Full wwPDB X-ray Structure Validation Report ⓘ

Jun 25, 2024 – 07:47 AM EDT

PDB ID	:	5X5I
Title	:	The X-ray crystal structure of a TetR family transcription regulator RcdA involved in the regulation of biofilm formation in Escherichia coli
Authors	:	Sugino, H.; Usui, M.; Shimada, T.; Nakano, M.; Ogasawara, H.; Ishihama, A.; Hirata, A.
Deposited on	:	2017-02-16
Resolution	:	2.55 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:

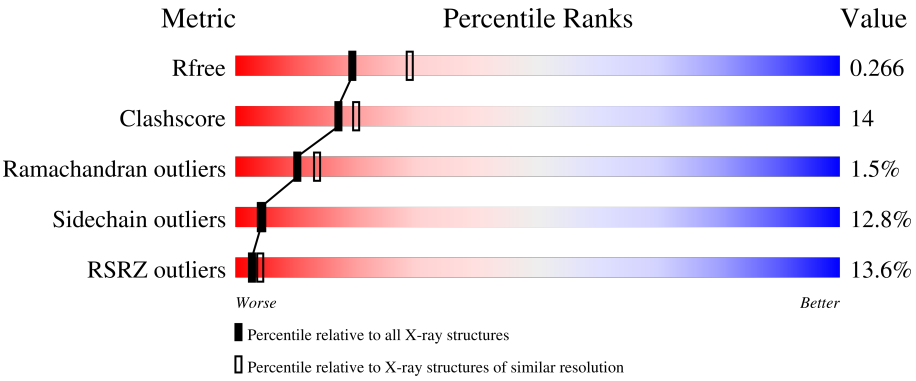
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.55 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	1279 (2.58-2.54)
Clashscore	141614	1327 (2.58-2.54)
Ramachandran outliers	138981	1312 (2.58-2.54)
Sidechain outliers	138945	1312 (2.58-2.54)
RSRZ outliers	127900	1269 (2.58-2.54)

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	189	12% 54% 27% 8% • 11%
1	B	189	10% 56% 32% • 8%
1	C	189	16% 52% 32% 6% • 10%
1	D	189	13% 61% 24% 6% 8%
1	E	189	10% 52% 35% 5% 8%

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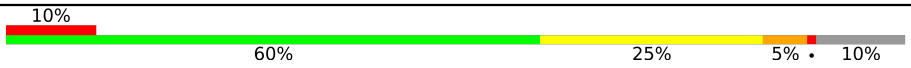
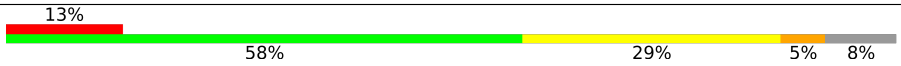
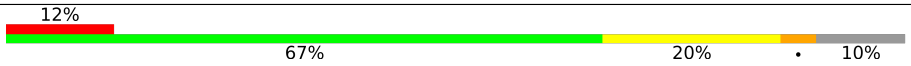
Mol	Chain	Length	Quality of chain
1	F	189	
1	G	189	
1	H	189	

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 10940 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 HTH-type transcriptional regulator RcdA.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	169	Total	C	N	O	S	Se	0	0	0
			1349	859	229	251	1	9			
1	B	173	Total	C	N	O	S	Se	0	0	0
			1377	877	234	256	1	9			
1	C	171	Total	C	N	O	S	Se	0	0	0
			1361	867	230	254	1	9			
1	D	173	Total	C	N	O	S	Se	0	0	0
			1367	869	230	258	1	9			
1	E	174	Total	C	N	O	S	Se	0	0	0
			1378	876	232	260	1	9			
1	F	171	Total	C	N	O	S	Se	0	0	0
			1362	867	231	254	1	9			
1	G	174	Total	C	N	O	S	Se	0	0	0
			1380	878	235	257	1	9			
1	H	171	Total	C	N	O	S	Se	0	0	0
			1356	865	229	252	1	9			

There are 88 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	179	ALA	-	expression tag	UNP P75811
A	180	ALA	-	expression tag	UNP P75811
A	181	ALA	-	expression tag	UNP P75811
A	182	LEU	-	expression tag	UNP P75811
A	183	GLU	-	expression tag	UNP P75811
A	184	HIS	-	expression tag	UNP P75811
A	185	HIS	-	expression tag	UNP P75811
A	186	HIS	-	expression tag	UNP P75811
A	187	HIS	-	expression tag	UNP P75811
A	188	HIS	-	expression tag	UNP P75811
A	189	HIS	-	expression tag	UNP P75811
B	179	ALA	-	expression tag	UNP P75811
B	180	ALA	-	expression tag	UNP P75811

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Chain	Residue	Modelled	Actual	Comment	Reference
B	181	ALA	-	expression tag	UNP P75811
B	182	LEU	-	expression tag	UNP P75811
B	183	GLU	-	expression tag	UNP P75811
B	184	HIS	-	expression tag	UNP P75811
B	185	HIS	-	expression tag	UNP P75811
B	186	HIS	-	expression tag	UNP P75811
B	187	HIS	-	expression tag	UNP P75811
B	188	HIS	-	expression tag	UNP P75811
B	189	HIS	-	expression tag	UNP P75811
C	179	ALA	-	expression tag	UNP P75811
C	180	ALA	-	expression tag	UNP P75811
C	181	ALA	-	expression tag	UNP P75811
C	182	LEU	-	expression tag	UNP P75811
C	183	GLU	-	expression tag	UNP P75811
C	184	HIS	-	expression tag	UNP P75811
C	185	HIS	-	expression tag	UNP P75811
C	186	HIS	-	expression tag	UNP P75811
C	187	HIS	-	expression tag	UNP P75811
C	188	HIS	-	expression tag	UNP P75811
C	189	HIS	-	expression tag	UNP P75811
D	179	ALA	-	expression tag	UNP P75811
D	180	ALA	-	expression tag	UNP P75811
D	181	ALA	-	expression tag	UNP P75811
D	182	LEU	-	expression tag	UNP P75811
D	183	GLU	-	expression tag	UNP P75811
D	184	HIS	-	expression tag	UNP P75811
D	185	HIS	-	expression tag	UNP P75811
D	186	HIS	-	expression tag	UNP P75811
D	187	HIS	-	expression tag	UNP P75811
D	188	HIS	-	expression tag	UNP P75811
D	189	HIS	-	expression tag	UNP P75811
E	179	ALA	-	expression tag	UNP P75811
E	180	ALA	-	expression tag	UNP P75811
E	181	ALA	-	expression tag	UNP P75811
E	182	LEU	-	expression tag	UNP P75811
E	183	GLU	-	expression tag	UNP P75811
E	184	HIS	-	expression tag	UNP P75811
E	185	HIS	-	expression tag	UNP P75811
E	186	HIS	-	expression tag	UNP P75811
E	187	HIS	-	expression tag	UNP P75811
E	188	HIS	-	expression tag	UNP P75811
E	189	HIS	-	expression tag	UNP P75811

