



Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 10:42 AM GMT

PDB ID : 4IL9
Title : The pentameric ligand-gated ion channel GLIC A237F in complex with bromide
Authors : Sauguet, L.; Corringer, P.J.; Delarue, M.
Deposited on : 2012-12-29
Resolution : 2.83 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

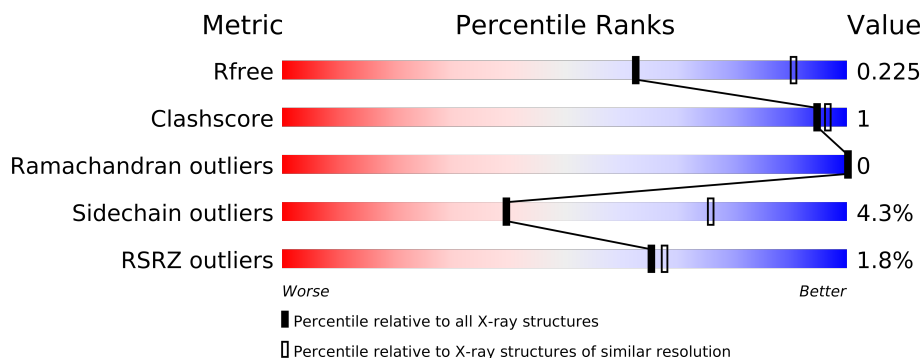
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : dev-1323
EDS : stable22639
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance

The reported resolution of this entry is 2.83 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}	66092	2270 (2.88-2.80)
Clashscore	79885	2848 (2.88-2.80)
Ramachandran outliers	78287	2786 (2.88-2.80)
Sidechain outliers	78261	2789 (2.88-2.80)
RSRZ outliers	66119	2274 (2.88-2.80)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	320	
1	B	320	
1	C	320	
1	D	320	
1	E	320	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
2	ACT	A	401	-	X
2	ACT	A	402	-	X
2	ACT	B	401	-	X

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Mol	Type	Chain	Res	Geometry	Electron density
2	ACT	B	402	-	X
2	ACT	C	401	-	X
2	ACT	C	402	-	X
2	ACT	D	402	-	X
2	ACT	E	402	-	X
3	PLC	A	403	-	X
3	PLC	B	403	-	X
3	PLC	C	403	-	X
3	PLC	D	403	-	X
3	PLC	E	403	-	X
4	UNL	A	405	-	X
4	UNL	A	406	-	X
4	UNL	B	405	-	X
4	UNL	B	406	-	X
4	UNL	C	405	-	X
4	UNL	C	406	-	X
4	UNL	D	405	-	X
4	UNL	D	406	-	X
4	UNL	E	405	-	X
4	UNL	E	406	-	X
5	BR	A	409	-	X
5	BR	C	408	-	X
6	LMT	A	410	-	X
6	LMT	B	409	-	X
6	LMT	C	409	-	X
6	LMT	C	410	-	X
6	LMT	D	410	-	X
6	LMT	E	409	-	X
7	NA	A	411	-	X

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 13201 atoms, of which 0 are hydrogen and 0 are deuterium.

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 Proton-gated ion channel.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	311	Total	C	N	O	S	0	0	0
			2531	1670	404	453	4			
1	B	311	Total	C	N	O	S	0	0	0
			2531	1670	404	453	4			
1	C	311	Total	C	N	O	S	0	0	0
			2531	1670	404	453	4			
1	D	311	Total	C	N	O	S	0	0	0
			2531	1670	404	453	4			
1	E	311	Total	C	N	O	S	0	0	0
			2531	1670	404	453	4			

There are 30 discrepancies between the modelled and reference sequences:

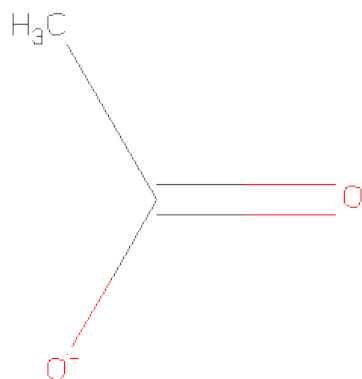
Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	EXPRESSION TAG	UNP Q7NDN8
A	-2	SER	-	EXPRESSION TAG	UNP Q7NDN8
A	-1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
A	0	ALA	-	EXPRESSION TAG	UNP Q7NDN8
A	1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
A	237	PHE	ALA	ENGINEERED MUTATION	UNP Q7NDN8
B	-3	GLY	-	EXPRESSION TAG	UNP Q7NDN8
B	-2	SER	-	EXPRESSION TAG	UNP Q7NDN8
B	-1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
B	0	ALA	-	EXPRESSION TAG	UNP Q7NDN8
B	1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
B	237	PHE	ALA	ENGINEERED MUTATION	UNP Q7NDN8
C	-3	GLY	-	EXPRESSION TAG	UNP Q7NDN8
C	-2	SER	-	EXPRESSION TAG	UNP Q7NDN8
C	-1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
C	0	ALA	-	EXPRESSION TAG	UNP Q7NDN8
C	1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
C	237	PHE	ALA	ENGINEERED MUTATION	UNP Q7NDN8
D	-3	GLY	-	EXPRESSION TAG	UNP Q7NDN8

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-2	SER	-	EXPRESSION TAG	UNP Q7NDN8
D	-1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
D	0	ALA	-	EXPRESSION TAG	UNP Q7NDN8
D	1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
D	237	PHE	ALA	ENGINEERED MUTATION	UNP Q7NDN8
E	-3	GLY	-	EXPRESSION TAG	UNP Q7NDN8
E	-2	SER	-	EXPRESSION TAG	UNP Q7NDN8
E	-1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
E	0	ALA	-	EXPRESSION TAG	UNP Q7NDN8
E	1	ALA	-	EXPRESSION TAG	UNP Q7NDN8
E	237	PHE	ALA	ENGINEERED MUTATION	UNP Q7NDN8

- Molecule 2 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).



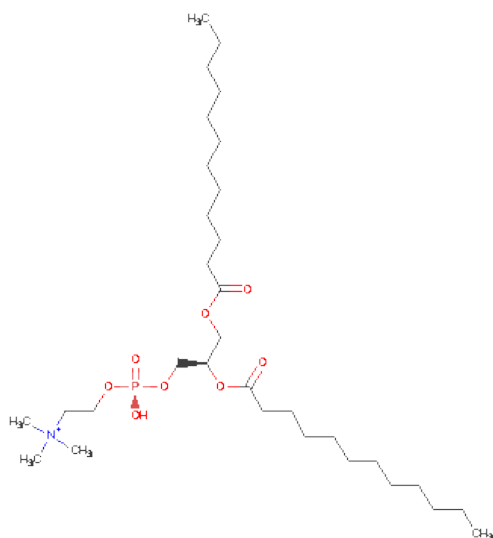
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	B	1	Total C O 4 2 2	0	0
2	C	1	Total C O 4 2 2	0	0
2	C	1	Total C O 4 2 2	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	D	1	Total	C	O	0	0
			4	2	2		
2	D	1	Total	C	O	0	0
			4	2	2		
2	E	1	Total	C	O	0	0
			4	2	2		
2	E	1	Total	C	O	0	0
			4	2	2		

- Molecule 3 is DIUNDECYL PHOSPHATIDYL CHOLINE (three-letter code: PLC) (formula: $C_{32}H_{65}NO_8P$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			34	24	1	8	1		
3	A	1	Total	C				0	0
			12	12					
3	B	1	Total	C	N	O	P	0	0
			34	24	1	8	1		
3	B	1	Total	C				0	0
			12	12					
3	C	1	Total	C	N	O	P	0	0
			34	24	1	8	1		
3	C	1	Total	C				0	0
			12	12					
3	D	1	Total	C	N	O	P	0	0
			34	24	1	8	1		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	D	1	Total C 12 12	0	0
3	E	1	Total C N O P 34 24 1 8 1	0	0
3	E	1	Total C 12 12	0	0

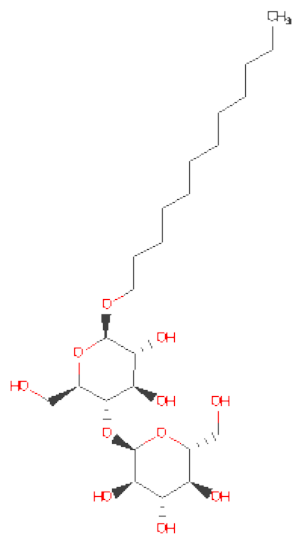
- Molecule 4 is UNKNOWN LIGAND (three-letter code: UNL) (formula:).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	2	Total C 24 24	0	0
4	A	2	Total C 24 24	0	0
4	D	2	Total C 24 24	0	0
4	C	2	Total C 24 24	0	0
4	E	2	Total C 24 24	0	0

