Full wwPDB EM Validation Report ⓘ

Jul 9, 2024 – 08:43 pm BST

PDB ID	:	8OVD
EMDB ID	:	EMD-17211
Title	:	Respiratory supercomplex (III2-IV2) from Mycobacterium smegmatis
Authors	:	Kovalova, T.; Krol, S.; Sjostrand, D.; Riepl, D.; Gamiz-Hernandez, A.; Brzezinski, P.; Kaila, V.; Hogbom, M.
Deposited on	:	2023-04-25
Resolution	:	2.30 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

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

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

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

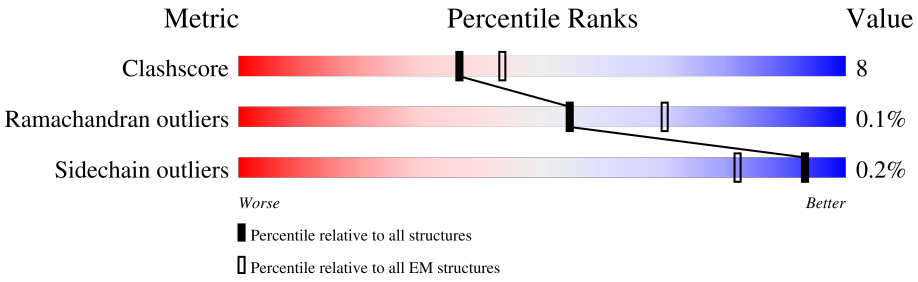
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.30 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	C	278	73% 6% 20%
1	O	278	73% 6% 20%
2	G	408	82% 11% 7%
2	M	408	83% 10% 7%
3	H	556	82% 14%
3	N	556	83% 12%
4	I	100	61% 12% 27%
4	P	100	63% 10% 27%

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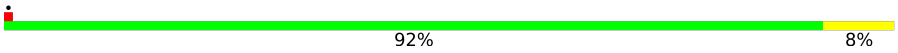
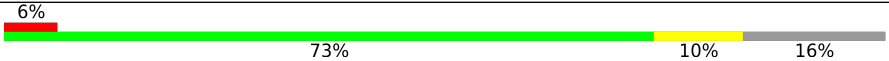
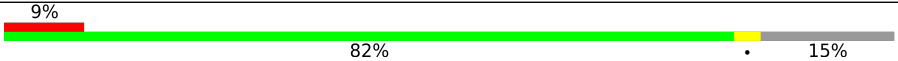
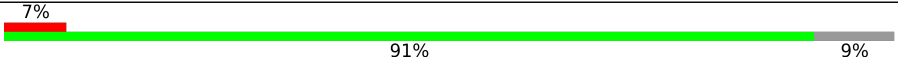
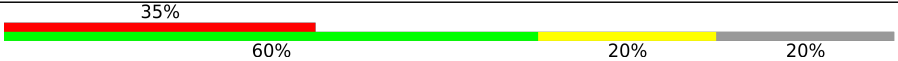
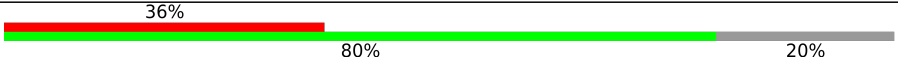
Mol	Chain	Length	Quality of chain
5	J	203	
5	S	203	
6	K	139	
6	T	139	
7	L	575	
7	R	575	
8	Q	341	
8	X	341	
9	U	79	
9	Z	79	
10	V	157	
10	a	157	
11	W	186	
11	b	186	
12	Y	236	
12	c	236	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
14	MQ9	G	901	-	-	X	-
14	MQ9	H	907	-	-	X	-
14	MQ9	M	505	-	-	X	-
14	MQ9	N	606	-	-	X	-
21	CDL	H	903	-	-	X	-
21	CDL	N	602	-	-	X	-

2 Entry composition (i)

There are 30 unique types of molecules in this entry. The entry contains 47246 atoms, of which 0 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 cytochrome c subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	O	223	Total	C	N	O	S	0	0
			1623	1008	289	314	12		
1	C	223	Total	C	N	O	S	0	0
			1623	1008	289	314	12		

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
O	17	MET	-	initiating methionine	UNP A0R050
O	18	HIS	-	expression tag	UNP A0R050
O	19	HIS	-	expression tag	UNP A0R050
O	20	HIS	-	expression tag	UNP A0R050
O	21	HIS	-	expression tag	UNP A0R050
O	22	HIS	-	expression tag	UNP A0R050
O	23	HIS	-	expression tag	UNP A0R050
O	24	MET	-	expression tag	UNP A0R050
O	25	GLY	-	expression tag	UNP A0R050
O	26	SER	-	expression tag	UNP A0R050
C	17	MET	-	initiating methionine	UNP A0R050
C	18	HIS	-	expression tag	UNP A0R050
C	19	HIS	-	expression tag	UNP A0R050
C	20	HIS	-	expression tag	UNP A0R050
C	21	HIS	-	expression tag	UNP A0R050
C	22	HIS	-	expression tag	UNP A0R050
C	23	HIS	-	expression tag	UNP A0R050
C	24	MET	-	expression tag	UNP A0R050
C	25	GLY	-	expression tag	UNP A0R050
C	26	SER	-	expression tag	UNP A0R050

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	M	380	Total	C	N	O	S	0	0
			2967	1919	502	535	11		
2	G	380	Total	C	N	O	S	0	0
			2967	1919	502	535	11		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	N	533	Total	C	N	O	S	0	0
			4167	2743	707	699	18		
3	H	533	Total	C	N	O	S	0	0
			4167	2743	707	699	18		

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
N	547	LYS	-	expression tag	UNP A0R052
N	548	LEU	-	expression tag	UNP A0R052
N	549	ASP	-	expression tag	UNP A0R052
N	550	TYR	-	expression tag	UNP A0R052
N	551	LYS	-	expression tag	UNP A0R052
N	552	ASP	-	expression tag	UNP A0R052
N	553	ASP	-	expression tag	UNP A0R052
N	554	ASP	-	expression tag	UNP A0R052
N	555	ASP	-	expression tag	UNP A0R052
N	556	LYS	-	expression tag	UNP A0R052
H	547	LYS	-	expression tag	UNP A0R052
H	548	LEU	-	expression tag	UNP A0R052
H	549	ASP	-	expression tag	UNP A0R052
H	550	TYR	-	expression tag	UNP A0R052
H	551	LYS	-	expression tag	UNP A0R052
H	552	ASP	-	expression tag	UNP A0R052
H	553	ASP	-	expression tag	UNP A0R052
H	554	ASP	-	expression tag	UNP A0R052
H	555	ASP	-	expression tag	UNP A0R052
H	556	LYS	-	expression tag	UNP A0R052

- Molecule 4 is a protein called Transmembrane protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	P	73	Total	C	N	O	S	0	0
			586	385	107	90	4		

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Mol	Chain	Residues	Atoms					AltConf	Trace
4	I	73	Total	C	N	O	S	0	0
			586	385	107	90	4		

There are 34 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
P	1	MET	-	initiating methionine	UNP A0QVH4
P	2	SER	-	expression tag	UNP A0QVH4
P	3	SER	-	expression tag	UNP A0QVH4
P	4	THR	-	expression tag	UNP A0QVH4
P	5	GLN	-	expression tag	UNP A0QVH4
P	6	ASP	-	expression tag	UNP A0QVH4
P	7	ARG	-	expression tag	UNP A0QVH4
P	8	SER	-	expression tag	UNP A0QVH4
P	9	GLN	-	expression tag	UNP A0QVH4
P	10	LEU	-	expression tag	UNP A0QVH4
P	11	ASP	-	expression tag	UNP A0QVH4
P	12	PRO	-	expression tag	UNP A0QVH4
P	13	GLU	-	expression tag	UNP A0QVH4
P	14	GLU	-	expression tag	UNP A0QVH4
P	15	GLN	-	expression tag	UNP A0QVH4
P	16	PRO	-	expression tag	UNP A0QVH4
P	17	VAL	-	expression tag	UNP A0QVH4
I	1	MET	-	initiating methionine	UNP A0QVH4
I	2	SER	-	expression tag	UNP A0QVH4
I	3	SER	-	expression tag	UNP A0QVH4
I	4	THR	-	expression tag	UNP A0QVH4
I	5	GLN	-	expression tag	UNP A0QVH4
I	6	ASP	-	expression tag	UNP A0QVH4
I	7	ARG	-	expression tag	UNP A0QVH4
I	8	SER	-	expression tag	UNP A0QVH4
I	9	GLN	-	expression tag	UNP A0QVH4
I	10	LEU	-	expression tag	UNP A0QVH4
I	11	ASP	-	expression tag	UNP A0QVH4
I	12	PRO	-	expression tag	UNP A0QVH4
I	13	GLU	-	expression tag	UNP A0QVH4
I	14	GLU	-	expression tag	UNP A0QVH4
I	15	GLN	-	expression tag	UNP A0QVH4
I	16	PRO	-	expression tag	UNP A0QVH4
I	17	VAL	-	expression tag	UNP A0QVH4

- Molecule 5 is a protein called Probable cytochrome c oxidase subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	S	184	Total	C	N	O	S	0	0
			1441	967	229	238	7		
5	J	184	Total	C	N	O	S	0	0
			1441	967	229	238	7		

- Molecule 6 is a protein called Cytochrome c oxidase polypeptide 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	T	139	Total	C	N	O	S	0	0
			1077	719	167	188	3		
6	K	139	Total	C	N	O	S	0	0
			1077	719	167	188	3		

- Molecule 7 is a protein called Cytochrome c oxidase subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	R	551	Total	C	N	O	S	0	0
			4369	2936	694	713	26		
7	L	551	Total	C	N	O	S	0	0
			4369	2936	694	713	26		

There are 40 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	1	MET	-	initiating methionine	UNP A0A2U9PNL2
R	2	VAL	-	expression tag	UNP A0A2U9PNL2
R	3	ALA	-	expression tag	UNP A0A2U9PNL2
R	4	GLU	-	expression tag	UNP A0A2U9PNL2
R	5	ALA	-	expression tag	UNP A0A2U9PNL2
R	6	PRO	-	expression tag	UNP A0A2U9PNL2
R	7	PRO	-	expression tag	UNP A0A2U9PNL2
R	8	ILE	-	expression tag	UNP A0A2U9PNL2
R	9	GLY	-	expression tag	UNP A0A2U9PNL2
R	10	GLU	-	expression tag	UNP A0A2U9PNL2
R	11	LEU	-	expression tag	UNP A0A2U9PNL2
R	12	GLU	-	expression tag	UNP A0A2U9PNL2
R	13	ALA	-	expression tag	UNP A0A2U9PNL2
R	14	ARG	-	expression tag	UNP A0A2U9PNL2
R	15	ARG	-	expression tag	UNP A0A2U9PNL2
R	16	PRO	-	expression tag	UNP A0A2U9PNL2
R	17	PHE	-	expression tag	UNP A0A2U9PNL2
R	18	PRO	-	expression tag	UNP A0A2U9PNL2
R	19	GLU	-	expression tag	UNP A0A2U9PNL2

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Chain	Residue	Modelled	Actual	Comment	Reference
R	20	ARG	-	expression tag	UNP A0A2U9PNL2
L	1	MET	-	initiating methionine	UNP A0A2U9PNL2
L	2	VAL	-	expression tag	UNP A0A2U9PNL2
L	3	ALA	-	expression tag	UNP A0A2U9PNL2
L	4	GLU	-	expression tag	UNP A0A2U9PNL2
L	5	ALA	-	expression tag	UNP A0A2U9PNL2
L	6	PRO	-	expression tag	UNP A0A2U9PNL2
L	7	PRO	-	expression tag	UNP A0A2U9PNL2
L	8	ILE	-	expression tag	UNP A0A2U9PNL2
L	9	GLY	-	expression tag	UNP A0A2U9PNL2
L	10	GLU	-	expression tag	UNP A0A2U9PNL2
L	11	LEU	-	expression tag	UNP A0A2U9PNL2
L	12	GLU	-	expression tag	UNP A0A2U9PNL2
L	13	ALA	-	expression tag	UNP A0A2U9PNL2
L	14	ARG	-	expression tag	UNP A0A2U9PNL2
L	15	ARG	-	expression tag	UNP A0A2U9PNL2
L	16	PRO	-	expression tag	UNP A0A2U9PNL2
L	17	PHE	-	expression tag	UNP A0A2U9PNL2
L	18	PRO	-	expression tag	UNP A0A2U9PNL2
L	19	GLU	-	expression tag	UNP A0A2U9PNL2
L	20	ARG	-	expression tag	UNP A0A2U9PNL2

- Molecule 8 is a protein called cytochrome-c oxidase.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	Q	299	Total	C	N	O	S	0	0
			2382	1541	396	435	10		
8	X	300	Total	C	N	O	S	0	0
			2391	1547	398	436	10		

- Molecule 9 is a protein called Cytochrome c oxidase subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	U	66	Total	C	N	O	S	0	0
			499	329	84	85	1		
9	Z	67	Total	C	N	O	S	0	0
			507	334	85	86	2		

- Molecule 10 is a protein called Uncharacterized protein MSMEG_4692/MSMEI_4575.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	V	143	Total	C	N	O	S	0	0
			1024	647	174	201	2		
10	a	143	Total	C	N	O	S	0	0
			1024	647	174	201	2		

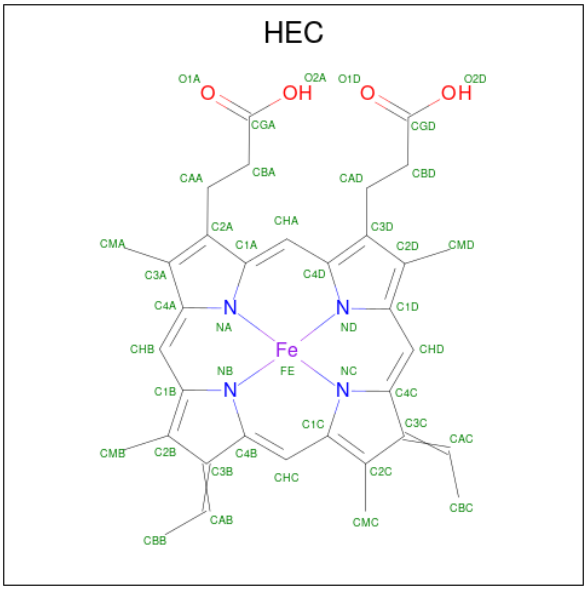
- Molecule 11 is a protein called LpqE protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	W	149	Total	C	N	O	S	0	0
			1083	670	181	231	1		
11	b	149	Total	C	N	O	S	0	0
			1083	670	181	231	1		

- Molecule 12 is a protein called Superoxide dismutase [Cu-Zn].

Mol	Chain	Residues	Atoms					AltConf	Trace
12	Y	25	Total	C	N	O	S	0	0
			168	103	26	38	1		
12	c	25	Total	C	N	O	S	0	0
			168	103	26	38	1		

- Molecule 13 is HEME C (three-letter code: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



Mol	Chain	Residues	Atoms					AltConf
13	O	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

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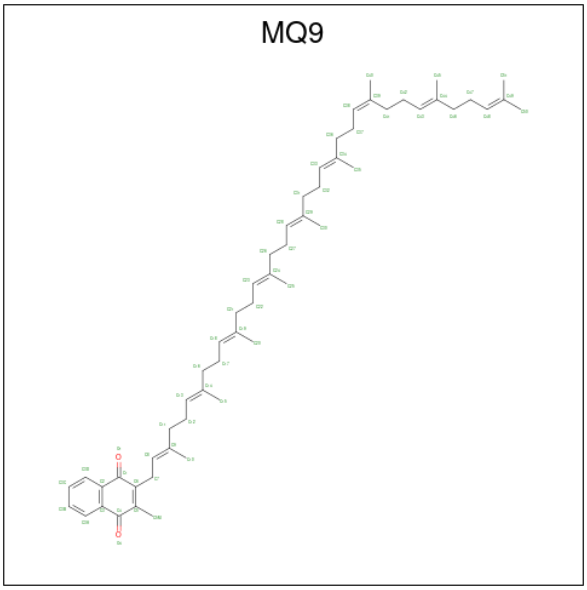
Mol	Chain	Residues	Atoms					AltConf
13	O	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
13	C	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
13	C	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

- Molecule 14 is MENAQUINONE-9 (three-letter code: MQ9) (formula: $C_{56}H_{80}O_2$).



Mol	Chain	Residues	Atoms			AltConf
14	O	1	Total	C	O	0
			58	56	2	
14	M	1	Total	C	O	0
			58	56	2	
14	N	1	Total	C	O	0
			43	41	2	
14	N	1	Total	C	O	0
			58	56	2	
14	N	1	Total	C	O	0
			58	56	2	
14	T	1	Total	C	O	0
			58	56	2	
14	C	1	Total	C	O	0
			58	56	2	
14	G	1	Total	C	O	0
			58	56	2	

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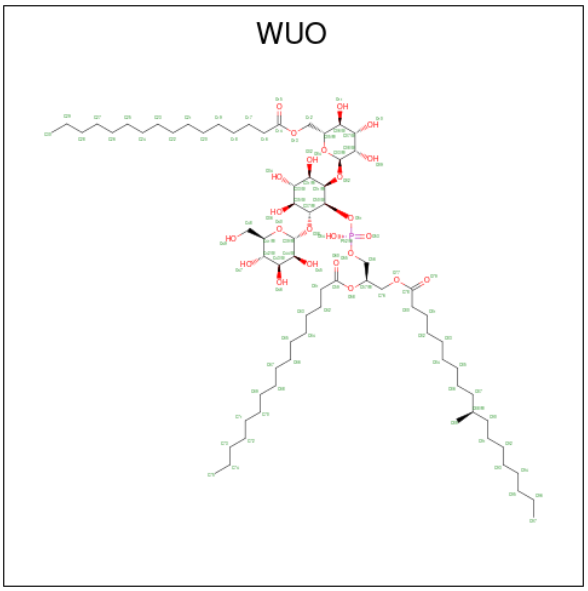
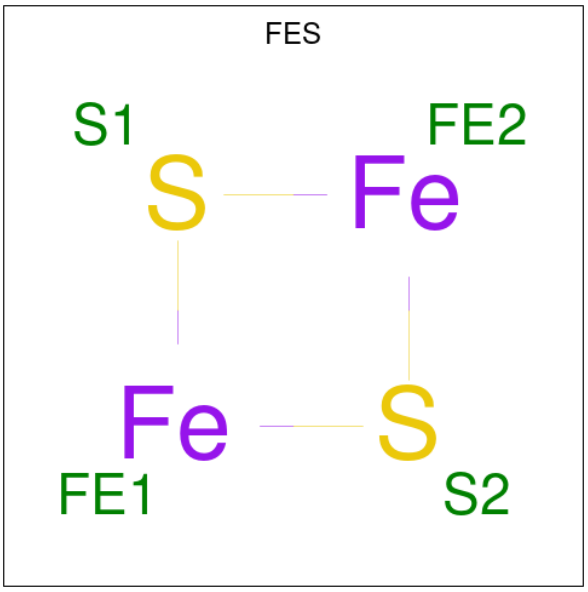
Mol	Chain	Residues	Atoms	AltConf
14	H	1	Total C O 43 41 2	0
14	H	1	Total C O 58 56 2	0
14	H	1	Total C O 58 56 2	0
14	K	1	Total C O 58 56 2	0

- Molecule 15 is acyl-phosphatidyl-myo-inositol dimannoside (AcPIM2) (three-letter code: WUO) (formula: $C_{72}H_{135}O_{24}P$).



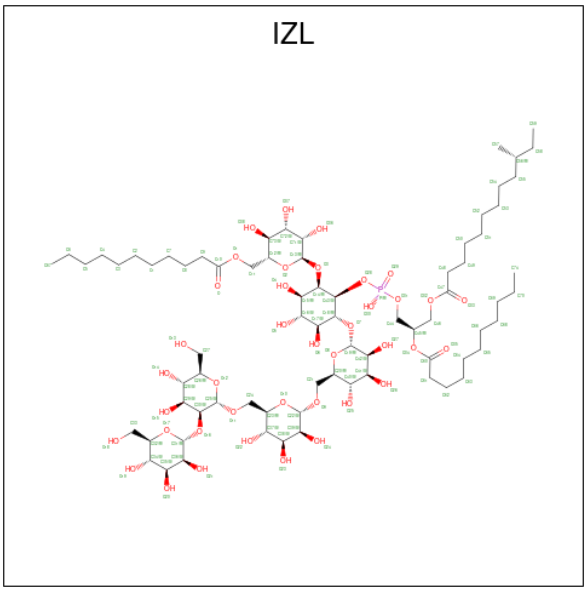
Mol	Chain	Residues	Atoms	AltConf
15	O	1	Total C O P 97 72 24 1	0
15	P	1	Total C O P 97 72 24 1	0
15	C	1	Total C O P 97 72 24 1	0
15	I	1	Total C O P 97 72 24 1	0

- Molecule 16 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).



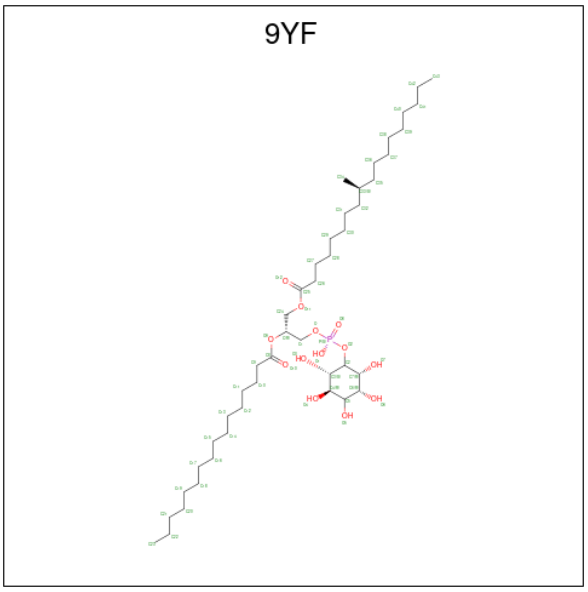
Mol	Chain	Residues	Atoms			AltConf
16	M	1	Total 4	Fe 2	S 2	0
16	G	1	Total 4	Fe 2	S 2	0

- Molecule 17 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: $C_{74}H_{133}O_{39}P$).



Mol	Chain	Residues	Atoms				AltConf
17	M	1	Total	C	O	P	0
			114	74	39	1	
17	G	1	Total	C	O	P	0
			114	74	39	1	

- Molecule 18 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: $C_{44}H_{85}O_{13}P$).



Mol	Chain	Residues	Atoms				AltConf
18	M	1	Total	C	O	P	0
			58	44	13	1	

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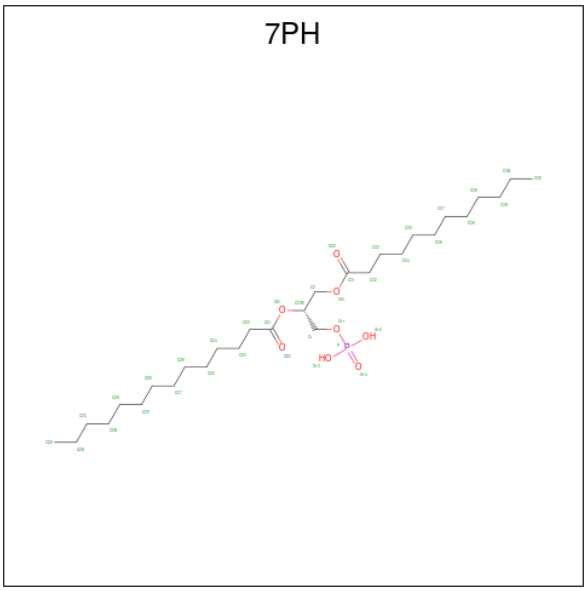
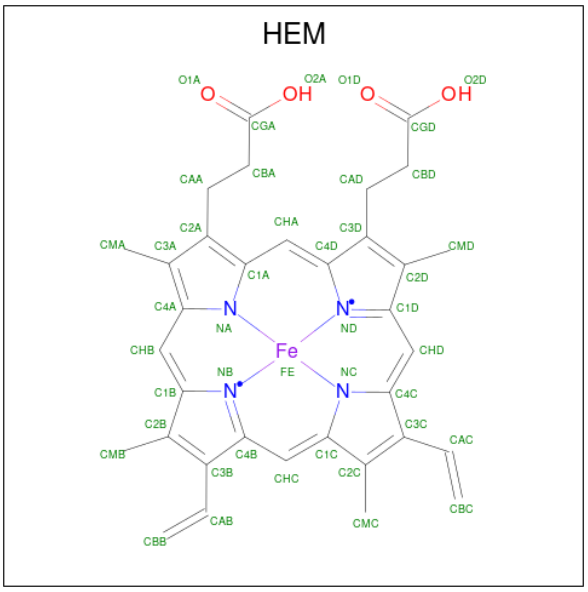
Mol	Chain	Residues	Atoms				AltConf
18	W	1	Total	C	O	P	0
			58	44	13	1	
18	G	1	Total	C	O	P	0
			58	44	13	1	
18	b	1	Total	C	O	P	0
			58	44	13	1	

- Molecule 19 is (1R)-2-(dodecanoyloxy)-1-[(phosphonooxy)methyl]ethyl tetradecanoate (three-letter code: 7PH) (formula: $C_{29}H_{57}O_8P$).



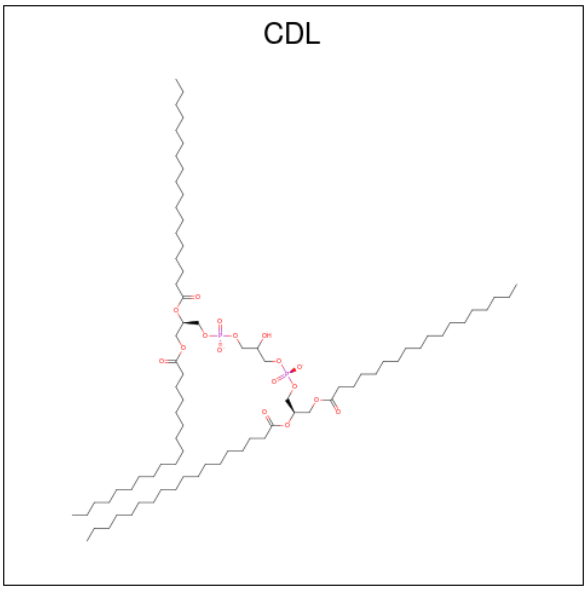
Mol	Chain	Residues	Atoms				AltConf
19	M	1	Total	C	O	P	0
			38	29	8	1	
19	N	1	Total	C	O	P	0
			38	29	8	1	
19	S	1	Total	C	O	P	0
			38	29	8	1	
19	G	1	Total	C	O	P	0
			38	29	8	1	
19	H	1	Total	C	O	P	0
			38	29	8	1	

- Molecule 20 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



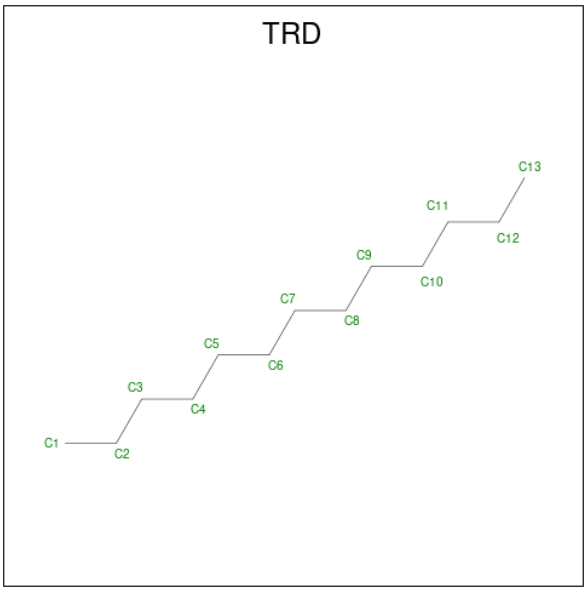
Mol	Chain	Residues	Atoms					AltConf
20	N	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
20	N	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
20	H	1	Total	C	Fe	N	O	0
			43	34	1	4	4	
20	H	1	Total	C	Fe	N	O	0
			43	34	1	4	4	

- Molecule 21 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



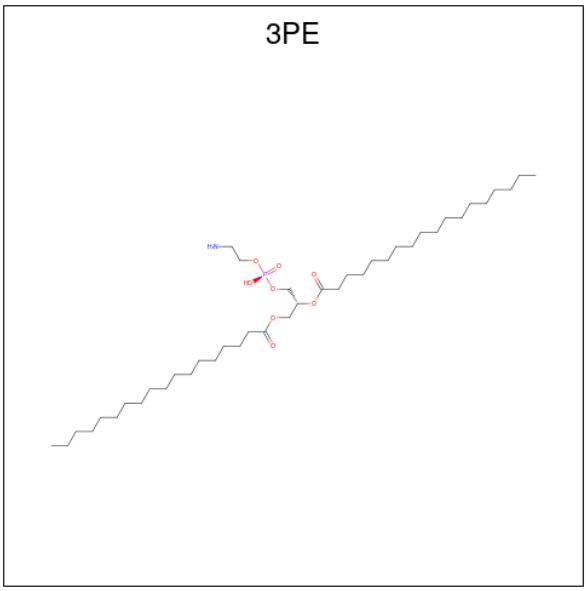
Mol	Chain	Residues	Atoms				AltConf
21	N	1	Total	C	O	P	0
			74	55	17	2	
21	N	1	Total	C	O	P	0
			77	58	17	2	
21	N	1	Total	C	O	P	0
			79	60	17	2	
21	P	1	Total	C	O	P	0
			77	58	17	2	
21	T	1	Total	C	O	P	0
			79	60	17	2	
21	R	1	Total	C	O	P	0
			77	58	17	2	
21	R	1	Total	C	O	P	0
			77	58	17	2	
21	C	1	Total	C	O	P	0
			79	60	17	2	
21	H	1	Total	C	O	P	0
			74	55	17	2	
21	H	1	Total	C	O	P	0
			77	58	17	2	
21	H	1	Total	C	O	P	0
			79	60	17	2	
21	I	1	Total	C	O	P	0
			77	58	17	2	
21	I	1	Total	C	O	P	0
			77	58	17	2	
21	J	1	Total	C	O	P	0
			79	60	17	2	
21	L	1	Total	C	O	P	0
			79	60	17	2	

- Molecule 22 is TRIDECANE (three-letter code: TRD) (formula: $C_{13}H_{28}$).



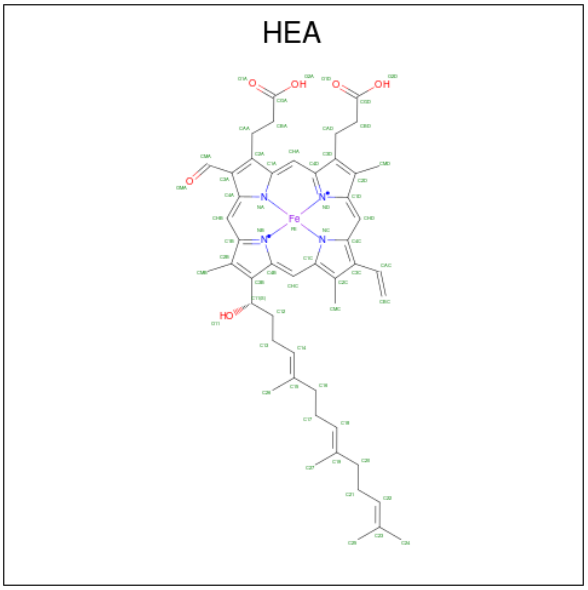
Mol	Chain	Residues	Atoms	AltConf
22	S	1	Total C 13 13	0
22	T	1	Total C 13 13	0
22	R	1	Total C 13 13	0
22	R	1	Total C 13 13	0
22	Q	1	Total C 13 13	0
22	J	1	Total C 13 13	0
22	K	1	Total C 13 13	0
22	L	1	Total C 13 13	0
22	L	1	Total C 13 13	0
22	X	1	Total C 13 13	0

- Molecule 23 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE) (formula: $C_{41}H_{82}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
23	S	1	Total	C	N	O	P	0
			32	22	1	8	1	
23	J	1	Total	C	N	O	P	0
			32	22	1	8	1	

- Molecule 24 is HEME-A (three-letter code: HEA) (formula: $C_{49}H_{56}FeN_4O_6$).



Mol	Chain	Residues	Atoms					AltConf
24	R	1	Total	C	Fe	N	O	0
			60	49	1	4	6	
24	R	1	Total	C	Fe	N	O	0
			60	49	1	4	6	

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Mol	Chain	Residues	Atoms					AltConf
24	L	1	Total 60	C 49	Fe 1	N 4	O 6	0
24	L	1	Total 60	C 49	Fe 1	N 4	O 6	0

- Molecule 25 is COPPER (II) ION (three-letter code: CU) (formula: Cu).

Mol	Chain	Residues	Atoms		AltConf
25	R	1	Total 1	Cu 1	0
25	Q	2	Total 2	Cu 2	0
25	L	1	Total 1	Cu 1	0
25	X	2	Total 2	Cu 2	0

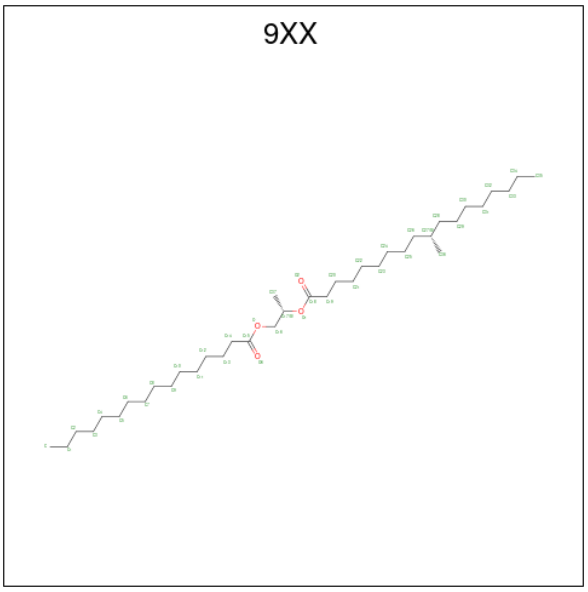
- Molecule 26 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
26	R	1	Total 1	Mg 1	0
26	L	1	Total 1	Mg 1	0

- Molecule 27 is CALCIUM ION (three-letter code: CA) (formula: Ca).

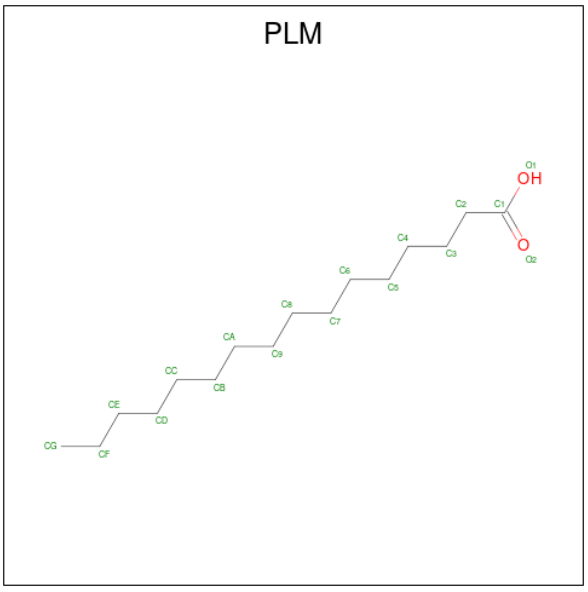
Mol	Chain	Residues	Atoms		AltConf
27	R	1	Total 1	Ca 1	0
27	L	1	Total 1	Ca 1	0

- Molecule 28 is (2S)-1-(hexadecanoyloxy)propan-2-yl (10S)-10-methyloctadecanoate (three-letter code: 9XX) (formula: $C_{38}H_{74}O_4$).



Mol	Chain	Residues	Atoms	AltConf
28	W	1	Total C O 42 38 4	0
28	Y	1	Total C O 32 28 4	0
28	b	1	Total C O 32 28 4	0
28	c	1	Total C O 32 28 4	0

- Molecule 29 is PALMITIC ACID (three-letter code: PLM) (formula: $C_{16}H_{32}O_2$).



Mol	Chain	Residues	Atoms	AltConf
29	W	1	Total C O 11 10 1	0
29	Y	1	Total C O 11 10 1	0
29	b	1	Total C O 11 10 1	0
29	c	1	Total C O 11 10 1	0

- Molecule 30 is water.

Mol	Chain	Residues	Atoms	AltConf
30	O	43	Total O 43 43	0
30	M	51	Total O 51 51	0
30	N	67	Total O 67 67	0
30	P	2	Total O 2 2	0
30	S	6	Total O 6 6	0
30	T	11	Total O 11 11	0
30	R	68	Total O 68 68	0
30	Q	30	Total O 30 30	0
30	W	4	Total O 4 4	0
30	C	56	Total O 56 56	0
30	G	60	Total O 60 60	0
30	H	64	Total O 64 64	0
30	I	3	Total O 3 3	0
30	J	8	Total O 8 8	0
30	K	14	Total O 14 14	0
30	L	78	Total O 78 78	0

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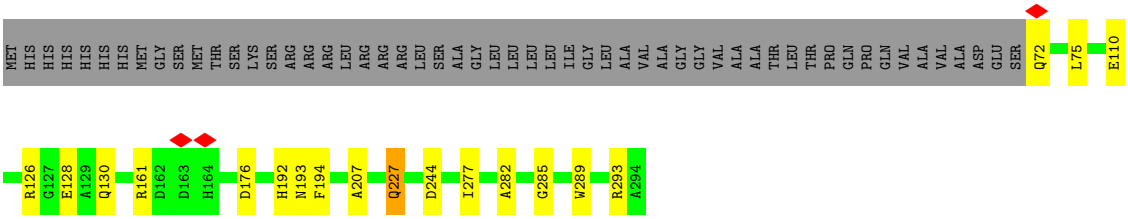
Mol	Chain	Residues	Atoms	AltConf
30	X	35	Total O 35 35	0
30	Z	2	Total O 2 2	0
30	a	1	Total O 1 1	0
30	b	10	Total O 10 10	0
30	c	1	Total O 1 1	0

3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and 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.

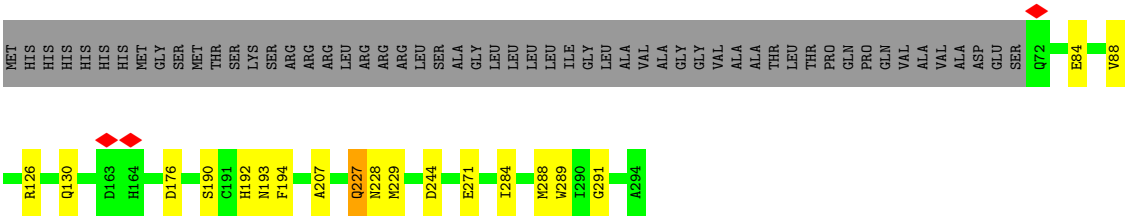
• Molecule 1: Cytochrome bc1 complex cytochrome c subunit

Chain O:



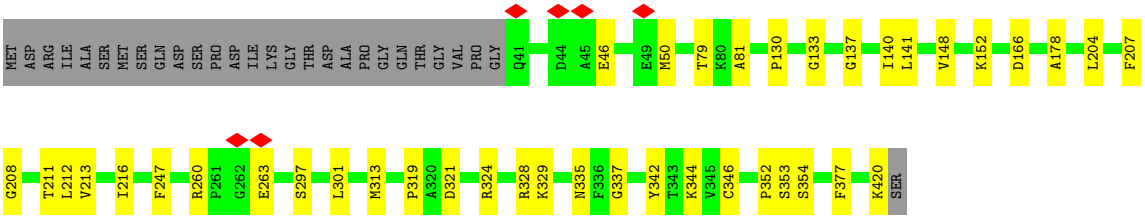
• Molecule 1: Cytochrome bc1 complex cytochrome c subunit

Chain C:



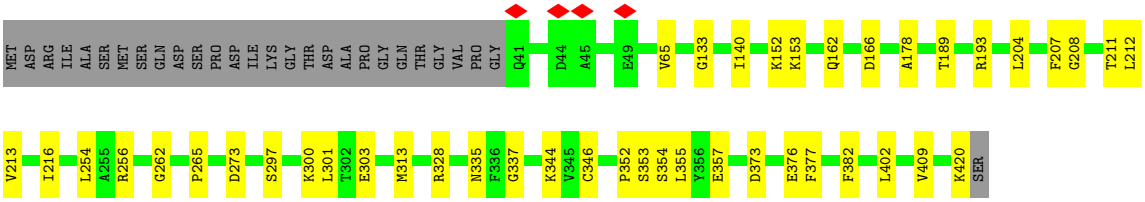
• Molecule 2: Cytochrome bc1 complex cytochrome c subunit

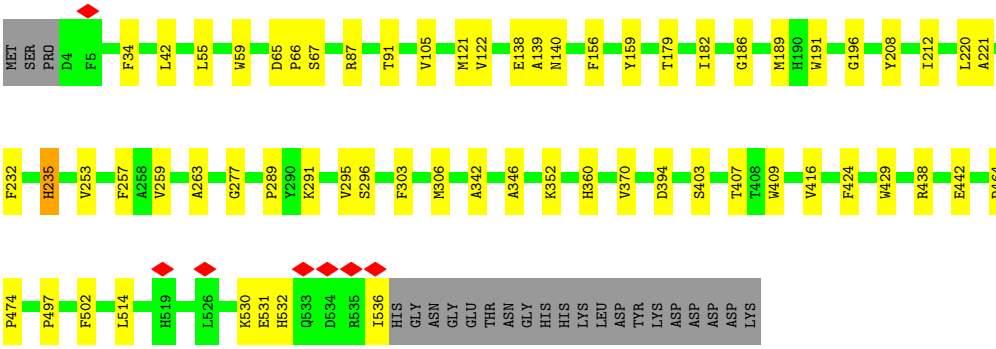
Chain M:



• Molecule 2: Cytochrome bc1 complex cytochrome c subunit

Chain G:



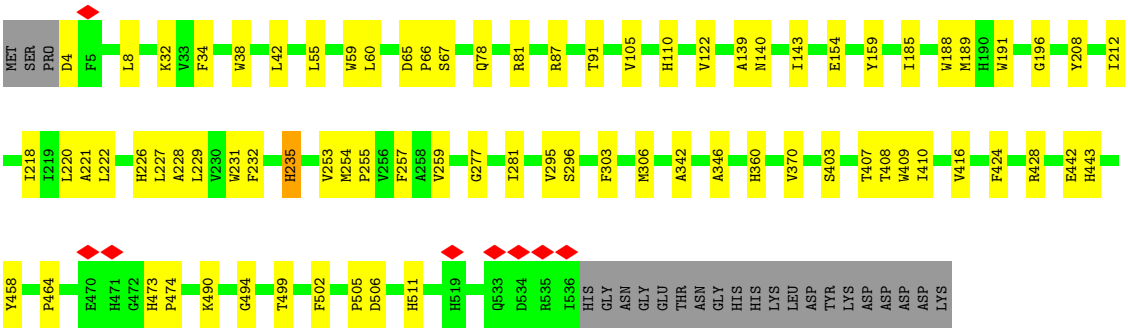


• Molecule 3: Cytochrome bc1 complex cytochrome b subunit

Chain N:

• Molecule 3: Cytochrome bc1 complex cytochrome b subunit

Chain H:



• Molecule 4: Transmembrane protein

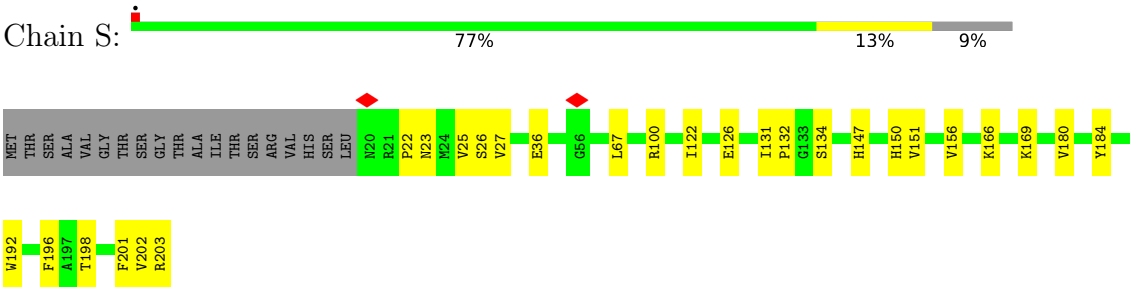
Chain P:

• Molecule 4: Transmembrane protein

Chain I:

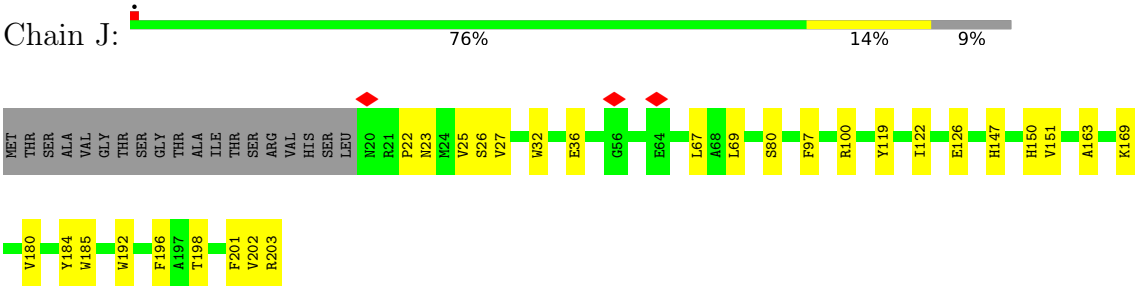
• Molecule 5: Probable cytochrome c oxidase subunit 3

Chain S:



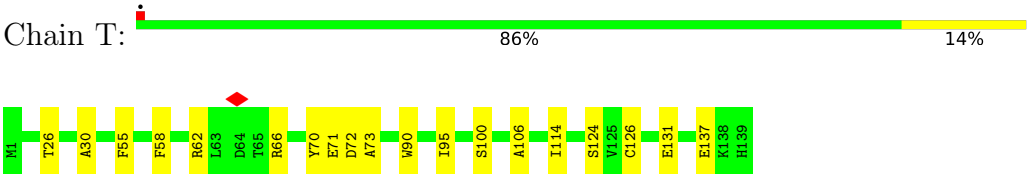
• Molecule 5: Probable cytochrome c oxidase subunit 3

Chain J:



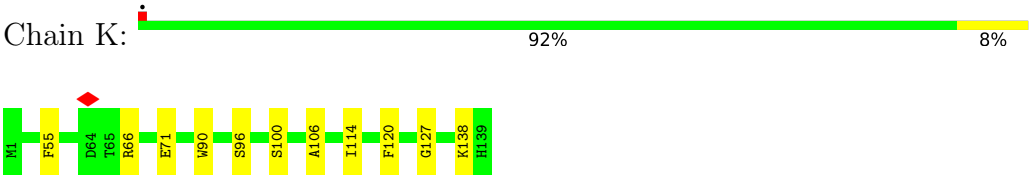
• Molecule 6: Cytochrome c oxidase polypeptide 4

Chain T:



• Molecule 6: Cytochrome c oxidase polypeptide 4

Chain K:

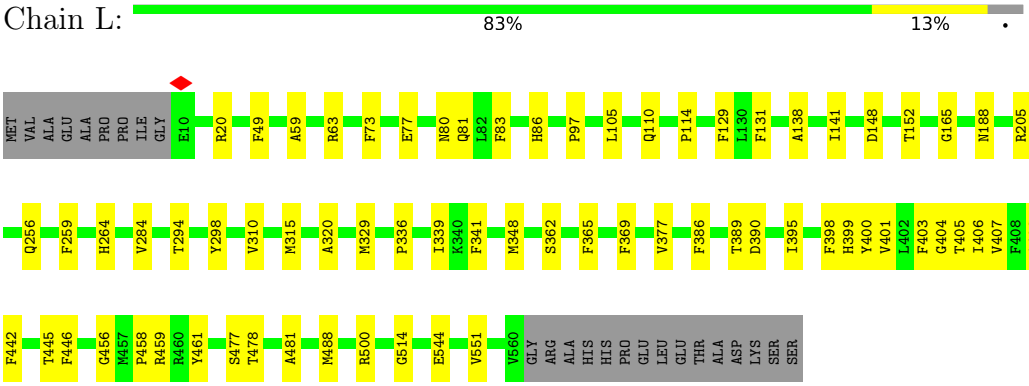


• Molecule 7: Cytochrome c oxidase subunit 1

Chain R:

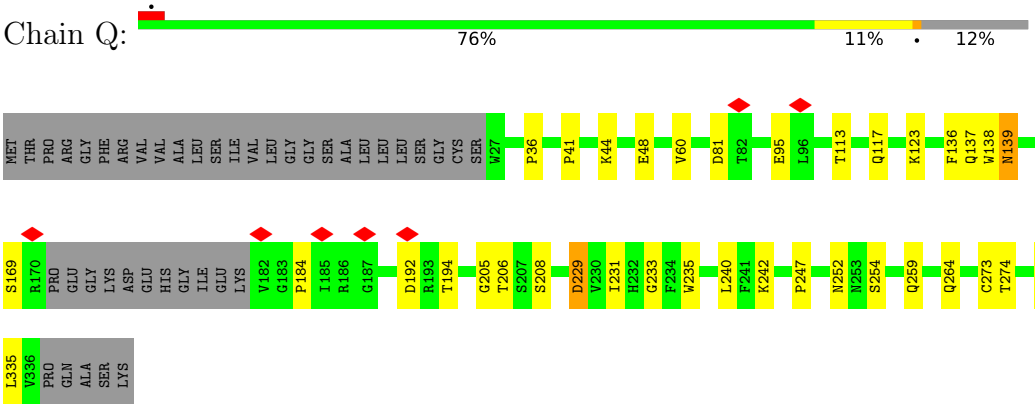
• Molecule 7: Cytochrome c oxidase subunit 1

Chain L:



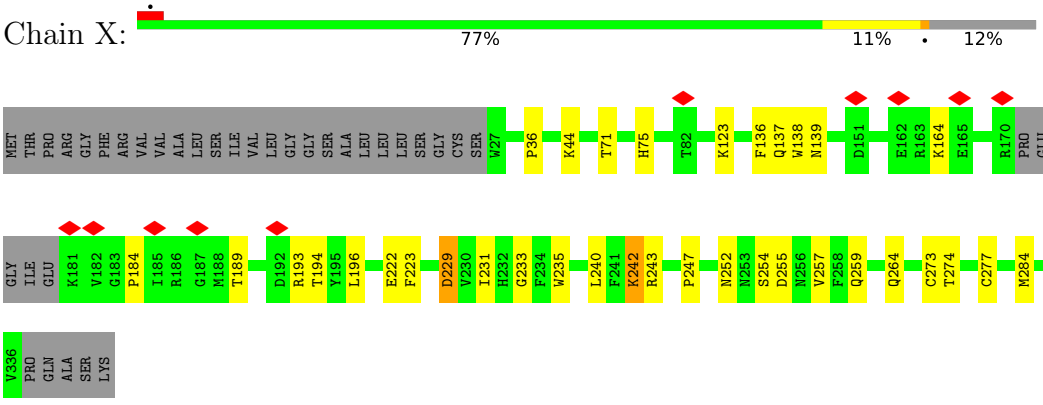
• Molecule 8: cytochrome-c oxidase

Chain Q:



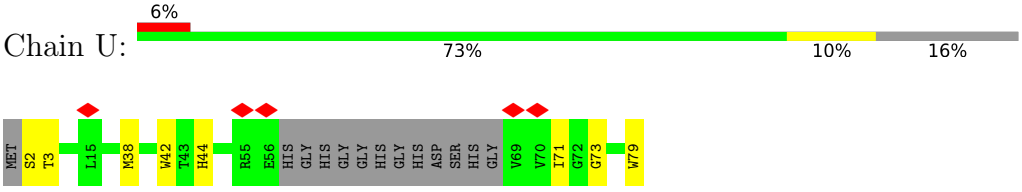
• Molecule 8: cytochrome-c oxidase

Chain X:



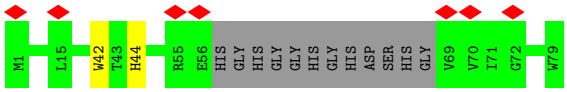
• Molecule 9: Cytochrome c oxidase subunit

Chain U:



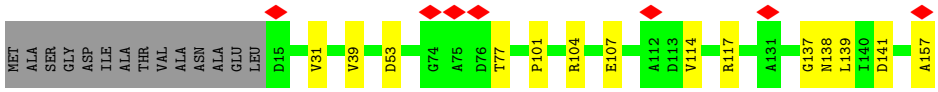
• Molecule 9: Cytochrome c oxidase subunit

Chain Z:



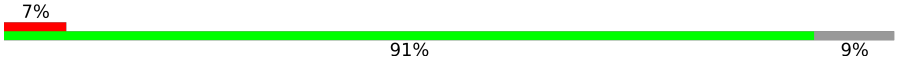
• Molecule 10: Uncharacterized protein MSMEG_4692/MSMEI_4575

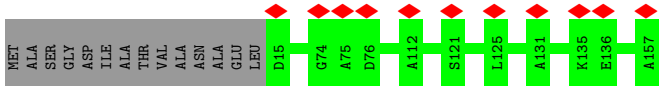
Chain V:



• Molecule 10: Uncharacterized protein MSMEG_4692/MSMEI_4575

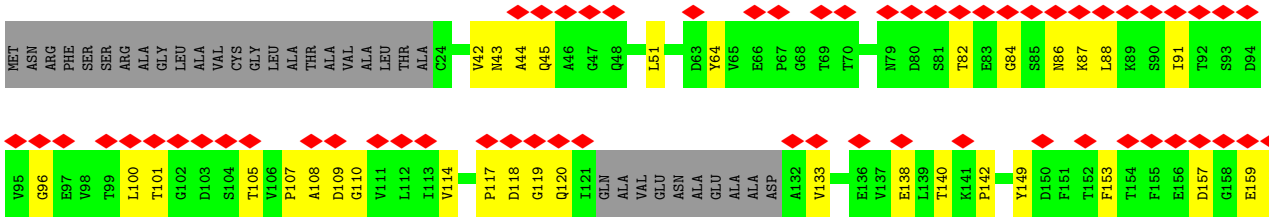
Chain a:





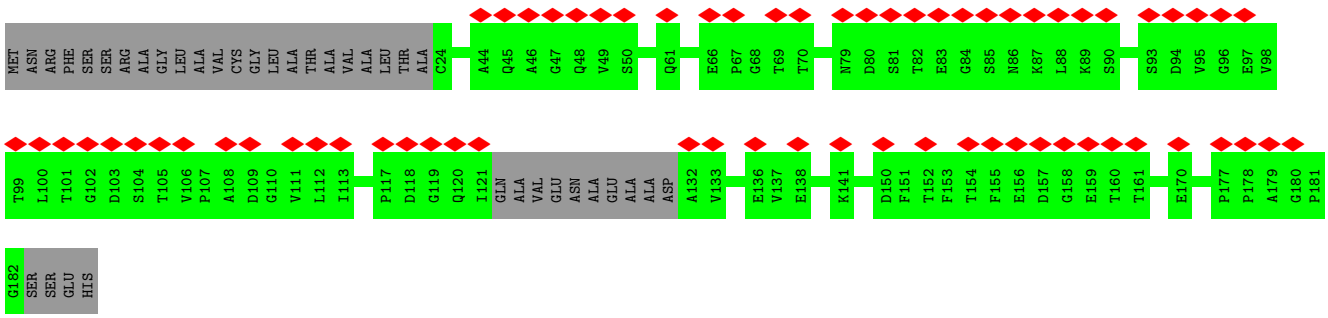
• Molecule 11: LpqE protein

Chain W:



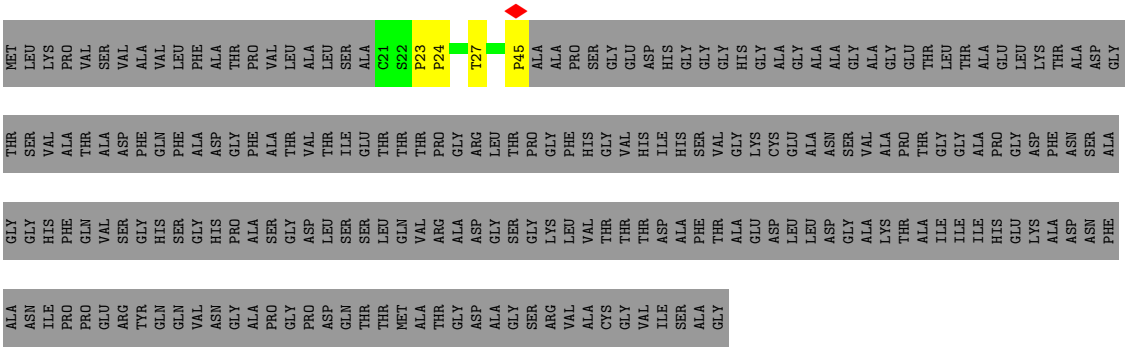
• Molecule 11: LpqE protein

Chain b:



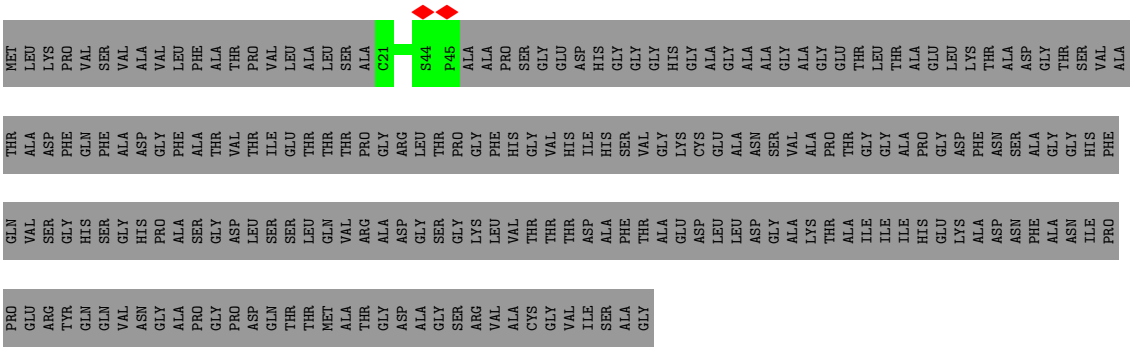
• Molecule 12: Superoxide dismutase [Cu-Zn]

Chain Y:



• Molecule 12: Superoxide dismutase [Cu-Zn]

Chain c:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	208243	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	2.515	Depositor
Minimum map value	-1.210	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.061	Depositor
Recommended contour level	0.32	Depositor
Map size (Å)	447.12, 447.12, 447.12	wwPDB
Map dimensions	540, 540, 540	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.828, 0.828, 0.828	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: HEM, MQ9, CA, 3PE, 9XX, WUO, MG, CDL, TRD, 7PH, CU, 9YF, HEA, FES, IZL, HEC, PLM

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	C	0.44	0/1660	0.58	0/2250
1	O	0.46	0/1660	0.58	0/2250
2	G	0.43	0/3046	0.52	0/4129
2	M	0.41	0/3046	0.50	0/4129
3	H	0.42	0/4299	0.52	0/5862
3	N	0.43	0/4299	0.52	0/5862
4	I	0.36	0/606	0.43	0/825
4	P	0.35	0/606	0.44	0/825
5	J	0.41	0/1488	0.48	0/2032
5	S	0.41	0/1488	0.48	0/2032
6	K	0.38	0/1112	0.47	0/1524
6	T	0.38	0/1112	0.49	0/1524
7	L	0.47	0/4529	0.58	0/6187
7	R	0.46	0/4529	0.57	0/6187
8	Q	0.39	0/2447	0.50	0/3330
8	X	0.40	0/2456	0.51	0/3341
9	U	0.33	0/515	0.45	0/704
9	Z	0.33	0/523	0.48	0/714
10	V	0.35	0/1042	0.48	0/1423
10	a	0.36	0/1042	0.49	0/1423
11	W	0.33	0/1100	0.52	0/1508
11	b	0.31	0/1100	0.52	0/1508
12	Y	0.41	0/175	0.53	0/244
12	c	0.37	0/175	0.51	0/244
All	All	0.42	0/44055	0.52	0/60057

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
7	L	0	1
7	R	0	1
All	All	0	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
7	L	264	HIS	Sidechain
7	R	264	HIS	Sidechain

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	C	1623	0	1560	20	0
1	O	1623	0	1560	19	0
2	G	2967	0	2976	40	0
2	M	2967	0	2976	40	0
3	H	4167	0	4192	80	0
3	N	4167	0	4192	69	0
4	I	586	0	578	11	0
4	P	586	0	578	10	0
5	J	1441	0	1439	22	0
5	S	1441	0	1439	24	0
6	K	1077	0	1058	11	0
6	T	1077	0	1058	17	0
7	L	4369	0	4345	57	0
7	R	4369	0	4345	67	0
8	Q	2382	0	2335	32	0
8	X	2391	0	2348	35	0
9	U	499	0	504	9	0
9	Z	507	0	516	1	0
10	V	1024	0	1035	13	0
10	a	1024	0	1035	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
11	W	1083	0	1055	26	0
11	b	1083	0	1055	0	0
12	Y	168	0	151	3	0
12	c	168	0	151	0	0
13	C	86	0	60	3	0
13	O	86	0	60	2	0
14	C	58	0	80	2	0
14	G	58	0	77	47	0
14	H	159	0	211	55	0
14	K	58	0	80	8	0
14	M	58	0	77	49	0
14	N	159	0	211	59	0
14	O	58	0	80	3	0
14	T	58	0	80	12	0
15	C	97	0	0	4	0
15	I	97	0	0	2	0
15	O	97	0	0	7	0
15	P	97	0	0	4	0
16	G	4	0	0	0	0
16	M	4	0	0	0	0
17	G	114	0	0	2	0
17	M	114	0	0	0	0
18	G	58	0	0	4	0
18	M	58	0	0	3	0
18	W	58	0	0	1	0
18	b	58	0	0	0	0
19	G	38	0	55	5	0
19	H	38	0	55	10	0
19	M	38	0	55	5	0
19	N	38	0	55	9	0
19	S	38	0	55	2	0
20	H	86	0	60	4	0
20	N	86	0	60	0	0
21	C	79	0	105	10	0
21	H	230	0	295	37	0
21	I	154	0	196	9	0
21	J	79	0	105	7	0
21	L	79	0	105	8	0
21	N	230	0	295	32	0
21	P	77	0	98	5	0
21	R	154	0	196	5	0
21	T	79	0	105	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
22	J	13	0	28	4	0
22	K	13	0	28	0	0
22	L	26	0	56	1	0
22	Q	13	0	28	1	0
22	R	26	0	56	1	0
22	S	13	0	28	4	0
22	T	13	0	28	0	0
22	X	13	0	28	1	0
23	J	32	0	38	1	0
23	S	32	0	38	4	0
24	L	120	0	108	6	0
24	R	120	0	108	13	0
25	L	1	0	0	0	0
25	Q	2	0	0	0	0
25	R	1	0	0	0	0
25	X	2	0	0	0	0
26	L	1	0	0	0	0
26	R	1	0	0	0	0
27	L	1	0	0	0	0
27	R	1	0	0	0	0
28	W	42	0	0	0	0
28	Y	32	0	0	0	0
28	b	32	0	0	0	0
28	c	32	0	0	0	0
29	W	11	0	16	1	0
29	Y	11	0	16	0	0
29	b	11	0	16	0	0
29	c	11	0	16	0	0
30	C	56	0	0	2	0
30	G	60	0	0	0	0
30	H	64	0	0	0	0
30	I	3	0	0	0	0
30	J	8	0	0	0	0
30	K	14	0	0	0	0
30	L	78	0	0	1	0
30	M	51	0	0	0	0
30	N	67	0	0	0	0
30	O	43	0	0	3	0
30	P	2	0	0	0	0
30	Q	30	0	0	0	0
30	R	68	0	0	0	0
30	S	6	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
30	T	11	0	0	1	0
30	W	4	0	0	0	0
30	X	35	0	0	1	0
30	Z	2	0	0	0	0
30	a	1	0	0	0	0
30	b	10	0	0	0	0
30	c	1	0	0	0	0
All	All	47246	0	46028	729	0

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

All (729) 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)
14:N:606:MQ9:C9	14:G:901:MQ9:C6	1.95	1.32
14:M:505:MQ9:C4	14:H:907:MQ9:H5M3	1.47	1.29
14:N:606:MQ9:C5M	14:G:901:MQ9:O4	1.83	1.26
14:M:505:MQ9:O4	14:H:907:MQ9:C5M	1.83	1.25
14:N:606:MQ9:H5M3	14:G:901:MQ9:C4	1.47	1.24
14:M:505:MQ9:C6	14:H:907:MQ9:C9	1.95	1.21
14:N:606:MQ9:C8	14:G:901:MQ9:C2	1.77	1.14
14:M:505:MQ9:H23	3:H:55:LEU:HD23	1.31	1.12
14:M:505:MQ9:O4	14:H:907:MQ9:H5M3	0.94	1.11
14:N:606:MQ9:H5M3	14:G:901:MQ9:O4	0.94	1.10
6:K:100:SER:HB3	14:K:1301:MQ9:H252	1.33	1.09
3:N:55:LEU:HD23	14:G:901:MQ9:H23	1.29	1.08
14:M:505:MQ9:C2	14:H:907:MQ9:C8	1.77	1.06
15:O:304:WUO:C95	14:T:1301:MQ9:H202	1.85	1.06
5:J:198:THR:HG22	22:J:502:TRD:H101	1.38	1.05
5:S:198:THR:HG22	22:S:502:TRD:H101	1.38	1.03
21:N:602:CDL:H511	21:H:903:CDL:CA5	1.89	1.03
21:N:602:CDL:CA5	21:H:903:CDL:H511	1.89	1.01
3:H:220:LEU:HD21	14:H:907:MQ9:H451	1.42	1.01
3:N:220:LEU:HD21	14:N:606:MQ9:H451	1.41	0.99
14:M:505:MQ9:C6	14:H:907:MQ9:C8	2.38	0.97
21:N:602:CDL:C11	21:H:903:CDL:H511	1.95	0.97
21:N:602:CDL:H511	21:H:903:CDL:C11	1.95	0.96
14:N:606:MQ9:C8	14:G:901:MQ9:C6	2.38	0.91
14:M:505:MQ9:H72	14:H:907:MQ9:C10	2.01	0.91
7:L:252:VAL:HG13	8:X:231:ILE:HD11	1.53	0.91

