wwPDB X-ray Structure Validation Summary Report (i)

Dec 24, 2024 – 10:09 AM JST

PDB ID	:	9ISR
Title	:	Human MTHFD1 in complex with compound 16g
Authors	:	Lee, L.C.; Wu, S.Y.
Deposited on	:	2024-07-18
Resolution	:	2.50 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 (i)) were used in the production of this report:

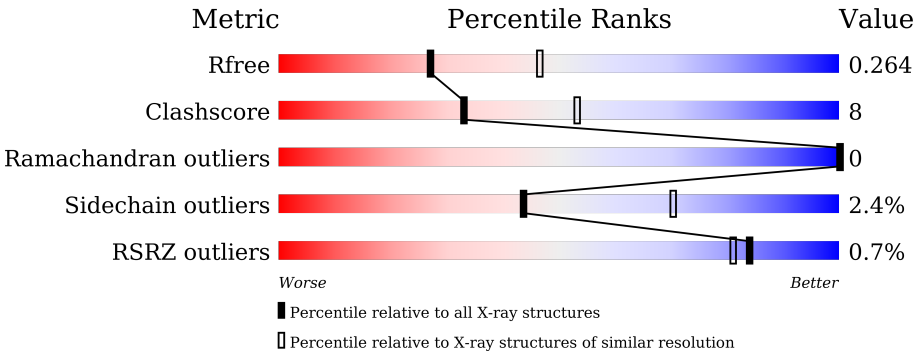
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh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

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	5504 (2.50-2.50)
Clashscore	180529	6282 (2.50-2.50)
Ramachandran outliers	177936	6191 (2.50-2.50)
Sidechain outliers	177891	6193 (2.50-2.50)
RSRZ outliers	164620	5504 (2.50-2.50)

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	308	74% 18% 7%
1	B	308	% 81% 12% 7%
1	C	308	% 79% 15% • 5%
1	D	308	% 71% 20% • 7%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 9050 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 C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	285	Total	C	N	O	S	0	0	0
			2136	1346	368	411	11			
1	B	286	Total	C	N	O	S	0	0	0
			2133	1347	365	410	11			
1	C	292	Total	C	N	O	S	0	0	0
			2186	1374	381	420	11			
1	D	285	Total	C	N	O	S	0	0	0
			2121	1337	366	407	11			

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	134	ARG	LYS	variant	UNP P11586
A	302	LEU	-	expression tag	UNP P11586
A	303	GLU	-	expression tag	UNP P11586
A	304	HIS	-	expression tag	UNP P11586
A	305	HIS	-	expression tag	UNP P11586
A	306	HIS	-	expression tag	UNP P11586
A	307	HIS	-	expression tag	UNP P11586
A	308	HIS	-	expression tag	UNP P11586
A	309	HIS	-	expression tag	UNP P11586
B	134	ARG	LYS	variant	UNP P11586
B	302	LEU	-	expression tag	UNP P11586
B	303	GLU	-	expression tag	UNP P11586
B	304	HIS	-	expression tag	UNP P11586
B	305	HIS	-	expression tag	UNP P11586
B	306	HIS	-	expression tag	UNP P11586
B	307	HIS	-	expression tag	UNP P11586
B	308	HIS	-	expression tag	UNP P11586
B	309	HIS	-	expression tag	UNP P11586
C	134	ARG	LYS	variant	UNP P11586
C	302	LEU	-	expression tag	UNP P11586

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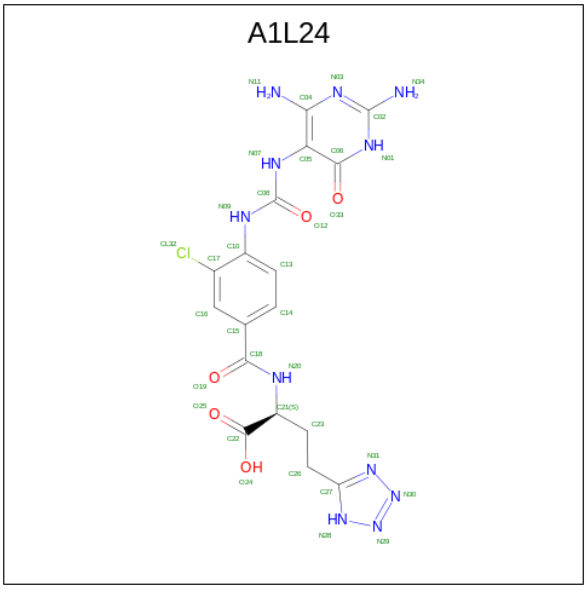
Chain	Residue	Modelled	Actual	Comment	Reference
C	303	GLU	-	expression tag	UNP P11586
C	304	HIS	-	expression tag	UNP P11586
C	305	HIS	-	expression tag	UNP P11586
C	306	HIS	-	expression tag	UNP P11586
C	307	HIS	-	expression tag	UNP P11586
C	308	HIS	-	expression tag	UNP P11586
C	309	HIS	-	expression tag	UNP P11586
D	134	ARG	LYS	variant	UNP P11586
D	302	LEU	-	expression tag	UNP P11586
D	303	GLU	-	expression tag	UNP P11586
D	304	HIS	-	expression tag	UNP P11586
D	305	HIS	-	expression tag	UNP P11586
D	306	HIS	-	expression tag	UNP P11586
D	307	HIS	-	expression tag	UNP P11586
D	308	HIS	-	expression tag	UNP P11586
D	309	HIS	-	expression tag	UNP P11586

- Molecule 2 is (2 {S})-2-[[4-[[2,4-bis(azanyl)-6-oxidanylidene-1 {H}-pyrimidin-5-yl]carbamoylamino]-3-chloranyl-phenyl]carbonylamino]-4-(1 {H}-1,2,3,4-tetrazol-5-yl)butanoic acid (three-letter code: A1L24) (formula: $C_{17}H_{18}ClN_{11}O_5$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	Cl	N	O	0	0
			34	17	1	11	5		
2	B	1	Total	C	Cl	N	O	0	0
			34	17	1	11	5		

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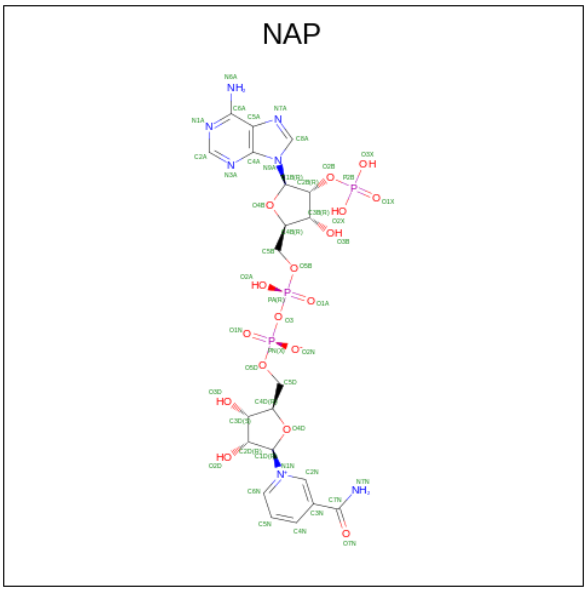
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	C	1	Total	C	Cl	N	O	0	0
			34	17	1	11	5		
2	D	1	Total	C	Cl	N	O	0	0
			34	17	1	11	5		

- Molecule 3 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: $C_{21}H_{28}N_7O_{17}P_3$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
3	B	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
3	C	1	Total	C	N	O	P	0	0
			48	21	7	17	3		
3	D	1	Total	C	N	O	P	0	0
			48	21	7	17	3		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	40	Total	O	0	0
			40	40		
4	B	44	Total	O	0	0
			44	44		
4	C	40	Total	O	0	0
			40	40		