- Molecule 5 is BROMIDE ION (three-letter code: BR) (formula: Br).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	2	Total Br 2 2	0	0
5	A	3	Total Br 3 3	0	0
5	D	3	Total Br 3 3	0	0
5	C	2	Total Br 2 2	0	0
5	E	2	Total Br 2 2	0	0

- Molecule 6 is DODECYL-BETA-D-MALTOSIDE (three-letter code: LMT) (formula: C₂₄H₄₆O₁₁).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C 8 8	0	0
6	B	1	Total C 8 8	0	0
6	C	1	Total C 9 9	0	0
6	C	1	Total C 9 9	0	0
6	D	1	Total C 8 8	0	0
6	E	1	Total C 8 8	0	0

- Molecule 7 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	B	1	Total Na 1 1	0	0
7	A	2	Total Na 2 2	0	0
7	D	1	Total Na 1 1	0	0
7	C	1	Total Na 1 1	0	0
7	E	1	Total Na 1 1	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	17	Total 17	O 17	0	0
8	B	18	Total 18	O 18	0	0
8	C	23	Total 23	O 23	0	0
8	D	16	Total 16	O 16	0	0
8	E	14	Total 14	O 14	0	0

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

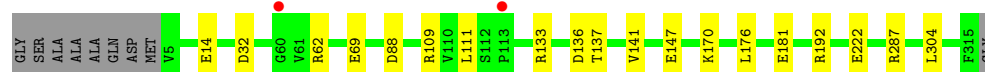
- Molecule 1: Proton-gated ion channel

Chain A: 



- Molecule 1: Proton-gated ion channel

Chain B: 



- Molecule 1: Proton-gated ion channel

Chain C: 



- Molecule 1: Proton-gated ion channel

Chain D: 



- Molecule 1: Proton-gated ion channel

Chain E: 



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	180.52Å 132.14Å 159.96Å 90.00° 102.16° 90.00°	Depositor
Resolution (Å)	41.77 – 2.83 41.77 – 2.83	Depositor EDS
% Data completeness (in resolution range)	99.2 (41.77-2.83) 99.6 (41.77-2.83)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	0.06	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.13 (at 2.86Å)	Xtriage
Refinement program	BUSTER 2.11.2	Depositor
R, R_{free}	0.201 , 0.214 0.211 , 0.225	Depositor DCC
R_{free} test set	4350 reflections (5.27%)	DCC
Wilson B-factor (Å ²)	51.3	Xtriage
Anisotropy	0.236	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 37.0	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 86885 reflections	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	13201	wwPDB-VP
Average B, all atoms (Å ²)	58.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.79% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NA, LMT, PLC, BR, ACT, UNL

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	0.45	0/2600	0.69	1/3554 (0.0%)
1	B	0.47	0/2600	0.70	0/3554
1	C	0.46	0/2600	0.71	0/3554
1	D	0.47	0/2600	0.70	0/3554
1	E	0.46	0/2600	0.71	1/3554 (0.0%)
All	All	0.46	0/13000	0.70	2/17770 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	14	GLU	CA-CB-CG	5.09	124.59	113.40
1	A	222	GLU	CA-CB-CG	5.03	124.47	113.40

There are no chirality outliers.

There are no planarity outliers.

