# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 13, 2023 – 01:03 PM JST

| | | |
|---|---|---|
| PDB ID | : | 5X5Y |
| Title | : | A membrane protein complex |
| Authors | : | Luo, Q.; Yang, X.; Huang, Y. |
| Deposited on | : | 2017-02-18 |
| Resolution | : | 3.46 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.

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

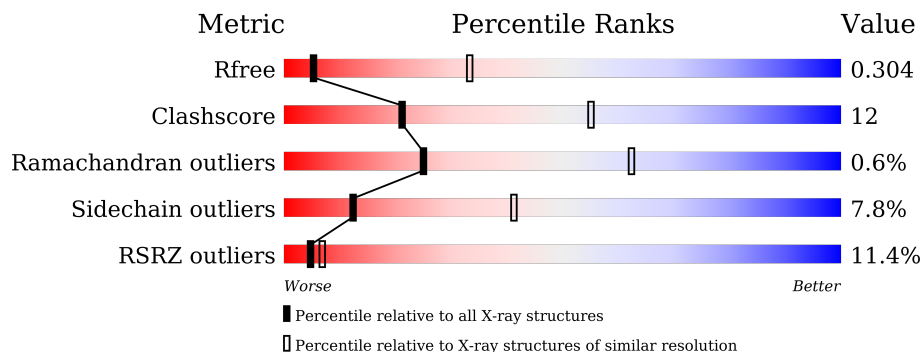| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.36 |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Refmac | : | 5.8.0158 |
| CCP4 | : | 7.0.044 (Gargrove) |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.36 |

# 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 3.46 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 | Percentile Ranks | Value |
|---|---|---|
| Rfree | | 0.304 |
| Clashscore | | 12 |
| Ramachandran outliers | | 0.6% |
| Sidechain outliers | | 7.8% |
| RSRZ outliers | | 11.4% |

*Worse*                                                                 *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|---|---|---|
| R$_{free}$ | 130704 | 1291 (3.52-3.40) |
| Clashscore | 141614 | 1372 (3.52-3.40) |
| Ramachandran outliers | 138981 | 1337 (3.52-3.40) |
| Sidechain outliers | 138945 | 1338 (3.52-3.40) |
| RSRZ outliers | 127900 | 1205 (3.52-3.40) |

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 | 247 | 9% / 64% / 31% / · · |
| 1 | B | 247 | 8% / 62% / 33% / · · |
| 2 | G | 355 | 15% / 73% / 23% / · · |
| 3 | F | 362 | 11% / 63% / 31% / · · |

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# 2 Entry composition ⓘ

There are 3 unique types of molecules in this entry. The entry contains 9178 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 Probable ATP-binding component of ABC transporter.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|---------|-------|
| 1 | B | 239 | Total 1841 | C 1153 | N 336 | O 345 | S 7 | 0 | 0 | 0 |
| 1 | A | 239 | Total 1841 | C 1153 | N 336 | O 345 | S 7 | 0 | 0 | 0 |

There are 12 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|---------|-----------|
| B | 242 | HIS | - | expression tag | UNP Q9HVV6 |
| B | 243 | HIS | - | expression tag | UNP Q9HVV6 |
| B | 244 | HIS | - | expression tag | UNP Q9HVV6 |
| B | 245 | HIS | - | expression tag | UNP Q9HVV6 |
| B | 246 | HIS | - | expression tag | UNP Q9HVV6 |
| B | 247 | HIS | - | expression tag | UNP Q9HVV6 |
| A | 242 | HIS | - | expression tag | UNP Q9HVV6 |
| A | 243 | HIS | - | expression tag | UNP Q9HVV6 |
| A | 244 | HIS | - | expression tag | UNP Q9HVV6 |
| A | 245 | HIS | - | expression tag | UNP Q9HVV6 |
| A | 246 | HIS | - | expression tag | UNP Q9HVV6 |
| A | 247 | HIS | - | expression tag | UNP Q9HVV6 |

- Molecule 2 is a protein called Uncharacterized protein.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|---------|-------|
| 2 | G | 351 | Total 2734 | C 1782 | N 468 | O 473 | S 11 | 0 | 0 | 0 |

- Molecule 3 is a protein called Uncharacterized protein.

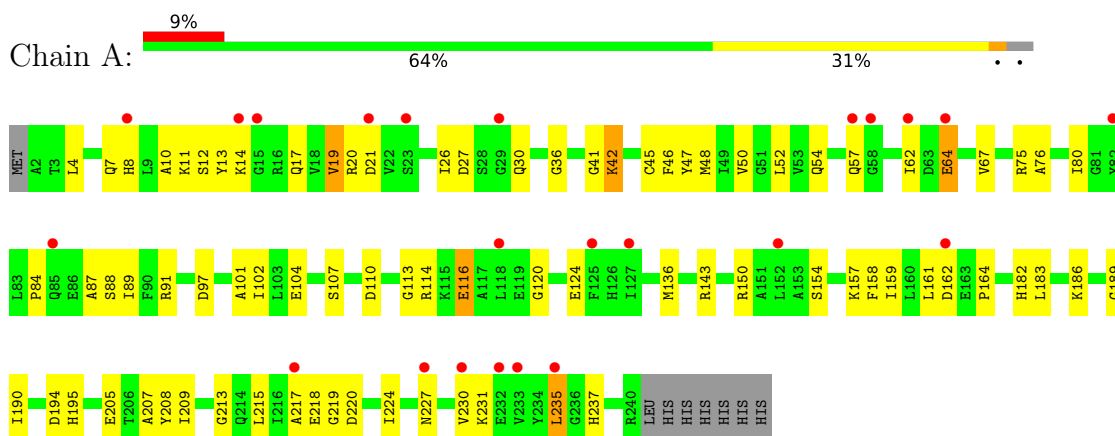| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|---|---|---|---|---------|---------|-------|
| 3 | F | 351 | Total 2762 | C 1815 | N 461 | O 475 | S 11 | 0 | 0 | 0 |

