Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 08:24 AM UTC

PDB ID	:	7HKT / pdb_00007hkt
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 Z1983897532 (DNV2_NS5A-x0615)
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	:	1.92 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:

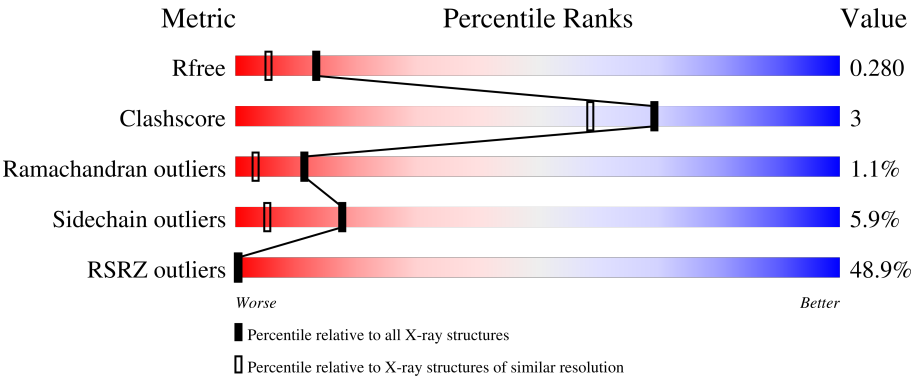
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 1.92 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	1188 (1.92-1.92)
Clashscore	190562	1209 (1.92-1.92)
Ramachandran outliers	187476	1195 (1.92-1.92)
Sidechain outliers	187428	1195 (1.92-1.92)
RSRZ outliers	180081	1188 (1.92-1.92)

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	637	45% 80% 10% • 8%

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) : 2.49

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
6	PO4	A	1008	-	-	X	-

2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 5339 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	4822	3036	865	887	34	0	7	0

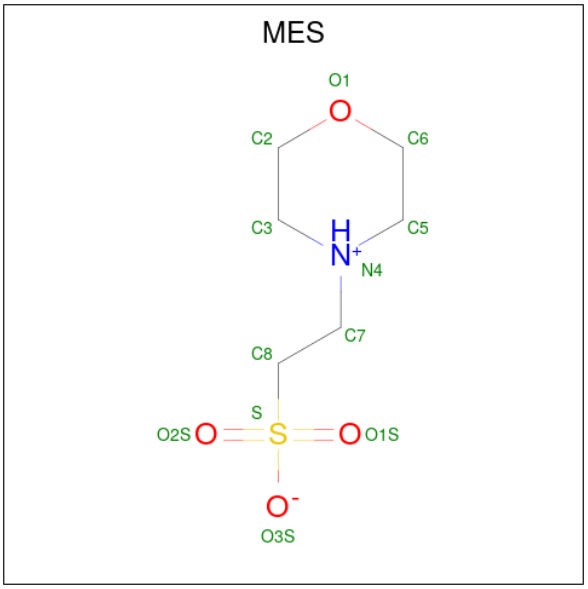
There are 2 discrepancies between the modelled and reference sequences:

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 (CCD ID: ZN) (formula: Zn).

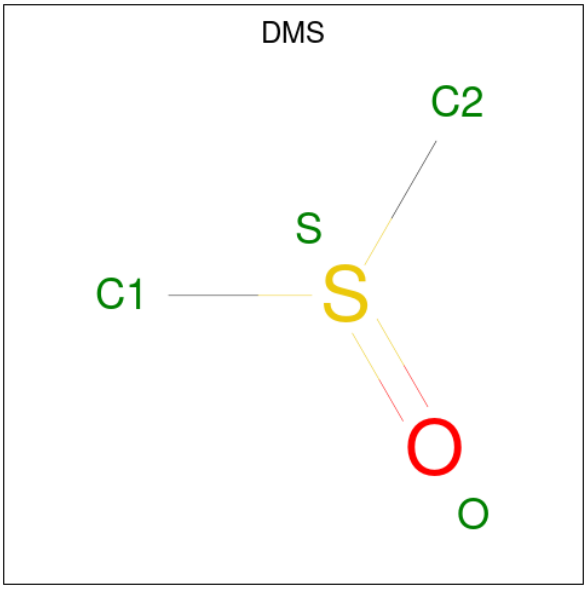
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Zn		
2	A	2	2	2	0	0

- Molecule 3 is 2-(N-MORPHOLINO)-ETHANESULFONIC ACID (CCD ID: MES) (formula: $C_6H_{13}NO_4S$).



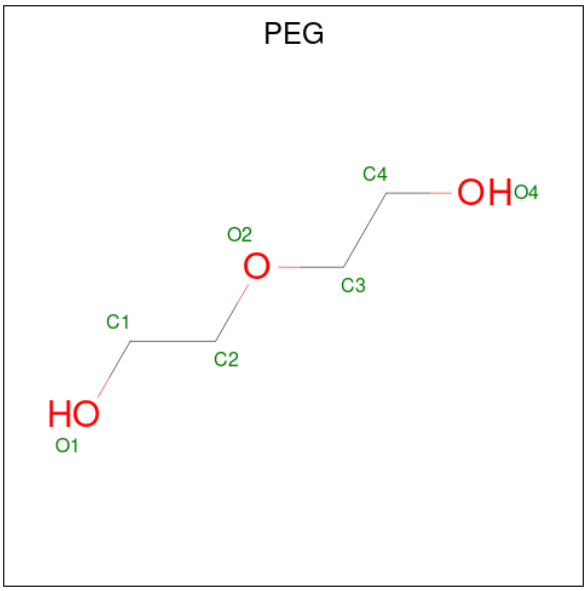
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	1
			24	12	2	8	2		

- Molecule 4 is DIMETHYL SULFOXIDE (CCD ID: DMS) (formula: C_2H_6OS).



