Full wwPDB X-ray Structure Validation Report (i)

Jun 2, 2026 – 12:10 PM JST

PDB ID	:	24JD / pdb_000024jd
Title	:	Crystal structure of the Aeropyrum pernix PCNA2 homotrimer
Authors	:	Oyama, T.; Ishino, Y.
Deposited on	:	2026-03-06
Resolution	:	2.17 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 (i) 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 (1)) were used in the production of this report:

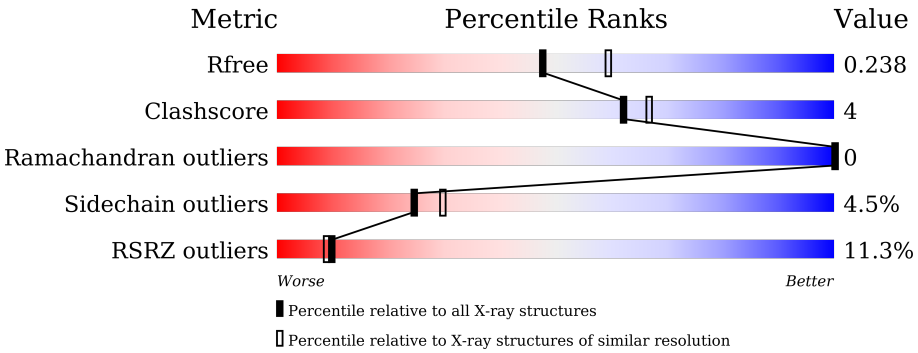
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

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 2.17 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}	180053	8975 (2.20-2.16)
Clashscore	190562	9786 (2.20-2.16)
Ramachandran outliers	187476	9664 (2.20-2.16)
Sidechain outliers	187428	9664 (2.20-2.16)
RSRZ outliers	180081	8979 (2.20-2.16)

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	251	10% 86% 12%
1	B	251	12% 86% 13%
1	C	251	10% 85% 13%
1	D	251	13% 90% 9%

2 Entry composition

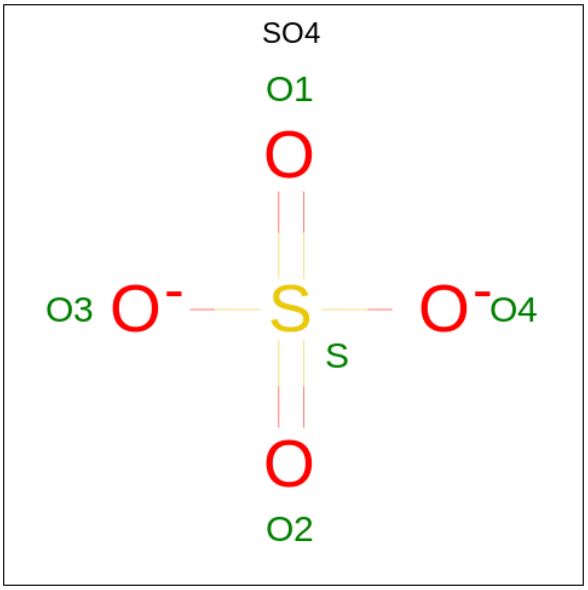
There are 3 unique types of molecules in this entry. The entry contains 8197 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 DNA polymerase sliding clamp 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	251	Total	C	N	O	S	0	0	0
			1992	1271	321	389	11			
1	B	251	Total	C	N	O	S	0	0	0
			1992	1271	321	389	11			
1	C	251	Total	C	N	O	S	1	0	0
			1993	1270	321	391	11			
1	D	251	Total	C	N	O	S	0	0	0
			1992	1271	321	389	11			

- Molecule 2 is SULFATE ION (CCD ID: SO4) (formula: O_4S).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	O	S		0	0
			5	4	1			
2	A	1	Total	O	S		0	0
			5	4	1			

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total O S 5 4 1	0	0
2	B	1	Total O S 5 4 1	0	0
2	B	1	Total O S 5 4 1	0	0
2	B	1	Total O S 5 4 1	0	0
2	C	1	Total O S 5 4 1	0	0
2	C	1	Total O S 5 4 1	0	0
2	C	1	Total O S 5 4 1	0	0
2	D	1	Total O S 5 4 1	0	0
2	D	1	Total O S 5 4 1	0	0
2	D	1	Total O S 5 4 1	0	0

- Molecule 3 is water.

