Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 04:19 PM UTC

PDB ID	:	9GJY / pdb_00009gjy
Title	:	Bacillus licheniformis nitroreductase
Authors	:	Crennell, S.J.; Danson, M.J.; Emptage, C.
Deposited on	:	2024-08-23
Resolution	:	1.62 Å(reported)

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

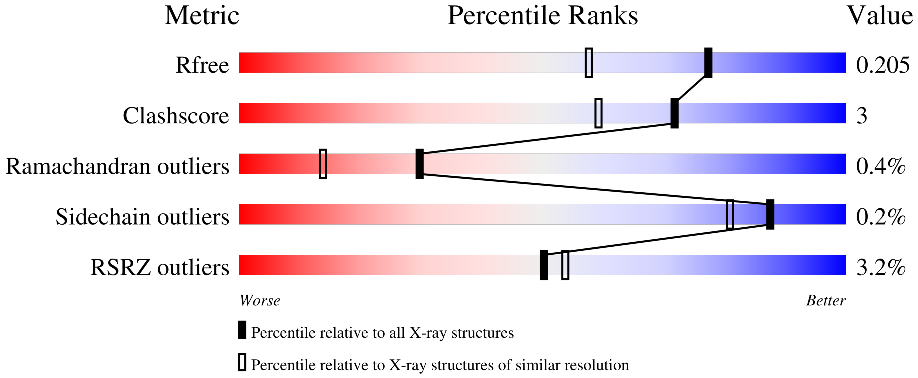
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

1 Overall quality at a glance ⓘ

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

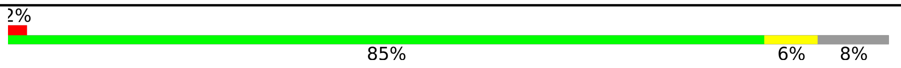
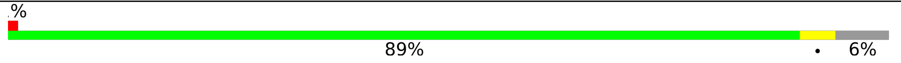
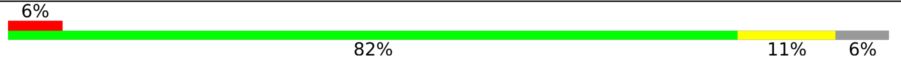
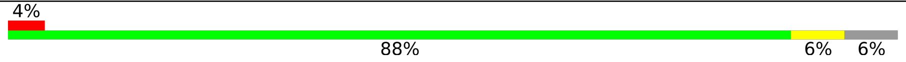
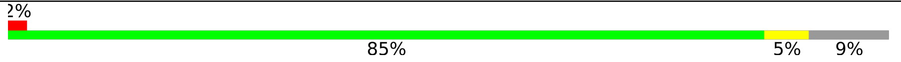
The reported resolution of this entry is 1.62 Å.

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}	180053	6728 (1.64-1.60)
Clashscore	190562	7023 (1.64-1.60)
Ramachandran outliers	187476	6898 (1.64-1.60)
Sidechain outliers	187428	6896 (1.64-1.60)
RSRZ outliers	180081	6727 (1.64-1.60)

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	248	
1	B	248	
1	C	248	
1	D	248	
1	E	248	

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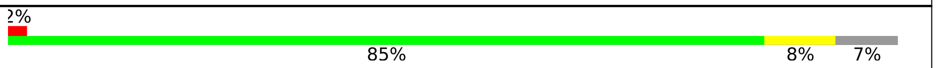
Mol	Chain	Length	Quality of chain
1	F	248	

2 Entry composition ⓘ

There are 9 unique types of molecules in this entry. The entry contains 24170 atoms, of which 11367 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 NADH-dependent nitro/flavin oxidoreductase.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	227	Total 3700	C 1185	H 1828	N 323	O 355	S 9	0	3	0
1	B	232	Total 3804	C 1212	H 1884	N 335	O 363	S 10	0	4	0
1	C	232	Total 3739	C 1207	H 1828	N 333	O 361	S 10	0	3	0
1	D	232	Total 3760	C 1200	H 1861	N 329	O 360	S 10	0	2	0
1	E	226	Total 3665	C 1173	H 1813	N 318	O 353	S 8	0	2	0
1	F	231	Total 3764	C 1201	H 1864	N 329	O 360	S 10	0	3	0

There are 126 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-20	MET	-	initiating methionine	UNP Q65MG6
A	-19	GLY	-	expression tag	UNP Q65MG6
A	-18	SER	-	expression tag	UNP Q65MG6
A	-17	SER	-	expression tag	UNP Q65MG6
A	-16	HIS	-	expression tag	UNP Q65MG6
A	-15	HIS	-	expression tag	UNP Q65MG6
A	-14	HIS	-	expression tag	UNP Q65MG6
A	-13	HIS	-	expression tag	UNP Q65MG6
A	-12	HIS	-	expression tag	UNP Q65MG6
A	-11	HIS	-	expression tag	UNP Q65MG6
A	-10	SER	-	expression tag	UNP Q65MG6
A	-9	SER	-	expression tag	UNP Q65MG6
A	-8	GLY	-	expression tag	UNP Q65MG6
A	-7	LEU	-	expression tag	UNP Q65MG6
A	-6	VAL	-	expression tag	UNP Q65MG6
A	-5	PRO	-	expression tag	UNP Q65MG6
A	-4	ARG	-	expression tag	UNP Q65MG6

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-3	GLY	-	expression tag	UNP Q65MG6
A	-2	SER	-	expression tag	UNP Q65MG6
A	-1	HIS	-	expression tag	UNP Q65MG6
A	0	MET	-	expression tag	UNP Q65MG6
B	-20	MET	-	initiating methionine	UNP Q65MG6
B	-19	GLY	-	expression tag	UNP Q65MG6
B	-18	SER	-	expression tag	UNP Q65MG6
B	-17	SER	-	expression tag	UNP Q65MG6
B	-16	HIS	-	expression tag	UNP Q65MG6
B	-15	HIS	-	expression tag	UNP Q65MG6
B	-14	HIS	-	expression tag	UNP Q65MG6
B	-13	HIS	-	expression tag	UNP Q65MG6
B	-12	HIS	-	expression tag	UNP Q65MG6
B	-11	HIS	-	expression tag	UNP Q65MG6
B	-10	SER	-	expression tag	UNP Q65MG6
B	-9	SER	-	expression tag	UNP Q65MG6
B	-8	GLY	-	expression tag	UNP Q65MG6
B	-7	LEU	-	expression tag	UNP Q65MG6
B	-6	VAL	-	expression tag	UNP Q65MG6
B	-5	PRO	-	expression tag	UNP Q65MG6
B	-4	ARG	-	expression tag	UNP Q65MG6
B	-3	GLY	-	expression tag	UNP Q65MG6
B	-2	SER	-	expression tag	UNP Q65MG6
B	-1	HIS	-	expression tag	UNP Q65MG6
B	0	MET	-	expression tag	UNP Q65MG6
C	-20	MET	-	initiating methionine	UNP Q65MG6
C	-19	GLY	-	expression tag	UNP Q65MG6
C	-18	SER	-	expression tag	UNP Q65MG6
C	-17	SER	-	expression tag	UNP Q65MG6
C	-16	HIS	-	expression tag	UNP Q65MG6
C	-15	HIS	-	expression tag	UNP Q65MG6
C	-14	HIS	-	expression tag	UNP Q65MG6
C	-13	HIS	-	expression tag	UNP Q65MG6
C	-12	HIS	-	expression tag	UNP Q65MG6
C	-11	HIS	-	expression tag	UNP Q65MG6
C	-10	SER	-	expression tag	UNP Q65MG6
C	-9	SER	-	expression tag	UNP Q65MG6
C	-8	GLY	-	expression tag	UNP Q65MG6
C	-7	LEU	-	expression tag	UNP Q65MG6
C	-6	VAL	-	expression tag	UNP Q65MG6
C	-5	PRO	-	expression tag	UNP Q65MG6
C	-4	ARG	-	expression tag	UNP Q65MG6

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-3	GLY	-	expression tag	UNP Q65MG6
C	-2	SER	-	expression tag	UNP Q65MG6
C	-1	HIS	-	expression tag	UNP Q65MG6
C	0	MET	-	expression tag	UNP Q65MG6
D	-20	MET	-	initiating methionine	UNP Q65MG6
D	-19	GLY	-	expression tag	UNP Q65MG6
D	-18	SER	-	expression tag	UNP Q65MG6
D	-17	SER	-	expression tag	UNP Q65MG6
D	-16	HIS	-	expression tag	UNP Q65MG6
D	-15	HIS	-	expression tag	UNP Q65MG6
D	-14	HIS	-	expression tag	UNP Q65MG6
D	-13	HIS	-	expression tag	UNP Q65MG6
D	-12	HIS	-	expression tag	UNP Q65MG6
D	-11	HIS	-	expression tag	UNP Q65MG6
D	-10	SER	-	expression tag	UNP Q65MG6
D	-9	SER	-	expression tag	UNP Q65MG6
D	-8	GLY	-	expression tag	UNP Q65MG6
D	-7	LEU	-	expression tag	UNP Q65MG6
D	-6	VAL	-	expression tag	UNP Q65MG6
D	-5	PRO	-	expression tag	UNP Q65MG6
D	-4	ARG	-	expression tag	UNP Q65MG6
D	-3	GLY	-	expression tag	UNP Q65MG6
D	-2	SER	-	expression tag	UNP Q65MG6
D	-1	HIS	-	expression tag	UNP Q65MG6
D	0	MET	-	expression tag	UNP Q65MG6
E	-20	MET	-	initiating methionine	UNP Q65MG6
E	-19	GLY	-	expression tag	UNP Q65MG6
E	-18	SER	-	expression tag	UNP Q65MG6
E	-17	SER	-	expression tag	UNP Q65MG6
E	-16	HIS	-	expression tag	UNP Q65MG6
E	-15	HIS	-	expression tag	UNP Q65MG6
E	-14	HIS	-	expression tag	UNP Q65MG6
E	-13	HIS	-	expression tag	UNP Q65MG6
E	-12	HIS	-	expression tag	UNP Q65MG6
E	-11	HIS	-	expression tag	UNP Q65MG6
E	-10	SER	-	expression tag	UNP Q65MG6
E	-9	SER	-	expression tag	UNP Q65MG6
E	-8	GLY	-	expression tag	UNP Q65MG6
E	-7	LEU	-	expression tag	UNP Q65MG6
E	-6	VAL	-	expression tag	UNP Q65MG6
E	-5	PRO	-	expression tag	UNP Q65MG6
E	-4	ARG	-	expression tag	UNP Q65MG6

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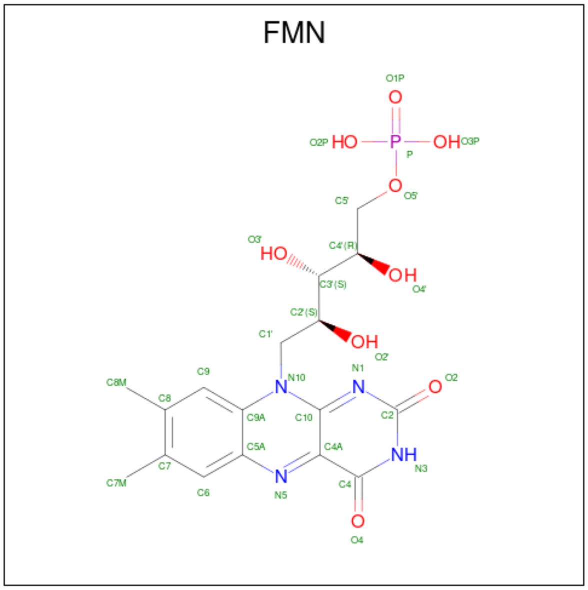
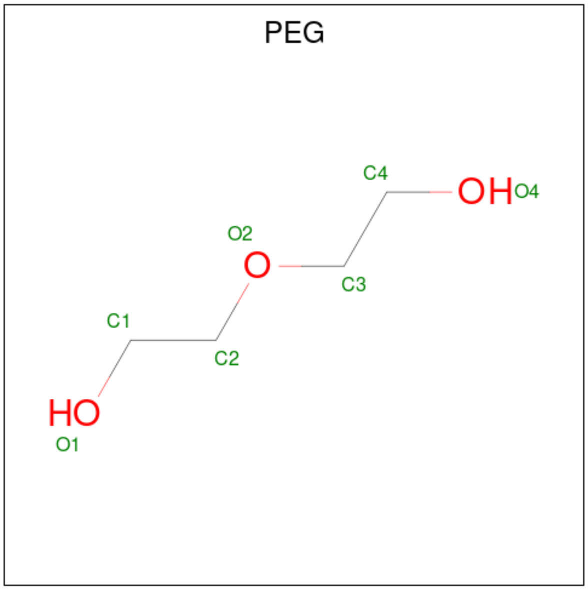
Chain	Residue	Modelled	Actual	Comment	Reference
E	-3	GLY	-	expression tag	UNP Q65MG6
E	-2	SER	-	expression tag	UNP Q65MG6
E	-1	HIS	-	expression tag	UNP Q65MG6
E	0	MET	-	expression tag	UNP Q65MG6
F	-20	MET	-	initiating methionine	UNP Q65MG6
F	-19	GLY	-	expression tag	UNP Q65MG6
F	-18	SER	-	expression tag	UNP Q65MG6
F	-17	SER	-	expression tag	UNP Q65MG6
F	-16	HIS	-	expression tag	UNP Q65MG6
F	-15	HIS	-	expression tag	UNP Q65MG6
F	-14	HIS	-	expression tag	UNP Q65MG6
F	-13	HIS	-	expression tag	UNP Q65MG6
F	-12	HIS	-	expression tag	UNP Q65MG6
F	-11	HIS	-	expression tag	UNP Q65MG6
F	-10	SER	-	expression tag	UNP Q65MG6
F	-9	SER	-	expression tag	UNP Q65MG6
F	-8	GLY	-	expression tag	UNP Q65MG6
F	-7	LEU	-	expression tag	UNP Q65MG6
F	-6	VAL	-	expression tag	UNP Q65MG6
F	-5	PRO	-	expression tag	UNP Q65MG6
F	-4	ARG	-	expression tag	UNP Q65MG6
F	-3	GLY	-	expression tag	UNP Q65MG6
F	-2	SER	-	expression tag	UNP Q65MG6
F	-1	HIS	-	expression tag	UNP Q65MG6
F	0	MET	-	expression tag	UNP Q65MG6

- Molecule 2 is FLAVIN MONONUCLEOTIDE (CCD ID: FMN) (formula: $C_{17}H_{21}N_4O_9P$) (labeled as "Ligand of Interest" by depositor).



