wwPDB X-ray Structure Validation Summary Report ⓘ

Sep 16, 2023 – 10:38 PM EDT

PDB ID	:	4TO9
Title	:	2.0A resolution structure of BfrB (N148L) from Pseudomonas aeruginosa
Authors	:	Lovell, S.; Battaile, K.P.; Yao, H.; Kumar, R.; Eshelman, K.; Rivera, M.
Deposited on	:	2014-06-05
Resolution	:	2.00 Å(reported)

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

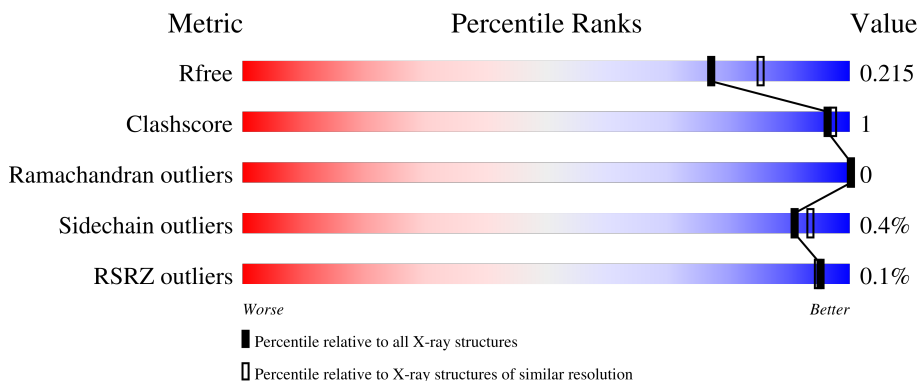|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1 Overall quality at a glance ⓘ

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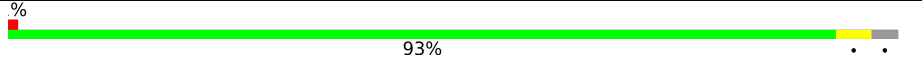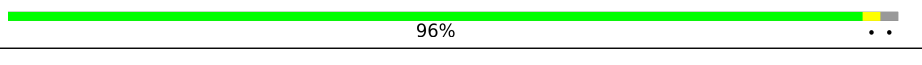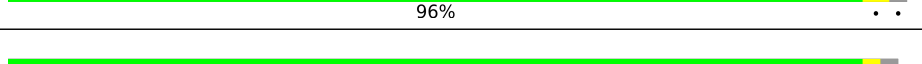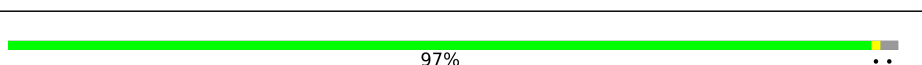*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.00 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.
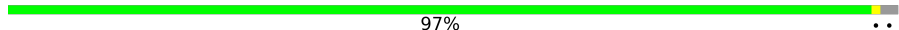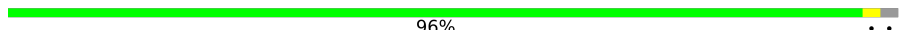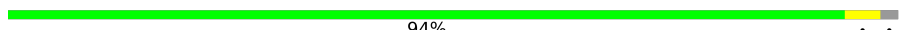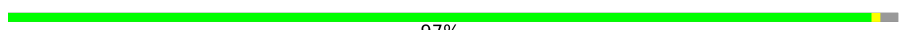
Metric	Percentile Ranks	Value
Rfree		0.215
Clashscore		1
Ramachandran outliers		0
Sidechain outliers		0.4%
RSRZ outliers		0.1%

Worse *Better*

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution
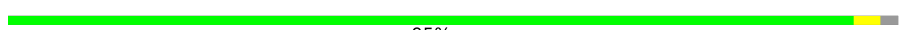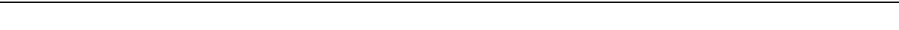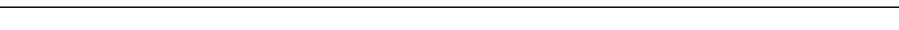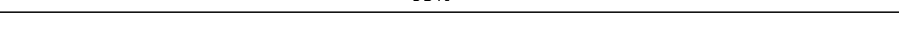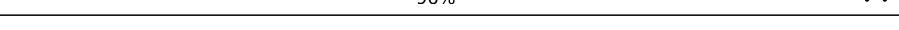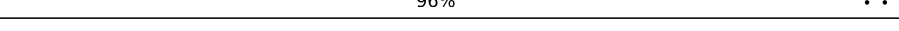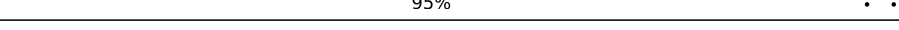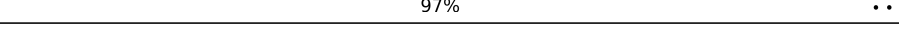
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	8085 (2.00-2.00)
Clashscore	141614	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

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	158	93%
1	B	158	96%
1	C	158	96%
1	D	158	96%
1	E	158	97%

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Mol	Chain	Length	Quality of chain
1	F	158	97%
1	G	158	96%
1	H	158	94%
1	I	158	97%
1	J	158	95%
1	K	158	93%
1	L	158	97%
1	M	158	94%
1	N	158	94%
1	O	158	96%
1	P	158	94%
1	Q	158	94%
1	R	158	96%
1	S	158	95%
1	T	158	96%
1	U	158	96%
1	V	158	95%
1	W	158	97%
1	X	158	97%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 34092 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 Bacterioferritin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	154	Total	C	N	O	S	0	0	0
			1262	800	215	241	6			
1	B	155	Total	C	N	O	S	0	0	0
			1274	807	219	242	6			
1	C	155	Total	C	N	O	S	0	0	0
			1269	804	217	242	6			
1	D	155	Total	C	N	O	S	0	0	0
			1273	807	218	242	6			
1	E	155	Total	C	N	O	S	0	0	0
			1275	808	219	242	6			
1	F	155	Total	C	N	O	S	0	0	0
			1275	808	219	242	6			
1	G	155	Total	C	N	O	S	0	0	0
			1267	803	216	242	6			
1	H	155	Total	C	N	O	S	0	0	0
			1268	804	216	242	6			
1	I	155	Total	C	N	O	S	0	0	0
			1273	807	218	242	6			
1	J	155	Total	C	N	O	S	0	0	0
			1272	806	218	242	6			
1	K	154	Total	C	N	O	S	0	0	0
			1264	801	216	241	6			
1	L	154	Total	C	N	O	S	0	0	0
			1264	801	216	241	6			
1	M	154	Total	C	N	O	S	0	0	0
			1266	802	217	241	6			
1	N	155	Total	C	N	O	S	0	0	0
			1275	808	219	242	6			
1	O	155	Total	C	N	O	S	0	0	0
			1268	803	217	242	6			
1	P	155	Total	C	N	O	S	0	0	0
			1272	806	218	242	6			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	Q	154	Total	C	N	O	S	0	0	0
			1262	800	215	241	6			
1	R	155	Total	C	N	O	S	0	0	0
			1271	805	218	242	6			
1	S	155	Total	C	N	O	S	0	0	0
			1271	805	218	242	6			
1	T	154	Total	C	N	O	S	0	0	0
			1267	803	217	241	6			
1	U	154	Total	C	N	O	S	0	0	0
			1266	802	217	241	6			
1	V	154	Total	C	N	O	S	0	0	0
			1264	801	216	241	6			
1	W	155	Total	C	N	O	S	0	0	0
			1276	809	219	242	6			
1	X	155	Total	C	N	O	S	0	0	0
			1272	806	218	242	6			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	148	LEU	ASN	engineered mutation	UNP Q9HY79
B	148	LEU	ASN	engineered mutation	UNP Q9HY79
C	148	LEU	ASN	engineered mutation	UNP Q9HY79
D	148	LEU	ASN	engineered mutation	UNP Q9HY79
E	148	LEU	ASN	engineered mutation	UNP Q9HY79
F	148	LEU	ASN	engineered mutation	UNP Q9HY79
G	148	LEU	ASN	engineered mutation	UNP Q9HY79
H	148	LEU	ASN	engineered mutation	UNP Q9HY79
I	148	LEU	ASN	engineered mutation	UNP Q9HY79
J	148	LEU	ASN	engineered mutation	UNP Q9HY79
K	148	LEU	ASN	engineered mutation	UNP Q9HY79
L	148	LEU	ASN	engineered mutation	UNP Q9HY79
M	148	LEU	ASN	engineered mutation	UNP Q9HY79
N	148	LEU	ASN	engineered mutation	UNP Q9HY79
O	148	LEU	ASN	engineered mutation	UNP Q9HY79
P	148	LEU	ASN	engineered mutation	UNP Q9HY79
Q	148	LEU	ASN	engineered mutation	UNP Q9HY79
R	148	LEU	ASN	engineered mutation	UNP Q9HY79
S	148	LEU	ASN	engineered mutation	UNP Q9HY79
T	148	LEU	ASN	engineered mutation	UNP Q9HY79
U	148	LEU	ASN	engineered mutation	UNP Q9HY79
V	148	LEU	ASN	engineered mutation	UNP Q9HY79
W	148	LEU	ASN	engineered mutation	UNP Q9HY79

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Chain	Residue	Modelled	Actual	Comment	Reference
X	148	LEU	ASN	engineered mutation	UNP Q9HY79

- Molecule 2 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total 1	K 1	0	0
2	E	1	Total 1	K 1	0	0
2	H	1	Total 1	K 1	0	0
2	O	1	Total 1	K 1	0	0
2	R	1	Total 1	K 1	0	0
2	S	1	Total 1	K 1	0	0

- Molecule 3 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).