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Chain	Residue	Modelled	Actual	Comment	Reference
F	179	ALA	-	expression tag	UNP P75811
F	180	ALA	-	expression tag	UNP P75811
F	181	ALA	-	expression tag	UNP P75811
F	182	LEU	-	expression tag	UNP P75811
F	183	GLU	-	expression tag	UNP P75811
F	184	HIS	-	expression tag	UNP P75811
F	185	HIS	-	expression tag	UNP P75811
F	186	HIS	-	expression tag	UNP P75811
F	187	HIS	-	expression tag	UNP P75811
F	188	HIS	-	expression tag	UNP P75811
F	189	HIS	-	expression tag	UNP P75811
G	179	ALA	-	expression tag	UNP P75811
G	180	ALA	-	expression tag	UNP P75811
G	181	ALA	-	expression tag	UNP P75811
G	182	LEU	-	expression tag	UNP P75811
G	183	GLU	-	expression tag	UNP P75811
G	184	HIS	-	expression tag	UNP P75811
G	185	HIS	-	expression tag	UNP P75811
G	186	HIS	-	expression tag	UNP P75811
G	187	HIS	-	expression tag	UNP P75811
G	188	HIS	-	expression tag	UNP P75811
G	189	HIS	-	expression tag	UNP P75811
H	179	ALA	-	expression tag	UNP P75811
H	180	ALA	-	expression tag	UNP P75811
H	181	ALA	-	expression tag	UNP P75811
H	182	LEU	-	expression tag	UNP P75811
H	183	GLU	-	expression tag	UNP P75811
H	184	HIS	-	expression tag	UNP P75811
H	185	HIS	-	expression tag	UNP P75811
H	186	HIS	-	expression tag	UNP P75811
H	187	HIS	-	expression tag	UNP P75811
H	188	HIS	-	expression tag	UNP P75811
H	189	HIS	-	expression tag	UNP P75811

- Molecule 2 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	3	Total O 3 3	0	0
2	D	1	Total O 1 1	0	0
2	E	1	Total O 1 1	0	0

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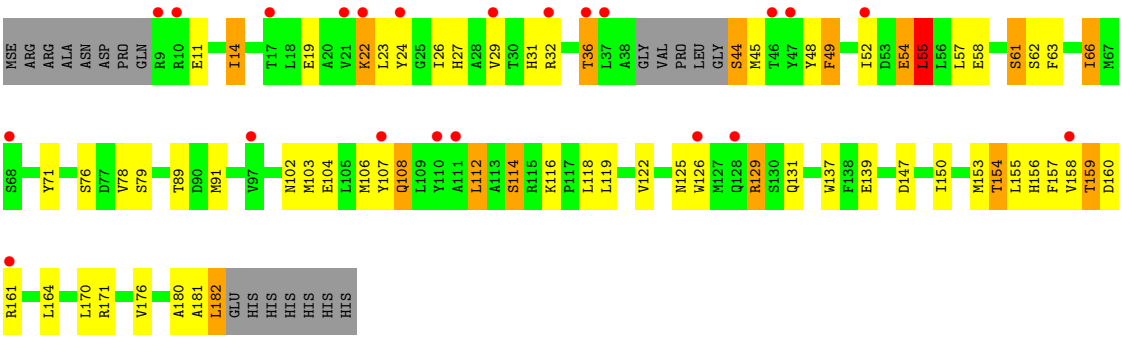
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	G	2	Total O 2 2	0	0
2	H	3	Total O 3 3	0	0

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.

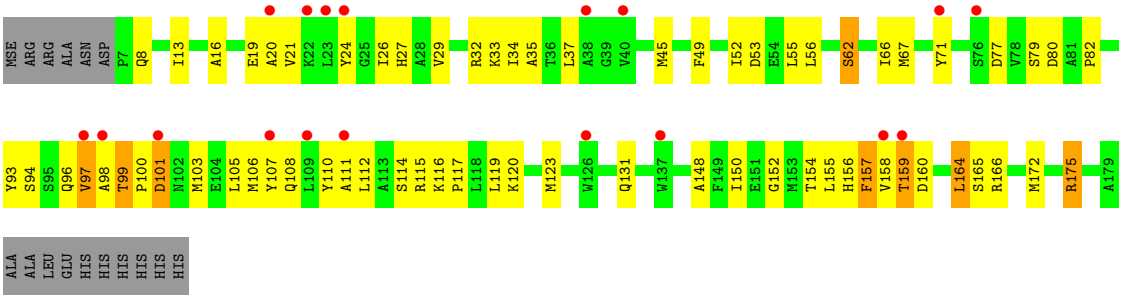
• Molecule 1: HTH-type transcriptional regulator RcdA

Chain A:



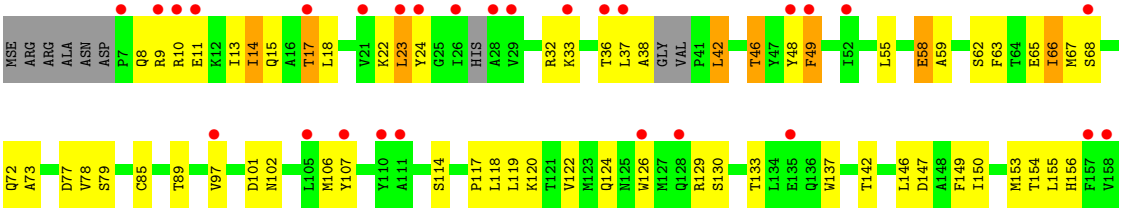
• Molecule 1: HTH-type transcriptional regulator RcdA

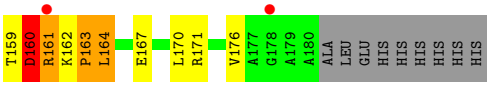
Chain B:



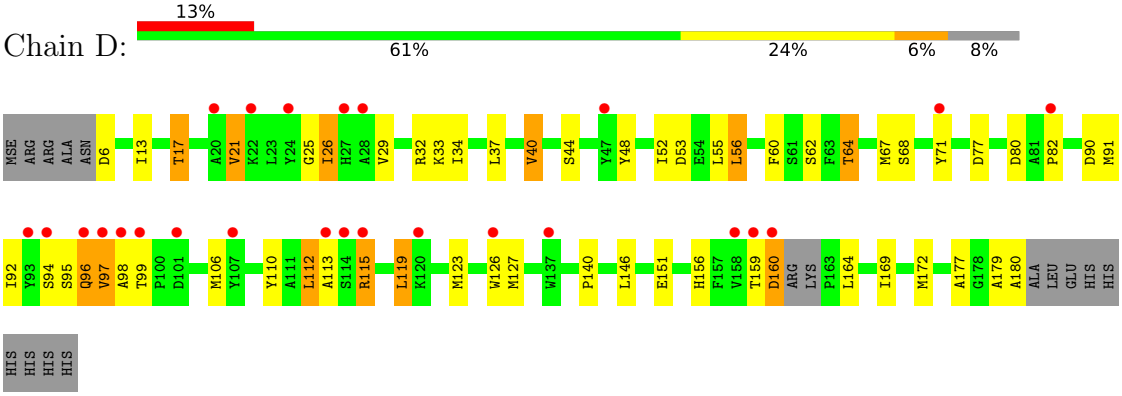
• Molecule 1: HTH-type transcriptional regulator RcdA

Chain C:

