



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 22, 2020 – 12:58 AM BST

PDB ID : 5LC9
Title : Structure of Polyphosphate Kinase from *Meiothermus ruber* Apo-form
Authors : Kemper, F.; Einsle, O.; Gerhardt, S.
Deposited on : 2016-06-20
Resolution : 1.90 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) 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 : 2.13.1
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) : 2.13.1

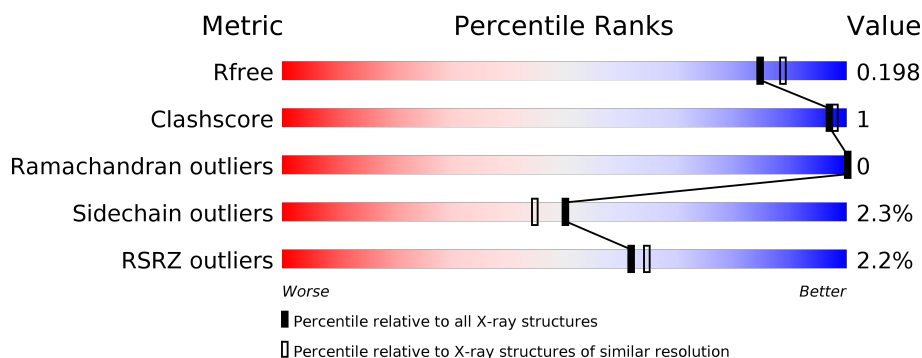
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.90 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	6207 (1.90-1.90)
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (1.90-1.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	287	<div> <div style="width: 2%; background-color: red;"></div> <div style="width: 86%; background-color: green;"></div> <div style="width: 11%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div> <div> <div style="width: 2%; background-color: red;"></div> <div style="width: 86%; background-color: green;"></div> <div style="width: 11%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div>
1	B	287	<div> <div style="width: 86%; background-color: green;"></div> <div style="width: 10%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div> <div> <div style="width: 86%; background-color: green;"></div> <div style="width: 10%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div>
1	C	287	<div> <div style="width: 4%; background-color: red;"></div> <div style="width: 83%; background-color: green;"></div> <div style="width: 11%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div> <div> <div style="width: 4%; background-color: red;"></div> <div style="width: 83%; background-color: green;"></div> <div style="width: 11%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div>
1	D	287	<div> <div style="width: 2%; background-color: red;"></div> <div style="width: 86%; background-color: green;"></div> <div style="width: 10%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div> <div> <div style="width: 2%; background-color: red;"></div> <div style="width: 86%; background-color: green;"></div> <div style="width: 10%; background-color: grey;"></div> <div style="width: 2%; background-color: yellow;"></div> </div>

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 9489 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 Polyphosphate:AMP phosphotransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	256	Total	C	N	O	S	0	4	0
			2170	1382	397	386	5			
1	B	258	Total	C	N	O	S	0	4	0
			2184	1391	397	391	5			
1	C	256	Total	C	N	O	S	0	4	0
			2169	1383	397	384	5			
1	D	257	Total	C	N	O	S	0	2	0
			2164	1379	395	385	5			

There are 84 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MET	-	initiating methionine	UNP A0A0S7ASE9
A	-18	GLY	-	expression tag	UNP A0A0S7ASE9
A	-17	SER	-	expression tag	UNP A0A0S7ASE9
A	-16	SER	-	expression tag	UNP A0A0S7ASE9
A	-15	HIS	-	expression tag	UNP A0A0S7ASE9
A	-14	HIS	-	expression tag	UNP A0A0S7ASE9
A	-13	HIS	-	expression tag	UNP A0A0S7ASE9
A	-12	HIS	-	expression tag	UNP A0A0S7ASE9
A	-11	HIS	-	expression tag	UNP A0A0S7ASE9
A	-10	HIS	-	expression tag	UNP A0A0S7ASE9
A	-9	SER	-	expression tag	UNP A0A0S7ASE9
A	-8	SER	-	expression tag	UNP A0A0S7ASE9
A	-7	GLY	-	expression tag	UNP A0A0S7ASE9
A	-6	LEU	-	expression tag	UNP A0A0S7ASE9
A	-5	VAL	-	expression tag	UNP A0A0S7ASE9
A	-4	PRO	-	expression tag	UNP A0A0S7ASE9
A	-3	ARG	-	expression tag	UNP A0A0S7ASE9
A	-2	GLY	-	expression tag	UNP A0A0S7ASE9
A	-1	SER	-	expression tag	UNP A0A0S7ASE9
A	0	HIS	-	expression tag	UNP A0A0S7ASE9
A	1	MET	-	expression tag	UNP A0A0S7ASE9

