Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2024 – 06:06 PM EST

PDB ID	:	3BK6
Title	:	Crystal structure of a core domain of stomatin from Pyrococcus horikoshii
Authors	:	Yokoyama, H.; Fujii, S.; Matsui, I.
Deposited on	:	2007-12-05
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	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 3.20 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	Percentile Ranks	Value
Rfree		0.248
Clashscore		18
Ramachandran outliers		3.0%
Sidechain outliers		14.7%
RSRZ outliers		0.8%

Worse *Better*

▊ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
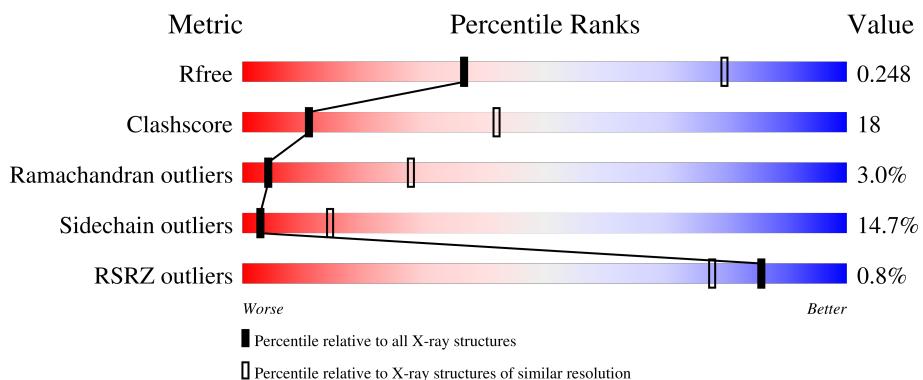
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

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	188	56% 25% 9% · 10%
1	B	188	39% 29% 7% · 24%
1	C	188	48% 32% 5% · 15%

WORLDWIDE wwPDB PROTEIN DATA BANK
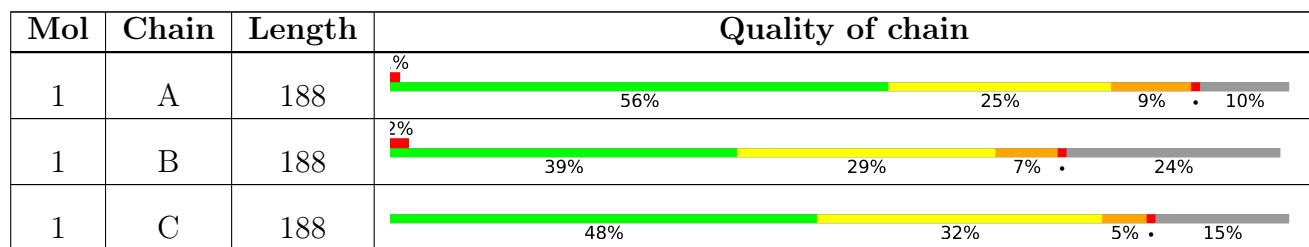
2 Entry composition ⓘ

There is only 1 type of molecule in this entry. The entry contains 3732 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 PH stomatin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	170	Total	C	N	O	S	0	0	0
			1345	840	243	256	6			
1	B	142	Total	C	N	O	S	0	0	0
			1122	703	200	214	5			
1	C	160	Total	C	N	O	S	0	0	0
			1265	790	228	242	5			

There are 27 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	55	MET	-	initiating methionine	UNP O59180
A	235	LEU	-	expression tag	UNP O59180
A	236	GLU	-	expression tag	UNP O59180
A	237	HIS	-	expression tag	UNP O59180
A	238	HIS	-	expression tag	UNP O59180
A	239	HIS	-	expression tag	UNP O59180
A	240	HIS	-	expression tag	UNP O59180
A	241	HIS	-	expression tag	UNP O59180
A	242	HIS	-	expression tag	UNP O59180
B	55	MET	-	initiating methionine	UNP O59180
B	235	LEU	-	expression tag	UNP O59180
B	236	GLU	-	expression tag	UNP O59180
B	237	HIS	-	expression tag	UNP O59180
B	238	HIS	-	expression tag	UNP O59180
B	239	HIS	-	expression tag	UNP O59180
B	240	HIS	-	expression tag	UNP O59180
B	241	HIS	-	expression tag	UNP O59180
B	242	HIS	-	expression tag	UNP O59180
C	55	MET	-	initiating methionine	UNP O59180
C	235	LEU	-	expression tag	UNP O59180
C	236	GLU	-	expression tag	UNP O59180
C	237	HIS	-	expression tag	UNP O59180
C	238	HIS	-	expression tag	UNP O59180

