



Full wwPDB EM Validation Report ⓘ

Dec 7, 2022 – 02:27 PM JST

PDB ID : 7V2K
EMDB ID : EMD-31646
Title : Deactive state complex I from DQ-NADH dataset
Authors : Gu, J.K.; Yang, M.J.
Deposited on : 2021-08-09
Resolution : 2.70 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:

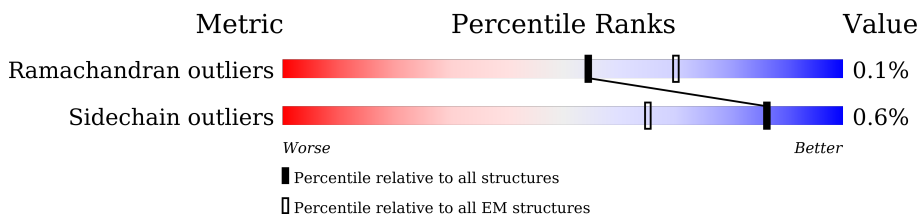
EMDB validation analysis : 0.0.1.dev43
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

1 Overall quality at a glance

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

The reported resolution of this entry is 2.70 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)
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	431	100%
2	B	176	100%
3	C	156	99%
4	E	115	99%
5	F	86	100%
6	G	88	36% 97%
6	X	88	20% 100%
7	H	112	100%
8	I	112	7% 84% 13%

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Mol	Chain	Length	Quality of chain
9	J	341	95%
10	K	42	98%
11	L	125	100%
12	M	690	99%
13	N	144	99%
14	O	217	99%
15	P	208	99%
16	Q	430	97%
17	S	70	99%
18	T	96	99%
19	U	83	100%
20	V	140	97%
21	W	142	100%
22	Y	70	100%
23	Z	84	100%
24	a	140	100%
25	b	126	81%
26	c	156	100%
27	d	175	99%
28	e	107	100%
29	f	42	100%
30	g	121	100%
31	h	105	99%
32	i	347	99%
33	j	113	88%

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Mol	Chain	Length	Quality of chain
34	k	98	<p>19% 99%</p>
35	l	603	<p>6% 99%</p>
36	m	175	<p>11% 74% 26%</p>
37	n	56	<p>18% 98%</p>
38	o	128	<p>8% 100%</p>
39	p	178	<p>10% 99%</p>
40	r	459	<p>100%</p>
41	s	318	<p>95% 5%</p>
42	u	171	<p>100%</p>
43	v	131	<p>40% 94% 5%</p>
44	w	320	<p>10% 100%</p>

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 66880 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 dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	431	3318	2095	591	612	20	0	0

- Molecule 2 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	176	1412	887	243	269	13	0	0

- Molecule 3 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	156	1248	794	227	213	14	0	0

- Molecule 4 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	115	971	619	179	168	5	0	0

- Molecule 5 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2.

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

- Molecule 6 is a protein called Acyl carrier protein, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	G	88	693	447	102	139	5	0	0
6	X	88	695	448	103	139	5	0	0

- Molecule 7 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	H	112	910	588	154	165	3	0	0

- Molecule 8 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	I	97	780	491	147	139	3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	J	331	2615	1694	459	454	8	0	0

- Molecule 10 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	K	42	355	219	67	68	1	0	0

- Molecule 11 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	L	125	1016	642	181	190	3	0	0

- Molecule 12 is a protein called NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	M	690	5296	3320	923	1014	39	0	0

- Molecule 13 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	N	144	1204	770	218	212	4	0	0

- Molecule 14 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	O	217	1671	1065	281	315	10	0	0

- Molecule 15 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	P	208	1738	1124	298	314	2	0	0

- Molecule 16 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	Q	419	3377	2162	578	613	24	0	0

- Molecule 17 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	S	70	567	364	104	94	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	T	96	741	452	140	146	3	0	0

- Molecule 19 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	U	83	643	417	110	115	1	0	0

- Molecule 20 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	V	140	1021	651	174	190	6	0	0

- Molecule 21 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	W	142	1167	752	200	206	9	0	0

- Molecule 22 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 2, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	Y	70	600	393	98	108	1	0	0

- Molecule 23 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	Z	84	674	437	116	120	1	0	0

- Molecule 24 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	a	140	1165	762	199	201	3	0	0

- Molecule 25 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	b	103	879	573	158	147	1	0	0

- Molecule 26 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	c	156	1315	853	213	241	8	0	0

- Molecule 27 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	d	175	1461	916	265	272	8	0	0

- Molecule 28 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	e	107	890	568	145	173	4	0	0

- Molecule 29 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
29	f	42	342	225	58	59	0	0

- Molecule 30 is a protein called NADH dehydrogenase [ubiquinone] 1 subunit C2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	g	121	1000	650	173	171	6	0	0

- Molecule 31 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	h	105	867	550	161	150	6	0	0

- Molecule 32 is a protein called NADH-ubiquinone oxidoreductase chain 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	i	347	2710	1782	420	462	46	0	0

- Molecule 33 is a protein called NADH-ubiquinone oxidoreductase chain 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	j	99	800	545	118	132	5	0	0

- Molecule 34 is a protein called NADH-ubiquinone oxidoreductase chain 4L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	k	98	748	493	113	128	14	0	0

- Molecule 35 is a protein called NADH-ubiquinone oxidoreductase chain 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	l	603	4720	3118	739	814	49	0	0

- Molecule 36 is a protein called NADH-ubiquinone oxidoreductase chain 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	m	129	919	614	137	160	8	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	n	56	479	311	88	79	1	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		
38	o	128	1062	691	182	189	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	p	178	1534	982	279	265	8	0	0

- Molecule 40 is a protein called NADH-ubiquinone oxidoreductase chain 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	r	459	3631	2412	572	609	38	0	0

- Molecule 41 is a protein called NADH-ubiquinone oxidoreductase chain 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	s	303	2394	1607	369	397	21	0	0

- Molecule 42 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	u	171	1398	887	250	251	10	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	v	124	998	625	183	181	9	0	0

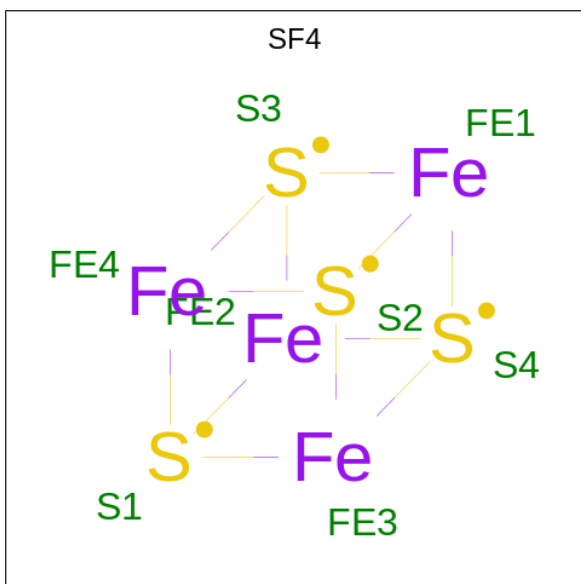
There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
v	1	MYR	-	acetylation	UNP F1SCH1

- Molecule 44 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	w	320	2582	1643	438	491	10	0	0

- Molecule 45 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
			Total	Fe	S	
45	A	1	8	4	4	0
45	B	1	16	8	8	0
45	B	1	16	8	8	0
45	C	1	8	4	4	0
45	M	1	16	8	8	0
45	M	1	16	8	8	0

- Molecule 46 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: C₁₇H₂₁N₄O₉P) (labeled as "Ligand of Interest" by depositor).



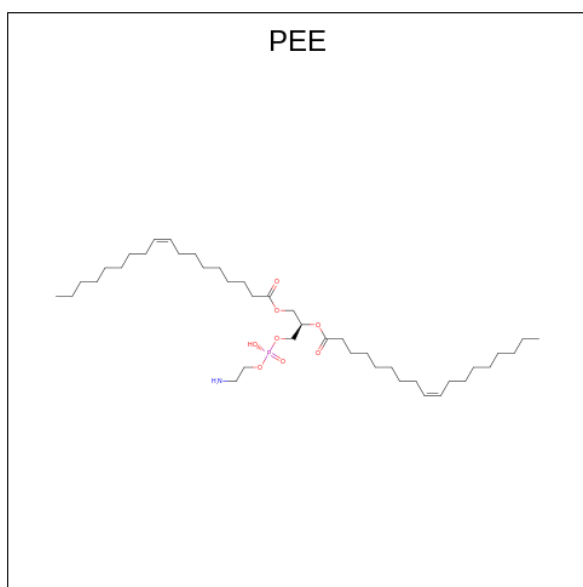
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
46	A	1	31	17	4	9	1	0

- Molecule 47 is 1,4-DIHYDRONICOTINAMIDE ADENINE DINUCLEOTIDE (three-letter code: NAI) (formula: C₂₁H₂₉N₇O₁₄P₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
47	A	1	44	21	7	14	2	0

- Molecule 48 is 1,2-dioleoyl-sn-glycero-3-phosphoethanolamine (three-letter code: PEE) (formula: C₄₁H₇₈NO₈P) (labeled as "Ligand of Interest" by depositor).



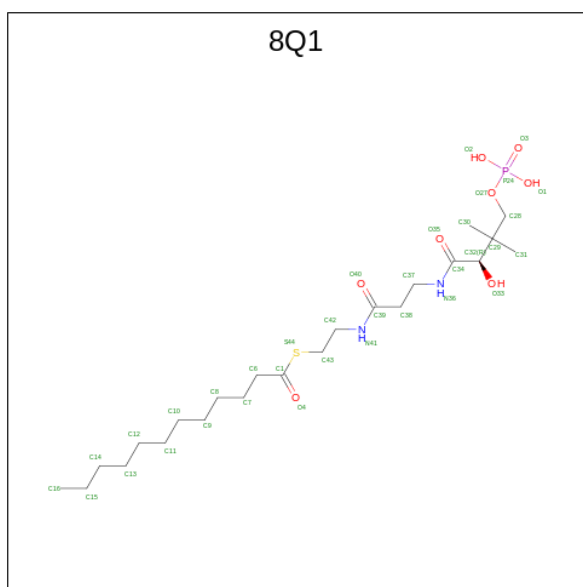
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
48	C	1	Total 47	37	1	8	1	0
48	U	1	Total 51	41	1	8	1	0
48	V	1	Total 51	41	1	8	1	0
48	l	1	Total 139	109	3	24	3	0
48	l	1	Total 139	109	3	24	3	0
48	l	1	Total 139	109	3	24	3	0
48	m	1	Total 41	31	1	8	1	0
48	s	1	Total 51	41	1	8	1	0

- Molecule 49 is (9R,11S)-9-({[(1S)-1-HYDROXYHEXADECYL]OXY}METHYL)-2,2-DIMETHYL-5,7,10-TRIOXA-2LAMBDA 5 -AZA-6LAMBDA 5 -PHOSPHAOCTACOSANE-6,6,11-TRIOXOL (three-letter code: PLX) (formula: C₄₂H₈₉NO₈P) (labeled as "Ligand of Interest" by depositor).



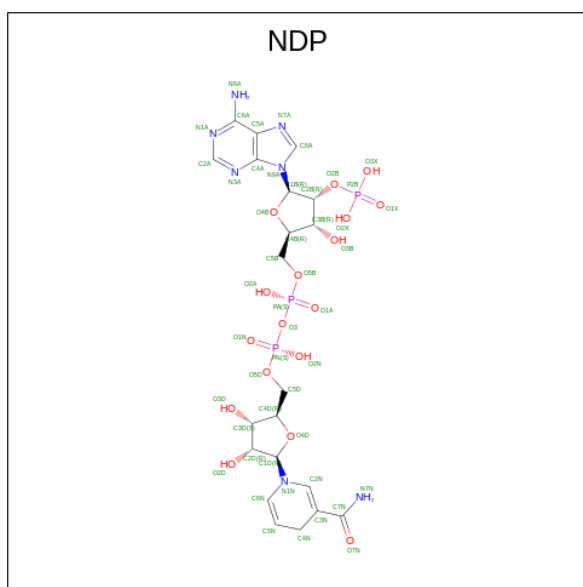
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
49	C	1	Total 52	C 42	N 1	O 8	P 1	0
49	V	1	Total 52	C 42	N 1	O 8	P 1	0
49	e	1	Total 52	C 42	N 1	O 8	P 1	0
49	i	1	Total 52	C 42	N 1	O 8	P 1	0
49	j	1	Total 52	C 42	N 1	O 8	P 1	0
49	n	1	Total 52	C 42	N 1	O 8	P 1	0

- Molecule 50 is S-[2-({N-[(2R)-2-hydroxy-3,3-dimethyl-4-(phosphonoxy)butanoyl]-beta-alanyl}amino)ethyl] dodecanethioate (three-letter code: 8Q1) (formula: C₂₃H₄₅N₂O₈PS) (labeled as "Ligand of Interest" by depositor).



