



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 25, 2024 – 07:37 PM EST

PDB ID : 7HKF
Title : Group deposition for crystallographic fragment screening of the NS5 RNA-dependent RNA polymerase from Dengue virus serotype 2 – Crystal structure of the NS5 RNA-dependent RNA polymerase from Dengue virus serotype 2 in complex with Z55669204 (DNV2_NS5A-x0191)
Authors : Saini, M.; Chopra, A.; Aschenbrenner, J.C.; Marples, P.G.; Balcomb, B.H.; Fearon, D.; von Delft, F.; Ruiz, F.X.; Arnold, E.
Deposited on : 2024-10-15
Resolution : 1.58 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 1.21
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.004 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)

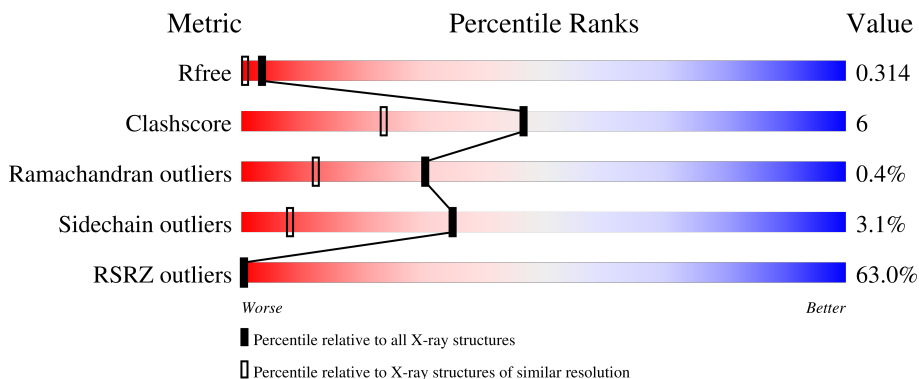
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.58 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	7165 (1.60-1.56)
Clashscore	180529	1026 (1.58-1.58)
Ramachandran outliers	177936	1005 (1.58-1.58)
Sidechain outliers	177891	1004 (1.58-1.58)
RSRZ outliers	164620	7163 (1.60-1.56)

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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	637	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	PO4	A	1006	-	-	X	-
7	MES	A	1010	-	-	X	-

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 5316 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 Genome polyprotein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	583	4823	3038	865	886	34	0	7	0

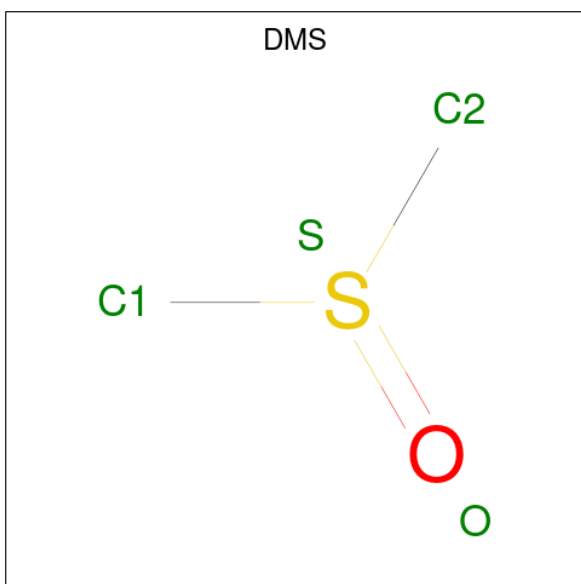
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	264	GLY	-	expression tag	UNP Q91H74
A	265	PRO	-	expression tag	UNP Q91H74

- Molecule 2 is ZINC ION (three-letter code: ZN) (formula: Zn).

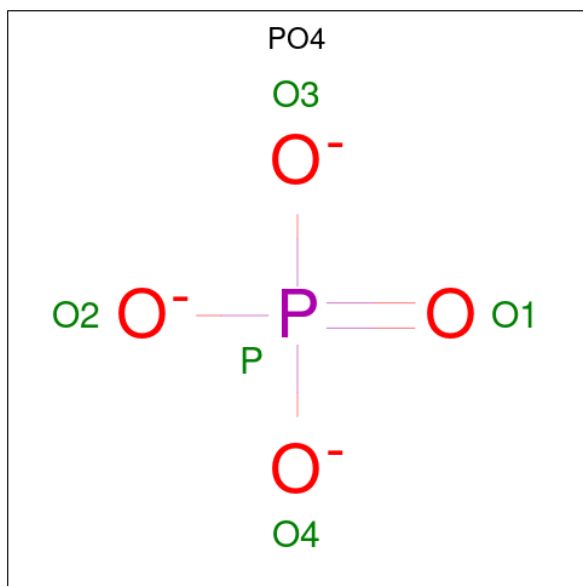
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total	Zn	0	0
			2	2		

- Molecule 3 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C₂H₆OS).