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2531	0	0	4	0
1	B	2531	0	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2531	0	0	4	0
1	D	2531	0	0	4	0
1	E	2531	0	0	3	0
2	A	8	0	6	1	0
2	B	8	0	6	0	0
2	C	8	0	6	0	0
2	D	8	0	6	2	0
2	E	8	0	6	2	0
3	A	46	0	0	0	0
3	B	46	0	0	0	0
3	C	46	0	0	0	0
3	D	46	0	0	0	0
3	E	46	0	0	0	0
4	A	24	0	0	0	0
4	B	24	0	0	0	0
4	C	24	0	0	0	0
4	D	24	0	0	0	0
4	E	24	0	0	0	0
5	A	3	0	0	0	0
5	B	2	0	0	0	0
5	C	2	0	0	0	0
5	D	3	0	0	0	0
5	E	2	0	0	0	0
6	A	8	0	12	0	0
6	B	8	0	12	0	0
6	C	18	0	28	2	0
6	D	8	0	12	1	0
6	E	8	0	12	0	0
7	A	2	0	0	0	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
7	D	1	0	0	0	0
7	E	1	0	0	0	0
8	A	17	0	0	0	0
8	B	18	0	0	0	0
8	C	23	0	0	0	0
8	D	16	0	0	0	0
8	E	14	0	0	0	0
All	All	13201	0	106	18	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 1.

All (18) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:133:ARG:NH1	1:C:176:LEU:O	2.17	0.77
1:E:133:ARG:NH1	1:E:176:LEU:O	2.24	0.70
1:B:133:ARG:NH1	1:B:176:LEU:O	2.30	0.65
1:C:237:PHE:CD1	6:C:409:LMT:C9	2.83	0.62
6:C:409:LMT:H82	6:C:410:LMT:H52	1.95	0.49
1:D:181:GLU:OE2	2:D:401:ACT:O	2.30	0.49
1:A:181:GLU:OE2	2:A:401:ACT:OXT	2.31	0.48
1:C:105:ARG:NH1	2:D:401:ACT:OXT	2.48	0.46
1:A:133:ARG:NH1	1:A:176:LEU:O	2.50	0.45
1:D:237:PHE:CD1	6:D:410:LMT:C8	3.01	0.44
1:D:32:ASP:OD1	1:D:192:ARG:NH2	2.51	0.44
1:A:32:ASP:OD1	1:A:192:ARG:NH2	2.51	0.43
1:D:105:ARG:NH1	2:E:401:ACT:O	2.52	0.43
1:A:14:GLU:O	1:A:138:ARG:NH2	2.52	0.43
1:B:32:ASP:OD1	1:B:192:ARG:NH2	2.52	0.42
1:C:32:ASP:OD1	1:C:192:ARG:NH2	2.53	0.42
1:E:77:ARG:NH2	2:E:401:ACT:OXT	2.53	0.41
1:E:32:ASP:OD1	1:E:192:ARG:NH2	2.54	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	309/320 (97%)	303 (98%)	6 (2%)	0	100	100
1	B	309/320 (97%)	301 (97%)	8 (3%)	0	100	100
1	C	309/320 (97%)	303 (98%)	6 (2%)	0	100	100
1	D	309/320 (97%)	303 (98%)	6 (2%)	0	100	100
1	E	309/320 (97%)	303 (98%)	6 (2%)	0	100	100
All	All	1545/1600 (97%)	1513 (98%)	32 (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	281/285 (99%)	270 (96%)	11 (4%)	43	80
1	B	281/285 (99%)	266 (95%)	15 (5%)	32	66
1	C	281/285 (99%)	270 (96%)	11 (4%)	43	80
1	D	281/285 (99%)	269 (96%)	12 (4%)	40	76
1	E	281/285 (99%)	270 (96%)	11 (4%)	43	80
All	All	1405/1425 (99%)	1345 (96%)	60 (4%)	40	76

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

Mol	Chain	Res	Type
1	A	48	LYS
1	A	69	GLU
1	A	88	ASP
1	A	111	LEU
1	A	138	ARG
1	A	141	VAL
1	A	147	GLU
1	A	170	LYS
1	A	178	ASP
1	A	222	GLU
1	A	287	ARG
1	B	14	GLU
1	B	62	ARG
1	B	69	GLU
1	B	88	ASP
1	B	109	ARG
1	B	111	LEU
1	B	136	ASP
1	B	137	THR
1	B	141	VAL
1	B	147	GLU
1	B	170	LYS
1	B	181	GLU
1	B	222	GLU
1	B	287	ARG