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Chain	Residue	Modelled	Actual	Comment	Reference
C	239	HIS	-	expression tag	UNP O59180
C	240	HIS	-	expression tag	UNP O59180
C	241	HIS	-	expression tag	UNP O59180
C	242	HIS	-	expression tag	UNP O59180

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: PH stomatin

Chain A:

- Molecule 1: PH stomatin

Chain B:

- Molecule 1: PH stomatin

Chain C:
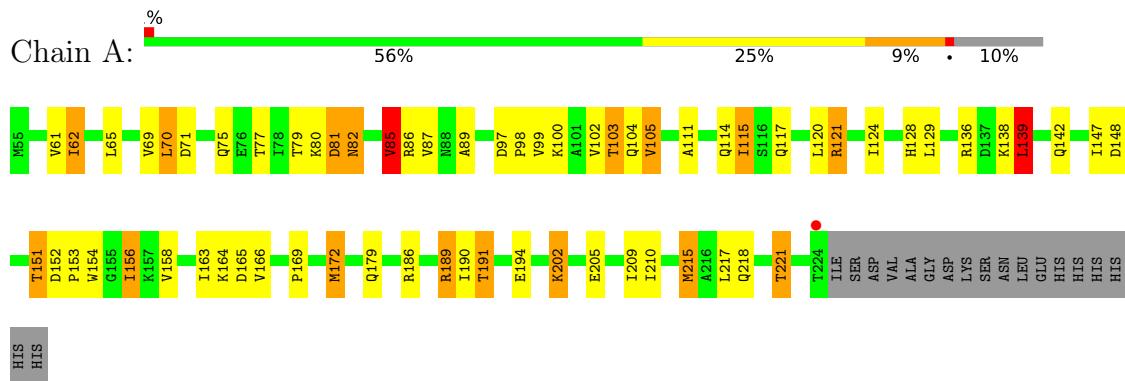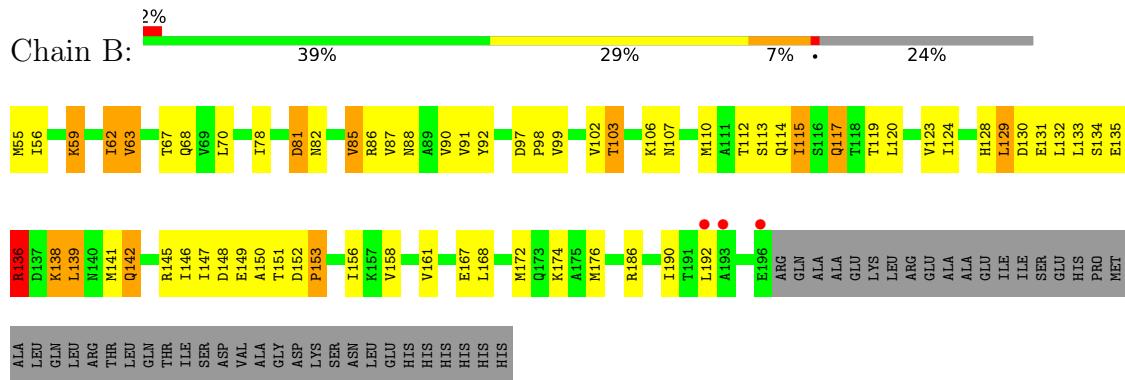
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	142.55Å 137.15Å 58.54Å 90.00° 107.61° 90.00°	Depositor
Resolution (Å)	19.97 – 3.20 19.97 – 3.20	Depositor EDS
% Data completeness (in resolution range)	99.7 (19.97-3.20) 99.7 (19.97-3.20)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.40 (at 3.22Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.198 , 0.262 0.187 , 0.248	Depositor DCC
R_{free} test set	1792 reflections (10.17%)	wwPDB-VP
Wilson B-factor (Å^2)	105.5	Xtriage
Anisotropy	0.035	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 60.8	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	0.96	EDS
Total number of atoms	3732	wwPDB-VP
Average B, all atoms (Å^2)	101.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.79% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5   Model quality ⓘ

