



wwPDB EM Validation Summary Report ⓘ

Jan 28, 2023 – 02:47 PM EST

PDB ID : 8E73
EMDB ID : EMD-27934
Title : Vigna radiata supercomplex I+III2 (full bridge)
Authors : Maldonado, M.; Letts, J.A.
Deposited on : 2022-08-23
Resolution : 3.20 Å (reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The 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.dev43
Mogul : 1.8.5 (274361), 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 : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.32.1

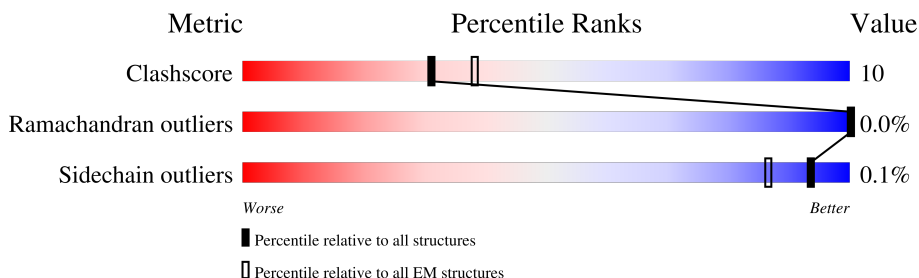
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

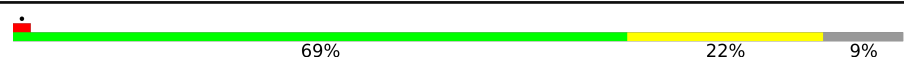



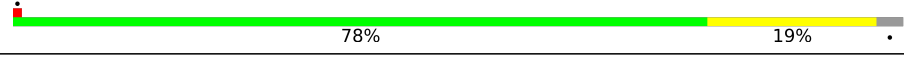

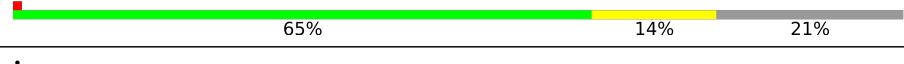

The reported resolution of this entry is 3.20 Å.

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.






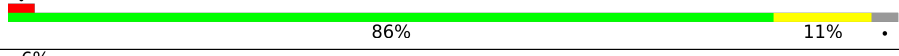
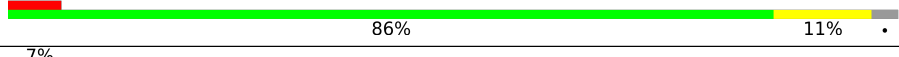



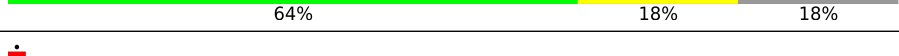
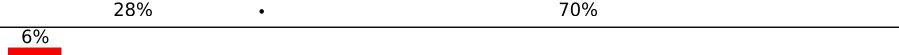
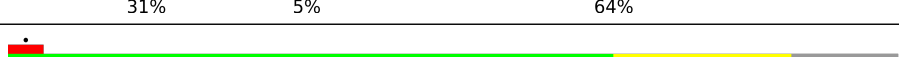
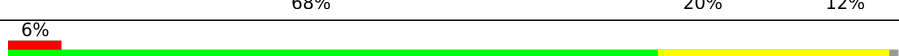

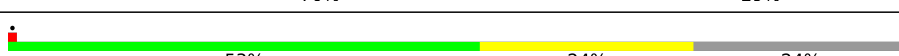
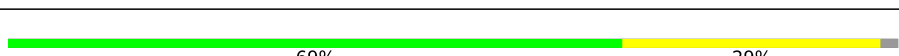
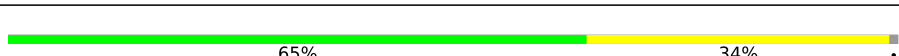







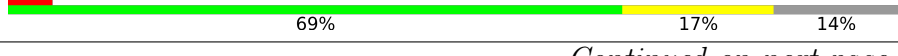

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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 $\leq 5\%$. 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	527	
1	M	527	
2	B	510	
3	C	394	
3	O	394	
4	D	306	
4	P	306	
5	E	271	







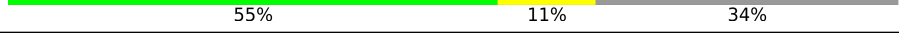
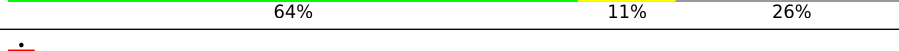
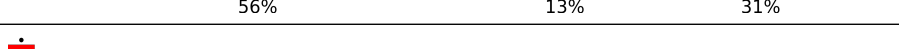
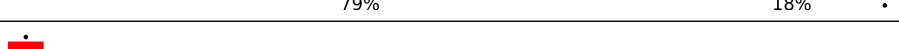
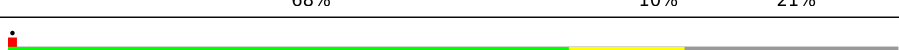

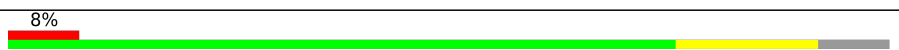

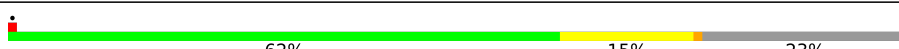





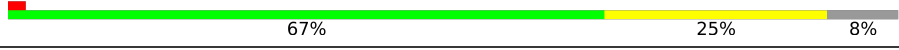
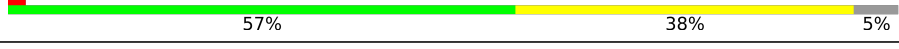



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Mol	Chain	Length	Quality of chain
5	Q	271	
6	F	122	
6	R	122	
7	G	72	
7	S	72	
8	H	69	
8	T	69	
9	J	72	
9	V	72	
10	K	81	
10	W	81	
11	N	506	
12	1M	325	
13	2M	488	
14	3M	118	
15	4M	495	
16	4L	100	
17	5M	673	
18	6M	205	
19	A1	65	
20	A2	98	
21	A3	63	
22	A5	169	
23	A6	132	
24	A7	127	



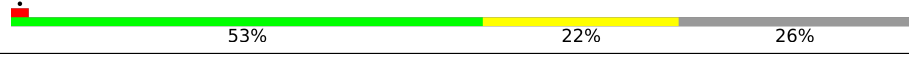
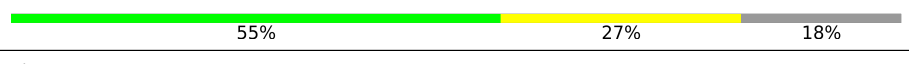


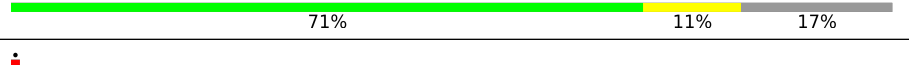
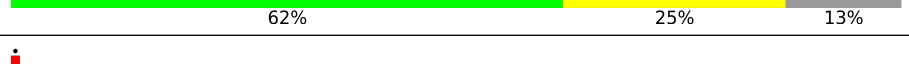

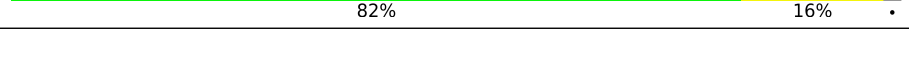
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Mol	Chain	Length	Quality of chain
25	A8	106	 83% 15%
26	A9	396	 7% 62% 21% 17%
27	AK	160	 23% 77% 16% 7%
28	AL	156	 62% 20% 19%
29	AM	143	 5% 87% 12%
30	AC	116	 50% 21% 29%
31	AB	128	 9% 55% 11% 34%
32	B2	66	 64% 11% 26%
33	B3	68	 56% 13% 31%
34	B4	71	 79% 18%
35	B7	98	 68% 10% 21%
36	B8	125	 63% 13% 24%
37	B9	115	 5% 75% 22%
38	BJ	106	 8% 75% 16% 8%
39	BK	118	 8% 55% 10% 35%
40	FD	158	 62% 15% 23%
41	C2	82	 74% 16% 10%
42	P2	115	 23% 74%
43	G1	270	 61% 24% 14%
44	G2	273	 71% 23% 5%
45	L2	256	 57% 25% 18%
46	S1	746	 67% 25% 8%
47	S2	394	 57% 38% 5%
48	S3	190	 71% 26%
49	S4	146	 67% 12% 21%

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Mol	Chain	Length	Quality of chain
50	S5	83	
51	S6	103	
52	S7	213	
53	S8	222	
54	P1	91	
55	P4	61	
56	C1	87	
57	V1	492	
58	V2	251	
59	X1	101	

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
70	SF4	V1	502	-	-	X	-

2 Entry composition [i](#)

There are 72 unique types of molecules in this entry. The entry contains 97737 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 MPP-beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	482	Total	C	N	O	S	0	0
			3800	2387	673	725	15		
1	M	483	Total	C	N	O	S	0	0
			3807	2392	674	726	15		

- Molecule 2 is a protein called MPP-alpha (protomer 1).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	446	Total	C	N	O	S	0	0
			3413	2173	566	662	12		

- Molecule 3 is a protein called COB (cyt b).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	386	Total	C	N	O	S	0	0
			3089	2080	485	510	14		
3	O	384	Total	C	N	O	S	0	0
			3074	2070	483	507	14		

- Molecule 4 is a protein called CYC1 (cyt c1).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	243	Total	C	N	O	S	0	0
			1905	1211	326	357	11		
4	P	243	Total	C	N	O	S	0	0
			1905	1211	326	357	11		

- Molecule 5 is a protein called UCR1 (Rieske iron-sulfur protein subunit).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	74	Total	C	N	O	S	0	0
			574	375	97	101	1		

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Mol	Chain	Residues	Atoms					AltConf	Trace
5	Q	73	Total	C	N	O	S	0	0
			565	370	96	98	1		

- Molecule 6 is a protein called QCR7.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	F	117	Total	C	N	O	S	0	0
			974	621	175	174	4		
6	R	115	Total	C	N	O	S	0	0
			959	613	172	170	4		

- Molecule 7 is a protein called QCR8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	70	Total	C	N	O	S	0	0
			578	382	97	98	1		
7	S	70	Total	C	N	O	S	0	0
			578	382	97	98	1		

- Molecule 8 is a protein called QCR6.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	64	Total	C	N	O	S	0	0
			527	339	89	93	6		
8	T	64	Total	C	N	O	S	0	0
			527	339	89	93	6		

- Molecule 9 is a protein called QCR9.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	58	Total	C	N	O	S	0	0
			468	305	81	81	1		
9	V	59	Total	C	N	O	S	0	0
			476	311	82	82	1		

- Molecule 10 is a protein called QCR10 (UCRY).

Mol	Chain	Residues	Atoms					AltConf	Trace
10	K	24	Total	C	N	O	S	0	0
			167	109	27	30	1		
10	W	29	Total	C	N	O	S	0	0
			203	133	33	36	1		

- Molecule 11 is a protein called MPP-alpha (protomer 2).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	N	445	3389	2148	573	656	12	0	0

- Molecule 12 is a protein called Nad1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	1M	323	2506	1688	384	419	15	0	0

- Molecule 13 is a protein called Nad2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	2M	488	3810	2555	578	648	29	0	0

- Molecule 14 is a protein called Nad3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	3M	90	759	537	103	115	4	0	0

- Molecule 15 is a protein called Nad4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	4M	486	3862	2600	606	634	22	0	0

- Molecule 16 is a protein called Nad4L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	4L	99	777	520	120	130	7	0	0

- Molecule 17 is a protein called Nad5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	5M	663	5198	3447	808	903	40	0	0

- Molecule 18 is a protein called Nad6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	6M	192	1561	1057	245	249	10	0	0

- Molecule 19 is a protein called NDUA1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	A1	59	470	299	89	77	5	0	0

- Molecule 20 is a protein called NDUA2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	A2	90	699	442	123	131	3	0	0

- Molecule 21 is a protein called NDUA3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	A3	39	299	200	46	50	3	0	0

- Molecule 22 is a protein called NDUA5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	A5	125	1004	639	165	196	4	0	0

- Molecule 23 is a protein called NDUA6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	A6	99	794	507	134	148	5	0	0

- Molecule 24 is a protein called NDUA7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	A7	109	868	549	150	166	3	0	0

- Molecule 25 is a protein called NDUA8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	A8	104	814	503	144	156	11	0	0

- Molecule 26 is a protein called NDUA9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	A9	330	2571	1656	441	463	11	0	0

- Molecule 27 is a protein called NDUA11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	AK	149	1139	731	196	208	4	0	0

- Molecule 28 is a protein called NDUA12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	AL	127	1057	674	190	192	1	0	0

- Molecule 29 is a protein called NDUA13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	AM	142	1134	731	202	197	4	0	0

- Molecule 30 is a protein called NDUAB1-beta.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	AC	82	650	414	104	129	3	0	0

- Molecule 31 is a protein called NDUAB1-alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	AB	85	660	415	111	132	2	0	0

- Molecule 32 is a protein called NDUB2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	B2	49	Total	C	N	O	S	0	0
			414	275	75	62	2		

- Molecule 33 is a protein called NDUB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	B3	47	Total	C	N	O	S	0	0
			384	248	74	61	1		

- Molecule 34 is a protein called NDUB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	B4	69	Total	C	N	O	S	0	0
			576	370	105	98	3		

- Molecule 35 is a protein called NDUB7.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	B7	77	Total	C	N	O	S	0	0
			648	405	115	119	9		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B7	81	LYS	GLN	conflict	UNP A0A1S3V2B8

- Molecule 36 is a protein called NDUB8.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	B8	95	Total	C	N	O	S	0	0
			737	483	116	134	4		

- Molecule 37 is a protein called NDUB9.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	B9	111	Total	C	N	O	0	0
			927	584	175	168		

- Molecule 38 is a protein called NDUB10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	BJ	97	813	517	150	142	4	0	0

- Molecule 39 is a protein called NDUB11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	BK	77	631	408	109	113	1	0	0

- Molecule 40 is a protein called NDUFX.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	FD	122	963	603	176	180	4	0	0

- Molecule 41 is a protein called NDUC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	C2	74	587	376	104	103	4	0	0

- Molecule 42 is a protein called NDUP2.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
42	P2	30	232	149	42	41	0	0

- Molecule 43 is a protein called NDUCA1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	G1	231	1766	1121	310	329	6	0	0

- Molecule 44 is a protein called NDUCA2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	G2	258	1979	1248	349	376	6	0	0

- Molecule 45 is a protein called NDUCAL2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	L2	210	1622	1038	279	300	5	0	0

- Molecule 46 is a protein called NDUS1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	S1	687	5263	3301	930	999	33	0	0

- Molecule 47 is a protein called NDUS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	S2	376	3018	1918	530	547	23	0	0

- Molecule 48 is a protein called NDUS3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	S3	185	1579	1021	271	282	5	0	0

- Molecule 49 is a protein called NDUS4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
49	S4	116	923	592	166	163	2	0	0

- Molecule 50 is a protein called NDUS5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
50	S5	65	555	342	107	99	7	0	0

- Molecule 51 is a protein called NDUS6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
51	S6	71	553	349	94	104	6	0	0

- Molecule 52 is a protein called NDUS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
52	S7	158	1254	804	221	215	14	0	0

- Molecule 53 is a protein called NDUS8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
53	S8	181	1484	930	251	292	11	0	0

- Molecule 54 is a protein called NDUP1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
54	P1	85	748	476	135	132	5	0	0

- Molecule 55 is a protein called NDUP4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
55	P4	53	452	291	81	78	2	0	0

- Molecule 56 is a protein called NDUB6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
56	C1	72	583	376	106	95	6	0	0

- Molecule 57 is a protein called NDUV1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
57	V1	430	3327	2099	591	613	24	0	0

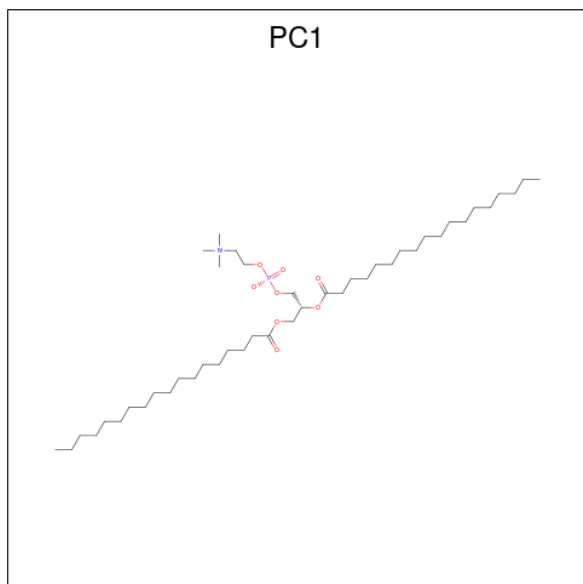
- Molecule 58 is a protein called NDUV2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
58	V2	222	1721	1090	295	324	12	0	0

- Molecule 59 is a protein called NDUX1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
59	X1	99	750	479	126	140	5	0	0

- Molecule 60 is 1,2-DIACYL-SN-GLYCERO-3-PHOSPHOCHOLINE (three-letter code: PC1) (formula: $C_{44}H_{88}NO_8P$).



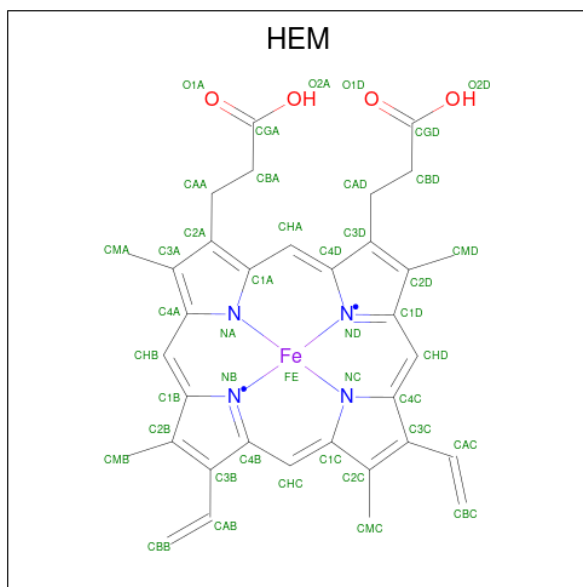
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
60	A	1	38	28	1	8	1	0
60	M	1	40	30	1	8	1	0
60	S	1	38	28	1	8	1	0
60	1M	1	45	35	1	8	1	0
60	G1	1	27	17	1	8	1	0
60	G1	1	37	27	1	8	1	0
60	G2	1	40	30	1	8	1	0
60	P4	1	54	44	1	8	1	0

- Molecule 61 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



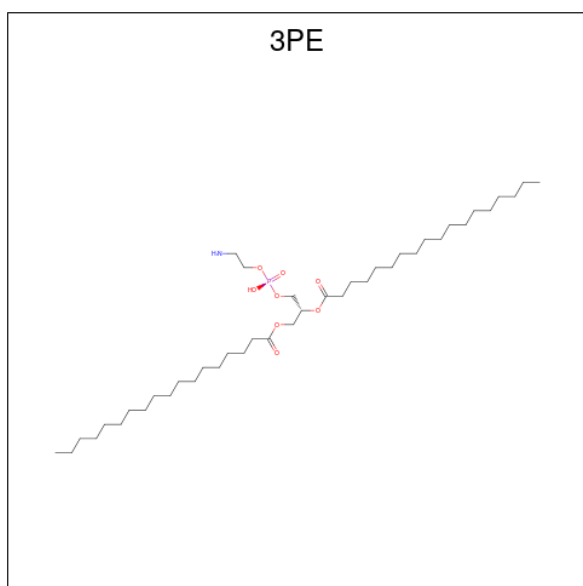
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
61	A	1	69	50	17	2	0
61	C	1	64	45	17	2	0
61	C	1	59	40	17	2	0
61	D	1	68	49	17	2	0
61	M	1	70	51	17	2	0
61	O	1	64	45	17	2	0
61	O	1	63	44	17	2	0
61	O	1	55	36	17	2	0

- Molecule 62 is PROTOPORPHYRIN IX CONTAINING FE (three-letter code: HEM) (formula: $C_{34}H_{32}FeN_4O_4$).



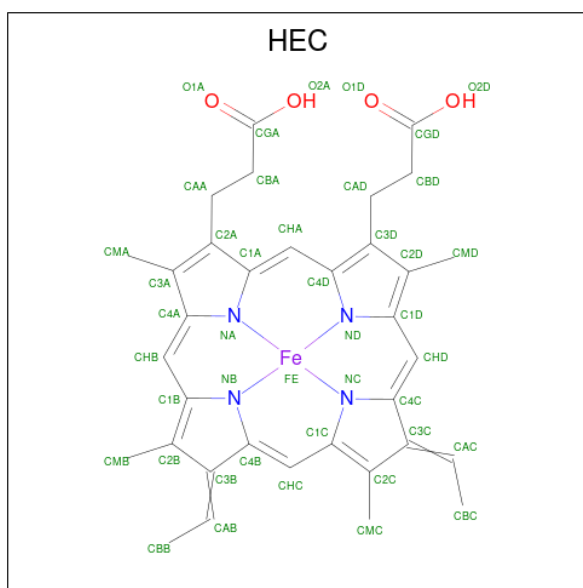
Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Fe	N		O
62	C	1	43	34	1	4	4	0
62	C	1	43	34	1	4	4	0
62	O	1	43	34	1	4	4	0
62	O	1	43	34	1	4	4	0

- Molecule 63 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE) (formula: $C_{41}H_{82}NO_8P$).



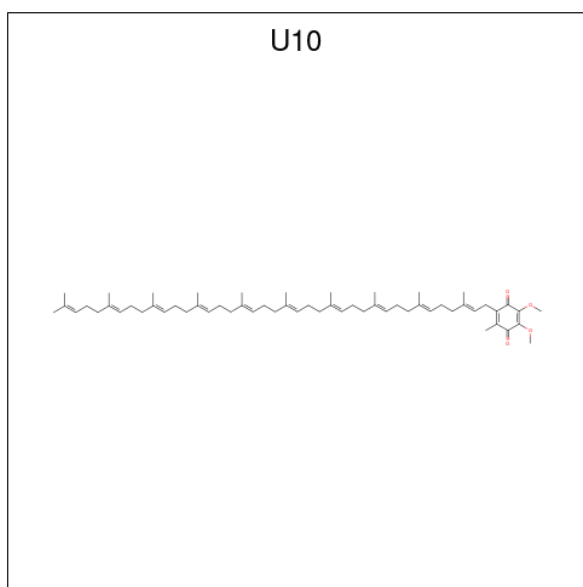
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
63	C	1	Total 38	C 28	N 1	O 8	P 1	0
63	C	1	Total 34	C 24	N 1	O 8	P 1	0
63	G	1	Total 37	C 27	N 1	O 8	P 1	0
63	M	1	Total 45	C 35	N 1	O 8	P 1	0
63	O	1	Total 36	C 26	N 1	O 8	P 1	0
63	O	1	Total 39	C 29	N 1	O 8	P 1	0
63	O	1	Total 33	C 23	N 1	O 8	P 1	0
63	R	1	Total 51	C 41	N 1	O 8	P 1	0

- Molecule 64 is HEME C (three-letter code: HEC) (formula: $C_{34}H_{34}FeN_4O_4$).



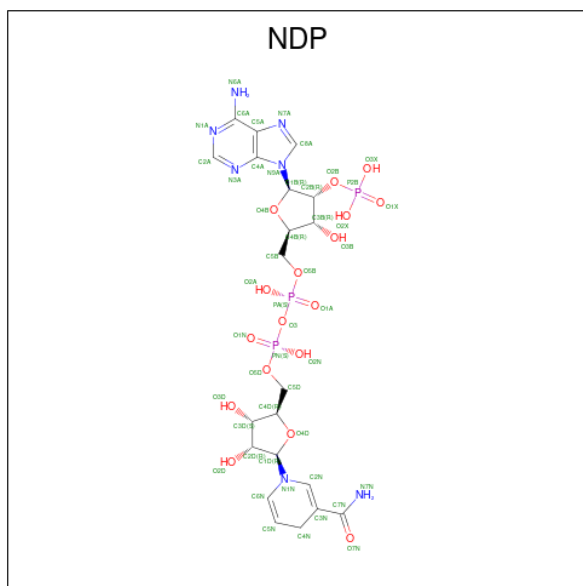
Mol	Chain	Residues	Atoms					AltConf
			Total	C	Fe	N	O	
64	D	1	Total 43	C 34	Fe 1	N 4	O 4	0
64	P	1	Total 43	C 34	Fe 1	N 4	O 4	0

- Molecule 65 is UBIQUINONE-10 (three-letter code: U10) (formula: $C_{59}H_{90}O_4$).



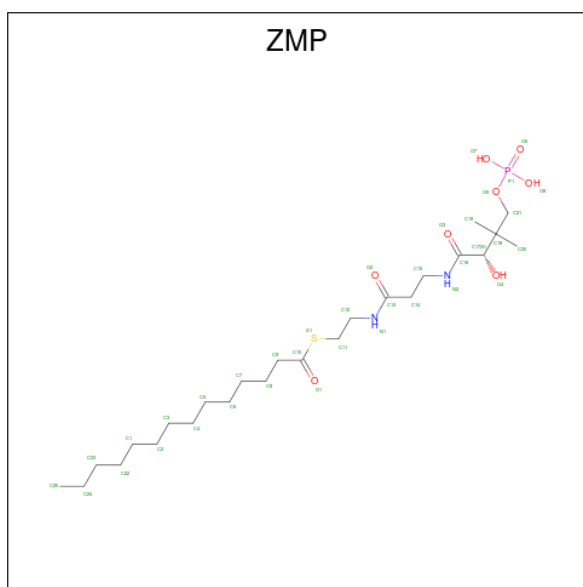
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
65	1M	1	40	36	4	0

- Molecule 66 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: C₂₁H₃₀N₇O₁₇P₃).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
66	A9	1	48	21	7	17	3	0

- Molecule 67 is S-[2-({N-[(2S)-2-hydroxy-3,3-dimethyl-4-(phosphonoxy)butanoyl]-beta-alanyl}amino)ethyl] tetradecanethioate (three-letter code: ZMP) (formula: C₂₅H₄₉N₂O₈PS).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
67	AC	1	29	18	2	7	1	1	0
67	AB	1	29	18	2	7	1	1	0

- Molecule 68 is FE (III) ION (three-letter code: FE) (formula: Fe).

Mol	Chain	Residues	Atoms		AltConf
			Total	Fe	
68	FD	1	1	1	0

- Molecule 69 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
69	G2	1	1	1	0
69	S6	1	1	1	0

- Molecule 70 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄).



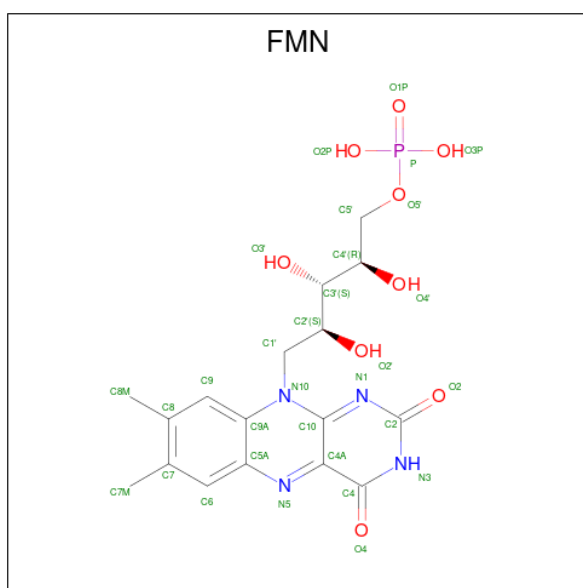
Mol	Chain	Residues	Atoms			AltConf
			Total	Fe	S	
70	S1	1	8	4	4	0
70	S1	1	8	4	4	0
70	S7	1	8	4	4	0
70	S8	1	8	4	4	0
70	S8	1	8	4	4	0
70	V1	1	8	4	4	0

- Molecule 71 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe₂S₂).



