wwPDB X-ray Structure Validation Summary Report (i)

Aug 29, 2023 – 03:04 AM EDT

PDB ID	:	3P99
Title	:	Sterol 14alpha-demethylase (CYP51) from Trypanosoma brucei in complex with delta7-14alpha-methylene-cyclopropyl-dihydrolanosterol
Authors	:	Lepesheva, G.I.; Hargrove, T.Y.; Waterman, M.R.; Wawrzak, Z.
Deposited on	:	2010-10-16
Resolution	:	3.00 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:

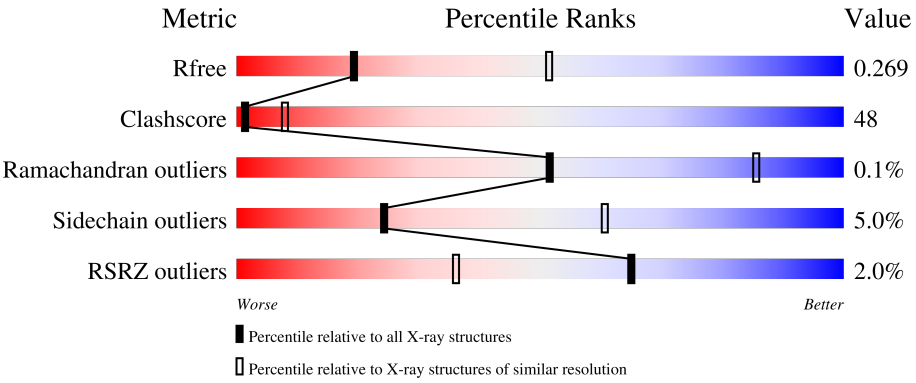
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber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

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.00 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	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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	453	3% 49% 47%
1	B	453	4% 46% 50%
1	C	453	% 47% 47%
1	D	453	% 43% 53%

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	LNP	A	490	-	-	X	-
3	LNP	B	490	-	-	X	-
3	LNP	C	490	-	-	X	-
3	LNP	D	490	-	-	X	-

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 14555 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.

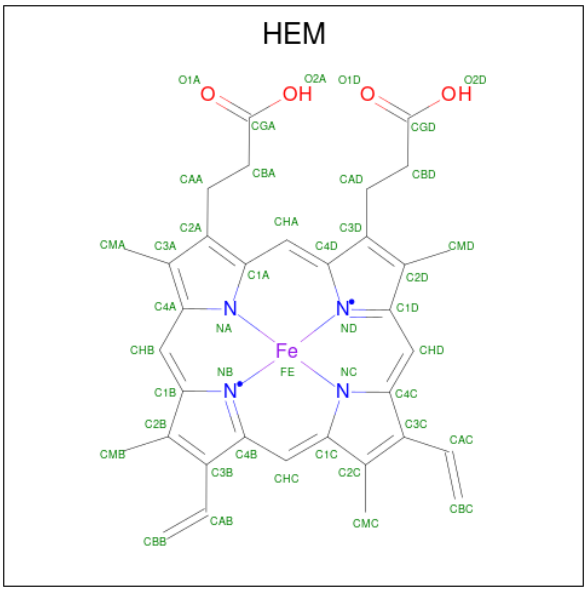
- Molecule 1 is a protein called Sterol 14-alpha-demethylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	448	Total	C	N	O	S	0	0	0
			3557	2271	621	638	27			
1	B	448	Total	C	N	O	S	0	0	0
			3557	2271	621	638	27			
1	C	444	Total	C	N	O	S	0	0	0
			3526	2254	615	630	27			
1	D	448	Total	C	N	O	S	0	0	0
			3557	2271	621	638	27			

There are 12 discrepancies between the modelled and reference sequences:

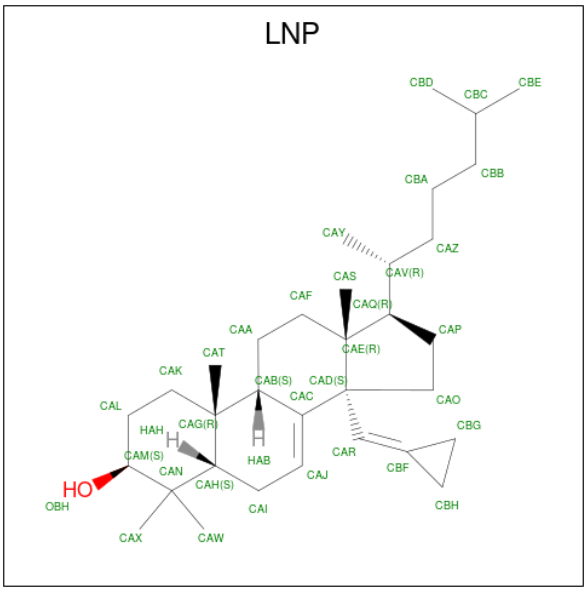
Chain	Residue	Modelled	Actual	Comment	Reference
A	29	GLY	PRO	engineered mutation	UNP Q385E8
A	30	LYS	THR	engineered mutation	UNP Q385E8
A	31	LEU	ASP	engineered mutation	UNP Q385E8
B	29	GLY	PRO	engineered mutation	UNP Q385E8
B	30	LYS	THR	engineered mutation	UNP Q385E8
B	31	LEU	ASP	engineered mutation	UNP Q385E8
C	29	GLY	PRO	engineered mutation	UNP Q385E8
C	30	LYS	THR	engineered mutation	UNP Q385E8
C	31	LEU	ASP	engineered mutation	UNP Q385E8
D	29	GLY	PRO	engineered mutation	UNP Q385E8
D	30	LYS	THR	engineered mutation	UNP Q385E8
D	31	LEU	ASP	engineered mutation	UNP Q385E8

- Molecule 2 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	B	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	C	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		
2	D	1	Total	C	Fe	N	O	0	0
			43	34	1	4	4		

- Molecule 3 is (3alpha,9beta,10alpha,13alpha)-30-cyclopropylidenelanost-7-en-3-ol (three-letter code: LNP) (formula: $C_{33}H_{54}O$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 34 33 1	0	0
3	B	1	Total C O 34 33 1	0	0
3	C	1	Total C O 34 33 1	0	0
3	D	1	Total C O 34 33 1	0	0

- Molecule 4 is water.

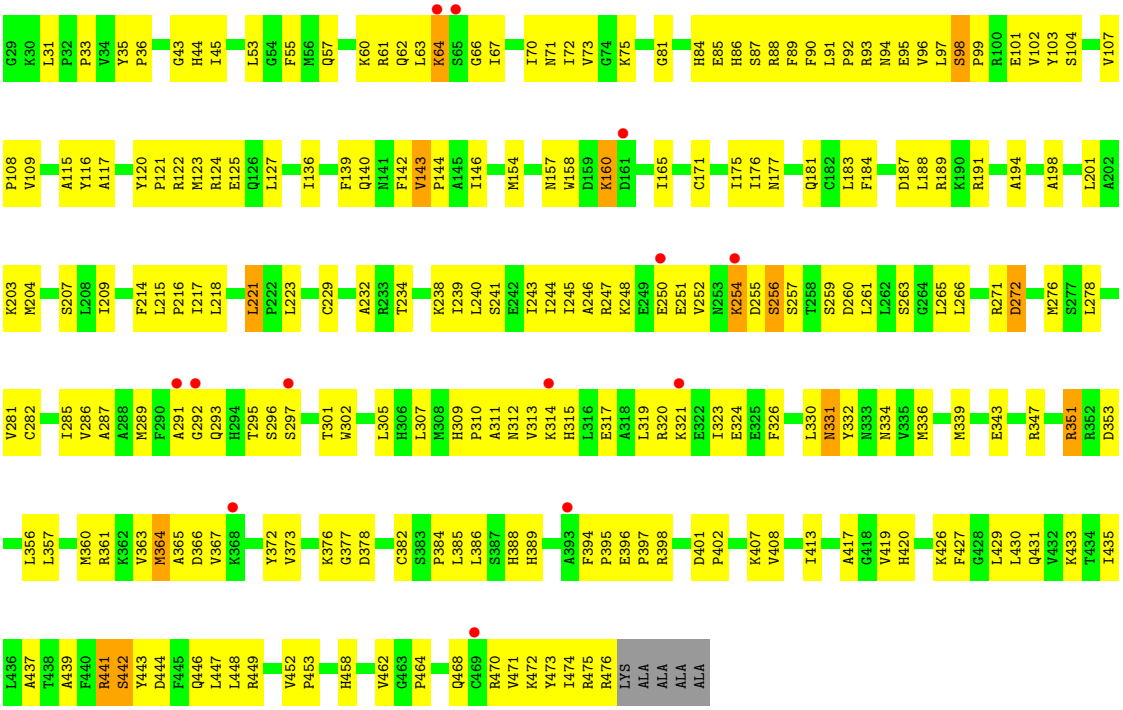
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	14	Total O 14 14	0	0
4	B	13	Total O 13 13	0	0
4	C	12	Total O 12 12	0	0
4	D	11	Total O 11 11	0	0

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.

