Full wwPDB X-ray Structure Validation Report (i)

Mar 27, 2025 – 12:06 PM EDT

PDB ID	:	7I2T
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 Z32327641 (DNV2_NS5A-x0781)
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Deposited on	:	2025-03-06
Resolution	:	1.59 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 (i) 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 (i)) were used in the production of this report:

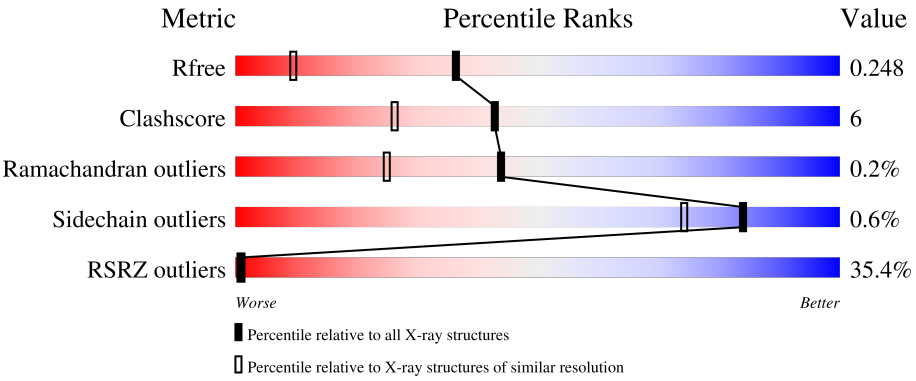
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (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 1.59 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	4274 (1.60-1.60)
Clashscore	180529	4682 (1.60-1.60)
Ramachandran outliers	177936	4583 (1.60-1.60)
Sidechain outliers	177891	4582 (1.60-1.60)
RSRZ outliers	164620	4272 (1.60-1.60)

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	32% 78% 11% 11%

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) : 2.41.4

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	PO4	A	1006	-	X	X	-
8	JMM	A	1010	-	-	-	X

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 5168 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 NS5 RNA-dependent RNA polymerase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	567	4688	2951	840	863	34	0	6	0

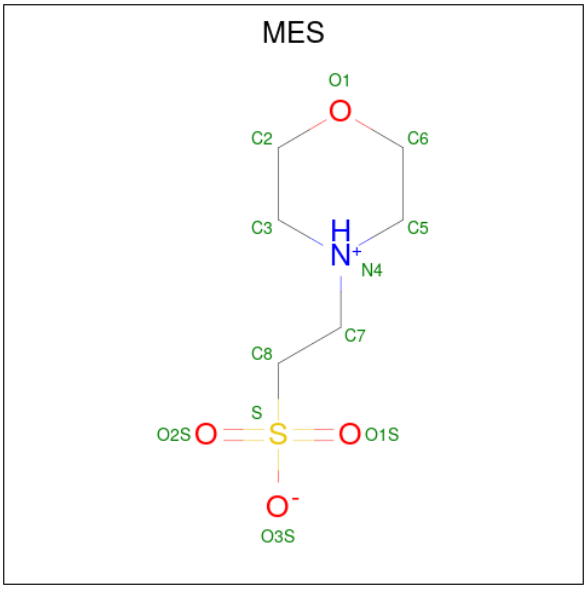
There are 2 discrepancies between the modelled and reference sequences:

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).

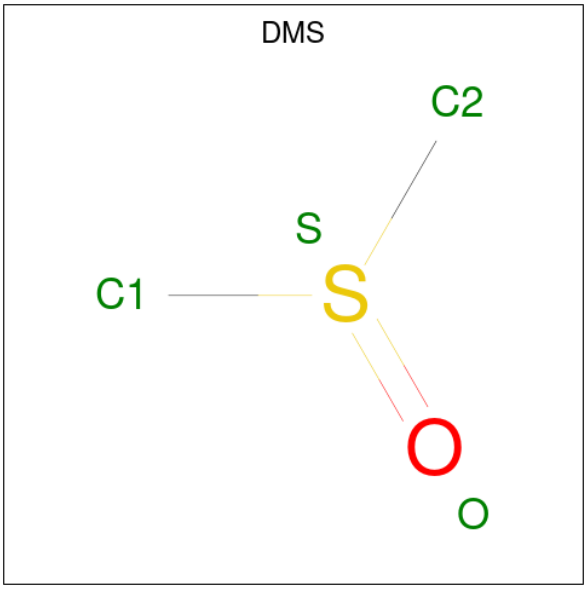
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Zn		
2	A	2	2	2	0	0

