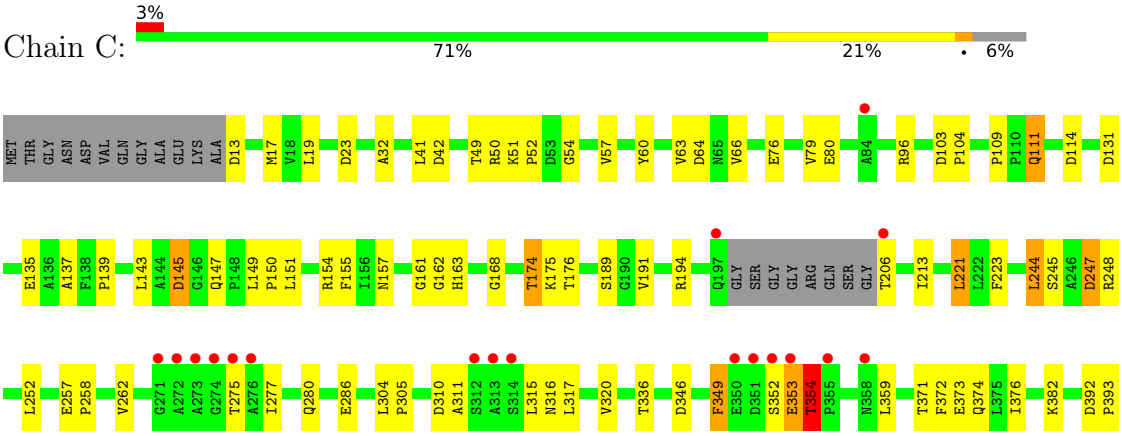
• Molecule 1: HerA

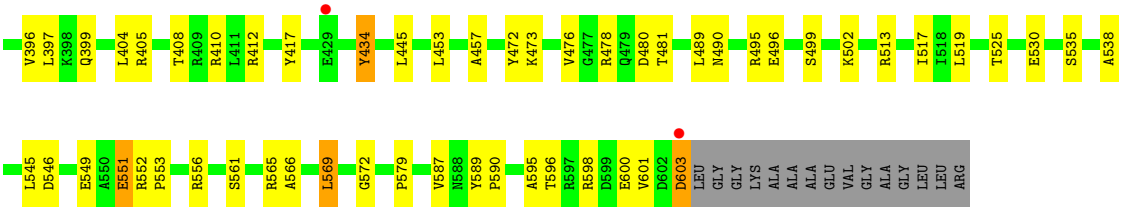
Chain B:




• Molecule 1: HerA

Chain C:

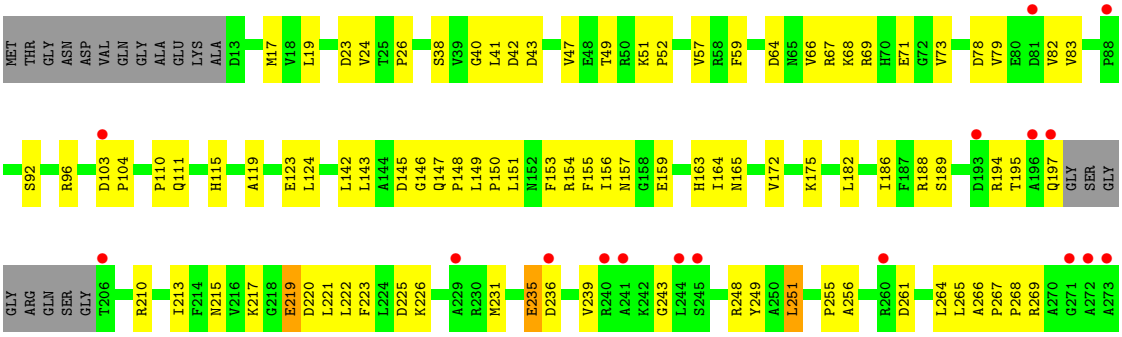






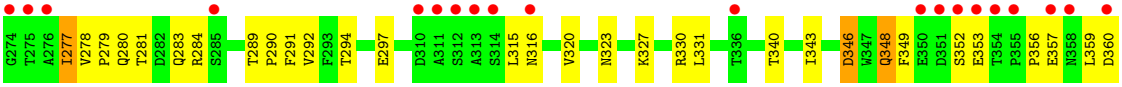
• Molecule 1: HerA

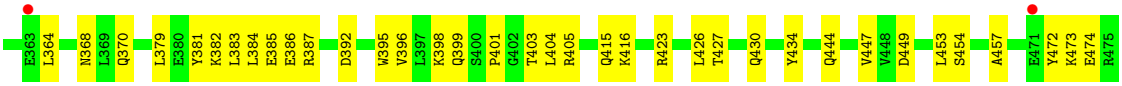
Chain F:

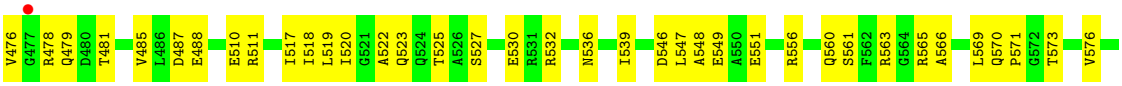


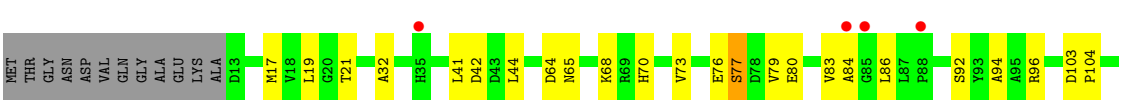














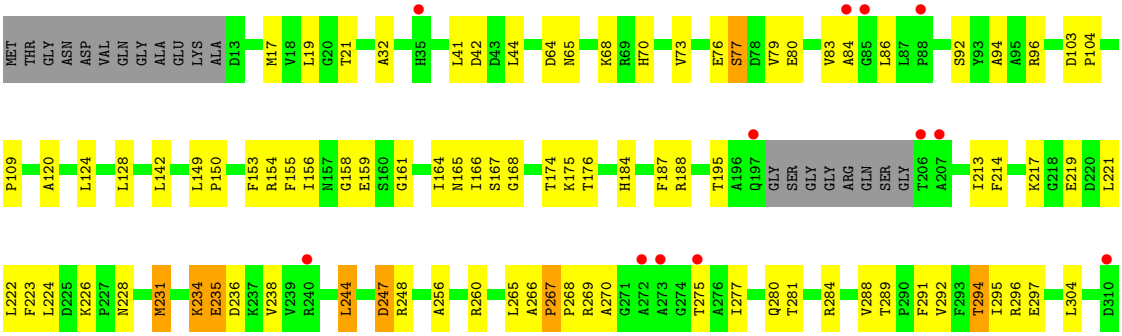


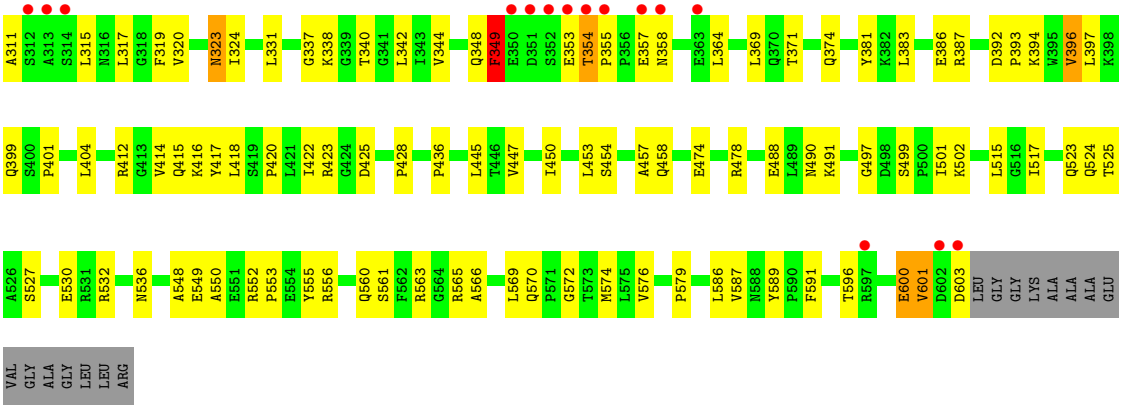




• Molecule 1: HerA

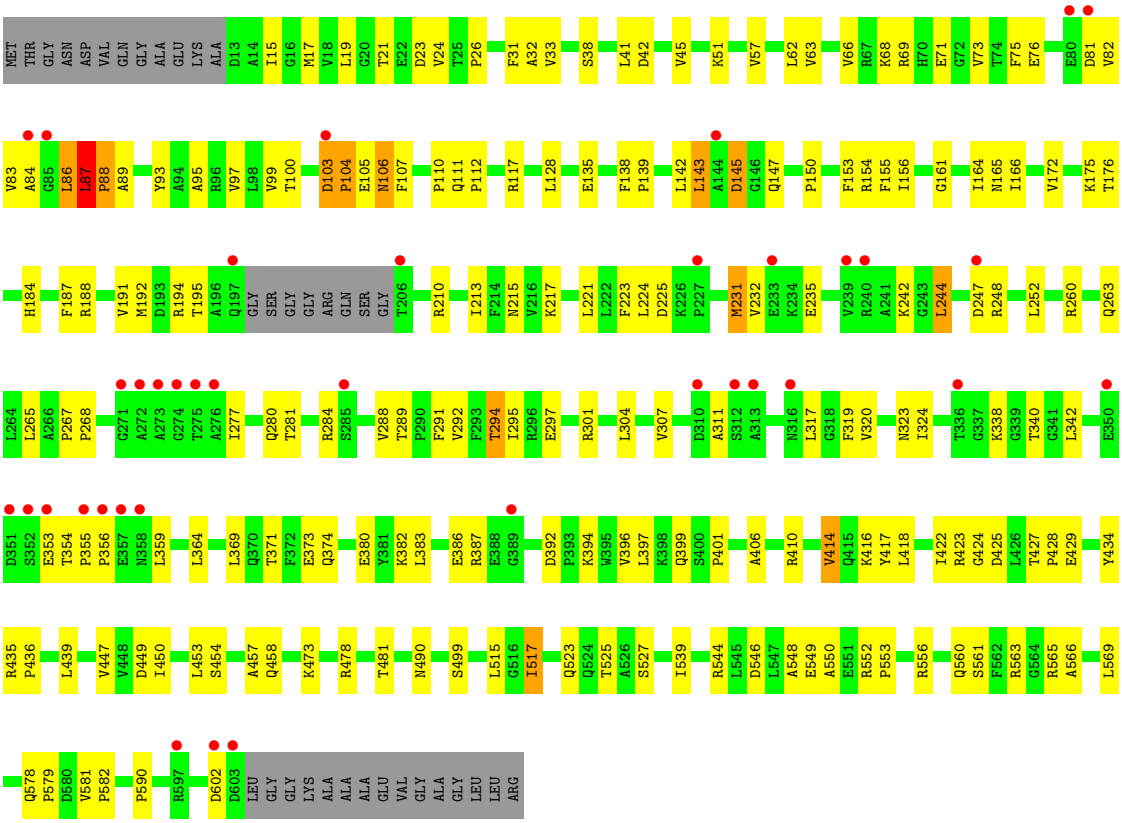
Chain D:





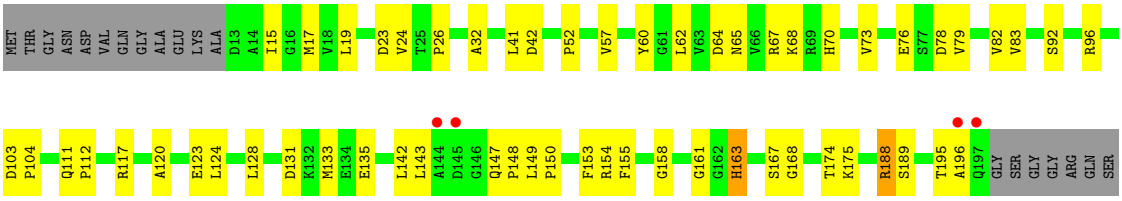

• Molecule 1: HerA

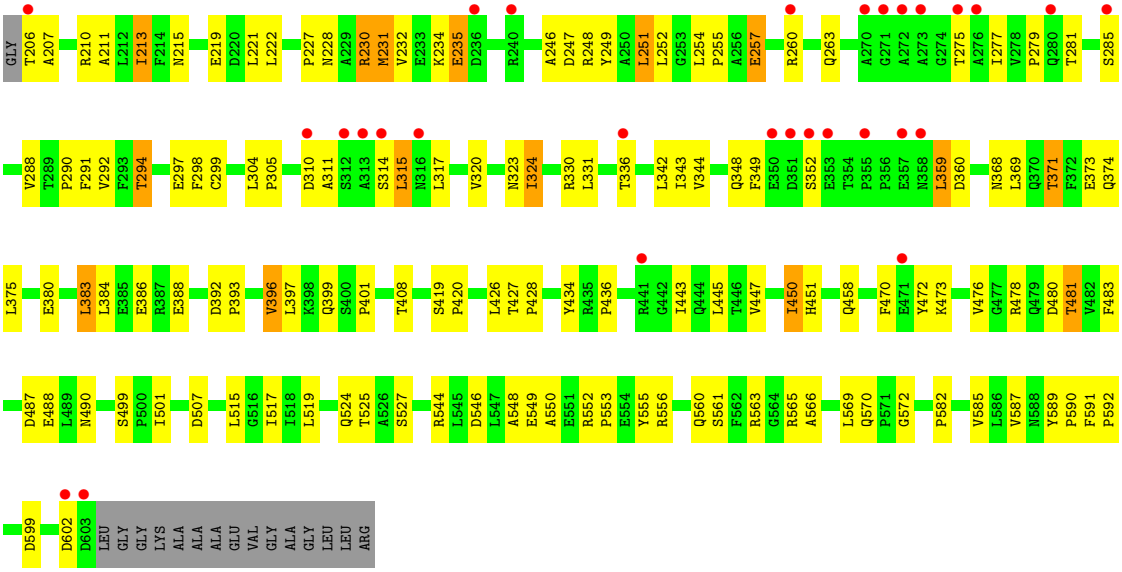
Chain E:




• Molecule 1: HerA

Chain A:




GLY T206 A207 R210 A211 L212 I213 F214 N215 E219 D220 L221 L222 P227 N228 A229 R230 M231 V232 E233 K234 E235 D236 R240 A246 D247 R248 Y249 A250 L251 L252 G253 L254 P255 A256 E257 R260 Q263 A270 G271 A272 A273 G274 T275 A276 I277 V278 P279 Q280 T281 S285
V288 T289 P290 F291 V292 F293 T294 E297 F298 C299 L304 P305 D310 A311 S312 A313 S314 L315 N316 L317 V320 N323 I324 R330 L331 T336 L342 I343 V344 Q348 F349 E350 D351 S352 E353 T354 P355 P356 E357 N358 L359 D360 N368 L369 Q370 T371 F372 E373 Q374
L375 E380 L383 L384 E385 E386 R387 E388 D392 P393 V396 L397 K398 Q399 S400 P401 T408 S419 P420 L426 T427 P428 Y434 R435 P436 R441 G442 I443 Q444 L445 T446 V447 I450 H451 Q458 F470 E471 Y472 K473 V476 G477 R478 Q479 D480 T481 V482 F483
D487 E488 L489 N490 S499 P500 I501 D507 L515 Q516 I517 I518 L519 Q524 T525 A526 S527 R544 L545 D546 L547 A548 E549 A550 E551 R552 P553 E554 Y555 R556 Q560 S561 F562 R563 G564 R565 A566 L569 Q570 P571 G572 P582 V585 L586 V587 N588 Y589 P590 F591 P592
D599 D602 D603 LEU GLY GLY LYS ALA ALA ALA GLU VAL GLY ALA GLY LEU LEU ARG

# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 32 2 1 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 279.03Å 279.03Å 105.68Å<br>90.00° 90.00° 120.00° | Depositor |
| Resolution (Å) | 10.00 – 3.00<br>10.00 – 3.00 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 99.8 (10.00-3.00)<br>99.8 (10.00-3.00) | Depositor<br>EDS |
| $R_{merge}$ | (Not available) | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 2.23 (at 2.99Å) | Xtriage |
| Refinement program | PHENIX 1.11.1_2575 | Depositor |
| R, $R_{free}$ | 0.225 , 0.246<br>0.225 , 0.246 | Depositor<br>DCC |
| $R_{free}$ test set | 4632 reflections (5.06%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 85.5 | Xtriage |
| Anisotropy | 0.050 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.39 , 59.7 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.49$, $< L^2 > = 0.32$ | Xtriage |
| Estimated twinning fraction | 0.023 for -h,-k,l | Xtriage |
| $F_o$,$F_c$ correlation | 0.93 | EDS |
| Total number of atoms | 27153 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 83.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.80% 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)