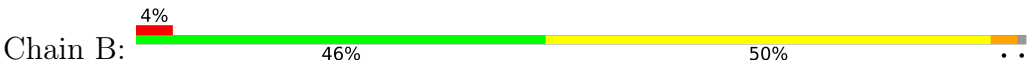
• Molecule 1: Sterol 14-alpha-demethylase

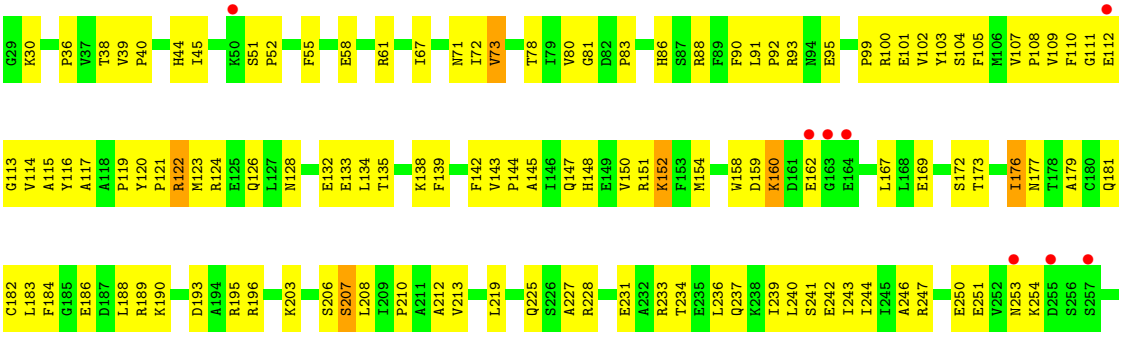
Chain A:

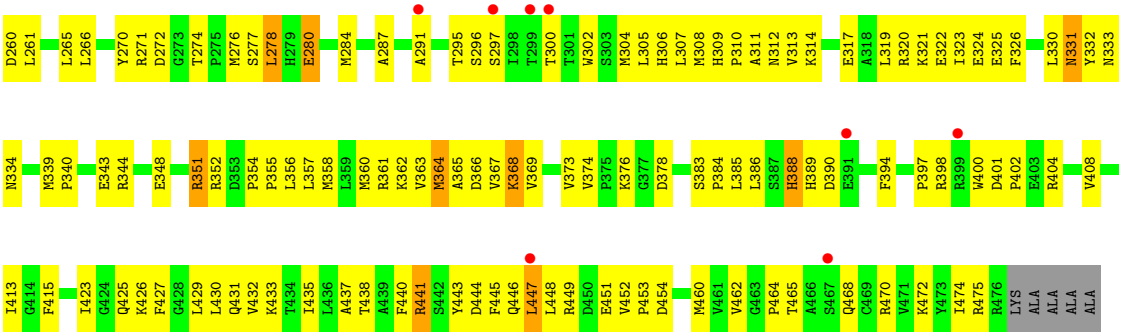


• Molecule 1: Sterol 14-alpha-demethylase

Chain B:

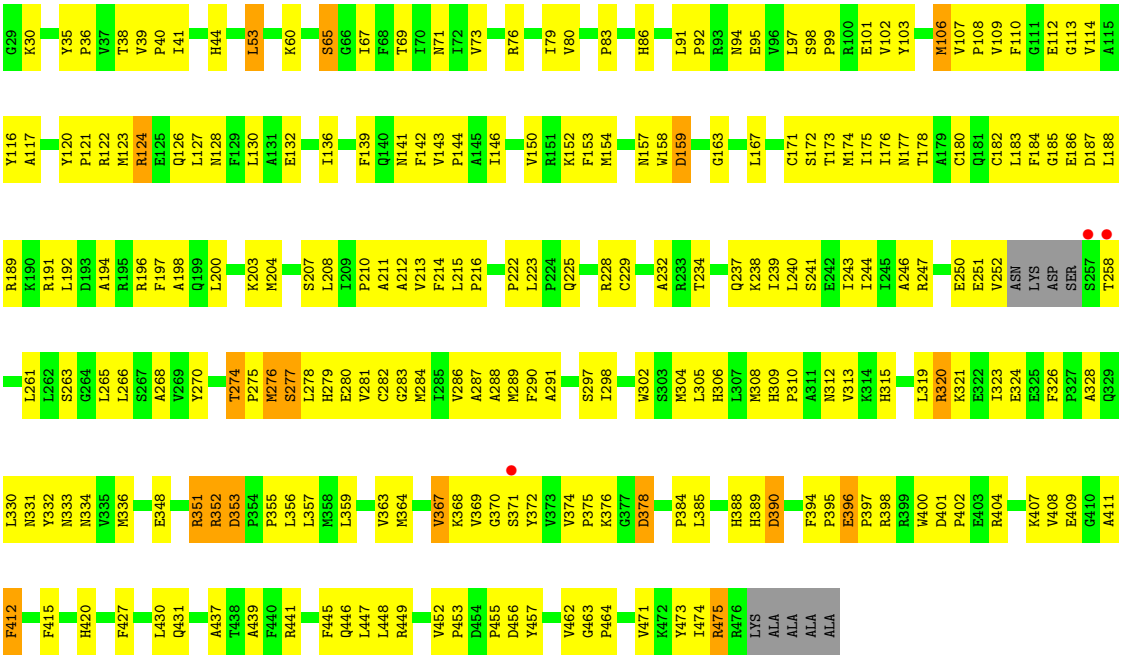






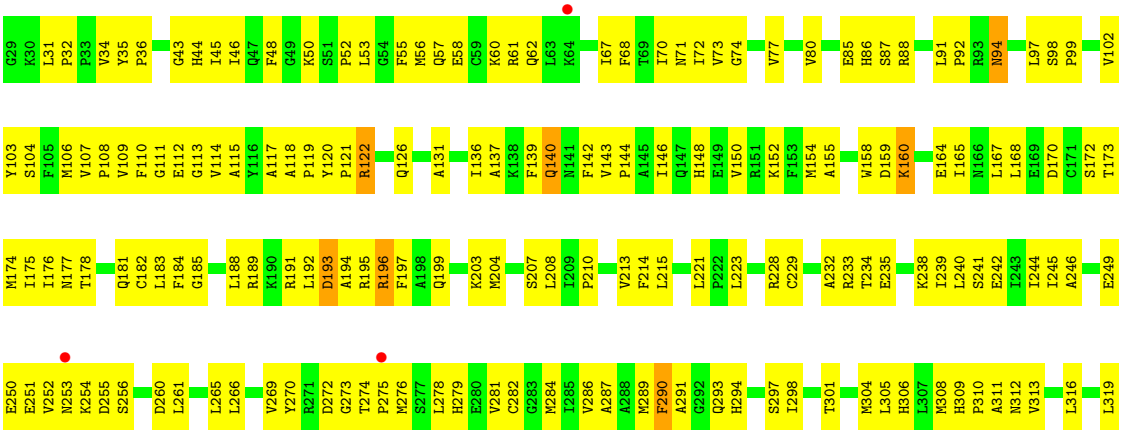
• Molecule 1: Sterol 14-alpha-demethylase

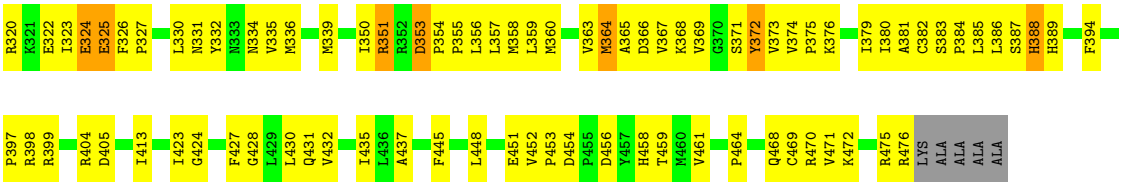
Chain C:



• Molecule 1: Sterol 14-alpha-demethylase

Chain D:




R320 K321 E322 I323 E324 E325 F326 P327 L330 N331 Y332 N333 N334 V335 M336 M339 I350 R351 R352 D353 P354 P355 L356 L357 M358 L359 M360 V363 M364 A365 D366 V367 K368 V369 G370 S371 Y372 V373 V374 P375 K376 I379 I380 A381 C382 S383 P384 L385 L386 S387 H388 H389 F394
P397 R398 R399 R404 D405 I413 I423 G424 F427 G428 L429 L430 Q431 V432 I435 L436 A437 F445 L448 E451 V452 P453 D454 P455 D456 Y457 H458 T459 M460 V461 P464 Q468 C469 R470 V471 K472 R475 R476 LYS ALA ALA ALA ALA

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	59.61Å 80.57Å 115.80Å 107.93° 102.43° 99.57°	Depositor
Resolution (Å)	29.39 – 3.00 29.39 – 3.00	Depositor EDS
% Data completeness (in resolution range)	97.8 (29.39-3.00) 97.9 (29.39-3.00)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.07	Depositor
$< I/\sigma(I) >$ [1]	3.91 (at 3.00Å)	Xtriage
Refinement program	REFMAC 5.5.0109	Depositor
R, R_{free}	0.223 , 0.271 0.221 , 0.269	Depositor DCC
R_{free} test set	1894 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	79.9	Xtriage
Anisotropy	0.030	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 61.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.015 for -h,-k,h+k+l	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	14555	wwPDB-VP
Average B, all atoms (Å^2)	84.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 36.48 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.9656e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[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: LNP, HEM

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	0/3639	0.48	0/4922
1	B	0.41	0/3639	0.48	0/4922
1	C	0.56	0/3607	0.52	0/4878
1	D	0.46	0/3639	0.46	0/4922
All	All	0.48	0/14524	0.49	0/19644

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	3557	0	3594	339	0
1	B	3557	0	3594	313	0
1	C	3526	0	3565	327	0
1	D	3557	0	3594	372	0
2	A	43	0	30	9	0
2	B	43	0	30	7	0
2	C	43	0	30	5	0
2	D	43	0	30	6	0
3	A	34	0	54	27	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	34	0	54	36	0
3	C	34	0	54	59	0
3	D	34	0	54	45	0
4	A	14	0	0	6	0
4	B	13	0	0	6	0
4	C	12	0	0	9	0
4	D	11	0	0	5	0
All	All	14555	0	14683	1394	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 48.