5.1   Standard geometry ⓘ

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#|Z| > 5$	RMSZ	$\#|Z| > 5$
1	A	0.96	0/1358	1.05	3/1838 (0.2%)
1	B	1.00	0/1133	1.06	6/1535 (0.4%)
1	C	1.01	3/1278 (0.2%)	1.09	2/1730 (0.1%)
All	All	0.99	3/3769 (0.1%)	1.07	11/5103 (0.2%)

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	1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	68	GLN	CG-CD	5.64	1.64	1.51
1	C	183	GLU	CG-CD	5.02	1.59	1.51
1	C	59	LYS	CE-NZ	5.00	1.61	1.49

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	85	VAL	CB-CA-C	-6.30	99.44	111.40
1	B	97	ASP	CB-CG-OD2	-5.95	112.95	118.30
1	B	136	ARG	NE-CZ-NH2	-5.88	117.36	120.30
1	A	139	LEU	CB-CG-CD1	-5.87	101.03	111.00
1	B	97	ASP	CB-CG-OD1	5.84	123.55	118.30
1	C	100	LYS	CD-CE-NZ	-5.74	98.49	111.70
1	B	139	LEU	CB-CG-CD2	-5.54	101.58	111.00
1	C	168	LEU	CA-CB-CG	-5.53	102.59	115.30
1	B	139	LEU	CA-CB-CG	-5.36	102.97	115.30
1	A	69	VAL	CB-CA-C	-5.28	101.38	111.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	174	LYS	CD-CE-NZ	5.04	123.29	111.70

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	80	LYS	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	1345	0	1400	56	0
1	B	1122	0	1167	47	0
1	C	1265	0	1310	43	0
All	All	3732	0	3877	138	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 18.