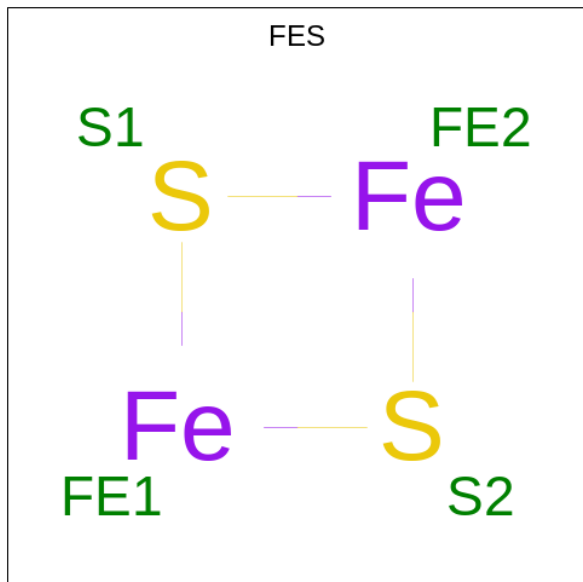
Mol	Chain	Residues	Atoms					AltConf	
			Total	C	N	O	P		S
50	G	1	Total	C	N	O	P	S	0
			35	23	2	8	1	1	
50	X	1	Total	C	N	O	P	S	0
			35	23	2	8	1	1	

- Molecule 51 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$) (labeled as "Ligand of Interest" by depositor).



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

- Molecule 52 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2) (labeled as "Ligand of Interest" by depositor).

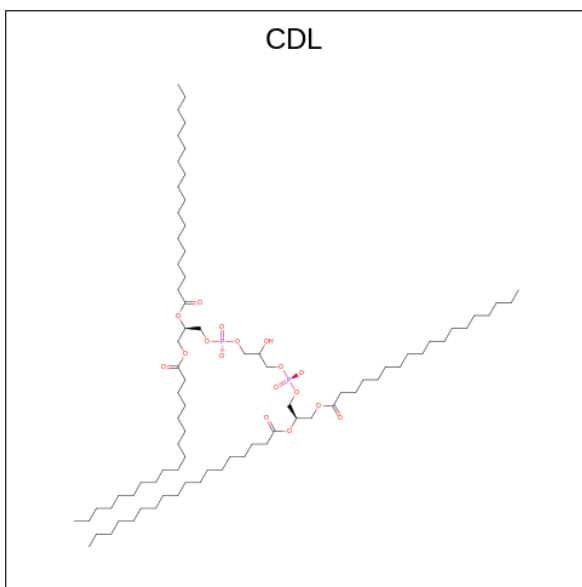


Mol	Chain	Residues	Atoms			AltConf
52	M	1	Total	Fe	S	0
			4	2	2	
52	O	1	Total	Fe	S	0
			4	2	2	

- Molecule 53 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
53	M	1	Total	Mg	0
			1	1	

- Molecule 54 is CARDIOLIPIN (three-letter code: CDL) (formula: $\text{C}_{81}\text{H}_{156}\text{O}_{17}\text{P}_2$) (labeled as "Ligand of Interest" by depositor).

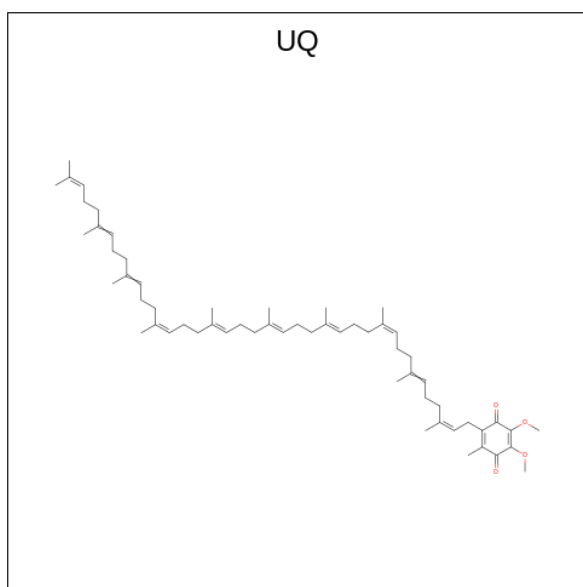


Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
54	N	1	51	32	17	2	0
54	a	1	91	72	17	2	0
54	i	1	66	47	17	2	0
54	l	1	199	161	34	4	0
54	l	1	199	161	34	4	0
54	n	1	78	59	17	2	0
54	r	1	100	81	17	2	0

- Molecule 55 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

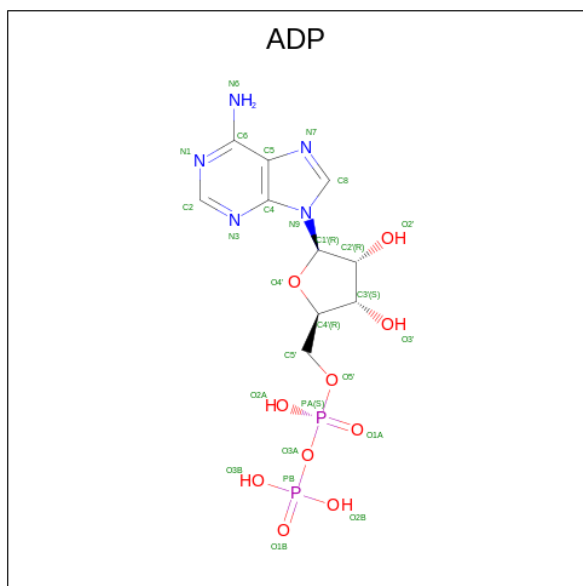
Mol	Chain	Residues	Atoms		AltConf
55	T	1	Total	Zn	0
			1	1	

- Molecule 56 is Coenzyme Q10, (2Z,6E,10Z,14E,18E,22E,26Z)-isomer (three-letter code: UQ) (formula: C₅₉H₉₀O₄) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			AltConf
			Total	C	O	
56	s	1	28	24	4	0

- Molecule 57 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$) (labeled as "Ligand of Interest" by depositor).

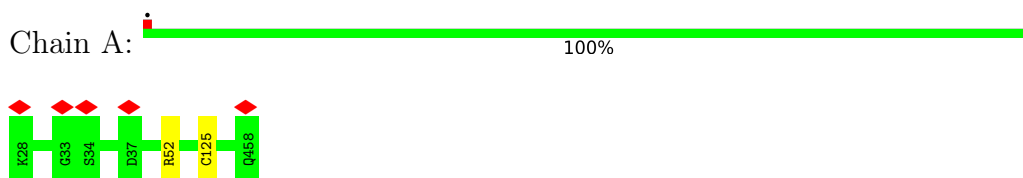


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
57	w	1	27	10	5	10	2	0

3 Residue-property plots

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

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

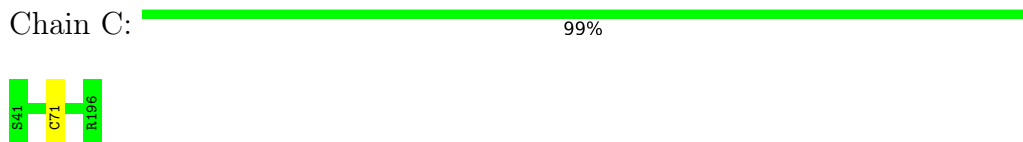


- Molecule 2: NADH dehydrogenase [ubiquinone] iron-sulfur protein 8, mitochondrial

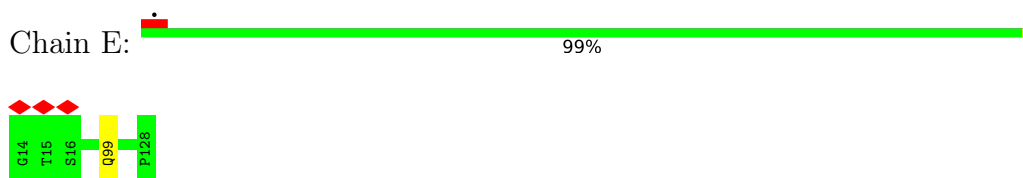


There are no outlier residues recorded for this chain.

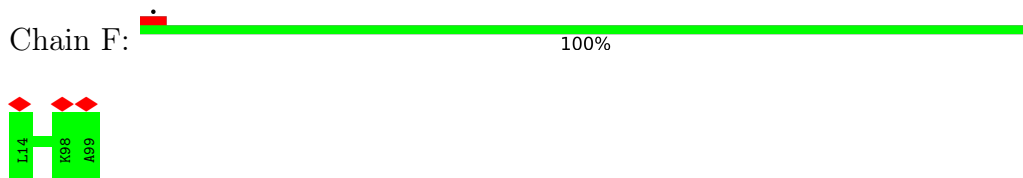
- Molecule 3: NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial



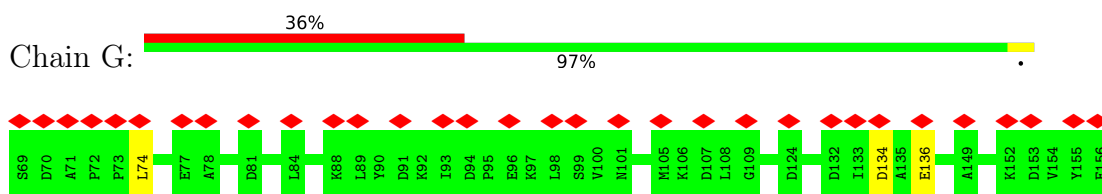
- Molecule 4: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6



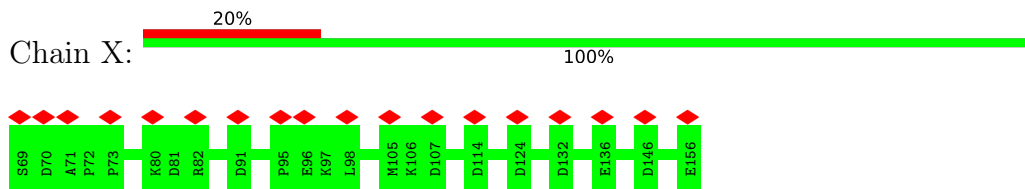
- Molecule 5: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2



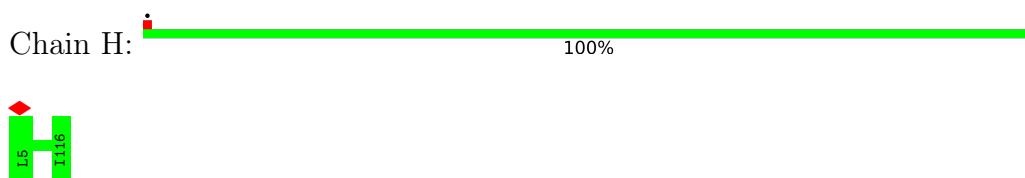
- Molecule 6: Acyl carrier protein, mitochondrial



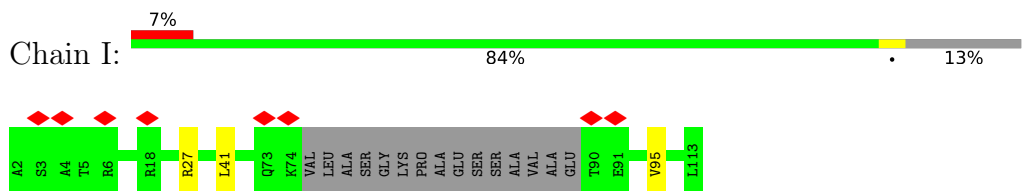
- Molecule 6: Acyl carrier protein, mitochondrial



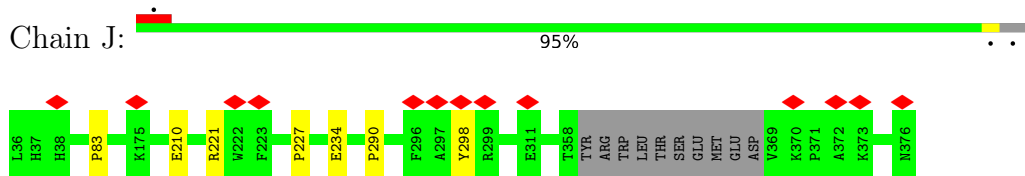
- Molecule 7: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5



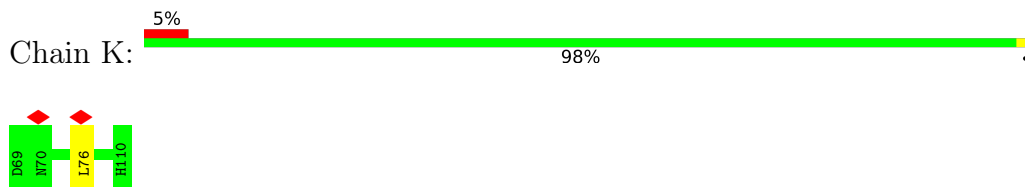
- Molecule 8: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7



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

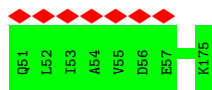


- Molecule 10: NADH dehydrogenase [ubiquinone] flavoprotein 3, mitochondrial

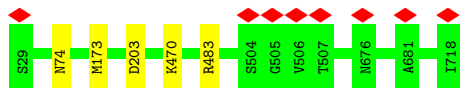


- Molecule 11: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

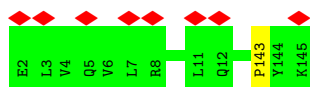




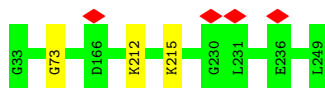
- Molecule 12: NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial



- Molecule 13: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12



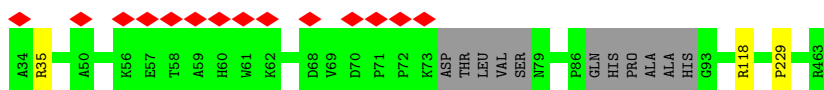
- Molecule 14: NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial



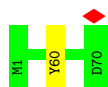
- Molecule 15: NADH dehydrogenase [ubiquinone] iron-sulfur protein 3, mitochondrial