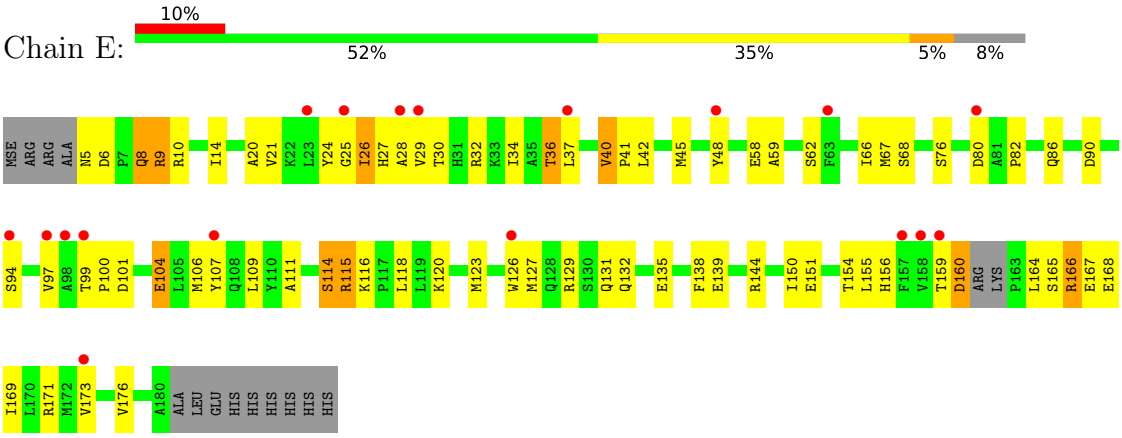




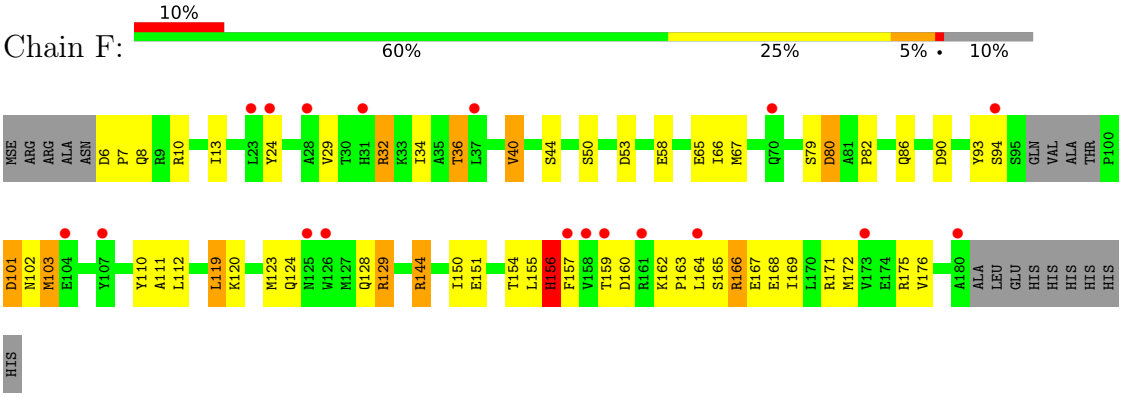
• Molecule 1: HTH-type transcriptional regulator RcdA



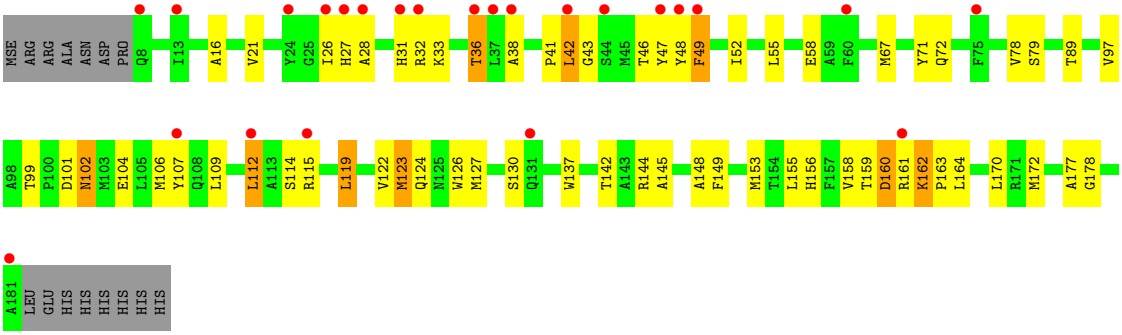
• Molecule 1: HTH-type transcriptional regulator RcdA



• Molecule 1: HTH-type transcriptional regulator RcdA

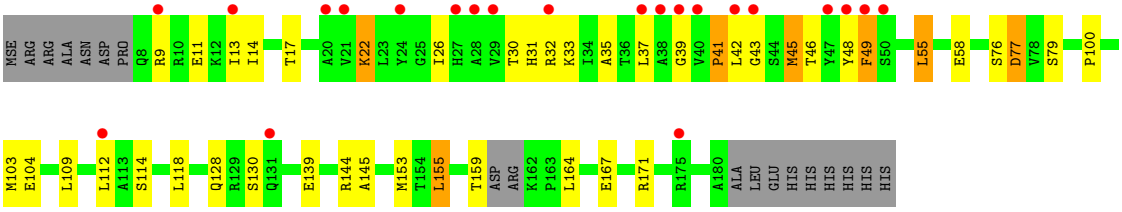


• Molecule 1: HTH-type transcriptional regulator RcdA



• Molecule 1: HTH-type transcriptional regulator RcdA

Chain H:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	38.48Å 75.97Å 110.05Å 90.00° 90.01° 89.95°	Depositor
Resolution (Å)	37.98 – 2.55 37.98 – 2.55	Depositor EDS
% Data completeness (in resolution range)	98.3 (37.98-2.55) 96.4 (37.98-2.55)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	6.24 (at 2.54Å)	Xtriage
Refinement program	PHENIX (1.10.1_2155: ???)	Depositor
R, R_{free}	0.198 , 0.267 0.198 , 0.266	Depositor DCC
R_{free} test set	1969 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å^2)	44.0	Xtriage
Anisotropy	0.253	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.34 , 33.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.430 for h,-k,-l 0.430 for -h,k,-l 0.487 for -h,-k,l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	10940	wwPDB-VP
Average B, all atoms (Å^2)	56.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 8.15% 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	0.64	2/1365 (0.1%)	0.83	3/1828 (0.2%)
1	B	0.51	0/1396	0.71	2/1872 (0.1%)
1	C	0.52	0/1377	0.78	2/1842 (0.1%)
1	D	0.52	0/1385	0.69	0/1858
1	E	0.51	0/1396	0.69	1/1873 (0.1%)
1	F	0.51	0/1380	0.69	0/1848
1	G	0.50	0/1398	0.73	2/1875 (0.1%)
1	H	0.54	0/1373	0.73	0/1840
All	All	0.53	2/11070 (0.0%)	0.73	10/14836 (0.1%)

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	C	0	2
1	D	0	1
1	F	0	1
1	G	0	2
1	H	0	1
All	All	0	7

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	49	PHE	CE1-CZ	-8.73	1.20	1.37
1	A	49	PHE	CG-CD2	-6.91	1.28	1.38

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	54	GLU	C-N-CA	8.03	141.77	121.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	164	LEU	CA-CB-CG	-7.04	99.11	115.30
1	G	178	GLY	N-CA-C	6.39	129.07	113.10
1	A	55	LEU	CA-CB-CG	-5.65	102.31	115.30
1	C	163	PRO	C-N-CA	5.51	135.48	121.70
1	B	98	ALA	C-N-CA	5.48	135.39	121.70
1	A	159	THR	N-CA-C	5.41	125.59	111.00
1	B	166	ARG	N-CA-C	-5.39	96.44	111.00
1	E	9	ARG	NE-CZ-NH1	5.30	122.95	120.30
1	G	112	LEU	CA-CB-CG	5.14	127.11	115.30

There are no chirality outliers.

All (7) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	160	ASP	Peptide
1	C	161	ARG	Peptide
1	D	96	GLN	Peptide
1	F	164	LEU	Peptide
1	G	162	LYS	Peptide
1	G	177	ALA	Peptide
1	H	49	PHE	Peptide

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1349	0	1347	48	0
1	B	1377	0	1376	44	0
1	C	1361	0	1361	50	0
1	D	1367	0	1349	45	0
1	E	1378	0	1364	55	0
1	F	1362	0	1355	42	1
1	G	1380	0	1378	35	1
1	H	1356	0	1355	32	0
2	A	3	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	G	2	0	0	0	0
2	H	3	0	0	1	0
All	All	10940	0	10885	306	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 14.