# 3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry 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.
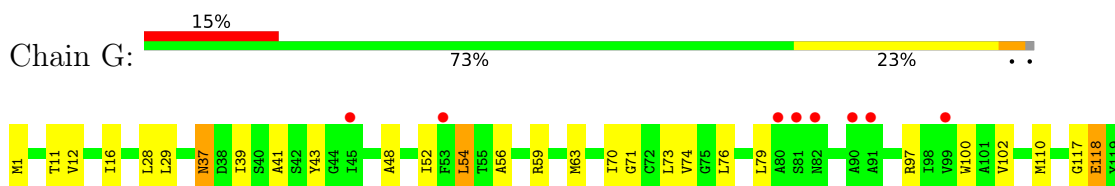
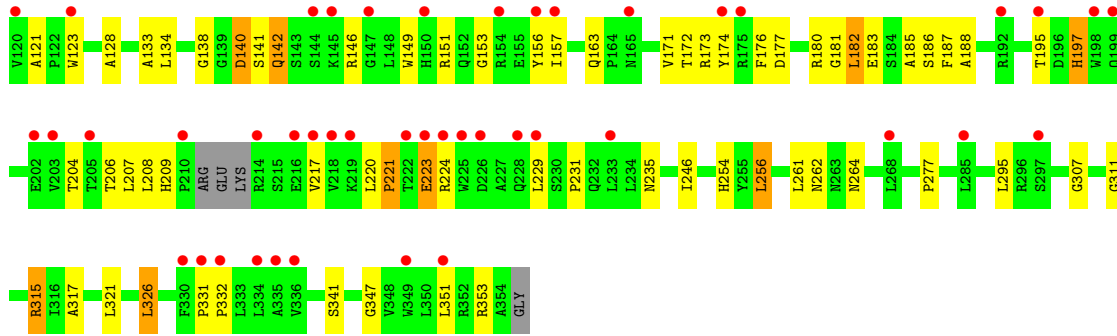- Molecule 1: Probable ATP-binding component of ABC transporter

Chain B:
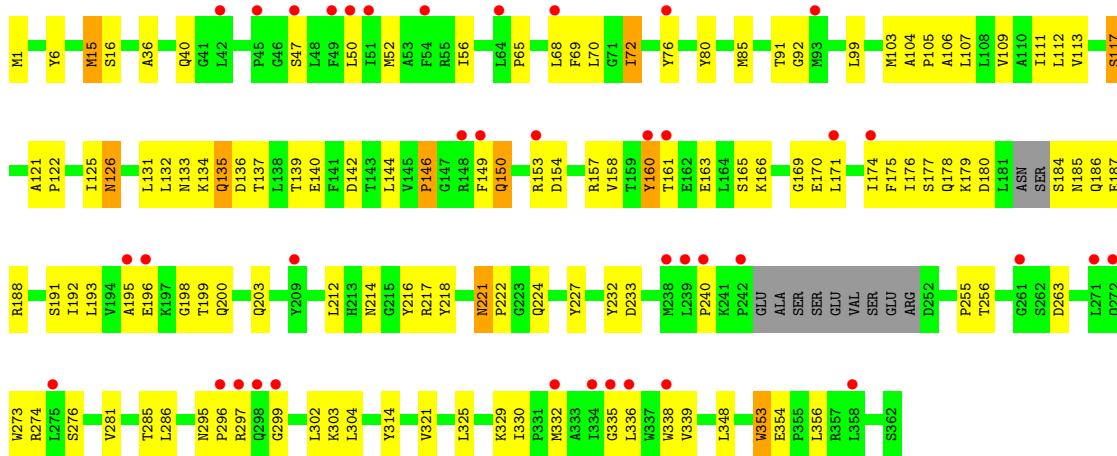
- Molecule 1: Probable ATP-binding component of ABC transporter

Chain A:
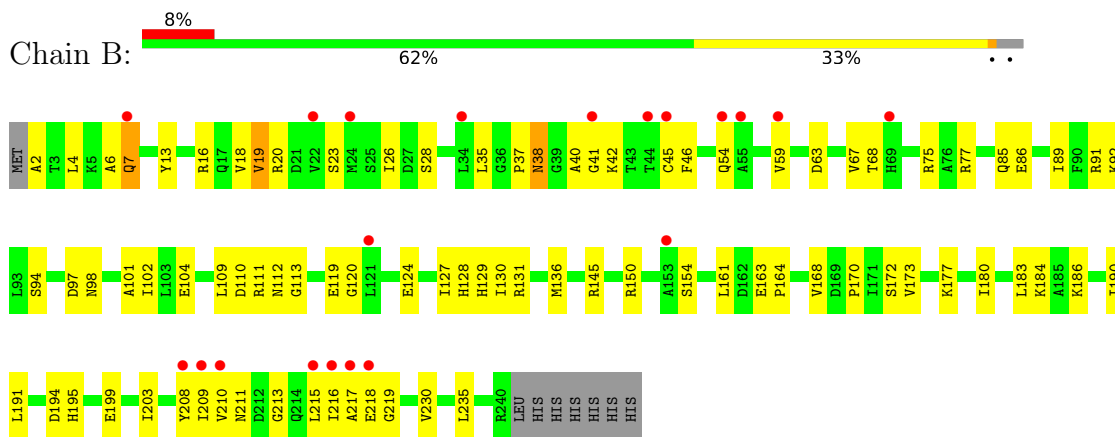
- Molecule 2: Uncharacterized protein

Chain G:

V120 A121 P122 W123 A128 A133 L134 G138 G139 D140 S141 Q142 S143 S144 K145 R146 G147 L148 W149 H150 R151 Q152 G153 R154 E155 Y156 I157 Q163 P164 N165 V171 T172 R173 Y174 R175 F176 D177 R180 G181 L182 E183 S184 A185 S186 F187 A188 R192 T195 D196 H197 W198 Q199

E202 V203 T204 T205 T206 L207 L208 H209 P210 ARG GLU LYS R214 S215 E216 V217 V218 K219 L220 P221 T222 E223 R224 D226 A227 Q228 L229 S230 P231 Q232 L233 L234 N235 I246 H254 Y255 L256 L261 N262 N263 N264 L268 P277 L285 L295 R296 S297 G307 G311

R315 I316 A317 L321 L326 F330 P331 P332 L333 L334 A335 V336 S341 G347 V348 W349 L350 L351 R352 R353 A354 GLY

● Molecule 3: Uncharacterized protein

Chain F:

11%

63% 31%

M1 Y6 M15 S16 A36 Q40 G41 L42 P45 G46 S47 L48 F49 L50 I51 M52 A53 F54 R55 I56 L64 P65 L68 F69 L70 G71 I72 Y76 Y80 M85 T91 G92 M93 L99 M103 A104 P105 A106 L107 L108 V109 A110 I111 L112 V113 S117

A121 P122 I125 N126 L131 L132 N133 K134 Q135 D136 T137 L138 T139 E140 F141 D142 T143 L144 V145 P146 G147 R148 F149 Q150 R153 D154 R157 V158 T159 Y160 T161 E162 E163 L164 S165 K166 G169 E170 L171 I174 F175 I176 S177 Q178 K179 D180 L181 ASN SER S184 N185 Q186 E187