- Molecule 16: NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial

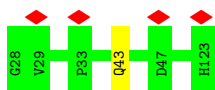


- Molecule 17: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1



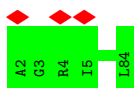
- Molecule 18: NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial

Chain T:  99%



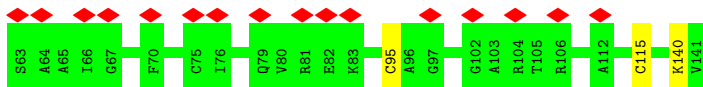
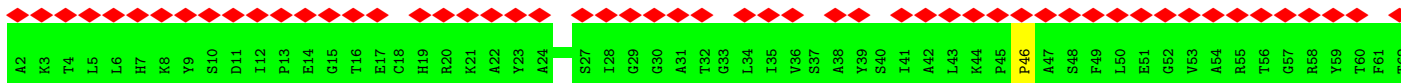
- Molecule 19: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3

Chain U:  100%



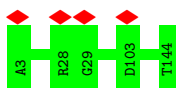
- Molecule 20: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11

Chain V:  97%



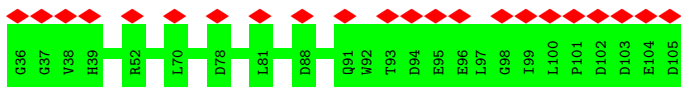
- Molecule 21: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13

Chain W:  100%



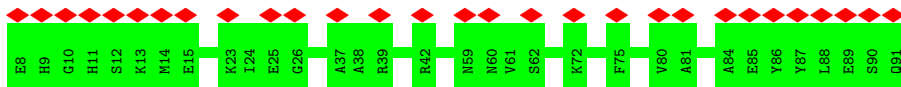
- Molecule 22: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 2, mitochondrial

Chain Y:  31%



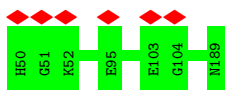
- Molecule 23: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3

Chain Z:  35%




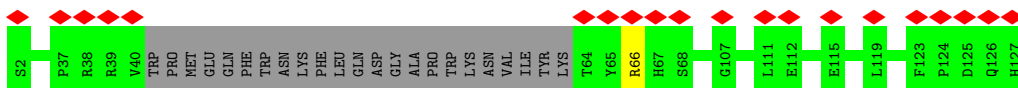
- Molecule 24: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial

Chain a:  100%



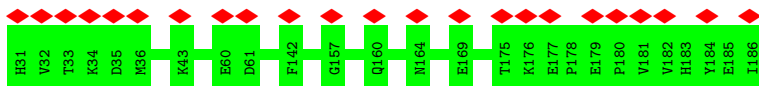
- Molecule 25: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6

Chain b:  16% 81% 18%



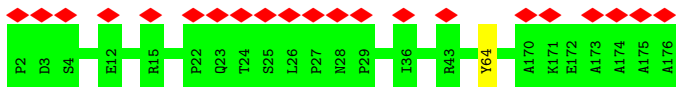
- Molecule 26: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial

Chain c:  15% 100%



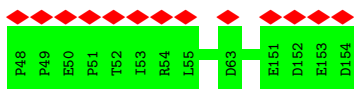
- Molecule 27: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 10

Chain d:  12% 99%



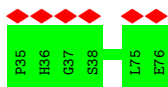
- Molecule 28: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 11, mitochondrial

Chain e:  12% 100%



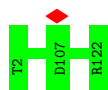
- Molecule 29: NADH dehydrogenase [ubiquinone] 1 subunit C1, mitochondrial

Chain f:  14% 100%

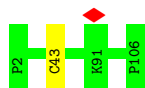


- Molecule 30: NADH dehydrogenase [ubiquinone] 1 subunit C2

Chain g:  100%



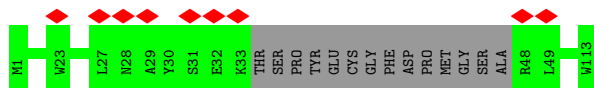
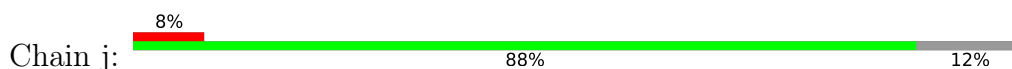
- Molecule 31: NADH dehydrogenase [ubiquinone] iron-sulfur protein 5



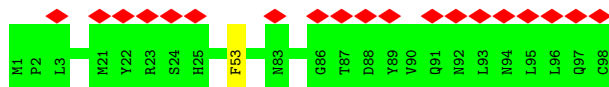
- Molecule 32: NADH-ubiquinone oxidoreductase chain 2



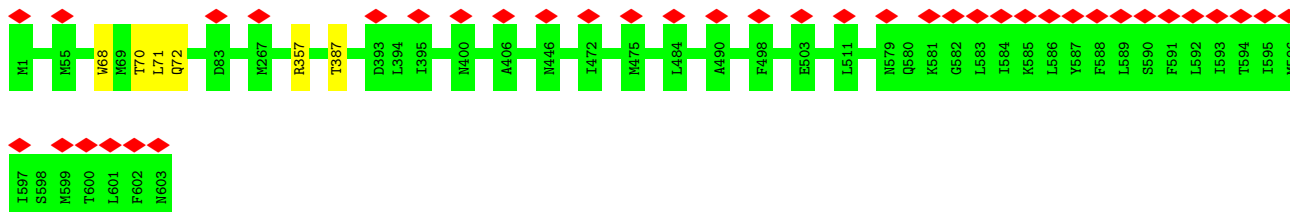
- Molecule 33: NADH-ubiquinone oxidoreductase chain 3



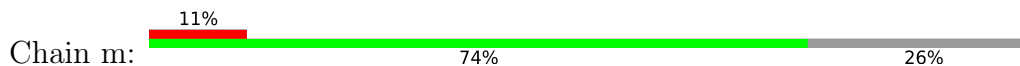
- Molecule 34: NADH-ubiquinone oxidoreductase chain 4L

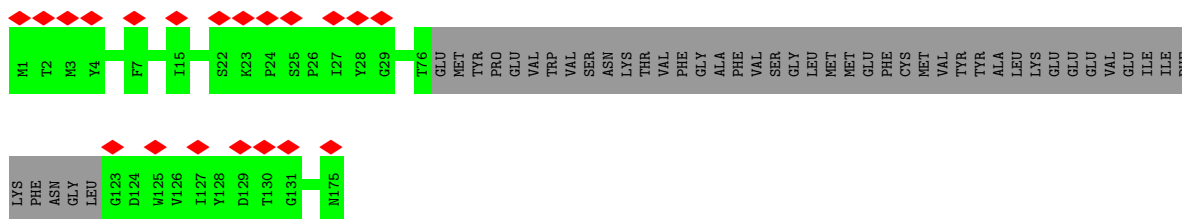


- Molecule 35: NADH-ubiquinone oxidoreductase chain 5

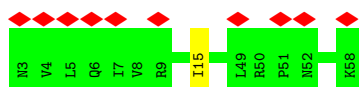


- Molecule 36: NADH-ubiquinone oxidoreductase chain 6

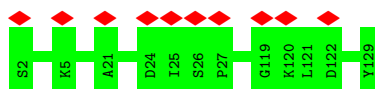




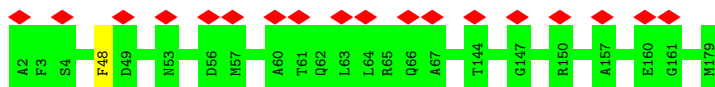
- Molecule 37: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 1



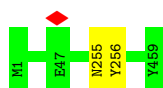
- Molecule 38: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 4



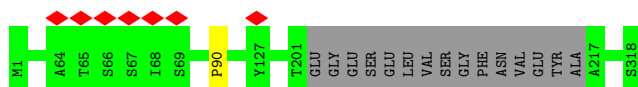
- Molecule 39: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9



- Molecule 40: NADH-ubiquinone oxidoreductase chain 4

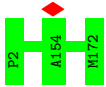


- Molecule 41: NADH-ubiquinone oxidoreductase chain 1

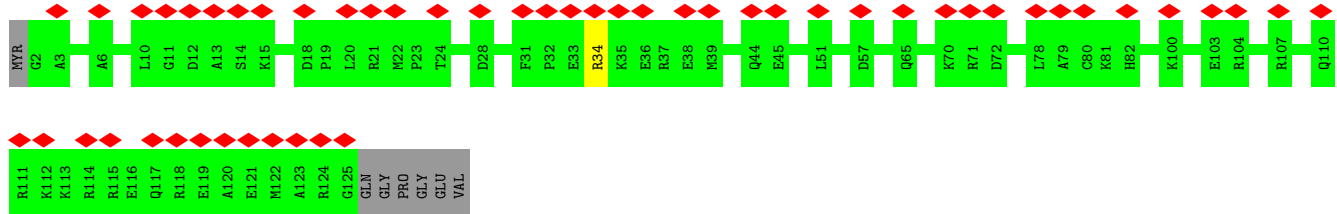
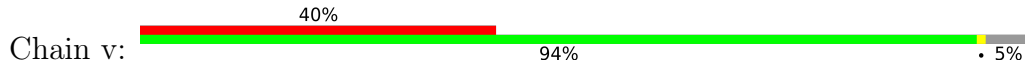


- Molecule 42: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8

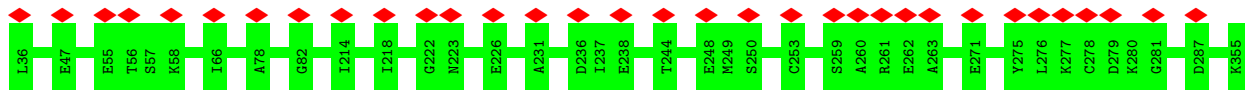




- Molecule 43: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7



- Molecule 44: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	387112	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1300	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.229	Depositor
Minimum map value	-0.143	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.0202	Depositor
Map size (Å)	333.002, 333.002, 333.002	wwPDB
Map dimensions	310, 310, 310	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0742, 1.0742, 1.0742	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: NAI, 2MR, SF4, MG, FES, PEE, ZN, 8Q1, PLX, CDL, FMN, NDP, ADP, UQ

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	0.26	0/3393	0.51	0/4584
2	B	0.28	0/1443	0.51	0/1952
3	C	0.27	0/1279	0.56	0/1730
4	E	0.24	0/995	0.51	0/1340
5	F	0.25	0/702	0.55	0/945
6	G	0.23	0/705	0.48	0/956
6	X	0.24	0/707	0.43	0/958
7	H	0.24	0/929	0.45	0/1258
8	I	0.25	0/798	0.55	0/1079
9	J	0.31	2/2684 (0.1%)	0.51	0/3638
10	K	0.24	0/365	0.53	0/493
11	L	0.24	0/1039	0.50	0/1403
12	M	0.26	0/5384	0.53	0/7295
13	N	0.49	1/1245 (0.1%)	0.77	4/1694 (0.2%)
14	O	0.27	0/1711	0.51	0/2328
15	P	0.27	0/1789	0.55	0/2436
16	Q	0.27	0/3451	0.50	0/4672
17	S	0.27	0/582	0.47	0/783
18	T	0.25	0/755	0.52	0/1018
19	U	0.25	0/664	0.44	0/912
20	V	0.34	1/1042 (0.1%)	0.56	1/1411 (0.1%)
21	W	0.26	0/1198	0.49	0/1617
22	Y	0.24	0/626	0.47	0/857
23	Z	0.25	0/695	0.44	0/939
24	a	0.26	0/1199	0.49	0/1623
25	b	0.25	0/906	0.54	0/1232
26	c	0.25	0/1371	0.47	0/1875
27	d	0.25	0/1494	0.53	0/2015
28	e	0.24	0/916	0.48	0/1246
29	f	0.24	0/350	0.43	0/473
30	g	0.26	0/1031	0.47	0/1394
31	h	0.24	0/889	0.50	0/1190

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
32	i	0.25	0/2773	0.45	1/3768 (0.0%)
33	j	0.26	0/819	0.51	0/1117
34	k	0.26	0/759	0.46	0/1029
35	l	0.26	0/4845	0.46	0/6595
36	m	0.27	0/938	0.48	0/1271
37	n	0.24	0/491	0.52	0/663
38	o	0.26	0/1092	0.50	0/1481
39	p	0.25	0/1590	0.49	0/2155
40	r	0.25	0/3723	0.47	0/5078
41	s	0.27	0/2464	0.47	0/3369
42	u	0.26	0/1436	0.50	0/1938
43	v	0.25	0/1022	0.54	0/1377
44	w	0.24	0/2642	0.48	0/3580
All	All	0.27	4/66931 (0.0%)	0.50	6/90767 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
13	N	143	PRO	CG-CD	-13.78	1.05	1.50
9	J	210	GLU	C-N	7.36	1.50	1.34
9	J	234	GLU	C-N	6.29	1.48	1.34
20	V	115	CYS	CB-SG	5.99	1.92	1.82

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	N	143	PRO	N-CD-CG	-18.08	76.08	103.20
13	N	143	PRO	CA-CB-CG	-10.73	83.61	104.00
20	V	95	CYS	CA-CB-SG	9.16	130.49	114.00
13	N	143	PRO	CA-N-CD	-7.62	100.84	111.50
13	N	143	PRO	CB-CG-CD	6.02	129.97	106.50
32	i	92	PRO	CA-N-CD	-5.36	104.00	111.50

