Full wwPDB X-ray Structure Validation Report ⓘ

May 22, 2020 – 12:06 am BST

PDB ID	:	4O8U
Title	:	Structure of PF2046
Authors	:	Su, J.; Liu, Z.-J.
Deposited on	:	2013-12-30
Resolution	:	2.35 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 following versions of software and data (see references ①) were used in the production of this report:

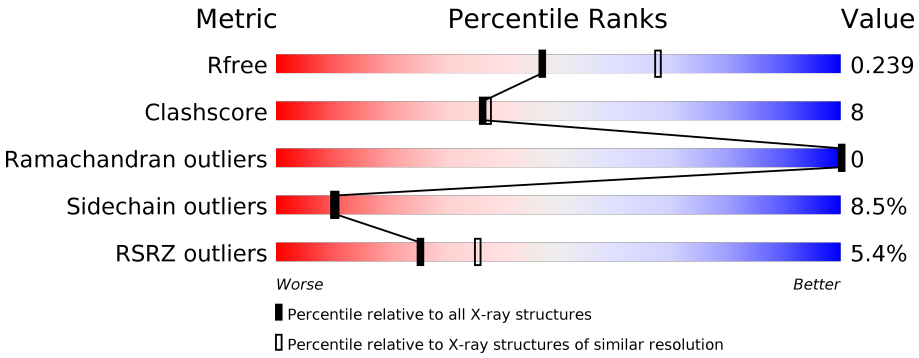
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.11
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.11

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 2.35 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	2096 (2.36-2.32)
Clashscore	141614	2193 (2.36-2.32)
Ramachandran outliers	138981	2159 (2.36-2.32)
Sidechain outliers	138945	2160 (2.36-2.32)
RSRZ outliers	127900	2067 (2.36-2.32)

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 on 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	229	3% 79% 18%
1	B	229	2% 81% 17%
1	C	229	11% 73% 24%
1	D	229	6% 74% 22%
1	E	229	% 78% 18%
1	F	229	8% 76% 19%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 10864 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 Uncharacterized protein PF2046.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	227	Total	C	N	O	Se	0	0	0
			1757	1132	296	326	3			
1	B	227	Total	C	N	O	Se	0	0	0
			1757	1132	296	326	3			
1	C	227	Total	C	N	O	Se	0	0	0
			1757	1132	296	326	3			
1	D	227	Total	C	N	O	Se	0	0	0
			1757	1132	296	326	3			
1	E	227	Total	C	N	O	Se	0	0	0
			1757	1132	296	326	3			
1	F	227	Total	C	N	O	Se	0	0	0
			1757	1132	296	326	3			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	9	SER	-	EXPRESSION TAG	UNP Q8TZE9
B	9	SER	-	EXPRESSION TAG	UNP Q8TZE9
C	9	SER	-	EXPRESSION TAG	UNP Q8TZE9
D	9	SER	-	EXPRESSION TAG	UNP Q8TZE9
E	9	SER	-	EXPRESSION TAG	UNP Q8TZE9
F	9	SER	-	EXPRESSION TAG	UNP Q8TZE9

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	56	Total	O	0	0
			56	56		
2	B	50	Total	O	0	0
			50	50		
2	C	53	Total	O	0	0
			53	53		

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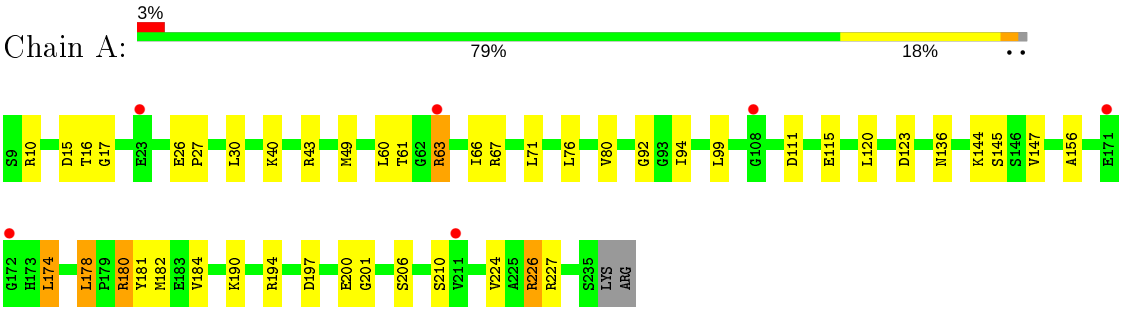
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	D	51	Total O 51 51	0	0
2	E	60	Total O 60 60	0	0
2	F	52	Total O 52 52	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA and DNA 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.