All (306) 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:C:72:GLN:NE2	1:C:133:THR:OG1	1.97	0.98
1:C:10:ARG:NH1	1:C:58:GLU:OE1	1.98	0.96
1:E:99:THR:HG22	1:E:100:PRO:HD2	1.55	0.89
1:H:41:PRO:HB2	1:H:42:LEU:HA	1.56	0.84
1:A:26:ILE:HG23	1:A:27:HIS:H	1.44	0.83
1:E:90:ASP:OD1	1:E:166:ARG:NH1	2.13	0.82
1:E:139:GLU:OE1	1:E:139:GLU:N	2.13	0.81
1:A:44:SER:O	1:A:48:TYR:N	2.13	0.80
1:F:29:VAL:HG13	1:F:34:ILE:HD11	1.64	0.79
1:C:32:ARG:NH2	1:C:42:LEU:O	2.14	0.78
1:B:159:THR:HG21	1:G:127:MSE:HE1	1.66	0.78
1:E:68:SER:OG	1:E:129:ARG:NH2	2.19	0.76
1:E:29:VAL:HG13	1:E:34:ILE:HD11	1.67	0.75
1:A:139:GLU:OE2	1:C:46:THR:HG21	1.88	0.74
1:D:95:SER:OG	1:D:96:GLN:NE2	2.20	0.74
1:B:29:VAL:HG13	1:B:34:ILE:HD11	1.70	0.72
1:B:175:ARG:NH1	1:G:142:THR:OG1	2.23	0.71
1:C:85:CYS:O	1:C:89:THR:HG23	1.90	0.71
1:F:165:SER:HB3	1:F:169:ILE:HG13	1.72	0.71
1:B:101:ASP:N	1:B:101:ASP:OD1	2.23	0.70
1:H:17:THR:HG21	1:H:55:LEU:HD22	1.74	0.69
1:F:80:ASP:HB2	1:F:82:PRO:HD2	1.75	0.69
1:C:8:GLN:HG2	1:C:9:ARG:HA	1.75	0.69
1:F:165:SER:O	1:F:169:ILE:N	2.22	0.68
1:C:162:LYS:O	1:F:144:ARG:NH2	2.28	0.67
1:H:35:ALA:HB1	1:H:42:LEU:HB2	1.76	0.67
1:C:142:THR:HG22	1:F:175:ARG:HH12	1.60	0.67
1:H:13:ILE:O	1:H:17:THR:HG23	1.94	0.66
1:D:29:VAL:HG23	1:D:34:ILE:HD11	1.76	0.66
1:F:101:ASP:OD1	1:F:101:ASP:N	2.26	0.66
1:E:32:ARG:O	1:E:36:THR:HG22	1.96	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:57:LEU:O	1:A:61:SER:OG	2.12	0.65
1:A:176:VAL:HG22	1:E:176:VAL:HG22	1.79	0.65
1:A:26:ILE:O	1:A:29:VAL:HG22	1.97	0.65
1:E:139:GLU:H	1:E:139:GLU:CD	2.00	0.65
1:B:154:THR:O	1:B:158:VAL:HG22	1.97	0.64
1:C:106:MSE:HE3	1:C:106:MSE:HA	1.79	0.64
1:C:37:LEU:N	1:C:38:ALA:HA	2.13	0.64
1:E:25:GLY:HA3	1:E:27:HIS:CE1	2.33	0.63
1:C:147:ASP:OD2	1:F:156:HIS:NE2	2.31	0.63
1:C:22:LYS:HG3	1:C:23:LEU:HD23	1.82	0.62
1:B:35:ALA:HA	1:B:45:MSE:HE3	1.79	0.62
1:C:142:THR:HG22	1:F:175:ARG:NH1	2.14	0.62
1:C:107:TYR:CZ	1:C:155:LEU:HD12	2.35	0.62
1:D:97:VAL:HG13	1:D:98:ALA:H	1.64	0.61
1:D:13:ILE:O	1:D:17:THR:HG22	2.01	0.61
1:H:30:THR:C	1:H:32:ARG:H	2.04	0.61
1:A:106:MSE:HE1	1:A:126:TRP:HH2	1.67	0.60
1:F:29:VAL:CG1	1:F:34:ILE:HD11	2.29	0.60
1:A:159:THR:HG21	1:E:127:MSE:SE	2.52	0.60
1:F:167:GLU:O	1:F:171:ARG:HG2	2.02	0.59
1:G:159:THR:OG1	1:G:160:ASP:N	2.34	0.59
1:A:108:GLN:O	1:A:112:LEU:HD22	2.02	0.59
1:D:115:ARG:NH2	1:H:22:LYS:O	2.36	0.58
1:E:80:ASP:HB3	1:E:82:PRO:HD2	1.85	0.58
1:H:153:MSE:HE1	1:H:164:LEU:HD12	1.84	0.58
1:D:67:MSE:HG3	1:D:106:MSE:HE1	1.83	0.58
1:D:17:THR:HG21	1:D:55:LEU:HD11	1.86	0.58
1:B:164:LEU:O	1:B:165:SER:OG	2.20	0.57
1:H:43:GLY:O	1:H:46:THR:OG1	2.23	0.57
1:D:6:ASP:HB3	1:D:48:TYR:OH	2.04	0.57
1:C:49:PHE:CZ	1:C:58:GLU:HG3	2.40	0.57
1:B:150:ILE:O	1:B:154:THR:HG23	2.04	0.57
1:A:119:LEU:HA	1:A:122:VAL:HG22	1.86	0.57
1:A:153:MSE:HE1	1:A:164:LEU:HD12	1.86	0.56
1:C:68:SER:O	1:C:72:GLN:HG2	2.05	0.56
1:D:26:ILE:O	1:D:29:VAL:HG12	2.05	0.56
1:E:29:VAL:CG1	1:E:34:ILE:HD11	2.35	0.56
1:C:142:THR:CG2	1:F:175:ARG:HH12	2.19	0.56
1:C:17:THR:HG21	1:C:55:LEU:HG	1.87	0.55
1:D:64:THR:HG23	1:D:126:TRP:HB2	1.88	0.55
1:D:172:MSE:HG2	1:H:145:ALA:HB2	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:99:THR:O	1:B:99:THR:OG1	2.19	0.55
1:C:120:LYS:HG3	1:F:159:THR:HG22	1.89	0.55
1:A:62:SER:O	1:A:66:ILE:HG23	2.07	0.55
1:H:45:MSE:HA	1:H:48:TYR:HB2	1.89	0.55
1:C:106:MSE:SE	1:C:126:TRP:HZ3	2.40	0.55
1:D:160:ASP:OD1	1:D:160:ASP:N	2.37	0.54
1:E:99:THR:CG2	1:E:100:PRO:HD2	2.34	0.54
1:H:49:PHE:CZ	1:H:55:LEU:HD12	2.42	0.54
1:E:21:VAL:HG13	1:E:26:ILE:HG22	1.89	0.54
1:A:19:GLU:OE1	1:A:22:LYS:HD3	2.08	0.54
1:G:32:ARG:O	1:G:36:THR:HG22	2.08	0.54
1:A:104:GLU:OE2	1:E:114:SER:HB2	2.08	0.53
1:A:150:ILE:O	1:A:154:THR:HG23	2.07	0.53
1:B:62:SER:O	1:B:66:ILE:HG12	2.08	0.53
1:A:161:ARG:HH21	1:E:131:GLN:HG2	1.73	0.53
1:E:165:SER:OG	1:E:167:GLU:HG2	2.07	0.53
1:D:29:VAL:HG21	1:D:56:LEU:HD21	1.90	0.53
1:E:135:GLU:HA	1:E:138:PHE:O	2.09	0.53
1:C:117:PRO:HA	1:C:120:LYS:HE2	1.89	0.53
1:D:115:ARG:NH1	1:H:104:GLU:OE1	2.42	0.53
1:E:151:GLU:O	1:E:155:LEU:HD23	2.08	0.53
1:D:21:VAL:HB	1:D:25:GLY:O	2.08	0.53
1:C:49:PHE:HZ	1:C:58:GLU:HG3	1.74	0.52
1:H:9:ARG:HD3	1:H:48:TYR:OH	2.09	0.52
1:E:6:ASP:HB3	1:E:48:TYR:OH	2.09	0.52
1:A:48:TYR:O	1:A:49:PHE:HB2	2.10	0.52
1:A:161:ARG:HH11	1:E:144:ARG:HD3	1.75	0.52
1:A:19:GLU:HG3	1:A:23:LEU:HD12	1.91	0.52
1:A:63:PHE:CE1	1:A:102:ASN:HB3	2.45	0.51
1:A:106:MSE:HE1	1:A:126:TRP:CH2	2.44	0.51
