wwPDB X-ray Structure Validation Summary Report (i)

Aug 23, 2023 – 12:27 PM EDT

PDB ID	:	8GK3
Title	:	Cytochrome P450 3A7 in complex with Dehydroepiandrosterone sulfate
Authors	:	Liu, J.; Scott, E.E.
Deposited on	:	2023-03-16
Resolution	:	2.60 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

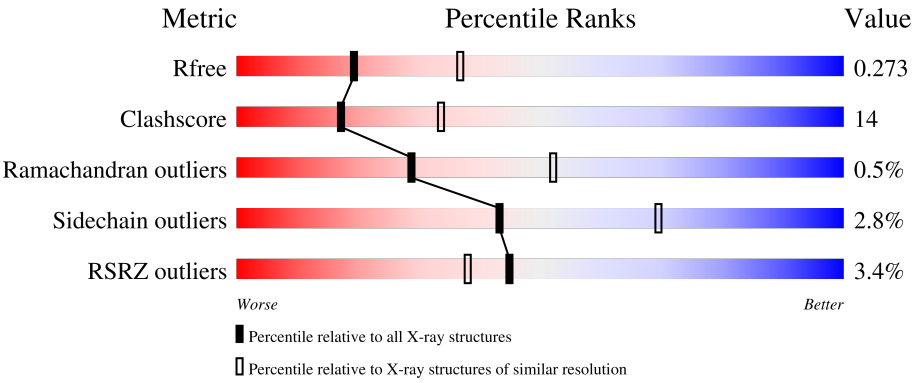
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber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

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	486	76% 21%
1	B	486	72% 23% 5%
1	C	486	70% 23% 5%
1	D	486	71% 22% 6%
1	E	486	68% 25% 5%

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Mol	Chain	Length	Quality of chain
1	F	486	2% 64% 28% • 5%
1	G	486	3% 69% 26% 5%
1	H	486	3% 68% 25% • 6%
1	I	486	6% 68% 26% • 5%
1	J	486	3% 66% 26% • 6%
1	K	486	3% 67% 26% • 5%
1	L	486	12% 50% 37% • 9%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 91794 atoms, of which 46378 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 Cytochrome P450 3A7.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	473	Total	C	H	N	O	S	0	0	0
			7690	2470	3892	628	681	19			
1	B	462	Total	C	H	N	O	S	0	0	0
			7501	2417	3796	609	660	19			
1	C	463	Total	C	H	N	O	S	0	0	0
			7507	2417	3798	608	665	19			
1	D	459	Total	C	H	N	O	S	0	0	0
			7453	2402	3771	606	655	19			
1	E	460	Total	C	H	N	O	S	0	0	0
			7469	2404	3783	604	659	19			
1	F	461	Total	C	H	N	O	S	0	0	0
			7496	2413	3799	608	657	19			
1	G	462	Total	C	H	N	O	S	0	0	0
			7503	2417	3798	609	660	19			
1	H	458	Total	C	H	N	O	S	0	0	0
			7434	2396	3763	602	654	19			
1	I	463	Total	C	H	N	O	S	0	0	0
			7508	2417	3799	608	665	19			
1	J	458	Total	C	H	N	O	S	0	0	0
			7441	2395	3771	602	654	19			
1	K	462	Total	C	H	N	O	S	0	0	0
			7503	2417	3798	609	660	19			
1	L	440	Total	C	H	N	O	S	0	0	0
			7133	2307	3602	580	626	18			

There are 144 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	22	MET	-	initiating methionine	UNP P24462
A	23	ALA	-	expression tag	UNP P24462
A	69	GLY	ARG	conflict	UNP P24462
A	77	GLY	CYS	conflict	UNP P24462
A	244	GLU	LYS	conflict	UNP P24462

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Chain	Residue	Modelled	Actual	Comment	Reference
A	421	ALA	LYS	conflict	UNP P24462
A	422	ALA	LYS	conflict	UNP P24462
A	424	ALA	LYS	conflict	UNP P24462
A	504	HIS	-	expression tag	UNP P24462
A	505	HIS	-	expression tag	UNP P24462
A	506	HIS	-	expression tag	UNP P24462
A	507	HIS	-	expression tag	UNP P24462
B	22	MET	-	initiating methionine	UNP P24462
B	23	ALA	-	expression tag	UNP P24462
B	69	GLY	ARG	conflict	UNP P24462
B	77	GLY	CYS	conflict	UNP P24462
B	244	GLU	LYS	conflict	UNP P24462
B	421	ALA	LYS	conflict	UNP P24462
B	422	ALA	LYS	conflict	UNP P24462
B	424	ALA	LYS	conflict	UNP P24462
B	504	HIS	-	expression tag	UNP P24462
B	505	HIS	-	expression tag	UNP P24462
B	506	HIS	-	expression tag	UNP P24462
B	507	HIS	-	expression tag	UNP P24462
C	22	MET	-	initiating methionine	UNP P24462
C	23	ALA	-	expression tag	UNP P24462
C	69	GLY	ARG	conflict	UNP P24462
C	77	GLY	CYS	conflict	UNP P24462
C	244	GLU	LYS	conflict	UNP P24462
C	421	ALA	LYS	conflict	UNP P24462
C	422	ALA	LYS	conflict	UNP P24462
C	424	ALA	LYS	conflict	UNP P24462
C	504	HIS	-	expression tag	UNP P24462
C	505	HIS	-	expression tag	UNP P24462
C	506	HIS	-	expression tag	UNP P24462
C	507	HIS	-	expression tag	UNP P24462
D	22	MET	-	initiating methionine	UNP P24462
D	23	ALA	-	expression tag	UNP P24462
D	69	GLY	ARG	conflict	UNP P24462
D	77	GLY	CYS	conflict	UNP P24462
D	244	GLU	LYS	conflict	UNP P24462
D	421	ALA	LYS	conflict	UNP P24462
D	422	ALA	LYS	conflict	UNP P24462
D	424	ALA	LYS	conflict	UNP P24462
D	504	HIS	-	expression tag	UNP P24462
D	505	HIS	-	expression tag	UNP P24462
D	506	HIS	-	expression tag	UNP P24462

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Chain	Residue	Modelled	Actual	Comment	Reference
D	507	HIS	-	expression tag	UNP P24462
E	22	MET	-	initiating methionine	UNP P24462
E	23	ALA	-	expression tag	UNP P24462
E	69	GLY	ARG	conflict	UNP P24462
E	77	GLY	CYS	conflict	UNP P24462
E	244	GLU	LYS	conflict	UNP P24462
E	421	ALA	LYS	conflict	UNP P24462
E	422	ALA	LYS	conflict	UNP P24462
E	424	ALA	LYS	conflict	UNP P24462
E	504	HIS	-	expression tag	UNP P24462
E	505	HIS	-	expression tag	UNP P24462
E	506	HIS	-	expression tag	UNP P24462
E	507	HIS	-	expression tag	UNP P24462
F	22	MET	-	initiating methionine	UNP P24462
F	23	ALA	-	expression tag	UNP P24462
F	69	GLY	ARG	conflict	UNP P24462
F	77	GLY	CYS	conflict	UNP P24462
F	244	GLU	LYS	conflict	UNP P24462
F	421	ALA	LYS	conflict	UNP P24462
F	422	ALA	LYS	conflict	UNP P24462
F	424	ALA	LYS	conflict	UNP P24462
F	504	HIS	-	expression tag	UNP P24462
F	505	HIS	-	expression tag	UNP P24462
F	506	HIS	-	expression tag	UNP P24462
F	507	HIS	-	expression tag	UNP P24462
G	22	MET	-	initiating methionine	UNP P24462
G	23	ALA	-	expression tag	UNP P24462
G	69	GLY	ARG	conflict	UNP P24462
G	77	GLY	CYS	conflict	UNP P24462
G	244	GLU	LYS	conflict	UNP P24462
G	421	ALA	LYS	conflict	UNP P24462
G	422	ALA	LYS	conflict	UNP P24462
G	424	ALA	LYS	conflict	UNP P24462
G	504	HIS	-	expression tag	UNP P24462
G	505	HIS	-	expression tag	UNP P24462
G	506	HIS	-	expression tag	UNP P24462
G	507	HIS	-	expression tag	UNP P24462
H	22	MET	-	initiating methionine	UNP P24462
H	23	ALA	-	expression tag	UNP P24462
H	69	GLY	ARG	conflict	UNP P24462
H	77	GLY	CYS	conflict	UNP P24462
H	244	GLU	LYS	conflict	UNP P24462

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Chain	Residue	Modelled	Actual	Comment	Reference
H	421	ALA	LYS	conflict	UNP P24462
H	422	ALA	LYS	conflict	UNP P24462
H	424	ALA	LYS	conflict	UNP P24462
H	504	HIS	-	expression tag	UNP P24462
H	505	HIS	-	expression tag	UNP P24462
H	506	HIS	-	expression tag	UNP P24462
H	507	HIS	-	expression tag	UNP P24462
I	22	MET	-	initiating methionine	UNP P24462
I	23	ALA	-	expression tag	UNP P24462
I	69	GLY	ARG	conflict	UNP P24462
I	77	GLY	CYS	conflict	UNP P24462
I	244	GLU	LYS	conflict	UNP P24462
I	421	ALA	LYS	conflict	UNP P24462
I	422	ALA	LYS	conflict	UNP P24462
I	424	ALA	LYS	conflict	UNP P24462
I	504	HIS	-	expression tag	UNP P24462
I	505	HIS	-	expression tag	UNP P24462
I	506	HIS	-	expression tag	UNP P24462
I	507	HIS	-	expression tag	UNP P24462
J	22	MET	-	initiating methionine	UNP P24462
J	23	ALA	-	expression tag	UNP P24462
J	69	GLY	ARG	conflict	UNP P24462
J	77	GLY	CYS	conflict	UNP P24462
J	244	GLU	LYS	conflict	UNP P24462
J	421	ALA	LYS	conflict	UNP P24462
J	422	ALA	LYS	conflict	UNP P24462
J	424	ALA	LYS	conflict	UNP P24462
J	504	HIS	-	expression tag	UNP P24462
J	505	HIS	-	expression tag	UNP P24462
J	506	HIS	-	expression tag	UNP P24462
J	507	HIS	-	expression tag	UNP P24462
K	22	MET	-	initiating methionine	UNP P24462
K	23	ALA	-	expression tag	UNP P24462
K	69	GLY	ARG	conflict	UNP P24462
K	77	GLY	CYS	conflict	UNP P24462
K	244	GLU	LYS	conflict	UNP P24462
K	421	ALA	LYS	conflict	UNP P24462
K	422	ALA	LYS	conflict	UNP P24462
K	424	ALA	LYS	conflict	UNP P24462
K	504	HIS	-	expression tag	UNP P24462
K	505	HIS	-	expression tag	UNP P24462
K	506	HIS	-	expression tag	UNP P24462

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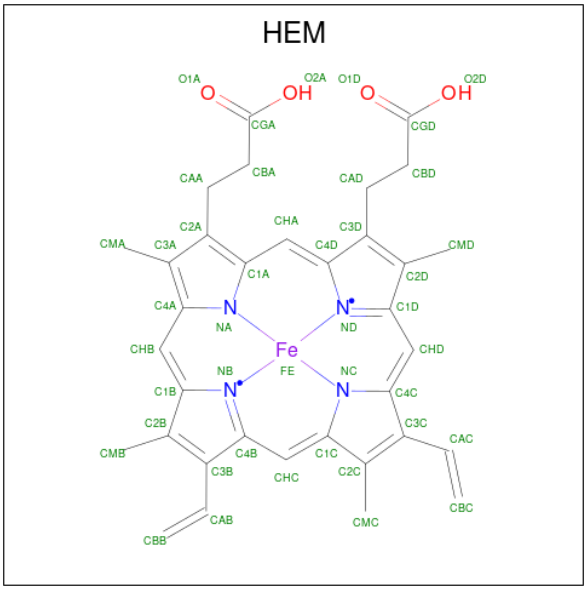
Chain	Residue	Modelled	Actual	Comment	Reference
K	507	HIS	-	expression tag	UNP P24462
L	22	MET	-	initiating methionine	UNP P24462
L	23	ALA	-	expression tag	UNP P24462
L	69	GLY	ARG	conflict	UNP P24462
L	77	GLY	CYS	conflict	UNP P24462
L	244	GLU	LYS	conflict	UNP P24462
L	421	ALA	LYS	conflict	UNP P24462
L	422	ALA	LYS	conflict	UNP P24462
L	424	ALA	LYS	conflict	UNP P24462
L	504	HIS	-	expression tag	UNP P24462
L	505	HIS	-	expression tag	UNP P24462
L	506	HIS	-	expression tag	UNP P24462
L	507	HIS	-	expression tag	UNP P24462

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



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	A	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	B	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	C	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	D	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		

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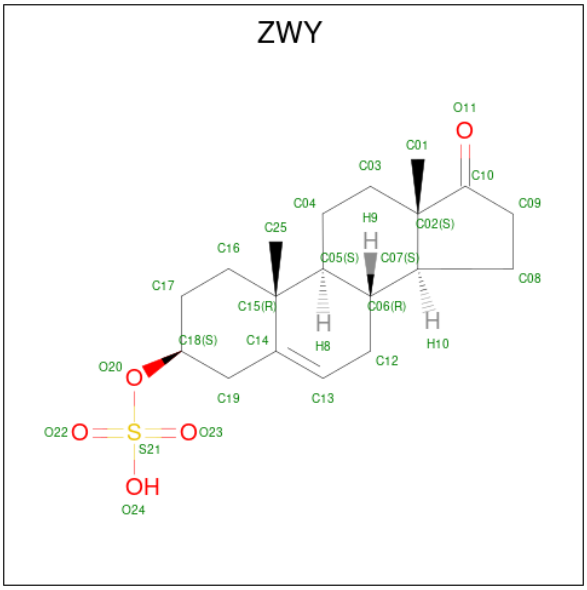
Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
2	E	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	F	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	G	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	H	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	I	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	J	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	K	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		
2	L	1	Total	C	Fe	H	N	O	0	0
			73	34	1	30	4	4		

- Molecule 3 is 17-oxoandrost-5-en-3beta-yl hydrogen sulfate (three-letter code: ZWY) (formula: $C_{19}H_{28}O_5S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	A	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	B	1	Total	C	H	O	S	0	0
			52	19	27	5	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	B	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	C	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	C	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	C	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	C	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	D	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	D	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	D	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	D	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	D	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	E	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	E	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	E	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	E	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	H	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	H	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	H	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	I	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	I	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	J	1	Total	C	H	O	S	0	0
			52	19	27	5	1		
3	J	1	Total	C	H	O	S	0	0
			52	19	27	5	1		

- Molecule 4 is water.

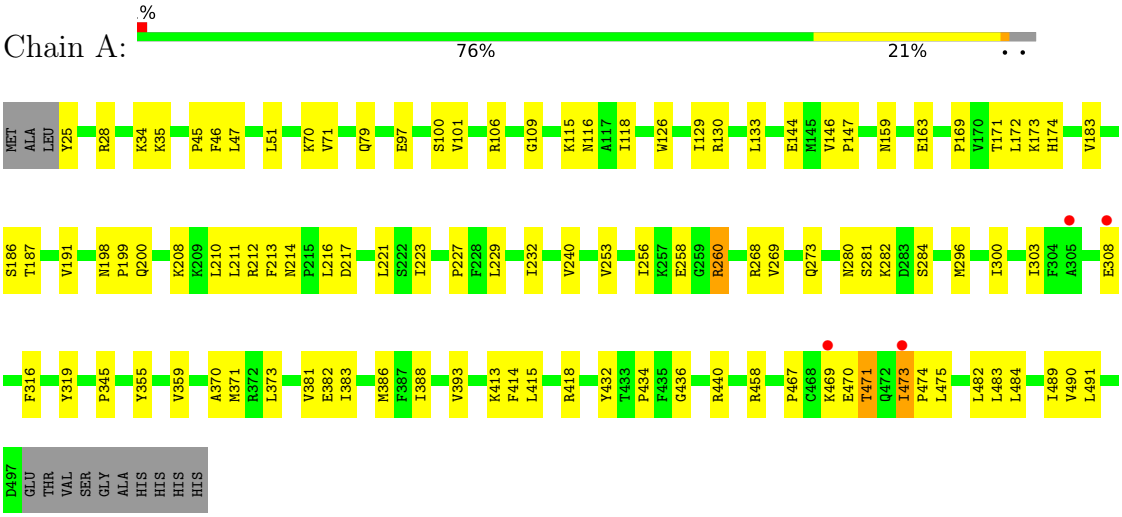
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	5	Total O 5 5	0	0
4	B	7	Total O 7 7	0	0
4	E	2	Total O 2 2	0	0
4	F	4	Total O 4 4	0	0
4	G	5	Total O 5 5	0	0
4	H	2	Total O 2 2	0	0
4	I	1	Total O 1 1	0	0
4	J	1	Total O 1 1	0	0
4	K	5	Total O 5 5	0	0

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.

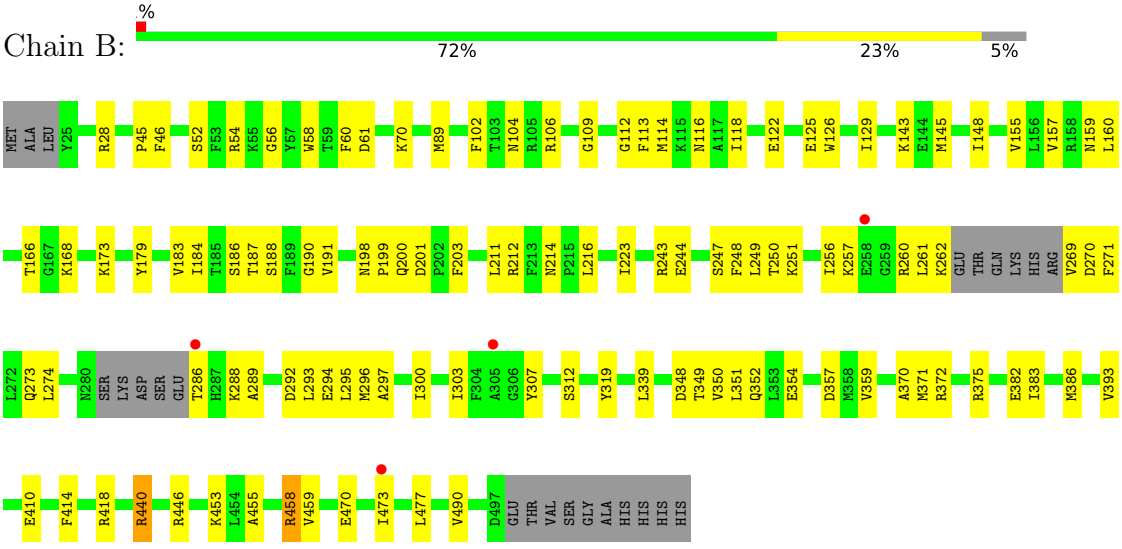
• Molecule 1: Cytochrome P450 3A7

Chain A:



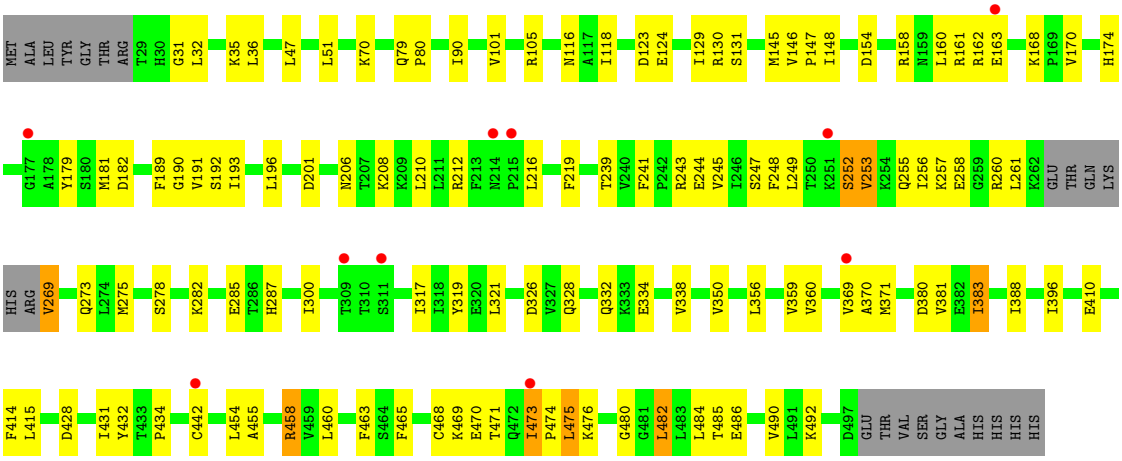
• Molecule 1: Cytochrome P450 3A7

Chain B:



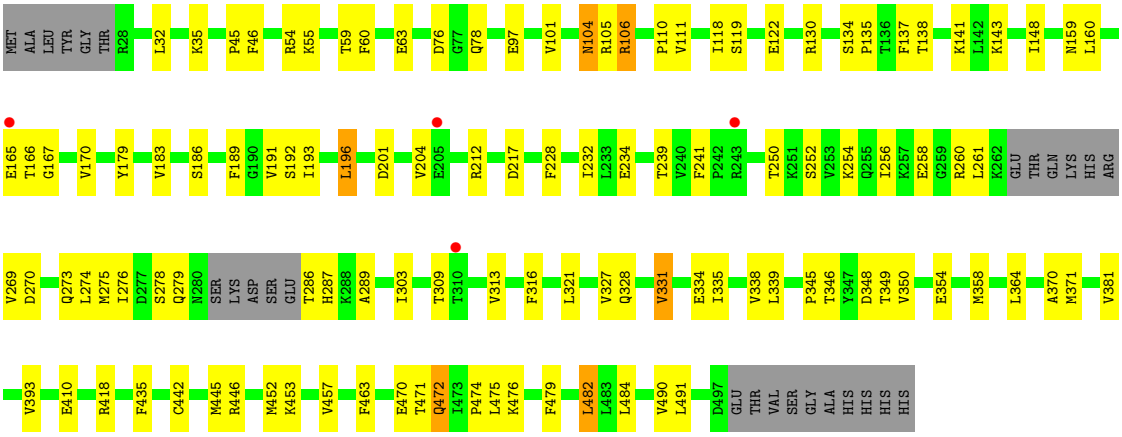
• Molecule 1: Cytochrome P450 3A7

Chain C:



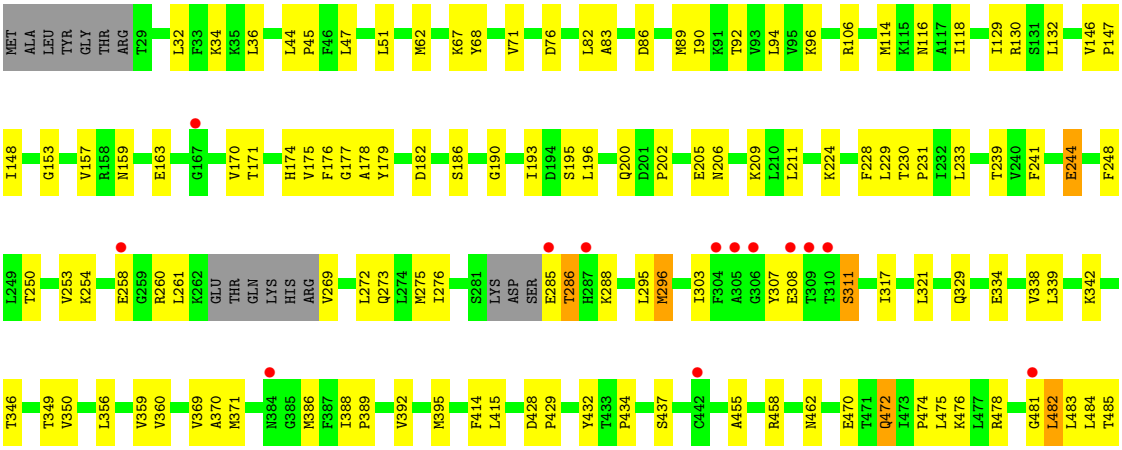
• Molecule 1: Cytochrome P450 3A7

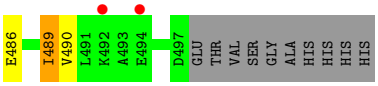
Chain D:



• Molecule 1: Cytochrome P450 3A7

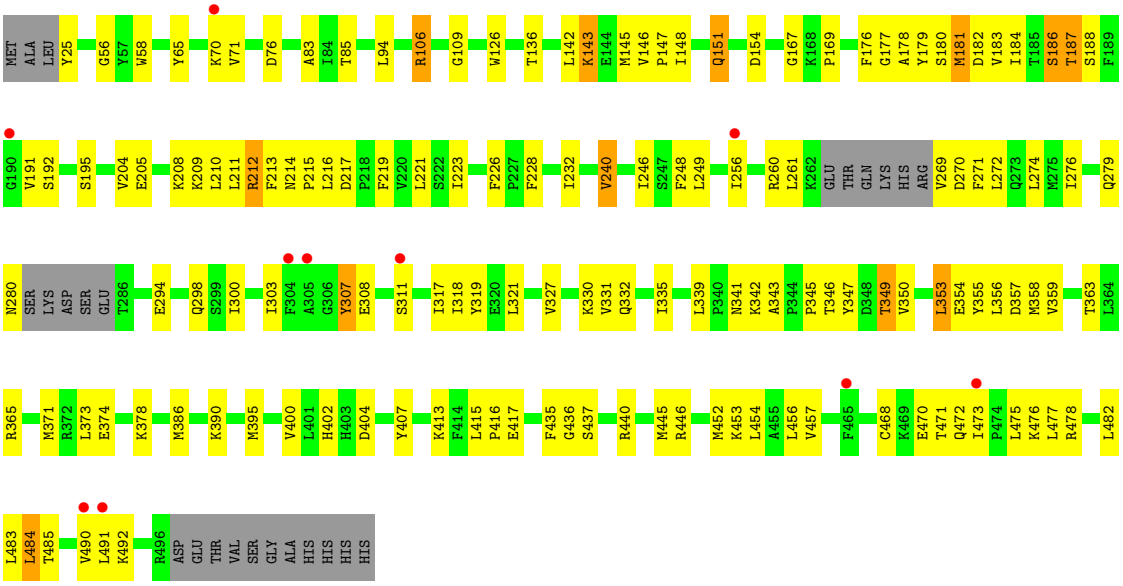
Chain E:





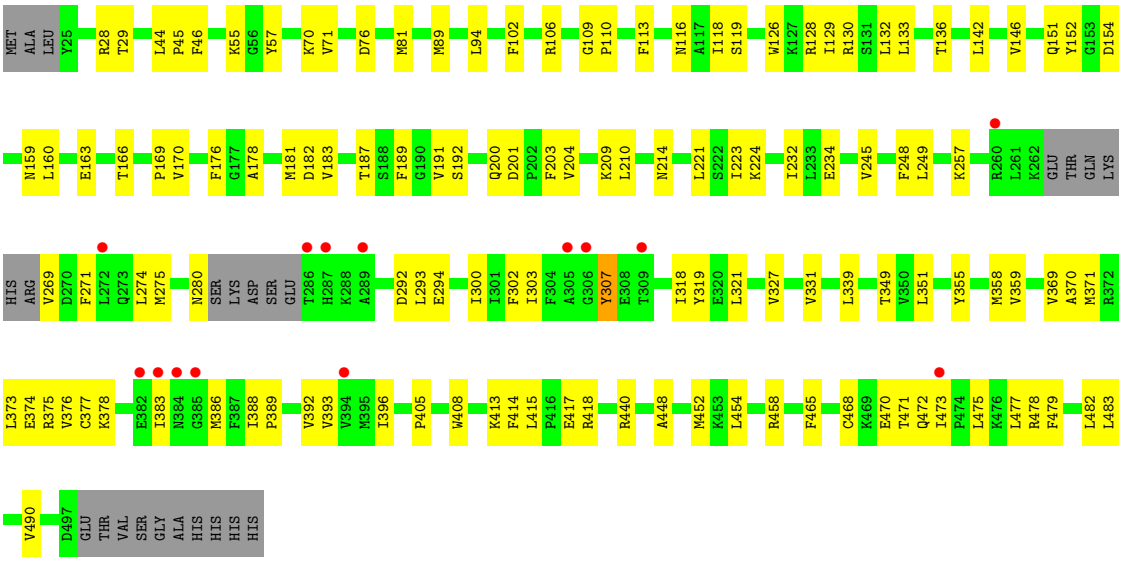
• Molecule 1: Cytochrome P450 3A7

Chain F:



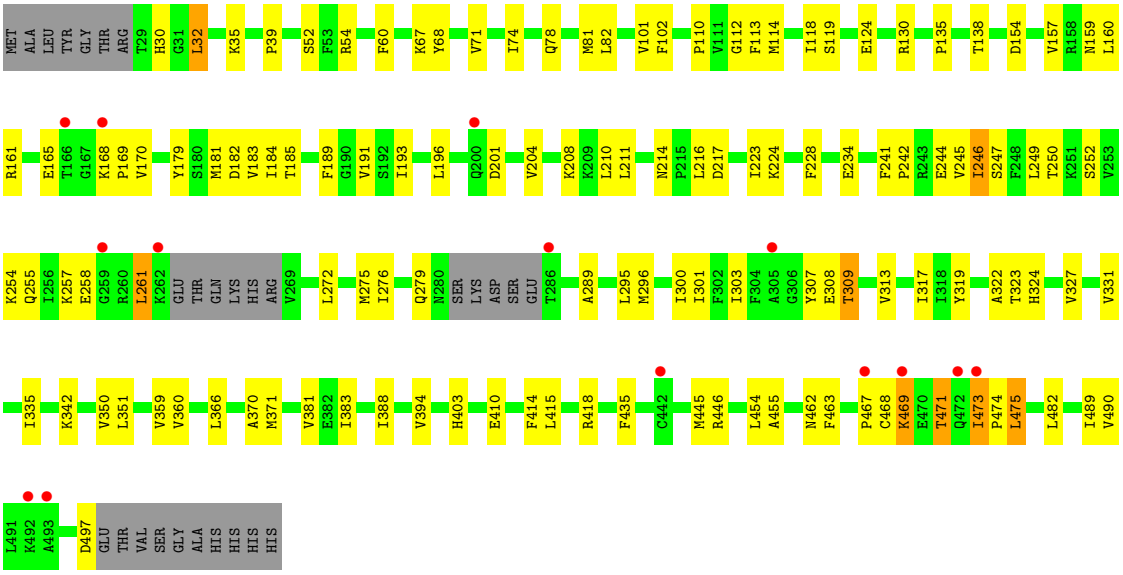
• Molecule 1: Cytochrome P450 3A7

Chain G:

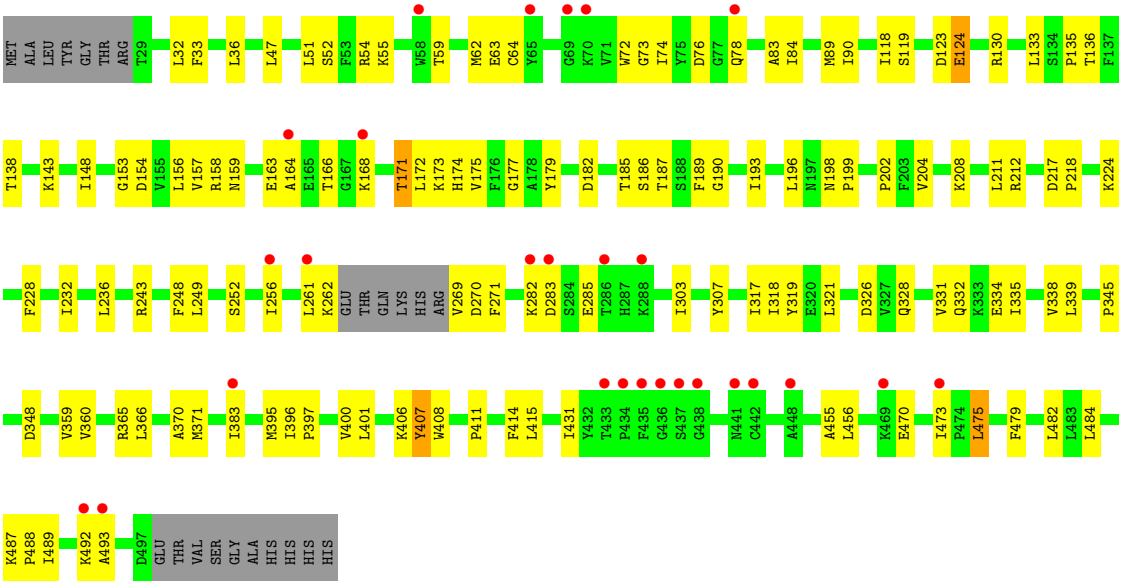


• Molecule 1: Cytochrome P450 3A7

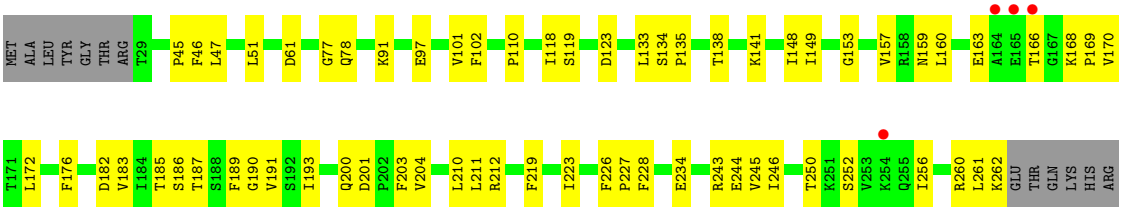
Chain H:

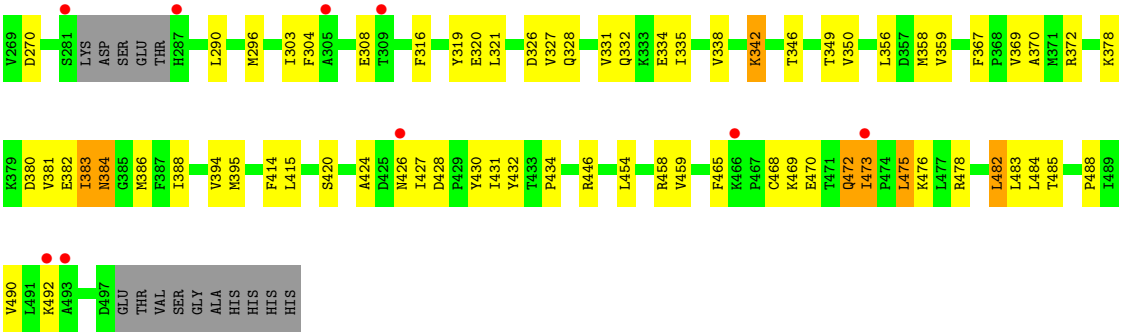


• Molecule 1: Cytochrome P450 3A7

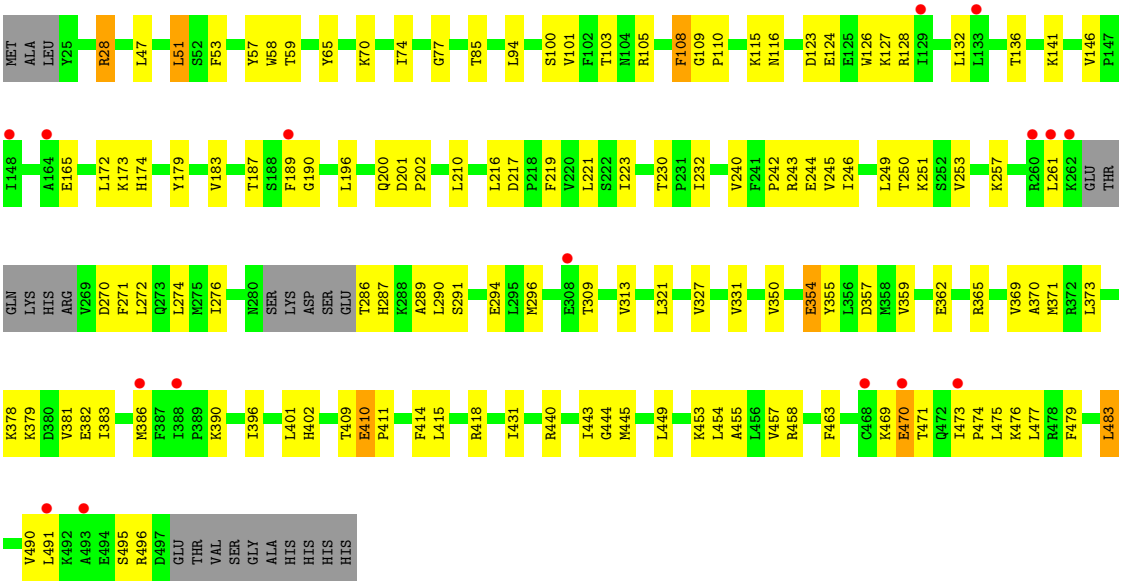


• Molecule 1: Cytochrome P450 3A7

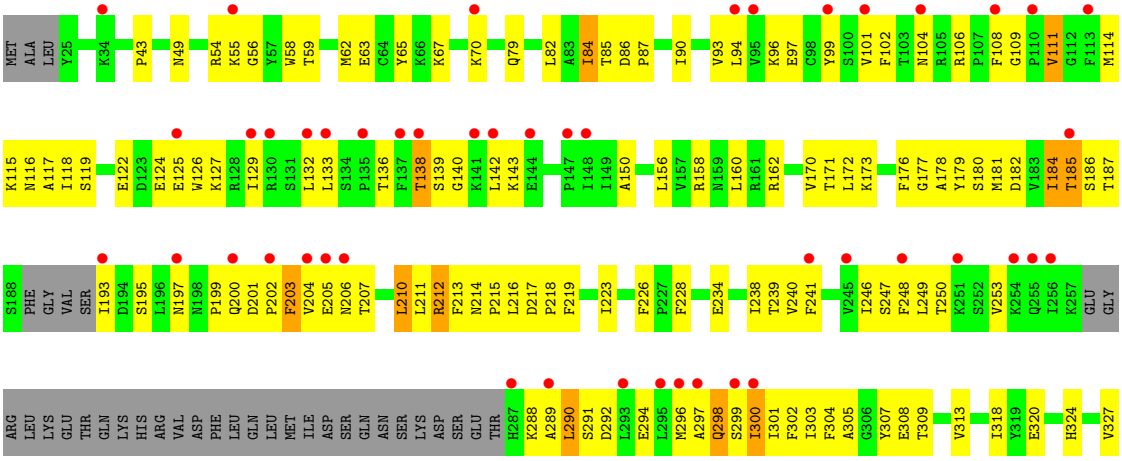


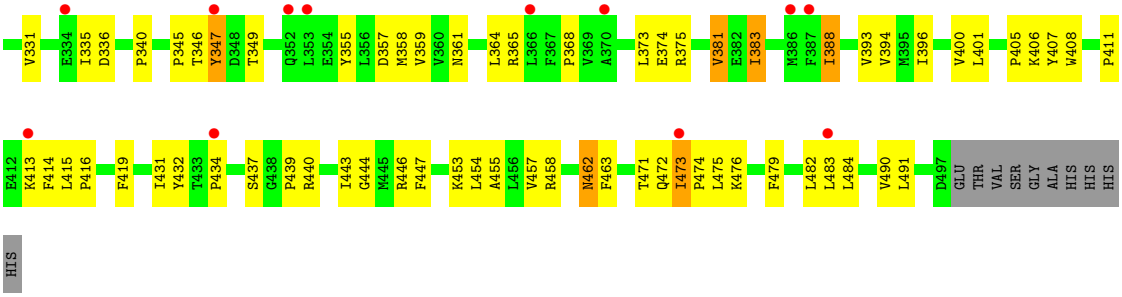


• Molecule 1: Cytochrome P450 3A7



• Molecule 1: Cytochrome P450 3A7




V331
E334
I335
D336
P340
P345
T346
Y347
D348
T349
Q352
L353
E354
Y355
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M358
V359
V360
N361
L364
R365
L366
F367
P368
V369
A370
L373
E374
R375
V381
E382
I383
M386
F387
I388
V393
V394
M395
I396
V400
L401
P405
K406
Y407
W408
P411
E412
K413
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P416
F419
I431
Y432
T433
P434
S437
G438
P439
R440
I443
G444
M445
R446
F447
K453
L454
A455
L456
V457
R458
N462
F463
T471
Q472
I473
P474
L475
K476
F479
L482
L483
L484
V490
L491
D497
GLU
THR
VAL
SER
GLY
ALA
HIS
HIS
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4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	114.52Å 219.38Å 130.45Å 90.00° 102.17° 90.00°	Depositor
Resolution (Å)	39.94 – 2.60 39.94 – 2.60	Depositor EDS
% Data completeness (in resolution range)	98.4 (39.94-2.60) 98.4 (39.94-2.60)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.29 (at 2.61Å)	Xtriage
Refinement program	PHENIX 1.18.2_3874	Depositor
R, R_{free}	0.210 , 0.273 0.210 , 0.273	Depositor DCC
R_{free} test set	1999 reflections (1.05%)	wwPDB-VP
Wilson B-factor (Å^2)	68.5	Xtriage
Anisotropy	0.447	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 49.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.95	EDS
Total number of atoms	91794	wwPDB-VP
Average B, all atoms (Å^2)	86.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.86% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ZWY, HEM

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.49	0/3892	0.57	0/5274
1	B	0.50	0/3796	0.62	0/5144
1	C	0.50	0/3800	0.60	0/5150
1	D	0.57	0/3772	0.62	0/5111
1	E	0.60	0/3776	0.62	0/5117
1	F	0.55	0/3788	0.61	0/5133
1	G	0.54	0/3796	0.65	0/5144
1	H	0.48	0/3761	0.60	0/5097
1	I	0.56	0/3800	0.65	0/5150
1	J	0.53	0/3760	0.64	0/5095
1	K	0.55	0/3796	0.65	0/5144
1	L	0.65	0/3620	0.78	0/4908
All	All	0.55	0/45357	0.64	0/61467

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	3798	3892	3891	78	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	3705	3796	3802	74	0
1	C	3709	3798	3804	88	0
1	D	3682	3771	3783	86	0
1	E	3686	3783	3781	96	0
1	F	3697	3799	3798	124	0
1	G	3705	3798	3803	96	0
1	H	3671	3763	3770	87	0
1	I	3709	3799	3804	106	0
1	J	3670	3771	3768	111	0
1	K	3705	3798	3802	114	0
1	L	3531	3602	3628	200	0
2	A	43	30	30	2	0
2	B	43	30	30	3	0
2	C	43	30	30	4	0
2	D	43	30	30	6	0
2	E	43	30	30	2	0
2	F	43	30	30	4	0
2	G	43	30	30	5	0
2	H	43	30	30	3	0
2	I	43	30	30	3	0
2	J	43	30	30	3	0
2	K	43	30	30	7	0
2	L	43	30	30	5	0
3	A	50	54	0	1	0
3	B	50	54	0	0	0
3	C	100	108	0	0	0
3	D	125	135	0	2	0
3	E	100	108	0	1	0
3	H	75	81	0	1	0
3	I	50	54	0	0	0
3	J	50	54	0	0	0
4	A	5	0	0	0	0
4	B	7	0	0	0	0
4	E	2	0	0	0	0
4	F	4	0	0	0	0
4	G	5	0	0	0	0
4	H	2	0	0	0	0
4	I	1	0	0	0	0
4	J	1	0	0	0	0
4	K	5	0	0	0	0
All	All	45416	46378	45794	1268	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 14.

The worst 5 of 1268 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:E:286:THR:HG22	1:G:351:LEU:O	1.40	1.18
1:L:250:THR:HG23	1:L:296:MET:SD	1.84	1.18
1:F:232:ILE:HD11	1:G:232:ILE:HD11	1.15	1.11
1:K:183:VAL:O	1:K:187:THR:HG22	1.54	1.07
1:J:185:THR:HB	1:J:193:ILE:HD11	1.41	1.02

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	471/486 (97%)	435 (92%)	35 (7%)	1 (0%)	47	71
1	B	456/486 (94%)	423 (93%)	30 (7%)	3 (1%)	22	43
1	C	459/486 (94%)	425 (93%)	30 (6%)	4 (1%)	17	35
1	D	453/486 (93%)	421 (93%)	30 (7%)	2 (0%)	34	57
1	E	454/486 (93%)	421 (93%)	31 (7%)	2 (0%)	34	57
1	F	455/486 (94%)	425 (93%)	28 (6%)	2 (0%)	34	57
1	G	456/486 (94%)	419 (92%)	36 (8%)	1 (0%)	47	71
1	H	452/486 (93%)	412 (91%)	37 (8%)	3 (1%)	22	43
1	I	459/486 (94%)	432 (94%)	25 (5%)	2 (0%)	34	57
1	J	452/486 (93%)	418 (92%)	32 (7%)	2 (0%)	34	57
1	K	456/486 (94%)	415 (91%)	40 (9%)	1 (0%)	47	71
1	L	434/486 (89%)	376 (87%)	53 (12%)	5 (1%)	13	27
All	All	5457/5832 (94%)	5022 (92%)	407 (8%)	28 (0%)	29	52

5 of 28 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	473	ILE
1	D	166	THR
1	L	212	ARG
1	C	252	SER
1	C	473	ILE

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	428/438 (98%)	421 (98%)	7 (2%)	62	82
1	B	417/438 (95%)	409 (98%)	8 (2%)	57	79
1	C	419/438 (96%)	406 (97%)	13 (3%)	40	66
1	D	415/438 (95%)	407 (98%)	8 (2%)	57	79
1	E	416/438 (95%)	407 (98%)	9 (2%)	52	76
1	F	416/438 (95%)	400 (96%)	16 (4%)	33	59
1	G	417/438 (95%)	408 (98%)	9 (2%)	52	76
1	H	414/438 (94%)	396 (96%)	18 (4%)	29	54
1	I	419/438 (96%)	411 (98%)	8 (2%)	57	79
1	J	414/438 (94%)	404 (98%)	10 (2%)	49	74
1	K	417/438 (95%)	406 (97%)	11 (3%)	46	72
1	L	397/438 (91%)	372 (94%)	25 (6%)	18	36
All	All	4989/5256 (95%)	4847 (97%)	142 (3%)	43	69

5 of 142 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	K	410	GLU
1	L	111	VAL
1	L	212	ARG
1	F	181	MET

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Mol	Chain	Res	Type
1	F	151	GLN

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

Mol	Chain	Res	Type
1	H	78	GLN
1	J	78	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

36 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
2	HEM	F	601	-	41,50,50	1.46	3 (7%)	45,82,82	1.29	6 (13%)
3	ZWY	D	605	-	28,28,28	2.36	9 (32%)	42,46,46	3.68	22 (52%)
3	ZWY	A	602	-	28,28,28	2.28	11 (39%)	42,46,46	3.53	18 (42%)
2	HEM	L	601	-	41,50,50	1.50	5 (12%)	45,82,82	1.38	7 (15%)
3	ZWY	C	605	-	28,28,28	2.22	8 (28%)	42,46,46	3.68	23 (54%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	ZWY	C	603	-	28,28,28	2.38	10 (35%)	42,46,46	3.98	20 (47%)
2	HEM	E	601	1	41,50,50	1.49	6 (14%)	45,82,82	1.35	5 (11%)
3	ZWY	H	603	-	28,28,28	2.34	9 (32%)	42,46,46	3.77	20 (47%)
3	ZWY	B	602	-	28,28,28	2.37	8 (28%)	42,46,46	4.01	21 (50%)
3	ZWY	C	602	-	28,28,28	2.19	8 (28%)	42,46,46	3.63	18 (42%)
3	ZWY	B	603	-	28,28,28	2.18	9 (32%)	42,46,46	3.61	18 (42%)
3	ZWY	D	606	-	28,28,28	2.46	11 (39%)	42,46,46	3.72	21 (50%)
3	ZWY	H	602	-	28,28,28	2.38	9 (32%)	42,46,46	3.62	20 (47%)
3	ZWY	D	604	-	28,28,28	2.36	11 (39%)	42,46,46	3.82	20 (47%)
3	ZWY	D	602	-	28,28,28	2.24	9 (32%)	42,46,46	3.60	18 (42%)
2	HEM	J	601	-	41,50,50	1.48	3 (7%)	45,82,82	1.35	5 (11%)
3	ZWY	I	602	-	28,28,28	2.23	9 (32%)	42,46,46	3.60	17 (40%)
2	HEM	B	601	1	41,50,50	1.45	4 (9%)	45,82,82	1.43	6 (13%)
3	ZWY	I	603	-	28,28,28	2.25	9 (32%)	42,46,46	3.67	23 (54%)
3	ZWY	E	605	-	28,28,28	2.28	9 (32%)	42,46,46	3.59	22 (52%)
2	HEM	G	601	-	41,50,50	1.45	3 (7%)	45,82,82	1.28	6 (13%)
3	ZWY	J	603	-	28,28,28	2.25	9 (32%)	42,46,46	3.68	23 (54%)
2	HEM	A	601	1	41,50,50	1.49	5 (12%)	45,82,82	1.40	7 (15%)
3	ZWY	E	603	-	28,28,28	2.32	9 (32%)	42,46,46	3.56	22 (52%)
2	HEM	C	601	1	41,50,50	1.50	3 (7%)	45,82,82	1.43	6 (13%)
3	ZWY	C	604	-	28,28,28	2.16	9 (32%)	42,46,46	3.54	20 (47%)
3	ZWY	J	602	-	28,28,28	2.36	8 (28%)	42,46,46	3.60	18 (42%)
2	HEM	D	601	1	41,50,50	1.45	4 (9%)	45,82,82	1.43	6 (13%)
3	ZWY	E	602	-	28,28,28	2.37	9 (32%)	42,46,46	3.64	20 (47%)
2	HEM	H	601	1	41,50,50	1.46	3 (7%)	45,82,82	1.35	6 (13%)
3	ZWY	H	604	-	28,28,28	2.14	8 (28%)	42,46,46	3.57	22 (52%)
3	ZWY	A	603	-	28,28,28	2.44	9 (32%)	42,46,46	3.93	23 (54%)
3	ZWY	D	603	-	28,28,28	2.39	11 (39%)	42,46,46	3.87	22 (52%)
3	ZWY	E	604	-	28,28,28	2.27	8 (28%)	42,46,46	3.56	18 (42%)
2	HEM	K	601	1	41,50,50	1.47	4 (9%)	45,82,82	1.42	7 (15%)
2	HEM	I	601	1	41,50,50	1.47	4 (9%)	45,82,82	1.37	5 (11%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	HEM	F	601	-	-	2/12/54/54	-
3	ZWY	D	605	-	-	0/5/63/63	0/4/4/4
3	ZWY	A	602	-	-	0/5/63/63	0/4/4/4
2	HEM	L	601	-	-	4/12/54/54	-
3	ZWY	C	605	-	-	1/5/63/63	0/4/4/4
3	ZWY	C	603	-	-	0/5/63/63	0/4/4/4
2	HEM	E	601	1	-	2/12/54/54	-
3	ZWY	H	603	-	-	1/5/63/63	0/4/4/4
3	ZWY	B	602	-	-	0/5/63/63	0/4/4/4
3	ZWY	C	602	-	-	0/5/63/63	0/4/4/4
3	ZWY	B	603	-	-	0/5/63/63	0/4/4/4
3	ZWY	D	606	-	-	0/5/63/63	0/4/4/4
3	ZWY	H	602	-	-	0/5/63/63	0/4/4/4
3	ZWY	D	604	-	-	0/5/63/63	0/4/4/4
3	ZWY	D	602	-	-	0/5/63/63	0/4/4/4
2	HEM	J	601	-	-	2/12/54/54	-
3	ZWY	I	602	-	-	0/5/63/63	0/4/4/4
2	HEM	B	601	1	-	2/12/54/54	-
3	ZWY	I	603	-	-	0/5/63/63	0/4/4/4
3	ZWY	E	605	-	-	0/5/63/63	0/4/4/4
2	HEM	G	601	-	-	0/12/54/54	-
3	ZWY	J	603	-	-	0/5/63/63	0/4/4/4
2	HEM	A	601	1	-	2/12/54/54	-
3	ZWY	E	603	-	-	2/5/63/63	0/4/4/4
2	HEM	C	601	1	-	2/12/54/54	-
3	ZWY	C	604	-	-	0/5/63/63	0/4/4/4
3	ZWY	J	602	-	-	0/5/63/63	0/4/4/4
2	HEM	D	601	1	-	2/12/54/54	-
3	ZWY	E	602	-	-	3/5/63/63	0/4/4/4
2	HEM	H	601	1	-	0/12/54/54	-
3	ZWY	H	604	-	-	2/5/63/63	0/4/4/4
3	ZWY	A	603	-	-	0/5/63/63	0/4/4/4
3	ZWY	D	603	-	-	2/5/63/63	0/4/4/4
3	ZWY	E	604	-	-	0/5/63/63	0/4/4/4
2	HEM	K	601	1	-	4/12/54/54	-
2	HEM	I	601	1	-	3/12/54/54	-

The worst 5 of 266 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	606	ZWY	C25-C15	-7.83	1.41	1.54
3	E	603	ZWY	C25-C15	-7.59	1.41	1.54
3	A	603	ZWY	C25-C15	-7.40	1.41	1.54
3	D	603	ZWY	C25-C15	-7.34	1.42	1.54
3	C	603	ZWY	C25-C15	-7.31	1.42	1.54

The worst 5 of 561 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	602	ZWY	C25-C15-C14	-15.97	82.50	108.34
3	A	603	ZWY	C25-C15-C14	-15.81	82.77	108.34
3	C	603	ZWY	C25-C15-C14	-15.80	82.78	108.34
3	C	602	ZWY	C25-C15-C14	-15.76	82.84	108.34
3	D	604	ZWY	C25-C15-C14	-15.75	82.86	108.34

There are no chirality outliers.

5 of 36 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	D	603	ZWY	C18-O20-S21-O24
3	E	602	ZWY	C18-O20-S21-O24
3	H	604	ZWY	C18-O20-S21-O24
3	D	603	ZWY	C18-O20-S21-O23
3	E	602	ZWY	C18-O20-S21-O22

There are no ring outliers.

16 monomers are involved in 52 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	601	HEM	4	0
3	A	602	ZWY	1	0
2	L	601	HEM	5	0
2	E	601	HEM	2	0
3	H	602	ZWY	1	0
3	D	602	ZWY	2	0
2	J	601	HEM	3	0
2	B	601	HEM	3	0
3	E	605	ZWY	1	0
2	G	601	HEM	5	0
2	A	601	HEM	2	0
2	C	601	HEM	4	0
2	D	601	HEM	6	0

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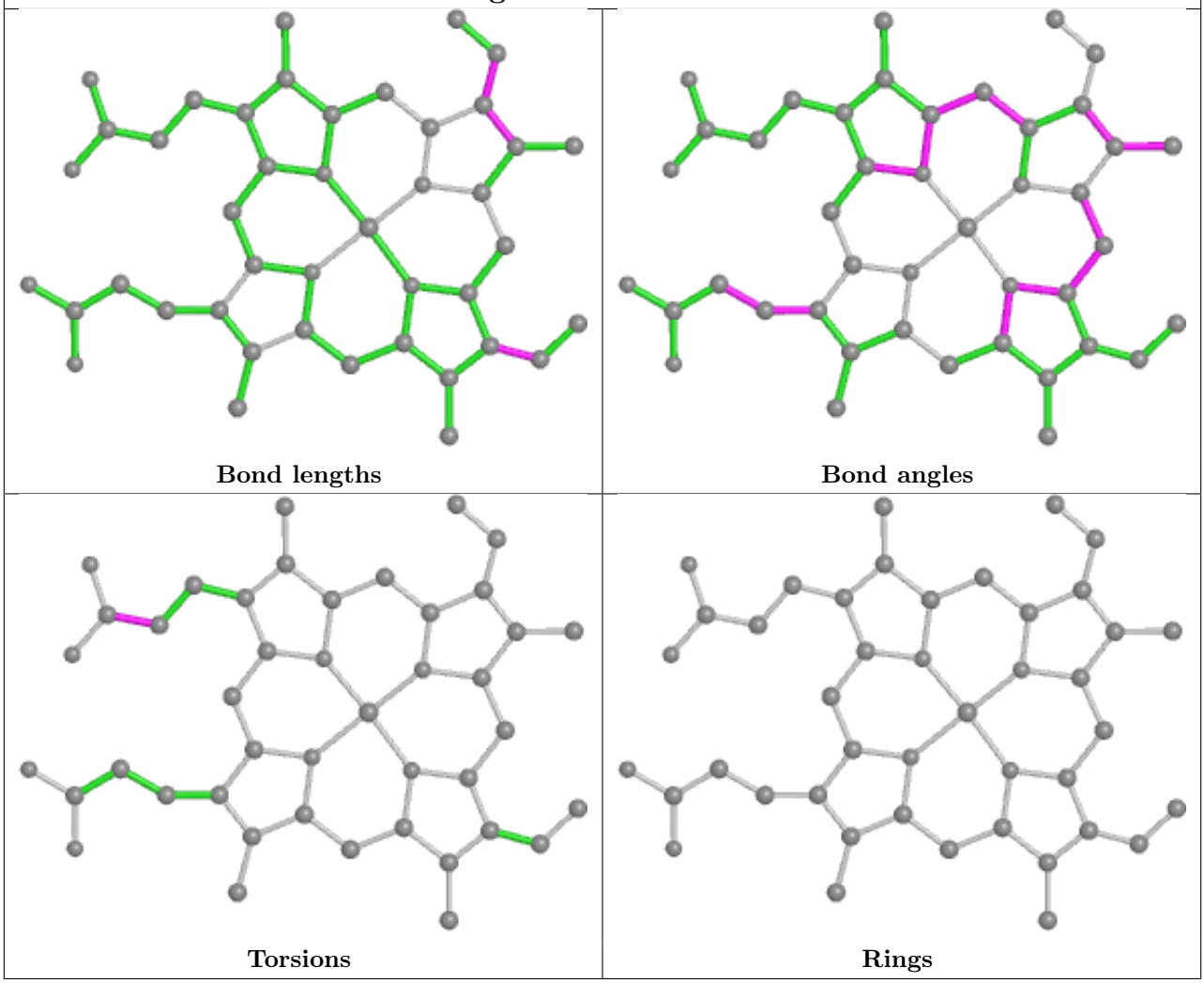
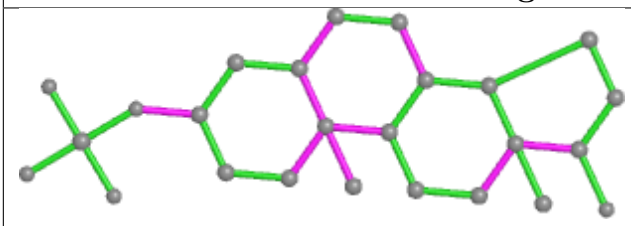
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	H	601	HEM	3	0
2	K	601	HEM	7	0
2	I	601	HEM	3	0

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.

