W O R L D W I D E
wwPDB
P R O T E I N   D A T A   B A N K

wwPDB X-ray Structure Validation Summary Report (i)

Sep 17, 2023 – 10:04 PM EDT

|		
PDB ID	:	4ZK1
Title	:	Crystal Structure of Lymnaea stagnalis Acetylcholine-Binding Protein (LsAChBP) in Complex with 3-Pyrrolylmethylene Anabaseine
Authors	:	Bobango, J.; Wu, J.; Talley, T.T.
Deposited on	:	2015-04-29
Resolution	:	1.75 Å(reported)

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 1.75 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		0.218
Clashscore		4
Ramachandran outliers		0
Sidechain outliers		0.4%
RSRZ outliers		2.1%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
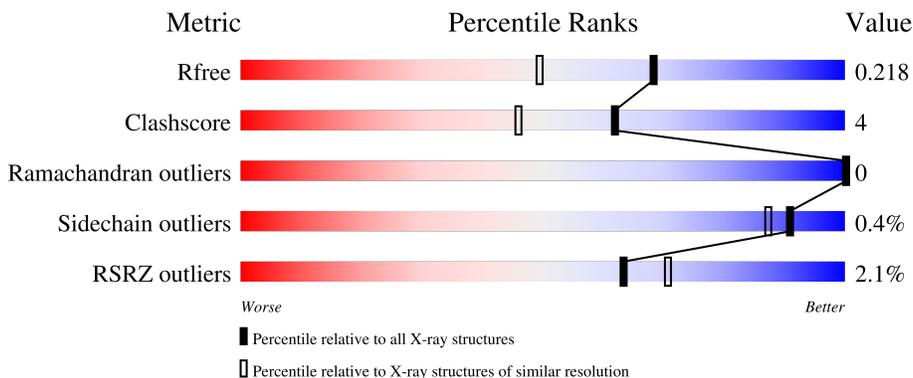
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2340 (1.76-1.76)
Clashscore	141614	2466 (1.76-1.76)
Ramachandran outliers	138981	2437 (1.76-1.76)
Sidechain outliers	138945	2437 (1.76-1.76)
RSRZ outliers	127900	2298 (1.76-1.76)

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	218	% 91% 7% ·
1	B	218	3% 90% 10%
1	C	218	3% 84% 10% 6%
1	D	218	90% 6% ·
1	E	218	2% 89% 6% 5%

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Mol	Chain	Length	Quality of chain
1	F	218	2% 91% 6% •
1	G	218	2% 90% 9% •
1	H	218	3% 89% 7% •
1	I	218	3% 89% 6% 5%
1	J	218	% 93% 5% •
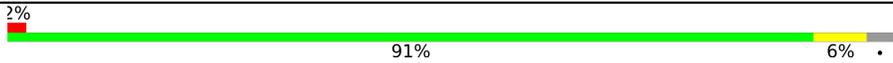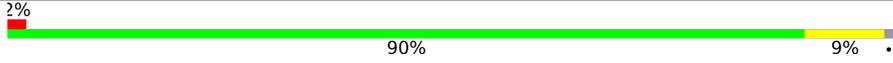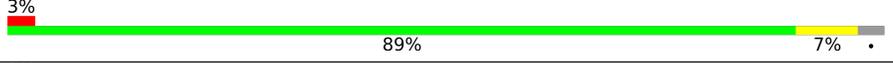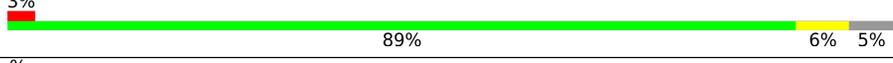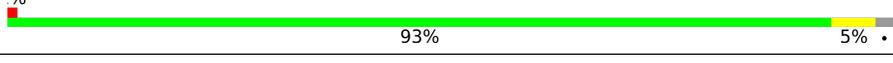
2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 17605 atoms, of which 150 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 Acetylcholine-binding protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	213	Total	C	N	O	S	0	0	0
			1656	1037	276	338	5			
1	B	217	Total	C	N	O	S	0	1	0
			1681	1052	284	340	5			
1	C	205	Total	C	N	O	S	0	1	0
			1593	1000	264	324	5			
1	D	210	Total	C	N	O	S	0	1	0
			1615	1014	263	333	5			
1	E	208	Total	C	N	O	S	0	0	0
			1623	1016	272	330	5			
1	F	211	Total	C	N	O	S	0	0	0
			1616	1015	267	329	5			
1	G	216	Total	C	N	O	S	0	0	0
			1677	1048	279	345	5			
1	H	211	Total	C	N	O	S	0	0	0
			1653	1034	276	338	5			
1	I	208	Total	C	N	O	S	0	2	0
			1634	1027	271	331	5			
1	J	213	Total	C	N	O	S	0	0	0
			1673	1046	278	344	5			