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:606:MQ9:H103	14:G:901:MQ9:H72	1.53	0.90
15:O:304:WUO:C94	14:T:1301:MQ9:H202	2.01	0.90
7:R:252:VAL:HG13	8:Q:231:ILE:HD11	1.53	0.90
21:L:601:CDL:HA32	21:L:601:CDL:HA22	1.52	0.90
14:N:606:MQ9:C10	14:G:901:MQ9:H72	2.01	0.90
14:M:505:MQ9:H72	14:H:907:MQ9:H103	1.52	0.89
8:Q:136:PHE:CZ	8:Q:139:ASN:HB3	2.11	0.86
14:M:505:MQ9:H23	3:H:55:LEU:CD2	2.07	0.85
3:H:220:LEU:HD21	14:H:907:MQ9:C45	2.06	0.85
15:O:304:WUO:C95	14:T:1301:MQ9:C20	2.55	0.84
14:N:606:MQ9:C8	14:G:901:MQ9:C5	2.56	0.84
14:M:505:MQ9:C6	14:H:907:MQ9:C7	2.54	0.84
14:N:606:MQ9:C8	14:G:901:MQ9:C4	2.25	0.84
14:N:606:MQ9:C7	14:G:901:MQ9:C6	2.55	0.84
1:C:194:PHE:CZ	3:H:296:SER:HB3	2.11	0.84
14:M:505:MQ9:C4	14:H:907:MQ9:C8	2.25	0.83
3:N:55:LEU:CD2	14:G:901:MQ9:H23	2.06	0.83
14:M:505:MQ9:C5	14:H:907:MQ9:C8	2.56	0.83
11:W:101:THR:O	11:W:133:VAL:HA	1.78	0.83
8:X:222:GLU:HG2	8:X:259:GLN:HG2	1.60	0.82
14:N:606:MQ9:C11	14:G:901:MQ9:C6	2.56	0.82
3:N:220:LEU:HD21	14:N:606:MQ9:C45	2.08	0.82
14:M:505:MQ9:C6	14:H:907:MQ9:C11	2.56	0.81
14:M:505:MQ9:C7	14:H:907:MQ9:C10	2.56	0.81
2:G:208:GLY:HA3	14:G:901:MQ9:H412	1.63	0.81
2:M:208:GLY:HA2	14:M:505:MQ9:H38	1.62	0.81
2:G:208:GLY:HA2	14:G:901:MQ9:H38	1.63	0.81
7:L:406:ILE:HD11	24:L:603:HEA:HAC	1.62	0.81
5:J:198:THR:CG2	22:J:502:TRD:H101	2.11	0.81
5:S:198:THR:CG2	22:S:502:TRD:H101	2.11	0.80
19:N:609:7PH:H25	19:N:609:7PH:C21	2.12	0.80
19:H:901:7PH:C21	19:H:901:7PH:H25	2.12	0.79
24:R:603:HEA:H202	24:R:603:HEA:H243	1.65	0.79
2:M:208:GLY:HA3	14:M:505:MQ9:H412	1.63	0.78
14:M:505:MQ9:C7	14:H:907:MQ9:C11	2.62	0.78
14:O:303:MQ9:H272	3:N:121:MET:HG2	1.65	0.77
14:N:606:MQ9:C11	14:G:901:MQ9:C7	2.62	0.76
14:N:606:MQ9:C9	14:G:901:MQ9:C7	2.63	0.76
14:M:505:MQ9:C7	14:H:907:MQ9:C9	2.63	0.75
14:M:505:MQ9:C5	14:H:907:MQ9:C9	2.65	0.75
14:M:505:MQ9:C1	14:H:907:MQ9:C8	2.08	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:L:252:VAL:CG1	8:X:231:ILE:HD11	2.16	0.75
7:R:406:ILE:HD11	24:R:603:HEA:HAC	1.67	0.75
7:R:252:VAL:CG1	8:Q:231:ILE:HD11	2.17	0.74
8:X:123:LYS:HG2	8:X:259:GLN:HG3	1.68	0.74
3:N:229:LEU:HD23	21:N:602:CDL:H312	1.68	0.74
14:N:606:MQ9:C9	14:G:901:MQ9:C5	2.65	0.74
6:T:100:SER:HB2	7:R:135:ILE:HD11	1.68	0.74
2:G:133:GLY:HA3	3:H:277:GLY:HA3	1.71	0.73
2:G:344:LYS:HE3	2:G:354:SER:HB3	1.70	0.73
8:X:242:LYS:HE2	8:X:274:THR:HG21	1.69	0.73
2:M:344:LYS:HE3	2:M:354:SER:HB3	1.71	0.73
14:M:505:MQ9:C7	14:H:907:MQ9:H111	2.19	0.72
14:N:606:MQ9:H111	14:G:901:MQ9:C7	2.19	0.72
14:N:606:MQ9:H121	14:G:901:MQ9:H72	1.72	0.71
6:K:100:SER:CB	14:K:1301:MQ9:H252	2.18	0.71
21:N:602:CDL:H511	21:H:903:CDL:H112	1.71	0.71
11:W:88:LEU:HD21	11:W:91:ILE:HD11	1.73	0.71
2:M:204:LEU:HB3	14:M:505:MQ9:H43	1.73	0.70
21:R:601:CDL:H182	21:R:601:CDL:H372	1.73	0.70
21:L:601:CDL:HA32	21:L:601:CDL:CA2	2.19	0.70
3:H:229:LEU:HD23	21:H:903:CDL:H312	1.72	0.70
14:M:505:MQ9:H72	14:H:907:MQ9:H121	1.72	0.70
7:R:398:PHE:HA	7:R:401:VAL:HG12	1.73	0.70
21:N:602:CDL:H112	21:H:903:CDL:H511	1.70	0.70
3:H:346:ALA:HB2	14:H:909:MQ9:H271	1.72	0.70
6:T:137:GLU:HG3	21:T:1302:CDL:HB22	1.74	0.69
14:N:606:MQ9:C10	14:G:901:MQ9:C7	2.56	0.69
1:O:293:ARG:NH1	30:O:401:HOH:O	2.24	0.69
21:P:301:CDL:H112	21:R:605:CDL:HA62	1.73	0.69
3:N:182:ILE:HB	3:N:186:GLY:HA2	1.74	0.69
3:N:34:PHE:CE1	14:N:606:MQ9:O4	2.46	0.69
2:G:254:LEU:HD12	2:G:402:LEU:HB3	1.74	0.68
3:N:346:ALA:HB2	14:N:608:MQ9:H271	1.75	0.68
2:G:204:LEU:HB3	14:G:901:MQ9:H43	1.74	0.68
8:Q:139:ASN:OD1	8:Q:205:GLY:HA3	1.93	0.68
14:N:606:MQ9:H48	3:H:221:ALA:HA	1.74	0.68
3:N:34:PHE:CE1	14:N:606:MQ9:C4	2.78	0.67
3:N:212:ILE:HD11	3:H:212:ILE:HD11	1.76	0.67
2:G:409:VAL:O	17:G:903:IZL:C33	2.42	0.67
21:I:301:CDL:H341	21:I:302:CDL:H111	1.77	0.67
1:C:227:GLN:HG3	13:C:302:HEC:O1D	1.93	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:N:221:ALA:HA	14:H:907:MQ9:H48	1.75	0.67
7:L:105:LEU:HD22	7:L:421:MET:HG3	1.77	0.67
11:W:117:PRO:HD2	11:W:120:GLN:HG3	1.77	0.66
5:S:25:VAL:HG12	5:S:180:VAL:HG11	1.77	0.66
6:T:71:GLU:OE2	7:R:205:ARG:NH1	2.28	0.66
11:W:118:ASP:HB2	11:W:170:GLU:HG2	1.76	0.66
3:H:110:HIS:HD2	3:H:281:ILE:CD1	2.08	0.66
4:P:74:TRP:CD1	15:P:302:WUO:O60	2.47	0.66
21:J:501:CDL:H521	21:J:501:CDL:HB61	1.77	0.66
7:L:80:ASN:HA	7:L:83:PHE:CE1	2.31	0.66
7:L:456:GLY:HA2	8:X:235:TRP:CH2	2.31	0.65
14:M:505:MQ9:C6	14:H:907:MQ9:H111	2.26	0.65
7:R:80:ASN:HA	7:R:83:PHE:CE1	2.31	0.65
2:M:130:PRO:HA	3:N:277:GLY:O	1.97	0.65
5:S:166:LYS:HD2	19:S:501:7PH:H1A	1.79	0.65
5:J:25:VAL:HG12	5:J:180:VAL:HG11	1.79	0.65
7:L:398:PHE:HA	7:L:401:VAL:HG12	1.79	0.65
3:H:185:ILE:O	3:H:189:MET:HG3	1.97	0.65
14:N:606:MQ9:H111	14:G:901:MQ9:C6	2.26	0.64
7:L:389:THR:HG22	8:X:242:LYS:HD2	1.79	0.64
7:R:20:ARG:NH1	10:V:53:ASP:OD2	2.30	0.64
8:X:44:LYS:NZ	8:X:264:GLN:OE1	2.30	0.64
14:M:505:MQ9:H71	14:H:907:MQ9:H111	1.79	0.64
3:N:34:PHE:HE1	14:N:606:MQ9:O4	1.80	0.64
7:R:105:LEU:HD22	7:R:421:MET:HG3	1.78	0.64
14:H:906:MQ9:H5M1	14:H:906:MQ9:H172	1.80	0.64
2:G:208:GLY:CA	14:G:901:MQ9:H412	2.28	0.64
2:M:79:THR:HG22	2:M:81:ALA:H	1.62	0.64
1:O:227:GLN:HG3	13:O:302:HEC:O1D	1.98	0.63
7:R:456:GLY:HA2	8:Q:235:TRP:CH2	2.32	0.63
8:Q:44:LYS:NZ	8:Q:264:GLN:OE1	2.30	0.63
3:N:530:LYS:NZ	3:N:531:GLU:OE2	2.31	0.63
2:M:208:GLY:CA	14:M:505:MQ9:H38	2.28	0.63
14:N:606:MQ9:H111	14:G:901:MQ9:H71	1.79	0.63
2:G:208:GLY:HA3	14:G:901:MQ9:C41	2.29	0.63
19:H:901:7PH:H25	19:H:901:7PH:H3	1.80	0.63
5:J:198:THR:HG22	22:J:502:TRD:C10	2.23	0.63
3:N:67:SER:HB3	3:N:87:ARG:HB2	1.81	0.63
21:C:305:CDL:HA22	3:H:490:LYS:NZ	2.13	0.63
2:M:208:GLY:HA3	14:M:505:MQ9:C41	2.29	0.63
21:N:602:CDL:C51	21:H:903:CDL:OA6	2.47	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:605:MQ9:H5M1	14:N:605:MQ9:H172	1.80	0.62
2:M:208:GLY:CA	14:M:505:MQ9:H412	2.28	0.62
19:N:609:7PH:H22	2:G:178:ALA:HB1	1.81	0.62
2:G:208:GLY:CA	14:G:901:MQ9:H38	2.29	0.62
14:H:906:MQ9:H3C	14:H:907:MQ9:H103	1.81	0.62
21:N:602:CDL:OA6	21:H:903:CDL:C51	2.47	0.62
11:W:96:GLY:HA3	11:W:138:GLU:O	1.99	0.62
21:C:305:CDL:HA22	3:H:490:LYS:HZ3	1.65	0.62
3:N:259:VAL:HG22	14:N:605:MQ9:H101	1.79	0.62
21:N:602:CDL:H522	21:H:903:CDL:H112	1.82	0.62
19:N:609:7PH:H25	19:N:609:7PH:H3	1.80	0.62
14:N:605:MQ9:H3C	14:N:606:MQ9:H103	1.81	0.61
3:H:67:SER:HB3	3:H:87:ARG:HB2	1.81	0.61
8:X:235:TRP:CD2	8:X:242:LYS:HE3	2.35	0.61
7:R:395:ILE:HD11	7:R:459:ARG:HB2	1.82	0.61
21:N:602:CDL:H112	21:H:903:CDL:H522	1.82	0.61
21:N:602:CDL:OA6	21:H:903:CDL:H511	2.00	0.61
4:I:78:GLY:HA3	15:I:303:WUO:C89	2.31	0.61
21:N:602:CDL:H511	21:H:903:CDL:OA6	2.00	0.61
14:T:1301:MQ9:H28	7:R:134:LEU:CB	2.31	0.61
14:M:505:MQ9:C4	14:H:907:MQ9:C5M	2.38	0.61
7:R:253:LEU:HD21	7:R:320:ALA:HB3	1.83	0.60
7:L:395:ILE:HD11	7:L:459:ARG:HB2	1.83	0.60
1:O:130:GLN:HG3	1:O:227:GLN:HE22	1.66	0.60
3:H:259:VAL:HG22	14:H:906:MQ9:H101	1.80	0.60
3:N:303:PHE:HA	3:N:306:MET:SD	2.42	0.60
5:S:198:THR:HG22	22:S:502:TRD:C10	2.24	0.60
8:X:235:TRP:CG	8:X:242:LYS:HE3	2.37	0.60
3:H:416:VAL:HG13	4:I:55:SER:HB2	1.84	0.59
3:H:409:TRP:CE2	4:I:72:GLU:HG3	2.38	0.59
23:J:503:3PE:O31	23:J:503:3PE:H221	2.02	0.59
7:L:386:PHE:O	8:X:242:LYS:HG2	2.02	0.59
7:R:406:ILE:HD11	24:R:603:HEA:CAC	2.33	0.59
11:W:86:ASN:ND2	11:W:157:ASP:OD1	2.35	0.59
3:H:303:PHE:HA	3:H:306:MET:SD	2.42	0.59
21:N:604:CDL:HA61	6:T:90:TRP:HZ2	1.67	0.59
8:Q:206:THR:HG22	8:Q:208:SER:H	1.67	0.59
5:J:147:HIS:CE1	5:J:192:TRP:HB2	2.38	0.59
2:M:178:ALA:HB1	19:H:901:7PH:H22	1.84	0.59
7:L:400:TYR:HA	7:L:442:PHE:HZ	1.67	0.59
23:S:503:3PE:H221	23:S:503:3PE:O31	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:H:905:CDL:H732	6:K:90:TRP:HB2	1.85	0.59
1:C:130:GLN:HG3	1:C:227:GLN:NE2	2.18	0.58
3:N:182:ILE:HB	3:N:186:GLY:CA	2.33	0.58
19:N:609:7PH:H23	19:G:905:7PH:H1	1.86	0.58
5:J:122:ILE:O	5:J:126:GLU:HG2	2.04	0.58
5:S:122:ILE:O	5:S:126:GLU:HG2	2.04	0.58
21:N:603:CDL:H371	21:N:603:CDL:H172	1.85	0.58
7:L:256:GLN:HB3	7:L:315:MET:SD	2.44	0.58
19:M:504:7PH:H1	19:H:901:7PH:H23	1.85	0.58
2:M:79:THR:HG21	3:N:514:LEU:HD11	1.86	0.58
3:H:42:LEU:HD13	3:H:122:VAL:HG12	1.85	0.58
21:N:602:CDL:CA5	21:H:903:CDL:C51	2.75	0.57
3:N:42:LEU:HD13	3:N:122:VAL:HG12	1.85	0.57
5:S:147:HIS:CE1	5:S:192:TRP:HB2	2.38	0.57
11:W:114:VAL:HG13	11:W:133:VAL:HG12	1.86	0.57
7:R:57:LEU:HD22	24:R:603:HEA:H242	1.85	0.57
18:G:904:9YF:C34	3:H:185:ILE:HD12	2.34	0.57
7:R:509:ASP:HB3	10:V:31:VAL:HG12	1.86	0.57
1:O:130:GLN:HG3	1:O:227:GLN:NE2	2.19	0.57
5:S:132:PRO:HD2	23:S:503:3PE:H12	1.86	0.57
5:J:23:ASN:HB3	5:J:26:SER:HB2	1.86	0.57
7:R:253:LEU:HD13	8:Q:252:ASN:HB3	1.86	0.57
7:L:389:THR:CG2	8:X:242:LYS:HD2	2.35	0.57
14:M:505:MQ9:H72	14:H:907:MQ9:C12	2.35	0.56
3:N:229:LEU:CD2	21:N:602:CDL:H312	2.34	0.56
21:C:305:CDL:H172	21:J:501:CDL:H361	1.87	0.56
3:N:409:TRP:CE2	4:P:72:GLU:HG3	2.40	0.56
9:U:71:ILE:HG22	9:U:73:GLY:H	1.69	0.56
21:H:904:CDL:OB9	21:H:905:CDL:H131	2.05	0.56
21:H:905:CDL:H311	21:H:905:CDL:HB4	1.86	0.56
7:L:406:ILE:HD11	24:L:603:HEA:CAC	2.35	0.56
8:X:193:ARG:HB3	8:X:196:LEU:HD12	1.87	0.56
14:N:606:MQ9:C12	14:G:901:MQ9:H72	2.35	0.56
8:Q:113:THR:O	8:Q:117:GLN:HG2	2.05	0.56
3:H:464:PRO:HB3	3:H:474:PRO:HB3	1.87	0.56
21:L:601:CDL:HA61	21:L:601:CDL:CB3	2.35	0.56
5:S:23:ASN:HB3	5:S:26:SER:HB2	1.86	0.56
5:J:22:PRO:HD3	6:K:66:ARG:HD3	1.88	0.56
2:M:133:GLY:HA3	3:N:277:GLY:HA3	1.88	0.56
8:Q:44:LYS:O	8:Q:48:GLU:HG3	2.06	0.56
2:M:335:ASN:ND2	2:M:337:GLY:O	2.36	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:231:TRP:CZ3	14:H:907:MQ9:H112	2.41	0.56
8:Q:307:LYS:HD2	8:Q:311:GLU:HG3	1.87	0.56
11:W:91:ILE:HD12	11:W:100:LEU:HD21	1.87	0.55
3:H:110:HIS:HD2	3:H:281:ILE:HD11	1.70	0.55
19:H:901:7PH:H3	19:H:901:7PH:O22	2.06	0.55
3:N:464:PRO:HB3	3:N:474:PRO:HB3	1.88	0.55
24:R:603:HEA:H243	24:R:603:HEA:C20	2.34	0.55
11:W:87:LYS:HG3	11:W:105:THR:HG22	1.87	0.55
14:K:1301:MQ9:C8	14:K:1301:MQ9:H5M3	2.36	0.55
19:M:504:7PH:C1	19:H:901:7PH:H23	2.37	0.55
8:X:136:PHE:CE2	8:X:139:ASN:HB2	2.42	0.55
21:N:602:CDL:H112	21:H:903:CDL:C51	2.36	0.55
7:R:197:ARG:NH1	7:R:201:MET:O	2.35	0.55
5:S:22:PRO:HD3	6:T:66:ARG:HD3	1.88	0.55
8:Q:136:PHE:HZ	8:Q:139:ASN:HB3	1.68	0.55
24:R:603:HEA:C20	24:R:603:HEA:C24	2.85	0.55
10:V:138:ASN:HB3	10:V:141:ASP:HB3	1.88	0.55
7:L:63:ARG:HG2	7:L:481:ALA:CB	2.37	0.55
3:H:231:TRP:HZ3	14:H:907:MQ9:H112	1.71	0.55
5:J:80:SER:HB3	5:J:185:TRP:HE1	1.71	0.55
14:K:1301:MQ9:H5M3	14:K:1301:MQ9:H8	1.89	0.55
7:L:445:THR:HG23	7:L:446:PHE:CD1	2.42	0.55
3:H:32:LYS:HE3	3:H:34:PHE:CZ	2.42	0.55
8:X:138:TRP:O	8:X:284:MET:HB3	2.07	0.55
8:X:243:ARG:NH2	8:X:255:ASP:O	2.40	0.55
3:N:231:TRP:CZ3	14:N:606:MQ9:H112	2.43	0.54
14:T:1301:MQ9:H28	7:R:134:LEU:HB3	1.88	0.54
7:L:362:SER:O	7:L:365:PHE:HB3	2.07	0.54
19:N:609:7PH:H3	19:N:609:7PH:O22	2.06	0.54
6:T:72:ASP:OD1	6:T:72:ASP:N	2.40	0.54
3:N:235:HIS:CD2	14:N:606:MQ9:C3A	2.91	0.54
4:P:28:VAL:HG13	4:P:42:HIS:HB2	1.90	0.54
7:R:445:THR:HG23	7:R:446:PHE:CD2	2.42	0.54
9:U:38:MET:SD	10:V:139:LEU:HB2	2.48	0.54
7:L:253:LEU:HD21	7:L:320:ALA:HB3	1.89	0.54
19:N:609:7PH:H23	19:G:905:7PH:C1	2.37	0.54
24:R:603:HEA:H202	24:R:603:HEA:C24	2.37	0.54
1:O:128:GLU:HG3	30:O:443:HOH:O	2.08	0.54
3:N:232:PHE:CE1	21:N:602:CDL:HB21	2.43	0.54
7:R:110:GLN:HB3	7:R:207:PRO:HG2	1.90	0.54
21:N:602:CDL:C51	21:H:903:CDL:CA5	2.75	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:R:400:TYR:HA	7:R:442:PHE:HZ	1.74	0.54
9:U:38:MET:HG3	10:V:137:GLY:HA2	1.88	0.54
3:N:289:PRO:HG2	3:N:291:LYS:HE2	1.91	0.53
7:L:441:GLY:O	7:L:445:THR:HG22	2.08	0.53
21:N:602:CDL:C51	21:H:903:CDL:H112	2.36	0.53
7:R:441:GLY:O	7:R:445:THR:HG22	2.08	0.53
15:C:304:WUO:C88	21:C:305:CDL:H862	2.39	0.53
2:G:166:ASP:OD1	3:H:360:HIS:NE2	2.42	0.53
7:R:362:SER:O	7:R:365:PHE:HB3	2.08	0.53
7:R:320:ALA:HB2	8:Q:254:SER:HA	1.90	0.53
2:G:382:PHE:CE2	3:H:408:THR:HG21	2.44	0.53
3:H:409:TRP:CZ2	4:I:72:GLU:HG3	2.44	0.53
5:J:32:TRP:CZ2	21:L:601:CDL:H181	2.43	0.53
2:M:166:ASP:OD1	3:N:360:HIS:NE2	2.41	0.53
3:N:55:LEU:HD23	14:G:901:MQ9:C23	2.20	0.53
6:T:58:PHE:HD2	6:T:62:ARG:HH22	1.57	0.53
7:R:63:ARG:HG2	7:R:481:ALA:CB	2.38	0.53
7:R:284:VAL:HG22	7:R:514:GLY:HA2	1.91	0.53
7:R:310:VAL:HG12	7:R:329:MET:HB3	1.91	0.53
1:C:130:GLN:HG3	1:C:227:GLN:HE22	1.73	0.53
1:C:194:PHE:CE2	3:H:296:SER:HB3	2.43	0.53
19:M:504:7PH:H1	19:H:901:7PH:C23	2.39	0.53
3:N:231:TRP:HZ3	14:N:606:MQ9:H112	1.74	0.53
6:T:126:CYS:HB3	21:T:1302:CDL:H131	1.91	0.53
4:I:43:MET:HB3	4:I:48:MET:HE3	1.90	0.53
7:L:253:LEU:HD13	8:X:252:ASN:HB3	1.91	0.53
7:L:284:VAL:HG22	7:L:514:GLY:HA2	1.91	0.53
3:H:4:ASP:O	3:H:8:LEU:HG	2.09	0.52
3:N:140:ASN:OD1	3:N:226:HIS:ND1	2.42	0.52
1:O:192:HIS:CE1	1:O:207:ALA:HB1	2.45	0.52
5:S:202:VAL:HG11	22:S:502:TRD:H62	1.90	0.52
7:L:59:ALA:HB2	7:L:86:HIS:CE1	2.45	0.52
1:C:176:ASP:HB3	1:C:244:ASP:OD2	2.10	0.52
1:O:289:TRP:CE2	21:T:1302:CDL:H711	2.43	0.52
7:R:405:THR:O	7:R:409:ALA:HB3	2.09	0.52
3:H:140:ASN:OD1	3:H:226:HIS:ND1	2.42	0.52
7:L:403:PHE:CD1	7:L:407:VAL:HG21	2.45	0.52
19:N:609:7PH:C23	19:G:905:7PH:H1	2.39	0.52
3:H:220:LEU:CD2	14:H:907:MQ9:H451	2.26	0.52
3:H:229:LEU:CD2	21:H:903:CDL:H312	2.39	0.52
3:N:409:TRP:CZ2	4:P:72:GLU:HG3	2.45	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
21:N:602:CDL:OA6	21:H:903:CDL:H512	2.10	0.52
3:H:232:PHE:CE2	21:H:903:CDL:HB21	2.45	0.52
5:J:202:VAL:HG11	22:J:502:TRD:H62	1.91	0.52
21:N:602:CDL:H512	21:H:903:CDL:OA6	2.10	0.52
3:H:110:HIS:CD2	3:H:281:ILE:HG12	2.45	0.52
19:H:901:7PH:H25	19:H:901:7PH:C3	2.40	0.52
7:L:320:ALA:HB2	8:X:254:SER:HA	1.90	0.52
3:H:34:PHE:CE2	14:H:907:MQ9:O4	2.63	0.51
4:I:28:VAL:HG13	4:I:42:HIS:HB2	1.92	0.51
5:S:184:TYR:CZ	21:R:601:CDL:H172	2.45	0.51
15:C:304:WUO:C90	15:C:304:WUO:C65	2.88	0.51
7:R:81:GLN:HG3	7:R:148:ASP:HB3	1.93	0.51
11:W:87:LYS:HA	11:W:105:THR:HA	1.92	0.51
11:W:118:ASP:CB	11:W:170:GLU:HG2	2.39	0.51
21:P:301:CDL:H782	21:P:301:CDL:H552	1.92	0.51
6:T:26:THR:O	6:T:30:ALA:HB3	2.10	0.51
21:J:501:CDL:HB61	21:J:501:CDL:H542	1.93	0.51
3:N:220:LEU:CD2	14:N:606:MQ9:H451	2.26	0.51
3:H:140:ASN:OD1	3:H:226:HIS:CE1	2.64	0.51
3:H:424:PHE:HD2	21:I:301:CDL:OB7	1.94	0.51
3:N:140:ASN:OD1	3:N:226:HIS:CE1	2.64	0.51
19:N:609:7PH:H25	19:N:609:7PH:C3	2.40	0.51
7:L:405:THR:O	7:L:409:ALA:HB3	2.10	0.51
5:S:196:PHE:CE2	5:S:201:PHE:HE2	2.29	0.51
14:T:1301:MQ9:H28	7:R:134:LEU:HB2	1.93	0.51
1:C:192:HIS:CE1	1:C:207:ALA:HB1	2.46	0.51
3:N:416:VAL:CG1	4:P:55:SER:HB2	2.41	0.51
7:L:386:PHE:O	8:X:242:LYS:CG	2.59	0.51
8:X:136:PHE:CZ	8:X:139:ASN:CB	2.94	0.51
2:G:256:ARG:HH12	2:G:273:ASP:HB3	1.75	0.50
7:L:110:GLN:HB3	7:L:207:PRO:HG2	1.93	0.50
7:L:395:ILE:HA	7:L:398:PHE:CE1	2.45	0.50
2:M:212:LEU:HD13	14:M:505:MQ9:H351	1.92	0.50
14:M:505:MQ9:H72	14:H:907:MQ9:C11	2.39	0.50
7:R:59:ALA:HB2	7:R:86:HIS:CE1	2.46	0.50
15:C:304:WUO:C23	15:C:304:WUO:C84	2.90	0.50
14:K:1301:MQ9:H262	14:K:1301:MQ9:H302	1.94	0.50
1:C:288:MET:HA	3:H:38:TRP:HB2	1.94	0.50
14:N:606:MQ9:C11	14:G:901:MQ9:H72	2.39	0.50
7:R:138:ALA:O	7:R:141:ILE:HG12	2.12	0.50
2:G:208:GLY:CA	14:G:901:MQ9:C38	2.90	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:J:196:PHE:CE1	5:J:201:PHE:HE2	2.29	0.50
14:K:1301:MQ9:C25	14:K:1301:MQ9:C28	2.86	0.50
2:M:140:ILE:HB	2:G:207:PHE:CE1	2.46	0.50
9:U:79:TRP:CH2	10:V:104:ARG:HA	2.47	0.50
3:H:159:TYR:HA	20:H:902:HEM:HAA2	1.93	0.50
7:L:310:VAL:HG12	7:L:329:MET:HB3	1.92	0.50
3:N:138:GLU:OE2	3:N:352:LYS:NZ	2.32	0.50
3:H:370:VAL:HG22	4:I:39:GLY:HA3	1.94	0.50
4:I:89:ARG:HB2	21:I:302:CDL:H311	1.94	0.50
2:M:208:GLY:CA	14:M:505:MQ9:C38	2.89	0.50
3:N:230:VAL:HG12	14:N:606:MQ9:H5M1	1.94	0.50
3:N:139:ALA:HB2	14:N:608:MQ9:H452	1.93	0.49
6:T:95:ILE:HG12	6:T:124:SER:HB3	1.93	0.49
1:C:126:ARG:HH22	7:L:165:GLY:HA3	1.77	0.49
7:L:81:GLN:HG3	7:L:148:ASP:HB3	1.93	0.49
2:M:344:LYS:HE3	2:M:354:SER:CB	2.41	0.49
8:X:136:PHE:CZ	8:X:139:ASN:HB2	2.47	0.49
14:H:906:MQ9:H3C	14:H:907:MQ9:H121	1.94	0.49
7:L:390:ASP:OD2	8:X:274:THR:O	2.31	0.49
7:R:430:LEU:HD21	7:R:493:TRP:HD1	1.77	0.49
8:Q:123:LYS:HG2	8:Q:259:GLN:HG3	1.95	0.49
19:G:905:7PH:O21	19:G:905:7PH:H24A	2.12	0.49
7:R:97:PRO:HG3	7:R:129:PHE:CE1	2.48	0.49
21:H:905:CDL:H311	21:H:905:CDL:OB9	2.13	0.49
5:J:36:GLU:OE2	5:J:150:HIS:NE2	2.39	0.49
1:O:282:ALA:HA	21:T:1302:CDL:H792	1.94	0.49
14:N:605:MQ9:H3C	14:N:606:MQ9:H121	1.94	0.49
2:M:207:PHE:CE1	2:G:140:ILE:HB	2.47	0.49
15:P:302:WUO:C30	15:P:302:WUO:C26	2.91	0.49
7:L:138:ALA:O	7:L:141:ILE:HG12	2.13	0.49
21:L:601:CDL:OB4	30:L:701:HOH:O	2.20	0.49
5:S:36:GLU:OE2	5:S:150:HIS:NE2	2.39	0.48
14:T:1301:MQ9:H272	7:R:135:ILE:HG13	1.94	0.48
17:G:903:IZL:O37	3:H:188:TRP:NE1	2.27	0.48
2:M:260:ARG:NH2	2:M:263:GLU:O	2.46	0.48
19:M:504:7PH:O21	19:M:504:7PH:H24A	2.12	0.48
14:M:505:MQ9:C5	14:H:907:MQ9:H111	2.42	0.48
14:N:605:MQ9:H303	14:N:605:MQ9:H322	1.51	0.48
7:R:63:ARG:HG3	7:R:478:THR:HA	1.94	0.48
1:C:291:GLY:O	30:C:401:HOH:O	2.20	0.48
3:N:532:HIS:O	3:N:536:ILE:HG12	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:154:GLU:HG2	20:H:902:HEM:CBB	2.43	0.48
7:L:294:THR:HG22	7:L:298:TYR:CE2	2.48	0.48
1:C:194:PHE:CE1	3:H:296:SER:HB3	2.47	0.48
2:G:65:VAL:HG22	2:G:162:GLN:HB2	1.96	0.48
14:N:606:MQ9:C5M	14:G:901:MQ9:C4	2.38	0.48
2:G:344:LYS:HE3	2:G:354:SER:CB	2.42	0.48
1:O:289:TRP:O	2:M:152:LYS:NZ	2.31	0.48
21:N:604:CDL:H312	6:T:90:TRP:CZ2	2.48	0.48
14:N:606:MQ9:H111	14:G:901:MQ9:C5	2.43	0.48
8:Q:169:SER:HB3	8:Q:192:ASP:HA	1.95	0.48
21:C:305:CDL:H732	21:J:501:CDL:H742	1.94	0.48
14:H:909:MQ9:H103	14:H:909:MQ9:H122	1.50	0.48
6:K:96:SER:HG	7:L:131:PHE:HD2	1.59	0.48
8:X:164:LYS:NZ	8:X:194:THR:O	2.34	0.48
8:Q:235:TRP:CD1	8:Q:242:LYS:HB3	2.48	0.48
2:G:300:LYS:O	2:G:303:GLU:HG3	2.14	0.48
21:N:602:CDL:H112	21:H:903:CDL:C52	2.44	0.48
8:Q:136:PHE:CZ	8:Q:139:ASN:CB	2.91	0.48
2:G:328:ARG:HB2	2:G:377:PHE:CG	2.49	0.48
21:I:302:CDL:OA9	21:I:302:CDL:H731	2.13	0.48
7:R:294:THR:HG22	7:R:298:TYR:CE2	2.49	0.48
10:V:114:VAL:HA	10:V:117:ARG:HD3	1.96	0.48
14:M:505:MQ9:H5M1	3:H:227:LEU:HB3	1.95	0.48
21:C:305:CDL:H802	21:C:305:CDL:H771	1.71	0.48
5:J:163:ALA:HA	21:J:501:CDL:H112	1.96	0.48
2:M:247:PHE:CE1	12:Y:45:PRO:HA	2.49	0.47
3:N:253:VAL:HA	3:N:257:PHE:HB3	1.96	0.47
1:O:289:TRP:CD2	21:T:1302:CDL:H711	2.49	0.47
14:M:505:MQ9:C23	3:H:55:LEU:HD23	2.21	0.47
3:H:139:ALA:HB2	14:H:909:MQ9:H452	1.96	0.47
7:L:544:GLU:HG2	7:L:551:VAL:HG22	1.95	0.47
8:Q:138:TRP:O	8:Q:284:MET:HB3	2.14	0.47
11:W:153:PHE:O	11:W:159:GLU:HA	2.14	0.47
2:G:346:CYS:HB2	2:G:353:SER:HB3	1.96	0.47
3:H:253:VAL:HA	3:H:257:PHE:HB3	1.96	0.47
7:L:97:PRO:HG3	7:L:129:PHE:CE1	2.48	0.47
6:T:131:GLU:OE2	30:T:1401:HOH:O	2.20	0.47
8:X:139:ASN:ND2	30:X:503:HOH:O	2.46	0.47
14:N:605:MQ9:H222	14:N:605:MQ9:H203	1.69	0.47
19:G:905:7PH:H28A	19:G:905:7PH:H25A	1.69	0.47
2:M:346:CYS:HB2	2:M:353:SER:HB3	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
18:W:201:9YF:C43	18:W:201:9YF:C38	2.92	0.47
22:L:608:TRD:H71	22:X:403:TRD:H81	1.96	0.47
21:P:301:CDL:H401	21:P:301:CDL:H372	1.70	0.47
7:R:355:PHE:HE1	7:R:363:VAL:HG21	1.79	0.47
10:V:77:THR:O	10:V:107:GLU:HG3	2.15	0.47
11:W:96:GLY:HA2	11:W:140:THR:HG23	1.97	0.47
15:C:304:WUO:C84	15:C:304:WUO:C22	2.92	0.47
2:G:212:LEU:HD13	14:G:901:MQ9:H351	1.95	0.47
14:G:901:MQ9:H353	14:G:901:MQ9:H371	1.63	0.47
21:N:602:CDL:C52	21:H:903:CDL:H112	2.44	0.47
21:N:604:CDL:OB9	21:N:604:CDL:H321	2.14	0.47
14:T:1301:MQ9:H122	14:T:1301:MQ9:H103	1.68	0.47
22:R:609:TRD:H71	22:Q:403:TRD:H81	1.97	0.47
3:H:191:TRP:CE3	3:H:196:GLY:HA2	2.50	0.47
14:H:909:MQ9:H371	14:H:909:MQ9:H33	1.64	0.47
1:O:285:GLY:HA3	21:T:1302:CDL:H761	1.97	0.47
2:M:46:GLU:O	2:M:50:MET:HG3	2.15	0.47
7:L:400:TYR:HA	7:L:442:PHE:CZ	2.49	0.47
6:T:126:CYS:CB	21:T:1302:CDL:H131	2.45	0.47
4:I:85:ALA:HA	21:I:302:CDL:H371	1.97	0.47
7:L:458:PRO:HG2	7:L:461:TYR:CE2	2.50	0.47
3:N:228:ALA:HB2	21:N:602:CDL:H751	1.97	0.46
14:N:606:MQ9:H103	14:N:606:MQ9:H121	1.58	0.46
3:H:66:PRO:HG3	3:H:208:TYR:CD2	2.49	0.46
3:H:494:GLY:O	5:J:169:LYS:HG2	2.15	0.46
3:N:66:PRO:HG3	3:N:208:TYR:CD2	2.49	0.46
5:S:27:VAL:HG12	6:T:55:PHE:HE2	1.80	0.46
2:G:373:ASP:HB3	2:G:376:GLU:HB3	1.97	0.46
5:S:156:VAL:HG22	19:S:501:7PH:H3B	1.97	0.46
7:R:152:THR:HA	7:R:259:PHE:CZ	2.51	0.46
7:R:402:LEU:O	7:R:406:ILE:HG12	2.15	0.46
7:R:403:PHE:O	7:R:407:VAL:HB	2.15	0.46
2:G:212:LEU:O	2:G:216:ILE:HG12	2.16	0.46
21:I:301:CDL:H512	21:I:301:CDL:H541	1.51	0.46
2:M:328:ARG:HB2	2:M:377:PHE:CG	2.50	0.46
14:N:608:MQ9:H371	14:N:608:MQ9:H33	1.64	0.46
3:N:438:ARG:O	3:N:442:GLU:OE1	2.33	0.46
7:R:256:GLN:HB3	7:R:315:MET:SD	2.55	0.46
11:W:64:TYR:CD1	11:W:142:PRO:HB2	2.51	0.46
21:L:601:CDL:H582	21:L:601:CDL:H782	1.98	0.46
21:R:605:CDL:H782	21:R:605:CDL:H751	1.60	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:O:304:WUO:C73	15:O:304:WUO:C69	2.94	0.46
21:P:301:CDL:H762	21:P:301:CDL:H541	1.98	0.46
19:H:901:7PH:H24A	19:H:901:7PH:H27	1.56	0.46
14:N:608:MQ9:H122	14:N:608:MQ9:H103	1.50	0.46
6:T:70:TYR:HB3	6:T:73:ALA:HB2	1.97	0.46
3:H:428:ARG:HH22	21:I:301:CDL:HB21	1.81	0.46
3:N:191:TRP:CE3	3:N:196:GLY:HA2	2.50	0.46
3:N:235:HIS:CD2	14:N:606:MQ9:H3A	2.51	0.46
14:N:606:MQ9:C9	14:G:901:MQ9:H72	2.41	0.46
14:N:608:MQ9:H453	14:N:608:MQ9:H472	1.60	0.46
1:C:289:TRP:CG	21:C:305:CDL:H722	2.51	0.46
7:R:458:PRO:HG2	7:R:461:TYR:CE2	2.51	0.46
11:W:84:GLY:O	11:W:108:ALA:HA	2.15	0.46
18:G:904:9YF:C34	3:H:189:MET:HG2	2.46	0.46
14:M:505:MQ9:H203	14:M:505:MQ9:H222	1.57	0.45
14:M:505:MQ9:H353	14:M:505:MQ9:H371	1.62	0.45
7:R:203:MET:HA	7:R:206:MET:HE2	1.98	0.45
7:R:504:PRO:HB2	10:V:39:VAL:HG21	1.98	0.45
24:R:603:HEA:H271	24:R:603:HEA:H211	1.37	0.45
19:H:901:7PH:H39	19:H:901:7PH:H36A	1.57	0.45
7:L:403:PHE:HZ	24:L:603:HEA:HO1	1.60	0.45
1:O:194:PHE:CZ	3:N:296:SER:HB3	2.50	0.45
3:N:227:LEU:HB3	14:G:901:MQ9:H5M1	1.98	0.45
3:H:159:TYR:HA	20:H:902:HEM:CAA	2.46	0.45
8:X:137:GLN:HA	8:X:138:TRP:HA	1.73	0.45
15:O:304:WUO:C94	14:T:1301:MQ9:C20	2.86	0.45
1:C:84:GLU:HA	1:C:88:VAL:HG13	1.98	0.45
2:G:208:GLY:HA2	14:G:901:MQ9:C38	2.41	0.45
14:H:909:MQ9:H253	14:H:909:MQ9:H272	1.63	0.45
18:M:503:9YF:O7	18:M:503:9YF:O9	2.35	0.45
3:N:424:PHE:HB2	21:P:301:CDL:H522	1.98	0.45
14:N:608:MQ9:H222	14:N:608:MQ9:H203	1.44	0.45
7:R:445:THR:HA	7:R:477:SER:HA	1.99	0.45
9:U:79:TRP:CH2	10:V:101:PRO:HA	2.52	0.45
11:W:118:ASP:OD1	11:W:119:GLY:N	2.43	0.45
7:R:383:PRO:HG3	8:Q:117:GLN:HB3	1.99	0.45
1:C:126:ARG:HB2	7:L:77:GLU:HG2	1.98	0.45
18:G:904:9YF:O7	18:G:904:9YF:O9	2.35	0.45
21:L:601:CDL:HA61	21:L:601:CDL:HB32	1.99	0.45
19:N:609:7PH:H39	19:N:609:7PH:H36A	1.56	0.45
1:C:271:GLU:OE2	30:C:402:HOH:O	2.21	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:G:901:MQ9:H122	14:G:901:MQ9:H103	1.65	0.45
3:H:228:ALA:HB2	21:H:903:CDL:H751	1.97	0.45
3:H:235:HIS:CD2	14:H:907:MQ9:C3A	3.00	0.45
7:L:152:THR:HA	7:L:259:PHE:CZ	2.52	0.45
2:M:319:PRO:HG3	11:W:165:PRO:HG3	1.99	0.45
3:N:497:PRO:HA	5:S:169:LYS:HA	1.99	0.45
7:R:544:GLU:HG2	7:R:551:VAL:HG22	1.99	0.45
14:H:906:MQ9:H222	14:H:906:MQ9:H203	1.69	0.45
4:I:33:VAL:HG11	4:I:41:SER:HB2	1.98	0.45
7:L:63:ARG:HG3	7:L:478:THR:HA	1.98	0.45
7:L:369:PHE:CE2	7:L:401:VAL:HG23	2.51	0.45
14:O:303:MQ9:H153	14:O:303:MQ9:H172	1.66	0.45
7:R:336:PRO:HA	7:R:339:ILE:HD12	1.98	0.45
5:J:67:LEU:HD11	5:J:203:ARG:HH11	1.81	0.45
2:M:213:VAL:HG13	18:M:503:9YF:C13	2.47	0.45
8:X:71:THR:HG23	8:X:75:HIS:ND1	2.32	0.45
14:M:505:MQ9:H122	14:M:505:MQ9:H103	1.65	0.44
14:N:606:MQ9:H371	3:H:218:ILE:HG12	1.99	0.44
11:W:44:ALA:HB3	11:W:51:LEU:HB2	1.99	0.44
21:C:305:CDL:HA4	21:H:905:CDL:H111	1.98	0.44
14:G:901:MQ9:H472	14:G:901:MQ9:H453	1.75	0.44
5:J:69:LEU:HD21	5:J:119:TYR:HD1	1.81	0.44
8:X:137:GLN:NE2	8:X:277:CYS:O	2.40	0.44
14:O:303:MQ9:H71	14:O:303:MQ9:H5M3	1.79	0.44
1:C:227:GLN:HE21	13:C:302:HEC:CGD	2.29	0.44
14:C:303:MQ9:H153	14:C:303:MQ9:H172	1.66	0.44
2:G:213:VAL:HG13	18:G:904:9YF:C13	2.48	0.44
2:G:297:SER:O	2:G:301:LEU:HG	2.16	0.44
1:O:176:ASP:HB3	1:O:244:ASP:OD2	2.17	0.44
4:P:71:VAL:HG22	15:P:302:WUO:C76	2.48	0.44
14:H:909:MQ9:H203	14:H:909:MQ9:H222	1.44	0.44
1:O:126:ARG:HB2	7:R:77:GLU:HG2	1.99	0.44
3:H:254:MET:HA	3:H:255:PRO:HA	1.70	0.44
14:H:907:MQ9:H103	14:H:907:MQ9:H121	1.58	0.44
15:O:304:WUO:C69	15:O:304:WUO:C65	2.96	0.44
14:T:1301:MQ9:H362	7:R:141:ILE:HD11	2.00	0.44
2:G:335:ASN:ND2	2:G:337:GLY:O	2.46	0.44
21:H:905:CDL:H141	21:H:905:CDL:H112	1.50	0.44
14:M:505:MQ9:C5	14:H:907:MQ9:C11	2.96	0.44
11:W:107:PRO:HG2	11:W:110:GLY:HA3	1.99	0.44
21:H:905:CDL:H531	21:H:905:CDL:OB7	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:Q:137:GLN:HA	8:Q:138:TRP:HA	1.81	0.44
2:G:352:PRO:HG2	3:H:295:VAL:HB	2.00	0.44
2:M:297:SER:O	2:M:301:LEU:HG	2.18	0.43
3:N:34:PHE:CD1	14:N:606:MQ9:C4	3.01	0.43
3:N:156:PHE:HA	3:N:159:TYR:CE2	2.53	0.43
3:N:502:PHE:CE1	5:S:100:ARG:HD3	2.53	0.43
7:R:389:THR:O	8:Q:242:LYS:NZ	2.31	0.43
3:N:473:HIS:CG	3:N:474:PRO:HD2	2.54	0.43
21:N:602:CDL:H511	21:H:903:CDL:C12	2.46	0.43
8:Q:41:PRO:HG3	8:Q:264:GLN:HE21	1.83	0.43
2:G:262:GLY:O	2:G:265:PRO:HD3	2.18	0.43
7:L:336:PRO:HA	7:L:339:ILE:HD12	1.99	0.43
18:M:503:9YF:C34	3:N:189:MET:HG2	2.48	0.43
14:M:505:MQ9:H472	14:M:505:MQ9:H453	1.74	0.43
3:N:370:VAL:HG22	4:P:39:GLY:HA3	2.00	0.43
14:N:606:MQ9:C8	14:G:901:MQ9:C3D	2.76	0.43
9:U:2:SER:OG	9:U:3:THR:N	2.47	0.43
3:H:65:ASP:HB3	3:H:91:THR:HG21	1.99	0.43
3:H:473:HIS:CG	3:H:474:PRO:HD2	2.53	0.43
2:M:211:THR:HG22	14:M:505:MQ9:H33	2.01	0.43
2:M:329:LYS:HE3	12:Y:27:THR:OG1	2.19	0.43
5:J:27:VAL:HG12	6:K:55:PHE:HE2	1.83	0.43
5:S:134:SER:HA	8:Q:184:PRO:HA	1.99	0.43
21:C:305:CDL:H112	6:K:127:GLY:HA2	2.00	0.43
21:H:905:CDL:H252	6:K:120:PHE:CD2	2.53	0.43
14:H:906:MQ9:H172	14:H:906:MQ9:C5M	2.47	0.43
7:L:445:THR:HA	7:L:477:SER:HA	2.00	0.43
1:O:227:GLN:HE21	13:O:302:HEC:CGD	2.30	0.43
14:M:505:MQ9:C3C	3:H:257:PHE:HZ	2.32	0.43
21:N:602:CDL:C12	21:H:903:CDL:H511	2.46	0.43
7:R:403:PHE:CZ	7:R:407:VAL:HG11	2.54	0.43
3:H:110:HIS:CD2	3:H:281:ILE:HD11	2.50	0.43
3:H:342:ALA:HB2	14:H:909:MQ9:H211	2.01	0.43
7:L:73:PHE:HA	8:X:335:LEU:HD11	2.01	0.43
7:R:377:VAL:HG23	24:R:602:HEA:H263	1.99	0.43
3:H:110:HIS:HD2	3:H:281:ILE:CG1	2.31	0.43
3:H:458:TYR:CG	7:L:114:PRO:HB3	2.53	0.43
21:J:501:CDL:H771	21:J:501:CDL:H741	1.55	0.43
24:R:602:HEA:H212	8:Q:60:VAL:HG11	1.99	0.43
11:W:118:ASP:CG	11:W:170:GLU:HG2	2.39	0.43
7:L:377:VAL:HG23	24:L:602:HEA:H263	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:L:399:HIS:O	7:L:403:PHE:HD2	2.02	0.43
8:X:299:TYR:HB2	8:X:316:ILE:HD13	1.99	0.43
3:N:179:THR:O	3:N:182:ILE:HG12	2.19	0.43
3:H:34:PHE:CE2	14:H:907:MQ9:C4	3.01	0.43
1:O:110:GLU:OE2	1:O:161:ARG:NH1	2.51	0.43
5:S:131:ILE:HD12	23:S:503:3PE:H242	2.01	0.43
10:V:117:ARG:HG2	10:V:157:ALA:HB3	2.00	0.43
3:H:110:HIS:HD2	3:H:281:ILE:HG12	1.83	0.43
7:L:458:PRO:HG2	7:L:461:TYR:CZ	2.53	0.43
2:M:148:VAL:HG23	3:N:263:ALA:HB1	2.01	0.42
19:M:504:7PH:H28A	19:M:504:7PH:H25A	1.69	0.42
8:Q:233:GLY:O	8:Q:273:CYS:HA	2.18	0.42
8:Q:229:ASP:O	8:Q:247:PRO:HG3	2.19	0.42
12:Y:23:PRO:HA	12:Y:24:PRO:HD3	1.93	0.42
3:H:410:ILE:CG2	14:K:1301:MQ9:H48	2.49	0.42
3:H:502:PHE:CE1	5:J:100:ARG:HD3	2.54	0.42
2:M:208:GLY:HA3	14:M:505:MQ9:C38	2.49	0.42
2:M:319:PRO:HG2	11:W:42:VAL:HG22	2.00	0.42
3:N:342:ALA:HB2	14:N:608:MQ9:H211	2.01	0.42
3:N:394:ASP:OD1	3:N:394:ASP:N	2.52	0.42
14:G:901:MQ9:H403	14:G:901:MQ9:H422	1.69	0.42
8:X:223:PHE:O	8:X:257:VAL:HA	2.19	0.42
2:M:342:TYR:OH	2:M:377:PHE:HA	2.19	0.42
3:N:416:VAL:HG13	4:P:55:SER:HB2	2.01	0.42
14:N:605:MQ9:H172	14:N:605:MQ9:C5M	2.47	0.42
6:T:106:ALA:HA	6:T:114:ILE:HD11	2.01	0.42
9:U:79:TRP:O	10:V:104:ARG:NH1	2.53	0.42
3:H:505:PRO:HB3	5:J:97:PHE:CE2	2.54	0.42
7:R:390:ASP:OD2	8:Q:274:THR:O	2.37	0.42
7:R:458:PRO:HG2	7:R:461:TYR:CZ	2.54	0.42
21:H:904:CDL:H532	21:H:904:CDL:OA7	2.20	0.42
14:H:907:MQ9:H221	14:H:907:MQ9:H203	1.68	0.42
8:X:229:ASP:O	8:X:247:PRO:HG3	2.20	0.42
1:C:284:ILE:HG21	21:H:904:CDL:H731	2.01	0.42
14:H:907:MQ9:H372	14:H:907:MQ9:H353	1.76	0.42
14:T:1301:MQ9:H361	7:R:138:ALA:HB1	2.01	0.42
11:W:117:PRO:CD	11:W:120:GLN:HG3	2.48	0.42
3:N:59:TRP:CE3	3:N:105:VAL:HG11	2.55	0.42
5:S:147:HIS:O	5:S:151:VAL:HG23	2.19	0.42
7:R:73:PHE:HA	8:Q:335:LEU:HD11	2.00	0.42
9:U:42:TRP:CZ2	9:U:44:HIS:HB3	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:W:45:GLN:O	11:W:160:THR:HG21	2.19	0.42
14:H:907:MQ9:H171	14:H:907:MQ9:H153	1.90	0.42
2:M:212:LEU:O	2:M:216:ILE:HG12	2.20	0.42
2:M:321:ASP:OD1	2:M:324:ARG:NH1	2.47	0.42
5:S:132:PRO:CD	23:S:503:3PE:H12	2.49	0.42
24:L:602:HEA:HMC1	24:L:602:HEA:HBC1	2.02	0.42
1:O:72:GLN:HG3	1:O:75:LEU:H	1.85	0.42
3:N:257:PHE:HZ	14:G:901:MQ9:C3C	2.32	0.42
14:N:606:MQ9:H372	14:N:606:MQ9:H353	1.76	0.42
8:Q:164:LYS:NZ	8:Q:194:THR:O	2.43	0.42
14:K:1301:MQ9:H271	14:K:1301:MQ9:H253	1.55	0.42
1:O:277:ILE:HG12	15:O:304:WUO:C89	2.50	0.41
7:R:403:PHE:CD1	7:R:407:VAL:HG21	2.55	0.41
5:J:147:HIS:O	5:J:151:VAL:HG23	2.20	0.41
21:J:501:CDL:O1	6:K:138:LYS:NZ	2.25	0.41
7:L:348:MET:HB3	8:X:71:THR:HG21	2.02	0.41
7:L:401:VAL:HG21	24:L:602:HEA:C2C	2.49	0.41
14:M:505:MQ9:H172	14:M:505:MQ9:H153	1.78	0.41
14:C:303:MQ9:H5M3	14:C:303:MQ9:H71	1.78	0.41
3:H:59:TRP:CE3	3:H:105:VAL:HG11	2.55	0.41
3:H:499:THR:HG22	3:H:511:HIS:HB2	2.01	0.41
4:I:89:ARG:HD2	21:I:301:CDL:H342	2.02	0.41
3:N:429:TRP:CG	21:N:603:CDL:H322	2.55	0.41
7:R:149:PHE:HD2	7:R:153:ALA:HA	1.84	0.41
3:H:78:GLN:HA	3:H:81:ARG:CG	2.51	0.41
6:K:106:ALA:HA	6:K:114:ILE:HD11	2.01	0.41
8:X:184:PRO:HD2	8:X:189:THR:HA	2.01	0.41
9:Z:42:TRP:CZ2	9:Z:44:HIS:HB3	2.55	0.41
11:W:82:THR:HG22	11:W:109:ASP:HB3	2.01	0.41
21:C:305:CDL:H111	21:C:305:CDL:HA62	2.03	0.41
3:H:442:GLU:HG2	3:H:443:HIS:CE1	2.55	0.41
3:N:403:SER:O	3:N:407:THR:HG23	2.21	0.41
1:C:190:SER:O	2:G:355:LEU:HD11	2.20	0.41
2:G:189:THR:O	2:G:193:ARG:HG2	2.20	0.41
3:H:499:THR:HG23	3:H:506:ASP:OD1	2.20	0.41
7:L:365:PHE:HD1	7:L:404:GLY:O	2.03	0.41
1:O:128:GLU:CG	30:O:443:HOH:O	2.66	0.41
14:T:1301:MQ9:H72	14:T:1301:MQ9:H5M3	1.80	0.41
14:M:505:MQ9:C3D	14:H:907:MQ9:C8	2.76	0.41
2:G:153:LYS:HA	2:G:153:LYS:HD3	1.98	0.41
2:G:208:GLY:HA3	14:G:901:MQ9:C38	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:H:403:SER:O	3:H:407:THR:HG23	2.20	0.41
7:L:20:ARG:HG3	7:L:500:ARG:O	2.21	0.41
7:L:49:PHE:CZ	7:L:488:MET:HE1	2.56	0.41
8:X:233:GLY:O	8:X:273:CYS:HA	2.21	0.41
2:M:208:GLY:HA3	14:M:505:MQ9:C39	2.50	0.41
5:S:147:HIS:NE2	5:S:192:TRP:HB2	2.36	0.41
24:R:602:HEA:HMC1	24:R:602:HEA:HBC1	2.02	0.41
8:Q:81:ASP:OD1	8:Q:81:ASP:N	2.54	0.41
2:G:211:THR:HG22	14:G:901:MQ9:H33	2.02	0.41
2:M:137:GLY:O	2:M:141:LEU:HB2	2.20	0.41
2:M:352:PRO:HG2	3:N:295:VAL:HB	2.02	0.41
3:N:65:ASP:HB3	3:N:91:THR:HG21	2.03	0.41
21:N:604:CDL:H242	21:N:604:CDL:H211	1.62	0.41
14:N:606:MQ9:H502	21:H:903:CDL:H191	2.03	0.41
7:R:57:LEU:HB2	24:R:603:HEA:H242	2.02	0.41
7:R:288:LYS:HB3	7:R:288:LYS:HE2	1.81	0.41
7:R:295:THR:HG21	8:Q:95:GLU:OE1	2.20	0.41
1:C:228:ASN:OD1	2:G:357:GLU:HB3	2.21	0.41
2:G:152:LYS:HB3	2:G:152:LYS:HE2	1.86	0.41
15:I:303:WUO:C23	15:I:303:WUO:C19	2.98	0.41
14:N:606:MQ9:H221	14:N:606:MQ9:H203	1.68	0.41
5:S:67:LEU:HD11	5:S:203:ARG:HH11	1.86	0.41
8:Q:36:PRO:HD2	8:Q:240:LEU:HD21	2.03	0.41
8:X:36:PRO:HD2	8:X:240:LEU:HD21	2.02	0.41
7:R:348:MET:HG2	7:R:353:LEU:HD21	2.03	0.40
11:W:149:TYR:O	11:W:164:VAL:N	2.47	0.40
1:C:229:MET:HB2	13:C:302:HEC:C1D	2.51	0.40
14:H:906:MQ9:H322	14:H:906:MQ9:H303	1.51	0.40
6:K:71:GLU:OE1	7:L:205:ARG:NH1	2.54	0.40
3:N:346:ALA:CB	14:N:608:MQ9:H271	2.49	0.40
9:U:79:TRP:HH2	10:V:101:PRO:HA	1.86	0.40
2:G:313:MET:HG3	2:G:344:LYS:HG3	2.02	0.40
3:H:143:ILE:HG23	3:H:222:LEU:HD22	2.02	0.40
21:I:302:CDL:H191	21:I:302:CDL:H161	1.77	0.40
5:J:184:TYR:CZ	21:L:601:CDL:H572	2.55	0.40
14:M:505:MQ9:H72	14:H:907:MQ9:C9	2.41	0.40
4:P:82:VAL:HG21	15:P:302:WUO:C92	2.52	0.40
6:T:95:ILE:CG1	6:T:124:SER:HB3	2.51	0.40
21:T:1302:CDL:H521	21:T:1302:CDL:H141	2.02	0.40
7:R:140:PHE:CE1	29:W:203:PLM:H41	2.57	0.40
7:R:495:VAL:HG11	21:R:605:CDL:H402	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:313:MET:HG3	2:M:344:LYS:HG3	2.03	0.40
4:P:96:ARG:NE	4:P:98:TRP:HE1	2.20	0.40
11:W:43:ASN:HA	11:W:51:LEU:O	2.22	0.40
3:H:60:LEU:HD13	20:H:902:HEM:HBD1	2.03	0.40
24:R:603:HEA:H261	24:R:603:HEA:H172	1.65	0.40
2:G:208:GLY:HA3	14:G:901:MQ9:C39	2.51	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	C	221/278 (80%)	211 (96%)	9 (4%)	1 (0%)	29	35
1	O	221/278 (80%)	208 (94%)	12 (5%)	1 (0%)	29	35
2	G	378/408 (93%)	364 (96%)	14 (4%)	0	100	100
2	M	378/408 (93%)	364 (96%)	14 (4%)	0	100	100
3	H	531/556 (96%)	518 (98%)	12 (2%)	1 (0%)	47	58
3	N	531/556 (96%)	518 (98%)	12 (2%)	1 (0%)	47	58
4	I	71/100 (71%)	68 (96%)	3 (4%)	0	100	100
4	P	71/100 (71%)	70 (99%)	1 (1%)	0	100	100
5	J	182/203 (90%)	179 (98%)	3 (2%)	0	100	100
5	S	182/203 (90%)	180 (99%)	2 (1%)	0	100	100
6	K	137/139 (99%)	136 (99%)	1 (1%)	0	100	100
6	T	137/139 (99%)	134 (98%)	3 (2%)	0	100	100
7	L	549/575 (96%)	543 (99%)	6 (1%)	0	100	100
7	R	549/575 (96%)	542 (99%)	7 (1%)	0	100	100
8	Q	295/341 (86%)	287 (97%)	8 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
8	X	296/341 (87%)	286 (97%)	10 (3%)	0	100	100
9	U	62/79 (78%)	61 (98%)	1 (2%)	0	100	100
9	Z	63/79 (80%)	62 (98%)	1 (2%)	0	100	100
10	V	141/157 (90%)	138 (98%)	3 (2%)	0	100	100
10	a	141/157 (90%)	134 (95%)	7 (5%)	0	100	100
11	W	145/186 (78%)	129 (89%)	16 (11%)	0	100	100
11	b	145/186 (78%)	129 (89%)	16 (11%)	0	100	100
12	Y	23/236 (10%)	20 (87%)	3 (13%)	0	100	100
12	c	23/236 (10%)	20 (87%)	3 (13%)	0	100	100
All	All	5472/6516 (84%)	5301 (97%)	167 (3%)	4 (0%)	54	64

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	N	235	HIS
1	O	227	GLN
1	C	227	GLN
3	H	235	HIS

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	C	163/206 (79%)	162 (99%)	1 (1%)	86	94
1	O	163/206 (79%)	162 (99%)	1 (1%)	86	94
2	G	311/333 (93%)	310 (100%)	1 (0%)	92	97
2	M	311/333 (93%)	310 (100%)	1 (0%)	92	97
3	H	428/448 (96%)	428 (100%)	0	100	100
3	N	428/448 (96%)	428 (100%)	0	100	100
4	I	58/83 (70%)	58 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	P	58/83 (70%)	58 (100%)	0	100	100
5	J	146/161 (91%)	146 (100%)	0	100	100
5	S	146/161 (91%)	146 (100%)	0	100	100
6	K	106/106 (100%)	106 (100%)	0	100	100
6	T	106/106 (100%)	106 (100%)	0	100	100
7	L	453/471 (96%)	451 (100%)	2 (0%)	91	96
7	R	453/471 (96%)	452 (100%)	1 (0%)	93	97
8	Q	255/288 (88%)	253 (99%)	2 (1%)	81	91
8	X	256/288 (89%)	254 (99%)	2 (1%)	81	91
9	U	51/59 (86%)	51 (100%)	0	100	100
9	Z	52/59 (88%)	52 (100%)	0	100	100
10	V	105/114 (92%)	105 (100%)	0	100	100
10	a	105/114 (92%)	105 (100%)	0	100	100
11	W	121/146 (83%)	121 (100%)	0	100	100
11	b	121/146 (83%)	121 (100%)	0	100	100
12	Y	20/167 (12%)	20 (100%)	0	100	100
12	c	20/167 (12%)	20 (100%)	0	100	100
All	All	4436/5164 (86%)	4425 (100%)	11 (0%)	93	97

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	O	193	ASN
2	M	420	LYS
7	R	341	PHE
8	Q	139	ASN
8	Q	229	ASP
1	C	193	ASN
2	G	420	LYS
7	L	188	ASN
7	L	341	PHE
8	X	229	ASP
8	X	242	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	O	227	GLN
5	S	20	ASN
1	C	227	GLN
5	J	20	ASN
8	X	139	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 86 ligands modelled in this entry, 10 are monoatomic - leaving 76 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	$\#\|Z\| > 2$
14	MQ9	O	303	-	59,59,59	0.36	0	72,75,75	0.32	0
29	PLM	Y	301	12	10,10,17	0.70	0	9,9,17	0.63	0
18	9YF	W	201	-	58,58,58	1.40	5 (8%)	69,71,71	1.07	3 (4%)
21	CDL	C	305	-	78,78,99	0.29	0	84,90,111	0.34	0
14	MQ9	H	906	-	44,44,59	0.38	0	54,57,75	0.36	0
18	9YF	b	201	-	58,58,58	1.40	5 (8%)	69,71,71	1.07	3 (4%)
19	7PH	N	609	-	37,37,37	0.30	0	41,42,42	0.34	0
28	9XX	c	302	-	31,31,41	1.11	4 (12%)	34,34,44	1.34	2 (5%)
16	FES	G	902	2	0,4,4	-	-	-		