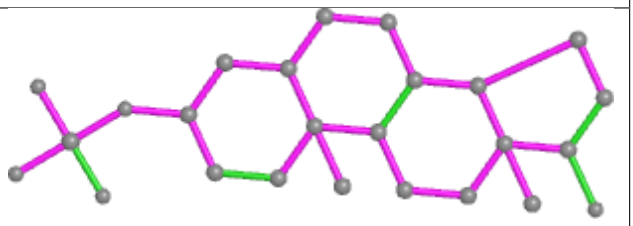
Ligand HEM F 601



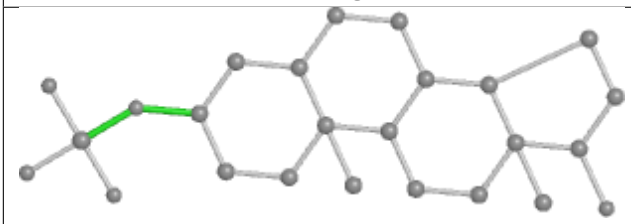
Ligand ZWY D 605



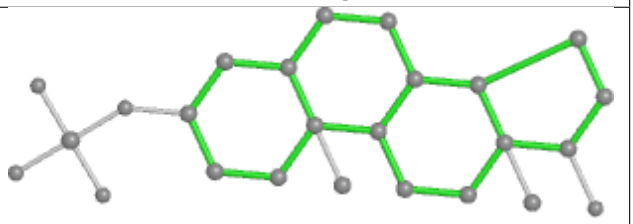
Bond lengths



Bond angles

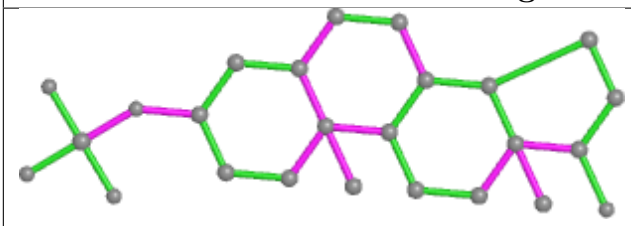


Torsions



Rings

Ligand ZWY A 602



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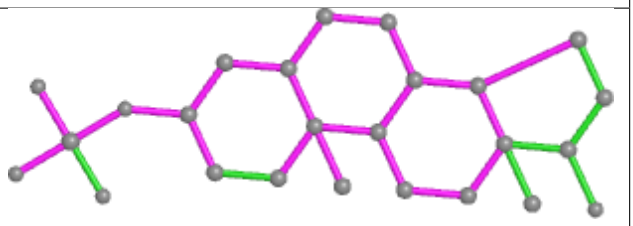

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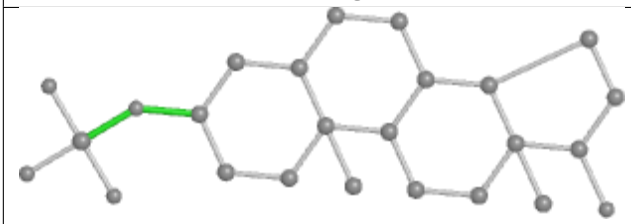

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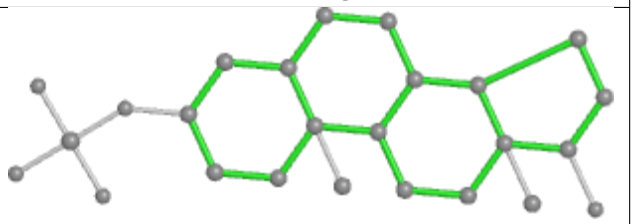

Rings

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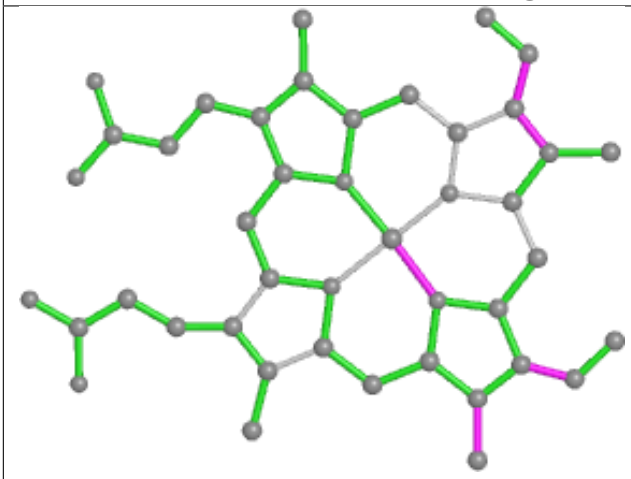

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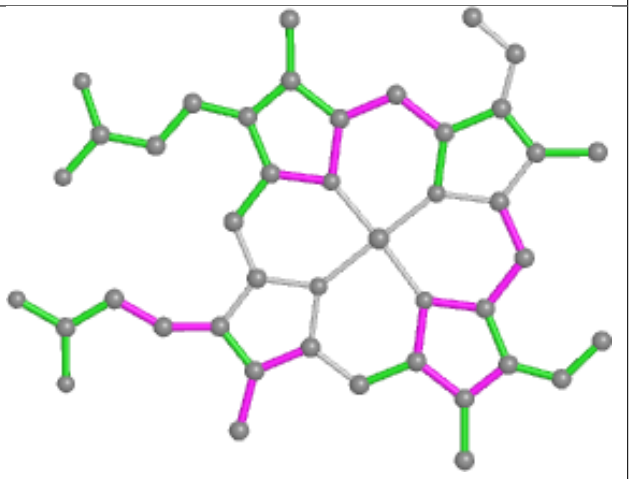

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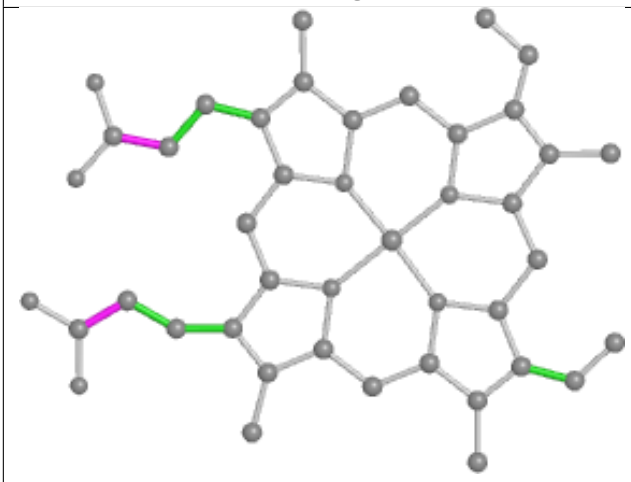

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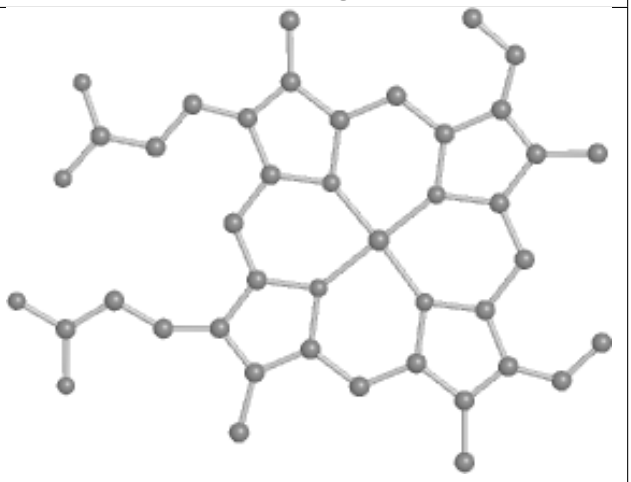
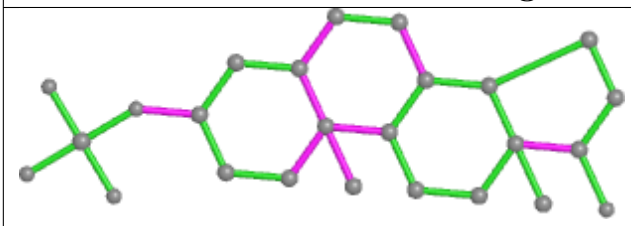


Rings

Ligand ZWY C 605



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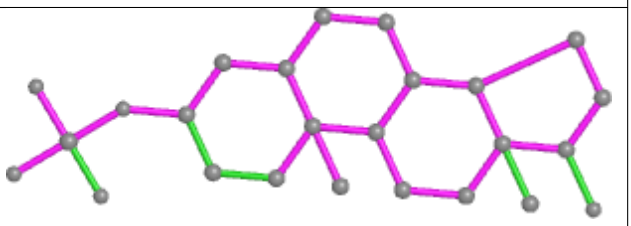

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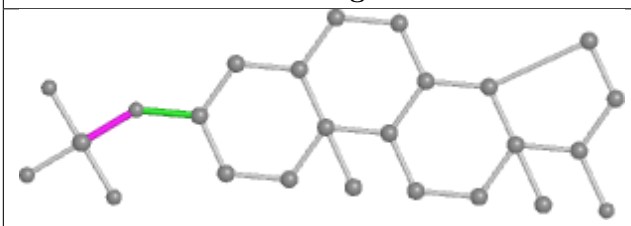

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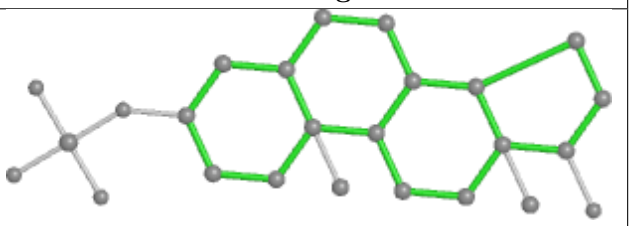
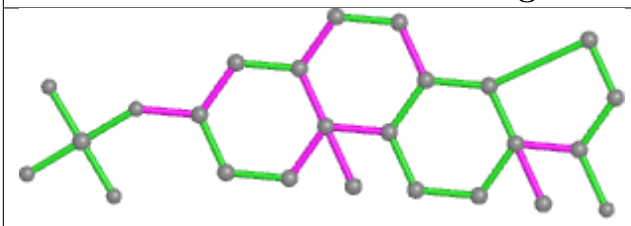


Rings

Ligand ZWY C 603



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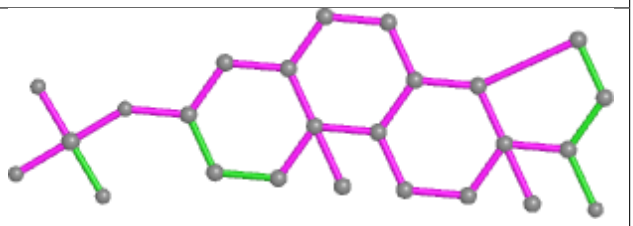

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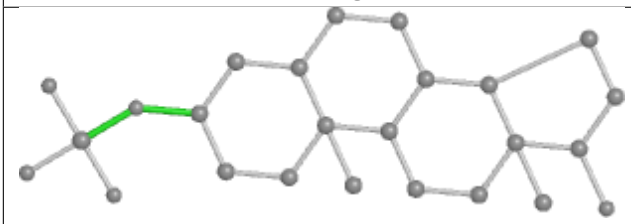

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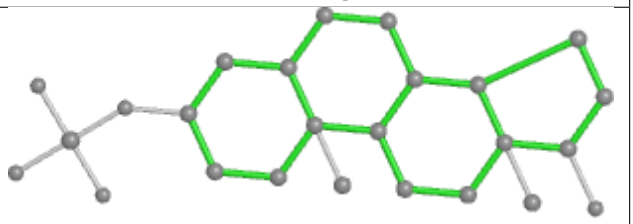
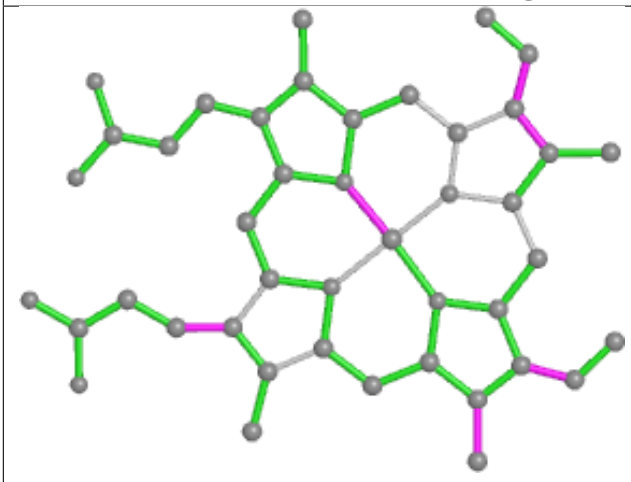


Rings

Ligand HEM E 601



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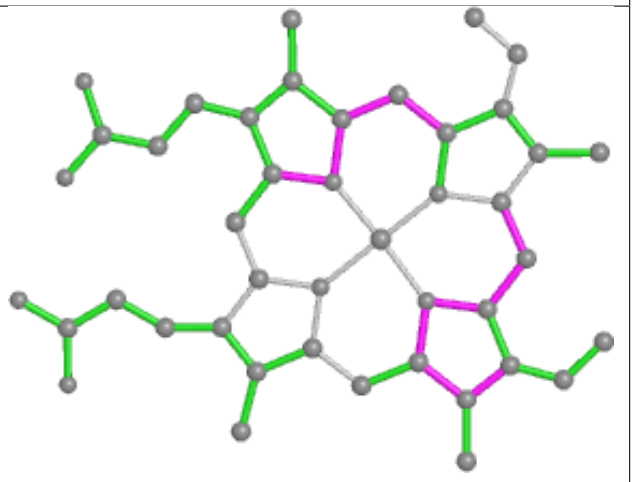

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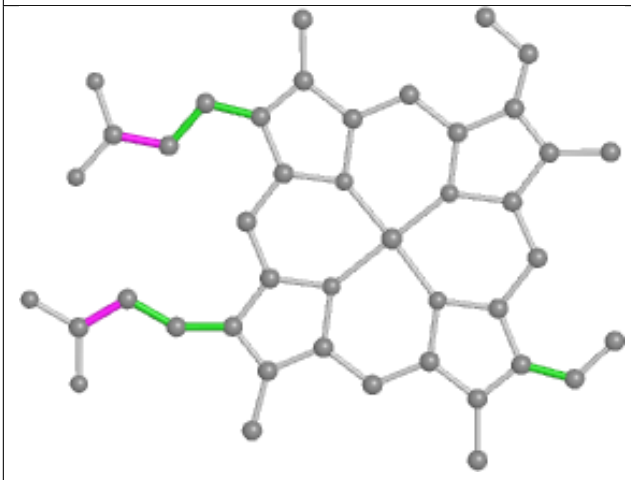

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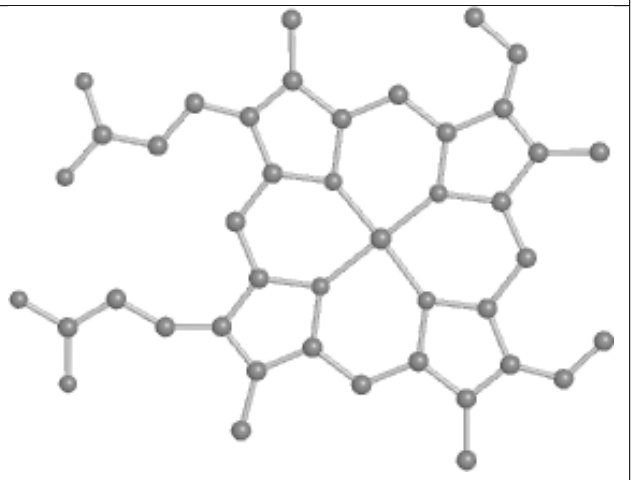
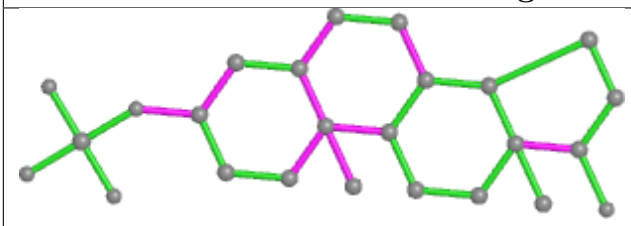


Rings

Ligand ZWY H 603



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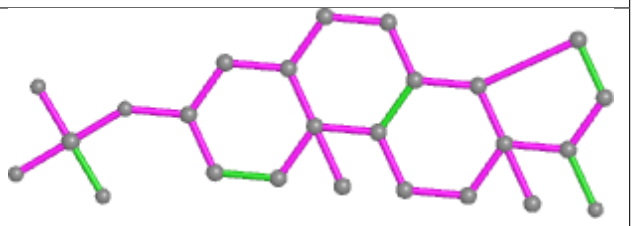

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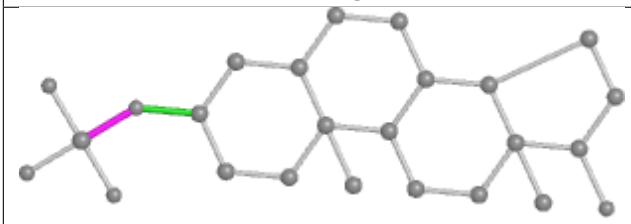

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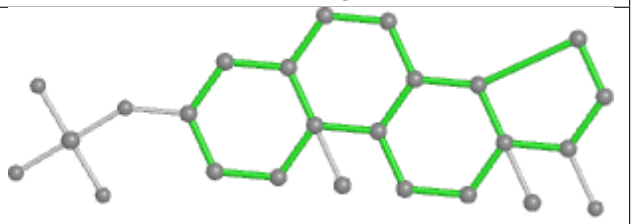
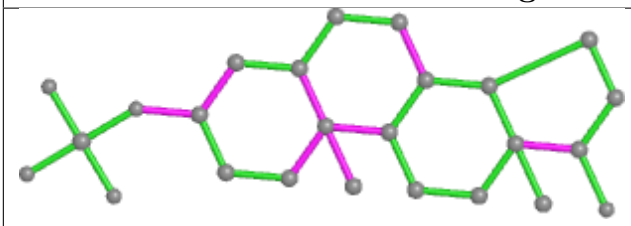


Rings

Ligand ZWY B 602



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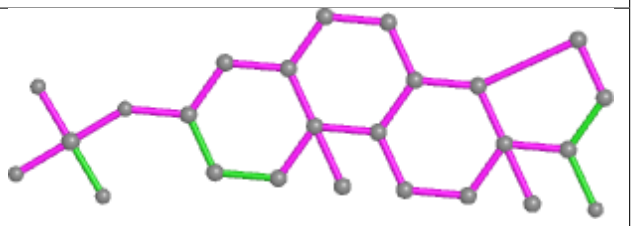

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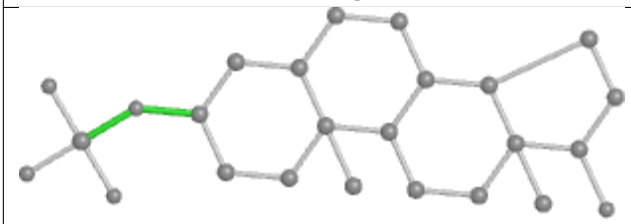

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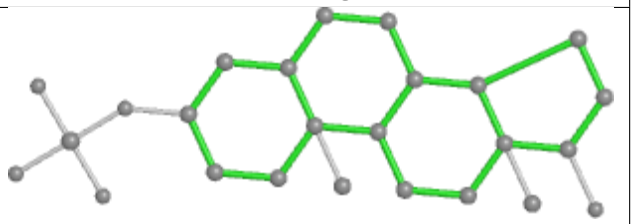
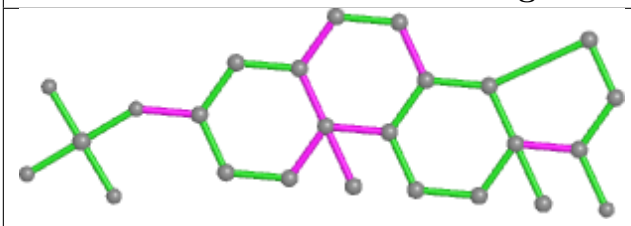


Rings

Ligand ZWY C 602



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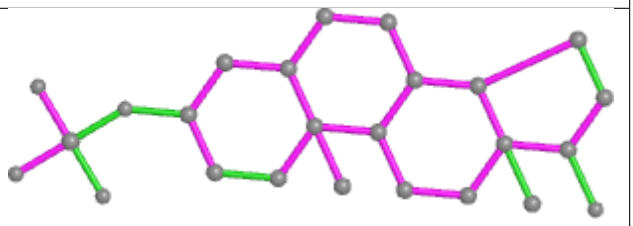

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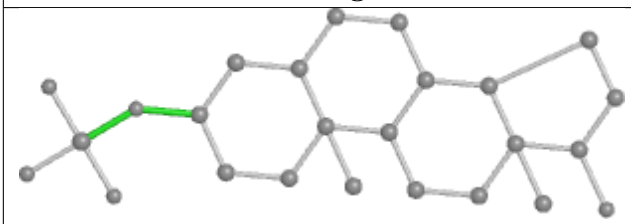

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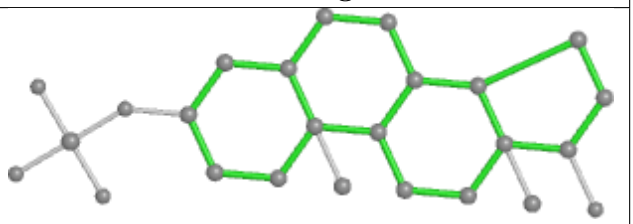
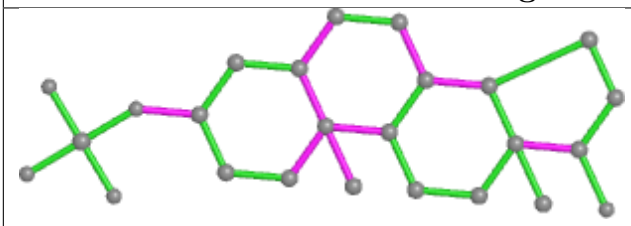


Rings

Ligand ZWY B 603



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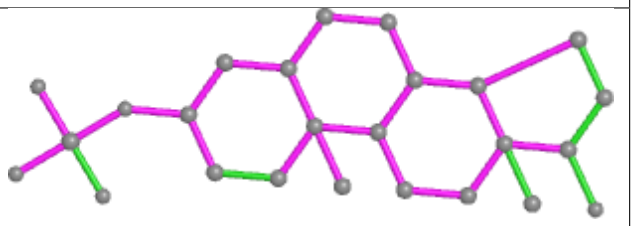

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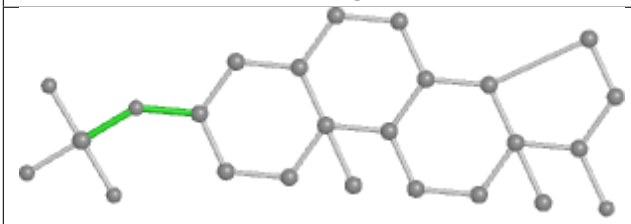

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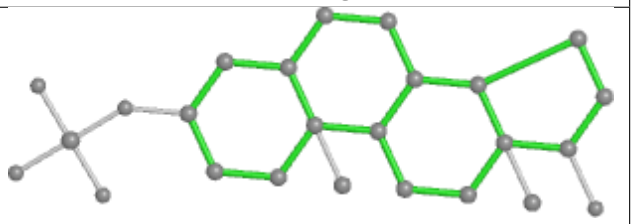
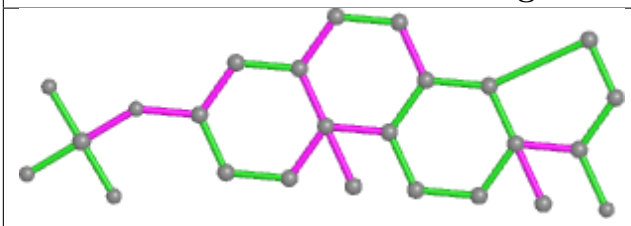


Rings

Ligand ZWY D 606



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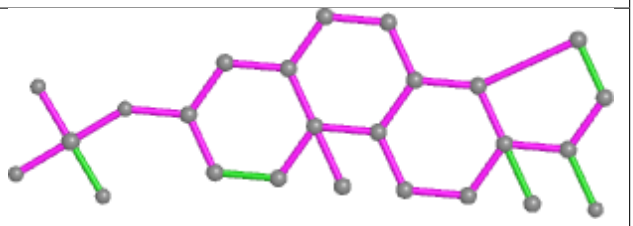

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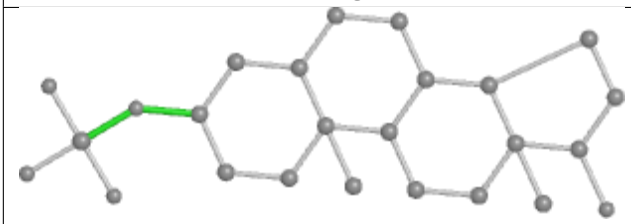

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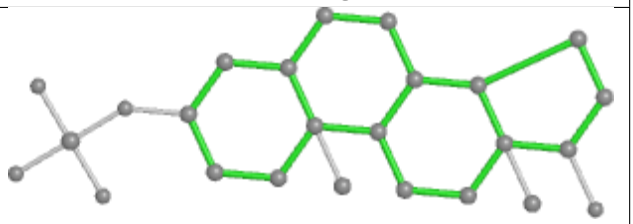
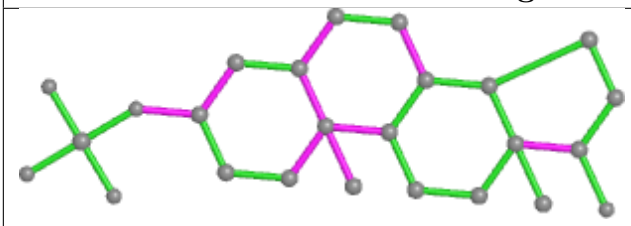


Rings

Ligand ZWY H 602



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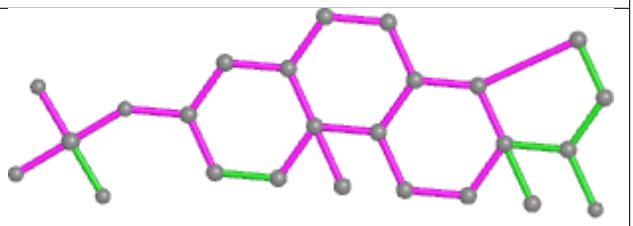

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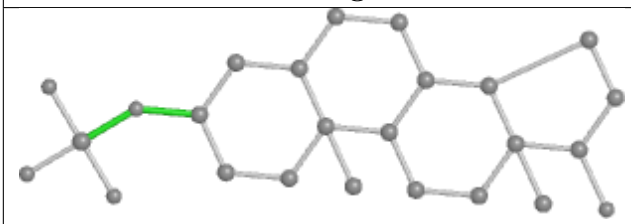

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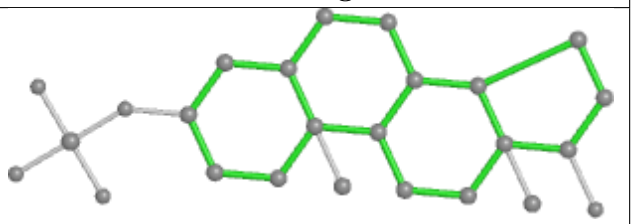
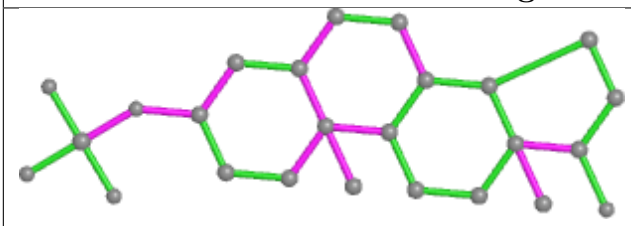
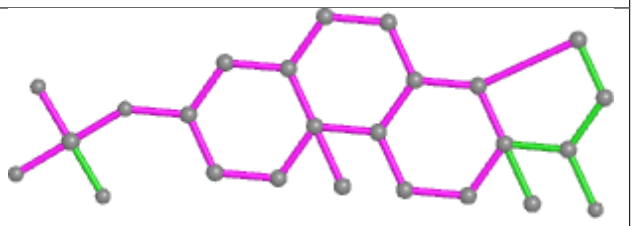


Rings

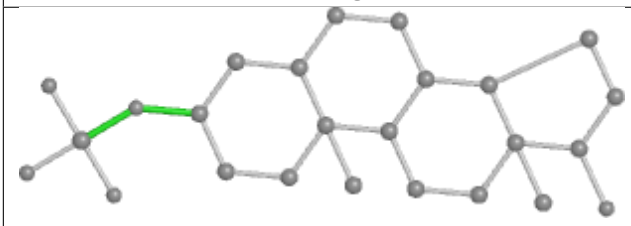
Ligand ZWY D 604



Bond lengths



Bond angles



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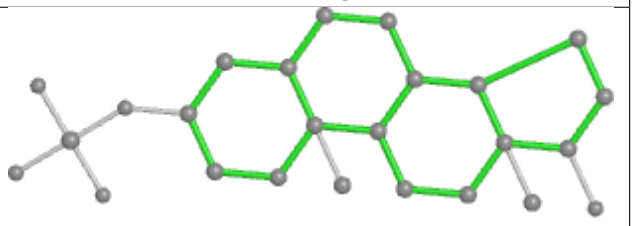
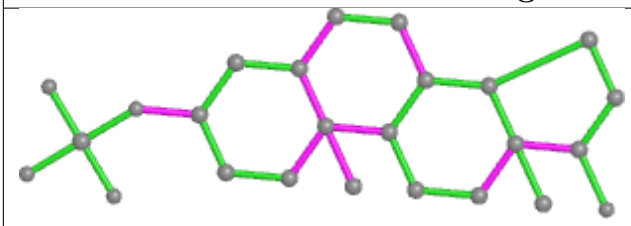


Rings

Ligand ZWY D 602



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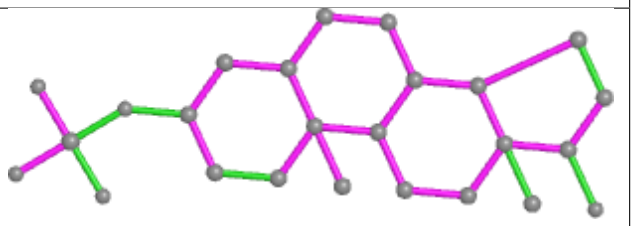

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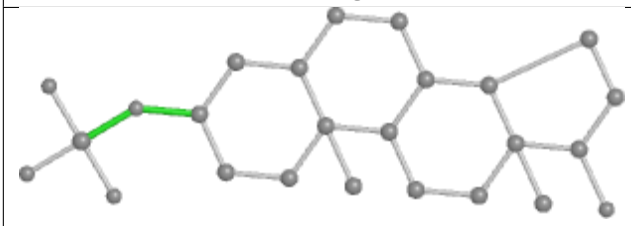
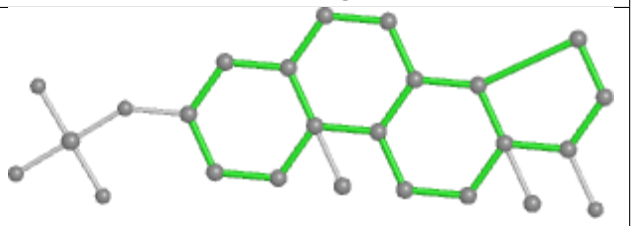
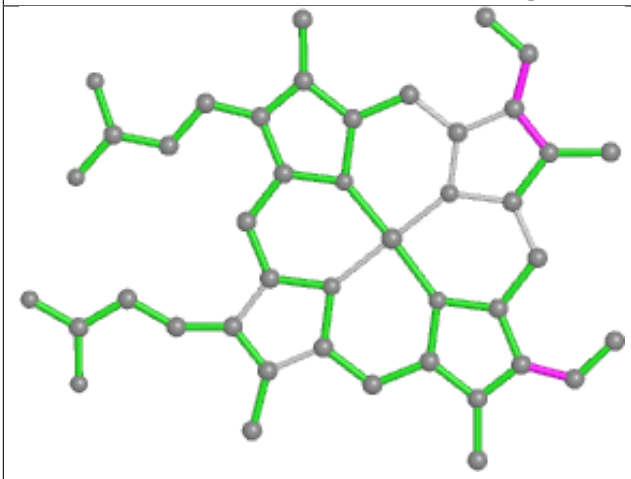