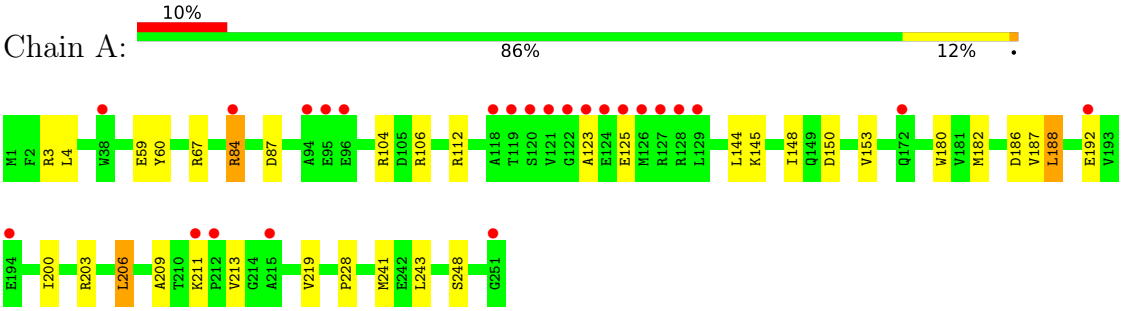
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	55	Total O 55 55	0	0
3	B	24	Total O 24 24	0	0
3	C	41	Total O 41 41	0	0
3	D	48	Total O 48 48	0	0

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.

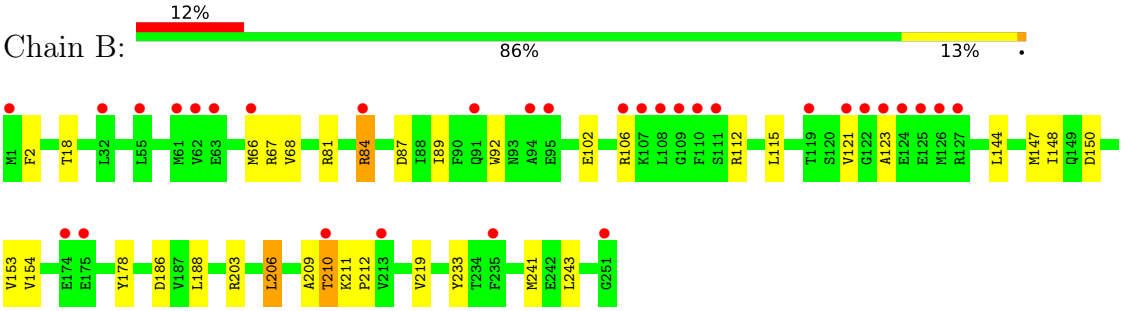
• Molecule 1: DNA polymerase sliding clamp 2

Chain A:



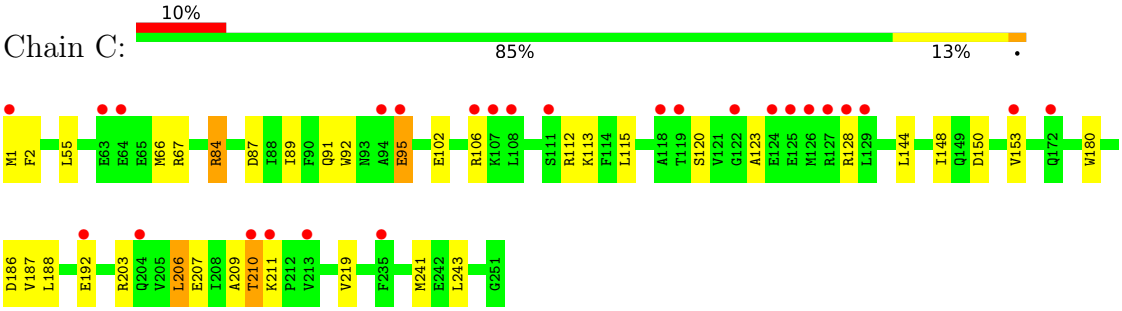
• Molecule 1: DNA polymerase sliding clamp 2

Chain B:



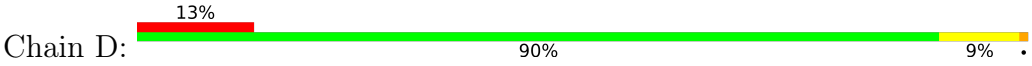
• Molecule 1: DNA polymerase sliding clamp 2