Continued on next page...

Continued from previous page...

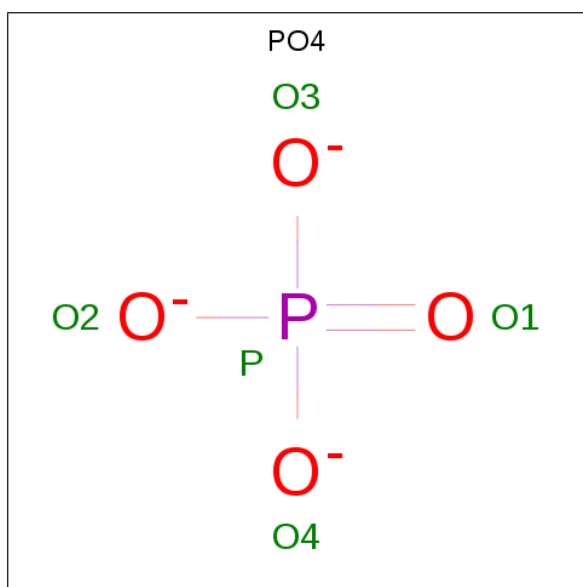
Chain	Residue	Modelled	Actual	Comment	Reference
B	-19	MET	-	initiating methionine	UNP A0A0S7ASE9
B	-18	GLY	-	expression tag	UNP A0A0S7ASE9
B	-17	SER	-	expression tag	UNP A0A0S7ASE9
B	-16	SER	-	expression tag	UNP A0A0S7ASE9
B	-15	HIS	-	expression tag	UNP A0A0S7ASE9
B	-14	HIS	-	expression tag	UNP A0A0S7ASE9
B	-13	HIS	-	expression tag	UNP A0A0S7ASE9
B	-12	HIS	-	expression tag	UNP A0A0S7ASE9
B	-11	HIS	-	expression tag	UNP A0A0S7ASE9
B	-10	HIS	-	expression tag	UNP A0A0S7ASE9
B	-9	SER	-	expression tag	UNP A0A0S7ASE9
B	-8	SER	-	expression tag	UNP A0A0S7ASE9
B	-7	GLY	-	expression tag	UNP A0A0S7ASE9
B	-6	LEU	-	expression tag	UNP A0A0S7ASE9
B	-5	VAL	-	expression tag	UNP A0A0S7ASE9
B	-4	PRO	-	expression tag	UNP A0A0S7ASE9
B	-3	ARG	-	expression tag	UNP A0A0S7ASE9
B	-2	GLY	-	expression tag	UNP A0A0S7ASE9
B	-1	SER	-	expression tag	UNP A0A0S7ASE9
B	0	HIS	-	expression tag	UNP A0A0S7ASE9
B	1	MET	-	expression tag	UNP A0A0S7ASE9
C	-19	MET	-	initiating methionine	UNP A0A0S7ASE9
C	-18	GLY	-	expression tag	UNP A0A0S7ASE9
C	-17	SER	-	expression tag	UNP A0A0S7ASE9
C	-16	SER	-	expression tag	UNP A0A0S7ASE9
C	-15	HIS	-	expression tag	UNP A0A0S7ASE9
C	-14	HIS	-	expression tag	UNP A0A0S7ASE9
C	-13	HIS	-	expression tag	UNP A0A0S7ASE9
C	-12	HIS	-	expression tag	UNP A0A0S7ASE9
C	-11	HIS	-	expression tag	UNP A0A0S7ASE9
C	-10	HIS	-	expression tag	UNP A0A0S7ASE9
C	-9	SER	-	expression tag	UNP A0A0S7ASE9
C	-8	SER	-	expression tag	UNP A0A0S7ASE9
C	-7	GLY	-	expression tag	UNP A0A0S7ASE9
C	-6	LEU	-	expression tag	UNP A0A0S7ASE9
C	-5	VAL	-	expression tag	UNP A0A0S7ASE9
C	-4	PRO	-	expression tag	UNP A0A0S7ASE9
C	-3	ARG	-	expression tag	UNP A0A0S7ASE9
C	-2	GLY	-	expression tag	UNP A0A0S7ASE9
C	-1	SER	-	expression tag	UNP A0A0S7ASE9
C	0	HIS	-	expression tag	UNP A0A0S7ASE9
C	1	MET	-	expression tag	UNP A0A0S7ASE9

