Full wwPDB X-ray Structure Validation Report ⓘ

Apr 2, 2025 – 02:12 am BST

PDB ID	:	5MZ2 / pdb_00005mz2
Title	:	Rubisco from Thalassiosira antarctica
Authors	:	Andersson, I.; Valegard, K.
Deposited on	:	2017-01-30
Resolution	:	1.90 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:

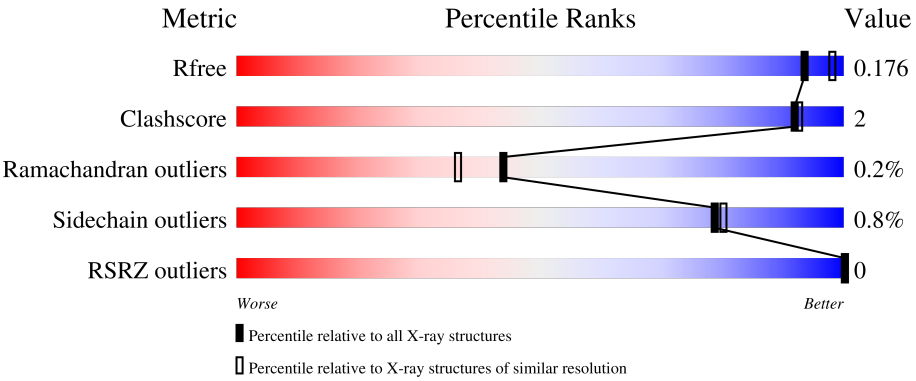
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.42

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 1.90 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}	164625	7293 (1.90-1.90)
Clashscore	180529	8090 (1.90-1.90)
Ramachandran outliers	177936	8022 (1.90-1.90)
Sidechain outliers	177891	8022 (1.90-1.90)
RSRZ outliers	164620	7292 (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 <=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	490	91% 7% •
1	B	490	91% 7% •
1	C	490	92% 6% •
1	D	490	93% 6% •
1	E	490	92% 6% •

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Mol	Chain	Length	Quality of chain
1	F	490	92% 6%
1	G	490	93% 5%
1	H	490	93% 6%
2	I	139	97%
2	J	139	97%
2	K	139	99%
2	L	139	99%
2	M	139	100%
2	N	139	99%
2	O	139	98%
2	P	139	99%

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:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
1	HLU	D	174	-	X	-	-
1	HLU	E	174	-	X	-	-
1	HLU	F	174	-	X	-	-
1	HLU	G	174	-	X	-	-

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 42860 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 Rubisco large subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	481	Total	C	N	O	S	0	0	0
			3759	2387	646	705	21			
1	C	480	Total	C	N	O	S	0	0	0
			3750	2382	645	702	21			
1	H	481	Total	C	N	O	S	0	0	0
			3759	2387	646	705	21			
1	F	481	Total	C	N	O	S	0	0	0
			3759	2387	646	705	21			
1	D	482	Total	C	N	O	S	0	0	0
			3768	2392	648	707	21			
1	B	480	Total	C	N	O	S	0	0	0
			3750	2382	645	702	21			
1	E	481	Total	C	N	O	S	0	0	0
			3759	2387	646	705	21			
1	G	481	Total	C	N	O	S	0	0	0
			3759	2387	647	704	21			

- Molecule 2 is a protein called Rubisco small subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	I	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			
2	O	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			
2	L	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			
2	N	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			
2	M	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			
2	P	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			

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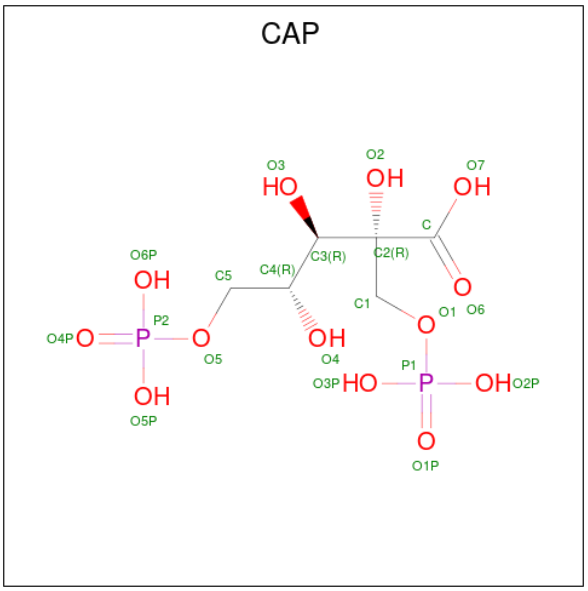
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	J	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			
2	K	139	Total	C	N	O	S	0	0	0
			1109	698	189	212	10			

- Molecule 3 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

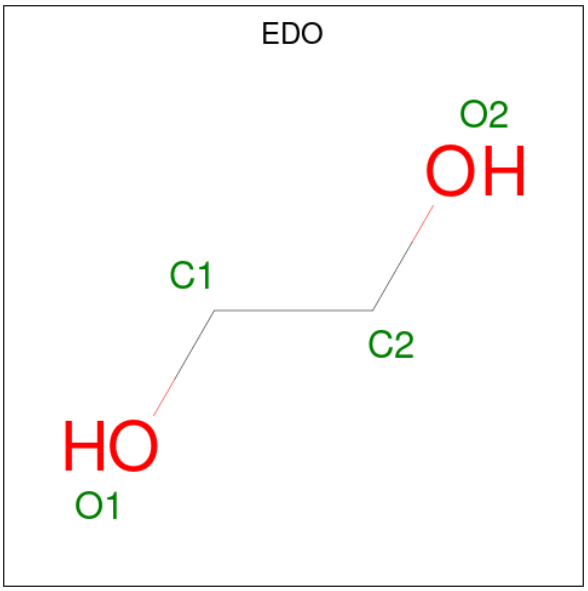
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	Mg	0	0
			1	1		
3	C	1	Total	Mg	0	0
			1	1		
3	H	1	Total	Mg	0	0
			1	1		
3	F	1	Total	Mg	0	0
			1	1		
3	D	1	Total	Mg	0	0
			1	1		
3	B	1	Total	Mg	0	0
			1	1		
3	E	1	Total	Mg	0	0
			1	1		
3	G	1	Total	Mg	0	0
			1	1		
3	I	1	Total	Mg	0	0
			1	1		
3	M	1	Total	Mg	0	0
			1	1		

- Molecule 4 is 2-CARBOXYARABINITOL-1,5-DIPHOSPHATE (CCD ID: CAP) (formula: $C_6H_{14}O_{13}P_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	O	P	0	0
			21	6	13	2		
4	C	1	Total	C	O	P	0	0
			21	6	13	2		
4	H	1	Total	C	O	P	0	0
			21	6	13	2		
4	F	1	Total	C	O	P	0	0
			21	6	13	2		
4	D	1	Total	C	O	P	0	0
			21	6	13	2		
4	B	1	Total	C	O	P	0	0
			21	6	13	2		
4	E	1	Total	C	O	P	0	0
			21	6	13	2		
4	G	1	Total	C	O	P	0	0
			21	6	13	2		

- Molecule 5 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			4	2	2		
5	F	1	Total	C	O	0	0
			4	2	2		
5	B	1	Total	C	O	0	0
			4	2	2		
5	I	1	Total	C	O	0	0
			4	2	2		
5	I	1	Total	C	O	0	0
			4	2	2		
5	I	1	Total	C	O	0	0
			4	2	2		
5	I	1	Total	C	O	0	0
			4	2	2		
5	O	1	Total	C	O	0	0
			4	2	2		
5	O	1	Total	C	O	0	0
			4	2	2		
5	L	1	Total	C	O	0	0
			4	2	2		
5	L	1	Total	C	O	0	0
			4	2	2		
5	L	1	Total	C	O	0	0
			4	2	2		
5	N	1	Total	C	O	0	0
			4	2	2		
5	M	1	Total	C	O	0	0
			4	2	2		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	M	1	Total C O 4 2 2	0	0
5	M	1	Total C O 4 2 2	0	0
5	P	1	Total C O 4 2 2	0	0
5	J	1	Total C O 4 2 2	0	0
5	J	1	Total C O 4 2 2	0	0
5	J	1	Total C O 4 2 2	0	0
5	J	1	Total C O 4 2 2	0	0
5	K	1	Total C O 4 2 2	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	345	Total O 345 345	0	0
6	C	349	Total O 349 349	0	0
6	H	333	Total O 333 333	0	0
6	F	353	Total O 353 353	0	0
6	D	368	Total O 368 368	0	0
6	B	335	Total O 335 335	0	0
6	E	290	Total O 290 290	0	0
6	G	313	Total O 313 313	0	0
6	I	130	Total O 130 130	0	0
6	O	108	Total O 108 108	0	0
6	L	121	Total O 121 121	0	0

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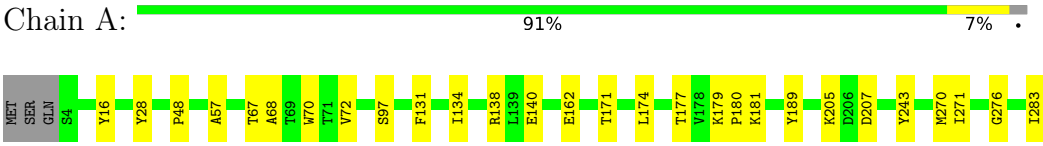
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	N	123	Total O 123 123	0	0
6	M	137	Total O 137 137	0	0
6	P	126	Total O 126 126	0	0
6	J	131	Total O 131 131	0	0
6	K	97	Total O 97 97	0	0

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.

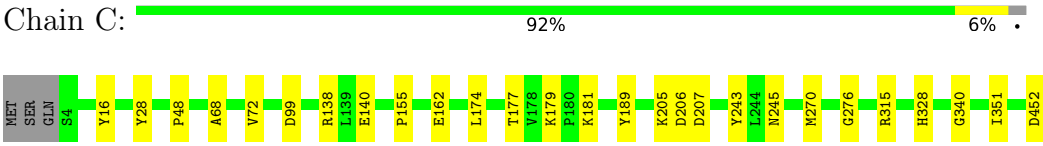
• Molecule 1: Rubisco large subunit

Chain A:



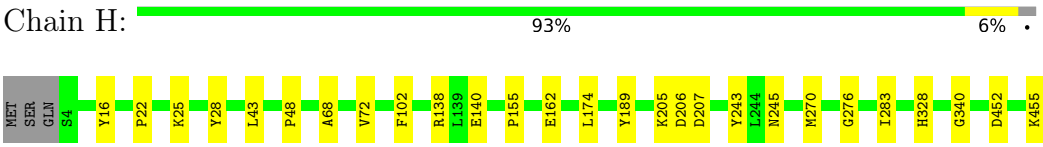
• Molecule 1: Rubisco large subunit

Chain C:



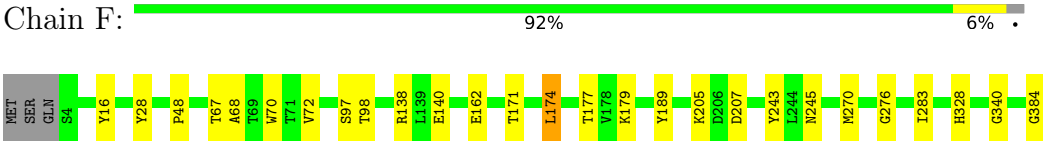
• Molecule 1: Rubisco large subunit

Chain H:



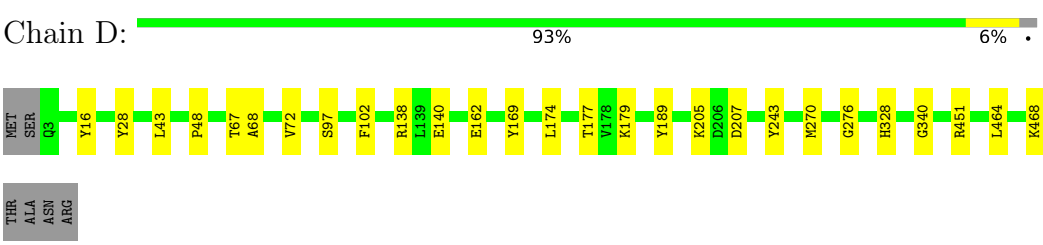
• Molecule 1: Rubisco large subunit

Chain F:



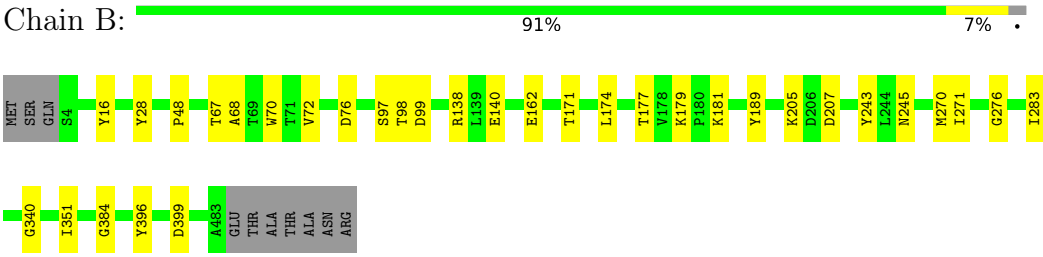
• Molecule 1: Rubisco large subunit

Chain D:



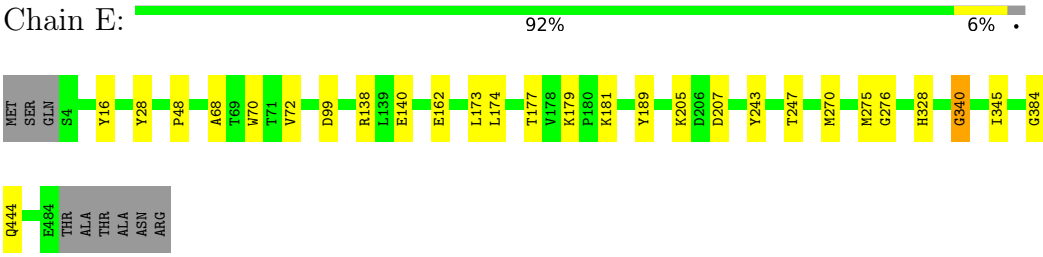
• Molecule 1: Rubisco large subunit

Chain B:



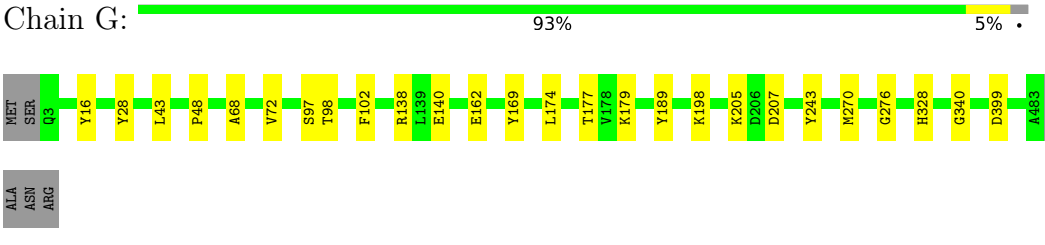
• Molecule 1: Rubisco large subunit

Chain E:



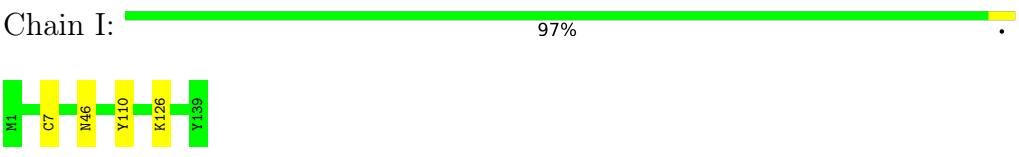
• Molecule 1: Rubisco large subunit

Chain G:



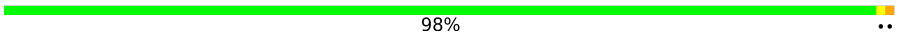
• Molecule 2: Rubisco small subunit

Chain I:



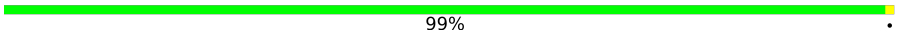
• Molecule 2: Rubisco small subunit

Chain O:



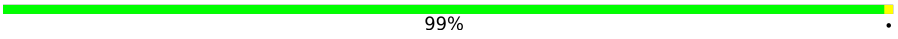
• Molecule 2: Rubisco small subunit

Chain L:



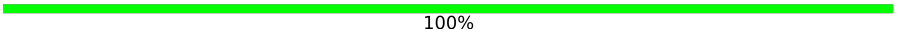
• Molecule 2: Rubisco small subunit

Chain N:



• Molecule 2: Rubisco small subunit

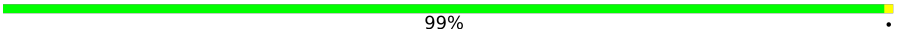
Chain M:



There are no outlier residues recorded for this chain.

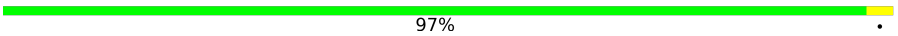
• Molecule 2: Rubisco small subunit

Chain P:



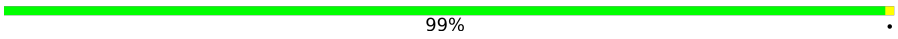
• Molecule 2: Rubisco small subunit

Chain J:



• Molecule 2: Rubisco small subunit

Chain K:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	118.30Å 220.10Å 124.35Å 90.00° 118.39° 90.00°	Depositor
Resolution (Å)	62.09 – 1.90 62.09 – 1.90	Depositor EDS
% Data completeness (in resolution range)	99.9 (62.09-1.90) 99.8 (62.09-1.90)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.06 (at 1.90Å)	Xtriage
Refinement program	PHENIX (1.10_2155: ???)	Depositor
R, R_{free}	0.143 , 0.175 0.143 , 0.176	Depositor DCC
R_{free} test set	21941 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å^2)	12.1	Xtriage
Anisotropy	0.273	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 24.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.487 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	42860	wwPDB-VP
Average B, all atoms (Å^2)	12.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.63% 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: HLU, EDO, LYO, KCX, HYP, MG, CAP, M3L, CSO

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	0.36	0/3757	0.55	0/5085
1	B	0.36	0/3748	0.56	0/5073
1	C	0.36	0/3748	0.55	0/5073
1	D	0.38	0/3766	0.56	0/5097
1	E	0.37	0/3757	0.56	0/5085
1	F	0.38	0/3757	0.56	0/5085
1	G	0.37	0/3757	0.55	0/5085
1	H	0.36	0/3757	0.55	0/5085
2	I	0.35	0/1137	0.52	0/1540
2	J	0.35	0/1137	0.52	0/1540
2	K	0.34	0/1137	0.52	0/1540
2	L	0.35	0/1137	0.51	0/1540
2	M	0.35	0/1137	0.52	0/1540
2	N	0.34	0/1137	0.51	0/1540
2	O	0.36	0/1137	0.58	2/1540 (0.1%)
2	P	0.36	0/1137	0.52	0/1540
All	All	0.36	0/39143	0.55	2/52988 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	O	119	ARG	NE-CZ-NH2	-7.48	116.56	120.30
2	O	119	ARG	NE-CZ-NH1	6.61	123.60	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	3759	0	3693	17	0
1	B	3750	0	3687	19	1
1	C	3750	0	3687	16	0
1	D	3768	0	3701	14	0
1	E	3759	0	3693	16	1
1	F	3759	0	3693	15	0
1	G	3759	0	3695	10	0
1	H	3759	0	3693	13	0
2	I	1109	0	1055	5	0
2	J	1109	0	1055	3	0
2	K	1109	0	1055	1	0
2	L	1109	0	1055	1	0
2	M	1109	0	1055	0	0
2	N	1109	0	1055	1	0
2	O	1109	0	1055	2	0
2	P	1109	0	1055	1	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	F	1	0	0	0	0
3	G	1	0	0	0	0
3	H	1	0	0	0	0
3	I	1	0	0	0	0
3	M	1	0	0	0	0
4	A	21	0	7	0	0
4	B	21	0	7	0	0
4	C	21	0	7	0	0
4	D	21	0	8	0	0
4	E	21	0	7	0	0
4	F	21	0	7	0	0
4	G	21	0	8	0	0
4	H	21	0	7	0	0
5	A	4	0	6	0	0
5	B	4	0	6	0	0
5	F	4	0	6	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	I	16	0	24	5	0
5	J	16	0	24	3	0
5	K	4	0	6	0	0
5	L	12	0	18	0	0
5	M	12	0	18	0	0
5	N	4	0	6	0	0
5	O	8	0	12	0	0
5	P	4	0	6	0	0
6	A	345	0	0	0	0
6	B	335	0	0	0	0
6	C	349	0	0	2	0
6	D	368	0	0	2	0
6	E	290	0	0	0	0
6	F	353	0	0	0	0
6	G	313	0	0	0	0
6	H	333	0	0	0	0
6	I	130	0	0	0	0
6	J	131	0	0	0	0
6	K	97	0	0	1	0
6	L	121	0	0	0	0
6	M	137	0	0	0	0
6	N	123	0	0	0	0
6	O	108	0	0	0	0
6	P	126	0	0	0	0
All	All	42860	0	38172	119	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 2.

All (119) 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:D:451:ARG:NH1	6:D:1001:HOH:O	2.00	0.94
1:D:468:LYS:NZ	6:D:1001:HOH:O	1.99	0.93
2:I:46:ASN:HD21	5:I:205:EDO:H12	1.44	0.80
1:C:276:GLY:HA3	1:D:276:GLY:HA3	1.65	0.78
1:H:22:PRO:HD2	1:H:25:LYS:HE2	1.64	0.78
1:H:276:GLY:HA3	1:G:276:GLY:HA3	1.67	0.77
1:F:276:GLY:HA3	1:E:276:GLY:HA3	1.68	0.75
1:A:276:GLY:HA3	1:B:276:GLY:HA3	1.68	0.74
5:I:203:EDO:H22	5:J:202:EDO:H11	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:243:TYR:HB3	1:F:270:MET:HB3	1.84	0.59
2:I:46:ASN:ND2	5:I:205:EDO:H12	2.17	0.58
1:E:443:ASN:O	1:E:443:ASN:ND2	2.26	0.57
1:B:243:TYR:HB3	1:B:270:MET:HB3	1.87	0.55
1:C:28:TYR:CZ	1:C:68:ALA:HB2	2.42	0.55
1:E:99:ASP:N	1:E:99:ASP:OD1	2.37	0.55
1:D:464:LEU:O	1:D:468:LYS:HB2	2.07	0.55
1:B:315:ARG:HB2	1:B:351:ILE:HD12	1.90	0.54
1:H:243:TYR:HB3	1:H:270:MET:HB3	1.90	0.53
2:I:126:LYS:HE3	5:I:203:EDO:H21	1.90	0.53
1:H:28:TYR:CZ	1:H:68:ALA:HB2	2.43	0.53
1:A:243:TYR:HB3	1:A:270:MET:HB3	1.90	0.52
1:E:243:TYR:HB3	1:E:270:MET:HB3	1.91	0.52
1:A:16:TYR:HA	1:A:72:VAL:HG11	1.91	0.52
1:A:171:THR:HG23	2:I:7:CYS:HB2	1.92	0.51
2:J:112:ASP:OD2	5:J:202:EDO:H21	2.10	0.51
1:C:243:TYR:HB3	1:C:270:MET:HB3	1.92	0.51
1:F:28:TYR:CZ	1:F:68:ALA:HB2	2.46	0.51
1:F:16:TYR:HA	1:F:72:VAL:HG11	1.92	0.51
1:E:28:TYR:CZ	1:E:68:ALA:HB2	2.45	0.51
1:A:138:ARG:HD3	1:A:140:GLU:OE2	2.11	0.51
1:H:245:ASN:HA	1:H:270:MET:HG2	1.92	0.51
1:E:16:TYR:HA	1:E:72:VAL:HG11	1.93	0.50
1:F:138:ARG:HD3	1:F:140:GLU:OE2	2.12	0.50
1:E:138:ARG:HD3	1:E:140:GLU:OE2	2.11	0.50
2:K:55:LEU:HD12	2:K:64:VAL:HG22	1.94	0.50
1:G:16:TYR:HA	1:G:72:VAL:HG11	1.93	0.50
1:H:16:TYR:HA	1:H:72:VAL:HG11	1.94	0.50
1:D:16:TYR:HA	1:D:72:VAL:HG11	1.94	0.50
1:D:28:TYR:CZ	1:D:68:ALA:HB2	2.46	0.50
1:A:28:TYR:CZ	1:A:68:ALA:HB2	2.47	0.49
1:A:181:LYS:HB2	1:B:67:THR:HA	1.95	0.49
1:C:478:ASP:OD1	6:C:1001:HOH:O	2.19	0.49
1:G:177:THR:HB	1:G:179:LYS:HE2	1.95	0.49
1:G:243:TYR:HB3	1:G:270:MET:HB3	1.94	0.49
1:G:162:GLU:CD	1:G:328:HIS:HE2	2.14	0.49
2:J:110:TYR:OH	5:J:202:EDO:H22	2.13	0.49
1:C:162:GLU:CD	1:C:328:HIS:HE2	2.16	0.48
1:D:177:THR:HB	1:D:179:LYS:HE2	1.95	0.48
1:C:138:ARG:HD3	1:C:140:GLU:OE2	2.13	0.48
1:E:162:GLU:CD	1:E:328:HIS:HE2	2.17	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:138:ARG:HD3	1:H:140:GLU:OE2	2.14	0.47
1:H:28:TYR:CE1	1:H:68:ALA:HB2	2.49	0.47
1:A:57:ALA:HB1	1:A:134:ILE:HD11	1.95	0.47
1:C:245:ASN:HA	1:C:270:MET:HG2	1.96	0.47
1:C:452:ASP:HA	1:C:455:LYS:HE2	1.96	0.47
1:F:245:ASN:HA	1:F:270:MET:HG2	1.96	0.47
1:B:28:TYR:CZ	1:B:68:ALA:HB2	2.50	0.47
1:C:28:TYR:CE1	1:C:68:ALA:HB2	2.50	0.47
1:B:171:THR:HG23	2:P:7:CYS:HB2	1.98	0.47
1:C:16:TYR:HA	1:C:72:VAL:HG11	1.95	0.46
1:D:28:TYR:CE1	1:D:68:ALA:HB2	2.50	0.46
1:G:138:ARG:HD3	1:G:140:GLU:OE2	2.14	0.46
1:D:243:TYR:HB3	1:D:270:MET:HB3	1.98	0.46
1:D:162:GLU:CD	1:D:328:HIS:HE2	2.14	0.46
1:E:340:GLY:HA3	1:E:345:ILE:HD11	1.97	0.46
1:A:162:GLU:CD	1:A:328:HIS:HE2	2.18	0.45
1:H:452:ASP:HA	1:H:455:LYS:HE2	1.98	0.45
1:F:70:TRP:CD1	1:E:384:GLY:HA2	2.51	0.45
2:J:55:LEU:HD12	2:J:64:VAL:HG22	1.99	0.45
1:A:70:TRP:CD1	1:B:384:GLY:HA2	2.52	0.45
1:C:99:ASP:OD2	1:C:99:ASP:N	2.50	0.45
1:B:16:TYR:HA	1:B:72:VAL:HG11	1.99	0.45
1:G:28:TYR:CZ	1:G:68:ALA:HB2	2.51	0.45
1:B:138:ARG:HD3	1:B:140:GLU:OE2	2.17	0.45
1:B:245:ASN:HA	1:B:270:MET:HG2	1.98	0.45
1:D:43:LEU:HD11	1:D:102:PHE:HB3	1.99	0.45
1:F:162:GLU:CD	1:F:328:HIS:HE2	2.18	0.44
1:C:99:ASP:HB2	6:C:1084:HOH:O	2.17	0.44
1:B:177:THR:HB	1:B:179:LYS:HE2	2.00	0.44
1:H:283:ILE:HD13	1:H:283:ILE:HA	1.90	0.44
1:A:315:ARG:HB2	1:A:351:ILE:HD12	1.98	0.44
1:A:67:THR:HA	1:B:181:LYS:HB2	2.00	0.44
1:F:177:THR:HB	1:F:179:LYS:HE2	2.00	0.44
1:B:271:ILE:HD13	1:B:283:ILE:HG21	1.99	0.44
1:F:384:GLY:HA2	1:E:70:TRP:CD1	2.53	0.43
1:E:28:TYR:CE1	1:E:68:ALA:HB2	2.52	0.43
1:A:177:THR:HB	1:A:179:LYS:HE2	1.99	0.43
1:F:28:TYR:CE1	1:F:68:ALA:HB2	2.53	0.43
1:D:138:ARG:HD3	1:D:140:GLU:OE2	2.18	0.43
1:A:384:GLY:HA2	1:B:70:TRP:CD1	2.53	0.43
1:F:171:THR:HG23	2:N:7:CYS:HB2	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:28:TYR:CE1	1:B:68:ALA:HB2	2.54	0.43
1:G:28:TYR:CE1	1:G:68:ALA:HB2	2.54	0.43
1:B:98:THR:O	1:B:99:ASP:HB3	2.19	0.43
1:C:181:LYS:HB2	1:D:67:THR:HA	2.00	0.42
1:C:206:ASP:HB2	1:C:245:ASN:HB2	2.01	0.42
1:A:271:ILE:HD13	1:A:283:ILE:HG21	2.01	0.42
1:C:177:THR:HB	1:C:179:LYS:HE2	2.02	0.42
1:B:315:ARG:HB2	1:B:351:ILE:CD1	2.49	0.42
2:O:119:ARG:N	2:O:119:ARG:HD2	2.34	0.42
1:H:162:GLU:CD	1:H:328:HIS:HE2	2.20	0.42
1:C:315:ARG:HB2	1:C:351:ILE:CD1	2.49	0.42
1:F:174:HLU:HG	1:F:427:LEU:HD22	2.02	0.42
1:D:162:GLU:OE2	1:D:328:HIS:NE2	2.36	0.42
2:O:55:LEU:HD12	2:O:64:VAL:HG22	2.02	0.41
1:H:43:LEU:HD11	1:H:102:PHE:HB3	2.03	0.41
1:B:162:GLU:CD	1:B:328:HIS:HE2	2.19	0.41
1:G:43:LEU:HD11	1:G:102:PHE:HB3	2.03	0.41
2:L:114:THR:HB	2:L:122:VAL:HB	2.03	0.41
1:A:28:TYR:CE1	1:A:68:ALA:HB2	2.55	0.41
1:F:67:THR:HA	1:E:181:LYS:HB2	2.02	0.41
1:E:177:THR:HB	1:E:179:LYS:HE2	2.02	0.41
2:I:110:TYR:OH	5:I:203:EDO:H12	2.21	0.40
1:G:198:LYO:HE2	6:K:319:HOH:O	2.20	0.40
1:F:283:ILE:HD12	1:F:283:ILE:HA	1.99	0.40
1:E:247:THR:HG23	1:E:275:MET:HG3	2.02	0.40
1:H:206:ASP:HB2	1:H:245:ASN:HB2	2.03	0.40
1:E:173:LEU:HB2	1:E:402:VAL:HG22	2.02	0.40
1:A:180:PRO:HB3	1:B:76:ASP:OD1	2.22	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)
1:B:396:TYR:OH	1:E:444:GLN:OE1[1_556]	2.09	0.11