R188 S191 I192 L193 V194 A195 E196 K197 G198 T199 Q200 Q203 Y209 L212 H213 N214 G215 Y216 R217 Y218 N221 P222 G223 Q224 Y227 Y232 D233 M238 L239 P240 K241 P242 GLU ALA SER SER GLU VAL SER GLU ARG D252 P255 T256 G261 S262 D263 L271 Q272

W273 R274 L275 S276 V281 T285 L286 N295 P296 R297 Q298 G299 L302 K303 L304 Y314 V321 L325 K329 I330 P331 M332 A333 I334 G335 L336 W337 W338 V339 L348 W353 E354 P355 L356 R357 L358 S362

# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 21 21 21 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 69.95Å   159.87Å   166.79Å<br>90.00°   90.00°   90.00° | Depositor |
| Resolution (Å) | 45.64 – 3.46<br>45.64 – 3.46 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | 97.7 (45.64-3.46)<br>97.7 (45.64-3.46) | Depositor<br>EDS |
| $R_{merge}$ | 0.15 | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 1.51 (at 3.48Å) | Xtriage |
| Refinement program | PHENIX 1.11.1_2575 | Depositor |
| R, $R_{free}$ | 0.269 , 0.304<br>0.269 , 0.304 | Depositor<br>DCC |
| $R_{free}$ test set | 1195 reflections (4.88%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 135.7 | Xtriage |
| Anisotropy | 0.429 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.24 , 73.2 | EDS |
| L-test for twinning[2] | $< |L| > = 0.43, < L^2 > = 0.26$ | Xtriage |
| Estimated twinning fraction | 0.039 for -h,l,k | Xtriage |
| $F_o$,$F_c$ correlation | 0.86 | EDS |
| Total number of atoms | 9178 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 145.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.79% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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 ⓘ

### 5.1 Standard geometry ⓘ

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 | 0.25 | 0/1867 | 0.46 | 0/2517 |
| 1 | B | 0.24 | 0/1867 | 0.45 | 0/2517 |
| 2 | G | 0.25 | 0/2796 | 0.43 | 0/3807 |
| 3 | F | 0.26 | 0/2820 | 0.47 | 0/3826 |
| All | All | 0.25 | 0/9350 | 0.45 | 0/12667 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts ⓘ

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 | 1841 | 0 | 1869 | 51 | 0 |
| 1 | B | 1841 | 0 | 1869 | 54 | 1 |
| 2 | G | 2734 | 0 | 2814 | 58 | 1 |
| 3 | F | 2762 | 0 | 2891 | 76 | 0 |
| All | All | 9178 | 0 | 9443 | 225 | 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 12.