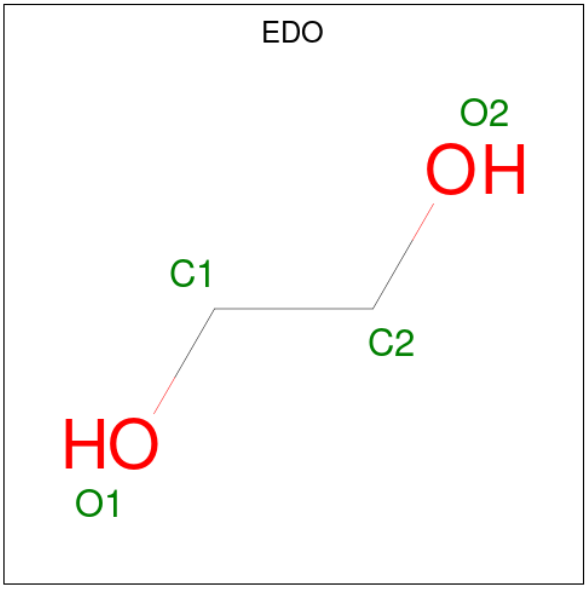
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
			Total	C	H	N	O	P		
2	A	1	50	17	19	4	9	1	0	0
2	B	1	50	17	19	4	9	1	0	0
2	C	1	50	17	19	4	9	1	0	0
2	D	1	50	17	19	4	9	1	0	0
2	E	1	50	17	19	4	9	1	0	0
2	F	1	50	17	19	4	9	1	0	0

- Molecule 3 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C H O 17 4 10 3	0	0
3	B	1	Total C H O 17 4 10 3	0	0
3	D	1	Total C H O 17 4 10 3	0	0

- Molecule 4 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C H O 10 2 6 2	0	0

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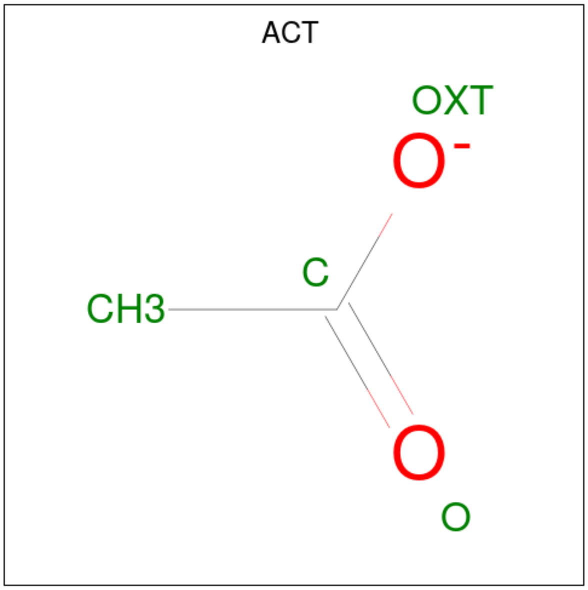
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C H O 10 2 6 2	0	0
4	A	1	Total C H O 10 2 6 2	0	0
4	A	1	Total C H O 10 2 6 2	0	0
4	B	1	Total C H O 10 2 6 2	0	0
4	B	1	Total C H O 10 2 6 2	0	0
4	B	1	Total C H O 10 2 6 2	0	0
4	C	1	Total C H O 10 2 6 2	0	0
4	E	1	Total C H O 10 2 6 2	0	0

- Molecule 5 is ACETATE ION (CCD ID: ACT) (formula: $C_2H_3O_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C H O 7 2 3 2	0	0
5	C	1	Total C H O 7 2 3 2	0	0
5	C	1	Total C H O 7 2 3 2	0	0

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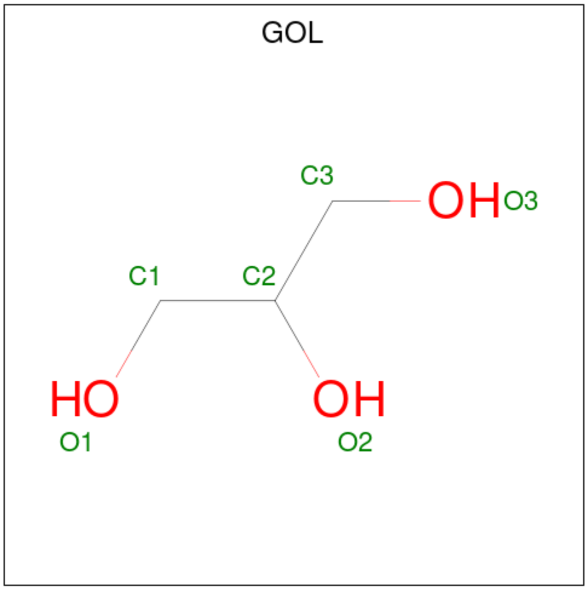
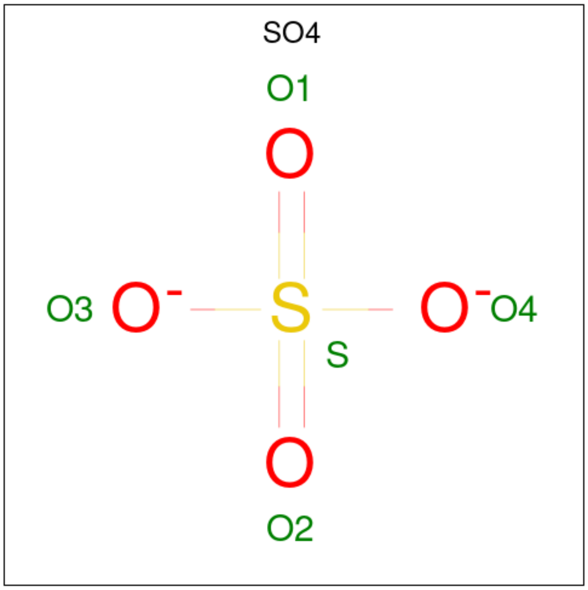
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	E	1	Total C H O 7 2 3 2	0	0
5	F	1	Total C H O 7 2 3 2	0	0

- Molecule 6 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



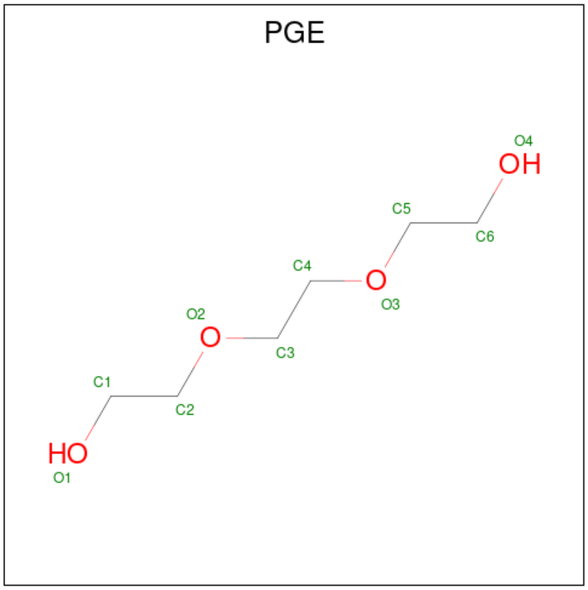
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C H O 14 3 8 3	0	0
6	C	1	Total C H O 14 3 8 3	0	0
6	D	1	Total C H O 14 3 8 3	0	0
6	E	1	Total C H O 14 3 8 3	0	0
6	F	1	Total C H O 14 3 8 3	0	0
6	F	1	Total C H O 14 3 8 3	0	0

- Molecule 7 is SULFATE ION (CCD ID: SO4) (formula: O_4S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	S		
7	B	1	5	4	1	0	0

- Molecule 8 is TRIETHYLENE GLYCOL (CCD ID: PGE) (formula: $C_6H_{14}O_4$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	H	O		
8	E	1	24	6	14	4	0	0
8	F	1	24	6	14	4	0	0

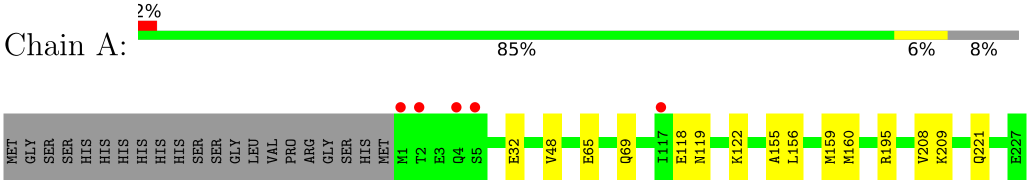
- Molecule 9 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	A	208	Total O 208 208	0	0
9	B	224	Total O 224 224	0	0
9	C	167	Total O 167 167	0	0
9	D	167	Total O 167 167	0	0
9	E	180	Total O 180 180	0	0
9	F	179	Total O 179 179	0	0

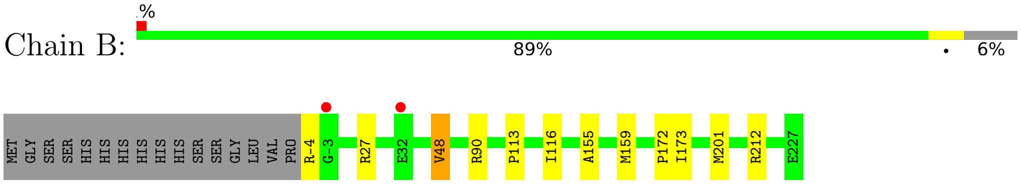
3 Residue-property plots ⓘ

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

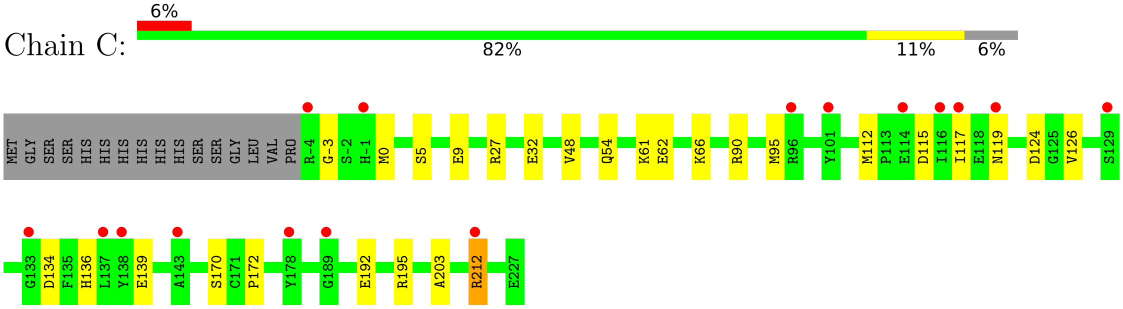
- Molecule 1: NADH-dependent nitro/flavin oxidoreductase