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 | 0.52 | 1/4621 (0.0%) | 0.66 | 1/6273 (0.0%) |
| 1 | B | 0.48 | 1/4611 (0.0%) | 0.67 | 1/6258 (0.0%) |
| 1 | C | 0.60 | 1/4621 (0.0%) | 0.74 | 0/6273 |
| 1 | D | 0.51 | 3/4621 (0.1%) | 0.67 | 4/6273 (0.1%) |
| 1 | E | 0.53 | 4/4621 (0.1%) | 0.63 | 4/6273 (0.1%) |
| 1 | F | 0.43 | 1/4621 (0.0%) | 0.61 | 1/6273 (0.0%) |
| All | All | 0.51 | 11/27716 (0.0%) | 0.66 | 11/37623 (0.0%) |

All (11) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | E | 88 | PRO | N-CA | 13.32 | 1.70 | 1.47 |
| 1 | D | 267 | PRO | N-CA | 13.24 | 1.69 | 1.47 |
| 1 | E | 104 | PRO | N-CA | 12.89 | 1.69 | 1.47 |
| 1 | A | 257 | GLU | C-N | 8.79 | 1.50 | 1.34 |
| 1 | C | 354 | THR | C-N | 8.69 | 1.50 | 1.34 |
| 1 | B | 278 | VAL | C-N | 8.56 | 1.50 | 1.34 |
| 1 | D | 354 | THR | C-N | 8.35 | 1.50 | 1.34 |
| 1 | F | 148 | PRO | N-CD | -7.25 | 1.37 | 1.47 |
| 1 | E | 87 | LEU | C-N | 5.98 | 1.45 | 1.34 |
| 1 | D | 266 | ALA | C-N | 5.88 | 1.45 | 1.34 |
| 1 | E | 103 | ASP | C-N | 5.68 | 1.45 | 1.34 |

All (11) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | E | 104 | PRO | N-CA-C | -8.04 | 91.21 | 112.10 |
| 1 | E | 88 | PRO | CA-N-CD | -7.66 | 100.77 | 111.50 |
| 1 | D | 267 | PRO | CA-N-CD | -7.36 | 101.20 | 111.50 |
| 1 | E | 104 | PRO | CA-N-CD | -6.98 | 101.73 | 111.50 |
| 1 | D | 349 | PHE | CB-CA-C | -6.48 | 97.44 | 110.40 |
| 1 | F | 148 | PRO | N-CA-CB | -6.18 | 95.80 | 102.60 |
| 1 | D | 77 | SER | N-CA-CB | 5.65 | 118.98 | 110.50 |

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| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | B | 104 | PRO | N-CA-C | -5.22 | 98.54 | 112.10 |
| 1 | E | 104 | PRO | N-CD-CG | 5.16 | 110.94 | 103.20 |
| 1 | A | 62 | LEU | CA-CB-CG | 5.09 | 127.00 | 115.30 |
| 1 | D | 354 | THR | C-N-CD | -5.01 | 109.57 | 120.60 |

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 | 4527 | 0 | 4526 | 175 | 0 |
| 1 | B | 4518 | 0 | 4517 | 133 | 1 |
| 1 | C | 4527 | 0 | 4526 | 125 | 1 |
| 1 | D | 4527 | 0 | 4526 | 165 | 0 |
| 1 | E | 4527 | 0 | 4526 | 203 | 0 |
| 1 | F | 4527 | 0 | 4526 | 204 | 0 |
| All | All | 27153 | 0 | 27147 | 914 | 1 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 17.