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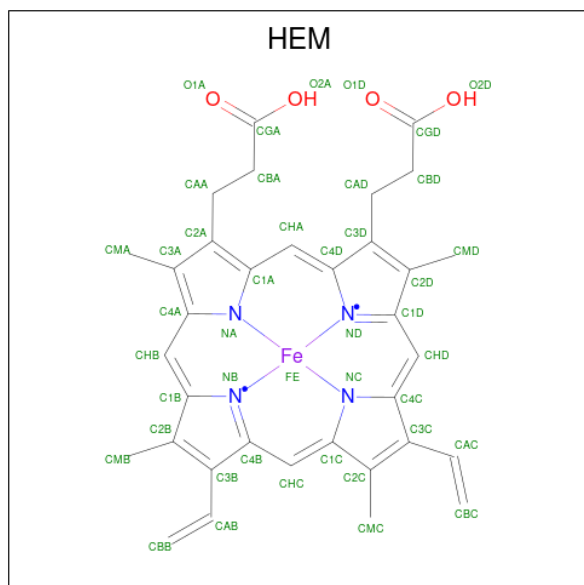
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	B	1	Total 86	C 68	Fe 2	N 8	O 8	0	1
3	C	1	Total 86	C 68	Fe 2	N 8	O 8	0	1

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	F	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	H	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	J	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	K	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	N	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	O	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	Q	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	S	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	V	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		
3	W	1	Total	C	Fe	N	O	0	1
			86	68	2	8	8		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	110	Total	O	0	0
			110	110		
4	B	114	Total	O	0	0
			114	114		
4	C	124	Total	O	0	0
			124	124		
4	D	114	Total	O	0	0
			114	114		
4	E	106	Total	O	0	0
			106	106		
4	F	104	Total	O	0	0
			104	104		
4	G	116	Total	O	0	0
			116	116		
4	H	121	Total	O	0	0
			121	121		
4	I	97	Total	O	0	0
			97	97		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	J	105	Total 105	O 105	0	0
4	K	105	Total 105	O 105	0	0
4	L	112	Total 112	O 112	0	0
4	M	104	Total 104	O 104	0	0
4	N	109	Total 109	O 109	0	0
4	O	113	Total 113	O 113	0	0
4	P	104	Total 104	O 104	0	0
4	Q	98	Total 98	O 98	0	0
4	R	95	Total 95	O 95	0	0
4	S	108	Total 108	O 108	0	0
4	T	92	Total 92	O 92	0	0
4	U	98	Total 98	O 98	0	0
4	V	105	Total 105	O 105	0	0
4	W	118	Total 118	O 118	0	0
4	X	116	Total 116	O 116	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.

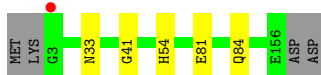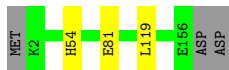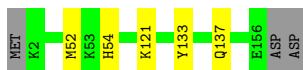- Molecule 1: Bacterioferritin

Chain A:

- Molecule 1: Bacterioferritin

Chain B:

- Molecule 1: Bacterioferritin

Chain C:

- Molecule 1: Bacterioferritin

Chain D:

- Molecule 1: Bacterioferritin

Chain E:

- Molecule 1: Bacterioferritin

Chain F:

MET K2 H54 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain G: 96%

MET K2 N33 G41 H54 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain H: 94%

MET K2 N33 G41 H46 H54 Q84 E85 L119 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain I: 97%

MET K2 K6 H107 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain J: 95%

MET K2 L27 M52 K53 H54 I79 K121 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain K: 93%

MET LYS G3 I20 N33 G41 H54 L77 Q84 L119 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain L: 97%

MET LYS G3 H54 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain M: 94%

MET LYS G3 N33 G41 H54 K57 Q110 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain N:　　　　　94%

MET K2 N33 G41 M52 K53 H54 L119 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain O:　　　　　96%

MET K2 K6 H107 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain P:　　　　　94%

MET K2 K6 K38 H54 Q84 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain Q:　　　　　94%

MET LYS G3 N33 G41 H54 E81 Q84 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain R:　　　　　96%

MET K2 H54 E81 L119 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain S:　　　　　95%

MET K2 M52 K53 H54 K121 Y133 Q137 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain T:　　　　　96%

MET LYS G3 Q110 L119 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain U:

96%

MET LYS G3 H54 E103 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain V:

95%

MET LYS G3 H54 Q84 I123 E127 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain W:

97%

MET K2 H54 E81 E156 ASP ASP

• Molecule 1: Bacterioferritin

Chain X:

97%

MET K2 H54 E156 ASP ASP

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	125.73Å 203.35Å 208.27Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.39 – 2.00 49.39 – 2.00	Depositor EDS
% Data completeness (in resolution range)	98.8 (49.39-2.00) 99.7 (49.39-2.00)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.67 (at 2.00Å)	Xtriage
Refinement program	PHENIX dev_1450	Depositor
R, R_{free}	0.169 , 0.211 0.174 , 0.215	Depositor DCC
R_{free} test set	17970 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å^2)	23.9	Xtriage
Anisotropy	0.045	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 49.1	EDS
L-test for twinning[2]	$< |L| > = 0.48$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.011 for -h,l,k	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	34092	wwPDB-VP
Average B, all atoms (Å^2)	26.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.46% 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: HEM, K

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	0.52	1/1283 (0.1%)	0.58	0/1729
1	B	0.50	0/1295	0.56	0/1743
1	C	0.50	0/1290	0.55	0/1738
1	D	0.49	0/1294	0.58	0/1742
1	E	0.47	0/1296	0.56	0/1744
1	F	0.49	0/1296	0.57	0/1744
1	G	0.50	0/1288	0.61	0/1736
1	H	0.52	0/1289	0.59	0/1737
1	I	0.46	0/1294	0.57	0/1742
1	J	0.48	0/1293	0.56	0/1741
1	K	0.48	0/1285	0.55	0/1731
1	L	0.49	0/1285	0.55	0/1731
1	M	0.48	0/1287	0.60	0/1733
1	N	0.53	0/1296	0.56	0/1744
1	O	0.47	0/1289	0.56	0/1737
1	P	0.48	0/1293	0.57	0/1741
1	Q	0.47	0/1283	0.57	0/1729
1	R	0.49	0/1292	0.57	0/1740
1	S	0.46	0/1292	0.57	0/1740
1	T	0.49	0/1288	0.59	0/1734
1	U	0.47	0/1287	0.57	0/1733
1	V	0.48	0/1285	0.56	0/1731
1	W	0.51	0/1297	0.58	0/1745
1	X	0.51	0/1293	0.58	0/1741
All	All	0.49	1/30970 (0.0%)	0.57	0/41706

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	108	CYS	CB-SG	-5.22	1.73	1.81

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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	1262	0	1239	4	0
1	B	1274	0	1264	3	0
1	C	1269	0	1248	2	0
1	D	1273	0	1259	2	0
1	E	1275	0	1266	1	0
1	F	1275	0	1266	1	0
1	G	1267	0	1241	2	0
1	H	1268	0	1243	6	0
1	I	1273	0	1259	1	0
1	J	1272	0	1257	3	0
1	K	1264	0	1246	5	0
1	L	1264	0	1246	1	0
1	M	1266	0	1253	2	0
1	N	1275	0	1266	4	0
1	O	1268	0	1246	1	0
1	P	1272	0	1257	3	0
1	Q	1262	0	1239	3	0
1	R	1271	0	1255	2	0
1	S	1271	0	1255	3	0
1	T	1267	0	1255	1	0
1	U	1266	0	1253	2	0
1	V	1264	0	1246	3	0
1	W	1276	0	1268	1	0
1	X	1272	0	1257	1	0
2	A	1	0	0	0	0
2	E	1	0	0	0	0
2	H	1	0	0	0	0
2	O	1	0	0	0	0
2	R	1	0	0	0	0
2	S	1	0	0	0	0
3	B	86	0	60	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	86	0	60	1	0
3	F	86	0	60	0	0
3	H	86	0	60	1	0
3	J	86	0	60	1	0
3	K	86	0	60	1	0
3	N	86	0	60	1	0
3	O	86	0	60	2	0
3	Q	86	0	60	1	0
3	S	86	0	60	2	0
3	V	86	0	60	1	0
3	W	86	0	60	0	0
4	A	110	0	0	1	0
4	B	114	0	0	2	0
4	C	124	0	0	1	0
4	D	114	0	0	1	0
4	E	106	0	0	1	0
4	F	104	0	0	1	0
4	G	116	0	0	1	0
4	H	121	0	0	4	0
4	I	97	0	0	0	0
4	J	105	0	0	1	0
4	K	105	0	0	3	0
4	L	112	0	0	1	0
4	M	104	0	0	1	0
4	N	109	0	0	1	0
4	O	113	0	0	0	0
4	P	104	0	0	2	0
4	Q	98	0	0	2	0
4	R	95	0	0	1	0
4	S	108	0	0	1	0
4	T	92	0	0	1	0
4	U	98	0	0	2	0
4	V	105	0	0	2	0
4	W	118	0	0	1	0
4	X	116	0	0	1	0
All	All	34092	0	30804	65	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 1.

The worst 5 of 65 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:H:85:GLU:OE2	4:H:301:HOH:O	2.02	0.77
1:H:84:GLN:OE1	4:H:301:HOH:O	2.17	0.58
1:G:54:HIS:HD2	4:G:206:HOH:O	1.86	0.58
1:U:103:GLU:OE1	4:U:284:HOH:O	2.18	0.53
1:P:84:GLN:NE2	4:P:223:HOH:O	2.43	0.51

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	152/158 (96%)	152 (100%)	0	0	100	100
1	B	153/158 (97%)	152 (99%)	1 (1%)	0	100	100
1	C	153/158 (97%)	152 (99%)	1 (1%)	0	100	100
1	D	153/158 (97%)	153 (100%)	0	0	100	100
1	E	153/158 (97%)	153 (100%)	0	0	100	100
1	F	153/158 (97%)	152 (99%)	1 (1%)	0	100	100
1	G	153/158 (97%)	153 (100%)	0	0	100	100
1	H	153/158 (97%)	153 (100%)	0	0	100	100
1	I	153/158 (97%)	152 (99%)	1 (1%)	0	100	100
1	J	153/158 (97%)	153 (100%)	0	0	100	100
1	K	152/158 (96%)	151 (99%)	1 (1%)	0	100	100
1	L	152/158 (96%)	152 (100%)	0	0	100	100
1	M	152/158 (96%)	152 (100%)	0	0	100	100
1	N	153/158 (97%)	153 (100%)	0	0	100	100
1	O	153/158 (97%)	152 (99%)	1 (1%)	0	100	100
1	P	153/158 (97%)	153 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	Q	152/158 (96%)	152 (100%)	0	0	100	100
1	R	153/158 (97%)	153 (100%)	0	0	100	100
1	S	153/158 (97%)	152 (99%)	1 (1%)	0	100	100
1	T	152/158 (96%)	151 (99%)	1 (1%)	0	100	100
1	U	152/158 (96%)	152 (100%)	0	0	100	100
1	V	152/158 (96%)	150 (99%)	2 (1%)	0	100	100
1	W	153/158 (97%)	153 (100%)	0	0	100	100
1	X	153/158 (97%)	153 (100%)	0	0	100	100
All	All	3664/3792 (97%)	3654 (100%)	10 (0%)	0	100	100

There are no Ramachandran outliers to report.