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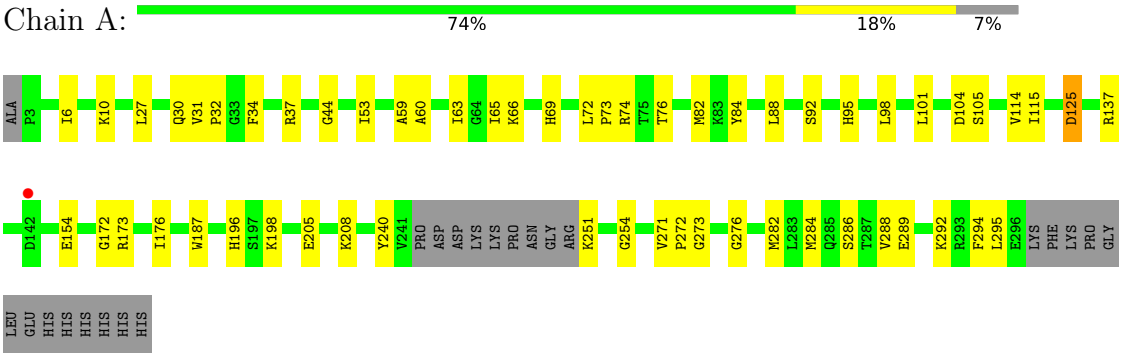
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	D	22	Total O 22 22	0	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

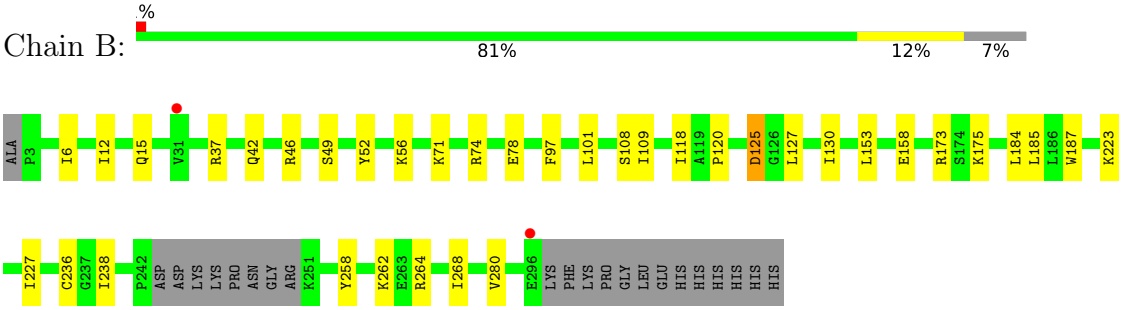
• Molecule 1: C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed

Chain A:



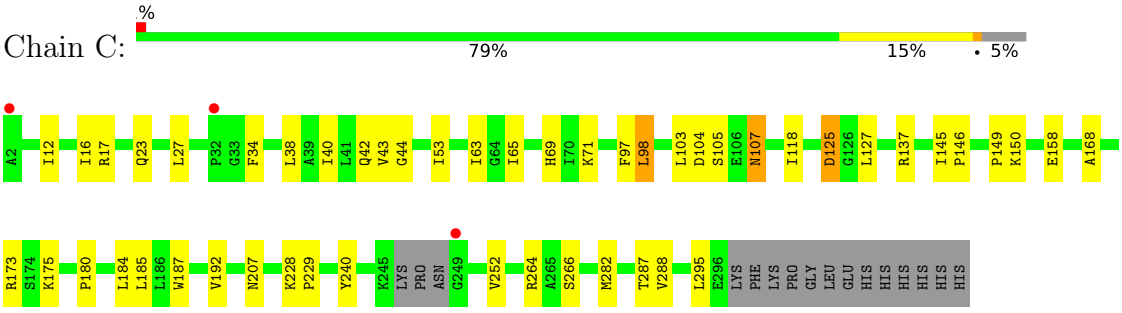
• Molecule 1: C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed

Chain B:



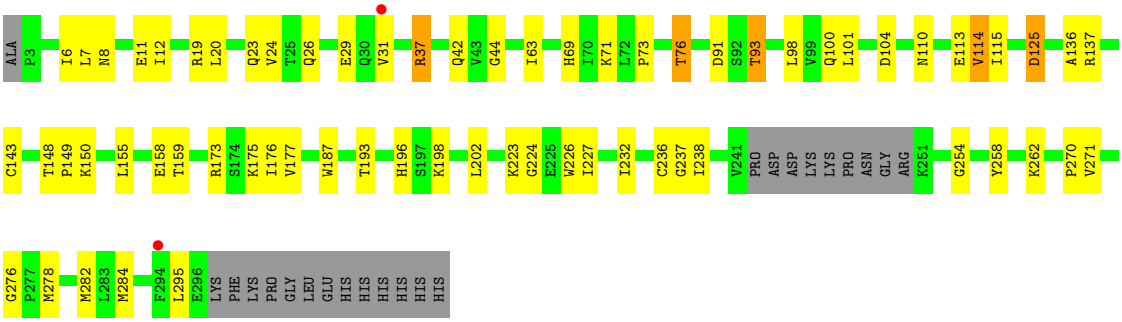
• Molecule 1: C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed

Chain C:



• Molecule 1: C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed

Chain D:


ALA P3 I6 L7 N8 E11 I12 R19 L20 Q23 V24 T25 Q26 E29 Q30 V31 R37 Q42 V43 G44 I63 H69 I70 K71 L72 P73 T76 D91 S92 T93 L98 V99 Q100 L101 D104 N110 E113 V114 I115 D125 A136 R137
C143 T148 P149 K150 L155 E158 T159 R173 S174 K175 I176 V177 W187 T193 H196 S197 K198 L202 K223 G224 E225 W226 I227 I232 C236 G237 I238 V241 PRO ASP ASP LYS LYS PRO ASN GLY ARG K251 G254 Y258 K262 P270 V271
G276 P277 M278 M282 L283 M284 P294 L295 E296 LYS PHE LYS PRO GLY LEU GLU HIS HIS HIS HIS HIS HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	65.08Å 201.47Å 240.02Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	30.00 – 2.50 30.00 – 2.50	Depositor EDS
% Data completeness (in resolution range)	95.8 (30.00-2.50) 95.9 (30.00-2.50)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.18 (at 2.51Å)	Xtriage
Refinement program	PHENIX (1.21.1_5286: ???)	Depositor
R, R_{free}	0.213 , 0.264 0.213 , 0.264	Depositor DCC
R_{free} test set	2792 reflections (5.09%)	wwPDB-VP
Wilson B-factor (Å^2)	42.8	Xtriage
Anisotropy	0.103	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 37.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.42$, $< L^2 > = 0.25$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	9050	wwPDB-VP
Average B, all atoms (Å^2)	45.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.29% 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: A1L24, NAP

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	0.45	0/2168	0.64	0/2945
1	B	0.45	0/2166	0.62	0/2945
1	C	0.43	0/2219	0.62	0/3015
1	D	0.41	0/2153	0.61	0/2928
All	All	0.44	0/8706	0.62	0/11833

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	2136	0	2173	43	0
1	B	2133	0	2162	25	0
1	C	2186	0	2217	33	0
1	D	2121	0	2145	41	0
2	A	34	0	0	2	0
2	B	34	0	0	3	0
2	C	34	0	0	2	0
2	D	34	0	0	1	0
3	A	48	0	25	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	48	0	25	2	0
3	C	48	0	25	2	0
3	D	48	0	25	3	0
4	A	40	0	0	0	0
4	B	44	0	0	0	0
4	C	40	0	0	0	0
4	D	22	0	0	0	0
All	All	9050	0	8797	137	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 8.