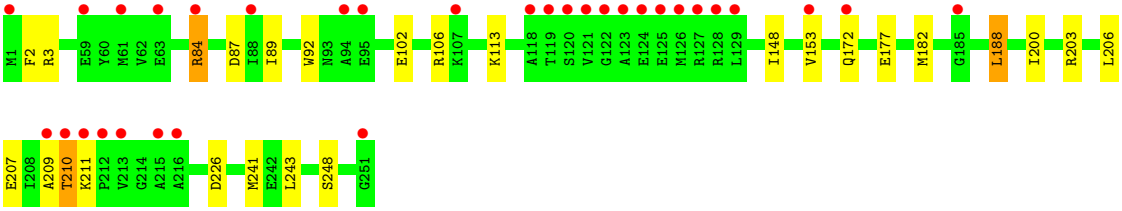
Chain C:



• Molecule 1: DNA polymerase sliding clamp 2

Chain D:




M1
F2
R3
E59
Y60
M61
V62
E63
R84
D87
I88
I89
W92
N93
A94
E95
E102
R106
K107
K113
A118
T119
S120
V121
G122
A123
E124
E125
M126
R127
R128
L129
I148
V153
Q172
E177
M182
G185
L188
I200
R203
L206

E207
I208
A209
T210
K211
P212
V213
G214
A215
A216
D226
M241
E242
L243
S248
G251

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 3	Depositor
Cell constants a, b, c, α, β, γ	169.79Å 169.79Å 169.79Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	47.09 – 2.17 47.09 – 2.17	Depositor EDS
% Data completeness (in resolution range)	100.0 (47.09-2.17) 100.0 (47.09-2.17)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.81 (at 2.18Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.205 , 0.237 0.207 , 0.238	Depositor DCC
R_{free} test set	4242 reflections (4.93%)	wwPDB-VP
Wilson B-factor (Å^2)	33.5	Xtriage
Anisotropy	0.000	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 31.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.35$	Xtriage
Estimated twinning fraction	0.016 for l,-k,h	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	8197	wwPDB-VP
Average B, all atoms (Å^2)	39.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.91% 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

Bond lengths and bond angles in the following residue types are not validated in this section: SO4

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	0.23	0/2027	0.43	0/2735
1	B	0.21	0/2027	0.39	0/2735
1	C	0.21	0/2028	0.42	0/2736
1	D	0.22	0/2027	0.43	0/2735
All	All	0.22	0/8109	0.42	0/10941

There are no bond length outliers.

There are no bond angle outliers.

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	1992	0	1979	18	0
1	B	1992	0	1979	19	0
1	C	1993	0	1974	19	0
1	D	1992	0	1979	15	0
2	A	15	0	0	0	0
2	B	15	0	0	0	0
2	C	15	0	0	0	0
2	D	15	0	0	1	0
3	A	55	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	24	0	0	0	0
3	C	41	0	0	0	0
3	D	48	0	0	0	0
All	All	8197	0	7911	66	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 4.

