



Full wwPDB EM Validation Report ⓘ

Feb 1, 2023 – 08:17 pm GMT

PDB ID : 7R42
EMDB ID : EMD-14256
Title : Bovine complex I in the presence of IM1761092, active class ii (Composite map)
Authors : Bridges, H.R.; Blaza, J.N.; Yin, Z.; Chung, I.; Hirst, J.
Deposited on : 2022-02-08
Resolution : 2.30 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.32.1

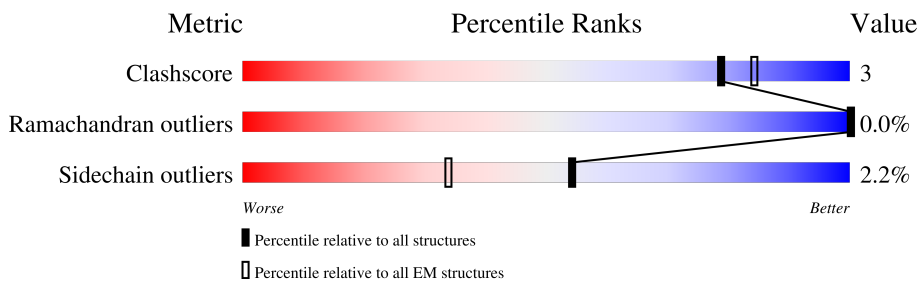
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.30 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





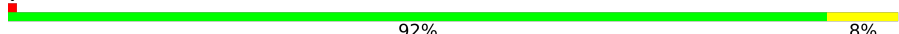



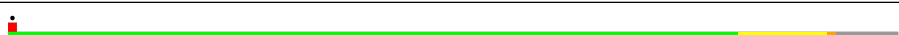
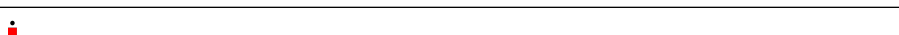
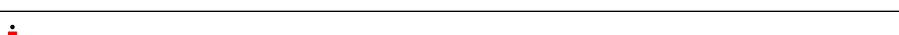
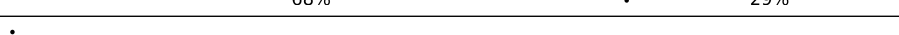
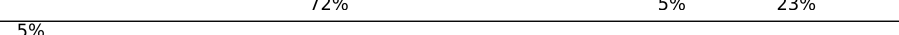
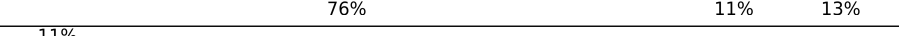


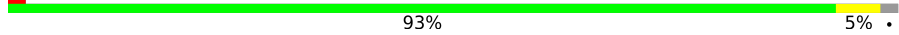








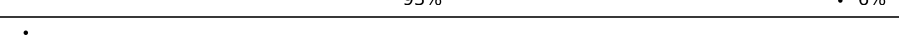

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	115	
2	B	216	
3	C	266	
4	D	463	
5	E	249	
6	F	464	
7	G	727	
8	H	318	







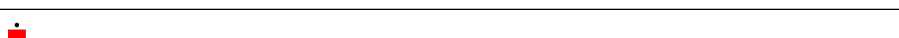
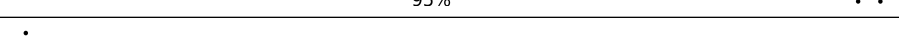
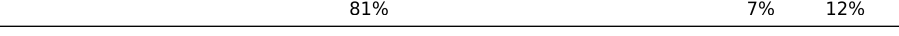
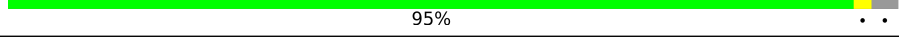
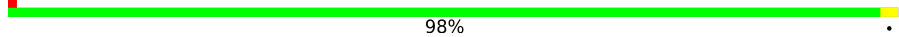

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Mol	Chain	Length	Quality of chain
9	I	212	 79% 17%
10	J	175	 89% 11%
11	K	98	 92% 8%
12	L	606	 89% 10%
13	M	459	 92% 8%
14	N	347	 95% 5%
15	O	343	 82% 10% 7%
16	P	380	 82% 7% 10%
17	Q	175	 68% 29%
18	R	124	 72% 5% 23%
19	S	99	 5% 76% 11% 13%
20	T	156	 11% 35% 13% 51%
20	U	156	 50% 5% 45%
21	V	116	 93% 5%
22	W	128	 83% 5% 11%
23	X	172	 89% 10%
24	Y	141	 7% 94% 5%
25	Z	144	 89% 9%
26	a	70	 99%
27	b	84	 6% 95%
28	c	76	 59% 37%
29	d	120	 93% 6%
30	e	106	 90% 8%
31	f	57	 11% 86% 5% 9%
32	g	154	 61% 36%

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Mol	Chain	Length	Quality of chain
33	h	189	 72% 27%
34	i	127	 9% 78% 18%
35	j	108	 58% 38%
36	k	98	 79% 18%
37	l	186	 83% 17%
38	m	129	 97%
39	n	179	 95%
40	o	137	 81% 7% 12%
41	p	176	 95%
42	q	145	 98%
43	r	113	 81% 17%
44	s	109	 39% 60%

2 Entry composition [i](#)

There are 60 unique types of molecules in this entry. The entry contains 69480 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 NADH-ubiquinone oxidoreductase chain 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	115	921	622	133	159	7	0	0

- Molecule 2 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	155	1241	792	224	211	14	0	0

- Molecule 3 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	207	1721	1111	296	311	3	0	0

- Molecule 4 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	430	3459	2209	596	629	25	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	129	ARG	GLN	variant	UNP P17694

- Molecule 5 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	213	1655	1057	277	311	10	0	0

- Molecule 6 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	431	3319	2091	593	615	20	0	0

- Molecule 7 is a protein called NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	G	688	5279	3307	920	1013	39	0	0

- Molecule 8 is a protein called NADH-ubiquinone oxidoreductase chain 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	H	318	2509	1681	385	420	23	0	0

- Molecule 9 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	I	176	1414	889	243	270	12	0	0

- Molecule 10 is a protein called NADH-ubiquinone oxidoreductase chain 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	174	1337	902	189	234	12	0	0

- Molecule 11 is a protein called NADH-ubiquinone oxidoreductase chain 4L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	K	98	745	486	112	131	16	0	0

- Molecule 12 is a protein called NADH-ubiquinone oxidoreductase chain 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	606	4780	3178	735	824	43	0	0

- Molecule 13 is a protein called NADH-ubiquinone oxidoreductase chain 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	M	459	3654	2436	570	609	39	0	0

- Molecule 14 is a protein called NADH-ubiquinone oxidoreductase chain 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	N	347	2733	1817	416	457	43	0	0

- Molecule 15 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	O	320	2589	1662	429	488	10	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
O	255	LYS	ASN	variant	UNP P34942

- Molecule 16 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	P	341	2747	1777	486	479	5	0	0

- Molecule 17 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	Q	125	1016	641	181	191	3	0	0

- Molecule 18 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	95	Total	C	N	O	S	0	0
			730	448	137	142	3		

- Molecule 19 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	86	Total	C	N	O	S	0	0
			691	434	129	126	2		

- Molecule 20 is a protein called Acyl carrier protein, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	76	Total	C	N	O	S	0	0
			612	393	90	124	5		
20	U	86	Total	C	N	O	S	0	0
			693	447	102	139	5		

- Molecule 21 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	V	114	Total	C	N	O	S	0	0
			923	597	156	167	3		

- Molecule 22 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	W	114	Total	C	N	O	S	0	0
			971	622	180	165	4		

- Molecule 23 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	X	171	Total	C	N	O	S	0	0
			1402	887	253	252	10		

- Molecule 24 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	Y	140	1030	657	176	191	6	0	0

- Molecule 25 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	Z	141	1152	740	201	202	9	0	0

- Molecule 26 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	a	70	569	365	104	95	5	0	0

- Molecule 27 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	b	83	651	425	109	115	2	0	0

- Molecule 28 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
28	c	48	405	268	69	68	0	0

- Molecule 29 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	d	113	945	619	161	162	3	0	0

- Molecule 30 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	e	97	819	518	156	139	6	0	0

- Molecule 31 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	f	52	451	296	79	75	1	0	0

- Molecule 32 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	g	98	824	529	137	154	4	0	0

- Molecule 33 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	h	138	1154	759	196	197	2	0	0

- Molecule 34 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	i	104	898	590	155	152	1	0	0

- Molecule 35 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	j	67	580	381	95	103	1	0	0

- Molecule 36 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	k	80	644	421	108	113	2	0	0

- Molecule 37 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	l	155	1304	844	213	239	8	0	0

- Molecule 38 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	m	127	1061	681	187	193		0	0

- Molecule 39 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	n	172	1492	955	273	257	7	0	0

- Molecule 40 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	o	120	1035	645	199	183	8	0	0

- Molecule 41 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	p	171	1443	904	266	265	8	0	0

- Molecule 42 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	q	145	1209	778	216	210	5	0	0

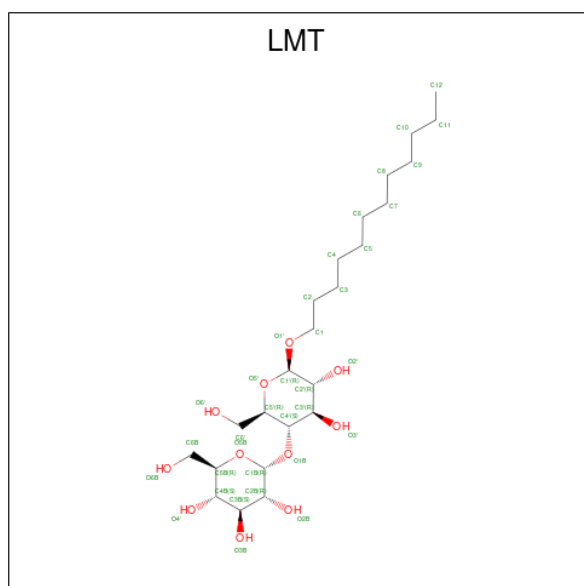
- Molecule 43 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	r	94	767	485	143	136	3	0	0

- Molecule 44 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	s	44	371	233	66	71	1	0	0

- Molecule 45 is DODECYL-BETA-D-MALTOSE (three-letter code: LMT) (formula: $C_{24}H_{46}O_{11}$).



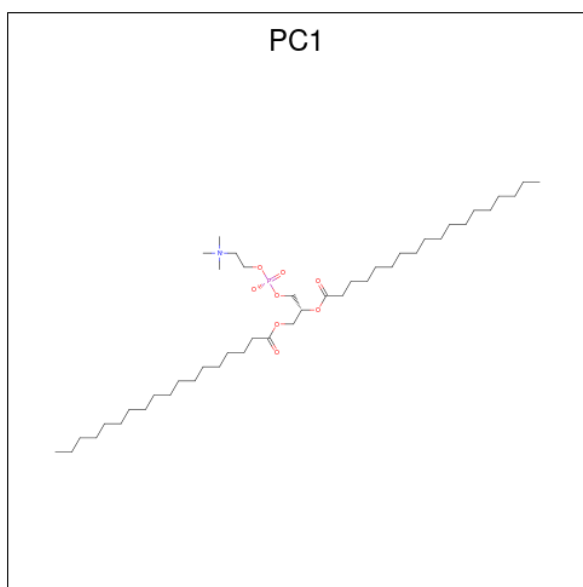
Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
45	A	1	35	24	11	0
45	A	1	35	24	11	0
45	J	1	35	24	11	0
45	K	1	35	24	11	0
45	L	1	35	24	11	0
45	L	1	35	24	11	0
45	L	1	35	24	11	0

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Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
45	M	1	35	24	11	0
45	M	1	35	24	11	0
45	M	1	35	24	11	0
45	Y	1	35	24	11	0
45	Y	1	35	24	11	0
45	Y	1	35	24	11	0
45	b	1	35	24	11	0
45	h	1	35	24	11	0
45	j	1	35	24	11	0
45	l	1	35	24	11	0

- Molecule 46 is 1,2-DIACYL-SN-GLYCERO-3-PHOSPHOCHOLINE (three-letter code: PC1) (formula: $C_{44}H_{88}NO_8P$).



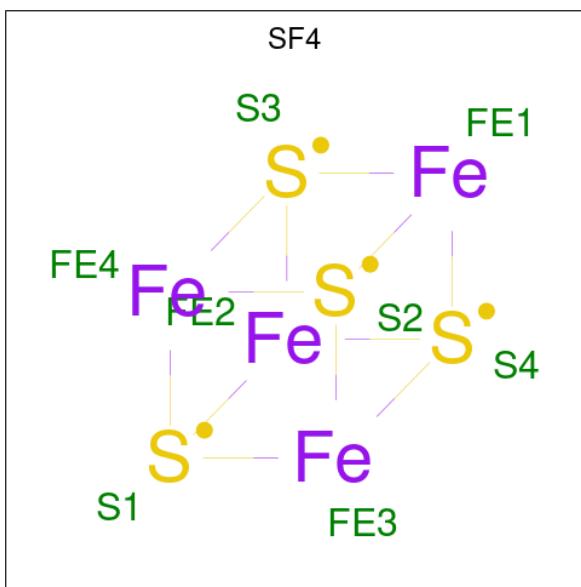
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
46	A	1	21	11	1	8	1	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
46	B	1	Total	C	N	O	P	0
			54	44	1	8	1	
46	B	1	Total	C	N	O	P	0
			35	25	1	8	1	
46	L	1	Total	C	N	O	P	0
			49	39	1	8	1	

- Molecule 47 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄).



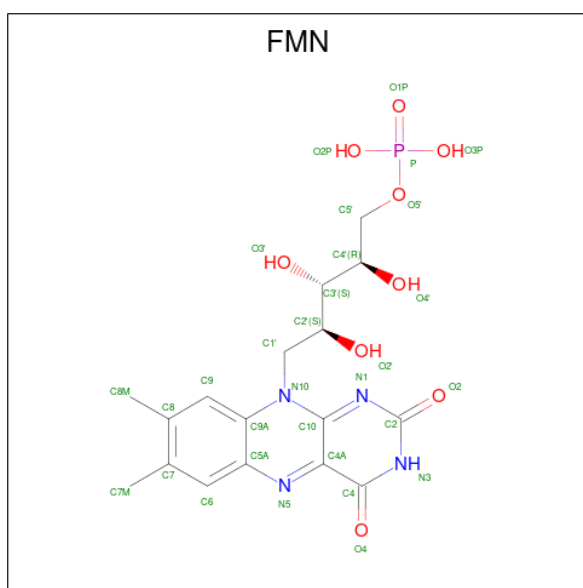
Mol	Chain	Residues	Atoms			AltConf
			Total	Fe	S	
47	B	1	Total	Fe	S	0
			8	4	4	
47	F	1	Total	Fe	S	0
			8	4	4	
47	G	1	Total	Fe	S	0
			8	4	4	
47	G	1	Total	Fe	S	0
			8	4	4	
47	I	1	Total	Fe	S	0
			8	4	4	
47	I	1	Total	Fe	S	0
			8	4	4	

- Molecule 48 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe₂S₂).



Mol	Chain	Residues	Atoms			AltConf
48	E	1	Total	Fe	S	0
			4	2	2	
48	G	1	Total	Fe	S	0
			4	2	2	

- Molecule 49 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: C₁₇H₂₁N₄O₉P).

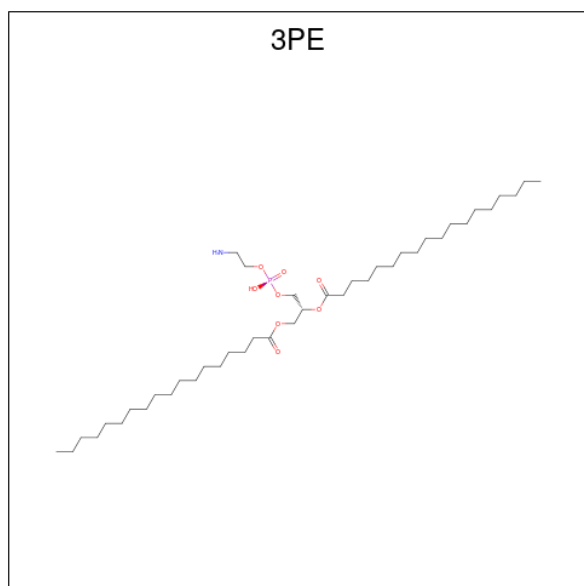


Mol	Chain	Residues	Atoms					AltConf
49	F	1	Total	C	N	O	P	0
			31	17	4	9	1	

- Molecule 50 is POTASSIUM ION (three-letter code: K) (formula: K).

Mol	Chain	Residues	Atoms	AltConf
50	G	1	Total K 1 1	0

- Molecule 51 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE) (formula: $C_{41}H_{82}NO_8P$).



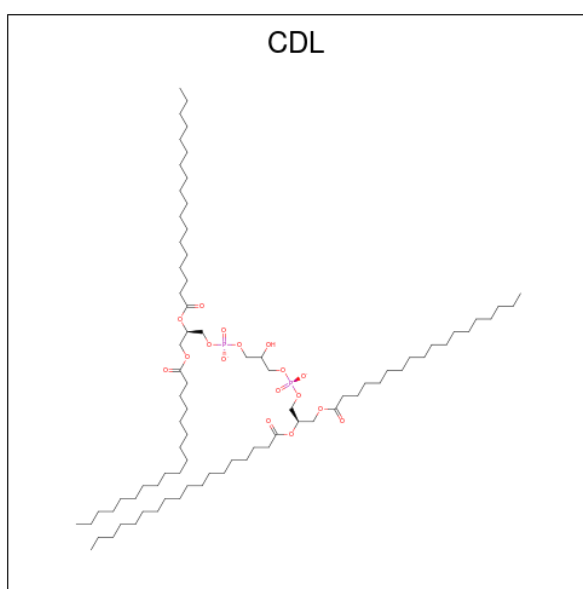
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
51	H	1	Total 44	C 34	N 1	O 8	P 1	0
51	H	1	Total 51	C 41	N 1	O 8	P 1	0
51	H	1	Total 34	C 24	N 1	O 8	P 1	0
51	L	1	Total 49	C 39	N 1	O 8	P 1	0
51	L	1	Total 45	C 35	N 1	O 8	P 1	0
51	M	1	Total 46	C 36	N 1	O 8	P 1	0
51	M	1	Total 51	C 41	N 1	O 8	P 1	0
51	N	1	Total 41	C 31	N 1	O 8	P 1	0
51	N	1	Total 29	C 19	N 1	O 8	P 1	0
51	P	1	Total 37	C 27	N 1	O 8	P 1	0

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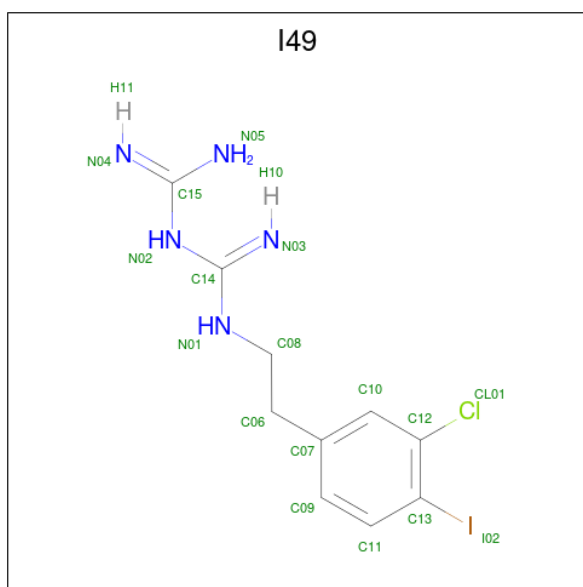
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
51	X	1	Total	C	N	O	P	0
			51	41	1	8	1	
51	Y	1	Total	C	N	O	P	0
			35	25	1	8	1	
51	d	1	Total	C	N	O	P	0
			51	41	1	8	1	
51	d	1	Total	C	N	O	P	0
			51	41	1	8	1	

- Molecule 52 is CARDIOLIPIN (three-letter code: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



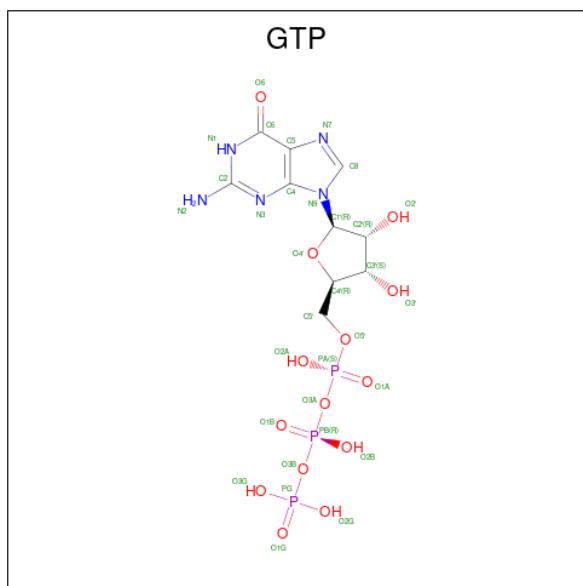
Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
52	J	1	Total	C	O	P	0
			62	43	17	2	
52	K	1	Total	C	O	P	0
			71	52	17	2	
52	L	1	Total	C	O	P	0
			69	50	17	2	
52	h	1	Total	C	O	P	0
			67	48	17	2	
52	r	1	Total	C	O	P	0
			76	57	17	2	

- Molecule 53 is 1-carbamimidoyl-3-[2-(3-chloranyl-4-iodanyl-phenyl)ethyl]guanidine (three-letter code: I49) (formula: $C_{10}H_{13}ClIN_5$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	Cl	I	N	
53	N	1	17	10	1	1	5	0

- Molecule 54 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).

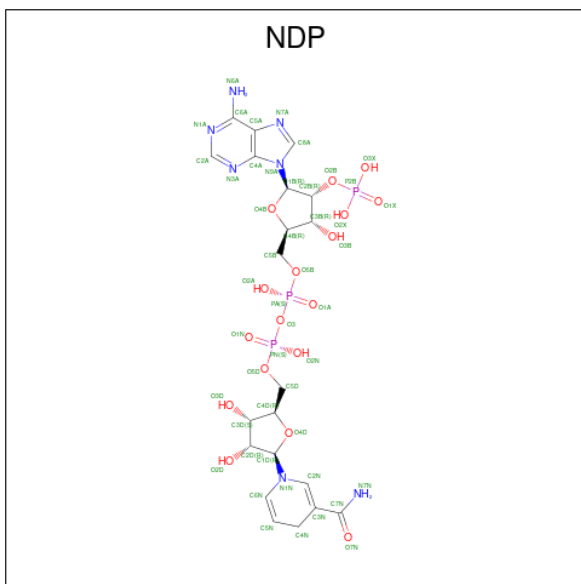


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
54	O	1	32	10	5	14	3	0

- Molecule 55 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
55	O	1	Total Mg 1 1	0

- Molecule 56 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: C₂₁H₃₀N₇O₁₇P₃).

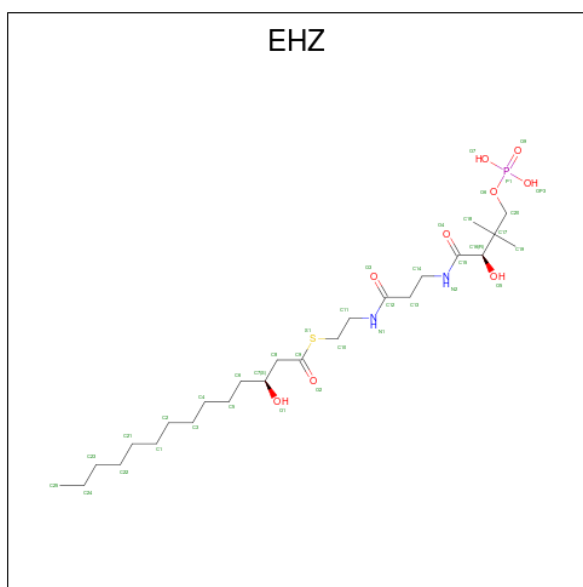


Mol	Chain	Residues	Atoms	AltConf
56	P	1	Total C N O P 48 21 7 17 3	0

- Molecule 57 is ZINC ION (three-letter code: ZN) (formula: Zn).

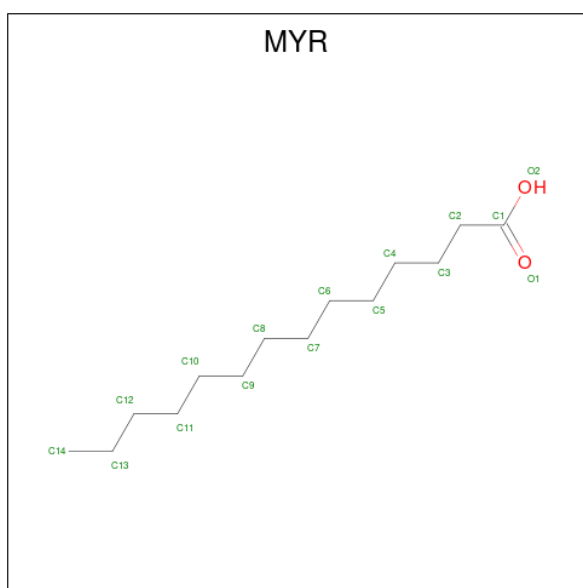
Mol	Chain	Residues	Atoms	AltConf
57	R	1	Total Zn 1 1	0

- Molecule 58 is {S}-[2-[3-[(2 {R})-3,3-dimethyl-2-oxidanyl-4-phosphonooxy-butanoyl]amino]propanoylamino]ethyl] (3 {S})-3-oxidanyltetradecanethioate (three-letter code: EHZ) (formula: C₂₅H₄₉N₂O₉PS).



Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
58	T	1	37	25	2	8	1	1	0
58	U	1	37	25	2	8	1	1	0

- Molecule 59 is MYRISTIC ACID (three-letter code: MYR) (formula: $C_{14}H_{28}O_2$).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
59	o	1	15	14	1	0

- Molecule 60 is water.

Mol	Chain	Residues	Atoms	AltConf
60	A	30	Total O 30 30	0
60	B	65	Total O 65 65	0
60	C	92	Total O 92 92	0
60	D	168	Total O 168 168	0
60	E	15	Total O 15 15	0
60	F	63	Total O 63 63	0
60	G	203	Total O 203 203	0
60	H	70	Total O 70 70	0
60	I	92	Total O 92 92	0
60	J	27	Total O 27 27	0
60	K	18	Total O 18 18	0
60	L	52	Total O 52 52	0
60	M	65	Total O 65 65	0
60	N	52	Total O 52 52	0
60	O	27	Total O 27 27	0
60	P	80	Total O 80 80	0
60	Q	64	Total O 64 64	0
60	R	44	Total O 44 44	0
60	S	4	Total O 4 4	0
60	U	1	Total O 1 1	0
60	V	17	Total O 17 17	0
60	W	13	Total O 13 13	0

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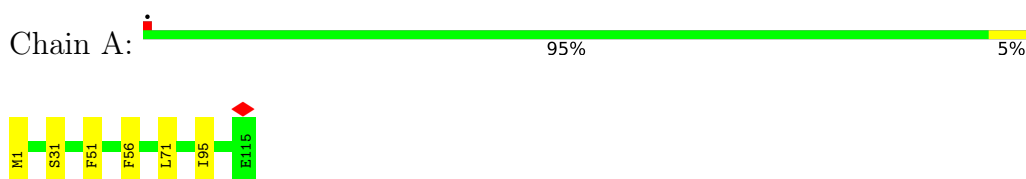
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Mol	Chain	Residues	Atoms		AltConf
60	X	28	Total 28	O 28	0
60	Y	2	Total 2	O 2	0
60	Z	22	Total 22	O 22	0
60	a	16	Total 16	O 16	0
60	b	8	Total 8	O 8	0
60	d	17	Total 17	O 17	0
60	e	18	Total 18	O 18	0
60	f	3	Total 3	O 3	0
60	g	5	Total 5	O 5	0
60	h	23	Total 23	O 23	0
60	i	3	Total 3	O 3	0
60	j	2	Total 2	O 2	0
60	k	1	Total 1	O 1	0
60	l	13	Total 13	O 13	0
60	m	11	Total 11	O 11	0
60	n	7	Total 7	O 7	0
60	o	2	Total 2	O 2	0
60	p	16	Total 16	O 16	0
60	q	47	Total 47	O 47	0
60	r	33	Total 33	O 33	0
60	s	6	Total 6	O 6	0

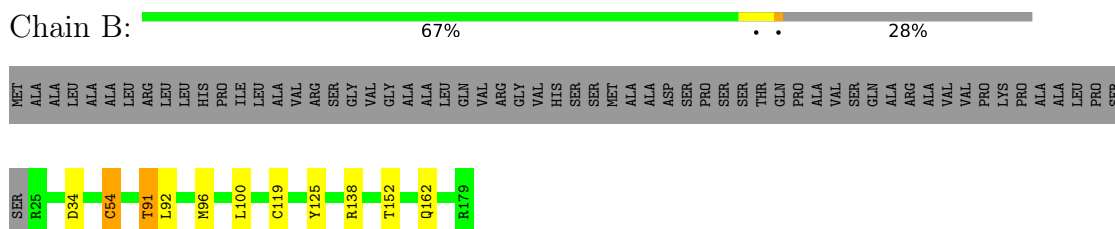
3 Residue-property plots [i](#)

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

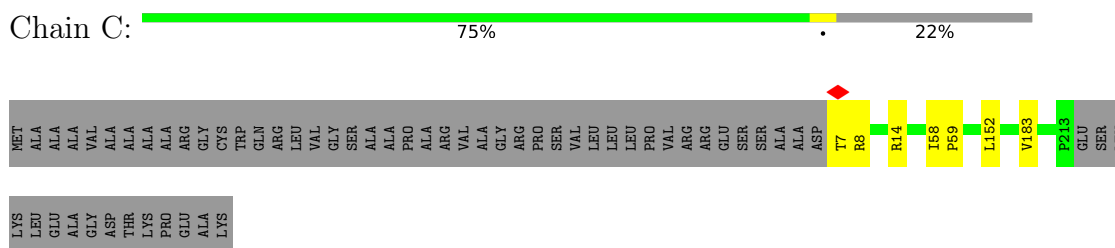
- Molecule 1: NADH-ubiquinone oxidoreductase chain 3



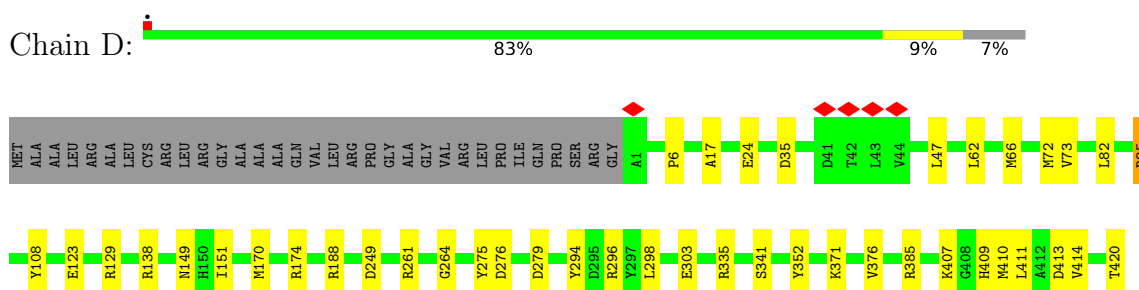
- Molecule 2: NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial



- Molecule 3: NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial



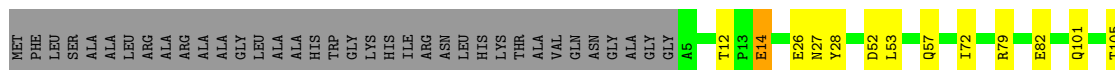
- Molecule 4: NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial





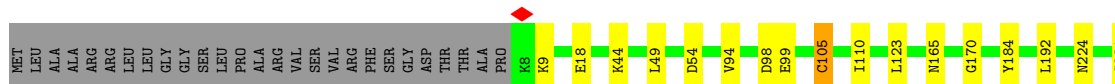
- Molecule 5: NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial

Chain E: 74% 11% 14%



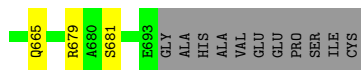
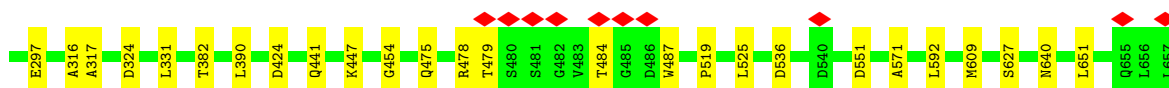
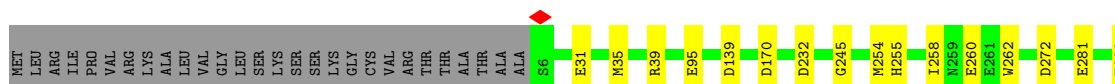
- Molecule 6: NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial

Chain F: 85% 8% 7%



- Molecule 7: NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial

Chain G: 88% 6% 5%



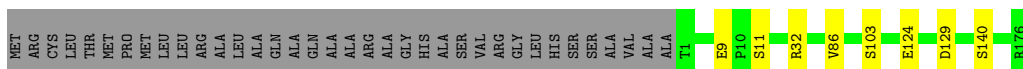
- Molecule 8: NADH-ubiquinone oxidoreductase chain 1

Chain H: 92% 8%

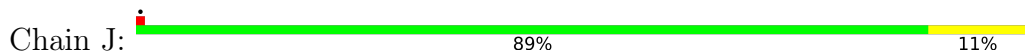


- Molecule 9: NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial

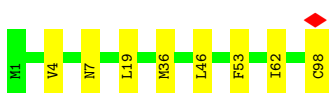
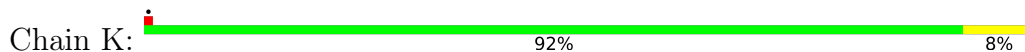
Chain I: 79% 17%



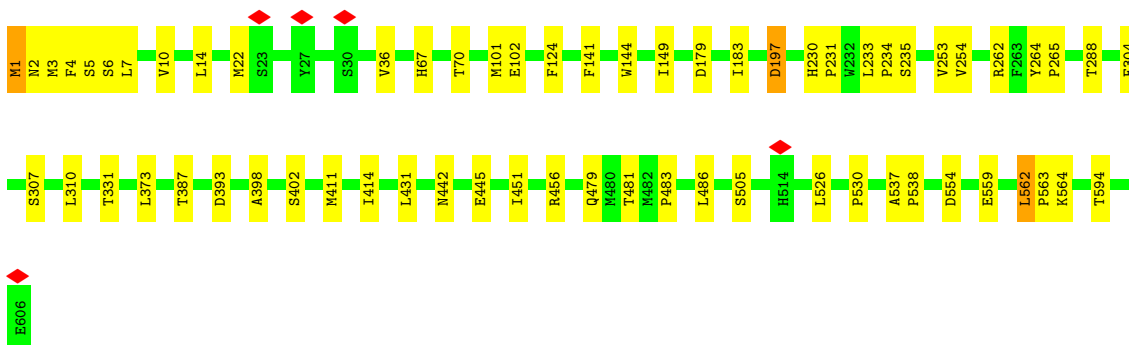
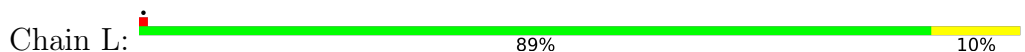
- Molecule 10: NADH-ubiquinone oxidoreductase chain 6



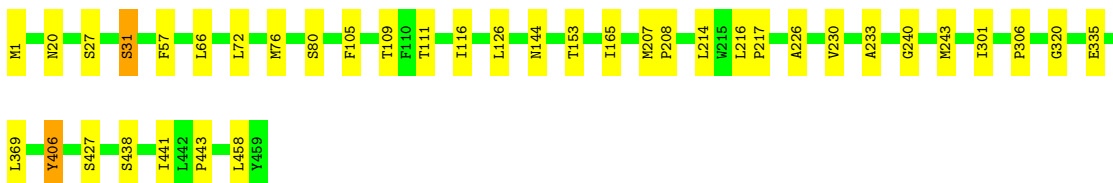
- Molecule 11: NADH-ubiquinone oxidoreductase chain 4L