Mol	Chain	Residues	Atoms			AltConf
71	S1	1	Total	Fe	S	0
			4	2	2	
71	V2	1	Total	Fe	S	0
			4	2	2	

- Molecule 72 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: C₁₇H₂₁N₄O₉P).



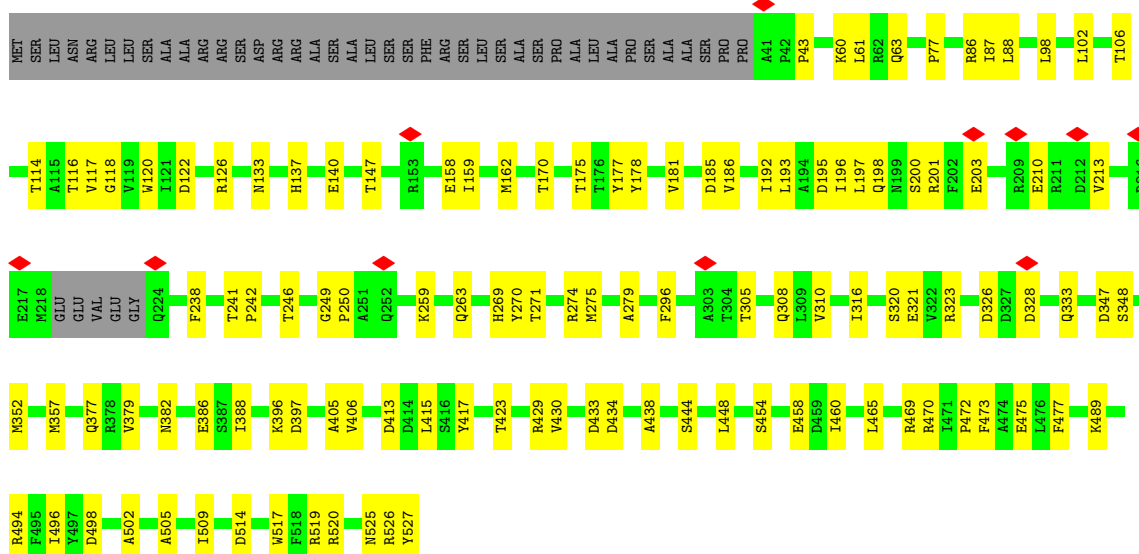
Mol	Chain	Residues	Atoms					AltConf
72	V1	1	Total	C	N	O	P	0
			31	17	4	9	1	

3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

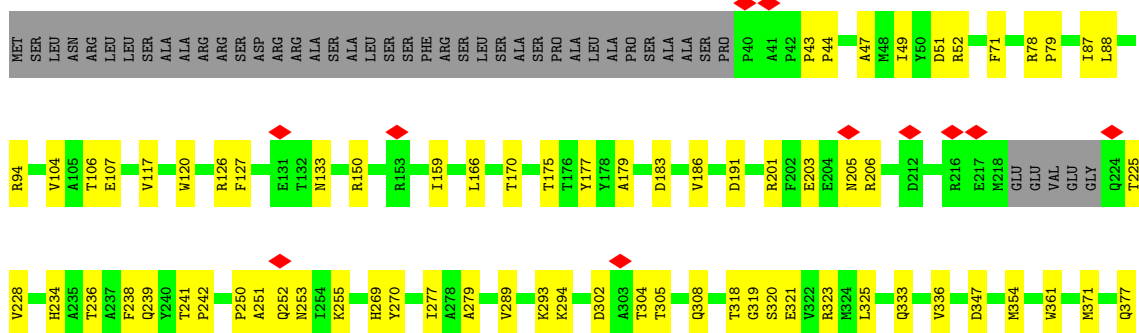
- Molecule 1: MPP-beta

Chain A: 



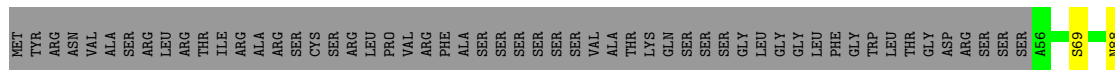
- Molecule 1: MPP-beta

Chain M: 

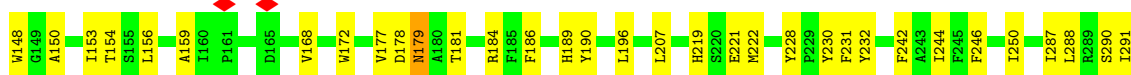
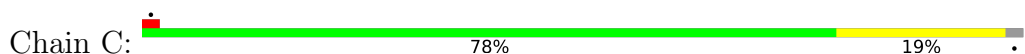




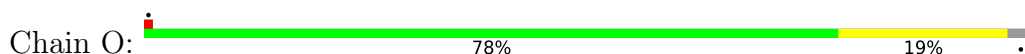
• Molecule 2: MPP-alpha (protomer 1)

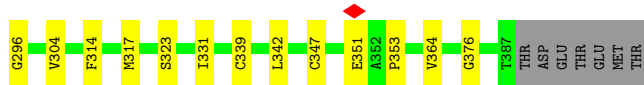


• Molecule 3: COB (cyt b)

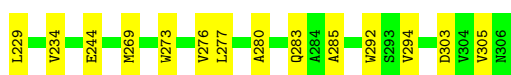
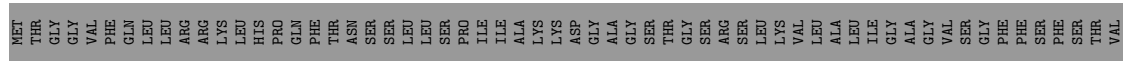


• Molecule 3: COB (cyt b)

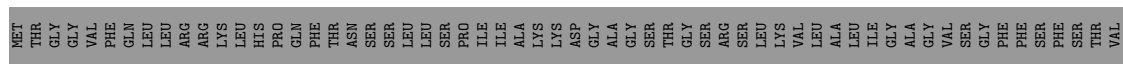




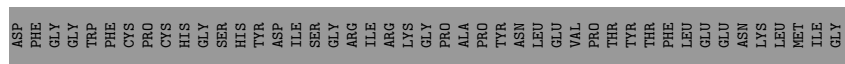
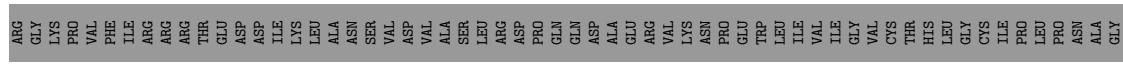
• Molecule 4: CYC1 (cyt c1)



• Molecule 4: CYC1 (cyt c1)

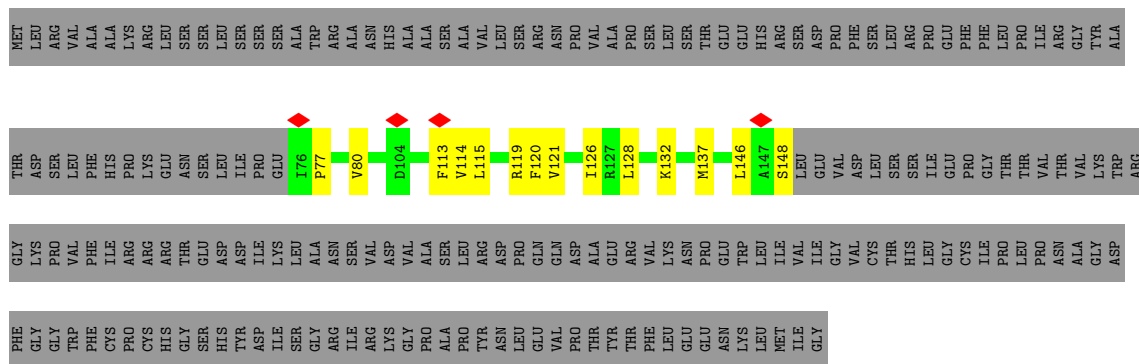


• Molecule 5: UCR1 (Rieske iron-sulfur protein subunit)

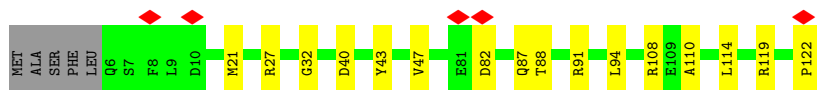
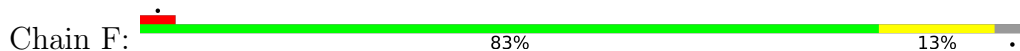


• Molecule 5: UCR1 (Rieske iron-sulfur protein subunit)

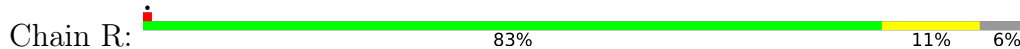




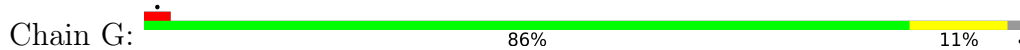
• Molecule 6: QCR7



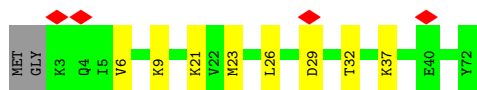
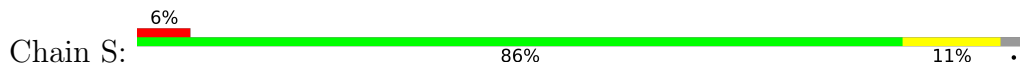
• Molecule 6: QCR7



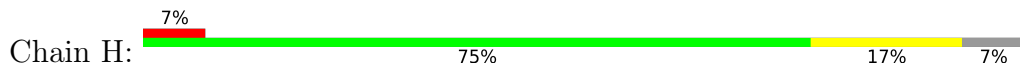
• Molecule 7: QCR8



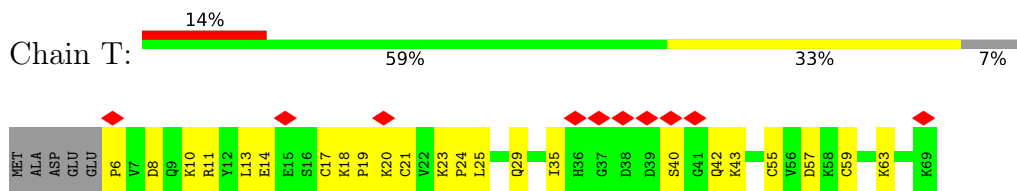
• Molecule 7: QCR8



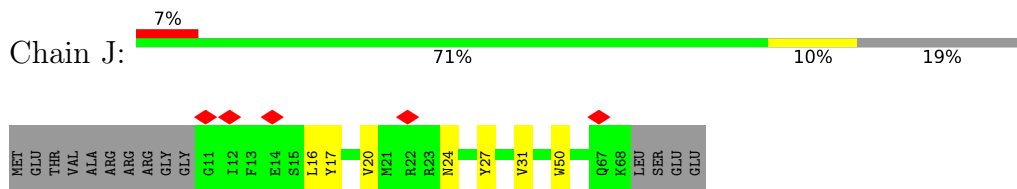
• Molecule 8: QCR6



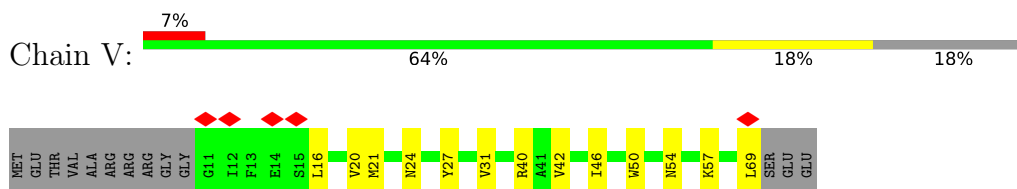
• Molecule 8: QCR6



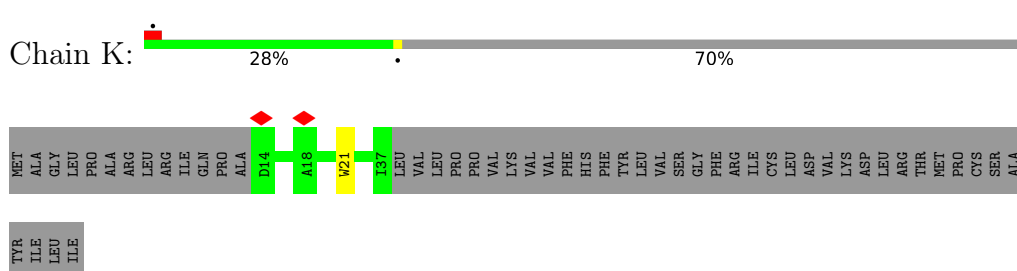
• Molecule 9: QCR9



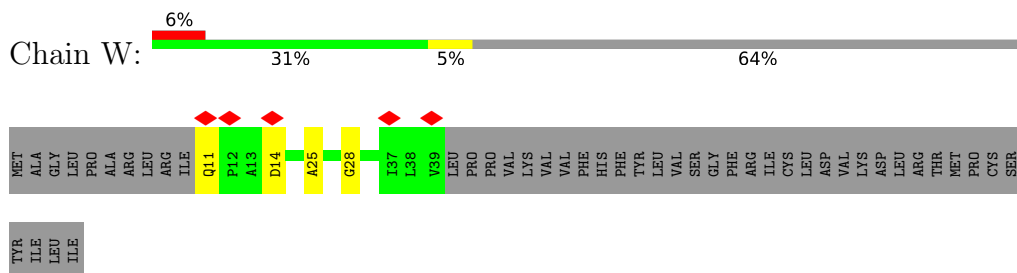
• Molecule 9: QCR9



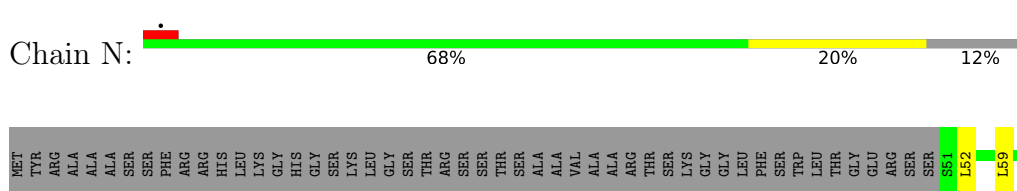
• Molecule 10: QCR10 (UCRY)

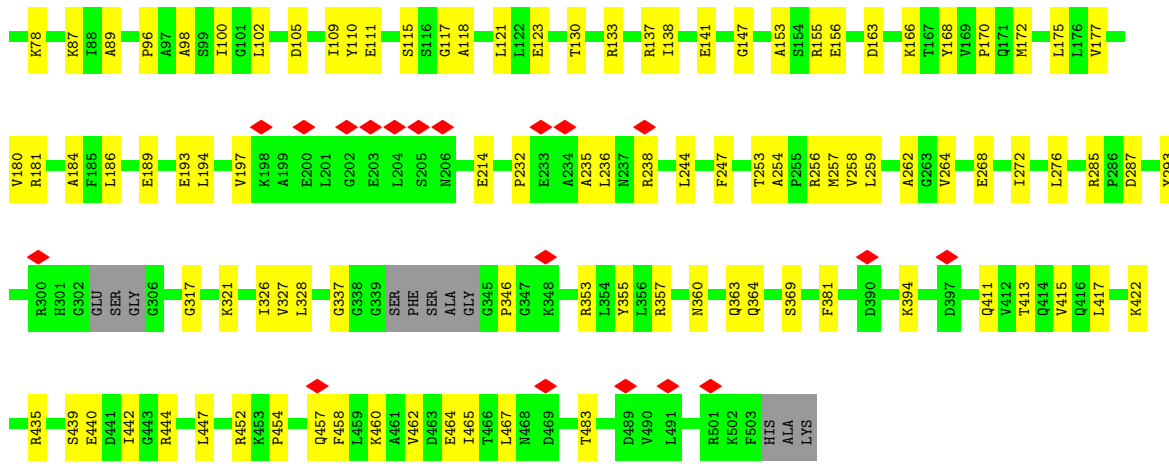


• Molecule 10: QCR10 (UCRY)

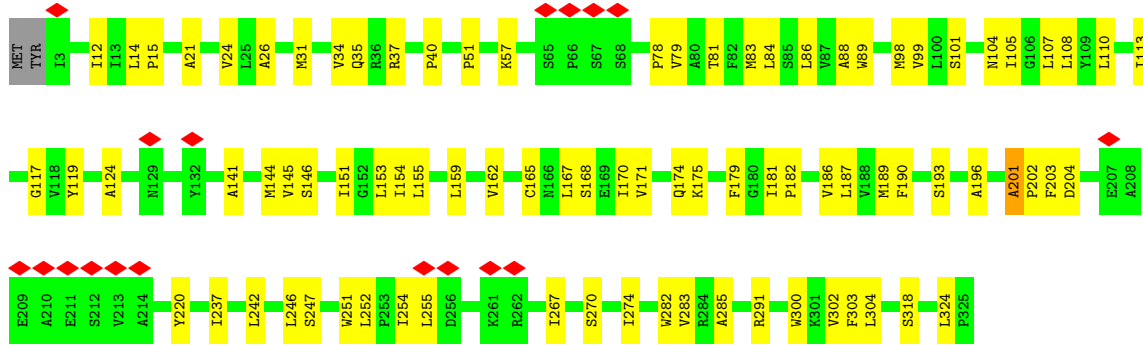
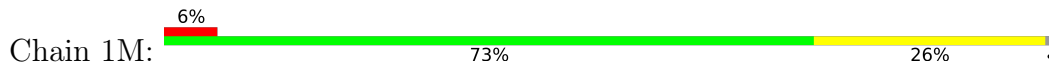


• Molecule 11: MPP-alpha (protomer 2)

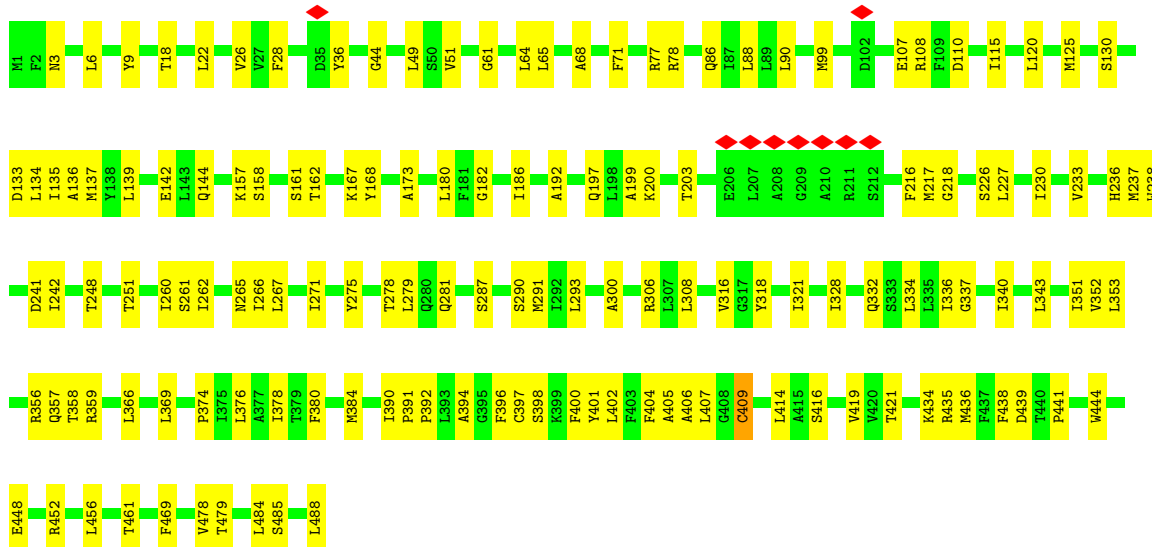




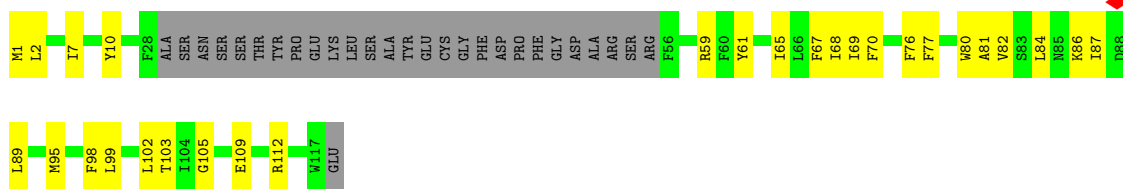
• Molecule 12: Nad1



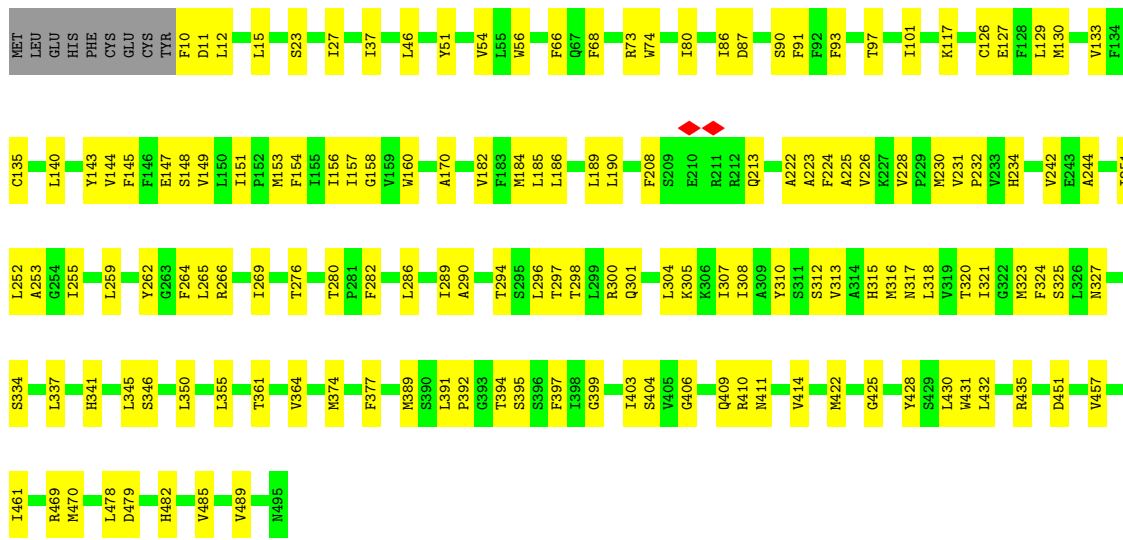
• Molecule 13: Nad2



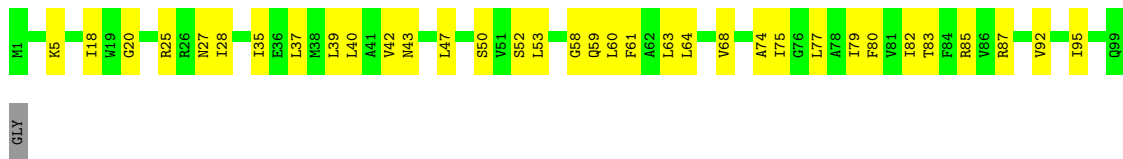
• Molecule 14: Nad3



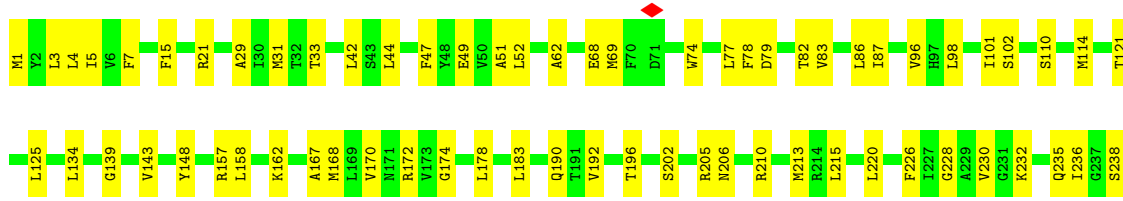
• Molecule 15: Nad4

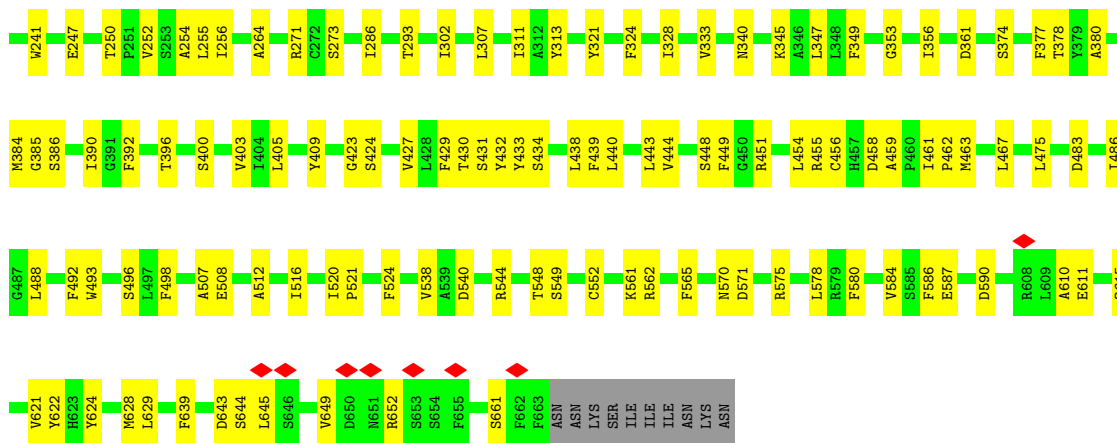


• Molecule 16: Nad4L

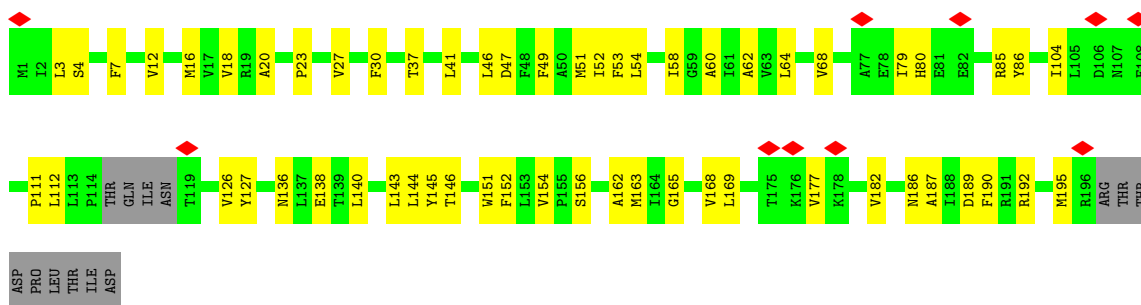


• Molecule 17: Nad5





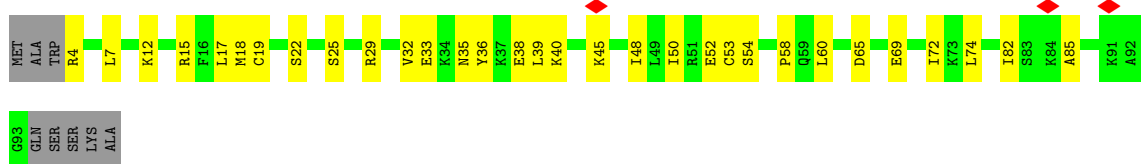
• Molecule 18: Nad6



• Molecule 19: NDUA1

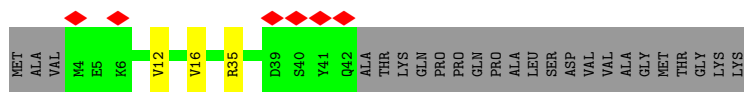


• Molecule 20: NDUA2

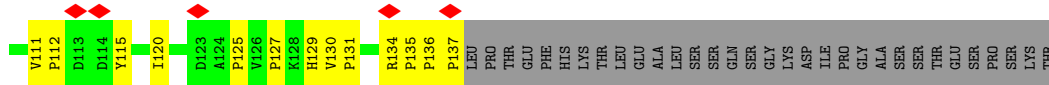


• Molecule 21: NDUA3

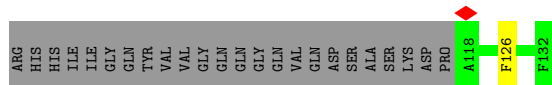
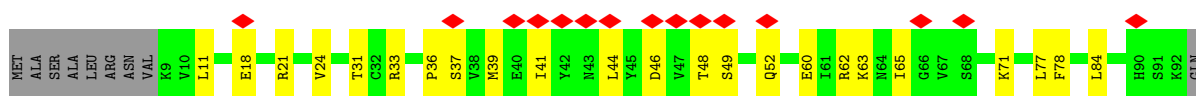




