WORLDWIDE PDB

PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Apr 14, 2025 – 02:55 PM JST

PDB ID	:	8Z4H / pdb_00008z4h
Title	:	Pseudomurein Endoisopeptidase PeiR
Authors	:	Guo, L.Z.; Wang, S.X.; Bai, L.p.
Deposited on	:	2024-04-17
Resolution	:	1.79 Å(reported)

The following versions of software and data (see references ⓘ) were used in the production of this report:

|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.42

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 1.79 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.
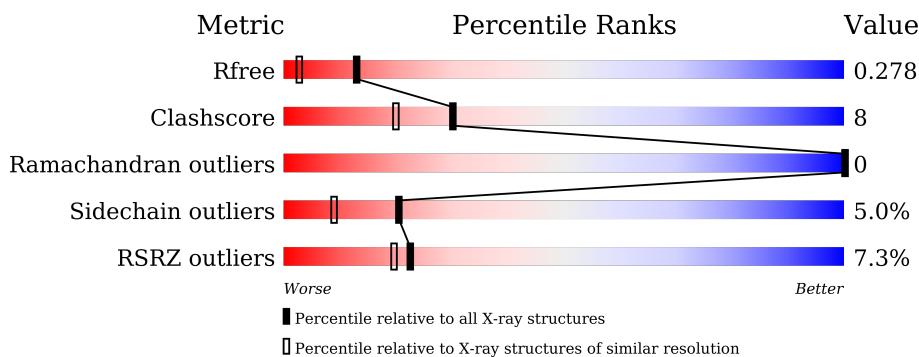
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	7108 (1.80-1.80)
Clashscore	180529	8162 (1.80-1.80)
Ramachandran outliers	177936	8077 (1.80-1.80)
Sidechain outliers	177891	8076 (1.80-1.80)
RSRZ outliers	164620	7108 (1.80-1.80)

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	228	8% / 81% / 18% / ·
1	B	228	6% / 86% / 13% / ·
1	C	228	9% / 81% / 17% / ·
1	D	228	6% / 85% / 13% / ·
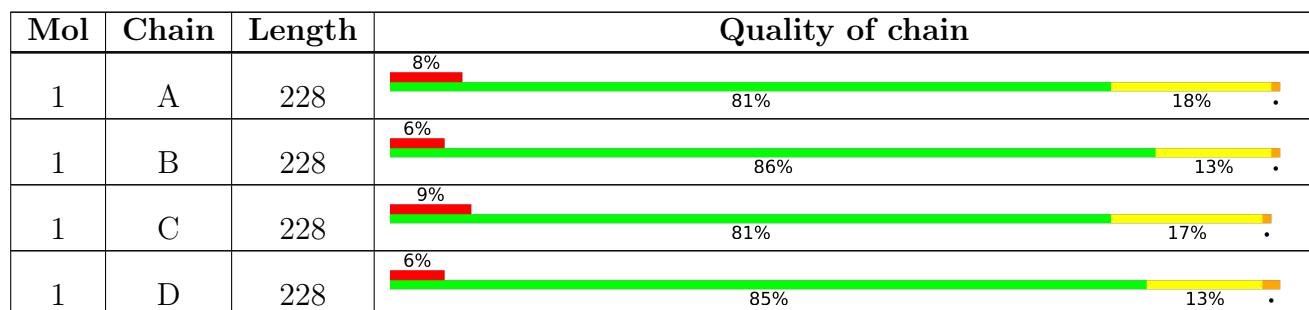
2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 7824 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 Endoisopeptidase PeiR.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	228	Total	C	N	O	S	0	0	0
			1843	1175	322	331	15			
1	B	228	Total	C	N	O	S	0	0	0
			1842	1175	322	330	15			
1	C	228	Total	C	N	O	S	0	0	0
			1843	1175	322	331	15			
1	D	228	Total	C	N	O	S	0	0	0
			1843	1175	322	331	15			

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	107	Total	O	0	0
			107	107		
2	B	134	Total	O	0	0
			134	134		
2	C	97	Total	O	0	0
			97	97		
2	D	115	Total	O	0	0
			115	115		

