wwPDB EM Validation Summary Report ⓘ

Apr 27, 2025 – 12:15 AM JST

PDB ID	:	8YDM / pdb_00008ydm
EMDB ID	:	EMD-39177
Title	:	Cryo-EM structure of CaRC-LH complex from Chloroflexus aurantiacus
Authors	:	Guoqiang, H.; Shishang, D.
Deposited on	:	2024-02-20
Resolution	:	3.05 Å(reported)

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

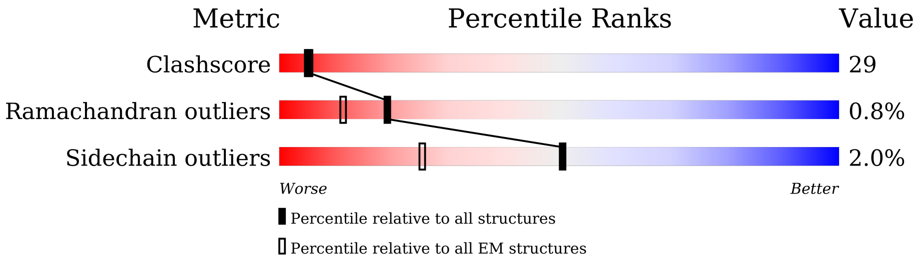
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 3.05 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	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	57	26% 42% 19% 5% • 32%
1	D	57	7% 40% 21% • 37%
1	F	57	9% 40% 23% • 33%
1	H	57	11% 44% 19% 37%
1	J	57	12% 44% 19% 37%
1	O	57	• 28% 21% 7% 5% 39%
1	Q	57	9% 46% 16% • 37%
2	B	53	42% 36% 36% 6% • 19%

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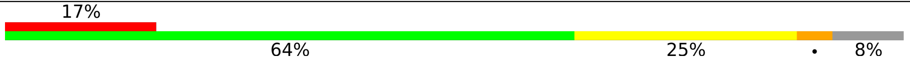
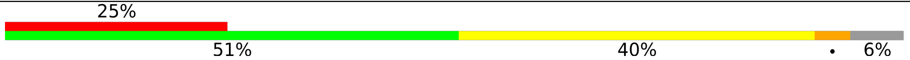
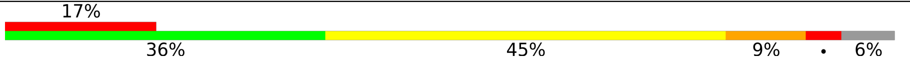
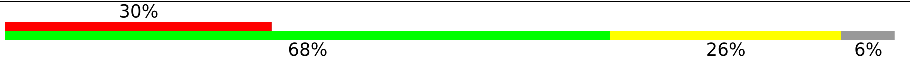
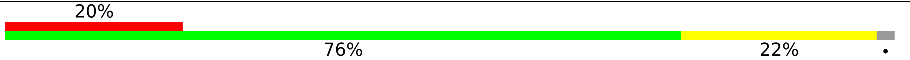
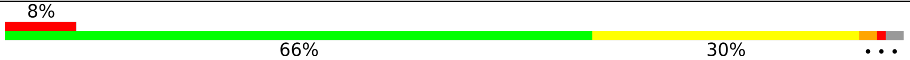
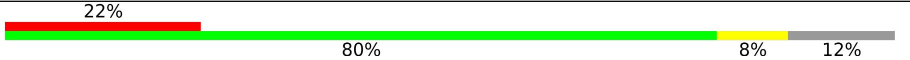
Mol	Chain	Length	Quality of chain
2	E	53	
2	G	53	
2	I	53	
2	K	53	
2	P	53	
2	R	53	
3	C	414	
4	L	311	
5	M	307	
6	N	64	

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
10	PGV	C	505	-	-	X	-
12	BPH	L	403	X	-	-	-
12	BPH	M	401	X	-	-	-
7	BCL	M	402	-	-	X	-
7	BCL	O	103	-	-	X	-
8	U4Z	A	102	-	X	-	-
8	U4Z	D	102	-	X	-	-
8	U4Z	D	104	-	X	-	-
8	U4Z	G	101	-	X	-	-
8	U4Z	I	101	-	X	-	-
8	U4Z	I	102	-	X	-	-
8	U4Z	R	101	-	X	-	-
9	HEM	C	504	-	-	X	-

2 Entry composition

There are 13 unique types of molecules in this entry. The entry contains 15637 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 Light-harvesting protein B-808/866 alpha chain.

Mol	Chain	Residues	Atoms	AltConf	Trace
1	A	39	Total C N O 314 210 51 53	0	0
1	D	36	Total C N O 289 196 45 48	0	0
1	F	38	Total C N O 307 207 50 50	0	0
1	H	36	Total C N O 293 200 47 46	0	0
1	J	36	Total C N O 289 196 45 48	0	0
1	O	35	Total C N O 283 193 44 46	0	0
1	Q	36	Total C N O 289 196 45 48	0	0

- Molecule 2 is a protein called Light-harvesting protein B-808/866 beta chain.

Mol	Chain	Residues	Atoms	AltConf	Trace
2	B	43	Total C N O 370 257 60 53	0	0
2	E	50	Total C N O 424 290 67 67	0	0
2	G	49	Total C N O 416 286 66 64	0	0
2	I	50	Total C N O 423 290 67 66	0	0
2	K	50	Total C N O 424 290 67 67	0	0
2	P	50	Total C N O 424 290 67 67	0	0
2	R	50	Total C N O 424 290 67 67	0	0

- Molecule 3 is a protein called Cytochrome c-554.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	407	Total	C	N	O	S	0	0
			3155	1999	552	589	15		

- Molecule 4 is a protein called Reaction center protein L chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	L	306	Total	C	N	O	S	0	0
			2463	1649	393	412	9		

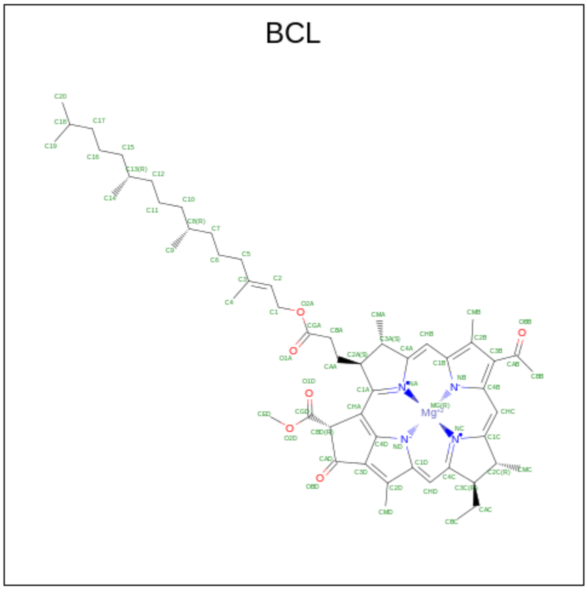
- Molecule 5 is a protein called Reaction center protein M chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	M	295	Total	C	N	O	S	0	0
			2404	1621	379	394	10		

- Molecule 6 is a protein called hypothetical protein chain N.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	N	56	Total	C	N	O	S	0	0
			421	273	74	72	2		

- Molecule 7 is BACTERIOCHLOROPHYLL A (CCD ID: BCL) (formula: $C_{55}H_{74}MgN_4O_6$).



Mol	Chain	Residues	Atoms					AltConf
7	A	1	Total	C	Mg	N	O	0
			53	42	1	4	6	

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Mol	Chain	Residues	Atoms	AltConf
7	A	1	Total C Mg N O 47 36 1 4 6	0
7	A	1	Total C Mg N O 49 38 1 4 6	0
7	D	1	Total C Mg N O 48 37 1 4 6	0
7	D	1	Total C Mg N O 47 36 1 4 6	0
7	E	1	Total C Mg N O 46 35 1 4 6	0
7	F	1	Total C Mg N O 47 36 1 4 6	0
7	G	1	Total C Mg N O 48 37 1 4 6	0
7	G	1	Total C Mg N O 46 35 1 4 6	0
7	H	1	Total C Mg N O 42 33 1 4 4	0
7	I	1	Total C Mg N O 46 35 1 4 6	0
7	I	1	Total C Mg N O 44 35 1 4 4	0
7	J	1	Total C Mg N O 47 36 1 4 6	0
7	K	1	Total C Mg N O 47 36 1 4 6	0
7	K	1	Total C Mg N O 51 40 1 4 6	0
7	L	1	Total C Mg N O 66 55 1 4 6	0
7	M	1	Total C Mg N O 66 55 1 4 6	0
7	M	1	Total C Mg N O 66 55 1 4 6	0
7	O	1	Total C Mg N O 47 36 1 4 6	0
7	O	1	Total C Mg N O 47 36 1 4 6	0
7	P	1	Total C Mg N O 48 37 1 4 6	0
7	Q	1	Total C Mg N O 47 36 1 4 6	0

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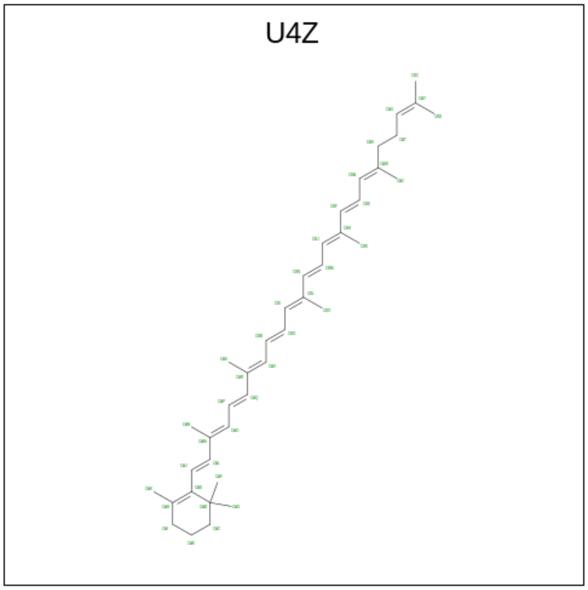
Mol	Chain	Residues	Atoms	AltConf
7	R	1	Total C Mg N O 47 36 1 4 6	0
7	R	1	Total C Mg N O 43 34 1 4 4	0

- Molecule 8 is gamma-Carotene (CCD ID: U4Z) (formula: $C_{40}H_{56}$).



Mol	Chain	Residues	Atoms	AltConf
8	A	1	Total C 40 40	0
8	B	1	Total C 40 40	0
8	D	1	Total C 40 40	0
8	D	1	Total C 40 40	0
8	G	1	Total C 40 40	0
8	I	1	Total C 40 40	0
8	I	1	Total C 40 40	0
8	K	1	Total C 40 40	0
8	K	1	Total C 40 40	0

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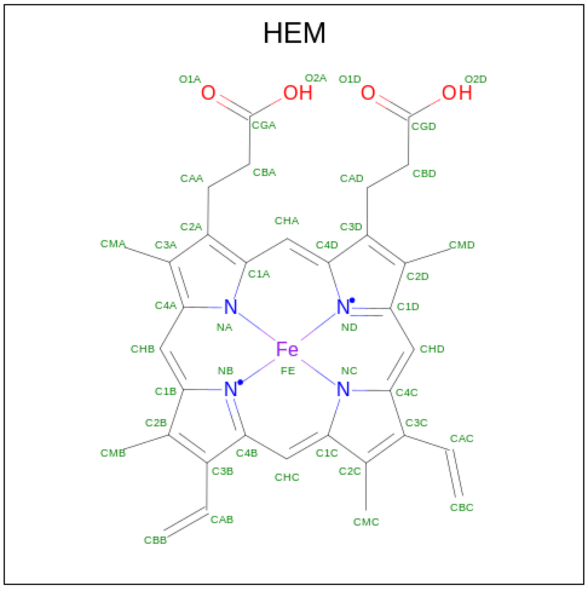
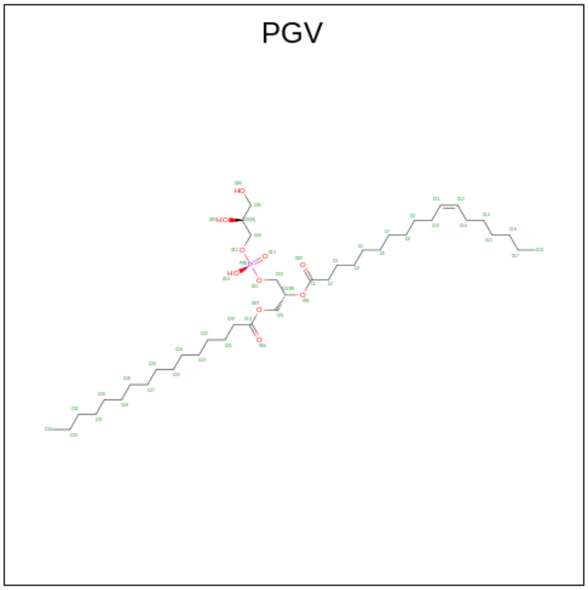
Mol	Chain	Residues	Atoms		AltConf
			Total	C	
8	O	1	Total 40	C 40	0
8	P	1	Total 40	C 40	0
8	Q	1	Total 40	C 40	0
8	R	1	Total 40	C 40	0

- Molecule 9 is PROTOPORPHYRIN IX CONTAINING FE (CCD ID: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



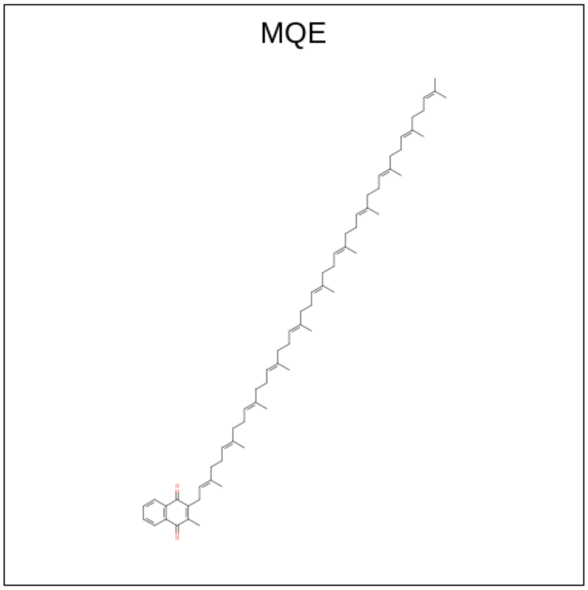
Mol	Chain	Residues	Atoms					AltConf
9	C	1	Total 43	C 34	Fe 1	N 4	O 4	0
9	C	1	Total 43	C 34	Fe 1	N 4	O 4	0
9	C	1	Total 43	C 34	Fe 1	N 4	O 4	0
9	C	1	Total 43	C 34	Fe 1	N 4	O 4	0

- Molecule 10 is (1R)-2-{[{[(2S)-2,3-DIHYDROXYPROPYL]OXY}(HYDROXY)PHOSPHORYL]OXY}-1-[(PALMITOYLOXY)METHYL]ETHYL (11E)-OCTADEC-11-ENOATE (CCD ID: PGV) (formula: $C_{40}H_{77}O_{10}P$).



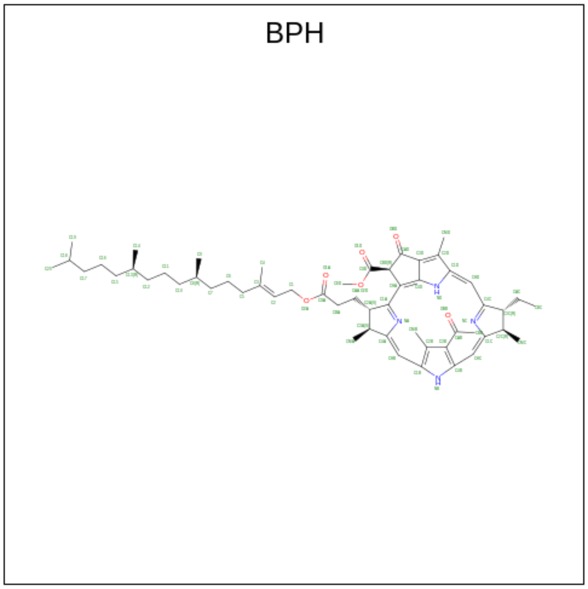
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
10	C	1	45	34	10	1	0

- Molecule 11 is 2-methyl-3-[(2E,6E,10E,14E,18E,22E,26E,30E,34E,38E)-3,7,11,15,19,23,27,31,35,39,43-undecamethyltetratetraconta-2,6,10,14,18,22,26,30,34,38,42-undecaen-1-yl]naphthalene-1,4-dione (CCD ID: MQE) (formula: $C_{66}H_{96}O_2$).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
11	L	1	63	61	2	0
11	M	1	63	61	2	0

- Molecule 12 is BACTERIOPHEOPHYTIN A (CCD ID: BPH) (formula: $C_{55}H_{76}N_4O_6$).



Mol	Chain	Residues	Atoms	AltConf
12	L	1	Total C N O 65 55 4 6	0
12	M	1	Total C N O 65 55 4 6	0
12	M	1	Total C N O 46 36 4 6	0

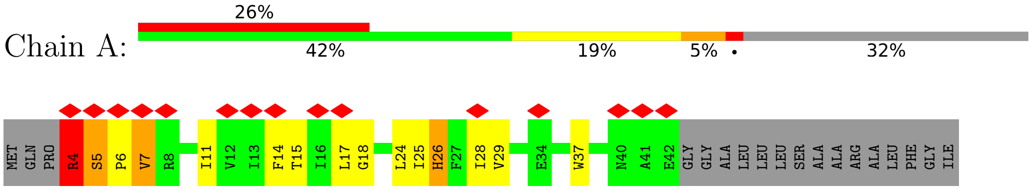
- Molecule 13 is MANGANESE (II) ION (CCD ID: MN) (formula: Mn).

Mol	Chain	Residues	Atoms	AltConf
13	M	1	Total Mn 1 1	0

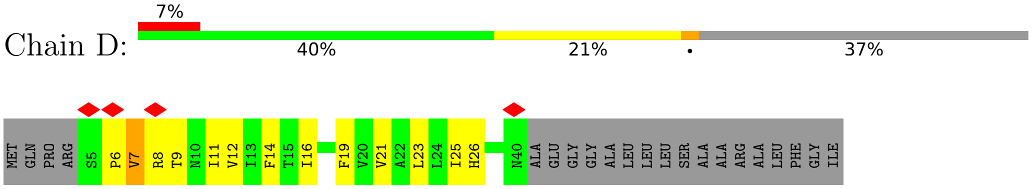
3 Residue-property plots ⓘ

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

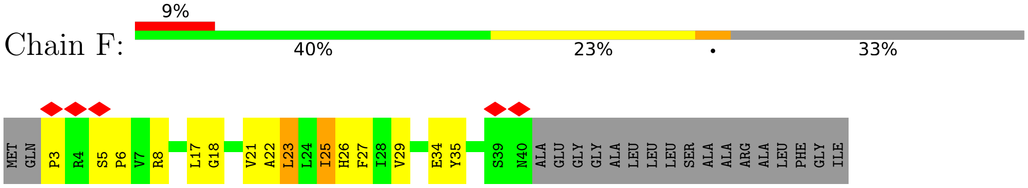
- Molecule 1: Light-harvesting protein B-808/866 alpha chain



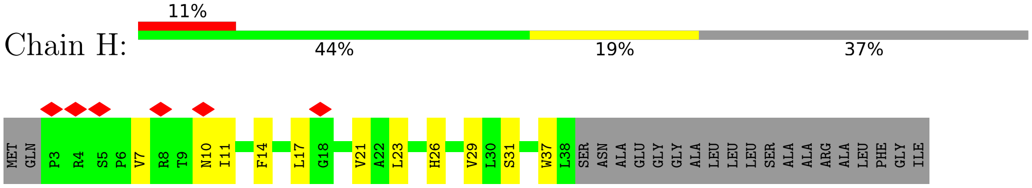
- Molecule 1: Light-harvesting protein B-808/866 alpha chain



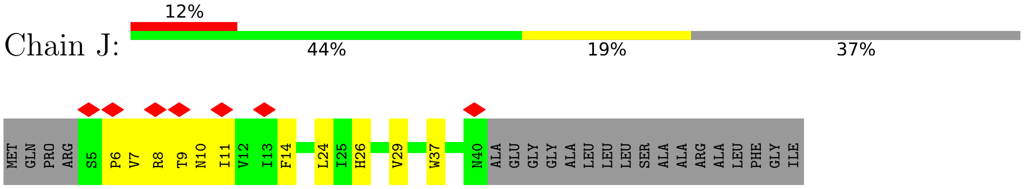
- Molecule 1: Light-harvesting protein B-808/866 alpha chain



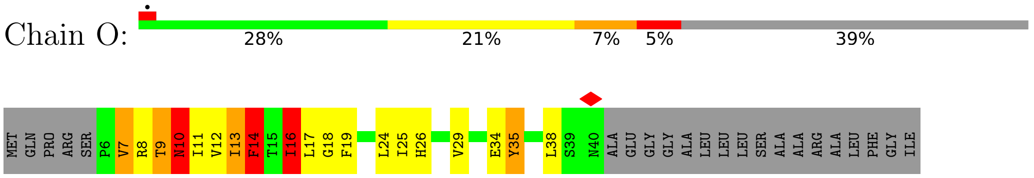
- Molecule 1: Light-harvesting protein B-808/866 alpha chain



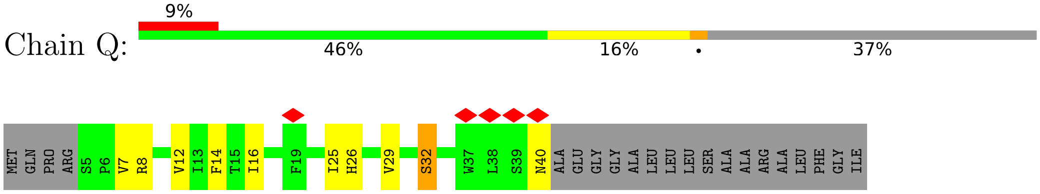
- Molecule 1: Light-harvesting protein B-808/866 alpha chain



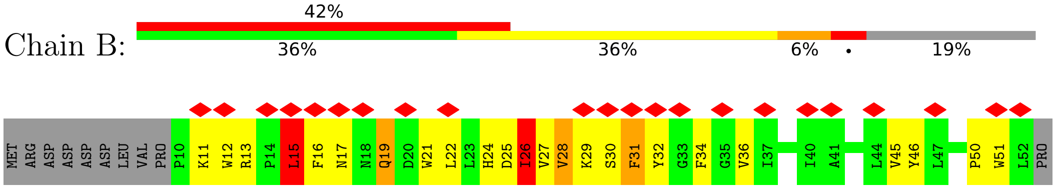
- Molecule 1: Light-harvesting protein B-808/866 alpha chain



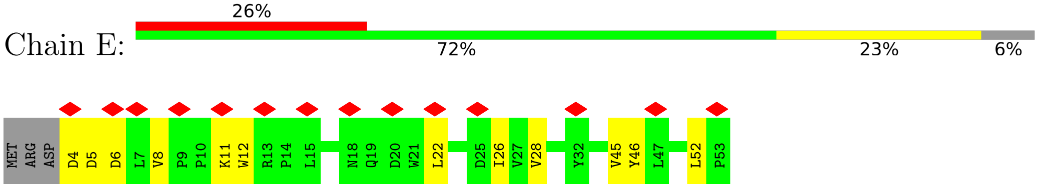
- Molecule 1: Light-harvesting protein B-808/866 alpha chain



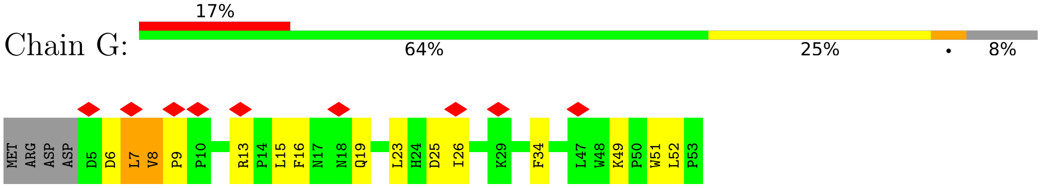
- Molecule 2: Light-harvesting protein B-808/866 beta chain



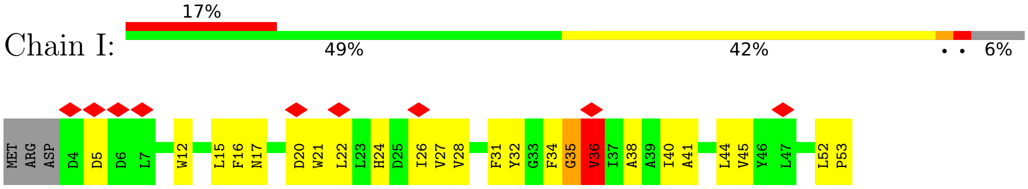
- Molecule 2: Light-harvesting protein B-808/866 beta chain



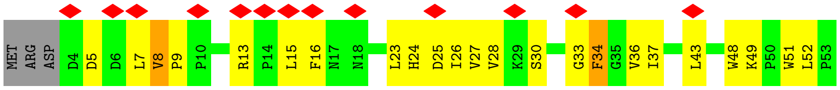
- Molecule 2: Light-harvesting protein B-808/866 beta chain



- Molecule 2: Light-harvesting protein B-808/866 beta chain

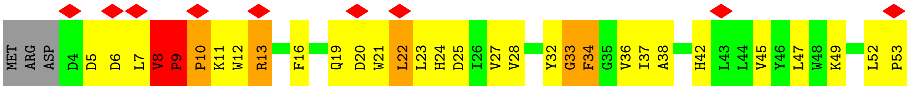


- Molecule 2: Light-harvesting protein B-808/866 beta chain



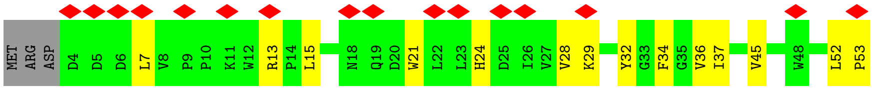
- Molecule 2: Light-harvesting protein B-808/866 beta chain

Chain P:



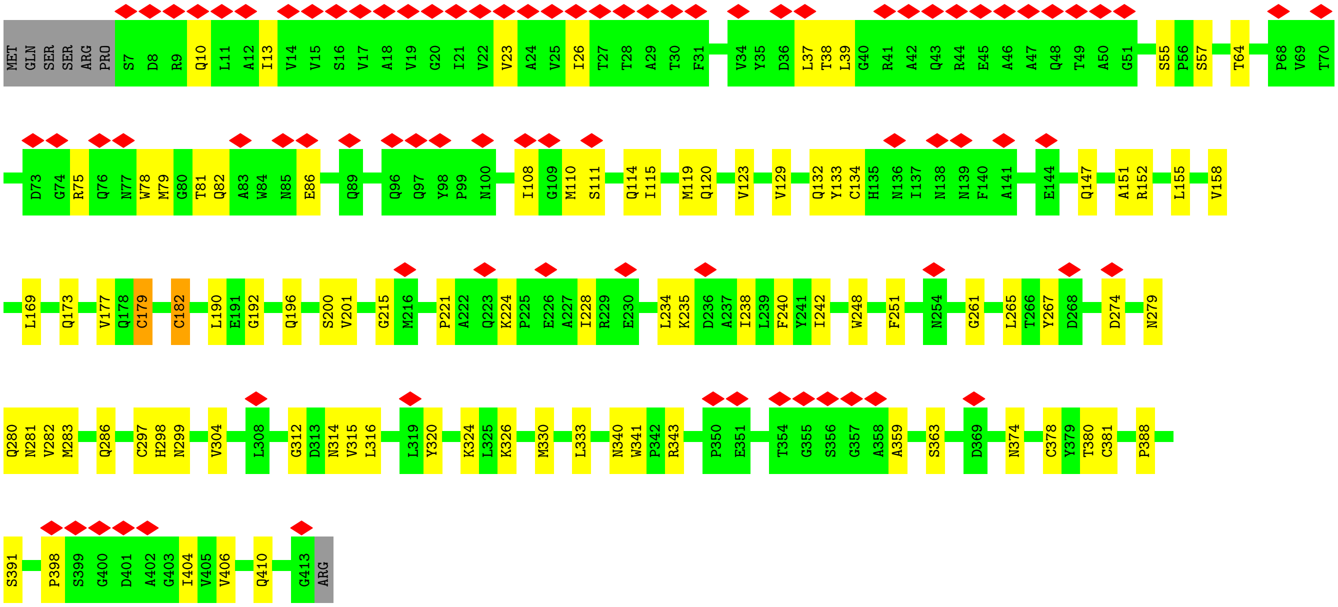
- Molecule 2: Light-harvesting protein B-808/866 beta chain

Chain R:



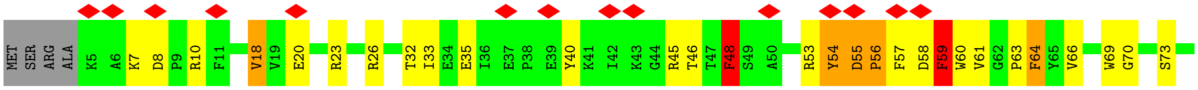
- Molecule 3: Cytochrome c-554

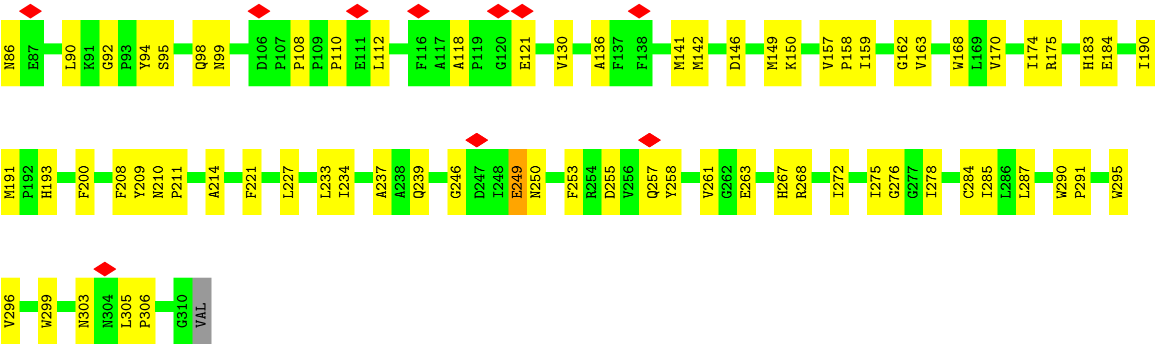
Chain C:



- Molecule 4: Reaction center protein L chain

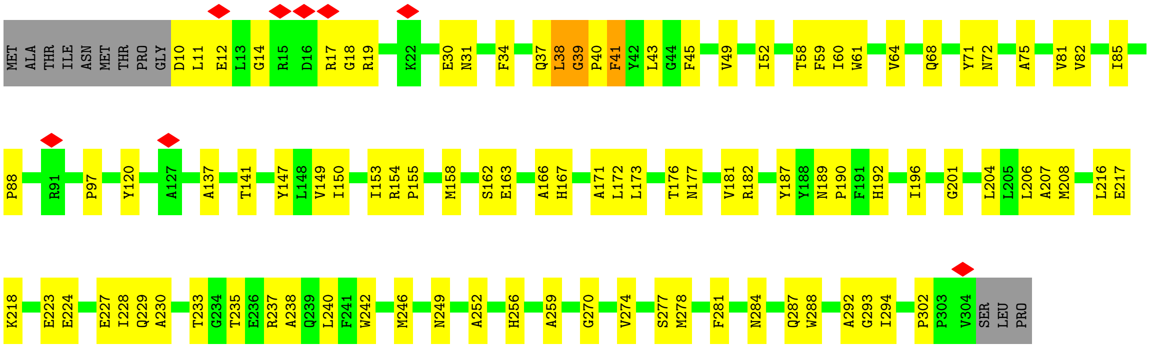
Chain L:





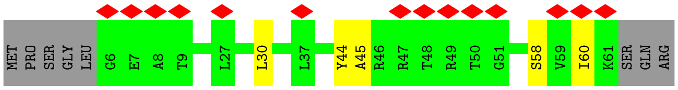
- Molecule 5: Reaction center protein M chain

Chain M:



- Molecule 6: hypothetical protein chain N

Chain N:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	36181	Depositor
Resolution determination method	Not provided	
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	50.00	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.807	Depositor
Minimum map value	-1.198	Depositor
Average map value	0.005	Depositor
Map value standard deviation	0.065	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	269.856, 269.856, 269.856	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8433, 0.8433, 0.8433	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: BPH, U4Z, MN, MQE, PGV, BCL, HEM

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.49	1/322 (0.3%)	0.84	3/441 (0.7%)
1	D	0.18	0/297	0.69	1/408 (0.2%)
1	F	0.27	0/316	0.81	0/433
1	H	0.15	0/302	0.55	0/414
1	J	0.21	0/297	0.67	0/408
1	O	1.70	8/291 (2.7%)	1.48	8/399 (2.0%)
1	Q	0.17	0/297	0.49	0/408
2	B	0.70	0/387	1.03	2/530 (0.4%)
2	E	0.23	0/443	0.51	0/609
2	G	0.23	0/435	0.62	0/598
2	I	0.81	0/442	0.80	2/609 (0.3%)
2	K	0.22	0/443	0.67	1/609 (0.2%)
2	P	0.97	2/443 (0.5%)	1.33	8/609 (1.3%)
2	R	0.18	0/443	0.51	0/609
3	C	0.25	1/3238 (0.0%)	0.53	1/4435 (0.0%)
4	L	0.53	7/2561 (0.3%)	0.77	10/3492 (0.3%)
5	M	0.46	5/2504 (0.2%)	0.50	2/3428 (0.1%)
6	N	0.17	0/429	0.47	0/585
All	All	0.50	24/13890 (0.2%)	0.70	38/19024 (0.2%)

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
2	P	0	1

The worst 5 of 24 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	L	250	ASN	C-O	-8.37	1.13	1.24
1	O	9	THR	CA-C	-7.67	1.42	1.52
1	O	14	PHE	C-N	-7.19	1.25	1.33
1	O	35	TYR	C-O	-6.61	1.15	1.24
4	L	59	PHE	CA-C	-6.57	1.44	1.52

The worst 5 of 38 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	P	9	PRO	N-CA-C	13.54	127.22	110.70
2	P	8	VAL	CA-C-N	12.53	133.29	120.38
2	P	8	VAL	C-N-CA	12.53	133.29	120.38
1	O	18	GLY	N-CA-C	-12.01	84.72	113.18
4	L	55	ASP	CA-C-N	-11.45	105.53	119.84

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	P	22	LEU	Mainchain

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	314	0	324	46	0
1	D	289	0	300	40	0
1	F	307	0	321	25	0
1	H	293	0	310	21	0
1	J	289	0	300	16	0
1	O	283	0	296	60	0
1	Q	289	0	300	16	0
2	B	370	0	372	43	0
2	E	424	0	417	21	0
2	G	416	0	413	24	0
2	I	423	0	417	36	0
2	K	424	0	417	43	0
2	P	424	0	417	62	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	R	424	0	417	21	0
3	C	3155	0	3058	121	0
4	L	2463	0	2355	94	0
5	M	2404	0	2309	102	0
6	N	421	0	452	7	0
7	A	149	0	118	46	0
7	D	95	0	72	16	0
7	E	46	0	35	20	0
7	F	47	0	34	11	0
7	G	94	0	71	18	0
7	H	42	0	31	8	0
7	I	90	0	70	20	0
7	J	47	0	35	1	0
7	K	98	0	76	30	0
7	L	66	0	73	18	0
7	M	132	0	147	35	0
7	O	94	0	70	57	0
7	P	48	0	37	15	0
7	Q	47	0	35	9	0
7	R	90	0	68	22	0
8	A	40	0	0	17	0
8	B	40	0	0	2	0
8	D	80	0	0	31	0
8	G	40	0	0	2	0
8	I	80	0	0	18	0
8	K	80	0	0	13	0
8	O	40	0	0	11	0
8	P	40	0	0	14	0
8	Q	40	0	0	6	0
8	R	40	0	0	3	0
9	C	172	0	120	71	0
10	C	45	0	60	24	0
11	L	63	0	0	1	0
11	M	63	0	0	0	0
12	L	65	0	76	12	0
12	M	111	0	113	25	0
13	M	1	0	0	0	0
All	All	15637	0	14536	864	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 29.

The worst 5 of 864 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)
3:C:378:CYS:SG	9:C:504:HEM:HAB	1.42	1.58
1:O:7:VAL:HG12	7:O:103:BCL:CAB	1.32	1.57
8:A:102:U4Z:CAF	2:B:26:ILE:CG2	1.82	1.56
1:A:15:THR:CG2	8:A:102:U4Z:CAO	1.82	1.56
3:C:381:CYS:SG	9:C:504:HEM:C3C	2.06	1.47

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	37/57 (65%)	34 (92%)	2 (5%)	1 (3%)	4	17
1	D	34/57 (60%)	33 (97%)	1 (3%)	0	100	100
1	F	36/57 (63%)	33 (92%)	3 (8%)	0	100	100
1	H	34/57 (60%)	33 (97%)	1 (3%)	0	100	100
1	J	34/57 (60%)	34 (100%)	0	0	100	100
1	O	33/57 (58%)	31 (94%)	2 (6%)	0	100	100
1	Q	34/57 (60%)	31 (91%)	3 (9%)	0	100	100
2	B	41/53 (77%)	32 (78%)	6 (15%)	3 (7%)	1	4
2	E	48/53 (91%)	46 (96%)	2 (4%)	0	100	100
2	G	47/53 (89%)	44 (94%)	3 (6%)	0	100	100
2	I	48/53 (91%)	43 (90%)	4 (8%)	1 (2%)	5	21
2	K	48/53 (91%)	41 (85%)	7 (15%)	0	100	100
2	P	48/53 (91%)	42 (88%)	2 (4%)	4 (8%)	0	3
2	R	48/53 (91%)	46 (96%)	2 (4%)	0	100	100
3	C	405/414 (98%)	378 (93%)	27 (7%)	0	100	100
4	L	304/311 (98%)	263 (86%)	37 (12%)	4 (1%)	10	32

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	M	293/307 (95%)	279 (95%)	14 (5%)	0	100	100
6	N	54/64 (84%)	49 (91%)	5 (9%)	0	100	100
All	All	1626/1866 (87%)	1492 (92%)	121 (7%)	13 (1%)	19	43

5 of 13 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	5	SER
2	B	19	GLN
2	B	30	SER
4	L	56	PRO
4	L	57	PHE

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	36/47 (77%)	35 (97%)	1 (3%)	38	63
1	D	34/47 (72%)	34 (100%)	0	100	100
1	F	36/47 (77%)	34 (94%)	2 (6%)	17	43
1	H	34/47 (72%)	34 (100%)	0	100	100
1	J	34/47 (72%)	34 (100%)	0	100	100
1	O	33/47 (70%)	28 (85%)	5 (15%)	2	8
1	Q	34/47 (72%)	33 (97%)	1 (3%)	37	62
2	B	38/48 (79%)	33 (87%)	5 (13%)	3	12
2	E	45/48 (94%)	45 (100%)	0	100	100
2	G	44/48 (92%)	41 (93%)	3 (7%)	13	36
2	I	45/48 (94%)	44 (98%)	1 (2%)	47	68
2	K	45/48 (94%)	44 (98%)	1 (2%)	47	68
2	P	45/48 (94%)	42 (93%)	3 (7%)	13	37
2	R	45/48 (94%)	45 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	C	334/341 (98%)	331 (99%)	3 (1%)	75	86
4	L	249/254 (98%)	247 (99%)	2 (1%)	79	88
5	M	239/249 (96%)	238 (100%)	1 (0%)	89	93
6	N	44/51 (86%)	44 (100%)	0	100	100
All	All	1414/1560 (91%)	1386 (98%)	28 (2%)	50	71

5 of 28 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	I	36	VAL
1	Q	32	SER
4	L	249	GLU
2	P	8	VAL
4	L	59	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 14 such sidechains are listed below:

Mol	Chain	Res	Type
3	C	199	ASN
3	C	317	ASN
1	Q	10	ASN
4	L	205	ASN
2	P	19	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 48 ligands modelled in this entry, 1 is monoatomic - leaving 47 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	$\#\|Z\| > 2$
9	HEM	C	501	3	41,50,50	1.32	4 (9%)	45,82,82	1.95	9 (20%)
7	BCL	D	103	2	45,55,74	1.96	10 (22%)	55,92,115	2.32	17 (30%)
8	U4Z	G	101	-	40,40,40	3.11	17 (42%)	50,51,51	6.45	29 (58%)
7	BCL	D	101	1	46,56,74	2.02	13 (28%)	56,93,115	2.53	23 (41%)
7	BCL	P	102	-	46,56,74	1.90	9 (19%)	56,93,115	2.30	17 (30%)
7	BCL	I	103	2	44,54,74	2.04	13 (29%)	54,91,115	2.53	22 (40%)
8	U4Z	I	102	-	40,40,40	2.62	14 (35%)	50,51,51	6.56	35 (70%)
12	BPH	M	401	-	51,70,70	1.46	9 (17%)	52,101,101	3.63	20 (38%)
7	BCL	G	102	-	46,56,74	2.03	13 (28%)	56,93,115	2.51	23 (41%)
9	HEM	C	503	3	41,50,50	1.40	4 (9%)	45,82,82	2.24	11 (24%)
7	BCL	A	104	2	47,57,74	1.99	12 (25%)	57,94,115	2.32	22 (38%)
7	BCL	M	402	4	64,74,74	2.28	23 (35%)	78,115,115	3.08	32 (41%)
11	MQE	M	403	-	64,64,69	0.21	0	78,81,87	0.38	1 (1%)
7	BCL	A	101	1	51,61,74	1.94	13 (25%)	62,99,115	2.46	23 (37%)
7	BCL	L	402	4	64,74,74	1.65	11 (17%)	78,115,115	2.34	25 (32%)
7	BCL	F	101	2	45,55,74	1.93	11 (24%)	55,92,115	2.97	27 (49%)
7	BCL	O	103	2	45,55,74	2.26	11 (24%)	55,92,115	3.01	17 (30%)
9	HEM	C	502	3	41,50,50	1.30	3 (7%)	45,82,82	1.92	9 (20%)
8	U4Z	D	102	-	40,40,40	2.64	16 (40%)	50,51,51	6.94	33 (66%)
7	BCL	K	102	1	45,55,74	2.04	13 (28%)	55,92,115	2.50	23 (41%)
8	U4Z	P	101	-	40,40,40	0.29	0	50,51,51	0.51	1 (2%)
7	BCL	A	103	-	45,55,74	2.05	12 (26%)	55,92,115	2.52	23 (41%)
10	PGV	C	505	-	44,44,50	1.71	12 (27%)	47,50,56	2.72	18 (38%)
8	U4Z	A	102	-	40,40,40	2.59	18 (45%)	50,51,51	7.98	33 (66%)
8	U4Z	Q	102	-	40,40,40	1.16	2 (5%)	50,51,51	1.88	14 (28%)
8	U4Z	B	101	-	40,40,40	0.66	1 (2%)	50,51,51	0.88	2 (4%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$\|Z\|>2$	Counts	RMSZ	#$\|Z\|>2$
12	BPH	M	406	-	32,51,70	1.18	4 (12%)	29,78,101	1.53	6 (20%)
7	BCL	O	101	1	45,55,74	2.03	13 (28%)	55,92,115	2.53	23 (41%)
7	BCL	G	103	2	44,54,74	2.16	14 (31%)	54,91,115	2.55	21 (38%)
7	BCL	R	103	2	41,51,74	2.04	10 (24%)	50,87,115	2.43	21 (42%)
8	U4Z	D	104	-	40,40,40	2.72	15 (37%)	50,51,51	6.54	30 (60%)
8	U4Z	R	101	-	40,40,40	3.03	17 (42%)	50,51,51	6.31	32 (64%)
7	BCL	Q	101	-	45,55,74	2.04	13 (28%)	55,92,115	2.53	22 (40%)
12	BPH	L	403	-	51,70,70	1.59	9 (17%)	52,101,101	2.08	13 (25%)
8	U4Z	K	101	-	40,40,40	0.55	1 (2%)	50,51,51	0.82	3 (6%)
7	BCL	R	102	2	45,55,74	2.04	13 (28%)	55,92,115	2.50	23 (41%)
9	HEM	C	504	-	41,50,50	2.27	4 (9%)	45,82,82	1.96	9 (20%)
7	BCL	I	104	2	42,52,74	2.00	10 (23%)	51,88,115	2.38	21 (41%)
7	BCL	E	101	2	44,54,74	2.02	11 (25%)	54,91,115	2.37	22 (40%)
7	BCL	J	101	2	45,55,74	2.04	12 (26%)	55,92,115	2.51	23 (41%)
8	U4Z	K	103	-	40,40,40	1.17	2 (5%)	50,51,51	1.88	14 (28%)
8	U4Z	O	102	-	40,40,40	1.16	2 (5%)	50,51,51	1.89	14 (28%)
7	BCL	H	101	-	40,50,74	2.10	12 (30%)	49,86,115	2.65	24 (48%)
8	U4Z	I	101	-	40,40,40	2.80	15 (37%)	50,51,51	9.47	31 (62%)
11	MQE	L	401	-	64,64,69	0.23	0	78,81,87	0.40	1 (1%)
7	BCL	M	405	5	64,74,74	1.73	14 (21%)	78,115,115	2.45	29 (37%)
7	BCL	K	104	2	49,59,74	2.07	10 (20%)	60,97,115	2.23	21 (35%)

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
9	HEM	C	501	3	-	4/12/54/54	-
7	BCL	D	103	2	-	12/15/115/137	-
8	U4Z	G	101	-	-	13/36/53/53	0/1/1/1
7	BCL	D	101	1	-	10/16/116/137	-
7	BCL	P	102	-	-	6/16/116/137	-
7	BCL	I	103	2	-	7/13/113/137	-
8	U4Z	I	102	-	-	12/36/53/53	0/1/1/1
12	BPH	M	401	-	2/2/18/22	17/37/105/105	0/5/6/6

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	BCL	G	102	-	-	10/16/116/137	-
9	HEM	C	503	3	-	4/12/54/54	-
7	BCL	A	104	2	-	9/17/117/137	-
7	BCL	M	402	4	-	13/37/137/137	-
11	MQE	M	403	-	-	15/59/79/85	0/2/2/2
7	BCL	A	101	1	-	12/22/122/137	-
7	BCL	L	402	4	-	17/37/137/137	-
7	BCL	F	101	2	-	9/15/115/137	-
7	BCL	O	103	2	-	6/15/115/137	-
9	HEM	C	502	3	-	4/12/54/54	-
8	U4Z	D	102	-	-	16/36/53/53	0/1/1/1
7	BCL	K	102	1	-	10/15/115/137	-
8	U4Z	P	101	-	-	3/36/53/53	0/1/1/1
7	BCL	A	103	-	-	7/15/115/137	-
10	PGV	C	505	-	-	26/49/49/55	-
8	U4Z	A	102	-	-	18/36/53/53	0/1/1/1
8	U4Z	Q	102	-	-	5/36/53/53	0/1/1/1
8	U4Z	B	101	-	-	4/36/53/53	0/1/1/1
12	BPH	M	406	-	-	4/15/83/105	0/5/6/6
7	BCL	O	101	1	-	10/15/115/137	-
7	BCL	G	103	2	-	4/13/113/137	-
7	BCL	R	103	2	-	5/10/110/137	-
8	U4Z	D	104	-	-	18/36/53/53	0/1/1/1
8	U4Z	R	101	-	-	14/36/53/53	0/1/1/1
7	BCL	Q	101	-	-	10/15/115/137	-
12	BPH	L	403	-	2/2/18/22	14/37/105/105	0/5/6/6
8	U4Z	K	101	-	-	1/36/53/53	0/1/1/1
7	BCL	R	102	2	-	7/15/115/137	-
9	HEM	C	504	-	-	4/12/54/54	-
7	BCL	I	104	2	-	5/11/111/137	-
7	BCL	E	101	2	-	5/13/113/137	-
7	BCL	J	101	2	-	7/15/115/137	-
8	U4Z	K	103	-	-	5/36/53/53	0/1/1/1
8	U4Z	O	102	-	-	5/36/53/53	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	BCL	H	101	-	-	4/8/108/137	-
8	U4Z	I	101	-	-	15/36/53/53	0/1/1/1
11	MQE	L	401	-	-	13/59/79/85	0/2/2/2
7	BCL	M	405	5	-	12/37/137/137	-
7	BCL	K	104	2	-	6/19/119/137	-

The worst 5 of 465 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	C	504	HEM	C3C-CAC	11.59	1.71	1.47
8	R	101	U4Z	CAH-CAD	11.37	1.54	1.34
8	G	101	U4Z	CAH-CAD	11.15	1.53	1.34
8	I	101	U4Z	CAH-CAD	10.75	1.53	1.34
8	D	104	U4Z	CAH-CAD	10.12	1.52	1.34

The worst 5 of 912 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
8	A	102	U4Z	CBD-CAY-CBC	-33.58	40.43	114.60
8	I	101	U4Z	CAU-CAR-CAV	-33.25	76.35	122.92
8	I	101	U4Z	CAU-CAR-CAQ	-24.65	79.24	118.08
8	I	101	U4Z	CBM-CBJ-CBH	-23.99	93.07	127.31
8	I	101	U4Z	CAQ-CAR-CAV	23.87	155.56	118.94

All (4) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
12	L	403	BPH	C8
12	L	403	BPH	C13
12	M	401	BPH	C8
12	M	401	BPH	C13

5 of 437 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	A	101	BCL	CHA-CBD-CGD-O1D
7	A	103	BCL	CBA-CGA-O2A-C1
7	A	103	BCL	O1A-CGA-O2A-C1
7	A	103	BCL	C4C-C3C-CAC-CBC
7	A	104	BCL	C4C-C3C-CAC-CBC

There are no ring outliers.

46 monomers are involved in 540 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	C	501	HEM	14	0
7	D	103	BCL	13	0
8	G	101	U4Z	2	0
7	D	101	BCL	3	0
7	P	102	BCL	15	0
7	I	103	BCL	4	0
8	I	102	U4Z	6	0
12	M	401	BPH	18	0
7	G	102	BCL	7	0
9	C	503	HEM	14	0
7	A	104	BCL	13	0
7	M	402	BCL	21	0
7	A	101	BCL	19	0
7	L	402	BCL	18	0
7	F	101	BCL	11	0
7	O	103	BCL	52	0
9	C	502	HEM	18	0
8	D	102	U4Z	13	0
7	K	102	BCL	13	0
8	P	101	U4Z	14	0
7	A	103	BCL	15	0
10	C	505	PGV	24	0
8	A	102	U4Z	17	0
8	Q	102	U4Z	6	0
8	B	101	U4Z	2	0
12	M	406	BPH	7	0
7	O	101	BCL	5	0
7	G	103	BCL	11	0
7	R	103	BCL	9	0
8	D	104	U4Z	18	0
8	R	101	U4Z	3	0
7	Q	101	BCL	9	0
12	L	403	BPH	12	0
8	K	101	U4Z	8	0
7	R	102	BCL	13	0
9	C	504	HEM	25	0
7	I	104	BCL	16	0
7	E	101	BCL	20	0
7	J	101	BCL	1	0
8	K	103	U4Z	5	0

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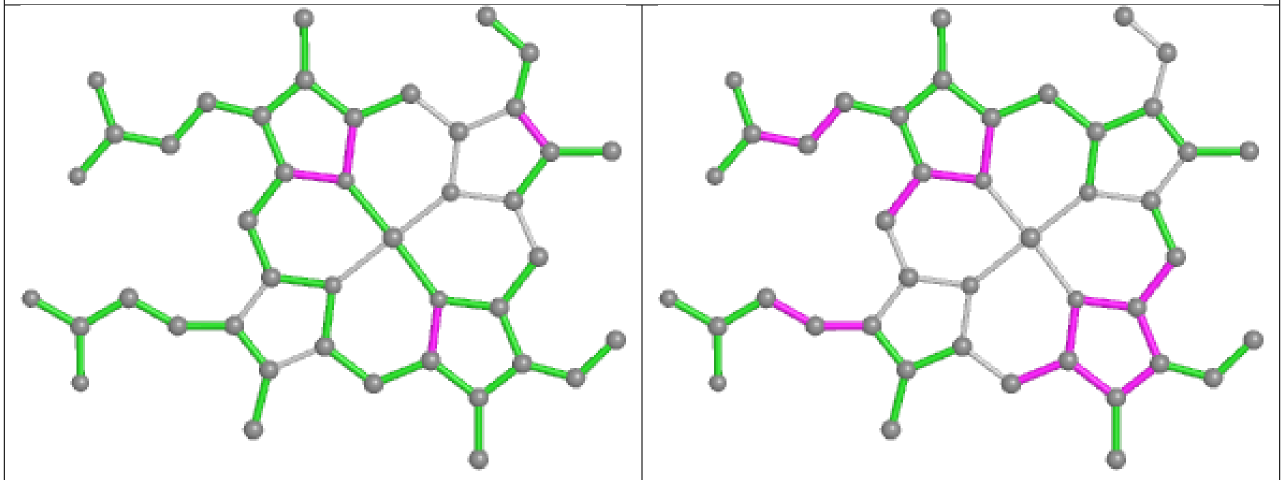
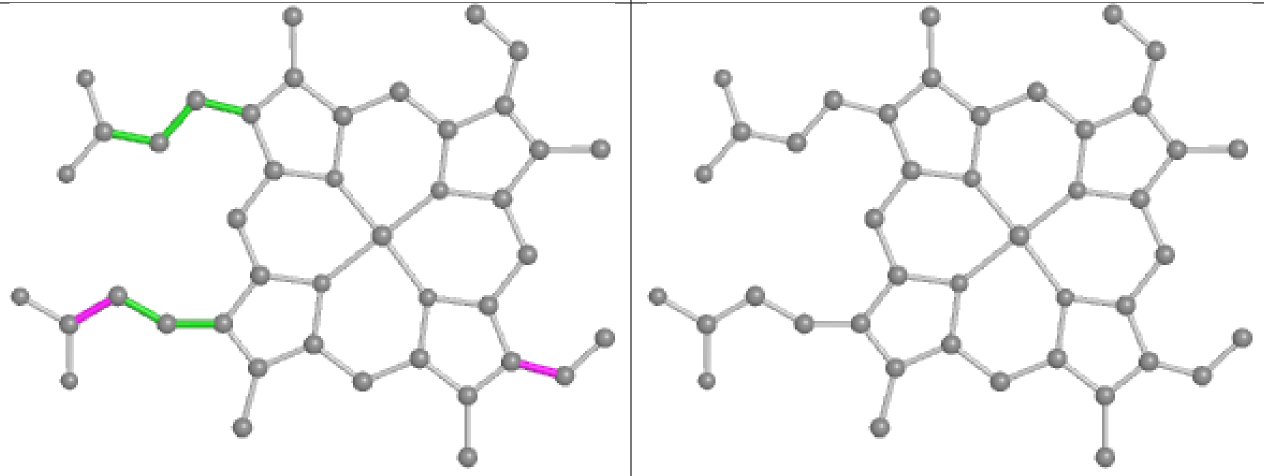
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	O	102	U4Z	11	0
7	H	101	BCL	8	0
8	I	101	U4Z	12	0
11	L	401	MQE	1	0
7	M	405	BCL	14	0
7	K	104	BCL	17	0