All (225) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
| --- | --- | --- | --- |
| 3:F:132:LEU:O | 3:F:136:ASP:HB2 | 1.70 | 0.92 |
| 2:G:117:GLY:O | 2:G:121:ALA:HB3 | 1.77 | 0.83 |
| 2:G:182:LEU:HD11 | 2:G:185:ALA:HB2 | 1.66 | 0.77 |
| 3:F:133:ASN:O | 3:F:137:THR:HB | 1.83 | 0.77 |
| 3:F:65:PRO:HB3 | 3:F:281:VAL:HG22 | 1.66 | 0.75 |
| 3:F:174:ILE:HB | 3:F:195:ALA:HB3 | 1.70 | 0.74 |
| 1:B:102:ILE:HD11 | 1:B:154:SER:HB2 | 1.69 | 0.73 |
| 2:G:134:LEU:HA | 2:G:138:GLY:HA3 | 1.72 | 0.72 |
| 2:G:54:LEU:HB3 | 2:G:128:ALA:HB2 | 1.73 | 0.71 |
| 2:G:97:ARG:HH21 | 2:G:100:TRP:HD1 | 1.38 | 0.71 |
| 1:B:68:THR:O | 1:B:75:ARG:NH2 | 2.23 | 0.70 |
| 3:F:99:LEU:O | 3:F:103:MET:HB2 | 1.92 | 0.70 |
| 3:F:135:GLN:O | 3:F:139:THR:HB | 1.92 | 0.69 |
| 3:F:135:GLN:O | 3:F:139:THR:CB | 2.41 | 0.69 |
| 2:G:37:ASN:N | 2:G:37:ASN:OD1 | 2.27 | 0.68 |
| 3:F:47:SER:HB2 | 3:F:50:LEU:HD12 | 1.76 | 0.68 |
| 2:G:180:ARG:HH12 | 3:F:196:GLU:HB2 | 1.60 | 0.67 |
| 1:A:231:LYS:HA | 1:A:235:LEU:HB2 | 1.75 | 0.66 |
| 3:F:160:TYR:CD1 | 3:F:175:PHE:HB3 | 2.30 | 0.66 |
| 2:G:151:ARG:NH1 | 2:G:153:GLY:O | 2.29 | 0.66 |
| 1:B:41:GLY:O | 1:B:45:CYS:CB | 2.44 | 0.66 |
| 3:F:175:PHE:HA | 3:F:193:LEU:O | 1.95 | 0.66 |
| 3:F:325:LEU:HD12 | 3:F:330:ILE:HB | 1.77 | 0.65 |
| 1:B:120:GLY:O | 1:B:124:GLU:HB2 | 1.97 | 0.63 |
| 1:B:209:ILE:HG21 | 1:B:230:VAL:HG13 | 1.79 | 0.63 |
| 2:G:117:GLY:O | 2:G:121:ALA:CB | 2.46 | 0.63 |
| 1:A:4:LEU:HD12 | 1:A:62:ILE:HB | 1.80 | 0.63 |
| 3:F:195:ALA:HB2 | 3:F:212:LEU:HD13 | 1.81 | 0.63 |
| 1:B:67:VAL:HG22 | 1:B:75:ARG:HG2 | 1.80 | 0.63 |
| 1:A:120:GLY:O | 1:A:124:GLU:HB2 | 1.99 | 0.63 |
| 1:A:89:ILE:HD13 | 1:A:143:ARG:HG2 | 1.80 | 0.62 |
| 1:B:102:ILE:HG13 | 3:F:91:THR:HG21 | 1.80 | 0.62 |
| 1:A:11:LYS:H | 1:A:19:VAL:HG13 | 1.64 | 0.62 |
| 1:B:89:ILE:HA | 1:B:150:ARG:HH22 | 1.65 | 0.61 |
| 1:B:19:VAL:HB | 1:B:41:GLY:HA3 | 1.82 | 0.61 |
| 3:F:169:GLY:O | 3:F:200:GLN:N | 2.33 | 0.61 |
| 1:B:102:ILE:HG21 | 1:B:150:ARG:HG3 | 1.83 | 0.60 |
| 1:A:50:VAL:HG23 | 1:A:52:LEU:H | 1.67 | 0.60 |
| 2:G:207:LEU:HD22 | 2:G:208:LEU:H | 1.67 | 0.59 |
| 3:F:144:LEU:HB3 | 3:F:146:PRO:HA | 1.82 | 0.59 |
| 1:B:209:ILE:HB | 1:B:217:ALA:HB3 | 1.83 | 0.59 |
| 2:G:206:THR:OG1 | 3:F:222:PRO:O | 2.20 | 0.59 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:G:142:GLN:HE22 | 3:F:179:LYS:HD2 | 1.67 | 0.59 |
| 1:A:64:GLU:O | 1:A:64:GLU:HG2 | 2.03 | 0.59 |
| 3:F:113:VAL:O | 3:F:117:SER:HB3 | 2.03 | 0.58 |
| 3:F:122:PRO:O | 3:F:126:ASN:HB2 | 2.02 | 0.58 |
| 3:F:126:ASN:ND2 | 3:F:256:THR:O | 2.36 | 0.58 |
| 1:B:77:ARG:NH2 | 3:F:92:GLY:O | 2.34 | 0.58 |
| 1:A:19:VAL:HA | 1:A:213:GLY:HA2 | 1.83 | 0.58 |
| 1:A:182:HIS:CE1 | 1:A:186:LYS:HE3 | 2.39 | 0.58 |
| 3:F:171:LEU:N | 3:F:198:GLY:O | 2.34 | 0.57 |
| 1:B:2:ALA:N | 1:B:28:SER:HG | 2.01 | 0.57 |
| 1:B:109:LEU:HD22 | 1:B:113:GLY:HA3 | 1.85 | 0.57 |
| 1:B:208:TYR:HB3 | 1:B:215:LEU:HD11 | 1.86 | 0.57 |
| 1:B:199:GLU:N | 1:B:199:GLU:OE1 | 2.38 | 0.56 |
| 2:G:220:LEU:HG | 2:G:221:PRO:HD2 | 1.86 | 0.56 |
| 1:B:41:GLY:O | 1:B:45:CYS:HB3 | 2.05 | 0.56 |
| 1:A:161:LEU:HB3 | 1:A:164:PRO:HG3 | 1.86 | 0.56 |
| 3:F:221:ASN:OD1 | 3:F:221:ASN:N | 2.40 | 0.55 |
| 1:B:85:GLN:HB3 | 1:B:163:GLU:HB2 | 1.88 | 0.55 |
| 1:A:194:ASP:OD1 | 1:A:195:HIS:N | 2.39 | 0.55 |
| 2:G:48:ALA:O | 2:G:52:ILE:HG12 | 2.06 | 0.55 |
| 1:B:41:GLY:O | 1:B:45:CYS:HB2 | 2.06 | 0.55 |
| 3:F:131:LEU:O | 3:F:135:GLN:HG2 | 2.06 | 0.55 |
| 3:F:170:GLU:HA | 3:F:199:THR:HA | 1.87 | 0.55 |
| 3:F:184:SER:OG | 3:F:185:ASN:N | 2.39 | 0.55 |
| 1:B:94:SER:O | 1:B:98:ASN:ND2 | 2.38 | 0.54 |
| 3:F:176:ILE:O | 3:F:192:ILE:HA | 2.07 | 0.54 |
| 2:G:28:LEU:HD21 | 2:G:56:ALA:HB2 | 1.88 | 0.54 |
| 2:G:39:ILE:HG22 | 2:G:41:ALA:H | 1.73 | 0.54 |
| 3:F:198:GLY:HA2 | 3:F:212:LEU:HA | 1.89 | 0.53 |
| 1:B:6:ALA:O | 1:B:23:SER:HA | 2.08 | 0.53 |
| 1:A:104:GLU:HA | 1:A:114:ARG:HD2 | 1.91 | 0.53 |
| 2:G:140:ASP:OD1 | 2:G:140:ASP:N | 2.42 | 0.53 |
| 1:A:91:ARG:HB3 | 1:A:136:MET:HB3 | 1.90 | 0.53 |
| 1:A:102:ILE:HD11 | 1:A:154:SER:HB3 | 1.90 | 0.53 |
