wwPDB EM Validation Summary Report

May 10, 2022 – 01:32 pm BST

PDB ID	:	7QHO
EMDB ID	:	EMD-13977
Title	:	Cytochrome bcc-aa3 supercomplex (respiratory supercomplex III2/IV2) from Corynebacterium glutamicum (as isolated)
Authors	:	Kao, W.-C.; Hunte, C.
Deposited on	:	2021-12-13
Resolution	:	3.10 Å(reported)

This is a wwPDB EM 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/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

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

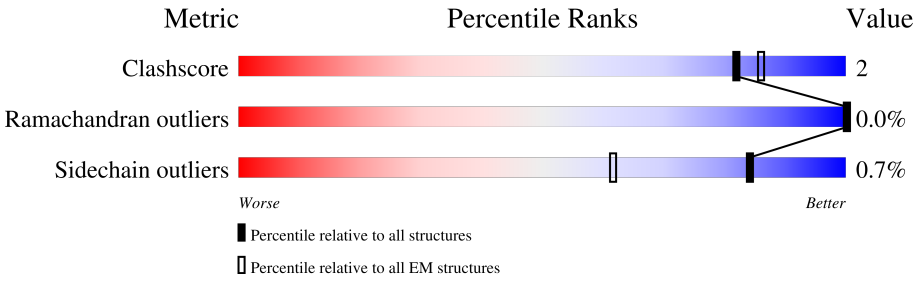
EMDB validation analysis	:	0.0.1.dev8
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.28.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.10 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.



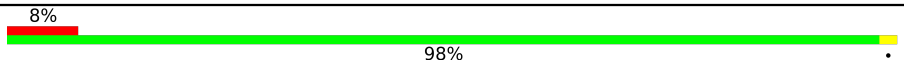
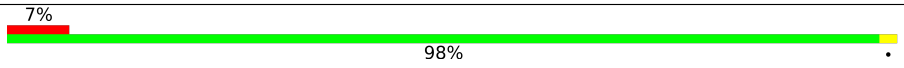
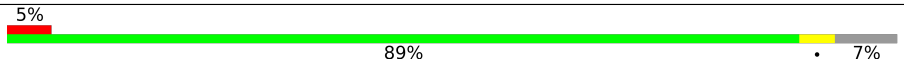
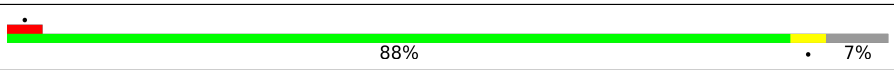
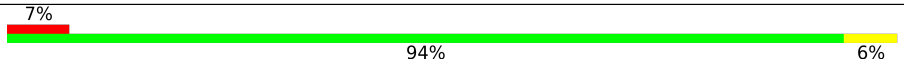
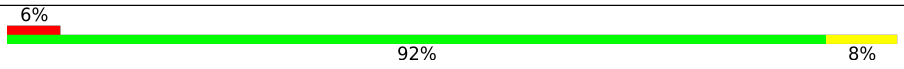
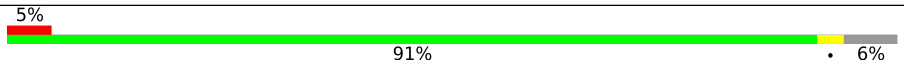
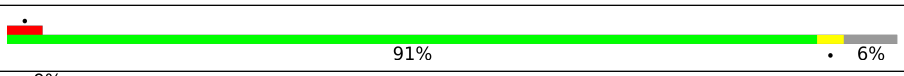
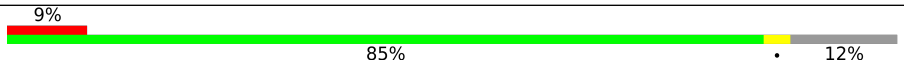
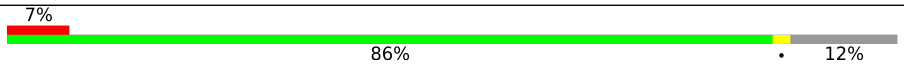
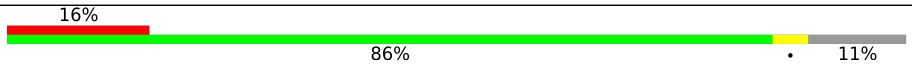
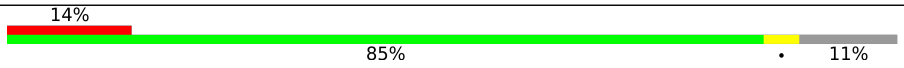
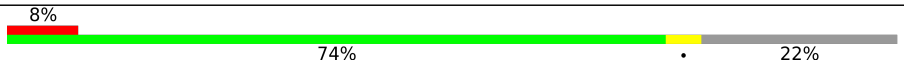
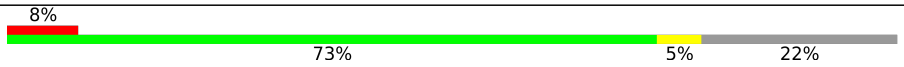
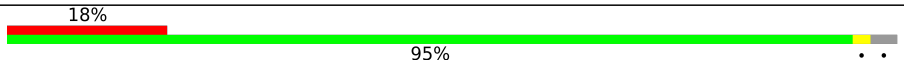
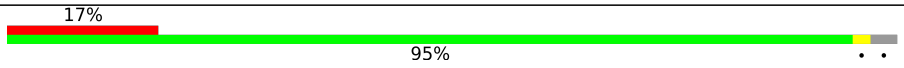
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	408	92% 7%
1	N	408	91% 7%
2	B	539	92% 7%
2	O	539	91% 8%
3	C	283	78% 18%
3	P	283	78% 18%
4	D	594	91% 6%
4	Q	594	90% 6%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
5	E	331	
5	R	331	
6	F	205	
6	S	205	
7	G	143	
7	T	143	
8	H	163	
8	U	163	
9	I	147	
9	V	147	
10	J	112	
10	W	112	
11	K	73	
11	X	73	
12	L	65	
12	Y	65	
13	M	168	
13	Z	168	

2 Entry composition (i)

There are 33 unique types of molecules in this entry. The entry contains 95954 atoms, of which 47460 are hydrogens and 0 are deuteriums.

In the tables below, 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 bc1 complex Rieske iron-sulfur subunit.

Mol	Chain	Residues	Atoms						AltConf	Trace
1	A	402	Total	C	H	N	O	S	0	0
			6206	1998	3070	536	586	16		
1	N	402	Total	C	H	N	O	S	0	0
			6206	1998	3070	536	586	16		

- Molecule 2 is a protein called Cytochrome bc1 complex cytochrome b subunit.

Mol	Chain	Residues	Atoms						AltConf	Trace
2	B	534	Total	C	H	N	O	S	5	0
			8491	2775	4268	707	719	22		
2	O	534	Total	C	H	N	O	S	5	0
			8491	2775	4268	707	719	22		

- Molecule 3 is a protein called Cytochrome bc1 complex cytochrome c subunit.

Mol	Chain	Residues	Atoms						AltConf	Trace
3	C	233	Total	C	H	N	O	S	0	0
			3418	1083	1680	302	343	10		
3	P	233	Total	C	H	N	O	S	0	0
			3418	1083	1680	302	343	10		

- Molecule 4 is a protein called Cytochrome c oxidase subunit 1.

Mol	Chain	Residues	Atoms						AltConf	Trace
4	D	574	Total	C	H	N	O	S	0	0
			8994	3023	4458	733	748	32		
4	Q	574	Total	C	H	N	O	S	0	0
			8994	3023	4458	733	748	32		

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	585	ALA	-	expression tag	UNP Q79VD7

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	586	ALA	-	expression tag	UNP Q79VD7
D	587	TRP	-	expression tag	UNP Q79VD7
D	588	SER	-	expression tag	UNP Q79VD7
D	589	HIS	-	expression tag	UNP Q79VD7
D	590	PRO	-	expression tag	UNP Q79VD7
D	591	GLN	-	expression tag	UNP Q79VD7
D	592	PHE	-	expression tag	UNP Q79VD7
D	593	GLU	-	expression tag	UNP Q79VD7
D	594	LYS	-	expression tag	UNP Q79VD7
Q	585	ALA	-	expression tag	UNP Q79VD7
Q	586	ALA	-	expression tag	UNP Q79VD7
Q	587	TRP	-	expression tag	UNP Q79VD7
Q	588	SER	-	expression tag	UNP Q79VD7
Q	589	HIS	-	expression tag	UNP Q79VD7
Q	590	PRO	-	expression tag	UNP Q79VD7
Q	591	GLN	-	expression tag	UNP Q79VD7
Q	592	PHE	-	expression tag	UNP Q79VD7
Q	593	GLU	-	expression tag	UNP Q79VD7
Q	594	LYS	-	expression tag	UNP Q79VD7

- Molecule 5 is a protein called Cytochrome c oxidase subunit 2.

Mol	Chain	Residues	Atoms						AltConf	Trace
5	E	331	Total	C	H	N	O	S	0	0
			5066	1660	2468	429	498	11		
5	R	331	Total	C	H	N	O	S	0	0
			5066	1660	2468	429	498	11		

- Molecule 6 is a protein called Cytochrome c oxidase subunit 3.

Mol	Chain	Residues	Atoms						AltConf	Trace
6	F	190	Total	C	H	N	O	S	0	0
			2981	992	1495	236	251	7		
6	S	190	Total	C	H	N	O	S	0	0
			2981	992	1495	236	251	7		

- Molecule 7 is a protein called Cytochrome c oxidase polypeptide 4.

Mol	Chain	Residues	Atoms						AltConf	Trace
7	G	143	Total	C	H	N	O	S	0	0
			2201	728	1106	167	191	9		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms						AltConf	Trace
7	T	143	Total	C	H	N	O	S	0	0
			2201	728	1106	167	191	9		

- Molecule 8 is a protein called Uncharacterized protein Cgl2664/cg2949.

Mol	Chain	Residues	Atoms						AltConf	Trace
8	H	154	Total	C	H	N	O	S	0	0
			2182	686	1058	185	250	3		
8	U	154	Total	C	H	N	O	S	0	0
			2182	686	1058	185	250	3		

- Molecule 9 is a protein called Uncharacterized membrane protein Cgl2017/cg2211.

Mol	Chain	Residues	Atoms						AltConf	Trace
9	I	129	Total	C	H	N	O	S	0	0
			2059	664	1031	182	181	1		
9	V	129	Total	C	H	N	O	S	0	0
			2059	664	1031	182	181	1		

- Molecule 10 is a protein called Hypothetical membrane protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
10	J	100	Total	C	H	N	O	S	0	0
			1547	498	780	132	134	3		
10	W	100	Total	C	H	N	O	S	0	0
			1547	498	780	132	134	3		

- Molecule 11 is a protein called Actinobacterial supercomplex, subunit C (AscC).

Mol	Chain	Residues	Atoms					AltConf	Trace
11	K	57	Total	C	H	N	O	0	0
			864	286	413	78	87		
11	X	57	Total	C	H	N	O	0	0
			864	286	413	78	87		

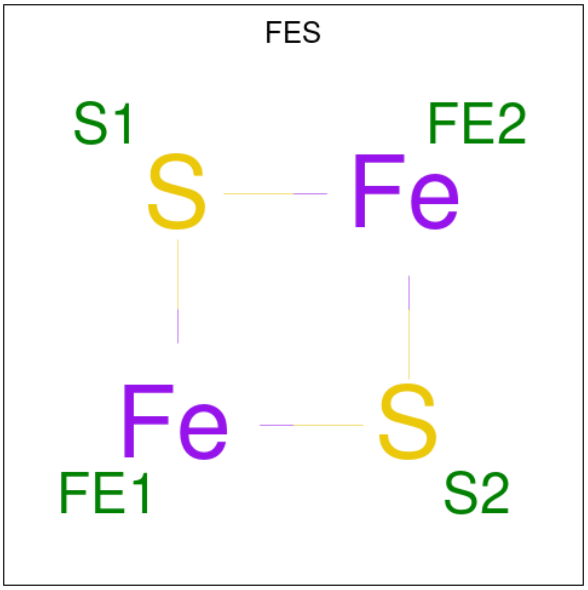
- Molecule 12 is a protein called Hypothetical membrane protein.

Mol	Chain	Residues	Atoms						AltConf	Trace
12	L	63	Total	C	H	N	O	S	0	0
			915	294	470	70	78	3		
12	Y	63	Total	C	H	N	O	S	0	0
			915	294	470	70	78	3		

- Molecule 13 is a protein called Thiamine biosynthesis protein X.

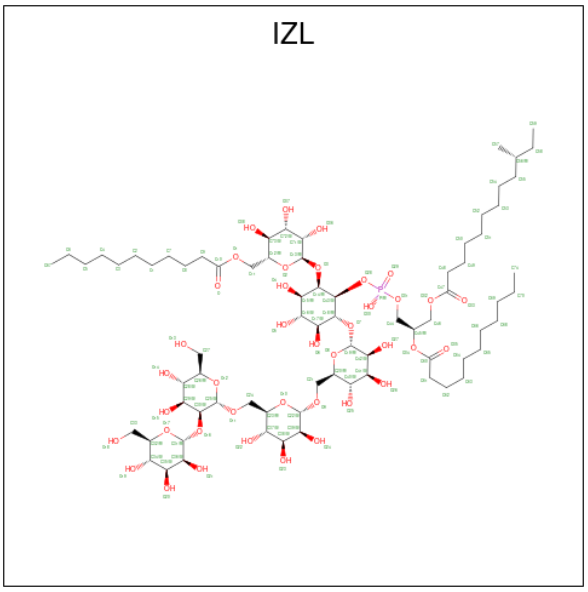
Mol	Chain	Residues	Atoms						AltConf	Trace
13	M	25	Total	C	H	N	O	S	0	0
			372	114	179	36	42	1		
13	Z	25	Total	C	H	N	O	S	0	0
			372	114	179	36	42	1		

- Molecule 14 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2) (labeled as "Ligand of Interest" by depositor).



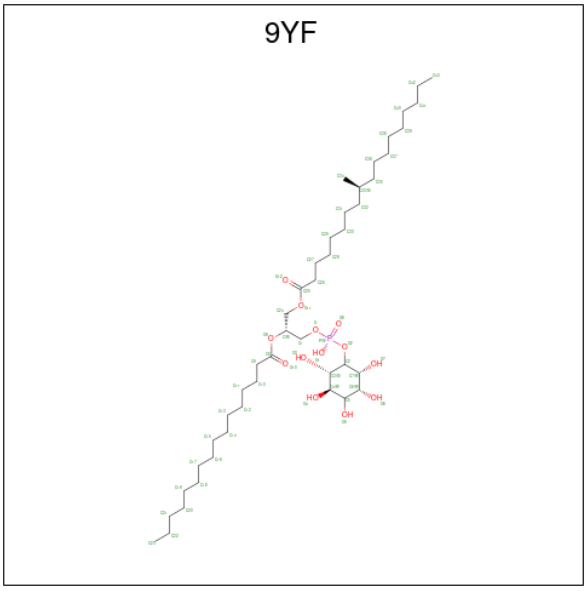
Mol	Chain	Residues	Atoms				AltConf
14	A	1	Total	Fe	S		0
			4	2	2		
14	N	1	Total	Fe	S		0
			4	2	2		

- Molecule 15 is [(2 {R})-3-[[(1 {S},2 {R},3 {S},4 {S},5 {R},6 {R})-2-[(2 {R},3 {S},4 {S},5 {S},6 {R})-6-[[(2 {S},3 {S},4 {S},5 {S},6 {R})-6-[[(2 {S},3 {S},4 {S},5 {S},6 {R})-6-(hydroxymethyl)-3-[(2 {R},3 {S},4 {S},5 {S},6 {R})-6-(hydroxymethyl)-3,4,5-tris(oxidanyl)oxan-2-yl]oxy-4,5-bis(oxidanyl)oxan-2-yl]oxymethyl]-3,4,5-tris(oxidanyl)oxan-2-yl]oxymethyl]-3,4,5-tris(oxidanyl)oxan-2-yl]oxy-3,4,5-tris(oxidanyl)-6-[(2 {R},3 {S},4 {S},5 {S},6 {R})-3,4,5-tris(oxidanyl)-6-(undecanoyloxymethyl)oxan-2-yl]oxy-cyclohexyl]oxy-oxidanyl-phosphoryl]oxy-2-undecanoyloxy-propyl] (10 {R})-10-methyldodecanoate (three-letter code: IZL) (formula: $C_{74}H_{133}O_{39}P$) (labeled as "Ligand of Interest" by depositor).



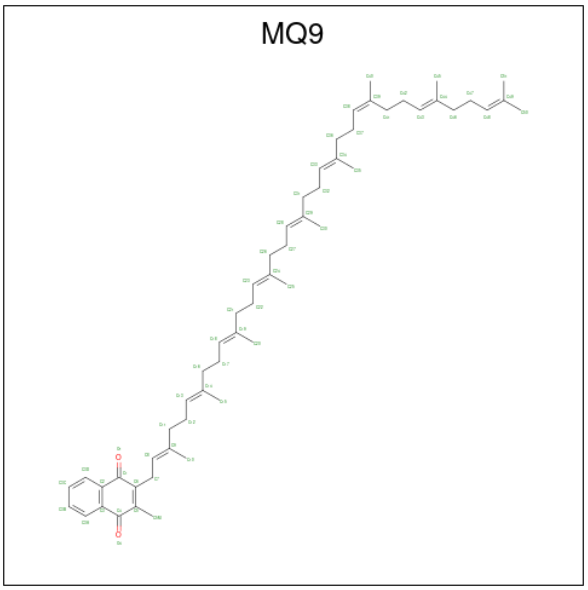
Mol	Chain	Residues	Atoms					AltConf
15	A	1	Total	C	H	O	P	0
			212	63	109	39	1	
15	N	1	Total	C	H	O	P	0
			212	63	109	39	1	

- Molecule 16 is (2R)-2-(hexadecanoyloxy)-3-{[(S)-hydroxy{[(1R,2R,3R,4R,5R,6S)-2,3,4,5,6-pentahydroxycyclohexyl]oxy}phosphoryl]oxy}propyl (9S)-9-methyloctadecanoate (three-letter code: 9YF) (formula: $C_{44}H_{85}O_{13}P$) (labeled as "Ligand of Interest" by depositor).



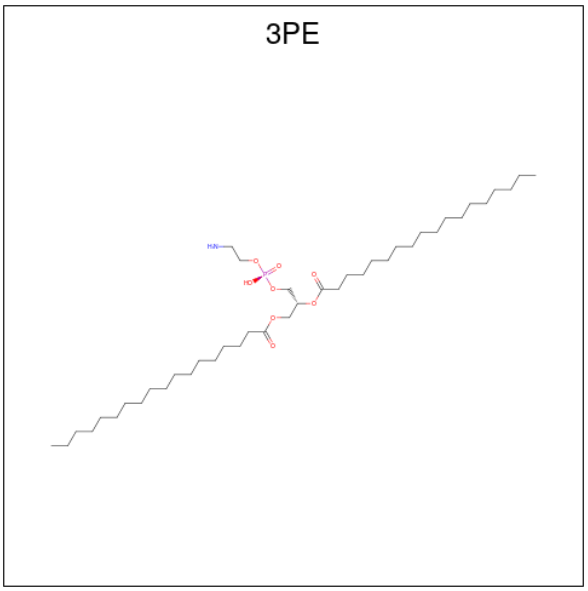
Mol	Chain	Residues	Atoms					AltConf
16	A	1	Total	C	H	O	P	0
			66	22	30	13	1	
16	B	1	Total	C	H	O	P	0
			60	20	26	13	1	
16	N	1	Total	C	H	O	P	0
			66	22	30	13	1	
16	U	1	Total	C	H	O	P	0
			60	20	26	13	1	

- Molecule 17 is MENAQUINONE-9 (three-letter code: MQ9) (formula: $C_{56}H_{80}O_2$) (labeled as "Ligand of Interest" by depositor).



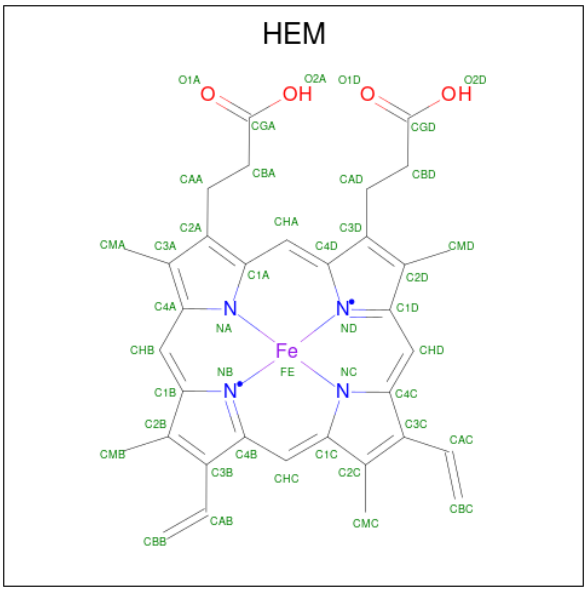
Mol	Chain	Residues	Atoms				AltConf
17	A	1	Total	C	H	O	0
			52	24	26	2	
17	B	1	Total	C	H	O	0
			92	42	46	4	
17	B	1	Total	C	H	O	0
			92	42	46	4	
17	N	1	Total	C	H	O	0
			52	24	26	2	
17	O	1	Total	C	H	O	0
			92	42	46	4	
17	O	1	Total	C	H	O	0
			92	42	46	4	

- Molecule 18 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE) (formula: $C_{41}H_{82}NO_8P$) (labeled as "Ligand of Interest" by depositor).



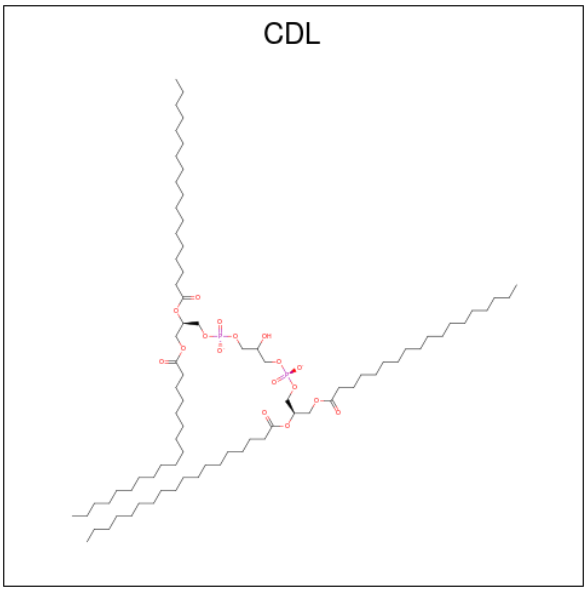
Mol	Chain	Residues	Atoms						AltConf
18	A	1	Total	C	H	N	O	P	0
			66	28	28	1	8	1	
18	D	1	Total	C	H	N	O	P	0
			57	21	26	1	8	1	
18	E	1	Total	C	H	N	O	P	0
			57	21	26	1	8	1	
18	F	1	Total	C	H	N	O	P	0
			54	22	22	1	8	1	
18	J	1	Total	C	H	N	O	P	0
			111	37	64	1	8	1	
18	N	1	Total	C	H	N	O	P	0
			66	28	28	1	8	1	
18	Q	1	Total	C	H	N	O	P	0
			57	21	26	1	8	1	
18	R	1	Total	C	H	N	O	P	0
			57	21	26	1	8	1	
18	S	1	Total	C	H	N	O	P	0
			54	22	22	1	8	1	
18	W	1	Total	C	H	N	O	P	0
			111	37	64	1	8	1	

- Molecule 19 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$) (labeled as "Ligand of Interest" by depositor).



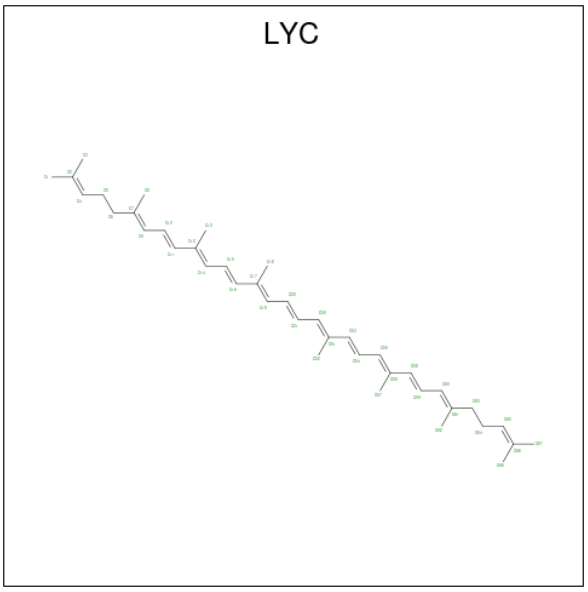
Mol	Chain	Residues	Atoms						AltConf
19	B	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	
19	B	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	
19	O	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	
19	O	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	

- Molecule 20 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$) (labeled as "Ligand of Interest" by depositor).



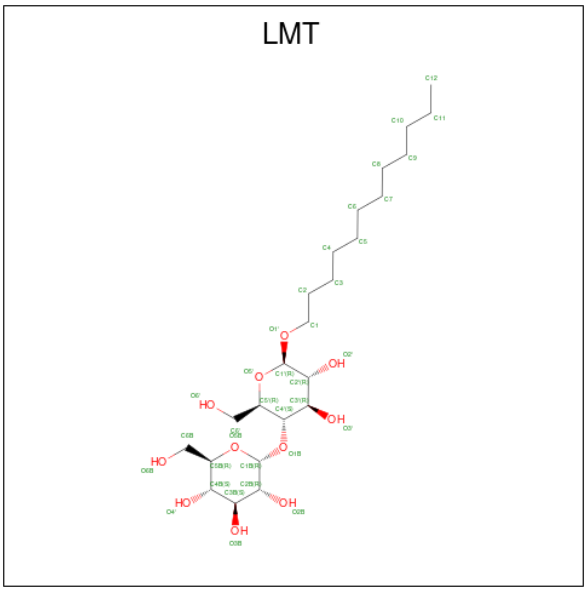
Mol	Chain	Residues	Atoms					AltConf
20	B	1	Total	C	H	O	P	0
			72	26	27	17	2	
20	C	1	Total	C	H	O	P	0
			113	46	48	17	2	
20	D	1	Total	C	H	O	P	0
			289	102	149	34	4	
20	D	1	Total	C	H	O	P	0
			289	102	149	34	4	
20	F	1	Total	C	H	O	P	0
			94	38	37	17	2	
20	G	1	Total	C	H	O	P	0
			104	43	42	17	2	
20	I	1	Total	C	H	O	P	0
			107	38	50	17	2	
20	O	1	Total	C	H	O	P	0
			72	26	27	17	2	
20	P	1	Total	C	H	O	P	0
			113	46	48	17	2	
20	Q	1	Total	C	H	O	P	0
			289	102	149	34	4	
20	Q	1	Total	C	H	O	P	0
			289	102	149	34	4	
20	S	1	Total	C	H	O	P	0
			198	81	79	34	4	
20	S	1	Total	C	H	O	P	0
			198	81	79	34	4	
20	V	1	Total	C	H	O	P	0
			107	38	50	17	2	

- Molecule 21 is LYCOPENE (three-letter code: LYC) (formula: $C_{40}H_{56}$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
21	B	1	Total 96	C 40	H 56	0
21	O	1	Total 96	C 40	H 56	0

- Molecule 22 is DODECYL-BETA-D-MALTOSIDE (three-letter code: LMT) (formula: $C_{24}H_{46}O_{11}$).



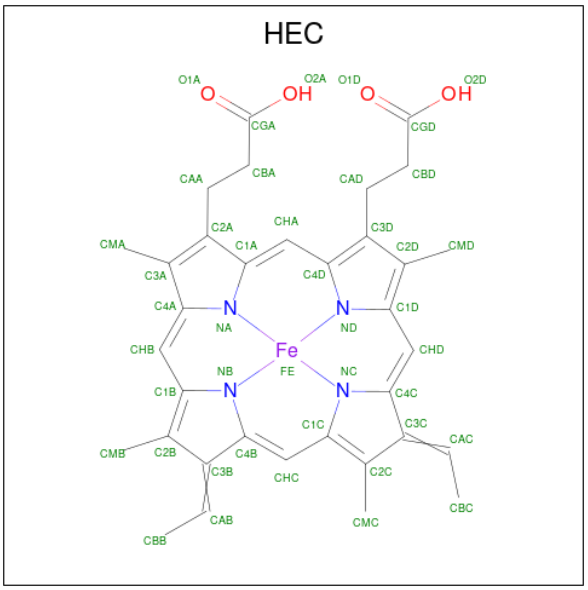
Mol	Chain	Residues	Atoms				AltConf
22	B	1	Total 71	C 21	H 39	O 11	0

Continued on next page...

Continued from previous page...

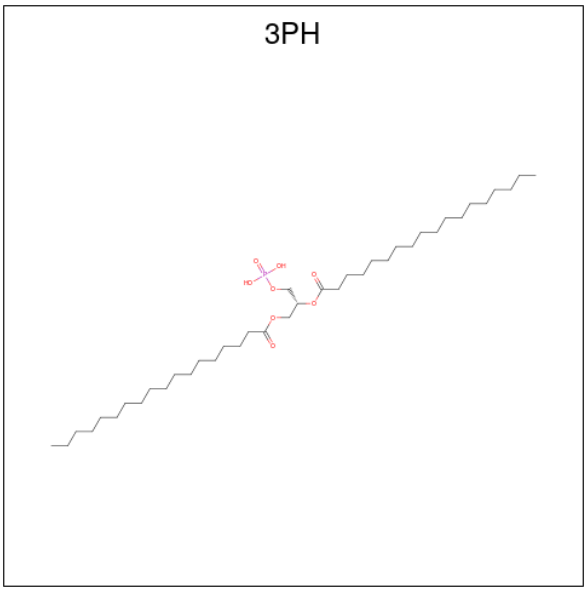
Mol	Chain	Residues	Atoms				AltConf
22	O	1	Total	C	H	O	0
			71	21	39	11	

- Molecule 23 is HEME C (three-letter code: HEC) (formula: $C_{34}H_{34}FeN_4O_4$) (labeled as "Ligand of Interest" by depositor).



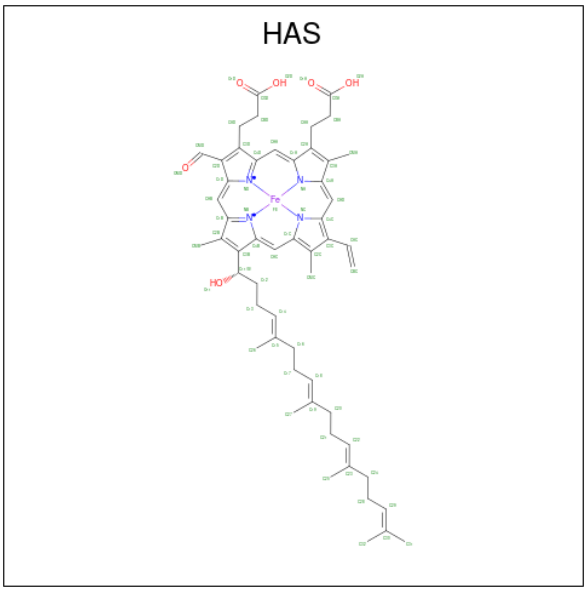
Mol	Chain	Residues	Atoms						AltConf
23	C	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	
23	C	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	
23	P	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	
23	P	1	Total	C	Fe	H	N	O	0
			146	68	2	60	8	8	

- Molecule 24 is 1,2-DIACYL-GLYCEROL-3-SN-PHOSPHATE (three-letter code: 3PH) (formula: $C_{39}H_{77}O_8P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
24	C	1	Total	C	H	O	P	0
			90	29	52	8	1	
24	T	1	Total	C	H	O	P	0
			90	29	52	8	1	

- Molecule 25 is HEME-AS (three-letter code: HAS) (formula: $C_{54}H_{64}FeN_4O_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						AltConf
25	D	1	Total	C	Fe	H	N	O	0
			254	108	2	124	8	12	

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms						AltConf
25	D	1	Total	C	Fe	H	N	O	0
			254	108	2	124	8	12	
25	Q	1	Total	C	Fe	H	N	O	0
			254	108	2	124	8	12	
25	Q	1	Total	C	Fe	H	N	O	0
			254	108	2	124	8	12	

- Molecule 26 is COPPER (II) ION (three-letter code: CU) (formula: Cu) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
26	D	1	Total	Cu	0
			1	1	
26	Q	1	Total	Cu	0
			1	1	

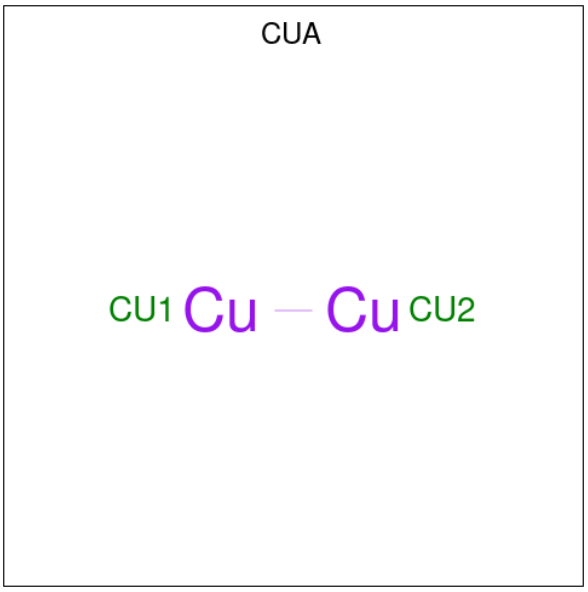
- Molecule 27 is CALCIUM ION (three-letter code: CA) (formula: Ca) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
27	D	1	Total	Ca	0
			1	1	
27	Q	1	Total	Ca	0
			1	1	

- Molecule 28 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn) (labeled as "Ligand of Interest" by depositor).

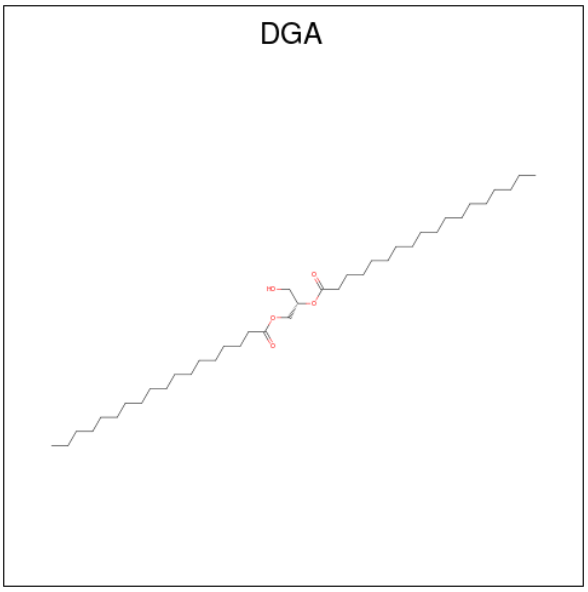
Mol	Chain	Residues	Atoms		AltConf
28	E	1	Total	Mn	0
			1	1	
28	R	1	Total	Mn	0
			1	1	

- Molecule 29 is DINUCLEAR COPPER ION (three-letter code: CUA) (formula: Cu_2) (labeled as "Ligand of Interest" by depositor).