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	471/490 (96%)	460 (98%)	10 (2%)	1 (0%)	44	36
1	B	470/490 (96%)	459 (98%)	10 (2%)	1 (0%)	44	36
1	C	470/490 (96%)	459 (98%)	10 (2%)	1 (0%)	44	36
1	D	472/490 (96%)	460 (98%)	11 (2%)	1 (0%)	44	36
1	E	471/490 (96%)	461 (98%)	9 (2%)	1 (0%)	44	36
1	F	471/490 (96%)	462 (98%)	8 (2%)	1 (0%)	44	36
1	G	471/490 (96%)	457 (97%)	13 (3%)	1 (0%)	44	36
1	H	471/490 (96%)	459 (98%)	11 (2%)	1 (0%)	44	36
2	I	137/139 (99%)	136 (99%)	1 (1%)	0	100	100
2	J	137/139 (99%)	136 (99%)	1 (1%)	0	100	100
2	K	137/139 (99%)	136 (99%)	1 (1%)	0	100	100
2	L	137/139 (99%)	136 (99%)	1 (1%)	0	100	100
2	M	137/139 (99%)	135 (98%)	2 (2%)	0	100	100
2	N	137/139 (99%)	135 (98%)	2 (2%)	0	100	100
2	O	137/139 (99%)	136 (99%)	1 (1%)	0	100	100
2	P	137/139 (99%)	136 (99%)	1 (1%)	0	100	100
All	All	4863/5032 (97%)	4763 (98%)	92 (2%)	8 (0%)	44	36

All (8) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	340	GLY
1	F	340	GLY
1	B	340	GLY
1	C	340	GLY
1	H	340	GLY
1	D	340	GLY

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Mol	Chain	Res	Type
1	E	340	GLY
1	G	340	GLY

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	381/388 (98%)	377 (99%)	4 (1%)	73	74
1	B	380/388 (98%)	376 (99%)	4 (1%)	70	71
1	C	380/388 (98%)	378 (100%)	2 (0%)	86	88
1	D	382/388 (98%)	378 (99%)	4 (1%)	73	74
1	E	381/388 (98%)	378 (99%)	3 (1%)	79	80
1	F	381/388 (98%)	376 (99%)	5 (1%)	65	65
1	G	381/388 (98%)	375 (98%)	6 (2%)	58	56
1	H	381/388 (98%)	379 (100%)	2 (0%)	86	88
2	I	119/119 (100%)	119 (100%)	0	100	100
2	J	119/119 (100%)	119 (100%)	0	100	100
2	K	119/119 (100%)	119 (100%)	0	100	100
2	L	119/119 (100%)	119 (100%)	0	100	100
2	M	119/119 (100%)	119 (100%)	0	100	100
2	N	119/119 (100%)	119 (100%)	0	100	100
2	O	119/119 (100%)	119 (100%)	0	100	100
2	P	119/119 (100%)	118 (99%)	1 (1%)	79	80
All	All	3999/4056 (99%)	3968 (99%)	31 (1%)	79	80

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

Mol	Chain	Res	Type
1	A	97	SER
1	A	131	PHE

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Mol	Chain	Res	Type
1	A	189	TYR
1	A	207	ASP
1	C	189	TYR
1	C	207	ASP
1	H	189	TYR
1	H	207	ASP
1	F	97	SER
1	F	98	THR
1	F	189	TYR
1	F	207	ASP
1	F	473	ASN
1	D	97	SER
1	D	169	TYR
1	D	189	TYR
1	D	207	ASP
1	B	97	SER
1	B	189	TYR
1	B	207	ASP
1	B	399	ASP
1	E	189	TYR
1	E	207	ASP
1	E	443	ASN
1	G	97	SER
1	G	98	THR
1	G	169	TYR
1	G	189	TYR
1	G	207	ASP
1	G	399	ASP
2	P	59	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	444	GLN
2	I	46	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

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

64 non-standard protein/DNA/RNA residues 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	$\#\|Z\| > 2$
1	LYO	H	198	1	7,9,10	0.37	0	6,10,12	0.72	0
1	HYP	H	155	1	6,8,9	0.70	0	5,10,12	1.52	1 (20%)
1	KCX	D	205	3,1	9,11,12	1.10	1 (11%)	5,12,14	1.71	1 (20%)
1	HLU	D	174	1	7,8,9	0.79	0	7,10,12	2.26	4 (57%)
1	HLU	C	174	1	7,8,9	0.77	0	7,10,12	1.87	3 (42%)
1	KCX	A	205	3,1	9,11,12	1.18	1 (11%)	5,12,14	1.59	1 (20%)
1	LYO	D	150	1	7,9,10	0.47	0	6,10,12	0.75	0
1	HLU	H	174	1	7,8,9	0.78	0	7,10,12	1.90	3 (42%)
1	M3L	D	346	1	10,11,12	0.79	0	9,14,16	0.37	0
1	KCX	C	205	3,1	9,11,12	1.01	0	5,12,14	1.09	1 (20%)
1	HYP	A	48	1	6,8,9	0.75	0	5,10,12	2.09	2 (40%)
1	HYP	C	48	1	6,8,9	0.67	0	5,10,12	2.08	2 (40%)
1	CSO	G	109	1	3,6,7	0.82	0	0,6,8	-	-
1	HYP	G	48	1	6,8,9	0.65	0	5,10,12	1.96	2 (40%)
1	M3L	C	346	1	10,11,12	0.78	0	9,14,16	0.35	0
1	HLU	B	174	1	7,8,9	0.79	0	7,10,12	2.06	3 (42%)
1	M3L	E	346	1	10,11,12	0.76	0	9,14,16	0.42	0
1	HYP	E	48	1	6,8,9	0.71	0	5,10,12	1.76	2 (40%)
1	LYO	C	150	1	7,9,10	0.43	0	6,10,12	1.00	0
1	KCX	B	205	3,1	9,11,12	1.09	1 (11%)	5,12,14	1.92	1 (20%)
1	KCX	F	205	3,1	9,11,12	1.04	0	5,12,14	1.32	1 (20%)
1	HYP	F	48	1	6,8,9	0.68	0	5,10,12	1.62	1 (20%)
1	HYP	D	155	1	6,8,9	0.62	0	5,10,12	1.44	0
1	LYO	G	198	1	7,9,10	0.33	0	6,10,12	0.95	0
1	CSO	D	109	1	3,6,7	0.75	0	0,6,8	-	-
1	CSO	A	109	1	3,6,7	0.71	0	0,6,8	-	-
1	LYO	F	150	1	7,9,10	0.45	0	6,10,12	0.70	0
1	HYP	C	155	1	6,8,9	0.77	0	5,10,12	1.48	1 (20%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
1	LYO	D	198	1	7,9,10	0.35	0	6,10,12	0.79	0
1	LYO	E	198	1	7,9,10	0.43	0	6,10,12	0.84	0
1	LYO	B	150	1	7,9,10	0.37	0	6,10,12	0.75	0
1	HLU	E	174	1	7,8,9	0.72	0	7,10,12	2.30	4 (57%)
1	HYP	E	155	1	6,8,9	0.58	0	5,10,12	1.26	0
1	HLU	A	174	1	7,8,9	0.72	0	7,10,12	2.01	3 (42%)
1	LYO	C	198	1	7,9,10	0.37	0	6,10,12	0.86	0
1	HYP	A	155	1	6,8,9	0.61	0	5,10,12	1.26	0
1	KCX	G	205	3,1	9,11,12	1.05	0	5,12,14	1.52	1 (20%)
1	KCX	E	205	3,1	9,11,12	1.02	0	5,12,14	1.29	1 (20%)
1	CSO	B	109	1	3,6,7	0.75	0	0,6,8	-	-
1	KCX	H	205	3,1	9,11,12	0.99	0	5,12,14	1.19	1 (20%)
1	LYO	G	150	1	7,9,10	0.44	0	6,10,12	0.91	0
1	LYO	B	198	1	7,9,10	0.45	0	6,10,12	0.93	0
1	M3L	A	346	1	10,11,12	0.76	0	9,14,16	0.31	0
1	HYP	D	48	1	6,8,9	0.64	0	5,10,12	2.18	2 (40%)
1	M3L	G	346	1	10,11,12	0.75	0	9,14,16	0.39	0
1	HYP	H	48	1	6,8,9	0.68	0	5,10,12	2.05	2 (40%)
1	LYO	A	150	1	7,9,10	0.39	0	6,10,12	0.72	0
1	HYP	G	155	1	6,8,9	0.65	0	5,10,12	1.41	0
1	M3L	H	346	1	10,11,12	0.76	0	9,14,16	0.35	0
1	CSO	H	109	1	3,6,7	0.79	0	0,6,8	-	-
1	M3L	F	346	1	10,11,12	0.77	0	9,14,16	0.43	0
1	CSO	E	109	1	3,6,7	0.71	0	0,6,8	-	-
1	LYO	H	150	1	7,9,10	0.48	0	6,10,12	0.73	0
1	CSO	F	109	1	3,6,7	0.63	0	0,6,8	-	-
1	LYO	E	150	1	7,9,10	0.46	0	6,10,12	0.79	0
1	LYO	F	198	1	7,9,10	0.44	0	6,10,12	0.80	0
1	HLU	F	174	1	7,8,9	0.73	0	7,10,12	2.16	4 (57%)
1	HLU	G	174	1	7,8,9	0.78	0	7,10,12	2.30	4 (57%)
1	M3L	B	346	1	10,11,12	0.77	0	9,14,16	0.31	0
1	HYP	B	48	1	6,8,9	0.72	0	5,10,12	1.96	2 (40%)
1	LYO	A	198	1	7,9,10	0.45	0	6,10,12	0.82	0
1	CSO	C	109	1	3,6,7	0.78	0	0,6,8	-	-
1	HYP	B	155	1	6,8,9	0.61	0	5,10,12	1.07	0
1	HYP	F	155	1	6,8,9	0.57	0	5,10,12	1.26	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
1	LYO	H	198	1	-	1/8/9/11	-
1	HYP	H	155	1	-	0/0/11/13	0/1/1/1
1	KCX	D	205	3,1	-	0/9/10/12	-
1	HLU	D	174	1	-	8/9/10/12	-
1	HLU	C	174	1	-	8/9/10/12	-
1	KCX	A	205	3,1	-	0/9/10/12	-
1	LYO	D	150	1	-	1/8/9/11	-
1	HLU	H	174	1	-	8/9/10/12	-
1	M3L	D	346	1	-	1/9/10/12	-
1	KCX	C	205	3,1	-	0/9/10/12	-
1	HYP	A	48	1	-	0/0/11/13	0/1/1/1
1	HYP	C	48	1	-	0/0/11/13	0/1/1/1
1	CSO	G	109	1	-	0/1/5/7	-
1	HYP	G	48	1	-	0/0/11/13	0/1/1/1
1	M3L	C	346	1	-	1/9/10/12	-
1	HLU	B	174	1	-	8/9/10/12	-
1	M3L	E	346	1	-	1/9/10/12	-
1	HYP	E	48	1	-	0/0/11/13	0/1/1/1
1	LYO	C	150	1	-	0/8/9/11	-
1	KCX	B	205	3,1	-	0/9/10/12	-
1	KCX	F	205	3,1	-	0/9/10/12	-
1	HYP	F	48	1	-	0/0/11/13	0/1/1/1
1	HYP	D	155	1	-	0/0/11/13	0/1/1/1
1	LYO	G	198	1	-	1/8/9/11	-
1	CSO	D	109	1	-	0/1/5/7	-
1	CSO	A	109	1	-	0/1/5/7	-
1	LYO	F	150	1	-	1/8/9/11	-
1	HYP	C	155	1	-	0/0/11/13	0/1/1/1
1	LYO	D	198	1	-	1/8/9/11	-
1	LYO	E	198	1	-	1/8/9/11	-
1	LYO	B	150	1	-	1/8/9/11	-
1	HLU	E	174	1	-	8/9/10/12	-
1	HYP	E	155	1	-	0/0/11/13	0/1/1/1
1	HLU	A	174	1	-	8/9/10/12	-
1	LYO	C	198	1	-	1/8/9/11	-
1	HYP	A	155	1	-	0/0/11/13	0/1/1/1
1	KCX	G	205	3,1	-	0/9/10/12	-
1	KCX	E	205	3,1	-	0/9/10/12	-
1	CSO	B	109	1	-	0/1/5/7	-
1	KCX	H	205	3,1	-	0/9/10/12	-
1	LYO	G	150	1	-	1/8/9/11	-
1	LYO	B	198	1	-	1/8/9/11	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	M3L	A	346	1	-	1/9/10/12	-
1	HYP	D	48	1	-	0/0/11/13	0/1/1/1
1	M3L	G	346	1	-	1/9/10/12	-
1	HYP	H	48	1	-	0/0/11/13	0/1/1/1
1	LYO	A	150	1	-	1/8/9/11	-
1	HYP	G	155	1	-	0/0/11/13	0/1/1/1
1	M3L	H	346	1	-	1/9/10/12	-
1	CSO	H	109	1	-	0/1/5/7	-
1	M3L	F	346	1	-	1/9/10/12	-
1	CSO	E	109	1	-	0/1/5/7	-
1	LYO	H	150	1	-	1/8/9/11	-
1	CSO	F	109	1	-	0/1/5/7	-
1	LYO	E	150	1	-	1/8/9/11	-
1	LYO	F	198	1	-	0/8/9/11	-
1	HLU	F	174	1	-	8/9/10/12	-
1	HLU	G	174	1	-	8/9/10/12	-
1	M3L	B	346	1	-	1/9/10/12	-
1	HYP	B	48	1	-	0/0/11/13	0/1/1/1
1	LYO	A	198	1	-	0/8/9/11	-
1	CSO	C	109	1	-	0/1/5/7	-
1	HYP	B	155	1	-	0/0/11/13	0/1/1/1
1	HYP	F	155	1	-	0/0/11/13	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	205	KCX	CE-NZ	2.45	1.51	1.46
1	B	205	KCX	CE-NZ	2.15	1.51	1.46
1	D	205	KCX	CE-NZ	2.10	1.51	1.46