| 1:B:194:ASP:OD1 | 1:B:195:HIS:N | 2.41 | 0.53 |
| 3:F:157:ARG:HB2 | 3:F:178:GLN:HG2 | 1.90 | 0.52 |
| 2:G:142:GLN:NE2 | 3:F:179:LYS:HD2 | 2.25 | 0.52 |
| 1:A:47:TYR:HA | 1:A:50:VAL:HG22 | 1.92 | 0.52 |
| 3:F:136:ASP:O | 3:F:140:GLU:CB | 2.57 | 0.52 |
| 3:F:68:LEU:O | 3:F:72:ILE:HG12 | 2.10 | 0.52 |
| 1:A:110:ASP:O | 1:A:114:ARG:N | 2.37 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:G:73:LEU:HD21 | 2:G:307:GLY:HA3 | 1.91 | 0.52 |
| 3:F:165:SER:OG | 3:F:166:LYS:N | 2.43 | 0.52 |
| 2:G:177:ASP:OD1 | 2:G:181:GLY:N | 2.43 | 0.52 |
| 3:F:165:SER:HB2 | 3:F:170:GLU:HB2 | 1.90 | 0.52 |
| 2:G:311:GLY:O | 2:G:315:ARG:HB2 | 2.10 | 0.51 |
| 1:B:211:ASN:HB3 | 1:B:216:ILE:HG21 | 1.93 | 0.51 |
| 1:A:209:ILE:HD11 | 1:A:224:ILE:HD13 | 1.93 | 0.51 |
| 3:F:106:ALA:HB2 | 3:F:285:THR:HG21 | 1.92 | 0.51 |
| 3:F:135:GLN:O | 3:F:139:THR:OG1 | 2.28 | 0.51 |
| 3:F:286:LEU:HD21 | 3:F:348:LEU:HD22 | 1.93 | 0.51 |
| 1:B:183:LEU:HB3 | 1:B:190:ILE:HD11 | 1.93 | 0.50 |
| 1:A:52:LEU:HD12 | 2:G:295:LEU:HD12 | 1.94 | 0.50 |
| 3:F:335:GLY:O | 3:F:338:TRP:HB3 | 2.11 | 0.50 |
| 1:B:210:VAL:HG22 | 1:B:215:LEU:HD12 | 1.92 | 0.50 |
| 2:G:204:THR:HG23 | 2:G:217:VAL:HG22 | 1.93 | 0.50 |
| 3:F:121:ALA:HB3 | 3:F:122:PRO:HD3 | 1.94 | 0.50 |
| 3:F:157:ARG:HA | 3:F:177:SER:O | 2.12 | 0.50 |
| 1:A:10:ALA:HA | 1:A:19:VAL:HG22 | 1.94 | 0.49 |
| 2:G:180:ARG:HH12 | 3:F:196:GLU:CB | 2.25 | 0.49 |
| 1:B:35:LEU:HB2 | 1:B:209:ILE:HD13 | 1.94 | 0.49 |
| 3:F:80:TYR:CZ | 3:F:85:MET:HG2 | 2.47 | 0.49 |
| 1:B:86:GLU:HG2 | 3:F:297:ARG:NH1 | 2.28 | 0.49 |
| 2:G:149:TRP:NE1 | 3:F:158:VAL:HG21 | 2.27 | 0.49 |
| 2:G:173:ARG:HB2 | 2:G:186:SER:OG | 2.12 | 0.49 |
| 3:F:125:ILE:HG21 | 3:F:255:PRO:HB2 | 1.94 | 0.49 |
| 1:A:87:ALA:HA | 1:A:143:ARG:HH21 | 1.77 | 0.49 |
| 1:A:218:GLU:HG2 | 1:A:219:GLY:N | 2.27 | 0.49 |
| 1:B:16:ARG:HD2 | 1:B:18:VAL:HG22 | 1.95 | 0.48 |
| 3:F:70:LEU:HG | 3:F:304:LEU:HD22 | 1.96 | 0.48 |
| 1:A:183:LEU:HD23 | 1:A:190:ILE:HD11 | 1.95 | 0.48 |
| 1:A:227:ASN:O | 1:A:231:LYS:NZ | 2.37 | 0.48 |
| 1:B:161:LEU:HB3 | 1:B:164:PRO:HG3 | 1.94 | 0.48 |
| 1:A:46:PHE:O | 1:A:50:VAL:HG13 | 2.14 | 0.48 |
| 2:G:11:THR:HG21 | 2:G:79:LEU:HD13 | 1.95 | 0.48 |
| 3:F:136:ASP:O | 3:F:140:GLU:HB2 | 2.13 | 0.47 |
| 3:F:191:SER:HA | 3:F:218:TYR:O | 2.14 | 0.47 |
| 1:A:182:HIS:HE1 | 1:A:186:LYS:HE3 | 1.78 | 0.47 |
| 1:A:208:TYR:HB3 | 1:A:215:LEU:HD11 | 1.97 | 0.47 |
| 2:G:16:ILE:HG12 | 2:G:71:GLY:HA3 | 1.96 | 0.47 |
| 2:G:141:SER:HA | 2:G:187:PHE:HE2 | 1.78 | 0.47 |
| 2:G:176:PHE:HE1 | 2:G:182:LEU:HD12 | 1.80 | 0.47 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 3:F:295:ASN:N | 3:F:296:PRO:HD2 | 2.30 | 0.47 |
| 2:G:171:VAL:HB | 2:G:188:ALA:HB3 | 1.96 | 0.47 |
| 2:G:256:LEU:HB3 | 2:G:261:LEU:HB3 | 1.96 | 0.46 |
| 2:G:133:ALA:O | 2:G:138:GLY:N | 2.48 | 0.46 |
| 1:B:4:LEU:HB3 | 1:B:26:ILE:HG23 | 1.97 | 0.46 |
| 2:G:73:LEU:CD2 | 2:G:307:GLY:HA3 | 2.45 | 0.46 |
| 1:A:205:GLU:O | 1:A:220:ASP:HA | 2.16 | 0.46 |
| 3:F:214:ASN:HA | 3:F:233:ASP:HA | 1.97 | 0.46 |
| 1:B:177:LYS:HD3 | 1:B:203:ILE:HD12 | 1.97 | 0.46 |
| 1:A:11:LYS:N | 1:A:19:VAL:HG13 | 2.30 | 0.46 |
| 1:A:4:LEU:CD1 | 1:A:80:ILE:HD11 | 2.46 | 0.46 |
| 3:F:52:MET:O | 3:F:56:ILE:HG13 | 2.16 | 0.45 |
| 3:F:107:LEU:O | 3:F:111:ILE:HG12 | 2.15 | 0.45 |
| 3:F:353:TRP:O | 3:F:356:LEU:HG | 2.16 | 0.45 |
| 3:F:158:VAL:O | 3:F:176:ILE:HA | 2.15 | 0.45 |
| 1:A:113:GLY:HA2 | 1:A:116:GLU:OE1 | 2.17 | 0.45 |
| 3:F:354:GLU:OE2 | 3:F:354:GLU:N | 2.50 | 0.45 |
| 1:B:218:GLU:HG2 | 1:B:219:GLY:N | 2.32 | 0.45 |
| 2:G:317:ALA:O | 2:G:321:LEU:HB2 | 2.16 | 0.45 |
| 2:G:264:ASN:HB3 | 2:G:326:LEU:HG | 1.99 | 0.45 |
| 3:F:171:LEU:HB2 | 3:F:174:ILE:HD11 | 1.99 | 0.45 |
| 2:G:118:GLU:HG3 | 2:G:246:ILE:HG13 | 1.98 | 0.45 |
| 2:G:176:PHE:HD1 | 2:G:182:LEU:HA | 1.82 | 0.45 |
| 1:B:180:ILE:HG23 | 1:B:190:ILE:HD13 | 1.99 | 0.45 |
| 3:F:132:LEU:O | 3:F:136:ASP:CB | 2.53 | 0.45 |
| 2:G:70:ILE:O | 2:G:74:VAL:HG23 | 2.17 | 0.45 |
| 3:F:221:ASN:HB2 | 3:F:224:GLN:HG3 | 1.98 | 0.45 |
