Full wwPDB X-ray Structure Validation Report ⓘ

Jun 23, 2024 – 07:14 AM EDT

PDB ID	:	5F0N
Title	:	Cohesin subunit Pds5
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Deposited on	:	2015-11-27
Resolution	:	3.20 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	:	2.37.1
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)	:	2.37.1

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 3.20 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.
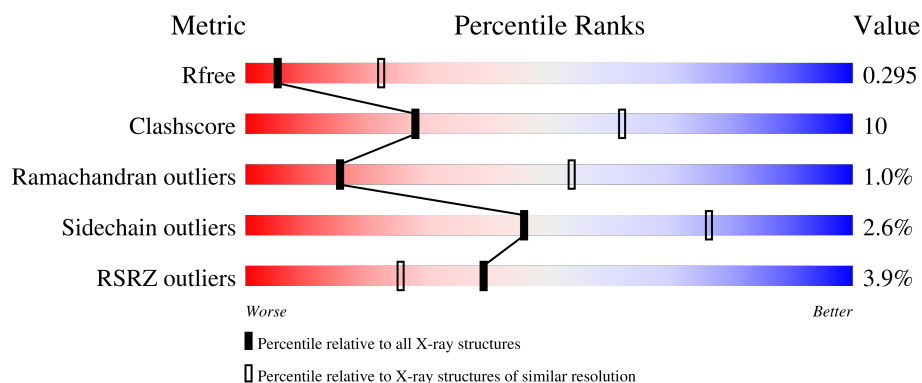
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

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	1175	3% / 64% / 23% / • / 12%

2 Entry composition (i)

There is only 1 type of molecule in this entry. The entry contains 8213 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.
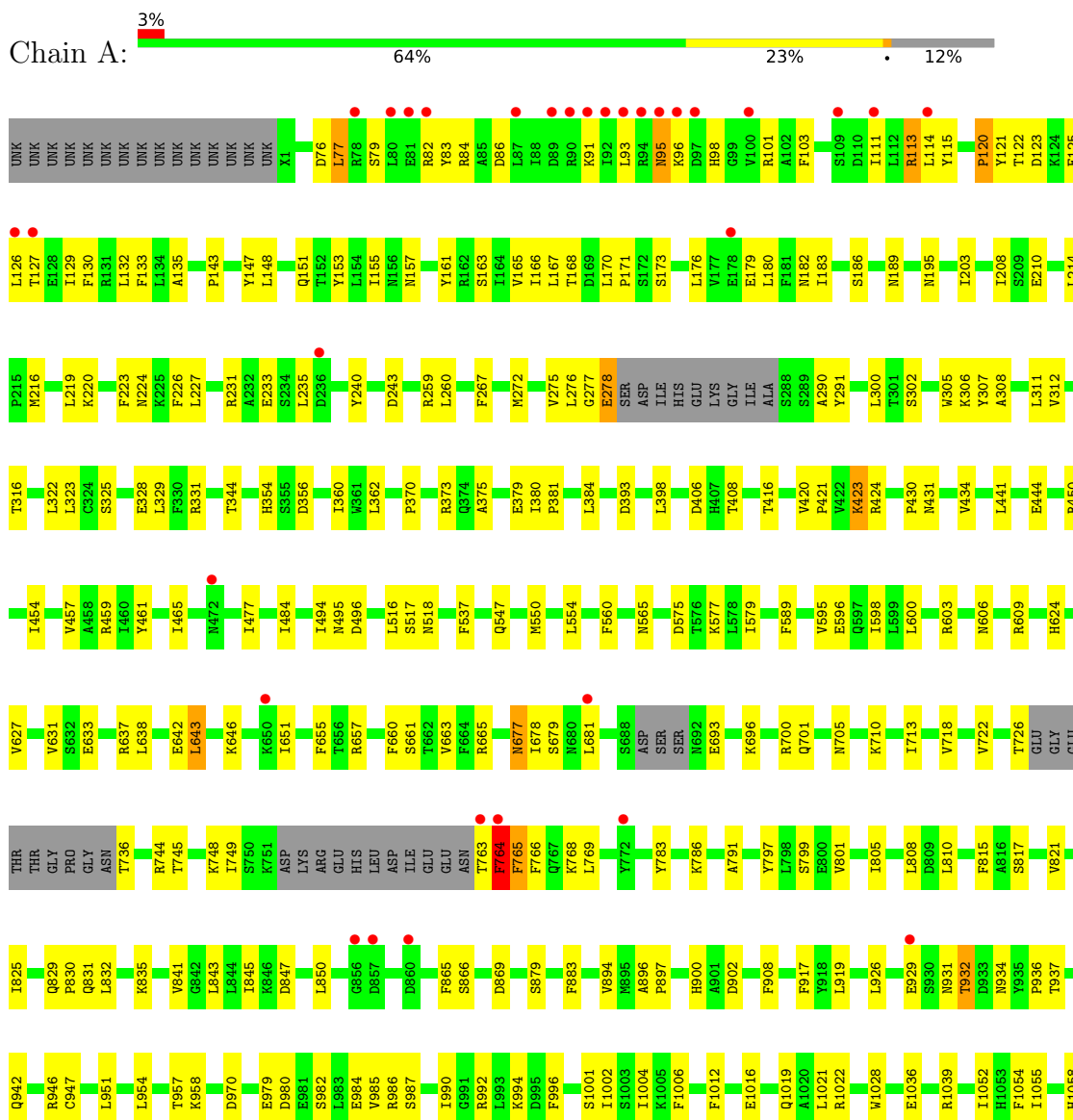
- Molecule 1 is a protein called cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5,KLTH0D07062p,cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5,KLTH0D07062p,cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5,KLTH0D07062p,cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5.