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	137/144 (95%)	137 (100%)	0	100	100
1	B	140/144 (97%)	140 (100%)	0	100	100
1	C	138/144 (96%)	137 (99%)	1 (1%)	84	88
1	D	139/144 (96%)	139 (100%)	0	100	100
1	E	140/144 (97%)	140 (100%)	0	100	100
1	F	140/144 (97%)	140 (100%)	0	100	100
1	G	137/144 (95%)	137 (100%)	0	100	100
1	H	137/144 (95%)	137 (100%)	0	100	100
1	I	139/144 (96%)	139 (100%)	0	100	100
1	J	139/144 (96%)	138 (99%)	1 (1%)	84	88
1	K	138/144 (96%)	138 (100%)	0	100	100
1	L	138/144 (96%)	138 (100%)	0	100	100
1	M	139/144 (96%)	137 (99%)	2 (1%)	67	72

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	N	140/144 (97%)	139 (99%)	1 (1%)	84	88
1	O	138/144 (96%)	137 (99%)	1 (1%)	84	88
1	P	139/144 (96%)	137 (99%)	2 (1%)	67	72
1	Q	137/144 (95%)	136 (99%)	1 (1%)	84	88
1	R	139/144 (96%)	138 (99%)	1 (1%)	84	88
1	S	139/144 (96%)	138 (99%)	1 (1%)	84	88
1	T	139/144 (96%)	138 (99%)	1 (1%)	84	88
1	U	139/144 (96%)	139 (100%)	0	100	100
1	V	138/144 (96%)	138 (100%)	0	100	100
1	W	140/144 (97%)	139 (99%)	1 (1%)	84	88
1	X	139/144 (96%)	139 (100%)	0	100	100
All	All	3328/3456 (96%)	3315 (100%)	13 (0%)	91	93

5 of 13 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	P	6	LYS
1	Q	81	GLU
1	W	81	GLU
1	S	121	LYS
1	T	110	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 75 such sidechains are listed below:

Mol	Chain	Res	Type
1	S	33	ASN
1	X	33	ASN
1	S	54	HIS
1	V	33	ASN
1	I	43	HIS

5.3.3 RNA (i)

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 30 ligands modelled in this entry, 6 are monoatomic - leaving 24 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
3	HEM	J	201[A]	1	41,50,50	1.94	5 (12%)	45,82,82	1.85	10 (22%)
3	HEM	J	201[B]	1	41,50,50	1.91	5 (12%)	45,82,82	1.87	10 (22%)
3	HEM	O	201[A]	1	41,50,50	1.91	6 (14%)	45,82,82	2.01	10 (22%)
3	HEM	O	201[B]	1	41,50,50	1.84	5 (12%)	45,82,82	2.03	9 (20%)
3	HEM	K	201[A]	1	41,50,50	1.89	6 (14%)	45,82,82	1.88	9 (20%)
3	HEM	B	201[A]	1	41,50,50	1.86	6 (14%)	45,82,82	1.84	9 (20%)
3	HEM	B	201[B]	1	41,50,50	1.84	7 (17%)	45,82,82	1.81	6 (13%)
3	HEM	H	201[A]	1	41,50,50	1.90	5 (12%)	45,82,82	2.00	9 (20%)
3	HEM	H	201[B]	1	41,50,50	1.88	5 (12%)	45,82,82	1.88	9 (20%)
3	HEM	K	201[B]	1	41,50,50	1.88	6 (14%)	45,82,82	1.95	9 (20%)
3	HEM	N	201[A]	1	41,50,50	1.87	6 (14%)	45,82,82	1.90	9 (20%)
3	HEM	F	201[A]	1	41,50,50	1.92	6 (14%)	45,82,82	1.93	8 (17%)
3	HEM	N	201[B]	1	41,50,50	1.89	6 (14%)	45,82,82	1.91	7 (15%)
3	HEM	F	201[B]	1	41,50,50	1.88	5 (12%)	45,82,82	1.94	10 (22%)
3	HEM	V	201[A]	1	41,50,50	1.94	8 (19%)	45,82,82	1.97	9 (20%)
3	HEM	V	201[B]	1	41,50,50	1.95	7 (17%)	45,82,82	1.79	6 (13%)
3	HEM	S	201[A]	1	41,50,50	1.88	6 (14%)	45,82,82	1.79	7 (15%)
3	HEM	S	201[B]	1	41,50,50	1.85	5 (12%)	45,82,82	1.94	7 (15%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
3	HEM	W	201[A]	1	41,50,50	1.89	6 (14%)	45,82,82	1.93	11 (24%)
3	HEM	W	201[B]	1	41,50,50	1.91	5 (12%)	45,82,82	1.99	10 (22%)
3	HEM	C	201[A]	1	41,50,50	1.88	7 (17%)	45,82,82	1.99	10 (22%)
3	HEM	Q	201[A]	1	41,50,50	1.90	5 (12%)	45,82,82	1.96	9 (20%)
3	HEM	C	201[B]	1	41,50,50	1.90	5 (12%)	45,82,82	1.88	7 (15%)
3	HEM	Q	201[B]	1	41,50,50	1.95	7 (17%)	45,82,82	1.80	9 (20%)

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	HEM	J	201[A]	1	-	4/12/54/54	-
3	HEM	J	201[B]	1	-	4/12/54/54	-
3	HEM	O	201[A]	1	-	4/12/54/54	-
3	HEM	O	201[B]	1	-	4/12/54/54	-
3	HEM	K	201[A]	1	-	4/12/54/54	-
3	HEM	B	201[A]	1	-	4/12/54/54	-
3	HEM	B	201[B]	1	-	4/12/54/54	-
3	HEM	H	201[A]	1	-	4/12/54/54	-
3	HEM	H	201[B]	1	-	4/12/54/54	-
3	HEM	K	201[B]	1	-	4/12/54/54	-
3	HEM	N	201[A]	1	-	4/12/54/54	-
3	HEM	F	201[A]	1	-	4/12/54/54	-
3	HEM	N	201[B]	1	-	4/12/54/54	-
3	HEM	F	201[B]	1	-	4/12/54/54	-
3	HEM	V	201[A]	1	-	4/12/54/54	-
3	HEM	V	201[B]	1	-	4/12/54/54	-
3	HEM	S	201[A]	1	-	4/12/54/54	-
3	HEM	S	201[B]	1	-	4/12/54/54	-
3	HEM	W	201[A]	1	-	4/12/54/54	-
3	HEM	W	201[B]	1	-	4/12/54/54	-
3	HEM	C	201[A]	1	-	4/12/54/54	-
3	HEM	Q	201[A]	1	-	4/12/54/54	-
3	HEM	C	201[B]	1	-	4/12/54/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	HEM	Q	201[B]	1	-	4/12/54/54	-

The worst 5 of 140 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	V	201[B]	HEM	C3D-C2D	8.26	1.54	1.36
3	F	201[A]	HEM	C3D-C2D	8.23	1.54	1.36
3	Q	201[B]	HEM	C3D-C2D	8.23	1.54	1.36
3	J	201[A]	HEM	C3D-C2D	8.21	1.54	1.36
3	O	201[A]	HEM	C3D-C2D	8.18	1.54	1.36

The worst 5 of 209 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	V	201[A]	HEM	C4D-ND-C1D	7.65	112.97	105.07
3	O	201[A]	HEM	C4D-ND-C1D	7.54	112.86	105.07
3	W	201[B]	HEM	C4D-ND-C1D	7.49	112.81	105.07
3	H	201[A]	HEM	C4D-ND-C1D	7.47	112.79	105.07
3	Q	201[A]	HEM	C4D-ND-C1D	7.39	112.70	105.07

There are no chirality outliers.

5 of 96 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	N	201[A]	HEM	CAD-CBD-CGD-O2D
3	W	201[A]	HEM	CAA-CBA-CGA-O2A
3	B	201[A]	HEM	CAD-CBD-CGD-O2D
3	C	201[A]	HEM	CAD-CBD-CGD-O2D
3	O	201[B]	HEM	CAD-CBD-CGD-O2D

There are no ring outliers.

11 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	J	201[A]	HEM	1	0
3	O	201[A]	HEM	1	0
3	O	201[B]	HEM	1	0
3	B	201[B]	HEM	1	0
3	H	201[A]	HEM	1	0
3	K	201[B]	HEM	1	0
3	N	201[A]	HEM	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	V	201[A]	HEM	1	0
3	S	201[B]	HEM	2	0
3	C	201[A]	HEM	1	0
3	Q	201[A]	HEM	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 J 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM J 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM O 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM O 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM K 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM B 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM B 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM H 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM H 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM K 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM N 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM F 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM N 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM F 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM V 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM V 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM S 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM S 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM W 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM W 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM C 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM Q 201 (A)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM C 201 (B)

Bond lengths

Bond angles

Torsions

Rings

Ligand HEM Q 201 (B)

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

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(Å²)	Q<0.9
1	A	154/158 (97%)	-0.44	1 (0%)	89	88	16, 22, 35, 46	0
1	B	155/158 (98%)	-0.50	0	100	100	17, 22, 36, 44	0
1	C	155/158 (98%)	-0.47	0	100	100	18, 24, 35, 44	0
1	D	155/158 (98%)	-0.52	0	100	100	18, 22, 34, 47	0
1	E	155/158 (98%)	-0.51	0	100	100	18, 24, 36, 45	0
1	F	155/158 (98%)	-0.47	0	100	100	18, 23, 38, 51	0
1	G	155/158 (98%)	-0.46	0	100	100	17, 24, 35, 47	0
1	H	155/158 (98%)	-0.48	0	100	100	17, 21, 32, 43	0
1	I	155/158 (98%)	-0.44	0	100	100	20, 26, 36, 48	0
1	J	155/158 (98%)	-0.49	0	100	100	19, 26, 37, 47	0
1	K	154/158 (97%)	-0.47	0	100	100	19, 25, 37, 40	0
1	L	154/158 (97%)	-0.46	0	100	100	19, 24, 36, 43	0
1	M	154/158 (97%)	-0.52	0	100	100	18, 24, 38, 45	0
1	N	155/158 (98%)	-0.50	0	100	100	18, 23, 34, 42	0
1	O	155/158 (98%)	-0.51	0	100	100	17, 22, 32, 41	0
1	P	155/158 (98%)	-0.51	0	100	100	19, 25, 38, 47	0
1	Q	154/158 (97%)	-0.41	1 (0%)	89	88	21, 27, 39, 48	0
1	R	155/158 (98%)	-0.51	0	100	100	20, 26, 38, 43	0
1	S	155/158 (98%)	-0.45	0	100	100	18, 25, 36, 43	0
1	T	154/158 (97%)	-0.46	0	100	100	20, 26, 37, 43	0
1	U	154/158 (97%)	-0.53	0	100	100	19, 24, 35, 40	0
1	V	154/158 (97%)	-0.49	0	100	100	19, 26, 37, 42	0
1	W	155/158 (98%)	-0.50	0	100	100	15, 21, 32, 42	0
1	X	155/158 (98%)	-0.54	0	100	100	16, 21, 34, 42	0

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
All	All	3712/3792 (97%)	-0.49	2 (0%) 95 95	15, 24, 36, 51	0