All (138) 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:103:THR:HG22	1:C:104:GLN:NE2	1.68	1.07
1:B:136:ARG:NH2	1:C:62:ILE:HG13	1.91	0.85
1:C:103:THR:CG2	1:C:104:GLN:NE2	2.40	0.84
1:B:130:ASP:O	1:B:134:SER:HB2	1.80	0.80
1:B:151:THR:HG22	1:B:156:ILE:HB	1.66	0.77
1:B:136:ARG:HH22	1:C:62:ILE:HG13	1.48	0.77
1:A:81:ASP:O	1:A:82:ASN:HB2	1.86	0.74
1:A:105:VAL:HG21	1:A:111:ALA:HB2	1.71	0.73
1:A:75:GLN:HE22	1:A:117:GLN:HA	1.53	0.73
1:A:97:ASP:OD2	1:A:100:LYS:HG3	1.91	0.71
1:C:131:GLU:OE2	1:C:138:LYS:NZ	2.24	0.71
1:A:105:VAL:HG21	1:A:111:ALA:CB	2.20	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:179:GLN:O	1:A:179:GLN:HG2	1.91	0.69
1:A:99:VAL:O	1:A:103:THR:HB	1.92	0.69
1:C:87:VAL:HG22	1:C:166:VAL:HG22	1.76	0.68
1:A:75:GLN:HG2	1:A:121:ARG:NH2	2.10	0.67
1:B:131:GLU:HB3	1:B:139:LEU:HD11	1.76	0.67
1:A:190:ILE:HG13	1:A:191:THR:N	2.10	0.67
1:B:112:THR:HA	1:B:115:ILE:CD1	2.24	0.67
1:C:85:VAL:CG1	1:C:87:VAL:HG23	2.27	0.65
1:A:152:ASP:N	1:A:153:PRO:HD2	2.12	0.65
1:A:215:MET:HE2	1:A:215:MET:HA	1.79	0.64
1:C:172:MET:O	1:C:176:MET:HG3	1.98	0.64
1:A:151:THR:HG21	1:A:158:VAL:HG23	1.80	0.63
1:A:81:ASP:HB2	1:A:128:HIS:HA	1.81	0.62
1:A:138:LYS:O	1:A:142:GLN:HG3	2.00	0.62
1:B:135:GLU:HB3	1:B:138:LYS:HD3	1.82	0.61
1:A:103:THR:HG22	1:A:104:GLN:HG2	1.83	0.61
1:B:99:VAL:O	1:B:103:THR:HB	1.99	0.61
1:C:85:VAL:HG13	1:C:87:VAL:HG23	1.83	0.61
1:C:147:ILE:HG22	1:C:158:VAL:HG21	1.83	0.61
1:B:87:VAL:HG12	1:B:88:ASN:N	2.17	0.60
1:C:103:THR:HG22	1:C:104:GLN:HE22	1.62	0.59
1:C:194:GLU:HG3	1:C:198:GLN:HE21	1.67	0.59
1:A:75:GLN:HG2	1:A:121:ARG:HH21	1.65	0.59
1:A:75:GLN:NE2	1:A:117:GLN:HB3	2.17	0.59
1:C:81:ASP:O	1:C:82:ASN:HB2	2.02	0.59
1:C:73:PRO:HG2	1:C:117:GLN:NE2	2.18	0.59
1:A:215:MET:HA	1:A:215:MET:CE	2.33	0.58
1:A:89:ALA:HB2	1:A:163:ILE:HA	1.86	0.57
1:C:86:ARG:HB2	1:C:167:GLU:HB2	1.85	0.57
1:C:128:HIS:HB2	1:C:131:GLU:HG3	1.87	0.57
1:C:203:LEU:O	1:C:206:ALA:HB3	2.04	0.57
1:A:147:ILE:O	1:A:151:THR:HB	2.05	0.56
1:B:167:GLU:HA	1:C:58:GLU:O	2.06	0.56
1:A:169:PRO:O	1:A:172:MET:HB2	2.06	0.56
1:B:86:ARG:HB2	1:B:167:GLU:HB2	1.87	0.56
1:C:98:PRO:O	1:C:102:VAL:HG23	2.05	0.55
1:A:148:ASP:O	1:A:151:THR:HG22	2.07	0.55
1:B:67:THR:HG22	1:B:68:GLN:O	2.07	0.55
1:C:194:GLU:HG3	1:C:198:GLN:NE2	2.22	0.55
1:A:62:ILE:H	1:A:62:ILE:HD13	1.72	0.54
1:C:76:GLU:HA	1:C:85:VAL:O	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:190:ILE:O	1:B:190:ILE:CG2	2.56	0.54
1:A:165:ASP:HB3	1:B:59:LYS:HE2	1.90	0.53
1:A:128:HIS:O	1:A:129:LEU:C	2.46	0.53
1:B:120:LEU:O	1:B:124:ILE:HD12	2.07	0.53
1:A:89:ALA:CB	1:A:163:ILE:HA	2.38	0.53
1:B:135:GLU:HG2	1:B:138:LYS:NZ	2.22	0.53
1:C:103:THR:CG2	1:C:104:GLN:HE22	2.18	0.53
1:A:89:ALA:HA	1:A:164:LYS:H	1.73	0.53
1:C:76:GLU:HB2	1:C:86:ARG:HG2	1.91	0.52
1:A:217:LEU:O	1:A:221:THR:OG1	2.26	0.52
1:C:151:THR:CG2	1:C:156:ILE:O	2.57	0.52
1:B:148:ASP:O	1:B:151:THR:HB	2.10	0.51
1:A:87:VAL:HG13	1:A:166:VAL:HG22	1.91	0.51
1:A:105:VAL:CG2	1:A:111:ALA:HB2	2.40	0.51
1:A:152:ASP:H	1:A:153:PRO:HD2	1.77	0.50