All (914) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:267:PRO:N | 1:D:267:PRO:CA | 1.69 | 1.45 |
| 1:A:188:ARG:NH2 | 1:A:260:ARG:HD3 | 1.25 | 1.43 |
| 1:A:188:ARG:NH2 | 1:A:260:ARG:CD | 1.80 | 1.41 |
| 1:E:88:PRO:N | 1:E:88:PRO:CA | 1.69 | 1.38 |
| 1:F:69:ARG:HH21 | 1:A:23:ASP:CG | 1.24 | 1.38 |
| 1:E:104:PRO:N | 1:E:104:PRO:CA | 1.69 | 1.33 |
| 1:E:235:GLU:OE2 | 1:E:248:ARG:HB2 | 1.24 | 1.28 |
| 1:E:145:ASP:OD1 | 1:E:242:LYS:HD3 | 1.22 | 1.27 |
| 1:E:145:ASP:OD1 | 1:E:242:LYS:CD | 1.84 | 1.25 |
| 1:A:188:ARG:HH21 | 1:A:260:ARG:NE | 1.36 | 1.24 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:188:ARG:NH2 | 1:A:260:ARG:NE | 1.86 | 1.22 |
| 1:D:76:GLU:OE1 | 1:E:19:LEU:HD21 | 1.10 | 1.21 |
| 1:B:235:GLU:O | 1:B:239:VAL:HG23 | 1.35 | 1.21 |
| 1:F:146:GLY:O | 1:F:251:LEU:HD21 | 1.35 | 1.21 |
| 1:E:81:ASP:CB | 1:E:87:LEU:HD11 | 1.73 | 1.18 |
| 1:E:81:ASP:HB3 | 1:E:87:LEU:HD11 | 1.25 | 1.16 |
| 1:E:57:VAL:HA | 1:E:104:PRO:HG3 | 1.27 | 1.16 |
| 1:F:69:ARG:NH2 | 1:A:23:ASP:OD2 | 1.78 | 1.15 |
| 1:F:69:ARG:NH2 | 1:A:23:ASP:CG | 1.97 | 1.15 |
| 1:F:226:LYS:CB | 1:F:601:VAL:HG12 | 1.79 | 1.12 |
| 1:D:213:ILE:HD13 | 1:D:445:LEU:HD11 | 1.30 | 1.11 |
| 1:E:84:ALA:HB3 | 1:E:86:LEU:CD2 | 1.79 | 1.11 |
| 1:E:138:PHE:HB3 | 1:E:191:VAL:HG21 | 1.32 | 1.11 |
| 1:D:357:GLU:HG3 | 1:D:358:ASN:N | 1.65 | 1.10 |
| 1:B:311:ALA:HB2 | 1:B:499:SER:HB3 | 1.26 | 1.10 |
| 1:F:124:LEU:HD21 | 1:F:147:GLN:HG3 | 1.24 | 1.08 |
| 1:C:595:ALA:CB | 1:C:601:VAL:HG23 | 1.82 | 1.08 |
| 1:F:226:LYS:HB3 | 1:F:601:VAL:HG12 | 1.35 | 1.08 |
| 1:D:76:GLU:OE1 | 1:E:19:LEU:CD2 | 2.02 | 1.08 |
| 1:A:188:ARG:NH2 | 1:A:260:ARG:CZ | 2.17 | 1.08 |
| 1:F:124:LEU:CD2 | 1:F:147:GLN:HG3 | 1.84 | 1.07 |
| 1:E:51:LYS:HE2 | 1:E:106:ASN:OD1 | 1.54 | 1.07 |
| 1:A:315:LEU:H | 1:A:315:LEU:HD12 | 1.21 | 1.06 |
| 1:F:235:GLU:OE1 | 1:F:248:ARG:HB2 | 1.55 | 1.05 |
| 1:D:357:GLU:CG | 1:D:358:ASN:H | 1.65 | 1.05 |
| 1:E:84:ALA:HB3 | 1:E:86:LEU:HD21 | 1.38 | 1.04 |
| 1:D:311:ALA:HB2 | 1:D:499:SER:HB3 | 1.37 | 1.04 |
| 1:E:143:LEU:HD12 | 1:E:143:LEU:H | 1.24 | 1.02 |
| 1:D:213:ILE:CD1 | 1:D:445:LEU:HD11 | 1.89 | 1.02 |
| 1:F:226:LYS:HG3 | 1:F:601:VAL:HG11 | 1.38 | 1.01 |
| 1:E:57:VAL:HG13 | 1:E:104:PRO:HG2 | 1.38 | 1.01 |
| 1:E:86:LEU:HD22 | 1:E:86:LEU:H | 1.22 | 1.01 |
| 1:A:188:ARG:HH21 | 1:A:260:ARG:CD | 1.56 | 1.00 |
| 1:A:210:ARG:HD2 | 1:A:480:ASP:OD1 | 1.61 | 1.00 |
| 1:E:155:PHE:HA | 1:E:161:GLY:HA3 | 1.43 | 0.99 |
| 1:C:595:ALA:HB1 | 1:C:601:VAL:HG23 | 1.41 | 0.99 |
| 1:E:311:ALA:HB2 | 1:E:499:SER:HB3 | 1.46 | 0.97 |
| 1:D:357:GLU:HG3 | 1:D:358:ASN:H | 0.81 | 0.97 |
| 1:E:57:VAL:HA | 1:E:104:PRO:CG | 1.94 | 0.97 |
| 1:B:41:LEU:O | 1:B:63:VAL:O | 1.83 | 0.96 |
| 1:C:595:ALA:CB | 1:C:601:VAL:CG2 | 2.44 | 0.95 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:87:LEU:HD12 | 1:E:87:LEU:H | 1.31 | 0.95 |
| 1:F:383:LEU:HD12 | 1:F:404:LEU:HD22 | 1.49 | 0.94 |
| 1:A:188:ARG:HH22 | 1:A:260:ARG:CD | 1.59 | 0.94 |
| 1:F:143:LEU:HD11 | 1:F:147:GLN:HE21 | 1.29 | 0.93 |
| 1:D:176:THR:OG1 | 1:D:217:LYS:NZ | 2.02 | 0.93 |
| 1:A:311:ALA:HB2 | 1:A:499:SER:HB3 | 1.51 | 0.93 |
| 1:F:23:ASP:OD2 | 1:E:69:ARG:NH2 | 2.01 | 0.93 |
| 1:E:165:ASN:OD1 | 1:E:523:GLN:NE2 | 2.02 | 0.92 |
| 1:E:145:ASP:OD1 | 1:E:242:LYS:CE | 2.17 | 0.92 |
| 1:E:26:PRO:O | 1:E:99:VAL:HG21 | 1.69 | 0.91 |
| 1:C:311:ALA:HB2 | 1:C:499:SER:HB3 | 1.51 | 0.91 |
| 1:F:235:GLU:OE1 | 1:F:248:ARG:CB | 2.18 | 0.91 |
| 1:E:84:ALA:CB | 1:E:86:LEU:HD21 | 2.00 | 0.91 |
| 1:F:226:LYS:HG3 | 1:F:601:VAL:CG1 | 2.01 | 0.90 |
| 1:F:226:LYS:CB | 1:F:601:VAL:CG1 | 2.50 | 0.90 |
| 1:F:149:LEU:HD12 | 1:F:150:PRO:HD2 | 1.51 | 0.90 |
| 1:E:81:ASP:CB | 1:E:87:LEU:CD1 | 2.51 | 0.88 |
| 1:E:51:LYS:CE | 1:E:106:ASN:OD1 | 2.22 | 0.88 |
| 1:E:81:ASP:HB2 | 1:E:87:LEU:HD11 | 1.53 | 0.88 |
| 1:C:396:VAL:HG21 | 1:C:404:LEU:HD11 | 1.54 | 0.88 |
| 1:D:269:ARG:HA | 1:D:280:GLN:HG2 | 1.56 | 0.87 |
| 1:A:155:PHE:HA | 1:A:161:GLY:HA3 | 1.55 | 0.87 |
| 1:E:41:LEU:O | 1:E:63:VAL:O | 1.93 | 0.86 |
| 1:A:311:ALA:CB | 1:A:499:SER:HB3 | 2.05 | 0.86 |
| 1:F:23:ASP:CG | 1:E:69:ARG:HH21 | 1.79 | 0.86 |
| 1:A:249:TYR:OH | 1:A:591:PHE:O | 1.94 | 0.86 |
| 1:B:69:ARG:NH2 | 1:C:23:ASP:OD2 | 2.07 | 0.86 |
| 1:F:92:SER:OG | 1:E:76:GLU:OE2 | 1.92 | 0.86 |
| 1:E:42:ASP:OD2 | 1:E:565:ARG:NH1 | 2.09 | 0.86 |
| 1:B:26:PRO:O | 1:B:99:VAL:HG21 | 1.75 | 0.85 |
| 1:E:104:PRO:N | 1:E:104:PRO:C | 2.30 | 0.85 |
| 1:D:213:ILE:CD1 | 1:D:445:LEU:CD1 | 2.54 | 0.85 |
| 1:A:188:ARG:HH22 | 1:A:260:ARG:HD3 | 1.11 | 0.85 |
| 1:A:231:MET:O | 1:A:231:MET:HE2 | 1.77 | 0.84 |
| 1:B:235:GLU:O | 1:B:239:VAL:CG2 | 2.23 | 0.84 |
| 1:A:57:VAL:HA | 1:A:104:PRO:HG2 | 1.60 | 0.82 |
| 1:D:234:LYS:HE2 | 1:D:234:LYS:HA | 1.60 | 0.82 |
| 1:D:176:THR:CB | 1:D:217:LYS:NZ | 2.43 | 0.81 |
| 1:D:234:LYS:HA | 1:D:234:LYS:CE | 2.10 | 0.81 |
| 1:A:167:SER:HG | 1:A:555:TYR:HH | 1.23 | 0.81 |
| 1:A:158:GLY:HA2 | 1:A:161:GLY:O | 1.79 | 0.81 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:311:ALA:CB | 1:E:499:SER:HB3 | 2.10 | 0.80 |
| 1:B:165:ASN:HD21 | 1:B:523:GLN:HE22 | 1.27 | 0.80 |
| 1:E:81:ASP:HB3 | 1:E:87:LEU:CD1 | 2.10 | 0.80 |
| 1:F:41:LEU:HD13 | 1:F:66:VAL:HG22 | 1.64 | 0.80 |
| 1:B:188:ARG:NH1 | 1:B:260:ARG:HG2 | 1.96 | 0.80 |
| 1:E:235:GLU:OE2 | 1:E:248:ARG:CB | 2.20 | 0.80 |
| 1:F:146:GLY:O | 1:F:251:LEU:CD2 | 2.26 | 0.80 |
| 1:E:81:ASP:HB2 | 1:E:87:LEU:CD1 | 2.12 | 0.79 |
| 1:D:219:GLU:HA | 1:D:222:LEU:HD23 | 1.64 | 0.79 |
| 1:F:330:ARG:NH2 | 1:E:380:GLU:OE2 | 2.14 | 0.79 |
| 1:C:412:ARG:HG2 | 1:C:412:ARG:HH11 | 1.48 | 0.79 |
| 1:E:145:ASP:CG | 1:E:242:LYS:HD3 | 2.02 | 0.78 |
| 1:F:69:ARG:NH2 | 1:A:23:ASP:OD1 | 2.16 | 0.78 |
| 1:F:268:PRO:CG | 1:F:292:VAL:HG12 | 2.13 | 0.78 |
| 1:A:210:ARG:HH11 | 1:A:210:ARG:HG2 | 1.48 | 0.78 |
| 1:C:174:THR:OG1 | 1:C:589:TYR:OH | 2.02 | 0.78 |
| 1:E:86:LEU:CD2 | 1:E:86:LEU:H | 1.97 | 0.78 |
| 1:C:50:ARG:NH1 | 1:C:54:GLY:O | 2.17 | 0.78 |
| 1:D:167:SER:HG | 1:D:555:TYR:HH | 1.31 | 0.78 |
| 1:A:450:ILE:HG23 | 1:A:458:GLN:HG2 | 1.66 | 0.77 |
| 1:B:69:ARG:HH21 | 1:C:23:ASP:CG | 1.88 | 0.77 |
| 1:E:338:LYS:HE3 | 1:E:428:PRO:HG3 | 1.67 | 0.77 |
| 1:D:311:ALA:CB | 1:D:499:SER:HB3 | 2.15 | 0.77 |
| 1:A:188:ARG:NH2 | 1:A:260:ARG:NH1 | 2.33 | 0.77 |
| 1:A:481:THR:CG2 | 1:A:483:PHE:CE2 | 2.67 | 0.77 |
| 1:E:84:ALA:CB | 1:E:86:LEU:CD2 | 2.60 | 0.77 |
| 1:F:281:THR:OG1 | 1:F:284:ARG:O | 2.02 | 0.76 |
| 1:A:42:ASP:OD2 | 1:A:565:ARG:NH1 | 2.17 | 0.76 |
| 1:A:281:THR:HG21 | 1:A:288:VAL:HG21 | 1.68 | 0.76 |
| 1:C:174:THR:CG2 | 1:C:572:GLY:H | 1.97 | 0.76 |
| 1:E:87:LEU:HD12 | 1:E:87:LEU:N | 2.01 | 0.76 |
| 1:B:24:VAL:CG1 | 1:B:110:PRO:HD2 | 2.16 | 0.76 |
| 1:C:396:VAL:CG2 | 1:C:404:LEU:HD11 | 2.15 | 0.76 |
| 1:A:143:LEU:O | 1:A:143:LEU:HD12 | 1.85 | 0.76 |
| 1:F:226:LYS:CG | 1:F:601:VAL:CG1 | 2.63 | 0.76 |
| 1:B:24:VAL:HG12 | 1:B:110:PRO:HD2 | 1.68 | 0.75 |
| 1:F:17:MET:CE | 1:E:83:VAL:HG21 | 2.16 | 0.75 |
| 1:F:294:THR:HG23 | 1:F:297:GLU:H | 1.52 | 0.75 |
| 1:E:33:VAL:HB | 1:E:93:TYR:CD2 | 2.22 | 0.75 |
| 1:A:210:ARG:HG2 | 1:A:210:ARG:NH1 | 2.01 | 0.75 |
| 1:E:155:PHE:HA | 1:E:161:GLY:CA | 2.17 | 0.74 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:F:124:LEU:HD21 | 1:F:147:GLN:CG | 2.13 | 0.74 |
| 1:F:143:LEU:O | 1:F:143:LEU:HD12 | 1.87 | 0.74 |
| 1:C:145:ASP:OD2 | 1:C:145:ASP:N | 2.21 | 0.73 |
| 1:D:70:HIS:HB3 | 1:D:73:VAL:HG23 | 1.70 | 0.73 |
| 1:C:595:ALA:HB2 | 1:C:601:VAL:CG2 | 2.17 | 0.73 |
| 1:B:27:THR:O | 1:B:99:VAL:HG23 | 1.88 | 0.73 |
| 1:F:268:PRO:HG3 | 1:F:292:VAL:HG12 | 1.69 | 0.73 |
| 1:D:19:LEU:HD13 | 1:D:32:ALA:HB2 | 1.71 | 0.73 |
| 1:E:86:LEU:HD22 | 1:E:86:LEU:N | 2.01 | 0.73 |
| 1:F:226:LYS:CG | 1:F:601:VAL:HG11 | 2.19 | 0.73 |
| 1:D:70:HIS:HB3 | 1:D:73:VAL:CG2 | 2.18 | 0.73 |
| 1:D:76:GLU:HB3 | 1:E:21:THR:HG21 | 1.71 | 0.72 |
| 1:F:384:LEU:HD12 | 1:F:405:ARG:HE | 1.52 | 0.72 |
| 1:F:356:PRO:HA | 1:F:359:LEU:HD13 | 1.70 | 0.72 |
| 1:A:373:GLU:N | 1:A:373:GLU:OE1 | 2.23 | 0.72 |
| 1:A:228:ASN:ND2 | 1:A:592:PRO:O | 2.15 | 0.72 |
| 1:A:235:GLU:OE1 | 1:A:248:ARG:HD2 | 1.89 | 0.72 |
| 1:A:315:LEU:HD12 | 1:A:315:LEU:N | 2.02 | 0.71 |
| 1:A:525:THR:HG22 | 1:A:527:SER:H | 1.55 | 0.71 |
| 1:F:38:SER:HB3 | 1:A:52:PRO:HD2 | 1.73 | 0.71 |
| 1:C:135:GLU:OE2 | 1:C:154:ARG:NH2 | 2.24 | 0.71 |
| 1:C:603:ASP:N | 1:C:603:ASP:OD1 | 2.23 | 0.71 |
| 1:B:135:GLU:OE2 | 1:B:154:ARG:NH2 | 2.22 | 0.70 |
| 1:B:188:ARG:HH12 | 1:B:260:ARG:HD3 | 1.56 | 0.70 |
| 1:F:42:ASP:OD1 | 1:F:565:ARG:NH1 | 2.24 | 0.70 |
| 1:B:401:PRO:HB2 | 1:C:397:LEU:HB3 | 1.72 | 0.70 |
| 1:E:143:LEU:HD12 | 1:E:143:LEU:N | 2.00 | 0.70 |
| 1:A:549:GLU:OE1 | 1:A:552:ARG:NH1 | 2.23 | 0.70 |
| 1:A:553:PRO:HA | 1:A:556:ARG:HD3 | 1.73 | 0.70 |
| 1:E:553:PRO:HA | 1:E:556:ARG:HD3 | 1.72 | 0.69 |
| 1:A:19:LEU:HD13 | 1:A:32:ALA:HB2 | 1.74 | 0.69 |
| 1:A:228:ASN:HB3 | 1:A:231:MET:HB3 | 1.73 | 0.69 |
| 1:A:478:ARG:HG3 | 1:A:478:ARG:O | 1.92 | 0.69 |
| 1:B:386:GLU:HB3 | 1:B:391:GLY:HA2 | 1.73 | 0.69 |
| 1:D:77:SER:OG | 1:E:71:GLU:HG3 | 1.91 | 0.69 |
| 1:A:143:LEU:HD12 | 1:A:143:LEU:C | 2.13 | 0.69 |
| 1:D:154:ARG:NH1 | 1:D:159:GLU:OE1 | 2.26 | 0.69 |
| 1:D:213:ILE:HD13 | 1:D:445:LEU:CD1 | 2.14 | 0.69 |
| 1:C:155:PHE:HA | 1:C:161:GLY:HA3 | 1.74 | 0.68 |
| 1:E:57:VAL:CG1 | 1:E:104:PRO:HG2 | 2.18 | 0.68 |
| 1:A:210:ARG:CD | 1:A:480:ASP:OD1 | 2.40 | 0.68 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:396:VAL:O | 1:C:396:VAL:HG13 | 1.93 | 0.68 |
| 1:F:340:THR:OG1 | 1:F:426:LEU:O | 2.09 | 0.68 |
| 1:B:42:ASP:OD1 | 1:B:565:ARG:NH1 | 2.26 | 0.68 |
| 1:B:553:PRO:O | 1:B:556:ARG:HG2 | 1.93 | 0.68 |
| 1:D:553:PRO:HA | 1:D:556:ARG:HD3 | 1.76 | 0.68 |
| 1:E:155:PHE:CA | 1:E:161:GLY:HA3 | 2.22 | 0.68 |
| 1:E:323:ASN:HD21 | 1:E:397:LEU:HG | 1.58 | 0.68 |
| 1:C:373:GLU:OE1 | 1:C:373:GLU:N | 2.22 | 0.68 |