1:D:29:VAL:CG2	1:D:34:ILE:HD11	2.40	0.51
1:H:30:THR:C	1:H:32:ARG:N	2.61	0.51
1:H:41:PRO:CB	1:H:42:LEU:HA	2.33	0.51
1:D:40:VAL:HG13	1:D:44:SER:HB2	1.91	0.51
1:D:164:LEU:HD13	1:H:144:ARG:NH2	2.25	0.51
1:B:172:MSE:HE1	1:G:144:ARG:HB3	1.92	0.51
1:C:119:LEU:HA	1:C:122:VAL:HG22	1.91	0.51
1:C:163:PRO:HA	1:C:164:LEU:HB2	1.93	0.51
1:E:159:THR:O	1:E:160:ASP:HB2	2.09	0.51
1:A:180:ALA:HA	1:A:182:LEU:N	2.25	0.51
1:H:45:MSE:O	1:H:48:TYR:N	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:106:MSE:SE	1:G:126:TRP:HZ3	2.44	0.50
1:A:54:GLU:O	1:A:57:LEU:HB3	2.10	0.50
1:B:29:VAL:HG11	1:B:56:LEU:HD21	1.93	0.50
1:D:92:ILE:HG22	1:D:169:ILE:HD13	1.93	0.50
1:B:35:ALA:CA	1:B:45:MSE:HE3	2.42	0.50
1:E:86:GLN:OE1	1:E:166:ARG:NH2	2.45	0.50
1:B:119:LEU:O	1:B:123:MSE:HG2	2.11	0.50
1:C:89:THR:HG21	1:C:170:LEU:HA	1.93	0.50
1:F:124:GLN:O	1:F:128:GLN:HG2	2.11	0.50
1:C:68:SER:OG	1:C:129:ARG:HD2	2.10	0.50
1:B:107:TYR:CZ	1:B:155:LEU:HD13	2.47	0.49
1:C:107:TYR:HB2	1:F:111:ALA:HB2	1.92	0.49
1:D:29:VAL:HG22	1:D:52:ILE:HD11	1.93	0.49
1:D:67:MSE:HG3	1:D:106:MSE:CE	2.42	0.49
1:B:105:LEU:O	1:B:108:GLN:HB2	2.13	0.49
1:F:10:ARG:NH1	1:F:58:GLU:OE2	2.36	0.49
1:G:32:ARG:CZ	1:G:42:LEU:HB2	2.43	0.49
1:A:154:THR:HA	1:A:157:PHE:CD2	2.48	0.49
1:A:180:ALA:HA	1:A:181:ALA:C	2.32	0.49
1:A:107:TYR:HB2	1:E:111:ALA:HB2	1.94	0.49
1:C:155:LEU:HD21	1:F:110:TYR:CZ	2.48	0.49
1:E:100:PRO:O	1:E:104:GLU:HB2	2.13	0.49
1:C:161:ARG:HB3	1:C:161:ARG:CZ	2.42	0.49
1:F:13:ILE:HD11	1:F:40:VAL:HG11	1.95	0.49
1:A:14:ILE:HD11	1:A:58:GLU:HG3	1.95	0.49
1:A:147:ASP:OD2	1:E:156:HIS:NE2	2.45	0.49
1:H:41:PRO:HD2	1:H:42:LEU:HB3	1.95	0.49
1:C:149:PHE:CZ	1:C:153:MSE:HE3	2.47	0.48
1:B:77:ASP:OD1	1:E:166:ARG:HB2	2.13	0.48
1:A:54:GLU:HB3	1:A:55:LEU:HB2	1.94	0.48
1:A:161:ARG:NH1	1:E:144:ARG:HD3	2.29	0.48
1:D:80:ASP:HB2	1:D:82:PRO:HD2	1.94	0.48
1:A:159:THR:O	1:E:120:LYS:HG3	2.14	0.48
1:G:160:ASP:OD1	1:G:161:ARG:N	2.46	0.48
1:H:45:MSE:O	1:H:49:PHE:N	2.34	0.48
1:G:89:THR:HG21	1:G:170:LEU:HB2	1.95	0.48
1:A:63:PHE:HE1	1:A:102:ASN:HB3	1.78	0.48
1:C:159:THR:OG1	1:C:160:ASP:N	2.47	0.48
1:H:14:ILE:HD11	1:H:58:GLU:HG3	1.96	0.48
1:D:110:TYR:CZ	1:H:155:LEU:HD21	2.49	0.48
1:H:39:GLY:C	1:H:41:PRO:HD3	2.33	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:120:LYS:HB3	1:B:120:LYS:HE3	1.56	0.47
1:B:164:LEU:O	1:B:164:LEU:HD13	2.14	0.47
1:G:43:GLY:O	1:G:46:THR:OG1	2.30	0.47
1:H:45:MSE:H	1:H:45:MSE:HG2	1.36	0.47
1:C:124:GLN:HG3	1:F:159:THR:HB	1.96	0.47
1:E:107:TYR:OH	1:E:155:LEU:HD22	2.14	0.47
1:B:111:ALA:HB2	1:G:107:TYR:HB2	1.95	0.47
1:E:5:ASN:O	1:E:48:TYR:OH	2.23	0.47
1:E:150:ILE:O	1:E:154:THR:HG23	2.15	0.47
1:F:90:ASP:O	1:F:94:SER:N	2.42	0.47
1:B:160:ASP:CB	1:G:124:GLN:HB2	2.45	0.47
1:A:114:SER:OG	1:E:100:PRO:HB2	2.15	0.47
1:A:76:SER:OG	1:D:33:LYS:HD3	2.14	0.47
1:B:29:VAL:HG12	1:B:52:ILE:HD11	1.95	0.47
1:B:94:SER:C	1:B:96:GLN:H	2.16	0.47
1:C:149:PHE:CE1	1:C:153:MSE:HE3	2.50	0.47
1:F:66:ILE:HG22	1:F:67:MSE:HE2	1.97	0.47
1:G:101:ASP:HA	1:G:102:ASN:HA	1.75	0.47
1:D:151:GLU:HG2	1:H:155:LEU:HD22	1.97	0.47
1:F:6:ASP:HB3	1:F:7:PRO:CD	2.45	0.47
1:E:62:SER:O	1:E:66:ILE:HG12	2.15	0.47
1:D:56:LEU:HD12	1:D:60:PHE:CZ	2.50	0.46
1:A:118:LEU:O	1:A:122:VAL:HG13	2.15	0.46
1:D:25:GLY:O	1:D:26:ILE:HG13	2.16	0.46
1:G:21:VAL:HG22	1:G:26:ILE:HD12	1.97	0.46
1:F:168:GLU:O	1:F:172:MSE:HG3	2.15	0.46
1:G:149:PHE:CZ	1:G:153:MSE:HE3	2.51	0.46
1:H:26:ILE:HG12	1:H:112:LEU:HD21	1.98	0.46
1:A:161:ARG:NH2	1:E:131:GLN:HG2	2.31	0.46
1:E:20:ALA:HB2	1:E:37:LEU:HD12	1.98	0.45
1:D:90:ASP:O	1:D:94:SER:N	2.44	0.45
1:B:93:TYR:HE1	1:B:165:SER:HB3	1.82	0.45
1:B:172:MSE:CE	1:G:144:ARG:HB3	2.46	0.45
1:H:30:THR:O	1:H:32:ARG:N	2.49	0.45
1:F:157:PHE:HA	1:F:160:ASP:HB2	1.99	0.45
1:C:106:MSE:SE	1:C:126:TRP:CZ3	3.19	0.45
1:D:127:MSE:SE	1:H:159:THR:OG1	2.85	0.45
1:E:28:ALA:O	1:E:30:THR:HG23	2.17	0.45
1:E:164:LEU:HD21	1:E:168:GLU:HB3	1.99	0.45
1:F:167:GLU:N	1:F:167:GLU:OE2	2.49	0.45
1:H:76:SER:N	2:H:201:HOH:O	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:107:TYR:CE2	1:G:158:VAL:HG21	2.51	0.44
1:G:119:LEU:HA	1:G:122:VAL:HG22	1.99	0.44
1:B:172:MSE:HE1	1:G:144:ARG:HE	1.82	0.44
1:D:68:SER:HG	1:D:126:TRP:HD1	1.65	0.44
1:E:106:MSE:HE3	1:E:126:TRP:CZ2	2.52	0.44
1:H:100:PRO:HB2	1:H:103:MSE:HE3	1.99	0.44
1:B:112:LEU:HD12	1:B:112:LEU:HA	1.85	0.44
1:F:6:ASP:HB3	1:F:7:PRO:HD3	2.00	0.44
1:F:13:ILE:HD11	1:F:40:VAL:HG21	2.00	0.44
1:E:40:VAL:HG22	1:E:41:PRO:HD2	2.00	0.44