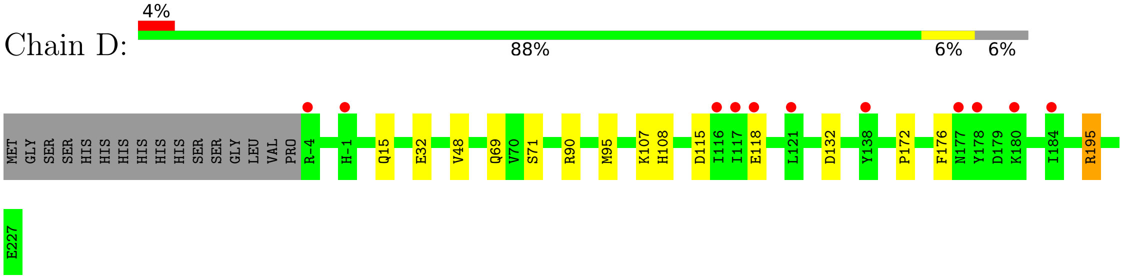
- Molecule 1: NADH-dependent nitro/flavin oxidoreductase



- Molecule 1: NADH-dependent nitro/flavin oxidoreductase

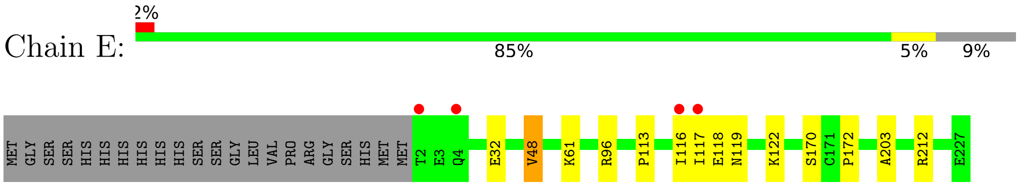


- Molecule 1: NADH-dependent nitro/flavin oxidoreductase



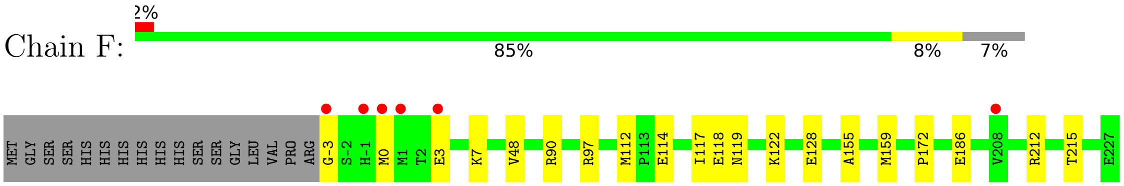
- Molecule 1: NADH-dependent nitro/flavin oxidoreductase

Chain E:



- Molecule 1: NADH-dependent nitro/flavin oxidoreductase

Chain F:



4 Data and refinement statistics ⓘ

Property	**Value**	**Source**
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	77.11Å 115.38Å 103.23Å 90.00° 109.92° 90.00°	Depositor
Resolution (Å)	57.69 – 1.62 57.69 – 1.62	Depositor EDS
% Data completeness (in resolution range)	97.2 (57.69-1.62) 97.3 (57.69-1.62)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.23 (at 1.62Å)	Xtriage
Refinement program	PHENIX (1.20.1_4487: ???)	Depositor
R, R_{free}	0.173 , 0.206 0.173 , 0.205	Depositor DCC
R_{free} test set	10297 reflections (4.15%)	wwPDB-VP
Wilson B-factor (Å^2)	23.6	Xtriage
Anisotropy	0.642	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.43 , 45.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.51$, $< L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.011 for h,-k,-h-l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	24170	wwPDB-VP
Average B, all atoms (Å^2)	35.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.23% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, ACT, PGE, PEG, EDO, FMN, GOL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.47	0/1910	0.59	0/2568
1	B	0.48	0/1959	0.63	0/2632
1	C	0.45	0/1950	0.59	0/2620
1	D	0.46	0/1938	0.62	1/2605 (0.0%)
1	E	0.46	0/1890	0.60	0/2543
1	F	0.45	0/1939	0.58	0/2606
All	All	0.46	0/11586	0.60	1/15574 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	2
1	C	0	2
1	D	0	1
1	E	0	2
1	F	0	1
All	All	0	8

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	95	MET	CA-CB-CG	-5.15	103.79	114.10

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	-4	ARG	Sidechain
1	B	212	ARG	Sidechain
1	C	212	ARG	Sidechain
1	C	27[A]	ARG	Sidechain
1	D	195	ARG	Sidechain
1	E	212	ARG	Sidechain
1	E	96	ARG	Sidechain
1	F	212	ARG	Sidechain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1872	1828	1839	11	0
1	B	1920	1884	1883	8	0
1	C	1911	1828	1876	23	0
1	D	1899	1861	1862	11	0
1	E	1852	1813	1813	10	0
1	F	1900	1864	1863	13	0
2	A	31	19	19	1	0
2	B	31	19	19	1	0
2	C	31	19	19	1	0
2	D	31	19	19	2	0
2	E	31	19	19	1	0
2	F	31	19	19	1	0
3	A	7	10	10	1	0
3	B	7	10	10	2	0
3	D	7	10	10	2	0
4	A	16	24	24	0	0
4	B	12	18	18	0	0
4	C	4	6	6	0	0
4	E	4	6	6	0	0
5	A	4	3	3	0	0
5	C	8	6	6	1	0
5	E	4	3	3	0	0
5	F	4	3	3	1	0
6	B	6	8	8	1	0
6	C	6	8	8	1	0
6	D	6	8	8	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	E	6	8	8	0	0
6	F	12	16	16	1	0
7	B	5	0	0	1	0
8	E	10	14	14	0	0
8	F	10	14	14	1	0
9	A	208	0	0	2	0
9	B	224	0	0	3	0
9	C	167	0	0	4	0
9	D	167	0	0	2	0
9	E	180	0	0	1	0
9	F	179	0	0	0	0
All	All	12803	11367	11425	76	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.

All (76) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:212:ARG:NH1	9:C:401:HOH:O	2.07	0.84
1:D:132:ASP:OD1	9:D:401:HOH:O	2.14	0.65
7:B:307:SO4:S	9:B:401:HOH:O	2.55	0.63
2:A:301:FMN:C10	6:B:301:GOL:H2	2.35	0.57
1:C:-3:GLY:HA2	1:C:0:MET:HE3	1.87	0.56
1:A:32:GLU:HG2	1:D:32:GLU:HG3	1.88	0.56
1:A:221:GLN:OE1	9:A:401:HOH:O	2.18	0.56
1:E:118:GLU:OE2	1:E:118:GLU:HA	2.05	0.55
1:A:32:GLU:CG	1:D:32:GLU:HG3	2.38	0.54
1:B:113:PRO:HG2	1:B:116:ILE:HD12	1.88	0.54
1:F:186:GLU:OE1	1:F:186:GLU:C	2.51	0.54
1:B:90:ARG:HH22	3:B:303:PEG:H41	1.74	0.53
1:C:-3:GLY:HA2	1:C:0:MET:CE	2.39	0.53
1:C:5:SER:O	1:C:9:GLU:HG3	2.09	0.53
1:F:112:MET:HG2	1:F:117:ILE:HG12	1.91	0.52
1:A:65:GLU:OE2	9:A:402:HOH:O	2.19	0.52
3:B:303:PEG:H32	9:B:582:HOH:O	2.08	0.52
1:E:61:LYS:HE2	9:E:542:HOH:O	2.09	0.52
1:D:115:ASP:N	1:D:115:ASP:OD1	2.42	0.51
1:F:155:ALA:O	1:F:159:MET:HG3	2.10	0.51
1:D:195:ARG:HD3	3:D:303:PEG:H21	1.93	0.51
1:C:32[A]:GLU:HG2	1:E:32[A]:GLU:HG2	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:54:GLN:NE2	9:C:406:HOH:O	2.45	0.50
1:F:112:MET:HG2	1:F:117:ILE:CG1	2.42	0.50
1:E:172:PRO:HG2	2:E:301:FMN:C9	2.43	0.49
1:F:119:ASN:HA	1:F:122:LYS:HD3	1.93	0.49
1:C:115:ASP:OD2	1:C:115:ASP:N	2.43	0.49
1:B:113:PRO:CG	1:B:116:ILE:HD12	2.43	0.49
1:B:173:ILE:HB	1:B:201:MET:HB2	1.94	0.48
1:C:134:ASP:OD1	9:C:402:HOH:O	2.20	0.48
1:C:119:ASN:OD1	1:C:126:VAL:HG23	2.13	0.48
1:A:208:VAL:HG23	1:A:209:LYS:HG3	1.96	0.47
1:E:113:PRO:HG2	1:E:116:ILE:HG12	1.95	0.47
1:B:27[B]:ARG:NH2	9:B:406:HOH:O	2.47	0.47
1:C:90:ARG:HH22	6:C:303:GOL:H32	1.79	0.47
1:D:69:GLN:NE2	9:D:405:HOH:O	2.44	0.47
1:C:95:MET:HE3	1:C:95:MET:HA	1.97	0.47
1:A:118:GLU:OE1	1:A:118:GLU:HA	2.14	0.46
1:F:114:GLU:O	1:F:118:GLU:HG3	2.15	0.46
1:F:-3:GLY:N	1:F:0:MET:HE2	2.31	0.46
1:F:215:THR:HA	6:F:304:GOL:H31	1.98	0.46
1:B:155:ALA:O	1:B:159:MET:HG3	2.15	0.46
1:C:62:GLU:OE2	1:C:66:LYS:NZ	2.48	0.46
1:D:71:SER:HA	1:D:176:PHE:HA	1.97	0.45
1:B:172:PRO:HG2	2:B:302:FMN:C9	2.47	0.45
1:D:15:GLN:OE1	5:F:301:ACT:H1	2.17	0.45
1:F:3[A]:GLU:HG3	1:F:7:LYS:HE2	1.98	0.45
1:D:90:ARG:HH12	3:D:303:PEG:H21	1.82	0.45
1:D:107:LYS:HG2	1:D:108:HIS:CD2	2.52	0.45
1:C:172:PRO:HG2	2:C:302:FMN:C9	2.47	0.44
1:A:65:GLU:O	1:A:69:GLN:HG3	2.17	0.44
1:C:212:ARG:CZ	1:C:212:ARG:H	2.29	0.44
1:A:155:ALA:O	1:A:159:MET:HG3	2.18	0.44
1:F:-3:GLY:H3	1:F:0:MET:HE2	1.82	0.44
1:F:172:PRO:HG2	2:F:303:FMN:C9	2.47	0.44
1:A:156:LEU:HG	1:A:160:MET:HE2	2.00	0.44
1:C:212:ARG:H	1:C:212:ARG:NH2	2.16	0.43
5:C:305:ACT:H3	2:D:302:FMN:C4	2.49	0.43
1:D:172:PRO:HG2	2:D:302:FMN:C9	2.48	0.43
1:A:119:ASN:HA	1:A:122:LYS:HE2	2.00	0.43
1:E:119:ASN:HA	1:E:122:LYS:HD3	2.00	0.43
1:C:32[B]:GLU:HG3	1:E:32[B]:GLU:HG3	2.00	0.43
1:C:192:GLU:O	1:C:195:ARG:HG3	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:90:ARG:HH22	8:F:305:PGE:H42	1.84	0.43
1:C:61:LYS:HA	1:C:61:LYS:HD2	1.85	0.42
1:B:48:VAL:HG12	1:B:48:VAL:O	2.20	0.42
1:C:119:ASN:OD1	1:C:119:ASN:C	2.62	0.42
1:C:124:ASP:OD1	9:C:403:HOH:O	2.22	0.42
1:C:112:MET:HB3	1:C:117:ILE:CG1	2.51	0.41
1:E:170:SER:HA	1:E:203:ALA:O	2.20	0.41
1:C:170:SER:HA	1:C:203:ALA:O	2.21	0.41
1:E:48:VAL:HG12	1:E:48:VAL:O	2.20	0.41
1:A:195:ARG:HD3	3:A:302:PEG:H21	2.03	0.40
1:C:136:HIS:O	1:C:139:GLU:HG3	2.22	0.40
1:F:97:ARG:HD3	1:F:128:GLU:HB2	2.03	0.40
1:E:113:PRO:HG2	1:E:116:ILE:CG1	2.52	0.40

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	228/248 (92%)	223 (98%)	4 (2%)	1 (0%)	30	14
1	B	234/248 (94%)	229 (98%)	4 (2%)	1 (0%)	30	14
1	C	233/248 (94%)	228 (98%)	4 (2%)	1 (0%)	30	14
1	D	232/248 (94%)	224 (97%)	7 (3%)	1 (0%)	30	14
1	E	226/248 (91%)	221 (98%)	4 (2%)	1 (0%)	30	14
1	F	232/248 (94%)	227 (98%)	4 (2%)	1 (0%)	30	14
All	All	1385/1488 (93%)	1352 (98%)	27 (2%)	6 (0%)	30	14

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	48	VAL
1	D	48	VAL
1	E	48	VAL
1	F	48	VAL
1	A	48	VAL
1	B	48	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	201/216 (93%)	201 (100%)	0	100	100
1	B	206/216 (95%)	206 (100%)	0	100	100
1	C	205/216 (95%)	205 (100%)	0	100	100
1	D	204/216 (94%)	203 (100%)	1 (0%)	81	70
1	E	199/216 (92%)	198 (100%)	1 (0%)	81	70
1	F	204/216 (94%)	204 (100%)	0	100	100
All	All	1219/1296 (94%)	1217 (100%)	2 (0%)	87	81

