



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 1, 2026 – 04:49 PM UTC

PDB ID : 6W01 / pdb_00006w01
Title : The 1.9 Å Crystal Structure of NSP15 Endoribonuclease from SARS CoV-2 in the Complex with a Citrate
Authors : Kim, Y.; Jedrzejczak, R.; Maltseva, N.; Endres, M.; Godzik, A.; Michalska, K.; Joachimiak, A.; Center for Structural Genomics of Infectious Diseases (CSGID)
Deposited on : 2020-02-28
Resolution : 1.90 Å (reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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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
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)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

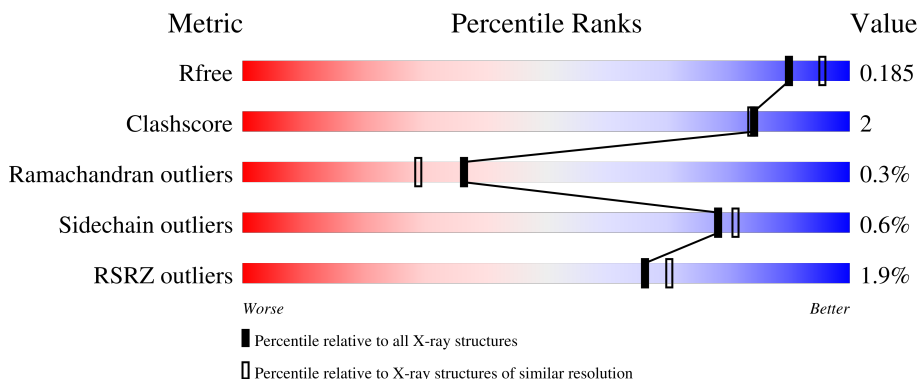
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION


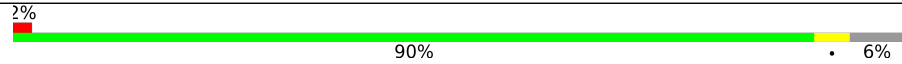
The reported resolution of this entry is 1.90 Å.

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	7789 (1.90-1.90)
Clashscore	190562	8410 (1.90-1.90)
Ramachandran outliers	187476	8333 (1.90-1.90)
Sidechain outliers	187428	8333 (1.90-1.90)
RSRZ outliers	180081	7790 (1.90-1.90)

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 $\leq 5\%$. 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	370	 2% 88% 6% 6%
1	B	370	 2% 90% 6% 6%

2 Entry composition i

There are 5 unique types of molecules in this entry. The entry contains 6253 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 Uridylate-specific endoribonuclease.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	347	2808	1802	456	538	12	0	9	0
1	B	347	2791	1791	455	533	12	0	7	0

There are 48 discrepancies between the modelled and reference sequences:

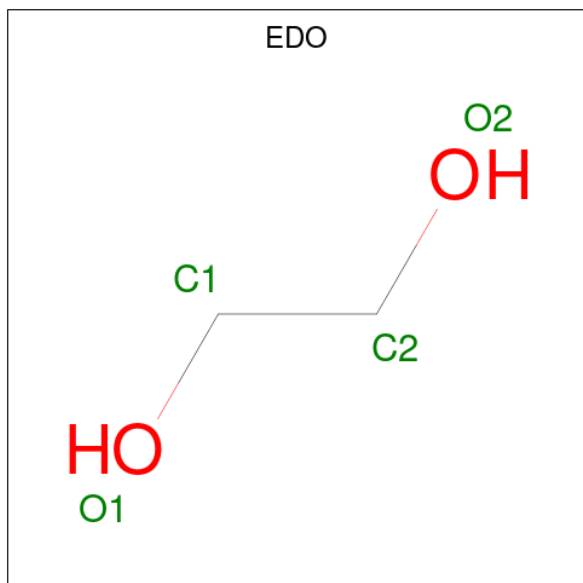
Chain	Residue	Modelled	Actual	Comment	Reference
A	-22	MET	-	initiating methionine	UNP P0DTD1
A	-21	HIS	-	expression tag	UNP P0DTD1
A	-20	HIS	-	expression tag	UNP P0DTD1
A	-19	HIS	-	expression tag	UNP P0DTD1
A	-18	HIS	-	expression tag	UNP P0DTD1
A	-17	HIS	-	expression tag	UNP P0DTD1
A	-16	HIS	-	expression tag	UNP P0DTD1
A	-15	SER	-	expression tag	UNP P0DTD1
A	-14	SER	-	expression tag	UNP P0DTD1
A	-13	GLY	-	expression tag	UNP P0DTD1
A	-12	VAL	-	expression tag	UNP P0DTD1
A	-11	ASP	-	expression tag	UNP P0DTD1
A	-10	LEU	-	expression tag	UNP P0DTD1
A	-9	GLY	-	expression tag	UNP P0DTD1
A	-8	THR	-	expression tag	UNP P0DTD1
A	-7	GLU	-	expression tag	UNP P0DTD1
A	-6	ASN	-	expression tag	UNP P0DTD1
A	-5	LEU	-	expression tag	UNP P0DTD1
A	-4	TYR	-	expression tag	UNP P0DTD1
A	-3	PHE	-	expression tag	UNP P0DTD1
A	-2	GLN	-	expression tag	UNP P0DTD1
A	-1	SER	-	expression tag	UNP P0DTD1
A	0	ASN	-	expression tag	UNP P0DTD1
A	1	MET	-	expression tag	UNP P0DTD1
B	-22	MET	-	initiating methionine	UNP P0DTD1