1:F:32:ARG:O	1:F:36:THR:OG1	2.35	0.44
1:C:13:ILE:HG22	1:C:55:LEU:HD11	1.98	0.44
1:C:32:ARG:O	1:C:36:THR:HG22	2.17	0.44
1:B:93:TYR:CE1	1:B:165:SER:HB3	2.53	0.44
1:C:62:SER:O	1:C:66:ILE:HG23	2.17	0.44
1:E:68:SER:CB	1:E:129:ARG:HH21	2.30	0.44
1:G:71:TYR:CE1	1:G:130:SER:HB2	2.52	0.44
1:B:93:TYR:HE1	1:B:165:SER:CB	2.30	0.44
1:B:172:MSE:HG2	1:G:145:ALA:HB2	2.00	0.44
1:A:106:MSE:SE	1:A:126:TRP:CZ3	3.21	0.43
1:C:18:LEU:HG	1:C:59:ALA:HB1	2.00	0.43
1:D:17:THR:O	1:D:21:VAL:HG13	2.18	0.43
1:G:149:PHE:CE1	1:G:153:MSE:HE3	2.53	0.43
1:E:14:ILE:HG23	1:E:59:ALA:HA	1.99	0.43
1:F:93:TYR:CD1	1:F:166:ARG:HB2	2.53	0.43
1:F:103:MSE:H	1:F:103:MSE:SE	2.52	0.43
1:B:148:ALA:CB	1:G:153:MSE:HE2	2.48	0.43
1:G:107:TYR:CE1	1:G:155:LEU:HD12	2.54	0.43
1:A:71:TYR:CE2	1:A:91:MSE:HE1	2.54	0.43
1:F:120:LYS:HE3	1:F:120:LYS:HB3	1.88	0.43
1:A:106:MSE:SE	1:A:126:TRP:HZ3	2.51	0.43
1:E:68:SER:HG	1:E:129:ARG:NH2	2.17	0.43
1:B:80:ASP:CG	1:B:82:PRO:HD2	2.39	0.43
1:G:78:VAL:HG12	1:G:137:TRP:CZ2	2.54	0.43
1:G:102:ASN:OD1	1:G:102:ASN:N	2.51	0.43
1:B:106:MSE:HG3	1:B:110:TYR:CE2	2.53	0.43
1:D:29:VAL:HG11	1:D:56:LEU:HD21	2.01	0.43
1:G:52:ILE:HD12	1:G:52:ILE:H	1.84	0.43
1:A:24:TYR:HA	1:E:115:ARG:NH1	2.33	0.43
1:A:78:VAL:HG12	1:A:137:TRP:CZ2	2.54	0.43
1:A:125:ASN:O	1:A:129:ARG:HD2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:66:ILE:HG13	1:C:67:MSE:N	2.33	0.43
1:A:107:TYR:CE1	1:A:155:LEU:HD12	2.54	0.42
1:C:167:GLU:OE2	1:C:171:ARG:NH1	2.52	0.42
1:H:76:SER:HA	1:H:77:ASP:HA	1.69	0.42
1:A:89:THR:HG21	1:A:170:LEU:HB2	2.00	0.42
1:H:13:ILE:CG2	1:H:55:LEU:HD11	2.49	0.42
1:E:67:MSE:HG3	1:E:106:MSE:CE	2.49	0.42
1:D:13:ILE:O	1:D:17:THR:CG2	2.68	0.42
1:D:64:THR:CG2	1:D:126:TRP:HB2	2.48	0.42
1:D:146:LEU:HD11	1:D:177:ALA:HB2	2.00	0.42
1:C:150:ILE:O	1:C:154:THR:HG23	2.19	0.42
1:C:155:LEU:CD2	1:F:151:GLU:HG2	2.50	0.42
1:D:29:VAL:O	1:D:29:VAL:HG13	2.20	0.42
1:G:16:ALA:HB2	1:G:38:ALA:HB2	2.02	0.42
1:C:33:LYS:HA	1:C:33:LYS:HD3	1.76	0.42
1:E:40:VAL:HG11	1:E:45:MSE:CE	2.50	0.42
1:D:112:LEU:HD22	1:D:112:LEU:HA	1.84	0.42
1:B:49:PHE:CE2	1:B:55:LEU:HD13	2.55	0.42
1:C:146:LEU:CD2	1:C:176:VAL:HG22	2.50	0.42
1:B:94:SER:C	1:B:96:GLN:N	2.72	0.41
1:C:14:ILE:HG13	1:C:15:GLN:N	2.33	0.41
1:C:164:LEU:HD13	1:F:144:ARG:NH2	2.34	0.41
1:E:6:ASP:OD1	1:E:8:GLN:HG2	2.20	0.41
1:G:123:MSE:HE3	1:G:123:MSE:HB3	1.69	0.41
1:B:33:LYS:NZ	1:C:73:ALA:O	2.53	0.41
1:E:40:VAL:CG1	1:E:45:MSE:HE3	2.50	0.41
1:G:42:LEU:H	1:G:42:LEU:HG	1.59	0.41
1:E:25:GLY:HA3	1:E:27:HIS:HE1	1.85	0.41
1:F:119:LEU:HD22	1:F:123:MSE:CE	2.50	0.41
1:A:32:ARG:O	1:A:36:THR:HG22	2.20	0.41
1:A:52:ILE:O	1:A:55:LEU:HB3	2.20	0.41
1:B:152:GLY:HA3	1:G:148:ALA:O	2.20	0.41
1:H:45:MSE:HE3	1:H:49:PHE:HE1	1.86	0.41
1:C:63:PHE:CE1	1:C:102:ASN:HB3	2.56	0.41
1:E:42:LEU:HD23	1:E:42:LEU:HA	1.57	0.41
1:B:96:GLN:HB3	1:B:97:VAL:HG23	2.02	0.41
1:D:179:ALA:HA	1:D:180:ALA:HA	1.80	0.41
1:B:13:ILE:HG21	1:B:49:PHE:HE2	1.84	0.41
1:E:26:ILE:HG13	1:E:27:HIS:N	2.34	0.41
1:F:86:GLN:OE1	1:F:166:ARG:NH2	2.54	0.41
1:D:67:MSE:O	1:D:71:TYR:N	2.47	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:169:ILE:O	1:E:173:VAL:HG23	2.21	0.41
1:F:32:ARG:H	1:F:32:ARG:HG2	1.62	0.41
1:F:151:GLU:O	1:F:155:LEU:HD13	2.21	0.41
1:A:24:TYR:HA	1:E:115:ARG:HH12	1.86	0.41
1:A:126:TRP:O	1:A:126:TRP:CD1	2.73	0.41
1:B:67:MSE:O	1:B:71:TYR:N	2.49	0.41
1:D:56:LEU:HD13	1:D:56:LEU:HA	1.88	0.41
1:D:113:ALA:HB2	1:D:123:MSE:HE3	2.03	0.41
1:D:164:LEU:HD23	1:D:169:ILE:HG12	2.02	0.41
1:G:67:MSE:HG3	1:G:106:MSE:HE1	2.03	0.41
1:G:49:PHE:CE2	1:G:55:LEU:HD13	2.56	0.41
1:D:37:LEU:HD23	1:D:37:LEU:HA	1.92	0.40
1:F:155:LEU:C	1:F:157:PHE:H	2.25	0.40
1:B:20:ALA:HB2	1:B:37:LEU:HD12	2.04	0.40
1:B:116:LYS:HA	1:B:117:PRO:HD3	1.85	0.40
1:E:10:ARG:HH22	1:E:58:GLU:CD	2.23	0.40
1:E:109:LEU:HB3	1:E:123:MSE:SE	2.71	0.40
1:F:93:TYR:CE1	1:F:166:ARG:HB2	2.56	0.40
1:G:31:HIS:CE1	1:G:52:ILE:HD11	2.56	0.40
1:G:164:LEU:HD22	1:G:172:MSE:HE1	2.03	0.40
1:C:119:LEU:HD22	1:C:119:LEU:N	2.36	0.40
1:D:91:MSE:HE2	1:D:91:MSE:HB3	1.92	0.40
1:D:119:LEU:O	1:D:123:MSE:HE2	2.21	0.40
1:F:65:GLU:OE2	1:F:129:ARG:NH1	2.52	0.40
1:F:150:ILE:O	1:F:154:THR:HG23	2.22	0.40
1:F:172:MSE:O	1:F:176:VAL:HG23	2.22	0.40
1:B:114:SER:OG	1:B:115:ARG:N	2.54	0.40
1:B:16:ALA:HA	1:B:19:GLU:OE1	2.20	0.40
1:C:78:VAL:HG12	1:C:137:TRP:CZ2	2.57	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:44:SER:OG	1:G:97:VAL:O[1_665]	2.17	0.03