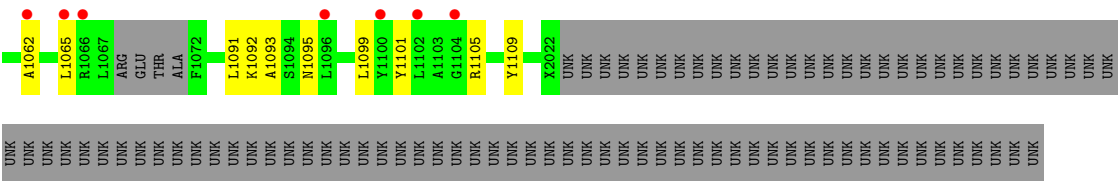| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	1038	8213	5280	1374	1532	27	0	0	0

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: cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5,KLTH0D07062p,cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5,KLTH0D07062p,cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5,KLTH0D07062p,cohesin subunit Pds5,cohesin subunit Pds5, cohesin subunit Pds5

A1062 L1065 R1066 L1067 ARG GLU THR ALA F1072 L1091 K1092 A1093 S1094 N1095 L1096 L1099 Y1100 Y1101 L1102 A1103 G1104 R1105 Y1109 X2022 UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK UNK

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4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α, β, γ	238.21Å 238.21Å 80.66Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	46.67 – 3.20 46.67 – 3.20	Depositor EDS
% Data completeness (in resolution range)	92.8 (46.67-3.20) 92.8 (46.67-3.20)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	0.06	Depositor
$< I/\sigma(I) >$ [1]	3.31 (at 3.19Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.236 , 0.295 0.236 , 0.295	Depositor DCC
R_{free} test set	1385 reflections (5.30%)	wwPDB-VP
Wilson B-factor (Å^2)	78.4	Xtriage
Anisotropy	0.006	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 48.7	EDS
L-test for twinning[2]	$< |L| > = 0.47, < L^2 > = 0.29$	Xtriage
Estimated twinning fraction	0.035 for h,-h-k,-l	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	8213	wwPDB-VP
Average B, all atoms (Å^2)	65.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.43% 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	0.26	0/8169	0.46	0/11047

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	763	THR	Peptide
1	A	764	PHE	Peptide
1	A	931	ASN	Peptide

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	8213	0	8172	162	0
All	All	8213	0	8172	162	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 10.