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	118	GLU
1	E	117	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	15	GLN
1	C	4	GLN
1	D	69	GLN
1	E	4	GLN
1	E	15	GLN
1	F	69	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

32 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	$\#\|Z\| > 2$
5	ACT	C	304	-	3,3,3	1.28	0	3,3,3	1.41	0
2	FMN	D	302	-	33,33,33	1.50	5 (15%)	48,50,50	1.43	6 (12%)
6	GOL	F	302	-	5,5,5	0.76	0	5,5,5	1.19	0
6	GOL	F	304	-	5,5,5	1.28	0	5,5,5	1.10	0
3	PEG	A	302	-	6,6,6	0.21	0	5,5,5	0.12	0
4	EDO	A	305	-	3,3,3	0.50	0	2,2,2	0.25	0
6	GOL	E	304	-	5,5,5	1.09	0	5,5,5	0.77	0
4	EDO	B	304	-	3,3,3	0.45	0	2,2,2	0.78	0
5	ACT	C	305	-	3,3,3	1.25	0	3,3,3	1.50	0
3	PEG	B	303	-	6,6,6	0.39	0	5,5,5	0.51	0
2	FMN	F	303	-	33,33,33	1.47	4 (12%)	48,50,50	1.28	6 (12%)
6	GOL	B	301	-	5,5,5	0.84	0	5,5,5	0.92	0
2	FMN	A	301	-	33,33,33	1.33	4 (12%)	48,50,50	1.21	4 (8%)
4	EDO	B	306	-	3,3,3	0.52	0	2,2,2	0.54	0
4	EDO	B	305	-	3,3,3	0.83	0	2,2,2	0.10	0
7	SO4	B	307	-	4,4,4	0.27	0	6,6,6	0.10	0
4	EDO	A	307	-	3,3,3	0.73	0	2,2,2	0.25	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
6	GOL	D	301	-	5,5,5	0.99	0	5,5,5	1.13	0
8	PGE	E	302	-	9,9,9	0.33	0	8,8,8	0.43	0
2	FMN	B	302	-	33,33,33	1.27	3 (9%)	48,50,50	1.28	9 (18%)
5	ACT	E	305	-	3,3,3	1.64	0	3,3,3	1.52	1 (33%)
3	PEG	D	303	-	6,6,6	0.17	0	5,5,5	0.23	0
5	ACT	A	306	-	3,3,3	1.40	0	3,3,3	1.47	0
4	EDO	A	304	-	3,3,3	0.44	0	2,2,2	0.52	0
2	FMN	E	301	-	33,33,33	1.28	4 (12%)	48,50,50	1.45	6 (12%)
4	EDO	C	301	-	3,3,3	0.43	0	2,2,2	0.60	0
2	FMN	C	302	-	33,33,33	1.57	3 (9%)	48,50,50	1.82	14 (29%)
6	GOL	C	303	-	5,5,5	0.95	0	5,5,5	1.16	0
5	ACT	F	301	-	3,3,3	1.34	1 (33%)	3,3,3	1.44	0
4	EDO	E	303	-	3,3,3	0.52	0	2,2,2	0.41	0
8	PGE	F	305	-	9,9,9	0.41	0	8,8,8	0.35	0
4	EDO	A	303	-	3,3,3	0.48	0	2,2,2	0.33	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
2	FMN	D	302	-	-	2/18/18/18	0/3/3/3
6	GOL	F	302	-	-	1/4/4/4	-
6	GOL	F	304	-	-	2/4/4/4	-
3	PEG	A	302	-	-	1/4/4/4	-
4	EDO	A	305	-	-	0/1/1/1	-
6	GOL	E	304	-	-	2/4/4/4	-
4	EDO	B	304	-	-	1/1/1/1	-
3	PEG	B	303	-	-	3/4/4/4	-
2	FMN	F	303	-	-	2/18/18/18	0/3/3/3
6	GOL	B	301	-	-	4/4/4/4	-
2	FMN	A	301	-	-	1/18/18/18	0/3/3/3
4	EDO	B	306	-	-	1/1/1/1	-
4	EDO	B	305	-	-	0/1/1/1	-
4	EDO	A	307	-	-	0/1/1/1	-
6	GOL	D	301	-	-	0/4/4/4	-
8	PGE	E	302	-	-	4/7/7/7	-
2	FMN	B	302	-	-	1/18/18/18	0/3/3/3
3	PEG	D	303	-	-	1/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	EDO	A	304	-	-	0/1/1/1	-
2	FMN	E	301	-	-	1/18/18/18	0/3/3/3
4	EDO	C	301	-	-	0/1/1/1	-
2	FMN	C	302	-	-	1/18/18/18	0/3/3/3
6	GOL	C	303	-	-	3/4/4/4	-
4	EDO	E	303	-	-	1/1/1/1	-
8	PGE	F	305	-	-	3/7/7/7	-
4	EDO	A	303	-	-	0/1/1/1	-

All (24) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	302	FMN	C9A-C5A	5.62	1.50	1.41
2	D	302	FMN	C9A-C5A	5.32	1.49	1.41
2	F	303	FMN	C9A-C5A	4.75	1.48	1.41
2	A	301	FMN	C9A-C5A	4.15	1.47	1.41
2	E	301	FMN	C9A-C5A	4.14	1.47	1.41
2	C	302	FMN	C8-C7	4.12	1.50	1.40
2	B	302	FMN	C9A-C5A	3.71	1.47	1.41
2	D	302	FMN	C8-C7	3.12	1.48	1.40
2	D	302	FMN	C4-N3	-2.97	1.33	1.38
2	E	301	FMN	C8-C7	2.95	1.48	1.40
2	A	301	FMN	C4A-N5	2.88	1.37	1.30
2	B	302	FMN	C4-N3	-2.81	1.33	1.38
2	B	302	FMN	C8-C7	2.62	1.47	1.40
2	E	301	FMN	C5A-N5	-2.57	1.34	1.39
2	F	303	FMN	C4-N3	-2.54	1.34	1.38
2	F	303	FMN	C8-C7	2.49	1.46	1.40
2	E	301	FMN	C4-N3	-2.46	1.34	1.38
2	F	303	FMN	C4A-N5	2.29	1.35	1.30
2	A	301	FMN	C8-C7	2.24	1.46	1.40
2	D	302	FMN	O4-C4	2.14	1.27	1.23
2	C	302	FMN	C5A-N5	-2.12	1.35	1.39
2	D	302	FMN	C5A-N5	-2.09	1.35	1.39
2	A	301	FMN	C4-N3	-2.08	1.35	1.38
5	F	301	ACT	CH3-C	2.05	1.57	1.49

All (46) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	302	FMN	C9A-C5A-N5	-5.13	117.02	122.45
2	C	302	FMN	O4-C4-C4A	-3.58	117.08	126.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	302	FMN	C9A-C5A-N5	-3.42	118.82	122.45
2	B	302	FMN	C4-C4A-N5	3.42	122.94	118.21
2	E	301	FMN	C9A-C5A-N5	-3.38	118.87	122.45
2	E	301	FMN	C5A-C9A-N10	3.25	120.91	117.97
2	A	301	FMN	C9A-C5A-N5	-3.15	119.12	122.45
2	C	302	FMN	O2-C2-N1	-3.11	116.63	121.80
2	C	302	FMN	C5A-C9A-N10	3.10	120.77	117.97
2	F	303	FMN	O4-C4-C4A	-3.05	118.47	126.53
2	C	302	FMN	O3P-P-O2P	2.97	118.95	107.80
2	E	301	FMN	C4-C4A-N5	2.96	122.30	118.21
2	F	303	FMN	C5A-C9A-N10	2.84	120.53	117.97
2	D	302	FMN	C4-C4A-N5	2.83	122.12	118.21
2	D	302	FMN	O2-C2-N1	-2.67	117.37	121.80
2	C	302	FMN	C8M-C8-C9	2.66	124.26	119.57
2	C	302	FMN	C8M-C8-C7	-2.64	115.37	120.76
2	B	302	FMN	C4A-C10-N10	2.60	120.20	116.48
2	E	301	FMN	C9A-N10-C10	-2.48	116.97	120.75
2	C	302	FMN	C6-C5A-N5	2.42	122.47	118.44
2	F	303	FMN	C9A-C5A-N5	-2.40	119.91	122.45
2	C	302	FMN	C10-N1-C2	2.40	122.04	116.85
2	B	302	FMN	O3P-P-O2P	2.38	116.73	107.80
2	C	302	FMN	O4-C4-N3	2.38	124.59	120.11
2	D	302	FMN	O4-C4-C4A	-2.25	120.58	126.53
2	A	301	FMN	O4-C4-C4A	-2.24	120.61	126.53
2	B	302	FMN	O4-C4-C4A	-2.23	120.64	126.53
2	B	302	FMN	C9A-N10-C10	-2.23	117.36	120.75
2	D	302	FMN	O2P-P-O5’	-2.23	100.86	106.67
2	F	303	FMN	C4-C4A-N5	2.22	121.28	118.21
2	A	301	FMN	O2P-P-O5’	-2.21	100.90	106.67
2	B	302	FMN	C10-C4A-N5	-2.20	120.33	124.81
2	B	302	FMN	O2P-P-O5’	-2.19	100.97	106.67
5	E	305	ACT	OXT-C-O	2.18	130.12	122.03
2	A	301	FMN	C4-C4A-N5	2.18	121.22	118.21
2	E	301	FMN	C4A-C4-N3	2.17	118.78	113.25
2	F	303	FMN	C4A-C4-N3	2.16	118.75	113.25
2	E	301	FMN	O2’-C2’-C3’	2.15	114.29	109.25
2	C	302	FMN	O2-C2-N3	2.15	122.70	118.58
2	C	302	FMN	O3’-C3’-C4’	-2.08	104.21	108.93
2	C	302	FMN	C4-C4A-N5	2.08	121.07	118.21
2	B	302	FMN	C4A-C10-N1	-2.07	119.52	124.59
2	D	302	FMN	C5A-C9A-N10	2.06	119.83	117.97
2	C	302	FMN	O4’-C4’-C3’	-2.02	104.53	109.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	302	FMN	O2-C2-N1	-2.02	118.45	121.80
2	F	303	FMN	O2'-C2'-C3'	2.01	113.95	109.25

There are no chirality outliers.

All (35) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	301	FMN	C2'-C1'-N10-C10
2	B	302	FMN	C2'-C1'-N10-C10
2	C	302	FMN	C2'-C1'-N10-C10
2	D	302	FMN	C2'-C1'-N10-C10
2	E	301	FMN	C2'-C1'-N10-C10
2	F	303	FMN	C2'-C1'-N10-C10
6	B	301	GOL	C1-C2-C3-O3
6	C	303	GOL	O1-C1-C2-C3
6	F	304	GOL	O1-C1-C2-O2
6	F	304	GOL	O1-C1-C2-C3
8	E	302	PGE	O2-C3-C4-O3
3	A	302	PEG	O2-C3-C4-O4
8	E	302	PGE	O3-C5-C6-O4
6	B	301	GOL	O1-C1-C2-C3
6	E	304	GOL	O1-C1-C2-C3
3	D	303	PEG	O2-C3-C4-O4
6	B	301	GOL	O1-C1-C2-O2
6	C	303	GOL	O1-C1-C2-O2
4	B	304	EDO	O1-C1-C2-O2
4	E	303	EDO	O1-C1-C2-O2
3	B	303	PEG	O2-C3-C4-O4
6	B	301	GOL	O2-C2-C3-O3
6	E	304	GOL	O1-C1-C2-O2
8	E	302	PGE	C3-C4-O3-C5
6	C	303	GOL	O2-C2-C3-O3
6	F	302	GOL	O1-C1-C2-O2
3	B	303	PEG	C1-C2-O2-C3
3	B	303	PEG	C4-C3-O2-C2
8	F	305	PGE	C6-C5-O3-C4
8	F	305	PGE	C4-C3-O2-C2
4	B	306	EDO	O1-C1-C2-O2
2	F	303	FMN	C4'-C5'-O5'-P
8	F	305	PGE	O2-C3-C4-O3
8	E	302	PGE	C1-C2-O2-C3
2	D	302	FMN	N10-C1'-C2'-O2'

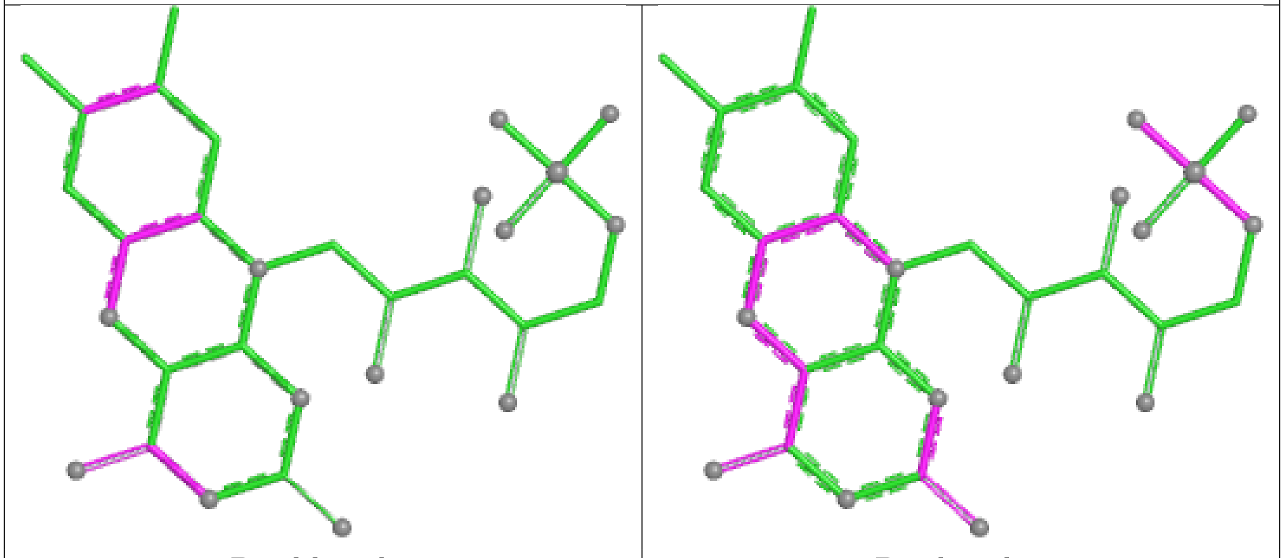
There are no ring outliers.