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	205	KCX	OQ1-CX-NZ	-4.21	118.44	124.96
1	D	205	KCX	OQ1-CX-NZ	-3.81	119.05	124.96
1	E	174	HLU	OH-CB-CG	3.77	117.77	109.89
1	D	174	HLU	OH-CB-CG	3.69	117.59	109.89
1	G	174	HLU	OH-CB-CG	3.67	117.56	109.89
1	F	174	HLU	OH-CB-CG	3.51	117.22	109.89
1	A	205	KCX	OQ1-CX-NZ	-3.49	119.55	124.96
1	A	174	HLU	OH-CB-CG	3.46	117.12	109.89
1	C	174	HLU	OH-CB-CG	3.35	116.89	109.89

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	H	174	HLU	OH-CB-CG	3.30	116.80	109.89
1	G	205	KCX	OQ1-CX-NZ	-3.28	119.87	124.96
1	B	174	HLU	OH-CB-CG	3.23	116.64	109.89
1	D	48	HYP	CB-CG-CD	3.21	107.20	103.27
1	G	174	HLU	CD1-CG-CB	3.14	116.32	111.20
1	C	48	HYP	CB-CG-CD	3.09	107.06	103.27
1	H	48	HYP	CB-CG-CD	2.97	106.90	103.27
1	F	205	KCX	OQ1-CX-NZ	-2.94	120.40	124.96
1	E	205	KCX	OQ1-CX-NZ	-2.87	120.50	124.96
1	G	48	HYP	CB-CG-CD	2.78	106.68	103.27
1	A	48	HYP	OD1-CG-CB	-2.77	103.19	110.03
1	E	174	HLU	CG-CB-CA	2.73	119.68	113.69
1	B	48	HYP	CB-CG-CD	2.68	106.55	103.27
1	A	48	HYP	CB-CG-CD	2.66	106.53	103.27
1	H	205	KCX	OQ1-CX-NZ	-2.64	120.87	124.96
1	D	174	HLU	CG-CB-CA	2.64	119.47	113.69
1	B	174	HLU	CB-CA-N	-2.58	96.75	113.84
1	A	174	HLU	CB-CA-N	-2.54	97.02	113.84
1	B	174	HLU	CG-CB-CA	2.53	119.24	113.69
1	H	174	HLU	CG-CB-CA	2.53	119.23	113.69
1	E	174	HLU	CB-CA-N	-2.52	97.15	113.84
1	F	174	HLU	CB-CA-N	-2.44	97.66	113.84
1	D	174	HLU	CD1-CG-CB	2.44	115.17	111.20
1	E	174	HLU	CD1-CG-CB	2.39	115.10	111.20
1	B	48	HYP	OD1-CG-CB	-2.38	104.15	110.03
1	D	174	HLU	CB-CA-N	-2.37	98.14	113.84
1	F	174	HLU	CG-CB-CA	2.37	118.88	113.69
1	C	205	KCX	OQ1-CX-NZ	-2.33	121.34	124.96
1	C	174	HLU	CB-CA-N	-2.33	98.40	113.84
1	G	174	HLU	CB-CA-N	-2.30	98.58	113.84
1	H	155	HYP	CB-CG-CD	2.29	106.07	103.27
1	A	174	HLU	CG-CB-CA	2.24	118.60	113.69
1	G	174	HLU	CG-CB-CA	2.22	118.55	113.69
1	E	48	HYP	CB-CG-CD	2.20	105.96	103.27
1	E	48	HYP	OD1-CG-CB	-2.19	104.63	110.03
1	C	155	HYP	CB-CG-CD	2.17	105.93	103.27
1	G	48	HYP	OD1-CG-CB	-2.17	104.68	110.03
1	F	174	HLU	CD1-CG-CB	2.15	114.71	111.20
1	H	174	HLU	CB-CA-N	-2.13	99.69	113.84
1	C	174	HLU	CG-CB-CA	2.11	118.31	113.69
1	F	48	HYP	CB-CG-CD	2.10	105.84	103.27
1	H	48	HYP	OD1-CG-CB	-2.08	104.89	110.03

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	48	HYP	OD1-CG-CB	-2.08	104.89	110.03
1	C	48	HYP	OD1-CG-CB	-2.06	104.93	110.03

There are no chirality outliers.

All (85) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	174	HLU	N-CA-CB-CG
1	A	174	HLU	N-CA-CB-OH
1	A	174	HLU	C-CA-CB-CG
1	A	174	HLU	CA-CB-CG-CD1
1	A	174	HLU	CA-CB-CG-CD2
1	A	174	HLU	OH-CB-CG-CD1
1	A	174	HLU	OH-CB-CG-CD2
1	C	174	HLU	N-CA-CB-CG
1	C	174	HLU	N-CA-CB-OH
1	C	174	HLU	C-CA-CB-CG
1	C	174	HLU	C-CA-CB-OH
1	C	174	HLU	CA-CB-CG-CD2
1	C	174	HLU	OH-CB-CG-CD1
1	C	174	HLU	OH-CB-CG-CD2
1	H	174	HLU	N-CA-CB-CG
1	H	174	HLU	N-CA-CB-OH
1	H	174	HLU	C-CA-CB-CG
1	H	174	HLU	C-CA-CB-OH
1	H	174	HLU	CA-CB-CG-CD1
1	H	174	HLU	CA-CB-CG-CD2
1	H	174	HLU	OH-CB-CG-CD1
1	H	174	HLU	OH-CB-CG-CD2
1	F	174	HLU	N-CA-CB-CG
1	F	174	HLU	N-CA-CB-OH
1	F	174	HLU	C-CA-CB-CG
1	F	174	HLU	CA-CB-CG-CD2
1	F	174	HLU	OH-CB-CG-CD1
1	F	174	HLU	OH-CB-CG-CD2
1	D	174	HLU	N-CA-CB-CG
1	D	174	HLU	N-CA-CB-OH
1	D	174	HLU	C-CA-CB-CG
1	D	174	HLU	CA-CB-CG-CD1
1	D	174	HLU	CA-CB-CG-CD2
1	D	174	HLU	OH-CB-CG-CD1
1	D	174	HLU	OH-CB-CG-CD2

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Mol	Chain	Res	Type	Atoms
1	B	174	HLU	N-CA-CB-CG
1	B	174	HLU	N-CA-CB-OH
1	B	174	HLU	C-CA-CB-CG
1	B	174	HLU	C-CA-CB-OH
1	B	174	HLU	CA-CB-CG-CD1
1	B	174	HLU	CA-CB-CG-CD2
1	B	174	HLU	OH-CB-CG-CD1
1	B	174	HLU	OH-CB-CG-CD2
1	E	174	HLU	N-CA-CB-CG
1	E	174	HLU	N-CA-CB-OH
1	E	174	HLU	C-CA-CB-CG
1	E	174	HLU	CA-CB-CG-CD1
1	E	174	HLU	CA-CB-CG-CD2
1	E	174	HLU	OH-CB-CG-CD1
1	E	174	HLU	OH-CB-CG-CD2
1	G	174	HLU	N-CA-CB-CG
1	G	174	HLU	N-CA-CB-OH
1	G	174	HLU	C-CA-CB-CG
1	G	174	HLU	CA-CB-CG-CD1
1	G	174	HLU	CA-CB-CG-CD2
1	G	174	HLU	OH-CB-CG-CD1
1	G	174	HLU	OH-CB-CG-CD2
1	H	198	LYO	CG-CD-CE-NZ
1	D	198	LYO	CG-CD-CE-NZ
1	B	198	LYO	CG-CD-CE-NZ
1	E	198	LYO	CG-CD-CE-NZ
1	G	198	LYO	CG-CD-CE-NZ
1	A	174	HLU	C-CA-CB-OH
1	F	174	HLU	C-CA-CB-OH
1	D	174	HLU	C-CA-CB-OH
1	E	174	HLU	C-CA-CB-OH
1	G	174	HLU	C-CA-CB-OH
1	C	174	HLU	CA-CB-CG-CD1
1	F	174	HLU	CA-CB-CG-CD1
1	D	346	M3L	CE-CD-CG-CB
1	C	346	M3L	CE-CD-CG-CB
1	G	346	M3L	CE-CD-CG-CB
1	E	346	M3L	CE-CD-CG-CB
1	B	346	M3L	CE-CD-CG-CB
1	F	346	M3L	CE-CD-CG-CB
1	H	346	M3L	CE-CD-CG-CB
1	C	198	LYO	CG-CD-CE-NZ

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Mol	Chain	Res	Type	Atoms
1	G	150	LYO	N-CA-CB-CG
1	A	346	M3L	CE-CD-CG-CB
1	A	150	LYO	N-CA-CB-CG
1	H	150	LYO	N-CA-CB-CG
1	F	150	LYO	N-CA-CB-CG
1	D	150	LYO	N-CA-CB-CG
1	B	150	LYO	N-CA-CB-CG
1	E	150	LYO	N-CA-CB-CG

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	G	198	LYO	1	0
1	F	174	HLU	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 40 ligands modelled in this entry, 10 are monoatomic - leaving 30 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	$\#\|Z\| > 2$
5	EDO	A	903	-	3,3,3	0.45	0	2,2,2	0.15	0
5	EDO	M	202	-	3,3,3	0.49	0	2,2,2	0.07	0
5	EDO	L	201	-	3,3,3	0.40	0	2,2,2	0.61	0
4	CAP	G	902	3	17,20,20	0.65	0	22,31,31	0.89	0
4	CAP	H	902	3	17,20,20	0.76	0	22,31,31	0.92	0
5	EDO	M	203	-	3,3,3	0.48	0	2,2,2	0.31	0
5	EDO	I	205	-	3,3,3	0.39	0	2,2,2	0.29	0
5	EDO	L	202	-	3,3,3	0.42	0	2,2,2	0.28	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	CAP	D	902	3	17,20,20	0.70	0	22,31,31	0.89	0
5	EDO	I	202	-	3,3,3	0.42	0	2,2,2	0.46	0
5	EDO	K	201	-	3,3,3	0.38	0	2,2,2	0.40	0
5	EDO	J	202	-	3,3,3	0.40	0	2,2,2	0.26	0
5	EDO	J	204	-	3,3,3	0.42	0	2,2,2	0.21	0
5	EDO	L	203	-	3,3,3	0.49	0	2,2,2	0.21	0
5	EDO	N	201	-	3,3,3	0.45	0	2,2,2	0.20	0
5	EDO	I	203	-	3,3,3	0.41	0	2,2,2	0.16	0
4	CAP	A	902	3	17,20,20	0.75	0	22,31,31	0.86	0
5	EDO	J	201	-	3,3,3	0.37	0	2,2,2	0.51	0
5	EDO	J	203	-	3,3,3	0.49	0	2,2,2	0.22	0
4	CAP	C	902	3	17,20,20	0.76	0	22,31,31	0.88	0
5	EDO	O	202	-	3,3,3	0.44	0	2,2,2	0.23	0
4	CAP	F	902	3	17,20,20	0.69	0	22,31,31	0.89	0
5	EDO	M	204	-	3,3,3	0.40	0	2,2,2	0.50	0
4	CAP	E	902	3	17,20,20	0.71	0	22,31,31	0.86	0
5	EDO	P	201	-	3,3,3	0.51	0	2,2,2	0.13	0
5	EDO	B	903	-	3,3,3	0.53	0	2,2,2	0.19	0
5	EDO	O	201	-	3,3,3	0.48	0	2,2,2	0.22	0
4	CAP	B	902	3	17,20,20	0.70	0	22,31,31	0.94	0
5	EDO	I	204	-	3,3,3	0.49	0	2,2,2	0.18	0
5	EDO	F	903	-	3,3,3	0.52	0	2,2,2	0.11	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
5	EDO	A	903	-	-	0/1/1/1	-
5	EDO	M	202	-	-	0/1/1/1	-
5	EDO	L	201	-	-	0/1/1/1	-
4	CAP	G	902	3	-	7/29/29/29	-
4	CAP	H	902	3	-	8/29/29/29	-
5	EDO	M	203	-	-	0/1/1/1	-
5	EDO	I	205	-	-	0/1/1/1	-
5	EDO	L	202	-	-	0/1/1/1	-
4	CAP	D	902	3	-	6/29/29/29	-
5	EDO	I	202	-	-	0/1/1/1	-
5	EDO	K	201	-	-	0/1/1/1	-
5	EDO	J	202	-	-	1/1/1/1	-
5	EDO	J	204	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	EDO	L	203	-	-	0/1/1/1	-
5	EDO	N	201	-	-	0/1/1/1	-
5	EDO	I	203	-	-	0/1/1/1	-
4	CAP	A	902	3	-	7/29/29/29	-
5	EDO	J	201	-	-	0/1/1/1	-
5	EDO	J	203	-	-	0/1/1/1	-
4	CAP	C	902	3	-	8/29/29/29	-
5	EDO	O	202	-	-	0/1/1/1	-
4	CAP	F	902	3	-	8/29/29/29	-
5	EDO	M	204	-	-	0/1/1/1	-
4	CAP	E	902	3	-	8/29/29/29	-
5	EDO	P	201	-	-	0/1/1/1	-
5	EDO	B	903	-	-	0/1/1/1	-
5	EDO	O	201	-	-	0/1/1/1	-
4	CAP	B	902	3	-	6/29/29/29	-
5	EDO	I	204	-	-	0/1/1/1	-
5	EDO	F	903	-	-	0/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (59) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	902	CAP	O7-C-C2-C1
4	A	902	CAP	O6-C-C2-C3
4	A	902	CAP	O7-C-C2-O2
4	A	902	CAP	C2-C3-C4-O4
4	A	902	CAP	O3-C3-C4-O4
4	C	902	CAP	O6-C-C2-C1
4	C	902	CAP	O6-C-C2-O2
4	C	902	CAP	C2-C3-C4-O4
4	C	902	CAP	O3-C3-C4-O4
4	H	902	CAP	O6-C-C2-C1
4	H	902	CAP	O6-C-C2-O2
4	H	902	CAP	O7-C-C2-O2
4	H	902	CAP	C2-C3-C4-O4
4	H	902	CAP	O3-C3-C4-O4
4	F	902	CAP	O6-C-C2-C1
4	F	902	CAP	O6-C-C2-O2