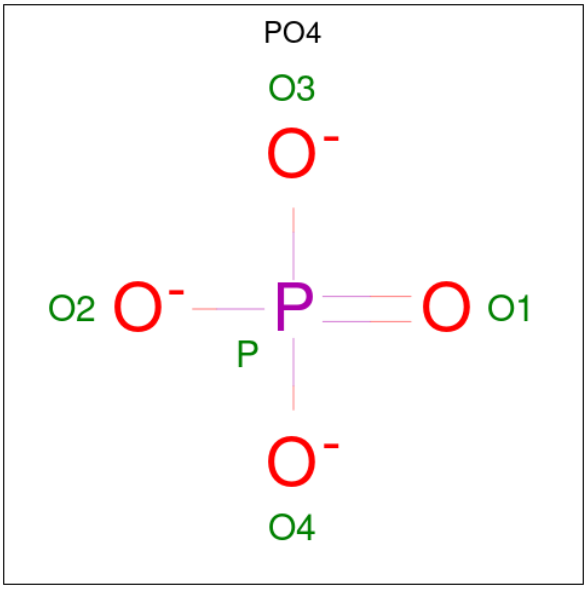
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	O	S	0	0
			4	2	1	1		
4	A	1	Total	C	O	S	0	0
			4	2	1	1		
4	A	1	Total	C	O	S	0	0
			4	2	1	1		

- Molecule 5 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



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

- Molecule 6 is PHOSPHATE ION (CCD ID: PO4) (formula: O_4P).



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

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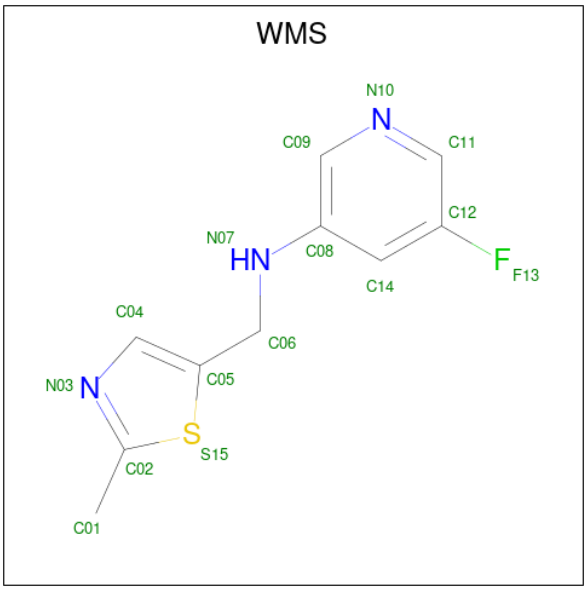
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total O P 5 4 1	0	0

- Molecule 7 is 5-fluoro-N-[(2-methyl-1,3-thiazol-5-yl)methyl]pyridin-3-amine (CCD ID: WMS) (formula: $C_{10}H_{10}FN_3S$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total C F N S 15 10 1 3 1	0	1
7	A	1	Total C F N S 15 10 1 3 1	0	0

- Molecule 8 is water.

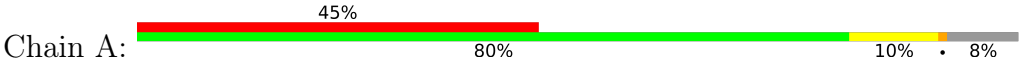
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	A	417	Total O 418 418	0	1

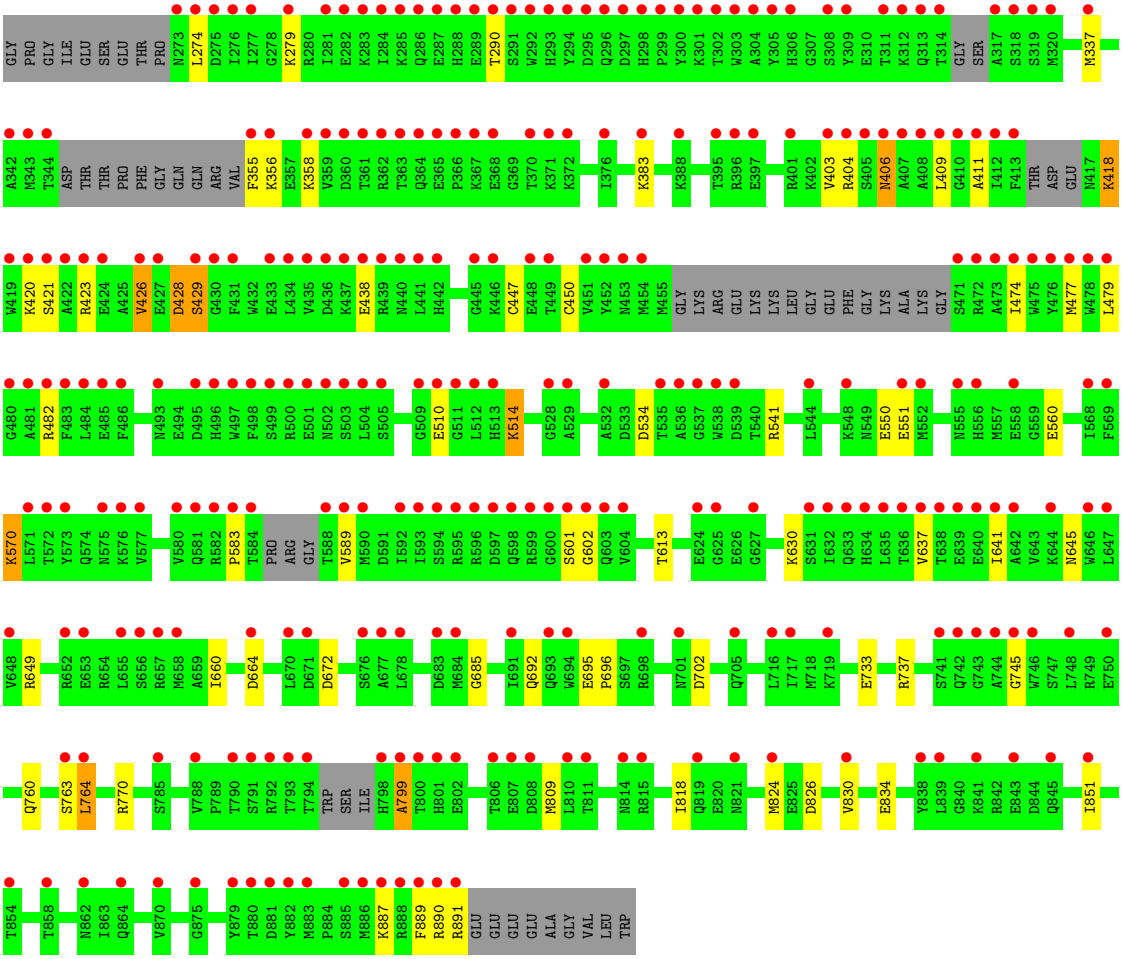
3 Residue-property plots (i)