The worst 5 of 137 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:101:LEU:HD12	1:A:176:ILE:HD11	1.53	0.90
1:B:236:CYS:HB3	3:B:402:NAP:H2N	1.56	0.88
1:A:72:LEU:HB3	1:A:76:THR:HG21	1.57	0.86
1:D:37:ARG:HD2	1:D:93:THR:HG23	1.60	0.82
1:D:238:ILE:HG12	3:D:402:NAP:H2N	1.63	0.79

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	281/308 (91%)	272 (97%)	9 (3%)	0	100	100
1	B	282/308 (92%)	277 (98%)	5 (2%)	0	100	100
1	C	288/308 (94%)	280 (97%)	8 (3%)	0	100	100
1	D	281/308 (91%)	271 (96%)	10 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	1132/1232 (92%)	1100 (97%)	32 (3%)	0	100 100

There are no Ramachandran outliers to report.

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	234/260 (90%)	231 (99%)	3 (1%)	65 85
1	B	232/260 (89%)	228 (98%)	4 (2%)	56 79
1	C	238/260 (92%)	233 (98%)	5 (2%)	48 74
1	D	230/260 (88%)	220 (96%)	10 (4%)	25 48
All	All	934/1040 (90%)	912 (98%)	22 (2%)	44 70

5 of 22 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	76	THR
1	D	114	VAL
1	D	98	LEU
1	D	125	ASP
1	B	125	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

8 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	A1L24	A	401	-	35,36,36	2.27	10 (28%)	41,50,50	1.36	7 (17%)
2	A1L24	B	401	-	35,36,36	2.29	13 (37%)	41,50,50	1.51	12 (29%)
3	NAP	C	402	-	45,52,52	0.61	0	56,80,80	0.95	3 (5%)
2	A1L24	C	401	-	35,36,36	2.24	12 (34%)	41,50,50	1.51	8 (19%)
3	NAP	B	402	-	45,52,52	0.62	0	56,80,80	1.48	4 (7%)
2	A1L24	D	401	-	35,36,36	2.20	12 (34%)	41,50,50	1.50	8 (19%)
3	NAP	A	402	-	45,52,52	0.64	0	56,80,80	0.87	4 (7%)
3	NAP	D	402	-	45,52,52	0.64	0	56,80,80	0.72	2 (3%)

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	A1L24	A	401	-	-	3/25/25/25	0/3/3/3
2	A1L24	B	401	-	-	2/25/25/25	0/3/3/3
3	NAP	C	402	-	-	6/31/67/67	0/5/5/5
2	A1L24	C	401	-	-	0/25/25/25	0/3/3/3
3	NAP	B	402	-	-	12/31/67/67	0/5/5/5
2	A1L24	D	401	-	-	1/25/25/25	0/3/3/3
3	NAP	A	402	-	-	7/31/67/67	0/5/5/5
3	NAP	D	402	-	-	14/31/67/67	0/5/5/5

The worst 5 of 47 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	401	A1L24	C18-N20	5.21	1.45	1.34
2	A	401	A1L24	C02-N34	5.12	1.46	1.34
2	C	401	A1L24	C02-N34	5.10	1.46	1.34
2	C	401	A1L24	C18-N20	4.93	1.44	1.34
2	A	401	A1L24	C18-N20	4.93	1.44	1.34

The worst 5 of 48 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	402	NAP	C3N-C2N-N1N	-8.90	111.72	120.43
3	C	402	NAP	C3N-C2N-N1N	-4.13	116.39	120.43
3	B	402	NAP	C6N-N1N-C2N	-3.98	118.34	121.97
2	C	401	A1L24	C27-N28-N29	3.55	107.91	104.33
2	A	401	A1L24	C27-N28-N29	3.43	107.80	104.33

There are no chirality outliers.

5 of 45 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	401	A1L24	C23-C26-C27-N28
2	B	401	A1L24	C21-C23-C26-C27
2	B	401	A1L24	C23-C26-C27-N31
3	A	402	NAP	C5B-O5B-PA-O2A
3	B	402	NAP	C5B-O5B-PA-O2A

There are no ring outliers.

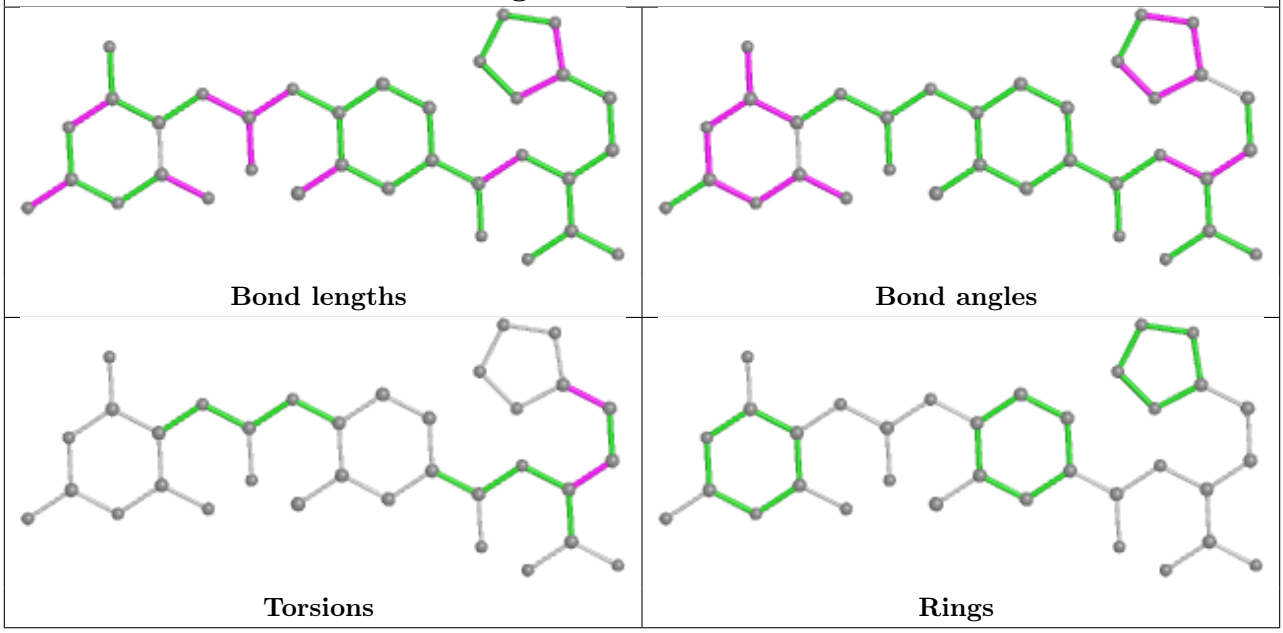
8 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	401	A1L24	2	0
2	B	401	A1L24	3	0
3	C	402	NAP	2	0
2	C	401	A1L24	2	0
3	B	402	NAP	2	0
2	D	401	A1L24	1	0
3	A	402	NAP	3	0
3	D	402	NAP	3	0