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [\(i\)](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	429/431 (100%)	412 (96%)	16 (4%)	1 (0%)	47	73
2	B	174/176 (99%)	174 (100%)	0	0	100	100
3	C	154/156 (99%)	149 (97%)	5 (3%)	0	100	100
4	E	113/115 (98%)	111 (98%)	2 (2%)	0	100	100
5	F	84/86 (98%)	80 (95%)	4 (5%)	0	100	100
6	G	86/88 (98%)	85 (99%)	1 (1%)	0	100	100
6	X	86/88 (98%)	85 (99%)	1 (1%)	0	100	100
7	H	110/112 (98%)	104 (94%)	6 (6%)	0	100	100
8	I	93/112 (83%)	82 (88%)	10 (11%)	1 (1%)	14	34
9	J	327/341 (96%)	311 (95%)	13 (4%)	3 (1%)	17	40
10	K	40/42 (95%)	38 (95%)	2 (5%)	0	100	100
11	L	123/125 (98%)	121 (98%)	2 (2%)	0	100	100
12	M	688/690 (100%)	669 (97%)	19 (3%)	0	100	100
13	N	142/144 (99%)	138 (97%)	4 (3%)	0	100	100
14	O	215/217 (99%)	208 (97%)	6 (3%)	1 (0%)	29	54
15	P	206/208 (99%)	196 (95%)	10 (5%)	0	100	100
16	Q	412/430 (96%)	399 (97%)	12 (3%)	1 (0%)	47	73
17	S	68/70 (97%)	63 (93%)	5 (7%)	0	100	100
18	T	94/96 (98%)	91 (97%)	3 (3%)	0	100	100
19	U	81/83 (98%)	79 (98%)	2 (2%)	0	100	100
20	V	138/140 (99%)	130 (94%)	7 (5%)	1 (1%)	22	46
21	W	140/142 (99%)	135 (96%)	5 (4%)	0	100	100
22	Y	68/70 (97%)	65 (96%)	3 (4%)	0	100	100
23	Z	82/84 (98%)	81 (99%)	1 (1%)	0	100	100
24	a	138/140 (99%)	134 (97%)	4 (3%)	0	100	100

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Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
25	b	99/126 (79%)	93 (94%)	6 (6%)	0	100	100
26	c	154/156 (99%)	145 (94%)	9 (6%)	0	100	100
27	d	173/175 (99%)	172 (99%)	1 (1%)	0	100	100
28	e	105/107 (98%)	100 (95%)	5 (5%)	0	100	100
29	f	40/42 (95%)	38 (95%)	2 (5%)	0	100	100
30	g	119/121 (98%)	115 (97%)	4 (3%)	0	100	100
31	h	103/105 (98%)	99 (96%)	4 (4%)	0	100	100
32	i	345/347 (99%)	330 (96%)	13 (4%)	2 (1%)	25	50
33	j	95/113 (84%)	89 (94%)	6 (6%)	0	100	100
34	k	96/98 (98%)	91 (95%)	5 (5%)	0	100	100
35	l	601/603 (100%)	578 (96%)	23 (4%)	0	100	100
36	m	125/175 (71%)	112 (90%)	13 (10%)	0	100	100
37	n	54/56 (96%)	54 (100%)	0	0	100	100
38	o	126/128 (98%)	120 (95%)	6 (5%)	0	100	100
39	p	176/178 (99%)	167 (95%)	9 (5%)	0	100	100
40	r	457/459 (100%)	444 (97%)	13 (3%)	0	100	100
41	s	299/318 (94%)	289 (97%)	9 (3%)	1 (0%)	41	66
42	u	169/171 (99%)	164 (97%)	5 (3%)	0	100	100
43	v	122/131 (93%)	113 (93%)	9 (7%)	0	100	100
44	w	318/320 (99%)	304 (96%)	14 (4%)	0	100	100
All	All	8067/8315 (97%)	7757 (96%)	299 (4%)	11 (0%)	54	78

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	52	ARG
9	J	221	ARG
32	i	93	VAL
14	O	73	GLY
32	i	92	PRO
8	I	41	LEU
9	J	290	PRO
41	s	90	PRO
9	J	227	PRO
20	V	46	PRO

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Mol	Chain	Res	Type
16	Q	229	PRO

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	345/345 (100%)	344 (100%)	1 (0%)	92	98
2	B	151/151 (100%)	151 (100%)	0	100	100
3	C	132/132 (100%)	131 (99%)	1 (1%)	81	93
4	E	107/107 (100%)	106 (99%)	1 (1%)	78	92
5	F	76/76 (100%)	76 (100%)	0	100	100
6	G	76/81 (94%)	73 (96%)	3 (4%)	32	61
6	X	75/81 (93%)	75 (100%)	0	100	100
7	H	99/99 (100%)	99 (100%)	0	100	100
8	I	87/97 (90%)	85 (98%)	2 (2%)	50	78
9	J	278/295 (94%)	276 (99%)	2 (1%)	84	94
10	K	41/41 (100%)	40 (98%)	1 (2%)	49	77
11	L	113/113 (100%)	113 (100%)	0	100	100
12	M	580/580 (100%)	575 (99%)	5 (1%)	78	92
13	N	130/130 (100%)	130 (100%)	0	100	100
14	O	183/183 (100%)	181 (99%)	2 (1%)	73	90
15	P	190/190 (100%)	187 (98%)	3 (2%)	62	85
16	Q	361/370 (98%)	360 (100%)	1 (0%)	92	98
17	S	58/58 (100%)	57 (98%)	1 (2%)	60	84
18	T	79/79 (100%)	78 (99%)	1 (1%)	69	87
19	U	69/69 (100%)	69 (100%)	0	100	100
20	V	101/101 (100%)	100 (99%)	1 (1%)	76	91
21	W	122/123 (99%)	122 (100%)	0	100	100
22	Y	63/63 (100%)	63 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
23	Z	65/65 (100%)	65 (100%)	0	100	100
24	a	122/122 (100%)	122 (100%)	0	100	100
25	b	98/119 (82%)	97 (99%)	1 (1%)	76	91
26	c	141/141 (100%)	141 (100%)	0	100	100
27	d	155/155 (100%)	154 (99%)	1 (1%)	86	95
28	e	99/99 (100%)	99 (100%)	0	100	100
29	f	35/38 (92%)	35 (100%)	0	100	100
30	g	108/108 (100%)	108 (100%)	0	100	100
31	h	93/93 (100%)	92 (99%)	1 (1%)	73	90
32	i	311/311 (100%)	310 (100%)	1 (0%)	92	98
33	j	88/99 (89%)	88 (100%)	0	100	100
34	k	85/85 (100%)	84 (99%)	1 (1%)	71	88
35	l	518/537 (96%)	512 (99%)	6 (1%)	71	88
36	m	91/141 (64%)	91 (100%)	0	100	100
37	n	53/53 (100%)	52 (98%)	1 (2%)	57	82
38	o	113/113 (100%)	113 (100%)	0	100	100
39	p	159/159 (100%)	158 (99%)	1 (1%)	86	95
40	r	410/410 (100%)	408 (100%)	2 (0%)	88	96
41	s	263/275 (96%)	263 (100%)	0	100	100
42	u	153/153 (100%)	153 (100%)	0	100	100
43	v	98/115 (85%)	97 (99%)	1 (1%)	76	91
44	w	281/283 (99%)	281 (100%)	0	100	100
All	All	7055/7238 (98%)	7014 (99%)	41 (1%)	86	95

All (41) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	125	CYS
3	C	71	CYS
4	E	99	GLN
6	G	74	LEU
6	G	134	ASP
6	G	136	GLU
8	I	27	ARG

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Mol	Chain	Res	Type
8	I	95	VAL
9	J	83	PRO
9	J	298	TYR
10	K	76	LEU
12	M	74	ASN
12	M	173	MET
12	M	203	ASP
12	M	470	LYS
12	M	483	ARG
14	O	212	LYS
14	O	215	LYS
15	P	105	ASN
15	P	199	ARG
15	P	231	ARG
16	Q	35	ARG
17	S	60	TYR
18	T	43	GLN
20	V	140	LYS
25	b	66	ARG
27	d	64	TYR
31	h	43	CYS
32	i	323	MET
34	k	53	PHE
35	l	68	TRP
35	l	70	THR
35	l	71	LEU
35	l	72	GLN
35	l	357	ARG
35	l	387	THR
37	n	15	ILE
39	p	48	PHE
40	r	255	ASN
40	r	256	TYR
43	v	34	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	49	HIS
1	A	277	ASN
4	E	95	ASN
6	G	103	HIS

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Mol	Chain	Res	Type
10	K	79	HIS
10	K	100	GLN
11	L	86	ASN
12	M	278	HIS
12	M	604	GLN
12	M	666	GLN
14	O	69	ASN
15	P	105	ASN
15	P	124	ASN
16	Q	285	ASN
16	Q	380	HIS
17	S	31	ASN
17	S	46	ASN
20	V	134	GLN
25	b	14	GLN
27	d	54	GLN
27	d	149	HIS
28	e	86	ASN
28	e	132	ASN
35	l	72	GLN
38	o	52	ASN
38	o	79	ASN
40	r	304	GLN
41	s	287	HIS
43	v	4	HIS

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

1 non-standard protein/DNA/RNA residue is 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
16	2MR	Q	118	16	10,12,13	1.99	1 (10%)	5,13,15	6.08	3 (60%)

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
16	2MR	Q	118	16	-	2/10/13/15	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
16	Q	118	2MR	CZ-NE	5.66	1.46	1.34

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
16	Q	118	2MR	NE-CZ-NH2	12.42	130.86	119.48
16	Q	118	2MR	CD-NE-CZ	4.32	131.50	123.41
16	Q	118	2MR	CQ2-NH2-CZ	3.12	130.77	123.86

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
16	Q	118	2MR	NE-CD-CG-CB
16	Q	118	2MR	CA-CB-CG-CD

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 38 ligands modelled in this entry, 2 are monoatomic - leaving 36 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	SF4	C	301	3	0,12,12	-	-	-		
48	PEE	V	202	-	50,50,50	1.16	6 (12%)	53,55,55	1.00	2 (3%)
50	8Q1	X	201	-	31,34,34	2.07	6 (19%)	40,43,43	1.65	10 (25%)
49	PLX	V	205	-	51,51,51	1.14	4 (7%)	55,59,59	0.63	1 (1%)
50	8Q1	G	201	-	31,34,34	2.09	6 (19%)	40,43,43	1.74	12 (30%)
48	PEE	C	311	-	46,46,50	1.22	5 (10%)	49,51,55	0.95	2 (4%)
45	SF4	B	302	2	0,12,12	-	-	-		
48	PEE	s	401	-	50,50,50	1.16	6 (12%)	53,55,55	0.97	2 (3%)
54	CDL	r	714	-	99,99,99	1.09	9 (9%)	105,111,111	0.85	4 (3%)
52	FES	M	803	12	0,4,4	-	-	-		
49	PLX	n	101	-	51,51,51	0.63	0	55,59,59	0.69	1 (1%)
54	CDL	l	712	-	98,98,99	0.93	4 (4%)	104,110,111	1.13	6 (5%)
45	SF4	M	801	12	0,12,12	-	-	-		
48	PEE	l	718	-	46,46,50	1.20	5 (10%)	49,51,55	1.00	2 (4%)
48	PEE	l	720	-	45,45,50	1.22	6 (13%)	48,50,55	1.00	2 (4%)
54	CDL	a	201	-	90,90,99	0.96	4 (4%)	96,102,111	1.06	5 (5%)
57	ADP	w	401	-	24,29,29	3.12	6 (25%)	29,45,45	1.45	5 (17%)
45	SF4	B	301	2	0,12,12	-	-	-		
49	PLX	e	201	-	51,51,51	1.15	4 (7%)	55,59,59	0.58	1 (1%)
52	FES	O	301	14	0,4,4	-	-	-		
48	PEE	m	202	-	40,40,50	1.15	5 (12%)	43,45,55	0.97	2 (4%)
56	UQ	s	403	-	28,28,63	3.26	8 (28%)	34,37,79	2.79	10 (29%)
54	CDL	l	713	-	99,99,99	1.09	9 (9%)	105,111,111	0.85	4 (3%)
51	NDP	J	401	-	45,52,52	4.54	19 (42%)	53,80,80	1.96	6 (11%)
48	PEE	U	101	-	50,50,50	1.15	6 (12%)	53,55,55	0.98	2 (3%)
49	PLX	i	705	-	51,51,51	1.14	3 (5%)	55,59,59	0.60	1 (1%)
47	NAI	A	503	-	42,48,48	4.93	18 (42%)	47,73,73	1.33	7 (14%)
54	CDL	N	202	-	50,50,99	1.29	4 (8%)	56,62,111	1.26	5 (8%)
45	SF4	A	501	1	0,12,12	-	-	-		
49	PLX	j	203	-	51,51,51	1.15	4 (7%)	55,59,59	0.58	1 (1%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
49	PLX	C	312	-	51,51,51	1.15	4 (7%)	55,59,59	0.60	1 (1%)
48	PEE	l	719	-	45,45,50	1.22	6 (13%)	48,50,55	0.99	2 (4%)
46	FMN	A	502	-	33,33,33	1.42	5 (15%)	48,50,50	1.27	5 (10%)
45	SF4	M	802	12	0,12,12	-	-	-	-	-
54	CDL	n	102	-	77,77,99	1.03	4 (5%)	83,89,111	1.12	6 (7%)
54	CDL	i	401	-	65,65,99	1.13	4 (6%)	71,77,111	1.19	5 (7%)

