wwPDB X-ray Structure Validation Summary Report (i)

Jan 24, 2023 – 02:07 AM EST

PDB ID	:	3EO8
Title	:	Crystal structure of BluB-like flavoprotein (YP_001089088.1) from CLOSTRIDIUM DIFFICILE 630 at 1.74 A resolution
Authors	:	Joint Center for Structural Genomics (JCSG)
Deposited on	:	2008-09-26
Resolution	:	1.74 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:

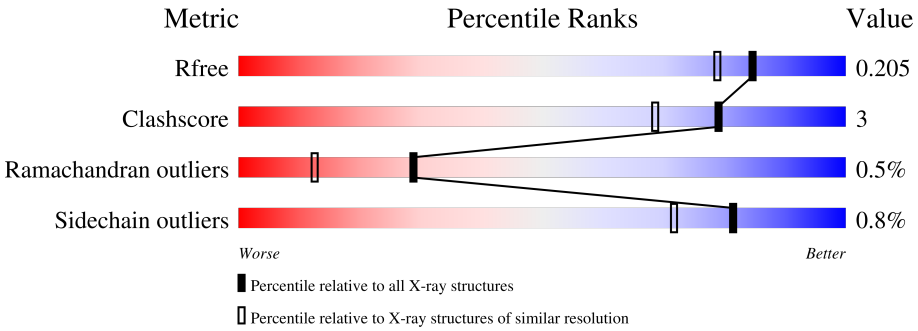
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.31.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

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 1.74 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	3764 (1.76-1.72)
Clashscore	141614	3923 (1.76-1.72)
Ramachandran outliers	138981	3878 (1.76-1.72)
Sidechain outliers	138945	3878 (1.76-1.72)

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%

Mol	Chain	Length	Quality of chain
1	A	219	93% 7%
1	B	219	94% 6%
1	C	219	93% 6%
1	D	219	93% 7%
1	E	219	94% 6%
1	F	219	97% .

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
3	ACT	E	501	-	X	-	-

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 12860 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.

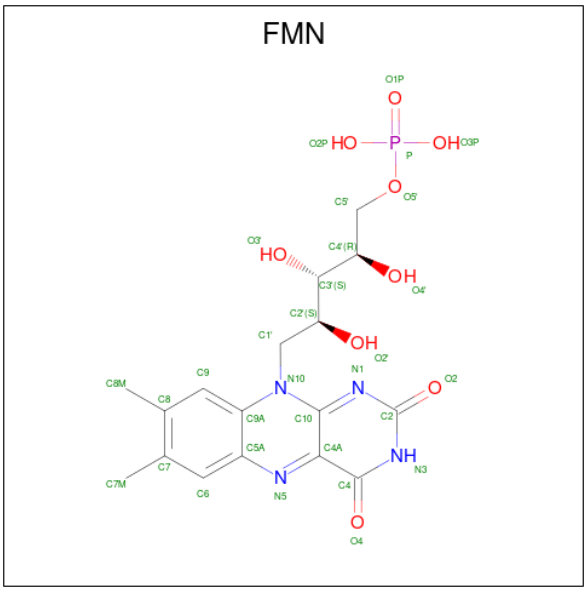
- Molecule 1 is a protein called BluB-like flavoprotein.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	219	Total	C	N	O	S	Se	0	7	0
			1764	1145	285	326	2	6			
1	B	219	Total	C	N	O	S	Se	0	5	0
			1740	1129	281	322	2	6			
1	C	219	Total	C	N	O	S	Se	0	7	0
			1749	1135	278	328	2	6			
1	D	219	Total	C	N	O	S	Se	0	10	0
			1766	1148	280	330	2	6			
1	E	219	Total	C	N	O	S	Se	0	6	0
			1757	1141	280	328	2	6			
1	F	219	Total	C	N	O	S	Se	0	5	0
			1757	1138	281	330	2	6			

There are 6 discrepancies between the modelled and reference sequences:

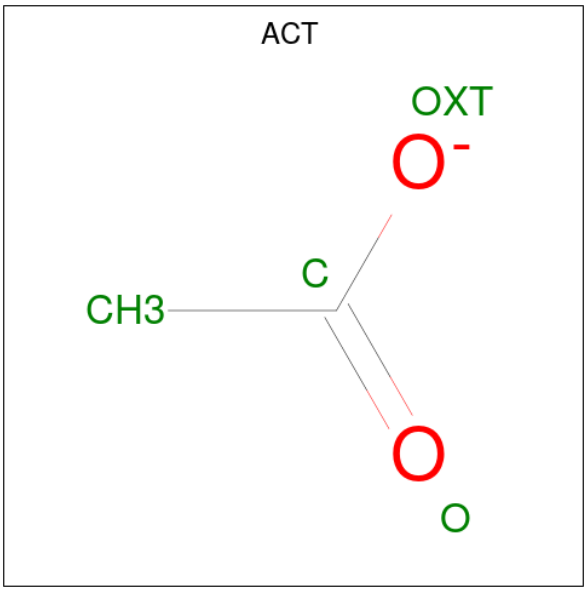
Chain	Residue	Modelled	Actual	Comment	Reference
A	0	GLY	-	expression tag	UNP Q182R2
B	0	GLY	-	expression tag	UNP Q182R2
C	0	GLY	-	expression tag	UNP Q182R2
D	0	GLY	-	expression tag	UNP Q182R2
E	0	GLY	-	expression tag	UNP Q182R2
F	0	GLY	-	expression tag	UNP Q182R2

- Molecule 2 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	B	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	C	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	D	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	E	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
2	F	1	Total	C	N	O	P	0	0
			31	17	4	9	1		

- Molecule 3 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).

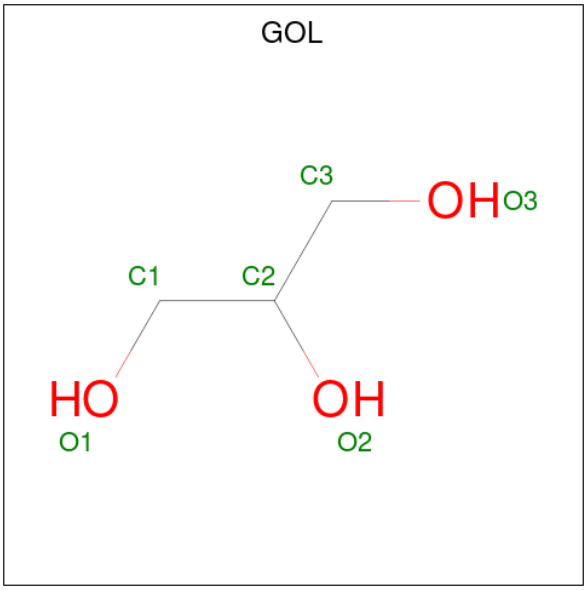


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 4 2 2	0	0
3	A	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	B	1	Total C O 4 2 2	0	0
3	C	1	Total C O 4 2 2	0	0
3	D	1	Total C O 4 2 2	0	0
3	D	1	Total C O 4 2 2	0	0
3	E	1	Total C O 4 2 2	0	0
3	E	1	Total C O 4 2 2	0	0
3	E	1	Total C O 4 2 2	0	0
3	F	1	Total C O 4 2 2	0	0
3	F	1	Total C O 4 2 2	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total Cl 1 1	0	0
4	B	1	Total Cl 1 1	0	0
4	C	1	Total Cl 1 1	0	0
4	D	1	Total Cl 1 1	0	0
4	E	1	Total Cl 1 1	0	0
4	F	1	Total Cl 1 1	0	0

- Molecule 5 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



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

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	F	1	Total	C	O	0	0
			6	3	3		

- Molecule 6 is water.

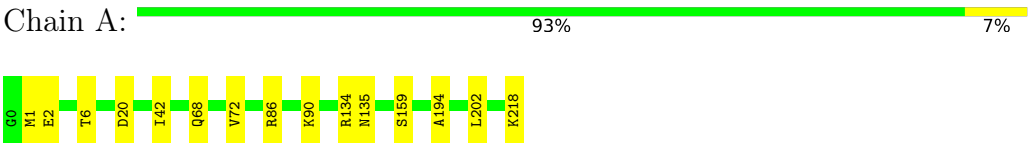
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	347	Total	O	0	0
			347	347		
6	B	345	Total	O	0	0
			345	345		
6	C	331	Total	O	0	0
			331	331		
6	D	346	Total	O	0	0
			346	346		
6	E	344	Total	O	0	0
			344	344		
6	F	332	Total	O	0	0
			332	332		

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. 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. 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.