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: Endoisopeptidase PeiR
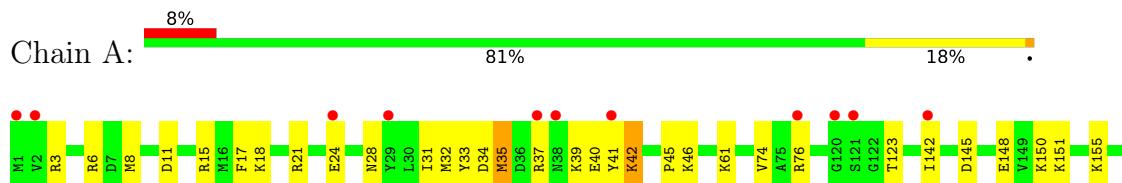
- Molecule 1: Endoisopeptidase PeiR

- Molecule 1: Endoisopeptidase PeiR

- Molecule 1: Endoisopeptidase PeiR

M1 V2 D7 K14 F17 K18 W19 L20 R21 E24 G25 Y29 D34 M35 D36 R37 N38 K39 E40 K61 R64 E65 P66 N67 Y68 R76 N77 P78 N85 E110 G120 K138 I139 I140 D145 S146 K147 E148 V149 N166 Q167 K172 N178

M188 T189 K200 R204 K205 Y206 S209 K216 A228
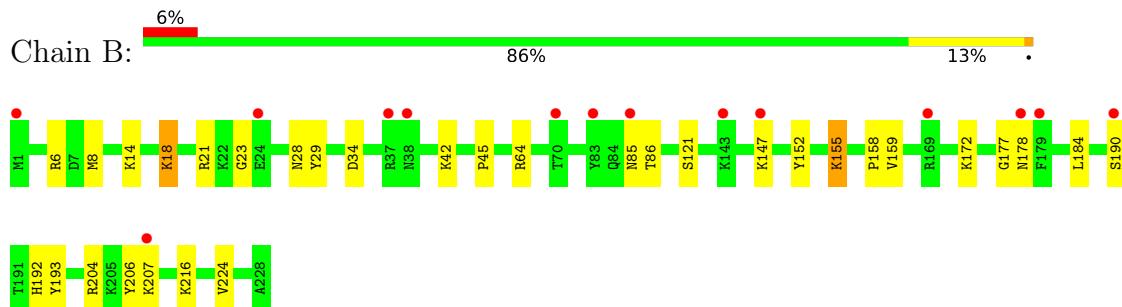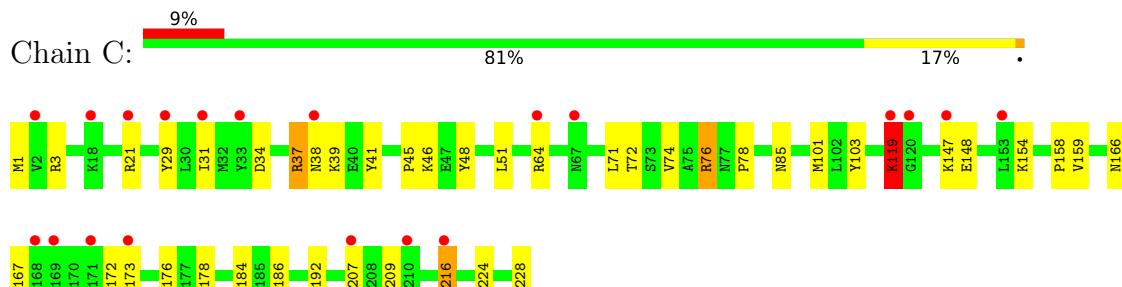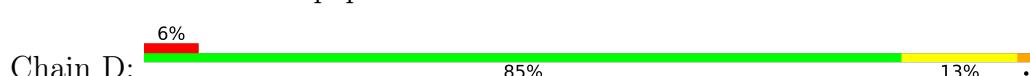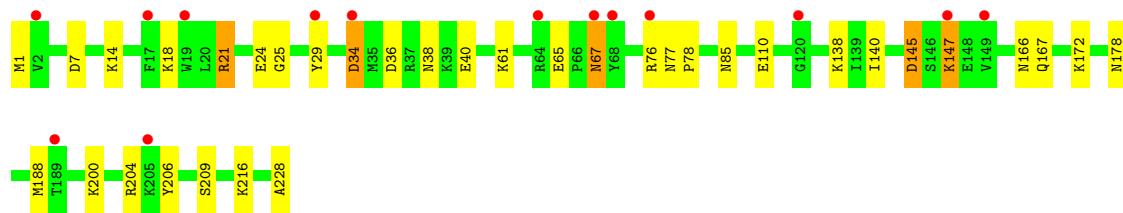
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	73.83Å 86.92Å 87.99Å 90.00° 91.85° 90.00°	Depositor
Resolution (Å)	73.79 – 1.79 73.79 – 1.79	Depositor EDS
% Data completeness (in resolution range)	90.9 (73.79-1.79) 91.1 (73.79-1.79)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.47 (at 1.80Å)	Xtriage
Refinement program	PHENIX (1.20.1_4487: ???)	Depositor
R, R_{free}	0.253 , 0.285 0.250 , 0.278	Depositor DCC
R_{free} test set	5144 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å^2)	27.6	Xtriage
Anisotropy	0.457	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 34.3	EDS
L-test for twinning[2]	$< |L| > = 0.52$, $< L^2 > = 0.36$	Xtriage
Estimated twinning fraction	0.000 for -h,l,k 0.000 for -h,-l,-k 0.033 for h,-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	7824	wwPDB-VP
Average B, all atoms (Å^2)	33.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 49.55 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 7.3436e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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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	0.71	1/1890 (0.1%)	0.76	0/2547
1	B	0.70	0/1889	0.76	0/2547
1	C	0.72	1/1890 (0.1%)	0.78	1/2547 (0.0%)
1	D	0.70	1/1890 (0.1%)	0.73	3/2547 (0.1%)
All	All	0.71	3/7559 (0.0%)	0.76	4/10188 (0.0%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	65	GLU	CD-OE1	-5.93	1.19	1.25
1	A	210	CYS	CB-SG	-5.46	1.73	1.81
1	C	148	GLU	CD-OE1	-5.28	1.19	1.25