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	SF4	C	301	3	-	-	0/6/5/5
48	PEE	V	202	-	-	26/54/54/54	-
50	8Q1	X	201	-	-	22/41/41/41	-
49	PLX	V	205	-	-	28/55/55/55	-
50	8Q1	G	201	-	-	20/41/41/41	-
48	PEE	C	311	-	-	25/50/50/54	-
45	SF4	B	302	2	-	-	0/6/5/5
48	PEE	s	401	-	-	27/54/54/54	-
54	CDL	r	714	-	-	62/110/110/110	-
52	FES	M	803	12	-	-	0/1/1/1
49	PLX	n	101	-	-	12/55/55/55	-
54	CDL	l	712	-	-	38/109/109/110	-
48	PEE	l	718	-	-	22/50/50/54	-
48	PEE	l	720	-	-	26/49/49/54	-
45	SF4	M	801	12	-	-	0/6/5/5
54	CDL	a	201	-	-	28/101/101/110	-
57	ADP	w	401	-	-	3/12/32/32	0/3/3/3
45	SF4	B	301	2	-	-	0/6/5/5
49	PLX	e	201	-	-	32/55/55/55	-
52	FES	O	301	14	-	-	0/1/1/1
48	PEE	m	202	-	-	21/44/44/54	-
56	UQ	s	403	-	-	8/21/45/87	0/1/1/1
54	CDL	l	713	-	-	62/110/110/110	-
51	NDP	J	401	-	-	5/30/77/77	0/4/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
48	PEE	U	101	-	-	26/54/54/54	-
49	PLX	i	705	-	-	25/55/55/55	-
47	NAI	A	503	-	-	8/25/72/72	0/5/5/5
54	CDL	N	202	-	-	22/61/61/110	-
45	SF4	A	501	1	-	-	0/6/5/5
49	PLX	j	203	-	-	28/55/55/55	-
49	PLX	C	312	-	-	25/55/55/55	-
48	PEE	l	719	-	-	26/49/49/54	-
46	FMN	A	502	-	-	7/18/18/18	0/3/3/3
45	SF4	M	802	12	-	-	0/6/5/5
54	CDL	n	102	-	-	26/88/88/110	-
54	CDL	i	401	-	-	26/76/76/110	-

All (170) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	A	503	NAI	O4B-C1B	16.00	1.63	1.41
47	A	503	NAI	C2B-C1B	-15.59	1.30	1.53
51	J	401	NDP	C3B-C2B	-12.67	1.24	1.52
51	J	401	NDP	C6N-C5N	12.35	1.55	1.33
51	J	401	NDP	O4D-C4D	10.67	1.68	1.45
47	A	503	NAI	C3D-C4D	-10.36	1.26	1.53
51	J	401	NDP	C3D-C4D	-10.01	1.27	1.53
56	s	403	UQ	C13-C14	9.23	1.55	1.33
56	s	403	UQ	C8-C9	8.94	1.54	1.33
57	w	401	ADP	C3'-C4'	-8.91	1.30	1.53
47	A	503	NAI	O4B-C4B	-8.34	1.26	1.45
51	J	401	NDP	O4B-C1B	8.26	1.52	1.41
56	s	403	UQ	C18-C19	8.15	1.55	1.32
51	J	401	NDP	O4B-C4B	-8.04	1.27	1.45
50	G	201	8Q1	P24-O27	7.98	1.85	1.60
47	A	503	NAI	C2D-C1D	-7.66	1.29	1.53
57	w	401	ADP	O4'-C4'	7.63	1.62	1.45
50	X	201	8Q1	P24-O27	7.50	1.84	1.60
51	J	401	NDP	C2N-C3N	7.40	1.55	1.34
57	w	401	ADP	O4'-C1'	-6.88	1.31	1.41
47	A	503	NAI	O4D-C4D	6.83	1.60	1.45
47	A	503	NAI	C2D-C3D	5.81	1.69	1.53
47	A	503	NAI	C7N-N7N	5.69	1.48	1.33
51	J	401	NDP	P2B-O2B	5.29	1.69	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	A	503	NAI	O4D-C1D	5.29	1.54	1.42
51	J	401	NDP	C3B-C4B	5.29	1.66	1.53
47	A	503	NAI	C4N-C3N	-5.07	1.40	1.49
51	J	401	NDP	O4D-C1D	-4.99	1.30	1.42
46	A	502	FMN	C9A-C5A	4.85	1.49	1.41
51	J	401	NDP	C6N-N1N	4.84	1.49	1.37
47	A	503	NAI	O2B-C2B	4.57	1.53	1.43
54	N	202	CDL	OB8-CB7	4.33	1.46	1.33
54	l	712	CDL	OA8-CA7	4.32	1.46	1.33
54	l	712	CDL	OB8-CB7	4.28	1.45	1.33
54	N	202	CDL	OA8-CA7	4.27	1.45	1.33
54	i	401	CDL	OB8-CB7	4.27	1.45	1.33
54	a	201	CDL	OB8-CB7	4.27	1.45	1.33
54	a	201	CDL	OA8-CA7	4.27	1.45	1.33
54	i	401	CDL	OA8-CA7	4.26	1.45	1.33
54	n	102	CDL	OA8-CA7	4.21	1.45	1.33
51	J	401	NDP	O2D-C2D	-4.20	1.33	1.43
54	n	102	CDL	OB8-CB7	4.20	1.45	1.33
54	i	401	CDL	OB6-CB5	4.17	1.46	1.34
54	N	202	CDL	OA6-CA5	4.16	1.46	1.34
51	J	401	NDP	C7N-N7N	4.15	1.44	1.33
54	i	401	CDL	OA6-CA5	4.15	1.46	1.34
54	l	712	CDL	OB6-CB5	4.14	1.46	1.34
54	a	201	CDL	OB6-CB5	4.07	1.45	1.34
54	a	201	CDL	OA6-CA5	4.06	1.45	1.34
54	n	102	CDL	OB6-CB5	4.06	1.45	1.34
54	N	202	CDL	OB6-CB5	4.04	1.45	1.34
51	J	401	NDP	C6A-N6A	4.00	1.48	1.34
54	n	102	CDL	OA6-CA5	4.00	1.45	1.34
54	l	712	CDL	OA6-CA5	3.99	1.45	1.34
47	A	503	NAI	C6N-C5N	3.97	1.40	1.33
50	X	201	8Q1	C1-S44	3.90	1.85	1.76
50	G	201	8Q1	C1-S44	3.90	1.85	1.76
57	w	401	ADP	C6-N6	3.86	1.48	1.34
48	C	311	PEE	C18-C19	3.74	1.53	1.31
48	s	401	PEE	C18-C19	3.74	1.53	1.31
48	l	719	PEE	C18-C19	3.74	1.53	1.31
48	m	202	PEE	C18-C19	3.73	1.53	1.31
48	l	720	PEE	C18-C19	3.72	1.53	1.31
48	C	311	PEE	C39-C38	3.70	1.53	1.31
48	U	101	PEE	C18-C19	3.70	1.53	1.31
50	G	201	8Q1	C34-N36	3.70	1.41	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	l	718	PEE	C18-C19	3.69	1.53	1.31
48	V	202	PEE	C18-C19	3.69	1.53	1.31
48	l	719	PEE	C39-C38	3.65	1.52	1.31
48	l	718	PEE	C39-C38	3.63	1.52	1.31
48	V	202	PEE	C39-C38	3.63	1.52	1.31
48	l	720	PEE	C39-C38	3.62	1.52	1.31
48	s	401	PEE	C39-C38	3.62	1.52	1.31
48	U	101	PEE	C39-C38	3.61	1.52	1.31
47	A	503	NAI	C7N-C3N	3.57	1.56	1.48
47	A	503	NAI	C6A-N6A	3.57	1.47	1.34
54	l	713	CDL	OA8-CA7	3.48	1.43	1.33
54	r	714	CDL	OA8-CA7	3.45	1.43	1.33
50	X	201	8Q1	C34-N36	3.43	1.41	1.33
50	X	201	8Q1	C6-C1	3.42	1.54	1.50
50	X	201	8Q1	O27-C28	-3.39	1.32	1.43
47	A	503	NAI	C4N-C5N	-3.33	1.40	1.48
50	G	201	8Q1	O27-C28	-3.24	1.33	1.43
57	w	401	ADP	O2'-C2'	-3.23	1.35	1.43
46	A	502	FMN	C8-C7	3.22	1.48	1.40
57	w	401	ADP	O3'-C3'	3.19	1.50	1.43
51	J	401	NDP	O3D-C3D	3.06	1.50	1.43
54	l	713	CDL	OB8-CB7	3.03	1.42	1.33
54	r	714	CDL	OB6-CB5	3.03	1.42	1.34
54	r	714	CDL	OB8-CB7	3.01	1.42	1.33
54	l	713	CDL	OB6-CB5	2.99	1.42	1.34
54	l	713	CDL	OA6-CA5	2.98	1.42	1.34
54	r	714	CDL	OA6-CA5	2.97	1.42	1.34
51	J	401	NDP	C7N-C3N	2.95	1.55	1.48
50	X	201	8Q1	C39-N41	2.89	1.40	1.33
49	C	312	PLX	O6-C4	-2.81	1.40	1.44
50	G	201	8Q1	C39-N41	2.79	1.39	1.33
46	A	502	FMN	C4-N3	-2.78	1.33	1.38
50	G	201	8Q1	C6-C1	2.73	1.53	1.50
49	i	705	PLX	O6-C4	-2.72	1.41	1.44
56	s	403	UQ	C6-C1	2.70	1.54	1.46
49	j	203	PLX	O6-C4	-2.68	1.41	1.44
48	C	311	PEE	O3-C30	2.66	1.41	1.33
49	e	201	PLX	O6-C4	-2.66	1.41	1.44
48	l	718	PEE	O2-C2	-2.51	1.40	1.46
48	l	718	PEE	O3-C30	2.51	1.40	1.33
48	l	720	PEE	O3-C30	2.49	1.40	1.33
51	J	401	NDP	O2B-C2B	2.49	1.53	1.44

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	A	503	NAI	O3B-C3B	-2.49	1.37	1.43
48	s	401	PEE	O2-C2	-2.46	1.40	1.46
48	V	202	PEE	O2-C2	-2.45	1.40	1.46
48	l	719	PEE	O3-C30	2.44	1.40	1.33
48	l	719	PEE	O2-C2	-2.42	1.40	1.46
48	U	101	PEE	O2-C2	-2.41	1.40	1.46
48	s	401	PEE	O3-C30	2.41	1.40	1.33
54	l	713	CDL	OA6-CA4	-2.38	1.40	1.46
48	C	311	PEE	O2-C2	-2.38	1.40	1.46
51	J	401	NDP	C2D-C3D	2.37	1.59	1.53
48	l	720	PEE	O2-C2	-2.37	1.40	1.46
54	r	714	CDL	OA6-CA4	-2.36	1.40	1.46
48	U	101	PEE	O3-C30	2.35	1.40	1.33
49	V	205	PLX	C7-C6	2.34	1.55	1.50
48	m	202	PEE	O2-C2	-2.33	1.40	1.46
49	j	203	PLX	C7-C6	2.33	1.55	1.50
48	m	202	PEE	O3-C30	2.33	1.40	1.33
49	e	201	PLX	C7-C6	2.33	1.55	1.50
49	i	705	PLX	C7-C6	2.32	1.55	1.50
46	A	502	FMN	C4A-N5	2.32	1.35	1.30
56	s	403	UQ	C7-C8	2.30	1.54	1.50
48	V	202	PEE	O3-C3	-2.29	1.39	1.45
48	l	720	PEE	O2-C10	2.29	1.40	1.34
48	V	202	PEE	O3-C30	2.29	1.40	1.33
48	m	202	PEE	O2-C10	2.27	1.40	1.34
48	C	311	PEE	O2-C10	2.27	1.40	1.34
49	C	312	PLX	C7-C6	2.26	1.55	1.50
47	A	503	NAI	PN-O5D	2.25	1.68	1.59
54	l	713	CDL	PB2-OB2	2.24	1.68	1.59
48	U	101	PEE	O2-C10	2.24	1.40	1.34
48	l	719	PEE	O2-C10	2.22	1.40	1.34
48	V	202	PEE	O2-C10	2.22	1.40	1.34
51	J	401	NDP	O7N-C7N	-2.22	1.19	1.24
54	r	714	CDL	PB2-OB5	2.20	1.68	1.59
54	r	714	CDL	PB2-OB2	2.19	1.68	1.59
54	l	713	CDL	PB2-OB5	2.18	1.68	1.59
49	V	205	PLX	O6-C4	-2.18	1.41	1.44
49	V	205	PLX	P1-O4	2.17	1.68	1.59
54	l	713	CDL	OB6-CB4	-2.17	1.41	1.46
48	s	401	PEE	O2-C10	2.16	1.40	1.34
48	m	202	PEE	O3-C3	-2.16	1.40	1.45
56	s	403	UQ	O4-C4	-2.15	1.18	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	j	203	PLX	P1-O4	2.14	1.68	1.59
48	l	719	PEE	O3-C3	-2.13	1.40	1.45
49	i	705	PLX	P1-O4	2.13	1.67	1.59
54	r	714	CDL	OB6-CB4	-2.12	1.41	1.46
47	A	503	NAI	C5B-C4B	2.12	1.58	1.51
46	A	502	FMN	C5A-N5	-2.12	1.35	1.39
49	C	312	PLX	P1-O4	2.12	1.67	1.59
48	l	718	PEE	O2-C10	2.12	1.40	1.34
49	e	201	PLX	P1-O4	2.11	1.67	1.59
48	U	101	PEE	O3-C3	-2.11	1.40	1.45
49	V	205	PLX	P1-O1	2.09	1.67	1.59
49	j	203	PLX	P1-O1	2.09	1.67	1.59
48	l	720	PEE	O3-C3	-2.09	1.40	1.45
48	s	401	PEE	O3-C3	-2.07	1.40	1.45
49	C	312	PLX	P1-O1	2.03	1.67	1.59
54	l	713	CDL	C11-CA5	2.02	1.56	1.50
56	s	403	UQ	O3-CM3	-2.02	1.40	1.45
49	e	201	PLX	P1-O1	2.01	1.67	1.59
54	r	714	CDL	C11-CA5	2.01	1.56	1.50
56	s	403	UQ	O1-C1	-2.01	1.19	1.23