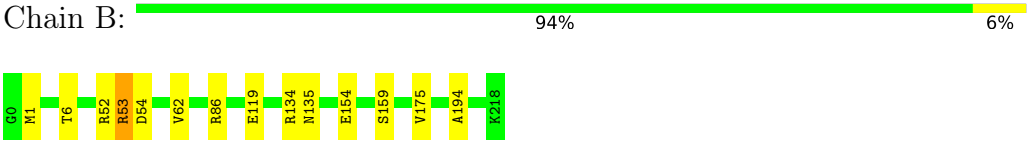
• Molecule 1: BluB-like flavoprotein

Chain A:



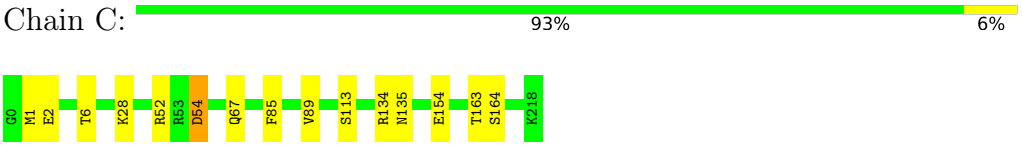
• Molecule 1: BluB-like flavoprotein

Chain B:



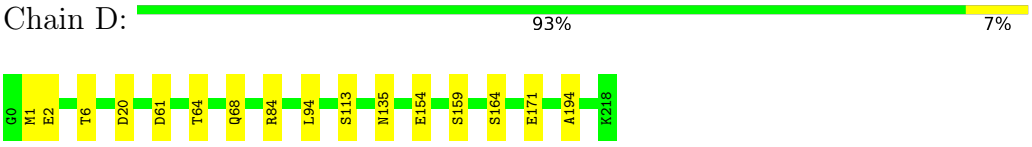
• Molecule 1: BluB-like flavoprotein

Chain C:



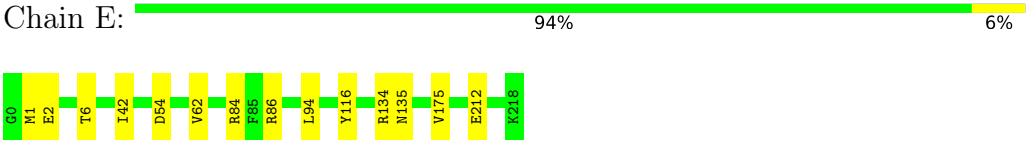
• Molecule 1: BluB-like flavoprotein

Chain D:



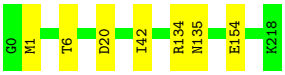
• Molecule 1: BluB-like flavoprotein

Chain E:



• Molecule 1: BluB-like flavoprotein

Chain F:


G0
M1
T6
D20
I42
R134
N135
E154
K218

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	51.84Å 183.26Å 74.39Å 90.00° 104.89° 90.00°	Depositor
Resolution (Å)	48.34 – 1.74 48.33 – 1.74	Depositor EDS
% Data completeness (in resolution range)	97.9 (48.34-1.74) 97.9 (48.33-1.74)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.13 (at 1.74Å)	Xtriage
Refinement program	REFMAC 5.2.0019, PHENIX	Depositor
R, R_{free}	0.156 , 0.198 0.171 , 0.205	Depositor DCC
R_{free} test set	6747 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	12.5	Xtriage
Anisotropy	0.369	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 41.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	12860	wwPDB-VP
Average B, all atoms (Å^2)	27.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 10.58% 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: GOL, ACT, FMN, CL

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	0.63	0/1811	0.68	1/2431 (0.0%)
1	B	0.66	0/1781	0.70	3/2395 (0.1%)
1	C	0.66	0/1796	0.66	0/2413
1	D	0.65	0/1825	0.63	0/2451
1	E	0.65	0/1801	0.67	2/2417 (0.1%)
1	F	0.66	0/1798	0.68	2/2414 (0.1%)
All	All	0.65	0/10812	0.67	8/14521 (0.1%)

There are no bond length outliers.

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	53	ARG	NE-CZ-NH2	-9.04	115.78	120.30
1	E	86	ARG	NE-CZ-NH1	7.30	123.95	120.30
1	B	53	ARG	NE-CZ-NH1	6.57	123.58	120.30
1	E	86	ARG	NE-CZ-NH2	-6.52	117.04	120.30
1	A	86	ARG	NE-CZ-NH1	5.36	122.98	120.30

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	1764	0	1805	18	0
1	B	1740	0	1757	9	0
1	C	1749	0	1773	12	0
1	D	1766	0	1796	21	0
1	E	1757	0	1791	10	0
1	F	1757	0	1782	4	0
2	A	31	0	19	0	0
2	B	31	0	19	0	0
2	C	31	0	19	2	0
2	D	31	0	19	0	0
2	E	31	0	19	0	0
2	F	31	0	19	1	0
3	A	8	0	6	0	0
3	B	8	0	6	0	0
3	C	4	0	3	0	0
3	D	8	0	6	2	0
3	E	12	0	9	2	0
3	F	8	0	6	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
4	E	1	0	0	0	0
4	F	1	0	0	0	0
5	B	12	0	16	0	0
5	C	12	0	16	0	0
5	D	6	0	8	0	0
5	E	6	0	8	0	0
5	F	6	0	8	0	0
6	A	347	0	0	5	0
6	B	345	0	0	2	0
6	C	331	0	0	1	0
6	D	346	0	0	5	0
6	E	344	0	0	5	0
6	F	332	0	0	2	0
All	All	12860	0	10910	61	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 3.

The worst 5 of 61 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:B:62:VAL:HG11	1:B:175[B]:VAL:HG21	1.43	0.96
1:D:64[B]:THR:HG22	6:D:698:HOH:O	1.64	0.96
1:A:72[A]:VAL:HG11	1:D:68[A]:GLN:HG3	1.47	0.96
1:B:62:VAL:HG11	1:B:175[B]:VAL:CG2	2.01	0.88
1:A:42:ILE:HD11	6:A:586:HOH:O	1.75	0.86

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	224/219 (102%)	221 (99%)	2 (1%)	1 (0%)	34	17
1	B	222/219 (101%)	218 (98%)	3 (1%)	1 (0%)	29	12
1	C	224/219 (102%)	221 (99%)	2 (1%)	1 (0%)	34	17
1	D	227/219 (104%)	222 (98%)	4 (2%)	1 (0%)	34	17
1	E	223/219 (102%)	219 (98%)	3 (1%)	1 (0%)	34	17
1	F	222/219 (101%)	218 (98%)	3 (1%)	1 (0%)	29	12
All	All	1342/1314 (102%)	1319 (98%)	17 (1%)	6 (0%)	29	17

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	135	ASN
1	E	135	ASN
1	A	135	ASN
1	B	135	ASN
1	C	135	ASN

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	190/184 (103%)	189 (100%)	1 (0%)	88	83
1	B	184/184 (100%)	181 (98%)	3 (2%)	62	44
1	C	188/184 (102%)	186 (99%)	2 (1%)	73	59
1	D	190/184 (103%)	190 (100%)	0	100	100
1	E	189/184 (103%)	187 (99%)	2 (1%)	73	59
1	F	189/184 (103%)	188 (100%)	1 (0%)	88	83
All	All	1130/1104 (102%)	1121 (99%)	9 (1%)	81	72

5 of 9 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	134	ARG
1	F	134	ARG
1	B	134	ARG
1	C	54	ASP
1	C	134	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	147	ASN
1	C	67	GLN
1	D	147	ASN

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)