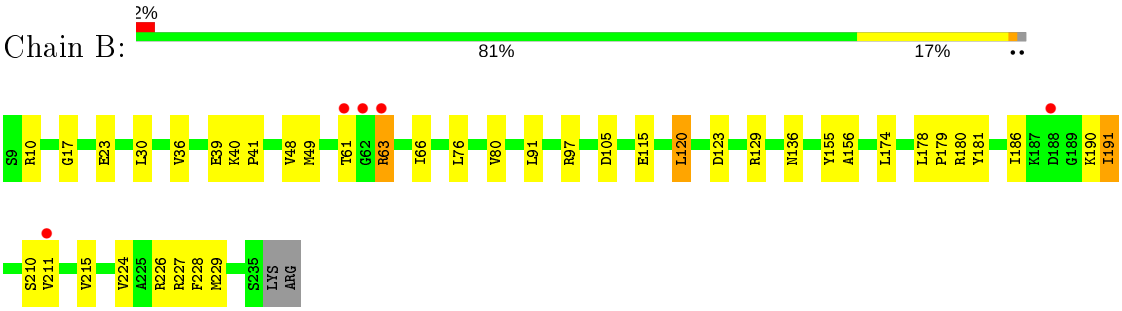
- Molecule 1: Uncharacterized protein PF2046

Chain A:



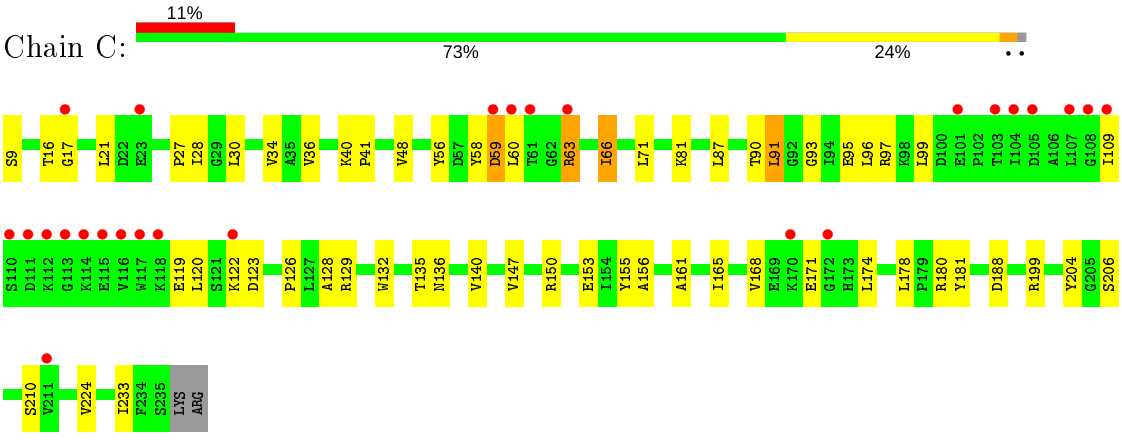
- Molecule 1: Uncharacterized protein PF2046

Chain B:



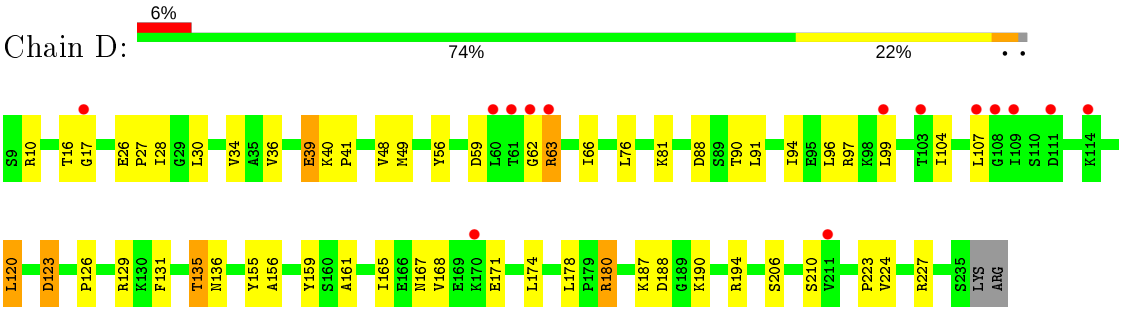
- Molecule 1: Uncharacterized protein PF2046