| 1:A:155:PHE:CA | 1:A:161:GLY:HA3 | 2.23 | 0.67 |
| 1:B:291:PHE:HB2 | 1:B:436:PRO:HG3 | 1.76 | 0.67 |
| 1:A:315:LEU:H | 1:A:315:LEU:CD1 | 1.99 | 0.67 |
| 1:D:291:PHE:HB2 | 1:D:436:PRO:HG3 | 1.76 | 0.67 |
| 1:F:401:PRO:HB2 | 1:A:397:LEU:HB3 | 1.76 | 0.67 |
| 1:F:17:MET:HE1 | 1:E:83:VAL:HG21 | 1.77 | 0.67 |
| 1:E:281:THR:HG21 | 1:E:288:VAL:HG11 | 1.76 | 0.67 |
| 1:D:235:GLU:OE2 | 1:D:248:ARG:HD2 | 1.96 | 0.66 |
| 1:C:42:ASP:OD2 | 1:C:565:ARG:NH1 | 2.28 | 0.66 |
| 1:D:42:ASP:OD2 | 1:D:565:ARG:NH1 | 2.28 | 0.66 |
| 1:B:553:PRO:HA | 1:B:556:ARG:HD3 | 1.77 | 0.66 |
| 1:D:176:THR:CB | 1:D:217:LYS:HZ1 | 2.08 | 0.66 |
| 1:A:481:THR:HG22 | 1:A:483:PHE:CE2 | 2.31 | 0.66 |
| 1:C:19:LEU:HD13 | 1:C:32:ALA:HB2 | 1.78 | 0.66 |
| 1:F:111:GLN:HG2 | 1:E:68:LYS:NZ | 2.11 | 0.66 |
| 1:F:226:LYS:HB2 | 1:F:601:VAL:CG1 | 2.26 | 0.66 |
| 1:A:60:TYR:HE2 | 1:A:103:ASP:HB2 | 1.61 | 0.66 |
| 1:A:188:ARG:HH22 | 1:A:260:ARG:NH1 | 1.94 | 0.66 |
| 1:C:57:VAL:HA | 1:C:104:PRO:HG2 | 1.78 | 0.65 |
| 1:F:231:MET:HE3 | 1:F:249:TYR:CE2 | 2.31 | 0.65 |
| 1:B:69:ARG:HE | 1:C:23:ASP:CG | 1.99 | 0.65 |
| 1:B:57:VAL:HA | 1:B:104:PRO:HG2 | 1.78 | 0.65 |
| 1:F:146:GLY:C | 1:F:251:LEU:HD21 | 2.16 | 0.65 |
| 1:A:213:ILE:HD11 | 1:A:221:LEU:HG | 1.79 | 0.65 |
| 1:A:155:PHE:HA | 1:A:161:GLY:CA | 2.25 | 0.65 |
| 1:A:235:GLU:OE1 | 1:A:248:ARG:HB2 | 1.97 | 0.65 |
| 1:D:235:GLU:OE1 | 1:D:235:GLU:HA | 1.95 | 0.65 |
| 1:C:76:GLU:HG3 | 1:D:19:LEU:HD21 | 1.79 | 0.64 |
| 1:C:353:GLU:OE1 | 1:C:353:GLU:HA | 1.95 | 0.64 |
| 1:D:294:THR:HG22 | 1:D:297:GLU:H | 1.62 | 0.64 |
| 1:F:226:LYS:CG | 1:F:601:VAL:HG12 | 2.26 | 0.64 |
| 1:F:330:ARG:HD3 | 1:E:353:GLU:HG3 | 1.80 | 0.64 |
| 1:E:478:ARG:O | 1:E:478:ARG:HG3 | 1.96 | 0.64 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:346:ASP:OD2 | 1:C:382:LYS:NZ | 2.23 | 0.64 |
| 1:B:19:LEU:HD21 | 1:A:76:GLU:HG3 | 1.79 | 0.64 |
| 1:F:264:LEU:HD23 | 1:F:447:VAL:HB | 1.79 | 0.64 |
| 1:A:230:ARG:NH1 | 1:A:599:ASP:O | 2.31 | 0.64 |
| 1:A:481:THR:HG21 | 1:A:483:PHE:CE2 | 2.33 | 0.64 |
| 1:C:412:ARG:HG2 | 1:C:412:ARG:NH1 | 2.12 | 0.64 |
| 1:F:231:MET:CE | 1:F:249:TYR:CE2 | 2.80 | 0.64 |
| 1:F:294:THR:OG1 | 1:F:340:THR:HB | 1.97 | 0.63 |
| 1:A:343:ILE:HD13 | 1:A:368:ASN:HB2 | 1.79 | 0.63 |
| 1:F:268:PRO:HG2 | 1:F:292:VAL:HG12 | 1.80 | 0.63 |
| 1:E:51:LYS:NZ | 1:E:106:ASN:OD1 | 2.30 | 0.63 |
| 1:D:267:PRO:N | 1:D:267:PRO:C | 2.48 | 0.63 |
| 1:E:267:PRO:HG2 | 1:E:280:GLN:HG3 | 1.79 | 0.63 |
| 1:D:234:LYS:HA | 1:D:234:LYS:NZ | 2.13 | 0.63 |
| 1:F:231:MET:CE | 1:F:249:TYR:CD2 | 2.82 | 0.63 |
| 1:D:235:GLU:OE2 | 1:D:248:ARG:CD | 2.46 | 0.63 |
| 1:E:553:PRO:O | 1:E:556:ARG:HG2 | 1.98 | 0.63 |
| 1:C:244:LEU:HD13 | 1:C:245:SER:H | 1.64 | 0.63 |
| 1:D:235:GLU:OE1 | 1:D:591:PHE:HD2 | 1.81 | 0.63 |
| 1:D:267:PRO:HB3 | 1:D:453:LEU:HD21 | 1.81 | 0.63 |
| 1:F:382:LYS:NZ | 1:F:392:ASP:OD1 | 2.32 | 0.63 |
| 1:E:156:ILE:HD13 | 1:E:164:ILE:HD11 | 1.81 | 0.63 |
| 1:E:164:ILE:HG12 | 1:E:539:ILE:HB | 1.81 | 0.63 |
| 1:D:553:PRO:O | 1:D:556:ARG:HG2 | 1.99 | 0.62 |
| 1:C:174:THR:OG1 | 1:C:174:THR:O | 2.16 | 0.62 |
| 1:B:376:ILE:HD13 | 1:B:411:LEU:HB3 | 1.81 | 0.62 |
| 1:F:23:ASP:CG | 1:E:69:ARG:HE | 2.03 | 0.62 |
| 1:C:549:GLU:OE1 | 1:C:552:ARG:NH1 | 2.33 | 0.62 |
| 1:C:595:ALA:HB2 | 1:C:601:VAL:HG22 | 1.79 | 0.62 |
| 1:E:19:LEU:HD13 | 1:E:32:ALA:HB2 | 1.81 | 0.62 |
| 1:B:66:VAL:HG13 | 1:C:109:PRO:HG3 | 1.81 | 0.62 |
| 1:B:79:VAL:HG12 | 1:C:17:MET:CE | 2.29 | 0.62 |
| 1:B:107:PHE:CB | 1:A:41:LEU:HB2 | 2.29 | 0.62 |
| 1:F:71:GLU:HB3 | 1:E:75:PHE:CD1 | 2.34 | 0.62 |
| 1:D:525:THR:HG22 | 1:D:527:SER:H | 1.65 | 0.62 |
| 1:D:226:LYS:HG3 | 1:D:601:VAL:CG1 | 2.30 | 0.61 |
| 1:E:139:PRO:HB3 | 1:E:252:LEU:HD22 | 1.82 | 0.61 |
| 1:E:111:GLN:HG3 | 1:E:112:PRO:HD2 | 1.81 | 0.61 |
| 1:D:268:PRO:HB2 | 1:D:277:ILE:HG23 | 1.83 | 0.61 |
| 1:E:291:PHE:HB2 | 1:E:436:PRO:HG3 | 1.82 | 0.61 |
| 1:F:123:GLU:OE1 | 1:F:123:GLU:HA | 2.00 | 0.61 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:148:PRO:HB3 | 1:A:252:LEU:HD23 | 1.83 | 0.61 |
| 1:E:188:ARG:NH1 | 1:E:260:ARG:HG2 | 2.15 | 0.61 |
| 1:F:103:ASP:HB3 | 1:F:104:PRO:HD3 | 1.83 | 0.60 |
| 1:E:145:ASP:OD1 | 1:E:242:LYS:HE2 | 2.01 | 0.60 |
| 1:E:153:PHE:HD2 | 1:E:195:THR:HG21 | 1.66 | 0.60 |
| 1:E:549:GLU:OE1 | 1:E:552:ARG:NH1 | 2.32 | 0.60 |
| 1:B:79:VAL:HG21 | 1:C:19:LEU:HD12 | 1.82 | 0.60 |
| 1:D:268:PRO:CB | 1:D:277:ILE:HG23 | 2.31 | 0.60 |
| 1:B:79:VAL:HG12 | 1:C:17:MET:HE2 | 1.83 | 0.60 |
| 1:A:235:GLU:OE1 | 1:A:248:ARG:CD | 2.49 | 0.60 |
| 1:C:417:TYR:HH | 1:D:474:GLU:CD | 2.05 | 0.60 |
| 1:F:474:GLU:OE1 | 1:F:511:ARG:NH2 | 2.34 | 0.60 |
| 1:D:41:LEU:HB2 | 1:E:107:PHE:HB3 | 1.83 | 0.60 |
| 1:E:166:ILE:HG22 | 1:E:175:LYS:HG2 | 1.84 | 0.60 |
| 1:B:335:GLN:NE2 | 1:B:343:ILE:O | 2.35 | 0.60 |
| 1:F:153:PHE:HD2 | 1:F:195:THR:HG21 | 1.66 | 0.60 |
| 1:A:120:ALA:O | 1:A:124:LEU:N | 2.25 | 0.60 |
| 1:A:174:THR:OG1 | 1:A:589:TYR:OH | 2.19 | 0.60 |
| 1:B:68:LYS:NZ | 1:C:111:GLN:HG2 | 2.17 | 0.60 |
| 1:D:153:PHE:HD2 | 1:D:195:THR:HG21 | 1.67 | 0.59 |
| 1:F:143:LEU:HD11 | 1:F:147:GLN:NE2 | 2.11 | 0.59 |
| 1:B:107:PHE:HB3 | 1:A:41:LEU:HB2 | 1.83 | 0.59 |
| 1:B:68:LYS:HZ2 | 1:C:111:GLN:HG2 | 1.66 | 0.59 |
| 1:D:103:ASP:HB3 | 1:D:104:PRO:HD3 | 1.85 | 0.59 |
| 1:B:188:ARG:HH12 | 1:B:260:ARG:HG2 | 1.66 | 0.59 |
| 1:F:381:TYR:HA | 1:F:385:GLU:HG3 | 1.84 | 0.59 |
| 1:E:82:VAL:HG13 | 1:E:89:ALA:HB3 | 1.83 | 0.59 |
| 1:F:251:LEU:HD12 | 1:F:251:LEU:O | 2.03 | 0.58 |
| 1:A:142:LEU:CD1 | 1:A:248:ARG:HG2 | 2.33 | 0.58 |
| 1:D:79:VAL:HG21 | 1:E:19:LEU:HD12 | 1.85 | 0.58 |
| 1:E:87:LEU:H | 1:E:87:LEU:CD1 | 2.11 | 0.58 |
| 1:E:371:THR:HG23 | 1:E:374:GLN:H | 1.67 | 0.58 |
| 1:E:103:ASP:HB3 | 1:E:104:PRO:HD3 | 1.85 | 0.58 |
| 1:B:165:ASN:ND2 | 1:B:523:GLN:HE22 | 1.99 | 0.58 |
| 1:E:225:ASP:OD2 | 1:E:225:ASP:N | 2.30 | 0.58 |
| 1:F:64:ASP:OD1 | 1:F:96:ARG:HD2 | 2.04 | 0.58 |
| 1:A:188:ARG:HH22 | 1:A:260:ARG:HH11 | 1.50 | 0.58 |
| 1:A:219:GLU:HG2 | 1:A:222:LEU:HD12 | 1.86 | 0.58 |
| 1:B:166:ILE:HG22 | 1:B:175:LYS:HG2 | 1.86 | 0.58 |
| 1:E:281:THR:HG21 | 1:E:288:VAL:HG21 | 1.84 | 0.58 |
| 1:F:189:SER:O | 1:F:194:ARG:NH2 | 2.36 | 0.58 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:269:ARG:O | 1:D:269:ARG:HG3 | 2.03 | 0.58 |
| 1:A:149:LEU:HD12 | 1:A:150:PRO:HD2 | 1.85 | 0.58 |
| 1:F:353:GLU:HG2 | 1:A:330:ARG:NH2 | 2.19 | 0.58 |
| 1:D:76:GLU:N | 1:E:71:GLU:OE1 | 2.35 | 0.58 |
| 1:E:294:THR:HG22 | 1:E:297:GLU:H | 1.68 | 0.58 |
| 1:B:398:LYS:HD3 | 1:A:401:PRO:HG2 | 1.86 | 0.57 |
| 1:D:120:ALA:O | 1:D:124:LEU:N | 2.29 | 0.57 |
| 1:C:478:ARG:O | 1:C:478:ARG:HG2 | 2.03 | 0.57 |
| 1:E:294:THR:OG1 | 1:E:340:THR:HB | 2.04 | 0.57 |
| 1:F:164:ILE:HG12 | 1:F:539:ILE:HB | 1.85 | 0.57 |
| 1:F:356:PRO:O | 1:F:359:LEU:HD13 | 2.04 | 0.57 |
| 1:A:419:SER:N | 1:A:420:PRO:HD2 | 2.20 | 0.57 |
| 1:F:427:THR:H | 1:F:430:GLN:HE22 | 1.52 | 0.57 |
| 1:D:234:LYS:HA | 1:D:234:LYS:HZ3 | 1.68 | 0.57 |
| 1:D:235:GLU:OE2 | 1:D:248:ARG:HB2 | 2.04 | 0.57 |
| 1:C:396:VAL:HG23 | 1:C:404:LEU:HD21 | 1.87 | 0.57 |
| 1:A:311:ALA:HB2 | 1:A:499:SER:CB | 2.30 | 0.57 |
| 1:B:24:VAL:HG11 | 1:B:110:PRO:O | 2.04 | 0.57 |
| 1:C:174:THR:HG21 | 1:C:572:GLY:N | 2.19 | 0.57 |
| 1:A:143:LEU:HD23 | 1:A:149:LEU:HB2 | 1.86 | 0.57 |
| 1:C:79:VAL:HG21 | 1:D:19:LEU:HD12 | 1.86 | 0.57 |
| 1:E:24:VAL:HG11 | 1:E:110:PRO:O | 2.05 | 0.57 |
| 1:E:525:THR:HG22 | 1:E:527:SER:H | 1.69 | 0.57 |
| 1:B:371:THR:OG1 | 1:B:373:GLU:OE1 | 2.23 | 0.56 |
| 1:C:174:THR:CG2 | 1:C:572:GLY:N | 2.66 | 0.56 |
| 1:F:111:GLN:HG2 | 1:E:68:LYS:HZ3 | 1.68 | 0.56 |
| 1:F:217:LYS:HG3 | 1:F:221:LEU:HD11 | 1.86 | 0.56 |
| 1:F:279:PRO:HD3 | 1:F:290:PRO:HG3 | 1.87 | 0.56 |
| 1:D:349:PHE:N | 1:D:349:PHE:CD2 | 2.72 | 0.56 |
| 1:B:19:LEU:HD12 | 1:A:79:VAL:HG21 | 1.87 | 0.56 |
| 1:C:349:PHE:CD2 | 1:C:349:PHE:N | 2.73 | 0.56 |
| 1:F:83:VAL:HG21 | 1:A:17:MET:SD | 2.46 | 0.56 |
| 1:D:392:ASP:OD1 | 1:D:394:LYS:HE3 | 2.03 | 0.56 |
| 1:E:323:ASN:ND2 | 1:E:397:LEU:HG | 2.20 | 0.56 |
| 1:F:349:PHE:HB2 | 1:F:352:SER:HB3 | 1.86 | 0.56 |
| 1:F:556:ARG:HB3 | 1:E:548:ALA:HB2 | 1.86 | 0.56 |
| 1:D:338:LYS:HE3 | 1:D:428:PRO:HG2 | 1.88 | 0.56 |
| 1:E:81:ASP:O | 1:E:86:LEU:HD23 | 2.05 | 0.56 |
| 1:F:23:ASP:OD1 | 1:E:69:ARG:NE | 2.37 | 0.56 |
| 1:F:427:THR:H | 1:F:430:GLN:NE2 | 2.04 | 0.56 |
| 1:D:357:GLU:CG | 1:D:358:ASN:N | 2.37 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:188:ARG:HH12 | 1:B:260:ARG:CD | 2.19 | 0.56 |
| 1:F:235:GLU:OE1 | 1:F:248:ARG:HB3 | 2.05 | 0.56 |
| 1:D:223:PHE:CE1 | 1:D:284:ARG:HB2 | 2.41 | 0.56 |
| 1:E:263:GLN:HE21 | 1:E:265:LEU:HD21 | 1.70 | 0.56 |
| 1:A:396:VAL:HG22 | 1:A:396:VAL:O | 2.03 | 0.56 |
| 1:D:188:ARG:NH1 | 1:D:260:ARG:HG2 | 2.20 | 0.56 |
| 1:F:221:LEU:HD12 | 1:F:221:LEU:N | 2.20 | 0.56 |
| 1:E:62:LEU:C | 1:E:62:LEU:HD23 | 2.26 | 0.56 |
| 1:A:174:THR:HG1 | 1:A:589:TYR:HH | 1.52 | 0.56 |
| 1:D:174:THR:HG21 | 1:D:572:GLY:H | 1.70 | 0.55 |
| 1:B:269:ARG:HA | 1:B:280:GLN:HG2 | 1.88 | 0.55 |
| 1:F:78:ASP:O | 1:F:82:VAL:HG23 | 2.06 | 0.55 |
| 1:D:281:THR:HG21 | 1:D:288:VAL:HG21 | 1.89 | 0.55 |
| 1:C:546:ASP:HB3 | 1:C:549:GLU:HG2 | 1.88 | 0.55 |
| 1:F:231:MET:HE3 | 1:F:249:TYR:CD2 | 2.41 | 0.55 |
| 1:D:453:LEU:HB3 | 1:D:457:ALA:HB3 | 1.89 | 0.55 |
| 1:E:142:LEU:CD1 | 1:E:248:ARG:HG2 | 2.37 | 0.55 |
| 1:E:414:VAL:HG22 | 1:E:418:LEU:HD13 | 1.87 | 0.55 |
| 1:B:51:LYS:HG2 | 1:B:52:PRO:HD2 | 1.88 | 0.55 |
| 1:E:143:LEU:O | 1:E:143:LEU:HD13 | 2.07 | 0.55 |
| 1:B:264:LEU:HD23 | 1:B:447:VAL:HB | 1.89 | 0.55 |
| 1:F:71:GLU:HB3 | 1:E:75:PHE:HD1 | 1.71 | 0.55 |
| 1:F:346:ASP:OD1 | 1:F:346:ASP:N | 2.36 | 0.55 |
| 1:B:320:VAL:HG22 | 1:B:399:GLN:HG2 | 1.88 | 0.55 |
| 1:B:219:GLU:HG2 | 1:B:222:LEU:HD22 | 1.89 | 0.55 |
| 1:C:551:GLU:H | 1:C:551:GLU:CD | 2.10 | 0.55 |
| 1:D:76:GLU:HB2 | 1:E:19:LEU:HD11 | 1.89 | 0.55 |