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	-19	MET	-	initiating methionine	UNP A0A0S7ASE9
D	-18	GLY	-	expression tag	UNP A0A0S7ASE9
D	-17	SER	-	expression tag	UNP A0A0S7ASE9
D	-16	SER	-	expression tag	UNP A0A0S7ASE9
D	-15	HIS	-	expression tag	UNP A0A0S7ASE9
D	-14	HIS	-	expression tag	UNP A0A0S7ASE9
D	-13	HIS	-	expression tag	UNP A0A0S7ASE9
D	-12	HIS	-	expression tag	UNP A0A0S7ASE9
D	-11	HIS	-	expression tag	UNP A0A0S7ASE9
D	-10	HIS	-	expression tag	UNP A0A0S7ASE9
D	-9	SER	-	expression tag	UNP A0A0S7ASE9
D	-8	SER	-	expression tag	UNP A0A0S7ASE9
D	-7	GLY	-	expression tag	UNP A0A0S7ASE9
D	-6	LEU	-	expression tag	UNP A0A0S7ASE9
D	-5	VAL	-	expression tag	UNP A0A0S7ASE9
D	-4	PRO	-	expression tag	UNP A0A0S7ASE9
D	-3	ARG	-	expression tag	UNP A0A0S7ASE9
D	-2	GLY	-	expression tag	UNP A0A0S7ASE9
D	-1	SER	-	expression tag	UNP A0A0S7ASE9
D	0	HIS	-	expression tag	UNP A0A0S7ASE9
D	1	MET	-	expression tag	UNP A0A0S7ASE9

- Molecule 2 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



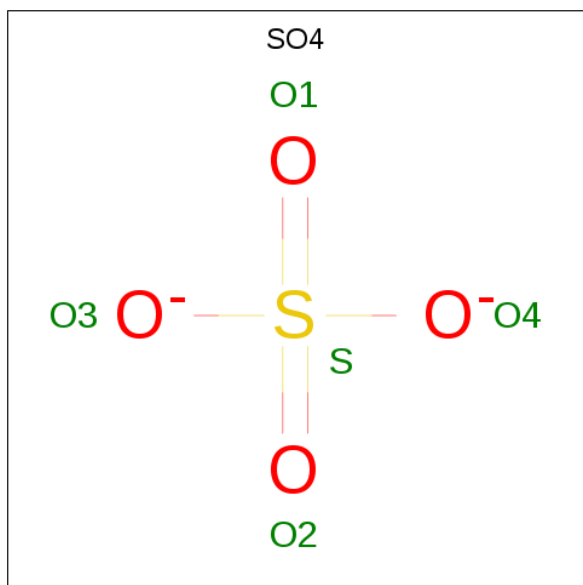
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	P	0	0
			5	4	1		

Continued on next page...

Continued from previous page...

