wwPDB X-ray Structure Validation Summary Report (i)

Aug 16, 2023 – 04:30 AM EDT

PDB ID	:	1Y60
Title	:	Structure of the tetrahydromethanopterin dependent formaldehyde-activating enzyme (Fae) from Methylobacterium extorquens AM1 with bound 5,10-methylene tetrahydromethanopterin
Authors	:	Acharya, P.; Goenrich, M.; Hagemeier, C.H.; Demmer, U.; Vorholt, J.A.; Thauer, R.K.; Ermler, U.
Deposited on	:	2004-12-03
Resolution	:	1.90 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

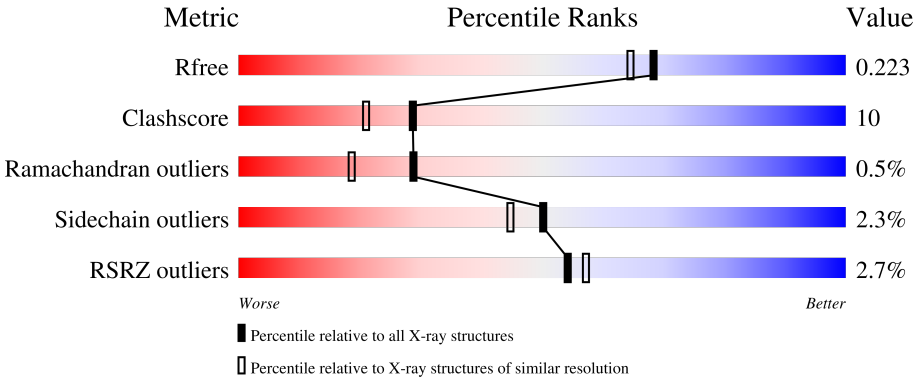
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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}	130704	6207 (1.90-1.90)
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (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	169	4% 85% 12%
1	B	169	% 82% 16%
1	C	169	4% 81% 17%
1	D	169	2% 81% 18%
1	E	169	2% 85% 14%

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
2	H4M	B	997	X	-	-	-
2	H4M	B	998	X	-	-	-
2	H4M	C	995	X	-	-	-
2	H4M	D	994	X	-	-	-
2	H4M	E	996	X	-	-	-

2 Entry composition

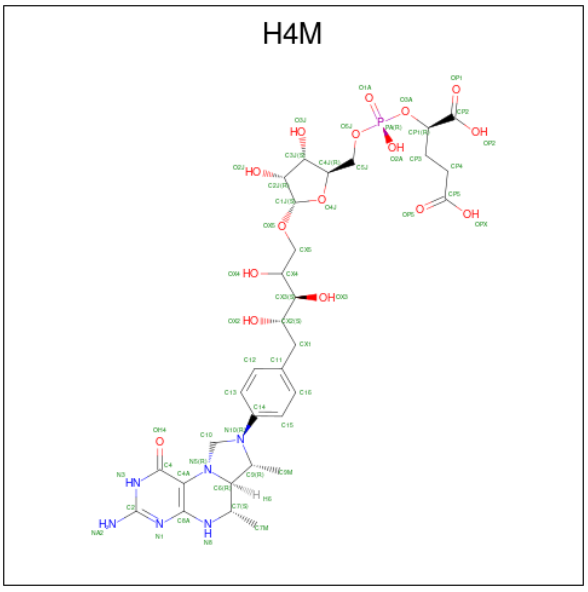
There are 3 unique types of molecules in this entry. The entry contains 7033 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Formaldehyde-activating enzyme fae.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	168	Total	C	N	O	S	0	1	0
			1265	799	221	240	5			
1	B	168	Total	C	N	O	S	0	0	0
			1255	793	219	238	5			
1	C	168	Total	C	N	O	S	0	0	0
			1258	794	220	239	5			
1	D	169	Total	C	N	O	S	0	1	0
			1273	802	222	244	5			
1	E	168	Total	C	N	O	S	0	1	0
			1265	799	221	240	5			

- Molecule 2 is 5,10-DIMETHYLENE TETRAHYDROMETHANOPTERIN (three-letter code: H4M) (formula: $C_{31}H_{45}N_6O_{16}P$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	B	1	Total	C	N	O	P	0	0
			45	26	6	12	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	B	1	Total	C	N	O	P	0	0
			45	26	6	12	1		
2	C	1	Total	C	N	O	P	0	0
			45	26	6	12	1		
2	D	1	Total	C	N	O	P	0	0
			45	26	6	12	1		
2	E	1	Total	C	N	O	P	0	0
			45	26	6	12	1		

