WORLDWIDE wwPDB PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report (i)

Feb 12, 2025 – 12:13 PM JST

PDB ID	:	8YNQ
Title	:	ATP-grasp peptide ligase from Streptomyces
Authors	:	Xu, M.J.; Yan, Y.Q.
Deposited on	:	2024-03-11
Resolution	:	2.45 Å(reported)

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

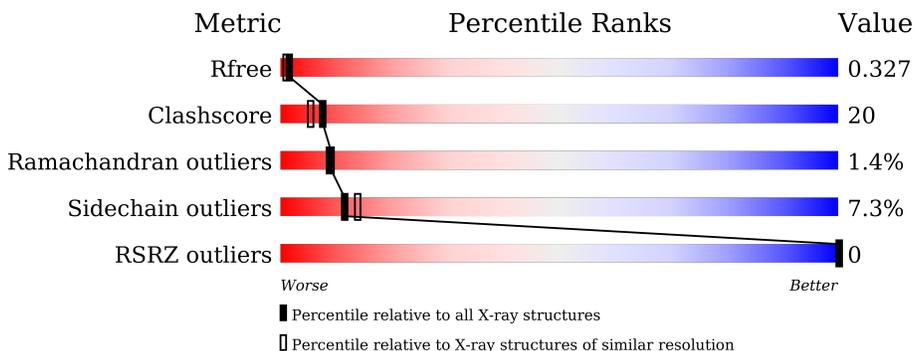|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 2.45 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	Percentile Ranks	Value
Rfree		0.327
Clashscore		20
Ramachandran outliers		1.4%
Sidechain outliers		7.3%
RSRZ outliers		0

Worse *Better*

▌Percentile relative to all X-ray structures

❏Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1096 (2.46-2.46)
Clashscore	180529	1178 (2.46-2.46)
Ramachandran outliers	177936	1170 (2.46-2.46)
Sidechain outliers	177891	1170 (2.46-2.46)
RSRZ outliers	164620	1096 (2.46-2.46)

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	448	56% 33% • 8%
1	B	448	57% 31% • 9%
1	C	448	56% 33% • 8%
1	D	448	56% 32% • 9%

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 crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	ANP	C	501	-	-	X	-
3	GOL	C	502	-	-	X	-
4	PEG	C	504	-	-	X	-
4	PEG	D	503	-	-	X	-
4	PEG	D	505	-	-	X	-
5	AMP	D	504	-	-	X	-

2   Entry composition   ⓘ

There are 8 unique types of molecules in this entry. The entry contains 13135 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 ATP-grasp peptide ligase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	C	412	Total	C	N	O	S	0	0	0
			3167	1988	549	623	7			
1	D	407	Total	C	N	O	S	0	0	0
			3143	1976	544	616	7			
1	A	410	Total	C	N	O	S	0	0	0
			3157	1983	547	620	7			
1	B	406	Total	C	N	O	S	0	0	0
			3124	1962	542	613	7			

- Molecule 2 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (three-letter code: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$) (labeled as "Ligand of Interest" by depositor).
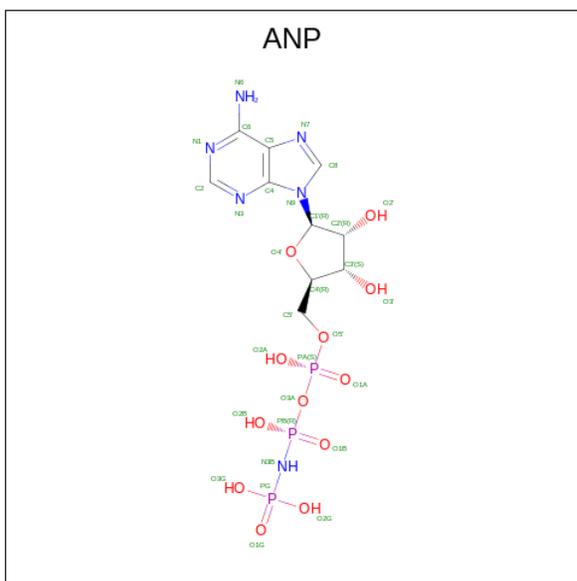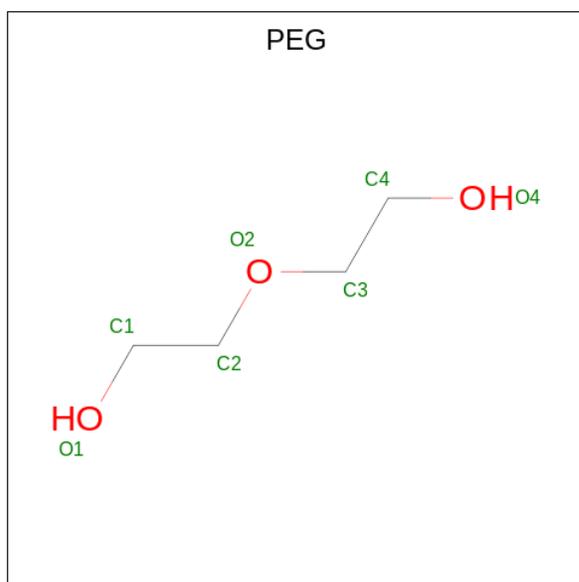

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	C	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
2	C	1	Total	C	N	O	P	0	0
			31	10	6	12	3		

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$) (labeled as "Ligand of Interest" by depositor).
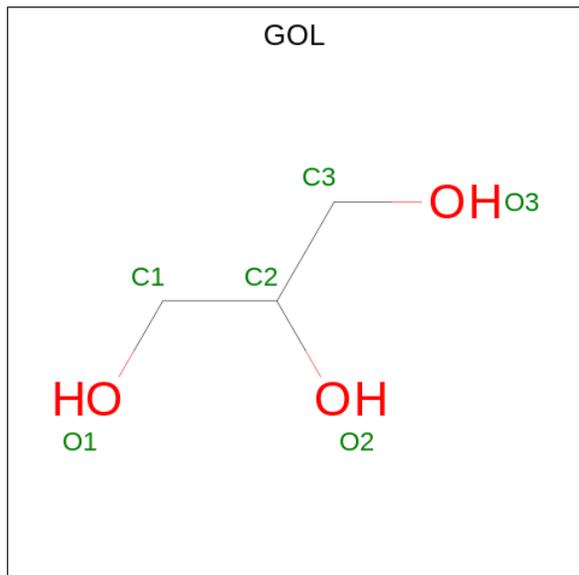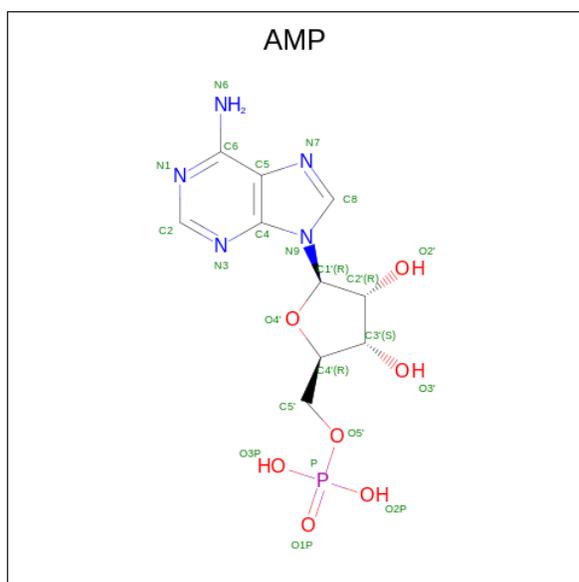

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	C	1	Total 6	C 3	O 3	0	0
3	C	1	Total 6	C 3	O 3	0	0
3	D	1	Total 6	C 3	O 3	0	0
3	D	1	Total 6	C 3	O 3	0	0
3	A	1	Total 6	C 3	O 3	0	0
3	B	1	Total 6	C 3	O 3	0	0

- Molecule 4 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: $C_4H_{10}O_3$) (labeled as "Ligand of Interest" by depositor).

PEG

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

- Molecule 5 is ADENOSINE MONOPHOSPHATE (three-letter code: AMP) (formula: $C_{10}H_{14}N_5O_7P$) (labeled as "Ligand of Interest" by depositor).