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



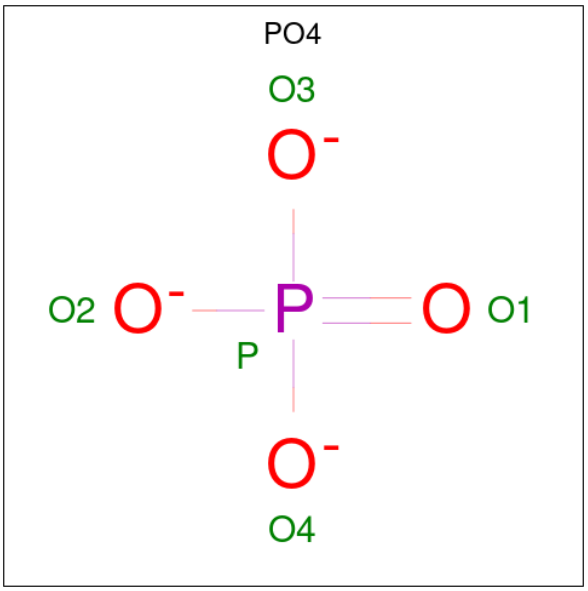
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	1
			24	12	2	8	2		

- Molecule 4 is DIMETHYL SULFOXIDE (three-letter code: DMS) (formula: C_2H_6OS).



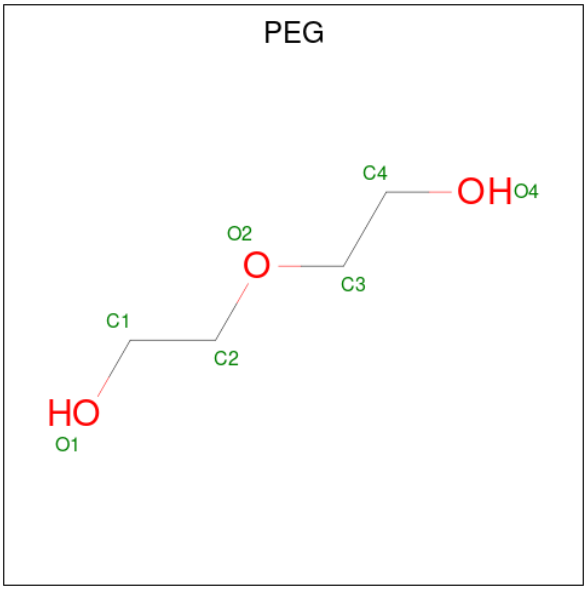
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	O	S	0	0
			4	2	1	1		
4	A	1	Total	C	O	S	0	0
			4	2	1	1		

- Molecule 5 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).



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

- Molecule 6 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$).

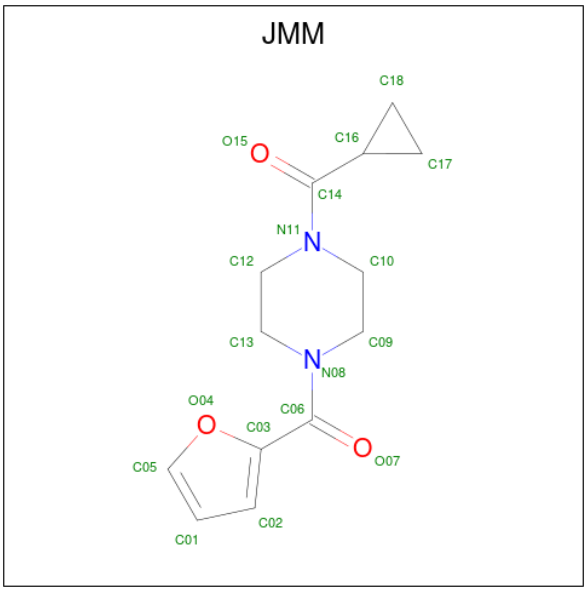


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total C O 7 4 3	0	0

- Molecule 7 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	1	Total Cl 1 1	0	0

- Molecule 8 is [4-(cyclopropanecarbonyl)piperazin-1-yl](furan-2-yl)methanone (three-letter code: JMM) (formula: $C_{13}H_{16}N_2O_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
8	A	1	Total	C	N	O	0	0
			18	13	2	3		

- Molecule 9 is water.