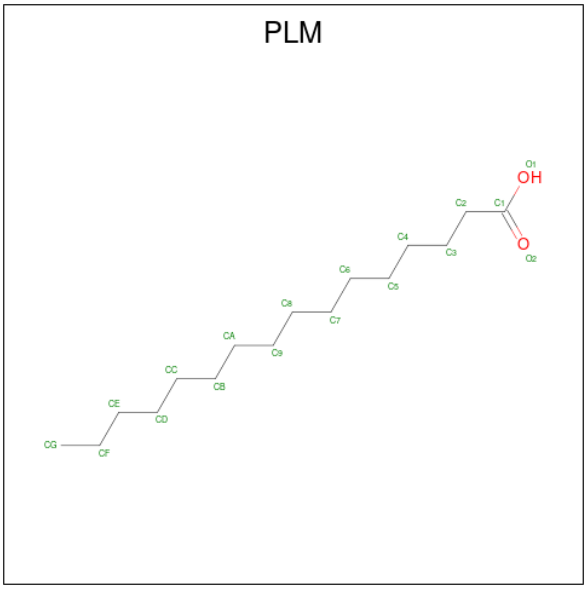
Mol	Chain	Residues	Atoms	AltConf
29	E	1	Total Cu 2 2	0
29	E	1	Total Cu 2 2	0
29	R	1	Total Cu 2 2	0
29	R	1	Total Cu 2 2	0

- Molecule 30 is DIACYL GLYCEROL (three-letter code: DGA) (formula: $C_{39}H_{76}O_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
30	E	1	Total C O 20 16 4	0
30	H	1	Total C O 17 13 4	0
30	M	1	Total C O 22 18 4	0
30	R	1	Total C O 20 16 4	0
30	U	1	Total C O 17 13 4	0
30	Z	1	Total C O 22 18 4	0

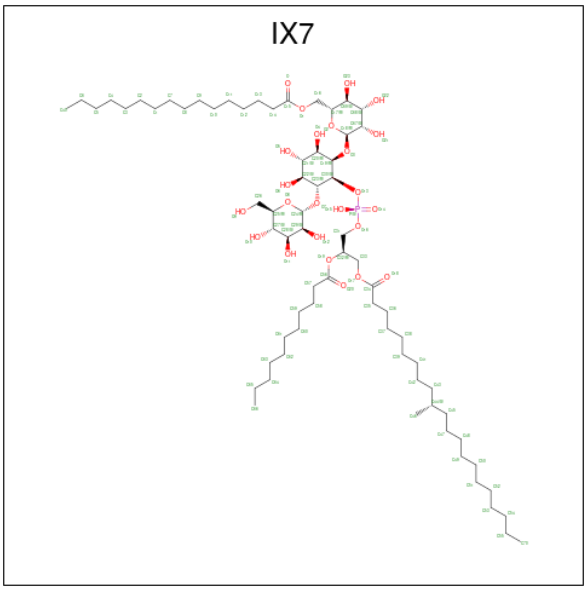
- Molecule 31 is PALMITIC ACID (three-letter code: PLM) (formula: $C_{16}H_{32}O_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
31	H	1	Total C H O 35 14 20 1	0
31	M	1	Total C H O 9 4 4 1	0
31	U	1	Total C H O 35 14 20 1	0
31	Z	1	Total C H O 9 4 4 1	0

- Molecule 32 is [(2 {R})-3-[[(1 {S},2 {R},3 {R},4 {S},5 {S},6 {R})-2-[(2 {R},3 {S},4 {S},5 {S},6 {R})-6-(hexadecanoyloxymethyl)-3,4,5-tris(oxidanyl)oxan-2-yl]oxy-6-[(2 {R},3 {S},4 {

S},5 {S},6 {R})-6-(hydroxymethyl)-3,4,5-tris(oxidanyl)oxan-2-yl]oxy-3,4,5-tris(oxidanyl)cyclohexyl]oxy-oxidanyl-phosphoryl]oxy-2-undecanoyloxy-propyl] (10 {S})-10-methylhenicosanoate (three-letter code: IX7) (formula: $C_{70}H_{131}O_{24}P$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
32	I	1	Total	C	H	O	P	0
			155	47	83	24	1	
32	R	1	Total	C	H	O	P	0
			155	47	83	24	1	

- Molecule 33 is water.

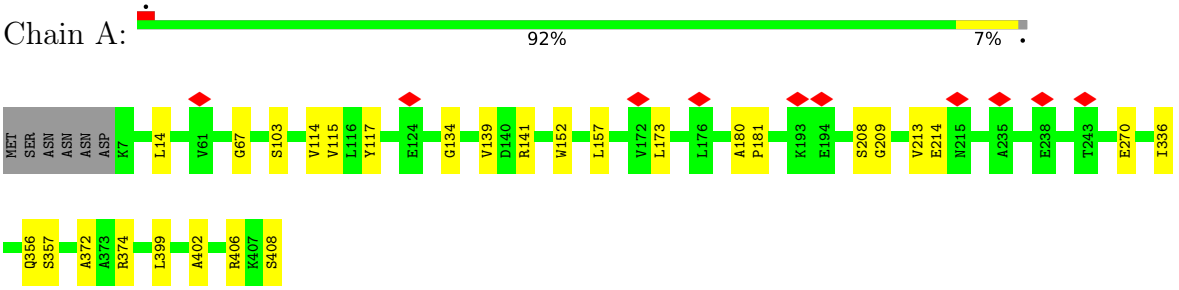
Mol	Chain	Residues	Atoms		AltConf
33	B	2	Total	O	0
			2	2	
33	D	2	Total	O	0
			2	2	
33	E	1	Total	O	0
			1	1	
33	O	2	Total	O	0
			2	2	
33	Q	2	Total	O	0
			2	2	
33	R	1	Total	O	0
			1	1	

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

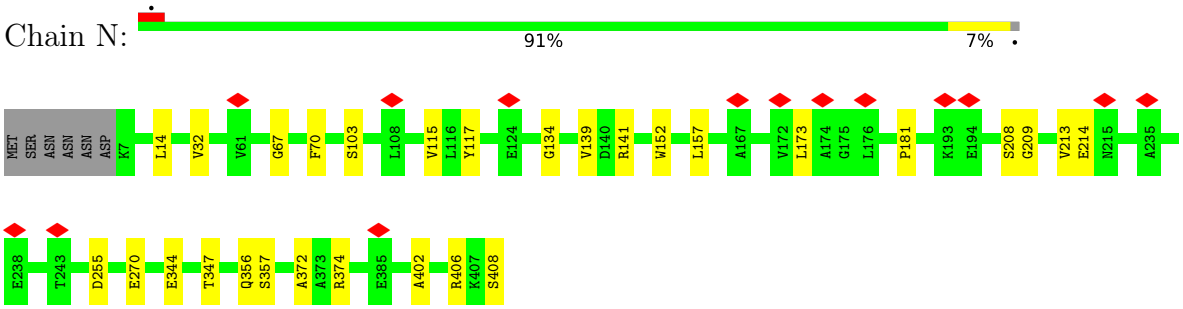
• Molecule 1: Cytochrome bc1 complex Rieske iron-sulfur subunit

Chain A:



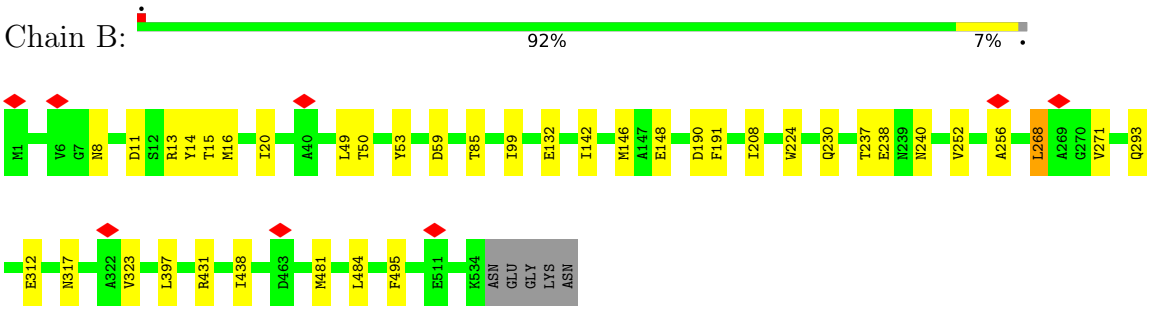
• Molecule 1: Cytochrome bc1 complex Rieske iron-sulfur subunit

Chain N:



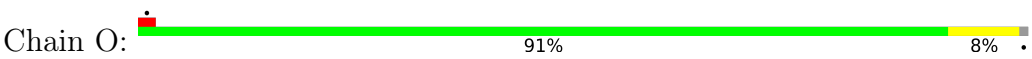
• Molecule 2: Cytochrome bc1 complex cytochrome b subunit

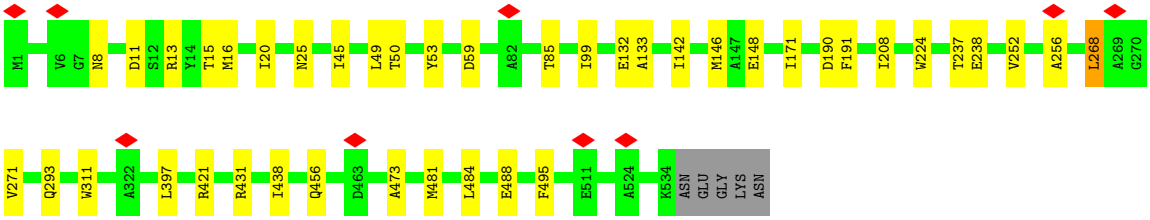
Chain B:



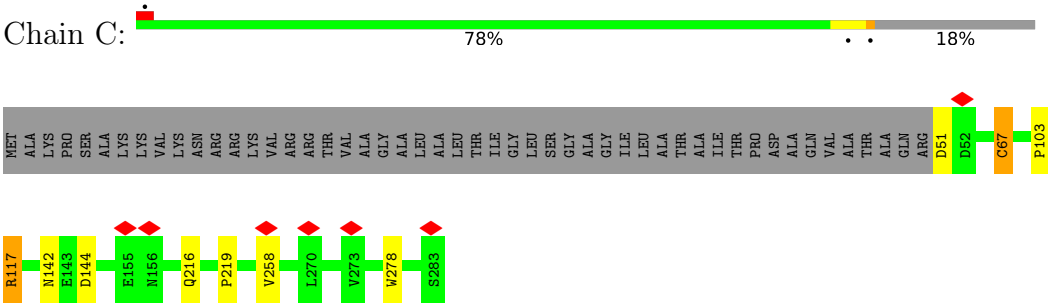
• Molecule 2: Cytochrome bc1 complex cytochrome b subunit

Chain O:

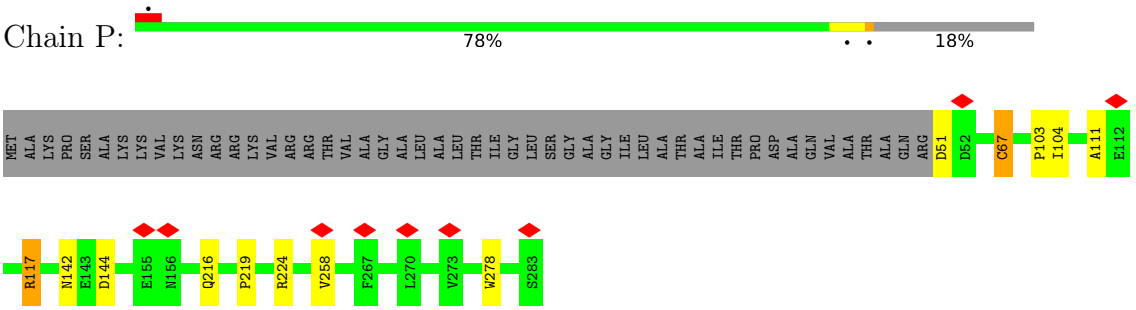




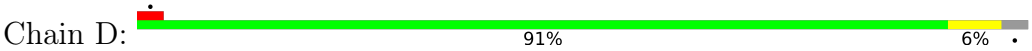
• Molecule 3: Cytochrome bc1 complex cytochrome c subunit

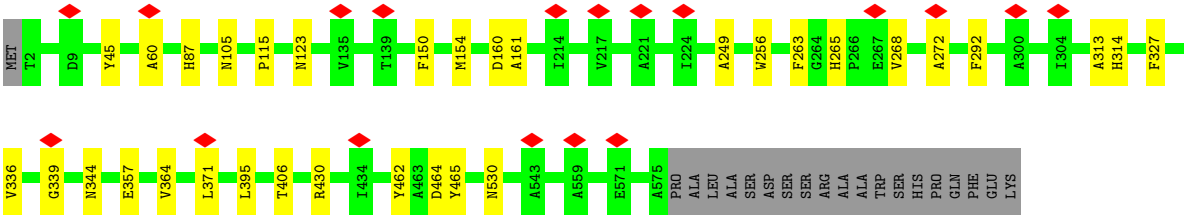


• Molecule 3: Cytochrome bc1 complex cytochrome c subunit

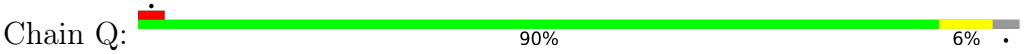


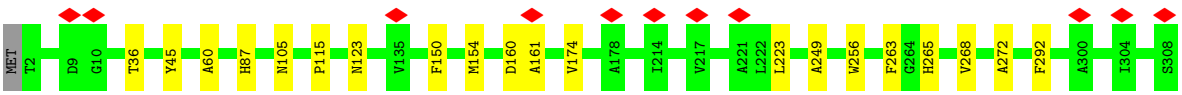
• Molecule 4: Cytochrome c oxidase subunit 1

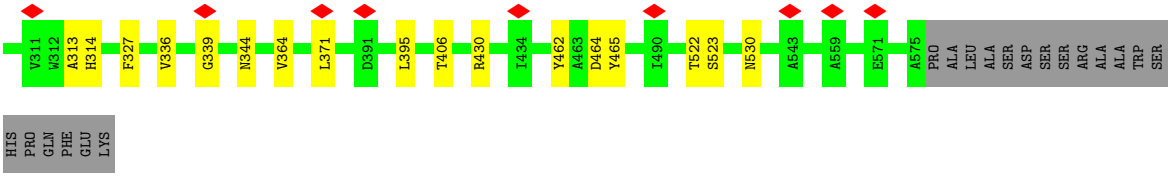




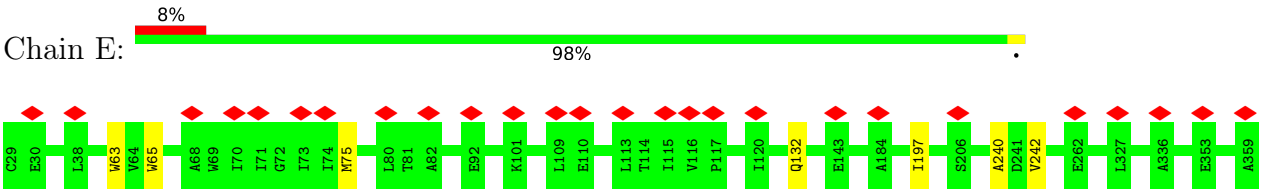
• Molecule 4: Cytochrome c oxidase subunit 1



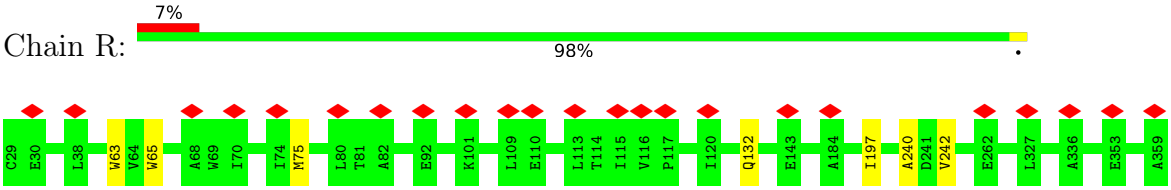




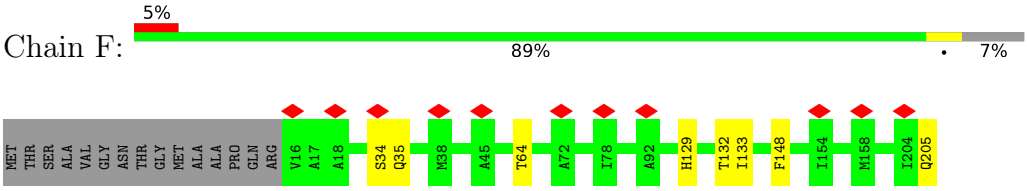
• Molecule 5: Cytochrome c oxidase subunit 2



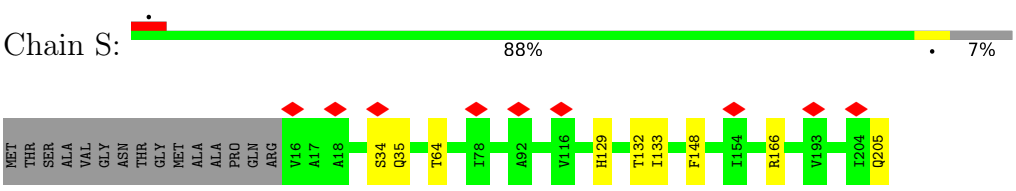
• Molecule 5: Cytochrome c oxidase subunit 2



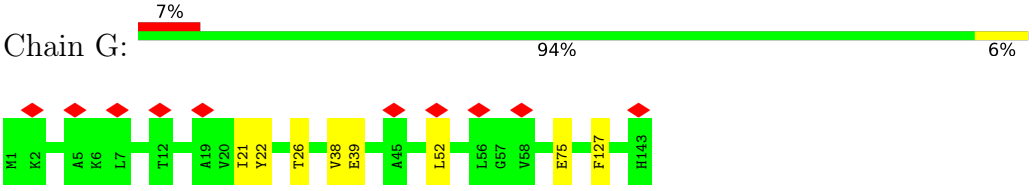
• Molecule 6: Cytochrome c oxidase subunit 3



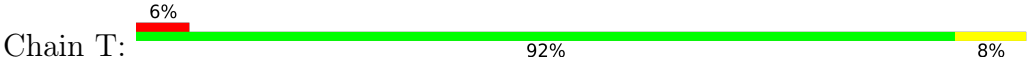
• Molecule 6: Cytochrome c oxidase subunit 3

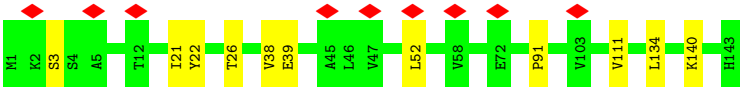


• Molecule 7: Cytochrome c oxidase polypeptide 4

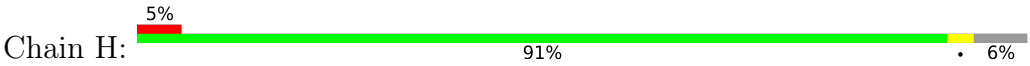


• Molecule 7: Cytochrome c oxidase polypeptide 4

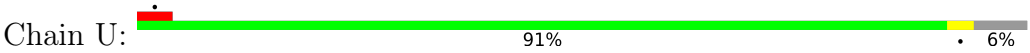


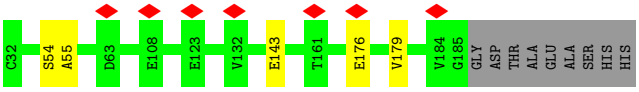


• Molecule 8: Uncharacterized protein Cgl2664/cg2949

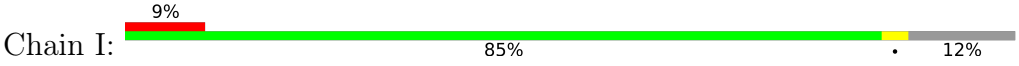


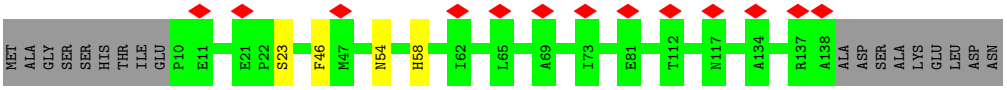
• Molecule 8: Uncharacterized protein Cgl2664/cg2949



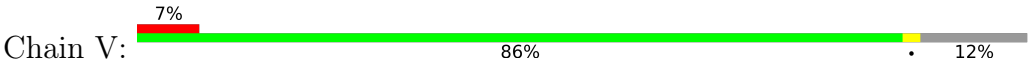


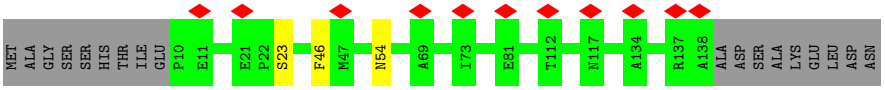
• Molecule 9: Uncharacterized membrane protein Cgl2017/cg2211



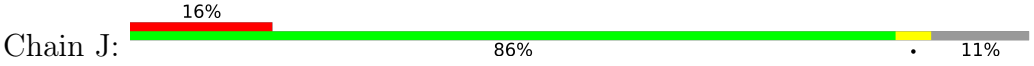


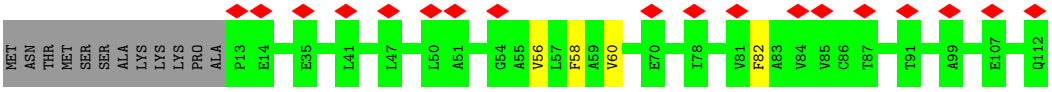
• Molecule 9: Uncharacterized membrane protein Cgl2017/cg2211



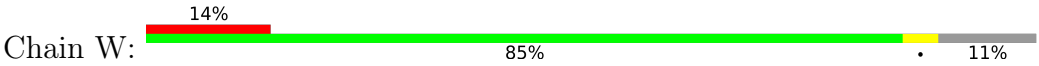


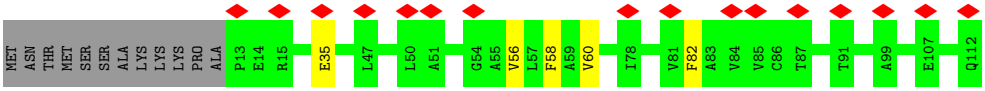
• Molecule 10: Hypothetical membrane protein





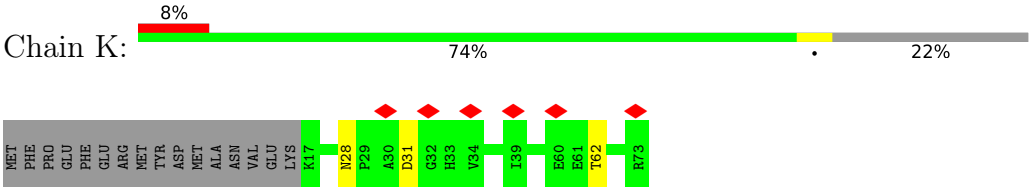
• Molecule 10: Hypothetical membrane protein





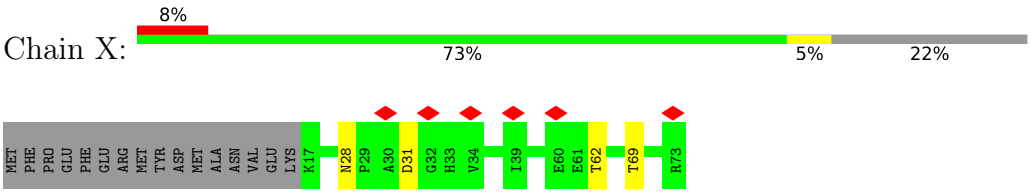
• Molecule 11: Actinobacterial supercomplex, subunit C (AscC)

Chain K:



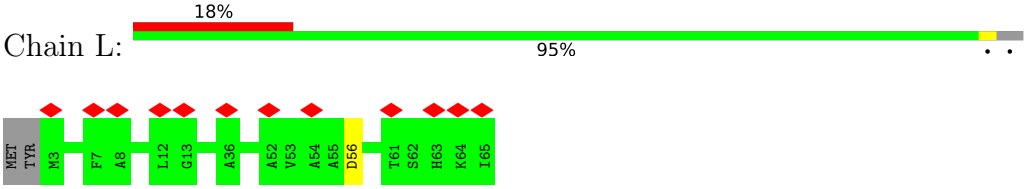
• Molecule 11: Actinobacterial supercomplex, subunit C (AscC)

Chain X:



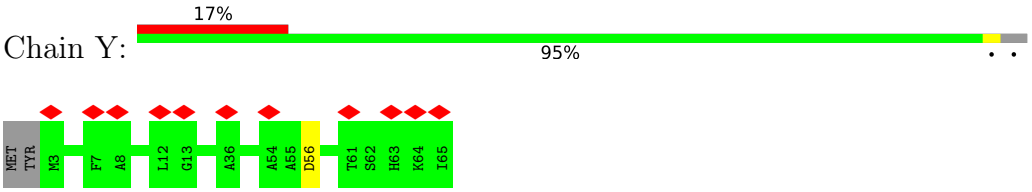
• Molecule 12: Hypothetical membrane protein

Chain L:



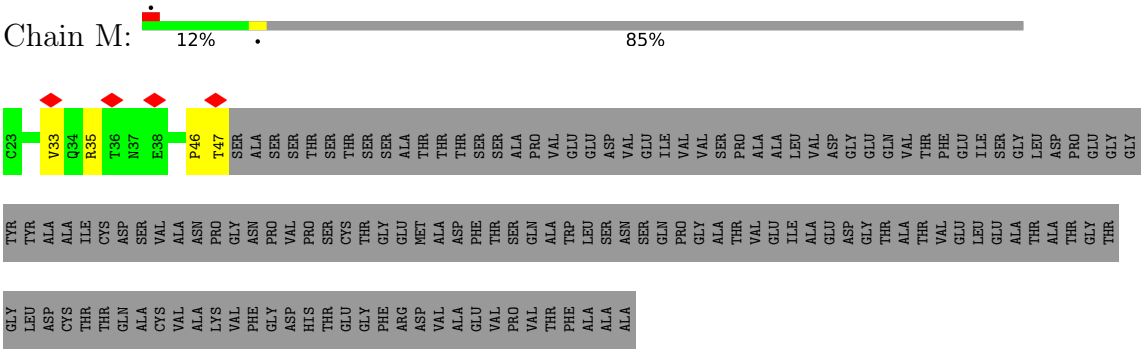
• Molecule 12: Hypothetical membrane protein

Chain Y:



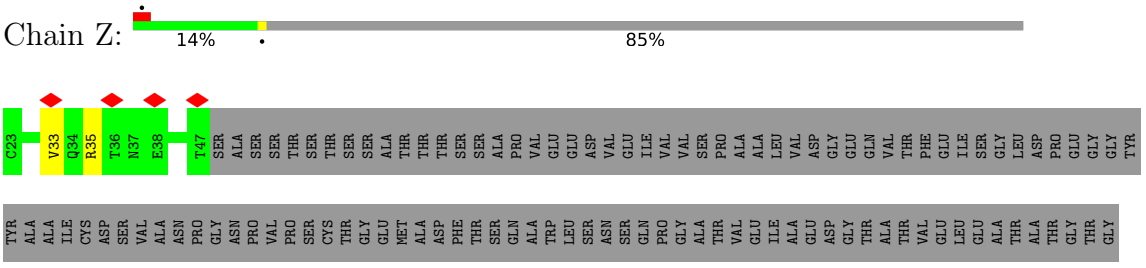
• Molecule 13: Thiamine biosynthesis protein X

Chain M:



• Molecule 13: Thiamine biosynthesis protein X

Chain Z:



LEU
ASP
CYS
THR
THR
GLN
ALA
CYS
VAL
ALA
LYS
VAL
PHE
GLY
ASP
HIS
THR
GLU
GLY
PHE
ARG
ASP
VAL
ALA
GLU
VAL
PRO
VAL
THR
PHE
ALA
ALA
ALA

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	51060	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	49.95	Depositor
Minimum defocus (nm)	1300	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	2.056	Depositor
Minimum map value	-0.798	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.093	Depositor
Recommended contour level	0.09	Depositor
Map size (Å)	232.20001, 249.48001, 162.0	wwPDB
Map dimensions	150, 231, 215	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: 3PH, CDL, IZL, HEC, MN, CU, FES, PLM, HEM, LYC, LMT, CUA, 3PE, CA, DGA, 9YF, HAS, MQ9, IX7

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	0.37	0/3216	0.63	0/4375
1	N	0.37	0/3216	0.63	0/4375
2	B	0.40	0/4361	0.61	0/5944
2	O	0.40	0/4361	0.61	0/5944
3	C	0.29	0/1770	0.58	0/2394
3	P	0.29	0/1770	0.58	0/2394
4	D	0.31	0/4705	0.55	0/6419
4	Q	0.31	0/4705	0.55	0/6419
5	E	0.30	0/2671	0.55	0/3642
5	R	0.30	0/2671	0.55	0/3642
6	F	0.30	0/1528	0.51	0/2081
6	S	0.30	0/1528	0.51	0/2081
7	G	0.31	0/1126	0.50	0/1529
7	T	0.31	0/1126	0.50	0/1529
8	H	0.29	0/1138	0.57	0/1558
8	U	0.29	0/1138	0.57	0/1558
9	I	0.27	0/1057	0.57	0/1444
9	V	0.27	0/1057	0.57	0/1444
10	J	0.27	0/786	0.56	0/1068
10	W	0.27	0/786	0.56	0/1068
11	K	0.32	0/468	0.54	0/640
11	X	0.32	0/468	0.54	0/640
12	L	0.26	0/453	0.49	0/616
12	Y	0.26	0/453	0.49	0/616
13	M	0.27	0/197	0.57	0/271
13	Z	0.28	0/197	0.57	0/271
All	All	0.33	0/46952	0.57	0/63962

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 (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3136	3070	3070	35	0
1	N	3136	3070	3070	30	0
2	B	4223	4268	4252	35	0
2	O	4223	4268	4252	38	0
3	C	1738	1680	1680	11	0
3	P	1738	1680	1680	12	0
4	D	4536	4458	4459	19	0
4	Q	4536	4458	4459	22	0
5	E	2598	2468	2468	5	0
5	R	2598	2468	2468	5	0
6	F	1486	1495	1494	5	0
6	S	1486	1495	1494	6	0
7	G	1095	1106	1106	6	0
7	T	1095	1106	1106	11	0
8	H	1124	1058	1057	3	0
8	U	1124	1058	1057	3	0
9	I	1028	1031	1031	3	0
9	V	1028	1031	1031	2	0
10	J	767	780	780	2	0
10	W	767	780	780	4	0
11	K	451	413	413	3	0
11	X	451	413	413	5	0
12	L	445	470	469	1	0
12	Y	445	470	469	1	0
13	M	193	179	179	2	0
13	Z	193	179	179	1	0
14	A	4	0	0	1	0
14	N	4	0	0	1	0
15	A	103	109	0	4	0
15	N	103	109	0	3	0
16	A	36	30	0	0	0
16	B	34	26	0	0	0
16	N	36	30	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
16	U	34	26	0	0	0
17	A	26	26	26	8	0
17	B	46	46	42	0	0
17	N	26	26	26	6	0
17	O	46	46	42	2	0
18	A	38	28	53	8	0
18	D	31	26	36	1	0
18	E	31	26	36	0	0
18	F	32	22	38	1	0
18	J	47	64	71	1	0
18	N	38	28	53	9	0
18	Q	31	26	36	1	0
18	R	31	26	36	0	0
18	S	32	22	38	1	0
18	W	47	64	71	1	0
19	B	86	60	60	1	0
19	O	86	60	60	1	0
20	B	45	27	34	1	0
20	C	65	48	74	2	0
20	D	140	149	171	0	0
20	F	57	37	58	0	0
20	G	62	42	68	3	0
20	I	57	50	61	0	0
20	O	45	27	34	1	0
20	P	65	48	74	2	0
20	Q	140	149	171	1	0
20	S	119	79	126	2	0
20	V	57	50	61	0	0
21	B	40	56	56	2	0
21	O	40	56	56	2	0
22	B	32	39	37	3	0
22	O	32	39	37	3	0
23	C	86	60	60	7	0
23	P	86	60	60	7	0
24	C	38	52	48	0	0
24	T	38	52	48	0	0
25	D	130	124	124	5	0
25	Q	130	124	124	4	0
26	D	1	0	0	0	0
26	Q	1	0	0	0	0
27	D	1	0	0	0	0
27	Q	1	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
28	E	1	0	0	0	0
28	R	1	0	0	0	0
29	E	2	0	0	0	0
29	R	2	0	0	0	0
30	E	20	0	21	1	0
30	H	17	0	15	0	0
30	M	22	0	25	0	0
30	R	20	0	21	1	0
30	U	17	0	15	0	0
30	Z	22	0	25	1	0
31	H	15	20	20	0	0
31	M	5	4	4	0	0
31	U	15	20	20	0	0
31	Z	5	4	4	0	0
32	I	72	83	0	2	0
32	R	72	83	0	1	0
33	B	2	0	0	0	0
33	D	2	0	0	0	0
33	E	1	0	0	0	0
33	O	2	0	0	0	0
33	Q	2	0	0	0	0
33	R	1	0	0	0	0
All	All	48494	47460	47392	239	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 2.

The worst 5 of 239 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)
17:A:504:MQ9:H5M1	2:O:50:THR:HG23	1.65	0.79
15:N:504:IZL:O30	15:N:504:IZL:O33	2.07	0.72
25:Q:601:HAS:HMC1	25:Q:601:HAS:HBC1	1.72	0.72
15:A:502:IZL:O30	15:A:502:IZL:O33	2.07	0.71
25:D:601:HAS:HMC1	25:D:601:HAS:HBC1	1.72	0.71

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 PDB entries followed by that with respect to all EM entries.

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	400/408 (98%)	376 (94%)	24 (6%)	0	100	100
1	N	400/408 (98%)	376 (94%)	24 (6%)	0	100	100
2	B	537/539 (100%)	525 (98%)	12 (2%)	0	100	100
2	O	537/539 (100%)	524 (98%)	13 (2%)	0	100	100
3	C	231/283 (82%)	219 (95%)	12 (5%)	0	100	100
3	P	231/283 (82%)	219 (95%)	12 (5%)	0	100	100
4	D	572/594 (96%)	556 (97%)	16 (3%)	0	100	100
4	Q	572/594 (96%)	556 (97%)	16 (3%)	0	100	100
5	E	329/331 (99%)	311 (94%)	17 (5%)	1 (0%)	41	73
5	R	329/331 (99%)	311 (94%)	17 (5%)	1 (0%)	41	73
6	F	188/205 (92%)	187 (100%)	1 (0%)	0	100	100
6	S	188/205 (92%)	187 (100%)	1 (0%)	0	100	100
7	G	141/143 (99%)	138 (98%)	3 (2%)	0	100	100
7	T	141/143 (99%)	138 (98%)	3 (2%)	0	100	100
8	H	152/163 (93%)	148 (97%)	4 (3%)	0	100	100
8	U	152/163 (93%)	148 (97%)	4 (3%)	0	100	100
9	I	127/147 (86%)	120 (94%)	7 (6%)	0	100	100
9	V	127/147 (86%)	120 (94%)	7 (6%)	0	100	100
10	J	98/112 (88%)	96 (98%)	2 (2%)	0	100	100
10	W	98/112 (88%)	96 (98%)	2 (2%)	0	100	100
11	K	55/73 (75%)	54 (98%)	1 (2%)	0	100	100
11	X	55/73 (75%)	54 (98%)	1 (2%)	0	100	100
12	L	61/65 (94%)	59 (97%)	2 (3%)	0	100	100
12	Y	61/65 (94%)	59 (97%)	2 (3%)	0	100	100
13	M	23/168 (14%)	23 (100%)	0	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
13	Z	23/168 (14%)	23 (100%)	0	0	100	100
All	All	5828/6462 (90%)	5623 (96%)	203 (4%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	E	242	VAL
5	R	242	VAL

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 PDB entries followed by that with respect to all EM entries.