All (112) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
56	s	403	UQ	C7-C8-C9	-8.91	111.96	126.79
51	J	401	NDP	C3N-C2N-N1N	-8.30	111.25	123.10
51	J	401	NDP	C1D-N1N-C2N	-6.31	110.60	121.11
56	s	403	UQ	C12-C13-C14	-6.16	112.83	127.66
51	J	401	NDP	C1D-N1N-C6N	-5.44	109.11	120.83
50	G	201	8Q1	C6-C1-S44	5.22	119.53	113.46
54	l	712	CDL	OA6-CA5-C11	4.86	121.98	111.50
56	s	403	UQ	C11-C9-C8	-4.53	111.94	121.12
57	w	401	ADP	N3-C2-N1	-4.46	121.71	128.68
56	s	403	UQ	C17-C18-C19	-4.43	112.62	127.75
50	X	201	8Q1	C6-C1-S44	4.39	118.57	113.46
56	s	403	UQ	C10-C9-C8	-4.38	112.43	123.68
47	A	503	NAI	N3A-C2A-N1A	-4.34	121.89	128.68
54	i	401	CDL	OA6-CA5-C11	4.32	120.81	111.50
54	n	102	CDL	OA6-CA5-C11	4.32	120.81	111.50
56	s	403	UQ	C15-C14-C13	-4.31	112.63	123.68
56	s	403	UQ	C16-C14-C13	-4.25	112.51	121.12
48	V	202	PEE	O2-C10-C11	4.21	120.56	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
51	J	401	NDP	N3A-C2A-N1A	-4.10	122.27	128.68
48	s	401	PEE	O2-C10-C11	4.04	120.21	111.50
48	l	719	PEE	O2-C10-C11	4.02	120.17	111.50
54	a	201	CDL	OB6-CB5-C51	4.02	120.17	111.50
48	l	718	PEE	O2-C10-C11	4.02	120.16	111.50
54	l	713	CDL	OA6-CA5-C11	4.02	120.16	111.50
54	N	202	CDL	OB6-CB5-C51	4.02	120.16	111.50
48	m	202	PEE	O2-C10-C11	4.00	120.13	111.50
48	l	720	PEE	O2-C10-C11	4.00	120.11	111.50
54	N	202	CDL	OA6-CA5-C11	3.97	120.06	111.50
54	i	401	CDL	OB6-CB5-C51	3.96	120.03	111.50
54	r	714	CDL	OB6-CB5-C51	3.95	120.02	111.50
48	C	311	PEE	O2-C10-C11	3.94	120.00	111.50
48	U	101	PEE	O2-C10-C11	3.93	119.97	111.50
54	l	713	CDL	OB6-CB5-C51	3.89	119.88	111.50
54	r	714	CDL	OA6-CA5-C11	3.85	119.80	111.50
54	l	712	CDL	OB6-CB5-C51	3.84	119.77	111.50
54	n	102	CDL	OB6-CB5-C51	3.79	119.68	111.50
54	a	201	CDL	OA6-CA5-C11	3.76	119.59	111.50
50	X	201	8Q1	C43-S44-C1	3.69	113.37	101.87
54	l	712	CDL	CA4-OA6-CA5	-3.67	108.76	117.79
50	G	201	8Q1	C43-S44-C1	3.53	112.87	101.87
50	X	201	8Q1	O35-C34-N36	-3.51	115.47	122.99
56	s	403	UQ	C20-C19-C18	-3.43	112.74	122.65
56	s	403	UQ	C21-C19-C18	-3.35	112.97	122.65
50	G	201	8Q1	O35-C34-N36	-3.25	116.01	122.99
47	A	503	NAI	C4D-O4D-C1D	-3.20	102.42	109.47
54	a	201	CDL	OB8-CB7-C71	2.92	121.08	111.91
54	i	401	CDL	OA8-CA7-C31	2.87	120.91	111.91
50	X	201	8Q1	O2-P24-O27	-2.86	99.13	106.73
48	s	401	PEE	O3-C30-C31	2.86	120.87	111.91
54	l	712	CDL	OB8-CB7-C71	2.83	120.78	111.91
56	s	403	UQ	CM5-C5-C6	-2.80	119.83	124.40
54	a	201	CDL	OA8-CA7-C31	2.79	120.66	111.91
57	w	401	ADP	PA-O3A-PB	-2.77	123.32	132.83
47	A	503	NAI	C3D-C2D-C1D	2.77	106.69	101.43
48	l	719	PEE	O3-C30-C31	2.75	120.53	111.91
50	G	201	8Q1	O2-P24-O27	-2.73	99.48	106.73
48	V	202	PEE	O3-C30-C31	2.70	120.39	111.91
54	l	712	CDL	OA8-CA7-C31	2.70	120.37	111.91
54	n	102	CDL	OA8-CA7-C31	2.69	120.33	111.91
46	A	502	FMN	C4A-C10-N1	-2.68	118.50	124.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
47	A	503	NAI	C4A-C5A-N7A	-2.67	106.62	109.40
50	G	201	8Q1	O40-C39-N41	-2.66	118.00	123.01
46	A	502	FMN	C4-C4A-N5	2.62	121.96	118.23
54	l	713	CDL	OB8-CB7-C71	2.61	120.09	111.91
48	U	101	PEE	O3-C30-C31	2.61	120.09	111.91
54	N	202	CDL	OB8-CB7-C71	2.60	120.08	111.91
47	A	503	NAI	C2D-C3D-C4D	2.60	107.69	102.64
50	G	201	8Q1	O4-C1-C6	-2.60	120.92	123.99
50	X	201	8Q1	O40-C39-N41	-2.59	118.13	123.01
48	l	720	PEE	O3-C30-C31	2.58	120.01	111.91
54	N	202	CDL	OA8-CA7-C31	2.58	120.00	111.91
48	l	718	PEE	O3-C30-C31	2.56	119.93	111.91
54	n	102	CDL	OB8-CB7-C71	2.56	119.93	111.91
54	l	713	CDL	OA8-CA7-C31	2.54	119.87	111.91
54	r	714	CDL	OB8-CB7-C71	2.53	119.86	111.91
54	r	714	CDL	OA8-CA7-C31	2.53	119.85	111.91
51	J	401	NDP	PN-O3-PA	-2.52	124.16	132.83
48	C	311	PEE	O3-C30-C31	2.52	119.81	111.91
49	i	705	PLX	C1A-N1-C1	2.49	120.10	109.92
48	m	202	PEE	O3-C30-C31	2.45	119.60	111.91
50	G	201	8Q1	C32-C34-N36	2.45	121.45	116.58
47	A	503	NAI	PN-O3-PA	-2.42	124.52	132.83
54	i	401	CDL	OB8-CB7-C71	2.42	119.49	111.91
51	J	401	NDP	C4A-C5A-N7A	-2.41	106.89	109.40
49	e	201	PLX	C1A-N1-C1	2.41	119.76	109.92
54	a	201	CDL	CB4-OB6-CB5	-2.39	111.91	117.79
50	G	201	8Q1	C37-C38-C39	2.39	116.33	112.36
50	G	201	8Q1	O4-C1-S44	-2.36	119.55	122.61
49	V	205	PLX	C1A-N1-C1	2.35	119.53	109.92
54	n	102	CDL	CA4-OA6-CA5	-2.33	112.04	117.79
57	w	401	ADP	C3'-C2'-C1'	2.33	104.49	100.98
54	l	712	CDL	OA6-CA5-OA7	-2.31	118.11	123.70
49	j	203	PLX	C1A-N1-C1	2.30	119.34	109.92
50	X	201	8Q1	O1-P24-O2	2.30	116.43	107.64
49	C	312	PLX	C1A-N1-C1	2.27	119.21	109.92
50	G	201	8Q1	O1-P24-O2	2.27	116.32	107.64
47	A	503	NAI	C3B-C2B-C1B	2.25	104.36	100.98
46	A	502	FMN	C10-N1-C2	2.24	121.39	116.90
46	A	502	FMN	O4-C4-C4A	-2.24	120.66	126.60
57	w	401	ADP	O4'-C1'-C2'	-2.23	103.67	106.93
54	n	102	CDL	OA6-CA5-OA7	-2.21	118.37	123.70
50	X	201	8Q1	C32-C34-N36	2.19	120.93	116.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	w	401	ADP	C4-C5-N7	-2.18	107.13	109.40
46	A	502	FMN	C4A-C4-N3	2.17	118.70	113.19
50	X	201	8Q1	O4-C1-S44	-2.13	119.84	122.61
49	n	101	PLX	C2-C1-N1	-2.11	108.73	115.78
50	G	201	8Q1	O27-P24-O3	-2.08	100.65	106.47
50	G	201	8Q1	C38-C39-N41	2.06	119.89	116.42
54	i	401	CDL	CA4-OA6-CA5	-2.05	112.74	117.79
50	X	201	8Q1	O4-C1-C6	-2.03	121.59	123.99
54	N	202	CDL	CB4-OB6-CB5	-2.03	112.79	117.79
50	X	201	8Q1	C38-C39-N41	2.01	119.81	116.42

There are no chirality outliers.

All (686) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
46	A	502	FMN	N10-C1'-C2'-O2'
46	A	502	FMN	N10-C1'-C2'-C3'
46	A	502	FMN	C1'-C2'-C3'-O3'
46	A	502	FMN	C1'-C2'-C3'-C4'
48	C	311	PEE	C1-O3P-P-O2P
48	C	311	PEE	C1-O3P-P-O1P
48	U	101	PEE	C19-C20-C21-C22
48	U	101	PEE	C11-C10-O2-C2
48	U	101	PEE	C4-O4P-P-O2P
48	V	202	PEE	C17-C18-C19-C20
48	V	202	PEE	C11-C10-O2-C2
48	V	202	PEE	C4-O4P-P-O1P
48	l	718	PEE	C4-O4P-P-O3P
48	l	718	PEE	C4-O4P-P-O2P
48	l	718	PEE	C4-O4P-P-O1P
48	l	719	PEE	C11-C10-O2-C2
48	l	719	PEE	C4-O4P-P-O2P
48	l	719	PEE	C4-O4P-P-O1P
48	m	202	PEE	C11-C10-O2-C2
48	m	202	PEE	C4-O4P-P-O3P
48	m	202	PEE	C4-O4P-P-O2P
48	m	202	PEE	C4-O4P-P-O1P
48	m	202	PEE	O4P-C4-C5-N
48	s	401	PEE	O4P-C4-C5-N
49	C	312	PLX	O4-C3-C4-O6
49	C	312	PLX	C3-O4-P1-O2
49	C	312	PLX	C3-O4-P1-O3

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Mol	Chain	Res	Type	Atoms
49	C	312	PLX	C2-O1-P1-O2
49	C	312	PLX	N1-C1-C2-O1
49	V	205	PLX	O7-C6-O6-C4
49	V	205	PLX	C5-C4-O6-C6
49	V	205	PLX	C3-O4-P1-O2
49	V	205	PLX	O9-C24-O8-C5
49	V	205	PLX	O9-C24-C25-C26
49	e	201	PLX	O7-C6-O6-C4
49	e	201	PLX	C2-O1-P1-O4
49	e	201	PLX	C2-O1-P1-O2
49	e	201	PLX	C2-O1-P1-O3
49	e	201	PLX	O9-C24-O8-C5
49	e	201	PLX	O9-C24-C25-C26
49	i	705	PLX	O7-C6-O6-C4
49	i	705	PLX	C25-C24-O8-C5
49	j	203	PLX	O7-C6-C7-C8
49	j	203	PLX	C7-C6-O6-C4
49	j	203	PLX	O7-C6-O6-C4
49	j	203	PLX	O9-C24-C25-C26
50	G	201	8Q1	O4-C1-S44-C43
50	G	201	8Q1	C6-C1-S44-C43
50	G	201	8Q1	C28-C29-C32-C34
50	G	201	8Q1	C28-C29-C32-O33
50	G	201	8Q1	C30-C29-C32-C34
50	G	201	8Q1	C30-C29-C32-O33
50	G	201	8Q1	C31-C29-C32-C34
50	G	201	8Q1	C31-C29-C32-O33
50	G	201	8Q1	N36-C37-C38-C39
50	G	201	8Q1	C42-C43-S44-C1
50	G	201	8Q1	C28-O27-P24-O3
50	G	201	8Q1	C28-O27-P24-O2
50	X	201	8Q1	C1-C6-C7-C8
50	X	201	8Q1	O4-C1-S44-C43
50	X	201	8Q1	C6-C1-S44-C43
50	X	201	8Q1	C28-C29-C32-C34
50	X	201	8Q1	C28-C29-C32-O33
50	X	201	8Q1	C30-C29-C32-C34
50	X	201	8Q1	C30-C29-C32-O33
50	X	201	8Q1	C31-C29-C32-C34
50	X	201	8Q1	C31-C29-C32-O33
50	X	201	8Q1	C29-C32-C34-N36
50	X	201	8Q1	C29-C32-C34-O35