Of 31 ligands modelled in this entry, 6 are monoatomic - leaving 25 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	ACT	B	501	-	3,3,3	0.81	0	3,3,3	1.69	2 (66%)
5	GOL	F	504	-	5,5,5	0.45	0	5,5,5	0.81	0
3	ACT	D	502	-	3,3,3	0.85	0	3,3,3	1.19	0
3	ACT	E	503	-	3,3,3	0.80	0	3,3,3	1.42	0
3	ACT	C	501	-	3,3,3	0.55	0	3,3,3	1.55	0
3	ACT	F	501	-	3,3,3	0.76	0	3,3,3	1.61	1 (33%)
2	FMN	C	500	-	33,33,33	1.08	2 (6%)	48,50,50	1.17	5 (10%)
2	FMN	F	500	-	33,33,33	1.18	1 (3%)	48,50,50	1.18	6 (12%)
3	ACT	E	502	-	3,3,3	0.77	0	3,3,3	1.40	0
5	GOL	B	504	-	5,5,5	0.51	0	5,5,5	0.40	0
3	ACT	B	502	-	3,3,3	0.85	0	3,3,3	1.21	0
2	FMN	B	500	-	33,33,33	1.18	2 (6%)	48,50,50	1.29	7 (14%)
5	GOL	B	505	-	5,5,5	0.33	0	5,5,5	0.31	0
3	ACT	E	501	-	3,3,3	1.18	1 (33%)	3,3,3	2.18	2 (66%)
5	GOL	C	504	-	5,5,5	0.42	0	5,5,5	0.20	0
3	ACT	A	501	-	3,3,3	1.03	0	3,3,3	1.80	2 (66%)
2	FMN	D	500	-	33,33,33	1.14	2 (6%)	48,50,50	1.13	4 (8%)
3	ACT	F	502	-	3,3,3	0.75	0	3,3,3	1.41	0
3	ACT	A	502	-	3,3,3	0.70	0	3,3,3	1.38	0
2	FMN	A	500	-	33,33,33	1.11	2 (6%)	48,50,50	1.10	3 (6%)
2	FMN	E	500	-	33,33,33	1.08	1 (3%)	48,50,50	1.26	6 (12%)
5	GOL	E	505	-	5,5,5	0.36	0	5,5,5	0.27	0
5	GOL	C	503	-	5,5,5	0.38	0	5,5,5	0.72	0
5	GOL	D	504	-	5,5,5	0.46	0	5,5,5	0.41	0
3	ACT	D	501	-	3,3,3	0.77	0	3,3,3	1.57	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	GOL	B	505	-	-	1/4/4/4	-
5	GOL	F	504	-	-	0/4/4/4	-
2	FMN	C	500	-	-	0/18/18/18	0/3/3/3
2	FMN	A	500	-	-	0/18/18/18	0/3/3/3
2	FMN	F	500	-	-	0/18/18/18	0/3/3/3
5	GOL	B	504	-	-	0/4/4/4	-
5	GOL	D	504	-	-	0/4/4/4	-
5	GOL	C	504	-	-	1/4/4/4	-
2	FMN	E	500	-	-	0/18/18/18	0/3/3/3
5	GOL	E	505	-	-	2/4/4/4	-
5	GOL	C	503	-	-	0/4/4/4	-
2	FMN	B	500	-	-	0/18/18/18	0/3/3/3
2	FMN	D	500	-	-	0/18/18/18	0/3/3/3

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	500	FMN	C4A-N5	4.65	1.39	1.30
2	B	500	FMN	C4A-N5	4.09	1.38	1.30
2	A	500	FMN	C4A-N5	4.04	1.38	1.30
2	E	500	FMN	C4A-N5	4.01	1.38	1.30
2	D	500	FMN	C4A-N5	3.99	1.38	1.30

The worst 5 of 38 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	E	500	FMN	C4A-C10-N10	3.63	121.80	116.48
2	B	500	FMN	C10-C4A-N5	-3.06	118.37	124.86
3	E	501	ACT	OXT-C-O	-3.02	110.91	122.05
2	B	500	FMN	C4-C4A-N5	3.02	122.53	118.23
2	E	500	FMN	C10-C4A-N5	-2.95	118.61	124.86

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	C	504	GOL	C1-C2-C3-O3

Continued on next page...

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Mol	Chain	Res	Type	Atoms
5	E	505	GOL	C1-C2-C3-O3
5	E	505	GOL	O2-C2-C3-O3
5	B	505	GOL	O1-C1-C2-C3

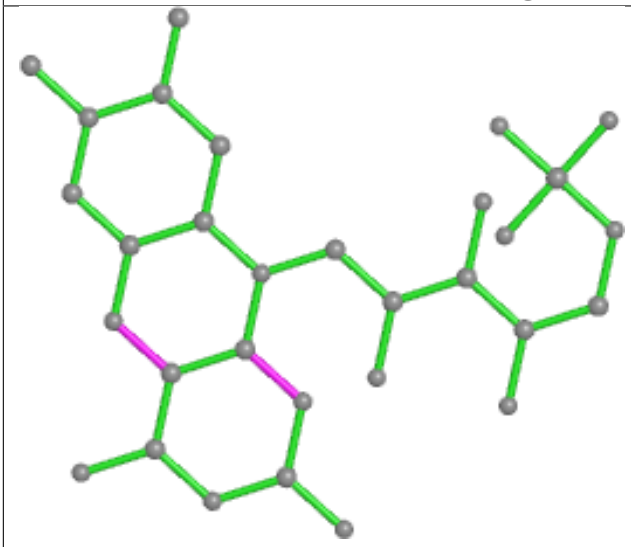
There are no ring outliers.

6 monomers are involved in 5 short contacts:

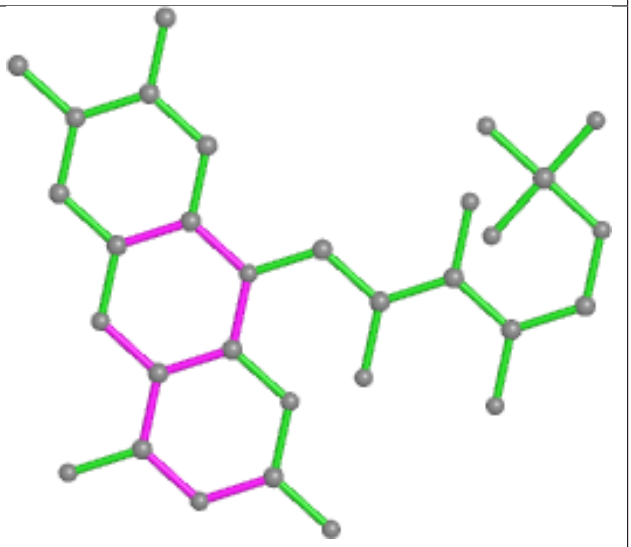
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	502	ACT	1	0
3	E	503	ACT	1	0
2	C	500	FMN	2	0
2	F	500	FMN	1	0
3	E	501	ACT	1	0
3	D	501	ACT	1	0

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.