| 1:A:473:LYS:HG3 | 1:A:517:ILE:HD11 | 1.89 | 0.55 |
| 1:B:223:PHE:CE1 | 1:B:284:ARG:HB2 | 2.42 | 0.54 |
| 1:C:57:VAL:HG13 | 1:C:104:PRO:HD2 | 1.89 | 0.54 |
| 1:C:315:LEU:HG | 1:C:317:LEU:HD13 | 1.89 | 0.54 |
| 1:F:268:PRO:HD3 | 1:F:291:PHE:O | 2.07 | 0.54 |
| 1:B:69:ARG:NE | 1:C:23:ASP:OD1 | 2.40 | 0.54 |
| 1:B:155:PHE:CD1 | 1:B:161:GLY:HA3 | 2.43 | 0.54 |
| 1:C:149:LEU:HD22 | 1:C:587:VAL:HG21 | 1.89 | 0.54 |
| 1:C:79:VAL:HG12 | 1:D:17:MET:HE3 | 1.90 | 0.54 |
| 1:F:384:LEU:CD1 | 1:F:405:ARG:HE | 2.20 | 0.54 |
| 1:C:51:LYS:HG2 | 1:C:52:PRO:HD2 | 1.90 | 0.54 |
| 1:A:369:LEU:HD22 | 1:A:375:LEU:HA | 1.90 | 0.54 |
| 1:F:149:LEU:HD12 | 1:F:150:PRO:CD | 2.32 | 0.54 |
| 1:D:401:PRO:HB2 | 1:E:397:LEU:HB3 | 1.89 | 0.54 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:550:ALA:HB1 | 1:D:563:ARG:HD2 | 1.90 | 0.54 |
| 1:E:356:PRO:HA | 1:E:359:LEU:HD12 | 1.89 | 0.54 |
| 1:E:416:LYS:HE2 | 1:E:417:TYR:CE1 | 2.43 | 0.54 |
| 1:D:342:LEU:O | 1:D:369:LEU:HD12 | 2.06 | 0.54 |
| 1:A:359:LEU:HD12 | 1:A:360:ASP:H | 1.72 | 0.54 |
| 1:F:219:GLU:OE2 | 1:F:222:LEU:HD21 | 2.08 | 0.54 |
| 1:D:176:THR:HB | 1:D:217:LYS:NZ | 2.21 | 0.54 |
| 1:A:211:ALA:HB3 | 1:A:445:LEU:HD12 | 1.90 | 0.54 |
| 1:A:553:PRO:O | 1:A:556:ARG:HG2 | 2.08 | 0.54 |
| 1:B:26:PRO:HG2 | 1:A:41:LEU:HD22 | 1.91 | 0.53 |
| 1:B:453:LEU:HB3 | 1:B:457:ALA:HB3 | 1.90 | 0.53 |
| 1:D:213:ILE:CD1 | 1:D:445:LEU:HD12 | 2.39 | 0.53 |
| 1:E:57:VAL:HA | 1:E:104:PRO:HG2 | 1.88 | 0.53 |
| 1:B:219:GLU:OE1 | 1:B:283:GLN:HB2 | 2.07 | 0.53 |
| 1:B:353:GLU:OE2 | 1:B:353:GLU:N | 2.42 | 0.53 |
| 1:C:137:ALA:O | 1:C:194:ARG:NH1 | 2.42 | 0.53 |
| 1:C:163:HIS:HB3 | 1:C:519:LEU:O | 2.08 | 0.53 |
| 1:D:70:HIS:CG | 1:D:73:VAL:HG21 | 2.44 | 0.53 |
| 1:F:231:MET:HE3 | 1:F:256:ALA:HB1 | 1.90 | 0.53 |
| 1:B:70:HIS:HB3 | 1:B:73:VAL:HG23 | 1.91 | 0.53 |
| 1:B:155:PHE:HD1 | 1:B:161:GLY:HA3 | 1.73 | 0.53 |
| 1:C:525:THR:HG21 | 1:C:549:GLU:OE1 | 2.08 | 0.53 |
| 1:F:175:LYS:HD2 | 1:F:522:ALA:HB1 | 1.90 | 0.53 |
| 1:D:549:GLU:OE1 | 1:D:552:ARG:NH1 | 2.41 | 0.53 |
| 1:B:157:ASN:O | 1:B:478:ARG:NH1 | 2.40 | 0.53 |
| 1:F:57:VAL:HG13 | 1:F:104:PRO:HD2 | 1.90 | 0.53 |
| 1:D:68:LYS:HA | 1:D:92:SER:O | 2.08 | 0.53 |
| 1:F:320:VAL:HG22 | 1:F:399:GLN:HG2 | 1.91 | 0.53 |
| 1:A:294:THR:HG22 | 1:A:297:GLU:HB2 | 1.91 | 0.53 |
| 1:B:311:ALA:CB | 1:B:499:SER:HB3 | 2.18 | 0.53 |
| 1:C:103:ASP:HB3 | 1:C:104:PRO:HD3 | 1.90 | 0.53 |
| 1:C:417:TYR:OH | 1:D:474:GLU:CD | 2.47 | 0.53 |
| 1:D:226:LYS:HG3 | 1:D:601:VAL:HG11 | 1.91 | 0.53 |
| 1:D:416:LYS:HE2 | 1:D:417:TYR:CE1 | 2.44 | 0.53 |
| 1:A:550:ALA:HB1 | 1:A:563:ARG:HD2 | 1.91 | 0.53 |
| 1:C:434:TYR:N | 1:C:434:TYR:HD1 | 2.07 | 0.53 |
| 1:F:343:ILE:HD13 | 1:F:368:ASN:HB2 | 1.90 | 0.53 |
| 1:D:371:THR:HG23 | 1:D:374:GLN:H | 1.74 | 0.53 |
| 1:B:268:PRO:HG3 | 1:B:292:VAL:HG12 | 1.91 | 0.52 |
| 1:C:162:GLY:H | 1:C:538:ALA:HB2 | 1.74 | 0.52 |
| 1:E:244:LEU:H | 1:E:244:LEU:HD22 | 1.74 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:323:ASN:HD21 | 1:A:397:LEU:HB2 | 1.73 | 0.52 |
| 1:E:406:ALA:O | 1:E:410:ARG:HG3 | 2.08 | 0.52 |
| 1:E:544:ARG:NE | 1:E:569:LEU:O | 2.41 | 0.52 |
| 1:D:174:THR:CG2 | 1:D:572:GLY:H | 2.21 | 0.52 |
| 1:F:57:VAL:HG22 | 1:F:104:PRO:HG2 | 1.92 | 0.52 |
| 1:D:166:ILE:HG22 | 1:D:175:LYS:HG2 | 1.90 | 0.52 |
| 1:E:277:ILE:HD11 | 1:E:434:TYR:CD2 | 2.44 | 0.52 |
| 1:F:510:GLU:HG3 | 1:F:511:ARG:HG3 | 1.90 | 0.52 |
| 1:F:153:PHE:HE1 | 1:F:186:ILE:HD13 | 1.72 | 0.52 |
| 1:E:143:LEU:HD12 | 1:E:147:GLN:O | 2.09 | 0.52 |
| 1:B:105:GLU:OE2 | 1:A:570:GLN:HB2 | 2.10 | 0.52 |
| 1:F:154:ARG:NH1 | 1:F:159:GLU:OE1 | 2.42 | 0.52 |
| 1:A:142:LEU:HD12 | 1:A:248:ARG:HG2 | 1.92 | 0.52 |
| 1:D:86:LEU:N | 1:D:86:LEU:CD2 | 2.73 | 0.52 |
| 1:D:176:THR:HG21 | 1:D:217:LYS:HZ2 | 1.74 | 0.52 |
| 1:D:296:ARG:NH1 | 1:D:337:GLY:O | 2.40 | 0.52 |
| 1:E:231:MET:HE2 | 1:E:232:VAL:HG22 | 1.92 | 0.52 |
| 1:E:294:THR:CG2 | 1:E:297:GLU:H | 2.23 | 0.52 |
| 1:E:454:SER:O | 1:E:458:GLN:HG3 | 2.10 | 0.52 |
| 1:B:19:LEU:HD13 | 1:B:32:ALA:HB2 | 1.91 | 0.52 |
| 1:F:231:MET:HE2 | 1:F:249:TYR:CE2 | 2.45 | 0.52 |
| 1:E:450:ILE:HG23 | 1:E:458:GLN:HG2 | 1.92 | 0.52 |
| 1:B:162:GLY:H | 1:B:538:ALA:HB2 | 1.75 | 0.51 |
| 1:D:149:LEU:HD21 | 1:D:576:VAL:HG21 | 1.92 | 0.51 |
| 1:E:320:VAL:HG22 | 1:E:399:GLN:HG2 | 1.92 | 0.51 |
| 1:A:70:HIS:HB3 | 1:A:73:VAL:HG23 | 1.91 | 0.51 |
| 1:F:79:VAL:HG21 | 1:A:19:LEU:HD12 | 1.92 | 0.51 |
| 1:F:142:LEU:HD11 | 1:F:248:ARG:HG2 | 1.91 | 0.51 |
| 1:E:143:LEU:N | 1:E:143:LEU:CD1 | 2.73 | 0.51 |
| 1:D:234:LYS:NZ | 1:D:234:LYS:CA | 2.72 | 0.51 |
| 1:D:454:SER:O | 1:D:458:GLN:HG3 | 2.11 | 0.51 |
| 1:B:282:ASP:OD1 | 1:B:283:GLN:N | 2.41 | 0.51 |
| 1:C:257:GLU:HB2 | 1:C:258:PRO:HD2 | 1.93 | 0.51 |
| 1:F:261:ASP:HB2 | 1:F:444:GLN:H | 1.74 | 0.51 |
| 1:F:269:ARG:N | 1:F:278:VAL:O | 2.42 | 0.51 |
| 1:F:217:LYS:HG3 | 1:F:221:LEU:CD1 | 2.40 | 0.51 |
| 1:E:33:VAL:HG11 | 1:E:93:TYR:CE2 | 2.45 | 0.51 |
| 1:C:149:LEU:HD12 | 1:C:150:PRO:HD2 | 1.92 | 0.51 |
| 1:F:231:MET:CE | 1:F:256:ALA:HB1 | 2.41 | 0.51 |
| 1:A:291:PHE:HB2 | 1:A:436:PRO:HG3 | 1.92 | 0.51 |
| 1:B:188:ARG:NH1 | 1:B:260:ARG:CG | 2.70 | 0.51 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:F:219:GLU:OE1 | 1:F:219:GLU:HA | 2.11 | 0.51 |
| 1:E:453:LEU:HB3 | 1:E:457:ALA:HB3 | 1.93 | 0.51 |
| 1:B:412:ARG:O | 1:B:415:GLN:HG2 | 2.11 | 0.51 |
| 1:D:79:VAL:O | 1:D:83:VAL:HG23 | 2.11 | 0.51 |
| 1:E:307:VAL:HG13 | 1:E:414:VAL:HG11 | 1.92 | 0.51 |
| 1:D:142:LEU:CD1 | 1:D:248:ARG:HG2 | 2.41 | 0.51 |
| 1:E:33:VAL:CB | 1:E:93:TYR:CD2 | 2.93 | 0.51 |
| 1:E:73:VAL:HG22 | 1:E:82:VAL:HG21 | 1.92 | 0.51 |
| 1:E:88:PRO:N | 1:E:88:PRO:C | 2.59 | 0.51 |
| 1:E:155:PHE:CD1 | 1:E:161:GLY:HA3 | 2.46 | 0.51 |
| 1:A:128:LEU:HD13 | 1:A:150:PRO:HD2 | 1.93 | 0.51 |
| 1:B:343:ILE:HG12 | 1:B:368:ASN:HB2 | 1.92 | 0.50 |
| 1:C:223:PHE:O | 1:C:595:ALA:HB3 | 2.10 | 0.50 |
| 1:F:194:ARG:O | 1:F:197:GLN:HG3 | 2.11 | 0.50 |
| 1:D:319:PHE:O | 1:D:323:ASN:HB2 | 2.10 | 0.50 |
| 1:E:45:VAL:HG21 | 1:E:97:VAL:HG21 | 1.93 | 0.50 |
| 1:B:86:LEU:N | 1:B:86:LEU:CD1 | 2.73 | 0.50 |
| 1:B:560:GLN:HA | 1:B:563:ARG:HG3 | 1.92 | 0.50 |
| 1:E:550:ALA:HB1 | 1:E:563:ARG:HD2 | 1.93 | 0.50 |
| 1:C:76:GLU:HA | 1:D:21:THR:HG21 | 1.93 | 0.50 |
| 1:C:189:SER:HB2 | 1:C:191:VAL:HG12 | 1.93 | 0.50 |
| 1:D:156:ILE:HD13 | 1:D:164:ILE:HD11 | 1.93 | 0.50 |
| 1:D:383:LEU:HD22 | 1:D:404:LEU:HD22 | 1.93 | 0.50 |
| 1:E:88:PRO:O | 1:E:88:PRO:HG2 | 2.11 | 0.50 |
| 1:E:155:PHE:CD1 | 1:E:579:PRO:HG2 | 2.46 | 0.50 |
| 1:E:566:ALA:HA | 1:E:569:LEU:HD13 | 1.93 | 0.50 |
| 1:D:412:ARG:O | 1:D:415:GLN:HG2 | 2.11 | 0.50 |
| 1:D:414:VAL:HG22 | 1:D:418:LEU:HD13 | 1.93 | 0.50 |
| 1:A:174:THR:CG2 | 1:A:572:GLY:H | 2.25 | 0.50 |
| 1:B:163:HIS:CD2 | 1:B:163:HIS:N | 2.79 | 0.50 |
| 1:B:216:VAL:O | 1:B:216:VAL:HG22 | 2.11 | 0.50 |
| 1:C:248:ARG:HB3 | 1:C:590:PRO:HG3 | 1.93 | 0.50 |
| 1:C:434:TYR:N | 1:C:434:TYR:CD1 | 2.79 | 0.50 |
| 1:A:324:ILE:CD1 | 1:A:324:ILE:N | 2.74 | 0.50 |
| 1:A:371:THR:HG22 | 1:A:374:GLN:HG3 | 1.94 | 0.50 |
| 1:B:473:LYS:NZ | 1:B:480:ASP:O | 2.33 | 0.50 |
| 1:F:384:LEU:N | 1:F:384:LEU:HD22 | 2.27 | 0.50 |
| 1:F:41:LEU:HD22 | 1:A:26:PRO:HG2 | 1.94 | 0.49 |
| 1:F:267:PRO:HG2 | 1:F:280:GLN:HB3 | 1.93 | 0.49 |
| 1:F:398:LYS:HD3 | 1:E:401:PRO:HG2 | 1.94 | 0.49 |
| 1:A:174:THR:HG21 | 1:A:572:GLY:H | 1.77 | 0.49 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:F:386:GLU:HG3 | 1:F:387:ARG:HG3 | 1.93 | 0.49 |
| 1:F:525:THR:HG22 | 1:F:527:SER:H | 1.77 | 0.49 |
| 1:F:223:PHE:CZ | 1:F:284:ARG:HB2 | 2.47 | 0.49 |
| 1:E:423:ARG:HG3 | 1:E:425:ASP:H | 1.77 | 0.49 |
| 1:B:473:LYS:NZ | 1:B:478:ARG:O | 2.44 | 0.49 |
| 1:D:396:VAL:HB | 1:D:404:LEU:HD11 | 1.95 | 0.49 |
| 1:C:64:ASP:OD1 | 1:C:96:ARG:HD2 | 2.13 | 0.49 |
| 1:F:157:ASN:O | 1:F:478:ARG:NH1 | 2.45 | 0.49 |
| 1:F:473:LYS:HG3 | 1:F:517:ILE:HD11 | 1.95 | 0.49 |
| 1:D:214:PHE:HB3 | 1:D:450:ILE:HD12 | 1.95 | 0.49 |
| 1:D:566:ALA:HA | 1:D:569:LEU:HD13 | 1.93 | 0.49 |
| 1:E:45:VAL:HG21 | 1:E:97:VAL:CG2 | 2.42 | 0.49 |
| 1:B:269:ARG:HG3 | 1:B:270:ALA:H | 1.78 | 0.49 |
| 1:F:17:MET:HE3 | 1:E:83:VAL:HG21 | 1.91 | 0.49 |
| 1:F:57:VAL:HA | 1:F:104:PRO:HG2 | 1.95 | 0.49 |
| 1:F:215:ASN:HB3 | 1:F:449:ASP:HA | 1.95 | 0.49 |
| 1:D:155:PHE:CD1 | 1:D:579:PRO:HG2 | 2.47 | 0.49 |
| 1:D:174:THR:OG1 | 1:D:589:TYR:OH | 2.25 | 0.49 |
| 1:D:295:ILE:HG12 | 1:D:422:ILE:HG22 | 1.94 | 0.49 |
| 1:A:320:VAL:HG22 | 1:A:399:GLN:HG2 | 1.94 | 0.49 |
| 1:B:530:GLU:OE2 | 1:B:532:ARG:HD3 | 2.13 | 0.49 |
| 1:C:352:SER:O | 1:C:354:THR:HG23 | 2.13 | 0.49 |
| 1:C:566:ALA:HA | 1:C:569:LEU:HD13 | 1.94 | 0.49 |
| 1:F:124:LEU:CD2 | 1:F:147:GLN:CG | 2.74 | 0.49 |
| 1:F:368:ASN:OD1 | 1:F:370:GLN:HG3 | 2.13 | 0.49 |
| 1:D:244:LEU:H | 1:D:244:LEU:HD22 | 1.78 | 0.49 |
| 1:B:19:LEU:CD1 | 1:B:32:ALA:HB2 | 2.43 | 0.48 |
| 1:B:188:ARG:HH12 | 1:B:260:ARG:CG | 2.26 | 0.48 |
| 1:A:196:ALA:HB2 | 1:A:207:ALA:CB | 2.43 | 0.48 |
| 1:B:349:PHE:N | 1:B:349:PHE:CD2 | 2.80 | 0.48 |
| 1:A:189:SER:HB3 | 1:A:254:LEU:HD21 | 1.96 | 0.48 |
| 1:A:427:THR:HB | 1:A:428:PRO:HD2 | 1.94 | 0.48 |
| 1:C:315:LEU:HD12 | 1:C:316:ASN:H | 1.77 | 0.48 |
| 1:E:382:LYS:NZ | 1:E:386:GLU:OE1 | 2.37 | 0.48 |
| 1:B:269:ARG:HB2 | 1:B:278:VAL:O | 2.13 | 0.48 |
| 1:D:423:ARG:HG3 | 1:D:425:ASP:H | 1.78 | 0.48 |
| 1:A:279:PRO:HG3 | 1:A:290:PRO:HD3 | 1.96 | 0.48 |
| 1:C:553:PRO:HA | 1:C:556:ARG:HG2 | 1.95 | 0.48 |
| 1:F:40:GLY:N | 1:F:43:ASP:OD2 | 2.42 | 0.48 |
| 1:F:546:ASP:HB3 | 1:F:549:GLU:HG2 | 1.96 | 0.48 |
| 1:A:163:HIS:CD2 | 1:A:163:HIS:N | 2.80 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:23:ASP:OD1 | 1:B:23:ASP:N | 2.47 | 0.48 |
| 1:F:213:ILE:HG12 | 1:F:485:VAL:HB | 1.94 | 0.48 |
| 1:F:277:ILE:H | 1:F:277:ILE:HD12 | 1.79 | 0.48 |
| 1:F:566:ALA:HA | 1:F:569:LEU:HD13 | 1.94 | 0.48 |
| 1:F:266:ALA:HB1 | 1:F:267:PRO:HD2 | 1.95 | 0.48 |
