# Full wwPDB X-ray Structure Validation Report ⓘ

Apr 29, 2024 – 10:54 pm BST

| | | |
|---|---|---|
| PDB ID | : | 2BIX |
| Title | : | Crystal structure of apocarotenoid cleavage oxygenase from Synechocystis, Fe-free apoenzyme |
| Authors | : | Kloer, D.P.; Ruch, S.; Al-Babili, S.; Beyer, P.; Schulz, G.E. |
| Deposited on | : | 2005-01-26 |
| Resolution | : | 2.68 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:

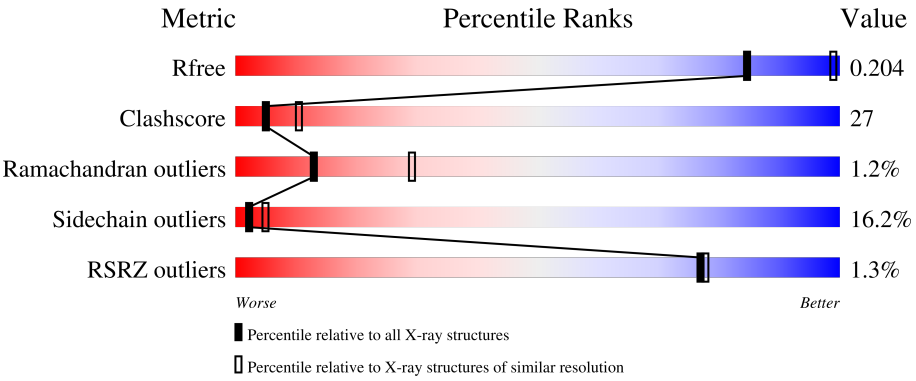
| | | |
|---|---|---|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 1.8.4, CSD as541be (2020) |
| Xtriage (Phenix) | : | 1.13 |
| EDS | : | 2.36.2 |
| buster-report | : | 1.1.7 (2018) |
| Percentile statistics | : | 20191225.v01 (using entries in the PDB archive December 25th 2019) |
| Refmac | : | 5.8.0158 |
| CCP4 | : | 7.0.044 (Gargrove) |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | 2.36.2 |

# 1 Overall quality at a glance (i)

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

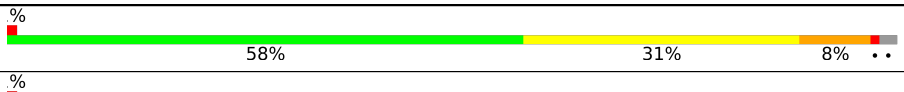
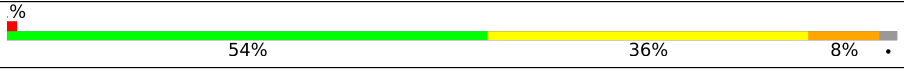
The reported resolution of this entry is 2.68 Å.

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 | 3863 (2.70-2.66) |
| Clashscore | 141614 | 4210 (2.70-2.66) |
| Ramachandran outliers | 138981 | 4141 (2.70-2.66) |
| Sidechain outliers | 138945 | 4141 (2.70-2.66) |
| RSRZ outliers | 127900 | 3780 (2.70-2.66) |

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 | 490 |   |
| 1 | B | 490 |   |

## 2 Entry composition

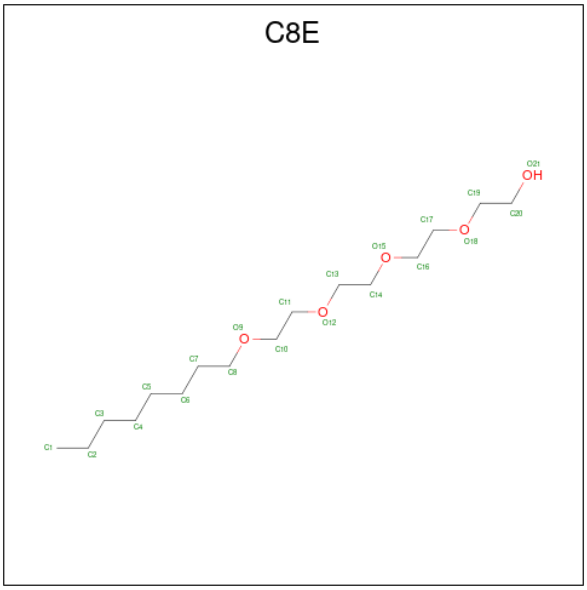
There are 4 unique types of molecules in this entry. The entry contains 7702 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 APOCAROTENOID-CLEAVING OXYGENASE.

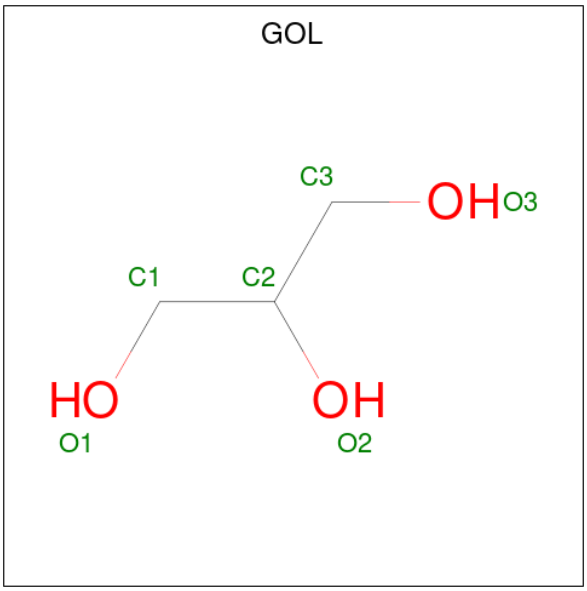
| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | A | 479 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 3767 | 2417 | 650 | 690 | 10 | | | |
| 1 | B | 479 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 3767 | 2417 | 650 | 690 | 10 | | | |

- Molecule 2 is (HYDROXYETHYLOXY)TRI(ETHYLOXY)OCTANE (three-letter code: C8E) (formula: $C_{16}H_{34}O_5$).




| Mol | Chain | Residues | Atoms | | | ZeroOcc | AltConf |
|---|---|---|---|---|---|---|---|
| 2 | A | 1 | Total | C | O | 0 | 0 |
| | | | 21 | 16 | 5 | | |
| 2 | B | 1 | Total | C | O | 0 | 0 |
| | | | 21 | 16 | 5 | | |

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).




| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 3 | A | 1 | Total C O<br>6 3 3 | 0 | 0 |
| 3 | A | 1 | Total C O<br>6 3 3 | 0 | 0 |

- Molecule 4 is water.

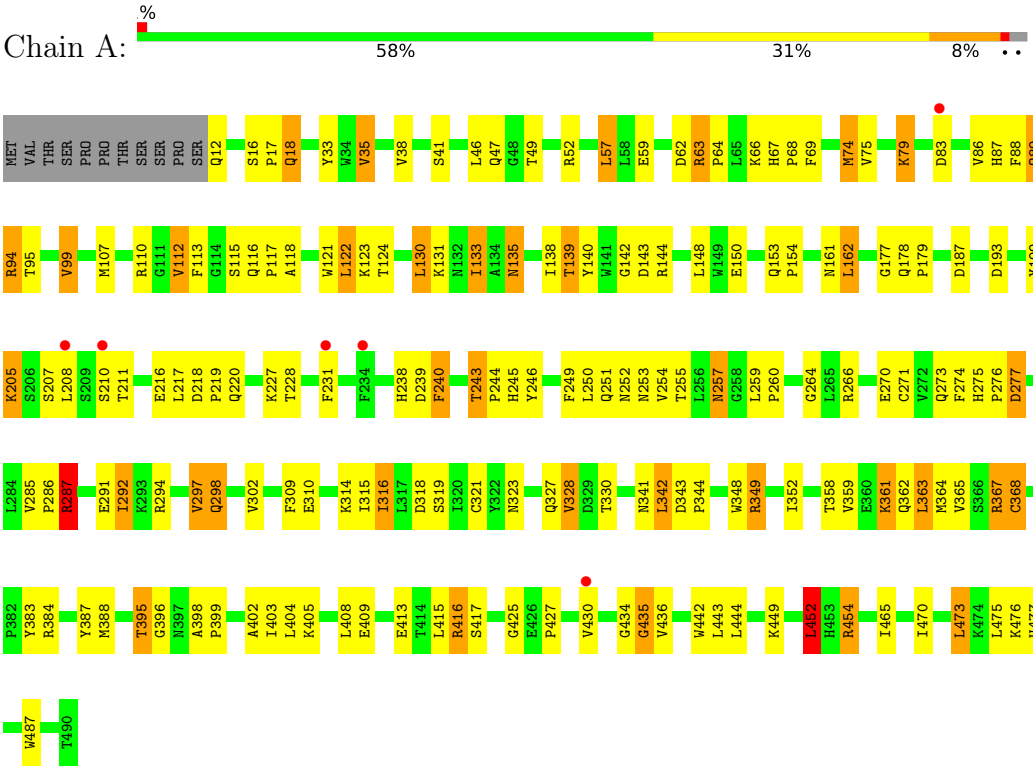
| Mol | Chain | Residues | Atoms | ZeroOcc | AltConf |
|---|---|---|---|---|---|
| 4 | A | 47 | Total O<br>47 47 | 0 | 0 |
| 4 | B | 67 | Total O<br>67 67 | 0 | 0 |

# 3 Residue-property plots (i)

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

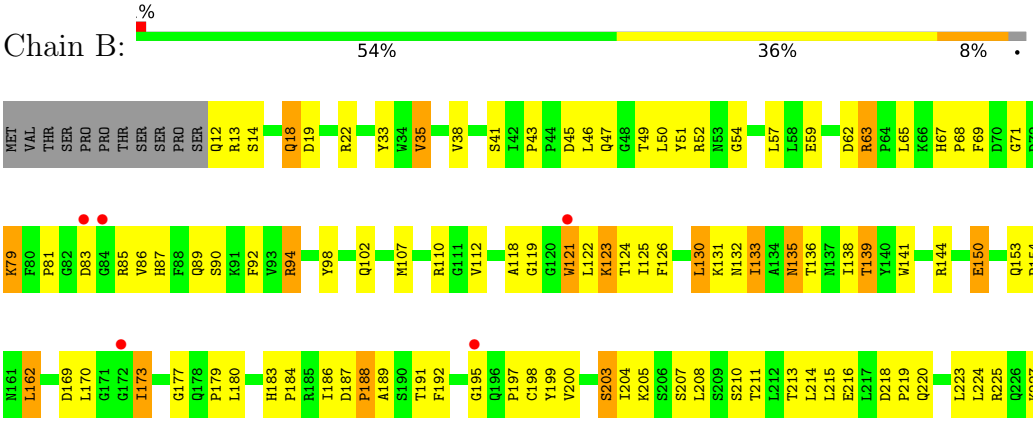
• Molecule 1: APOCAROTENOID-CLEAVING OXYGENASE

