WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2024 – 02:18 PM EST

PDB ID	:	8TE1
Title	:	Crystal structure of the methyltransferase domain of R882H/R676K DNMT3A homotetramer
Authors	:	Lu, J.W.; Song, J.K.
Deposited on	:	2023-07-05
Resolution	:	2.48 Å(reported)

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

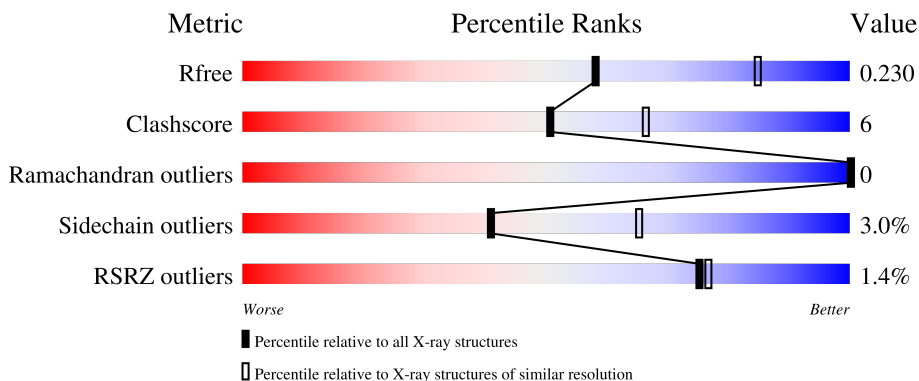|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.48 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.
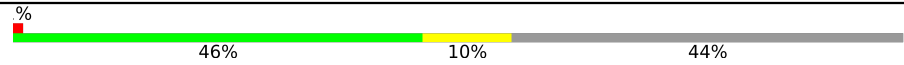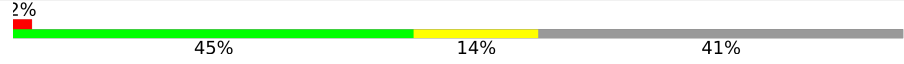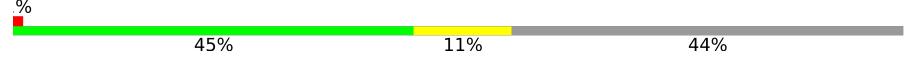
Metric	Percentile Ranks	Value
Rfree		0.230
Clashscore		6
Ramachandran outliers		0
Sidechain outliers		3.0%
RSRZ outliers		1.4%

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$_{free}$	130704	5857 (2.50-2.46)
Clashscore	141614	6594 (2.50-2.46)
Ramachandran outliers	138981	6469 (2.50-2.46)
Sidechain outliers	138945	6471 (2.50-2.46)
RSRZ outliers	127900	5738 (2.50-2.46)

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	287	83% 12% 5%
1	B	287	80% 15% •
1	C	287	86% 10% •
1	D	287	81% 15% •
1	E	287	44% 12% 45%

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Mol	Chain	Length	Quality of chain
1	F	287	% 46% 10% 44%
1	G	287	2% 45% 14% 41%
1	H	287	% 45% 11% 44%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 14743 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 DNA (cytosine-5)-methyltransferase 3A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	273	Total	C	N	O	S	0	2	0
			2195	1406	390	386	13			
1	B	275	Total	C	N	O	S	0	4	0
			2218	1422	395	387	14			
1	C	275	Total	C	N	O	S	0	3	0
			2199	1411	388	386	14			
1	E	159	Total	C	N	O	S	0	0	0
			1265	829	218	212	6			
1	H	161	Total	C	N	O	S	0	0	0
			1272	829	220	217	6			
1	F	160	Total	C	N	O	S	0	0	0
			1273	834	215	218	6			
1	D	275	Total	C	N	O	S	0	3	0
			2205	1414	388	389	14			
1	G	170	Total	C	N	O	S	0	0	0
			1336	871	232	227	6			

There are 32 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	626	GLY	-	expression tag	UNP Q9Y6K1
A	627	SER	-	expression tag	UNP Q9Y6K1
A	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
A	882	HIS	ARG	engineered mutation	UNP Q9Y6K1
B	626	GLY	-	expression tag	UNP Q9Y6K1
B	627	SER	-	expression tag	UNP Q9Y6K1
B	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
B	882	HIS	ARG	engineered mutation	UNP Q9Y6K1
C	626	GLY	-	expression tag	UNP Q9Y6K1
C	627	SER	-	expression tag	UNP Q9Y6K1
C	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
C	882	HIS	ARG	engineered mutation	UNP Q9Y6K1
E	626	GLY	-	expression tag	UNP Q9Y6K1

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Chain	Residue	Modelled	Actual	Comment	Reference
E	627	SER	-	expression tag	UNP Q9Y6K1
E	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
E	882	HIS	ARG	engineered mutation	UNP Q9Y6K1
H	626	GLY	-	expression tag	UNP Q9Y6K1
H	627	SER	-	expression tag	UNP Q9Y6K1
H	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
H	882	HIS	ARG	engineered mutation	UNP Q9Y6K1
F	626	GLY	-	expression tag	UNP Q9Y6K1
F	627	SER	-	expression tag	UNP Q9Y6K1
F	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
F	882	HIS	ARG	engineered mutation	UNP Q9Y6K1
D	626	GLY	-	expression tag	UNP Q9Y6K1
D	627	SER	-	expression tag	UNP Q9Y6K1
D	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
D	882	HIS	ARG	engineered mutation	UNP Q9Y6K1
G	626	GLY	-	expression tag	UNP Q9Y6K1
G	627	SER	-	expression tag	UNP Q9Y6K1
G	676	LYS	ARG	engineered mutation	UNP Q9Y6K1
G	882	HIS	ARG	engineered mutation	UNP Q9Y6K1

- Molecule 2 is S-ADENOSYL-L-HOMOCYSTEINE (three-letter code: SAH) (formula: $C_{14}H_{20}N_6O_5S$) (labeled as "Ligand of Interest" by depositor).
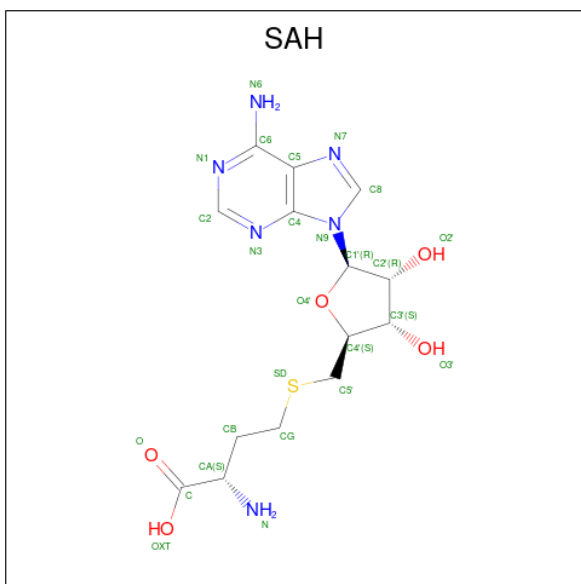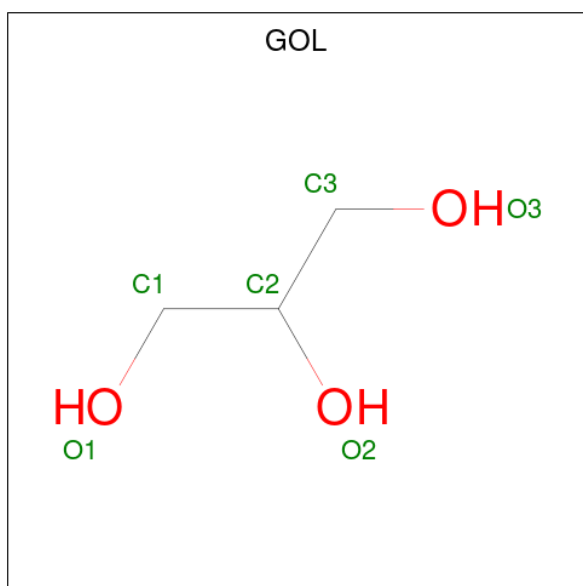

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	S		
2	A	1	26	14	6	5	1	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	B	1	Total 26	C 14	N 6	O 5	S 1	0	0
2	C	1	Total 26	C 14	N 6	O 5	S 1	0	0
2	D	1	Total 26	C 14	N 6	O 5	S 1	0	0

- 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	A	1	Total 6	C 3	O 3	0	0
3	A	1	Total 6	C 3	O 3	0	0
3	A	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
3	B	1	Total 6	C 3	O 3	0	0
3	C	1	Total 6	C 3	O 3	0	0
3	C	1	Total 6	C 3	O 3	0	0

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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

- Molecule 4 is L(+)-TARTARIC ACID (three-letter code: TLA) (formula: $C_4H_6O_6$) (labeled as "Ligand of Interest" by depositor).
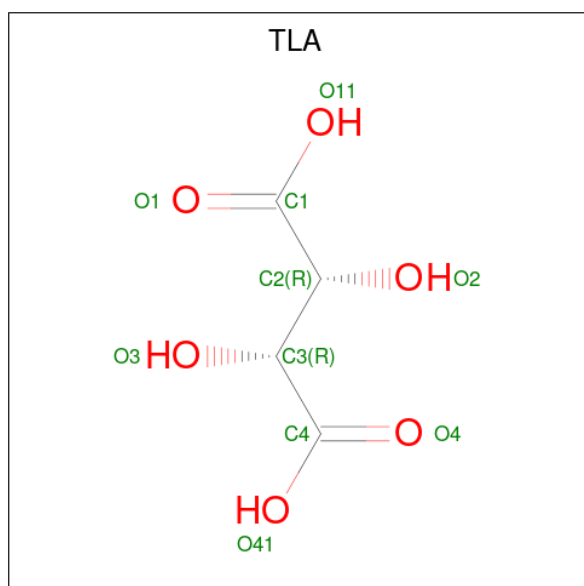
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total 10	C 4	O 6	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	129	Total 129	O 129	0	0
5	B	115	Total 115	O 115	0	0
5	C	113	Total 113	O 113	0	0
5	E	38	Total 38	O 38	0	0
5	H	32	Total 32	O 32	0	0

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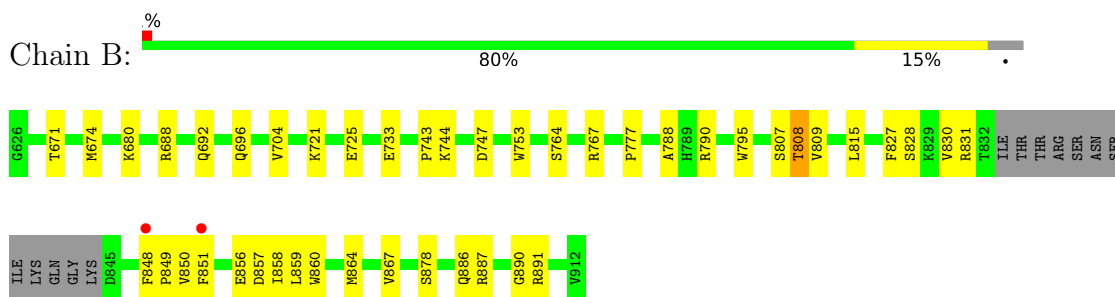| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	F	35	Total 35	O 35	0	0
5	D	108	Total 108	O 108	0	0
5	G	30	Total 30	O 30	0	0