| 1:D:548:ALA:HB2 | 1:E:556:ARG:HB2 | 1.95 | 0.48 |
| 1:E:215:ASN:HA | 1:E:221:LEU:HD23 | 1.96 | 0.48 |
| 1:A:15:ILE:HG12 | 1:A:117:ARG:HA | 1.96 | 0.48 |
| 1:A:490:ASN:OD1 | 1:A:490:ASN:N | 2.47 | 0.48 |
| 1:C:595:ALA:HB2 | 1:C:601:VAL:HG23 | 1.80 | 0.48 |
| 1:F:51:LYS:HG2 | 1:F:52:PRO:HD2 | 1.95 | 0.48 |
| 1:A:158:GLY:CA | 1:A:161:GLY:O | 2.57 | 0.48 |
| 1:B:149:LEU:HD13 | 1:B:585:VAL:HG21 | 1.95 | 0.47 |
| 1:F:383:LEU:CD1 | 1:F:404:LEU:HD22 | 2.31 | 0.47 |
| 1:E:268:PRO:HG3 | 1:E:292:VAL:HG12 | 1.95 | 0.47 |
| 1:A:167:SER:OG | 1:A:555:TYR:OH | 2.14 | 0.47 |
| 1:A:263:GLN:HB2 | 1:A:443:ILE:HD12 | 1.95 | 0.47 |
| 1:B:210:ARG:NH1 | 1:B:443:ILE:O | 2.46 | 0.47 |
| 1:F:430:GLN:HB2 | 1:F:434:TYR:CE2 | 2.48 | 0.47 |
| 1:D:344:VAL:HG22 | 1:D:369:LEU:HD11 | 1.96 | 0.47 |
| 1:E:215:ASN:HB3 | 1:E:449:ASP:HA | 1.95 | 0.47 |
| 1:D:86:LEU:N | 1:D:86:LEU:HD22 | 2.29 | 0.47 |
| 1:D:234:LYS:HZ3 | 1:D:234:LYS:CA | 2.26 | 0.47 |
| 1:B:103:ASP:HB3 | 1:B:104:PRO:HD3 | 1.95 | 0.47 |
| 1:C:76:GLU:OE2 | 1:D:94:ALA:HB2 | 2.13 | 0.47 |
| 1:F:580:ASP:HA | 1:E:172:VAL:HG11 | 1.97 | 0.47 |
| 1:A:277:ILE:HD13 | 1:A:292:VAL:HG11 | 1.96 | 0.47 |
| 1:A:213:ILE:HG23 | 1:A:447:VAL:HG22 | 1.97 | 0.47 |
| 1:B:82:VAL:HG13 | 1:B:89:ALA:HB3 | 1.97 | 0.47 |
| 1:B:210:ARG:NH2 | 1:B:440:ARG:O | 2.43 | 0.47 |
| 1:F:142:LEU:CD1 | 1:F:248:ARG:HG2 | 2.45 | 0.47 |
| 1:D:392:ASP:O | 1:D:396:VAL:HG13 | 2.13 | 0.47 |
| 1:D:502:LYS:HE3 | 1:D:530:GLU:HB2 | 1.97 | 0.47 |
| 1:E:224:LEU:HD12 | 1:E:447:VAL:HG21 | 1.96 | 0.47 |
| 1:E:386:GLU:HG2 | 1:E:387:ARG:HG3 | 1.96 | 0.47 |
| 1:A:249:TYR:CE2 | 1:A:590:PRO:HB2 | 2.49 | 0.47 |
| 1:C:595:ALA:CB | 1:C:601:VAL:HG22 | 2.36 | 0.47 |
| 1:F:17:MET:HE1 | 1:E:83:VAL:CG2 | 2.42 | 0.47 |
| 1:F:353:GLU:HG2 | 1:A:330:ARG:HH21 | 1.79 | 0.47 |
| 1:D:294:THR:OG1 | 1:D:340:THR:HB | 2.15 | 0.47 |
| 1:D:490:ASN:OD1 | 1:D:490:ASN:N | 2.48 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:515:LEU:HD12 | 1:D:515:LEU:HA | 1.78 | 0.47 |
| 1:D:574:MET:O | 1:D:587:VAL:HG12 | 2.14 | 0.47 |
| 1:B:71:GLU:HG2 | 1:B:92:SER:HB3 | 1.95 | 0.47 |
| 1:B:556:ARG:HB2 | 1:A:548:ALA:HB2 | 1.96 | 0.47 |
| 1:F:405:ARG:CZ | 1:A:397:LEU:HD11 | 2.45 | 0.47 |
| 1:F:426:LEU:HB3 | 1:F:430:GLN:HE21 | 1.79 | 0.47 |
| 1:E:128:LEU:HD13 | 1:E:150:PRO:HD2 | 1.97 | 0.47 |
| 1:E:184:HIS:CE1 | 1:E:188:ARG:HG3 | 2.50 | 0.47 |
| 1:B:163:HIS:HB3 | 1:B:519:LEU:O | 2.15 | 0.47 |
| 1:B:235:GLU:C | 1:B:239:VAL:HG23 | 2.27 | 0.47 |
| 1:F:532:ARG:O | 1:F:536:ASN:ND2 | 2.39 | 0.47 |
| 1:D:44:LEU:HD11 | 1:D:128:LEU:HD21 | 1.97 | 0.47 |
| 1:D:70:HIS:HB3 | 1:D:73:VAL:HG21 | 1.96 | 0.47 |
| 1:F:155:PHE:CD1 | 1:F:579:PRO:HG2 | 2.50 | 0.47 |
| 1:D:371:THR:HG22 | 1:D:374:GLN:CD | 2.35 | 0.47 |
| 1:A:111:GLN:HG2 | 1:A:112:PRO:HD2 | 1.97 | 0.47 |
| 1:A:315:LEU:HB2 | 1:A:317:LEU:HD13 | 1.97 | 0.47 |
| 1:C:66:VAL:HG13 | 1:D:109:PRO:HD3 | 1.98 | 0.46 |
| 1:F:360:ASP:O | 1:F:368:ASN:HB3 | 2.15 | 0.46 |
| 1:D:80:GLU:HA | 1:E:17:MET:HE1 | 1.96 | 0.46 |
| 1:E:281:THR:CG2 | 1:E:288:VAL:HG21 | 2.45 | 0.46 |
| 1:E:373:GLU:OE1 | 1:E:373:GLU:N | 2.45 | 0.46 |
| 1:A:196:ALA:HB2 | 1:A:207:ALA:HB1 | 1.97 | 0.46 |
| 1:C:174:THR:HG22 | 1:C:572:GLY:H | 1.78 | 0.46 |
| 1:F:143:LEU:CD1 | 1:F:147:GLN:HE21 | 2.15 | 0.46 |
| 1:A:135:GLU:OE2 | 1:A:154:ARG:NH2 | 2.48 | 0.46 |
| 1:A:470:PHE:C | 1:A:470:PHE:CD2 | 2.88 | 0.46 |
| 1:A:472:TYR:CZ | 1:A:476:VAL:HG21 | 2.50 | 0.46 |
| 1:D:393:PRO:O | 1:D:397:LEU:HD23 | 2.15 | 0.46 |
| 1:A:231:MET:HE1 | 1:A:235:GLU:HG2 | 1.98 | 0.46 |
| 1:E:248:ARG:HB3 | 1:E:590:PRO:HB3 | 1.97 | 0.46 |
| 1:C:155:PHE:HA | 1:C:161:GLY:CA | 2.44 | 0.46 |
| 1:C:157:ASN:O | 1:C:478:ARG:NH1 | 2.46 | 0.46 |
| 1:F:149:LEU:HD21 | 1:F:576:VAL:HG21 | 1.97 | 0.46 |
| 1:D:213:ILE:HD11 | 1:D:445:LEU:CD1 | 2.40 | 0.46 |
| 1:D:270:ALA:HA | 1:D:420:PRO:HB3 | 1.97 | 0.46 |
| 1:A:153:PHE:HD2 | 1:A:195:THR:HG21 | 1.79 | 0.46 |
| 1:F:223:PHE:CE1 | 1:F:284:ARG:HB2 | 2.51 | 0.46 |
| 1:A:68:LYS:HA | 1:A:92:SER:O | 2.15 | 0.46 |
| 1:B:175:LYS:HD2 | 1:B:522:ALA:HB1 | 1.97 | 0.46 |
| 1:F:156:ILE:HD13 | 1:F:164:ILE:HD11 | 1.97 | 0.46 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:F:485:VAL:HG22 | 1:F:520:ILE:HB | 1.97 | 0.46 |
| 1:D:79:VAL:HG21 | 1:E:19:LEU:CD1 | 2.45 | 0.46 |
| 1:C:304:LEU:HB3 | 1:C:305:PRO:HD3 | 1.98 | 0.46 |
| 1:F:163:HIS:HB3 | 1:F:519:LEU:O | 2.16 | 0.46 |
| 1:F:530:GLU:HG3 | 1:F:532:ARG:H | 1.79 | 0.46 |
| 1:F:570:GLN:HG3 | 1:F:571:PRO:HD2 | 1.96 | 0.46 |
| 1:F:142:LEU:CD1 | 1:F:248:ARG:CG | 2.94 | 0.46 |
| 1:F:210:ARG:NH1 | 1:F:444:GLN:HA | 2.31 | 0.46 |
| 1:A:380:GLU:HG2 | 1:A:384:LEU:HD12 | 1.97 | 0.46 |
| 1:A:487:ASP:OD1 | 1:A:488:GLU:N | 2.45 | 0.46 |
| 1:B:566:ALA:HA | 1:B:569:LEU:HD13 | 1.98 | 0.46 |
| 1:F:142:LEU:HD11 | 1:F:248:ARG:CG | 2.46 | 0.46 |
| 1:F:548:ALA:O | 1:F:551:GLU:HG2 | 2.16 | 0.46 |
| 1:E:295:ILE:HG13 | 1:E:424:GLY:N | 2.31 | 0.46 |
| 1:E:301:ARG:HH12 | 1:E:435:ARG:HH21 | 1.64 | 0.46 |
| 1:A:481:THR:HG21 | 1:A:483:PHE:CZ | 2.51 | 0.46 |
| 1:A:566:ALA:HA | 1:A:569:LEU:HD13 | 1.98 | 0.46 |
| 1:C:221:LEU:HD12 | 1:C:221:LEU:HA | 1.69 | 0.45 |
| 1:F:320:VAL:HG21 | 1:F:403:THR:HG22 | 1.98 | 0.45 |
| 1:F:598:ARG:O | 1:F:601:VAL:CG2 | 2.65 | 0.45 |
| 1:E:26:PRO:HG2 | 1:E:107:PHE:O | 2.16 | 0.45 |
| 1:E:392:ASP:OD1 | 1:E:394:LYS:HE3 | 2.16 | 0.45 |
| 1:B:108:ILE:HG13 | 1:B:108:ILE:O | 2.15 | 0.45 |
| 1:B:277:ILE:HD11 | 1:B:426:LEU:HD21 | 1.97 | 0.45 |
| 1:B:570:GLN:HG3 | 1:B:571:PRO:HD2 | 1.97 | 0.45 |
| 1:C:80:GLU:HA | 1:D:17:MET:HE1 | 1.98 | 0.45 |
| 1:E:578:GLN:HG3 | 1:E:581:VAL:HG12 | 1.98 | 0.45 |
| 1:F:182:LEU:O | 1:F:186:ILE:HG13 | 2.16 | 0.45 |
| 1:D:294:THR:CG2 | 1:D:297:GLU:H | 2.27 | 0.45 |
| 1:C:489:LEU:HD23 | 1:C:489:LEU:HA | 1.73 | 0.45 |
| 1:E:301:ARG:NH1 | 1:E:435:ARG:HH21 | 2.13 | 0.45 |
| 1:B:107:PHE:HB2 | 1:A:41:LEU:CB | 2.47 | 0.45 |
| 1:C:111:GLN:HE21 | 1:C:111:GLN:HB3 | 1.53 | 0.45 |
| 1:C:206:THR:N | 1:C:480:ASP:HA | 2.31 | 0.45 |
| 1:F:327:LYS:O | 1:F:331:LEU:HB2 | 2.16 | 0.45 |
| 1:E:145:ASP:OD1 | 1:E:242:LYS:CG | 2.60 | 0.45 |
| 1:C:162:GLY:HA2 | 1:C:513:ARG:HG2 | 1.99 | 0.45 |
| 1:C:304:LEU:N | 1:C:305:PRO:CD | 2.80 | 0.45 |
| 1:C:392:ASP:OD1 | 1:C:393:PRO:HD2 | 2.16 | 0.45 |
| 1:A:79:VAL:O | 1:A:83:VAL:HG23 | 2.16 | 0.45 |
| 1:A:298:PHE:C | 1:A:298:PHE:CD2 | 2.90 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:C:60:TYR:HE2 | 1:C:103:ASP:HB2 | 1.82 | 0.45 |
| 1:F:353:GLU:CG | 1:A:330:ARG:HH21 | 2.30 | 0.45 |
| 1:F:353:GLU:OE1 | 1:F:353:GLU:HA | 2.16 | 0.45 |
| 1:A:515:LEU:HD12 | 1:A:515:LEU:HA | 1.80 | 0.45 |
| 1:B:294:THR:HA | 1:B:423:ARG:O | 2.17 | 0.45 |
| 1:C:371:THR:HG23 | 1:C:374:GLN:H | 1.82 | 0.45 |
| 1:C:396:VAL:O | 1:C:396:VAL:CG1 | 2.61 | 0.45 |
| 1:C:472:TYR:CZ | 1:C:476:VAL:HG21 | 2.52 | 0.45 |
| 1:D:277:ILE:HD13 | 1:D:292:VAL:HG11 | 1.98 | 0.45 |
| 1:E:281:THR:HB | 1:E:284:ARG:O | 2.17 | 0.45 |
| 1:D:168:GLY:O | 1:D:524:GLN:HA | 2.17 | 0.45 |
| 1:D:478:ARG:HE | 1:D:478:ARG:HB2 | 1.46 | 0.45 |
| 1:F:23:ASP:CG | 1:E:69:ARG:NH2 | 2.56 | 0.45 |
| 1:F:146:GLY:HA2 | 1:F:251:LEU:HD21 | 1.99 | 0.45 |
| 1:F:348:GLN:H | 1:F:348:GLN:HG2 | 1.69 | 0.45 |
| 1:D:165:ASN:OD1 | 1:D:523:GLN:NE2 | 2.39 | 0.45 |
| 1:E:342:LEU:O | 1:E:369:LEU:HD12 | 2.17 | 0.45 |
| 1:A:120:ALA:H | 1:A:123:GLU:HB2 | 1.82 | 0.45 |
| 1:B:348:GLN:HG2 | 1:B:381:TYR:OH | 2.18 | 0.44 |
| 1:F:47:VAL:HG12 | 1:F:59:PHE:HB2 | 1.99 | 0.44 |
| 1:F:165:ASN:OD1 | 1:F:523:GLN:NE2 | 2.31 | 0.44 |
| 1:E:473:LYS:HG3 | 1:E:517:ILE:HD11 | 1.99 | 0.44 |
| 1:B:237:LYS:HE2 | 1:B:237:LYS:HB2 | 1.65 | 0.44 |
| 1:F:487:ASP:OD1 | 1:F:488:GLU:N | 2.48 | 0.44 |
| 1:F:221:LEU:N | 1:F:221:LEU:CD1 | 2.79 | 0.44 |
| 1:D:158:GLY:HA2 | 1:D:161:GLY:O | 2.17 | 0.44 |
| 1:D:331:LEU:HD21 | 1:D:344:VAL:HG12 | 1.99 | 0.44 |
| 1:E:176:THR:HG21 | 1:E:217:LYS:HE3 | 2.00 | 0.44 |
| 1:B:394:LYS:HB2 | 1:B:394:LYS:HE3 | 1.71 | 0.44 |
| 1:C:349:PHE:HB3 | 1:C:352:SER:HB2 | 1.98 | 0.44 |
| 1:F:453:LEU:HB3 | 1:F:457:ALA:HB3 | 1.98 | 0.44 |
| 1:D:174:THR:HG21 | 1:D:572:GLY:CA | 2.47 | 0.44 |
| 1:D:331:LEU:HD12 | 1:D:331:LEU:HA | 1.67 | 0.44 |
| 1:A:231:MET:HE2 | 1:A:231:MET:C | 2.36 | 0.44 |
| 1:F:472:TYR:O | 1:F:476:VAL:HG12 | 2.18 | 0.44 |
| 1:D:265:LEU:HA | 1:D:289:THR:O | 2.18 | 0.44 |
| 1:B:155:PHE:HA | 1:B:161:GLY:HA3 | 2.00 | 0.44 |
| 1:B:546:ASP:HB3 | 1:B:549:GLU:HG2 | 1.99 | 0.44 |
| 1:C:131:ASP:OD1 | 1:C:131:ASP:N | 2.50 | 0.44 |
| 1:D:304:LEU:HD22 | 1:D:324:ILE:HG22 | 2.00 | 0.44 |
| 1:E:57:VAL:CA | 1:E:104:PRO:CG | 2.82 | 0.44 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:277:ILE:HD12 | 1:A:434:TYR:CD2 | 2.52 | 0.44 |
| 1:C:405:ARG:HG3 | 1:C:405:ARG:HH11 | 1.83 | 0.44 |
| 1:D:64:ASP:OD1 | 1:D:96:ARG:HD2 | 2.17 | 0.44 |
| 1:E:31:PHE:CE2 | 1:E:95:ALA:HB3 | 2.52 | 0.44 |
| 1:A:310:ASP:O | 1:A:314:SER:OG | 2.36 | 0.44 |
| 1:F:379:LEU:HD23 | 1:F:395:TRP:HZ3 | 1.82 | 0.44 |
| 1:D:70:HIS:CB | 1:D:73:VAL:HG21 | 2.48 | 0.44 |
| 1:E:23:ASP:OD1 | 1:E:23:ASP:N | 2.50 | 0.44 |
| 1:E:515:LEU:HA | 1:E:515:LEU:HD12 | 1.67 | 0.44 |
| 1:A:288:VAL:O | 1:A:288:VAL:HG13 | 2.18 | 0.44 |
| 1:B:469:VAL:O | 1:B:473:LYS:HG2 | 2.18 | 0.43 |
| 1:C:139:PRO:HB3 | 1:C:252:LEU:HD22 | 2.00 | 0.43 |
| 1:C:372:PHE:CE2 | 1:C:376:ILE:HD11 | 2.53 | 0.43 |
| 1:D:570:GLN:HB2 | 1:E:105:GLU:OE2 | 2.18 | 0.43 |
| 1:D:320:VAL:HG22 | 1:D:399:GLN:HG2 | 2.00 | 0.43 |
| 1:D:386:GLU:HG2 | 1:D:387:ARG:HG3 | 2.00 | 0.43 |
| 1:A:213:ILE:CG2 | 1:A:447:VAL:HG22 | 2.48 | 0.43 |
| 1:B:423:ARG:NH1 | 1:B:425:ASP:OD1 | 2.51 | 0.43 |
| 1:C:490:ASN:OD1 | 1:C:490:ASN:N | 2.47 | 0.43 |
| 1:F:231:MET:HE2 | 1:F:249:TYR:CD2 | 2.52 | 0.43 |
| 1:F:396:VAL:HB | 1:F:404:LEU:HD11 | 1.99 | 0.43 |
| 1:E:87:LEU:HB3 | 1:E:88:PRO:HD2 | 1.99 | 0.43 |
| 1:A:143:LEU:C | 1:A:143:LEU:CD1 | 2.85 | 0.43 |
| 1:A:235:GLU:OE2 | 1:A:591:PHE:HD2 | 2.01 | 0.43 |