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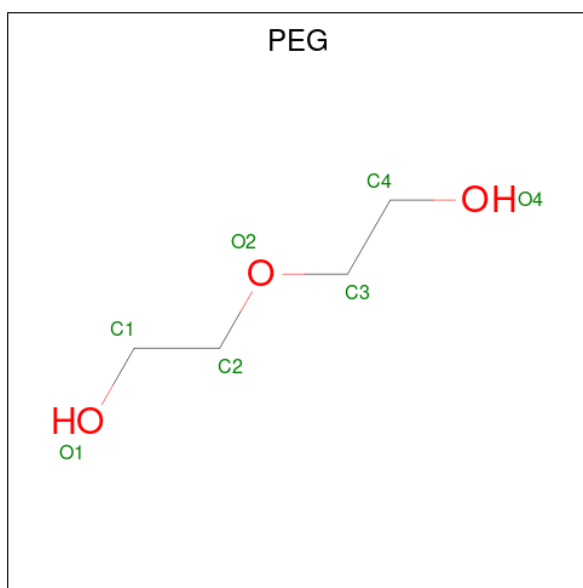
Chain	Residue	Modelled	Actual	Comment	Reference
B	-21	HIS	-	expression tag	UNP P0DTD1
B	-20	HIS	-	expression tag	UNP P0DTD1
B	-19	HIS	-	expression tag	UNP P0DTD1
B	-18	HIS	-	expression tag	UNP P0DTD1
B	-17	HIS	-	expression tag	UNP P0DTD1
B	-16	HIS	-	expression tag	UNP P0DTD1
B	-15	SER	-	expression tag	UNP P0DTD1
B	-14	SER	-	expression tag	UNP P0DTD1
B	-13	GLY	-	expression tag	UNP P0DTD1
B	-12	VAL	-	expression tag	UNP P0DTD1
B	-11	ASP	-	expression tag	UNP P0DTD1
B	-10	LEU	-	expression tag	UNP P0DTD1
B	-9	GLY	-	expression tag	UNP P0DTD1
B	-8	THR	-	expression tag	UNP P0DTD1
B	-7	GLU	-	expression tag	UNP P0DTD1
B	-6	ASN	-	expression tag	UNP P0DTD1
B	-5	LEU	-	expression tag	UNP P0DTD1
B	-4	TYR	-	expression tag	UNP P0DTD1
B	-3	PHE	-	expression tag	UNP P0DTD1
B	-2	GLN	-	expression tag	UNP P0DTD1
B	-1	SER	-	expression tag	UNP P0DTD1
B	0	ASN	-	expression tag	UNP P0DTD1
B	1	MET	-	expression tag	UNP P0DTD1

- Molecule 2 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: C₂H₆O₂).