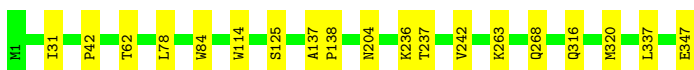
- Molecule 12: NADH-ubiquinone oxidoreductase chain 5




- Molecule 13: NADH-ubiquinone oxidoreductase chain 4

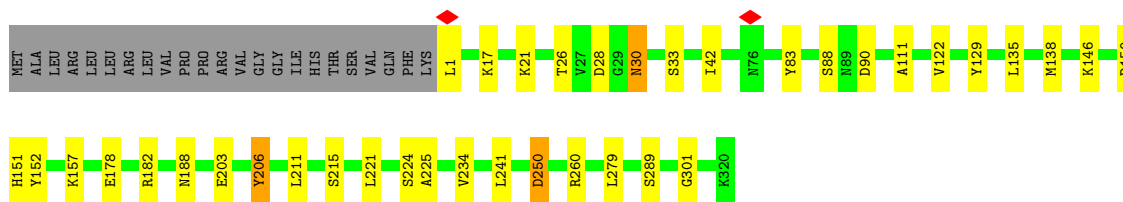


- Molecule 14: NADH-ubiquinone oxidoreductase chain 2




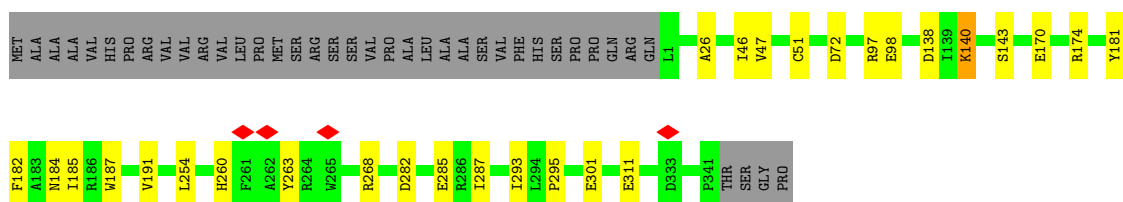
- Molecule 15: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial

Chain O:  82% 10% 7%



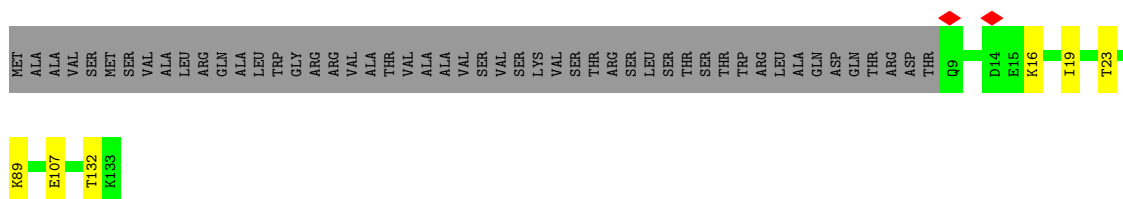
- Molecule 16: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial

Chain P:  82% 7% 10%



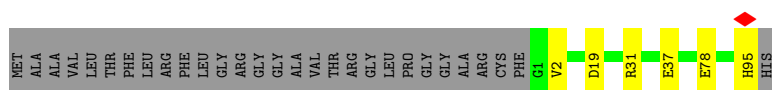
- Molecule 17: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

Chain Q:  68% 29%




- Molecule 18: NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial

Chain R:  72% 5% 23%




- Molecule 19: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2

Chain S:  5% 76% 11% 13%



- Molecule 20: Acyl carrier protein, mitochondrial

- Molecule 25: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13

Chain Z:  89% 9%



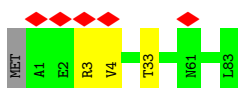
- Molecule 26: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1

Chain a:  99%



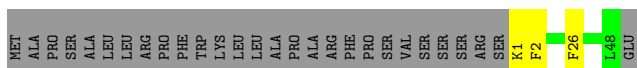
- Molecule 27: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3

Chain b:  6% 95%



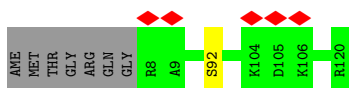
- Molecule 28: NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial

Chain c:  59% 37%




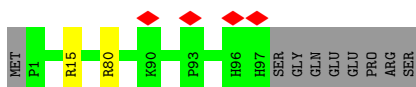
- Molecule 29: NADH dehydrogenase [ubiquinone] 1 subunit C2

Chain d:  93% 6%




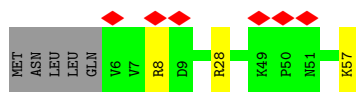
- Molecule 30: NADH dehydrogenase [ubiquinone] iron-sulfur protein 5

Chain e:  90% 8%

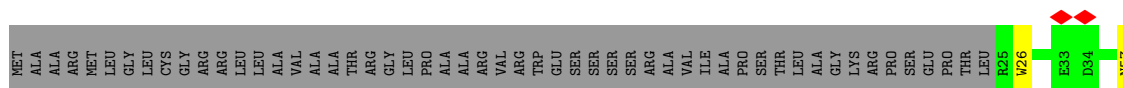


- Molecule 31: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 1

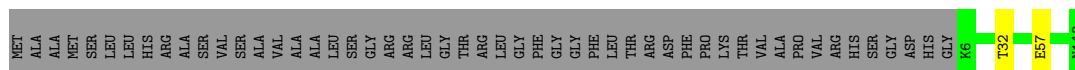
Chain f:  11% 86% 5% 9%



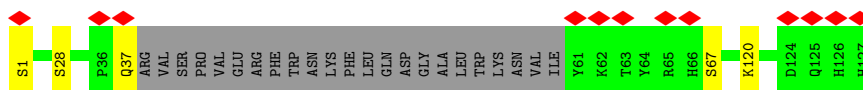
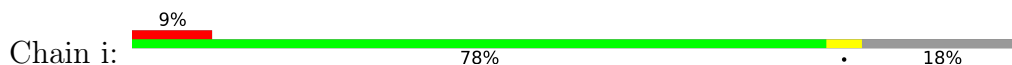
- Molecule 32: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial



- Molecule 33: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial



- Molecule 34: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6



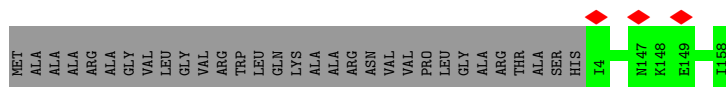
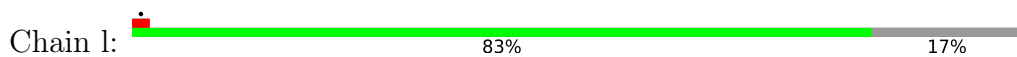
- Molecule 35: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 2, mitochondrial



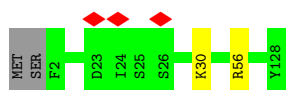
- Molecule 36: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3



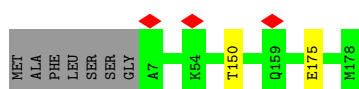
- Molecule 37: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial



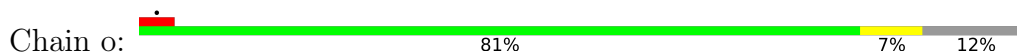
- Molecule 38: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4



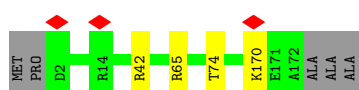
- Molecule 39: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9



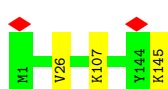
- Molecule 40: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7



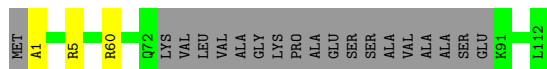
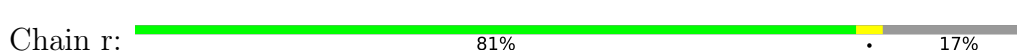
- Molecule 41: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10



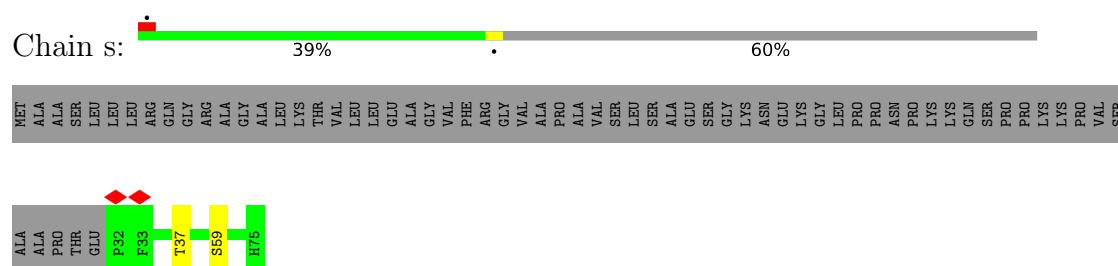
- Molecule 42: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12



- Molecule 43: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7



- Molecule 44: NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	53763	Depositor
Resolution determination method	OTHER	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	40	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	32.833	Depositor
Minimum map value	-14.121	Depositor
Average map value	0.007	Depositor
Map value standard deviation	1.032	Depositor
Recommended contour level	5.0	Depositor
Map size (Å)	482.46, 482.46, 482.46	wwPDB
Map dimensions	660, 660, 660	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.731, 0.731, 0.731	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: FES, 2MR, FME, PC1, I49, AYA, CDL, LMT, ZN, FMN, EHZ, SAC, K, NDP, MYR, MG, SF4, 3PE, GTP

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	0.31	0/936	0.42	0/1281
2	B	0.37	0/1272	0.46	0/1720
3	C	0.35	0/1772	0.46	0/2413
4	D	0.35	0/3537	0.46	0/4794
5	E	0.33	0/1695	0.45	0/2307
6	F	0.33	0/3393	0.44	0/4584
7	G	0.32	0/5367	0.46	0/7274
8	H	0.34	0/2571	0.43	0/3513
9	I	0.37	0/1445	0.47	0/1956
10	J	0.35	0/1362	0.44	0/1848
11	K	0.29	0/745	0.42	0/1008
12	L	0.33	0/4896	0.43	0/6663
13	M	0.33	0/3738	0.43	0/5097
14	N	0.31	0/2792	0.43	0/3800
15	O	0.35	0/2651	0.43	0/3587
16	P	0.32	0/2824	0.45	0/3831
17	Q	0.31	0/1039	0.46	0/1404
18	R	0.36	0/742	0.46	0/999
19	S	0.31	0/702	0.47	0/945
20	T	0.29	0/621	0.40	0/837
20	U	0.37	0/705	0.41	0/952
21	V	0.30	0/943	0.38	0/1277
22	W	0.31	0/995	0.46	1/1337 (0.1%)
23	X	0.33	0/1439	0.42	0/1942
24	Y	0.28	0/1042	0.44	0/1414
25	Z	0.33	0/1181	0.44	0/1592
26	a	0.34	0/584	0.44	0/786
27	b	0.32	0/672	0.41	0/923
28	c	0.34	0/418	0.39	0/567
29	d	0.36	0/975	0.42	0/1319
30	e	0.31	0/840	0.46	0/1123

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
31	f	0.31	0/464	0.43	0/626
32	g	0.35	0/850	0.39	0/1154
33	h	0.34	0/1188	0.41	0/1607
34	i	0.36	0/920	0.45	0/1251
35	j	0.35	0/607	0.40	0/833
36	k	0.34	0/663	0.42	0/895
37	l	0.37	0/1358	0.41	0/1858
38	m	0.37	0/1088	0.42	0/1472
39	n	0.36	0/1545	0.40	0/2092
40	o	0.34	0/1060	0.41	0/1420
41	p	0.36	0/1476	0.41	0/1990
42	q	0.33	0/1250	0.45	0/1698
43	r	0.33	0/780	0.42	0/1056
44	s	0.31	0/383	0.44	0/518
All	All	0.33	0/67526	0.44	1/91563 (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
4	D	0	2

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
22	W	30	ARG	NE-CZ-NH1	5.39	122.99	120.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	D	275	TYR	Peptide
4	D	85	2MR	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	921	0	952	4	0
2	B	1241	0	1251	8	0
3	C	1721	0	1675	6	0
4	D	3459	0	3404	29	0
5	E	1655	0	1661	17	0
6	F	3319	0	3274	22	0
7	G	5279	0	5301	25	0
8	H	2509	0	2621	12	0
9	I	1414	0	1370	5	0
10	J	1337	0	1346	12	0
11	K	745	0	785	5	0
12	L	4780	0	4926	35	0
13	M	3654	0	3852	21	0
14	N	2733	0	2912	12	0
15	O	2589	0	2565	21	0
16	P	2747	0	2766	17	0
17	Q	1016	0	1014	3	0
18	R	730	0	707	3	0
19	S	691	0	706	4	0
20	T	612	0	604	9	0
20	U	693	0	688	3	0
21	V	923	0	964	4	0
22	W	971	0	989	4	0
23	X	1402	0	1385	10	0
24	Y	1030	0	1039	5	0
25	Z	1152	0	1151	11	0
26	a	569	0	568	0	0
27	b	651	0	662	0	0
28	c	405	0	409	0	0
29	d	945	0	932	0	0
30	e	819	0	821	0	0
31	f	451	0	453	0	0
32	g	824	0	772	0	0
33	h	1154	0	1168	0	0
34	i	898	0	907	0	0
35	j	580	0	519	0	0
36	k	644	0	626	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
37	l	1304	0	1203	0	0
38	m	1061	0	1059	0	0
39	n	1492	0	1438	0	0
40	o	1035	0	1004	0	0
41	p	1443	0	1415	0	0
42	q	1209	0	1182	0	0
43	r	767	0	776	0	0
44	s	371	0	344	0	0
45	A	70	0	92	0	0
45	J	35	0	46	3	0
45	K	35	0	46	0	0
45	L	105	0	138	0	0
45	M	105	0	138	5	0
45	Y	105	0	138	1	0
45	b	35	0	46	0	0
45	h	35	0	46	0	0
45	j	35	0	46	0	0
45	l	35	0	46	0	0
46	A	21	0	18	1	0
46	B	89	0	132	4	0
46	L	49	0	75	2	0
47	B	8	0	0	0	0
47	F	8	0	0	0	0
47	G	16	0	0	0	0
47	I	16	0	0	0	0
48	E	4	0	0	0	0
48	G	4	0	0	0	0
49	F	31	0	19	2	0
50	G	1	0	0	0	0
51	H	129	0	194	0	0
51	L	94	0	142	1	0
51	M	97	0	151	4	0
51	N	70	0	88	0	0
51	P	37	0	48	0	0
51	X	51	0	82	2	0
51	Y	35	0	44	1	0
51	d	102	0	164	0	0
52	J	62	0	68	1	0
52	K	71	0	86	0	0
52	L	69	0	82	0	0
52	h	67	0	81	0	0
52	r	76	0	96	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
53	N	17	0	0	0	0
54	O	32	0	12	3	0
55	O	1	0	0	0	0
56	P	48	0	26	1	0
57	R	1	0	0	0	0
58	T	37	0	0	1	0
58	U	37	0	0	0	0
59	o	15	0	27	0	0
60	A	30	0	0	0	0
60	B	65	0	0	3	0
60	C	92	0	0	2	0
60	D	168	0	0	7	0
60	E	15	0	0	1	0
60	F	63	0	0	4	0
60	G	203	0	0	8	0
60	H	70	0	0	0	0
60	I	92	0	0	1	0
60	J	27	0	0	1	0
60	K	18	0	0	0	0
60	L	52	0	0	1	0
60	M	65	0	0	3	0
60	N	52	0	0	2	0
60	O	27	0	0	5	0
60	P	80	0	0	4	0
60	Q	64	0	0	1	0
60	R	44	0	0	1	0
60	S	4	0	0	0	0
60	U	1	0	0	0	0
60	V	17	0	0	2	0
60	W	13	0	0	0	0
60	X	28	0	0	2	0
60	Y	2	0	0	0	0
60	Z	22	0	0	1	0
60	a	16	0	0	0	0
60	b	8	0	0	0	0
60	d	17	0	0	0	0
60	e	18	0	0	0	0
60	f	3	0	0	0	0
60	g	5	0	0	0	0
60	h	23	0	0	0	0
60	i	3	0	0	0	0
60	j	2	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
60	k	1	0	0	0	0
60	l	13	0	0	0	0
60	m	11	0	0	0	0
60	n	7	0	0	0	0
60	o	2	0	0	0	0
60	p	16	0	0	0	0
60	q	47	0	0	0	0
60	r	33	0	0	0	0
60	s	6	0	0	0	0
All	All	69480	0	68583	290	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 3.

All (290) 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)
16:P:51:CYS:O	60:P:601:HOH:O	1.93	0.85
16:P:98:GLU:OE1	60:P:602:HOH:O	1.97	0.81
52:J:701:CDL:OB4	60:J:801:HOH:O	1.97	0.81
7:G:31:GLU:OE1	60:G:901:HOH:O	2.01	0.78
6:F:373:ASN:OD1	60:F:1201:HOH:O	2.01	0.77
45:J:702:LMT:H2O1	45:J:702:LMT:H3O2	0.78	0.77
12:L:594:THR:HG1	24:Y:38:TYR:HH	1.17	0.76
13:M:20:ASN:OD1	60:M:701:HOH:O	2.03	0.76
12:L:479:GLN:NE2	12:L:481:THR:O	2.20	0.75
4:D:6:PRO:O	60:D:501:HOH:O	2.05	0.74
15:O:146:LYS:NZ	15:O:150:ASP:OD1	2.22	0.72
13:M:335:GLU:OE2	60:M:702:HOH:O	2.07	0.72
1:A:71:LEU:O	10:J:147:TYR:OH	2.05	0.72
6:F:99:GLU:OE1	60:F:1202:HOH:O	2.07	0.72
8:H:24:GLU:OE2	8:H:228:TYR:OH	2.08	0.71
21:V:110:GLN:OE1	60:V:202:HOH:O	2.10	0.70
12:L:562:LEU:HD13	45:M:602:LMT:C12	2.21	0.70
21:V:105:GLU:O	60:V:201:HOH:O	2.09	0.70
7:G:139:ASP:OD1	60:G:902:HOH:O	2.09	0.70
20:T:31:SER:N	20:T:34:SER:OG	2.26	0.69
51:M:601:3PE:H2I1	45:M:602:LMT:H111	1.76	0.68
2:B:34:ASP:OD1	60:B:301:HOH:O	2.12	0.67
21:V:57:MET:CE	21:V:71:LEU:HD23	2.25	0.67
12:L:197:ASP:OD1	60:L:801:HOH:O	2.13	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:665:GLN:OE1	60:G:904:HOH:O	2.13	0.67
20:U:47:GLN:NE2	20:U:70:LEU:O	2.27	0.67
46:B:202:PC1:O12	60:B:302:HOH:O	2.13	0.66
12:L:102:GLU:OE2	12:L:456:ARG:NH2	2.28	0.66
5:E:27:ASN:ND2	5:E:57:GLN:OE1	2.28	0.66
25:Z:66:GLU:OE1	60:Z:201:HOH:O	2.14	0.66
6:F:98:ASP:OD2	60:F:1203:HOH:O	2.14	0.66
5:E:165:THR:OG1	5:E:168:ASP:OD1	2.06	0.65
5:E:12:THR:OG1	5:E:14:GLU:OE2	2.11	0.65
7:G:232:ASP:O	60:G:903:HOH:O	2.12	0.65
15:O:21:LYS:O	60:O:501:HOH:O	2.13	0.65
7:G:95:GLU:OE2	60:G:905:HOH:O	2.13	0.65
14:N:347:GLU:OE1	60:N:802:HOH:O	2.15	0.64
12:L:562:LEU:HD13	45:M:602:LMT:H123	1.80	0.64
15:O:129:TYR:O	60:O:502:HOH:O	2.15	0.64
13:M:66:LEU:HD11	13:M:111:THR:CG2	2.28	0.63
16:P:72:ASP:O	60:P:603:HOH:O	2.15	0.63
12:L:1:FME:O	12:L:5:SER:OG	2.14	0.62
4:D:149:ASN:OD1	4:D:371:LYS:NZ	2.31	0.62
12:L:564:LYS:NZ	45:M:602:LMT:O6B	2.25	0.62
7:G:324:ASP:CB	7:G:571:ALA:HB1	2.29	0.62
10:J:77:GLU:OE2	10:J:77:GLU:N	2.33	0.62
5:E:214:GLN:NE2	6:F:235:CYS:O	2.33	0.62
5:E:52:ASP:OD2	60:E:401:HOH:O	2.16	0.62
15:O:250:ASP:OD1	15:O:250:ASP:N	2.32	0.61
8:H:195:ARG:HD3	8:H:231:ILE:HD11	1.82	0.60
13:M:208:PRO:O	60:M:703:HOH:O	2.16	0.60
46:A:303:PC1:O13	46:A:303:PC1:H132	2.00	0.60
8:H:24:GLU:HA	8:H:271:LEU:HD13	1.84	0.60
4:D:249:ASP:OD2	60:D:502:HOH:O	2.16	0.60
23:X:152:GLU:OE2	23:X:153:VAL:N	2.34	0.60
10:J:167:VAL:HG22	14:N:42:PRO:HG3	1.83	0.60
13:M:27:SER:O	13:M:31:SER:OG	2.17	0.60
23:X:29:HIS:ND1	60:X:502:HOH:O	2.31	0.60
17:Q:89:LYS:NZ	17:Q:107:GLU:OE1	2.24	0.60
3:C:8:ARG:O	4:D:129:ARG:NH2	2.35	0.60
18:R:2:VAL:HG11	18:R:37:GLU:OE1	2.02	0.59
5:E:194:GLU:OE1	5:E:194:GLU:N	2.34	0.59
10:J:103:MET:HG2	10:J:115:VAL:HG11	1.85	0.59
20:T:7:THR:HG22	20:T:7:THR:O	2.03	0.59
51:M:601:3PE:H2I1	45:M:602:LMT:C11	2.33	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:Z:98:MET:CE	25:Z:101:VAL:HG21	2.32	0.59
15:O:88:SER:OG	15:O:90:ASP:OD1	2.17	0.59
7:G:324:ASP:HB2	7:G:571:ALA:HB1	1.86	0.58
12:L:483:PRO:HD2	12:L:486:LEU:HD12	1.85	0.58
7:G:475:GLN:O	7:G:479:THR:HG23	2.04	0.58
20:T:32:VAL:HG13	20:T:33:ASN:OD1	2.04	0.57
23:X:149:PRO:O	60:X:501:HOH:O	2.17	0.57
6:F:9:LYS:NZ	6:F:271:GLU:OE2	2.36	0.57
8:H:2:PHE:CE2	8:H:6:ILE:HD11	2.39	0.57
10:J:115:VAL:HG23	10:J:115:VAL:O	2.04	0.57
12:L:6:SER:O	12:L:10:VAL:HG13	2.05	0.57
1:A:95:ILE:HG21	8:H:302:MET:HG3	1.87	0.57
12:L:304:PHE:CZ	12:L:526:LEU:HD22	2.40	0.56
6:F:423:ARG:NH1	6:F:427:GLU:OE2	2.37	0.56
20:T:23:ASP:OD2	20:T:23:ASP:N	2.35	0.56
7:G:331:LEU:HD22	7:G:525:LEU:HD22	1.88	0.56
7:G:260:GLU:OE2	60:G:906:HOH:O	2.17	0.55
22:W:30:ARG:HG3	22:W:30:ARG:HH11	1.71	0.55
3:C:14:ARG:NH1	60:C:308:HOH:O	2.38	0.55
15:O:111:ALA:HB1	15:O:122:VAL:HG21	1.88	0.55
25:Z:89:GLU:OE2	25:Z:128:ARG:NH2	2.39	0.55
13:M:243:MET:HB3	13:M:301:ILE:HG21	1.89	0.55
23:X:97:ARG:HD2	25:Z:60:LEU:HD13	1.89	0.54
10:J:153:LEU:O	10:J:157:THR:HG23	2.07	0.54
12:L:445:GLU:O	12:L:451:ILE:HD11	2.07	0.54
4:D:73:VAL:HG21	4:D:414:VAL:HG21	1.90	0.54
6:F:224:ASN:ND2	49:F:501:FMN:O2	2.41	0.54
13:M:306:PRO:HA	13:M:458:LEU:HD22	1.90	0.54
12:L:288:THR:HG21	12:L:307:SER:HB3	1.89	0.54
15:O:260:ARG:NH1	60:O:504:HOH:O	2.35	0.54
5:E:105:THR:HG22	5:E:106:THR:H	1.74	0.53
4:D:24:GLU:N	4:D:24:GLU:OE2	2.41	0.53
4:D:335:ARG:NH2	9:I:129:ASP:OD1	2.36	0.52
18:R:78:GLU:OE2	18:R:78:GLU:HA	2.09	0.52
15:O:28:ASP:OD1	15:O:206:TYR:OH	2.23	0.52
13:M:66:LEU:HD11	13:M:111:THR:HG23	1.91	0.52
16:P:97:ARG:NH2	56:P:501:NDP:O2X	2.40	0.52
16:P:174:ARG:NH1	60:P:605:HOH:O	2.38	0.52
19:S:23:CYS:O	19:S:33:ARG:NH1	2.43	0.52
6:F:184:TYR:CE2	49:F:501:FMN:HM73	2.45	0.52
3:C:152:LEU:O	60:C:301:HOH:O	2.19	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:L:149:ILE:HG13	13:M:369:LEU:HD13	1.92	0.52
4:D:385:ARG:NH1	60:D:518:HOH:O	2.39	0.51
4:D:279:ASP:OD2	60:D:503:HOH:O	2.19	0.51
23:X:87:CYS:SG	23:X:102:GLN:NE2	2.83	0.51
8:H:70:MET:HB3	8:H:122:ALA:HB2	1.92	0.51
15:O:135:LEU:HD22	15:O:152:TYR:CD1	2.46	0.51
16:P:268:ARG:HD2	16:P:268:ARG:O	2.10	0.50
3:C:7:THR:O	3:C:7:THR:OG1	2.28	0.50
20:U:36:PHE:HD1	20:U:40:LEU:HD12	1.76	0.50
20:U:51:ILE:HG21	20:U:67:ALA:HB1	1.94	0.50
8:H:18:ALA:O	8:H:21:THR:OG1	2.23	0.50
5:E:79:ARG:NH1	5:E:82:GLU:OE1	2.44	0.50
16:P:138:ASP:OD1	16:P:140:LYS:N	2.37	0.50
5:E:150:ASN:HB3	5:E:162:GLU:HB3	1.94	0.50
10:J:11:VAL:HG11	45:J:702:LMT:H71	1.94	0.50
14:N:236:LYS:HD3	14:N:237:THR:HG23	1.94	0.50
16:P:143:SER:OG	16:P:282:ASP:OD1	2.17	0.50
25:Z:98:MET:HE1	25:Z:101:VAL:HG21	1.93	0.49
7:G:170:ASP:OD1	60:G:907:HOH:O	2.18	0.49
16:P:260:HIS:NE2	16:P:285:GLU:OE1	2.42	0.49
15:O:26:THR:HG21	60:O:513:HOH:O	2.12	0.49
4:D:123:GLU:OE1	4:D:138:ARG:NH2	2.45	0.49
4:D:296:ARG:HH21	4:D:420:THR:HG21	1.78	0.49
10:J:10:SER:OG	11:K:7:ASN:ND2	2.42	0.49
12:L:373:LEU:HD23	12:L:431:LEU:HD11	1.95	0.49
12:L:331:THR:HB	12:L:387:THR:HG22	1.95	0.49
12:L:594:THR:OG1	24:Y:38:TYR:OH	2.05	0.49
20:T:62:ILE:N	20:T:62:ILE:HD12	2.28	0.49
2:B:162:GLN:OE1	9:I:140:SER:OG	2.24	0.48
16:P:46:ILE:N	16:P:46:ILE:HD12	2.27	0.48
2:B:92:LEU:HD13	2:B:100:LEU:HD13	1.96	0.48
16:P:293:ILE:HG22	16:P:295:PRO:HD3	1.95	0.48
19:S:61:GLN:OE1	19:S:79:ASN:ND2	2.46	0.48
2:B:91:THR:HA	2:B:119:CYS:HB3	1.95	0.48
51:L:705:3PE:N	46:L:707:PC1:O12	2.47	0.48
12:L:562:LEU:CB	12:L:563:PRO:CD	2.92	0.48
15:O:83:TYR:OH	54:O:401:GTP:O3'	1.95	0.47
18:R:31:ARG:NH2	60:R:306:HOH:O	2.44	0.47
5:E:217:LEU:HD22	6:F:44:LYS:CE	2.44	0.47
9:I:32:ARG:NH2	25:Z:26:PRO:O	2.43	0.47
12:L:233:LEU:HB3	12:L:234:PRO:HD3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:207:MET:SD	13:M:240:GLY:N	2.87	0.47
46:B:203:PC1:O13	46:B:203:PC1:H133	2.14	0.47
12:L:264:TYR:N	12:L:265:PRO:CD	2.78	0.47
46:B:202:PC1:H2A2	46:B:202:PC1:H2H2	1.97	0.47
23:X:44:LEU:HD22	23:X:130:VAL:CG1	2.45	0.47
3:C:58:ILE:HB	3:C:59:PRO:HD3	1.97	0.47
4:D:72:MET:SD	4:D:410:MET:HG2	2.55	0.47
4:D:276:ASP:OD1	60:D:504:HOH:O	2.20	0.47
7:G:424:ASP:OD1	7:G:424:ASP:N	2.46	0.47
15:O:211:LEU:O	15:O:215:SER:OG	2.29	0.47
7:G:255:HIS:CD2	7:G:258:ILE:HD12	2.51	0.46
14:N:62:THR:HG21	14:N:114:TRP:CD1	2.50	0.46
4:D:151:ILE:HG23	4:D:170:MET:HB3	1.96	0.46
13:M:80:SER:OG	13:M:226:ALA:HB2	2.14	0.46
7:G:478:ARG:NH1	7:G:487:TRP:O	2.48	0.46
12:L:253:VAL:HB	12:L:310:LEU:HD11	1.96	0.46
6:F:327:THR:OG1	6:F:328:GLY:N	2.49	0.46
12:L:562:LEU:HB2	12:L:563:PRO:CD	2.46	0.46
13:M:165:ILE:HG21	14:N:268:GLN:HA	1.96	0.46
14:N:316:GLN:OE1	60:N:803:HOH:O	2.21	0.46
6:F:110:ILE:HD11	6:F:255:LEU:CD1	2.45	0.46
5:E:149:VAL:HG13	6:F:105:CYS:SG	2.57	0.45
6:F:370:ASP:OD2	60:F:1204:HOH:O	2.20	0.45
4:D:261:ARG:NH2	4:D:303:GLU:OE2	2.49	0.45
23:X:48:GLU:OE2	23:X:134:ARG:NH1	2.42	0.45
13:M:105:PHE:O	13:M:109:THR:OG1	2.17	0.45
15:O:224:SER:OG	15:O:225:ALA:N	2.50	0.45
12:L:1:FME:HCN	12:L:4:PHE:H	1.82	0.45
23:X:63:ASN:OD1	25:Z:81:ARG:NH2	2.48	0.45
24:Y:43:LYS:HB3	24:Y:43:LYS:NZ	2.32	0.45
4:D:17:ALA:HB1	11:K:98:CYS:SG	2.57	0.45
5:E:217:LEU:HD22	6:F:44:LYS:HE3	1.98	0.45
10:J:124:ASP:OD2	11:K:4:VAL:HB	2.15	0.45
12:L:398:ALA:O	12:L:402:SER:OG	2.28	0.45
12:L:230:HIS:N	12:L:231:PRO:CD	2.79	0.45
16:P:311:GLU:OE1	16:P:311:GLU:N	2.50	0.45
51:X:401:3PE:H3I1	51:X:401:3PE:H261	1.98	0.45
22:W:35:LEU:HD21	22:W:86:GLY:HA3	1.99	0.44
12:L:2:ASN:OD1	12:L:3:MET:N	2.48	0.44
17:Q:132:THR:O	60:Q:201:HOH:O	2.21	0.44
7:G:262:TRP:HB2	7:G:390:LEU:HD11	1.98	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:76:MET:SD	13:M:230:VAL:HB	2.57	0.44
20:T:48:VAL:HG12	20:T:52:MET:HE2	2.00	0.44
20:T:76:ILE:O	20:T:80:ILE:HG12	2.17	0.44
6:F:362:CYS:HB3	6:F:404:ILE:HD12	1.99	0.44
7:G:272:ASP:OD1	7:G:681:SER:OG	2.20	0.44
8:H:87:ILE:N	8:H:88:PRO:CD	2.80	0.44
7:G:317:ALA:HB1	7:G:331:LEU:HD21	2.00	0.44
14:N:337:LEU:HD23	51:X:401:3PE:H391	2.00	0.44
13:M:438:SER:HA	13:M:441:ILE:HG22	1.99	0.44
58:T:101:EHZ:O5	22:W:32:VAL:HG11	2.17	0.44
4:D:62:LEU:HB2	4:D:425:PHE:CZ	2.52	0.44
7:G:551:ASP:OD2	7:G:679:ARG:NH2	2.46	0.44
8:H:179:TRP:N	8:H:180:PRO:CD	2.81	0.44
25:Z:98:MET:HE3	25:Z:101:VAL:HG21	1.99	0.44
4:D:35:ASP:OD1	60:D:505:HOH:O	2.21	0.44
45:Y:804:LMT:O6'	45:Y:804:LMT:O4'	2.26	0.44
1:A:51:PHE:CD1	8:H:133:LEU:HD13	2.53	0.44
20:T:25:ILE:HD11	20:T:42:LEU:HD11	2.00	0.43
4:D:264:GLY:O	60:D:506:HOH:O	2.21	0.43
11:K:19:LEU:HD22	11:K:36:MET:HE3	1.99	0.43
14:N:137:ALA:HB3	14:N:138:PRO:HD3	2.01	0.43
6:F:192:LEU:HD23	6:F:192:LEU:O	2.19	0.43
7:G:297:GLU:OE2	7:G:297:GLU:N	2.46	0.43
12:L:36:VAL:HG12	12:L:101:MET:SD	2.59	0.43
15:O:42:ILE:HD11	15:O:234:VAL:HG11	1.99	0.43
7:G:254:MET:HA	7:G:260:GLU:O	2.18	0.43
6:F:380:VAL:O	6:F:429:ARG:HD3	2.18	0.43
12:L:144:TRP:NE1	12:L:179:ASP:OD2	2.52	0.43
2:B:152:THR:HG22	4:D:188:ARG:HD3	2.00	0.43
23:X:79:GLU:HB2	23:X:80:PRO:HD3	2.01	0.43
4:D:409:HIS:HB3	4:D:413:ASP:HB2	2.01	0.43
7:G:281:GLU:HG2	7:G:592:LEU:HD12	2.00	0.42
51:M:605:3PE:C33	14:N:242:VAL:HG11	2.49	0.42
7:G:651:LEU:N	7:G:651:LEU:HD23	2.34	0.42
45:J:702:LMT:O3'	45:J:702:LMT:O2B	2.08	0.42
15:O:178:GLU:OE2	15:O:182:ARG:NH1	2.51	0.42
4:D:407:LYS:HA	4:D:407:LYS:HD3	1.90	0.42
6:F:94:VAL:HG11	6:F:192:LEU:HD22	2.01	0.42
12:L:10:VAL:O	12:L:14:LEU:HB2	2.19	0.42
12:L:526:LEU:HD12	12:L:530:PRO:HG2	2.00	0.42
15:O:138:MET:CE	54:O:401:GTP:HN21	2.33	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:216:LEU:HB3	13:M:217:PRO:HD3	2.01	0.42
12:L:141:PHE:CZ	12:L:183:ILE:HD11	2.55	0.42
23:X:122:GLY:HA2	25:Z:66:GLU:OE2	2.20	0.42
4:D:294:TYR:CE2	4:D:298:LEU:HD11	2.55	0.42
6:F:49:LEU:HD11	6:F:123:LEU:HD21	2.02	0.42
19:S:18:ILE:HD12	19:S:50:LEU:HD21	2.02	0.42
24:Y:43:LYS:HD3	51:Y:802:3PE:O14	2.19	0.42
6:F:390:ASP:OD1	6:F:423:ARG:NH2	2.53	0.42
12:L:559:GLU:HG2	13:M:214:LEU:HD13	2.02	0.42
8:H:251:MET:SD	8:H:254:LEU:HD11	2.60	0.42
9:I:124:GLU:OE2	60:I:301:HOH:O	2.22	0.42
10:J:17:PHE:HA	10:J:20:PHE:CE2	2.55	0.42
5:E:101:GLN:HG2	5:E:140:ILE:HD11	2.02	0.41
5:E:163:ASP:OD2	5:E:186:PRO:HB3	2.20	0.41
8:H:236:ILE:HG23	8:H:259:PHE:CE1	2.54	0.41
12:L:411:MET:HE2	12:L:414:ILE:HD12	2.02	0.41
51:M:605:3PE:H332	14:N:242:VAL:HG11	2.02	0.41
3:C:183:VAL:O	22:W:101:THR:OG1	2.31	0.41
6:F:242:PHE:CZ	6:F:252:GLY:HA3	2.55	0.41
13:M:216:LEU:HD23	13:M:216:LEU:C	2.40	0.41
16:P:181:TYR:CE2	16:P:287:ILE:HD13	2.55	0.41
21:V:4:LEU:HD21	21:V:17:GLU:OE1	2.20	0.41
15:O:30:ASN:O	15:O:33:SER:OG	2.26	0.41
16:P:182:PHE:HA	16:P:185:ILE:HD12	2.03	0.41
46:B:203:PC1:O13	46:B:203:PC1:C13	2.68	0.41
16:P:185:ILE:HG21	16:P:191:VAL:HG13	2.03	0.41
4:D:73:VAL:HG21	4:D:414:VAL:CG2	2.50	0.41
5:E:27:ASN:OD1	5:E:53:LEU:HD11	2.21	0.41
10:J:125:TRP:HB2	25:Z:137:THR:HG21	2.01	0.41
12:L:67:HIS:NE2	12:L:70:THR:OG1	2.50	0.41
13:M:406:TYR:CD1	13:M:406:TYR:C	2.94	0.41
15:O:221:LEU:HD21	15:O:241:LEU:HD21	2.03	0.41
16:P:184:ASN:O	16:P:187:TRP:HD1	2.03	0.41
17:Q:19:ILE:O	17:Q:23:THR:HG23	2.21	0.41
19:S:21:HIS:O	19:S:62:PRO:HA	2.20	0.41
2:B:96:MET:SD	4:D:82:LEU:HD23	2.60	0.41
4:D:352:TYR:HD1	9:I:86:VAL:HG21	1.86	0.41
46:L:707:PC1:O13	46:L:707:PC1:H132	2.20	0.41
14:N:78:LEU:HD22	14:N:84:TRP:CZ2	2.55	0.41
15:O:138:MET:HE2	54:O:401:GTP:HN21	1.86	0.41
25:Z:95:ALA:HA	25:Z:106:VAL:HG21	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:54:CYS:HB3	4:D:108:TYR:HB2	2.02	0.41
7:G:245:GLY:O	60:G:908:HOH:O	2.22	0.41
24:Y:104:THR:HG21	24:Y:109:ILE:HD12	2.03	0.41
1:A:56:PHE:O	10:J:70:TYR:OH	2.38	0.41
7:G:382:THR:HB	7:G:454:GLY:HA3	2.02	0.41
13:M:233:ALA:HA	13:M:320:GLY:HA2	2.02	0.41
4:D:151:ILE:HG21	4:D:174:ARG:HG3	2.03	0.40
5:E:28:TYR:CE1	5:E:72:ILE:HD11	2.55	0.40
5:E:123:LYS:HE2	5:E:174:ASP:OD1	2.21	0.40
12:L:537:ALA:HB3	12:L:538:PRO:HD3	2.03	0.40
7:G:316:ALA:HB3	7:G:519:PRO:HG3	2.02	0.40
2:B:138:ARG:NH1	60:B:305:HOH:O	2.32	0.40
13:M:126:LEU:HD21	13:M:153:THR:HG21	2.03	0.40
6:F:165:ASN:OD1	6:F:170:GLY:N	2.51	0.40
15:O:151:HIS:HB2	15:O:279:LEU:HD11	2.04	0.40
16:P:26:ALA:HB3	16:P:47:VAL:HG13	2.04	0.40
4:D:66:MET:HE1	4:D:411:LEU:HD11	2.03	0.40
11:K:62:ILE:HG21	14:N:31:ILE:HD11	2.03	0.40
15:O:301:GLY:O	60:O:503:HOH:O	2.22	0.40
20:T:16:LEU:HD13	20:T:30:LEU:HD21	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	113/115 (98%)	109 (96%)	4 (4%)	0	100	100
2	B	153/216 (71%)	147 (96%)	6 (4%)	0	100	100
3	C	205/266 (77%)	200 (98%)	5 (2%)	0	100	100
4	D	427/463 (92%)	409 (96%)	18 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	E	211/249 (85%)	204 (97%)	7 (3%)	0	100	100
6	F	429/464 (92%)	419 (98%)	10 (2%)	0	100	100
7	G	686/727 (94%)	673 (98%)	13 (2%)	0	100	100
8	H	316/318 (99%)	305 (96%)	11 (4%)	0	100	100
9	I	174/212 (82%)	170 (98%)	4 (2%)	0	100	100
10	J	172/175 (98%)	160 (93%)	12 (7%)	0	100	100
11	K	96/98 (98%)	94 (98%)	2 (2%)	0	100	100
12	L	604/606 (100%)	582 (96%)	21 (4%)	1 (0%)	47	58
13	M	457/459 (100%)	450 (98%)	7 (2%)	0	100	100
14	N	345/347 (99%)	339 (98%)	6 (2%)	0	100	100
15	O	318/343 (93%)	312 (98%)	6 (2%)	0	100	100
16	P	339/380 (89%)	330 (97%)	9 (3%)	0	100	100
17	Q	123/175 (70%)	123 (100%)	0	0	100	100
18	R	93/124 (75%)	90 (97%)	3 (3%)	0	100	100
19	S	84/99 (85%)	81 (96%)	3 (4%)	0	100	100
20	T	74/156 (47%)	72 (97%)	2 (3%)	0	100	100
20	U	84/156 (54%)	83 (99%)	1 (1%)	0	100	100
21	V	112/116 (97%)	110 (98%)	2 (2%)	0	100	100
22	W	112/128 (88%)	110 (98%)	2 (2%)	0	100	100
23	X	169/172 (98%)	165 (98%)	4 (2%)	0	100	100
24	Y	138/141 (98%)	134 (97%)	4 (3%)	0	100	100
25	Z	139/144 (96%)	136 (98%)	3 (2%)	0	100	100
26	a	68/70 (97%)	68 (100%)	0	0	100	100
27	b	81/84 (96%)	77 (95%)	4 (5%)	0	100	100
28	c	46/76 (60%)	45 (98%)	1 (2%)	0	100	100
29	d	111/120 (92%)	111 (100%)	0	0	100	100
30	e	95/106 (90%)	94 (99%)	1 (1%)	0	100	100
31	f	50/57 (88%)	50 (100%)	0	0	100	100
32	g	96/154 (62%)	91 (95%)	5 (5%)	0	100	100
33	h	136/189 (72%)	135 (99%)	1 (1%)	0	100	100
34	i	100/127 (79%)	97 (97%)	3 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
35	j	65/108 (60%)	63 (97%)	2 (3%)	0	100	100
36	k	78/98 (80%)	77 (99%)	1 (1%)	0	100	100
37	l	153/186 (82%)	150 (98%)	3 (2%)	0	100	100
38	m	125/129 (97%)	119 (95%)	6 (5%)	0	100	100
39	n	170/179 (95%)	167 (98%)	3 (2%)	0	100	100
40	o	118/137 (86%)	113 (96%)	5 (4%)	0	100	100
41	p	169/176 (96%)	168 (99%)	1 (1%)	0	100	100
42	q	143/145 (99%)	141 (99%)	2 (1%)	0	100	100
43	r	90/113 (80%)	86 (96%)	4 (4%)	0	100	100
44	s	42/109 (38%)	40 (95%)	2 (5%)	0	100	100
All	All	8109/9212 (88%)	7899 (97%)	209 (3%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
12	L	562	LEU