16 monomers are involved in 17 short contacts:

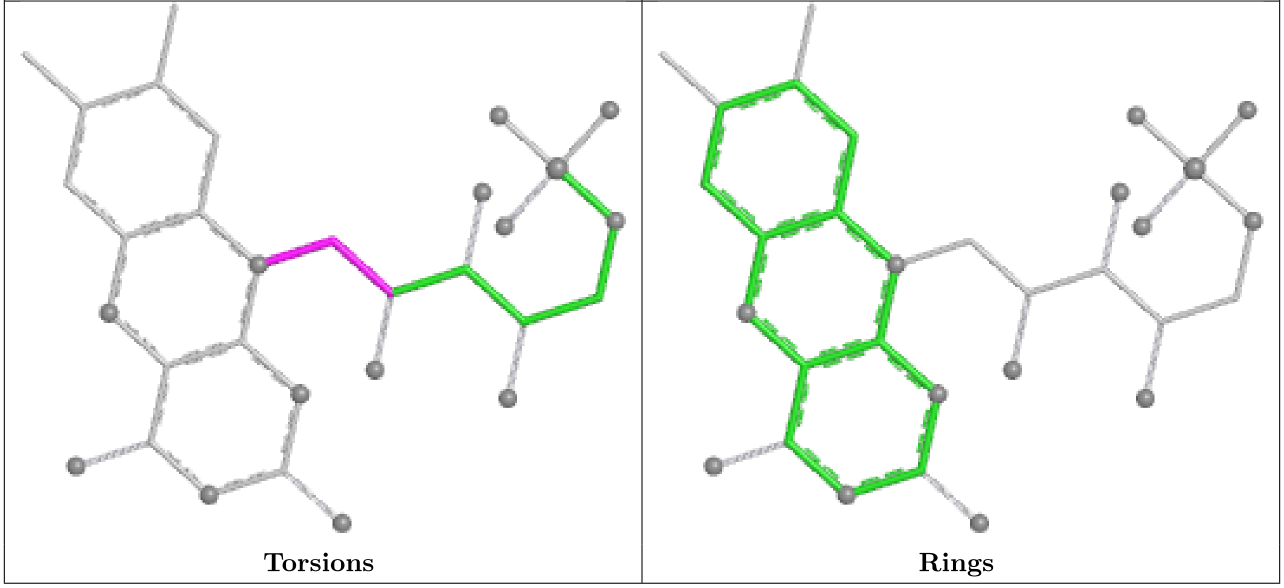
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	302	FMN	2	0
6	F	304	GOL	1	0
3	A	302	PEG	1	0
5	C	305	ACT	1	0
3	B	303	PEG	2	0
2	F	303	FMN	1	0
6	B	301	GOL	1	0
2	A	301	FMN	1	0
7	B	307	SO4	1	0
2	B	302	FMN	1	0
3	D	303	PEG	2	0
2	E	301	FMN	1	0
2	C	302	FMN	1	0
6	C	303	GOL	1	0
5	F	301	ACT	1	0
8	F	305	PGE	1	0