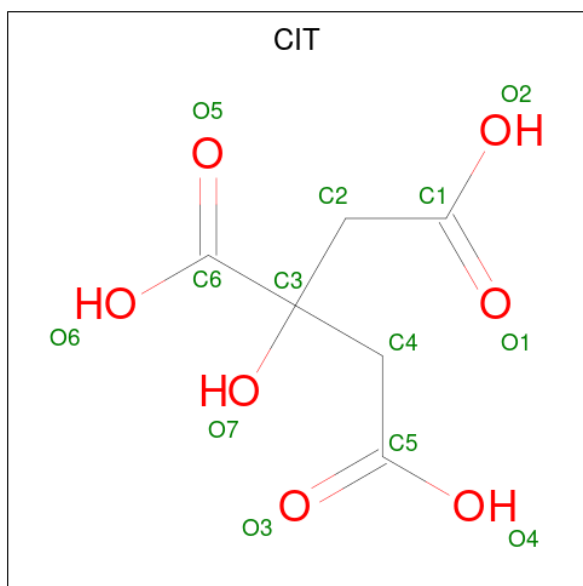
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0
2	A	1	Total C O 4 2 2	0	0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

- Molecule 3 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



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

- Molecule 4 is CITRIC ACID (CCD ID: CIT) (formula: $C_6H_8O_7$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			13	6	7		
4	B	1	Total	C	O	0	0
			13	6	7		

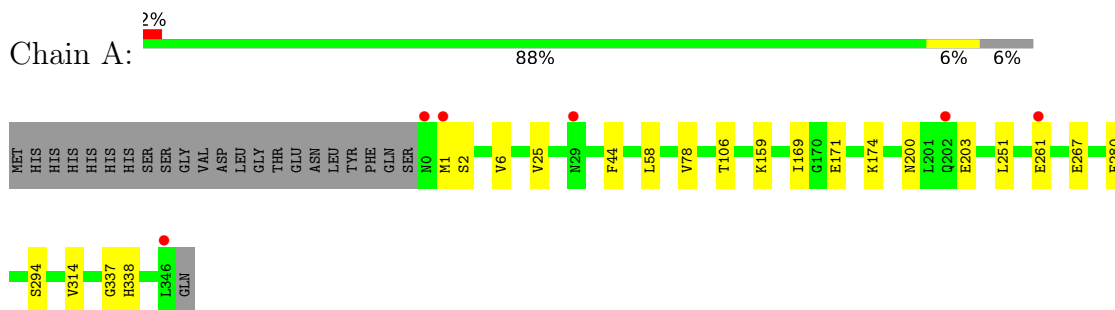
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	259	Total	O	0	0
			259	259		
5	B	260	Total	O	0	0
			260	260		

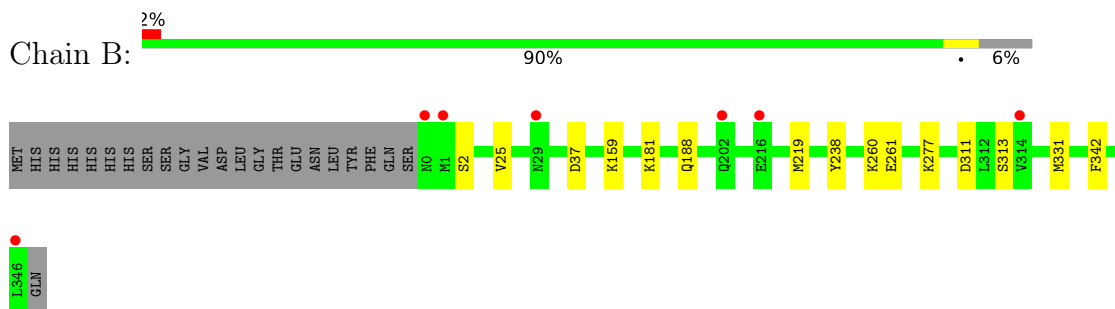
3 Residue-property plots [i](#)

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: Uridylate-specific endoribonuclease



- Molecule 1: Uridylate-specific endoribonuclease



4 Data and refinement statistics

Property	Value	Source
Space group	P 63	Depositor
Cell constants a, b, c, α , β , γ	150.78Å 150.78Å 111.68Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	44.87 – 1.90 44.87 – 1.90	Depositor EDS
% Data completeness (in resolution range)	98.7 (44.87-1.90) 98.7 (44.87-1.90)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.93 (at 1.91Å)	Xtrriage
Refinement program	PHENIX 1.13_2998	Depositor
R, R_{free}	0.161 , 0.185 0.162 , 0.185	Depositor DCC
R_{free} test set	5485 reflections (4.86%)	wwPDB-VP
Wilson B-factor (Å ²)	31.5	Xtrriage
Anisotropy	0.302	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 42.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	0.060 for h,-h-k,-l	Xtrriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	6253	wwPDB-VP
Average B, all atoms (Å ²)	41.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.99% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CIT, PEG, EDO