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	100/100 (100%)	99 (99%)	1 (1%)	76	87
2	B	131/175 (75%)	128 (98%)	3 (2%)	50	67
3	C	188/228 (82%)	188 (100%)	0	100	100
4	D	370/392 (94%)	367 (99%)	3 (1%)	81	91
5	E	183/205 (89%)	180 (98%)	3 (2%)	62	78
6	F	345/368 (94%)	337 (98%)	8 (2%)	50	67
7	G	578/608 (95%)	568 (98%)	10 (2%)	60	76
8	H	274/274 (100%)	269 (98%)	5 (2%)	59	75

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
9	I	151/175 (86%)	148 (98%)	3 (2%)	55	72
10	J	140/141 (99%)	135 (96%)	5 (4%)	35	49
11	K	85/85 (100%)	83 (98%)	2 (2%)	49	66
12	L	528/533 (99%)	517 (98%)	11 (2%)	53	70
13	M	412/412 (100%)	404 (98%)	8 (2%)	57	73
14	N	315/315 (100%)	311 (99%)	4 (1%)	69	82
15	O	283/303 (93%)	274 (97%)	9 (3%)	39	54
16	P	295/327 (90%)	290 (98%)	5 (2%)	60	76
17	Q	112/153 (73%)	111 (99%)	1 (1%)	78	89
18	R	78/97 (80%)	76 (97%)	2 (3%)	46	63
19	S	76/82 (93%)	73 (96%)	3 (4%)	32	46
20	T	70/135 (52%)	63 (90%)	7 (10%)	7	9
20	U	79/135 (58%)	77 (98%)	2 (2%)	47	65
21	V	101/102 (99%)	101 (100%)	0	100	100
22	W	107/114 (94%)	104 (97%)	3 (3%)	43	60
23	X	154/155 (99%)	151 (98%)	3 (2%)	57	73
24	Y	101/102 (99%)	99 (98%)	2 (2%)	55	72
25	Z	120/121 (99%)	118 (98%)	2 (2%)	60	76
26	a	59/59 (100%)	58 (98%)	1 (2%)	60	76
27	b	71/72 (99%)	68 (96%)	3 (4%)	30	42
28	c	44/68 (65%)	41 (93%)	3 (7%)	16	21
29	d	101/105 (96%)	100 (99%)	1 (1%)	76	87
30	e	88/96 (92%)	86 (98%)	2 (2%)	50	67
31	f	49/54 (91%)	46 (94%)	3 (6%)	18	25
32	g	89/131 (68%)	85 (96%)	4 (4%)	27	39
33	h	121/158 (77%)	119 (98%)	2 (2%)	60	76
34	i	99/120 (82%)	95 (96%)	4 (4%)	31	44
35	j	61/84 (73%)	57 (93%)	4 (7%)	16	22
36	k	62/76 (82%)	59 (95%)	3 (5%)	25	36
37	l	139/159 (87%)	139 (100%)	0	100	100
38	m	113/115 (98%)	111 (98%)	2 (2%)	59	75

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
39	n	156/161 (97%)	154 (99%)	2 (1%)	69	82
40	o	109/120 (91%)	100 (92%)	9 (8%)	11	14
41	p	155/157 (99%)	151 (97%)	4 (3%)	46	63
42	q	131/131 (100%)	128 (98%)	3 (2%)	50	67
43	r	84/97 (87%)	82 (98%)	2 (2%)	49	66
44	s	43/92 (47%)	41 (95%)	2 (5%)	26	37
All	All	7150/7892 (91%)	6991 (98%)	159 (2%)	54	69

All (159) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	31	SER
2	B	54	CYS
2	B	91	THR
2	B	125	TYR
4	D	47	LEU
4	D	341	SER
4	D	376	VAL
5	E	14	GLU
5	E	26	GLU
5	E	183	LYS
6	F	18	GLU
6	F	54	ASP
6	F	105	CYS
6	F	231	SER
6	F	355	LYS
6	F	405	CYS
6	F	431	GLN
6	F	435	GLN
7	G	35	MET
7	G	39	ARG
7	G	292	THR
7	G	441	GLN
7	G	447	LYS
7	G	484	THR
7	G	536	ASP
7	G	609	MET
7	G	627	SER
7	G	640	ASN
8	H	62	ARG

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Mol	Chain	Res	Type
8	H	138	GLN
8	H	233	MET
8	H	237	PHE
8	H	259	PHE
9	I	9	GLU
9	I	11	SER
9	I	103	SER
10	J	87	LYS
10	J	109	LYS
10	J	111	LYS
10	J	135	PHE
10	J	136	PHE
11	K	46	LEU
11	K	53	PHE
12	L	7	LEU
12	L	22	MET
12	L	124	PHE
12	L	197	ASP
12	L	235	SER
12	L	254	VAL
12	L	262	ARG
12	L	393	ASP
12	L	442	ASN
12	L	505	SER
12	L	554	ASP
13	M	31	SER
13	M	57	PHE
13	M	72	LEU
13	M	116	ILE
13	M	144	ASN
13	M	406	TYR
13	M	427	SER
13	M	443	PRO
14	N	125	SER
14	N	204	ASN
14	N	263	LYS
14	N	320	MET
15	O	1	LEU
15	O	17	LYS
15	O	30	ASN
15	O	157	LYS
15	O	188	ASN

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Mol	Chain	Res	Type
15	O	203	GLU
15	O	206	TYR
15	O	250	ASP
15	O	289	SER
16	P	140	LYS
16	P	170	GLU
16	P	254	LEU
16	P	263	TYR
16	P	301	GLU
17	Q	16	LYS
18	R	19	ASP
18	R	95	HIS
19	S	13	LEU
19	S	38	LYS
19	S	95	SER
20	T	9	GLU
20	T	23	ASP
20	T	29	LYS
20	T	37	MET
20	T	38	LYS
20	T	43	ASP
20	T	82	ASP
20	U	29	LYS
20	U	37	MET
22	W	68	LYS
22	W	89	GLU
22	W	114	ARG
23	X	101	LYS
23	X	120	ASP
23	X	154	GLU
24	Y	105	ARG
24	Y	114	CYS
25	Z	64	ASP
25	Z	109	SER
26	a	70	ASP
27	b	3	ARG
27	b	4	VAL
27	b	33	THR
28	c	1	LYS
28	c	2	PHE
28	c	26	PHE
29	d	92	SER

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Mol	Chain	Res	Type
30	e	15	ARG
30	e	80	ARG
31	f	8	ARG
31	f	28	ARG
31	f	57	LYS
32	g	26	TRP
32	g	57	ASN
32	g	86	GLN
32	g	112	CYS
33	h	32	THR
33	h	57	GLU
34	i	28	SER
34	i	37	GLN
34	i	67	SER
34	i	120	LYS
35	j	6	HIS
35	j	40	PHE
35	j	58	GLN
35	j	70	ASP
36	k	11	SER
36	k	86	TYR
36	k	87	LEU
38	m	30	LYS
38	m	56	ARG
39	n	150	THR
39	n	175	GLU
40	o	20	ARG
40	o	21	MET
40	o	28	TYR
40	o	30	PHE
40	o	58	CYS
40	o	109	GLN
40	o	112	LYS
40	o	117	ARG
40	o	118	GLU
41	p	42	ARG
41	p	65	ARG
41	p	74	THR
41	p	170	LYS
42	q	26	VAL
42	q	107	LYS
42	q	145	LYS

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Mol	Chain	Res	Type
43	r	5	ARG
43	r	60	ARG
44	s	37	THR
44	s	59	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
5	E	214	GLN
14	N	204	ASN
19	S	79	ASN
22	W	126	HIS
38	m	32	GLN
38	m	74	ASN
38	m	78	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](#)

11 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
1	FME	A	1	1	8,9,10	0.91	0	7,9,11	1.09	1 (14%)
12	FME	L	1	12	8,9,10	1.00	1 (12%)	7,9,11	0.72	0
24	AYA	Y	1	24	6,7,8	1.76	1 (16%)	5,8,10	1.42	1 (20%)
11	FME	K	1	11	8,9,10	0.91	0	7,9,11	0.81	0
10	FME	J	1	10	8,9,10	0.91	0	7,9,11	0.97	0
13	FME	M	1	13	8,9,10	0.98	1 (12%)	7,9,11	0.88	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
34	SAC	i	1	34	7,8,9	0.98	0	8,9,11	1.71	2 (25%)
14	FME	N	1	14	8,9,10	0.97	0	7,9,11	0.91	0
4	2MR	D	85	4	10,12,13	2.62	4 (40%)	5,13,15	1.18	1 (20%)
43	AYA	r	1	43	6,7,8	1.81	2 (33%)	5,8,10	1.26	1 (20%)
8	FME	H	1	8	8,9,10	1.03	1 (12%)	7,9,11	0.86	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
1	FME	A	1	1	-	3/7/9/11	-
12	FME	L	1	12	-	2/7/9/11	-
24	AYA	Y	1	24	-	0/4/6/8	-
11	FME	K	1	11	-	1/7/9/11	-
10	FME	J	1	10	-	3/7/9/11	-
13	FME	M	1	13	-	0/7/9/11	-
34	SAC	i	1	34	-	6/7/8/10	-
14	FME	N	1	14	-	5/7/9/11	-
4	2MR	D	85	4	-	0/10/13/15	-
43	AYA	r	1	43	-	0/4/6/8	-
8	FME	H	1	8	-	3/7/9/11	-

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	85	2MR	CZ-NH2	4.92	1.44	1.33
4	D	85	2MR	CZ-NE	4.55	1.44	1.34
4	D	85	2MR	O-C	3.94	1.35	1.19
43	r	1	AYA	CT-N	3.26	1.45	1.34
24	Y	1	AYA	CT-N	3.13	1.45	1.34
8	H	1	FME	CA-N	-2.23	1.43	1.46
4	D	85	2MR	CQ1-NH1	-2.08	1.42	1.46
12	L	1	FME	CA-N	-2.08	1.43	1.46
13	M	1	FME	CA-N	-2.04	1.43	1.46
43	r	1	AYA	OT-CT	-2.04	1.18	1.23

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	i	1	SAC	C-CA-N	3.26	115.61	109.73
4	D	85	2MR	NE-CZ-NH2	-2.41	117.27	119.48
24	Y	1	AYA	CM-CT-N	2.36	120.10	116.10
43	r	1	AYA	CM-CT-N	2.30	120.00	116.10
1	A	1	FME	C-CA-N	2.23	113.75	109.73
34	i	1	SAC	C2A-C1A-N	2.03	119.54	116.10

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	1	FME	C-CA-CB-CG
1	A	1	FME	O-C-CA-CB
8	H	1	FME	O-C-CA-CB
8	H	1	FME	CA-CB-CG-SD
10	J	1	FME	O1-CN-N-CA
12	L	1	FME	O1-CN-N-CA
14	N	1	FME	O1-CN-N-CA
14	N	1	FME	CB-CA-N-CN
14	N	1	FME	N-CA-CB-CG
14	N	1	FME	C-CA-CB-CG
34	i	1	SAC	N-CA-CB-OG
34	i	1	SAC	C-CA-CB-OG
34	i	1	SAC	C2A-C1A-N-CA
34	i	1	SAC	OAC-C1A-N-CA
1	A	1	FME	N-CA-CB-CG
12	L	1	FME	CA-CB-CG-SD
11	K	1	FME	CB-CG-SD-CE
8	H	1	FME	C-CA-CB-CG
10	J	1	FME	CB-CG-SD-CE
34	i	1	SAC	CB-CA-N-C1A
14	N	1	FME	CB-CG-SD-CE
34	i	1	SAC	C-CA-N-C1A
10	J	1	FME	CB-CA-N-CN

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	L	1	FME	2	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 58 ligands modelled in this entry, 3 are monoatomic - leaving 55 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
45	LMT	L	702	-	36,36,36	1.17	3 (8%)	47,47,47	0.92	0
51	3PE	P	502	-	36,36,50	1.03	4 (11%)	39,41,55	1.16	2 (5%)
51	3PE	M	605	-	50,50,50	0.87	3 (6%)	53,55,55	1.12	2 (3%)
46	PC1	L	707	-	48,48,53	0.98	4 (8%)	54,56,61	1.07	2 (3%)
45	LMT	L	706	-	36,36,36	1.18	2 (5%)	47,47,47	1.12	3 (6%)
45	LMT	M	604	-	36,36,36	1.22	3 (8%)	47,47,47	0.96	0
49	FMN	F	501	-	33,33,33	1.11	2 (6%)	48,50,50	1.29	6 (12%)
51	3PE	N	701	-	40,40,50	0.97	3 (7%)	43,45,55	1.09	2 (4%)
45	LMT	l	201	-	36,36,36	1.23	3 (8%)	47,47,47	1.15	3 (6%)
58	EHZ	U	101	20	29,36,37	1.68	6 (20%)	35,44,47	1.50	4 (11%)
52	CDL	J	701	-	61,61,99	1.06	7 (11%)	67,73,111	1.25	5 (7%)
51	3PE	M	601	-	45,45,50	0.91	4 (8%)	48,50,55	0.99	2 (4%)
45	LMT	b	101	-	36,36,36	1.16	2 (5%)	47,47,47	1.17	3 (6%)
51	3PE	X	401	-	50,50,50	0.85	4 (8%)	53,55,55	1.14	2 (3%)
52	CDL	K	502	-	70,70,99	1.03	6 (8%)	76,82,111	1.08	4 (5%)
46	PC1	B	202	-	53,53,53	0.92	3 (5%)	59,61,61	1.05	2 (3%)
51	3PE	N	702	-	28,28,50	1.13	3 (10%)	31,33,55	1.16	2 (6%)
58	EHZ	T	101	20	29,36,37	1.67	6 (20%)	35,44,47	1.67	5 (14%)
47	SF4	F	502	6	0,12,12	-	-	-	-	-
52	CDL	h	1001	-	66,66,99	1.06	8 (12%)	72,78,111	1.23	4 (5%)
51	3PE	d	1201	-	50,50,50	0.86	3 (6%)	53,55,55	1.10	2 (3%)
46	PC1	A	303	-	20,20,53	1.89	3 (15%)	24,27,61	1.17	1 (4%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
47	SF4	I	202	9	0,12,12	-	-	-		
45	LMT	L	704	-	36,36,36	1.23	4 (11%)	47,47,47	0.91	0
45	LMT	M	603	-	36,36,36	1.15	2 (5%)	47,47,47	0.98	1 (2%)
52	CDL	r	201	-	75,75,99	0.99	6 (8%)	81,87,111	1.11	4 (4%)
45	LMT	Y	804	-	36,36,36	1.19	3 (8%)	47,47,47	1.07	2 (4%)
45	LMT	M	602	-	36,36,36	1.13	2 (5%)	47,47,47	1.01	2 (4%)
45	LMT	h	1002	-	36,36,36	1.16	2 (5%)	47,47,47	0.92	2 (4%)
45	LMT	A	301	-	36,36,36	1.13	2 (5%)	47,47,47	1.13	3 (6%)
51	3PE	d	1202	-	50,50,50	0.82	3 (6%)	53,55,55	1.19	4 (7%)
56	NDP	P	501	-	45,52,52	2.17	4 (8%)	53,80,80	1.67	11 (20%)
47	SF4	G	801	7	0,12,12	-	-	-		
45	LMT	Y	803	-	36,36,36	1.17	3 (8%)	47,47,47	1.00	1 (2%)
51	3PE	H	402	-	50,50,50	0.87	4 (8%)	53,55,55	1.06	3 (5%)
53	I49	N	703	-	15,17,17	1.45	2 (13%)	21,22,22	1.90	6 (28%)
45	LMT	j	101	-	36,36,36	1.21	3 (8%)	47,47,47	0.96	2 (4%)
45	LMT	A	302	-	36,36,36	1.23	2 (5%)	47,47,47	1.09	2 (4%)
51	3PE	L	701	-	48,48,50	0.90	4 (8%)	51,53,55	1.14	2 (3%)
47	SF4	G	802	7	0,12,12	-	-	-		
45	LMT	J	702	-	36,36,36	1.21	3 (8%)	47,47,47	1.11	2 (4%)
47	SF4	B	201	2	0,12,12	-	-	-		
47	SF4	I	201	9	0,12,12	-	-	-		
54	GTP	O	401	55	26,34,34	2.91	10 (38%)	32,54,54	1.64	9 (28%)
46	PC1	B	203	-	34,34,53	1.17	4 (11%)	40,42,61	1.12	2 (5%)
45	LMT	K	501	-	36,36,36	1.19	3 (8%)	47,47,47	1.01	0
59	MYR	o	201	40	14,14,15	0.87	0	13,13,15	0.68	0
51	3PE	L	705	-	44,44,50	0.91	3 (6%)	47,49,55	1.08	2 (4%)
45	LMT	Y	801	-	36,36,36	1.15	3 (8%)	47,47,47	1.15	4 (8%)
51	3PE	H	403	-	33,33,50	1.38	3 (9%)	34,37,55	1.23	2 (5%)
51	3PE	Y	802	-	34,34,50	1.05	4 (11%)	37,39,55	1.19	2 (5%)
48	FES	G	803	7	0,4,4	-	-	-		
51	3PE	H	401	-	43,43,50	0.93	3 (6%)	46,48,55	1.10	2 (4%)
48	FES	E	301	5	0,4,4	-	-	-		
52	CDL	L	703	-	68,68,99	1.03	6 (8%)	74,80,111	1.10	4 (5%)

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
45	LMT	L	702	-	-	9/21/61/61	0/2/2/2
51	3PE	P	502	-	-	23/40/40/54	-
51	3PE	M	605	-	-	22/54/54/54	-
46	PC1	L	707	-	-	25/52/52/57	-
45	LMT	L	706	-	-	8/21/61/61	0/2/2/2
45	LMT	M	604	-	-	11/21/61/61	0/2/2/2
49	FMN	F	501	-	-	2/18/18/18	0/3/3/3
51	3PE	N	701	-	-	19/44/44/54	-
45	LMT	l	201	-	-	6/21/61/61	0/2/2/2
58	EHZ	U	101	20	-	6/42/44/45	-
52	CDL	J	701	-	-	31/71/71/110	-
51	3PE	M	601	-	-	17/49/49/54	-
45	LMT	b	101	-	-	3/21/61/61	0/2/2/2
51	3PE	X	401	-	-	24/54/54/54	-
52	CDL	K	502	-	-	33/81/81/110	-
46	PC1	B	202	-	-	23/57/57/57	-
51	3PE	N	702	-	-	18/32/32/54	-
58	EHZ	T	101	20	-	10/42/44/45	-
47	SF4	F	502	6	-	-	0/6/5/5
52	CDL	h	1001	-	-	35/77/77/110	-
51	3PE	d	1201	-	-	27/54/54/54	-
46	PC1	A	303	-	-	8/22/22/57	-
47	SF4	I	202	9	-	-	0/6/5/5
45	LMT	L	704	-	-	8/21/61/61	0/2/2/2
45	LMT	M	603	-	-	10/21/61/61	0/2/2/2
52	CDL	r	201	-	-	32/86/86/110	-
45	LMT	Y	804	-	-	8/21/61/61	0/2/2/2
45	LMT	M	602	-	-	7/21/61/61	0/2/2/2
45	LMT	h	1002	-	-	6/21/61/61	0/2/2/2
45	LMT	A	301	-	-	1/21/61/61	0/2/2/2
51	3PE	d	1202	-	-	19/54/54/54	-
56	NDP	P	501	-	-	5/30/77/77	0/5/5/5
47	SF4	G	801	7	-	-	0/6/5/5
45	LMT	Y	803	-	-	11/21/61/61	0/2/2/2
51	3PE	H	402	-	-	17/54/54/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
53	I49	N	703	-	-	5/10/10/10	0/1/1/1
45	LMT	j	101	-	-	9/21/61/61	0/2/2/2
45	LMT	A	302	-	-	14/21/61/61	0/2/2/2
51	3PE	L	701	-	-	24/52/52/54	-
47	SF4	G	802	7	-	-	0/6/5/5
45	LMT	J	702	-	-	9/21/61/61	0/2/2/2
47	SF4	B	201	2	-	-	0/6/5/5
54	GTP	O	401	55	-	3/18/38/38	0/3/3/3
47	SF4	I	201	9	-	-	0/6/5/5
46	PC1	B	203	-	-	14/38/38/57	-
45	LMT	K	501	-	-	10/21/61/61	0/2/2/2
59	MYR	o	201	40	-	8/11/12/13	-
51	3PE	L	705	-	-	15/48/48/54	-
45	LMT	Y	801	-	-	8/21/61/61	0/2/2/2
51	3PE	H	403	-	-	19/36/36/54	-
51	3PE	Y	802	-	-	17/38/38/54	-
48	FES	G	803	7	-	-	0/1/1/1
51	3PE	H	401	-	-	23/47/47/54	-
48	FES	E	301	5	-	-	0/1/1/1
52	CDL	L	703	-	-	32/79/79/110	-

All (170) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	P	501	NDP	P2B-O2B	12.00	1.82	1.59
54	O	401	GTP	O6-C6	8.20	1.40	1.23
46	A	303	PC1	O21-C2	-5.95	1.40	1.46
54	O	401	GTP	O4'-C1'	5.47	1.48	1.41
51	H	403	3PE	O21-C2	-5.41	1.40	1.46
58	T	101	EHZ	C15-N2	5.19	1.45	1.33
58	U	101	EHZ	C15-N2	5.16	1.44	1.33
58	T	101	EHZ	C12-N1	5.11	1.45	1.33
58	U	101	EHZ	C12-N1	5.08	1.44	1.33
54	O	401	GTP	C2-N3	4.62	1.44	1.33
54	O	401	GTP	C2-N1	4.60	1.49	1.37
54	O	401	GTP	C2-N2	4.38	1.44	1.34
53	N	703	I49	C15-N02	-4.31	1.31	1.37
45	K	501	LMT	O5B-C1B	3.71	1.51	1.41
49	F	501	FMN	C4A-N5	3.63	1.37	1.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	b	101	LMT	O5B-C1B	3.63	1.51	1.41
45	L	704	LMT	O5B-C1B	3.56	1.50	1.41
56	P	501	NDP	PN-O5D	3.54	1.73	1.59
45	M	604	LMT	O5B-C1B	3.52	1.50	1.41
45	J	702	LMT	O5B-C1B	3.52	1.50	1.41
45	Y	804	LMT	O5B-C1B	3.48	1.50	1.41
45	l	201	LMT	O5B-C1B	3.47	1.50	1.41
45	A	302	LMT	O5'-C1'	3.46	1.50	1.41
45	Y	803	LMT	O5B-C1B	3.44	1.50	1.41
45	A	302	LMT	O5B-C1B	3.43	1.50	1.41
45	j	101	LMT	O5B-C1B	3.43	1.50	1.41
45	L	706	LMT	O5B-C1B	3.39	1.50	1.41
45	j	101	LMT	O5'-C1'	3.37	1.50	1.41
45	L	704	LMT	O5'-C1'	3.37	1.50	1.41
45	h	1002	LMT	O5B-C1B	3.36	1.50	1.41
45	l	201	LMT	O5'-C1'	3.35	1.50	1.41
45	M	603	LMT	O5B-C1B	3.34	1.50	1.41
54	O	401	GTP	C2'-C1'	-3.32	1.48	1.53
45	L	702	LMT	O5B-C1B	3.28	1.50	1.41
45	M	602	LMT	O5B-C1B	3.28	1.50	1.41
45	M	604	LMT	O5'-C1'	3.28	1.50	1.41
56	P	501	NDP	O2B-C2B	-3.23	1.32	1.44
45	A	301	LMT	O5B-C1B	3.19	1.50	1.41
45	Y	801	LMT	O5B-C1B	3.16	1.49	1.41
45	J	702	LMT	O5'-C1'	3.15	1.49	1.41
54	O	401	GTP	C5-C6	-3.12	1.41	1.47
53	N	703	I49	C14-N03	3.03	1.38	1.29
45	K	501	LMT	O5'-C1'	3.03	1.49	1.41
46	A	303	PC1	O21-C21	3.00	1.40	1.33
45	L	702	LMT	O5'-C1'	2.95	1.49	1.41
45	M	603	LMT	O5'-C1'	2.95	1.49	1.41
45	b	101	LMT	O5'-C1'	2.93	1.49	1.41
45	Y	804	LMT	O5'-C1'	2.92	1.49	1.41
51	H	403	3PE	O21-C21	2.92	1.39	1.33
45	L	706	LMT	O5'-C1'	2.90	1.49	1.41
45	Y	801	LMT	O5'-C1'	2.90	1.49	1.41
45	A	301	LMT	O5'-C1'	2.90	1.49	1.41
45	Y	803	LMT	O5'-C1'	2.88	1.49	1.41
51	L	705	3PE	O21-C2	-2.84	1.39	1.46
51	H	401	3PE	O21-C2	-2.81	1.39	1.46
45	h	1002	LMT	O5'-C1'	2.80	1.49	1.41
52	r	201	CDL	OB6-CB4	-2.79	1.39	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	r	201	CDL	OA6-CA4	-2.79	1.39	1.46
45	M	602	LMT	O5'-C1'	2.78	1.48	1.41
52	L	703	CDL	OA6-CA4	-2.78	1.39	1.46
51	M	605	3PE	O21-C2	-2.75	1.39	1.46
58	U	101	EHZ	O4-C15	-2.72	1.18	1.23
52	K	502	CDL	OA6-CA4	-2.69	1.39	1.46
52	h	1001	CDL	OA6-CA4	-2.68	1.39	1.46
52	L	703	CDL	OB6-CB4	-2.68	1.39	1.46
51	L	701	3PE	O31-C3	-2.67	1.39	1.45
51	L	701	3PE	O21-C2	-2.67	1.39	1.46
51	M	601	3PE	O21-C2	-2.66	1.39	1.46
52	h	1001	CDL	OB6-CB4	-2.66	1.39	1.46
52	J	701	CDL	OB6-CB4	-2.63	1.40	1.46
51	Y	802	3PE	O21-C2	-2.63	1.40	1.46
46	B	202	PC1	O21-C2	-2.63	1.40	1.46
52	K	502	CDL	OB6-CB4	-2.61	1.40	1.46
51	N	702	3PE	O21-C2	-2.61	1.40	1.46
51	H	403	3PE	O31-C31	2.57	1.40	1.33
51	H	402	3PE	O31-C3	-2.56	1.39	1.45
46	B	203	PC1	O21-C2	-2.55	1.40	1.46
51	d	1201	3PE	O31-C31	2.53	1.40	1.33
51	X	401	3PE	O21-C2	-2.52	1.40	1.46
52	K	502	CDL	OB8-CB7	2.52	1.40	1.33
54	O	401	GTP	C2'-C3'	-2.51	1.46	1.53
51	P	502	3PE	O31-C31	2.51	1.40	1.33
51	M	605	3PE	O31-C3	-2.49	1.39	1.45
52	K	502	CDL	OA8-CA6	-2.49	1.39	1.45
51	N	701	3PE	O31-C31	2.47	1.40	1.33
51	H	402	3PE	O21-C2	-2.46	1.40	1.46
51	H	401	3PE	O31-C3	-2.46	1.39	1.45
46	L	707	PC1	O31-C31	2.46	1.40	1.33
58	T	101	EHZ	O4-C15	-2.45	1.18	1.23
52	r	201	CDL	OA8-CA6	-2.45	1.39	1.45
51	N	701	3PE	O21-C2	-2.44	1.40	1.46
52	J	701	CDL	OA6-CA5	2.41	1.40	1.35
52	h	1001	CDL	OB8-CB6	-2.40	1.39	1.45
52	r	201	CDL	OB8-CB7	2.39	1.40	1.33
58	U	101	EHZ	O3-C12	-2.37	1.18	1.23
58	T	101	EHZ	O3-C12	-2.37	1.18	1.23
51	L	705	3PE	O31-C3	-2.37	1.39	1.45
52	L	703	CDL	OB8-CB7	2.36	1.40	1.33
51	N	702	3PE	O31-C31	2.34	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
51	M	601	3PE	O31-C31	2.34	1.40	1.33
52	L	703	CDL	OA8-CA6	-2.33	1.39	1.45
54	O	401	GTP	PG-O2G	-2.33	1.45	1.54
52	h	1001	CDL	OA8-CA7	2.33	1.40	1.33
46	B	202	PC1	O31-C3	-2.33	1.39	1.45
51	Y	802	3PE	O31-C3	-2.31	1.39	1.45
56	P	501	NDP	O5D-C5D	-2.31	1.35	1.44
52	J	701	CDL	OA6-CA4	-2.30	1.40	1.46
52	J	701	CDL	OB8-CB6	-2.30	1.39	1.45
51	P	502	3PE	O21-C21	2.29	1.40	1.34
51	Y	802	3PE	O31-C31	2.29	1.40	1.33
52	K	502	CDL	OA8-CA7	2.28	1.40	1.33
45	l	201	LMT	O5B-C5B	2.28	1.49	1.44
46	B	203	PC1	O31-C31	2.28	1.40	1.33
51	H	401	3PE	O31-C31	2.27	1.40	1.33
51	L	705	3PE	O31-C31	2.25	1.39	1.33
52	L	703	CDL	OA8-CA7	2.25	1.39	1.33
51	X	401	3PE	O31-C3	-2.24	1.40	1.45
45	M	604	LMT	O5B-C5B	2.24	1.49	1.44
51	H	402	3PE	O21-C21	2.24	1.40	1.34
46	L	707	PC1	O21-C2	-2.23	1.41	1.46
51	M	601	3PE	O31-C3	-2.23	1.40	1.45
46	B	203	PC1	O21-C21	2.22	1.40	1.34
51	N	701	3PE	O21-C21	2.22	1.40	1.34
52	h	1001	CDL	OB6-CB5	2.22	1.40	1.34
54	O	401	GTP	PG-O3G	-2.22	1.46	1.54
52	J	701	CDL	OA8-CA7	2.22	1.39	1.33
45	Y	804	LMT	O5B-C5B	2.22	1.49	1.44
52	J	701	CDL	OA8-CA6	-2.21	1.40	1.45
51	N	702	3PE	O31-C3	-2.20	1.40	1.45
46	B	203	PC1	O31-C3	-2.18	1.40	1.45
51	d	1201	3PE	O21-C21	2.17	1.40	1.34
51	d	1201	3PE	O21-C2	-2.17	1.41	1.46
45	j	101	LMT	O5B-C5B	2.16	1.49	1.44
51	d	1202	3PE	O31-C31	2.16	1.39	1.33
46	B	202	PC1	O31-C31	2.16	1.39	1.33
52	h	1001	CDL	OA8-CA6	-2.16	1.40	1.45
51	d	1202	3PE	O31-C3	-2.14	1.40	1.45
51	L	701	3PE	O31-C31	2.14	1.39	1.33
51	P	502	3PE	O31-C3	-2.14	1.40	1.45
45	K	501	LMT	O5B-C5B	2.14	1.49	1.44
46	L	707	PC1	O21-C21	2.13	1.40	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	U	101	EHZ	O6-C20	-2.12	1.39	1.44
58	T	101	EHZ	O6-C20	-2.11	1.39	1.44
52	K	502	CDL	OB6-CB5	2.11	1.40	1.34
52	h	1001	CDL	OB8-CB7	2.11	1.39	1.33
51	H	402	3PE	O31-C31	2.11	1.39	1.33
58	U	101	EHZ	C9-S1	2.09	1.81	1.76
51	X	401	3PE	O31-C31	2.08	1.39	1.33
46	A	303	PC1	O31-C3	-2.07	1.40	1.45
51	M	601	3PE	O21-C21	2.06	1.40	1.34
51	X	401	3PE	O21-C21	2.06	1.40	1.34
45	Y	801	LMT	O5B-C5B	2.06	1.49	1.44
45	Y	803	LMT	O5B-C5B	2.06	1.49	1.44
52	L	703	CDL	OB8-CB6	-2.05	1.40	1.45
45	L	704	LMT	O5'-C5'	2.05	1.49	1.44
52	h	1001	CDL	OA6-CA5	2.04	1.40	1.34
52	r	201	CDL	OA6-CA5	2.04	1.40	1.34
51	Y	802	3PE	O21-C21	2.04	1.40	1.34
51	M	605	3PE	O21-C21	2.04	1.40	1.34
52	J	701	CDL	OB8-CB7	2.04	1.39	1.33
45	J	702	LMT	O5'-C5'	2.03	1.49	1.44
58	T	101	EHZ	C9-S1	2.03	1.81	1.76
51	P	502	3PE	O21-C2	-2.02	1.41	1.46
52	r	201	CDL	OA8-CA7	2.02	1.39	1.33
46	L	707	PC1	O31-C3	-2.02	1.40	1.45
49	F	501	FMN	C10-N1	2.01	1.37	1.33
45	L	702	LMT	O5B-C5B	2.01	1.49	1.44
51	L	701	3PE	O21-C21	2.01	1.40	1.34
45	L	704	LMT	O5B-C5B	2.01	1.49	1.44
51	d	1202	3PE	O21-C2	-2.00	1.41	1.46