Chain C:



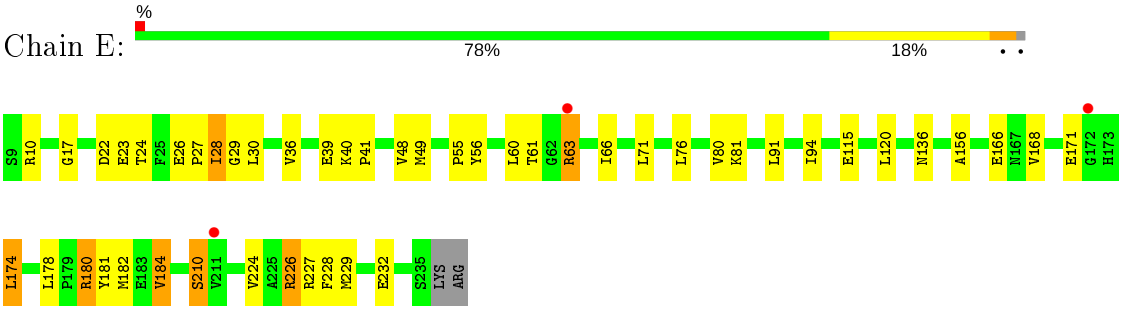
- Molecule 1: Uncharacterized protein PF2046

Chain D:



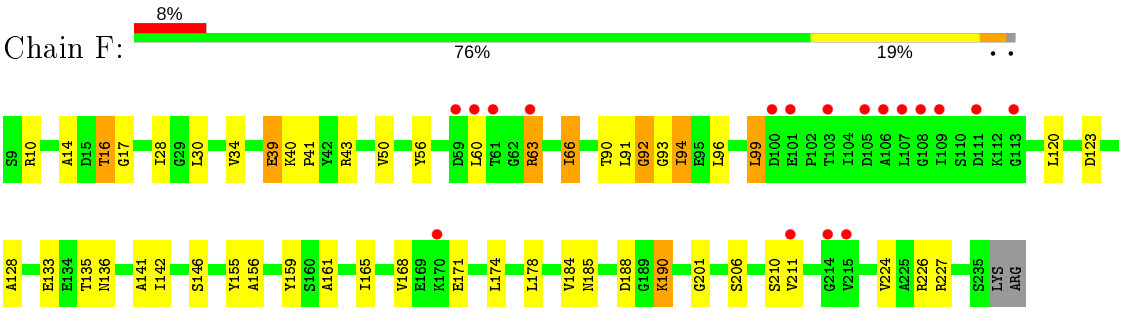
- Molecule 1: Uncharacterized protein PF2046

Chain E:



- Molecule 1: Uncharacterized protein PF2046

Chain F:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	218.38Å 125.64Å 94.04Å 90.00° 102.86° 90.00°	Depositor
Resolution (Å)	36.07 – 2.35 36.07 – 2.35	Depositor EDS
% Data completeness (in resolution range)	85.1 (36.07-2.35) 81.0 (36.07-2.35)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.49 (at 2.34Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.8.2_1309)	Depositor
R, R_{free}	0.201 , 0.238 0.203 , 0.239	Depositor DCC
R_{free} test set	2000 reflections (2.27%)	wwPDB-VP
Wilson B-factor (Å^2)	34.6	Xtriage
Anisotropy	0.665	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 40.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	10864	wwPDB-VP
Average B, all atoms (Å^2)	52.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.22% 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

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	0.57	0/1788	0.69	1/2420 (0.0%)
1	B	0.54	0/1788	0.67	1/2420 (0.0%)
1	C	0.57	0/1788	0.68	0/2420
1	D	0.59	0/1788	0.71	1/2420 (0.0%)
1	E	0.60	0/1788	0.67	0/2420
1	F	0.55	0/1788	0.68	1/2420 (0.0%)
All	All	0.57	0/10728	0.68	4/14520 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	91	LEU	N-CA-C	-9.07	86.52	111.00
1	D	180	ARG	CB-CA-C	-6.40	97.60	110.40
1	A	178	LEU	C-N-CD	6.13	141.26	128.40
1	F	92	GLY	N-CA-C	5.74	127.44	113.10

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	1757	0	1781	28	0
1	B	1757	0	1781	20	0
1	C	1757	0	1781	31	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	D	1757	0	1781	34	0
1	E	1757	0	1781	34	0
1	F	1757	0	1781	37	0
2	A	56	0	0	6	0
2	B	50	0	0	2	0
2	C	53	0	0	1	0
2	D	51	0	0	5	0
2	E	60	0	0	4	0
2	F	52	0	0	5	0
All	All	10864	0	10686	167	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 8.