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	Q	3	GLY	2.9
1	A	3	GLY	2.4

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

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th 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	HEM	C	201[A]	43/43	0.88	0.17	21,26,33,39	43
3	HEM	C	201[B]	43/43	0.88	0.17	21,26,33,40	43
3	HEM	F	201[A]	43/43	0.88	0.15	21,26,32,35	43
3	HEM	F	201[B]	43/43	0.88	0.15	21,26,32,33	43
3	HEM	O	201[A]	43/43	0.88	0.16	22,27,36,38	43
3	HEM	O	201[B]	43/43	0.88	0.16	22,28,36,38	43
3	HEM	V	201[A]	43/43	0.89	0.16	24,28,32,35	43
3	HEM	V	201[B]	43/43	0.89	0.16	24,28,32,35	43
3	HEM	H	201[A]	43/43	0.90	0.16	20,25,32,34	43
3	HEM	H	201[B]	43/43	0.90	0.16	20,25,33,34	43
3	HEM	S	201[A]	43/43	0.90	0.15	22,27,33,37	43
3	HEM	S	201[B]	43/43	0.90	0.15	22,27,33,37	43
3	HEM	K	201[A]	43/43	0.90	0.15	21,28,34,35	43
3	HEM	K	201[B]	43/43	0.90	0.15	21,28,34,35	43
3	HEM	W	201[A]	43/43	0.90	0.16	20,24,32,37	43