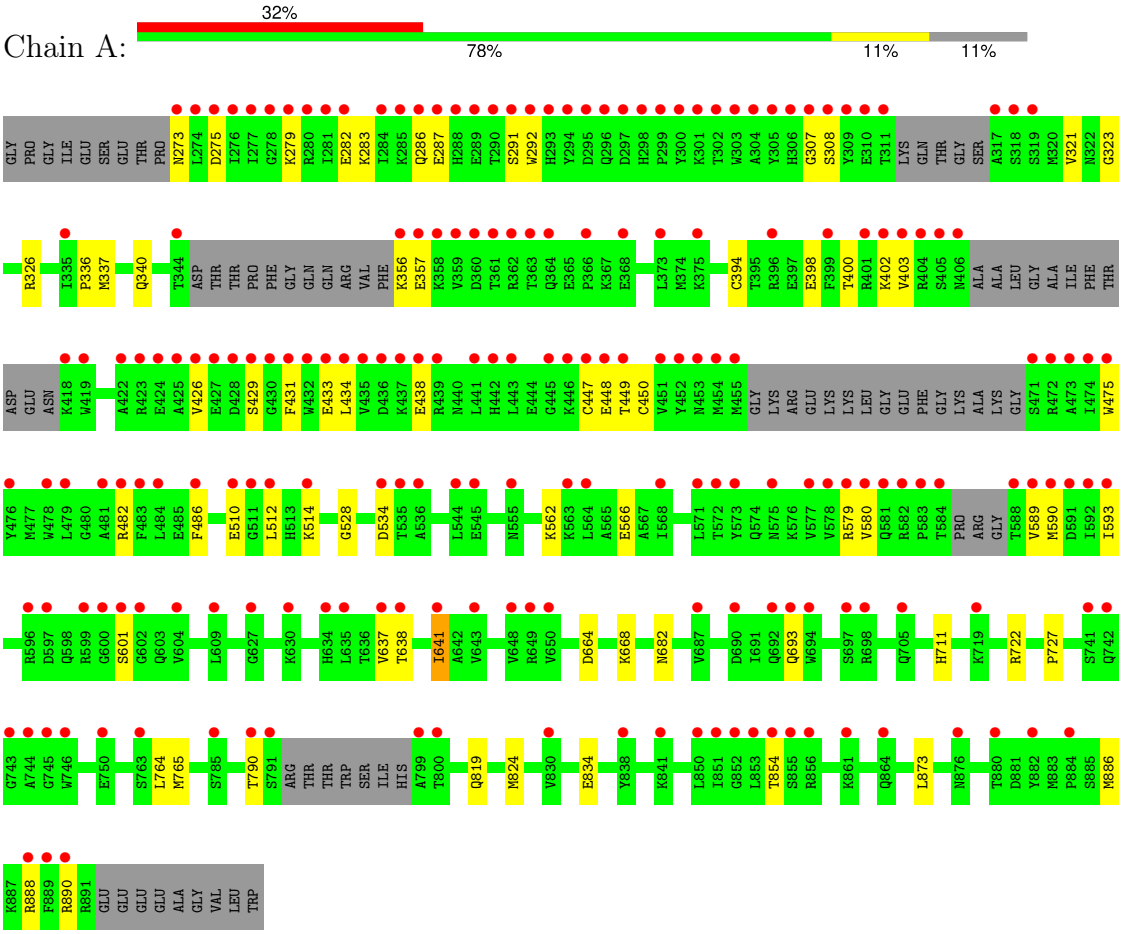
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	410	Total	O	0	0
			410	410		

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: NS5 RNA-dependent RNA polymerase