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	0.48	0/2865	0.59	0/3886
1	B	0.47	0/2848	0.58	0/3863
All	All	0.48	0/5713	0.59	0/7749

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	2808	0	2791	14	0
1	B	2791	0	2778	9	0
2	A	44	0	66	8	0
2	B	44	0	66	3	0
3	A	14	0	20	1	0
3	B	7	0	10	1	0
4	A	13	0	5	1	0
4	B	13	0	5	0	0
5	A	259	0	0	3	0
5	B	260	0	0	2	0
All	All	6253	0	5741	26	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

All (26) 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:159:LYS:HB2	2:A:413:EDO:H12	1.67	0.75
1:B:159:LYS:HB2	2:B:407:EDO:H21	1.80	0.62
1:A:169:ILE:HG22	2:A:403:EDO:H22	1.83	0.60
1:A:25:VAL:O	2:A:402:EDO:H12	2.07	0.55
1:B:311:ASP:OD1	1:B:313:SER:OG	2.26	0.53
1:A:44:PHE:CD1	2:A:401:EDO:H21	2.47	0.50
1:B:181:LYS:HE2	3:B:411:PEG:H21	1.93	0.49
1:A:171:GLU:HG2	2:A:403:EDO:H21	1.94	0.49
2:B:403:EDO:H11	5:B:605:HOH:O	2.13	0.49
1:A:78:VAL:O	2:A:407:EDO:H21	2.13	0.48
2:A:409:EDO:H22	5:A:670:HOH:O	2.13	0.48
1:B:37:ASP:HB2	5:B:584:HOH:O	2.15	0.46
1:B:260:LYS:HE3	1:B:261:GLU:HG3	1.98	0.46
1:A:338:HIS:HE1	5:A:503:HOH:O	1.99	0.46
1:A:267:GLU:HB3	1:A:280:PHE:HB3	1.98	0.46
1:A:174:LYS:HG3	5:A:743:HOH:O	2.16	0.44
1:B:25:VAL:O	2:B:402:EDO:H12	2.18	0.44
1:A:58:LEU:HD11	1:A:106:THR:HG21	1.99	0.44
1:A:294:SER:OG	3:A:405:PEG:H42	2.18	0.43
1:A:337:GLY:H	2:A:404:EDO:HO1	1.67	0.42
1:B:219:MET:HG3	1:B:238:TYR:CE2	2.54	0.42
1:B:277:LYS:HB3	1:B:277:LYS:HE3	1.87	0.42
1:A:200:ASN:OD1	1:A:203:GLU:HG2	2.21	0.41
1:A:1[A]:MET:HE1	1:A:6:VAL:CG2	2.50	0.41
4:A:412:CIT:O2	4:A:412:CIT:C6	2.69	0.40
1:B:331:MET:O	1:B:342:PHE:HA	2.22	0.40

There are no symmetry-related clashes.

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	353/370 (95%)	346 (98%)	5 (1%)	2 (1%)	21	13
1	B	351/370 (95%)	344 (98%)	5 (1%)	2 (1%)	21	13
All	All	704/740 (95%)	690 (98%)	10 (1%)	4 (1%)	36	13

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2[A]	SER
1	A	2[B]	SER
1	B	2[A]	SER
1	B	2[B]	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	316/330 (96%)	312 (99%)	4 (1%)	61	61
1	B	314/330 (95%)	313 (100%)	1 (0%)	86	88
All	All	630/660 (96%)	625 (99%)	5 (1%)	78	75

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	251[A]	LEU
1	A	251[B]	LEU
1	A	261	GLU
1	A	314	VAL
1	B	188	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	83	ASN
1	A	137	ASN
1	A	164	ASN
1	A	189	GLN
1	A	243	HIS
1	B	5	ASN
1	B	202	GLN
1	B	243	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](#)