| 2:G:229:LEU:HD12 | 2:G:229:LEU:HA | 1.90 | 0.44 |
| 1:A:27:ASP:O | 1:A:30:GLN:HG2 | 2.18 | 0.44 |
| 1:B:129:HIS:ND1 | 1:B:130:ILE:HG23 | 2.33 | 0.44 |
| 1:A:207:ALA:O | 1:A:218:GLU:HA | 2.18 | 0.44 |
| 1:A:11:LYS:HB2 | 1:A:48:MET:SD | 2.58 | 0.44 |
| 2:G:197:HIS:CD2 | 2:G:223:GLU:HG2 | 2.53 | 0.44 |
| 1:B:92:LYS:HB2 | 3:F:6:TYR:CE1 | 2.53 | 0.43 |
| 1:A:158:PHE:CD1 | 1:A:189:GLY:HA3 | 2.53 | 0.43 |
| 3:F:161:THR:HG22 | 3:F:163:GLU:H | 1.83 | 0.43 |
| 1:B:173:VAL:O | 1:B:177:LYS:HG2 | 2.18 | 0.43 |
| 3:F:144:LEU:HD11 | 3:F:150:GLN:HB2 | 2.01 | 0.43 |
| 1:B:128:HIS:CD2 | 1:B:131:ARG:HH21 | 2.36 | 0.43 |
| 3:F:321:VAL:HG11 | 3:F:339:VAL:HG21 | 2.01 | 0.43 |
| 1:B:38:ASN:OD1 | 1:B:38:ASN:N | 2.52 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 2:G:110:MET:HB3 | 2:G:277:PRO:HG3 | 1.99 | 0.43 |
| 1:A:76:ALA:HA | 1:A:80:ILE:O | 2.18 | 0.43 |
| 1:A:97:ASP:O | 1:A:101:ALA:HB2 | 2.18 | 0.43 |
| 3:F:15:MET:HG3 | 3:F:16:SER:N | 2.33 | 0.43 |
| 3:F:273:TRP:HA | 3:F:276:SER:HB3 | 2.01 | 0.43 |
| 1:A:230:VAL:O | 1:A:235:LEU:N | 2.40 | 0.43 |
| 2:G:142:GLN:OE1 | 3:F:179:LYS:HB2 | 2.18 | 0.43 |
| 2:G:151:ARG:HB2 | 3:F:149:PHE:HZ | 1.84 | 0.43 |
| 1:B:91:ARG:HE | 1:B:136:MET:HB3 | 1.84 | 0.42 |
| 1:B:37:PRO:HD2 | 1:B:210:VAL:O | 2.19 | 0.42 |
| 1:B:184:LYS:HE2 | 1:B:184:LYS:HB3 | 1.92 | 0.42 |
| 1:A:14:LYS:HD3 | 1:A:14:LYS:HA | 1.71 | 0.42 |
| 1:B:7:GLN:CG | 1:B:59:VAL:HB | 2.50 | 0.42 |
| 1:A:36:GLY:O | 1:A:42:LYS:HE2 | 2.19 | 0.42 |
| 1:B:7:GLN:H | 1:B:7:GLN:HG2 | 1.67 | 0.42 |
| 2:G:1:MET:HG2 | 2:G:97:ARG:HD3 | 2.02 | 0.42 |
| 1:B:37:PRO:HG2 | 1:B:40:ALA:HB2 | 2.01 | 0.42 |
| 1:B:104:GLU:OE2 | 3:F:1:MET:N | 2.45 | 0.42 |
| 1:A:41:GLY:O | 1:A:45:CYS:HB2 | 2.20 | 0.42 |
| 2:G:331:PRO:HA | 2:G:332:PRO:HD3 | 1.91 | 0.42 |
| 1:A:67:VAL:HB | 1:A:75:ARG:HG2 | 2.00 | 0.42 |
| 1:A:227:ASN:HB3 | 1:A:230:VAL:HG22 | 2.02 | 0.42 |
| 3:F:104:ALA:HB3 | 3:F:105:PRO:HD3 | 2.02 | 0.42 |
| 1:B:119:GLU:OE1 | 1:B:131:ARG:NH2 | 2.52 | 0.41 |
| 2:G:157:ILE:HA | 2:G:172:THR:O | 2.19 | 0.41 |
| 2:G:326:LEU:HA | 2:G:326:LEU:HD13 | 1.75 | 0.41 |
| 1:A:88:SER:O | 1:A:150:ARG:NH2 | 2.49 | 0.41 |
| 2:G:12:VAL:HG21 | 2:G:102:VAL:HG13 | 2.03 | 0.41 |
| 1:A:97:ASP:O | 1:A:101:ALA:CB | 2.69 | 0.41 |
| 1:A:208:TYR:HD2 | 1:A:215:LEU:HD21 | 1.84 | 0.41 |
| 2:G:76:LEU:HD11 | 2:G:102:VAL:HG21 | 2.02 | 0.41 |
| 3:F:221:ASN:O | 3:F:227:TYR:HE1 | 2.04 | 0.41 |
| 1:A:4:LEU:HB3 | 1:A:26:ILE:HG23 | 2.01 | 0.41 |
| 1:A:84:PRO:HA | 1:A:162:ASP:HB3 | 2.03 | 0.41 |
| 3:F:36:ALA:O | 3:F:40:GLN:HG3 | 2.20 | 0.41 |
| 3:F:72:ILE:O | 3:F:76:TYR:HB2 | 2.21 | 0.41 |
| 1:B:127:ILE:HG22 | 1:B:145:ARG:HH21 | 1.86 | 0.41 |
| 1:B:168:VAL:HG13 | 1:B:172:SER:HB2 | 2.01 | 0.41 |
| 3:F:72:ILE:HG12 | 3:F:72:ILE:H | 1.60 | 0.41 |
| 3:F:134:LYS:O | 3:F:137:THR:HG22 | 2.21 | 0.41 |
| 1:B:18:VAL:O | 1:B:213:GLY:HA2 | 2.21 | 0.41 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:159:ILE:HB | 1:A:190:ILE:HD13 | 2.01 | 0.41 |
| 1:B:97:ASP:O | 1:B:101:ALA:HB2 | 2.21 | 0.41 |
| 2:G:156:TYR:HB2 | 2:G:174:TYR:HB2 | 2.02 | 0.41 |
| 1:B:46:PHE:HE1 | 1:B:191:LEU:HD22 | 1.86 | 0.41 |
| 3:F:212:LEU:HD11 | 3:F:232:TYR:OH | 2.21 | 0.41 |
| 1:B:170:PRO:O | 1:B:173:VAL:HG22 | 2.22 | 0.40 |
| 1:A:12:SER:HB3 | 1:A:17:GLN:HE21 | 1.86 | 0.40 |
| 2:G:176:PHE:CE1 | 2:G:182:LEU:HD12 | 2.56 | 0.40 |
| 2:G:231:PRO:O | 2:G:235:ASN:HB2 | 2.21 | 0.40 |
| 1:B:7:GLN:HG2 | 1:B:59:VAL:HB | 2.02 | 0.40 |
| 1:A:26:ILE:HD11 | 1:A:190:ILE:N | 2.36 | 0.40 |
| 2:G:12:VAL:HG21 | 2:G:102:VAL:HG22 | 2.03 | 0.40 |
| 3:F:109:VAL:O | 3:F:113:VAL:HG23 | 2.21 | 0.40 |
| 1:A:209:ILE:HB | 1:A:217:ALA:HB3 | 2.03 | 0.40 |
| 2:G:54:LEU:HD13 | 2:G:54:LEU:HA | 1.91 | 0.40 |
| 2:G:347:GLY:O | 2:G:351:LEU:HG | 2.21 | 0.40 |
| 2:G:182:LEU:HD23 | 2:G:207:LEU:HD23 | 2.04 | 0.40 |
| 1:B:230:VAL:HG12 | 1:B:235:LEU:HD13 | 2.03 | 0.40 |
| 2:G:28:LEU:HD12 | 2:G:59:ARG:HD2 | 2.03 | 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:112:ASN:ND2 | 2:G:262:ASN:OD1[2_455] | 2.18 | 0.02 |