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	326/332 (98%)	325 (100%)	1 (0%)	92	96
1	N	326/332 (98%)	325 (100%)	1 (0%)	92	96
2	B	442/441 (100%)	437 (99%)	5 (1%)	73	89
2	O	442/441 (100%)	437 (99%)	5 (1%)	73	89
3	C	177/212 (84%)	175 (99%)	2 (1%)	73	89
3	P	177/212 (84%)	175 (99%)	2 (1%)	73	89
4	D	472/488 (97%)	467 (99%)	5 (1%)	73	89
4	Q	472/488 (97%)	467 (99%)	5 (1%)	73	89
5	E	274/274 (100%)	272 (99%)	2 (1%)	84	93
5	R	274/274 (100%)	272 (99%)	2 (1%)	84	93
6	F	156/166 (94%)	155 (99%)	1 (1%)	86	94
6	S	156/166 (94%)	155 (99%)	1 (1%)	86	94
7	G	114/114 (100%)	114 (100%)	0	100	100
7	T	114/114 (100%)	114 (100%)	0	100	100
8	H	127/133 (96%)	127 (100%)	0	100	100
8	U	127/133 (96%)	127 (100%)	0	100	100
9	I	111/125 (89%)	110 (99%)	1 (1%)	78	91

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
9	V	111/125 (89%)	110 (99%)	1 (1%)	78 91
10	J	80/90 (89%)	79 (99%)	1 (1%)	69 87
10	W	80/90 (89%)	79 (99%)	1 (1%)	69 87
11	K	48/63 (76%)	48 (100%)	0	100 100
11	X	48/63 (76%)	48 (100%)	0	100 100
12	L	43/45 (96%)	43 (100%)	0	100 100
12	Y	43/45 (96%)	43 (100%)	0	100 100
13	M	25/135 (18%)	25 (100%)	0	100 100
13	Z	25/135 (18%)	25 (100%)	0	100 100
All	All	4790/5236 (92%)	4754 (99%)	36 (1%)	84 92

5 of 36 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	Q	263	PHE
10	W	58	PHE
4	Q	314	HIS
5	R	132	GLN
4	D	462	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	232	HIS
1	A	287	HIS
1	N	232	HIS
1	N	287	HIS

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)

Of 78 ligands modelled in this entry, 6 are monoatomic and 4 are modelled with single atom - leaving 68 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
30	DGA	H	201	-	16,16,43	0.29	0	18,18,45	0.20	0
20	CDL	F	302	-	56,56,99	0.38	0	62,68,111	0.33	0
25	HAS	Q	601	4	56,72,72	4.11	20 (35%)	50,109,109	3.49	23 (46%)
20	CDL	P	301	-	64,64,99	0.37	0	70,76,111	0.36	0
20	CDL	D	605	-	76,76,99	0.35	0	82,88,111	0.50	1 (1%)
31	PLM	U	202	8	13,13,17	0.25	0	11,11,17	0.18	0
20	CDL	V	201	-	56,56,99	0.38	0	62,68,111	0.34	0
19	HEM	B	603	2	27,50,50	1.26	4 (14%)	17,82,82	1.51	3 (17%)
20	CDL	Q	605	-	76,76,99	0.35	0	82,88,111	0.50	1 (1%)
31	PLM	M	202	13	4,4,17	0.33	0	3,3,17	0.46	0
14	FES	N	503	1	0,4,4	-	-	-		
15	IZL	A	502	-	108,108,119	0.40	0	150,152,163	1.04	11 (7%)
18	3PE	R	405	-	30,30,50	0.38	0	33,35,55	0.35	0
15	IZL	N	504	-	108,108,119	0.40	0	150,152,163	1.04	11 (7%)
23	HEC	C	302	3	26,50,50	1.25	2 (7%)	18,82,82	1.95	6 (33%)
20	CDL	D	606	-	62,62,99	0.38	0	68,74,111	0.36	0
18	3PE	W	201	-	46,46,50	0.32	0	49,51,55	0.31	0
18	3PE	Q	607	-	30,30,50	0.38	0	33,35,55	0.33	0
18	3PE	J	201	-	46,46,50	0.32	0	49,51,55	0.31	0
23	HEC	C	303	3	26,50,50	1.46	2 (7%)	18,82,82	2.08	6 (33%)
18	3PE	S	301	-	31,31,50	0.40	0	34,36,55	0.68	1 (2%)
23	HEC	P	302	3	26,50,50	1.24	2 (7%)	18,82,82	1.95	6 (33%)
16	9YF	A	503	-	36,36,58	0.35	0	46,48,71	0.51	0
20	CDL	Q	606	-	62,62,99	0.38	0	68,74,111	0.36	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
32	IX7	I	202	-	74,74,97	0.30	0	97,99,123	0.83	6 (6%)
17	MQ9	B	601	-	24,24,59	0.44	0	30,33,75	0.61	1 (3%)
24	3PH	T	201	-	36,36,47	0.28	0	39,40,52	0.55	1 (2%)
25	HAS	D	601	4	56,72,72	4.11	20 (35%)	50,109,109	3.49	23 (46%)
25	HAS	D	602	4	56,72,72	4.17	21 (37%)	50,109,109	3.92	24 (48%)
16	9YF	N	505	-	36,36,58	0.35	0	46,48,71	0.51	0
30	DGA	R	404	-	19,19,43	0.27	0	21,21,45	0.26	0
25	HAS	Q	602	4	56,72,72	4.17	21 (37%)	50,109,109	3.92	24 (48%)
31	PLM	Z	202	13	4,4,17	0.33	0	3,3,17	0.46	0
19	HEM	O	603	2	27,50,50	1.27	4 (14%)	17,82,82	1.44	5 (29%)
20	CDL	C	301	-	64,64,99	0.37	0	70,76,111	0.36	0
21	LYC	B	606	-	39,39,39	0.19	0	44,46,46	0.39	0
20	CDL	I	201	-	56,56,99	0.38	0	62,68,111	0.34	0
20	CDL	B	605	-	44,44,99	0.42	0	50,56,111	0.43	0
16	9YF	B	607	-	34,34,58	0.38	0	44,46,71	0.36	0
22	LMT	B	608	-	33,33,36	0.40	0	44,44,47	0.74	1 (2%)
17	MQ9	O	605	-	24,24,59	0.40	0	30,33,75	0.66	1 (3%)
21	LYC	O	607	-	39,39,39	0.20	0	44,46,46	0.39	0
16	9YF	U	203	-	34,34,58	0.38	0	44,46,71	0.37	0
31	PLM	H	202	8	13,13,17	0.25	0	11,11,17	0.18	0
30	DGA	M	201	-	21,21,43	0.27	0	23,23,45	0.23	0
30	DGA	U	201	-	16,16,43	0.29	0	18,18,45	0.20	0
22	LMT	O	601	-	33,33,36	0.40	0	44,44,47	0.74	1 (2%)
24	3PH	C	304	-	36,36,47	0.28	0	39,40,52	0.55	1 (2%)
20	CDL	G	201	-	61,61,99	0.38	0	67,73,111	0.39	0
17	MQ9	B	604	-	24,24,59	0.40	0	30,33,75	0.67	1 (3%)
18	3PE	N	502	-	37,37,50	0.39	0	40,42,55	0.72	1 (2%)
20	CDL	S	303	-	61,61,99	0.38	0	67,73,111	0.39	0
30	DGA	E	404	-	19,19,43	0.27	0	21,21,45	0.26	0
17	MQ9	N	501	-	27,27,59	0.96	1 (3%)	33,36,75	1.72	2 (6%)
17	MQ9	A	504	-	27,27,59	0.96	1 (3%)	33,36,75	1.72	2 (6%)
20	CDL	S	302	-	56,56,99	0.38	0	62,68,111	0.33	0
18	3PE	F	301	-	31,31,50	0.40	0	34,36,55	0.68	1 (2%)
23	HEC	P	303	3	26,50,50	1.46	2 (7%)	18,82,82	2.09	6 (33%)
30	DGA	Z	201	-	21,21,43	0.27	0	23,23,45	0.23	0
17	MQ9	O	602	-	24,24,59	0.44	0	30,33,75	0.61	1 (3%)
32	IX7	R	406	-	74,74,97	0.30	0	97,99,123	0.83	6 (6%)
18	3PE	D	607	-	30,30,50	0.38	0	33,35,55	0.33	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
19	HEM	O	604	2	27,50,50	1.26	4 (14%)	17,82,82	1.51	3 (17%)
18	3PE	A	505	-	37,37,50	0.39	0	40,42,55	0.72	1 (2%)
19	HEM	B	602	2	27,50,50	1.27	4 (14%)	17,82,82	1.44	5 (29%)
20	CDL	O	606	-	44,44,99	0.42	0	50,56,111	0.43	0
14	FES	A	501	1	0,4,4	-	-	-		
18	3PE	E	405	-	30,30,50	0.38	0	33,35,55	0.35	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
30	DGA	H	201	-	-	1/17/17/45	-
20	CDL	F	302	-	-	19/67/67/110	-
25	HAS	Q	601	4	-	7/35/122/122	-
20	CDL	P	301	-	-	16/75/75/110	-
20	CDL	D	605	-	-	27/87/87/110	-
31	PLM	U	202	8	-	0/8/9/15	-
20	CDL	V	201	-	-	19/67/67/110	-
19	HEM	B	603	2	-	0/6/54/54	-
20	CDL	Q	605	-	-	27/87/87/110	-
31	PLM	M	202	13	-	0/1/2/15	-
15	IZL	A	502	-	-	34/73/197/208	0/6/6/6
18	3PE	R	405	-	-	1/34/34/54	-
14	FES	N	503	1	-	-	0/1/1/1
15	IZL	N	504	-	-	34/73/197/208	0/6/6/6
23	HEC	C	302	3	-	0/6/54/54	-
20	CDL	D	606	-	-	21/73/73/110	-
18	3PE	W	201	-	-	8/50/50/54	-
18	3PE	Q	607	-	-	5/34/34/54	-
18	3PE	J	201	-	-	7/50/50/54	-
23	HEC	C	303	3	-	0/6/54/54	-
18	3PE	S	301	-	-	16/35/35/54	-
23	HEC	P	302	3	-	0/6/54/54	-
16	9YF	A	503	-	-	6/31/55/78	0/1/1/1
20	CDL	Q	606	-	-	21/73/73/110	-
32	IX7	I	202	-	-	29/58/122/146	0/3/3/3

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
17	MQ9	B	601	-	-	3/11/31/73	0/2/2/2
24	3PH	T	201	-	-	8/37/37/49	-
25	HAS	D	601	4	-	7/35/122/122	-
25	HAS	D	602	4	-	9/35/122/122	-
16	9YF	N	505	-	-	6/31/55/78	0/1/1/1
30	DGA	R	404	-	-	0/20/20/45	-
25	HAS	Q	602	4	-	9/35/122/122	-
31	PLM	Z	202	13	-	0/1/2/15	-
19	HEM	O	603	2	-	1/6/54/54	-
20	CDL	C	301	-	-	16/75/75/110	-
21	LYC	B	606	-	-	3/43/43/43	-
20	CDL	I	201	-	-	19/67/67/110	-
20	CDL	B	605	-	-	7/54/54/110	-
16	9YF	B	607	-	-	5/29/53/78	0/1/1/1
31	PLM	H	202	8	-	0/8/9/15	-
17	MQ9	O	605	-	-	0/11/31/73	0/2/2/2
21	LYC	O	607	-	-	3/43/43/43	-
16	9YF	U	203	-	-	5/29/53/78	0/1/1/1
14	FES	A	501	1	-	-	0/1/1/1
30	DGA	M	201	-	-	3/22/22/45	-
30	DGA	U	201	-	-	1/17/17/45	-
22	LMT	O	601	-	-	3/18/58/61	0/2/2/2
24	3PH	C	304	-	-	8/37/37/49	-
20	CDL	G	201	-	-	19/72/72/110	-
18	3PE	N	502	-	-	25/41/41/54	-
17	MQ9	B	604	-	-	0/11/31/73	0/2/2/2
20	CDL	S	303	-	-	19/72/72/110	-
30	DGA	E	404	-	-	0/20/20/45	-
17	MQ9	N	501	-	-	6/15/35/73	0/2/2/2
17	MQ9	A	504	-	-	6/15/35/73	0/2/2/2
20	CDL	S	302	-	-	19/67/67/110	-
18	3PE	F	301	-	-	16/35/35/54	-
23	HEC	P	303	3	-	0/6/54/54	-
30	DGA	Z	201	-	-	3/22/22/45	-
17	MQ9	O	602	-	-	3/11/31/73	0/2/2/2
32	IX7	R	406	-	-	29/58/122/146	0/3/3/3

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	3PE	D	607	-	-	5/34/34/54	-
19	HEM	O	604	2	-	0/6/54/54	-
18	3PE	A	505	-	-	25/41/41/54	-
19	HEM	B	602	2	-	1/6/54/54	-
20	CDL	O	606	-	-	7/54/54/110	-
22	LMT	B	608	-	-	3/18/58/61	0/2/2/2
18	3PE	E	405	-	-	1/34/34/54	-

The worst 5 of 108 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	D	602	HAS	CHD-C4A	-12.38	1.38	1.51
25	Q	602	HAS	CHD-C4A	-12.36	1.38	1.51
25	Q	601	HAS	CHD-C4A	-12.30	1.38	1.51
25	D	601	HAS	CHD-C4A	-12.20	1.38	1.51
25	D	602	HAS	CHD-C4C	-12.05	1.38	1.51

The worst 5 of 186 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
25	D	601	HAS	CHB-C1B-NB	12.54	126.54	110.94
25	Q	601	HAS	CHB-C1B-NB	12.54	126.53	110.94
25	D	602	HAS	CAA-C2A-C1A	-12.20	118.72	127.30
25	Q	602	HAS	CAA-C2A-C1A	-12.20	118.73	127.30
25	Q	602	HAS	CHB-C1B-NB	11.92	125.76	110.94

There are no chirality outliers.

5 of 601 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
15	A	502	IZL	O34-C45-C46-O32
15	A	502	IZL	C61-C60-O34-C45
15	A	502	IZL	O35-C60-O34-C45
15	A	502	IZL	C44-O31-P-O28
15	N	504	IZL	O34-C45-C46-O32

There are no ring outliers.

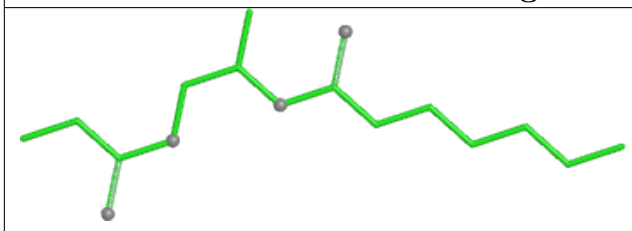
41 monomers are involved in 99 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
25	Q	601	HAS	1	0
20	P	301	CDL	2	0
19	B	603	HEM	1	0
14	N	503	FES	1	0
15	A	502	IZL	4	0
15	N	504	IZL	3	0
23	C	302	HEC	5	0
18	W	201	3PE	1	0
18	Q	607	3PE	1	0
18	J	201	3PE	1	0
23	C	303	HEC	2	0
18	S	301	3PE	1	0
23	P	302	HEC	5	0
20	Q	606	CDL	1	0
32	I	202	IX7	2	0
25	D	601	HAS	1	0
25	D	602	HAS	4	0
30	R	404	DGA	1	0
25	Q	602	HAS	3	0
20	C	301	CDL	2	0
21	B	606	LYC	2	0
20	B	605	CDL	1	0
22	B	608	LMT	3	0
21	O	607	LYC	2	0
22	O	601	LMT	3	0
20	G	201	CDL	3	0
18	N	502	3PE	9	0
20	S	303	CDL	2	0
30	E	404	DGA	1	0
17	N	501	MQ9	6	0
17	A	504	MQ9	8	0
18	F	301	3PE	1	0
23	P	303	HEC	2	0
30	Z	201	DGA	1	0
17	O	602	MQ9	2	0
32	R	406	IX7	1	0
18	D	607	3PE	1	0
19	O	604	HEM	1	0
18	A	505	3PE	8	0
20	O	606	CDL	1	0
14	A	501	FES	1	0

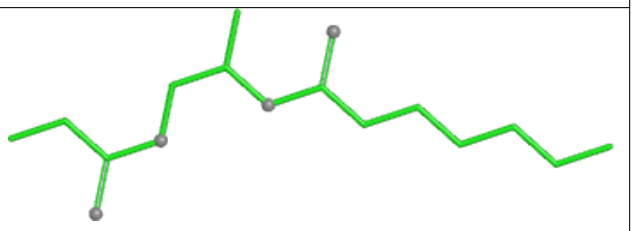
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

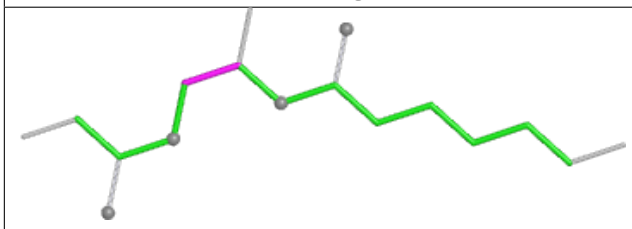
Ligand DGA H 201



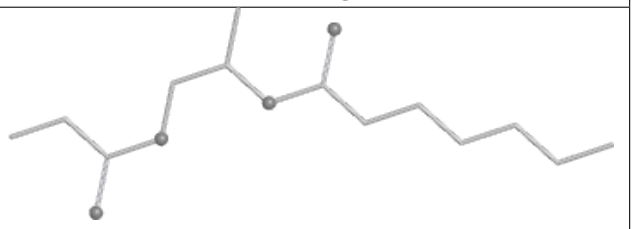
Bond lengths



Bond angles

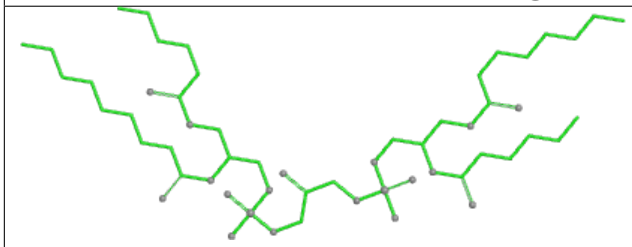


Torsions

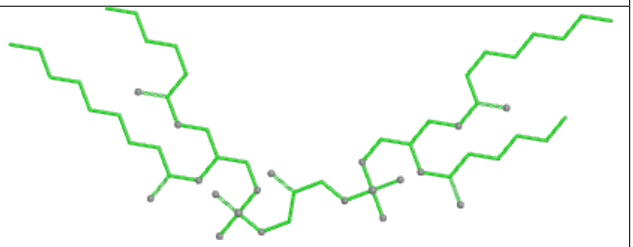


Rings

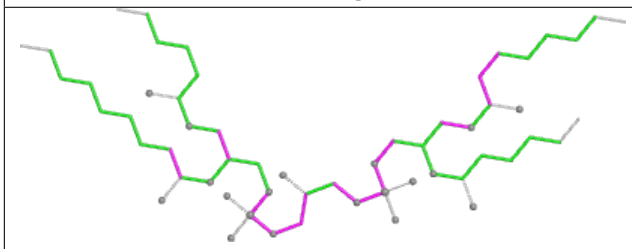
Ligand CDL F 302



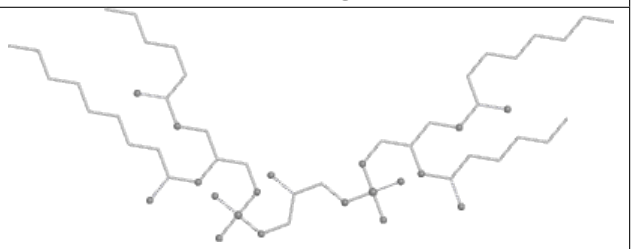
Bond lengths



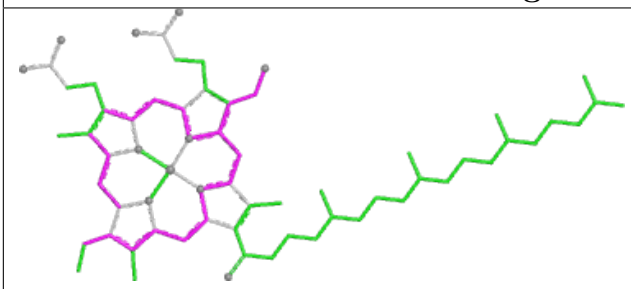
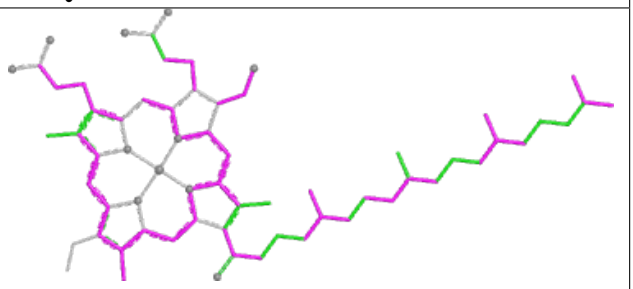
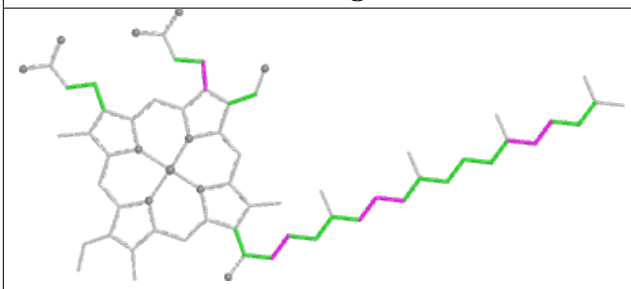
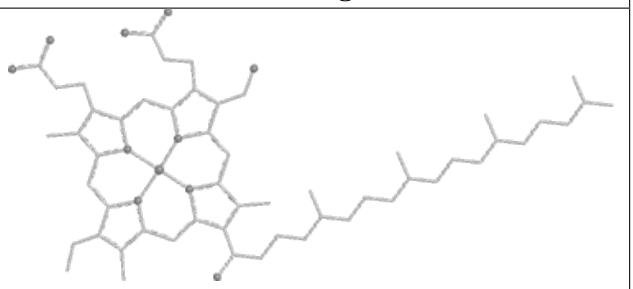
Bond angles

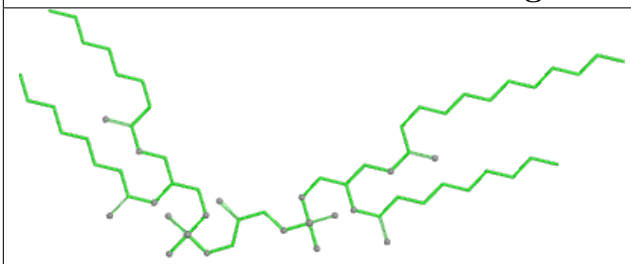
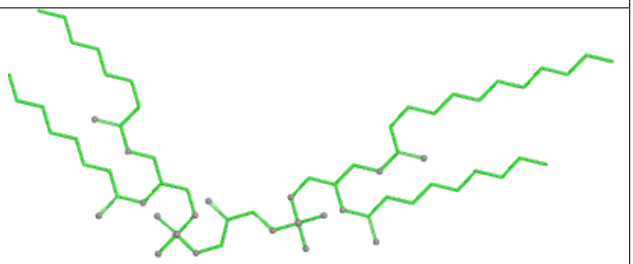
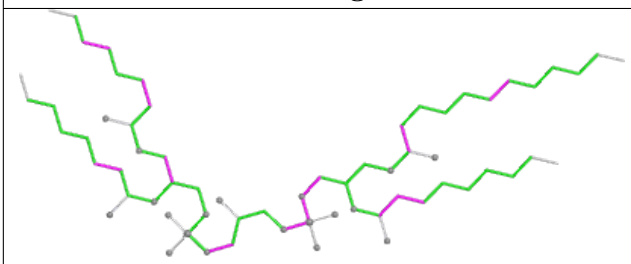
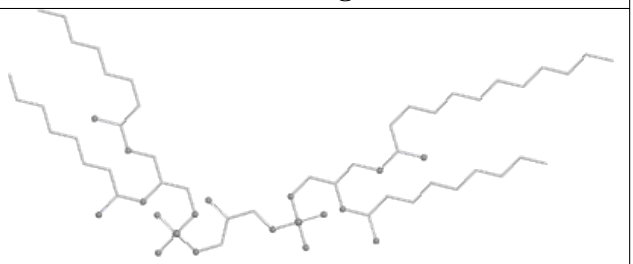


Torsions

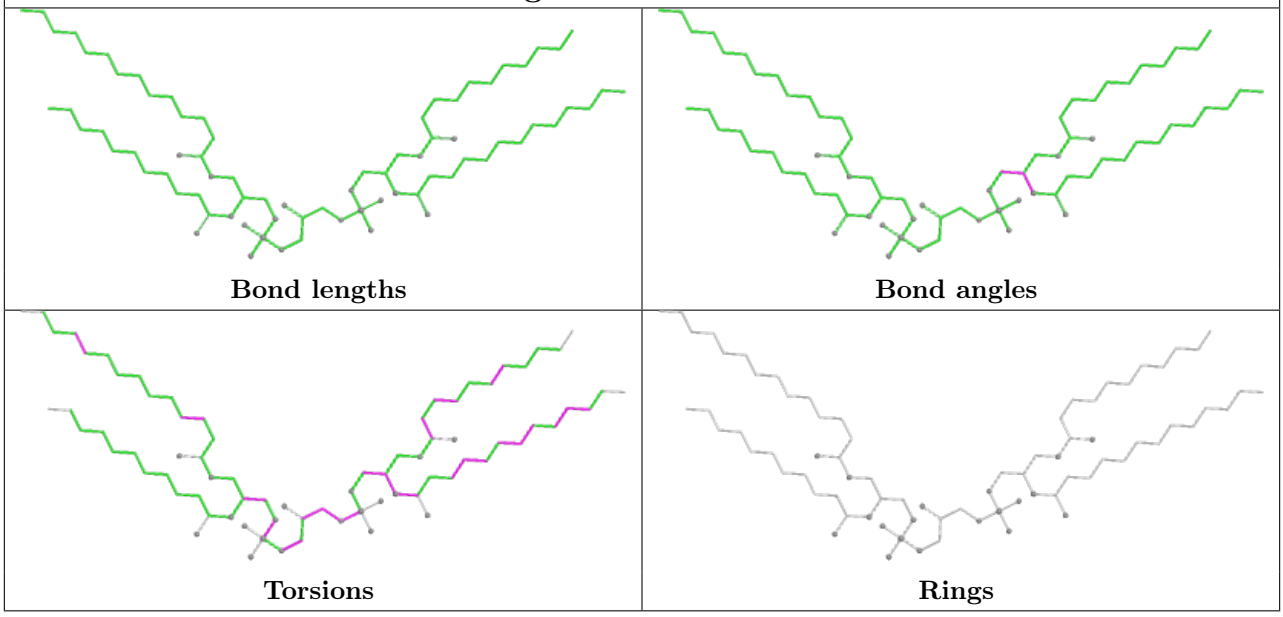


Rings

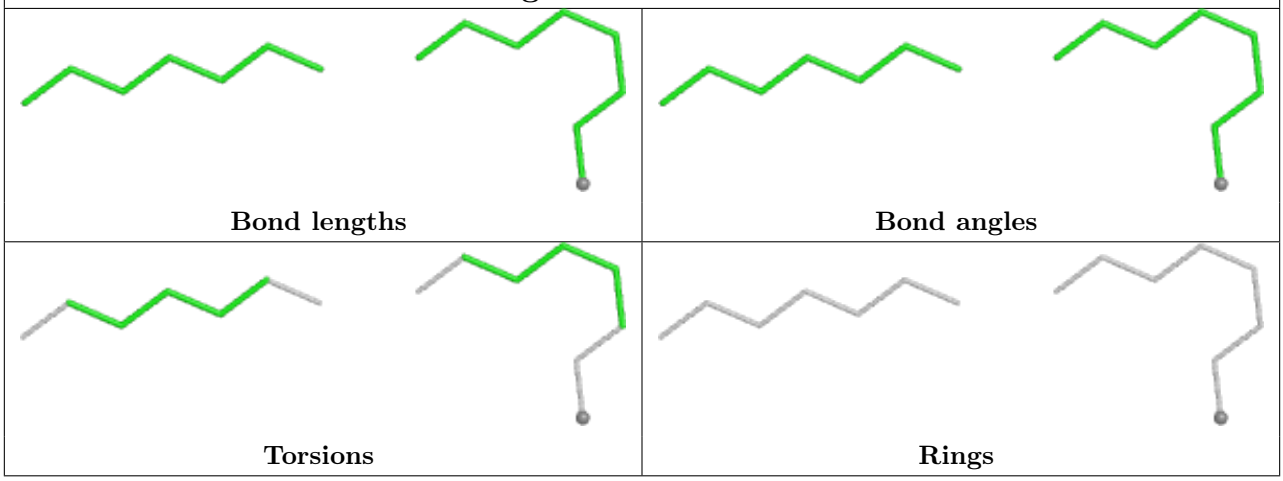
Ligand HAS Q 601	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CDL P 301	
 Bond lengths	 Bond angles
 Torsions	 Rings