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	HEM	W	201[B]	43/43	0.90	0.16	20,24,32,37	43
3	HEM	J	201[A]	43/43	0.91	0.15	24,29,35,39	43
3	HEM	J	201[B]	43/43	0.91	0.15	24,29,35,39	43
3	HEM	N	201[A]	43/43	0.91	0.15	21,26,33,35	43
3	HEM	N	201[B]	43/43	0.91	0.15	21,26,33,35	43
3	HEM	Q	201[A]	43/43	0.92	0.16	22,29,35,37	43
3	HEM	Q	201[B]	43/43	0.92	0.16	22,29,34,37	43
3	HEM	B	201[A]	43/43	0.92	0.14	18,24,32,35	43
3	HEM	B	201[B]	43/43	0.92	0.14	18,24,33,35	43
2	K	S	202	1/1	0.95	0.10	40,40,40,40	0
2	K	R	201	1/1	0.98	0.10	38,38,38,38	0
2	K	O	202	1/1	0.98	0.08	37,37,37,37	0
2	K	A	201	1/1	0.99	0.12	36,36,36,36	0
2	K	E	201	1/1	0.99	0.09	39,39,39,39	0
2	K	H	202	1/1	0.99	0.15	39,39,39,39	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 HEM C 201 (A):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
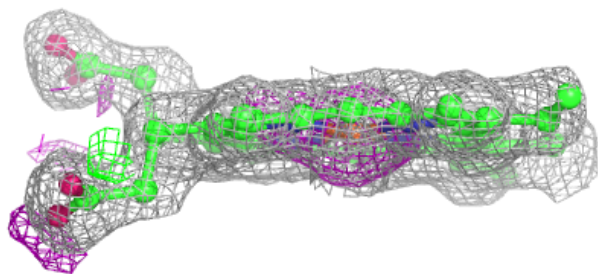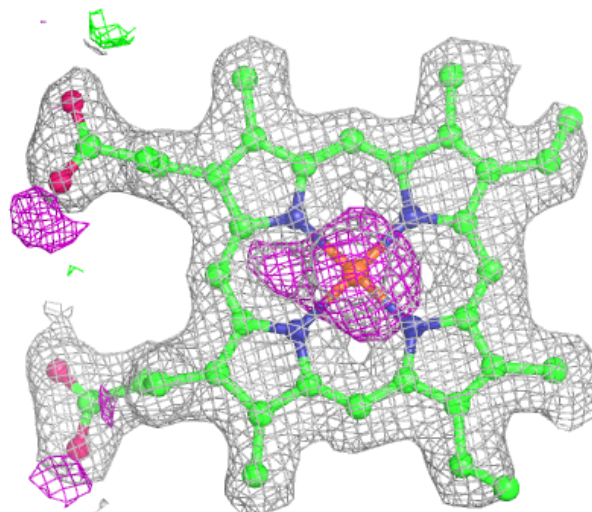and green (positive)
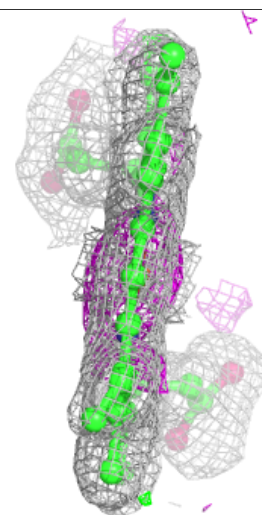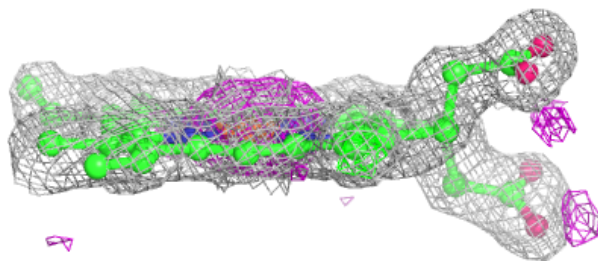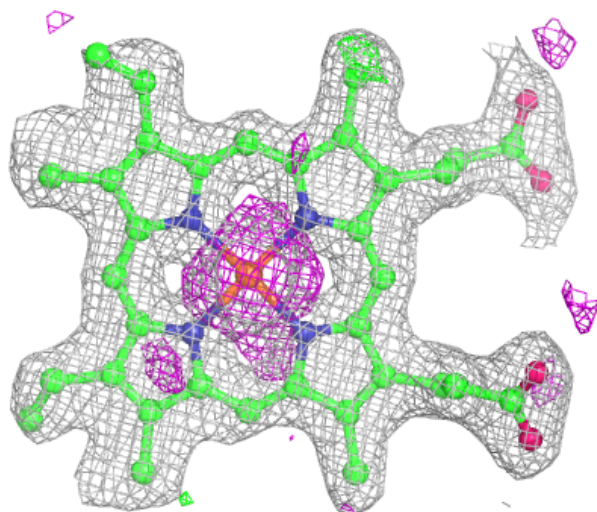
Electron density around HEM C 201 (B):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
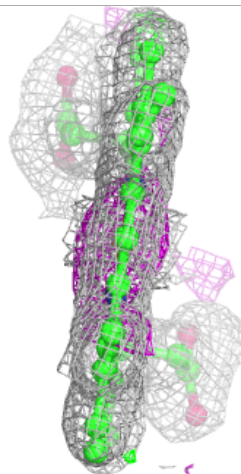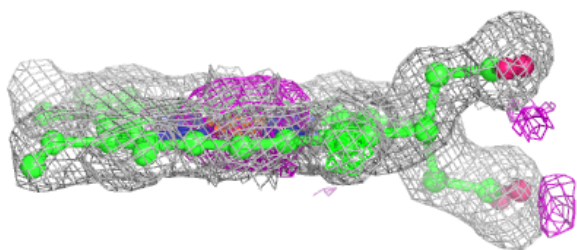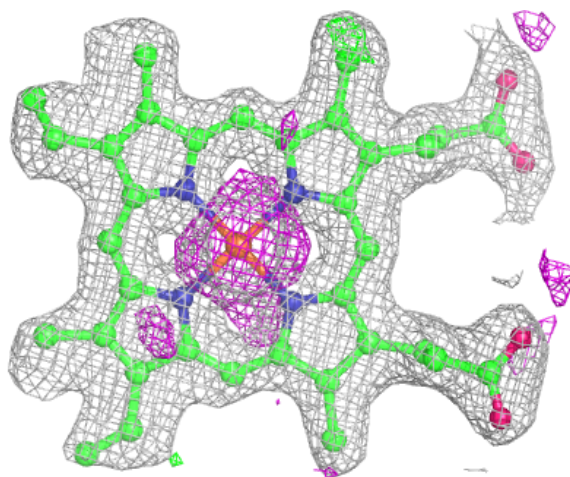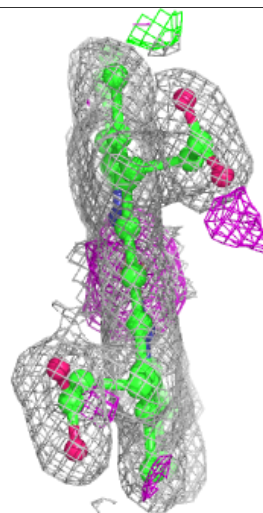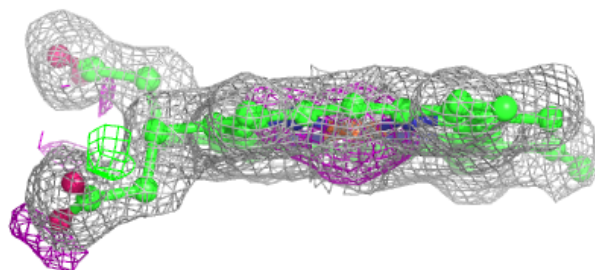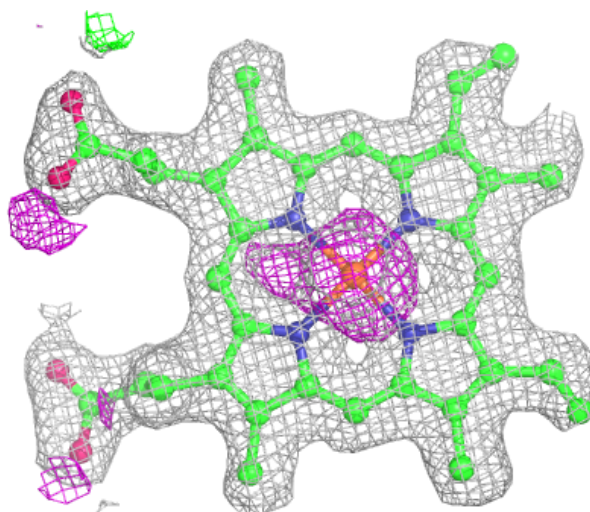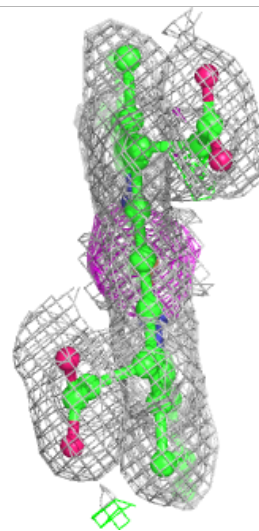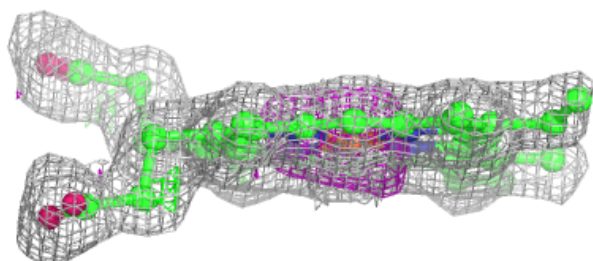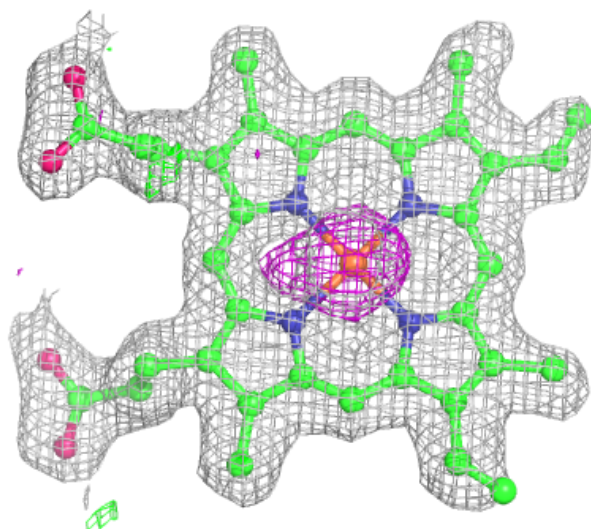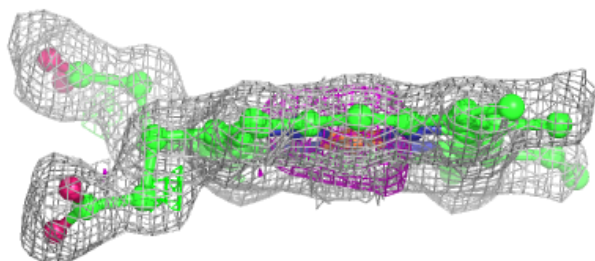
Electron density around HEM F 201 (A):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
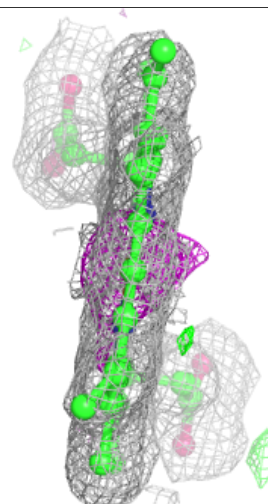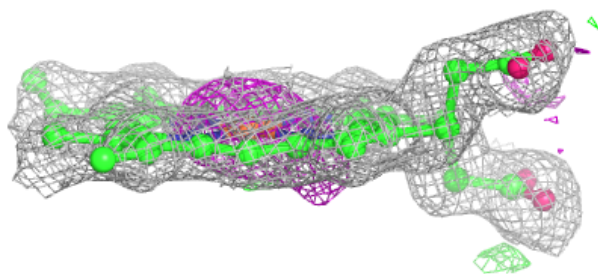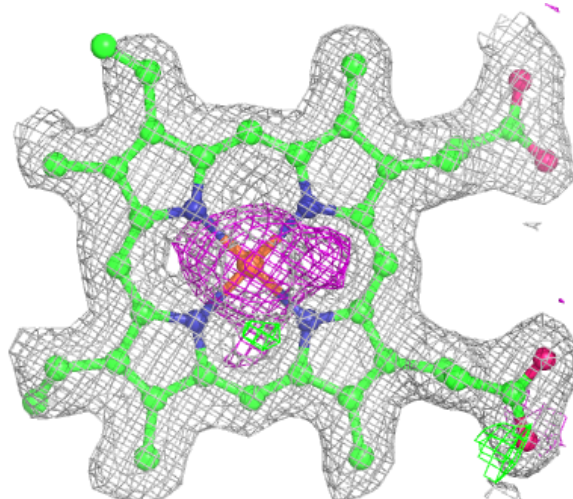
Electron density around HEM F 201 (B):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
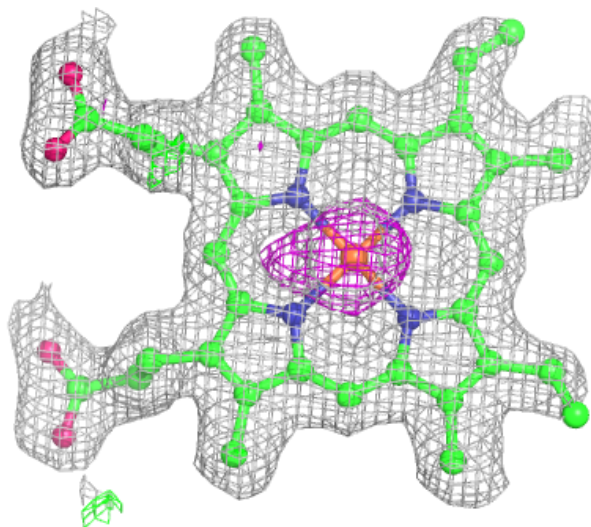and green (positive)
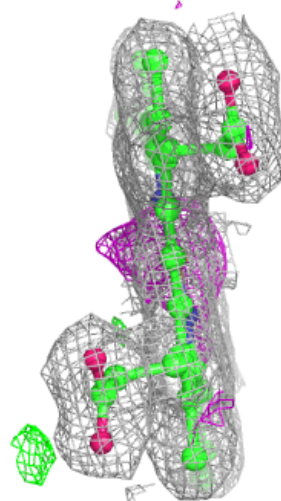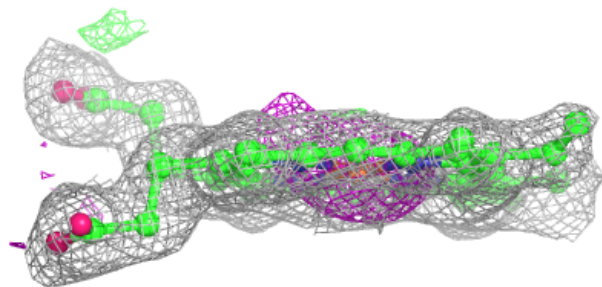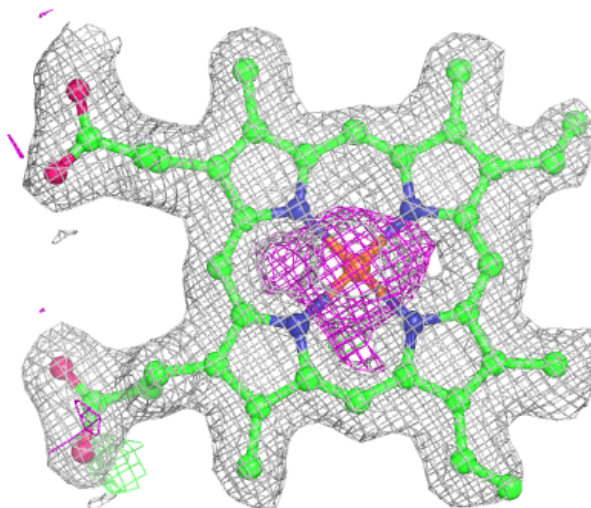
Electron density around HEM O 201 (A):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
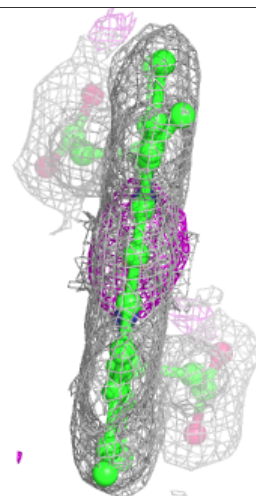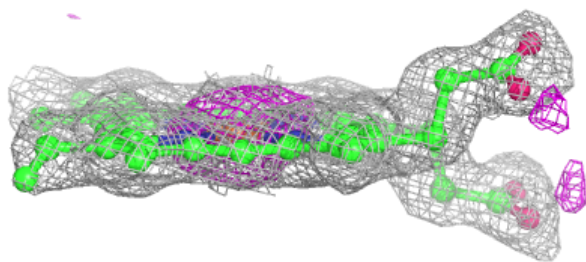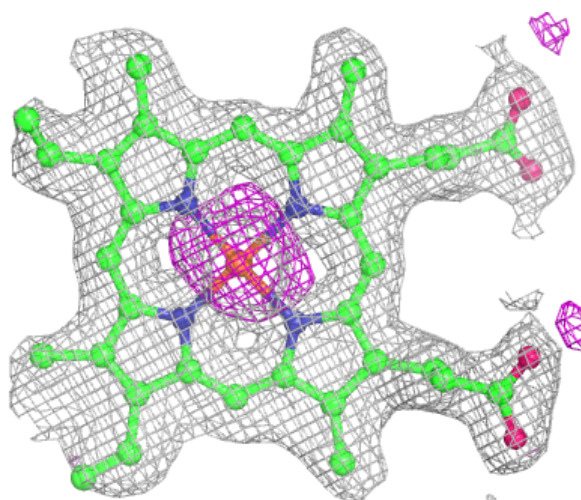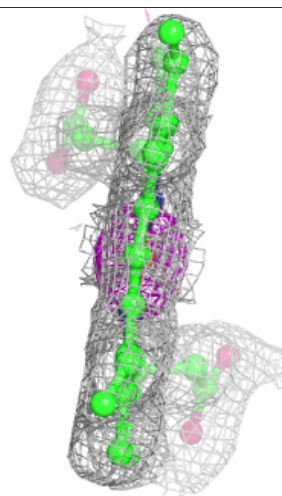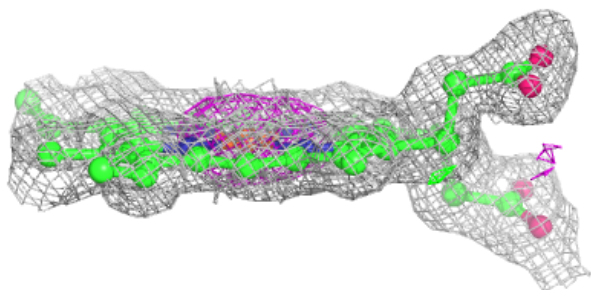
Electron density around HEM O 201 (B):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
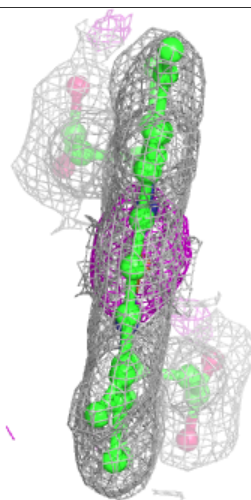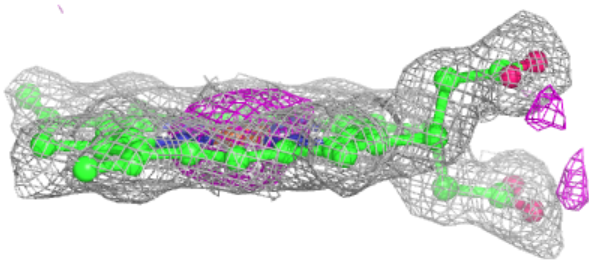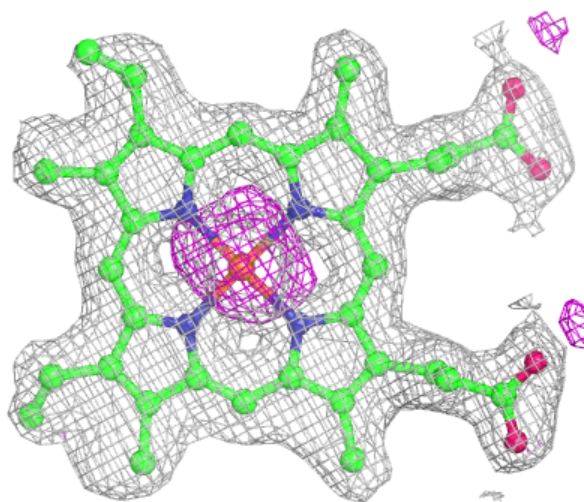
Electron density around HEM V 201 (A):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
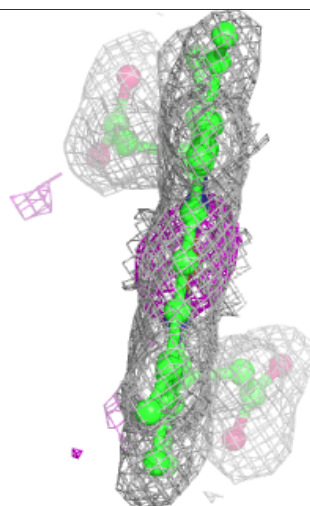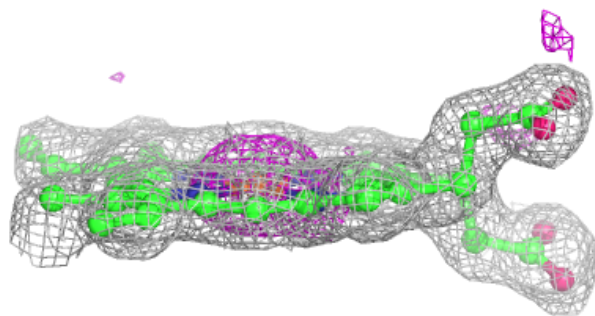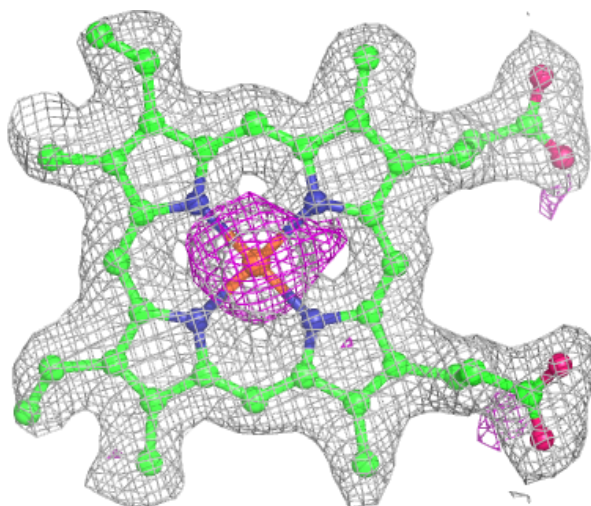
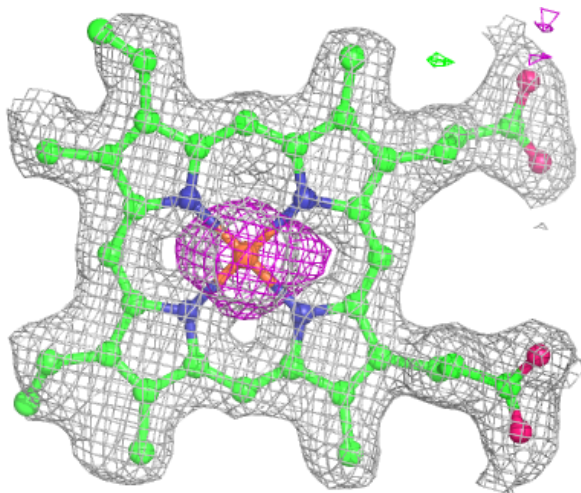**Electron density around HEM V 201 (B):**