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	82.34Å 116.21Å 148.02Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	58.11 – 1.59 58.11 – 1.59	Depositor EDS
% Data completeness (in resolution range)	98.8 (58.11-1.59) 98.8 (58.11-1.59)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.97 (at 1.59Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.201 , 0.228 0.228 , 0.248	Depositor DCC
R_{free} test set	4838 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å^2)	26.4	Xtriage
Anisotropy	0.269	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 58.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	5168	wwPDB-VP
Average B, all atoms (Å^2)	46.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.39% 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: PEG, DMS, JMM, ZN, MES, CL, 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	0.75	0/4792	0.81	0/6460

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	4688	0	4590	55	0
2	A	2	0	0	0	0
3	A	24	0	26	2	0
4	A	8	0	12	2	0
5	A	10	0	0	4	0
6	A	7	0	10	0	0
7	A	1	0	0	0	0
8	A	18	0	0	0	0
9	A	410	0	0	12	2
All	All	5168	0	4638	57	2

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 (57) 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:403:VAL:HG21	1:A:426:VAL:HG21	1.43	0.98
1:A:512[B]:LEU:O	9:A:1101:HOH:O	1.98	0.81
1:A:664:ASP:OD1	5:A:1006:PO4:O4	2.01	0.79
1:A:534:ASP:OD1	5:A:1006:PO4:O4	2.01	0.77
1:A:429:SER:O	1:A:433:GLU:HG3	1.85	0.75
1:A:512[A]:LEU:O	9:A:1101:HOH:O	2.03	0.74
1:A:400:THR:HG23	1:A:426:VAL:HG11	1.72	0.71
1:A:323:GLY:HA3	3:A:1003[B]:MES:H71	1.76	0.67
1:A:664:ASP:OD1	5:A:1006:PO4:P	2.53	0.66
1:A:764:LEU:HG	1:A:765:MET:HE2	1.81	0.62
1:A:638:THR:HA	1:A:641:ILE:HG22	1.82	0.61
1:A:400:THR:HG23	1:A:426:VAL:CG1	2.36	0.56
1:A:400:THR:O	1:A:403:VAL:HG22	2.07	0.55
1:A:447:CYS:SG	1:A:450:CYS:HB2	2.47	0.55
1:A:512[A]:LEU:HD21	1:A:711:HIS:NE2	2.22	0.54
1:A:579:ARG:O	1:A:579:ARG:HG3	2.07	0.54
1:A:308:SER:HB3	1:A:589:VAL:HB	1.90	0.54
1:A:398:GLU:O	1:A:402:LYS:HG3	2.08	0.54
4:A:1004:DMS:C1	9:A:1279:HOH:O	2.56	0.53
1:A:873:LEU:HD13	3:A:1003[B]:MES:H62	1.90	0.53
1:A:279:LYS:HE3	1:A:448:GLU:HB2	1.92	0.52
1:A:764:LEU:HG	1:A:765:MET:CE	2.38	0.52
1:A:834:GLU:OE2	1:A:890:ARG:NE	2.39	0.51
1:A:534:ASP:OD1	5:A:1006:PO4:P	2.68	0.51
1:A:562:LYS:HE3	1:A:566:GLU:OE2	2.11	0.51
1:A:356:LYS:O	1:A:357:GLU:HB2	2.12	0.49
1:A:580:VAL:HG21	1:A:593:ILE:HD11	1.94	0.49
1:A:475:TRP:CD1	1:A:475:TRP:N	2.78	0.49
4:A:1004:DMS:H11	9:A:1279:HOH:O	2.12	0.49
1:A:886:MET:HE1	9:A:1130:HOH:O	2.13	0.49
1:A:308:SER:HA	1:A:590:MET:O	2.14	0.48
1:A:510:GLU:OE1	1:A:514:LYS:HE2	2.13	0.48
1:A:431:PHE:O	1:A:434:LEU:HB2	2.14	0.47
1:A:528:GLY:O	1:A:668:LYS:HE3	2.15	0.47
1:A:638:THR:O	1:A:641:ILE:HG22	2.15	0.47
1:A:819:GLN:NE2	9:A:1108:HOH:O	2.35	0.46
1:A:283:LYS:HG2	1:A:287:GLU:OE1	2.16	0.46
1:A:637:VAL:HG13	9:A:1442:HOH:O	2.15	0.45
1:A:273:ASN:N	1:A:275:ASP:OD1	2.50	0.45
1:A:282:GLU:O	1:A:286:GLN:HG3	2.16	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:886:MET:CE	9:A:1130:HOH:O	2.65	0.44
1:A:275:ASP:OD1	1:A:275:ASP:N	2.51	0.44
1:A:580:VAL:CG2	1:A:593:ILE:HD11	2.48	0.44
1:A:512[A]:LEU:HG	1:A:727:PRO:CB	2.48	0.44
1:A:403:VAL:HG21	1:A:426:VAL:CG2	2.32	0.44
1:A:321:VAL:HG11	1:A:326:ARG:CZ	2.48	0.43
1:A:722:ARG:HB3	1:A:824:MET:SD	2.58	0.43
1:A:888:ARG:NH2	9:A:1106:HOH:O	2.33	0.43
1:A:682:ASN:ND2	1:A:693:GLN:HG2	2.34	0.42
1:A:336:PRO:O	1:A:340:GLN:HG2	2.19	0.42
1:A:337:MET:HG2	9:A:1359:HOH:O	2.19	0.42
1:A:790:THR:HG21	9:A:1451:HOH:O	2.20	0.41
1:A:854:THR:HG22	9:A:1103:HOH:O	2.20	0.41
1:A:475:TRP:N	1:A:475:TRP:HD1	2.18	0.41
1:A:394:CYS:HB3	1:A:486:PHE:CE2	2.56	0.41
1:A:438:GLU:HG3	1:A:449:THR:OG1	2.21	0.41
1:A:292:TRP:CZ2	1:A:307:GLY:HA3	2.56	0.40