The worst 5 of 1394 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:364:MET:HA	1:A:364:MET:CE	1.54	1.34
1:A:64:LYS:HE3	1:A:64:LYS:N	1.42	1.32
1:D:284:MET:HG2	3:D:490:LNP:CBE	1.61	1.29
1:C:291:ALA:HB2	3:C:490:LNP:CAP	1.66	1.26
1:A:143:VAL:HG23	1:A:144:PRO:CD	1.64	1.25

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	446/453 (98%)	425 (95%)	21 (5%)	0	100	100
1	B	446/453 (98%)	415 (93%)	30 (7%)	1 (0%)	47	82
1	C	440/453 (97%)	421 (96%)	18 (4%)	1 (0%)	47	82
1	D	446/453 (98%)	419 (94%)	27 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	1778/1812 (98%)	1680 (94%)	96 (5%)	2 (0%)	51 85

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	211	ALA
1	B	340	PRO

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	390/391 (100%)	373 (96%)	17 (4%)	28 65
1	B	390/391 (100%)	369 (95%)	21 (5%)	22 57
1	C	386/391 (99%)	363 (94%)	23 (6%)	19 53
1	D	390/391 (100%)	373 (96%)	17 (4%)	28 65
All	All	1556/1564 (100%)	1478 (95%)	78 (5%)	24 60

5 of 78 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	412	PHE
1	D	324	GLU
1	C	447	LEU
1	D	160	LYS
1	D	364	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 42 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	62	GLN
1	D	309	HIS
1	D	94	ASN

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Mol	Chain	Res	Type
1	D	181	GLN
1	D	334	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)

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	$\#\|Z\| > 2$
3	LNP	A	490	-	34,38,38	0.87	1 (2%)	50,62,62	2.17	12 (24%)
2	HEM	A	482	1	41,50,50	1.98	6 (14%)	45,82,82	1.69	5 (11%)
3	LNP	C	490	-	34,38,38	0.93	1 (2%)	50,62,62	1.94	12 (24%)
3	LNP	B	490	-	34,38,38	0.92	1 (2%)	50,62,62	1.81	12 (24%)
3	LNP	D	490	-	34,38,38	1.06	3 (8%)	50,62,62	1.89	11 (22%)
2	HEM	B	482	1	41,50,50	1.97	7 (17%)	45,82,82	1.68	5 (11%)
2	HEM	C	482	1	41,50,50	1.96	5 (12%)	45,82,82	1.68	7 (15%)
2	HEM	D	482	1	41,50,50	1.97	5 (12%)	45,82,82	1.68	6 (13%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	LNP	A	490	-	-	3/11/89/89	0/5/5/5
2	HEM	A	482	1	-	2/12/54/54	-
3	LNP	C	490	-	-	4/11/89/89	0/5/5/5
3	LNP	B	490	-	-	8/11/89/89	0/5/5/5
3	LNP	D	490	-	-	2/11/89/89	0/5/5/5
2	HEM	B	482	1	-	0/12/54/54	-
2	HEM	C	482	1	-	7/12/54/54	-
2	HEM	D	482	1	-	4/12/54/54	-

The worst 5 of 29 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	482	HEM	C3D-C2D	8.07	1.53	1.36
2	B	482	HEM	C3D-C2D	8.03	1.53	1.36
2	C	482	HEM	C3D-C2D	7.99	1.53	1.36
2	D	482	HEM	C3D-C2D	7.96	1.53	1.36
2	B	482	HEM	C3C-C2C	-4.75	1.33	1.40

The worst 5 of 70 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	490	LNP	CAH-CAN-CAM	7.80	117.22	107.65
2	B	482	HEM	C4D-ND-C1D	6.29	111.57	105.07
2	C	482	HEM	C4D-ND-C1D	6.26	111.53	105.07
2	D	482	HEM	C4D-ND-C1D	6.24	111.52	105.07
2	A	482	HEM	C4D-ND-C1D	6.14	111.42	105.07

There are no chirality outliers.

5 of 30 torsion outliers are listed below:

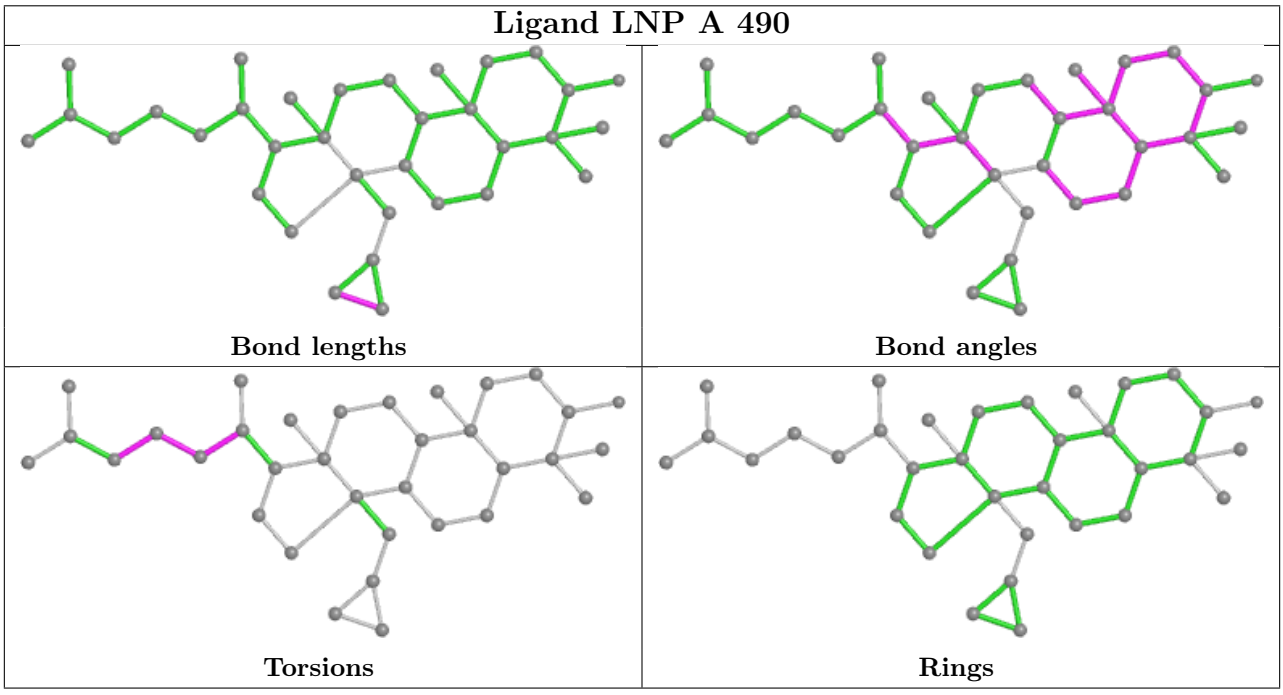
Mol	Chain	Res	Type	Atoms
2	D	482	HEM	C2B-C3B-CAB-CBB
2	D	482	HEM	C4B-C3B-CAB-CBB
3	B	490	LNP	CAY-CAV-CAZ-CBA
3	B	490	LNP	CAQ-CAV-CAZ-CBA
3	C	490	LNP	CAY-CAV-CAZ-CBA

There are no ring outliers.