There are 80 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-7	ASP	-	expression tag	UNP P58154
A	-6	TYR	-	expression tag	UNP P58154
A	-5	LYS	-	expression tag	UNP P58154
A	-4	ASP	-	expression tag	UNP P58154
A	-3	ASP	-	expression tag	UNP P58154
A	-2	ASP	-	expression tag	UNP P58154
A	-1	ASP	-	expression tag	UNP P58154
A	0	LYS	-	expression tag	UNP P58154
B	-7	ASP	-	expression tag	UNP P58154

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-6	TYR	-	expression tag	UNP P58154
B	-5	LYS	-	expression tag	UNP P58154
B	-4	ASP	-	expression tag	UNP P58154
B	-3	ASP	-	expression tag	UNP P58154
B	-2	ASP	-	expression tag	UNP P58154
B	-1	ASP	-	expression tag	UNP P58154
B	0	LYS	-	expression tag	UNP P58154
C	-7	ASP	-	expression tag	UNP P58154
C	-6	TYR	-	expression tag	UNP P58154
C	-5	LYS	-	expression tag	UNP P58154
C	-4	ASP	-	expression tag	UNP P58154
C	-3	ASP	-	expression tag	UNP P58154
C	-2	ASP	-	expression tag	UNP P58154
C	-1	ASP	-	expression tag	UNP P58154
C	0	LYS	-	expression tag	UNP P58154
D	-7	ASP	-	expression tag	UNP P58154
D	-6	TYR	-	expression tag	UNP P58154
D	-5	LYS	-	expression tag	UNP P58154
D	-4	ASP	-	expression tag	UNP P58154
D	-3	ASP	-	expression tag	UNP P58154
D	-2	ASP	-	expression tag	UNP P58154
D	-1	ASP	-	expression tag	UNP P58154
D	0	LYS	-	expression tag	UNP P58154
E	-7	ASP	-	expression tag	UNP P58154
E	-6	TYR	-	expression tag	UNP P58154
E	-5	LYS	-	expression tag	UNP P58154
E	-4	ASP	-	expression tag	UNP P58154
E	-3	ASP	-	expression tag	UNP P58154
E	-2	ASP	-	expression tag	UNP P58154
E	-1	ASP	-	expression tag	UNP P58154
E	0	LYS	-	expression tag	UNP P58154
F	-7	ASP	-	expression tag	UNP P58154
F	-6	TYR	-	expression tag	UNP P58154
F	-5	LYS	-	expression tag	UNP P58154
F	-4	ASP	-	expression tag	UNP P58154
F	-3	ASP	-	expression tag	UNP P58154
F	-2	ASP	-	expression tag	UNP P58154
F	-1	ASP	-	expression tag	UNP P58154
F	0	LYS	-	expression tag	UNP P58154
G	-7	ASP	-	expression tag	UNP P58154
G	-6	TYR	-	expression tag	UNP P58154
G	-5	LYS	-	expression tag	UNP P58154