| 1:B:247:ASP:OD1 | 1:B:248:ARG:N | 2.51 | 0.43 |
| 1:C:41:LEU:O | 1:C:63:VAL:O | 2.36 | 0.43 |
| 1:C:155:PHE:CD1 | 1:C:579:PRO:HG2 | 2.53 | 0.43 |
| 1:C:168:GLY:N | 1:C:175:LYS:HD3 | 2.34 | 0.43 |
| 1:C:223:PHE:HB3 | 1:C:601:VAL:HG21 | 2.01 | 0.43 |
| 1:C:244:LEU:HA | 1:C:244:LEU:HD22 | 1.63 | 0.43 |
| 1:A:163:HIS:HB3 | 1:A:519:LEU:O | 2.18 | 0.43 |
| 1:C:76:GLU:HG3 | 1:D:19:LEU:HD11 | 2.01 | 0.43 |
| 1:A:168:GLY:O | 1:A:524:GLN:HA | 2.18 | 0.43 |
| 1:B:361:PHE:CE2 | 1:B:367:VAL:HG22 | 2.54 | 0.43 |
| 1:D:450:ILE:HG23 | 1:D:458:GLN:HG2 | 2.00 | 0.43 |
| 1:C:545:LEU:HD23 | 1:C:545:LEU:HA | 1.79 | 0.43 |
| 1:F:145:ASP:HB2 | 1:F:147:GLN:NE2 | 2.34 | 0.43 |
| 1:D:532:ARG:O | 1:D:536:ASN:ND2 | 2.41 | 0.43 |
| 1:E:42:ASP:CG | 1:E:565:ARG:NH1 | 2.71 | 0.43 |
| 1:A:23:ASP:OD1 | 1:A:23:ASP:N | 2.51 | 0.43 |
| 1:B:104:PRO:HD2 | 1:B:104:PRO:O | 2.19 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:F:26:PRO:HG2 | 1:E:41:LEU:HD22 | 2.01 | 0.43 |
| 1:D:174:THR:HG21 | 1:D:572:GLY:HA2 | 2.00 | 0.43 |
| 1:D:174:THR:HG21 | 1:D:572:GLY:N | 2.31 | 0.43 |
| 1:A:255:PRO:HB2 | 1:A:257:GLU:HG2 | 1.99 | 0.43 |
| 1:B:107:PHE:CB | 1:A:41:LEU:CB | 2.97 | 0.43 |
| 1:B:168:GLY:O | 1:B:524:GLN:HA | 2.19 | 0.43 |
| 1:F:119:ALA:HB1 | 1:F:124:LEU:HA | 2.01 | 0.43 |
| 1:E:100:THR:HB | 1:E:582:PRO:HG2 | 2.01 | 0.43 |
| 1:A:174:THR:HG21 | 1:A:572:GLY:HA2 | 2.00 | 0.43 |
| 1:B:188:ARG:NH1 | 1:B:260:ARG:CD | 2.81 | 0.43 |
| 1:C:23:ASP:OD1 | 1:C:23:ASP:N | 2.52 | 0.43 |
| 1:F:405:ARG:NH1 | 1:A:397:LEU:HD11 | 2.33 | 0.43 |
| 1:D:84:ALA:HB3 | 1:D:86:LEU:HD23 | 2.01 | 0.43 |
| 1:D:235:GLU:O | 1:D:238:VAL:N | 2.50 | 0.43 |
| 1:B:355:PRO:HA | 1:B:356:PRO:HD3 | 1.91 | 0.42 |
| 1:F:146:GLY:CA | 1:F:251:LEU:HD21 | 2.48 | 0.42 |
| 1:F:156:ILE:O | 1:F:518:ILE:HG12 | 2.19 | 0.42 |
| 1:F:427:THR:OG1 | 1:F:430:GLN:OE1 | 2.37 | 0.42 |
| 1:A:294:THR:HG22 | 1:A:297:GLU:HG2 | 2.00 | 0.42 |
| 1:A:331:LEU:HD21 | 1:A:344:VAL:HG12 | 2.01 | 0.42 |
| 1:A:383:LEU:HA | 1:A:383:LEU:HD12 | 1.81 | 0.42 |
| 1:F:573:THR:CG2 | 1:F:586:LEU:HD11 | 2.49 | 0.42 |
| 1:D:184:HIS:CE1 | 1:D:188:ARG:HG3 | 2.54 | 0.42 |
| 1:E:277:ILE:HG22 | 1:E:423:ARG:HH22 | 1.83 | 0.42 |
| 1:E:311:ALA:HB2 | 1:E:499:SER:CB | 2.33 | 0.42 |
| 1:E:427:THR:HB | 1:E:428:PRO:HD2 | 2.01 | 0.42 |
| 1:E:546:ASP:HB3 | 1:E:549:GLU:HG2 | 2.01 | 0.42 |
| 1:F:52:PRO:HD2 | 1:E:38:SER:HB3 | 2.01 | 0.42 |
| 1:F:188:ARG:HB3 | 1:F:255:PRO:HD2 | 2.01 | 0.42 |
| 1:A:585:VAL:O | 1:A:587:VAL:HG23 | 2.18 | 0.42 |
| 1:B:346:ASP:OD1 | 1:B:346:ASP:N | 2.52 | 0.42 |
| 1:B:489:LEU:HD23 | 1:B:489:LEU:HA | 1.75 | 0.42 |
| 1:F:294:THR:HA | 1:F:423:ARG:O | 2.19 | 0.42 |
| 1:F:556:ARG:HB3 | 1:E:548:ALA:CB | 2.50 | 0.42 |
| 1:F:560:GLN:O | 1:F:563:ARG:HG3 | 2.19 | 0.42 |
| 1:E:135:GLU:OE2 | 1:E:154:ARG:NH2 | 2.52 | 0.42 |
| 1:A:281:THR:CG2 | 1:A:288:VAL:HG21 | 2.44 | 0.42 |
| 1:B:470:PHE:CZ | 1:B:507:ASP:HB3 | 2.55 | 0.42 |
| 1:C:247:ASP:OD1 | 1:C:247:ASP:N | 2.48 | 0.42 |
| 1:F:239:VAL:O | 1:F:243:GLY:N | 2.52 | 0.42 |
| 1:F:415:GLN:HG3 | 1:F:416:LYS:N | 2.35 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:D:474:GLU:HG2 | 1:D:515:LEU:HD21 | 2.00 | 0.42 |
| 1:A:174:THR:HG21 | 1:A:572:GLY:CA | 2.50 | 0.42 |
| 1:A:188:ARG:NH1 | 1:A:257:GLU:OE1 | 2.53 | 0.42 |
| 1:C:151:LEU:HD23 | 1:C:151:LEU:HA | 1.82 | 0.42 |
| 1:C:280:GLN:HG2 | 1:C:280:GLN:O | 2.20 | 0.42 |
| 1:E:210:ARG:NH1 | 1:E:439:LEU:HA | 2.34 | 0.42 |
| 1:A:64:ASP:OD1 | 1:A:96:ARG:HD2 | 2.19 | 0.42 |
| 1:A:419:SER:N | 1:A:420:PRO:CD | 2.83 | 0.42 |
| 1:B:165:ASN:HD21 | 1:B:523:GLN:NE2 | 2.07 | 0.42 |
| 1:F:381:TYR:HA | 1:F:385:GLU:CG | 2.49 | 0.42 |
| 1:D:247:ASP:OD1 | 1:D:247:ASP:N | 2.53 | 0.42 |
| 1:E:191:VAL:HG23 | 1:E:194:ARG:NH2 | 2.34 | 0.42 |
| 1:E:550:ALA:HB1 | 1:E:563:ARG:CD | 2.50 | 0.42 |
| 1:A:544:ARG:NE | 1:A:569:LEU:O | 2.52 | 0.42 |
| 1:B:387:ARG:O | 1:B:390:GLU:HG2 | 2.18 | 0.42 |
| 1:B:515:LEU:HD12 | 1:B:515:LEU:HA | 1.85 | 0.42 |
| 1:C:277:ILE:HB | 1:C:434:TYR:HE2 | 1.85 | 0.42 |
| 1:D:41:LEU:HB2 | 1:E:107:PHE:CB | 2.48 | 0.42 |
| 1:E:354:THR:HA | 1:E:355:PRO:HD3 | 1.85 | 0.42 |
| 1:B:188:ARG:NH1 | 1:B:260:ARG:HD3 | 2.27 | 0.42 |
| 1:C:320:VAL:HG22 | 1:C:399:GLN:HG2 | 2.02 | 0.42 |
| 1:C:453:LEU:HB3 | 1:C:457:ALA:HB3 | 2.02 | 0.42 |
| 1:F:71:GLU:HB3 | 1:E:75:PHE:CE1 | 2.55 | 0.42 |
| 1:F:381:TYR:CE2 | 1:F:386:GLU:OE2 | 2.73 | 0.42 |
| 1:D:231:MET:CE | 1:D:256:ALA:HB1 | 2.49 | 0.42 |
| 1:D:315:LEU:HD21 | 1:E:319:PHE:HE1 | 1.85 | 0.42 |
| 1:A:294:THR:HG22 | 1:A:297:GLU:CB | 2.50 | 0.42 |
| 1:B:24:VAL:O | 1:A:67:ARG:HA | 2.20 | 0.42 |
| 1:B:221:LEU:HD12 | 1:B:221:LEU:HA | 1.92 | 0.42 |
| 1:B:277:ILE:HD11 | 1:B:426:LEU:CD2 | 2.49 | 0.42 |
| 1:F:23:ASP:OD1 | 1:E:69:ARG:NH2 | 2.53 | 0.42 |
| 1:E:57:VAL:CB | 1:E:104:PRO:HG2 | 2.50 | 0.42 |
| 1:E:142:LEU:HD12 | 1:E:248:ARG:HG2 | 2.01 | 0.42 |
| 1:A:371:THR:HG22 | 1:A:374:GLN:CG | 2.50 | 0.42 |
| 1:B:45:VAL:HG21 | 1:B:97:VAL:CG2 | 2.49 | 0.41 |
| 1:B:327:LYS:HE3 | 1:B:394:LYS:O | 2.20 | 0.41 |
| 1:B:530:GLU:HG3 | 1:B:532:ARG:H | 1.84 | 0.41 |
| 1:C:262:VAL:HG22 | 1:C:445:LEU:HB3 | 2.00 | 0.41 |
| 1:C:473:LYS:CG | 1:C:517:ILE:HD11 | 2.50 | 0.41 |
| 1:F:67:ARG:HA | 1:A:24:VAL:O | 2.19 | 0.41 |
| 1:D:224:LEU:HD12 | 1:D:447:VAL:HG21 | 2.01 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:145:ASP:OD2 | 1:E:145:ASP:N | 2.53 | 0.41 |
| 1:E:223:PHE:CE1 | 1:E:284:ARG:HB2 | 2.55 | 0.41 |
| 1:B:327:LYS:NZ | 1:B:394:LYS:HB3 | 2.35 | 0.41 |
| 1:F:24:VAL:HG12 | 1:F:110:PRO:HD2 | 2.03 | 0.41 |
| 1:A:481:THR:HG22 | 1:A:481:THR:O | 2.19 | 0.41 |
| 1:C:473:LYS:HG3 | 1:C:517:ILE:HD11 | 2.01 | 0.41 |
| 1:E:15:ILE:HG12 | 1:E:117:ARG:HA | 2.02 | 0.41 |
| 1:D:76:GLU:CB | 1:E:21:THR:HG21 | 2.47 | 0.41 |
| 1:B:545:LEU:HD23 | 1:B:545:LEU:HA | 1.84 | 0.41 |
| 1:C:359:LEU:HD23 | 1:C:359:LEU:HA | 1.79 | 0.41 |
| 1:F:68:LYS:HA | 1:F:92:SER:O | 2.21 | 0.41 |
| 1:F:269:ARG:HB2 | 1:F:278:VAL:HB | 2.01 | 0.41 |
| 1:D:176:THR:HB | 1:D:217:LYS:HZ3 | 1.84 | 0.41 |
| 1:D:497:GLY:O | 1:D:502:LYS:NZ | 2.37 | 0.41 |
| 1:D:550:ALA:HB1 | 1:D:563:ARG:CD | 2.49 | 0.41 |
| 1:E:295:ILE:HG12 | 1:E:422:ILE:HG22 | 2.01 | 0.41 |
| 1:E:382:LYS:HE3 | 1:E:382:LYS:HB3 | 1.82 | 0.41 |
| 1:E:428:PRO:HG2 | 1:E:429:GLU:OE2 | 2.21 | 0.41 |
| 1:C:495:ARG:HA | 1:C:530:GLU:HA | 2.02 | 0.41 |
| 1:F:474:GLU:OE2 | 1:E:417:TYR:OH | 2.38 | 0.41 |
| 1:D:128:LEU:HD13 | 1:D:150:PRO:HD2 | 2.03 | 0.41 |
| 1:D:142:LEU:HD11 | 1:D:248:ARG:HG2 | 2.01 | 0.41 |
| 1:E:187:PHE:HD1 | 1:E:192:MET:CE | 2.33 | 0.41 |
| 1:A:215:ASN:HD21 | 1:A:219:GLU:HA | 1.86 | 0.41 |
| 1:C:143:LEU:HB2 | 1:C:147:GLN:O | 2.21 | 0.41 |
| 1:C:502:LYS:HE3 | 1:C:530:GLU:HB2 | 2.02 | 0.41 |
| 1:F:71:GLU:HA | 1:F:71:GLU:OE2 | 2.21 | 0.41 |
| 1:F:323:ASN:O | 1:F:327:LYS:HG2 | 2.20 | 0.41 |
| 1:D:149:LEU:HD21 | 1:D:576:VAL:CG2 | 2.51 | 0.41 |
| 1:D:354:THR:HA | 1:D:355:PRO:HD2 | 1.83 | 0.41 |
| 1:A:17:MET:HE3 | 1:A:17:MET:HB2 | 1.87 | 0.41 |
| 1:C:19:LEU:CD1 | 1:C:32:ALA:HB2 | 2.49 | 0.41 |
| 1:C:310:ASP:HB3 | 1:C:410:ARG:NH2 | 2.35 | 0.41 |
| 1:C:405:ARG:HG3 | 1:C:405:ARG:NH1 | 2.35 | 0.41 |
| 1:F:547:LEU:HD11 | 1:A:582:PRO:O | 2.21 | 0.41 |
| 1:A:246:ALA:HB3 | 1:A:251:LEU:CD1 | 2.51 | 0.41 |
| 1:B:157:ASN:O | 1:B:478:ARG:NH2 | 2.50 | 0.41 |
| 1:B:220:ASP:N | 1:B:220:ASP:OD1 | 2.54 | 0.41 |
| 1:F:476:VAL:HG21 | 1:F:479:GLN:HE21 | 1.86 | 0.41 |
| 1:D:187:PHE:HB3 | 1:D:188:ARG:NH2 | 2.36 | 0.41 |
| 1:A:227:PRO:HG2 | 1:A:602:ASP:HB3 | 2.02 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:546:ASP:HB3 | 1:A:549:GLU:HG2 | 2.03 | 0.41 |
| 1:E:265:LEU:HA | 1:E:289:THR:O | 2.21 | 0.41 |
| 1:A:131:ASP:OD1 | 1:A:131:ASP:N | 2.54 | 0.41 |
| 1:B:142:LEU:HG | 1:B:252:LEU:HD11 | 2.03 | 0.40 |
| 1:B:581:VAL:HA | 1:B:582:PRO:HD3 | 1.86 | 0.40 |
| 1:C:596:THR:OG1 | 1:C:600:GLU:OE1 | 2.33 | 0.40 |
| 1:F:57:VAL:HA | 1:F:104:PRO:CG | 2.51 | 0.40 |
| 1:F:164:ILE:HD12 | 1:F:520:ILE:HD12 | 2.03 | 0.40 |
| 1:F:381:TYR:CZ | 1:F:386:GLU:OE2 | 2.74 | 0.40 |
| 1:A:78:ASP:O | 1:A:82:VAL:HG23 | 2.21 | 0.40 |
| 1:A:175:LYS:HE3 | 1:A:175:LYS:HB2 | 1.79 | 0.40 |
| 1:A:292:VAL:HG21 | 1:A:426:LEU:CD1 | 2.51 | 0.40 |
| 1:A:299:CYS:SG | 1:A:342:LEU:HD22 | 2.61 | 0.40 |
| 1:B:182:LEU:HD23 | 1:B:182:LEU:HA | 1.96 | 0.40 |
| 1:B:386:GLU:HG3 | 1:B:387:ARG:HG3 | 2.04 | 0.40 |
| 1:B:490:ASN:OD1 | 1:B:490:ASN:N | 2.54 | 0.40 |
| 1:D:348:GLN:HG2 | 1:D:381:TYR:OH | 2.21 | 0.40 |
| 1:E:66:VAL:O | 1:E:66:VAL:HG13 | 2.19 | 0.40 |
| 1:E:369:LEU:HD12 | 1:E:369:LEU:H | 1.86 | 0.40 |
| 1:B:45:VAL:HG21 | 1:B:97:VAL:HG21 | 2.03 | 0.40 |
| 1:B:61:GLY:HA3 | 1:B:97:VAL:HG13 | 2.03 | 0.40 |
| 1:C:277:ILE:HD12 | 1:C:434:TYR:CE2 | 2.56 | 0.40 |
| 1:F:26:PRO:HD3 | 1:E:66:VAL:HG13 | 2.04 | 0.40 |
| 1:F:47:VAL:HG23 | 1:F:115:HIS:O | 2.22 | 0.40 |
| 1:F:278:VAL:HG12 | 1:F:279:PRO:HD2 | 2.03 | 0.40 |
| 1:F:315:LEU:N | 1:F:315:LEU:HD12 | 2.36 | 0.40 |
| 1:F:476:VAL:HG21 | 1:F:479:GLN:NE2 | 2.35 | 0.40 |
| 1:D:155:PHE:HA | 1:D:161:GLY:HA3 | 2.03 | 0.40 |
| 1:D:228:ASN:OD1 | 1:D:600:GLU:HB3 | 2.21 | 0.40 |
| 1:D:488:GLU:HB3 | 1:D:491:LYS:HD3 | 2.03 | 0.40 |
| 1:E:24:VAL:HG12 | 1:E:110:PRO:HD2 | 2.03 | 0.40 |
| 1:A:392:ASP:HA | 1:A:393:PRO:HD3 | 1.96 | 0.40 |
| 1:A:470:PHE:CE1 | 1:A:507:ASP:HB3 | 2.56 | 0.40 |
| 1:C:163:HIS:CD2 | 1:C:163:HIS:N | 2.88 | 0.40 |
| 1:F:111:GLN:HG2 | 1:E:68:LYS:HZ2 | 1.83 | 0.40 |
| 1:F:151:LEU:HD23 | 1:F:151:LEU:HA | 1.96 | 0.40 |
| 1:F:239:VAL:O | 1:F:243:GLY:CA | 2.70 | 0.40 |
| 1:E:490:ASN:OD1 | 1:E:490:ASN:N | 2.50 | 0.40 |
| 1:A:304:LEU:N | 1:A:305:PRO:CD | 2.84 | 0.40 |
| 1:B:29:PHE:CZ | 1:B:47:VAL:HG11 | 2.56 | 0.40 |
| 1:F:265:LEU:HA | 1:F:289:THR:O | 2.22 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:E:304:LEU:HD22 | 1:E:324:ILE:HG22 | 2.04 | 0.40 |
| 1:A:331:LEU:HD12 | 1:A:331:LEU:HA | 1.87 | 0.40 |