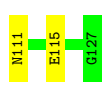
• Molecule 22: NDUA5



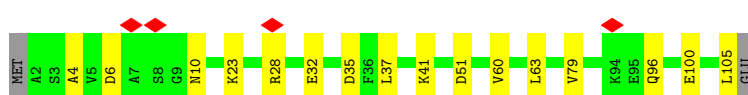
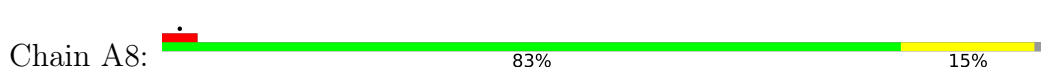
• Molecule 23: NDUA6



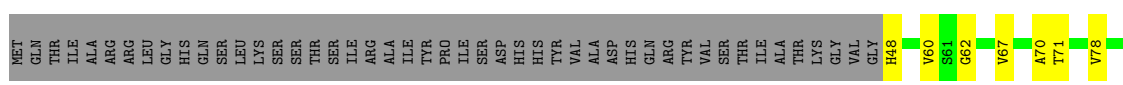
• Molecule 24: NDUA7

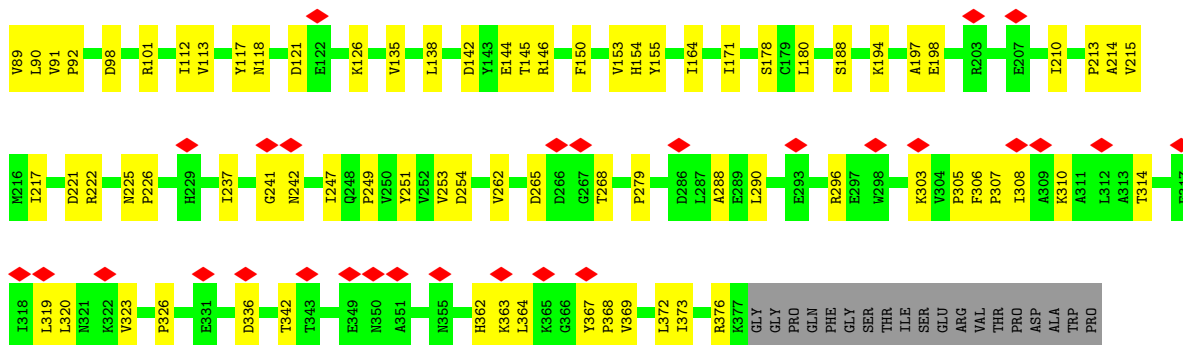


• Molecule 25: NDUA8

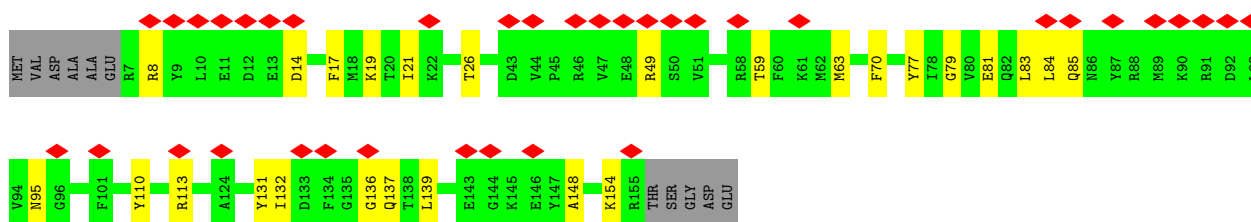
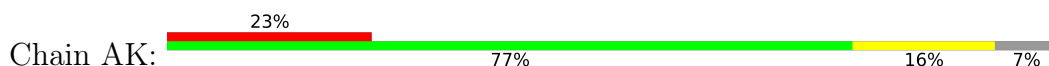


• Molecule 26: NDUA9

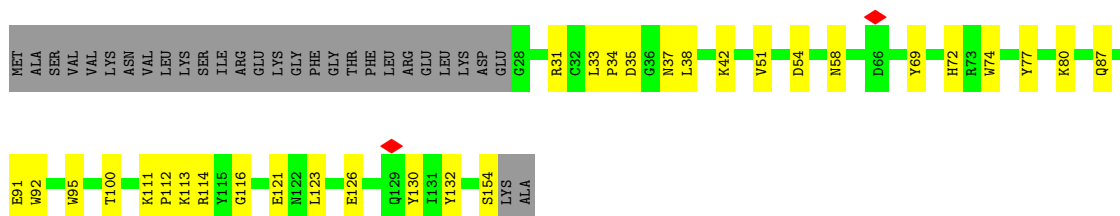




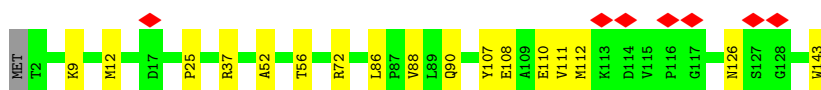
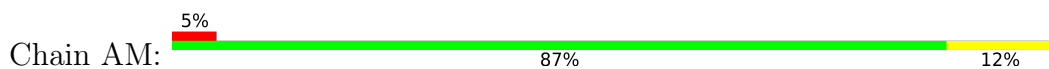
- Molecule 27: NDUA11



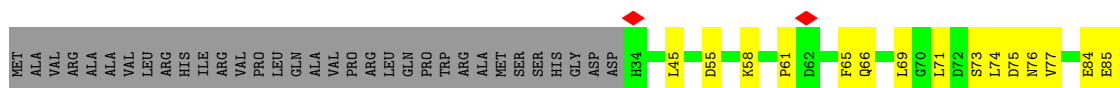
- Molecule 28: NDUA12



- Molecule 29: NDUA13

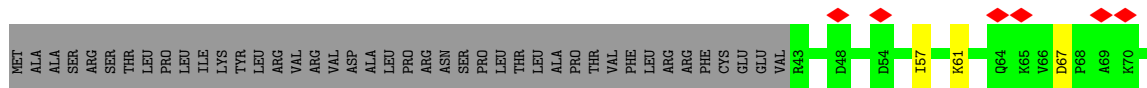


- Molecule 30: NDUAB1-beta





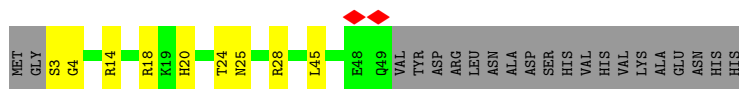
• Molecule 31: NDUAB1-alpha



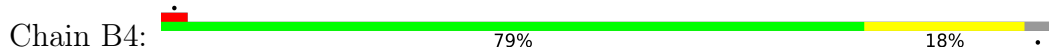
• Molecule 32: NDUB2



• Molecule 33: NDUB3



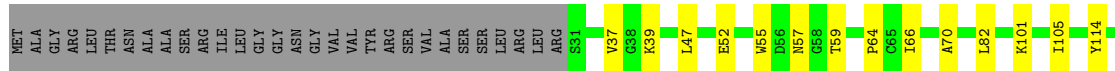
• Molecule 34: NDUB4

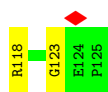


• Molecule 35: NDUB7

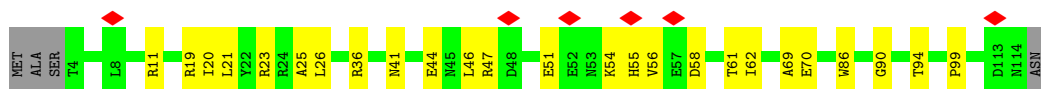
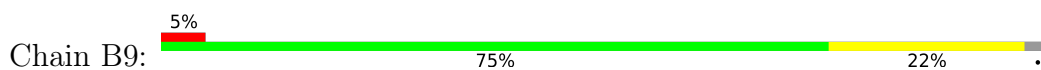


• Molecule 36: NDUB8

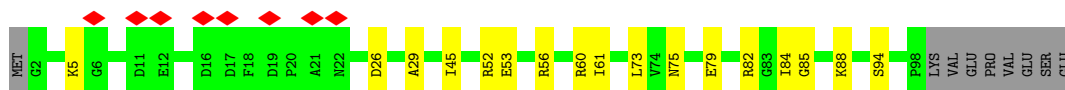
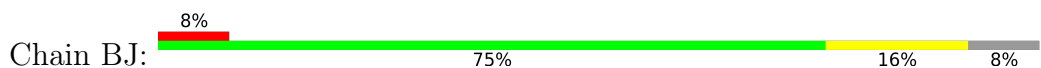




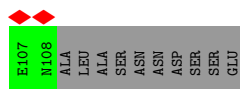
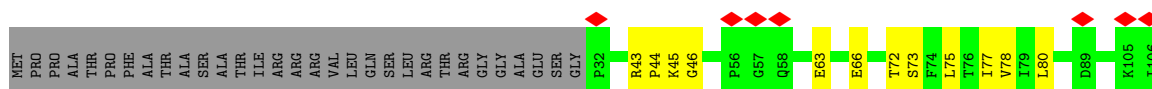
- Molecule 37: NDUB9



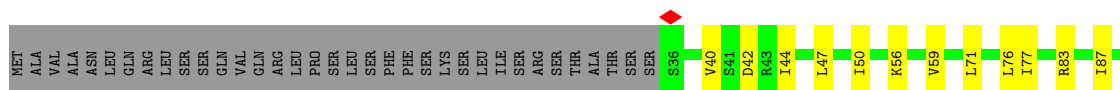
- Molecule 38: NDUB10



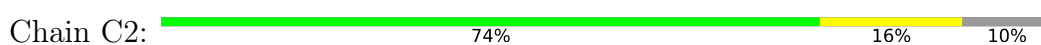
- Molecule 39: NDUB11



- Molecule 40: NDUFX

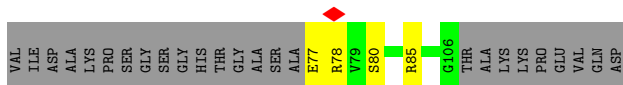
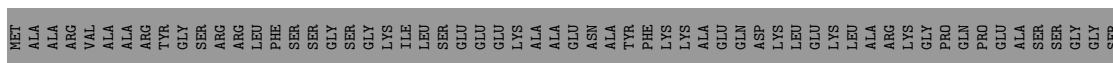


- Molecule 41: NDUC2

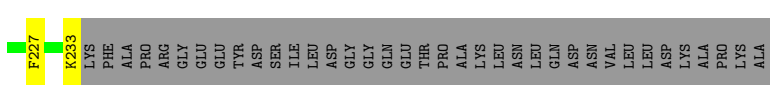
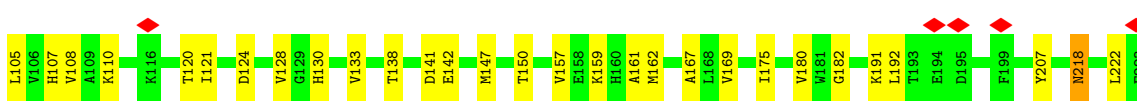
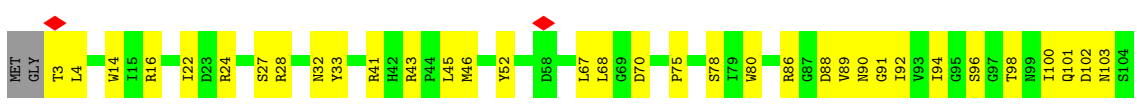


- Molecule 42: NDUP2

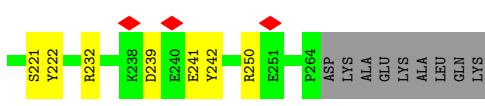
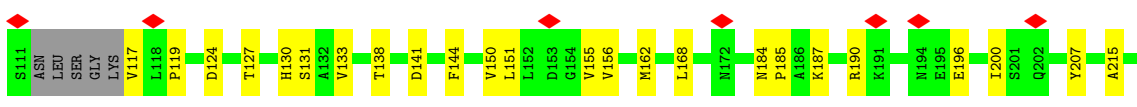
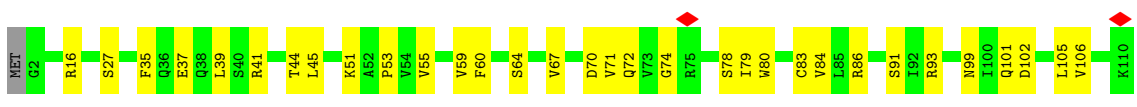
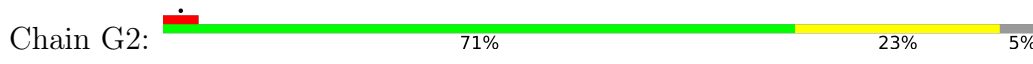




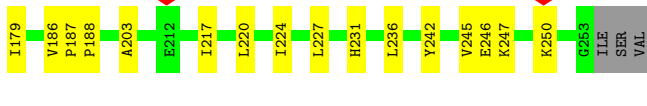
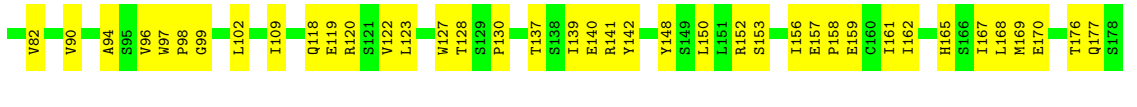
• Molecule 43: NDUCA1



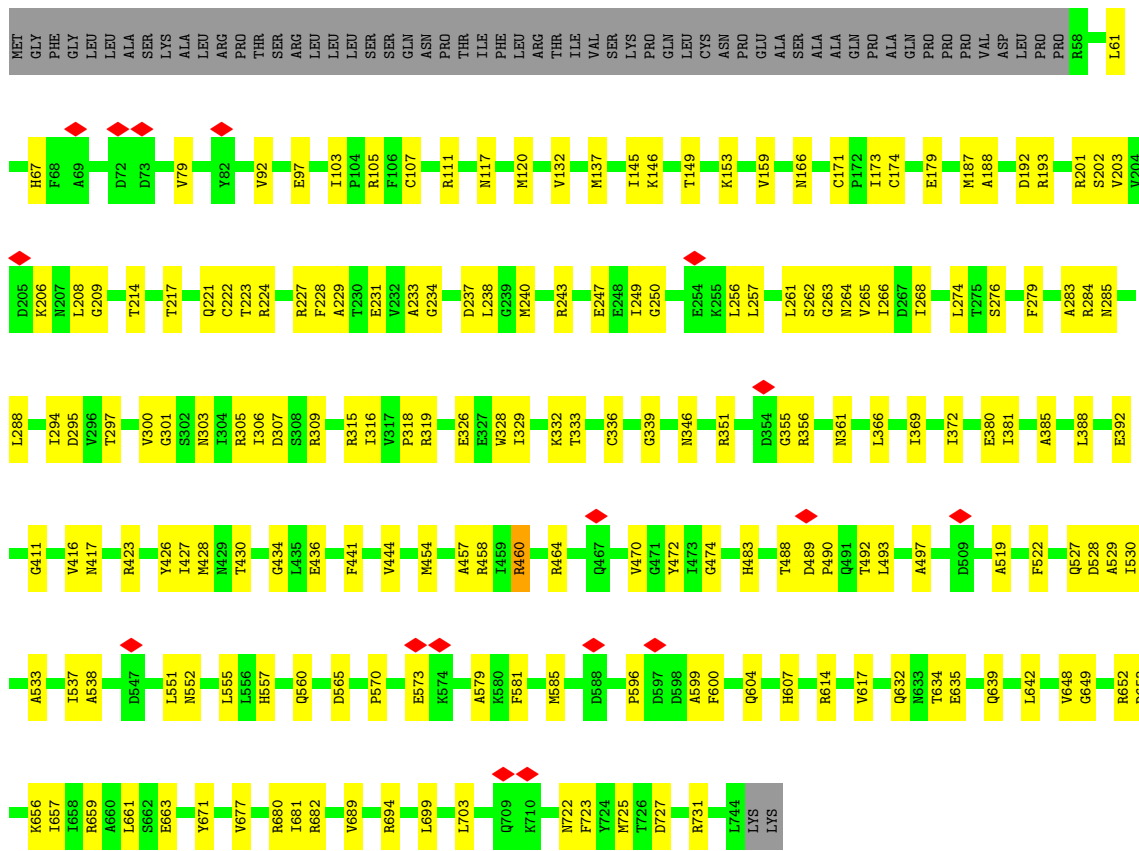
• Molecule 44: NDUCA2



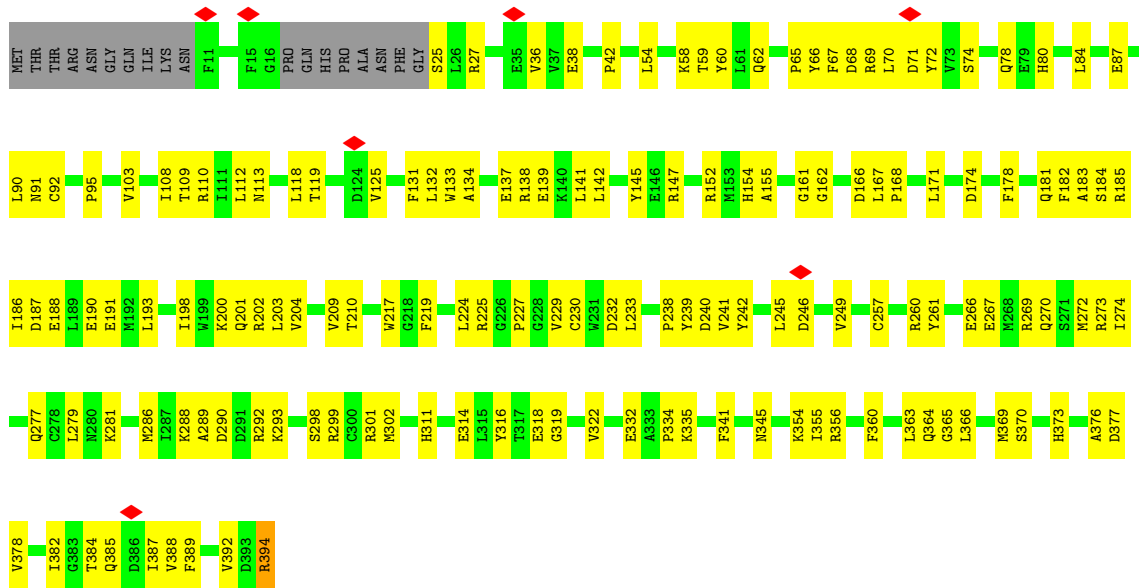
• Molecule 45: NDUCA2



• Molecule 46: NDU51

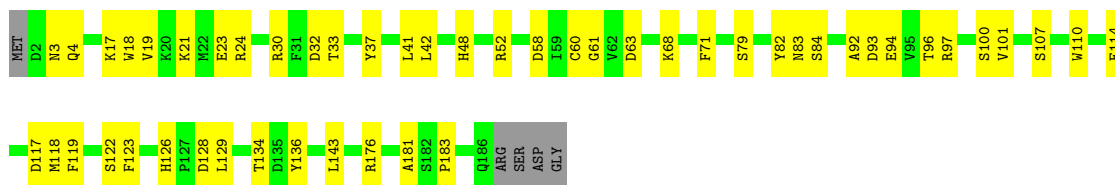


• Molecule 47: NDUS2



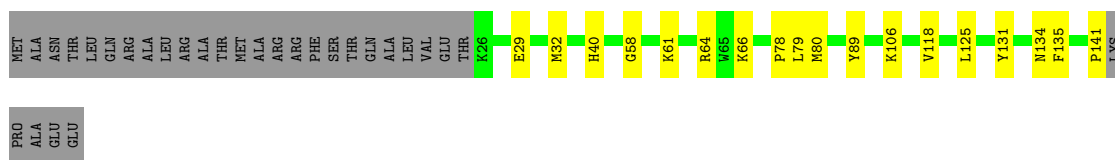
• Molecule 48: NDUS3

Chain S3:  71% 26%



• Molecule 49: NDUS4

Chain S4:  67% 12% 21%



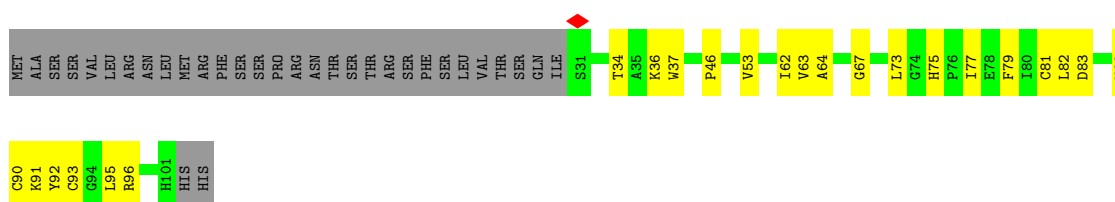
• Molecule 50: NDUS5

Chain S5:  55% 23% 22%



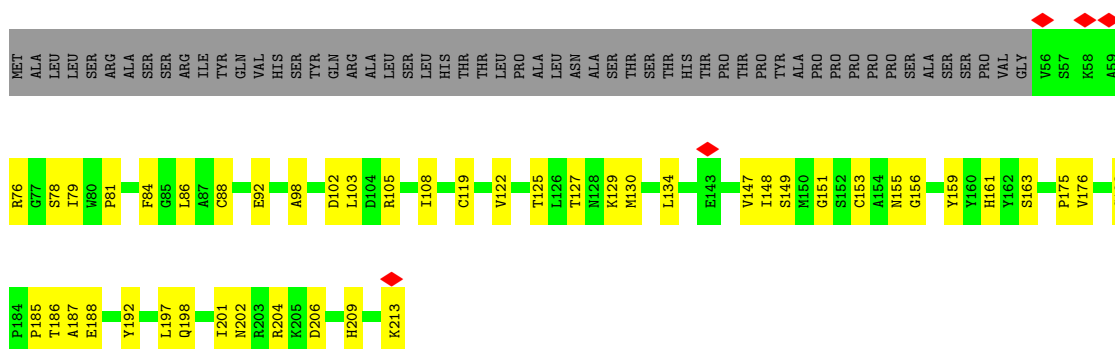
• Molecule 51: NDUS6

Chain S6:  47% 22% 31%

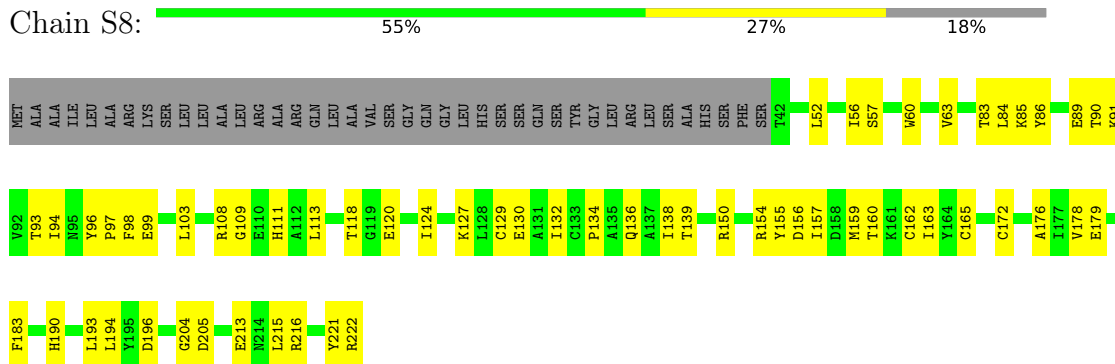


• Molecule 52: NDUS7

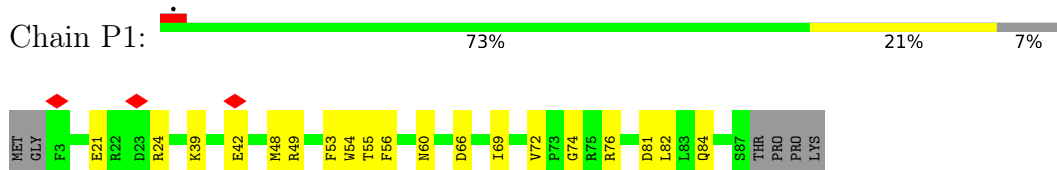
Chain S7:  53% 22% 26%



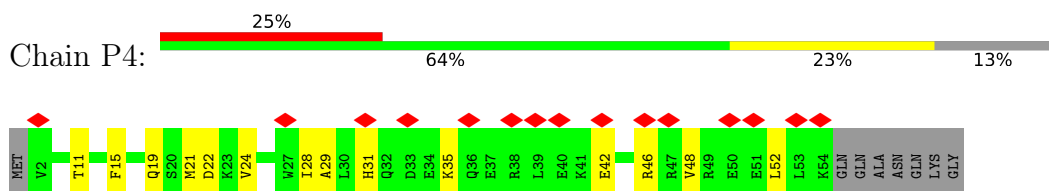
• Molecule 53: NDUS8



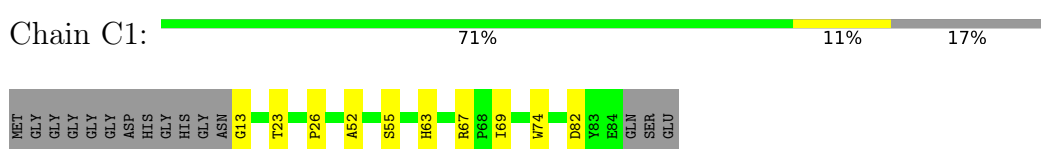
• Molecule 54: NDUP1



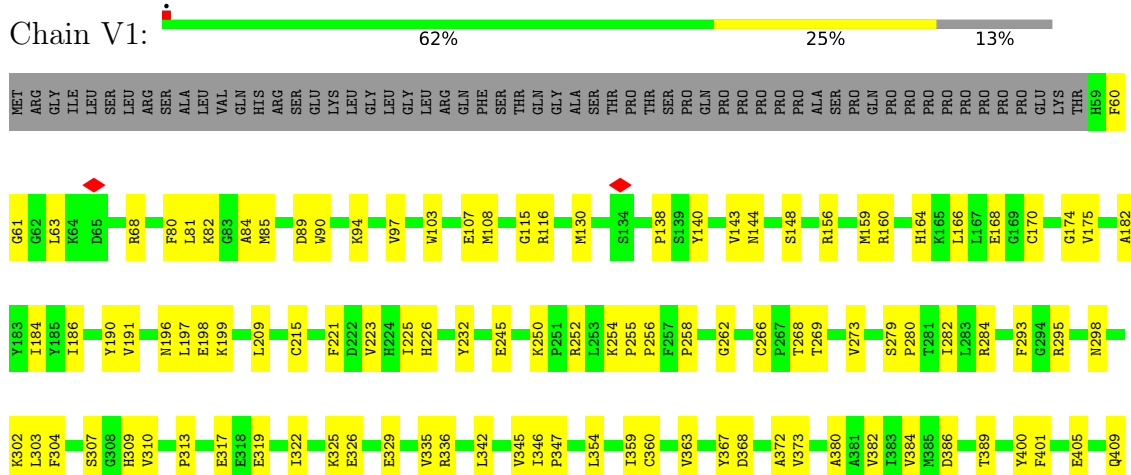
• Molecule 55: NDUP4

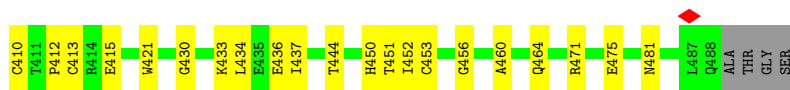


• Molecule 56: NDUB6

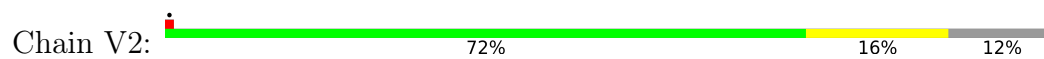


• Molecule 57: NDUV1

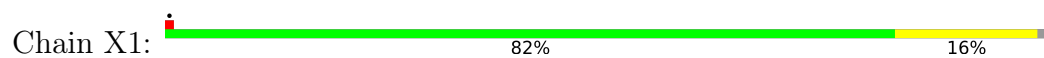




- Molecule 58: NDUV2



- Molecule 59: NDUX1



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	123451	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS GLACIOS	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	59.066	Depositor
Minimum map value	-25.094	Depositor
Average map value	0.289	Depositor
Map value standard deviation	2.866	Depositor
Recommended contour level	6.5	Depositor
Map size (\AA)	198.88, 236.72, 330.88	wwPDB
Map dimensions	376, 269, 226	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	0.88, 0.88, 0.88	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: HEC, PC1, ZN, HEM, SF4, FE, 3PE, CDL, NDP, ZMP, FMN, FES, U10