All (130) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
56	P	501	NDP	PN-O3-PA	-6.69	109.86	132.83
58	T	101	EHZ	C8-C9-S1	6.50	121.68	113.63
58	U	101	EHZ	C8-C9-S1	6.02	121.08	113.63
51	H	403	3PE	O21-C21-O22	-5.21	118.94	125.57
52	h	1001	CDL	OB6-CB5-C51	4.79	121.83	111.50
46	L	707	PC1	O21-C21-C22	4.69	121.61	111.50
52	J	701	CDL	OA6-CA5-C11	4.51	119.39	111.09
46	B	203	PC1	O21-C21-C22	4.45	121.10	111.50
46	A	303	PC1	O21-C21-O22	-4.44	119.92	125.57

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
53	N	703	I49	N01-C14-N03	4.43	128.55	120.26
46	B	202	PC1	O21-C21-C22	4.41	121.00	111.50
53	N	703	I49	C14-N02-C15	-4.35	117.95	125.21
52	J	701	CDL	OB6-CB5-C51	4.29	120.74	111.50
51	d	1202	3PE	O21-C21-C22	4.27	120.71	111.50
51	Y	802	3PE	O21-C21-C22	4.19	120.53	111.50
51	X	401	3PE	O21-C21-C22	4.19	120.53	111.50
51	L	701	3PE	O21-C21-C22	4.16	120.48	111.50
51	N	702	3PE	O21-C21-C22	4.10	120.33	111.50
51	P	502	3PE	O21-C21-C22	4.07	120.27	111.50
52	h	1001	CDL	OA6-CA5-C11	4.05	120.22	111.50
51	d	1201	3PE	O21-C21-C22	4.03	120.19	111.50
51	H	402	3PE	O21-C21-C22	4.03	120.18	111.50
51	N	701	3PE	O21-C21-C22	4.02	120.16	111.50
52	r	201	CDL	OA6-CA5-C11	3.79	119.67	111.50
52	r	201	CDL	OB6-CB5-C51	3.76	119.61	111.50
51	M	605	3PE	O21-C21-C22	3.75	119.59	111.50
52	L	703	CDL	OB6-CB5-C51	3.71	119.49	111.50
51	H	401	3PE	O21-C21-C22	3.68	119.44	111.50
51	L	705	3PE	O21-C21-C22	3.63	119.31	111.50
52	K	502	CDL	OB6-CB5-C51	3.62	119.30	111.50
45	A	301	LMT	O1'-C1'-C2'	3.60	113.92	108.30
52	L	703	CDL	OA6-CA5-C11	3.59	119.24	111.50
52	K	502	CDL	OA6-CA5-C11	3.48	119.00	111.50
49	F	501	FMN	C4-N3-C2	-3.43	119.30	125.64
56	P	501	NDP	O2B-P2B-O1X	-3.38	96.34	109.39
45	b	101	LMT	C2'-C3'-C4'	3.28	117.18	109.68
51	M	601	3PE	O21-C21-C22	3.27	118.55	111.50
45	b	101	LMT	C1'-C2'-C3'	3.26	116.78	110.00
51	d	1201	3PE	O31-C31-C32	3.23	122.05	111.91
45	Y	801	LMT	C3B-C4B-C5B	3.23	116.00	110.24
54	O	401	GTP	C5-C6-N1	3.13	119.48	113.95
51	P	502	3PE	O31-C31-C32	3.06	121.51	111.91
52	h	1001	CDL	OA8-CA7-C31	3.05	121.49	111.91
54	O	401	GTP	C2-N1-C6	-3.04	119.50	125.10
51	N	701	3PE	O31-C31-C32	3.04	121.44	111.91
53	N	703	I49	N05-C15-N04	-3.02	110.97	120.26
49	F	501	FMN	C4A-C10-N10	2.97	120.83	116.48
52	J	701	CDL	OB8-CB7-C71	2.96	121.20	111.91
45	A	302	LMT	C1-O1'-C1'	2.94	118.72	113.84
58	T	101	EHZ	C10-S1-C9	2.92	110.95	101.87
51	Y	802	3PE	O31-C31-C32	2.90	120.99	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
54	O	401	GTP	PB-O3B-PG	-2.89	122.90	132.83
51	H	401	3PE	O31-C31-C32	2.87	120.91	111.91
51	H	403	3PE	O31-C31-C32	2.86	120.89	111.91
46	L	707	PC1	O31-C31-C32	2.85	120.84	111.91
51	d	1202	3PE	O31-C31-C32	2.84	120.83	111.91
54	O	401	GTP	PA-O3A-PB	-2.83	123.13	132.83
56	P	501	NDP	PA-O5B-C5B	-2.80	105.25	121.68
54	O	401	GTP	O2G-PG-O3B	2.78	113.97	104.64
46	B	203	PC1	O31-C31-C32	2.78	120.63	111.91
49	F	501	FMN	C4A-C4-N3	2.78	120.25	113.19
45	b	101	LMT	C1'-O5'-C5'	-2.76	108.26	113.69
58	T	101	EHZ	C13-C14-N2	-2.76	106.33	111.90
51	M	605	3PE	O31-C31-C32	2.74	120.50	111.91
52	r	201	CDL	OB8-CB7-C71	2.70	120.39	111.91
45	l	201	LMT	C3B-C4B-C5B	2.70	115.05	110.24
52	K	502	CDL	OB8-CB7-C71	2.69	120.36	111.91
52	r	201	CDL	OA8-CA7-C31	2.68	120.31	111.91
54	O	401	GTP	O3G-PG-O3B	2.68	113.61	104.64
51	L	701	3PE	O31-C31-C32	2.66	120.25	111.91
58	T	101	EHZ	C13-C12-N1	2.63	120.85	116.42
51	X	401	3PE	O31-C31-C32	2.60	120.06	111.91
51	N	702	3PE	O31-C31-C32	2.60	120.06	111.91
52	L	703	CDL	OB8-CB7-C71	2.59	120.04	111.91
52	K	502	CDL	OA8-CA7-C31	2.59	120.03	111.91
56	P	501	NDP	PN-O5D-C5D	-2.58	106.55	121.68
45	J	702	LMT	C1B-O1B-C4'	-2.57	111.59	117.96
45	l	201	LMT	O5B-C5B-C4B	2.55	114.33	109.69
49	F	501	FMN	O4-C4-C4A	-2.55	119.84	126.60
56	P	501	NDP	O3X-P2B-O2X	2.51	117.22	107.64
45	j	101	LMT	C1B-O1B-C4'	-2.50	111.78	117.96
58	T	101	EHZ	O2-C9-S1	-2.50	119.37	122.61
52	J	701	CDL	OA8-CA7-C31	2.49	119.74	111.91
58	U	101	EHZ	O2-C9-S1	-2.48	119.39	122.61
45	Y	801	LMT	O5B-C5B-C4B	2.46	114.17	109.69
45	Y	801	LMT	C1B-O5B-C5B	-2.45	108.88	113.69
45	L	706	LMT	O5'-C5'-C4'	2.42	114.85	109.75
51	M	601	3PE	O31-C31-C32	2.41	119.47	111.91
46	B	202	PC1	O31-C31-C32	2.38	119.39	111.91
53	N	703	I49	C08-N01-C14	-2.37	119.17	123.50
49	F	501	FMN	C10-C4A-N5	-2.36	119.84	124.86
52	h	1001	CDL	OB8-CB7-C71	2.36	119.31	111.91
56	P	501	NDP	O4B-C4B-C3B	2.36	109.78	105.11

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	L	703	CDL	OA8-CA7-C31	2.35	119.30	111.91
56	P	501	NDP	C2A-N1A-C6A	-2.35	114.73	118.75
56	P	501	NDP	O5D-PN-O1N	-2.35	99.90	109.07
49	F	501	FMN	C4A-C10-N1	-2.34	119.31	124.73
53	N	703	I49	N05-C15-N02	2.33	127.02	117.44
54	O	401	GTP	C3'-C2'-C1'	2.32	104.48	100.98
51	L	705	3PE	O31-C31-C32	2.31	119.15	111.91
45	l	201	LMT	C4B-C3B-C2B	2.30	114.84	110.82
51	H	402	3PE	O31-C31-C32	2.26	119.01	111.91
45	Y	801	LMT	C2'-C3'-C4'	2.26	114.84	109.68
58	U	101	EHZ	C10-S1-C9	2.25	108.89	101.87
54	O	401	GTP	O2A-PA-O1A	-2.25	101.12	112.24
56	P	501	NDP	O2N-PN-O1N	2.25	123.36	112.24
45	Y	804	LMT	C1B-O1B-C4'	-2.23	112.44	117.96
45	A	301	LMT	C1-O1'-C1'	-2.22	110.15	113.84
54	O	401	GTP	O2B-PB-O1B	-2.21	101.31	112.24
45	J	702	LMT	O5'-C5'-C4'	2.20	114.40	109.75
56	P	501	NDP	O7N-C7N-C3N	2.20	125.04	120.90
53	N	703	I49	C08-C06-C07	2.19	117.95	112.87
51	H	402	3PE	C3-C2-C1	-2.18	106.63	111.79
51	d	1202	3PE	O21-C2-C3	2.17	116.26	108.40
58	U	101	EHZ	C13-C12-N1	2.17	120.07	116.42
45	A	302	LMT	O1B-C4'-C5'	2.17	115.38	109.45
45	Y	803	LMT	C1'-O5'-C5'	-2.16	109.44	113.69
45	A	301	LMT	C1B-O1B-C4'	-2.15	112.66	117.96
45	L	706	LMT	C3'-C4'-C5'	2.13	115.80	110.93
52	J	701	CDL	OB8-CB7-OB9	-2.12	118.23	123.59
45	M	603	LMT	C1B-C2B-C3B	2.10	114.36	110.00
45	L	706	LMT	C1'-O5'-C5'	-2.08	109.61	113.69
56	P	501	NDP	O3X-P2B-O2B	-2.06	96.76	105.99
51	d	1202	3PE	O21-C21-O22	-2.06	118.72	123.70
45	h	1002	LMT	C1B-O1B-C4'	-2.06	112.87	117.96
45	M	602	LMT	C1B-O5B-C5B	-2.03	109.70	113.69
45	Y	804	LMT	C1'-O5'-C5'	-2.03	109.70	113.69
45	h	1002	LMT	O5'-C5'-C4'	2.03	114.03	109.75
45	j	101	LMT	O5B-C5B-C4B	2.01	113.34	109.69
45	M	602	LMT	O5'-C5'-C4'	2.00	113.97	109.75

There are no chirality outliers.

All (694) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
45	A	302	LMT	O5'-C1'-O1'-C1
45	L	702	LMT	C2'-C1'-O1'-C1
45	L	702	LMT	O5'-C1'-O1'-C1
45	L	702	LMT	C2-C1-O1'-C1'
45	L	706	LMT	C2'-C1'-O1'-C1
45	L	706	LMT	O5'-C1'-O1'-C1
45	M	603	LMT	C2'-C1'-O1'-C1
45	M	603	LMT	O5'-C1'-O1'-C1
45	M	604	LMT	O5'-C1'-O1'-C1
45	Y	803	LMT	O5'-C1'-O1'-C1
45	b	101	LMT	C2-C1-O1'-C1'
45	l	201	LMT	C2'-C1'-O1'-C1
45	l	201	LMT	O5'-C1'-O1'-C1
46	A	303	PC1	C1-O11-P-O14
46	A	303	PC1	C1-O11-P-O13
46	A	303	PC1	O22-C21-O21-C2
51	H	401	3PE	C1-O11-P-O14
51	H	401	3PE	C11-O13-P-O12
51	H	401	3PE	O13-C11-C12-N
51	H	402	3PE	C11-O13-P-O11
51	H	402	3PE	C11-O13-P-O12
51	H	402	3PE	C11-O13-P-O14
51	H	402	3PE	O13-C11-C12-N
51	H	403	3PE	O13-C11-C12-N
51	H	403	3PE	C1-C2-O21-C21
51	H	403	3PE	C3-C2-O21-C21
51	H	403	3PE	O22-C21-O21-C2
51	L	701	3PE	C11-O13-P-O12
51	L	701	3PE	C11-O13-P-O14
51	L	701	3PE	C22-C21-O21-C2
51	L	705	3PE	O13-C11-C12-N
51	M	601	3PE	C1-O11-P-O13
51	M	601	3PE	O13-C11-C12-N
51	M	605	3PE	C1-O11-P-O14
51	M	605	3PE	O13-C11-C12-N
51	N	701	3PE	C11-O13-P-O12
51	N	701	3PE	O13-C11-C12-N
51	N	702	3PE	C1-O11-P-O12
51	N	702	3PE	C1-O11-P-O13
51	N	702	3PE	C1-O11-P-O14
51	N	702	3PE	C11-O13-P-O12
51	N	702	3PE	O22-C21-O21-C2
51	N	702	3PE	C22-C21-O21-C2

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Mol	Chain	Res	Type	Atoms
51	P	502	3PE	C1-O11-P-O13
51	P	502	3PE	C1-O11-P-O14
51	P	502	3PE	C22-C21-O21-C2
51	X	401	3PE	C11-O13-P-O12
51	X	401	3PE	C11-O13-P-O14
51	X	401	3PE	C22-C21-O21-C2
51	Y	802	3PE	C11-O13-P-O11
51	Y	802	3PE	C11-O13-P-O12
51	Y	802	3PE	C11-O13-P-O14
51	Y	802	3PE	C22-C21-O21-C2
51	d	1201	3PE	C1-O11-P-O12
51	d	1201	3PE	C1-O11-P-O13
51	d	1201	3PE	C1-O11-P-O14
51	d	1201	3PE	O13-C11-C12-N
51	d	1201	3PE	O32-C31-O31-C3
51	d	1201	3PE	C32-C31-O31-C3
51	d	1201	3PE	O22-C21-O21-C2
51	d	1202	3PE	O22-C21-O21-C2
52	J	701	CDL	CB2-C1-CA2-OA2
52	J	701	CDL	C11-CA5-OA6-CA4
52	J	701	CDL	OB7-CB5-OB6-CB4
52	J	701	CDL	C51-CB5-OB6-CB4
52	K	502	CDL	CA2-OA2-PA1-OA4
52	K	502	CDL	CA3-OA5-PA1-OA3
52	K	502	CDL	CB4-CB3-OB5-PB2
52	L	703	CDL	CB2-C1-CA2-OA2
52	L	703	CDL	CA2-OA2-PA1-OA4
52	h	1001	CDL	CA3-OA5-PA1-OA2
52	h	1001	CDL	CA3-OA5-PA1-OA3
52	h	1001	CDL	CA3-OA5-PA1-OA4
52	h	1001	CDL	OB7-CB5-OB6-CB4
52	h	1001	CDL	C51-CB5-OB6-CB4
52	r	201	CDL	O1-C1-CA2-OA2
52	r	201	CDL	CB2-C1-CA2-OA2
52	r	201	CDL	CB2-OB2-PB2-OB3
52	r	201	CDL	CB2-OB2-PB2-OB4
52	r	201	CDL	CB2-OB2-PB2-OB5
53	N	703	I49	C07-C06-C08-N01
53	N	703	I49	N01-C14-N02-C15
53	N	703	I49	N03-C14-N02-C15
54	O	401	GTP	PB-O3B-PG-O2G
54	O	401	GTP	C5'-O5'-PA-O1A

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Mol	Chain	Res	Type	Atoms
56	P	501	NDP	C2B-O2B-P2B-O1X
58	T	101	EHZ	C11-C10-S1-C9
58	T	101	EHZ	C16-C17-C20-O6
58	T	101	EHZ	O2-C9-S1-C10
58	T	101	EHZ	C8-C9-S1-C10
58	U	101	EHZ	C5-C6-C7-O1
58	U	101	EHZ	O2-C9-S1-C10
58	U	101	EHZ	C8-C9-S1-C10
59	o	201	MYR	C1-C2-C3-C4
51	H	403	3PE	O32-C31-O31-C3
51	Y	802	3PE	O32-C31-O31-C3
45	J	702	LMT	O5B-C1B-O1B-C4'
51	H	403	3PE	C32-C31-O31-C3
45	A	302	LMT	C5'-C4'-O1B-C1B
51	H	401	3PE	O32-C31-O31-C3
45	j	101	LMT	O5B-C5B-C6B-O6B
45	J	702	LMT	C2B-C1B-O1B-C4'
51	L	701	3PE	O22-C21-O21-C2
51	P	502	3PE	O22-C21-O21-C2
51	X	401	3PE	O22-C21-O21-C2
51	Y	802	3PE	O22-C21-O21-C2
52	J	701	CDL	OA7-CA5-OA6-CA4
51	H	401	3PE	C32-C31-O31-C3
51	Y	802	3PE	C32-C31-O31-C3
52	J	701	CDL	C31-CA7-OA8-CA6
45	L	706	LMT	O5B-C5B-C6B-O6B
51	d	1201	3PE	C22-C21-O21-C2
51	d	1202	3PE	C22-C21-O21-C2
45	M	602	LMT	O5B-C5B-C6B-O6B
45	M	604	LMT	O5'-C5'-C6'-O6'
45	h	1002	LMT	O5'-C5'-C6'-O6'
51	L	701	3PE	C32-C31-O31-C3
45	M	604	LMT	O5B-C5B-C6B-O6B
45	Y	804	LMT	O5'-C5'-C6'-O6'
46	B	203	PC1	O22-C21-O21-C2
52	J	701	CDL	OA9-CA7-OA8-CA6
45	j	101	LMT	O5B-C1B-O1B-C4'
45	L	702	LMT	O5B-C5B-C6B-O6B
45	Y	803	LMT	O5B-C5B-C6B-O6B
52	J	701	CDL	O1-C1-CA2-OA2
51	H	402	3PE	C32-C31-O31-C3
51	M	605	3PE	C32-C31-O31-C3

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Mol	Chain	Res	Type	Atoms
51	P	502	3PE	C32-C31-O31-C3
45	M	602	LMT	O5'-C5'-C6'-O6'
45	K	501	LMT	C4'-C5'-C6'-O6'
45	j	101	LMT	C4B-C5B-C6B-O6B
46	B	203	PC1	C22-C21-O21-C2
51	L	705	3PE	C22-C21-O21-C2
45	K	501	LMT	O5'-C5'-C6'-O6'
51	M	605	3PE	O32-C31-O31-C3
45	L	706	LMT	C4B-C5B-C6B-O6B
45	Y	801	LMT	C4B-C5B-C6B-O6B
56	P	501	NDP	O4D-C4D-C5D-O5D
45	j	101	LMT	C2B-C1B-O1B-C4'
45	Y	804	LMT	O5B-C5B-C6B-O6B
45	L	702	LMT	C4B-C5B-C6B-O6B
45	L	704	LMT	C4B-C5B-C6B-O6B
45	Y	803	LMT	C4B-C5B-C6B-O6B
51	L	701	3PE	O32-C31-O31-C3
45	h	1002	LMT	C2-C3-C4-C5
45	Y	801	LMT	O5B-C5B-C6B-O6B
45	Y	801	LMT	O5'-C5'-C6'-O6'
45	A	302	LMT	C4'-C5'-C6'-O6'
45	M	602	LMT	C4B-C5B-C6B-O6B
45	A	302	LMT	O5B-C5B-C6B-O6B
45	L	702	LMT	O5'-C5'-C6'-O6'
51	H	402	3PE	O32-C31-O31-C3
51	P	502	3PE	O32-C31-O31-C3
45	M	604	LMT	C4B-C5B-C6B-O6B
45	M	604	LMT	C4'-C5'-C6'-O6'
45	h	1002	LMT	C4'-C5'-C6'-O6'
45	A	302	LMT	C4B-C5B-C6B-O6B
45	M	602	LMT	C4'-C5'-C6'-O6'
46	B	203	PC1	C32-C31-O31-C3
46	L	707	PC1	C32-C31-O31-C3
51	N	702	3PE	C32-C31-O31-C3
52	L	703	CDL	C71-CB7-OB8-CB6
52	h	1001	CDL	C31-CA7-OA8-CA6
52	h	1001	CDL	C71-CB7-OB8-CB6
52	r	201	CDL	C31-CA7-OA8-CA6
45	L	702	LMT	C4'-C5'-C6'-O6'
45	Y	804	LMT	C4B-C5B-C6B-O6B
45	Y	804	LMT	C4'-C5'-C6'-O6'
52	h	1001	CDL	O1-C1-CB2-OB2

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Mol	Chain	Res	Type	Atoms
45	M	604	LMT	C2'-C1'-O1'-C1
45	A	302	LMT	O5'-C5'-C6'-O6'
45	L	704	LMT	O5B-C5B-C6B-O6B
45	M	603	LMT	O5B-C1B-O1B-C4'
51	L	705	3PE	O22-C21-O21-C2
52	K	502	CDL	C11-CA5-OA6-CA4
52	L	703	CDL	C11-CA5-OA6-CA4
52	K	502	CDL	CA5-C11-C12-C13
46	B	203	PC1	O32-C31-O31-C3
52	h	1001	CDL	OA9-CA7-OA8-CA6
52	h	1001	CDL	OB9-CB7-OB8-CB6
52	r	201	CDL	OA9-CA7-OA8-CA6
45	Y	801	LMT	C4'-C5'-C6'-O6'
52	K	502	CDL	C31-CA7-OA8-CA6
52	L	703	CDL	C31-CA7-OA8-CA6
51	X	401	3PE	C21-C22-C23-C24
52	L	703	CDL	CA5-C11-C12-C13
45	J	702	LMT	O5B-C5B-C6B-O6B
51	N	702	3PE	C21-C22-C23-C24
45	M	603	LMT	O5B-C5B-C6B-O6B
51	N	702	3PE	O32-C31-O31-C3
52	L	703	CDL	OB9-CB7-OB8-CB6
46	L	707	PC1	O32-C31-O31-C3
59	o	201	MYR	C3-C4-C5-C6
52	L	703	CDL	O1-C1-CA2-OA2
52	K	502	CDL	OA7-CA5-OA6-CA4
52	L	703	CDL	OA7-CA5-OA6-CA4
52	K	502	CDL	OA9-CA7-OA8-CA6
52	L	703	CDL	OA9-CA7-OA8-CA6
45	K	501	LMT	O5B-C5B-C6B-O6B
51	d	1202	3PE	C2A-C2B-C2C-C2D
46	B	202	PC1	C11-O13-P-O11
51	H	401	3PE	C11-O13-P-O11
51	H	403	3PE	C11-O13-P-O11
51	L	701	3PE	C11-O13-P-O11
51	M	605	3PE	C1-O11-P-O13
51	N	701	3PE	C11-O13-P-O11
51	N	702	3PE	C11-O13-P-O11
51	P	502	3PE	C11-O13-P-O11
51	X	401	3PE	C11-O13-P-O11
51	Y	802	3PE	C1-O11-P-O13
52	J	701	CDL	CA3-OA5-PA1-OA2

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Mol	Chain	Res	Type	Atoms
52	L	703	CDL	CA2-OA2-PA1-OA5
52	h	1001	CDL	CA2-OA2-PA1-OA5
51	H	401	3PE	C31-C32-C33-C34
46	L	707	PC1	C21-C22-C23-C24
45	M	604	LMT	C3'-C4'-O1B-C1B
46	B	202	PC1	C2A-C2B-C2C-C2D
52	h	1001	CDL	C11-CA5-OA6-CA4
45	j	101	LMT	C4-C5-C6-C7
46	L	707	PC1	C24-C25-C26-C27
51	M	605	3PE	C35-C36-C37-C38
51	X	401	3PE	C23-C24-C25-C26
52	h	1001	CDL	C16-C17-C18-C19
52	h	1001	CDL	C22-C23-C24-C25
58	T	101	EHZ	C18-C17-C20-O6
58	T	101	EHZ	C19-C17-C20-O6
46	L	707	PC1	C29-C2A-C2B-C2C
51	H	403	3PE	C34-C35-C36-C37
51	L	701	3PE	C23-C24-C25-C26
51	M	601	3PE	C22-C23-C24-C25
51	M	605	3PE	C23-C24-C25-C26
51	d	1202	3PE	C26-C27-C28-C29
51	d	1202	3PE	C3-C2-O21-C21
52	h	1001	CDL	OA7-CA5-OA6-CA4
46	B	202	PC1	C28-C29-C2A-C2B
51	M	601	3PE	C37-C38-C39-C3A
52	r	201	CDL	C39-C40-C41-C42
52	r	201	CDL	C51-C52-C53-C54
51	L	705	3PE	C25-C26-C27-C28
51	d	1201	3PE	C2D-C2E-C2F-C2G
52	K	502	CDL	C40-C41-C42-C43
46	L	707	PC1	C34-C35-C36-C37
51	M	601	3PE	C34-C35-C36-C37
51	M	601	3PE	C36-C37-C38-C39
51	d	1202	3PE	C3E-C3F-C3G-C3H
58	U	101	EHZ	C21-C1-C2-C3
45	L	704	LMT	C2'-C1'-O1'-C1
45	Y	803	LMT	C2'-C1'-O1'-C1
46	B	202	PC1	C33-C34-C35-C36
46	B	202	PC1	C35-C36-C37-C38
46	L	707	PC1	C2D-C2E-C2F-C2G
45	A	302	LMT	C7-C8-C9-C10
46	L	707	PC1	C23-C24-C25-C26

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Mol	Chain	Res	Type	Atoms
51	N	702	3PE	C32-C33-C34-C35
51	d	1201	3PE	C3E-C3F-C3G-C3H
59	o	201	MYR	C10-C11-C12-C13
51	M	605	3PE	C2D-C2E-C2F-C2G
51	d	1202	3PE	C39-C3A-C3B-C3C
51	d	1202	3PE	C23-C24-C25-C26
46	L	707	PC1	C36-C37-C38-C39
51	H	403	3PE	C3C-C3D-C3E-C3F
59	o	201	MYR	C9-C10-C11-C12
45	M	603	LMT	C2-C3-C4-C5
51	L	705	3PE	C33-C34-C35-C36
52	J	701	CDL	C73-C74-C75-C76
52	J	701	CDL	CA7-C31-C32-C33
51	H	403	3PE	C3D-C3E-C3F-C3G
51	X	401	3PE	C32-C33-C34-C35
52	L	703	CDL	C54-C55-C56-C57
52	r	201	CDL	C57-C58-C59-C60
59	o	201	MYR	C5-C6-C7-C8
45	L	706	LMT	C1-C2-C3-C4
51	P	502	3PE	C33-C34-C35-C36
51	d	1201	3PE	C29-C2A-C2B-C2C
51	N	702	3PE	O13-C11-C12-N
45	h	1002	LMT	C6-C7-C8-C9
46	L	707	PC1	C2B-C2C-C2D-C2E
51	M	601	3PE	C38-C39-C3A-C3B
52	L	703	CDL	CA7-C31-C32-C33
51	L	701	3PE	C29-C2A-C2B-C2C
51	M	605	3PE	C3D-C3E-C3F-C3G
52	J	701	CDL	C78-C79-C80-C81
52	K	502	CDL	C19-C20-C21-C22
52	r	201	CDL	C31-C32-C33-C34
45	J	702	LMT	O5'-C5'-C6'-O6'
45	h	1002	LMT	C2-C1-O1'-C1'
51	L	701	3PE	C28-C29-C2A-C2B
51	X	401	3PE	C3C-C3D-C3E-C3F
51	d	1202	3PE	C24-C25-C26-C27
45	L	702	LMT	C6-C7-C8-C9
46	B	202	PC1	C2C-C2D-C2E-C2F
51	d	1201	3PE	C26-C27-C28-C29
46	B	202	PC1	C31-C32-C33-C34
51	X	401	3PE	C36-C37-C38-C39
51	X	401	3PE	C38-C39-C3A-C3B

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Mol	Chain	Res	Type	Atoms
51	N	701	3PE	C22-C21-O21-C2
52	r	201	CDL	C11-CA5-OA6-CA4
51	L	701	3PE	C2D-C2E-C2F-C2G
51	X	401	3PE	C2A-C2B-C2C-C2D
52	K	502	CDL	C16-C17-C18-C19
51	L	701	3PE	C2E-C2F-C2G-C2H
56	P	501	NDP	C3D-C4D-C5D-O5D
46	B	202	PC1	C25-C26-C27-C28
51	H	402	3PE	C38-C39-C3A-C3B
51	N	701	3PE	O22-C21-O21-C2
52	r	201	CDL	OA7-CA5-OA6-CA4
45	Y	804	LMT	C4-C5-C6-C7
46	L	707	PC1	C38-C39-C3A-C3B
45	Y	803	LMT	C1-C2-C3-C4
51	H	401	3PE	C27-C28-C29-C2A
52	r	201	CDL	C58-C59-C60-C61
51	H	402	3PE	C21-C22-C23-C24
45	M	604	LMT	C5'-C4'-O1B-C1B
52	K	502	CDL	C36-C37-C38-C39
46	L	707	PC1	C22-C21-O21-C2
45	L	704	LMT	O1'-C1-C2-C3
51	X	401	3PE	C28-C29-C2A-C2B
45	A	302	LMT	C11-C10-C9-C8
45	M	602	LMT	C9-C10-C11-C12
52	J	701	CDL	C79-C80-C81-C82
58	U	101	EHZ	C5-C6-C7-C8
51	d	1201	3PE	C2B-C2C-C2D-C2E
45	L	704	LMT	O5'-C1'-O1'-C1
45	J	702	LMT	C4-C5-C6-C7
51	L	701	3PE	C34-C35-C36-C37
51	X	401	3PE	C26-C27-C28-C29
52	J	701	CDL	C77-C78-C79-C80
52	L	703	CDL	C51-CB5-OB6-CB4
51	Y	802	3PE	C34-C35-C36-C37
52	h	1001	CDL	C13-C14-C15-C16
52	L	703	CDL	OB7-CB5-OB6-CB4
51	d	1201	3PE	C23-C24-C25-C26
45	M	602	LMT	C2'-C1'-O1'-C1
45	b	101	LMT	C2'-C1'-O1'-C1
45	j	101	LMT	C2'-C1'-O1'-C1
51	N	701	3PE	O21-C2-C3-O31
45	J	702	LMT	C1-C2-C3-C4

