Full wwPDB X-ray Structure Validation Report ⓘ

Nov 22, 2023 – 09:36 PM JST

PDB ID	:	7WY4
Title	:	Structure of the CYP102A1 F87A Haem Domain with N-Enanthyl-L-Prolyl-L-Phenylalanine in complex with Styrene
Authors	:	Suzuki, K.; Stanfield, J.K.; Shisaka, Y.; Omura, K.; Kasai, C.; Sugimoto, H.; Shoji, O.
Deposited on	:	2022-02-15
Resolution	:	1.45 Å(reported)

This is a Full wwPDB X-ray Structure Validation 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 ⓘ 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 ⓘ) were used in the production of this report:

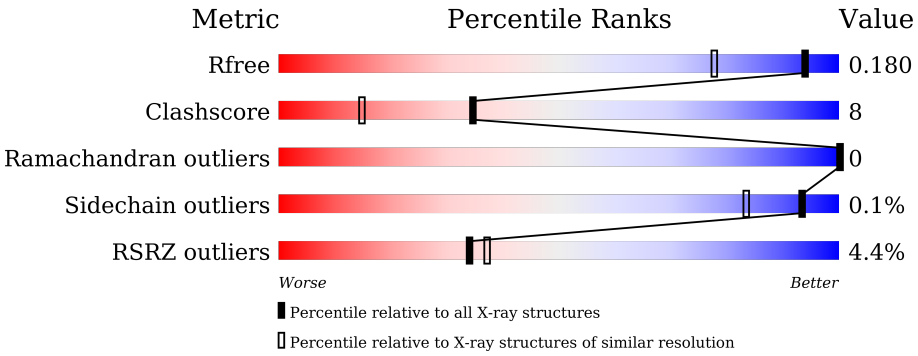
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 1.45 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	1156 (1.46-1.46)
Clashscore	141614	1202 (1.46-1.46)
Ramachandran outliers	138981	1178 (1.46-1.46)
Sidechain outliers	138945	1178 (1.46-1.46)
RSRZ outliers	127900	1139 (1.46-1.46)

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	456	4% 87% 12%
1	B	456	5% 88% 11%

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 9988 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.

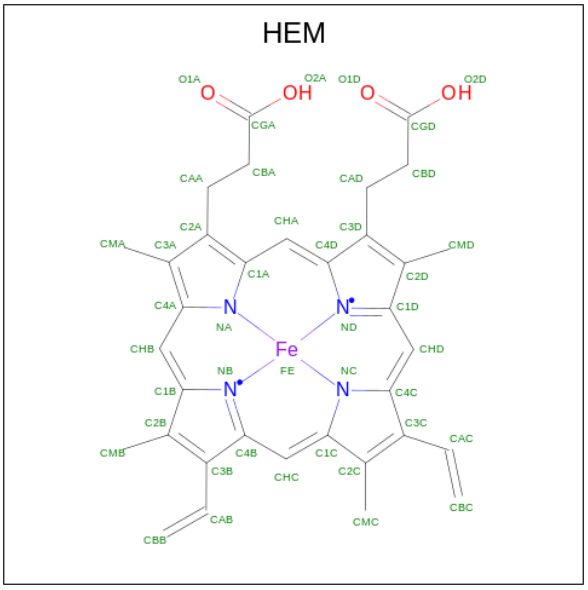
- Molecule 1 is a protein called Bifunctional cytochrome P450/NADPH–P450 reductase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	454	Total	C	N	O	S	0	83	0
			4340	2751	744	822	23			
1	B	454	Total	C	N	O	S	0	86	0
			4353	2765	737	828	23			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	87	ALA	PHE	engineered mutation	UNP A0A1Q8UP87
B	87	ALA	PHE	engineered mutation	UNP A0A1Q8UP87

- Molecule 2 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		

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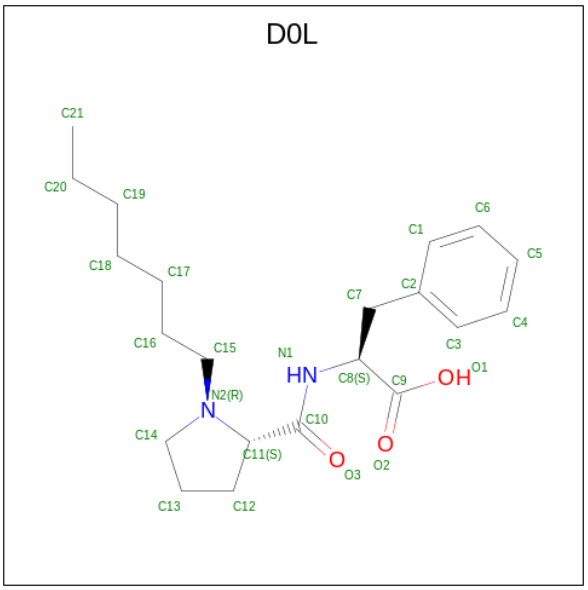
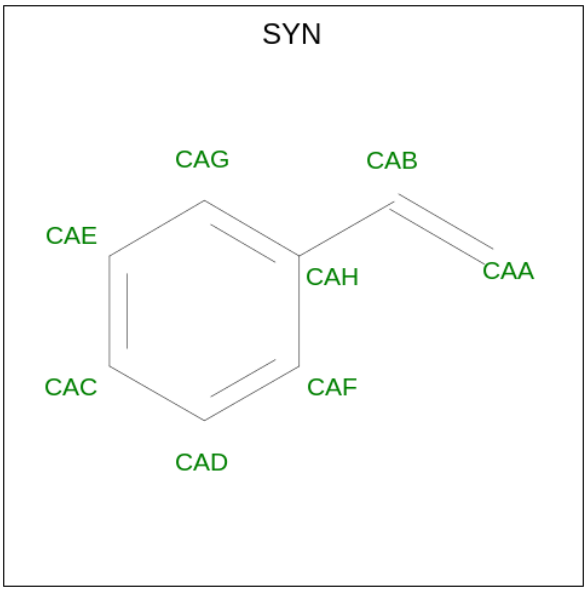
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	B	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		

- Molecule 3 is (2S)-2-[[(2S)-1-heptylpyrrolidin-2-yl]carbonylamino]-3-phenyl-propanoic acid (three-letter code: D0L) (formula: $C_{21}H_{32}N_2O_3$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			26	21	2	3		
3	B	1	Total	C	N	O	0	1
			52	42	4	6		

- Molecule 4 is ethenylbenzene (three-letter code: SYN) (formula: C_8H_8).

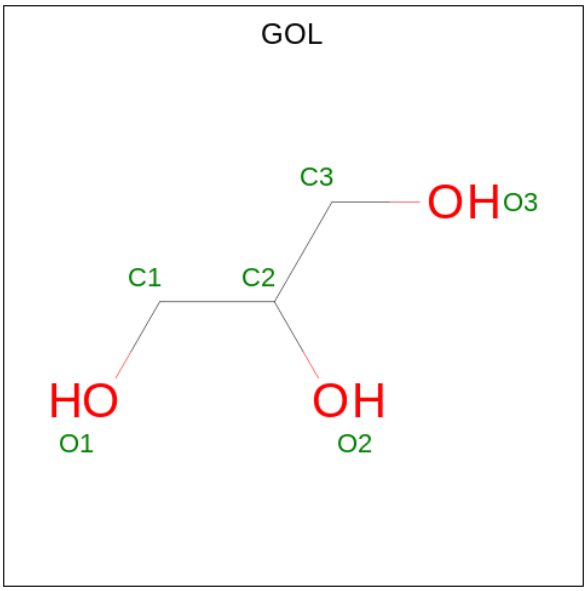


Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C 8 8	0	0
4	B	1	Total C 16 16	0	1

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total Cl 1 1	0	0
5	B	1	Total Cl 1 1	0	0

- Molecule 6 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	O	0	0
			6	3	3		
6	A	1	Total	C	O	0	0
			6	3	3		
6	A	1	Total	C	O	0	0
			6	3	3		
6	A	1	Total	C	O	0	1
			12	6	6		
6	A	1	Total	C	O	0	0
			6	3	3		
6	A	1	Total	C	O	0	1
			12	6	6		
6	A	1	Total	C	O	0	0
			6	3	3		
6	A	1	Total	C	O	0	0
			6	3	3		
6	A	1	Total	C	O	0	0
			6	3	3		
6	A	1	Total	C	O	0	0
			6	3	3		
6	B	1	Total	C	O	0	0
			6	3	3		
6	B	1	Total	C	O	0	0
			6	3	3		
6	B	1	Total	C	O	0	1
			12	6	6		
6	B	1	Total	C	O	0	1
			12	6	6		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	B	1	Total C O 12 6 6	0	1
6	B	1	Total C O 6 3 3	0	0
6	B	1	Total C O 6 3 3	0	0
6	B	1	Total C O 6 3 3	0	0
6	B	1	Total C O 6 3 3	0	0

- Molecule 7 is water.

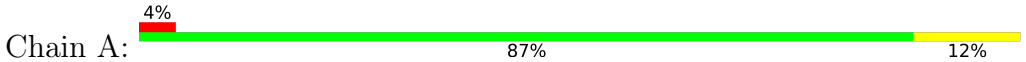
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	462	Total O 462 462	0	0
7	B	413	Total O 413 413	0	0

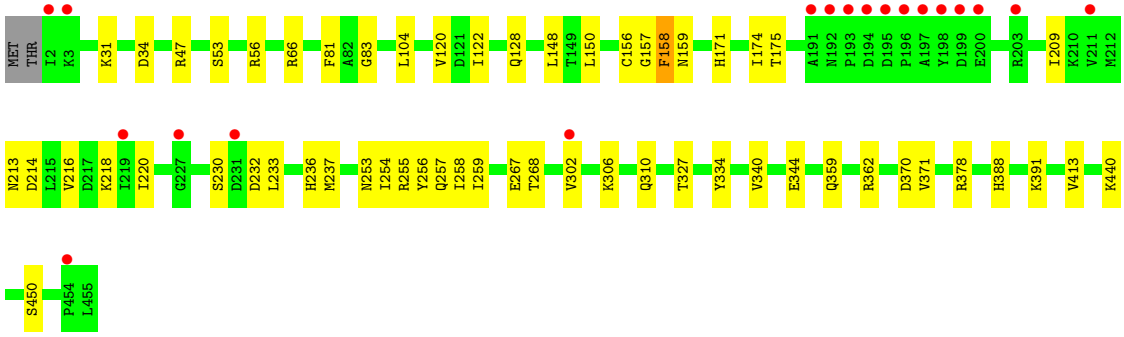
3 Residue-property plots (i)

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: Bifunctional cytochrome P450/NADPH–P450 reductase

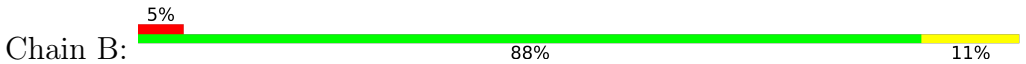
Chain A:

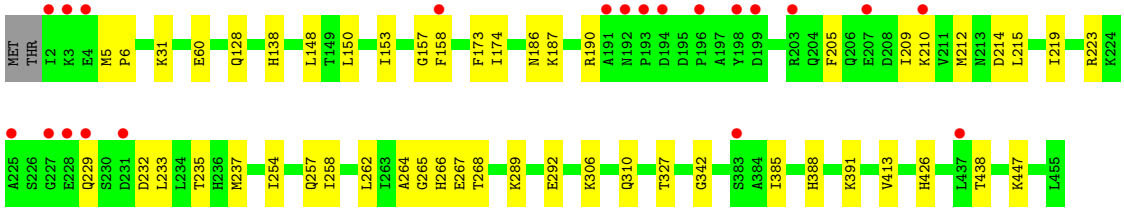




• Molecule 1: Bifunctional cytochrome P450/NADPH–P450 reductase

Chain B:





4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	58.97Å 126.65Å 148.75Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.22 – 1.45 48.22 – 1.45	Depositor EDS
% Data completeness (in resolution range)	100.0 (48.22-1.45) 100.0 (48.22-1.45)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.11 (at 1.45Å)	Xtriage
Refinement program	REFMAC 5.8.0257	Depositor
R, R_{free}	0.143 , 0.179 0.145 , 0.180	Depositor DCC
R_{free} test set	9838 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	16.8	Xtriage
Anisotropy	0.430	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 41.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.98	EDS
Total number of atoms	9988	wwPDB-VP
Average B, all atoms (Å^2)	21.0	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 43.83 % 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 1.6668e-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: D0L, SYN, HEM, GOL, 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	0.62	0/4438	0.74	0/5989
1	B	0.62	0/4455	0.71	0/6014
All	All	0.62	0/8893	0.73	0/12003

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	4340	0	4280	58	0
1	B	4353	0	4293	74	0
2	A	86	0	60	8	0
2	B	86	0	60	16	0
3	A	26	0	0	0	0
3	B	52	0	0	0	0
4	A	8	0	8	0	0
4	B	16	0	16	2	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
6	A	72	0	96	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	B	72	0	96	8	0
7	A	462	0	0	6	0
7	B	413	0	0	11	0
All	All	9988	0	8909	151	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

All (151) 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:157[B]:GLY:O	1:A:232[B]:ASP:HB2	1.37	1.25
1:A:157[B]:GLY:C	1:A:232[B]:ASP:HB2	1.79	1.03
1:B:150[A]:LEU:HD21	1:B:174[A]:ILE:HD11	1.39	1.01
1:A:150[A]:LEU:HD21	1:A:174:ILE:HD11	1.45	0.98
1:A:150[A]:LEU:HD21	1:A:174:ILE:CD1	2.01	0.90
1:A:237[B]:MET:HB3	1:A:254[B]:ILE:HD12	1.54	0.89
1:B:268[B]:THR:O	1:B:327[B]:THR:HG21	1.76	0.86
1:B:31[B]:LYS:HB2	1:B:31[B]:LYS:NZ	1.91	0.86
1:A:237[B]:MET:HB3	1:A:254[B]:ILE:CD1	2.06	0.85
1:B:150[A]:LEU:HD21	1:B:174[A]:ILE:CD1	2.09	0.83
1:B:186[B]:ASN:OD1	1:B:190[B]:ARG:HD3	1.78	0.83
1:B:327[B]:THR:HG22	2:B:501[B]:HEM:CBC	2.10	0.81
1:B:158[B]:PHE:CE2	1:B:219:ILE:HD13	2.15	0.81
1:B:158[B]:PHE:HE2	1:B:219:ILE:HD13	1.45	0.80
1:B:150[A]:LEU:CD2	1:B:174[A]:ILE:HD11	2.12	0.79
1:B:150[A]:LEU:CD2	1:B:174[A]:ILE:CD1	2.61	0.78
2:A:501[A]:HEM:HMC1	2:A:501[A]:HEM:HBC2	1.65	0.78
2:B:501[A]:HEM:HMC2	2:B:501[A]:HEM:HBC2	1.65	0.77
2:B:501[B]:HEM:HBB2	2:B:501[B]:HEM:HMB2	1.68	0.76
1:B:158[A]:PHE:CE1	1:B:258:ILE:HG12	2.21	0.75
1:A:150[A]:LEU:CD2	1:A:174:ILE:CD1	2.65	0.75
1:B:158[B]:PHE:HD2	1:B:219:ILE:HG21	1.55	0.72
2:B:501[B]:HEM:HMC2	2:B:501[B]:HEM:HBC2	1.71	0.72
6:B:513:GOL:H31	7:B:900:HOH:O	1.90	0.71
6:B:513:GOL:C3	7:B:900:HOH:O	2.38	0.71
1:A:156[B]:CYS:O	1:A:232[B]:ASP:HA	1.91	0.70
1:B:153[B]:ILE:HG13	7:B:633:HOH:O	1.92	0.70
1:B:215[B]:LEU:HB2	7:B:721:HOH:O	1.92	0.70
1:A:259[B]:ILE:N	1:A:259[B]:ILE:HD13	2.06	0.69
1:A:157[B]:GLY:O	1:A:232[B]:ASP:CB	2.30	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:306[B]:LYS:HG2	1:B:310[B]:GLN:HE21	1.58	0.68
2:A:501[A]:HEM:HMB2	2:A:501[A]:HEM:HBB2	1.76	0.68
1:B:153[B]:ILE:O	1:B:157[B]:GLY:N	2.25	0.68
2:A:501[B]:HEM:HMC2	2:A:501[B]:HEM:HBC2	1.76	0.67
1:B:173:PHE:HB2	1:B:215[B]:LEU:HD13	1.75	0.67
1:A:150[A]:LEU:CD2	1:A:174:ILE:HD11	2.25	0.66
1:A:306[B]:LYS:HA	1:A:306[B]:LYS:HE2	1.76	0.66
1:B:388:HIS:HA	1:B:391[A]:LYS:HD3	1.77	0.66
1:B:385[B]:ILE:HD13	6:B:508[B]:GOL:H32	1.78	0.64
1:B:31[B]:LYS:HB2	1:B:31[B]:LYS:HZ3	1.59	0.64
2:B:501[B]:HEM:HBC2	2:B:501[B]:HEM:CMC	2.29	0.63
1:B:268[B]:THR:HA	1:B:327[B]:THR:CG2	2.29	0.63
1:A:157[B]:GLY:O	1:A:233[B]:LEU:N	2.32	0.62
6:A:509:GOL:H12	7:A:609:HOH:O	1.99	0.62
1:A:34:ASP:OD1	1:A:359[B]:GLN:NE2	2.29	0.62
1:A:220:ILE:HD11	1:A:258[B]:ILE:HD12	1.82	0.61
1:A:440[B]:LYS:O	1:A:440[B]:LYS:HG3	1.99	0.61
1:B:267[B]:GLU:HG3	7:B:870:HOH:O	2.00	0.60
2:B:501[A]:HEM:HBC2	2:B:501[A]:HEM:CMC	2.32	0.60
1:B:265[B]:GLY:HA3	2:B:501[B]:HEM:CAB	2.32	0.59
1:A:158[B]:PHE:HA	1:A:232[B]:ASP:OD2	2.03	0.59
1:B:173:PHE:HD1	1:B:174[B]:ILE:HD13	1.67	0.58
1:A:122:ILE:HG22	1:A:148[B]:LEU:HD12	1.86	0.58
1:B:237[B]:MET:HE1	1:B:257:GLN:HB2	1.86	0.58
1:B:237[B]:MET:CE	1:B:254:ILE:HA	2.33	0.57
1:B:385[B]:ILE:CD1	6:B:508[B]:GOL:H32	2.34	0.57
1:B:157[A]:GLY:O	1:B:232:ASP:HB2	2.04	0.57
1:B:128[B]:GLN:OE1	6:B:507[B]:GOL:O1	2.23	0.57
1:A:66[B]:ARG:NH2	1:A:340:VAL:O	2.38	0.56
1:B:210[B]:LYS:NZ	1:B:214[B]:ASP:OD2	2.19	0.56
1:A:128[A]:GLN:NE2	7:A:603:HOH:O	2.31	0.56
1:B:264[B]:ALA:HA	4:B:503[B]:SYN:H5	1.87	0.56
1:B:223:ARG:HH11	1:B:235[B]:THR:HG23	1.70	0.55
1:B:262[B]:LEU:O	1:B:266[B]:HIS:HB3	2.06	0.55
1:A:83:GLY:HA3	1:A:256[B]:TYR:CD1	2.41	0.55
1:B:215[A]:LEU:HG	1:B:219:ILE:HD11	1.87	0.54
2:B:501[B]:HEM:HBB2	2:B:501[B]:HEM:CMB	2.36	0.54
1:A:175[B]:THR:HG21	7:A:723:HOH:O	2.08	0.53
2:B:501[A]:HEM:CMB	2:B:501[A]:HEM:HBB2	2.38	0.53
1:A:213:ASN:OD1	1:A:255[B]:ARG:HD3	2.09	0.53
2:A:501[A]:HEM:HBB2	2:A:501[A]:HEM:CMB	2.38	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:215[A]:LEU:O	1:B:219:ILE:HD12	2.09	0.52
1:A:327[B]:THR:HG22	2:A:501[B]:HEM:HMB2	1.92	0.52
1:A:56[B]:ARG:NH1	1:A:344[B]:GLU:OE2	2.42	0.52
1:A:216:VAL:HG13	1:A:258[B]:ILE:HG21	1.92	0.51
1:B:268[B]:THR:CA	1:B:327[B]:THR:HG21	2.40	0.51
1:B:268[B]:THR:C	1:B:327[B]:THR:HG21	2.30	0.51
1:A:150[A]:LEU:CD2	1:A:174:ILE:HD13	2.41	0.51
1:A:236[B]:HIS:CE1	7:A:637:HOH:O	2.63	0.51
1:A:268[B]:THR:O	1:A:327[B]:THR:HG21	2.11	0.51
1:B:306[B]:LYS:HG2	1:B:310[B]:GLN:NE2	2.22	0.51
1:B:327[B]:THR:CG2	2:B:501[B]:HEM:CBC	2.87	0.50
1:A:159[B]:ASN:OD1	1:A:230[B]:SER:HB2	2.12	0.50
1:A:334:TYR:CE2	6:A:512:GOL:H2	2.47	0.50
2:A:501[B]:HEM:HBC2	2:A:501[B]:HEM:CMC	2.42	0.50
1:B:215[B]:LEU:C	1:B:215[B]:LEU:HD23	2.32	0.49
1:B:264[B]:ALA:HA	4:B:503[B]:SYN:CAG	2.41	0.49
1:A:157[B]:GLY:C	1:A:232[B]:ASP:CB	2.69	0.49
1:B:215[A]:LEU:HG	1:B:219:ILE:CD1	2.42	0.49
1:A:306[B]:LYS:NZ	1:A:310[B]:GLN:OE1	2.46	0.49
1:B:268[A]:THR:HB	2:B:501[A]:HEM:C3B	2.48	0.48
1:A:268[B]:THR:HG22	1:A:327[B]:THR:HG23	1.96	0.48
1:B:173:PHE:HB2	1:B:215[B]:LEU:CD1	2.40	0.48
1:A:450:SER:HB2	6:A:511:GOL:H11	1.95	0.48
2:A:501[A]:HEM:HBC2	2:A:501[A]:HEM:CMC	2.41	0.47
1:B:268[B]:THR:CA	1:B:327[B]:THR:CG2	2.92	0.47
1:A:218[B]:LYS:HE3	1:A:218[B]:LYS:HB2	1.69	0.47
6:B:513:GOL:H32	7:B:900:HOH:O	2.09	0.47
1:A:370:ASP:O	1:A:378[B]:ARG:NH2	2.40	0.47
1:B:157[A]:GLY:C	1:B:232:ASP:HB2	2.35	0.47
1:B:292:GLU:HA	6:B:512:GOL:H31	1.97	0.47
1:A:362:ARG:HA	1:A:371[A]:VAL:HG21	1.97	0.47
1:B:60[B]:GLU:OE2	1:B:342:GLY:HA2	2.15	0.47
1:B:173:PHE:CD2	1:B:212[A]:MET:HA	2.49	0.47
1:B:267[B]:GLU:CG	7:B:870:HOH:O	2.61	0.46
1:A:120:VAL:HG11	1:A:302:VAL:HG13	1.97	0.46
1:B:327[B]:THR:O	1:B:438:THR:HB	2.15	0.46
1:A:388:HIS:HA	1:A:391:LYS:HD3	1.96	0.46
1:B:268[B]:THR:HA	1:B:327[B]:THR:HG21	1.97	0.46
2:B:501[A]:HEM:HBB2	2:B:501[A]:HEM:HMB2	1.97	0.46
1:A:253[B]:ASN:O	1:A:257[B]:GLN:HG2	2.16	0.46
1:B:148:LEU:HD21	1:B:413:VAL:HG21	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:104:LEU:HD11	6:A:510[B]:GOL:H32	1.97	0.46
6:A:510[B]:GOL:H31	7:A:756:HOH:O	2.16	0.45
1:A:267[B]:GLU:OE2	1:A:440[B]:LYS:HD3	2.16	0.45
1:B:205:PHE:CE2	1:B:209[B]:ILE:HD11	2.52	0.45
1:B:138:HIS:CE1	6:B:511:GOL:H31	2.51	0.45
1:A:47[B]:ARG:HD2	6:A:514:GOL:H11	1.98	0.45
1:B:327[B]:THR:HG22	2:B:501[B]:HEM:HBC1	1.96	0.45
1:B:153[B]:ILE:CG1	7:B:633:HOH:O	2.60	0.45
1:A:216:VAL:HG11	1:A:258[B]:ILE:HB	1.99	0.44
1:A:81:PHE:HB3	1:A:209:ILE:HG12	1.99	0.44
1:A:53[B]:SER:HB2	1:A:359[B]:GLN:CG	2.47	0.44
1:B:150[A]:LEU:CD2	1:B:174[A]:ILE:HD13	2.47	0.44
1:B:237[B]:MET:HE2	1:B:254:ILE:HG23	2.00	0.44
1:A:31[B]:LYS:HE3	1:A:31[B]:LYS:HB2	1.67	0.43
1:B:31[B]:LYS:HG2	7:B:991:HOH:O	2.17	0.43
1:A:214:ASP:O	1:A:218[B]:LYS:HB2	2.19	0.43
1:B:157[B]:GLY:HA2	1:B:233:LEU:HD12	2.01	0.43
1:B:265[B]:GLY:HA3	2:B:501[B]:HEM:C3B	2.54	0.43
1:B:265[B]:GLY:CA	2:B:501[B]:HEM:C3B	3.02	0.42
1:B:128[A]:GLN:NE2	7:B:622:HOH:O	2.48	0.42
1:A:171:HIS:HB3	1:A:174:ILE:HD12	2.01	0.42
1:A:150[B]:LEU:C	1:A:150[B]:LEU:HD13	2.40	0.42
1:B:31[B]:LYS:HB2	1:B:31[B]:LYS:HZ2	1.81	0.42
1:A:255[B]:ARG:NH2	7:A:625:HOH:O	2.50	0.42
1:A:53[B]:SER:HB2	1:A:359[B]:GLN:HB3	2.01	0.42
1:A:362:ARG:HA	1:A:371[A]:VAL:CG2	2.49	0.42
1:B:229:GLN:HA	1:B:235[B]:THR:HG21	2.01	0.42
1:B:426:HIS:CD2	1:B:447:LYS:HE3	2.55	0.42
1:B:187:LYS:HA	1:B:190[B]:ARG:HG3	2.02	0.42
1:A:148[A]:LEU:HD21	1:A:413[A]:VAL:HG21	2.02	0.41
1:A:268[A]:THR:HB	2:A:501[A]:HEM:C2C	2.55	0.41
1:B:158[B]:PHE:CD1	1:B:158[B]:PHE:N	2.89	0.41
1:B:265[B]:GLY:CA	2:B:501[B]:HEM:CAB	2.99	0.41
1:B:237[B]:MET:HE2	1:B:254:ILE:HG12	2.03	0.41
1:A:306[B]:LYS:NZ	1:A:310[B]:GLN:HG2	2.35	0.41
1:B:5[A]:MET:HA	1:B:6:PRO:HD3	1.85	0.41
1:B:237[B]:MET:HE2	1:B:237[B]:MET:HB3	1.86	0.41
1:B:289[B]:LYS:NZ	7:B:612:HOH:O	2.44	0.40
1:A:150[A]:LEU:HD21	1:A:174:ILE:CG1	2.51	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	536/456 (118%)	523 (98%)	13 (2%)	0	100	100
1	B	539/456 (118%)	524 (97%)	15 (3%)	0	100	100
All	All	1075/912 (118%)	1047 (97%)	28 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	477/399 (120%)	475 (100%)	2 (0%)	91	80
1	B	477/399 (120%)	477 (100%)	0	100	100
All	All	954/798 (120%)	952 (100%)	2 (0%)	93	83