Torsions



Rings

Ligand HEM J 601



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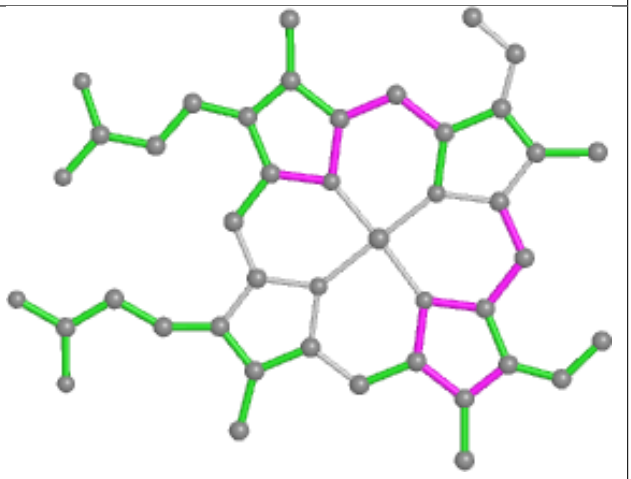

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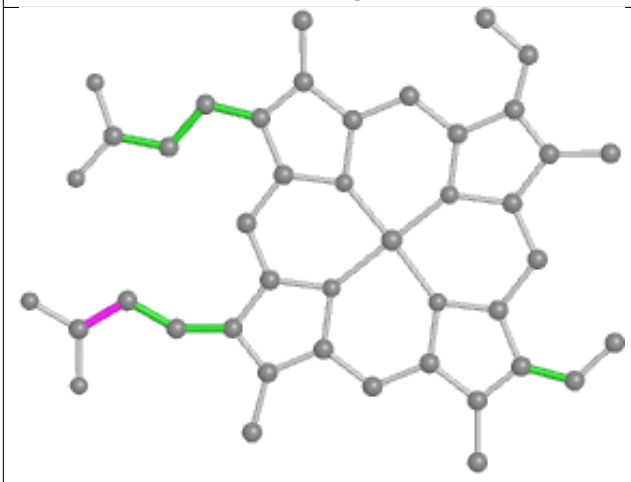

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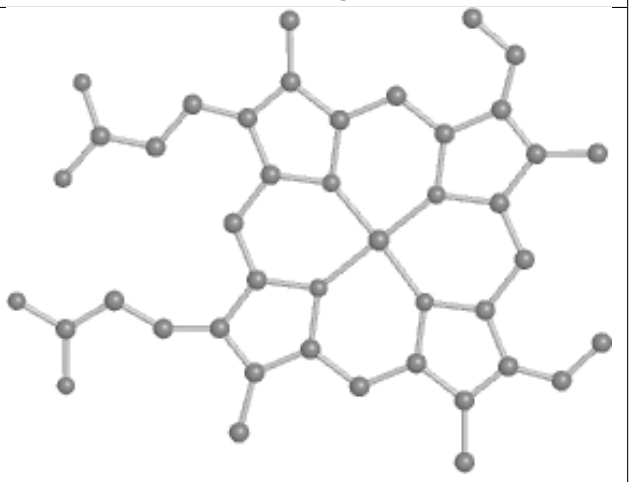
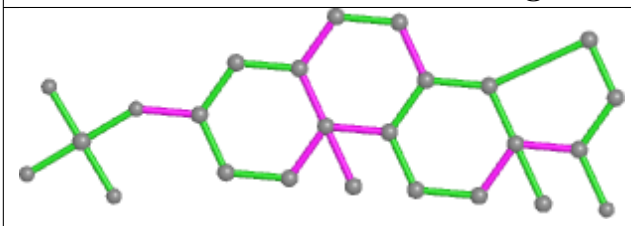


Rings

Ligand ZWY I 602



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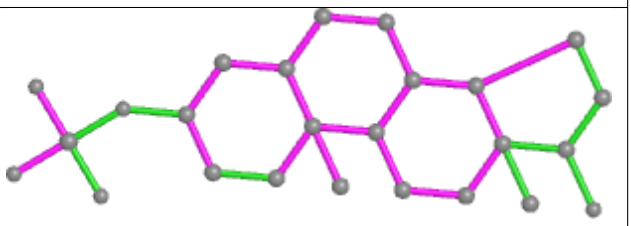

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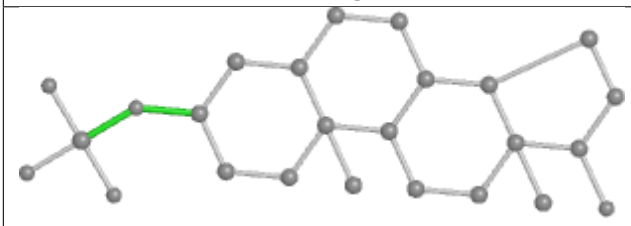

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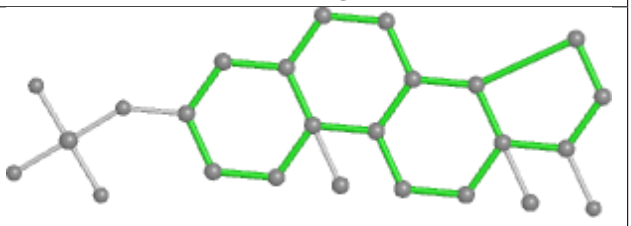
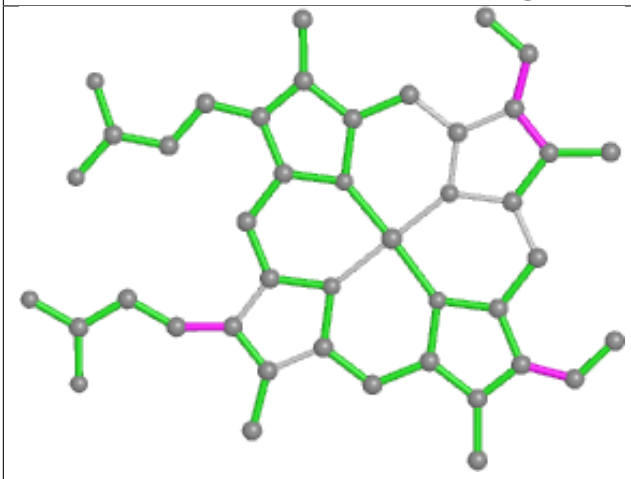


Rings

Ligand HEM B 601



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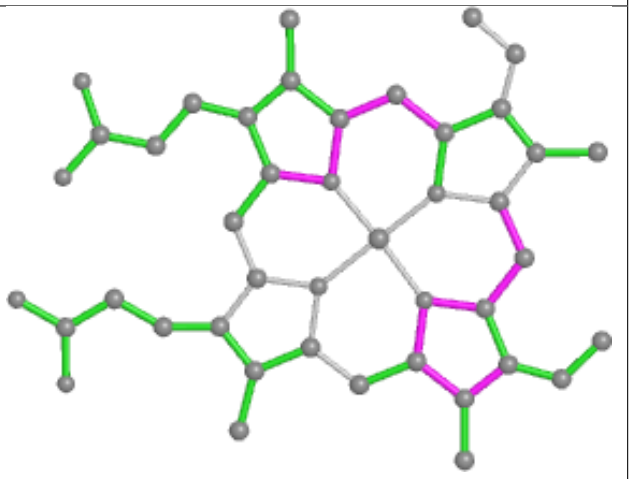

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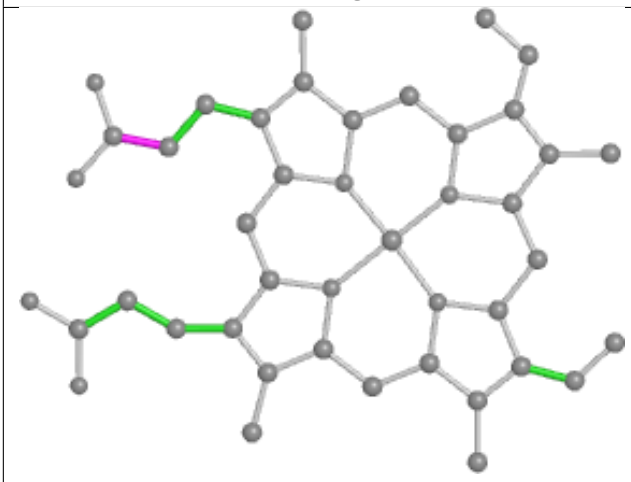

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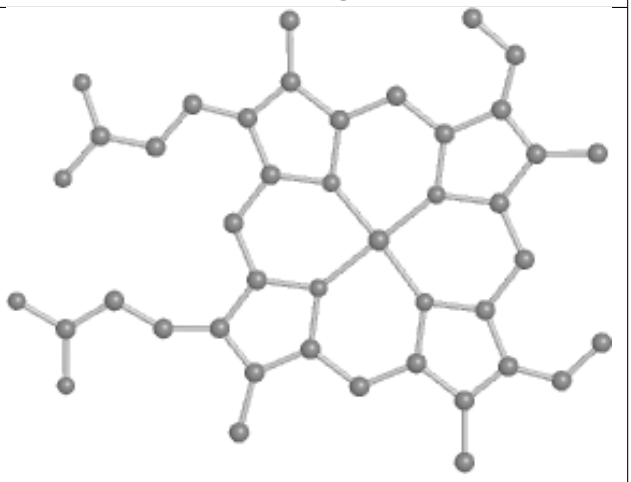
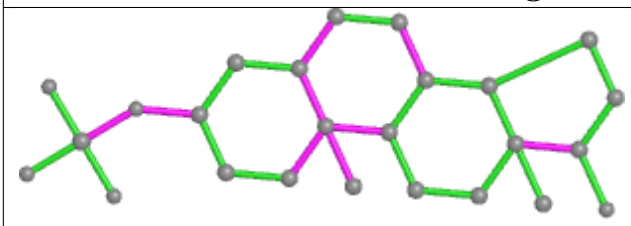


Rings

Ligand ZWY I 603



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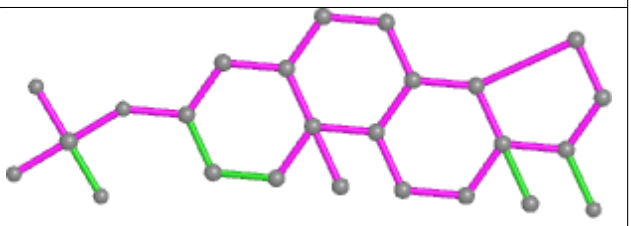

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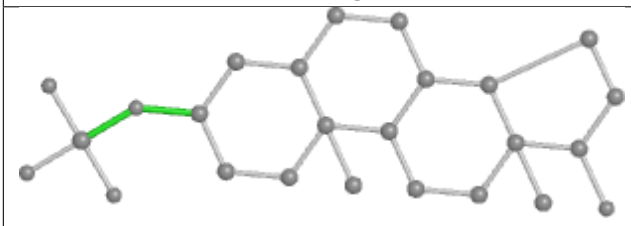

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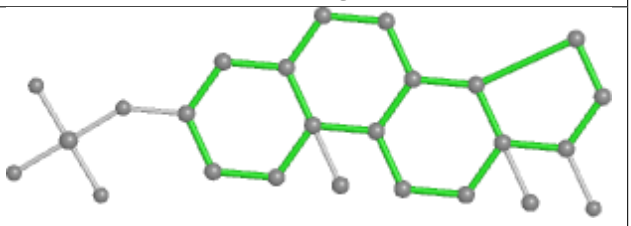
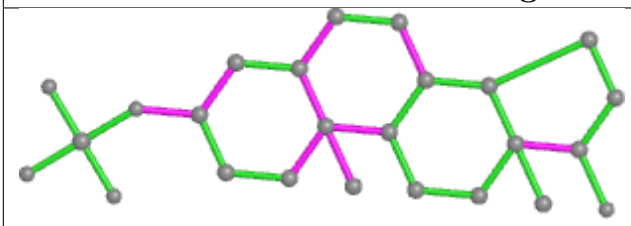


Rings

Ligand ZWY E 605



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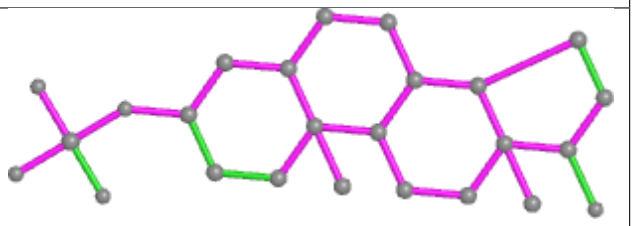

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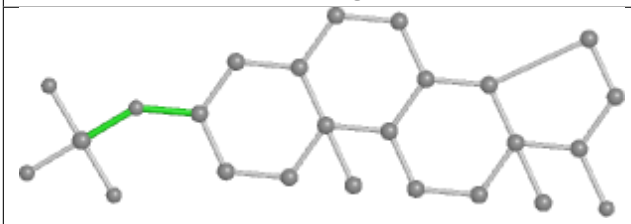

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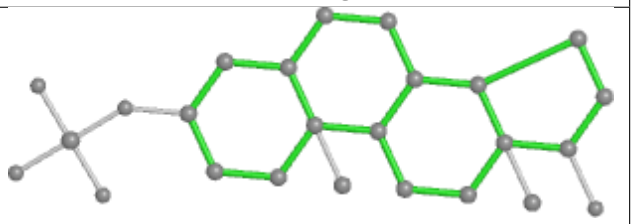
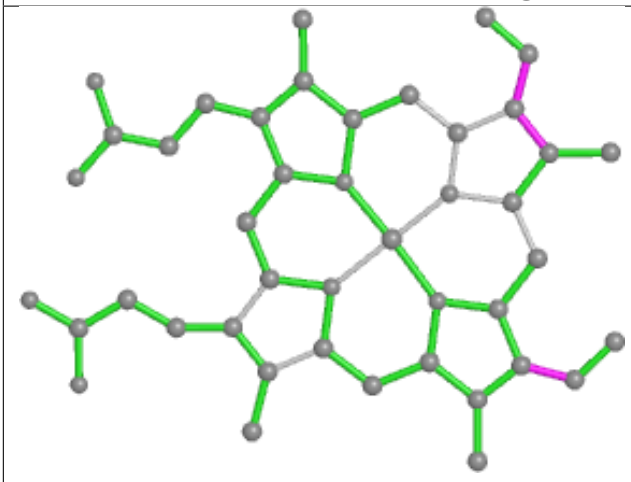


Rings

Ligand HEM G 601



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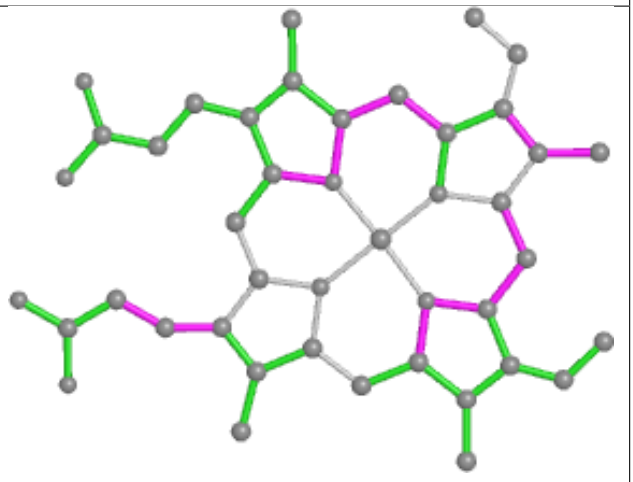

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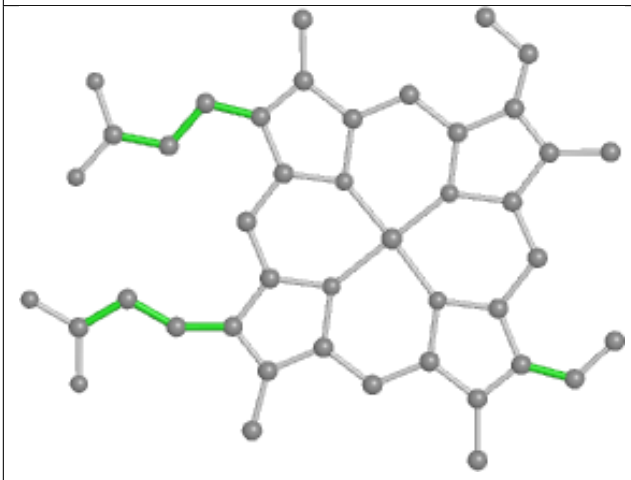

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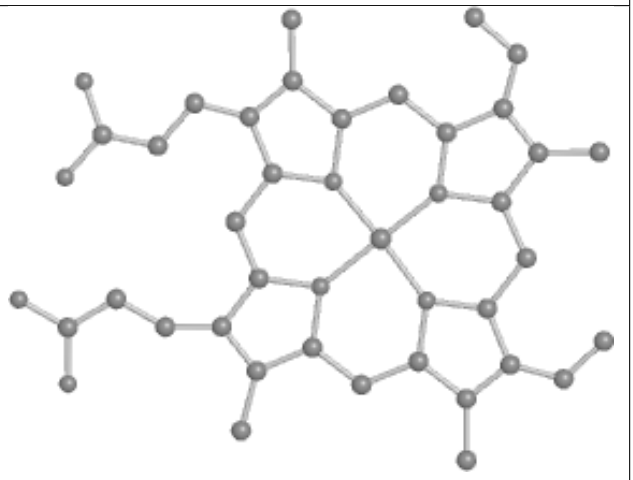
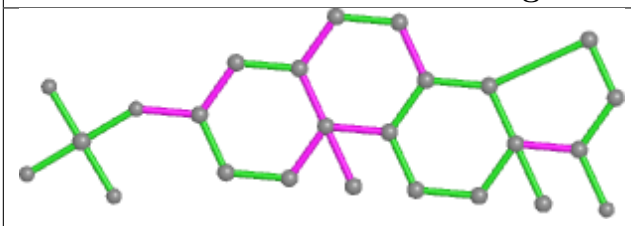


Rings

Ligand ZWY J 603



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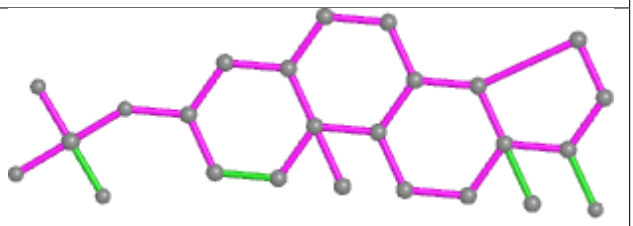

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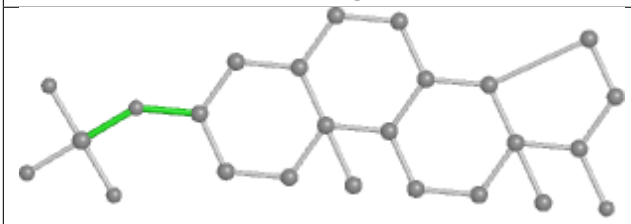

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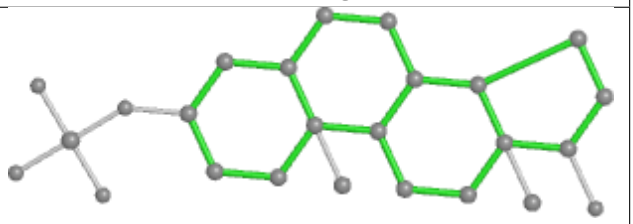
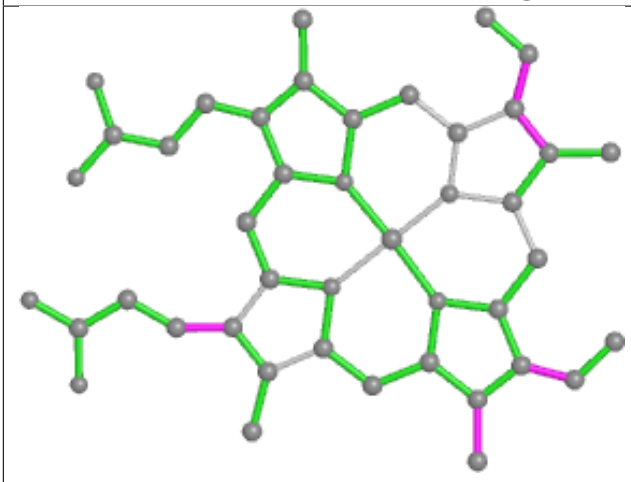


Rings

Ligand HEM A 601



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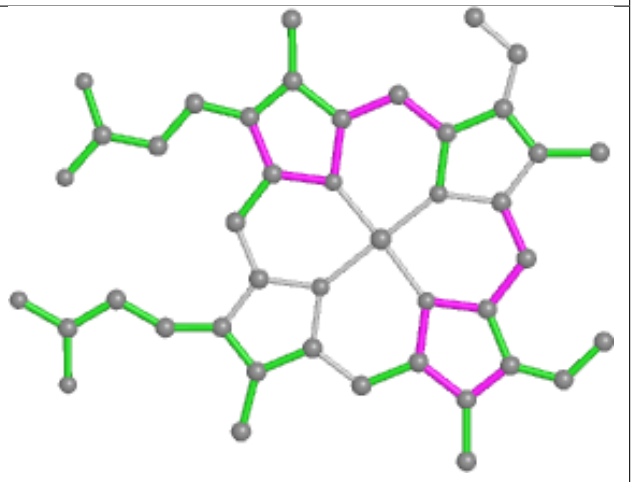

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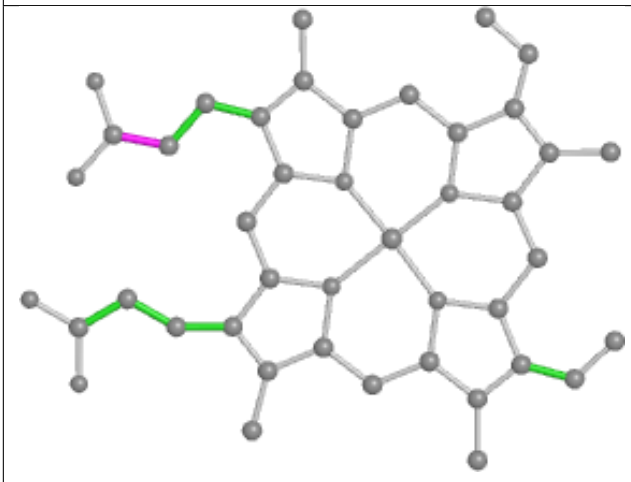

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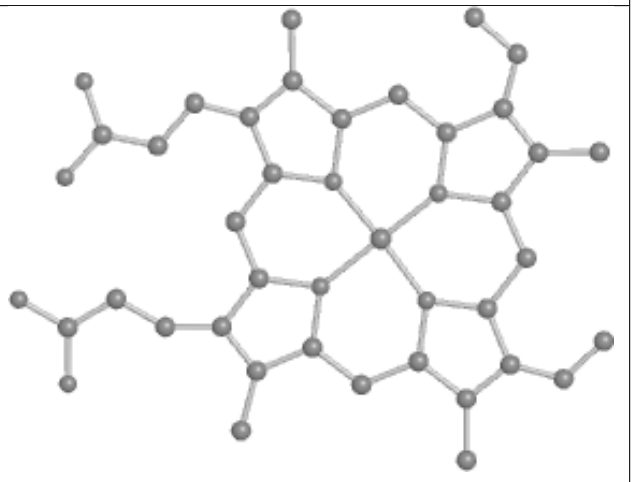
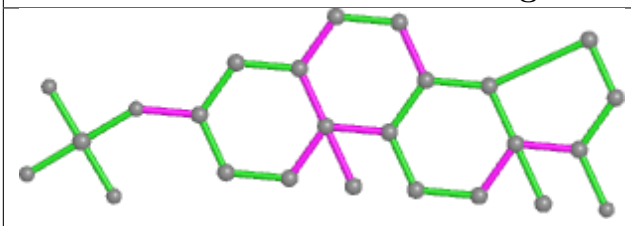


Rings

Ligand ZWY E 603



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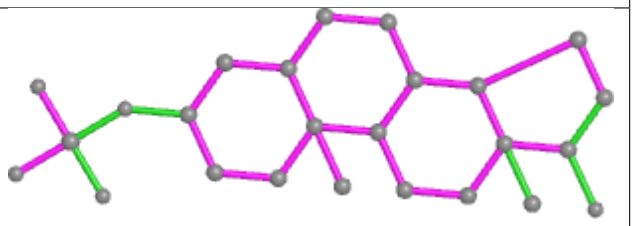

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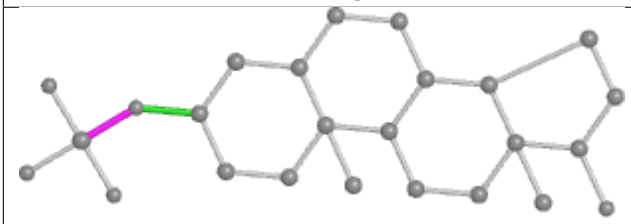

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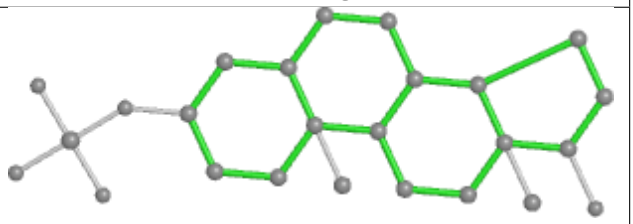
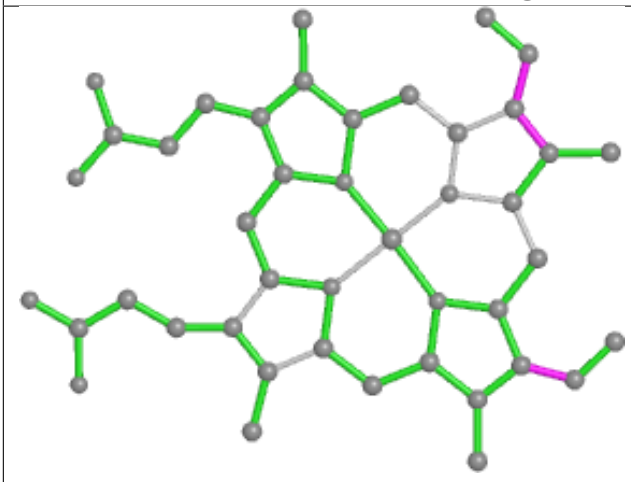


Rings

Ligand HEM C 601



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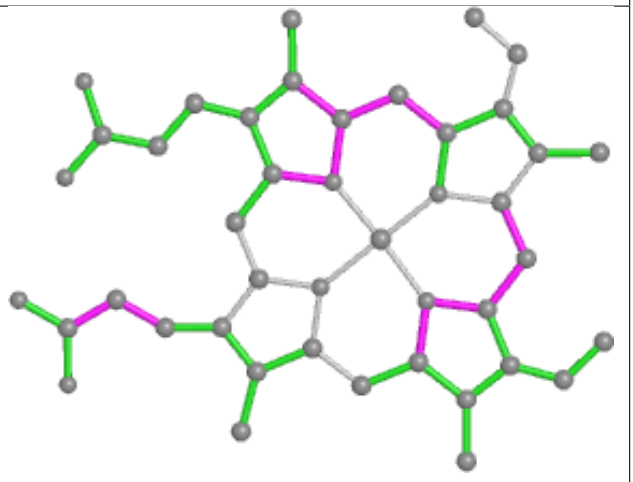

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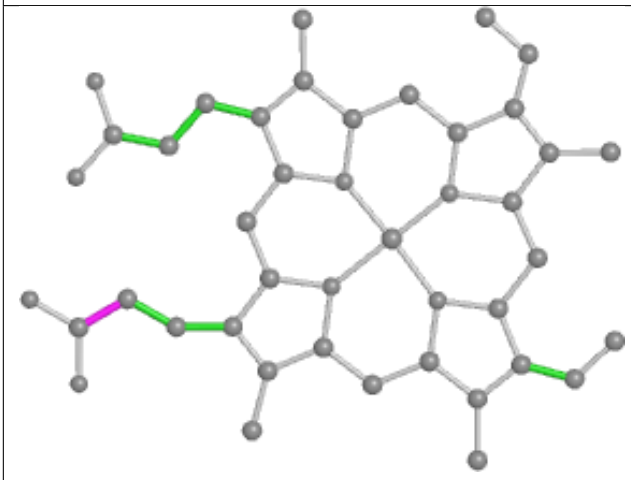

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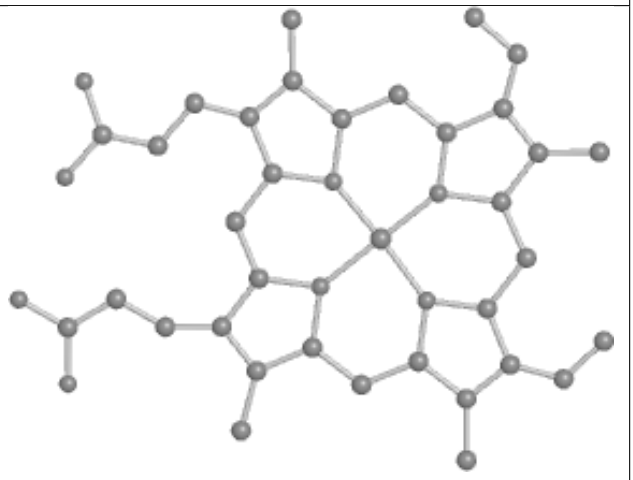
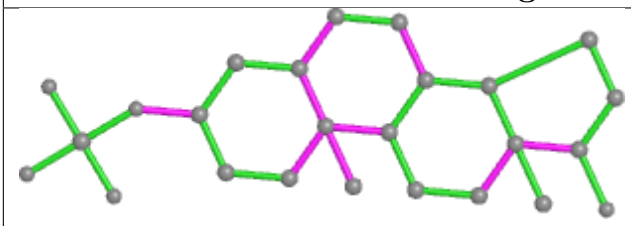