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Chain	Residue	Modelled	Actual	Comment	Reference
G	-4	ASP	-	expression tag	UNP P58154
G	-3	ASP	-	expression tag	UNP P58154
G	-2	ASP	-	expression tag	UNP P58154
G	-1	ASP	-	expression tag	UNP P58154
G	0	LYS	-	expression tag	UNP P58154
H	-7	ASP	-	expression tag	UNP P58154
H	-6	TYR	-	expression tag	UNP P58154
H	-5	LYS	-	expression tag	UNP P58154
H	-4	ASP	-	expression tag	UNP P58154
H	-3	ASP	-	expression tag	UNP P58154
H	-2	ASP	-	expression tag	UNP P58154
H	-1	ASP	-	expression tag	UNP P58154
H	0	LYS	-	expression tag	UNP P58154
I	-7	ASP	-	expression tag	UNP P58154
I	-6	TYR	-	expression tag	UNP P58154
I	-5	LYS	-	expression tag	UNP P58154
I	-4	ASP	-	expression tag	UNP P58154
I	-3	ASP	-	expression tag	UNP P58154
I	-2	ASP	-	expression tag	UNP P58154
I	-1	ASP	-	expression tag	UNP P58154
I	0	LYS	-	expression tag	UNP P58154
J	-7	ASP	-	expression tag	UNP P58154
J	-6	TYR	-	expression tag	UNP P58154
J	-5	LYS	-	expression tag	UNP P58154
J	-4	ASP	-	expression tag	UNP P58154
J	-3	ASP	-	expression tag	UNP P58154
J	-2	ASP	-	expression tag	UNP P58154
J	-1	ASP	-	expression tag	UNP P58154
J	0	LYS	-	expression tag	UNP P58154

- Molecule 2 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).

PO4

O3

O⁻

O2　O⁻ —— P ══ O　O1

P

O⁻

O4
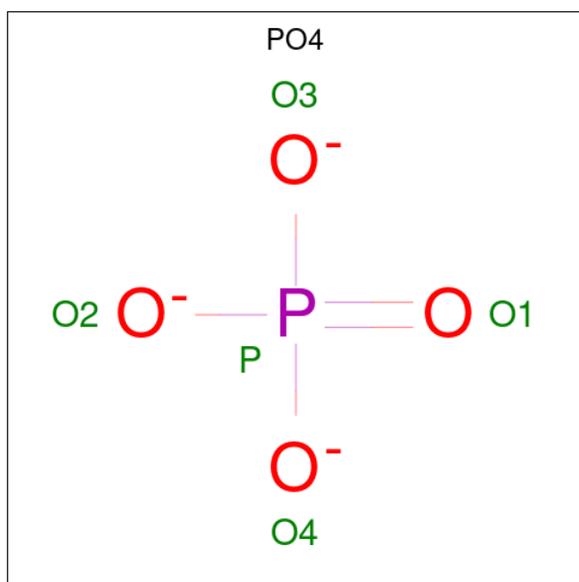
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 5	O 4	P 1	0	0
2	A	1	Total 5	O 4	P 1	0	0
2	B	1	Total 5	O 4	P 1	0	0
2	D	1	Total 5	O 4	P 1	0	0
2	E	1	Total 5	O 4	P 1	0	0
2	F	1	Total 5	O 4	P 1	0	0
2	F	1	Total 5	O 4	P 1	0	0
2	H	1	Total 5	O 4	P 1	0	0
2	H	1	Total 5	O 4	P 1	0	0
2	I	1	Total 5	O 4	P 1	0	0

- Molecule 3 is (3E)-3-(1H-pyrrol-3-ylmethylidene)-3,4,5,6-tetrahydro-2,3'-bipyridine (three-letter code: 4P7) (formula: $C_{15}H_{15}N_3$).

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4P7

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 33	C 15	H 15	N 3	0	0
3	B	1	Total 33	C 15	H 15	N 3	0	0
3	C	1	Total 33	C 15	H 15	N 3	0	0
3	D	1	Total 33	C 15	H 15	N 3	0	0
3	E	1	Total 33	C 15	H 15	N 3	0	0
3	F	1	Total 33	C 15	H 15	N 3	0	0
3	G	1	Total 33	C 15	H 15	N 3	0	0
3	H	1	Total 33	C 15	H 15	N 3	0	0
3	I	1	Total 33	C 15	H 15	N 3	0	0
3	J	1	Total 33	C 15	H 15	N 3	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	78	Total 78	O 78	0	0
4	B	89	Total 89	O 89	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	C	76	Total 76	O 76	0	0
4	D	94	Total 94	O 94	0	0
4	E	102	Total 102	O 102	0	0
4	F	63	Total 63	O 63	0	0
4	G	65	Total 65	O 65	0	0
4	H	84	Total 84	O 84	0	0
4	I	73	Total 73	O 73	0	0
4	J	80	Total 80	O 80	0	0