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Mol	Chain	Res	Type
1	B	304	LEU
1	C	14	GLU
1	C	62	ARG
1	C	69	GLU
1	C	88	ASP
1	C	111	LEU
1	C	137	THR
1	C	141	VAL
1	C	170	LYS
1	C	181	GLU
1	C	287	ARG
1	C	304	LEU
1	D	50	ARG
1	D	62	ARG
1	D	69	GLU
1	D	88	ASP
1	D	111	LEU
1	D	137	THR
1	D	141	VAL
1	D	147	GLU
1	D	170	LYS
1	D	181	GLU
1	D	287	ARG
1	D	304	LEU
1	E	14	GLU
1	E	58	ARG
1	E	64	LYS
1	E	69	GLU
1	E	88	ASP
1	E	111	LEU
1	E	137	THR
1	E	141	VAL
1	E	170	LYS
1	E	287	ARG
1	E	304	LEU

Some 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 chains 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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 54 ligands modelled in this entry, 10 are unknown and 18 are monoatomic - leaving 26 for Mogul analysis.

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	ACT	A	401	-	1,3,3	4.21	1 (100%)	0,3,3	0.00	-
2	ACT	A	402	-	1,3,3	3.87	1 (100%)	0,3,3	0.00	-
3	PLC	A	403	-	33,33,41	1.48	4 (12%)	41,41,49	1.37	5 (12%)
3	PLC	A	404	-	10,11,41	0.58	0	9,10,49	0.60	0
6	LMT	A	410	-	7,7,36	1.04	0	6,6,47	1.16	1 (16%)
2	ACT	B	401	-	1,3,3	4.44	1 (100%)	0,3,3	0.00	-
2	ACT	B	402	-	1,3,3	4.29	1 (100%)	0,3,3	0.00	-
3	PLC	B	403	-	33,33,41	1.34	5 (15%)	41,41,49	1.41	5 (12%)
3	PLC	B	404	-	10,11,41	0.48	0	9,10,49	0.53	0
6	LMT	B	409	-	7,7,36	2.66	1 (14%)	6,6,47	1.63	1 (16%)
2	ACT	C	401	-	1,3,3	3.99	1 (100%)	0,3,3	0.00	-
2	ACT	C	402	-	1,3,3	4.34	1 (100%)	0,3,3	0.00	-
3	PLC	C	403	-	33,33,41	1.53	5 (15%)	41,41,49	1.39	5 (12%)
3	PLC	C	404	-	10,11,41	0.48	0	9,10,49	0.52	0
6	LMT	C	409	-	8,8,36	1.86	2 (25%)	7,7,47	1.16	1 (14%)
6	LMT	C	410	-	8,8,36	3.92	2 (25%)	7,7,47	1.35	1 (14%)
2	ACT	D	401	-	1,3,3	3.88	1 (100%)	0,3,3	0.00	-
2	ACT	D	402	-	1,3,3	4.63	1 (100%)	0,3,3	0.00	-

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
3	PLC	D	403	-	33,33,41	1.54	5 (15%)	41,41,49	1.43	5 (12%)
3	PLC	D	404	-	10,11,41	0.42	0	9,10,49	0.58	0
6	LMT	D	410	-	7,7,36	4.23	1 (14%)	6,6,47	1.18	1 (16%)
2	ACT	E	401	-	1,3,3	4.10	1 (100%)	0,3,3	0.00	-
2	ACT	E	402	-	1,3,3	4.54	1 (100%)	0,3,3	0.00	-
3	PLC	E	403	-	33,33,41	1.43	5 (15%)	41,41,49	1.41	5 (12%)
3	PLC	E	404	-	10,11,41	0.43	0	9,10,49	0.55	0
6	LMT	E	409	-	7,7,36	1.06	1 (14%)	6,6,47	1.33	1 (16%)