All (66) 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:D:87:ASP:OD1	1:D:106:ARG:NH1	2.22	0.73
1:B:148:ILE:HG21	1:B:210:THR:HG21	1.68	0.73
1:D:84:ARG:O	1:D:106:ARG:NH2	2.23	0.71
1:A:87:ASP:OD1	1:A:106:ARG:NH1	2.24	0.70
1:B:87:ASP:OD1	1:B:106:ARG:NH1	2.27	0.67
1:C:102:GLU:HG2	1:C:113:LYS:HG2	1.77	0.66
1:C:84:ARG:O	1:C:106:ARG:NH2	2.32	0.62
1:B:148:ILE:HD11	1:B:203:ARG:HG3	1.84	0.58
1:C:89:ILE:HB	1:C:102:GLU:HB2	1.86	0.58
1:C:148:ILE:HD11	1:C:203:ARG:HG3	1.85	0.58
1:D:89:ILE:HB	1:D:102:GLU:HB2	1.86	0.57
1:B:84:ARG:O	1:B:106:ARG:NH2	2.38	0.56
1:C:87:ASP:OD1	1:C:106:ARG:NH1	2.38	0.56
1:D:172:GLN:HG2	1:D:177:GLU:HG2	1.86	0.56
1:C:144:LEU:HD22	1:C:219:VAL:HG11	1.88	0.55
1:A:112:ARG:HD2	1:B:150:ASP:OD2	2.07	0.55
1:C:207:GLU:HA	1:C:210:THR:HG22	1.90	0.54
1:A:104:ARG:HD2	3:A:1024:HOH:O	2.07	0.54
1:A:150:ASP:OD2	1:C:112:ARG:HD2	2.09	0.53
1:A:200:ILE:HG23	1:A:248:SER:HB2	1.90	0.53
1:D:182:MET:HB3	1:D:188:LEU:HD13	1.91	0.53
1:D:102:GLU:HG2	1:D:113:LYS:HG2	1.91	0.53
1:A:84:ARG:O	1:A:106:ARG:NH2	2.42	0.52
1:D:209:ALA:HA	1:D:243:LEU:HD13	1.92	0.52
1:B:209:ALA:HA	1:B:243:LEU:HD13	1.94	0.49
1:B:112:ARG:HD2	1:C:150:ASP:OD2	2.13	0.49
1:A:228:PRO:HD3	1:D:226:ASP:O	2.13	0.48
1:B:148:ILE:HD13	1:B:206:LEU:HD13	1.95	0.48
1:B:89:ILE:HB	1:B:102:GLU:HB2	1.96	0.48
1:D:84:ARG:NE	1:D:84:ARG:H	2.11	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:233:TYR:HE1	1:B:243:LEU:HD12	1.79	0.47
1:B:81:ARG:HD3	1:C:150:ASP:OD1	2.15	0.47
1:A:145:LYS:HD2	1:A:213:VAL:HG21	1.97	0.47
1:D:2:PHE:CE2	1:D:92:TRP:HB2	2.50	0.47
1:B:68:VAL:HG12	1:B:121:VAL:HG13	1.98	0.46
1:C:209:ALA:HA	1:C:243:LEU:HD13	1.97	0.46
1:C:2:PHE:CE2	1:C:92:TRP:HB2	2.50	0.46
1:A:148:ILE:HD13	1:A:206:LEU:HB3	1.97	0.45
1:A:209:ALA:HA	1:A:243:LEU:HD13	1.98	0.45
1:D:148:ILE:HD11	1:D:203:ARG:HG3	1.99	0.45
1:D:148:ILE:HG21	1:D:210:THR:HG21	1.99	0.45
1:A:211:LYS:HD2	1:A:211:LYS:HA	1.79	0.44
1:C:67:ARG:HD2	1:C:123:ALA:O	2.17	0.44
1:B:154:VAL:HG21	1:B:178:TYR:HB2	1.99	0.44
1:C:180:TRP:HZ2	1:C:187:VAL:HG11	1.82	0.44
1:D:3:ARG:NH2	2:D:903:SO4:O1	2.37	0.44
1:D:200:ILE:HG23	1:D:248:SER:HB2	1.99	0.44
1:A:180:TRP:HZ2	1:A:187:VAL:HG11	1.83	0.44
1:C:148:ILE:HD13	1:C:206:LEU:HB3	2.00	0.43
1:B:66:MET:HE1	1:B:92:TRP:CZ2	2.52	0.43
1:A:148:ILE:HD11	1:A:203:ARG:HG3	2.01	0.43
1:D:207:GLU:O	1:D:210:THR:HG22	2.18	0.43
1:A:67:ARG:HD2	1:A:123:ALA:O	2.19	0.43
1:A:182:MET:HB3	1:A:188:LEU:HD13	2.01	0.42
1:A:3:ARG:NH1	1:A:59:GLU:OE2	2.46	0.42
1:B:2:PHE:CE2	1:B:92:TRP:HB2	2.54	0.42
1:C:66:MET:HE1	1:C:92:TRP:CZ2	2.54	0.42
1:B:67:ARG:HD2	1:B:123:ALA:O	2.20	0.41
1:C:1:MET:HE1	1:C:91:GLN:HG2	2.03	0.41
1:A:4:LEU:HD22	1:A:60:TYR:CD1	2.56	0.41
1:B:18:THR:OG1	1:B:212:PRO:HG3	2.21	0.40
1:A:144:LEU:HD22	1:A:219:VAL:HG11	2.02	0.40
1:C:95:GLU:CD	1:C:95:GLU:H	2.28	0.40
1:B:144:LEU:HD22	1:B:219:VAL:HG11	2.04	0.40
1:C:66:MET:HE2	1:C:66:MET:HB3	1.90	0.40
1:B:150:ASP:HB3	1:B:178:TYR:CE1	2.56	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	249/251 (99%)	243 (98%)	6 (2%)	0	100	100
1	B	249/251 (99%)	242 (97%)	7 (3%)	0	100	100
1	C	249/251 (99%)	244 (98%)	5 (2%)	0	100	100
1	D	249/251 (99%)	243 (98%)	6 (2%)	0	100	100
All	All	996/1004 (99%)	972 (98%)	24 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	216/220 (98%)	208 (96%)	8 (4%)	30	38
1	B	216/220 (98%)	206 (95%)	10 (5%)	24	29
1	C	216/220 (98%)	202 (94%)	14 (6%)	15	16
1	D	216/220 (98%)	209 (97%)	7 (3%)	34	43
All	All	864/880 (98%)	825 (96%)	39 (4%)	24	30