All (2) 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)
9:A:1134:HOH:O	9:A:1134:HOH:O[2_445]	1.69	0.51
9:A:1318:HOH:O	9:A:1418:HOH:O[2_545]	2.10	0.10

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	559/637 (88%)	543 (97%)	15 (3%)	1 (0%)	44 25

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	291	SER

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	505/554 (91%)	502 (99%)	3 (1%)	84 74

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	482	ARG
1	A	601	SER
1	A	641	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	298	HIS
1	A	603	GLN
1	A	801	HIS

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 11 ligands modelled in this entry, 3 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	$\#\|Z\| > 2$
3	MES	A	1003[B]	-	12,12,12	0.71	0	15,16,16	0.29	0
4	DMS	A	1005	-	3,3,3	0.33	0	3,3,3	0.15	0
5	PO4	A	1007	-	4,4,4	1.45	1 (25%)	6,6,6	0.55	0
4	DMS	A	1004	-	3,3,3	0.76	0	3,3,3	0.56	0
3	MES	A	1003[A]	-	12,12,12	0.76	0	15,16,16	0.63	0
5	PO4	A	1006	-	4,4,4	5.27	4 (100%)	6,6,6	0.45	0
8	JMM	A	1010	-	17,20,20	0.71	1 (5%)	22,28,28	0.80	1 (4%)
6	PEG	A	1008	-	6,6,6	0.15	0	5,5,5	0.17	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
3	MES	A	1003[A]	-	-	0/6/14/14	0/1/1/1
6	PEG	A	1008	-	-	2/4/4/4	-
3	MES	A	1003[B]	-	-	0/6/14/14	0/1/1/1
8	JMM	A	1010	-	-	2/12/28/28	0/3/3/3

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	1006	PO4	P-O1	8.60	1.70	1.50
5	A	1006	PO4	P-O2	5.09	1.69	1.54
5	A	1007	PO4	P-O1	2.74	1.57	1.50
8	A	1010	JMM	C02-C03	-2.71	1.35	1.38
5	A	1006	PO4	P-O3	2.48	1.61	1.54
5	A	1006	PO4	P-O4	-2.26	1.48	1.54

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	A	1010	JMM	C12-N11-C10	2.08	116.92	112.68

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	A	1010	JMM	N11-C14-C16-C17
8	A	1010	JMM	O15-C14-C16-C17
6	A	1008	PEG	O2-C3-C4-O4
6	A	1008	PEG	O1-C1-C2-O2

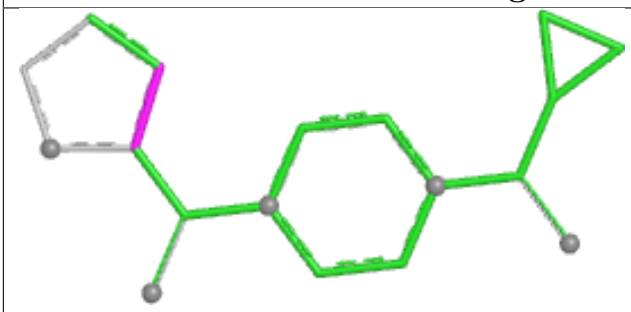
There are no ring outliers.