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	145	ASP	CB-CG-OD1	6.39	124.05	118.30
1	C	119	LYS	C-N-CA	-5.78	110.17	122.30
1	D	67	ASN	CB-CA-C	5.17	120.74	110.40
1	D	145	ASP	CB-CG-OD2	-5.07	113.74	118.30

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.

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1843	0	1835	35	0
1	B	1842	0	1833	21	0
1	C	1843	0	1833	39	0
1	D	1843	0	1833	29	0
2	A	107	0	0	6	0
2	B	134	0	0	4	1
2	C	97	0	0	9	0
2	D	115	0	0	12	1
All	All	7824	0	7334	121	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 8.

All (121) 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:76:ARG:NH1	2:C:301:HOH:O	1.87	1.07
1:C:76:ARG:NH2	2:C:301:HOH:O	1.86	1.07
1:D:25:GLY:N	2:D:301:HOH:O	1.93	1.00
1:D:85:ASN:HB2	2:D:331:HOH:O	1.60	0.99
1:C:172:LYS:NZ	2:C:302:HOH:O	1.95	0.97
1:C:166:ASN:HB3	1:C:178:ASN:OD1	1.65	0.96
1:C:37:ARG:HH21	1:C:37:ARG:HG2	1.31	0.96
1:D:25:GLY:O	2:D:301:HOH:O	1.84	0.94
1:A:142:ILE:HD11	1:A:148:GLU:HB3	1.53	0.89
1:A:11:ASP:OD2	1:A:15:ARG:NH1	2.05	0.89
1:A:162:HIS:ND1	2:A:301:HOH:O	2.08	0.86
1:C:119:LYS:O	1:C:119:LYS:HD3	1.78	0.83
1:C:166:ASN:CB	1:C:178:ASN:OD1	2.28	0.80
1:D:21:ARG:HH11	1:D:21:ARG:HG2	1.48	0.79
1:A:142:ILE:CD1	1:A:148:GLU:HB3	2.15	0.77
1:C:39:LYS:HD3	1:C:41:TYR:CZ	2.21	0.75
1:A:151:LYS:NZ	2:A:302:HOH:O	2.19	0.74
1:D:24:GLU:C	2:D:301:HOH:O	2.19	0.73
1:D:21:ARG:HH11	1:D:21:ARG:CG	2.02	0.71
1:C:37:ARG:HH21	1:C:37:ARG:CG	2.03	0.70
1:D:110:GLU:OE2	2:D:302:HOH:O	2.11	0.69
1:A:21:ARG:HA	1:A:227:PRO:HG2	1.74	0.68
1:B:158:PRO:HB2	1:B:184:LEU:HD11	1.75	0.68
1:D:18:LYS:HD2	1:D:21:ARG:NH2	2.09	0.67
1:D:40:GLU:OE2	2:D:303:HOH:O	2.11	0.67
1:C:167:GLN:NE2	1:C:216:LYS:HE3	2.10	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:150:LYS:HE3	1:A:188:MET:HE2	1.78	0.65
1:C:228:ALA:OXT	2:C:304:HOH:O	2.14	0.65
1:D:172:LYS:NZ	2:D:307:HOH:O	2.30	0.63
1:C:167:GLN:CD	1:C:216:LYS:HE3	2.20	0.61
1:C:167:GLN:CD	1:C:216:LYS:CE	2.69	0.61