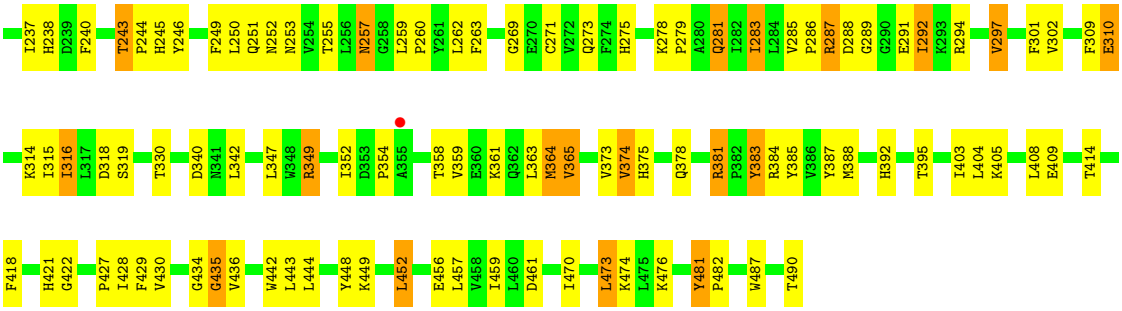
Chain A:




• Molecule 1: APOCAROTENOID-CLEAVING OXYGENASE

Chain B:




I237 H238 D239 F240 T243 P244 H245 Y246 F249 L250 Q251 N252 N253 V254 T255 L256 N257 G258 L259 P260 Y261 L262 F263 G269 E270 C271 V272 Q273 F274 H275 K278 P279 A280 Q281 I282 I283 L284 V285 P286 R287 D288 G289 G290 E291 I292 K293 R294 V297 F301 V302 F309 E310
K314 I315 I316 L317 D318 S319 T330 D340 N341 L342 L347 W348 R349 I352 D353 P354 A355 T358 V359 E360 K361 Q362 L363 M364 V365 V373 V374 H375 Q378 R381 P382 Y383 R384 Y385 V386 Y387 M388 H392 T395 I403 L404 K405 L408 E409 T414
F418 H421 G422 P427 I428 F429 V430 G434 G435 V436 W442 L443 L444 Y448 K449 L452 E456 L457 V458 I459 L460 D461 I470 L473 K474 L475 K476 Y481 P482 W487 T490

# 4 Data and refinement statistics (i)

| Property | Value | Source |
|---|---|---|
| Space group | P 41 21 2 | Depositor |
| Cell constants<br>a, b, c, $\alpha$, $\beta$, $\gamma$ | 122.93Å 122.93Å 205.56Å<br>90.00° 90.00° 90.00° | Depositor |
| Resolution (Å) | 47.14 – 2.68<br>45.75 – 2.68 | Depositor<br>EDS |
| % Data completeness<br>(in resolution range) | (Not available) (47.14-2.68)<br>98.7 (45.75-2.68) | Depositor<br>EDS |
| $R_{merge}$ | 0.06 | Depositor |
| $R_{sym}$ | (Not available) | Depositor |
| $< I/\sigma(I) >$ [1] | 3.90 (at 2.69Å) | Xtriage |
| Refinement program | TNT 5.6.1 | Depositor |
| R, $R_{free}$ | 0.210 , 0.243<br>0.209 , 0.204 | Depositor<br>DCC |
| $R_{free}$ test set | 2250 reflections (5.07%) | wwPDB-VP |
| Wilson B-factor (Å$^2$) | 58.0 | Xtriage |
| Anisotropy | 0.075 | Xtriage |
| Bulk solvent $k_{sol}$(e/Å$^3$), $B_{sol}$(Å$^2$) | 0.32 , 45.5 | EDS |
| L-test for twinning[2] | $< \|L\| > = 0.48$, $< L^2 > = 0.32$ | Xtriage |
| Estimated twinning fraction | No twinning to report. | Xtriage |
| $F_o$,$F_c$ correlation | 0.94 | EDS |
| Total number of atoms | 7702 | wwPDB-VP |
| Average B, all atoms (Å$^2$) | 53.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.90% 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

## 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: C8E, GOL

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 | 0.48 | 1/3880 (0.0%) | 0.73 | 3/5285 (0.1%) |
| 1 | B | 0.45 | 0/3880 | 0.72 | 3/5285 (0.1%) |
| All | All | 0.46 | 1/7760 (0.0%) | 0.72 | 6/10570 (0.1%) |

All (1) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|---|---|---|---|---|---|---|---|
| 1 | A | 74 | MET | SD-CE | 5.06 | 2.06 | 1.77 |

All (6) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 1 | A | 283 | ILE | CG1-CB-CG2 | -6.85 | 96.33 | 111.40 |
| 1 | A | 452 | LEU | N-CA-C | -6.53 | 93.38 | 111.00 |
| 1 | A | 133 | ILE | N-CA-C | -6.46 | 93.54 | 111.00 |
| 1 | B | 452 | LEU | N-CA-C | -5.38 | 96.47 | 111.00 |
| 1 | B | 133 | ILE | N-CA-C | -5.21 | 96.94 | 111.00 |
| 1 | B | 395 | THR | N-CA-C | 5.13 | 124.85 | 111.00 |

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 | 3767 | 0 | 3659 | 200 | 0 |
| 1 | B | 3767 | 0 | 3659 | 207 | 0 |
| 2 | A | 21 | 0 | 34 | 7 | 0 |
| 2 | B | 21 | 0 | 34 | 3 | 0 |
| 3 | A | 12 | 0 | 16 | 0 | 0 |
| 4 | A | 47 | 0 | 0 | 2 | 0 |
| 4 | B | 67 | 0 | 0 | 5 | 0 |
| All | All | 7702 | 0 | 7402 | 407 | 0 |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 27.