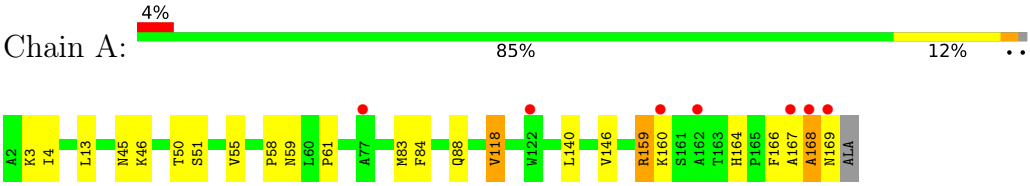
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	91	Total	O	0	0
			91	91		
3	B	112	Total	O	0	0
			112	112		
3	C	88	Total	O	0	0
			88	88		
3	D	83	Total	O	0	0
			83	83		
3	E	118	Total	O	0	0
			118	118		

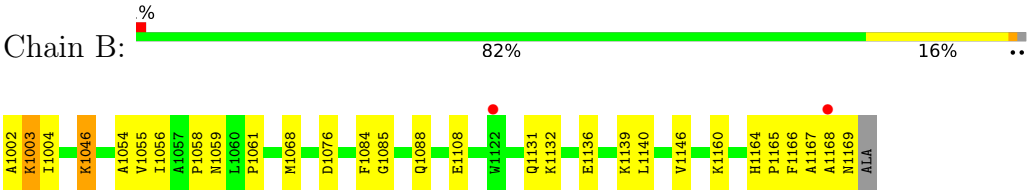
3 Residue-property plots (i)

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.

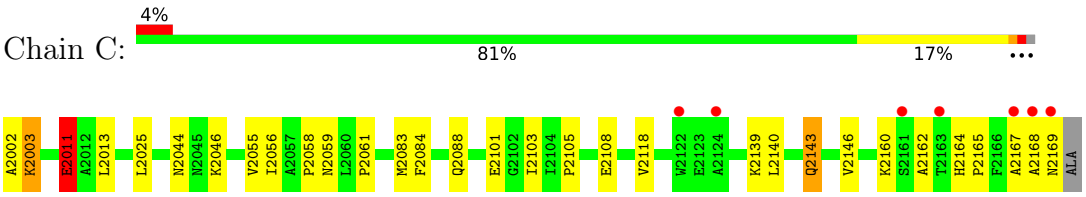
• Molecule 1: Formaldehyde-activating enzyme fae



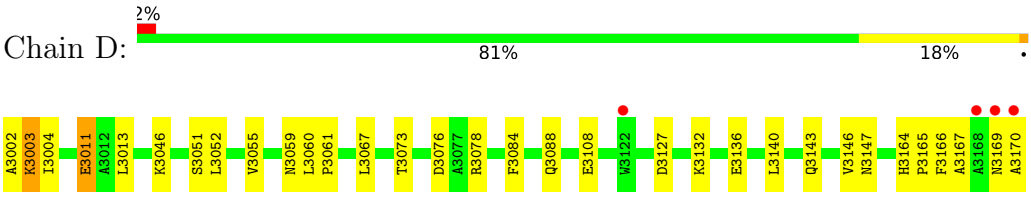
• Molecule 1: Formaldehyde-activating enzyme fae



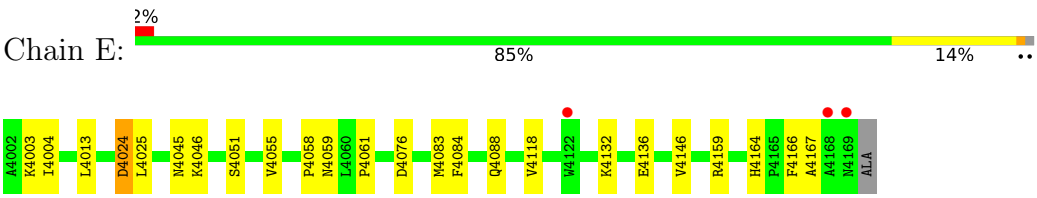
• Molecule 1: Formaldehyde-activating enzyme fae



• Molecule 1: Formaldehyde-activating enzyme fae



• Molecule 1: Formaldehyde-activating enzyme fae



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	48.86Å 112.59Å 72.01Å 90.00° 91.00° 90.00°	Depositor
Resolution (Å)	44.82 – 1.90 44.82 – 1.89	Depositor EDS
% Data completeness (in resolution range)	96.9 (44.82-1.90) 96.0 (44.82-1.89)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	0.08	Depositor
$< I/\sigma(I) >$ [1]	3.02 (at 1.89Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.209 , 0.241 0.194 , 0.223	Depositor DCC
R_{free} test set	2976 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	20.0	Xtriage
Anisotropy	0.940	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.37 , 55.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.039 for h,-k,-l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	7033	wwPDB-VP
Average B, all atoms (Å^2)	28.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.77% 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: H4M