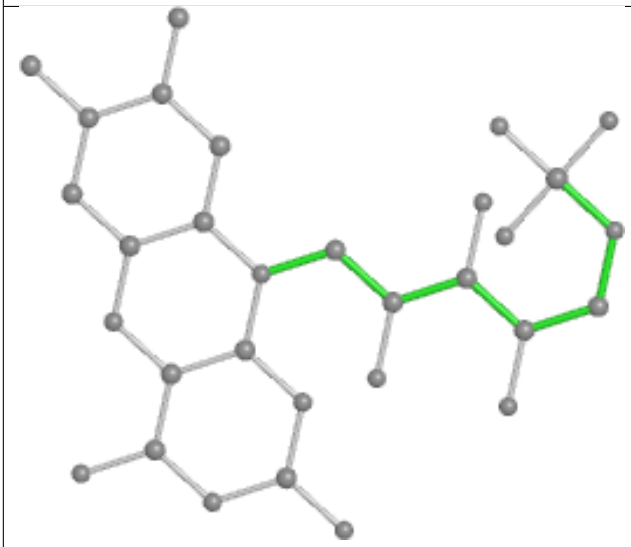
Ligand FMN C 500



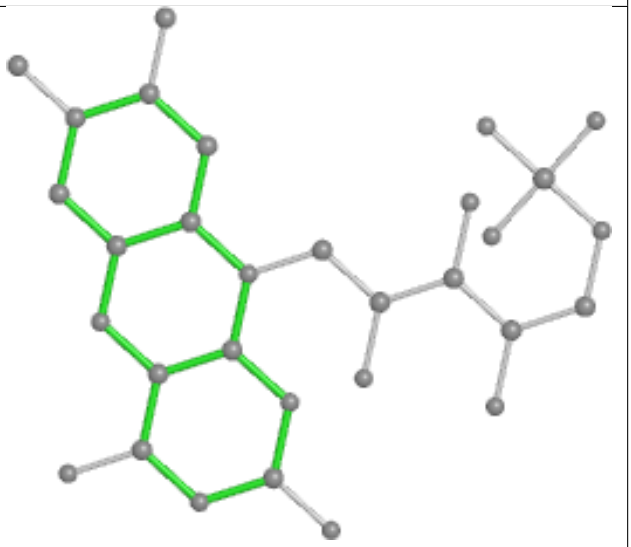
Bond lengths



Bond angles

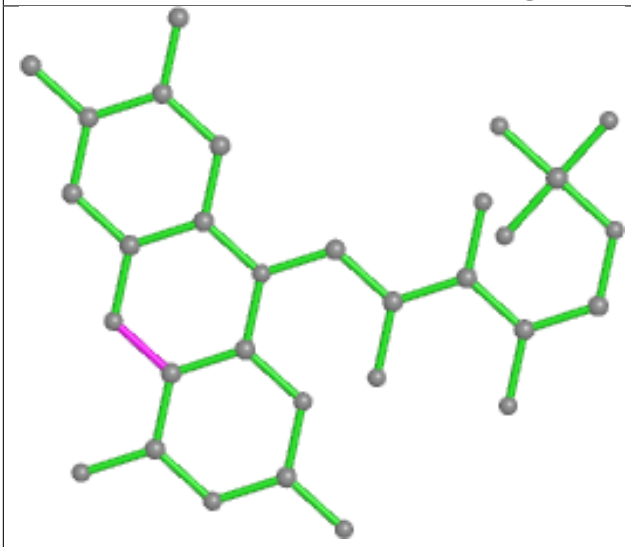


Torsions

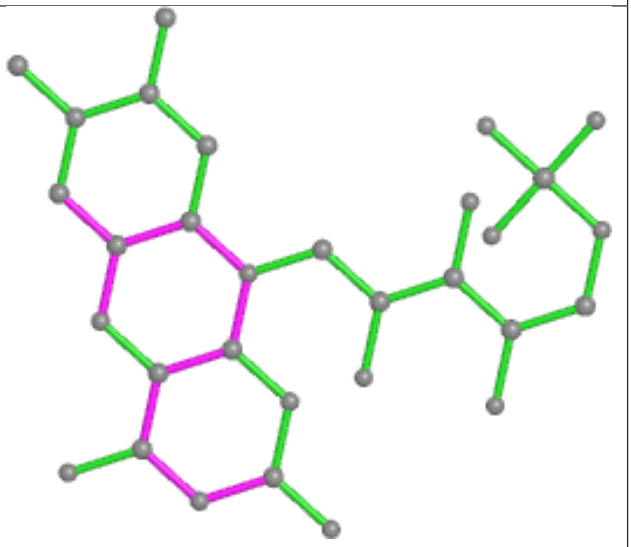


Rings

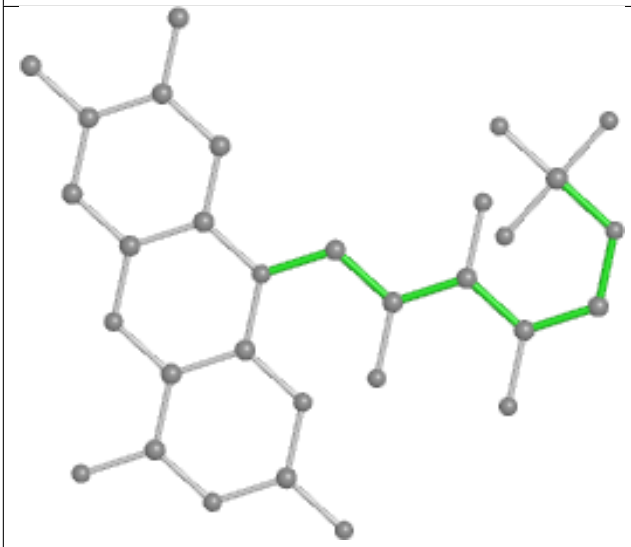
Ligand FMN F 500



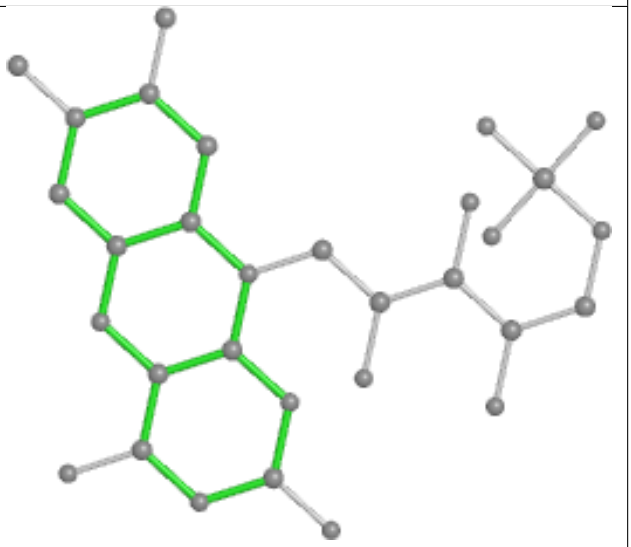
Bond lengths



Bond angles

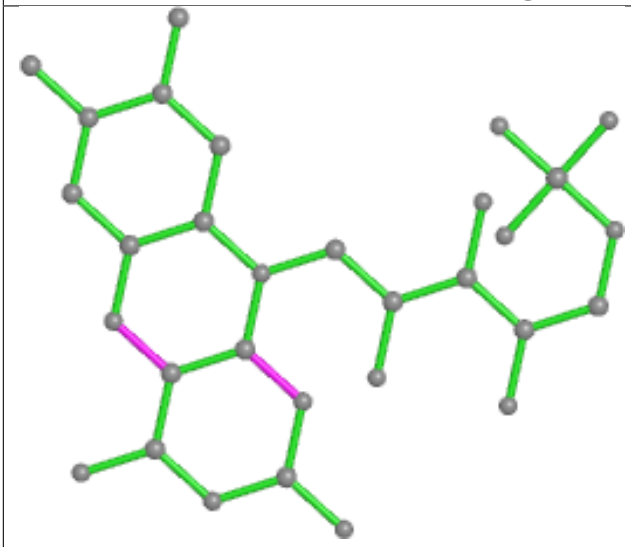


Torsions

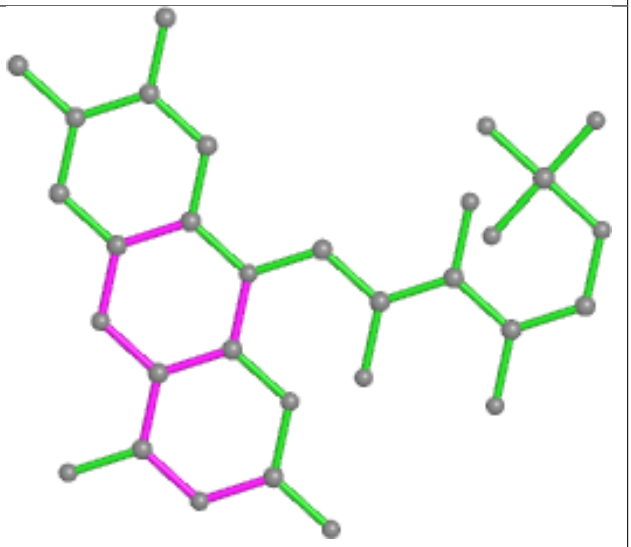


Rings

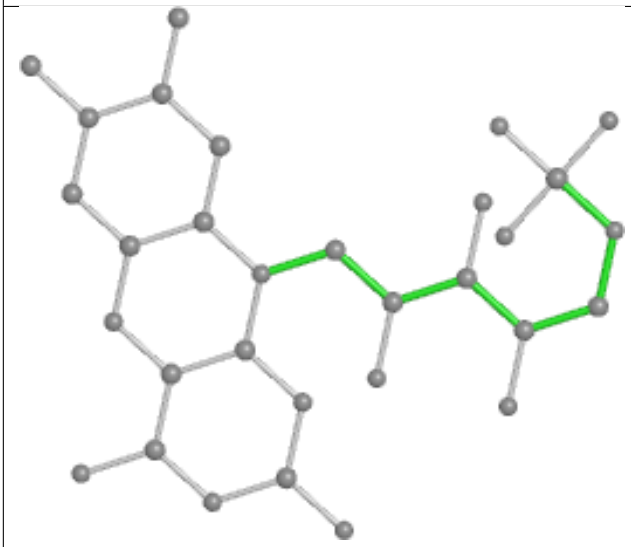