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

- Molecule 4 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



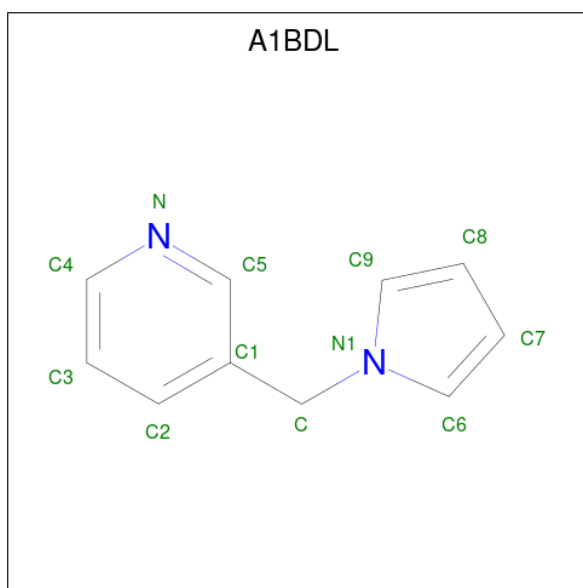
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	O	P	0	0
			5	4	1		
4	A	1	Total	O	P	0	0
			5	4	1		

- Molecule 5 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			7	4	3		

- Molecule 6 is 3-[(1H-pyrrol-1-yl)methyl]pyridine (three-letter code: A1BDL) (formula: C₁₀H₁₀N₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	N	0	0
			12	10	2		

- Molecule 7 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (three-letter code: MES) (formula: C₆H₁₃NO₄S).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
7	A	1	12	6	1	4	1	0	0

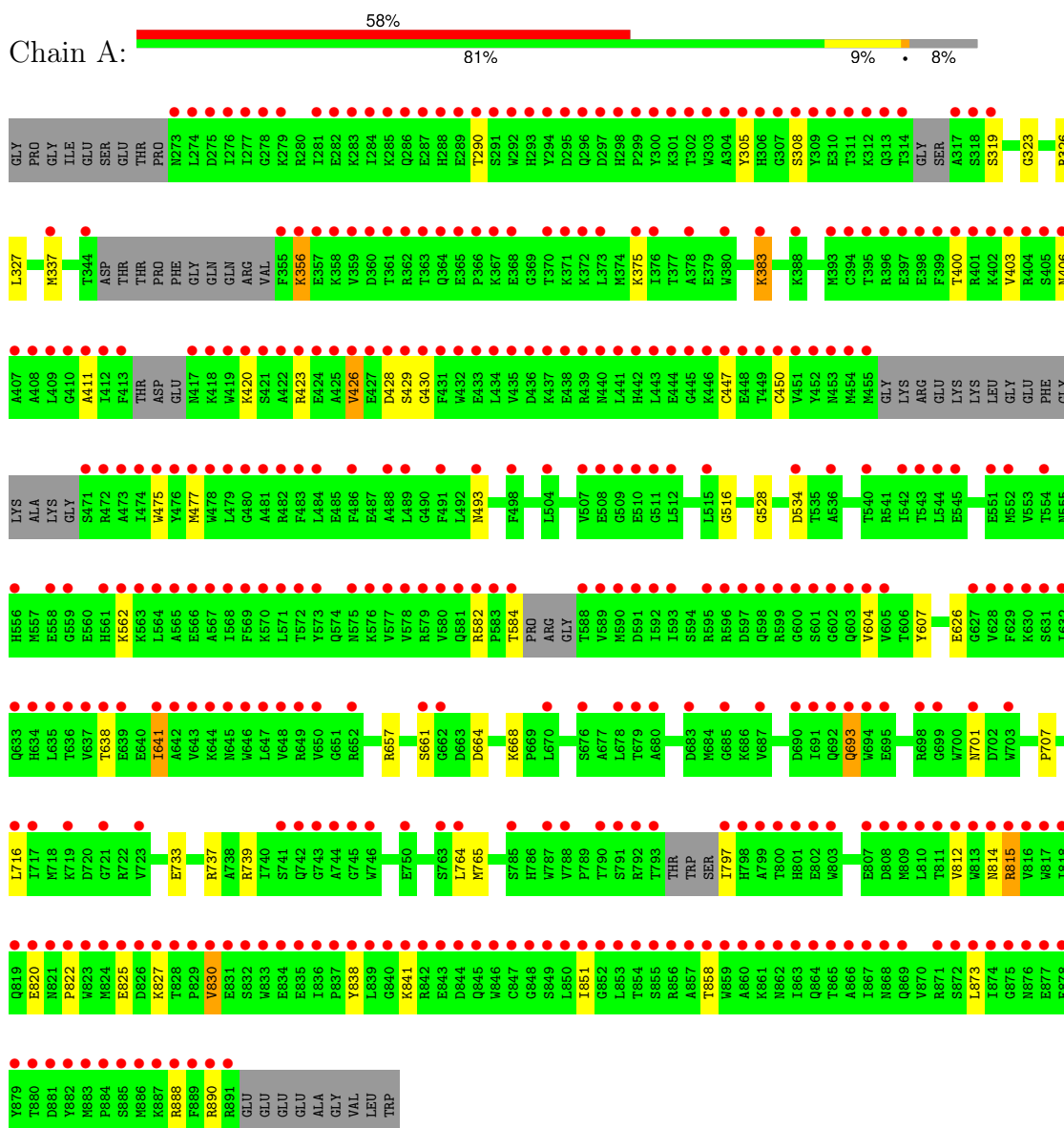
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
8	A	438	438	438	0	1