All (167) 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:E:210:SER:OG	2:E:353:HOH:O	1.86	0.94
1:F:185:ASN:HB2	2:F:344:HOH:O	1.66	0.94
1:F:161:ALA:O	1:F:165:ILE:HD12	1.70	0.92
1:F:90:THR:O	1:F:91:LEU:HD23	1.77	0.84
1:F:159:TYR:OH	2:F:343:HOH:O	1.98	0.81
1:D:168:VAL:O	1:D:171:GLU:O	1.96	0.81
1:F:63:ARG:HB3	1:F:66:ILE:HG22	1.63	0.80
1:E:115:GLU:OE2	1:F:190:LYS:HD2	1.82	0.80
1:E:61:THR:HG23	1:F:188:ASP:HB3	1.63	0.79
1:B:10:ARG:NH1	1:B:80:VAL:O	2.17	0.77
1:D:90:THR:O	1:D:91:LEU:HD23	1.85	0.76
1:D:159:TYR:OH	2:D:308:HOH:O	2.04	0.74
1:C:17:GLY:HA2	1:C:156:ALA:HB1	1.68	0.74
1:C:168:VAL:O	1:C:171:GLU:O	2.05	0.73
1:D:88:ASP:OD2	2:D:347:HOH:O	2.06	0.73
1:D:17:GLY:HA2	1:D:156:ALA:HB1	1.71	0.73
1:E:17:GLY:HA2	1:E:156:ALA:HB1	1.70	0.73
1:E:182:MSE:HE2	1:E:184:VAL:HG23	1.71	0.72
1:E:226:ARG:O	1:E:227:ARG:HB2	1.89	0.71
1:F:17:GLY:HA2	1:F:156:ALA:HB1	1.72	0.71
1:C:63:ARG:HB3	1:C:66:ILE:HG22	1.71	0.71
1:F:66:ILE:HG21	1:F:120:LEU:HD21	1.72	0.71
1:C:66:ILE:HG21	1:C:120:LEU:HD21	1.70	0.70
1:A:182:MSE:HE2	1:A:184:VAL:HG23	1.74	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:15:ASP:OD1	2:A:317:HOH:O	2.09	0.69
1:D:59:ASP:OD1	2:D:325:HOH:O	2.09	0.69
1:B:17:GLY:HA2	1:B:156:ALA:HB1	1.73	0.69
1:C:90:THR:O	1:C:91:LEU:HD23	1.91	0.69
1:A:200:GLU:O	2:A:302:HOH:O	2.11	0.68
1:A:10:ARG:NH1	1:A:80:VAL:O	2.21	0.68
1:D:167:ASN:ND2	2:D:332:HOH:O	2.22	0.68
1:E:166:GLU:OE2	2:E:353:HOH:O	2.12	0.68
1:D:188:ASP:N	2:D:338:HOH:O	2.27	0.68
1:E:10:ARG:NH1	1:E:80:VAL:O	2.26	0.68
1:F:168:VAL:O	1:F:171:GLU:O	2.12	0.67
1:D:66:ILE:HG21	1:D:120:LEU:HD21	1.77	0.66
1:E:115:GLU:OE2	1:F:190:LYS:CD	2.44	0.65
1:B:155:TYR:OH	2:B:348:HOH:O	2.15	0.65
1:A:180:ARG:HG3	1:A:181:TYR:CE2	2.33	0.64
1:E:22:ASP:HB3	1:E:24:THR:H	1.61	0.64
1:A:17:GLY:HA2	1:A:156:ALA:HB1	1.80	0.64
1:F:94:ILE:HG21	1:F:99:LEU:HD21	1.80	0.63
1:B:61:THR:HG23	1:C:188:ASP:HB3	1.81	0.62
1:B:180:ARG:HG3	1:B:181:TYR:CE2	2.36	0.61
1:B:115:GLU:HG3	1:C:206:SER:HB2	1.83	0.60
1:A:190:LYS:HE2	1:A:206:SER:OG	2.01	0.60
1:E:63:ARG:HB3	1:E:66:ILE:HG22	1.82	0.60
1:E:115:GLU:CD	1:F:190:LYS:HD2	2.21	0.60
1:F:43:ARG:NH2	2:F:315:HOH:O	2.35	0.59
1:D:123:ASP:N	1:D:123:ASP:OD1	2.33	0.59
1:D:34:VAL:HG11	1:D:155:TYR:HB3	1.85	0.59
1:E:23:GLU:CD	1:E:23:GLU:H	2.05	0.58
1:F:92:GLY:N	1:F:93:GLY:HA2	2.19	0.58
1:C:40:LYS:HG3	1:C:41:PRO:HA	1.85	0.57
1:F:211:VAL:O	1:F:211:VAL:HG23	2.04	0.57
1:A:182:MSE:CE	1:A:184:VAL:HG23	2.35	0.57
1:A:92:GLY:N	2:A:330:HOH:O	2.12	0.56
1:F:142:ILE:HD13	1:F:146:SER:HB2	1.87	0.56