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
22	TRD	Q	403	-	12,12,12	0.09	0	11,11,11	0.05	0
14	MQ9	H	907	14	59,59,59	0.35	0	72,75,75	0.32	0
14	MQ9	N	606	14	59,59,59	0.34	0	72,75,75	0.31	0
15	WUO	I	303	-	99,99,99	1.81	22 (22%)	123,125,125	1.37	16 (13%)
23	3PE	S	503	-	31,31,50	0.33	0	34,36,55	0.38	0
14	MQ9	K	1301	-	59,59,59	0.62	0	72,75,75	0.79	1 (1%)
21	CDL	R	601	-	76,76,99	0.29	0	82,88,111	0.35	0
21	CDL	T	1302	-	78,78,99	0.29	0	84,90,111	0.34	0
21	CDL	J	501	-	78,78,99	0.99	7 (8%)	84,90,111	1.13	5 (5%)
29	PLM	W	203	11	10,10,17	0.93	0	9,9,17	0.59	0
19	7PH	H	901	-	37,37,37	0.30	0	41,42,42	0.34	0
21	CDL	I	301	-	76,76,99	0.29	0	82,88,111	0.35	0
13	HEC	O	302	1	32,50,50	2.01	4 (12%)	24,82,82	2.28	12 (50%)
14	MQ9	M	505	14	59,59,59	0.34	0	72,75,75	0.30	0
22	TRD	K	1302	-	12,12,12	0.36	0	11,11,11	0.36	0
15	WUO	C	304	-	99,99,99	1.36	5 (5%)	123,125,125	1.25	17 (13%)
18	9YF	G	904	-	58,58,58	1.39	5 (8%)	69,71,71	1.07	3 (4%)
18	9YF	M	503	-	58,58,58	1.40	5 (8%)	69,71,71	1.06	2 (2%)
21	CDL	P	301	-	76,76,99	0.29	0	82,88,111	0.35	0
22	TRD	L	607	-	12,12,12	0.09	0	11,11,11	0.06	0
13	HEC	C	302	1	32,50,50	2.02	4 (12%)	24,82,82	2.28	12 (50%)
14	MQ9	T	1301	-	59,59,59	0.66	0	72,75,75	0.65	0
24	HEA	L	602	7	57,67,67	2.07	15 (26%)	61,103,103	2.55	25 (40%)
19	7PH	M	504	-	37,37,37	0.30	0	41,42,42	0.33	0
17	IZL	M	502	-	119,119,119	1.75	31 (26%)	161,163,163	1.31	17 (10%)
21	CDL	H	904	-	76,76,99	0.29	0	82,88,111	0.34	0
14	MQ9	H	909	-	59,59,59	0.35	0	72,75,75	0.31	0
20	HEM	H	902	3	41,50,50	2.15	12 (29%)	45,82,82	3.18	21 (46%)
19	7PH	S	501	-	37,37,37	0.30	0	41,42,42	0.35	0
14	MQ9	N	608	-	59,59,59	0.34	0	72,75,75	0.31	0
14	MQ9	C	303	-	59,59,59	0.36	0	72,75,75	0.32	0
20	HEM	H	908	3	41,50,50	2.26	12 (29%)	45,82,82	2.47	18 (40%)
21	CDL	L	601	-	78,78,99	0.29	0	84,90,111	0.34	0
24	HEA	L	603	7	57,67,67	2.34	20 (35%)	61,103,103	2.05	22 (36%)
29	PLM	c	301	12	10,10,17	0.80	0	9,9,17	0.65	0
22	TRD	R	609	-	12,12,12	0.21	0	11,11,11	0.47	0
22	TRD	L	608	-	12,12,12	0.22	0	11,11,11	0.47	0
14	MQ9	N	605	-	44,44,59	0.38	0	54,57,75	0.37	0
28	9XX	Y	302	-	31,31,41	1.10	4 (12%)	34,34,44	1.33	2 (5%)
21	CDL	H	903	-	73,73,99	0.30	0	79,85,111	0.36	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
28	9XX	b	203	-	31,31,41	1.07	4 (12%)	34,34,44	1.33	3 (8%)
17	IZL	G	903	-	119,119,119	1.79	22 (18%)	161,163,163	1.18	15 (9%)
21	CDL	H	905	-	78,78,99	0.29	0	84,90,111	0.34	0
22	TRD	R	608	-	12,12,12	0.09	0	11,11,11	0.06	0
23	3PE	J	503	-	31,31,50	0.33	0	34,36,55	0.38	0
29	PLM	b	202	11	10,10,17	0.78	0	9,9,17	0.56	0
19	7PH	G	905	-	37,37,37	0.30	0	41,42,42	0.34	0
21	CDL	N	602	-	73,73,99	0.30	0	79,85,111	0.36	0
21	CDL	N	603	-	76,76,99	0.29	0	82,88,111	0.34	0
20	HEM	N	607	3	41,50,50	2.26	12 (29%)	45,82,82	2.47	18 (40%)
13	HEC	O	301	1	32,50,50	1.96	4 (12%)	24,82,82	2.10	10 (41%)
21	CDL	R	605	-	76,76,99	0.29	0	82,88,111	0.34	0
13	HEC	C	301	1	32,50,50	1.96	4 (12%)	24,82,82	2.10	10 (41%)
22	TRD	X	403	-	12,12,12	0.09	0	11,11,11	0.05	0
24	HEA	R	603	7	57,67,67	2.40	18 (31%)	61,103,103	2.36	26 (42%)
15	WUO	P	302	-	99,99,99	1.38	5 (5%)	123,125,125	1.24	15 (12%)
16	FES	M	501	2	0,4,4	-	-	-		
15	WUO	O	304	-	99,99,99	1.37	5 (5%)	123,125,125	1.24	16 (13%)
20	HEM	N	601	3	41,50,50	1.93	10 (24%)	45,82,82	2.45	12 (26%)
21	CDL	N	604	-	78,78,99	0.29	0	84,90,111	0.34	0
21	CDL	I	302	-	76,76,99	0.30	0	82,88,111	0.40	0
22	TRD	S	502	-	12,12,12	0.21	0	11,11,11	0.25	0
24	HEA	R	602	7	57,67,67	2.06	15 (26%)	61,103,103	2.47	23 (37%)
28	9XX	W	202	-	41,41,41	0.97	4 (9%)	44,44,44	1.39	4 (9%)
22	TRD	T	1303	-	12,12,12	0.35	0	11,11,11	0.36	0
22	TRD	J	502	-	12,12,12	0.21	0	11,11,11	0.25	0
14	MQ9	G	901	14	59,59,59	0.35	0	72,75,75	0.31	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
14	MQ9	O	303	-	-	6/53/73/73	0/2/2/2
29	PLM	Y	301	12	-	2/7/8/15	-
18	9YF	W	201	-	-	32/54/78/78	0/1/1/1
21	CDL	C	305	-	-	46/89/89/110	-
14	MQ9	H	906	-	-	14/35/55/73	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
18	9YF	b	201	-	-	32/54/78/78	0/1/1/1
19	7PH	N	609	-	-	22/39/39/39	-
28	9XX	c	302	-	-	19/33/33/43	-
22	TRD	Q	403	-	-	6/10/10/10	-
16	FES	G	902	2	-	-	0/1/1/1
14	MQ9	H	907	14	-	28/53/73/73	0/2/2/2
14	MQ9	N	606	14	-	28/53/73/73	0/2/2/2
15	WUO	I	303	-	-	35/84/148/148	0/3/3/3
23	3PE	S	503	-	-	16/35/35/54	-
14	MQ9	K	1301	-	-	19/53/73/73	0/2/2/2
21	CDL	R	601	-	-	38/87/87/110	-
21	CDL	T	1302	-	-	53/89/89/110	-
21	CDL	J	501	-	-	50/89/89/110	-
29	PLM	W	203	11	-	4/7/8/15	-
19	7PH	H	901	-	-	22/39/39/39	-
21	CDL	I	301	-	-	58/87/87/110	-
13	HEC	O	302	1	-	3/10/54/54	-
14	MQ9	M	505	14	-	26/53/73/73	0/2/2/2
22	TRD	K	1302	-	-	6/10/10/10	-
15	WUO	C	304	-	-	39/84/148/148	0/3/3/3
18	9YF	G	904	-	-	30/54/78/78	0/1/1/1
18	9YF	M	503	-	-	30/54/78/78	0/1/1/1
21	CDL	P	301	-	-	46/87/87/110	-
22	TRD	L	607	-	-	5/10/10/10	-
13	HEC	C	302	1	-	3/10/54/54	-
14	MQ9	T	1301	-	-	19/53/73/73	0/2/2/2
24	HEA	L	602	7	-	7/32/76/76	-
19	7PH	M	504	-	-	21/39/39/39	-
17	IZL	M	502	-	-	38/84/208/208	0/6/6/6
21	CDL	H	904	-	-	40/87/87/110	-
14	MQ9	H	909	-	-	31/53/73/73	0/2/2/2
20	HEM	H	902	3	-	3/12/54/54	-
19	7PH	S	501	-	-	15/39/39/39	-
14	MQ9	N	608	-	-	31/53/73/73	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	MQ9	C	303	-	-	6/53/73/73	0/2/2/2
20	HEM	H	908	3	-	2/12/54/54	-
21	CDL	L	601	-	-	52/89/89/110	-
24	HEA	L	603	7	-	6/32/76/76	-
29	PLM	c	301	12	-	3/7/8/15	-
22	TRD	R	609	-	-	1/10/10/10	-
22	TRD	L	608	-	-	1/10/10/10	-
14	MQ9	N	605	-	-	14/35/55/73	0/2/2/2
28	9XX	Y	302	-	-	17/33/33/43	-
21	CDL	H	903	-	-	44/84/84/110	-
28	9XX	b	203	-	-	21/33/33/43	-
17	IZL	G	903	-	-	33/84/208/208	0/6/6/6
21	CDL	H	905	-	-	42/89/89/110	-
22	TRD	R	608	-	-	5/10/10/10	-
23	3PE	J	503	-	-	16/35/35/54	-
29	PLM	b	202	11	-	3/7/8/15	-
19	7PH	G	905	-	-	21/39/39/39	-
21	CDL	N	602	-	-	44/84/84/110	-
21	CDL	N	603	-	-	36/87/87/110	-
20	HEM	N	607	3	-	2/12/54/54	-
13	HEC	O	301	1	-	5/10/54/54	-
21	CDL	R	605	-	-	49/87/87/110	-
13	HEC	C	301	1	-	5/10/54/54	-
22	TRD	X	403	-	-	6/10/10/10	-
24	HEA	R	603	7	-	15/32/76/76	-
15	WUO	P	302	-	-	37/84/148/148	0/3/3/3
16	FES	M	501	2	-	-	0/1/1/1
15	WUO	O	304	-	-	39/84/148/148	0/3/3/3
20	HEM	N	601	3	-	3/12/54/54	-
21	CDL	N	604	-	-	52/89/89/110	-
21	CDL	I	302	-	-	49/87/87/110	-
22	TRD	S	502	-	-	5/10/10/10	-
24	HEA	R	602	7	-	6/32/76/76	-
28	9XX	W	202	-	-	28/43/43/43	-
22	TRD	T	1303	-	-	6/10/10/10	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
22	TRD	J	502	-	-	5/10/10/10	-
14	MQ9	G	901	14	-	26/53/73/73	0/2/2/2

All (263) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	G	903	IZL	P-O28	7.09	1.79	1.60
13	C	302	HEC	C2B-C3B	-6.56	1.33	1.40
24	R	603	HEA	C4B-NB	-6.48	1.29	1.40
13	O	302	HEC	C2B-C3B	-6.45	1.34	1.40
15	C	304	WUO	P52-O51	6.38	1.77	1.60
15	O	304	WUO	P52-O51	6.35	1.77	1.60
15	P	302	WUO	P52-O51	6.34	1.77	1.60
24	L	603	HEA	C4B-NB	-6.27	1.29	1.40
13	C	302	HEC	C3C-C2C	-6.16	1.34	1.40
13	O	302	HEC	C3C-C2C	-6.14	1.34	1.40
20	H	908	HEM	C4D-ND	-6.10	1.29	1.40
20	N	607	HEM	C4D-ND	-6.08	1.29	1.40
13	O	301	HEC	C2B-C3B	-5.97	1.34	1.40
13	C	301	HEC	C2B-C3B	-5.97	1.34	1.40
13	O	301	HEC	C3C-C2C	-5.90	1.34	1.40
13	C	301	HEC	C3C-C2C	-5.90	1.34	1.40
20	N	607	HEM	C1B-NB	-5.72	1.30	1.40
20	H	908	HEM	C1B-NB	-5.71	1.30	1.40
15	I	303	WUO	O36-C35	-5.65	1.29	1.43
15	I	303	WUO	O58-C57	-5.65	1.32	1.46
18	G	904	9YF	P-O2	5.57	1.75	1.60
18	b	201	9YF	P-O2	5.56	1.75	1.60
18	W	201	9YF	P-O2	5.56	1.75	1.60
18	M	503	9YF	P-O2	5.54	1.75	1.60
20	H	902	HEM	C3C-CAC	-5.22	1.37	1.47
20	N	601	HEM	O2D-CGD	-5.19	1.13	1.30
24	L	603	HEA	C1D-ND	-5.15	1.31	1.40
24	R	603	HEA	C1D-ND	-5.14	1.31	1.40
15	P	302	WUO	C50-C37	5.12	1.62	1.52
24	R	603	HEA	CHD-C1D	5.10	1.48	1.35
17	M	502	IZL	P-O28	4.99	1.73	1.60
24	L	603	HEA	CHD-C1D	4.98	1.47	1.35
20	N	601	HEM	C1B-NB	-4.98	1.31	1.40
17	G	903	IZL	C44-C45	4.98	1.66	1.50
15	I	303	WUO	O10-C07	-4.91	1.31	1.43
15	O	304	WUO	C50-C37	4.89	1.62	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	G	903	IZL	C43-C14	4.82	1.62	1.52
15	I	303	WUO	O32-C31	-4.69	1.31	1.43
15	C	304	WUO	C50-C37	4.69	1.62	1.52
17	M	502	IZL	C44-C45	4.68	1.65	1.50
24	L	602	HEA	CHC-C4B	4.68	1.47	1.35
24	L	602	HEA	C3D-C2D	4.66	1.46	1.36
24	R	602	HEA	CHC-C4B	4.65	1.46	1.35
24	R	602	HEA	C3D-C2D	4.61	1.46	1.36
20	H	902	HEM	O2D-CGD	-4.59	1.15	1.30
24	R	603	HEA	C1B-NB	-4.57	1.29	1.38
20	H	902	HEM	C1B-NB	-4.51	1.32	1.40
24	L	603	HEA	C1B-NB	-4.47	1.29	1.38
17	G	903	IZL	P-O31	4.42	1.77	1.59
24	L	603	HEA	C3B-C2B	4.37	1.44	1.34
17	M	502	IZL	C43-C14	4.36	1.61	1.52
15	I	303	WUO	O11-C06	-4.35	1.32	1.43
20	N	601	HEM	O2A-CGA	-4.34	1.16	1.30
24	R	603	HEA	C3B-C2B	4.29	1.44	1.34
15	O	304	WUO	P52-O55	4.29	1.76	1.59
18	M	503	9YF	P-O	4.29	1.76	1.59
15	P	302	WUO	P52-O55	4.28	1.76	1.59
18	b	201	9YF	P-O	4.28	1.76	1.59
24	L	602	HEA	C1D-ND	-4.28	1.32	1.40
18	W	201	9YF	P-O	4.28	1.76	1.59
18	G	904	9YF	P-O	4.27	1.76	1.59
15	C	304	WUO	P52-O55	4.27	1.76	1.59
24	L	602	HEA	CHD-C1D	4.27	1.45	1.35
24	R	602	HEA	CHD-C1D	4.27	1.45	1.35
24	R	603	HEA	O2D-CGD	-4.26	1.16	1.30
24	L	603	HEA	O2D-CGD	-4.26	1.16	1.30
24	R	602	HEA	C1D-ND	-4.24	1.33	1.40
24	L	603	HEA	FE-ND	4.17	2.17	1.96
24	R	602	HEA	C4B-NB	-4.12	1.33	1.40
24	L	602	HEA	C4B-NB	-4.12	1.33	1.40
20	H	902	HEM	FE-NB	4.11	2.17	1.96
24	R	603	HEA	FE-ND	4.10	2.17	1.96
24	L	602	HEA	C3B-C2B	4.10	1.44	1.34
24	R	602	HEA	C3B-C2B	4.10	1.44	1.34
24	R	603	HEA	CHC-C4B	4.03	1.45	1.35
24	L	603	HEA	CHC-C4B	3.96	1.45	1.35
17	M	502	IZL	P-O31	3.95	1.75	1.59
28	W	202	9XX	O1-C17	-3.91	1.40	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	L	602	HEA	C4D-ND	-3.84	1.30	1.38
20	N	601	HEM	FE-NB	3.84	2.15	1.96
20	H	902	HEM	C3C-C2C	-3.84	1.35	1.40
24	R	602	HEA	C3A-C2A	3.83	1.45	1.40
24	L	602	HEA	C3A-C2A	3.82	1.45	1.40
20	H	908	HEM	O2D-CGD	-3.81	1.17	1.30
24	R	602	HEA	C4D-ND	-3.80	1.31	1.38
20	N	607	HEM	O2D-CGD	-3.79	1.18	1.30
28	c	302	9XX	O1-C17	-3.78	1.40	1.47
24	R	603	HEA	FE-NB	3.76	2.15	1.96
24	L	603	HEA	C3D-C2D	3.76	1.44	1.36
13	C	302	HEC	CBC-CAC	-3.73	1.35	1.49
24	R	603	HEA	C3D-C2D	3.72	1.44	1.36
20	N	607	HEM	C4B-NB	-3.72	1.31	1.38
20	N	607	HEM	C3C-C2C	-3.71	1.35	1.40
13	O	302	HEC	CBC-CAC	-3.70	1.35	1.49
20	H	908	HEM	C4B-NB	-3.70	1.31	1.38
28	b	203	9XX	O1-C17	-3.70	1.40	1.47
24	L	603	HEA	C4D-ND	-3.69	1.31	1.38
20	H	908	HEM	C1B-C2B	-3.67	1.37	1.44
20	N	601	HEM	C4D-ND	-3.66	1.34	1.40
20	N	607	HEM	C1B-C2B	-3.66	1.37	1.44
24	L	603	HEA	FE-NB	3.66	2.15	1.96
20	H	908	HEM	C3C-C2C	-3.65	1.35	1.40
24	R	603	HEA	C4D-ND	-3.62	1.31	1.38
20	N	607	HEM	FE-NB	3.61	2.14	1.96
20	H	908	HEM	FE-NB	3.61	2.14	1.96
15	I	303	WUO	C44-C43	3.53	1.61	1.52
20	H	902	HEM	C4D-ND	-3.52	1.34	1.40
28	Y	302	9XX	O1-C17	-3.52	1.41	1.47
20	H	902	HEM	C3D-C2D	-3.50	1.29	1.36
13	O	301	HEC	CBC-CAC	-3.42	1.36	1.49
13	C	301	HEC	CBC-CAC	-3.42	1.36	1.49
15	I	303	WUO	O13-C12	-3.39	1.37	1.45
15	I	303	WUO	O38-C37	-3.36	1.35	1.43
15	I	303	WUO	C50-C37	3.34	1.59	1.52
17	G	903	IZL	C43-C18	3.32	1.59	1.52
20	N	601	HEM	C4B-NB	-3.27	1.32	1.38
24	R	602	HEA	O2D-CGD	-3.21	1.20	1.30
24	L	602	HEA	O2D-CGD	-3.20	1.20	1.30
24	R	602	HEA	C3C-C2C	3.19	1.44	1.40
24	L	602	HEA	C3C-C2C	3.19	1.44	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
15	I	303	WUO	O45-C44	-3.13	1.35	1.43
20	H	902	HEM	C2C-C1C	-3.13	1.35	1.42
20	H	902	HEM	O2A-CGA	-3.11	1.20	1.30
15	I	303	WUO	O77-C76	-3.09	1.38	1.45
15	I	303	WUO	O46-C43	-3.04	1.35	1.43
17	G	903	IZL	O1-C10	3.03	1.42	1.33
24	L	602	HEA	FE-NB	3.03	2.11	1.96
24	R	602	HEA	FE-NB	3.03	2.11	1.96
17	M	502	IZL	C31-C36	3.02	1.61	1.52
15	I	303	WUO	C17-C16	3.01	1.63	1.52
24	R	603	HEA	O2A-CGA	-3.00	1.20	1.30
24	L	603	HEA	O2A-CGA	-3.00	1.20	1.30
20	N	607	HEM	C1D-ND	-2.98	1.32	1.38
20	H	908	HEM	C1D-ND	-2.98	1.32	1.38
17	G	903	IZL	C11-C12	2.98	1.60	1.51
24	L	602	HEA	FE-ND	2.94	2.11	1.96
17	G	903	IZL	C24-C23	2.94	1.60	1.51
24	R	602	HEA	FE-ND	2.94	2.11	1.96
20	N	607	HEM	C2C-C1C	-2.94	1.35	1.42
17	M	502	IZL	C25-C30	2.93	1.59	1.52
20	H	908	HEM	O2A-CGA	-2.92	1.20	1.30
20	N	607	HEM	O2A-CGA	-2.90	1.21	1.30
20	H	908	HEM	C2C-C1C	-2.90	1.36	1.42
15	I	303	WUO	P52-O51	2.89	1.68	1.60
24	L	602	HEA	O2A-CGA	-2.89	1.21	1.30
24	R	602	HEA	O2A-CGA	-2.88	1.21	1.30
24	R	603	HEA	C3C-C2C	2.87	1.44	1.40
17	G	903	IZL	C25-C30	2.87	1.59	1.52
20	H	902	HEM	CHA-C4D	2.86	1.42	1.35
15	I	303	WUO	O34-C33	-2.85	1.36	1.43
24	R	603	HEA	C1C-NC	-2.82	1.30	1.36
24	R	603	HEA	C4D-C3D	-2.79	1.40	1.45
15	P	302	WUO	C50-C01	2.77	1.58	1.52
24	R	603	HEA	O11-C11	-2.73	1.37	1.42
24	L	603	HEA	O11-C11	-2.73	1.37	1.42
17	M	502	IZL	C43-C18	2.73	1.57	1.52
24	L	603	HEA	C4D-C3D	-2.73	1.40	1.45
20	H	902	HEM	C4B-NB	-2.72	1.33	1.38
17	M	502	IZL	O38-C73	-2.69	1.36	1.43
15	I	303	WUO	O09-C08	-2.69	1.36	1.43
20	H	908	HEM	C1A-CHA	-2.66	1.33	1.41
24	R	602	HEA	C1B-NB	-2.66	1.33	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	L	602	HEA	C1B-NB	-2.65	1.33	1.38
24	L	603	HEA	C3C-C2C	2.65	1.44	1.40
21	J	501	CDL	OA6-CA4	-2.65	1.40	1.46
17	M	502	IZL	O28-C43	-2.64	1.34	1.44
24	L	603	HEA	C1C-NC	-2.63	1.30	1.36
15	I	303	WUO	O04-C05	-2.62	1.38	1.44
17	M	502	IZL	C29-C28	2.62	1.59	1.52
17	M	502	IZL	C61-C60	2.62	1.58	1.50
20	N	607	HEM	C1A-CHA	-2.61	1.33	1.41
21	J	501	CDL	OB8-CB7	2.60	1.40	1.33
17	M	502	IZL	C13-C71	2.59	1.60	1.52
24	R	603	HEA	C4C-CHD	2.57	1.48	1.41
18	G	904	9YF	C1-C	2.54	1.58	1.50
28	c	302	9XX	O-C15	2.54	1.40	1.33
17	G	903	IZL	C46-C45	2.54	1.58	1.50
17	G	903	IZL	C48-C47	2.54	1.58	1.50
18	M	503	9YF	C1-C	2.53	1.58	1.50
18	b	201	9YF	C1-C	2.53	1.58	1.50
20	H	908	HEM	O1D-CGD	-2.52	1.13	1.22
18	W	201	9YF	C1-C	2.52	1.58	1.50
15	I	303	WUO	O04-C03	-2.52	1.35	1.41
20	N	601	HEM	C1B-C2B	-2.51	1.39	1.44
20	N	607	HEM	O1D-CGD	-2.50	1.13	1.22
17	M	502	IZL	O24-C39	-2.50	1.37	1.43
17	G	903	IZL	C21-C20	2.49	1.59	1.51
28	Y	302	9XX	O-C15	2.49	1.40	1.33
21	J	501	CDL	OB6-CB5	2.48	1.41	1.34
15	I	303	WUO	O40-C39	-2.48	1.35	1.41
24	L	603	HEA	C4C-CHD	2.48	1.47	1.41
17	G	903	IZL	C61-C60	2.44	1.57	1.50
17	M	502	IZL	O37-C72	-2.44	1.37	1.43
15	O	304	WUO	C50-C01	2.43	1.57	1.52
17	G	903	IZL	O34-C60	2.43	1.41	1.34
28	Y	302	9XX	O1-C18	2.42	1.41	1.34
17	M	502	IZL	O1-C10	2.42	1.40	1.33
17	M	502	IZL	C48-C47	2.42	1.57	1.50
17	M	502	IZL	O34-C60	2.40	1.41	1.34
20	N	601	HEM	C1D-ND	-2.39	1.33	1.38
21	J	501	CDL	OB6-CB4	-2.39	1.40	1.46
17	G	903	IZL	O32-C47	2.38	1.40	1.33
28	c	302	9XX	O1-C18	2.37	1.41	1.34
13	O	301	HEC	CBB-CAB	-2.35	1.40	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
13	C	301	HEC	CBB-CAB	-2.35	1.40	1.49
17	G	903	IZL	C13-C71	2.35	1.59	1.52
15	O	304	WUO	C56-C57	2.34	1.57	1.50
28	W	202	9XX	O1-C18	2.34	1.40	1.34
17	M	502	IZL	O23-C38	-2.33	1.37	1.43
15	P	302	WUO	C56-C57	2.33	1.57	1.50
13	O	302	HEC	CBB-CAB	-2.32	1.40	1.49
17	M	502	IZL	C24-C23	2.32	1.58	1.51
18	M	503	9YF	C24-C	2.31	1.57	1.50
18	b	201	9YF	C24-C	2.31	1.57	1.50
15	C	304	WUO	C56-C57	2.30	1.57	1.50
13	C	302	HEC	CBB-CAB	-2.30	1.40	1.49
18	W	201	9YF	C24-C	2.30	1.57	1.50
17	M	502	IZL	O6-C17	-2.30	1.37	1.43
17	M	502	IZL	O26-C41	-2.29	1.37	1.43
18	G	904	9YF	C24-C	2.29	1.57	1.50
21	J	501	CDL	OA8-CA7	2.28	1.40	1.33
28	b	203	9XX	O1-C18	2.28	1.40	1.34
24	R	603	HEA	C4C-NC	-2.28	1.31	1.36
17	M	502	IZL	C35-C34	2.26	1.58	1.52
28	b	203	9XX	O-C16	-2.23	1.40	1.45
17	M	502	IZL	C36-C35	2.23	1.58	1.52
24	L	603	HEA	C4C-NC	-2.23	1.31	1.36
15	I	303	WUO	O51-C50	-2.21	1.36	1.44
28	W	202	9XX	O-C15	2.20	1.39	1.33
17	G	903	IZL	C19-C42	2.20	1.58	1.52
17	G	903	IZL	C9-C10	2.18	1.57	1.50
20	H	902	HEM	C1B-C2B	-2.18	1.40	1.44
15	I	303	WUO	O40-C41	-2.16	1.39	1.44
18	b	201	9YF	C4-C3	2.13	1.57	1.52
20	N	601	HEM	C2C-C1C	-2.13	1.37	1.42
28	Y	302	9XX	O-C16	-2.13	1.40	1.45
28	W	202	9XX	O-C16	-2.12	1.40	1.45
17	M	502	IZL	P-O30	-2.12	1.45	1.55
18	W	201	9YF	C4-C3	2.11	1.57	1.52
24	L	602	HEA	C2A-C1A	2.11	1.47	1.42
17	M	502	IZL	O1-C11	-2.10	1.40	1.45
15	C	304	WUO	C50-C01	2.10	1.56	1.52
24	R	602	HEA	C2A-C1A	2.09	1.47	1.42
17	M	502	IZL	O4-C15	-2.09	1.38	1.43
24	L	603	HEA	CAA-C2A	-2.08	1.48	1.52
17	M	502	IZL	O12-C26	-2.08	1.39	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	G	903	IZL	C31-C36	2.08	1.58	1.52
17	M	502	IZL	C33-C32	2.07	1.58	1.51
21	J	501	CDL	OA8-CA6	-2.06	1.40	1.45
20	N	601	HEM	O1A-CGA	-2.06	1.15	1.22
17	M	502	IZL	C42-C41	2.05	1.57	1.52
17	G	903	IZL	C22-C39	2.05	1.58	1.52
21	J	501	CDL	OA6-CA5	2.04	1.40	1.34
18	M	503	9YF	C4-C3	2.04	1.57	1.52
28	b	203	9XX	O-C15	2.03	1.39	1.33
17	G	903	IZL	C15-C14	2.03	1.57	1.52
15	I	303	WUO	P52-O55	2.03	1.67	1.59
24	L	603	HEA	C3A-C2A	2.02	1.43	1.40
17	M	502	IZL	O9-C21	-2.01	1.40	1.43
18	G	904	9YF	C4-C3	2.01	1.57	1.52
17	M	502	IZL	C46-C45	2.01	1.56	1.50
28	c	302	9XX	O-C16	-2.01	1.40	1.45
17	G	903	IZL	O28-C43	-2.01	1.36	1.44

All (333) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
20	H	902	HEM	C2C-C3C-C4C	8.98	113.17	106.90
20	H	902	HEM	CBA-CAA-C2A	-7.72	99.44	112.62
20	H	902	HEM	O2A-CGA-O1A	-6.51	107.08	123.30
20	N	601	HEM	O2A-CGA-O1A	-6.49	107.12	123.30
20	H	908	HEM	C1B-NB-C4B	6.19	111.47	105.07
20	N	607	HEM	C1B-NB-C4B	6.14	111.42	105.07
20	N	607	HEM	O2D-CGD-O1D	-5.98	108.40	123.30
28	W	202	9XX	O1-C18-C19	5.93	124.29	111.50
20	H	908	HEM	O2D-CGD-O1D	-5.92	108.53	123.30
24	L	602	HEA	C1D-C2D-C3D	-5.81	100.85	106.96
24	R	602	HEA	C1D-C2D-C3D	-5.79	100.87	106.96
20	H	902	HEM	O2D-CGD-O1D	-5.78	108.89	123.30
24	R	603	HEA	C12-C13-C14	-5.67	97.27	112.23
24	L	602	HEA	CAD-CBD-CGD	-5.56	101.65	113.60
20	N	601	HEM	CHC-C4B-NB	5.52	130.43	124.43
24	R	602	HEA	CAD-CBD-CGD	-5.52	101.72	113.60
20	N	601	HEM	C2C-C3C-C4C	5.43	110.69	106.90
17	M	502	IZL	O10-C23-C24	5.38	117.53	106.67
24	R	602	HEA	CBA-CAA-C2A	-5.27	103.73	112.60
24	L	602	HEA	C2B-C1B-NB	5.22	116.14	109.88
24	L	602	HEA	CBA-CAA-C2A	-5.22	103.80	112.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
20	H	902	HEM	C3C-C4C-NC	-5.21	101.11	110.94
20	N	607	HEM	O2D-CGD-CBD	5.18	130.66	114.03
24	R	602	HEA	C2B-C1B-NB	5.17	116.08	109.88
20	H	902	HEM	CHD-C1D-ND	5.17	130.05	124.43
20	H	908	HEM	O2D-CGD-CBD	5.17	130.63	114.03
20	N	601	HEM	C1B-NB-C4B	5.06	110.30	105.07
24	L	602	HEA	C2D-C1D-ND	4.66	115.36	109.84
20	H	908	HEM	O2A-CGA-CBA	4.63	128.91	114.03
20	N	607	HEM	O2A-CGA-CBA	4.62	128.88	114.03
24	R	602	HEA	C2D-C1D-ND	4.62	115.31	109.84
20	N	601	HEM	CBA-CAA-C2A	-4.61	104.76	112.62
15	I	303	WUO	C03-O04-C05	4.56	122.63	113.69
17	G	903	IZL	O10-C23-C24	4.56	115.86	106.67
24	R	603	HEA	O11-C11-C12	-4.53	96.75	109.42
24	R	603	HEA	CMD-C2D-C1D	4.51	131.91	125.04
20	H	908	HEM	C4B-CHC-C1C	4.50	128.50	122.56
20	N	607	HEM	C4B-CHC-C1C	4.50	128.50	122.56
20	H	902	HEM	CMD-C2D-C1D	4.48	131.86	125.04
13	C	302	HEC	CBA-CAA-C2A	-4.46	105.09	112.60
13	O	302	HEC	CBA-CAA-C2A	-4.45	105.10	112.60
20	N	601	HEM	C4C-CHD-C1D	4.44	128.42	122.56
24	L	603	HEA	CMD-C2D-C1D	4.43	131.79	125.04
24	R	602	HEA	CMC-C2C-C3C	4.42	132.96	124.68
24	L	602	HEA	CMC-C2C-C3C	4.42	132.96	124.68
24	L	603	HEA	C2B-C1B-NB	4.40	115.15	109.88
20	N	601	HEM	O2D-CGD-O1D	-4.35	112.47	123.30
24	R	603	HEA	C2B-C1B-NB	4.35	115.09	109.88
20	H	908	HEM	O2A-CGA-O1A	-4.32	112.53	123.30
20	N	607	HEM	O2A-CGA-O1A	-4.32	112.54	123.30
24	R	603	HEA	C3D-C4D-ND	4.25	114.48	110.36
28	Y	302	9XX	O1-C18-C19	4.17	120.49	111.50
24	L	603	HEA	O11-C11-C12	-4.10	97.97	109.42
18	W	201	9YF	C7-C2-C3	-4.08	104.97	110.85
18	b	201	9YF	C7-C2-C3	-4.08	104.97	110.85
15	C	304	WUO	O54-P52-O53	4.07	132.36	112.24
15	O	304	WUO	O54-P52-O53	4.06	132.32	112.24
15	P	302	WUO	O54-P52-O53	4.05	132.25	112.24
24	L	602	HEA	CMB-C2B-C1B	4.04	131.19	125.04
24	R	603	HEA	C26-C15-C16	4.04	122.06	115.27
28	c	302	9XX	O1-C18-C19	4.04	120.20	111.50
24	L	603	HEA	C3B-C4B-NB	4.02	114.60	109.84
24	R	602	HEA	CMB-C2B-C1B	4.01	131.14	125.04

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
21	J	501	CDL	OB6-CB5-C51	3.99	120.10	111.50
18	M	503	9YF	O1-P-O8	3.97	131.85	112.24
18	G	904	9YF	O1-P-O8	3.96	131.81	112.24
17	M	502	IZL	O34-C60-C61	3.95	120.02	111.50
18	b	201	9YF	O1-P-O8	3.95	131.76	112.24
18	W	201	9YF	O1-P-O8	3.95	131.75	112.24
20	H	902	HEM	O2D-CGD-CBD	3.93	126.64	114.03
24	R	603	HEA	C26-C15-C14	-3.92	113.61	123.68
24	R	602	HEA	C3B-C4B-NB	3.90	114.46	109.84
24	L	602	HEA	C3B-C4B-NB	3.90	114.46	109.84
21	J	501	CDL	OA6-CA5-C11	3.89	119.88	111.50
18	M	503	9YF	C7-C2-C3	-3.88	105.26	110.85
18	G	904	9YF	C7-C2-C3	-3.87	105.27	110.85
24	L	603	HEA	C4B-C3B-C2B	-3.85	100.83	107.41
24	L	603	HEA	C3D-C4D-ND	3.84	114.08	110.36
20	H	902	HEM	C4B-C3B-C2B	-3.84	104.07	107.11
13	C	301	HEC	CBD-CAD-C3D	3.81	119.11	112.62
17	M	502	IZL	O11-C24-C23	3.80	116.08	109.05
13	O	301	HEC	CBD-CAD-C3D	3.80	119.10	112.62
24	R	602	HEA	C1B-C2B-C3B	-3.78	102.28	106.80
24	L	602	HEA	C1B-C2B-C3B	-3.78	102.28	106.80
13	C	302	HEC	CMD-C2D-C1D	-3.77	122.67	128.46
24	L	602	HEA	C3D-C4D-ND	3.76	113.99	110.36
17	M	502	IZL	C21-O9-C22	3.75	121.06	113.74
15	I	303	WUO	O54-P52-O53	3.71	130.59	112.24
15	I	303	WUO	O77-C76-C57	3.71	119.23	108.43
24	R	602	HEA	C3D-C4D-ND	3.70	113.94	110.36
24	R	602	HEA	C4D-CHA-C1A	3.69	127.42	122.56
24	L	602	HEA	C4D-CHA-C1A	3.68	127.41	122.56
15	I	303	WUO	O09-C08-C03	-3.67	101.13	110.05
24	L	602	HEA	C21-C20-C19	3.63	124.92	112.98
24	R	602	HEA	O2A-CGA-O1A	-3.63	114.25	123.30
24	L	602	HEA	O2A-CGA-O1A	-3.62	114.27	123.30
13	O	302	HEC	CMD-C2D-C1D	-3.61	122.92	128.46
28	b	203	9XX	O1-C18-C19	3.61	119.27	111.50
20	N	601	HEM	O2A-CGA-CBA	3.59	125.57	114.03
15	P	302	WUO	O77-C76-C57	3.58	118.86	108.43
20	H	902	HEM	CAD-C3D-C2D	-3.56	121.24	127.88
13	O	301	HEC	CMD-C2D-C1D	-3.56	123.00	128.46
13	C	301	HEC	CMD-C2D-C1D	-3.56	123.00	128.46
17	G	903	IZL	C24-O11-C25	3.55	120.68	113.74
20	N	601	HEM	C3C-C4C-NC	-3.54	104.27	110.94

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	O	304	WUO	O77-C76-C57	3.54	118.72	108.43
24	R	602	HEA	O2A-CGA-CBA	3.53	125.38	114.03
15	C	304	WUO	O77-C76-C57	3.53	118.70	108.43
24	R	603	HEA	C4B-C3B-C2B	-3.52	101.40	107.41
13	O	301	HEC	CMB-C2B-C1B	-3.51	123.08	128.46
24	L	602	HEA	O2A-CGA-CBA	3.51	125.29	114.03
13	C	301	HEC	CMB-C2B-C1B	-3.49	123.10	128.46
17	M	502	IZL	O11-C25-C30	3.48	114.94	108.22
13	O	301	HEC	CMB-C2B-C3B	3.46	129.89	125.82
13	C	301	HEC	CMB-C2B-C3B	3.46	129.89	125.82
24	R	603	HEA	C3B-C4B-NB	3.42	113.90	109.84
20	H	902	HEM	CAD-CBD-CGD	-3.35	106.40	113.60
20	H	908	HEM	C3B-C2B-C1B	3.31	108.94	106.49
13	C	302	HEC	C1D-C2D-C3D	3.31	109.30	107.00
17	G	903	IZL	O34-C60-C61	3.30	118.61	111.50
24	R	603	HEA	CHB-C1B-C2B	-3.29	119.83	124.98
17	G	903	IZL	O11-C24-C23	3.29	115.14	109.05
20	H	902	HEM	CMA-C3A-C4A	-3.28	123.42	128.46
24	R	603	HEA	O2D-CGD-CBD	3.28	124.56	114.03
24	L	603	HEA	C4A-CHB-C1B	3.27	126.88	122.56
21	J	501	CDL	OA8-CA7-C31	3.27	122.16	111.91
24	L	602	HEA	CMD-C2D-C1D	3.26	130.01	125.04
24	R	602	HEA	CMD-C2D-C1D	3.26	130.00	125.04
20	N	607	HEM	CHA-C4D-ND	3.25	128.40	124.38
24	L	603	HEA	O2D-CGD-CBD	3.24	124.45	114.03
20	N	607	HEM	C3B-C2B-C1B	3.24	108.89	106.49
17	G	903	IZL	O1-C11-C12	3.24	115.29	108.43
15	C	304	WUO	C03-O02-C01	3.23	125.95	117.96
20	H	902	HEM	CHD-C1D-C2D	-3.22	119.94	124.98
20	H	908	HEM	CHA-C4D-ND	3.22	128.36	124.38
24	R	603	HEA	C4A-CHB-C1B	3.21	126.80	122.56
13	O	302	HEC	O1D-CGD-CBD	-3.21	112.76	123.08
13	C	302	HEC	O1D-CGD-CBD	-3.18	112.86	123.08
24	L	603	HEA	C1D-C2D-C3D	-3.18	103.61	106.96
24	L	603	HEA	C4D-CHA-C1A	3.16	126.73	122.56
24	R	602	HEA	C3C-C4C-NC	3.16	113.30	109.21
20	H	902	HEM	C4C-CHD-C1D	-3.16	118.39	122.56
24	L	602	HEA	C3C-C4C-NC	3.13	113.26	109.21
24	L	603	HEA	CHB-C1B-C2B	-3.11	120.12	124.98
15	O	304	WUO	O04-C05-C12	3.09	112.91	106.67
15	P	302	WUO	O04-C05-C12	3.08	112.88	106.67
15	C	304	WUO	O04-C05-C12	3.06	112.85	106.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	O	304	WUO	C03-O02-C01	3.05	125.50	117.96
24	R	603	HEA	C1D-C2D-C3D	-3.04	103.76	106.96
24	R	603	HEA	C13-C12-C11	3.03	118.91	114.35
24	R	603	HEA	C13-C14-C15	3.03	134.96	127.66
15	P	302	WUO	C03-O02-C01	3.02	125.44	117.96
24	R	603	HEA	CHA-C4D-C3D	-3.01	120.41	124.84
20	H	902	HEM	CMA-C3A-C2A	2.99	130.58	124.94
15	I	303	WUO	C39-O40-C41	2.96	119.50	113.69
28	c	302	9XX	O-C15-C14	2.94	121.13	111.91
20	N	607	HEM	C4B-C3B-C2B	-2.93	104.79	107.11
20	H	908	HEM	C4B-C3B-C2B	-2.93	104.79	107.11
24	L	603	HEA	CHC-C4B-NB	-2.92	120.78	124.38
13	O	302	HEC	C1D-C2D-C3D	2.91	109.02	107.00
15	O	304	WUO	O55-P52-O53	-2.90	97.74	109.07
15	P	302	WUO	C03-O04-C05	2.89	119.36	113.69
24	R	603	HEA	O2D-CGD-O1D	-2.89	116.11	123.30
15	I	303	WUO	O45-C44-C39	-2.88	103.04	110.05
17	G	903	IZL	C21-O9-C22	2.88	119.36	113.74
20	H	908	HEM	C4A-C3A-C2A	2.88	109.00	107.00
15	P	302	WUO	O55-P52-O53	-2.88	97.83	109.07
15	C	304	WUO	O55-P52-O53	-2.87	97.85	109.07
15	P	302	WUO	O40-C41-C42	2.86	114.89	109.69
24	R	603	HEA	C4D-CHA-C1A	2.86	126.33	122.56
24	R	603	HEA	C1B-C2B-C3B	-2.84	103.40	106.80
20	N	607	HEM	C4A-C3A-C2A	2.84	108.97	107.00
24	L	603	HEA	O2D-CGD-O1D	-2.84	116.23	123.30
15	C	304	WUO	C03-O04-C05	2.83	119.25	113.69
13	O	302	HEC	C2B-C3B-C4B	2.83	109.41	106.35
17	M	502	IZL	O1-C11-C12	2.83	114.43	108.43
24	L	602	HEA	C13-C12-C11	-2.83	110.10	114.35
15	I	303	WUO	C03-O02-C01	2.82	124.95	117.96
20	N	607	HEM	C3C-C4C-NC	-2.82	105.62	110.94
13	C	301	HEC	C4C-C3C-C2C	2.81	109.38	106.35
13	O	302	HEC	CMB-C2B-C3B	2.80	129.11	125.82
24	L	603	HEA	C26-C15-C16	2.80	119.98	115.27
20	H	908	HEM	C3C-C4C-NC	-2.79	105.67	110.94
24	R	602	HEA	C13-C12-C11	-2.79	110.15	114.35
13	C	302	HEC	CMB-C2B-C1B	-2.79	124.18	128.46
13	O	301	HEC	C4C-C3C-C2C	2.78	109.36	106.35
15	O	304	WUO	O40-C41-C42	2.78	114.74	109.69
28	Y	302	9XX	O-C15-C14	2.77	120.61	111.91
13	O	302	HEC	CMC-C2C-C3C	2.77	129.07	125.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
20	N	601	HEM	CMD-C2D-C1D	2.76	129.24	125.04
15	C	304	WUO	O40-C41-C42	2.76	114.70	109.69
28	b	203	9XX	O-C15-C14	2.75	120.55	111.91
15	O	304	WUO	C03-O04-C05	2.74	119.06	113.69
24	L	603	HEA	CHA-C4D-C3D	-2.73	120.82	124.84
13	O	302	HEC	CMB-C2B-C1B	-2.73	124.26	128.46
24	R	603	HEA	CHC-C4B-NB	-2.73	121.01	124.38
20	N	607	HEM	C1D-C2D-C3D	-2.73	104.09	106.96
20	H	902	HEM	CAD-C3D-C4D	2.72	129.41	124.66
24	R	603	HEA	C27-C19-C20	2.71	119.83	115.27
15	I	303	WUO	O40-C41-C48	2.71	113.17	106.44
20	H	908	HEM	C1D-C2D-C3D	-2.70	104.11	106.96
24	R	602	HEA	C26-C15-C16	2.70	119.81	115.27
20	N	601	HEM	CAD-C3D-C4D	2.70	129.37	124.66
13	C	302	HEC	CMB-C2B-C3B	2.69	128.98	125.82
24	R	603	HEA	C17-C18-C19	-2.68	121.21	127.66
24	L	602	HEA	C25-C23-C24	2.67	120.50	114.60
20	N	607	HEM	CHB-C1B-NB	2.65	127.66	124.38
20	N	601	HEM	C4B-CHC-C1C	2.65	126.05	122.56
20	H	908	HEM	CHB-C1B-NB	2.63	127.64	124.38
15	I	303	WUO	C48-C41-C42	-2.63	106.84	113.00
20	N	607	HEM	CHD-C1D-ND	2.62	127.28	124.43
20	H	908	HEM	CHD-C1D-ND	2.62	127.28	124.43
13	C	302	HEC	CMC-C2C-C3C	2.61	128.89	125.82
13	C	302	HEC	CMC-C2C-C1C	-2.60	124.46	128.46
15	C	304	WUO	O58-C57-C76	2.60	117.81	108.40
13	C	302	HEC	C2B-C3B-C4B	2.60	109.16	106.35
15	O	304	WUO	O58-C57-C76	2.58	117.74	108.40
15	P	302	WUO	O58-C57-C76	2.58	117.73	108.40
17	M	502	IZL	C24-O11-C25	2.57	118.76	113.74
24	R	603	HEA	C4D-C3D-C2D	-2.56	103.17	106.90
13	O	302	HEC	CMC-C2C-C1C	-2.56	124.53	128.46
13	C	302	HEC	O1A-CGA-CBA	-2.52	114.98	123.08
24	L	603	HEA	C1B-C2B-C3B	-2.52	103.79	106.80
15	C	304	WUO	O38-C37-C50	2.51	113.86	107.48
17	G	903	IZL	O32-C47-C48	2.50	119.76	111.91
15	O	304	WUO	O38-C37-C50	2.50	113.83	107.48
17	M	502	IZL	C31-O17-C32	2.50	118.59	113.69
24	L	603	HEA	C27-C19-C20	2.49	119.47	115.27
20	N	607	HEM	CAD-CBD-CGD	2.49	118.95	113.60
17	M	502	IZL	O28-P-O29	-2.47	100.18	109.47
13	O	302	HEC	O1A-CGA-CBA	-2.47	115.15	123.08

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
20	H	908	HEM	CAD-CBD-CGD	2.47	118.91	113.60
24	L	602	HEA	C26-C15-C16	2.46	119.42	115.27
13	O	301	HEC	C1D-C2D-C3D	2.46	108.71	107.00
13	C	301	HEC	C1D-C2D-C3D	2.46	108.71	107.00
24	L	602	HEA	C20-C19-C18	2.44	126.06	121.12
28	W	202	9XX	O1-C18-O2	-2.44	117.80	123.70
17	M	502	IZL	O30-P-O29	2.44	124.28	112.24
13	C	301	HEC	O1D-CGD-CBD	-2.43	115.27	123.08
13	O	301	HEC	O1D-CGD-CBD	-2.42	115.30	123.08
17	M	502	IZL	O32-C47-C48	2.42	119.50	111.91
15	P	302	WUO	O38-C37-C50	2.42	113.63	107.48
24	R	602	HEA	C25-C23-C24	2.42	119.94	114.60
24	L	603	HEA	C4D-C3D-C2D	-2.41	103.39	106.90
28	W	202	9XX	O-C15-C14	2.40	119.44	111.91
17	G	903	IZL	O1-C10-C9	2.40	119.43	111.91
17	M	502	IZL	O1-C10-C9	2.38	119.36	111.91
24	L	603	HEA	CBA-CAA-C2A	-2.35	108.64	112.60
15	I	303	WUO	O55-P52-O53	-2.34	99.91	109.07
20	H	902	HEM	CHB-C1B-NB	2.33	127.26	124.38
28	b	203	9XX	O1-C17-C16	2.32	111.52	106.13
24	L	602	HEA	C4B-C3B-C2B	-2.32	103.45	107.41
24	R	602	HEA	C4B-C3B-C2B	-2.31	103.47	107.41
20	N	607	HEM	CHD-C1D-C2D	-2.31	121.38	124.98
20	H	908	HEM	CHD-C1D-C2D	-2.31	121.38	124.98
15	P	302	WUO	P52-O51-C50	2.30	127.78	119.41
15	I	303	WUO	O36-C35-C37	-2.29	103.87	109.94
14	K	1301	MQ9	C17-C16-C14	2.28	120.49	112.98
13	O	302	HEC	C4C-C3C-C2C	2.28	108.81	106.35
21	J	501	CDL	OB8-CB7-C71	2.28	119.05	111.91
17	M	502	IZL	O1-C10-O	-2.27	117.85	123.59
17	G	903	IZL	O9-C21-C20	2.27	113.25	109.05
15	I	303	WUO	O51-C50-C01	2.27	114.03	108.69
24	L	602	HEA	CHB-C1B-C2B	-2.26	121.44	124.98
15	C	304	WUO	O51-C50-C01	2.26	114.01	108.69
20	H	908	HEM	CHC-C4B-NB	2.25	126.88	124.43
24	R	602	HEA	CHB-C1B-C2B	-2.25	121.46	124.98
24	L	602	HEA	C4A-CHB-C1B	2.25	125.53	122.56
17	G	903	IZL	O1-C10-O	-2.24	117.93	123.59
17	G	903	IZL	O30-P-O29	2.23	123.26	112.24
24	R	602	HEA	C25-C23-C22	-2.22	116.23	122.65
24	R	603	HEA	CBA-CAA-C2A	-2.21	108.88	112.60
15	O	304	WUO	P52-O51-C50	2.21	127.45	119.41

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
15	O	304	WUO	O13-C12-C05	2.21	113.11	108.43
20	N	607	HEM	CHC-C4B-NB	2.21	126.83	124.43
15	C	304	WUO	O13-C12-C05	2.20	113.10	108.43
24	R	602	HEA	C4A-CHB-C1B	2.20	125.46	122.56
13	C	302	HEC	CAD-CBD-CGD	2.20	119.93	113.76
20	H	902	HEM	C1B-NB-C4B	2.20	107.35	105.07
17	G	903	IZL	O2-C12-C11	2.20	111.10	106.67
24	R	603	HEA	CMC-C2C-C3C	2.20	128.79	124.68
15	O	304	WUO	O40-C41-C48	2.19	111.89	106.44
24	R	603	HEA	O2A-CGA-CBA	2.19	121.08	114.03
28	W	202	9XX	C37-C17-C16	-2.19	106.33	112.63
15	P	302	WUO	O40-C41-C48	2.19	111.88	106.44
15	P	302	WUO	O13-C12-C05	2.19	113.07	108.43
20	H	902	HEM	CMB-C2B-C1B	2.19	128.37	125.04
13	O	302	HEC	CAD-CBD-CGD	2.19	119.89	113.76
15	C	304	WUO	O40-C41-C48	2.19	111.87	106.44
15	O	304	WUO	C39-O40-C41	2.18	117.96	113.69
15	P	302	WUO	C39-O40-C41	2.17	117.95	113.69
17	M	502	IZL	O25-C40-C20	-2.17	103.91	109.30
24	L	603	HEA	O2A-CGA-CBA	2.17	120.99	114.03
17	M	502	IZL	O17-C32-C33	2.16	111.82	106.44
15	I	303	WUO	P52-O51-C50	2.15	127.24	119.41
20	N	607	HEM	CHA-C4D-C3D	-2.15	121.29	125.33
13	O	301	HEC	O1A-CGA-CBA	-2.15	116.18	123.08
13	C	301	HEC	O1A-CGA-CBA	-2.14	116.19	123.08
20	H	908	HEM	CHA-C4D-C3D	-2.13	121.32	125.33
15	C	304	WUO	C39-O40-C41	2.13	117.87	113.69
13	C	301	HEC	CMC-C2C-C3C	2.13	128.32	125.82
24	L	603	HEA	C1D-ND-C4D	2.12	107.27	105.07
17	G	903	IZL	O11-C25-C30	2.12	112.31	108.22
20	H	902	HEM	CHC-C4B-NB	2.12	126.73	124.43
13	O	301	HEC	CMC-C2C-C3C	2.10	128.29	125.82
15	C	304	WUO	P52-O51-C50	2.09	127.00	119.41
24	R	602	HEA	C27-C19-C20	2.08	118.77	115.27
21	J	501	CDL	C32-C31-CA7	-2.08	106.07	113.62
15	I	303	WUO	O38-C37-C50	2.07	112.75	107.48
15	O	304	WUO	O51-C50-C01	2.07	113.57	108.69
17	M	502	IZL	O34-C60-O35	-2.07	118.70	123.70
13	C	302	HEC	C4C-C3C-C2C	2.06	108.57	106.35
15	P	302	WUO	O58-C59-C61	2.05	115.93	111.50
15	P	302	WUO	O45-C44-C39	-2.05	105.06	110.05
17	G	903	IZL	O28-P-O29	-2.04	101.79	109.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	b	201	9YF	O6-C6-C7	-2.04	105.63	110.35
24	L	603	HEA	CMC-C2C-C3C	2.04	128.50	124.68
13	C	301	HEC	C2B-C3B-C4B	2.04	108.55	106.35
15	O	304	WUO	O58-C59-C61	2.03	115.88	111.50
20	H	902	HEM	CHB-C1B-C2B	-2.03	121.11	126.72
15	O	304	WUO	O45-C44-C39	-2.02	105.13	110.05
18	W	201	9YF	O6-C6-C7	-2.02	105.67	110.35
15	C	304	WUO	O58-C59-C61	2.02	115.86	111.50
13	O	301	HEC	C2B-C3B-C4B	2.02	108.53	106.35
18	G	904	9YF	O6-C6-C7	-2.02	105.68	110.35
15	I	303	WUO	O40-C41-C42	2.02	113.36	109.69
15	C	304	WUO	O45-C44-C39	-2.01	105.16	110.05
15	I	303	WUO	O77-C78-C80	2.01	118.22	111.91
17	M	502	IZL	O32-C46-C45	2.01	114.28	108.43
15	C	304	WUO	C35-C33-C31	2.01	114.33	110.82
24	L	602	HEA	CHD-C1D-C2D	-2.01	121.17	126.72
24	L	602	HEA	CMB-C2B-C3B	-2.00	126.52	130.34
17	G	903	IZL	O8-C20-C21	2.00	110.71	106.67

There are no chirality outliers.

All (1628) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
14	M	505	MQ9	C12-C11-C9-C10
14	M	505	MQ9	C12-C13-C14-C15
14	M	505	MQ9	C13-C14-C16-C17
14	M	505	MQ9	C15-C14-C16-C17
14	M	505	MQ9	C18-C19-C21-C22
14	M	505	MQ9	C20-C19-C21-C22
14	M	505	MQ9	C32-C33-C34-C35
14	M	505	MQ9	C32-C33-C34-C36
14	M	505	MQ9	C35-C34-C36-C37
14	M	505	MQ9	C45-C44-C46-C47
14	M	505	MQ9	C47-C48-C49-C51
14	N	605	MQ9	C7-C8-C9-C10
14	N	605	MQ9	C7-C8-C9-C11
14	N	605	MQ9	C9-C11-C12-C13
14	N	605	MQ9	C18-C19-C21-C22
14	N	605	MQ9	C20-C19-C21-C22
14	N	605	MQ9	C28-C29-C31-C32
14	N	605	MQ9	C30-C29-C31-C32
14	N	605	MQ9	C29-C31-C32-C33

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Mol	Chain	Res	Type	Atoms
14	N	606	MQ9	C7-C8-C9-C11
14	N	606	MQ9	C12-C11-C9-C8
14	N	606	MQ9	C12-C11-C9-C10
14	N	606	MQ9	C13-C14-C16-C17
14	N	606	MQ9	C15-C14-C16-C17
14	N	606	MQ9	C17-C18-C19-C20
14	N	606	MQ9	C17-C18-C19-C21
14	N	606	MQ9	C18-C19-C21-C22
14	N	606	MQ9	C20-C19-C21-C22
14	N	606	MQ9	C32-C33-C34-C35
14	N	606	MQ9	C32-C33-C34-C36
14	N	608	MQ9	C7-C8-C9-C10
14	N	608	MQ9	C7-C8-C9-C11
14	N	608	MQ9	C12-C13-C14-C16
14	N	608	MQ9	C17-C18-C19-C20
14	N	608	MQ9	C18-C19-C21-C22
14	N	608	MQ9	C20-C19-C21-C22
14	N	608	MQ9	C22-C23-C24-C25
14	N	608	MQ9	C22-C23-C24-C26
14	N	608	MQ9	C23-C24-C26-C27
14	N	608	MQ9	C25-C24-C26-C27
14	N	608	MQ9	C24-C26-C27-C28
14	N	608	MQ9	C27-C28-C29-C30
14	N	608	MQ9	C27-C28-C29-C31
14	N	608	MQ9	C37-C38-C39-C40
14	N	608	MQ9	C37-C38-C39-C41
14	N	608	MQ9	C45-C44-C46-C47
14	T	1301	MQ9	C12-C11-C9-C8
14	T	1301	MQ9	C12-C11-C9-C10
14	T	1301	MQ9	C17-C18-C19-C20
14	T	1301	MQ9	C17-C18-C19-C21
14	T	1301	MQ9	C20-C19-C21-C22
14	T	1301	MQ9	C22-C23-C24-C25
14	T	1301	MQ9	C22-C23-C24-C26
14	T	1301	MQ9	C27-C28-C29-C30
14	T	1301	MQ9	C27-C28-C29-C31
14	G	901	MQ9	C12-C11-C9-C10
14	G	901	MQ9	C12-C13-C14-C15
14	G	901	MQ9	C12-C13-C14-C16
14	G	901	MQ9	C13-C14-C16-C17
14	G	901	MQ9	C15-C14-C16-C17
14	G	901	MQ9	C18-C19-C21-C22

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Mol	Chain	Res	Type	Atoms
14	G	901	MQ9	C20-C19-C21-C22
14	G	901	MQ9	C32-C33-C34-C35
14	G	901	MQ9	C32-C33-C34-C36
14	G	901	MQ9	C35-C34-C36-C37
14	G	901	MQ9	C45-C44-C46-C47
14	G	901	MQ9	C47-C48-C49-C51
14	H	906	MQ9	C7-C8-C9-C10
14	H	906	MQ9	C7-C8-C9-C11
14	H	906	MQ9	C9-C11-C12-C13
14	H	906	MQ9	C18-C19-C21-C22
14	H	906	MQ9	C20-C19-C21-C22
14	H	906	MQ9	C28-C29-C31-C32
14	H	906	MQ9	C30-C29-C31-C32
14	H	906	MQ9	C29-C31-C32-C33
14	H	907	MQ9	C7-C8-C9-C11
14	H	907	MQ9	C12-C11-C9-C8
14	H	907	MQ9	C12-C11-C9-C10
14	H	907	MQ9	C13-C14-C16-C17
14	H	907	MQ9	C15-C14-C16-C17
14	H	907	MQ9	C17-C18-C19-C20
14	H	907	MQ9	C17-C18-C19-C21
14	H	907	MQ9	C18-C19-C21-C22
14	H	907	MQ9	C20-C19-C21-C22
14	H	907	MQ9	C32-C33-C34-C35
14	H	907	MQ9	C32-C33-C34-C36
14	H	909	MQ9	C7-C8-C9-C10
14	H	909	MQ9	C7-C8-C9-C11
14	H	909	MQ9	C12-C13-C14-C16
14	H	909	MQ9	C17-C18-C19-C20
14	H	909	MQ9	C18-C19-C21-C22
14	H	909	MQ9	C20-C19-C21-C22
14	H	909	MQ9	C22-C23-C24-C25
14	H	909	MQ9	C22-C23-C24-C26
14	H	909	MQ9	C23-C24-C26-C27
14	H	909	MQ9	C25-C24-C26-C27
14	H	909	MQ9	C24-C26-C27-C28
14	H	909	MQ9	C27-C28-C29-C30
14	H	909	MQ9	C27-C28-C29-C31
14	H	909	MQ9	C37-C38-C39-C40
14	H	909	MQ9	C37-C38-C39-C41
14	H	909	MQ9	C45-C44-C46-C47
14	K	1301	MQ9	C7-C8-C9-C10

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Mol	Chain	Res	Type	Atoms
14	K	1301	MQ9	C7-C8-C9-C11
14	K	1301	MQ9	C17-C18-C19-C20
14	K	1301	MQ9	C17-C18-C19-C21
14	K	1301	MQ9	C23-C24-C26-C27
14	K	1301	MQ9	C25-C24-C26-C27
15	O	304	WUO	C61-C59-O58-C57
15	C	304	WUO	C61-C59-O58-C57
15	C	304	WUO	O60-C59-O58-C57
15	C	304	WUO	C86-C87-C88-C89
15	I	303	WUO	C16-C14-O13-C12
17	M	502	IZL	O31-C44-C45-O34
17	M	502	IZL	C48-C47-O32-C46
17	M	502	IZL	C43-O28-P-O30
17	G	903	IZL	O-C10-O1-C11
17	G	903	IZL	C9-C10-O1-C11
17	G	903	IZL	C18-C43-O28-P
17	G	903	IZL	C48-C47-O32-C46
17	G	903	IZL	O33-C47-O32-C46
18	M	503	9YF	C2-O2-P-O1
18	M	503	9YF	C1-O-P-O1
18	M	503	9YF	C26-C25-O11-C24
18	M	503	9YF	O12-C25-O11-C24
18	W	201	9YF	C1-O-P-O1
18	W	201	9YF	C9-C8-O9-C
18	W	201	9YF	O10-C8-O9-C
18	G	904	9YF	C2-O2-P-O1
18	G	904	9YF	C1-O-P-O1
18	G	904	9YF	C26-C25-O11-C24
18	b	201	9YF	C1-O-P-O1
18	b	201	9YF	C9-C8-O9-C
18	b	201	9YF	O10-C8-O9-C
19	M	504	7PH	C1-O11-P-O12
19	M	504	7PH	C1-O11-P-O13
19	N	609	7PH	C1-O11-P-O12
19	N	609	7PH	C1-O11-P-O13
19	N	609	7PH	C1-O11-P-O14
19	G	905	7PH	C1-O11-P-O12
19	G	905	7PH	C1-O11-P-O13
19	H	901	7PH	C1-O11-P-O12
19	H	901	7PH	C1-O11-P-O13
19	H	901	7PH	C1-O11-P-O14
21	N	602	CDL	CA2-C1-CB2-OB2

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Mol	Chain	Res	Type	Atoms
21	N	602	CDL	C11-CA5-OA6-CA4
21	N	602	CDL	CB2-OB2-PB2-OB3
21	N	602	CDL	CB2-OB2-PB2-OB4
21	N	603	CDL	CA3-OA5-PA1-OA2
21	N	603	CDL	CA3-OA5-PA1-OA3
21	N	603	CDL	CA3-OA5-PA1-OA4
21	N	603	CDL	CB2-OB2-PB2-OB5
21	N	603	CDL	CB3-OB5-PB2-OB2
21	N	603	CDL	CB3-OB5-PB2-OB4
21	N	604	CDL	CB2-C1-CA2-OA2
21	N	604	CDL	CA2-OA2-PA1-OA3
21	N	604	CDL	CA2-OA2-PA1-OA4
21	N	604	CDL	CA2-OA2-PA1-OA5
21	N	604	CDL	CA4-CA3-OA5-PA1
21	N	604	CDL	CB2-OB2-PB2-OB3
21	N	604	CDL	CB2-OB2-PB2-OB4
21	N	604	CDL	CB2-OB2-PB2-OB5
21	N	604	CDL	C51-CB5-OB6-CB4
21	P	301	CDL	CA2-OA2-PA1-OA3
21	P	301	CDL	CA3-OA5-PA1-OA4
21	P	301	CDL	C51-CB5-OB6-CB4
21	T	1302	CDL	CA2-OA2-PA1-OA3
21	T	1302	CDL	CA2-OA2-PA1-OA4
21	T	1302	CDL	CA3-OA5-PA1-OA4
21	T	1302	CDL	C11-CA5-OA6-CA4
21	T	1302	CDL	CB2-OB2-PB2-OB3
21	T	1302	CDL	CB2-OB2-PB2-OB5
21	T	1302	CDL	CB3-OB5-PB2-OB2
21	T	1302	CDL	CB3-OB5-PB2-OB3
21	T	1302	CDL	CB3-OB5-PB2-OB4
21	R	601	CDL	CA2-OA2-PA1-OA4
21	R	601	CDL	CB2-OB2-PB2-OB3
21	R	605	CDL	CA2-C1-CB2-OB2
21	R	605	CDL	CA3-OA5-PA1-OA3
21	R	605	CDL	CB2-OB2-PB2-OB3
21	R	605	CDL	CB2-OB2-PB2-OB4
21	R	605	CDL	CB3-OB5-PB2-OB3
21	C	305	CDL	CA2-OA2-PA1-OA4
21	C	305	CDL	C11-CA5-OA6-CA4
21	C	305	CDL	CB3-OB5-PB2-OB3
21	C	305	CDL	CB3-OB5-PB2-OB4
21	C	305	CDL	C51-CB5-OB6-CB4