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 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: Genome polyprotein

Chain A:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, α, β, γ	82.38Å 116.17Å 146.92Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.63 – 1.92 49.63 – 1.92	Depositor EDS
% Data completeness (in resolution range)	95.8 (49.63-1.92) 95.9 (49.63-1.92)	Depositor EDS
R_{merge}	0.23	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.00 (at 1.92Å)	Xtriage
Refinement program	REFMAC 5.8.0267, REFMAC5	Depositor
R, R_{free}	0.212 , 0.255 0.260 , 0.280	Depositor DCC
R_{free} test set	2779 reflections (5.14%)	wwPDB-VP
Wilson B-factor (Å^2)	37.9	Xtriage
Anisotropy	0.340	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 100.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	5339	wwPDB-VP
Average B, all atoms (Å^2)	63.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.42% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: PO4, DMS, ZN, MES, PEG, WMS

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	1.03	0/4929	1.40	3/6645 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	583	PRO	N-CA-C	6.14	122.71	113.81
1	A	702	ASP	CA-CB-CG	5.21	117.81	112.60
1	A	672	ASP	CB-CA-C	5.09	119.43	110.37

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4822	0	4721	30	0
2	A	2	0	0	0	0
3	A	24	0	26	0	0
4	A	12	0	18	4	0
5	A	21	0	30	1	1
6	A	10	0	0	4	0
7	A	30	0	0	1	0
8	A	418	0	0	9	2

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	5339	0	4795	34	3

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 3.

All (34) 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:733:GLU:O	1:A:737:ARG:HG3	2.01	0.61
4:A:1004:DMS:C1	8:A:1329:HOH:O	2.50	0.59
1:A:534:ASP:OD1	6:A:1008:PO4:P	2.61	0.59
1:A:337:MET:HG2	8:A:1338:HOH:O	2.03	0.58
1:A:760:GLN:CD	1:A:809:MET:HE3	2.30	0.57
1:A:510:GLU:O	1:A:514:LYS:HG3	2.07	0.55
1:A:534:ASP:OD1	6:A:1008:PO4:O4	2.26	0.54
1:A:745:GLY:N	8:A:1117:HOH:O	2.44	0.51
1:A:826:ASP:OD1	1:A:826:ASP:C	2.52	0.51
1:A:799:ALA:HB2	7:A:1013:WMS:C04	2.41	0.50
1:A:550:GLU:OE2	1:A:613:THR:OG1	2.25	0.50
1:A:411:ALA:HB2	1:A:479:LEU:HD13	1.94	0.49
1:A:428:ASP:CG	1:A:429:SER:N	2.71	0.49
1:A:664:ASP:OD1	6:A:1008:PO4:P	2.71	0.49
1:A:409:LEU:HD22	8:A:1508:HOH:O	2.13	0.48
1:A:403:VAL:HG21	1:A:426:VAL:HG21	1.95	0.48
1:A:664:ASP:OD1	6:A:1008:PO4:O4	2.32	0.48
1:A:602:GLY:HA3	8:A:1196:HOH:O	2.15	0.46
1:A:760:GLN:NE2	1:A:809:MET:HE3	2.31	0.46
1:A:770:ARG:HD2	1:A:851:ILE:HD13	1.97	0.46
1:A:889:PHE:O	1:A:891:ARG:N	2.48	0.46
1:A:541:ARG:HD2	1:A:685:GLY:O	2.17	0.44
1:A:764:LEU:HD12	1:A:764:LEU:HA	1.85	0.44
5:A:1009:PEG:H32	8:A:1276:HOH:O	2.18	0.44
1:A:406:ASN:OD1	1:A:423:ARG:NH1	2.49	0.43
1:A:645:ASN:O	1:A:649:ARG:HB2	2.19	0.42
1:A:447:CYS:SG	1:A:450:CYS:HB2	2.60	0.42
1:A:834:GLU:HA	4:A:1005:DMS:H12	2.00	0.42
1:A:570:LYS:HG3	8:A:1202:HOH:O	2.20	0.41
1:A:818:ILE:HD13	1:A:824:MET:HE3	2.02	0.41
1:A:551[A]:GLU:HG2	1:A:551[A]:GLU:O	2.20	0.41
4:A:1004:DMS:H11	8:A:1329:HOH:O	2.19	0.40
1:A:695:GLU:HA	1:A:696:PRO:HD3	1.98	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:1004:DMS:H12	8:A:1281:HOH:O	2.22	0.40