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. 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. 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: Genome polyprotein



4 Data and refinement statistics

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α , β , γ	82.41Å 117.35Å 148.55Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	67.53 – 1.58 67.53 – 1.58	Depositor EDS
% Data completeness (in resolution range)	98.5 (67.53-1.58) 98.6 (67.53-1.58)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.98 (at 1.58Å)	Xtrriage
Refinement program	REFMAC 5.8.0267, REFMAC5	Depositor
R, R_{free}	0.211 , 0.247 0.290 , 0.314	Depositor DCC
R_{free} test set	5013 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å ²)	27.1	Xtrriage
Anisotropy	0.212	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 104.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.87	EDS
Total number of atoms	5316	wwPDB-VP
Average B, all atoms (Å ²)	48.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.78% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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: MES, ZN, PEG, A1BDL, PO4, DMS

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	0.75	2/4930 (0.0%)	0.83	2/6646 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	626	GLU	CD-OE2	5.66	1.31	1.25
1	A	516	GLY	C-O	5.08	1.31	1.23

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
1	A	657	ARG	CG-CD-NE	-5.37	100.52	111.80
1	A	739	ARG	NE-CZ-NH1	5.15	122.87	120.30

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	4823	0	4725	54	0
2	A	2	0	0	0	0
3	A	12	0	18	0	0
4	A	10	0	0	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	7	0	10	0	0
6	A	12	0	0	0	0
7	A	12	0	13	15	0
8	A	438	0	0	10	1
All	All	5316	0	4766	54	1

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (54) 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:356:LYS:O	1:A:356:LYS:HD2	1.69	0.92
1:A:327:LEU:HG	7:A:1010:MES:H71	1.57	0.84
1:A:327:LEU:HD12	7:A:1010:MES:H32	1.59	0.84
1:A:814:ASN:ND2	1:A:830:VAL:O	2.14	0.81
1:A:323:GLY:HA2	7:A:1010:MES:H82	1.77	0.66
1:A:327:LEU:CG	7:A:1010:MES:H71	2.24	0.66
1:A:305:TYR:OH	1:A:308:SER:OG	2.03	0.66
1:A:638:THR:HA	1:A:641:ILE:HG22	1.79	0.65
1:A:323:GLY:CA	7:A:1010:MES:H82	2.28	0.63
1:A:733:GLU:O	1:A:737:ARG:HG3	1.98	0.63
1:A:327:LEU:HD11	7:A:1010:MES:H52	1.81	0.62
1:A:534:ASP:OD1	4:A:1006:PO4:O3	2.18	0.62
1:A:411:ALA:HA	1:A:477:MET:O	2.03	0.59
1:A:693:GLN:HG3	8:A:1448:HOH:O	2.03	0.59
1:A:764:LEU:HG	1:A:765:MET:HE2	1.84	0.59
1:A:638:THR:HA	1:A:641:ILE:CG2	2.34	0.57
1:A:327:LEU:CD1	7:A:1010:MES:H71	2.34	0.57
1:A:400:THR:O	1:A:403:VAL:HG22	2.04	0.56
1:A:607:TYR:CD2	1:A:797:ILE:HD12	2.41	0.56
1:A:815:ARG:NH1	8:A:1114:HOH:O	2.39	0.55
1:A:825:GLU:HB3	8:A:1314:HOH:O	2.07	0.55
1:A:327:LEU:HG	7:A:1010:MES:C7	2.34	0.55
1:A:873:LEU:HD13	7:A:1010:MES:H22	1.89	0.54
1:A:528:GLY:O	1:A:668:LYS:HE3	2.08	0.54
1:A:764:LEU:HG	1:A:765:MET:CE	2.38	0.54
1:A:428:ASP:OD1	1:A:430:GLY:N	2.41	0.53
1:A:493:ASN:ND2	1:A:797:ILE:HD13	2.23	0.53
1:A:562:LYS:NZ	8:A:1112:HOH:O	2.35	0.53
1:A:447:CYS:SG	1:A:450:CYS:HB2	2.48	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:327:LEU:CD1	7:A:1010:MES:H32	2.37	0.51
1:A:327:LEU:CD1	7:A:1010:MES:C7	2.89	0.50
1:A:356:LYS:O	1:A:356:LYS:CD	2.53	0.49
1:A:841:LYS:NZ	8:A:1130:HOH:O	2.46	0.48
1:A:475:TRP:CD1	1:A:475:TRP:N	2.80	0.48
1:A:327:LEU:HD11	7:A:1010:MES:C7	2.45	0.47
1:A:707:PRO:O	4:A:1006:PO4:O4	2.35	0.45
1:A:873:LEU:HD13	7:A:1010:MES:H61	1.98	0.45
1:A:326:ARG:NE	7:A:1010:MES:O1S	2.40	0.44
1:A:716:LEU:HD11	1:A:838:TYR:O	2.18	0.43
1:A:383:LYS:HB3	8:A:1183:HOH:O	2.18	0.43
1:A:337:MET:HG2	8:A:1345:HOH:O	2.19	0.43
1:A:733:GLU:O	1:A:737:ARG:CG	2.67	0.43
1:A:814:ASN:OD1	1:A:830:VAL:N	2.36	0.42
1:A:582:ARG:HG2	1:A:584:THR:OG1	2.19	0.42
1:A:858:THR:HG23	8:A:1459:HOH:O	2.19	0.42
1:A:604:VAL:HA	1:A:797:ILE:CG1	2.50	0.42
1:A:812:VAL:O	1:A:815:ARG:HG3	2.19	0.41
1:A:403:VAL:HG21	1:A:426:VAL:HG21	2.01	0.41
1:A:820:GLU:O	1:A:822:PRO:HD3	2.21	0.41
1:A:327:LEU:CG	7:A:1010:MES:C7	2.96	0.41
1:A:664:ASP:OD1	4:A:1006:PO4:O3	2.39	0.40
1:A:701:ASN:ND2	8:A:1111:HOH:O	2.35	0.40
1:A:428:ASP:OD1	1:A:428:ASP:C	2.60	0.40
1:A:888:ARG:HD2	8:A:1395:HOH:O	2.21	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:A:1245:HOH:O	8:A:1245:HOH:O[2_445]	1.75	0.45