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Mol	Chain	Res	Type	Atoms
21	H	903	CDL	CA2-C1-CB2-OB2
21	H	903	CDL	C11-CA5-OA6-CA4
21	H	903	CDL	CB2-OB2-PB2-OB3
21	H	903	CDL	CB2-OB2-PB2-OB4
21	H	904	CDL	CA3-OA5-PA1-OA2
21	H	904	CDL	CA3-OA5-PA1-OA3
21	H	904	CDL	CA3-OA5-PA1-OA4
21	H	904	CDL	CB2-OB2-PB2-OB3
21	H	904	CDL	CB2-OB2-PB2-OB5
21	H	905	CDL	CA2-OA2-PA1-OA3
21	H	905	CDL	CB2-OB2-PB2-OB3
21	H	905	CDL	CB2-OB2-PB2-OB4
21	H	905	CDL	OB7-CB5-OB6-CB4
21	H	905	CDL	C51-CB5-OB6-CB4
21	I	301	CDL	CA2-OA2-PA1-OA3
21	I	301	CDL	CA2-OA2-PA1-OA4
21	I	301	CDL	CB3-OB5-PB2-OB4
21	I	301	CDL	C51-CB5-OB6-CB4
21	I	302	CDL	CA2-C1-CB2-OB2
21	I	302	CDL	CA2-OA2-PA1-OA3
21	I	302	CDL	CA3-OA5-PA1-OA2
21	I	302	CDL	CA3-OA5-PA1-OA3
21	I	302	CDL	CA3-OA5-PA1-OA4
21	I	302	CDL	OA6-CA4-CA6-OA8
21	J	501	CDL	OA5-CA3-CA4-OA6
21	J	501	CDL	OA7-CA5-OA6-CA4
21	J	501	CDL	C11-CA5-OA6-CA4
21	J	501	CDL	CB2-OB2-PB2-OB4
21	J	501	CDL	CB3-OB5-PB2-OB2
21	J	501	CDL	CB3-OB5-PB2-OB4
21	J	501	CDL	C51-CB5-OB6-CB4
21	L	601	CDL	CA3-OA5-PA1-OA3
21	L	601	CDL	C11-CA5-OA6-CA4
23	S	503	3PE	C1-O11-P-O14
23	S	503	3PE	C22-C21-O21-C2
23	J	503	3PE	C1-O11-P-O14
23	J	503	3PE	C22-C21-O21-C2
24	R	603	HEA	O11-C11-C12-C13
24	R	603	HEA	C11-C12-C13-C14
24	R	603	HEA	C26-C15-C16-C17
24	R	603	HEA	C18-C19-C20-C21
24	R	603	HEA	C27-C19-C20-C21

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Mol	Chain	Res	Type	Atoms
24	R	603	HEA	C20-C21-C22-C23
24	L	603	HEA	C19-C20-C21-C22
28	W	202	9XX	O-C16-C17-C37
28	W	202	9XX	O-C16-C17-O1
28	W	202	9XX	C19-C18-O1-C17
28	W	202	9XX	O2-C18-O1-C17
28	Y	302	9XX	C19-C18-O1-C17
28	b	203	9XX	O-C16-C17-C37
28	b	203	9XX	O-C16-C17-O1
28	b	203	9XX	C16-C17-O1-C18
28	c	302	9XX	C14-C15-O-C16
28	c	302	9XX	O6-C15-O-C16
28	c	302	9XX	O-C16-C17-C37
28	c	302	9XX	O-C16-C17-O1
28	c	302	9XX	C19-C18-O1-C17
29	Y	301	PLM	C1-C2-C3-C4
15	I	303	WUO	O15-C14-O13-C12
17	M	502	IZL	O33-C47-O32-C46
18	G	904	9YF	O12-C25-O11-C24
21	N	604	CDL	OA9-CA7-OA8-CA6
21	I	301	CDL	OA9-CA7-OA8-CA6
17	M	502	IZL	O10-C23-C24-O11
21	N	604	CDL	C31-CA7-OA8-CA6
21	I	301	CDL	C71-CB7-OB8-CB6
21	I	302	CDL	C71-CB7-OB8-CB6
14	N	606	MQ9	C47-C48-C49-C51
14	H	907	MQ9	C47-C48-C49-C51
15	P	302	WUO	O15-C14-O13-C12
15	P	302	WUO	O79-C78-O77-C76
21	I	301	CDL	OB9-CB7-OB8-CB6
21	I	302	CDL	OB9-CB7-OB8-CB6
15	O	304	WUO	O60-C59-O58-C57
21	N	602	CDL	OA7-CA5-OA6-CA4
21	N	604	CDL	OB7-CB5-OB6-CB4
21	P	301	CDL	OB7-CB5-OB6-CB4
21	T	1302	CDL	OA7-CA5-OA6-CA4
21	C	305	CDL	OA7-CA5-OA6-CA4
21	C	305	CDL	OB7-CB5-OB6-CB4
21	H	903	CDL	OA7-CA5-OA6-CA4
21	I	301	CDL	OB7-CB5-OB6-CB4
21	J	501	CDL	OB7-CB5-OB6-CB4
21	L	601	CDL	OA7-CA5-OA6-CA4

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Mol	Chain	Res	Type	Atoms
23	S	503	3PE	O22-C21-O21-C2
23	J	503	3PE	O22-C21-O21-C2
28	Y	302	9XX	O2-C18-O1-C17
28	c	302	9XX	O2-C18-O1-C17
15	P	302	WUO	C16-C14-O13-C12
15	P	302	WUO	C80-C78-O77-C76
21	I	301	CDL	C31-CA7-OA8-CA6
17	M	502	IZL	C61-C60-O34-C45
14	N	606	MQ9	C47-C48-C49-C50
14	H	907	MQ9	C47-C48-C49-C50
14	M	505	MQ9	C12-C11-C9-C8
14	M	505	MQ9	C33-C34-C36-C37
14	M	505	MQ9	C43-C44-C46-C47
14	N	608	MQ9	C43-C44-C46-C47
14	T	1301	MQ9	C18-C19-C21-C22
14	G	901	MQ9	C12-C11-C9-C8
14	G	901	MQ9	C33-C34-C36-C37
14	G	901	MQ9	C43-C44-C46-C47
14	H	909	MQ9	C43-C44-C46-C47
24	R	603	HEA	C14-C15-C16-C17
28	W	202	9XX	O6-C15-O-C16
19	M	504	7PH	C25-C26-C27-C28
19	G	905	7PH	C25-C26-C27-C28
21	R	601	CDL	C31-CA7-OA8-CA6
21	L	601	CDL	C31-CA7-OA8-CA6
28	b	203	9XX	C14-C15-O-C16
15	O	304	WUO	O40-C41-C48-O49
14	N	606	MQ9	C7-C8-C9-C10
14	N	606	MQ9	C22-C23-C24-C25
14	N	608	MQ9	C12-C13-C14-C15
14	H	907	MQ9	C7-C8-C9-C10
14	H	907	MQ9	C22-C23-C24-C25
14	H	909	MQ9	C12-C13-C14-C15
14	K	1301	MQ9	C12-C13-C14-C15
14	K	1301	MQ9	C22-C23-C24-C25
17	M	502	IZL	O17-C31-O16-C30
17	G	903	IZL	O17-C32-C33-O18
17	M	502	IZL	O35-C60-O34-C45
14	M	505	MQ9	C12-C13-C14-C16
14	N	606	MQ9	C22-C23-C24-C26
14	N	608	MQ9	C17-C18-C19-C21
14	H	907	MQ9	C22-C23-C24-C26

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Mol	Chain	Res	Type	Atoms
14	H	909	MQ9	C17-C18-C19-C21
14	K	1301	MQ9	C12-C13-C14-C16
14	K	1301	MQ9	C22-C23-C24-C26
21	R	601	CDL	OA9-CA7-OA8-CA6
21	R	605	CDL	OB9-CB7-OB8-CB6
21	L	601	CDL	OA9-CA7-OA8-CA6
15	P	302	WUO	C24-C25-C26-C27
15	I	303	WUO	C90-C91-C92-C93
17	M	502	IZL	C36-C31-O16-C30
17	M	502	IZL	O12-C26-C27-O13
19	N	609	7PH	C36-C37-C38-C39
19	H	901	7PH	C36-C37-C38-C39
21	N	602	CDL	O1-C1-CB2-OB2
21	N	604	CDL	O1-C1-CA2-OA2
21	R	601	CDL	O1-C1-CA2-OA2
21	R	605	CDL	O1-C1-CB2-OB2
21	H	903	CDL	O1-C1-CB2-OB2
21	H	904	CDL	O1-C1-CB2-OB2
21	I	302	CDL	O1-C1-CB2-OB2
21	J	501	CDL	O1-C1-CA2-OA2
28	W	202	9XX	C14-C15-O-C16
17	G	903	IZL	C61-C60-O34-C45
19	S	501	7PH	C22-C21-O21-C2
21	P	301	CDL	C11-CA5-OA6-CA4
21	R	605	CDL	C51-CB5-OB6-CB4
15	O	304	WUO	C16-C17-C18-C19
14	M	505	MQ9	C47-C48-C49-C50
14	G	901	MQ9	C47-C48-C49-C50
17	G	903	IZL	C34-C32-C33-O18
21	C	305	CDL	C77-C78-C79-C80
15	O	304	WUO	C61-C62-C63-C64
15	O	304	WUO	C65-C66-C67-C68
15	P	302	WUO	C92-C93-C94-C95
18	W	201	9YF	C38-C39-C40-C41
18	b	201	9YF	C38-C39-C40-C41
21	R	605	CDL	C71-CB7-OB8-CB6
17	G	903	IZL	O12-C26-C27-O13
21	P	301	CDL	OA7-CA5-OA6-CA4
28	b	203	9XX	O6-C15-O-C16
19	S	501	7PH	C36-C37-C38-C39
14	M	505	MQ9	C40-C39-C41-C42
14	N	606	MQ9	C25-C24-C26-C27

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Mol	Chain	Res	Type	Atoms
14	N	606	MQ9	C35-C34-C36-C37
14	N	608	MQ9	C12-C11-C9-C10
14	N	608	MQ9	C15-C14-C16-C17
14	G	901	MQ9	C40-C39-C41-C42
14	H	907	MQ9	C25-C24-C26-C27
14	H	907	MQ9	C35-C34-C36-C37
14	H	909	MQ9	C12-C11-C9-C10
14	H	909	MQ9	C15-C14-C16-C17
15	O	304	WUO	C42-C41-C48-O49
14	N	606	MQ9	C23-C24-C26-C27
14	N	606	MQ9	C33-C34-C36-C37
14	N	608	MQ9	C12-C11-C9-C8
14	N	608	MQ9	C13-C14-C16-C17
14	H	907	MQ9	C23-C24-C26-C27
14	H	907	MQ9	C33-C34-C36-C37
14	H	909	MQ9	C12-C11-C9-C8
14	H	909	MQ9	C13-C14-C16-C17
15	C	304	WUO	C59-C61-C62-C63
17	M	502	IZL	C37-C23-C24-O11
15	C	304	WUO	C16-C17-C18-C19
21	I	301	CDL	C51-C52-C53-C54
17	M	502	IZL	O17-C32-C33-O18
17	M	502	IZL	O12-C25-O11-C24
14	M	505	MQ9	C24-C26-C27-C28
14	M	505	MQ9	C39-C41-C42-C43
14	N	606	MQ9	C44-C46-C47-C48
14	N	608	MQ9	C19-C21-C22-C23
14	N	608	MQ9	C34-C36-C37-C38
14	G	901	MQ9	C24-C26-C27-C28
14	G	901	MQ9	C39-C41-C42-C43
14	H	907	MQ9	C44-C46-C47-C48
14	H	909	MQ9	C19-C21-C22-C23
14	H	909	MQ9	C34-C36-C37-C38
14	K	1301	MQ9	C19-C21-C22-C23
24	R	602	HEA	C19-C20-C21-C22
24	R	603	HEA	C19-C20-C21-C22
15	C	304	WUO	C80-C78-O77-C76
15	O	304	WUO	C70-C71-C72-C73
21	P	301	CDL	C32-C33-C34-C35
21	R	605	CDL	C75-C76-C77-C78
21	C	305	CDL	C15-C16-C17-C18
14	T	1301	MQ9	C7-C8-C9-C10

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Mol	Chain	Res	Type	Atoms
21	C	305	CDL	C79-C80-C81-C82
21	H	905	CDL	C11-C12-C13-C14
21	N	603	CDL	CA2-C1-CB2-OB2
21	H	904	CDL	CA2-C1-CB2-OB2
21	J	501	CDL	CB2-C1-CA2-OA2
18	W	201	9YF	C26-C25-O11-C24
18	b	201	9YF	C26-C25-O11-C24
19	N	609	7PH	C32-C31-O31-C3
19	H	901	7PH	C32-C31-O31-C3
21	H	904	CDL	C71-CB7-OB8-CB6
23	S	503	3PE	C32-C31-O31-C3
23	J	503	3PE	C32-C31-O31-C3
21	N	604	CDL	C21-C22-C23-C24
21	N	604	CDL	CB5-C51-C52-C53
17	M	502	IZL	C34-C32-C33-O18
21	P	301	CDL	C71-C72-C73-C74
21	I	302	CDL	C16-C17-C18-C19
21	N	603	CDL	O1-C1-CB2-OB2
21	I	301	CDL	CB5-C51-C52-C53
15	P	302	WUO	O58-C57-C76-O77
15	I	303	WUO	C19-C20-C21-C22
21	H	904	CDL	C57-C58-C59-C60
23	S	503	3PE	O32-C31-O31-C3
23	J	503	3PE	O32-C31-O31-C3
15	O	304	WUO	C89-C88-C90-C91
15	I	303	WUO	C86-C87-C88-C89
17	M	502	IZL	C54-C55-C56-C57
18	W	201	9YF	C34-C33-C35-C36
18	b	201	9YF	C34-C33-C35-C36
21	T	1302	CDL	C51-CB5-OB6-CB4
21	I	301	CDL	C11-CA5-OA6-CA4
19	N	609	7PH	C24-C25-C26-C27
19	H	901	7PH	C24-C25-C26-C27
21	N	602	CDL	CA7-C31-C32-C33
21	H	903	CDL	CA7-C31-C32-C33
21	L	601	CDL	CA5-C11-C12-C13
21	L	601	CDL	CB5-C51-C52-C53
23	S	503	3PE	C21-C22-C23-C24
23	J	503	3PE	C21-C22-C23-C24
21	H	904	CDL	OB9-CB7-OB8-CB6
15	C	304	WUO	C92-C93-C94-C95
15	I	303	WUO	C67-C68-C69-C70

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Mol	Chain	Res	Type	Atoms
21	R	605	CDL	C73-C74-C75-C76
21	H	905	CDL	C71-CB7-OB8-CB6
13	O	301	HEC	C3D-CAD-CBD-CGD
13	C	301	HEC	C3D-CAD-CBD-CGD
28	b	203	9XX	C24-C25-C26-C27
15	C	304	WUO	C78-C80-C81-C82
21	N	602	CDL	CB7-C71-C72-C73
21	N	604	CDL	CA7-C31-C32-C33
21	C	305	CDL	CA5-C11-C12-C13
21	H	903	CDL	CB7-C71-C72-C73
15	P	302	WUO	C85-C86-C87-C88
15	C	304	WUO	C85-C86-C87-C88
14	M	505	MQ9	C27-C28-C29-C30
14	G	901	MQ9	C27-C28-C29-C30
21	P	301	CDL	CB5-C51-C52-C53
21	R	601	CDL	CB5-C51-C52-C53
21	R	601	CDL	CB7-C71-C72-C73
21	R	605	CDL	CB5-C51-C52-C53
21	H	904	CDL	CA7-C31-C32-C33
21	H	905	CDL	CA7-C31-C32-C33
21	R	605	CDL	C11-C12-C13-C14
17	G	903	IZL	O35-C60-O34-C45
19	S	501	7PH	O22-C21-O21-C2
21	R	605	CDL	OB7-CB5-OB6-CB4
17	M	502	IZL	C28-C26-C27-O13
17	M	502	IZL	C53-C54-C55-C56
21	R	601	CDL	CA5-C11-C12-C13
21	H	905	CDL	CA5-C11-C12-C13
21	I	301	CDL	CA7-C31-C32-C33
28	Y	302	9XX	C18-C19-C20-C21
21	H	904	CDL	C71-C72-C73-C74
20	H	902	HEM	C3D-CAD-CBD-CGD
28	b	203	9XX	C19-C18-O1-C17
18	M	503	9YF	C13-C14-C15-C16
18	G	904	9YF	C13-C14-C15-C16
28	b	203	9XX	C25-C26-C27-C28
18	W	201	9YF	O12-C25-O11-C24
18	b	201	9YF	O12-C25-O11-C24
19	N	609	7PH	O32-C31-O31-C3
19	H	901	7PH	O32-C31-O31-C3
14	O	303	MQ9	C14-C16-C17-C18
14	M	505	MQ9	C44-C46-C47-C48

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Mol	Chain	Res	Type	Atoms
14	N	606	MQ9	C39-C41-C42-C43
14	C	303	MQ9	C14-C16-C17-C18
14	G	901	MQ9	C44-C46-C47-C48
14	H	907	MQ9	C39-C41-C42-C43
15	P	302	WUO	C59-C61-C62-C63
21	T	1302	CDL	O1-C1-CA2-OA2
21	I	301	CDL	O1-C1-CA2-OA2
21	T	1302	CDL	OB7-CB5-OB6-CB4
15	C	304	WUO	O79-C78-O77-C76
21	H	905	CDL	OB9-CB7-OB8-CB6
21	I	302	CDL	CA7-C31-C32-C33
28	c	302	9XX	C18-C19-C20-C21
28	W	202	9XX	C9-C10-C11-C12
18	M	503	9YF	C30-C31-C32-C33
18	G	904	9YF	C30-C31-C32-C33
21	L	601	CDL	C51-CB5-OB6-CB4
15	I	303	WUO	C88-C90-C91-C92
18	W	201	9YF	C1-O-P-O2
18	b	201	9YF	C1-O-P-O2
21	N	602	CDL	CB2-OB2-PB2-OB5
21	T	1302	CDL	CA2-OA2-PA1-OA5
21	T	1302	CDL	CA3-OA5-PA1-OA2
21	R	601	CDL	CA2-OA2-PA1-OA5
21	R	605	CDL	CA2-OA2-PA1-OA5
21	R	605	CDL	CB2-OB2-PB2-OB5
21	C	305	CDL	CB2-OB2-PB2-OB5
21	C	305	CDL	CB3-OB5-PB2-OB2
21	H	903	CDL	CB2-OB2-PB2-OB5
21	H	905	CDL	CB2-OB2-PB2-OB5
21	I	301	CDL	CA2-OA2-PA1-OA5
21	I	301	CDL	CB3-OB5-PB2-OB2
21	I	302	CDL	CB2-OB2-PB2-OB5
21	J	501	CDL	CA2-OA2-PA1-OA5
21	L	601	CDL	CA3-OA5-PA1-OA2
23	S	503	3PE	C1-O11-P-O13
23	J	503	3PE	C1-O11-P-O13
21	I	302	CDL	CA5-C11-C12-C13
21	T	1302	CDL	CB2-C1-CA2-OA2
21	R	601	CDL	CB2-C1-CA2-OA2
21	I	301	CDL	OA7-CA5-OA6-CA4
21	L	601	CDL	OB7-CB5-OB6-CB4
28	b	203	9XX	O2-C18-O1-C17

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Mol	Chain	Res	Type	Atoms
14	O	303	MQ9	C15-C14-C16-C17
14	C	303	MQ9	C15-C14-C16-C17
15	P	302	WUO	C35-C37-O38-C39
15	P	302	WUO	C26-C27-C28-C29
21	J	501	CDL	C74-C75-C76-C77
18	W	201	9YF	C2-O2-P-O
18	b	201	9YF	C2-O2-P-O
21	L	601	CDL	CB7-C71-C72-C73
18	M	503	9YF	C9-C10-C11-C12
19	S	501	7PH	C34-C35-C36-C37
21	N	603	CDL	C71-C72-C73-C74
21	P	301	CDL	C37-C38-C39-C40
21	I	301	CDL	C75-C76-C77-C78
28	W	202	9XX	C24-C25-C26-C27
15	O	304	WUO	C20-C21-C22-C23
15	P	302	WUO	C67-C68-C69-C70
15	I	303	WUO	C21-C22-C23-C24
15	I	303	WUO	C24-C25-C26-C27
18	G	904	9YF	C9-C10-C11-C12
19	N	609	7PH	C25-C26-C27-C28
19	N	609	7PH	C28-C29-C2A-C2B
19	S	501	7PH	C29-C2A-C2B-C2C
19	H	901	7PH	C28-C29-C2A-C2B
21	N	603	CDL	C53-C54-C55-C56
21	N	604	CDL	C31-C32-C33-C34
21	R	605	CDL	C32-C33-C34-C35
21	C	305	CDL	C12-C13-C14-C15
21	I	302	CDL	C14-C15-C16-C17
21	I	302	CDL	C73-C74-C75-C76
21	J	501	CDL	C77-C78-C79-C80
21	J	501	CDL	C82-C83-C84-C85
21	L	601	CDL	C81-C82-C83-C84
28	Y	302	9XX	C9-C10-C11-C12
29	W	203	PLM	C2-C3-C4-C5
15	O	304	WUO	C19-C20-C21-C22
15	O	304	WUO	C90-C91-C92-C93
15	I	303	WUO	C84-C85-C86-C87
19	H	901	7PH	C25-C26-C27-C28
21	N	602	CDL	C51-C52-C53-C54
21	R	605	CDL	C53-C54-C55-C56
21	H	903	CDL	C51-C52-C53-C54
21	I	301	CDL	C15-C16-C17-C18

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Mol	Chain	Res	Type	Atoms
21	J	501	CDL	C14-C15-C16-C17
28	c	302	9XX	C19-C20-C21-C22
15	O	304	WUO	C76-C57-O58-C59
17	G	903	IZL	C46-C45-O34-C60
18	W	201	9YF	C11-C10-C9-C8
18	b	201	9YF	C11-C10-C9-C8
28	c	302	9XX	C12-C13-C14-C15
18	W	201	9YF	C12-C13-C14-C15
18	b	201	9YF	C12-C13-C14-C15
19	M	504	7PH	C29-C2A-C2B-C2C
19	G	905	7PH	C29-C2A-C2B-C2C
21	N	603	CDL	C34-C35-C36-C37
21	N	604	CDL	C20-C21-C22-C23
21	R	601	CDL	C12-C13-C14-C15
21	I	302	CDL	C13-C14-C15-C16
22	Q	403	TRD	C7-C8-C9-C10
22	K	1302	TRD	C6-C7-C8-C9
22	X	403	TRD	C7-C8-C9-C10
28	b	203	9XX	C23-C24-C25-C26
15	O	304	WUO	C81-C82-C83-C84
18	M	503	9YF	C15-C16-C17-C18
18	G	904	9YF	C15-C16-C17-C18
21	N	602	CDL	C78-C79-C80-C81
21	H	903	CDL	C78-C79-C80-C81
21	J	501	CDL	C16-C17-C18-C19
22	T	1303	TRD	C6-C7-C8-C9
28	W	202	9XX	C22-C23-C24-C25
18	W	201	9YF	C30-C31-C32-C33
18	b	201	9YF	C30-C31-C32-C33
21	N	604	CDL	O1-C1-CB2-OB2
15	P	302	WUO	C71-C72-C73-C74
15	C	304	WUO	C83-C84-C85-C86
15	I	303	WUO	C64-C65-C66-C67
17	M	502	IZL	C2-C1-C7-C8
19	M	504	7PH	C36-C37-C38-C39
19	G	905	7PH	C36-C37-C38-C39
21	P	301	CDL	C38-C39-C40-C41
21	I	301	CDL	C52-C53-C54-C55
21	I	302	CDL	C52-C53-C54-C55
15	I	303	WUO	C14-C16-C17-C18
15	O	304	WUO	C18-C19-C20-C21
18	M	503	9YF	C26-C27-C28-C29

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Mol	Chain	Res	Type	Atoms
18	G	904	9YF	C26-C27-C28-C29
21	N	602	CDL	C14-C15-C16-C17
21	N	604	CDL	C22-C23-C24-C25
21	N	604	CDL	C73-C74-C75-C76
21	P	301	CDL	C52-C53-C54-C55
21	R	601	CDL	C73-C74-C75-C76
21	C	305	CDL	C57-C58-C59-C60
21	H	903	CDL	C14-C15-C16-C17
22	Q	403	TRD	C5-C6-C7-C8
22	X	403	TRD	C5-C6-C7-C8
15	I	303	WUO	C85-C86-C87-C88
18	M	503	9YF	C12-C13-C14-C15
18	G	904	9YF	C12-C13-C14-C15
19	N	609	7PH	C29-C2A-C2B-C2C
19	H	901	7PH	C29-C2A-C2B-C2C
21	N	604	CDL	C57-C58-C59-C60
21	P	301	CDL	C34-C35-C36-C37
21	C	305	CDL	C76-C77-C78-C79
21	I	301	CDL	C59-C60-C61-C62
21	I	302	CDL	C75-C76-C77-C78
28	Y	302	9XX	C23-C24-C25-C26
28	b	203	9XX	C6-C7-C8-C9
28	b	203	9XX	C11-C12-C13-C14
15	I	303	WUO	C59-C61-C62-C63
17	G	903	IZL	C47-C48-C49-C50
21	P	301	CDL	CA5-C11-C12-C13
15	P	302	WUO	C69-C70-C71-C72
15	I	303	WUO	C65-C66-C67-C68
18	W	201	9YF	C29-C30-C31-C32
18	b	201	9YF	C29-C30-C31-C32
19	M	504	7PH	C34-C35-C36-C37
19	G	905	7PH	C34-C35-C36-C37
21	N	602	CDL	C11-C12-C13-C14
21	N	602	CDL	C15-C16-C17-C18
21	R	601	CDL	C16-C17-C18-C19
21	R	605	CDL	C34-C35-C36-C37
21	H	903	CDL	C11-C12-C13-C14
21	H	903	CDL	C15-C16-C17-C18
21	H	905	CDL	C73-C74-C75-C76
28	Y	302	9XX	C6-C7-C8-C9
28	b	203	9XX	C22-C23-C24-C25
17	G	903	IZL	C50-C51-C52-C53

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Mol	Chain	Res	Type	Atoms
18	W	201	9YF	C16-C17-C18-C19
18	b	201	9YF	C16-C17-C18-C19
21	R	601	CDL	C75-C76-C77-C78
21	R	605	CDL	C33-C34-C35-C36
21	H	905	CDL	C12-C13-C14-C15
21	H	904	CDL	C51-CB5-OB6-CB4
15	O	304	WUO	C63-C64-C65-C66
15	I	303	WUO	C61-C62-C63-C64
18	W	201	9YF	C17-C18-C19-C20
18	b	201	9YF	C17-C18-C19-C20
19	N	609	7PH	C33-C34-C35-C36
19	H	901	7PH	C33-C34-C35-C36
21	T	1302	CDL	C75-C76-C77-C78
21	C	305	CDL	C71-C72-C73-C74
21	J	501	CDL	C51-C52-C53-C54
21	L	601	CDL	C51-C52-C53-C54
21	N	603	CDL	CA7-C31-C32-C33
21	I	301	CDL	CA5-C11-C12-C13
15	P	302	WUO	C50-C37-O38-C39
17	M	502	IZL	C51-C52-C53-C54
18	M	503	9YF	C28-C29-C30-C31
18	W	201	9YF	C28-C29-C30-C31
18	b	201	9YF	C28-C29-C30-C31
19	N	609	7PH	C38-C39-C3A-C3B
19	H	901	7PH	C38-C39-C3A-C3B
21	N	602	CDL	C56-C57-C58-C59
21	N	602	CDL	C73-C74-C75-C76
21	N	602	CDL	C75-C76-C77-C78
21	P	301	CDL	C55-C56-C57-C58
21	R	601	CDL	C71-C72-C73-C74
21	C	305	CDL	C83-C84-C85-C86
21	H	903	CDL	C56-C57-C58-C59
21	H	903	CDL	C73-C74-C75-C76
21	H	903	CDL	C75-C76-C77-C78
21	H	905	CDL	C14-C15-C16-C17
22	R	609	TRD	C3-C4-C5-C6
17	G	903	IZL	C28-C26-C27-O13
15	I	303	WUO	C91-C92-C93-C94
17	G	903	IZL	C2-C1-C7-C8
18	G	904	9YF	C28-C29-C30-C31
21	C	305	CDL	C11-C12-C13-C14
21	C	305	CDL	C53-C54-C55-C56

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Mol	Chain	Res	Type	Atoms
21	L	601	CDL	C13-C14-C15-C16
21	L	601	CDL	C56-C57-C58-C59
21	L	601	CDL	C77-C78-C79-C80
22	L	608	TRD	C3-C4-C5-C6
21	N	603	CDL	C73-C74-C75-C76
21	P	301	CDL	C17-C18-C19-C20
21	H	903	CDL	C77-C78-C79-C80
21	L	601	CDL	C33-C34-C35-C36
28	W	202	9XX	C31-C32-C33-C34
19	M	504	7PH	C31-C32-C33-C34
19	G	905	7PH	C31-C32-C33-C34
15	I	303	WUO	C83-C84-C85-C86
17	G	903	IZL	C3-C4-C5-C6
19	N	609	7PH	C32-C33-C34-C35
19	H	901	7PH	C32-C33-C34-C35
21	N	602	CDL	C77-C78-C79-C80
21	P	301	CDL	C59-C60-C61-C62
21	H	904	CDL	C38-C39-C40-C41
21	H	905	CDL	C21-C22-C23-C24
21	H	905	CDL	C78-C79-C80-C81
28	Y	302	9XX	C21-C22-C23-C24
28	c	302	9XX	C6-C7-C8-C9
28	c	302	9XX	C9-C10-C11-C12
18	W	201	9YF	C10-C11-C12-C13
18	b	201	9YF	C10-C11-C12-C13
21	N	603	CDL	C55-C56-C57-C58
21	T	1302	CDL	C12-C13-C14-C15
21	H	904	CDL	C17-C18-C19-C20
21	I	302	CDL	C55-C56-C57-C58
14	N	608	MQ9	C47-C48-C49-C50
14	H	909	MQ9	C47-C48-C49-C50
15	C	304	WUO	C26-C27-C28-C29
21	N	602	CDL	C54-C55-C56-C57
21	N	603	CDL	C17-C18-C19-C20
21	H	903	CDL	C54-C55-C56-C57
22	T	1303	TRD	C3-C4-C5-C6
22	K	1302	TRD	C3-C4-C5-C6
28	W	202	9XX	C5-C6-C7-C8
29	b	202	PLM	C5-C6-C7-C8
15	P	302	WUO	C90-C91-C92-C93
17	G	903	IZL	C43-C18-O7-C19
17	G	903	IZL	C49-C50-C51-C52

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Mol	Chain	Res	Type	Atoms
21	N	602	CDL	C72-C73-C74-C75
21	N	604	CDL	C13-C14-C15-C16
21	H	903	CDL	C72-C73-C74-C75
21	I	301	CDL	C72-C73-C74-C75
21	L	601	CDL	C72-C73-C74-C75
28	Y	302	9XX	C22-C23-C24-C25
21	C	305	CDL	CB3-CB4-CB6-OB8
21	H	905	CDL	C31-C32-C33-C34
21	H	905	CDL	C76-C77-C78-C79
17	G	903	IZL	C60-C61-C62-C63
28	b	203	9XX	C12-C13-C14-C15
19	S	501	7PH	C27-C28-C29-C2A
23	S	503	3PE	C27-C28-C29-C2A
14	M	505	MQ9	C38-C39-C41-C42
14	G	901	MQ9	C38-C39-C41-C42
22	Q	403	TRD	C9-C10-C11-C12
22	X	403	TRD	C9-C10-C11-C12
18	M	503	9YF	C10-C11-C12-C13
18	M	503	9YF	C17-C18-C19-C20
18	G	904	9YF	C10-C11-C12-C13
18	G	904	9YF	C17-C18-C19-C20
21	N	603	CDL	C36-C37-C38-C39
21	N	604	CDL	C11-C12-C13-C14
21	R	601	CDL	C13-C14-C15-C16
21	R	605	CDL	C55-C56-C57-C58
21	H	904	CDL	C59-C60-C61-C62
21	H	905	CDL	C20-C21-C22-C23
21	H	905	CDL	C75-C76-C77-C78
21	I	301	CDL	C57-C58-C59-C60
23	J	503	3PE	C27-C28-C29-C2A
21	R	605	CDL	CA7-C31-C32-C33
21	H	905	CDL	C77-C78-C79-C80
15	C	304	WUO	C81-C82-C83-C84
21	P	301	CDL	C73-C74-C75-C76
21	I	301	CDL	CB2-C1-CA2-OA2
19	M	504	7PH	C22-C23-C24-C25
21	H	904	CDL	OB7-CB5-OB6-CB4
18	W	201	9YF	C13-C14-C15-C16
18	b	201	9YF	C13-C14-C15-C16
19	G	905	7PH	C22-C23-C24-C25
19	H	901	7PH	C34-C35-C36-C37
21	N	603	CDL	C33-C34-C35-C36

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Mol	Chain	Res	Type	Atoms
21	L	601	CDL	C78-C79-C80-C81
15	P	302	WUO	C63-C64-C65-C66
19	N	609	7PH	C34-C35-C36-C37
21	R	605	CDL	C37-C38-C39-C40
21	H	905	CDL	C18-C19-C20-C21
21	I	301	CDL	C14-C15-C16-C17
21	J	501	CDL	C55-C56-C57-C58
21	J	501	CDL	C56-C57-C58-C59
15	C	304	WUO	C93-C94-C95-C96
21	R	601	CDL	C32-C33-C34-C35
21	H	905	CDL	C57-C58-C59-C60
21	L	601	CDL	C71-CB7-OB8-CB6
15	C	304	WUO	C64-C65-C66-C67
21	N	603	CDL	C52-C53-C54-C55
21	T	1302	CDL	C76-C77-C78-C79
21	I	302	CDL	C33-C34-C35-C36
21	T	1302	CDL	CA7-C31-C32-C33
21	N	604	CDL	C32-C33-C34-C35
21	L	601	CDL	C15-C16-C17-C18
29	c	301	PLM	C6-C7-C8-C9
14	T	1301	MQ9	C15-C14-C16-C17
14	T	1301	MQ9	C13-C14-C16-C17
17	G	903	IZL	C43-O28-P-O31
17	G	903	IZL	C17-C18-O7-C19
19	N	609	7PH	C2B-C2C-C2D-C2E
19	H	901	7PH	C2B-C2C-C2D-C2E
18	M	503	9YF	O10-C8-O9-C
18	G	904	9YF	O10-C8-O9-C
21	N	602	CDL	OB7-CB5-OB6-CB4
21	H	903	CDL	OB7-CB5-OB6-CB4
21	I	302	CDL	CB5-C51-C52-C53
21	I	302	CDL	C31-CA7-OA8-CA6
15	I	303	WUO	C82-C83-C84-C85
21	H	904	CDL	C74-C75-C76-C77
28	b	203	9XX	C11-C10-C9-C8
21	R	605	CDL	C51-C52-C53-C54
21	C	305	CDL	C58-C59-C60-C61
21	I	301	CDL	C34-C35-C36-C37
17	G	903	IZL	C48-C49-C50-C51
21	H	905	CDL	C17-C18-C19-C20
28	b	203	9XX	C10-C11-C12-C13
21	N	602	CDL	CB5-C51-C52-C53

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Mol	Chain	Res	Type	Atoms
21	H	903	CDL	CB5-C51-C52-C53
15	P	302	WUO	C66-C67-C68-C69
21	N	602	CDL	C18-C19-C20-C21
21	H	903	CDL	C18-C19-C20-C21
21	I	301	CDL	C56-C57-C58-C59
22	S	502	TRD	C3-C4-C5-C6
22	J	502	TRD	C3-C4-C5-C6
15	C	304	WUO	C24-C25-C26-C27
15	C	304	WUO	C67-C68-C69-C70
21	I	302	CDL	C51-C52-C53-C54
21	N	604	CDL	C71-CB7-OB8-CB6
14	T	1301	MQ9	C14-C16-C17-C18
24	R	603	HEA	C15-C16-C17-C18
17	G	903	IZL	C51-C52-C53-C54
19	M	504	7PH	C35-C36-C37-C38
19	G	905	7PH	C35-C36-C37-C38
23	S	503	3PE	C26-C27-C28-C29
15	P	302	WUO	C78-C80-C81-C82
21	T	1302	CDL	CB5-C51-C52-C53
18	M	503	9YF	C9-C8-O9-C
18	G	904	9YF	C9-C8-O9-C
21	N	602	CDL	C51-CB5-OB6-CB4
21	H	903	CDL	C51-CB5-OB6-CB4
18	W	201	9YF	O9-C-C1-O
18	b	201	9YF	O9-C-C1-O
19	N	609	7PH	C23-C24-C25-C26
21	I	302	CDL	C53-C54-C55-C56
21	T	1302	CDL	C35-C36-C37-C38
21	I	301	CDL	C32-C33-C34-C35
28	W	202	9XX	C10-C11-C12-C13
29	Y	301	PLM	C6-C7-C8-C9
21	L	601	CDL	O1-C1-CA2-OA2
19	H	901	7PH	C23-C24-C25-C26
21	N	604	CDL	C16-C17-C18-C19
23	J	503	3PE	C26-C27-C28-C29
18	G	904	9YF	C37-C38-C39-C40
21	N	604	CDL	C55-C56-C57-C58
15	I	303	WUO	C25-C26-C27-C28
18	M	503	9YF	C37-C38-C39-C40
21	T	1302	CDL	C72-C73-C74-C75
28	W	202	9XX	C20-C21-C22-C23
28	c	302	9XX	C20-C21-C22-C23

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Mol	Chain	Res	Type	Atoms
14	O	303	MQ9	C13-C14-C16-C17
14	C	303	MQ9	C13-C14-C16-C17
21	N	602	CDL	C74-C75-C76-C77
21	N	604	CDL	C71-C72-C73-C74
21	H	903	CDL	C74-C75-C76-C77
28	b	203	9XX	C25-C26-C27-C36
21	L	601	CDL	C73-C74-C75-C76
17	G	903	IZL	C65-C66-C68-C69
19	S	501	7PH	C38-C39-C3A-C3B
21	N	603	CDL	C38-C39-C40-C41
21	N	604	CDL	C78-C79-C80-C81
21	T	1302	CDL	C74-C75-C76-C77
21	I	302	CDL	C34-C35-C36-C37
21	I	302	CDL	C71-C72-C73-C74
21	R	601	CDL	C33-C34-C35-C36
21	L	601	CDL	OB9-CB7-OB8-CB6
21	L	601	CDL	C80-C81-C82-C83
22	Q	403	TRD	C11-C10-C9-C8
22	X	403	TRD	C11-C10-C9-C8
15	C	304	WUO	C56-O55-P52-O51
21	R	605	CDL	CB3-OB5-PB2-OB2
21	H	903	CDL	CB3-OB5-PB2-OB2
21	H	905	CDL	CA2-OA2-PA1-OA5
21	I	302	CDL	CA2-OA2-PA1-OA5
21	J	501	CDL	CB2-OB2-PB2-OB5
21	P	301	CDL	C72-C73-C74-C75
21	I	302	CDL	C17-C18-C19-C20
21	J	501	CDL	CA5-C11-C12-C13
21	R	605	CDL	C17-C18-C19-C20
21	L	601	CDL	C83-C84-C85-C86
17	M	502	IZL	O31-C44-C45-C46
19	S	501	7PH	O11-C1-C2-C3
21	N	602	CDL	OA5-CA3-CA4-CA6
21	H	903	CDL	OA5-CA3-CA4-CA6
21	J	501	CDL	OA5-CA3-CA4-CA6
21	T	1302	CDL	C58-C59-C60-C61
19	M	504	7PH	C24-C25-C26-C27
19	G	905	7PH	C24-C25-C26-C27
21	L	601	CDL	C14-C15-C16-C17
21	N	604	CDL	C19-C20-C21-C22
21	J	501	CDL	C34-C35-C36-C37
21	L	601	CDL	C53-C54-C55-C56

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Mol	Chain	Res	Type	Atoms
28	W	202	9XX	C28-C29-C30-C31
15	C	304	WUO	C25-C26-C27-C28
21	P	301	CDL	C15-C16-C17-C18
21	R	601	CDL	C11-C12-C13-C14
28	Y	302	9XX	C11-C12-C13-C14
19	G	905	7PH	C32-C31-O31-C3
21	N	604	CDL	CA2-C1-CB2-OB2
28	W	202	9XX	C19-C20-C21-C22
21	R	601	CDL	C14-C15-C16-C17
21	H	904	CDL	C54-C55-C56-C57
29	W	203	PLM	C5-C6-C7-C8
28	W	202	9XX	C29-C30-C31-C32
15	O	304	WUO	C22-C23-C24-C25
15	P	302	WUO	C22-C23-C24-C25
15	P	302	WUO	C56-C57-C76-O77
15	C	304	WUO	C94-C95-C96-C97
17	M	502	IZL	C62-C63-C64-C65
17	G	903	IZL	C44-C45-C46-O32
18	M	503	9YF	C1-C-C24-O11
18	G	904	9YF	C1-C-C24-O11
21	N	603	CDL	CB3-CB4-CB6-OB8
21	N	603	CDL	C76-C77-C78-C79
21	T	1302	CDL	CA3-CA4-CA6-OA8
21	T	1302	CDL	CB3-CB4-CB6-OB8
21	T	1302	CDL	C84-C85-C86-C87
21	R	605	CDL	CA3-CA4-CA6-OA8
21	H	905	CDL	C58-C59-C60-C61
21	I	301	CDL	CA3-CA4-CA6-OA8
21	I	301	CDL	CB3-CB4-CB6-OB8
21	L	601	CDL	CB3-CB4-CB6-OB8
19	M	504	7PH	C32-C31-O31-C3
21	N	604	CDL	C58-C59-C60-C61
21	J	501	CDL	C33-C34-C35-C36
17	M	502	IZL	C23-C24-O11-C25
21	P	301	CDL	C36-C37-C38-C39
21	I	301	CDL	C53-C54-C55-C56
15	C	304	WUO	C72-C73-C74-C75
21	I	302	CDL	OA9-CA7-OA8-CA6
15	P	302	WUO	C94-C95-C96-C97
17	M	502	IZL	C1-C7-C8-C9
21	R	605	CDL	C76-C77-C78-C79
21	L	601	CDL	C84-C85-C86-C87

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Mol	Chain	Res	Type	Atoms
14	N	608	MQ9	C47-C48-C49-C51
14	H	909	MQ9	C47-C48-C49-C51
15	P	302	WUO	C70-C71-C72-C73
15	I	303	WUO	C27-C28-C29-C30
18	W	201	9YF	C40-C41-C42-C43
18	b	201	9YF	C40-C41-C42-C43
21	J	501	CDL	C54-C55-C56-C57
17	M	502	IZL	C43-O28-P-O31
15	I	303	WUO	C94-C95-C96-C97
21	N	602	CDL	C59-C60-C61-C62
21	H	903	CDL	C59-C60-C61-C62
21	R	601	CDL	C53-C54-C55-C56
21	H	904	CDL	C13-C14-C15-C16
21	I	302	CDL	C18-C19-C20-C21
21	N	604	CDL	C24-C25-C26-C27
21	H	905	CDL	C13-C14-C15-C16
21	N	602	CDL	CA5-C11-C12-C13
21	H	903	CDL	CA5-C11-C12-C13
21	P	301	CDL	C31-CA7-OA8-CA6
21	T	1302	CDL	C31-CA7-OA8-CA6
17	M	502	IZL	C4-C5-C6-C67
21	N	603	CDL	C13-C14-C15-C16
21	H	904	CDL	C39-C40-C41-C42
21	I	301	CDL	C12-C11-CA5-OA6
21	I	301	CDL	C13-C14-C15-C16
21	I	301	CDL	C39-C40-C41-C42
21	C	305	CDL	CA6-CA4-OA6-CA5
21	L	601	CDL	CA6-CA4-OA6-CA5
21	N	604	CDL	OB9-CB7-OB8-CB6
19	N	609	7PH	C37-C38-C39-C3A
19	H	901	7PH	C37-C38-C39-C3A
21	N	602	CDL	C53-C54-C55-C56
21	H	903	CDL	C53-C54-C55-C56
22	S	502	TRD	C1-C2-C3-C4
22	J	502	TRD	C1-C2-C3-C4
21	T	1302	CDL	C33-C34-C35-C36
19	M	504	7PH	C1-O11-P-O14
19	G	905	7PH	C1-O11-P-O14
21	I	302	CDL	C76-C77-C78-C79
22	S	502	TRD	C5-C6-C7-C8
22	J	502	TRD	C5-C6-C7-C8
21	R	605	CDL	OB5-CB3-CB4-OB6

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Mol	Chain	Res	Type	Atoms
28	W	202	9XX	C1-C2-C3-C4
21	R	601	CDL	C74-C75-C76-C77
21	C	305	CDL	C75-C76-C77-C78
22	K	1302	TRD	C9-C10-C11-C12
15	O	304	WUO	C94-C95-C96-C97
22	T	1303	TRD	C9-C10-C11-C12
19	G	905	7PH	O32-C31-O31-C3
17	M	502	IZL	C1-C2-C3-C4
21	N	604	CDL	C15-C16-C17-C18
21	J	501	CDL	C52-C53-C54-C55
22	T	1303	TRD	C1-C2-C3-C4
22	K	1302	TRD	C1-C2-C3-C4
24	L	602	HEA	C27-C19-C20-C21
24	L	602	HEA	C18-C19-C20-C21
19	M	504	7PH	O32-C31-O31-C3
15	O	304	WUO	C14-C16-C17-C18
17	M	502	IZL	C7-C8-C9-C10
15	C	304	WUO	C65-C66-C67-C68
21	H	904	CDL	C76-C77-C78-C79
22	R	608	TRD	C1-C2-C3-C4
22	L	607	TRD	C1-C2-C3-C4
21	L	601	CDL	C32-C33-C34-C35
21	N	602	CDL	C17-C18-C19-C20
21	C	305	CDL	C73-C74-C75-C76
21	H	903	CDL	C17-C18-C19-C20
21	H	904	CDL	C52-C53-C54-C55
15	O	304	WUO	O55-C56-C57-C76
21	P	301	CDL	OA5-CA3-CA4-CA6
21	P	301	CDL	OB5-CB3-CB4-CB6
21	T	1302	CDL	OA5-CA3-CA4-CA6
21	R	601	CDL	OB5-CB3-CB4-CB6
23	J	503	3PE	O11-C1-C2-C3
14	N	608	MQ9	C9-C11-C12-C13
14	H	909	MQ9	C9-C11-C12-C13
15	I	303	WUO	C50-C37-O38-C39
15	O	304	WUO	C62-C63-C64-C65
17	M	502	IZL	C66-C68-C69-C70
15	C	304	WUO	C16-C14-O13-C12
21	R	605	CDL	C31-CA7-OA8-CA6
15	O	304	WUO	C88-C90-C91-C92
19	M	504	7PH	C38-C39-C3A-C3B
19	S	501	7PH	C33-C34-C35-C36

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Mol	Chain	Res	Type	Atoms
14	N	606	MQ9	C40-C39-C41-C42
14	H	907	MQ9	C40-C39-C41-C42
14	N	606	MQ9	C38-C39-C41-C42
14	H	907	MQ9	C38-C39-C41-C42
15	I	303	WUO	C16-C17-C18-C19
19	G	905	7PH	C38-C39-C3A-C3B
29	c	301	PLM	C2-C3-C4-C5
21	J	501	CDL	CB5-C51-C52-C53
18	b	201	9YF	C9-C10-C11-C12
21	T	1302	CDL	OA9-CA7-OA8-CA6
18	W	201	9YF	C9-C10-C11-C12
22	R	608	TRD	C9-C10-C11-C12
22	L	607	TRD	C9-C10-C11-C12
15	C	304	WUO	C69-C70-C71-C72
21	H	905	CDL	C53-C54-C55-C56
21	I	302	CDL	C36-C37-C38-C39
20	N	601	HEM	C3D-CAD-CBD-CGD
21	N	602	CDL	C57-C58-C59-C60
21	H	903	CDL	C57-C58-C59-C60
21	N	602	CDL	CB3-CB4-CB6-OB8
21	C	305	CDL	CA3-CA4-CA6-OA8
21	H	903	CDL	CB3-CB4-CB6-OB8
21	I	302	CDL	CA3-CA4-CA6-OA8
28	Y	302	9XX	O-C16-C17-C37
17	M	502	IZL	C43-O28-P-O29
18	W	201	9YF	C2-O2-P-O8
18	b	201	9YF	C2-O2-P-O8
21	N	602	CDL	C16-C17-C18-C19
21	N	603	CDL	C54-C55-C56-C57
21	N	604	CDL	C77-C78-C79-C80
21	H	903	CDL	C16-C17-C18-C19
21	N	602	CDL	CB3-OB5-PB2-OB2
21	N	604	CDL	CB3-OB5-PB2-OB2
21	P	301	CDL	CA2-OA2-PA1-OA5
17	G	903	IZL	C7-C1-C2-C3
22	X	403	TRD	C4-C5-C6-C7
28	c	302	9XX	C10-C11-C12-C13
19	S	501	7PH	O11-C1-C2-O21
21	P	301	CDL	OA5-CA3-CA4-OA6
21	R	601	CDL	OB5-CB3-CB4-OB6
28	Y	302	9XX	C14-C15-O-C16
22	Q	403	TRD	C4-C5-C6-C7

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Mol	Chain	Res	Type	Atoms
14	N	606	MQ9	C37-C38-C39-C40
14	H	907	MQ9	C37-C38-C39-C40
21	P	301	CDL	OA9-CA7-OA8-CA6
18	G	904	9YF	C14-C15-C16-C17
21	C	305	CDL	C31-C32-C33-C34
21	I	301	CDL	O1-C1-CB2-OB2
18	M	503	9YF	C14-C15-C16-C17
21	T	1302	CDL	C79-C80-C81-C82
21	I	302	CDL	C59-C60-C61-C62
21	H	904	CDL	C51-C52-C53-C54
28	Y	302	9XX	O-C16-C17-O1
17	G	903	IZL	O34-C45-C46-O32
18	M	503	9YF	O9-C-C24-O11
18	G	904	9YF	O9-C-C24-O11
21	J	501	CDL	OB6-CB4-CB6-OB8
21	L	601	CDL	OB6-CB4-CB6-OB8
21	R	605	CDL	C11-CA5-OA6-CA4
21	R	601	CDL	CA2-C1-CB2-OB2
21	C	305	CDL	CA2-C1-CB2-OB2
21	I	302	CDL	CB2-C1-CA2-OA2
21	J	501	CDL	CA2-C1-CB2-OB2
15	O	304	WUO	C23-C24-C25-C26
23	S	503	3PE	C28-C29-C2A-C2B
21	N	602	CDL	C12-C13-C14-C15
21	P	301	CDL	C58-C59-C60-C61
21	H	903	CDL	C12-C13-C14-C15
23	J	503	3PE	C28-C29-C2A-C2B
15	C	304	WUO	C66-C67-C68-C69
15	O	304	WUO	C64-C65-C66-C67
21	H	904	CDL	C37-C38-C39-C40
21	N	602	CDL	C1-CB2-OB2-PB2
21	N	604	CDL	C1-CB2-OB2-PB2
21	H	903	CDL	C1-CB2-OB2-PB2
21	J	501	CDL	CB4-CB3-OB5-PB2
21	H	904	CDL	C33-C34-C35-C36
21	J	501	CDL	C72-C73-C74-C75
21	L	601	CDL	C16-C17-C18-C19
28	W	202	9XX	C32-C33-C34-C35
15	O	304	WUO	C72-C73-C74-C75
15	C	304	WUO	C70-C71-C72-C73
21	L	601	CDL	C76-C77-C78-C79
21	R	601	CDL	C55-C56-C57-C58

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Mol	Chain	Res	Type	Atoms
21	J	501	CDL	C12-C13-C14-C15
15	C	304	WUO	C80-C81-C82-C83
21	R	601	CDL	C39-C40-C41-C42
14	O	303	MQ9	C47-C48-C49-C50
14	C	303	MQ9	C47-C48-C49-C50
21	L	601	CDL	C54-C55-C56-C57
28	c	302	9XX	C22-C23-C24-C25
15	I	303	WUO	C81-C82-C83-C84
21	C	305	CDL	OA5-CA3-CA4-CA6
21	I	301	CDL	OA5-CA3-CA4-CA6
15	O	304	WUO	C93-C94-C95-C96
15	I	303	WUO	C35-C37-O38-C39
21	P	301	CDL	C18-C19-C20-C21
15	O	304	WUO	C87-C88-C90-C91
15	C	304	WUO	C86-C87-C88-C90
15	I	303	WUO	C86-C87-C88-C90
21	I	301	CDL	C71-C72-C73-C74
18	M	503	9YF	C33-C35-C36-C37
18	G	904	9YF	C33-C35-C36-C37
21	I	301	CDL	C31-C32-C33-C34
15	C	304	WUO	C23-C24-C25-C26
15	I	303	WUO	C69-C70-C71-C72
15	O	304	WUO	C26-C27-C28-C29
21	N	604	CDL	C53-C54-C55-C56
21	H	904	CDL	C56-C57-C58-C59
21	J	501	CDL	C76-C77-C78-C79
15	O	304	WUO	C16-C14-O13-C12
21	R	601	CDL	C52-C53-C54-C55
15	P	302	WUO	C16-C17-C18-C19
21	I	302	CDL	C54-C55-C56-C57
15	C	304	WUO	C56-C57-O58-C59
19	N	609	7PH	C3-C2-O21-C21
19	H	901	7PH	C3-C2-O21-C21
15	I	303	WUO	C71-C72-C73-C74
19	S	501	7PH	C37-C38-C39-C3A
21	H	904	CDL	C16-C17-C18-C19
21	C	305	CDL	C72-C73-C74-C75
21	I	301	CDL	C36-C37-C38-C39
15	C	304	WUO	C56-C57-C76-O77
19	M	504	7PH	C1-C2-C3-O31
19	G	905	7PH	C1-C2-C3-O31
21	H	905	CDL	CB3-CB4-CB6-OB8

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Mol	Chain	Res	Type	Atoms
21	I	301	CDL	C1-CB2-OB2-PB2
21	I	302	CDL	CB3-CB4-CB6-OB8
15	C	304	WUO	O15-C14-O13-C12
21	R	605	CDL	OA9-CA7-OA8-CA6
21	T	1302	CDL	OA5-CA3-CA4-OA6
21	I	301	CDL	OB5-CB3-CB4-OB6
21	I	302	CDL	OA5-CA3-CA4-OA6
21	L	601	CDL	OB5-CB3-CB4-OB6
23	S	503	3PE	O11-C1-C2-O21
23	J	503	3PE	O11-C1-C2-O21
15	O	304	WUO	C17-C18-C19-C20
18	G	904	9YF	C16-C17-C18-C19
21	R	605	CDL	C36-C37-C38-C39
21	L	601	CDL	C79-C80-C81-C82
18	M	503	9YF	C16-C17-C18-C19
21	R	605	CDL	OA7-CA5-OA6-CA4
17	G	903	IZL	C52-C53-C54-C55
21	I	301	CDL	C18-C19-C20-C21
19	M	504	7PH	C32-C33-C34-C35
19	G	905	7PH	C32-C33-C34-C35
21	I	302	CDL	C35-C36-C37-C38
18	W	201	9YF	O9-C-C24-O11
18	b	201	9YF	O9-C-C24-O11
21	N	602	CDL	OB6-CB4-CB6-OB8
21	N	603	CDL	OB6-CB4-CB6-OB8
21	T	1302	CDL	OA6-CA4-CA6-OA8
21	R	605	CDL	OA6-CA4-CA6-OA8
21	R	605	CDL	OB6-CB4-CB6-OB8
21	C	305	CDL	OA6-CA4-CA6-OA8
21	H	903	CDL	OB6-CB4-CB6-OB8
28	b	203	9XX	C20-C21-C22-C23
28	Y	302	9XX	O6-C15-O-C16
21	N	603	CDL	C16-C17-C18-C19
21	N	604	CDL	C17-C18-C19-C20
21	T	1302	CDL	C36-C37-C38-C39
21	R	601	CDL	C17-C18-C19-C20
21	I	301	CDL	C37-C38-C39-C40
21	L	601	CDL	C74-C75-C76-C77
15	O	304	WUO	O15-C14-O13-C12
19	S	501	7PH	C28-C29-C2A-C2B
21	P	301	CDL	C60-C61-C62-C63
21	H	905	CDL	C55-C56-C57-C58

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Mol	Chain	Res	Type	Atoms
21	P	301	CDL	C57-C58-C59-C60
21	H	905	CDL	C19-C20-C21-C22
21	I	301	CDL	C74-C75-C76-C77
21	N	604	CDL	C23-C24-C25-C26
21	I	302	CDL	C38-C39-C40-C41
21	T	1302	CDL	CB7-C71-C72-C73
17	G	903	IZL	C66-C68-C69-C70
15	P	302	WUO	C50-O51-P52-O55
14	M	505	MQ9	C27-C28-C29-C31
14	G	901	MQ9	C27-C28-C29-C31
18	M	503	9YF	C29-C30-C31-C32
21	T	1302	CDL	C81-C82-C83-C84
21	R	601	CDL	CB2-OB2-PB2-OB5
21	R	605	CDL	CA3-OA5-PA1-OA2
21	C	305	CDL	CA2-OA2-PA1-OA5
21	H	905	CDL	CA3-OA5-PA1-OA2
18	G	904	9YF	C29-C30-C31-C32
15	O	304	WUO	C21-C22-C23-C24
21	P	301	CDL	C14-C15-C16-C17
18	M	503	9YF	C20-C21-C22-C23
18	G	904	9YF	C20-C21-C22-C23
15	C	304	WUO	C56-O55-P52-O53
18	W	201	9YF	C1-O-P-O8
18	b	201	9YF	C1-O-P-O8
21	N	603	CDL	CB2-OB2-PB2-OB4
21	N	603	CDL	CB3-OB5-PB2-OB3
21	P	301	CDL	CA2-OA2-PA1-OA4
21	T	1302	CDL	CA3-OA5-PA1-OA3
21	R	601	CDL	CB2-OB2-PB2-OB4
21	R	605	CDL	CA2-OA2-PA1-OA3
21	R	605	CDL	CA2-OA2-PA1-OA4
21	R	605	CDL	CB3-OB5-PB2-OB4
21	C	305	CDL	CB2-OB2-PB2-OB3
21	C	305	CDL	CB2-OB2-PB2-OB4
21	H	905	CDL	CA2-OA2-PA1-OA4
21	I	302	CDL	CB2-OB2-PB2-OB3
21	I	302	CDL	CB2-OB2-PB2-OB4
21	J	501	CDL	CA2-OA2-PA1-OA4
21	J	501	CDL	CB2-OB2-PB2-OB3
21	J	501	CDL	CB3-OB5-PB2-OB3
21	L	601	CDL	CA3-OA5-PA1-OA4
23	S	503	3PE	C1-O11-P-O12

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Mol	Chain	Res	Type	Atoms
23	J	503	3PE	C1-O11-P-O12
21	P	301	CDL	C71-CB7-OB8-CB6
21	I	301	CDL	OB5-CB3-CB4-CB6
21	L	601	CDL	OB5-CB3-CB4-CB6
23	S	503	3PE	O11-C1-C2-C3
21	N	603	CDL	C51-C52-C53-C54
21	P	301	CDL	C56-C57-C58-C59
29	b	202	PLM	C4-C5-C6-C7
24	R	603	HEA	C3B-C11-C12-C13
21	H	905	CDL	C12-C11-CA5-OA6
21	N	602	CDL	C76-C77-C78-C79
21	H	903	CDL	C76-C77-C78-C79
21	N	602	CDL	CB2-C1-CA2-OA2
21	H	903	CDL	CB2-C1-CA2-OA2
21	H	904	CDL	C34-C35-C36-C37
15	O	304	WUO	O55-C56-C57-O58
18	W	201	9YF	C32-C33-C35-C36
18	b	201	9YF	C32-C33-C35-C36
21	P	301	CDL	OB5-CB3-CB4-OB6
21	C	305	CDL	OA5-CA3-CA4-OA6
21	H	904	CDL	OB5-CB3-CB4-OB6
28	W	202	9XX	C25-C26-C27-C28
21	P	301	CDL	C12-C11-CA5-OA6
21	T	1302	CDL	C11-C12-C13-C14
21	N	602	CDL	C58-C59-C60-C61
21	H	903	CDL	C58-C59-C60-C61
18	W	201	9YF	C1-C-C24-O11
18	b	201	9YF	C1-C-C24-O11
21	N	604	CDL	CA3-CA4-CA6-OA8
21	H	904	CDL	CB3-CB4-CB6-OB8
24	R	603	HEA	O11-C11-C3B-C4B
24	L	603	HEA	O11-C11-C3B-C4B
15	C	304	WUO	O58-C57-C76-O77
19	M	504	7PH	O21-C2-C3-O31
19	G	905	7PH	O21-C2-C3-O31
21	N	604	CDL	OA6-CA4-CA6-OA8
21	P	301	CDL	OA6-CA4-CA6-OA8
21	T	1302	CDL	OB6-CB4-CB6-OB8
21	C	305	CDL	OB6-CB4-CB6-OB8
21	H	904	CDL	OB6-CB4-CB6-OB8
21	I	301	CDL	OB6-CB4-CB6-OB8
21	I	302	CDL	OB6-CB4-CB6-OB8

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Mol	Chain	Res	Type	Atoms
18	M	503	9YF	C38-C39-C40-C41
18	G	904	9YF	C38-C39-C40-C41
21	N	603	CDL	C37-C38-C39-C40
21	P	301	CDL	C11-C12-C13-C14
21	P	301	CDL	C1-CB2-OB2-PB2
21	H	905	CDL	C1-CB2-OB2-PB2
21	J	501	CDL	C1-CB2-OB2-PB2
29	c	301	PLM	C7-C8-C9-CA
15	P	302	WUO	C82-C83-C84-C85
21	L	601	CDL	C52-C53-C54-C55
19	H	901	7PH	C35-C36-C37-C38
21	P	301	CDL	OB9-CB7-OB8-CB6
19	N	609	7PH	C35-C36-C37-C38
21	R	601	CDL	C51-C52-C53-C54
21	C	305	CDL	C51-C52-C53-C54
21	T	1302	CDL	C80-C81-C82-C83
22	Q	403	TRD	C6-C7-C8-C9
22	X	403	TRD	C6-C7-C8-C9
21	R	601	CDL	C35-C36-C37-C38
21	R	601	CDL	C59-C60-C61-C62
21	I	301	CDL	C58-C59-C60-C61
15	O	304	WUO	C71-C72-C73-C74
21	L	601	CDL	C11-C12-C13-C14
21	T	1302	CDL	O1-C1-CB2-OB2
21	H	904	CDL	C58-C59-C60-C61
21	J	501	CDL	C52-C51-CB5-OB6
21	T	1302	CDL	C53-C54-C55-C56
15	C	304	WUO	C20-C21-C22-C23
19	G	905	7PH	C23-C24-C25-C26
19	M	504	7PH	C23-C24-C25-C26
15	P	302	WUO	C56-C57-O58-C59
21	N	604	CDL	CA6-CA4-OA6-CA5
21	T	1302	CDL	CA3-CA4-OA6-CA5
23	S	503	3PE	C3-C2-O21-C21
23	J	503	3PE	C3-C2-O21-C21
18	W	201	9YF	C24-C-C1-O
18	b	201	9YF	C24-C-C1-O
21	R	605	CDL	OB5-CB3-CB4-CB6
14	O	303	MQ9	C47-C48-C49-C51
21	J	501	CDL	C53-C54-C55-C56
21	H	904	CDL	CA4-CA3-OA5-PA1
21	N	602	CDL	OA5-CA3-CA4-OA6

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Mol	Chain	Res	Type	Atoms
21	H	903	CDL	OA5-CA3-CA4-OA6
21	I	301	CDL	OA5-CA3-CA4-OA6
14	T	1301	MQ9	C25-C24-C26-C27
14	T	1301	MQ9	C23-C24-C26-C27
14	K	1301	MQ9	C13-C14-C16-C17
14	C	303	MQ9	C47-C48-C49-C51
29	b	202	PLM	C3-C4-C5-C6
21	I	301	CDL	OA6-CA4-CA6-OA8
21	I	302	CDL	C37-C38-C39-C40
21	N	604	CDL	CA3-OA5-PA1-OA2
21	L	601	CDL	CB2-OB2-PB2-OB5
21	H	905	CDL	C23-C24-C25-C26
15	I	303	WUO	O40-C41-C48-O49
21	C	305	CDL	C55-C56-C57-C58
21	J	501	CDL	CA3-CA4-CA6-OA8
21	J	501	CDL	CB3-CB4-CB6-OB8
21	I	301	CDL	C54-C55-C56-C57
28	W	202	9XX	C25-C26-C27-C36
17	G	903	IZL	C68-C69-C70-C74
15	O	304	WUO	C31-C01-O02-C03
15	I	303	WUO	C17-C18-C19-C20
21	I	301	CDL	C55-C56-C57-C58
21	L	601	CDL	C71-C72-C73-C74
21	R	605	CDL	C13-C14-C15-C16
21	I	302	CDL	C1-CA2-OA2-PA1
18	b	201	9YF	C26-C27-C28-C29
18	W	201	9YF	C26-C27-C28-C29
21	H	905	CDL	C24-C25-C26-C27
24	R	602	HEA	CAA-CBA-CGA-O2A
24	L	602	HEA	CAA-CBA-CGA-O2A
21	R	605	CDL	C52-C53-C54-C55
21	N	603	CDL	C12-C13-C14-C15
21	R	601	CDL	C34-C35-C36-C37
28	W	202	9XX	C11-C10-C9-C8
21	L	601	CDL	OA5-CA3-CA4-CA6
21	T	1302	CDL	OB5-CB3-CB4-OB6
14	T	1301	MQ9	C31-C32-C33-C34
28	Y	302	9XX	C7-C8-C9-C10
15	P	302	WUO	C84-C85-C86-C87
18	M	503	9YF	C18-C19-C20-C21
18	G	904	9YF	C18-C19-C20-C21
21	N	604	CDL	OA7-CA5-OA6-CA4