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	0.25	0/3875	0.51	0/5255
1	M	0.25	0/3883	0.51	0/5266
2	B	0.25	0/3481	0.46	0/4731
3	C	0.31	0/3205	0.45	0/4392
3	O	0.26	0/3190	0.44	0/4371
4	D	0.26	0/1957	0.46	0/2656
4	P	0.25	0/1957	0.46	0/2656
5	E	0.25	0/588	0.44	0/797
5	Q	0.25	0/579	0.44	0/785
6	F	0.24	0/995	0.47	0/1338
6	R	0.24	0/980	0.48	0/1318
7	G	0.24	0/595	0.40	0/807
7	S	0.23	0/595	0.39	0/807
8	H	0.26	0/541	0.44	0/724
8	T	0.27	0/541	0.47	0/724
9	J	0.25	0/478	0.45	0/644
9	V	0.24	0/486	0.46	0/655
10	K	0.23	0/169	0.38	0/230
10	W	0.23	0/206	0.39	0/282
11	N	0.25	0/3455	0.48	0/4687
12	1M	0.28	0/2578	0.46	0/3514
13	2M	0.27	0/3910	0.48	1/5305 (0.0%)
14	3M	0.28	0/785	0.42	0/1067
15	4M	0.27	0/3966	0.47	0/5388
16	4L	0.26	0/788	0.46	0/1065
17	5M	0.27	0/5344	0.46	0/7256
18	6M	0.26	0/1599	0.50	0/2175
19	A1	0.24	0/481	0.47	0/647
20	A2	0.25	0/707	0.47	0/946
21	A3	0.26	0/305	0.42	0/413
22	A5	0.25	0/1027	0.42	0/1394
23	A6	0.25	0/808	0.49	0/1087

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
24	A7	0.26	0/890	0.52	0/1210
25	A8	0.25	0/827	0.45	0/1106
26	A9	0.25	0/2628	0.49	0/3563
27	AK	0.24	0/1161	0.46	0/1567
28	AL	0.25	0/1092	0.49	0/1480
29	AM	0.25	0/1169	0.46	0/1585
30	AC	0.25	0/661	0.43	0/895
31	AB	0.25	0/672	0.43	0/909
32	B2	0.24	0/432	0.44	0/590
33	B3	0.25	0/396	0.48	0/532
34	B4	0.50	1/590 (0.2%)	0.58	0/791
35	B7	0.25	0/659	0.45	0/880
36	B8	0.26	0/762	0.46	0/1041
37	B9	0.25	0/954	0.49	0/1297
38	BJ	0.24	0/836	0.47	0/1126
39	BK	0.24	0/653	0.45	0/891
40	FD	0.31	1/981 (0.1%)	0.60	2/1329 (0.2%)
41	C2	0.31	0/598	0.45	0/806
42	P2	0.22	0/236	0.44	0/319
43	G1	0.27	0/1803	0.49	0/2445
44	G2	0.26	0/2013	0.52	0/2728
45	L2	0.26	0/1662	0.53	1/2269 (0.0%)
46	S1	0.25	0/5359	0.50	0/7267
47	S2	0.27	0/3086	0.51	0/4171
48	S3	0.25	0/1627	0.52	0/2204
49	S4	0.26	0/952	0.49	0/1286
50	S5	0.25	0/567	0.50	0/753
51	S6	0.27	0/567	0.50	0/771
52	S7	0.27	0/1289	0.51	0/1747
53	S8	0.28	0/1512	0.51	0/2036
54	P1	0.25	0/771	0.49	0/1038
55	P4	0.25	0/461	0.48	0/618
56	C1	0.25	0/603	0.46	0/817
57	V1	0.26	0/3400	0.50	1/4590 (0.0%)
58	V2	0.26	0/1765	0.48	0/2404
59	X1	0.26	0/768	0.47	0/1043
All	All	0.26	2/98456 (0.0%)	0.48	5/133486 (0.0%)

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
40	FD	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
40	FD	156	ASP	C-N	6.04	1.48	1.34
34	B4	67	TYR	C-O	-5.09	1.13	1.23

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
40	FD	156	ASP	O-C-N	-9.43	107.62	122.70
57	V1	453	CYS	CA-CB-SG	6.62	125.91	114.00
45	L2	130	PRO	N-CA-CB	5.67	110.11	103.30
40	FD	156	ASP	CA-C-N	5.38	129.04	117.20
13	2M	409	CYS	CA-CB-SG	5.27	123.49	114.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
40	FD	156	ASP	Mainchain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3800	0	3766	73	0
1	M	3807	0	3774	81	0
2	B	3413	0	3424	53	0
3	C	3089	0	3059	63	0
3	O	3074	0	3041	61	0
4	D	1905	0	1838	33	0
4	P	1905	0	1837	35	0
5	E	574	0	591	17	0
5	Q	565	0	585	15	0
6	F	974	0	990	17	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	R	959	0	977	11	0
7	G	578	0	599	7	0
7	S	578	0	599	8	0
8	H	527	0	521	10	0
8	T	527	0	521	14	0
9	J	468	0	472	9	0
9	V	476	0	483	15	0
10	K	167	0	172	1	0
10	W	203	0	212	3	0
11	N	3389	0	3398	65	0
12	1M	2506	0	2596	66	0
13	2M	3810	0	3920	117	0
14	3M	759	0	785	29	0
15	4M	3862	0	4019	109	0
16	4L	777	0	837	36	0
17	5M	5198	0	5201	143	0
18	6M	1561	0	1657	54	0
19	A1	470	0	474	11	0
20	A2	699	0	734	24	0
21	A3	299	0	317	3	0
22	A5	1004	0	993	31	0
23	A6	794	0	798	19	0
24	A7	868	0	860	19	0
25	A8	814	0	807	11	0
26	A9	2571	0	2642	56	0
27	AK	1139	0	1156	20	0
28	AL	1057	0	997	22	0
29	AM	1134	0	1124	15	0
30	AC	650	0	649	19	0
31	AB	660	0	635	11	0
32	B2	414	0	409	6	0
33	B3	384	0	375	7	0
34	B4	576	0	564	9	0
35	B7	648	0	642	9	0
36	B8	737	0	723	18	0
37	B9	927	0	881	20	0
38	BJ	813	0	800	14	0
39	BK	631	0	623	10	0
40	FD	963	0	968	15	0
41	C2	587	0	601	17	0
42	P2	232	0	237	3	0
43	G1	1766	0	1742	52	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	G2	1979	0	1977	54	0
45	L2	1622	0	1617	44	0
46	S1	5263	0	5267	124	0
47	S2	3018	0	2983	125	0
48	S3	1579	0	1526	42	0
49	S4	923	0	909	15	0
50	S5	555	0	525	12	0
51	S6	553	0	541	16	0
52	S7	1254	0	1247	42	0
53	S8	1484	0	1431	55	0
54	P1	748	0	710	20	0
55	P4	452	0	454	10	0
56	C1	583	0	583	10	0
57	V1	3327	0	3304	80	0
58	V2	1721	0	1691	27	0
59	X1	750	0	743	13	0
60	1M	45	0	64	1	0
60	A	38	0	50	1	0
60	G1	64	0	71	3	0
60	G2	40	0	54	1	0
60	M	40	0	54	2	0
60	P4	54	0	88	1	0
60	S	38	0	50	2	0
61	A	69	0	85	3	0
61	C	123	0	134	3	0
61	D	68	0	83	2	0
61	M	70	0	87	4	0
61	O	182	0	196	7	0
62	C	86	0	60	9	0
62	O	86	0	60	12	0
63	C	72	0	92	2	0
63	G	37	0	48	0	0
63	M	45	0	67	5	0
63	O	108	0	138	4	0
63	R	51	0	82	4	0
64	D	43	0	30	3	0
64	P	43	0	30	3	0
65	1M	40	0	50	2	0
66	A9	48	0	25	4	0
67	AB	29	0	30	3	0
67	AC	29	0	30	1	0
68	FD	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
69	G2	1	0	0	0	0
69	S6	1	0	0	0	0
70	S1	16	0	0	1	0
70	S7	8	0	0	0	0
70	S8	16	0	0	2	0
70	V1	8	0	0	4	0
71	S1	4	0	0	0	0
71	V2	4	0	0	0	0
72	V1	31	0	19	1	0
All	All	97737	0	97910	1901	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 10.

The worst 5 of 1901 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)
44:G2:79:ILE:HG23	44:G2:83:CYS:SG	1.75	1.24
44:G2:79:ILE:CG2	44:G2:83:CYS:SG	2.29	1.18
13:2M:168:TYR:HB2	13:2M:242:ILE:HG12	1.53	0.91
1:M:201:ARG:NH1	1:M:203:GLU:OE2	2.06	0.89
4:D:280:ALA:HB2	5:E:121:VAL:HG11	1.52	0.88

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	478/527 (91%)	462 (97%)	16 (3%)	0	100	100
1	M	479/527 (91%)	468 (98%)	11 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	B	440/510 (86%)	427 (97%)	13 (3%)	0	100	100
3	C	384/394 (98%)	365 (95%)	19 (5%)	0	100	100
3	O	382/394 (97%)	367 (96%)	15 (4%)	0	100	100
4	D	241/306 (79%)	235 (98%)	6 (2%)	0	100	100
4	P	241/306 (79%)	234 (97%)	7 (3%)	0	100	100
5	E	72/271 (27%)	71 (99%)	1 (1%)	0	100	100
5	Q	71/271 (26%)	67 (94%)	4 (6%)	0	100	100
6	F	115/122 (94%)	113 (98%)	2 (2%)	0	100	100
6	R	113/122 (93%)	109 (96%)	4 (4%)	0	100	100
7	G	68/72 (94%)	67 (98%)	1 (2%)	0	100	100
7	S	68/72 (94%)	67 (98%)	1 (2%)	0	100	100
8	H	62/69 (90%)	60 (97%)	2 (3%)	0	100	100
8	T	62/69 (90%)	61 (98%)	1 (2%)	0	100	100
9	J	56/72 (78%)	55 (98%)	1 (2%)	0	100	100
9	V	57/72 (79%)	55 (96%)	2 (4%)	0	100	100
10	K	22/81 (27%)	20 (91%)	2 (9%)	0	100	100
10	W	27/81 (33%)	25 (93%)	2 (7%)	0	100	100
11	N	439/506 (87%)	424 (97%)	15 (3%)	0	100	100
12	1M	321/325 (99%)	302 (94%)	18 (6%)	1 (0%)	41	74
13	2M	486/488 (100%)	472 (97%)	14 (3%)	0	100	100
14	3M	86/118 (73%)	85 (99%)	1 (1%)	0	100	100
15	4M	484/495 (98%)	466 (96%)	18 (4%)	0	100	100
16	4L	97/100 (97%)	96 (99%)	1 (1%)	0	100	100
17	5M	661/673 (98%)	637 (96%)	24 (4%)	0	100	100
18	6M	188/205 (92%)	177 (94%)	11 (6%)	0	100	100
19	A1	57/65 (88%)	56 (98%)	1 (2%)	0	100	100
20	A2	88/98 (90%)	81 (92%)	7 (8%)	0	100	100
21	A3	37/63 (59%)	37 (100%)	0	0	100	100
22	A5	123/169 (73%)	116 (94%)	7 (6%)	0	100	100
23	A6	95/132 (72%)	86 (90%)	9 (10%)	0	100	100
24	A7	107/127 (84%)	101 (94%)	6 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
25	A8	102/106 (96%)	95 (93%)	7 (7%)	0	100	100
26	A9	326/396 (82%)	307 (94%)	19 (6%)	0	100	100
27	AK	147/160 (92%)	143 (97%)	4 (3%)	0	100	100
28	AL	125/156 (80%)	118 (94%)	7 (6%)	0	100	100
29	AM	140/143 (98%)	133 (95%)	7 (5%)	0	100	100
30	AC	80/116 (69%)	74 (92%)	6 (8%)	0	100	100
31	AB	83/128 (65%)	78 (94%)	5 (6%)	0	100	100
32	B2	47/66 (71%)	45 (96%)	2 (4%)	0	100	100
33	B3	45/68 (66%)	43 (96%)	2 (4%)	0	100	100
34	B4	67/71 (94%)	66 (98%)	1 (2%)	0	100	100
35	B7	75/98 (76%)	73 (97%)	2 (3%)	0	100	100
36	B8	93/125 (74%)	90 (97%)	3 (3%)	0	100	100
37	B9	109/115 (95%)	106 (97%)	3 (3%)	0	100	100
38	BJ	95/106 (90%)	91 (96%)	4 (4%)	0	100	100
39	BK	75/118 (64%)	75 (100%)	0	0	100	100
40	FD	120/158 (76%)	115 (96%)	5 (4%)	0	100	100
41	C2	72/82 (88%)	71 (99%)	1 (1%)	0	100	100
42	P2	28/115 (24%)	28 (100%)	0	0	100	100
43	G1	229/270 (85%)	221 (96%)	8 (4%)	0	100	100
44	G2	254/273 (93%)	242 (95%)	12 (5%)	0	100	100
45	L2	208/256 (81%)	200 (96%)	8 (4%)	0	100	100
46	S1	685/746 (92%)	663 (97%)	22 (3%)	0	100	100
47	S2	372/394 (94%)	352 (95%)	20 (5%)	0	100	100
48	S3	183/190 (96%)	175 (96%)	8 (4%)	0	100	100
49	S4	114/146 (78%)	109 (96%)	5 (4%)	0	100	100
50	S5	63/83 (76%)	63 (100%)	0	0	100	100
51	S6	69/103 (67%)	65 (94%)	4 (6%)	0	100	100
52	S7	156/213 (73%)	149 (96%)	7 (4%)	0	100	100
53	S8	179/222 (81%)	174 (97%)	5 (3%)	0	100	100
54	P1	83/91 (91%)	81 (98%)	2 (2%)	0	100	100
55	P4	51/61 (84%)	51 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
56	C1	70/87 (80%)	65 (93%)	5 (7%)	0	100	100
57	V1	428/492 (87%)	412 (96%)	16 (4%)	0	100	100
58	V2	218/251 (87%)	209 (96%)	8 (4%)	1 (0%)	29	67
59	X1	97/101 (96%)	94 (97%)	3 (3%)	0	100	100
All	All	11995/14208 (84%)	11540 (96%)	453 (4%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
12	1M	201	ALA
58	V2	174	ALA

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	403/438 (92%)	403 (100%)	0	100	100
1	M	404/438 (92%)	402 (100%)	2 (0%)	88	95
2	B	377/428 (88%)	376 (100%)	1 (0%)	92	96
3	C	331/339 (98%)	327 (99%)	4 (1%)	71	88
3	O	329/339 (97%)	328 (100%)	1 (0%)	92	96
4	D	198/247 (80%)	198 (100%)	0	100	100
4	P	198/247 (80%)	198 (100%)	0	100	100
5	E	62/233 (27%)	62 (100%)	0	100	100
5	Q	61/233 (26%)	61 (100%)	0	100	100
6	F	103/107 (96%)	103 (100%)	0	100	100
6	R	101/107 (94%)	101 (100%)	0	100	100
7	G	64/65 (98%)	64 (100%)	0	100	100
7	S	64/65 (98%)	64 (100%)	0	100	100
8	H	59/63 (94%)	59 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	T	59/63 (94%)	59 (100%)	0	100	100
9	J	48/59 (81%)	48 (100%)	0	100	100
9	V	49/59 (83%)	49 (100%)	0	100	100
10	K	15/66 (23%)	15 (100%)	0	100	100
10	W	19/66 (29%)	19 (100%)	0	100	100
11	N	370/414 (89%)	369 (100%)	1 (0%)	92	96
12	1M	269/271 (99%)	269 (100%)	0	100	100
13	2M	408/408 (100%)	408 (100%)	0	100	100
14	3M	82/105 (78%)	82 (100%)	0	100	100
15	4M	422/431 (98%)	422 (100%)	0	100	100
16	4L	86/86 (100%)	86 (100%)	0	100	100
17	5M	561/571 (98%)	561 (100%)	0	100	100
18	6M	173/186 (93%)	173 (100%)	0	100	100
19	A1	46/52 (88%)	46 (100%)	0	100	100
20	A2	75/81 (93%)	75 (100%)	0	100	100
21	A3	33/51 (65%)	33 (100%)	0	100	100
22	A5	112/149 (75%)	112 (100%)	0	100	100
23	A6	91/118 (77%)	91 (100%)	0	100	100
24	A7	95/111 (86%)	95 (100%)	0	100	100
25	A8	94/96 (98%)	94 (100%)	0	100	100
26	A9	279/334 (84%)	279 (100%)	0	100	100
27	AK	113/121 (93%)	113 (100%)	0	100	100
28	AL	109/134 (81%)	108 (99%)	1 (1%)	78	91
29	AM	115/116 (99%)	115 (100%)	0	100	100
30	AC	75/102 (74%)	75 (100%)	0	100	100
31	AB	73/112 (65%)	73 (100%)	0	100	100
32	B2	42/52 (81%)	42 (100%)	0	100	100
33	B3	37/55 (67%)	37 (100%)	0	100	100
34	B4	58/59 (98%)	58 (100%)	0	100	100
35	B7	71/88 (81%)	71 (100%)	0	100	100
36	B8	79/101 (78%)	79 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
37	B9	93/97 (96%)	93 (100%)	0	100	100
38	BJ	86/95 (90%)	86 (100%)	0	100	100
39	BK	69/100 (69%)	69 (100%)	0	100	100
40	FD	108/141 (77%)	108 (100%)	0	100	100
41	C2	60/67 (90%)	60 (100%)	0	100	100
42	P2	23/85 (27%)	23 (100%)	0	100	100
43	G1	184/216 (85%)	183 (100%)	1 (0%)	88	95
44	G2	214/226 (95%)	214 (100%)	0	100	100
45	L2	176/217 (81%)	176 (100%)	0	100	100
46	S1	571/622 (92%)	570 (100%)	1 (0%)	93	98
47	S2	325/340 (96%)	323 (99%)	2 (1%)	86	94
48	S3	174/179 (97%)	174 (100%)	0	100	100
49	S4	95/119 (80%)	95 (100%)	0	100	100
50	S5	59/72 (82%)	59 (100%)	0	100	100
51	S6	63/94 (67%)	63 (100%)	0	100	100
52	S7	133/180 (74%)	133 (100%)	0	100	100
53	S8	162/193 (84%)	162 (100%)	0	100	100
54	P1	80/85 (94%)	80 (100%)	0	100	100
55	P4	47/53 (89%)	47 (100%)	0	100	100
56	C1	63/71 (89%)	63 (100%)	0	100	100
57	V1	348/401 (87%)	348 (100%)	0	100	100
58	V2	191/216 (88%)	191 (100%)	0	100	100
59	X1	82/84 (98%)	82 (100%)	0	100	100
All	All	10318/12019 (86%)	10304 (100%)	14 (0%)	93	98

5 of 14 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
11	N	394	LYS
3	O	85	ARG
47	S2	394	ARG
46	S1	460	ARG
47	S2	113	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 15 such sidechains are listed below:

Mol	Chain	Res	Type
27	AK	95	ASN
48	S3	3	ASN
32	B2	22	HIS
57	V1	481	ASN
44	G2	218	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 46 ligands modelled in this entry, 3 are monoatomic - leaving 43 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	$\# Z > 2$
63	3PE	C	505	-	33,33,50	0.37	0	36,38,55	0.31	0
61	CDL	O	404	-	63,63,99	0.37	0	69,75,111	0.37	0
70	SF4	S1	901	46	0,12,12	-	-	-		
60	PC1	M	603	-	39,39,53	0.33	0	45,47,61	0.29	0
61	CDL	D	502	-	67,67,99	0.35	0	73,79,111	0.30	0
64	HEC	D	501	4	32,50,50	2.04	4 (12%)	24,82,82	2.33	15 (62%)
61	CDL	A	602	-	68,68,99	0.35	0	74,80,111	0.30	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
63	3PE	C	504	-	37,37,50	0.35	0	40,42,55	0.33	0
70	SF4	V1	502	57	0,12,12	-	-	-		
63	3PE	O	401	-	35,35,50	0.36	0	38,40,55	0.34	0
60	PC1	G2	801	-	39,39,53	0.33	0	45,47,61	0.30	0
71	FES	V2	300	58	0,4,4	-	-	-		
62	HEM	O	403	3	41,50,50	1.24	3 (7%)	45,82,82	1.72	8 (17%)
63	3PE	O	405	-	38,38,50	0.34	0	41,43,55	0.30	0
66	NDP	A9	401	26	45,52,52	0.56	0	53,80,80	0.56	1 (1%)
65	U10	1M	402	12	40,40,63	2.43	16 (40%)	48,51,79	1.68	12 (25%)
60	PC1	A	601	-	37,37,53	0.34	0	43,45,61	0.28	0
62	HEM	C	502	3	41,50,50	1.23	4 (9%)	45,82,82	1.77	10 (22%)
70	SF4	S7	301	52	0,12,12	-	-	-		
63	3PE	G	101	-	36,36,50	0.35	0	39,41,55	0.29	0
63	3PE	M	601	-	44,44,50	0.32	0	47,49,55	0.29	0
61	CDL	C	501	-	63,63,99	0.36	0	69,75,111	0.31	0
61	CDL	O	408	-	54,54,99	0.39	0	60,66,111	0.38	0
60	PC1	S	101	-	37,37,53	0.34	0	43,45,61	0.30	0
67	ZMP	AB	201	31	22,28,36	0.78	1 (4%)	27,35,45	1.03	1 (3%)
61	CDL	C	506	-	58,58,99	0.37	0	64,70,111	0.31	0
63	3PE	R	201	-	50,50,50	0.30	0	53,55,55	0.29	0
60	PC1	P4	101	-	53,53,53	0.29	0	59,61,61	0.27	0
61	CDL	O	407	-	62,62,99	0.37	0	68,74,111	0.38	0
62	HEM	C	503	3	41,50,50	1.24	3 (7%)	45,82,82	1.72	7 (15%)
63	3PE	O	406	-	32,32,50	0.36	0	35,37,55	0.35	0
70	SF4	S1	903	46	0,12,12	-	-	-		
70	SF4	S8	702	53	0,12,12	-	-	-		
61	CDL	M	602	-	69,69,99	0.35	0	75,81,111	0.34	0
64	HEC	P	501	4	32,50,50	2.02	4 (12%)	24,82,82	2.34	15 (62%)
70	SF4	S8	701	53	0,12,12	-	-	-		
71	FES	S1	902	46	0,4,4	-	-	-		
72	FMN	V1	501	-	33,33,33	0.20	0	48,50,50	0.43	0
62	HEM	O	402	3	41,50,50	1.23	4 (9%)	45,82,82	1.73	9 (20%)
60	PC1	G1	701	43	26,26,53	0.40	0	32,34,61	0.34	0
60	PC1	G1	702	43	36,36,53	0.35	0	42,44,61	0.34	0
67	ZMP	AC	201	30	22,28,36	0.83	1 (4%)	27,35,45	1.35	3 (11%)
60	PC1	1M	401	-	44,44,53	0.32	0	50,52,61	0.29	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
63	3PE	C	505	-	-	2/37/37/54	-
61	CDL	O	404	-	-	14/74/74/110	-
70	SF4	S1	901	46	-	-	0/6/5/5
60	PC1	M	603	-	-	3/43/43/57	-
61	CDL	D	502	-	-	13/78/78/110	-
64	HEC	D	501	4	-	2/10/54/54	-
61	CDL	A	602	-	-	15/79/79/110	-
63	3PE	C	504	-	-	10/41/41/54	-
70	SF4	V1	502	57	-	-	0/6/5/5
63	3PE	O	401	-	-	11/39/39/54	-
60	PC1	G2	801	-	-	10/43/43/57	-
71	FES	V2	300	58	-	-	0/1/1/1
62	HEM	O	403	3	-	6/12/54/54	-
63	3PE	O	405	-	-	9/42/42/54	-
66	NDP	A9	401	26	-	13/30/77/77	0/5/5/5
65	U10	1M	402	12	-	10/36/60/87	0/1/1/1
60	PC1	A	601	-	-	1/41/41/57	-
62	HEM	C	502	3	-	5/12/54/54	-
70	SF4	S7	301	52	-	-	0/6/5/5
63	3PE	G	101	-	-	5/40/40/54	-
63	3PE	M	601	-	-	12/48/48/54	-
61	CDL	C	501	-	-	16/74/74/110	-
61	CDL	O	408	-	-	13/65/65/110	-
60	PC1	S	101	-	-	10/41/41/57	-
67	ZMP	AB	201	31	-	11/33/35/43	-
61	CDL	C	506	-	-	13/69/69/110	-
63	3PE	R	201	-	-	6/54/54/54	-
60	PC1	P4	101	-	-	14/57/57/57	-
61	CDL	O	407	-	-	20/73/73/110	-
62	HEM	C	503	3	-	6/12/54/54	-
63	3PE	O	406	-	-	7/36/36/54	-
70	SF4	S1	903	46	-	-	0/6/5/5
70	SF4	S8	702	53	-	-	0/6/5/5
61	CDL	M	602	-	-	14/80/80/110	-
64	HEC	P	501	4	-	3/10/54/54	-
70	SF4	S8	701	53	-	-	0/6/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
72	FMN	V1	501	-	-	5/18/18/18	0/3/3/3
71	FES	S1	902	46	-	-	0/1/1/1
62	HEM	O	402	3	-	5/12/54/54	-
60	PC1	G1	701	43	-	6/30/30/57	-
60	PC1	G1	702	43	-	8/40/40/57	-
67	ZMP	AC	201	30	-	10/33/35/43	-
60	PC1	1M	401	-	-	12/48/48/57	-

The worst 5 of 40 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
65	1M	402	U10	C6-C1	10.06	1.53	1.35
64	P	501	HEC	C3C-C2C	-6.47	1.34	1.40
64	D	501	HEC	C3C-C2C	-6.43	1.34	1.40
64	D	501	HEC	C2B-C3B	-6.29	1.34	1.40
64	P	501	HEC	C2B-C3B	-6.11	1.34	1.40

The worst 5 of 81 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
62	C	502	HEM	CHC-C4B-NB	4.70	129.54	124.43
62	O	402	HEM	CHC-C4B-NB	4.64	129.47	124.43
62	O	403	HEM	CHC-C4B-NB	4.48	129.29	124.43
62	C	503	HEM	CHC-C4B-NB	4.40	129.21	124.43
62	C	502	HEM	CHB-C1B-NB	4.38	129.79	124.38

There are no chirality outliers.