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	0.53	0/1289	0.73	0/1755
1	B	0.49	0/1279	0.71	0/1741
1	C	0.50	0/1282	0.73	1/1745 (0.1%)
1	D	0.50	0/1297	0.71	0/1764
1	E	0.51	0/1289	0.70	1/1755 (0.1%)
All	All	0.51	0/6436	0.72	2/8760 (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})
1	C	2011	GLU	CA-CB-CG	6.04	126.68	113.40
1	E	4024	ASP	N-CA-C	-5.20	96.97	111.00

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	1265	0	1261	23	0
1	B	1255	0	1249	30	1
1	C	1258	0	1253	30	0
1	D	1273	0	1263	34	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	1265	0	1261	24	0
2	B	90	0	74	7	0
2	C	45	0	37	4	0
2	D	45	0	37	6	0
2	E	45	0	37	3	0
3	A	91	0	0	5	0
3	B	112	0	0	3	0
3	C	88	0	0	1	0
3	D	83	0	0	4	0
3	E	118	0	0	1	1
All	All	7033	0	6472	126	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 10.

The worst 5 of 126 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:3164:HIS:HD1	1:D:3166:PHE:H	1.18	0.88
1:E:4164:HIS:HD2	1:E:4166:PHE:H	1.22	0.86
1:B:1076:ASP:HA	2:B:998:H4M:H32	1.57	0.85
1:A:88:GLN:HE21	1:E:4164:HIS:HE1	1.26	0.83
1:B:1088:GLN:HE22	2:B:998:H4M:H4	1.26	0.83

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:1139:LYS:NZ	3:E:421:HOH:O[2_545]	2.17	0.03

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	167/169 (99%)	161 (96%)	5 (3%)	1 (1%)	25	15
1	B	166/169 (98%)	161 (97%)	4 (2%)	1 (1%)	25	15
1	C	166/169 (98%)	162 (98%)	3 (2%)	1 (1%)	25	15
1	D	168/169 (99%)	162 (96%)	5 (3%)	1 (1%)	25	15
1	E	167/169 (99%)	163 (98%)	4 (2%)	0	100	100
All	All	834/845 (99%)	809 (97%)	21 (2%)	4 (0%)	29	18

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	1003	LYS
1	D	3003	LYS
1	C	2003	LYS
1	A	168	ALA

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	132/131 (101%)	128 (97%)	4 (3%)	41	33
1	B	130/131 (99%)	128 (98%)	2 (2%)	65	62
1	C	131/131 (100%)	127 (97%)	4 (3%)	40	32
1	D	132/131 (101%)	129 (98%)	3 (2%)	50	45
1	E	132/131 (101%)	130 (98%)	2 (2%)	65	62
All	All	657/655 (100%)	642 (98%)	15 (2%)	50	45

5 of 15 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	2046	LYS
1	E	4024	ASP
1	C	2140	LEU
1	E	4046	LYS

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Mol	Chain	Res	Type
1	D	3046	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 14 such sidechains are listed below:

Mol	Chain	Res	Type
1	C	2143	GLN
1	C	2164	HIS
1	E	4164	HIS
1	E	4045	ASN
1	E	4088	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

5 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	$\#\|Z\| > 2$
2	H4M	B	998	-	47,49,58	3.24	21 (44%)	62,74,86	2.09	14 (22%)
2	H4M	C	995	-	47,49,58	3.23	19 (40%)	62,74,86	2.16	19 (30%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	H4M	B	997	-	47,49,58	3.23	18 (38%)	62,74,86	2.13	16 (25%)
2	H4M	D	994	-	47,49,58	2.98	18 (38%)	62,74,86	2.31	20 (32%)
2	H4M	E	996	-	47,49,58	3.09	18 (38%)	62,74,86	2.12	16 (25%)

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
2	H4M	B	998	-	1/1/13/17	14/27/71/85	0/5/5/5
2	H4M	C	995	-	1/1/13/17	7/27/71/85	0/5/5/5
2	H4M	B	997	-	1/1/13/17	15/27/71/85	0/5/5/5
2	H4M	D	994	-	1/1/13/17	10/27/71/85	0/5/5/5
2	H4M	E	996	-	1/1/13/17	12/27/71/85	0/5/5/5

The worst 5 of 94 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	998	H4M	C8A-N8	10.15	1.46	1.35
2	C	995	H4M	C8A-N8	9.61	1.45	1.35
2	D	994	H4M	C8A-N8	8.93	1.45	1.35
2	E	996	H4M	C8A-N8	8.69	1.44	1.35
2	B	997	H4M	C8A-N8	8.60	1.44	1.35

The worst 5 of 85 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	994	H4M	C10-N5-C4A	-9.26	118.99	127.47
2	B	998	H4M	C10-N5-C4A	-8.49	119.70	127.47
2	B	997	H4M	C10-N5-C4A	-8.24	119.93	127.47
2	E	996	H4M	C10-N5-C4A	-8.22	119.95	127.47
2	C	995	H4M	C10-N5-C4A	-8.10	120.05	127.47