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Mol	Chain	Res	Type	Atoms
21	N	603	CDL	C72-C73-C74-C75
20	H	902	HEM	CAA-CBA-CGA-O1A
15	P	302	WUO	C21-C22-C23-C24
28	c	302	9XX	C23-C24-C25-C26
21	J	501	CDL	OA6-CA4-CA6-OA8
15	P	302	WUO	C20-C21-C22-C23
21	C	305	CDL	C71-CB7-OB8-CB6
21	N	603	CDL	C32-C31-CA7-OA8
15	P	302	WUO	C61-C62-C63-C64
20	N	607	HEM	CAA-CBA-CGA-O1A
29	W	203	PLM	C6-C7-C8-C9
13	O	301	HEC	CAD-CBD-CGD-O2D
13	C	301	HEC	CAD-CBD-CGD-O2D
21	R	601	CDL	C52-C51-CB5-OB6
28	c	302	9XX	C25-C26-C27-C36
21	T	1302	CDL	C34-C35-C36-C37
21	L	601	CDL	C55-C56-C57-C58
13	O	302	HEC	CAA-CBA-CGA-O2A
24	R	602	HEA	CAA-CBA-CGA-O1A
28	b	203	9XX	C18-C19-C20-C21
21	H	904	CDL	C72-C73-C74-C75
15	O	304	WUO	C68-C69-C70-C71
21	R	605	CDL	CB3-CB4-CB6-OB8
15	C	304	WUO	C31-C01-O02-C03
20	N	607	HEM	CAA-CBA-CGA-O2A
20	H	908	HEM	CAA-CBA-CGA-O1A
20	H	908	HEM	CAA-CBA-CGA-O2A
24	L	602	HEA	CAA-CBA-CGA-O1A
21	I	301	CDL	C12-C11-CA5-OA7
14	N	605	MQ9	C27-C28-C29-C30
14	H	906	MQ9	C27-C28-C29-C30
21	H	904	CDL	C12-C13-C14-C15
18	G	904	9YF	C35-C36-C37-C38
18	M	503	9YF	C35-C36-C37-C38
18	W	201	9YF	C2-O2-P-O1
18	b	201	9YF	C2-O2-P-O1
17	M	502	IZL	C46-C45-O34-C60
21	T	1302	CDL	CA6-CA4-OA6-CA5
21	H	905	CDL	CB3-CB4-OB6-CB5
21	H	905	CDL	CB6-CB4-OB6-CB5
14	N	605	MQ9	C12-C11-C9-C10
14	N	608	MQ9	C35-C34-C36-C37

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Mol	Chain	Res	Type	Atoms
14	H	909	MQ9	C35-C34-C36-C37
14	N	608	MQ9	C33-C34-C36-C37
14	H	909	MQ9	C33-C34-C36-C37
18	M	503	9YF	C31-C32-C33-C35
18	G	904	9YF	C31-C32-C33-C35
28	b	203	9XX	C19-C20-C21-C22
21	C	305	CDL	C14-C15-C16-C17
21	N	603	CDL	CA4-CA3-OA5-PA1
21	C	305	CDL	OB9-CB7-OB8-CB6
28	W	202	9XX	C12-C13-C14-C15
19	N	609	7PH	O11-C1-C2-O21
19	H	901	7PH	O11-C1-C2-O21
21	I	301	CDL	C33-C34-C35-C36
18	G	904	9YF	C24-C-C1-O
14	N	606	MQ9	C27-C28-C29-C30
14	H	907	MQ9	C27-C28-C29-C30
14	H	906	MQ9	C12-C11-C9-C10
21	J	501	CDL	CB7-C71-C72-C73
13	O	301	HEC	CAD-CBD-CGD-O1D
13	C	301	HEC	CAD-CBD-CGD-O1D
21	C	305	CDL	C74-C75-C76-C77
21	R	605	CDL	CB4-CB6-OB8-CB7
28	b	203	9XX	C5-C6-C7-C8
20	N	601	HEM	CAA-CBA-CGA-O2A
22	K	1302	TRD	C11-C10-C9-C8
17	G	903	IZL	C14-C43-O28-P
14	T	1301	MQ9	C34-C36-C37-C38
13	C	302	HEC	CAA-CBA-CGA-O2A
20	H	902	HEM	CAA-CBA-CGA-O2A
14	K	1301	MQ9	C20-C19-C21-C22
22	T	1303	TRD	C11-C10-C9-C8
15	P	302	WUO	C91-C92-C93-C94
17	G	903	IZL	C61-C62-C63-C64
21	N	603	CDL	C71-CB7-OB8-CB6
22	L	607	TRD	C10-C11-C12-C13
15	O	304	WUO	C50-C01-O02-C03
18	W	201	9YF	C36-C37-C38-C39
22	R	608	TRD	C10-C11-C12-C13
21	N	604	CDL	C11-CA5-OA6-CA4
21	N	603	CDL	OB9-CB7-OB8-CB6
21	R	601	CDL	O1-C1-CB2-OB2
18	b	201	9YF	C36-C37-C38-C39

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Mol	Chain	Res	Type	Atoms
17	M	502	IZL	C3-C4-C5-C6
21	R	605	CDL	C56-C57-C58-C59
14	K	1301	MQ9	C15-C14-C16-C17
21	I	302	CDL	C12-C13-C14-C15
13	C	302	HEC	CAA-CBA-CGA-O1A
24	R	603	HEA	CAD-CBD-CGD-O2D
15	O	304	WUO	C50-C37-O38-C39
21	H	905	CDL	C79-C80-C81-C82
21	L	601	CDL	C36-C37-C38-C39
14	N	608	MQ9	C41-C42-C43-C44
14	H	909	MQ9	C41-C42-C43-C44
22	T	1303	TRD	C4-C5-C6-C7
22	K	1302	TRD	C4-C5-C6-C7
21	R	605	CDL	C52-C51-CB5-OB6
28	W	202	9XX	C3-C4-C5-C6
19	M	504	7PH	O11-C1-C2-O21
19	G	905	7PH	O11-C1-C2-O21
21	T	1302	CDL	C78-C79-C80-C81
24	L	603	HEA	CAD-CBD-CGD-O2D
19	H	901	7PH	O31-C31-C32-C33
13	O	302	HEC	CAA-CBA-CGA-O1A
21	I	301	CDL	C73-C74-C75-C76
21	T	1302	CDL	OB5-CB3-CB4-CB6
19	N	609	7PH	O31-C31-C32-C33
14	N	605	MQ9	C24-C26-C27-C28
14	H	906	MQ9	C24-C26-C27-C28
20	N	601	HEM	CAA-CBA-CGA-O1A
24	R	602	HEA	CAD-CBD-CGD-O1D
24	L	602	HEA	CAD-CBD-CGD-O1D
18	G	904	9YF	C2-O2-P-O
21	H	905	CDL	C54-C55-C56-C57
18	M	503	9YF	C36-C37-C38-C39
18	G	904	9YF	C36-C37-C38-C39
28	W	202	9XX	C7-C8-C9-C10
14	T	1301	MQ9	C7-C8-C9-C11
15	I	303	WUO	O58-C59-C61-C62
21	J	501	CDL	C72-C71-CB7-OB8
21	J	501	CDL	C80-C81-C82-C83
14	K	1301	MQ9	C26-C27-C28-C29
28	W	202	9XX	C13-C14-C15-O
21	I	302	CDL	C39-C40-C41-C42
14	K	1301	MQ9	C18-C19-C21-C22

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Mol	Chain	Res	Type	Atoms
19	S	501	7PH	C24-C25-C26-C27
21	N	604	CDL	C54-C55-C56-C57
21	N	604	CDL	C74-C75-C76-C77
21	H	903	CDL	C13-C14-C15-C16
24	R	603	HEA	CAD-CBD-CGD-O1D
15	P	302	WUO	C31-C01-O02-C03
21	P	301	CDL	C33-C34-C35-C36
21	J	501	CDL	C13-C14-C15-C16
29	W	203	PLM	C7-C8-C9-CA
21	H	904	CDL	C73-C74-C75-C76
21	N	602	CDL	C13-C14-C15-C16
24	L	603	HEA	CAD-CBD-CGD-O1D
17	M	502	IZL	O1-C10-C9-C8
18	W	201	9YF	C11-C12-C13-C14
21	N	602	CDL	C55-C56-C57-C58
21	R	601	CDL	C56-C57-C58-C59
21	H	903	CDL	C55-C56-C57-C58
24	R	602	HEA	CAD-CBD-CGD-O2D
18	b	201	9YF	C11-C12-C13-C14
21	C	305	CDL	C72-C71-CB7-OB8
21	T	1302	CDL	C52-C53-C54-C55
24	L	602	HEA	CAD-CBD-CGD-O2D
18	W	201	9YF	C18-C19-C20-C21
18	b	201	9YF	C18-C19-C20-C21
18	M	503	9YF	C2-O2-P-O
21	J	501	CDL	O1-C1-CB2-OB2
14	N	605	MQ9	C27-C28-C29-C31
14	H	906	MQ9	C27-C28-C29-C31
17	M	502	IZL	C15-C14-O3-C13
22	J	502	TRD	C9-C10-C11-C12
22	S	502	TRD	C9-C10-C11-C12
23	S	503	3PE	C22-C23-C24-C25
18	M	503	9YF	C24-C-C1-O
21	H	904	CDL	OB5-CB3-CB4-CB6
21	I	302	CDL	OA5-CA3-CA4-CA6
13	O	301	HEC	CAA-CBA-CGA-O1A
13	C	301	HEC	CAA-CBA-CGA-O1A
21	P	301	CDL	C35-C36-C37-C38
21	H	905	CDL	C71-C72-C73-C74
28	Y	302	9XX	O1-C18-C19-C20
21	P	301	CDL	OB6-CB4-CB6-OB8
28	W	202	9XX	C-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
15	P	302	WUO	C57-C56-O55-P52
15	P	302	WUO	O13-C14-C16-C17
28	c	302	9XX	C13-C14-C15-O
14	O	303	MQ9	C29-C31-C32-C33
14	C	303	MQ9	C29-C31-C32-C33
14	K	1301	MQ9	C34-C36-C37-C38
21	I	301	CDL	C11-C12-C13-C14
15	I	303	WUO	O13-C14-C16-C17
28	c	302	9XX	C7-C8-C9-C10
14	M	505	MQ9	C11-C12-C13-C14
14	M	505	MQ9	C31-C32-C33-C34
14	N	605	MQ9	C11-C12-C13-C14
14	G	901	MQ9	C11-C12-C13-C14
14	G	901	MQ9	C31-C32-C33-C34
14	H	906	MQ9	C11-C12-C13-C14
14	K	1301	MQ9	C31-C32-C33-C34
22	S	502	TRD	C7-C8-C9-C10
21	R	605	CDL	C18-C19-C20-C21
22	J	502	TRD	C7-C8-C9-C10
15	P	302	WUO	O15-C14-C16-C17
21	C	305	CDL	C72-C71-CB7-OB9
21	N	603	CDL	C59-C60-C61-C62
15	C	304	WUO	C19-C20-C21-C22
19	M	504	7PH	C33-C34-C35-C36
19	G	905	7PH	C33-C34-C35-C36
19	M	504	7PH	C27-C28-C29-C2A
19	G	905	7PH	C27-C28-C29-C2A
28	W	202	9XX	C2-C3-C4-C5
15	I	303	WUO	O15-C14-C16-C17
15	I	303	WUO	O60-C59-C61-C62
28	W	202	9XX	C13-C14-C15-O6
22	R	608	TRD	C5-C6-C7-C8
22	L	607	TRD	C5-C6-C7-C8
17	M	502	IZL	C44-C45-C46-O32
21	P	301	CDL	CA3-CA4-CA6-OA8
17	M	502	IZL	C43-C14-O3-C13
19	S	501	7PH	C32-C33-C34-C35
28	c	302	9XX	C13-C14-C15-O6
15	O	304	WUO	C35-C37-O38-C39
13	C	301	HEC	CAA-CBA-CGA-O2A
17	G	903	IZL	C1-C2-C3-C4
21	T	1302	CDL	C31-C32-C33-C34

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Mol	Chain	Res	Type	Atoms
23	J	503	3PE	C22-C23-C24-C25
21	L	601	CDL	CA4-CA3-OA5-PA1
21	N	604	CDL	C75-C76-C77-C78
13	O	302	HEC	CAD-CBD-CGD-O2D
15	C	304	WUO	C56-O55-P52-O54
21	N	602	CDL	CB3-OB5-PB2-OB3
21	N	604	CDL	CB3-OB5-PB2-OB3
21	P	301	CDL	CA3-OA5-PA1-OA3
21	C	305	CDL	CA2-OA2-PA1-OA3
21	H	903	CDL	CB3-OB5-PB2-OB3
21	H	904	CDL	CB3-OB5-PB2-OB3
21	I	302	CDL	CA2-OA2-PA1-OA4
21	J	501	CDL	CA3-OA5-PA1-OA3
21	L	601	CDL	CB2-OB2-PB2-OB3
23	S	503	3PE	C11-O13-P-O14
23	J	503	3PE	C11-O13-P-O14
21	H	904	CDL	CA5-C11-C12-C13
21	J	501	CDL	C72-C71-CB7-OB9
28	Y	302	9XX	O2-C18-C19-C20
13	O	301	HEC	CAA-CBA-CGA-O2A
15	P	302	WUO	C50-C01-O02-C03
17	M	502	IZL	C49-C50-C51-C52
22	R	608	TRD	C4-C5-C6-C7
22	L	607	TRD	C4-C5-C6-C7
21	L	601	CDL	C17-C18-C19-C20
21	J	501	CDL	C83-C84-C85-C86
14	N	606	MQ9	C36-C37-C38-C39
14	H	907	MQ9	C36-C37-C38-C39
17	M	502	IZL	C44-C45-O34-C60
24	R	602	HEA	C3B-C11-C12-C13
24	L	602	HEA	C3B-C11-C12-C13
24	L	603	HEA	C3B-C11-C12-C13
17	M	502	IZL	O-C10-C9-C8
14	N	606	MQ9	C42-C43-C44-C45
14	H	907	MQ9	C42-C43-C44-C45
19	H	901	7PH	C31-C32-C33-C34
21	T	1302	CDL	CB4-CB3-OB5-PB2
21	I	301	CDL	CA4-CA3-OA5-PA1
14	M	505	MQ9	C25-C24-C26-C27
14	G	901	MQ9	C25-C24-C26-C27
14	N	605	MQ9	C12-C11-C9-C8
14	H	906	MQ9	C12-C11-C9-C8

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Mol	Chain	Res	Type	Atoms
24	R	603	HEA	O11-C11-C3B-C2B
13	C	302	HEC	CAD-CBD-CGD-O2D
24	L	603	HEA	CAA-CBA-CGA-O1A
21	R	605	CDL	C32-C31-CA7-OA8
15	C	304	WUO	C50-C01-O02-C03
19	N	609	7PH	C31-C32-C33-C34
19	S	501	7PH	C26-C27-C28-C29
21	I	301	CDL	C72-C71-CB7-OB8
28	Y	302	9XX	C13-C14-C15-O
14	K	1301	MQ9	C9-C11-C12-C13
24	R	603	HEA	CAA-CBA-CGA-O1A
21	C	305	CDL	O1-C1-CB2-OB2
21	L	601	CDL	C32-C31-CA7-OA8

There are no ring outliers.

56 monomers are involved in 366 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
14	O	303	MQ9	3	0
18	W	201	9YF	1	0
21	C	305	CDL	10	0
14	H	906	MQ9	7	0
19	N	609	7PH	9	0
22	Q	403	TRD	1	0
14	H	907	MQ9	43	0
14	N	606	MQ9	46	0
15	I	303	WUO	2	0
23	S	503	3PE	4	0
14	K	1301	MQ9	8	0
21	R	601	CDL	2	0
21	T	1302	CDL	8	0
21	J	501	CDL	7	0
29	W	203	PLM	1	0
19	H	901	7PH	10	0
21	I	301	CDL	5	0
13	O	302	HEC	2	0
14	M	505	MQ9	49	0
15	C	304	WUO	4	0
18	G	904	9YF	4	0
18	M	503	9YF	3	0
21	P	301	CDL	5	0
13	C	302	HEC	3	0

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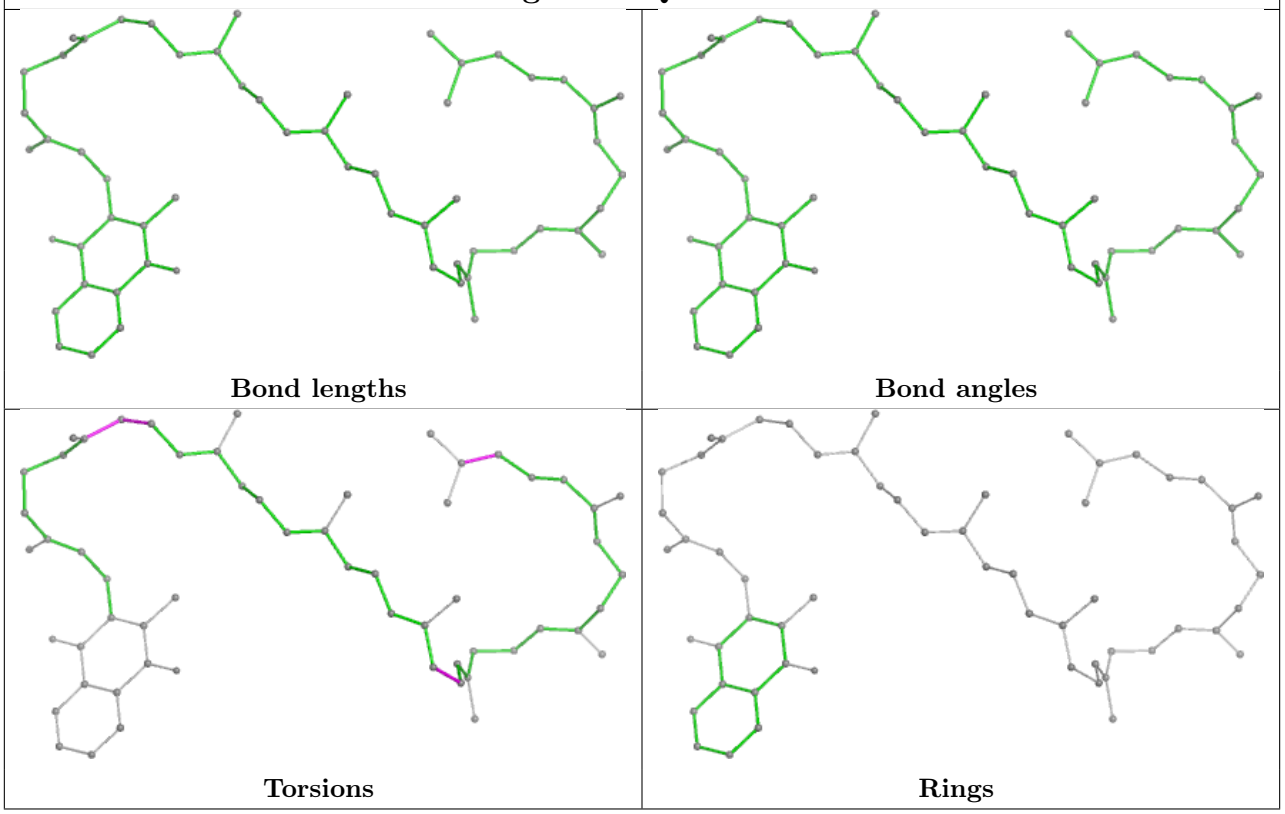
Mol	Chain	Res	Type	Clashes	Symm-Clashes
14	T	1301	MQ9	12	0
24	L	602	HEA	3	0
19	M	504	7PH	5	0
21	H	904	CDL	3	0
14	H	909	MQ9	7	0
20	H	902	HEM	4	0
19	S	501	7PH	2	0
14	N	608	MQ9	8	0
14	C	303	MQ9	2	0
21	L	601	CDL	8	0
24	L	603	HEA	3	0
22	R	609	TRD	1	0
22	L	608	TRD	1	0
14	N	605	MQ9	7	0
21	H	903	CDL	27	0
17	G	903	IZL	2	0
21	H	905	CDL	8	0
23	J	503	3PE	1	0
19	G	905	7PH	5	0
21	N	602	CDL	26	0
21	N	603	CDL	2	0
21	R	605	CDL	3	0
22	X	403	TRD	1	0
24	R	603	HEA	10	0
15	P	302	WUO	4	0
15	O	304	WUO	7	0
21	N	604	CDL	4	0
21	I	302	CDL	5	0
22	S	502	TRD	4	0
24	R	602	HEA	3	0
22	J	502	TRD	4	0
14	G	901	MQ9	47	0

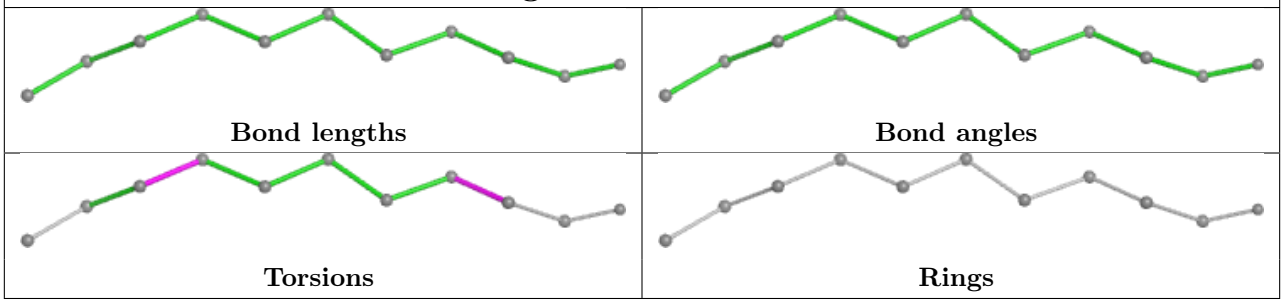
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