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

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



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

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	209	Total	O	0	0
			209	209		
4	B	228	Total	O	0	0
			228	228		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	C	175	Total 175	O 175	0	0
4	D	150	Total 150	O 150	0	0

- Molecule 1: Polyphosphate:AMP phosphotransferase



4 Data and refinement statistics

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α , β , γ	164.78 Å 164.78 Å 94.98 Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	116.52 – 1.90 116.52 – 1.90	Depositor EDS
% Data completeness (in resolution range)	99.5 (116.52-1.90) 99.9 (116.52-1.90)	Depositor EDS
R_{merge}	0.25	Depositor
R_{sym}	0.25	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.90 (at 1.90 Å)	Xtriage
Refinement program	BUSTER 2.10.2	Depositor
R, R_{free}	0.172 , 0.193 0.175 , 0.198	Depositor DCC
R_{free} test set	5064 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å ²)	24.7	Xtriage
Anisotropy	0.645	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 49.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	9489	wwPDB-VP
Average B, all atoms (Å ²)	37.0	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 25.84 % 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 2.9414e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹ Intensities estimated from amplitudes.

² Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: PO4, 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	0.51	0/2232	0.58	0/3015
1	B	0.54	0/2247	0.58	0/3036
1	C	0.48	0/2231	0.59	0/3013
1	D	0.46	0/2221	0.59	0/3001
All	All	0.50	0/8931	0.59	0/12065

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 [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	2170	0	2166	1	0
1	B	2184	0	2174	5	0
1	C	2169	0	2171	7	0
1	D	2164	0	2156	2	0
2	A	5	0	0	0	0
2	B	5	0	0	0	0
2	C	5	0	0	0	0
2	D	5	0	0	0	0
3	A	5	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	0	0
4	A	209	0	0	0	0
4	B	228	0	0	0	0
4	C	175	0	0	0	0
4	D	150	0	0	0	0
All	All	9489	0	8667	15	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 1.

All (15) 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:171:SER:H	1:C:230:ASN:HD21	1.36	0.71
1:D:138:PRO:HB2	1:D:140:GLN:HG3	1.80	0.61
1:B:140:GLN:HG2	1:B:141:VAL:N	2.28	0.49
1:B:139[B]:GLN:HG3	1:B:142:TRP:CZ2	2.48	0.48
1:B:8:PRO:HB3	1:B:219:THR:HA	1.97	0.47
1:B:42:ARG:HH21	1:B:248:GLU:CD	2.19	0.46
1:A:8:PRO:HB3	1:A:219:THR:HA	1.98	0.46
1:C:8:PRO:HB3	1:C:219:THR:HA	1.98	0.46
1:C:1:MET:SD	1:C:24:ALA:HB1	2.57	0.45
1:D:8:PRO:HB3	1:D:219:THR:HA	1.98	0.45
1:C:127:ASP:HA	1:C:131:VAL:HG21	1.99	0.44
1:B:29:LYS:O	1:B:33:LEU:HG	2.19	0.42
1:C:5:ARG:HE	1:C:223:PRO:HB3	1.85	0.41
1:C:105:TRP:O	1:C:109[B]:GLN:HG3	2.20	0.41
1:C:81:VAL:HG11	1:C:86[A]:VAL:HG21	2.02	0.41

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	258/287 (90%)	253 (98%)	5 (2%)	0	100	100
1	B	260/287 (91%)	256 (98%)	4 (2%)	0	100	100
1	C	258/287 (90%)	255 (99%)	3 (1%)	0	100	100
1	D	257/287 (90%)	254 (99%)	3 (1%)	0	100	100
All	All	1033/1148 (90%)	1018 (98%)	15 (2%)	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	229/252 (91%)	222 (97%)	7 (3%)	40	32
1	B	231/252 (92%)	226 (98%)	5 (2%)	52	47
1	C	229/252 (91%)	224 (98%)	5 (2%)	52	47
1	D	228/252 (90%)	223 (98%)	5 (2%)	52	47
All	All	917/1008 (91%)	895 (98%)	22 (2%)	50	43