All (5) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	B	997	H4M	CX4
2	B	998	H4M	CX4
2	C	995	H4M	CX4

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Mol	Chain	Res	Type	Atom
2	D	994	H4M	CX4
2	E	996	H4M	CX4

5 of 58 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	997	H4M	C13-C14-N10-C9
2	B	997	H4M	C15-C14-N10-C9
2	B	997	H4M	OX3-CX3-CX4-CX5
2	B	997	H4M	CX3-CX4-CX5-OX5
2	B	997	H4M	C2J-C1J-OX5-CX5

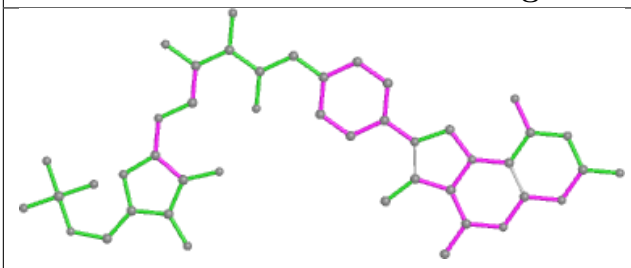
There are no ring outliers.

5 monomers are involved in 20 short contacts:

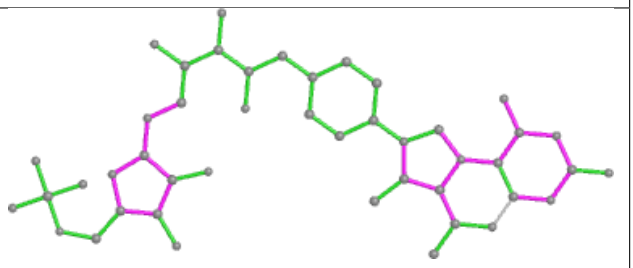
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	998	H4M	5	0
2	C	995	H4M	4	0
2	B	997	H4M	2	0
2	D	994	H4M	6	0
2	E	996	H4M	3	0

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.