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.
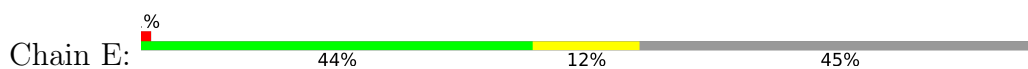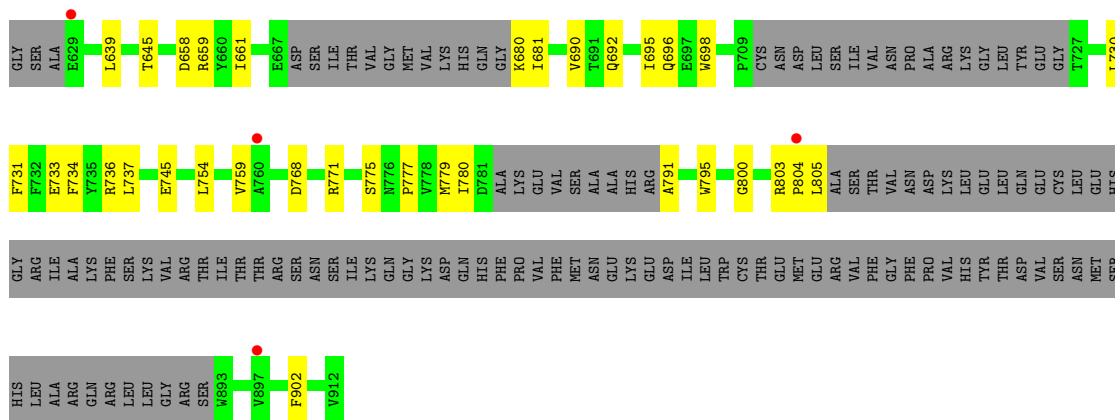
- Molecule 1: DNA (cytosine-5)-methyltransferase 3A

- Molecule 1: DNA (cytosine-5)-methyltransferase 3A

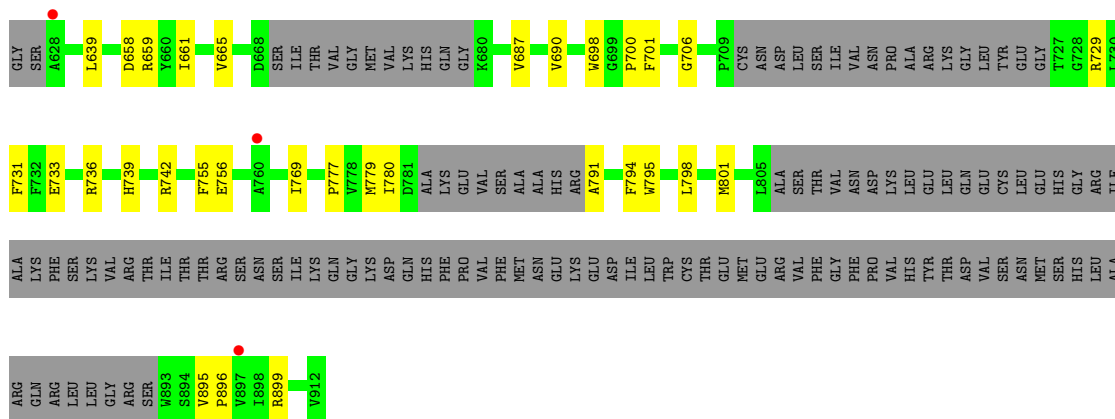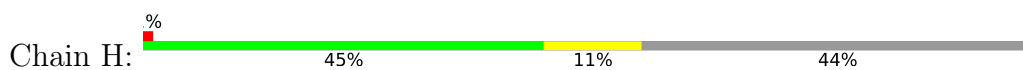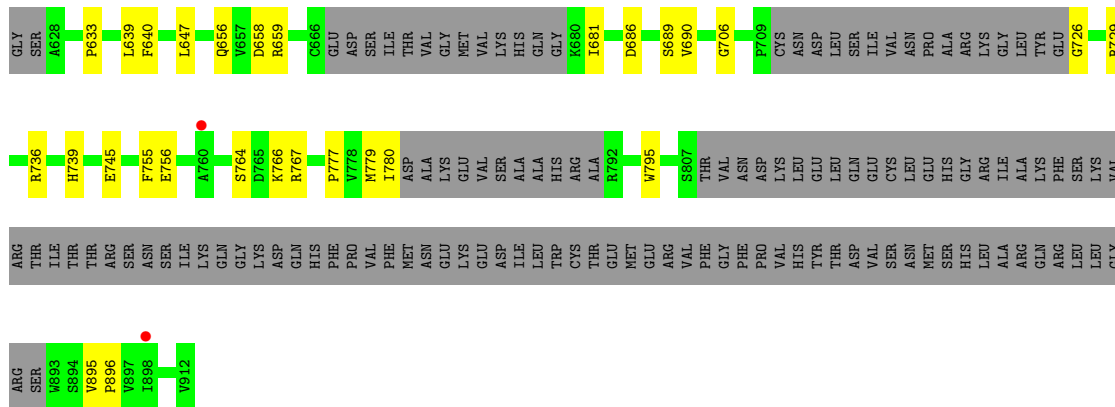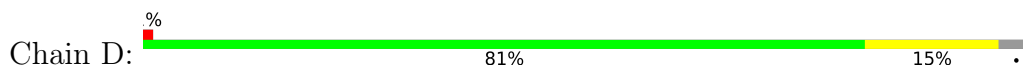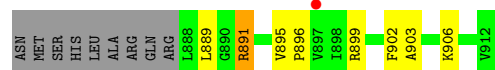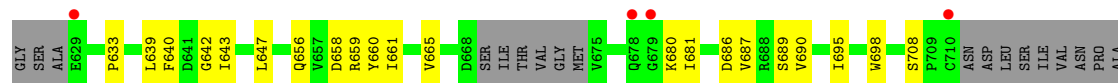- Molecule 1: DNA (cytosine-5)-methyltransferase 3A

- Molecule 1: DNA (cytosine-5)-methyltransferase 3A

GLY SER ALA E629 L639 T645 D658 R659 Y660 I661 E667 ASP SER ILE THR VAL GLY MET VAL LYS HIS GLN GLY K680 I681 V690 T691 Q692 I695 Q696 E697 W698 P709 CYS ASN ASP LEU SER ILE VAL ASN PRO ALA ARG LYS GLY LEU TYR GLU T727 L730

F731 F732 E733 F734 Y735 R736 L737 E745 L754 V759 A760 D768 R771 S775 N776 P777 V778 M779 I780 D781 ALA LYS GLU VAL SER ALA ALA HIS ARG A791 W795 G800 R803 P804 L805 ALA SER THR VAL ASN ASP LYS LEU GLU LEU GLN GLU CYS LEU GLU HIS

GLY ARG ILE ALA LYS PHE SER LYS VAL ARG THR ILE THR THR ARG ASN SER ILE LYS GLN GLY LYS ASP HIS PHE PRO VAL PHE MET ASN GLU LYS GLU ASP ILE LEU TRP CYS THR GLU MET GLU ARG VAL PHE GLY PRO VAL HIS TYR THR ASP VAL SER ASN MET SER

HIS LEU ALA ARG GLN ARG LEU LEU GLY ARG SER W893 V897 F902 V912

● Molecule 1: DNA (cytosine-5)-methyltransferase 3A

%

Chain H: 45%   11%   44%

GLY SER A628 L639 D658 R659 Y660 I661 V665 D668 SER ILE THR VAL GLY MET VAL LYS HIS GLN GLY K680 V687 V690 W698 G699 P700 F701 G706 P709 CYS ASN ASP LEU SER ILE VAL ASN PRO ALA ARG LYS GLY LEU TYR GLU GLY T727 G728 R729 L730

F731 F732 E733 R736 H739 R742 F755 E756 A760 I769 P777 V778 M779 I780 D781 ALA LYS GLU VAL SER ALA ALA HIS ARG A791 F794 W795 L798 M801 L805 ALA SER THR VAL ASN ASP LEU GLU LEU GLN GLU CYS LEU GLU HIS GLY ARG ILE

ALA LYS PHE SER LYS VAL ARG THR ILE THR THR ARG ASN SER ILE LYS GLN GLY LYS ASP HIS PHE PRO VAL PHE MET ASN GLU LYS GLU ASP ILE LEU TRP CYS THR GLU MET GLU ARG VAL PHE GLY PRO VAL HIS TYR THR ASP VAL SER ASN MET SER HIS LEU ALA

ARG GLN ARG SER LEU GLY ARG SER W893 S894 V895 P896 V897 I898 R899 V912

● Molecule 1: DNA (cytosine-5)-methyltransferase 3A

%

Chain F: 46%   10%   44%

GLY SER A628 P633 L639 F640 L647 Q656 V657 D658 R659 C666 GLU ASP SER ILE THR VAL GLY MET VAL LYS HIS GLN GLY K680 I681 D686 S689 V690 G706 P709 CYS ASN ASP LEU SER ILE VAL ASN PRO ALA ARG LYS GLY LEU TYR GLU G726 R729

R736 H739 E745 F755 E756 A760 S764 D765 K766 R767 P777 V778 M779 I780 ASP ALA LYS GLU VAL SER ALA ALA HIS ALA R792 W795 S807 THR VAL ASN ASP LEU GLU LEU GLN GLU CYS LEU GLU HIS GLY ARG ILE ALA LYS PHE SER LYS VAL

ARG THR ILE THR THR ARG ASN SER ASN SER ILE LYS GLN GLY LYS ASP HIS PHE PRO VAL PHE MET ASN GLU LYS GLU ASP ILE LEU TRP CYS THR GLU MET GLU ARG VAL PHE GLY PRO VAL HIS TYR THR ASP VAL SER ASN MET SER HIS LEU ALA ARG GLN LEU LEU GLY

ARG SER W893 S894 V895 P896 V897 I898 V912

● Molecule 1: DNA (cytosine-5)-methyltransferase 3A

%

Chain D: 81%   15%   •

![Worldwide PDB Protein Data Bank logo]

G626 G642 I643 D668 S669 I670 T671 V704 N711 D712 I715 Y724 T727 R742 D748 W753 N757 P777 R790 W795 G796 M801 T808 V809 K812 L815 K826 F827 T832 ILE THR THR ARG SER ASN SER ILE LYS GLN GLY

LYS D845 F848 P849 V850 F851 I858 L859 W860 M864 E865 R866 Y874 S878 H882 Q886 R887 L888 L889 G890 R891 L901 V912

• Molecule 1: DNA (cytosine-5)-methyltransferase 3A

Chain G:

2%

45%   14%   41%

GLY SER ALA E629 P633 L639 F640 D641 G642 I643 L647 Q656 V657 D658 R659 Y660 I661 V665 D668 SER ILE THR VAL GLY MET V675 Q678 G679 K680 I681 D686 V687 R688 S689 V690 I695 W698 S708 P709 C710 ASN ASP LEU SER ILE VAL ASN PRO ALA

ARG LYS GLY LEU TYR GLU G726 R729 E733 R736 L737 R742 P743 K744 L754 F755 E756 A760 P777 V778 M779 I780 ASP ALA LYS GLU VAL SER ALA ALA HIS ARG ALA R792 W795 R803 P804 L805 ALA SER THR VAL ASN ASP LYS LEU GLU GLN GLU CYS

LEU GLU HIS GLY ARG ILE ALA LYS PHE SER LYS VAL ARG THR ILE THR THR ARG SER ASN SER ILE LYS GLN GLY LYS ASP GLN HIS PHE PRO VAL PHE MET ASN GLU LYS GLU ASP ILE LEU TRP CYS THR GLU MET GLU ARG VAL PHE GLY PHE PRO VAL HIS TYR THR ASP VAL SER