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Mol	Chain	Res	Type	Atoms
50	X	201	8Q1	O33-C32-C34-N36
50	X	201	8Q1	N36-C37-C38-C39
50	X	201	8Q1	C42-C43-S44-C1
54	N	202	CDL	O1-C1-CB2-OB2
54	N	202	CDL	CA2-C1-CB2-OB2
54	N	202	CDL	CA2-OA2-PA1-OA4
54	N	202	CDL	CA3-OA5-PA1-OA2
54	N	202	CDL	CA6-CA4-OA6-CA5
54	N	202	CDL	C11-CA5-OA6-CA4
54	N	202	CDL	CB2-OB2-PB2-OB4
54	a	201	CDL	CA2-OA2-PA1-OA3
54	a	201	CDL	CA2-OA2-PA1-OA4
54	a	201	CDL	CA2-OA2-PA1-OA5
54	a	201	CDL	CA3-OA5-PA1-OA2
54	a	201	CDL	CB2-OB2-PB2-OB3
54	i	401	CDL	CB2-C1-CA2-OA2
54	i	401	CDL	O1-C1-CB2-OB2
54	i	401	CDL	CA2-OA2-PA1-OA4
54	i	401	CDL	CA3-OA5-PA1-OA2
54	i	401	CDL	CB3-OB5-PB2-OB3
54	i	401	CDL	OB6-CB4-CB6-OB8
54	l	712	CDL	O1-C1-CB2-OB2
54	l	712	CDL	CA2-C1-CB2-OB2
54	l	712	CDL	CA3-OA5-PA1-OA3
54	l	712	CDL	CB2-OB2-PB2-OB4
54	l	713	CDL	O1-C1-CB2-OB2
54	l	713	CDL	CA2-OA2-PA1-OA4
54	l	713	CDL	CA2-OA2-PA1-OA5
54	l	713	CDL	OA6-CA4-CA6-OA8
54	l	713	CDL	CB2-OB2-PB2-OB4
54	l	713	CDL	CB2-OB2-PB2-OB5
54	l	713	CDL	CB3-OB5-PB2-OB3
54	l	713	CDL	OB6-CB4-CB6-OB8
54	n	102	CDL	CA2-OA2-PA1-OA4
54	n	102	CDL	CA3-OA5-PA1-OA2
54	n	102	CDL	CA3-OA5-PA1-OA3
54	n	102	CDL	CA3-OA5-PA1-OA4
54	n	102	CDL	CB3-OB5-PB2-OB3
54	r	714	CDL	OA6-CA4-CA6-OA8
54	r	714	CDL	CB3-OB5-PB2-OB2
54	r	714	CDL	CB3-OB5-PB2-OB3
56	s	403	UQ	C7-C8-C9-C10

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Mol	Chain	Res	Type	Atoms
56	s	403	UQ	C7-C8-C9-C11
56	s	403	UQ	C12-C11-C9-C10
57	w	401	ADP	C5'-O5'-PA-O2A
57	w	401	ADP	C5'-O5'-PA-O3A
56	s	403	UQ	C17-C18-C19-C21
48	U	101	PEE	O4-C10-O2-C2
48	V	202	PEE	O4-C10-O2-C2
48	m	202	PEE	O4-C10-O2-C2
54	N	202	CDL	OA7-CA5-OA6-CA4
54	N	202	CDL	OB7-CB5-OB6-CB4
54	r	714	CDL	OB7-CB5-OB6-CB4
48	m	202	PEE	C31-C30-O3-C3
54	r	714	CDL	C71-CB7-OB8-CB6
54	N	202	CDL	C51-CB5-OB6-CB4
54	r	714	CDL	C51-CB5-OB6-CB4
48	U	101	PEE	C17-C18-C19-C20
48	l	720	PEE	C37-C38-C39-C40
48	l	719	PEE	O4-C10-O2-C2
56	s	403	UQ	C12-C13-C14-C16
54	r	714	CDL	OB9-CB7-OB8-CB6
54	N	202	CDL	O1-C1-CA2-OA2
54	n	102	CDL	O1-C1-CA2-OA2
48	l	720	PEE	C31-C30-O3-C3
54	l	712	CDL	C31-CA7-OA8-CA6
54	l	713	CDL	C71-CB7-OB8-CB6
48	m	202	PEE	O5-C30-O3-C3
48	l	718	PEE	C11-C10-O2-C2
54	l	713	CDL	C11-C12-C13-C14
49	V	205	PLX	C9-C10-C11-C12
48	l	720	PEE	O5-C30-O3-C3
54	l	712	CDL	OA9-CA7-OA8-CA6
49	C	312	PLX	C28-C29-C30-C31
49	i	705	PLX	C7-C8-C9-C10
49	j	203	PLX	C28-C29-C30-C31
49	V	205	PLX	C30-C31-C32-C33
49	e	201	PLX	C12-C13-C14-C15
48	l	718	PEE	O4-C10-O2-C2
56	s	403	UQ	C12-C11-C9-C8
54	l	713	CDL	C59-C60-C61-C62
54	l	713	CDL	OB9-CB7-OB8-CB6
54	i	401	CDL	CA2-C1-CB2-OB2
54	l	713	CDL	CA2-C1-CB2-OB2

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Mol	Chain	Res	Type	Atoms
54	l	713	CDL	C54-C55-C56-C57
48	l	719	PEE	C31-C30-O3-C3
54	i	401	CDL	C31-CA7-OA8-CA6
48	V	202	PEE	C41-C42-C43-C44
48	U	101	PEE	C30-C31-C32-C33
48	l	720	PEE	C10-C11-C12-C13
49	V	205	PLX	C11-C12-C13-C14
54	i	401	CDL	O1-C1-CA2-OA2
54	l	713	CDL	C35-C36-C37-C38
48	l	719	PEE	O5-C30-O3-C3
54	i	401	CDL	OA9-CA7-OA8-CA6
49	j	203	PLX	C15-C16-C17-C18
54	l	713	CDL	C39-C40-C41-C42
48	V	202	PEE	C10-C11-C12-C13
54	l	713	CDL	CB7-C71-C72-C73
54	r	714	CDL	CA7-C31-C32-C33
54	r	714	CDL	CB7-C71-C72-C73
51	J	401	NDP	O4D-C4D-C5D-O5D
49	j	203	PLX	C32-C33-C34-C35
49	e	201	PLX	C2-C1-N1-C1A
49	i	705	PLX	C12-C13-C14-C15
54	r	714	CDL	C74-C75-C76-C77
48	l	719	PEE	C37-C38-C39-C40
48	s	401	PEE	C37-C38-C39-C40
48	C	311	PEE	C11-C10-O2-C2
48	m	202	PEE	C13-C14-C15-C16
54	l	712	CDL	C72-C73-C74-C75
48	C	311	PEE	C1-O3P-P-O4P
48	U	101	PEE	C4-O4P-P-O3P
48	V	202	PEE	C4-O4P-P-O3P
48	l	719	PEE	C4-O4P-P-O3P
49	C	312	PLX	C3-O4-P1-O1
49	n	101	PLX	C3-O4-P1-O1
49	n	101	PLX	C2-O1-P1-O4
54	N	202	CDL	CA2-OA2-PA1-OA5
54	N	202	CDL	CB2-OB2-PB2-OB5
54	a	201	CDL	CB2-OB2-PB2-OB5
54	i	401	CDL	CA2-OA2-PA1-OA5
54	i	401	CDL	CB2-OB2-PB2-OB5
54	l	712	CDL	CA2-OA2-PA1-OA5
54	l	712	CDL	CA3-OA5-PA1-OA2
54	l	713	CDL	CA3-OA5-PA1-OA2

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Mol	Chain	Res	Type	Atoms
54	n	102	CDL	CA2-OA2-PA1-OA5
54	n	102	CDL	CB2-OB2-PB2-OB5
54	r	714	CDL	CA3-OA5-PA1-OA2
54	r	714	CDL	CB2-OB2-PB2-OB5
54	l	712	CDL	CB7-C71-C72-C73
51	J	401	NDP	C2D-C1D-N1N-C6N
54	l	712	CDL	C20-C21-C22-C23
48	m	202	PEE	C31-C32-C33-C34
48	C	311	PEE	O4-C10-O2-C2
49	e	201	PLX	C2-C1-N1-C1C
48	U	101	PEE	C31-C30-O3-C3
48	V	202	PEE	C31-C30-O3-C3
54	l	713	CDL	C71-C72-C73-C74
48	m	202	PEE	C22-C23-C24-C25
48	U	101	PEE	C40-C41-C42-C43
48	V	202	PEE	C19-C20-C21-C22
49	V	205	PLX	C27-C28-C29-C30
54	r	714	CDL	C56-C57-C58-C59
51	J	401	NDP	C3D-C4D-C5D-O5D
49	i	705	PLX	C33-C34-C35-C36
50	G	201	8Q1	C12-C13-C14-C15
50	G	201	8Q1	C11-C12-C13-C14
54	l	713	CDL	C37-C38-C39-C40
54	r	714	CDL	C14-C15-C16-C17
54	r	714	CDL	C55-C56-C57-C58
48	C	311	PEE	C42-C43-C44-C45
49	C	312	PLX	C17-C18-C19-C20
49	e	201	PLX	C25-C26-C27-C28
49	i	705	PLX	C28-C29-C30-C31
49	i	705	PLX	C32-C33-C34-C35
54	l	713	CDL	C60-C61-C62-C63
54	r	714	CDL	C73-C74-C75-C76
48	V	202	PEE	C13-C14-C15-C16
49	e	201	PLX	C13-C14-C15-C16
49	e	201	PLX	C28-C29-C30-C31
49	j	203	PLX	C12-C13-C14-C15
49	j	203	PLX	C27-C28-C29-C30
50	G	201	8Q1	C10-C11-C12-C13
48	C	311	PEE	C32-C33-C34-C35
49	i	705	PLX	C30-C31-C32-C33
49	j	203	PLX	C34-C35-C36-C37
54	l	713	CDL	C73-C74-C75-C76

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Mol	Chain	Res	Type	Atoms
54	a	201	CDL	O1-C1-CA2-OA2
49	e	201	PLX	C29-C30-C31-C32
49	i	705	PLX	C10-C11-C12-C13
49	i	705	PLX	C11-C10-C9-C8
48	s	401	PEE	C31-C30-O3-C3
49	j	203	PLX	C7-C8-C9-C10
54	r	714	CDL	C71-C72-C73-C74
49	C	312	PLX	C7-C8-C9-C10
54	l	713	CDL	C75-C76-C77-C78
48	s	401	PEE	C34-C35-C36-C37
49	e	201	PLX	C33-C34-C35-C36
54	r	714	CDL	C52-C53-C54-C55
54	r	714	CDL	C75-C76-C77-C78
49	j	203	PLX	C10-C11-C12-C13
54	n	102	CDL	C11-CA5-OA6-CA4
48	l	719	PEE	C31-C32-C33-C34
49	e	201	PLX	C14-C15-C16-C17
48	l	719	PEE	C21-C22-C23-C24
49	C	312	PLX	C11-C12-C13-C14
49	V	205	PLX	C13-C14-C15-C16
54	l	713	CDL	C55-C56-C57-C58
54	i	401	CDL	C36-C37-C38-C39
54	r	714	CDL	C13-C14-C15-C16
48	l	719	PEE	O4P-C4-C5-N
48	V	202	PEE	C22-C23-C24-C25
48	l	720	PEE	C13-C14-C15-C16
54	l	713	CDL	C77-C78-C79-C80
54	r	714	CDL	C43-C44-C45-C46
48	l	720	PEE	C22-C23-C24-C25
49	i	705	PLX	C9-C10-C11-C12
49	i	705	PLX	C27-C28-C29-C30
54	i	401	CDL	C33-C34-C35-C36
49	V	205	PLX	C33-C34-C35-C36
54	l	713	CDL	C52-C53-C54-C55
48	V	202	PEE	C11-C12-C13-C14
48	l	720	PEE	C31-C32-C33-C34
49	V	205	PLX	C12-C13-C14-C15
54	n	102	CDL	C54-C55-C56-C57
54	l	712	CDL	C75-C76-C77-C78
54	r	714	CDL	C12-C13-C14-C15
48	s	401	PEE	C30-C31-C32-C33
54	l	713	CDL	CB5-C51-C52-C53

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Mol	Chain	Res	Type	Atoms
54	n	102	CDL	C75-C76-C77-C78
48	l	720	PEE	C11-C10-O2-C2
48	l	720	PEE	C2-C3-O3-C30
49	C	312	PLX	O7-C6-C7-C8
49	C	312	PLX	C33-C34-C35-C36
54	i	401	CDL	C11-C12-C13-C14
54	r	714	CDL	C59-C60-C61-C62
46	A	502	FMN	O2'-C2'-C3'-O3'
48	U	101	PEE	O5-C30-O3-C3
54	l	713	CDL	C56-C57-C58-C59
48	U	101	PEE	C38-C39-C40-C41
49	e	201	PLX	C30-C31-C32-C33
49	V	205	PLX	C28-C29-C30-C31
49	V	205	PLX	C31-C32-C33-C34
49	i	705	PLX	C25-C26-C27-C28
48	l	720	PEE	O4-C10-O2-C2
54	l	712	CDL	OA7-CA5-OA6-CA4
54	n	102	CDL	OA7-CA5-OA6-CA4
48	U	101	PEE	C23-C24-C25-C26
49	j	203	PLX	C9-C10-C11-C12
54	l	712	CDL	C73-C74-C75-C76
48	V	202	PEE	O5-C30-O3-C3
48	s	401	PEE	C33-C34-C35-C36
49	j	203	PLX	C25-C26-C27-C28
49	V	205	PLX	C14-C15-C16-C17
54	l	713	CDL	C62-C63-C64-C65
54	l	712	CDL	C11-CA5-OA6-CA4
48	l	718	PEE	C34-C35-C36-C37
54	l	713	CDL	C40-C41-C42-C43
48	l	718	PEE	C31-C32-C33-C34
48	l	720	PEE	C32-C33-C34-C35
49	e	201	PLX	C31-C32-C33-C34
48	s	401	PEE	O5-C30-O3-C3
48	l	720	PEE	C14-C15-C16-C17
49	V	205	PLX	C16-C17-C18-C19
49	e	201	PLX	C11-C12-C13-C14
49	C	312	PLX	C13-C14-C15-C16
49	j	203	PLX	C14-C15-C16-C17
54	r	714	CDL	C32-C33-C34-C35
54	n	102	CDL	C53-C54-C55-C56
54	a	201	CDL	C51-CB5-OB6-CB4
54	l	712	CDL	OA5-CA3-CA4-OA6