All (3) 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:1282:HOH:O	8:A:1416:HOH:O[2_545]	1.87	0.33
8:A:1180:HOH:O	8:A:1180:HOH:O[2_445]	2.13	0.07
5:A:1009:PEG:O2	5:A:1009:PEG:O2[2_545]	2.15	0.05

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%)	543 (94%)	27 (5%)	6 (1%)	12 4

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	418	LYS
1	A	420	LYS
1	A	601	SER
1	A	799	ALA
1	A	890	ARG
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%)	487 (94%)	31 (6%)	17 5

All (31) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	274	LEU
1	A	279	LYS
1	A	290	THR
1	A	355	PHE
1	A	356	LYS
1	A	358	LYS
1	A	383	LYS
1	A	404	ARG
1	A	418	LYS
1	A	421	SER
1	A	426	VAL
1	A	428	ASP
1	A	429	SER
1	A	438	GLU
1	A	474	ILE
1	A	477	MET
1	A	482	ARG
1	A	514	LYS
1	A	560	GLU
1	A	570	LYS
1	A	589	VAL
1	A	630	LYS
1	A	637	VAL
1	A	641	ILE
1	A	660	ILE
1	A	692	GLN
1	A	763[A]	SER
1	A	763[B]	SER
1	A	764	LEU
1	A	830	VAL
1	A	887	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	273	ASN
1	A	288	HIS
1	A	513	HIS
1	A	693	GLN
1	A	786	HIS
1	A	862	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 oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 14 ligands modelled in this entry, 2 are monoatomic - leaving 12 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	$\#\|Z\| > 2$
7	WMS	A	1013	-	16,16,16	0.24	0	19,21,21	0.50	0
4	DMS	A	1005	-	3,3,3	0.28	0	3,3,3	0.07	0
5	PEG	A	1007	-	6,6,6	0.20	0	5,5,5	0.10	0
3	MES	A	1003[A]	-	12,12,12	0.70	0	15,16,16	0.32	0
5	PEG	A	1009	-	6,6,6	0.21	0	5,5,5	0.20	0
3	MES	A	1003[B]	-	12,12,12	0.69	0	15,16,16	0.49	0
6	PO4	A	1008	-	4,4,4	1.90	1 (25%)	6,6,6	0.73	0
6	PO4	A	1010	-	4,4,4	0.78	0	6,6,6	0.42	0
7	WMS	A	1012[A]	-	16,16,16	0.25	0	19,21,21	0.51	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	DMS	A	1004	-	3,3,3	0.19	0	3,3,3	0.23	0
4	DMS	A	1006	-	3,3,3	0.22	0	3,3,3	0.31	0
5	PEG	A	1011	-	6,6,6	0.17	0	5,5,5	0.10	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	WMS	A	1013	-	-	2/5/5/5	0/2/2/2
5	PEG	A	1007	-	-	1/4/4/4	-
5	PEG	A	1009	-	-	2/4/4/4	-
3	MES	A	1003[A]	-	-	3/6/14/14	0/1/1/1
3	MES	A	1003[B]	-	-	5/6/14/14	0/1/1/1
7	WMS	A	1012[A]	-	-	3/5/5/5	0/2/2/2
5	PEG	A	1011	-	-	2/4/4/4	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	1008	PO4	P-O1	3.66	1.59	1.50

There are no bond angle outliers.

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1003[A]	MES	C7-C8-S-O1S
3	A	1003[A]	MES	C7-C8-S-O3S
3	A	1003[B]	MES	C8-C7-N4-C3
7	A	1012[A]	WMS	C05-C06-N07-C08
7	A	1012[A]	WMS	C09-C08-N07-C06
7	A	1012[A]	WMS	C14-C08-N07-C06
3	A	1003[B]	MES	C7-C8-S-O3S
5	A	1009	PEG	O2-C3-C4-O4
5	A	1011	PEG	O2-C3-C4-O4
3	A	1003[B]	MES	C8-C7-N4-C5
3	A	1003[A]	MES	C7-C8-S-O2S
3	A	1003[B]	MES	C7-C8-S-O1S

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Mol	Chain	Res	Type	Atoms
3	A	1003[B]	MES	C7-C8-S-O2S
5	A	1007	PEG	O1-C1-C2-O2
5	A	1009	PEG	C1-C2-O2-C3
7	A	1013	WMS	C04-C05-C06-N07
5	A	1011	PEG	C4-C3-O2-C2
7	A	1013	WMS	S15-C05-C06-N07