All (407) 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:A:74:MET:SD | 1:A:74:MET:CE | 2.06 | 1.42 |
| 1:B:384:ARG:HG3 | 1:B:409:GLU:HG3 | 1.29 | 1.14 |
| 1:B:218:ASP:HB3 | 1:B:224:LEU:HD21 | 1.36 | 1.07 |
| 1:A:287:ARG:HG2 | 1:A:287:ARG:HH11 | 1.15 | 1.04 |
| 1:B:349:ARG:HG3 | 1:B:349:ARG:HH11 | 1.24 | 1.00 |
| 1:B:243:THR:HG22 | 1:B:246:TYR:H | 1.24 | 0.99 |
| 1:B:67:HIS:HD2 | 1:B:69:PHE:H | 1.06 | 0.96 |
| 1:B:430:VAL:HG13 | 1:B:487:TRP:NE1 | 1.83 | 0.93 |
| 1:A:35:VAL:HG13 | 1:A:86:VAL:HG13 | 1.50 | 0.93 |
| 1:A:416:ARG:HG3 | 1:A:416:ARG:HH11 | 1.33 | 0.92 |
| 1:B:110:ARG:HD3 | 1:B:124:THR:HG22 | 1.52 | 0.92 |
| 1:B:403:ILE:HD13 | 1:B:418:PHE:HE1 | 1.34 | 0.92 |
| 1:A:63:ARG:HH11 | 1:A:118:ALA:HB2 | 1.32 | 0.91 |
| 1:A:67:HIS:HD2 | 1:A:69:PHE:H | 1.03 | 0.91 |
| 1:A:454:ARG:HG2 | 1:A:454:ARG:HH11 | 1.35 | 0.89 |
| 1:A:281:GLN:HG2 | 1:A:294:ARG:NH1 | 1.88 | 0.88 |
| 1:A:35:VAL:CG1 | 1:A:86:VAL:HG13 | 2.06 | 0.85 |
| 1:A:349:ARG:HG3 | 1:A:349:ARG:HH11 | 1.43 | 0.84 |
| 1:B:246:TYR:CD1 | 1:B:315:ILE:HD11 | 2.12 | 0.84 |
| 1:A:67:HIS:CD2 | 1:A:69:PHE:H | 1.93 | 0.84 |
| 1:B:287:ARG:HH11 | 1:B:287:ARG:HG2 | 1.42 | 0.83 |
| 1:B:214:LEU:HD12 | 1:B:215:LEU:H | 1.44 | 0.82 |
| 1:B:283:ILE:HG22 | 1:B:292:ILE:CD1 | 2.10 | 0.82 |
| 1:B:430:VAL:HG21 | 1:B:444:LEU:HD11 | 1.62 | 0.81 |
| 1:A:430:VAL:HG13 | 1:A:487:TRP:NE1 | 1.96 | 0.80 |
| 1:B:12:GLN:HG3 | 1:B:13:ARG:H | 1.48 | 0.79 |
| 1:A:281:GLN:HG2 | 1:A:294:ARG:CZ | 2.14 | 0.78 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:287:ARG:HG2 | 1:A:287:ARG:NH1 | 1.91 | 0.78 |
| 1:A:287:ARG:HH11 | 1:A:287:ARG:CG | 1.97 | 0.76 |
| 1:B:384:ARG:CG | 1:B:409:GLU:HG3 | 2.13 | 0.76 |
| 1:B:46:LEU:HD12 | 1:B:430:VAL:HG11 | 1.66 | 0.76 |
| 1:A:430:VAL:HG13 | 1:A:487:TRP:CE2 | 2.19 | 0.76 |
| 1:B:309:PHE:CZ | 1:B:316:ILE:HG12 | 2.21 | 0.76 |
| 1:B:364:MET:CE | 1:B:408:LEU:HD22 | 2.16 | 0.75 |
| 1:B:67:HIS:CD2 | 1:B:68:PRO:HD2 | 2.22 | 0.74 |
| 1:A:309:PHE:CZ | 1:A:316:ILE:HG12 | 2.23 | 0.74 |
| 1:B:112:VAL:HG13 | 4:B:2013:HOH:O | 1.88 | 0.74 |
| 1:A:67:HIS:CD2 | 1:A:68:PRO:HD2 | 2.24 | 0.73 |
| 1:A:250:LEU:HD13 | 1:A:302:VAL:HG11 | 1.69 | 0.73 |
| 1:B:384:ARG:HD3 | 1:B:385:TYR:CZ | 2.24 | 0.73 |
| 1:B:384:ARG:HG3 | 1:B:409:GLU:CG | 2.14 | 0.72 |
| 1:B:214:LEU:HD12 | 1:B:215:LEU:N | 2.03 | 0.72 |
| 1:B:347:LEU:HB3 | 1:B:365:VAL:HG13 | 1.69 | 0.72 |
| 1:B:287:ARG:HH11 | 1:B:287:ARG:CG | 2.03 | 0.72 |
| 1:A:454:ARG:HG2 | 1:A:454:ARG:NH1 | 2.03 | 0.71 |
| 1:A:139:THR:HG21 | 1:A:199:TYR:OH | 1.92 | 0.70 |
| 1:A:243:THR:HG22 | 1:A:245:HIS:H | 1.57 | 0.70 |
| 1:A:318:ASP:OD1 | 1:A:349:ARG:NH1 | 2.26 | 0.69 |
| 1:B:51:TYR:HB3 | 1:B:138:ILE:HD13 | 1.75 | 0.69 |
| 1:B:35:VAL:HG13 | 1:B:86:VAL:HG13 | 1.74 | 0.69 |
| 1:B:67:HIS:CD2 | 1:B:69:PHE:H | 1.98 | 0.69 |
| 1:A:281:GLN:HG2 | 1:A:294:ARG:HH12 | 1.57 | 0.68 |
| 1:B:283:ILE:HG23 | 1:B:294:ARG:HE | 1.57 | 0.68 |
| 1:B:75:VAL:HG11 | 1:B:138:ILE:HD12 | 1.76 | 0.68 |
| 1:B:373:VAL:HG21 | 1:B:427:PRO:O | 1.93 | 0.68 |
| 1:B:318:ASP:OD1 | 1:B:349:ARG:NH1 | 2.27 | 0.68 |
| 1:A:205:LYS:O | 1:A:210:SER:HA | 1.94 | 0.68 |
| 1:B:349:ARG:HG3 | 1:B:349:ARG:NH1 | 1.99 | 0.68 |
| 1:B:364:MET:HE1 | 1:B:408:LEU:HD22 | 1.74 | 0.67 |
| 1:A:218:ASP:HB2 | 1:A:219:PRO:HD2 | 1.76 | 0.67 |
| 1:A:252:ASN:HD21 | 1:A:302:VAL:H | 1.42 | 0.66 |
| 1:B:252:ASN:HD21 | 1:B:302:VAL:H | 1.42 | 0.66 |
| 1:B:287:ARG:HG2 | 1:B:287:ARG:NH1 | 2.05 | 0.66 |
| 1:B:187:ASP:OD2 | 1:B:287:ARG:NH2 | 2.27 | 0.66 |
| 1:B:223:LEU:HD12 | 1:B:224:LEU:H | 1.60 | 0.66 |
| 1:B:179:PRO:O | 1:B:203:SER:HB2 | 1.94 | 0.66 |
| 1:B:403:ILE:HD13 | 1:B:418:PHE:CE1 | 2.24 | 0.66 |
| 1:B:46:LEU:CD1 | 1:B:430:VAL:HG11 | 2.24 | 0.66 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:150:GLU:HG2 | 4:A:2021:HOH:O | 1.96 | 0.66 |
| 1:B:430:VAL:CG2 | 1:B:444:LEU:HD11 | 2.26 | 0.66 |
| 1:A:63:ARG:HH11 | 1:A:118:ALA:CB | 2.09 | 0.65 |
| 1:B:349:ARG:HH11 | 1:B:349:ARG:CG | 2.04 | 0.65 |
| 1:B:249:PHE:O | 1:B:283:ILE:HG12 | 1.97 | 0.65 |
| 1:A:266:ARG:HH12 | 1:A:328:VAL:HG21 | 1.61 | 0.64 |
| 1:A:281:GLN:HG2 | 1:A:294:ARG:NH2 | 2.13 | 0.64 |
| 1:B:67:HIS:HD2 | 1:B:69:PHE:N | 1.88 | 0.64 |
| 1:B:318:ASP:OD1 | 1:B:349:ARG:HG3 | 1.97 | 0.64 |
| 1:A:274:PHE:CE2 | 1:A:276:PRO:HB3 | 2.32 | 0.64 |
| 1:A:250:LEU:HD13 | 1:A:302:VAL:CB | 2.28 | 0.64 |
| 1:B:75:VAL:CG1 | 1:B:138:ILE:HD12 | 2.28 | 0.63 |
| 1:B:130:LEU:HD13 | 4:B:2021:HOH:O | 1.97 | 0.63 |
| 1:B:250:LEU:HD13 | 1:B:302:VAL:HG11 | 1.81 | 0.63 |
| 1:B:198:CYS:SG | 1:B:216:GLU:HB3 | 2.38 | 0.63 |
| 1:A:94:ARG:HH11 | 1:A:94:ARG:CG | 2.11 | 0.63 |
| 1:B:281:GLN:HG2 | 1:B:294:ARG:NH2 | 2.13 | 0.63 |
| 1:B:243:THR:HG23 | 1:B:310:GLU:OE2 | 1.98 | 0.62 |
| 1:B:121:TRP:CZ2 | 1:B:122:LEU:HD13 | 2.35 | 0.62 |
| 1:A:204:ILE:HG13 | 1:A:205:LYS:N | 2.14 | 0.62 |
| 1:A:250:LEU:HD13 | 1:A:302:VAL:CG1 | 2.29 | 0.62 |
| 1:B:52:ARG:HH21 | 1:B:52:ARG:HG3 | 1.64 | 0.61 |
| 1:B:150:GLU:OE2 | 1:B:238:HIS:ND1 | 2.31 | 0.61 |
| 1:B:259:LEU:HB2 | 1:B:260:PRO:HD3 | 1.81 | 0.61 |
| 1:A:244:PRO:HD3 | 1:A:380:GLY:O | 2.01 | 0.61 |
| 1:A:283:ILE:HG22 | 1:A:292:ILE:HD11 | 1.82 | 0.61 |
| 1:B:449:LYS:O | 1:B:452:LEU:O | 2.18 | 0.61 |
| 1:A:67:HIS:HD2 | 1:A:69:PHE:N | 1.87 | 0.61 |
| 1:A:349:ARG:HG3 | 1:A:349:ARG:NH1 | 2.14 | 0.61 |
| 1:A:416:ARG:HG3 | 1:A:465:ILE:O | 2.02 | 0.60 |
| 1:A:46:LEU:CD1 | 1:A:430:VAL:HG11 | 2.31 | 0.60 |
| 1:A:116:GLN:HB2 | 1:A:117:PRO:HD2 | 1.82 | 0.60 |
| 1:A:276:PRO:HD2 | 1:A:277:ASP:H | 1.67 | 0.60 |
| 1:B:94:ARG:HH11 | 1:B:94:ARG:HG2 | 1.66 | 0.60 |
| 1:A:204:ILE:HG13 | 1:A:205:LYS:H | 1.67 | 0.60 |
| 1:B:126:PHE:CD2 | 1:B:262:LEU:HD11 | 2.37 | 0.60 |
| 1:B:153:GLN:NE2 | 1:B:177:GLY:H | 2.00 | 0.60 |
| 1:B:123:LYS:HD2 | 1:B:123:LYS:N | 2.15 | 0.60 |
| 1:B:188:PRO:HD2 | 1:B:381:ARG:NH1 | 2.16 | 0.60 |
| 1:A:309:PHE:CE2 | 1:A:316:ILE:HG12 | 2.37 | 0.60 |
| 1:B:65:LEU:HD11 | 1:B:71:GLY:HA2 | 1.84 | 0.60 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:273:GLN:NE2 | 1:A:275:HIS:HE1 | 2.00 | 0.60 |
| 1:A:57:LEU:HD13 | 1:A:92:PHE:CZ | 2.37 | 0.59 |
| 1:B:110:ARG:HD3 | 1:B:124:THR:CG2 | 2.31 | 0.59 |
| 1:A:364:MET:CE | 1:A:408:LEU:HD22 | 2.33 | 0.59 |
| 1:A:266:ARG:HH12 | 1:A:328:VAL:CG2 | 2.15 | 0.59 |
| 1:A:250:LEU:CD1 | 1:A:302:VAL:HG21 | 2.33 | 0.59 |
| 1:A:430:VAL:CG2 | 1:A:444:LEU:HD11 | 2.33 | 0.59 |
| 1:B:223:LEU:HD11 | 1:B:225:ARG:O | 2.01 | 0.58 |
| 1:B:470:ILE:N | 1:B:470:ILE:HD12 | 2.18 | 0.58 |
| 1:A:187:ASP:OD2 | 1:A:287:ARG:NH2 | 2.36 | 0.58 |
| 1:A:318:ASP:OD1 | 1:A:349:ARG:HG3 | 2.04 | 0.58 |
| 1:B:283:ILE:HG22 | 1:B:292:ILE:HD11 | 1.84 | 0.58 |
| 1:A:282:ILE:HG13 | 1:A:297:VAL:CG2 | 2.34 | 0.58 |
| 1:B:430:VAL:HG13 | 1:B:487:TRP:CE2 | 2.39 | 0.58 |
| 1:A:434:GLY:O | 1:A:435:GLY:O | 2.22 | 0.57 |
| 1:A:94:ARG:HH11 | 1:A:94:ARG:HG2 | 1.69 | 0.57 |
| 1:A:297:VAL:HG13 | 1:A:359:VAL:CG1 | 2.35 | 0.57 |
| 1:A:483:LEU:HD22 | 2:A:1491:C8E:C8 | 2.34 | 0.57 |
| 1:B:374:VAL:HG13 | 1:B:375:HIS:N | 2.18 | 0.57 |
| 1:B:250:LEU:HD22 | 1:B:302:VAL:HB | 1.85 | 0.57 |
| 1:B:456:GLU:OE2 | 1:B:474:LYS:HE2 | 2.05 | 0.57 |
| 1:A:131:LYS:HE3 | 1:A:133:ILE:CG2 | 2.34 | 0.57 |
| 1:A:316:ILE:HD11 | 1:A:349:ARG:CZ | 2.35 | 0.57 |
| 1:A:316:ILE:HD11 | 1:A:349:ARG:NH1 | 2.19 | 0.57 |
| 1:A:402:ALA:HB2 | 1:A:417:SER:HA | 1.87 | 0.57 |
| 1:B:364:MET:HE3 | 1:B:408:LEU:HD22 | 1.86 | 0.57 |
| 1:A:63:ARG:NH1 | 1:A:118:ALA:HB2 | 2.12 | 0.57 |
| 1:A:112:VAL:HG13 | 4:A:2006:HOH:O | 2.03 | 0.57 |
| 1:A:274:PHE:HE2 | 1:A:276:PRO:HB3 | 1.70 | 0.56 |
| 1:A:250:LEU:HD11 | 1:A:302:VAL:HG21 | 1.87 | 0.56 |
| 1:A:276:PRO:CD | 1:A:277:ASP:H | 2.18 | 0.56 |
| 1:B:125:ILE:HG12 | 1:B:126:PHE:CD1 | 2.40 | 0.56 |
| 1:B:387:TYR:CD1 | 1:B:443:LEU:HD11 | 2.40 | 0.56 |
| 1:B:316:ILE:HD11 | 1:B:349:ARG:NH1 | 2.20 | 0.56 |
| 1:B:434:GLY:O | 1:B:435:GLY:O | 2.23 | 0.56 |
| 1:A:253:ASN:HD22 | 1:A:275:HIS:HD2 | 1.53 | 0.56 |
| 1:A:266:ARG:NH1 | 1:A:328:VAL:HG21 | 2.20 | 0.56 |
| 1:B:316:ILE:HD11 | 1:B:349:ARG:CZ | 2.36 | 0.56 |
| 1:A:416:ARG:HG3 | 1:A:416:ARG:NH1 | 2.12 | 0.56 |
| 1:B:283:ILE:HG22 | 1:B:292:ILE:HD12 | 1.85 | 0.56 |
| 1:A:251:GLN:OE1 | 1:A:283:ILE:HD11 | 2.06 | 0.56 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:416:ARG:HH11 | 1:A:416:ARG:CG | 2.12 | 0.56 |
| 1:B:470:ILE:HD12 | 1:B:470:ILE:H | 1.71 | 0.56 |
| 1:B:297:VAL:HG13 | 1:B:359:VAL:HG11 | 1.87 | 0.55 |
| 1:B:210:SER:HB2 | 1:B:231:PHE:CE1 | 2.41 | 0.55 |
| 1:B:403:ILE:CD1 | 1:B:418:PHE:HE1 | 2.14 | 0.55 |
| 1:A:121:TRP:CE2 | 1:A:122:LEU:HD13 | 2.42 | 0.55 |
| 1:A:210:SER:HB2 | 1:A:231:PHE:CZ | 2.41 | 0.55 |
| 1:B:98:TYR:O | 1:B:102:GLN:HG2 | 2.07 | 0.55 |
| 1:A:238:HIS:CE1 | 2:A:1491:C8E:H71 | 2.41 | 0.55 |
| 1:A:283:ILE:CG2 | 1:A:292:ILE:HD11 | 2.36 | 0.55 |
| 1:A:259:LEU:HB2 | 1:A:260:PRO:HD3 | 1.87 | 0.55 |
| 1:A:94:ARG:HG2 | 1:A:94:ARG:NH1 | 2.22 | 0.55 |
| 1:B:173:ILE:HG23 | 1:B:223:LEU:HD22 | 1.89 | 0.55 |
| 1:B:126:PHE:CE2 | 1:B:262:LEU:HD11 | 2.42 | 0.54 |
| 1:A:253:ASN:HD22 | 1:A:275:HIS:CD2 | 2.24 | 0.54 |
| 1:A:283:ILE:HG22 | 1:A:292:ILE:CD1 | 2.38 | 0.54 |
| 1:B:223:LEU:HD12 | 1:B:224:LEU:N | 2.23 | 0.54 |
| 1:B:63:ARG:HH11 | 1:B:118:ALA:HB2 | 1.73 | 0.54 |
| 1:B:119:GLY:HA3 | 1:B:123:LYS:HG2 | 1.89 | 0.54 |
| 1:B:169:ASP:O | 1:B:170:LEU:HB2 | 2.07 | 0.54 |
| 1:A:210:SER:HB2 | 1:A:231:PHE:CE2 | 2.42 | 0.54 |
| 1:B:63:ARG:HG3 | 4:B:2010:HOH:O | 2.07 | 0.54 |
| 1:A:200:VAL:HG22 | 1:A:240:PHE:HZ | 1.72 | 0.54 |
| 1:A:449:LYS:O | 1:A:452:LEU:O | 2.26 | 0.54 |
| 1:B:141:TRP:CZ3 | 1:B:186:ILE:HD13 | 2.43 | 0.53 |
| 1:B:35:VAL:CG1 | 1:B:86:VAL:HG13 | 2.39 | 0.53 |
| 1:B:388:MET:HE3 | 1:B:404:LEU:HD23 | 1.90 | 0.53 |
| 1:B:461:ASP:HB2 | 1:B:470:ILE:HD11 | 1.90 | 0.53 |
| 1:A:140:TYR:CZ | 1:A:143:ASP:HA | 2.43 | 0.53 |
| 1:A:367:ARG:CZ | 1:A:415:LEU:HD22 | 2.39 | 0.53 |
| 1:B:131:LYS:HE3 | 1:B:133:ILE:CG2 | 2.39 | 0.53 |
| 1:B:189:ALA:HB1 | 1:B:195:GLY:HA2 | 1.91 | 0.53 |
| 1:B:387:TYR:HE1 | 1:B:405:LYS:HD2 | 1.74 | 0.53 |
| 1:A:75:VAL:HG11 | 1:A:138:ILE:CD1 | 2.38 | 0.52 |
| 1:A:131:LYS:HE3 | 1:A:133:ILE:HG22 | 1.90 | 0.52 |
| 1:A:430:VAL:HG13 | 1:A:487:TRP:CD1 | 2.43 | 0.52 |
| 1:B:22:ARG:HG2 | 1:B:448:TYR:OH | 2.09 | 0.52 |
| 1:B:74:MET:HE2 | 1:B:92:PHE:CE2 | 2.45 | 0.52 |
| 1:B:67:HIS:CD2 | 1:B:68:PRO:CD | 2.92 | 0.52 |
| 1:B:428:ILE:HG21 | 1:B:487:TRP:HB2 | 1.92 | 0.52 |
| 1:A:95:THR:O | 1:A:99:VAL:HG13 | 2.09 | 0.52 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:283:ILE:CG2 | 1:B:294:ARG:HE | 2.22 | 0.52 |
| 1:B:288:ASP:OD2 | 1:B:289:GLY:O | 2.28 | 0.52 |
| 1:A:135:ASN:HD22 | 1:A:135:ASN:H | 1.58 | 0.51 |
| 1:A:140:TYR:OH | 1:A:143:ASP:HA | 2.10 | 0.51 |
| 1:A:250:LEU:HD21 | 1:A:280:ALA:HB1 | 1.92 | 0.51 |