1:B:40:LYS:HG3	1:B:41:PRO:HA	1.88	0.56
1:D:36:VAL:HG12	1:D:48:VAL:HG22	1.86	0.56
1:E:180:ARG:HG3	1:E:181:TYR:CE2	2.41	0.55
1:C:97:ARG:HG2	1:C:129:ARG:HA	1.89	0.55
1:C:199:ARG:O	1:D:227:ARG:HB3	2.07	0.55
1:B:36:VAL:HG12	1:B:48:VAL:HG22	1.90	0.54
1:A:67:ARG:NH1	2:A:346:HOH:O	2.29	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:161:ALA:O	1:D:165:ILE:HD12	2.07	0.53
1:C:180:ARG:HG3	1:C:181:TYR:CE2	2.43	0.53
1:A:115:GLU:HG3	1:D:206:SER:HB2	1.91	0.53
1:C:36:VAL:HG12	1:C:48:VAL:HG22	1.90	0.53
1:F:94:ILE:HD13	1:F:99:LEU:HD23	1.89	0.53
1:A:43:ARG:HD3	1:A:201:GLY:O	2.09	0.53
1:E:168:VAL:O	1:E:171:GLU:O	2.27	0.53
1:C:9:SER:N	2:C:302:HOH:O	2.41	0.52
1:C:34:VAL:HG11	1:C:155:TYR:HB3	1.91	0.52
1:D:10:ARG:NH1	1:D:81:LYS:O	2.42	0.52
1:F:10:ARG:HD2	1:F:39:GLU:OE1	2.10	0.52
1:E:182:MSE:CE	1:E:184:VAL:HG23	2.40	0.51
1:A:63:ARG:HB3	1:A:66:ILE:HG22	1.93	0.51
1:B:49:MSE:HE3	1:B:76:LEU:HD13	1.93	0.51
1:D:40:LYS:HG3	1:D:41:PRO:HA	1.92	0.51
1:D:96:LEU:HD12	1:D:99:LEU:HD12	1.93	0.50
1:A:67:ARG:NH2	2:A:346:HOH:O	2.43	0.50
1:C:95:GLU:HG3	1:C:140:VAL:HG12	1.94	0.49
1:D:131:PHE:O	1:D:135:THR:OG1	2.25	0.49
1:D:90:THR:C	1:D:91:LEU:HD23	2.31	0.49
1:C:90:THR:C	1:C:91:LEU:HD23	2.32	0.49
1:B:63:ARG:HB3	1:B:66:ILE:HG22	1.93	0.49
1:E:49:MSE:HE3	1:E:76:LEU:HD13	1.95	0.49
1:A:147:VAL:HG22	1:E:226:ARG:HG2	1.95	0.48
1:F:40:LYS:HG3	1:F:41:PRO:HA	1.95	0.48
1:F:91:LEU:C	1:F:93:GLY:HA2	2.34	0.48
1:E:36:VAL:HG12	1:E:48:VAL:HG22	1.96	0.48
1:C:123:ASP:OD1	1:C:123:ASP:N	2.46	0.48
1:C:91:LEU:C	1:C:93:GLY:H	2.16	0.48
1:B:105:ASP:OD1	1:C:204:TYR:OH	2.27	0.47
1:B:10:ARG:HD2	1:B:39:GLU:OE1	2.13	0.47
1:B:97:ARG:HG2	1:B:129:ARG:HA	1.96	0.47
1:E:22:ASP:HB3	1:E:24:THR:N	2.28	0.47
1:B:226:ARG:O	1:B:227:ARG:HB2	2.15	0.47
1:D:97:ARG:HG2	1:D:129:ARG:HA	1.96	0.47
1:E:91:LEU:N	2:E:350:HOH:O	2.47	0.47
1:F:96:LEU:HD23	1:F:128:ALA:HB2	1.97	0.46
1:E:115:GLU:HG3	1:F:206:SER:OG	2.15	0.46
1:C:96:LEU:HD23	1:C:128:ALA:HB2	1.97	0.46
1:A:180:ARG:O	1:A:180:ARG:HG2	2.16	0.46
1:C:91:LEU:O	1:C:93:GLY:N	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:228:PHE:C	1:E:229:MSE:HE2	2.36	0.46
1:F:50:VAL:HG21	1:F:159:TYR:CD2	2.52	0.45
1:B:186:ILE:HG12	1:B:191:ILE:HG23	1.97	0.45
1:D:49:MSE:HE3	1:D:76:LEU:HD13	1.99	0.45
1:E:40:LYS:HG3	1:E:41:PRO:HA	1.97	0.45
1:E:76:LEU:O	1:E:80:VAL:HG22	2.16	0.45
1:F:226:ARG:O	1:F:227:ARG:HB2	2.17	0.45
1:A:123:ASP:OD1	1:A:123:ASP:N	2.49	0.45
1:A:197:ASP:OD2	1:E:227:ARG:NH1	2.50	0.45
1:F:50:VAL:HG21	1:F:159:TYR:CE2	2.52	0.45
1:F:94:ILE:HD13	1:F:99:LEU:CD2	2.47	0.45