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Mol	Chain	Res	Type	Atoms
4	F	902	CAP	O3-C3-C4-O4
4	D	902	CAP	O7-C-C2-C1
4	D	902	CAP	O6-C-C2-C3
4	D	902	CAP	O6-C-C2-O2
4	D	902	CAP	O7-C-C2-O2
4	D	902	CAP	O3-C3-C4-O4
4	B	902	CAP	O7-C-C2-C1
4	B	902	CAP	O6-C-C2-C3
4	B	902	CAP	O7-C-C2-O2
4	B	902	CAP	C2-C3-C4-O4
4	B	902	CAP	O3-C3-C4-O4
4	E	902	CAP	O6-C-C2-C1
4	E	902	CAP	O6-C-C2-O2
4	E	902	CAP	O7-C-C2-O2
4	E	902	CAP	O3-C3-C4-O4
4	G	902	CAP	O7-C-C2-C1
4	G	902	CAP	O6-C-C2-C3
4	G	902	CAP	O6-C-C2-O2
4	G	902	CAP	O7-C-C2-O2
4	G	902	CAP	O3-C3-C4-O4
4	C	902	CAP	O7-C-C2-C1
4	H	902	CAP	O7-C-C2-C1
4	F	902	CAP	O7-C-C2-C1
4	E	902	CAP	O7-C-C2-C1
4	A	902	CAP	O2-C2-C3-C4
4	C	902	CAP	O2-C2-C3-C4
4	H	902	CAP	O2-C2-C3-C4
4	F	902	CAP	O2-C2-C3-C4
4	D	902	CAP	O2-C2-C3-C4
4	B	902	CAP	O2-C2-C3-C4
4	E	902	CAP	O2-C2-C3-C4
4	G	902	CAP	O2-C2-C3-C4
4	E	902	CAP	C2-C3-C4-O4
4	C	902	CAP	O7-C-C2-O2
4	F	902	CAP	O7-C-C2-O2
4	F	902	CAP	C2-C3-C4-O4
5	J	202	EDO	O1-C1-C2-O2
4	C	902	CAP	O7-C-C2-C3
4	H	902	CAP	O7-C-C2-C3
4	F	902	CAP	O7-C-C2-C3
4	E	902	CAP	O7-C-C2-C3
4	A	902	CAP	O6-C-C2-O2

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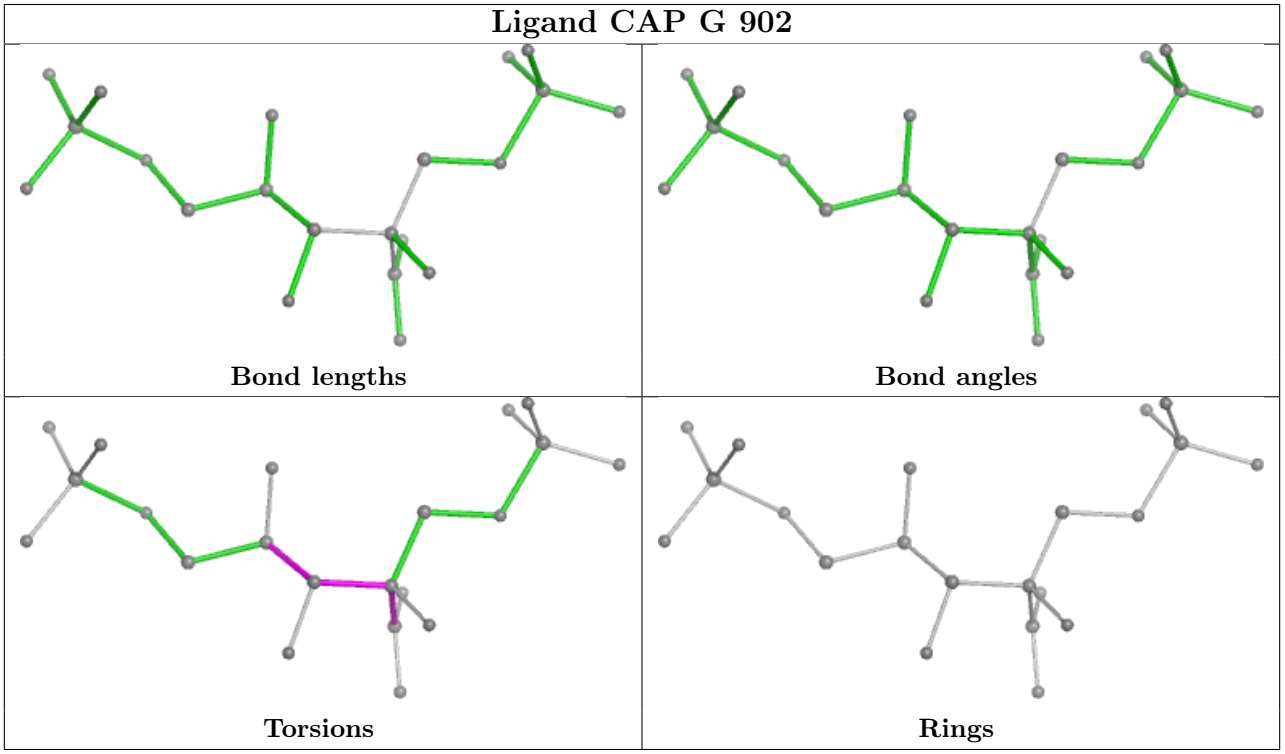
Mol	Chain	Res	Type	Atoms
4	G	902	CAP	C2-C3-C4-O4

There are no ring outliers.

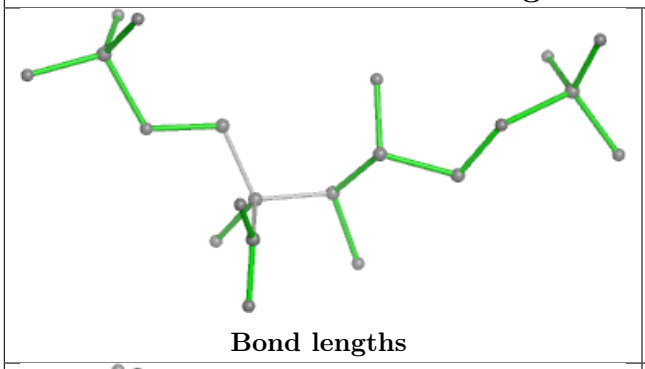
3 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	I	205	EDO	2	0
5	J	202	EDO	3	0
5	I	203	EDO	3	0

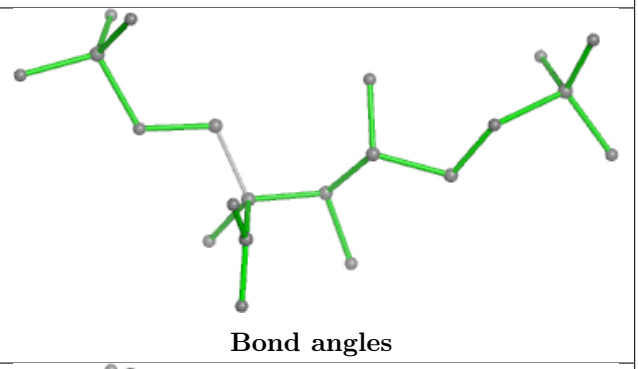
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.