| 1:B:74:MET:CE | 1:B:92:PHE:CZ | 2.93 | 0.51 |
| 1:A:113:PHE:HE2 | 2:A:1491:C8E:H21 | 1.74 | 0.51 |
| 1:A:253:ASN:ND2 | 1:A:275:HIS:HD2 | 2.08 | 0.51 |
| 1:B:141:TRP:HH2 | 1:B:197:PRO:HB2 | 1.75 | 0.51 |
| 1:A:216:GLU:OE2 | 1:A:287:ARG:HG2 | 2.11 | 0.51 |
| 1:B:246:TYR:CE1 | 1:B:315:ILE:HD11 | 2.44 | 0.51 |
| 1:A:243:THR:HG23 | 1:A:310:GLU:OE2 | 2.10 | 0.51 |
| 1:A:483:LEU:HD22 | 2:A:1491:C8E:H82 | 1.93 | 0.51 |
| 1:A:349:ARG:HH11 | 1:A:349:ARG:CG | 2.18 | 0.51 |
| 1:B:473:LEU:CD1 | 1:B:473:LEU:N | 2.73 | 0.51 |
| 1:A:430:VAL:HG21 | 1:A:444:LEU:HD11 | 1.94 | 0.50 |
| 1:B:173:ILE:CG2 | 1:B:223:LEU:HD22 | 2.41 | 0.50 |
| 1:B:74:MET:CE | 1:B:92:PHE:CE2 | 2.94 | 0.50 |
| 1:A:298:GLN:HA | 1:A:298:GLN:OE1 | 2.12 | 0.50 |
| 1:A:473:LEU:CD1 | 1:A:473:LEU:N | 2.74 | 0.50 |
| 1:A:107:MET:HE3 | 1:A:115:SER:HB3 | 1.94 | 0.50 |
| 1:B:139:THR:HG21 | 1:B:199:TYR:OH | 2.12 | 0.50 |
| 1:B:89:GLN:HG3 | 1:B:162:LEU:HD22 | 1.94 | 0.49 |
| 1:B:154:PRO:HG3 | 1:B:180:LEU:HD23 | 1.94 | 0.49 |
| 1:B:316:ILE:CD1 | 1:B:349:ARG:CZ | 2.90 | 0.49 |
| 1:A:384:ARG:HD2 | 1:A:409:GLU:OE2 | 2.12 | 0.49 |
| 1:B:67:HIS:CG | 1:B:68:PRO:HD2 | 2.46 | 0.49 |
| 1:B:131:LYS:HE3 | 1:B:133:ILE:HG22 | 1.93 | 0.49 |
| 1:A:139:THR:HG21 | 1:A:199:TYR:CE2 | 2.47 | 0.49 |
| 1:A:75:VAL:HG11 | 1:A:138:ILE:HD12 | 1.94 | 0.49 |
| 1:A:273:GLN:NE2 | 1:A:275:HIS:CE1 | 2.81 | 0.49 |
| 1:A:130:LEU:HD13 | 1:A:130:LEU:HA | 1.66 | 0.49 |
| 1:A:139:THR:HG21 | 1:A:199:TYR:CZ | 2.48 | 0.49 |
| 1:A:318:ASP:HA | 1:A:348:TRP:O | 2.13 | 0.49 |
| 1:A:297:VAL:HG13 | 1:A:359:VAL:HG11 | 1.93 | 0.49 |
| 1:B:132:ASN:OD1 | 1:B:133:ILE:O | 2.31 | 0.49 |
| 1:A:327:GLN:HG2 | 1:A:328:VAL:N | 2.28 | 0.48 |
| 1:B:52:ARG:HG3 | 1:B:52:ARG:NH2 | 2.27 | 0.48 |
| 1:A:218:ASP:HB2 | 1:A:219:PRO:CD | 2.43 | 0.48 |
| 1:B:470:ILE:H | 1:B:470:ILE:CD1 | 2.25 | 0.48 |
| 1:A:62:ASP:O | 1:A:64:PRO:HD3 | 2.14 | 0.48 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:430:VAL:CG1 | 1:A:487:TRP:CE2 | 2.95 | 0.48 |
| 1:A:341:ASN:O | 1:A:342:LEU:HD12 | 2.14 | 0.48 |
| 1:B:35:VAL:HG22 | 1:B:38:VAL:HG12 | 1.96 | 0.48 |
| 1:A:298:GLN:O | 1:A:361:LYS:HE2 | 2.14 | 0.48 |
| 1:A:352:ILE:HG13 | 1:A:359:VAL:HG23 | 1.96 | 0.48 |
| 1:B:126:PHE:CD2 | 1:B:262:LEU:CD1 | 2.97 | 0.48 |
| 1:B:150:GLU:HG3 | 2:B:1491:C8E:H13 | 1.95 | 0.48 |
| 1:A:148:LEU:HD23 | 1:A:154:PRO:HB3 | 1.96 | 0.48 |
| 1:B:218:ASP:O | 1:B:220:GLN:N | 2.47 | 0.47 |
| 1:A:246:TYR:CD1 | 1:A:315:ILE:HD11 | 2.50 | 0.47 |
| 1:A:402:ALA:CB | 1:A:417:SER:HA | 2.44 | 0.47 |
| 1:B:43:PRO:HG3 | 1:B:470:ILE:HG21 | 1.97 | 0.47 |
| 1:B:457:LEU:HD23 | 1:B:473:LEU:HD22 | 1.96 | 0.47 |
| 1:B:457:LEU:HB3 | 1:B:473:LEU:HD22 | 1.96 | 0.47 |
| 1:A:94:ARG:CG | 1:A:94:ARG:NH1 | 2.75 | 0.47 |
| 1:A:250:LEU:C | 1:A:250:LEU:HD23 | 2.35 | 0.47 |
| 1:A:316:ILE:CD1 | 1:A:349:ARG:CG | 2.93 | 0.47 |
| 1:B:213:THR:HG23 | 1:B:228:THR:HG22 | 1.97 | 0.47 |
| 1:B:364:MET:HE3 | 1:B:408:LEU:CD2 | 2.44 | 0.47 |
| 1:A:107:MET:HE1 | 1:A:116:GLN:N | 2.29 | 0.47 |
| 1:A:204:ILE:CG1 | 1:A:205:LYS:N | 2.78 | 0.47 |
| 1:B:316:ILE:HD12 | 1:B:349:ARG:CG | 2.45 | 0.47 |
| 1:A:323:ASN:HB3 | 1:A:343:ASP:OD2 | 2.15 | 0.46 |
| 1:B:49:THR:OG1 | 1:B:79:LYS:HG2 | 2.15 | 0.46 |
| 1:B:13:ARG:NH1 | 1:B:340:ASP:OD2 | 2.44 | 0.46 |
| 1:A:243:THR:HG23 | 1:A:310:GLU:CD | 2.36 | 0.46 |
| 1:B:231:PHE:HB2 | 1:B:232:PRO:HD2 | 1.97 | 0.46 |
| 1:B:243:THR:HG23 | 1:B:244:PRO:N | 2.30 | 0.46 |
| 1:B:262:LEU:HD23 | 1:B:263:PHE:CE1 | 2.50 | 0.46 |
| 1:A:416:ARG:HB2 | 1:A:465:ILE:HD12 | 1.97 | 0.46 |
| 1:A:473:LEU:N | 1:A:473:LEU:HD12 | 2.31 | 0.46 |
| 1:A:63:ARG:NH1 | 1:A:118:ALA:CA | 2.78 | 0.46 |
| 1:A:259:LEU:N | 1:A:260:PRO:CD | 2.78 | 0.46 |
| 1:B:216:GLU:OE2 | 1:B:287:ARG:NH1 | 2.49 | 0.46 |
| 1:B:257:ASN:C | 1:B:257:ASN:HD22 | 2.17 | 0.46 |
| 1:A:318:ASP:CG | 1:A:349:ARG:NH1 | 2.69 | 0.46 |
| 1:A:107:MET:CE | 1:A:116:GLN:N | 2.78 | 0.46 |
| 1:B:18:GLN:CD | 1:B:18:GLN:H | 2.18 | 0.46 |
| 1:B:75:VAL:HG11 | 1:B:138:ILE:CD1 | 2.44 | 0.46 |
| 1:A:249:PHE:O | 1:A:283:ILE:HG12 | 2.16 | 0.45 |
| 1:A:316:ILE:HD12 | 1:A:349:ARG:HG2 | 1.98 | 0.45 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:398:ALA:HB1 | 1:A:399:PRO:HD2 | 1.97 | 0.45 |
| 1:A:63:ARG:NH1 | 1:A:118:ALA:HA | 2.31 | 0.45 |
| 1:B:285:VAL:HA | 1:B:286:PRO:HD2 | 1.86 | 0.45 |
| 1:A:316:ILE:HD12 | 1:A:349:ARG:CG | 2.46 | 0.45 |
| 1:B:259:LEU:N | 1:B:260:PRO:CD | 2.79 | 0.45 |
| 1:B:283:ILE:HG22 | 1:B:294:ARG:HG2 | 1.98 | 0.45 |
| 1:A:33:TYR:O | 1:A:87:HIS:HD2 | 2.00 | 0.45 |
| 1:A:110:ARG:NH1 | 1:A:264:GLY:HA2 | 2.32 | 0.45 |
| 1:B:273:GLN:NE2 | 1:B:275:HIS:CE1 | 2.85 | 0.45 |
| 1:A:254:VAL:HG22 | 1:A:255:THR:N | 2.31 | 0.45 |
| 1:A:282:ILE:HD11 | 1:A:297:VAL:HG21 | 1.97 | 0.45 |
| 1:A:372:PRO:HA | 1:A:388:MET:HG2 | 1.99 | 0.45 |
| 1:B:126:PHE:HD2 | 1:B:262:LEU:CD1 | 2.30 | 0.45 |
| 1:A:250:LEU:CD1 | 1:A:302:VAL:HG11 | 2.41 | 0.45 |
| 1:B:281:GLN:HG2 | 1:B:294:ARG:CZ | 2.47 | 0.45 |
| 1:A:282:ILE:HG13 | 1:A:297:VAL:HG21 | 1.98 | 0.45 |
| 1:A:483:LEU:CD2 | 2:A:1491:C8E:H81 | 2.47 | 0.45 |
| 1:B:74:MET:HE3 | 1:B:92:PHE:CZ | 2.52 | 0.45 |
| 1:A:297:VAL:HG13 | 1:A:359:VAL:HG13 | 1.98 | 0.45 |
| 1:B:227:LYS:O | 1:B:228:THR:HG22 | 2.16 | 0.45 |
| 1:A:257:ASN:O | 1:A:271:CYS:HB3 | 2.17 | 0.45 |
| 1:B:73:GLY:HA2 | 1:B:135:ASN:HB3 | 1.99 | 0.45 |
| 1:B:121:TRP:CZ2 | 1:B:122:LEU:CD1 | 3.00 | 0.45 |
| 1:B:243:THR:CG2 | 1:B:245:HIS:H | 2.30 | 0.44 |
| 1:A:113:PHE:CE2 | 2:A:1491:C8E:H21 | 2.51 | 0.44 |
| 1:B:141:TRP:CE2 | 1:B:199:TYR:HB2 | 2.51 | 0.44 |
| 1:A:483:LEU:HD22 | 2:A:1491:C8E:H81 | 1.99 | 0.44 |
| 1:B:278:LYS:HB3 | 1:B:279:PRO:HD2 | 2.00 | 0.44 |
| 1:B:19:ASP:OD2 | 1:B:421:HIS:HD2 | 2.01 | 0.44 |
| 1:B:227:LYS:C | 1:B:228:THR:HG22 | 2.38 | 0.44 |
| 1:A:250:LEU:HD13 | 1:A:302:VAL:HB | 1.97 | 0.44 |
| 1:A:135:ASN:HD22 | 1:A:135:ASN:N | 2.15 | 0.44 |
| 1:B:33:TYR:C | 1:B:87:HIS:HD2 | 2.21 | 0.44 |
| 1:B:52:ARG:HD3 | 1:B:482:PRO:CG | 2.47 | 0.44 |
| 1:B:52:ARG:HD3 | 1:B:482:PRO:HB2 | 1.99 | 0.44 |
| 1:B:183:HIS:N | 1:B:184:PRO:CD | 2.80 | 0.44 |
| 1:A:416:ARG:NH1 | 1:A:416:ARG:CG | 2.75 | 0.44 |
| 1:B:50:LEU:HD13 | 1:B:444:LEU:HD12 | 2.00 | 0.44 |
| 1:A:442:TRP:HD1 | 1:A:470:ILE:HD13 | 1.83 | 0.44 |
| 1:B:158:GLU:HG3 | 1:B:160:SER:OG | 2.18 | 0.44 |
| 1:A:110:ARG:HD3 | 1:A:124:THR:HB | 1.99 | 0.43 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:A:430:VAL:HG22 | 1:A:444:LEU:HD11 | 1.99 | 0.43 |
| 1:B:14:SER:HB3 | 1:B:392:HIS:HD2 | 1.83 | 0.43 |
| 1:B:33:TYR:O | 1:B:87:HIS:HD2 | 2.01 | 0.43 |
| 1:B:187:ASP:OD1 | 1:B:188:PRO:HD2 | 2.18 | 0.43 |
| 1:B:215:LEU:C | 1:B:215:LEU:HD12 | 2.39 | 0.43 |
| 1:B:316:ILE:CD1 | 1:B:349:ARG:CG | 2.96 | 0.43 |
| 1:A:425:GLY:O | 1:A:427:PRO:HD3 | 2.17 | 0.43 |
| 1:A:285:VAL:HA | 1:A:286:PRO:HD2 | 1.89 | 0.43 |
| 1:B:374:VAL:CG1 | 1:B:375:HIS:N | 2.82 | 0.43 |
| 1:A:49:THR:OG1 | 1:A:79:LYS:HG2 | 2.18 | 0.43 |
| 1:A:327:GLN:HG2 | 1:A:328:VAL:H | 1.83 | 0.43 |
| 1:A:276:PRO:CD | 1:A:277:ASP:N | 2.81 | 0.43 |
| 1:B:150:GLU:CD | 2:B:1491:C8E:H31 | 2.38 | 0.43 |
| 1:A:161:ASN:O | 1:A:162:LEU:HB2 | 2.18 | 0.43 |
| 1:A:283:ILE:HD13 | 1:A:283:ILE:HG23 | 1.44 | 0.43 |
| 1:B:243:THR:HG23 | 1:B:244:PRO:HD2 | 2.01 | 0.43 |
| 1:A:142:GLY:O | 1:A:143:ASP:HB3 | 2.19 | 0.43 |
| 1:A:250:LEU:HD23 | 1:A:251:GLN:N | 2.34 | 0.42 |
| 1:A:387:TYR:CE1 | 1:A:405:LYS:HG3 | 2.54 | 0.42 |
| 1:B:62:ASP:OD1 | 1:B:62:ASP:N | 2.47 | 0.42 |
| 1:B:257:ASN:O | 1:B:271:CYS:HB3 | 2.19 | 0.42 |
| 1:B:297:VAL:HG13 | 1:B:359:VAL:CG1 | 2.48 | 0.42 |
| 1:A:316:ILE:CD1 | 1:A:349:ARG:CZ | 2.98 | 0.42 |
| 1:B:292:ILE:O | 1:B:292:ILE:HG13 | 2.15 | 0.42 |
| 1:A:17:PRO:HB2 | 1:A:18:GLN:HE21 | 1.84 | 0.42 |
| 1:A:395:THR:HG22 | 1:A:396:GLY:N | 2.34 | 0.42 |
| 1:B:135:ASN:HD22 | 1:B:136:THR:N | 2.17 | 0.42 |
| 1:B:218:ASP:C | 1:B:220:GLN:H | 2.22 | 0.42 |
| 1:A:74:MET:CE | 1:A:74:MET:CG | 2.91 | 0.42 |
| 1:A:239:ASP:OD2 | 1:A:240:PHE:N | 2.51 | 0.42 |
| 1:B:191:THR:HG23 | 1:B:192:PHE:CD1 | 2.54 | 0.42 |
| 1:B:243:THR:CG2 | 1:B:246:TYR:H | 2.11 | 0.42 |
| 1:B:251:GLN:HG3 | 1:B:251:GLN:O | 2.18 | 0.42 |
| 1:B:375:HIS:HB3 | 1:B:378:GLN:CG | 2.50 | 0.42 |
| 1:A:318:ASP:OD2 | 1:A:383:TYR:OH | 2.27 | 0.42 |
| 1:A:344:PRO:CB | 1:A:368:CYS:HB2 | 2.48 | 0.42 |
| 1:B:94:ARG:HG2 | 1:B:94:ARG:NH1 | 2.34 | 0.42 |
| 1:B:309:PHE:CE2 | 1:B:316:ILE:HG12 | 2.53 | 0.42 |
| 1:A:87:HIS:CD2 | 1:A:88:PHE:H | 2.38 | 0.42 |
| 1:A:89:GLN:HB2 | 1:A:162:LEU:HD22 | 2.02 | 0.42 |
| 1:B:12:GLN:HG3 | 1:B:13:ARG:N | 2.26 | 0.42 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:243:THR:HG22 | 1:B:245:HIS:H | 1.85 | 0.42 |
| 1:B:422:GLY:HA2 | 1:B:448:TYR:O | 2.19 | 0.42 |
| 1:A:216:GLU:OE2 | 1:A:287:ARG:NH1 | 2.52 | 0.42 |
| 1:B:316:ILE:HD13 | 1:B:349:ARG:NE | 2.34 | 0.42 |
| 1:A:153:GLN:NE2 | 1:A:177:GLY:H | 2.17 | 0.42 |
| 1:B:110:ARG:HD2 | 4:B:2022:HOH:O | 2.20 | 0.42 |
| 1:B:210:SER:HB2 | 1:B:231:PHE:CZ | 2.55 | 0.42 |
| 1:B:374:VAL:CG2 | 1:B:383:TYR:CD1 | 3.03 | 0.41 |
| 1:A:243:THR:HG22 | 1:A:246:TYR:H | 1.84 | 0.41 |
| 1:B:375:HIS:HB3 | 1:B:378:GLN:HG2 | 2.01 | 0.41 |
| 1:B:375:HIS:CD2 | 1:B:429:PHE:CE2 | 3.08 | 0.41 |
| 1:A:63:ARG:NH1 | 1:A:118:ALA:CB | 2.77 | 0.41 |
| 1:A:404:LEU:HD13 | 1:A:415:LEU:HD13 | 2.02 | 0.41 |
| 1:B:452:LEU:H | 1:B:452:LEU:HG | 1.70 | 0.41 |
| 1:B:107:MET:HE3 | 4:B:2006:HOH:O | 2.20 | 0.41 |
| 1:A:87:HIS:CD2 | 1:A:88:PHE:N | 2.88 | 0.41 |
| 1:B:204:ILE:HG12 | 1:B:205:LYS:N | 2.35 | 0.41 |
| 1:A:178:GLN:HA | 1:A:179:PRO:HD2 | 1.91 | 0.41 |
| 1:A:252:ASN:ND2 | 1:A:302:VAL:H | 2.12 | 0.41 |
| 1:B:126:PHE:HD2 | 1:B:262:LEU:HD11 | 1.82 | 0.41 |
| 1:A:282:ILE:CD1 | 1:A:297:VAL:HG21 | 2.50 | 0.41 |
| 1:A:398:ALA:HB1 | 1:A:399:PRO:CD | 2.51 | 0.41 |
| 1:A:33:TYR:OH | 1:A:477:HIS:CE1 | 2.74 | 0.41 |
| 1:B:112:VAL:O | 1:B:269:GLY:N | 2.48 | 0.41 |
| 1:A:66:LYS:NZ | 1:A:270:GLU:OE2 | 2.47 | 0.41 |
| 1:A:250:LEU:HD13 | 1:A:302:VAL:HG21 | 2.03 | 0.41 |
| 1:A:283:ILE:HG21 | 1:A:283:ILE:HD12 | 1.56 | 0.41 |
| 1:A:475:LEU:CD1 | 1:A:479:ILE:HD11 | 2.50 | 0.41 |
| 1:B:74:MET:HE2 | 1:B:92:PHE:CZ | 2.56 | 0.41 |
| 1:B:122:LEU:HD12 | 1:B:122:LEU:HA | 1.90 | 0.41 |
| 1:B:213:THR:HG23 | 1:B:228:THR:CG2 | 2.51 | 0.41 |
| 1:B:238:HIS:CE1 | 2:B:1491:C8E:H71 | 2.56 | 0.41 |
| 1:B:255:THR:HG23 | 1:B:275:HIS:NE2 | 2.36 | 0.41 |
| 1:B:430:VAL:HB | 1:B:442:TRP:HE3 | 1.86 | 0.41 |
| 1:B:481:TYR:HA | 1:B:482:PRO:HD2 | 1.87 | 0.41 |
| 1:A:87:HIS:HD2 | 1:A:88:PHE:H | 1.68 | 0.41 |
| 1:A:122:LEU:HD12 | 1:A:122:LEU:HA | 1.88 | 0.41 |
| 1:A:179:PRO:O | 1:A:203:SER:HB2 | 2.21 | 0.41 |
| 1:B:45:ASP:OD1 | 1:B:45:ASP:N | 2.36 | 0.41 |
| 1:B:283:ILE:HG23 | 1:B:283:ILE:HD13 | 1.72 | 0.41 |
| 1:A:318:ASP:OD2 | 1:A:349:ARG:NH1 | 2.51 | 0.40 |