ASN MET SER HIS LEU ALA ARG GLN ARG L888 L889 G890 R891 V895 P896 V897 I898 R899 F902 A903 K906 V912

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 3	Depositor
Cell constants a, b, c, α, β, γ	177.83Å 177.83Å 110.92Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	47.06 – 2.48 47.06 – 2.48	Depositor EDS
% Data completeness (in resolution range)	98.9 (47.06-2.48) 98.9 (47.06-2.48)	Depositor EDS
R_{merge}	0.15	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.06 (at 2.48Å)	Xtriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.193 , 0.226 0.194 , 0.230	Depositor DCC
R_{free} test set	1974 reflections (1.44%)	wwPDB-VP
Wilson B-factor (Å^2)	52.5	Xtriage
Anisotropy	0.031	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 38.9	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.467 for -h,-k,l 0.480 for h,-h-k,-l 0.467 for -k,-h,-l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	14743	wwPDB-VP
Average B, all atoms (Å^2)	60.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.64% of the height of the origin peak. No significant pseudotranslation is detected.*

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[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: TLA, GOL, SAH

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	0.25	0/2255	0.51	0/3045
1	B	0.28	0/2284	0.53	0/3082
1	C	0.25	0/2261	0.51	0/3054
1	D	0.25	0/2267	0.52	0/3061
1	E	0.26	0/1298	0.51	0/1753
1	F	0.27	0/1306	0.51	0/1763
1	G	0.29	0/1368	0.53	0/1846
1	H	0.30	0/1303	0.55	0/1758
All	All	0.27	0/14342	0.52	0/19362

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2195	0	2162	20	0
1	B	2218	0	2193	27	0
1	C	2199	0	2159	19	0
1	D	2205	0	2168	27	0
1	E	1265	0	1230	18	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	1273	0	1235	16	0
1	G	1336	0	1298	24	0
1	H	1272	0	1238	21	0
2	A	26	0	19	0	0
2	B	26	0	19	0	0
2	C	26	0	19	2	0
2	D	26	0	19	0	0
3	A	24	0	32	3	0
3	B	12	0	16	1	0
3	C	24	0	32	1	0
3	D	6	0	8	1	0
4	C	10	0	4	0	0
5	A	129	0	0	0	0
5	B	115	0	0	2	0
5	C	113	0	0	1	0
5	D	108	0	0	0	0
5	E	38	0	0	1	0
5	F	35	0	0	1	0
5	G	30	0	0	1	0
5	H	32	0	0	0	0
All	All	14743	0	13851	159	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (159) 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:G:896:PRO:O	1:G:899:ARG:HB3	1.86	0.75
1:B:790:ARG:NH2	1:B:890:GLY:O	2.23	0.71
1:H:896:PRO:HA	1:H:899:ARG:HG2	1.74	0.70
1:G:804:PRO:HB2	1:G:805:LEU:HD23	1.74	0.69
1:G:661:ILE:HD13	1:G:698:TRP:HB3	1.73	0.69
1:G:690:VAL:O	1:G:736:ARG:NH2	2.26	0.69
1:A:849:PRO:HD2	1:A:858:ILE:HA	1.74	0.69
1:B:680:LYS:HE2	3:B:1002:GOL:H2	1.73	0.68
1:C:849:PRO:HD2	1:C:858:ILE:HA	1.76	0.68
1:E:690:VAL:O	1:E:736:ARG:NH2	2.26	0.67
1:D:790:ARG:NH2	1:D:890:GLY:O	2.28	0.66
1:H:690:VAL:O	1:H:736:ARG:NH2	2.29	0.66
1:D:643:ILE:HG23	1:D:874:TYR:HE2	1.61	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:647:LEU:HD21	1:G:681:ILE:HD13	1.79	0.65
1:G:633:PRO:HB3	1:G:656:GLN:HB3	1.79	0.64
1:C:693:LYS:NZ	5:C:1103:HOH:O	2.29	0.64
1:D:643:ILE:HD11	1:D:888:LEU:HD13	1.80	0.63
1:A:671:THR:HG21	1:A:878:SER:HB2	1.81	0.63
1:F:647:LEU:HD21	1:F:681:ILE:HD13	1.80	0.62
1:E:680:LYS:N	5:E:1003:HOH:O	2.33	0.61
1:A:812:LYS:HE2	1:A:866[B]:ARG:HH11	1.66	0.61
1:C:671:THR:HG21	1:C:878:SER:HB2	1.83	0.61
1:B:831[A]:ARG:NH1	5:B:1104:HOH:O	2.35	0.59
1:C:771:ARG:NH2	1:H:733:GLU:OE1	2.35	0.59
1:C:880:MET:HG3	1:C:885:ARG:HG3	1.87	0.57
1:D:808:THR:OG1	1:D:809:VAL:N	2.37	0.57
1:B:671:THR:HG21	1:B:878:SER:HB2	1.85	0.57
1:E:692:GLN:NE2	1:E:696:GLN:OE1	2.37	0.57
1:A:808:THR:OG1	1:A:809:VAL:N	2.38	0.57
1:B:733:GLU:OE2	1:E:771:ARG:NH2	2.38	0.56
1:G:642:GLY:HA2	1:G:889:LEU:HB3	1.88	0.56
1:C:808:THR:OG1	1:C:809:VAL:N	2.39	0.56
1:F:895:VAL:N	1:F:896:PRO:HD2	2.21	0.56
1:B:864:MET:HE1	1:B:886:GLN:HG2	1.89	0.55
1:D:671:THR:HG21	1:D:878:SER:HB2	1.89	0.55
1:H:798:LEU:HB2	1:H:801:MET:HE3	1.88	0.54
1:D:812:LYS:HE2	1:D:866[B]:ARG:HH11	1.72	0.54
1:B:830:VAL:HG21	1:B:859:LEU:HD11	1.90	0.54
1:D:849:PRO:HD2	1:D:858:ILE:HA	1.90	0.54
1:G:903:ALA:O	1:G:906:LYS:HG2	2.08	0.53
1:A:744:LYS:NZ	1:F:745:GLU:OE1	2.42	0.53
1:D:712:ASP:HB2	1:D:727:THR:HG22	1.91	0.52
1:H:780:ILE:O	1:H:791:ALA:HA	2.10	0.52
1:D:864:MET:HE1	1:D:886:GLN:HA	1.90	0.52
1:E:639:LEU:O	1:E:639:LEU:HD13	2.10	0.52
1:F:690:VAL:O	1:F:736:ARG:NH2	2.43	0.51
1:B:851:PHE:CE1	1:B:856:GLU:HG3	2.46	0.51
1:G:640:PHE:HZ	1:G:756:GLU:OE2	1.93	0.51
1:G:899:ARG:NH2	5:G:1002:HOH:O	2.36	0.51
1:C:851:PHE:CE1	1:C:856:GLU:HG3	2.45	0.51
1:A:907:GLU:HG3	3:A:1005:GOL:H32	1.91	0.50
1:H:661:ILE:CD1	1:H:698:TRP:HB3	2.42	0.50
1:A:724:TYR:CD1	1:F:729:ARG:HA	2.46	0.50
1:A:814:GLU:OE2	1:A:828:SER:OG	2.25	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:639:LEU:HD13	1:F:639:LEU:O	2.10	0.50
1:B:815:LEU:HD11	1:B:859:LEU:HD21	1.94	0.50
1:A:860:TRP:CE2	1:B:878:SER:HA	2.47	0.50
1:C:864:MET:CE	1:C:886:GLN:HG2	2.42	0.49
1:A:880:MET:HE2	1:A:885:ARG:HG3	1.93	0.49
1:E:695:ILE:HD11	1:E:737:LEU:HD22	1.93	0.49
1:H:639:LEU:O	1:H:639:LEU:HD13	2.12	0.49
1:F:777:PRO:HB3	1:F:795:TRP:CE2	2.47	0.49
1:E:777:PRO:HB3	1:E:795:TRP:CE2	2.47	0.49
1:H:665:VAL:HB	1:H:729:ARG:NH1	2.27	0.49
1:D:724:TYR:CD1	1:G:729:ARG:HA	2.48	0.49
1:H:665:VAL:HG12	1:H:687:VAL:HG11	1.95	0.49
1:E:754:LEU:HD13	1:E:902:PHE:CE1	2.49	0.48
1:G:686:ASP:O	1:G:689:SER:OG	2.32	0.48
1:C:878:SER:HA	1:D:860:TRP:CE2	2.49	0.48
1:G:805:LEU:HD23	1:G:805:LEU:N	2.28	0.48
1:B:808:THR:OG1	1:B:809:VAL:N	2.47	0.48
1:D:777:PRO:HB3	1:D:795:TRP:CE2	2.49	0.48
1:A:851:PHE:CE1	1:A:856:GLU:HG3	2.49	0.48
1:B:849:PRO:HD2	1:B:858:ILE:HA	1.95	0.48
1:D:826:LYS:HE3	1:D:848:PHE:O	2.14	0.48
1:A:797:ASN:HA	3:A:1002:GOL:H11	1.96	0.47
1:F:633:PRO:HB3	1:F:656:GLN:HB3	1.96	0.47
1:A:633:PRO:HB2	1:A:658:ASP:HB2	1.95	0.47
1:D:668:ASP:HB3	1:D:888:LEU:HD11	1.96	0.47
1:G:665:VAL:HG22	1:G:687:VAL:HG11	1.94	0.47
1:C:864:MET:HE1	1:C:886:GLN:HG2	1.97	0.47
1:C:724:TYR:CD2	1:H:729:ARG:HA	2.49	0.47
1:H:779:MET:HE3	1:H:780:ILE:N	2.30	0.47
1:A:822:GLY:HA3	1:B:674[B]:MET:HE1	1.97	0.47
1:H:777:PRO:HB3	1:H:795:TRP:CE2	2.50	0.47
1:A:777:PRO:HB3	1:A:795:TRP:CE2	2.50	0.46
1:G:754:LEU:HD13	1:G:902:PHE:CE1	2.50	0.46
1:B:864:MET:HE1	1:B:886:GLN:CG	2.45	0.46
1:F:686:ASP:O	1:F:689:SER:OG	2.32	0.46
1:G:777:PRO:HB3	1:G:795:TRP:CE2	2.51	0.46
1:D:711:ASN:ND2	1:D:727:THR:HG21	2.31	0.46
1:H:899:ARG:HH11	1:H:899:ARG:HG3	1.81	0.46
1:E:779:MET:SD	1:E:780:ILE:N	2.89	0.45
1:C:860:TRP:CE2	1:D:878:SER:HA	2.51	0.45
1:A:878:SER:HA	1:B:860:TRP:CE2	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:777:PRO:HB3	1:C:795:TRP:CE2	2.52	0.45
1:E:754:LEU:HD13	1:E:902:PHE:HE1	1.82	0.45
1:D:878:SER:O	1:D:878:SER:OG	2.31	0.45
1:G:695:ILE:HD11	1:G:737:LEU:HD22	1.98	0.45
1:C:739:HIS:HD1	1:H:739:HIS:CD2	2.35	0.45
1:C:887:ARG:O	1:C:891:ARG:HG3	2.15	0.45
1:E:759:VAL:HG11	1:E:791:ALA:HB3	1.98	0.45
1:D:796:GLY:O	3:D:1002:GOL:H2	2.17	0.45
1:B:886:GLN:NE2	5:B:1101:HOH:O	2.29	0.45
1:G:803:ARG:HA	1:G:804:PRO:HD3	1.72	0.44
1:F:706:GLY:O	1:F:755:PHE:HA	2.17	0.44
1:F:779:MET:SD	1:F:780:ILE:N	2.90	0.44
1:D:815:LEU:HD11	1:D:859:LEU:HD21	2.00	0.44
1:F:726:GLY:N	5:F:1002:HOH:O	2.50	0.44
1:A:801:MET:SD	3:A:1003:GOL:H32	2.58	0.44
1:E:733:GLU:OE1	1:E:736:ARG:NH1	2.51	0.44
1:C:704:VAL:O	1:C:753:TRP:HA	2.18	0.43
1:H:661:ILE:HD12	1:H:701:PHE:CZ	2.53	0.43
1:B:721:LYS:HB3	1:B:725:GLU:HB2	2.00	0.43
1:B:743:PRO:HB2	1:B:747:ASP:HB3	1.99	0.43
1:C:664:GLU:OE2	2:C:1001:SAH:O2'	2.33	0.43
1:H:895:VAL:N	1:H:896:PRO:HD2	2.32	0.43
1:F:895:VAL:H	1:F:896:PRO:HD2	1.83	0.43
1:E:804:PRO:O	1:E:805:LEU:HB2	2.18	0.43
1:C:631:ARG:NH2	3:C:1006:GOL:O1	2.51	0.43
1:H:798:LEU:HB2	1:H:801:MET:CE	2.49	0.43
1:B:788:ALA:HB2	1:B:867:VAL:HG13	2.00	0.43
1:C:771:ARG:HH22	1:H:733:GLU:CD	2.22	0.43
1:A:847:HIS:HB3	1:A:848:PHE:H	1.55	0.43
1:E:768:ASP:OD1	1:E:771:ARG:NH1	2.51	0.42
1:G:660:TYR:HB3	1:G:681:ILE:HG23	2.01	0.42
1:B:692:GLN:O	1:B:696:GLN:HG3	2.19	0.42
1:F:640:PHE:HZ	1:F:756:GLU:OE1	2.02	0.42
1:B:704:VAL:O	1:B:753:TRP:HA	2.19	0.42
1:B:850:VAL:HG13	1:B:857:ASP:HB3	2.00	0.42
1:E:661:ILE:CD1	1:E:698:TRP:HB3	2.50	0.42
1:D:887:ARG:O	1:D:891:ARG:HG3	2.19	0.42
1:G:661:ILE:CD1	1:G:698:TRP:HB3	2.46	0.42
1:D:704:VAL:O	1:D:753:TRP:HA	2.19	0.42
1:B:688:ARG:HG2	1:E:771:ARG:NH2	2.34	0.42
1:D:642:GLY:O	1:D:669:SER:HB3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:801:MET:HG2	1:D:901:LEU:HD22	2.02	0.42
1:G:733:GLU:OE1	1:G:736:ARG:NH1	2.53	0.42
1:E:731:PHE:O	1:E:734:PHE:HB3	2.20	0.41
1:A:887:ARG:O	1:A:891:ARG:HG3	2.20	0.41
1:B:744:LYS:HA	1:B:744:LYS:HD3	1.76	0.41
1:F:895:VAL:N	1:F:896:PRO:CD	2.83	0.41
1:G:891:ARG:O	1:G:895:VAL:HG23	2.20	0.41
1:B:777:PRO:HB3	1:B:795:TRP:CE2	2.55	0.41
2:C:1001:SAH:HN1	2:C:1001:SAH:HG1	1.75	0.41
1:H:706:GLY:O	1:H:755:PHE:HA	2.21	0.41
1:D:882:HIS:O	1:D:886:GLN:HG3	2.19	0.41
1:F:767:ARG:HE	1:F:767:ARG:HB2	1.76	0.41
1:D:790:ARG:HH11	1:D:790:ARG:HG3	1.84	0.41
1:G:729:ARG:NH1	1:G:733:GLU:OE2	2.54	0.41
1:B:848:PHE:HB2	1:B:856:GLU:HG2	2.03	0.40
1:H:756:GLU:HB2	1:H:794:PHE:CE2	2.57	0.40
1:D:715:ILE:H	1:D:715:ILE:HG12	1.77	0.40
1:G:643:ILE:HD12	1:G:889:LEU:HD22	2.03	0.40
1:H:731:PHE:CE1	1:H:769:ILE:HG23	2.57	0.40
1:A:704:VAL:O	1:A:753:TRP:HA	2.21	0.40
1:B:887:ARG:O	1:B:891:ARG:HG3	2.22	0.40
1:E:800:GLY:O	1:E:803:ARG:NH1	2.50	0.40
1:D:643:ILE:HD11	1:D:888:LEU:HB3	2.04	0.40