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

Mol	Chain	Res	Type
1	A	158[A]	PHE
1	A	158[B]	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	73	GLN

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Mol	Chain	Res	Type
1	A	189	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 monosaccharides in this entry.

5.6 Ligand geometry

Of 36 ligands modelled in this entry, 2 are monoatomic - leaving 34 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	$\#\|Z\| > 2$
4	SYN	B	503[A]	-	8,8,8	0.47	0	9,9,9	0.81	0
2	HEM	A	501[B]	1	41,50,50	1.25	7 (17%)	45,82,82	1.83	13 (28%)
6	GOL	B	510	-	5,5,5	0.11	0	5,5,5	0.33	0
2	HEM	B	501[A]	1	41,50,50	1.31	5 (12%)	45,82,82	1.75	10 (22%)
6	GOL	B	508[A]	-	5,5,5	0.09	0	5,5,5	0.26	0
6	GOL	A	513	-	5,5,5	0.14	0	5,5,5	0.38	0
6	GOL	B	509[A]	-	5,5,5	0.09	0	5,5,5	0.21	0
6	GOL	A	507	-	5,5,5	0.09	0	5,5,5	0.28	0
6	GOL	A	505	-	5,5,5	0.12	0	5,5,5	0.29	0
4	SYN	B	503[B]	-	8,8,8	0.66	0	9,9,9	0.32	0
4	SYN	A	503	-	8,8,8	0.60	0	9,9,9	0.56	0
6	GOL	B	506	-	5,5,5	0.13	0	5,5,5	0.24	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	HEM	B	501[B]	1	41,50,50	1.32	7 (17%)	45,82,82	1.84	10 (22%)
6	GOL	B	508[B]	-	5,5,5	0.10	0	5,5,5	0.28	0
6	GOL	B	513	-	5,5,5	0.14	0	5,5,5	0.37	0
6	GOL	A	509	-	5,5,5	0.11	0	5,5,5	0.24	0
6	GOL	A	508[A]	-	5,5,5	0.08	0	5,5,5	0.29	0
6	GOL	B	509[B]	-	5,5,5	0.09	0	5,5,5	0.30	0
3	D0L	B	502[A]	-	27,27,27	0.61	0	34,34,34	0.99	2 (5%)
6	GOL	A	510[A]	-	5,5,5	0.10	0	5,5,5	0.31	0
6	GOL	B	507[A]	-	5,5,5	0.09	0	5,5,5	0.26	0
6	GOL	A	506	-	5,5,5	0.16	0	5,5,5	0.27	0
6	GOL	A	508[B]	-	5,5,5	0.07	0	5,5,5	0.26	0
2	HEM	A	501[A]	1	41,50,50	1.34	6 (14%)	45,82,82	1.89	14 (31%)
6	GOL	A	512	-	5,5,5	0.13	0	5,5,5	0.31	0
6	GOL	A	511	-	5,5,5	0.15	0	5,5,5	0.43	0
6	GOL	B	512	-	5,5,5	0.07	0	5,5,5	0.24	0
3	D0L	A	502	-	27,27,27	0.70	0	34,34,34	1.01	1 (2%)
6	GOL	B	511	-	5,5,5	0.09	0	5,5,5	0.21	0
3	D0L	B	502[B]	-	27,27,27	0.61	0	34,34,34	0.95	2 (5%)
6	GOL	A	510[B]	-	5,5,5	0.09	0	5,5,5	0.29	0
6	GOL	A	514	-	5,5,5	0.14	0	5,5,5	0.25	0
6	GOL	B	505	-	5,5,5	0.24	0	5,5,5	0.44	0
6	GOL	B	507[B]	-	5,5,5	0.09	0	5,5,5	0.24	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
4	SYN	B	503[A]	-	-	0/2/2/2	0/1/1/1
2	HEM	A	501[B]	1	-	2/12/54/54	-
6	GOL	B	510	-	-	2/4/4/4	-
2	HEM	B	501[A]	1	-	2/12/54/54	-
6	GOL	B	508[A]	-	-	0/4/4/4	-
6	GOL	A	513	-	-	2/4/4/4	-
6	GOL	B	509[A]	-	-	3/4/4/4	-
6	GOL	A	507	-	-	0/4/4/4	-
6	GOL	A	505	-	-	0/4/4/4	-
4	SYN	B	503[B]	-	-	2/2/2/2	0/1/1/1
4	SYN	A	503	-	-	0/2/2/2	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	GOL	B	506	-	-	0/4/4/4	-
2	HEM	B	501[B]	1	-	2/12/54/54	-
6	GOL	B	508[B]	-	-	0/4/4/4	-
6	GOL	B	513	-	-	2/4/4/4	-
6	GOL	A	509	-	-	1/4/4/4	-
6	GOL	A	508[A]	-	-	0/4/4/4	-
6	GOL	B	509[B]	-	-	0/4/4/4	-
3	D0L	B	502[A]	-	-	3/23/33/33	0/2/2/2
6	GOL	A	510[A]	-	-	0/4/4/4	-
6	GOL	B	507[A]	-	-	1/4/4/4	-
6	GOL	A	506	-	-	0/4/4/4	-
6	GOL	A	508[B]	-	-	1/4/4/4	-
2	HEM	A	501[A]	1	-	2/12/54/54	-
6	GOL	A	512	-	-	0/4/4/4	-
6	GOL	A	511	-	-	0/4/4/4	-
6	GOL	B	512	-	-	2/4/4/4	-
3	D0L	A	502	-	-	3/23/33/33	0/2/2/2
6	GOL	B	511	-	-	2/4/4/4	-
3	D0L	B	502[B]	-	-	2/23/33/33	0/2/2/2
6	GOL	A	510[B]	-	-	0/4/4/4	-
6	GOL	A	514	-	-	2/4/4/4	-
6	GOL	B	505	-	-	0/4/4/4	-
6	GOL	B	507[B]	-	-	0/4/4/4	-

All (25) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	501[B]	HEM	C1B-NB	-3.32	1.34	1.40
2	B	501[A]	HEM	C1B-NB	-3.30	1.34	1.40
2	B	501[A]	HEM	C4D-C3D	3.29	1.50	1.45
2	A	501[A]	HEM	C1B-NB	-2.98	1.35	1.40
2	A	501[A]	HEM	C4D-C3D	2.94	1.50	1.45
2	A	501[B]	HEM	CHB-C1B	2.90	1.42	1.35
2	B	501[B]	HEM	CHB-C1B	2.86	1.42	1.35
2	A	501[A]	HEM	FE-NB	2.74	2.10	1.96
2	A	501[A]	HEM	CHB-C1B	2.61	1.41	1.35
2	A	501[B]	HEM	C1B-NB	-2.53	1.35	1.40
2	B	501[B]	HEM	FE-NB	2.51	2.09	1.96
2	B	501[B]	HEM	C4D-C3D	2.44	1.49	1.45
2	B	501[A]	HEM	CHB-C1B	2.41	1.41	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	501[A]	HEM	C1D-C2D	2.39	1.49	1.44
2	B	501[B]	HEM	C4B-NB	-2.36	1.33	1.38
2	A	501[B]	HEM	FE-NB	2.36	2.08	1.96
2	A	501[B]	HEM	C4D-C3D	2.35	1.49	1.45
2	B	501[A]	HEM	CHA-C4D	2.33	1.40	1.35
2	A	501[A]	HEM	CHA-C4D	2.23	1.40	1.35
2	B	501[A]	HEM	FE-NB	2.21	2.07	1.96
2	A	501[B]	HEM	CHA-C4D	2.14	1.40	1.35
2	A	501[B]	HEM	C3B-C4B	2.14	1.49	1.44
2	B	501[B]	HEM	C4D-ND	-2.13	1.36	1.40
2	A	501[B]	HEM	C4B-NB	-2.05	1.34	1.38
2	B	501[B]	HEM	CHA-C4D	2.04	1.40	1.35