5 of 320 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
60	S	101	PC1	C11-O13-P-O12
60	S	101	PC1	C11-O13-P-O14
60	S	101	PC1	C11-O13-P-O11
60	1M	401	PC1	C1-O11-P-O12
60	1M	401	PC1	C2-C1-O11-P

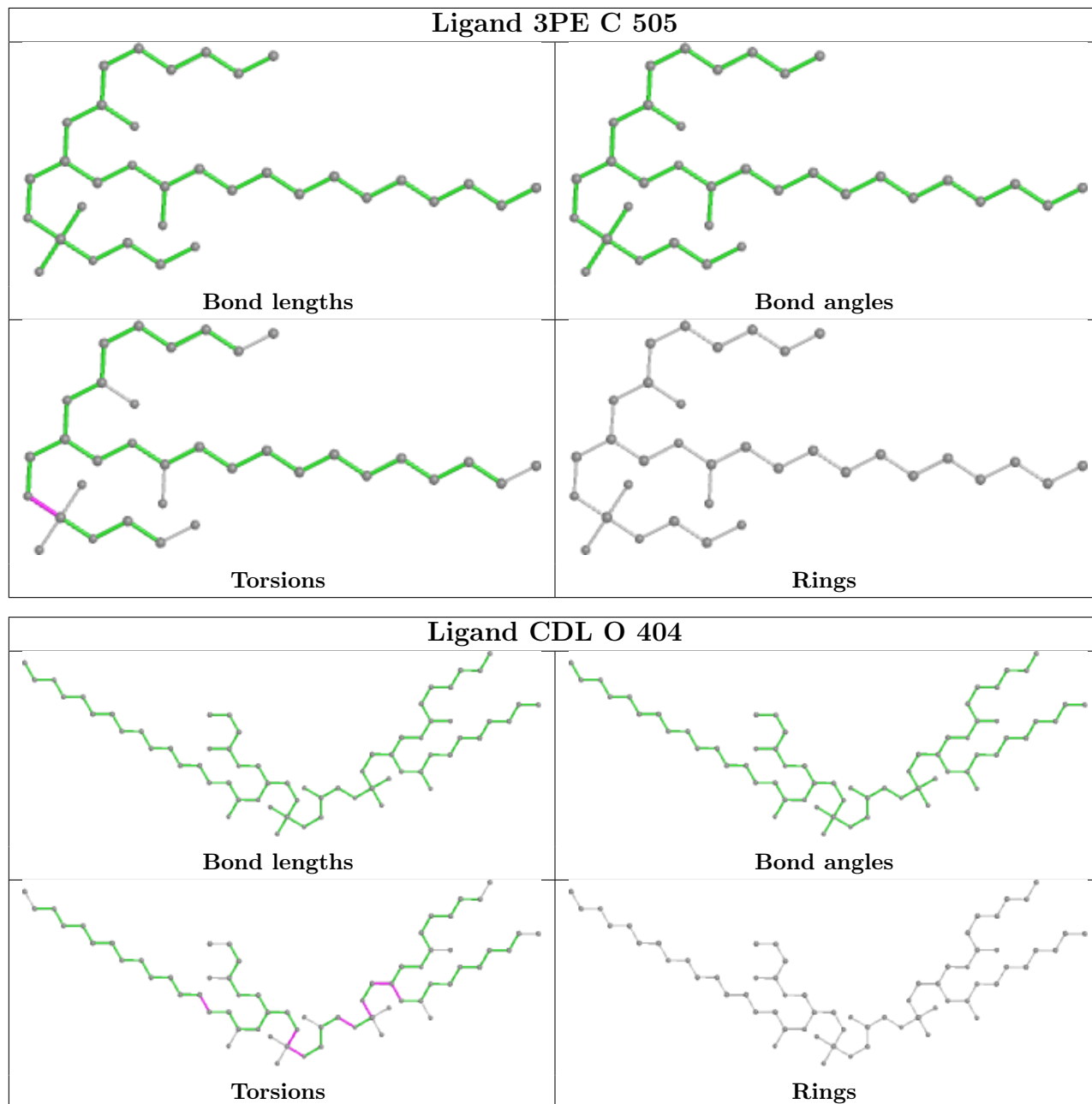
There are no ring outliers.

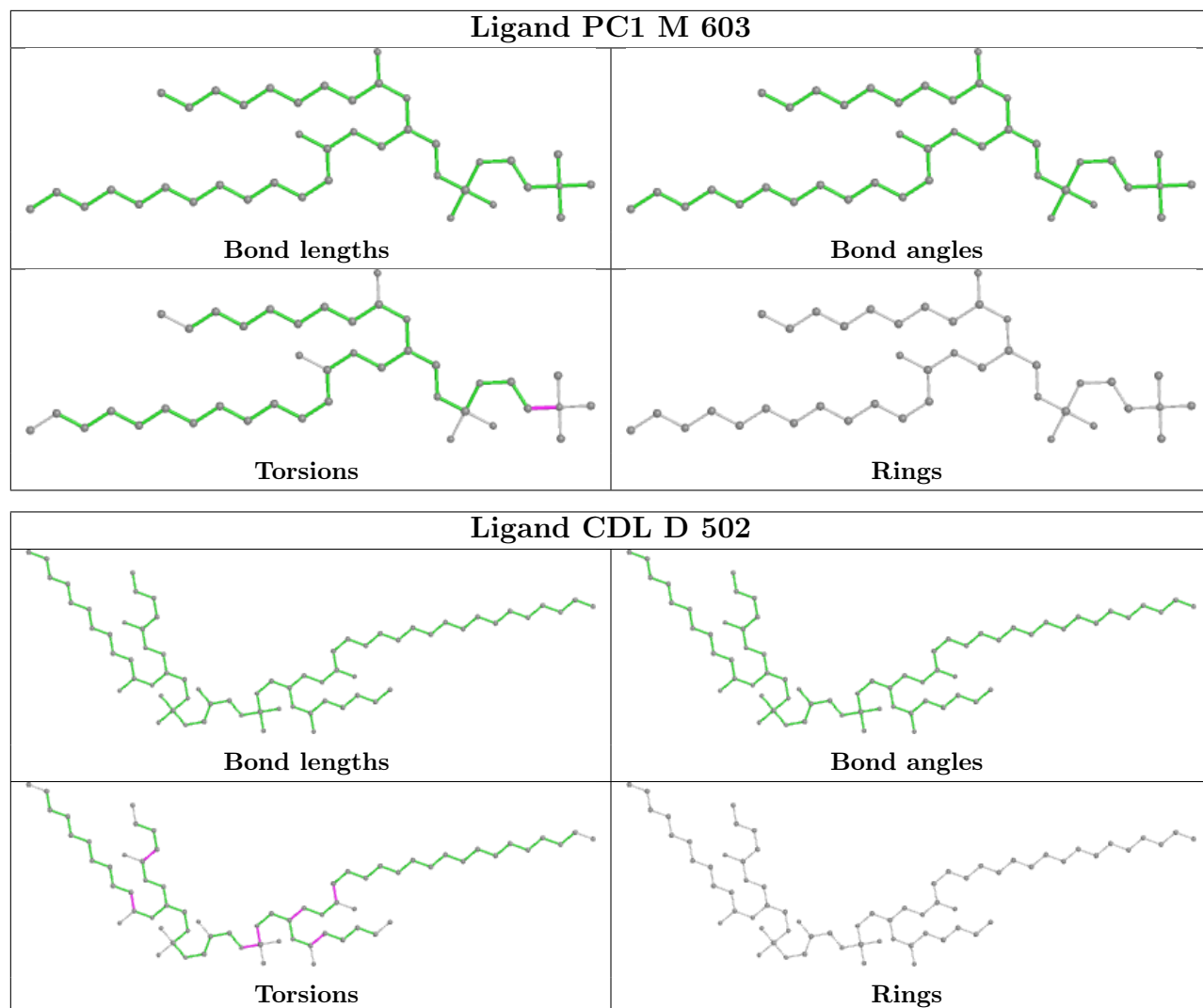
36 monomers are involved in 85 short contacts:

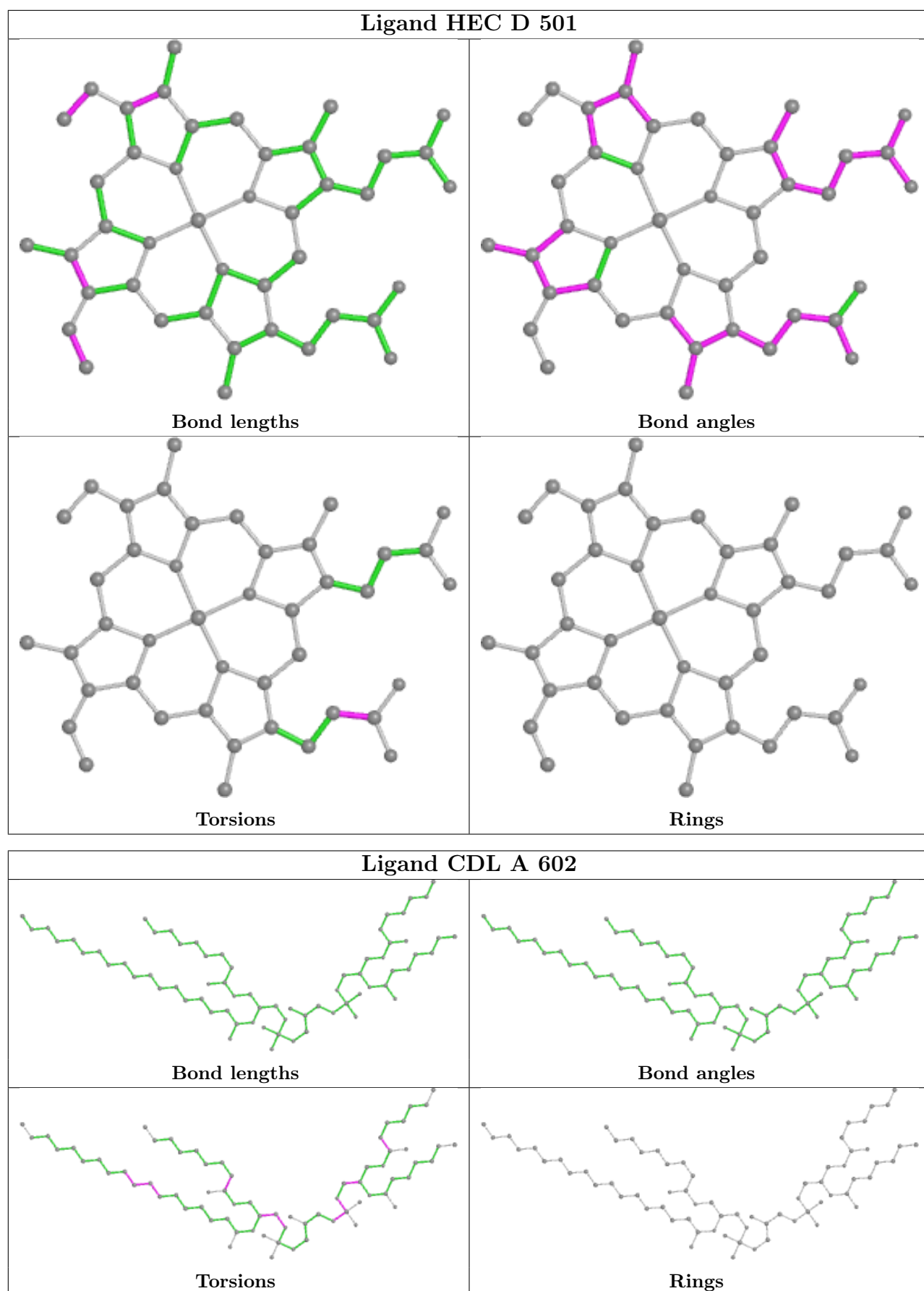
Mol	Chain	Res	Type	Clashes	Symm-Clashes
63	C	505	3PE	2	0
61	O	404	CDL	3	0
60	M	603	PC1	2	0
61	D	502	CDL	2	0
64	D	501	HEC	3	0
61	A	602	CDL	3	0
70	V1	502	SF4	4	0
63	O	401	3PE	1	0
60	G2	801	PC1	1	0
62	O	403	HEM	7	0
63	O	405	3PE	2	0
66	A9	401	NDP	4	0
65	1M	402	U10	2	0
60	A	601	PC1	1	0
62	C	502	HEM	4	0
63	M	601	3PE	5	0
61	C	501	CDL	2	0
61	O	408	CDL	3	0
60	S	101	PC1	2	0
67	AB	201	ZMP	3	0
61	C	506	CDL	1	0
63	R	201	3PE	4	0
60	P4	101	PC1	1	0
61	O	407	CDL	2	0
62	C	503	HEM	5	0
63	O	406	3PE	1	0
70	S1	903	SF4	1	0
70	S8	702	SF4	1	0
61	M	602	CDL	4	0
64	P	501	HEC	3	0
70	S8	701	SF4	1	0
72	V1	501	FMN	1	0
62	O	402	HEM	5	0
60	G1	702	PC1	3	0
67	AC	201	ZMP	1	0
60	1M	401	PC1	1	0

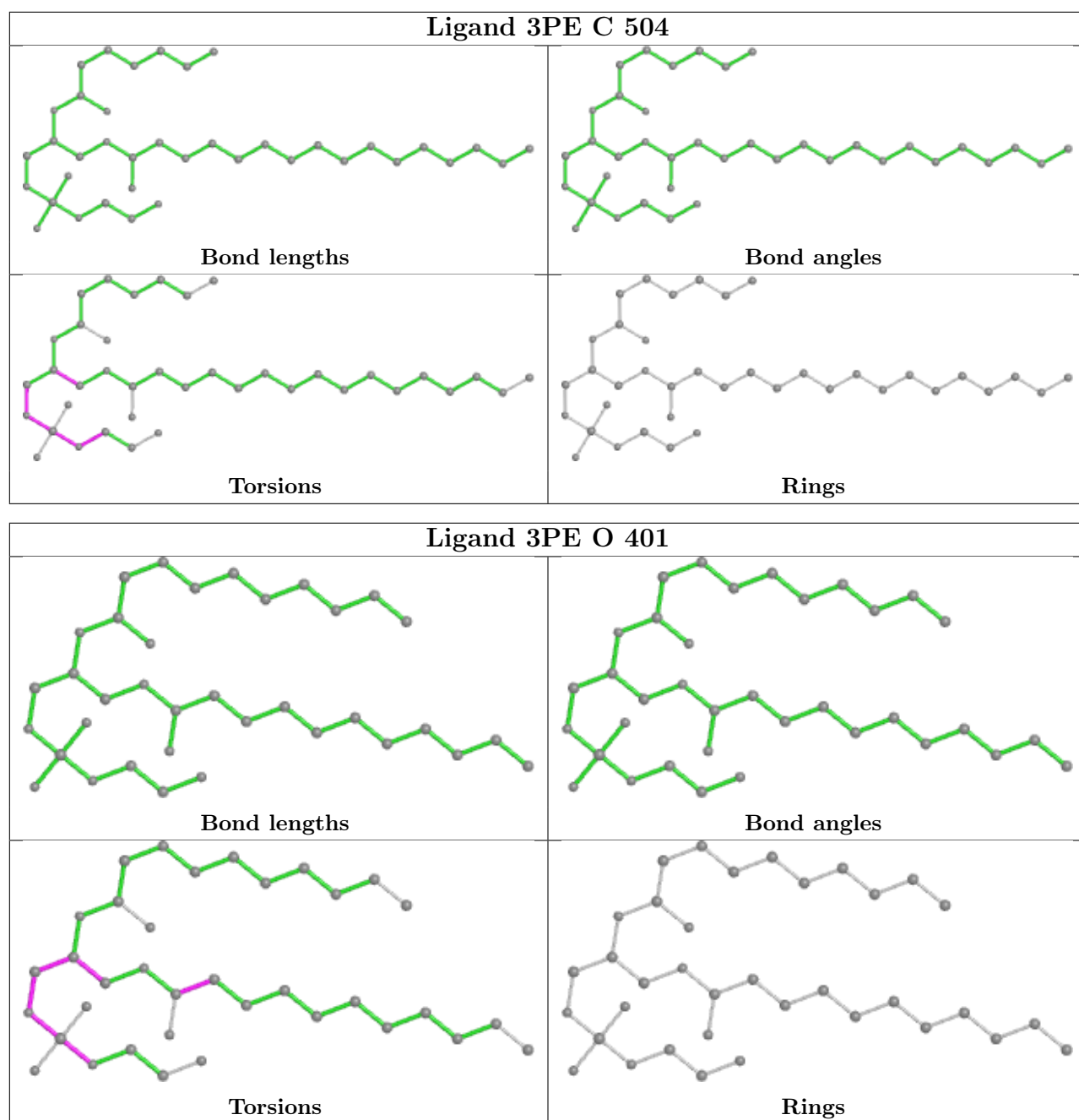
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

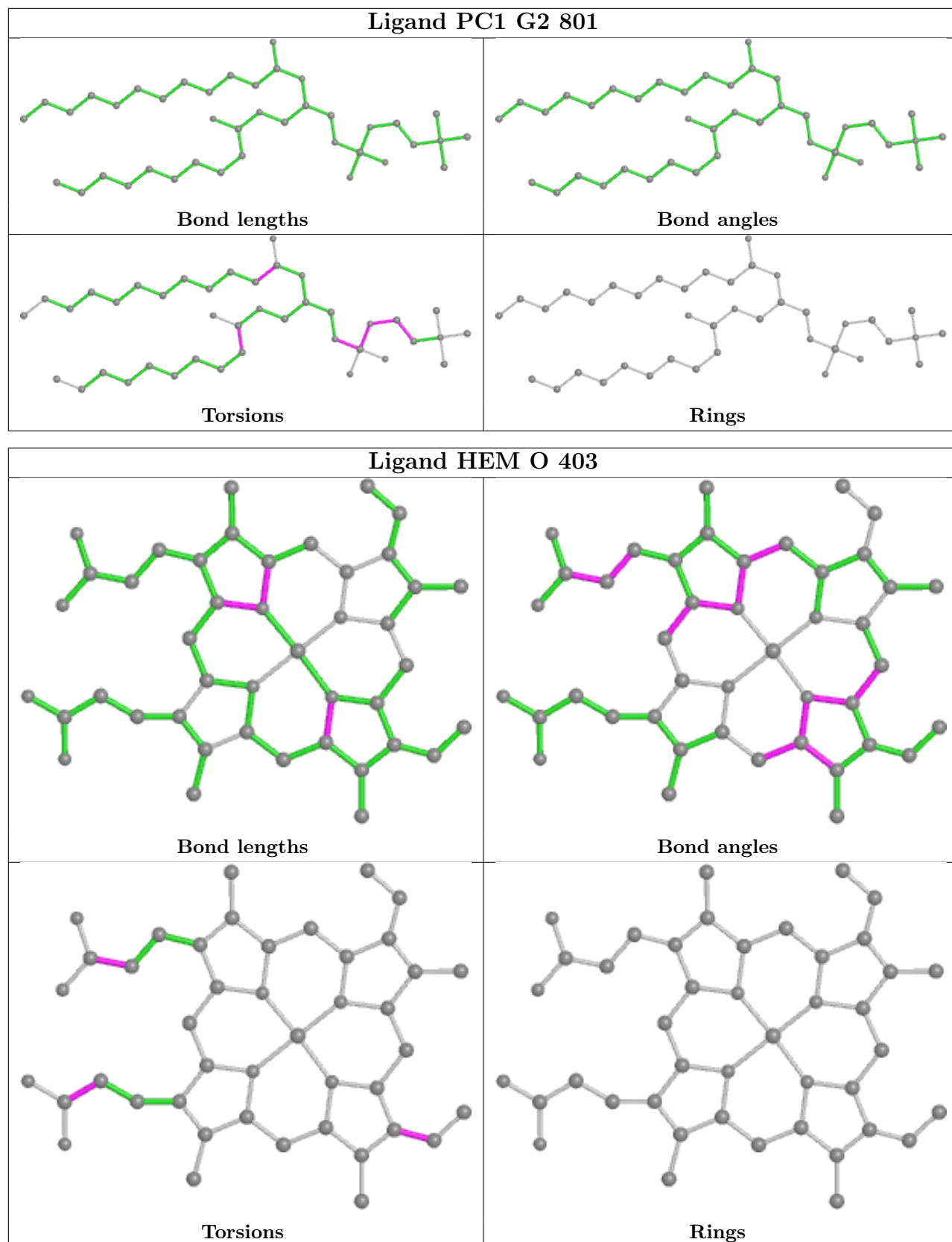
in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

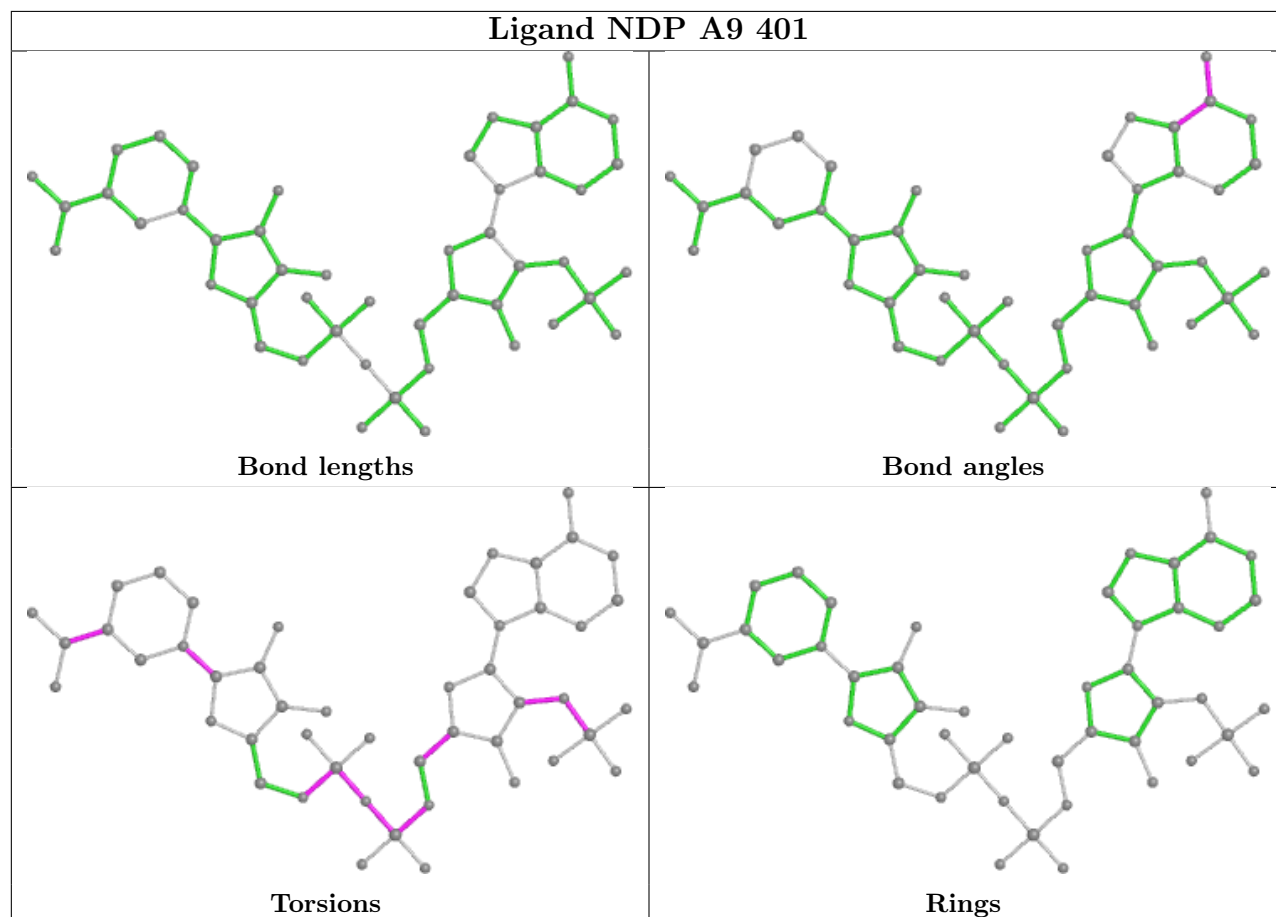
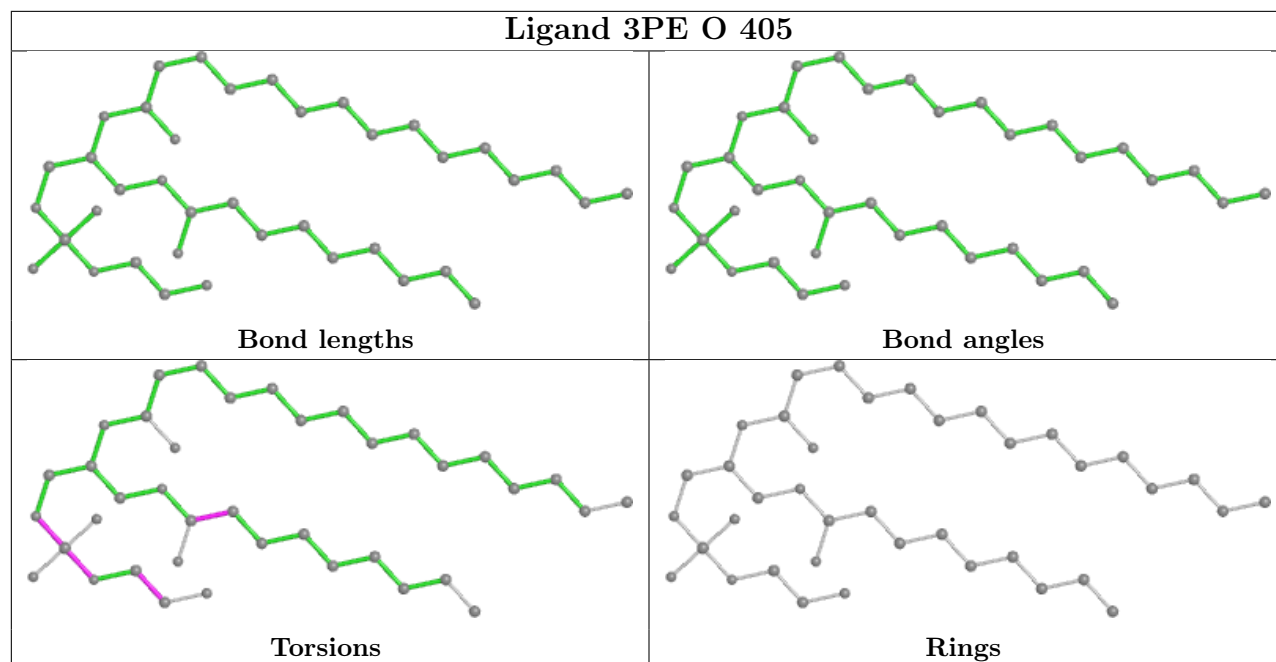