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
2	ACT	A	401	-	-	0/0/0/0	0/0/0/0
2	ACT	A	402	-	-	0/0/0/0	0/0/0/0
3	PLC	A	403	-	-	0/37/37/45	0/0/0/0
3	PLC	A	404	-	-	0/9/9/45	0/0/0/0
6	LMT	A	410	-	-	0/5/5/61	0/0/0/2
2	ACT	B	401	-	-	0/0/0/0	0/0/0/0
2	ACT	B	402	-	-	0/0/0/0	0/0/0/0
3	PLC	B	403	-	-	0/37/37/45	0/0/0/0
3	PLC	B	404	-	-	0/9/9/45	0/0/0/0
6	LMT	B	409	-	-	0/5/5/61	0/0/0/2
2	ACT	C	401	-	-	0/0/0/0	0/0/0/0
2	ACT	C	402	-	-	0/0/0/0	0/0/0/0
3	PLC	C	403	-	-	0/37/37/45	0/0/0/0
3	PLC	C	404	-	-	0/9/9/45	0/0/0/0
6	LMT	C	409	-	-	0/6/6/61	0/0/0/2
6	LMT	C	410	-	-	0/6/6/61	0/0/0/2
2	ACT	D	401	-	-	0/0/0/0	0/0/0/0
2	ACT	D	402	-	-	0/0/0/0	0/0/0/0
3	PLC	D	403	-	-	0/37/37/45	0/0/0/0
3	PLC	D	404	-	-	0/9/9/45	0/0/0/0
6	LMT	D	410	-	-	0/5/5/61	0/0/0/2
2	ACT	E	401	-	-	0/0/0/0	0/0/0/0
2	ACT	E	402	-	-	0/0/0/0	0/0/0/0
3	PLC	E	403	-	-	0/37/37/45	0/0/0/0
3	PLC	E	404	-	-	0/9/9/45	0/0/0/0
6	LMT	E	409	-	-	0/5/5/61	0/0/0/2

All (41) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	D	410	LMT	C8-C7	-11.13	1.50	1.55
6	C	410	LMT	C1-C2	-8.90	1.51	1.55
6	B	409	LMT	C1-C2	-6.95	1.52	1.55
6	C	410	LMT	C9-C8	-6.55	1.52	1.55
3	A	403	PLC	C7B-C6B	-5.31	1.53	1.55
2	D	402	ACT	CH3-C	4.63	1.55	1.48
2	E	402	ACT	CH3-C	4.54	1.55	1.48
2	B	401	ACT	CH3-C	4.44	1.55	1.48
3	C	403	PLC	C7'-C6'	-4.40	1.53	1.55
2	C	402	ACT	CH3-C	4.34	1.55	1.48
2	B	402	ACT	CH3-C	4.29	1.54	1.48
6	C	409	LMT	C1-C2	-4.22	1.53	1.55
2	A	401	ACT	CH3-C	4.21	1.54	1.48
2	E	401	ACT	CH3-C	4.10	1.54	1.48
3	D	403	PLC	C7'-C6'	-4.02	1.53	1.55
2	C	401	ACT	CH3-C	3.99	1.54	1.48
2	D	401	ACT	CH3-C	3.88	1.54	1.48
2	A	402	ACT	CH3-C	3.87	1.54	1.48
3	D	403	PLC	C7B-C6B	-3.75	1.53	1.55
3	E	403	PLC	C7'-C6'	-3.64	1.53	1.55
3	C	403	PLC	C7B-C6B	-3.58	1.53	1.55
3	E	403	PLC	C7B-C6B	-3.50	1.53	1.55
3	D	403	PLC	O2-C'	3.35	1.44	1.34
3	B	403	PLC	O2-C'	3.14	1.43	1.34
6	C	409	LMT	C9-C8	-3.01	1.54	1.55
3	C	403	PLC	O2-C'	2.94	1.43	1.34
3	B	403	PLC	C7B-C6B	-2.89	1.54	1.55
3	A	403	PLC	O2-C'	2.86	1.43	1.34
3	E	403	PLC	O2-C'	2.86	1.42	1.34
3	C	403	PLC	C3-C2	2.66	1.58	1.50
6	E	409	LMT	C8-C7	-2.66	1.54	1.55
3	A	403	PLC	C3-C2	2.57	1.57	1.50
3	B	403	PLC	C1-C2	2.39	1.57	1.50
3	B	403	PLC	C7'-C6'	-2.34	1.54	1.55
3	E	403	PLC	C3-C2	2.32	1.57	1.50
3	E	403	PLC	C1-C2	2.31	1.57	1.50
3	C	403	PLC	C1-C2	2.28	1.57	1.50
3	D	403	PLC	C3-C2	2.26	1.57	1.50
3	A	403	PLC	C1-C2	2.20	1.56	1.50
3	B	403	PLC	C3-C2	2.20	1.56	1.50
3	D	403	PLC	C1-C2	2.13	1.56	1.50