Ligand FMN B 500



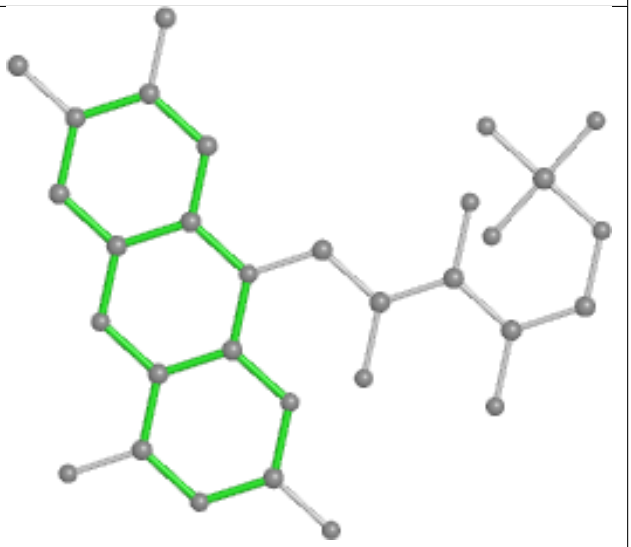
Bond lengths



Bond angles

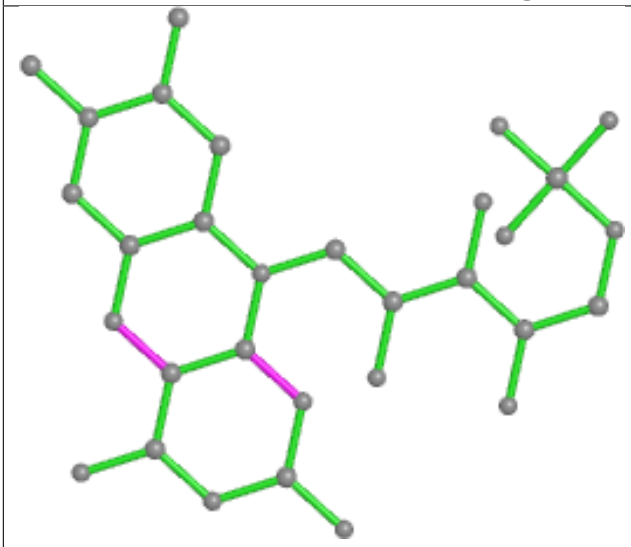


Torsions

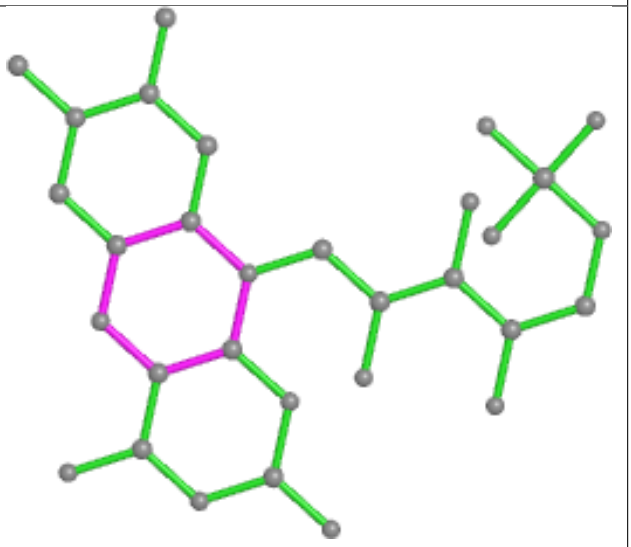


Rings

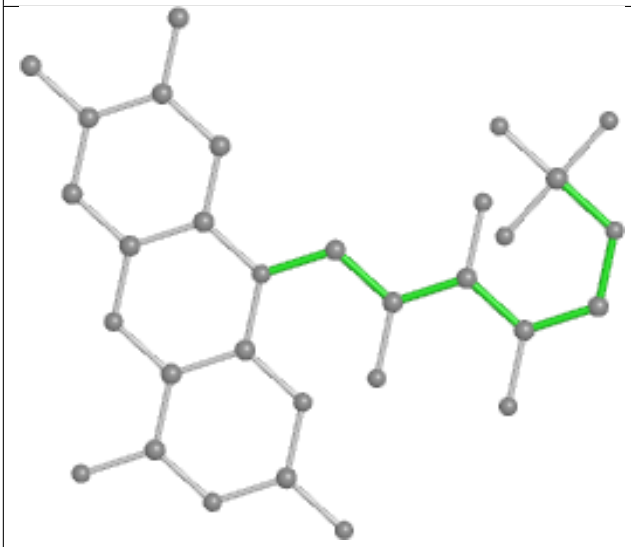
Ligand FMN D 500



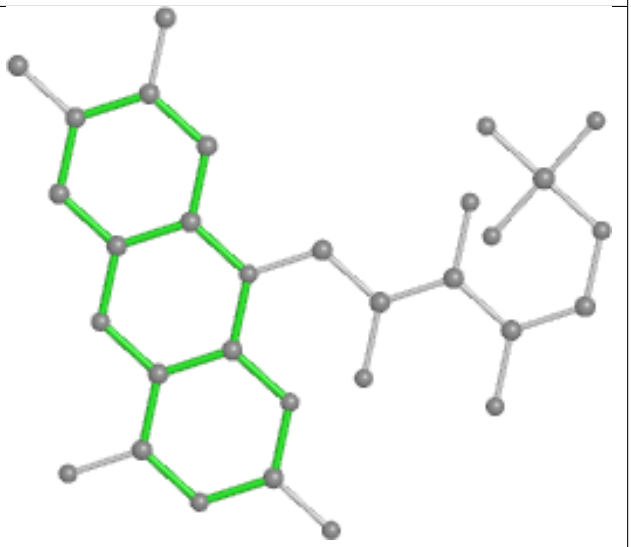
Bond lengths



Bond angles

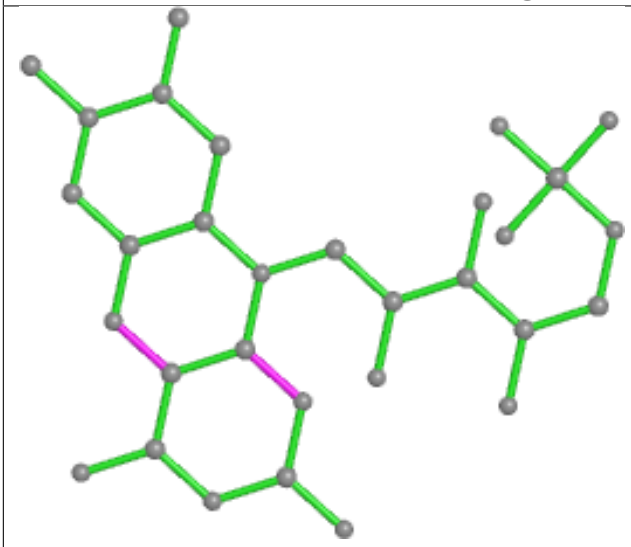


Torsions

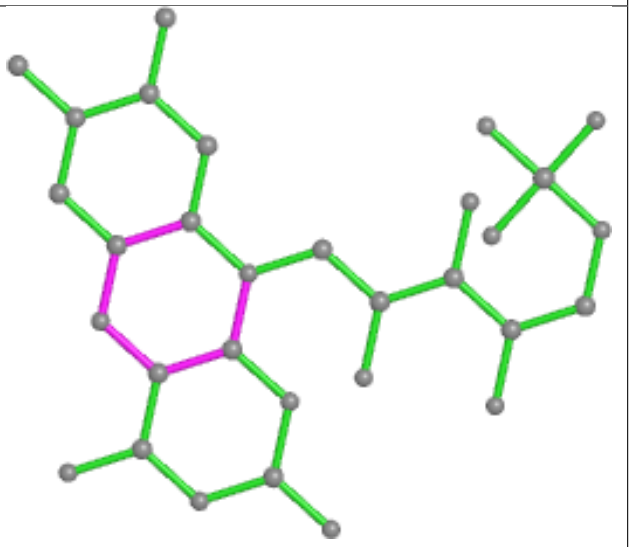


Rings

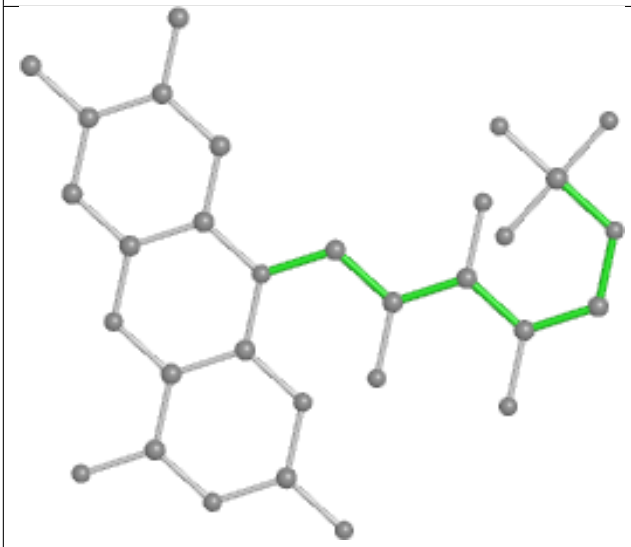
Ligand FMN A 500



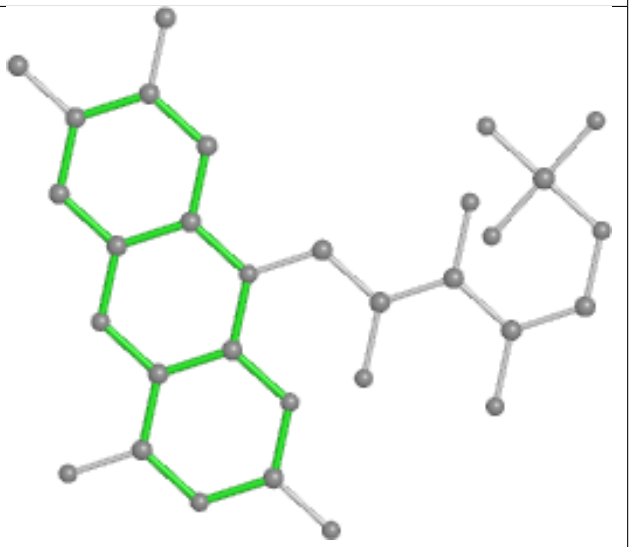