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

Ligand HEM C 501

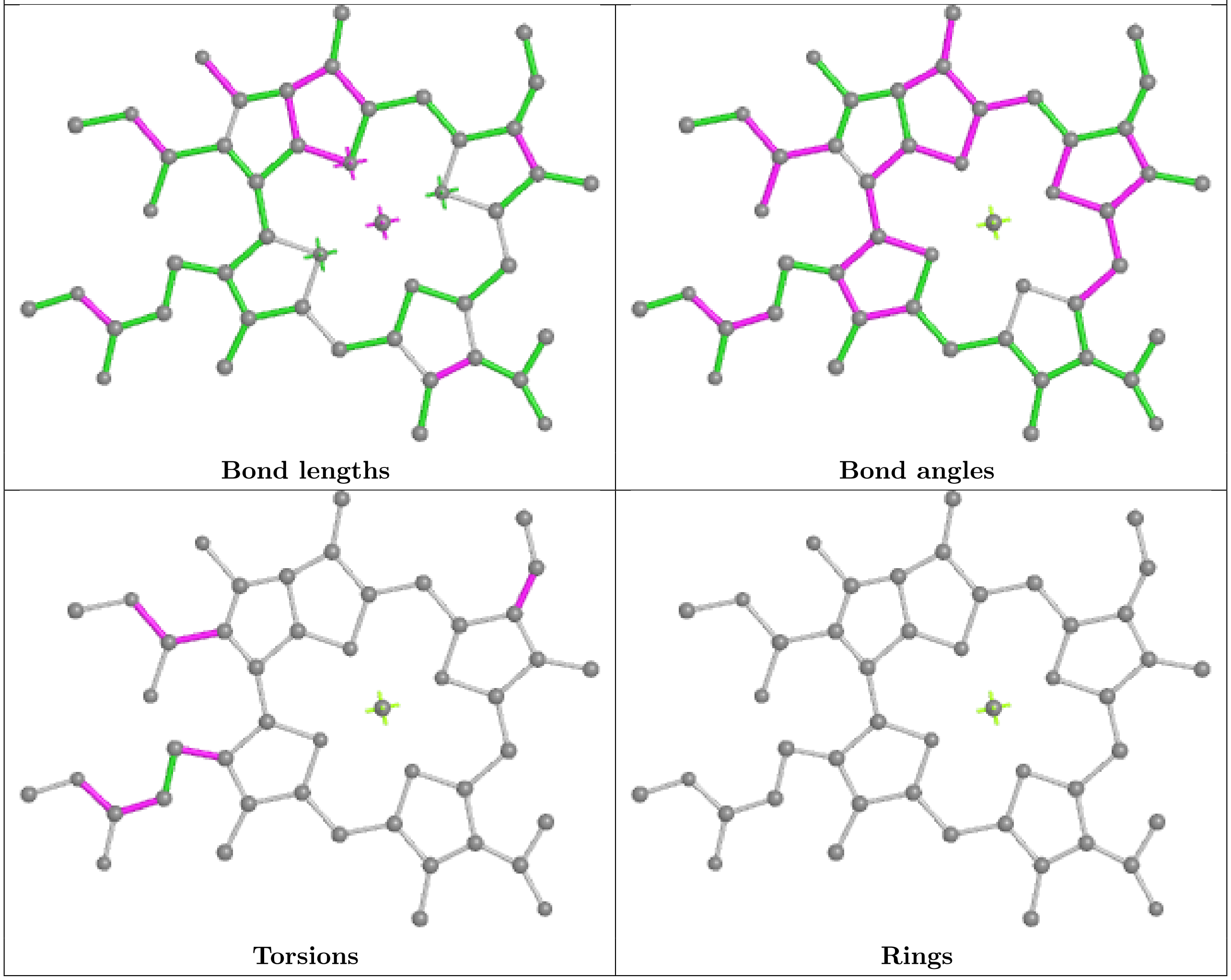


Bond lengths Bond angles

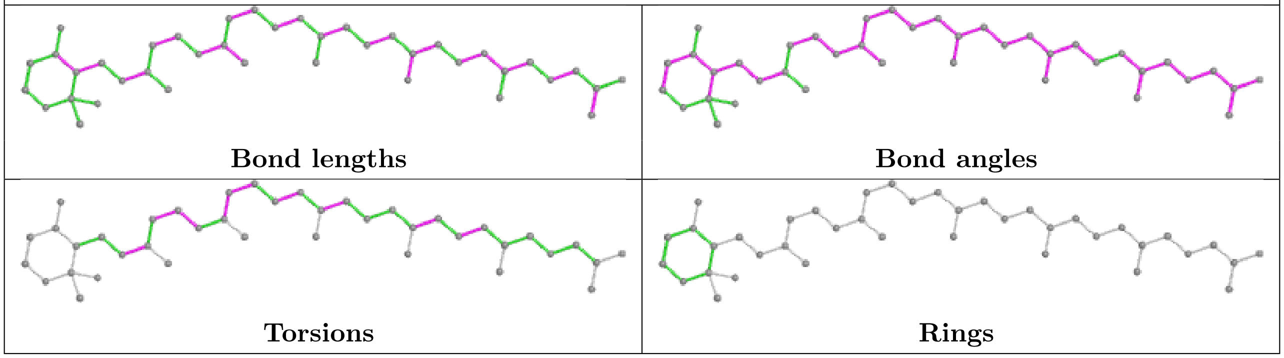


Torsions Rings

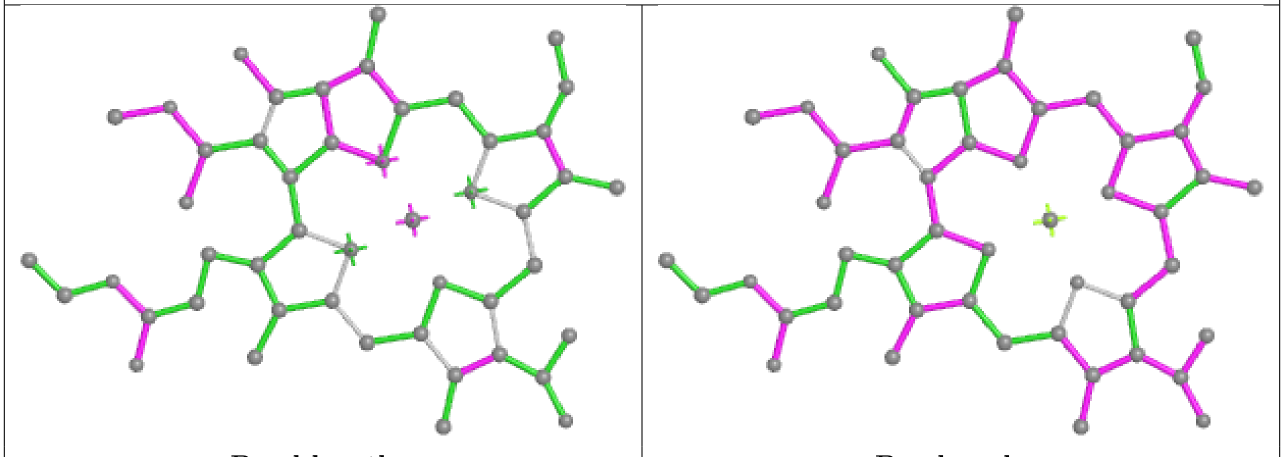
Ligand BCL D 103



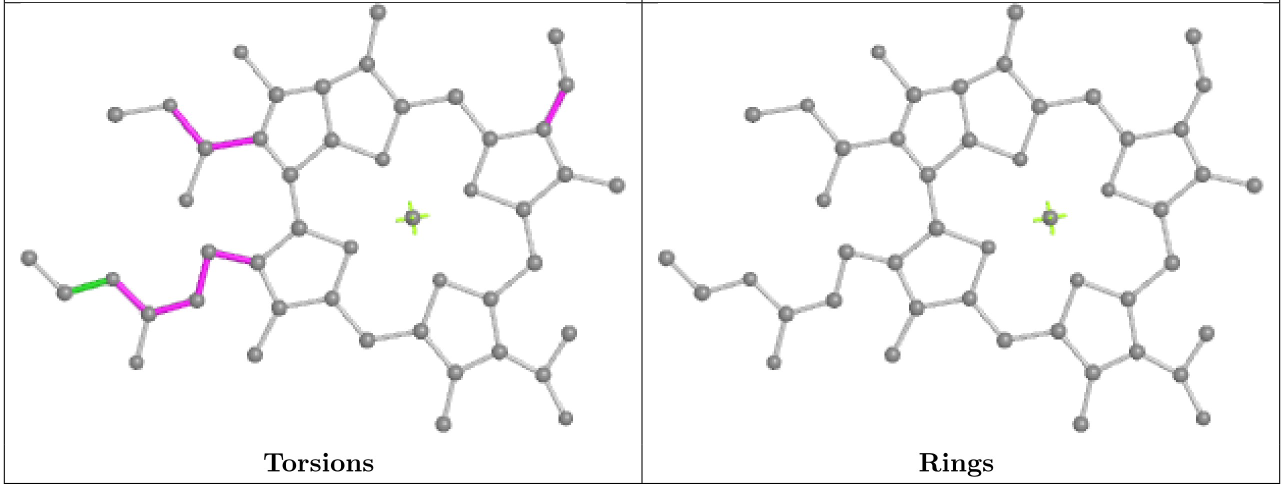
Ligand U4Z G 101



Ligand BCL D 101

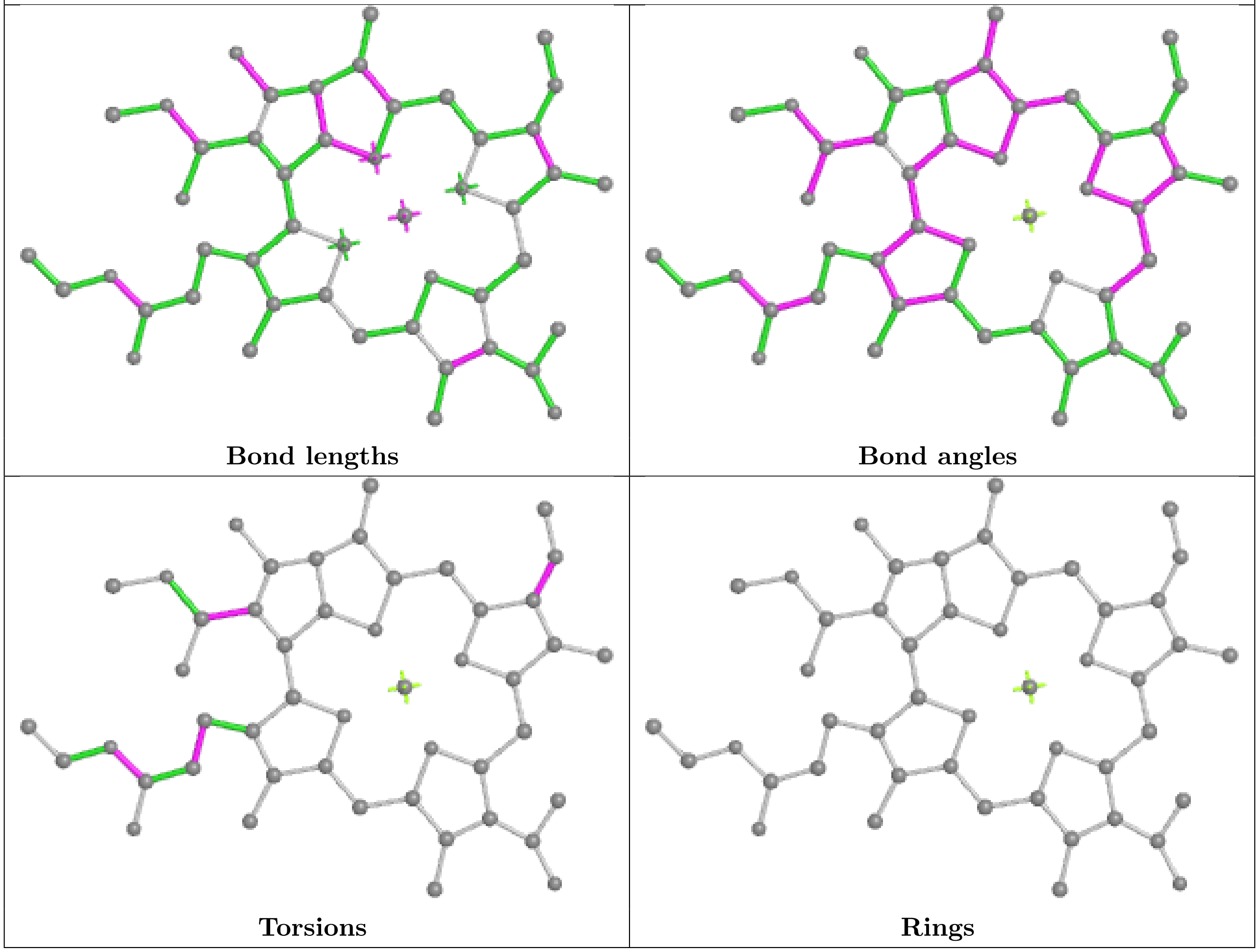


Bond lengths **Bond angles**



Torsions **Rings**

Ligand BCL P 102



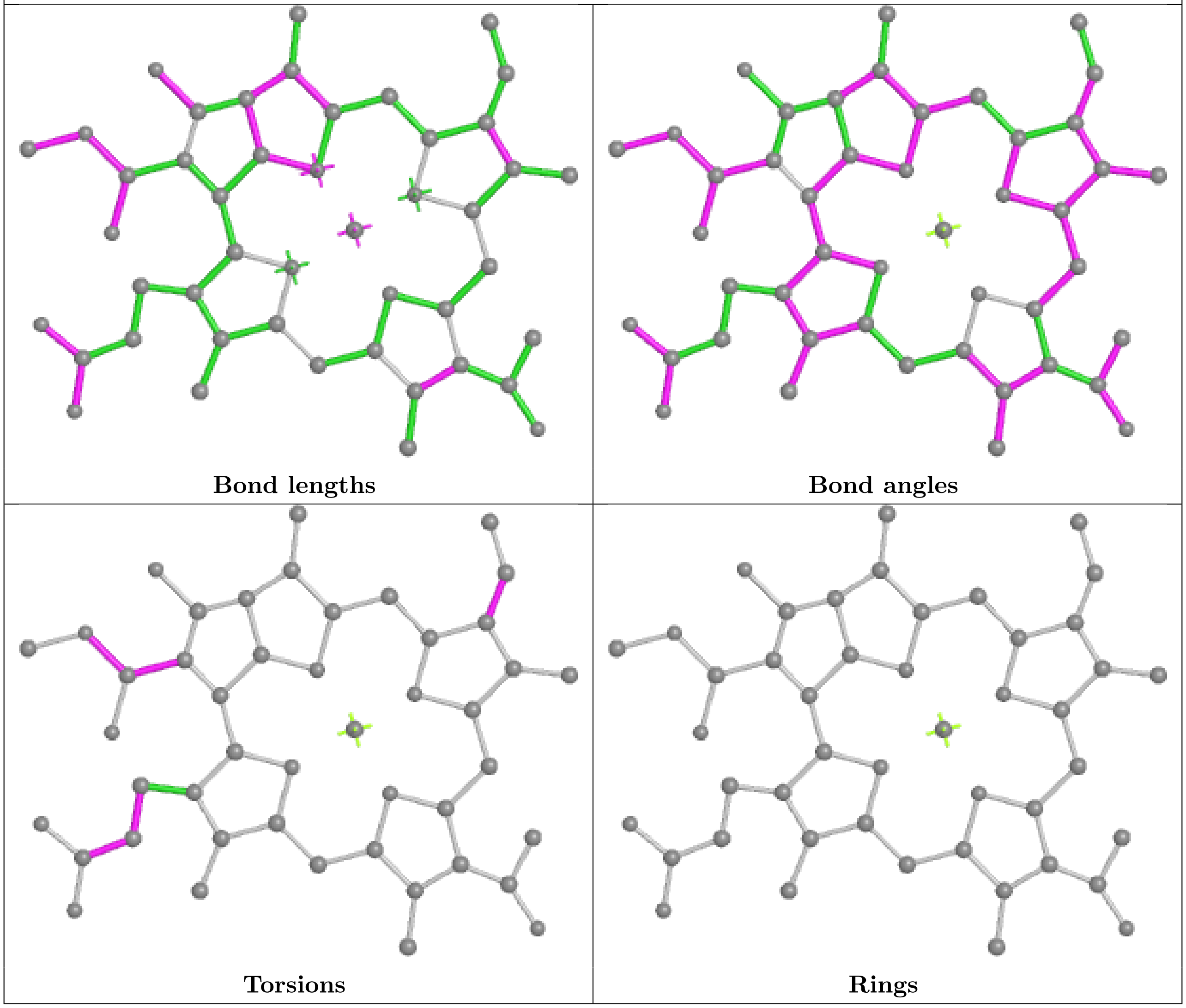
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL I 103



Bond lengths

Bond angles

Torsions

Rings

Ligand U4Z I 102

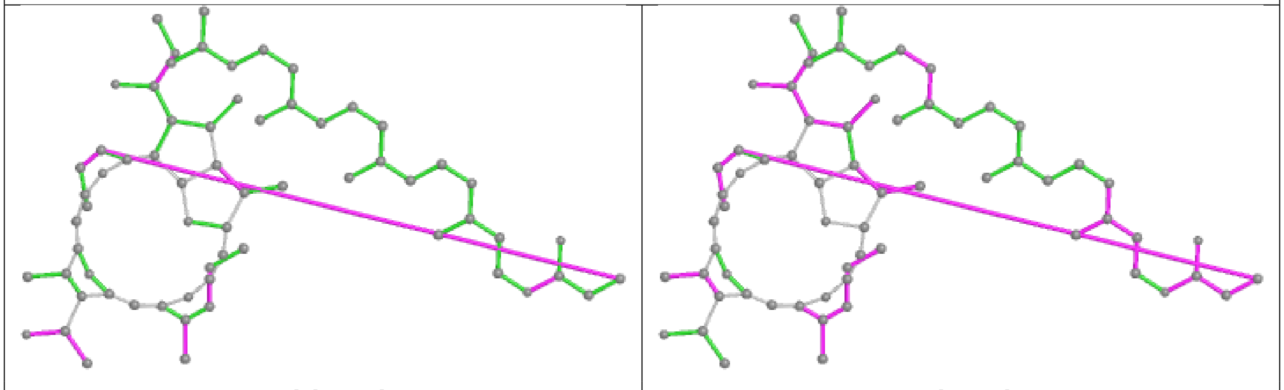
Bond lengths

Bond angles

Torsions

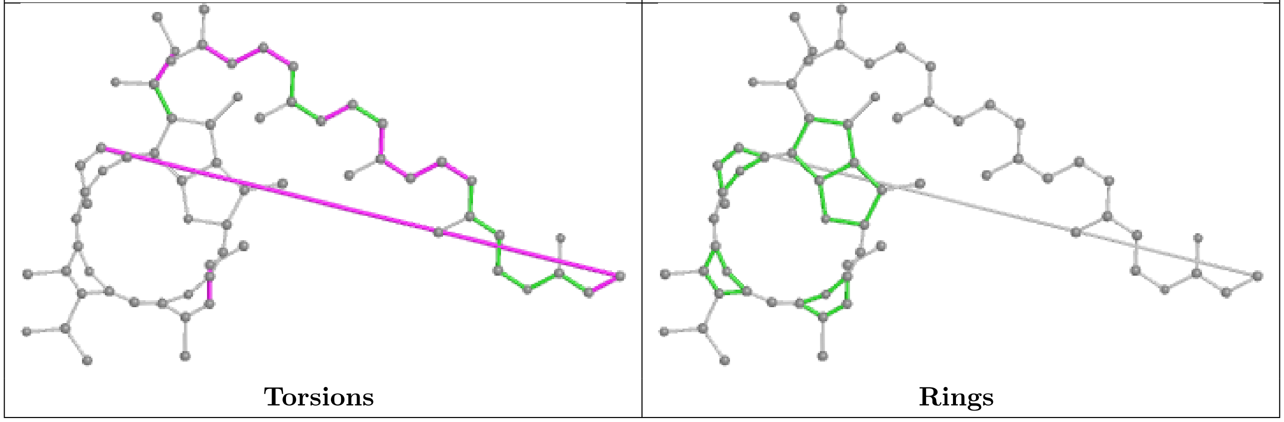
Rings

Ligand BPH M 401



Bond lengths

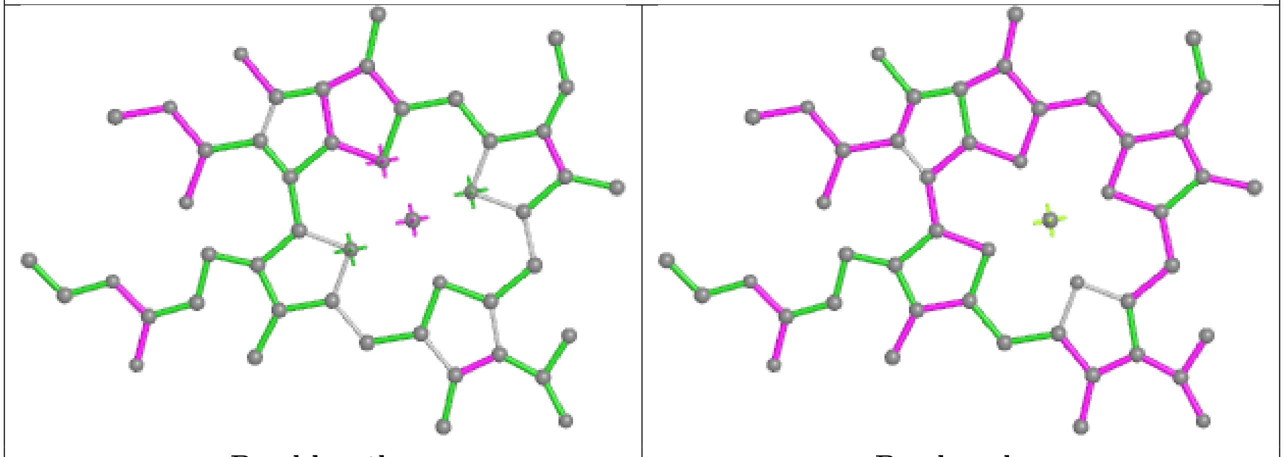
Bond angles



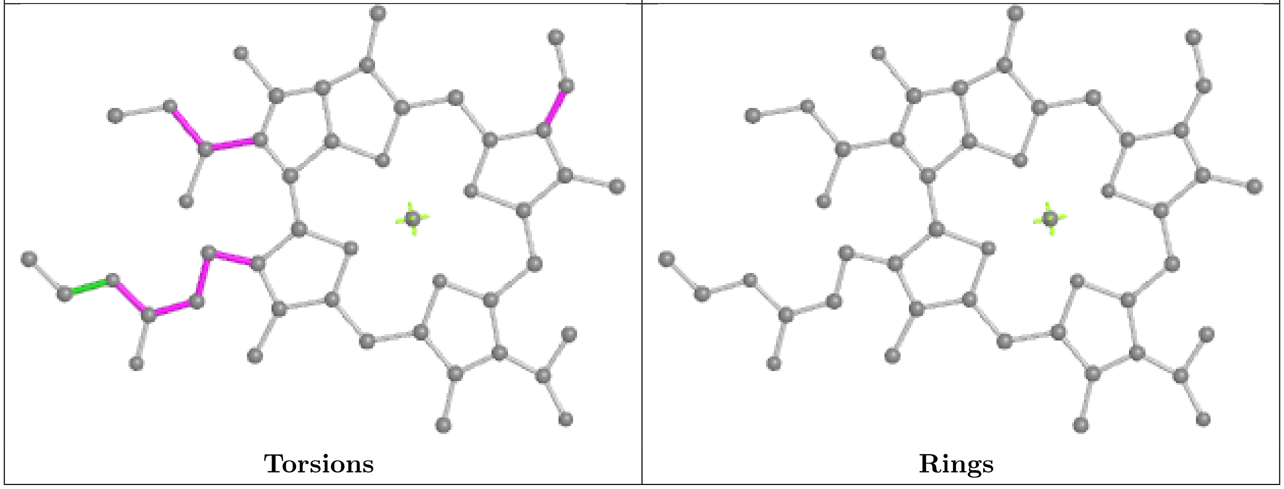
Torsions

Rings

Ligand BCL G 102

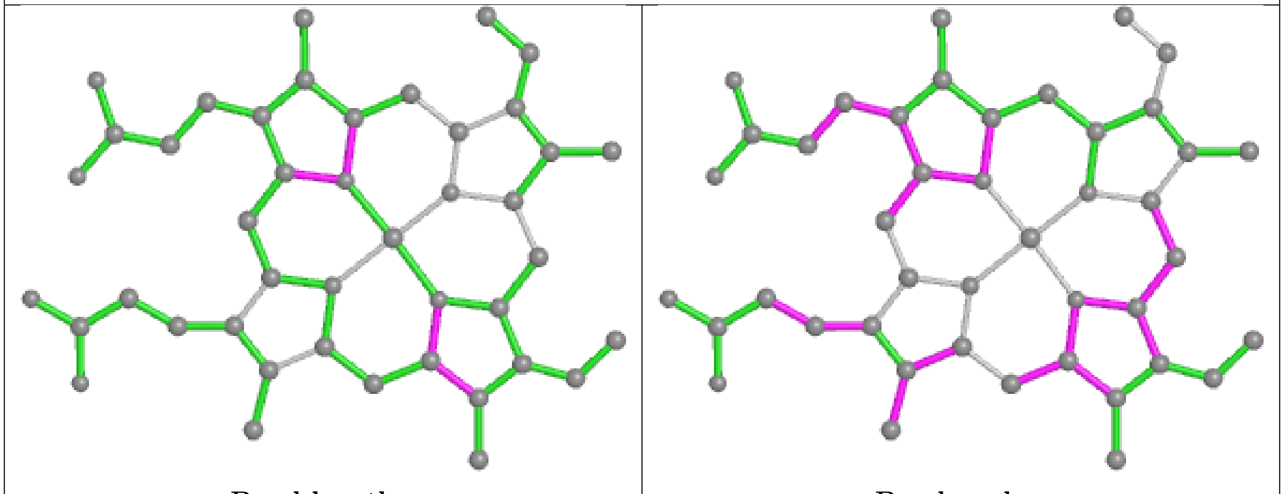


Bond lengths **Bond angles**

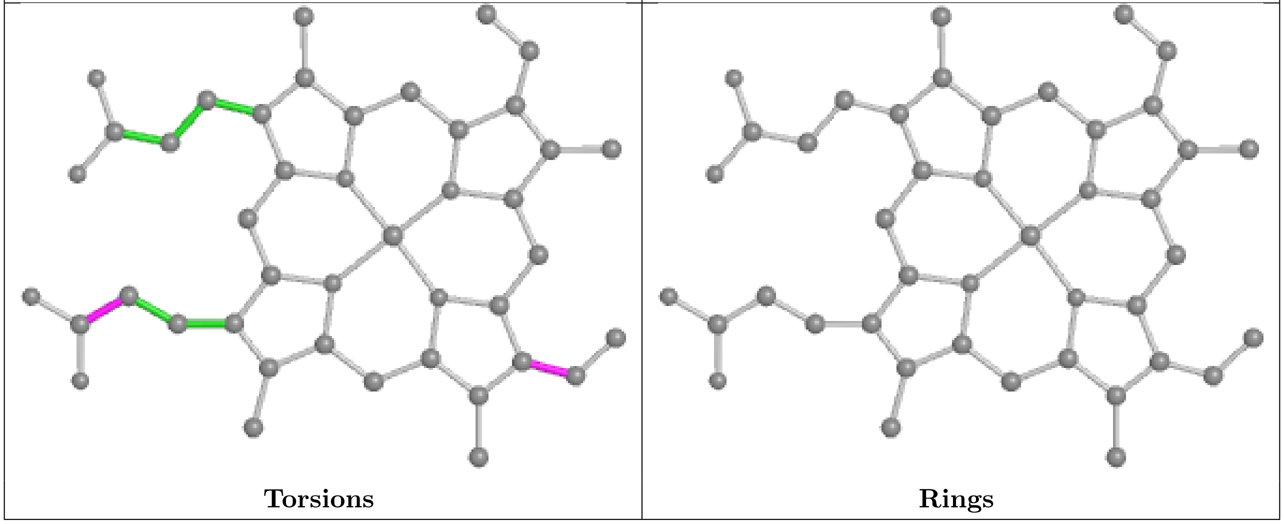


Torsions **Rings**

Ligand HEM C 503

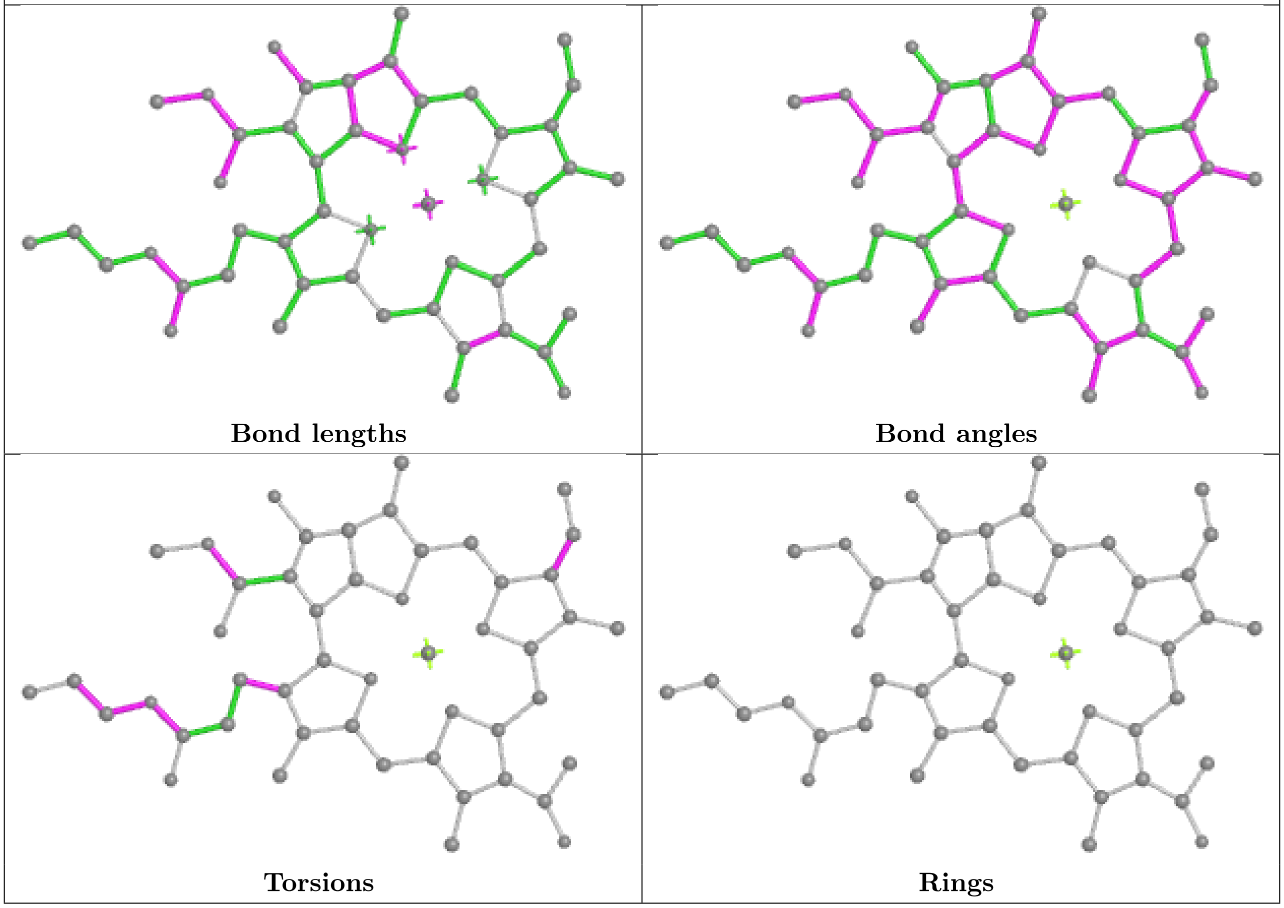


Bond lengths **Bond angles**



Torsions **Rings**

Ligand BCL A 104



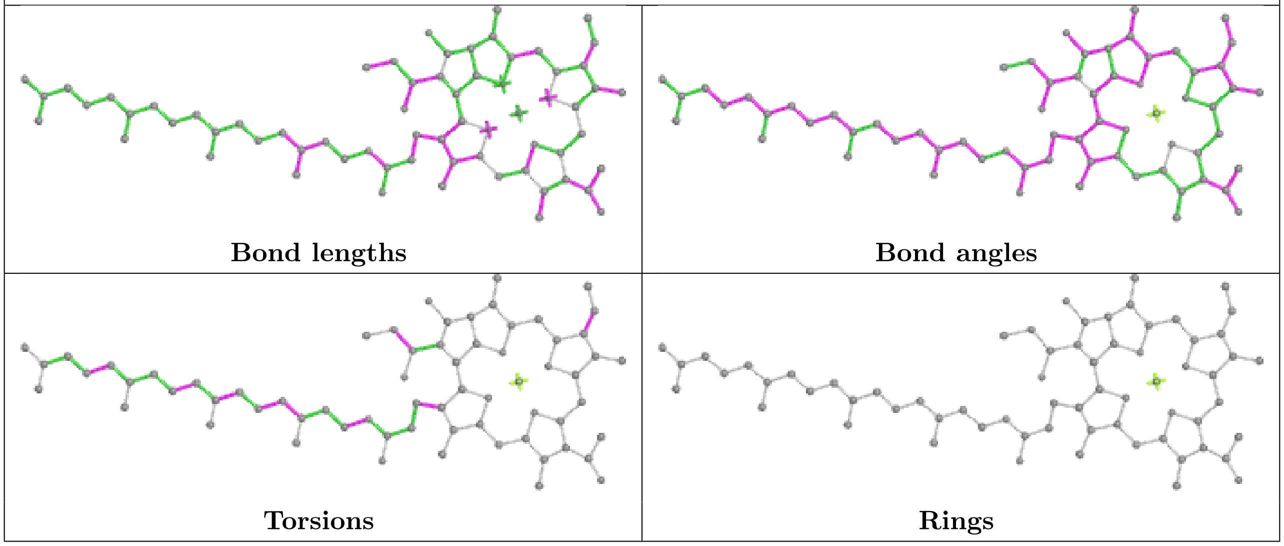
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL M 402