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| Atom-1 | Atom-2 | Interatomic distance (Å) | Clash overlap (Å) |
|---|---|---|---|
| 1:B:54:GLY:HA3 | 1:B:482:PRO:HA | 2.03 | 0.40 |
| 1:A:67:HIS:CD2 | 1:A:68:PRO:CD | 3.01 | 0.40 |
| 1:B:374:VAL:CG2 | 1:B:383:TYR:CE1 | 3.05 | 0.40 |
| 1:B:470:ILE:N | 1:B:470:ILE:CD1 | 2.82 | 0.40 |
| 1:A:74:MET:HE3 | 1:A:92:PHE:CE2 | 2.56 | 0.40 |
| 1:B:259:LEU:HD23 | 1:B:259:LEU:HA | 1.93 | 0.40 |
| 1:A:274:PHE:CG | 1:A:275:HIS:N | 2.89 | 0.40 |
| 1:B:352:ILE:O | 1:B:354:PRO:HD3 | 2.21 | 0.40 |
| 1:B:430:VAL:CG2 | 1:B:444:LEU:CD1 | 2.97 | 0.40 |
| 1:A:302:VAL:HG22 | 1:A:321:CYS:SG | 2.61 | 0.40 |
| 1:A:363:LEU:HD12 | 1:A:364:MET:H | 1.86 | 0.40 |