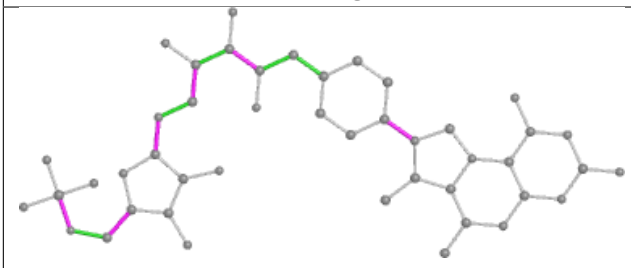
Ligand H4M B 998



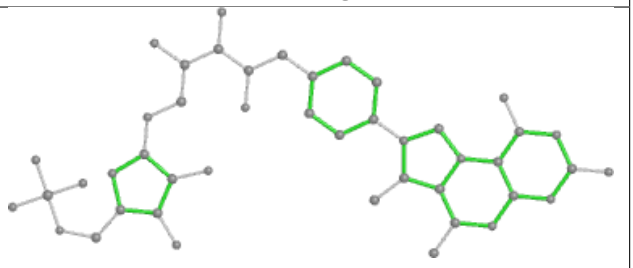
Bond lengths



Bond angles

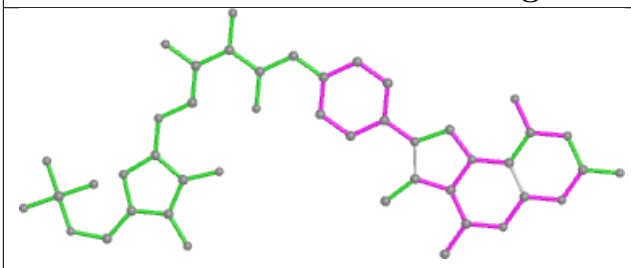


Torsions

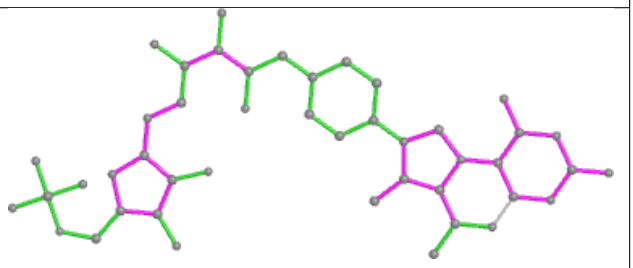


Rings

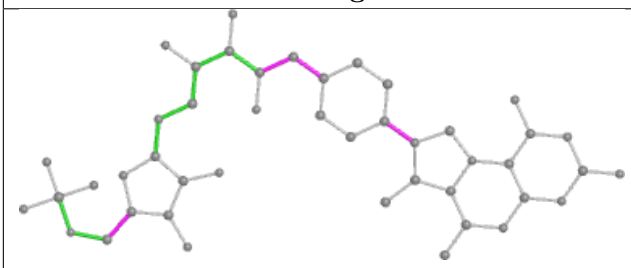
Ligand H4M C 995



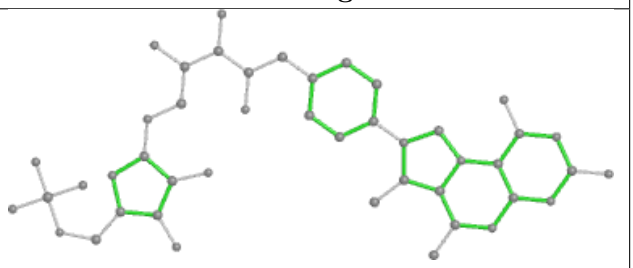
Bond lengths



Bond angles

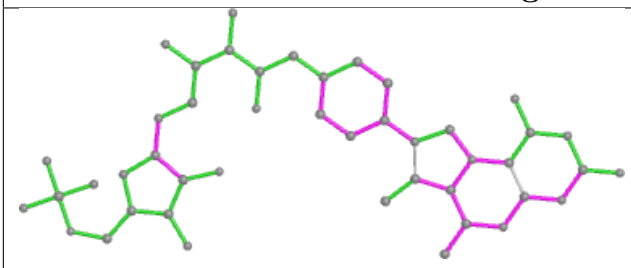


Torsions

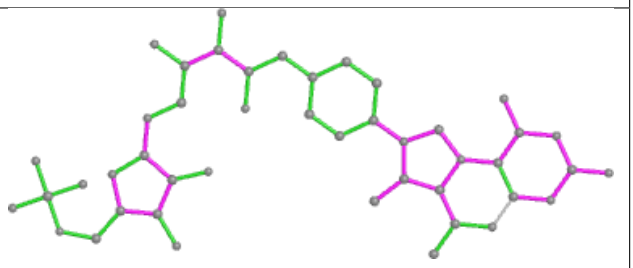


Rings

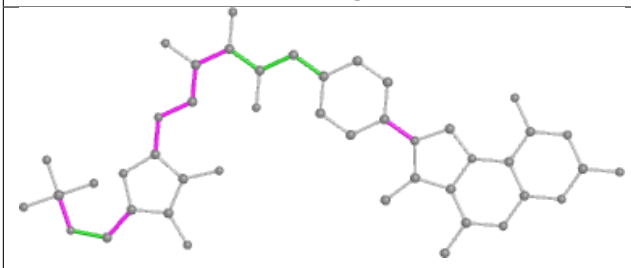
Ligand H4M B 997



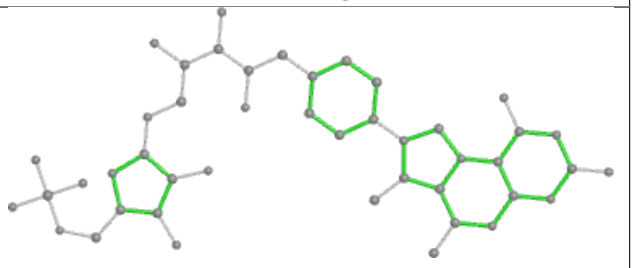
Bond lengths



Bond angles

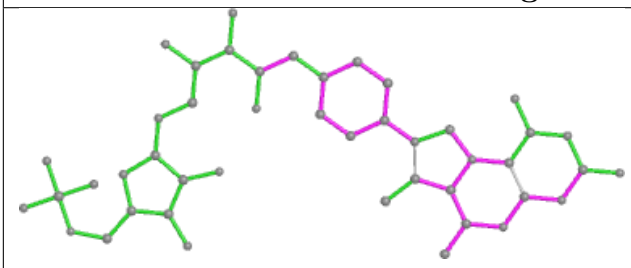


Torsions

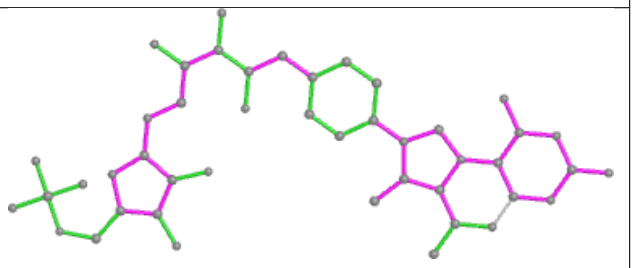


Rings

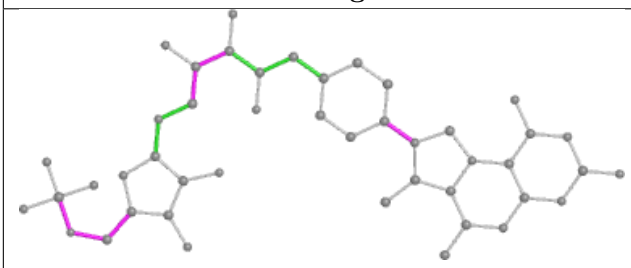
Ligand H4M D 994



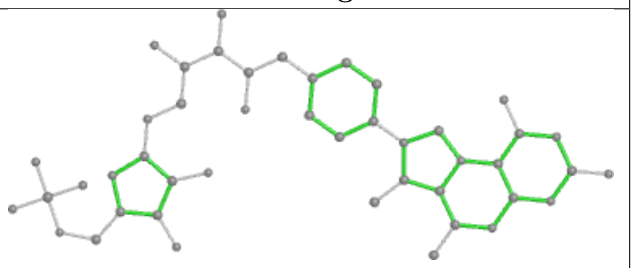