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: Acetylcholine-binding protein
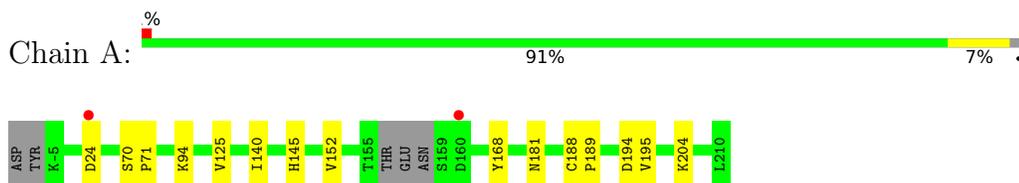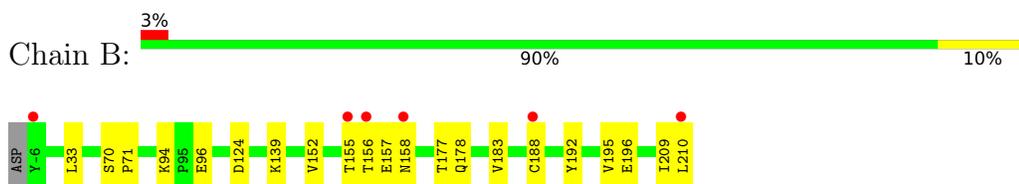
Chain A:

- Molecule 1: Acetylcholine-binding protein

Chain B:

- Molecule 1: Acetylcholine-binding protein

Chain C:

- Molecule 1: Acetylcholine-binding protein

Chain D:

- Molecule 1: Acetylcholine-binding protein

Chain E:

- Molecule 1: Acetylcholine-binding protein

Chain F:

- Molecule 1: Acetylcholine-binding protein

Chain G:

- Molecule 1: Acetylcholine-binding protein

Chain H:

- Molecule 1: Acetylcholine-binding protein

Chain I:

- Molecule 1: Acetylcholine-binding protein

Chain J:
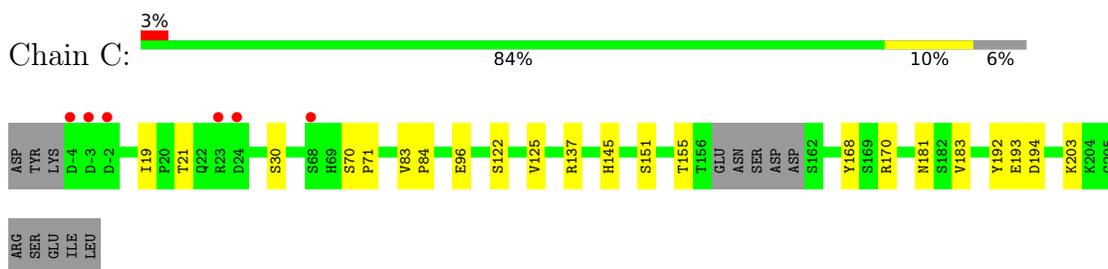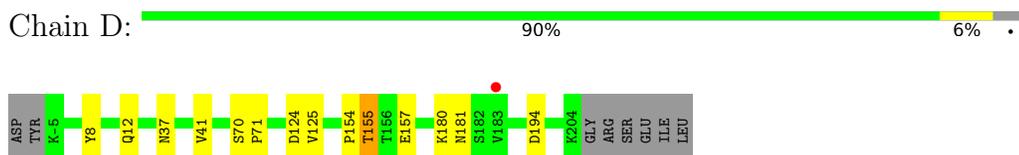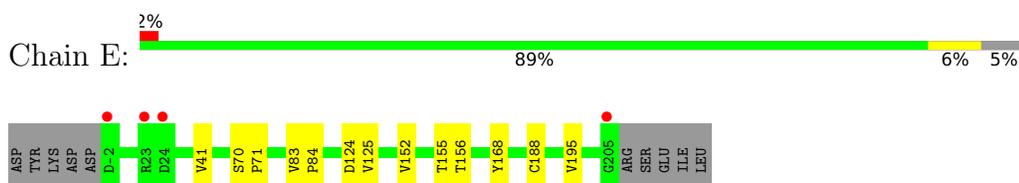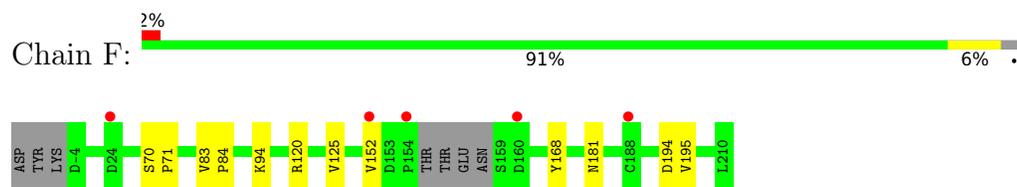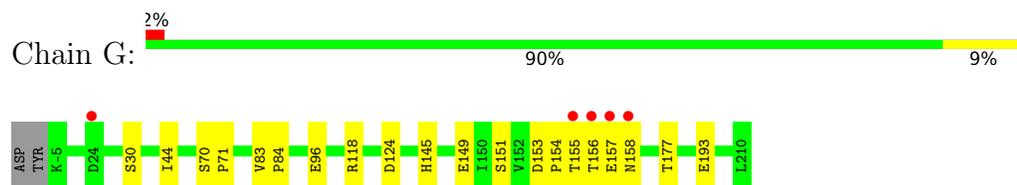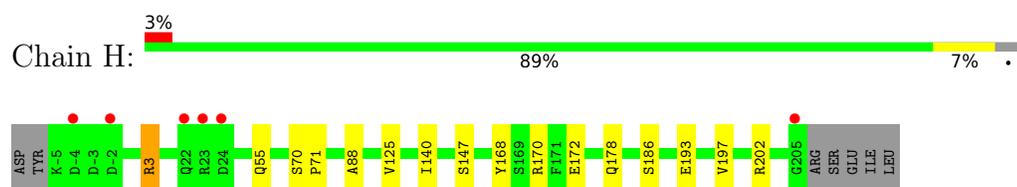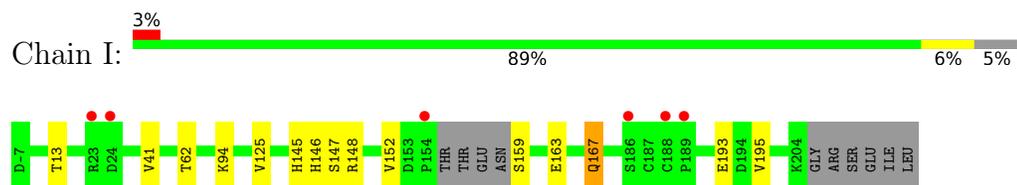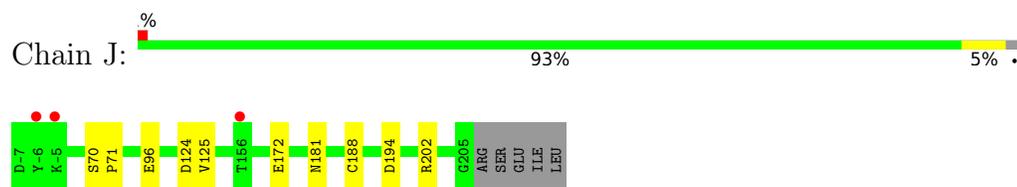
4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	86.05Å 128.00Å 122.60Å 90.00° 110.22° 90.00°	Depositor
Resolution (Å)	42.60 – 1.75 42.78 – 1.75	Depositor EDS
% Data completeness (in resolution range)	99.7 (42.60-1.75) 95.9 (42.78-1.75)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	0.07	Depositor
$< I/\sigma(I) >$ [1]	3.69 (at 1.75Å)	Xtriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.192 , 0.216 0.193 , 0.218	Depositor DCC
R_{free} test set	1997 reflections (0.80%)	wwPDB-VP
Wilson B-factor (Å^2)	19.3	Xtriage
Anisotropy	0.100	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.41 , 47.9	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.012 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	17605	wwPDB-VP
Average B, all atoms (Å^2)	24.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.40% 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 ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 4P7, PO4