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	576/637 (90%)	549 (95%)	25 (4%)	2 (0%)	37 20

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	420	LYS
1	A	406	ASN

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	518/554 (94%)	502 (97%)	16 (3%)	35 8

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	290	THR
1	A	319	SER
1	A	356	LYS
1	A	375	LYS
1	A	383	LYS
1	A	423	ARG
1	A	426	VAL
1	A	429	SER
1	A	641	ILE
1	A	661	SER
1	A	693	GLN
1	A	815	ARG
1	A	827	LYS
1	A	830	VAL
1	A	851	ILE
1	A	890	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	417	ASN
1	A	493	ASN
1	A	801	HIS
1	A	819	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](#)

Of 10 ligands modelled in this entry, 2 are monoatomic - leaving 8 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	$\# Z > 2$
6	A1BDL	A	1009	-	13,13,13	0.44	0	13,16,16	0.42	0
4	PO4	A	1007	-	4,4,4	0.54	0	6,6,6	0.53	0
5	PEG	A	1008	-	6,6,6	0.16	0	5,5,5	0.13	0
7	MES	A	1010	-	12,12,12	1.87	1 (8%)	15,16,16	1.05	1 (6%)
4	PO4	A	1006	-	4,4,4	0.83	0	6,6,6	0.44	0
3	DMS	A	1003	-	3,3,3	0.21	0	3,3,3	0.12	0
3	DMS	A	1004	-	3,3,3	0.23	0	3,3,3	0.03	0
3	DMS	A	1005	-	3,3,3	0.22	0	3,3,3	0.18	0

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
7	MES	A	1010	-	-	6/6/14/14	0/1/1/1
6	A1BDL	A	1009	-	-	0/4/4/4	0/2/2/2
5	PEG	A	1008	-	-	4/4/4/4	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	A	1010	MES	C8-S	5.96	1.85	1.77

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	A	1010	MES	O2S-S-C8	2.88	111.08	106.73

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	A	1010	MES	C7-C8-S-O1S
7	A	1010	MES	C7-C8-S-O2S
7	A	1010	MES	C7-C8-S-O3S
5	A	1008	PEG	O1-C1-C2-O2
5	A	1008	PEG	O2-C3-C4-O4
7	A	1010	MES	C8-C7-N4-C3
7	A	1010	MES	C8-C7-N4-C5
5	A	1008	PEG	C4-C3-O2-C2
7	A	1010	MES	N4-C7-C8-S
5	A	1008	PEG	C1-C2-O2-C3