There are no symmetry-related clashes.

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	271/287 (94%)	267 (98%)	4 (2%)	0	100	100
1	B	275/287 (96%)	269 (98%)	6 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	274/287 (96%)	266 (97%)	8 (3%)	0	100	100
1	D	274/287 (96%)	267 (97%)	7 (3%)	0	100	100
1	E	149/287 (52%)	145 (97%)	4 (3%)	0	100	100
1	F	150/287 (52%)	148 (99%)	2 (1%)	0	100	100
1	G	160/287 (56%)	155 (97%)	5 (3%)	0	100	100
1	H	151/287 (53%)	149 (99%)	2 (1%)	0	100	100
All	All	1704/2296 (74%)	1666 (98%)	38 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	232/251 (92%)	226 (97%)	6 (3%)	46	70
1	B	234/251 (93%)	228 (97%)	6 (3%)	46	70
1	C	230/251 (92%)	227 (99%)	3 (1%)	69	86
1	D	232/251 (92%)	228 (98%)	4 (2%)	60	81
1	E	128/251 (51%)	121 (94%)	7 (6%)	21	39
1	F	129/251 (51%)	124 (96%)	5 (4%)	32	55
1	G	135/251 (54%)	127 (94%)	8 (6%)	19	35
1	H	129/251 (51%)	125 (97%)	4 (3%)	40	64
All	All	1449/2008 (72%)	1406 (97%)	43 (3%)	41	65

All (43) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	674	MET
1	A	711	ASN
1	A	748	ASP
1	A	827	PHE

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Mol	Chain	Res	Type
1	A	828	SER
1	A	886	GLN
1	B	764	SER
1	B	767	ARG
1	B	807	SER
1	B	808	THR
1	B	827	PHE
1	B	828	SER
1	C	714	SER
1	C	748	ASP
1	C	827	PHE
1	E	645	THR
1	E	658	ASP
1	E	659	ARG
1	E	681	ILE
1	E	730	LEU
1	E	745	GLU
1	E	775	SER
1	H	658	ASP
1	H	659	ARG
1	H	700	PRO
1	H	742	ARG
1	F	658	ASP
1	F	659	ARG
1	F	739	HIS
1	F	764	SER
1	F	766	LYS
1	D	742	ARG
1	D	748	ASP
1	D	757	ASN
1	D	827	PHE
1	G	639	LEU
1	G	658	ASP
1	G	659	ARG
1	G	680	LYS
1	G	708	SER
1	G	742	ARG
1	G	744	LYS
1	G	891	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	692	GLN
1	E	696	GLN
1	E	757	ASN
1	H	757	ASN
1	F	757	ASN
1	D	711	ASN
1	G	656	GLN

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

16 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	$\#|Z| > 2$
3	GOL	A	1004	-	5,5,5	0.97	0	5,5,5	0.94	0
3	GOL	A	1003	-	5,5,5	0.88	0	5,5,5	1.01	0
3	GOL	B	1002	-	5,5,5	0.92	0	5,5,5	0.97	0
3	GOL	D	1002	-	5,5,5	0.82	0	5,5,5	1.07	0
4	TLA	C	1002	-	9,9,9	1.21	0	12,12,12	1.23	1 (8%)
3	GOL	A	1002	-	5,5,5	0.92	0	5,5,5	0.92	0
3	GOL	C	1003	-	5,5,5	0.84	0	5,5,5	1.01	0
3	GOL	B	1003	-	5,5,5	0.93	0	5,5,5	0.98	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	SAH	D	1001	-	24,28,28	1.20	3 (12%)	25,40,40	1.63	4 (16%)
3	GOL	C	1006	-	5,5,5	0.92	0	5,5,5	1.00	0
2	SAH	C	1001	-	24,28,28	1.20	3 (12%)	25,40,40	1.63	4 (16%)
3	GOL	C	1005	-	5,5,5	0.96	0	5,5,5	0.92	0
3	GOL	A	1005	-	5,5,5	0.88	0	5,5,5	0.98	0
2	SAH	A	1001	-	24,28,28	1.22	3 (12%)	25,40,40	1.61	4 (16%)
2	SAH	B	1001	-	24,28,28	1.20	3 (12%)	25,40,40	1.60	4 (16%)
3	GOL	C	1004	-	5,5,5	0.89	0	5,5,5	1.00	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	A	1004	-	-	2/4/4/4	-
3	GOL	A	1003	-	-	2/4/4/4	-
3	GOL	B	1002	-	-	0/4/4/4	-
3	GOL	D	1002	-	-	0/4/4/4	-
4	TLA	C	1002	-	-	9/12/12/12	-
3	GOL	A	1002	-	-	2/4/4/4	-
3	GOL	C	1003	-	-	3/4/4/4	-
3	GOL	B	1003	-	-	3/4/4/4	-
2	SAH	D	1001	-	-	2/11/31/31	0/3/3/3
3	GOL	C	1006	-	-	2/4/4/4	-
2	SAH	C	1001	-	-	2/11/31/31	0/3/3/3
3	GOL	C	1005	-	-	4/4/4/4	-
3	GOL	A	1005	-	-	2/4/4/4	-
2	SAH	A	1001	-	-	2/11/31/31	0/3/3/3
2	SAH	B	1001	-	-	2/11/31/31	0/3/3/3
3	GOL	C	1004	-	-	2/4/4/4	-

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1001	SAH	C2-N3	4.04	1.38	1.32
2	B	1001	SAH	C2-N3	4.00	1.38	1.32
2	D	1001	SAH	C2-N3	3.95	1.38	1.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	1001	SAH	C2-N3	3.95	1.38	1.32
2	A	1001	SAH	C2-N1	2.53	1.38	1.33
2	C	1001	SAH	C2-N1	2.44	1.38	1.33
2	B	1001	SAH	C2-N1	2.42	1.38	1.33
2	D	1001	SAH	C2-N1	2.41	1.38	1.33
2	B	1001	SAH	OXT-C	-2.14	1.23	1.30
2	C	1001	SAH	OXT-C	-2.11	1.23	1.30
2	A	1001	SAH	OXT-C	-2.10	1.23	1.30
2	D	1001	SAH	OXT-C	-2.08	1.23	1.30

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	1001	SAH	N3-C2-N1	-5.54	120.02	128.68
2	C	1001	SAH	N3-C2-N1	-5.50	120.08	128.68
2	A	1001	SAH	N3-C2-N1	-5.49	120.10	128.68
2	B	1001	SAH	N3-C2-N1	-5.46	120.14	128.68
2	C	1001	SAH	C5'-SD-CG	-3.13	92.88	102.27
2	A	1001	SAH	C5'-SD-CG	-2.90	93.57	102.27
2	D	1001	SAH	OXT-C-O	-2.85	117.61	124.09
2	B	1001	SAH	C5'-SD-CG	-2.85	93.73	102.27
2	B	1001	SAH	OXT-C-O	-2.83	117.66	124.09
2	D	1001	SAH	C5'-SD-CG	-2.81	93.83	102.27
2	A	1001	SAH	OXT-C-O	-2.77	117.81	124.09
2	C	1001	SAH	OXT-C-O	-2.75	117.86	124.09
4	C	1002	TLA	O1-C1-C2	-2.51	115.03	121.63
2	D	1001	SAH	OXT-C-CA	2.42	121.64	113.38
2	C	1001	SAH	OXT-C-CA	2.33	121.31	113.38
2	B	1001	SAH	OXT-C-CA	2.32	121.28	113.38
2	A	1001	SAH	OXT-C-CA	2.29	121.20	113.38

There are no chirality outliers.