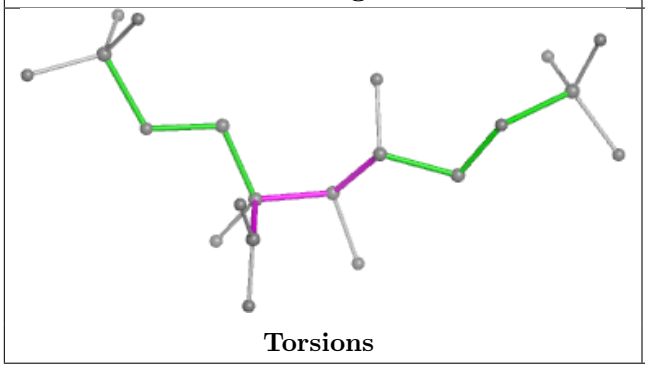
Ligand CAP H 902



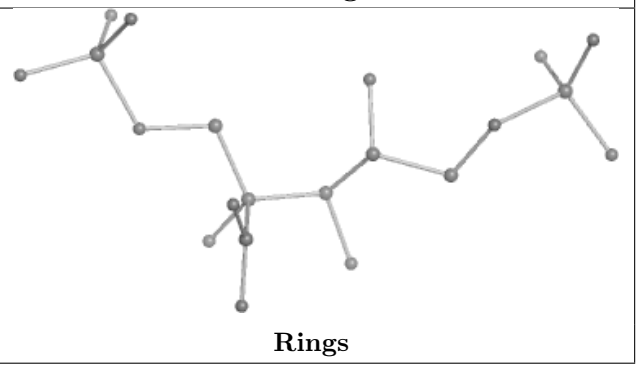
Bond lengths



Bond angles

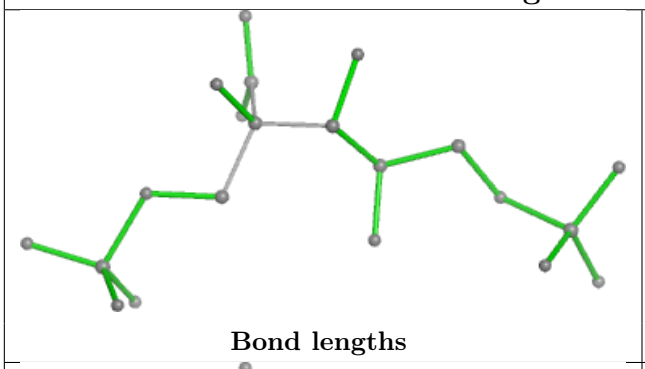


Torsions

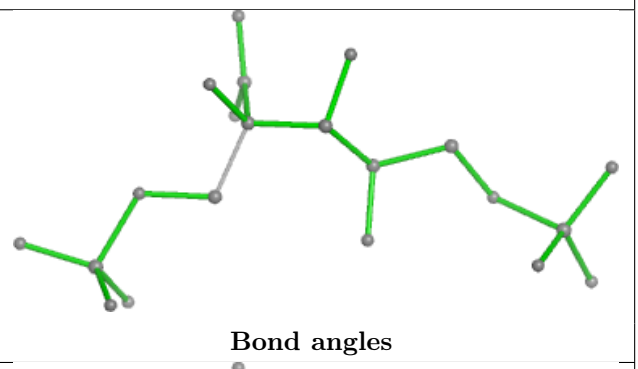


Rings

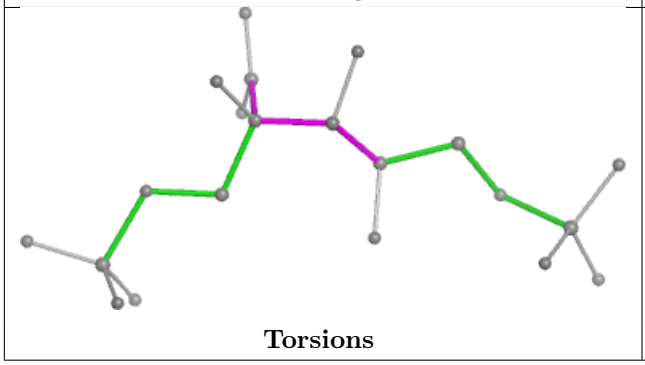
Ligand CAP D 902



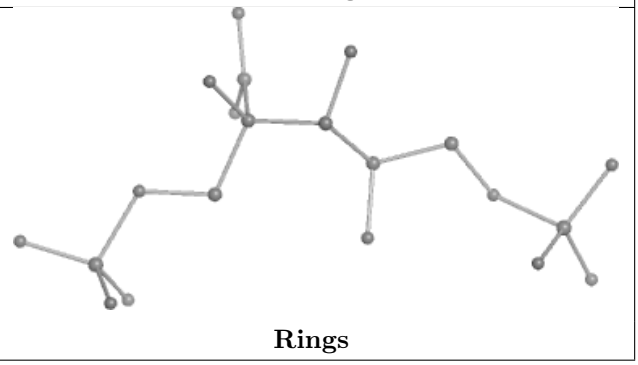
Bond lengths



Bond angles

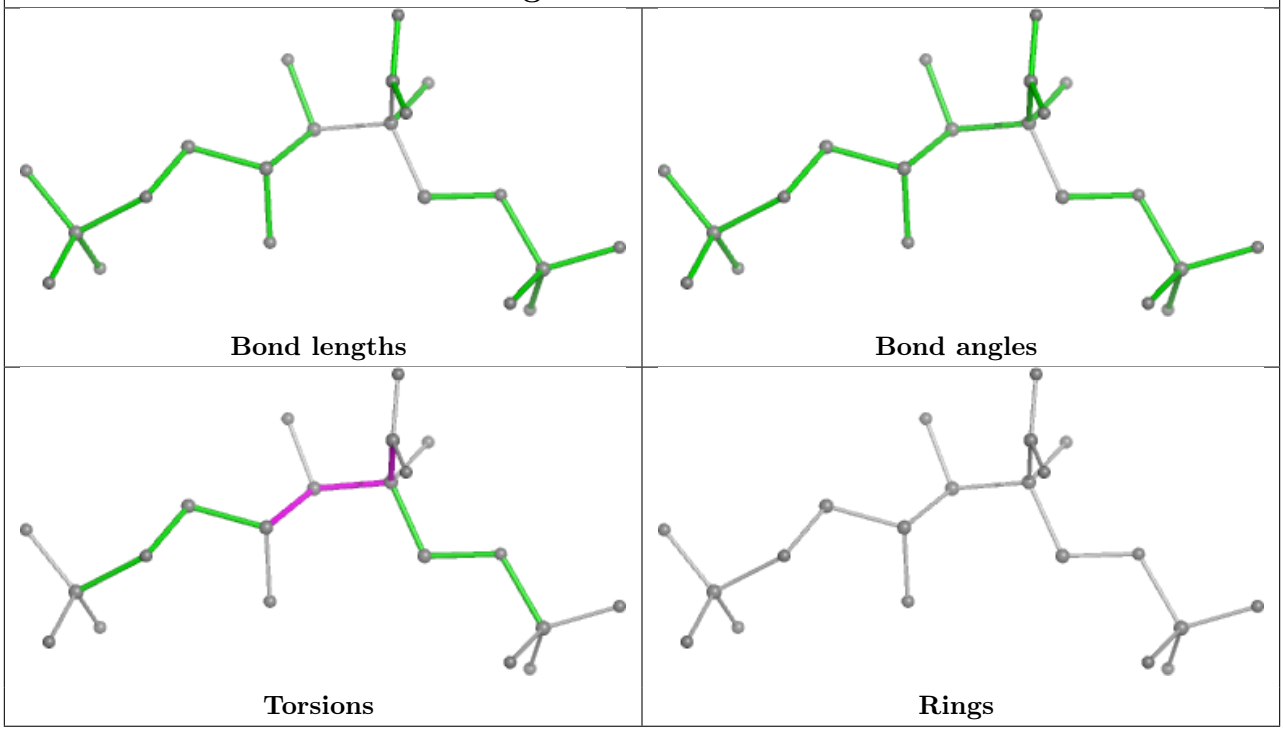


Torsions

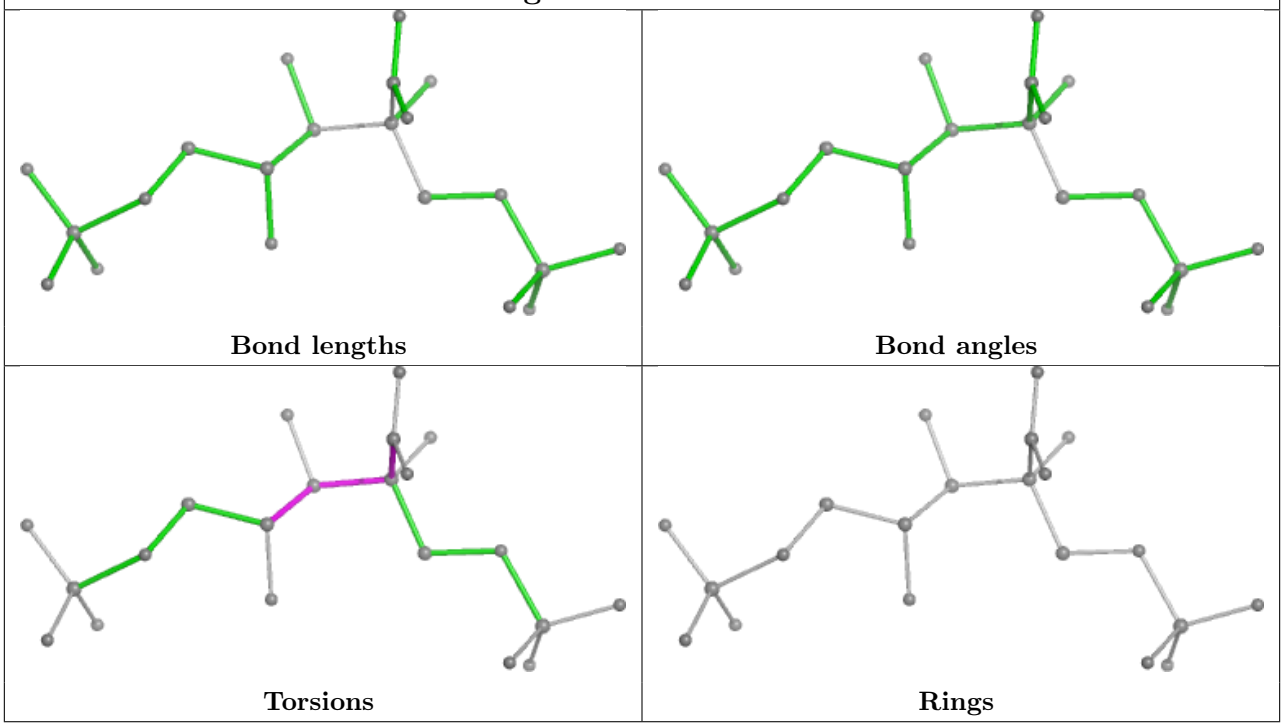


Rings

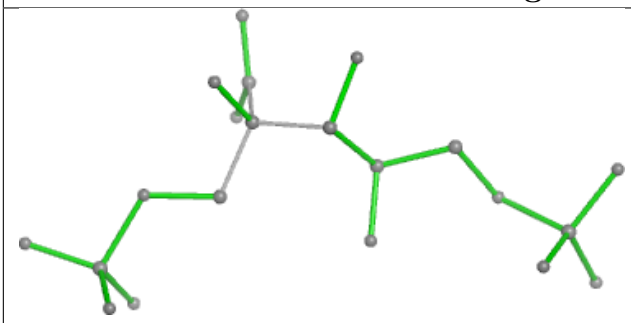
Ligand CAP A 902



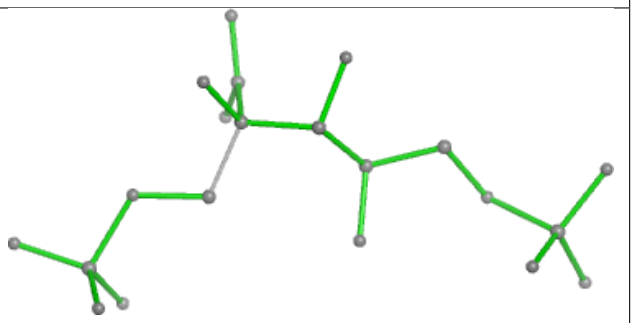
Ligand CAP C 902



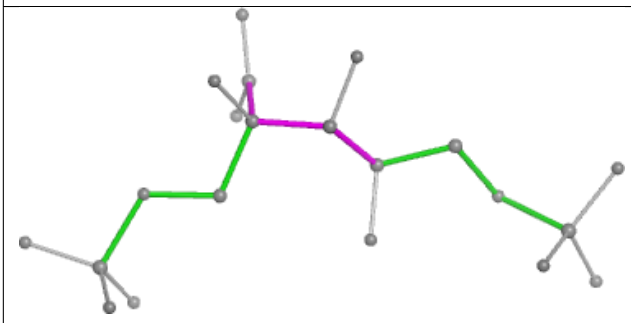
Ligand CAP F 902



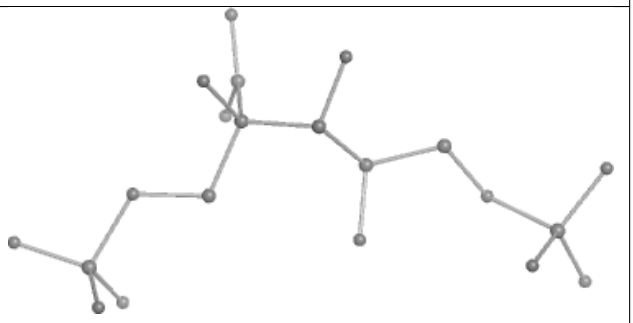
Bond lengths



Bond angles

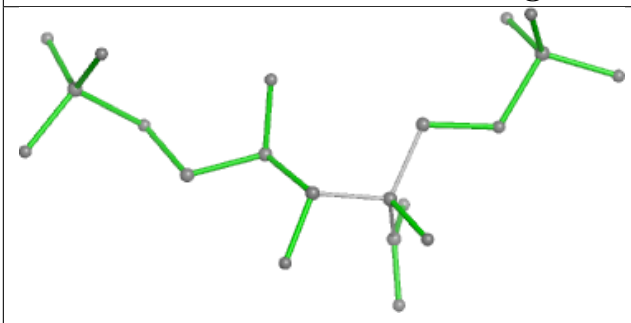


Torsions

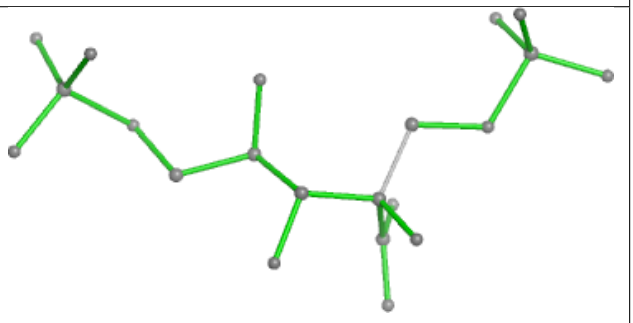


Rings

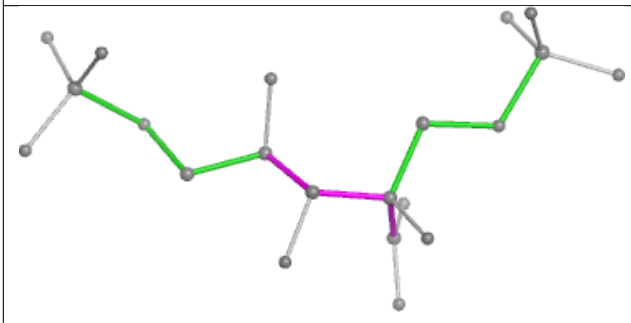
Ligand CAP E 902



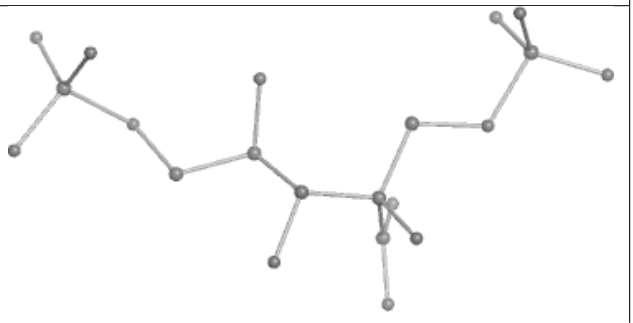
Bond lengths



Bond angles

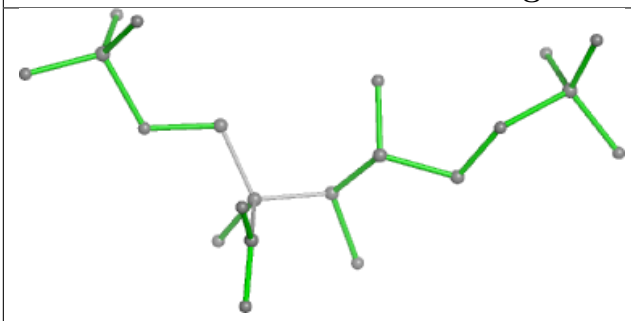


Torsions

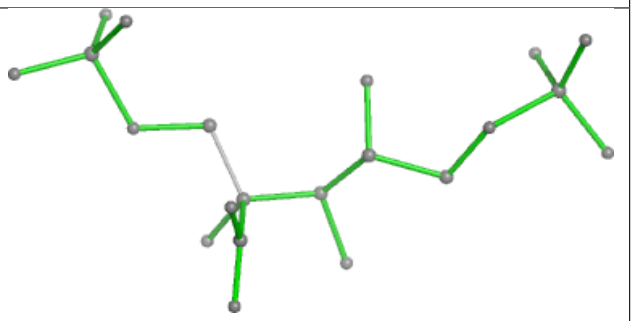


Rings

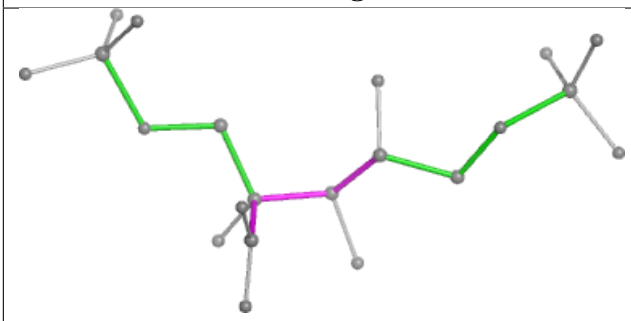
Ligand CAP B 902



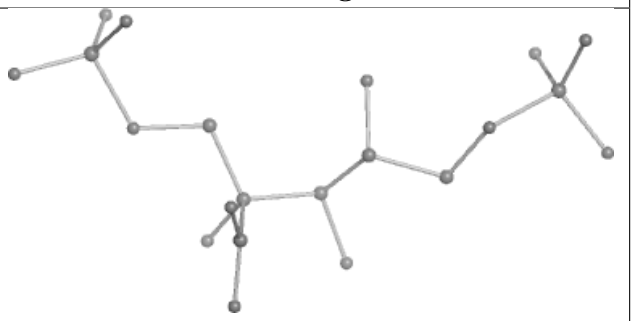
Bond lengths



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	473/490 (96%)	-1.64	0	100	100	5, 11, 23, 55	0
1	B	472/490 (96%)	-1.64	0	100	100	6, 11, 23, 42	0
1	C	472/490 (96%)	-1.67	0	100	100	4, 10, 20, 37	0
1	D	474/490 (96%)	-1.68	0	100	100	5, 10, 22, 51	0
1	E	473/490 (96%)	-1.67	0	100	100	5, 10, 23, 54	0
1	F	473/490 (96%)	-1.67	0	100	100	5, 10, 23, 45	0
1	G	473/490 (96%)	-1.67	0	100	100	5, 10, 21, 41	0
1	H	473/490 (96%)	-1.67	0	100	100	5, 10, 21, 36	0
2	I	139/139 (100%)	-1.64	0	100	100	6, 13, 23, 36	0
2	J	139/139 (100%)	-1.66	0	100	100	7, 13, 22, 39	0
2	K	139/139 (100%)	-1.63	0	100	100	7, 13, 22, 37	0
2	L	139/139 (100%)	-1.63	0	100	100	6, 12, 23, 39	0
2	M	139/139 (100%)	-1.63	0	100	100	6, 12, 23, 37	0
2	N	139/139 (100%)	-1.63	0	100	100	7, 13, 22, 37	0
2	O	139/139 (100%)	-1.64	0	100	100	7, 13, 22, 37	0
2	P	139/139 (100%)	-1.63	0	100	100	6, 13, 23, 37	0
All	All	4895/5032 (97%)	-1.66	0	100	100	4, 11, 23, 55	0

There are no RSRZ outliers to report.