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	MET
1	A	48	GLU
1	A	183	LEU
1	A	198	GLU
1	A	200	ARG
1	A	205	ARG
1	A	231	LYS
1	B	1	MET
1	B	139[A]	GLN
1	B	139[B]	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	140	GLN
1	B	231	LYS
1	C	7	GLN
1	C	140	GLN
1	C	183	LEU
1	C	200	ARG
1	C	231	LYS
1	D	1	MET
1	D	130	VAL
1	D	183	LEU
1	D	194	MET
1	D	231	LYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	63	GLN
1	B	47	GLN
1	B	63	GLN
1	B	135	ASN
1	C	63	GLN
1	C	140	GLN
1	C	230	ASN

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](#)

8 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	$\# Z > 2$
3	SO4	C	302	-	4,4,4	0.20	0	6,6,6	0.13	0
2	PO4	A	301	-	4,4,4	2.33	1 (25%)	6,6,6	0.68	0
3	SO4	D	302	-	4,4,4	0.13	0	6,6,6	0.08	0
2	PO4	D	301	-	4,4,4	2.37	1 (25%)	6,6,6	0.56	0
2	PO4	C	301	-	4,4,4	1.72	0	6,6,6	1.11	0
3	SO4	B	302	-	4,4,4	0.22	0	6,6,6	0.20	0
2	PO4	B	301	-	4,4,4	2.28	1 (25%)	6,6,6	0.93	0
3	SO4	A	302	-	4,4,4	0.20	0	6,6,6	0.05	0

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	301	PO4	P-O1	3.91	1.60	1.50
2	D	301	PO4	P-O1	3.89	1.60	1.50
2	B	301	PO4	P-O1	3.88	1.60	1.50

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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(Å ²)	Q<0.9
1	A	256/287 (89%)	-0.23	4 (1%) 72 74	17, 29, 64, 115	0
1	B	258/287 (89%)	-0.24	1 (0%) 92 93	16, 26, 60, 104	0
1	C	256/287 (89%)	-0.10	11 (4%) 35 38	19, 32, 73, 105	0
1	D	257/287 (89%)	-0.04	7 (2%) 54 57	20, 37, 84, 110	0
All	All	1027/1148 (89%)	-0.15	23 (2%) 62 64	16, 31, 72, 115	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	192	PHE	4.5
1	D	196	ASP	4.1
1	C	194	MET	4.0
1	D	193	ARG	3.6
1	C	136	LEU	3.6
1	C	192	PHE	3.5
1	D	11	ARG	3.4
1	A	194	MET	3.1
1	C	256	GLN	3.1
1	C	11	ARG	3.0
1	C	1	MET	3.0
1	D	1	MET	3.0
1	A	192	PHE	3.0
1	D	194	MET	2.9
1	C	137	VAL	2.8
1	B	2	LYS	2.6
1	C	193	ARG	2.5
1	C	33	LEU	2.4
1	C	3	LYS	2.3
1	A	193	ARG	2.2
1	C	26	GLU	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	11	ARG	2.1
1	D	16	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 monosaccharides 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, 95th 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(\AA^2)	Q<0.9
3	SO4	D	302	5/5	0.82	0.19	131,131,132,132	0
3	SO4	C	302	5/5	0.95	0.17	60,61,62,63	0
3	SO4	A	302	5/5	0.95	0.15	70,71,71,72	0
3	SO4	B	302	5/5	0.96	0.16	69,69,70,71	0
2	PO4	C	301	5/5	0.99	0.12	24,27,28,28	0
2	PO4	A	301	5/5	0.99	0.11	23,23,26,26	0
2	PO4	B	301	5/5	0.99	0.12	21,23,26,27	0
2	PO4	D	301	5/5	0.99	0.12	34,35,36,38	0

6.5 Other polymers [i](#)

There are no such residues in this entry.