All (39) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	1001	SAH	N-CA-CB-CG
2	D	1001	SAH	N-CA-CB-CG
3	A	1002	GOL	O1-C1-C2-O2
3	A	1002	GOL	O1-C1-C2-C3
3	A	1005	GOL	C1-C2-C3-O3
3	B	1003	GOL	C1-C2-C3-O3
3	C	1004	GOL	C1-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
3	C	1005	GOL	O1-C1-C2-C3
4	C	1002	TLA	C2-C3-C4-O41
4	C	1002	TLA	C2-C3-C4-O4
3	A	1004	GOL	O1-C1-C2-C3
3	B	1003	GOL	O1-C1-C2-C3
3	C	1003	GOL	O1-C1-C2-C3
3	C	1005	GOL	C1-C2-C3-O3
3	C	1006	GOL	C1-C2-C3-O3
3	A	1005	GOL	O2-C2-C3-O3
3	C	1004	GOL	O2-C2-C3-O3
3	C	1005	GOL	O1-C1-C2-O2
4	C	1002	TLA	O3-C3-C4-O41
3	B	1003	GOL	O2-C2-C3-O3
3	C	1005	GOL	O2-C2-C3-O3
3	C	1006	GOL	O2-C2-C3-O3
4	C	1002	TLA	O1-C1-C2-C3
3	A	1003	GOL	C1-C2-C3-O3
4	C	1002	TLA	O3-C3-C4-O4
4	C	1002	TLA	O11-C1-C2-C3
2	A	1001	SAH	N-CA-CB-CG
2	C	1001	SAH	N-CA-CB-CG
4	C	1002	TLA	O2-C2-C3-C4
2	A	1001	SAH	CB-CG-SD-C5'
2	C	1001	SAH	CB-CG-SD-C5'
2	D	1001	SAH	CB-CG-SD-C5'
4	C	1002	TLA	C1-C2-C3-O3
2	B	1001	SAH	CB-CG-SD-C5'
4	C	1002	TLA	O2-C2-C3-O3
3	C	1003	GOL	C1-C2-C3-O3
3	A	1003	GOL	O1-C1-C2-C3
3	A	1004	GOL	O1-C1-C2-O2
3	C	1003	GOL	O1-C1-C2-O2

There are no ring outliers.

7 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	1003	GOL	1	0
3	B	1002	GOL	1	0
3	D	1002	GOL	1	0
3	A	1002	GOL	1	0
3	C	1006	GOL	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	C	1001	SAH	2	0
3	A	1005	GOL	1	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 GOL A 1004

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL A 1003

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL B 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL D 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand TLA C 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL A 1002

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL C 1003

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL B 1003

Bond lengths

Bond angles

Torsions

Rings

Ligand SAH D 1001

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL C 1006

Bond lengths

Bond angles

Torsions

Rings

Ligand SAH C 1001

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL C 1005

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL A 1005

Bond lengths

Bond angles

Torsions

Rings

Ligand SAH A 1001

Bond lengths

Bond angles

Torsions

Rings

Ligand SAH B 1001

Bond lengths

Bond angles

Torsions

Rings

Ligand GOL C 1004

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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, 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	273/287 (95%)	-0.28	2 (0%)	87	89	35, 48, 88, 123	0
1	B	275/287 (95%)	-0.27	2 (0%)	87	89	34, 47, 88, 136	0
1	C	275/287 (95%)	-0.25	2 (0%)	87	89	35, 48, 90, 127	0
1	D	275/287 (95%)	-0.21	2 (0%)	87	89	36, 48, 94, 130	0
1	E	159/287 (55%)	-0.06	4 (2%)	57	59	39, 67, 107, 135	0
1	F	160/287 (55%)	-0.05	2 (1%)	77	78	42, 67, 109, 140	0
1	G	170/287 (59%)	0.02	7 (4%)	37	39	44, 71, 133, 158	0
1	H	161/287 (56%)	-0.07	3 (1%)	66	68	38, 67, 110, 143	0
All	All	1748/2296 (76%)	-0.17	24 (1%)	75	77	34, 54, 106, 158	0

All (24) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	G	629	GLU	3.8
1	C	848	PHE	3.5
1	F	760	ALA	3.3
1	A	848	PHE	3.3
1	G	679	GLY	3.1
1	H	897	VAL	2.9
1	E	629	GLU	2.7
1	D	851	PHE	2.6
1	F	898	ILE	2.5
1	C	851	PHE	2.5
1	G	710	CYS	2.4
1	E	897	VAL	2.4
1	H	760	ALA	2.4
1	D	848	PHE	2.3
1	A	851	PHE	2.3
1	G	678	GLN	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	848	PHE	2.2
1	E	760	ALA	2.2
1	B	851	PHE	2.2
1	G	897	VAL	2.2
1	E	804	PRO	2.1
1	H	628	ALA	2.1
1	G	760	ALA	2.1
1	G	779	MET	2.0

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

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

6.3　Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4　Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	GOL	A	1004	6/6	0.82	0.16	55,73,82,86	0
3	GOL	C	1005	6/6	0.82	0.16	54,69,85,88	0
3	GOL	A	1005	6/6	0.84	0.17	49,69,91,106	0
3	GOL	A	1003	6/6	0.87	0.14	63,93,98,104	0
3	GOL	A	1002	6/6	0.87	0.15	60,65,77,85	0
3	GOL	C	1006	6/6	0.90	0.16	50,62,75,82	0
4	TLA	C	1002	10/10	0.90	0.11	81,96,119,127	0
3	GOL	D	1002	6/6	0.91	0.14	44,81,95,101	0
3	GOL	C	1003	6/6	0.91	0.10	56,73,77,79	0
3	GOL	B	1003	6/6	0.94	0.12	39,64,88,92	0
3	GOL	C	1004	6/6	0.94	0.13	44,89,94,108	0
3	GOL	B	1002	6/6	0.95	0.24	59,86,91,93	0
2	SAH	A	1001	26/26	0.97	0.15	40,47,55,58	0
2	SAH	C	1001	26/26	0.97	0.15	41,52,55,58	0
2	SAH	D	1001	26/26	0.97	0.15	36,48,57,57	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	SAH	B	1001	26/26	0.98	0.15	39,48,54,58	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.
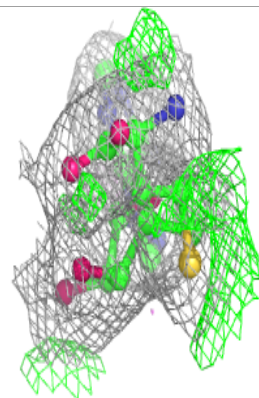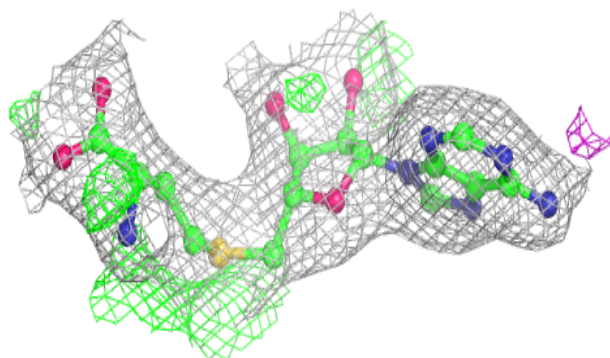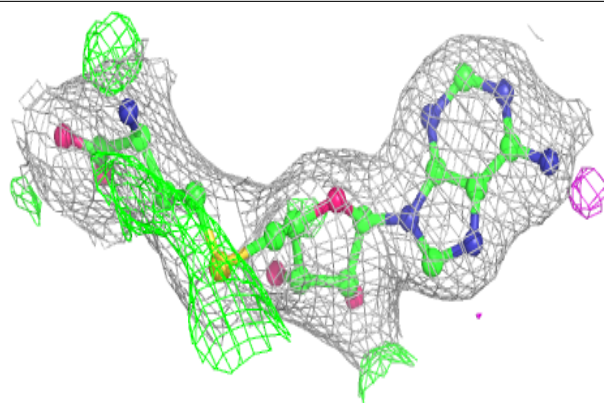