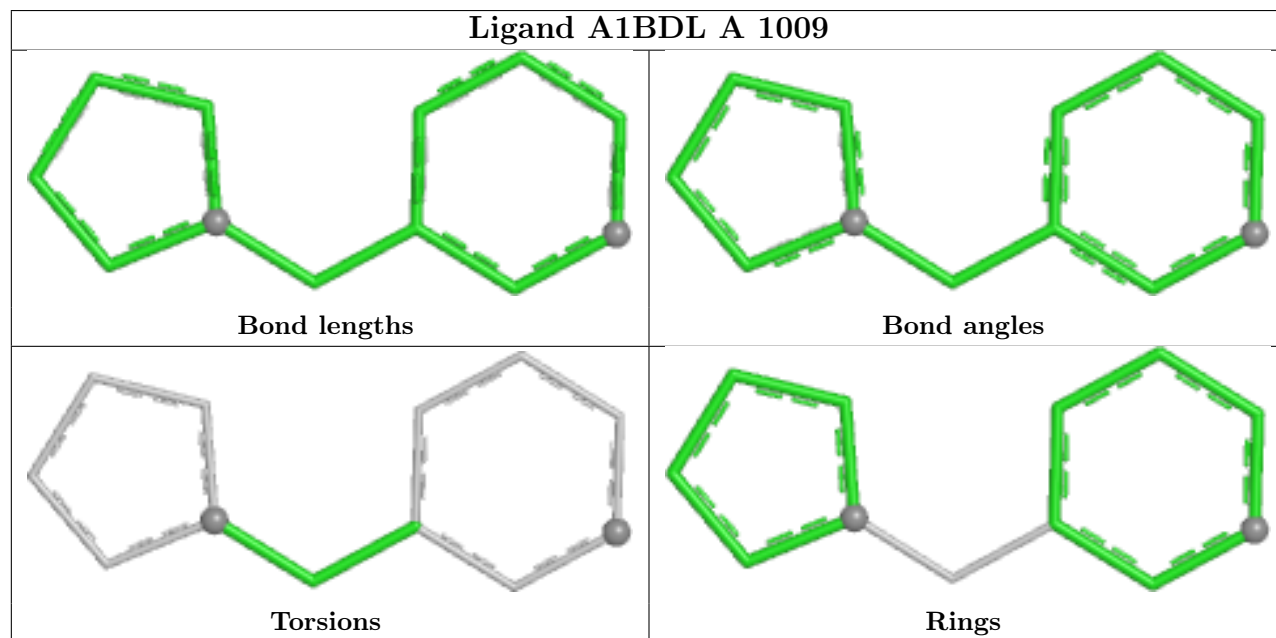
There are no ring outliers.

2 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	1010	MES	15	0
4	A	1006	PO4	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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

Warning: The R factor obtained from EDS is 0.3302, which does not match the depositor's R factor of 0.21107. Please interpret the results in this section carefully.

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	583/637 (91%)	4.06	367 (62%) 0 0	5, 35, 93, 150	139 (23%)

All (367) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	889	PHE	18.0
1	A	409	LEU	16.5
1	A	426	VAL	16.0
1	A	882	TYR	15.9
1	A	407	ALA	15.1
1	A	859	TRP	15.1
1	A	813	TRP	14.5
1	A	851	ILE	14.2
1	A	823	TRP	14.0
1	A	846	TRP	13.8
1	A	810	LEU	13.8
1	A	413	PHE	13.7
1	A	359	VAL	13.6
1	A	512[A]	LEU	13.6
1	A	830	VAL	13.4
1	A	873	LEU	13.3
1	A	885	SER	13.3
1	A	803	TRP	13.3
1	A	879	TYR	13.3
1	A	857	ALA	13.2
1	A	874	ILE	13.2
1	A	836	ILE	12.8
1	A	858	THR	12.7
1	A	860	ALA	12.7

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Mol	Chain	Res	Type	RSRZ
1	A	589	VAL	12.7
1	A	812	VAL	12.6
1	A	833	TRP	12.6
1	A	515	LEU	12.3
1	A	355	PHE	12.2
1	A	839	LEU	12.2
1	A	867	ILE	12.0
1	A	817	TRP	11.9
1	A	886	MET	11.8
1	A	884	PRO	11.7
1	A	866	ALA	11.6
1	A	408	ALA	11.5
1	A	850	LEU	11.3
1	A	838	TYR	11.3
1	A	853	LEU	11.2
1	A	816	VAL	11.1
1	A	811	THR	10.8
1	A	852	GLY	10.8
1	A	865	THR	10.8
1	A	797	ILE	10.7
1	A	603	GLN	10.6
1	A	863	ILE	10.6
1	A	880	THR	10.6
1	A	453	ASN	10.5
1	A	887	LYS	10.3
1	A	356	LYS	10.3
1	A	828	THR	10.3
1	A	719[A]	LYS	10.2
1	A	883	MET	10.2
1	A	763[A]	SER	10.1
1	A	822	PRO	10.1
1	A	507	VAL	10.1
1	A	875	GLY	10.1
1	A	888	ARG	10.0
1	A	551[A]	GLU	10.0
1	A	826	ASP	9.9
1	A	872	SER	9.9
1	A	840	GLY	9.8
1	A	818	ILE	9.6
1	A	829	PRO	9.6
1	A	815	ARG	9.5
1	A	847	CYS	9.5