Rings

Ligand ZWY C 604



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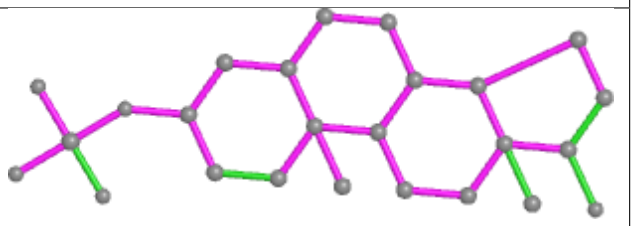
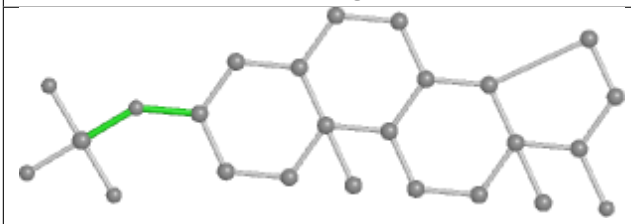


Bond angles



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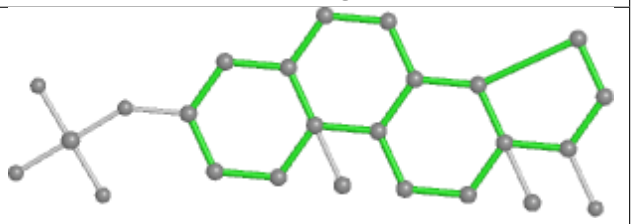
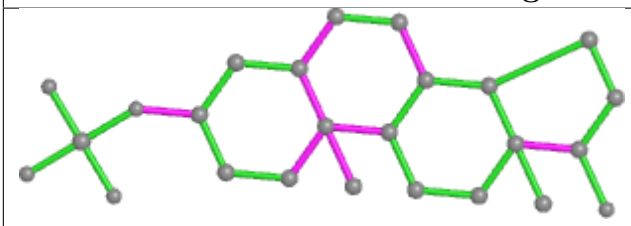


Rings

Ligand ZWY J 602



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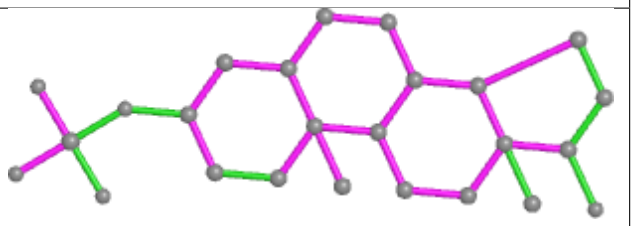

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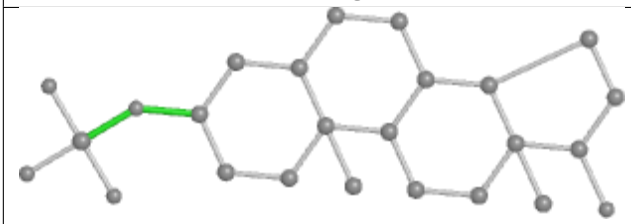
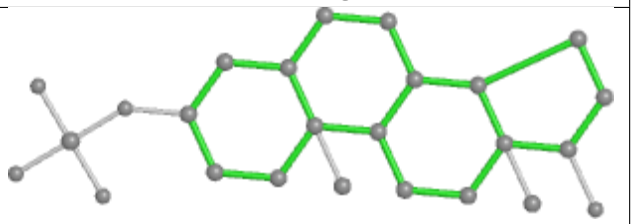
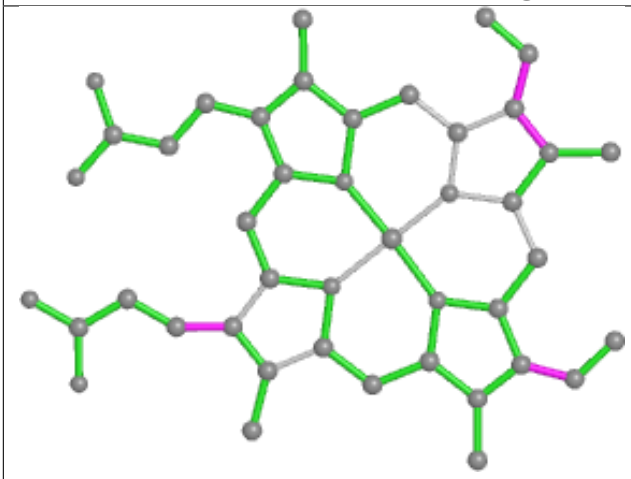


Torsions



Rings

Ligand HEM D 601



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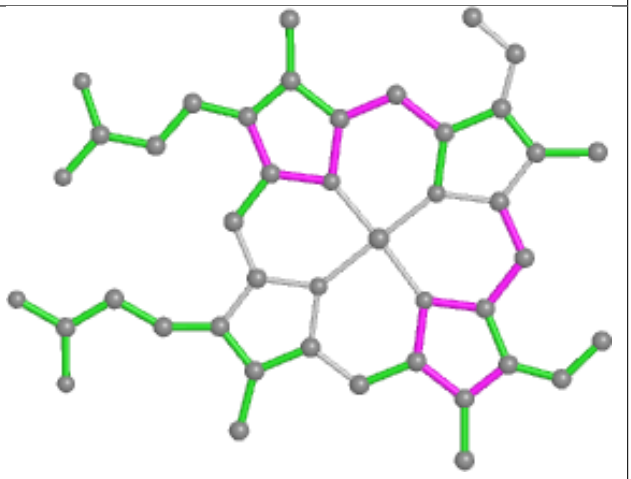
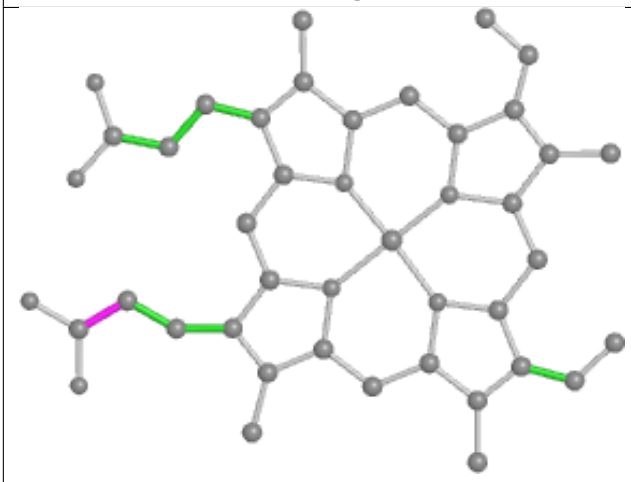


Bond angles



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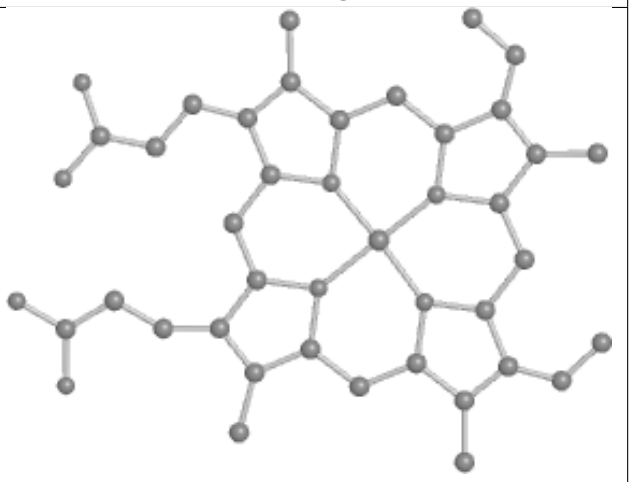
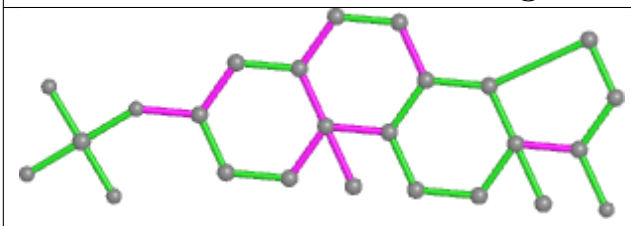


Rings

Ligand ZWY E 602



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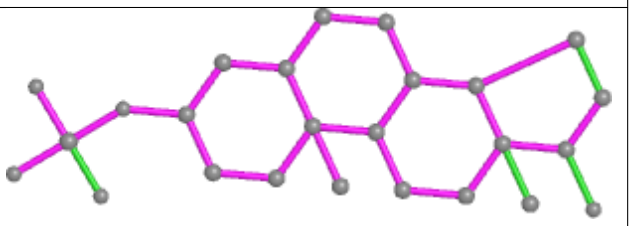
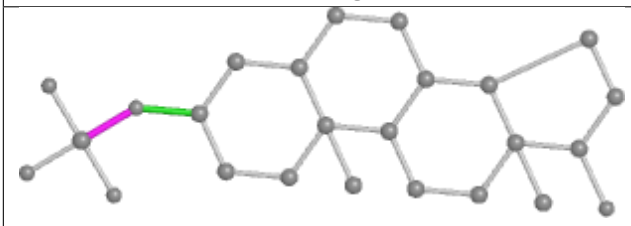
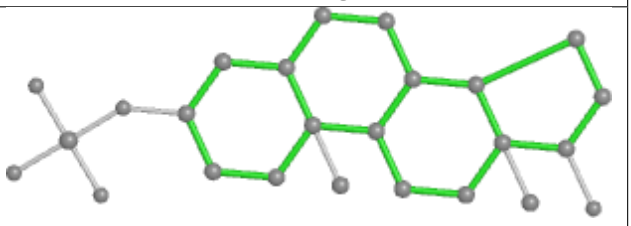


Bond angles

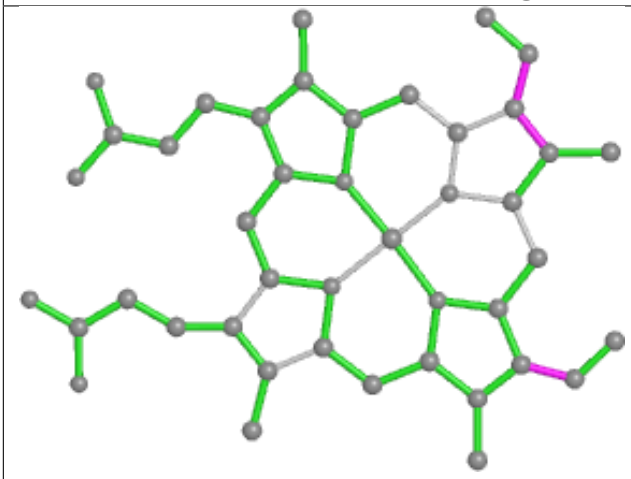


Torsions

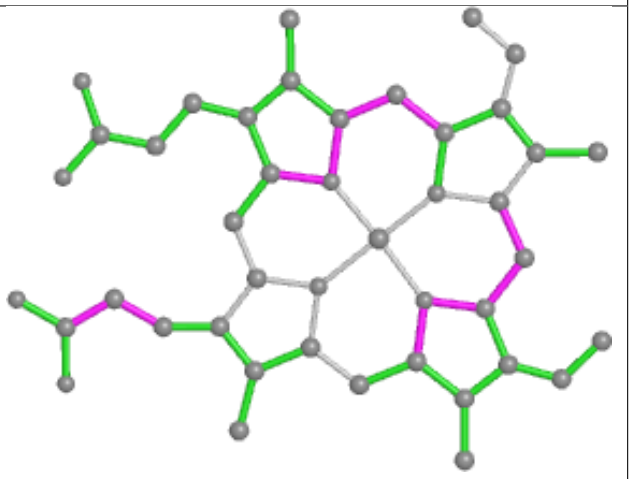


Rings

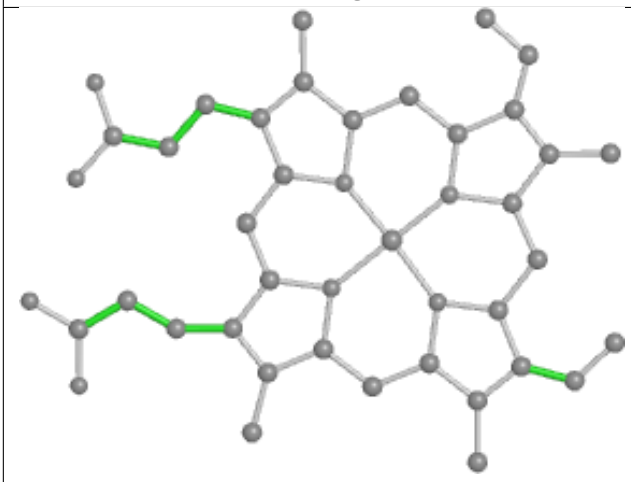
Ligand HEM H 601



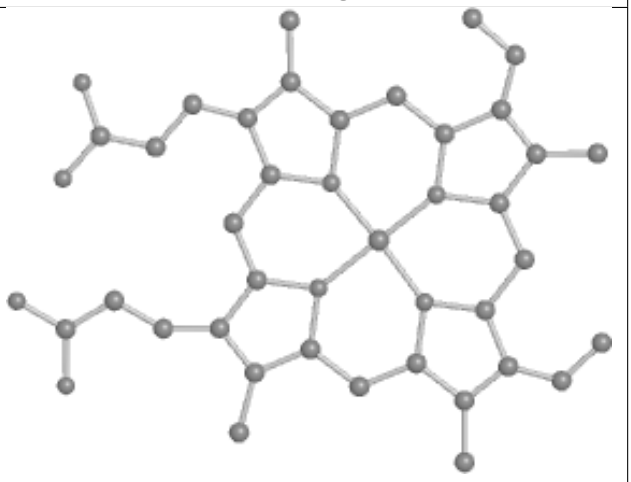
Bond lengths



Bond angles

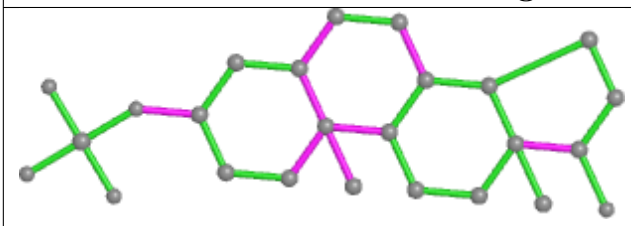


Torsions

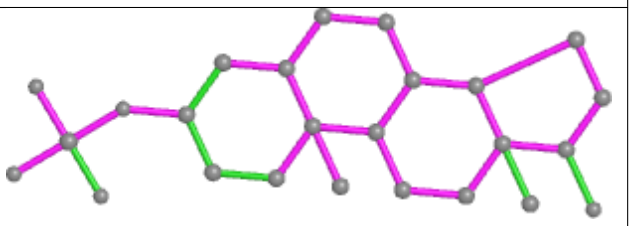


Rings

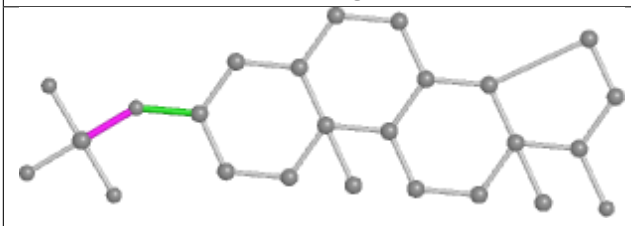
Ligand ZWY H 604



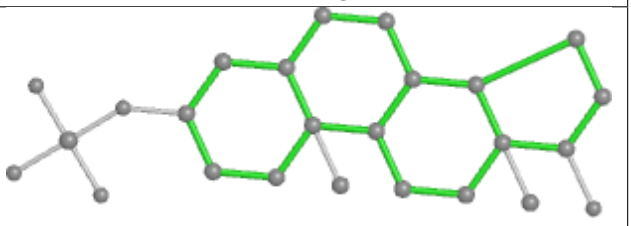
Bond lengths



Bond angles

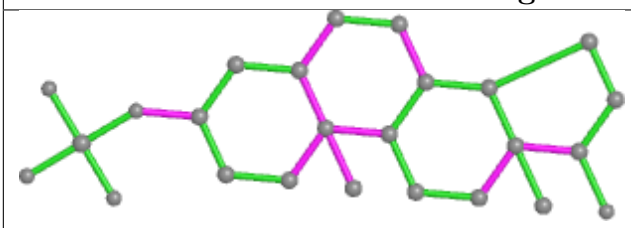


Torsions

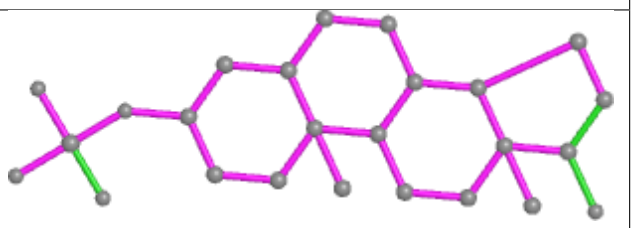


Rings

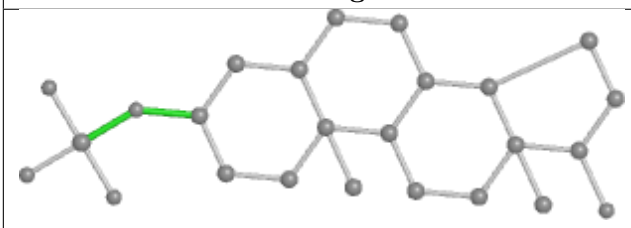
Ligand ZWY A 603



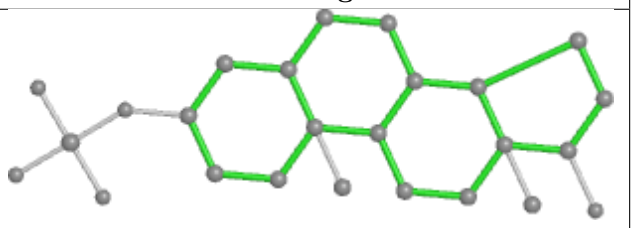
Bond lengths



Bond angles

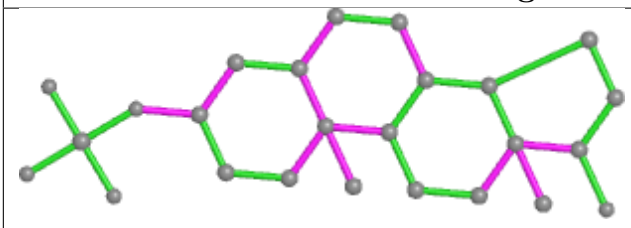


Torsions

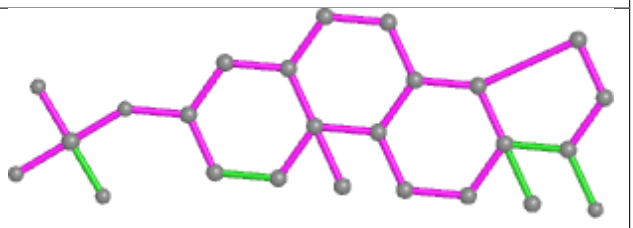


Rings

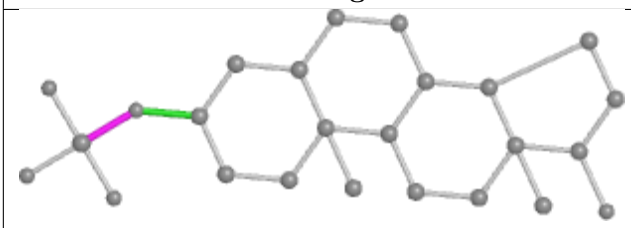
Ligand ZWY D 603



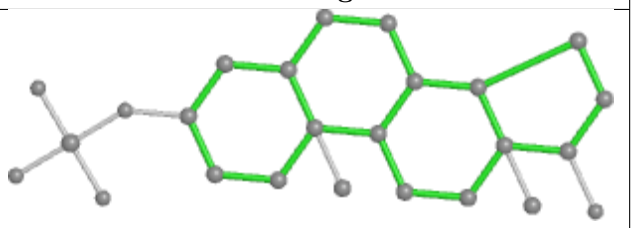
Bond lengths



Bond angles

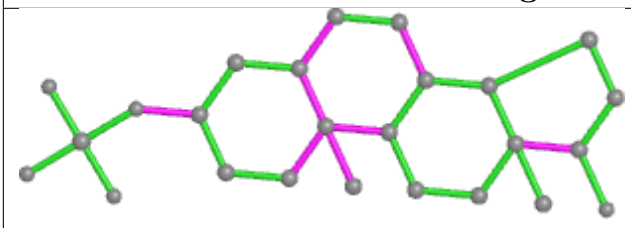


Torsions

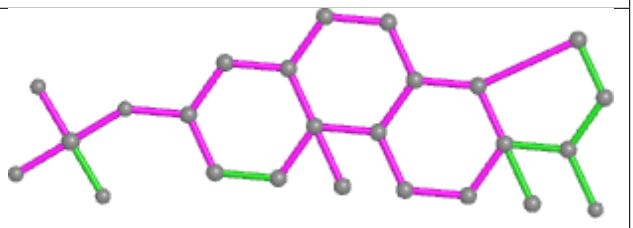


Rings

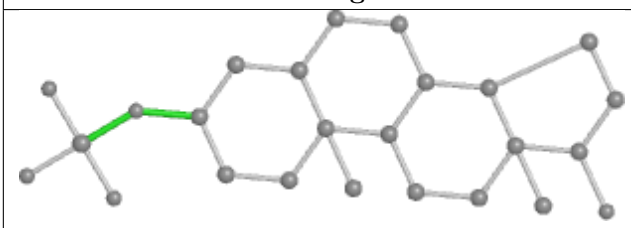
Ligand ZWY E 604



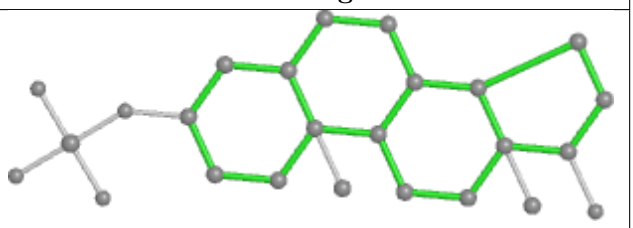
Bond lengths



Bond angles

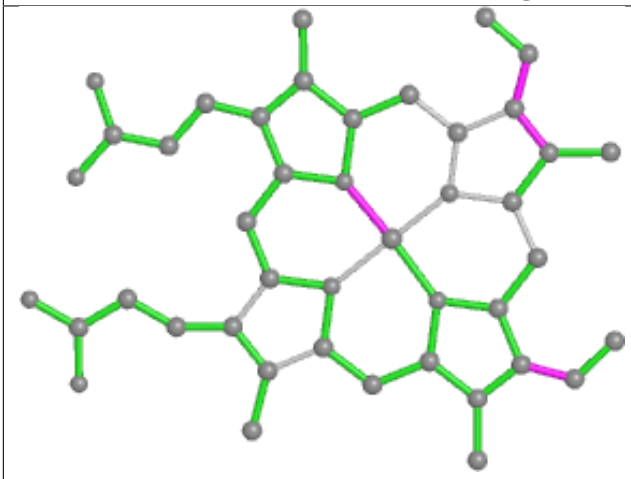


Torsions

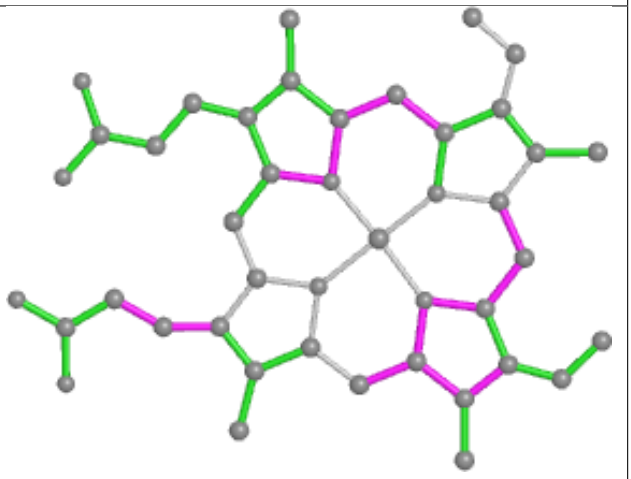


Rings

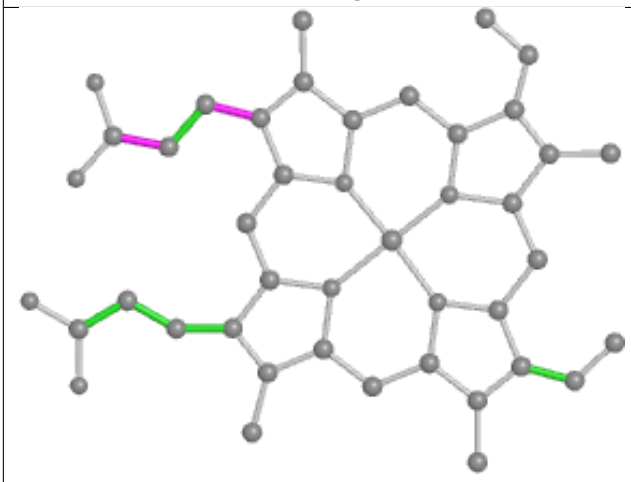
Ligand HEM K 601



Bond lengths



Bond angles



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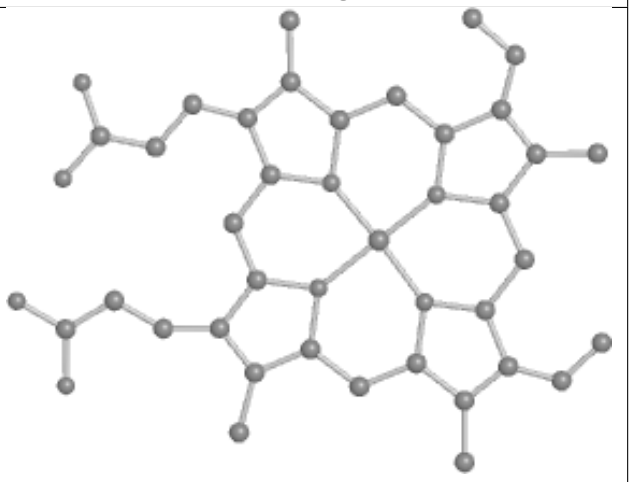
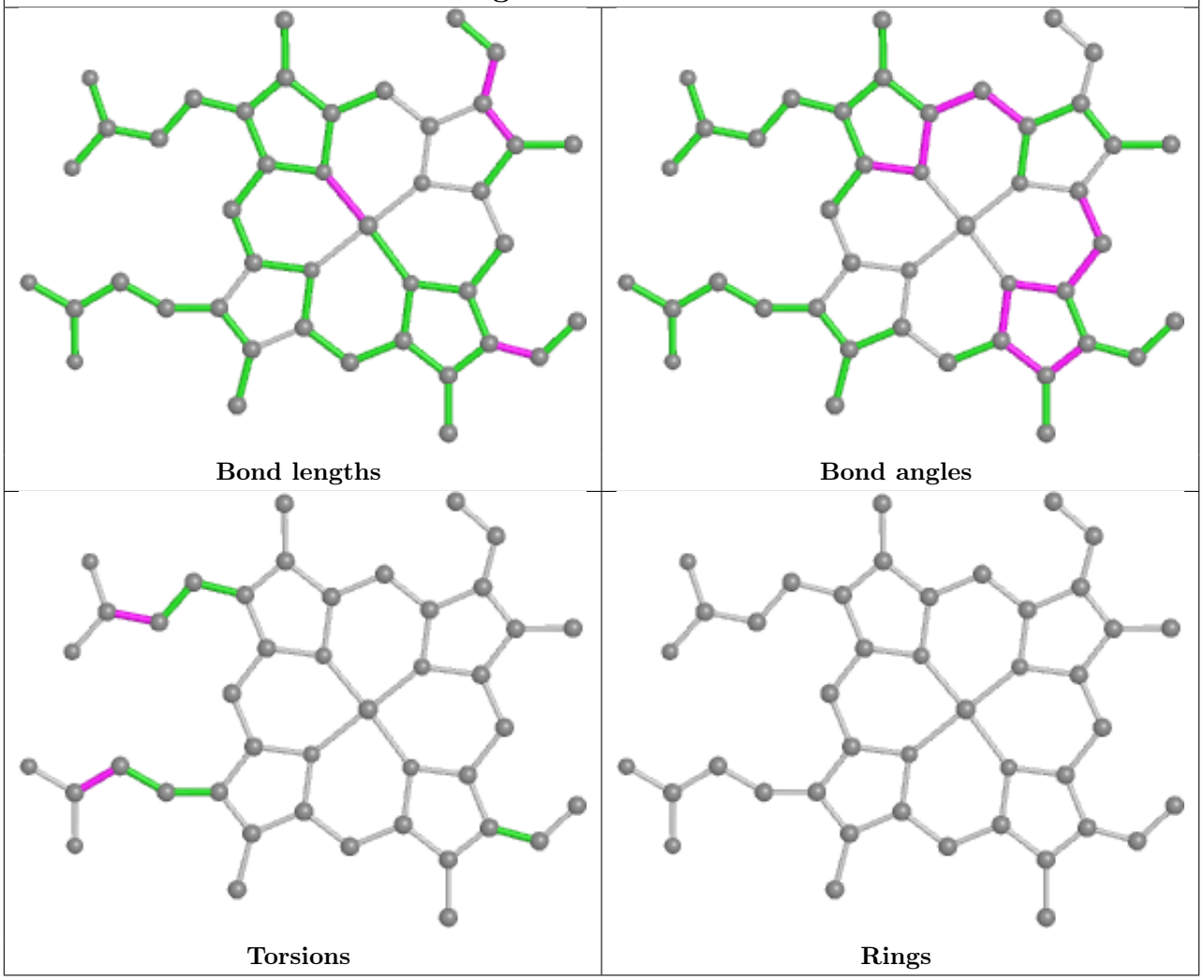