Electron density around GOL A 1004:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
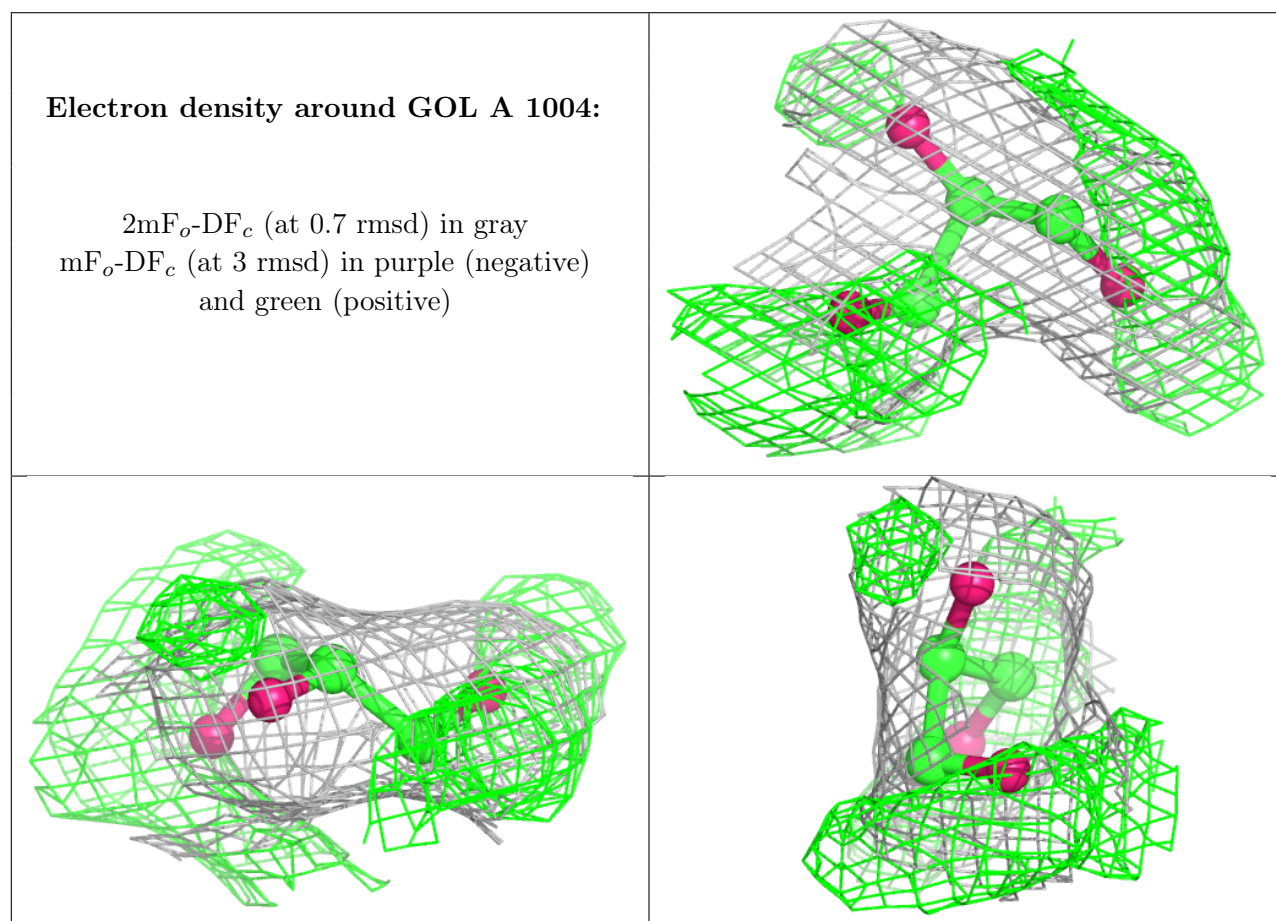
Electron density around GOL C 1005:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
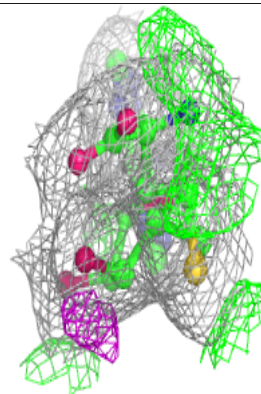mF_o-DF_c (at 3 rmsd) in purple (negative)
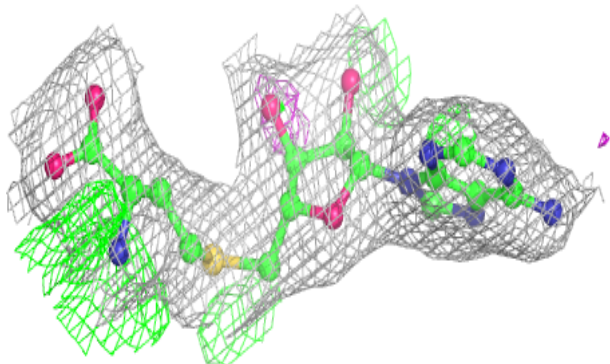and green (positive)
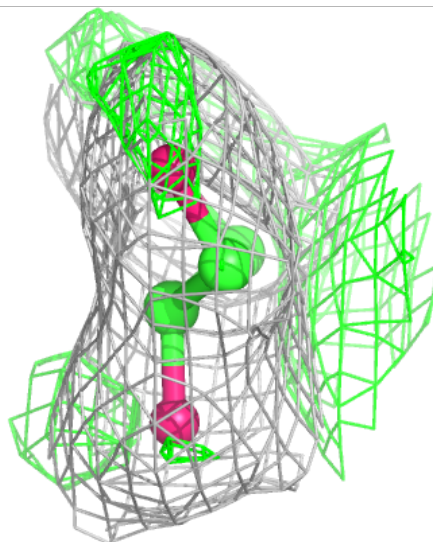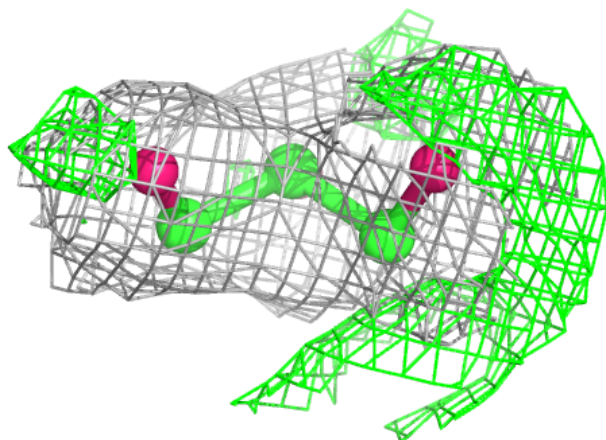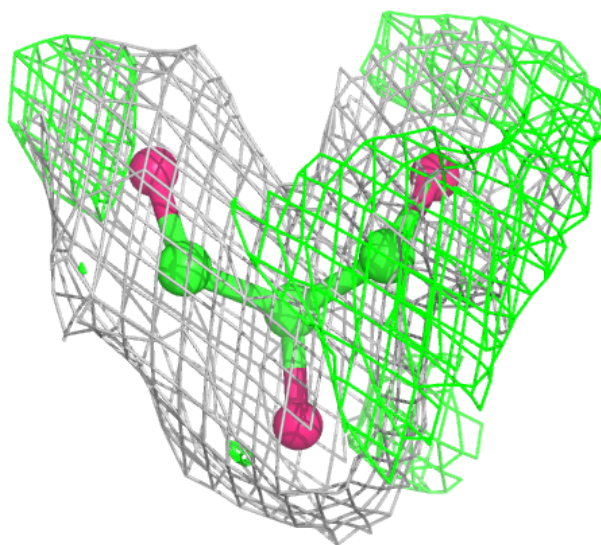
Electron density around GOL A 1005:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
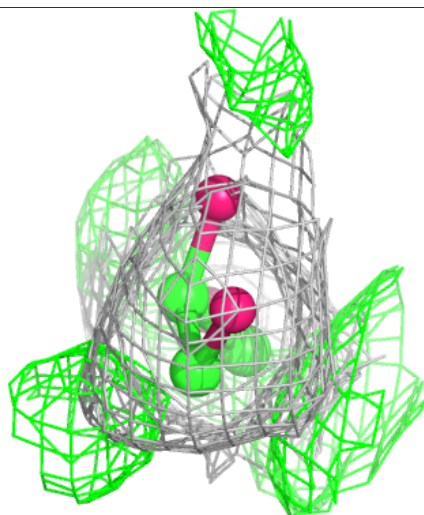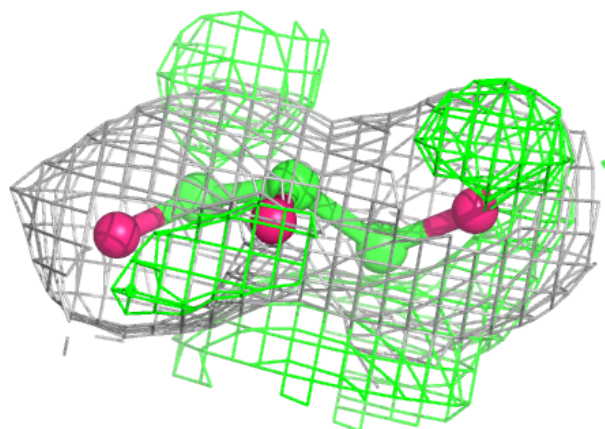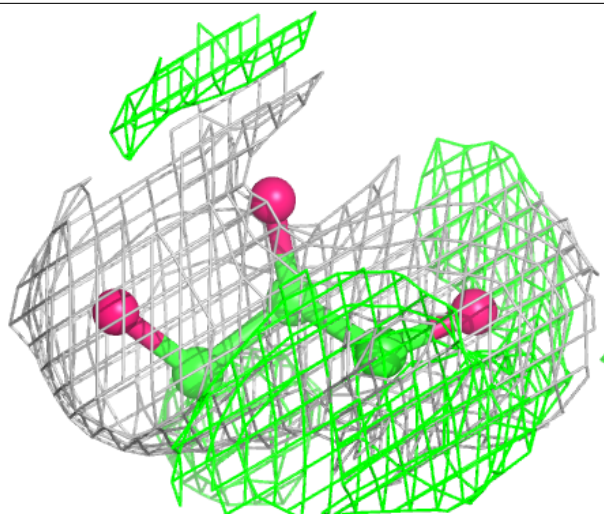
Electron density around GOL A 1003:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
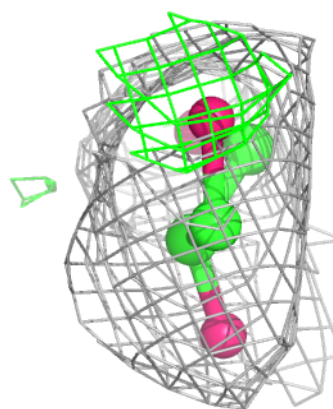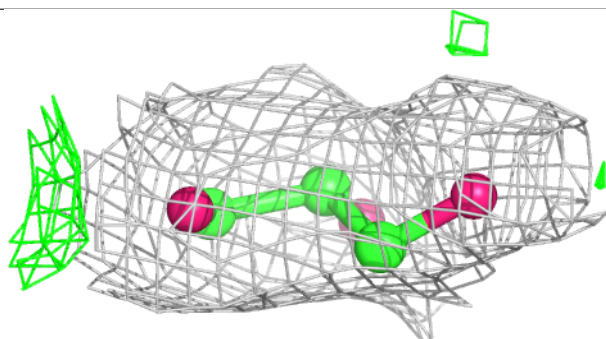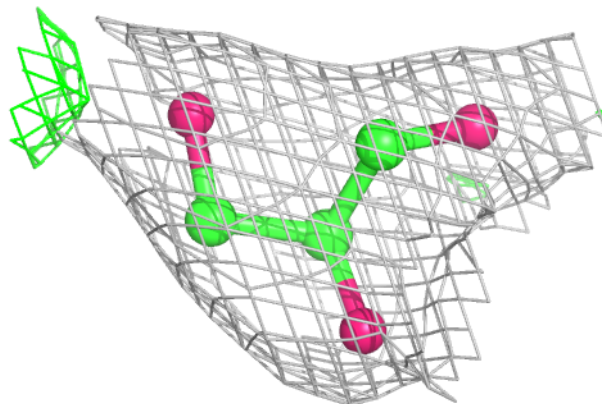
Electron density around GOL A 1002:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
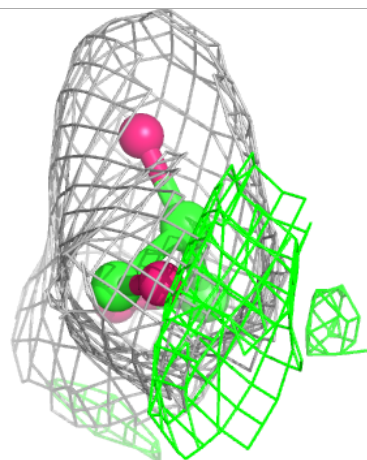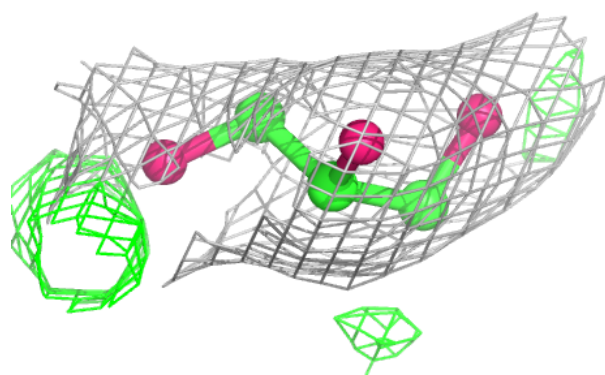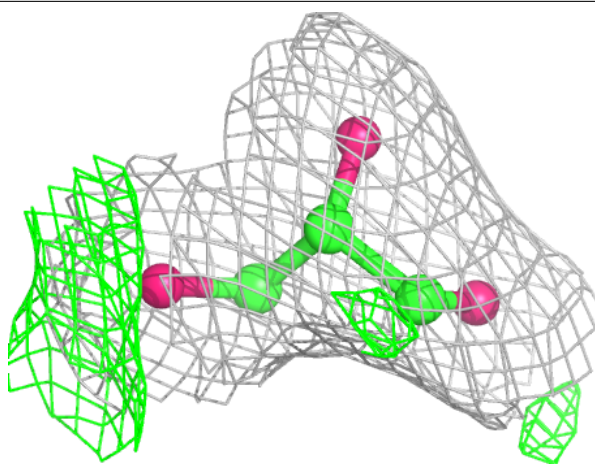
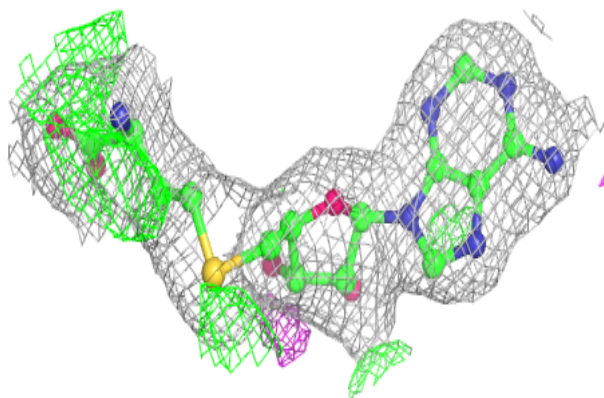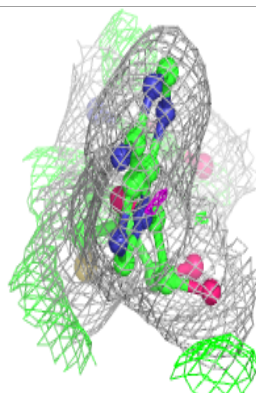**Electron density around GOL C 1006:**