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	84	ARG
1	A	125	GLU

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Mol	Chain	Res	Type
1	A	153	VAL
1	A	186	ASP
1	A	188	LEU
1	A	192	GLU
1	A	206	LEU
1	A	241	MET
1	B	84	ARG
1	B	115	LEU
1	B	147	MET
1	B	153	VAL
1	B	186	ASP
1	B	188	LEU
1	B	206	LEU
1	B	210	THR
1	B	211	LYS
1	B	241	MET
1	C	55	LEU
1	C	84	ARG
1	C	95	GLU
1	C	115	LEU
1	C	120	SER
1	C	128	ARG
1	C	153	VAL
1	C	186	ASP
1	C	188	LEU
1	C	192	GLU
1	C	206	LEU
1	C	210	THR
1	C	211	LYS
1	C	241	MET
1	D	84	ARG
1	D	153	VAL
1	D	188	LEU
1	D	206	LEU
1	D	210	THR
1	D	211	LYS
1	D	241	MET

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	97	GLN

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Mol	Chain	Res	Type
1	B	97	GLN
1	B	149	GLN
1	C	17	GLN
1	C	97	GLN
1	D	97	GLN

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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

12 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	SO4	C	903	-	4,4,4	0.15	0	6,6,6	0.06	0
2	SO4	A	903	-	4,4,4	0.14	0	6,6,6	0.09	0
2	SO4	D	902	-	4,4,4	0.14	0	6,6,6	0.17	0
2	SO4	A	902	-	4,4,4	0.13	0	6,6,6	0.17	0
2	SO4	B	901	-	4,4,4	0.14	0	6,6,6	0.15	0
2	SO4	C	902	-	4,4,4	0.12	0	6,6,6	0.07	0
2	SO4	D	903	-	4,4,4	0.12	0	6,6,6	0.12	0
2	SO4	A	901	-	4,4,4	0.15	0	6,6,6	0.14	0
2	SO4	C	901	-	4,4,4	0.14	0	6,6,6	0.08	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	SO4	B	902	-	4,4,4	0.13	0	6,6,6	0.11	0
2	SO4	D	901	-	4,4,4	0.14	0	6,6,6	0.11	0
2	SO4	B	903	-	4,4,4	0.13	0	6,6,6	0.12	0

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	903	SO4	1	0

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	251/251 (100%)	0.32	24 (9%) 13 12	22, 33, 58, 95	0
1	B	251/251 (100%)	0.78	31 (12%) 8 7	24, 40, 69, 86	0
1	C	251/251 (100%)	0.49	26 (10%) 11 10	24, 36, 63, 93	1 (0%)
1	D	251/251 (100%)	0.48	32 (12%) 8 7	21, 35, 61, 95	0
All	All	1004/1004 (100%)	0.52	113 (11%) 10 9	21, 36, 65, 95	1 (0%)

All (113) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	127	ARG	6.4
1	C	127	ARG	6.4
1	A	127	ARG	6.3
1	C	1	MET	5.9
1	B	107	LYS	5.4
1	A	119	THR	5.3
1	B	108	LEU	5.0
1	D	127	ARG	4.9
1	B	123	ALA	4.9
1	C	119	THR	4.8
1	B	1	MET	4.7
1	D	124	GLU	4.6
1	D	122	GLY	4.5
1	B	119	THR	4.5
1	A	122	GLY	4.5
1	C	107	LYS	4.3
1	B	122	GLY	4.3
1	A	129	LEU	4.2
1	D	126	MET	4.2
1	B	124	GLU	4.1
1	D	125	GLU	4.1