AMP

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
5	D	1	23	10	5	7	1	0	0

- Molecule 6 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).

ADP
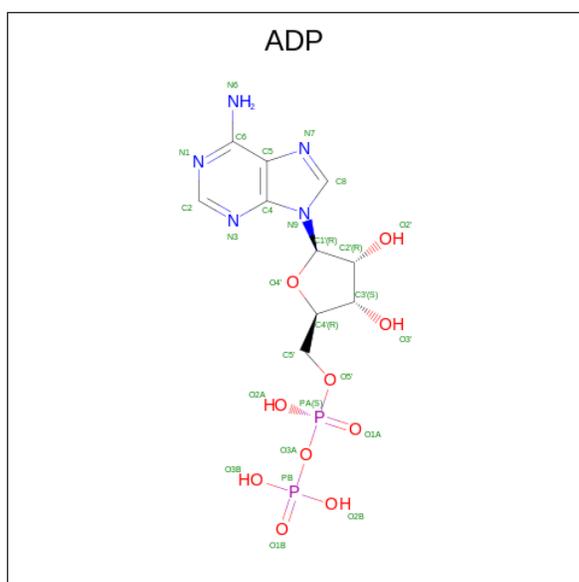
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
6	A	1	27	10	5	10	2	0	0

- Molecule 7 is 2-AMINO-2-HYDROXYMETHYL-PROPANE-1,3-DIOL (three-letter code: TRS) (formula: $C_4H_{12}NO_3$) (labeled as "Ligand of Interest" by depositor).

TRS

O2
HO
C2
C1
C
NH$_3^+$N
HO
O1
C3
OH
O3
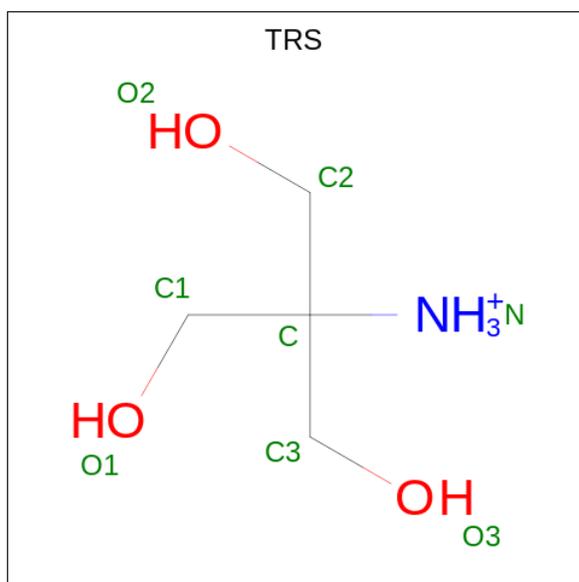
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
7	B	1	8	4	1	3	0	0

- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	C	67	Total 67	O 67	0	0
8	D	90	Total 90	O 90	0	0
8	A	75	Total 75	O 75	0	0
8	B	93	Total 93	O 93	0	0

3   Residue-property plots ⓘ

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: ATP-grasp peptide ligase

Chain C:
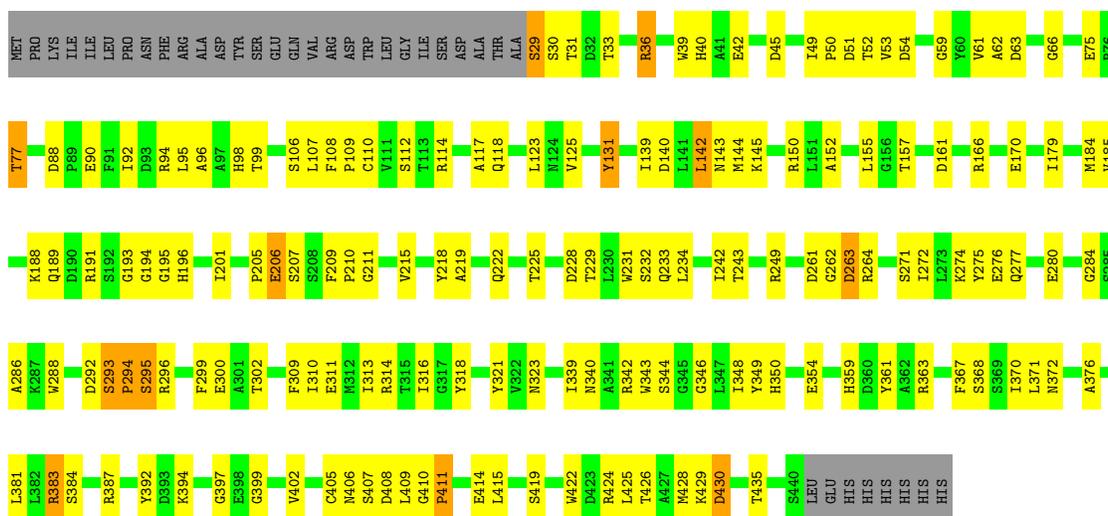
- Molecule 1: ATP-grasp peptide ligase

Chain D:
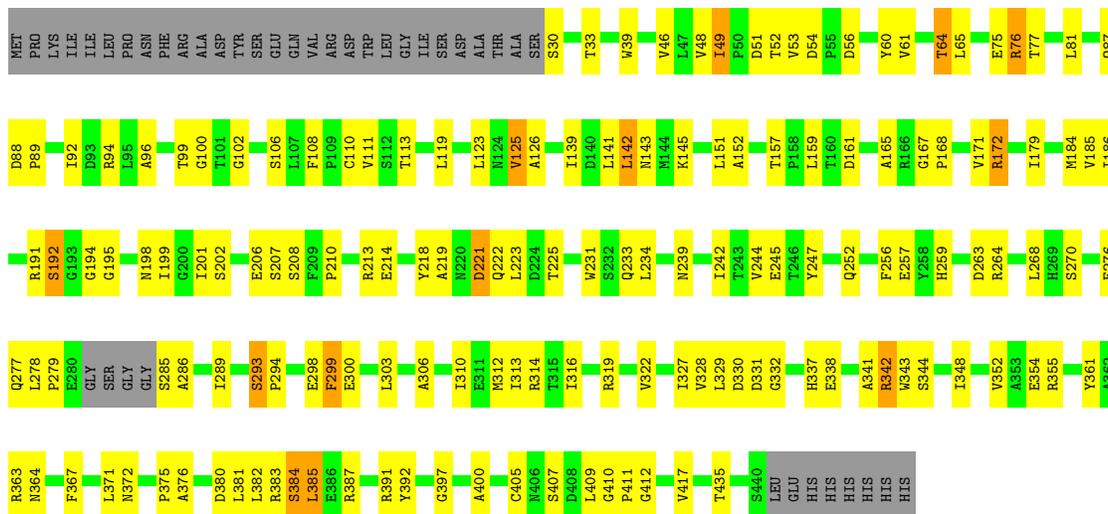
• Molecule 1: ATP-grasp peptide ligase

Chain A:
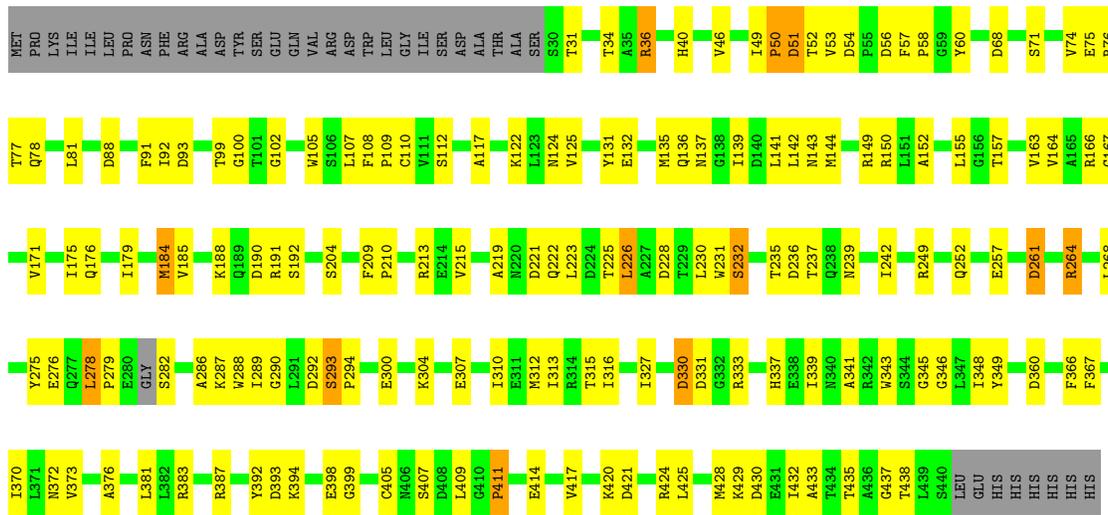
• Molecule 1: ATP-grasp peptide ligase