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 D 302

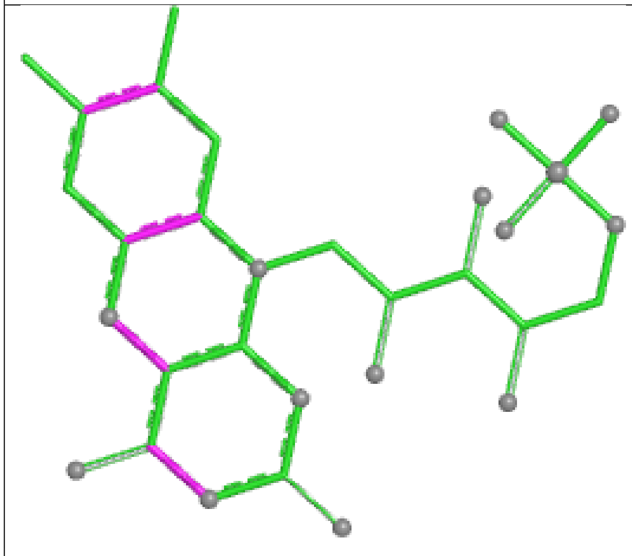


Bond lengths **Bond angles**

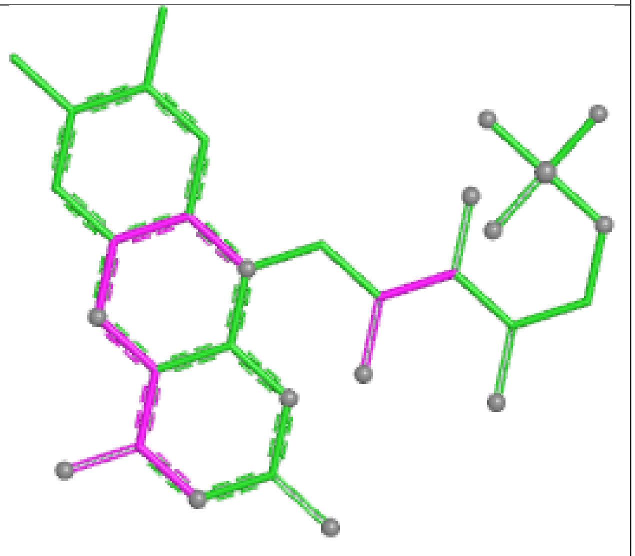


Torsions **Rings**

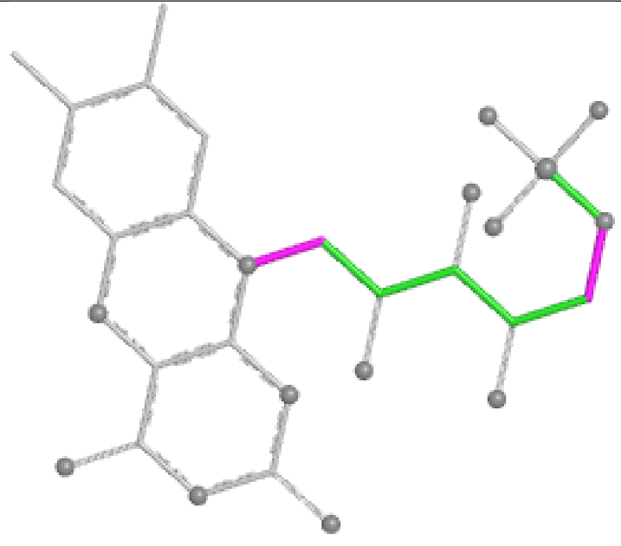
Ligand FMN F 303



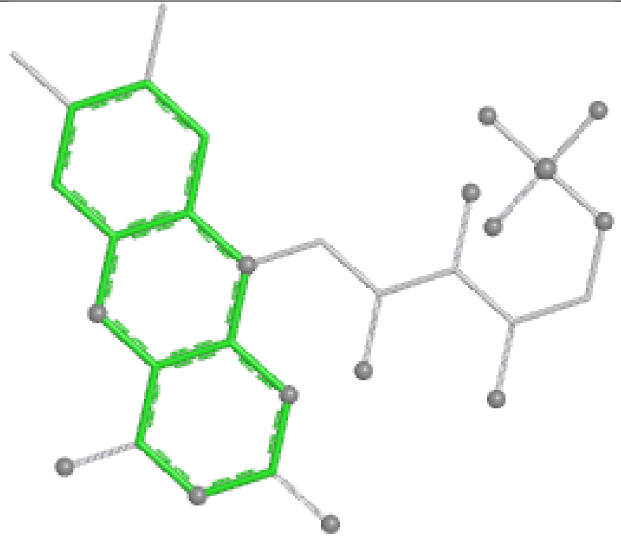
Bond lengths



Bond angles

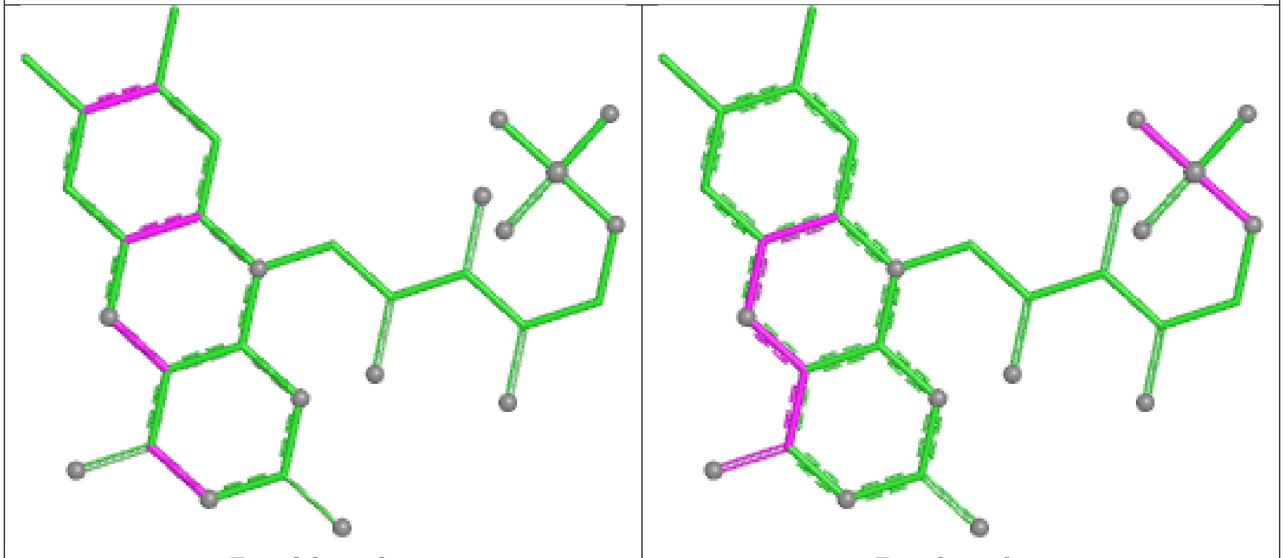


Torsions



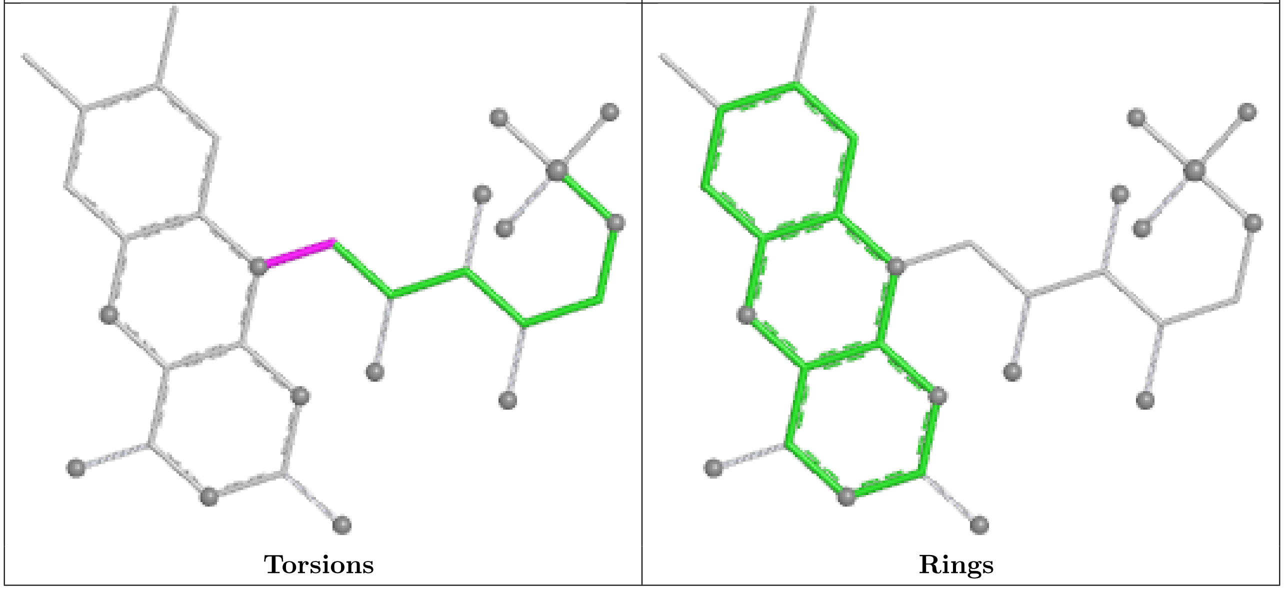
Rings

Ligand FMN A 301



Bond lengths

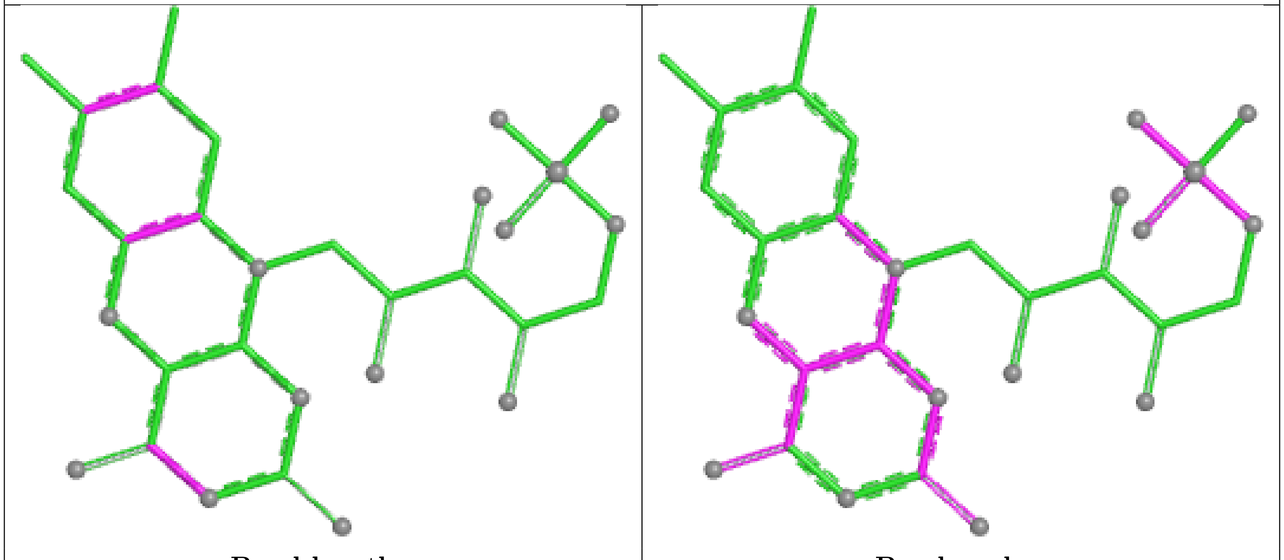
Bond angles



Torsions

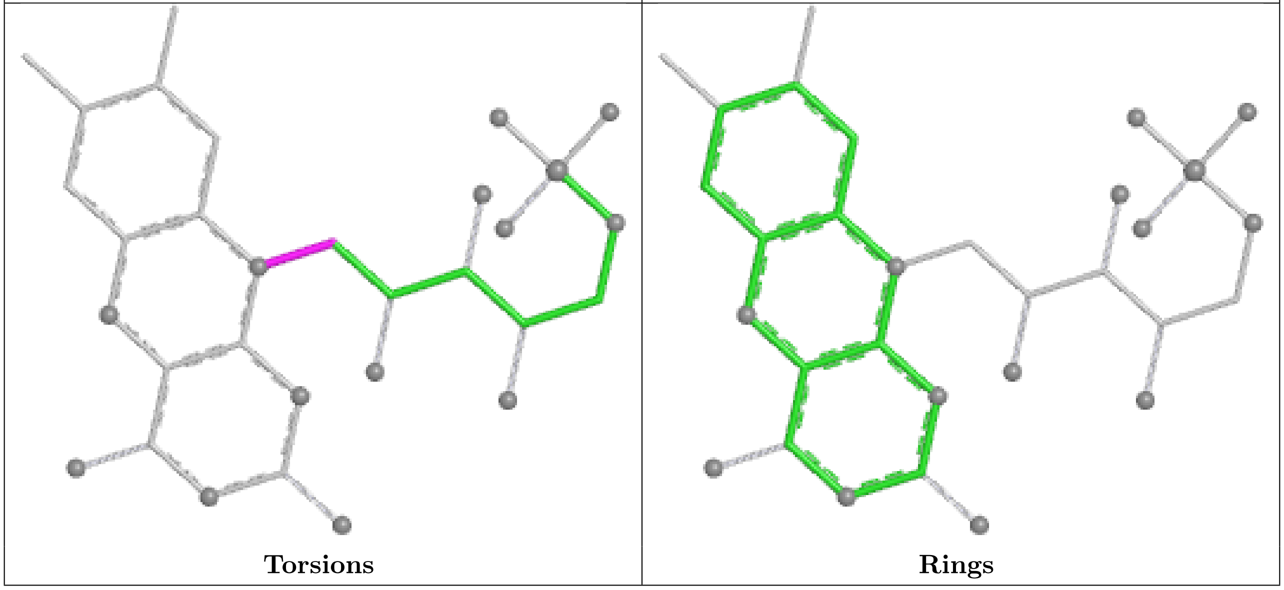
Rings

Ligand FMN B 302



Bond lengths

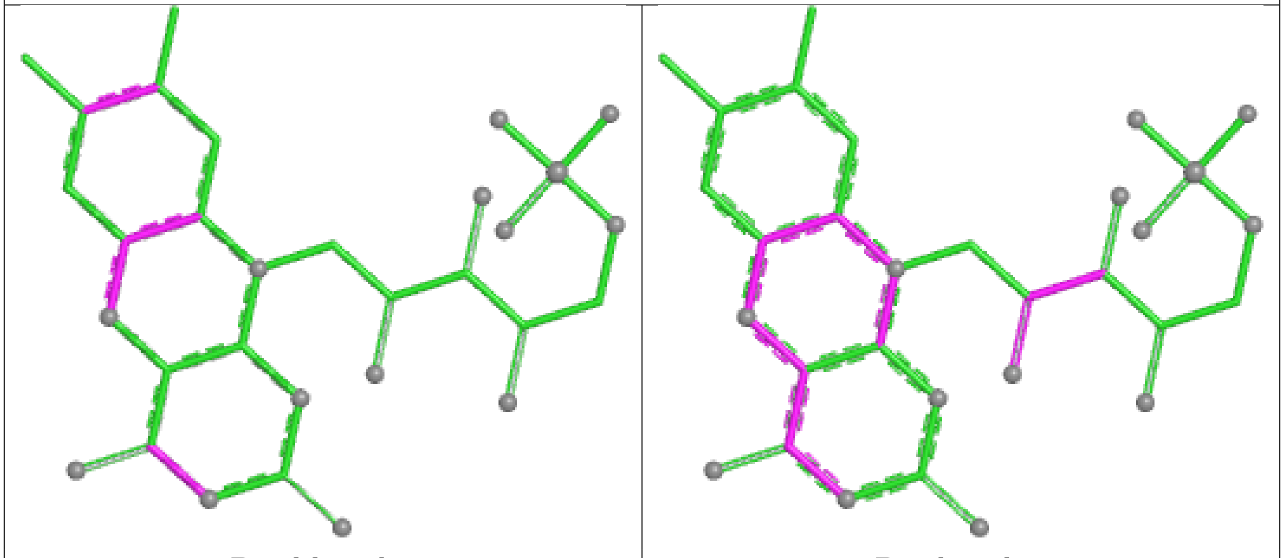
Bond angles



Torsions

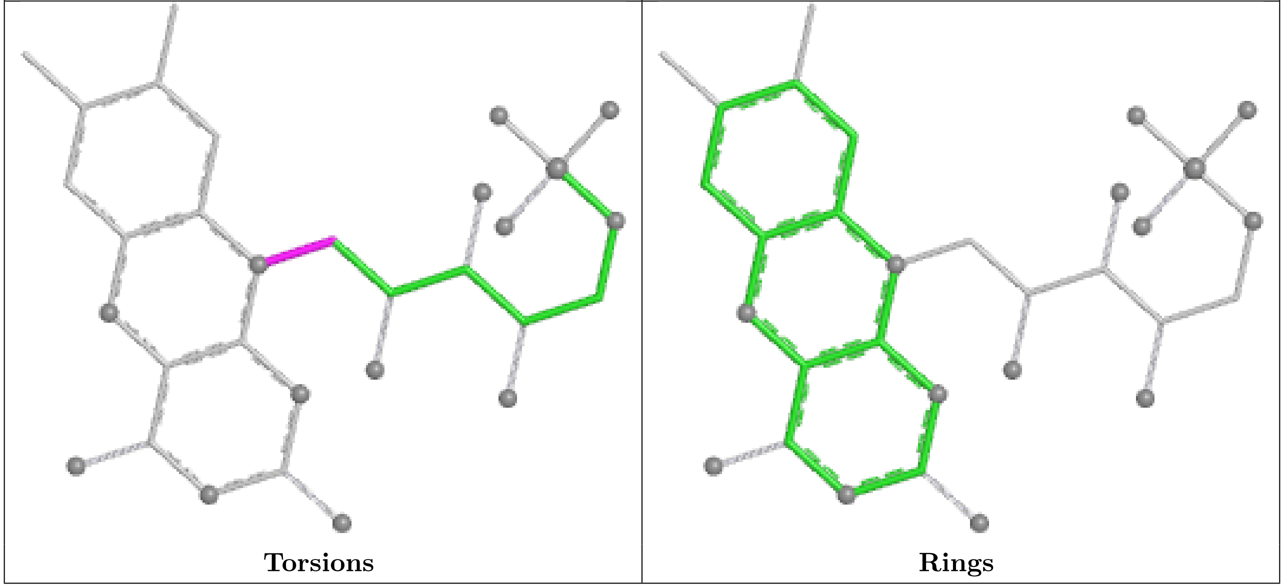
Rings

Ligand FMN E 301



Bond lengths

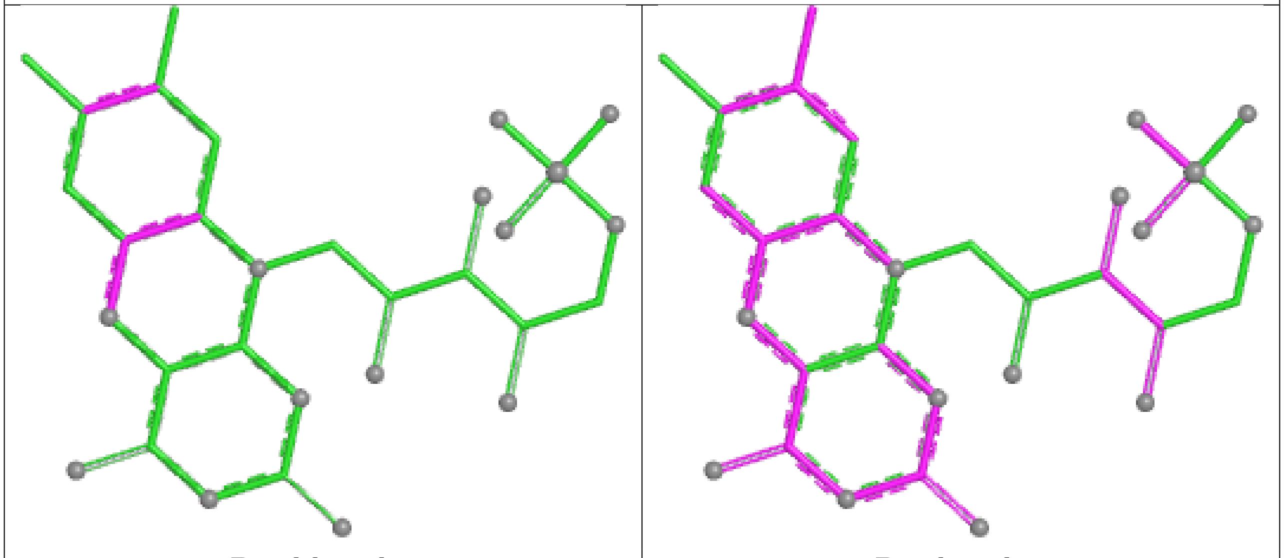
Bond angles



Torsions

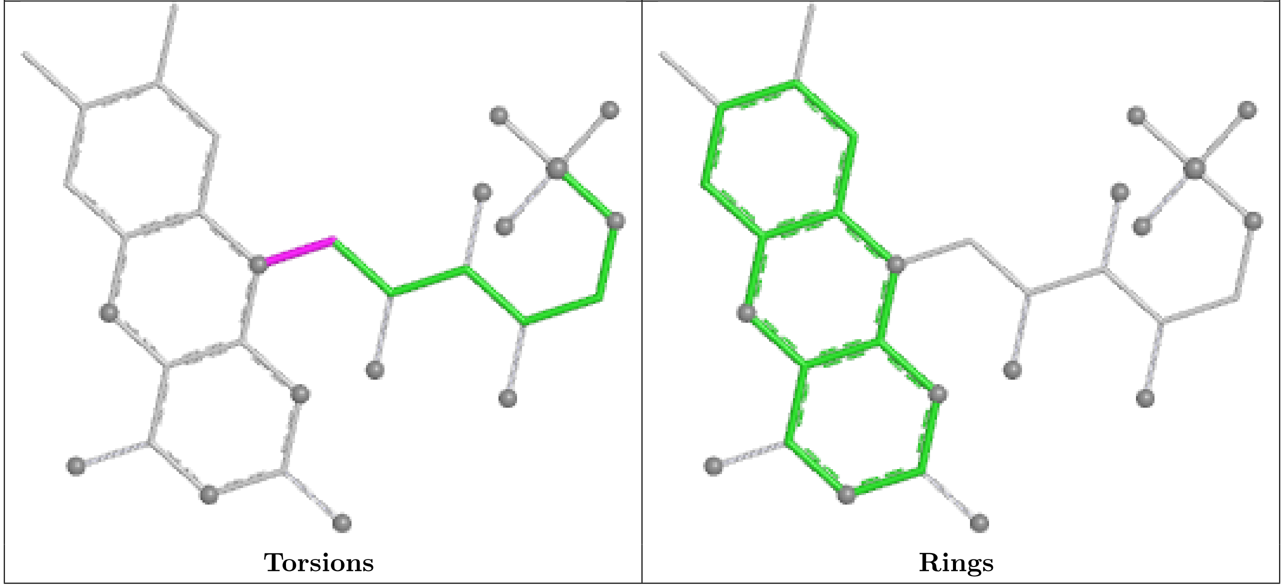
Rings

Ligand FMN C 302



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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	227/248 (91%)	-0.13	5 (2%)	62	67	18, 28, 55, 78	3 (1%)
1	B	232/248 (93%)	-0.09	2 (0%)	81	85	17, 29, 48, 89	4 (1%)
1	C	232/248 (93%)	0.65	16 (6%)	23	24	19, 35, 57, 78	3 (1%)
1	D	232/248 (93%)	0.51	11 (4%)	36	39	17, 34, 55, 86	2 (0%)
1	E	226/248 (91%)	0.02	4 (1%)	67	72	17, 30, 60, 77	2 (0%)
1	F	231/248 (93%)	0.23	6 (2%)	57	61	15, 32, 58, 80	3 (1%)
All	All	1380/1488 (92%)	0.20	44 (3%)	50	54	15, 31, 57, 89	17 (1%)

All (44) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	-1	HIS	3.9
1	A	1	MET	3.6
1	D	117	ILE	3.2
1	C	117	ILE	3.0
1	F	-3	GLY	3.0
1	C	119	ASN	2.9
1	C	138	TYR	2.7
1	C	-1	HIS	2.7
1	F	1	MET	2.6
1	F	0	MET	2.6
1	C	-4	ARG	2.6
1	C	212	ARG	2.6
1	C	133	GLY	2.5
1	C	96	ARG	2.5
1	C	137	LEU	2.5
1	C	143	ALA	2.5
1	D	138	TYR	2.5
1	D	178	TYR	2.5
1	D	184	ILE	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	177	ASN	2.4
1	E	117	ILE	2.4
1	E	116	ILE	2.4
1	C	114[A]	GLU	2.3
1	C	178	TYR	2.3
1	A	2	THR	2.3
1	A	4	GLN	2.3
1	A	5	SER	2.3
1	E	2	THR	2.2
1	A	117	ILE	2.2
1	C	116	ILE	2.2
1	C	189	GLY	2.2
1	F	3[A]	GLU	2.2
1	D	-1	HIS	2.2