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

Electron density around TLA C 1002:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
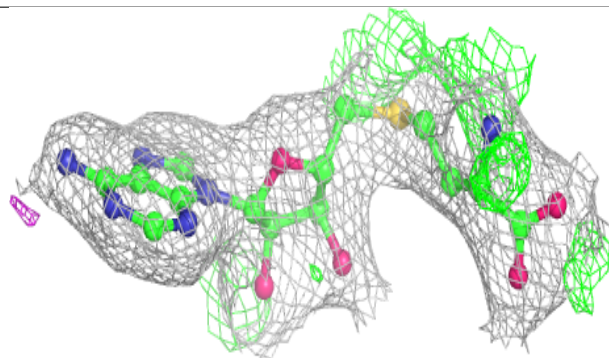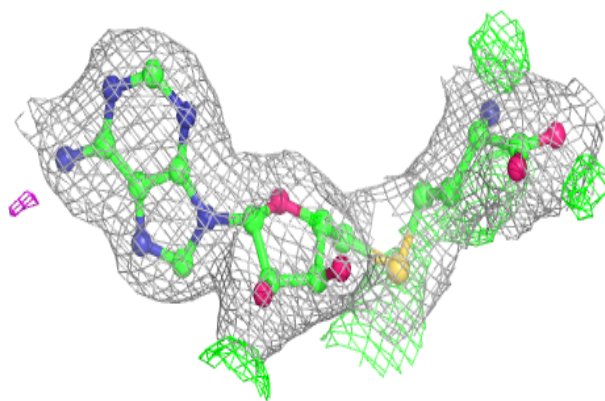and green (positive)
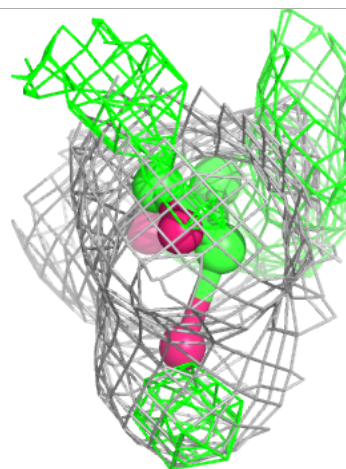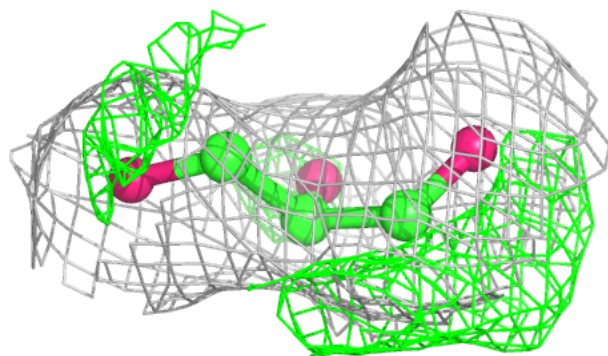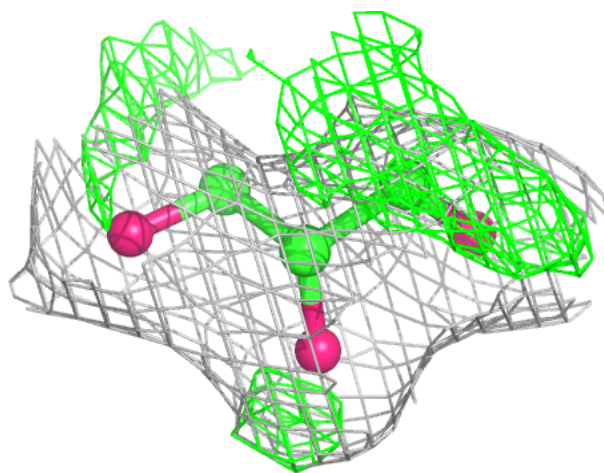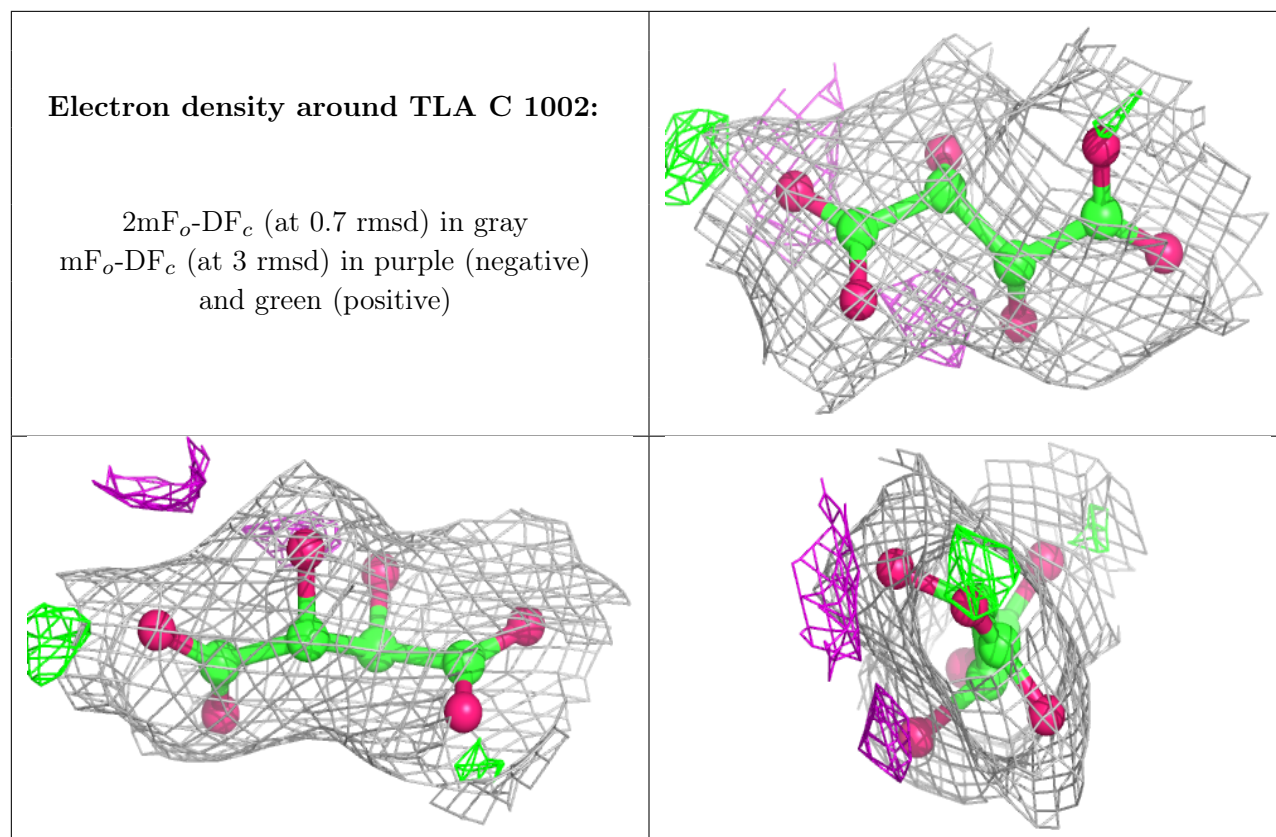
Electron density around GOL D 1002:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
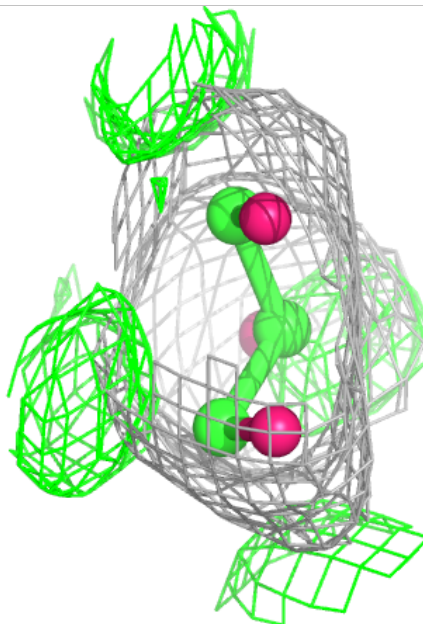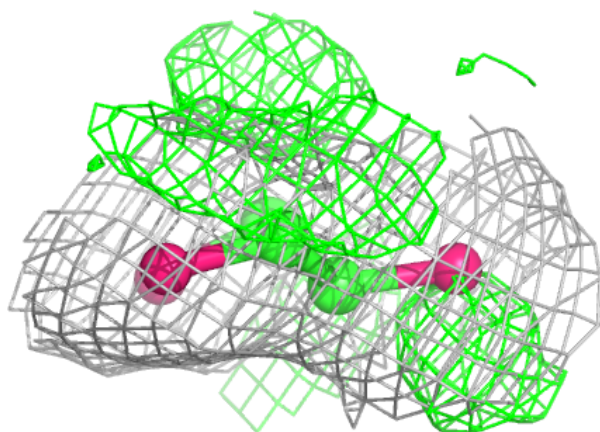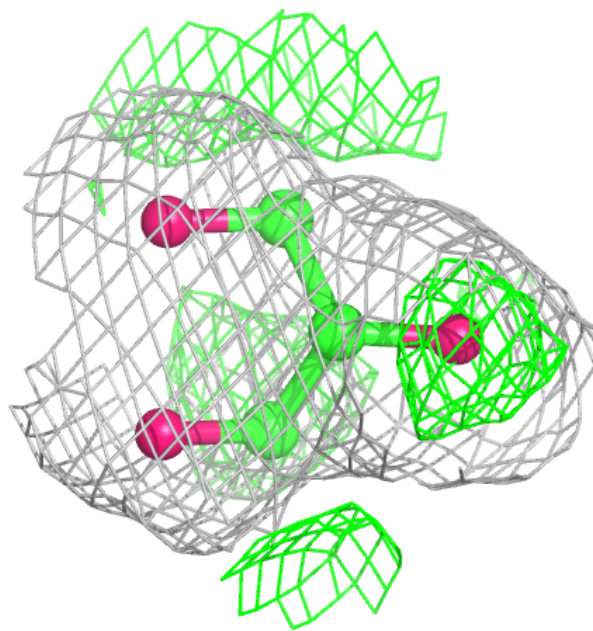
Electron density around GOL C 1003:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
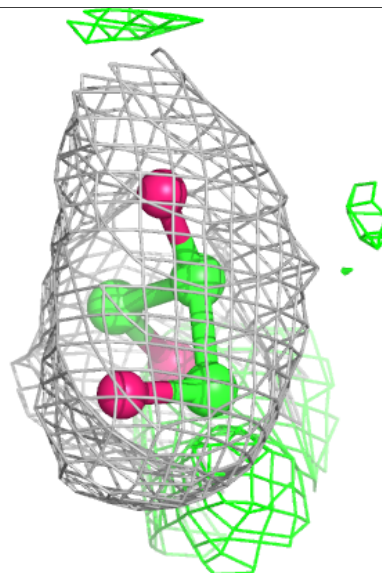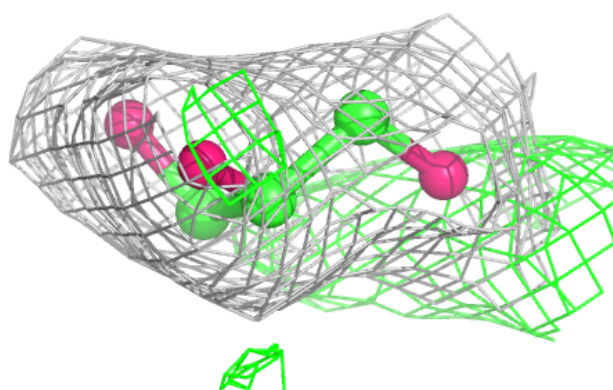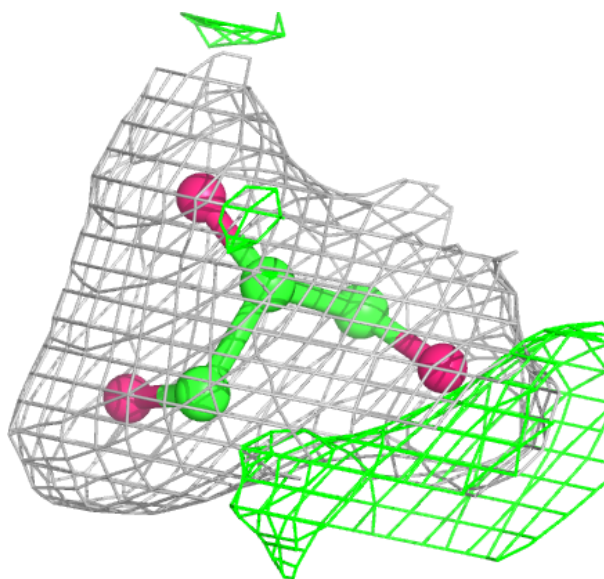
Electron density around GOL B 1003:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
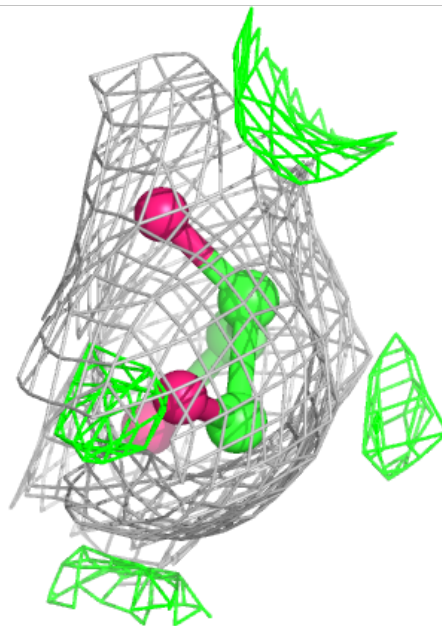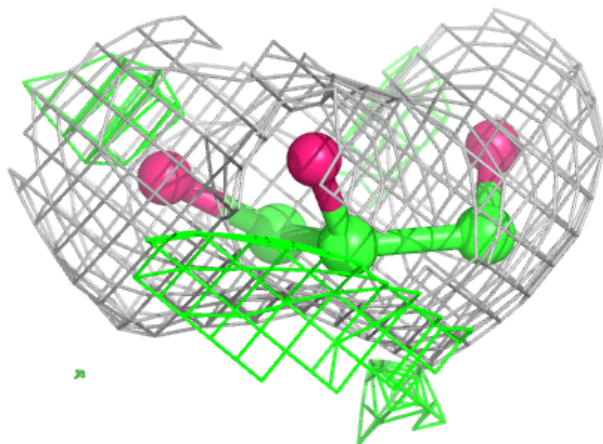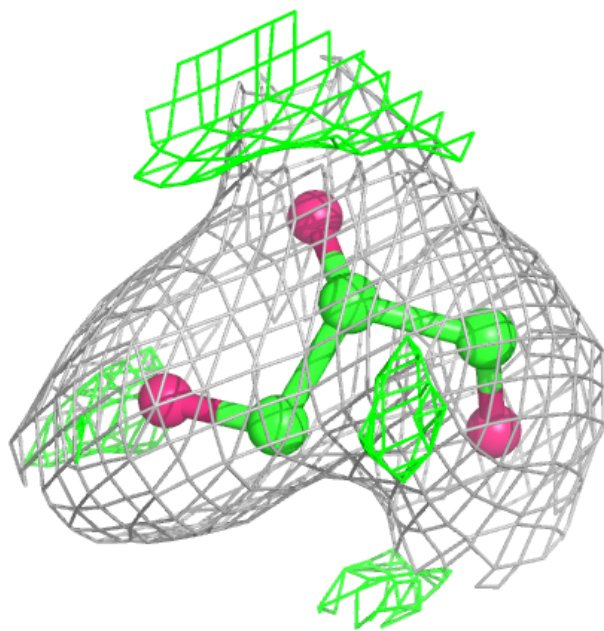