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Mol	Chain	Res	Type	Atoms
51	H	401	3PE	C22-C23-C24-C25
51	L	701	3PE	C38-C39-C3A-C3B
46	L	707	PC1	O22-C21-O21-C2
51	H	401	3PE	C1-O11-P-O13
52	h	1001	CDL	CB2-OB2-PB2-OB5
51	H	403	3PE	C37-C38-C39-C3A
46	L	707	PC1	C2-C1-O11-P
51	Y	802	3PE	C37-C38-C39-C3A
45	j	101	LMT	C1-C2-C3-C4
51	H	401	3PE	O11-C1-C2-C3
51	N	702	3PE	O11-C1-C2-C3
52	L	703	CDL	CB4-CB6-OB8-CB7
51	d	1202	3PE	C27-C28-C29-C2A
52	L	703	CDL	C58-C59-C60-C61
45	L	706	LMT	C4-C5-C6-C7
46	B	203	PC1	C1-C2-C3-O31
46	L	707	PC1	C37-C38-C39-C3A
51	H	403	3PE	C1-C2-C3-O31
51	N	702	3PE	C1-C2-C3-O31
51	Y	802	3PE	C1-C2-C3-O31
51	d	1201	3PE	C1-C2-C3-O31
52	J	701	CDL	CB3-CB4-CB6-OB8
46	L	707	PC1	C26-C27-C28-C29
52	J	701	CDL	C54-C55-C56-C57
52	K	502	CDL	C72-C73-C74-C75
52	h	1001	CDL	C52-C53-C54-C55
52	r	201	CDL	CA5-C11-C12-C13
52	J	701	CDL	CA4-CA6-OA8-CA7
52	K	502	CDL	C51-CB5-OB6-CB4
52	h	1001	CDL	C14-C15-C16-C17
51	H	403	3PE	C3A-C3B-C3C-C3D
45	b	101	LMT	O1'-C1-C2-C3
52	J	701	CDL	CA3-CA4-OA6-CA5
52	h	1001	CDL	C11-C12-C13-C14
45	K	501	LMT	O5B-C1B-O1B-C4'
46	A	303	PC1	O11-C1-C2-O21
45	A	302	LMT	C2'-C1'-O1'-C1
45	J	702	LMT	C2'-C1'-O1'-C1
51	P	502	3PE	O21-C2-C3-O31
52	J	701	CDL	C72-C73-C74-C75
59	o	201	MYR	C11-C12-C13-C14
46	B	202	PC1	O21-C21-C22-C23

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Mol	Chain	Res	Type	Atoms
45	h	1002	LMT	C4-C5-C6-C7
51	L	701	3PE	C33-C34-C35-C36
52	r	201	CDL	C71-C72-C73-C74
53	N	703	I49	C08-C06-C07-C09
51	M	601	3PE	C35-C36-C37-C38
51	N	701	3PE	C2A-C2B-C2C-C2D
46	B	202	PC1	O11-C1-C2-C3
51	M	605	3PE	O11-C1-C2-C3
51	Y	802	3PE	O11-C1-C2-C3
52	K	502	CDL	OB5-CB3-CB4-CB6
59	o	201	MYR	C2-C3-C4-C5
45	M	604	LMT	C2-C3-C4-C5
46	B	203	PC1	C21-C22-C23-C24
45	L	704	LMT	C1-C2-C3-C4
45	M	603	LMT	C7-C8-C9-C10
51	L	701	3PE	C3D-C3E-C3F-C3G
46	L	707	PC1	C39-C3A-C3B-C3C
51	H	401	3PE	C3D-C3E-C3F-C3G
51	H	402	3PE	C2B-C2C-C2D-C2E
51	P	502	3PE	C2-C1-O11-P
51	d	1201	3PE	C2-C1-O11-P
58	T	101	EHZ	S1-C10-C11-N1
51	X	401	3PE	C25-C26-C27-C28
45	A	302	LMT	C2-C1-O1'-C1'
45	L	704	LMT	C2-C1-O1'-C1'
45	L	706	LMT	C2-C1-O1'-C1'
45	M	603	LMT	C2-C1-O1'-C1'
45	Y	801	LMT	C2-C1-O1'-C1'
45	Y	804	LMT	C2-C1-O1'-C1'
45	j	101	LMT	C2-C1-O1'-C1'
45	l	201	LMT	C2-C1-O1'-C1'
51	N	701	3PE	C34-C35-C36-C37
52	L	703	CDL	C34-C35-C36-C37
51	M	605	3PE	C33-C34-C35-C36
51	L	705	3PE	C1-C2-C3-O31
51	N	701	3PE	C1-C2-C3-O31
51	P	502	3PE	C1-C2-C3-O31
52	J	701	CDL	CA3-CA4-CA6-OA8
52	K	502	CDL	CA3-CA4-CA6-OA8
52	L	703	CDL	CB3-CB4-CB6-OB8
45	K	501	LMT	C3'-C4'-O1B-C1B
45	L	702	LMT	C5-C6-C7-C8

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Mol	Chain	Res	Type	Atoms
52	L	703	CDL	CB3-OB5-PB2-OB2
53	N	703	I49	C08-C06-C07-C10
51	L	705	3PE	C38-C39-C3A-C3B
45	K	501	LMT	C5'-C4'-O1B-C1B
51	H	402	3PE	C29-C2A-C2B-C2C
51	N	702	3PE	O11-C1-C2-O21
52	J	701	CDL	OB5-CB3-CB4-OB6
52	K	502	CDL	OB5-CB3-CB4-OB6
45	M	602	LMT	O1'-C1-C2-C3
51	H	403	3PE	C32-C33-C34-C35
51	P	502	3PE	C35-C36-C37-C38
46	B	203	PC1	O21-C2-C3-O31
51	L	705	3PE	O21-C2-C3-O31
51	Y	802	3PE	O21-C2-C3-O31
45	K	501	LMT	C6-C7-C8-C9
51	L	701	3PE	C37-C38-C39-C3A
52	h	1001	CDL	C24-C25-C26-C27
52	K	502	CDL	OB7-CB5-OB6-CB4
45	M	604	LMT	O1'-C1-C2-C3
52	r	201	CDL	C15-C16-C17-C18
51	H	403	3PE	C2-C1-O11-P
51	H	401	3PE	C26-C27-C28-C29
59	o	201	MYR	C6-C7-C8-C9
52	r	201	CDL	C54-C55-C56-C57
51	d	1202	3PE	C31-C32-C33-C34
51	d	1201	3PE	C34-C35-C36-C37
46	A	303	PC1	O11-C1-C2-C3
52	h	1001	CDL	OA5-CA3-CA4-CA6
52	h	1001	CDL	OB5-CB3-CB4-CB6
51	d	1201	3PE	C32-C33-C34-C35
52	L	703	CDL	C13-C14-C15-C16
45	M	603	LMT	C4B-C5B-C6B-O6B
58	T	101	EHZ	C2-C1-C21-C22
46	L	707	PC1	C3-C2-O21-C21
51	d	1201	3PE	C1-C2-O21-C21
51	N	701	3PE	C23-C24-C25-C26
46	A	303	PC1	C1-C2-C3-O31
52	r	201	CDL	CA4-CA3-OA5-PA1
52	r	201	CDL	C1-CB2-OB2-PB2
46	B	202	PC1	O11-C1-C2-O21
46	L	707	PC1	O11-C1-C2-O21
51	d	1201	3PE	C37-C38-C39-C3A

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Mol	Chain	Res	Type	Atoms
45	M	603	LMT	C3'-C4'-O1B-C1B
45	Y	801	LMT	C1-C2-C3-C4
51	H	401	3PE	O21-C2-C3-O31
51	d	1201	3PE	O21-C2-C3-O31
52	J	701	CDL	OA6-CA4-CA6-OA8
52	K	502	CDL	OA6-CA4-CA6-OA8
52	L	703	CDL	OB6-CB4-CB6-OB8
52	r	201	CDL	OB6-CB4-CB6-OB8
51	N	701	3PE	C22-C23-C24-C25
51	N	701	3PE	C29-C2A-C2B-C2C
46	L	707	PC1	C3A-C3B-C3C-C3D
46	B	202	PC1	C2F-C2G-C2H-C2I
51	H	402	3PE	C3A-C3B-C3C-C3D
51	d	1202	3PE	C2E-C2F-C2G-C2H
52	r	201	CDL	C17-C18-C19-C20
51	d	1201	3PE	C2A-C2B-C2C-C2D
54	O	401	GTP	PB-O3A-PA-O1A
51	P	502	3PE	C24-C25-C26-C27
51	H	403	3PE	C3E-C3F-C3G-C3H
45	l	201	LMT	O1'-C1-C2-C3
45	M	603	LMT	C5'-C4'-O1B-C1B
51	X	401	3PE	C2-C3-O31-C31
58	T	101	EHZ	C21-C22-C23-C24
46	B	202	PC1	C1-O11-P-O13
52	K	502	CDL	CA2-OA2-PA1-OA5
52	K	502	CDL	CB3-OB5-PB2-OB2
46	A	303	PC1	C11-O13-P-O12
46	B	202	PC1	C11-O13-P-O12
46	B	202	PC1	C11-O13-P-O14
46	B	202	PC1	C1-O11-P-O14
51	H	401	3PE	C1-O11-P-O12
51	H	401	3PE	C11-O13-P-O14
51	H	403	3PE	C11-O13-P-O12
51	M	601	3PE	C11-O13-P-O14
51	M	605	3PE	C1-O11-P-O12
51	N	701	3PE	C1-O11-P-O12
51	N	701	3PE	C11-O13-P-O14
51	P	502	3PE	C11-O13-P-O12
51	P	502	3PE	C11-O13-P-O14
51	X	401	3PE	C1-O11-P-O14
51	Y	802	3PE	C1-O11-P-O12
52	J	701	CDL	CA3-OA5-PA1-OA4

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Mol	Chain	Res	Type	Atoms
52	K	502	CDL	CA2-OA2-PA1-OA3
52	K	502	CDL	CB3-OB5-PB2-OB3
52	K	502	CDL	CB3-OB5-PB2-OB4
52	L	703	CDL	CA2-OA2-PA1-OA3
52	h	1001	CDL	CA2-OA2-PA1-OA4
52	h	1001	CDL	CB2-OB2-PB2-OB4
45	J	702	LMT	O5'-C1'-O1'-C1
45	j	101	LMT	O5'-C1'-O1'-C1
46	L	707	PC1	O11-C1-C2-C3
51	L	701	3PE	O11-C1-C2-C3
45	L	704	LMT	C5-C6-C7-C8
51	X	401	3PE	C39-C3A-C3B-C3C
51	H	401	3PE	C12-C11-O13-P
51	M	601	3PE	C12-C11-O13-P
51	M	605	3PE	C12-C11-O13-P
51	P	502	3PE	C12-C11-O13-P
51	M	605	3PE	C21-C22-C23-C24
52	h	1001	CDL	CA2-C1-CB2-OB2
46	B	203	PC1	C32-C33-C34-C35
51	L	701	3PE	C3A-C3B-C3C-C3D
51	M	601	3PE	C25-C26-C27-C28
51	H	401	3PE	O11-C1-C2-O21
51	L	701	3PE	O11-C1-C2-O21
51	M	605	3PE	O11-C1-C2-O21
51	P	502	3PE	O11-C1-C2-O21
51	Y	802	3PE	O11-C1-C2-O21
52	h	1001	CDL	OA5-CA3-CA4-OA6
52	h	1001	CDL	OB5-CB3-CB4-OB6
56	P	501	NDP	O4D-C1D-N1N-C6N
51	H	401	3PE	C37-C38-C39-C3A
51	d	1202	3PE	C2D-C2E-C2F-C2G
51	H	403	3PE	O21-C2-C3-O31
46	B	203	PC1	C24-C25-C26-C27
46	L	707	PC1	C27-C28-C29-C2A
51	P	502	3PE	C39-C3A-C3B-C3C
51	M	605	3PE	C3A-C3B-C3C-C3D
45	A	302	LMT	O5B-C1B-O1B-C4'
52	L	703	CDL	C38-C39-C40-C41
52	h	1001	CDL	C72-C73-C74-C75
51	P	502	3PE	C37-C38-C39-C3A
51	d	1202	3PE	C32-C33-C34-C35
52	L	703	CDL	C52-C53-C54-C55

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Mol	Chain	Res	Type	Atoms
45	K	501	LMT	C2B-C1B-O1B-C4'
51	M	605	3PE	C3F-C3G-C3H-C3I
51	X	401	3PE	C29-C2A-C2B-C2C
46	B	203	PC1	C35-C36-C37-C38
51	M	605	3PE	C34-C35-C36-C37
51	Y	802	3PE	C3B-C3C-C3D-C3E
46	L	707	PC1	C35-C36-C37-C38
51	P	502	3PE	C1-C2-O21-C21
52	h	1001	CDL	CA3-CA4-OA6-CA5
45	Y	803	LMT	C3-C4-C5-C6
51	N	702	3PE	C34-C35-C36-C37
52	J	701	CDL	C1-CB2-OB2-PB2
52	K	502	CDL	C15-C16-C17-C18
45	Y	804	LMT	O5'-C1'-O1'-C1
51	N	702	3PE	O21-C2-C3-O31
52	J	701	CDL	OB6-CB4-CB6-OB8
46	B	203	PC1	C11-O13-P-O11
51	L	705	3PE	C1-O11-P-O13
51	d	1202	3PE	C1-O11-P-O13
51	d	1202	3PE	C11-O13-P-O11
52	K	502	CDL	CB2-OB2-PB2-OB5
52	r	201	CDL	CA3-OA5-PA1-OA2
51	H	401	3PE	C1-C2-C3-O31
52	r	201	CDL	CB3-CB4-CB6-OB8
51	M	601	3PE	C28-C29-C2A-C2B
52	r	201	CDL	C32-C33-C34-C35
51	M	605	3PE	C3B-C3C-C3D-C3E
45	l	201	LMT	C4'-C5'-C6'-O6'
51	X	401	3PE	C31-C32-C33-C34
51	H	402	3PE	C33-C34-C35-C36
51	L	701	3PE	C2F-C2G-C2H-C2I
45	J	702	LMT	C3-C4-C5-C6
51	M	601	3PE	C2C-C2D-C2E-C2F
46	B	202	PC1	C3B-C3C-C3D-C3E
45	A	301	LMT	C2-C3-C4-C5
51	M	601	3PE	C33-C34-C35-C36
52	r	201	CDL	C34-C35-C36-C37
46	L	707	PC1	C31-C32-C33-C34
45	Y	801	LMT	C3'-C4'-O1B-C1B
51	M	601	3PE	C2A-C2B-C2C-C2D
52	h	1001	CDL	CA6-CA4-OA6-CA5
52	J	701	CDL	C35-C36-C37-C38

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Mol	Chain	Res	Type	Atoms
51	X	401	3PE	C1-O11-P-O13
46	L	707	PC1	C33-C34-C35-C36
51	H	401	3PE	C33-C34-C35-C36
51	X	401	3PE	C3F-C3G-C3H-C3I
52	J	701	CDL	C72-C71-CB7-OB8
45	Y	803	LMT	C3'-C4'-O1B-C1B
46	A	303	PC1	O21-C2-C3-O31
51	d	1201	3PE	C21-C22-C23-C24
45	Y	801	LMT	C5'-C4'-O1B-C1B
45	l	201	LMT	O5'-C5'-C6'-O6'
51	M	601	3PE	C26-C27-C28-C29
45	Y	803	LMT	C5'-C4'-O1B-C1B
51	H	402	3PE	C24-C25-C26-C27
51	M	605	3PE	C38-C39-C3A-C3B
51	H	402	3PE	C25-C26-C27-C28
52	K	502	CDL	C52-C53-C54-C55
49	F	501	FMN	C4'-C5'-O5'-P
51	M	605	3PE	C26-C27-C28-C29
51	d	1201	3PE	C33-C34-C35-C36
51	N	701	3PE	C37-C38-C39-C3A
46	B	202	PC1	O22-C21-C22-C23
52	r	201	CDL	C56-C57-C58-C59
51	d	1201	3PE	C31-C32-C33-C34
45	A	302	LMT	C2B-C1B-O1B-C4'
52	K	502	CDL	C39-C40-C41-C42
51	H	402	3PE	O11-C1-C2-O21
46	B	202	PC1	C2B-C2C-C2D-C2E
51	H	402	3PE	C3F-C3G-C3H-C3I
52	h	1001	CDL	C18-C19-C20-C21
51	P	502	3PE	O11-C1-C2-C3
52	J	701	CDL	OB5-CB3-CB4-CB6
51	N	701	3PE	C32-C33-C34-C35
51	L	705	3PE	C37-C38-C39-C3A
52	J	701	CDL	CB3-OB5-PB2-OB2
45	K	501	LMT	C4B-C5B-C6B-O6B
52	L	703	CDL	C39-C40-C41-C42
45	A	302	LMT	O1'-C1-C2-C3
45	Y	803	LMT	C2-C3-C4-C5
58	T	101	EHZ	C12-C13-C14-N2
52	h	1001	CDL	C19-C20-C21-C22
51	X	401	3PE	O31-C31-C32-C33
51	L	701	3PE	C22-C23-C24-C25

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Mol	Chain	Res	Type	Atoms
45	Y	803	LMT	C5-C6-C7-C8
52	L	703	CDL	CA4-CA3-OA5-PA1
46	B	202	PC1	O31-C31-C32-C33
52	L	703	CDL	C36-C37-C38-C39
51	L	705	3PE	O21-C21-C22-C23
52	r	201	CDL	C32-C31-CA7-OA8
52	r	201	CDL	OA6-CA4-CA6-OA8
46	B	203	PC1	O21-C21-C22-C23
51	L	701	3PE	O21-C21-C22-C23
51	M	605	3PE	C3E-C3F-C3G-C3H
52	L	703	CDL	C12-C13-C14-C15
56	P	501	NDP	O4B-C4B-C5B-O5B
52	L	703	CDL	C53-C54-C55-C56
51	H	401	3PE	O21-C21-C22-C23
51	X	401	3PE	O32-C31-C32-C33
51	H	402	3PE	C26-C27-C28-C29
45	K	501	LMT	O1'-C1-C2-C3
46	B	202	PC1	C39-C3A-C3B-C3C
58	U	101	EHZ	C2-C3-C4-C5
52	h	1001	CDL	C31-C32-C33-C34
45	A	302	LMT	C3'-C4'-O1B-C1B
45	Y	804	LMT	O1'-C1-C2-C3
52	K	502	CDL	CA3-OA5-PA1-OA2
51	N	701	3PE	C2-C1-O11-P
52	L	703	CDL	C55-C56-C57-C58
46	B	203	PC1	C11-O13-P-O14
51	L	705	3PE	C11-O13-P-O14
51	d	1202	3PE	C1-O11-P-O14
52	J	701	CDL	CA3-OA5-PA1-OA3
52	J	701	CDL	CB2-OB2-PB2-OB3
52	h	1001	CDL	CB3-OB5-PB2-OB4
52	r	201	CDL	CA3-OA5-PA1-OA3
45	M	604	LMT	C3-C4-C5-C6
52	K	502	CDL	C11-C12-C13-C14
46	B	203	PC1	O22-C21-C22-C23
51	N	702	3PE	C33-C34-C35-C36
51	Y	802	3PE	C36-C37-C38-C39
51	M	601	3PE	C21-C22-C23-C24
52	r	201	CDL	C32-C31-CA7-OA9
51	H	403	3PE	C12-C11-O13-P
51	d	1202	3PE	C12-C11-O13-P
46	B	202	PC1	O32-C31-C32-C33

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Mol	Chain	Res	Type	Atoms
51	d	1202	3PE	C36-C37-C38-C39
51	N	701	3PE	O21-C21-C22-C23
51	P	502	3PE	O21-C21-C22-C23
52	r	201	CDL	C52-C51-CB5-OB6
51	P	502	3PE	C36-C37-C38-C39
51	L	701	3PE	O22-C21-C22-C23
51	L	705	3PE	O22-C21-C22-C23
51	L	705	3PE	C39-C3A-C3B-C3C
45	L	706	LMT	C6-C7-C8-C9
49	F	501	FMN	N10-C1'-C2'-O2'
52	L	703	CDL	OA5-CA3-CA4-OA6
52	K	502	CDL	C53-C54-C55-C56
51	d	1201	3PE	C2F-C2G-C2H-C2I
51	H	401	3PE	O22-C21-C22-C23
51	N	701	3PE	O22-C21-C22-C23
51	L	705	3PE	O31-C31-C32-C33
52	K	502	CDL	OB9-CB7-OB8-CB6
45	Y	803	LMT	C4'-C5'-C6'-O6'
52	K	502	CDL	C35-C36-C37-C38
51	d	1201	3PE	O21-C21-C22-C23
46	B	202	PC1	C34-C35-C36-C37

There are no ring outliers.

17 monomers are involved in 29 short contacts:

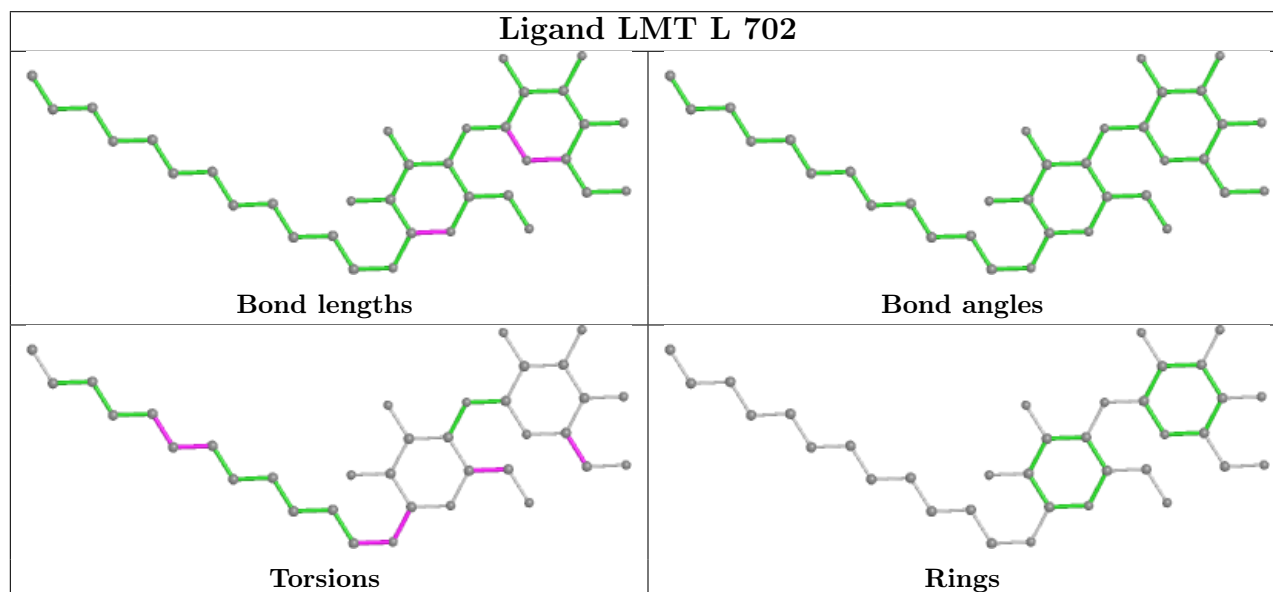
Mol	Chain	Res	Type	Clashes	Symm-Clashes
51	M	605	3PE	2	0
46	L	707	PC1	2	0
49	F	501	FMN	2	0
52	J	701	CDL	1	0
51	M	601	3PE	2	0
51	X	401	3PE	2	0
46	B	202	PC1	2	0
58	T	101	EHZ	1	0
46	A	303	PC1	1	0
45	Y	804	LMT	1	0
45	M	602	LMT	5	0
56	P	501	NDP	1	0
45	J	702	LMT	3	0
54	O	401	GTP	3	0
46	B	203	PC1	2	0
51	L	705	3PE	1	0

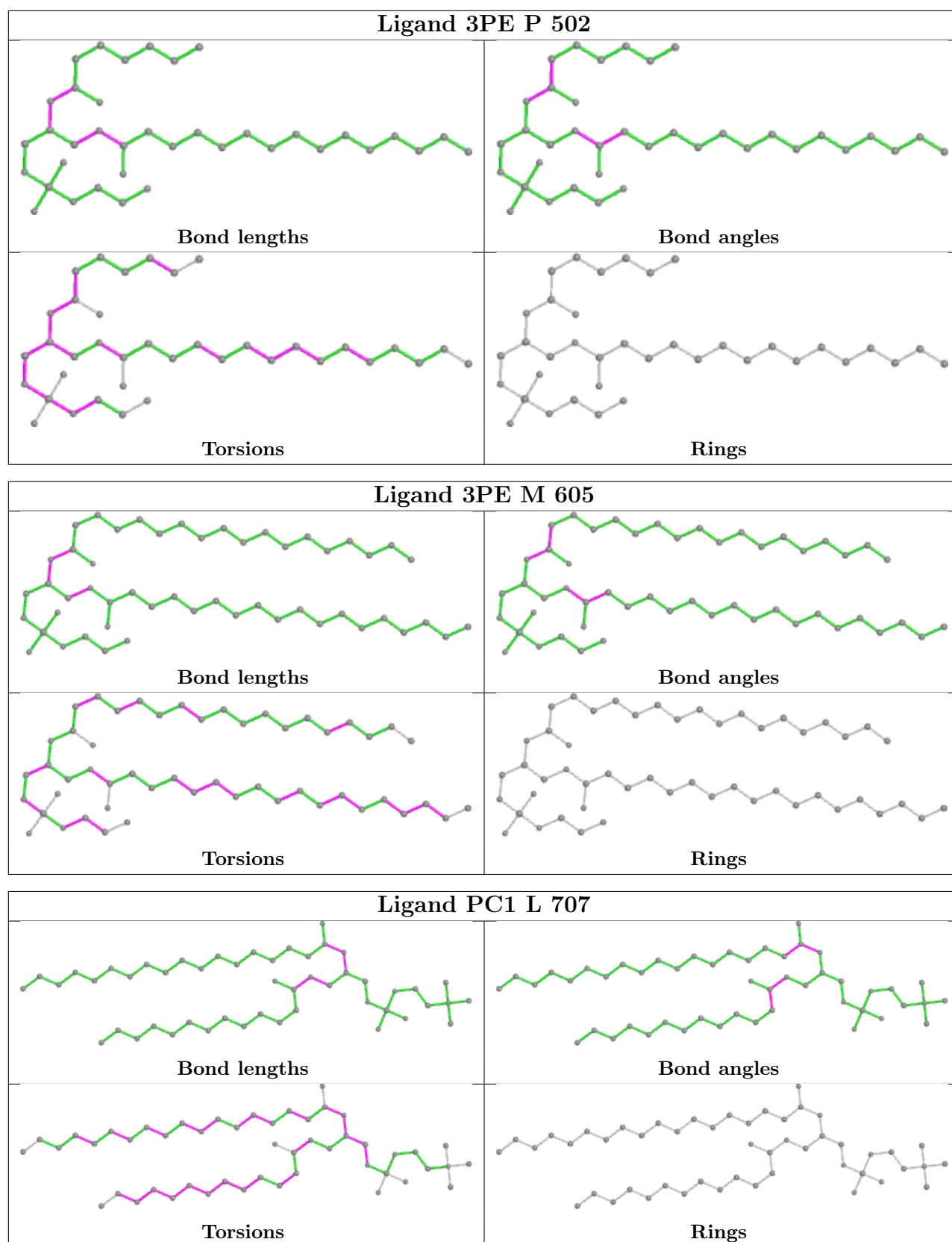
Continued on next page...

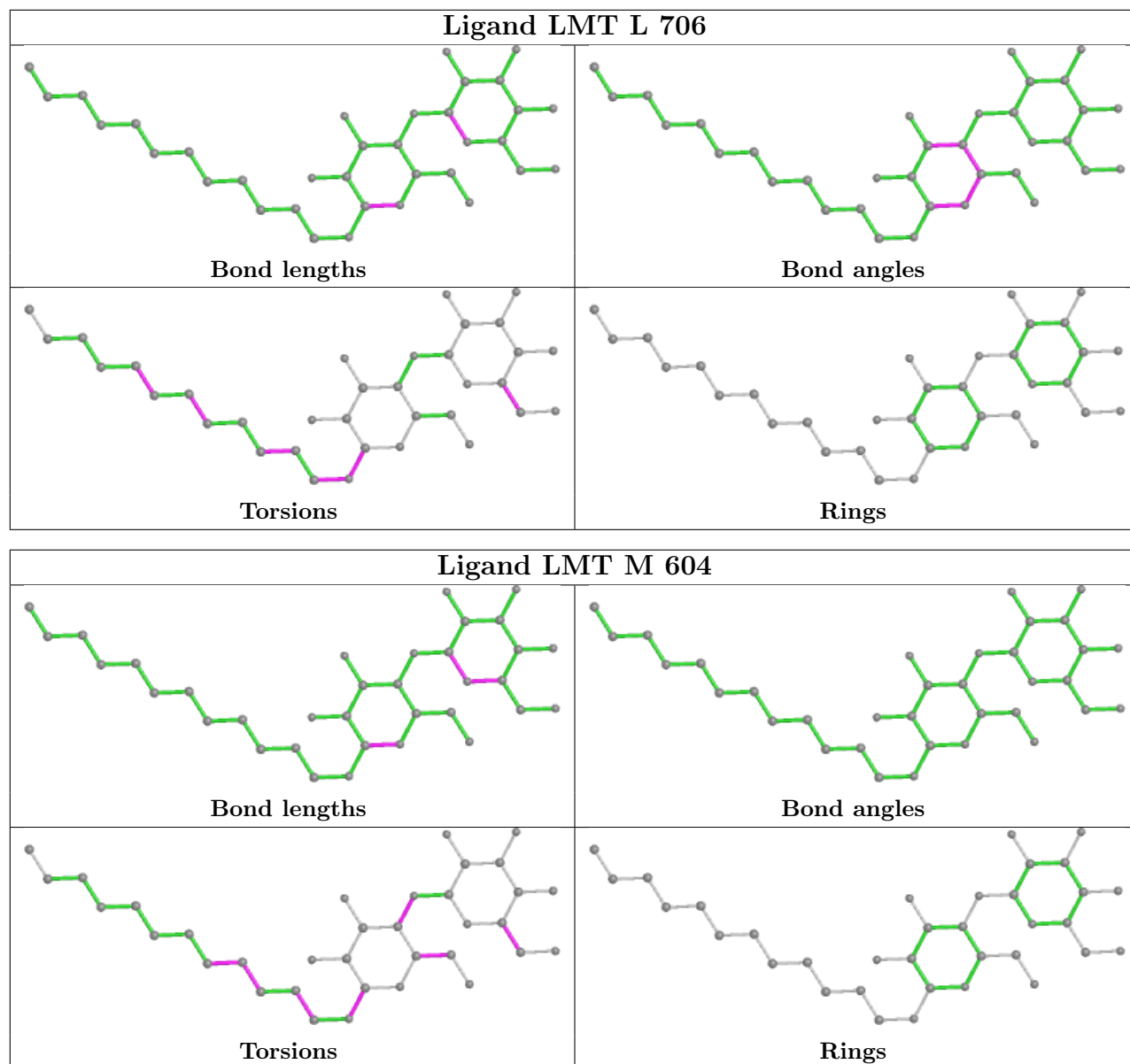
Continued from previous page...

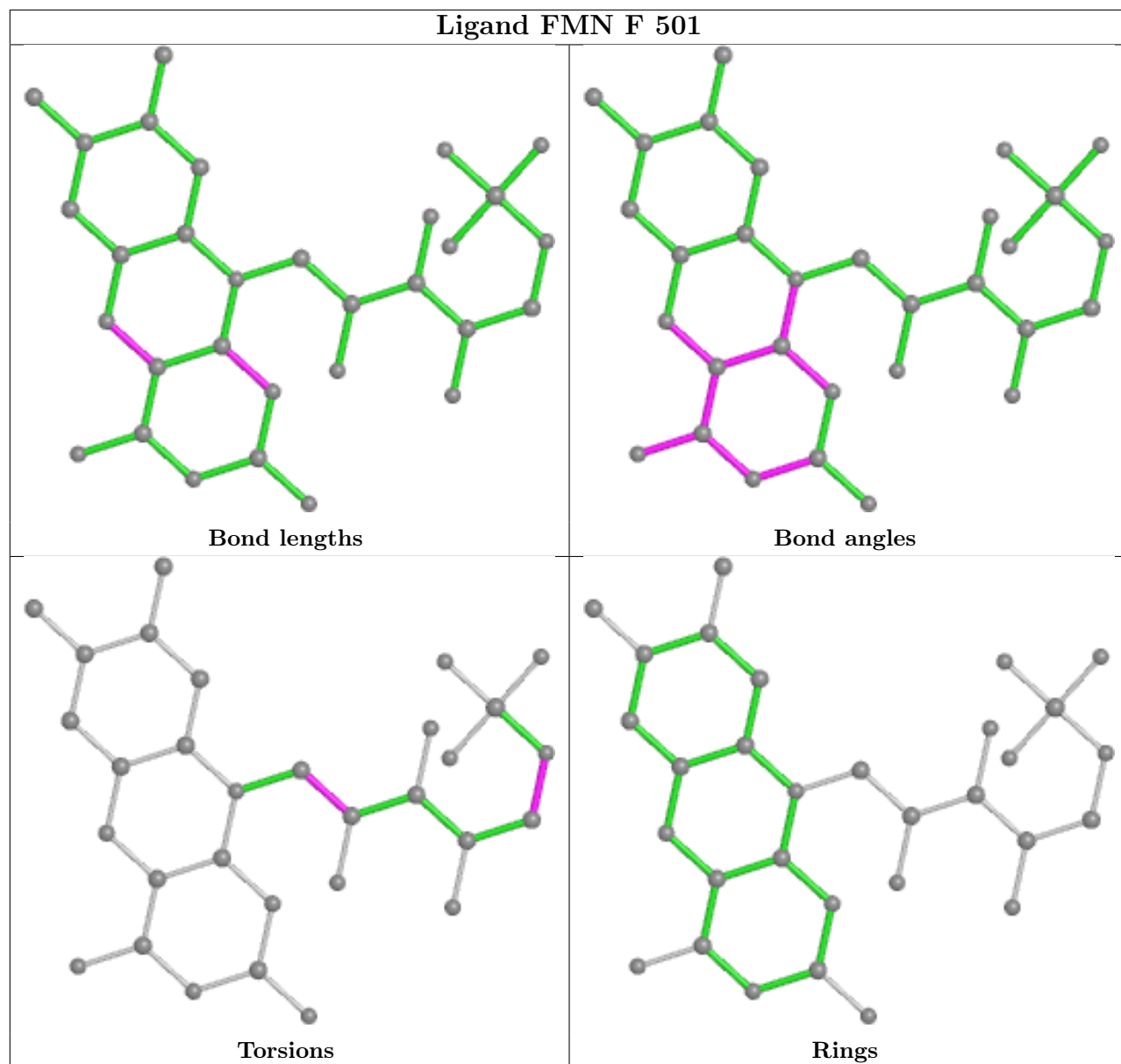
Mol	Chain	Res	Type	Clashes	Symm-Clashes
51	Y	802	3PE	1	0