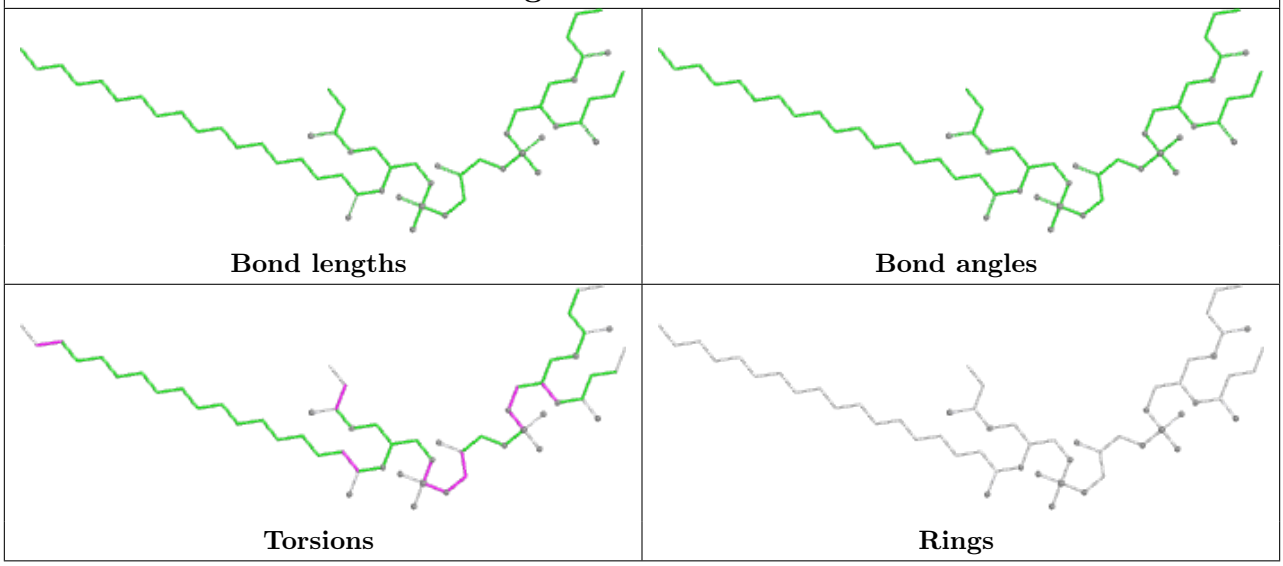
Ligand CDL D 605



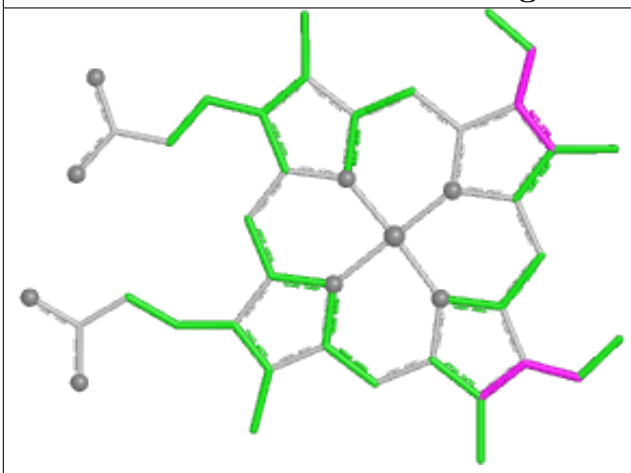
Ligand PLM U 202



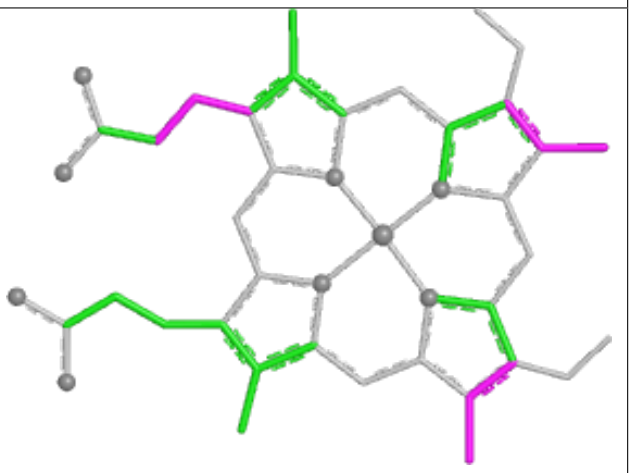
Ligand CDL V 201



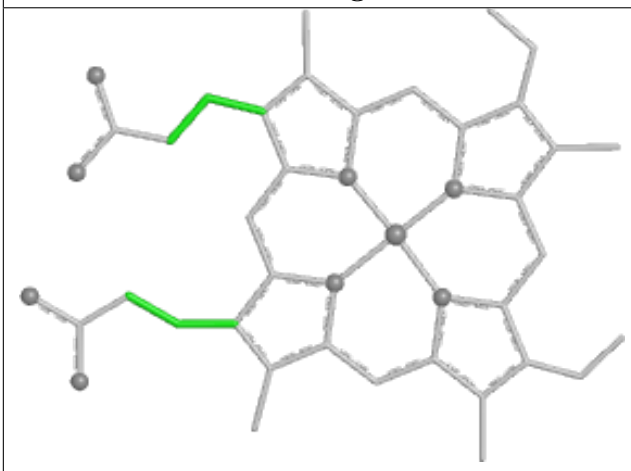
Ligand HEM B 603



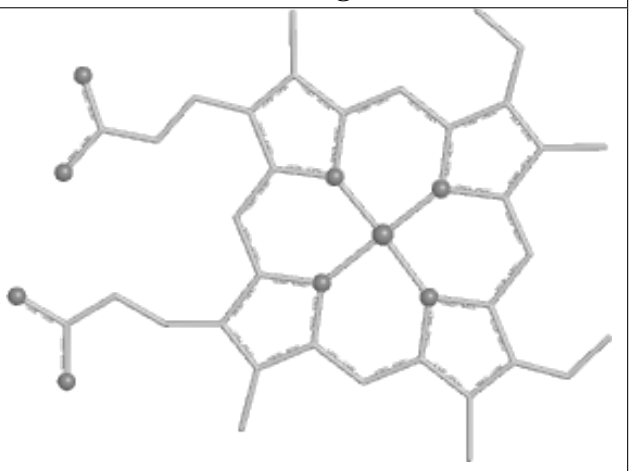
Bond lengths



Bond angles

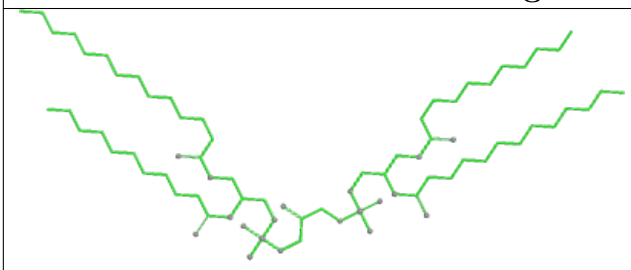


Torsions

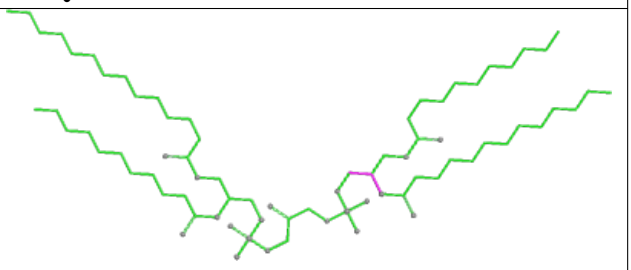


Rings

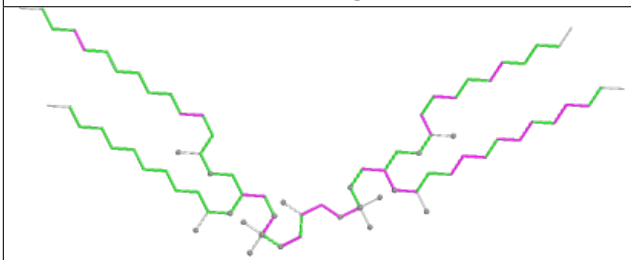
Ligand CDL Q 605



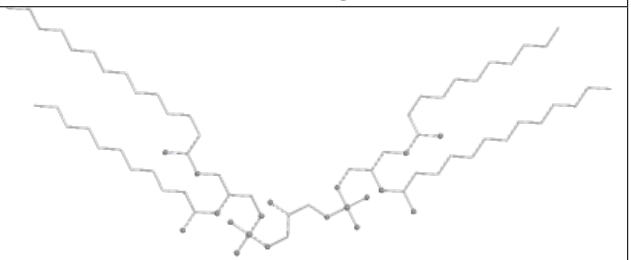
Bond lengths



Bond angles

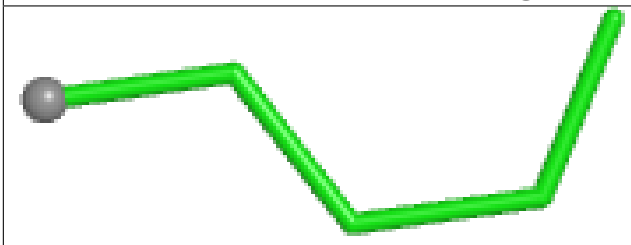


Torsions

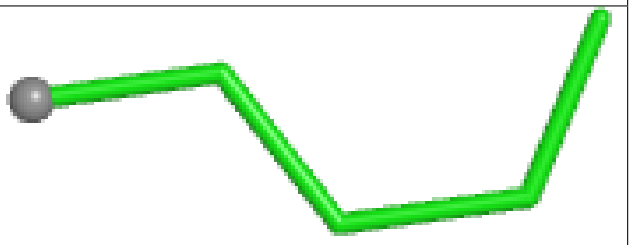


Rings

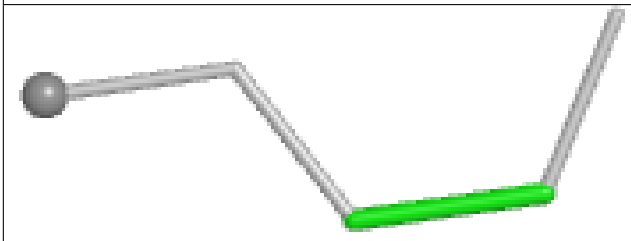
Ligand PLM M 202



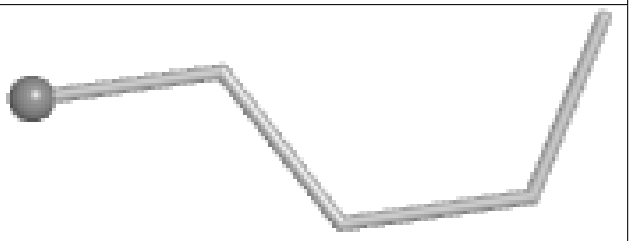
Bond lengths



Bond angles

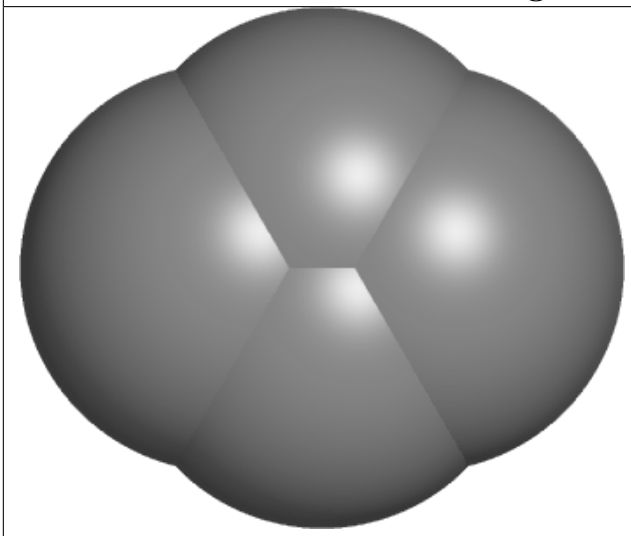


Torsions

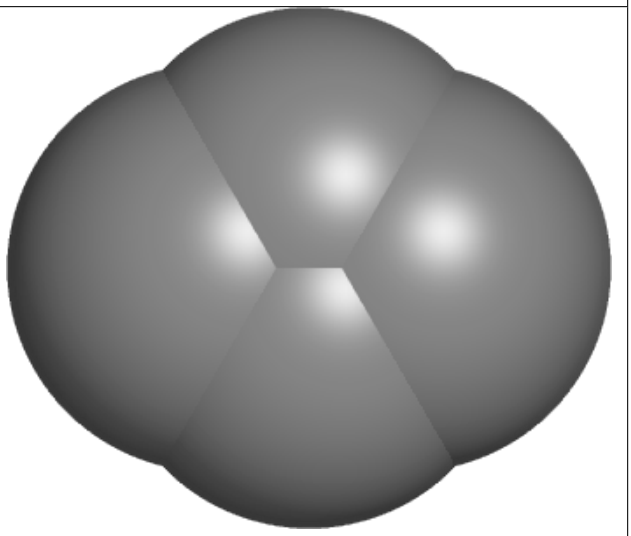


Rings

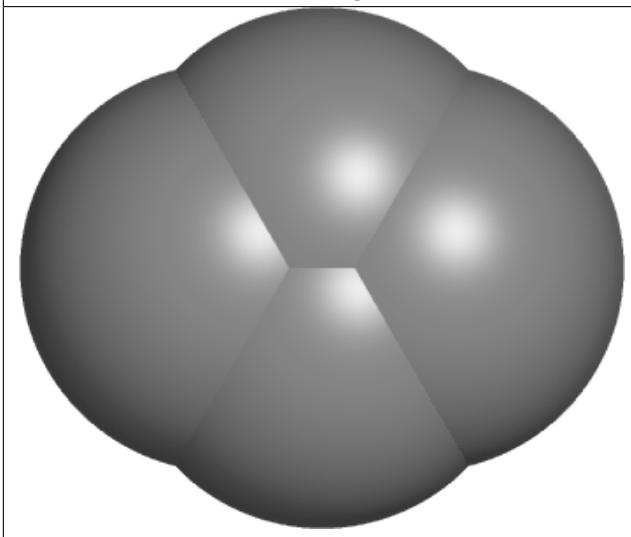
Ligand FES N 503



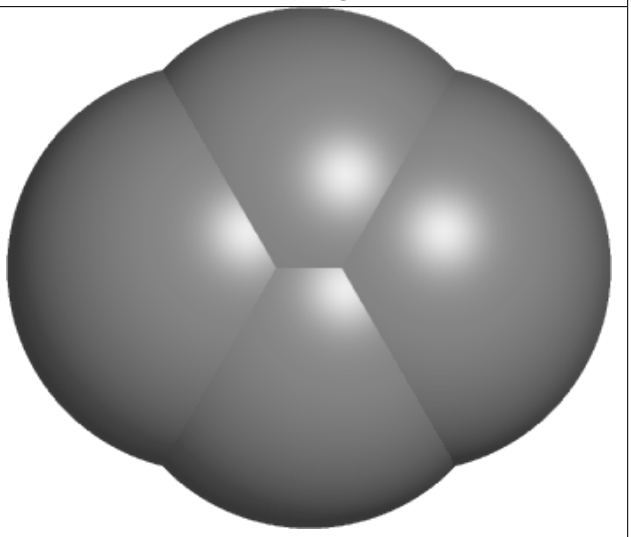
Bond lengths



Bond angles

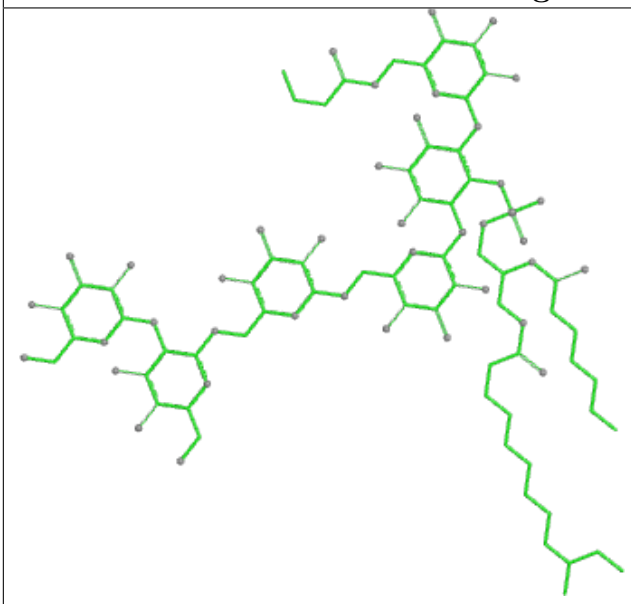


Torsions

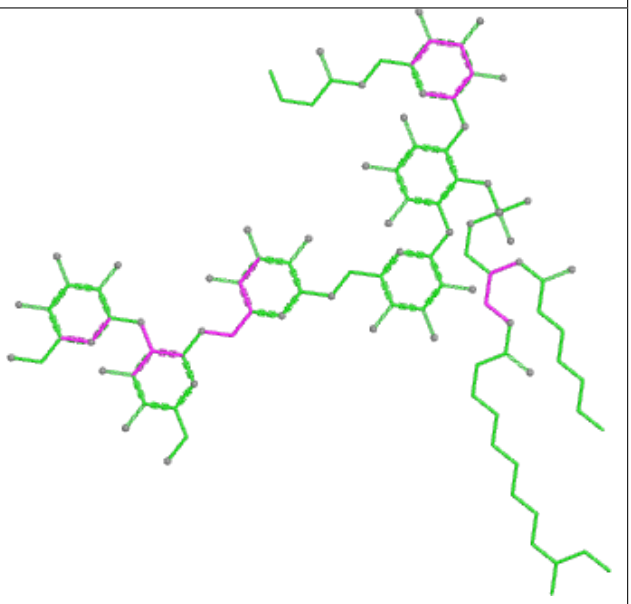


Rings

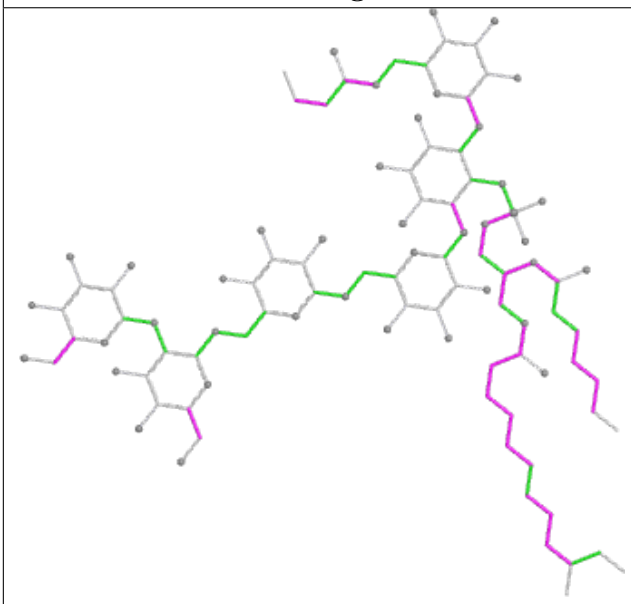
Ligand IZL A 502



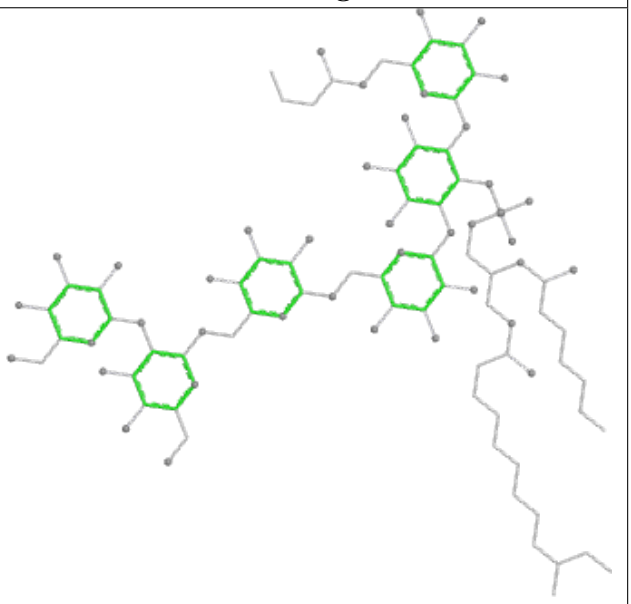
Bond lengths



Bond angles

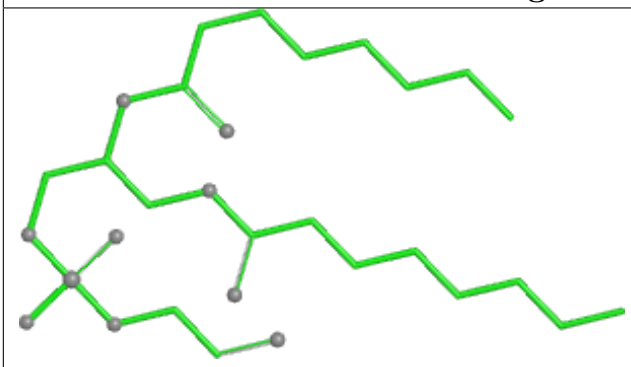


Torsions

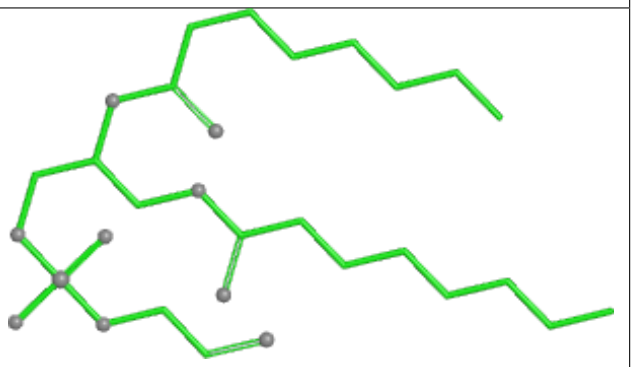


Rings

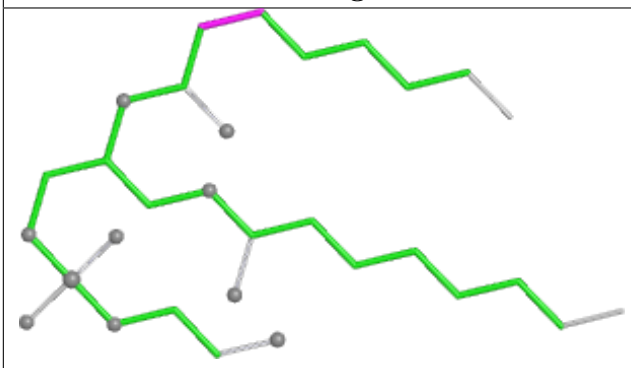
Ligand 3PE R 405



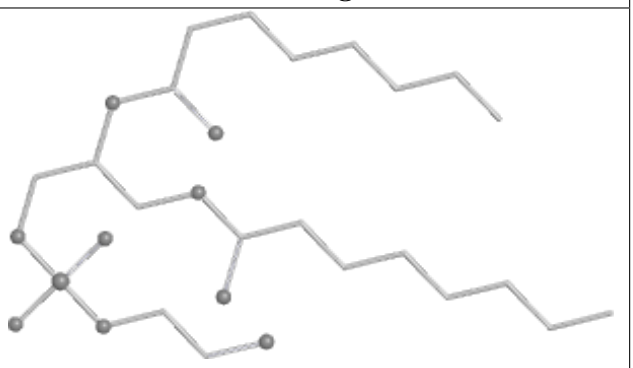
Bond lengths



Bond angles

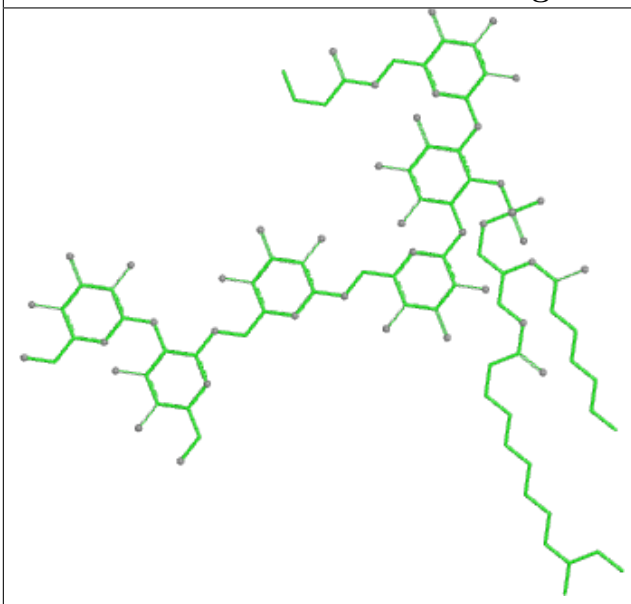


Torsions

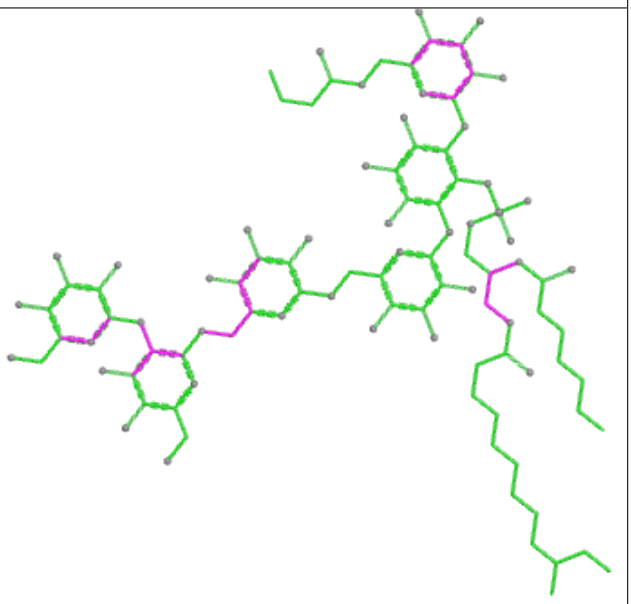


Rings

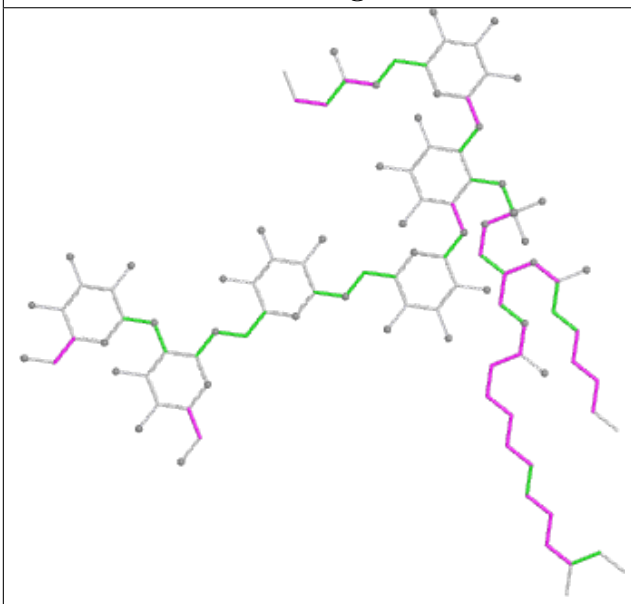
Ligand IZL N 504



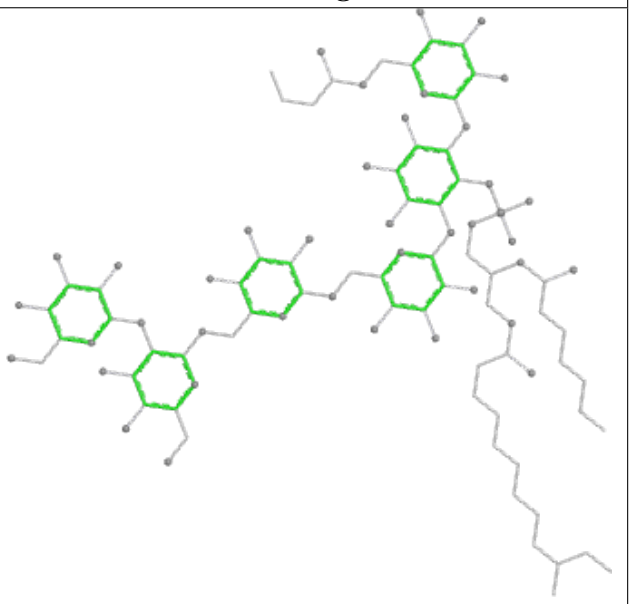
Bond lengths



Bond angles

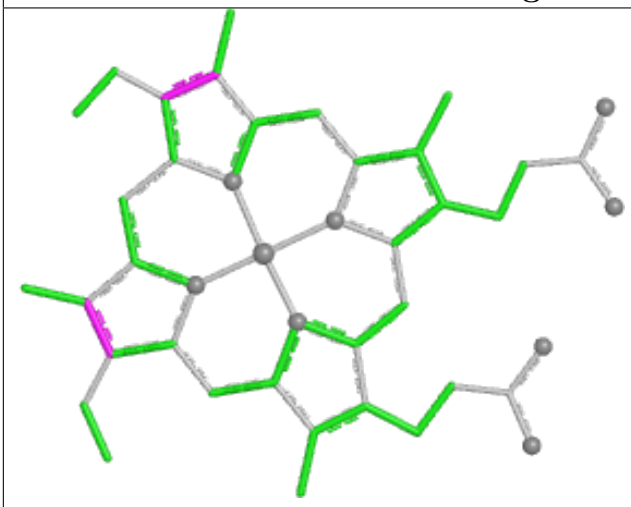


Torsions

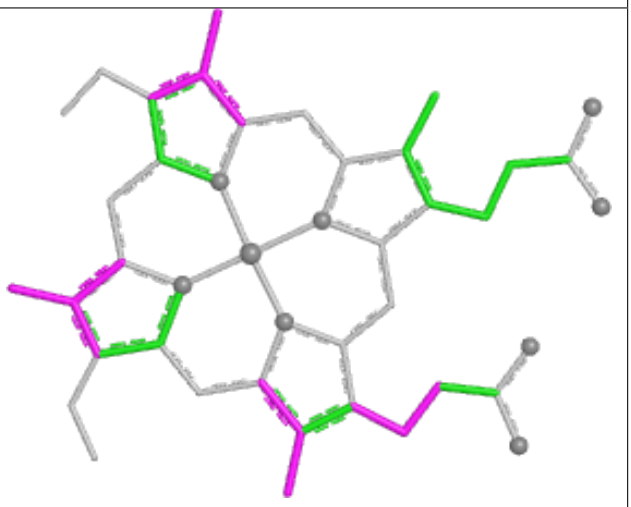


Rings

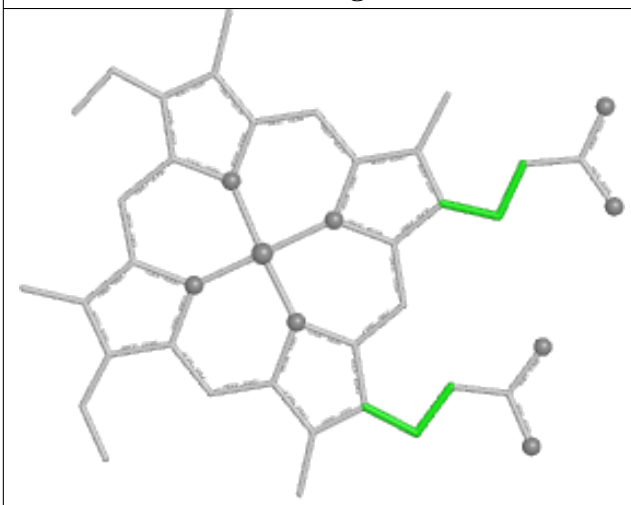
Ligand HEC C 302



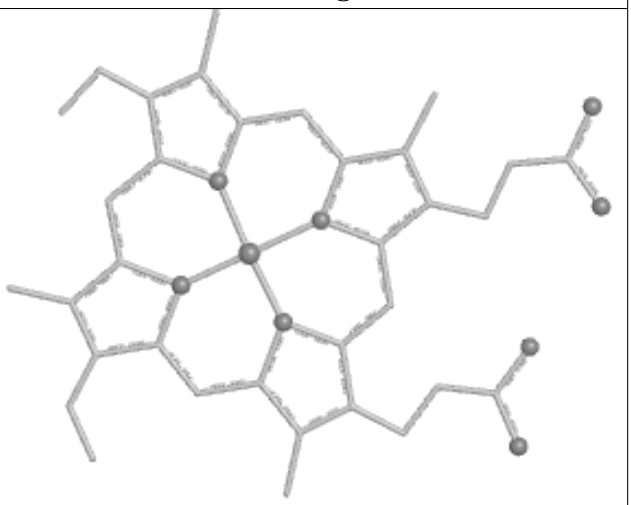
Bond lengths



Bond angles

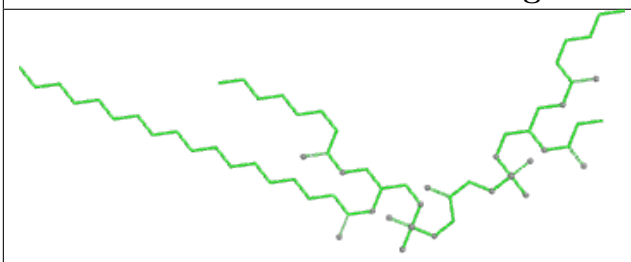


Torsions

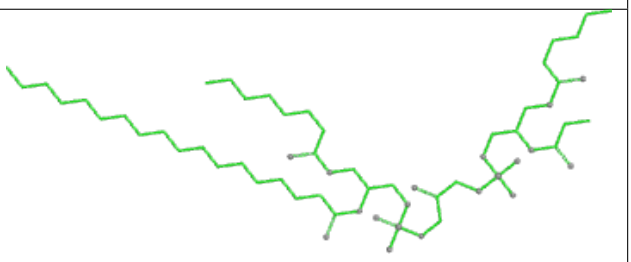


Rings

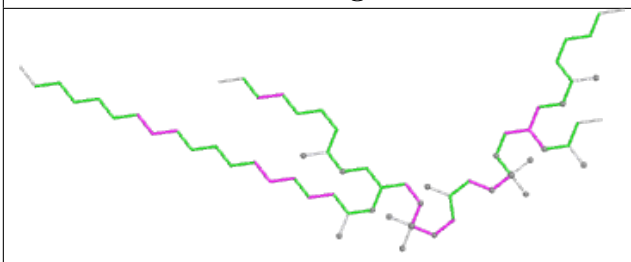
Ligand CDL D 606



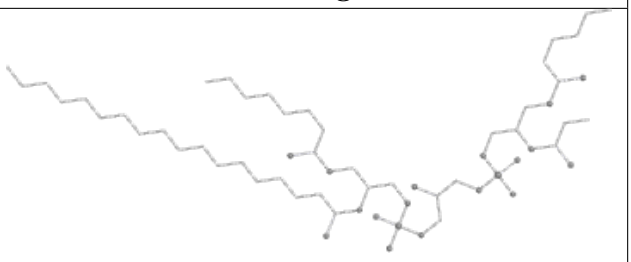
Bond lengths



Bond angles

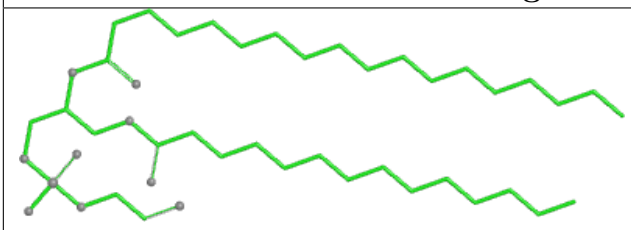


Torsions

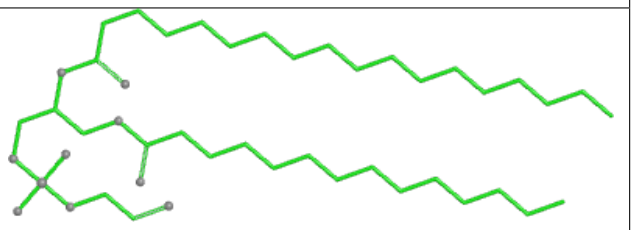


Rings

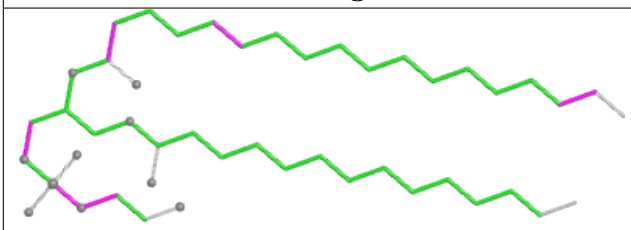
Ligand 3PE W 201



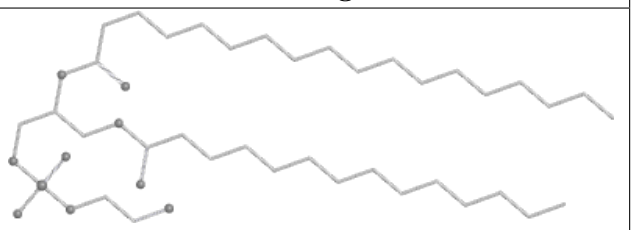
Bond lengths



Bond angles

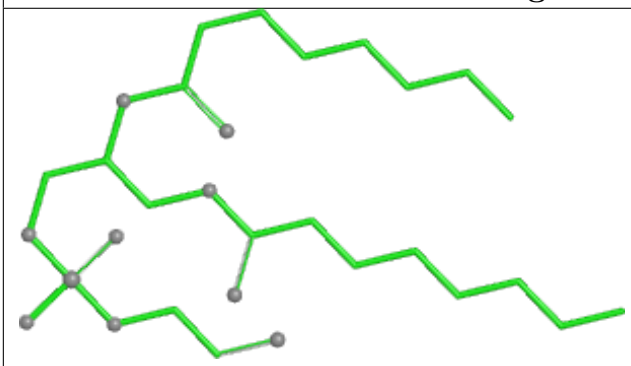


Torsions

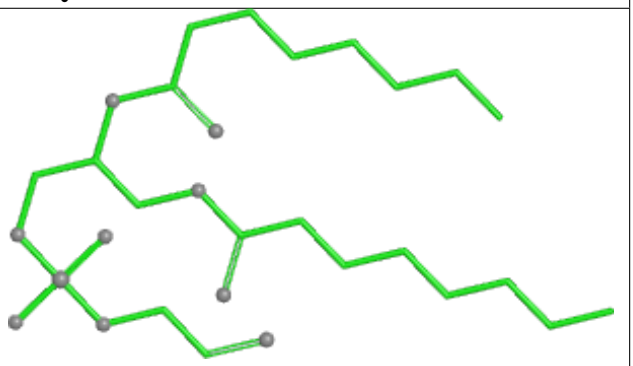


Rings

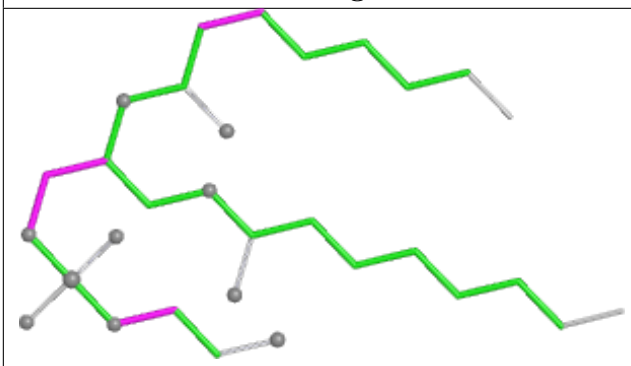
Ligand 3PE Q 607



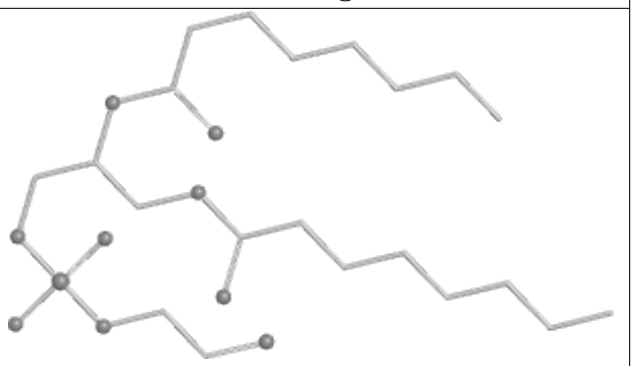
Bond lengths



Bond angles

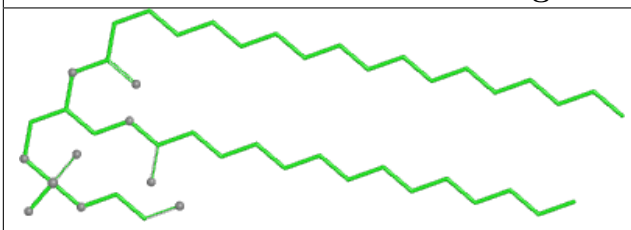


Torsions

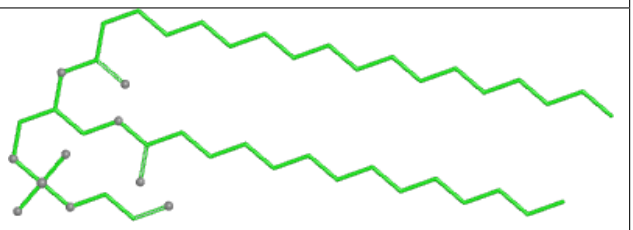


Rings

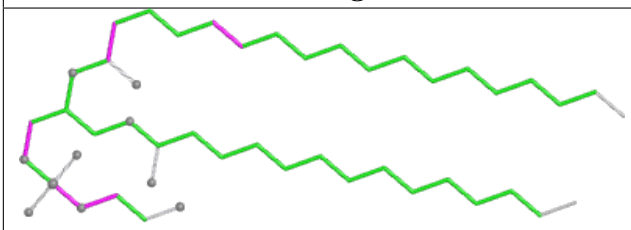
Ligand 3PE J 201



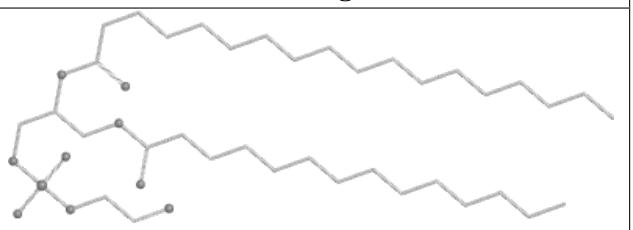
Bond lengths



Bond angles

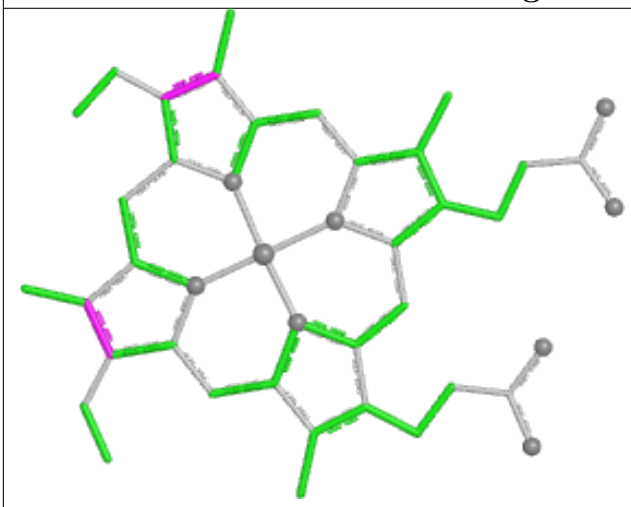


Torsions

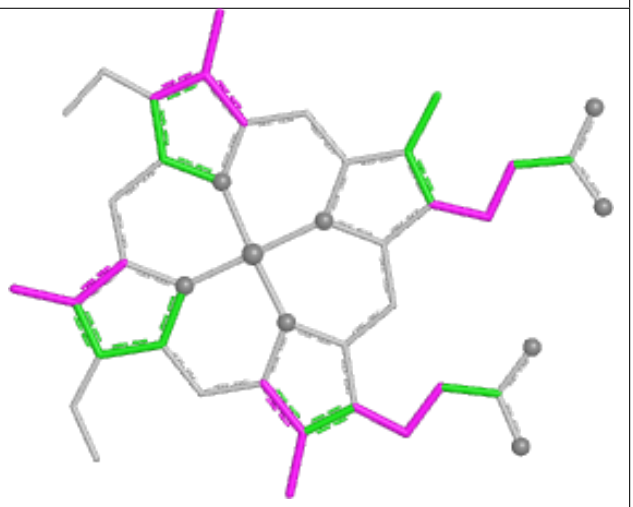


Rings