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	403	PLC	C2-O2-C'	4.36	128.67	117.92
3	E	403	PLC	C2-O2-C'	4.25	128.40	117.92
3	D	403	PLC	O2-C'-C1'	4.23	120.82	111.56
3	B	403	PLC	O2-C'-C1'	4.20	120.75	111.56
3	B	403	PLC	C2-O2-C'	4.09	128.00	117.92
3	C	403	PLC	C2-O2-C'	4.08	127.97	117.92
3	A	403	PLC	O2-C'-C1'	3.99	120.30	111.56
3	A	403	PLC	C2-O2-C'	3.99	127.76	117.92
3	E	403	PLC	O2-C'-C1'	3.96	120.22	111.56
3	C	403	PLC	O2-C'-C1'	3.89	120.08	111.56
3	E	403	PLC	O2-C'-O'	-3.80	113.47	123.65
3	D	403	PLC	O2-C'-O'	-3.78	113.53	123.65
3	B	403	PLC	O2-C'-O'	-3.72	113.68	123.65
3	A	403	PLC	O2-C'-O'	-3.69	113.76	123.65
6	B	409	LMT	C8-C7-C6	-3.46	106.69	114.46
3	C	403	PLC	O2-C'-O'	-3.45	114.40	123.65
3	A	403	PLC	O4P-P-O1P	-3.07	97.34	109.37
3	C	403	PLC	O4P-P-O1P	-2.88	98.08	109.37
3	D	403	PLC	O4P-P-O1P	-2.87	98.13	109.37
3	E	403	PLC	O4P-P-O1P	-2.85	98.20	109.37
3	B	403	PLC	O4P-P-O1P	-2.70	98.79	109.37
6	D	410	LMT	C5-C6-C7	-2.43	104.56	113.78
6	C	410	LMT	C9-C8-C7	-2.42	109.03	114.46
3	C	403	PLC	O2P-P-O3P	2.37	120.48	108.51
6	A	410	LMT	C8-C7-C6	-2.33	109.22	114.46
3	E	403	PLC	O2P-P-O3P	2.27	119.97	108.51
3	A	403	PLC	O2P-P-O3P	2.20	119.62	108.51
3	B	403	PLC	O2P-P-O3P	2.18	119.51	108.51
6	C	409	LMT	C9-C8-C7	-2.17	109.58	114.46
6	E	409	LMT	C8-C7-C6	-2.16	109.60	114.46
3	D	403	PLC	O2P-P-O3P	2.08	118.98	108.51

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

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	311/320 (97%)	-0.53	5 (1%) 68 70	38, 52, 85, 124	0
1	B	311/320 (97%)	-0.54	2 (0%) 86 88	35, 51, 84, 105	0
1	C	311/320 (97%)	-0.46	6 (1%) 64 66	38, 52, 94, 131	0
1	D	311/320 (97%)	-0.40	7 (2%) 57 60	37, 52, 88, 134	0
1	E	311/320 (97%)	-0.45	6 (1%) 64 66	38, 53, 96, 125	0
All	All	1555/1600 (97%)	-0.48	26 (1%) 65 69	35, 52, 89, 134	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	57	VAL	5.2
1	E	62	ARG	4.1
1	D	61	VAL	3.8
1	D	59	SER	3.7
1	D	60	GLY	3.6
1	D	154	ASP	3.5
1	A	57	VAL	3.4
1	C	58	ARG	3.2
1	E	136	ASP	3.1
1	E	58	ARG	3.1
1	A	58	ARG	2.9
1	D	62	ARG	2.7
1	C	61	VAL	2.7
1	B	113	PRO	2.7
1	C	60	GLY	2.7
1	A	154	ASP	2.6
1	E	137	THR	2.5
1	C	57	VAL	2.5
1	E	5	VAL	2.5
1	C	11	ILE	2.4

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Mol	Chain	Res	Type	RSRZ
1	C	6	SER	2.3
1	A	5	VAL	2.2
1	B	60	GLY	2.2
1	A	59	SER	2.2
1	E	154	ASP	2.1
1	D	58	ARG	2.1

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 carbohydrates in this entry.