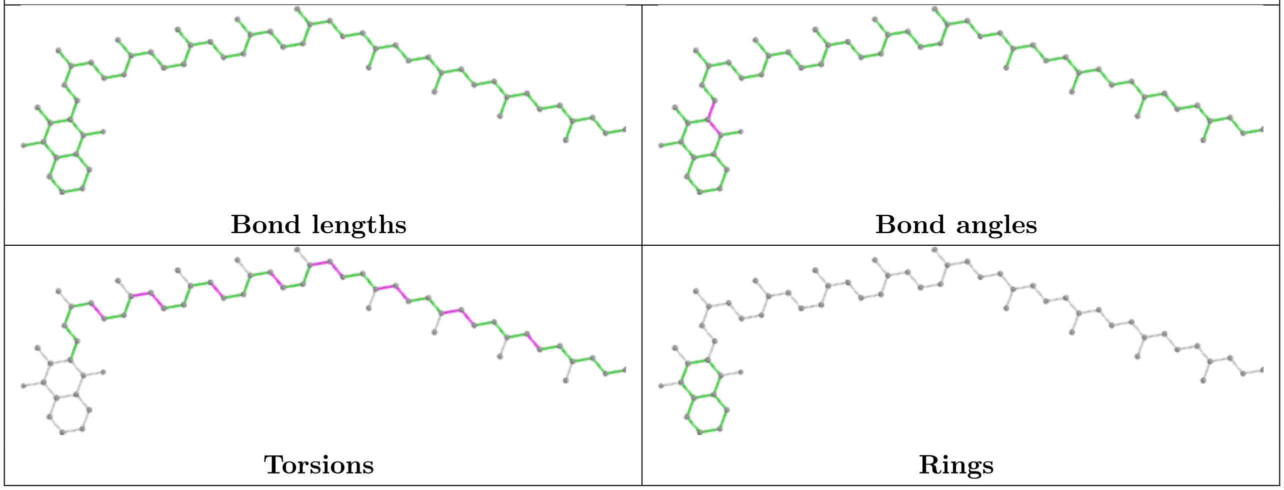
Bond lengths

Bond angles

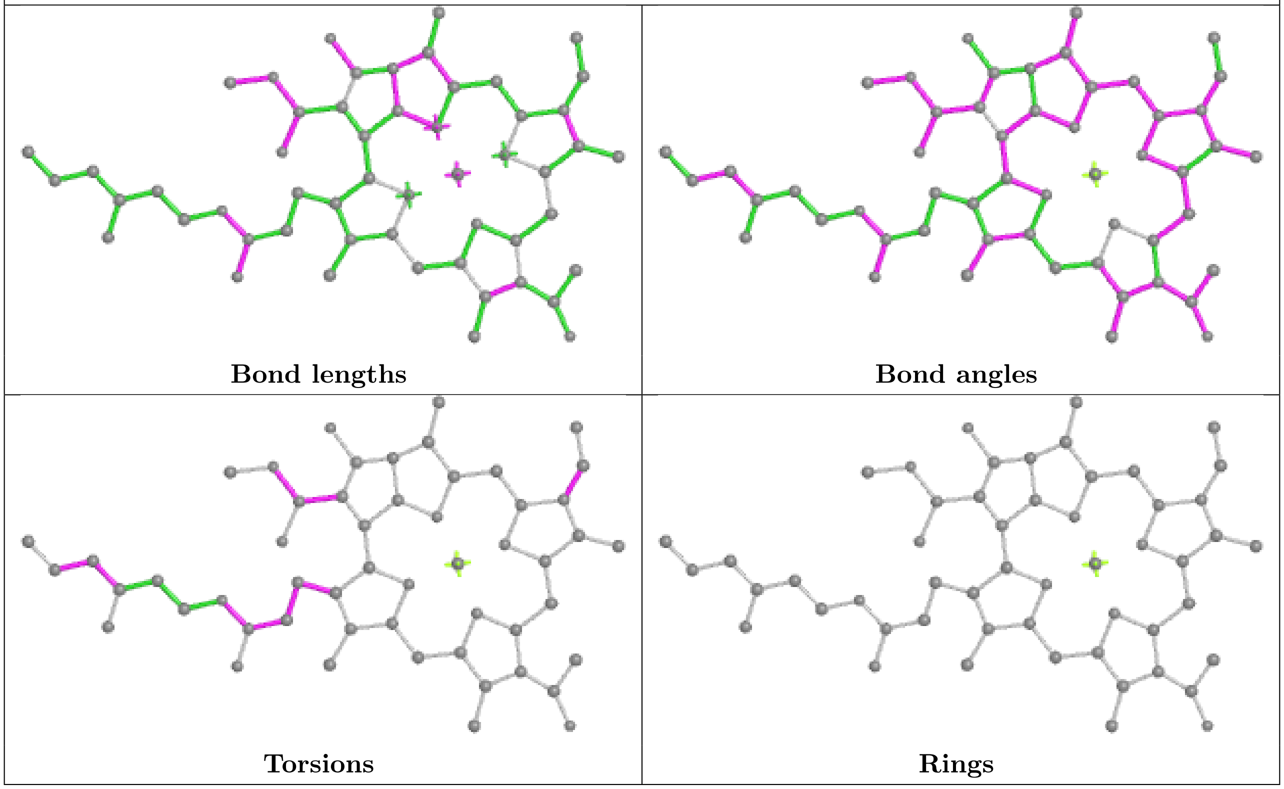
Torsions

Rings

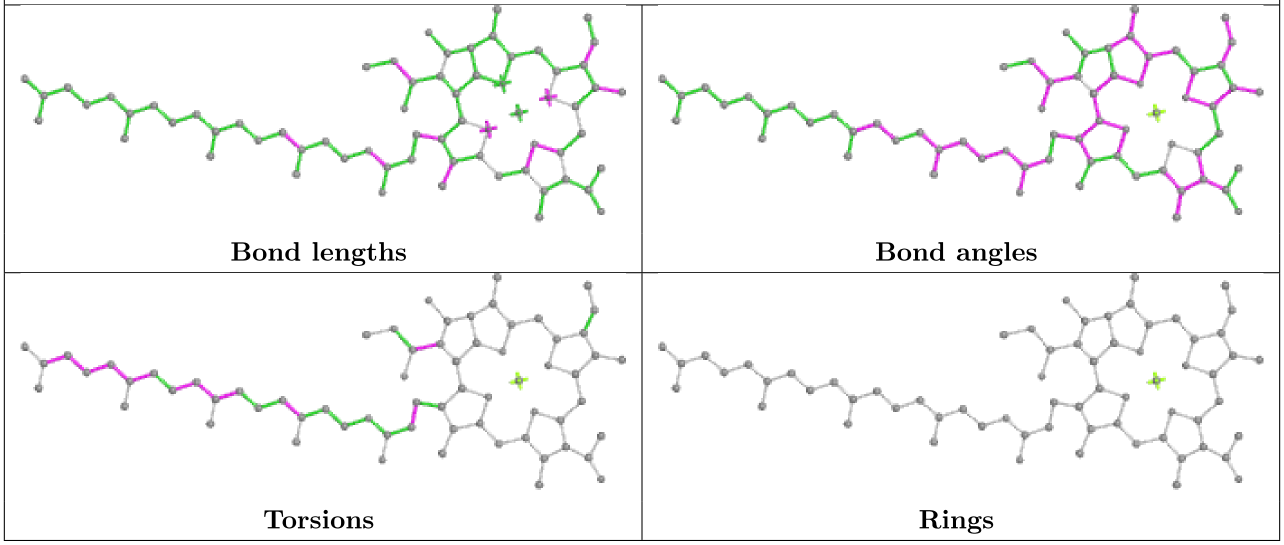
Ligand MQE M 403



Ligand BCL A 101



Ligand BCL L 402



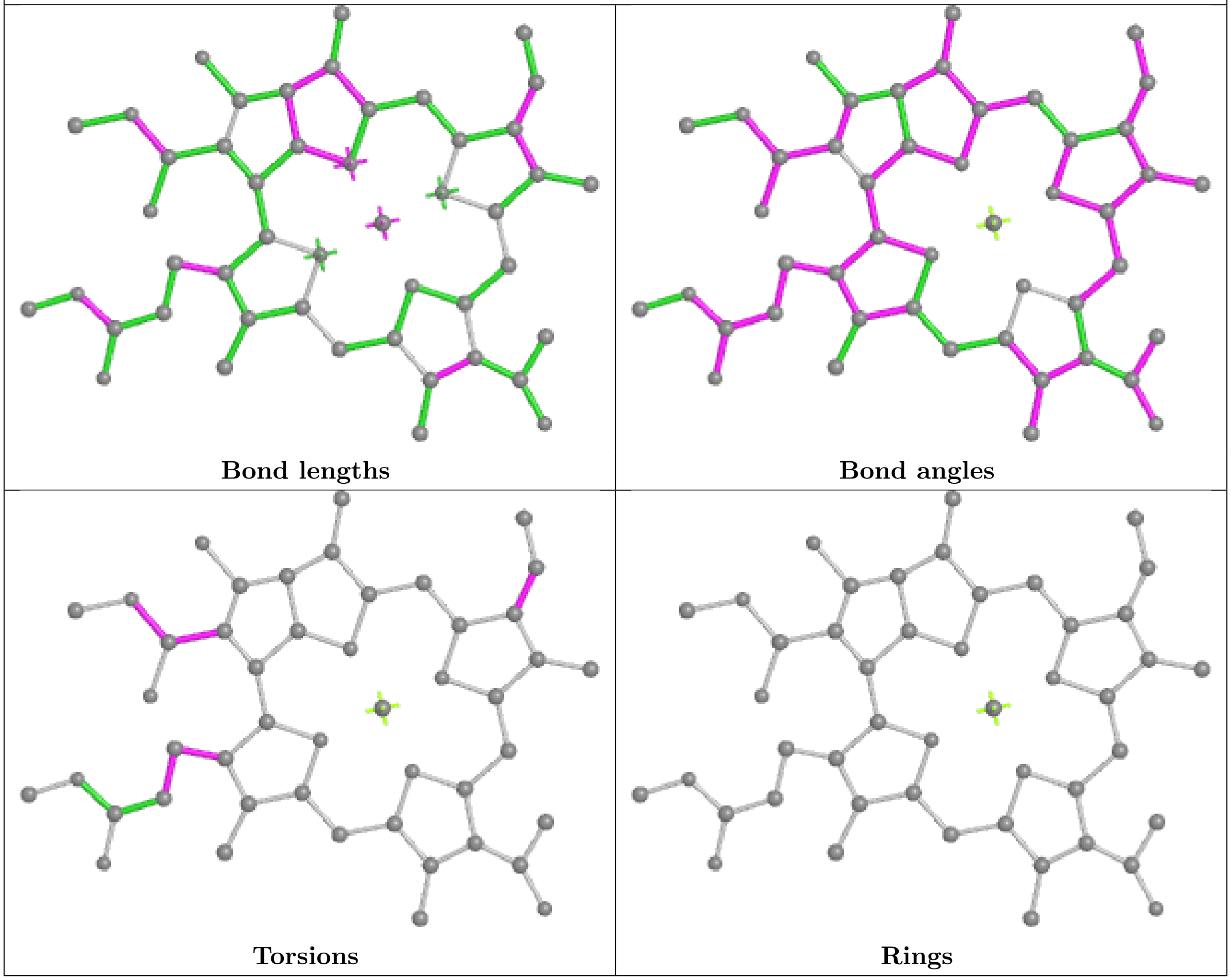
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL F 101