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	0.34	0/1691	0.52	0/2313
1	B	0.34	0/1720	0.53	0/2354
1	C	0.36	0/1631	0.55	0/2234
1	D	0.35	0/1654	0.53	0/2272
1	E	0.35	0/1659	0.53	0/2271
1	F	0.32	0/1651	0.49	0/2263
1	G	0.31	0/1713	0.50	0/2346
1	H	0.36	0/1689	0.54	1/2309 (0.0%)
1	I	0.34	0/1677	0.52	0/2294
1	J	0.35	0/1710	0.52	0/2339
All	All	0.34	0/16795	0.52	1/22995 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	H	3	ARG	NE-CZ-NH2	-5.09	117.75	120.30

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	1656	0	1558	12	0
1	B	1681	0	1581	14	0
1	C	1593	0	1498	19	0
1	D	1615	0	1497	12	0
1	E	1623	0	1533	10	0
1	F	1616	0	1504	10	0
1	G	1677	0	1569	18	0
1	H	1653	0	1565	13	0
1	I	1634	0	1536	16	0
1	J	1673	0	1573	11	0
2	A	10	0	0	1	0
2	B	5	0	0	0	0
2	D	5	0	0	1	0
2	E	5	0	0	0	0
2	F	10	0	0	0	0
2	H	10	0	0	1	0
2	I	5	0	0	1	0
3	A	18	15	15	3	0
3	B	18	15	15	1	0
3	C	18	15	15	2	0
3	D	18	15	15	3	0
3	E	18	15	15	3	0
3	F	18	15	15	2	0
3	G	18	15	15	3	0
3	H	18	15	15	4	0
3	I	18	15	15	3	0
3	J	18	15	15	5	0
4	A	78	0	0	1	0
4	B	89	0	0	0	0
4	C	76	0	0	1	0
4	D	94	0	0	0	0
4	E	102	0	0	0	0
4	F	63	0	0	0	0
4	G	65	0	0	1	0
4	H	84	0	0	0	0
4	I	73	0	0	1	0
4	J	80	0	0	0	0
All	All	17455	150	15564	143	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.

The worst 5 of 143 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:A:94:LYS:HE3	1:B:96:GLU:HG3	1.51	0.92
1:D:155:THR:HG23	1:D:157:GLU:H	1.37	0.89
1:I:94:LYS:HE3	1:J:96:GLU:HG3	1.63	0.78
1:A:94:LYS:HE3	1:B:96:GLU:CG	2.22	0.69
1:F:120:ARG:HH21	1:G:118:ARG:HH12	1.42	0.65

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	209/218 (96%)	209 (100%)	0	0	100	100
1	B	216/218 (99%)	211 (98%)	5 (2%)	0	100	100
1	C	202/218 (93%)	202 (100%)	0	0	100	100
1	D	209/218 (96%)	208 (100%)	1 (0%)	0	100	100
1	E	206/218 (94%)	202 (98%)	4 (2%)	0	100	100
1	F	207/218 (95%)	206 (100%)	1 (0%)	0	100	100
1	G	214/218 (98%)	211 (99%)	3 (1%)	0	100	100
1	H	209/218 (96%)	209 (100%)	0	0	100	100
1	I	206/218 (94%)	206 (100%)	0	0	100	100
1	J	211/218 (97%)	211 (100%)	0	0	100	100
All	All	2089/2180 (96%)	2075 (99%)	14 (1%)	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	189/204 (93%)	188 (100%)	1 (0%)	88	83
1	B	190/204 (93%)	189 (100%)	1 (0%)	88	83
1	C	182/204 (89%)	182 (100%)	0	100	100
1	D	183/204 (90%)	182 (100%)	1 (0%)	88	83
1	E	186/204 (91%)	185 (100%)	1 (0%)	88	83
1	F	182/204 (89%)	182 (100%)	0	100	100
1	G	191/204 (94%)	191 (100%)	0	100	100
1	H	190/204 (93%)	189 (100%)	1 (0%)	88	83
1	I	187/204 (92%)	185 (99%)	2 (1%)	73	60
1	J	192/204 (94%)	191 (100%)	1 (0%)	88	83
All	All	1872/2040 (92%)	1864 (100%)	8 (0%)	91	87