Bond lengths



Bond angles

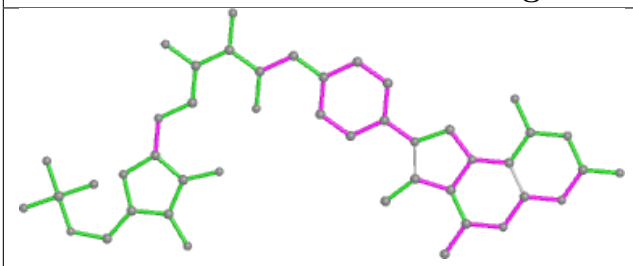


Torsions

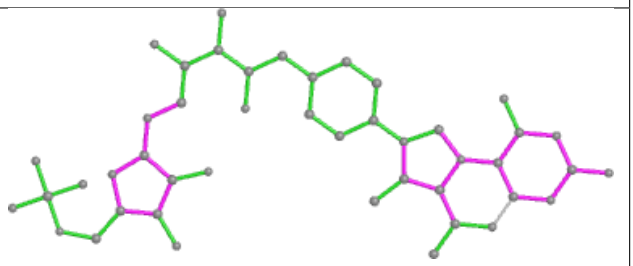


Rings

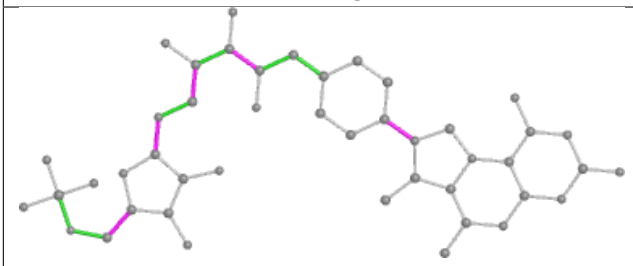
Ligand H4M E 996



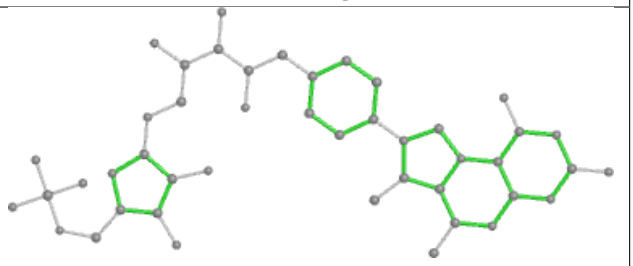
Bond lengths



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	168/169 (99%)	-0.02	7 (4%)	36	39	14, 24, 44, 75	0
1	B	168/169 (99%)	-0.18	2 (1%)	79	81	14, 23, 42, 67	0
1	C	168/169 (99%)	0.05	7 (4%)	36	39	17, 26, 45, 80	0
1	D	169/169 (100%)	-0.03	4 (2%)	59	62	17, 26, 46, 84	0
1	E	168/169 (99%)	-0.11	3 (1%)	68	71	15, 23, 42, 72	0
All	All	841/845 (99%)	-0.05	23 (2%)	54	57	14, 25, 45, 84	0

The worst 5 of 23 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	2169	ASN	5.8
1	A	168	ALA	5.3
1	C	2168	ALA	4.7
1	D	3122	TRP	4.4
1	D	3169	ASN	4.4