## 5.3 Torsion angles ⓘ

### 5.3.1 Protein backbone ⓘ

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 1 | A | 237/247 (96%) | 233 (98%) | 3 (1%) | 1 (0%) | 34 | 70 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|---|---|---|---|---|---|---|---|
| 1 | B | 237/247 (96%) | 231 (98%) | 6 (2%) | 0 | 100 | 100 |
| 2 | G | 347/355 (98%) | 328 (94%) | 17 (5%) | 2 (1%) | 25 | 62 |
| 3 | F | 345/362 (95%) | 318 (92%) | 23 (7%) | 4 (1%) | 13 | 48 |
| All | All | 1166/1211 (96%) | 1110 (95%) | 49 (4%) | 7 (1%) | 25 | 62 |

All (7) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 3 | F | 153 | ARG |
| 3 | F | 240 | PRO |
| 1 | A | 237 | HIS |
| 2 | G | 221 | PRO |
| 2 | G | 195 | THR |
| 3 | F | 146 | PRO |
| 3 | F | 299 | GLY |

### 5.3.2 Protein sidechains ⓘ

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 | 196/204 (96%) | 182 (93%) | 14 (7%) | 14 | 46 |
| 1 | B | 196/204 (96%) | 185 (94%) | 11 (6%) | 21 | 53 |
| 2 | G | 287/290 (99%) | 264 (92%) | 23 (8%) | 12 | 40 |
| 3 | F | 292/302 (97%) | 264 (90%) | 28 (10%) | 8 | 32 |
| All | All | 971/1000 (97%) | 895 (92%) | 76 (8%) | 12 | 41 |

All (76) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | B | 7 | GLN |
| 1 | B | 13 | TYR |
| 1 | B | 19 | VAL |
| 1 | B | 20 | ARG |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | B | 38 | ASN |
| 1 | B | 42 | LYS |
| 1 | B | 54 | GLN |
| 1 | B | 63 | ASP |
| 1 | B | 110 | ASP |
| 1 | B | 111 | ARG |
| 1 | B | 186 | LYS |
| 1 | A | 7 | GLN |
| 1 | A | 8 | HIS |
| 1 | A | 13 | TYR |
| 1 | A | 19 | VAL |
| 1 | A | 20 | ARG |
| 1 | A | 21 | ASP |
| 1 | A | 42 | LYS |
| 1 | A | 54 | GLN |
| 1 | A | 57 | GLN |
| 1 | A | 64 | GLU |
| 1 | A | 107 | SER |
| 1 | A | 116 | GLU |
| 1 | A | 157 | LYS |
| 1 | A | 235 | LEU |
| 2 | G | 29 | LEU |
| 2 | G | 37 | ASN |
| 2 | G | 43 | TYR |
| 2 | G | 54 | LEU |
| 2 | G | 63 | MET |
| 2 | G | 118 | GLU |
| 2 | G | 123 | TRP |
| 2 | G | 140 | ASP |
| 2 | G | 142 | GLN |
| 2 | G | 146 | ARG |
| 2 | G | 163 | GLN |
| 2 | G | 182 | LEU |
| 2 | G | 183 | GLU |
| 2 | G | 197 | HIS |
| 2 | G | 209 | HIS |
| 2 | G | 223 | GLU |
| 2 | G | 224 | ARG |
| 2 | G | 254 | HIS |
| 2 | G | 256 | LEU |
| 2 | G | 315 | ARG |
| 2 | G | 326 | LEU |

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| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 2 | G | 341 | SER |
| 2 | G | 353 | ARG |
| 3 | F | 15 | MET |
| 3 | F | 69 | PHE |
| 3 | F | 72 | ILE |
| 3 | F | 112 | LEU |
| 3 | F | 117 | SER |
| 3 | F | 126 | ASN |
| 3 | F | 135 | GLN |
| 3 | F | 142 | ASP |
| 3 | F | 150 | GLN |
| 3 | F | 154 | ASP |
| 3 | F | 160 | TYR |
| 3 | F | 180 | ASP |
| 3 | F | 186 | GLN |
| 3 | F | 187 | GLU |
| 3 | F | 188 | ARG |
| 3 | F | 203 | GLN |
| 3 | F | 216 | TYR |
| 3 | F | 217 | ARG |
| 3 | F | 221 | ASN |
| 3 | F | 263 | ASP |
| 3 | F | 274 | ARG |
| 3 | F | 302 | LEU |
| 3 | F | 303 | LYS |
| 3 | F | 314 | TYR |
| 3 | F | 329 | LYS |
| 3 | F | 332 | MET |
| 3 | F | 336 | LEU |
| 3 | F | 353 | TRP |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | A | 182 | HIS |

### 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 | 239/247 (96%) | 0.54 | 23 (9%) | 8 | 10 | 103, 144, 182, 206 | 0 |
| 1 | B | 239/247 (96%) | 0.55 | 20 (8%) | 11 | 13 | 100, 137, 163, 193 | 0 |
| 2 | G | 351/355 (98%) | 0.70 | 52 (14%) | 2 | 3 | 83, 143, 190, 220 | 0 |
| 3 | F | 351/362 (96%) | 0.41 | 39 (11%) | 5 | 7 | 93, 150, 209, 230 | 0 |
| All | All | 1180/1211 (97%) | 0.55 | 134 (11%) | 5 | 7 | 83, 143, 194, 230 | 0 |