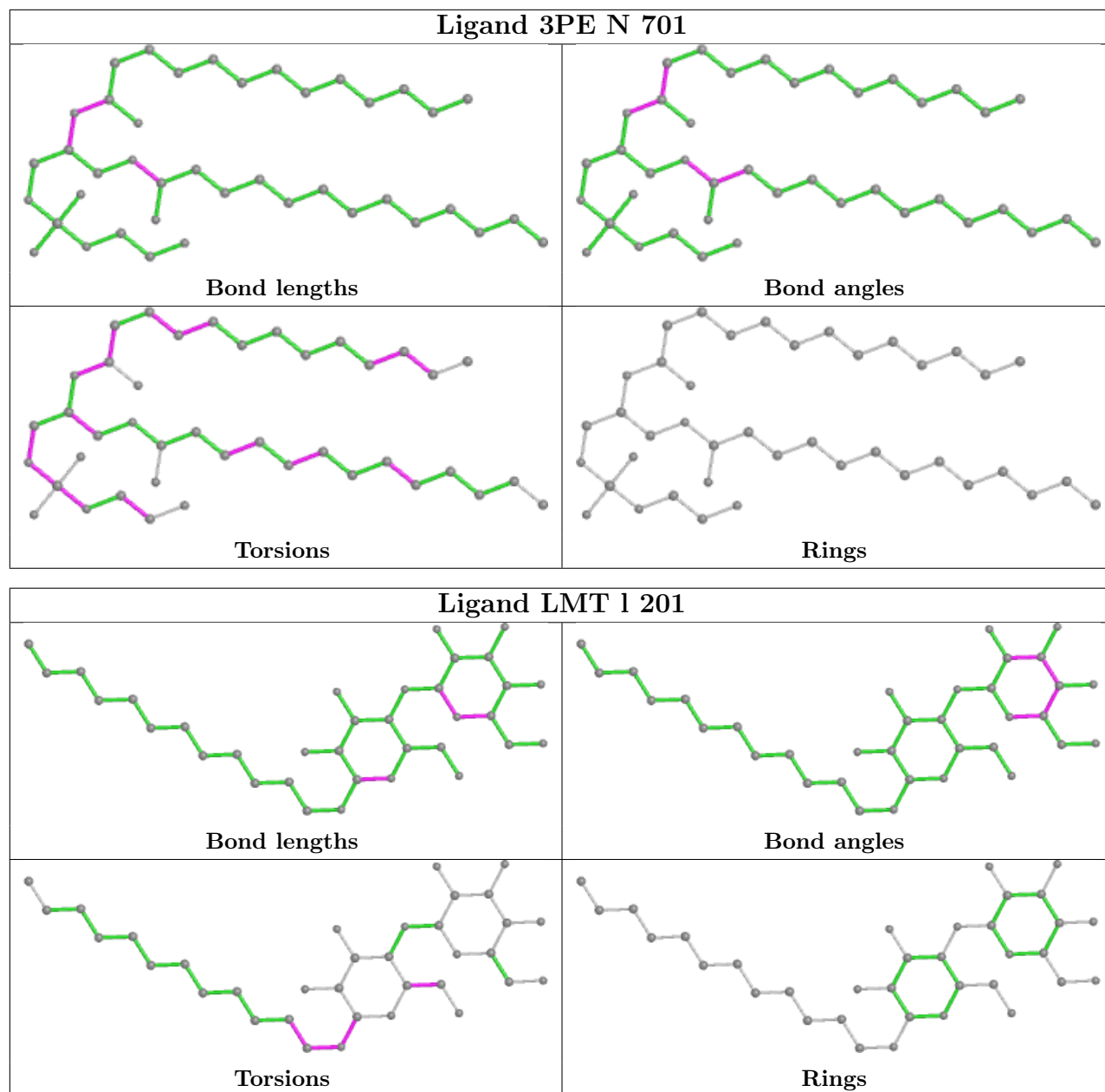
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

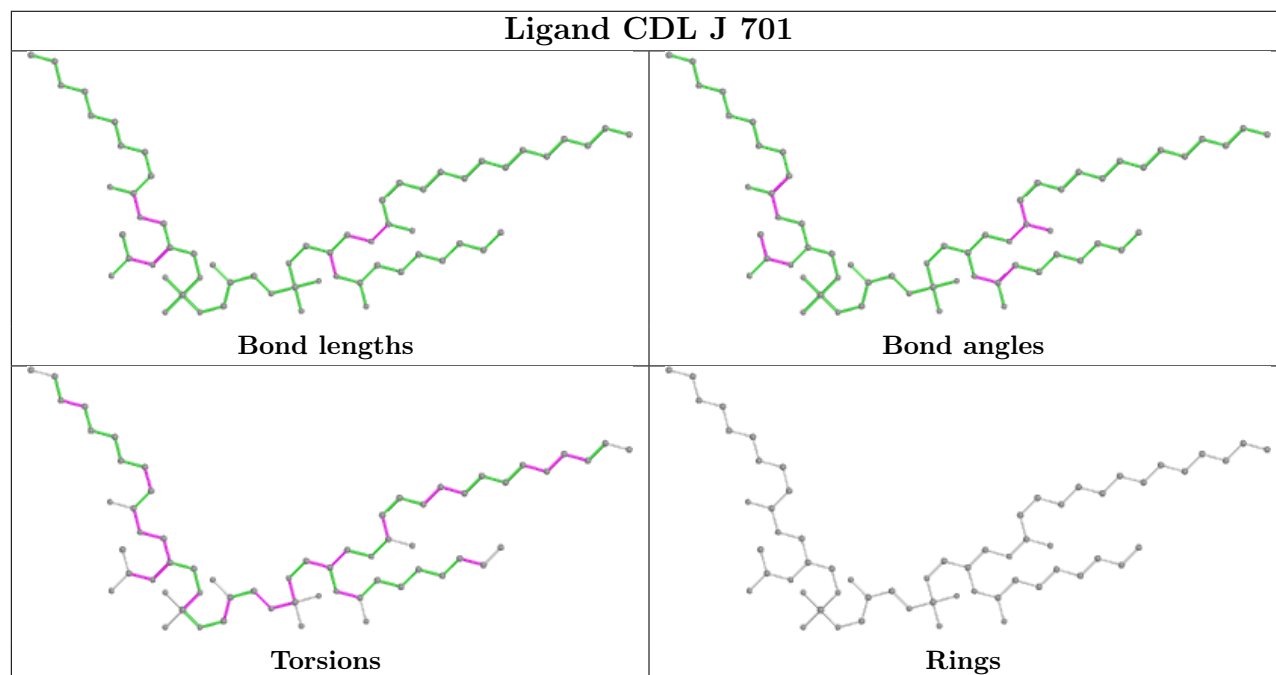
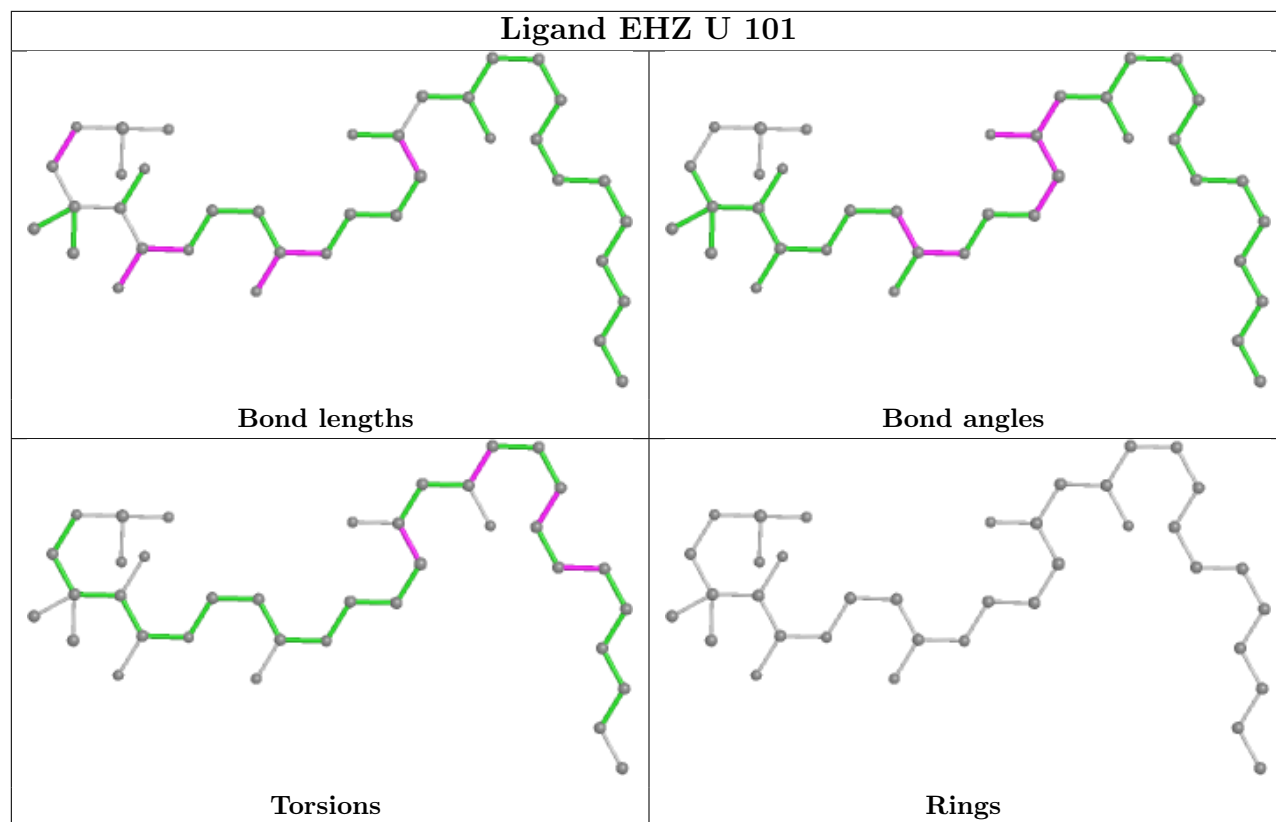


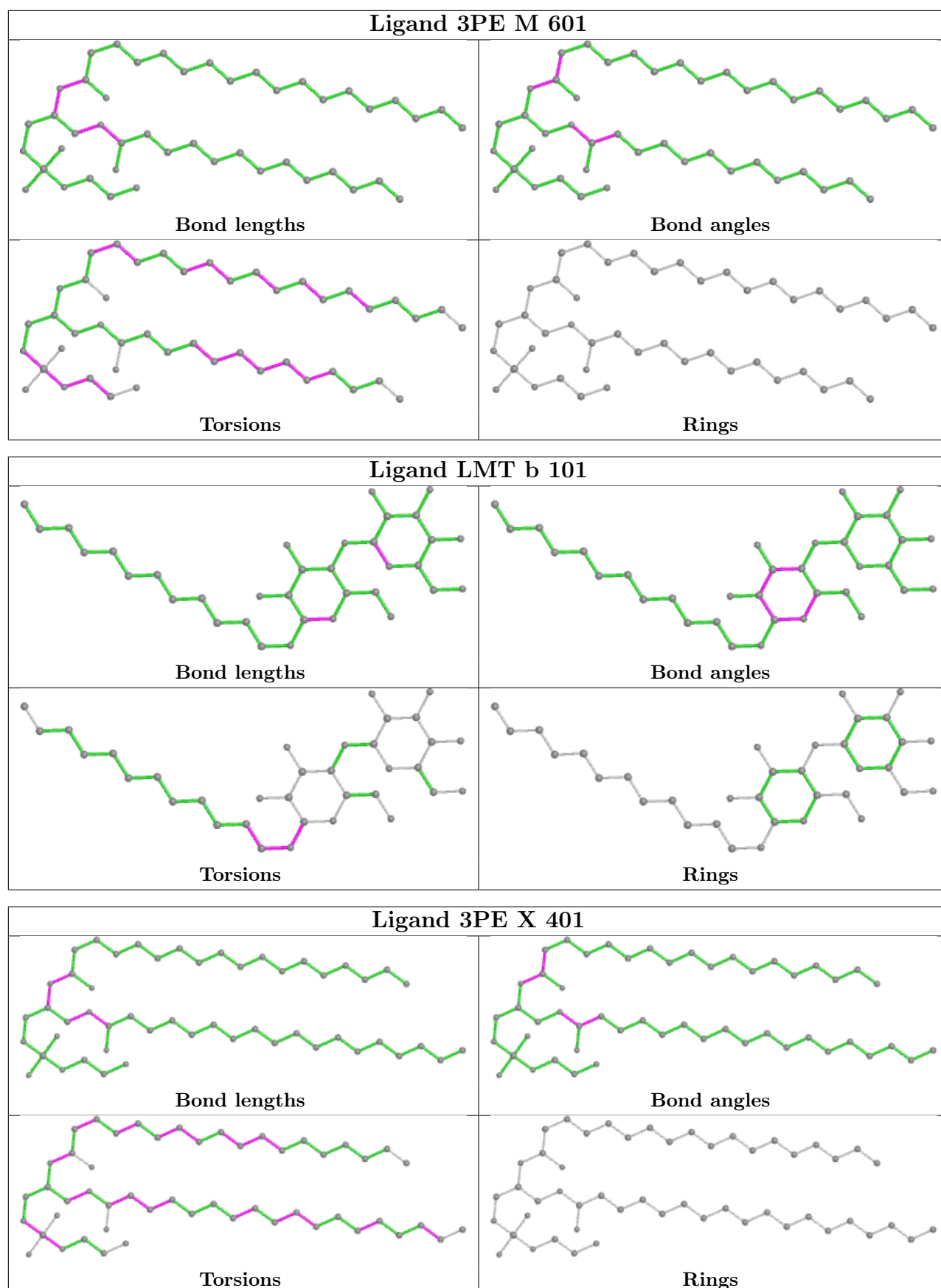


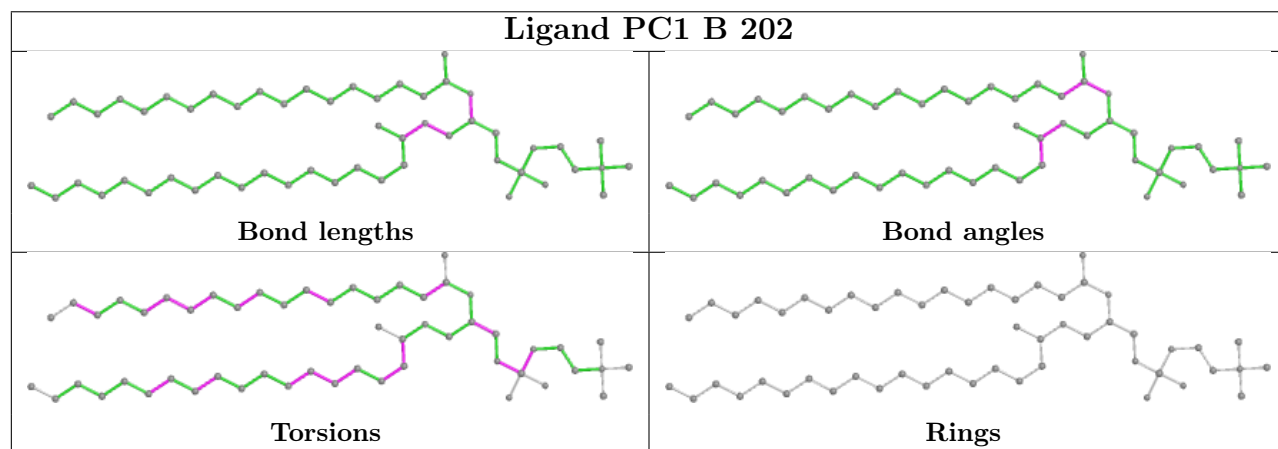
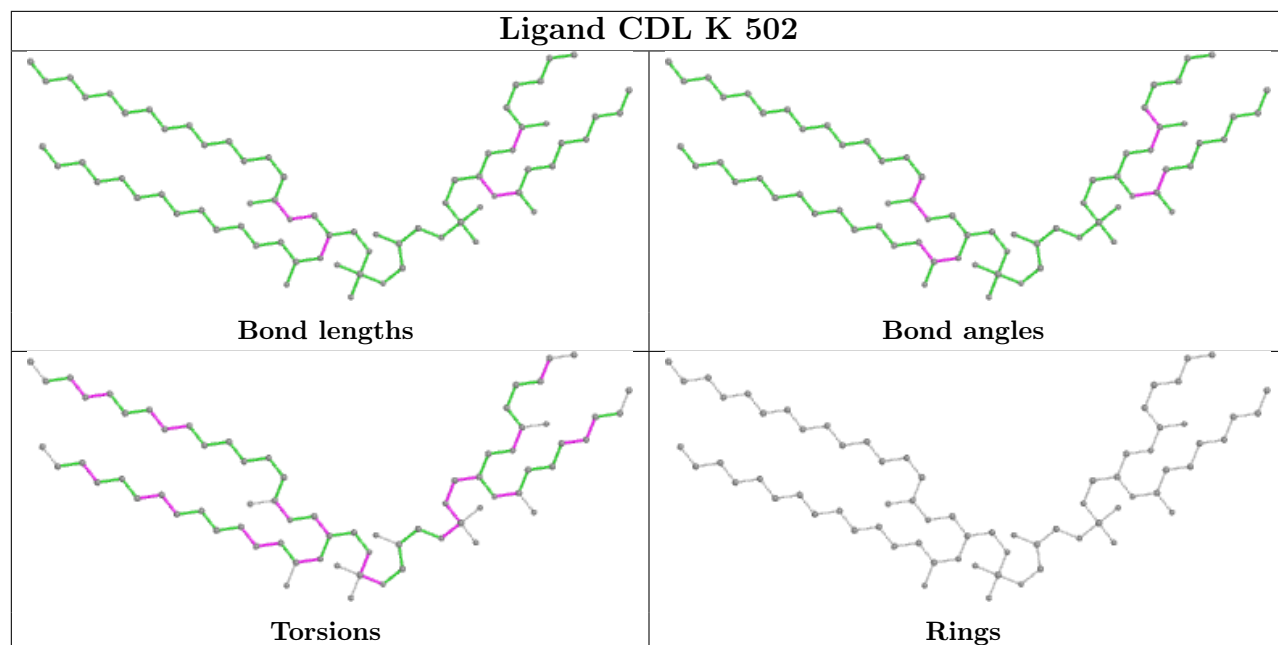


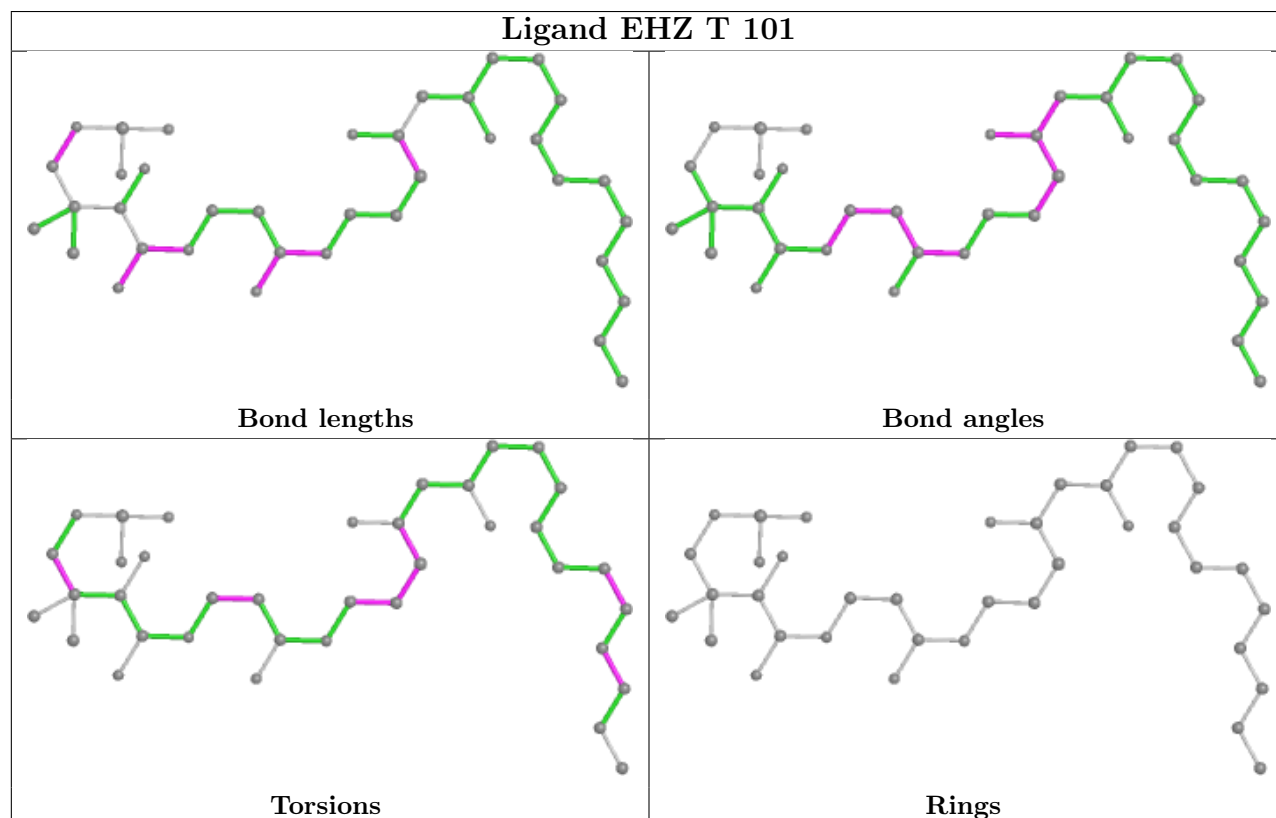
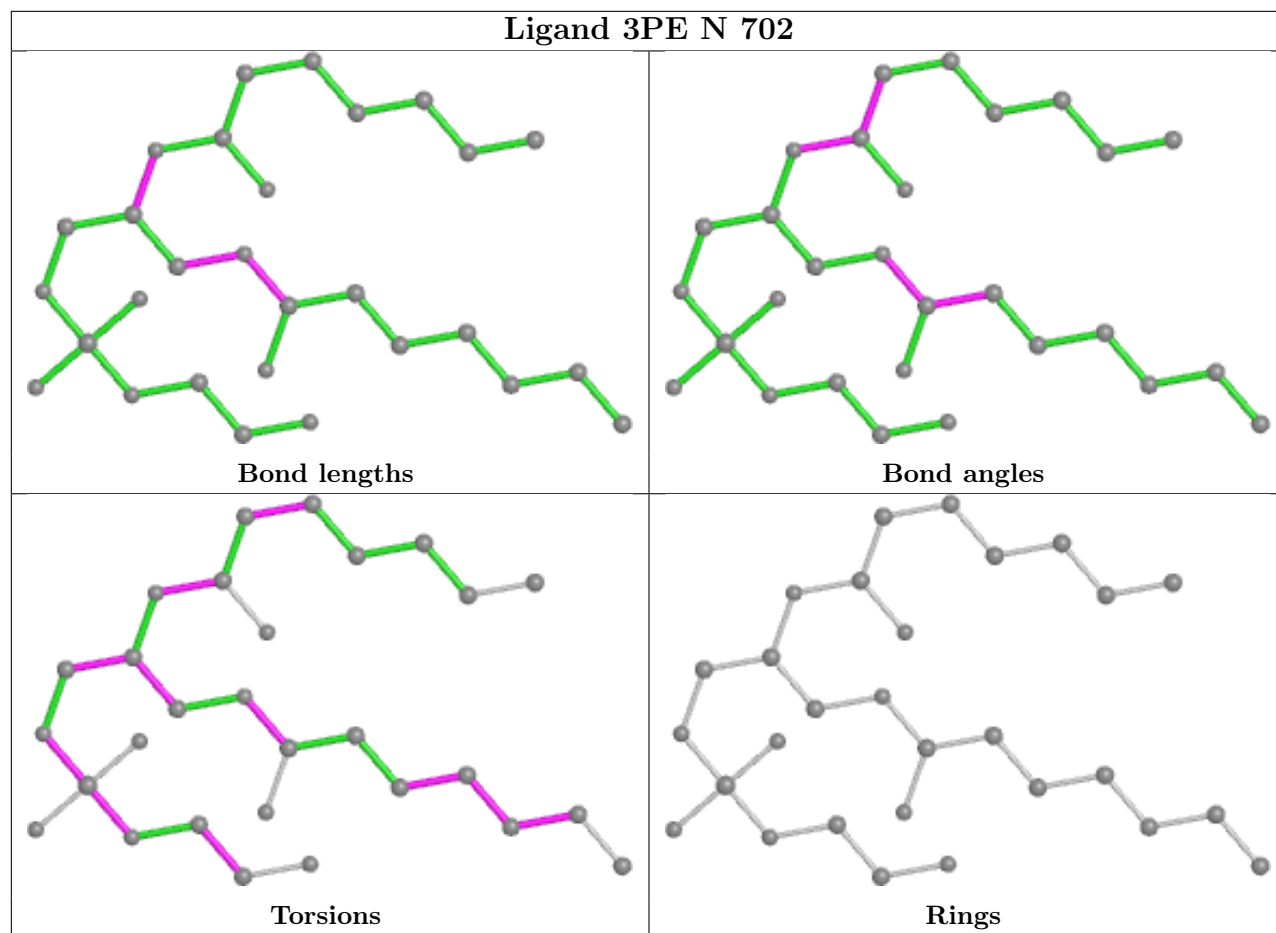