3 monomers are involved in 8 short contacts:

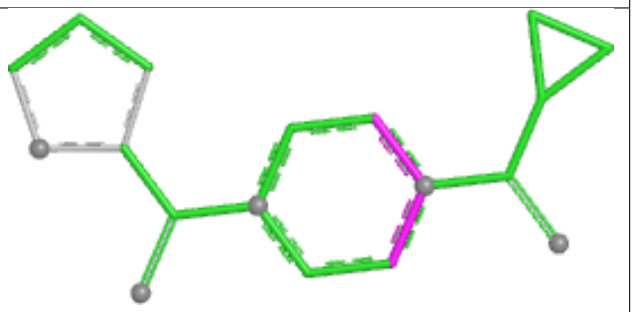
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1003[B]	MES	2	0
4	A	1004	DMS	2	0
5	A	1006	PO4	4	0

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.

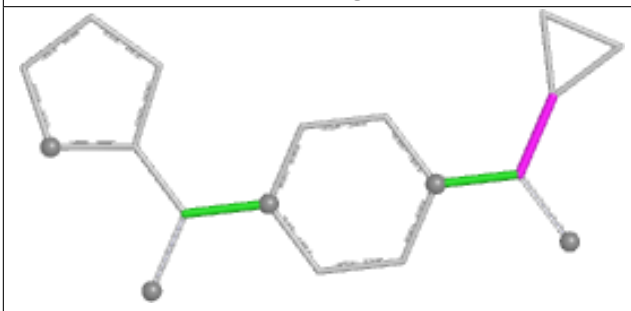
Ligand JMM A 1010



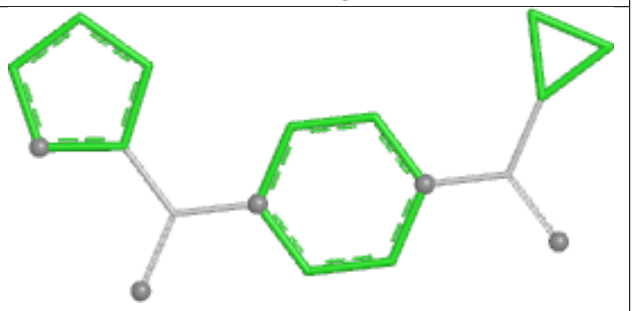
Bond lengths



Bond angles



Torsions



Rings

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	567/637 (89%)	2.40	201 (35%) 1 1	5, 34, 89, 133	79 (13%)

All (201) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	303	TRP	15.6
1	A	512[A]	LEU	14.6
1	A	426	VAL	14.3
1	A	853	LEU	13.9
1	A	431	PHE	13.8
1	A	851	ILE	13.8
1	A	580	VAL	13.7
1	A	335	ILE	13.5
1	A	435	VAL	13.4
1	A	719[A]	LYS	13.4
1	A	304	ALA	13.0
1	A	281	ILE	12.9
1	A	838	TYR	12.8
1	A	609	LEU	12.8
1	A	425	ALA	12.7
1	A	850	LEU	12.4
1	A	434	LEU	12.3
1	A	305	TYR	11.8
1	A	403	VAL	11.3
1	A	854	THR	11.1
1	A	307	GLY	11.0
1	A	311	THR	11.0
1	A	852	GLY	11.0
1	A	589	VAL	10.9
1	A	573	TYR	10.6
1	A	600	GLY	10.5
1	A	405	SER	10.0