Bond lengths



Bond angles

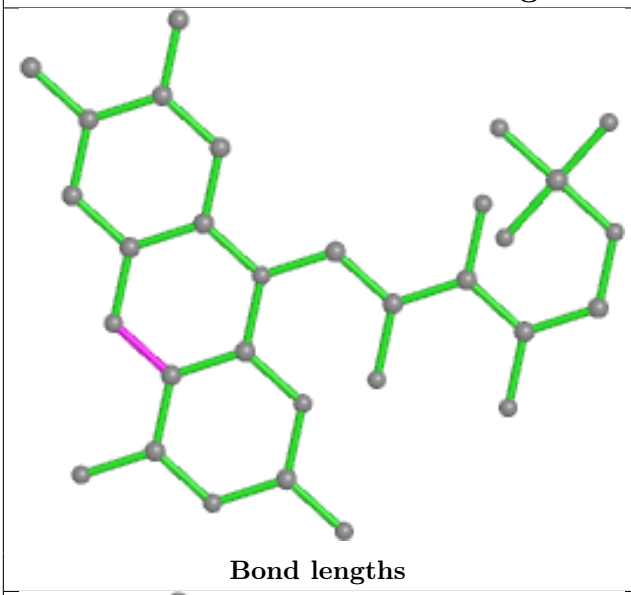


Torsions

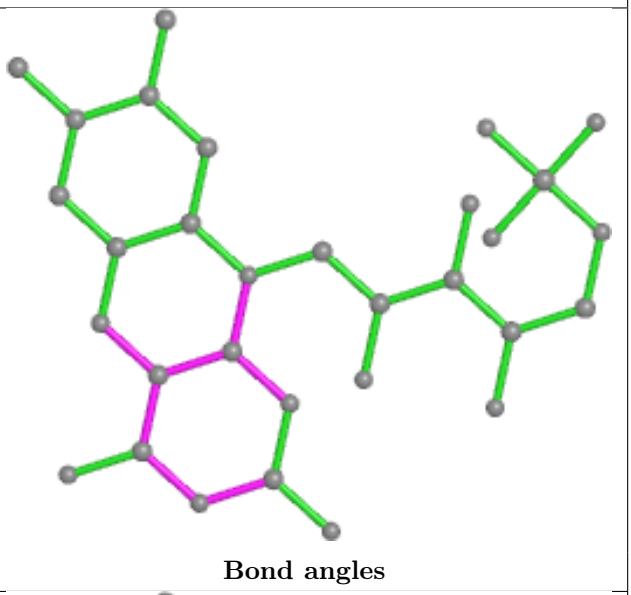


Rings

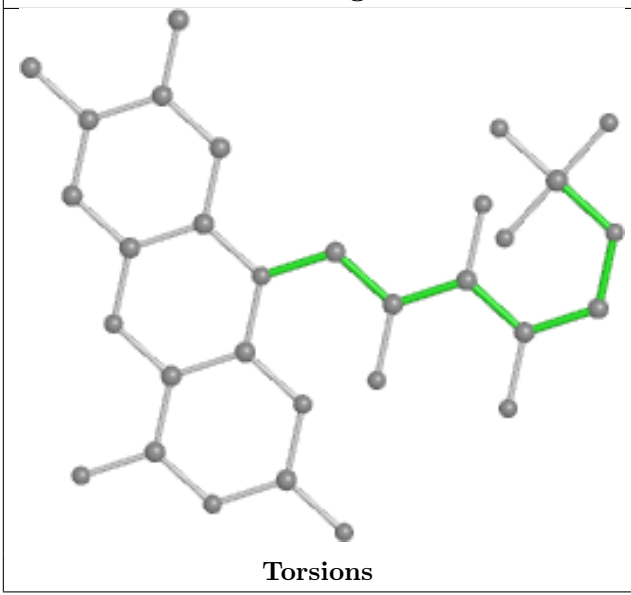
Ligand FMN E 500



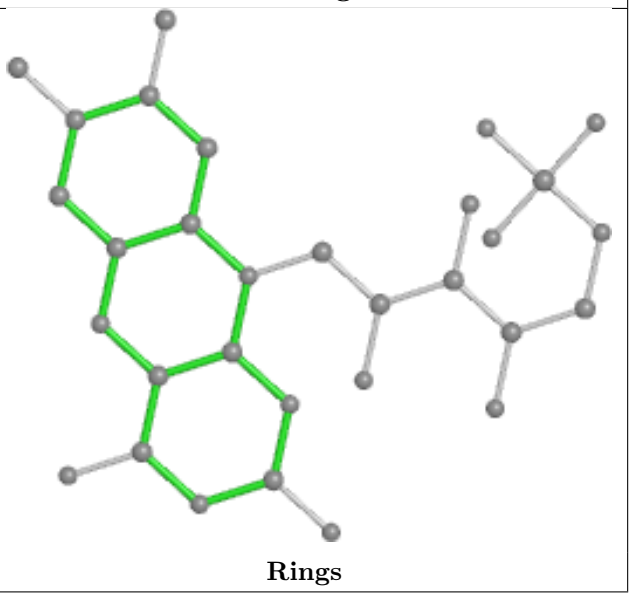
Bond lengths



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

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

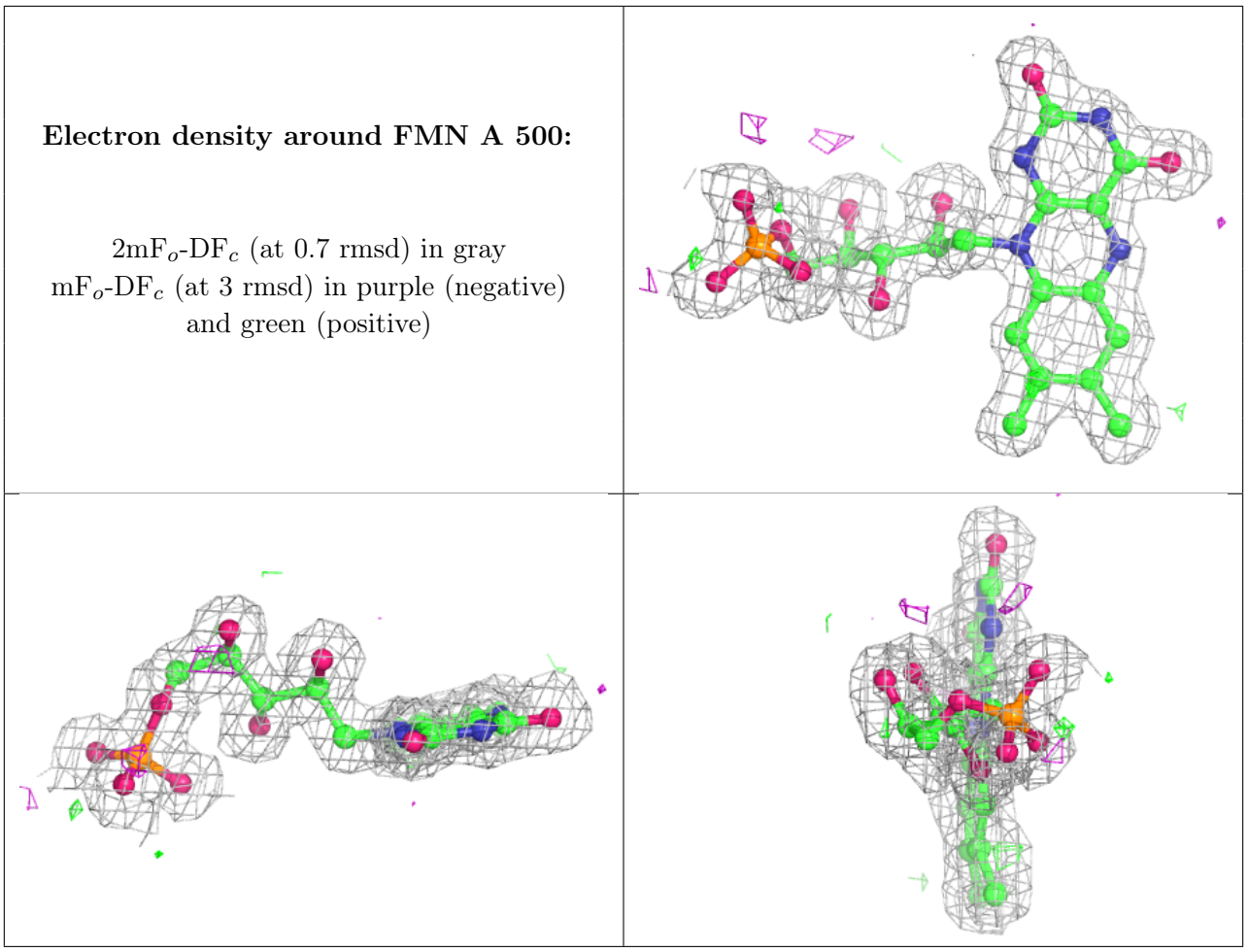
6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

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.