5 of 8 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	J	188	CYS
1	I	167	GLN
1	H	55	GLN
1	E	188	CYS
1	I	159	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 ⓘ

20 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	4P7	D	302	-	19,20,20	0.74	1 (5%)	20,26,26	1.39	2 (10%)
2	PO4	B	301	-	4,4,4	0.88	0	6,6,6	0.79	0
2	PO4	D	301	-	4,4,4	0.91	0	6,6,6	0.49	0
3	4P7	A	303	-	19,20,20	0.83	1 (5%)	20,26,26	1.40	3 (15%)
3	4P7	C	301	-	19,20,20	0.75	1 (5%)	20,26,26	1.56	4 (20%)
2	PO4	E	301	-	4,4,4	0.89	0	6,6,6	0.69	0
2	PO4	F	302	-	4,4,4	0.91	0	6,6,6	0.75	0
2	PO4	I	301	-	4,4,4	0.80	0	6,6,6	0.46	0
2	PO4	A	301	-	4,4,4	0.81	0	6,6,6	0.57	0
2	PO4	A	302	-	4,4,4	0.71	0	6,6,6	0.79	0
2	PO4	F	301	-	4,4,4	0.78	0	6,6,6	0.57	0
3	4P7	E	302	-	19,20,20	0.86	1 (5%)	20,26,26	1.39	4 (20%)
3	4P7	I	302	-	19,20,20	0.88	2 (10%)	20,26,26	1.43	2 (10%)
3	4P7	H	303	-	19,20,20	0.75	1 (5%)	20,26,26	1.31	3 (15%)
2	PO4	H	302	-	4,4,4	0.91	0	6,6,6	0.56	0
2	PO4	H	301	-	4,4,4	1.08	0	6,6,6	0.74	0
3	4P7	F	303	-	19,20,20	0.79	1 (5%)	20,26,26	1.42	3 (15%)
3	4P7	G	301	-	19,20,20	0.89	1 (5%)	20,26,26	1.89	6 (30%)
3	4P7	J	301	-	19,20,20	0.80	1 (5%)	20,26,26	1.56	5 (25%)
3	4P7	B	302	-	19,20,20	0.92	1 (5%)	20,26,26	1.91	4 (20%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	4P7	E	302	-	-	0/6/19/19	0/3/3/3
3	4P7	F	303	-	-	0/6/19/19	0/3/3/3
3	4P7	D	302	-	-	0/6/19/19	0/3/3/3
3	4P7	G	301	-	-	0/6/19/19	0/3/3/3
3	4P7	I	302	-	-	0/6/19/19	0/3/3/3
3	4P7	A	303	-	-	0/6/19/19	0/3/3/3
3	4P7	H	303	-	-	0/6/19/19	0/3/3/3
3	4P7	C	301	-	-	0/6/19/19	0/3/3/3
3	4P7	J	301	-	-	0/6/19/19	0/3/3/3
3	4P7	B	302	-	-	0/6/19/19	0/3/3/3

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	302	4P7	C12-N7	2.63	1.30	1.28
3	E	302	4P7	C5-C6	-2.55	1.41	1.46
3	A	303	4P7	C5-C6	-2.39	1.42	1.46
3	J	301	4P7	C5-C6	-2.37	1.42	1.46
3	I	302	4P7	C5-C6	-2.35	1.42	1.46