All (52) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	501[A]	HEM	C1B-NB-C4B	5.32	110.56	105.07
2	B	501[B]	HEM	C1B-NB-C4B	5.27	110.52	105.07
2	B	501[A]	HEM	CHC-C4B-NB	4.92	129.78	124.43
2	A	501[B]	HEM	CHC-C4B-NB	4.73	129.57	124.43
2	B	501[B]	HEM	CHC-C4B-NB	4.72	129.56	124.43
2	A	501[A]	HEM	CHC-C4B-NB	4.58	129.40	124.43
2	A	501[B]	HEM	C1B-NB-C4B	4.14	109.35	105.07
2	B	501[A]	HEM	C1B-NB-C4B	3.96	109.17	105.07
2	B	501[B]	HEM	CHD-C1D-C2D	-3.49	119.52	124.98
2	A	501[B]	HEM	CHD-C1D-C2D	-3.38	119.70	124.98
2	B	501[A]	HEM	CHD-C1D-C2D	-3.37	119.72	124.98
2	A	501[A]	HEM	CHB-C1B-NB	3.23	128.37	124.38
2	A	501[A]	HEM	CHD-C1D-C2D	-3.13	120.09	124.98
2	B	501[B]	HEM	CHD-C1D-ND	3.08	127.78	124.43
2	B	501[A]	HEM	C2D-C1D-ND	3.08	113.57	109.88
2	A	501[B]	HEM	CHD-C1D-ND	3.01	127.70	124.43
2	B	501[B]	HEM	CHB-C1B-NB	2.99	128.07	124.38
3	B	502[A]	D0L	C15-N2-C14	-2.95	108.76	113.97
2	A	501[A]	HEM	CAD-C3D-C4D	2.71	129.39	124.66
3	A	502	D0L	C7-C8-N1	2.70	116.47	110.79
2	A	501[A]	HEM	CHA-C4D-C3D	-2.69	120.29	125.33
2	B	501[B]	HEM	O2D-CGD-CBD	2.67	122.62	114.03
2	A	501[A]	HEM	CHD-C1D-ND	2.66	127.32	124.43
2	A	501[B]	HEM	CHA-C4D-ND	2.61	127.61	124.38
2	A	501[B]	HEM	CHB-C1B-NB	2.58	127.57	124.38
2	A	501[B]	HEM	CMA-C3A-C4A	-2.54	124.56	128.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	501[A]	HEM	O2A-CGA-CBA	2.51	122.09	114.03
2	B	501[B]	HEM	CHA-C4D-C3D	-2.48	120.68	125.33
2	A	501[B]	HEM	CHA-C4D-C3D	-2.48	120.68	125.33
2	B	501[A]	HEM	CHA-C4D-ND	2.45	127.41	124.38
2	B	501[A]	HEM	CMA-C3A-C4A	-2.44	124.71	128.46
2	A	501[A]	HEM	C3B-C2B-C1B	2.41	108.27	106.49
2	A	501[A]	HEM	CMA-C3A-C4A	-2.36	124.83	128.46
2	A	501[B]	HEM	O2A-CGA-CBA	2.36	121.61	114.03
2	B	501[B]	HEM	C2D-C1D-ND	2.35	112.70	109.88
2	B	501[A]	HEM	CHA-C4D-C3D	-2.31	120.99	125.33
2	B	501[B]	HEM	CAD-C3D-C4D	2.31	128.69	124.66
3	B	502[B]	D0L	C16-C15-N2	-2.30	107.59	113.88
2	A	501[A]	HEM	C4B-C3B-C2B	-2.28	105.31	107.11
3	B	502[A]	D0L	C7-C8-N1	2.25	115.54	110.79
3	B	502[B]	D0L	C7-C8-N1	2.25	115.53	110.79
2	A	501[A]	HEM	C2D-C1D-ND	2.25	112.58	109.88
2	A	501[A]	HEM	CMC-C2C-C3C	2.25	128.88	124.68
2	A	501[B]	HEM	C2D-C1D-ND	2.23	112.55	109.88
2	A	501[B]	HEM	O2D-CGD-CBD	2.23	121.18	114.03
2	A	501[A]	HEM	C3D-C4D-ND	2.22	112.64	110.17
2	A	501[A]	HEM	CHA-C4D-ND	2.12	127.00	124.38
2	A	501[B]	HEM	CBD-CAD-C3D	-2.12	106.75	112.63
2	B	501[A]	HEM	CHD-C1D-ND	2.09	126.70	124.43
2	B	501[A]	HEM	CBD-CAD-C3D	-2.09	106.83	112.63
2	B	501[B]	HEM	C3D-C4D-ND	2.08	112.48	110.17
2	A	501[B]	HEM	CAD-C3D-C4D	2.07	128.27	124.66

There are no chirality outliers.

All (36) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	514	GOL	C1-C2-C3-O3
6	B	510	GOL	C1-C2-C3-O3
4	B	503[B]	SYN	CAA-CAB-CAH-CAG
3	A	502	D0L	C17-C18-C19-C20
4	B	503[B]	SYN	CAA-CAB-CAH-CAF
6	A	513	GOL	O1-C1-C2-C3
6	B	507[A]	GOL	O1-C1-C2-C3
6	B	509[A]	GOL	O1-C1-C2-C3
6	B	513	GOL	O1-C1-C2-C3
3	B	502[A]	D0L	C17-C18-C19-C20
6	A	514	GOL	O2-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
6	B	509[A]	GOL	O1-C1-C2-O2
3	B	502[A]	D0L	C15-C16-C17-C18
3	A	502	D0L	C15-C16-C17-C18
6	B	510	GOL	O2-C2-C3-O3
6	A	509	GOL	O1-C1-C2-C3
6	B	509[A]	GOL	O2-C2-C3-O3
6	B	512	GOL	O1-C1-C2-O2
3	B	502[B]	D0L	C15-C16-C17-C18
6	B	513	GOL	O1-C1-C2-O2
2	A	501[A]	HEM	CAA-CBA-CGA-O1A
2	A	501[A]	HEM	CAA-CBA-CGA-O2A
3	B	502[A]	D0L	C16-C17-C18-C19
2	B	501[B]	HEM	CAA-CBA-CGA-O2A
6	B	511	GOL	C1-C2-C3-O3
6	B	512	GOL	O1-C1-C2-C3
3	A	502	D0L	C16-C17-C18-C19
6	A	513	GOL	O1-C1-C2-O2
2	B	501[A]	HEM	CAD-CBD-CGD-O2D
2	A	501[B]	HEM	CAD-CBD-CGD-O2D
2	B	501[B]	HEM	CAA-CBA-CGA-O1A
2	B	501[A]	HEM	CAD-CBD-CGD-O1D
2	A	501[B]	HEM	CAD-CBD-CGD-O1D
6	B	511	GOL	O1-C1-C2-C3
6	A	508[B]	GOL	O2-C2-C3-O3
3	B	502[B]	D0L	C16-C17-C18-C19

There are no ring outliers.

15 monomers are involved in 40 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	501[B]	HEM	3	0
2	B	501[A]	HEM	5	0
4	B	503[B]	SYN	2	0
2	B	501[B]	HEM	11	0
6	B	508[B]	GOL	2	0
6	B	513	GOL	3	0
6	A	509	GOL	1	0
2	A	501[A]	HEM	5	0
6	A	512	GOL	1	0
6	A	511	GOL	1	0
6	B	512	GOL	1	0
6	B	511	GOL	1	0

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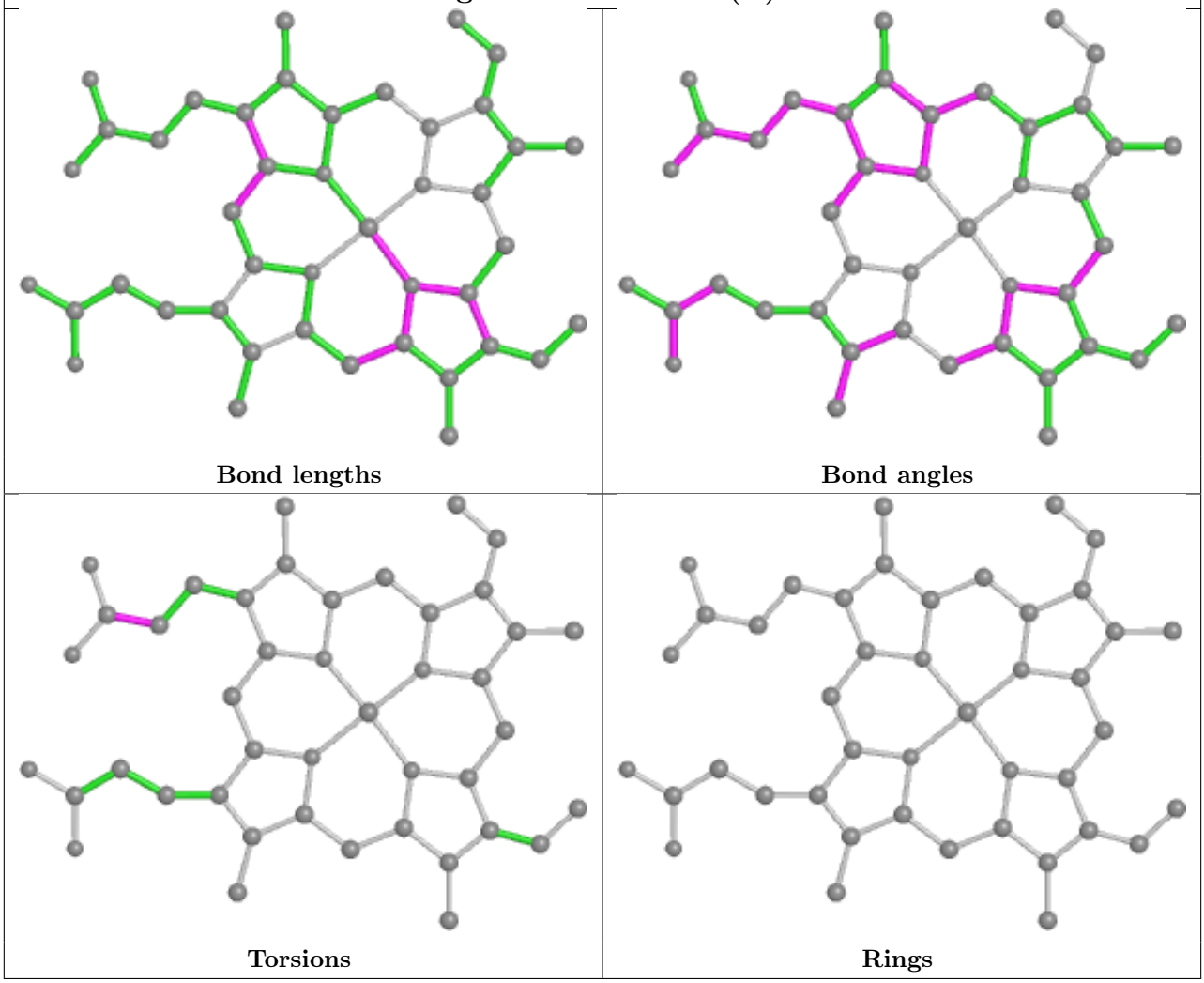
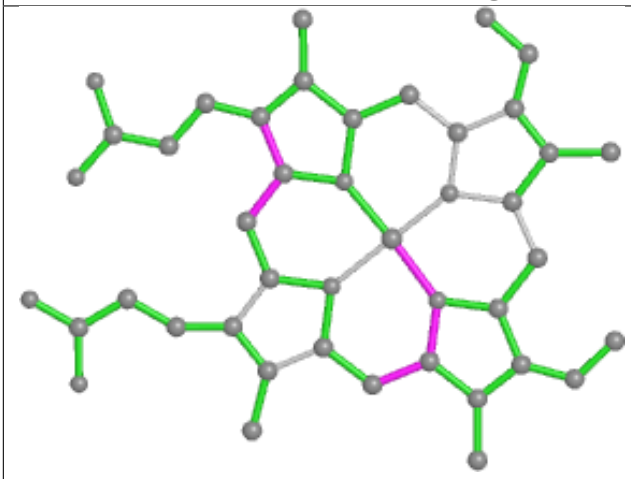
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	510[B]	GOL	2	0
6	A	514	GOL	1	0
6	B	507[B]	GOL	1	0

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.