1:B:190:LYS:HE3	1:B:190:LYS:HB2	1.77	0.44
1:C:161:ALA:O	1:C:165:ILE:HD12	2.17	0.44
1:A:115:GLU:HB3	1:D:190:LYS:HE2	2.00	0.44
1:E:29:GLY:HA3	1:E:55:PRO:O	2.17	0.44
1:D:10:ARG:HD2	1:D:39:GLU:OE1	2.17	0.44
1:B:228:PHE:C	1:B:229:MSE:HE2	2.38	0.44
1:B:66:ILE:HG21	1:B:120:LEU:HD21	2.00	0.43
1:C:123:ASP:C	1:C:126:PRO:HD2	2.37	0.43
1:C:119:GLU:HA	1:C:122:LYS:HD3	1.99	0.43
1:E:81:LYS:NZ	2:E:331:HOH:O	2.14	0.43
1:F:94:ILE:CG2	1:F:99:LEU:HD21	2.46	0.43
1:B:123:ASP:N	1:B:123:ASP:OD1	2.51	0.43
1:C:168:VAL:HG21	1:C:233:ILE:HG22	2.01	0.43
1:E:180:ARG:HG3	1:E:181:TYR:CZ	2.54	0.43
1:F:14:ALA:O	2:F:302:HOH:O	2.21	0.43
1:A:174:LEU:HA	1:A:174:LEU:HD12	1.88	0.43
1:E:24:THR:HG22	1:E:24:THR:O	2.19	0.43
1:C:28:ILE:HD11	1:C:56:TYR:CD1	2.54	0.43
1:A:226:ARG:O	1:A:227:ARG:HB2	2.19	0.43
1:C:97:ARG:HD3	1:C:132:TRP:CE3	2.54	0.42
1:A:111:ASP:OD2	1:D:194:ARG:HD2	2.19	0.42
1:E:174:LEU:HD12	1:E:174:LEU:HA	1.90	0.42
1:C:58:TYR:CD1	1:C:59:ASP:N	2.87	0.42
1:D:104:ILE:O	1:D:107:LEU:HB2	2.20	0.42
1:C:150:ARG:NH1	1:C:153:GLU:OE1	2.50	0.42
1:F:16:THR:HG22	1:F:17:GLY:HA3	2.02	0.42
1:A:49:MSE:HE3	1:A:76:LEU:HD13	2.02	0.42
1:D:62:GLY:C	1:D:63:ARG:NE	2.73	0.42
1:C:21:LEU:HD23	1:C:27:PRO:HA	2.01	0.41
1:E:26:GLU:HA	1:E:27:PRO:HD3	1.90	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:28:ILE:HD11	1:E:56:TYR:CE1	2.55	0.41
1:A:26:GLU:HA	1:A:27:PRO:HD3	1.92	0.41
1:F:34:VAL:HG11	1:F:155:TYR:HB3	2.01	0.41
1:D:123:ASP:C	1:D:126:PRO:HD2	2.41	0.41
1:F:43:ARG:HD3	1:F:201:GLY:O	2.20	0.41
1:F:165:ILE:HG21	1:F:211:VAL:HG12	2.03	0.41
1:A:40:LYS:NZ	1:E:232:GLU:OE1	2.52	0.41
1:A:99:LEU:HA	1:A:99:LEU:HD23	1.96	0.41
1:D:28:ILE:HD11	1:D:56:TYR:CD1	2.55	0.41
1:F:93:GLY:HA3	1:F:141:ALA:O	2.20	0.41
1:B:179:PRO:O	2:B:310:HOH:O	2.22	0.40
1:D:187:LYS:O	1:D:188:ASP:HB2	2.20	0.40
1:F:28:ILE:HD11	1:F:56:TYR:CE1	2.56	0.40
1:A:61:THR:HG23	1:D:188:ASP:HB3	2.03	0.40
1:A:92:GLY:CA	2:A:330:HOH:O	2.64	0.40
1:C:147:VAL:HB	1:D:223:PRO:HA	2.03	0.40
1:D:26:GLU:HA	1:D:27:PRO:HD3	1.94	0.40
1:F:133:GLU:CG	2:F:338:HOH:O	2.68	0.40
1:D:49:MSE:HE3	1:D:76:LEU:CD1	2.52	0.40
1:F:123:ASP:N	1:F:123:ASP:OD1	2.54	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	225/229 (98%)	218 (97%)	7 (3%)	0	100	100
1	B	225/229 (98%)	219 (97%)	6 (3%)	0	100	100
1	C	225/229 (98%)	219 (97%)	6 (3%)	0	100	100
1	D	225/229 (98%)	218 (97%)	7 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	E	225/229 (98%)	219 (97%)	6 (3%)	0	100 100
1	F	225/229 (98%)	217 (96%)	8 (4%)	0	100 100
All	All	1350/1374 (98%)	1310 (97%)	40 (3%)	0	100 100