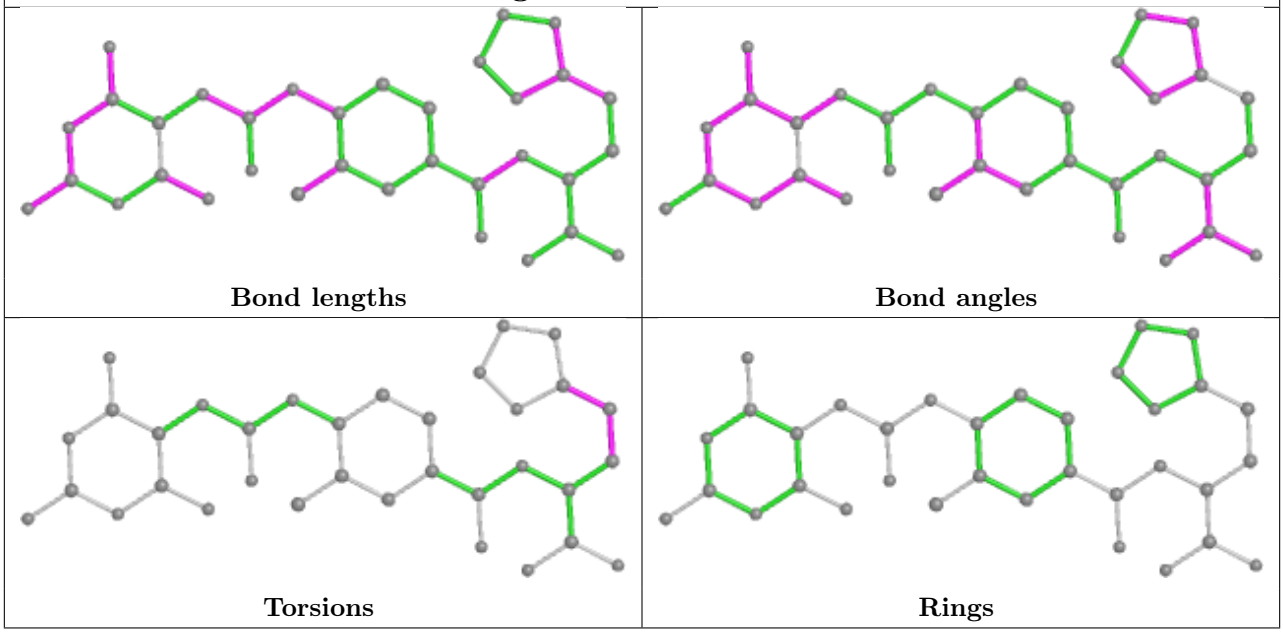
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

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.