Chain B:
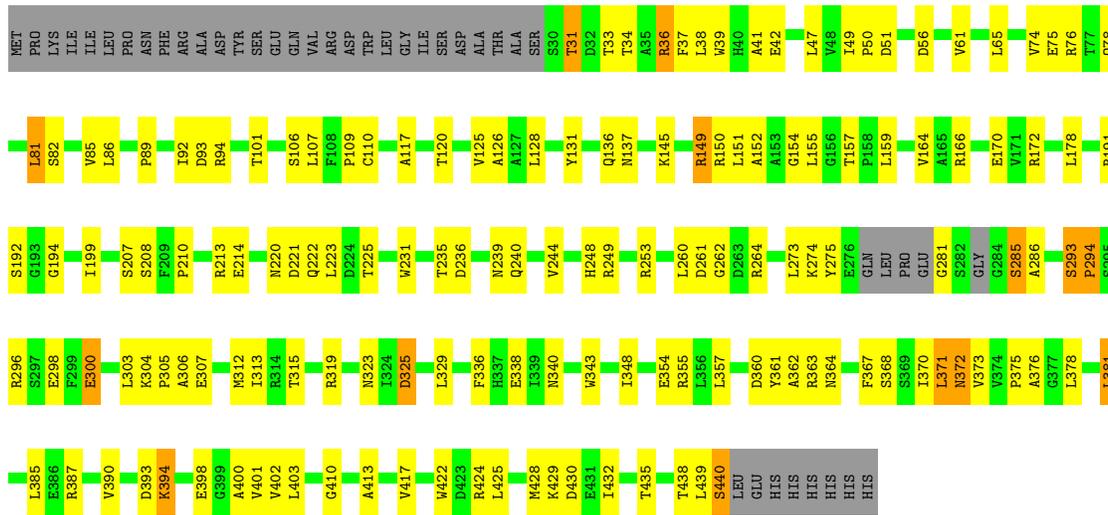
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	95.86Å 97.52Å 101.51Å 90.00° 90.09° 90.00°	Depositor
Resolution (Å)	47.93 – 2.45 47.93 – 2.45	Depositor EDS
% Data completeness (in resolution range)	83.1 (47.93-2.45) 83.2 (47.93-2.45)	Depositor EDS
R_{merge}	0.15	Depositor
R_{sym}	(Not available)	Depositor
$<I/\sigma(I)>$ [1]	3.22 (at 2.45Å)	Xtriage
Refinement program	REFMAC, PHENIX 1.19.2-4158	Depositor
R, R_{free}	0.234 , 0.319 0.247 , 0.327	Depositor DCC
R_{free} test set	2728 reflections (4.76%)	wwPDB-VP
Wilson B-factor (Å^2)	36.9	Xtriage
Anisotropy	0.197	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 22.2	EDS
L-test for twinning[2]	$<|L|> = 0.44, <L^2> = 0.27$	Xtriage
Estimated twinning fraction	0.074 for -k,-h,-l 0.064 for k,h,-l 0.357 for h,-k,-l	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	13135	wwPDB-VP
Average B, all atoms (Å^2)	39.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.14% 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: AMP, ANP, PEG, ADP, TRS, GOL

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	0.49	0/3222	0.70	0/4377
1	B	0.47	0/3187	0.68	0/4327
1	C	0.46	0/3233	0.68	0/4393
1	D	0.45	0/3208	0.68	0/4359
All	All	0.47	0/12850	0.69	0/17456

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
All	All	0	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	292	ASP	Peptide
1	B	149	ARG	Sidechain

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	3157	0	3050	117	0
1	B	3124	0	3017	127	0
1	C	3167	0	3059	125	0
1	D	3143	0	3039	131	0
2	C	62	0	26	18	0
3	A	6	0	8	1	0
3	B	6	0	8	1	0
3	C	12	0	16	6	0
3	D	12	0	16	0	0
4	A	28	0	40	4	0
4	B	14	0	20	1	0
4	C	7	0	10	4	0
4	D	14	0	20	12	0
5	D	23	0	12	10	0
6	A	27	0	12	3	0
7	B	8	0	12	5	0
8	A	75	0	0	21	2
8	B	93	0	0	24	1
8	C	67	0	0	8	3
8	D	90	0	0	15	0
All	All	13135	0	12365	500	3

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 20.

The worst 5 of 500 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:C:376:ALA:HB3	1:C:381:LEU:HG	1.48	0.93
1:A:191:ARG:HB2	1:A:239:ASN:HD21	1.32	0.92
1:B:293:SER:HB3	1:B:367:PHE:H	1.32	0.92
1:C:371:LEU:HB3	1:C:411:PRO:HD2	1.53	0.89
1:C:39:TRP:HB2	1:C:348:ILE:HD11	1.55	0.88

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the sym-

metry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:C:657:HOH:O	8:B:669:HOH:O[1_556]	2.08	0.12
8:C:602:HOH:O	8:A:666:HOH:O[2_445]	2.15	0.05
8:C:631:HOH:O	8:A:660:HOH:O[2_545]	2.15	0.05

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	406/448 (91%)	375 (92%)	25 (6%)	6 (2%)	8	8
1	B	400/448 (89%)	366 (92%)	31 (8%)	3 (1%)	16	21
1	C	410/448 (92%)	383 (93%)	18 (4%)	9 (2%)	5	4
1	D	403/448 (90%)	374 (93%)	25 (6%)	4 (1%)	13	14
All	All	1619/1792 (90%)	1498 (92%)	99 (6%)	22 (1%)	9	9

5 of 22 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	30	SER
1	C	411	PRO
1	D	293	SER
1	A	293	SER
1	B	294	PRO

5.3.2 Protein sidechains ⓘ

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	332/365 (91%)	309 (93%)	23 (7%)	13	16
1	B	328/365 (90%)	303 (92%)	25 (8%)	11	13
1	C	333/365 (91%)	311 (93%)	22 (7%)	14	17
1	D	331/365 (91%)	305 (92%)	26 (8%)	10	11
All	All	1324/1460 (91%)	1228 (93%)	96 (7%)	11	14

5 of 96 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	221	ASP
1	B	31	THR
1	A	226	LEU
1	A	278	LEU
1	B	85	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	340	ASN
1	C	406	ASN
1	D	87	GLN
1	D	222	GLN
1	B	340	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