1:D:61:LYS:NZ	2:D:308:HOH:O	2.32	0.61
1:C:76:ARG:CZ	2:C:301:HOH:O	2.13	0.61
1:C:119:LYS:HD3	1:C:119:LYS:C	2.20	0.60
1:B:23:GLY:CA	2:B:308:HOH:O	2.50	0.60
1:C:37:ARG:HG2	1:C:37:ARG:NH2	2.11	0.60
1:A:158:PRO:HB2	1:A:184:LEU:HD11	1.84	0.59
1:C:29:TYR:OH	2:C:305:HOH:O	2.15	0.59
1:B:23:GLY:HA2	2:B:308:HOH:O	2.02	0.59
1:D:228:ALA:OXT	2:D:304:HOH:O	2.17	0.59
1:D:145:ASP:OD2	1:D:147:LYS:HE3	2.04	0.58
1:B:190:SER:OG	2:B:301:HOH:O	2.17	0.57
1:C:46:LYS:HG3	1:C:74:VAL:HB	1.85	0.57
1:C:166:ASN:CG	1:C:178:ASN:OD1	2.43	0.57
1:C:45:PRO:HA	1:C:48:TYR:CE2	2.40	0.55
1:A:34:ASP:HB2	1:A:41:TYR:CE1	2.41	0.55
1:B:29:TYR:CD2	1:B:42:LYS:HE3	2.41	0.55
1:A:171:CYS:N	2:A:307:HOH:O	2.38	0.54
1:B:18:LYS:HD2	1:B:21:ARG:NH2	2.22	0.54
1:C:173:GLY:O	2:C:306:HOH:O	2.19	0.53
1:A:123:THR:HG23	2:A:370:HOH:O	2.07	0.52
1:C:101:MET:CE	1:C:186:TRP:HB2	2.39	0.52
1:B:64:ARG:NH1	2:B:302:HOH:O	2.19	0.51
1:A:42:LYS:O	1:A:42:LYS:HG3	2.10	0.51
1:A:33:TYR:CZ	1:A:40:GLU:HG3	2.46	0.50
1:A:207:LYS:CB	1:A:207:LYS:NZ	2.73	0.50
1:B:28:ASN:O	1:B:45:PRO:HD3	2.12	0.50
1:B:18:LYS:HD2	1:B:21:ARG:HH22	1.75	0.50
1:B:192:HIS:CD2	1:B:207:LYS:HG3	2.47	0.50
1:C:167:GLN:CD	1:C:216:LYS:HE2	2.33	0.49
1:A:39:LYS:NZ	2:A:308:HOH:O	2.39	0.49
1:C:29:TYR:CE1	1:C:31:ILE:HD11	2.47	0.49
1:A:35:MET:O	1:A:35:MET:HG3	2.13	0.49
1:A:207:LYS:NZ	1:A:207:LYS:HB3	2.28	0.49
1:D:138:LYS:NZ	1:D:140:ILE:HD11	2.28	0.49
1:D:14:LYS:O	1:D:18:LYS:HG2	2.13	0.49
1:A:39:LYS:HG3	1:A:40:GLU:N	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:138:LYS:HZ3	1:D:140:ILE:HD11	1.79	0.48
1:D:167:GLN:OE1	1:D:216:LYS:HE3	2.12	0.48
1:A:15:ARG:NH2	1:A:31:ILE:O	2.46	0.48
1:D:166:ASN:HA	2:D:370:HOH:O	2.14	0.48
1:B:152:TYR:HA	1:B:155:LYS:HG3	1.95	0.48
1:D:228:ALA:C	2:D:304:HOH:O	2.52	0.47
1:B:177:GLY:HA3	1:D:1:MET:HE3	1.95	0.47
1:C:228:ALA:C	2:C:304:HOH:O	2.51	0.47
1:C:39:LYS:HD3	1:C:41:TYR:OH	2.14	0.47
1:C:78:PRO:HG3	1:C:103:TYR:CZ	2.49	0.47