6.2 Non-standard residues in protein, DNA, RNA chains

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
1	HYP	A	48	8/9	0.99	0.02	10,13,15,19	0
1	HYP	H	48	8/9	0.99	0.02	8,10,12,17	0
1	HYP	F	48	8/9	0.99	0.03	9,11,19,20	0
1	HYP	D	48	8/9	0.99	0.03	8,10,15,27	0
1	HYP	B	48	8/9	0.99	0.03	9,14,16,21	0
1	HYP	E	48	8/9	0.99	0.02	10,11,18,21	0
1	HYP	G	48	8/9	0.99	0.03	9,10,16,23	0
1	LYO	C	150	10/11	0.99	0.03	5,6,15,17	0
1	LYO	D	150	10/11	0.99	0.03	4,8,15,18	0
1	HYP	B	155	8/9	0.99	0.02	7,8,10,11	0
1	HLU	C	174	9/10	0.99	0.03	9,10,16,16	0
1	HLU	H	174	9/10	0.99	0.03	9,10,15,16	0
1	HLU	B	174	9/10	0.99	0.03	9,13,16,18	0
1	KCX	A	205	12/13	0.99	0.02	7,9,11,11	0
1	KCX	D	205	12/13	0.99	0.02	6,7,9,10	0
1	M3L	D	346	12/13	0.99	0.03	7,12,21,22	0
1	M3L	B	346	12/13	0.99	0.04	10,17,26,27	0
1	M3L	E	346	12/13	0.99	0.03	9,18,23,25	0
1	M3L	G	346	12/13	0.99	0.03	7,14,19,20	0
1	LYO	F	150	10/11	1.00	0.02	6,7,13,16	0
1	CSO	A	109	7/8	1.00	0.01	9,10,11,21	0
1	LYO	B	150	10/11	1.00	0.02	6,7,17,20	0
1	LYO	E	150	10/11	1.00	0.02	5,7,13,18	0
1	LYO	G	150	10/11	1.00	0.02	5,7,16,20	0
1	HYP	A	155	8/9	1.00	0.02	7,8,10,11	0
1	HYP	C	155	8/9	1.00	0.02	5,7,8,9	0
1	HYP	H	155	8/9	1.00	0.02	4,7,8,8	0
1	HYP	F	155	8/9	1.00	0.01	6,7,9,10	0
1	HYP	D	155	8/9	1.00	0.01	6,8,9,9	0
1	CSO	C	109	7/8	1.00	0.02	7,9,11,18	0
1	HYP	E	155	8/9	1.00	0.02	5,7,9,11	0
1	HYP	G	155	8/9	1.00	0.01	5,8,9,10	0
1	HLU	A	174	9/10	1.00	0.02	9,12,16,17	0
1	CSO	H	109	7/8	1.00	0.02	7,8,10,17	0
1	CSO	F	109	7/8	1.00	0.02	8,8,10,17	0
1	HLU	F	174	9/10	1.00	0.02	7,11,15,17	0
1	HLU	D	174	9/10	1.00	0.02	5,9,14,15	0
1	CSO	D	109	7/8	1.00	0.01	7,8,12,15	0
1	HLU	E	174	9/10	1.00	0.02	7,11,15,16	0
1	HLU	G	174	9/10	1.00	0.02	7,10,14,15	0
1	LYO	A	198	10/11	1.00	0.03	6,10,21,21	0
1	LYO	C	198	10/11	1.00	0.02	6,11,17,18	0
1	LYO	H	198	10/11	1.00	0.02	6,10,17,20	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	LYO	F	198	10/11	1.00	0.03	6,10,17,19	0
1	LYO	D	198	10/11	1.00	0.02	5,11,22,26	0
1	LYO	B	198	10/11	1.00	0.03	7,11,19,22	0
1	LYO	E	198	10/11	1.00	0.03	7,11,18,21	0
1	LYO	G	198	10/11	1.00	0.02	6,12,21,22	0
1	CSO	B	109	7/8	1.00	0.02	9,9,12,20	0
1	KCX	C	205	12/13	1.00	0.02	7,8,9,9	0
1	KCX	H	205	12/13	1.00	0.01	5,8,9,9	0
1	KCX	F	205	12/13	1.00	0.02	6,8,10,10	0
1	CSO	E	109	7/8	1.00	0.02	7,8,11,16	0
1	KCX	B	205	12/13	1.00	0.02	8,8,10,11	0
1	KCX	E	205	12/13	1.00	0.01	6,8,9,10	0
1	KCX	G	205	12/13	1.00	0.02	6,7,9,9	0
1	M3L	A	346	12/13	1.00	0.03	11,19,24,25	0
1	M3L	C	346	12/13	1.00	0.02	8,12,21,21	0
1	M3L	H	346	12/13	1.00	0.02	8,14,21,21	0
1	M3L	F	346	12/13	1.00	0.03	8,18,25,28	0
1	CSO	G	109	7/8	1.00	0.02	6,8,12,17	0
1	LYO	A	150	10/11	1.00	0.02	6,7,14,19	0
1	HYP	C	48	8/9	1.00	0.02	7,10,12,15	0
1	LYO	H	150	10/11	1.00	0.03	4,7,17,18	0

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
5	EDO	M	204	4/4	0.97	0.06	26,32,34,35	0
5	EDO	I	203	4/4	0.99	0.04	23,31,35,40	0
5	EDO	I	205	4/4	0.99	0.04	26,28,30,42	0
5	EDO	M	203	4/4	0.99	0.02	9,10,10,12	0
3	MG	H	901	1/1	0.99	0.02	9,9,9,9	0
5	EDO	J	202	4/4	0.99	0.05	23,28,35,36	0
3	MG	E	901	1/1	1.00	0.01	8,8,8,8	0

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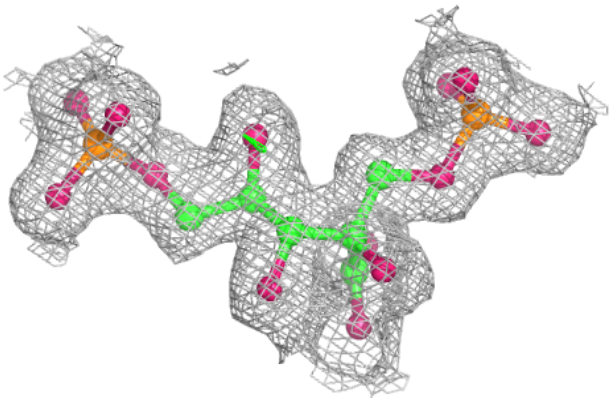
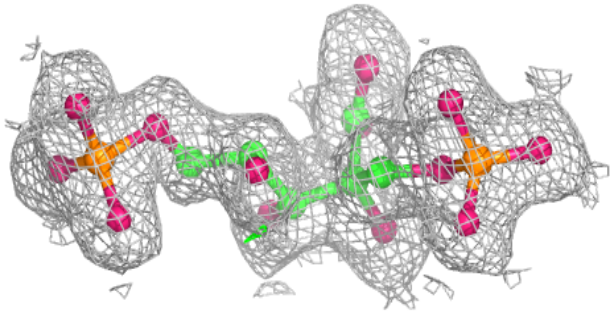
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	MG	G	901	1/1	1.00	0.01	9,9,9,9	0
3	MG	I	201	1/1	1.00	0.06	10,10,10,10	0
3	MG	M	201	1/1	1.00	0.05	10,10,10,10	0
4	CAP	A	902	21/21	1.00	0.01	8,9,12,15	0
4	CAP	C	902	21/21	1.00	0.01	6,8,9,12	0
4	CAP	H	902	21/21	1.00	0.01	6,8,9,12	0
4	CAP	F	902	21/21	1.00	0.01	6,8,9,12	0
4	CAP	D	902	21/21	1.00	0.01	7,8,10,11	0
4	CAP	B	902	21/21	1.00	0.01	8,10,11,13	0
4	CAP	E	902	21/21	1.00	0.01	7,8,10,12	0
4	CAP	G	902	21/21	1.00	0.01	7,8,9,11	0
5	EDO	A	903	4/4	1.00	0.02	7,9,9,10	0
5	EDO	F	903	4/4	1.00	0.04	8,9,9,9	0
5	EDO	B	903	4/4	1.00	0.01	8,9,9,10	0
5	EDO	I	202	4/4	1.00	0.05	8,9,13,17	0
3	MG	C	901	1/1	1.00	0.02	9,9,9,9	0
5	EDO	I	204	4/4	1.00	0.02	9,10,11,12	0
3	MG	A	901	1/1	1.00	0.01	10,10,10,10	0
5	EDO	O	201	4/4	1.00	0.02	8,11,12,13	0
5	EDO	O	202	4/4	1.00	0.02	7,8,10,12	0
5	EDO	L	201	4/4	1.00	0.04	10,11,13,16	0
5	EDO	L	202	4/4	1.00	0.02	9,10,11,12	0
5	EDO	L	203	4/4	1.00	0.02	9,10,11,13	0
5	EDO	N	201	4/4	1.00	0.02	9,9,12,14	0
5	EDO	M	202	4/4	1.00	0.03	7,9,9,13	0
3	MG	F	901	1/1	1.00	0.01	8,8,8,8	0
3	MG	D	901	1/1	1.00	0.01	9,9,9,9	0
5	EDO	P	201	4/4	1.00	0.02	9,10,12,12	0
5	EDO	J	201	4/4	1.00	0.03	9,9,10,17	0
3	MG	B	901	1/1	1.00	0.01	11,11,11,11	0
5	EDO	J	203	4/4	1.00	0.01	7,12,12,13	0
5	EDO	J	204	4/4	1.00	0.02	7,7,9,12	0
5	EDO	K	201	4/4	1.00	0.03	8,11,12,16	0

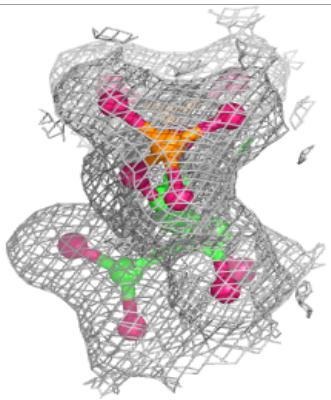
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around CAP A 902:

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

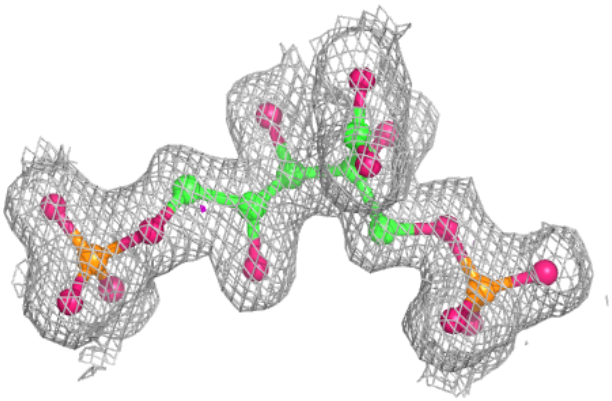


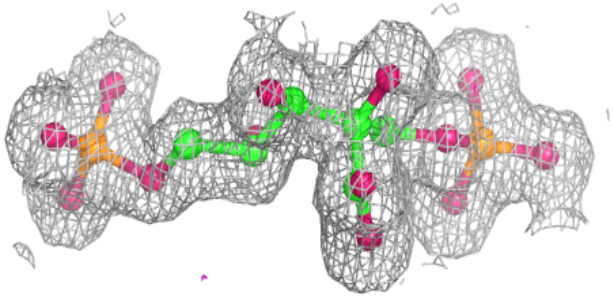


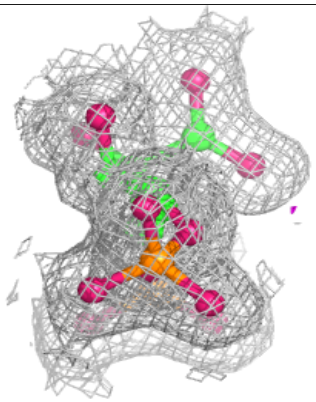


Electron density around CAP C 902:

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

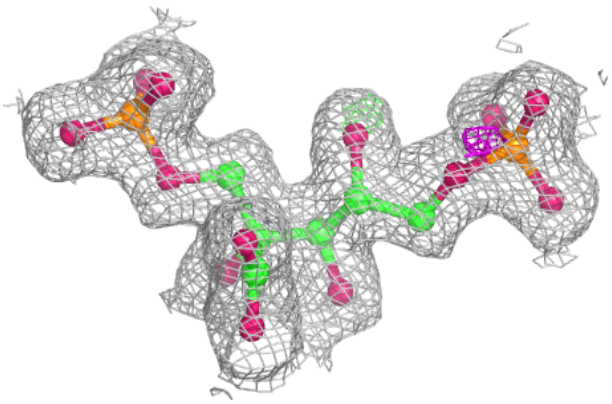


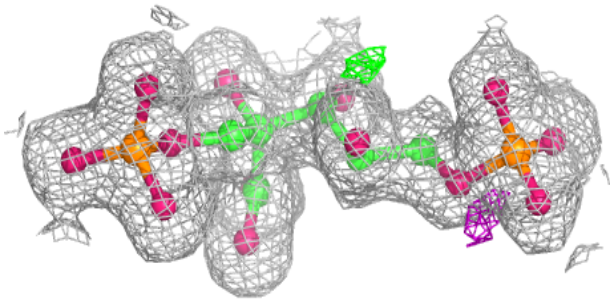


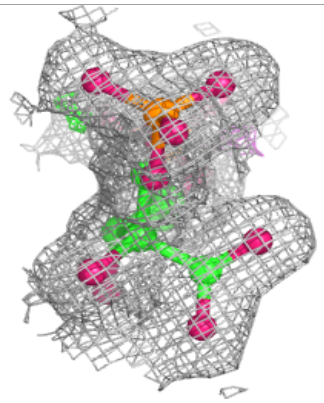


Electron density around CAP H 902:

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

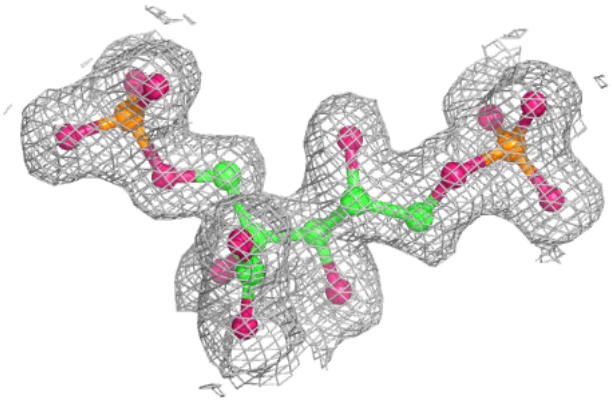


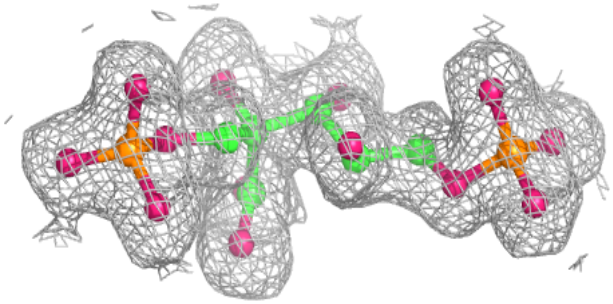


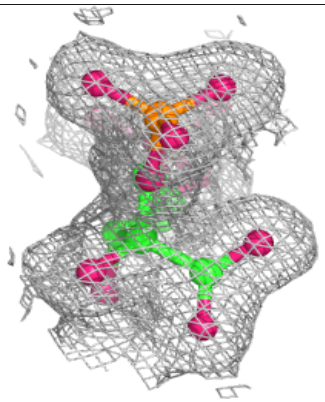


Electron density around CAP F 902:

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

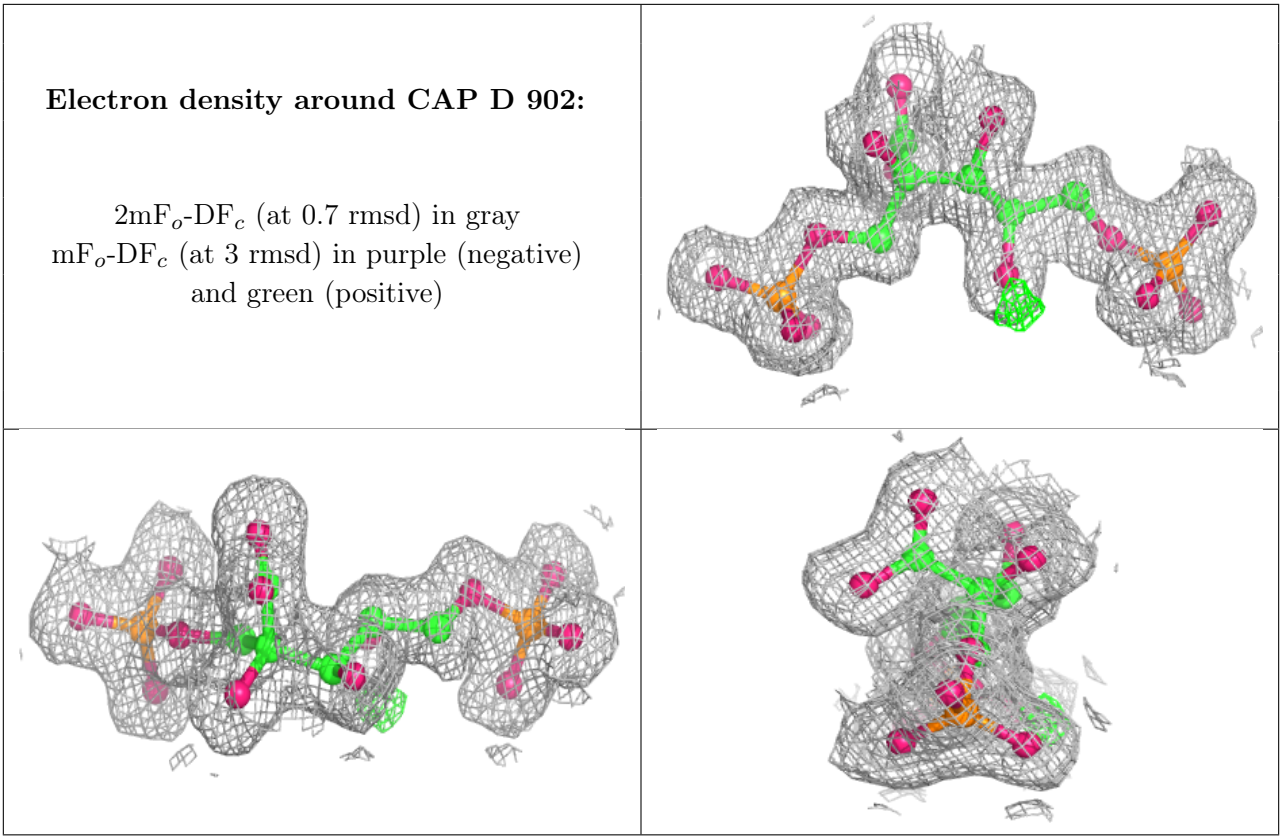






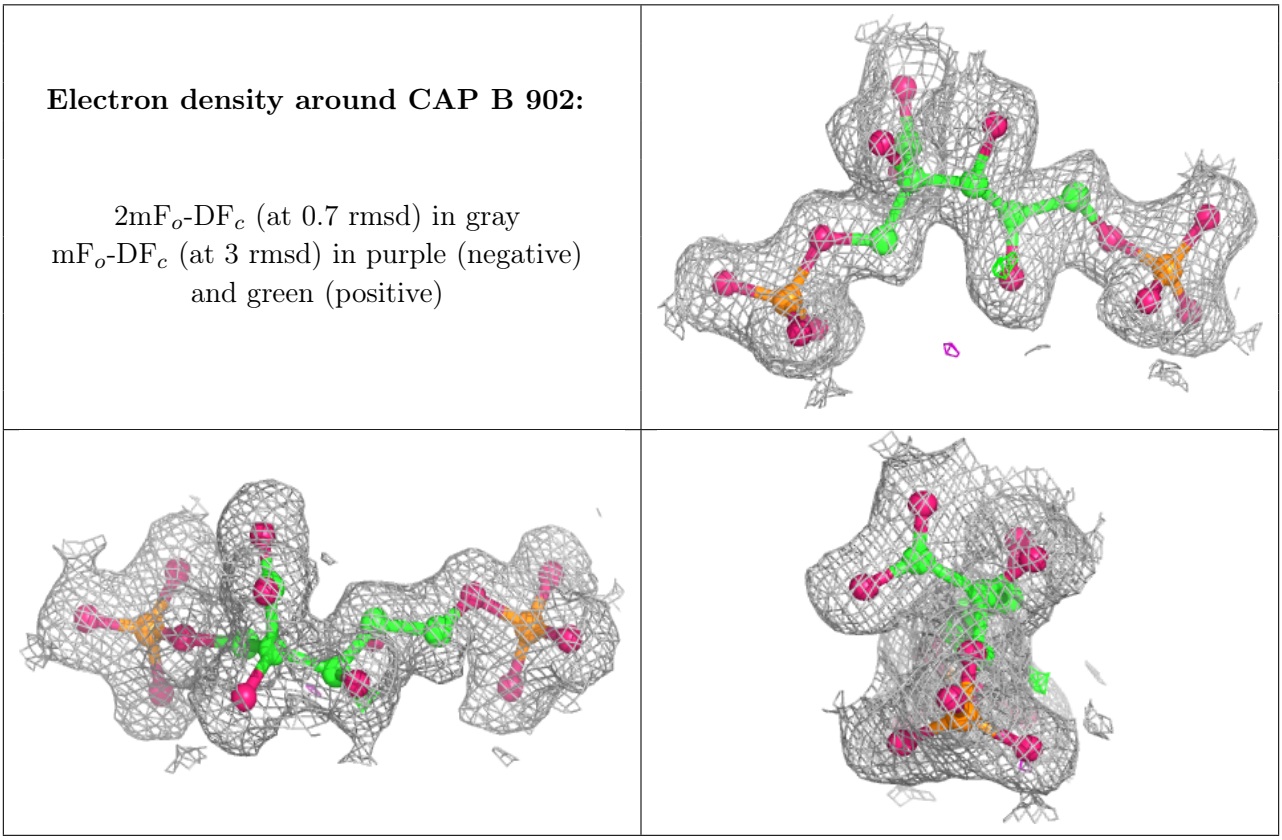
Electron density around CAP D 902:

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



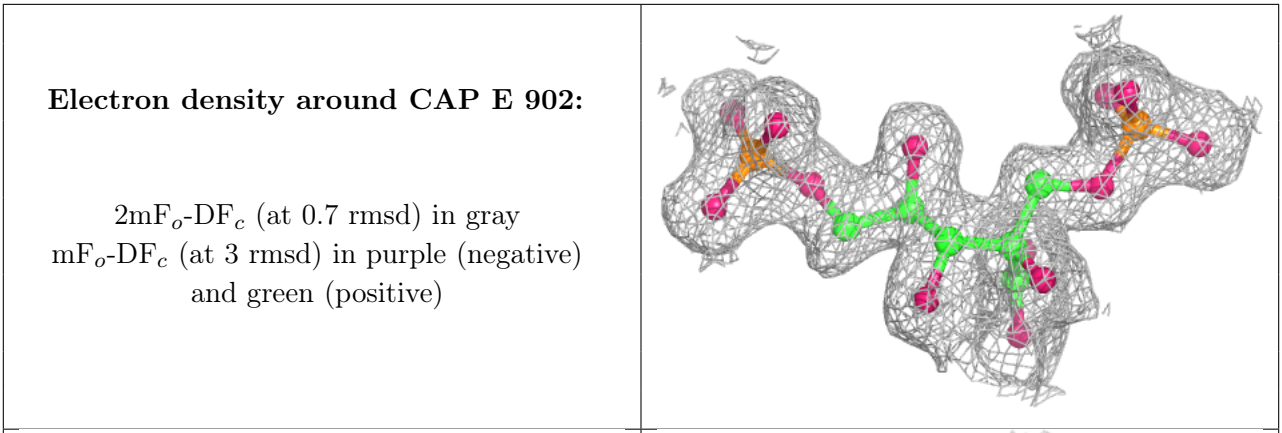
Electron density around CAP B 902:

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



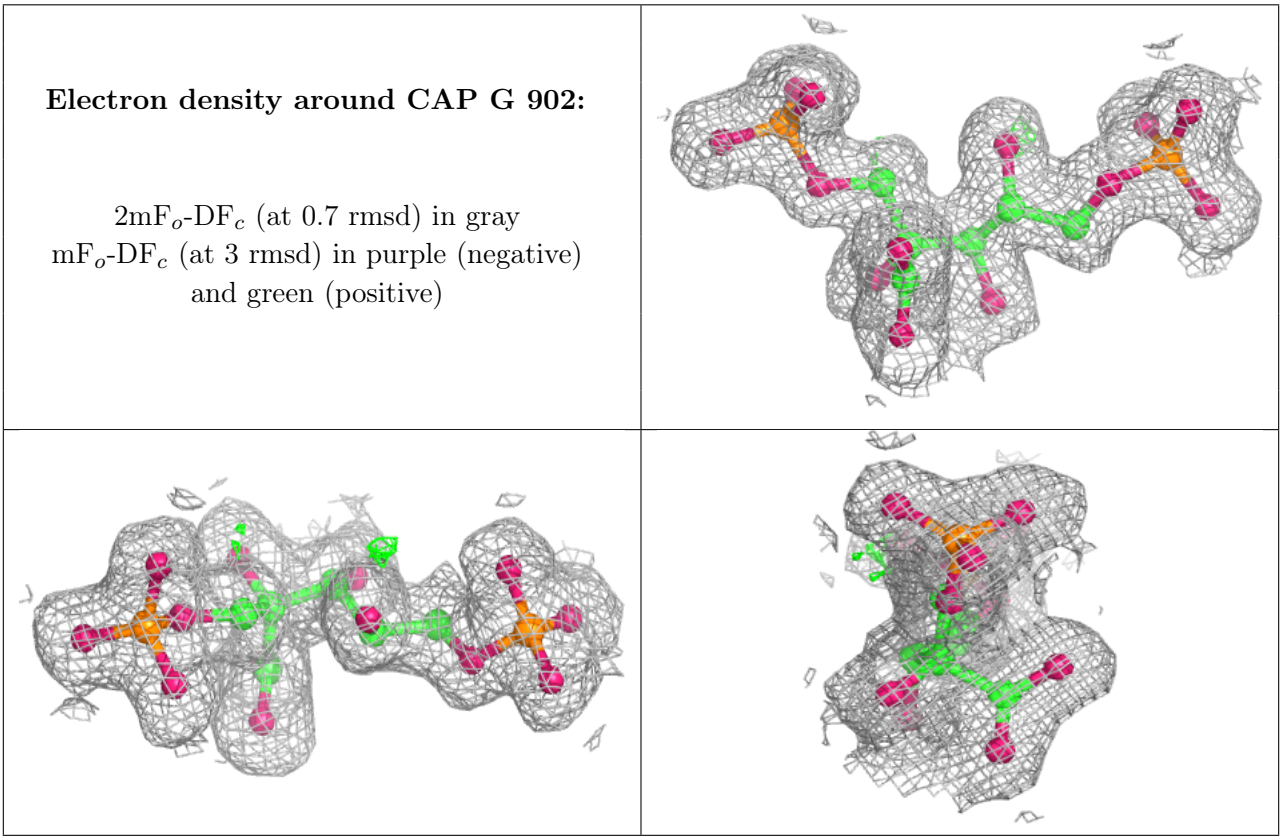
Electron density around CAP E 902:

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



Electron density around CAP G 902:

$2mF_o$-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 (i)

There are no such residues in this entry.