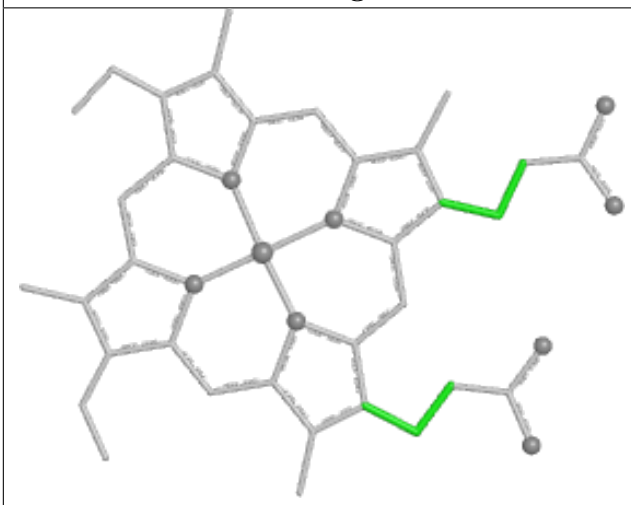
Ligand HEC C 303



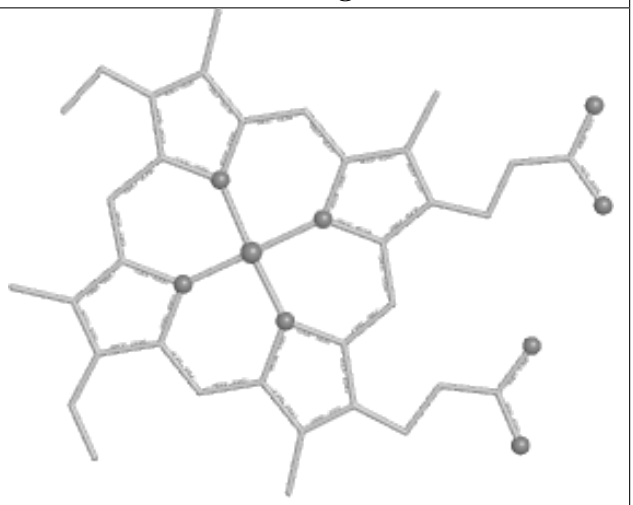
Bond lengths



Bond angles

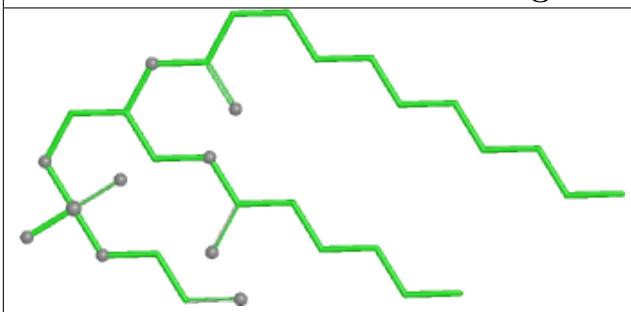


Torsions

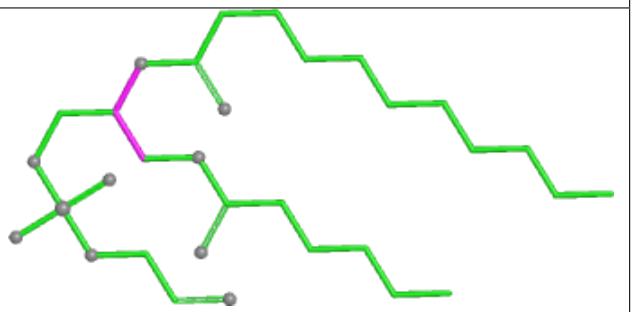


Rings

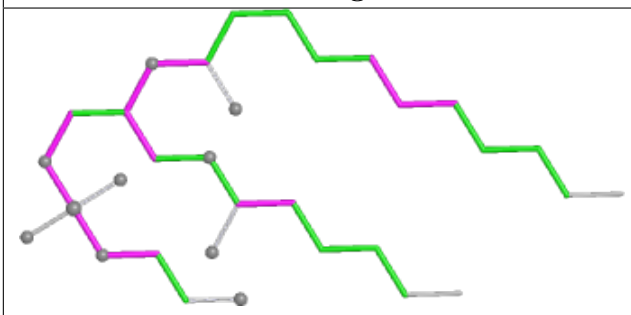
Ligand 3PE S 301



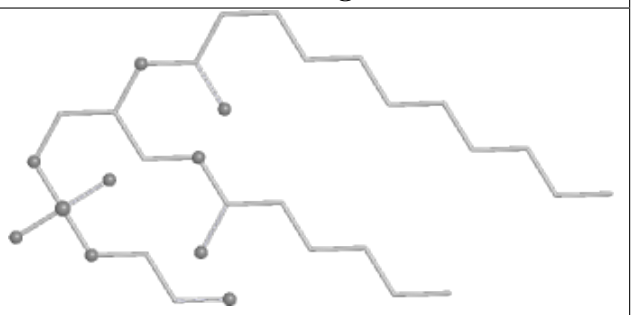
Bond lengths



Bond angles

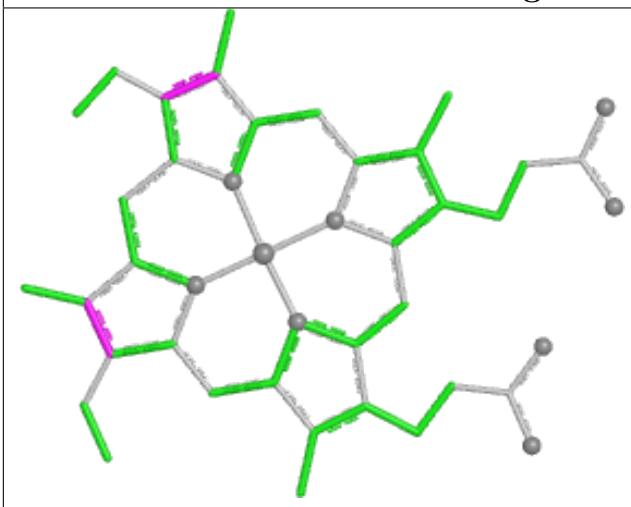


Torsions

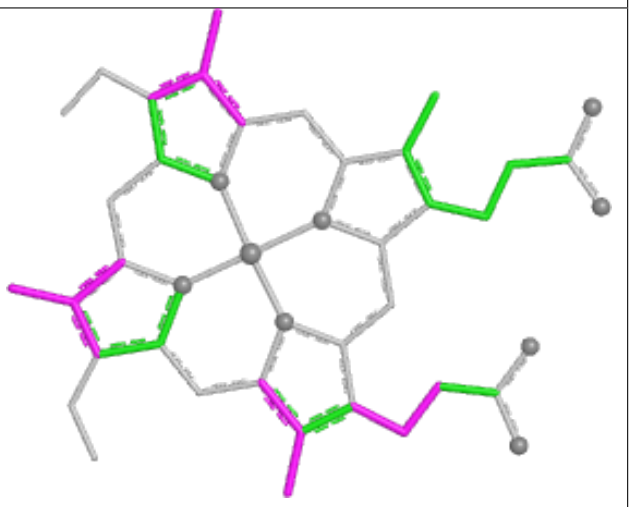


Rings

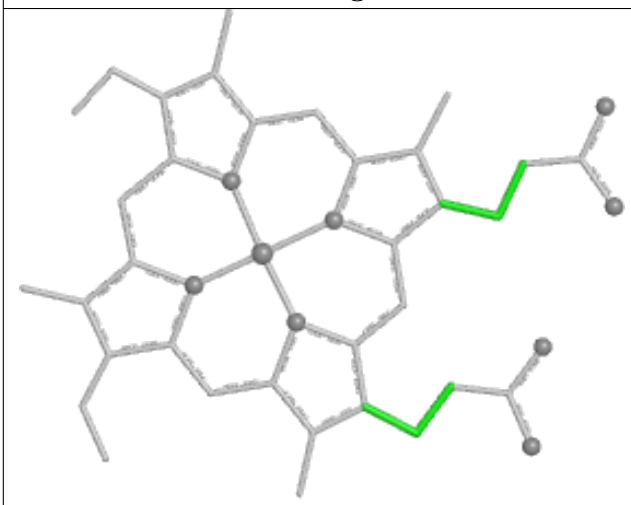
Ligand HEC P 302



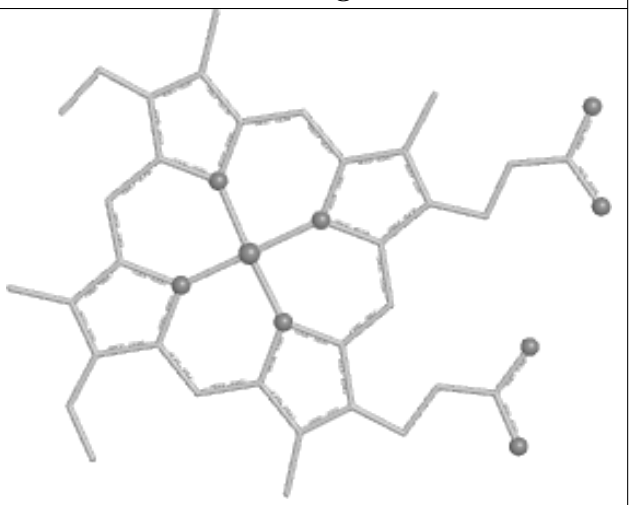
Bond lengths



Bond angles

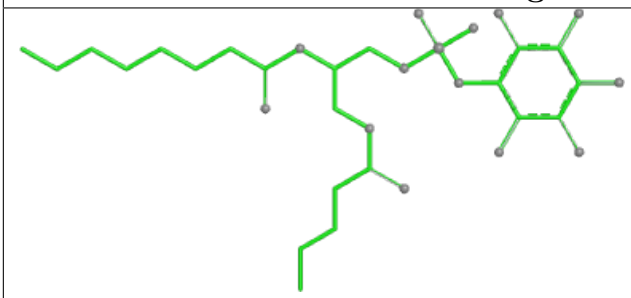


Torsions

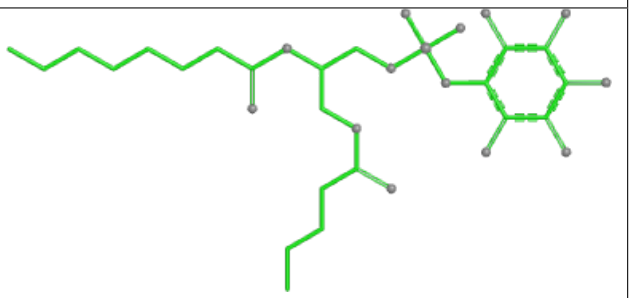


Rings

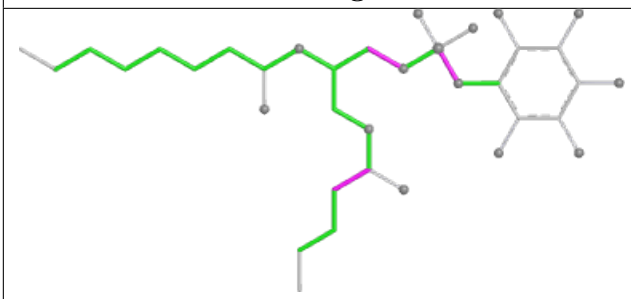
Ligand 9YF A 503



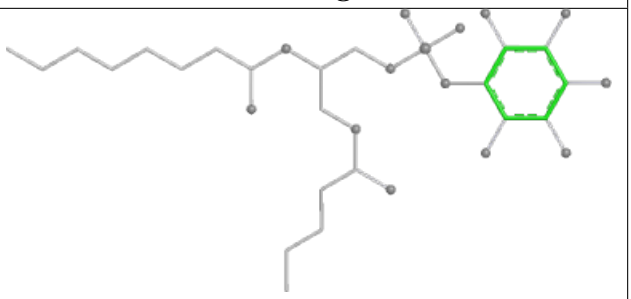
Bond lengths



Bond angles

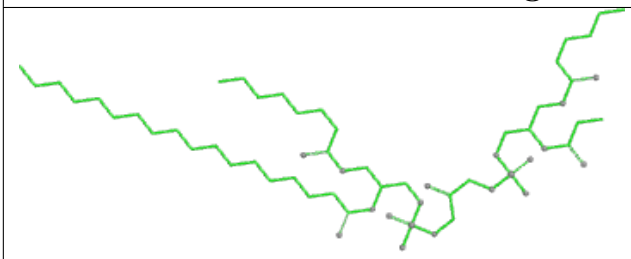


Torsions

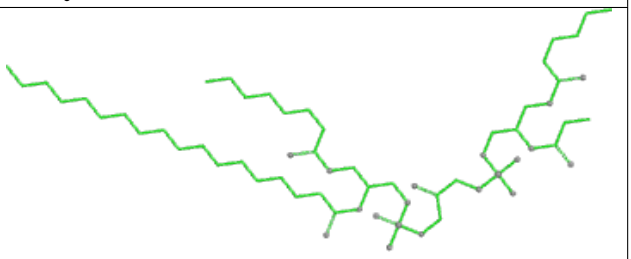


Rings

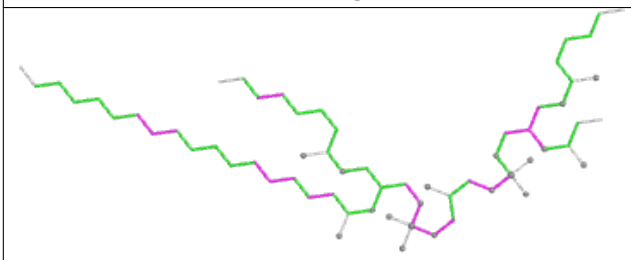
Ligand CDL Q 606



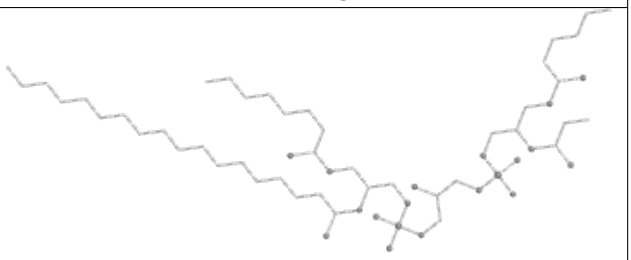
Bond lengths



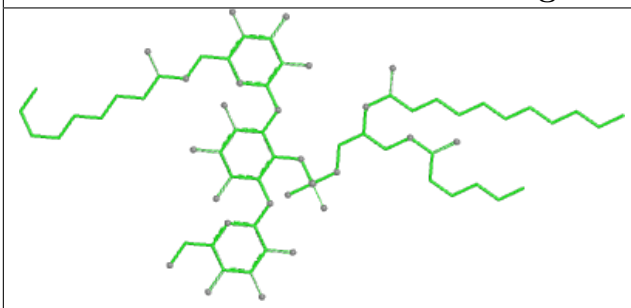
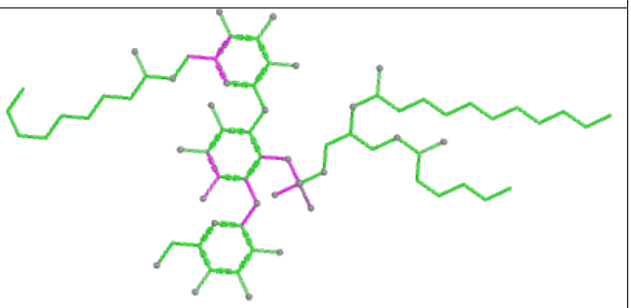
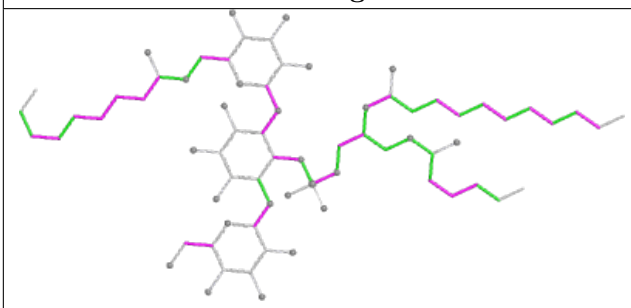
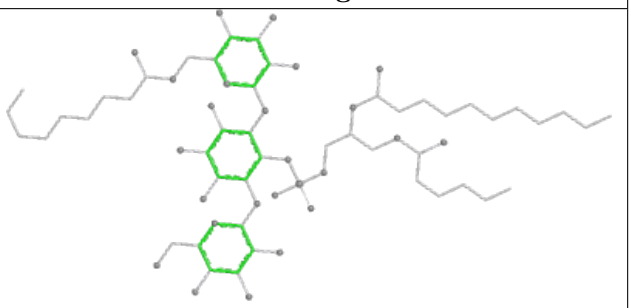
Bond angles

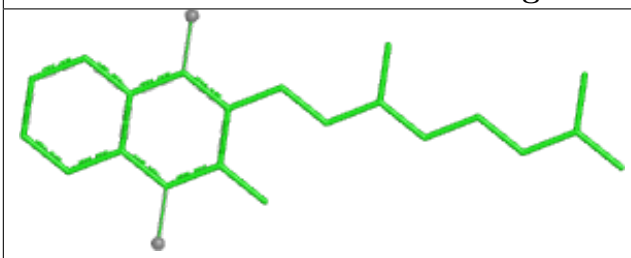
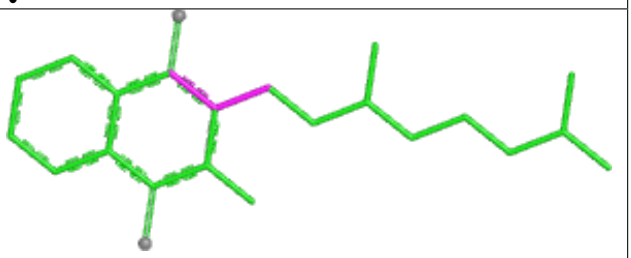
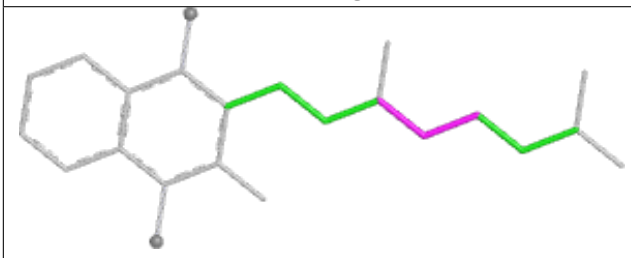
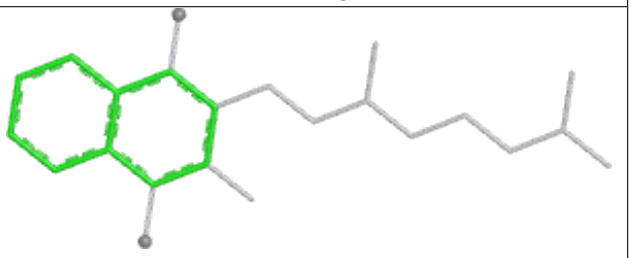


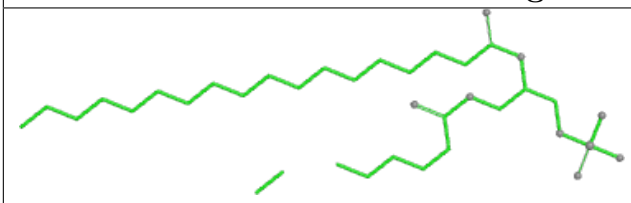
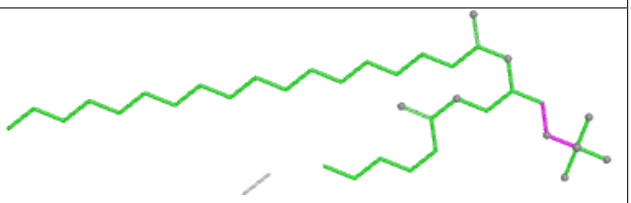
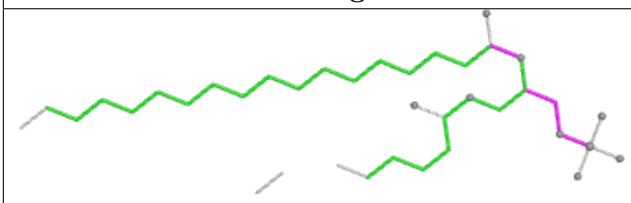
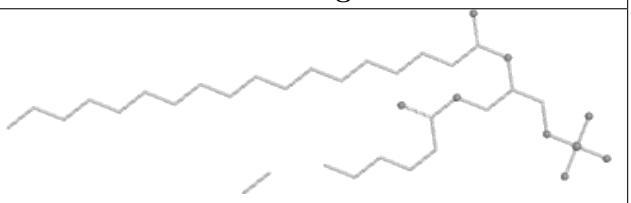
Torsions

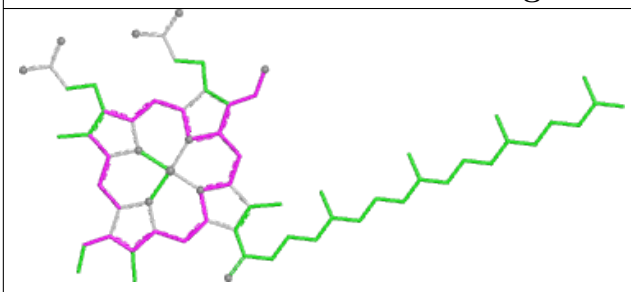
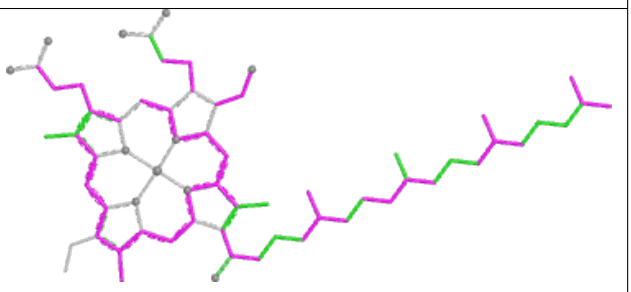
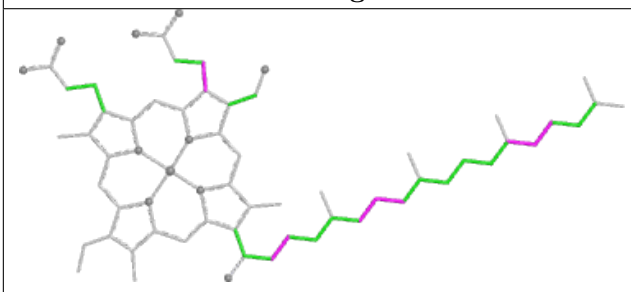
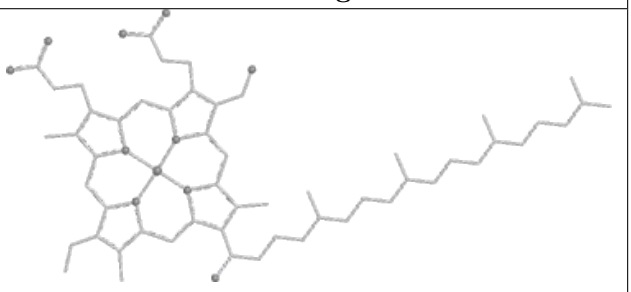


Rings

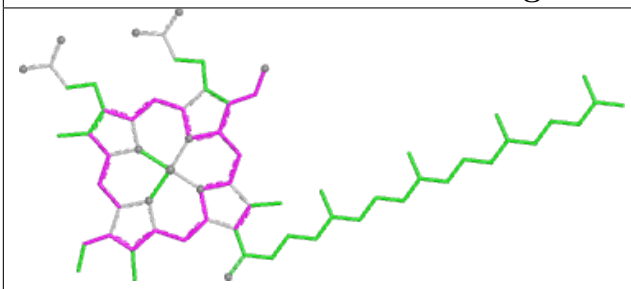
Ligand IX7 I 202	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand MQ9 B 601	
 Bond lengths	 Bond angles
 Torsions	 Rings

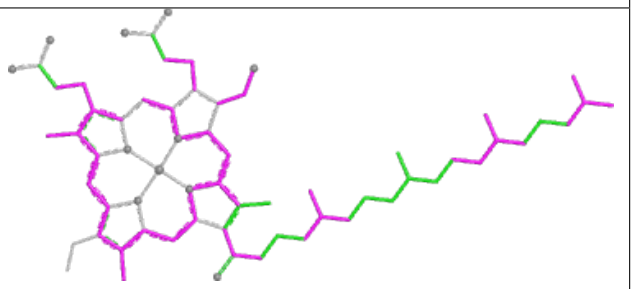
Ligand 3PH T 201	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand HAS D 601	
 Bond lengths	 Bond angles
 Torsions	 Rings

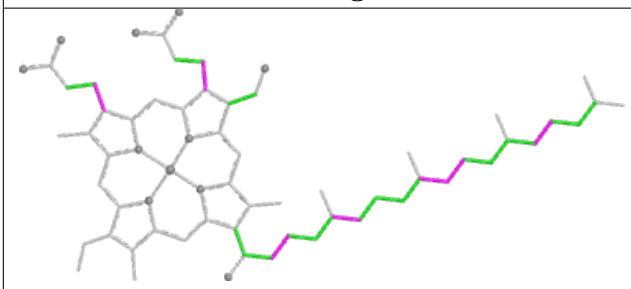
Ligand HAS D 602



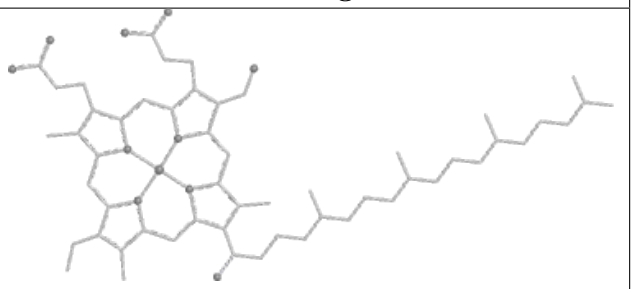
Bond lengths



Bond angles

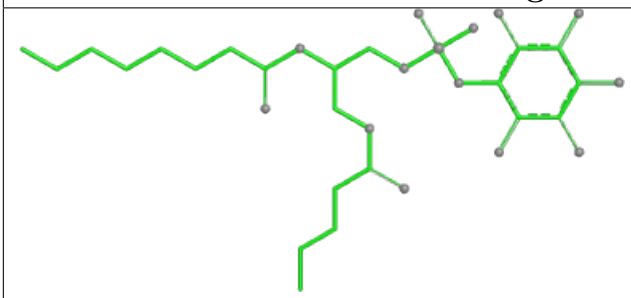


Torsions

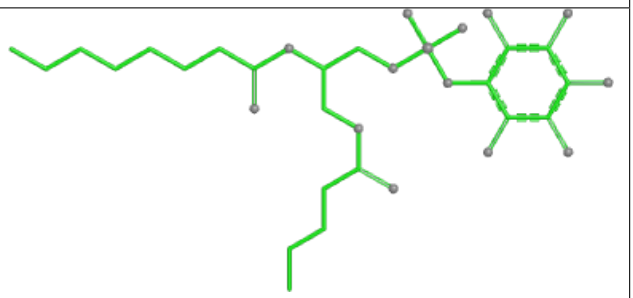


Rings

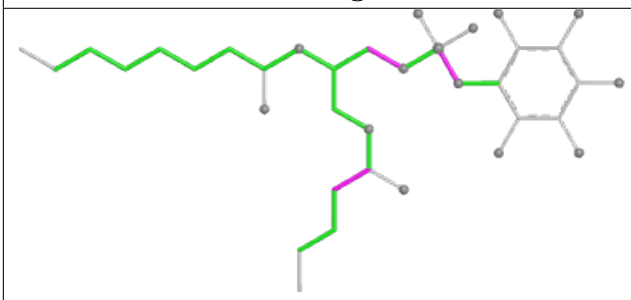
Ligand 9YF N 505



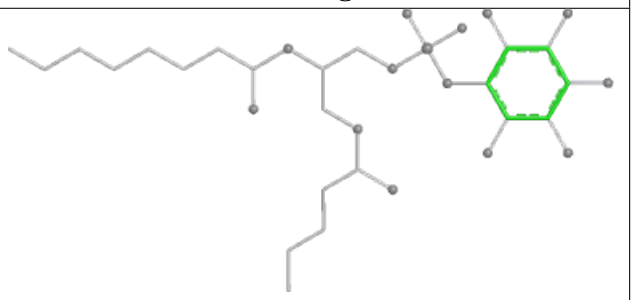
Bond lengths



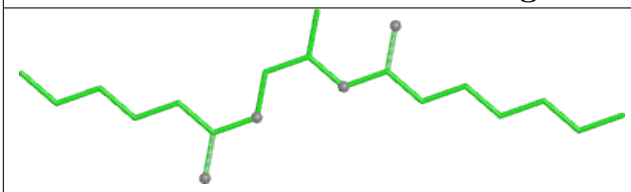
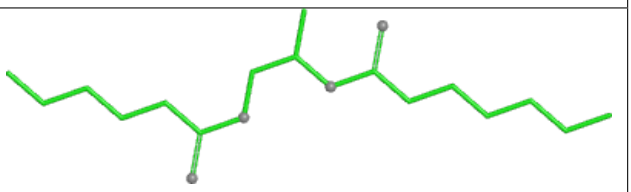
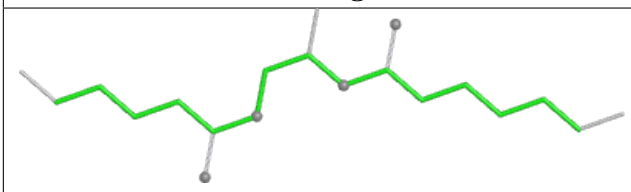
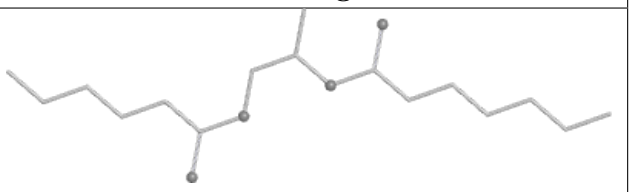
Bond angles

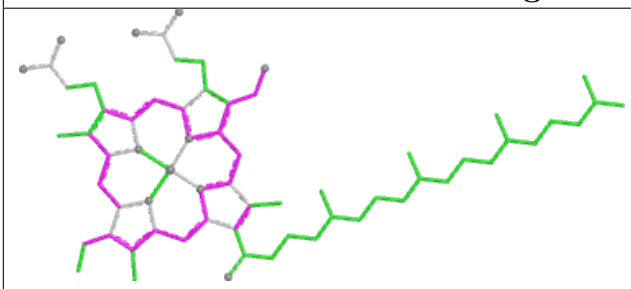
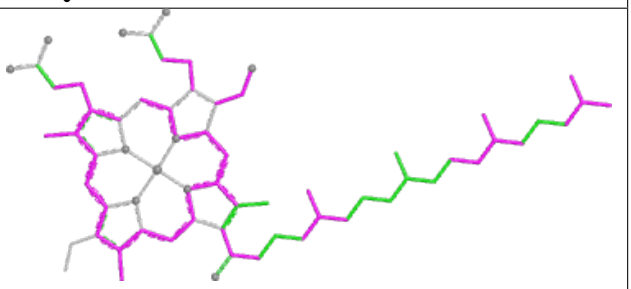
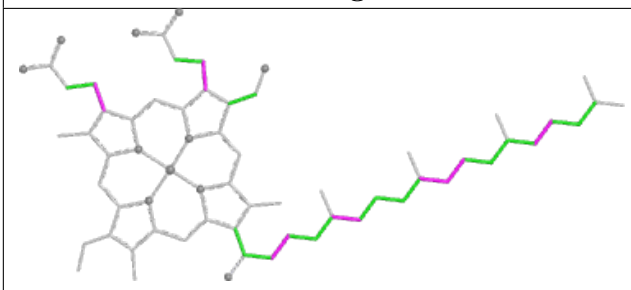
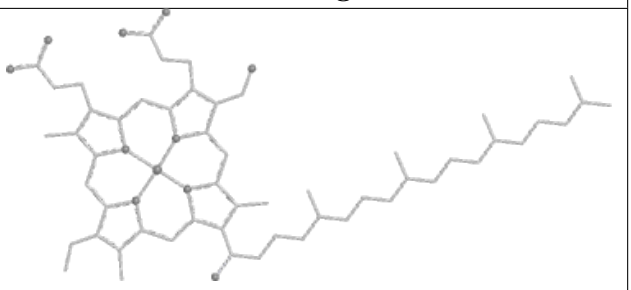


Torsions

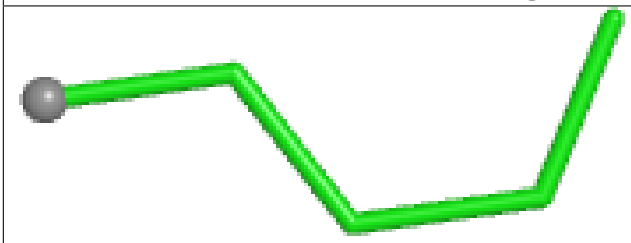


Rings

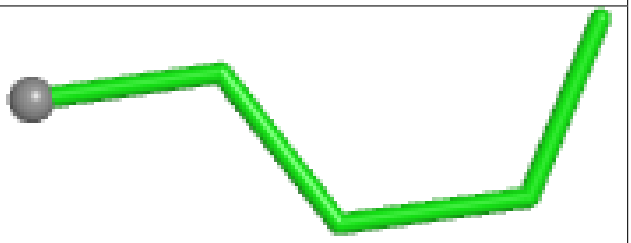
Ligand DGA R 404	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand HAS Q 602	
 Bond lengths	 Bond angles
 Torsions	 Rings