1	F	208	VAL	2.1
1	D	118	GLU	2.1
1	B	-3	GLY	2.1
1	E	4	GLN	2.1
1	B	32[A]	GLU	2.0
1	C	129	SER	2.0
1	D	-4	ARG	2.0
1	D	121	LEU	2.0
1	D	180	LYS	2.0
1	C	101	TYR	2.0
1	D	116	ILE	2.0

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

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

6.3 Carbohydrates (i)

There are no oligosaccharides in this entry.

6.4 Ligands (i)

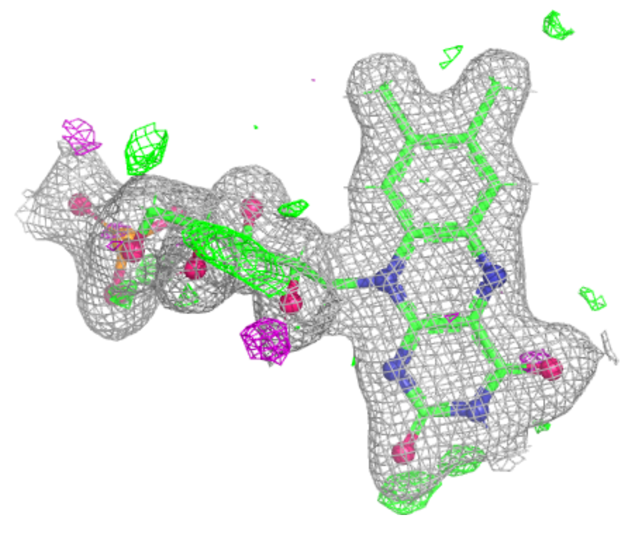
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q< 0.9’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

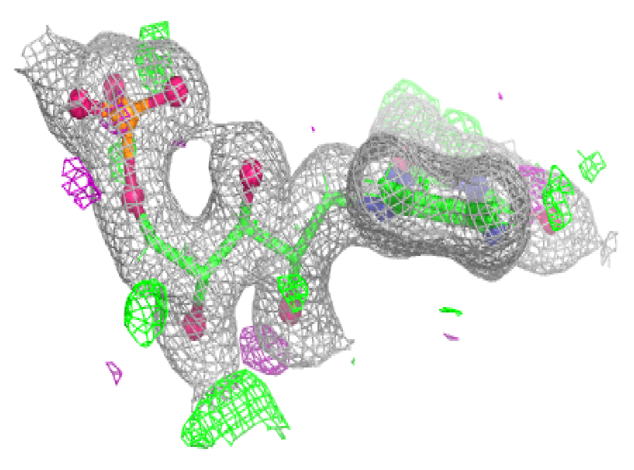
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\AA^2$)	Q<0.9
4	EDO	A	304	4/4	0.72	0.16	46,56,68,82	0
4	EDO	B	304	4/4	0.74	0.20	37,50,61,72	0
4	EDO	E	303	4/4	0.74	0.19	41,53,59,71	0
6	GOL	F	304	6/6	0.75	0.18	43,54,64,65	0
6	GOL	C	303	6/6	0.76	0.19	57,68,74,74	0
5	ACT	C	304	4/4	0.76	0.21	43,50,60,60	0
3	PEG	A	302	7/7	0.78	0.17	45,55,59,71	0
8	PGE	F	305	10/10	0.78	0.19	46,62,83,85	0
8	PGE	E	302	10/10	0.79	0.18	36,55,71,73	0
4	EDO	A	307	4/4	0.80	0.19	31,50,52,60	0
4	EDO	A	303	4/4	0.80	0.16	45,54,59,63	0
4	EDO	C	301	4/4	0.80	0.19	40,54,59,65	0
6	GOL	E	304	6/6	0.81	0.16	45,54,61,61	0
5	ACT	F	301	4/4	0.83	0.20	40,52,60,60	0
3	PEG	D	303	7/7	0.83	0.16	52,63,68,73	0
5	ACT	C	305	4/4	0.83	0.17	39,43,47,47	0
4	EDO	B	306	4/4	0.84	0.15	36,51,54,63	0
3	PEG	B	303	7/7	0.84	0.21	25,47,58,58	0
6	GOL	F	302	6/6	0.84	0.19	37,49,59,71	0
4	EDO	B	305	4/4	0.85	0.17	29,43,48,51	0
6	GOL	B	301	6/6	0.86	0.15	32,44,56,57	0
4	EDO	A	305	4/4	0.88	0.11	49,59,65,66	0
5	ACT	E	305	4/4	0.88	0.14	38,41,50,50	0
6	GOL	D	301	6/6	0.90	0.13	36,50,56,65	0
5	ACT	A	306	4/4	0.92	0.13	32,41,51,51	0
7	SO4	B	307	5/5	0.93	0.10	50,53,68,69	0
2	FMN	D	302	31/31	0.96	0.07	20,27,31,34	0
2	FMN	E	301	31/31	0.98	0.05	20,24,29,32	0
2	FMN	F	303	31/31	0.98	0.06	21,26,32,33	0
2	FMN	C	302	31/31	0.98	0.06	18,25,32,36	0
2	FMN	B	302	31/31	0.98	0.05	19,24,29,31	0
2	FMN	A	301	31/31	0.99	0.04	17,21,26,30	0

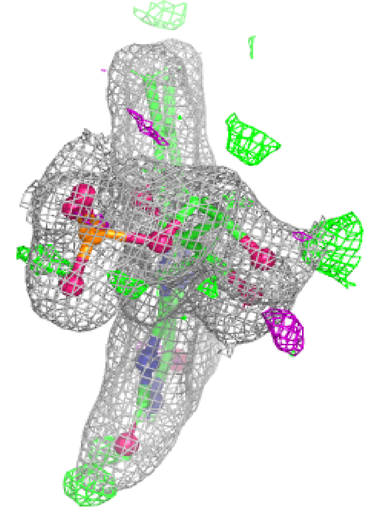
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around FMN D 302:

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

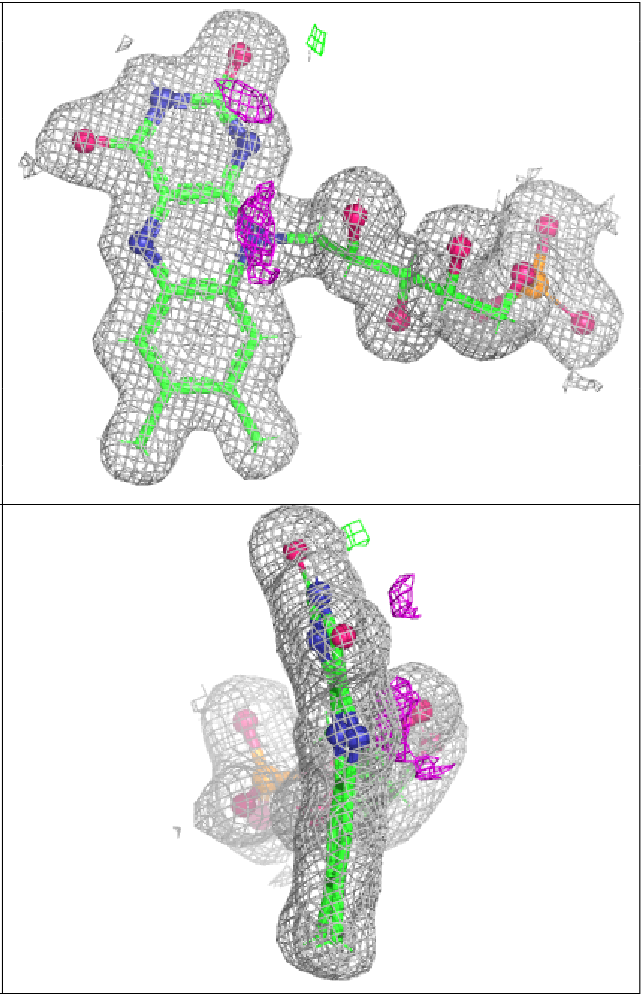






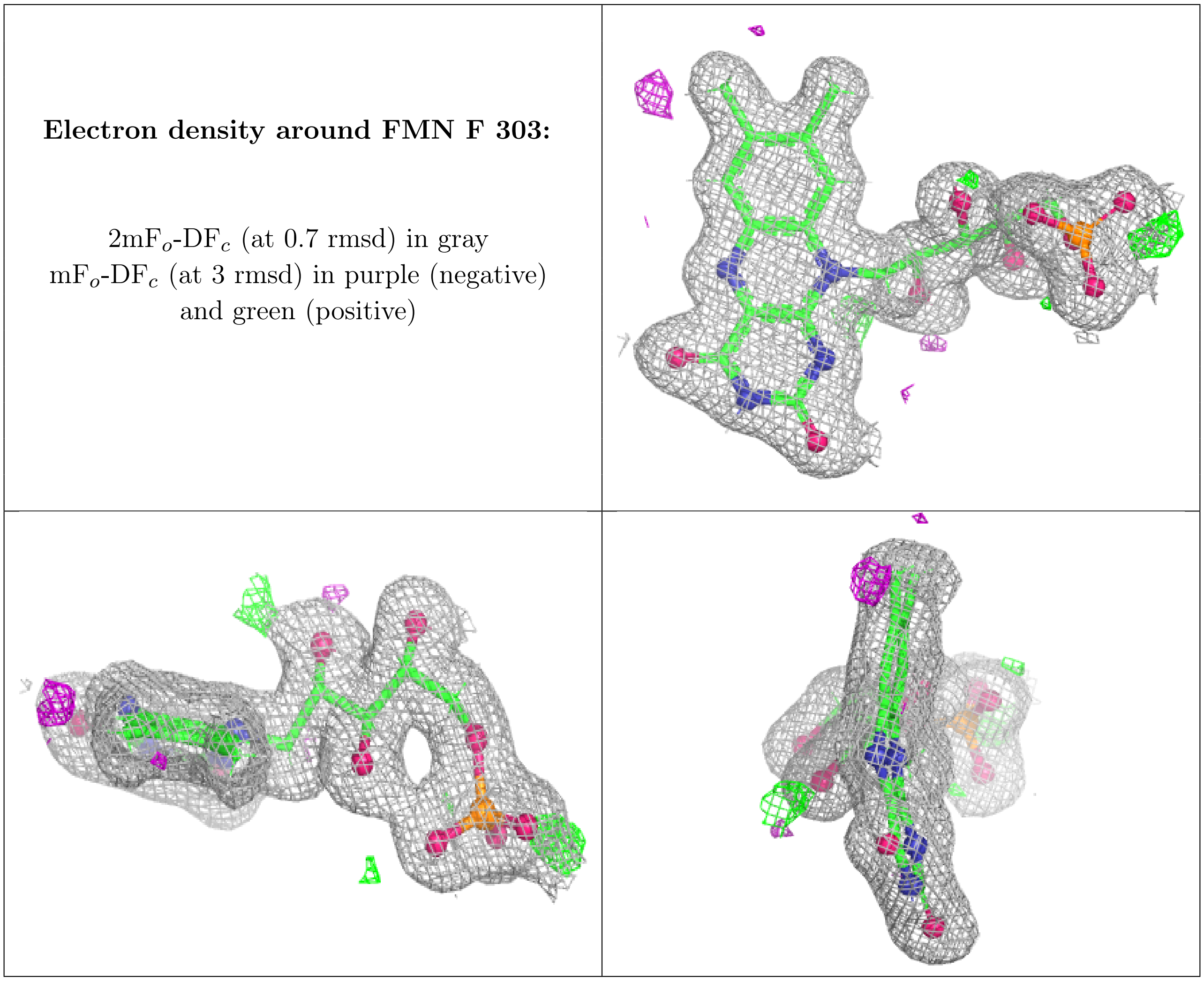
Electron density around FMN E 301:

$2mF_o$-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 303:

$2mF_o$-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 302:

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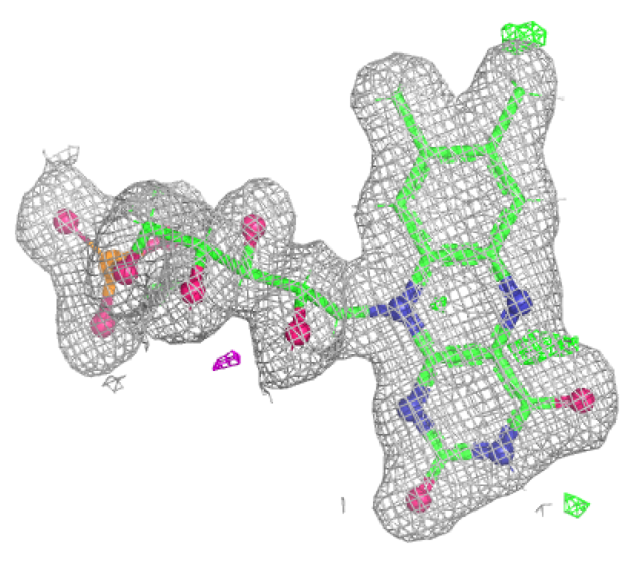
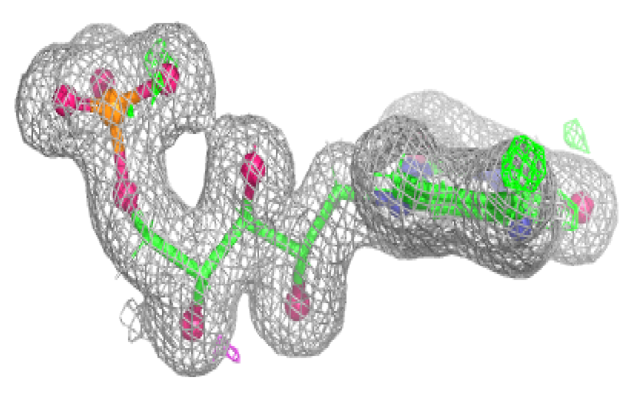
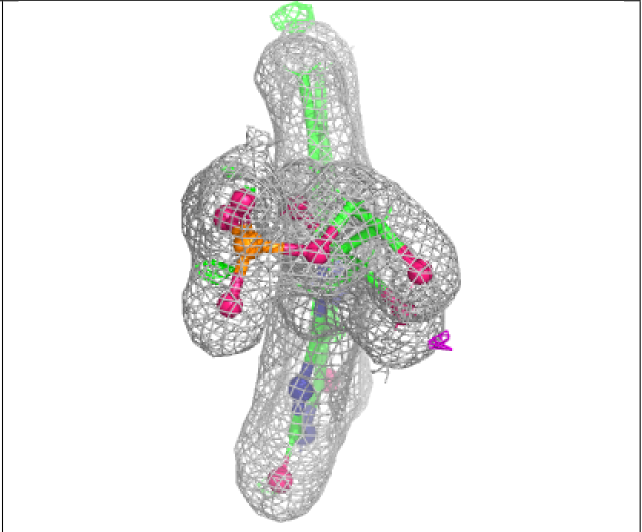
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)







Electron density around FMN B 302:

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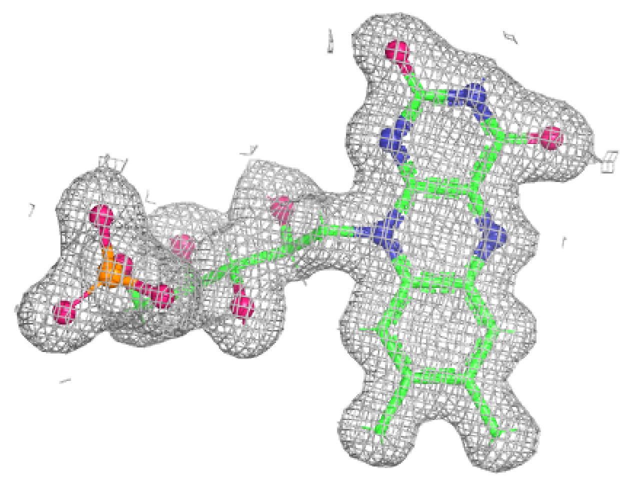
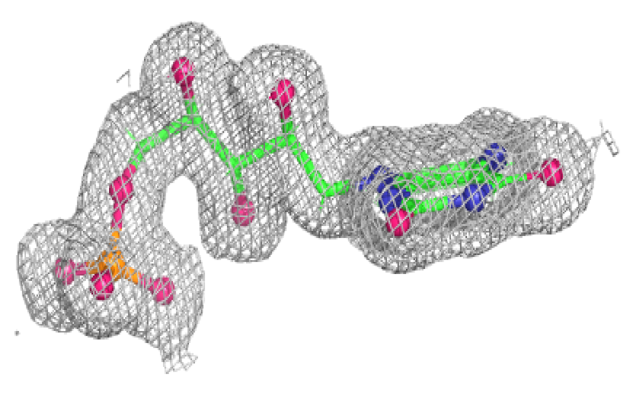
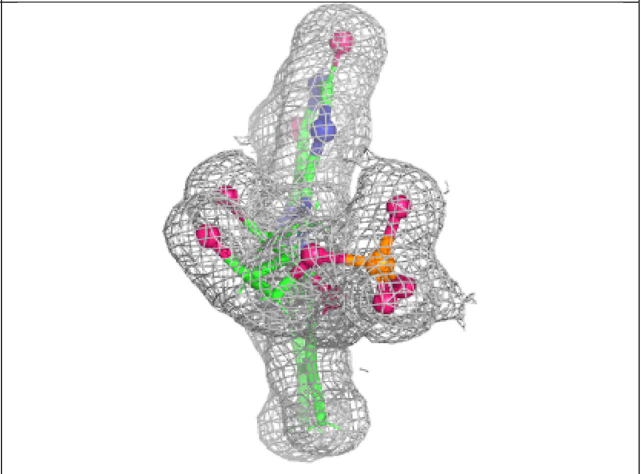
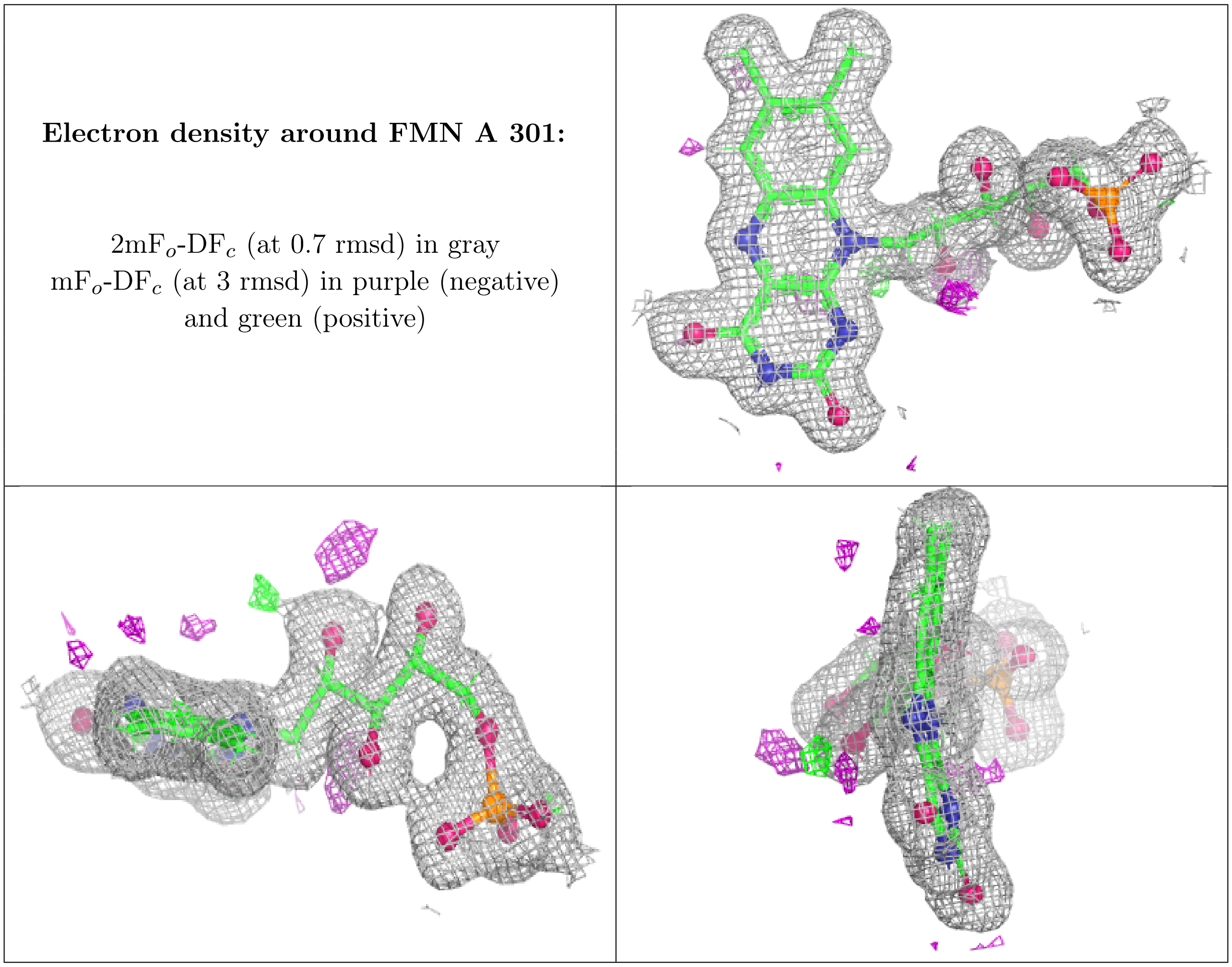
and green (positive)









Electron density around FMN A 301:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.