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

| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:81:ASP:OD1 | 1:C:598:ARG:NH2[2_654] | 2.11 | 0.09 |

## 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 | 579/618 (94%) | 567 (98%) | 12 (2%) | 0 | 100 | 100 |
| 1 | B | 575/618 (93%) | 556 (97%) | 19 (3%) | 0 | 100 | 100 |
| 1 | C | 579/618 (94%) | 565 (98%) | 14 (2%) | 0 | 100 | 100 |
| 1 | D | 579/618 (94%) | 561 (97%) | 18 (3%) | 0 | 100 | 100 |
| 1 | E | 579/618 (94%) | 563 (97%) | 16 (3%) | 0 | 100 | 100 |
| 1 | F | 579/618 (94%) | 559 (96%) | 20 (4%) | 0 | 100 | 100 |
| All | All | 3470/3708 (94%) | 3371 (97%) | 99 (3%) | 0 | 100 | 100 |

There are no Ramachandran outliers to report.

### 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 | 480/499 (96%) | 444 (92%) | 36 (8%) | 13 | 43 |
| 1 | B | 480/499 (96%) | 462 (96%) | 18 (4%) | 33 | 69 |
| 1 | C | 480/499 (96%) | 454 (95%) | 26 (5%) | 22 | 57 |
| 1 | D | 480/499 (96%) | 455 (95%) | 25 (5%) | 23 | 59 |
| 1 | E | 480/499 (96%) | 460 (96%) | 20 (4%) | 30 | 66 |
| 1 | F | 480/499 (96%) | 457 (95%) | 23 (5%) | 25 | 62 |
| All | All | 2880/2994 (96%) | 2732 (95%) | 148 (5%) | 24 | 60 |

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

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | B | 23 | ASP |
| 1 | B | 41 | LEU |
| 1 | B | 86 | LEU |
| 1 | B | 221 | LEU |
| 1 | B | 224 | LEU |
| 1 | B | 236 | ASP |
| 1 | B | 275 | THR |
| 1 | B | 315 | LEU |
| 1 | B | 349 | PHE |
| 1 | B | 350 | GLU |
| 1 | B | 351 | ASP |
| 1 | B | 353 | GLU |
| 1 | B | 364 | LEU |
| 1 | B | 371 | THR |
| 1 | B | 489 | LEU |
| 1 | B | 561 | SER |
| 1 | B | 581 | VAL |
| 1 | B | 587 | VAL |
| 1 | C | 13 | ASP |
| 1 | C | 49 | THR |
| 1 | C | 111 | GLN |
| 1 | C | 114 | ASP |
| 1 | C | 145 | ASP |
| 1 | C | 174 | THR |
| 1 | C | 176 | THR |
| 1 | C | 213 | ILE |
| 1 | C | 221 | LEU |
| 1 | C | 244 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | C | 247 | ASP |
| 1 | C | 275 | THR |
| 1 | C | 286 | GLU |
| 1 | C | 336 | THR |
| 1 | C | 349 | PHE |
| 1 | C | 353 | GLU |
| 1 | C | 354 | THR |
| 1 | C | 408 | THR |
| 1 | C | 434 | TYR |
| 1 | C | 481 | THR |
| 1 | C | 496 | GLU |
| 1 | C | 535 | SER |
| 1 | C | 551 | GLU |
| 1 | C | 561 | SER |
| 1 | C | 569 | LEU |
| 1 | C | 603 | ASP |
| 1 | F | 19 | LEU |
| 1 | F | 49 | THR |
| 1 | F | 73 | VAL |
| 1 | F | 172 | VAL |
| 1 | F | 219 | GLU |
| 1 | F | 220 | ASP |
| 1 | F | 225 | ASP |
| 1 | F | 235 | GLU |
| 1 | F | 236 | ASP |
| 1 | F | 251 | LEU |
| 1 | F | 277 | ILE |
| 1 | F | 283 | GLN |
| 1 | F | 316 | ASN |
| 1 | F | 346 | ASP |
| 1 | F | 348 | GLN |
| 1 | F | 357 | GLU |
| 1 | F | 364 | LEU |
| 1 | F | 454 | SER |
| 1 | F | 481 | THR |
| 1 | F | 561 | SER |
| 1 | F | 585 | VAL |
| 1 | F | 587 | VAL |
| 1 | F | 601 | VAL |
| 1 | D | 65 | ASN |
| 1 | D | 221 | LEU |
| 1 | D | 231 | MET |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | D | 234 | LYS |
| 1 | D | 235 | GLU |
| 1 | D | 236 | ASP |
| 1 | D | 244 | LEU |
| 1 | D | 247 | ASP |
| 1 | D | 275 | THR |
| 1 | D | 294 | THR |
| 1 | D | 317 | LEU |
| 1 | D | 323 | ASN |
| 1 | D | 349 | PHE |
| 1 | D | 353 | GLU |
| 1 | D | 364 | LEU |
| 1 | D | 396 | VAL |
| 1 | D | 501 | ILE |
| 1 | D | 517 | ILE |
| 1 | D | 560 | GLN |
| 1 | D | 561 | SER |
| 1 | D | 586 | LEU |
| 1 | D | 596 | THR |
| 1 | D | 600 | GLU |
| 1 | D | 601 | VAL |
| 1 | D | 603 | ASP |
| 1 | E | 86 | LEU |
| 1 | E | 87 | LEU |
| 1 | E | 106 | ASN |
| 1 | E | 143 | LEU |
| 1 | E | 145 | ASP |
| 1 | E | 213 | ILE |
| 1 | E | 231 | MET |
| 1 | E | 244 | LEU |
| 1 | E | 247 | ASP |
| 1 | E | 294 | THR |
| 1 | E | 317 | LEU |
| 1 | E | 364 | LEU |
| 1 | E | 383 | LEU |
| 1 | E | 396 | VAL |
| 1 | E | 414 | VAL |
| 1 | E | 481 | THR |
| 1 | E | 517 | ILE |
| 1 | E | 560 | GLN |
| 1 | E | 561 | SER |
| 1 | E | 602 | ASP |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 65 | ASN |
| 1 | A | 133 | MET |
| 1 | A | 147 | GLN |
| 1 | A | 163 | HIS |
| 1 | A | 188 | ARG |
| 1 | A | 206 | THR |
| 1 | A | 213 | ILE |
| 1 | A | 230 | ARG |
| 1 | A | 231 | MET |
| 1 | A | 232 | VAL |
| 1 | A | 234 | LYS |
| 1 | A | 235 | GLU |
| 1 | A | 247 | ASP |
| 1 | A | 251 | LEU |
| 1 | A | 275 | THR |
| 1 | A | 285 | SER |
| 1 | A | 294 | THR |
| 1 | A | 315 | LEU |
| 1 | A | 324 | ILE |
| 1 | A | 336 | THR |
| 1 | A | 348 | GLN |
| 1 | A | 349 | PHE |
| 1 | A | 352 | SER |
| 1 | A | 359 | LEU |
| 1 | A | 371 | THR |
| 1 | A | 383 | LEU |
| 1 | A | 386 | GLU |
| 1 | A | 388 | GLU |
| 1 | A | 396 | VAL |
| 1 | A | 408 | THR |
| 1 | A | 450 | ILE |
| 1 | A | 451 | HIS |
| 1 | A | 481 | THR |
| 1 | A | 501 | ILE |
| 1 | A | 560 | GLN |
| 1 | A | 561 | SER |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | B | 479 | GLN |
| 1 | B | 523 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | C | 280 | GLN |
| 1 | E | 323 | ASN |
| 1 | A | 323 | ASN |
| 1 | A | 348 | GLN |
| 1 | A | 479 | GLN |

#### 5.3.3 RNA

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates

There are no monosaccharides in this entry.

### 5.6 Ligand geometry

There are no ligands in this entry.

### 5.7 Other polymers

There are no such residues in this entry.

### 5.8 Polymer linkage issues

There are no chain breaks in this entry.

# 6 Fit of model and data

## 6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, $95^{th}$ 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 | 583/618 (94%) | 0.03 | 33 (5%) | 23 | 8 | 68, 88, 107, 118 | 0 |
| 1 | B | 581/618 (94%) | -0.15 | 26 (4%) | 33 | 12 | 58, 72, 90, 100 | 0 |
| 1 | C | 583/618 (94%) | -0.19 | 20 (3%) | 45 | 19 | 55, 67, 90, 102 | 0 |
| 1 | D | 583/618 (94%) | -0.10 | 27 (4%) | 32 | 12 | 61, 76, 101, 110 | 0 |
| 1 | E | 583/618 (94%) | 0.09 | 37 (6%) | 20 | 6 | 72, 91, 117, 127 | 0 |
| 1 | F | 583/618 (94%) | 0.15 | 42 (7%) | 15 | 4 | 74, 98, 121, 127 | 0 |
| All | All | 3496/3708 (94%) | -0.03 | 185 (5%) | 26 | 10 | 55, 82, 112, 127 | 0 |

All (185) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | C | 276 | ALA | 8.2 |
| 1 | B | 358 | ASN | 7.1 |
| 1 | D | 355 | PRO | 6.8 |
| 1 | F | 312 | SER | 6.7 |
| 1 | D | 313 | ALA | 6.1 |
| 1 | C | 273 | ALA | 6.0 |
| 1 | F | 275 | THR | 6.0 |
| 1 | E | 313 | ALA | 6.0 |
| 1 | F | 351 | ASP | 5.9 |
| 1 | A | 272 | ALA | 5.8 |
| 1 | D | 197 | GLN | 5.7 |
| 1 | B | 351 | ASP | 5.6 |
| 1 | D | 351 | ASP | 5.5 |
| 1 | F | 357 | GLU | 5.4 |
| 1 | F | 314 | SER | 5.3 |
| 1 | C | 351 | ASP | 5.3 |
| 1 | A | 275 | THR | 5.2 |
| 1 | B | 275 | THR | 5.2 |
| 1 | F | 358 | ASN | 5.1 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | A | 206 | THR | 5.1 |
| 1 | A | 313 | ALA | 5.1 |
| 1 | E | 602 | ASP | 4.9 |
| 1 | F | 603 | ASP | 4.9 |
| 1 | F | 313 | ALA | 4.9 |
| 1 | E | 275 | THR | 4.8 |
| 1 | A | 273 | ALA | 4.8 |
| 1 | C | 272 | ALA | 4.7 |
| 1 | F | 273 | ALA | 4.7 |
| 1 | B | 197 | GLN | 4.7 |
| 1 | C | 275 | THR | 4.7 |
| 1 | F | 206 | THR | 4.7 |
| 1 | E | 197 | GLN | 4.6 |
| 1 | E | 603 | ASP | 4.6 |
| 1 | D | 358 | ASN | 4.6 |
| 1 | B | 273 | ALA | 4.6 |
| 1 | E | 358 | ASN | 4.6 |
| 1 | E | 272 | ALA | 4.5 |
| 1 | A | 351 | ASP | 4.5 |
| 1 | E | 351 | ASP | 4.4 |
| 1 | E | 206 | THR | 4.4 |
| 1 | A | 270 | ALA | 4.4 |
| 1 | A | 603 | ASP | 4.4 |
| 1 | C | 355 | PRO | 4.3 |
| 1 | F | 272 | ALA | 4.3 |
| 1 | A | 352 | SER | 4.2 |
| 1 | D | 273 | ALA | 4.2 |
| 1 | D | 350 | GLU | 4.0 |
| 1 | A | 602 | ASP | 4.0 |
| 1 | E | 353 | GLU | 4.0 |
| 1 | C | 358 | ASN | 3.9 |
| 1 | E | 271 | GLY | 3.9 |
| 1 | E | 355 | PRO | 3.9 |
| 1 | A | 314 | SER | 3.8 |
| 1 | B | 603 | ASP | 3.8 |
| 1 | F | 81 | ASP | 3.8 |
| 1 | A | 285 | SER | 3.8 |
| 1 | A | 353 | GLU | 3.8 |
| 1 | C | 353 | GLU | 3.8 |
| 1 | A | 312 | SER | 3.8 |
| 1 | C | 314 | SER | 3.7 |
| 1 | E | 276 | ALA | 3.6 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | A | 310 | ASP | 3.6 |
| 1 | A | 355 | PRO | 3.6 |
| 1 | C | 197 | GLN | 3.6 |
| 1 | F | 244 | LEU | 3.6 |
| 1 | F | 240 | ARG | 3.5 |
| 1 | A | 350 | GLU | 3.5 |
| 1 | F | 311 | ALA | 3.5 |
| 1 | D | 206 | THR | 3.5 |
| 1 | F | 310 | ASP | 3.4 |
| 1 | F | 355 | PRO | 3.4 |
| 1 | C | 274 | GLY | 3.4 |
| 1 | C | 312 | SER | 3.4 |
| 1 | B | 355 | PRO | 3.4 |
| 1 | A | 358 | ASN | 3.4 |
| 1 | D | 310 | ASP | 3.4 |
| 1 | A | 197 | GLN | 3.4 |
| 1 | E | 597 | ARG | 3.4 |
| 1 | F | 276 | ALA | 3.4 |
| 1 | E | 84 | ALA | 3.4 |
| 1 | B | 312 | SER | 3.4 |
| 1 | E | 273 | ALA | 3.4 |
| 1 | E | 352 | SER | 3.4 |
| 1 | F | 316 | ASN | 3.3 |
| 1 | F | 353 | GLU | 3.3 |
| 1 | D | 354 | THR | 3.3 |
| 1 | D | 603 | ASP | 3.3 |
| 1 | B | 285 | SER | 3.3 |
| 1 | D | 275 | THR | 3.3 |
| 1 | C | 271 | GLY | 3.3 |
| 1 | F | 350 | GLU | 3.3 |
| 1 | F | 352 | SER | 3.3 |
| 1 | F | 197 | GLN | 3.2 |
| 1 | B | 276 | ALA | 3.2 |
| 1 | C | 313 | ALA | 3.2 |
| 1 | F | 274 | GLY | 3.2 |
| 1 | A | 271 | GLY | 3.2 |
| 1 | B | 602 | ASP | 3.2 |
| 1 | F | 360 | ASP | 3.1 |
| 1 | D | 312 | SER | 3.1 |
| 1 | D | 357 | GLU | 3.1 |
| 1 | E | 247 | ASP | 3.1 |
| 1 | A | 280 | GLN | 3.1 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | B | 357 | GLU | 3.1 |
| 1 | D | 314 | SER | 3.1 |
| 1 | D | 602 | ASP | 3.0 |
| 1 | B | 314 | SER | 3.0 |
| 1 | E | 85 | GLY | 3.0 |
| 1 | A | 441 | ARG | 3.0 |
| 1 | E | 144 | ALA | 2.9 |
| 1 | B | 274 | GLY | 2.9 |
| 1 | E | 312 | SER | 2.9 |
| 1 | A | 276 | ALA | 2.9 |
| 1 | F | 103 | ASP | 2.9 |
| 1 | C | 350 | GLU | 2.9 |
| 1 | D | 272 | ALA | 2.9 |
| 1 | B | 313 | ALA | 2.9 |
| 1 | E | 357 | GLU | 2.9 |
| 1 | A | 236 | ASP | 2.8 |
| 1 | A | 196 | ALA | 2.8 |
| 1 | E | 285 | SER | 2.8 |
| 1 | F | 271 | GLY | 2.8 |
| 1 | E | 103 | ASP | 2.8 |
| 1 | F | 354 | THR | 2.8 |
| 1 | E | 350 | GLU | 2.8 |
| 1 | E | 356 | PRO | 2.7 |
| 1 | A | 316 | ASN | 2.7 |
| 1 | A | 336 | THR | 2.7 |
| 1 | D | 353 | GLU | 2.7 |
| 1 | D | 85 | GLY | 2.7 |
| 1 | B | 270 | ALA | 2.7 |
| 1 | F | 193 | ASP | 2.7 |
| 1 | B | 206 | THR | 2.6 |
| 1 | F | 260 | ARG | 2.6 |
| 1 | F | 336 | THR | 2.6 |
| 1 | E | 81 | ASP | 2.6 |
| 1 | A | 145 | ASP | 2.6 |
| 1 | B | 433 | GLY | 2.6 |
| 1 | E | 336 | THR | 2.6 |
| 1 | A | 357 | GLU | 2.6 |
| 1 | E | 240 | ARG | 2.6 |
| 1 | E | 310 | ASP | 2.6 |
| 1 | E | 274 | GLY | 2.5 |
| 1 | F | 285 | SER | 2.5 |
| 1 | D | 363 | GLU | 2.5 |

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| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | A | 471 | GLU | 2.5 |
| 1 | A | 144 | ALA | 2.5 |
| 1 | C | 206 | THR | 2.4 |
| 1 | D | 240 | ARG | 2.4 |
| 1 | F | 602 | ASP | 2.4 |
| 1 | C | 84 | ALA | 2.4 |
| 1 | B | 145 | ASP | 2.4 |
| 1 | C | 603 | ASP | 2.4 |
| 1 | E | 233 | GLU | 2.4 |
| 1 | E | 227 | PRO | 2.4 |
| 1 | A | 240 | ARG | 2.3 |
| 1 | D | 207 | ALA | 2.3 |
| 1 | D | 597 | ARG | 2.3 |
| 1 | C | 352 | SER | 2.3 |
| 1 | F | 471 | GLU | 2.3 |
| 1 | B | 337 | GLY | 2.3 |
| 1 | F | 196 | ALA | 2.3 |
| 1 | B | 207 | ALA | 2.3 |
| 1 | B | 193 | ASP | 2.2 |
| 1 | B | 310 | ASP | 2.2 |
| 1 | A | 260 | ARG | 2.2 |
| 1 | D | 88 | PRO | 2.2 |
| 1 | F | 477 | GLY | 2.2 |
| 1 | F | 241 | ALA | 2.2 |
| 1 | F | 236 | ASP | 2.2 |
| 1 | E | 316 | ASN | 2.2 |
| 1 | B | 350 | GLU | 2.2 |
| 1 | F | 363 | GLU | 2.2 |
| 1 | E | 239 | VAL | 2.2 |
| 1 | B | 353 | GLU | 2.1 |
| 1 | D | 84 | ALA | 2.1 |
| 1 | F | 229 | ALA | 2.1 |
| 1 | F | 245 | SER | 2.1 |
| 1 | D | 352 | SER | 2.1 |
| 1 | C | 429 | GLU | 2.1 |
| 1 | E | 389 | GLY | 2.1 |
| 1 | B | 354 | THR | 2.0 |
| 1 | D | 35 | HIS | 2.0 |
| 1 | F | 88 | PRO | 2.0 |
| 1 | E | 80 | GLU | 2.0 |

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

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

## 6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

## 6.4 Ligands (i)

There are no ligands in this entry.

## 6.5 Other polymers (i)

There are no such residues in this entry.