There are no symmetry-related clashes.

## 5.3 Torsion angles (i)

### 5.3.1 Protein backbone (i)

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

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles |
|---|---|---|---|---|---|---|
| 1 | A | 477/490 (97%) | 448 (94%) | 26 (6%) | 3 (1%) | 25 47 |
| 1 | B | 477/490 (97%) | 442 (93%) | 27 (6%) | 8 (2%) | 9 20 |
| All | All | 954/980 (97%) | 890 (93%) | 53 (6%) | 11 (1%) | 13 29 |

All (11) Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 435 | GLY |
| 1 | B | 435 | GLY |
| 1 | A | 207 | SER |
| 1 | B | 150 | GLU |
| 1 | B | 301 | PHE |
| 1 | B | 121 | TRP |
| 1 | B | 207 | SER |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 287 | ARG |
| 1 | B | 81 | PRO |
| 1 | B | 219 | PRO |
| 1 | B | 481 | TYR |

### 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 | 399/410 (97%) | 328 (82%) | 71 (18%) | 2 4 |
| 1 | B | 399/410 (97%) | 341 (86%) | 58 (14%) | 3 7 |
| All | All | 798/820 (97%) | 669 (84%) | 129 (16%) | 2 5 |

All (129) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 12 | GLN |
| 1 | A | 16 | SER |
| 1 | A | 18 | GLN |
| 1 | A | 35 | VAL |
| 1 | A | 38 | VAL |
| 1 | A | 41 | SER |
| 1 | A | 47 | GLN |
| 1 | A | 52 | ARG |
| 1 | A | 57 | LEU |
| 1 | A | 59 | GLU |
| 1 | A | 63 | ARG |
| 1 | A | 79 | LYS |
| 1 | A | 83 | ASP |
| 1 | A | 89 | GLN |
| 1 | A | 90 | SER |
| 1 | A | 94 | ARG |
| 1 | A | 99 | VAL |
| 1 | A | 112 | VAL |
| 1 | A | 122 | LEU |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 123 | LYS |
| 1 | A | 130 | LEU |
| 1 | A | 135 | ASN |
| 1 | A | 139 | THR |
| 1 | A | 144 | ARG |
| 1 | A | 162 | LEU |
| 1 | A | 193 | ASP |
| 1 | A | 200 | VAL |
| 1 | A | 203 | SER |
| 1 | A | 205 | LYS |
| 1 | A | 208 | LEU |
| 1 | A | 211 | THR |
| 1 | A | 217 | LEU |
| 1 | A | 220 | GLN |
| 1 | A | 227 | LYS |
| 1 | A | 228 | THR |
| 1 | A | 240 | PHE |
| 1 | A | 243 | THR |
| 1 | A | 257 | ASN |
| 1 | A | 277 | ASP |
| 1 | A | 281 | GLN |
| 1 | A | 283 | ILE |
| 1 | A | 287 | ARG |
| 1 | A | 291 | GLU |
| 1 | A | 292 | ILE |
| 1 | A | 297 | VAL |
| 1 | A | 298 | GLN |
| 1 | A | 314 | LYS |
| 1 | A | 316 | ILE |
| 1 | A | 319 | SER |
| 1 | A | 328 | VAL |
| 1 | A | 330 | THR |
| 1 | A | 342 | LEU |
| 1 | A | 349 | ARG |
| 1 | A | 358 | THR |
| 1 | A | 361 | LYS |
| 1 | A | 362 | GLN |
| 1 | A | 363 | LEU |
| 1 | A | 365 | VAL |
| 1 | A | 367 | ARG |
| 1 | A | 368 | CYS |
| 1 | A | 381 | ARG |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 395 | THR |
| 1 | A | 403 | ILE |
| 1 | A | 413 | GLU |
| 1 | A | 416 | ARG |
| 1 | A | 436 | VAL |
| 1 | A | 443 | LEU |
| 1 | A | 452 | LEU |
| 1 | A | 454 | ARG |
| 1 | A | 473 | LEU |
| 1 | A | 476 | LYS |
| 1 | B | 18 | GLN |
| 1 | B | 35 | VAL |
| 1 | B | 41 | SER |
| 1 | B | 47 | GLN |
| 1 | B | 57 | LEU |
| 1 | B | 59 | GLU |
| 1 | B | 63 | ARG |
| 1 | B | 79 | LYS |
| 1 | B | 83 | ASP |
| 1 | B | 85 | ARG |
| 1 | B | 90 | SER |
| 1 | B | 94 | ARG |
| 1 | B | 123 | LYS |
| 1 | B | 130 | LEU |
| 1 | B | 135 | ASN |
| 1 | B | 139 | THR |
| 1 | B | 144 | ARG |
| 1 | B | 160 | SER |
| 1 | B | 162 | LEU |
| 1 | B | 173 | ILE |
| 1 | B | 188 | PRO |
| 1 | B | 200 | VAL |
| 1 | B | 203 | SER |
| 1 | B | 208 | LEU |
| 1 | B | 211 | THR |
| 1 | B | 228 | THR |
| 1 | B | 237 | ILE |
| 1 | B | 240 | PHE |
| 1 | B | 243 | THR |
| 1 | B | 253 | ASN |
| 1 | B | 257 | ASN |
| 1 | B | 281 | GLN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | B | 283 | ILE |
| 1 | B | 287 | ARG |
| 1 | B | 291 | GLU |
| 1 | B | 292 | ILE |
| 1 | B | 297 | VAL |
| 1 | B | 310 | GLU |
| 1 | B | 314 | LYS |
| 1 | B | 316 | ILE |
| 1 | B | 319 | SER |
| 1 | B | 330 | THR |
| 1 | B | 342 | LEU |
| 1 | B | 349 | ARG |
| 1 | B | 358 | THR |
| 1 | B | 361 | LYS |
| 1 | B | 363 | LEU |
| 1 | B | 364 | MET |
| 1 | B | 365 | VAL |
| 1 | B | 374 | VAL |
| 1 | B | 381 | ARG |
| 1 | B | 383 | TYR |
| 1 | B | 414 | THR |
| 1 | B | 436 | VAL |
| 1 | B | 459 | ILE |
| 1 | B | 473 | LEU |
| 1 | B | 476 | LYS |
| 1 | B | 490 | THR |