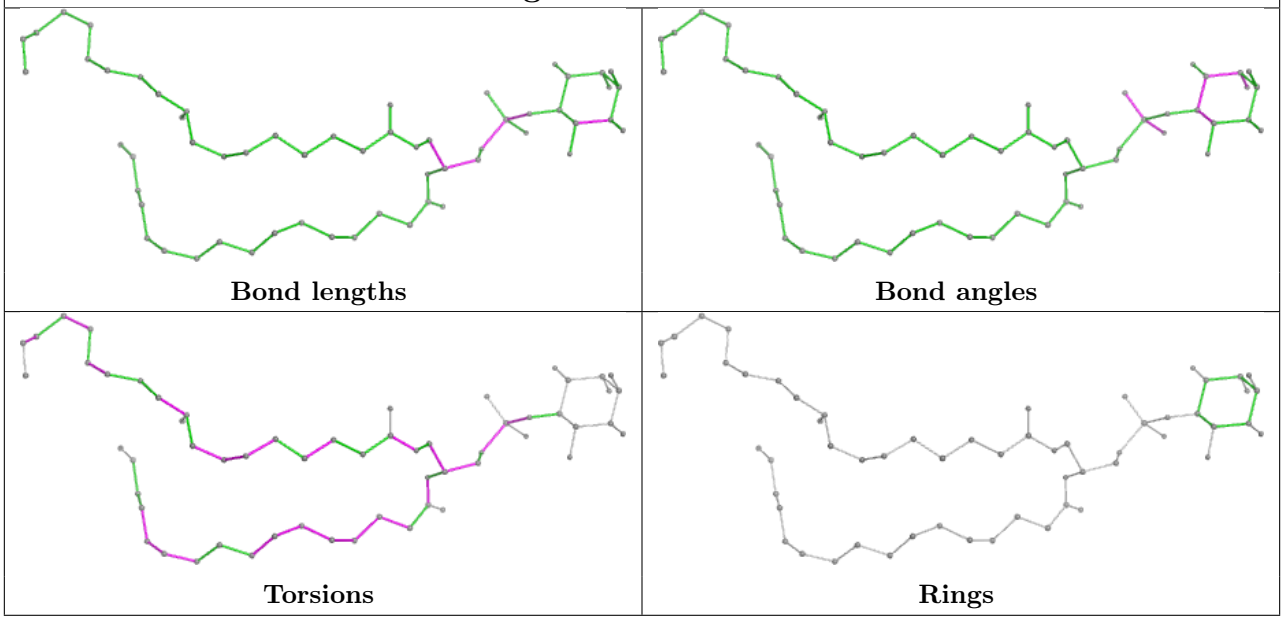
Ligand MQ9 O 303



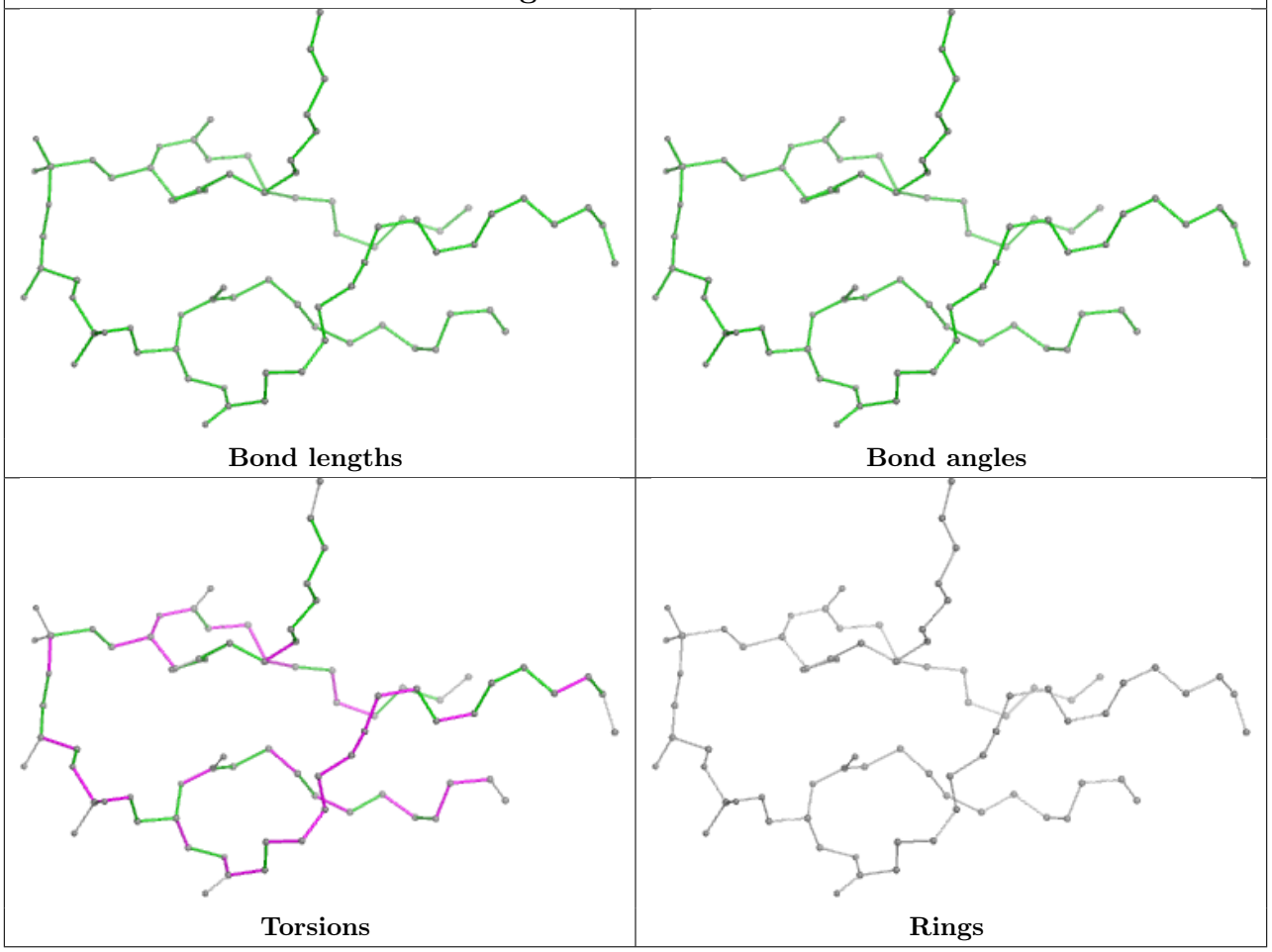
Ligand PLM Y 301



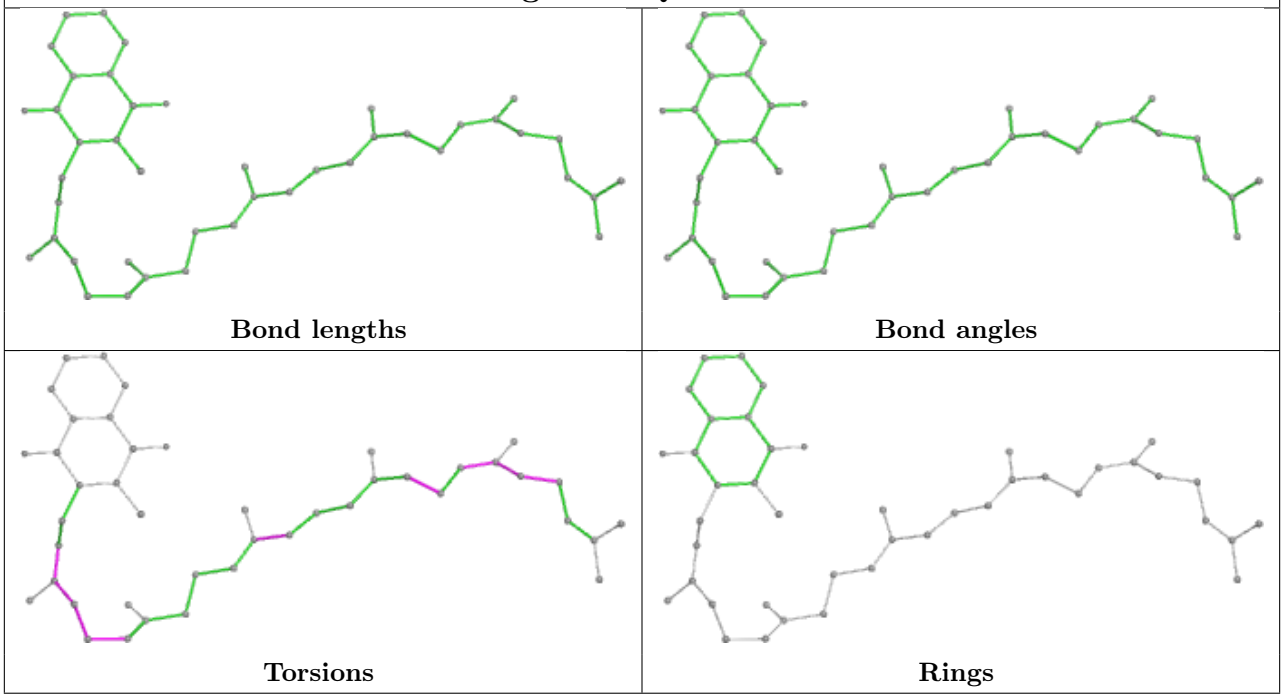
Ligand 9YF W 201



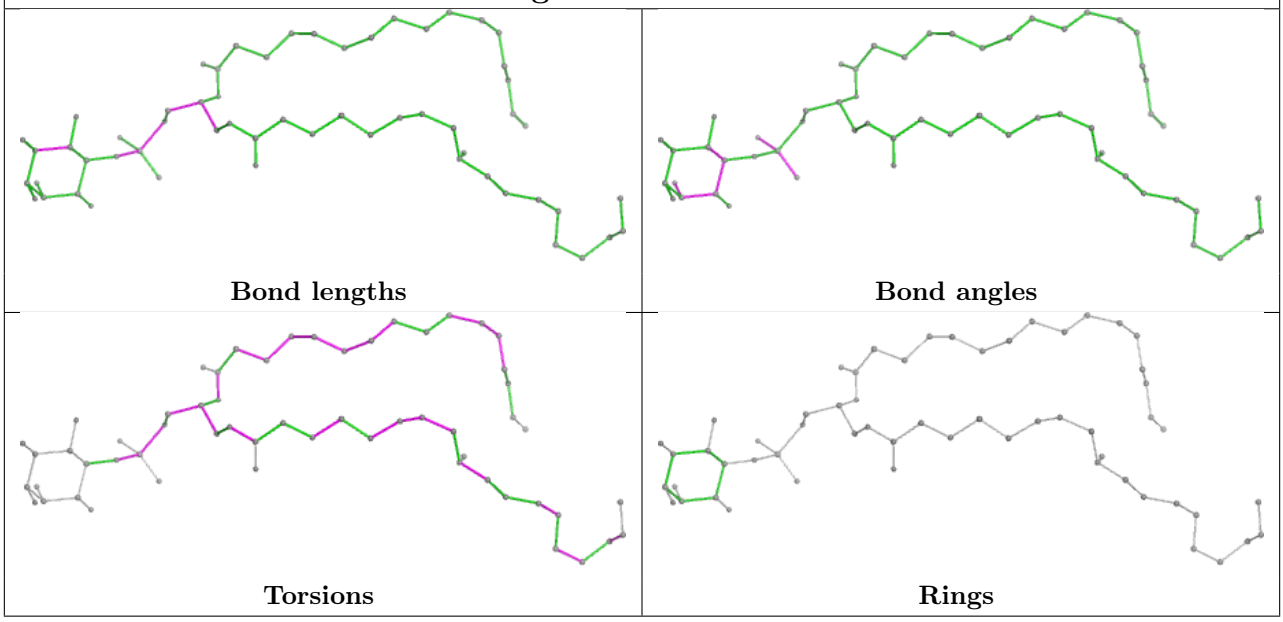
Ligand CDL C 305



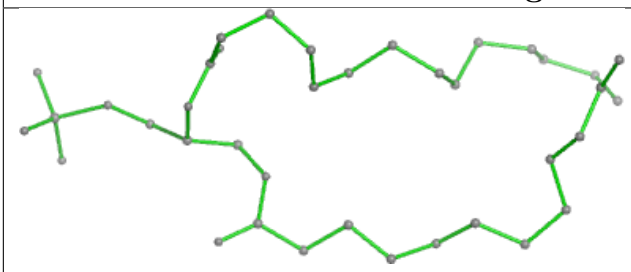
Ligand MQ9 H 906



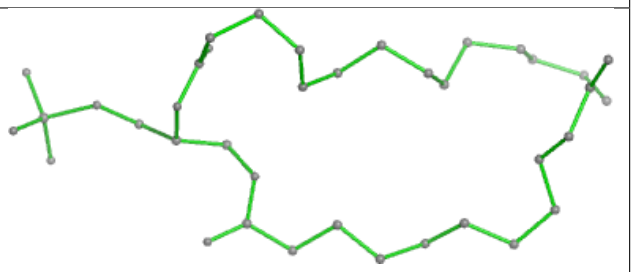
Ligand 9YF b 201



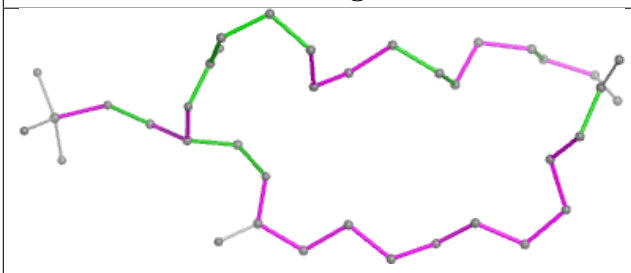
Ligand 7PH N 609



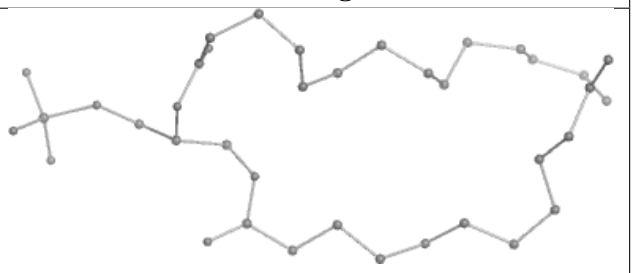
Bond lengths



Bond angles

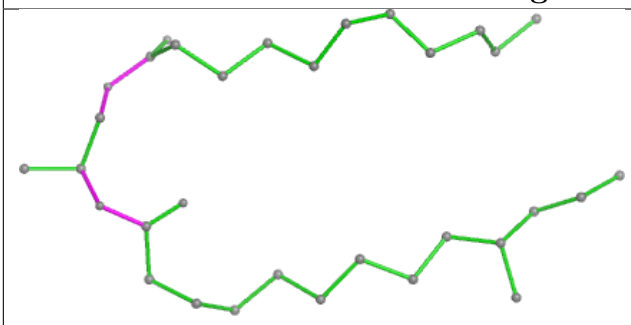


Torsions

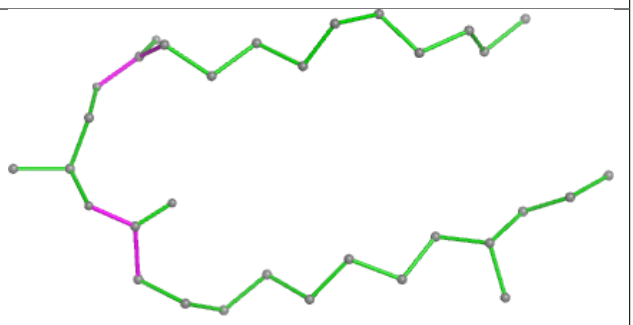


Rings

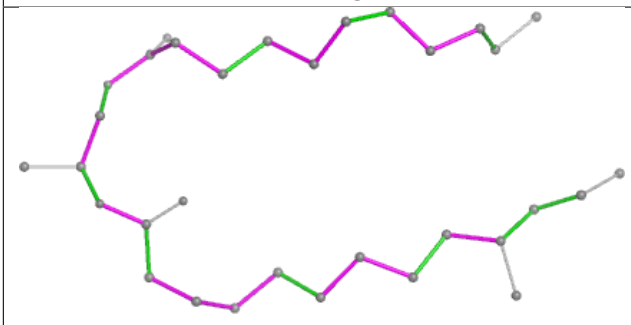
Ligand 9XX c 302



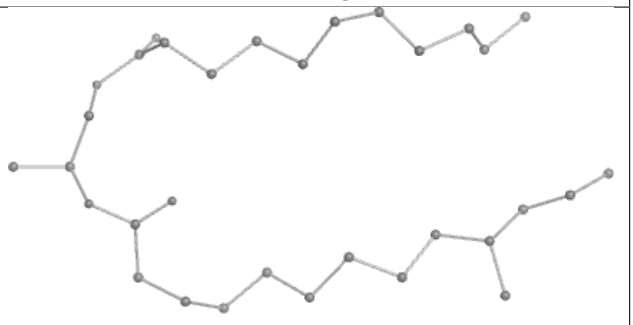
Bond lengths



Bond angles

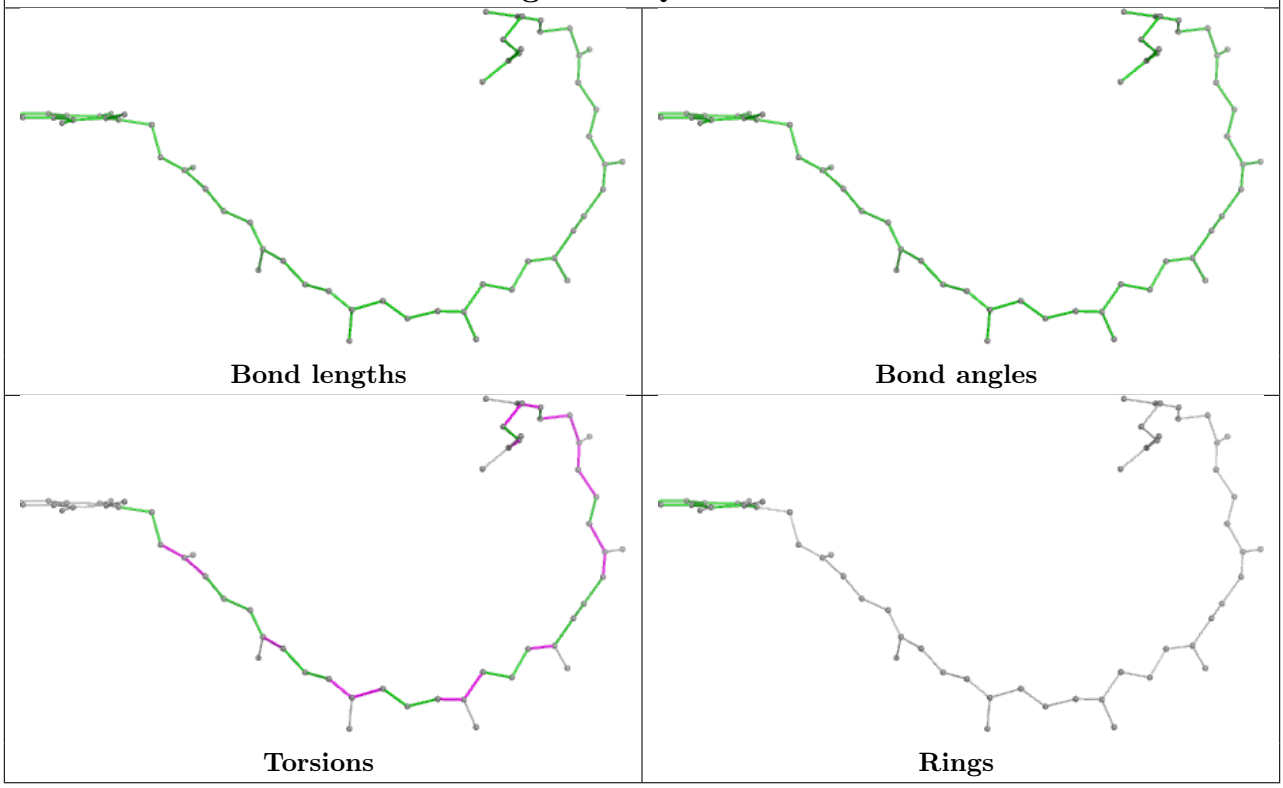


Torsions

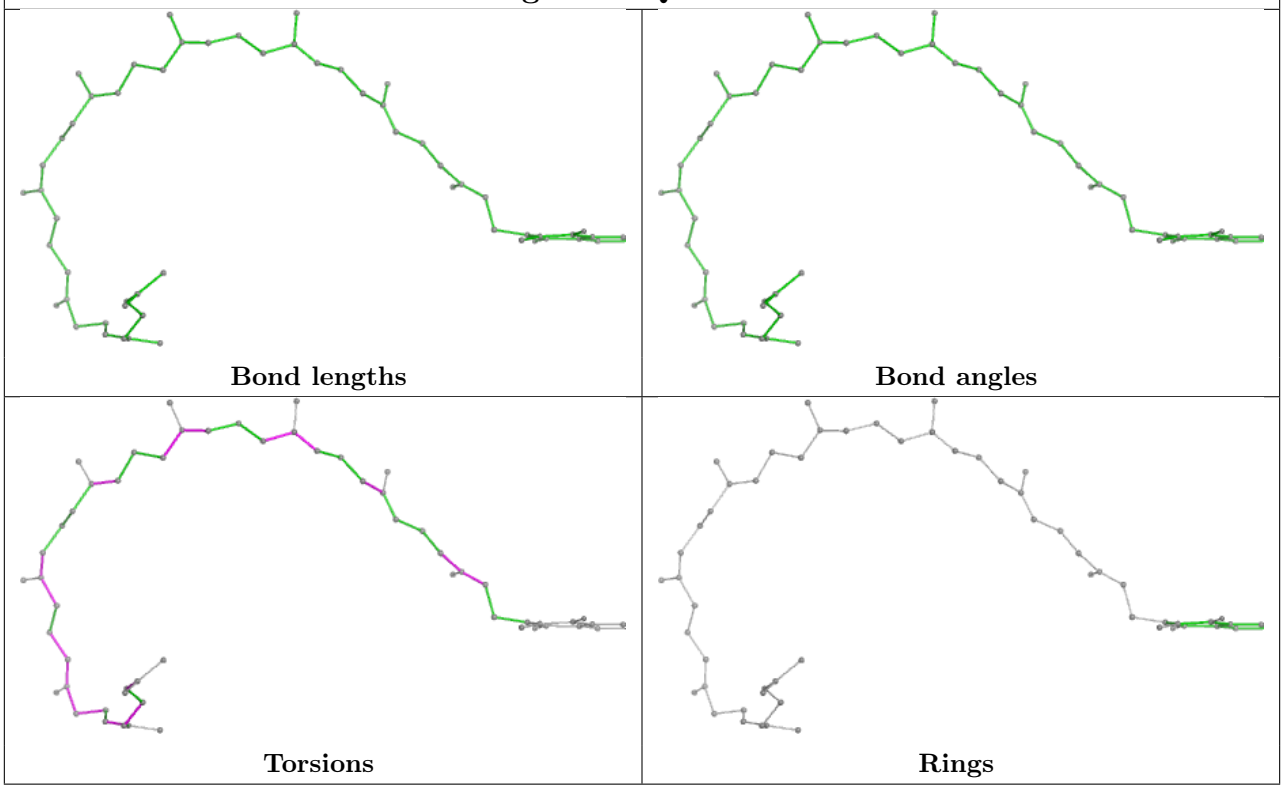


Rings

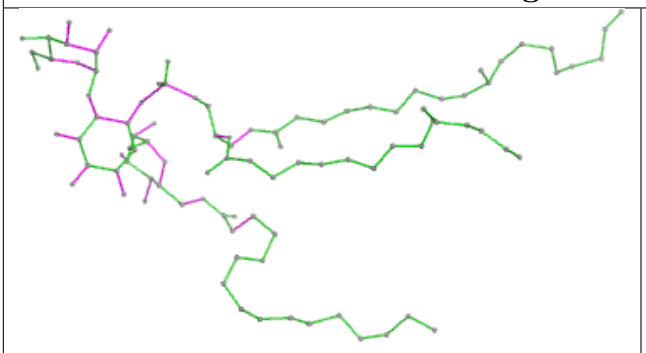
Ligand MQ9 H 907



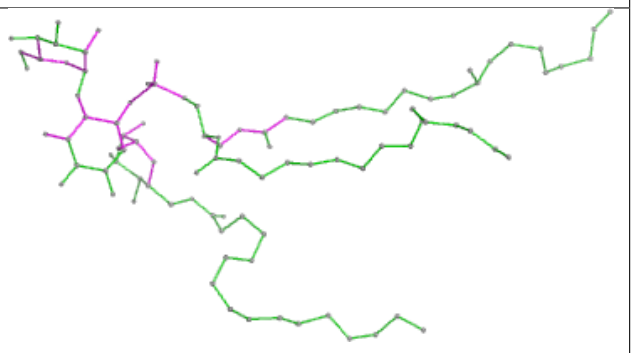
Ligand MQ9 N 606



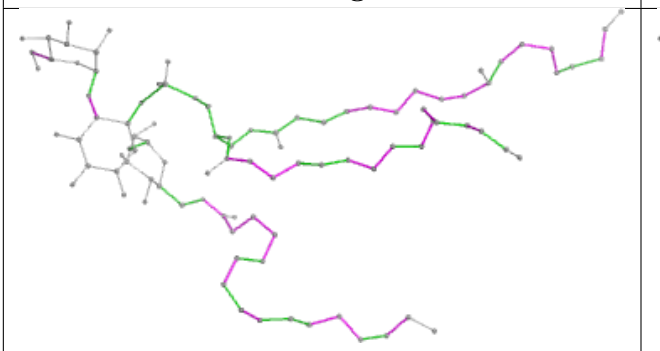
Ligand WUO I 303



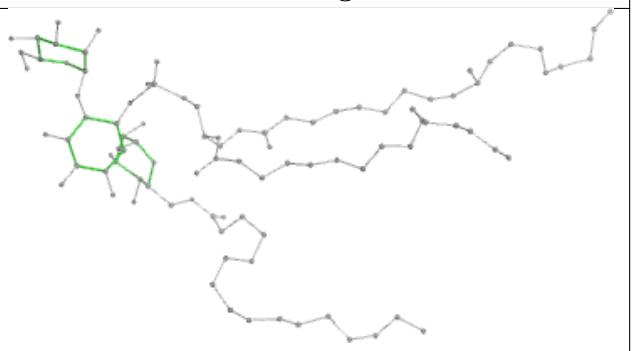
Bond lengths



Bond angles

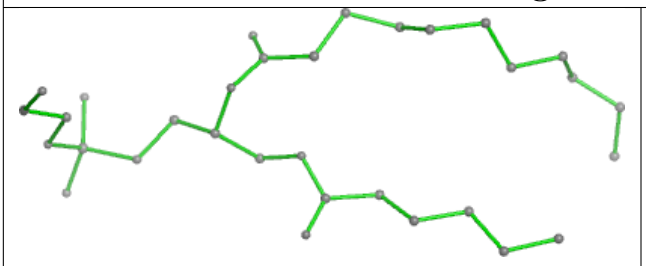


Torsions

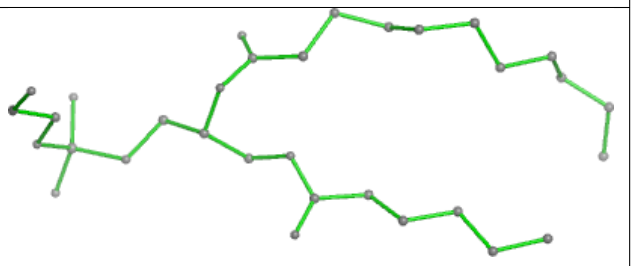


Rings

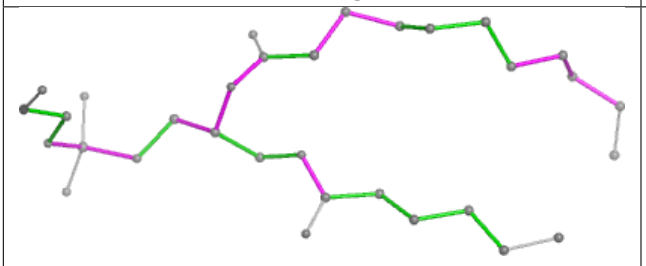
Ligand 3PE S 503



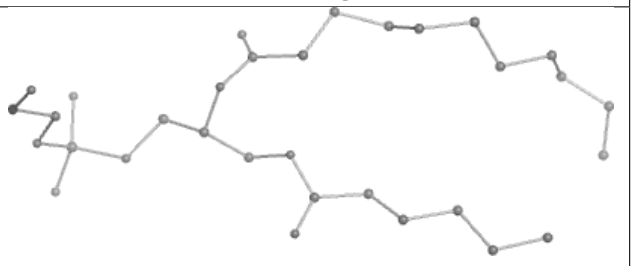
Bond lengths



Bond angles

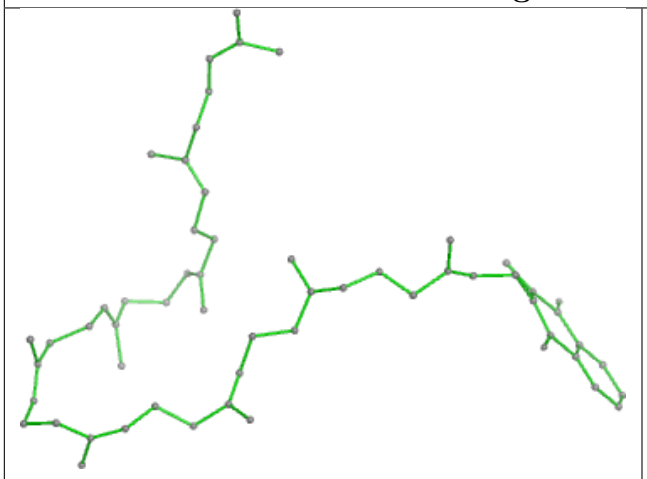


Torsions

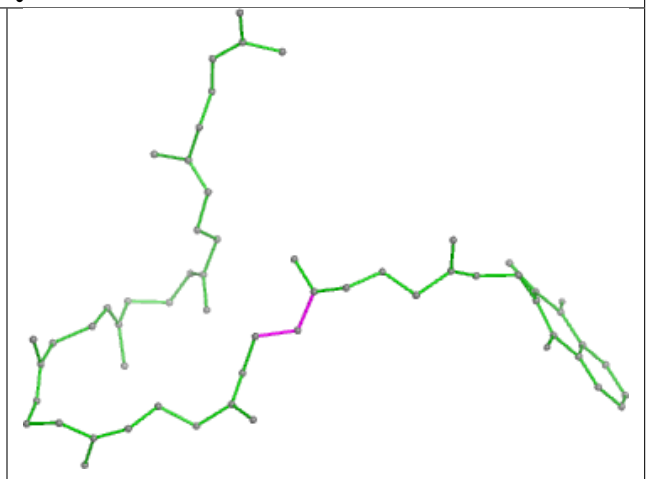


Rings

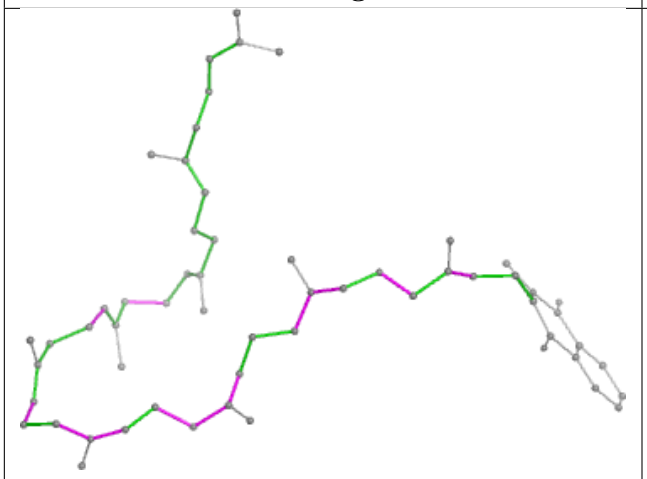
Ligand MQ9 K 1301



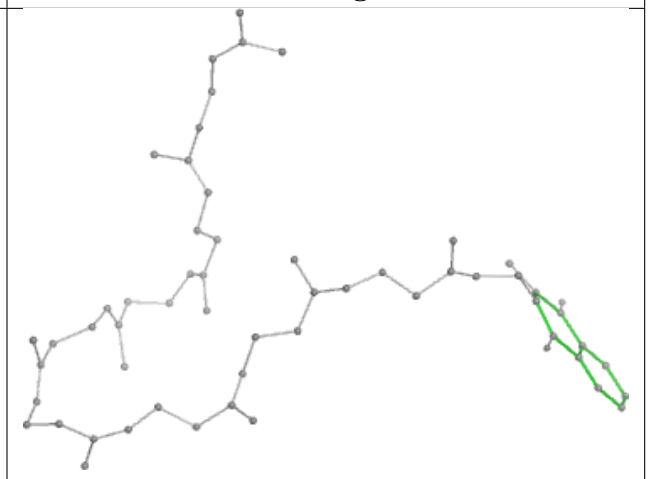
Bond lengths



Bond angles

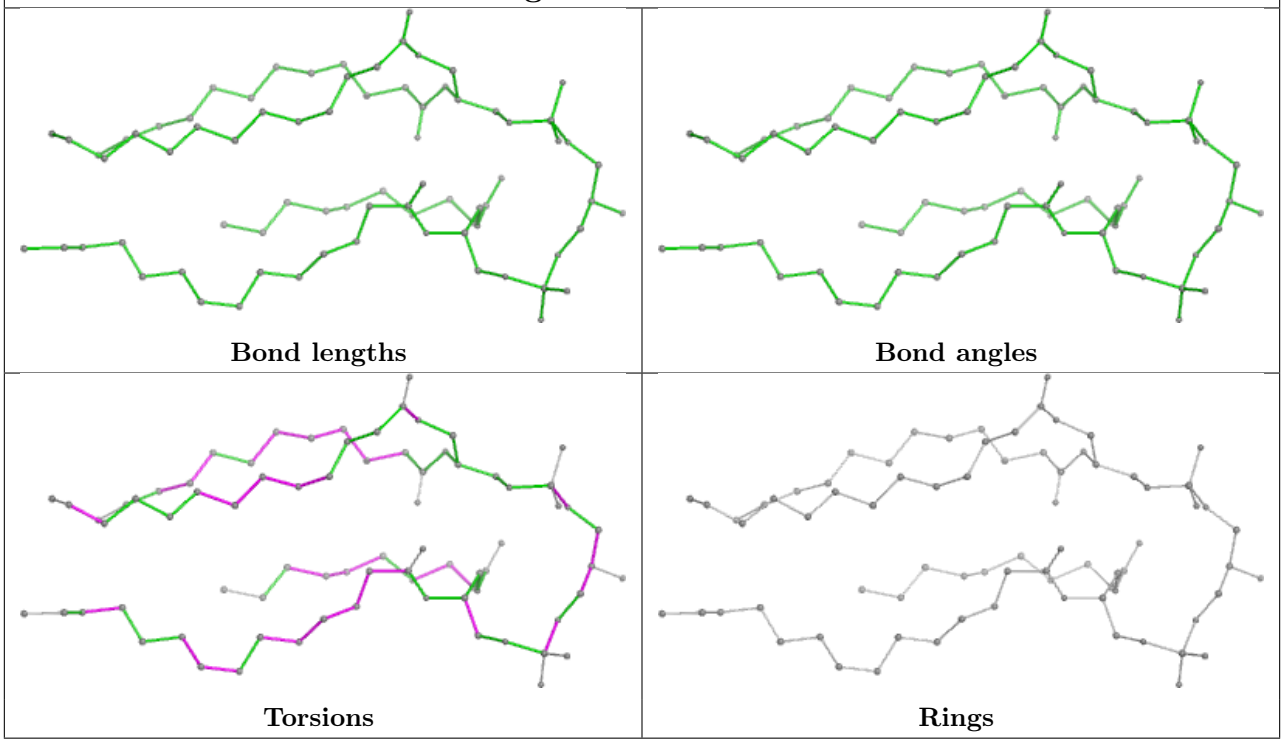


Torsions

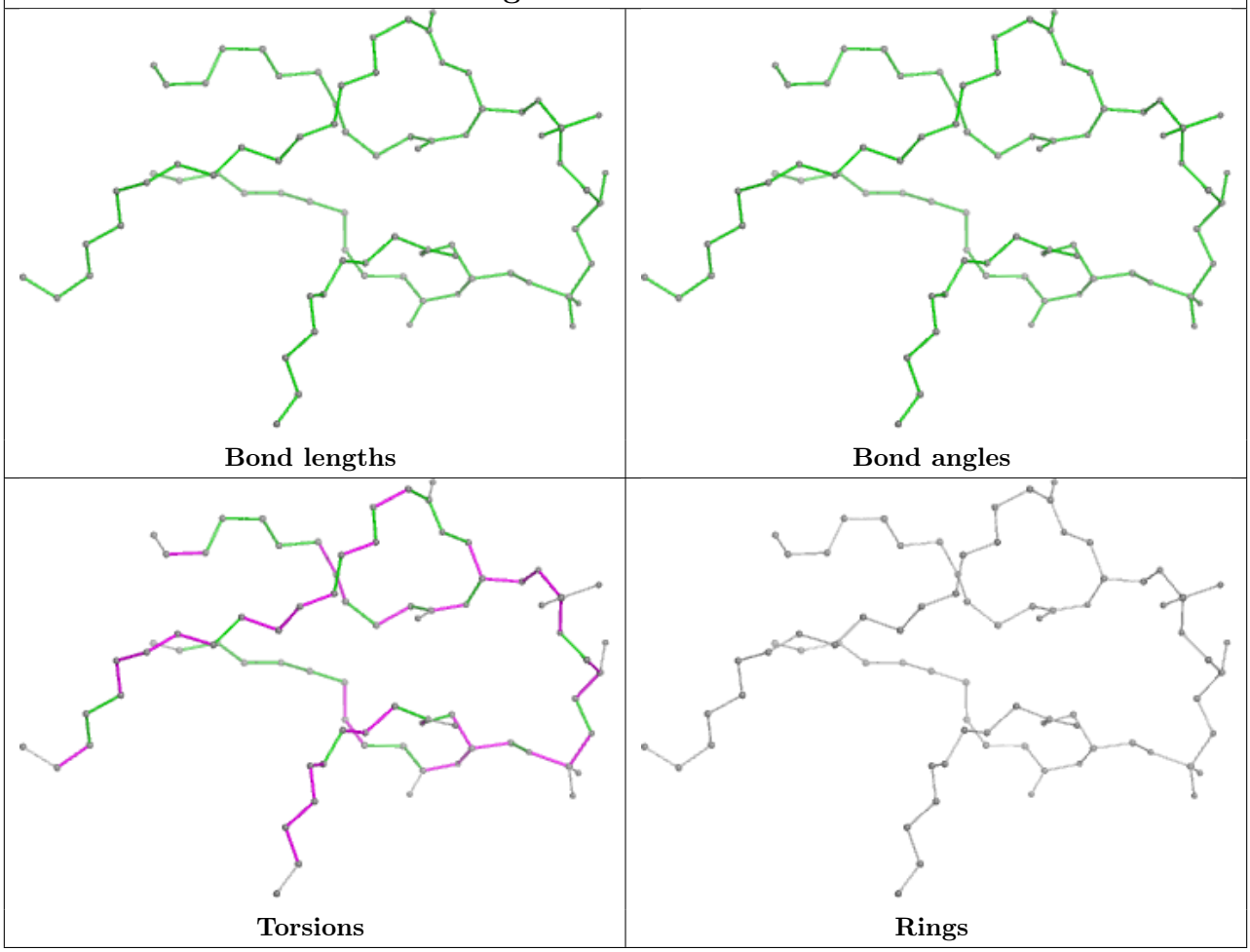


Rings

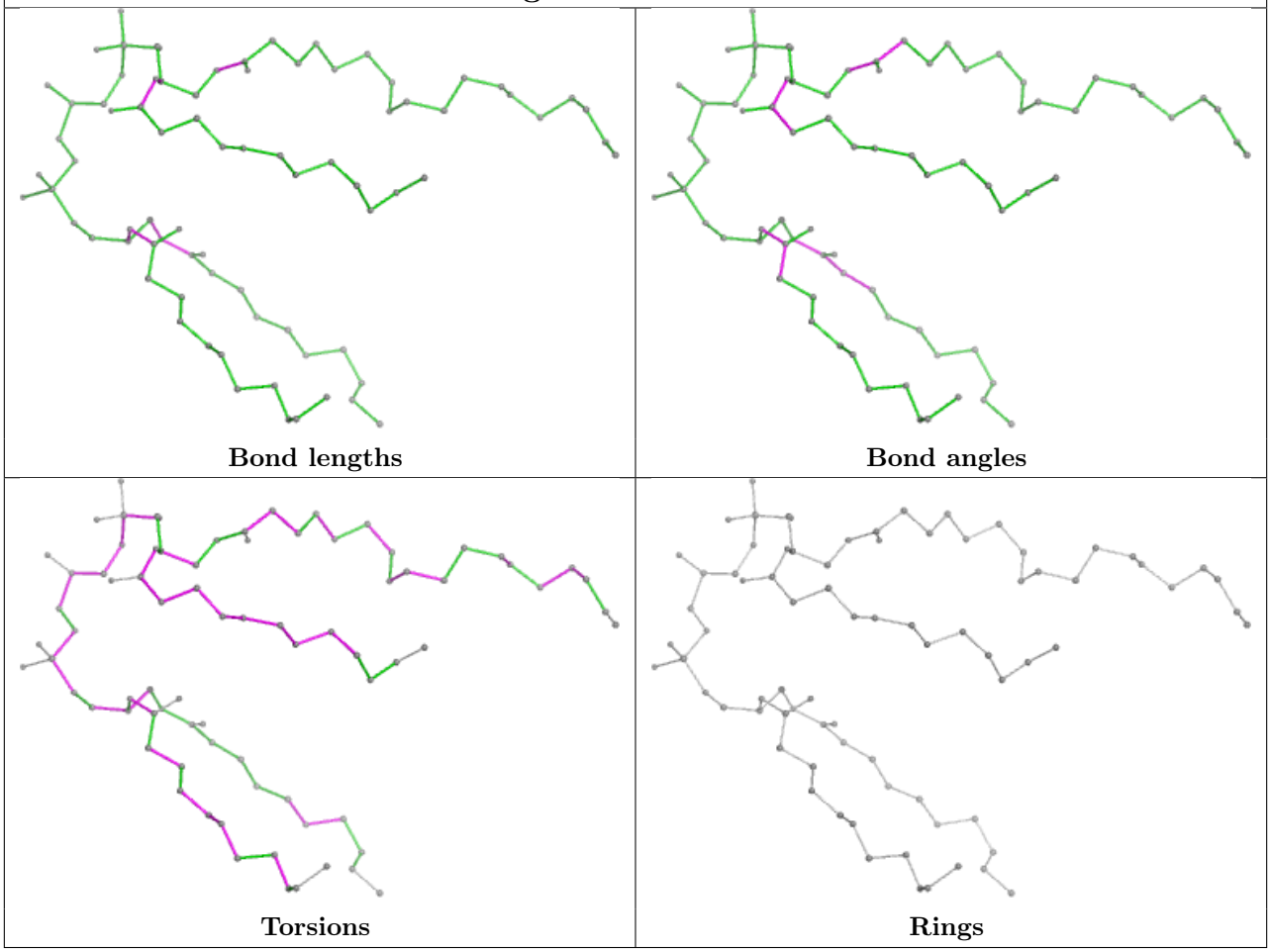
Ligand CDL R 601



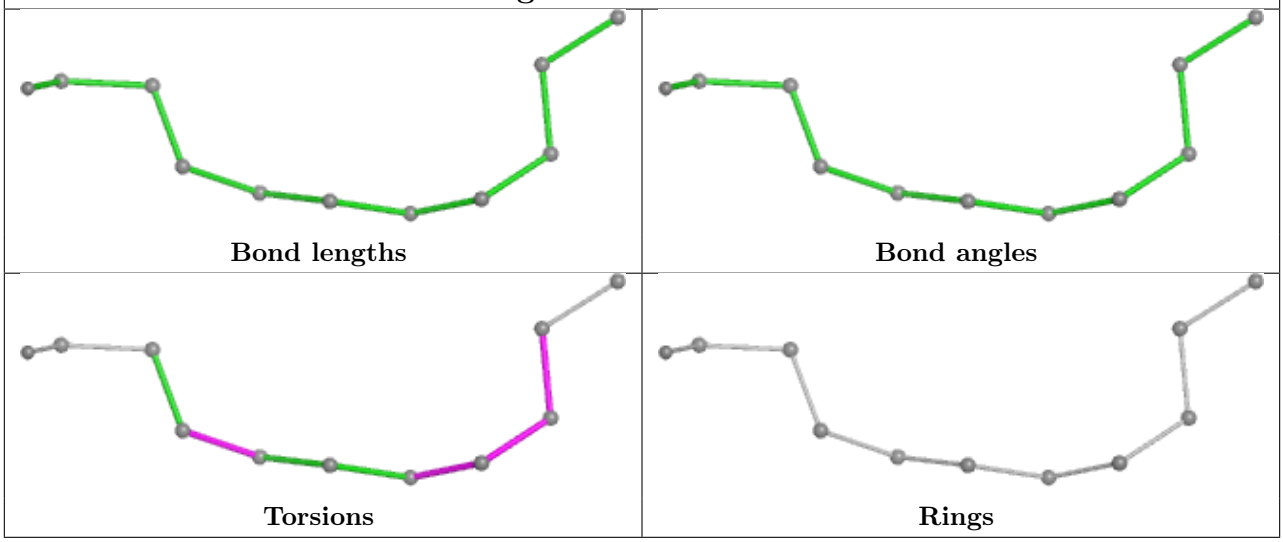
Ligand CDL T 1302



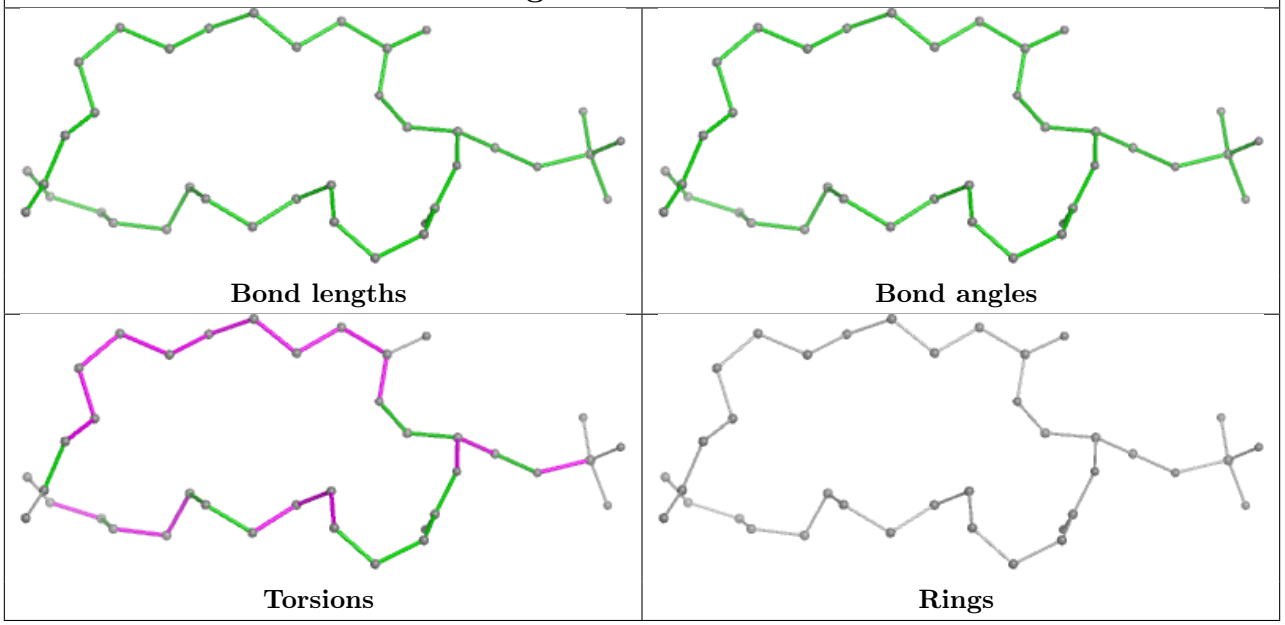
Ligand CDL J 501



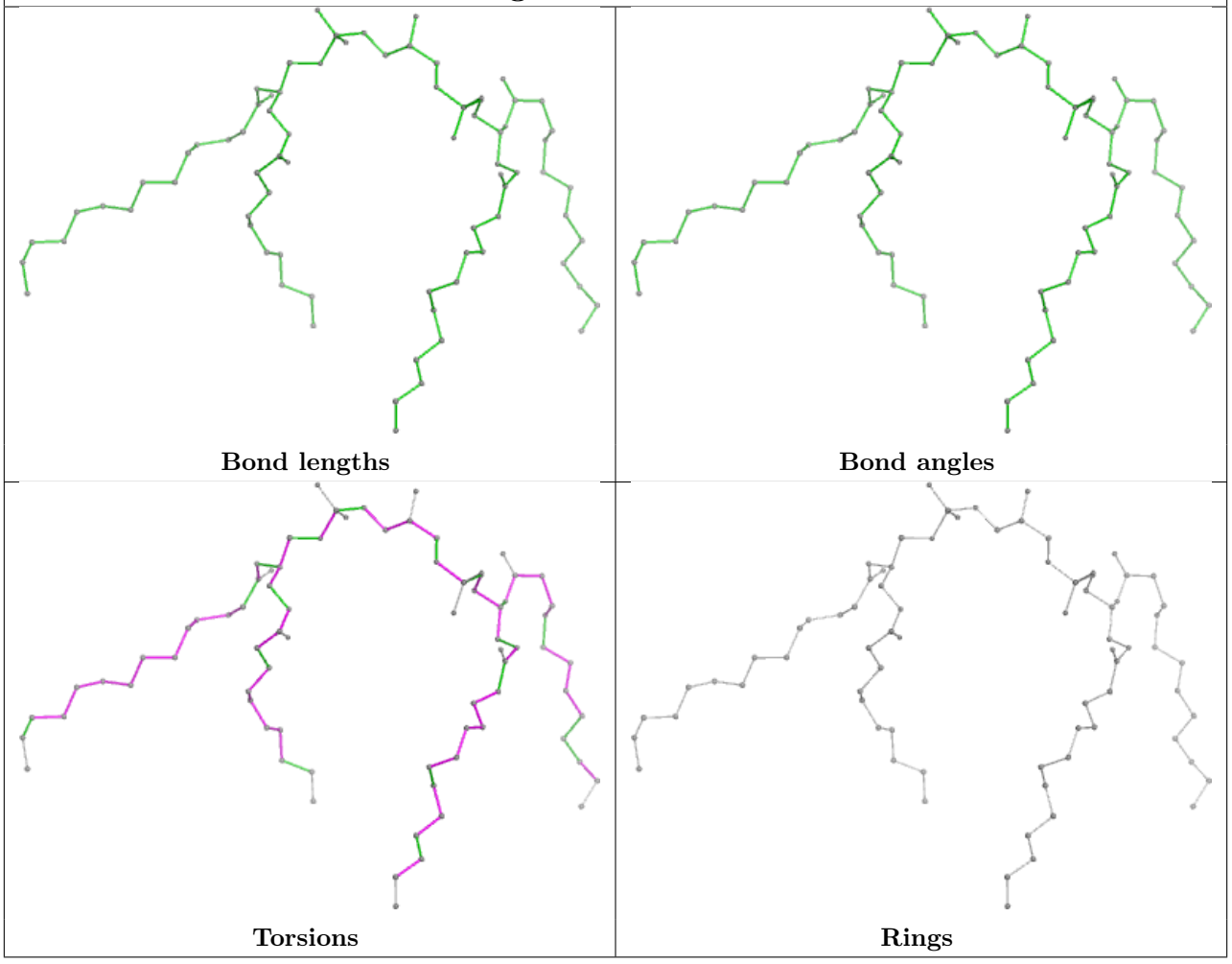
Ligand PLM W 203



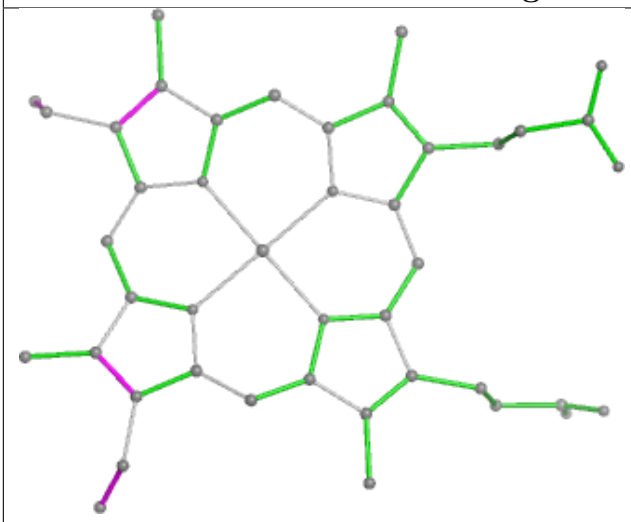
Ligand 7PH H 901



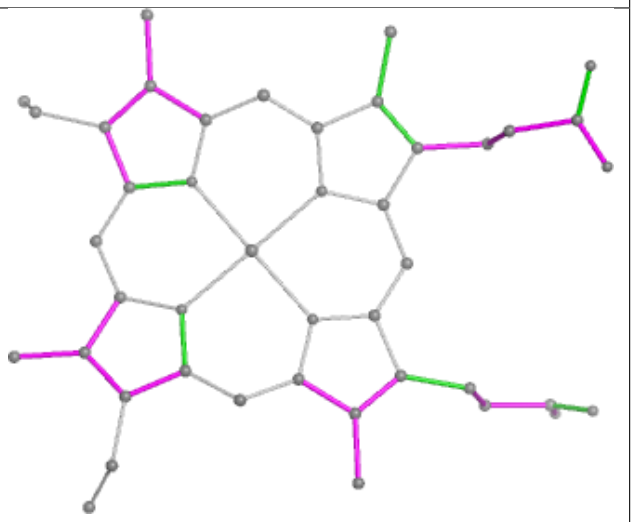
Ligand CDL I 301



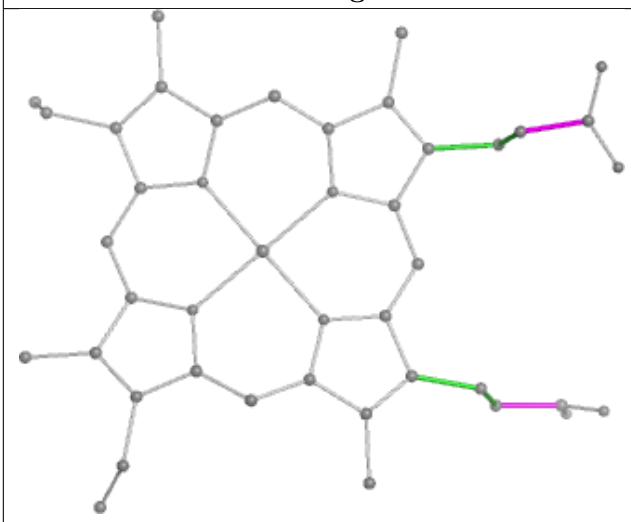
Ligand HEC O 302



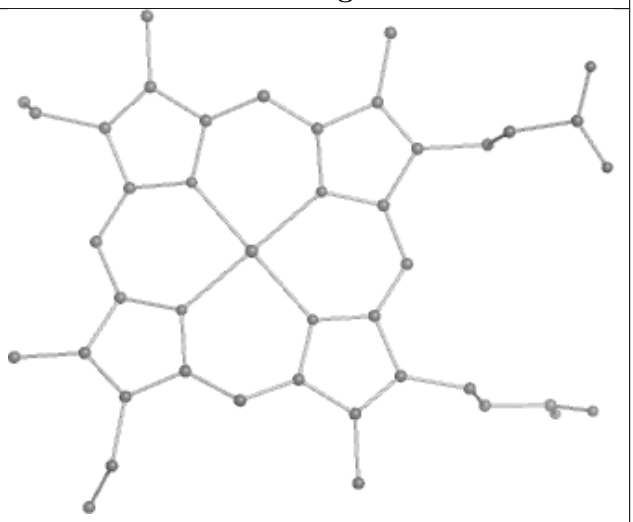
Bond lengths



Bond angles

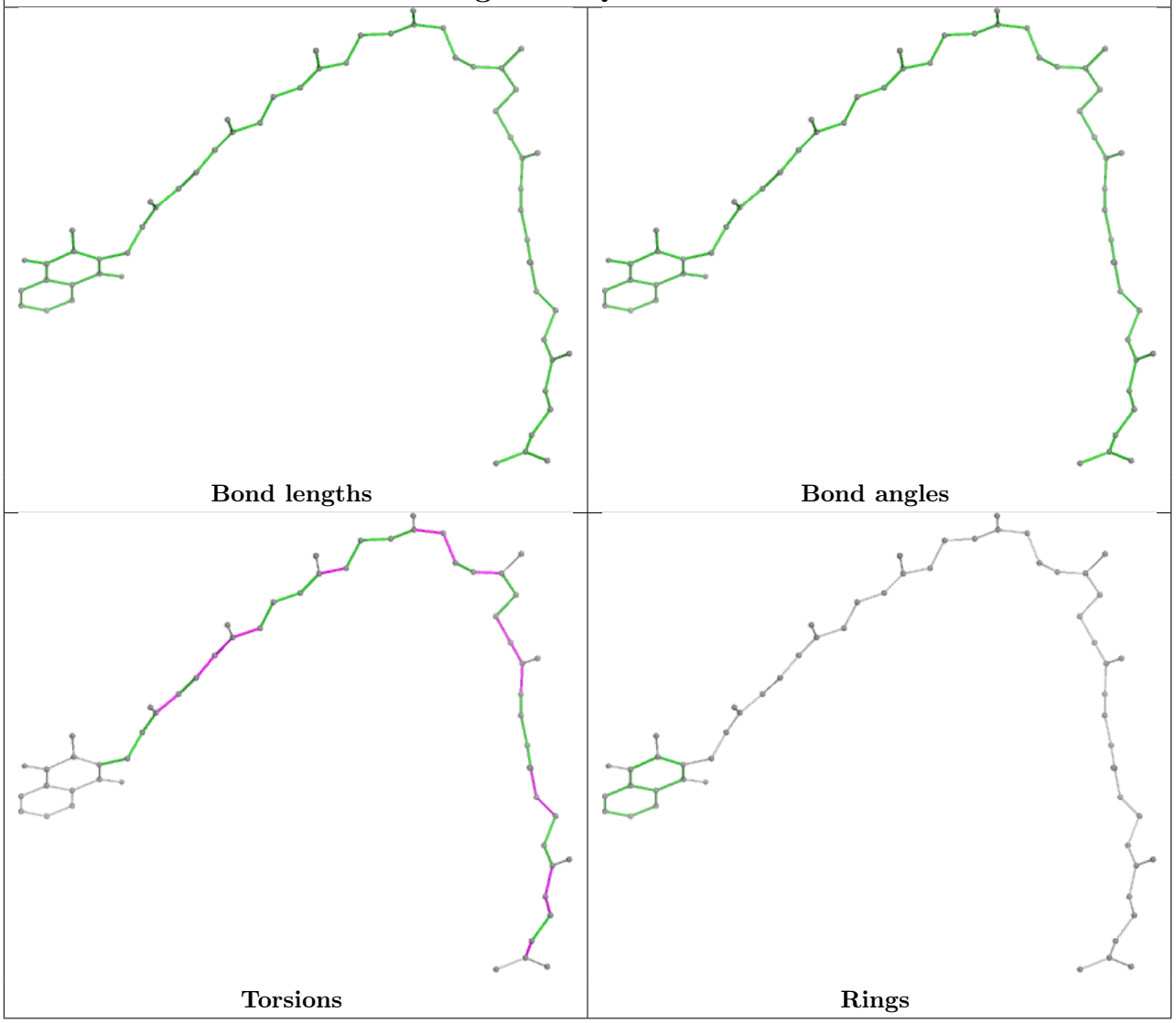


Torsions

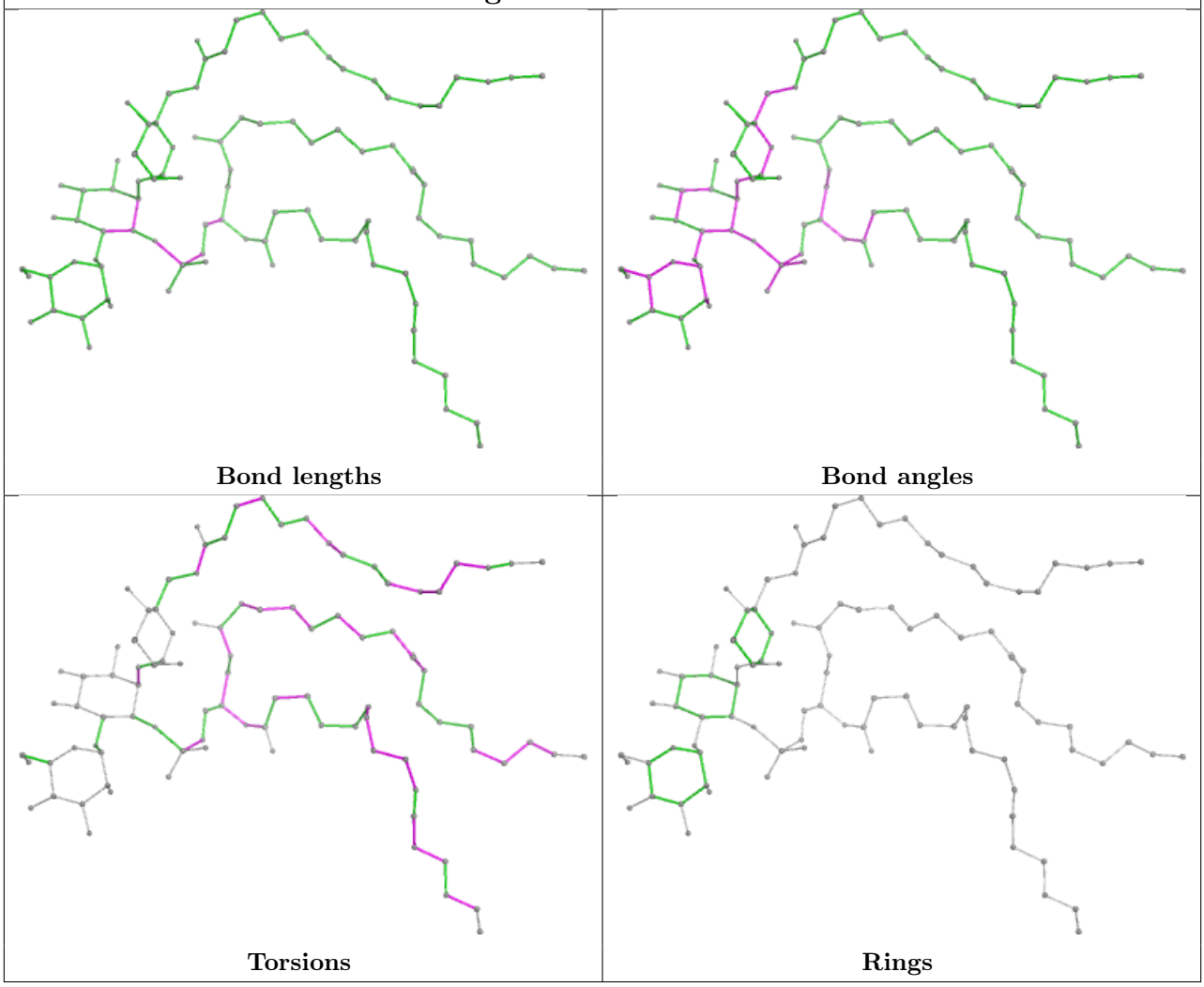


Rings

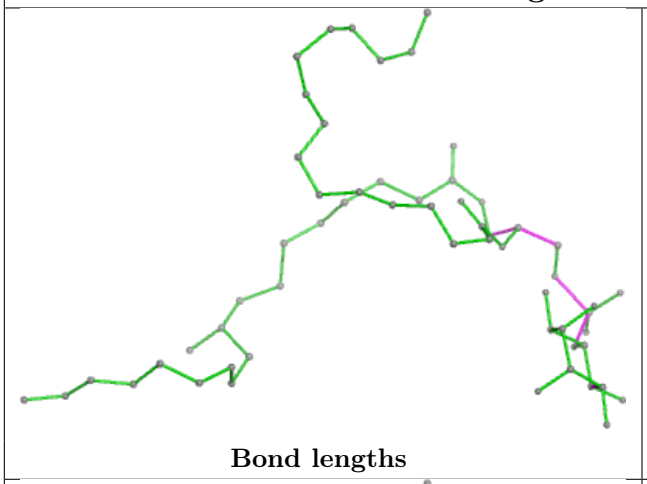
Ligand MQ9 M 505



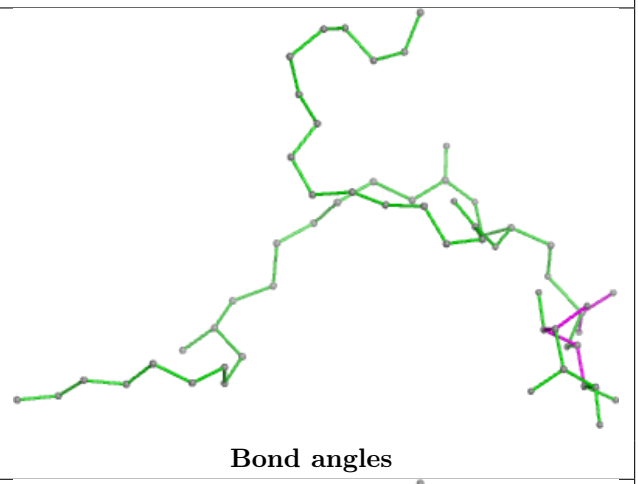
Ligand WUO C 304



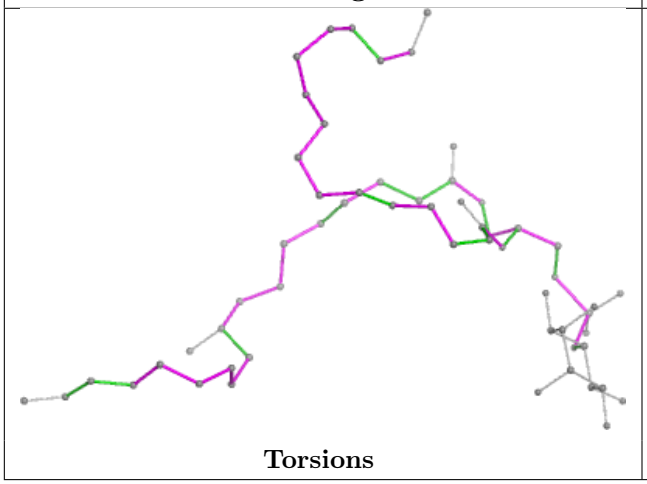
Ligand 9YF G 904



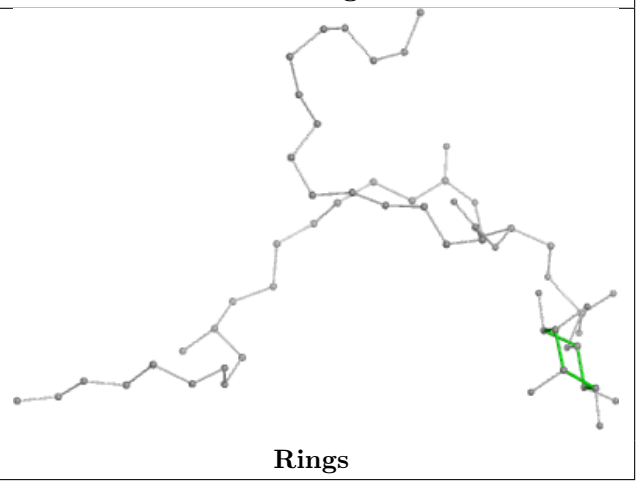
Bond lengths



Bond angles

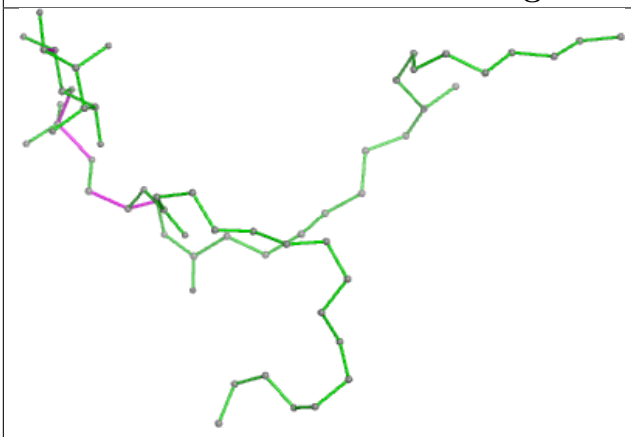


Torsions

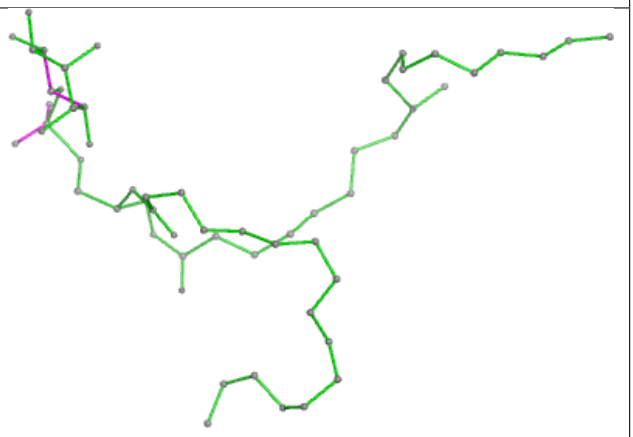


Rings

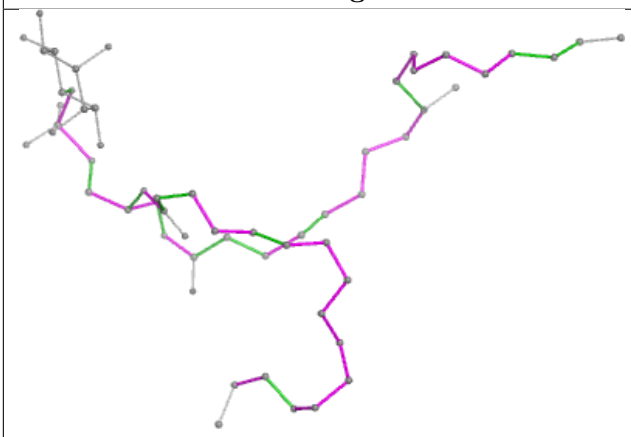
Ligand 9YF M 503



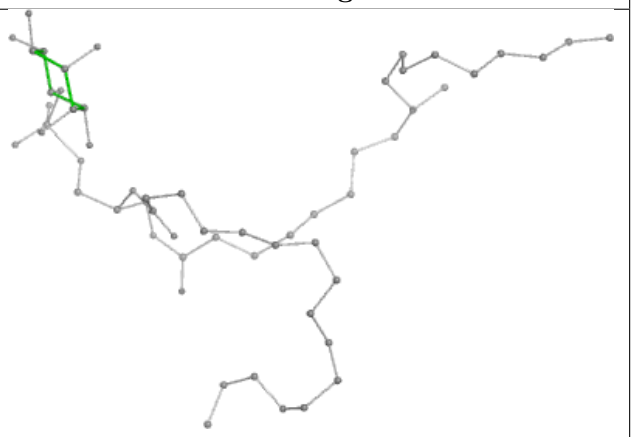
Bond lengths



Bond angles

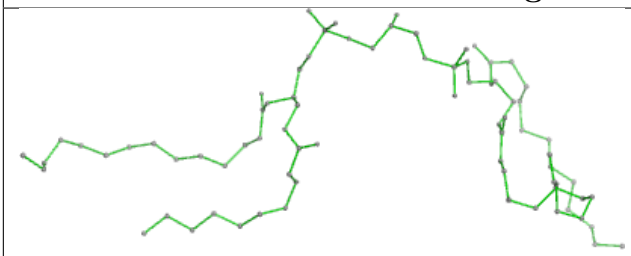


Torsions

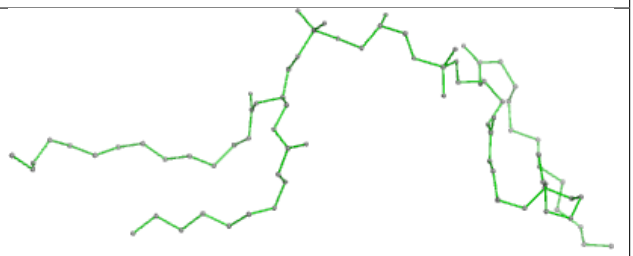


Rings

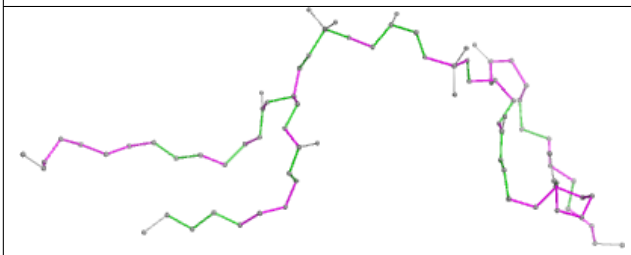
Ligand CDL P 301



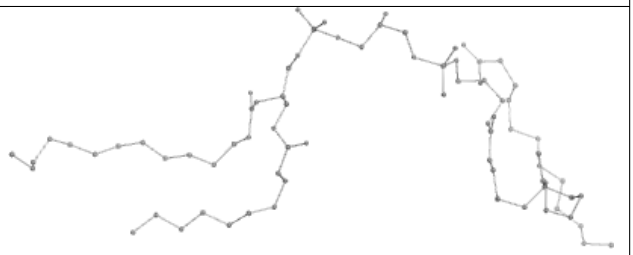
Bond lengths



Bond angles

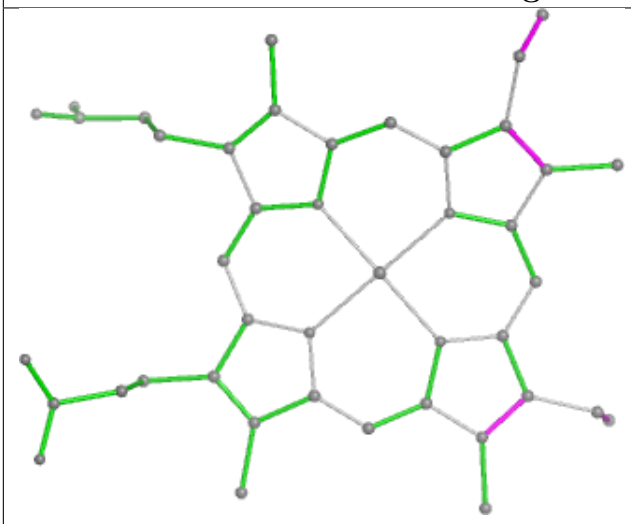


Torsions

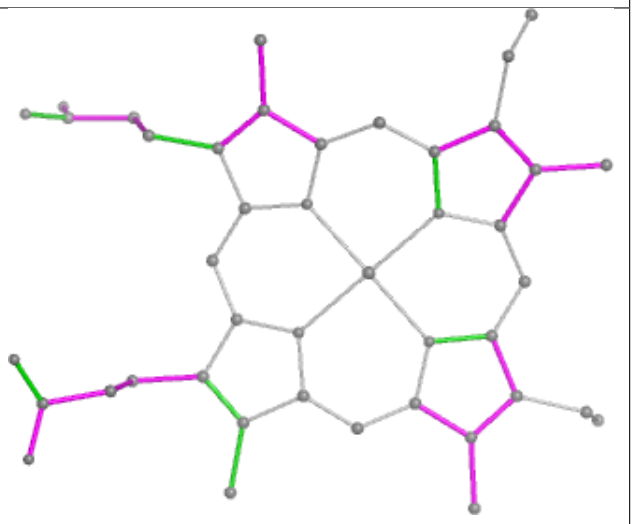


Rings

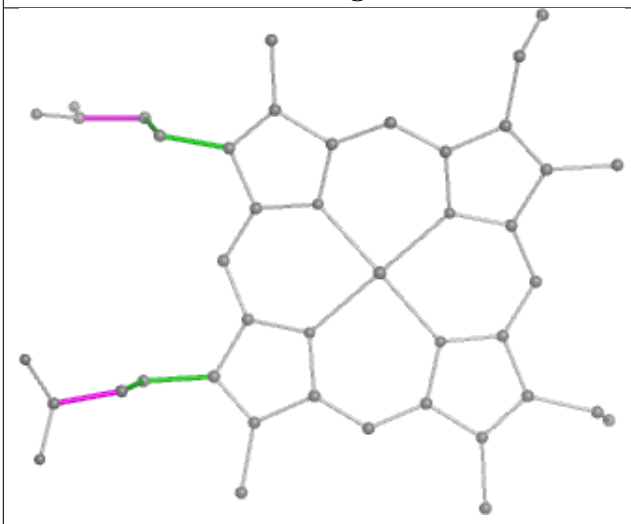
Ligand HEC C 302



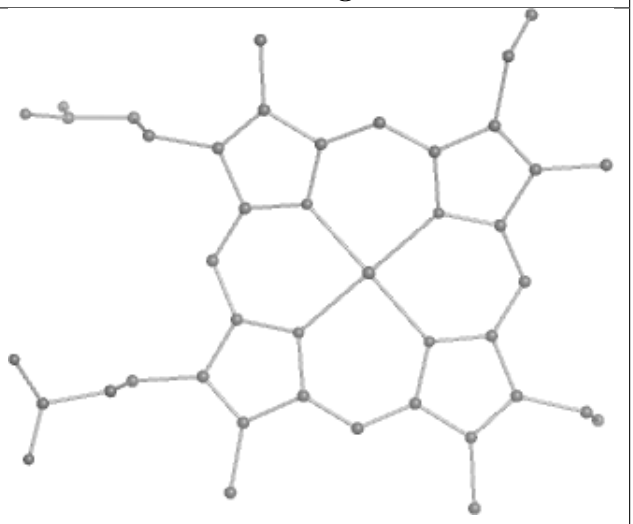
Bond lengths



Bond angles

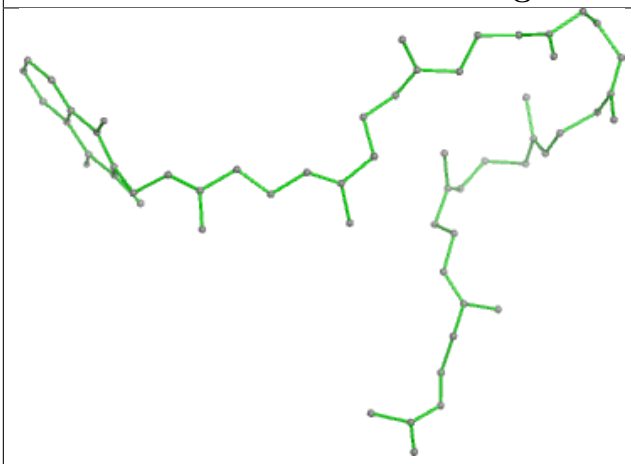


Torsions

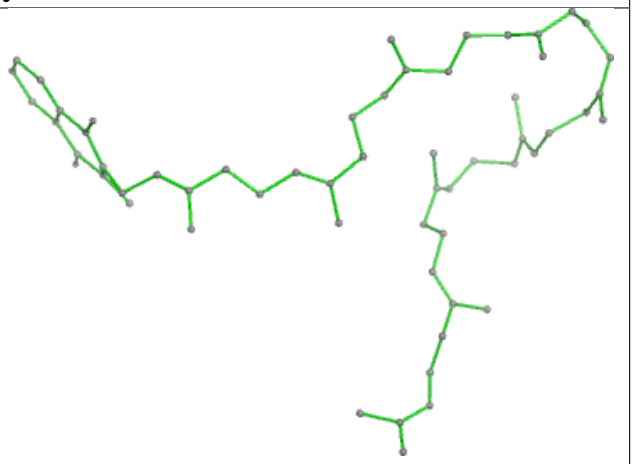


Rings

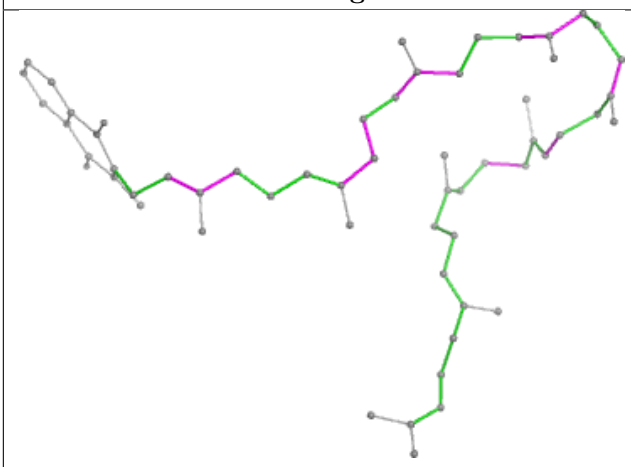
Ligand MQ9 T 1301



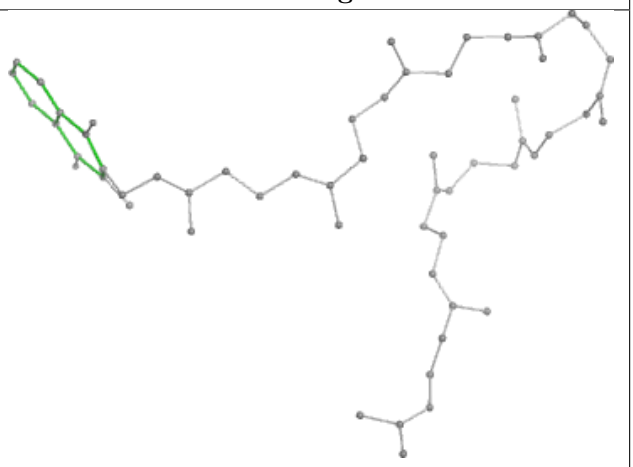
Bond lengths



Bond angles

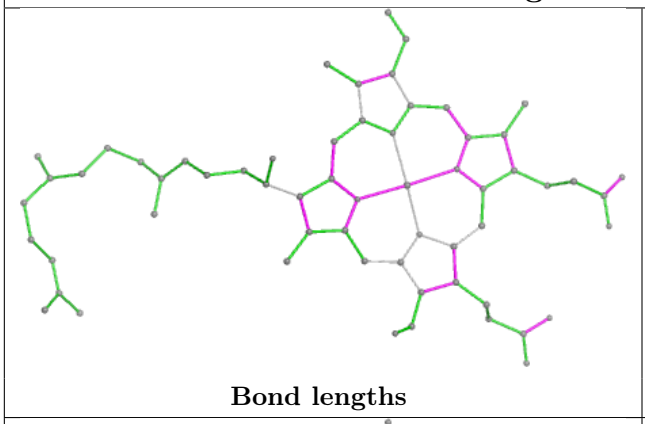


Torsions

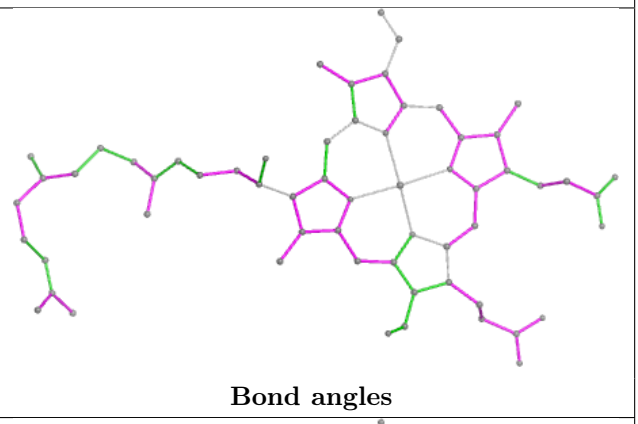


Rings

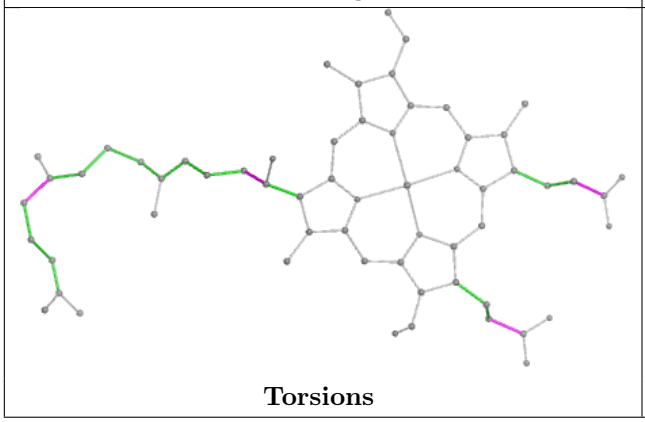
Ligand HEA L 602



Bond lengths



Bond angles



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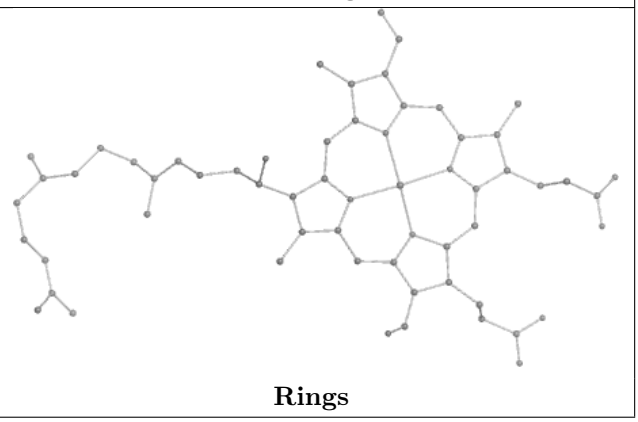
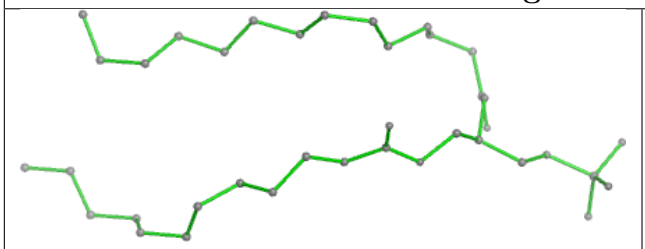


Rings

Ligand 7PH M 504



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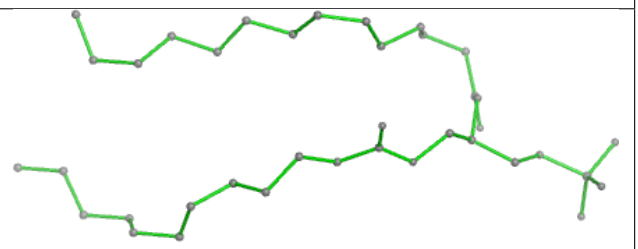
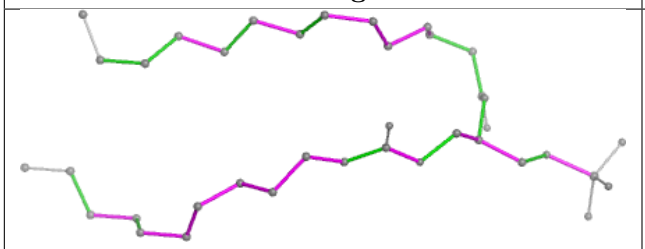
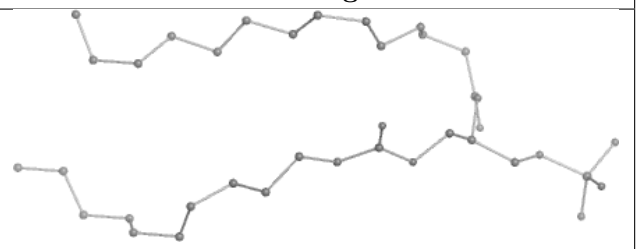