There are no Ramachandran outliers to report.

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	183/189 (97%)	166 (91%)	17 (9%)	9 8
1	B	183/189 (97%)	171 (93%)	12 (7%)	16 18
1	C	183/189 (97%)	165 (90%)	18 (10%)	8 6
1	D	183/189 (97%)	169 (92%)	14 (8%)	13 13
1	E	183/189 (97%)	167 (91%)	16 (9%)	10 9
1	F	183/189 (97%)	167 (91%)	16 (9%)	10 9
All	All	1098/1134 (97%)	1005 (92%)	93 (8%)	10 10

All (93) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	16	THR
1	A	30	LEU
1	A	60	LEU
1	A	63	ARG
1	A	71	LEU
1	A	94	ILE
1	A	120	LEU
1	A	136	ASN
1	A	144	LYS
1	A	145	SER
1	A	174	LEU
1	A	178	LEU

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Mol	Chain	Res	Type
1	A	180	ARG
1	A	194	ARG
1	A	210	SER
1	A	224	VAL
1	A	226	ARG
1	B	23	GLU
1	B	30	LEU
1	B	63	ARG
1	B	120	LEU
1	B	136	ASN
1	B	174	LEU
1	B	178	LEU
1	B	191	ILE
1	B	210	SER
1	B	211	VAL
1	B	215	VAL
1	B	224	VAL
1	C	16	THR
1	C	30	LEU
1	C	59	ASP
1	C	60	LEU
1	C	63	ARG
1	C	66	ILE
1	C	71	LEU
1	C	81	LYS
1	C	87	LEU
1	C	91	LEU
1	C	99	LEU
1	C	109	ILE
1	C	135	THR
1	C	136	ASN
1	C	174	LEU
1	C	178	LEU
1	C	210	SER
1	C	224	VAL
1	D	16	THR
1	D	30	LEU
1	D	39	GLU
1	D	63	ARG
1	D	94	ILE
1	D	120	LEU
1	D	123	ASP