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Mol	Chain	Res	Type	RSRZ
1	A	855	SER	9.9
1	A	317	ALA	9.8
1	A	430	GLY	9.6
1	A	406	ASN	9.5
1	A	864[A]	GLN	9.5
1	A	697	SER	9.4
1	A	308	SER	9.4
1	A	511	GLY	9.2
1	A	743	GLY	9.1
1	A	856	ARG	9.1
1	A	741[A]	SER	9.0
1	A	588	THR	9.0
1	A	601	SER	8.8
1	A	437	LYS	8.7
1	A	584	THR	8.6
1	A	306	HIS	8.5
1	A	292	TRP	8.4
1	A	301	LYS	8.3
1	A	449	THR	8.3
1	A	861	LYS	8.3
1	A	514	LYS	8.2
1	A	698	ARG	8.1
1	A	429	SER	8.1
1	A	475	TRP	8.1
1	A	785[A]	SER	8.1
1	A	841	LYS	8.0
1	A	439	ARG	7.9
1	A	763[A]	SER	7.9
1	A	438	GLU	7.8
1	A	582	ARG	7.7
1	A	474	ILE	7.6
1	A	591	ASP	7.6
1	A	396	ARG	7.5
1	A	404	ARG	7.5
1	A	599	ARG	7.4
1	A	319	SER	7.3
1	A	581	GLN	7.3
1	A	590	MET	7.2
1	A	436	ASP	7.2
1	A	423	ARG	7.2
1	A	583	PRO	7.1
1	A	705	GLN	7.0

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Mol	Chain	Res	Type	RSRZ
1	A	356	LYS	6.9
1	A	579	ARG	6.7
1	A	418	LYS	6.7
1	A	693	GLN	6.6
1	A	318	SER	6.6
1	A	742	GLN	6.5
1	A	359	VAL	6.3
1	A	424	GLU	6.2
1	A	298	HIS	6.2
1	A	290	THR	6.0
1	A	479	LEU	6.0
1	A	690	ASP	5.9
1	A	433	GLU	5.6
1	A	510	GLU	5.6
1	A	889	PHE	5.6
1	A	363	THR	5.5
1	A	294	TYR	5.4
1	A	357	GLU	5.4
1	A	362	ARG	5.2
1	A	799	ALA	5.2
1	A	286	GLN	5.0
1	A	422	ALA	5.0
1	A	419	TRP	5.0
1	A	441	LEU	4.9
1	A	293	HIS	4.9
1	A	452	TYR	4.8
1	A	478	TRP	4.7
1	A	597	ASP	4.7
1	A	284	ILE	4.7
1	A	744	ALA	4.6
1	A	310	GLU	4.6
1	A	476	TYR	4.6
1	A	534	ASP	4.6
1	A	637	VAL	4.5
1	A	432	TRP	4.5
1	A	746	TRP	4.5
1	A	361	THR	4.4
1	A	302	THR	4.4
1	A	309	TYR	4.3
1	A	571	LEU	4.4
1	A	275	ASP	4.2
1	A	399	PHE	4.1