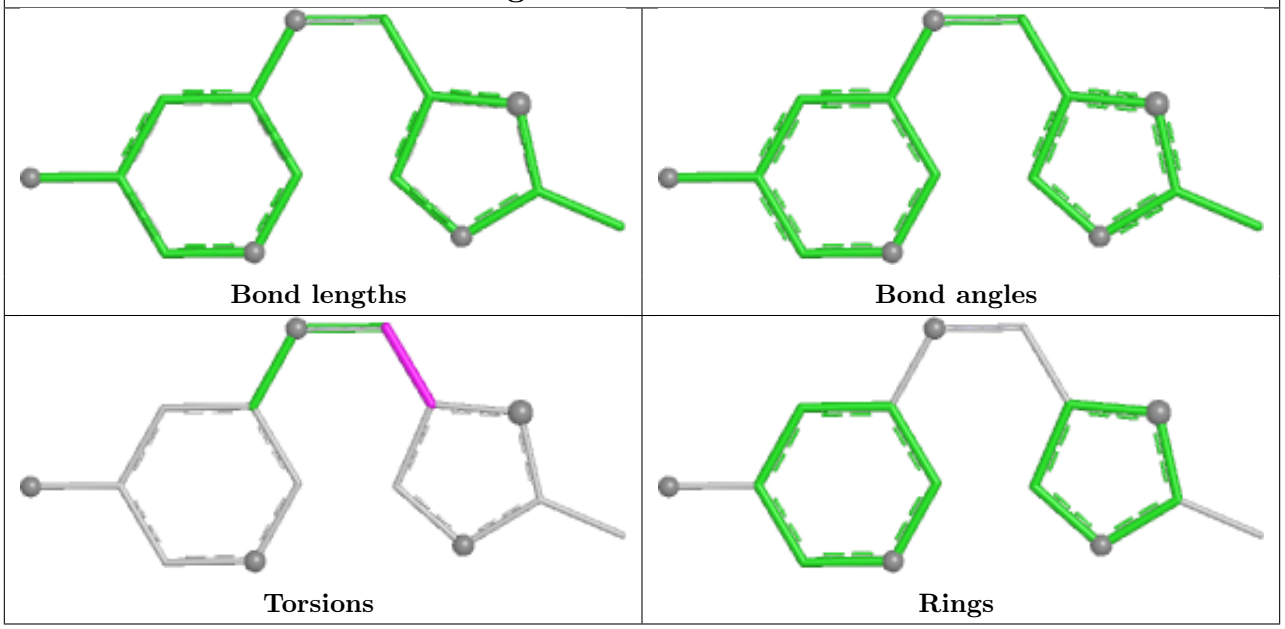
There are no ring outliers.

5 monomers are involved in 11 short contacts:

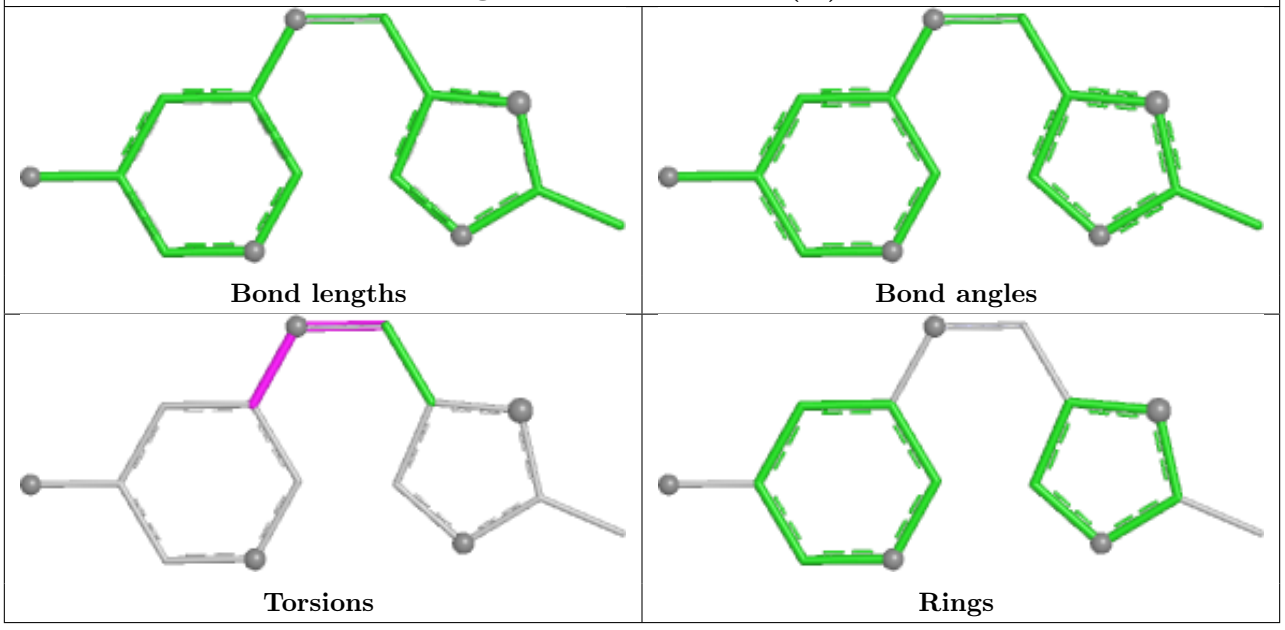
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	1013	WMS	1	0
4	A	1005	DMS	1	0
5	A	1009	PEG	1	1
6	A	1008	PO4	4	0
4	A	1004	DMS	3	0

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 then 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.