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Mol	Chain	Res	Type
1	D	135	THR
1	D	136	ASN
1	D	174	LEU
1	D	178	LEU
1	D	180	ARG
1	D	210	SER
1	D	224	VAL
1	E	28	ILE
1	E	30	LEU
1	E	39	GLU
1	E	60	LEU
1	E	63	ARG
1	E	71	LEU
1	E	94	ILE
1	E	120	LEU
1	E	136	ASN
1	E	174	LEU
1	E	178	LEU
1	E	180	ARG
1	E	184	VAL
1	E	210	SER
1	E	224	VAL
1	E	226	ARG
1	F	16	THR
1	F	30	LEU
1	F	39	GLU
1	F	60	LEU
1	F	63	ARG
1	F	66	ILE
1	F	94	ILE
1	F	99	LEU
1	F	135	THR
1	F	136	ASN
1	F	174	LEU
1	F	178	LEU
1	F	184	VAL
1	F	190	LYS
1	F	210	SER
1	F	224	VAL

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

Mol	Chain	Res	Type
1	D	173	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 carbohydrates 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	224/229 (97%)	0.04	6 (2%) 54 64	27, 47, 72, 102	0
1	B	224/229 (97%)	-0.03	5 (2%) 62 71	26, 46, 73, 96	0
1	C	224/229 (97%)	0.56	26 (11%) 4 8	25, 48, 118, 148	0
1	D	224/229 (97%)	0.50	14 (6%) 20 28	26, 48, 108, 131	0
1	E	224/229 (97%)	0.00	3 (1%) 77 83	25, 48, 71, 106	0
1	F	224/229 (97%)	0.43	18 (8%) 12 18	25, 49, 107, 131	0
All	All	1344/1374 (97%)	0.25	72 (5%) 25 36	25, 48, 95, 148	0

All (72) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	109	ILE	8.1
1	C	107	LEU	6.5
1	C	111	ASP	6.4
1	C	108	GLY	6.4
1	C	61	THR	6.4
1	D	109	ILE	6.1
1	D	107	LEU	6.0
1	D	111	ASP	5.2
1	F	61	THR	5.2
1	D	61	THR	5.2
1	D	108	GLY	5.1
1	D	60	LEU	5.1
1	C	60	LEU	5.0
1	F	108	GLY	4.6
1	F	106	ALA	4.5
1	F	107	LEU	4.5
1	C	115	GLU	4.4
1	F	101	GLU	4.3
1	F	109	ILE	4.0

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Mol	Chain	Res	Type	RSRZ
1	C	117	TRP	3.9
1	F	63	ARG	3.8
1	C	105	ASP	3.8
1	F	103	THR	3.7
1	F	60	LEU	3.4
1	A	63	ARG	3.3
1	C	63	ARG	3.3
1	C	104	ILE	3.3
1	C	114	LYS	3.3
1	F	105	ASP	3.3
1	C	113	GLY	3.1
1	E	211	VAL	3.0
1	A	172	GLY	2.9
1	B	63	ARG	2.8
1	C	122	LYS	2.7
1	B	61	THR	2.7
1	B	62	GLY	2.7
1	A	108	GLY	2.6
1	D	63	ARG	2.6
1	A	171	GLU	2.6
1	C	110	SER	2.5
1	B	211	VAL	2.5
1	C	170	LYS	2.5
1	F	100	ASP	2.5
1	D	211	VAL	2.5
1	C	112	LYS	2.5
1	C	23	GLU	2.5
1	D	62	GLY	2.4
1	F	59	ASP	2.4
1	D	99	LEU	2.4
1	E	63	ARG	2.4
1	A	23	GLU	2.4
1	C	101	GLU	2.4
1	F	111	ASP	2.3
1	A	211	VAL	2.3
1	C	17	GLY	2.3
1	F	113	GLY	2.3
1	D	170	LYS	2.3
1	B	188	ASP	2.3
1	F	214	GLY	2.2
1	F	211	VAL	2.2
1	C	103	THR	2.2

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Mol	Chain	Res	Type	RSRZ
1	F	170	LYS	2.2
1	D	103	THR	2.2
1	E	172	GLY	2.2
1	C	116	VAL	2.2
1	C	172	GLY	2.2
1	F	215	VAL	2.1
1	C	211	VAL	2.1
1	D	114	LYS	2.1
1	C	118	LYS	2.0
1	D	17	GLY	2.0
1	C	59	ASP	2.0

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

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

6.3 Carbohydrates (i)

There are no carbohydrates in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.