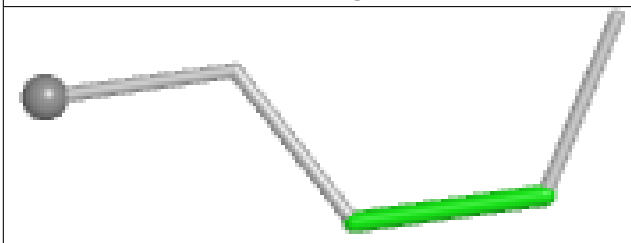
Ligand PLM Z 202



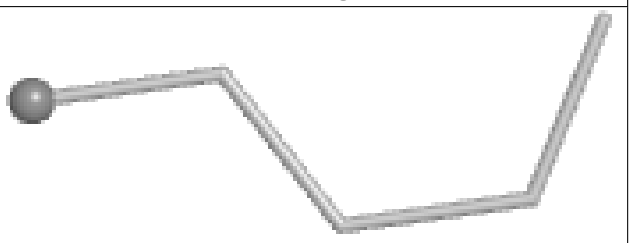
Bond lengths



Bond angles

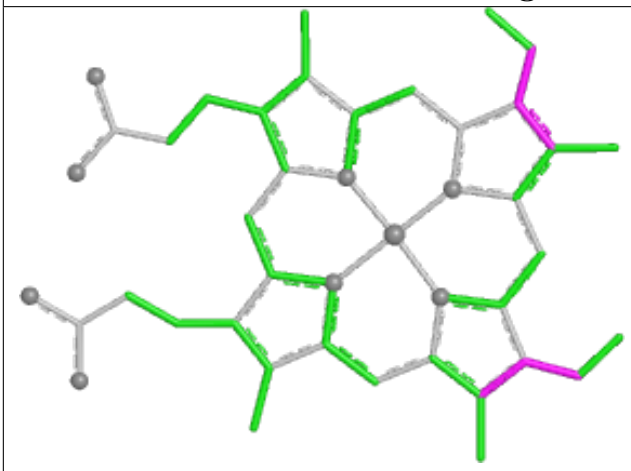


Torsions

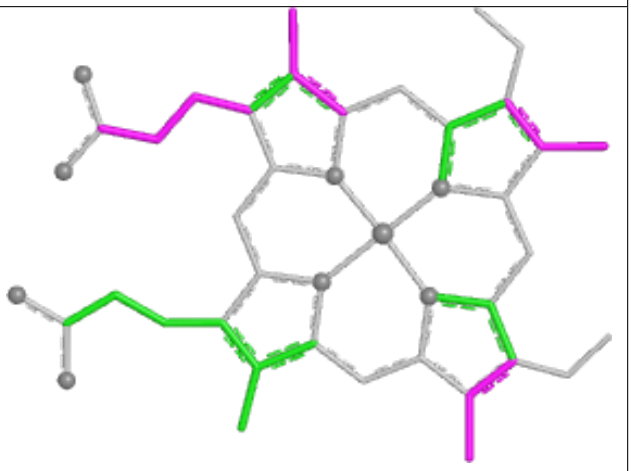


Rings

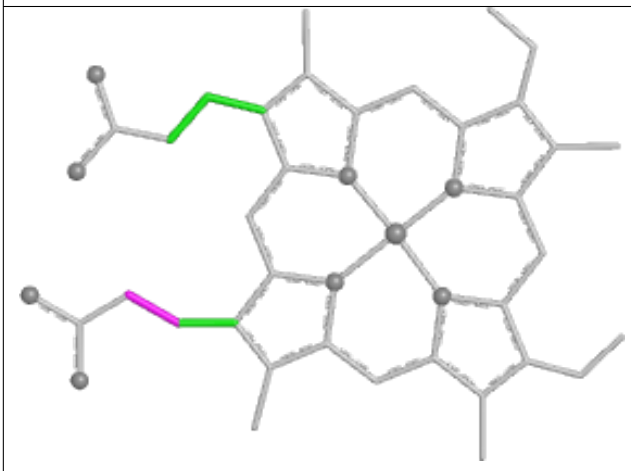
Ligand HEM O 603



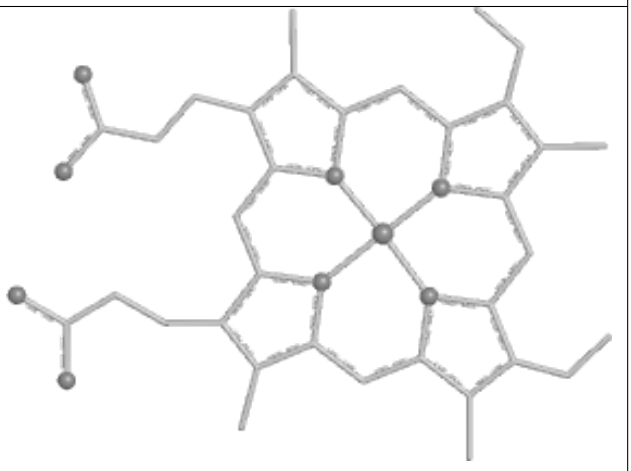
Bond lengths



Bond angles

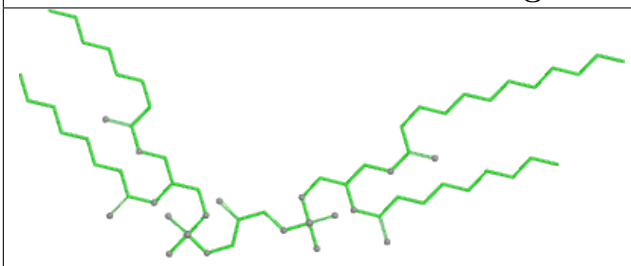


Torsions

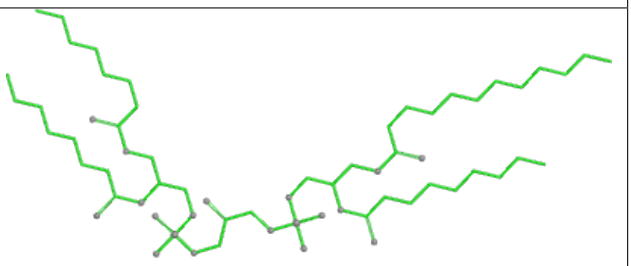


Rings

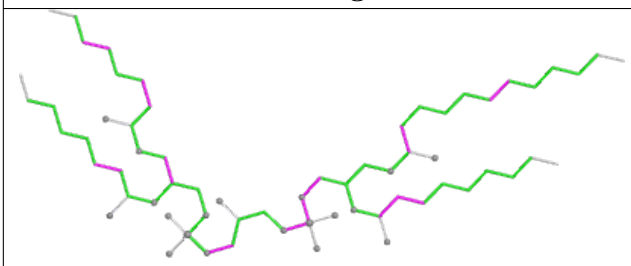
Ligand CDL C 301



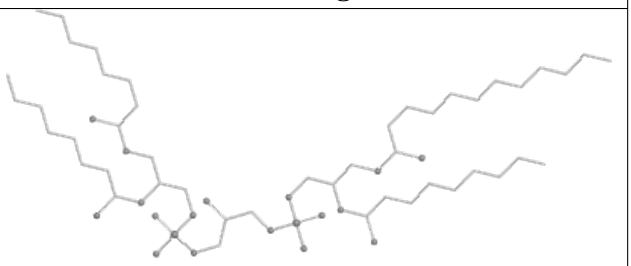
Bond lengths



Bond angles

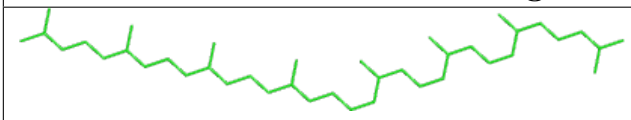


Torsions

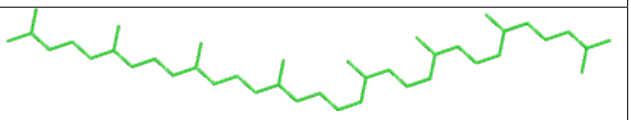


Rings

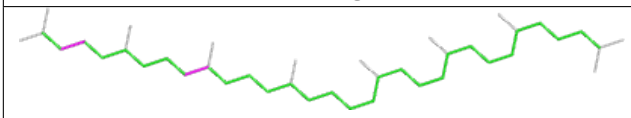
Ligand LYC B 606



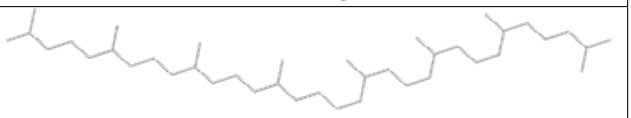
Bond lengths



Bond angles

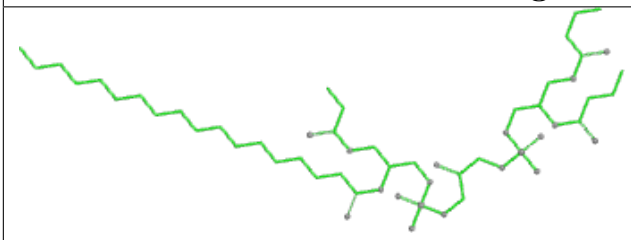


Torsions

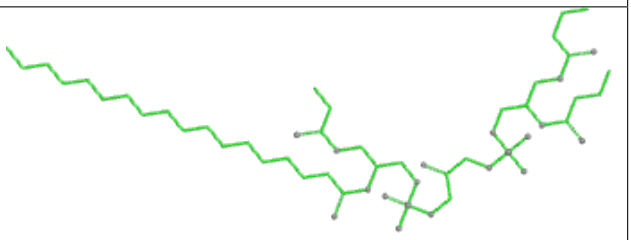


Rings

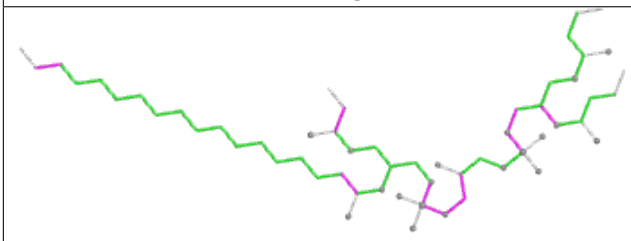
Ligand CDL I 201



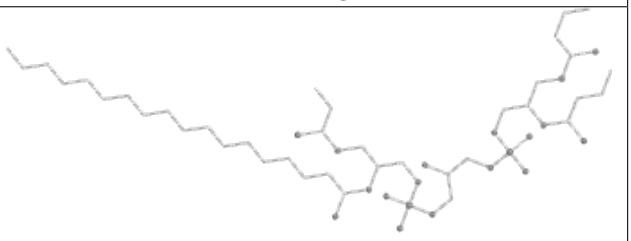
Bond lengths



Bond angles

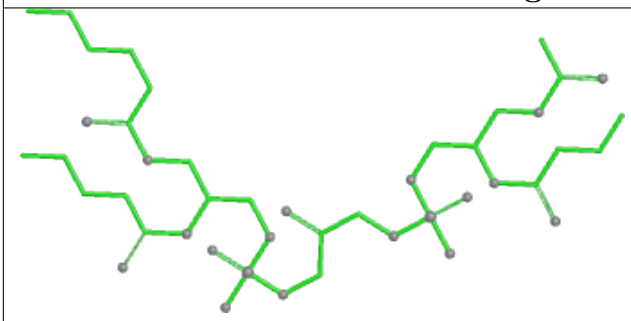


Torsions

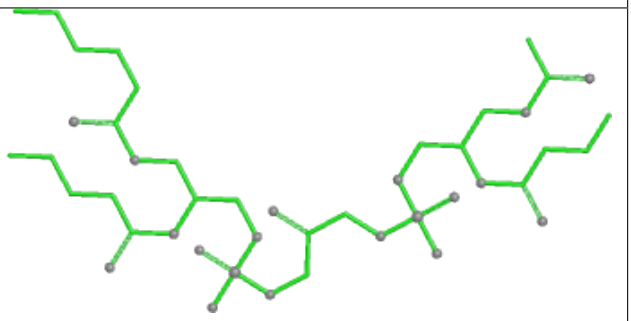


Rings

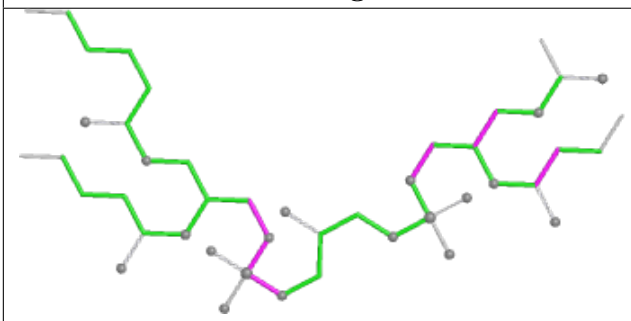
Ligand CDL B 605



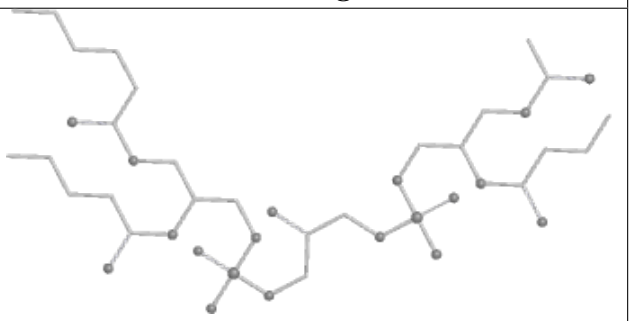
Bond lengths



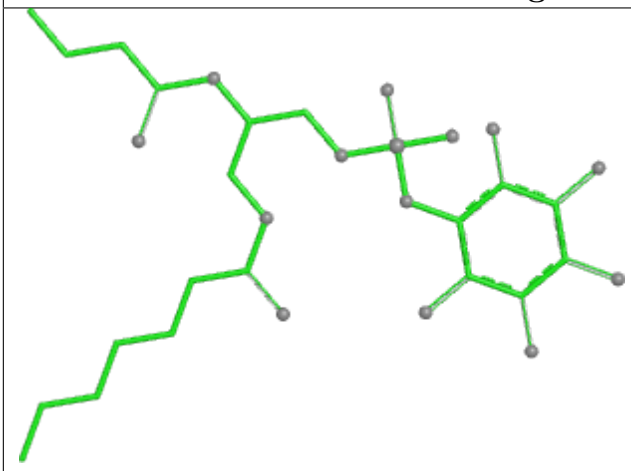
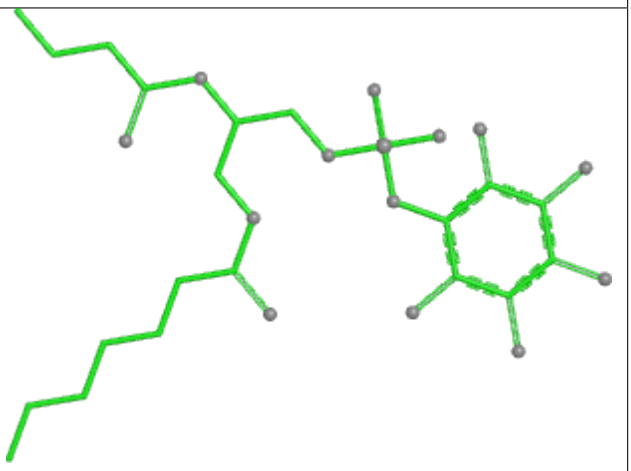
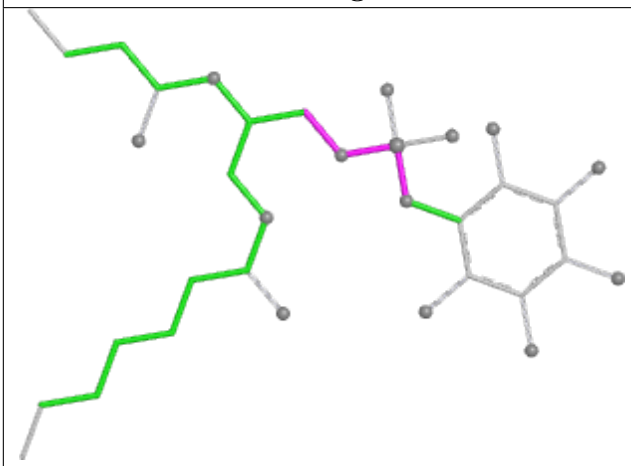
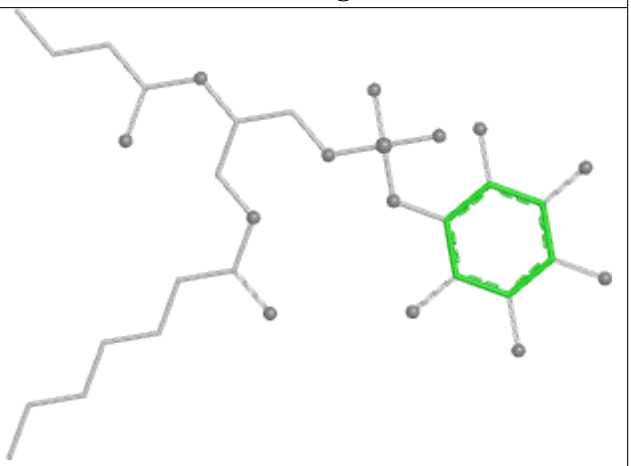
Bond angles

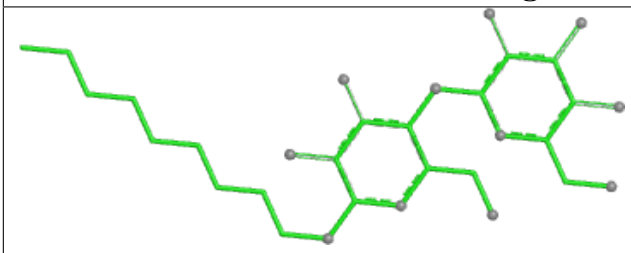
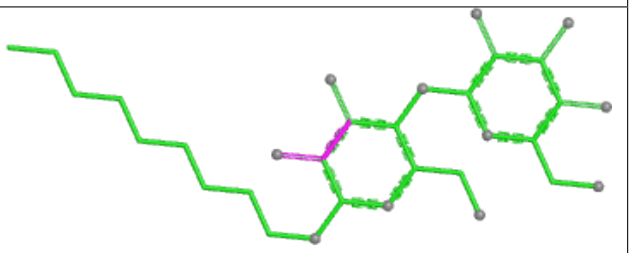
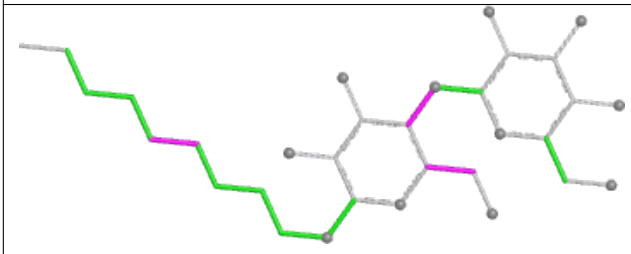
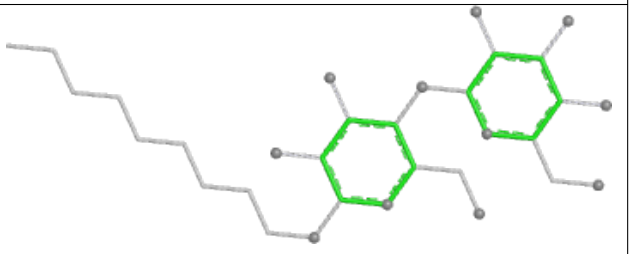


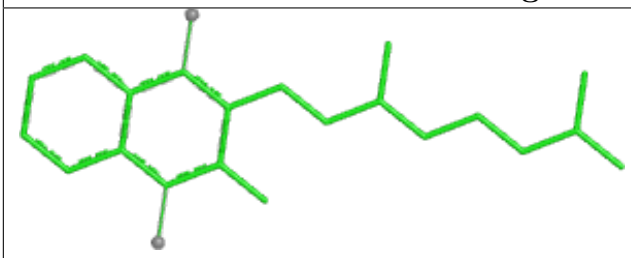
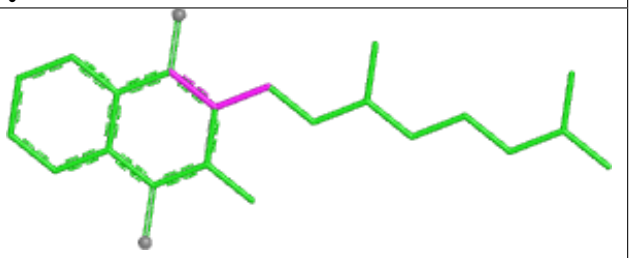
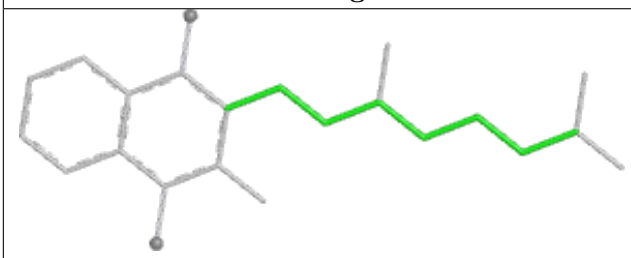
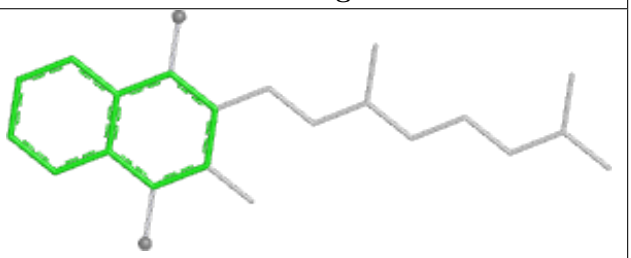
Torsions

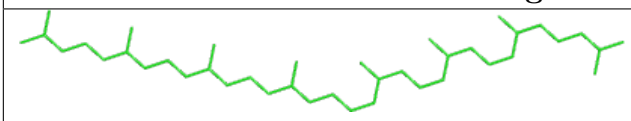
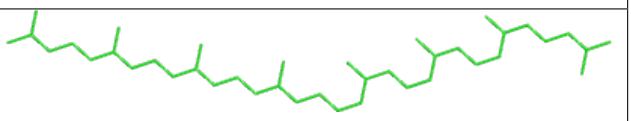
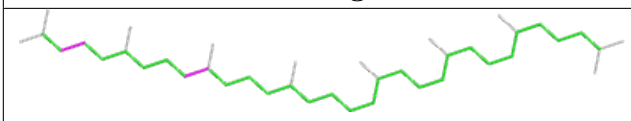
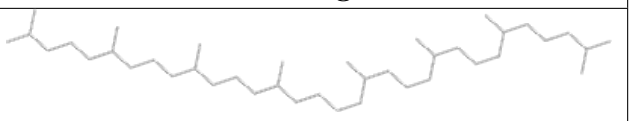


Rings

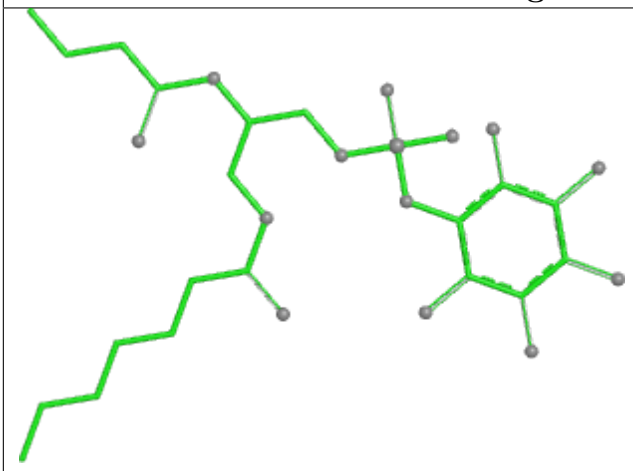
Ligand 9YF B 607	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand LMT B 608	
 Bond lengths	 Bond angles
 Torsions	 Rings

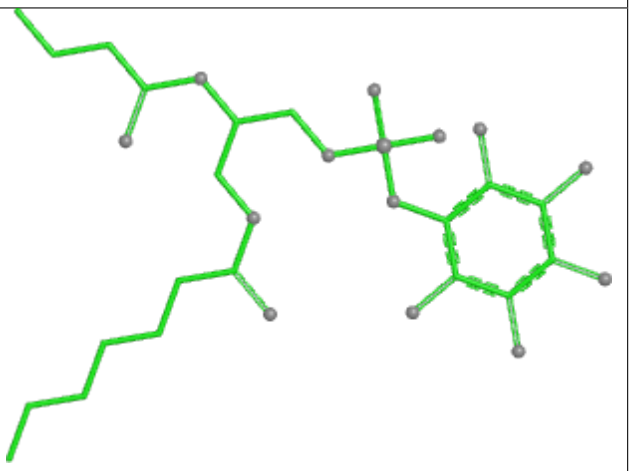
Ligand MQ9 O 605	
	
Bond lengths	Bond angles
	
Torsions	Rings

Ligand LYC O 607	
	
Bond lengths	Bond angles
	
Torsions	Rings

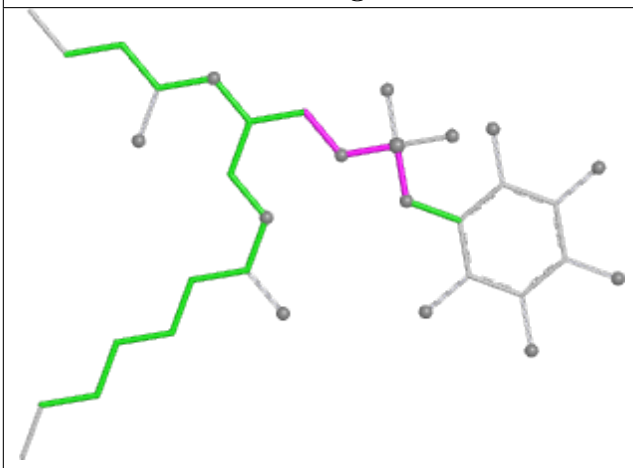
Ligand 9YF U 203



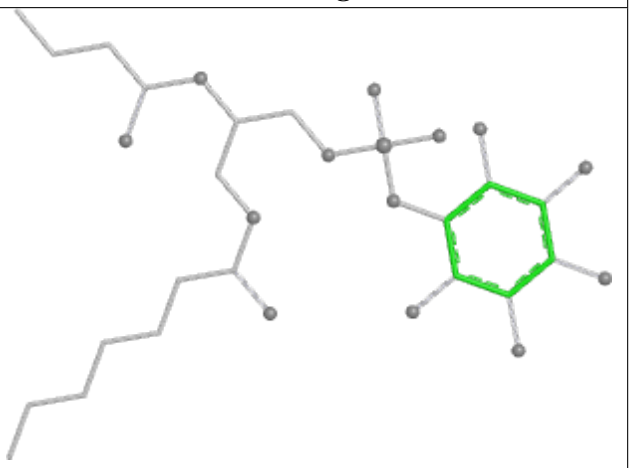
Bond lengths



Bond angles

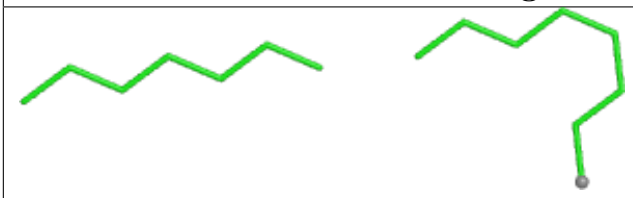


Torsions

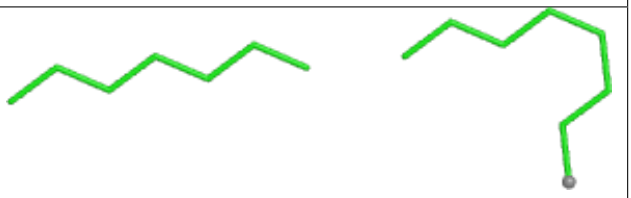


Rings

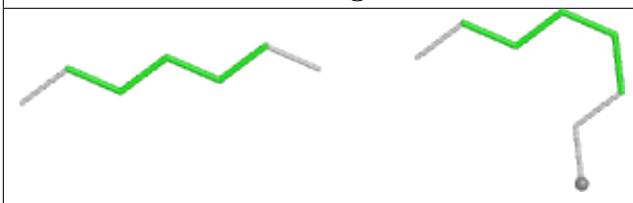
Ligand PLM H 202



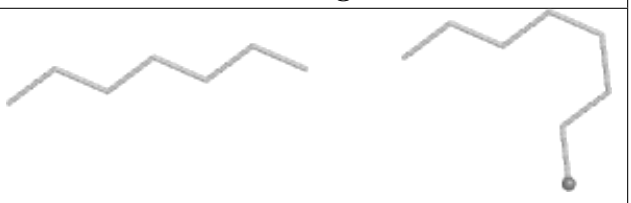
Bond lengths



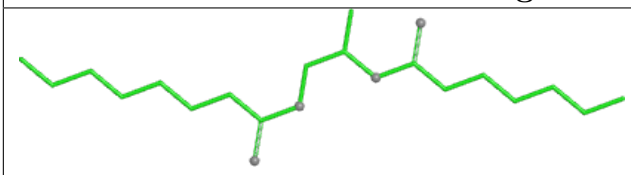
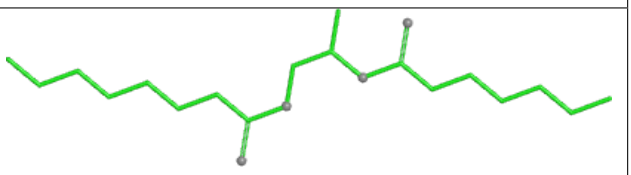
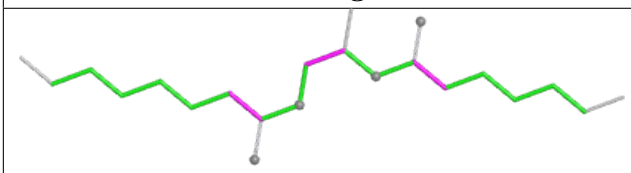
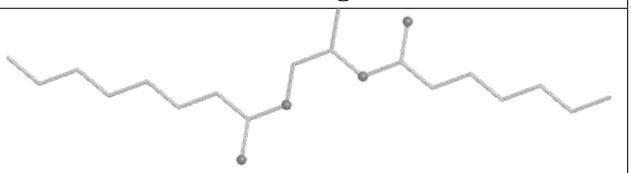
Bond angles

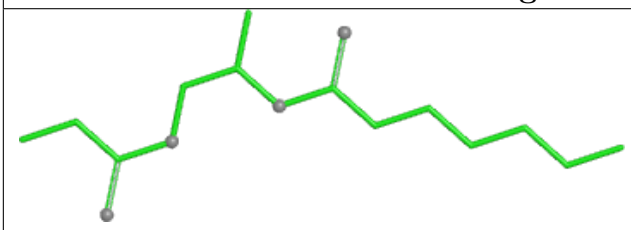
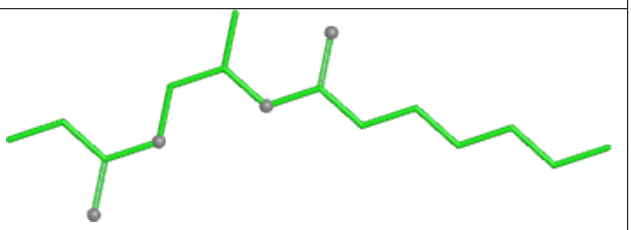
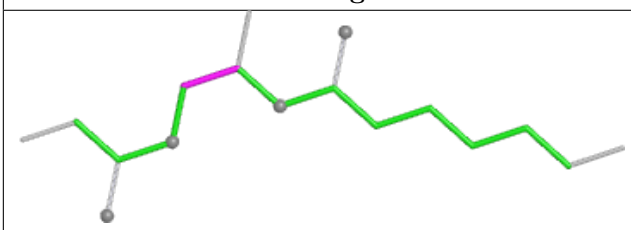
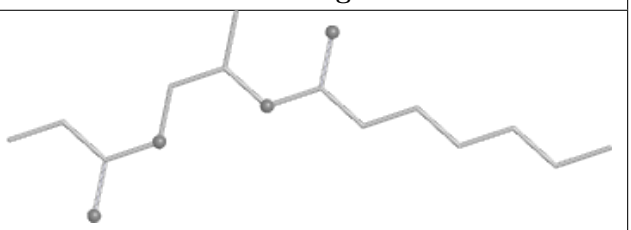


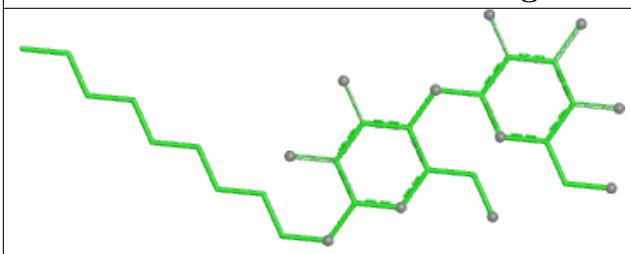
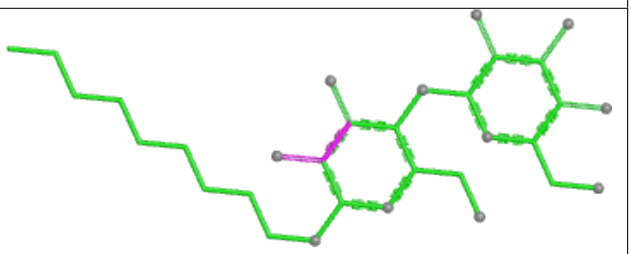
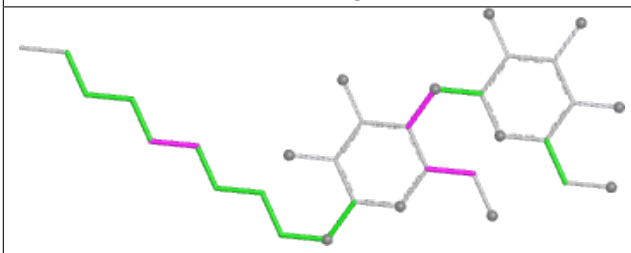
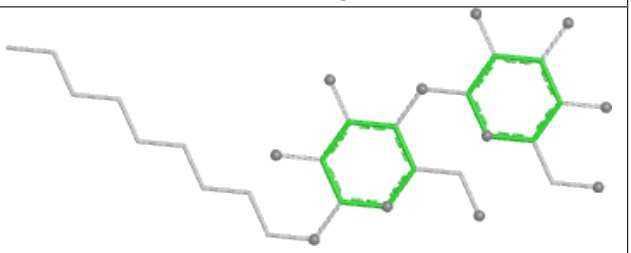
Torsions

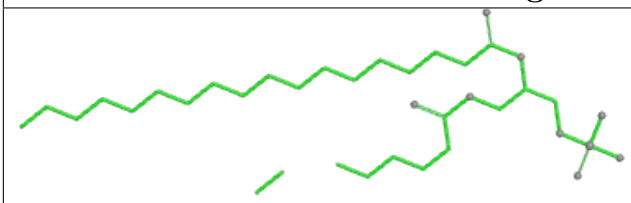
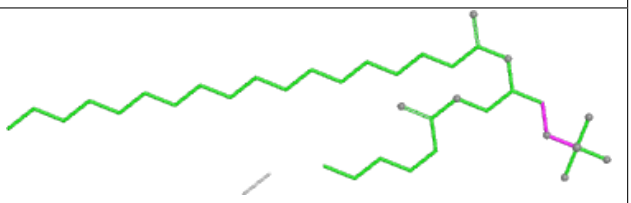
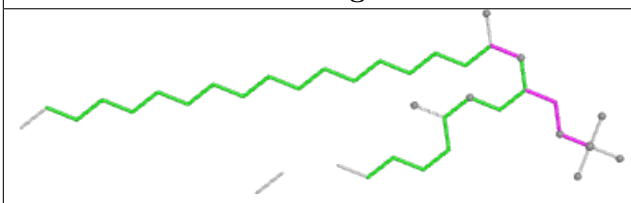
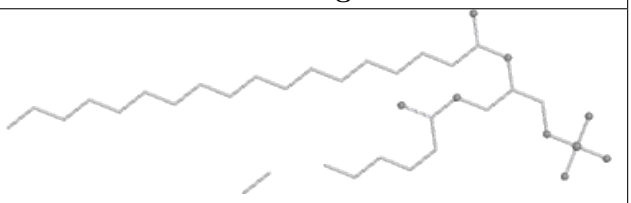