1:B:135:GLU:HG2	1:B:138:LYS:HZ2	1.75	0.50
1:A:98:PRO:O	1:A:102:VAL:HG23	2.11	0.49
1:B:87:VAL:CG1	1:B:88:ASN:N	2.74	0.49
1:B:113:SER:O	1:B:117:GLN:HG3	2.12	0.49
1:C:62:ILE:HG12	1:C:63:VAL:O	2.12	0.49
1:B:81:ASP:O	1:B:82:ASN:HB2	2.11	0.49
1:A:75:GLN:O	1:A:86:ARG:HA	2.11	0.49
1:A:151:THR:HG23	1:A:156:ILE:HB	1.95	0.48
1:C:111:ALA:O	1:C:115:ILE:HG13	2.13	0.48
1:B:107:ASN:ND2	1:B:110:MET:HG3	2.28	0.48
1:B:128:HIS:O	1:B:129:LEU:C	2.52	0.48
1:A:79:THR:OG1	1:A:81:ASP:HB3	2.14	0.48
1:B:147:ILE:O	1:B:151:THR:OG1	2.24	0.48
1:B:85:VAL:HG13	1:B:87:VAL:HG23	1.96	0.47
1:C:132:LEU:O	1:C:136:ARG:HG3	2.14	0.47
1:C:148:ASP:O	1:C:151:THR:HG22	2.14	0.47
1:B:91:VAL:HG22	1:B:161:VAL:HG22	1.97	0.47
1:A:111:ALA:HB1	1:A:154:TRP:CH2	2.50	0.47
1:A:156:ILE:N	1:A:156:ILE:HD13	2.30	0.47
1:A:165:ASP:OD1	1:B:59:LYS:HD3	2.14	0.46
1:B:148:ASP:HA	1:B:158:VAL:HB	1.96	0.46
1:A:148:ASP:O	1:A:152:ASP:OD1	2.34	0.46
1:A:152:ASP:N	1:A:153:PRO:CD	2.79	0.46
1:B:62:ILE:HG12	1:B:63:VAL:N	2.31	0.46
1:B:172:MET:SD	1:B:176:MET:CE	3.04	0.46
1:C:92:TYR:CD1	1:C:92:TYR:N	2.83	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:156:ILE:N	1:A:156:ILE:CD1	2.80	0.45
1:A:205:GLU:O	1:A:209:ILE:HG13	2.16	0.45
1:A:61:VAL:O	1:A:98:PRO:HB3	2.16	0.45
1:B:129:LEU:HD11	1:B:168:LEU:HD21	1.98	0.45
1:C:192:LEU:HD12	1:C:192:LEU:HA	1.77	0.45
1:C:97:ASP:OD2	1:C:100:LYS:HD2	2.17	0.45
1:A:62:ILE:CG2	1:C:133:LEU:HD22	2.47	0.44
1:A:189:ARG:O	1:A:190:ILE:C	2.56	0.44
1:A:215:MET:CE	1:A:215:MET:CA	2.95	0.44
1:A:202:LYS:HA	1:A:202:LYS:HD2	1.76	0.44
1:B:98:PRO:O	1:B:102:VAL:HG23	2.17	0.44
1:B:128:HIS:O	1:B:131:GLU:N	2.41	0.44
1:C:168:LEU:HD23	1:C:168:LEU:HA	1.43	0.44
1:B:90:VAL:HG12	1:B:92:TYR:CE1	2.53	0.44
1:C:128:HIS:O	1:C:129:LEU:C	2.54	0.43
1:C:135:GLU:O	1:C:136:ARG:C	2.57	0.43
1:A:79:THR:HG21	1:A:129:LEU:HA	2.00	0.43
1:B:172:MET:CG	1:B:176:MET:HE2	2.49	0.43
1:C:91:VAL:HG22	1:C:161:VAL:HG22	2.01	0.43
1:B:167:GLU:HB3	1:C:57:PHE:HB3	2.00	0.42
1:B:136:ARG:CZ	1:C:62:ILE:HG13	2.48	0.42
1:C:112:THR:HA	1:C:115:ILE:HD11	2.00	0.42
1:A:136:ARG:O	1:A:139:LEU:N	2.53	0.42
1:C:99:VAL:O	1:C:103:THR:HB	2.20	0.42
1:B:151:THR:CG2	1:B:156:ILE:HB	2.43	0.42
1:B:190:ILE:O	1:B:190:ILE:HG23	2.19	0.42
1:B:78:ILE:HG22	1:B:82:ASN:HA	2.02	0.42
1:A:70:LEU:HD12	1:A:71:ASP:N	2.35	0.41
1:B:86:ARG:NH1	1:B:167:GLU:OE1	2.53	0.41
1:A:103:THR:HG22	1:A:104:GLN:NE2	2.35	0.41
1:A:120:LEU:O	1:A:124:ILE:HD12	2.21	0.41
1:B:112:THR:HA	1:B:115:ILE:HD11	2.01	0.41
1:B:142:GLN:O	1:B:146:ILE:HD12	2.20	0.41
1:C:129:LEU:O	1:C:130:ASP:C	2.58	0.41
1:A:114:GLN:O	1:A:115:ILE:C	2.59	0.41
1:B:70:LEU:HD12	1:B:70:LEU:HA	1.82	0.41
1:A:151:THR:HG23	1:A:156:ILE:O	2.21	0.41
1:C:72:VAL:HA	1:C:73:PRO:HD2	1.97	0.41
1:C:81:ASP:OD2	1:C:129:LEU:N	2.54	0.41
1:A:77:THR:O	1:A:85:VAL:HG23	2.21	0.40
1:B:107:ASN:CG	1:B:110:MET:HG3	2.42	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:152:ASP:N	1:B:153:PRO:HD2	2.36	0.40
1:A:97:ASP:C	1:A:97:ASP:OD1	2.60	0.40
1:B:119:THR:O	1:B:123:VAL:HG23	2.22	0.40