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 18 | GLN |
| 1 | A | 27 | GLN |
| 1 | A | 29 | GLN |
| 1 | A | 67 | HIS |
| 1 | A | 135 | ASN |
| 1 | A | 153 | GLN |
| 1 | A | 196 | GLN |
| 1 | A | 220 | GLN |
| 1 | A | 245 | HIS |
| 1 | A | 252 | ASN |
| 1 | A | 253 | ASN |
| 1 | A | 257 | ASN |

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| Mol | Chain | Res | Type |
|---|---|---|---|
| 1 | A | 273 | GLN |
| 1 | A | 346 | GLN |
| 1 | A | 397 | ASN |
| 1 | A | 477 | HIS |
| 1 | B | 12 | GLN |
| 1 | B | 27 | GLN |
| 1 | B | 67 | HIS |
| 1 | B | 87 | HIS |
| 1 | B | 135 | ASN |
| 1 | B | 153 | GLN |
| 1 | B | 196 | GLN |
| 1 | B | 252 | ASN |
| 1 | B | 257 | ASN |
| 1 | B | 273 | GLN |
| 1 | B | 397 | ASN |
| 1 | B | 421 | HIS |
| 1 | B | 477 | HIS |
| 1 | B | 489 | GLN |

#### 5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry (i)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the

expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Counts | RMSZ | $\#\|Z\| > 2$ | Counts | RMSZ | $\#\|Z\| > 2$ |
| 3 | GOL | A | 1492 | - | 5,5,5 | 0.23 | 0 | 5,5,5 | 0.34 | 0 |
| 2 | C8E | B | 1491 | - | 20,20,20 | 0.73 | 0 | 19,19,19 | 1.45 | 4 (21%) |
| 3 | GOL | A | 1493 | - | 5,5,5 | 0.31 | 0 | 5,5,5 | 0.39 | 0 |
| 2 | C8E | A | 1491 | - | 20,20,20 | 0.69 | 0 | 19,19,19 | 1.53 | 5 (26%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|---|---|---|---|---|---|---|---|
| 3 | GOL | A | 1492 | - | - | 2/4/4/4 | - |
| 2 | C8E | B | 1491 | - | - | 6/18/18/18 | - |
| 3 | GOL | A | 1493 | - | - | 1/4/4/4 | - |
| 2 | C8E | A | 1491 | - | - | 8/18/18/18 | - |

There are no bond length outliers.

All (9) bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed($^o$) | Ideal($^o$) |
|---|---|---|---|---|---|---|---|
| 2 | A | 1491 | C8E | O18-C17-C16 | 3.65 | 126.84 | 110.39 |
| 2 | B | 1491 | C8E | O18-C17-C16 | 3.55 | 126.38 | 110.39 |
| 2 | A | 1491 | C8E | O12-C11-C10 | 2.16 | 120.12 | 110.39 |
| 2 | A | 1491 | C8E | O18-C19-C20 | 2.15 | 119.52 | 110.07 |
| 2 | B | 1491 | C8E | O12-C11-C10 | 2.14 | 120.06 | 110.39 |
| 2 | B | 1491 | C8E | O18-C19-C20 | 2.08 | 119.23 | 110.07 |
| 2 | A | 1491 | C8E | O9-C8-C7 | 2.05 | 121.02 | 110.26 |
| 2 | B | 1491 | C8E | O15-C14-C13 | 2.04 | 119.60 | 110.39 |
| 2 | A | 1491 | C8E | O15-C14-C13 | 2.01 | 119.47 | 110.39 |

There are no chirality outliers.

All (17) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 3 | A | 1492 | GOL | C1-C2-C3-O3 |
| 2 | B | 1491 | C8E | O15-C16-C17-O18 |
| 2 | A | 1491 | C8E | O12-C13-C14-O15 |

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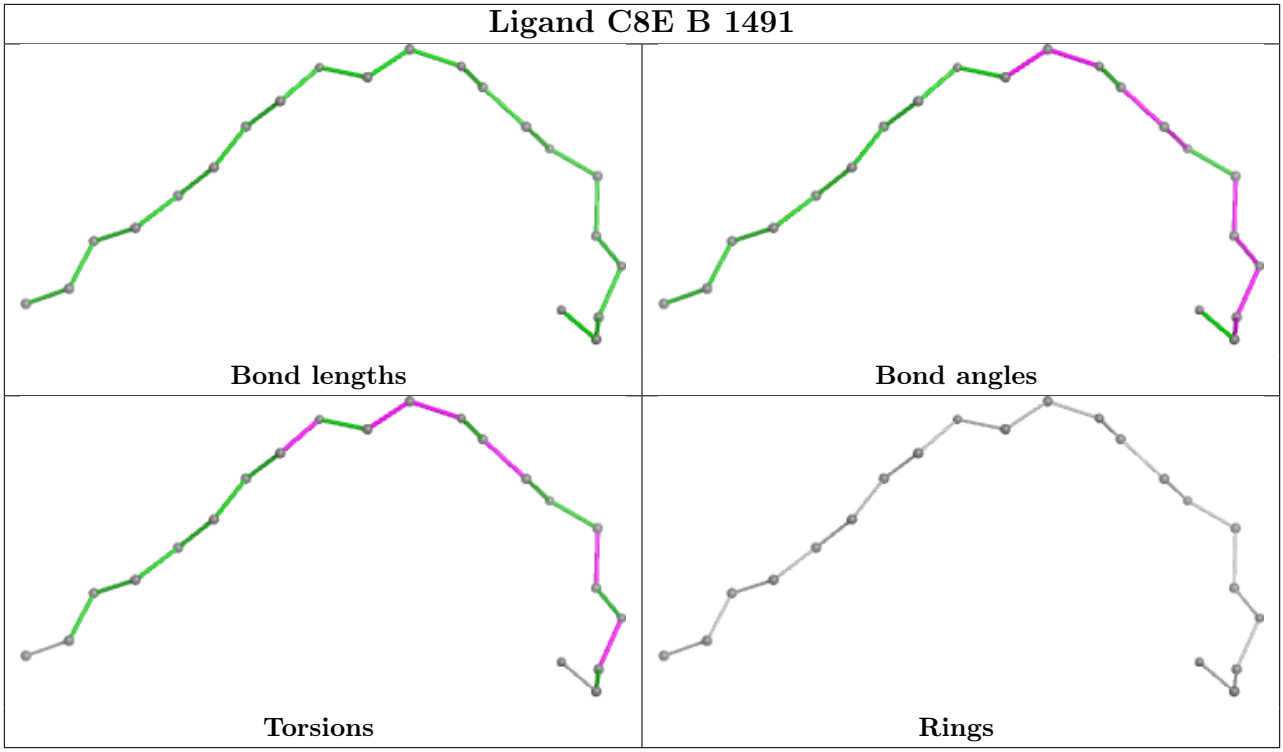
| Mol | Chain | Res | Type | Atoms |
|---|---|---|---|---|
| 2 | A | 1491 | C8E | O15-C16-C17-O18 |
| 3 | A | 1493 | GOL | C1-C2-C3-O3 |
| 2 | B | 1491 | C8E | O9-C10-C11-O12 |
| 3 | A | 1492 | GOL | O2-C2-C3-O3 |
| 2 | A | 1491 | C8E | C2-C3-C4-C5 |
| 2 | A | 1491 | C8E | C20-C19-O18-C17 |
| 2 | B | 1491 | C8E | C10-C11-O12-C13 |
| 2 | A | 1491 | C8E | C14-C13-O12-C11 |
| 2 | A | 1491 | C8E | O9-C10-C11-O12 |
| 2 | B | 1491 | C8E | C7-C8-O9-C10 |
| 2 | A | 1491 | C8E | C3-C4-C5-C6 |
| 2 | A | 1491 | C8E | C13-C14-O15-C16 |
| 2 | B | 1491 | C8E | C20-C19-O18-C17 |
| 2 | B | 1491 | C8E | O12-C13-C14-O15 |