All (162) 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:1095:ASN:HB3	1:A:1099:LEU:HD13	1.60	0.83
1:A:323:LEU:HD23	1:A:360:ILE:HG23	1.64	0.79
1:A:170:LEU:HD12	1:A:171:PRO:HD2	1.66	0.77
1:A:1036:GLU:HA	1:A:1039:ARG:HB3	1.65	0.76
1:A:165:VAL:HG13	1:A:210:GLU:HG2	1.70	0.74
1:A:223:PHE:HB3	1:A:300:LEU:HD21	1.67	0.74
1:A:764:PHE:O	1:A:768:LYS:N	2.20	0.72
1:A:1091:LEU:HG	1:A:1092:LYS:H	1.55	0.71
1:A:127:THR:HA	1:A:170:LEU:HD21	1.71	0.71
1:A:696:LYS:HB3	1:A:700:ARG:HH12	1.59	0.68
1:A:986:ARG:NH1	1:A:1016:GLU:OE2	2.27	0.67
1:A:113:ARG:HG3	1:A:161:TYR:CG	2.29	0.67
1:A:126:LEU:HA	1:A:129:ILE:HG12	1.76	0.66
1:A:1019:GLN:HA	1:A:1022:ARG:HB3	1.77	0.66
1:A:982:SER:HB3	1:A:985:VAL:HG22	1.77	0.66
1:A:765:PHE:O	1:A:769:LEU:HB2	1.97	0.64
1:A:362:LEU:HD21	1:A:393:ASP:HB3	1.79	0.64
1:A:808:LEU:HD23	1:A:815:PHE:HE1	1.63	0.64
1:A:681:LEU:HD22	1:A:713:ILE:HG22	1.79	0.63
1:A:111:ILE:HA	1:A:114:LEU:HB2	1.82	0.61
1:A:946:ARG:NH1	1:A:980:ASP:OD2	2.33	0.61
1:A:130:PHE:HA	1:A:133:PHE:HB2	1.84	0.60
1:A:942:GLN:O	1:A:946:ARG:HG3	2.02	0.60
1:A:122:THR:HG22	1:A:123:ASP:H	1.67	0.59
1:A:143:PRO:HA	1:A:148:LEU:HD13	1.83	0.59
1:A:783:TYR:HA	1:A:786:LYS:HB2	1.84	0.59
1:A:170:LEU:HD12	1:A:171:PRO:CD	2.34	0.58
1:A:745:THR:O	1:A:749:ILE:HG13	2.04	0.58
1:A:830:PRO:HG3	1:A:894:VAL:HG11	1.85	0.58
1:A:947:CYS:HB2	1:A:985:VAL:HG12	1.86	0.58
1:A:643:LEU:HB3	1:A:657:ARG:HH22	1.69	0.57
1:A:1105:ARG:NH2	1:A:1109:TYR:OH	2.37	0.57
1:A:937:THR:O	1:A:942:GLN:NE2	2.35	0.57
1:A:113:ARG:HG3	1:A:161:TYR:CD1	2.40	0.56
1:A:370:PRO:HA	1:A:373:ARG:HD2	1.86	0.56
1:A:430:PRO:HA	1:A:477:ILE:HD11	1.88	0.55
1:A:627:VAL:O	1:A:631:VAL:HG13	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:457:VAL:HB	1:A:484:ILE:HD12	1.88	0.55
1:A:565:ASN:HB2	1:A:606:ASN:HD21	1.71	0.55
1:A:693:GLU:HA	1:A:696:LYS:HD2	1.88	0.54
1:A:829:GLN:HB3	1:A:832:LEU:HD13	1.90	0.54
1:A:416:THR:O	1:A:420:VAL:HG12	2.08	0.54
1:A:83:TYR:HA	1:A:86:ASP:HB2	1.89	0.53
1:A:219:LEU:HD23	1:A:267:PHE:HB2	1.91	0.53
1:A:305:TRP:HA	1:A:312:VAL:HG21	1.91	0.52
1:A:328:GLU:OE1	1:A:331:ARG:NH2	2.25	0.52
1:A:441:LEU:O	1:A:444:GLU:HB2	2.10	0.52
1:A:810:LEU:HD21	1:A:847:ASP:HB3	1.91	0.52
1:A:95:ASN:HB2	1:A:101:ARG:HB3	1.90	0.52
1:A:306:LYS:HG3	1:A:307:TYR:CE2	2.44	0.52
1:A:1058:HIS:O	1:A:1062:ALA:N	2.42	0.52
1:A:98:HIS:ND1	1:A:147:TYR:HE2	2.07	0.52
1:A:406:ASP:OD2	1:A:408:THR:HG22	2.10	0.52
1:A:461:TYR:CZ	1:A:465:ILE:HD11	2.45	0.51