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	165/189 (87%)	152 (92%)	11 (7%)	2 (1%)	13	17
1	B	171/189 (90%)	160 (94%)	7 (4%)	4 (2%)	6	6
1	C	165/189 (87%)	152 (92%)	12 (7%)	1 (1%)	25	33
1	D	169/189 (89%)	153 (90%)	14 (8%)	2 (1%)	13	17
1	E	170/189 (90%)	159 (94%)	11 (6%)	0	100	100
1	F	167/189 (88%)	155 (93%)	9 (5%)	3 (2%)	8	10
1	G	172/189 (91%)	157 (91%)	9 (5%)	6 (4%)	3	2
1	H	167/189 (88%)	158 (95%)	7 (4%)	2 (1%)	13	17
All	All	1346/1512 (89%)	1246 (93%)	80 (6%)	20 (2%)	10	13

All (20) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	55	LEU
1	D	26	ILE
1	F	163	PRO
1	G	28	ALA
1	G	160	ASP
1	H	31	HIS
1	H	41	PRO
1	B	159	THR
1	F	103	MSE
1	A	158	VAL
1	F	156	HIS
1	G	99	THR
1	G	163	PRO
1	B	100	PRO
1	D	140	PRO
1	B	157	PHE
1	C	160	ASP

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Mol	Chain	Res	Type
1	G	41	PRO
1	B	97	VAL
1	G	162	LYS

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	143/150 (95%)	121 (85%)	22 (15%)	2	2
1	B	147/150 (98%)	130 (88%)	17 (12%)	5	5
1	C	145/150 (97%)	125 (86%)	20 (14%)	3	3
1	D	145/150 (97%)	128 (88%)	17 (12%)	5	5
1	E	147/150 (98%)	128 (87%)	19 (13%)	4	4
1	F	145/150 (97%)	127 (88%)	18 (12%)	4	5
1	G	146/150 (97%)	127 (87%)	19 (13%)	4	4
1	H	144/150 (96%)	127 (88%)	17 (12%)	5	5
All	All	1162/1200 (97%)	1013 (87%)	149 (13%)	4	4

All (149) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	11	GLU
1	A	14	ILE
1	A	22	LYS
1	A	31	HIS
1	A	36	THR
1	A	44	SER
1	A	45	MSE
1	A	61	SER
1	A	66	ILE
1	A	79	SER
1	A	103	MSE
1	A	108	GLN

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Mol	Chain	Res	Type
1	A	112	LEU
1	A	114	SER
1	A	116	LYS
1	A	129	ARG
1	A	131	GLN
1	A	154	THR
1	A	156	HIS
1	A	160	ASP
1	A	171	ARG
1	A	182	LEU
1	B	8	GLN
1	B	21	VAL
1	B	24	TYR
1	B	26	ILE
1	B	27	HIS
1	B	32	ARG
1	B	53	ASP
1	B	62	SER
1	B	79	SER
1	B	99	THR
1	B	101	ASP
1	B	103	MSE
1	B	131	GLN
1	B	156	HIS
1	B	157	PHE
1	B	164	LEU
1	B	175	ARG
1	C	11	GLU
1	C	14	ILE
1	C	17	THR
1	C	23	LEU
1	C	24	TYR
1	C	42	LEU
1	C	46	THR
1	C	48	TYR
1	C	49	PHE
1	C	58	GLU
1	C	65	GLU
1	C	66	ILE
1	C	77	ASP
1	C	79	SER
1	C	97	VAL

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Mol	Chain	Res	Type
1	C	101	ASP
1	C	114	SER
1	C	118	LEU
1	C	130	SER
1	C	156	HIS
1	D	17	THR
1	D	21	VAL
1	D	32	ARG
1	D	40	VAL
1	D	53	ASP
1	D	56	LEU
1	D	62	SER
1	D	64	THR
1	D	77	ASP
1	D	97	VAL
1	D	99	THR
1	D	112	LEU
1	D	115	ARG
1	D	119	LEU
1	D	156	HIS
1	D	159	THR
1	D	160	ASP
1	E	8	GLN
1	E	9	ARG
1	E	24	TYR
1	E	26	ILE
1	E	36	THR
1	E	40	VAL
1	E	76	SER
1	E	94	SER
1	E	97	VAL
1	E	101	ASP
1	E	104	GLU
1	E	114	SER
1	E	115	ARG
1	E	116	LYS
1	E	118	LEU
1	E	132	GLN
1	E	160	ASP
1	E	166	ARG
1	E	171	ARG
1	F	8	GLN

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Mol	Chain	Res	Type
1	F	24	TYR
1	F	32	ARG
1	F	36	THR
1	F	40	VAL
1	F	50	SER
1	F	53	ASP
1	F	79	SER
1	F	80	ASP
1	F	101	ASP
1	F	102	ASN
1	F	112	LEU
1	F	119	LEU
1	F	129	ARG
1	F	144	ARG
1	F	156	HIS
1	F	162	LYS
1	F	166	ARG
1	G	27	HIS
1	G	33	LYS
1	G	36	THR
1	G	42	LEU
1	G	47	TYR
1	G	48	TYR
1	G	49	PHE
1	G	58	GLU
1	G	72	GLN
1	G	79	SER
1	G	102	ASN
1	G	104	GLU
1	G	109	LEU
1	G	112	LEU
1	G	114	SER
1	G	115	ARG
1	G	119	LEU
1	G	123	MSE
1	G	156	HIS
1	H	11	GLU
1	H	22	LYS
1	H	33	LYS
1	H	37	LEU
1	H	45	MSE
1	H	55	LEU

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Mol	Chain	Res	Type
1	H	77	ASP
1	H	79	SER
1	H	109	LEU
1	H	114	SER
1	H	118	LEU
1	H	128	GLN
1	H	130	SER
1	H	139	GLU
1	H	155	LEU
1	H	167	GLU
1	H	171	ARG

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

Mol	Chain	Res	Type
1	C	72	GLN
1	D	96	GLN
1	G	31	HIS

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)

There are no ligands in this entry.