20 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	#$|Z| > 2$
7	TRS	B	504	-	7,7,7	0.51	0	9,9,9	0.89	0
4	PEG	A	502	-	6,6,6	0.21	0	5,5,5	0.45	0
4	PEG	A	504	-	6,6,6	0.27	0	5,5,5	0.24	0
6	ADP	A	501	-	24,29,29	0.72	0	29,45,45	0.85	1 (3%)
4	PEG	D	503	-	6,6,6	0.19	0	5,5,5	0.12	0
3	GOL	A	506	-	5,5,5	0.92	0	5,5,5	1.10	0
3	GOL	C	502	-	5,5,5	1.07	1 (20%)	5,5,5	1.07	0
4	PEG	A	505	-	6,6,6	0.18	0	5,5,5	0.19	0
4	PEG	C	504	-	6,6,6	0.10	0	5,5,5	0.06	0
2	ANP	C	505	-	29,33,33	1.16	4 (13%)	31,52,52	1.07	2 (6%)
3	GOL	C	503	-	5,5,5	0.58	0	5,5,5	1.08	0
3	GOL	D	502	-	5,5,5	1.04	0	5,5,5	0.96	0
3	GOL	B	503	-	5,5,5	0.64	0	5,5,5	1.04	0
4	PEG	D	505	-	6,6,6	0.17	0	5,5,5	0.37	0
4	PEG	A	503	-	6,6,6	0.23	0	5,5,5	0.36	0
3	GOL	D	501	-	5,5,5	0.56	0	5,5,5	1.60	1 (20%)
2	ANP	C	501	-	29,33,33	1.20	4 (13%)	31,52,52	1.29	4 (12%)
4	PEG	B	501	-	6,6,6	0.06	0	5,5,5	0.17	0
4	PEG	B	502	-	6,6,6	0.16	0	5,5,5	0.23	0
5	AMP	D	504	-	22,25,25	0.96	1 (4%)	25,38,38	1.26	2 (8%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	TRS	B	504	-	-	9/9/9/9	-
4	PEG	A	502	-	-	3/4/4/4	-
4	PEG	A	504	-	-	1/4/4/4	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	ADP	A	501	-	-	4/12/32/32	0/3/3/3
4	PEG	D	503	-	-	3/4/4/4	-
3	GOL	A	506	-	-	0/4/4/4	-
3	GOL	C	502	-	-	4/4/4/4	-
4	PEG	A	505	-	-	4/4/4/4	-
4	PEG	C	504	-	-	4/4/4/4	-
2	ANP	C	505	-	-	10/14/38/38	0/3/3/3
3	GOL	C	503	-	-	2/4/4/4	-
3	GOL	D	502	-	-	1/4/4/4	-
3	GOL	B	503	-	-	0/4/4/4	-
4	PEG	D	505	-	-	3/4/4/4	-
4	PEG	A	503	-	-	1/4/4/4	-
3	GOL	D	501	-	-	2/4/4/4	-
2	ANP	C	501	-	-	5/14/38/38	0/3/3/3
4	PEG	B	501	-	-	2/4/4/4	-
4	PEG	B	502	-	-	1/4/4/4	-
5	AMP	D	504	-	-	2/6/26/26	0/3/3/3

The worst 5 of 10 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	501	ANP	PG-O1G	3.29	1.51	1.46
2	C	505	ANP	PG-O1G	3.22	1.51	1.46
5	D	504	AMP	C5-C4	2.85	1.48	1.40
2	C	501	ANP	PG-N3B	2.83	1.70	1.63
2	C	505	ANP	PB-O1B	2.72	1.50	1.46

The worst 5 of 10 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	505	ANP	PB-O3A-PA	-3.48	120.38	132.62
5	D	504	AMP	N3-C2-N1	-3.42	123.33	128.68
2	C	501	ANP	O2G-PG-O1G	-2.97	105.99	113.45
2	C	501	ANP	C5-C6-N6	2.84	124.66	120.35
2	C	501	ANP	O3A-PB-N3B	2.77	114.27	106.59

There are no chirality outliers.

5 of 61 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	501	ANP	PB-N3B-PG-O1G
2	C	505	ANP	PB-N3B-PG-O1G
2	C	505	ANP	PG-N3B-PB-O1B
2	C	505	ANP	PG-N3B-PB-O3A
2	C	505	ANP	PA-O3A-PB-O1B

There are no ring outliers.

16 monomers are involved in 58 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	B	504	TRS	5	0
4	A	502	PEG	1	0
4	A	504	PEG	1	0
6	A	501	ADP	3	0
4	D	503	PEG	5	0
3	A	506	GOL	1	0
3	C	502	GOL	5	0
4	C	504	PEG	4	0
2	C	505	ANP	5	0
3	C	503	GOL	1	0
3	B	503	GOL	1	0
4	D	505	PEG	7	0
4	A	503	PEG	2	0
2	C	501	ANP	13	0
4	B	501	PEG	1	0
5	D	504	AMP	10	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 TRS B 504

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG A 502

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG A 504

Bond lengths

Bond angles

Torsions

Rings

Ligand ADP A 501

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG D 503

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL A 506

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL C 502

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG A 505

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG C 504

Bond lengths

Bond angles

Torsions

Rings

Ligand ANP C 505

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL C 503

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL D 502

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL B 503

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG D 505

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG A 503

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL D 501

Bond lengths

Bond angles

Torsions

Rings

Ligand ANP C 501

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG B 501

Bond lengths

Bond angles

Torsions

Rings

Ligand PEG B 502

Bond lengths

Bond angles

Torsions

Rings

Ligand AMP D 504

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

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	410/448 (91%)	-1.55	0	100	100	21, 36, 52, 68	0
1	B	406/448 (90%)	-1.54	0	100	100	26, 42, 56, 70	0
1	C	412/448 (91%)	-1.53	0	100	100	24, 38, 51, 68	0
1	D	407/448 (90%)	-1.53	0	100	100	26, 40, 58, 77	0
All	All	1635/1792 (91%)	-1.54	0	100	100	21, 39, 55, 77	0

There are no RSRZ outliers to report.