1:B:14:LYS:HE3	1:B:14:LYS:HB3	1.72	0.47
1:C:176:THR:OG1	2:C:303:HOH:O	2.06	0.46
1:C:192:HIS:CE1	1:C:207:LYS:HG3	2.50	0.46
1:C:101:MET:HE1	1:C:186:TRP:HB2	1.98	0.46
1:B:85:ASN:HA	1:D:61:LYS:HG2	1.98	0.46
1:D:166:ASN:HB3	1:D:178:ASN:OD1	2.16	0.46
1:B:159:VAL:HG22	1:B:224:VAL:HG22	1.98	0.45
1:D:34:ASP:OD1	1:D:36:ASP:N	2.46	0.45
1:C:51:LEU:HB2	1:C:71:LEU:HD23	1.99	0.45
1:C:1:MET:HE2	1:C:72:THR:HG22	1.99	0.45
1:A:24:GLU:N	2:A:303:HOH:O	2.50	0.44
1:C:158:PRO:HB2	1:C:184:LEU:HD11	1.99	0.44
1:A:17:PHE:CE1	1:A:227:PRO:HB3	2.52	0.44
1:A:61:LYS:HA	1:A:61:LYS:HD2	1.80	0.44
1:A:18:LYS:HE3	1:A:18:LYS:HB2	1.77	0.44
1:A:46:LYS:HB3	1:A:74:VAL:HB	1.99	0.44
1:B:29:TYR:CG	1:B:42:LYS:HE3	2.54	0.43
1:A:200:LYS:HB3	1:A:200:LYS:HE3	1.65	0.43
1:B:193:TYR:N	1:B:206:TYR:O	2.47	0.43
1:A:17:PHE:CZ	1:A:227:PRO:HB3	2.54	0.43
1:C:216:LYS:O	1:C:216:LYS:HG2	2.19	0.43
1:A:6:ARG:C	1:A:6:ARG:HD3	2.39	0.43
1:A:33:TYR:CE2	1:A:40:GLU:HG3	2.54	0.43
1:A:28:ASN:O	1:A:45:PRO:HD3	2.19	0.42
1:A:151:LYS:O	1:A:155:LYS:HG3	2.19	0.42
1:B:85:ASN:OD1	1:B:86:THR:HG23	2.19	0.42
1:D:77:ASN:HB2	1:D:78:PRO:HD2	2.02	0.42
1:C:192:HIS:NE2	1:C:207:LYS:HG3	2.35	0.42
1:D:29:TYR:C	1:D:29:TYR:CD1	2.94	0.42
1:A:192:HIS:NE2	1:A:207:LYS:HG2	2.35	0.41
1:B:204:ARG:HA	1:B:204:ARG:HD2	1.79	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:35:MET:O	1:A:35:MET:CG	2.67	0.41
1:B:6:ARG:HD3	1:B:6:ARG:C	2.41	0.41
1:A:61:LYS:HB3	1:C:85:ASN:OD1	2.21	0.41
1:A:142:ILE:HD13	1:A:142:ILE:HG21	1.75	0.41
1:B:29:TYR:CD2	1:B:42:LYS:CE	3.04	0.41
1:D:38:ASN:ND2	2:D:310:HOH:O	2.45	0.41
1:D:200:LYS:HB3	1:D:200:LYS:HE3	1.86	0.41
1:C:101:MET:HE2	1:C:186:TRP:HB2	2.01	0.41
1:D:21:ARG:HH11	1:D:21:ARG:CB	2.34	0.40
1:A:46:LYS:HB2	1:A:46:LYS:HE2	1.84	0.40
1:C:159:VAL:HG22	1:C:224:VAL:HG22	2.03	0.40
1:D:172:LYS:HG2	1:D:206:TYR:CZ	2.57	0.40
1:C:29:TYR:CD1	1:C:29:TYR:C	2.94	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)
2:B:428:HOH:O	2:D:409:HOH:O[2_655]	1.90	0.30