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	160/189 (84%)	0.88	22 (13%)	2	4	21, 52, 87, 108	0
1	B	164/189 (86%)	0.87	18 (10%)	5	8	29, 49, 100, 131	0
1	C	162/189 (85%)	1.01	30 (18%)	1	1	21, 52, 101, 128	0
1	D	164/189 (86%)	0.90	25 (15%)	2	3	27, 50, 93, 140	0
1	E	165/189 (87%)	0.80	18 (10%)	5	8	28, 49, 87, 127	0
1	F	162/189 (85%)	0.82	18 (11%)	5	7	28, 49, 90, 123	0
1	G	165/189 (87%)	0.93	24 (14%)	2	3	21, 53, 110, 133	0
1	H	162/189 (85%)	0.93	22 (13%)	3	4	21, 50, 104, 134	0
All	All	1304/1512 (86%)	0.89	177 (13%)	3	4	21, 51, 100, 140	0

All (177) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	38	ALA	8.7
1	H	28	ALA	8.5
1	D	158	VAL	8.1
1	B	158	VAL	7.9
1	C	36	THR	7.9
1	F	159	THR	7.3
1	D	97	VAL	7.0
1	H	13	ILE	6.9
1	D	99	THR	6.6
1	A	9	ARG	6.4
1	B	97	VAL	6.1
1	H	37	LEU	6.1
1	C	21	VAL	5.8
1	F	164	LEU	5.4
1	G	13	ILE	5.4
1	G	47	TYR	5.3

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Mol	Chain	Res	Type	RSRZ
1	G	27	HIS	5.2
1	A	36	THR	5.2
1	G	49	PHE	5.1
1	C	29	VAL	5.0
1	G	44	SER	4.8
1	H	47	TYR	4.8
1	B	22	LYS	4.6
1	F	158	VAL	4.5
1	G	32	ARG	4.5
1	A	68	SER	4.5
1	B	24	TYR	4.4
1	A	52	ILE	4.3
1	C	178	GLY	4.3
1	C	48	TYR	4.2
1	A	111	ALA	4.2
1	C	97	VAL	4.1
1	D	101	ASP	4.1
1	C	126	TRP	4.0
1	G	28	ALA	4.0
1	E	157	PHE	4.0
1	H	32	ARG	4.0
1	G	36	THR	4.0
1	C	107	TYR	3.9
1	G	60	PHE	3.9
1	B	159	THR	3.8
1	E	173	VAL	3.8
1	C	68	SER	3.8
1	C	128	GLN	3.8
1	A	97	VAL	3.8
1	D	96	GLN	3.7
1	D	71	TYR	3.7
1	C	11	GLU	3.7
1	E	99	THR	3.7
1	G	112	LEU	3.7
1	B	98	ALA	3.7
1	G	161	ARG	3.6
1	E	28	ALA	3.6
1	C	7	PRO	3.6
1	E	23	LEU	3.6
1	F	24	TYR	3.5
1	C	37	LEU	3.5
1	G	131	GLN	3.5

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Mol	Chain	Res	Type	RSRZ
1	A	126	TRP	3.5
1	C	52	ILE	3.5
1	G	37	LEU	3.5
1	H	175	ARG	3.4
1	A	24	TYR	3.4
1	H	48	TYR	3.4
1	H	50	SER	3.4
1	G	181	ALA	3.3
1	E	159	THR	3.3
1	H	29	VAL	3.3
1	H	39	GLY	3.2
1	E	94	SER	3.2
1	E	158	VAL	3.2
1	C	33	LYS	3.2
1	F	37	LEU	3.2
1	D	28	ALA	3.2
1	B	23	LEU	3.2
1	B	111	ALA	3.1
1	E	98	ALA	3.1
1	G	42	LEU	3.1
1	D	113	ALA	3.1
1	A	47	TYR	3.1
1	C	24	TYR	3.1
1	H	24	TYR	3.1
1	G	48	TYR	3.1
1	D	98	ALA	3.1
1	A	161	ARG	3.0
1	G	75	PHE	3.0
1	A	107	TYR	3.0
1	D	115	ARG	3.0
1	F	173	VAL	3.0
1	C	111	ALA	3.0
1	H	9	ARG	2.9
1	G	107	TYR	2.9
1	B	101	ASP	2.9
1	C	161	ARG	2.9
1	G	26	ILE	2.9
1	H	131	GLN	2.9
1	C	158	VAL	2.9
1	H	49	PHE	2.9
1	B	71	TYR	2.9
1	D	94	SER	2.8

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Mol	Chain	Res	Type	RSRZ
1	B	20	ALA	2.8
1	E	37	LEU	2.8
1	C	26	ILE	2.8
1	G	115	ARG	2.8
1	H	40	VAL	2.8
1	B	38	ALA	2.8
1	F	28	ALA	2.8
1	E	97	VAL	2.8
1	F	70	GLN	2.7
1	F	157	PHE	2.7
1	G	8	GLN	2.7
1	B	107	TYR	2.7
1	C	17	THR	2.7
1	F	31	HIS	2.7
1	D	93	TYR	2.7
1	D	126	TRP	2.7
1	C	10	ARG	2.7
1	D	24	TYR	2.7
1	D	27	HIS	2.6
1	D	20	ALA	2.6
1	A	17	THR	2.6
1	H	42	LEU	2.6
1	B	126	TRP	2.6
1	A	21	VAL	2.6
1	A	22	LYS	2.6
1	G	31	HIS	2.6
1	C	105	LEU	2.5
1	F	94	SER	2.5
1	C	49	PHE	2.5
1	E	25	GLY	2.5
1	C	110	TYR	2.5
1	A	10	ARG	2.5
1	H	112	LEU	2.4
1	A	128	GLN	2.4
1	C	23	LEU	2.4
1	D	159	THR	2.4
1	E	29	VAL	2.4
1	A	37	LEU	2.4
1	D	137	TRP	2.4
1	D	160	ASP	2.4
1	F	180	ALA	2.4
1	D	107	TYR	2.3

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Mol	Chain	Res	Type	RSRZ
1	F	126	TRP	2.3
1	A	29	VAL	2.3
1	C	28	ALA	2.3
1	D	114	SER	2.3
1	E	80	ASP	2.3
1	E	126	TRP	2.3
1	E	107	TYR	2.3
1	D	22	LYS	2.2
1	C	9	ARG	2.2
1	F	125	ASN	2.2
1	H	43	GLY	2.2
1	G	24	TYR	2.2
1	C	135	GLU	2.2
1	B	109	LEU	2.2
1	A	46	THR	2.2
1	C	157	PHE	2.2
1	A	158	VAL	2.1
1	B	137	TRP	2.1
1	H	21	VAL	2.1
1	F	104	GLU	2.1
1	H	20	ALA	2.1
1	E	48	TYR	2.1
1	G	38	ALA	2.1
1	B	40	VAL	2.1
1	H	27	HIS	2.1
1	D	120	LYS	2.1
1	B	76	SER	2.0
1	F	23	LEU	2.0
1	A	32	ARG	2.0
1	A	110	TYR	2.0
1	F	107	TYR	2.0
1	E	63	PHE	2.0
1	F	161	ARG	2.0
1	D	47	TYR	2.0
1	D	82	PRO	2.0

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

There are no ligands in this entry.

6.5 Other polymers (i)

There are no such residues in this entry.