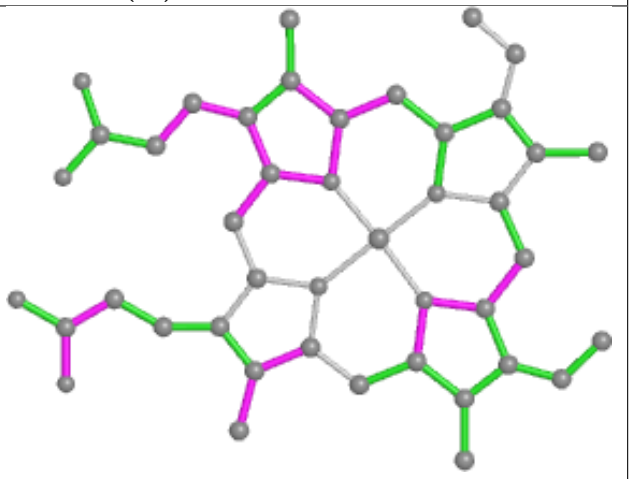
Ligand HEM A 501 (B)



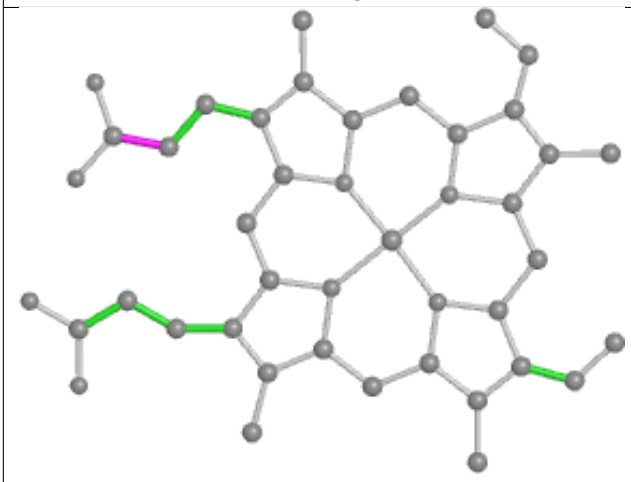
Ligand HEM B 501 (A)



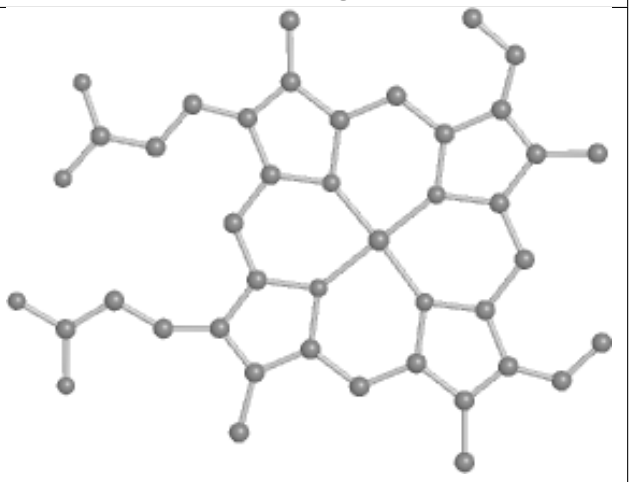
Bond lengths



Bond angles

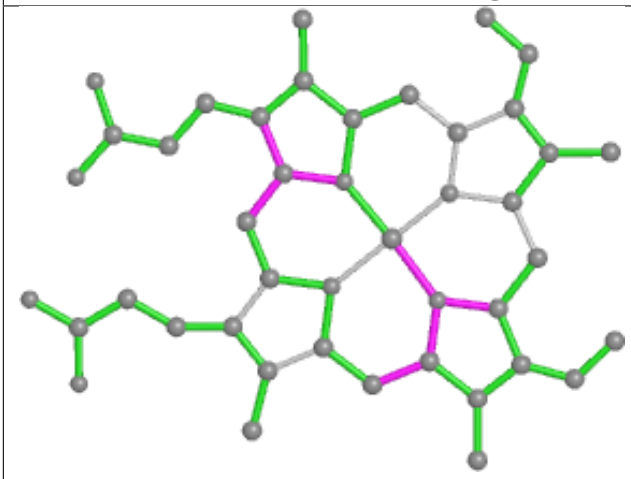


Torsions

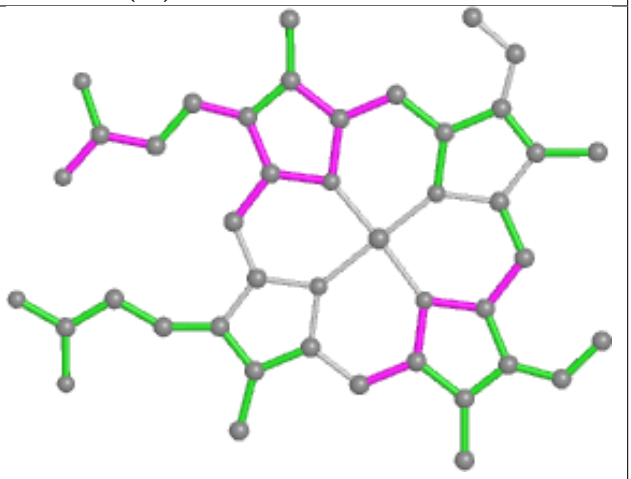


Rings

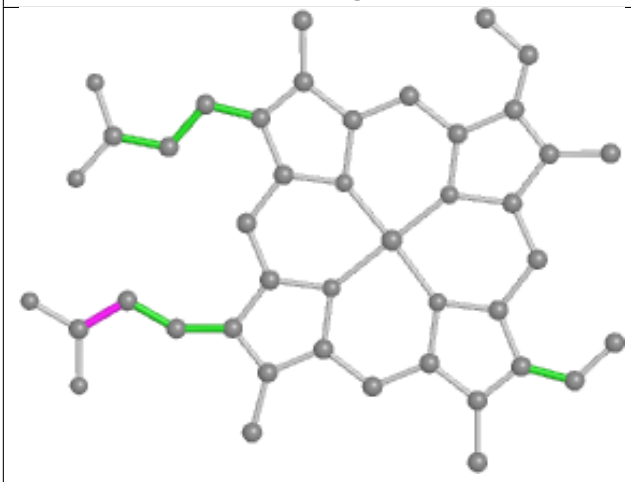
Ligand HEM B 501 (B)



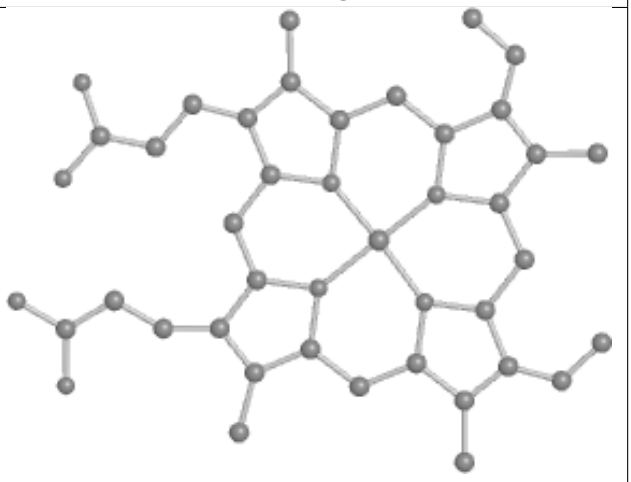
Bond lengths



Bond angles

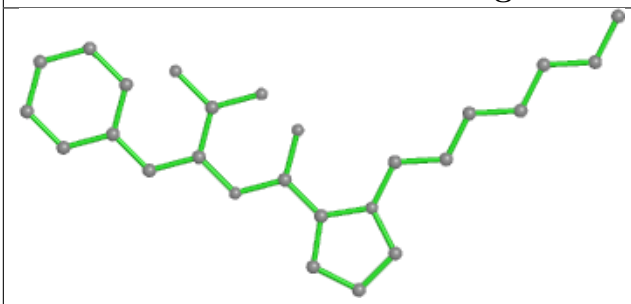


Torsions

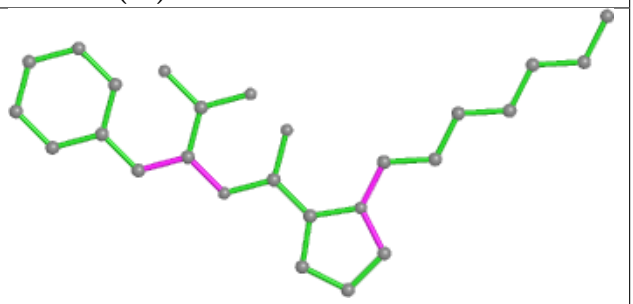


Rings

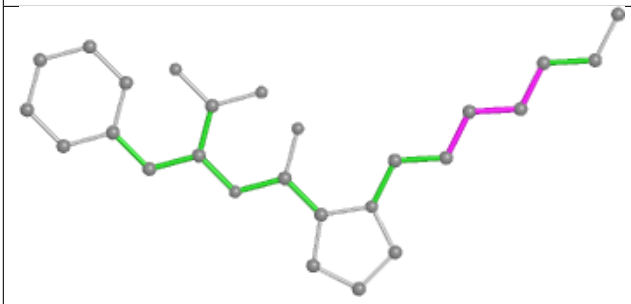
Ligand D0L B 502 (A)