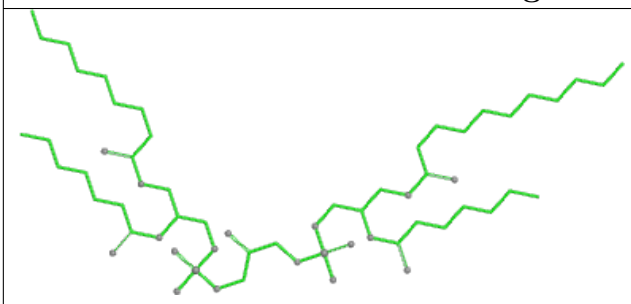
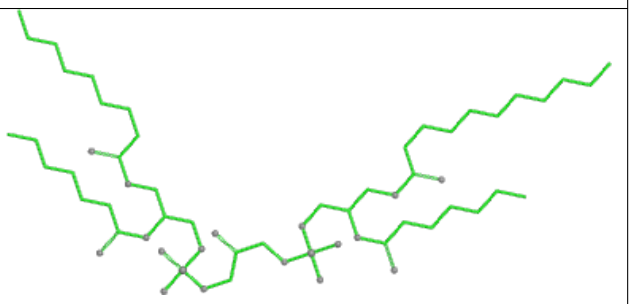
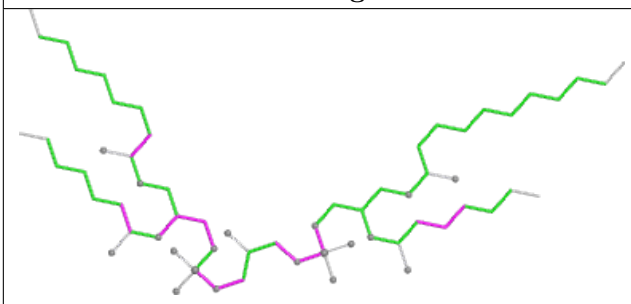
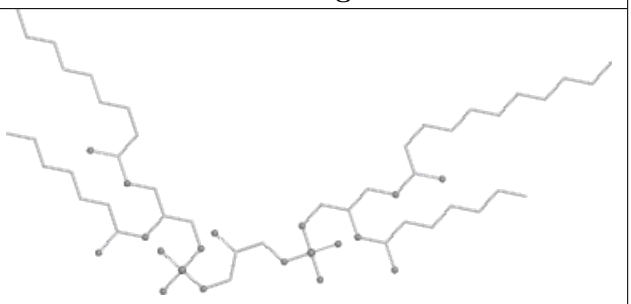
Rings

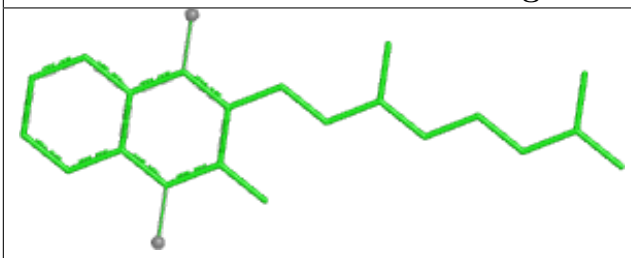
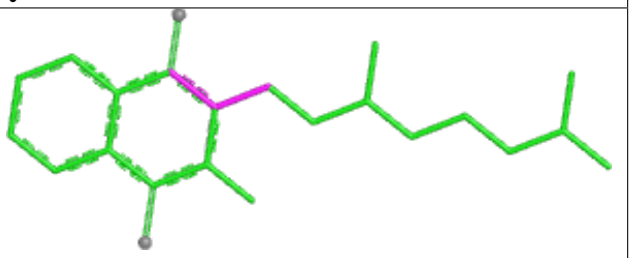
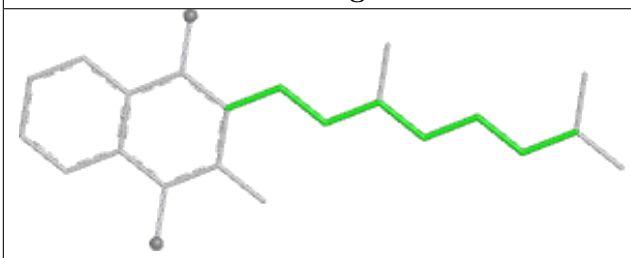
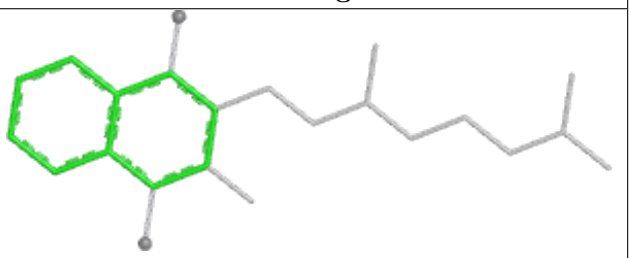
Ligand DGA M 201	
 Bond lengths	 Bond angles
 Torsions	 Rings

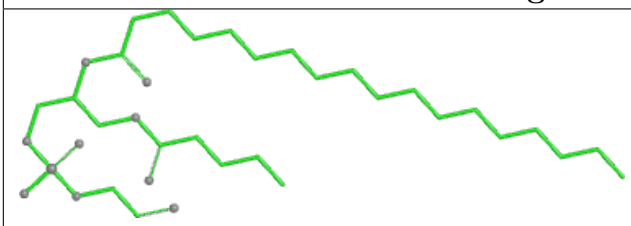
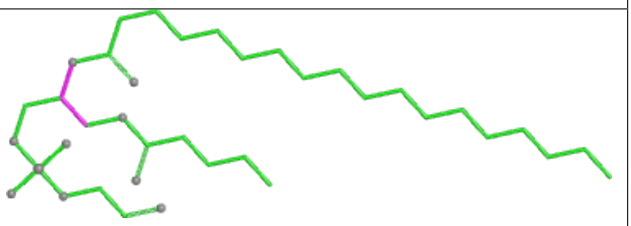
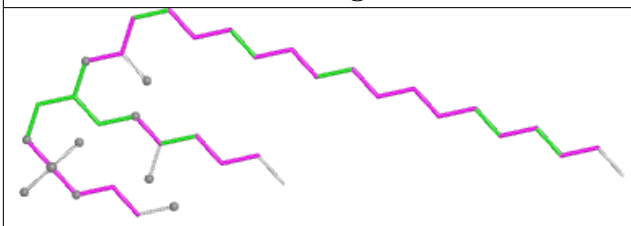
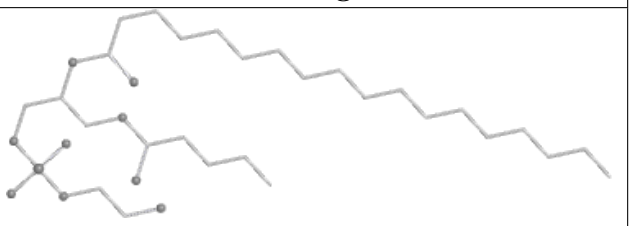
Ligand DGA U 201	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand LMT O 601	
 Bond lengths	 Bond angles
 Torsions	 Rings

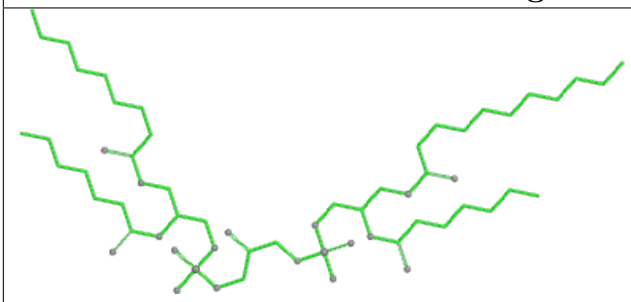
Ligand 3PH C 304	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CDL G 201	
 Bond lengths	 Bond angles
 Torsions	 Rings

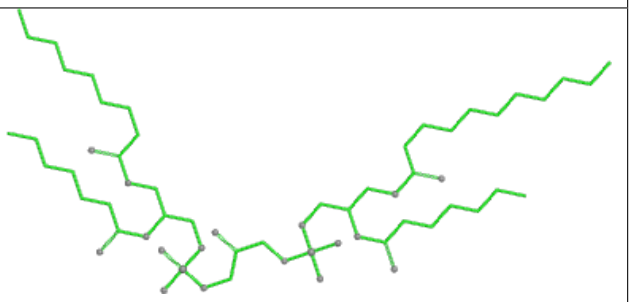
Ligand MQ9 B 604	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand 3PE N 502	
 Bond lengths	 Bond angles
 Torsions	 Rings

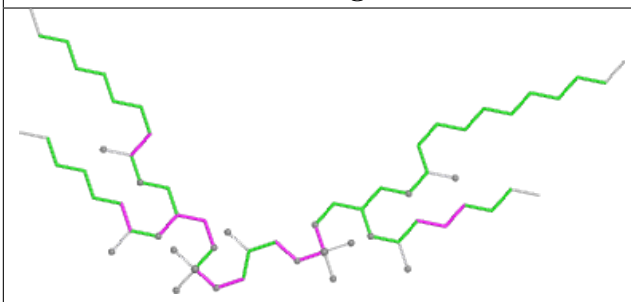
Ligand CDL S 303



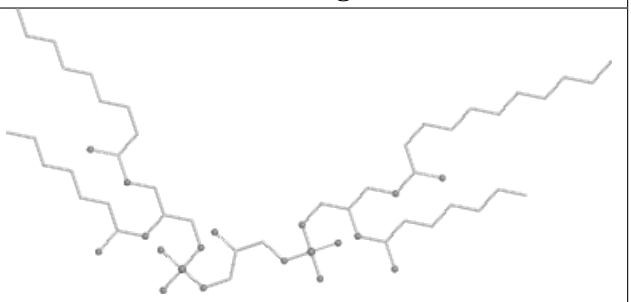
Bond lengths



Bond angles

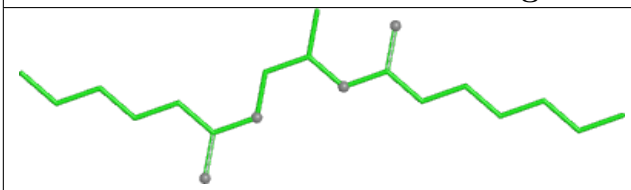


Torsions

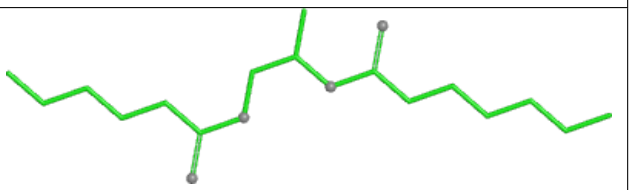


Rings

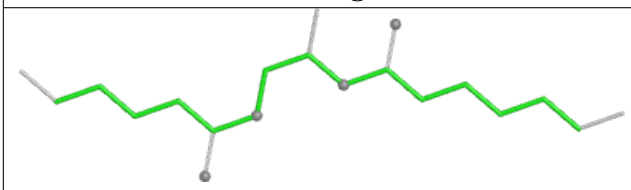
Ligand DGA E 404



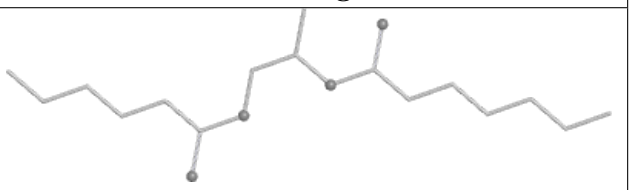
Bond lengths



Bond angles

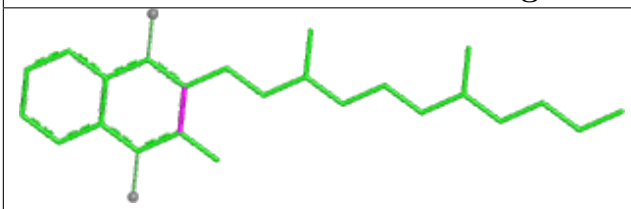


Torsions

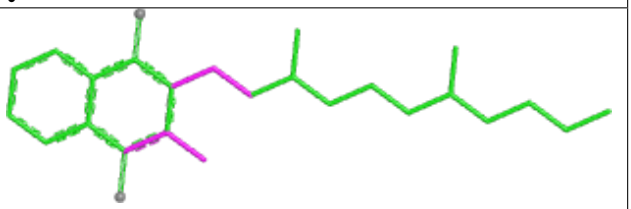


Rings

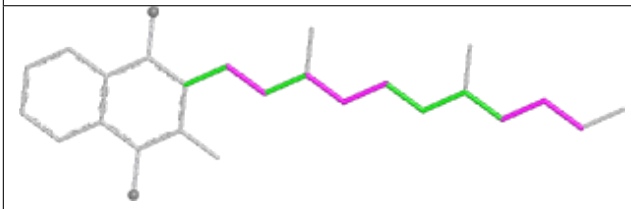
Ligand MQ9 N 501



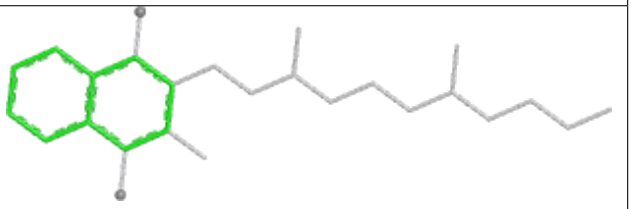
Bond lengths



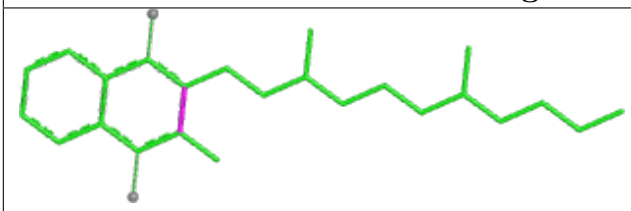
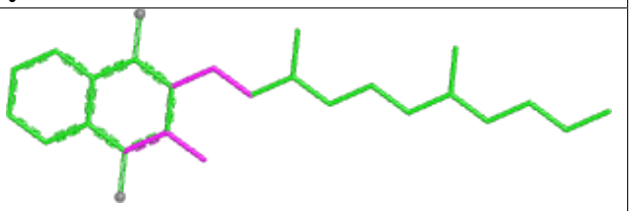
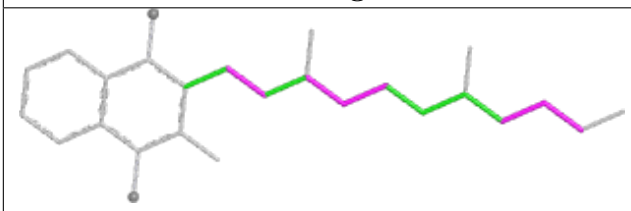
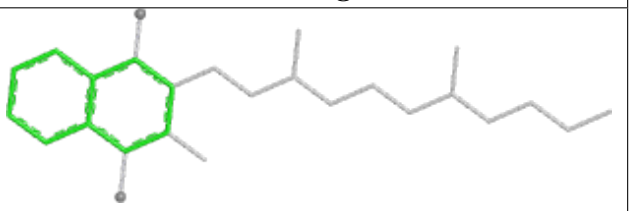
Bond angles

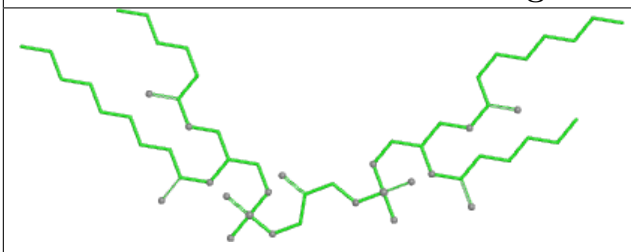
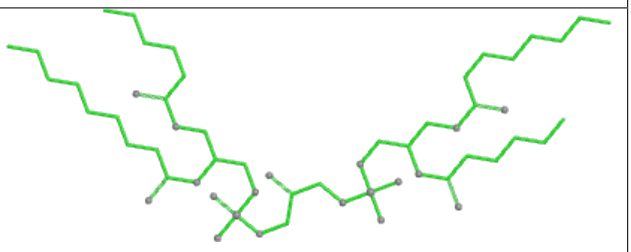
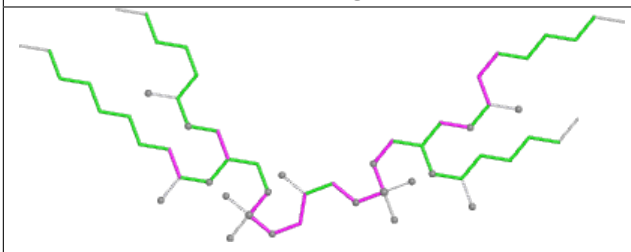
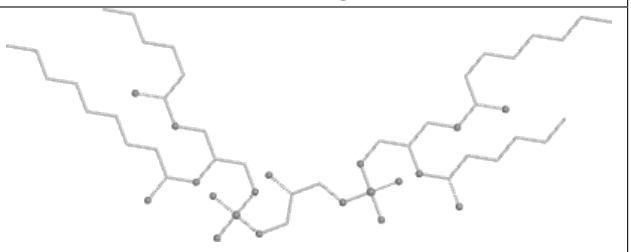


Torsions

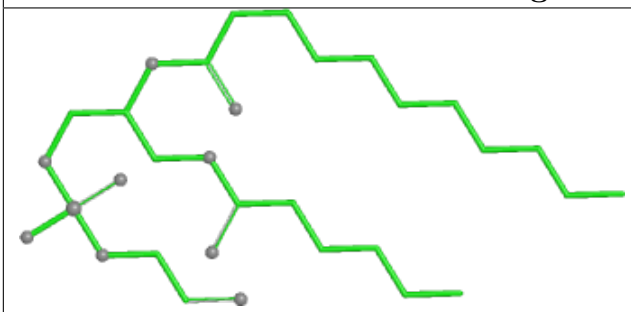


Rings

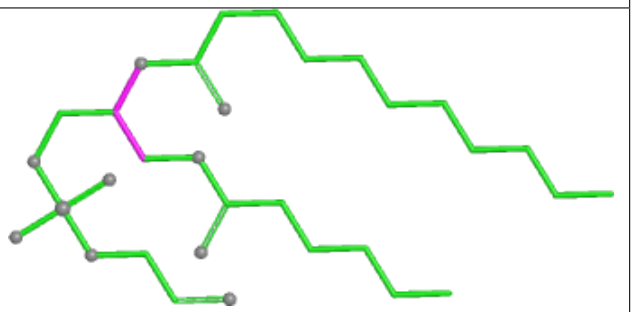
Ligand MQ9 A 504	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand CDL S 302	
 Bond lengths	 Bond angles
 Torsions	 Rings

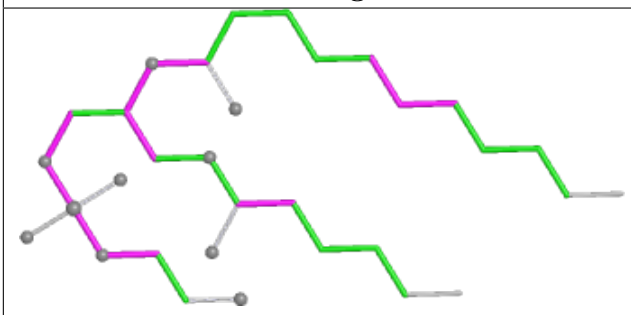
Ligand 3PE F 301



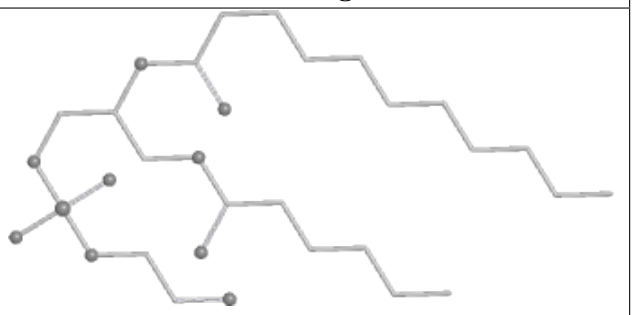
Bond lengths



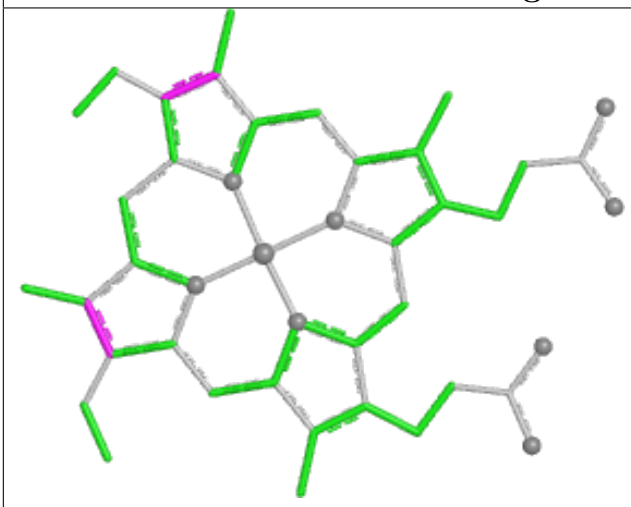
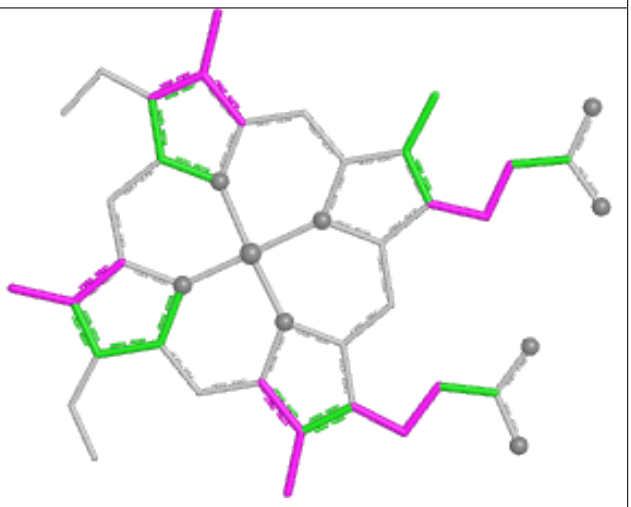
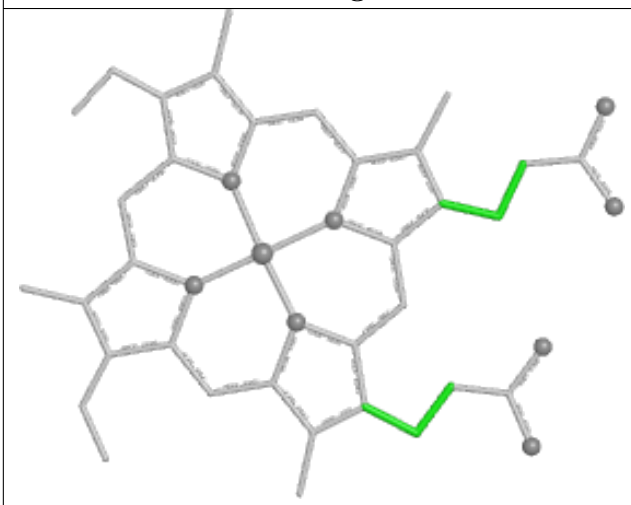
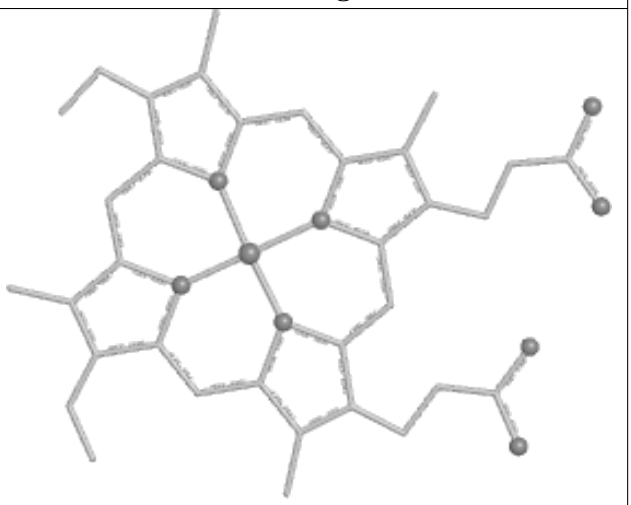
Bond angles

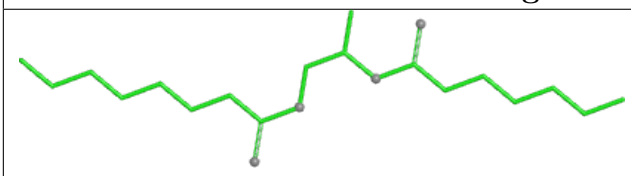
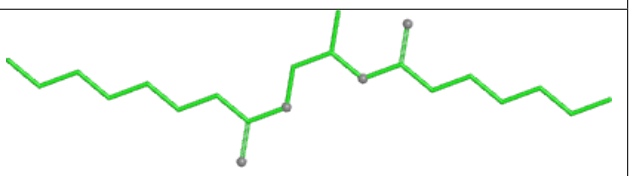
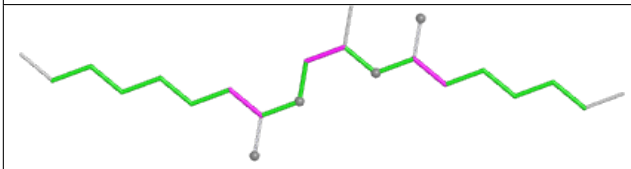
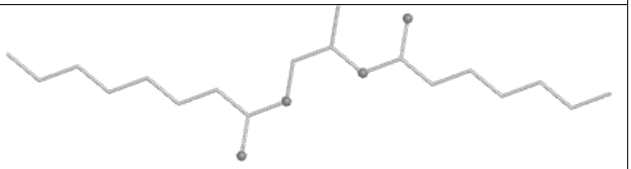


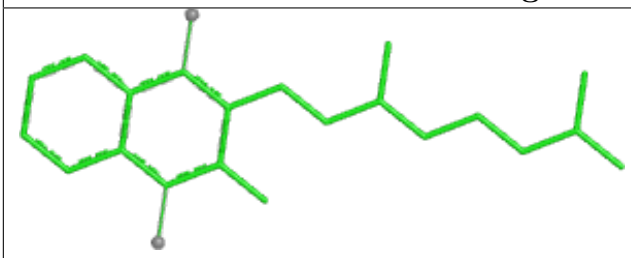
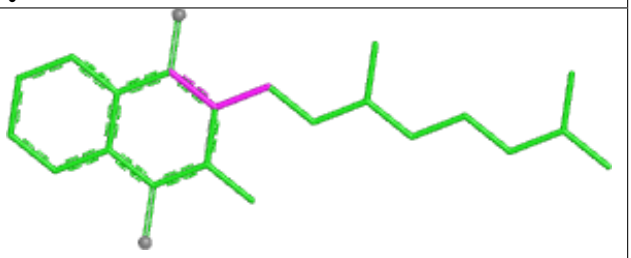
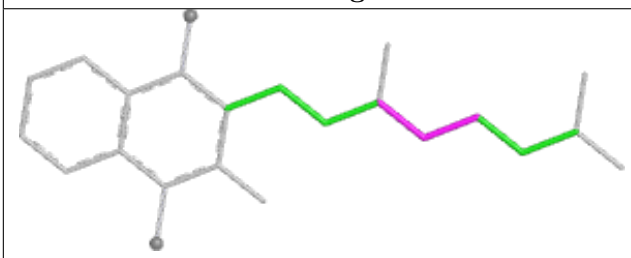
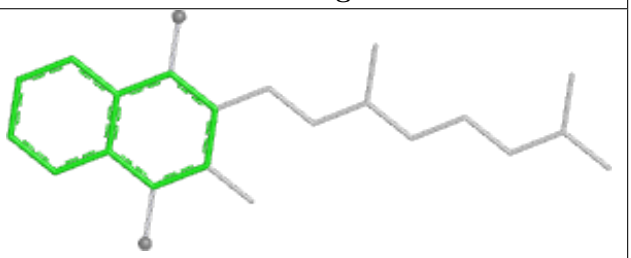
Torsions

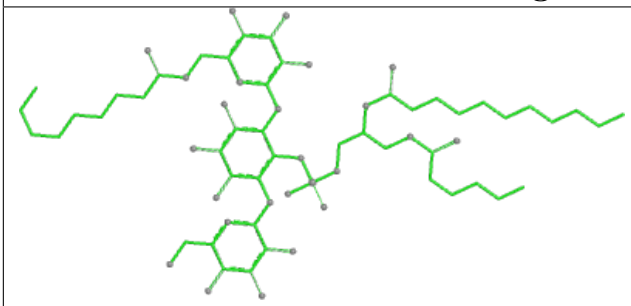
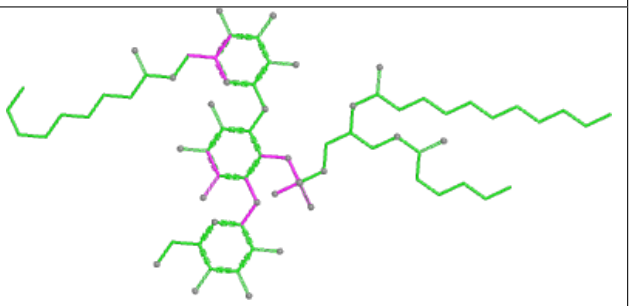
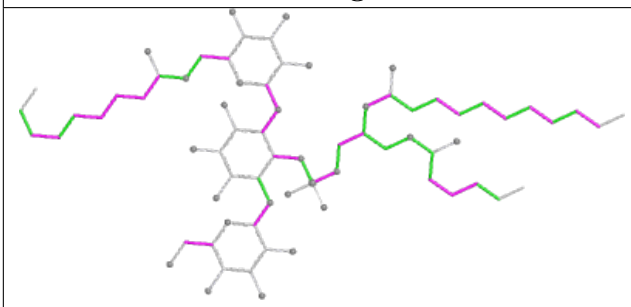
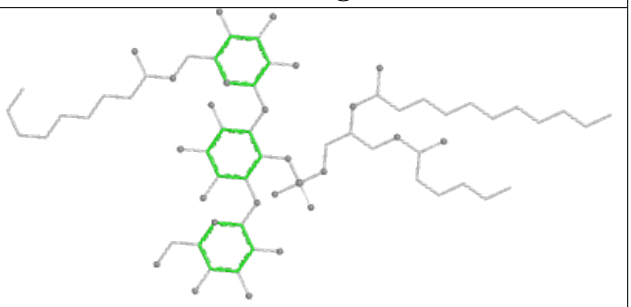


Rings

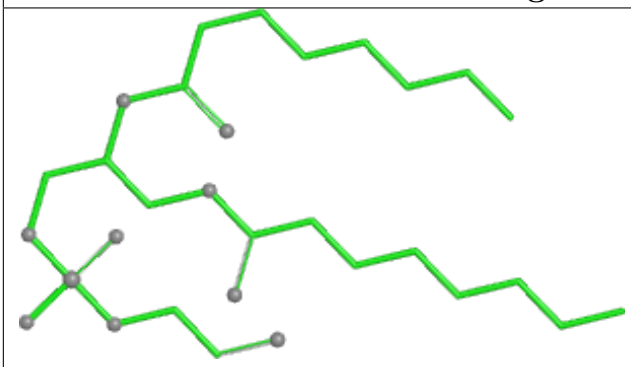
Ligand HEC P 303	
	
Bond lengths	Bond angles
	
Torsions	Rings

Ligand DGA Z 201	
	
Bond lengths	Bond angles
	
Torsions	Rings

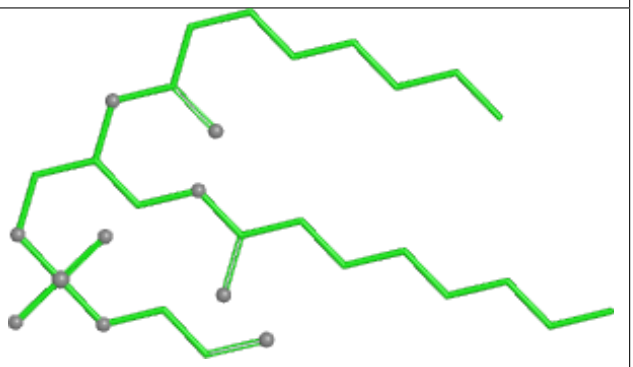
Ligand MQ9 O 602	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand IX7 R 406	
 Bond lengths	 Bond angles
 Torsions	 Rings

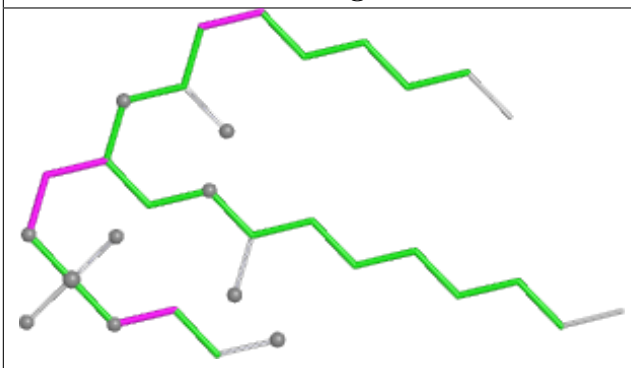
Ligand 3PE D 607



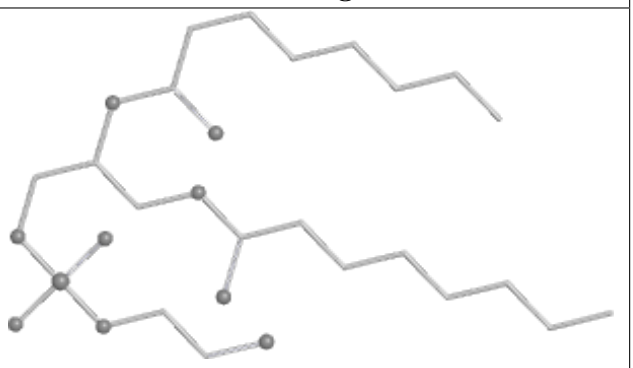
Bond lengths



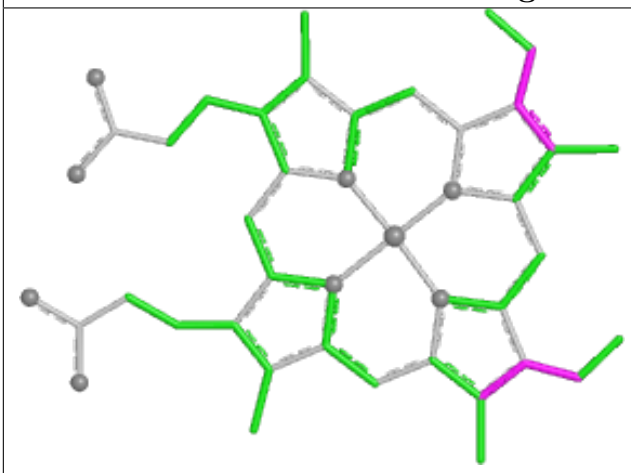
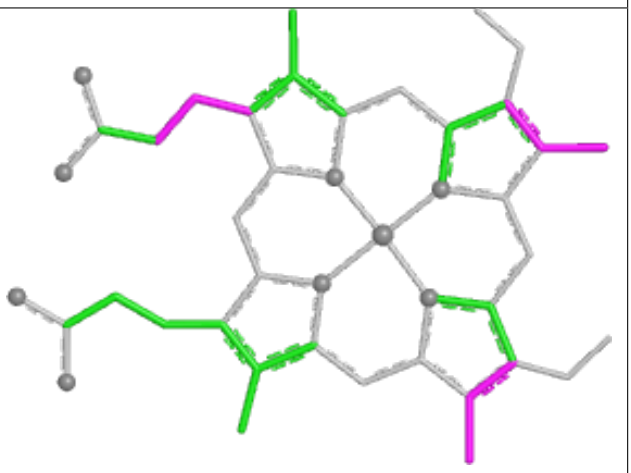
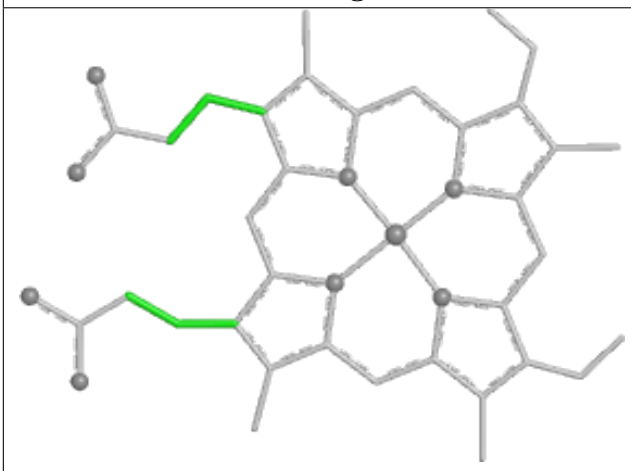
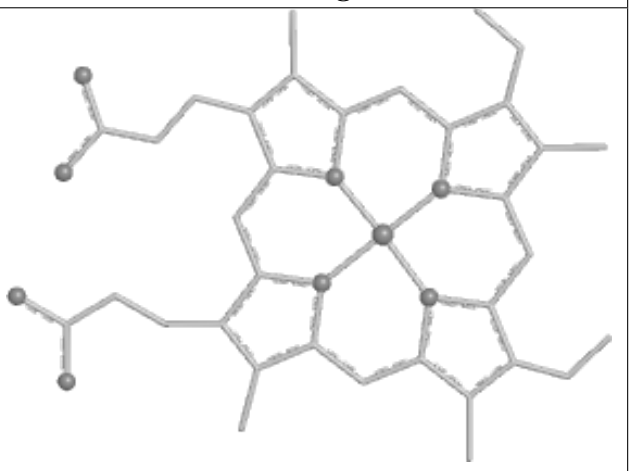
Bond angles