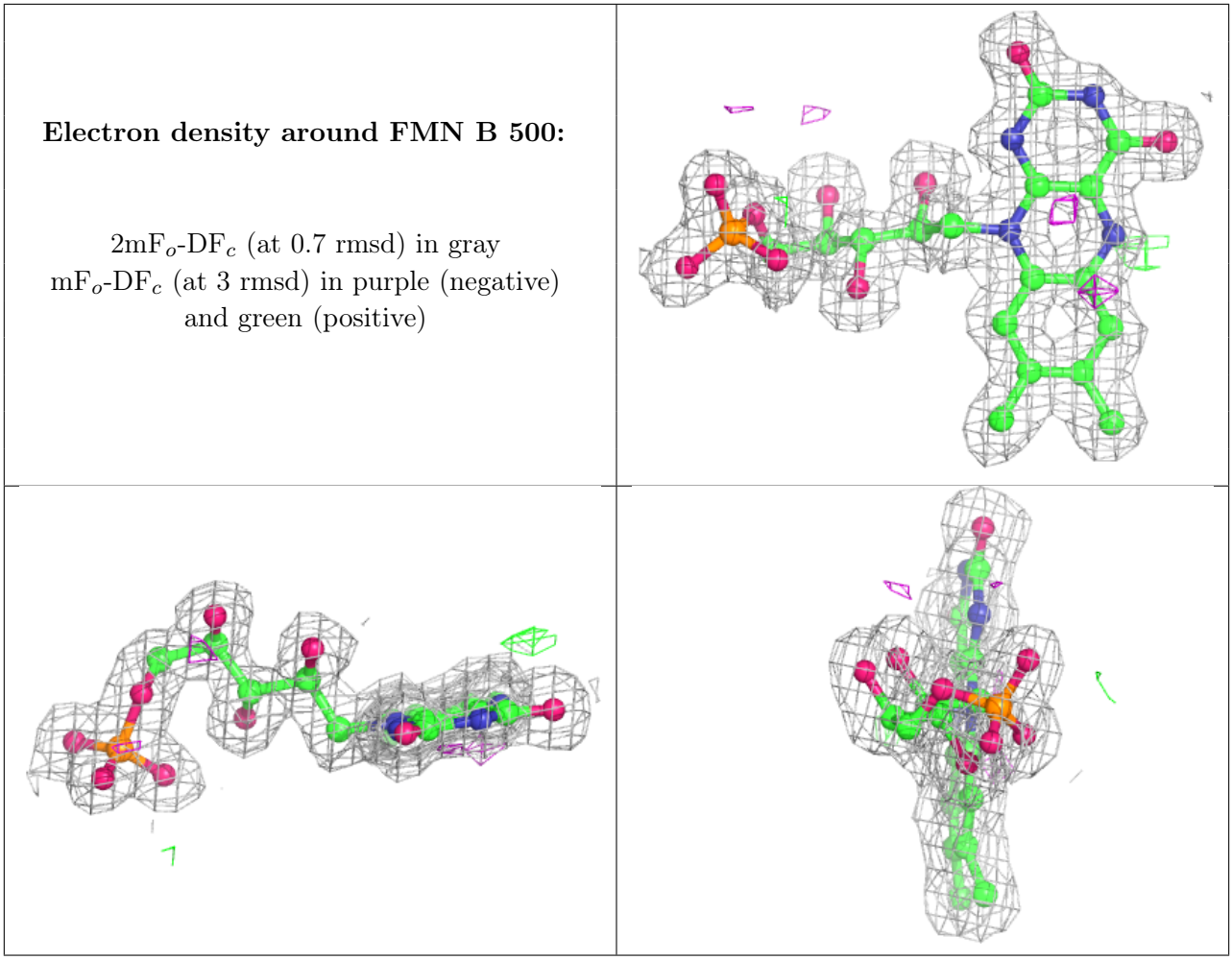
Electron density around FMN A 500:

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



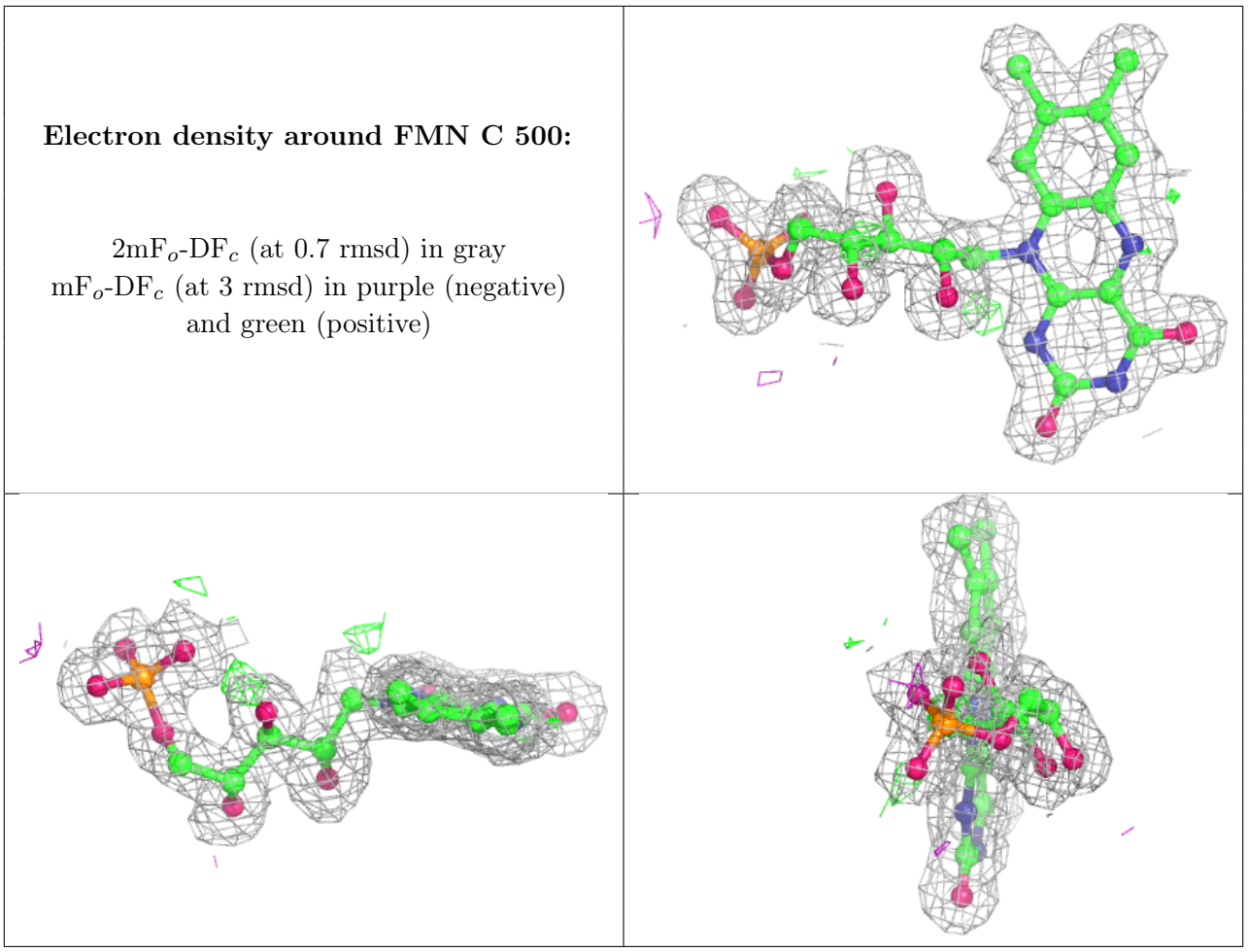
Electron density around FMN B 500:

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



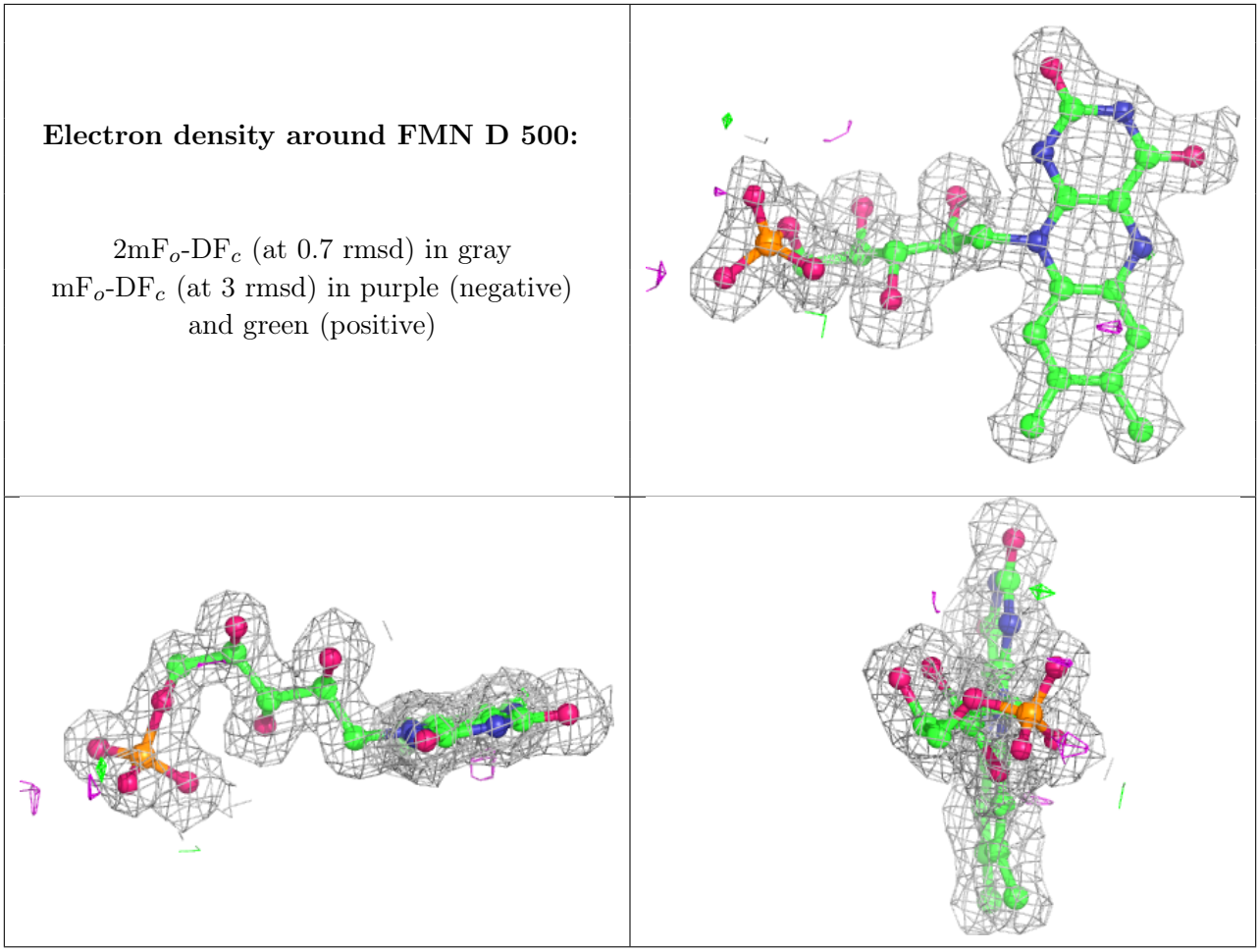
Electron density around FMN C 500:

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



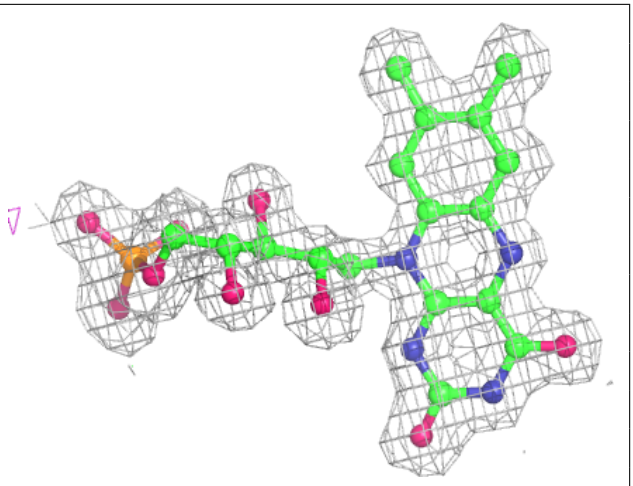
Electron density around FMN D 500:

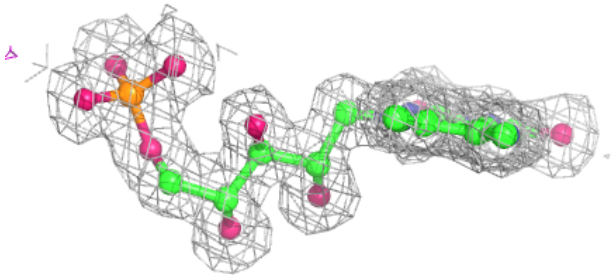
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

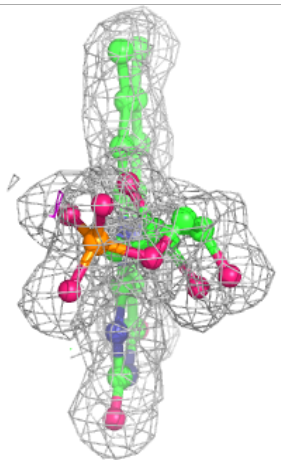


Electron density around FMN E 500:

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

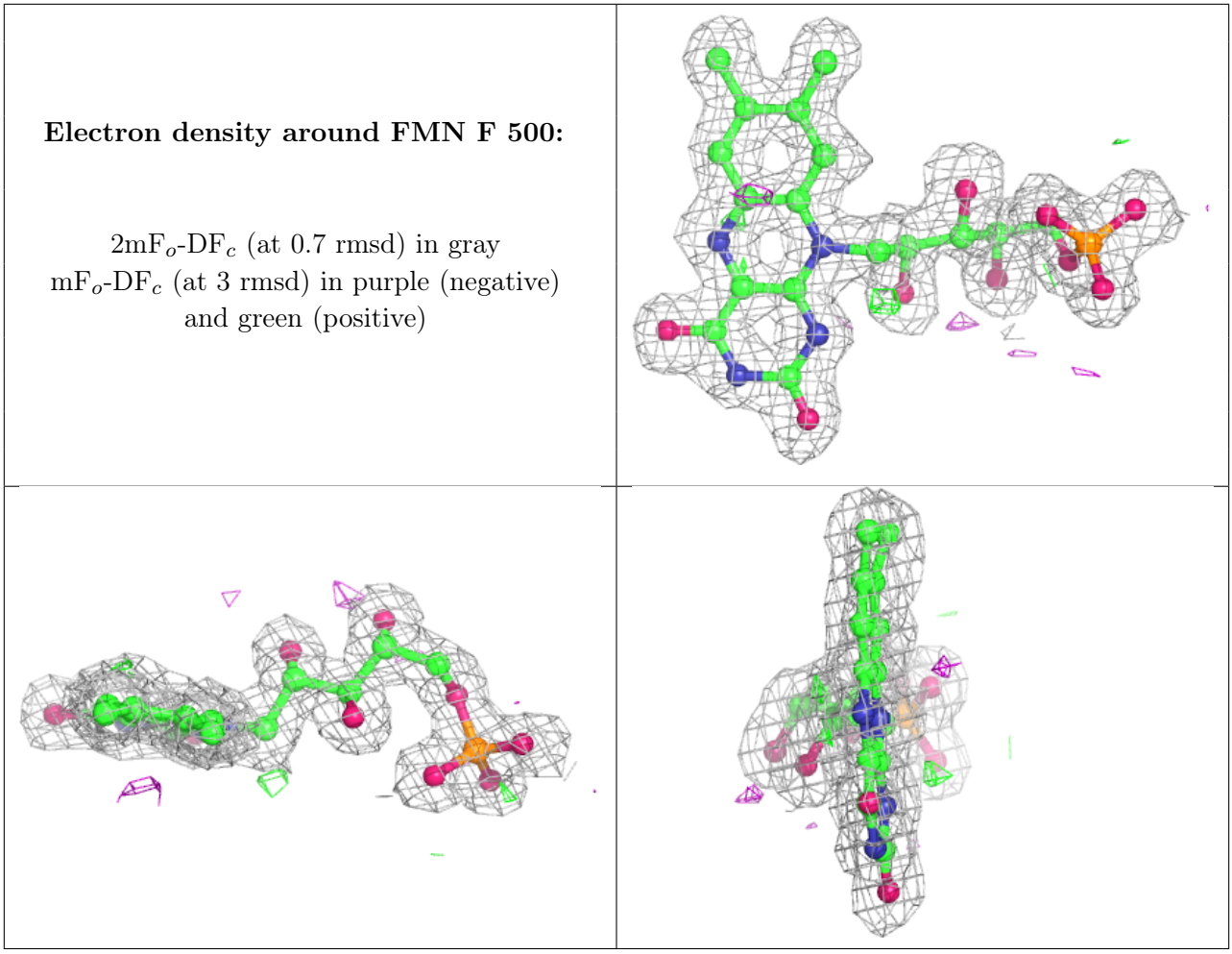






Electron density around FMN F 500:

$2mF_o$-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)

Unable to reproduce the depositors R factor - this section is therefore empty.