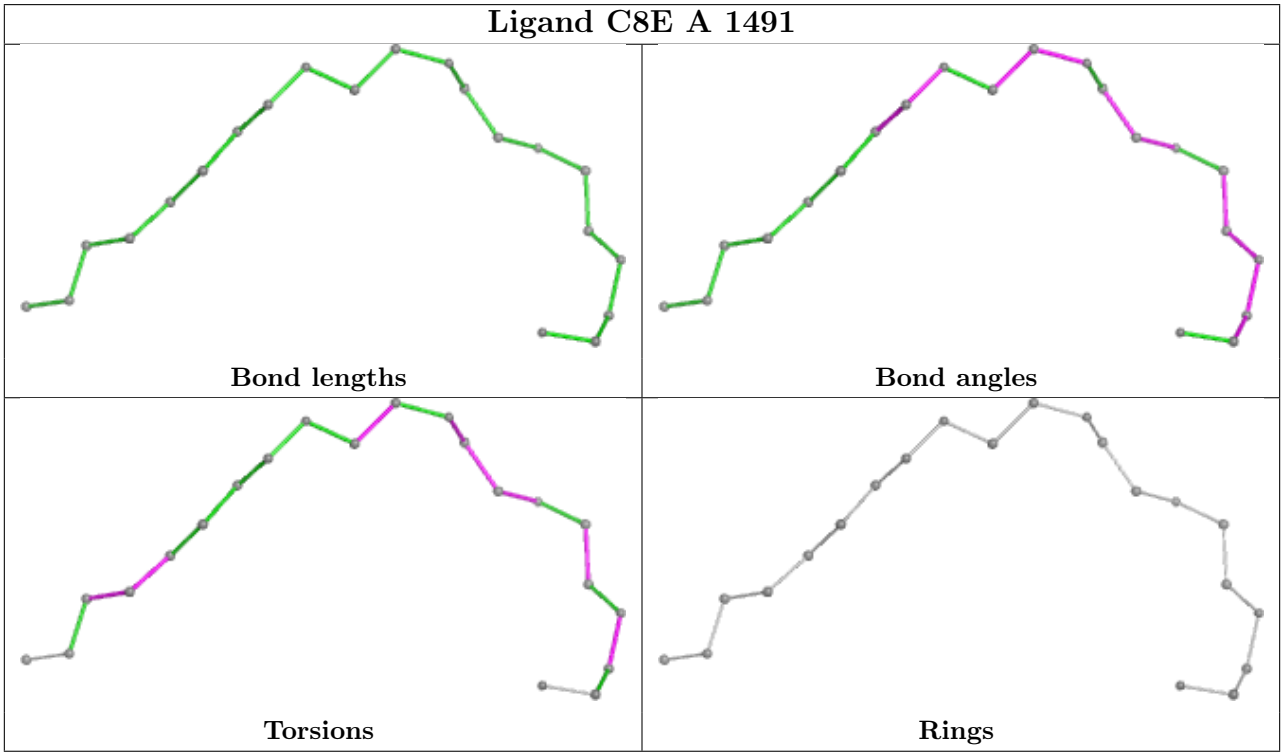
There are no ring outliers.

2 monomers are involved in 10 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|---|---|---|---|---|---|
| 2 | B | 1491 | C8E | 3 | 0 |
| 2 | A | 1491 | C8E | 7 | 0 |

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




## 5.7 Other polymers (i)

There are no such residues in this entry.

## 5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

# 6 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 | 479/490 (97%) | -0.22 | 6 (1%) | 77 | 78 | 31, 50, 78, 104 | 0 |
| 1 | B | 479/490 (97%) | -0.09 | 6 (1%) | 77 | 78 | 30, 53, 78, 95 | 0 |
| All | All | 958/980 (97%) | -0.15 | 12 (1%) | 77 | 78 | 30, 51, 78, 104 | 0 |

All (12) RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|---|---|---|---|---|
| 1 | A | 208 | LEU | 5.4 |
| 1 | B | 355 | ALA | 2.9 |
| 1 | A | 430 | VAL | 2.8 |
| 1 | A | 234 | PHE | 2.7 |
| 1 | B | 195 | GLY | 2.6 |
| 1 | A | 231 | PHE | 2.5 |
| 1 | B | 83 | ASP | 2.5 |
| 1 | A | 83 | ASP | 2.4 |
| 1 | B | 84 | GLY | 2.2 |
| 1 | B | 172 | GLY | 2.1 |
| 1 | A | 210 | SER | 2.1 |
| 1 | B | 121 | TRP | 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 (i)

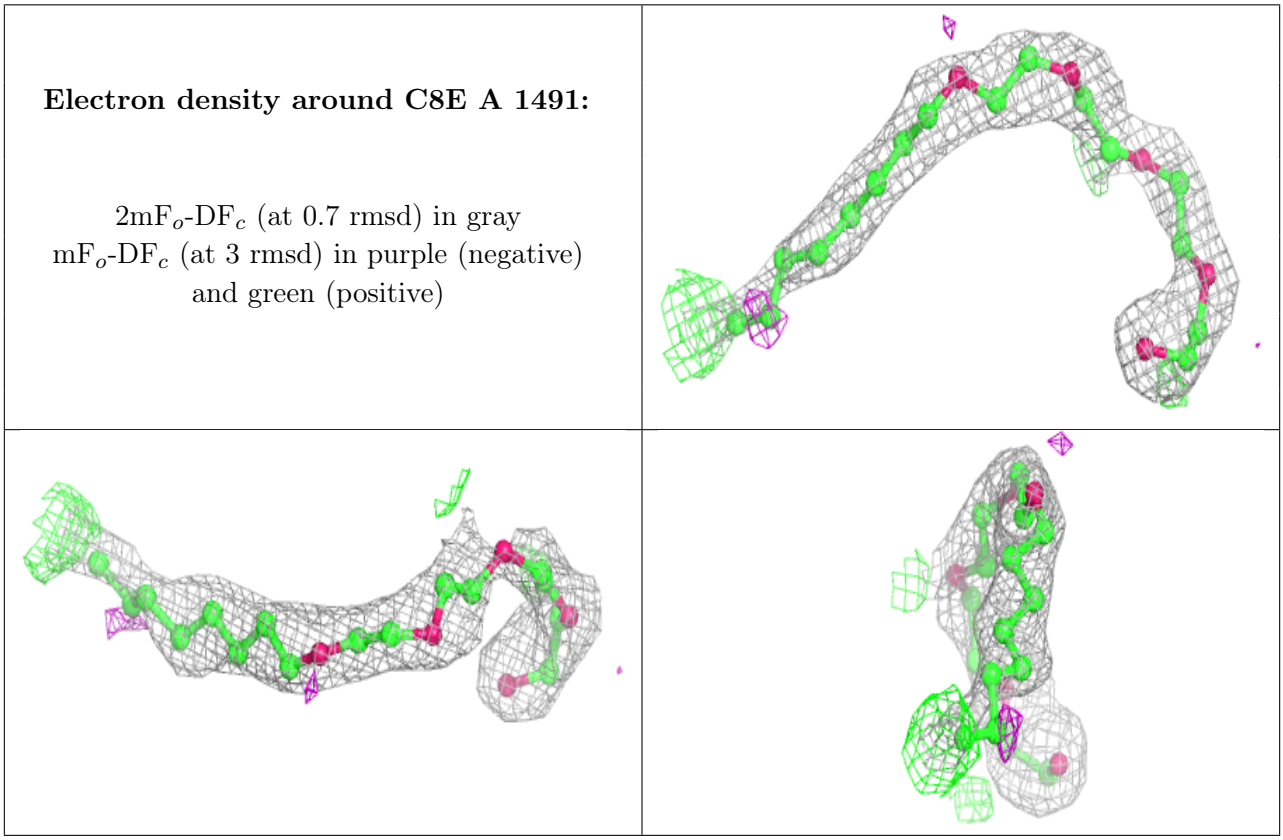
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, $95^{th}$ percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | B-factors(Å$^2$) | Q<0.9 |
|---|---|---|---|---|---|---|---|---|
| 2 | C8E | A | 1491 | 21/21 | 0.84 | 0.36 | 67,69,77,79 | 0 |
| 2 | C8E | B | 1491 | 21/21 | 0.84 | 0.29 | 55,65,80,81 | 0 |
| 3 | GOL | A | 1493 | 6/6 | 0.87 | 0.33 | 62,70,74,75 | 0 |
| 3 | GOL | A | 1492 | 6/6 | 0.92 | 0.19 | 88,89,89,89 | 0 |

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

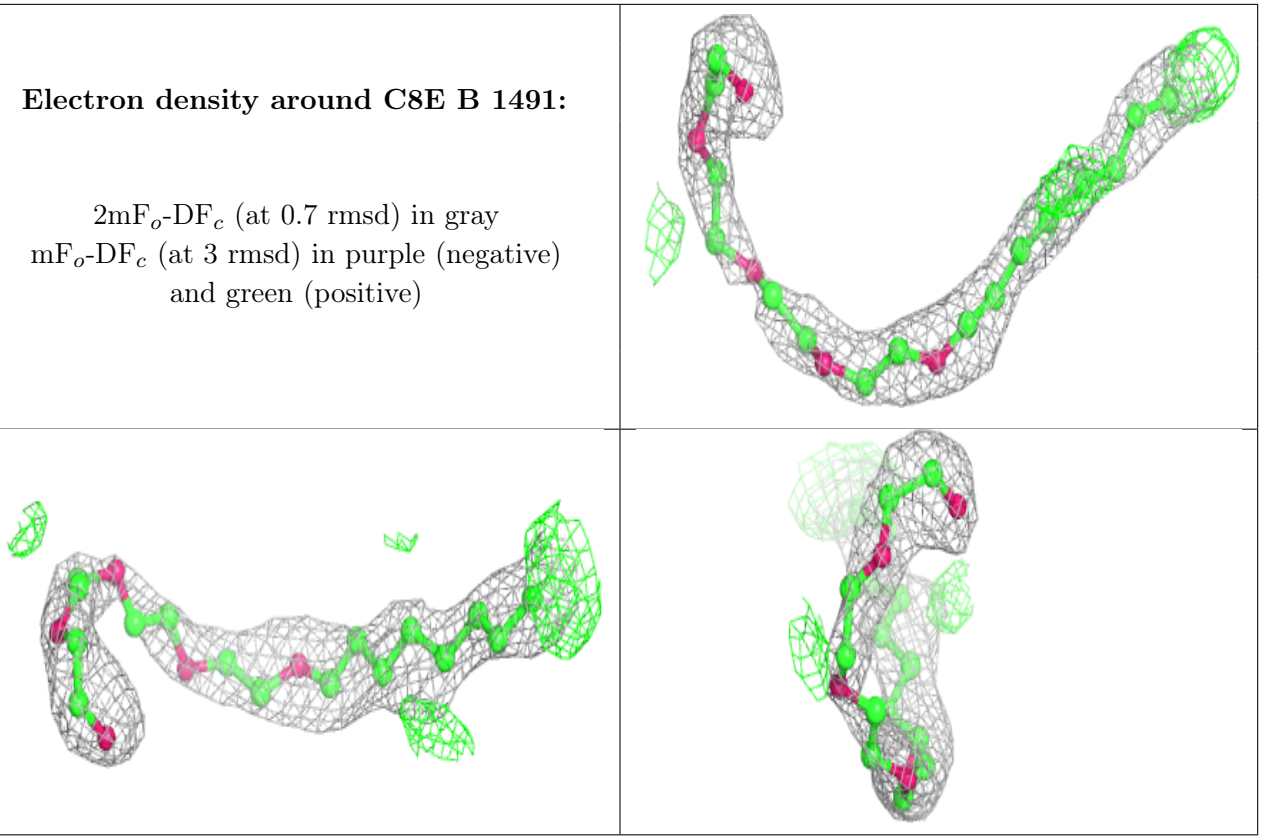
**Electron density around C8E A 1491:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



**Electron density around C8E B 1491:**

$2mF_o$-$DF_c$ (at 0.7 rmsd) in gray
$mF_o$-$DF_c$ (at 3 rmsd) in purple (negative) and green (positive)



## 6.5 Other polymers (i)

There are no such residues in this entry.