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Mol	Chain	Res	Type	RSRZ
1	A	300	TYR	4.1
1	A	274	LEU	4.1
1	A	277	ILE	4.0
1	A	299	PRO	4.0
1	A	287	GLU	4.0
1	A	800	THR	4.0
1	A	453	ASN	3.9
1	A	471	SER	3.9
1	A	273	ASN	3.8
1	A	473	ALA	3.8
1	A	544	LEU	3.8
1	A	882	TYR	3.6
1	A	282	GLU	3.6
1	A	880	THR	3.6
1	A	641	ILE	3.5
1	A	360	ASP	3.5
1	A	443	LEU	3.5
1	A	596	ARG	3.5
1	A	279	LYS	3.5
1	A	291	SER	3.4
1	A	288	HIS	3.4
1	A	634	HIS	3.4
1	A	428	ASP	3.4
1	A	448	GLU	3.3
1	A	635	LEU	3.3
1	A	593	ILE	3.3
1	A	455	MET	3.3
1	A	344	THR	3.3
1	A	447	CYS	3.2
1	A	745	GLY	3.2
1	A	445	GLY	3.1
1	A	289	GLU	3.1
1	A	278	GLY	3.1
1	A	451	VAL	3.1
1	A	446	LYS	3.0
1	A	285	LYS	3.0
1	A	358	LYS	3.0
1	A	790	THR	3.0
1	A	402	LYS	3.0
1	A	564	LEU	2.9
1	A	296	GLN	2.9
1	A	577	VAL	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	276	ILE	2.8
1	A	295	ASP	2.8
1	A	592	ILE	2.8
1	A	484	LEU	2.8
1	A	578	VAL	2.8
1	A	536	ALA	2.8
1	A	401	ARG	2.8
1	A	563	LYS	2.8
1	A	694	TRP	2.7
1	A	750	GLU	2.7
1	A	888	ARG	2.7
1	A	648	VAL	2.7
1	A	649	ARG	2.7
1	A	638	THR	2.6
1	A	791	SER	2.6
1	A	604	VAL	2.5
1	A	427	GLU	2.5
1	A	454	MET	2.4
1	A	876	ASN	2.4
1	A	364	GLN	2.4
1	A	368	GLU	2.4
1	A	602	GLY	2.3
1	A	630	LYS	2.3
1	A	297	ASP	2.3
1	A	572	THR	2.3
1	A	483	PHE	2.3
1	A	627	GLY	2.3
1	A	472	ARG	2.2
1	A	890	ARG	2.2
1	A	442	HIS	2.2
1	A	643	VAL	2.2
1	A	555	ASN	2.2
1	A	692	GLN	2.2
1	A	482	ARG	2.1
1	A	535	THR	2.1
1	A	830	VAL	2.1
1	A	366	PRO	2.1
1	A	650	VAL	2.1
1	A	575	ASN	2.1
1	A	486	PHE	2.1
1	A	568	ILE	2.1
1	A	545	GLU	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	280	ARG	2.0
1	A	884	PRO	2.0
1	A	687	VAL	2.0
1	A	373	LEU	2.0
1	A	375	LYS	2.0
1	A	481	ALA	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)

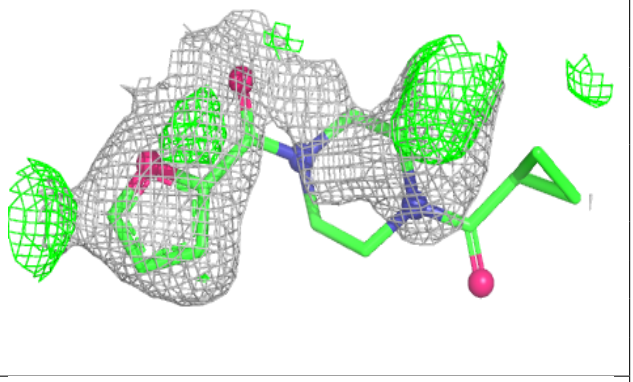
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

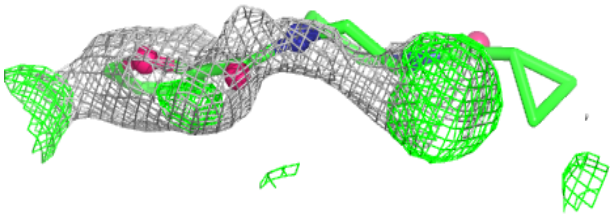
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
8	JMM	A	1010	18/18	0.57	0.43	56,61,63,63	18
5	PO4	A	1007	5/5	0.67	0.14	57,69,76,91	0
5	PO4	A	1006	5/5	0.76	0.15	32,32,50,55	0
4	DMS	A	1005	4/4	0.82	0.22	67,83,91,99	0
6	PEG	A	1008	7/7	0.83	0.16	59,67,74,74	0
4	DMS	A	1004	4/4	0.94	0.12	39,40,40,41	0
2	ZN	A	1002	1/1	0.98	0.04	49,49,49,49	0
3	MES	A	1003[A]	12/12	0.98	0.32	20,24,30,30	12
3	MES	A	1003[B]	12/12	0.98	0.32	586,602,646,652	12
7	CL	A	1009	1/1	0.99	0.04	36,36,36,36	0
2	ZN	A	1001	1/1	1.00	0.02	20,20,20,20	0

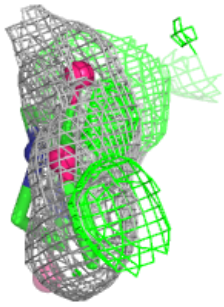
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around JMM A 1010:

$2mF_o$-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.