27 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	CIT	B	408	-	12,12,12	1.04	0	17,17,17	1.67	3 (17%)
2	EDO	A	404	-	3,3,3	0.54	0	2,2,2	0.35	0
2	EDO	A	413	-	3,3,3	0.55	0	2,2,2	0.19	0
3	PEG	B	411	-	6,6,6	0.19	0	5,5,5	0.14	0
4	CIT	A	412	-	12,12,12	1.17	0	17,17,17	1.97	6 (35%)
2	EDO	A	408	-	3,3,3	0.32	0	2,2,2	0.61	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	EDO	B	401	-	3,3,3	0.68	0	2,2,2	0.03	0
2	EDO	B	409	-	3,3,3	0.46	0	2,2,2	0.57	0
2	EDO	B	410	-	3,3,3	0.48	0	2,2,2	0.18	0
2	EDO	A	403	-	3,3,3	0.36	0	2,2,2	0.43	0
2	EDO	B	405	-	3,3,3	0.43	0	2,2,2	0.36	0
2	EDO	B	403	-	3,3,3	0.53	0	2,2,2	0.48	0
2	EDO	B	404	-	3,3,3	0.45	0	2,2,2	0.25	0
2	EDO	A	414	-	3,3,3	0.50	0	2,2,2	0.17	0
3	PEG	A	406	-	6,6,6	0.11	0	5,5,5	0.20	0
2	EDO	A	411	-	3,3,3	0.50	0	2,2,2	0.26	0
2	EDO	B	402	-	3,3,3	0.58	0	2,2,2	0.33	0
2	EDO	B	413	-	3,3,3	0.38	0	2,2,2	0.63	0
2	EDO	A	402	-	3,3,3	0.68	0	2,2,2	0.33	0
2	EDO	B	412	-	3,3,3	0.50	0	2,2,2	0.31	0
2	EDO	A	409	-	3,3,3	0.44	0	2,2,2	0.48	0
3	PEG	A	405	-	6,6,6	0.23	0	5,5,5	0.14	0
2	EDO	A	407	-	3,3,3	0.44	0	2,2,2	0.29	0
2	EDO	A	410	-	3,3,3	0.39	0	2,2,2	0.62	0
2	EDO	A	401	-	3,3,3	0.31	0	2,2,2	0.78	0
2	EDO	B	407	-	3,3,3	0.55	0	2,2,2	0.17	0
2	EDO	B	406	-	3,3,3	0.40	0	2,2,2	0.47	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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	CIT	B	408	-	-	0/16/16/16	-
2	EDO	A	404	-	-	0/1/1/1	-
2	EDO	A	413	-	-	1/1/1/1	-
3	PEG	B	411	-	-	2/4/4/4	-
4	CIT	A	412	-	-	6/16/16/16	-
2	EDO	A	408	-	-	0/1/1/1	-
2	EDO	B	401	-	-	1/1/1/1	-
2	EDO	B	409	-	-	0/1/1/1	-
2	EDO	B	410	-	-	0/1/1/1	-
2	EDO	A	403	-	-	1/1/1/1	-
2	EDO	B	405	-	-	1/1/1/1	-
2	EDO	B	403	-	-	0/1/1/1	-
2	EDO	B	404	-	-	0/1/1/1	-
2	EDO	A	414	-	-	1/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PEG	A	406	-	-	0/4/4/4	-
2	EDO	A	411	-	-	0/1/1/1	-
2	EDO	B	402	-	-	1/1/1/1	-
2	EDO	B	413	-	-	1/1/1/1	-
2	EDO	A	402	-	-	1/1/1/1	-
2	EDO	B	412	-	-	0/1/1/1	-
2	EDO	A	409	-	-	0/1/1/1	-
3	PEG	A	405	-	-	2/4/4/4	-
2	EDO	A	407	-	-	1/1/1/1	-
2	EDO	A	410	-	-	0/1/1/1	-
2	EDO	A	401	-	-	0/1/1/1	-
2	EDO	B	407	-	-	1/1/1/1	-
2	EDO	B	406	-	-	0/1/1/1	-

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	412	CIT	O6-C6-C3	4.98	122.69	113.14
4	B	408	CIT	O6-C6-C3	4.03	120.86	113.14
4	A	412	CIT	C4-C3-C6	-2.77	103.91	110.03
4	A	412	CIT	C3-C4-C5	-2.49	107.10	113.92
4	A	412	CIT	O5-C6-C3	-2.38	117.47	122.09
4	A	412	CIT	C2-C3-C6	2.32	115.16	110.03
4	B	408	CIT	O2-C1-C2	2.23	121.40	114.35
4	B	408	CIT	O2-C1-O1	-2.21	117.66	123.33
4	A	412	CIT	O2-C1-C2	2.11	121.04	114.35