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

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

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	PEG	D	505	7/7	0.98	0.08	23,29,34,38	0
4	PEG	A	502	7/7	0.98	0.04	18,25,26,27	0
4	PEG	B	502	7/7	0.98	0.04	26,30,36,37	0
3	GOL	C	503	6/6	0.99	0.05	38,42,44,46	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	GOL	D	501	6/6	0.99	0.04	33,36,38,39	0
3	GOL	D	502	6/6	0.99	0.03	29,37,40,41	0
3	GOL	A	506	6/6	0.99	0.05	40,43,47,48	0
3	GOL	B	503	6/6	0.99	0.05	24,35,36,36	0
4	PEG	C	504	7/7	0.99	0.04	41,45,50,50	0
4	PEG	D	503	7/7	0.99	0.04	29,33,41,45	0
2	ANP	C	501	31/31	0.99	0.04	30,45,58,63	0
2	ANP	C	505	31/31	0.99	0.03	32,39,53,64	0
4	PEG	A	503	7/7	0.99	0.04	20,26,30,32	0
4	PEG	A	504	7/7	0.99	0.04	33,36,37,40	0
4	PEG	A	505	7/7	0.99	0.06	29,30,38,40	0
4	PEG	B	501	7/7	0.99	0.04	24,27,32,36	0
3	GOL	C	502	6/6	0.99	0.04	27,34,34,36	0
5	AMP	D	504	23/23	0.99	0.04	46,52,61,65	0