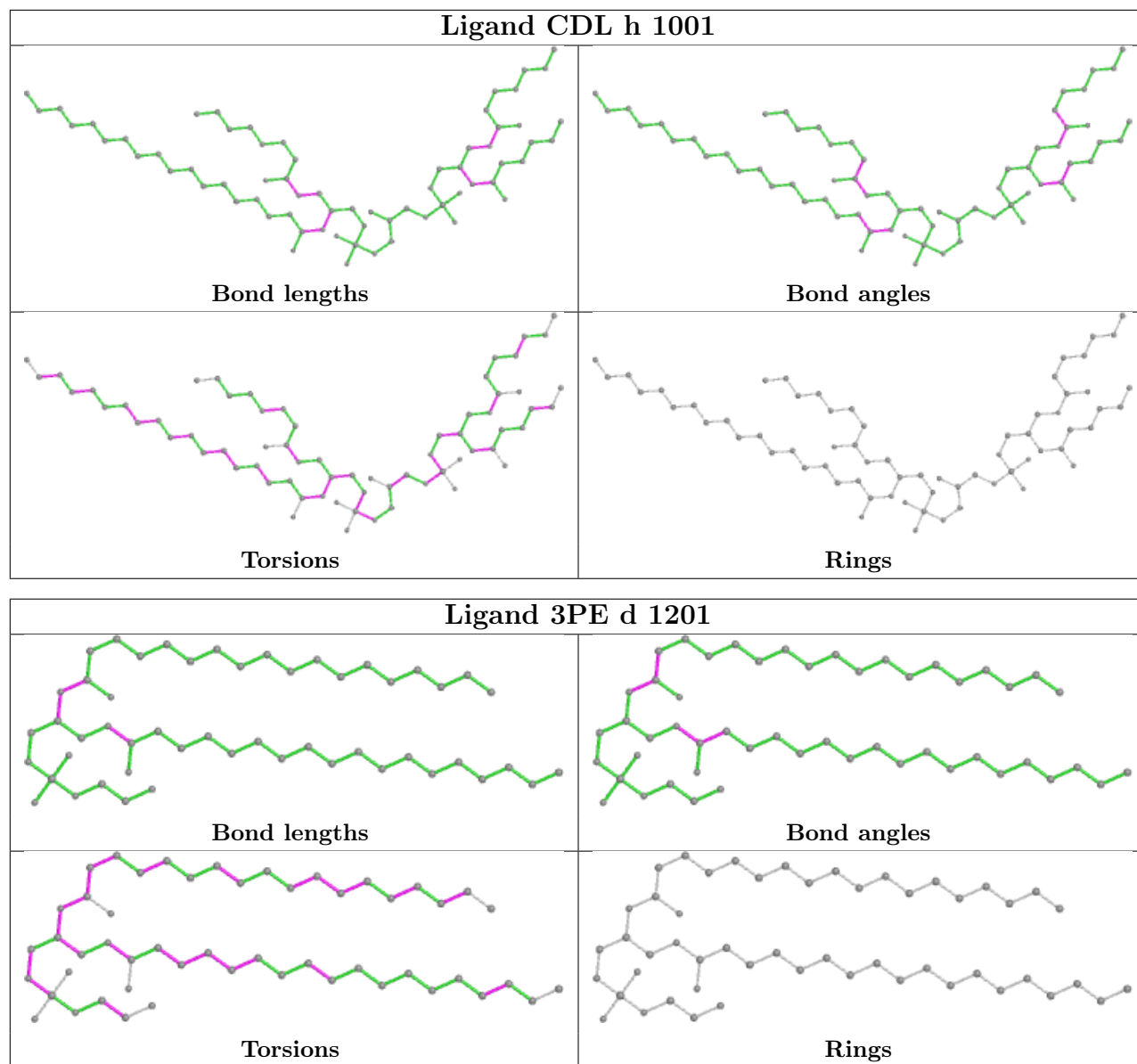


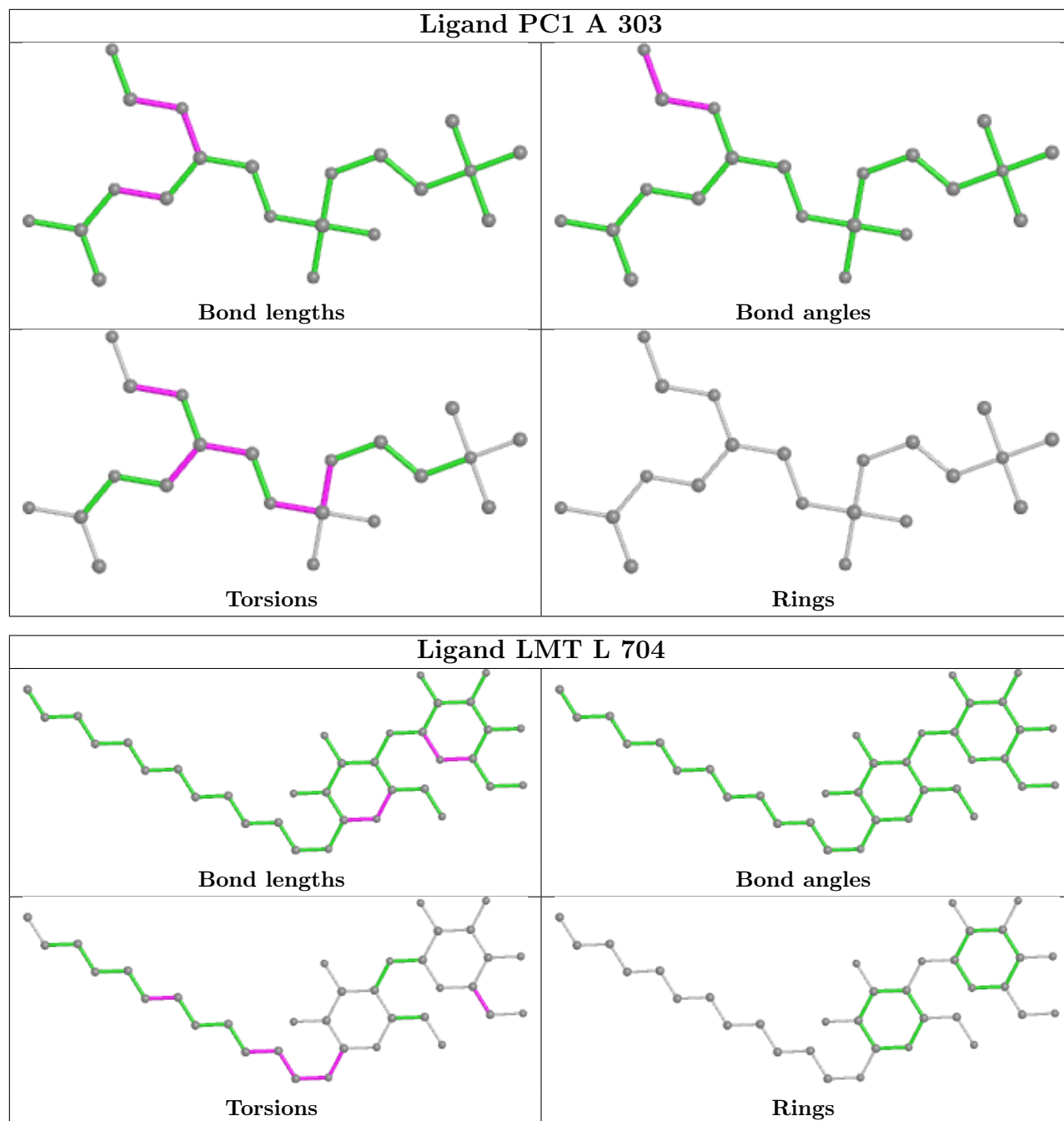


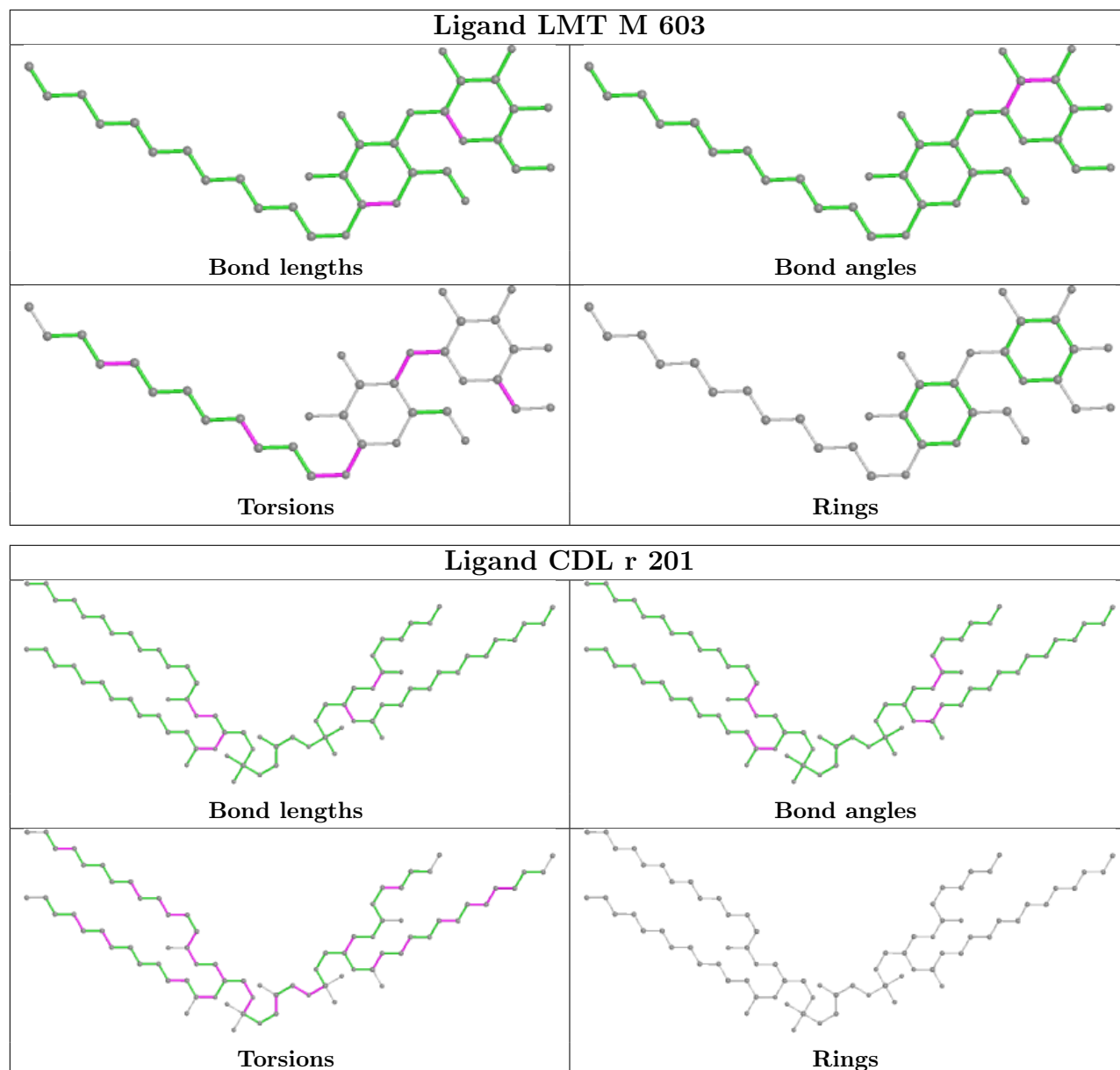


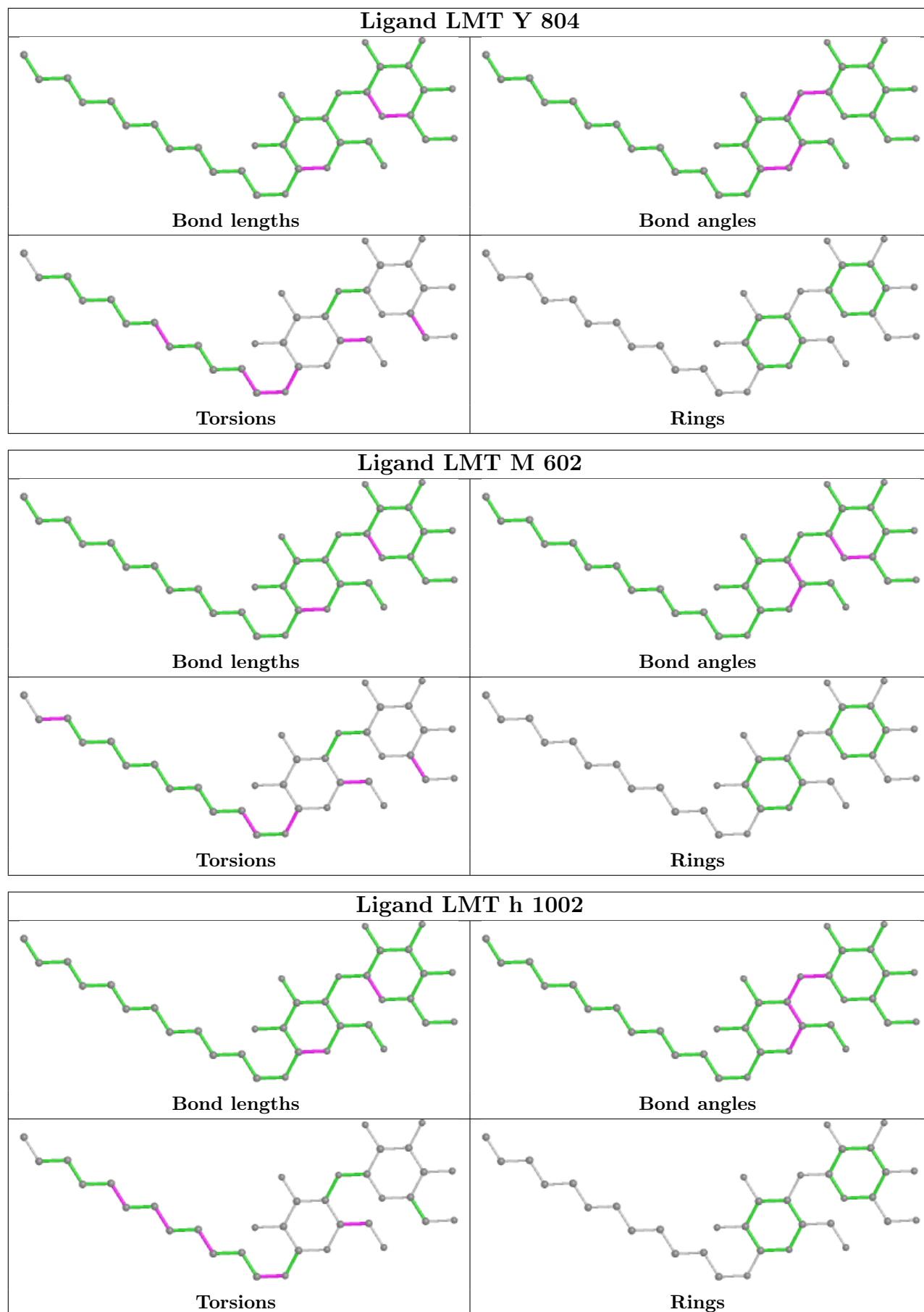


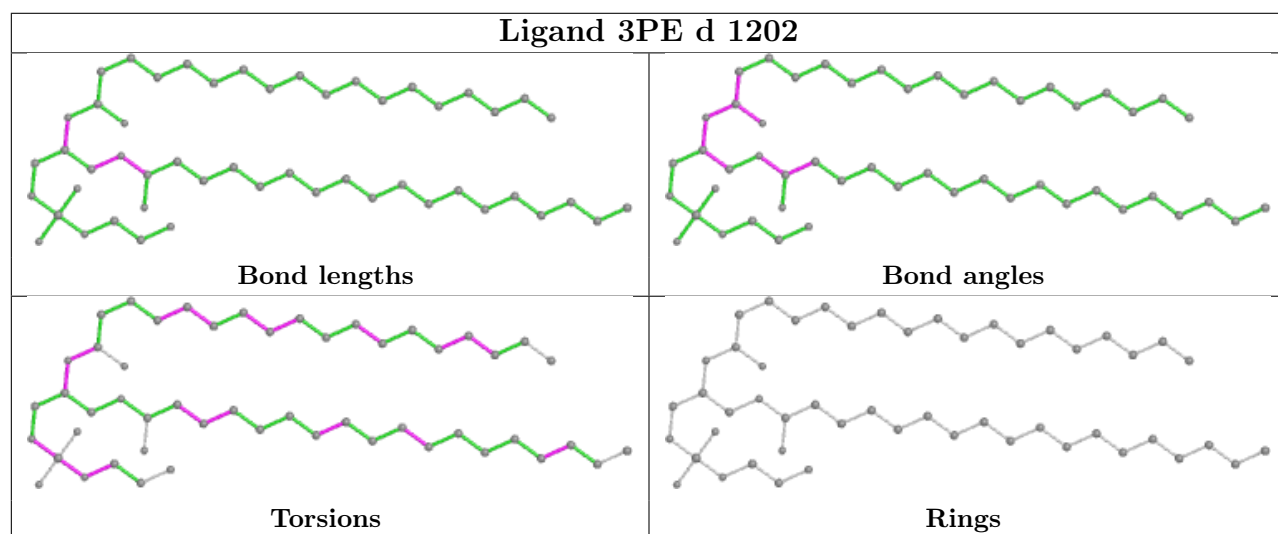
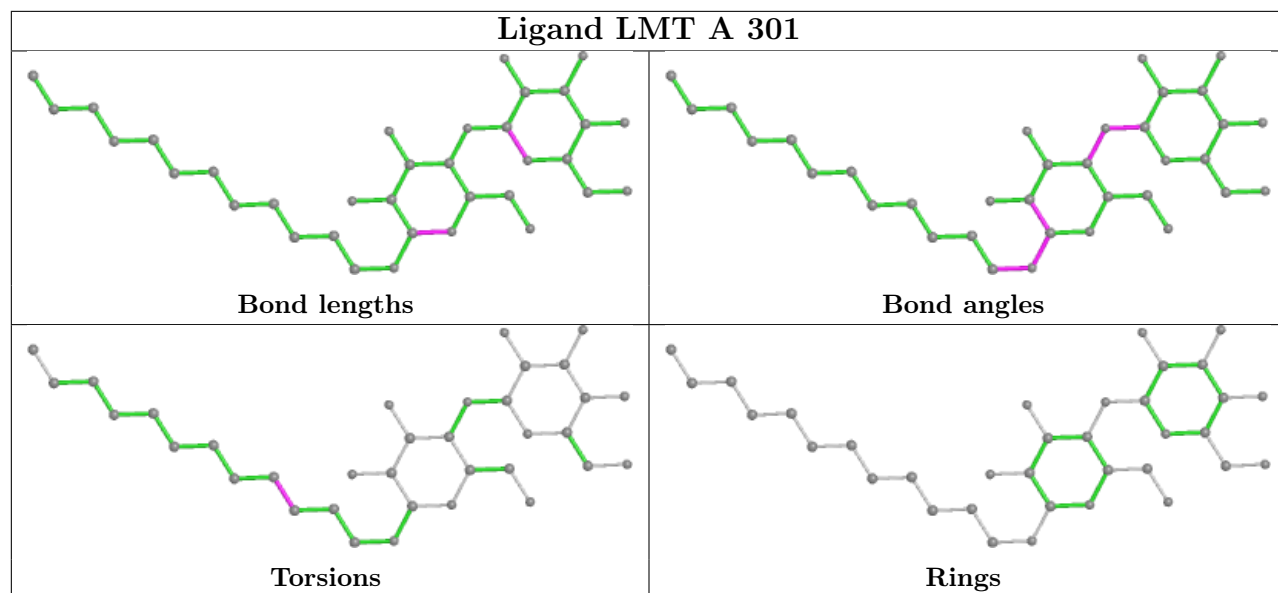


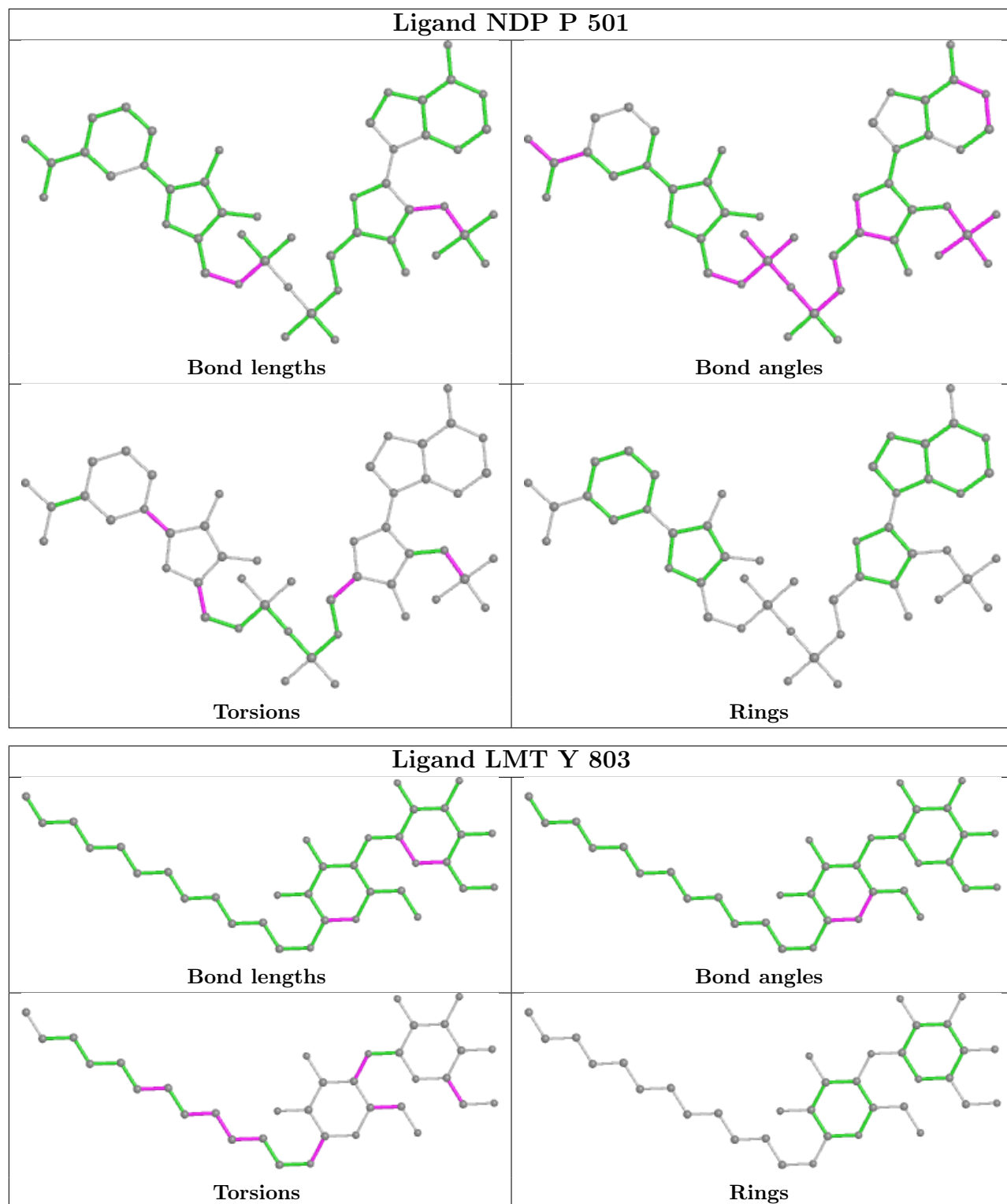


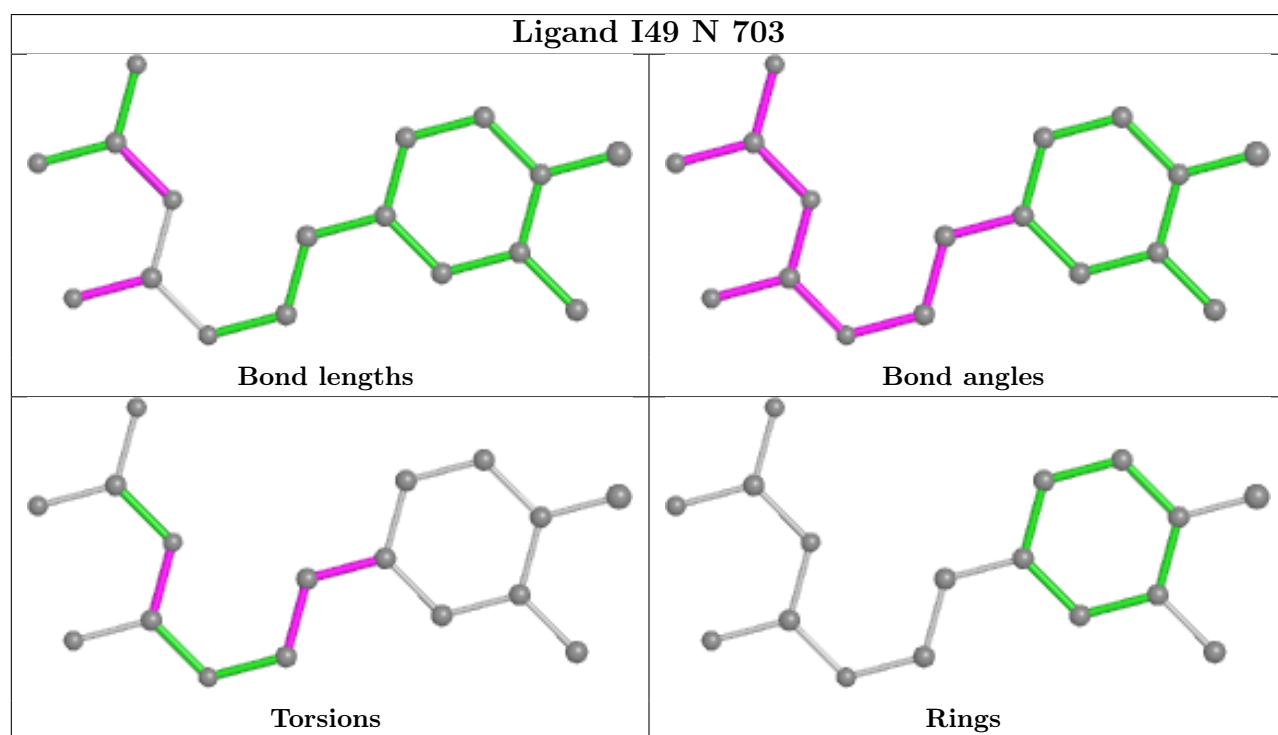
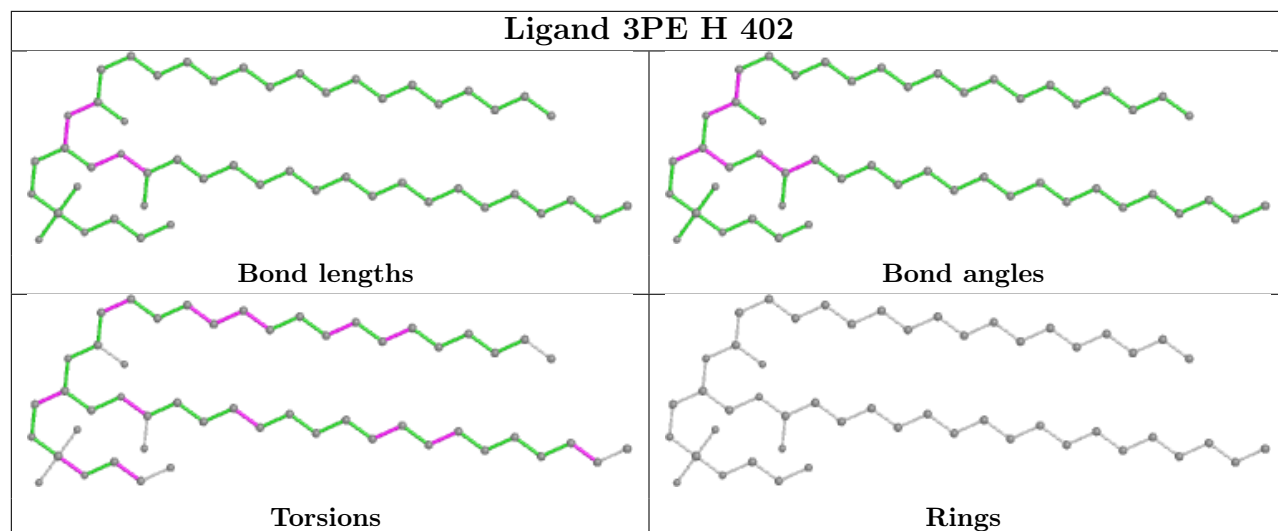


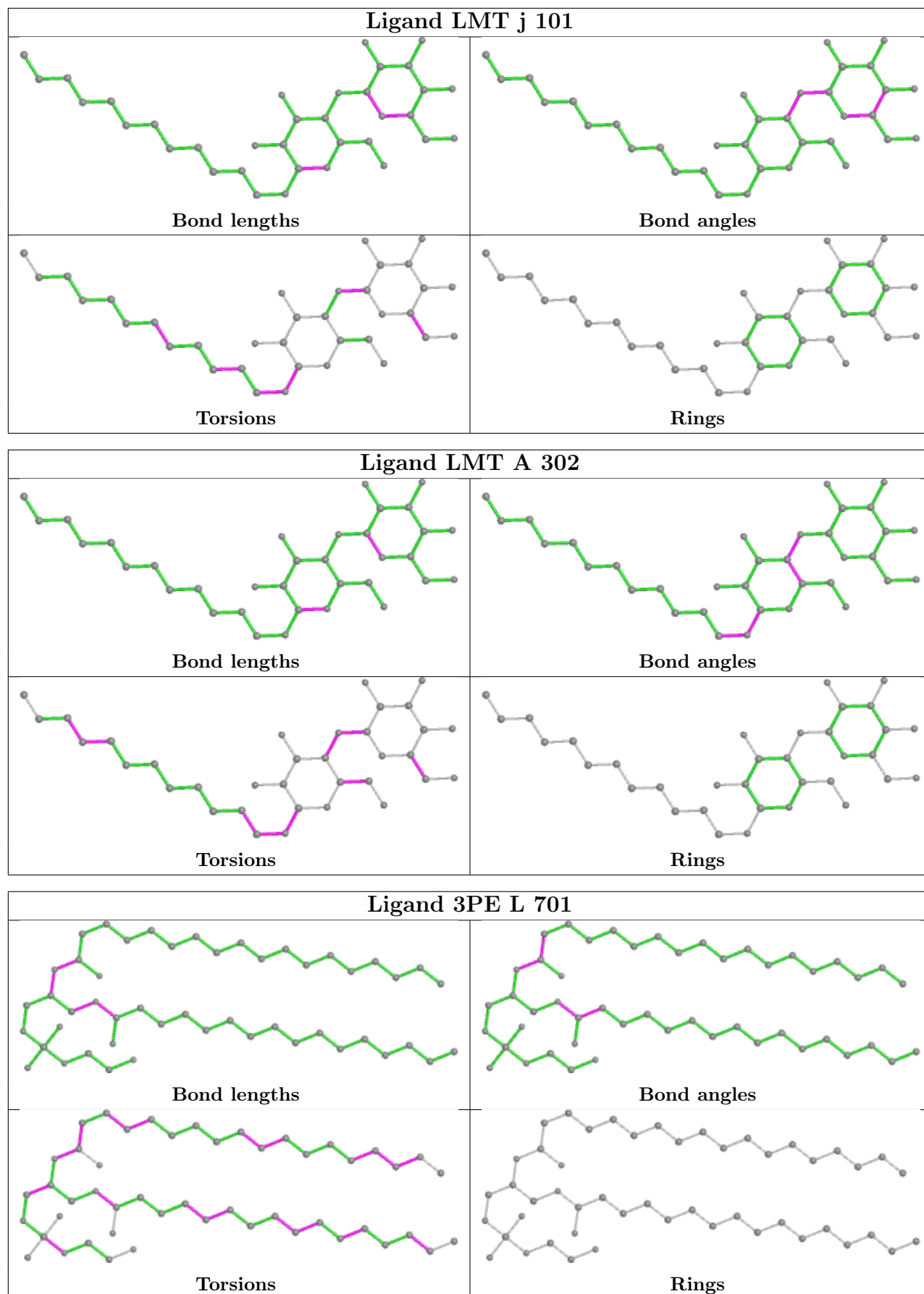


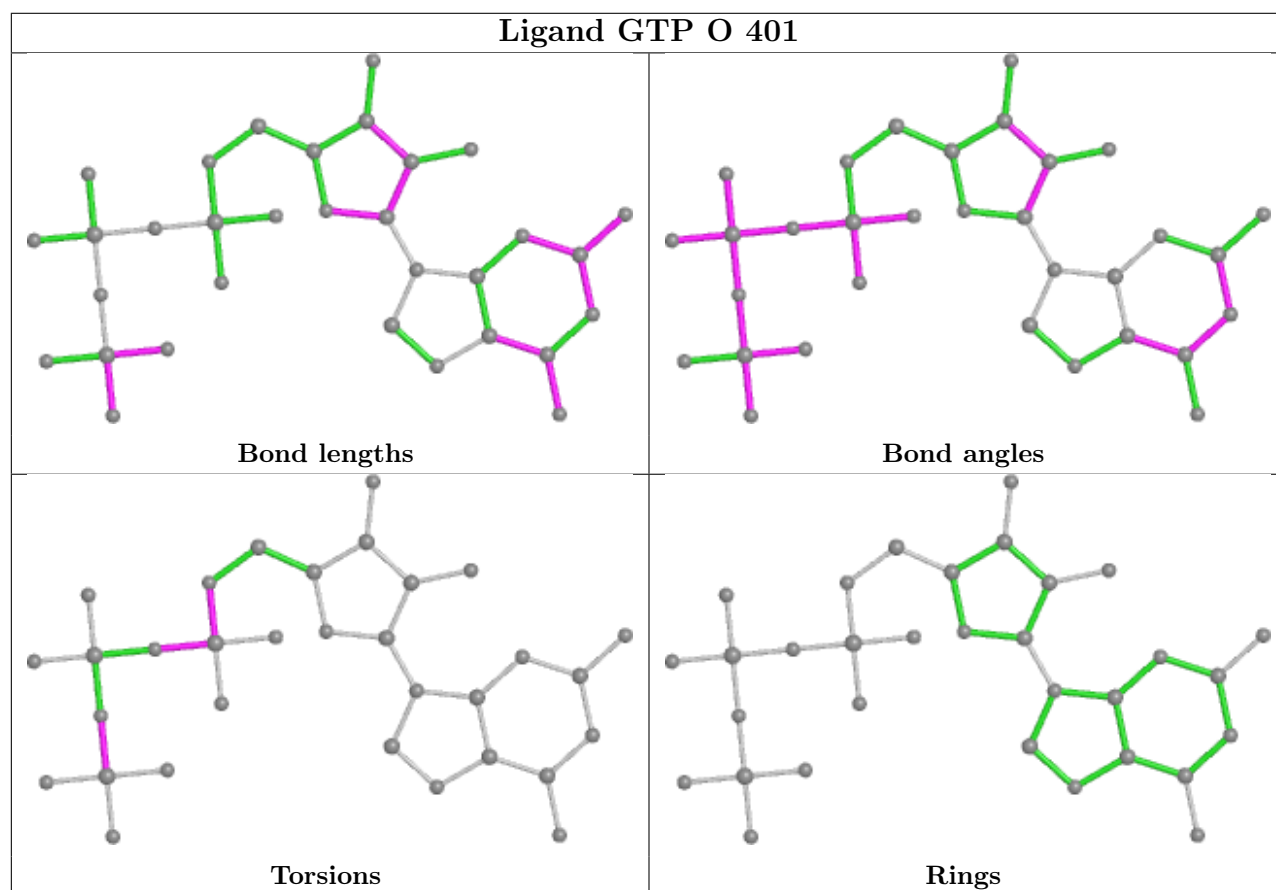
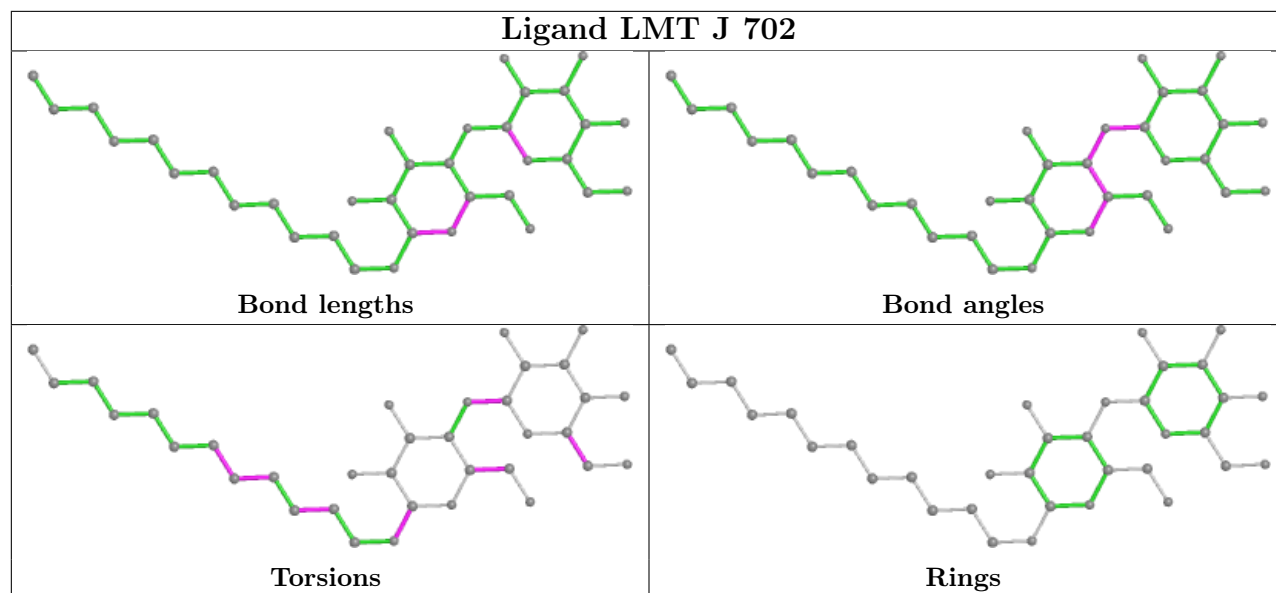


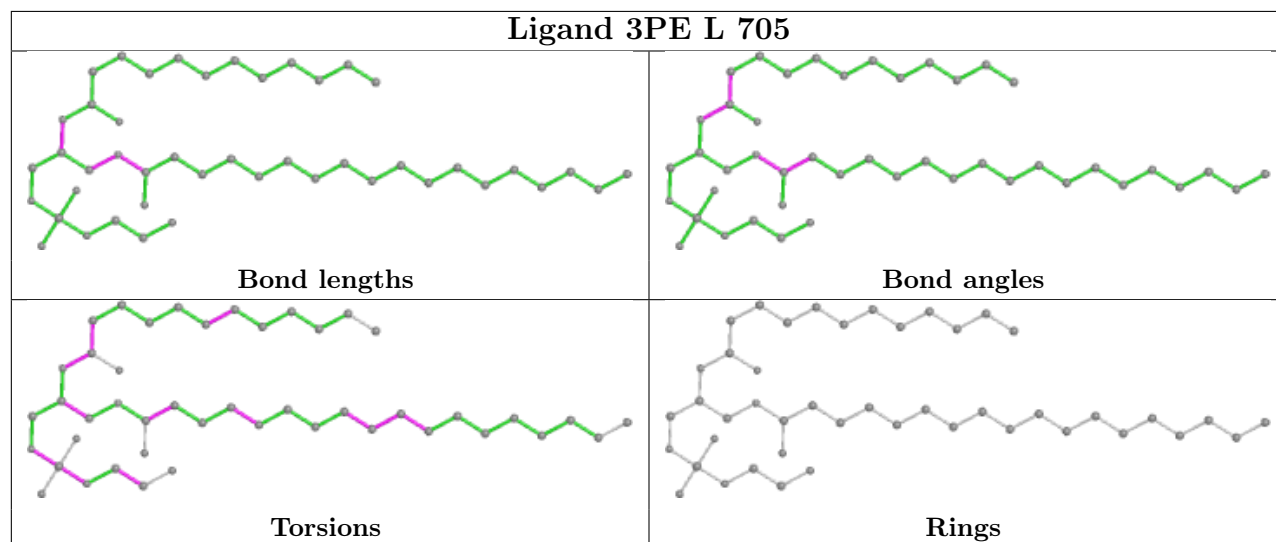
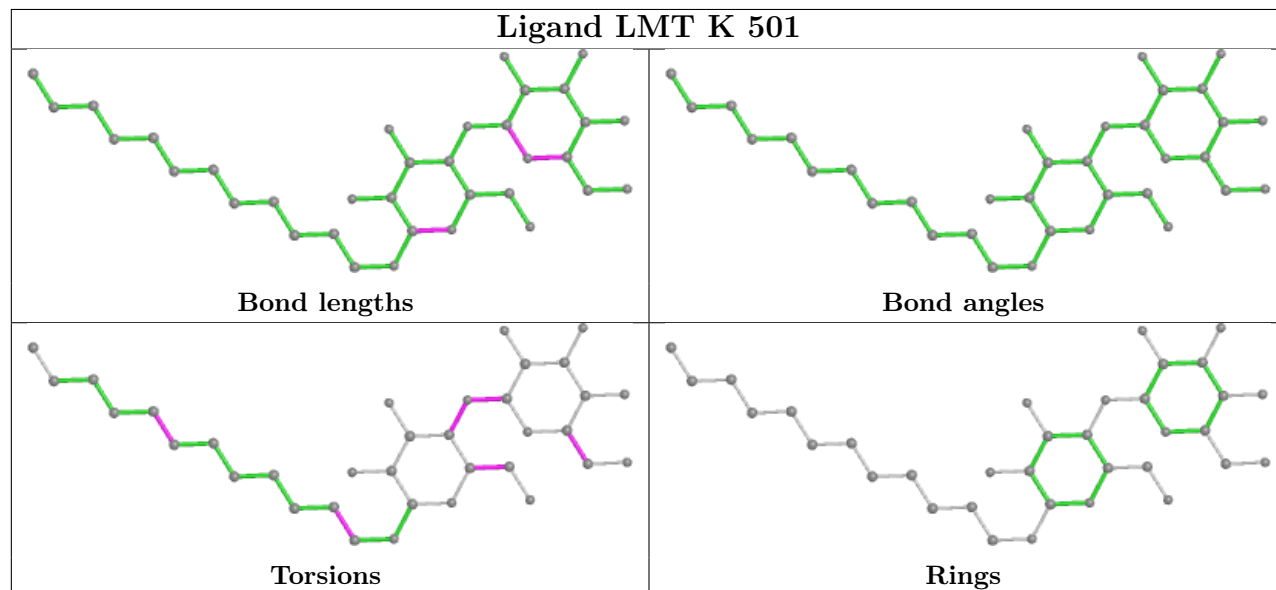
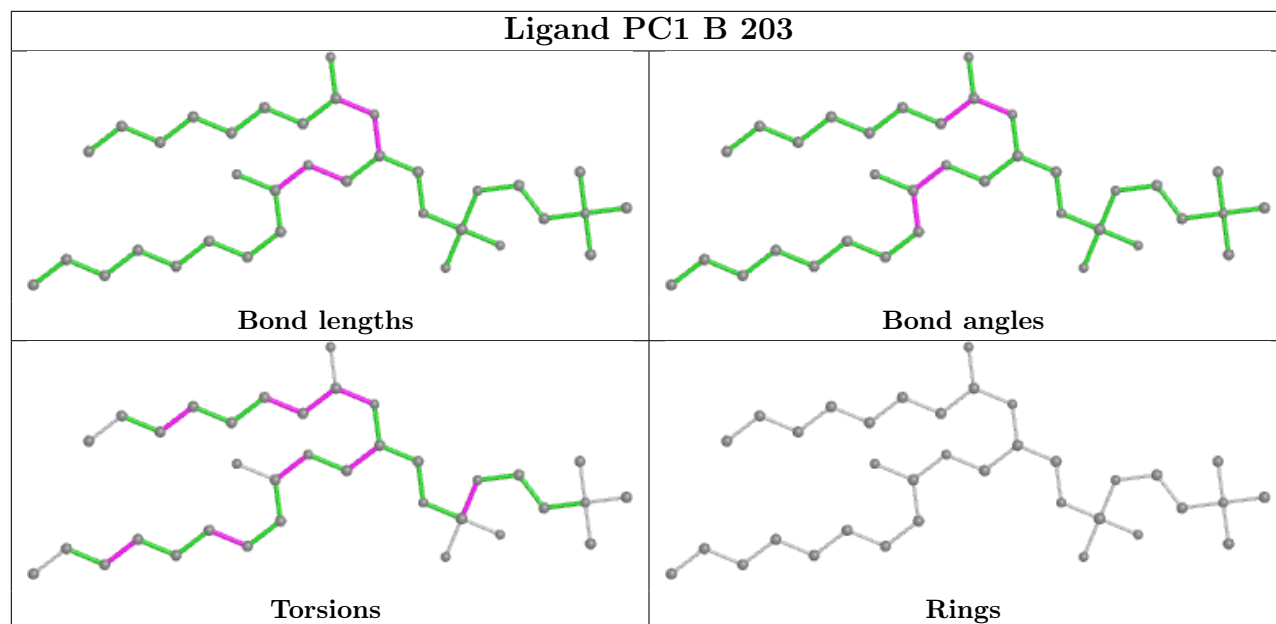