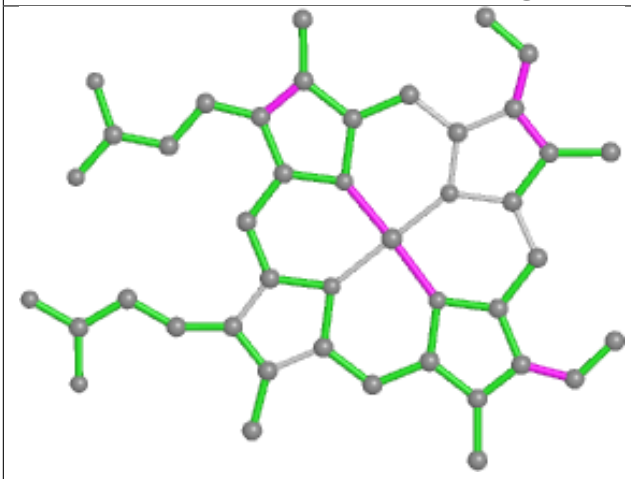
8 monomers are involved in 190 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	490	LNP	27	0
2	A	482	HEM	9	0
3	C	490	LNP	59	0
3	B	490	LNP	36	0
3	D	490	LNP	45	0
2	B	482	HEM	7	0
2	C	482	HEM	5	0
2	D	482	HEM	6	0

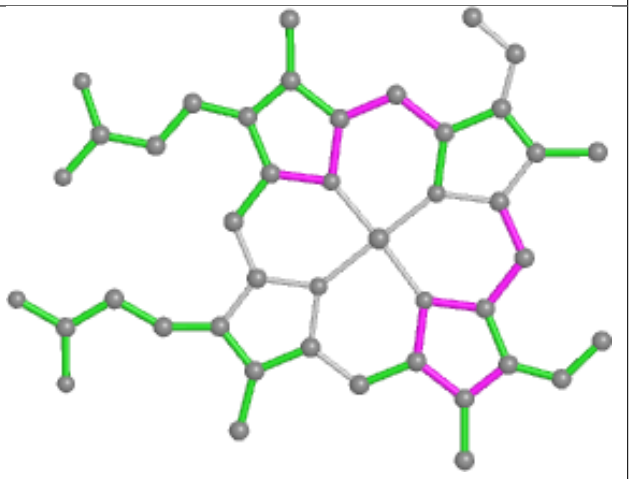
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