6.4 Ligands ⓘ

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	RSR	LLDF	B-factors(Å ²)	Q<0.9
4	UNL	B	405	12/-	0.72	37.33	96,98,103,107	0
6	LMT	C	410	9/35	0.49	31.40	64,76,85,85	0
4	UNL	D	405	12/-	0.79	26.99	88,91,97,102	0
4	UNL	C	405	12/-	0.76	22.91	102,106,109,112	0
4	UNL	E	405	12/-	0.93	22.71	95,96,99,105	0
4	UNL	A	405	12/-	0.83	20.02	90,93,97,100	0
2	ACT	D	402	4/4	0.57	18.60	75,78,80,81	0
7	NA	A	411	1/1	0.96	13.77	71,71,71,71	0
4	UNL	C	406	12/-	0.52	12.57	69,75,78,79	0
2	ACT	B	402	4/4	0.28	9.55	73,75,76,78	0
2	ACT	C	402	4/4	0.37	8.71	73,76,76,86	0
4	UNL	E	406	12/-	0.48	8.69	69,77,83,87	0
2	ACT	A	402	4/4	0.39	8.02	78,80,80,85	0
3	PLC	E	403	34/42	0.29	7.87	65,97,131,133	0
3	PLC	B	403	34/42	0.40	7.77	56,99,136,136	0

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Mol	Type	Chain	Res	Atoms	RSR	LLDF	B-factors(\AA^2)	Q<0.9
4	UNL	B	406	12/-	0.33	7.44	78,81,83,88	0
4	UNL	A	406	12/-	0.29	7.35	66,71,76,77	0
4	UNL	D	406	12/-	0.39	6.68	68,76,80,83	0
3	PLC	D	403	34/42	0.28	5.92	52,96,131,133	0
3	PLC	C	403	34/42	0.36	5.69	61,100,134,135	0
2	ACT	E	402	4/4	0.27	5.26	77,80,83,86	0
6	LMT	B	409	8/35	0.45	5.17	69,71,77,81	0
6	LMT	D	410	8/35	0.37	4.85	64,65,70,71	0
6	LMT	E	409	8/35	0.38	4.62	68,70,81,86	0
3	PLC	A	403	34/42	0.31	4.36	65,106,138,140	0
6	LMT	C	409	9/35	0.39	4.26	67,68,80,81	0
2	ACT	C	401	4/4	0.22	4.24	62,65,65,66	0
5	BR	A	409	1/1	0.36	4.15	143,143,143,143	0
2	ACT	A	401	4/4	0.21	3.13	57,60,61,67	0
5	BR	C	408	1/1	0.25	2.84	156,156,156,156	0
6	LMT	A	410	8/35	0.31	2.54	58,61,65,66	0
2	ACT	B	401	4/4	0.19	2.45	61,61,64,66	0
5	BR	B	408	1/1	0.22	1.35	135,135,135,135	0
2	ACT	D	401	4/4	0.17	1.13	49,53,55,64	0
5	BR	D	409	1/1	0.18	0.74	144,144,144,144	0
7	NA	A	412	1/1	0.30	0.49	64,64,64,64	0
7	NA	B	410	1/1	0.17	0.13	67,67,67,67	0
2	ACT	E	401	4/4	0.11	-1.04	61,63,63,64	0
7	NA	D	411	1/1	0.13	-1.06	80,80,80,80	0
7	NA	E	410	1/1	0.12	-1.11	71,71,71,71	0
5	BR	E	408	1/1	0.11	-1.27	141,141,141,141	0
5	BR	D	408	1/1	0.04	-2.62	79,79,79,79	0
5	BR	B	407	1/1	0.04	-2.66	63,63,63,63	0
7	NA	C	411	1/1	0.14	-3.27	66,66,66,66	0
5	BR	A	407	1/1	0.05	-3.58	64,64,64,64	0
5	BR	C	407	1/1	0.05	-3.69	62,62,62,62	0
5	BR	A	408	1/1	0.04	-4.08	93,93,93,93	0
5	BR	D	407	1/1	0.04	-4.50	67,67,67,67	0
5	BR	E	407	1/1	0.03	-8.10	70,70,70,70	0
3	PLC	E	404	12/42	0.50	-	77,81,82,82	0
3	PLC	D	404	12/42	0.31	-	70,75,83,84	0
3	PLC	B	404	12/42	0.46	-	77,78,84,84	0
3	PLC	A	404	12/42	0.31	-	75,78,79,79	0
3	PLC	C	404	12/42	0.59	-	74,76,78,78	0

6.5 Other polymers ⓘ

There are no such residues in this entry.