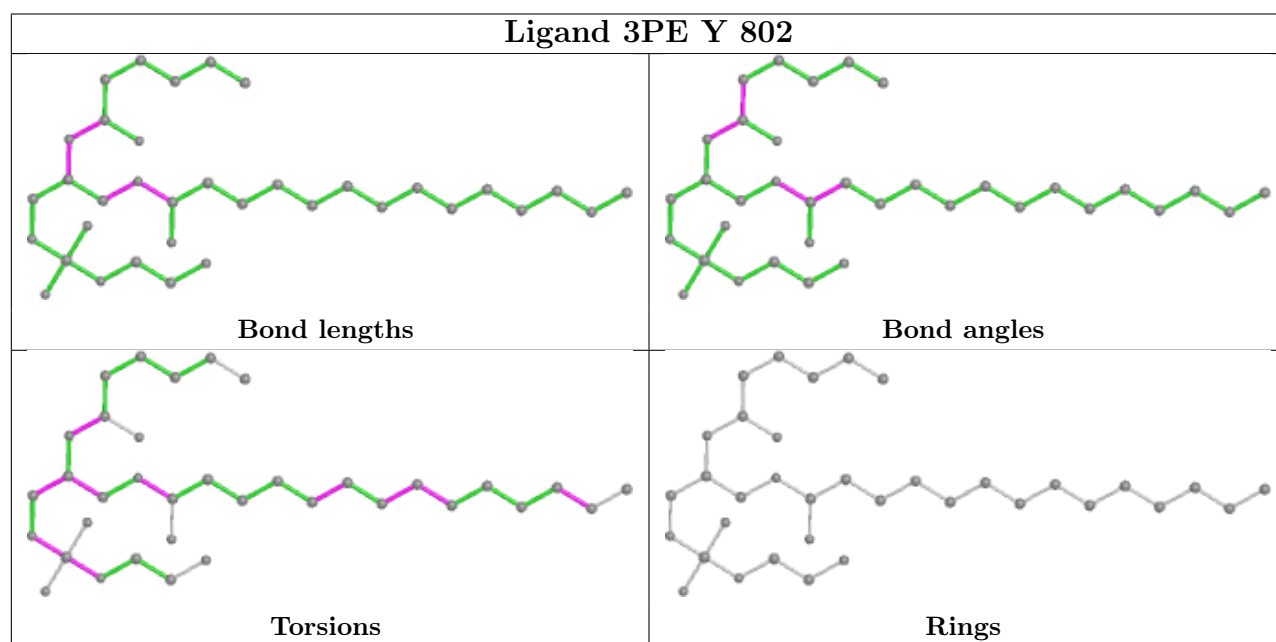
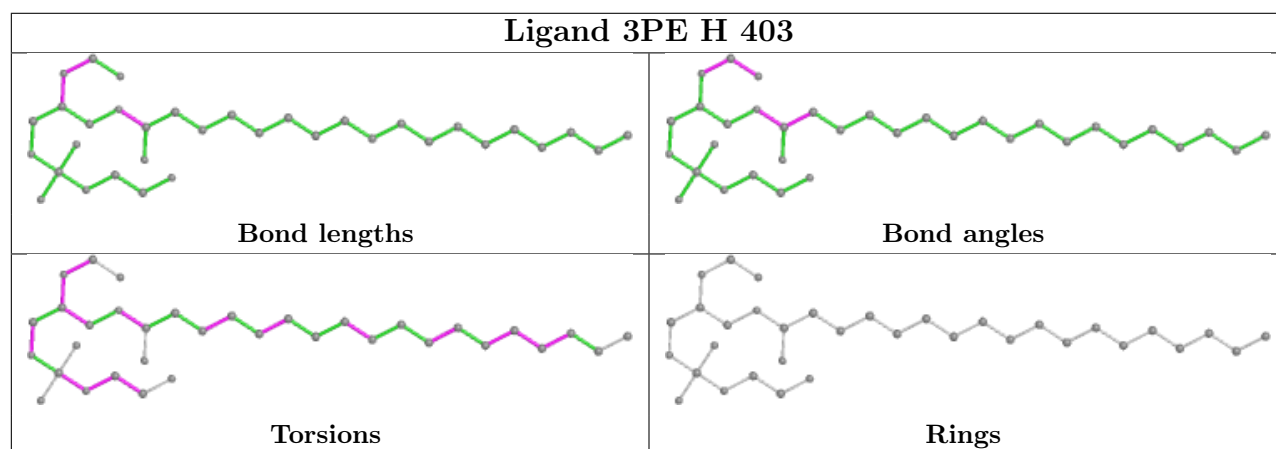
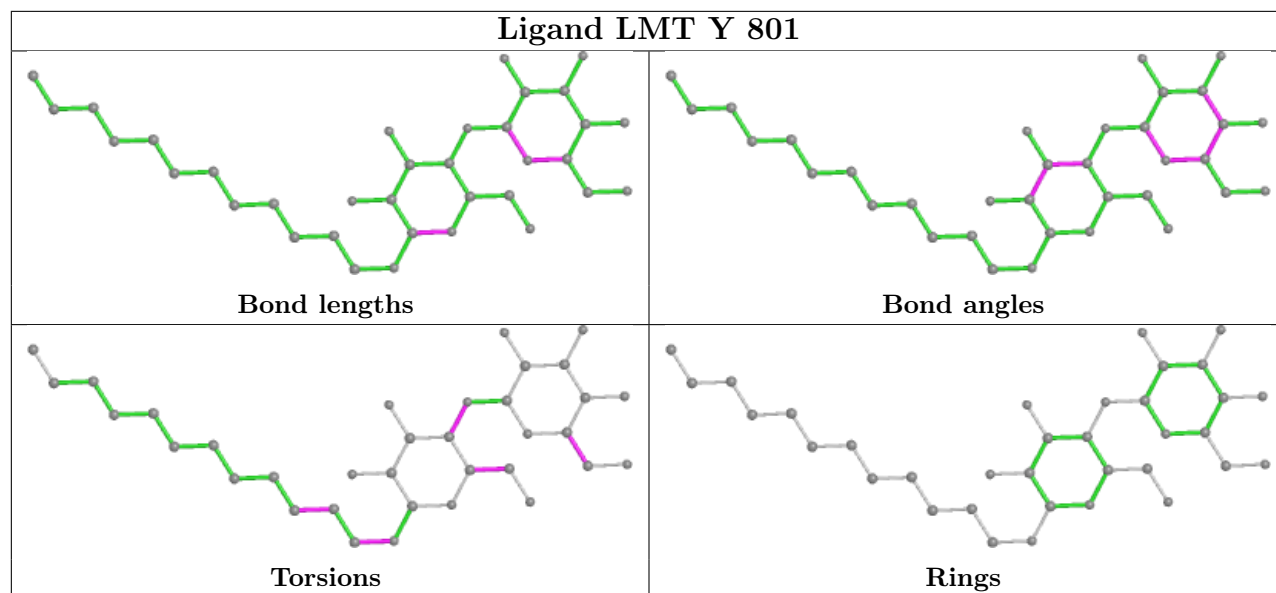


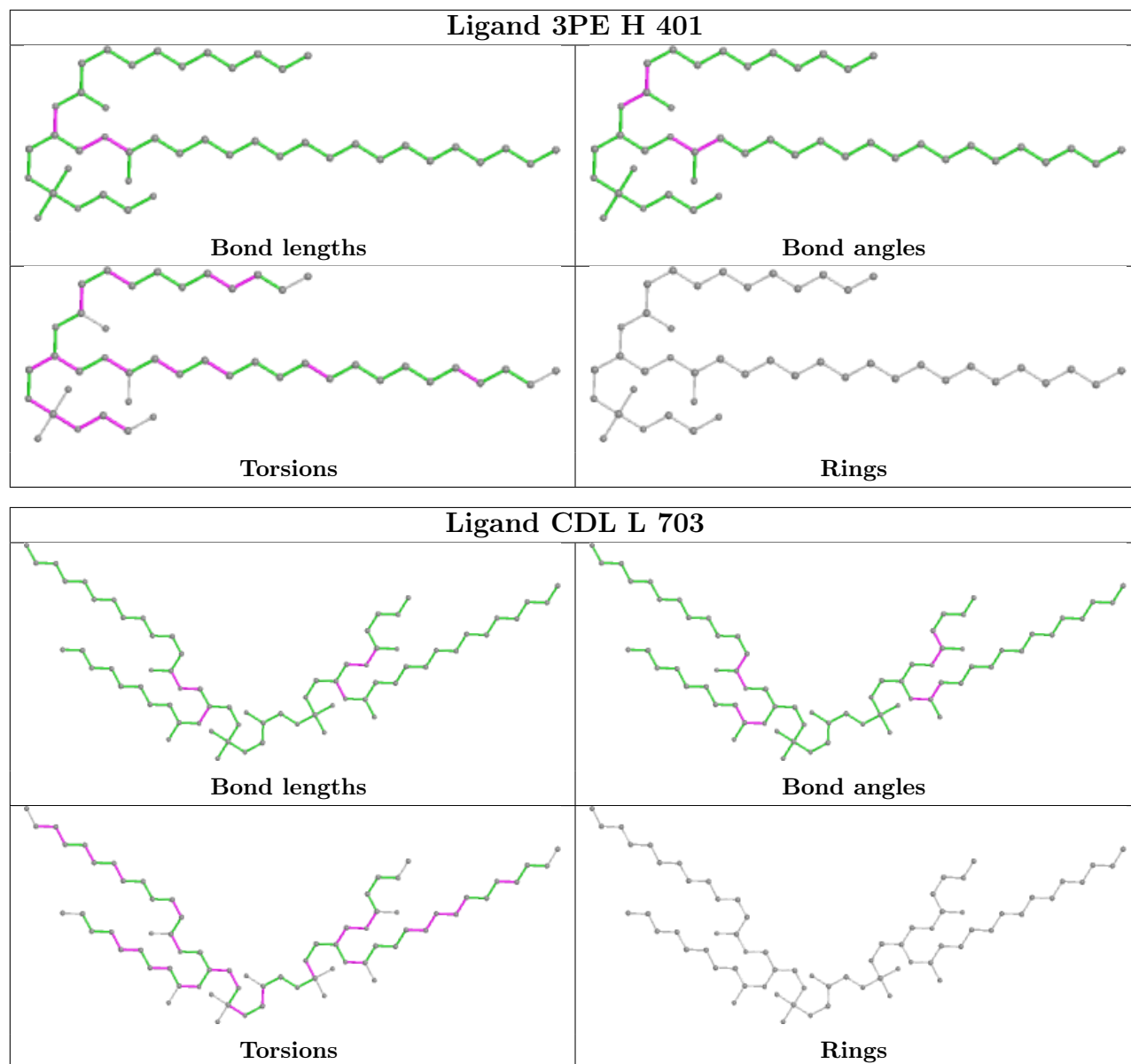












5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [\(i\)](#)

There are no chain breaks in this entry.

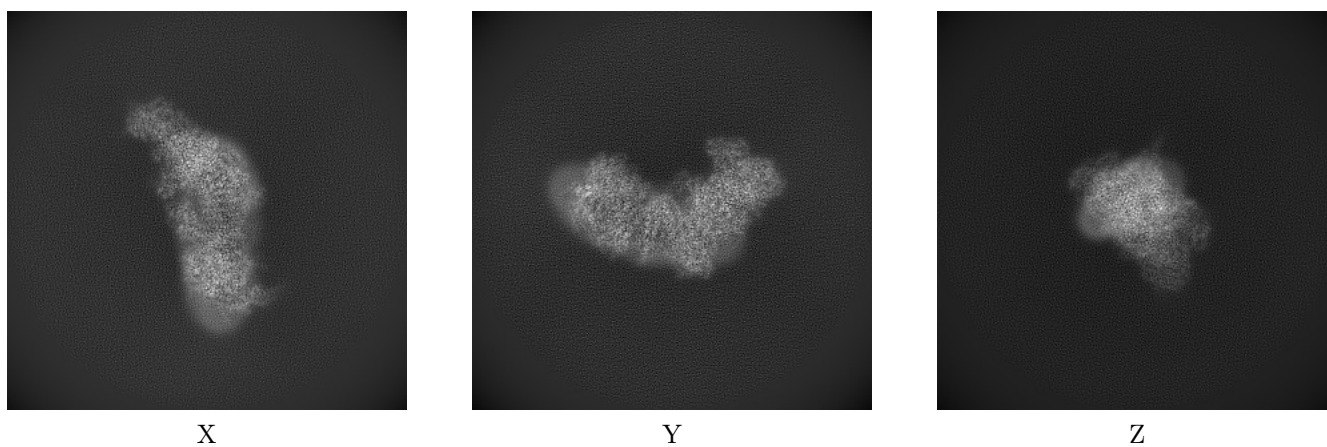
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-14256. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

6.1 Orthogonal projections [i](#)

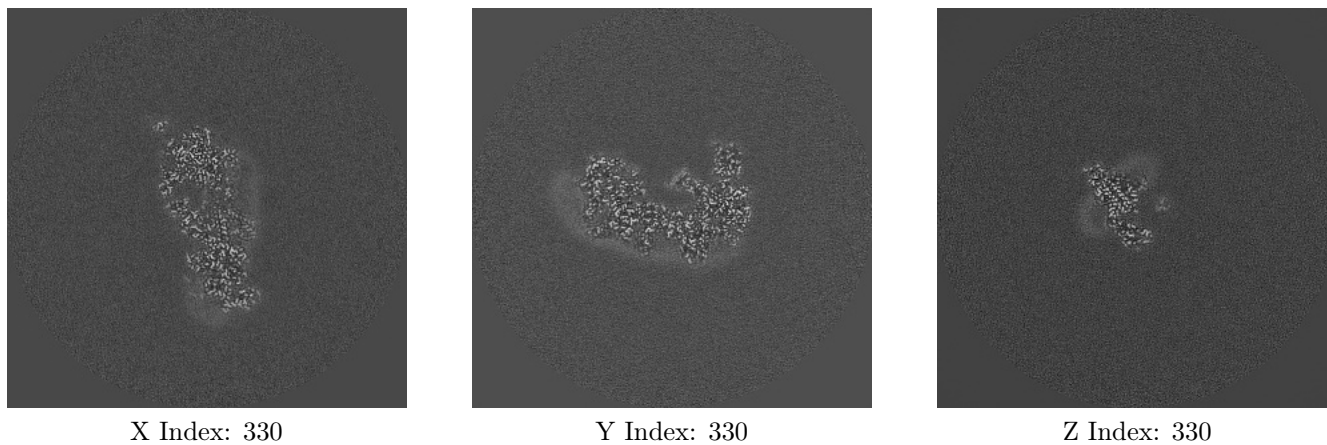
6.1.1 Primary map



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

6.2 Central slices [i](#)

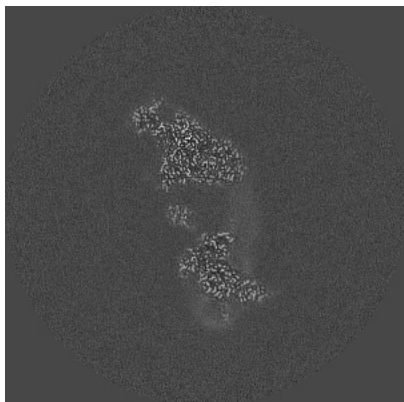
6.2.1 Primary map



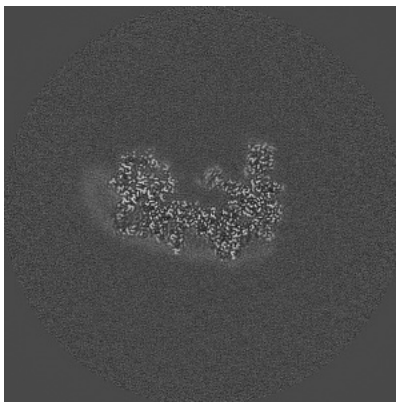
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

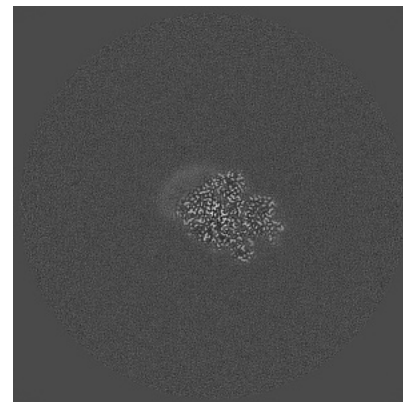
6.3.1 Primary map



X Index: 353



Y Index: 333



Z Index: 421

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

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 5.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

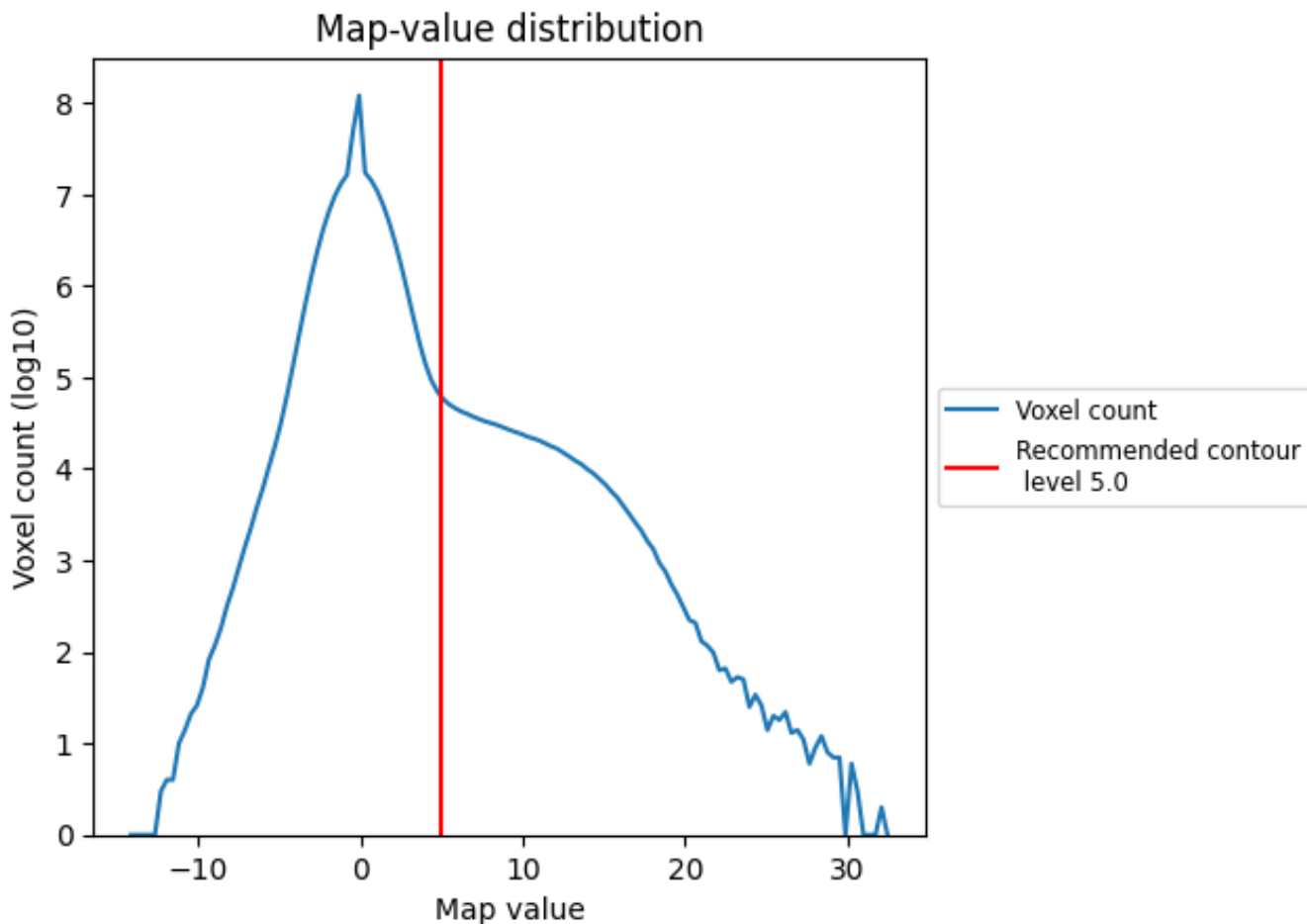
6.5 Mask visualisation

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

7 Map analysis [i](#)

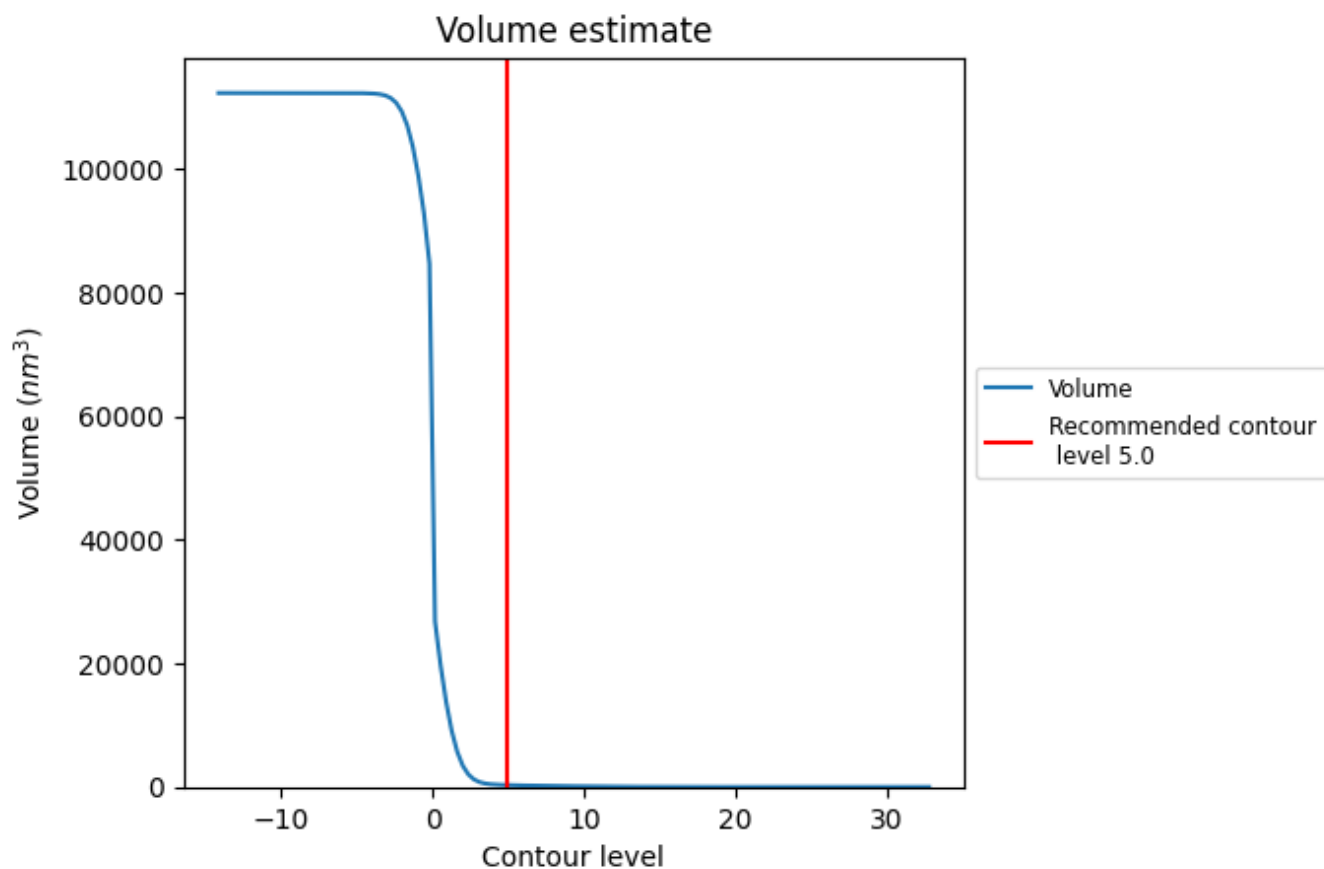
This section contains the results of statistical analysis of the map.

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.

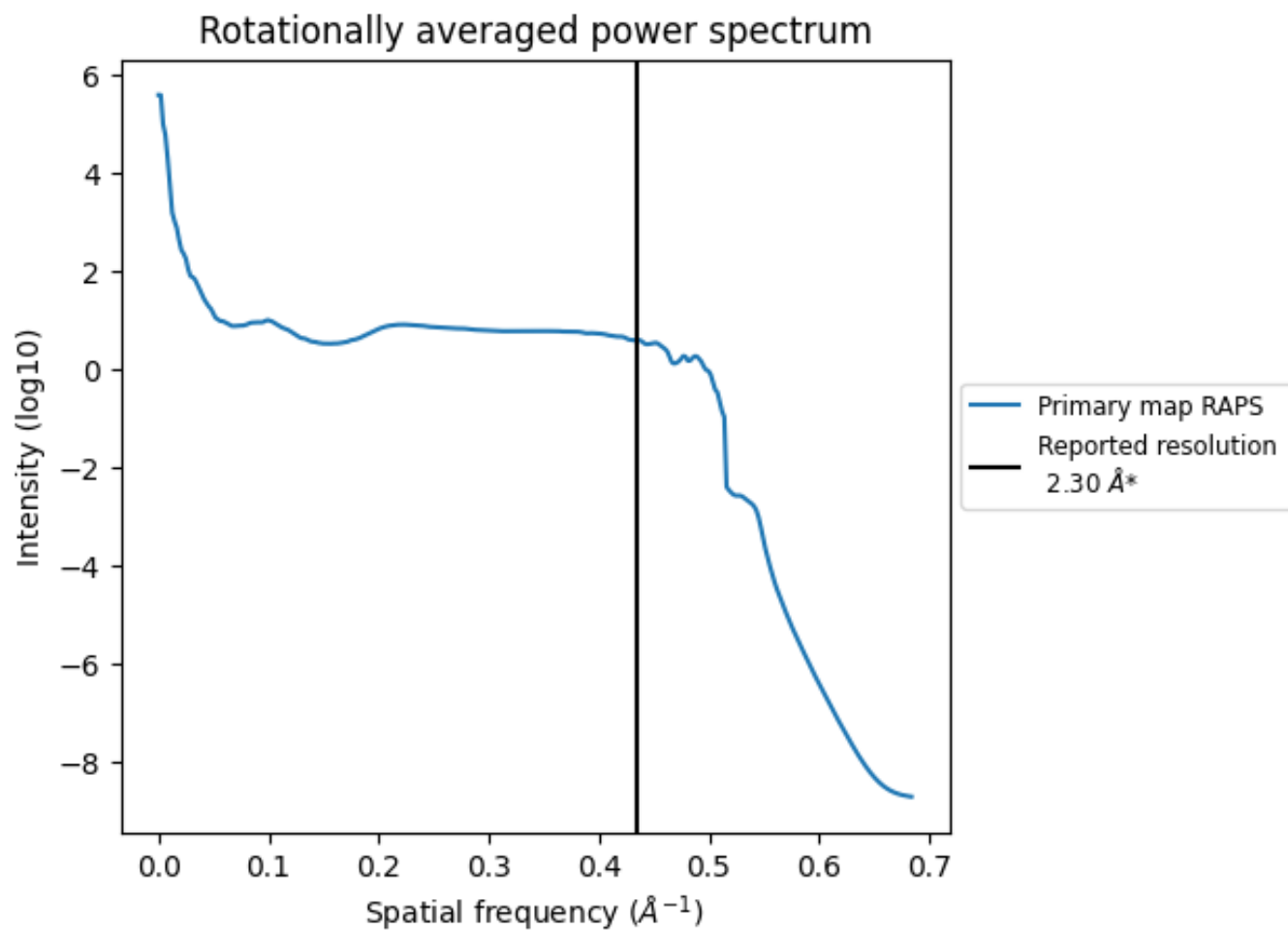
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 297 nm^3 ; this corresponds to an approximate mass of 269 kDa.

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

7.3 Rotationally averaged power spectrum i



*Reported resolution corresponds to spatial frequency of 0.435 Å⁻¹

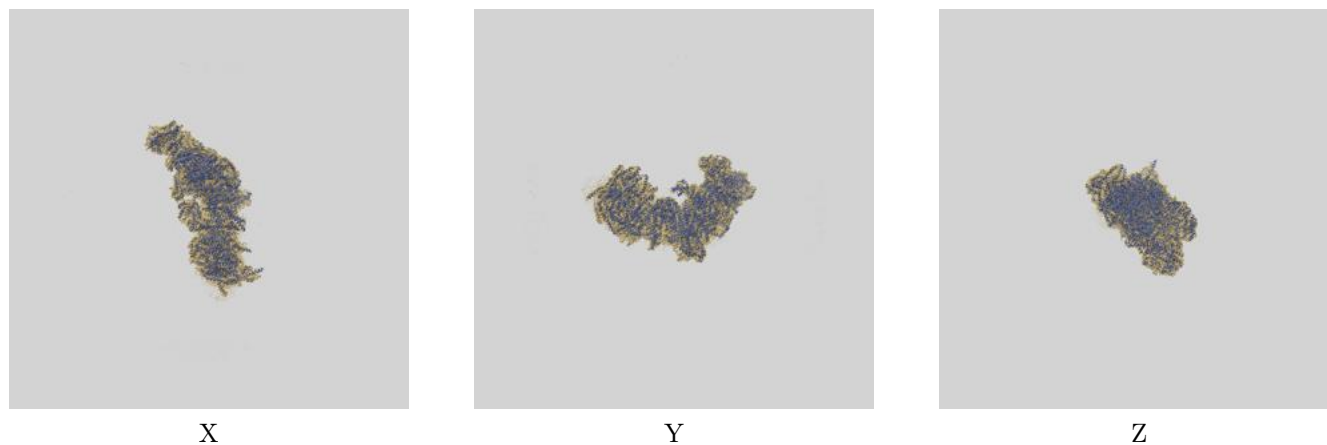
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

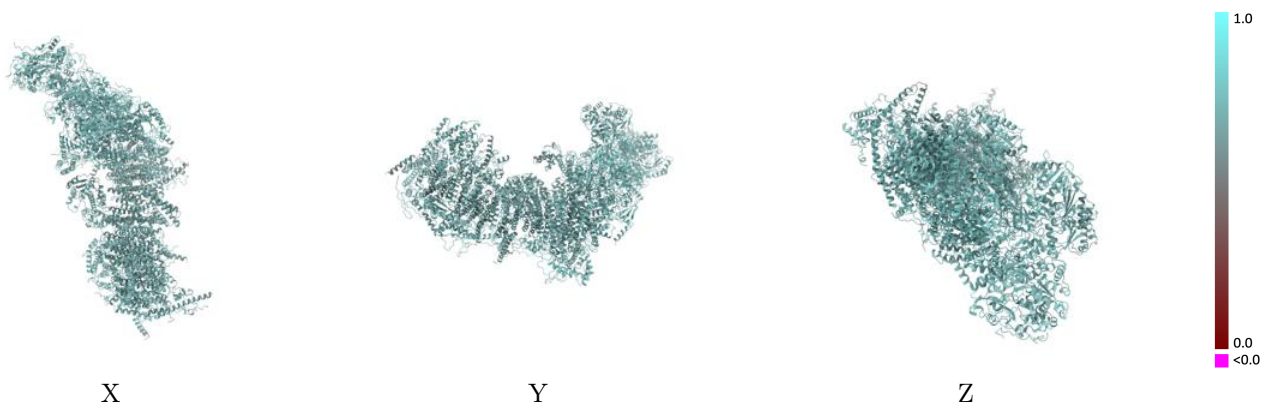
This section contains information regarding the fit between EMDB map EMD-14256 and PDB model 7R42. Per-residue inclusion information can be found in section 3 on page 23.

9.1 Map-model overlay [i](#)



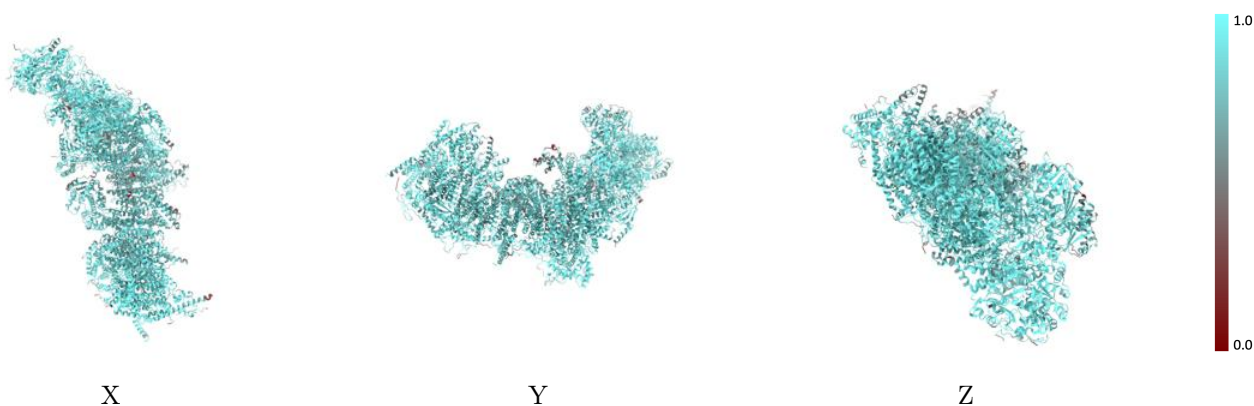
The images above show the 3D surface view of the map at the recommended contour level 5.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



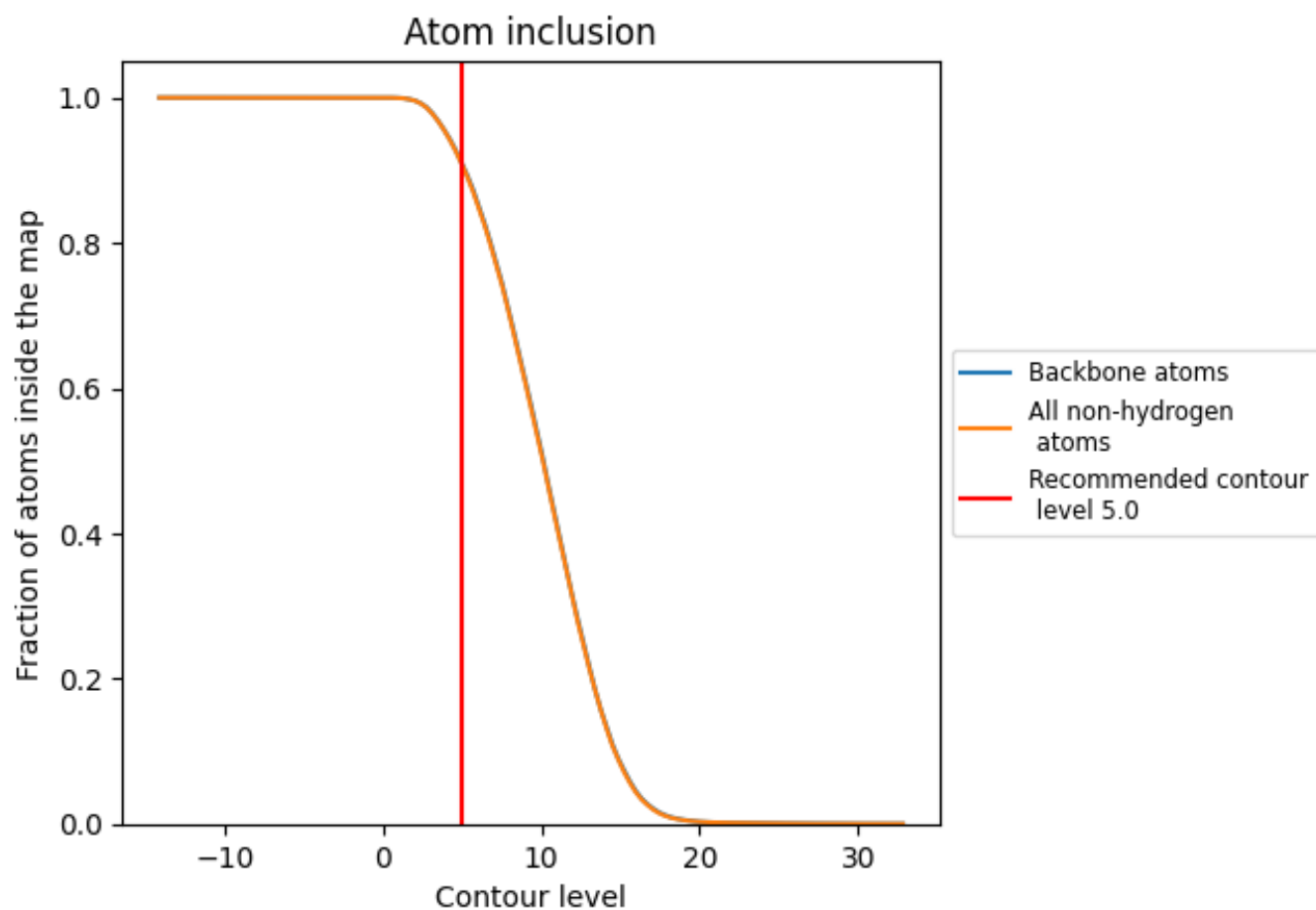
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



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 (5.0).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 91% of all backbone atoms, 91% 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 (5.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9074	 0.6970
A	 0.9033	 0.7040
B	 0.9643	 0.7340
C	 0.9612	 0.7350
D	 0.9547	 0.7320
E	 0.8868	 0.6830
F	 0.9345	 0.7000
G	 0.9170	 0.7090
H	 0.9711	 0.7220
I	 0.9741	 0.7400
J	 0.8921	 0.6930
K	 0.9053	 0.7070
L	 0.9381	 0.6850
M	 0.9574	 0.7060
N	 0.9696	 0.7160
O	 0.8995	 0.6840
P	 0.8955	 0.7030
Q	 0.9225	 0.7200
R	 0.9173	 0.7140
S	 0.8274	 0.6730
T	 0.6149	 0.6110
U	 0.9102	 0.6740
V	 0.8778	 0.7050
W	 0.8854	 0.7030
X	 0.8912	 0.6780
Y	 0.7097	 0.6520
Z	 0.8878	 0.6850
a	 0.9399	 0.7020
b	 0.8199	 0.6560
c	 0.8434	 0.6530
d	 0.8877	 0.6870
e	 0.8580	 0.6780
f	 0.8128	 0.6630
g	 0.8878	 0.6830
h	 0.9224	 0.6910



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Chain	Atom inclusion	Q-score
i	 0.8213	 0.6530
j	 0.8567	 0.6470
k	 0.8901	 0.6460
l	 0.8964	 0.6760
m	 0.8727	 0.6750
n	 0.9013	 0.6810
o	 0.8612	 0.6520
p	 0.9026	 0.6810
q	 0.9064	 0.7090
r	 0.8875	 0.7070
s	 0.8536	 0.6780