6	ADP	A	501	27/27	0.99	0.04	38,46,55,66	0
7	TRS	B	504	8/8	0.99	0.07	26,31,33,35	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 PEG D 505:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
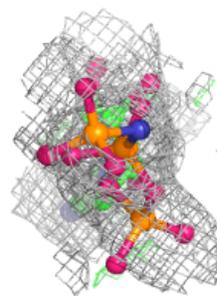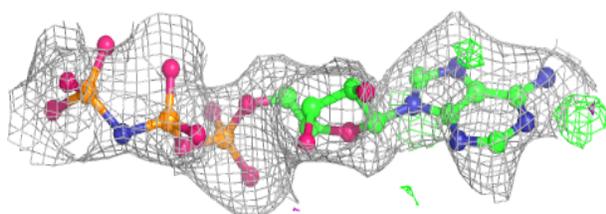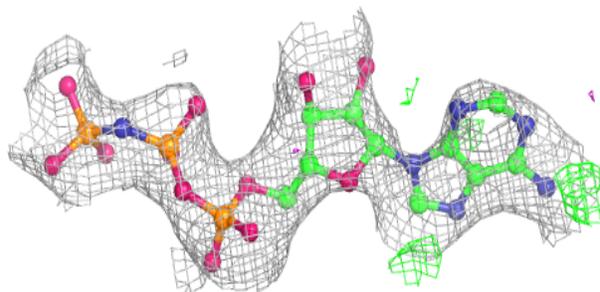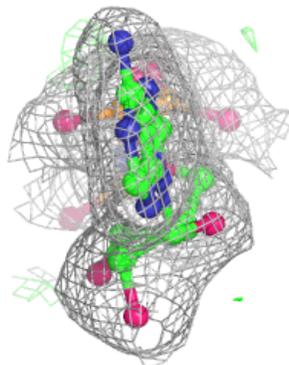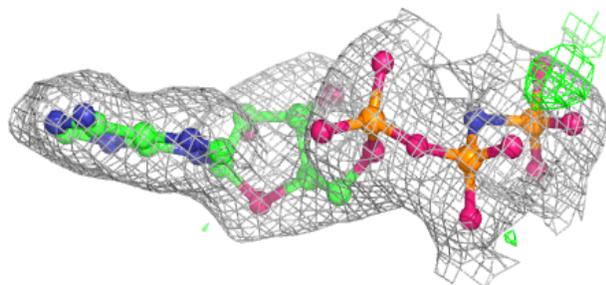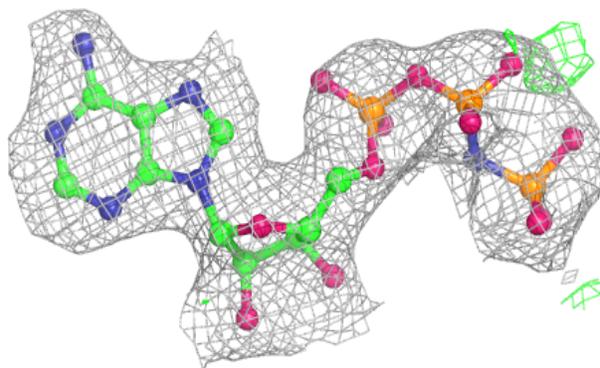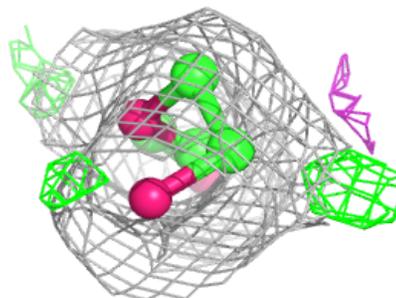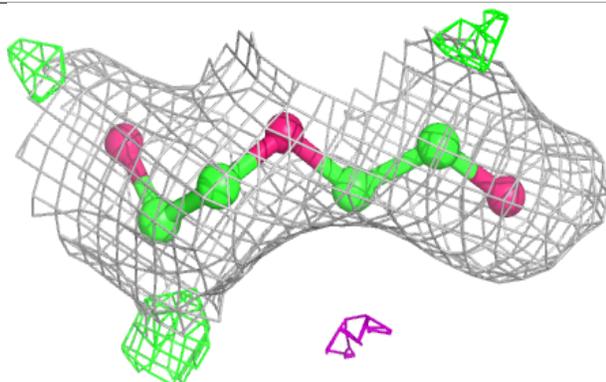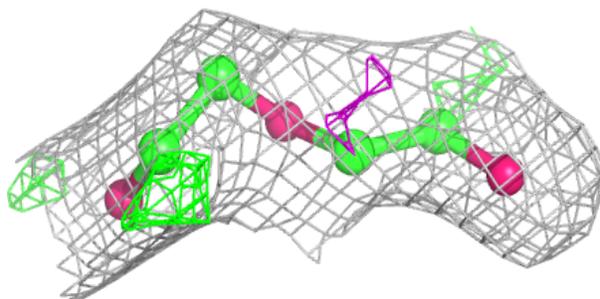mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative) and green (positive)
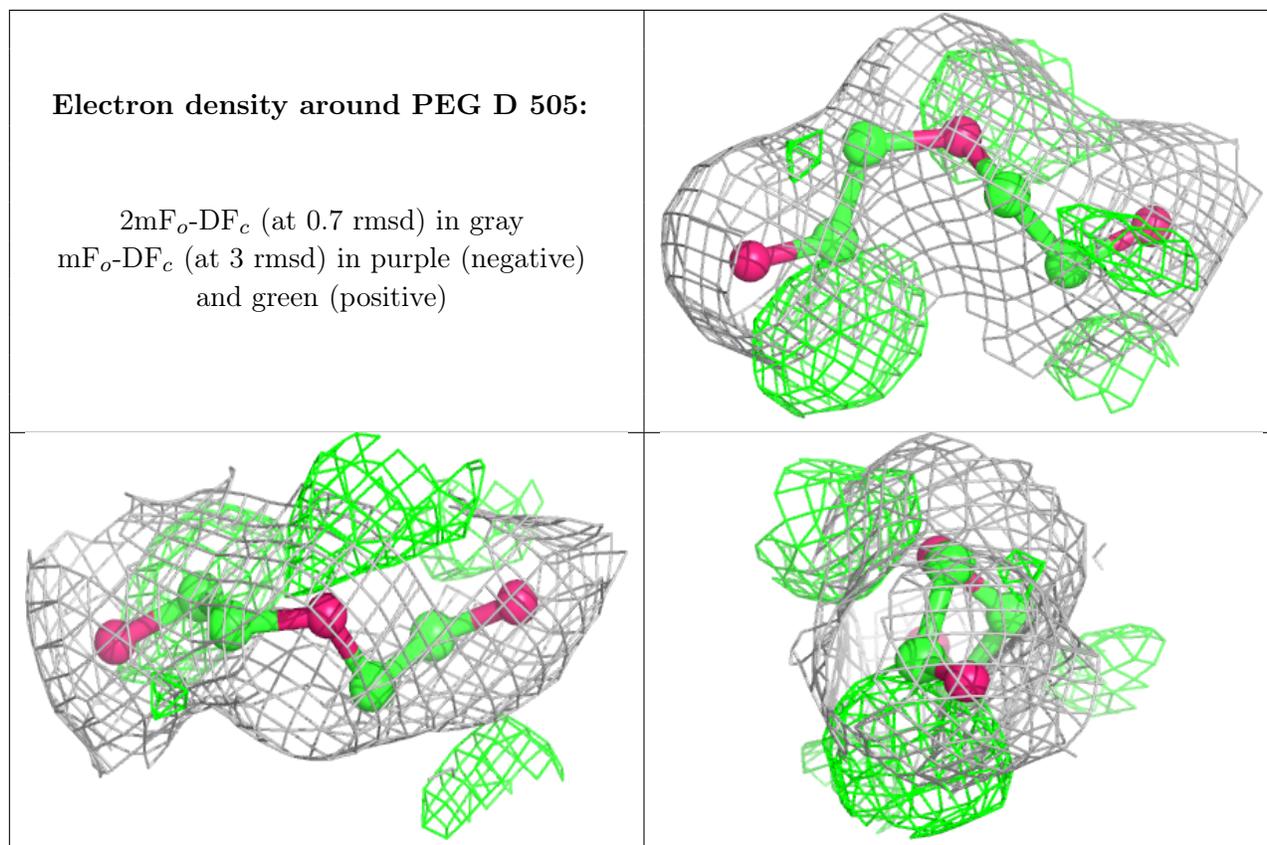
Electron density around PEG A 502:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
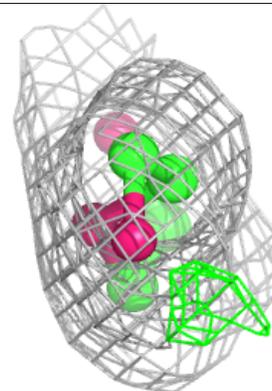and green (positive)
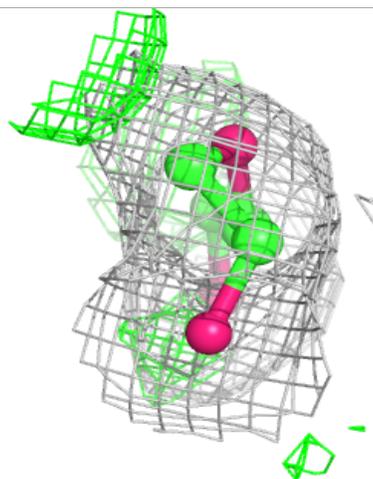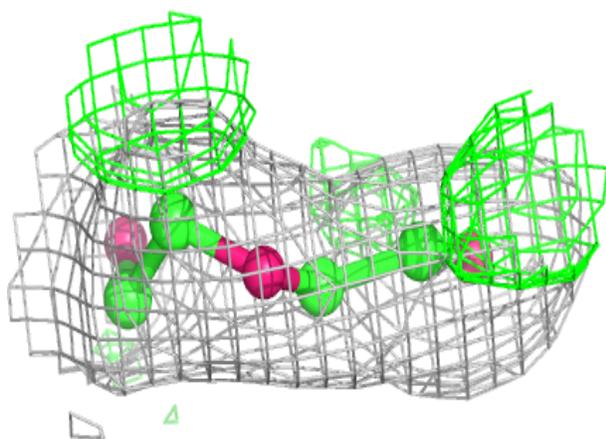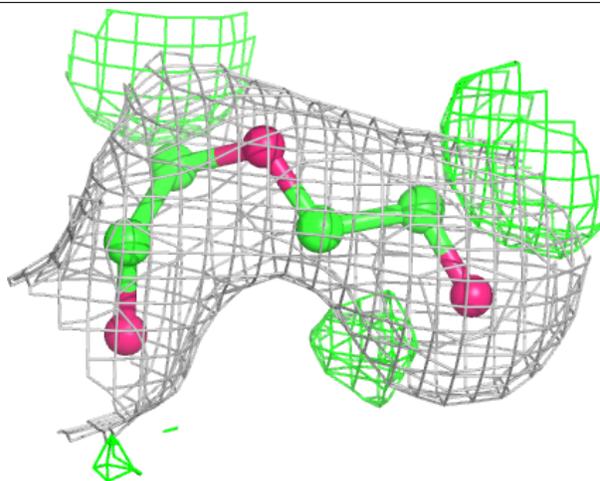