Ligand WMS A 1013



Ligand WMS A 1012 (A)



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	583/637 (91%)	2.90	285 (48%)	0	0	9, 44, 118, 162	144 (24%)

All (285) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	475	TRP	12.2
1	A	435	VAL	11.5
1	A	593	ILE	11.1
1	A	839	LEU	10.7
1	A	635	LEU	10.5
1	A	580	VAL	10.5
1	A	716	LEU	10.3
1	A	632	ILE	10.2
1	A	691	ILE	10.1
1	A	717	ILE	10.1
1	A	483	PHE	10.0
1	A	571	LEU	10.0
1	A	637	VAL	10.0
1	A	434	LEU	10.0
1	A	810	LEU	10.0
1	A	479	LEU	9.7
1	A	431	PHE	9.5
1	A	641	ILE	9.4
1	A	573	TYR	9.4
1	A	292	TRP	9.4
1	A	636	THR	9.4
1	A	785[A]	SER	9.3
1	A	484	LEU	9.3
1	A	763[A]	SER	9.3
1	A	481	ALA	9.3
1	A	480	GLY	9.2
1	A	838	TYR	9.2

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Mol	Chain	Res	Type	RSRZ
1	A	395	THR	9.1
1	A	359	VAL	9.1
1	A	851	ILE	9.0
1	A	366	PRO	8.9
1	A	276	ILE	8.6
1	A	512[A]	LEU	8.6
1	A	589	VAL	8.5
1	A	511	GLY	8.5
1	A	858	THR	8.4
1	A	370	THR	8.4
1	A	294	TYR	8.3
1	A	594	SER	8.3
1	A	799	ALA	8.2
1	A	474	ILE	8.2
1	A	601	SER	8.2
1	A	303	TRP	8.1
1	A	277	ILE	8.1
1	A	572	THR	8.1
1	A	304	ALA	8.1
1	A	788	VAL	8.1
1	A	293	HIS	8.1
1	A	363	THR	8.0
1	A	476	TYR	8.0
1	A	361	THR	7.8
1	A	814	ASN	7.8
1	A	639	GLU	7.8
1	A	485	GLU	7.7
1	A	411	ALA	7.7
1	A	551[A]	GLU	7.6
1	A	741[A]	SER	7.6
1	A	684	MET	7.6
1	A	305	TYR	7.5
1	A	705	GLN	7.4
1	A	274	LEU	7.4
1	A	638	THR	7.4
1	A	419	TRP	7.4
1	A	745	GLY	7.3
1	A	439	ARG	7.3
1	A	800	THR	7.3
1	A	698	ARG	7.3
1	A	798	HIS	7.2
1	A	299	PRO	7.2

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Mol	Chain	Res	Type	RSRZ
1	A	452	TYR	7.1
1	A	600	GLY	7.1
1	A	633	GLN	7.1
1	A	314	THR	7.0
1	A	284	ILE	6.9
1	A	790	THR	6.9
1	A	864[A]	GLN	6.9
1	A	504	LEU	6.8
1	A	482	ARG	6.8
1	A	808	ASP	6.8
1	A	438	GLU	6.7
1	A	575	ASN	6.7
1	A	510	GLU	6.6
1	A	634	HIS	6.5
1	A	311	THR	6.4
1	A	599	ARG	6.4
1	A	372	LYS	6.4
1	A	576	LYS	6.4
1	A	640	GLU	6.3
1	A	719[A]	LYS	6.3
1	A	367	LYS	6.2
1	A	801	HIS	6.2
1	A	655	LEU	6.2
1	A	581	GLN	6.2
1	A	451	VAL	6.1
1	A	582	ARG	6.1
1	A	656	SER	6.0
1	A	295	ASP	6.0
1	A	598	GLN	6.0
1	A	397	GLU	6.0
1	A	539	ASP	5.9
1	A	453	ASN	5.9
1	A	590	MET	5.9
1	A	360	ASP	5.9
1	A	371	LYS	5.8
1	A	841	LYS	5.8
1	A	862	ASN	5.8
1	A	396	ARG	5.7
1	A	807	GLU	5.7
1	A	498	PHE	5.7
1	A	882	TYR	5.6
1	A	436	ASP	5.6

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Mol	Chain	Res	Type	RSRZ
1	A	595	ARG	5.6
1	A	317	ALA	5.6
1	A	437	LYS	5.6
1	A	412	ILE	5.5
1	A	505	SER	5.5
1	A	300	TYR	5.4
1	A	422	ALA	5.4
1	A	596	ARG	5.3
1	A	657	ARG	5.3
1	A	302	THR	5.3
1	A	358	LYS	5.3
1	A	449	THR	5.3
1	A	433	GLU	5.2
1	A	312	LYS	5.2
1	A	388	LYS	5.1
1	A	427	GLU	5.1
1	A	597	ASP	5.1
1	A	440	ASN	5.0
1	A	298	HIS	5.0
1	A	794	THR	5.0
1	A	407	ALA	4.9
1	A	881	ASP	4.9
1	A	355	PHE	4.9
1	A	683	ASP	4.8
1	A	880	THR	4.8
1	A	509	GLY	4.8
1	A	744	ALA	4.8
1	A	442	HIS	4.7
1	A	403	VAL	4.7
1	A	499	SER	4.7
1	A	275	ASP	4.7
1	A	592	ILE	4.7
1	A	843	GLU	4.6
1	A	368	GLU	4.6
1	A	513	HIS	4.6
1	A	544	LEU	4.6
1	A	746	TRP	4.5
1	A	301	LYS	4.5
1	A	793	THR	4.5
1	A	658	MET	4.4
1	A	627	GLY	4.4
1	A	309	TYR	4.4