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	226/228 (99%)	217 (96%)	9 (4%)	0	100	100
1	B	226/228 (99%)	219 (97%)	7 (3%)	0	100	100
1	C	226/228 (99%)	221 (98%)	5 (2%)	0	100	100
1	D	226/228 (99%)	221 (98%)	5 (2%)	0	100	100
All	All	904/912 (99%)	878 (97%)	26 (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	199/199 (100%)	189 (95%)	10 (5%)	20	9
1	B	199/199 (100%)	190 (96%)	9 (4%)	23	11
1	C	199/199 (100%)	187 (94%)	12 (6%)	16	6
1	D	199/199 (100%)	190 (96%)	9 (4%)	23	11
All	All	796/796 (100%)	756 (95%)	40 (5%)	20	9

All (40) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	ARG
1	A	8	MET
1	A	32	MET
1	A	35	MET
1	A	37	ARG
1	A	42	LYS
1	A	76	ARG
1	A	145	ASP
1	A	178	ASN
1	A	207	LYS
1	B	8	MET
1	B	18	LYS
1	B	34	ASP
1	B	121	SER
1	B	147	LYS
1	B	155	LYS
1	B	172	LYS
1	B	178	ASN
1	B	216	LYS
1	C	3	ARG
1	C	21	ARG
1	C	34	ASP
1	C	37	ARG
1	C	38	ASN

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Mol	Chain	Res	Type
1	C	64	ARG
1	C	76	ARG
1	C	119	LYS
1	C	147	LYS
1	C	154	LYS
1	C	209	SER
1	C	216	LYS
1	D	7	ASP
1	D	21	ARG
1	D	34	ASP
1	D	67	ASN
1	D	76	ARG
1	D	147	LYS
1	D	188	MET
1	D	204	ARG
1	D	209	SER

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	178	ASN
1	B	38	ASN
1	D	67	ASN

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 oligosaccharides 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	228/228 (100%)	0.72	19 (8%)	19	16	21, 32, 46, 57	0
1	B	228/228 (100%)	0.63	14 (6%)	28	26	20, 31, 46, 54	0
1	C	228/228 (100%)	0.77	20 (8%)	17	14	21, 32, 46, 54	0
1	D	228/228 (100%)	0.70	14 (6%)	28	26	21, 32, 44, 51	0
All	All	912/912 (100%)	0.70	67 (7%)	22	20	20, 32, 46, 57	0

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	76	ARG	3.4
1	C	21	ARG	3.4
1	B	179	PHE	3.2
1	C	216	LYS	3.1
1	A	163	TRP	3.1
1	D	34	ASP	3.1
1	B	1	MET	3.0
1	A	121	SER	3.0
1	A	177	GLY	3.0
1	B	24	GLU	2.9
1	C	2	VAL	2.9
1	C	119	LYS	2.9
1	C	171	CYS	2.8
1	C	168	SER	2.8
1	B	178	ASN	2.8
1	A	2	VAL	2.8
1	D	64	ARG	2.7
1	D	120	GLY	2.7
1	A	173	GLY	2.6
1	A	169	ARG	2.6
1	A	41	TYR	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	207	LYS	2.6
1	C	169	ARG	2.6
1	A	179	PHE	2.5
1	C	33	TYR	2.5
1	D	2	VAL	2.4
1	C	29	TYR	2.4
1	D	68	TYR	2.4
1	C	147	LYS	2.4
1	A	120	GLY	2.4
1	D	19	TRP	2.4
1	B	37	ARG	2.4
1	D	76	ARG	2.4
1	C	210	CYS	2.4
1	D	67	ASN	2.4
1	B	83	TYR	2.3
1	D	29	TYR	2.3
1	B	85	ASN	2.3
1	A	178	ASN	2.3
1	B	70	THR	2.3
1	A	1	MET	2.3
1	A	142	ILE	2.2
1	B	207	LYS	2.2
1	B	38	ASN	2.2
1	C	31	ILE	2.2
1	C	207	LYS	2.2
1	D	147	LYS	2.2
1	A	24	GLU	2.2
1	A	170	ASN	2.2
1	C	67	ASN	2.2
1	A	29	TYR	2.2
1	B	190	SER	2.1
1	B	143	LYS	2.1
1	C	120	GLY	2.1
1	C	173	GLY	2.1
1	C	64	ARG	2.1
1	D	205	LYS	2.1
1	B	169	ARG	2.1
1	C	153	LEU	2.1
1	D	149	VAL	2.1
1	B	147	LYS	2.1
1	D	189	THR	2.0
1	C	18	LYS	2.0

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Mol	Chain	Res	Type	RSRZ
1	D	17	PHE	2.0
1	A	37	ARG	2.0
1	A	38	ASN	2.0
1	C	38	ASN	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.