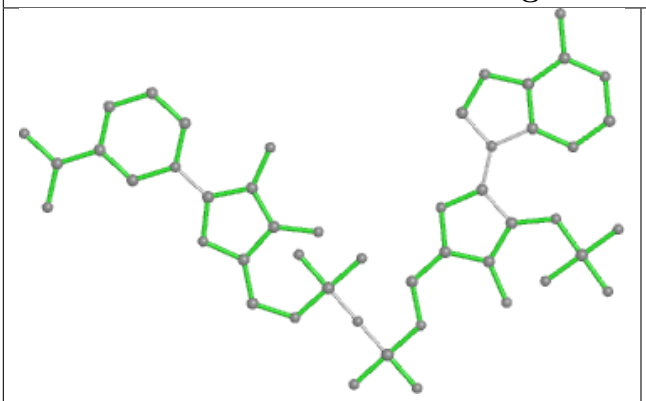
Ligand A1L24 A 401



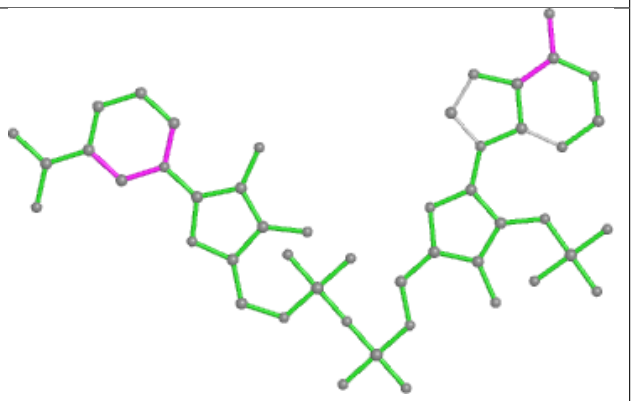
Ligand A1L24 B 401



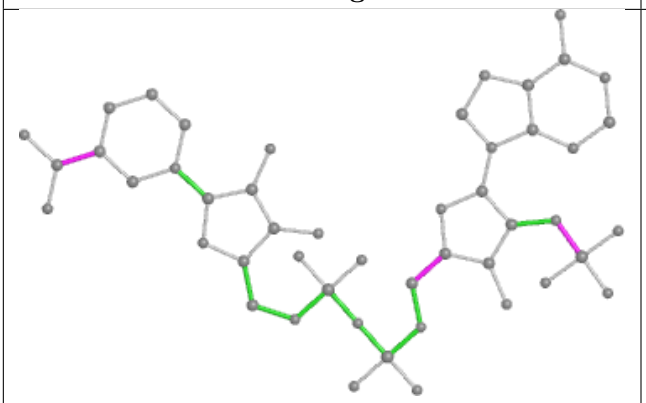
Ligand NAP C 402



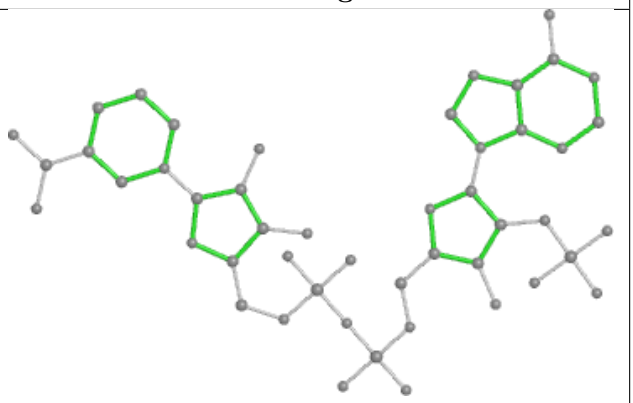
Bond lengths



Bond angles

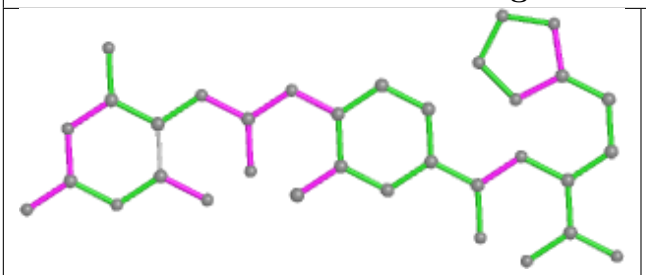


Torsions

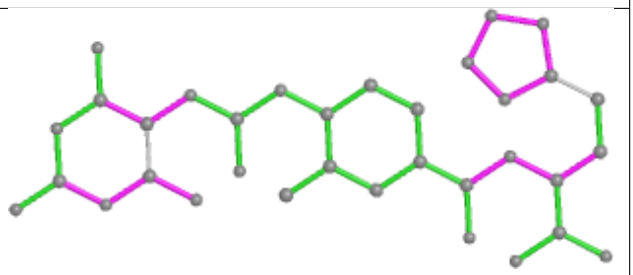


Rings

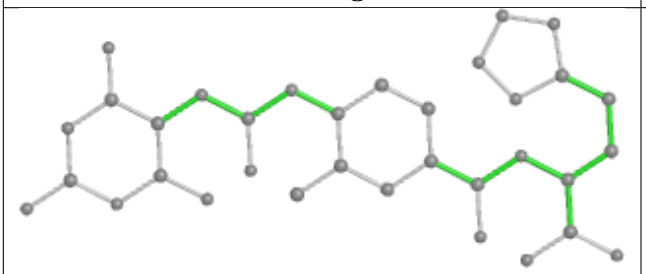
Ligand A1L24 C 401



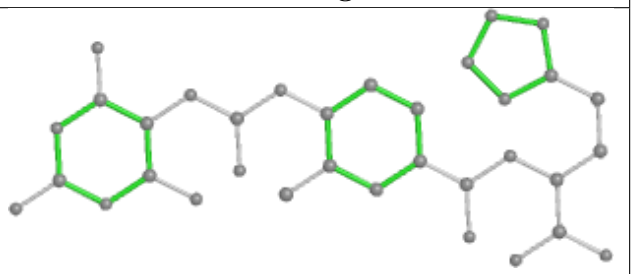
Bond lengths



Bond angles

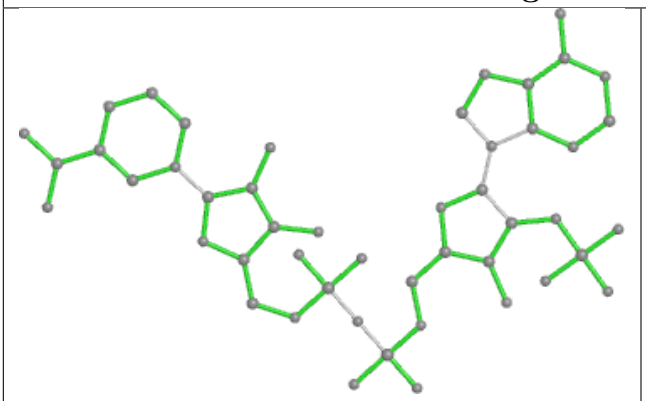


Torsions

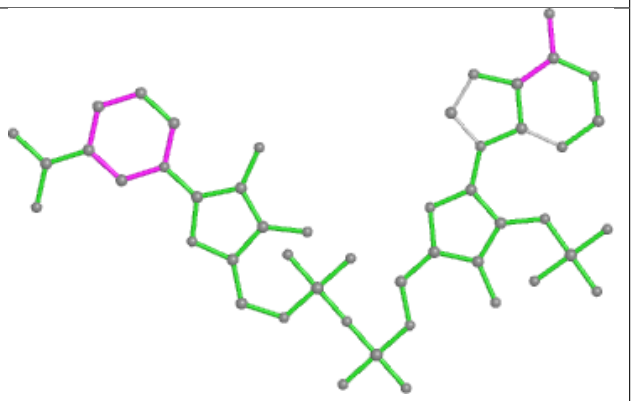


Rings

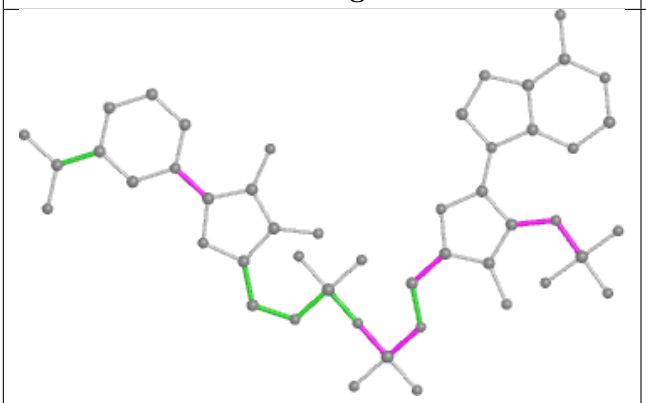
Ligand NAP B 402



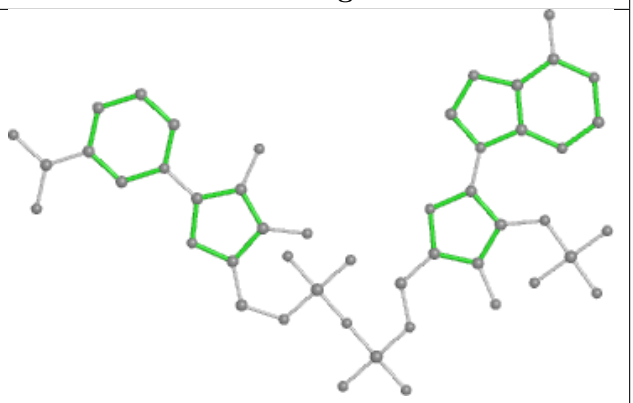
Bond lengths



Bond angles

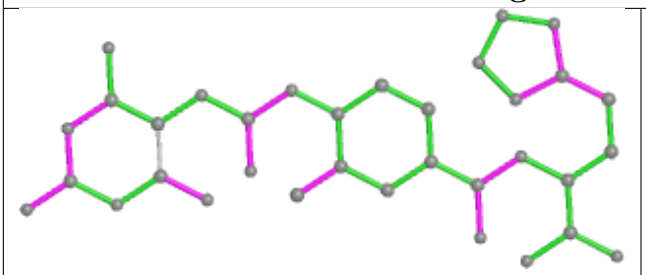


Torsions

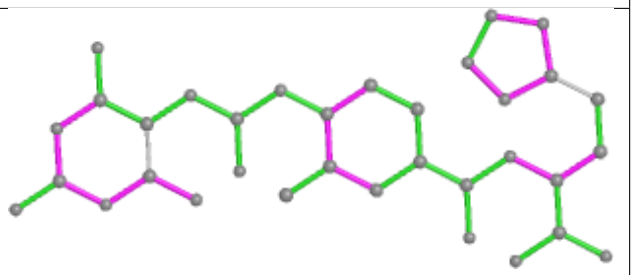


Rings

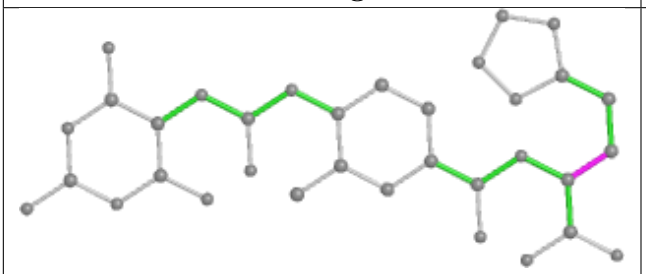
Ligand A1L24 D 401



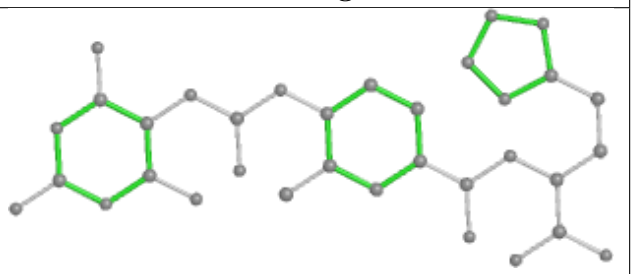
Bond lengths



Bond angles

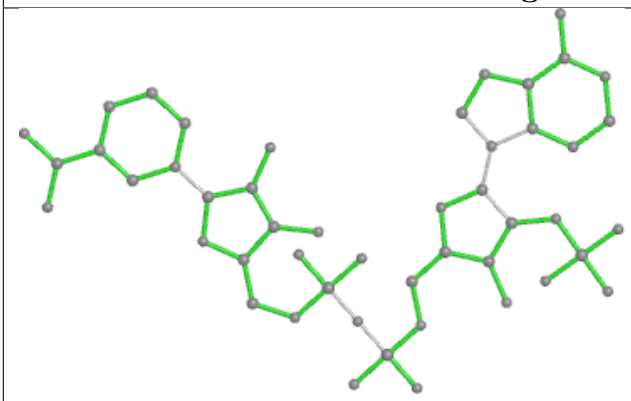


Torsions

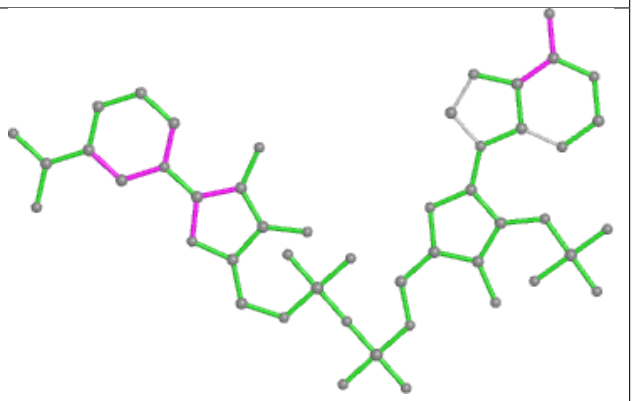


Rings

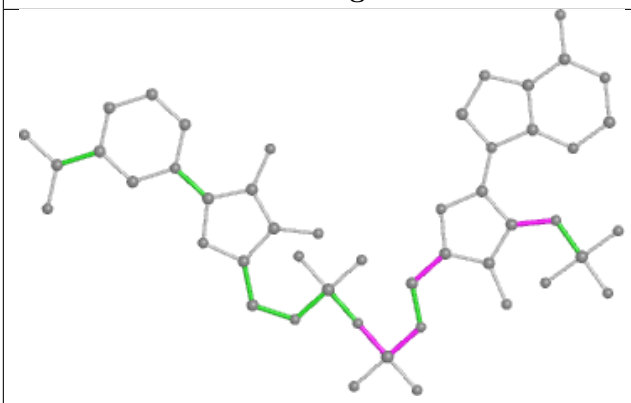
Ligand NAP A 402



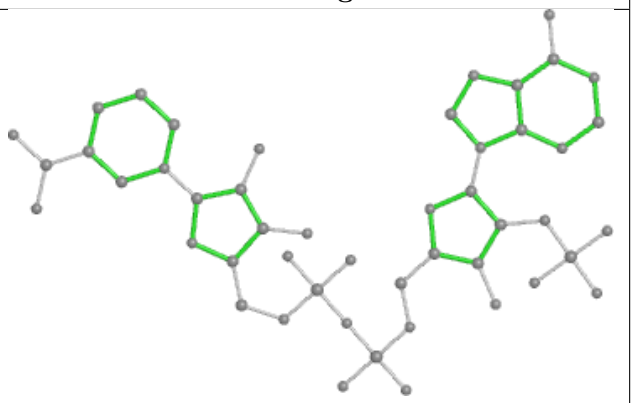
Bond lengths



Bond angles

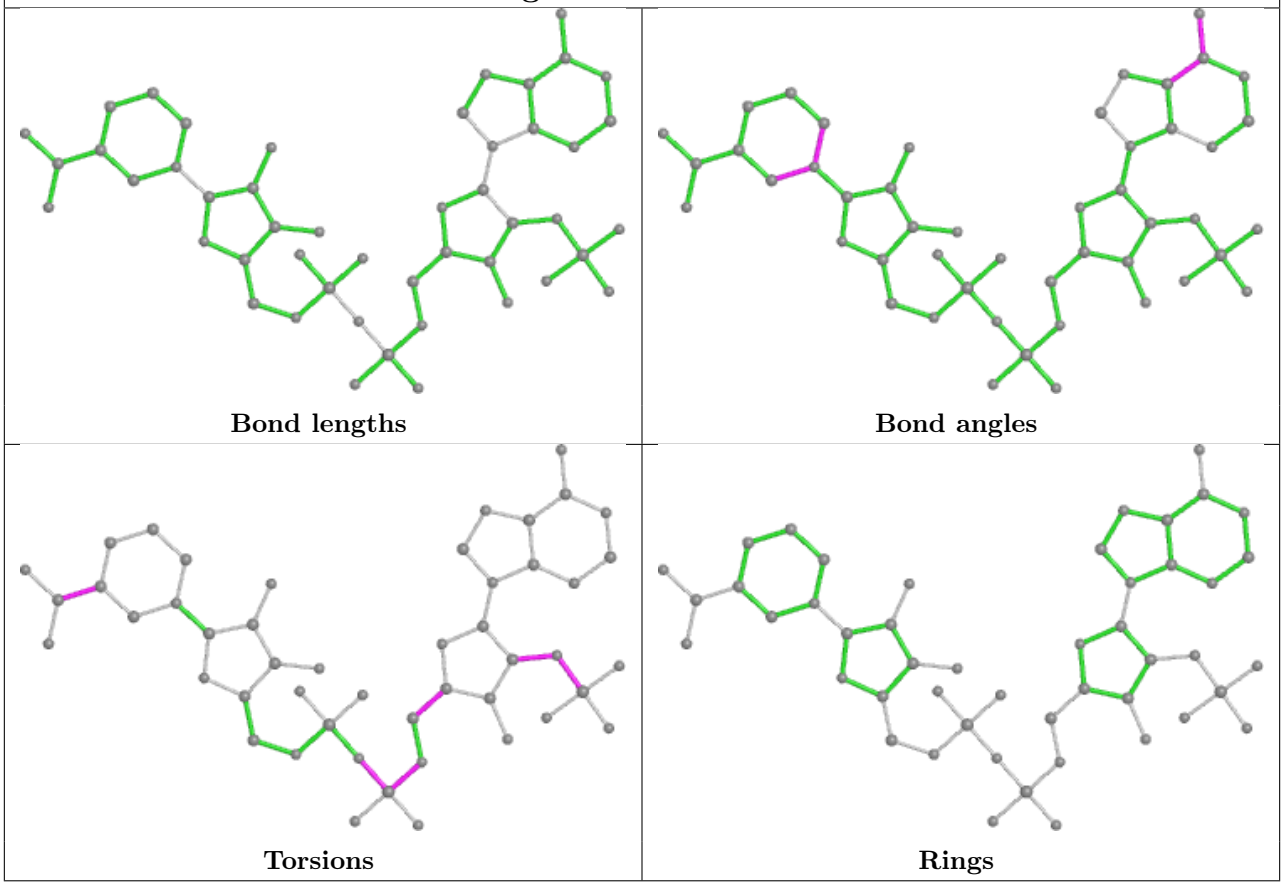