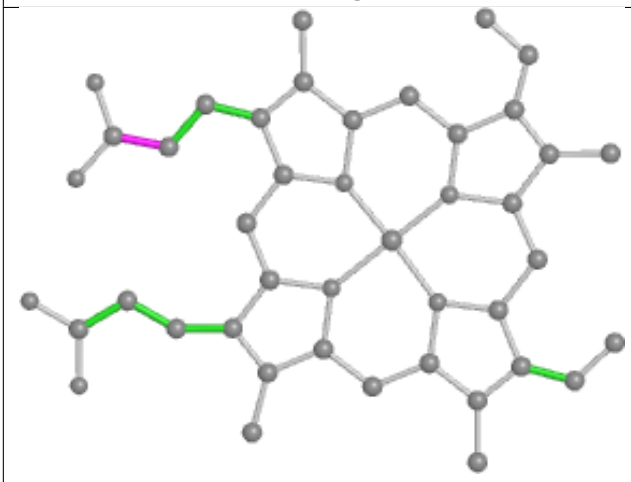
Ligand HEM A 482



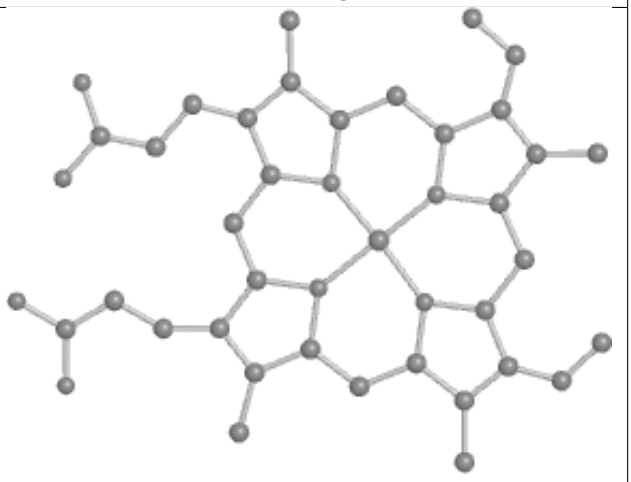
Bond lengths



Bond angles

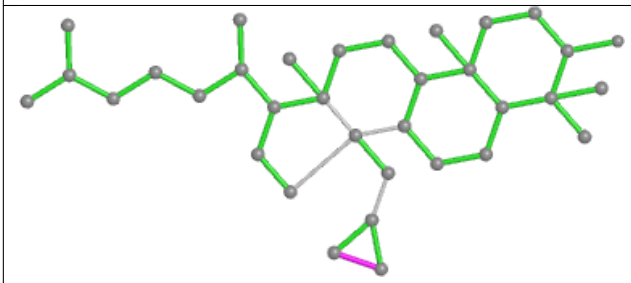


Torsions

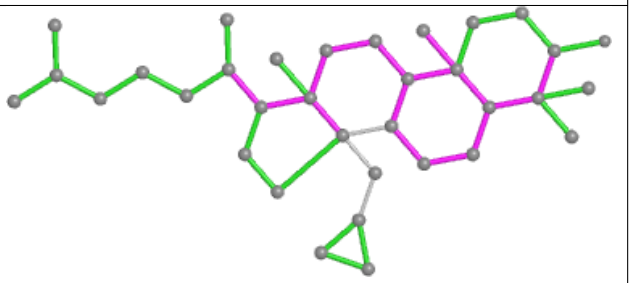


Rings

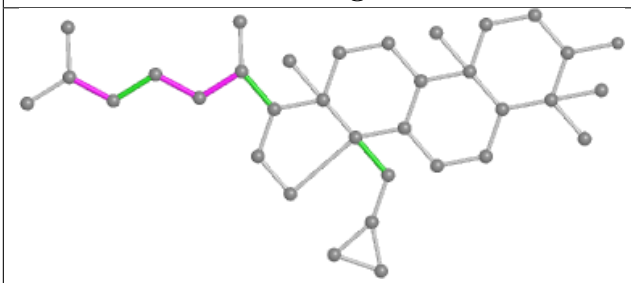
Ligand LNP C 490



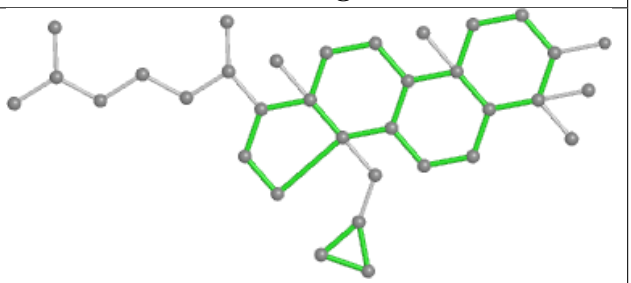
Bond lengths



Bond angles

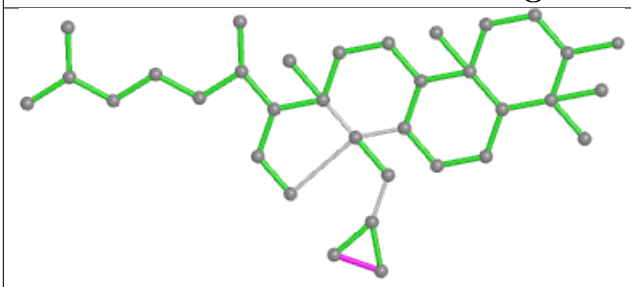


Torsions

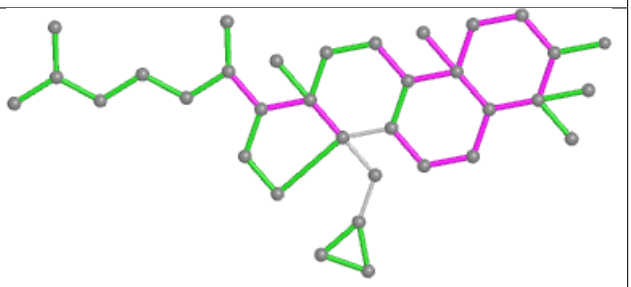


Rings

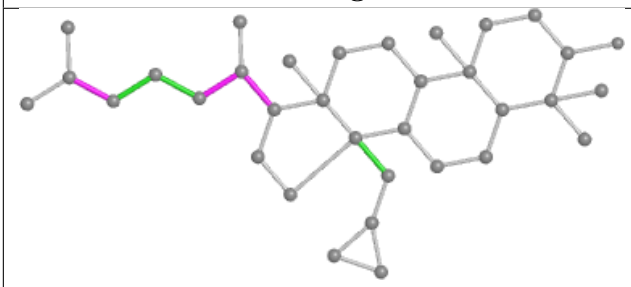
Ligand LNP B 490



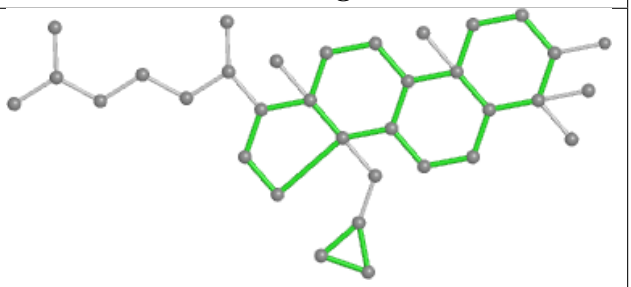
Bond lengths



Bond angles

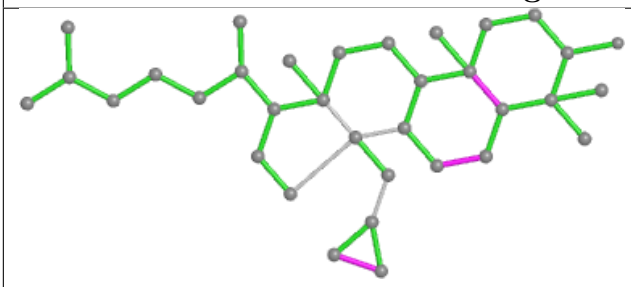


Torsions

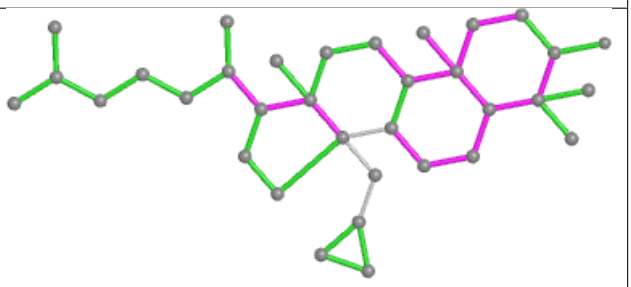


Rings

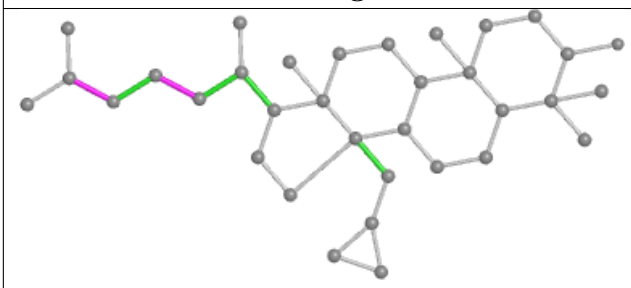
Ligand LNP D 490



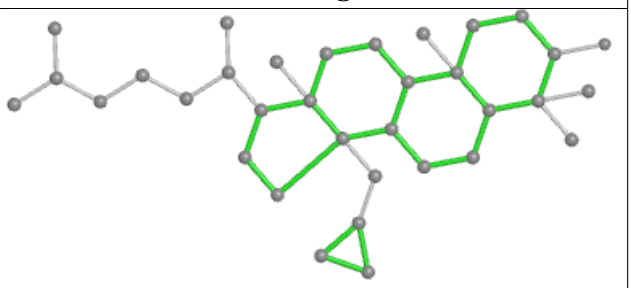
Bond lengths



Bond angles

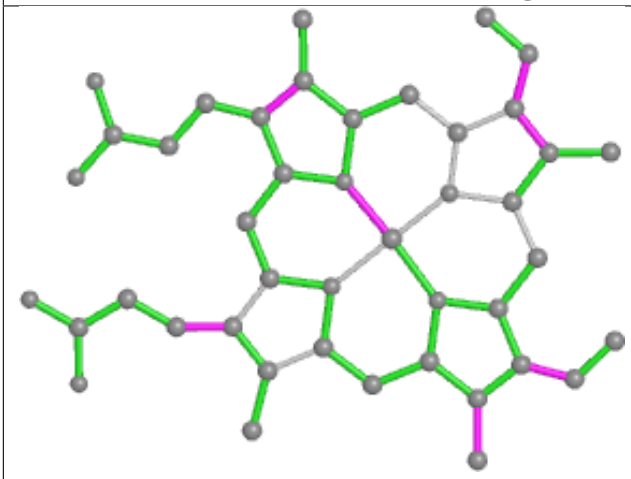


Torsions

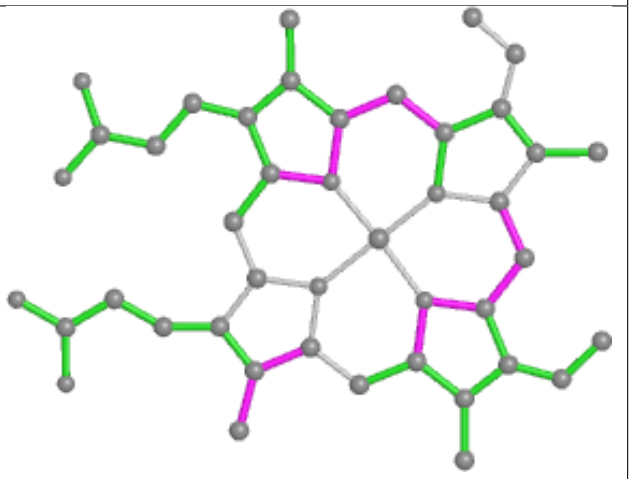


Rings

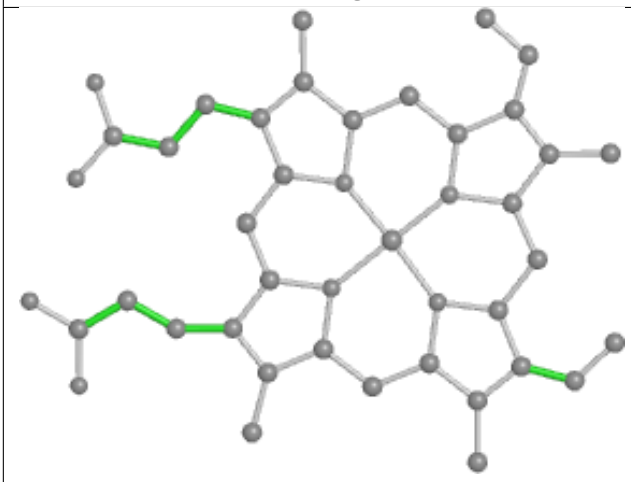
Ligand HEM B 482



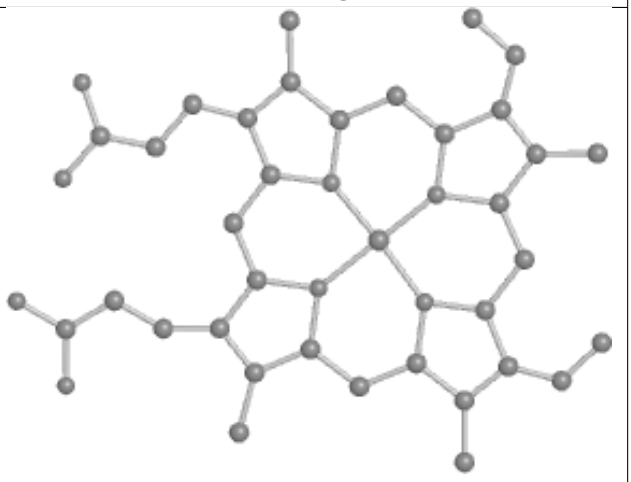
Bond lengths



Bond angles

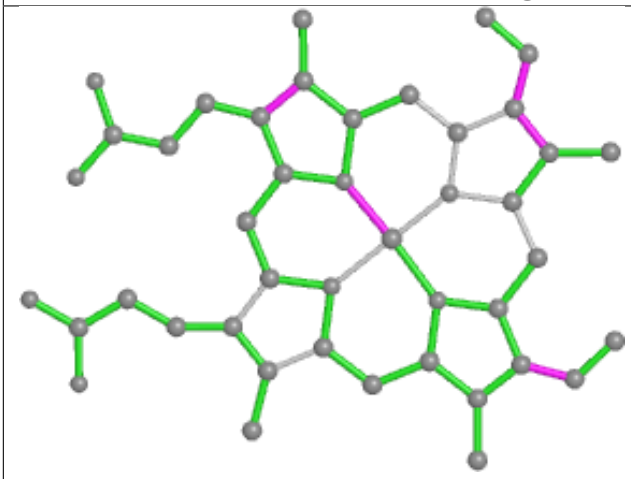


Torsions

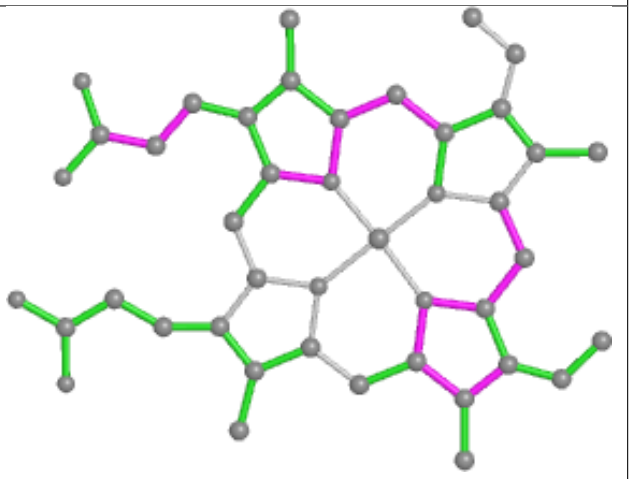


Rings

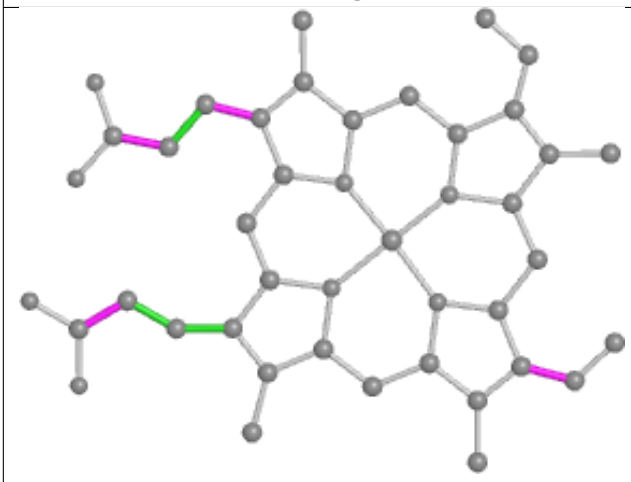
Ligand HEM C 482



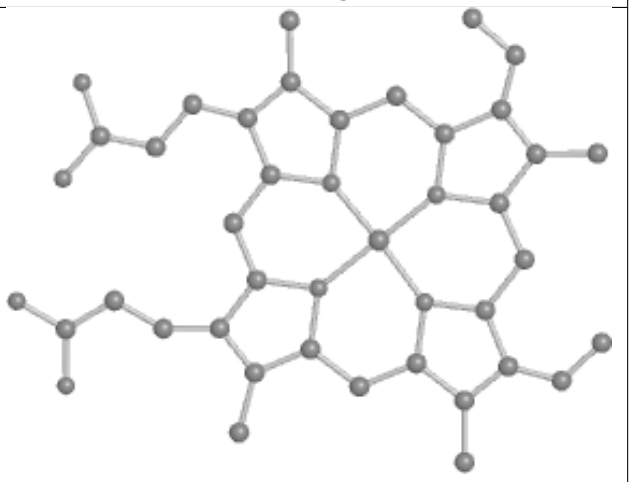
Bond lengths