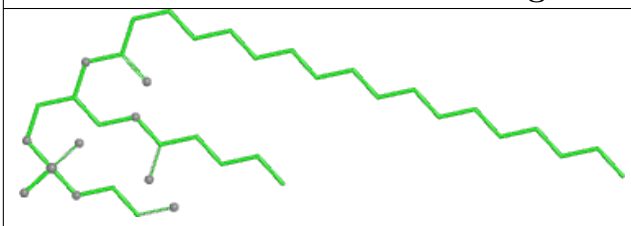
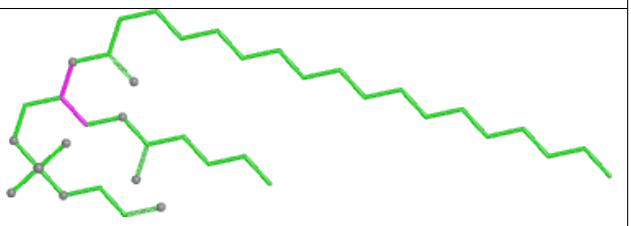
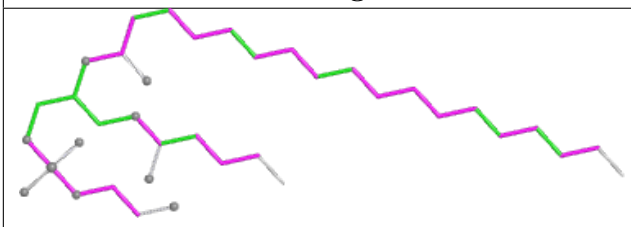
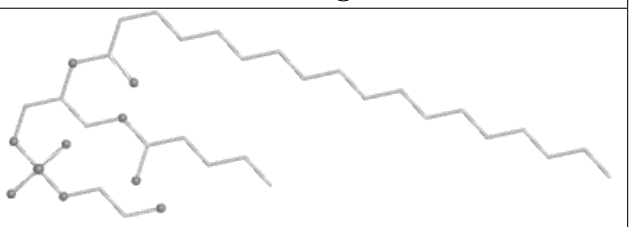


Torsions

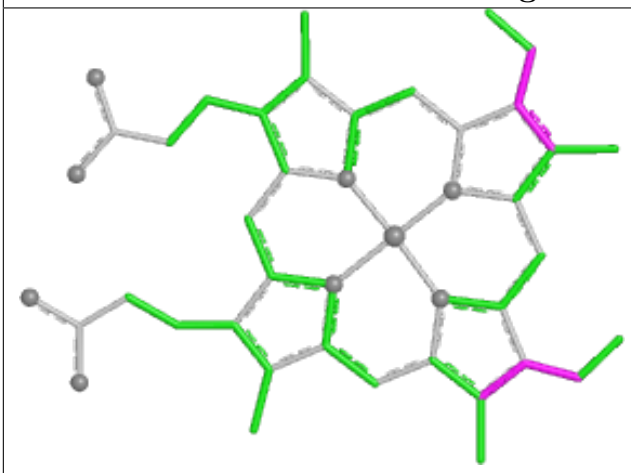


Rings

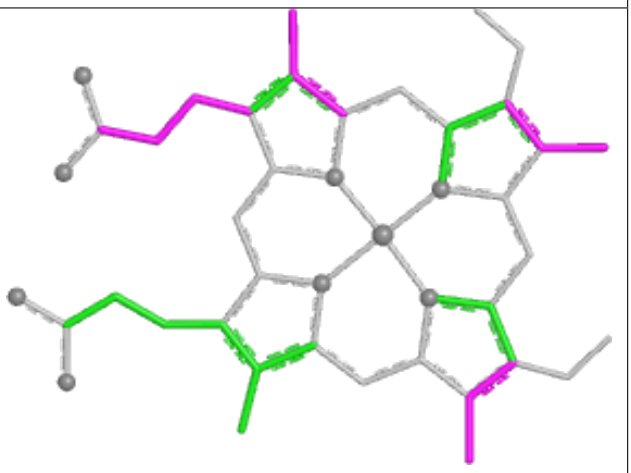
Ligand HEM O 604	
	
Bond lengths	Bond angles
	
Torsions	Rings

Ligand 3PE A 505	
	
Bond lengths	Bond angles
	
Torsions	Rings

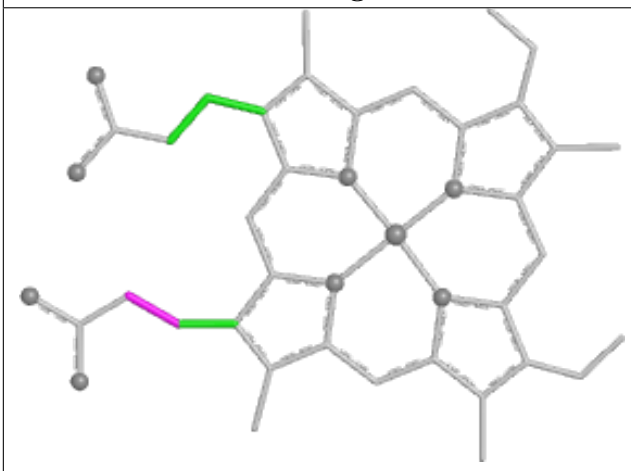
Ligand HEM B 602



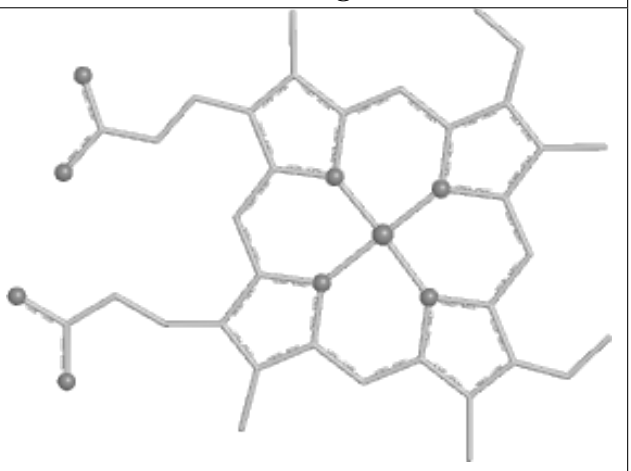
Bond lengths



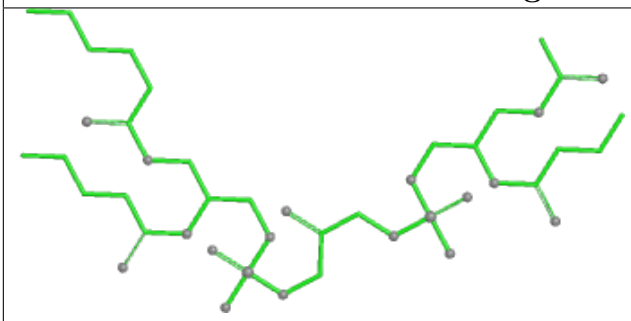
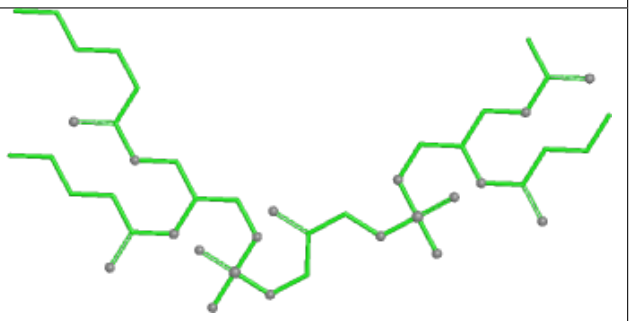
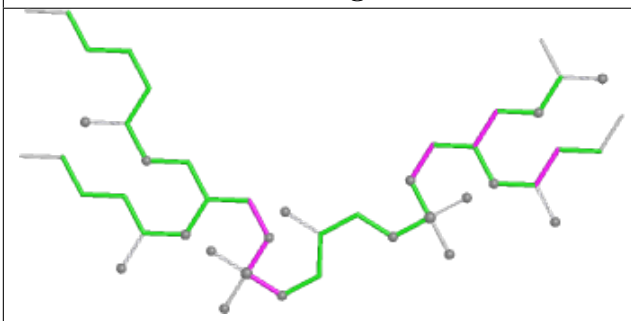
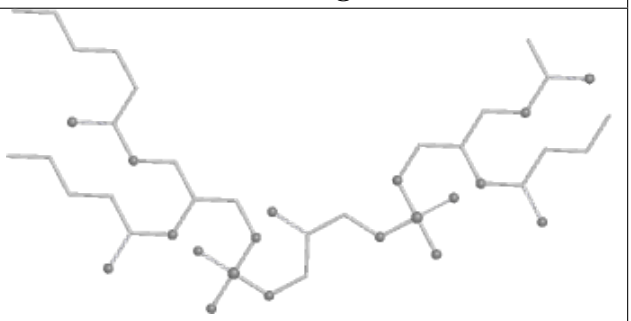
Bond angles

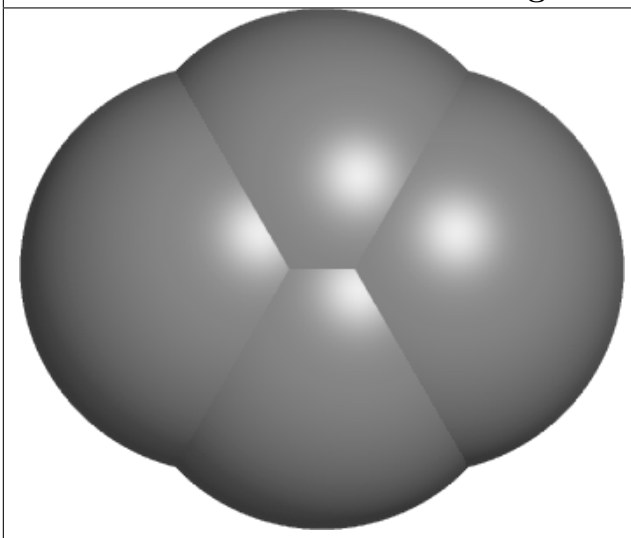
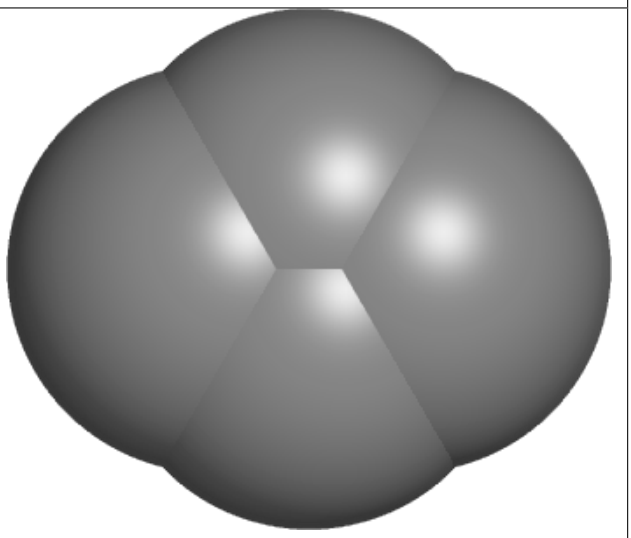
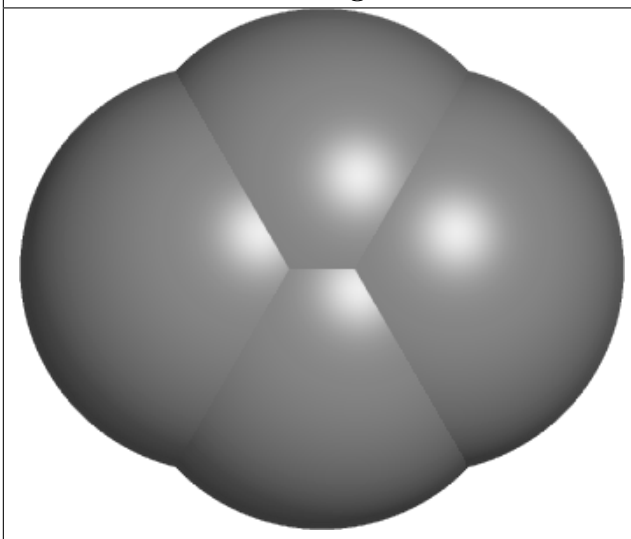
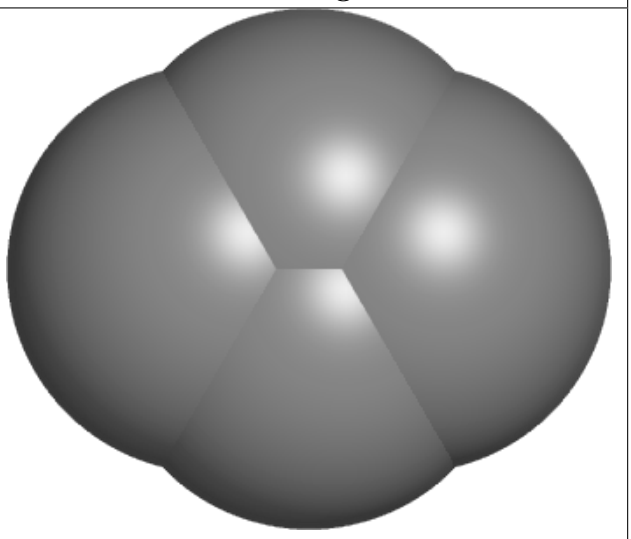


Torsions

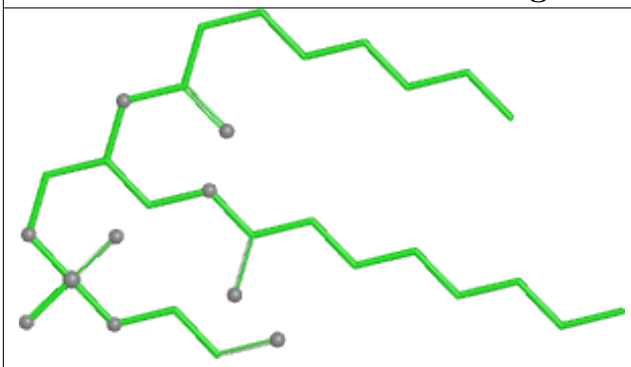


Rings

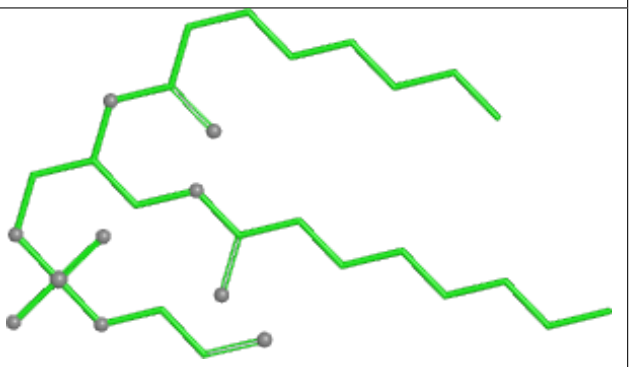
Ligand CDL O 606	
	
Bond lengths	**Bond angles**
	
Torsions	**Rings**

Ligand FES A 501	
	
Bond lengths	**Bond angles**
	
Torsions	**Rings**

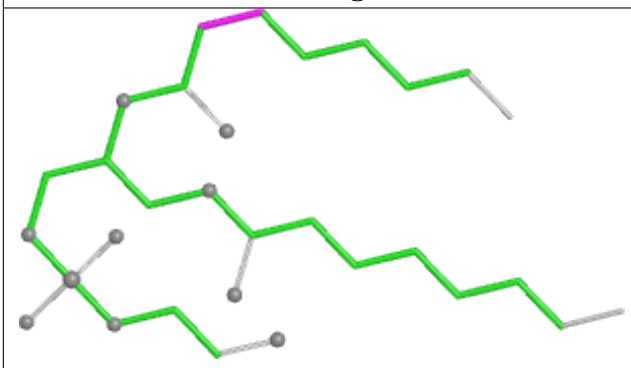
Ligand 3PE E 405



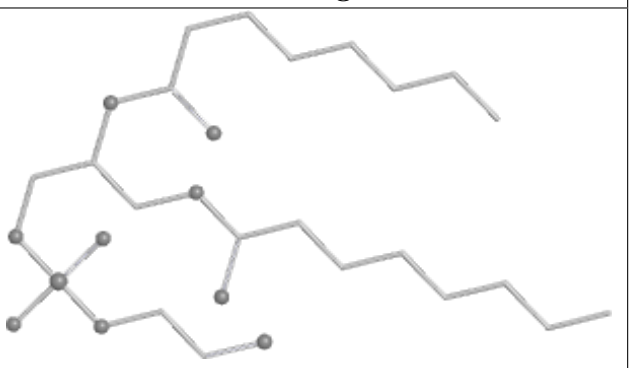
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

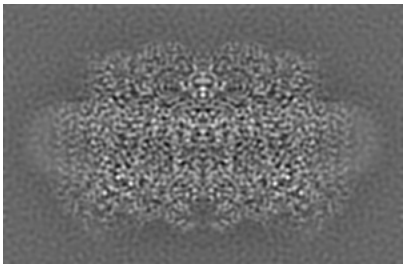
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-13977. These allow visual inspection of the internal detail of the map and identification of artifacts.

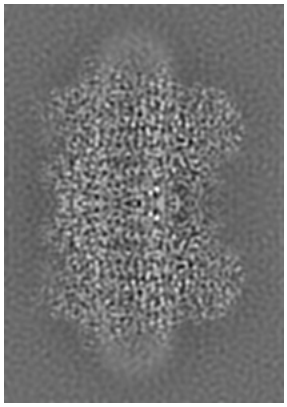
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

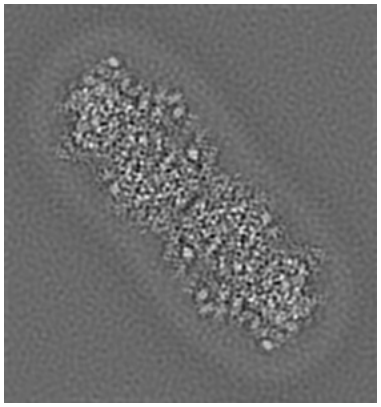
6.1.1 Primary map



X



Y

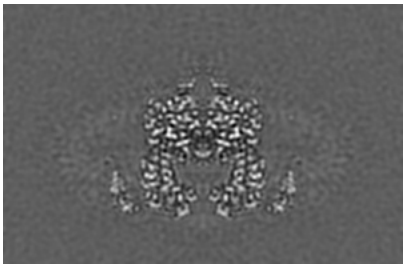


Z

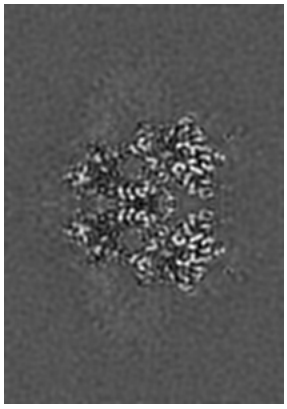
The images above show the map projected in three orthogonal directions.

6.2 Central slices

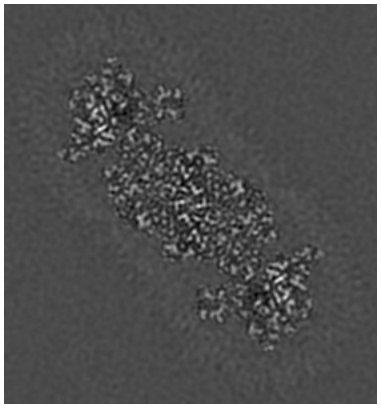
6.2.1 Primary map



X Index: 107



Y Index: 115

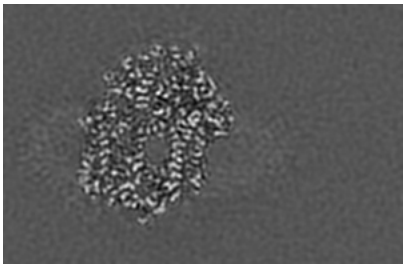


Z Index: 75

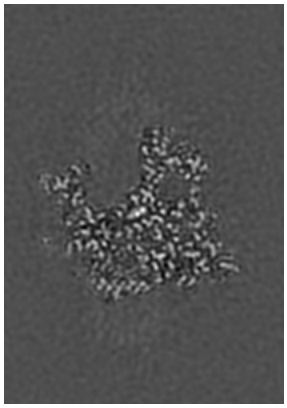
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

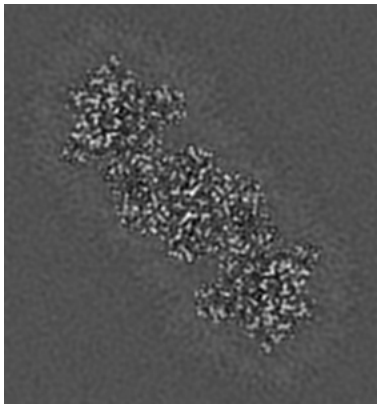
6.3.1 Primary map



X Index: 136



Y Index: 123



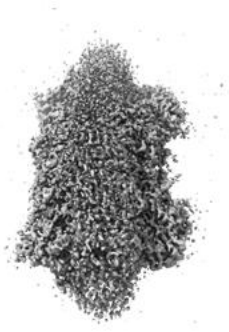
Z Index: 79

The images above show the largest variance slices of the map in three orthogonal directions.

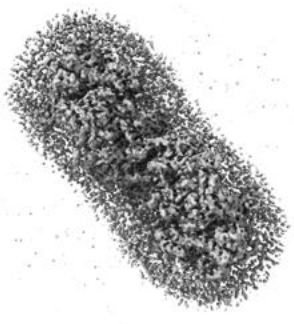
6.4 Orthogonal surface views (i)

6.4.1 Primary map

X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.09. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

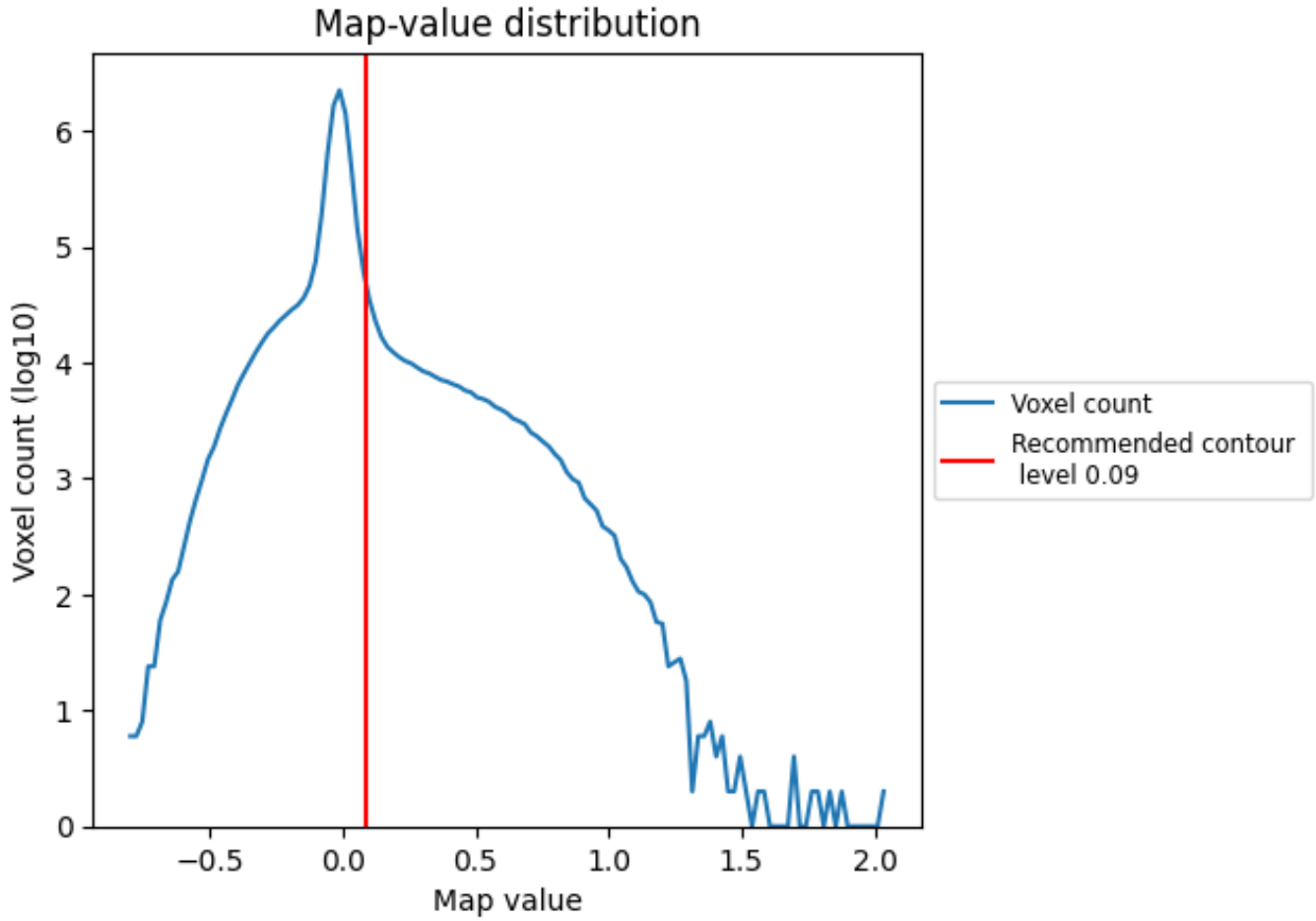
6.5 Mask visualisation (i)

This section was not generated. No masks/segmentation were deposited.

7 Map analysis

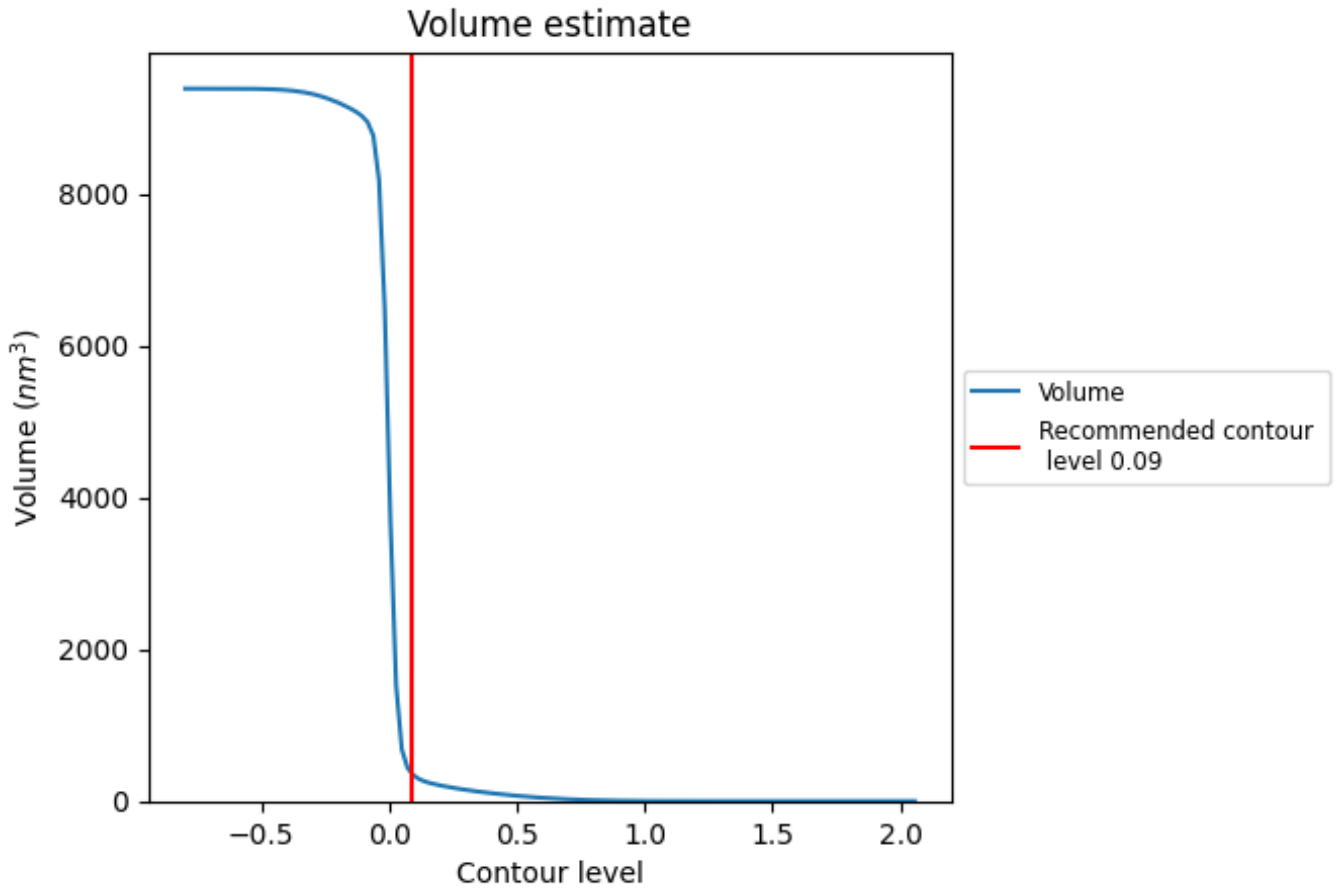
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate (i)



The volume at the recommended contour level is 359 nm^3; this corresponds to an approximate mass of 325 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

This section was not generated. The rotationally averaged power spectrum is only generated for cubic maps.

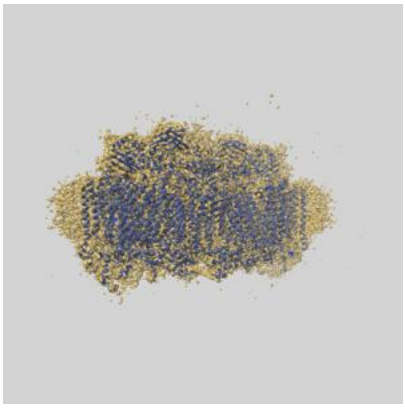
8 Fourier-Shell correlation (i)

This section was not generated. No FSC curve or half-maps provided.

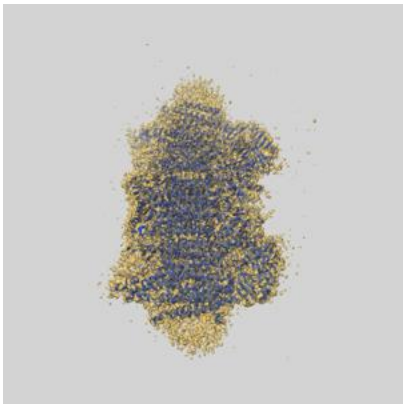
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-13977 and PDB model 7QHO. Per-residue inclusion information can be found in section 3 on page 20.

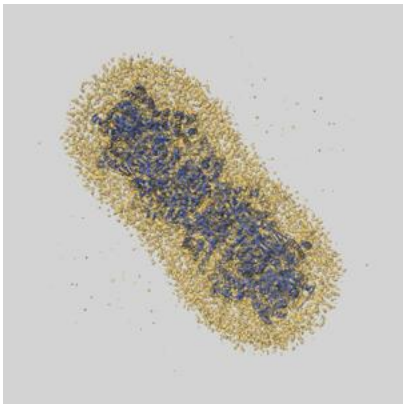
9.1 Map-model overlay



X



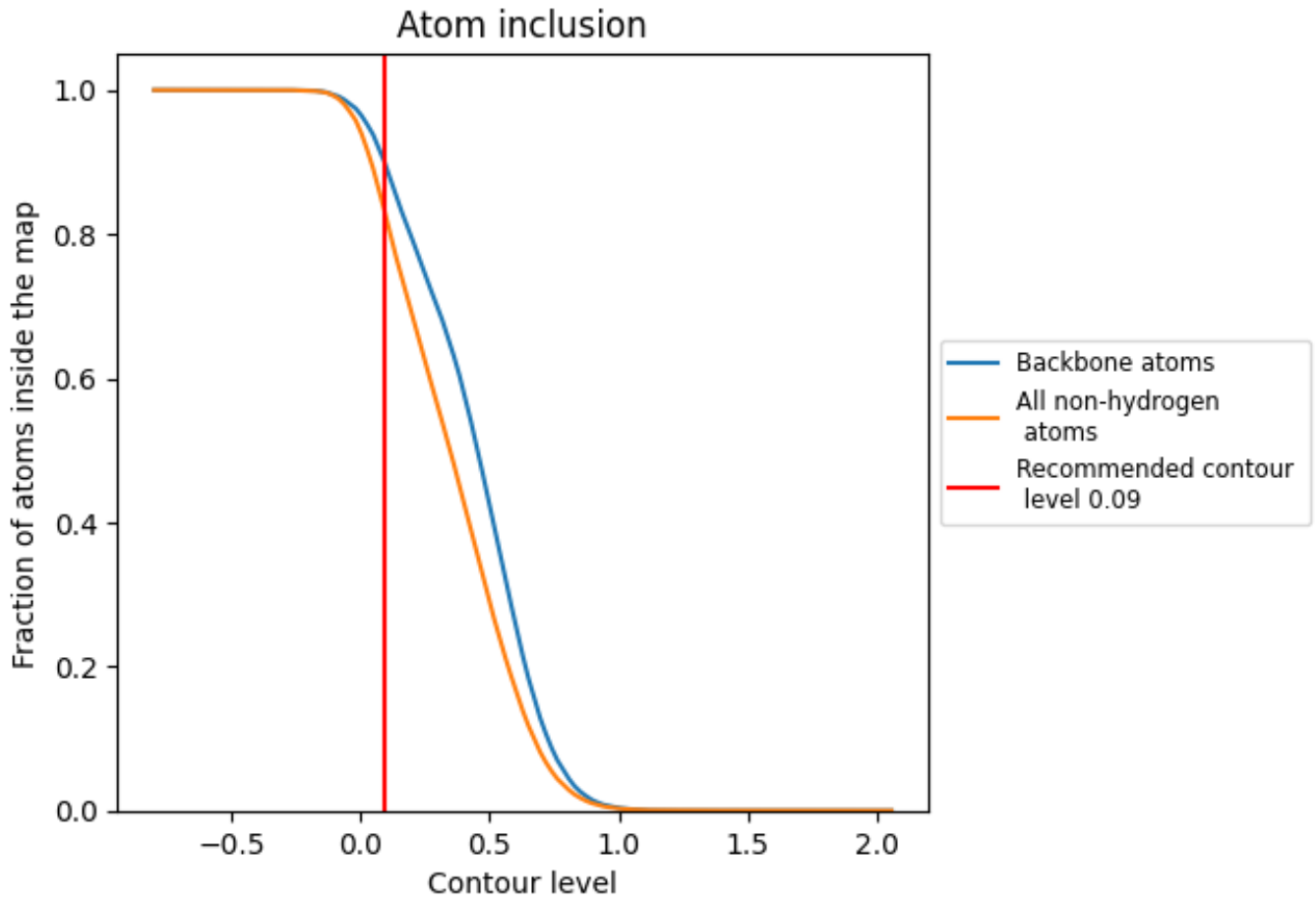
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.09 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Atom inclusion (i)



At the recommended contour level, 90% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.