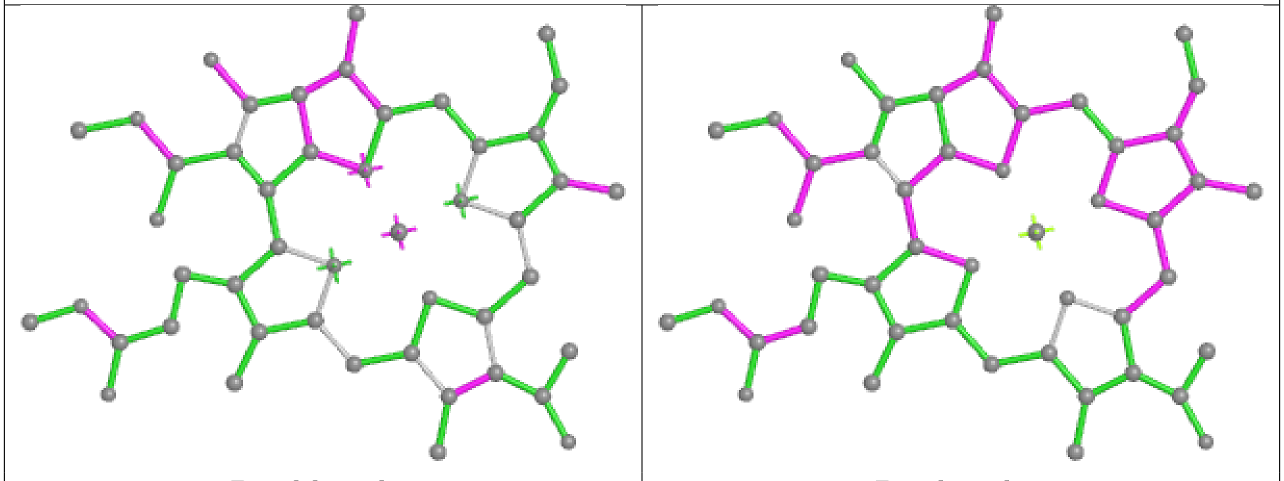
Bond lengths

Bond angles

Torsions

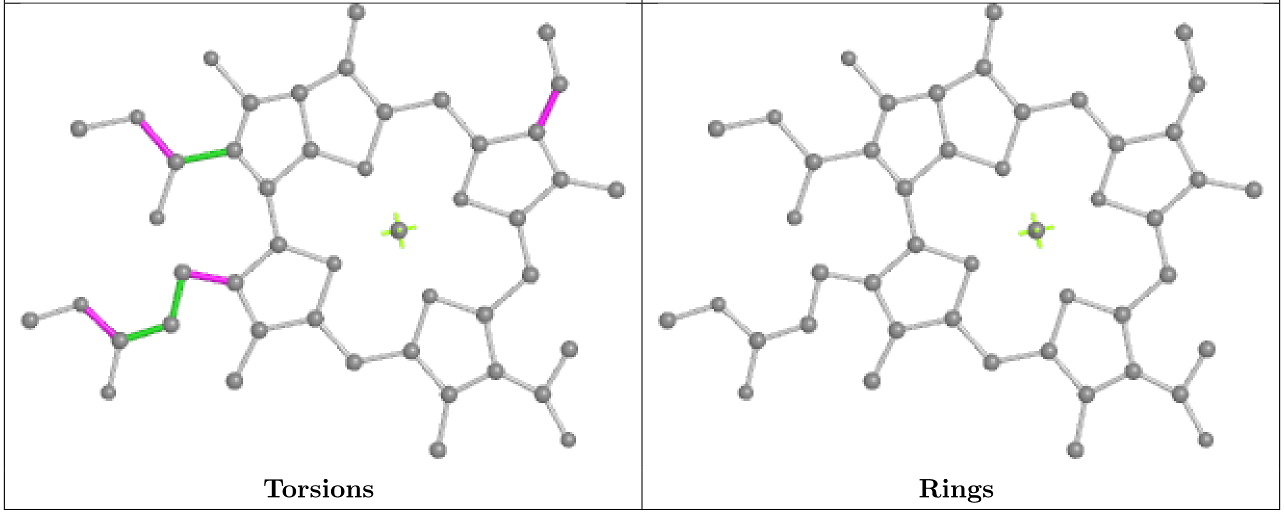
Rings

Ligand BCL O 103



Bond lengths

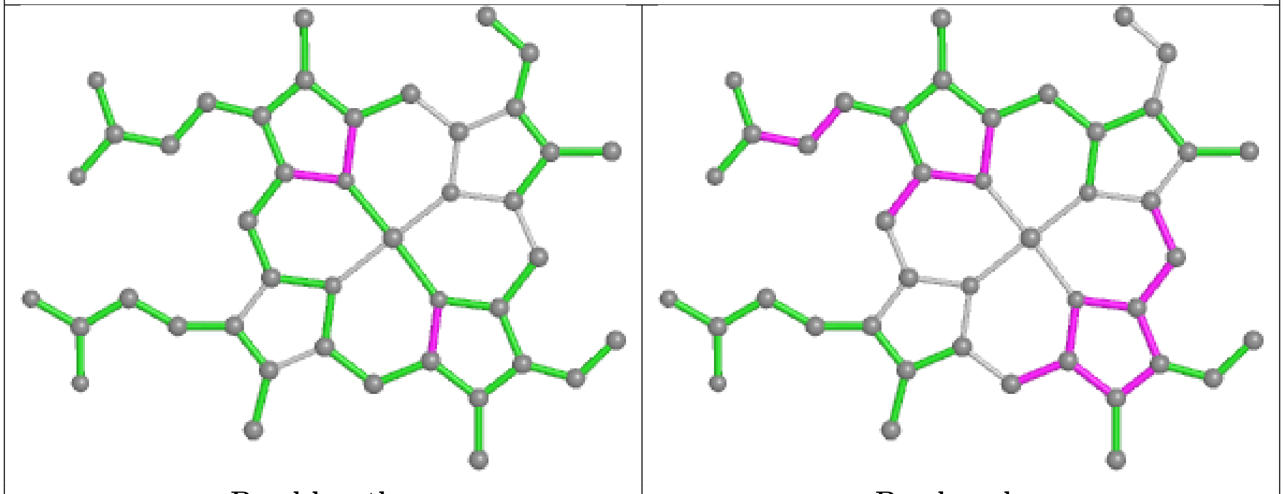
Bond angles



Torsions

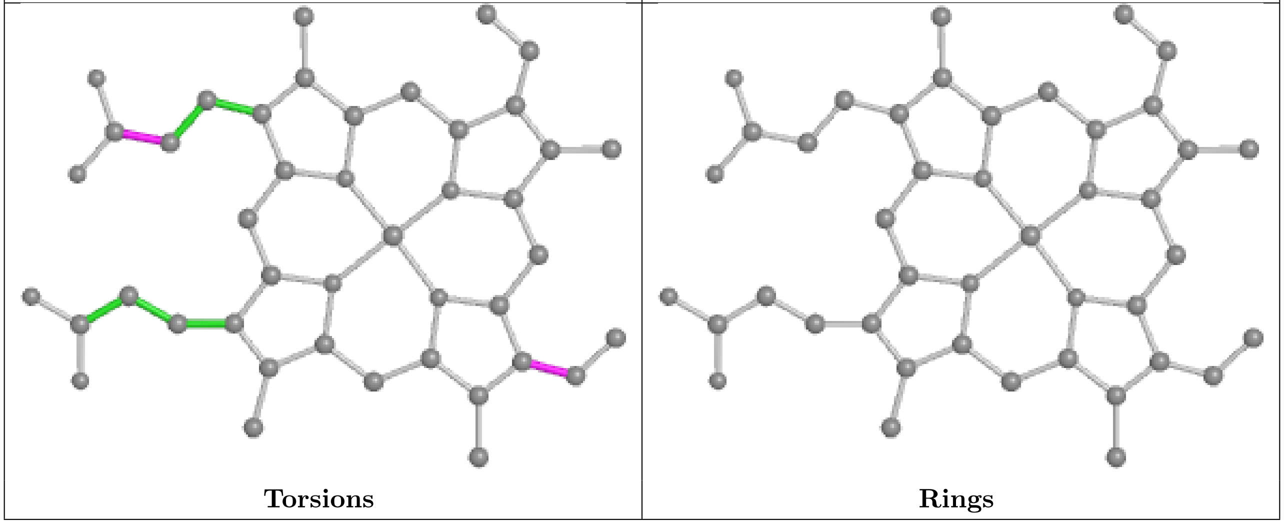
Rings

Ligand HEM C 502



Bond lengths

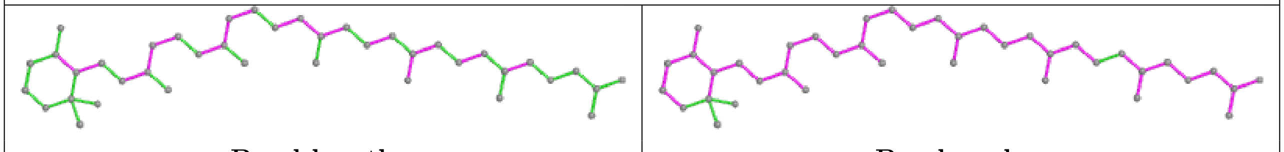
Bond angles



Torsions

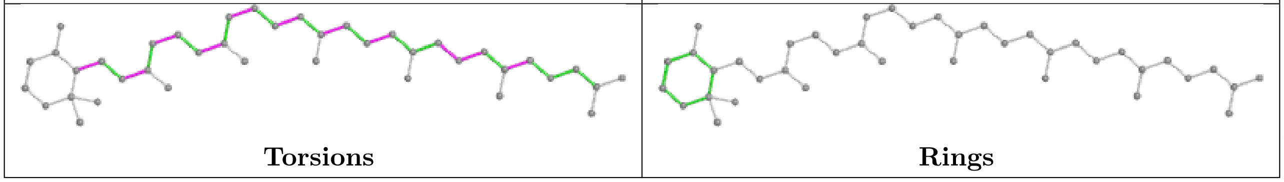
Rings

Ligand U4Z D 102



Bond lengths

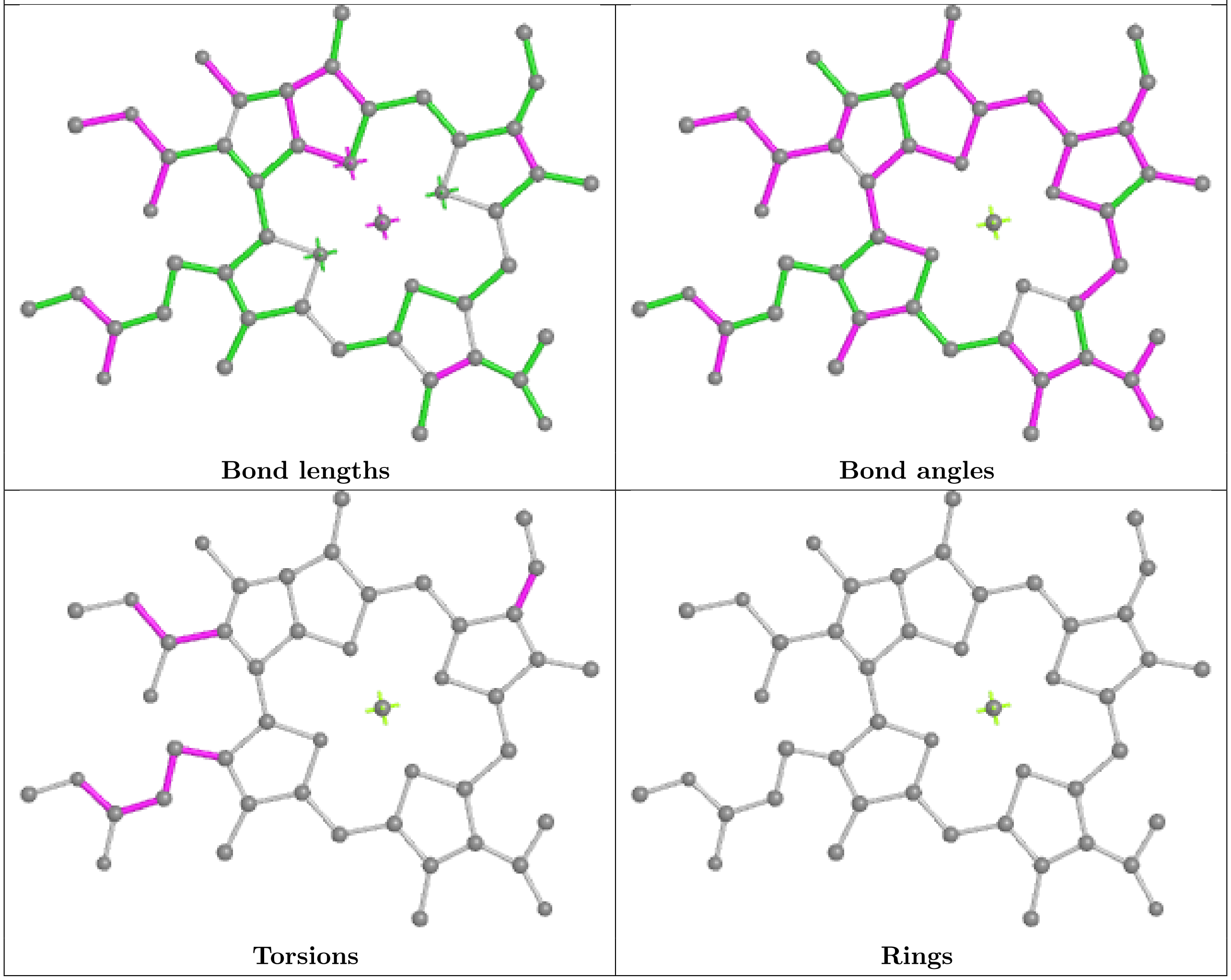
Bond angles



Torsions

Rings

Ligand BCL K 102



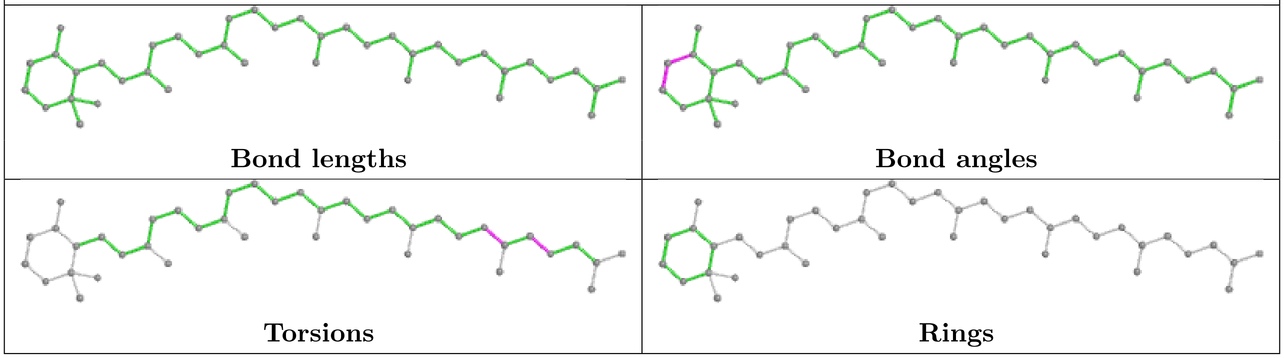
Bond lengths

Bond angles

Torsions

Rings

Ligand U4Z P 101



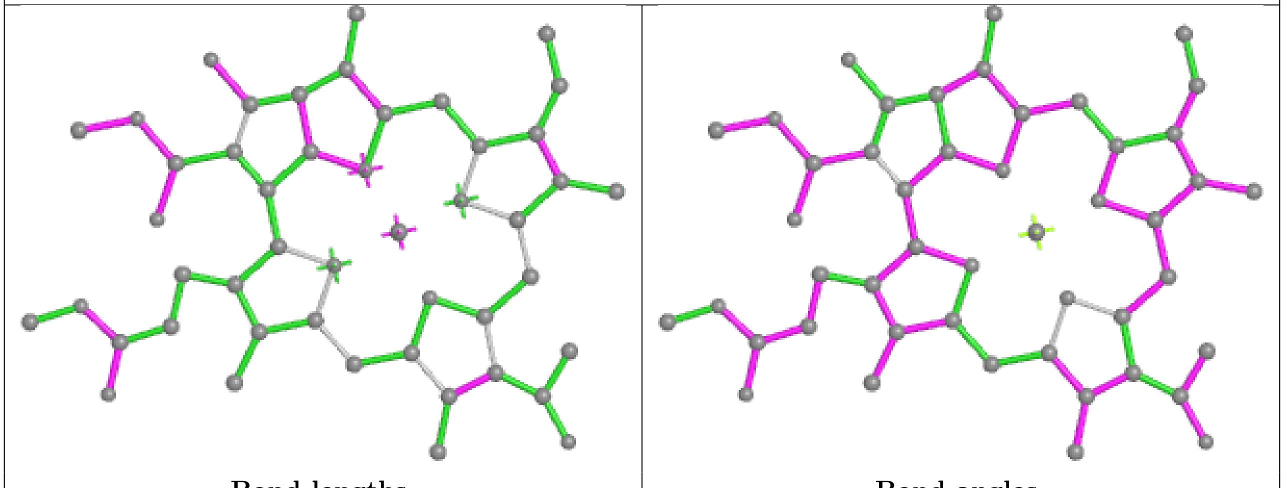
Bond lengths

Bond angles

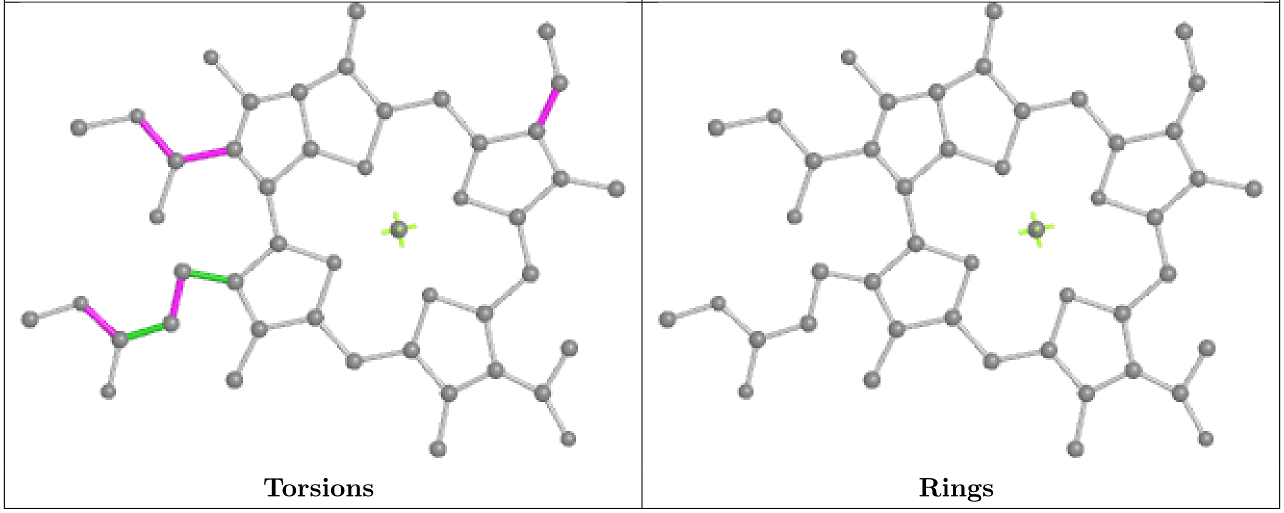
Torsions

Rings

Ligand BCL A 103

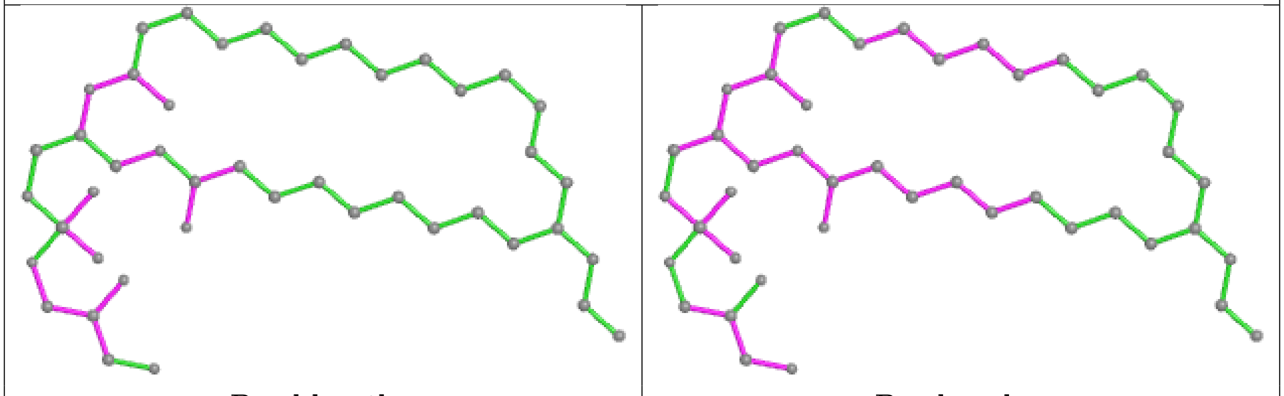


Bond lengths Bond angles

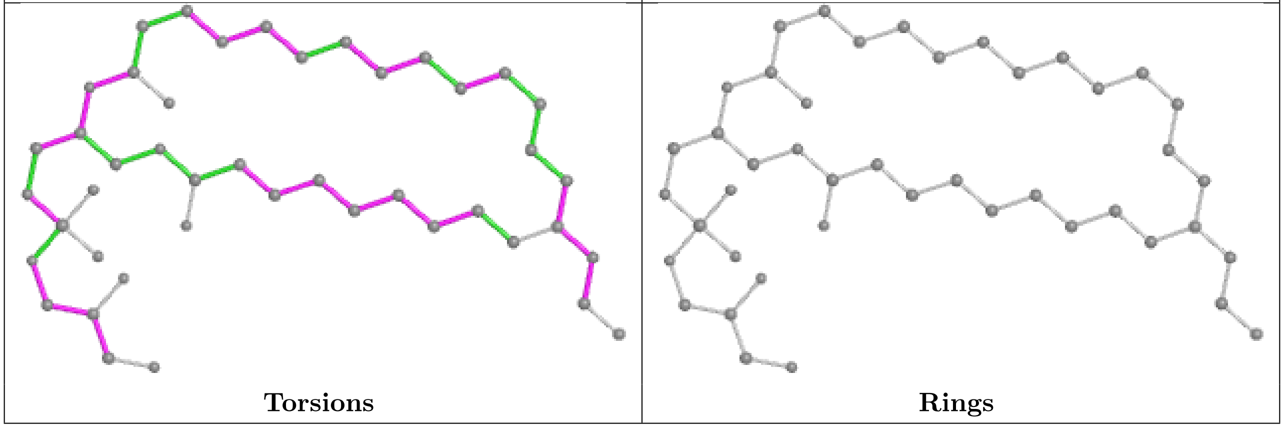


Torsions Rings

Ligand PGV C 505

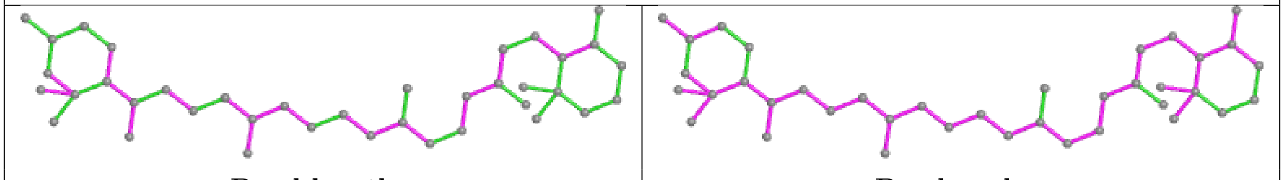


Bond lengths Bond angles

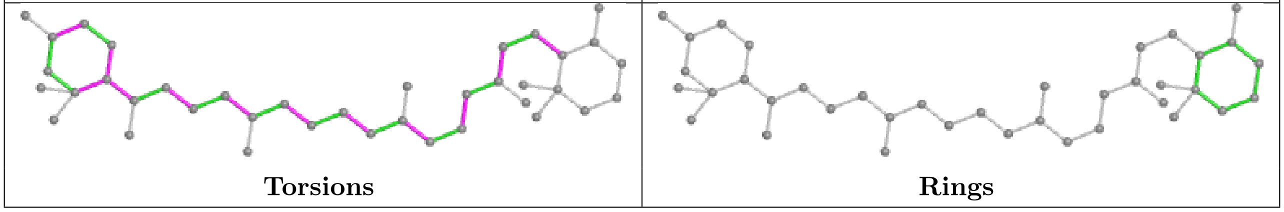


Torsions Rings

Ligand U4Z A 102

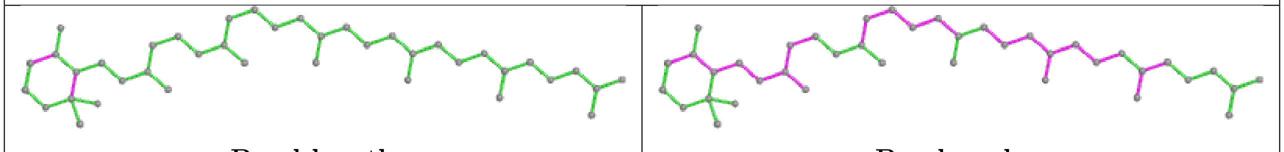


Bond lengths Bond angles

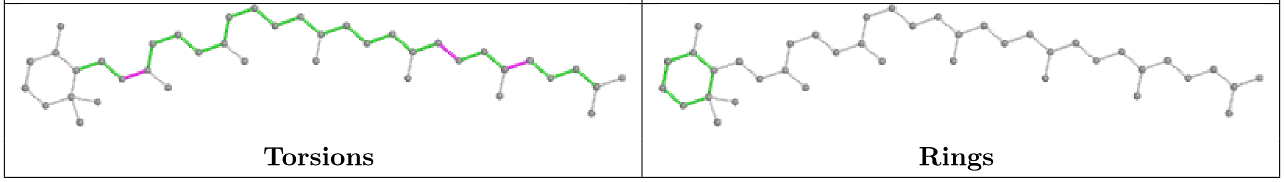


Torsions Rings

Ligand U4Z Q 102

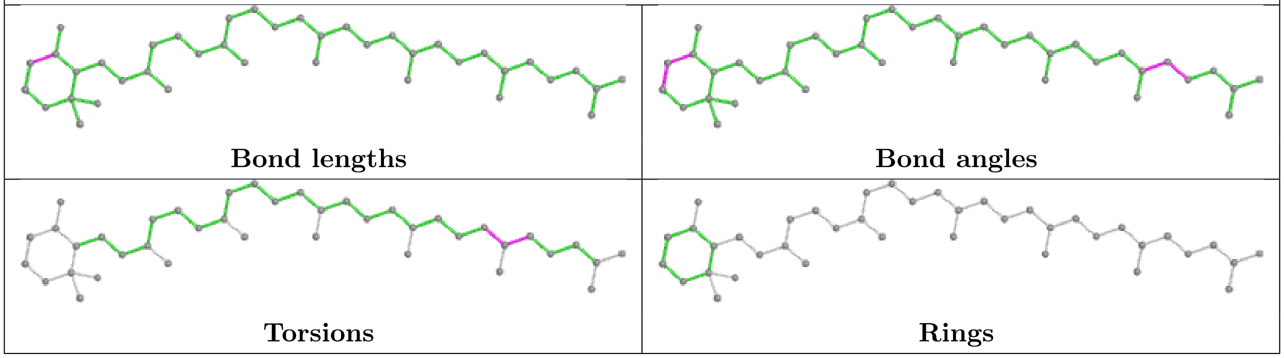


Bond lengths Bond angles



Torsions Rings

Ligand U4Z B 101



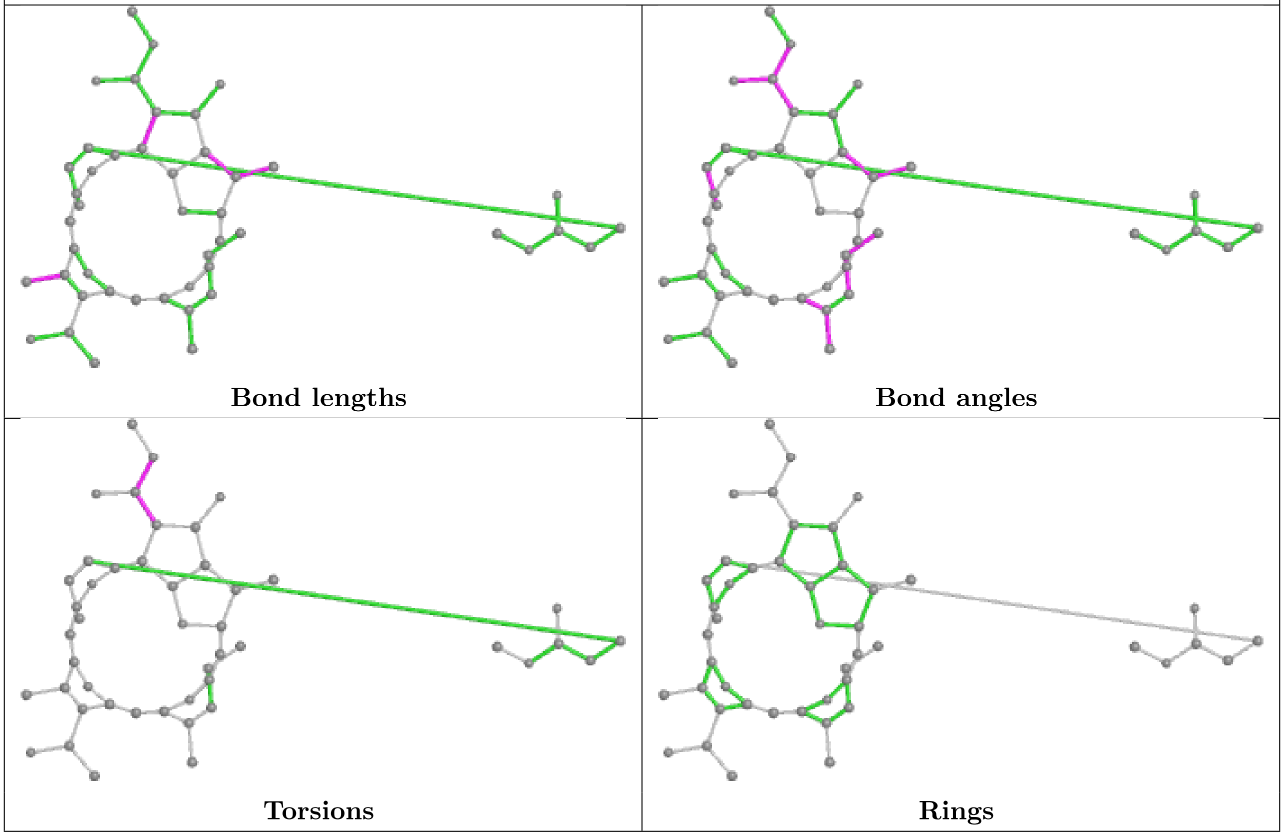
Bond lengths

Bond angles

Torsions

Rings

Ligand BPH M 406



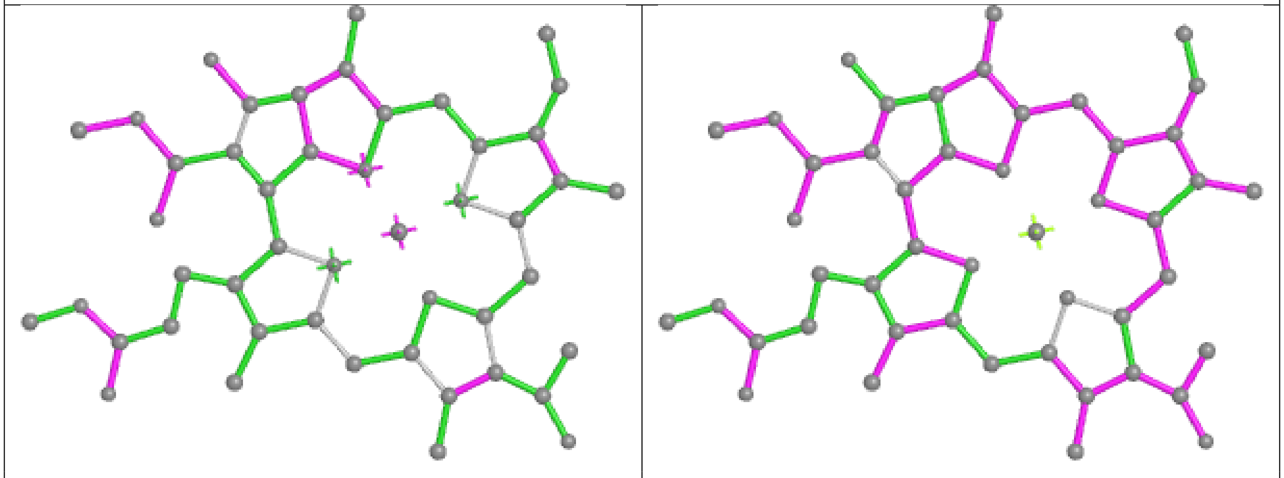
Bond lengths

Bond angles

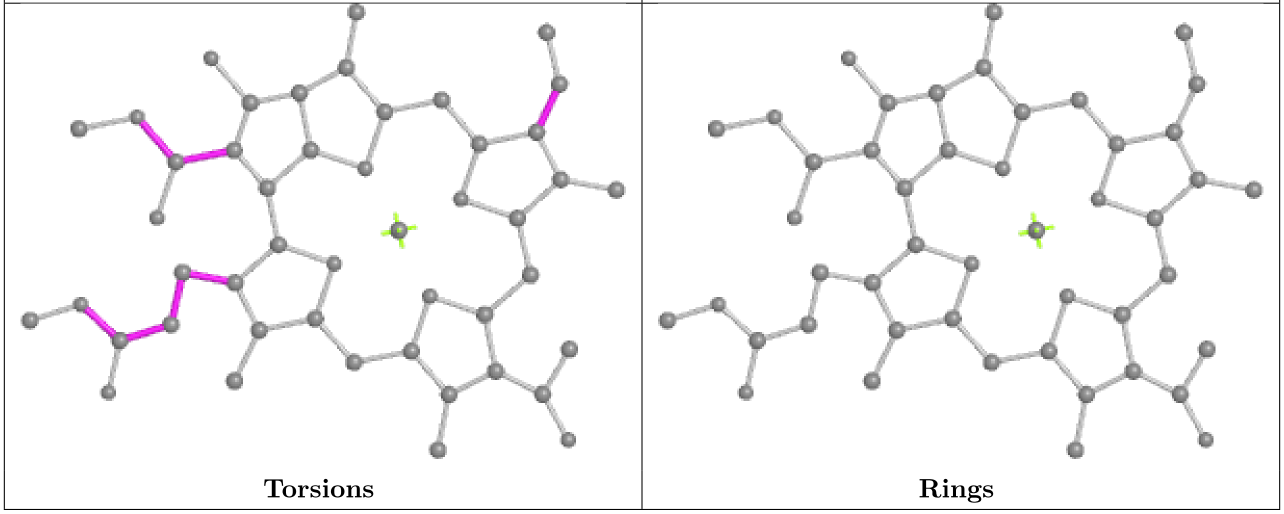
Torsions

Rings

Ligand BCL O 101

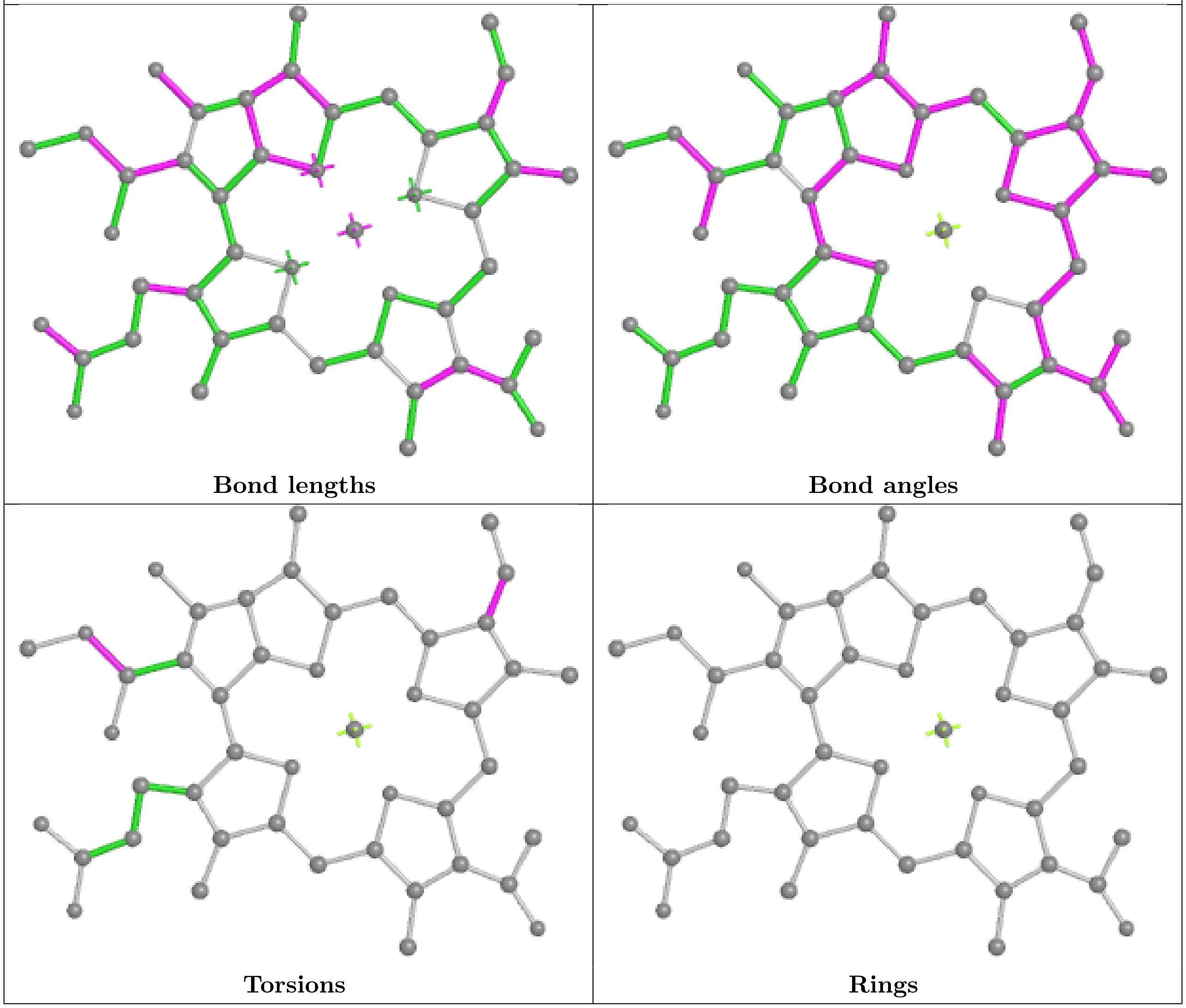


Bond lengths **Bond angles**



Torsions **Rings**

Ligand BCL G 103



Bond lengths

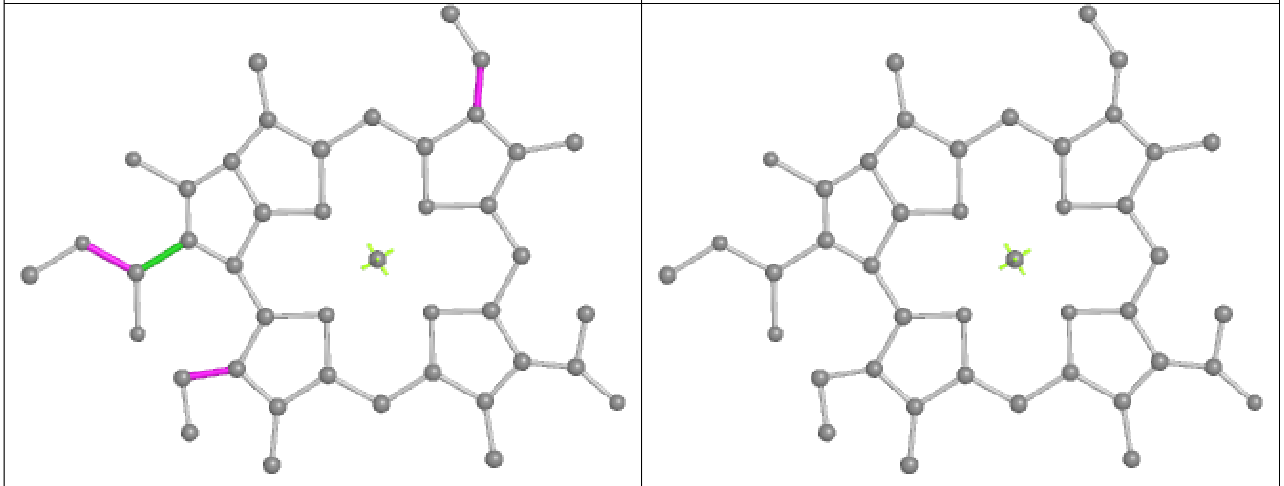
Bond angles

Torsions

Rings

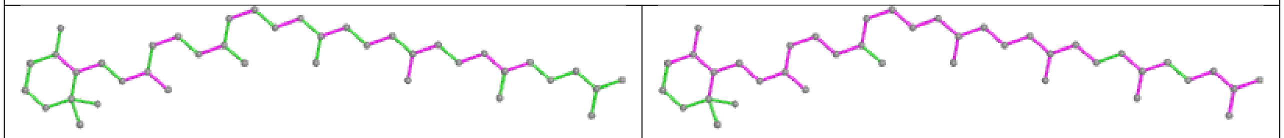
Ligand BCL R 103

Bond lengths **Bond angles**

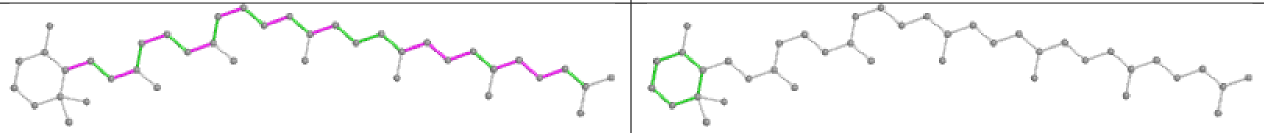


Torsions **Rings**

Ligand U4Z D 104



Bond lengths **Bond angles**



Torsions **Rings**

Ligand U4Z R 101

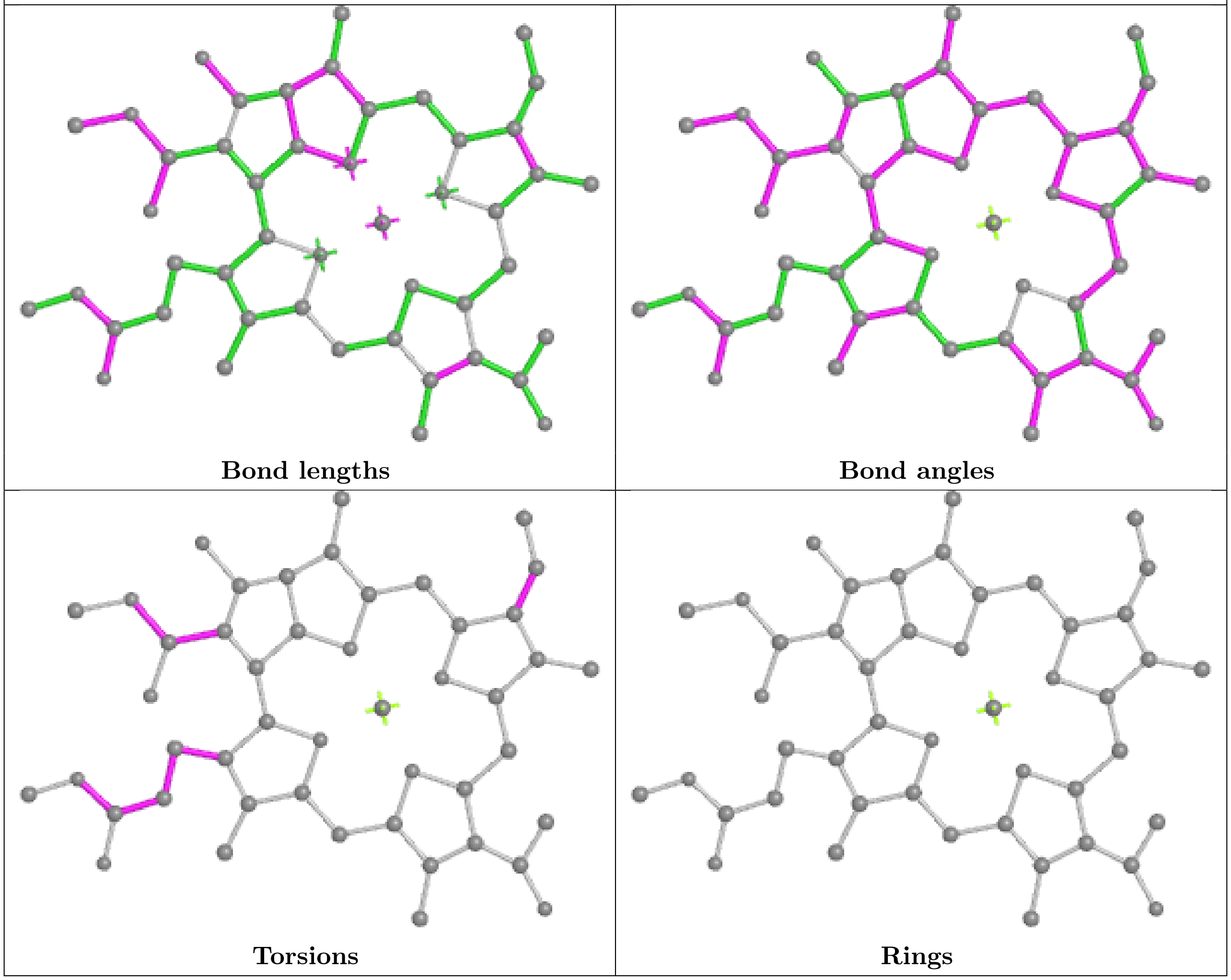
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL Q 101