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
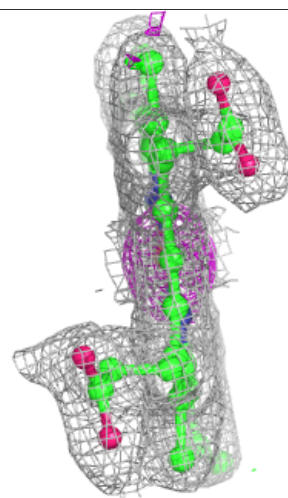and green (positive)
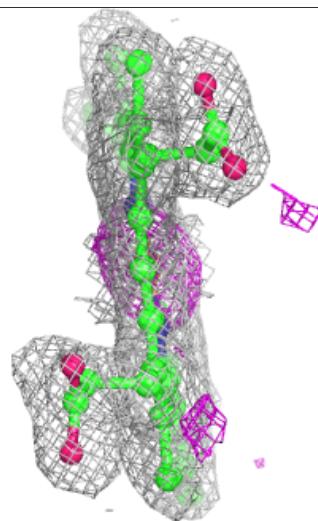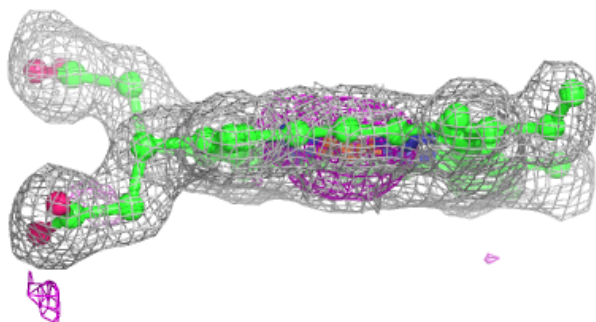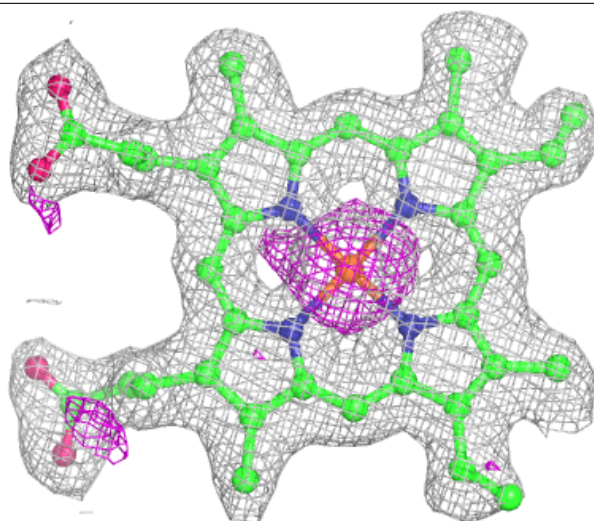
Electron density around HEM H 201 (A):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
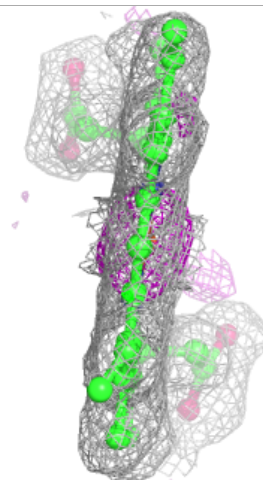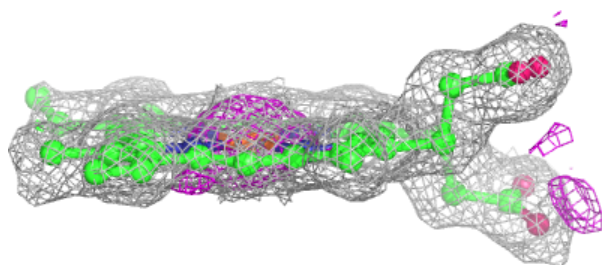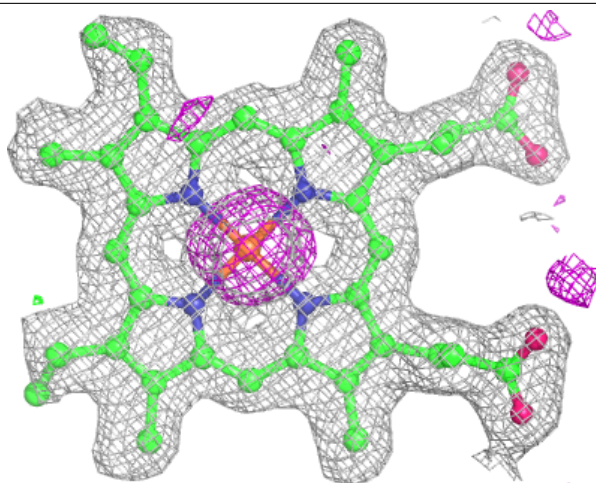
Electron density around HEM H 201 (B):

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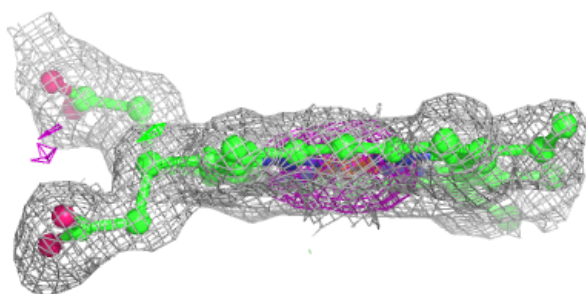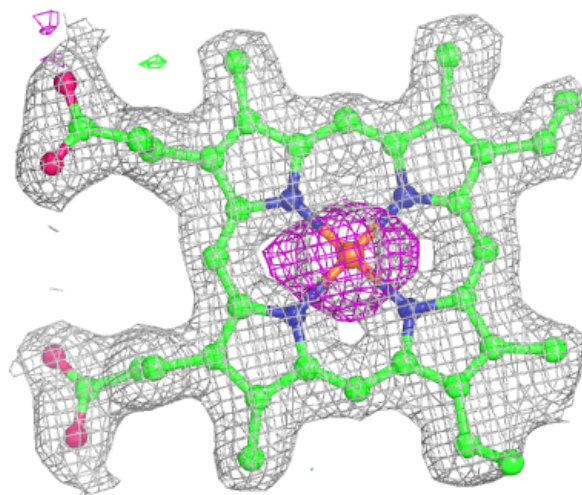and green (positive)