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Mol	Chain	Res	Type	RSRZ
1	A	600	GLY	9.4
1	A	837	PRO	9.2
1	A	849	SER	9.2
1	A	854	THR	9.1
1	A	861	LYS	9.1
1	A	511	GLY	9.1
1	A	661	SER	9.0
1	A	832	SER	8.9
1	A	869	GLN	8.9
1	A	827	LYS	8.7
1	A	412	ILE	8.6
1	A	834	GLU	8.6
1	A	431	PHE	8.4
1	A	862	ASN	8.3
1	A	856	ARG	8.3
1	A	844	ASP	8.3
1	A	841	LYS	8.3
1	A	848	GLY	8.3
1	A	809	MET	8.2
1	A	785[A]	SER	8.1
1	A	845	GLN	8.1
1	A	855	SER	8.0
1	A	825	GLU	7.9
1	A	808	ASP	7.8
1	A	799	ALA	7.8
1	A	294	TYR	7.7
1	A	814	ASN	7.7
1	A	410	GLY	7.7
1	A	878	GLU	7.6
1	A	290	THR	7.6
1	A	881	ASP	7.6
1	A	383	LYS	7.6
1	A	842	ARG	7.5
1	A	791	SER	7.5
1	A	584	THR	7.4
1	A	876	ASN	7.4
1	A	357	GLU	7.4
1	A	289	GLU	7.3
1	A	583	PRO	7.3
1	A	831	GLU	7.3
1	A	824	MET	7.3
1	A	890	ARG	7.3

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Mol	Chain	Res	Type	RSRZ
1	A	891	ARG	7.3
1	A	877	GLU	7.2
1	A	292	TRP	7.2
1	A	821	ASN	7.2
1	A	298	HIS	7.1
1	A	864[A]	GLN	7.1
1	A	361	THR	7.1
1	A	835	GLU	7.1
1	A	843	GLU	7.0
1	A	441	LEU	7.0
1	A	807	GLU	7.0
1	A	741[A]	SER	7.0
1	A	868	ASN	7.0
1	A	303	TRP	6.9
1	A	591	ASP	6.9
1	A	424	GLU	6.8
1	A	801	HIS	6.8
1	A	800	THR	6.8
1	A	317	ALA	6.8
1	A	599	ARG	6.8
1	A	281	ILE	6.8
1	A	637	VAL	6.8
1	A	570	LYS	6.7
1	A	422	ALA	6.6
1	A	509	GLY	6.6
1	A	645	ASN	6.6
1	A	798	HIS	6.5
1	A	475	TRP	6.5
1	A	474	ILE	6.5
1	A	295	ASP	6.5
1	A	746	TRP	6.4
1	A	305	TYR	6.4
1	A	793	THR	6.4
1	A	411	ALA	6.4
1	A	284	ILE	6.4
1	A	427	GLU	6.3
1	A	820	GLU	6.2
1	A	476	TYR	6.2
1	A	406	ASN	6.2
1	A	286	GLN	6.2
1	A	419	TRP	6.1
1	A	802	GLU	5.9

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Mol	Chain	Res	Type	RSRZ
1	A	871	ARG	5.9
1	A	275	ASP	5.9
1	A	358	LYS	5.9
1	A	428	ASP	5.8
1	A	508	GLU	5.8
1	A	399	PHE	5.7
1	A	309	TYR	5.7
1	A	274	LEU	5.6
1	A	314	THR	5.6
1	A	273	ASN	5.6
1	A	698	ARG	5.6
1	A	742	GLN	5.6
1	A	448	GLU	5.5
1	A	435	VAL	5.4
1	A	405	SER	5.4
1	A	403	VAL	5.4
1	A	451	VAL	5.4
1	A	432	TRP	5.4
1	A	434	LEU	5.3
1	A	297	ASP	5.3
1	A	819	GLN	5.3
1	A	635	LEU	5.3
1	A	634	HIS	5.2
1	A	300	TYR	5.2
1	A	452	TYR	5.2
1	A	288	HIS	5.1
1	A	588	THR	5.1
1	A	601	SER	5.1
1	A	277	ILE	5.1
1	A	563	LYS	5.0
1	A	693	GLN	5.0
1	A	478	TRP	5.0
1	A	638	THR	5.0
1	A	282	GLU	5.0
1	A	318	SER	5.0
1	A	454	MET	5.0
1	A	473	ALA	4.9
1	A	446	LYS	4.9
1	A	792	ARG	4.9
1	A	593	ILE	4.9
1	A	510	GLU	4.8
1	A	580	VAL	4.8

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Mol	Chain	Res	Type	RSRZ
1	A	425	ALA	4.8
1	A	471	SER	4.8
1	A	311	THR	4.7
1	A	279	LYS	4.7
1	A	544	LEU	4.7
1	A	571	LEU	4.7
1	A	363	THR	4.7
1	A	417	ASN	4.7
1	A	790	THR	4.6
1	A	443	LEU	4.6
1	A	418	LYS	4.6
1	A	694	TRP	4.5
1	A	308	SER	4.5
1	A	429	SER	4.5
1	A	592	ILE	4.5
1	A	558	GLU	4.5
1	A	745	GLY	4.5
1	A	479	LEU	4.5
1	A	293	HIS	4.4
1	A	312	LYS	4.4
1	A	582	ARG	4.3
1	A	287	GLU	4.2
1	A	310	GLU	4.2
1	A	596	ARG	4.2
1	A	649	ARG	4.2
1	A	455	MET	4.2
1	A	404	ARG	4.2
1	A	296	GLN	4.2
1	A	644	LYS	4.2
1	A	604	VAL	4.1
1	A	313	GLN	4.1
1	A	484	LEU	4.1
1	A	362	ARG	4.0
1	A	590	MET	4.0
1	A	472	ARG	4.0
1	A	643	VAL	4.0
1	A	301	LYS	4.0
1	A	304	ALA	4.0
1	A	695	GLU	3.9
1	A	278	GLY	3.9
1	A	421	SER	3.8
1	A	442	HIS	3.8