Electron density around PEG B 502:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
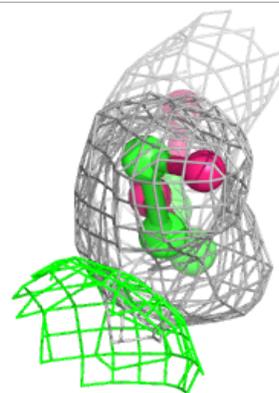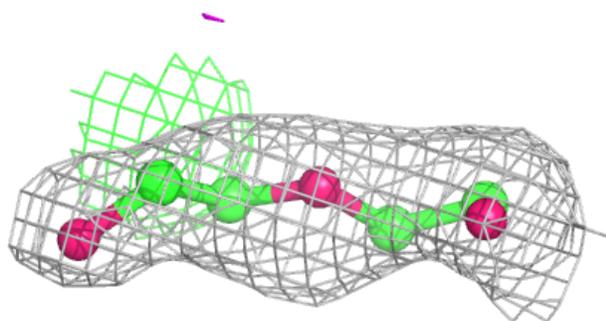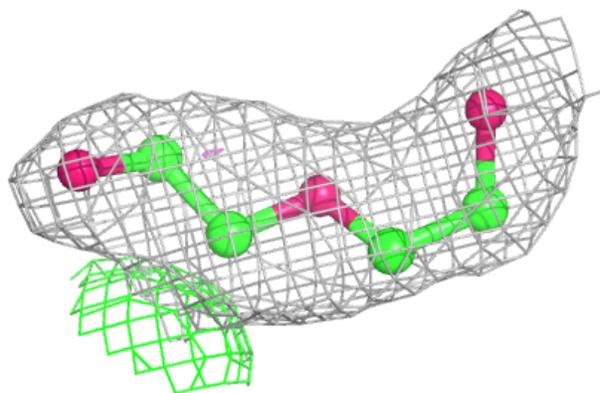
Electron density around GOL C 503:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
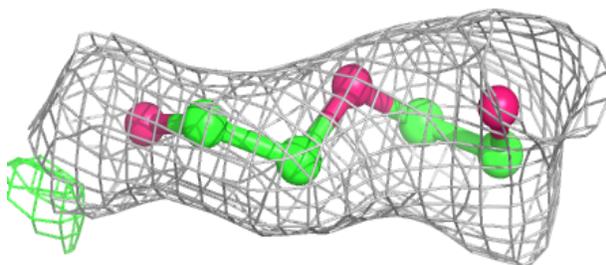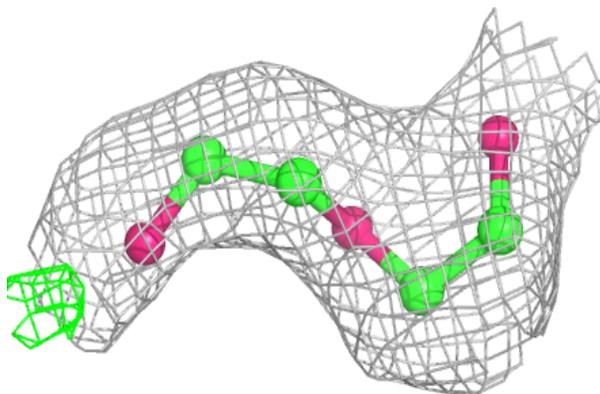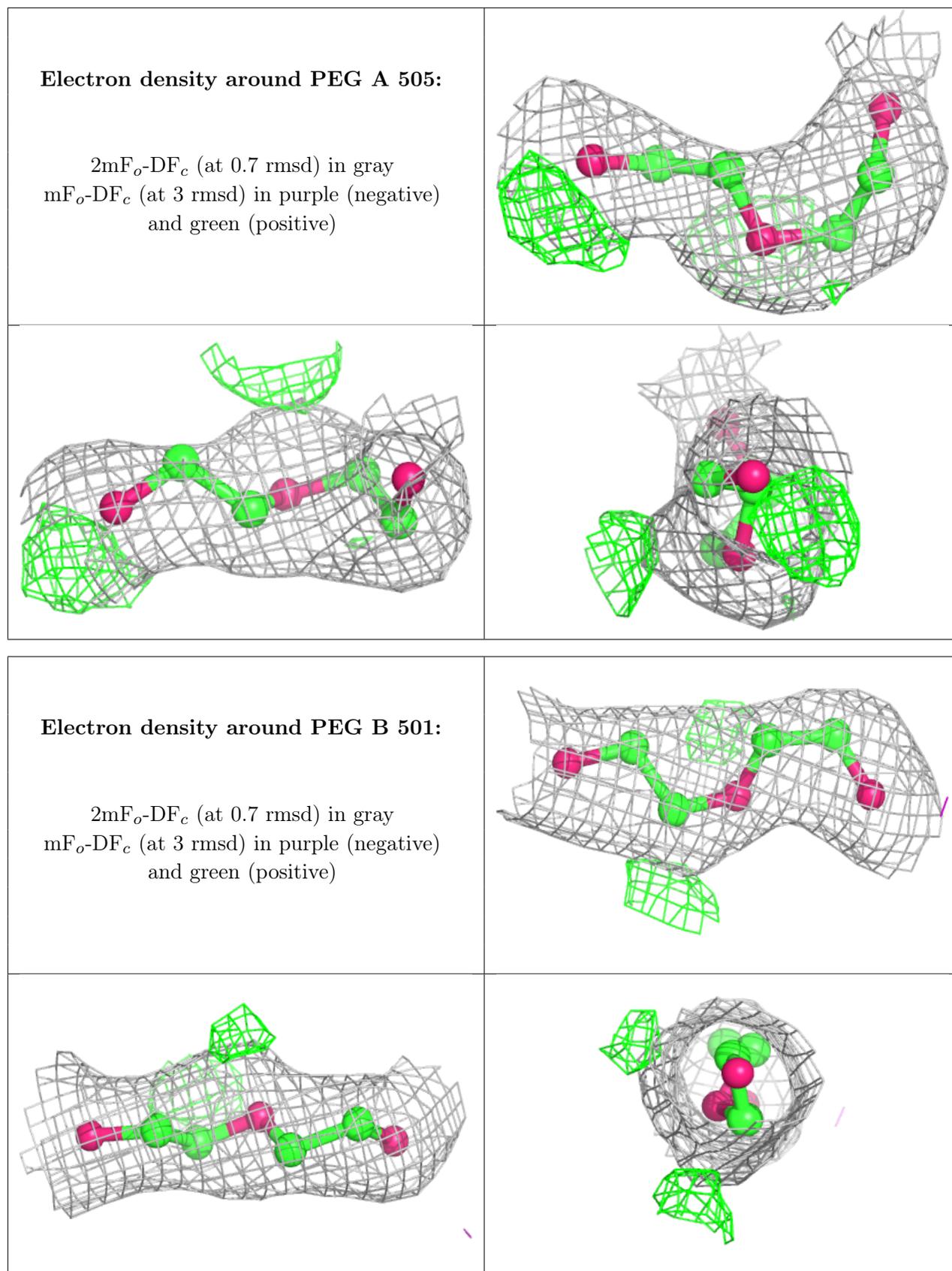mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
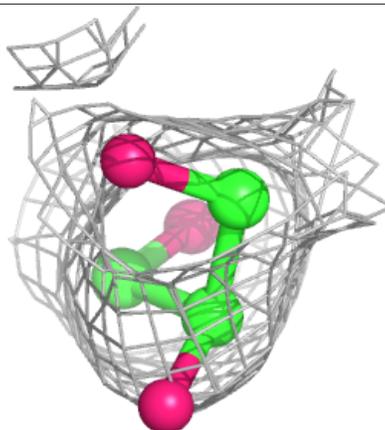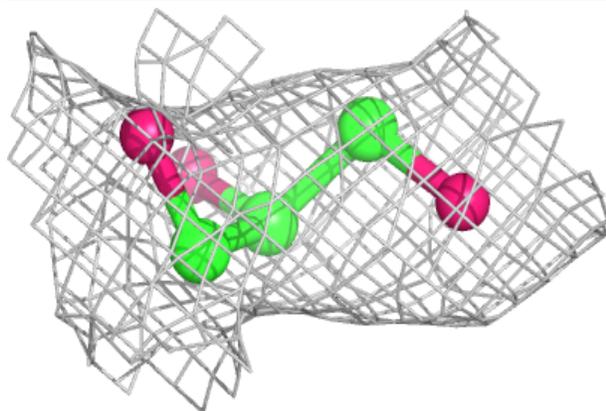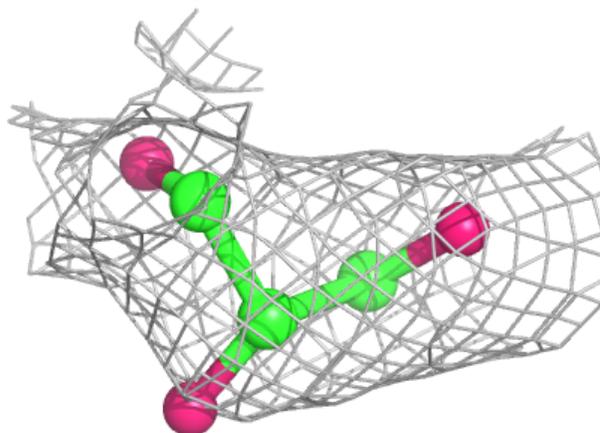
Electron density around GOL D 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
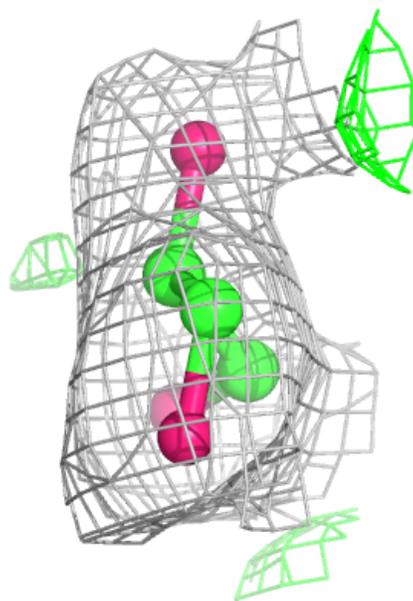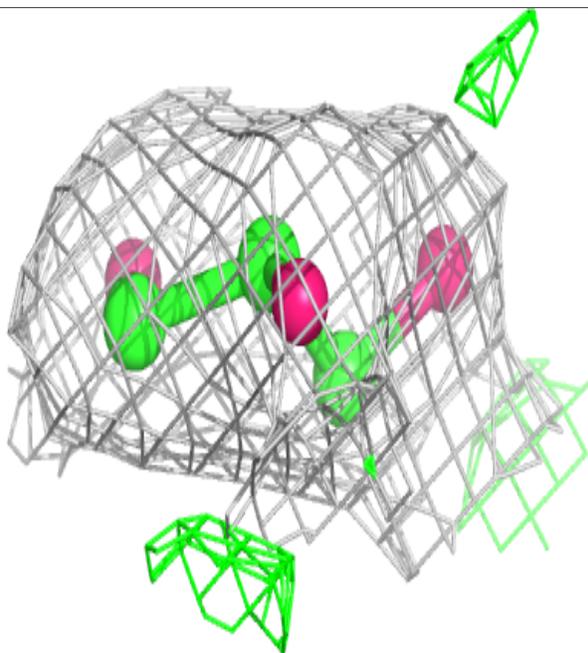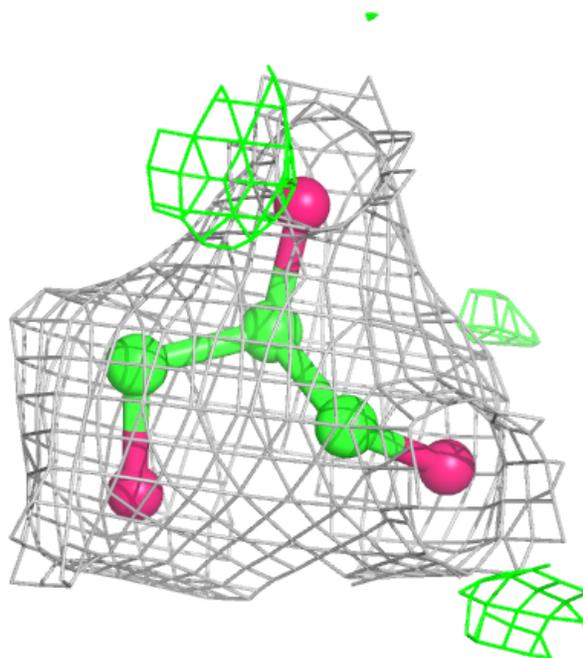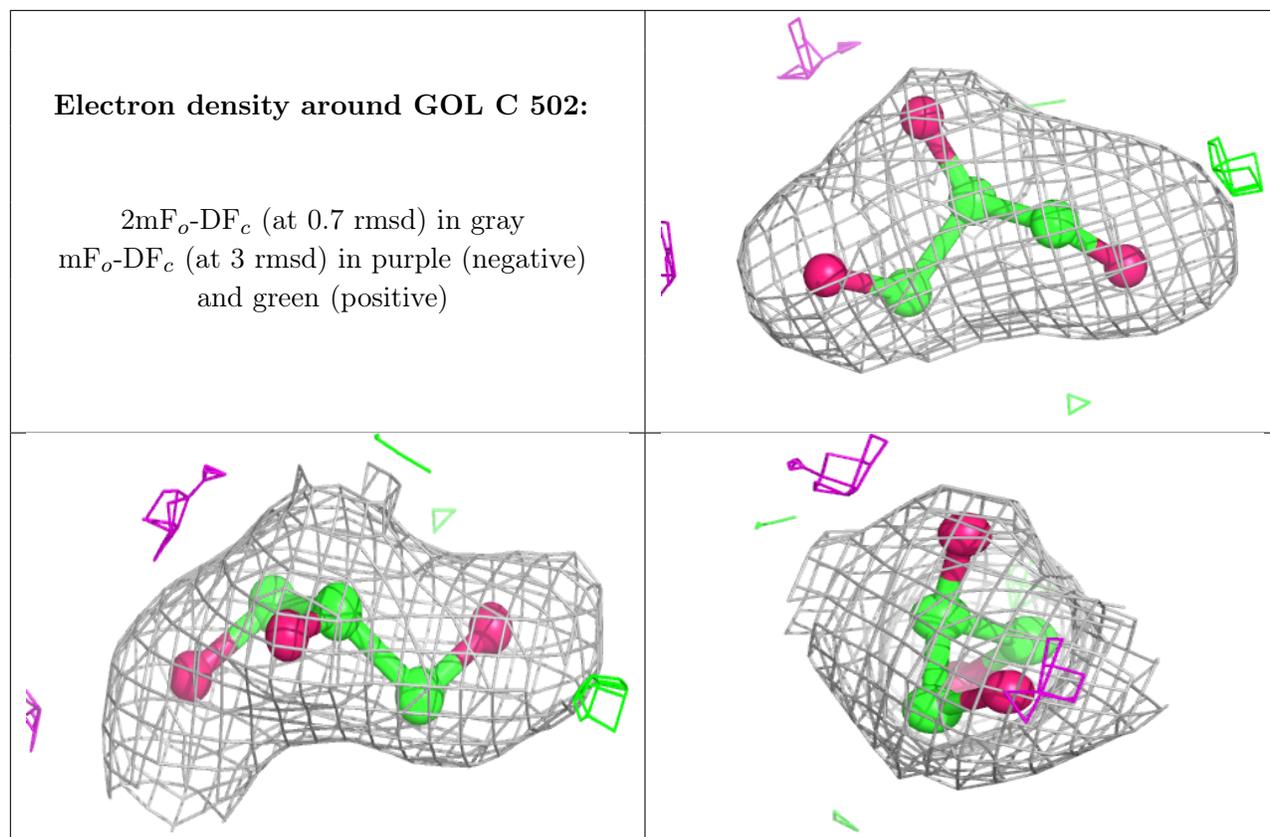
Electron density around GOL D 502:

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

Electron density around GOL A 506:

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

Electron density around GOL B 503:

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

Electron density around PEG C 504:

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

Electron density around PEG D 503:

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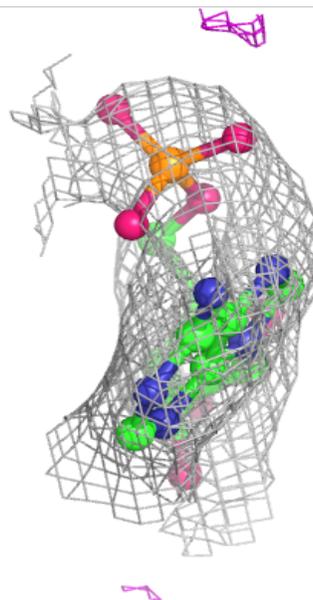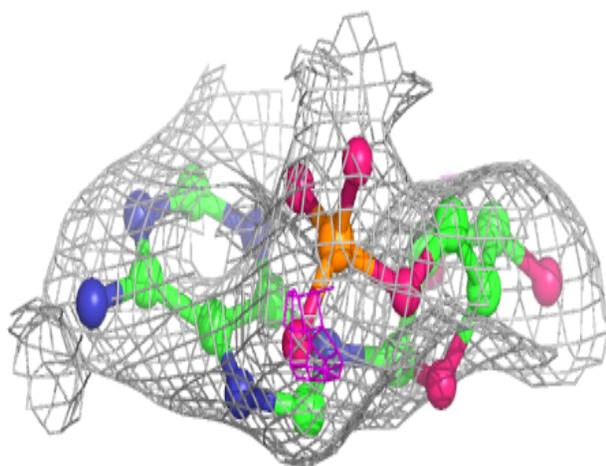and green (positive)

Electron density around ANP C 501:

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

Electron density around ANP C 505:

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

Electron density around PEG A 503:

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

Electron density around PEG A 504:

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

Electron density around PEG A 505:

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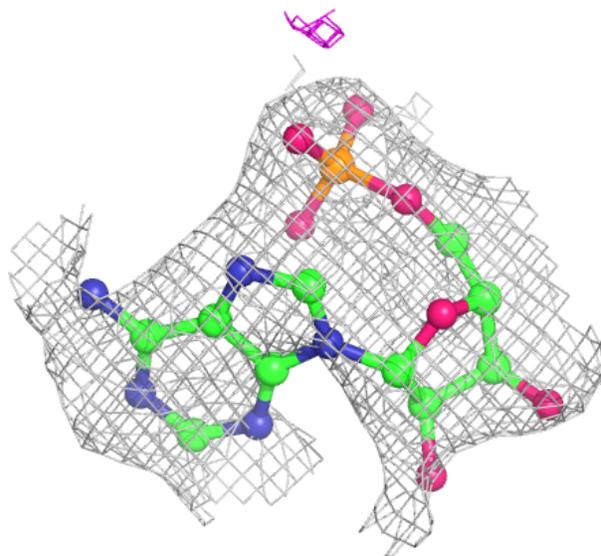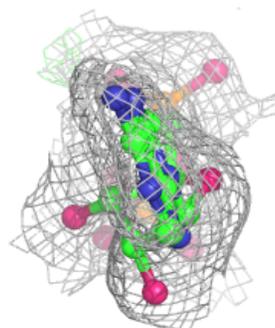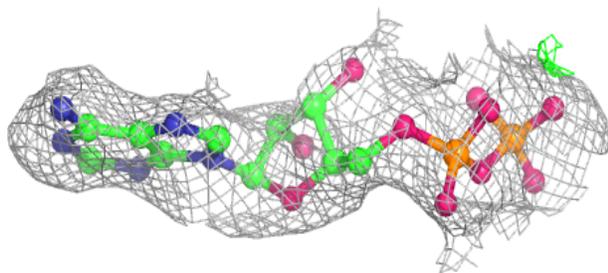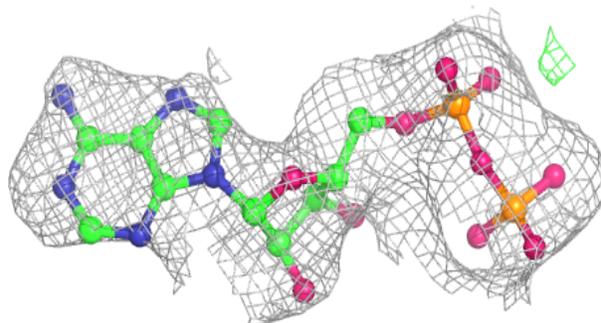mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around PEG B 501:

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

Electron density around GOL C 502:

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

Electron density around AMP D 504:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
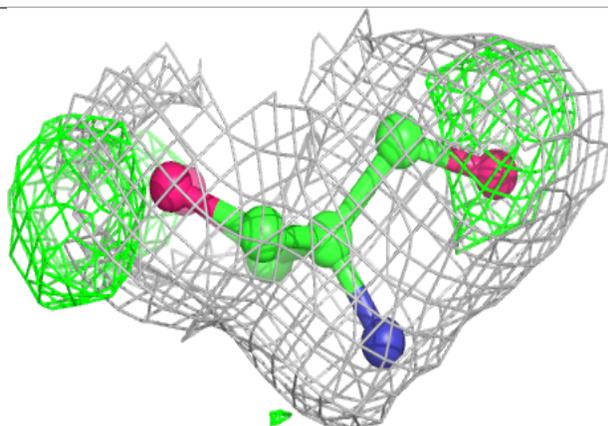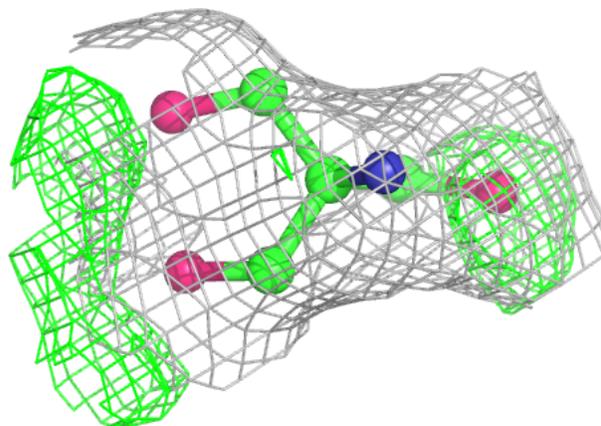and green (positive)

Electron density around ADP A 501:

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

Electron density around TRS B 504:

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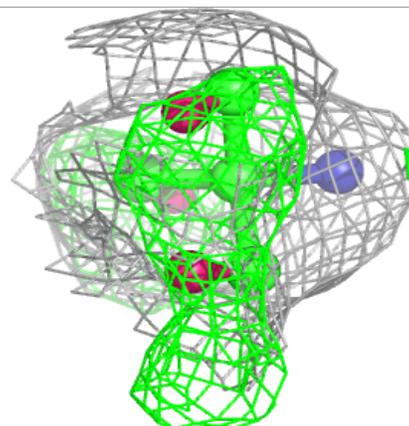
6.5 Other polymers (i)

There are no such residues in this entry.