1:A:380:ILE:N	1:A:381:PRO:HD2	2.26	0.51
1:A:575:ASP:O	1:A:579:ILE:HG12	2.10	0.51
1:A:235:LEU:HB3	1:A:240:TYR:CE1	2.46	0.51
1:A:235:LEU:HD23	1:A:235:LEU:H	1.76	0.51
1:A:308:ALA:HB1	1:A:311:LEU:HB3	1.91	0.51
1:A:450:ARG:O	1:A:454:ILE:HG13	2.11	0.51
1:A:958:LYS:HD3	1:A:1001:SER:HB3	1.92	0.50
1:A:231:ARG:NH2	1:A:307:TYR:CZ	2.78	0.50
1:A:701:GLN:O	1:A:705:ASN:ND2	2.42	0.50
1:A:195:ASN:OD1	1:A:195:ASN:N	2.45	0.50
1:A:951:LEU:HD22	1:A:992:ARG:HG3	1.94	0.50
1:A:624:HIS:N	1:A:679:SER:OG	2.44	0.50
1:A:744:ARG:O	1:A:748:LYS:HG2	2.12	0.50
1:A:76:ASP:O	1:A:79:SER:OG	2.25	0.49
1:A:121:TYR:HB2	1:A:126:LEU:HD13	1.94	0.49
1:A:316:THR:HG21	1:A:354:HIS:CE1	2.47	0.49
1:A:517:SER:OG	1:A:518:ASN:N	2.45	0.49
1:A:306:LYS:HB3	1:A:344:THR:HG21	1.95	0.49
1:A:380:ILE:HD11	1:A:398:LEU:HD13	1.95	0.49
1:A:609:ARG:HD3	1:A:637:ARG:HD3	1.95	0.49
1:A:565:ASN:HD21	1:A:603:ARG:HG2	1.78	0.48
1:A:421:PRO:HB2	1:A:423:LYS:HD2	1.95	0.47
1:A:850:LEU:HD23	1:A:926:LEU:HB3	1.97	0.47
1:A:494:ILE:O	1:A:496:ASP:N	2.47	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:764:PHE:CD2	1:A:764:PHE:C	2.88	0.47
1:A:801:VAL:O	1:A:805:ILE:HG23	2.15	0.47
1:A:879:SER:HB2	1:A:883:PHE:CE2	2.50	0.47
1:A:987:SER:HB3	1:A:1021:LEU:HD22	1.97	0.47
1:A:821:VAL:O	1:A:825:ILE:HG13	2.15	0.47
1:A:179:GLU:HA	1:A:182:ASN:HB2	1.96	0.46
1:A:121:TYR:HB2	1:A:126:LEU:CD1	2.46	0.46
1:A:155:ILE:HG13	1:A:203:ILE:HG13	1.97	0.46
1:A:84:ARG:HE	1:A:120:PRO:HB2	1.81	0.46
1:A:766:PHE:HE2	1:A:791:ALA:HB2	1.81	0.46
1:A:163:SER:HA	1:A:166:ILE:HD13	1.97	0.45
1:A:220:LYS:O	1:A:224:ASN:HB2	2.16	0.45
1:A:598:ILE:HG23	1:A:660:PHE:CD1	2.51	0.45
1:A:633:GLU:HG2	1:A:637:ARG:HE	1.81	0.45
1:A:917:PHE:CE1	1:A:970:ASP:HB3	2.51	0.45
1:A:431:ASN:HB3	1:A:434:VAL:HG23	1.98	0.45
1:A:596:GLU:O	1:A:600:LEU:HB2	2.15	0.45
1:A:637:ARG:O	1:A:643:LEU:HD13	2.16	0.45
1:A:642:GLU:HG2	1:A:646:LYS:HB2	1.98	0.45
1:A:322:LEU:HA	1:A:325:SER:OG	2.16	0.45
1:A:168:THR:O	1:A:173:SER:OG	2.34	0.45
1:A:810:LEU:HD11	1:A:843:LEU:HD21	1.99	0.45
1:A:125:GLU:O	1:A:129:ILE:HG23	2.17	0.44
1:A:275:VAL:HG12	1:A:290:ALA:HB1	1.98	0.44
1:A:932:THR:O	1:A:934:ASN:N	2.49	0.44
1:A:554:LEU:HD23	1:A:554:LEU:HA	1.77	0.44
1:A:984:GLU:OE2	1:A:984:GLU:N	2.50	0.44
1:A:696:LYS:HB3	1:A:700:ARG:NH1	2.29	0.44
1:A:954:LEU:HD12	1:A:954:LEU:HA	1.78	0.44
1:A:384:LEU:O	1:A:424:ARG:NH2	2.51	0.44
1:A:91:LYS:HE3	1:A:96:LYS:HE3	2.00	0.43
1:A:260:LEU:HD23	1:A:311:LEU:HD11	1.98	0.43