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Mol	Chain	Res	Type	RSRZ
1	A	448	GLU	4.3
1	A	413	PHE	4.3
1	A	273	ASN	4.3
1	A	290	THR	4.3
1	A	306	HIS	4.2
1	A	536	ALA	4.2
1	A	500	ARG	4.2
1	A	408	ALA	4.2
1	A	845	GLN	4.1
1	A	286	GLN	4.0
1	A	653	GLU	4.0
1	A	313	GLN	4.0
1	A	802	GLU	4.0
1	A	308	SER	4.0
1	A	569	PHE	4.0
1	A	441	LEU	3.9
1	A	365	GLU	3.9
1	A	288	HIS	3.9
1	A	405	SER	3.8
1	A	424	GLU	3.8
1	A	287	GLU	3.8
1	A	297	ASP	3.7
1	A	583	PRO	3.7
1	A	889	PHE	3.7
1	A	426	VAL	3.7
1	A	362	ARG	3.7
1	A	445	GLY	3.6
1	A	478	TRP	3.6
1	A	502	ASN	3.6
1	A	528	GLY	3.5
1	A	584	THR	3.5
1	A	291	SER	3.4
1	A	404	ARG	3.4
1	A	743	GLY	3.4
1	A	875	GLY	3.4
1	A	535	THR	3.4
1	A	750	GLU	3.4
1	A	473	ALA	3.3
1	A	503	SER	3.3
1	A	454	MET	3.3
1	A	344	THR	3.3
1	A	364	GLN	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	791	SER	3.2
1	A	409	LEU	3.1
1	A	501	GLU	3.1
1	A	289	GLU	3.1
1	A	652	ARG	3.1
1	A	806	THR	3.1
1	A	493	ASN	3.0
1	A	337	MET	3.0
1	A	764	LEU	2.9
1	A	296	GLN	2.9
1	A	883	MET	2.9
1	A	664	ASP	2.9
1	A	830	VAL	2.8
1	A	279	LYS	2.8
1	A	538	TRP	2.8
1	A	410	GLY	2.8
1	A	430	GLY	2.8
1	A	588	THR	2.8
1	A	282	GLU	2.8
1	A	320	MET	2.7
1	A	647	LEU	2.7
1	A	420	LYS	2.7
1	A	886	MET	2.6
1	A	811	THR	2.6
1	A	356	LYS	2.6
1	A	548	LYS	2.6
1	A	676	SER	2.6
1	A	537	GLY	2.6
1	A	888	ARG	2.6
1	A	555	ASN	2.6
1	A	890	ARG	2.6
1	A	446	LYS	2.6
1	A	677	ALA	2.6
1	A	854	THR	2.6
1	A	406	ASN	2.5
1	A	529	ALA	2.5
1	A	556	HIS	2.5
1	A	577	VAL	2.5
1	A	631	SER	2.5
1	A	495	ASP	2.5
1	A	285	LYS	2.5
1	A	879	TYR	2.5

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Mol	Chain	Res	Type	RSRZ
1	A	815	ARG	2.5
1	A	885	SER	2.5
1	A	602	GLY	2.4
1	A	821	ASN	2.4
1	A	281	ILE	2.4
1	A	477	MET	2.4
1	A	642	ALA	2.4
1	A	693	GLN	2.4
1	A	671	ASP	2.3
1	A	646	TRP	2.3
1	A	819	GLN	2.3
1	A	342	ALA	2.3
1	A	376	ILE	2.3
1	A	319	SER	2.3
1	A	792	ARG	2.3
1	A	604	VAL	2.3
1	A	824	MET	2.3
1	A	742	GLN	2.3
1	A	701	ASN	2.3
1	A	887	LYS	2.3
1	A	486	PHE	2.2
1	A	624	GLU	2.2
1	A	283	LYS	2.2
1	A	383	LYS	2.2
1	A	497	TRP	2.2
1	A	648	VAL	2.2
1	A	644	LYS	2.2
1	A	401	ARG	2.2
1	A	472	ARG	2.2
1	A	471	SER	2.2
1	A	670	LEU	2.2
1	A	421	SER	2.1
1	A	678	LEU	2.1
1	A	343	MET	2.1
1	A	552	MET	2.1
1	A	568	ILE	2.1
1	A	625	GLY	2.1
1	A	870	VAL	2.1
1	A	558	GLU	2.1
1	A	748	LEU	2.1
1	A	532	ALA	2.1
1	A	496	HIS	2.0

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Mol	Chain	Res	Type	RSRZ
1	A	603	GLN	2.0
1	A	694	TRP	2.0
1	A	423	ARG	2.0
1	A	891	ARG	2.0
1	A	318	SER	2.0
1	A	429	SER	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.4 Ligands (i)

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

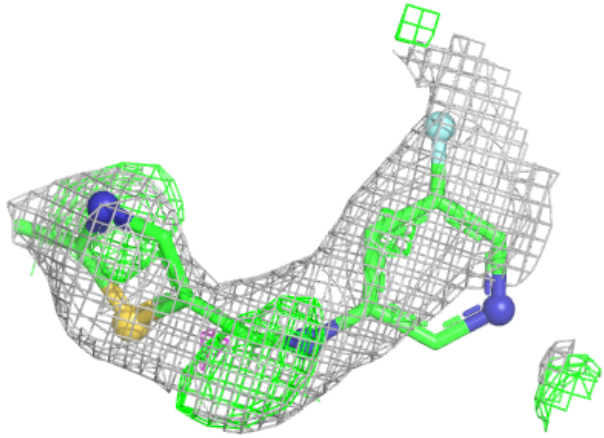
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
5	PEG	A	1007	7/7	0.56	0.22	98,101,110,118	0
7	WMS	A	1012[A]	15/15	0.73	0.36	42,47,54,55	15
6	PO4	A	1010	5/5	0.76	0.13	94,109,113,118	0
7	WMS	A	1013	15/15	0.77	0.18	41,44,47,50	15
6	PO4	A	1008	5/5	0.78	0.15	48,54,61,79	0
5	PEG	A	1009	7/7	0.78	0.18	106,116,124,131	0
5	PEG	A	1011	7/7	0.86	0.13	82,84,88,89	0
4	DMS	A	1005	4/4	0.88	0.18	76,93,93,94	0
4	DMS	A	1004	4/4	0.94	0.14	68,68,68,78	0
3	MES	A	1003[A]	12/12	0.94	0.27	873,892,918,919	12
3	MES	A	1003[B]	12/12	0.94	0.27	32,41,46,46	12
4	DMS	A	1006	4/4	0.95	0.12	65,67,69,75	0
2	ZN	A	1001	1/1	0.99	0.05	33,33,33,33	0
2	ZN	A	1002	1/1	0.99	0.04	66,66,66,66	0