Torsions



Rings

Ligand NAP D 402



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	285/308 (92%)	-0.23	1 (0%)	89	86	24, 40, 60, 69	0
1	B	286/308 (92%)	-0.30	2 (0%)	84	81	27, 40, 59, 83	0
1	C	292/308 (94%)	-0.21	3 (1%)	79	76	24, 42, 64, 82	0
1	D	285/308 (92%)	0.23	2 (0%)	84	81	33, 52, 70, 91	0
All	All	1148/1232 (93%)	-0.13	8 (0%)	84	81	24, 43, 65, 91	0

The worst 5 of 8 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	294	PHE	3.4
1	C	249	GLY	3.1
1	B	296	GLU	2.6
1	C	2	ALA	2.5
1	B	31	VAL	2.4

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

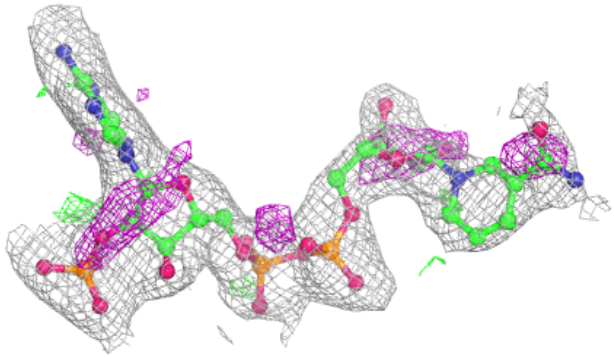
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

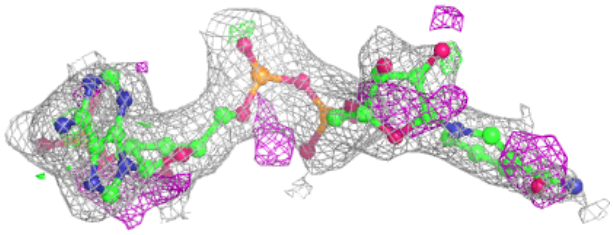
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAP	A	402	48/48	0.90	0.13	27,47,59,62	0
3	NAP	C	402	48/48	0.90	0.12	34,48,60,75	0
3	NAP	B	402	48/48	0.91	0.14	21,40,56,64	48
3	NAP	D	402	48/48	0.91	0.12	44,63,73,75	0
2	A1L24	D	401	34/34	0.92	0.09	41,58,76,76	0
2	A1L24	A	401	34/34	0.94	0.09	32,43,73,76	0
2	A1L24	B	401	34/34	0.95	0.07	30,41,58,61	0
2	A1L24	C	401	34/34	0.96	0.07	34,46,52,58	0

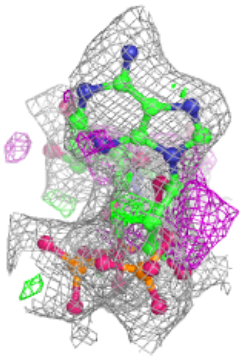
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around NAP A 402:

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

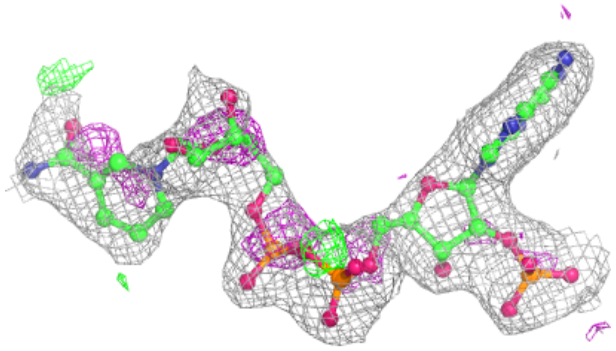


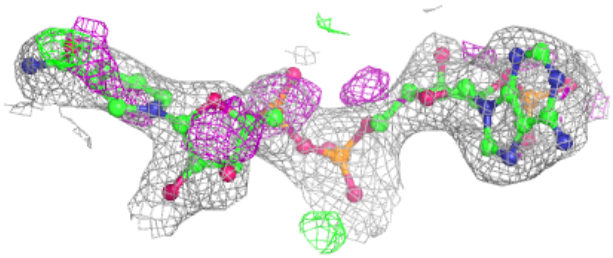


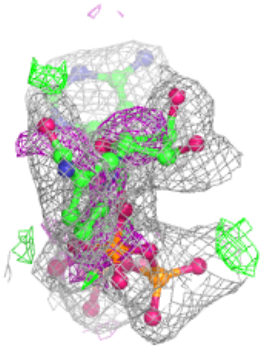


Electron density around NAP C 402:

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

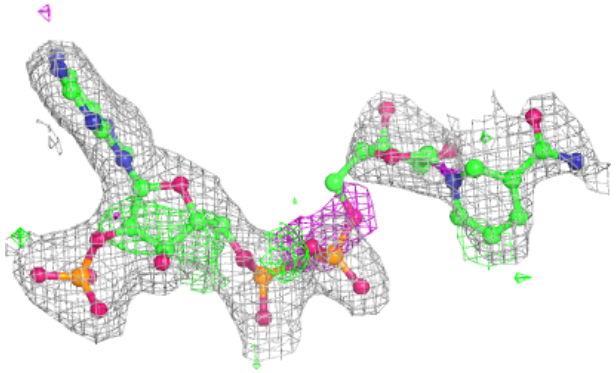


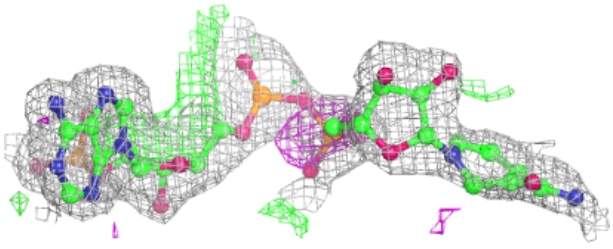


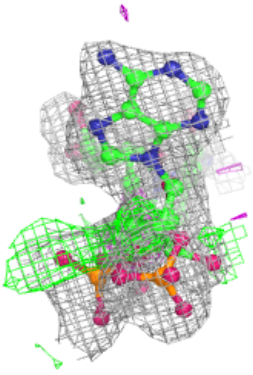


Electron density around NAP B 402:

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

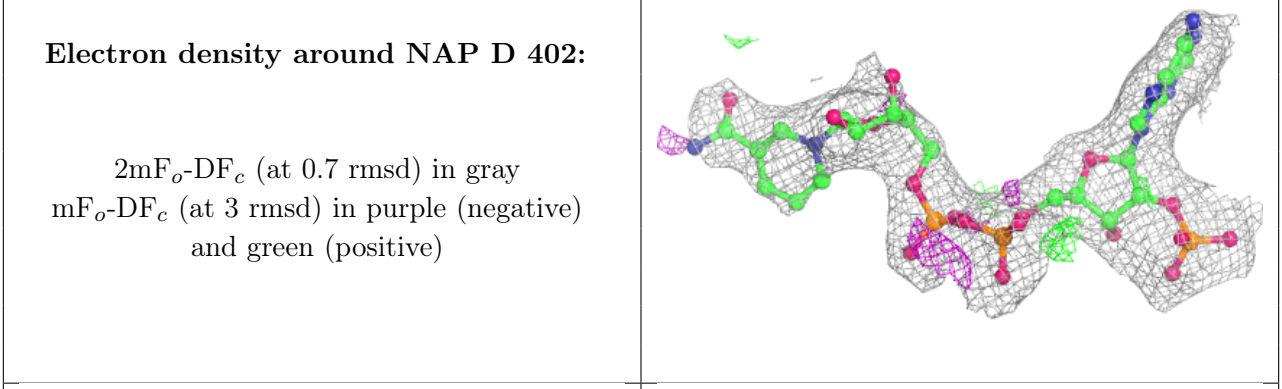


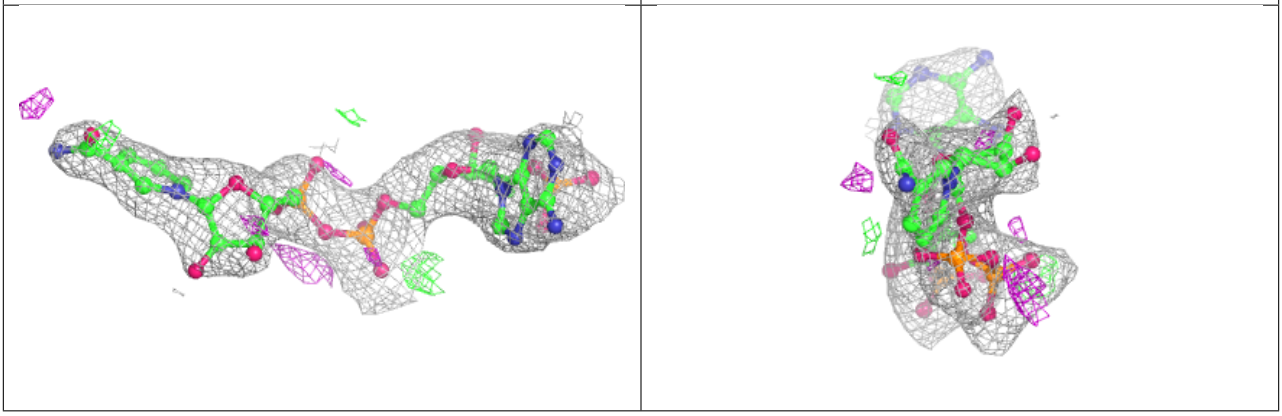




Electron density around NAP D 402:

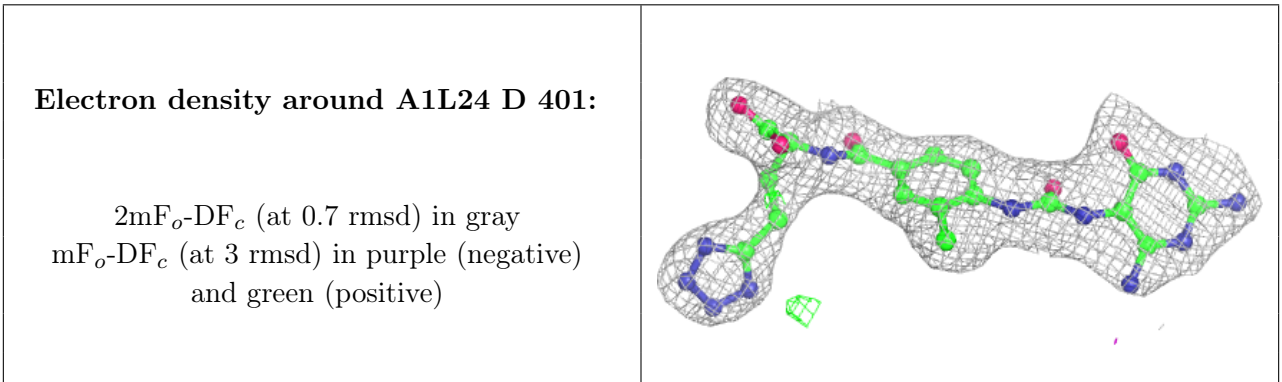
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