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Mol	Chain	Res	Type	RSRZ
1	A	670	LEU	3.8
1	A	744	ALA	3.8
1	A	360	ASP	3.8
1	A	648	VAL	3.8
1	A	650	VAL	3.8
1	A	302	THR	3.8
1	A	344	THR	3.8
1	A	691	ILE	3.8
1	A	433	GLU	3.7
1	A	562	LYS	3.7
1	A	577	VAL	3.7
1	A	401	ARG	3.7
1	A	481	ALA	3.7
1	A	564	LEU	3.7
1	A	647	LEU	3.7
1	A	641	ILE	3.7
1	A	581	GLN	3.6
1	A	567	ALA	3.6
1	A	423	ARG	3.5
1	A	679	THR	3.5
1	A	393	MET	3.5
1	A	299	PRO	3.5
1	A	449	THR	3.5
1	A	365	GLU	3.5
1	A	319	SER	3.4
1	A	578	VAL	3.4
1	A	285	LYS	3.4
1	A	447	CYS	3.4
1	A	482	ARG	3.3
1	A	632	ILE	3.3
1	A	717	ILE	3.3
1	A	750	GLU	3.3
1	A	370	THR	3.3
1	A	636	THR	3.3
1	A	439	ARG	3.3
1	A	364	GLN	3.3
1	A	337	MET	3.2
1	A	402	LYS	3.2
1	A	430	GLY	3.2
1	A	367	LYS	3.2
1	A	436	ASP	3.2
1	A	575	ASN	3.1

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Mol	Chain	Res	Type	RSRZ
1	A	629	PHE	3.1
1	A	307	GLY	3.1
1	A	291	SER	3.1
1	A	394	CYS	3.1
1	A	276	ILE	3.1
1	A	642	ALA	3.1
1	A	692	GLN	3.1
1	A	602	GLY	3.0
1	A	368	GLU	3.0
1	A	646	TRP	3.0
1	A	486	PHE	3.0
1	A	420	LYS	3.0
1	A	445	GLY	3.0
1	A	395	THR	3.0
1	A	396	ARG	3.0
1	A	438	GLU	3.0
1	A	483	PHE	3.0
1	A	543	THR	2.9
1	A	703	TRP	2.9
1	A	373	LEU	2.9
1	A	450	CYS	2.9
1	A	699	GLY	2.9
1	A	437	LYS	2.9
1	A	652	ARG	2.9
1	A	556	HIS	2.9
1	A	480	GLY	2.9
1	A	283	LYS	2.9
1	A	534	ASP	2.9
1	A	477	MET	2.8
1	A	566	GLU	2.8
1	A	633	GLN	2.8
1	A	489	LEU	2.8
1	A	680	ALA	2.8
1	A	683	ASP	2.7
1	A	687	VAL	2.7
1	A	568	ILE	2.7
1	A	630	LYS	2.6
1	A	440	ASN	2.6
1	A	559	GLY	2.6
1	A	400	THR	2.6
1	A	572	THR	2.6
1	A	676	SER	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	788	VAL	2.5
1	A	579	ARG	2.5
1	A	605	VAL	2.4
1	A	723	VAL	2.4
1	A	444	GLU	2.4
1	A	631	SER	2.4
1	A	565	ALA	2.4
1	A	569	PHE	2.4
1	A	627	GLY	2.4
1	A	388	LYS	2.4
1	A	366	PRO	2.4
1	A	376	ILE	2.3
1	A	380	TRP	2.3
1	A	721	GLY	2.3
1	A	540	THR	2.3
1	A	375	LYS	2.3
1	A	597	ASP	2.3
1	A	488	ALA	2.3
1	A	397	GLU	2.3
1	A	552	MET	2.3
1	A	595	ARG	2.2
1	A	716	LEU	2.2
1	A	764	LEU	2.2
1	A	306	HIS	2.2
1	A	573	TYR	2.2
1	A	787	TRP	2.2
1	A	545	GLU	2.2
1	A	598	GLN	2.2
1	A	662	GLY	2.2
1	A	561	HIS	2.2
1	A	542	ILE	2.2
1	A	628	VAL	2.1
1	A	493	ASN	2.1
1	A	378	ALA	2.1
1	A	639	GLU	2.1
1	A	536	ALA	2.1
1	A	372	LYS	2.1
1	A	398	GLU	2.1
1	A	498	PHE	2.1
1	A	690	ASP	2.1
1	A	491	PHE	2.1
1	A	504	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	678	LEU	2.1
1	A	743	GLY	2.1
1	A	371	LYS	2.0
1	A	701	ASN	2.0
1	A	554	THR	2.0
1	A	685	GLY	2.0
1	A	576	LYS	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](#)