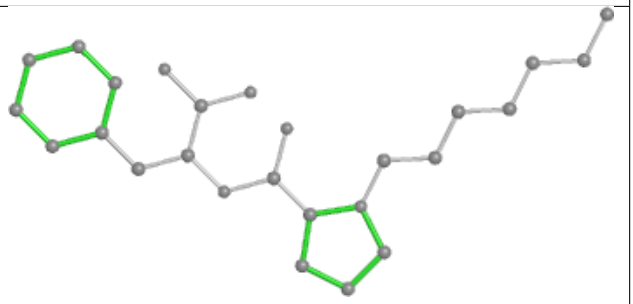
Bond lengths



Bond angles

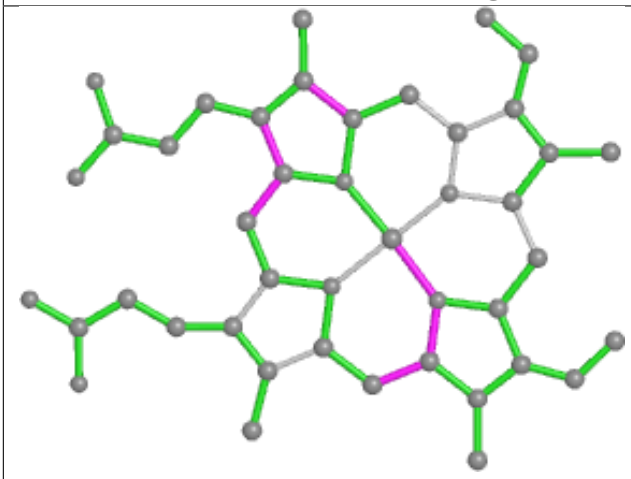


Torsions

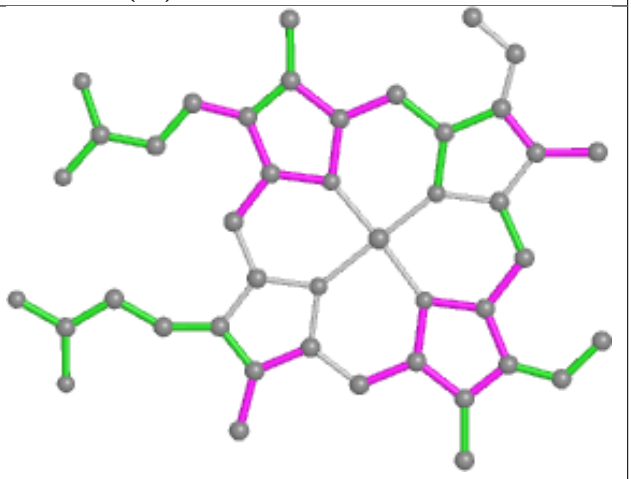


Rings

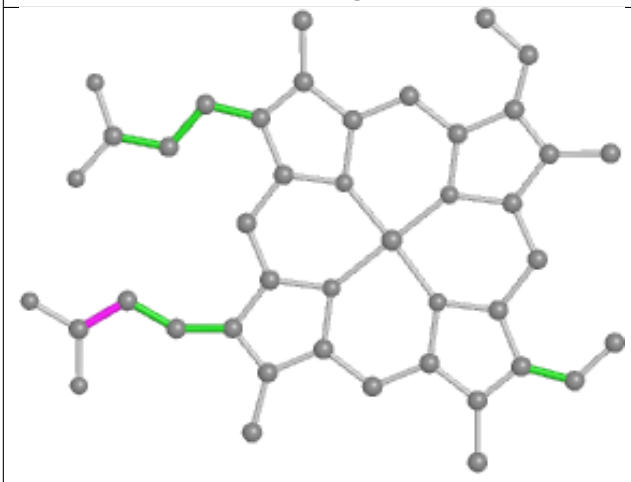
Ligand HEM A 501 (A)



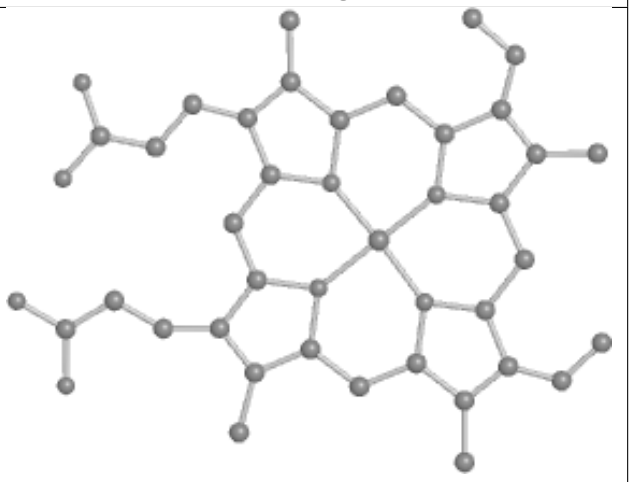
Bond lengths



Bond angles

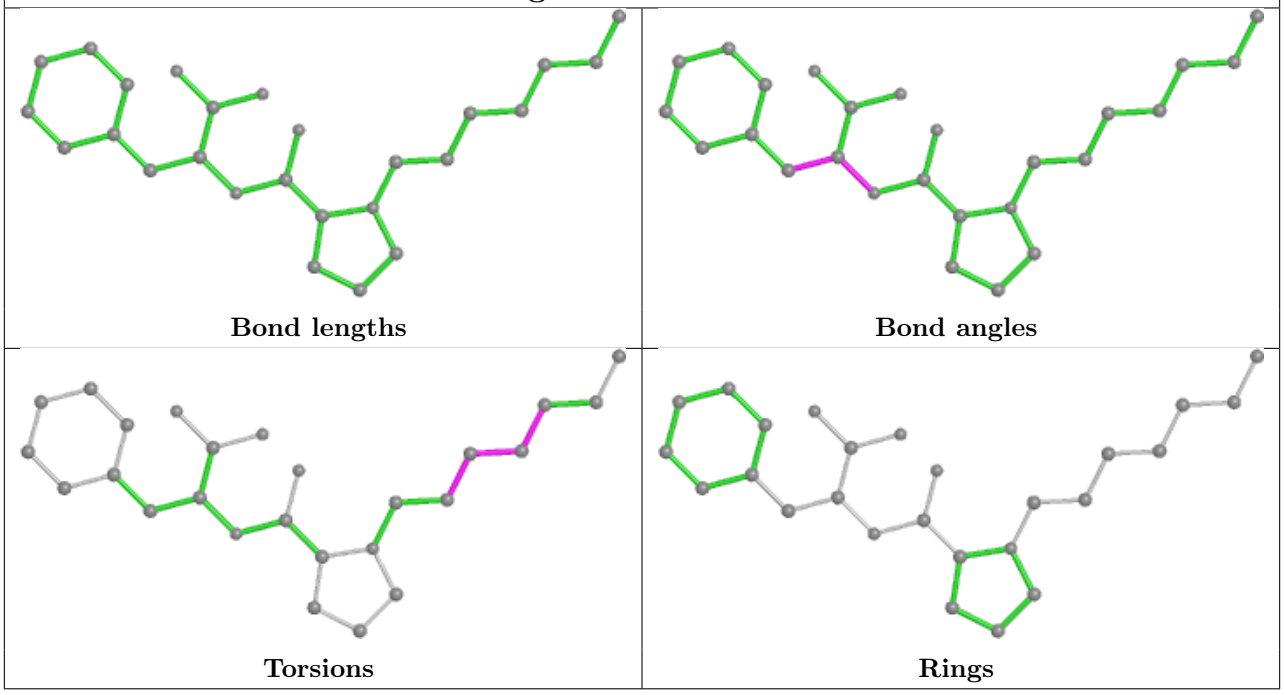


Torsions

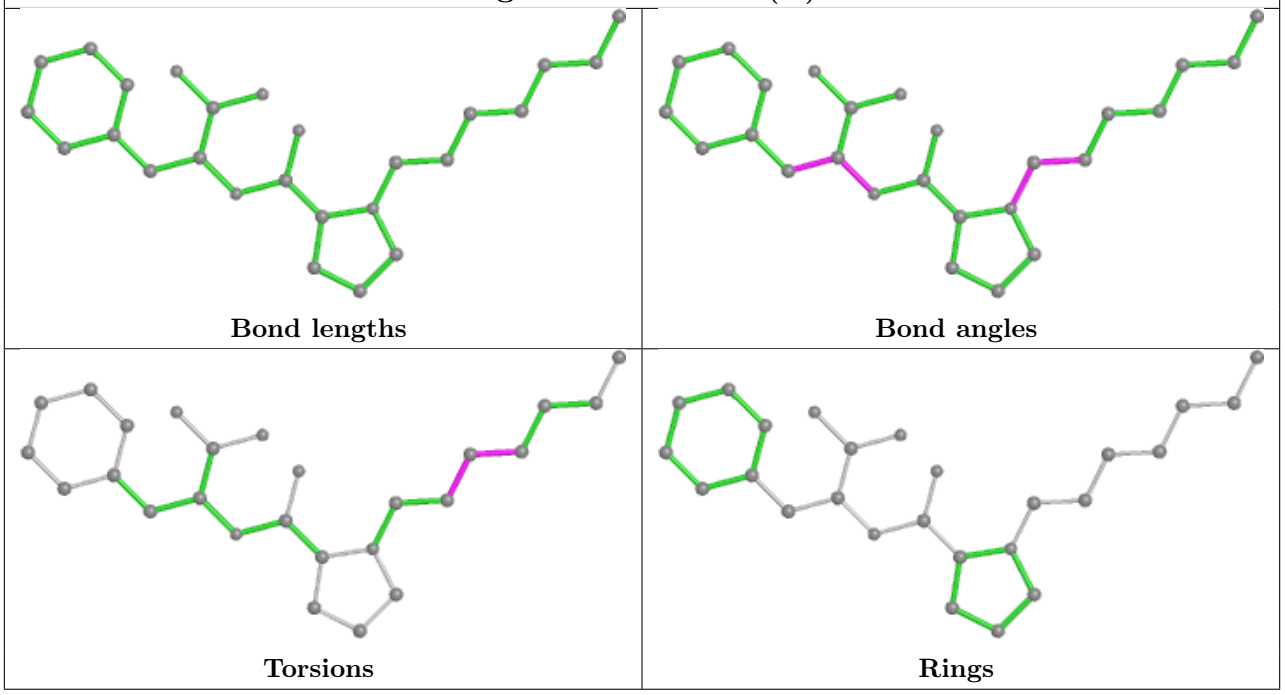


Rings

Ligand D0L A 502



Ligand D0L B 502 (B)



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	454/456 (99%)	-0.13	19 (4%)	36	39	11, 17, 35, 60	0
1	B	454/456 (99%)	-0.05	21 (4%)	32	35	12, 18, 38, 60	0
All	All	908/912 (99%)	-0.09	40 (4%)	34	37	11, 17, 37, 60	0

All (40) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	2	ILE	7.7
1	A	196	PRO	6.9
1	A	2	ILE	6.1
1	B	196	PRO	5.6
1	A	197	ALA	4.9
1	A	191	ALA	4.6
1	B	231	ASP	4.5
1	B	194	ASP	4.2
1	A	194	ASP	4.1
1	B	199	ASP	4.0
1	B	193	PRO	3.6
1	A	231[A]	ASP	3.5
1	A	198	TYR	3.5
1	A	199	ASP	3.2
1	A	192	ASN	3.2
1	B	229	GLN	3.1
1	B	225	ALA	2.9
1	A	193	PRO	2.9
1	B	192	ASN	2.9
1	A	195	ASP	2.9
1	B	203	ARG	2.8
1	A	200	GLU	2.7
1	B	4[A]	GLU	2.7
1	B	158[A]	PHE	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	302	VAL	2.6
1	B	198	TYR	2.6
1	B	3	LYS	2.6
1	A	203	ARG	2.5
1	B	207[A]	GLU	2.5
1	B	437	LEU	2.5
1	A	227	GLY	2.3
1	B	227	GLY	2.3
1	A	211	VAL	2.3
1	B	383	SER	2.2
1	B	210[A]	LYS	2.2
1	B	228	GLU	2.0
1	A	454	PRO	2.0
1	B	191	ALA	2.0
1	A	3	LYS	2.0
1	A	219[A]	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 monosaccharides 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(Å^2)	Q<0.9
6	GOL	B	506	6/6	0.74	0.16	31,33,35,37	0
6	GOL	B	513	6/6	0.79	0.34	35,36,37,39	0
6	GOL	B	508[B]	6/6	0.84	0.14	37,39,41,41	6
6	GOL	B	508[A]	6/6	0.84	0.14	35,36,39,40	6
6	GOL	A	511	6/6	0.85	0.29	30,37,40,48	0
6	GOL	B	512	6/6	0.86	0.18	40,44,51,58	0
6	GOL	A	512	6/6	0.87	0.15	34,46,49,49	0