Electron density around GOL C 1004:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
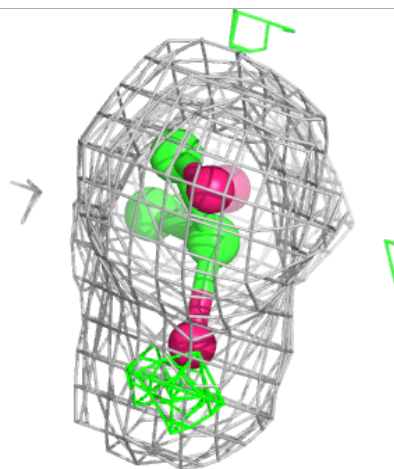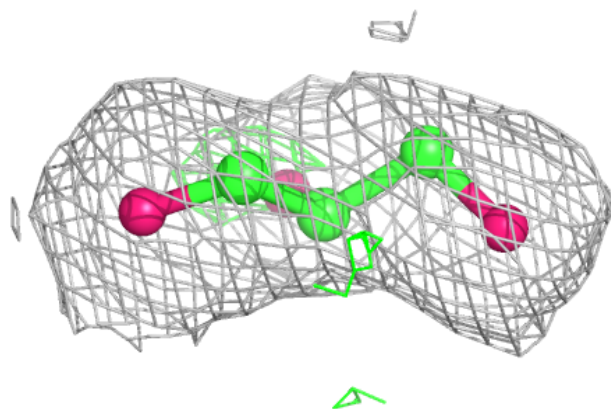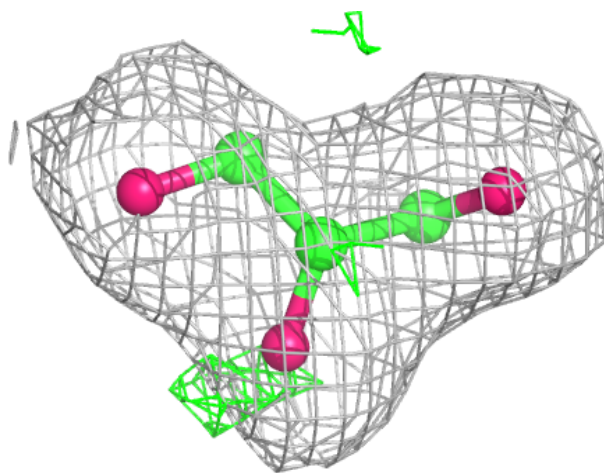
Electron density around GOL B 1002:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
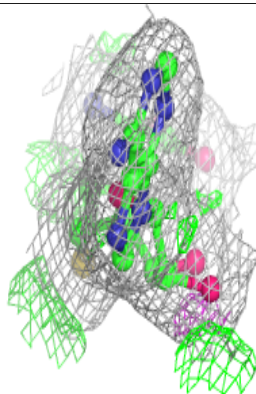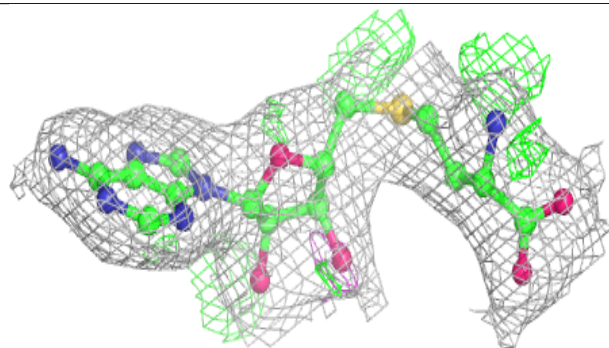and green (positive)
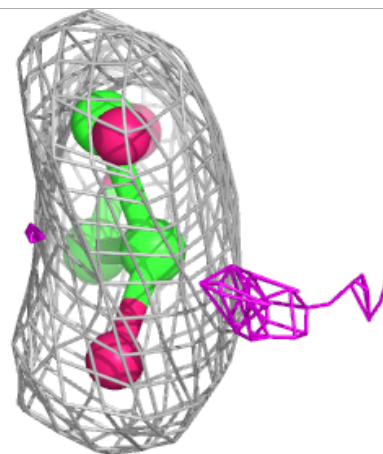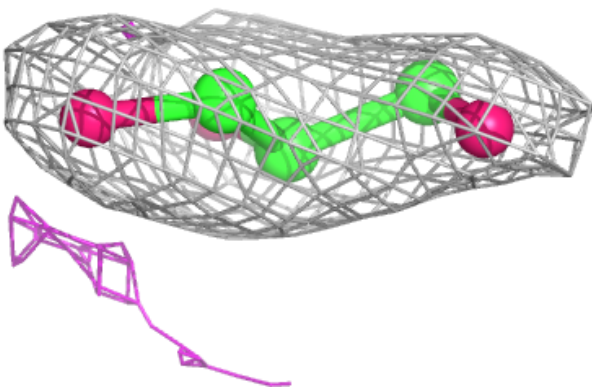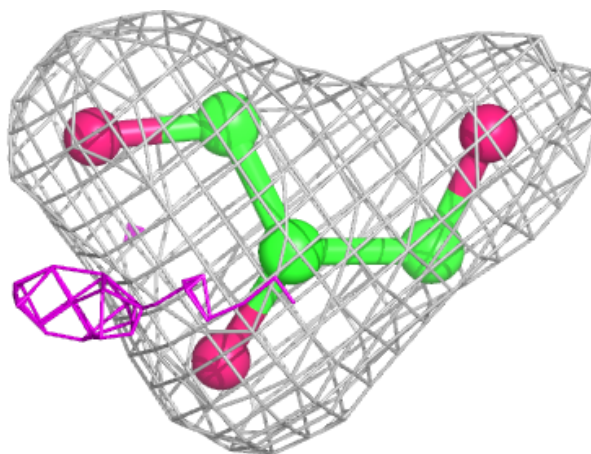
Electron density around SAH A 1001:

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

Electron density around SAH C 1001:

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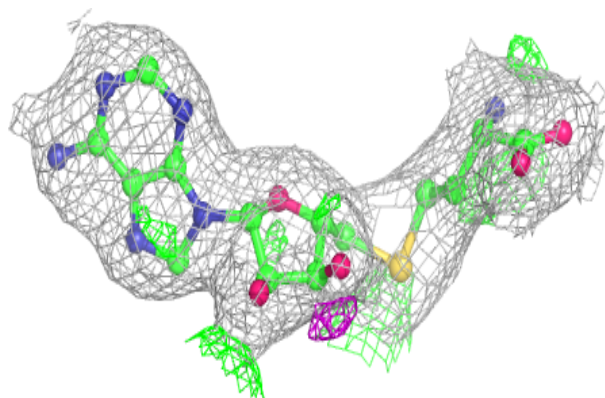mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around SAH D 1001:

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

Electron density around SAH B 1001:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.