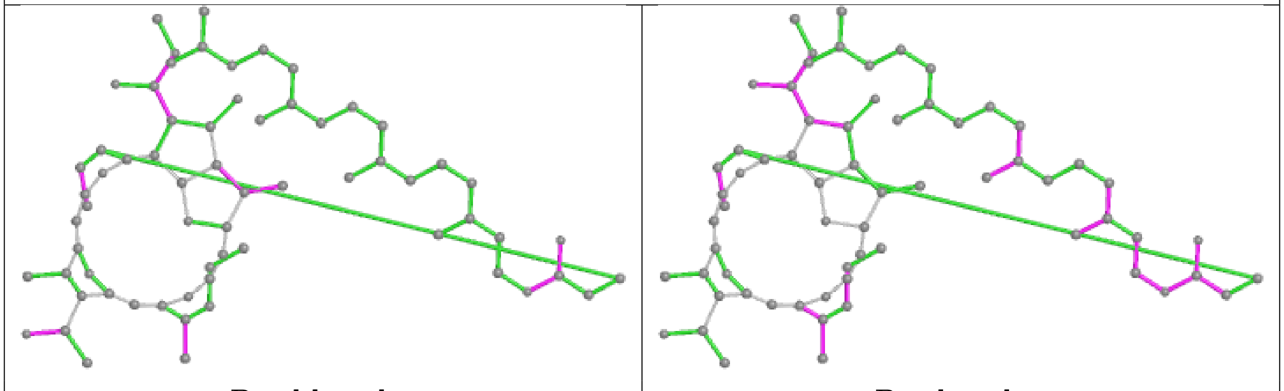
Bond lengths

Bond angles

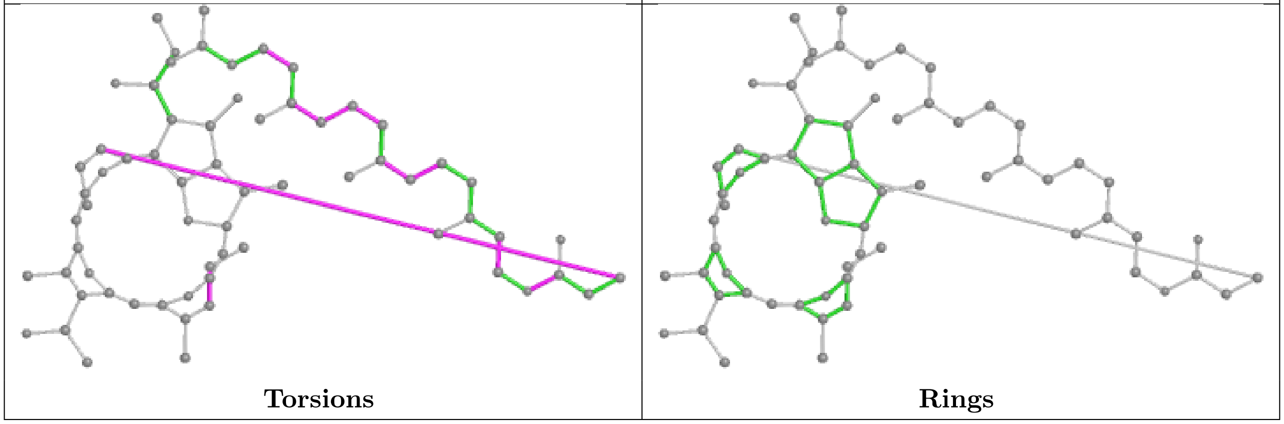
Torsions

Rings

Ligand BPH L 403

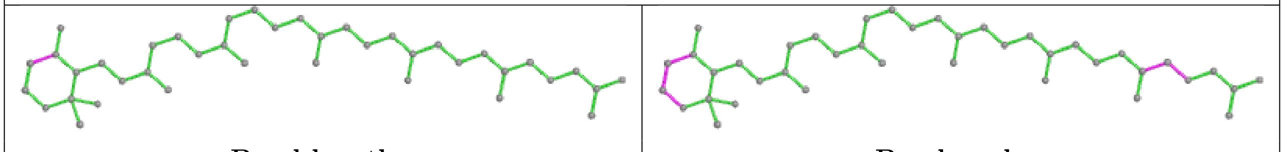


Bond lengths **Bond angles**

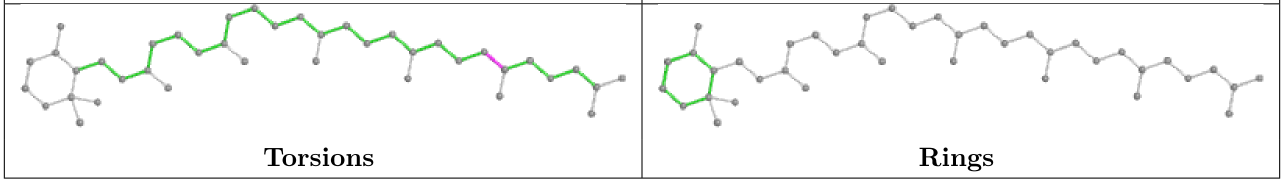


Torsions **Rings**

Ligand U4Z K 101

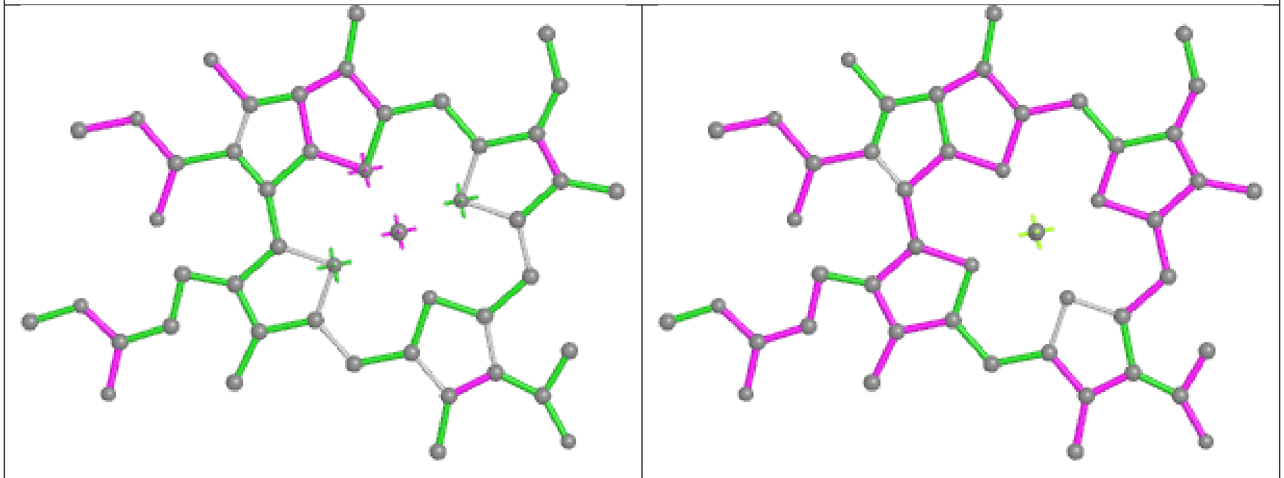


Bond lengths **Bond angles**



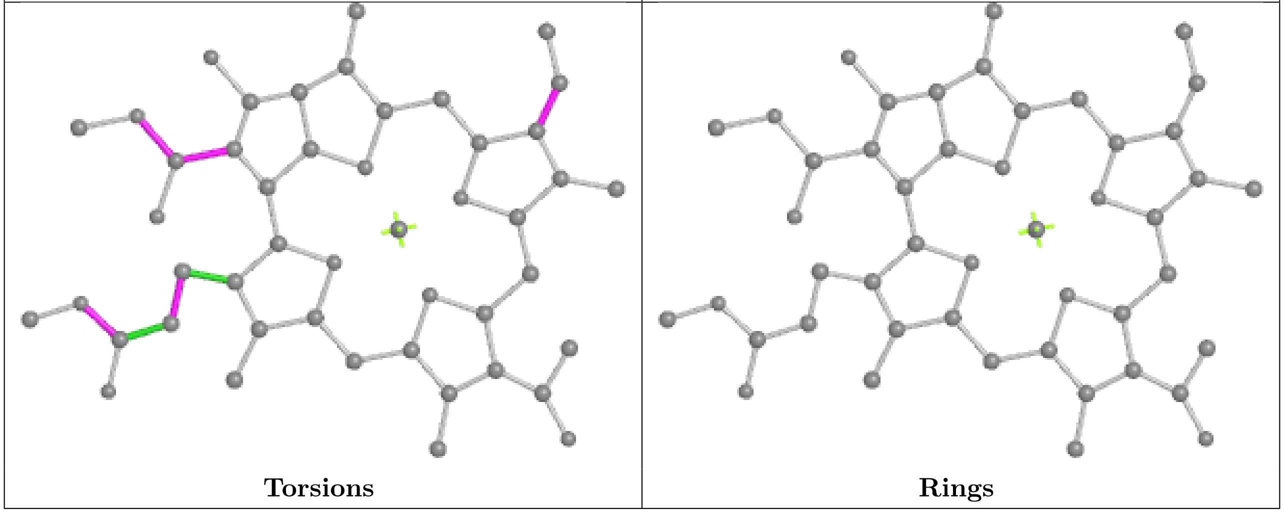
Torsions **Rings**

Ligand BCL R 102



Bond lengths

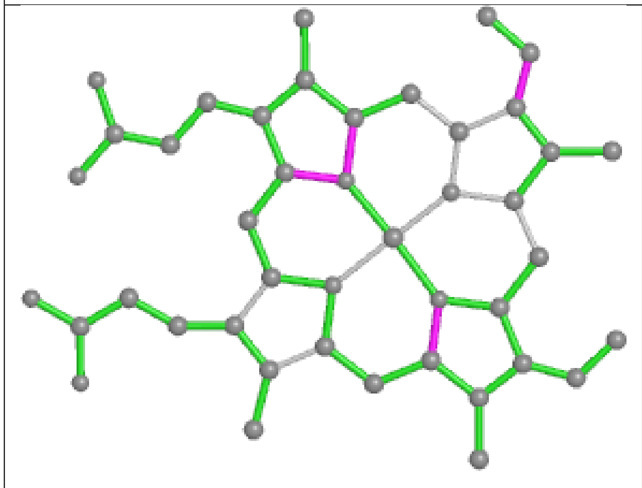
Bond angles



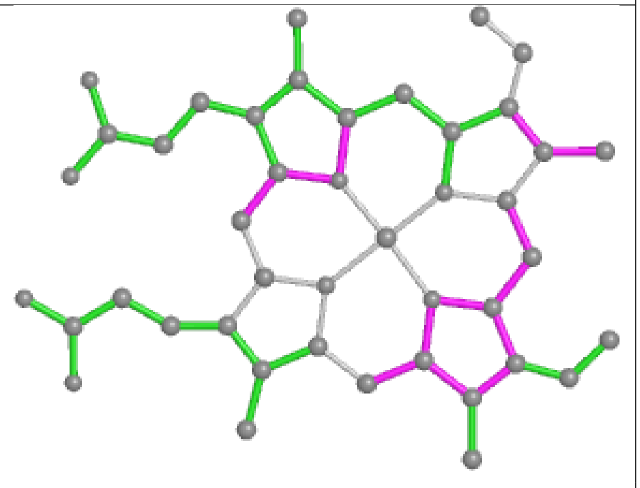
Torsions

Rings

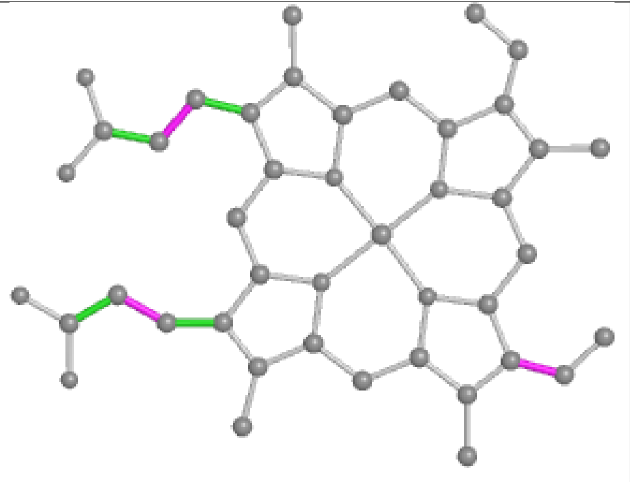
Ligand HEM C 504



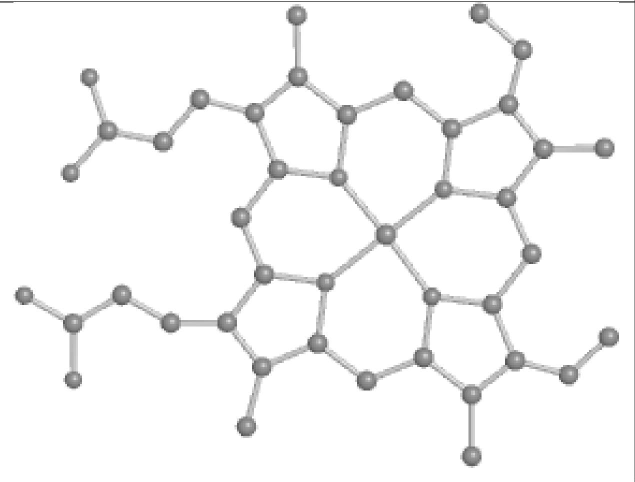
Bond lengths



Bond angles

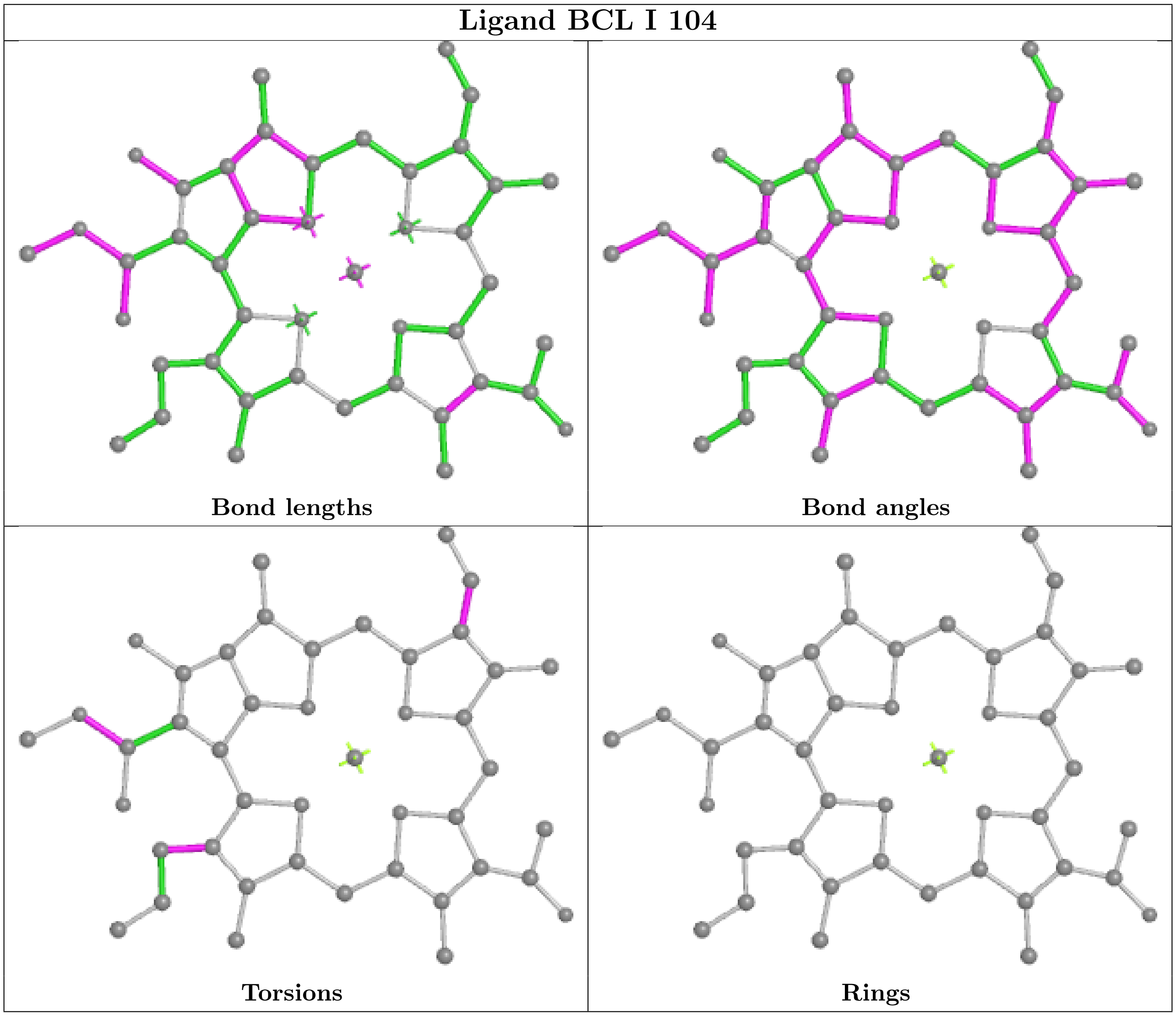


Torsions



Rings

Ligand BCL I 104



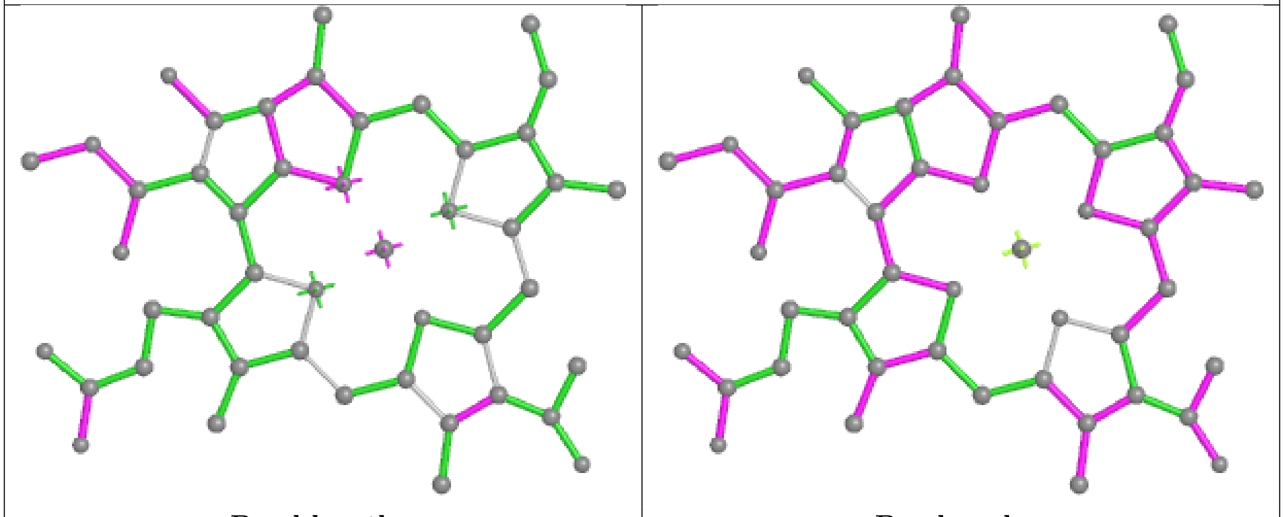
Bond lengths

Bond angles

Torsions

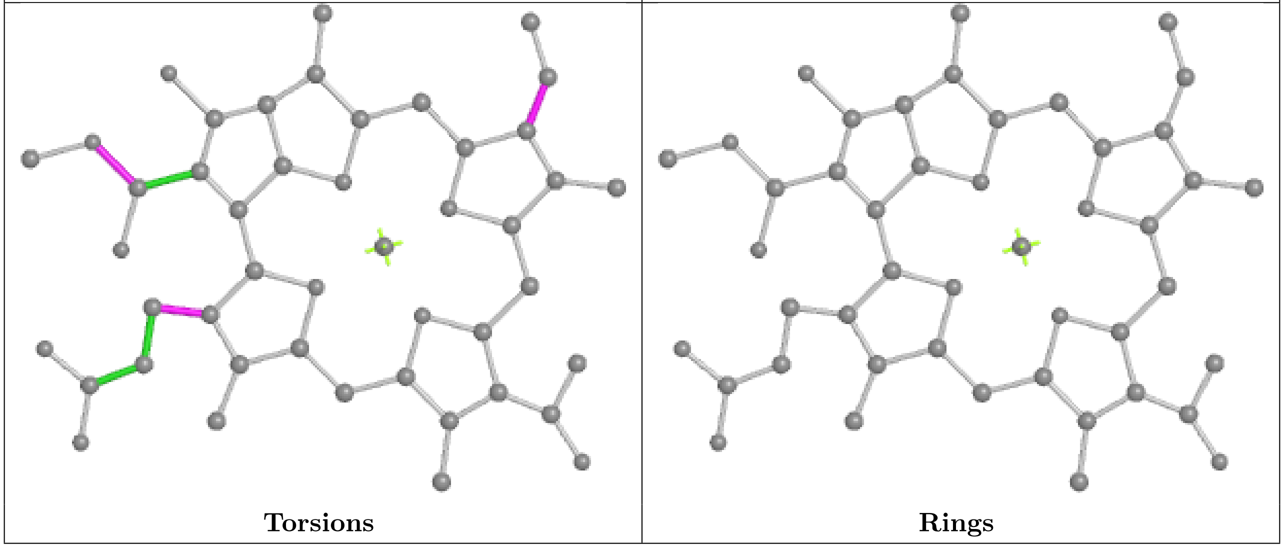
Rings

Ligand BCL E 101



Bond lengths

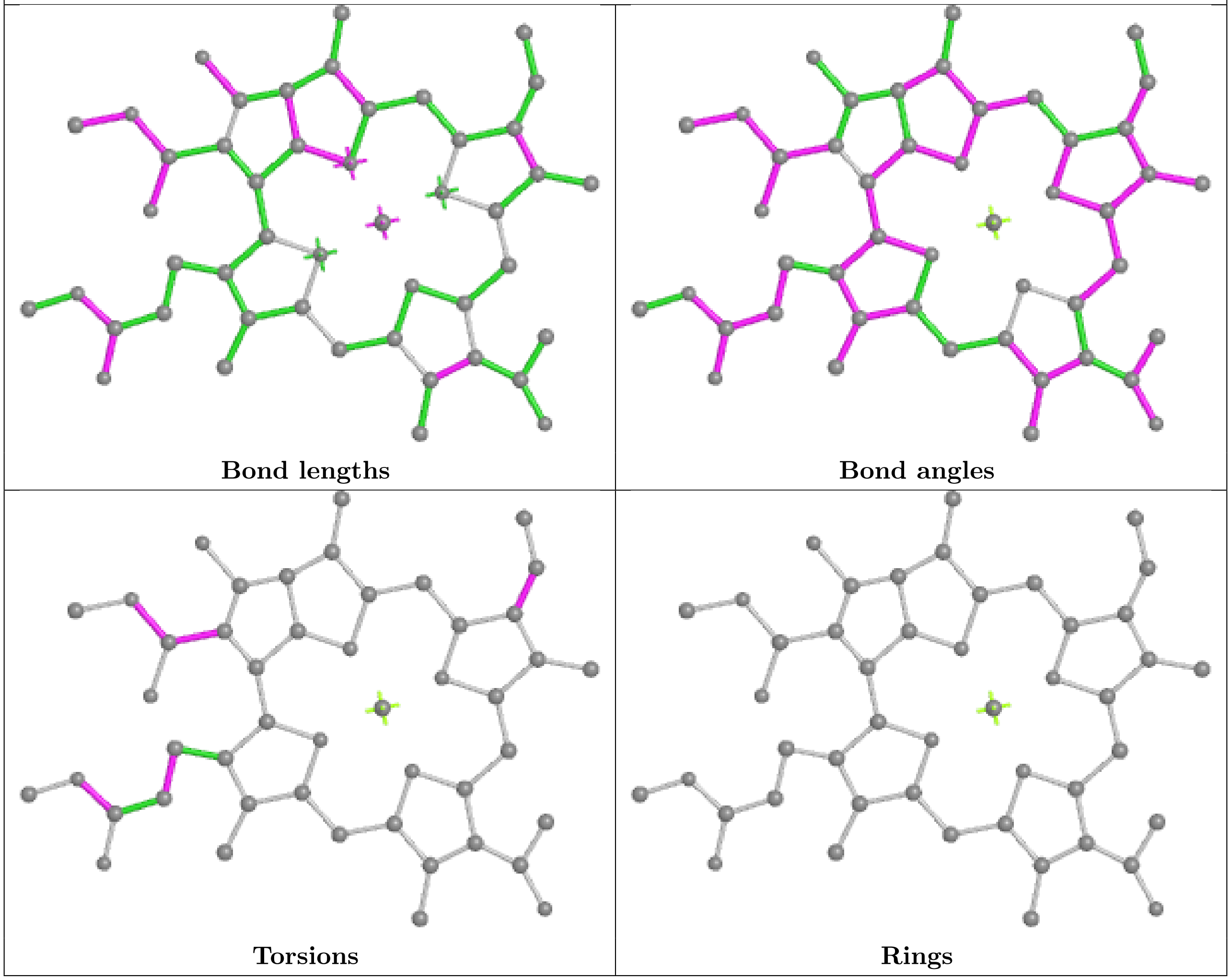
Bond angles



Torsions

Rings

Ligand BCL J 101



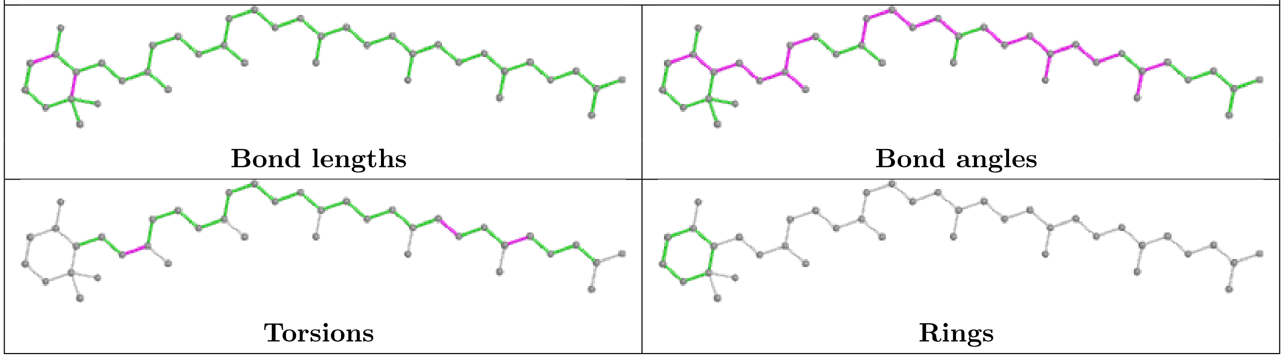
Bond lengths

Bond angles

Torsions

Rings

Ligand U4Z K 103



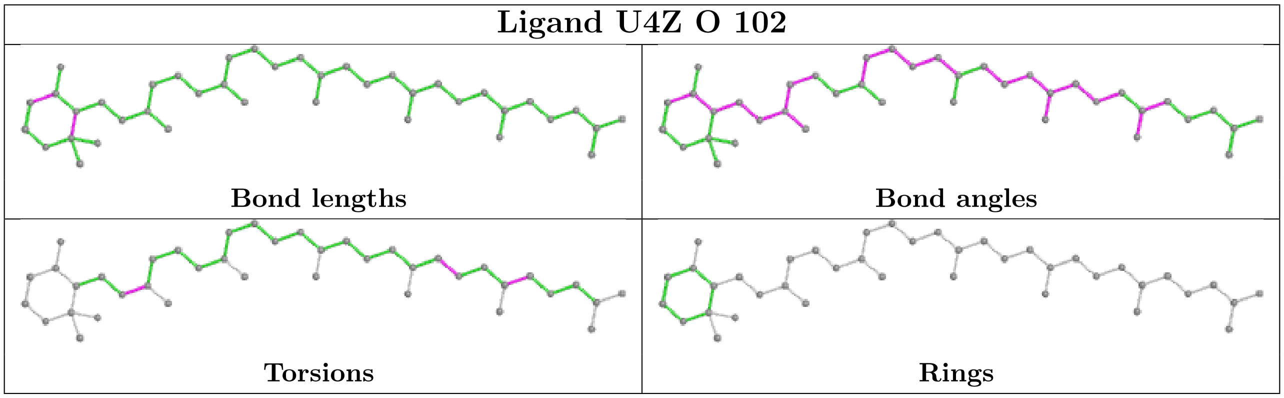
Bond lengths

Bond angles

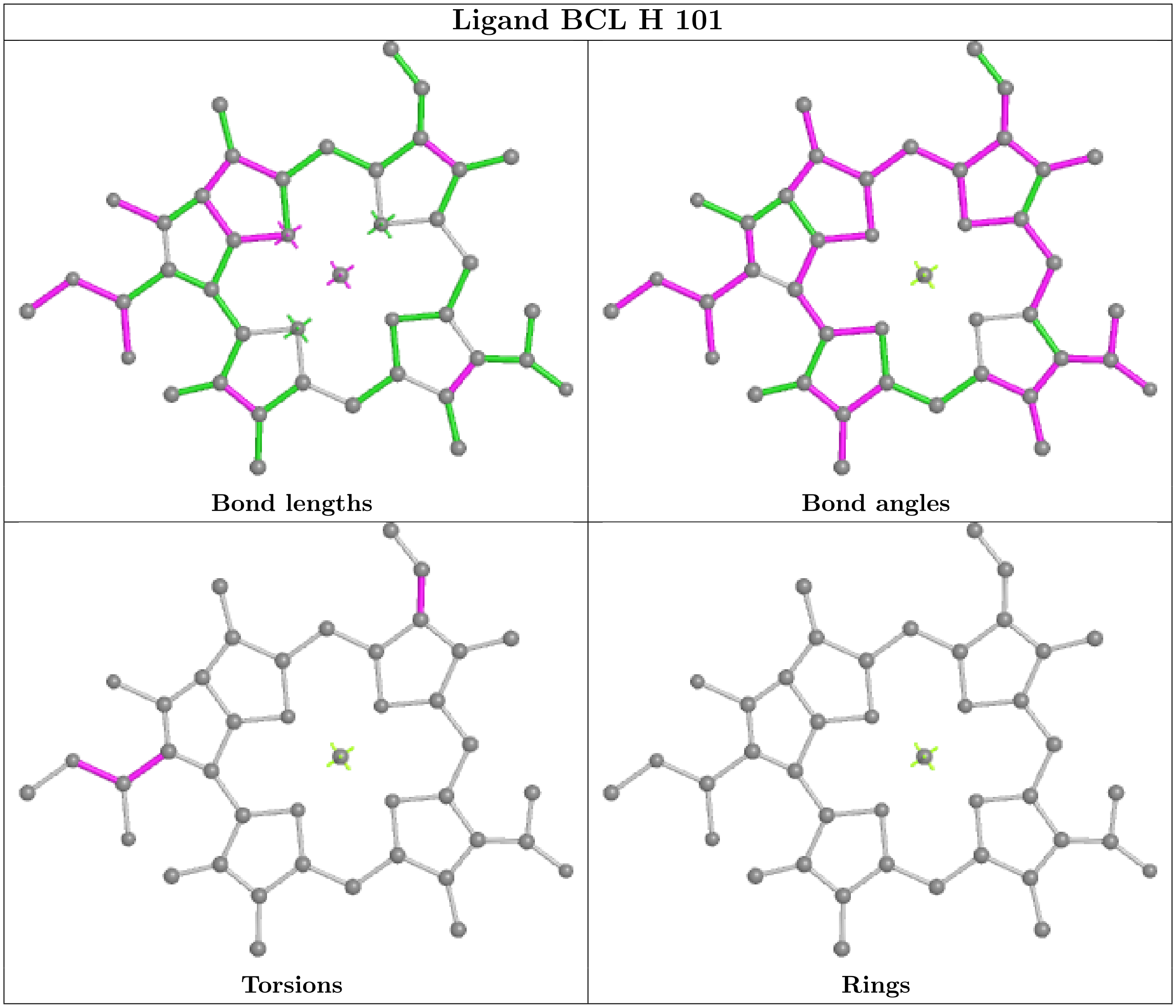
Torsions

Rings

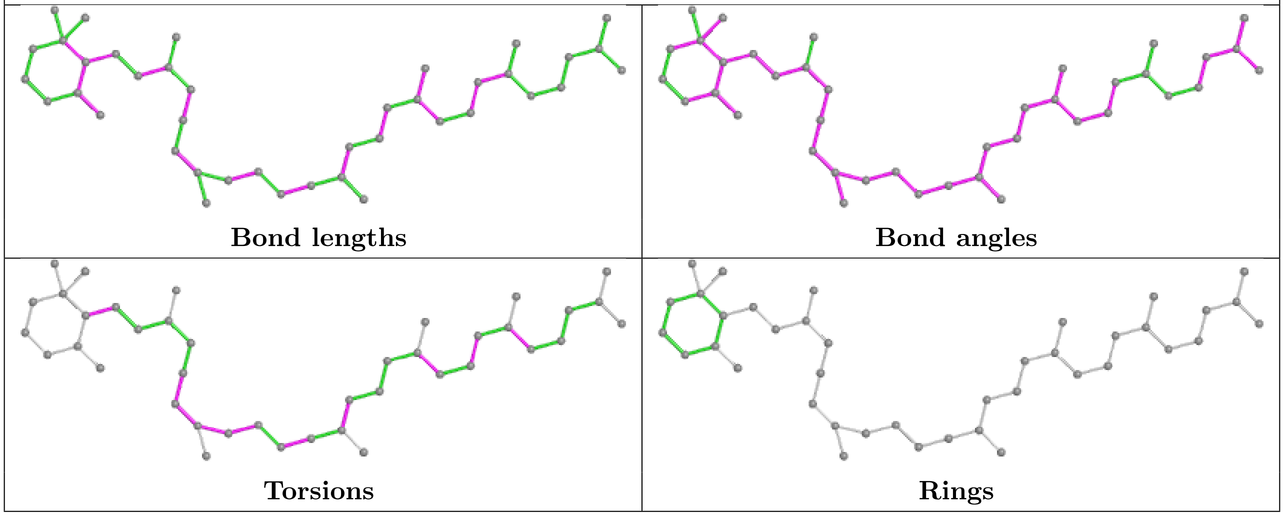
Ligand U4Z O 102



Ligand BCL H 101



Ligand U4Z I 101



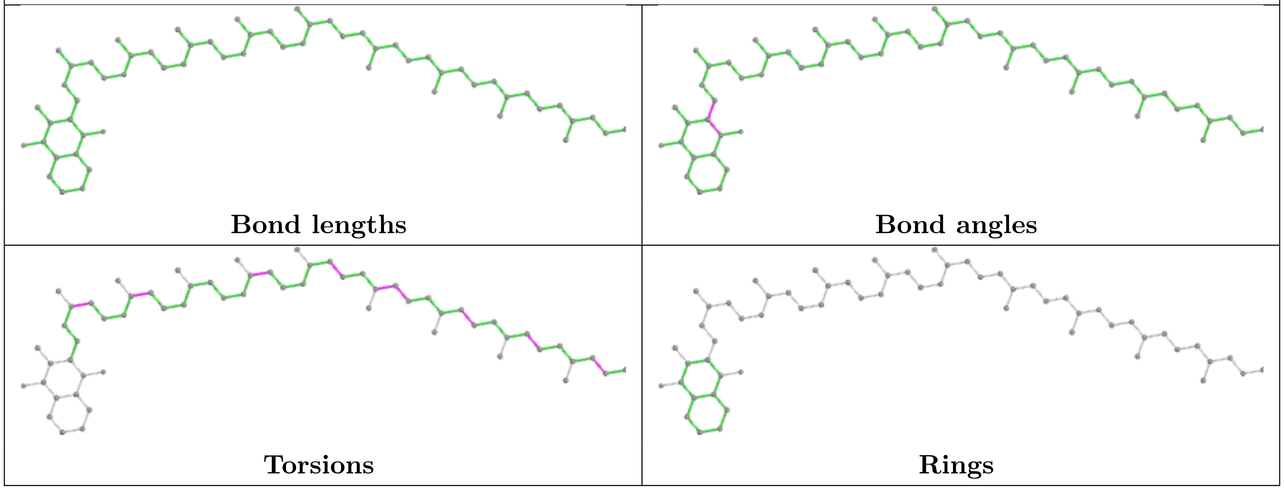
Bond lengths

Bond angles

Torsions

Rings

Ligand MQE L 401



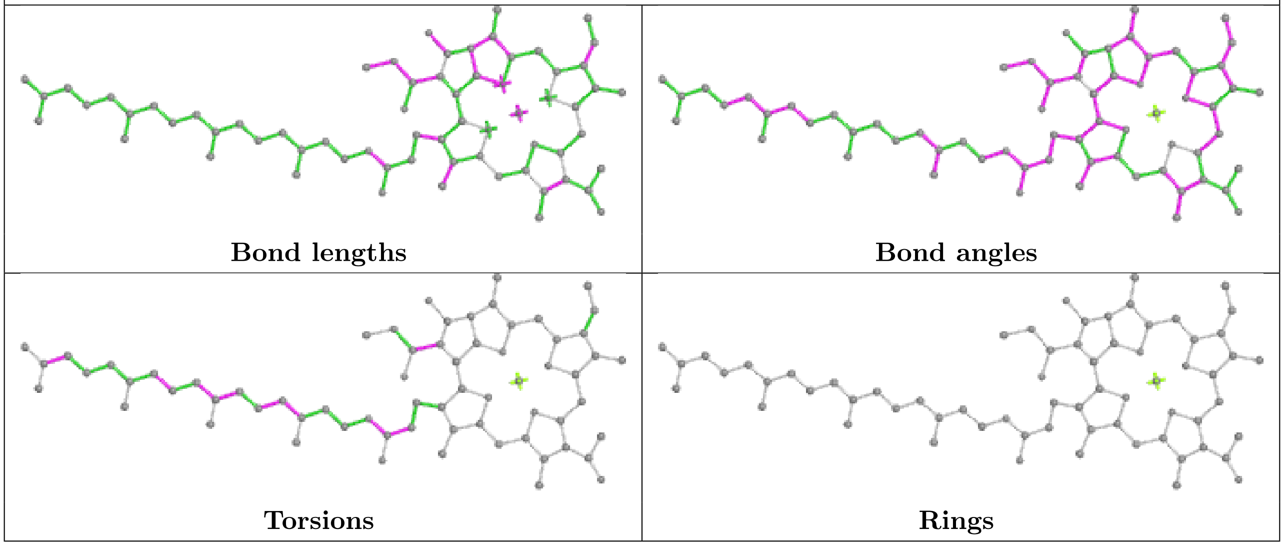
Bond lengths

Bond angles

Torsions

Rings

Ligand BCL M 405



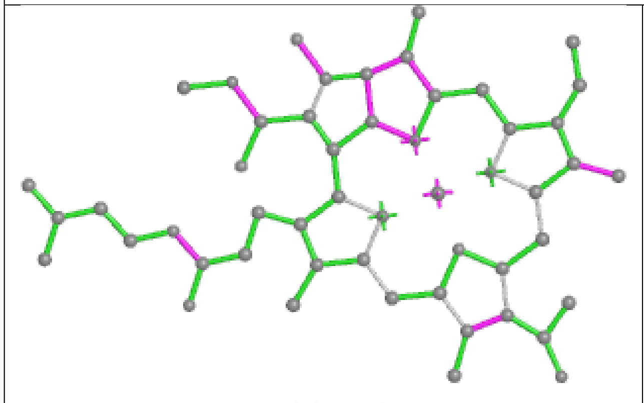
Bond lengths

Bond angles

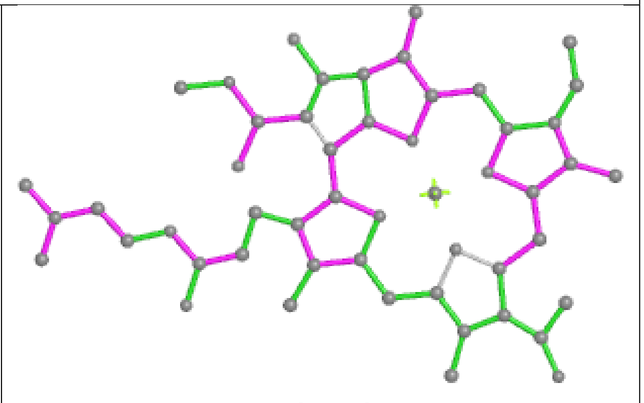
Torsions

Rings

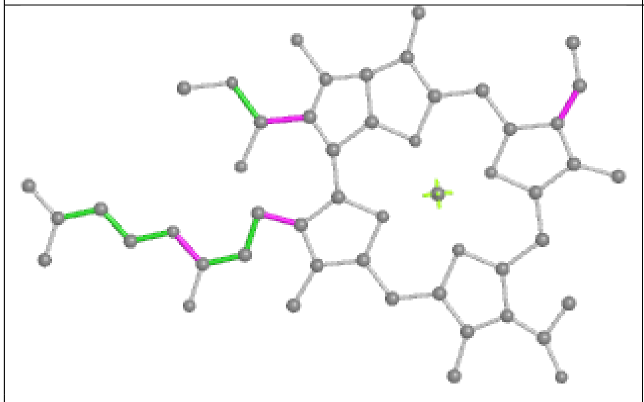
Ligand BCL K 104



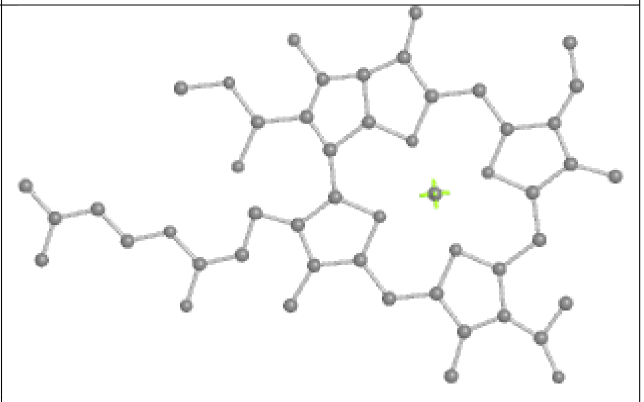
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