The worst 5 of 36 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	302	4P7	C10-C11-C6	6.24	131.48	125.27
3	G	301	4P7	C10-C11-C6	5.30	130.54	125.27
3	I	302	4P7	C5-C6-C11	-4.15	122.57	130.09
3	B	302	4P7	C9-C10-C11	-3.28	105.57	112.15
3	G	301	4P7	C9-C10-C11	-3.11	105.92	112.15

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

14 monomers are involved in 33 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	302	4P7	3	0
2	D	301	PO4	1	0
3	A	303	4P7	3	0
3	C	301	4P7	2	0
2	I	301	PO4	1	0
2	A	302	PO4	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	E	302	4P7	3	0
3	I	302	4P7	3	0
3	H	303	4P7	4	0
2	H	302	PO4	1	0
3	F	303	4P7	2	0
3	G	301	4P7	3	0
3	J	301	4P7	5	0
3	B	302	4P7	1	0

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 (i)

6.1 Protein, DNA and RNA chains (i)

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	213/218 (97%)	-0.06	2 (0%)	84	89	14, 23, 38, 46	0
1	B	217/218 (99%)	-0.06	6 (2%)	53	58	14, 22, 39, 50	0
1	C	205/218 (94%)	-0.15	6 (2%)	51	57	14, 20, 32, 46	0
1	D	210/218 (96%)	-0.10	1 (0%)	91	93	13, 22, 38, 49	0
1	E	208/218 (95%)	-0.20	4 (1%)	66	74	13, 21, 34, 52	0
1	F	211/218 (96%)	-0.12	5 (2%)	59	65	16, 25, 39, 50	0
1	G	216/218 (99%)	-0.01	5 (2%)	60	67	17, 25, 39, 58	0
1	H	211/218 (96%)	-0.12	6 (2%)	53	58	15, 22, 35, 47	0
1	I	208/218 (95%)	-0.10	6 (2%)	51	57	13, 22, 39, 51	0
1	J	213/218 (97%)	-0.11	3 (1%)	75	82	15, 23, 36, 48	0
All	All	2112/2180 (96%)	-0.10	44 (2%)	63	71	13, 22, 38, 58	0

The worst 5 of 44 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	156	THR	5.5
1	B	156	THR	4.9
1	J	-6	TYR	4.3
1	I	186	SER	4.1
1	F	24	ASP	3.9

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(Å^2)	Q<0.9
3	4P7	G	301	18/18	0.92	0.10	17,26,38,43	0
3	4P7	I	302	18/18	0.92	0.10	17,27,42,45	0
3	4P7	B	302	18/18	0.93	0.11	16,24,39,43	0
3	4P7	A	303	18/18	0.94	0.09	15,26,35,37	0
3	4P7	F	303	18/18	0.94	0.09	21,30,37,41	0
3	4P7	E	302	18/18	0.95	0.07	15,24,38,40	0
3	4P7	H	303	18/18	0.95	0.08	16,23,35,40	0
3	4P7	D	302	18/18	0.95	0.09	16,25,34,36	0
3	4P7	J	301	18/18	0.95	0.07	19,28,38,39	0
3	4P7	C	301	18/18	0.96	0.07	15,22,31,37	0
2	PO4	E	301	5/5	0.98	0.06	18,19,20,21	0
2	PO4	F	302	5/5	0.98	0.05	19,19,21,23	0
2	PO4	A	301	5/5	0.99	0.05	16,17,19,21	0
2	PO4	F	301	5/5	0.99	0.07	16,18,20,20	0
2	PO4	A	302	5/5	0.99	0.06	15,15,16,18	0
2	PO4	H	301	5/5	0.99	0.07	13,14,15,15	0
2	PO4	H	302	5/5	0.99	0.06	17,18,20,23	0
2	PO4	I	301	5/5	0.99	0.04	16,16,18,18	0
2	PO4	B	301	5/5	0.99	0.05	16,16,18,19	0
2	PO4	D	301	5/5	0.99	0.06	16,16,18,18	0

6.5 Other polymers (i)

There are no such residues in this entry.