Bond angles

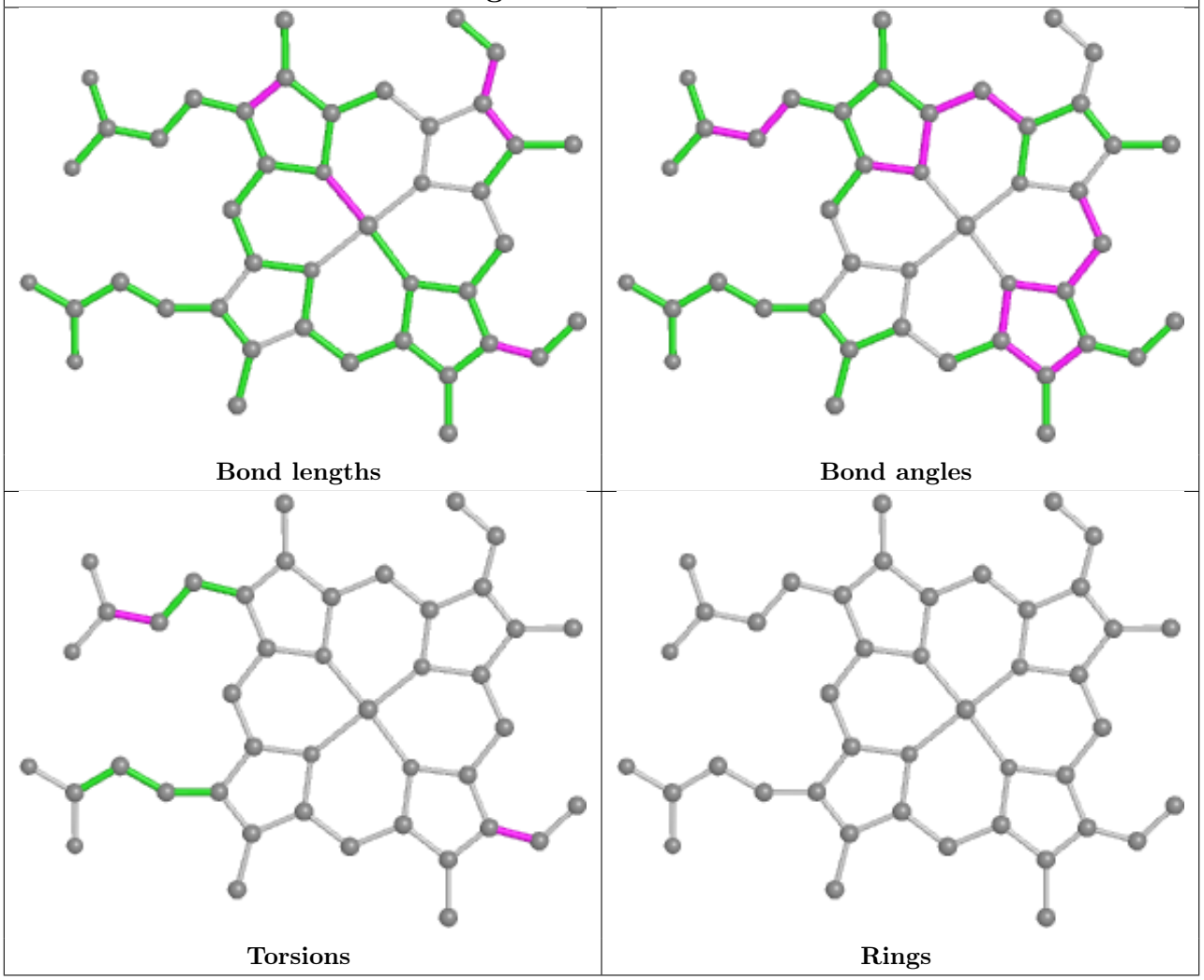


Torsions



Rings

Ligand HEM D 482



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	448/453 (98%)	-0.16	13 (2%)	51	23	27, 80, 104, 123	0
1	B	448/453 (98%)	-0.17	16 (3%)	42	17	50, 90, 133, 166	0
1	C	444/453 (98%)	-0.30	3 (0%)	87	69	44, 73, 100, 131	0
1	D	448/453 (98%)	-0.25	3 (0%)	87	69	41, 86, 138, 209	0
All	All	1788/1812 (98%)	-0.22	35 (1%)	65	36	27, 81, 124, 209	0

The worst 5 of 35 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	163	GLY	4.9
1	A	65	SER	4.2
1	B	164	GLU	4.2
1	A	161	ASP	4.1
1	A	393	ALA	3.4

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

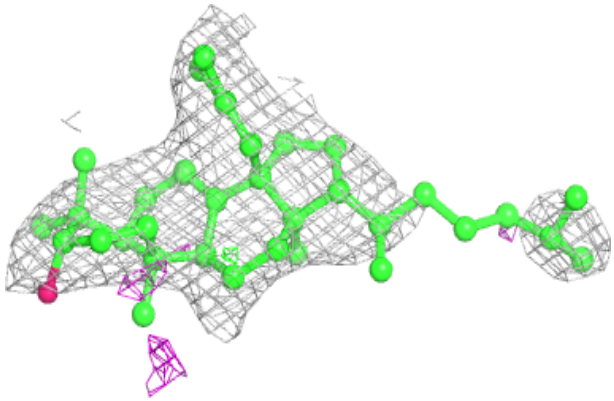
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

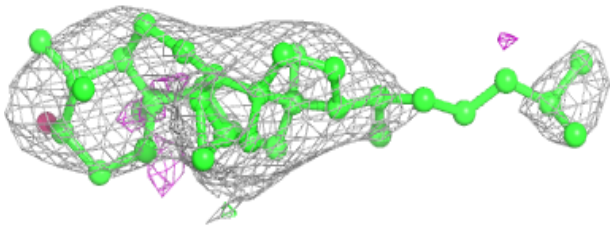
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	LNP	C	490	34/34	0.85	0.30	53,75,80,82	0
3	LNP	D	490	34/34	0.85	0.43	56,64,75,77	34
3	LNP	B	490	34/34	0.90	0.41	54,66,71,72	34
3	LNP	A	490	34/34	0.92	0.28	62,70,76,78	0
2	HEM	A	482	43/43	0.95	0.24	37,50,57,60	0
2	HEM	C	482	43/43	0.96	0.26	35,43,50,55	0
2	HEM	B	482	43/43	0.97	0.20	40,48,55,61	0
2	HEM	D	482	43/43	0.97	0.25	32,41,50,57	0

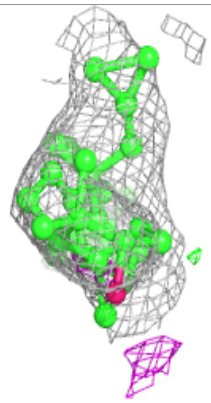
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around LNP C 490:

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

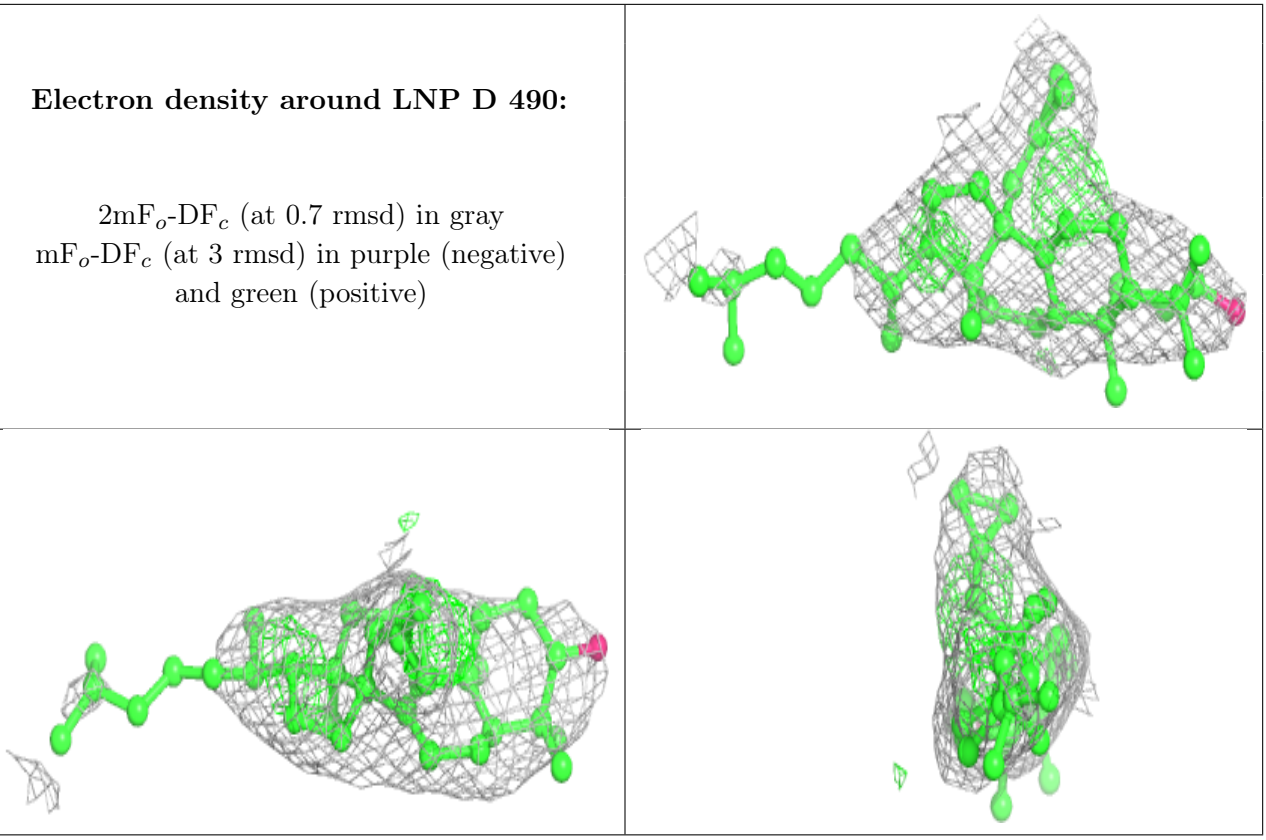






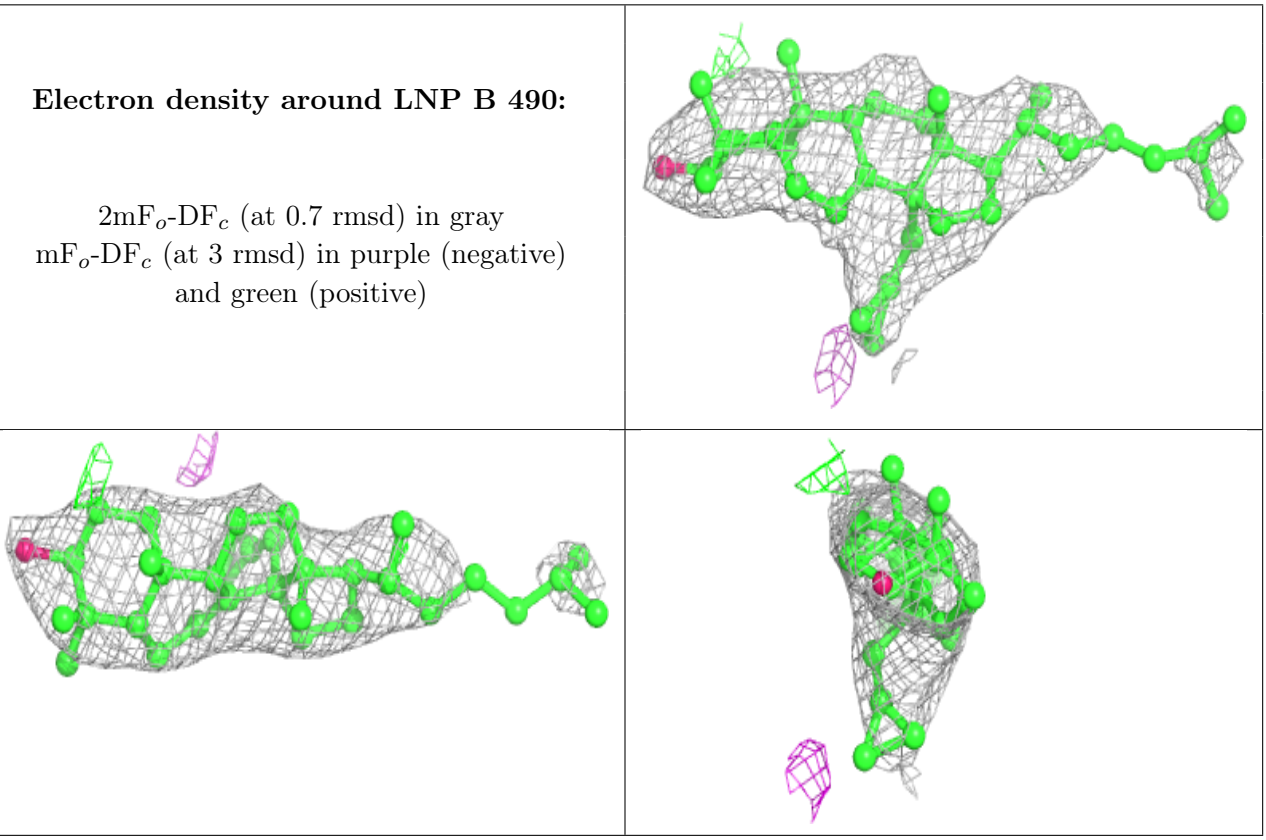
Electron density around LNP D 490:

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



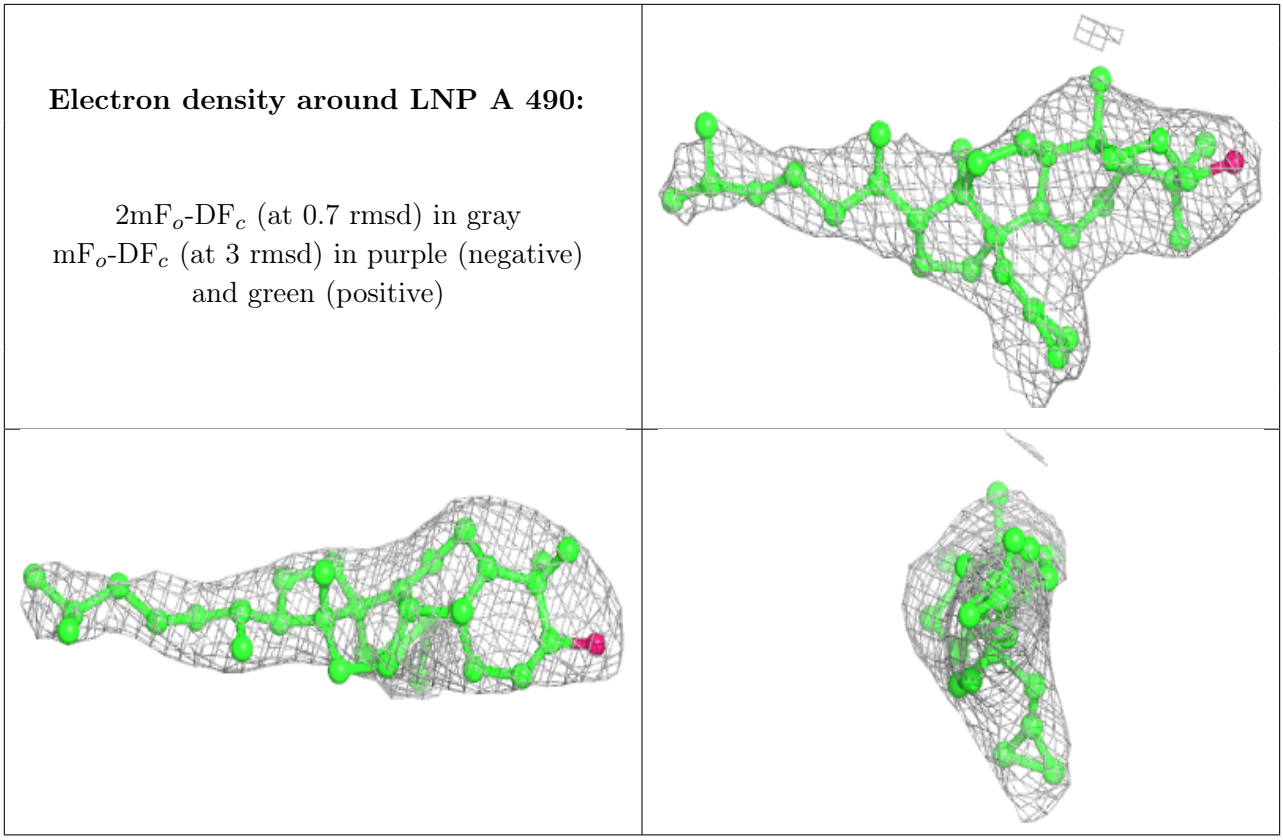
Electron density around LNP B 490:

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



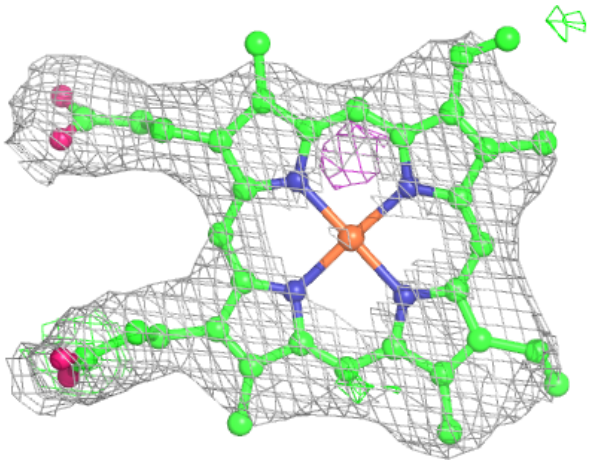
Electron density around LNP A 490:

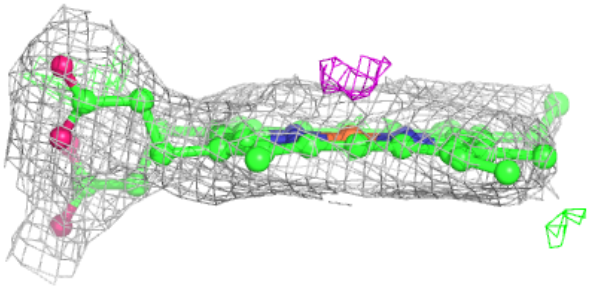
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

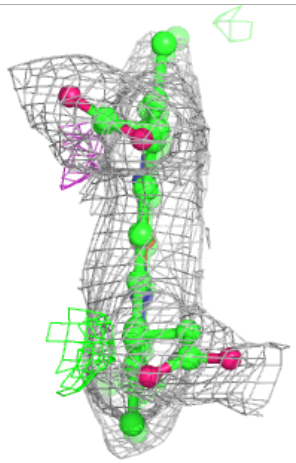


Electron density around HEM A 482:

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

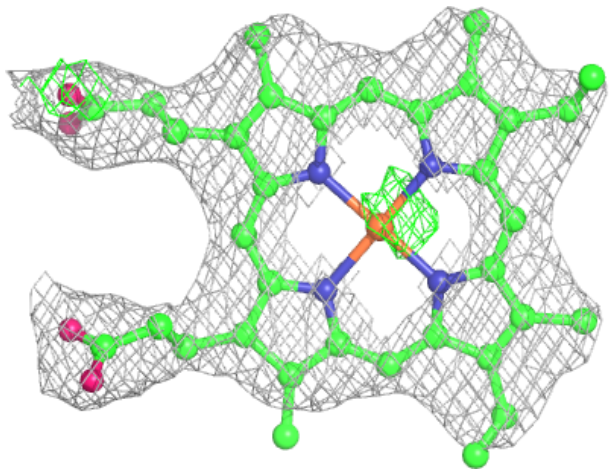


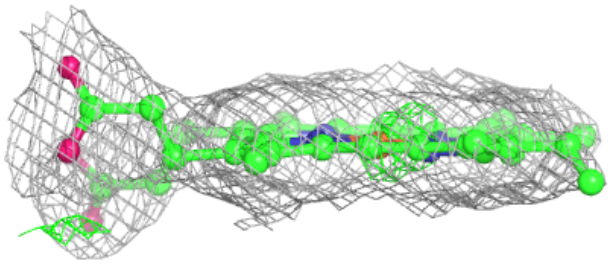


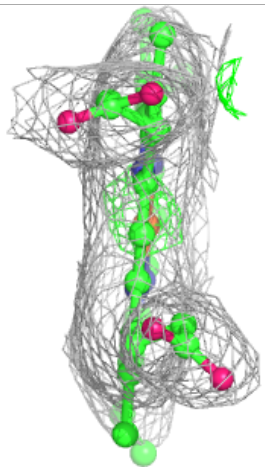


Electron density around HEM C 482:

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

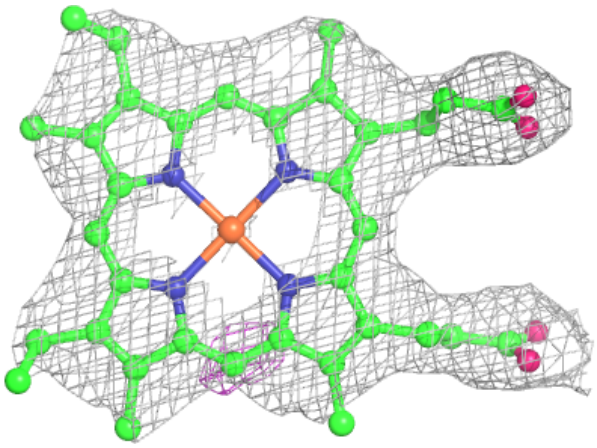


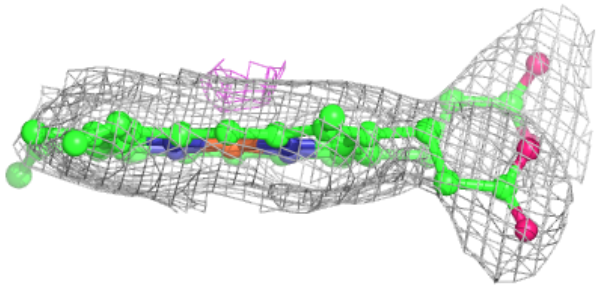


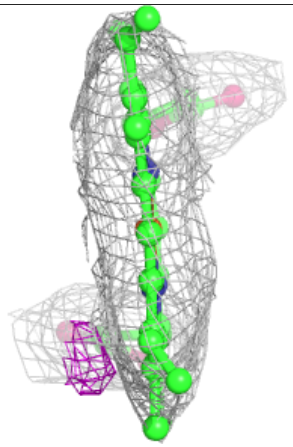


Electron density around HEM B 482:

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

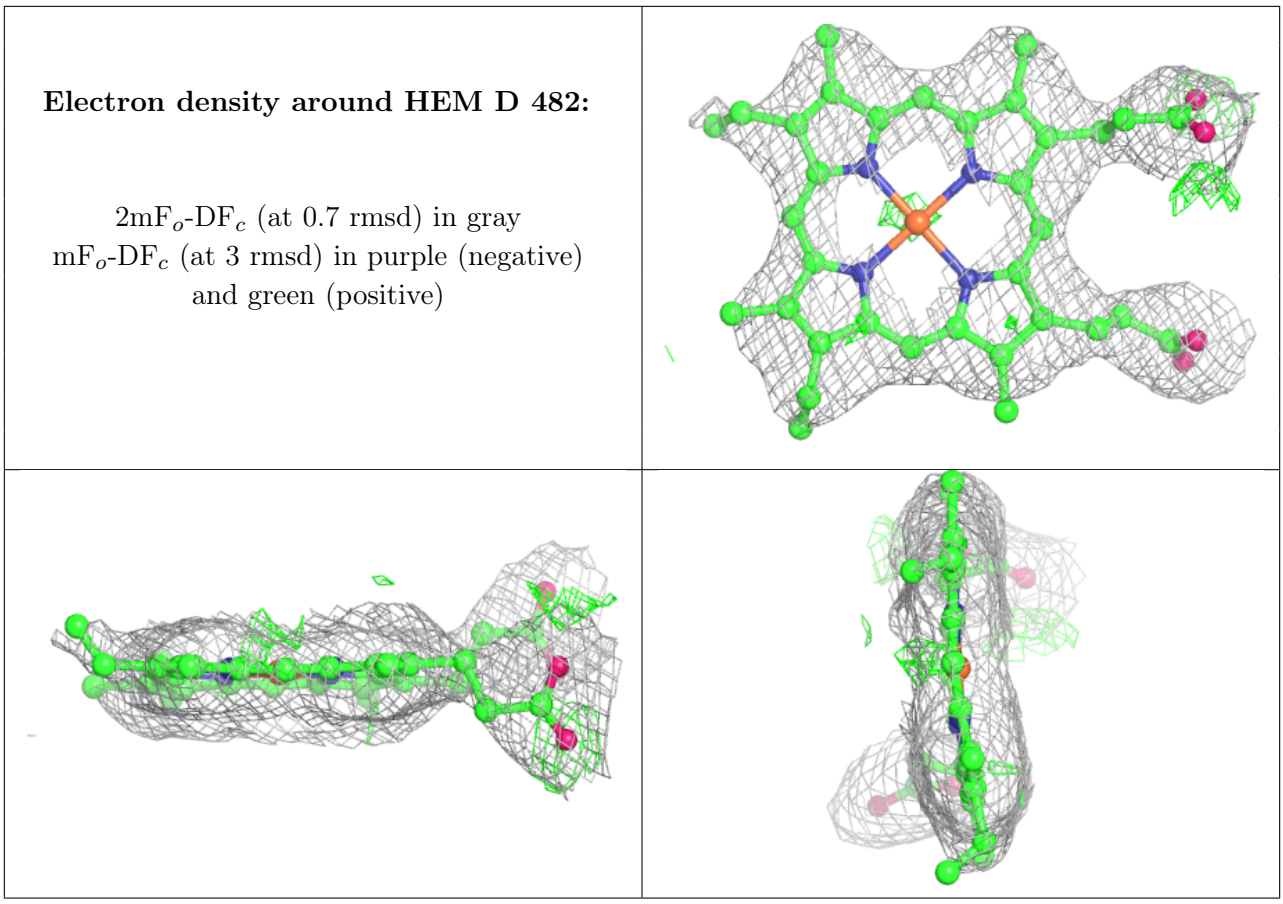






Electron density around HEM D 482:

$2mF_o$-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.