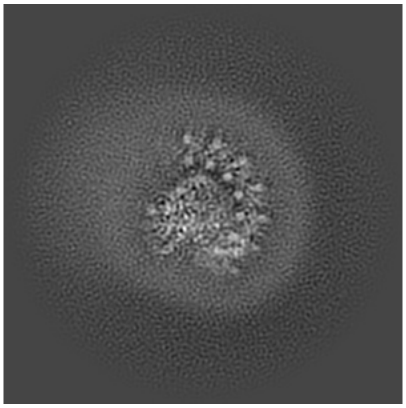
6 Map visualisation

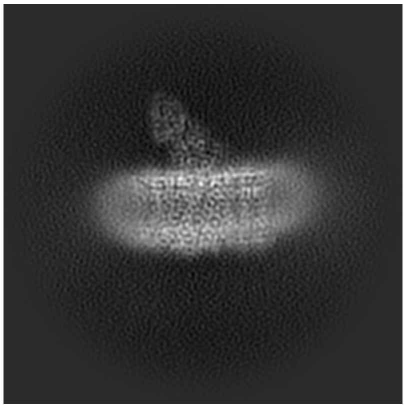
This section contains visualisations of the EMDB entry EMD-39177. These allow visual inspection of the internal detail of the map and identification of artifacts.

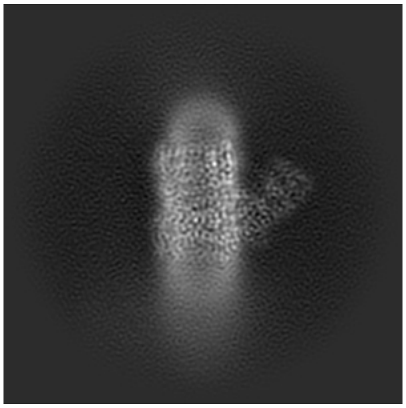
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

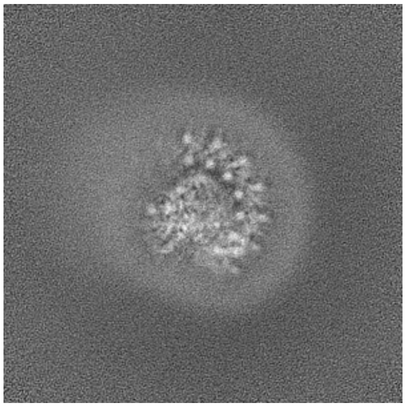
6.1.1 Primary map

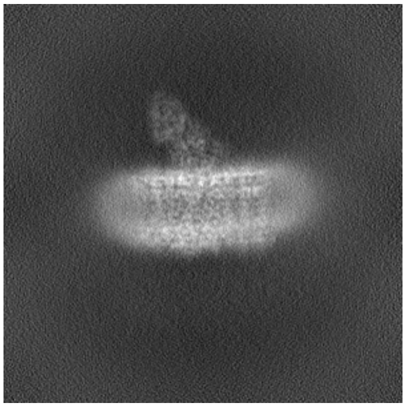

X

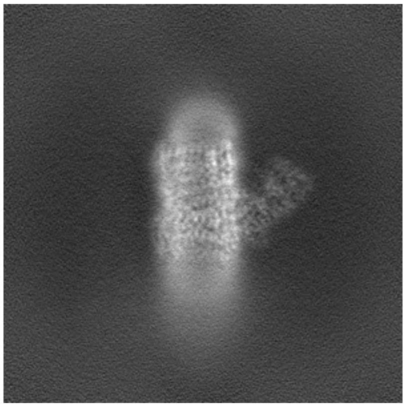

Y


Z

6.1.2 Raw map


X

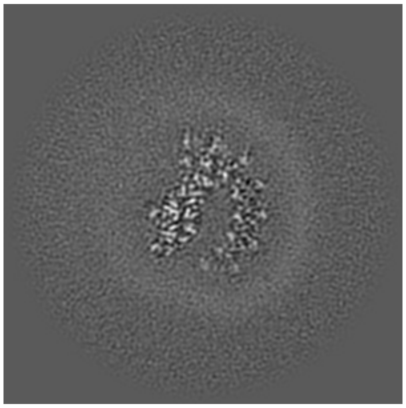

Y


Z

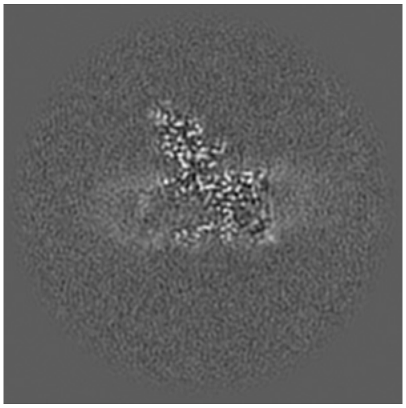
The images above show the map projected in three orthogonal directions.

6.2 Central slices

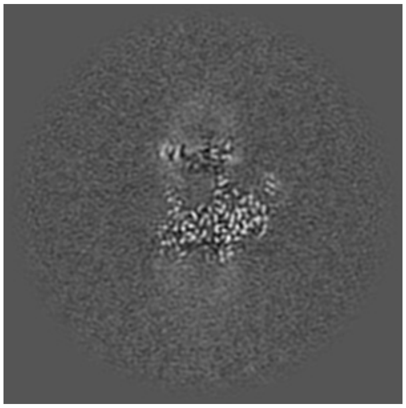
6.2.1 Primary map



X Index: 160

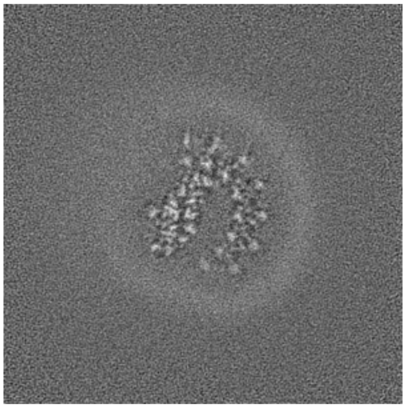


Y Index: 160

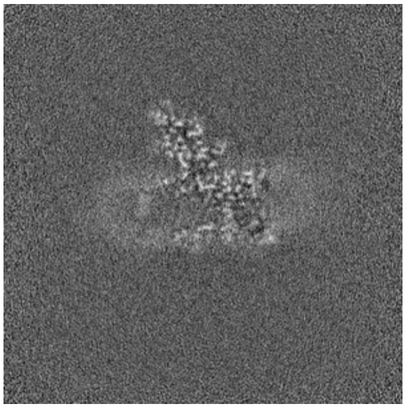


Z Index: 160

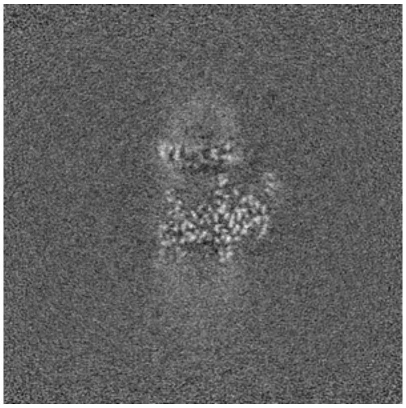
6.2.2 Raw map



X Index: 160



Y Index: 160

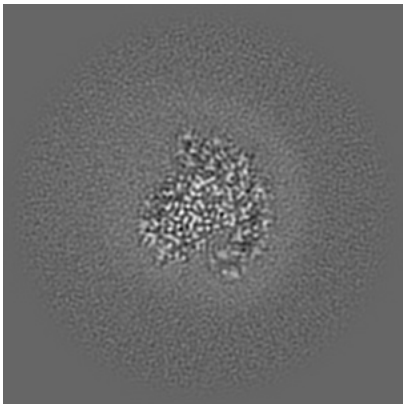


Z Index: 160

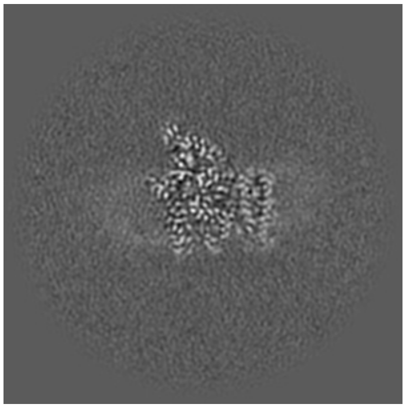
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

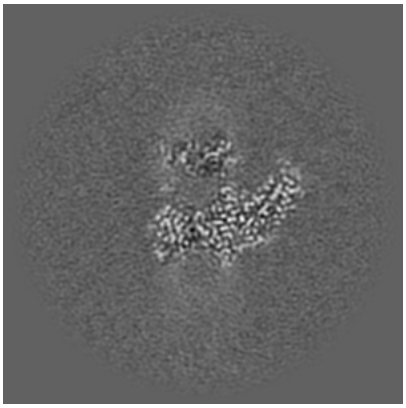
6.3.1 Primary map



X Index: 176

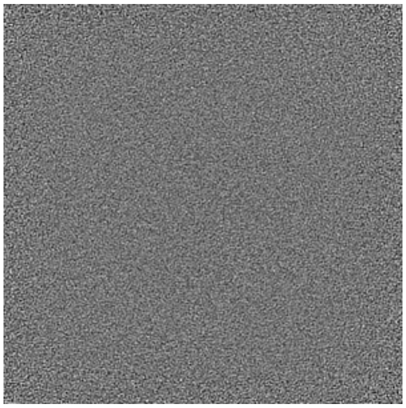


Y Index: 147

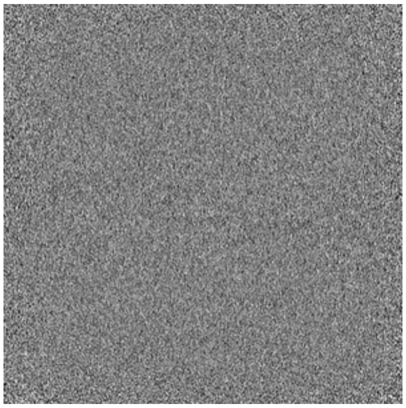


Z Index: 142

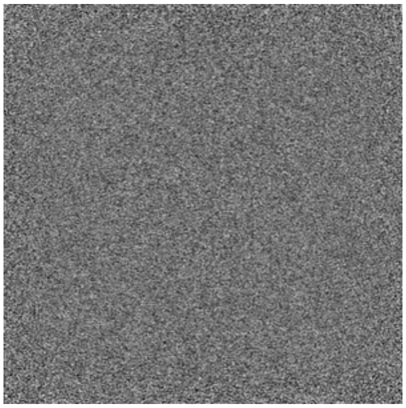
6.3.2 Raw map



X Index: 0



Y Index: 0

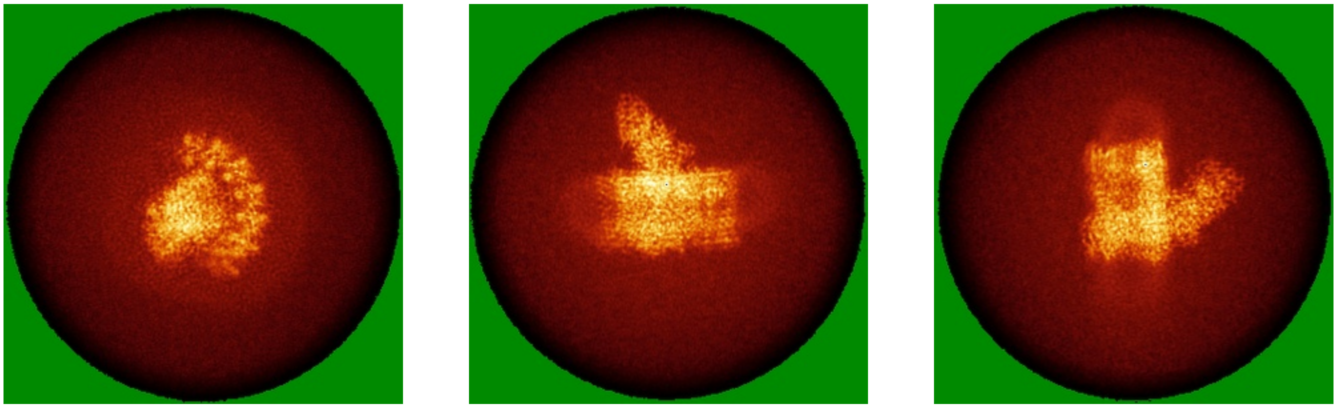


Z Index: 319

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

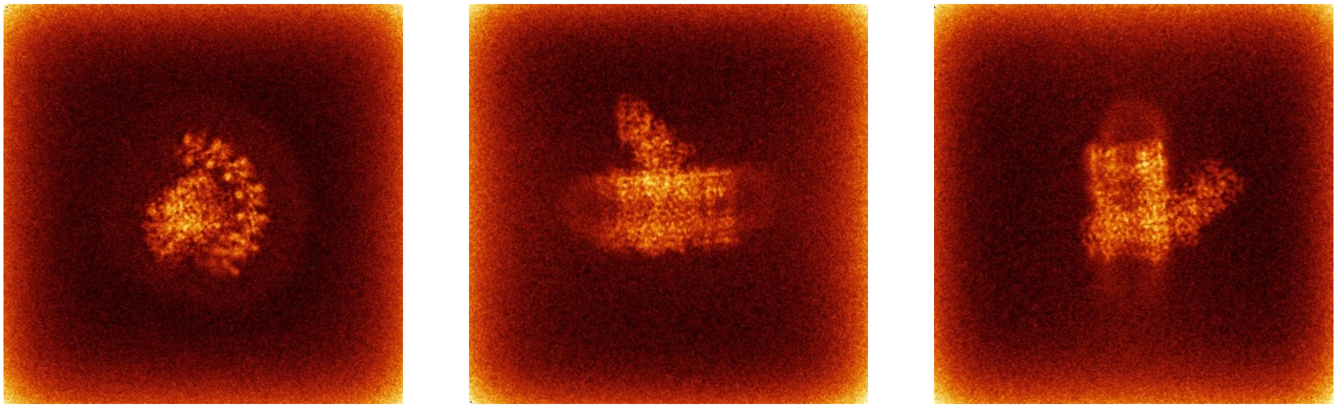
6.4 Orthogonal standard-deviation projections (False-color)

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

6.5.1 Primary map

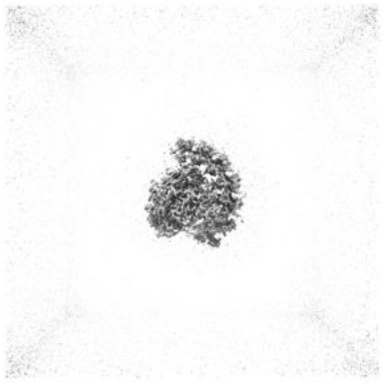
X

Y

Z

The images above show the 3D surface view of the map at the recommended contour level 0.4. 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.