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	413	EDO	O1-C1-C2-O2
3	A	405	PEG	O1-C1-C2-O2
3	A	405	PEG	O2-C3-C4-O4
3	B	411	PEG	O2-C3-C4-O4
2	A	407	EDO	O1-C1-C2-O2
2	B	407	EDO	O1-C1-C2-O2
2	B	413	EDO	O1-C1-C2-O2
4	A	412	CIT	O1-C1-C2-C3
4	A	412	CIT	O2-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
2	B	401	EDO	O1-C1-C2-O2
3	B	411	PEG	C4-C3-O2-C2
2	A	402	EDO	O1-C1-C2-O2
2	A	403	EDO	O1-C1-C2-O2
4	A	412	CIT	C4-C3-C6-O5
2	A	414	EDO	O1-C1-C2-O2
2	B	405	EDO	O1-C1-C2-O2
4	A	412	CIT	C2-C3-C6-O5
2	B	402	EDO	O1-C1-C2-O2
4	A	412	CIT	C3-C4-C5-O3
4	A	412	CIT	C3-C4-C5-O4

There are no ring outliers.

13 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	404	EDO	1	0
2	A	413	EDO	1	0
3	B	411	PEG	1	0
4	A	412	CIT	1	0
2	A	403	EDO	2	0
2	B	403	EDO	1	0
2	B	402	EDO	1	0
2	A	402	EDO	1	0
2	A	409	EDO	1	0
3	A	405	PEG	1	0
2	A	407	EDO	1	0
2	A	401	EDO	1	0
2	B	407	EDO	1	0

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	347/370 (93%)	-0.16	6 (1%) 69 72	14, 36, 62, 88	9 (2%)
1	B	347/370 (93%)	-0.10	7 (2%) 65 69	14, 36, 73, 88	7 (2%)
All	All	694/740 (93%)	-0.13	13 (1%) 66 70	14, 36, 65, 88	16 (2%)

All (13) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	0[A]	ASN	18.3
1	B	0[A]	ASN	14.2
1	B	346	LEU	6.0
1	A	346	LEU	4.3
1	B	1[A]	MET	4.1
1	A	1[A]	MET	3.3
1	A	29[A]	ASN	3.0
1	B	314	VAL	2.6
1	A	202	GLN	2.5
1	B	216	GLU	2.2
1	B	202	GLN	2.2
1	B	29[A]	ASN	2.1
1	A	261	GLU	2.1

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, 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	PEG	B	411	7/7	0.76	0.35	65,79,86,88	0
3	PEG	A	405	7/7	0.79	0.29	47,73,90,94	0
2	EDO	A	411	4/4	0.83	0.22	70,76,77,80	0
3	PEG	A	406	7/7	0.84	0.26	76,78,81,84	0
2	EDO	B	413	4/4	0.84	0.18	58,62,67,78	0
2	EDO	A	401	4/4	0.85	0.20	44,56,59,65	0
2	EDO	A	413	4/4	0.85	0.20	53,58,59,62	0
2	EDO	A	408	4/4	0.86	0.19	66,69,71,73	0
2	EDO	B	401	4/4	0.87	0.20	57,64,68,70	0
2	EDO	B	407	4/4	0.88	0.20	64,71,77,77	0
2	EDO	A	409	4/4	0.88	0.18	73,74,74,76	0
2	EDO	A	414	4/4	0.88	0.17	52,56,60,62	0
2	EDO	A	403	4/4	0.88	0.18	69,73,74,75	0
2	EDO	B	404	4/4	0.88	0.24	81,82,87,90	0
2	EDO	A	404	4/4	0.89	0.15	44,48,55,64	0
2	EDO	A	407	4/4	0.89	0.19	77,79,81,83	0
2	EDO	B	406	4/4	0.90	0.20	71,74,74,75	0
2	EDO	B	403	4/4	0.90	0.17	37,53,58,66	0
2	EDO	B	402	4/4	0.91	0.16	36,50,52,57	0
2	EDO	B	412	4/4	0.91	0.14	48,52,58,69	0
2	EDO	A	402	4/4	0.91	0.18	33,46,46,49	0
2	EDO	A	410	4/4	0.92	0.16	71,75,75,76	0
2	EDO	B	405	4/4	0.93	0.12	49,56,60,66	0
4	CIT	B	408	13/13	0.95	0.08	50,56,62,65	0
4	CIT	A	412	13/13	0.96	0.07	36,40,44,44	0
2	EDO	B	410	4/4	0.96	0.09	43,45,45,46	0
2	EDO	B	409	4/4	0.97	0.07	30,31,33,36	0

6.5 Other polymers [i](#)

There are no such residues in this entry.