Rings

Ligand HEM I 601



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	473/486 (97%)	0.03	4 (0%)	86	84	48, 68, 92, 116	0
1	B	462/486 (95%)	0.06	4 (0%)	84	82	47, 70, 89, 109	0
1	C	463/486 (95%)	0.14	10 (2%)	62	56	51, 70, 91, 113	0
1	D	459/486 (94%)	0.03	4 (0%)	84	82	53, 71, 95, 116	0
1	E	460/486 (94%)	0.23	15 (3%)	46	39	51, 75, 99, 122	0
1	F	461/486 (94%)	0.26	10 (2%)	62	56	55, 79, 98, 110	0
1	G	462/486 (95%)	0.21	14 (3%)	50	43	57, 80, 99, 116	0
1	H	458/486 (94%)	0.20	14 (3%)	49	42	58, 78, 100, 117	0
1	I	463/486 (95%)	0.36	27 (5%)	23	17	50, 81, 102, 124	0
1	J	458/486 (94%)	0.18	13 (2%)	53	46	58, 78, 101, 119	0
1	K	462/486 (95%)	0.19	16 (3%)	44	36	58, 88, 108, 122	0
1	L	440/486 (90%)	0.73	59 (13%)	3	2	56, 98, 118, 126	0
All	All	5521/5832 (94%)	0.22	190 (3%)	45	38	47, 78, 105, 126	0

The worst 5 of 190 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	256	ILE	6.3
1	L	133	LEU	6.2
1	I	282	LYS	5.2
1	G	287	HIS	5.1
1	F	491	LEU	5.1

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 (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
2	HEM	E	601	43/43	0.73	0.37	47,62,77,241	0
2	HEM	C	601	43/43	0.85	0.35	45,62,83,157	0
2	HEM	A	601	43/43	0.85	0.28	44,63,92,139	0
2	HEM	G	601	43/43	0.90	0.31	60,76,94,161	0
2	HEM	F	601	43/43	0.92	0.33	61,75,93,143	0
3	ZWY	B	603	25/25	0.93	0.19	30,43,53,73	18
3	ZWY	I	602	25/25	0.93	0.23	32,44,57,78	21
3	ZWY	D	602	25/25	0.94	0.21	31,41,52,75	23
3	ZWY	D	605	25/25	0.94	0.25	33,43,51,85	22
3	ZWY	E	603	25/25	0.94	0.12	35,44,55,89	22
2	HEM	L	601	43/43	0.94	0.26	77,101,125,130	0
3	ZWY	I	603	25/25	0.94	0.24	31,45,56,76	19
3	ZWY	J	602	25/25	0.94	0.31	34,45,53,72	25
3	ZWY	J	603	25/25	0.94	0.39	32,42,56,93	24
3	ZWY	E	602	25/25	0.95	0.27	34,46,52,81	25
2	HEM	D	601	43/43	0.95	0.30	44,64,83,93	0
3	ZWY	C	603	25/25	0.95	0.15	29,42,56,86	25
3	ZWY	A	602	25/25	0.95	0.15	35,45,54,62	22
3	ZWY	D	603	25/25	0.95	0.13	33,42,54,91	22
3	ZWY	A	603	25/25	0.95	0.14	30,46,59,90	25
3	ZWY	E	605	25/25	0.96	0.32	32,45,54,85	22
3	ZWY	H	603	25/25	0.96	0.12	31,41,54,78	24
2	HEM	J	601	43/43	0.96	0.30	55,75,92,96	0
3	ZWY	B	602	25/25	0.96	0.12	29,43,55,89	23
2	HEM	K	601	43/43	0.96	0.26	59,75,102,106	0
3	ZWY	E	604	25/25	0.96	0.15	30,42,51,77	20
2	HEM	B	601	43/43	0.97	0.25	47,63,83,91	0
3	ZWY	H	602	25/25	0.97	0.20	36,46,52,81	25
3	ZWY	D	604	25/25	0.97	0.17	33,45,51,62	24
3	ZWY	H	604	25/25	0.97	0.22	30,43,54,87	22
3	ZWY	C	602	25/25	0.97	0.21	32,41,50,76	22
2	HEM	H	601	43/43	0.97	0.29	51,66,86,89	0

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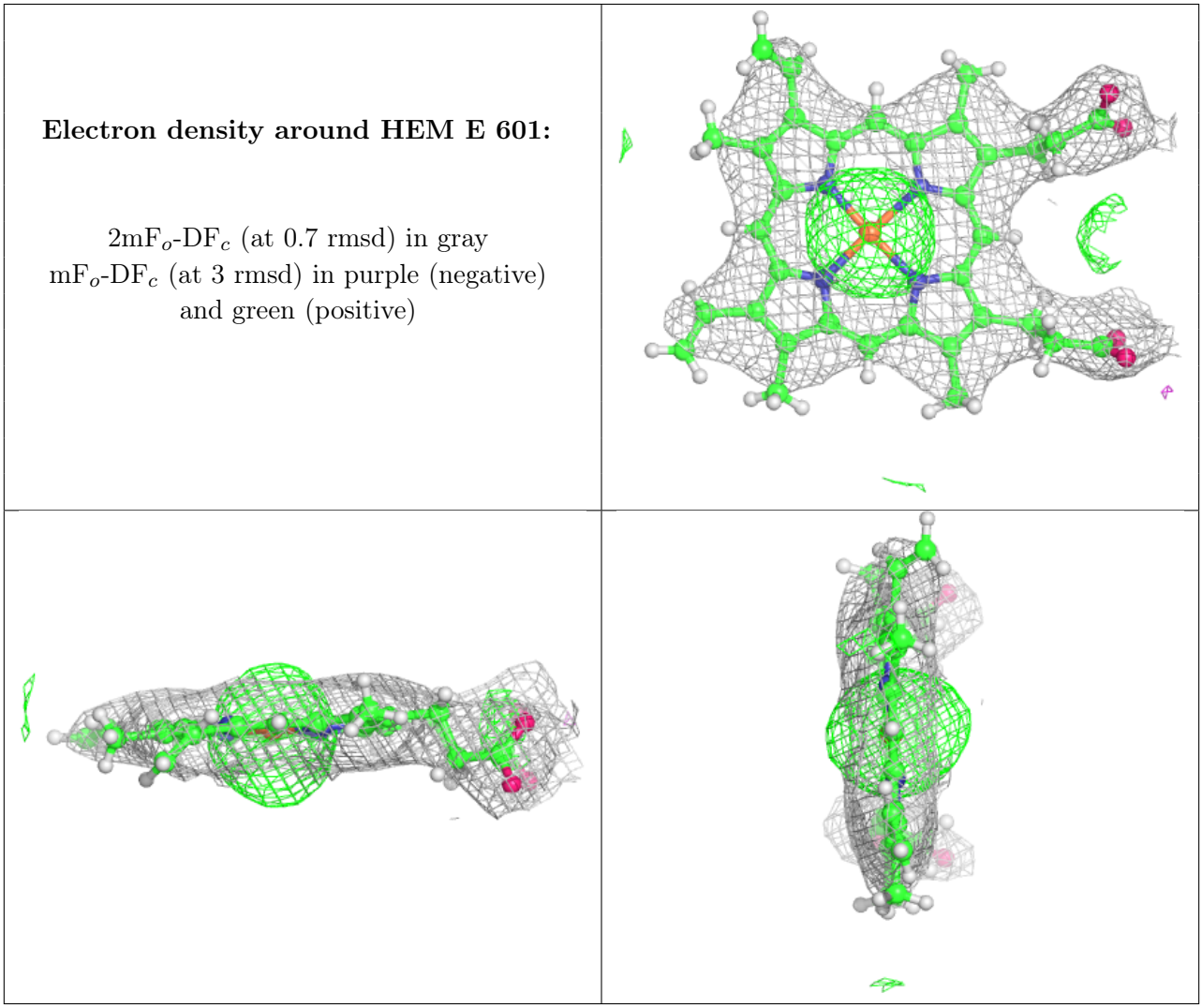
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	ZWY	C	605	25/25	0.97	0.30	33,42,55,83	25
2	HEM	I	601	43/43	0.97	0.32	59,75,92,107	0
3	ZWY	D	606	25/25	0.98	0.12	34,42,51,62	20
3	ZWY	C	604	25/25	0.98	0.13	32,44,54,65	20

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.

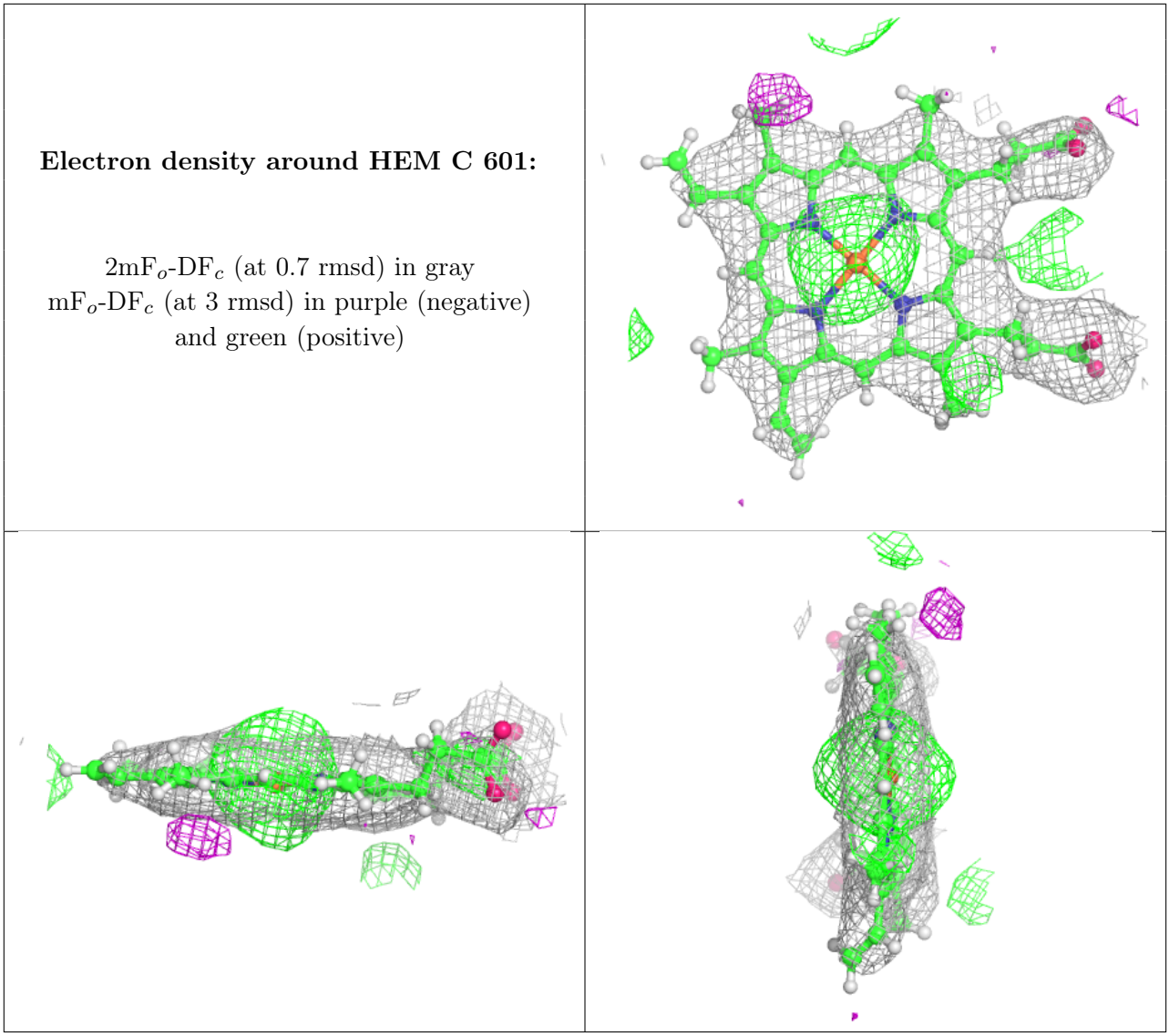
Electron density around HEM E 601:

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



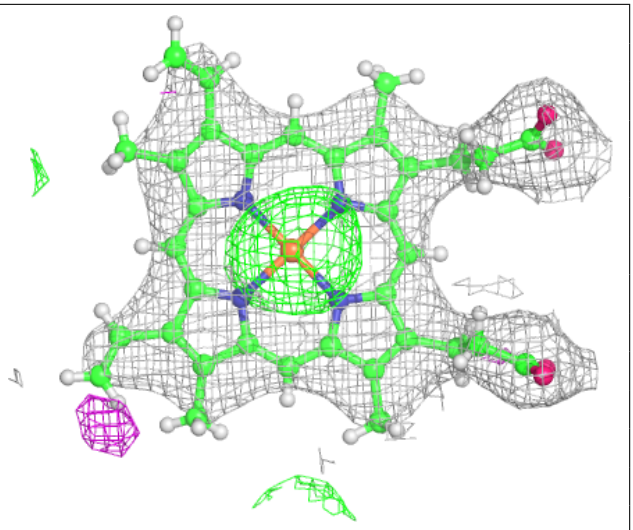
Electron density around HEM C 601:

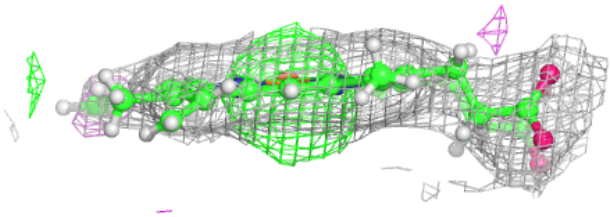
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

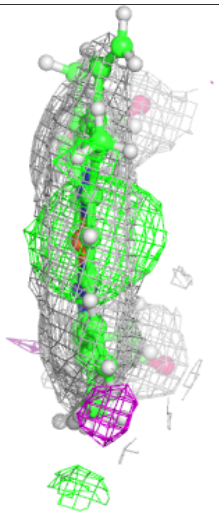


Electron density around HEM A 601:

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

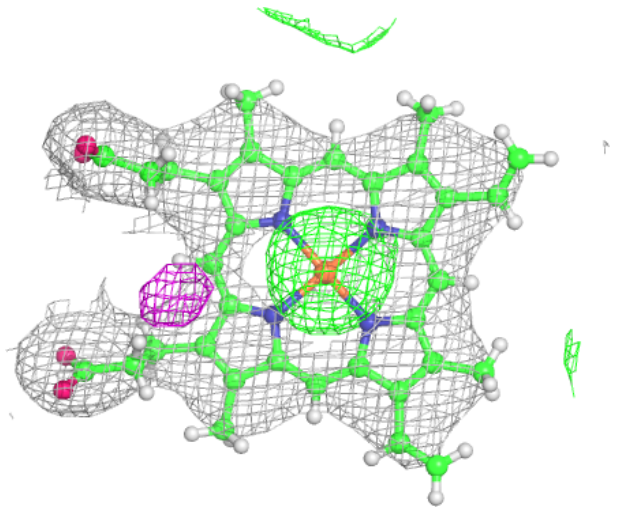


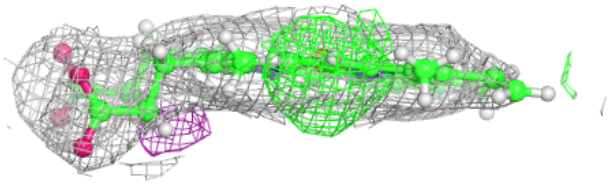


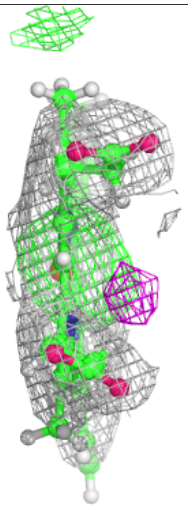


Electron density around HEM G 601:

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

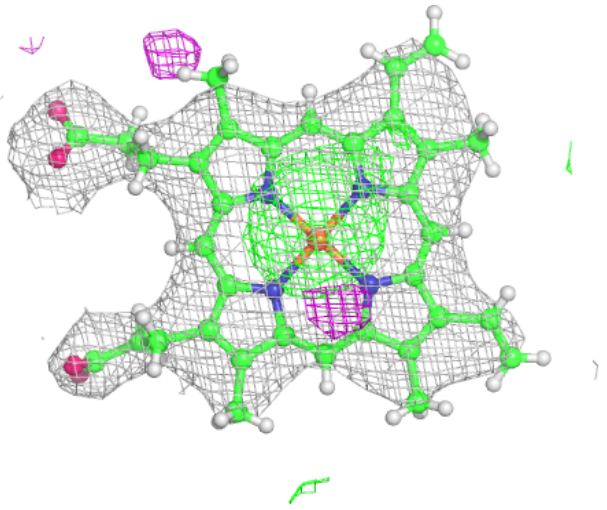


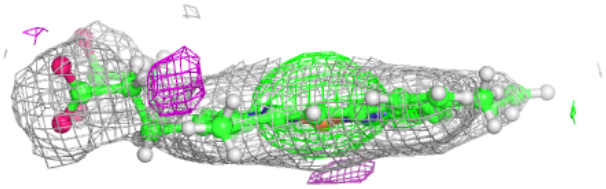


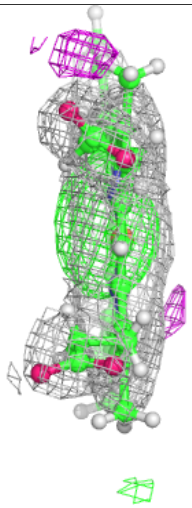


Electron density around HEM F 601:

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

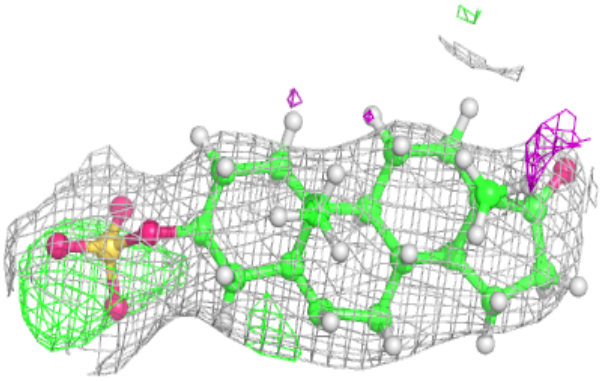


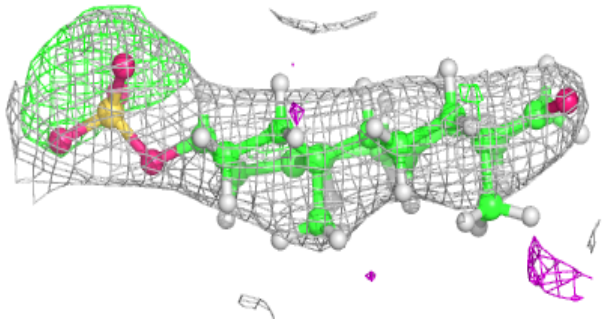


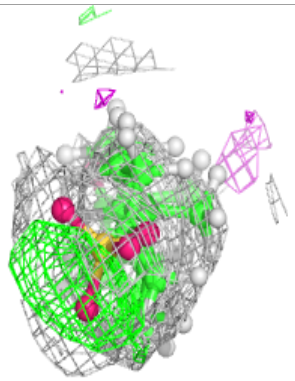


Electron density around ZWY B 603:

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

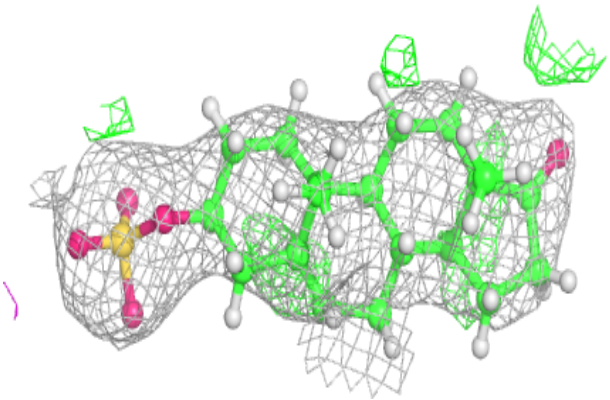


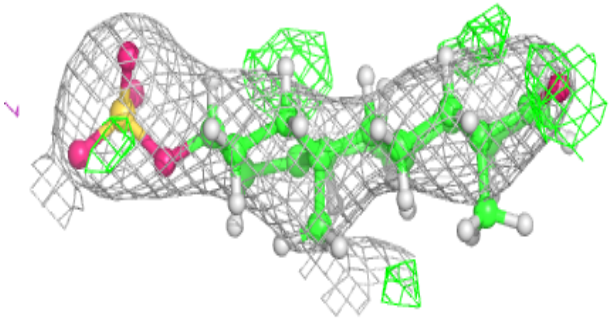


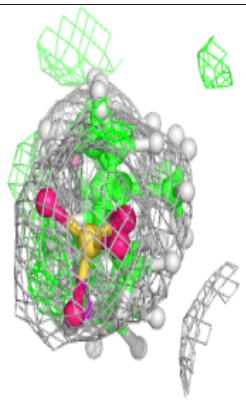


Electron density around ZWY I 602:

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

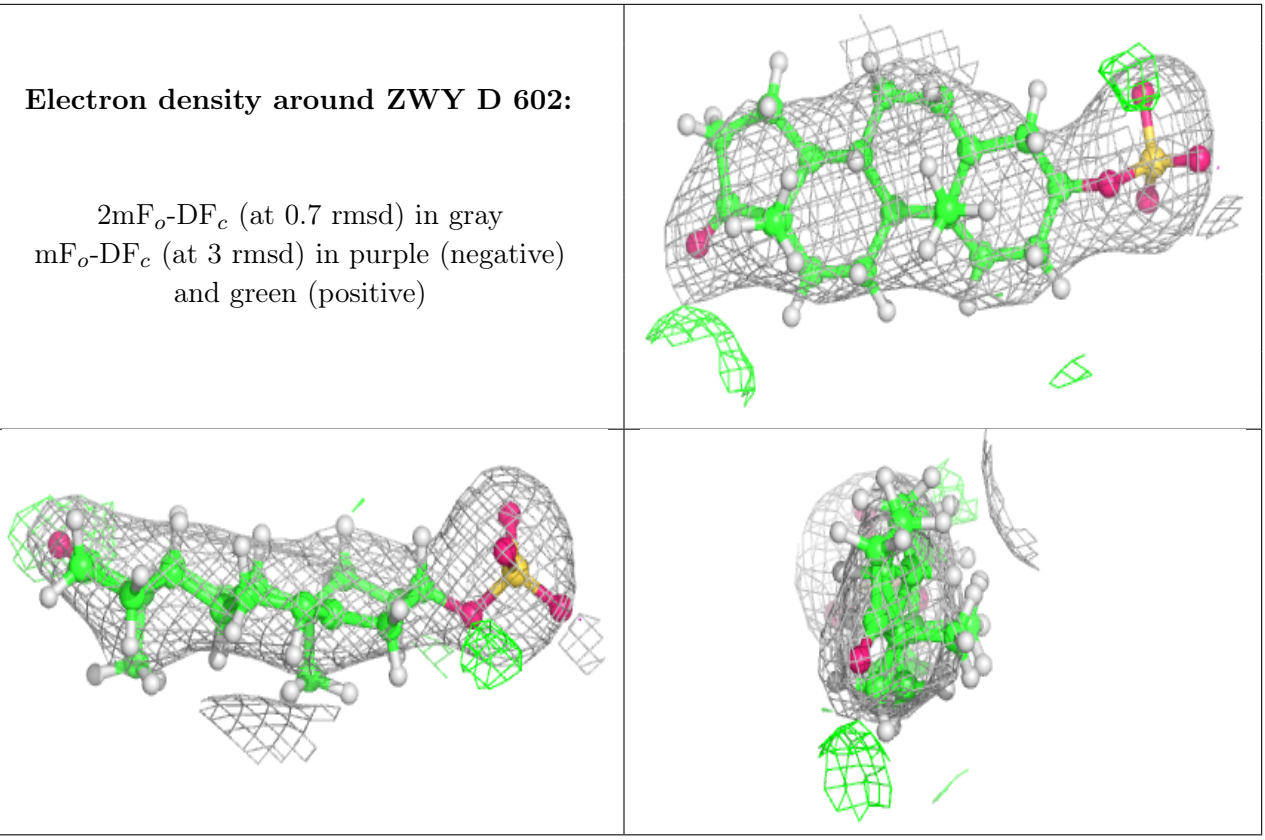






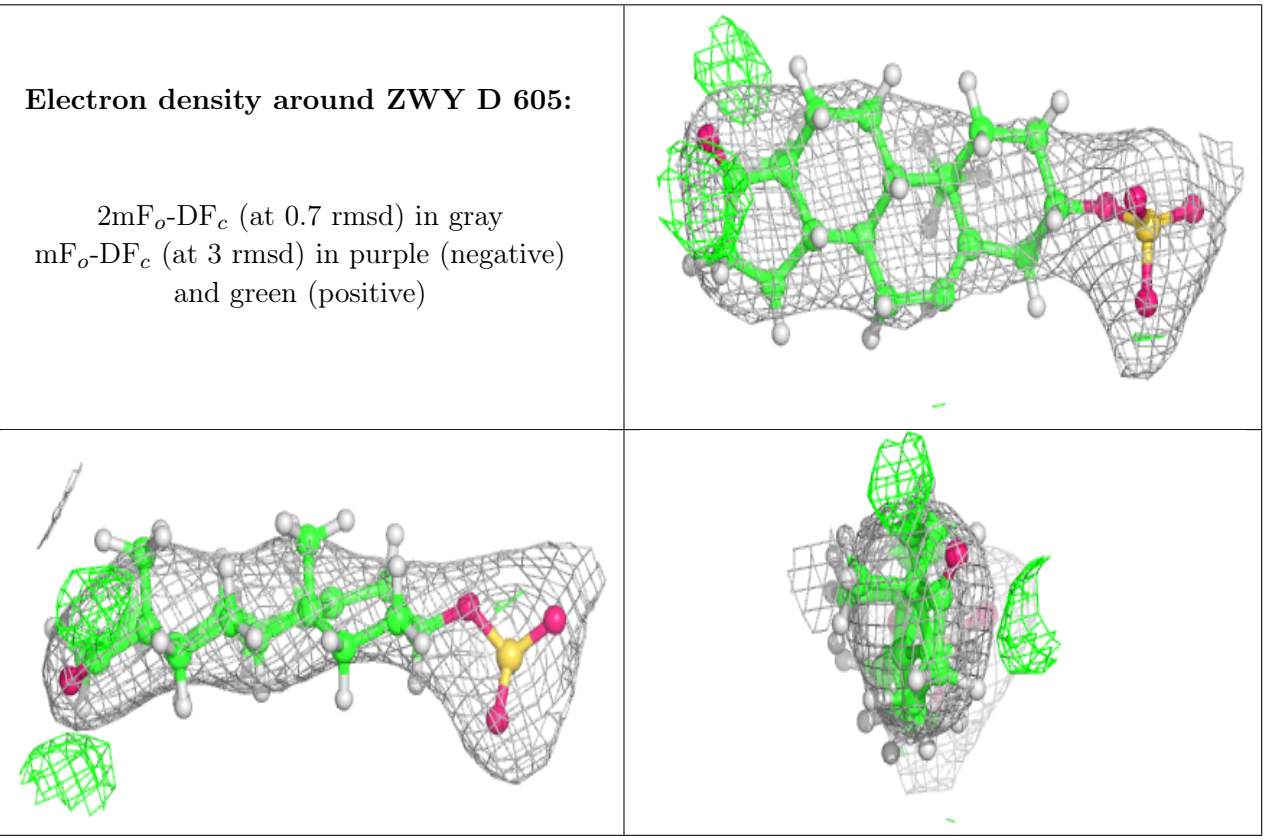
Electron density around ZWY D 602:

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



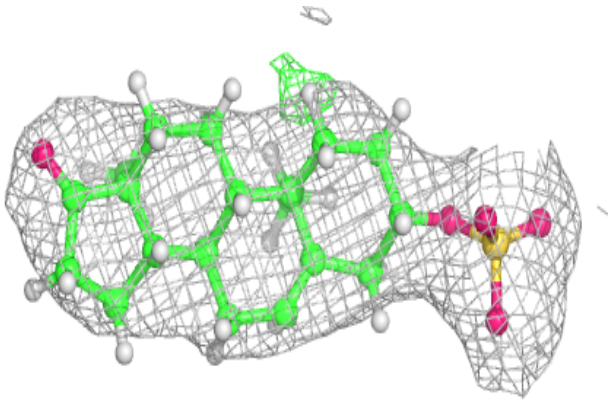
Electron density around ZWY D 605:

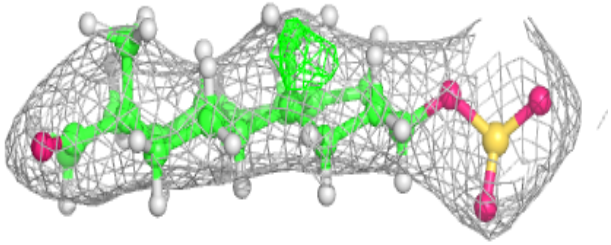
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

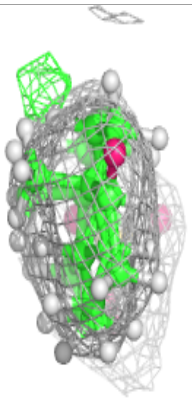


Electron density around ZWY E 603:

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

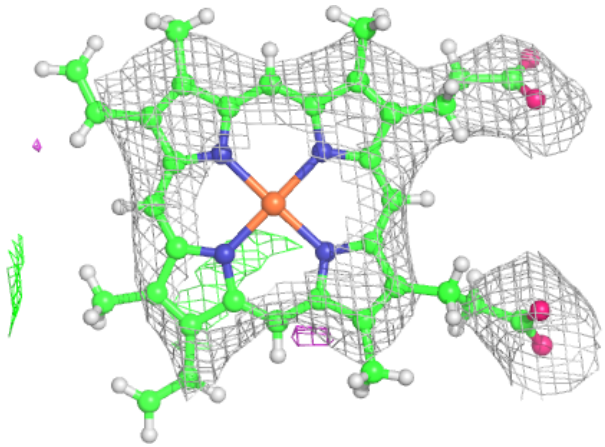


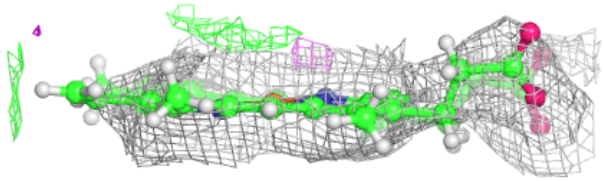


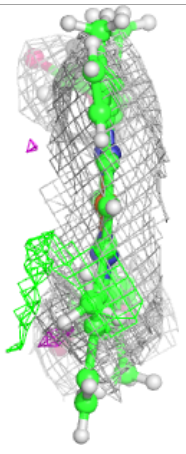


Electron density around HEM L 601:

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

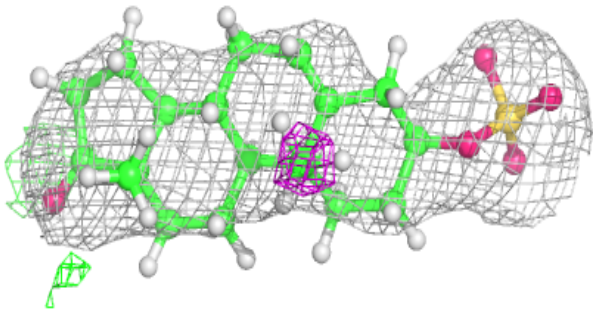


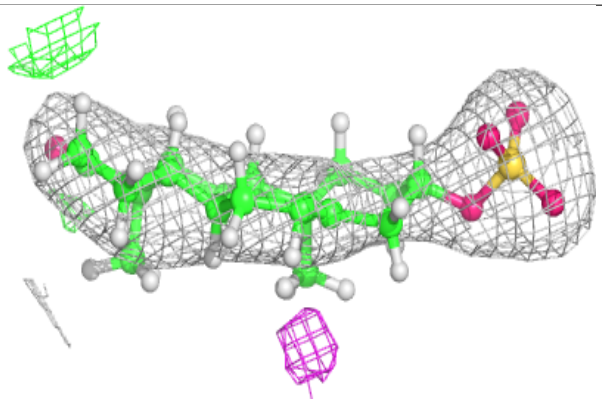


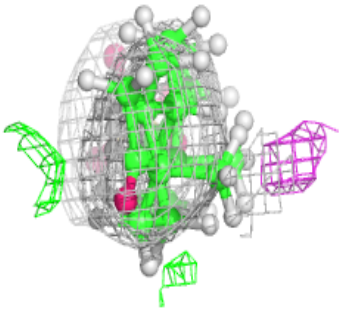


Electron density around ZWY I 603:

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

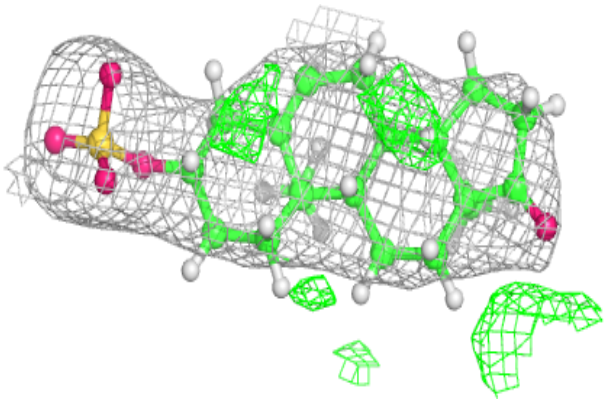


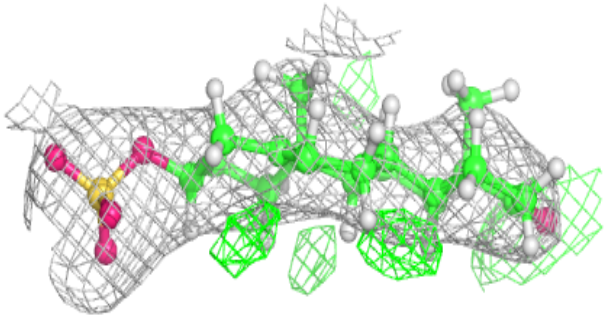


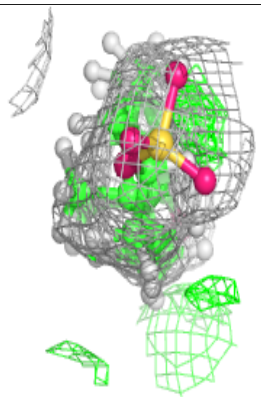


Electron density around ZWY J 602:

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

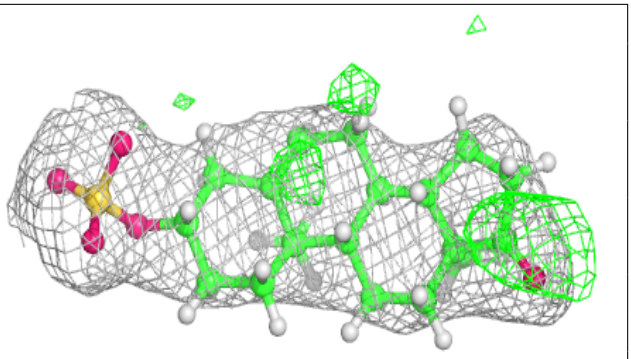


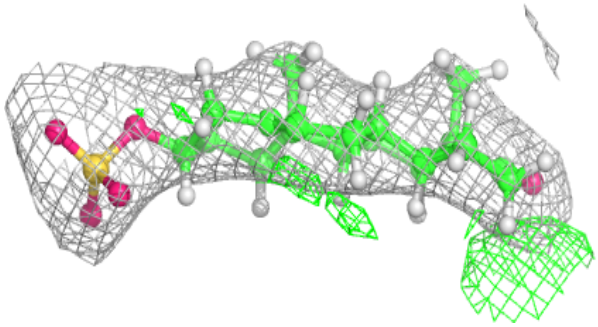


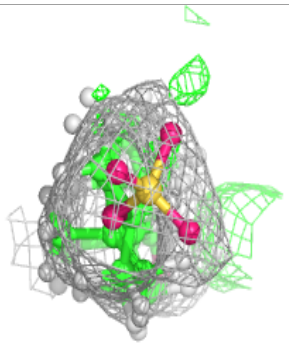


Electron density around ZWY J 603:

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

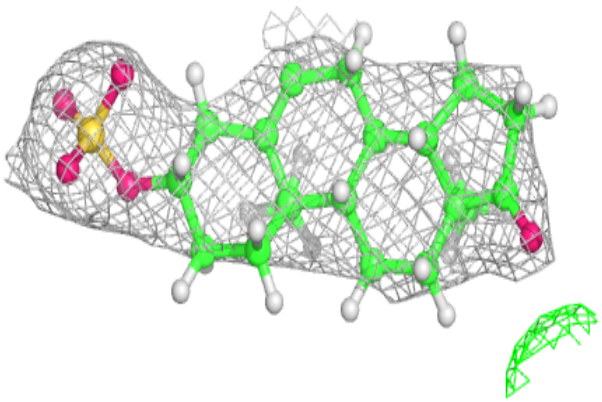


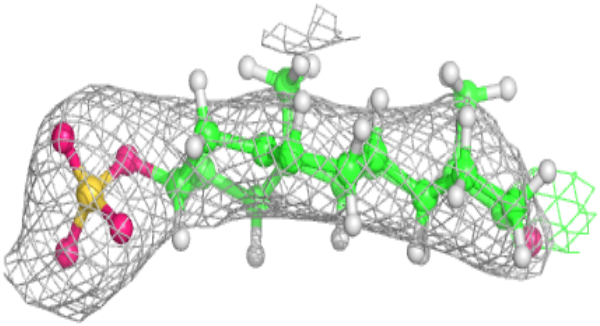


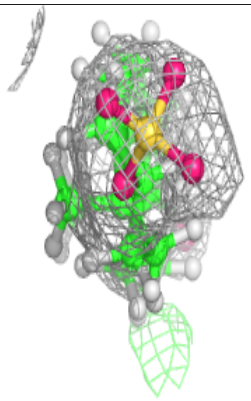


Electron density around ZWY E 602:

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

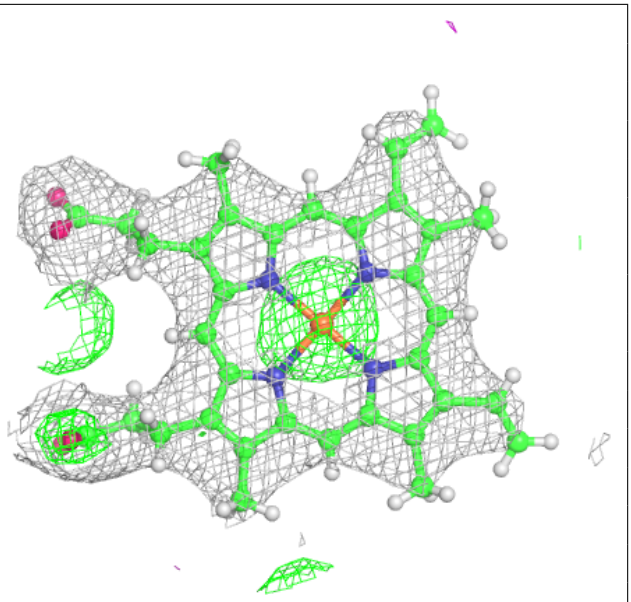


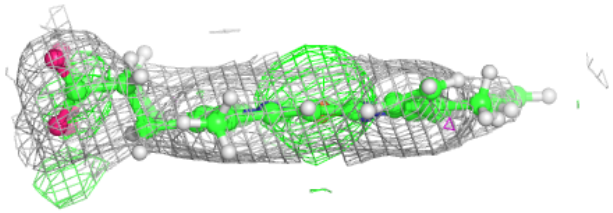


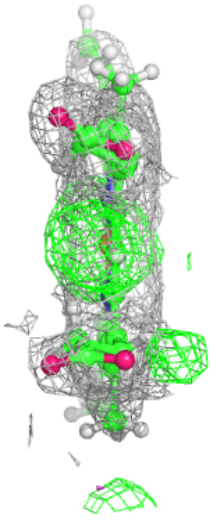


Electron density around HEM D 601:

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

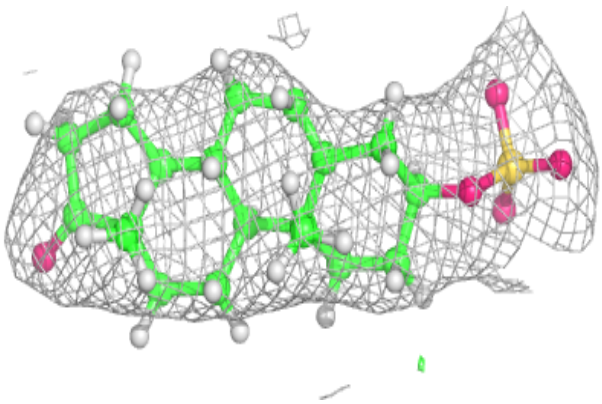


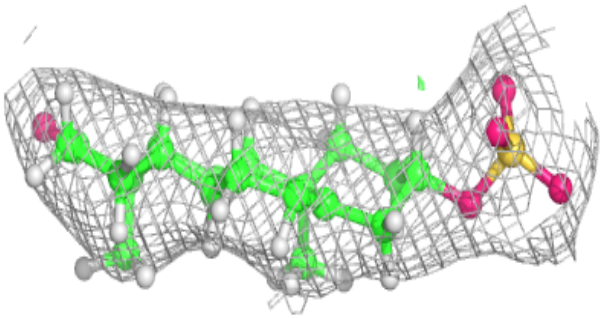


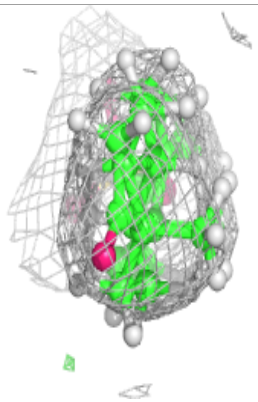


Electron density around ZWY C 603:

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

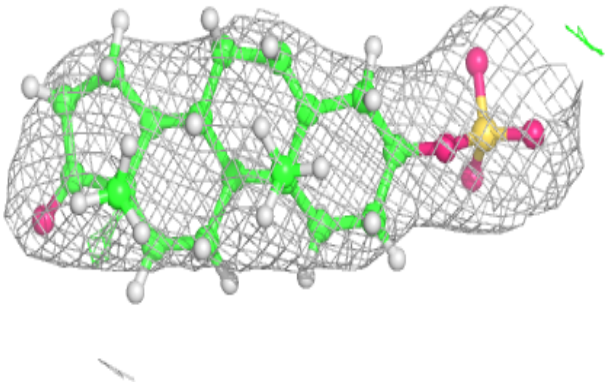


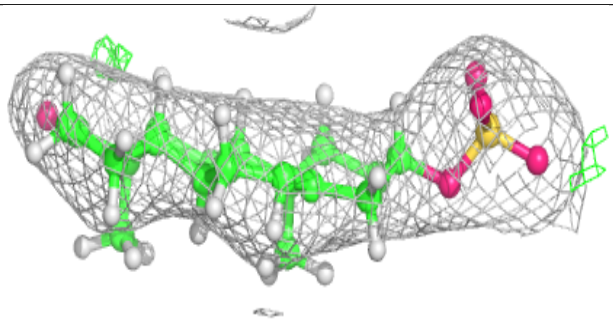


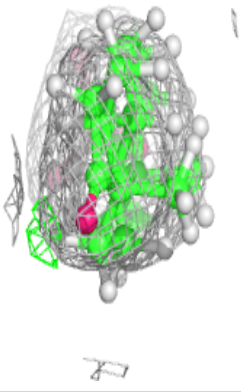


Electron density around ZWY A 602:

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

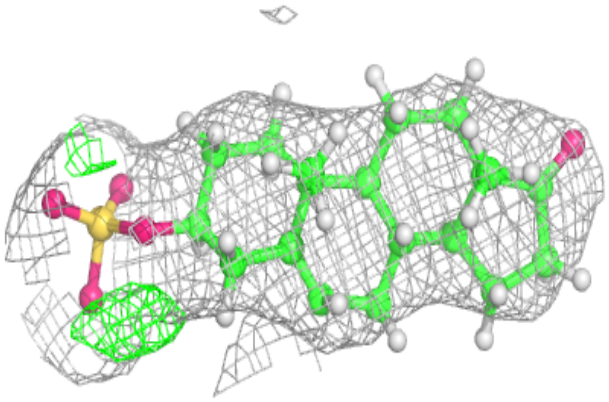


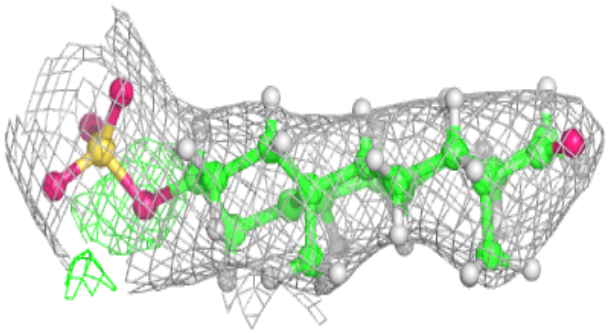


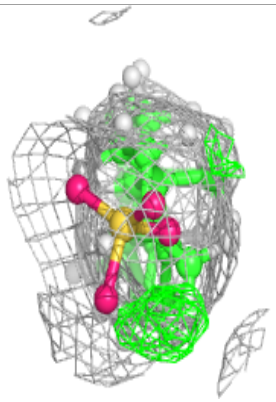


Electron density around ZWY D 603:

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

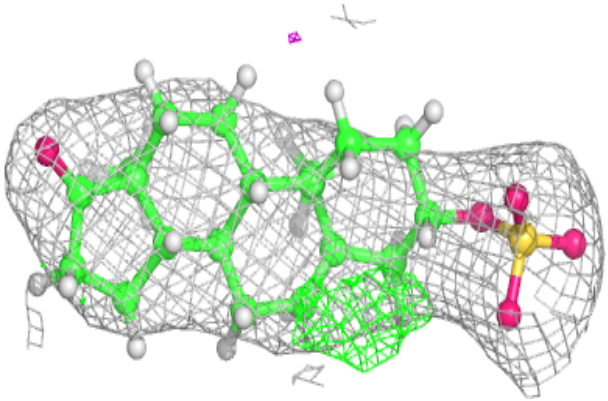


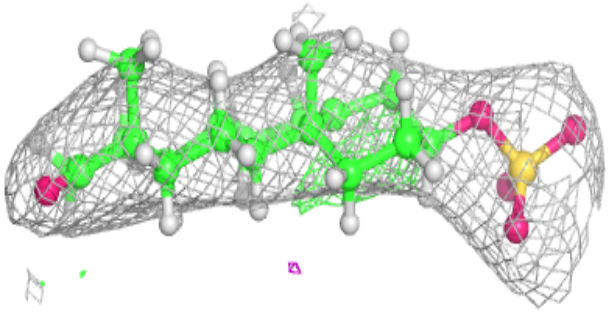


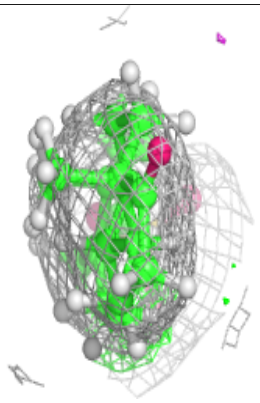


Electron density around ZWY A 603:

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

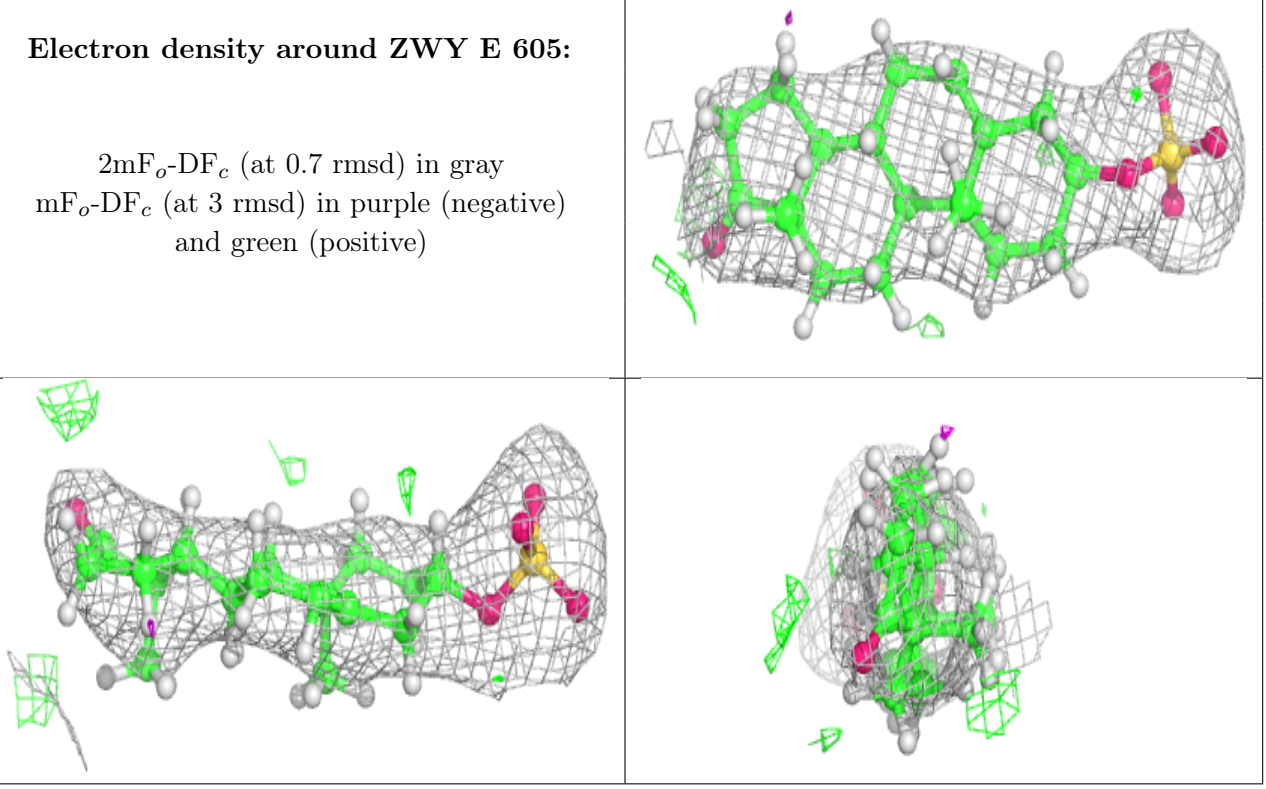






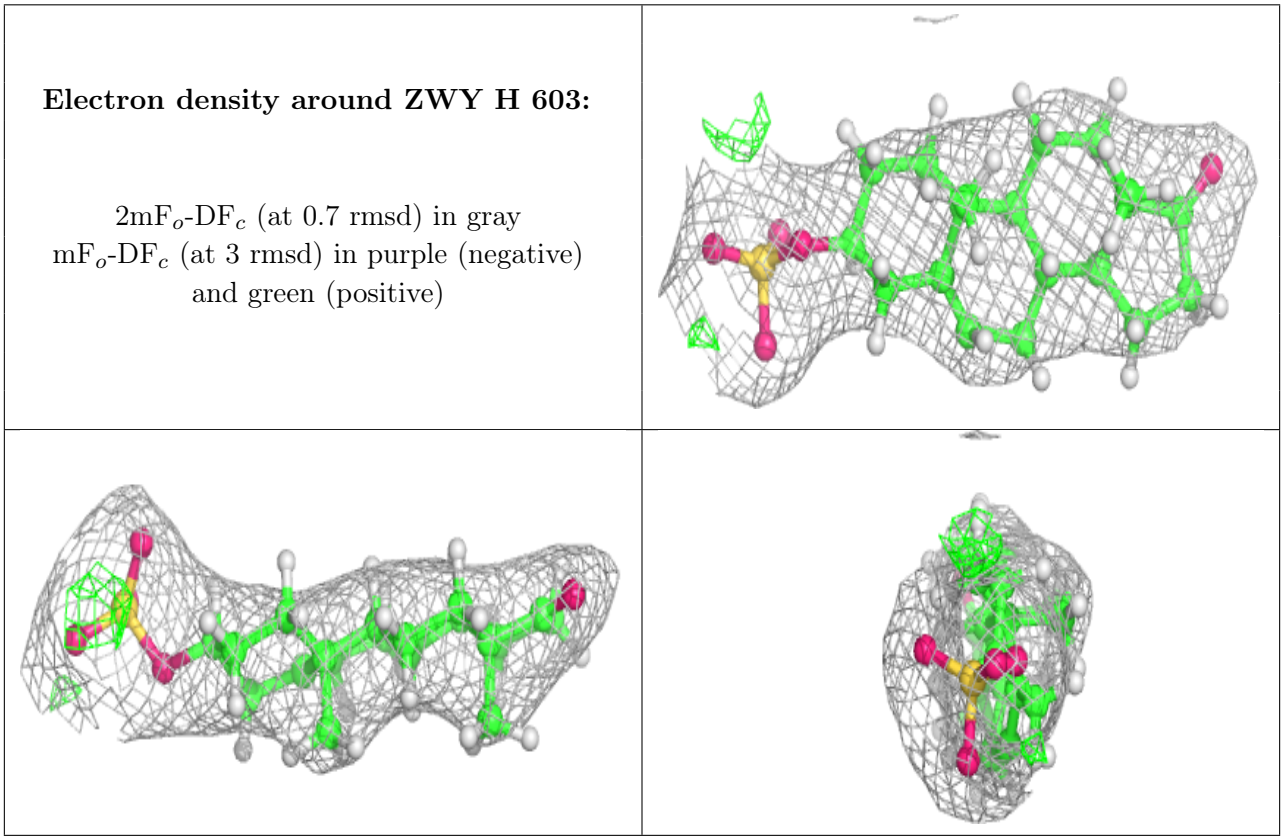
Electron density around ZWY E 605:

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



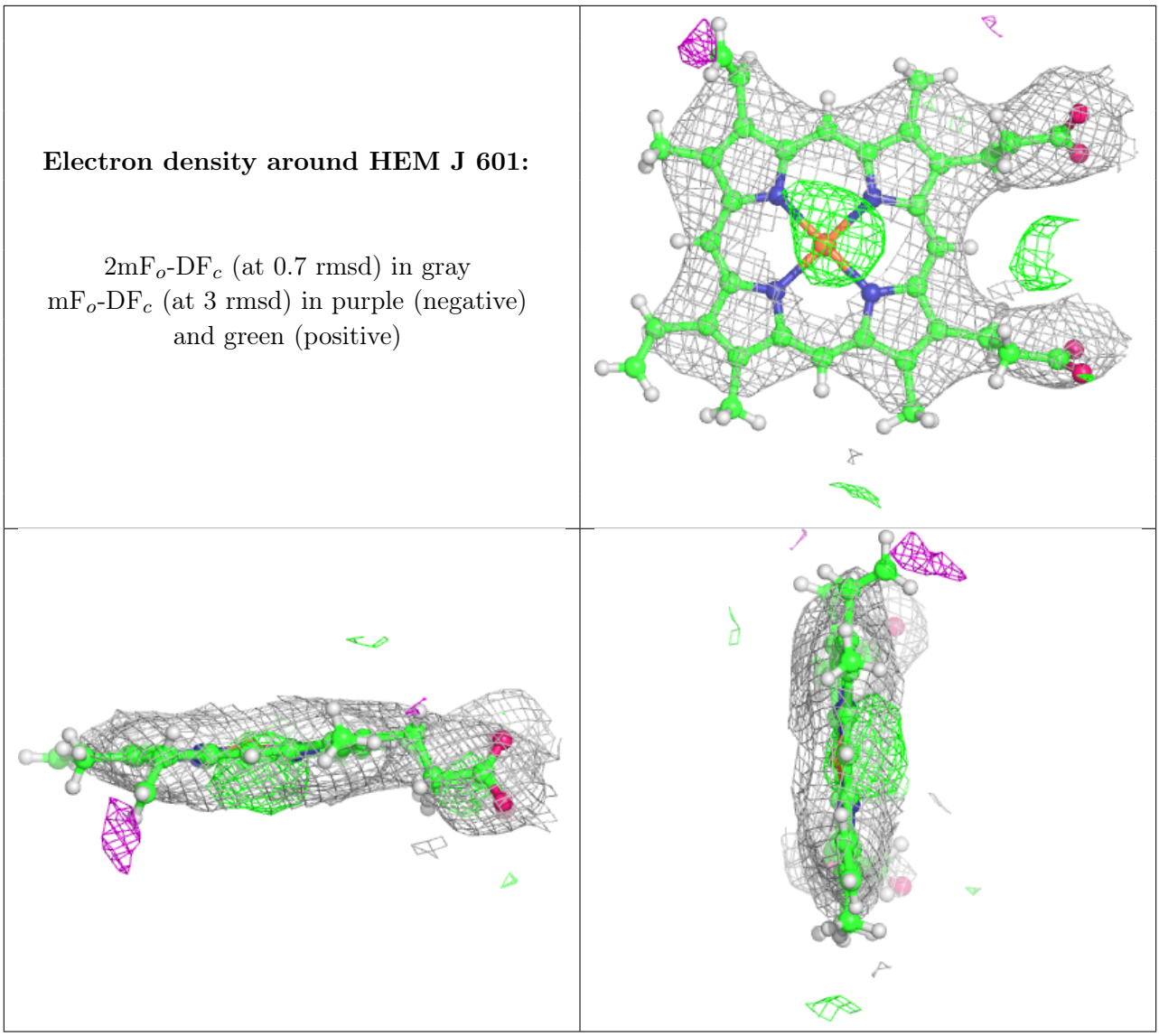
Electron density around ZWY H 603:

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



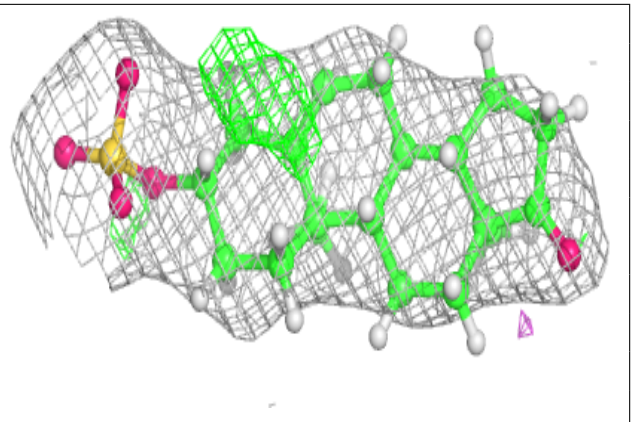
Electron density around HEM J 601:

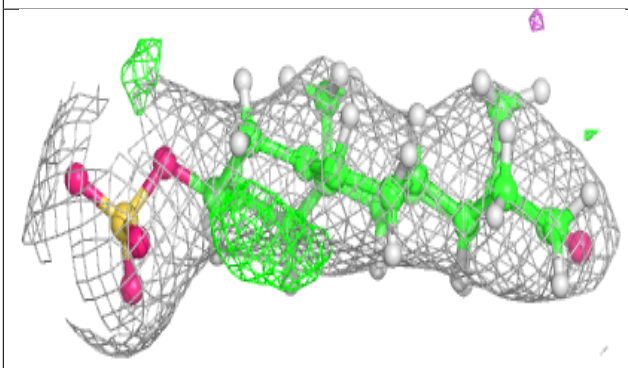
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

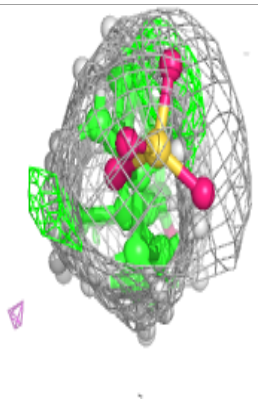


Electron density around ZWY B 602:

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

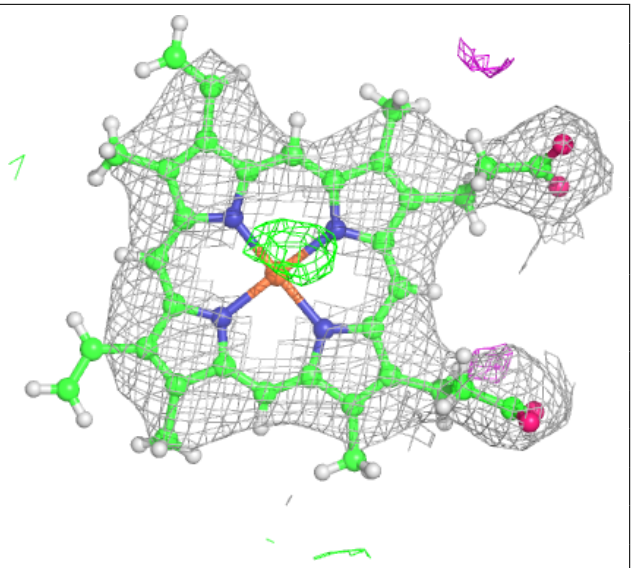


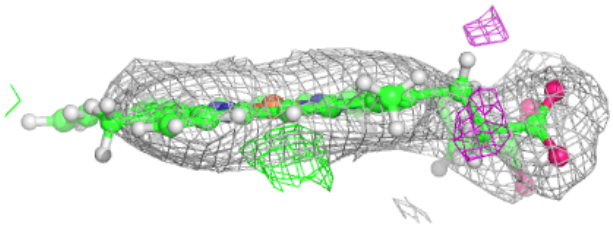


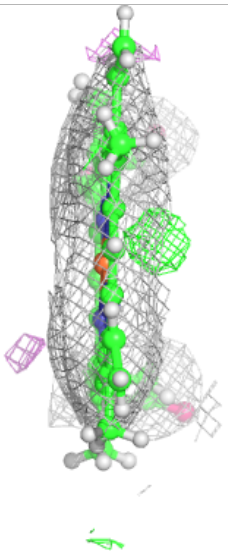


Electron density around HEM K 601:

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

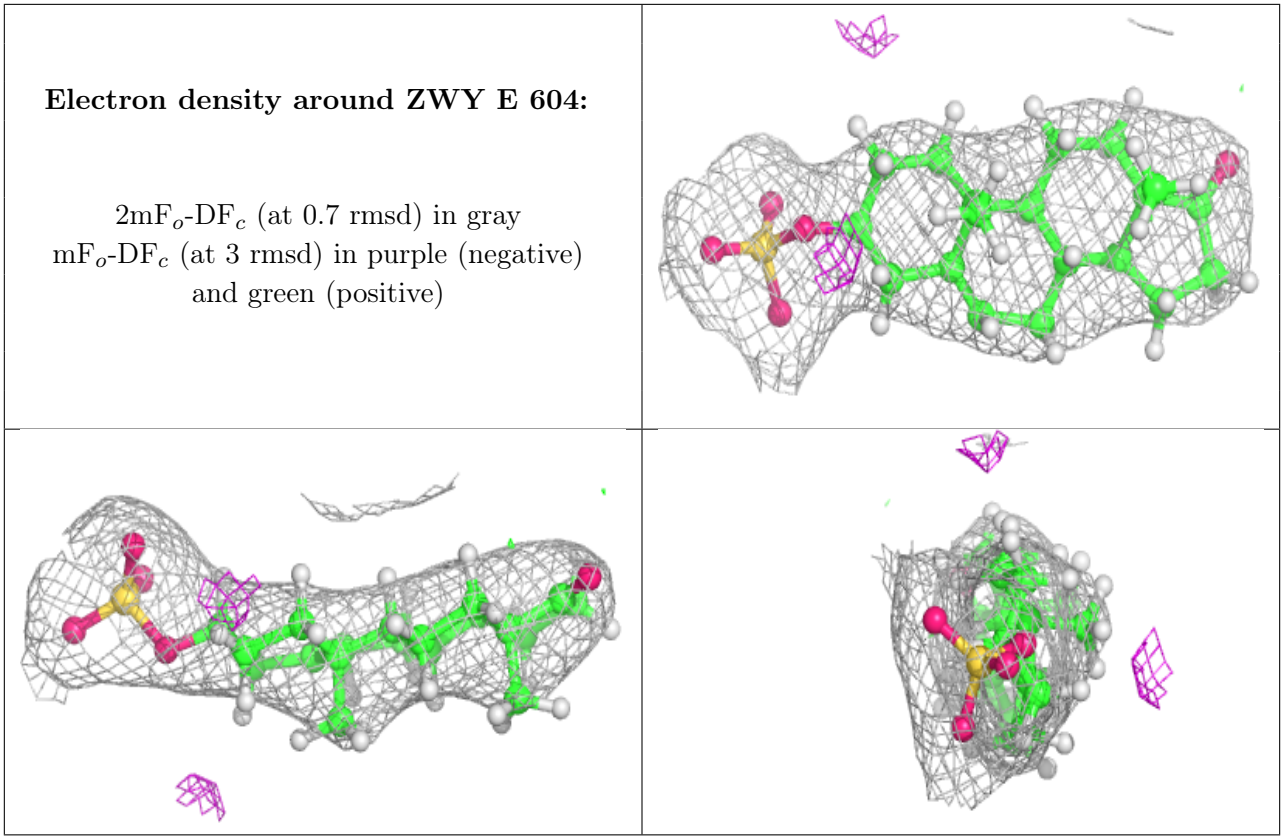






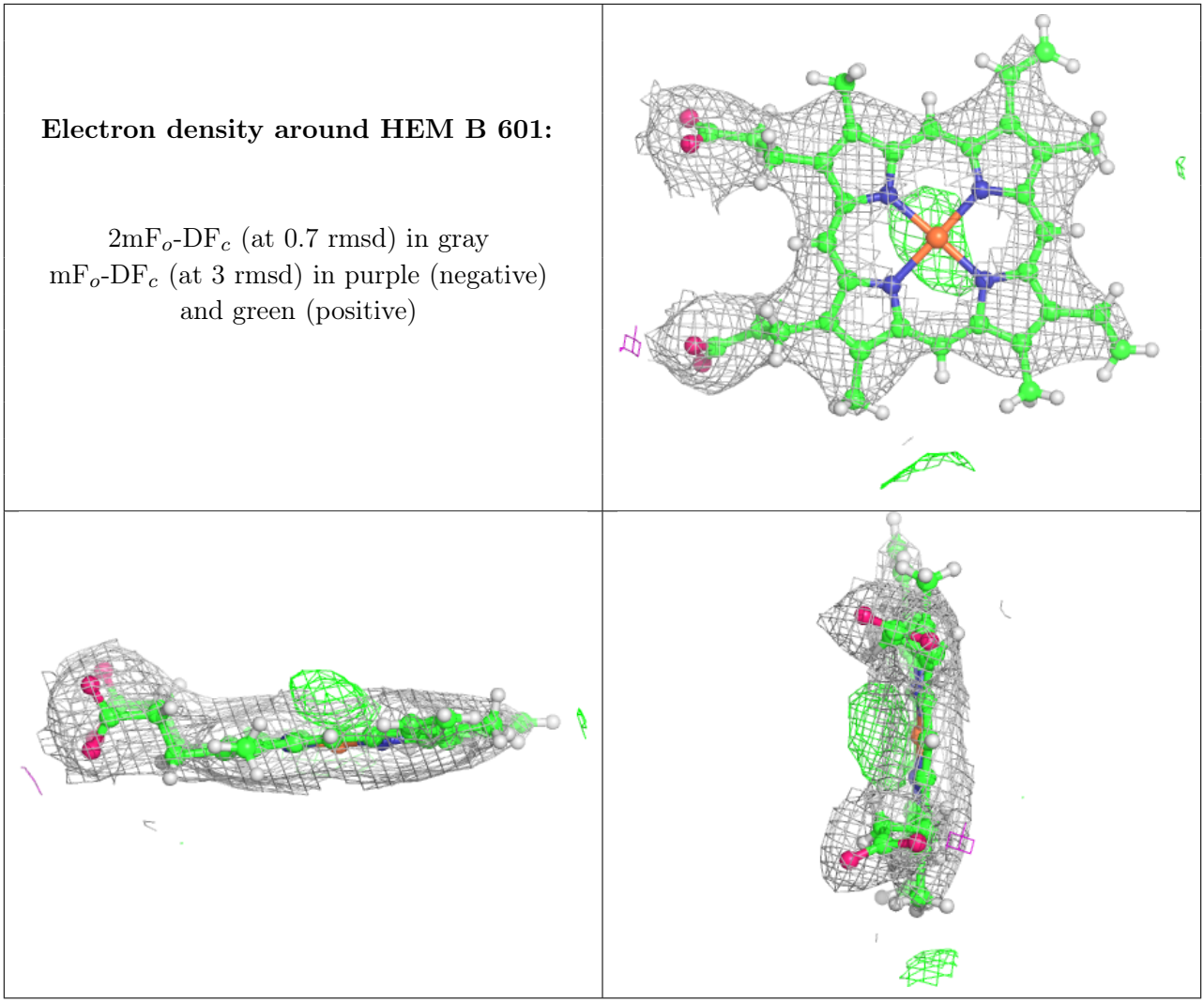
Electron density around ZWY E 604:

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



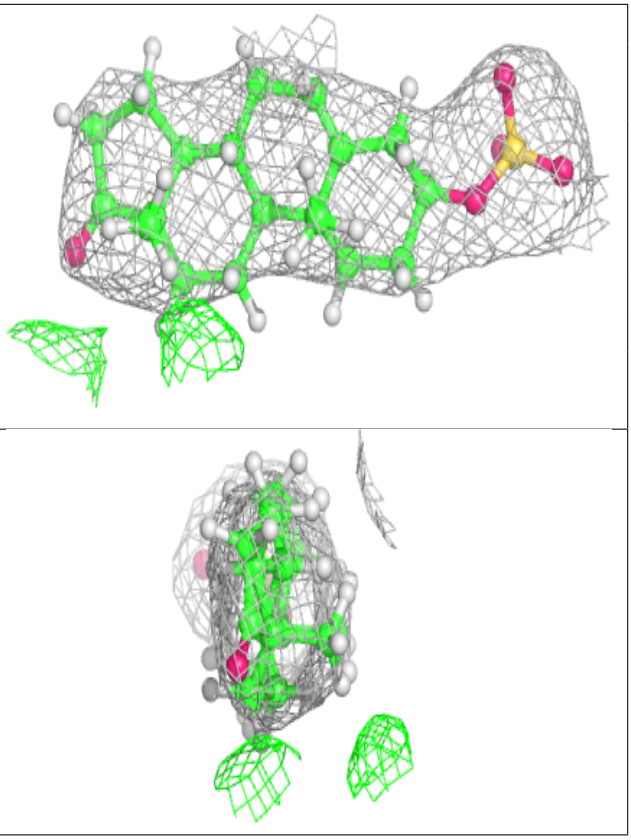
Electron density around HEM B 601:

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



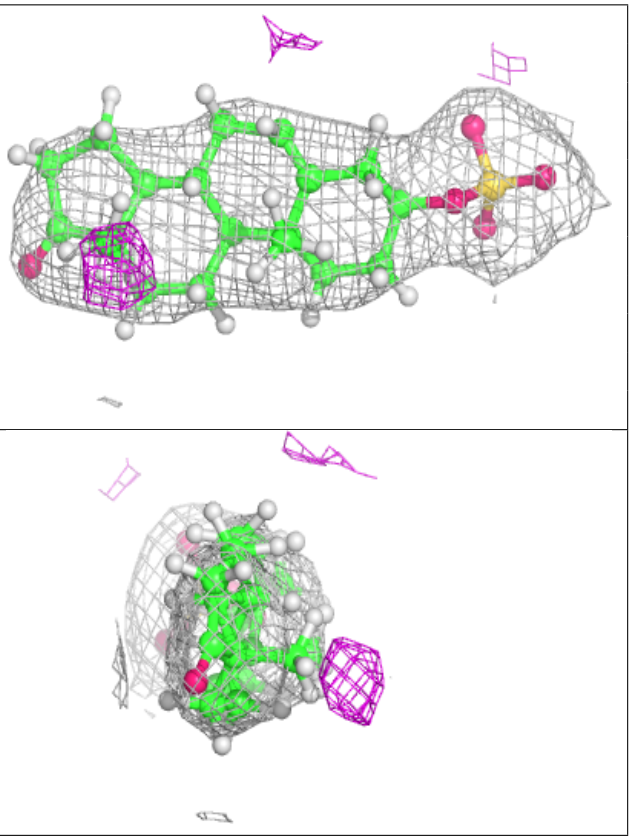
Electron density around ZWY H 602:

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



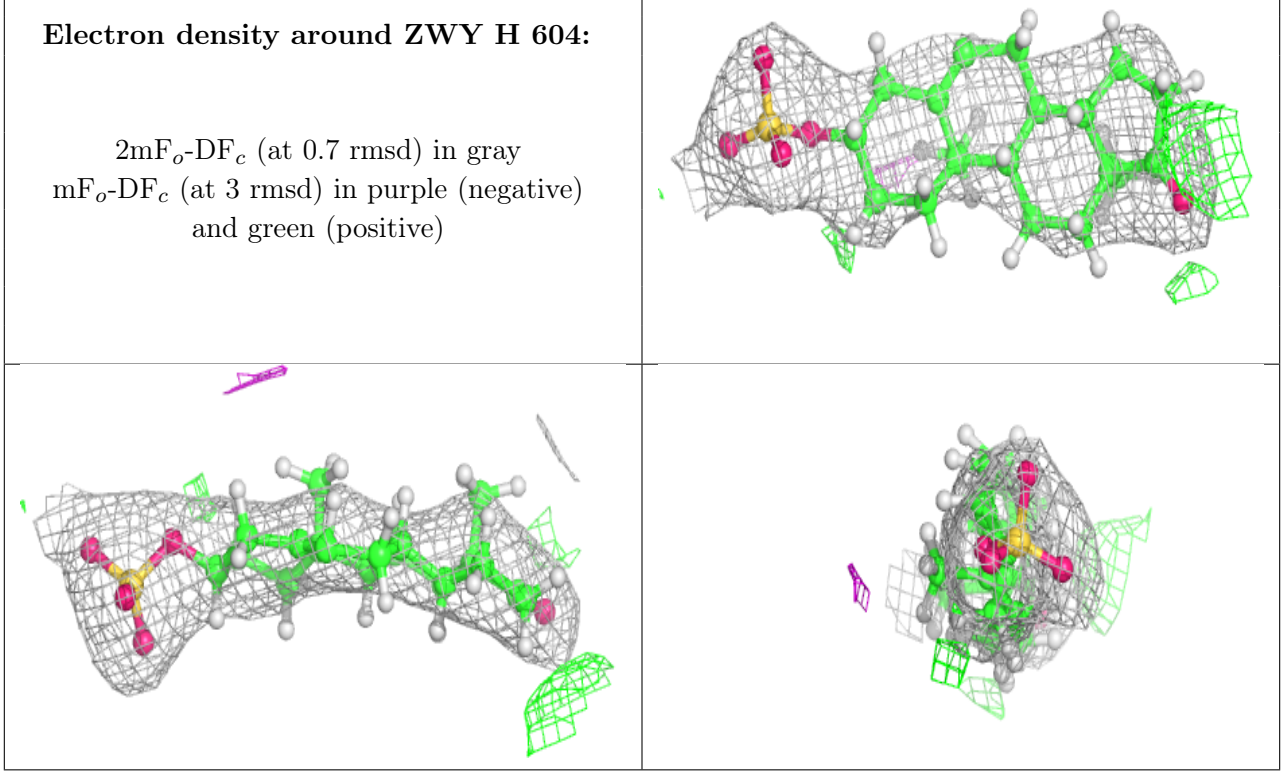
Electron density around ZWY D 604:

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



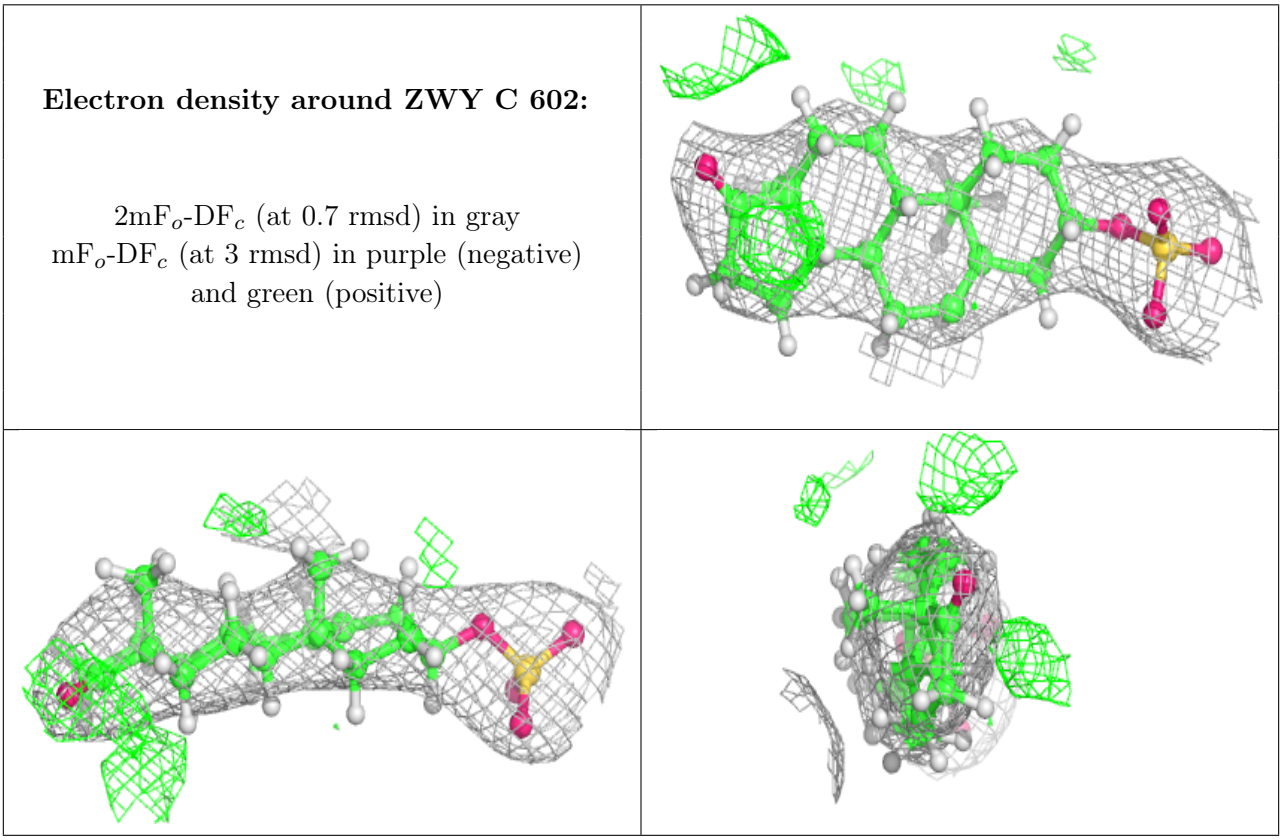
Electron density around ZWY H 604:

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



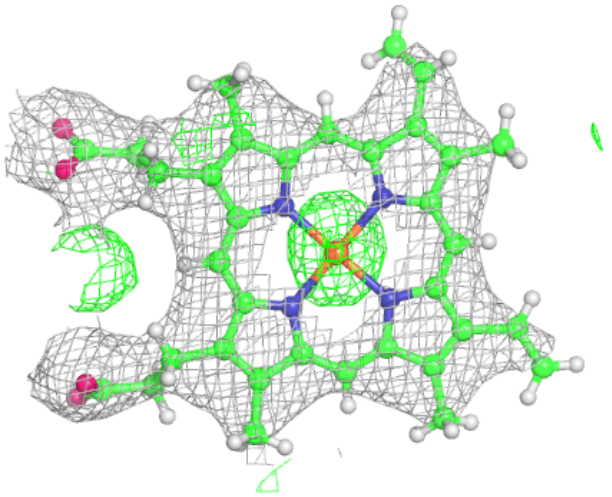
Electron density around ZWY C 602:

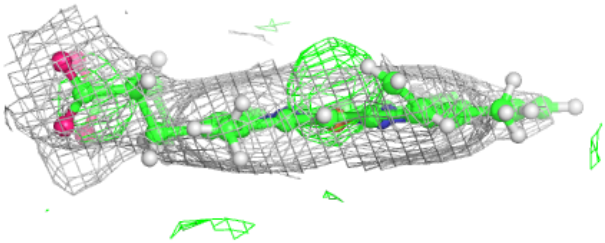
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

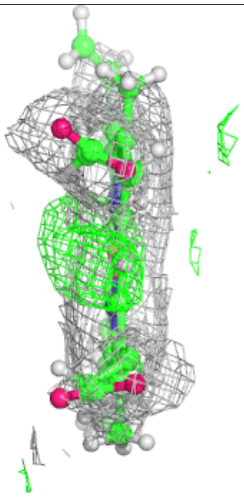


Electron density around HEM H 601:

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

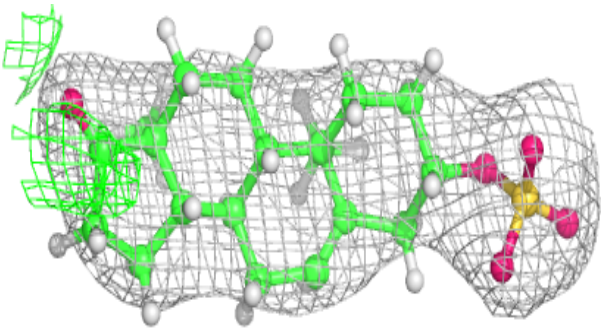


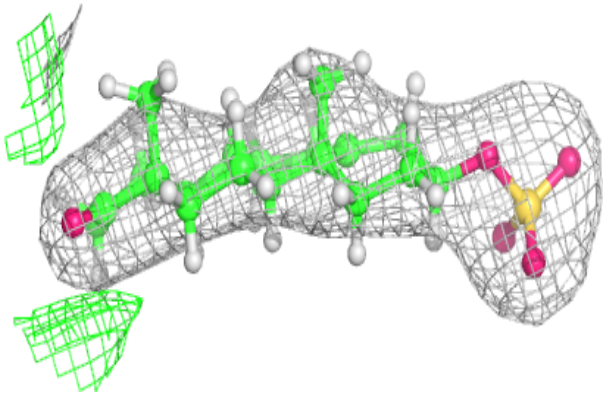


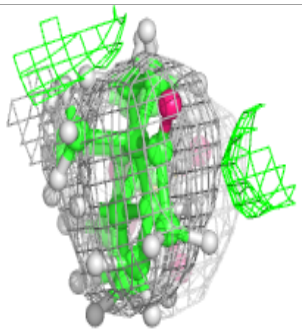


Electron density around ZWY C 605:

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

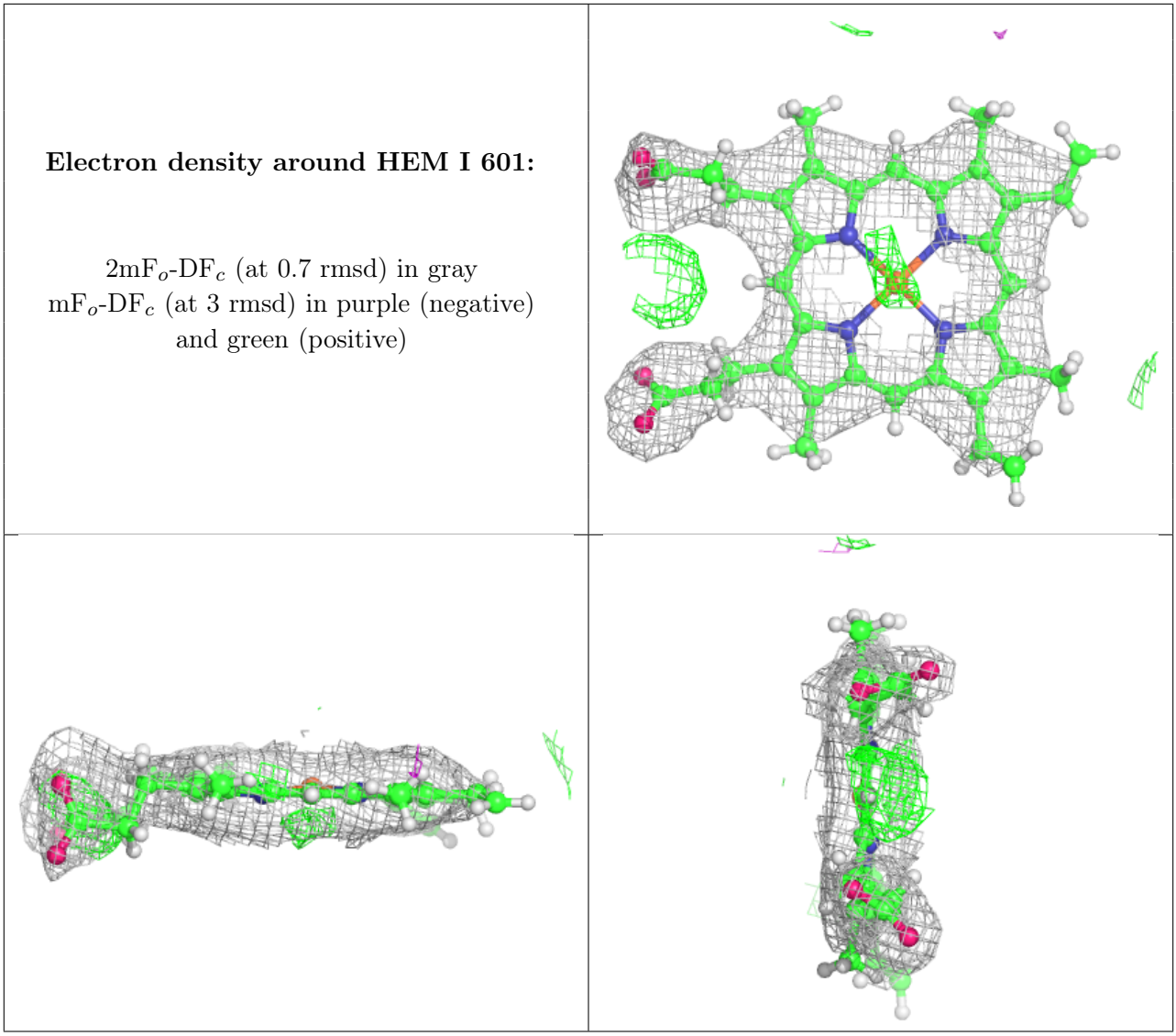






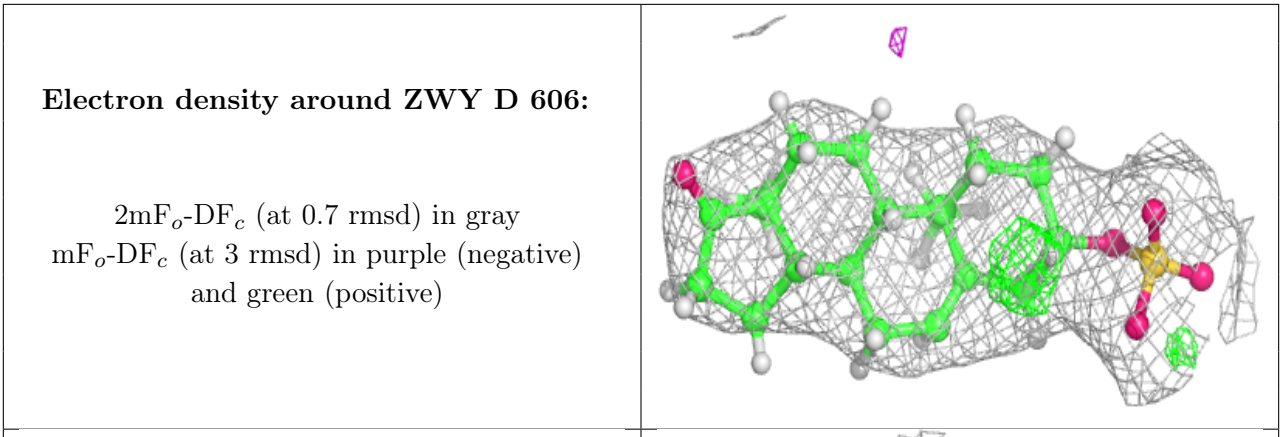
Electron density around HEM I 601:

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



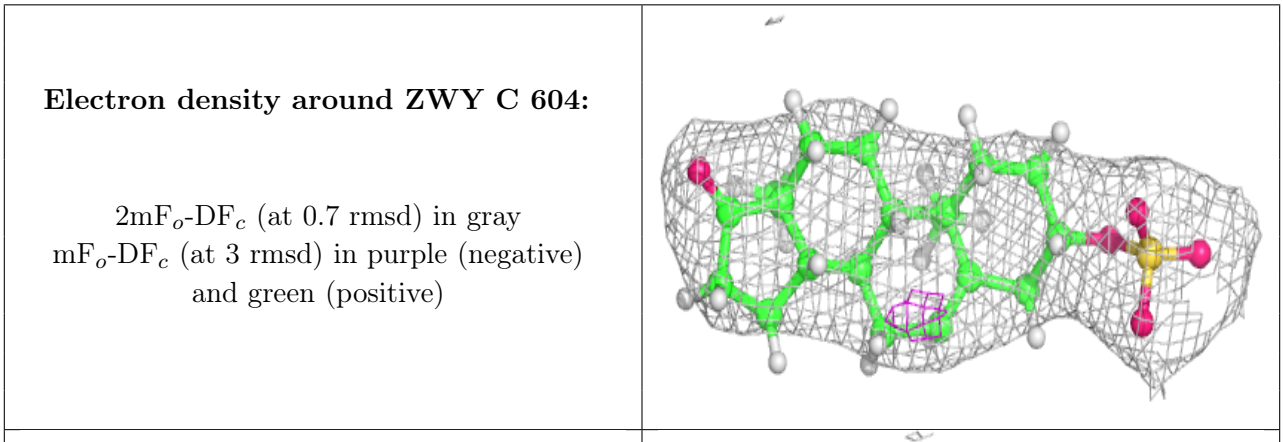
Electron density around ZWY D 606:

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



Electron density around ZWY C 604:

$2mF_o$-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.