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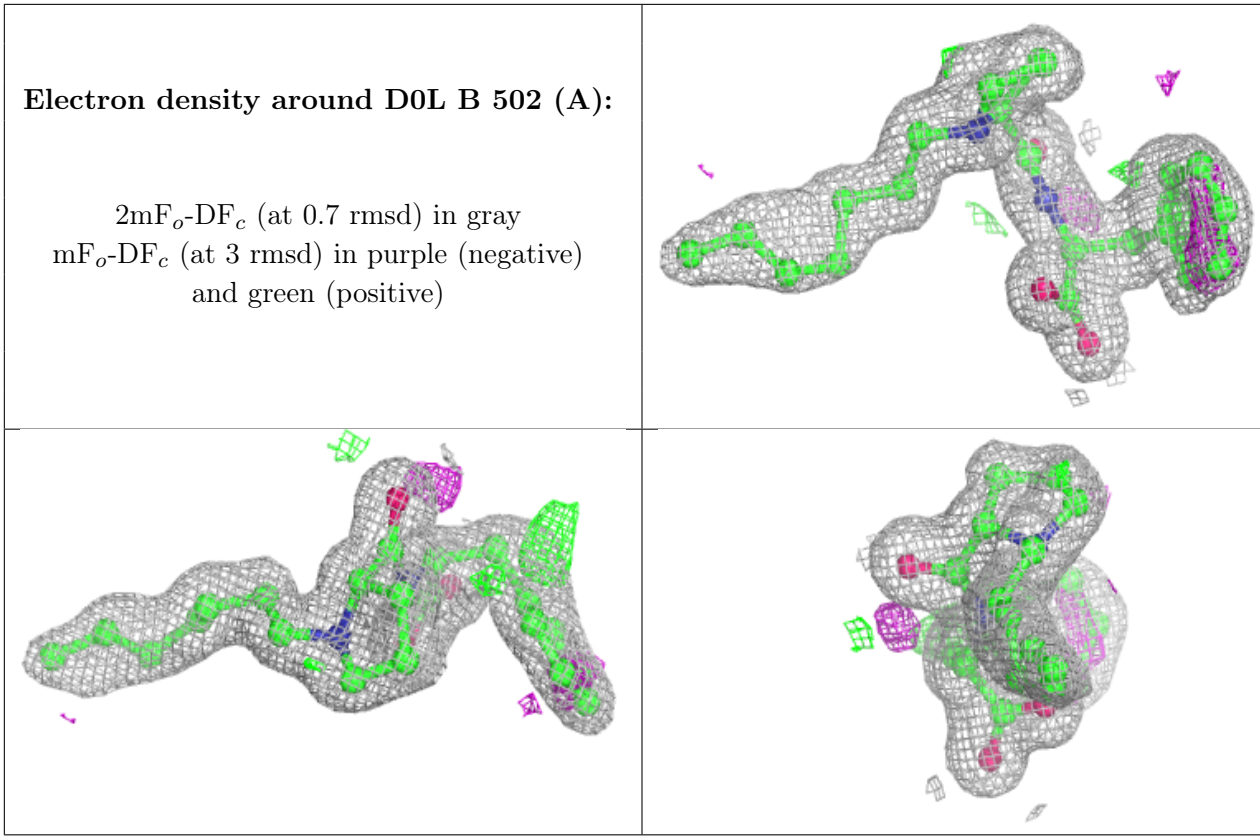
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	GOL	A	513	6/6	0.88	0.18	20,29,34,35	0
6	GOL	B	505	6/6	0.89	0.14	20,32,37,40	0
6	GOL	A	508[B]	6/6	0.89	0.18	21,26,29,31	6
6	GOL	A	508[A]	6/6	0.89	0.18	23,31,32,38	6
6	GOL	A	507	6/6	0.90	0.21	25,40,51,59	0
6	GOL	A	505	6/6	0.90	0.14	25,26,27,28	0
6	GOL	A	506	6/6	0.90	0.14	27,28,34,35	0
4	SYN	B	503[B]	8/8	0.91	0.19	28,31,36,38	8
4	SYN	B	503[A]	8/8	0.91	0.19	35,36,40,42	8
6	GOL	A	510[A]	6/6	0.91	0.19	21,26,30,34	6
6	GOL	B	511	6/6	0.91	0.18	34,53,63,65	0
6	GOL	A	514	6/6	0.91	0.22	24,27,33,36	0
6	GOL	A	510[B]	6/6	0.91	0.19	17,23,26,30	6
6	GOL	B	510	6/6	0.92	0.24	42,50,61,62	0
6	GOL	B	509[A]	6/6	0.93	0.15	25,31,34,40	6
6	GOL	B	509[B]	6/6	0.93	0.15	20,27,29,30	6
4	SYN	A	503	8/8	0.93	0.15	27,30,35,45	0
3	D0L	B	502[A]	26/26	0.95	0.09	17,21,28,32	26
3	D0L	B	502[B]	26/26	0.95	0.09	17,21,29,33	26
3	D0L	A	502	26/26	0.96	0.08	15,19,28,30	0
6	GOL	A	509	6/6	0.96	0.21	20,34,39,40	0
6	GOL	B	507[A]	6/6	0.96	0.14	24,30,32,33	6
6	GOL	B	507[B]	6/6	0.96	0.14	27,36,37,39	6
2	HEM	B	501[A]	43/43	0.99	0.06	7,10,13,15	43
2	HEM	B	501[B]	43/43	0.99	0.06	11,13,17,19	43
2	HEM	A	501[A]	43/43	0.99	0.08	8,10,14,14	43
2	HEM	A	501[B]	43/43	0.99	0.08	9,11,13,14	43
5	CL	A	504	1/1	1.00	0.09	25,25,25,25	0
5	CL	B	504	1/1	1.00	0.07	26,26,26,26	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.

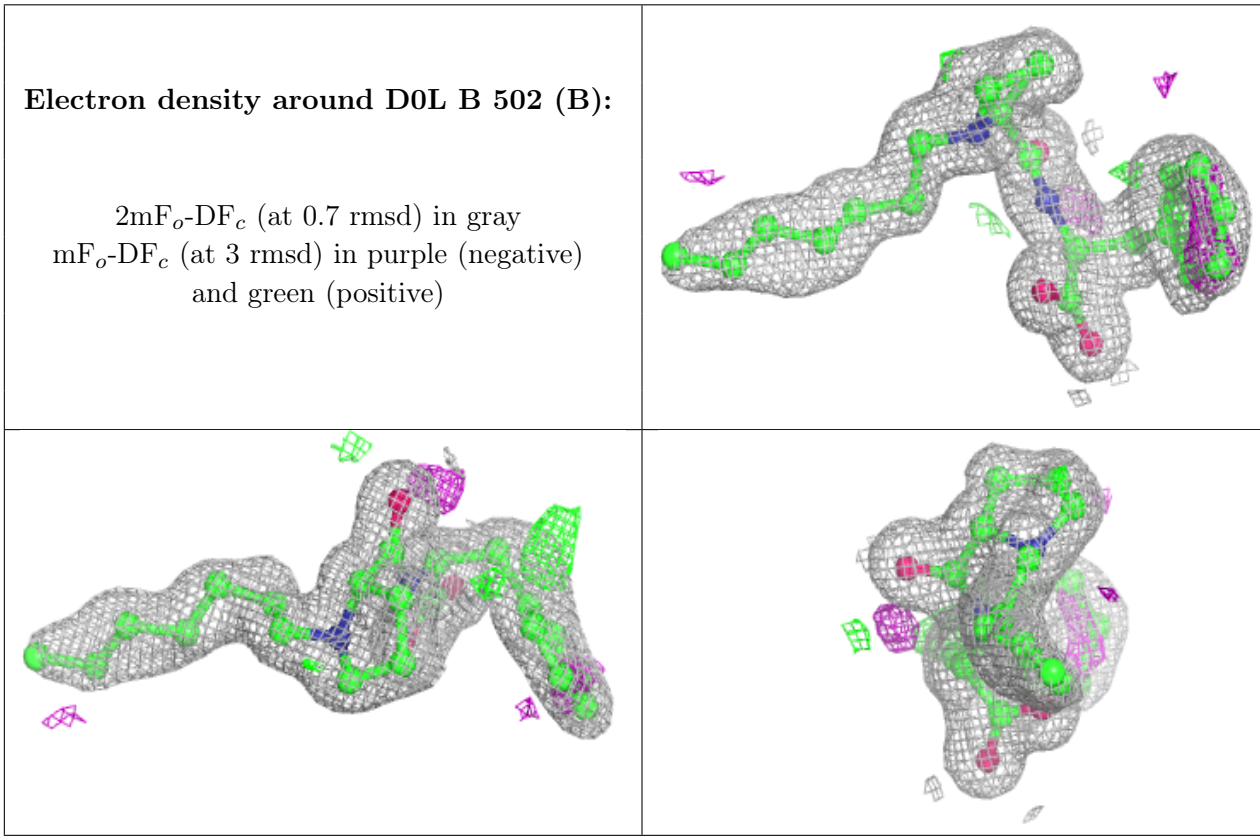
Electron density around D0L B 502 (A):

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



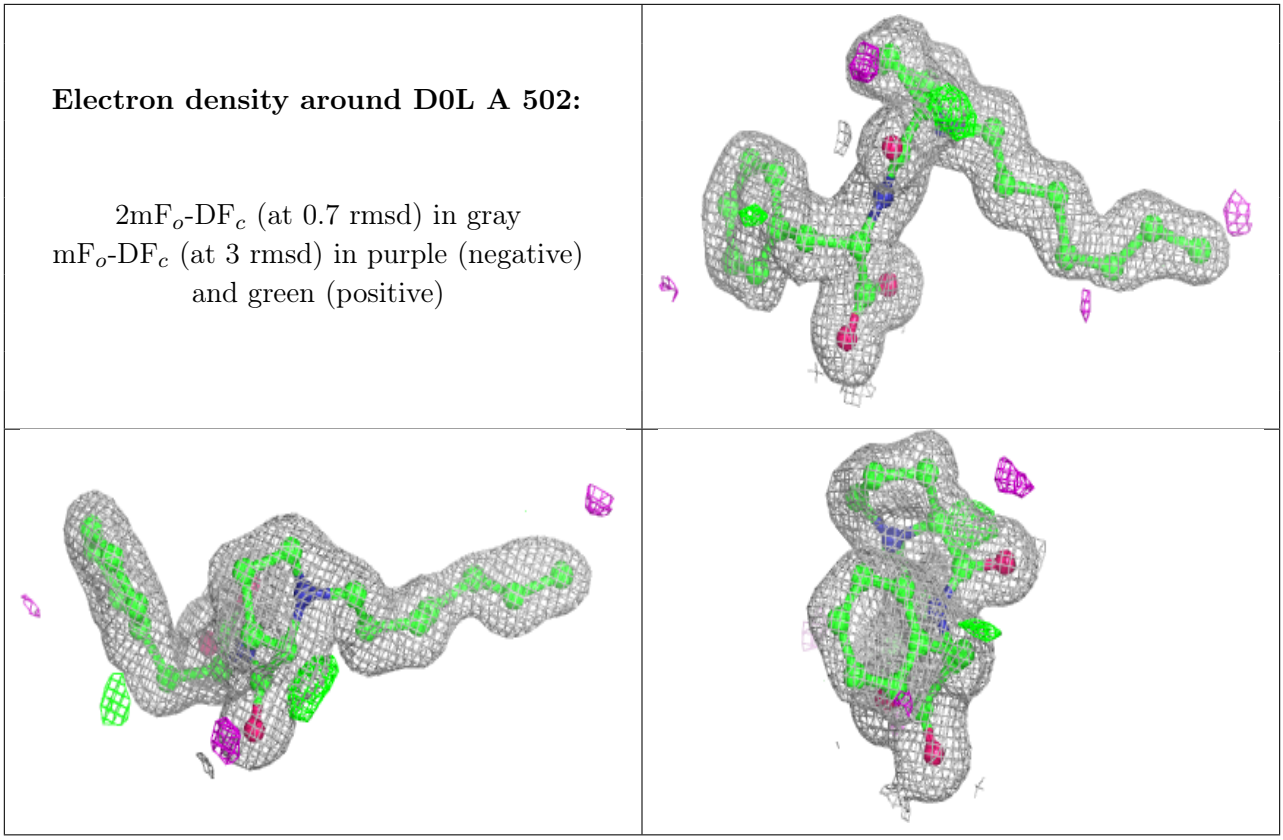
Electron density around D0L B 502 (B):