1:A:423:LYS:CD	1:A:423:LYS:H	2.31	0.43
1:A:272:MET:HG3	1:A:276:LEU:HD13	2.00	0.43
1:A:896:ALA:HB3	1:A:897:PRO:HD3	2.00	0.43
1:A:598:ILE:HD13	1:A:663:VAL:HG21	2.01	0.43
1:A:979:GLU:OE2	1:A:1012:PHE:HB3	2.19	0.43
1:A:547:GLN:OE1	1:A:710:LYS:NZ	2.51	0.43
1:A:180:LEU:O	1:A:183:ILE:HG12	2.19	0.43
1:A:375:ALA:O	1:A:379:GLU:HG2	2.19	0.43
1:A:638:LEU:HD22	1:A:660:PHE:CE2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:726:THR:CG2	1:A:765:PHE:H	2.32	0.43
1:A:186:SER:O	1:A:189:ASN:ND2	2.41	0.42
1:A:308:ALA:O	1:A:312:VAL:HG23	2.19	0.42
1:A:1004:ILE:HD13	1:A:1004:ILE:HA	1.91	0.42
1:A:1052:ILE:HA	1:A:1055:ILE:HG22	2.00	0.42
1:A:132:LEU:HD12	1:A:135:ALA:HB3	2.01	0.42
1:A:865:PHE:HB3	1:A:869:ASP:HB2	2.01	0.42
1:A:153:TYR:O	1:A:157:ASN:HB2	2.19	0.42
1:A:167:LEU:HD11	1:A:176:LEU:HG	2.01	0.42
1:A:356:ASP:O	1:A:360:ILE:HG22	2.19	0.42
1:A:817:SER:O	1:A:821:VAL:HG23	2.20	0.42
1:A:565:ASN:ND2	1:A:606:ASN:OD1	2.53	0.42
1:A:718:VAL:O	1:A:722:VAL:HG13	2.19	0.42
1:A:996:PHE:HB3	1:A:1002:ILE:HG12	2.01	0.42
1:A:677:ASN:HD22	1:A:678:ILE:H	1.67	0.42
1:A:700:ARG:NH2	1:A:736:THR:O	2.53	0.42
1:A:990:ILE:HG22	1:A:994:LYS:HE3	2.02	0.42
1:A:423:LYS:HD2	1:A:423:LYS:H	1.85	0.42
1:A:216:MET:O	1:A:220:LYS:N	2.40	0.41
1:A:919:LEU:HG	1:A:926:LEU:HD21	2.01	0.41
1:A:223:PHE:O	1:A:226:PHE:HB2	2.20	0.41
1:A:651:ILE:HD13	1:A:655:PHE:CZ	2.54	0.41
1:A:947:CYS:O	1:A:951:LEU:HG	2.20	0.41
1:A:994:LYS:HD2	1:A:1028:TRP:CG	2.55	0.41
1:A:77:LEU:HD23	1:A:77:LEU:HA	1.87	0.41
1:A:589:PHE:CD2	1:A:595:VAL:HG11	2.54	0.41
1:A:661:SER:O	1:A:665:ARG:HG3	2.20	0.41
1:A:277:GLY:O	1:A:278:GLU:HG3	2.20	0.41
1:A:841:VAL:O	1:A:845:ILE:HG13	2.20	0.41
1:A:147:TYR:O	1:A:151:GLN:NE2	2.54	0.41
1:A:208:ILE:HA	1:A:214:LEU:HD21	2.02	0.41
1:A:710:LYS:HE3	1:A:713:ILE:HD11	2.01	0.41
1:A:980:ASP:HB3	1:A:985:VAL:HG23	2.03	0.41
1:A:224:ASN:O	1:A:227:LEU:HD12	2.21	0.41
1:A:291:TYR:CE1	1:A:329:LEU:HD13	2.56	0.41
1:A:560:PHE:CE1	1:A:577:LYS:HD2	2.56	0.41
1:A:693:GLU:HA	1:A:696:LYS:HB2	2.03	0.41
1:A:957:THR:HG21	1:A:1006:PHE:CE1	2.56	0.41
1:A:799:SER:OG	1:A:832:LEU:HG	2.20	0.40
1:A:810:LEU:HD21	1:A:847:ASP:CB	2.51	0.40
1:A:841:VAL:HG11	1:A:908:PHE:HE1	1.86	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:233:GLU:HG3	1:A:243:ASP:HB2	2.03	0.40
1:A:1062:ALA:HA	1:A:1065:LEU:CD2	2.52	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	986/1175 (84%)	909 (92%)	67 (7%)	10 (1%)	15	54