All (134) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 2 | G | 228 | GLN | 9.0 |
| 1 | B | 54 | GLN | 8.8 |
| 2 | G | 223 | GLU | 8.3 |
| 2 | G | 226 | ASP | 8.2 |
| 3 | F | 160 | TYR | 7.4 |
| 2 | G | 165 | ASN | 6.7 |
| 1 | B | 215 | LEU | 6.5 |
| 2 | G | 224 | ARG | 6.5 |
| 3 | F | 334 | ILE | 6.1 |
| 3 | F | 298 | GLN | 5.9 |
| 2 | G | 225 | TRP | 5.5 |
| 2 | G | 331 | PRO | 4.9 |
| 3 | F | 161 | THR | 4.7 |
| 3 | F | 209 | TYR | 4.7 |
| 2 | G | 219 | LYS | 4.6 |
| 2 | G | 222 | THR | 4.6 |
| 1 | B | 55 | ALA | 4.5 |
| 3 | F | 240 | PRO | 4.4 |
| 3 | F | 335 | GLY | 4.4 |
| 1 | B | 216 | ILE | 4.4 |
| 2 | G | 175 | ARG | 4.3 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 3 | F | 239 | LEU | 4.3 |
| 3 | F | 174 | ILE | 4.2 |
| 1 | A | 23 | SER | 4.2 |
| 1 | B | 24 | MET | 4.0 |
| 1 | B | 41 | GLY | 4.0 |
| 1 | A | 15 | GLY | 4.0 |
| 1 | B | 208 | TYR | 4.0 |
| 3 | F | 299 | GLY | 3.9 |
| 2 | G | 91 | ALA | 3.9 |
| 2 | G | 81 | SER | 3.9 |
| 1 | A | 233 | VAL | 3.9 |
| 2 | G | 229 | LEU | 3.7 |
| 2 | G | 210 | PRO | 3.6 |
| 1 | A | 232 | GLU | 3.6 |
| 2 | G | 297 | SER | 3.5 |
| 2 | G | 156 | TYR | 3.5 |
| 1 | B | 209 | ILE | 3.5 |
| 2 | G | 198 | TRP | 3.4 |
| 2 | G | 334 | LEU | 3.4 |
| 3 | F | 50 | LEU | 3.4 |
| 1 | A | 118 | LEU | 3.3 |
| 2 | G | 157 | ILE | 3.3 |
| 2 | G | 351 | LEU | 3.2 |
| 3 | F | 238 | MET | 3.2 |
| 3 | F | 45 | PRO | 3.1 |
| 1 | B | 153 | ALA | 3.1 |
| 3 | F | 332 | MET | 3.1 |
| 1 | A | 125 | PHE | 3.1 |
| 2 | G | 123 | TRP | 3.1 |
| 1 | A | 62 | ILE | 3.0 |
| 3 | F | 338 | TRP | 3.0 |
| 3 | F | 42 | LEU | 3.0 |
| 1 | A | 230 | VAL | 3.0 |
| 1 | B | 59 | VAL | 3.0 |
| 2 | G | 332 | PRO | 3.0 |
| 1 | A | 64 | GLU | 2.9 |
| 1 | A | 127 | ILE | 2.9 |
| 1 | A | 57 | GLN | 2.9 |
| 3 | F | 49 | PHE | 2.9 |
| 3 | F | 153 | ARG | 2.9 |
| 2 | G | 217 | VAL | 2.9 |
| 1 | B | 218 | GLU | 2.8 |

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| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 3 | F | 54 | PHE | 2.8 |
| 1 | B | 217 | ALA | 2.8 |
| 3 | F | 261 | GLY | 2.8 |
| 3 | F | 195 | ALA | 2.8 |
| 3 | F | 271 | LEU | 2.8 |
| 3 | F | 149 | PHE | 2.8 |
| 1 | B | 69 | HIS | 2.8 |
| 2 | G | 349 | TRP | 2.7 |
| 1 | A | 14 | LYS | 2.7 |
| 3 | F | 358 | LEU | 2.7 |
| 2 | G | 202 | GLU | 2.7 |
| 2 | G | 90 | ALA | 2.7 |
| 2 | G | 174 | TYR | 2.6 |
| 2 | G | 192 | ARG | 2.6 |
| 2 | G | 120 | VAL | 2.6 |
| 2 | G | 199 | GLN | 2.6 |
| 2 | G | 216 | GLU | 2.6 |
| 3 | F | 196 | GLU | 2.6 |
| 3 | F | 296 | PRO | 2.6 |
| 1 | B | 210 | VAL | 2.5 |
| 2 | G | 335 | ALA | 2.5 |
| 1 | A | 162 | ASP | 2.5 |
| 3 | F | 76 | TYR | 2.5 |
| 1 | A | 85 | GLN | 2.5 |
| 2 | G | 82 | ASN | 2.5 |
| 3 | F | 272 | GLN | 2.5 |
| 3 | F | 297 | ARG | 2.5 |
| 1 | A | 217 | ALA | 2.5 |
| 3 | F | 336 | LEU | 2.5 |
| 1 | B | 44 | THR | 2.5 |
| 2 | G | 336 | VAL | 2.4 |
| 2 | G | 80 | ALA | 2.4 |
| 3 | F | 47 | SER | 2.4 |
| 1 | A | 29 | GLY | 2.4 |
| 2 | G | 154 | ARG | 2.4 |
| 2 | G | 285 | LEU | 2.3 |
| 1 | B | 22 | VAL | 2.3 |
| 2 | G | 205 | THR | 2.3 |
| 2 | G | 214 | ARG | 2.3 |
| 2 | G | 233 | LEU | 2.3 |
| 2 | G | 203 | VAL | 2.3 |
| 2 | G | 195 | THR | 2.3 |

*Continued from previous page...*

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 1 | B | 7 | GLN | 2.3 |
| 3 | F | 93 | MET | 2.3 |
| 1 | A | 8 | HIS | 2.3 |
| 3 | F | 148 | ARG | 2.2 |
| 2 | G | 53 | PHE | 2.2 |
| 2 | G | 150 | HIS | 2.2 |
| 2 | G | 218 | VAL | 2.2 |
| 1 | A | 21 | ASP | 2.2 |
| 2 | G | 147 | GLY | 2.2 |
| 3 | F | 68 | LEU | 2.2 |
| 3 | F | 242 | PRO | 2.2 |
| 1 | A | 235 | LEU | 2.2 |
| 2 | G | 330 | PHE | 2.1 |
| 2 | G | 145 | LYS | 2.1 |
| 1 | B | 34 | LEU | 2.1 |
| 3 | F | 51 | ILE | 2.1 |
| 1 | A | 82 | TYR | 2.1 |
| 2 | G | 45 | ILE | 2.1 |
| 1 | A | 227 | ASN | 2.1 |
| 1 | A | 152 | LEU | 2.1 |
| 1 | B | 45 | CYS | 2.0 |
| 1 | B | 121 | LEU | 2.0 |
| 2 | G | 268 | LEU | 2.0 |
| 3 | F | 171 | LEU | 2.0 |
| 3 | F | 64 | LEU | 2.0 |
| 2 | G | 144 | SER | 2.0 |
| 2 | G | 99 | VAL | 2.0 |
| 1 | A | 58 | GLY | 2.0 |
| 3 | F | 275 | LEU | 2.0 |

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

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

## 6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

## 6.4 Ligands ⓘ

There are no ligands in this entry.

## 6.5 Other polymers (i)

There are no such residues in this entry.