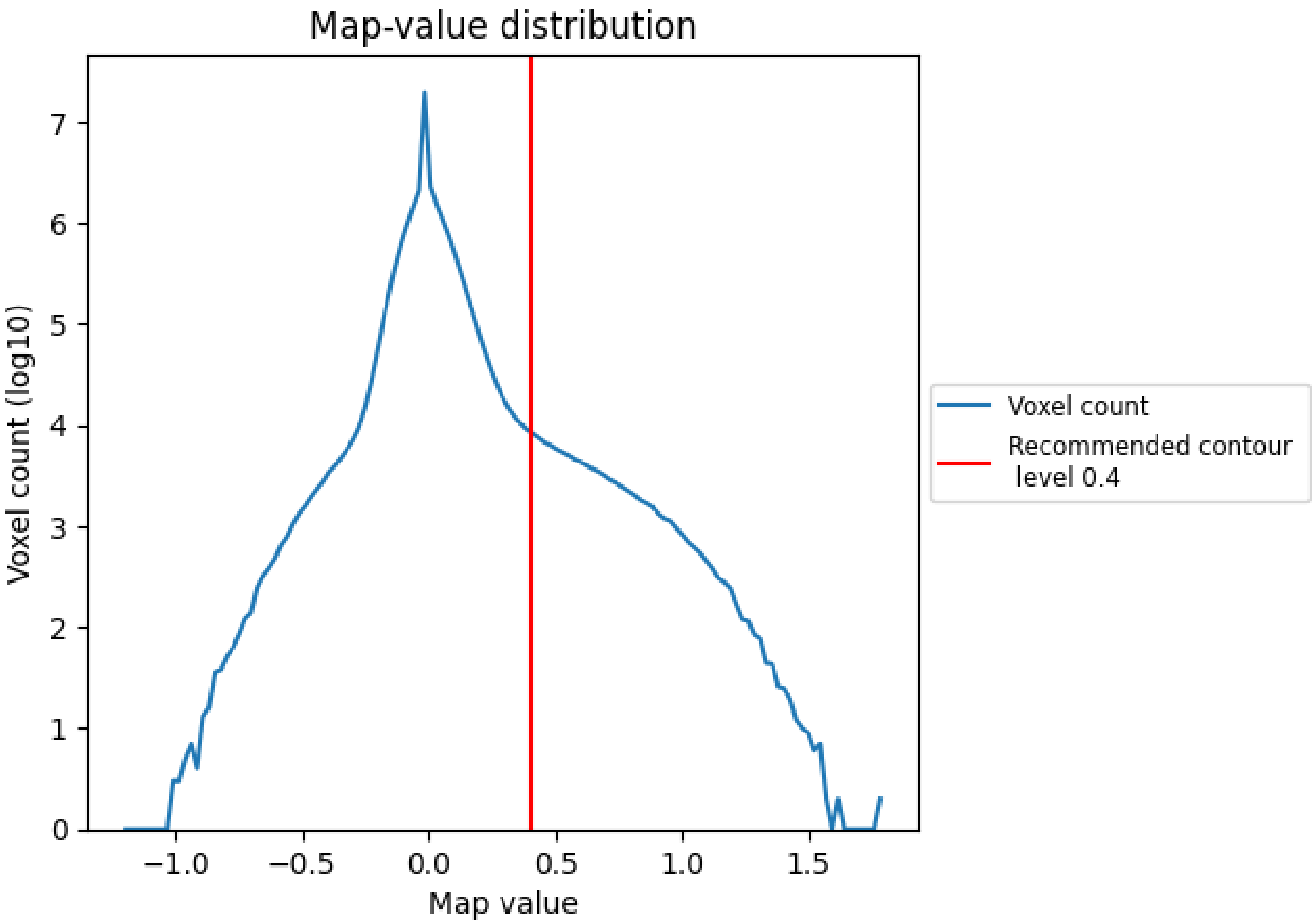
6.6 Mask visualisation

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

7 Map analysis ⓘ

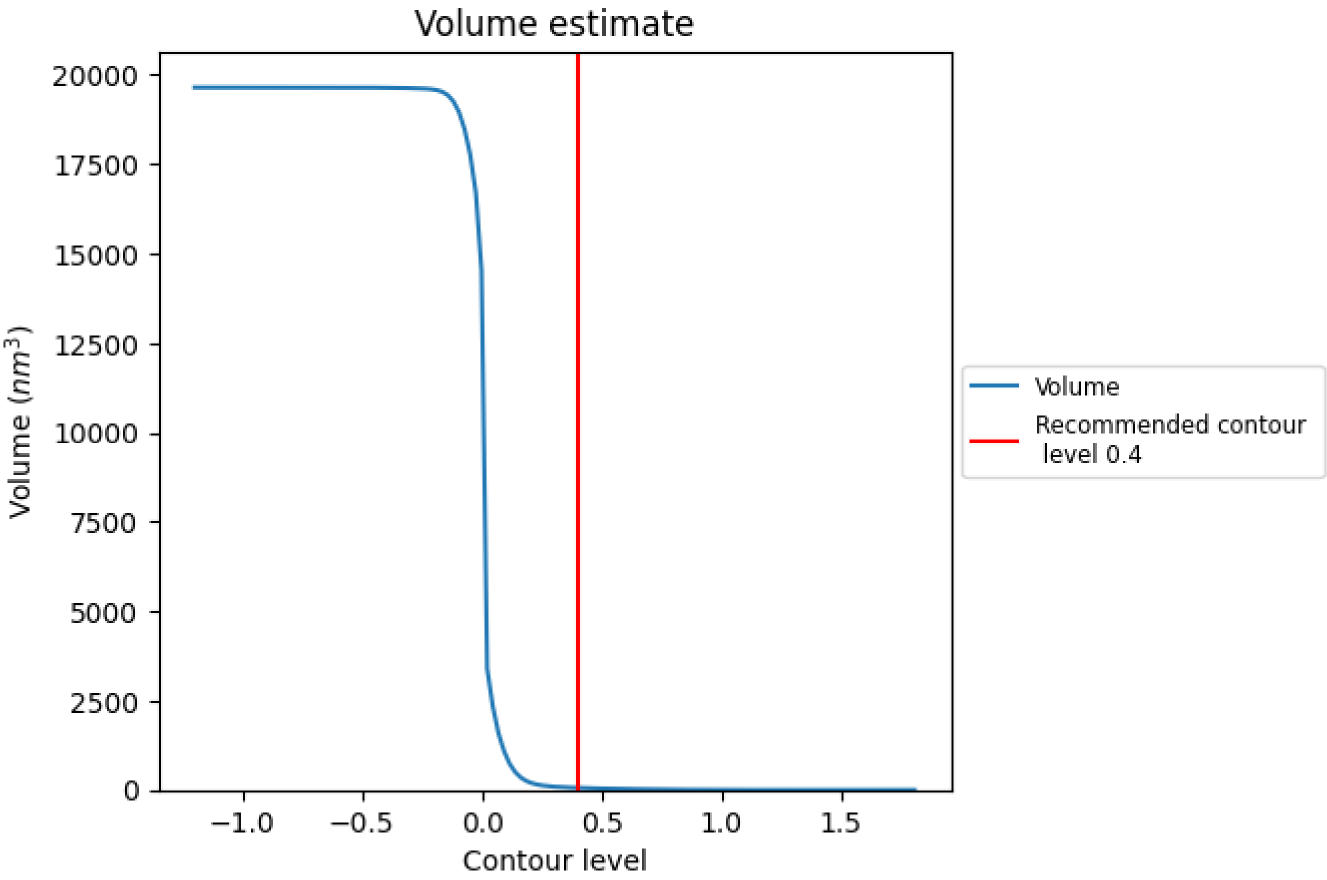
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ



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

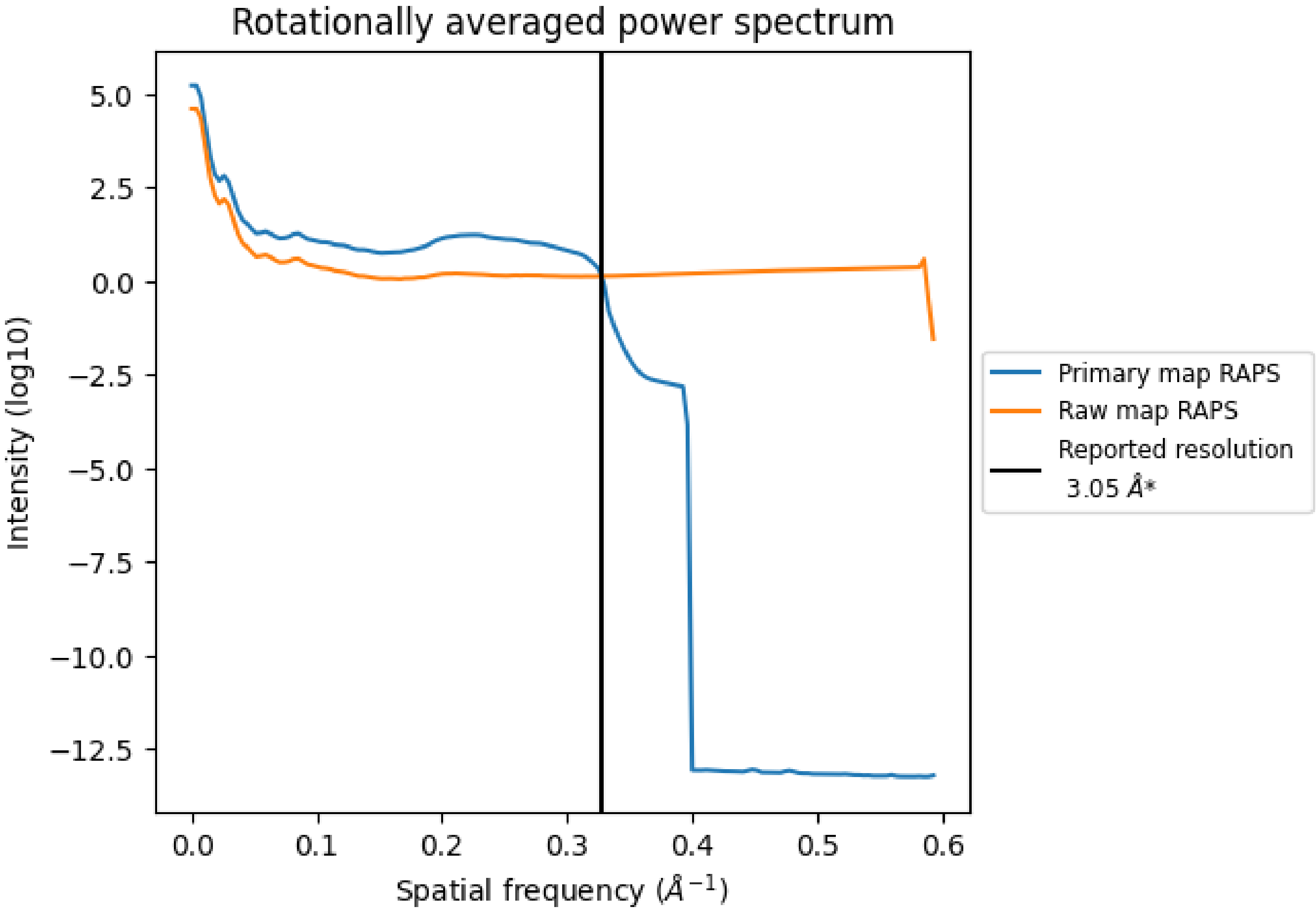
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 60 nm^3; this corresponds to an approximate mass of 54 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 ⓘ

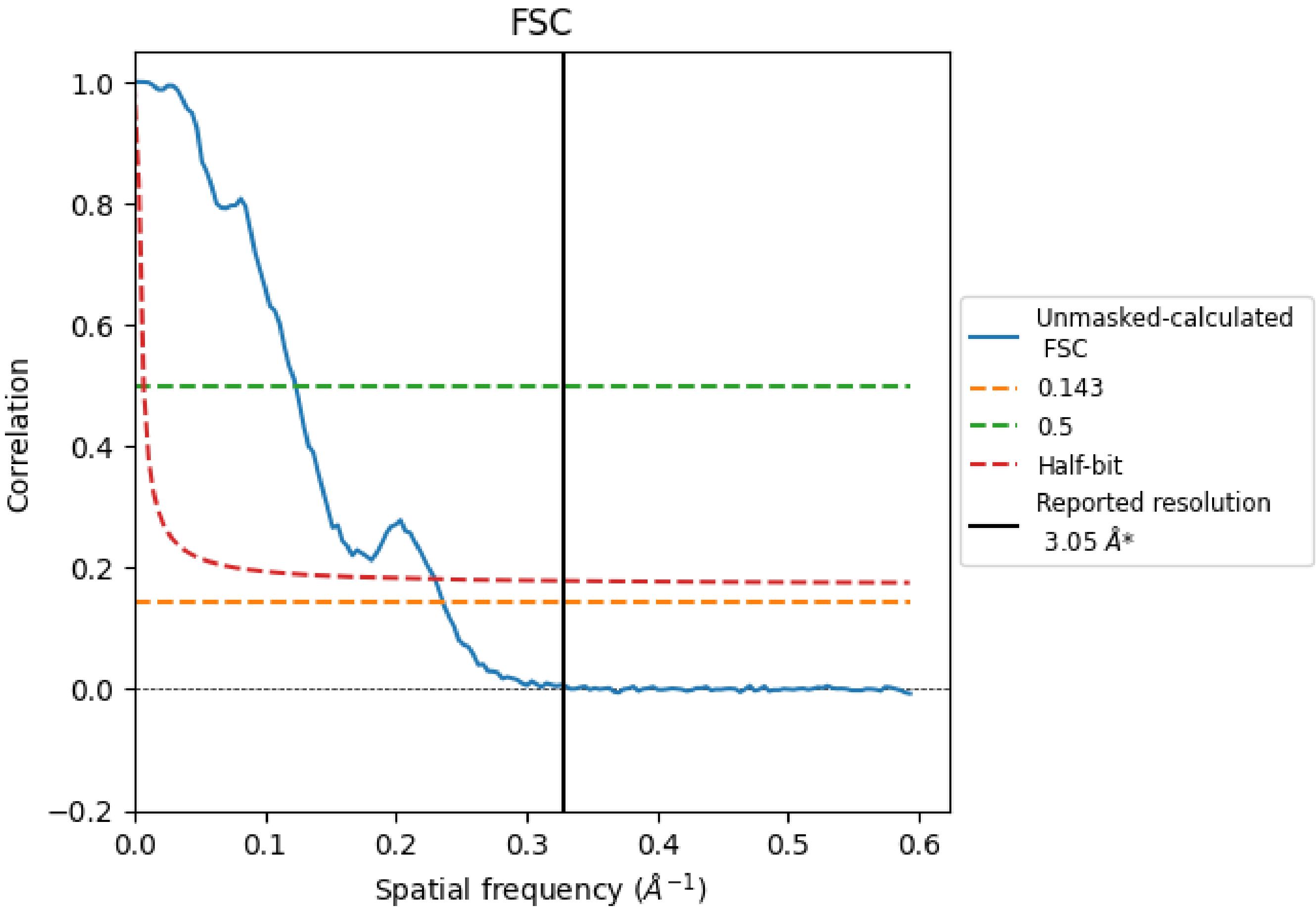


*Reported resolution corresponds to spatial frequency of 0.328 Å^{-1}

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 0.328 Å^{-1}

8.2 Resolution estimates ⓘ

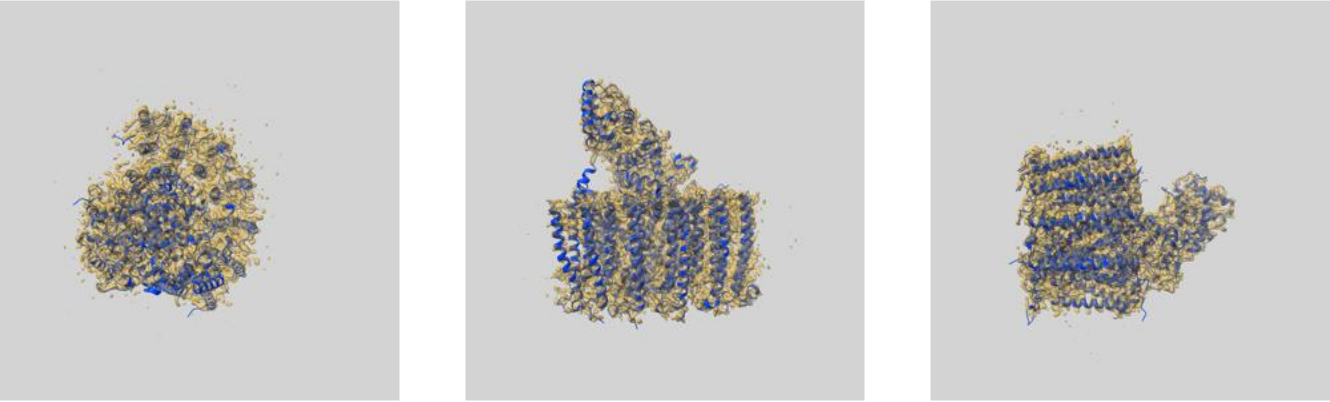
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	-	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.24	8.11	4.35

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-39177 and PDB model 8YDM. Per-residue inclusion information can be found in section 3 on page 11.

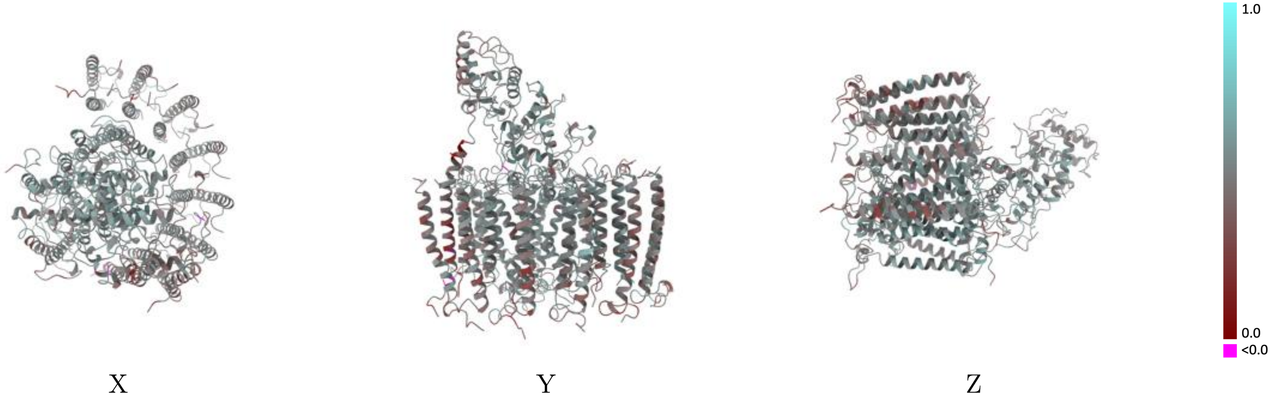
9.1 Map-model overlay



X Y Z

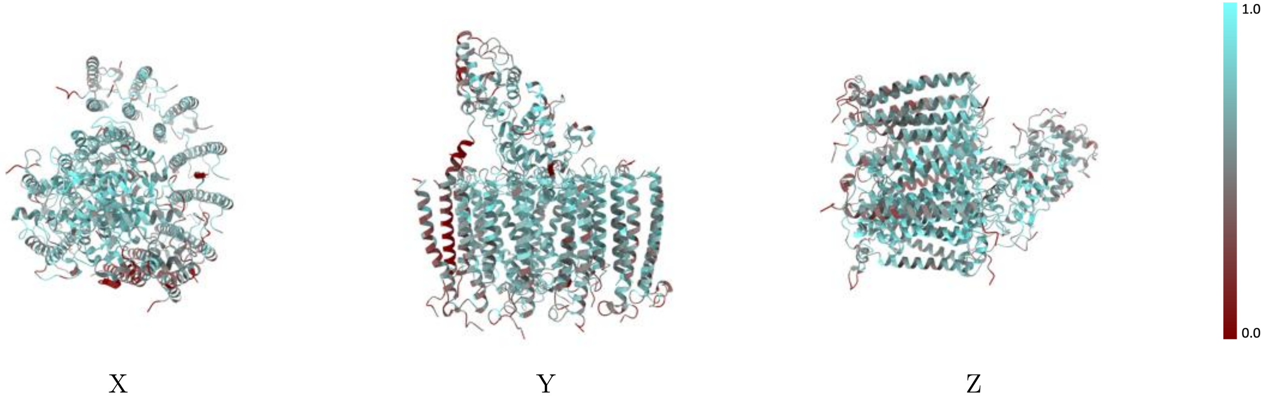
The images above show the 3D surface view of the map at the recommended contour level 0.4 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ



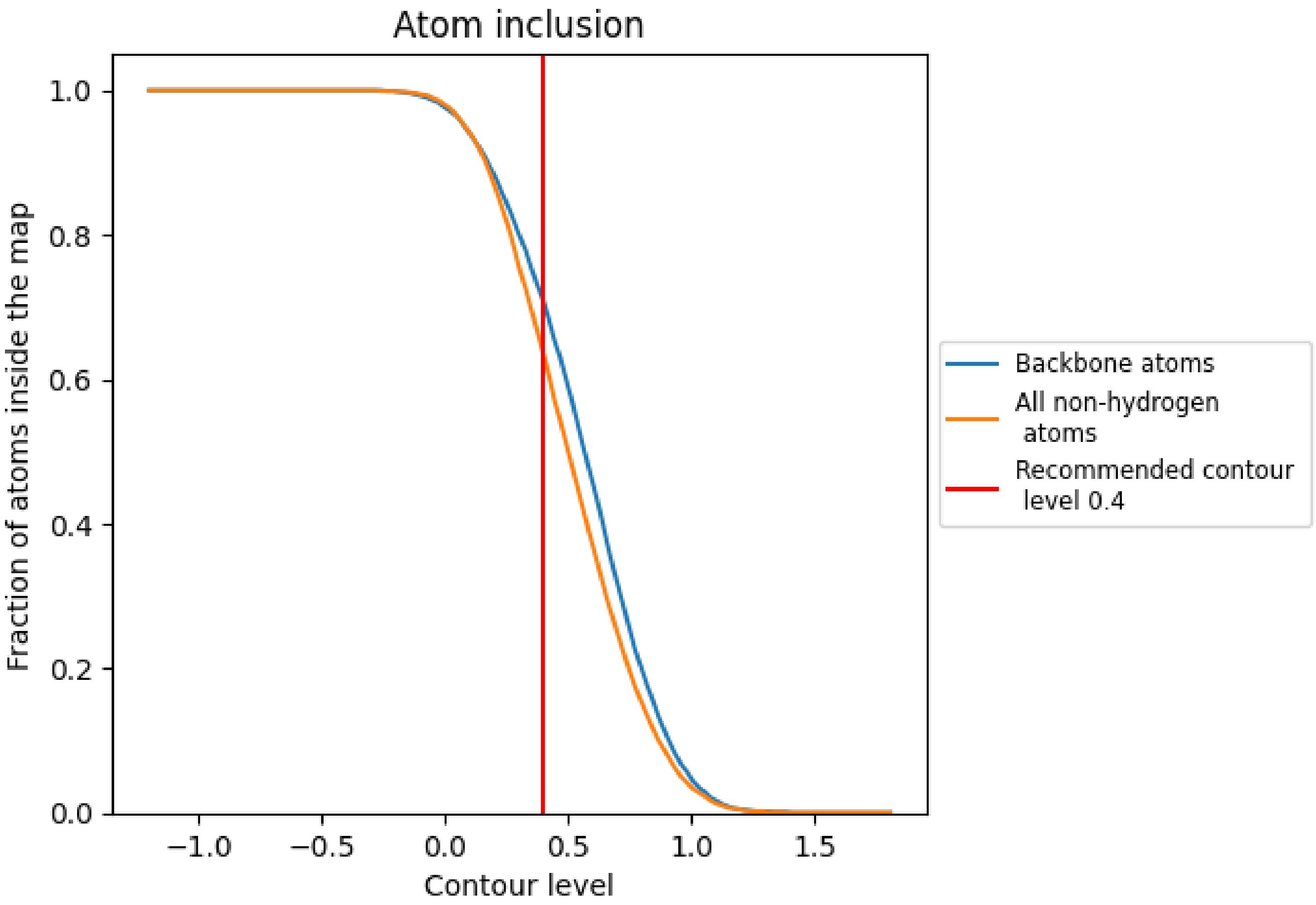
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 ⓘ



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 (0.4).

9.4 Atom inclusion ⓘ



At the recommended contour level, 71% of all backbone atoms, 64% 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 (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	▬ 0.6360	▬ 0.4910
A	▬ 0.4580	▬ 0.4510
B	▬ 0.4070	▬ 0.4200
C	▬ 0.6130	▬ 0.4930
D	▬ 0.6250	▬ 0.5080
E	▬ 0.5680	▬ 0.4420
F	▬ 0.6280	▬ 0.4750
G	▬ 0.6180	▬ 0.4770
H	▬ 0.6280	▬ 0.4940
I	▬ 0.5780	▬ 0.4760
J	▬ 0.6520	▬ 0.4740
K	▬ 0.5460	▬ 0.4280
L	▬ 0.7040	▬ 0.5010
M	▬ 0.7640	▬ 0.5430
N	▬ 0.5760	▬ 0.4960
O	▬ 0.6430	▬ 0.4910
P	▬ 0.6230	▬ 0.4680
Q	▬ 0.5330	▬ 0.4680
R	▬ 0.5060	▬ 0.4450