Electron density around HEM S 201 (A):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
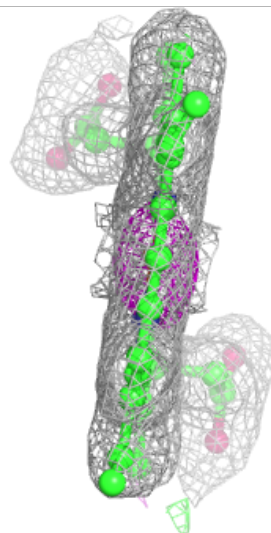and green (positive)
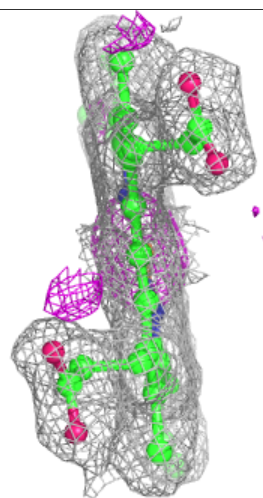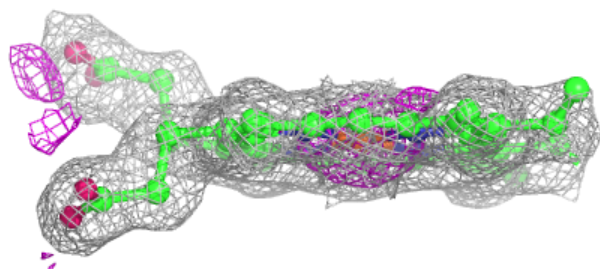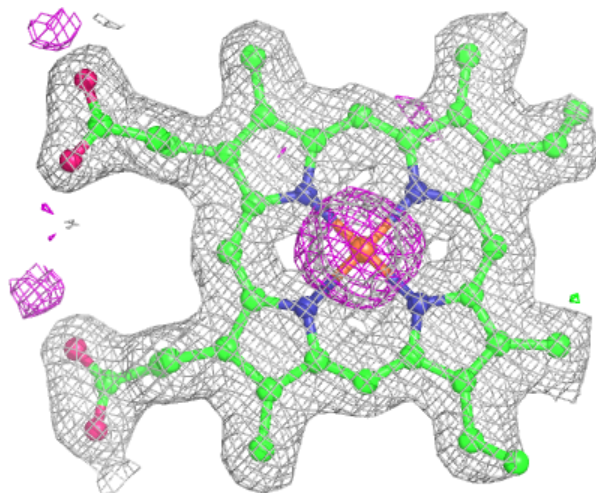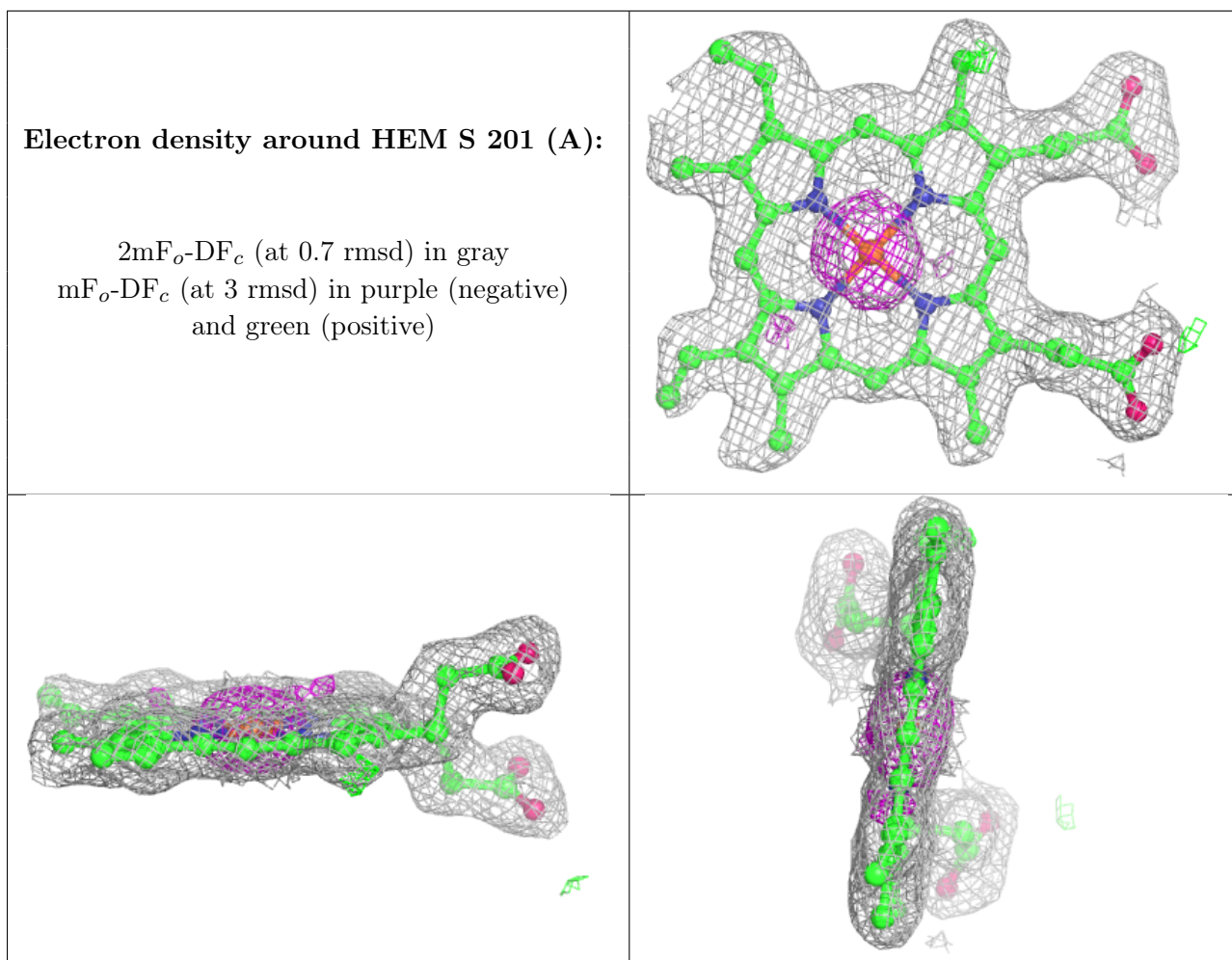
Electron density around HEM S 201 (B):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
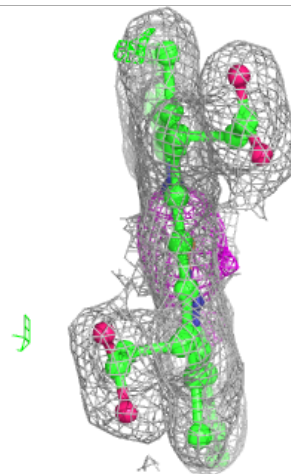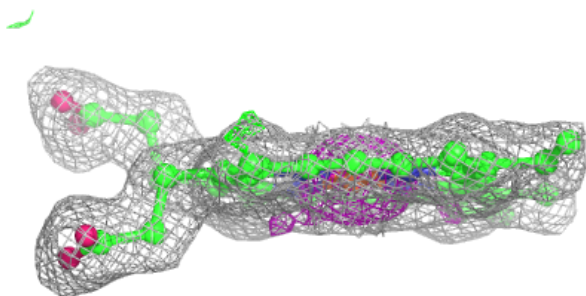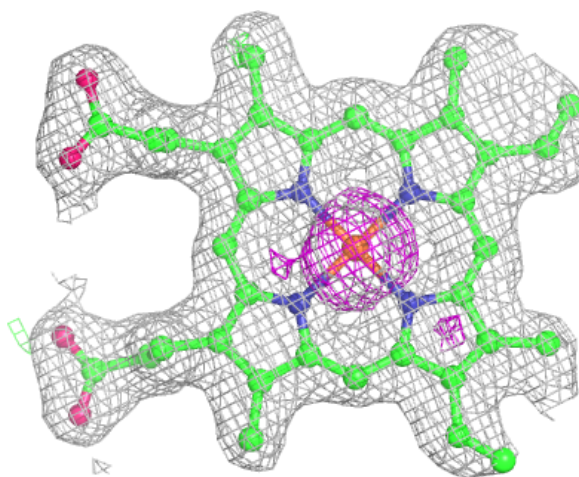
Electron density around HEM K 201 (A):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
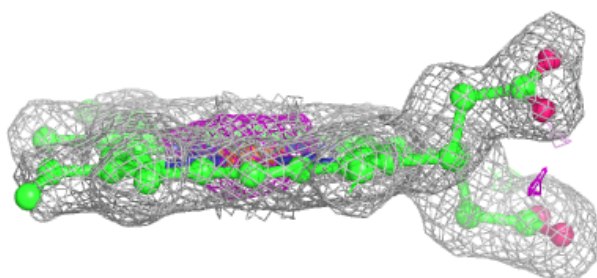$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
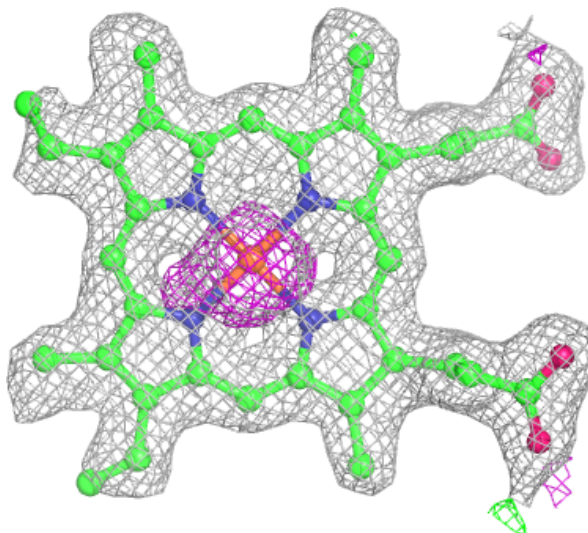and green (positive)
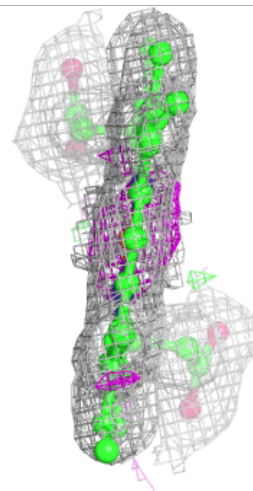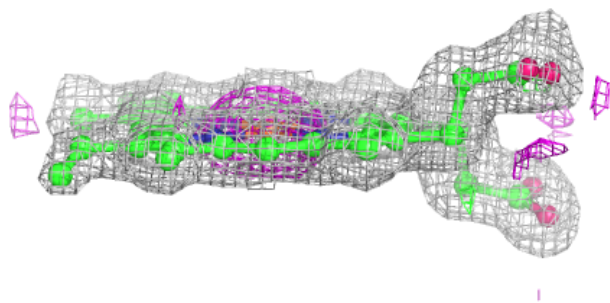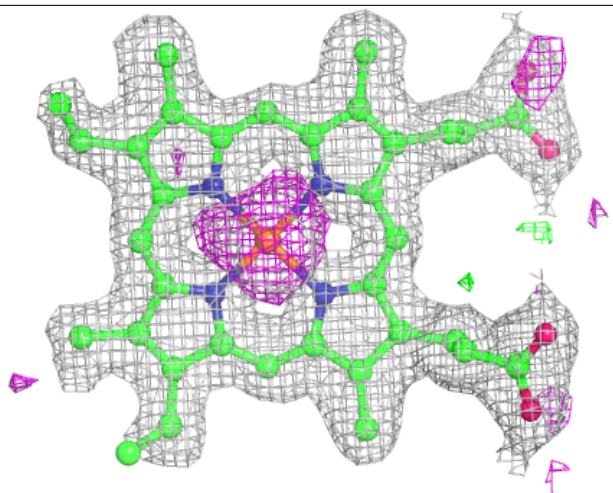
Electron density around HEM K 201 (B):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
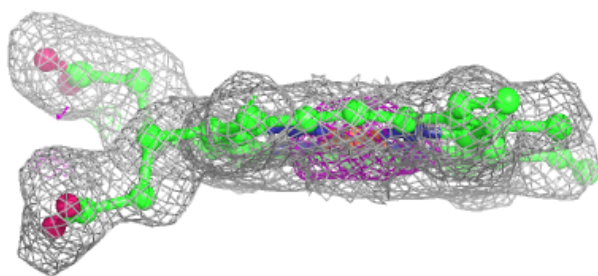and green (positive)
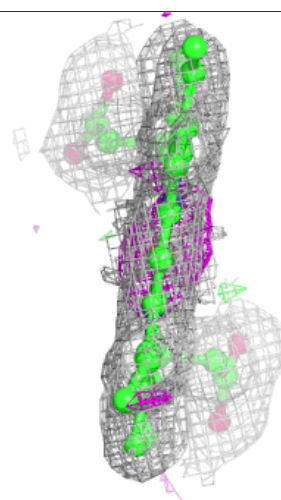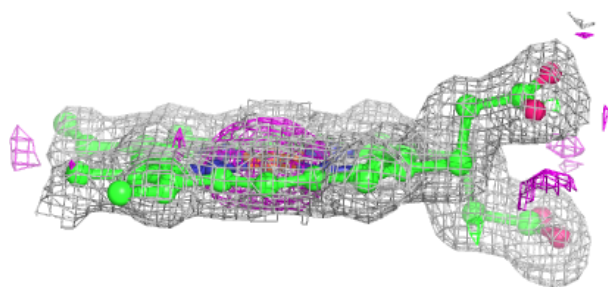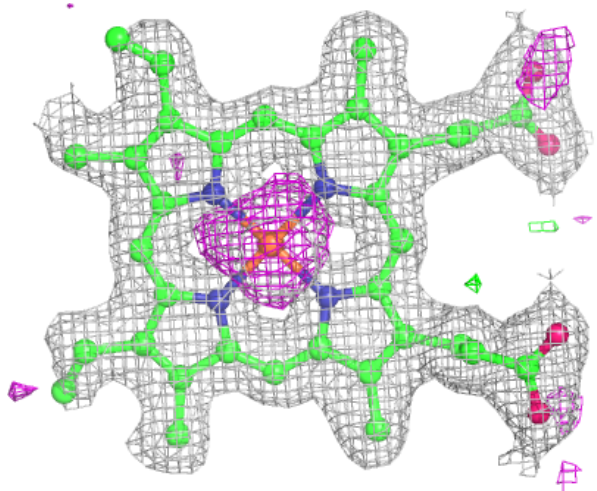
Electron density around HEM W 201 (A):