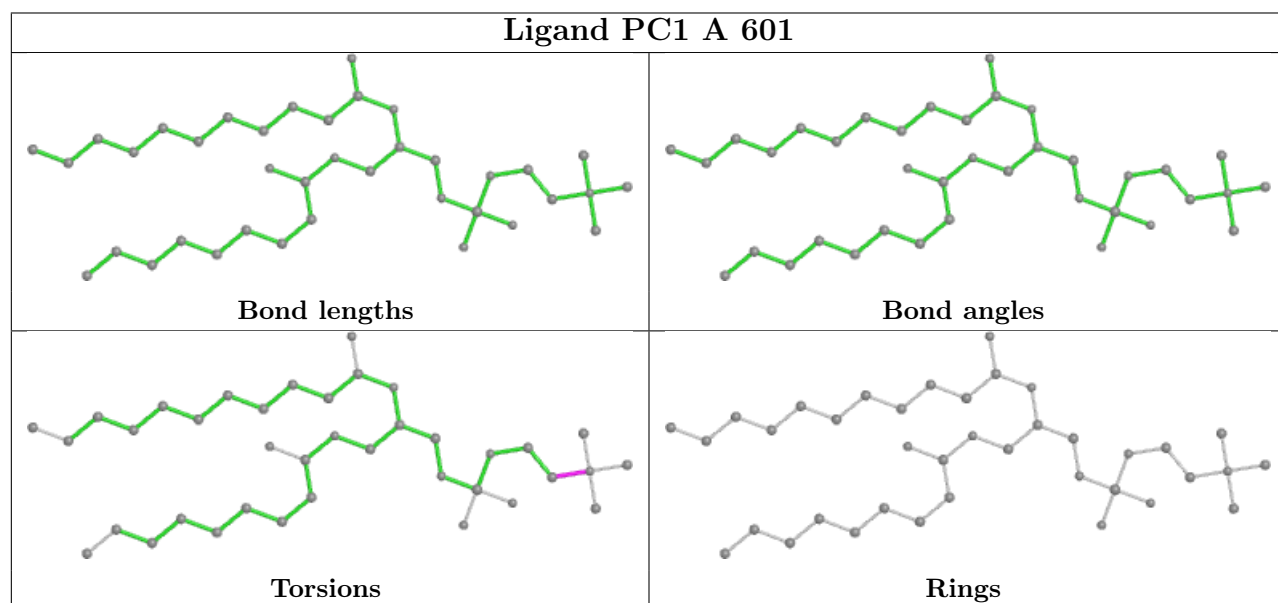
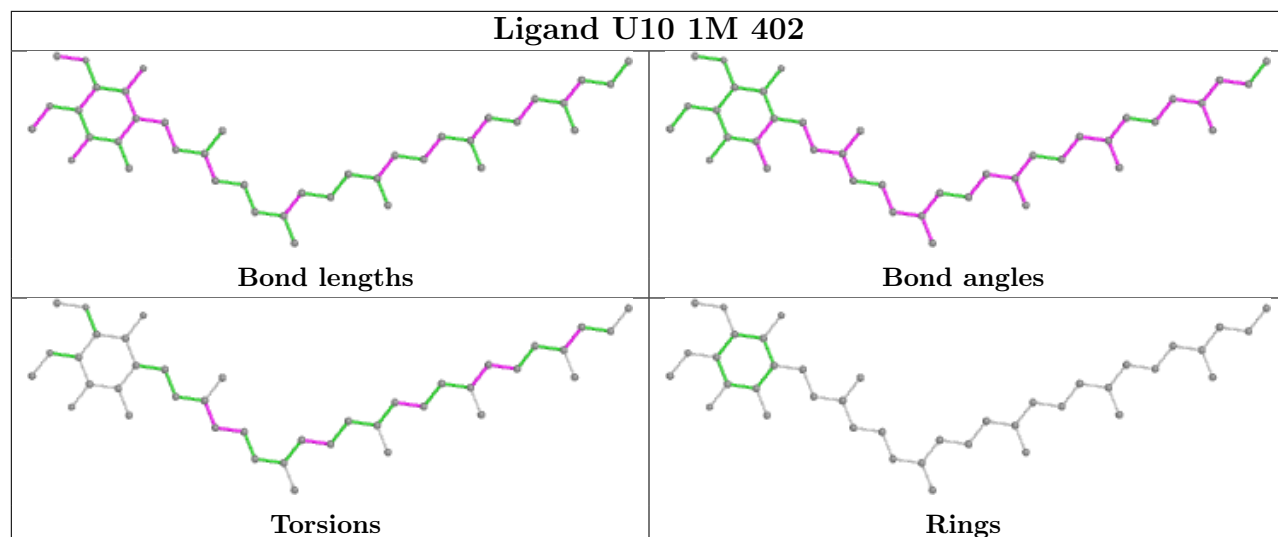


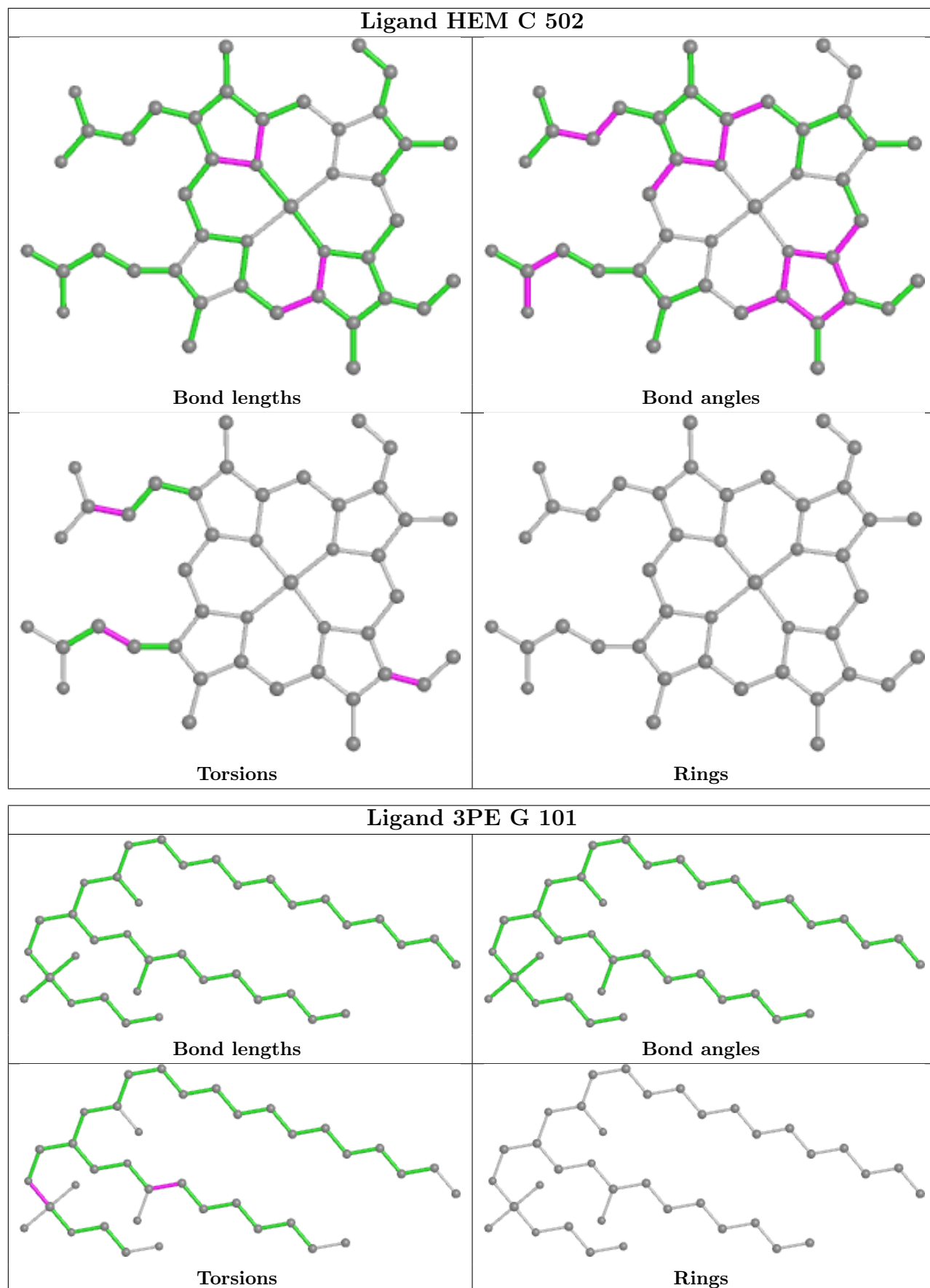


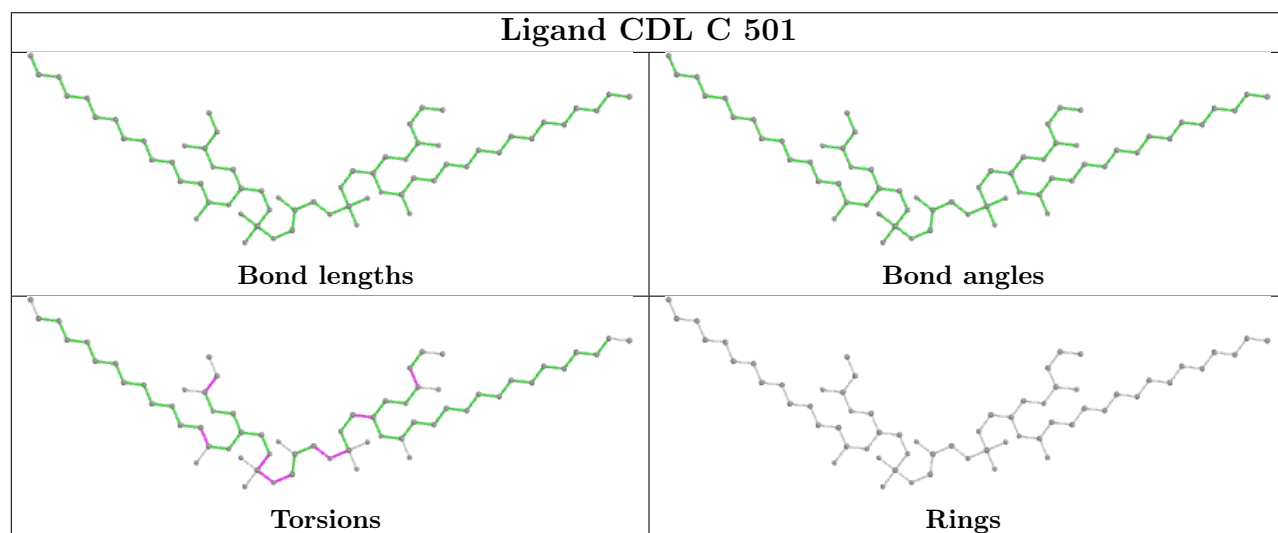
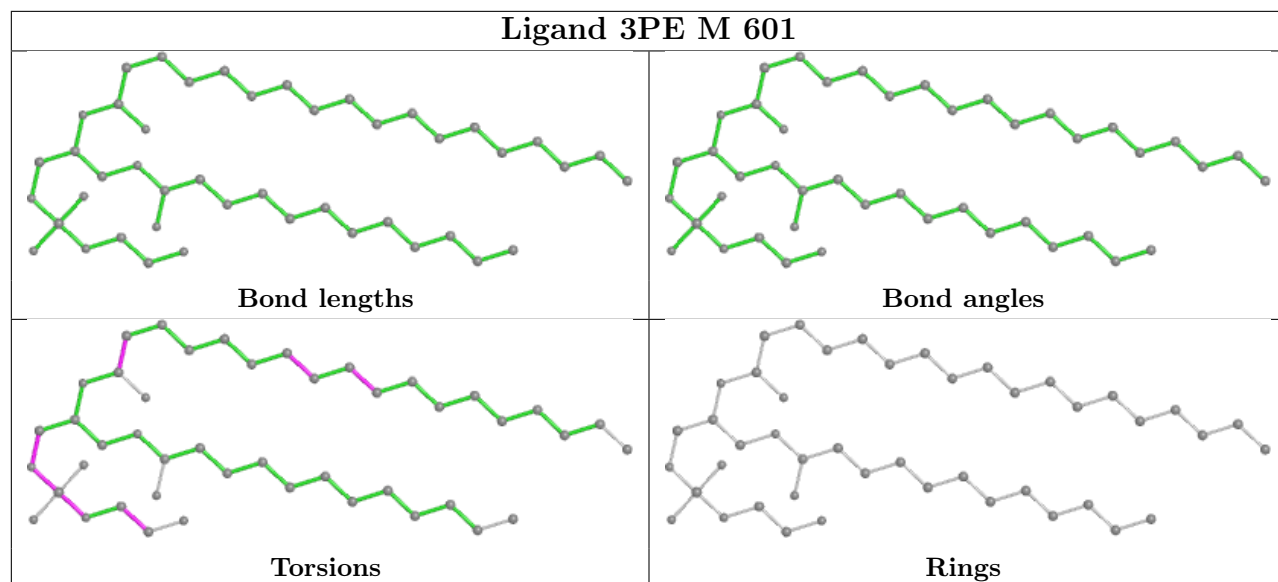


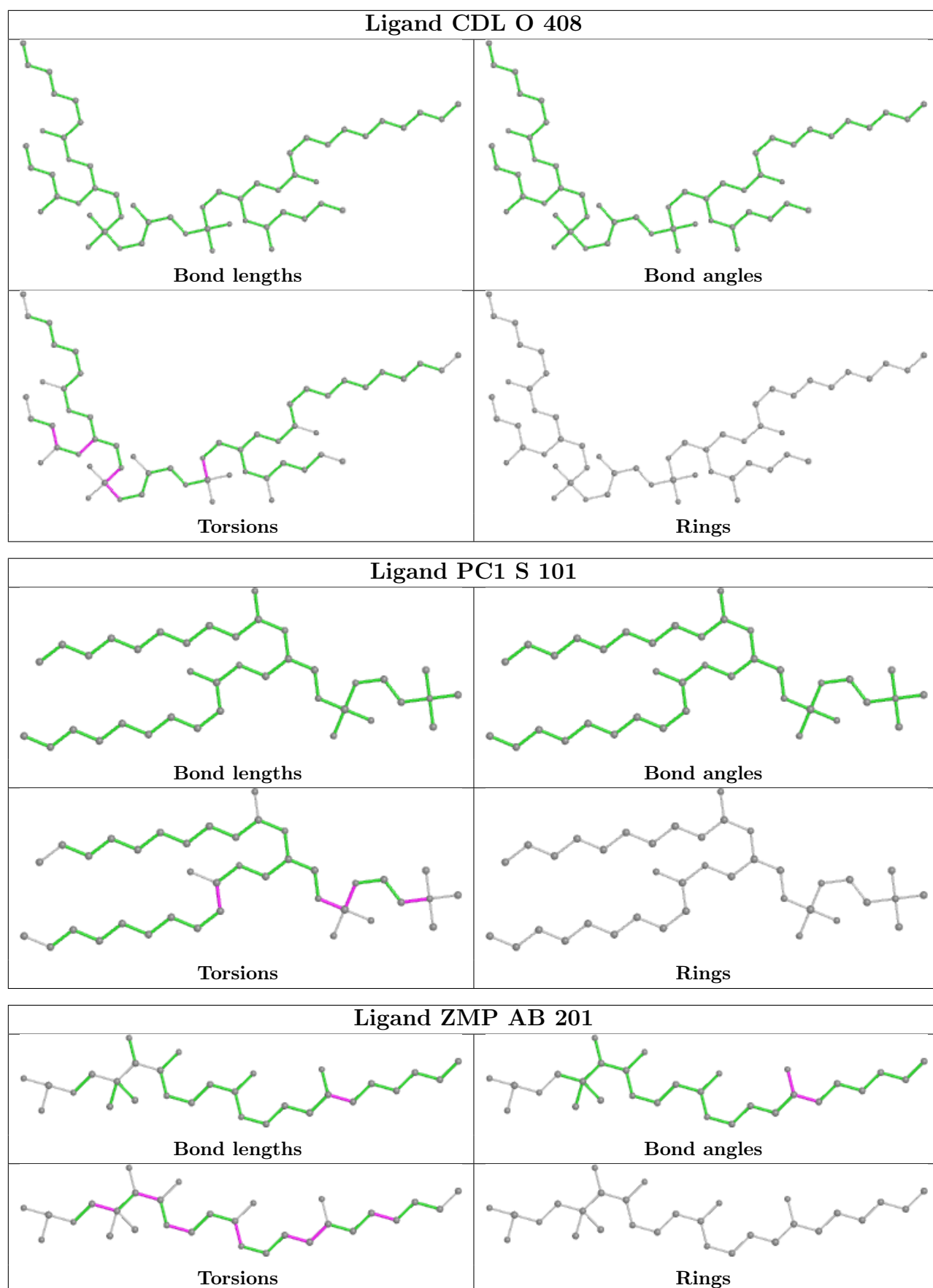


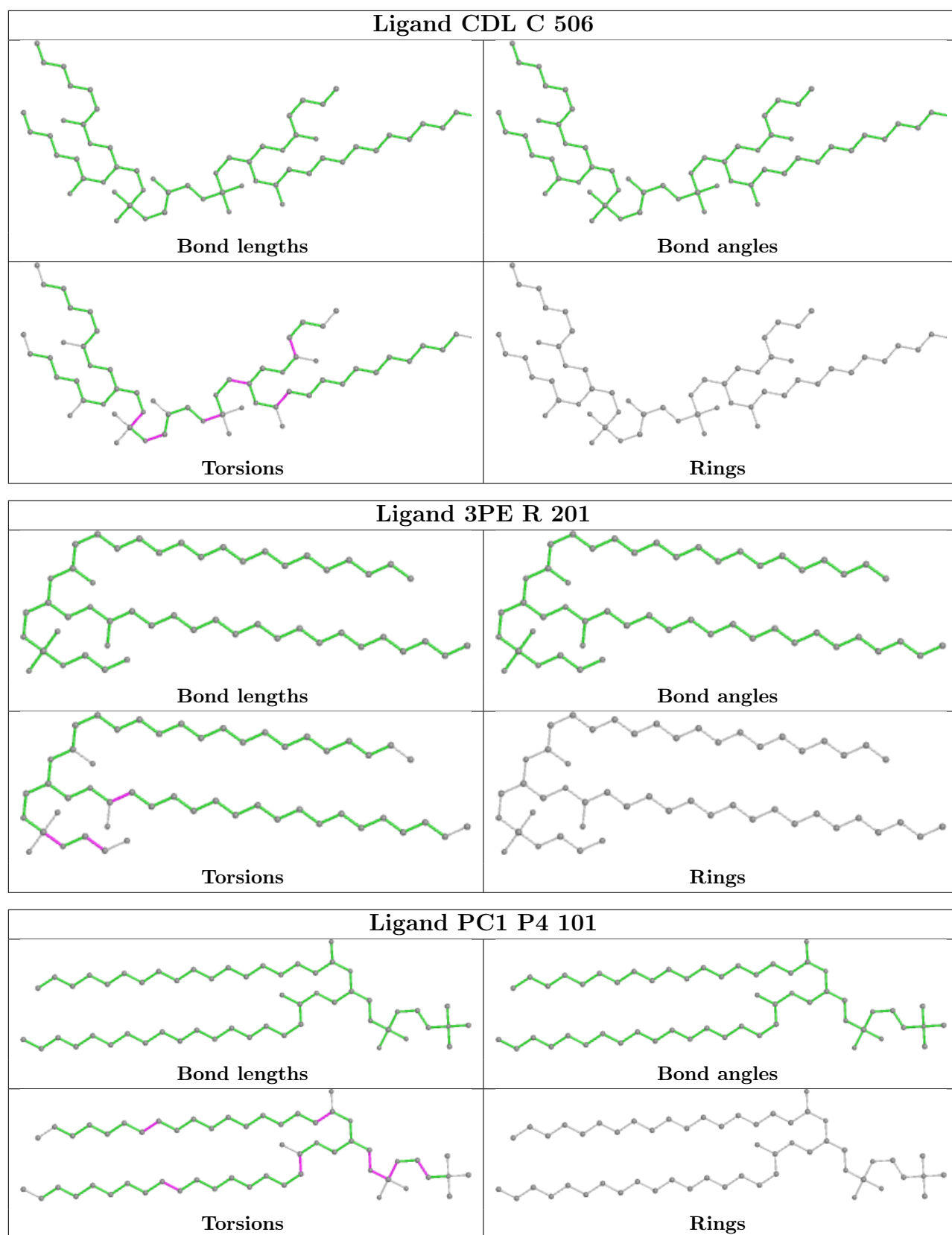


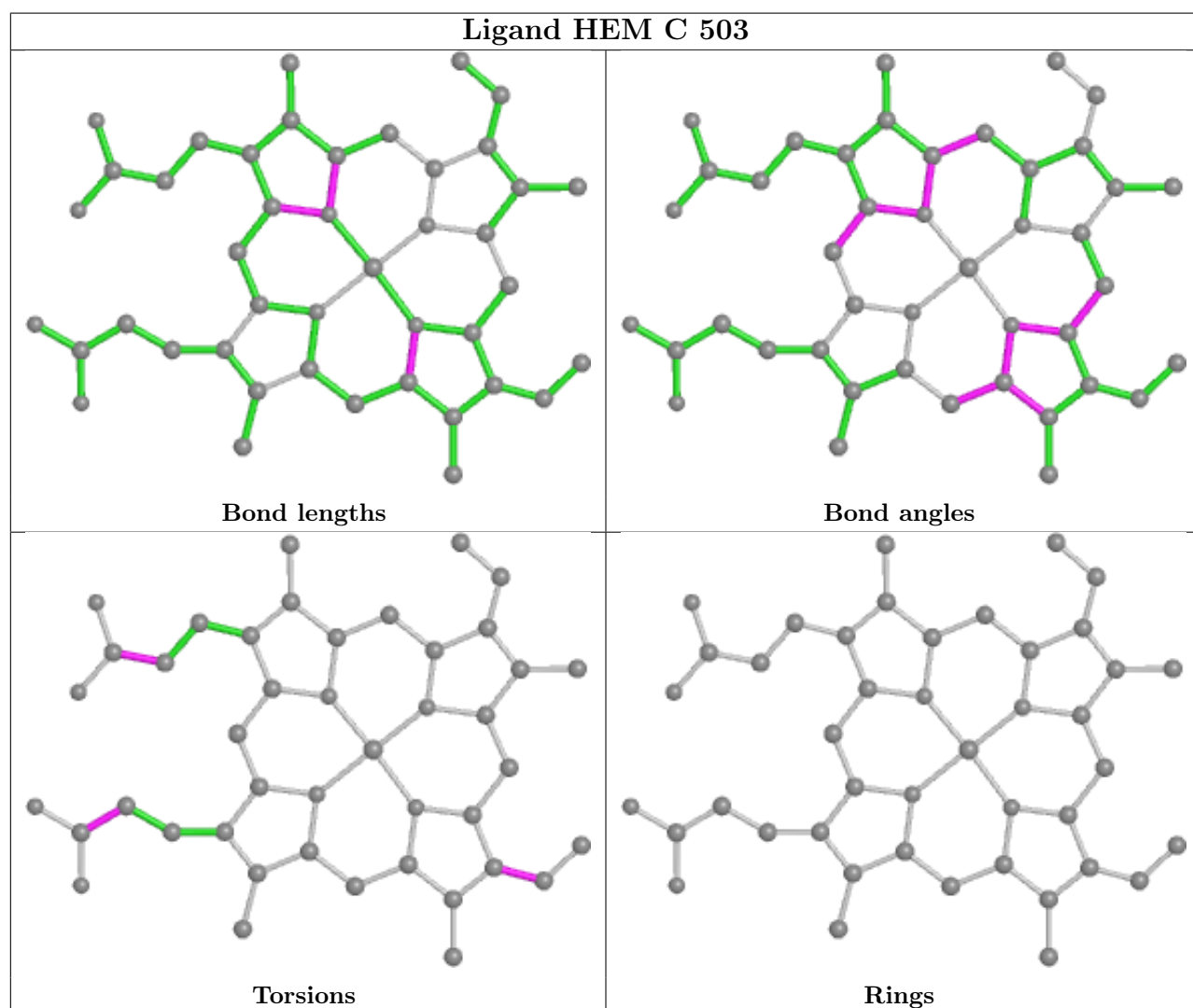
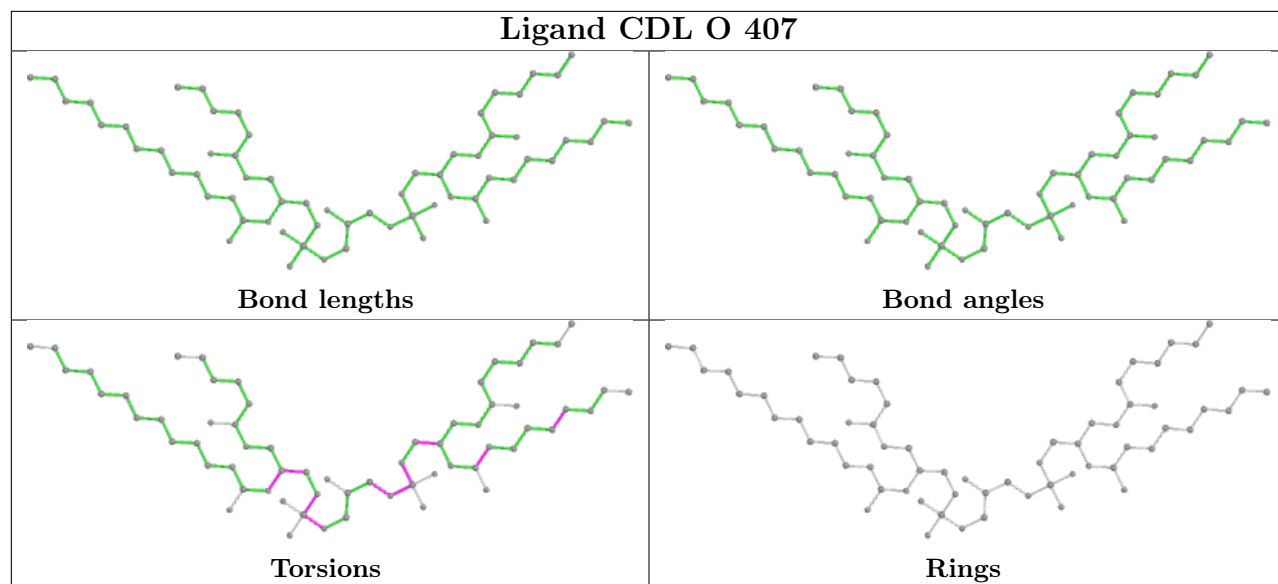