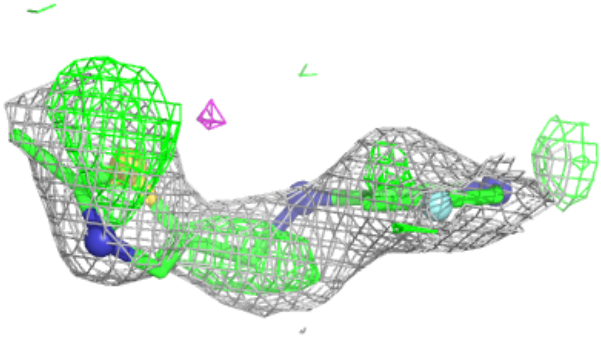
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers

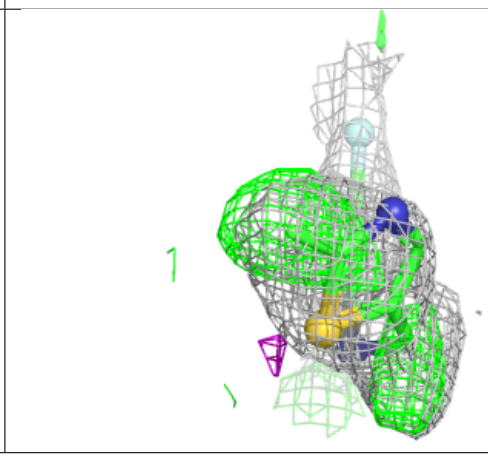
as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around WMS A 1012 (A):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

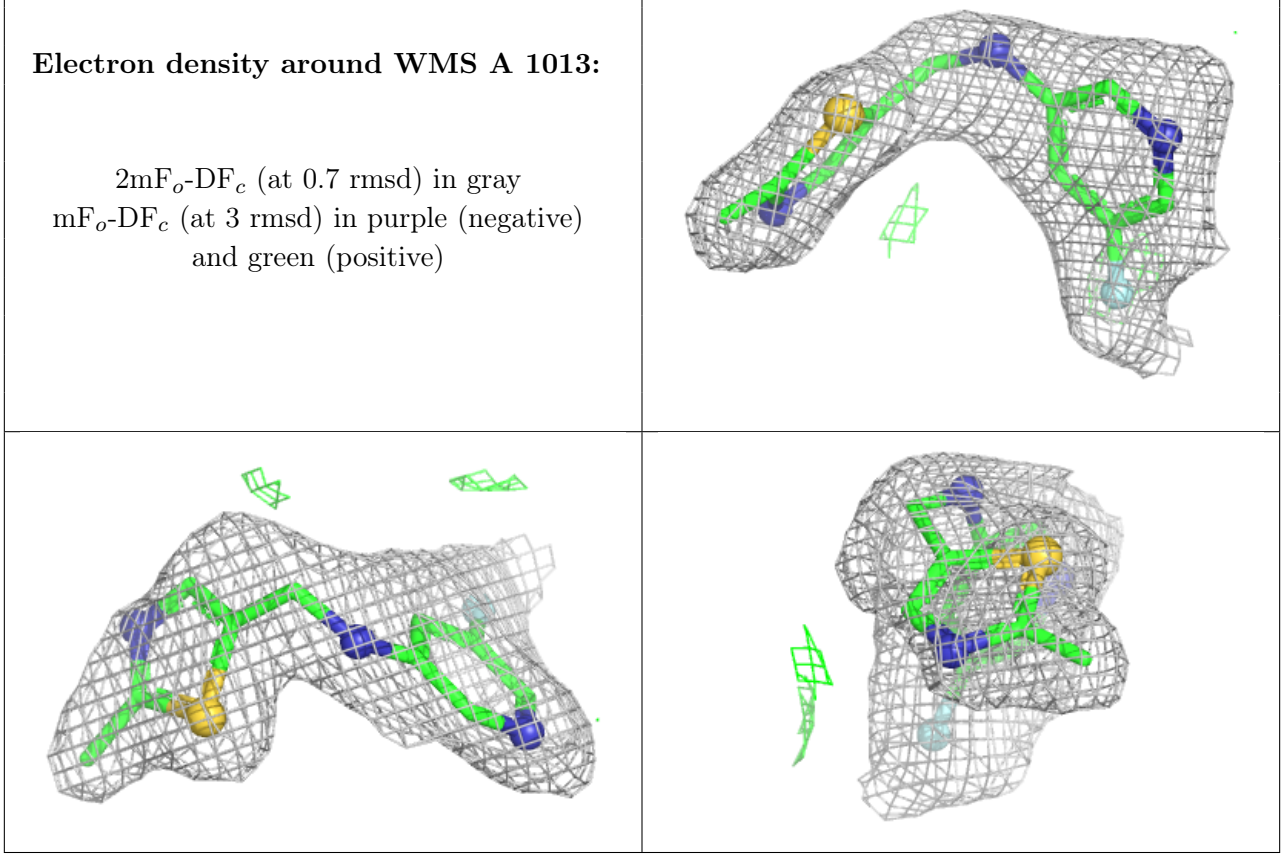






Electron density around WMS A 1013:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)



6.5 Other polymers

There are no such residues in this entry.