Bond angles

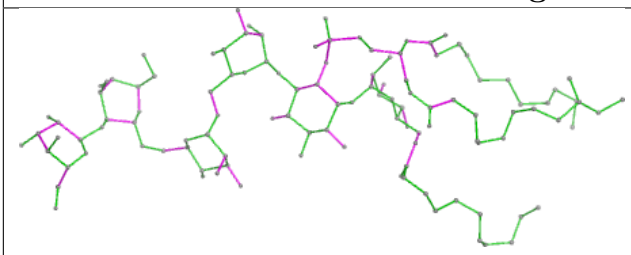


Torsions

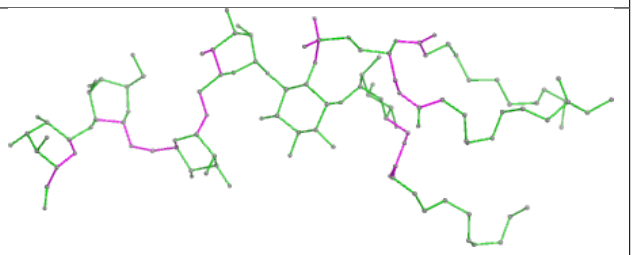


Rings

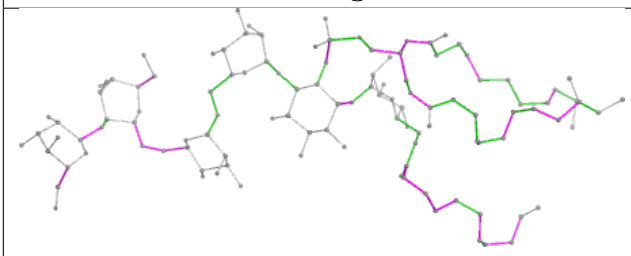
Ligand IZL M 502



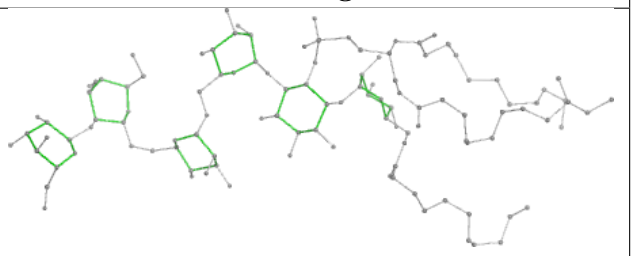
Bond lengths



Bond angles

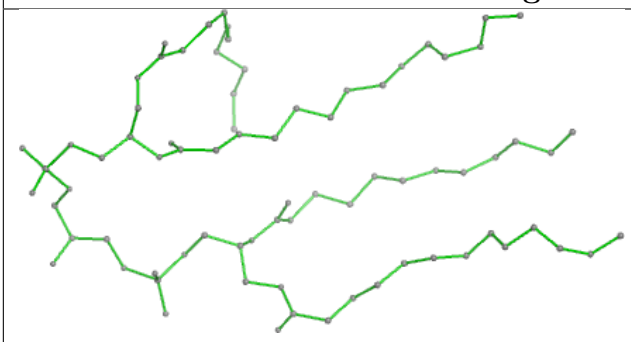


Torsions

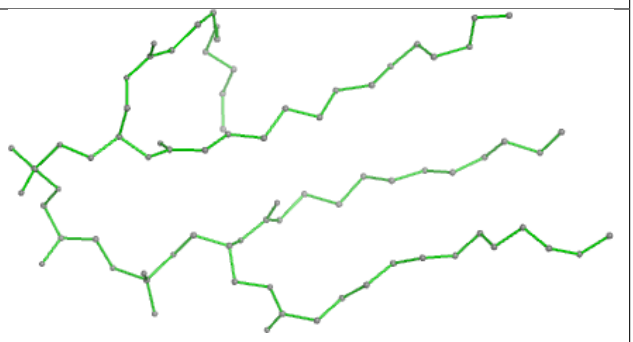


Rings

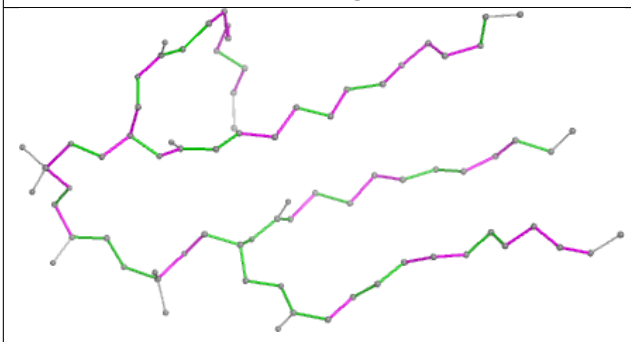
Ligand CDL H 904



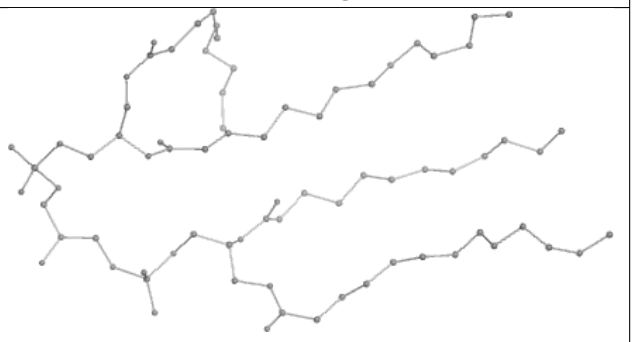
Bond lengths



Bond angles

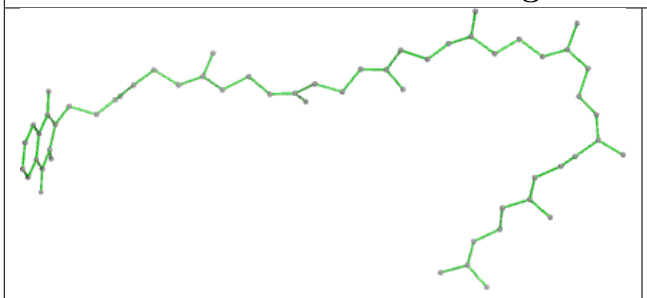


Torsions

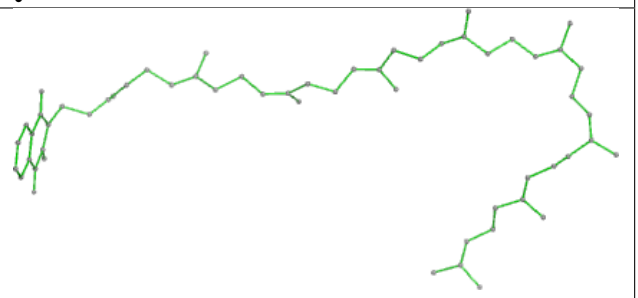


Rings

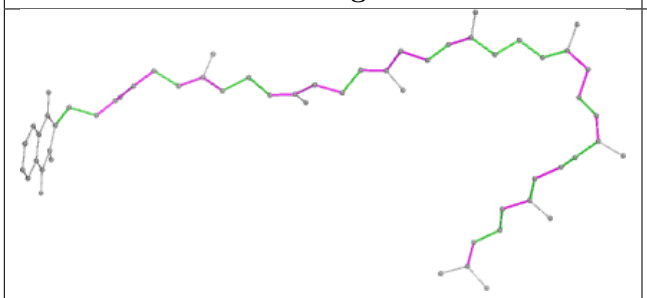
Ligand MQ9 H 909



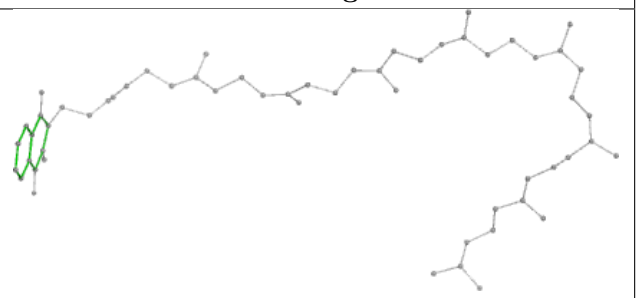
Bond lengths



Bond angles

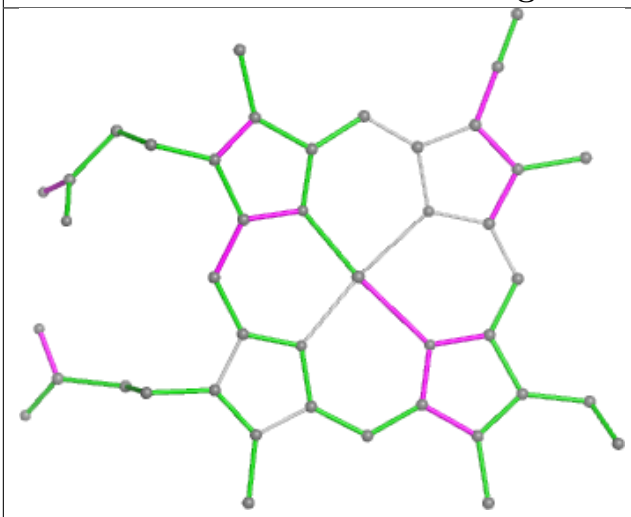


Torsions

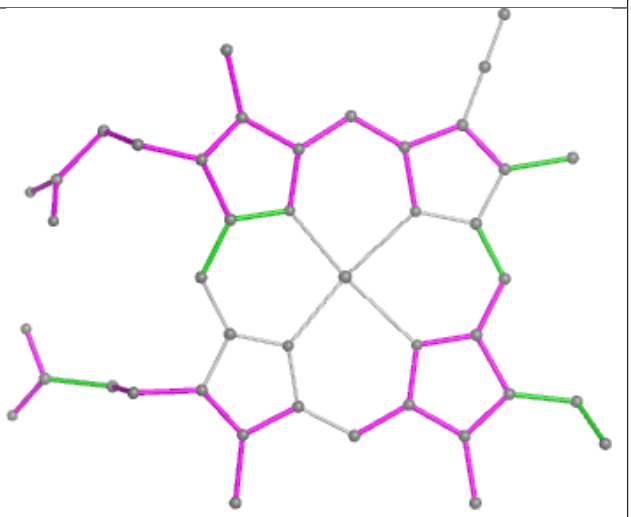


Rings

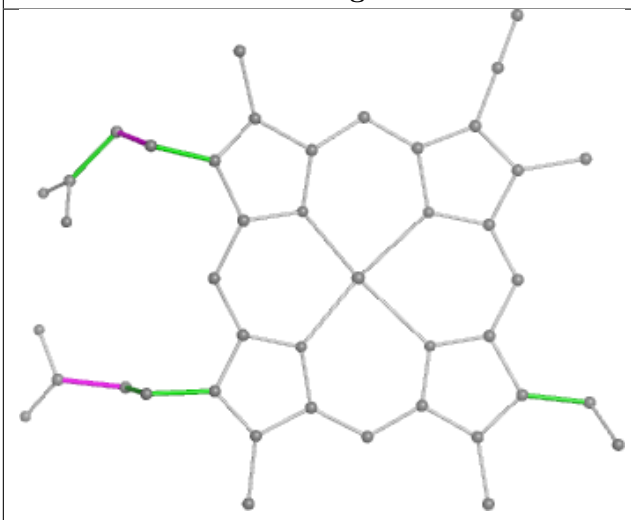
Ligand HEM H 902



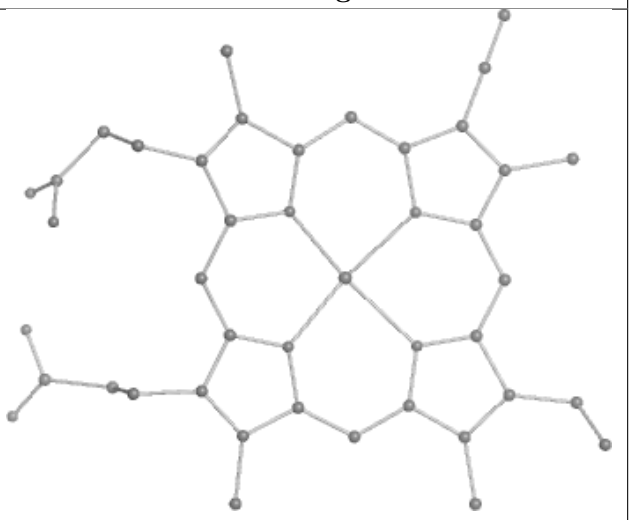
Bond lengths



Bond angles

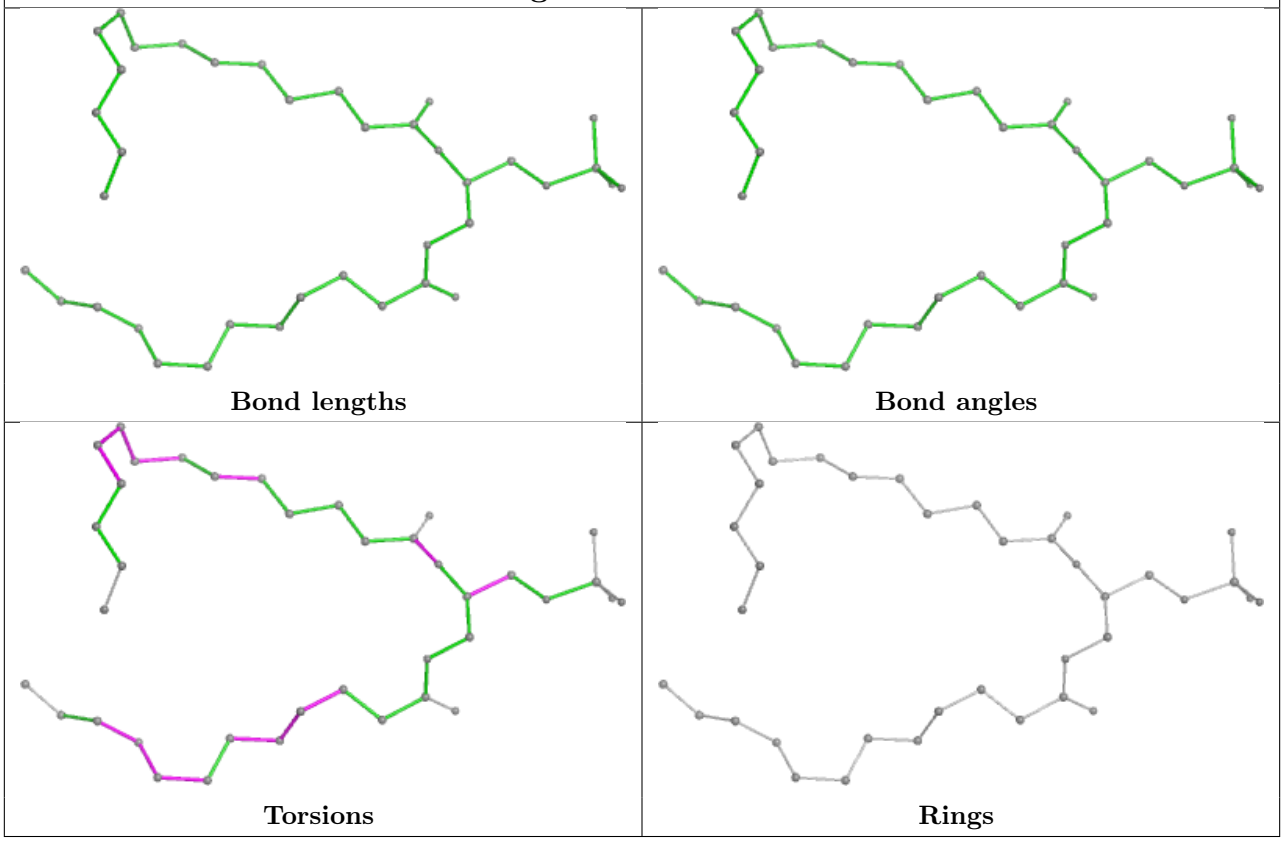


Torsions

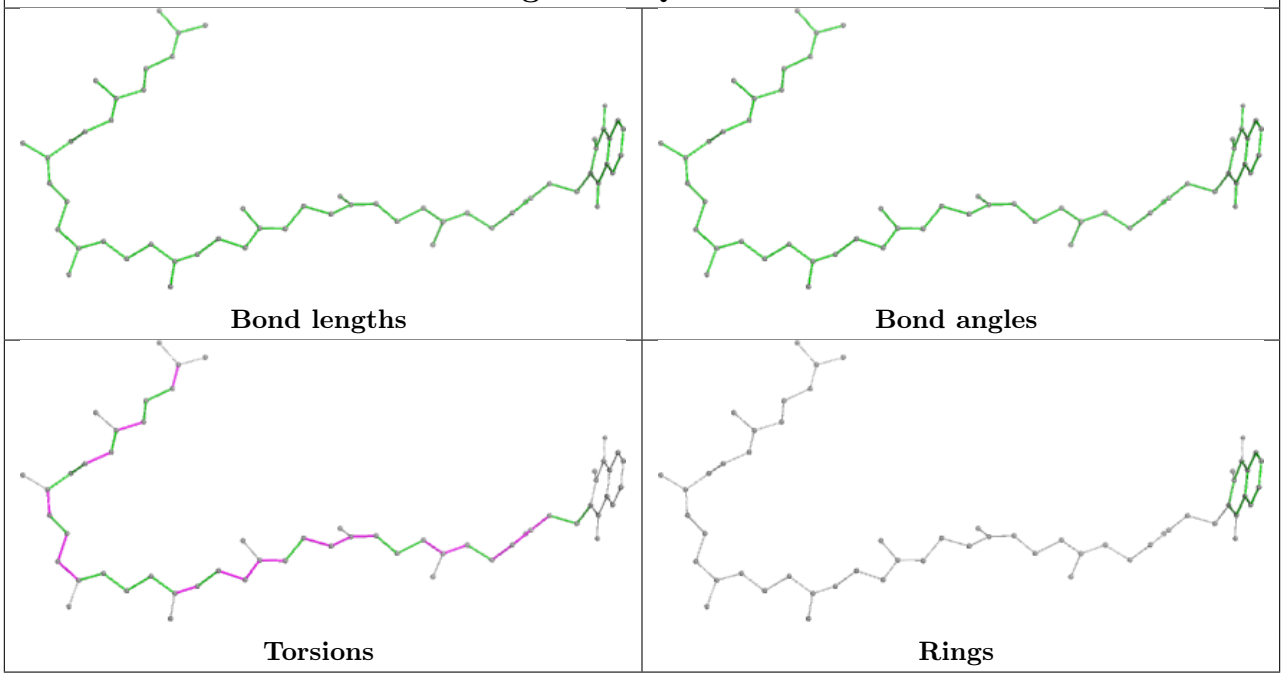


Rings

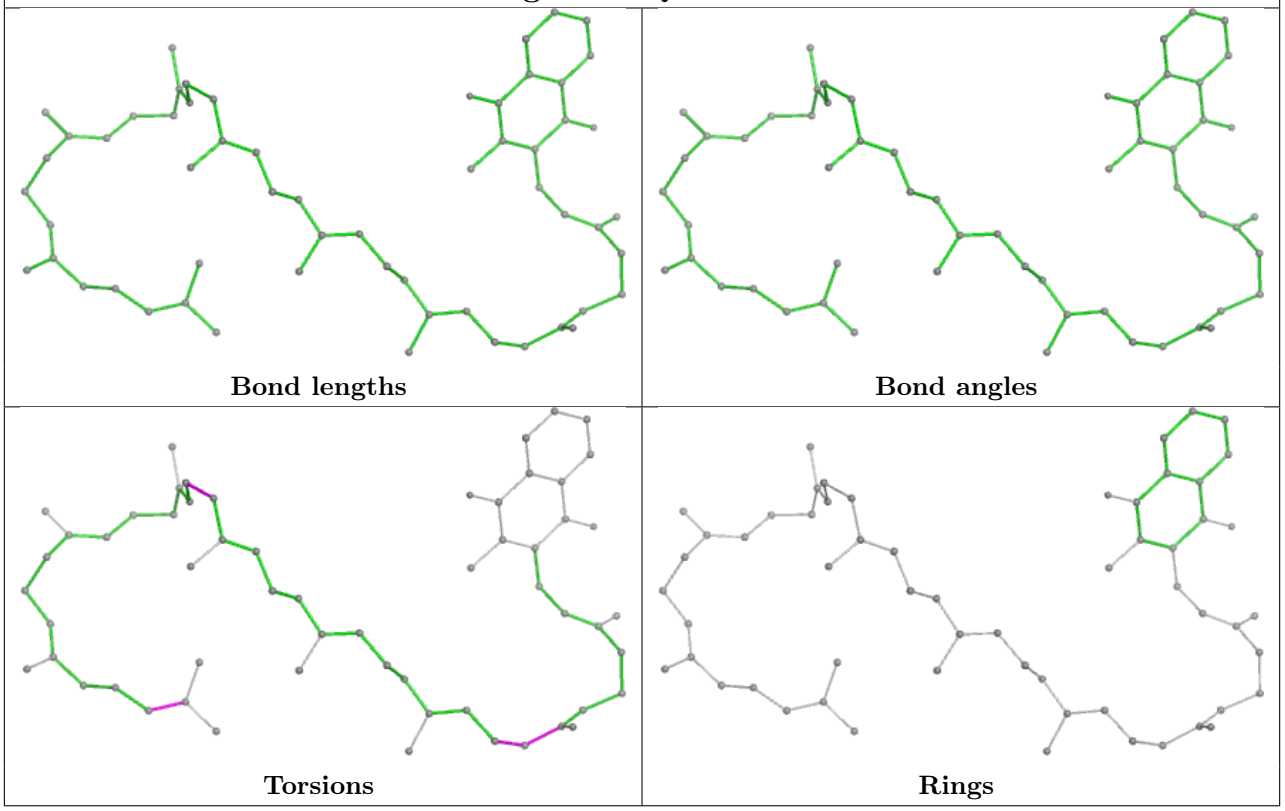
Ligand 7PH S 501



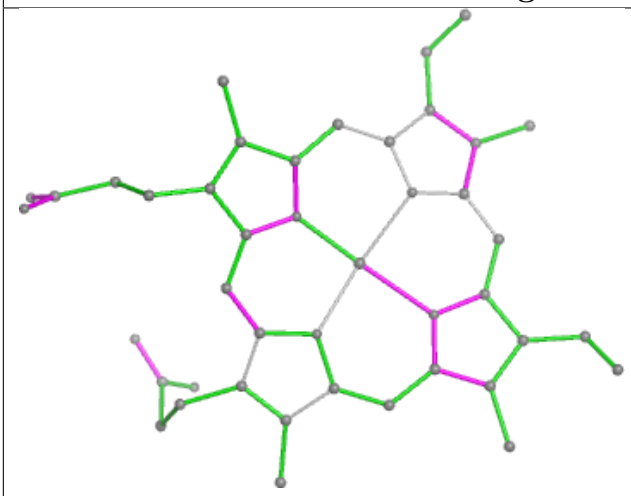
Ligand MQ9 N 608



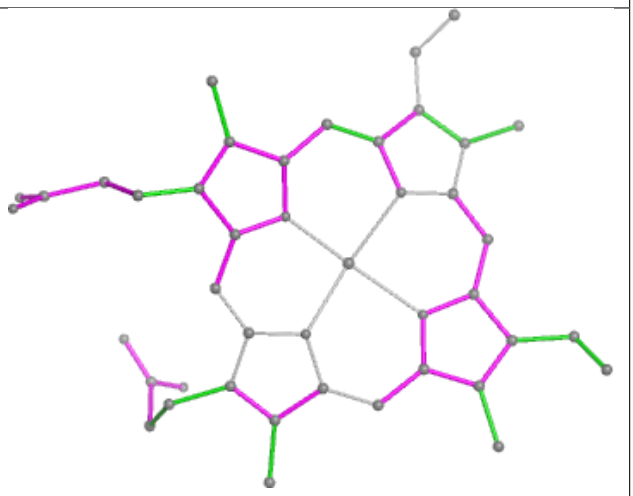
Ligand MQ9 C 303



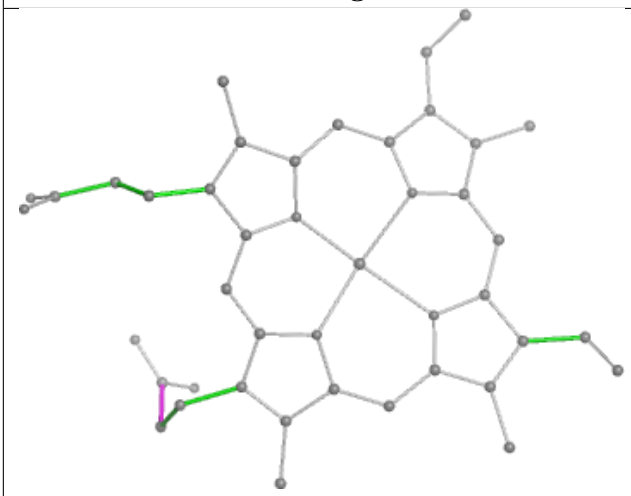
Ligand HEM H 908



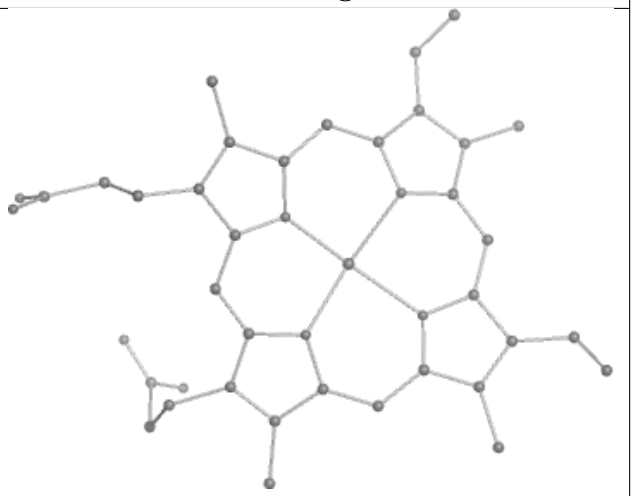
Bond lengths



Bond angles

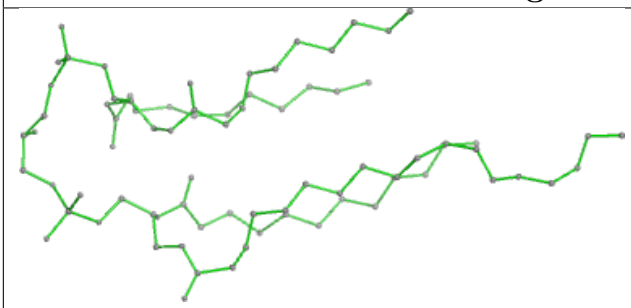


Torsions

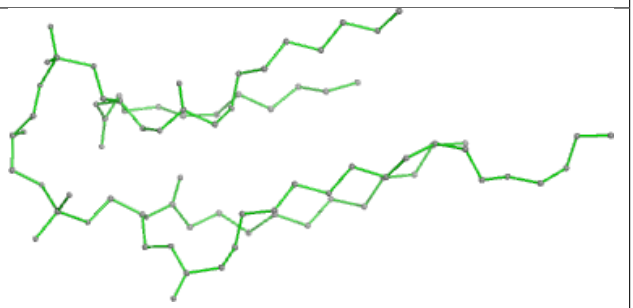


Rings

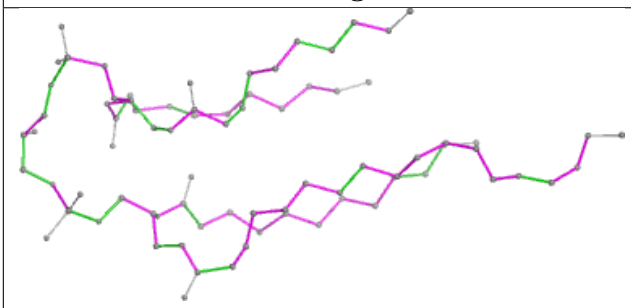
Ligand CDL L 601



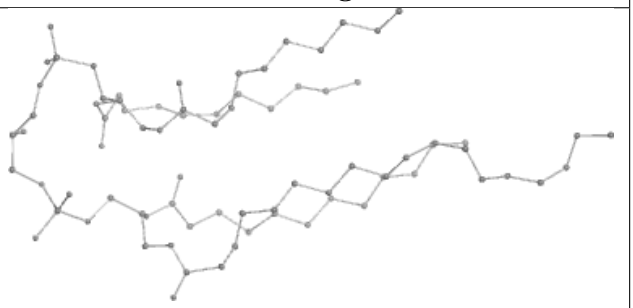
Bond lengths



Bond angles

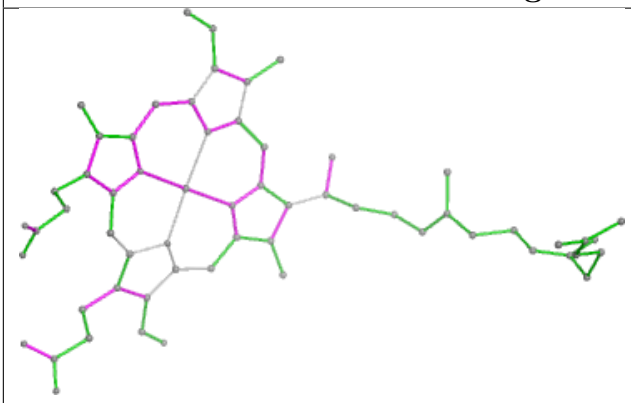


Torsions

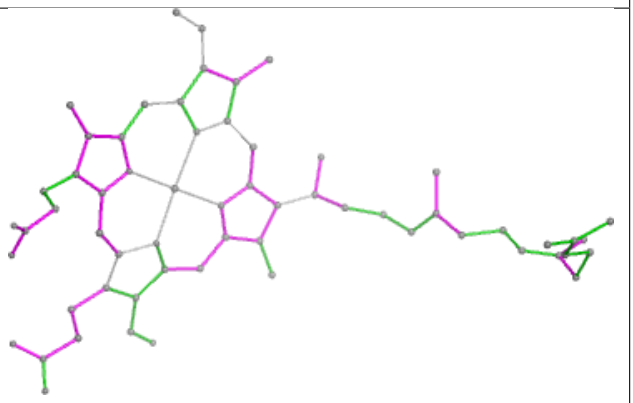


Rings

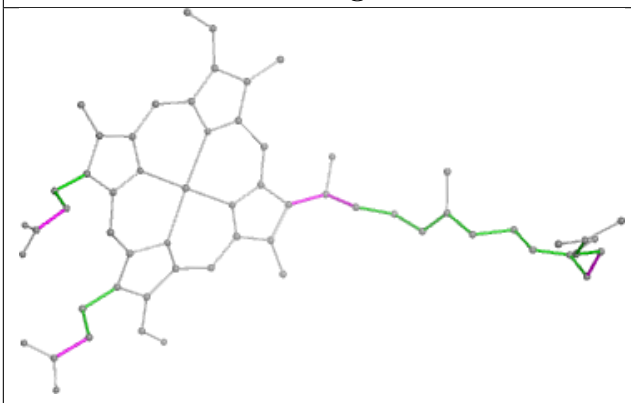
Ligand HEA L 603



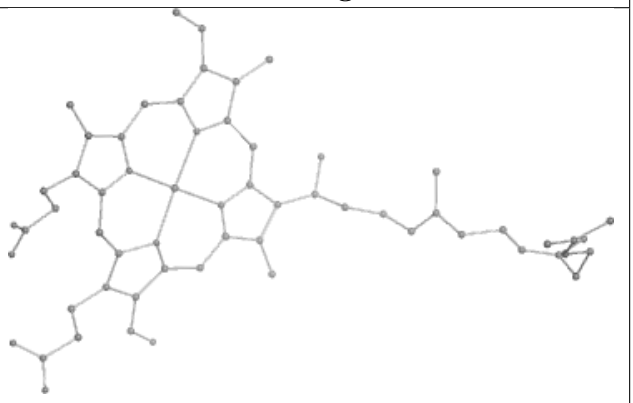
Bond lengths



Bond angles

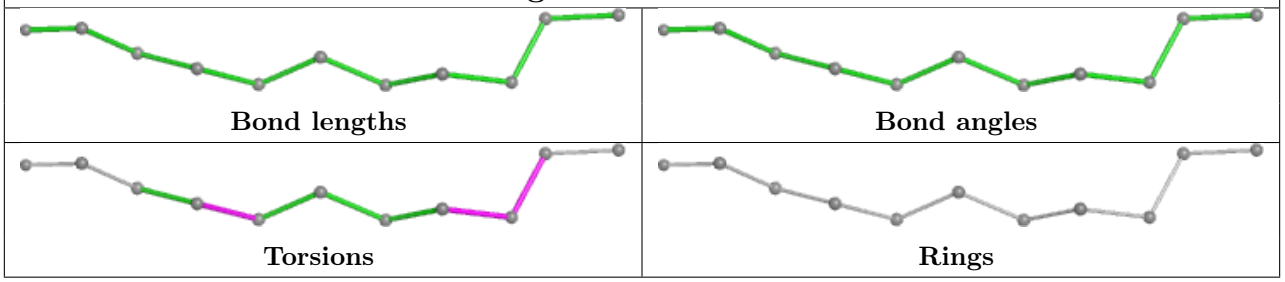


Torsions

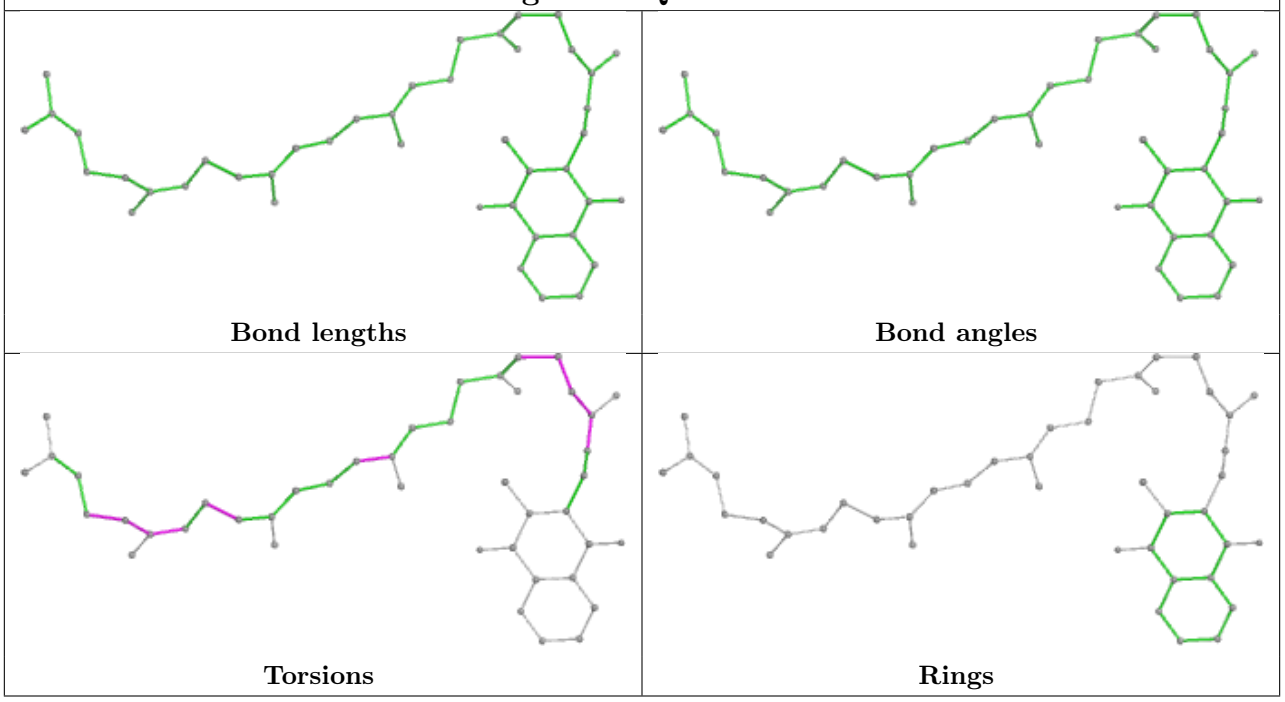


Rings

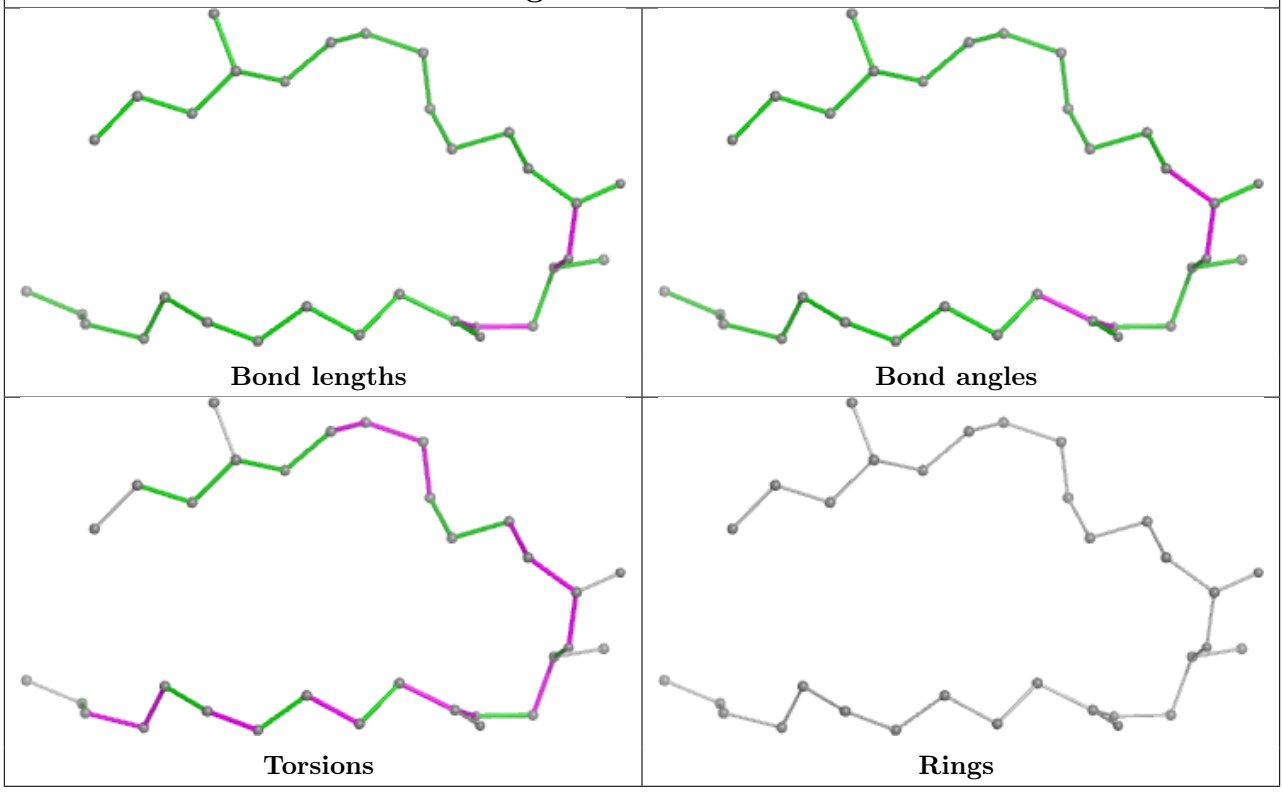
Ligand PLM c 301



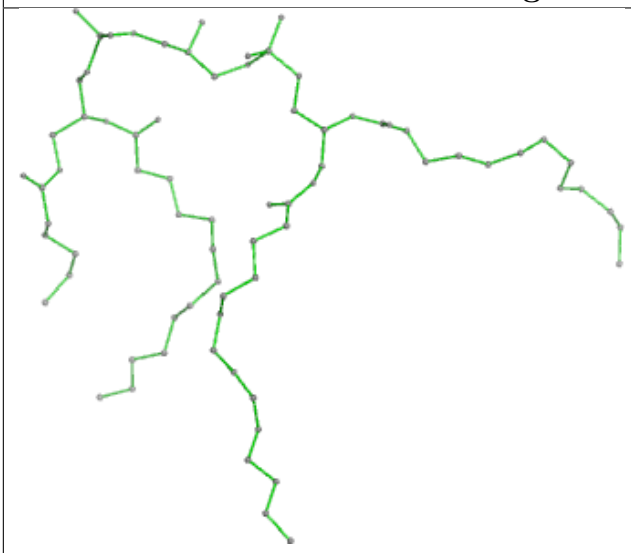
Ligand MQ9 N 605



Ligand 9XX Y 302



Ligand CDL H 903



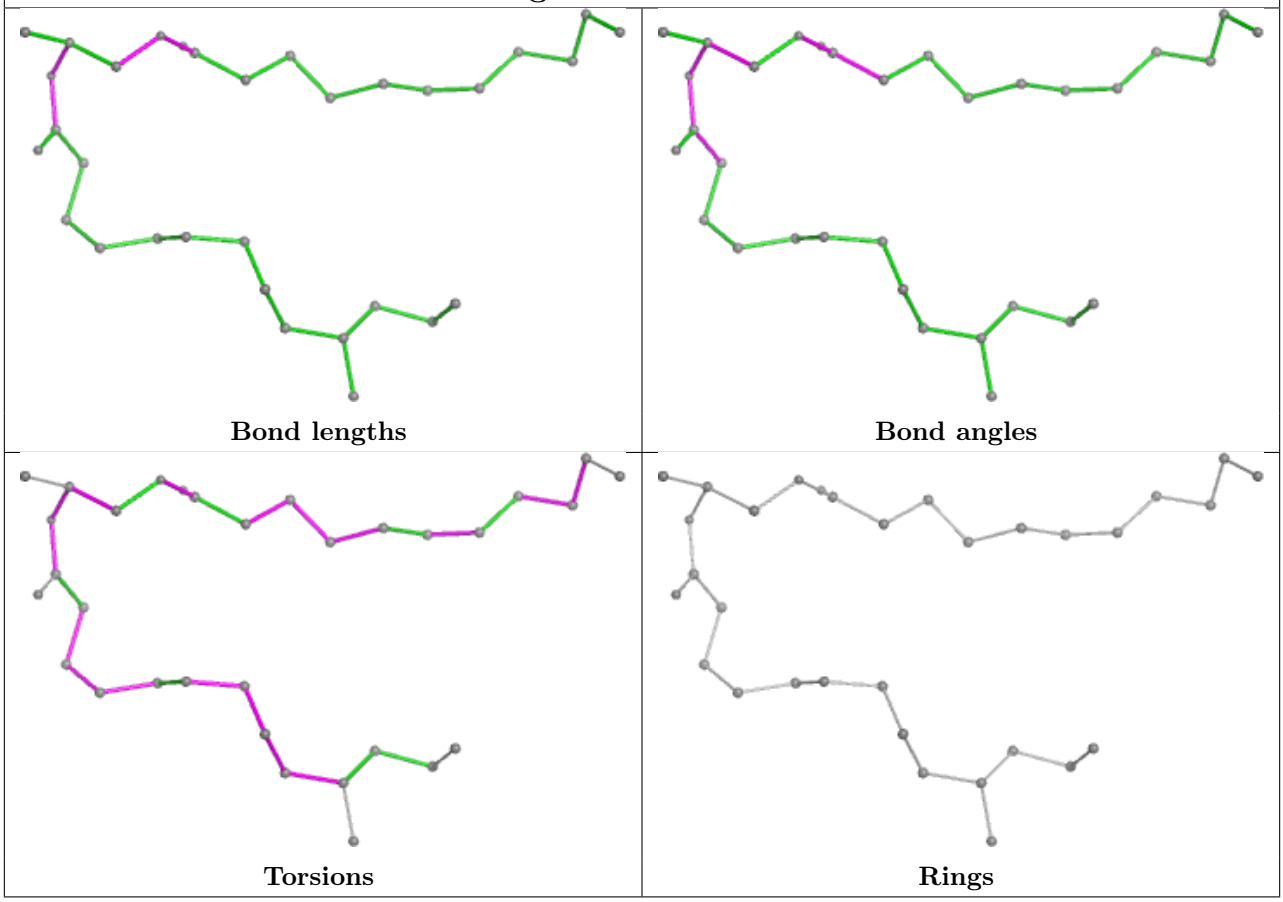
Bond lengths

Bond angles

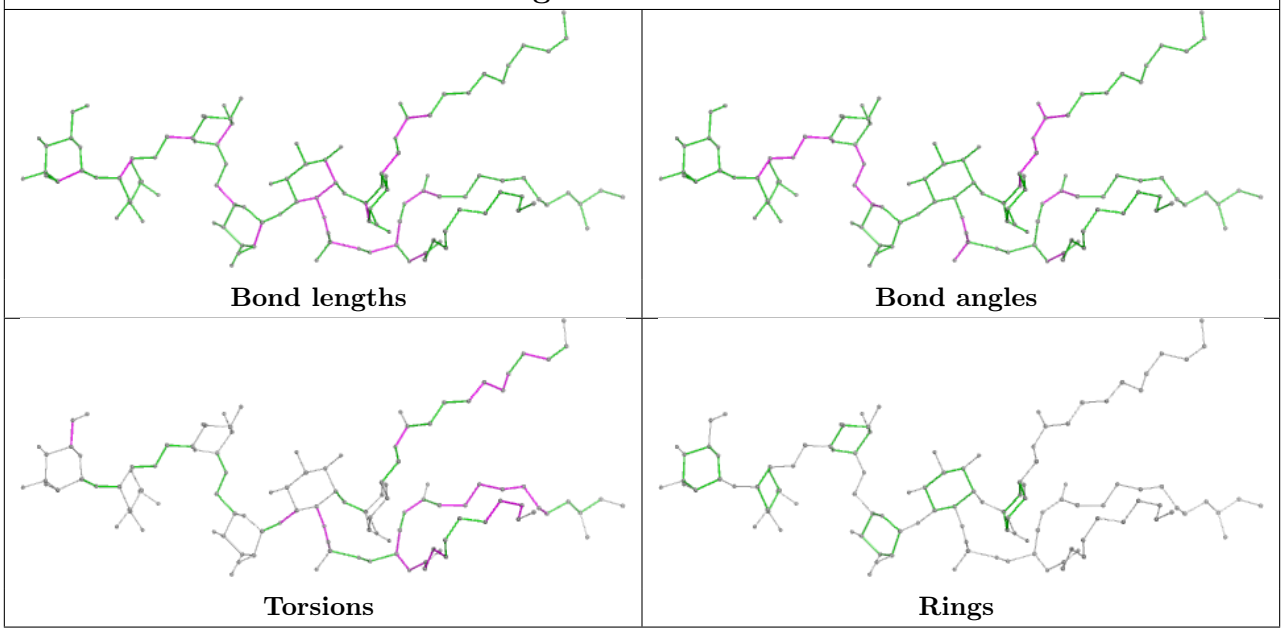
Torsions

Rings

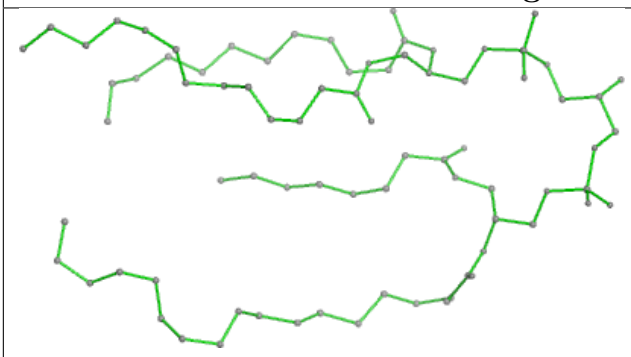
Ligand 9XX b 203



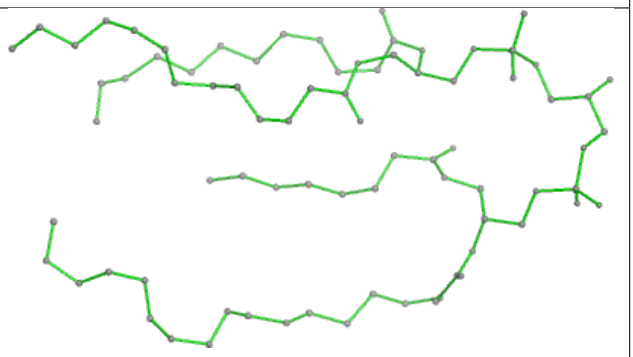
Ligand IZL G 903



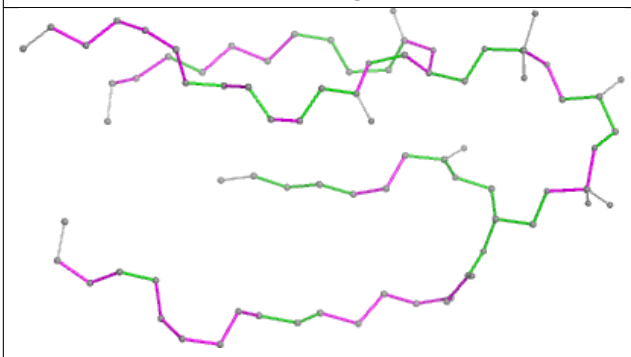
Ligand CDL H 905



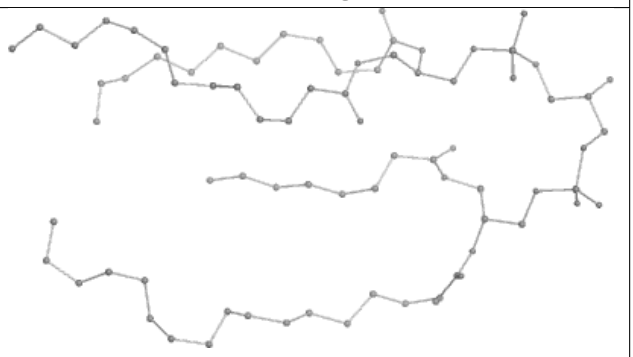
Bond lengths



Bond angles

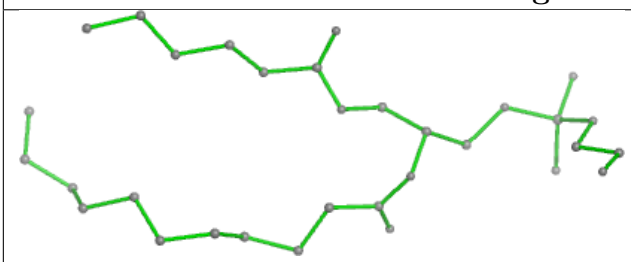


Torsions

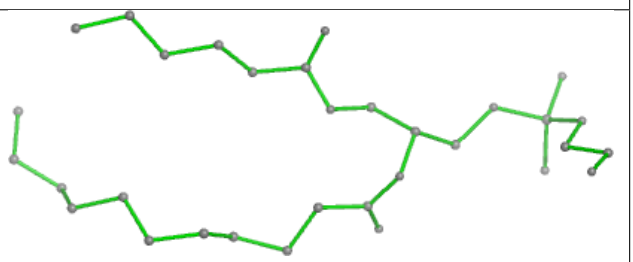


Rings

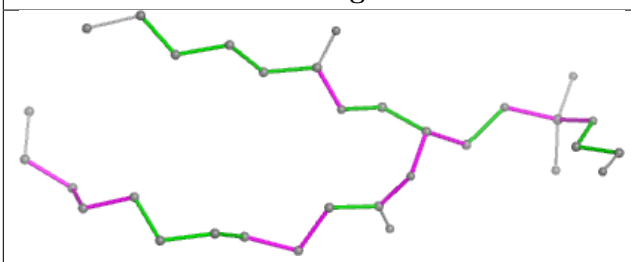
Ligand 3PE J 503



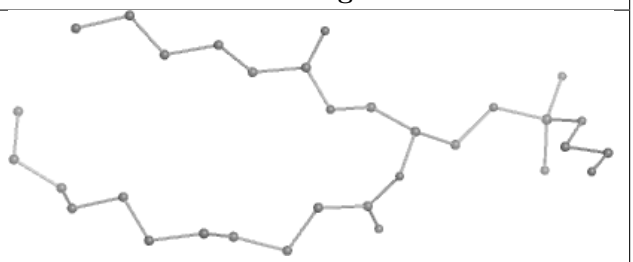
Bond lengths



Bond angles

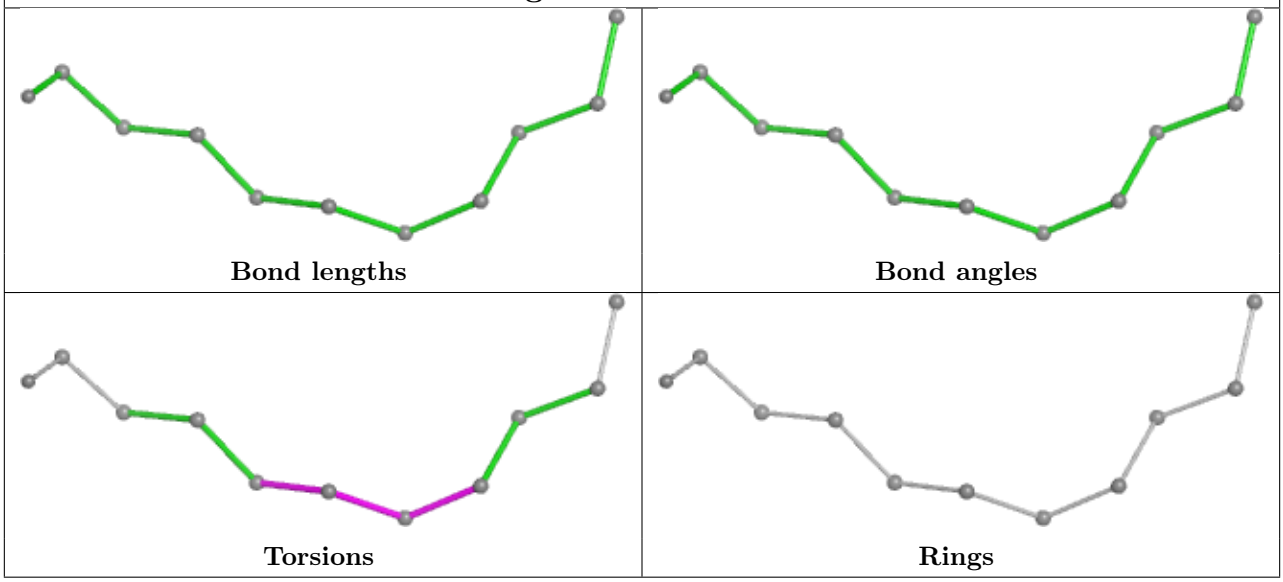


Torsions

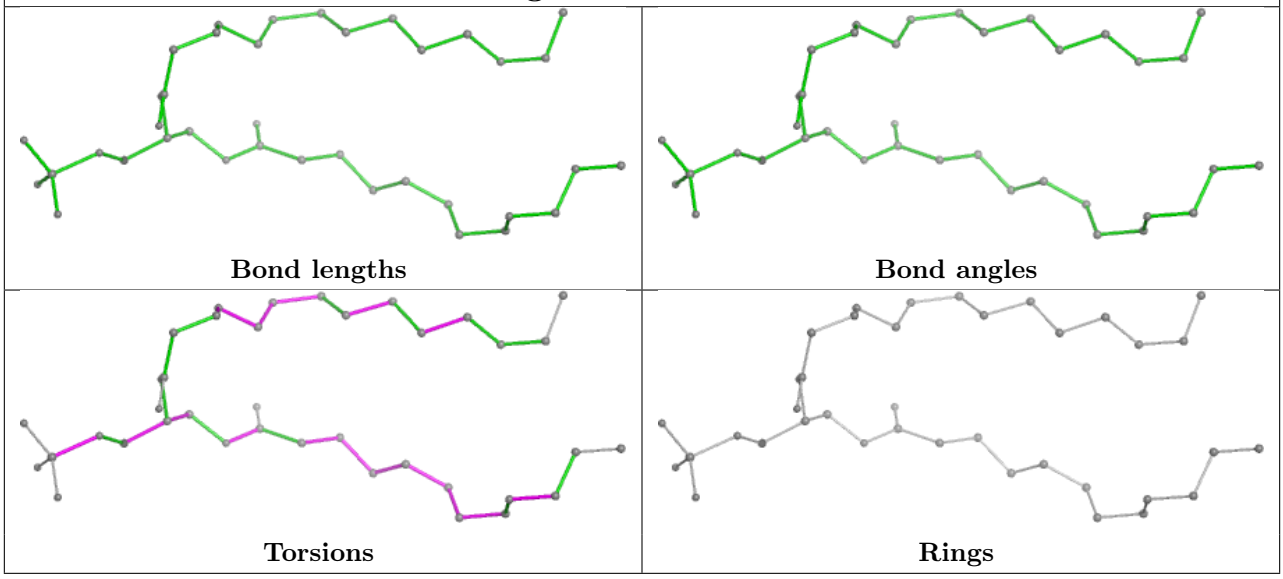


Rings

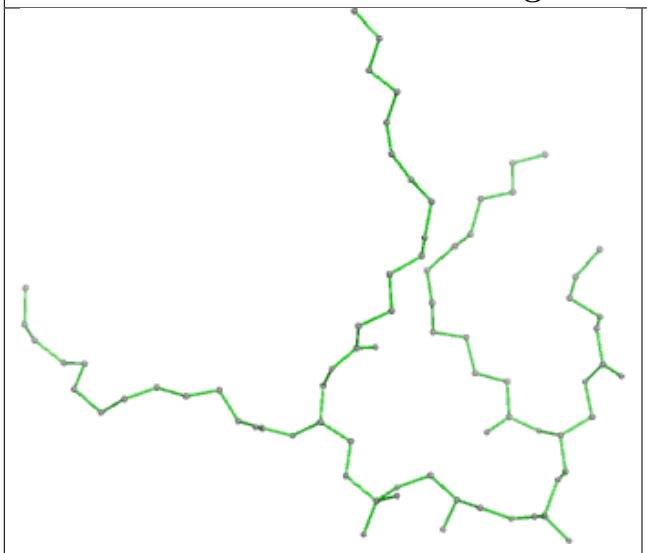
Ligand PLM b 202



Ligand 7PH G 905

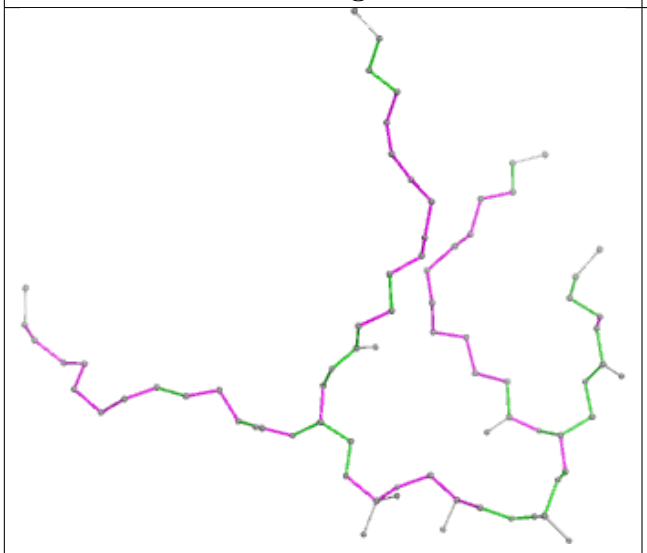


Ligand CDL N 602

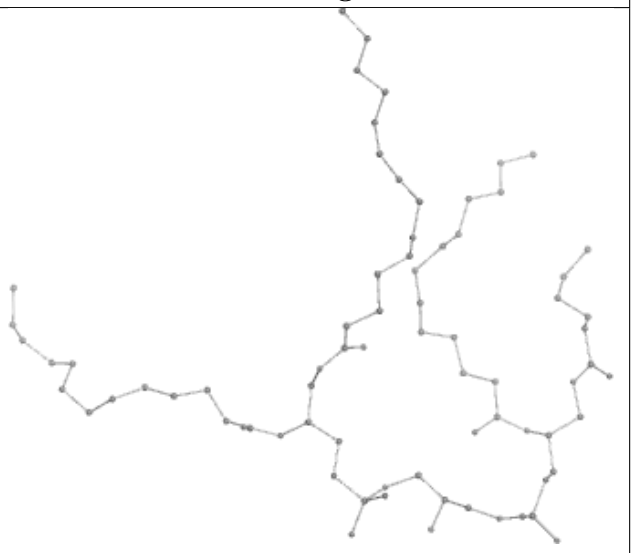


Bond lengths

Bond angles

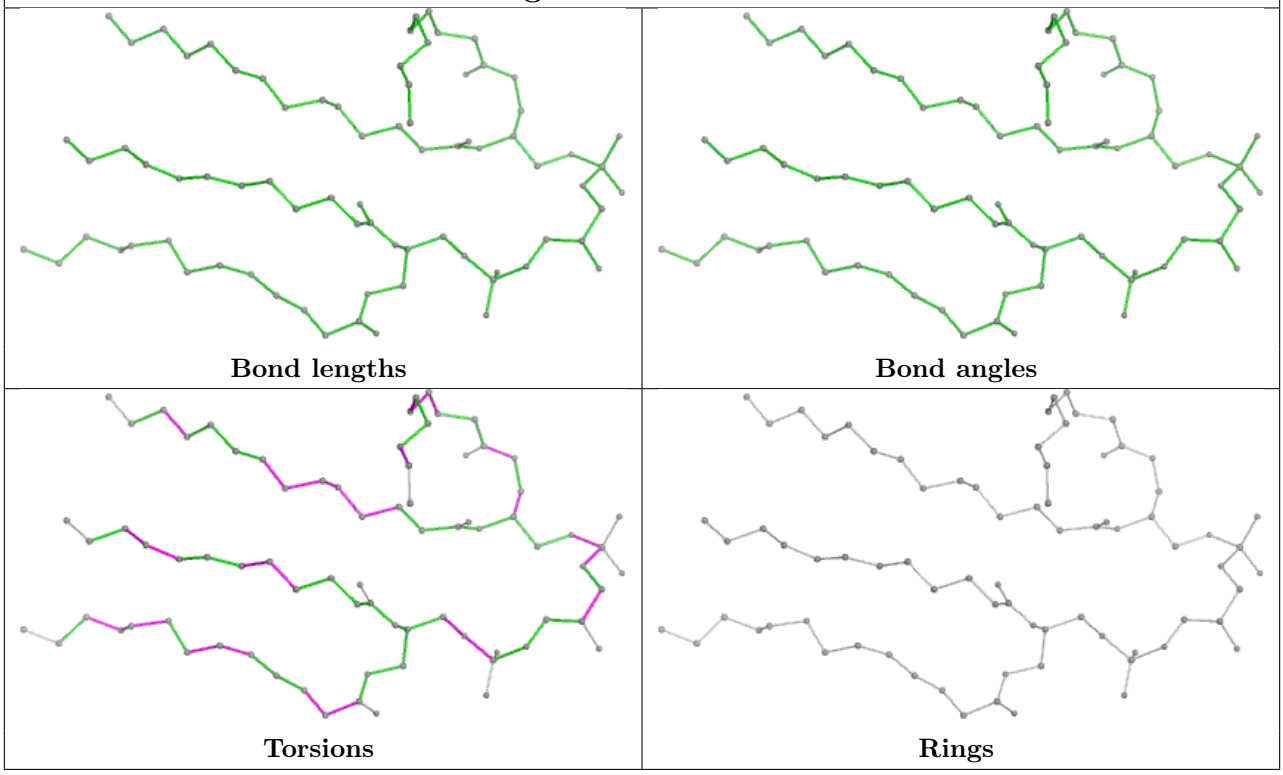


Torsions

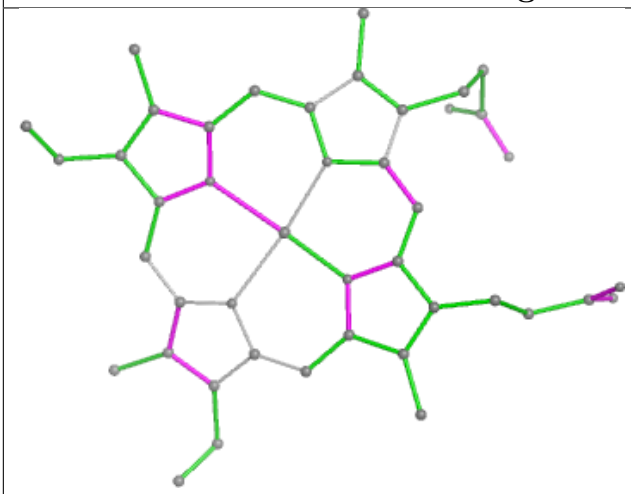


Rings

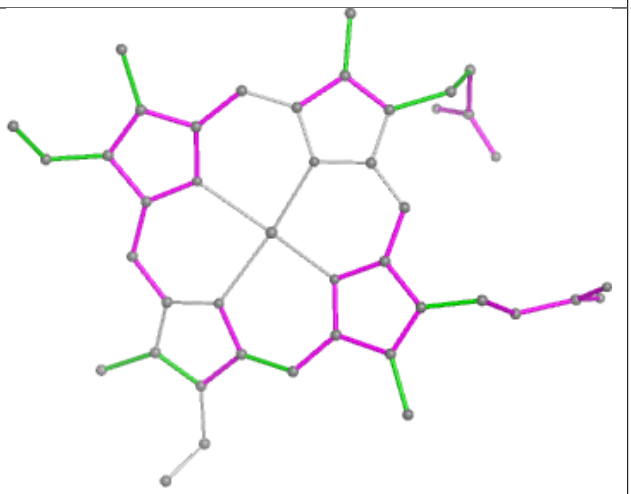
Ligand CDL N 603



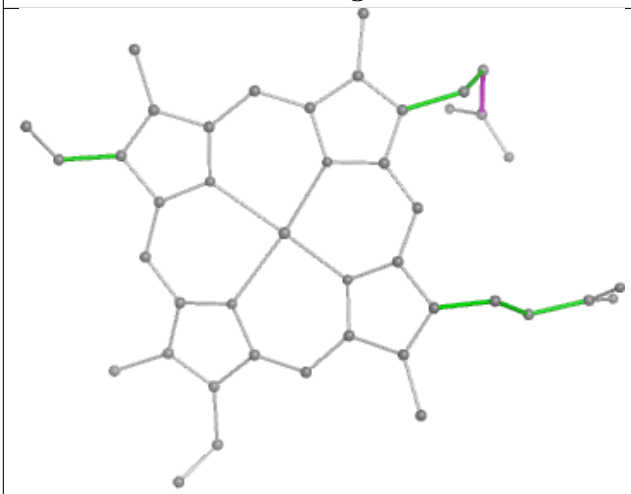
Ligand HEM N 607



Bond lengths



Bond angles



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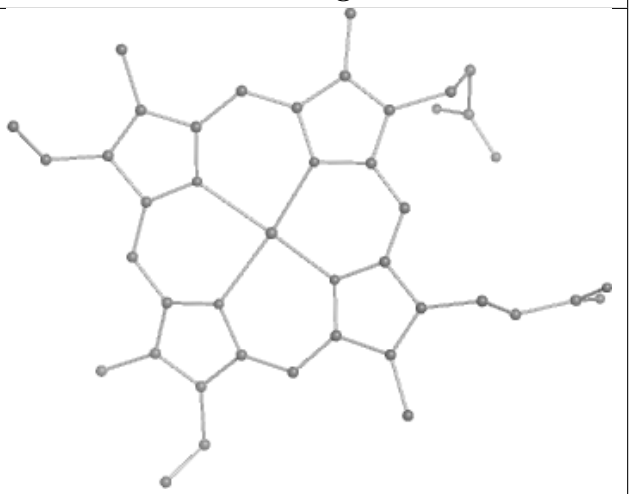
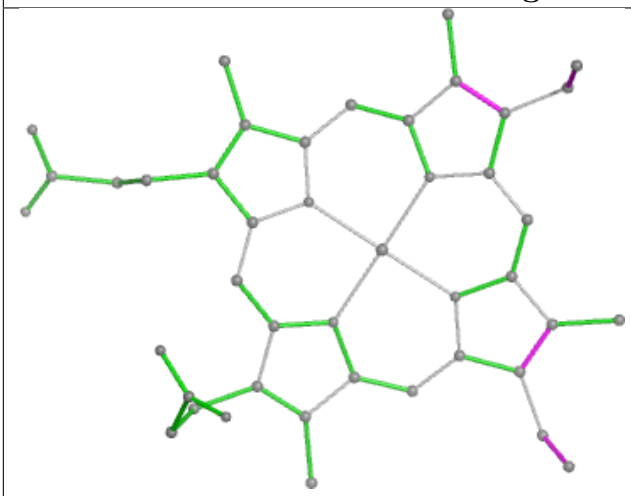
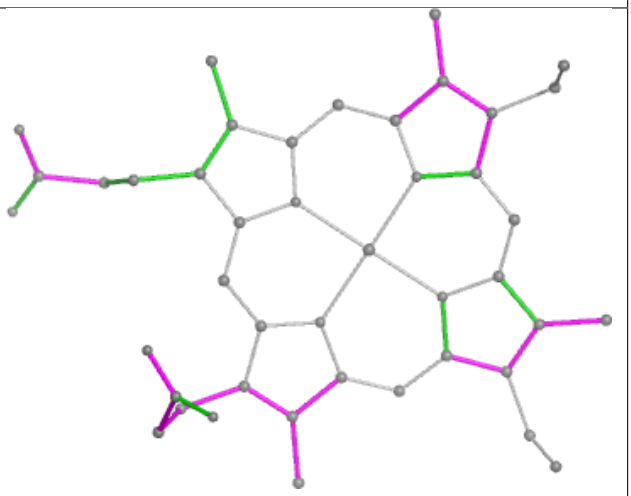


Rings

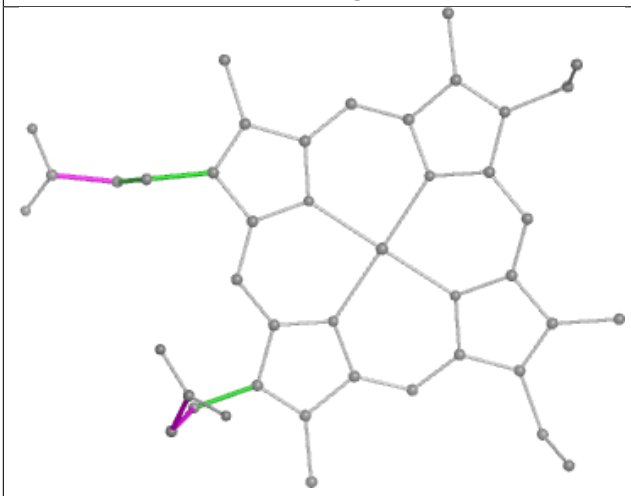
Ligand HEC O 301



Bond lengths



Bond angles



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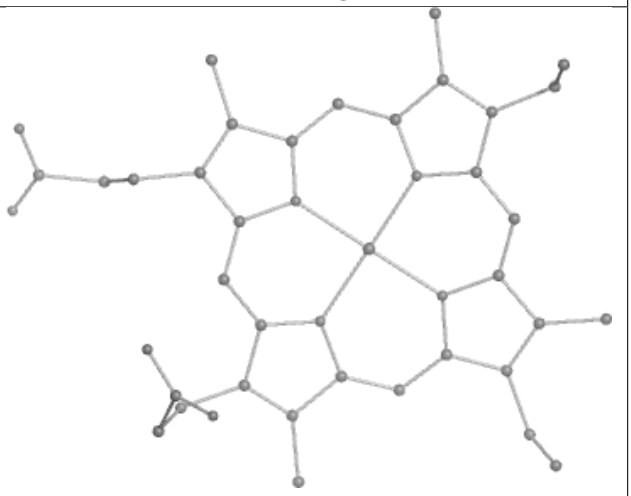
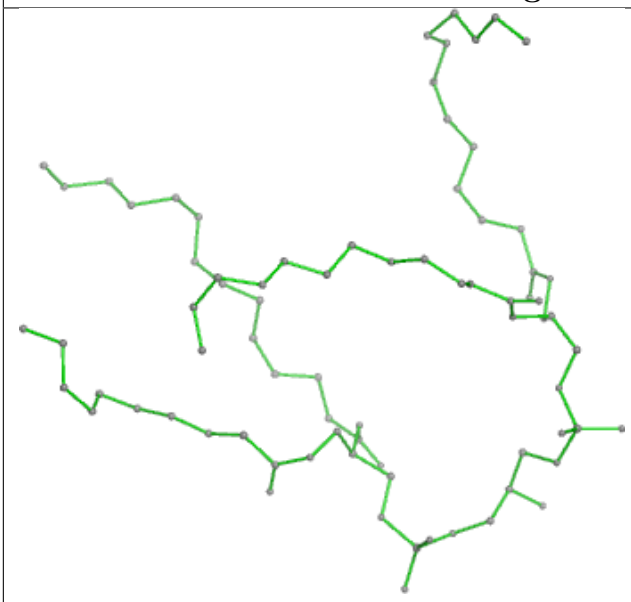


Rings

Ligand CDL R 605



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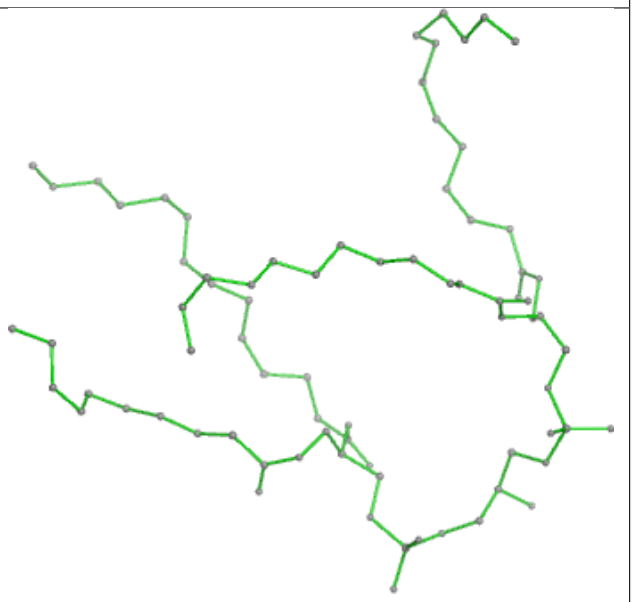
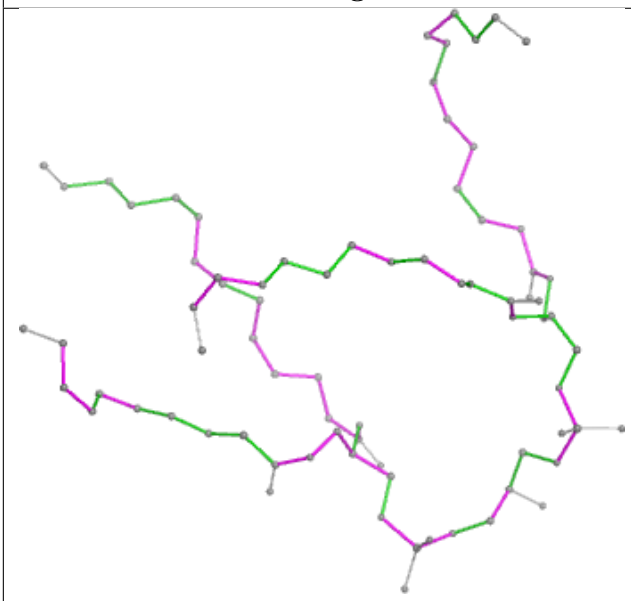
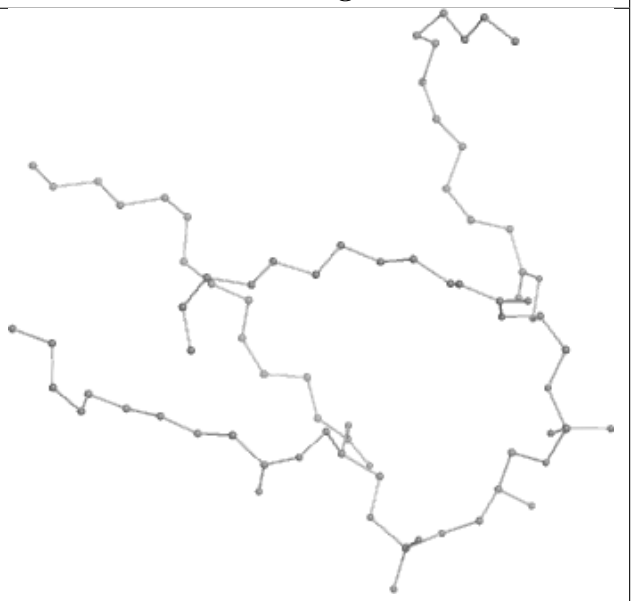


Bond angles

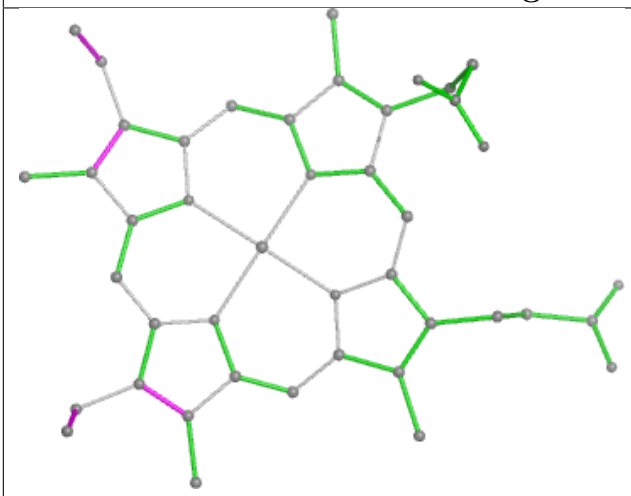


Torsions

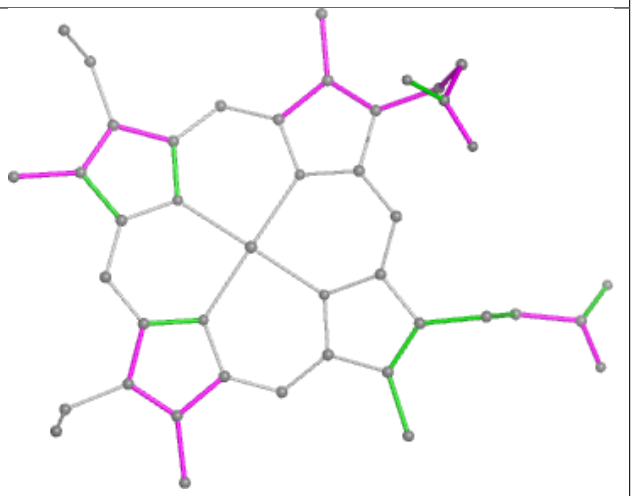


Rings

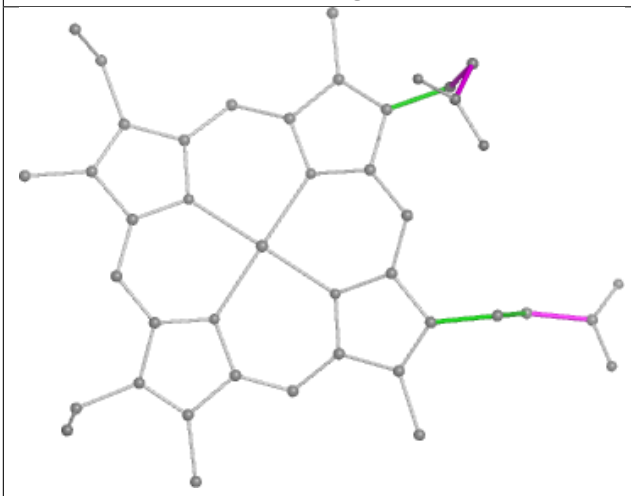
Ligand HEC C 301



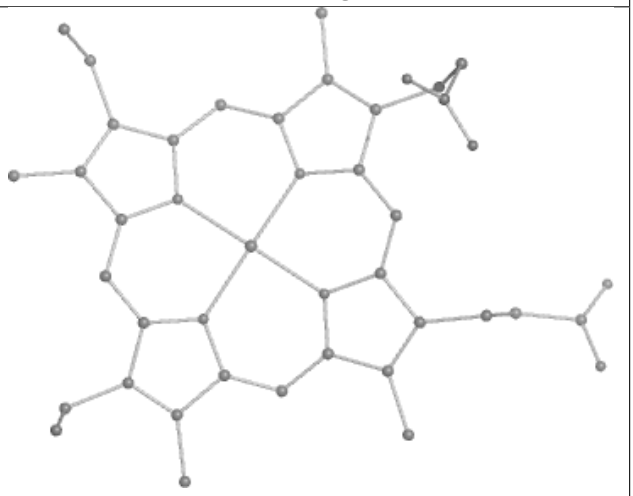
Bond lengths



Bond angles

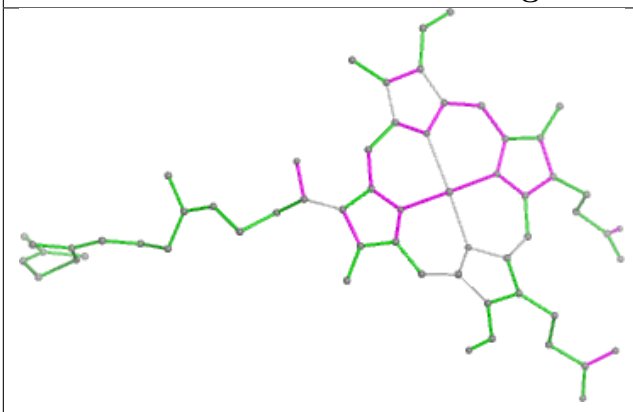


Torsions

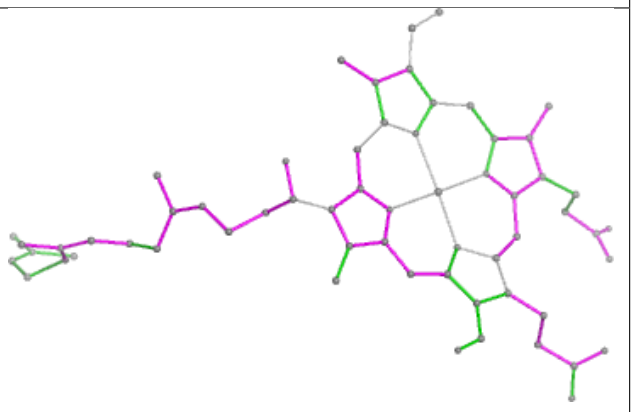


Rings

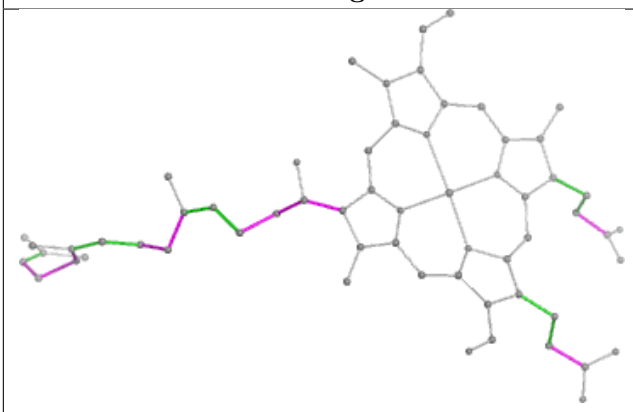
Ligand HEA R 603



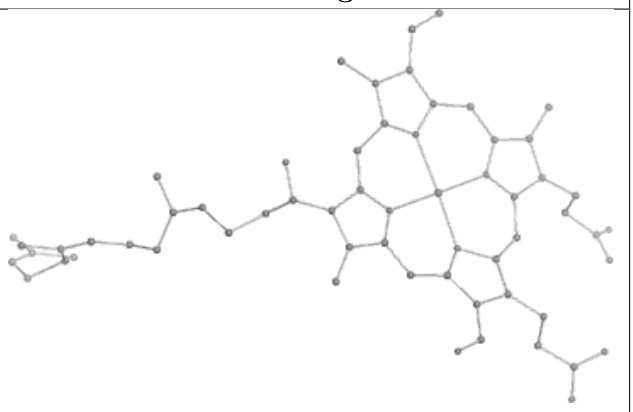
Bond lengths



Bond angles

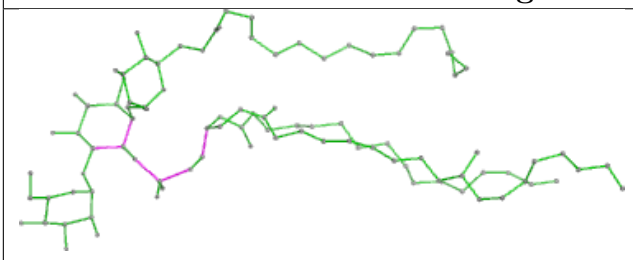


Torsions

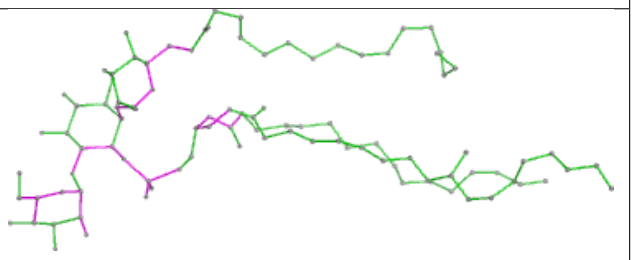


Rings

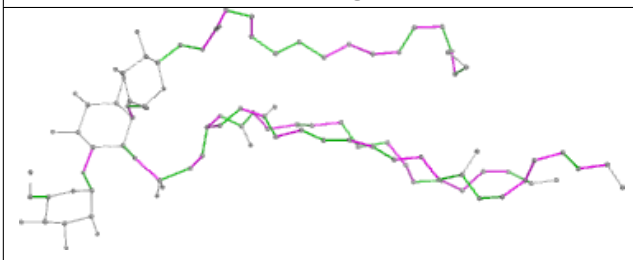
Ligand WUO P 302



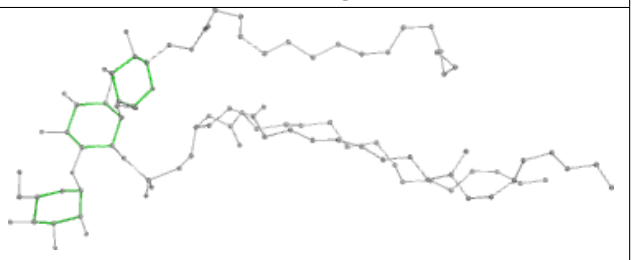
Bond lengths



Bond angles

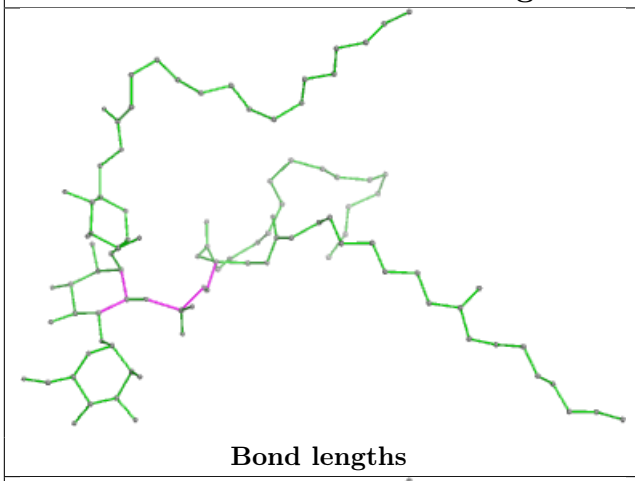


Torsions

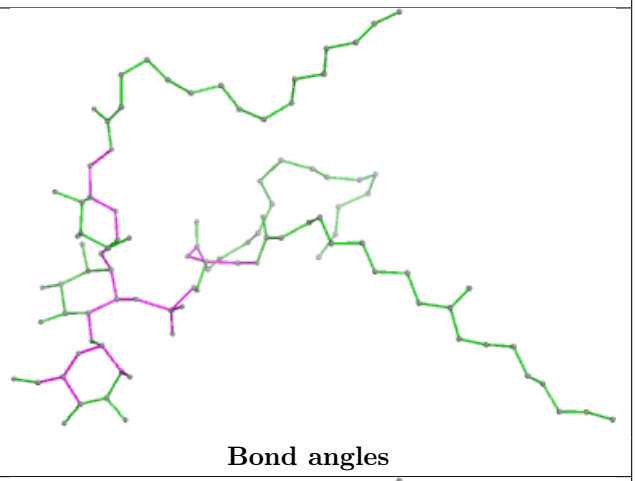


Rings

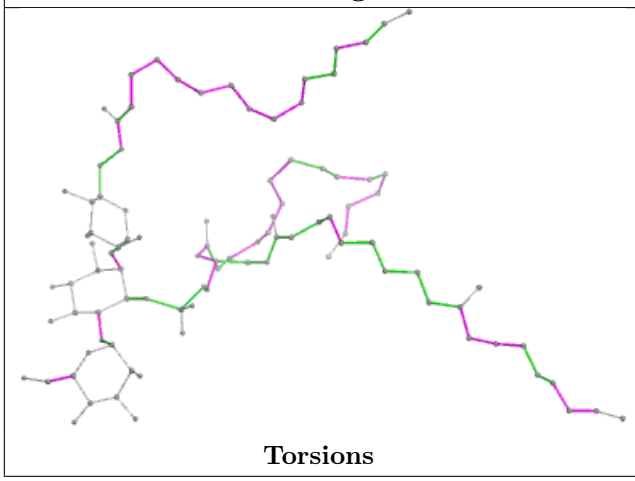
Ligand WUO O 304



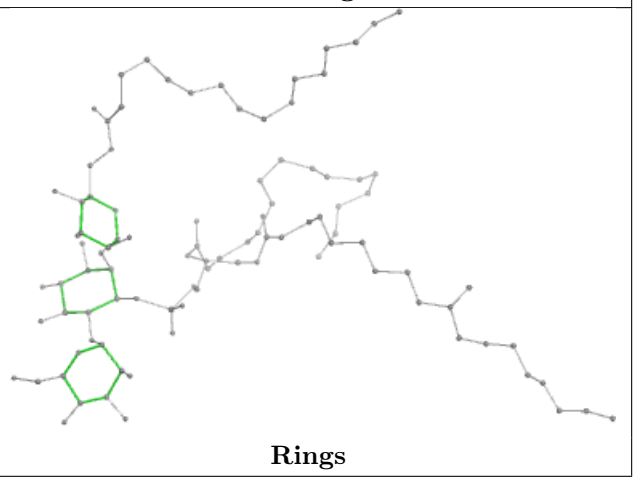
Bond lengths



Bond angles

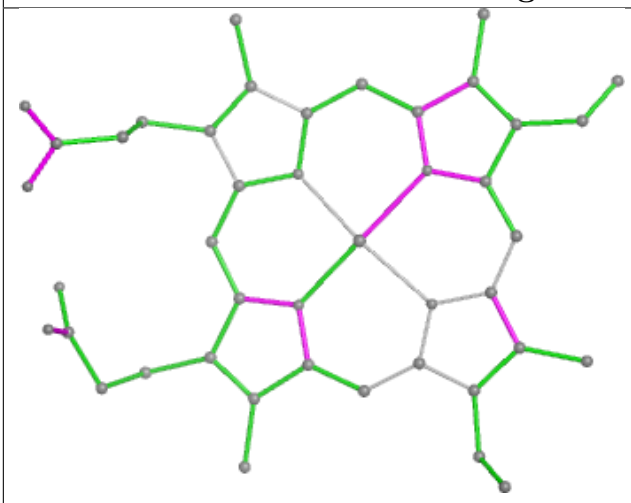


Torsions



Rings

Ligand HEM N 601



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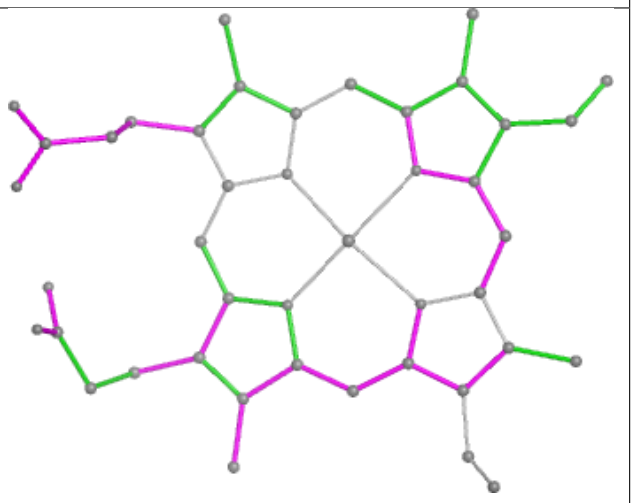
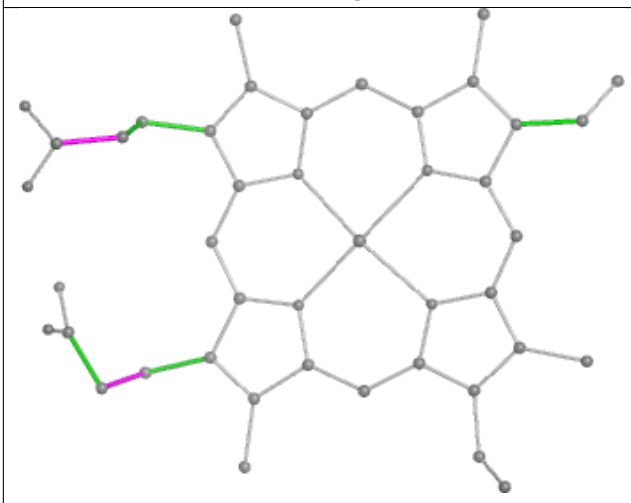
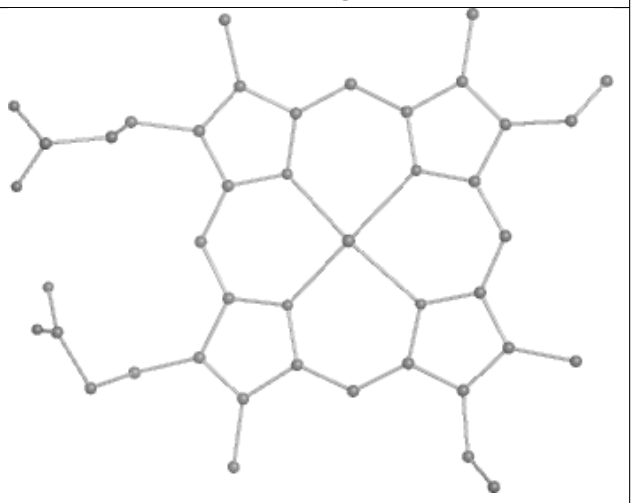