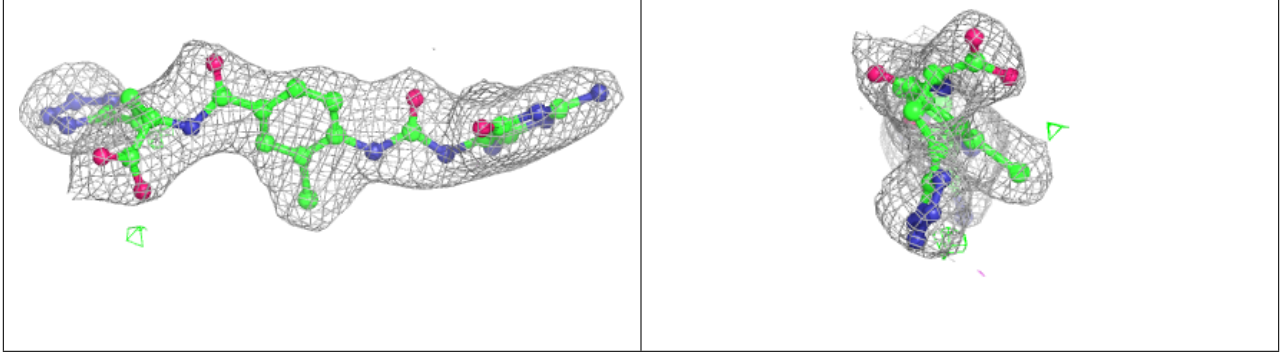




Electron density around A1L24 D 401:

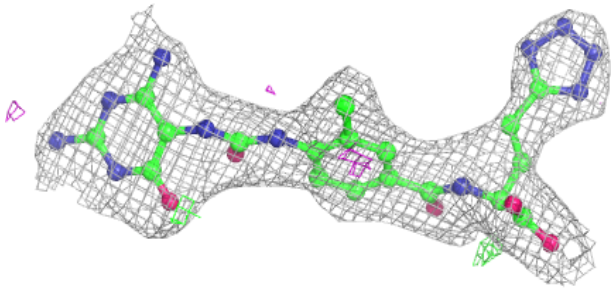
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

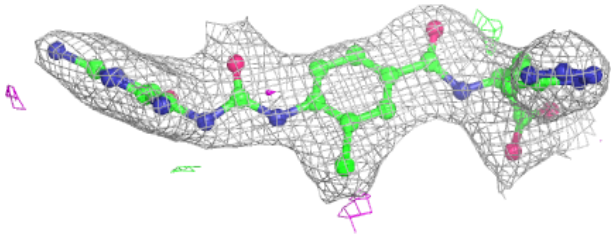


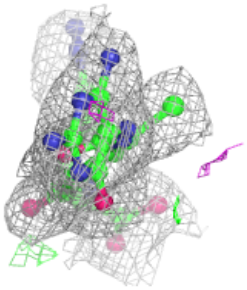


Electron density around A1L24 A 401:

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

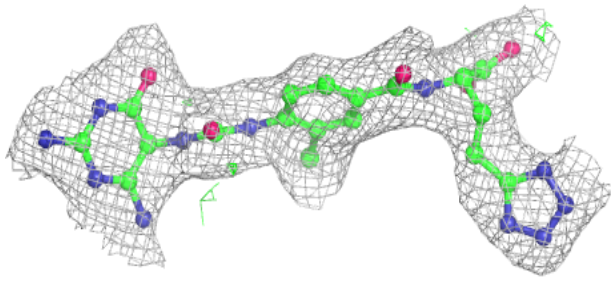


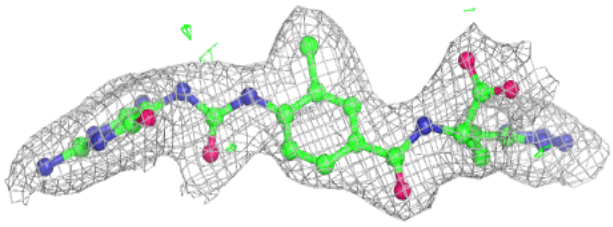


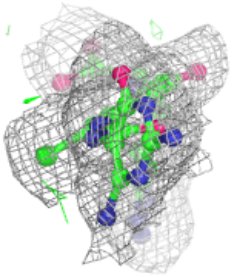


Electron density around A1L24 B 401:

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

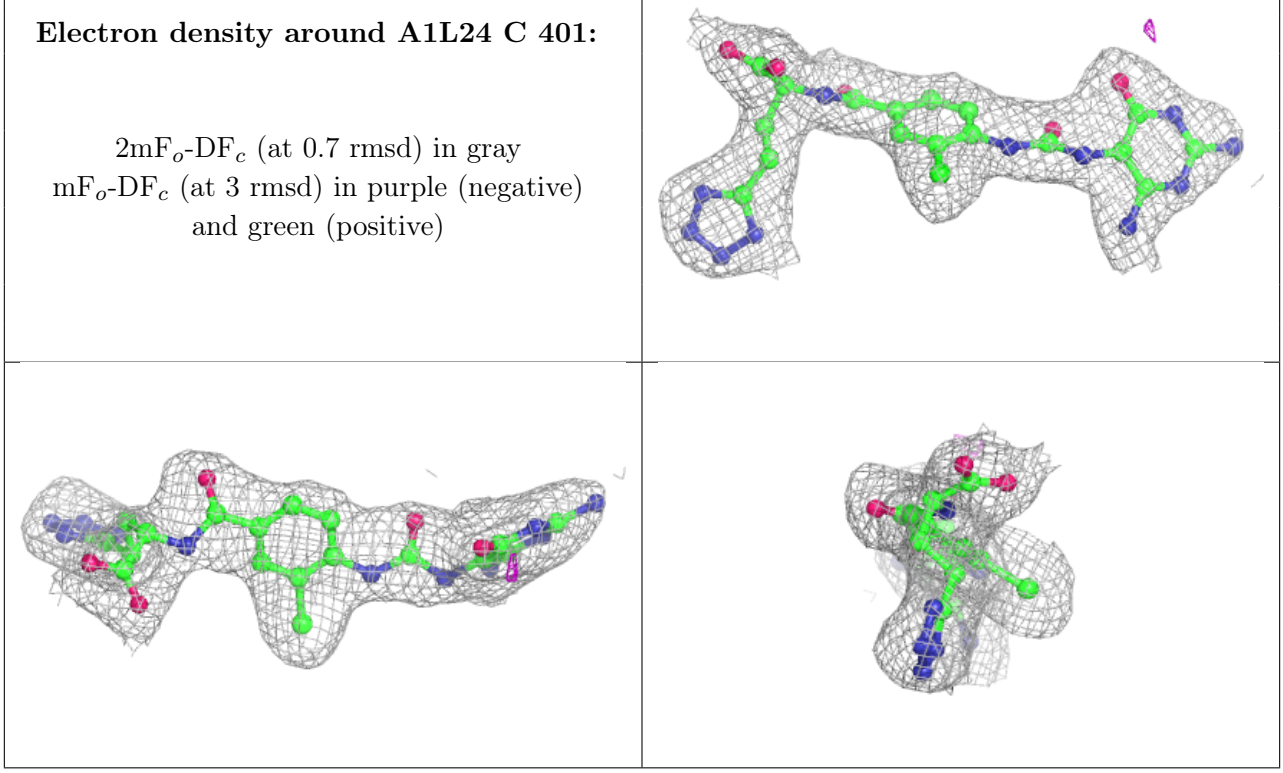






Electron density around A1L24 C 401:

$2mF_o$-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.