There are no symmetry-related clashes.

5.3   Torsion angles ⓘ

5.3.1   Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	168/188 (89%)	146 (87%)	19 (11%)	3 (2%)	8	41
1	B	140/188 (74%)	115 (82%)	18 (13%)	7 (5%)	2	16
1	C	158/188 (84%)	140 (89%)	14 (9%)	4 (2%)	5	32
All	All	466/564 (83%)	401 (86%)	51 (11%)	14 (3%)	4	28

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	81	ASP
1	A	189	ARG
1	C	81	ASP
1	A	82	ASN
1	B	81	ASP
1	B	150	ALA
1	C	140	ASN
1	C	211	SER
1	B	149	GLU
1	C	149	GLU
1	B	63	VAL
1	B	129	LEU
1	B	117	GLN
1	B	153	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	147/163 (90%)	127 (86%)	20 (14%)	3	17
1	B	124/163 (76%)	106 (86%)	18 (14%)	3	15
1	C	138/163 (85%)	116 (84%)	22 (16%)	2	12
All	All	409/489 (84%)	349 (85%)	60 (15%)	3	14

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	62	ILE
1	A	65	LEU
1	A	70	LEU
1	A	85	VAL
1	A	103	THR
1	A	105	VAL
1	A	115	ILE
1	A	121	ARG
1	A	139	LEU
1	A	151	THR
1	A	156	ILE
1	A	172	MET
1	A	186	ARG
1	A	191	THR
1	A	194	GLU
1	A	202	LYS
1	A	210	ILE
1	A	215	MET
1	A	218	GLN
1	A	221	THR
1	B	55	MET
1	B	56	ILE
1	B	59	LYS
1	B	62	ILE
1	B	85	VAL
1	B	103	THR

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Mol	Chain	Res	Type
1	B	106	LYS
1	B	114	GLN
1	B	115	ILE
1	B	132	LEU
1	B	133	LEU
1	B	136	ARG
1	B	138	LYS
1	B	141	MET
1	B	142	GLN
1	B	145	ARG
1	B	186	ARG
1	B	192	LEU
1	C	55	MET
1	C	59	LYS
1	C	62	ILE
1	C	63	VAL
1	C	65	LEU
1	C	81	ASP
1	C	90	VAL
1	C	105	VAL
1	C	110	MET
1	C	113	SER
1	C	115	ILE
1	C	122	SER
1	C	136	ARG
1	C	142	GLN
1	C	151	THR
1	C	159	THR
1	C	186	ARG
1	C	187	ARG
1	C	190	ILE
1	C	205	GLU
1	C	208	GLU
1	C	211	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	75	GLN
1	B	104	GLN
1	C	104	GLN
1	C	117	GLN

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Mol	Chain	Res	Type
1	C	198	GLN
1	C	213	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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(Å²)	Q<0.9
1	A	170/188 (90%)	-0.57	1 (0%) 89 83		71, 96, 130, 178	0
1	B	142/188 (75%)	-0.44	3 (2%) 63 49		72, 96, 159, 189	0
1	C	160/188 (85%)	-0.59	0 100 100		71, 94, 122, 176	0
All	All	472/564 (83%)	-0.54	4 (0%) 86 78		71, 95, 136, 189	0

All (4) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	224	THR	2.8
1	B	196	GLU	2.4
1	B	192	LEU	2.3
1	B	193	ALA	2.2

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.