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Mol	Chain	Res	Type	RSRZ
1	B	84	ARG	3.9
1	A	123	ALA	3.9
1	D	1	MET	3.9
1	B	110	PHE	3.9
1	A	125	GLU	3.8
1	A	124	GLU	3.7
1	C	128	ARG	3.7
1	B	126	MET	3.7
1	C	210	THR	3.7
1	D	107	LYS	3.6
1	D	118	ALA	3.6
1	C	129	LEU	3.6
1	B	109	GLY	3.6
1	B	121	VAL	3.5
1	C	126	MET	3.5
1	C	213	VAL	3.5
1	D	123	ALA	3.5
1	A	118	ALA	3.4
1	C	211	LYS	3.4
1	D	128	ARG	3.3
1	D	211	LYS	3.3
1	A	128	ARG	3.3
1	D	129	LEU	3.3
1	D	210	THR	3.3
1	D	185	GLY	3.2
1	C	122	GLY	3.2
1	C	63	GLU	3.2
1	C	124	GLU	3.2
1	B	251	GLY	3.2
1	A	121	VAL	3.1
1	A	251	GLY	3.1
1	D	95	GLU	3.1
1	A	94	ALA	3.1
1	A	126	MET	3.0
1	B	94	ALA	3.0
1	C	118	ALA	3.0
1	B	55	LEU	3.0
1	C	108	LEU	2.9
1	C	192	GLU	2.9
1	B	61	MET	2.8
1	D	213	VAL	2.8
1	D	119	THR	2.8

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Mol	Chain	Res	Type	RSRZ
1	C	172	GLN	2.8
1	A	120	SER	2.8
1	B	32	LEU	2.8
1	D	212	PRO	2.8
1	D	121	VAL	2.8
1	A	212	PRO	2.7
1	B	174	GLU	2.7
1	A	172	GLN	2.6
1	B	66	MET	2.6
1	D	61	MET	2.6
1	B	210	THR	2.6
1	B	111	SER	2.5
1	B	106	ARG	2.5
1	C	106	ARG	2.5
1	C	64	GLU	2.4
1	D	59	GLU	2.4
1	D	63	GLU	2.4
1	B	213	VAL	2.4
1	B	95	GLU	2.4
1	B	62	VAL	2.4
1	B	125	GLU	2.3
1	C	94	ALA	2.3
1	B	235	PHE	2.3
1	B	63	GLU	2.3
1	C	111	SER	2.3
1	C	153	VAL	2.3
1	D	251	GLY	2.3
1	A	84	ARG	2.2
1	A	194	GLU	2.2
1	B	91	GLN	2.2
1	D	120	SER	2.2
1	D	153	VAL	2.2
1	C	204	GLN	2.2
1	A	215	ALA	2.1
1	D	94	ALA	2.1
1	D	209	ALA	2.1
1	A	38	TRP	2.1
1	A	211	LYS	2.1
1	A	95	GLU	2.1
1	A	192	GLU	2.1
1	C	95	GLU	2.1
1	C	125	GLU	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	175	GLU	2.1
1	C	235	PHE	2.1
1	A	96	GLU	2.0
1	D	215	ALA	2.1
1	D	216	ALA	2.1
1	D	172	GLN	2.0
1	D	88	ILE	2.0
1	D	84	ARG	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 oligosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	SO4	B	903	5/5	0.74	0.16	75,87,109,110	0
2	SO4	D	903	5/5	0.85	0.11	66,75,81,83	0
2	SO4	A	901	5/5	0.86	0.12	61,70,74,79	0
2	SO4	A	903	5/5	0.86	0.11	53,68,81,87	0
2	SO4	D	902	5/5	0.91	0.13	57,61,62,70	0
2	SO4	C	903	5/5	0.92	0.09	52,63,69,73	0
2	SO4	B	901	5/5	0.92	0.10	63,66,78,78	0
2	SO4	C	901	5/5	0.92	0.09	59,63,77,78	0
2	SO4	D	901	5/5	0.93	0.09	57,69,79,87	0
2	SO4	A	902	5/5	0.95	0.10	50,55,70,71	0
2	SO4	C	902	5/5	0.95	0.09	58,58,75,78	0
2	SO4	B	902	5/5	0.96	0.10	49,49,56,69	0

6.5 Other polymers (i)

There are no such residues in this entry.