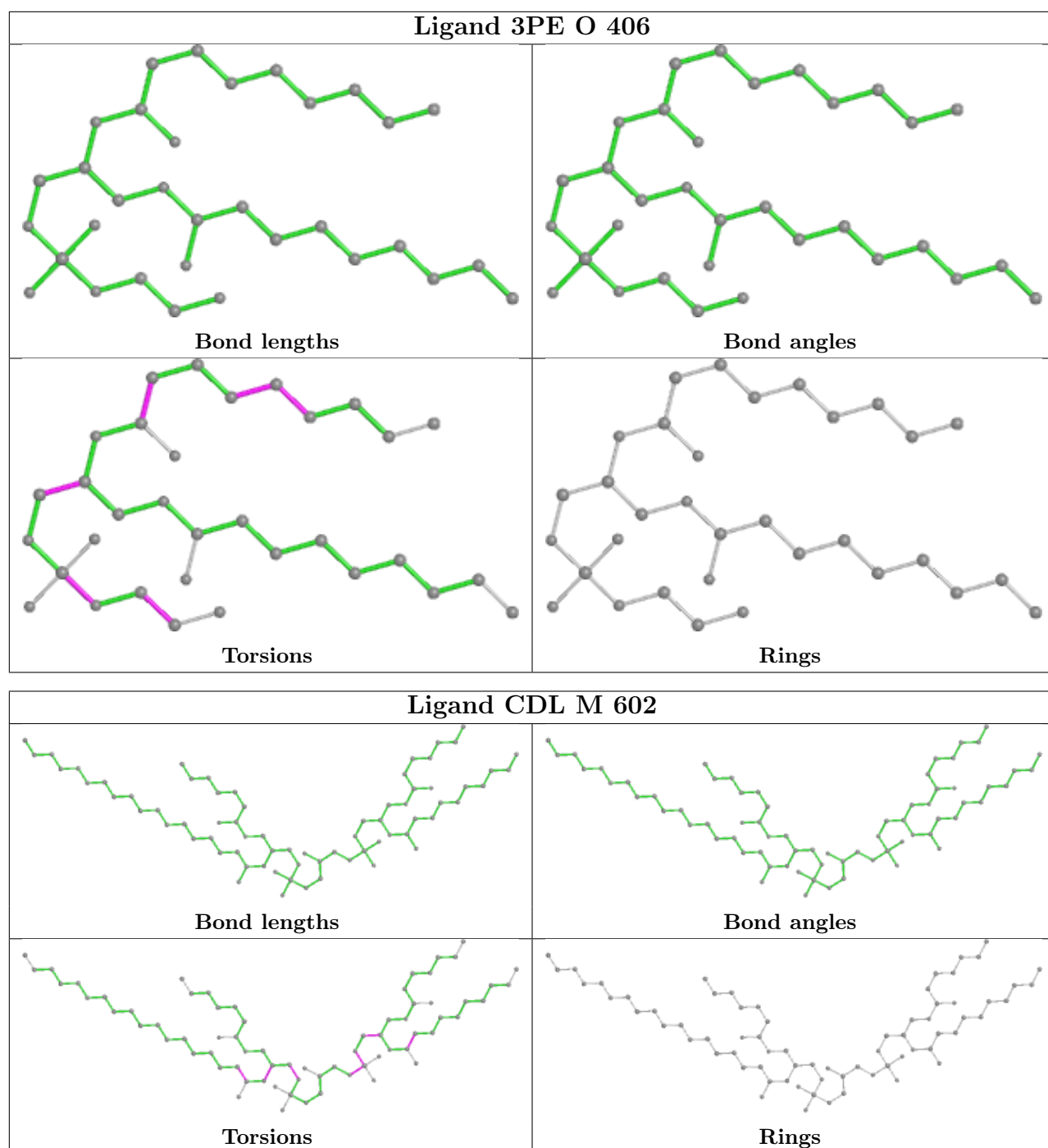


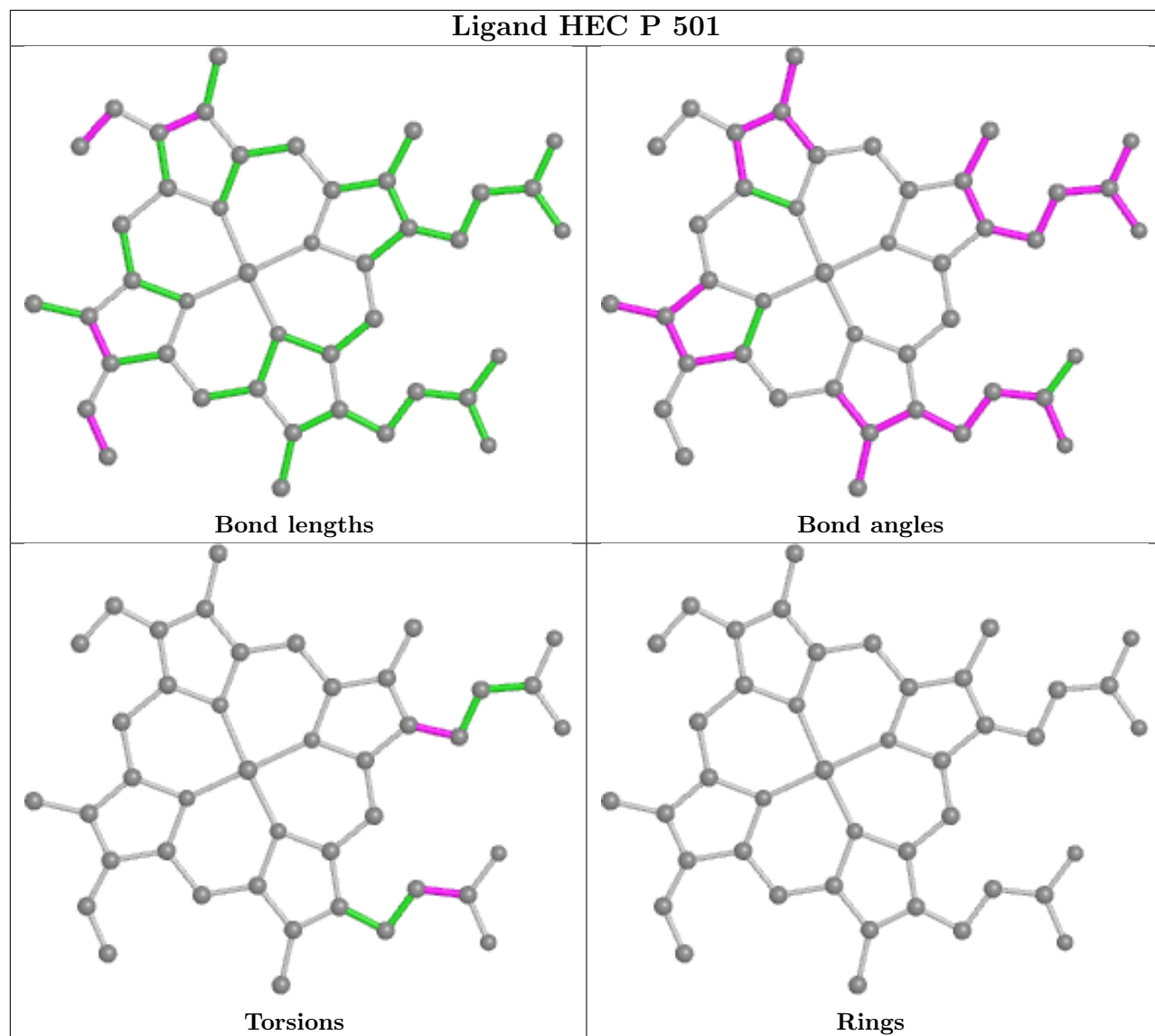


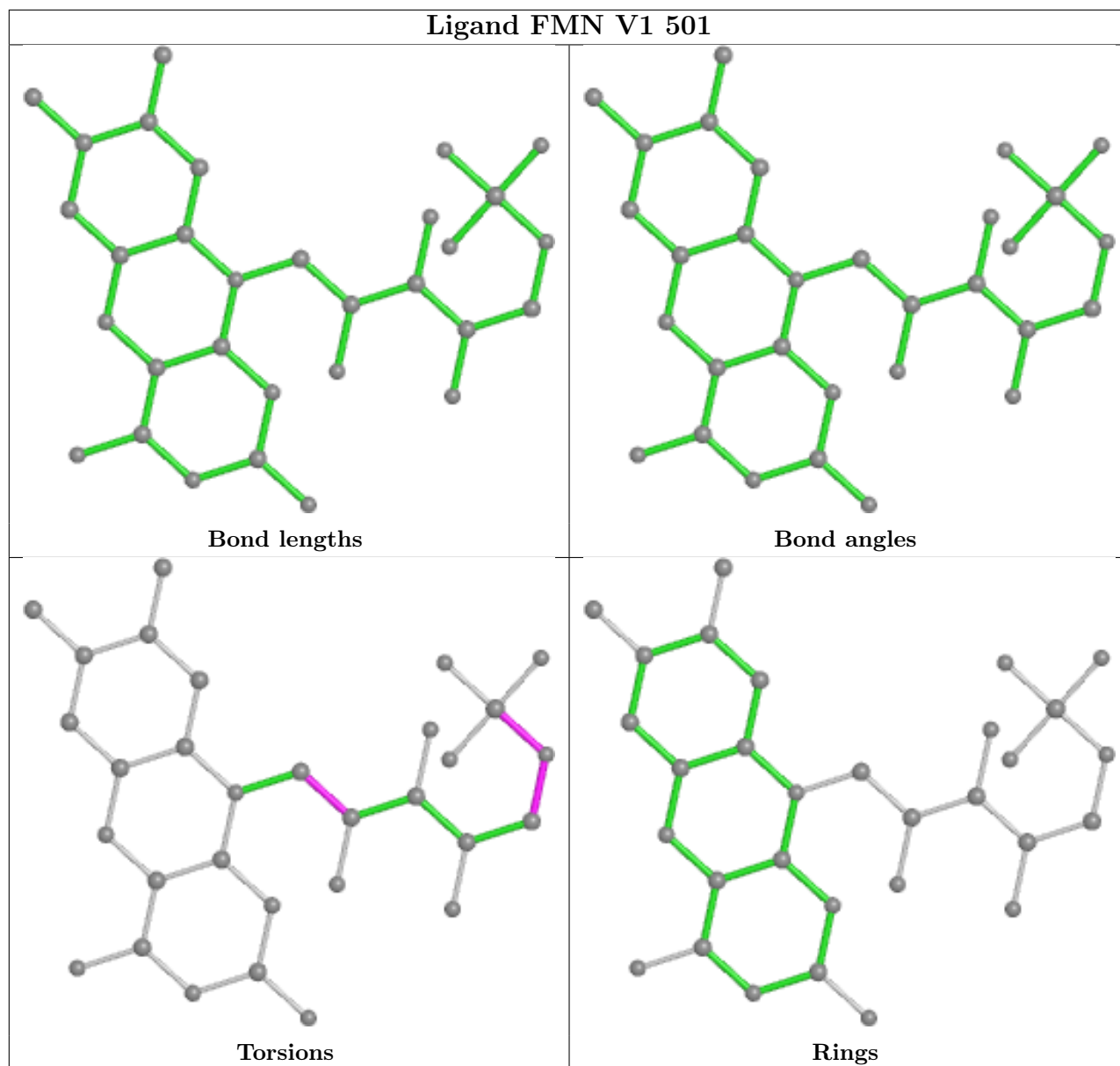


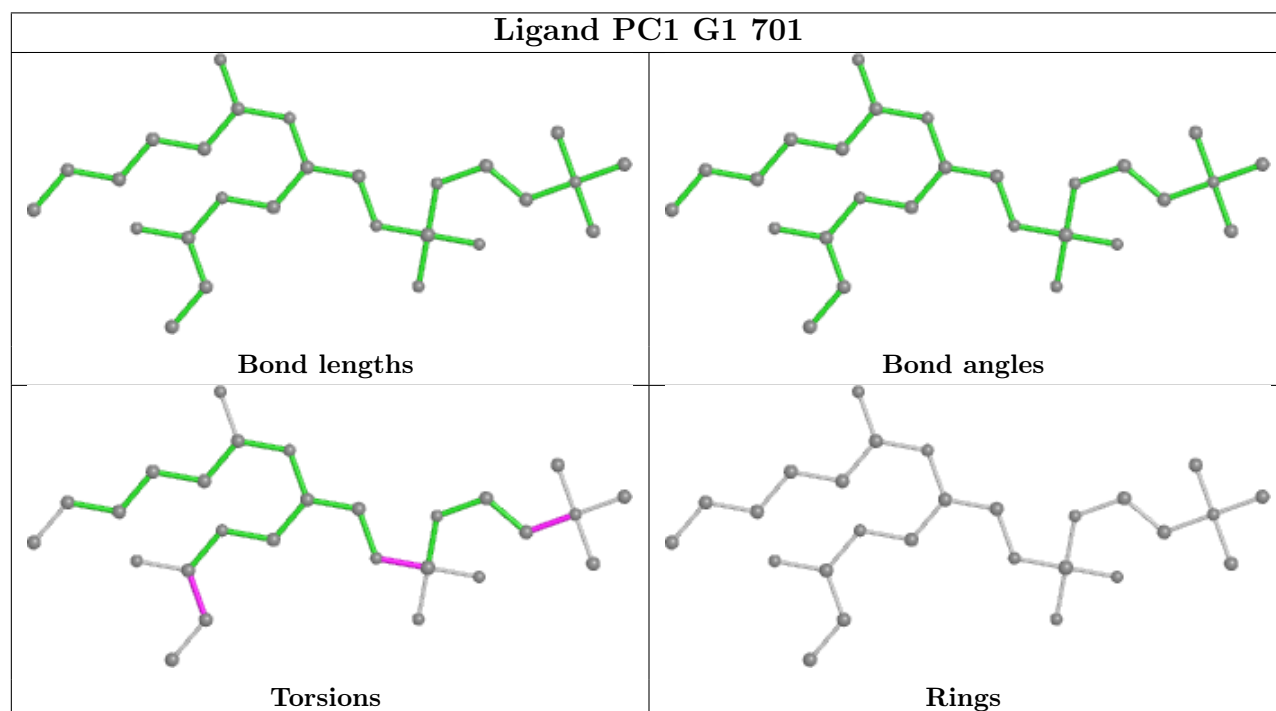
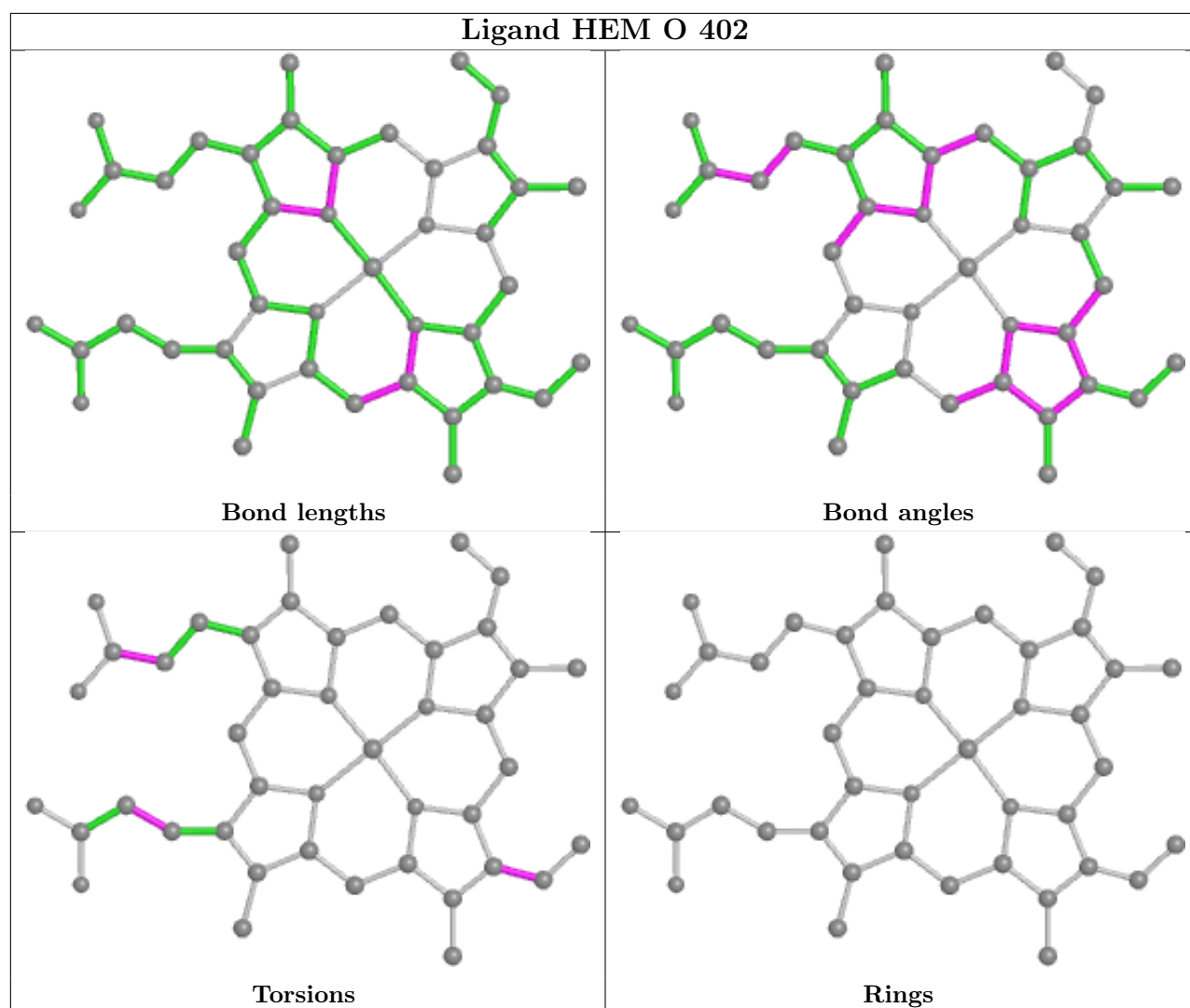


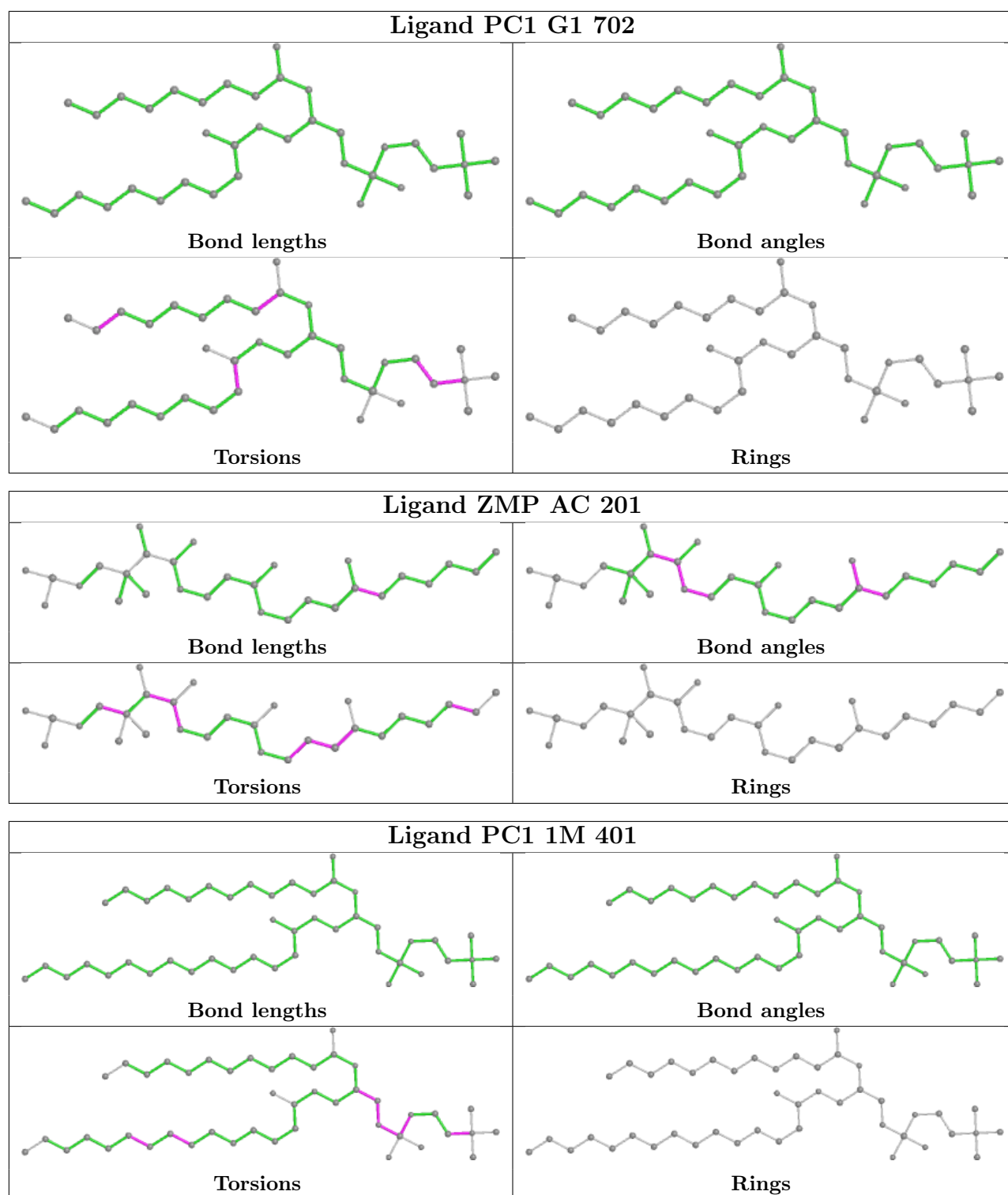












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
58	V2	1
26	A9	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	V2	246:ARG	C	247:ASP	N	3.88
1	A9	375:TYR	C	376:ARG	N	3.06

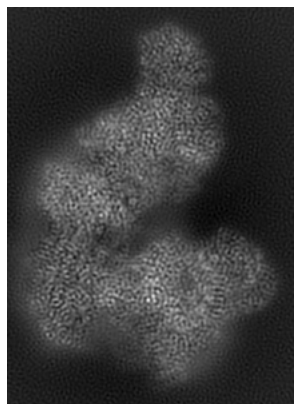
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-27934. These allow visual inspection of the internal detail of the map and identification of artifacts.

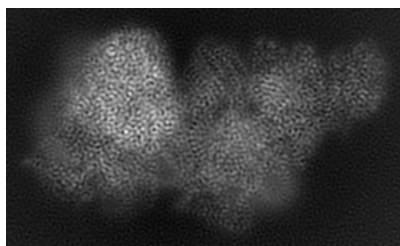
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

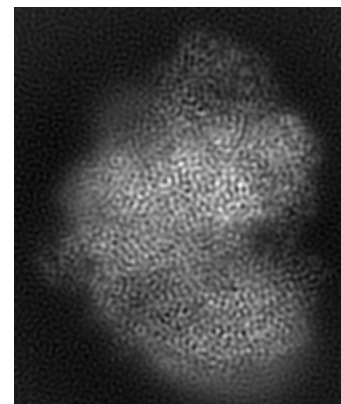
6.1.1 Primary map



X

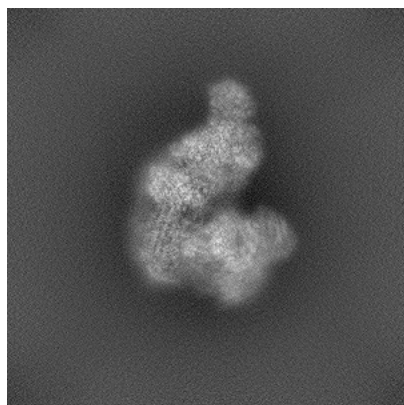


Y

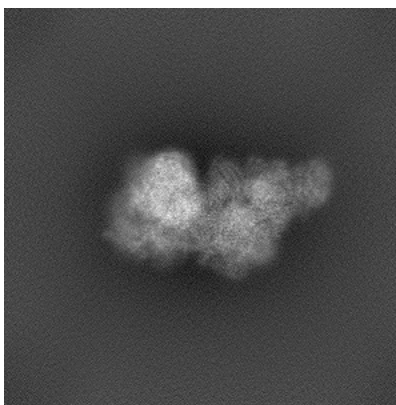


Z

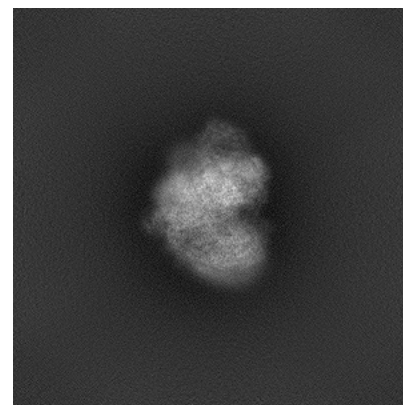
6.1.2 Raw map



X



Y

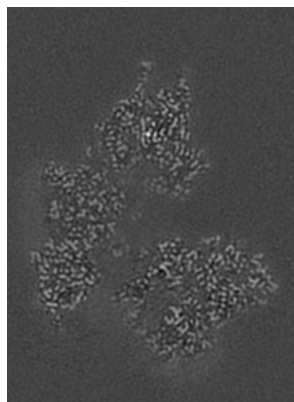


Z

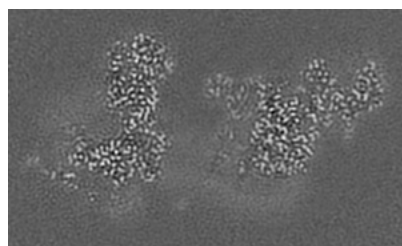
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

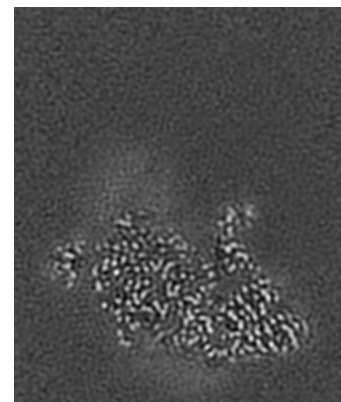
6.2.1 Primary map



X Index: 113

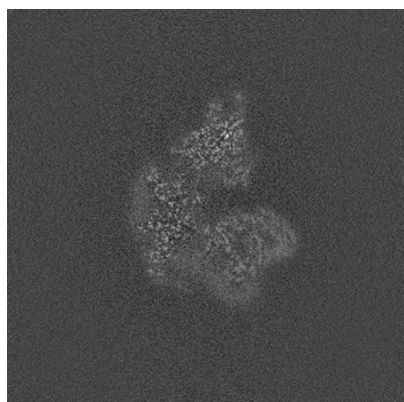


Y Index: 134

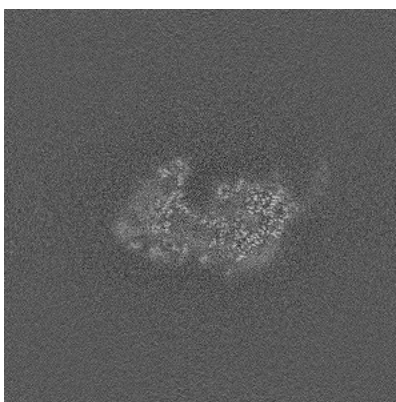


Z Index: 188

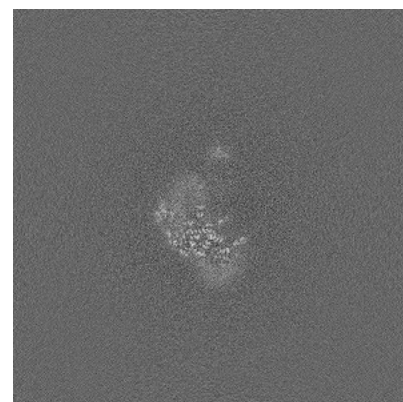
6.2.2 Raw map



X Index: 300



Y Index: 300

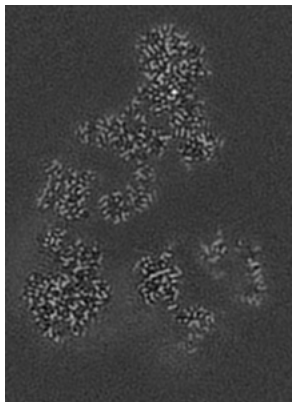


Z Index: 300

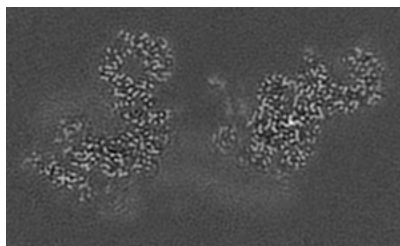
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