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
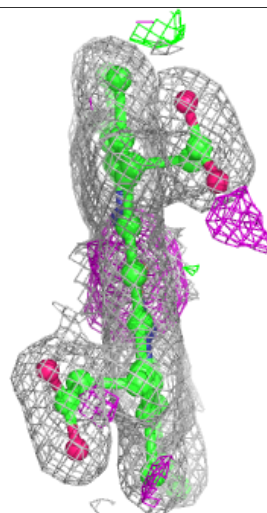
Electron density around HEM W 201 (B):

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

Electron density around HEM J 201 (A):

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

Electron density around HEM J 201 (B):

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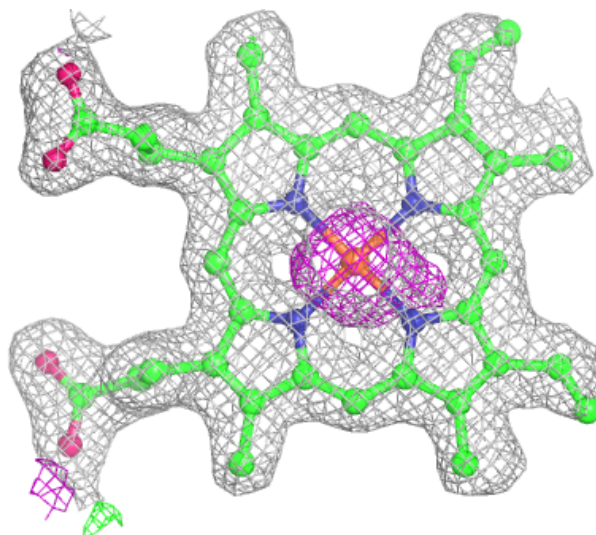mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around HEM N 201 (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 N 201 (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 Q 201 (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 Q 201 (B):

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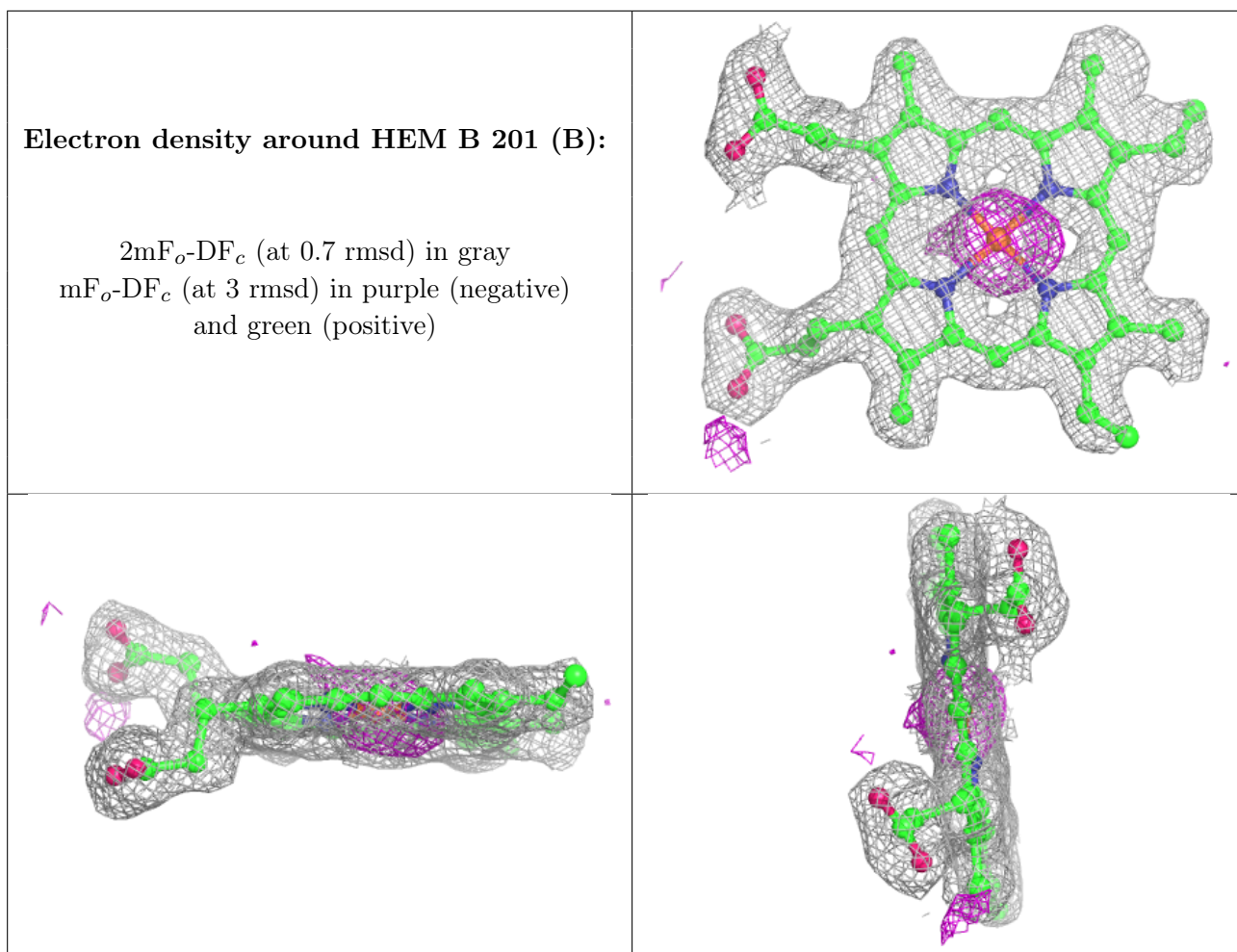$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around HEM B 201 (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 201 (B):

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
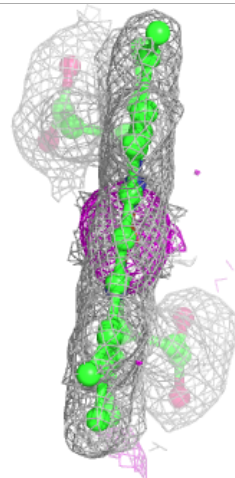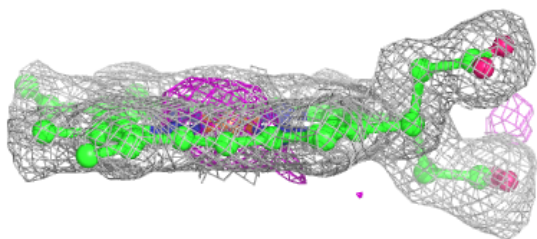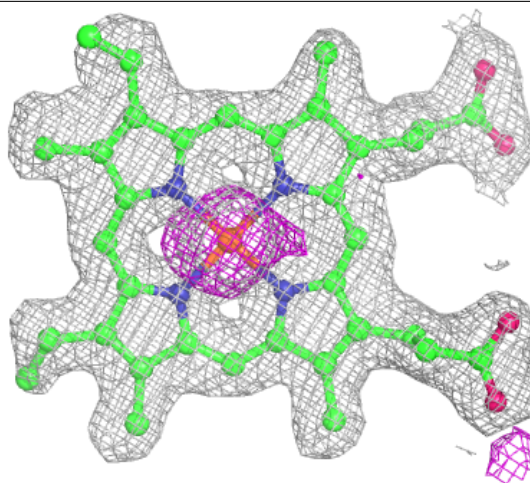
6.5 Other polymers (i)

There are no such residues in this entry.