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



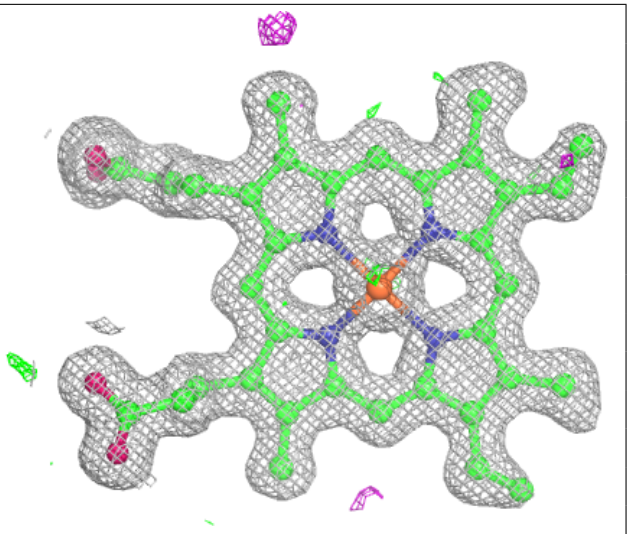
Electron density around D0L A 502:

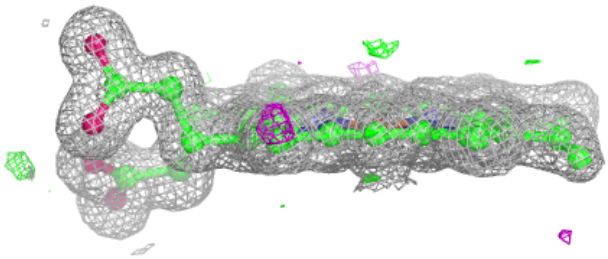
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

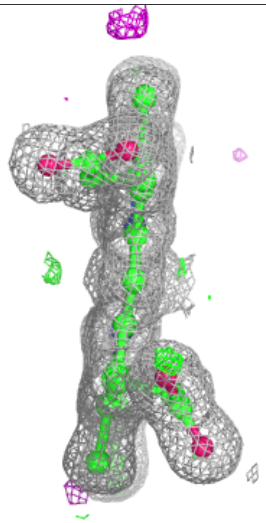


Electron density around HEM B 501 (A):

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

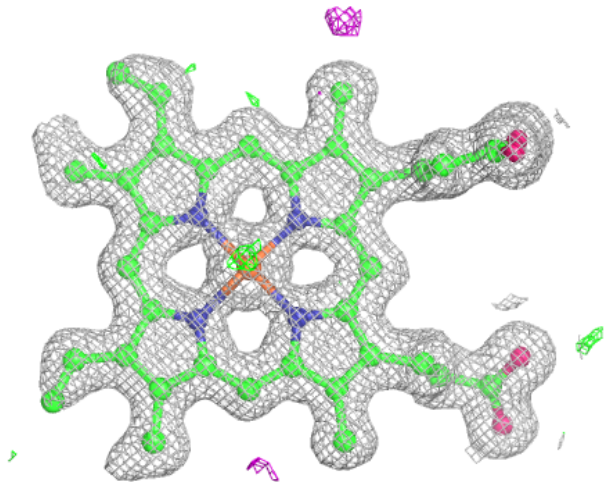


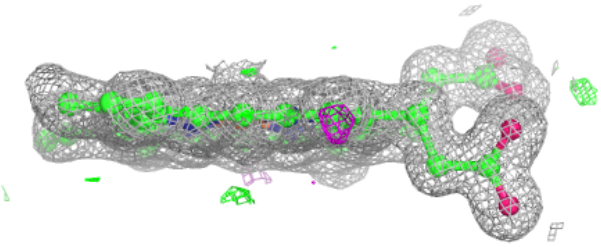


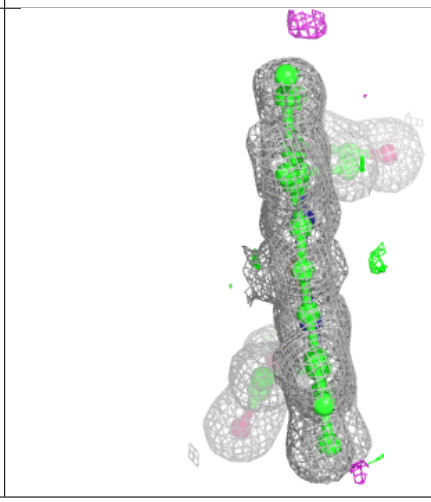


Electron density around HEM B 501 (B):

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

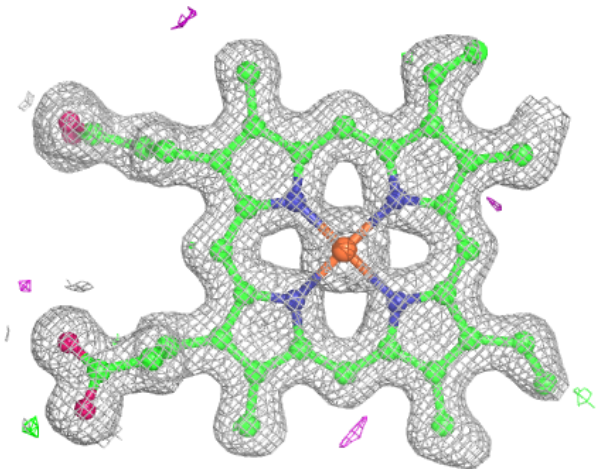


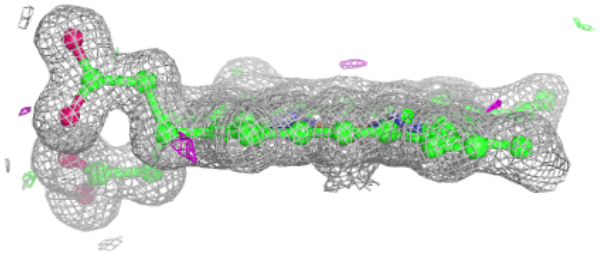


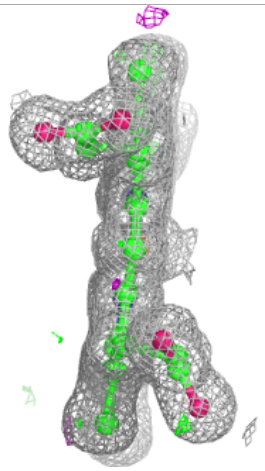


Electron density around HEM A 501 (A):

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

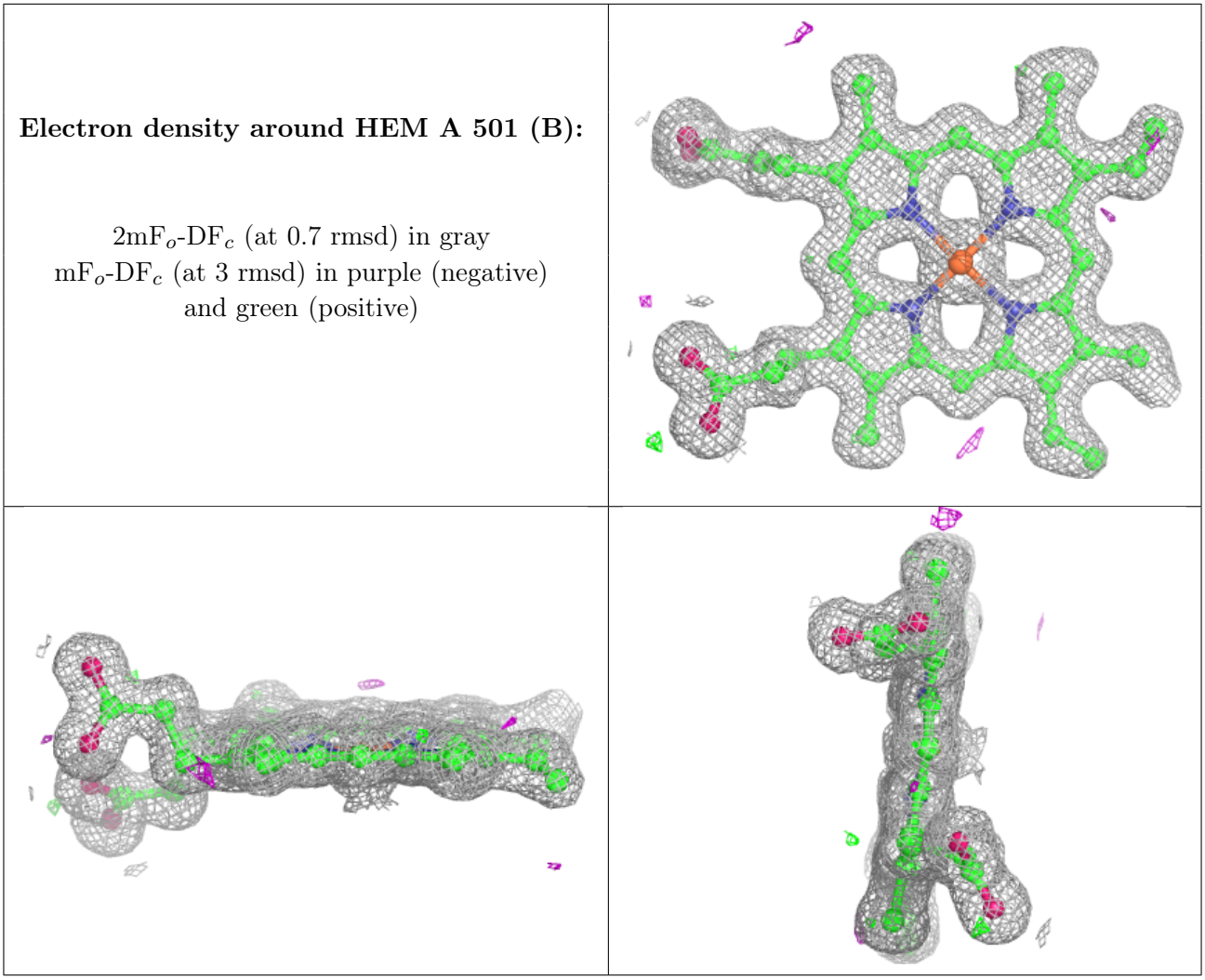






Electron density around HEM A 501 (B):

$2mF_o$-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.