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,

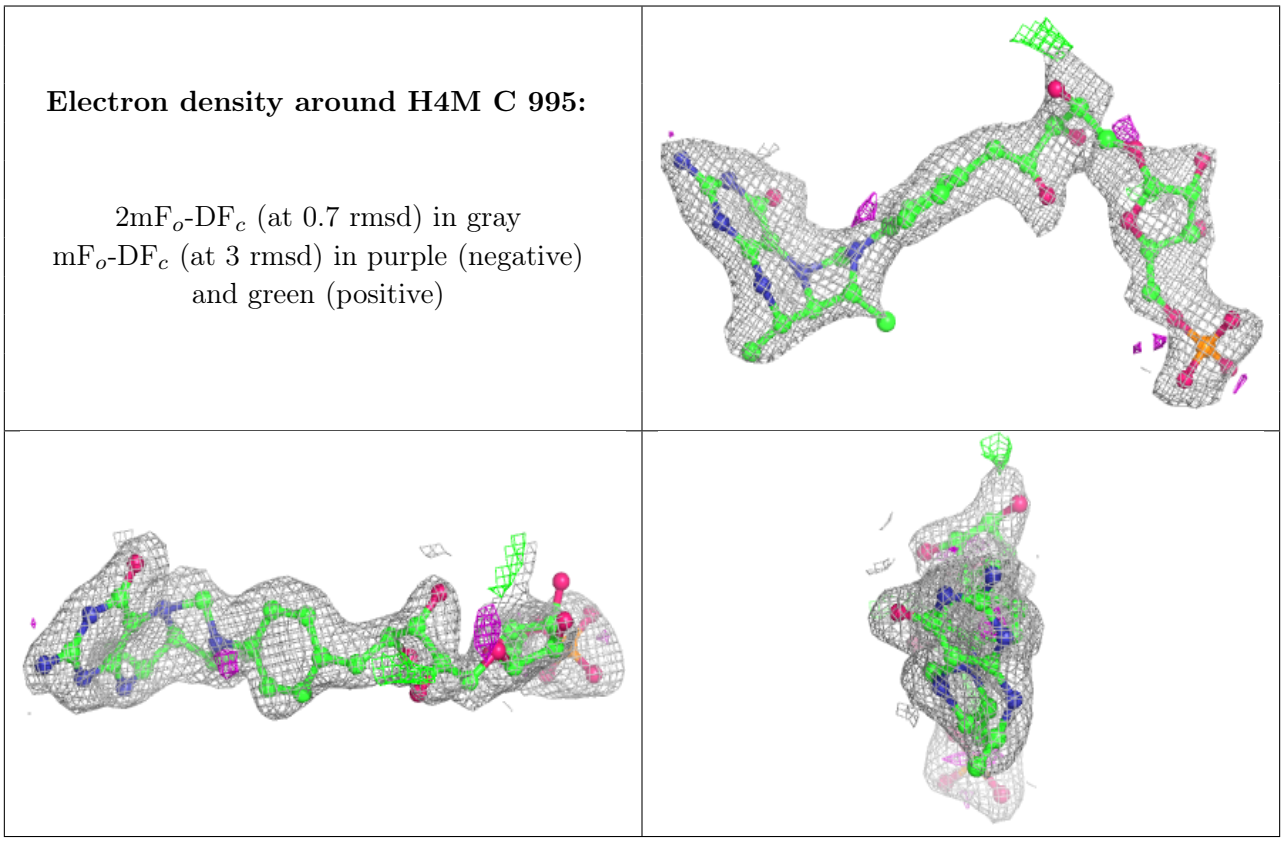
median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	H4M	C	995	45/54	0.88	0.17	30,42,78,83	0
2	H4M	D	994	45/54	0.88	0.16	24,38,81,85	0
2	H4M	B	998	45/54	0.89	0.17	24,35,91,93	0
2	H4M	B	997	45/54	0.90	0.13	24,39,87,89	0
2	H4M	E	996	45/54	0.91	0.15	18,32,76,78	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.

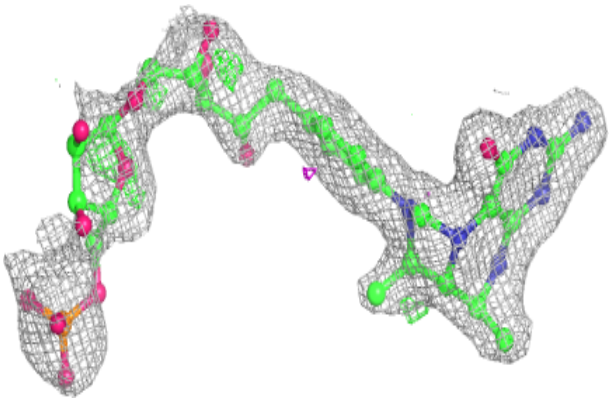
Electron density around H4M C 995:

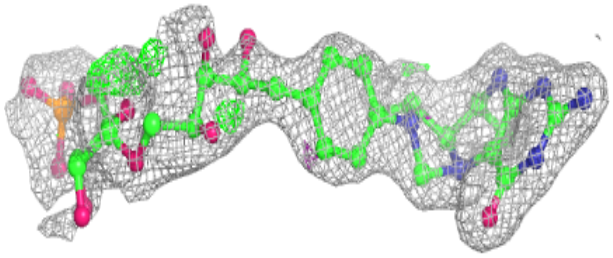
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

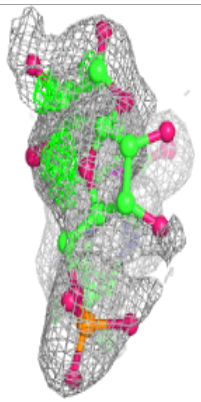


Electron density around H4M D 994:

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

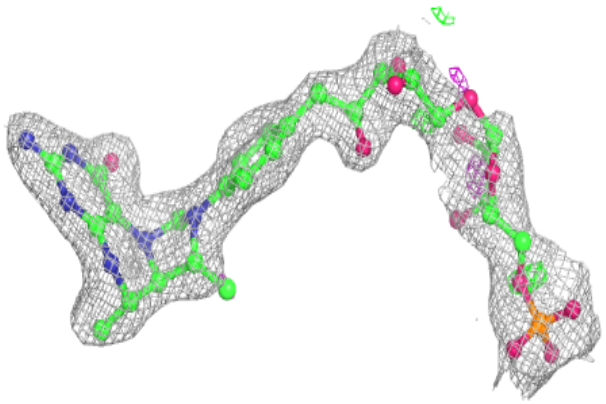


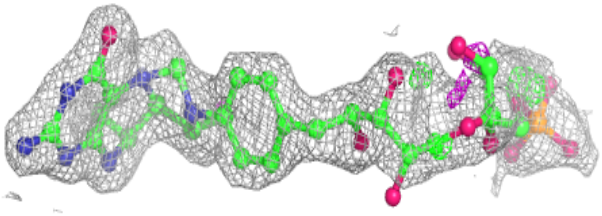


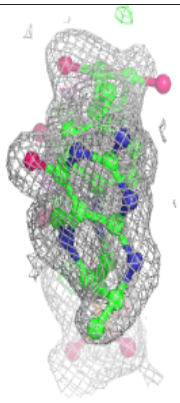


Electron density around H4M B 998:

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

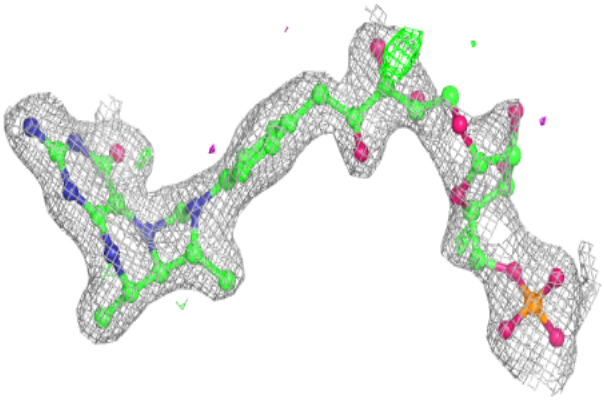


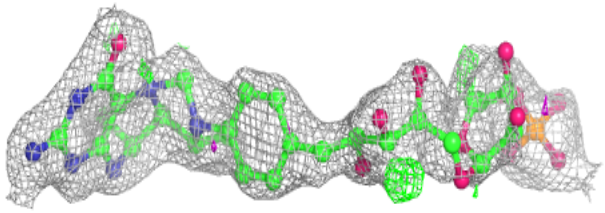


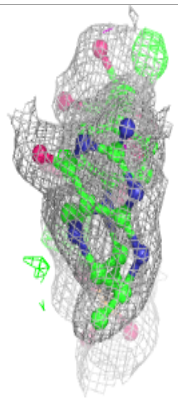


Electron density around H4M B 997:

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

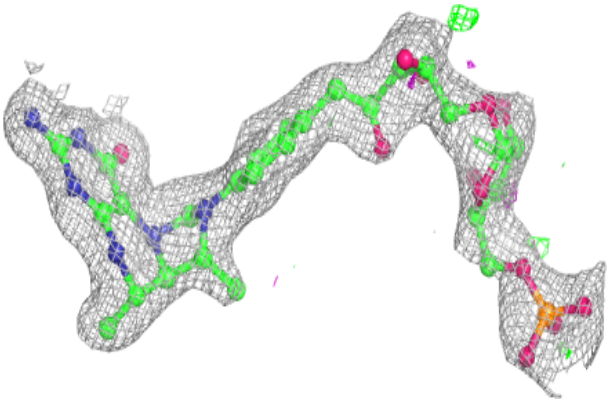


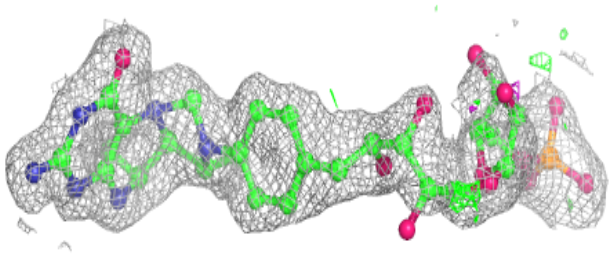


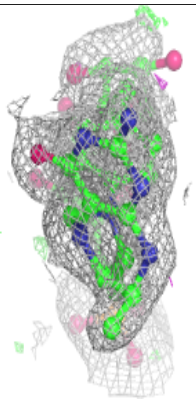


Electron density around H4M E 996:

$2mF_o$-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.