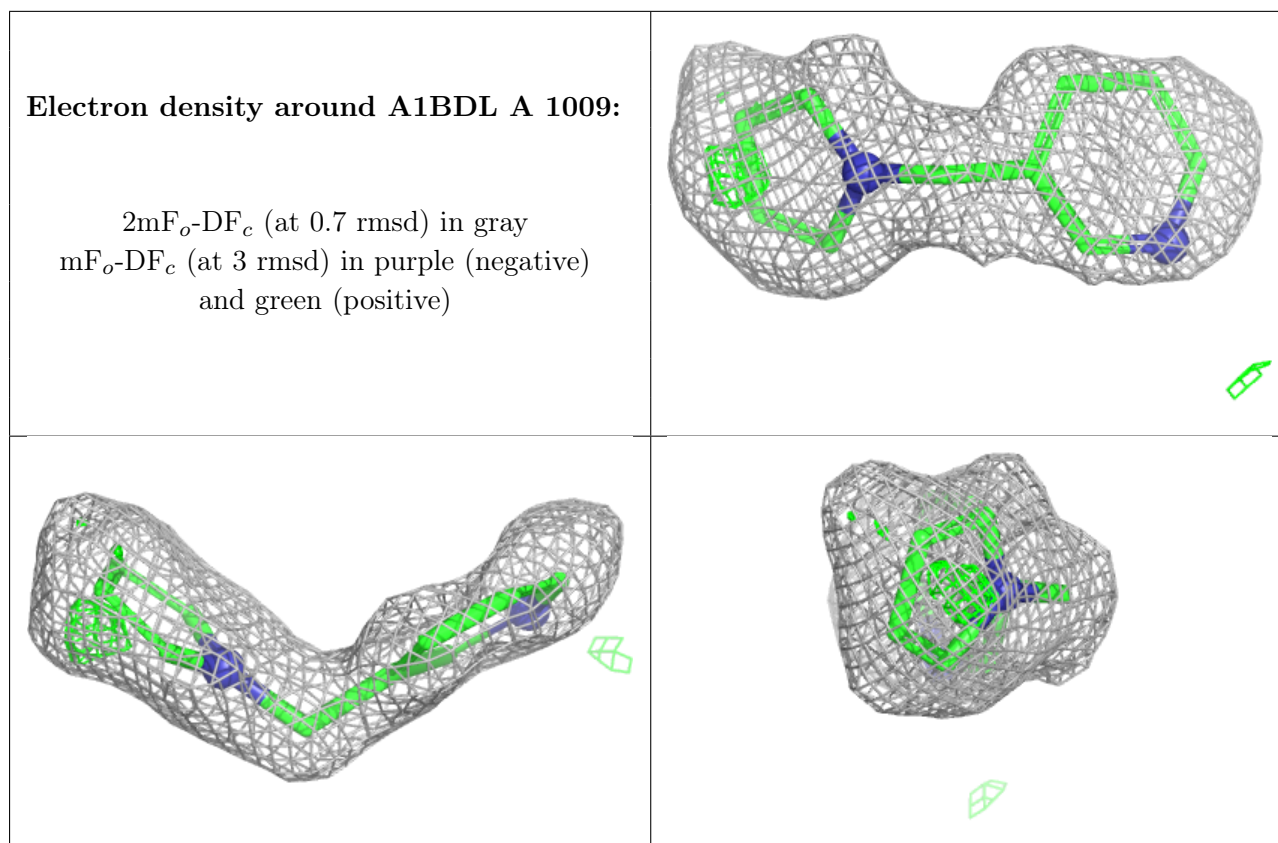
There are no monosaccharides in this entry.

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(Å ²)	Q<0.9
3	DMS	A	1004	4/4	0.08	0.56	81,85,85,86	4
3	DMS	A	1005	4/4	0.50	0.55	47,51,52,52	4
4	PO4	A	1006	5/5	0.54	0.52	60,68,70,75	5
4	PO4	A	1007	5/5	0.58	0.26	47,48,52,56	5
5	PEG	A	1008	7/7	0.59	0.46	42,44,47,48	7
3	DMS	A	1003	4/4	0.73	0.60	88,91,91,92	4
6	A1BDL	A	1009	12/12	0.78	0.18	18,19,20,21	12
7	MES	A	1010	12/12	0.93	0.25	17,71,78,793	12
2	ZN	A	1001	1/1	0.97	0.40	25,25,25,25	1
2	ZN	A	1002	1/1	0.99	0.05	51,51,51,51	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



6.5 Other polymers [i](#)

There are no such residues in this entry.