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	765	PHE
1	A	932	THR
1	A	1093	ALA
1	A	95	ASN
1	A	115	TYR
1	A	120	PRO
1	A	495	ASN
1	A	929	GLU
1	A	902	ASP
1	A	936	PRO

5.3.2   Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	890/920 (97%)	867 (97%)	23 (3%)	46 76

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	77	LEU
1	A	82	ARG
1	A	93	LEU
1	A	103	PHE
1	A	113	ARG
1	A	259	ARG
1	A	278	GLU
1	A	302	SER
1	A	423	LYS
1	A	459	ARG
1	A	516	LEU
1	A	537	PHE
1	A	550	MET
1	A	643	LEU
1	A	677	ASN
1	A	764	PHE
1	A	797	TYR
1	A	831	GLN
1	A	835	LYS
1	A	866	SER
1	A	900	HIS
1	A	1054	PHE
1	A	1101	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	354	HIS
1	A	565	ASN
1	A	606	ASN

5.3.3 RNA (i)

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 ⓘ

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	3

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	2008:UNK	C	2009:UNK	N	31.06
1	A	1109:TYR	C	2000:UNK	N	25.72
1	A	17:UNK	C	76:ASP	N	13.12

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, 95th 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	998/1175 (84%)	0.24	39 (3%)	39	25	28, 60, 105, 142	0

All (39) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	127	THR	5.6
1	A	929	GLU	5.0
1	A	94	ARG	3.9
1	A	114	LEU	3.8
1	A	95	ASN	3.6
1	A	96	LYS	3.5
1	A	1065	LEU	3.3
1	A	92	ILE	3.1
1	A	857	ASP	3.1
1	A	78	ARG	3.0
1	A	1096	LEU	3.0
1	A	111	ILE	2.9
1	A	236	ASP	2.8
1	A	178	GLU	2.6
1	A	82	ARG	2.6
1	A	472	ASN	2.6
1	A	97	ASP	2.6
1	A	1102	LEU	2.6
1	A	81	GLU	2.5
1	A	93	LEU	2.5
1	A	1062	ALA	2.4
1	A	772	TYR	2.4
1	A	856	GLY	2.4
1	A	764	PHE	2.4
1	A	80	LEU	2.4
1	A	1104	GLY	2.3
1	A	89	ASP	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	100	VAL	2.3
1	A	763	THR	2.2
1	A	91	LYS	2.2
1	A	109	SER	2.2
1	A	1100	TYR	2.1
1	A	90	ARG	2.1
1	A	650	LYS	2.1
1	A	87	LEU	2.1
1	A	126	LEU	2.1
1	A	681	LEU	2.1
1	A	860	ASP	2.1
1	A	1066	ARG	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 ⓘ

There are no such residues in this entry.