Bond angles

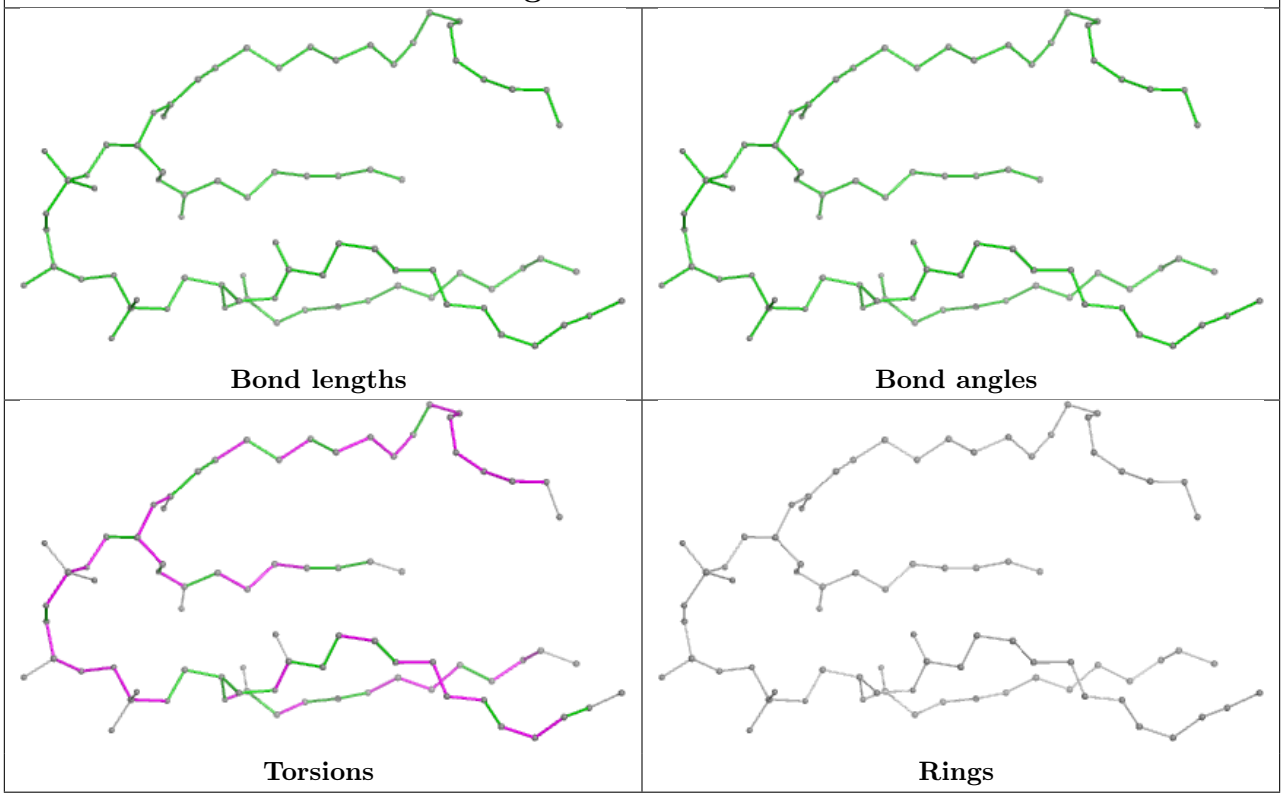


Torsions

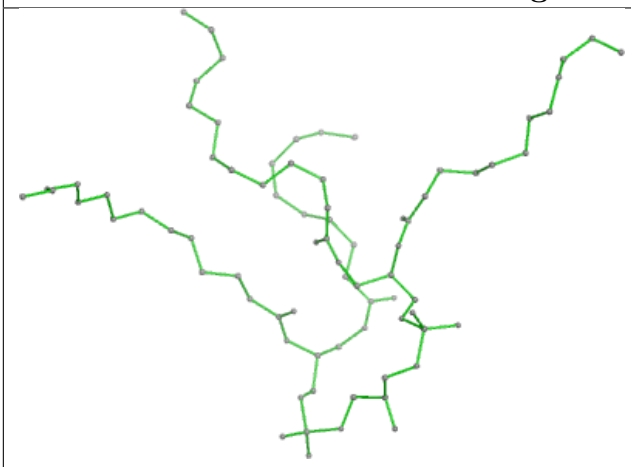


Rings

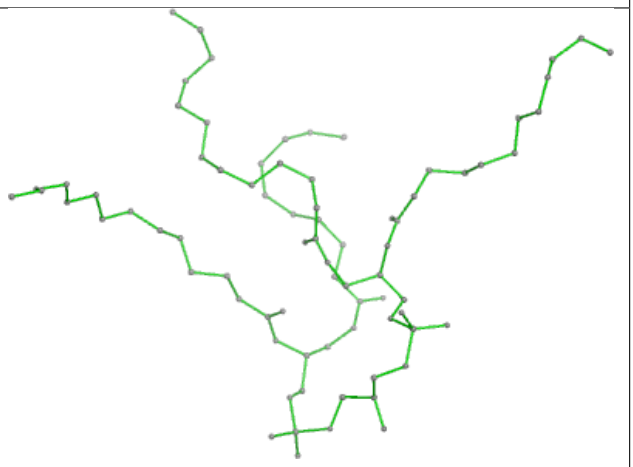
Ligand CDL N 604



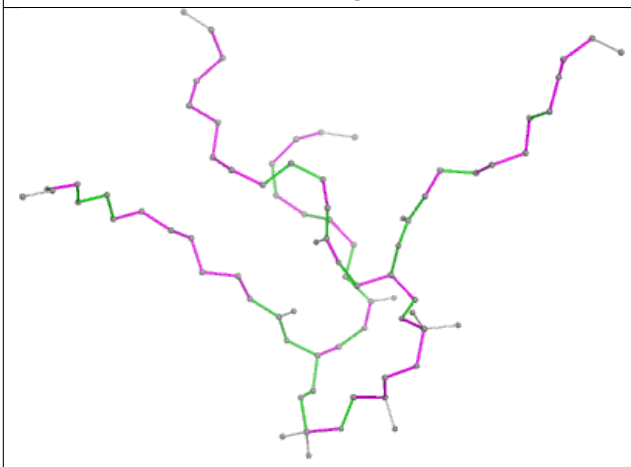
Ligand CDL I 302



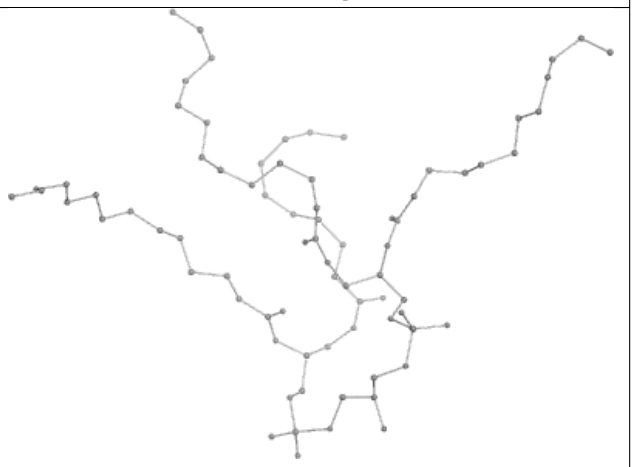
Bond lengths



Bond angles

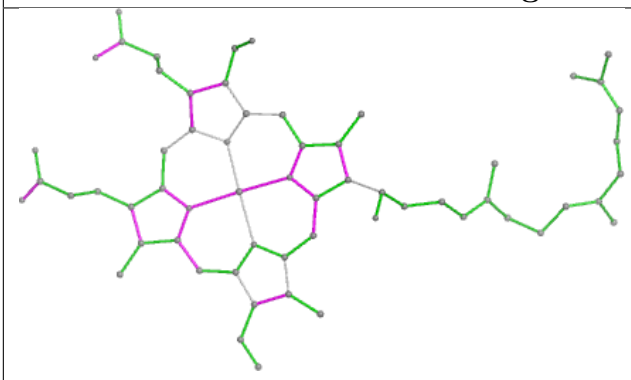


Torsions

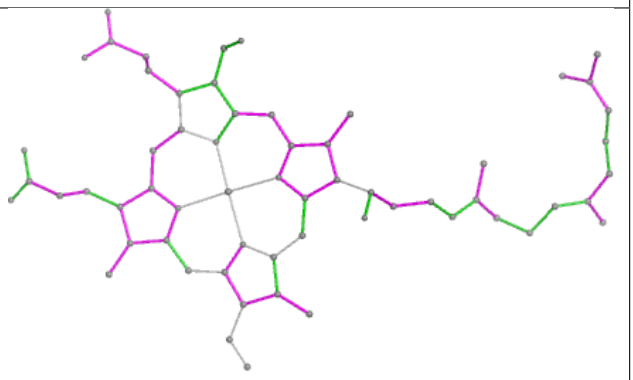


Rings

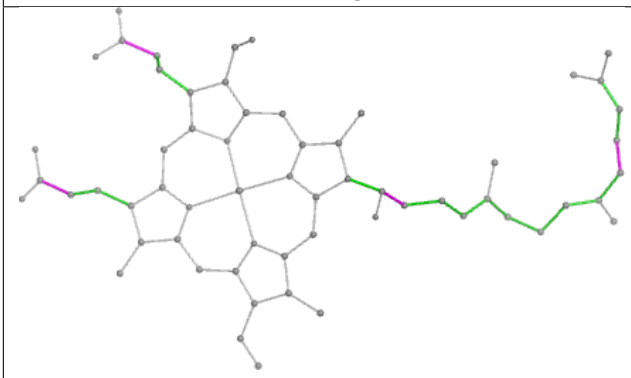
Ligand HEA R 602



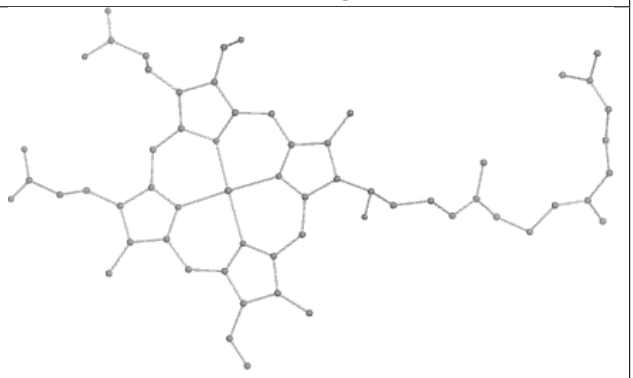
Bond lengths



Bond angles

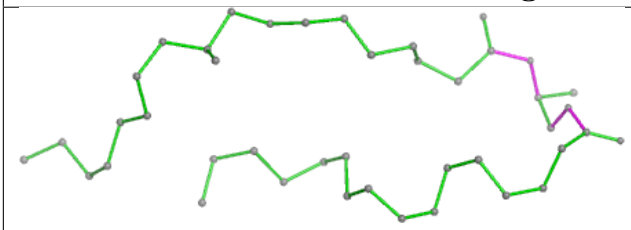


Torsions

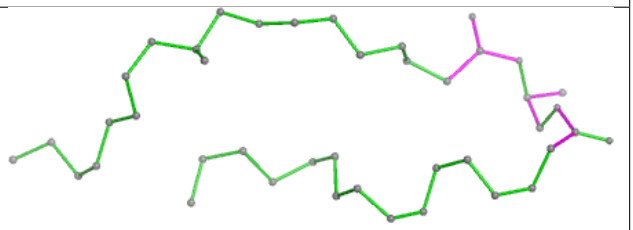


Rings

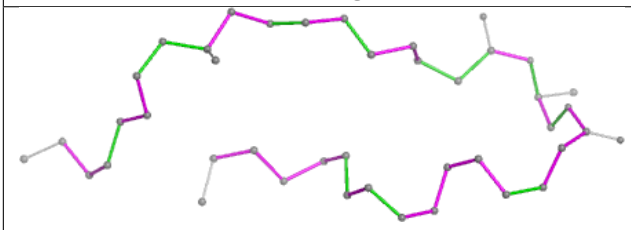
Ligand 9XX W 202



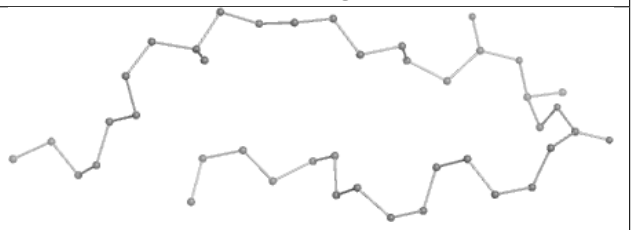
Bond lengths



Bond angles

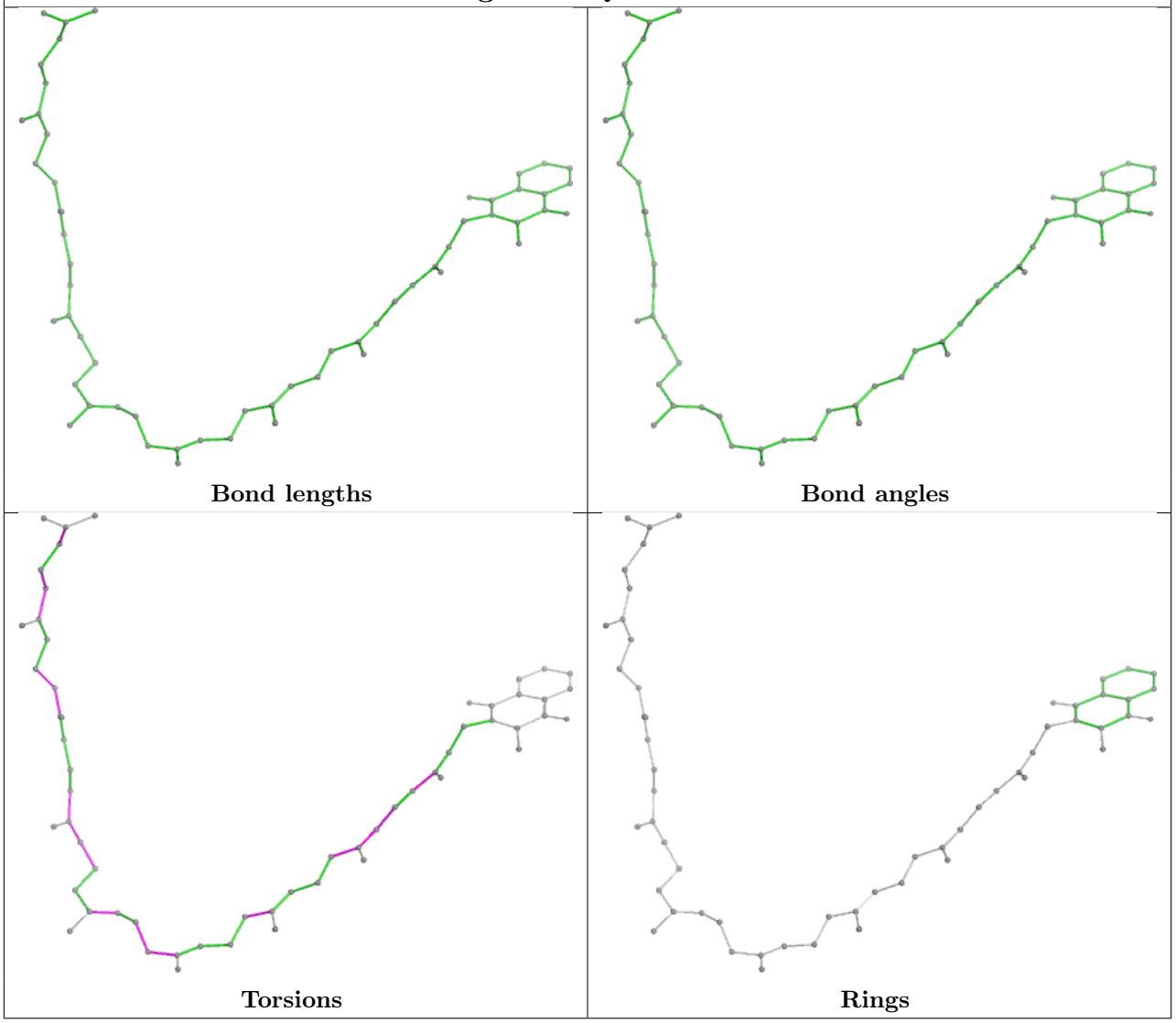


Torsions



Rings

Ligand MQ9 G 901



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

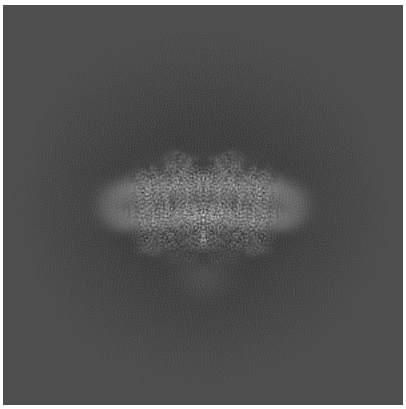
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-17211. These allow visual inspection of the internal detail of the map and identification of artifacts.

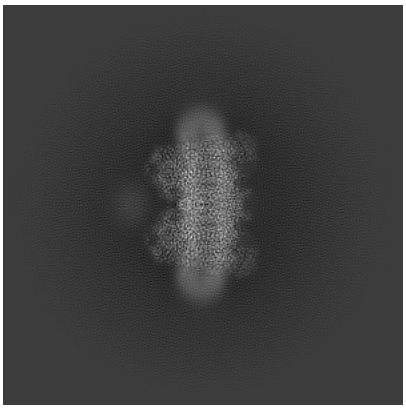
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

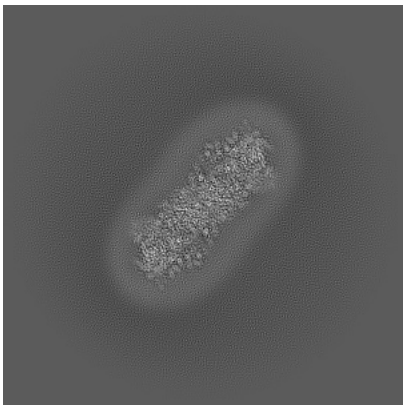
6.1.1 Primary map



X

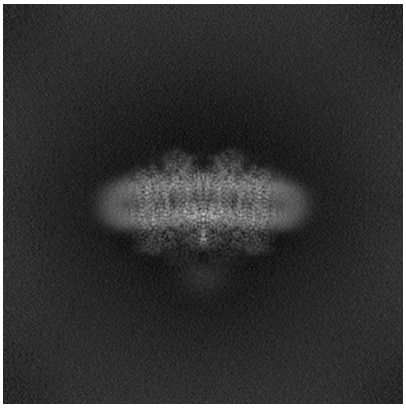


Y

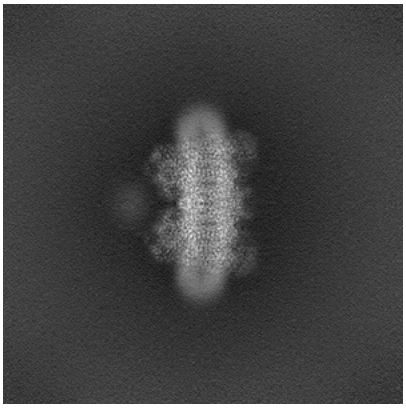


Z

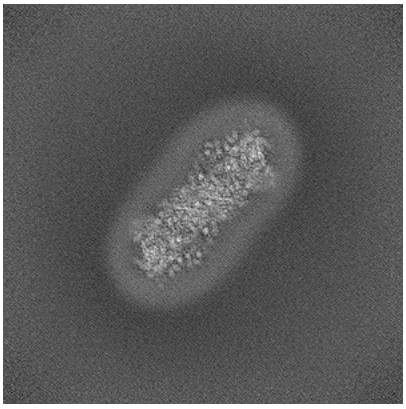
6.1.2 Raw map



X



Y

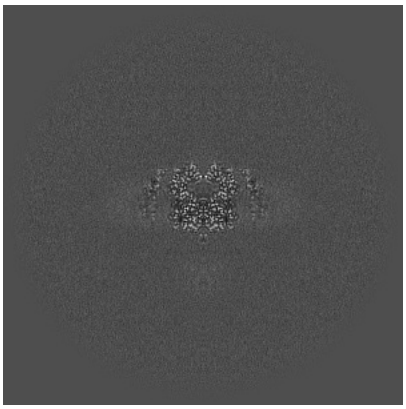


Z

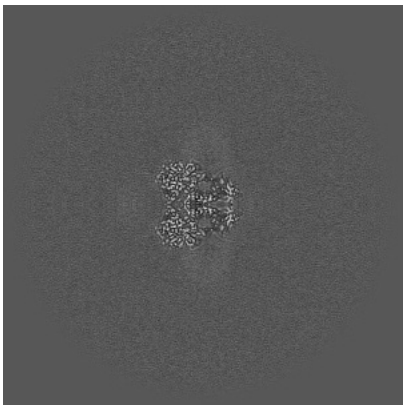
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

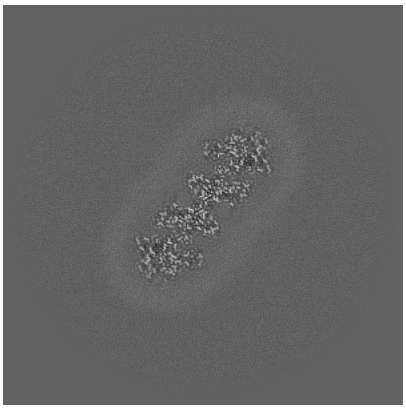
6.2.1 Primary map



X Index: 270

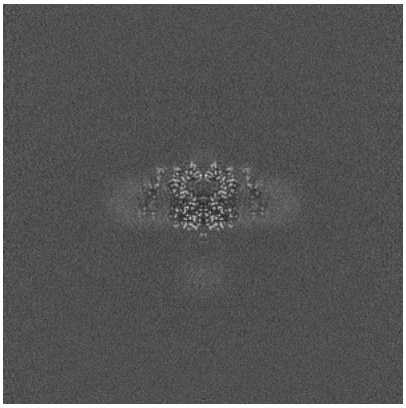


Y Index: 270

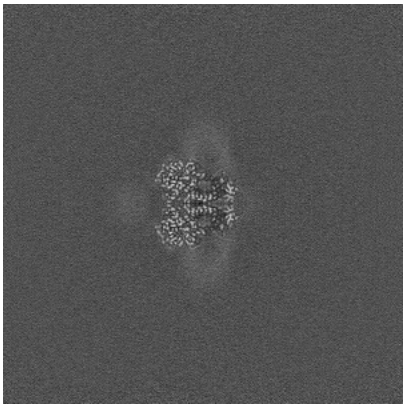


Z Index: 270

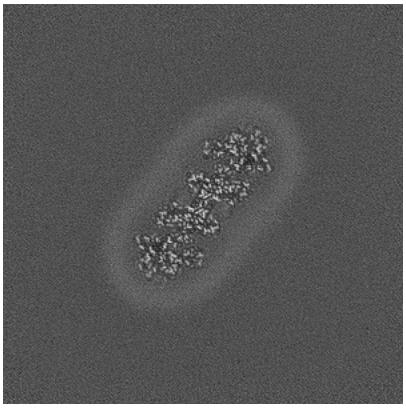
6.2.2 Raw map



X Index: 270



Y Index: 270

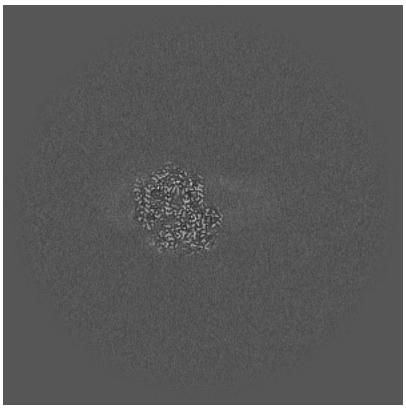


Z Index: 270

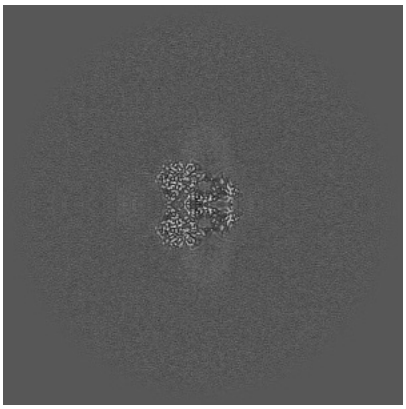
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

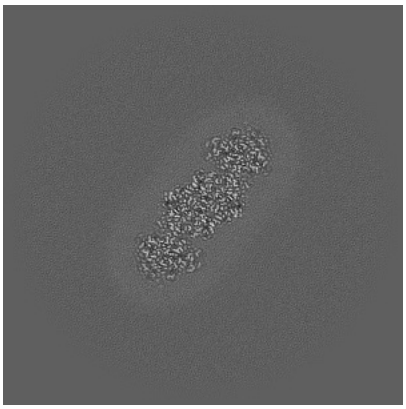
6.3.1 Primary map



X Index: 236

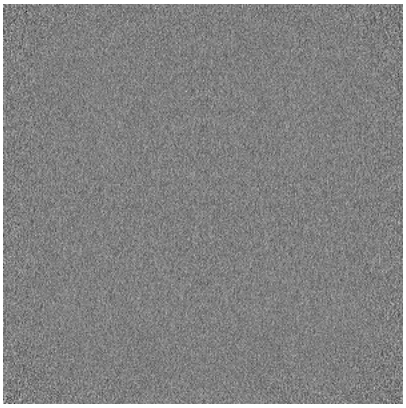


Y Index: 270

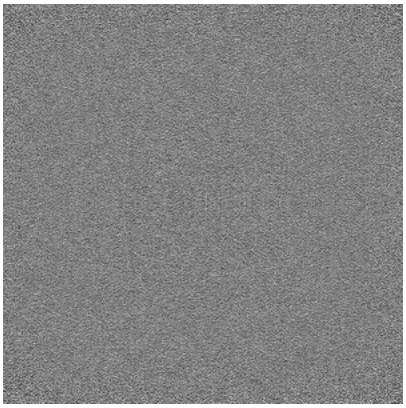


Z Index: 254

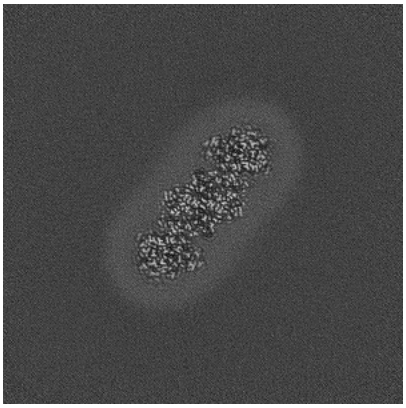
6.3.2 Raw map



X Index: 0



Y Index: 0

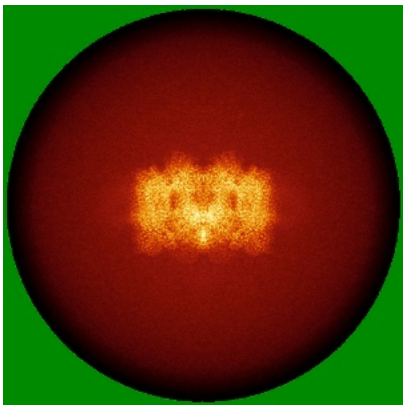


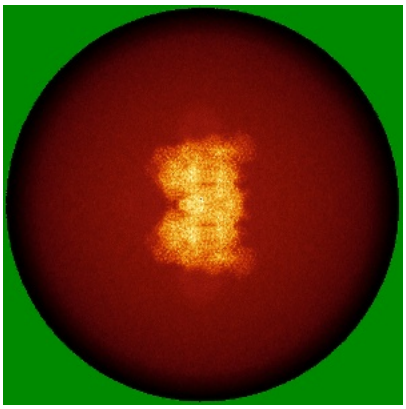
Z Index: 255

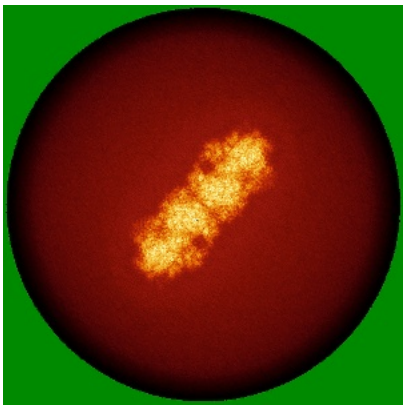
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

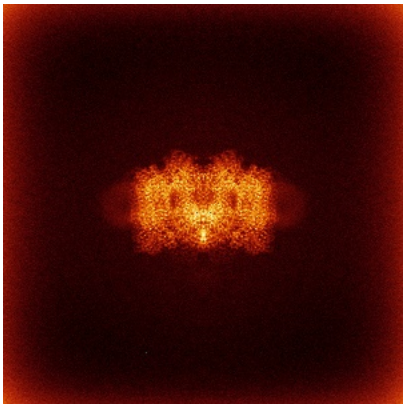
6.4.1 Primary map

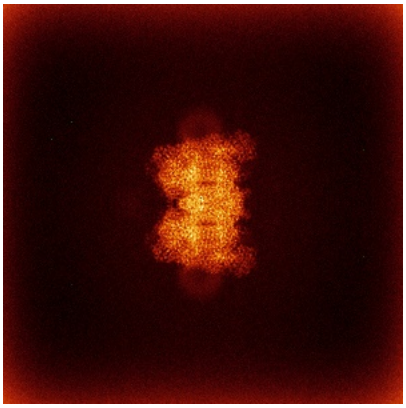

X

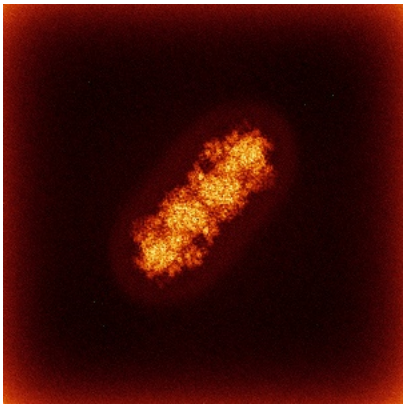

Y


Z

6.4.2 Raw map


X


Y


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

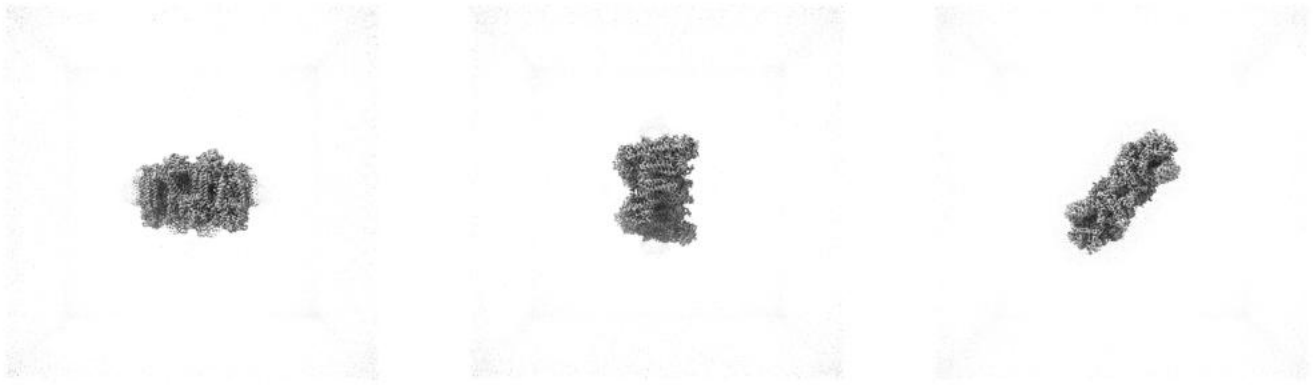
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.32. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

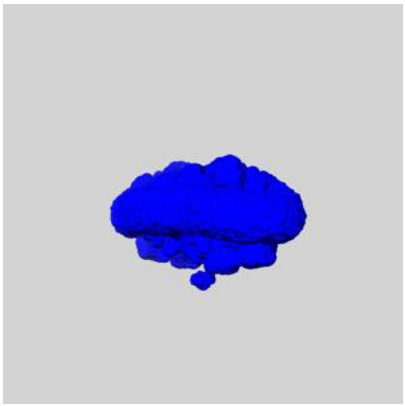
6.6 Mask visualisation

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

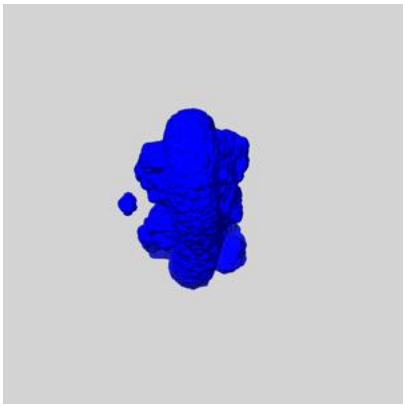
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

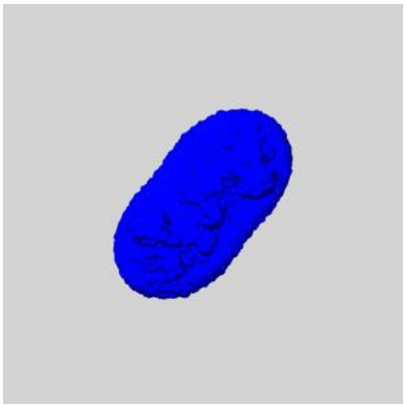
6.6.1 emd_17211_msk_1.map



X



Y

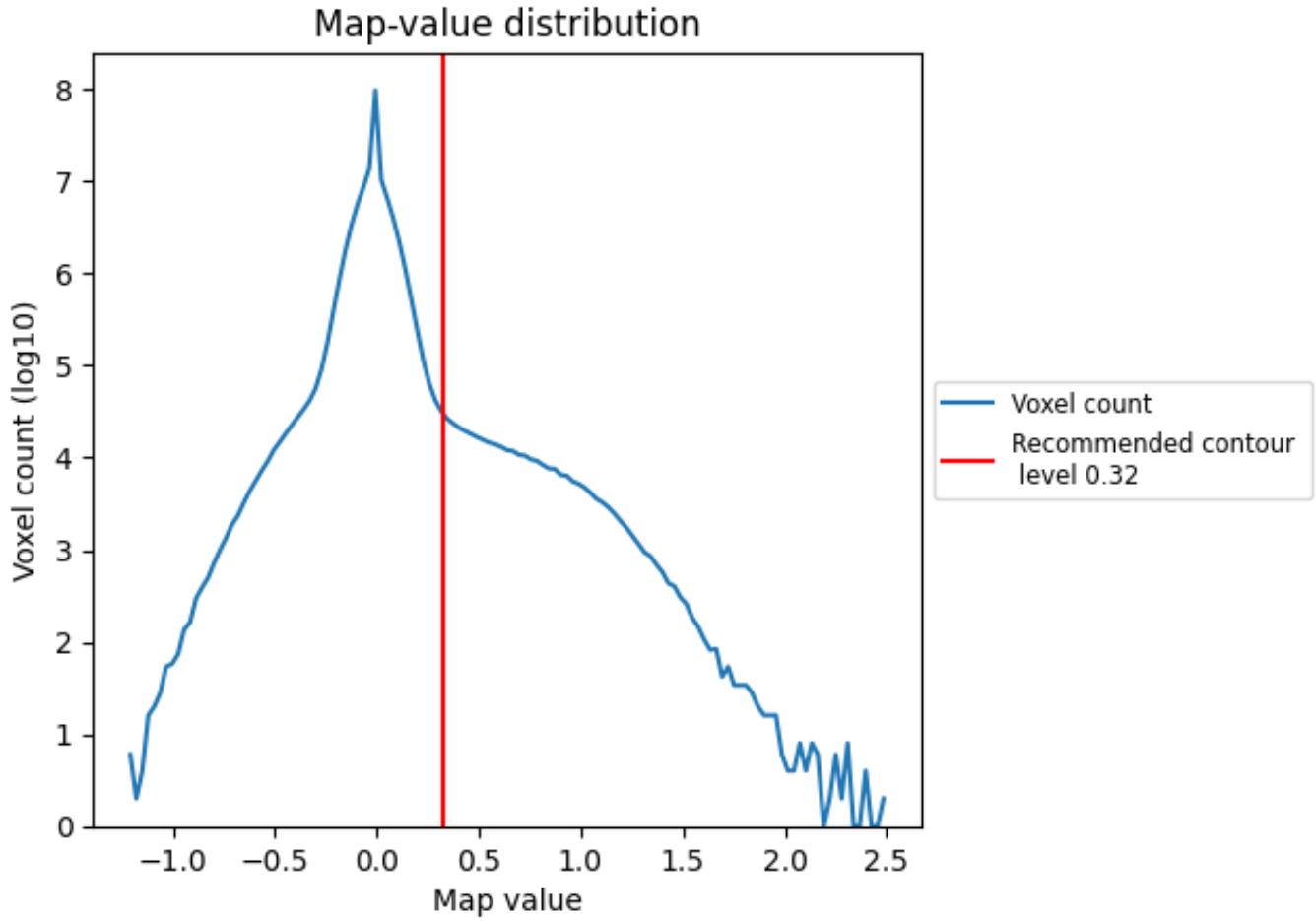


Z

7 Map analysis

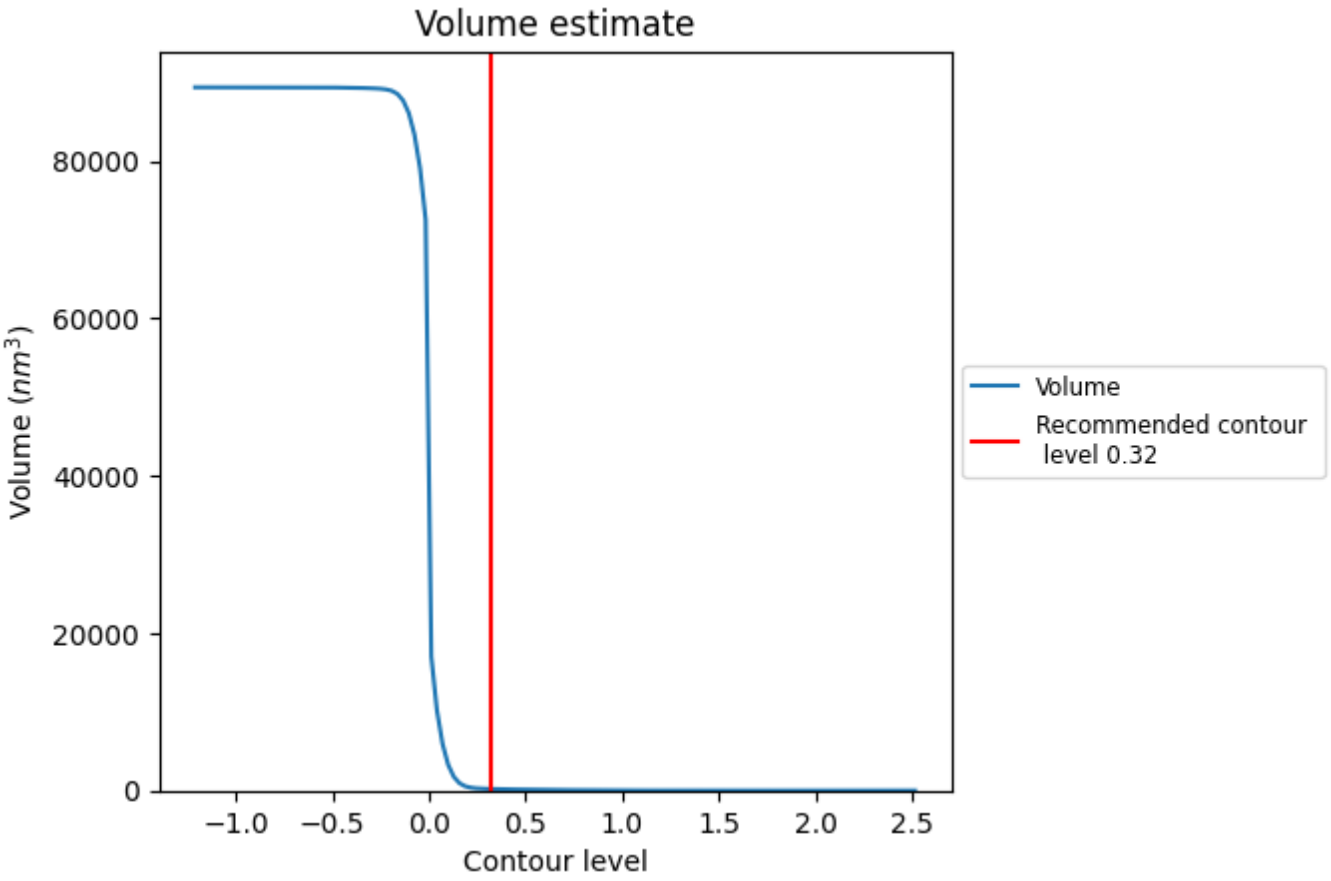
This section contains the results of statistical analysis of the map.

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.

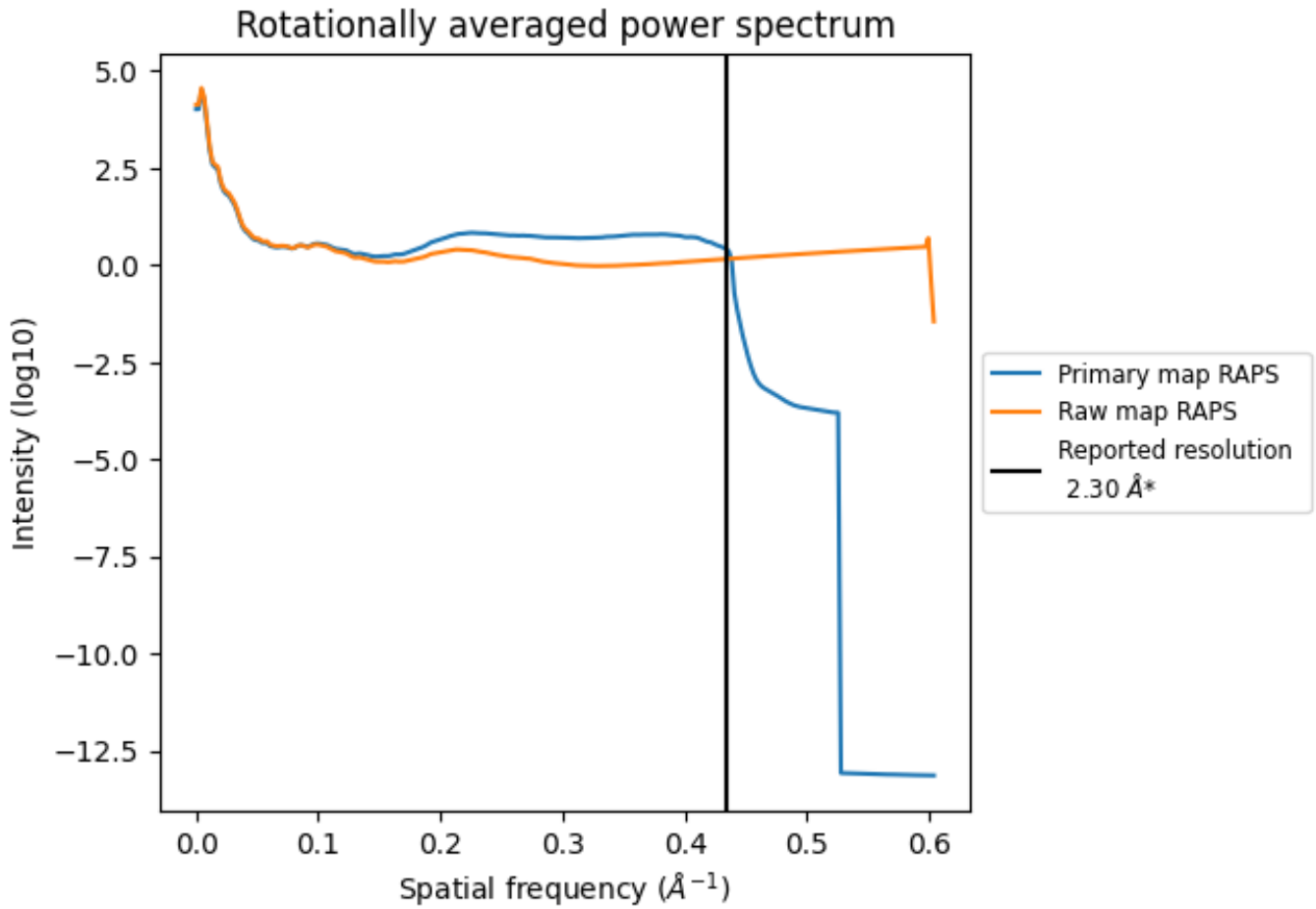
7.2 Volume estimate



The volume at the recommended contour level is 201 nm^3; this corresponds to an approximate mass of 182 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)

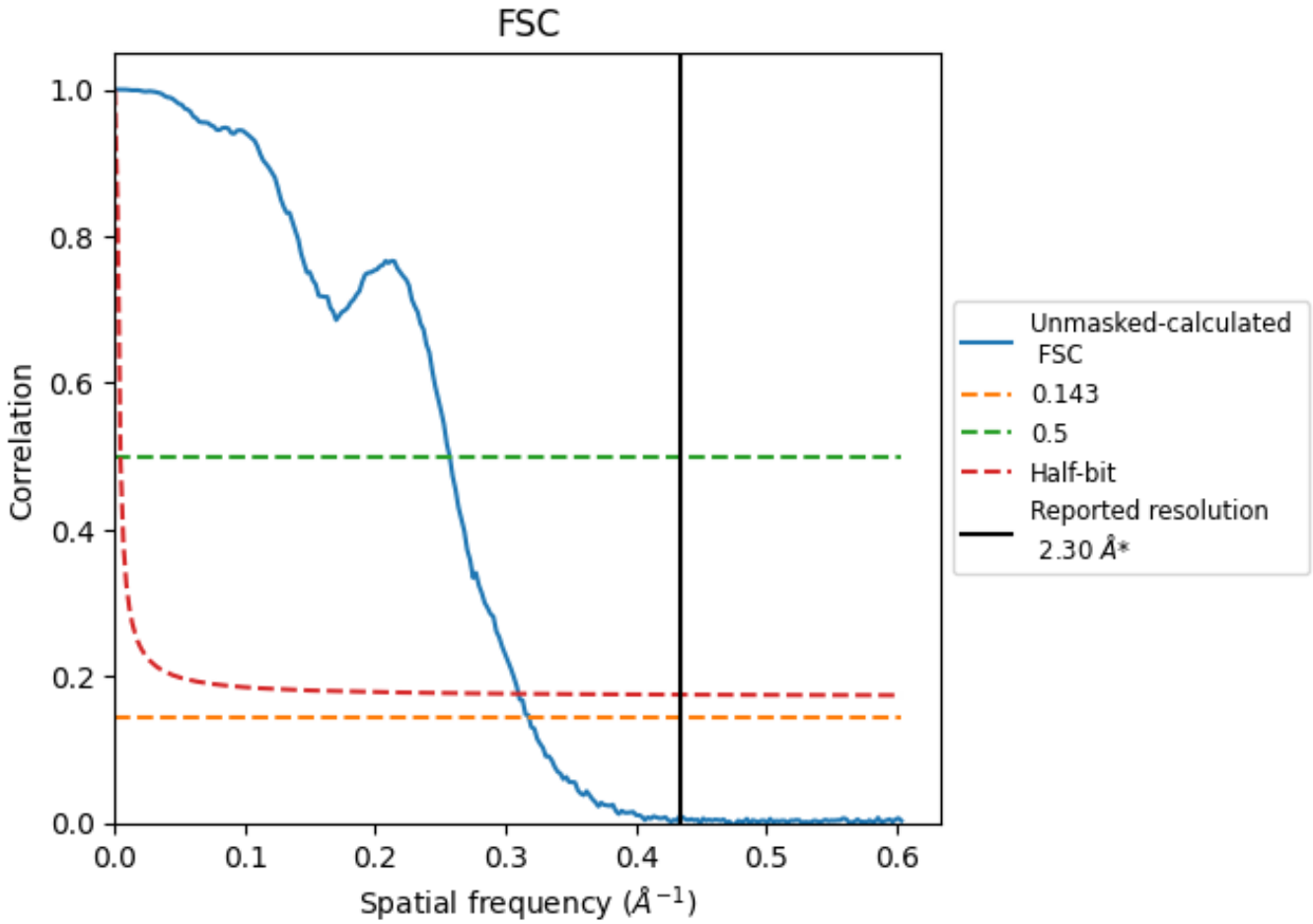


*Reported resolution corresponds to spatial frequency of 0.435 $Å^{-1}$

8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.435 Å^{-1}

8.2 Resolution estimates (i)

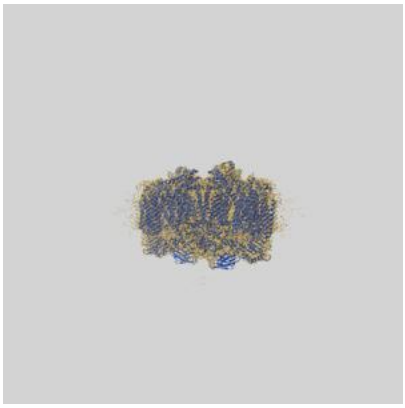
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.30	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.14	3.89	3.23

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.14 differs from the reported value 2.3 by more than 10 %

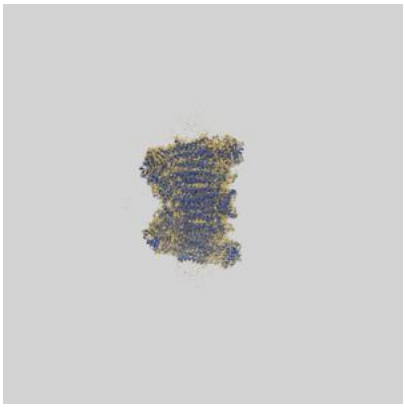
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-17211 and PDB model 8OVD. Per-residue inclusion information can be found in section 3 on page 23.

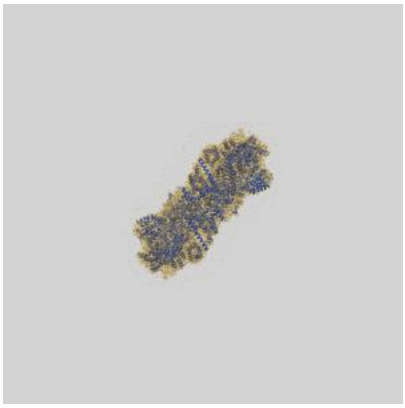
9.1 Map-model overlay



X



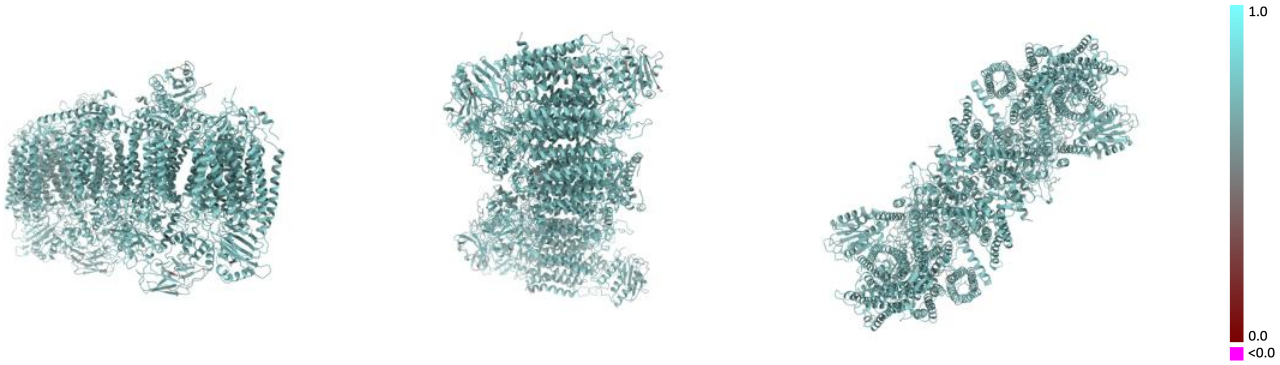
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.32 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.

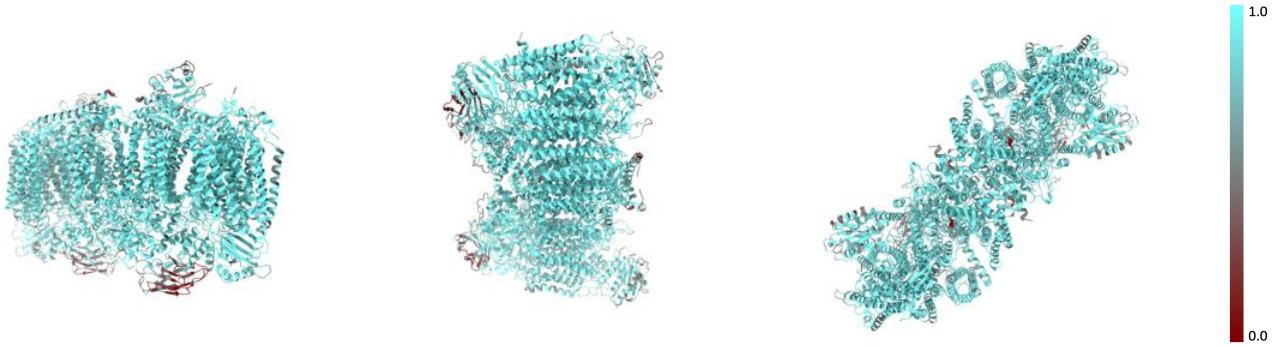
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

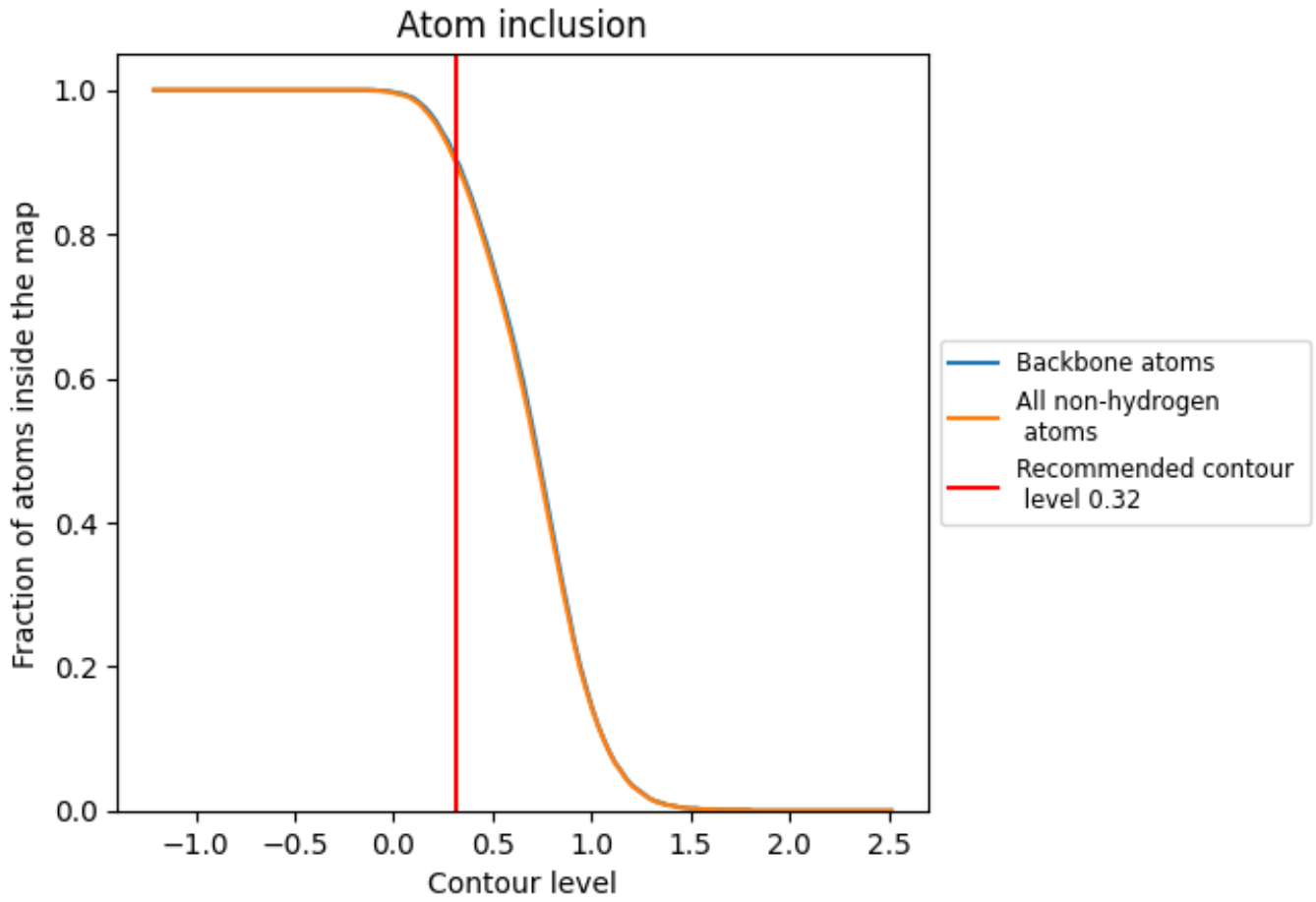
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.32).

9.4 Atom inclusion (i)



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

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.32) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8950	0.6990
C	0.9310	0.7130
G	0.9050	0.6920
H	0.9230	0.7080
I	0.8360	0.6890
J	0.9110	0.6960
K	0.9470	0.7120
L	0.9800	0.7200
M	0.9090	0.6990
N	0.9240	0.7060
O	0.9430	0.7140
P	0.8570	0.6910
Q	0.8700	0.6910
R	0.9760	0.7190
S	0.9320	0.6990
T	0.9290	0.7000
U	0.8090	0.6680
V	0.8310	0.6700
W	0.5000	0.6370
X	0.8670	0.6900
Y	0.7760	0.6620
Z	0.7840	0.6570
a	0.8150	0.6630
b	0.5080	0.6300
c	0.7710	0.6560