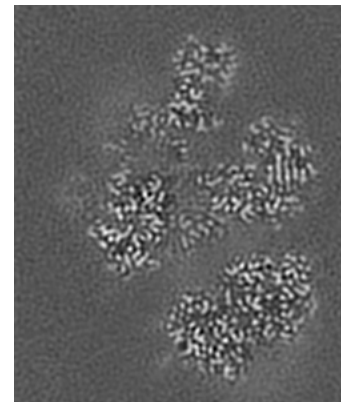
6.3.1 Primary map



X Index: 146

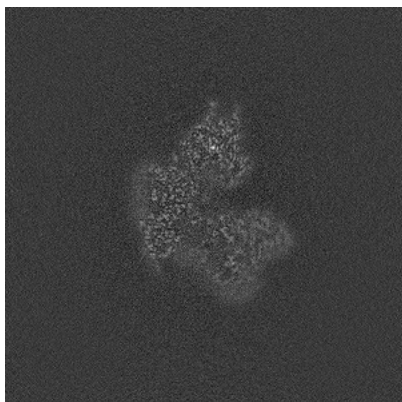


Y Index: 142

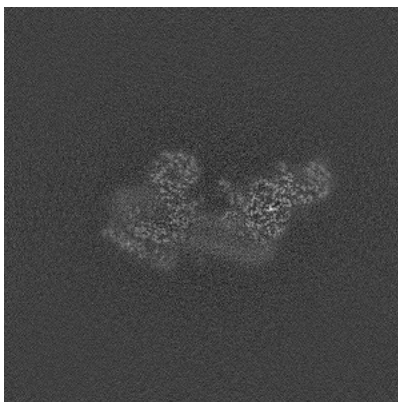


Z Index: 100

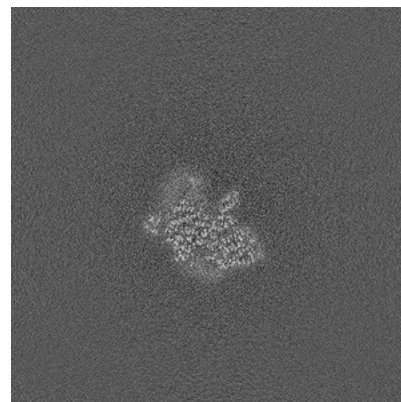
6.3.2 Raw map



X Index: 292



Y Index: 322

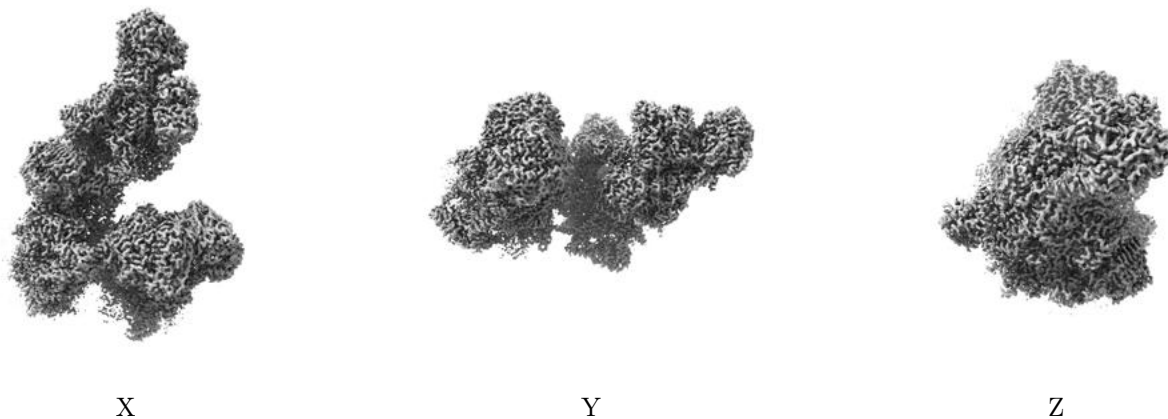


Z Index: 324

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

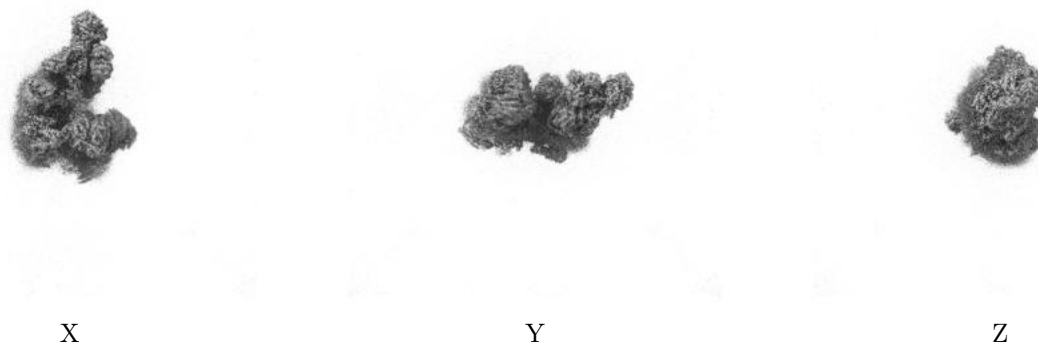
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 6.5. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



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.

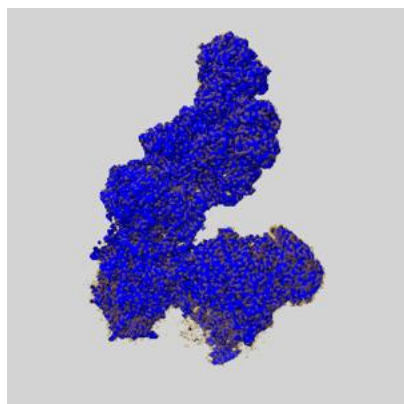
6.5 Mask visualisation [i](#)

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

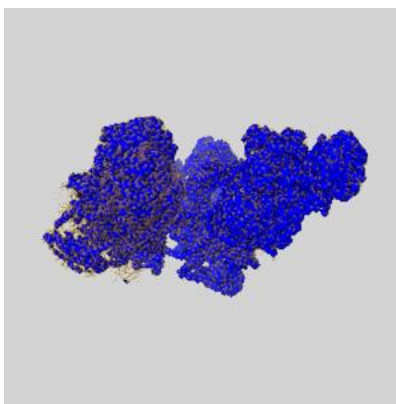
A mask typically either:

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

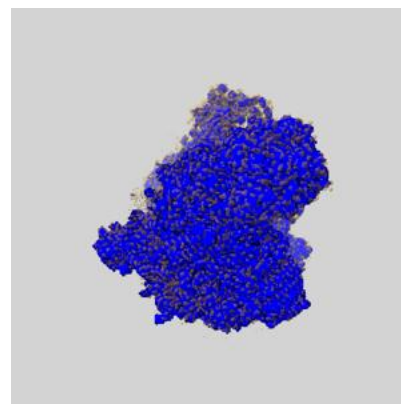
6.5.1 emd_27934_msk_1.map [i](#)



X



Y

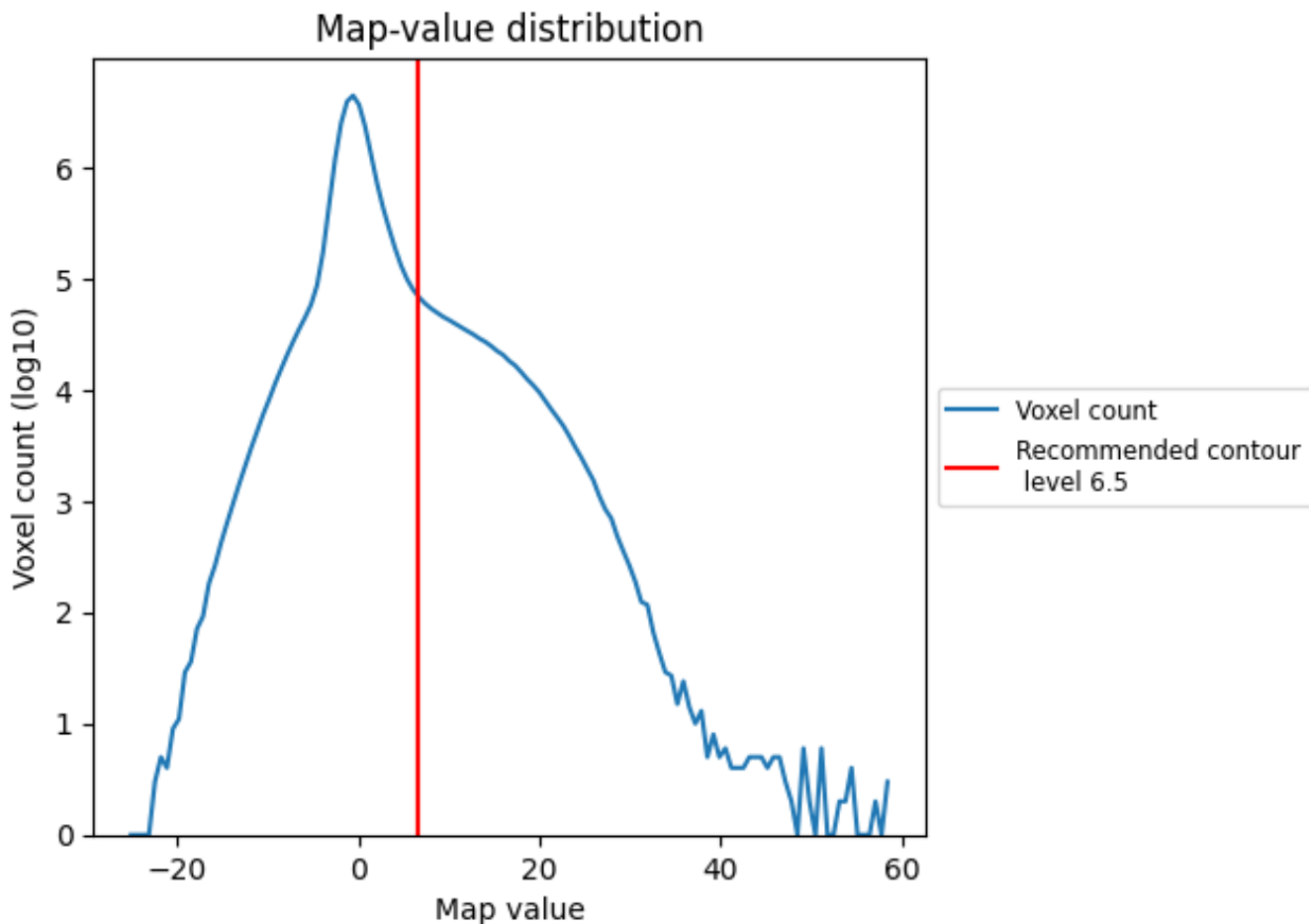


Z

7 Map analysis [i](#)

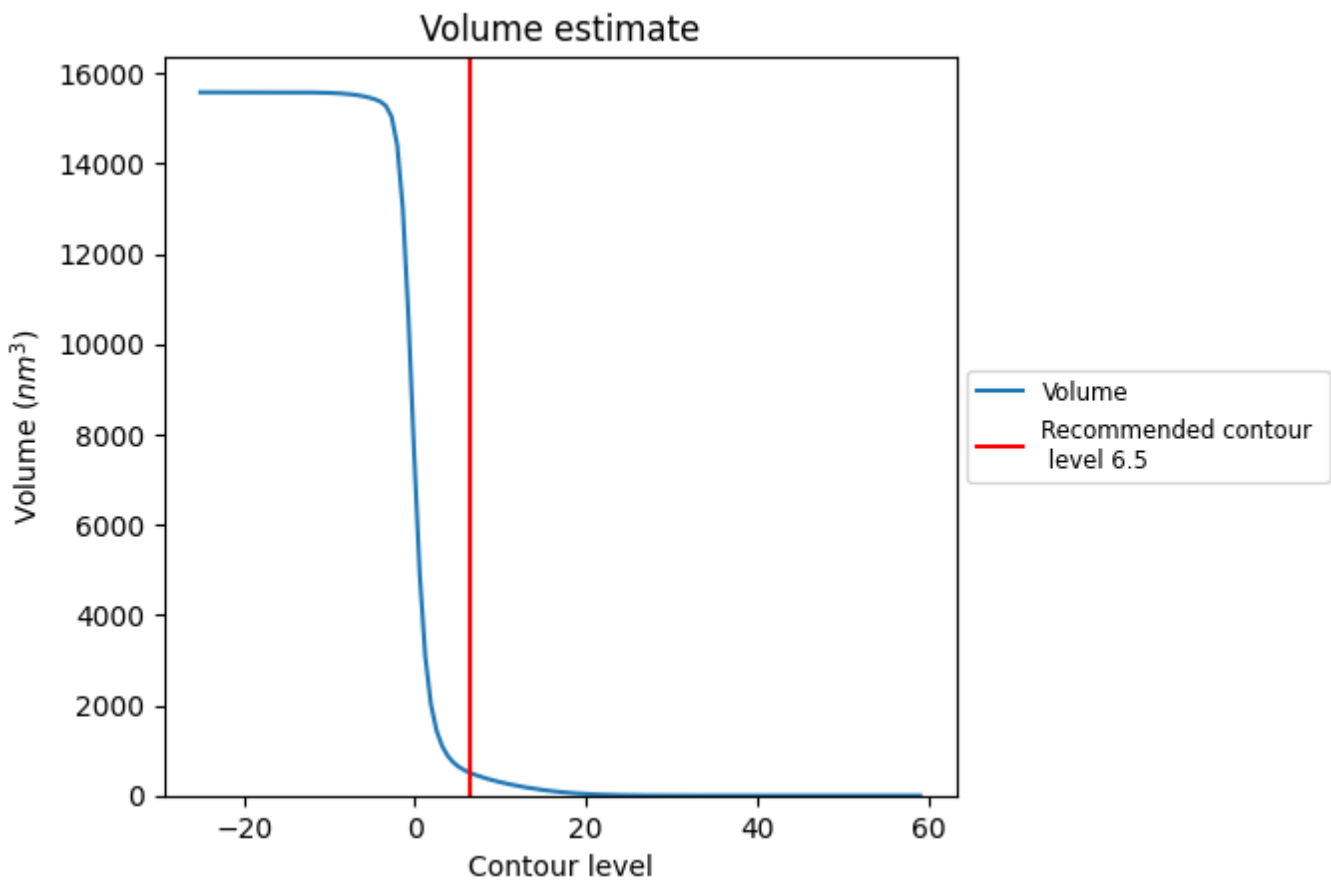
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

7.2 Volume estimate [i](#)



The volume at the recommended contour level is 499 nm³; this corresponds to an approximate mass of 451 kDa.

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

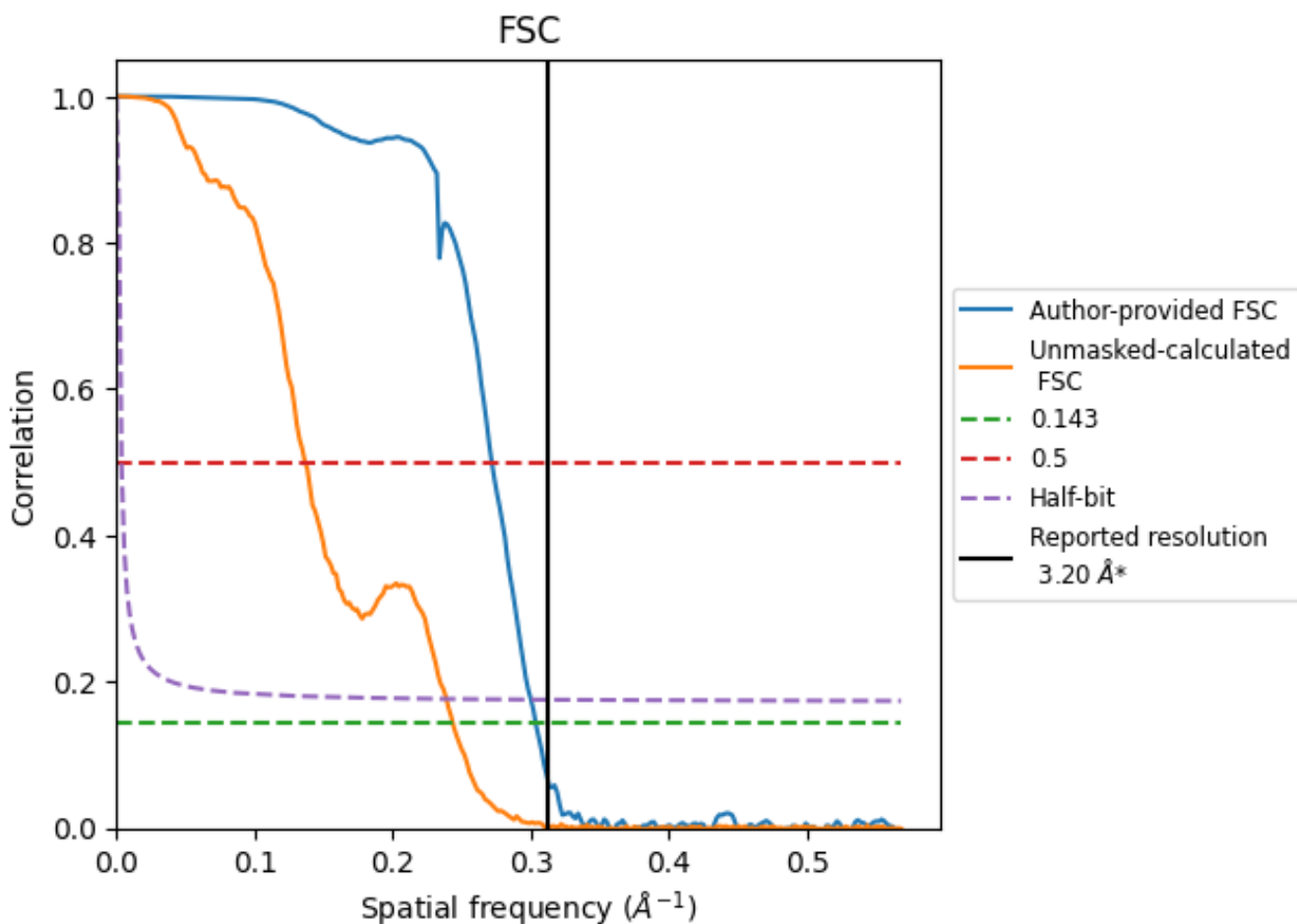
7.3 Rotationally averaged power spectrum [i](#)

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

8 Fourier-Shell correlation [i](#)

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 [i](#)



*Reported resolution corresponds to spatial frequency of 0.312 \AA^{-1}

8.2 Resolution estimates [i](#)

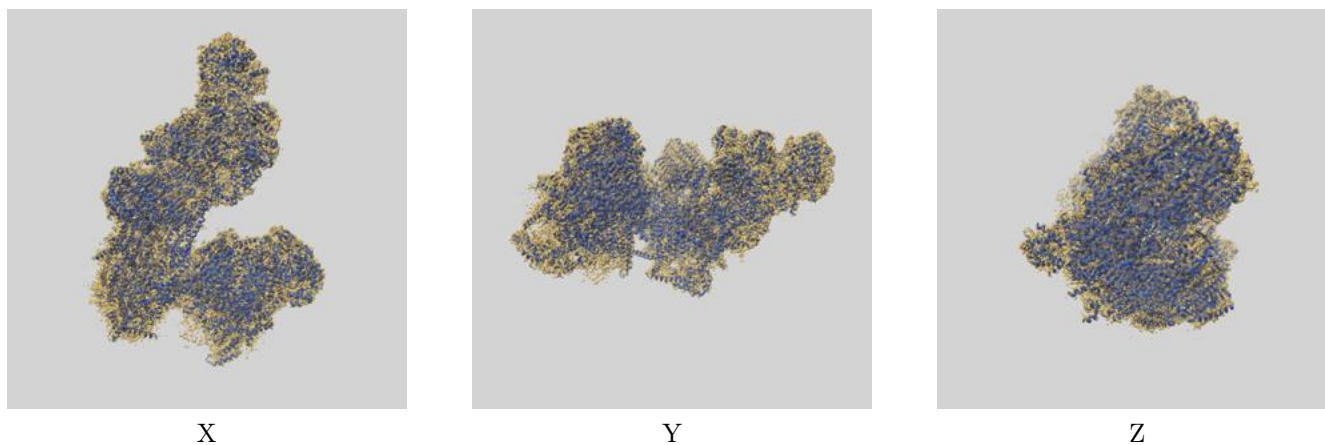
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	3.29	3.68	3.33
Unmasked-calculated*	4.11	7.32	4.18

*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 4.11 differs from the reported value 3.2 by more than 10 %

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-27934 and PDB model 8E73. Per-residue inclusion information can be found in section 3 on page 23.

9.1 Map-model overlay [i](#)

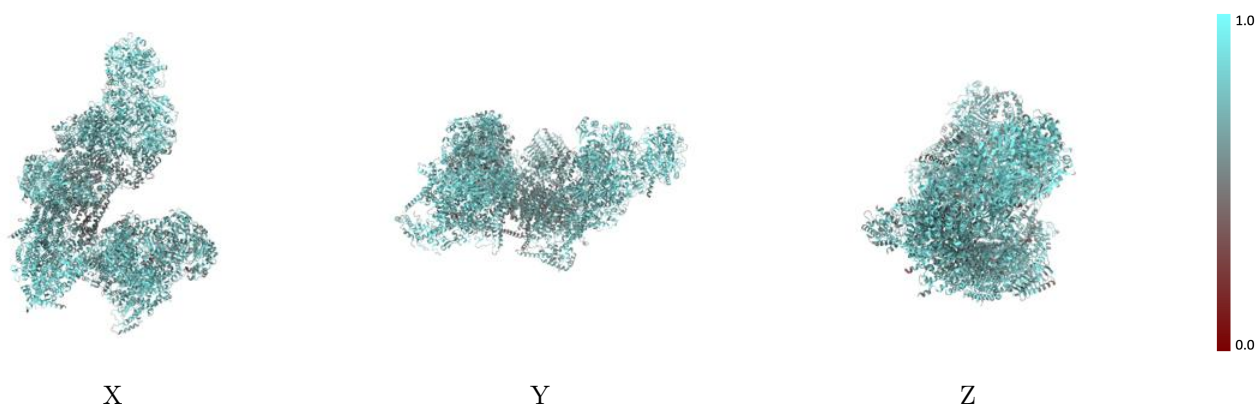


The images above show the 3D surface view of the map at the recommended contour level 6.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)

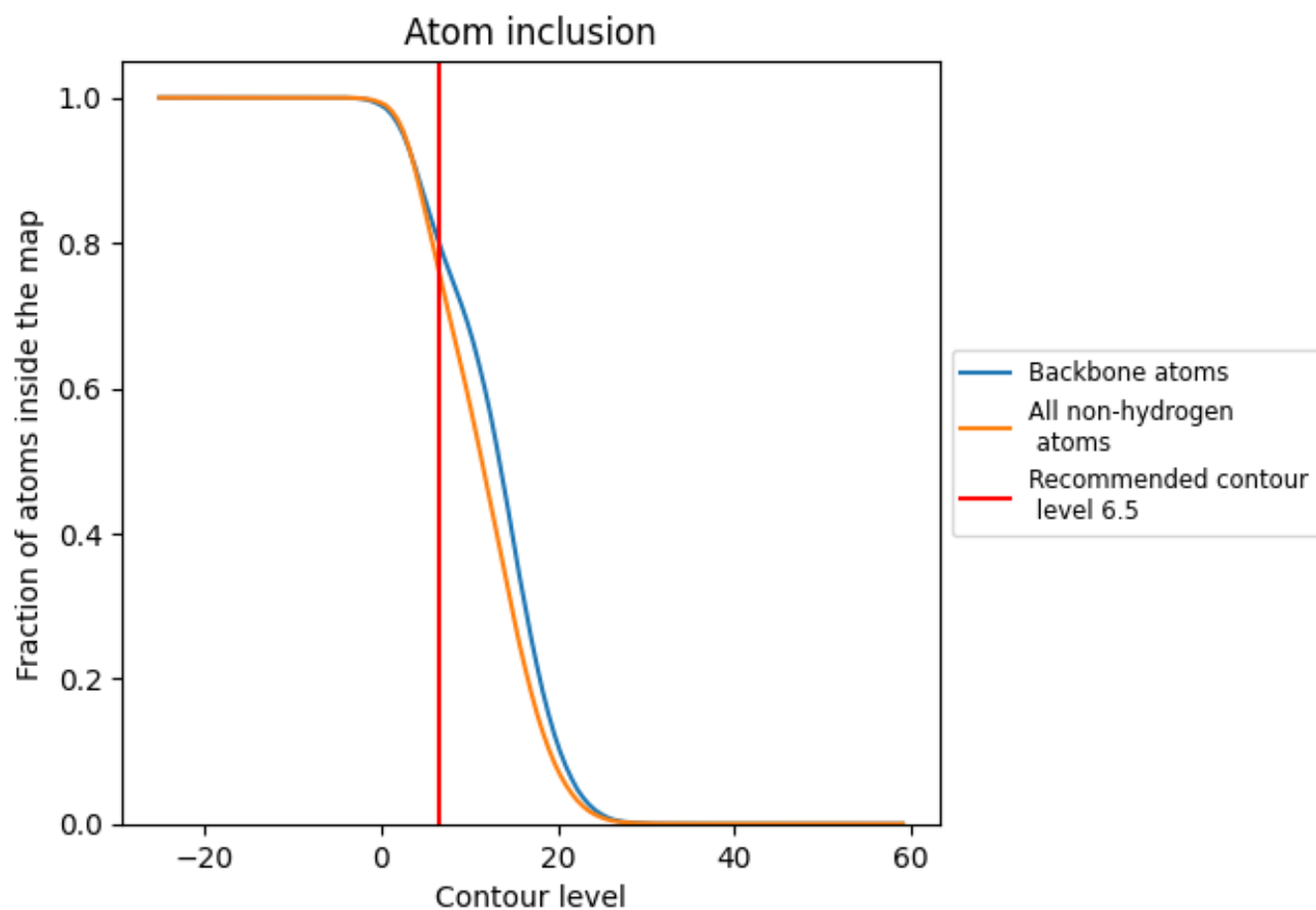
This section was not generated.

9.3 Atom inclusion mapped to coordinate model [i](#)



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 (6.5).

9.4 Atom inclusion [i](#)



At the recommended contour level, 80% of all backbone atoms, 76% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)



































The table lists the average atom inclusion at the recommended contour level (6.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion
All	0.7628
1M	0.7487
2M	0.7722
3M	0.7540
4L	0.7379
4M	0.7953
5M	0.8192
6M	0.7183
A	0.7689
A1	0.7620
A2	0.7551
A3	0.6689
A5	0.6667
A6	0.6324
A7	0.6982
A8	0.6849
A9	0.6746
AB	0.6394
AC	0.7559
AK	0.5108
AL	0.7840
AM	0.7398
B	0.7409
B2	0.8454
B3	0.7823
B4	0.7545
B7	0.7956
B8	0.7975
B9	0.7856
BJ	0.7967
BK	0.7415
C	0.8060
C1	0.8292
C2	0.7770
D	0.7965



Continued on next page...

Continued from previous page...

Chain	Atom inclusion
E	 0.7282
F	 0.7762
FD	 0.7511
G	 0.7178
G1	 0.7500
G2	 0.7293
H	 0.6853
J	 0.7341
K	 0.6485
L2	 0.7741
M	 0.7579
N	 0.7154
O	 0.7905
P	 0.8209
P1	 0.7417
P2	 0.7200
P4	 0.5255
Q	 0.7238
R	 0.7820
S	 0.7150
S1	 0.7982
S2	 0.8059
S3	 0.8103
S4	 0.8326
S5	 0.7331
S6	 0.7605
S7	 0.8114
S8	 0.8207
T	 0.6602
V	 0.6695
V1	 0.8016
V2	 0.8070
W	 0.5572
X1	 0.7728