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Mol	Chain	Res	Type	Atoms
48	s	401	PEE	C13-C14-C15-C16
49	e	201	PLX	C16-C17-C18-C19
48	V	202	PEE	C12-C13-C14-C15
49	V	205	PLX	C15-C16-C17-C18
54	r	714	CDL	C41-C42-C43-C44
49	e	201	PLX	C2-C1-N1-C1B
48	U	101	PEE	C42-C43-C44-C45
48	s	401	PEE	C23-C24-C25-C26
49	C	312	PLX	C31-C32-C33-C34
48	s	401	PEE	C15-C16-C17-C18
48	s	401	PEE	C35-C36-C37-C38
49	e	201	PLX	C9-C10-C11-C12
54	a	201	CDL	C31-C32-C33-C34
48	l	720	PEE	C33-C34-C35-C36
54	a	201	CDL	OB7-CB5-OB6-CB4
48	l	718	PEE	C22-C23-C24-C25
49	C	312	PLX	C15-C16-C17-C18
48	U	101	PEE	C36-C37-C38-C39
46	A	502	FMN	O2'-C2'-C3'-C4'
48	V	202	PEE	C1-O3P-P-O4P
49	V	205	PLX	C3-O4-P1-O1
54	l	712	CDL	CB2-OB2-PB2-OB5
54	l	713	CDL	CB3-OB5-PB2-OB2
54	n	102	CDL	CB3-OB5-PB2-OB2
49	C	312	PLX	C9-C10-C11-C12
54	r	714	CDL	C62-C63-C64-C65
54	l	712	CDL	OA5-CA3-CA4-CA6
54	i	401	CDL	C35-C36-C37-C38
54	r	714	CDL	CB5-C51-C52-C53
49	n	101	PLX	C10-C11-C12-C13
54	r	714	CDL	C17-C18-C19-C20
49	C	312	PLX	C30-C31-C32-C33
48	C	311	PEE	C15-C16-C17-C18
54	N	202	CDL	CB5-C51-C52-C53
49	i	705	PLX	C19-C20-C21-C22
54	l	713	CDL	C53-C54-C55-C56
54	r	714	CDL	O1-C1-CA2-OA2
48	l	720	PEE	C1-C2-C3-O3
49	V	205	PLX	C3-C4-C5-O8
49	e	201	PLX	C3-C4-C5-O8
54	i	401	CDL	CB3-CB4-CB6-OB8
48	l	718	PEE	C24-C25-C26-C27

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Mol	Chain	Res	Type	Atoms
48	s	401	PEE	C32-C33-C34-C35
48	s	401	PEE	C14-C15-C16-C17
49	e	201	PLX	C27-C28-C29-C30
54	l	712	CDL	CB5-C51-C52-C53
48	U	101	PEE	C32-C33-C34-C35
54	l	713	CDL	C72-C73-C74-C75
54	a	201	CDL	C71-C72-C73-C74
54	l	713	CDL	C64-C65-C66-C67
50	G	201	8Q1	C9-C10-C11-C12
54	i	401	CDL	C13-C14-C15-C16
54	l	712	CDL	C36-C37-C38-C39
54	r	714	CDL	C72-C73-C74-C75
54	r	714	CDL	CA5-C11-C12-C13
54	l	713	CDL	C14-C15-C16-C17
48	m	202	PEE	O2-C2-C3-O3
54	r	714	CDL	OB6-CB4-CB6-OB8
50	X	201	8Q1	C13-C14-C15-C16
54	r	714	CDL	C23-C24-C25-C26
49	C	312	PLX	C16-C17-C18-C19
49	e	201	PLX	C7-C8-C9-C10
50	X	201	8Q1	C9-C10-C11-C12
54	l	712	CDL	C52-C53-C54-C55
48	s	401	PEE	C10-C11-C12-C13
48	s	401	PEE	C21-C22-C23-C24
49	i	705	PLX	C14-C15-C16-C17
54	a	201	CDL	C37-C38-C39-C40
48	C	311	PEE	C14-C15-C16-C17
54	r	714	CDL	C82-C83-C84-C85
54	a	201	CDL	CB2-C1-CA2-OA2
49	i	705	PLX	C20-C21-C22-C23
49	j	203	PLX	C26-C27-C28-C29
48	l	720	PEE	C23-C24-C25-C26
48	s	401	PEE	C17-C18-C19-C20
48	V	202	PEE	C30-C31-C32-C33
48	l	718	PEE	O3P-C1-C2-C3
49	C	312	PLX	O4-C3-C4-C5
54	r	714	CDL	C60-C61-C62-C63
48	m	202	PEE	C11-C12-C13-C14
48	s	401	PEE	C11-C10-O2-C2
49	j	203	PLX	C19-C20-C21-C22
54	l	712	CDL	C35-C36-C37-C38
48	V	202	PEE	C36-C37-C38-C39

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Mol	Chain	Res	Type	Atoms
48	l	719	PEE	C13-C14-C15-C16
46	A	502	FMN	C2'-C1'-N10-C10
48	U	101	PEE	C43-C44-C45-C46
54	r	714	CDL	C64-C65-C66-C67
48	C	311	PEE	C1-C2-C3-O3
48	l	718	PEE	C1-C2-C3-O3
48	s	401	PEE	C1-C2-C3-O3
49	j	203	PLX	C3-C4-C5-O8
54	l	713	CDL	CA3-CA4-CA6-OA8
54	l	713	CDL	CB3-CB4-CB6-OB8
54	r	714	CDL	CB3-CB4-CB6-OB8
48	C	311	PEE	C41-C42-C43-C44
48	l	720	PEE	C34-C35-C36-C37
50	G	201	8Q1	C29-C32-C34-N36
49	C	312	PLX	C2-O1-P1-O4
49	e	201	PLX	C5-C4-O6-C6
54	N	202	CDL	CB3-OB5-PB2-OB2
54	r	714	CDL	C80-C81-C82-C83
48	U	101	PEE	C41-C42-C43-C44
54	l	712	CDL	C81-C82-C83-C84
54	n	102	CDL	CB2-C1-CA2-OA2
48	l	718	PEE	C11-C12-C13-C14
48	l	720	PEE	C16-C17-C18-C19
54	i	401	CDL	C71-C72-C73-C74
48	s	401	PEE	O4-C10-O2-C2
47	A	503	NAI	C2D-C1D-N1N-C2N
47	A	503	NAI	PN-O3-PA-O5B
50	X	201	8Q1	O4-C1-C6-C7
50	X	201	8Q1	S44-C1-C6-C7
49	j	203	PLX	C31-C32-C33-C34
50	X	201	8Q1	C11-C12-C13-C14
49	i	705	PLX	O4-C3-C4-C5
54	l	713	CDL	OA5-CA3-CA4-CA6
48	C	311	PEE	C13-C14-C15-C16
48	l	719	PEE	C32-C33-C34-C35
54	l	713	CDL	C58-C59-C60-C61
48	s	401	PEE	C24-C25-C26-C27
49	j	203	PLX	C33-C34-C35-C36
48	l	718	PEE	C32-C33-C34-C35
49	C	312	PLX	C25-C26-C27-C28
48	l	718	PEE	C18-C19-C20-C21
48	s	401	PEE	C20-C21-C22-C23

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Mol	Chain	Res	Type	Atoms
48	m	202	PEE	C3-C2-O2-C10
50	X	201	8Q1	C7-C8-C9-C10
56	s	403	UQ	C1-C2-O2-CM2
54	l	712	CDL	CA4-CA3-OA5-PA1
54	r	714	CDL	CA3-CA4-CA6-OA8
48	l	718	PEE	O3P-C1-C2-O2
48	l	719	PEE	O3P-C1-C2-O2
48	m	202	PEE	O3P-C1-C2-O2
54	a	201	CDL	OA5-CA3-CA4-OA6
51	J	401	NDP	O4D-C1D-N1N-C6N
48	l	718	PEE	C21-C22-C23-C24
48	l	720	PEE	O2-C2-C3-O3
49	j	203	PLX	O6-C4-C5-O8
49	i	705	PLX	C13-C14-C15-C16
54	r	714	CDL	C51-C52-C53-C54
48	V	202	PEE	C24-C25-C26-C27
54	n	102	CDL	CB7-C71-C72-C73
54	r	714	CDL	C78-C79-C80-C81
48	C	311	PEE	C10-C11-C12-C13
48	C	311	PEE	C39-C40-C41-C42
54	i	401	CDL	CB3-OB5-PB2-OB2
54	l	713	CDL	O1-C1-CA2-OA2
54	r	714	CDL	CB4-CB3-OB5-PB2
48	U	101	PEE	C1-O3P-P-O2P
48	V	202	PEE	C1-O3P-P-O2P
48	V	202	PEE	C1-O3P-P-O1P
48	l	719	PEE	C1-O3P-P-O2P
49	C	312	PLX	C2-O1-P1-O3
49	V	205	PLX	C2-O1-P1-O3
49	n	101	PLX	C3-O4-P1-O2
49	n	101	PLX	C2-O1-P1-O2
54	N	202	CDL	CA3-OA5-PA1-OA4
54	a	201	CDL	CA3-OA5-PA1-OA4
54	a	201	CDL	CB2-OB2-PB2-OB4
54	i	401	CDL	CA3-OA5-PA1-OA4
54	i	401	CDL	CB2-OB2-PB2-OB3
54	l	712	CDL	CA2-OA2-PA1-OA3
54	l	712	CDL	CA3-OA5-PA1-OA4
54	l	712	CDL	CB2-OB2-PB2-OB3
54	l	713	CDL	CA2-OA2-PA1-OA3
54	l	713	CDL	CA3-OA5-PA1-OA4
54	l	713	CDL	CB2-OB2-PB2-OB3

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Mol	Chain	Res	Type	Atoms
54	n	102	CDL	CB2-OB2-PB2-OB4
54	n	102	CDL	CB3-OB5-PB2-OB4
54	r	714	CDL	CA2-OA2-PA1-OA3
54	r	714	CDL	CA3-OA5-PA1-OA3
54	r	714	CDL	CB2-OB2-PB2-OB3
54	r	714	CDL	CB2-OB2-PB2-OB4
57	w	401	ADP	C5'-O5'-PA-O1A
54	a	201	CDL	C71-CB7-OB8-CB6
48	m	202	PEE	O3P-C1-C2-C3
49	j	203	PLX	C13-C14-C15-C16
48	C	311	PEE	C37-C38-C39-C40
49	C	312	PLX	C27-C28-C29-C30
48	l	720	PEE	C5-C4-O4P-P
49	j	203	PLX	C25-C24-O8-C5
48	s	401	PEE	C39-C40-C41-C42
47	A	503	NAI	C3D-C4D-C5D-O5D
48	s	401	PEE	O3P-C1-C2-O2
49	i	705	PLX	O4-C3-C4-O6
54	l	713	CDL	OA5-CA3-CA4-OA6
54	i	401	CDL	C14-C15-C16-C17
48	V	202	PEE	C23-C24-C25-C26
54	l	712	CDL	C37-C38-C39-C40
54	l	713	CDL	C33-C34-C35-C36
48	l	719	PEE	C30-C31-C32-C33
48	m	202	PEE	C1-C2-C3-O3
49	n	101	PLX	N1-C1-C2-O1
54	l	712	CDL	C51-C52-C53-C54
48	C	311	PEE	O2-C2-C3-O3
48	l	718	PEE	O2-C2-C3-O3
49	V	205	PLX	O6-C4-C5-O8
49	e	201	PLX	C36-C37-C38-C39
54	r	714	CDL	C42-C43-C44-C45
54	r	714	CDL	C76-C77-C78-C79
48	U	101	PEE	C37-C38-C39-C40
54	l	713	CDL	C44-C45-C46-C47
48	l	720	PEE	C18-C19-C20-C21
54	l	713	CDL	C12-C13-C14-C15
54	r	714	CDL	C39-C40-C41-C42
54	l	713	CDL	C34-C35-C36-C37
49	j	203	PLX	C30-C31-C32-C33
49	j	203	PLX	O6-C6-C7-C8
49	n	101	PLX	O6-C6-C7-C8

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Mol	Chain	Res	Type	Atoms
49	V	205	PLX	C10-C11-C12-C13
54	r	714	CDL	C20-C21-C22-C23
49	n	101	PLX	O7-C6-C7-C8
48	C	311	PEE	C20-C21-C22-C23
54	N	202	CDL	C11-C12-C13-C14
54	N	202	CDL	OA9-CA7-OA8-CA6
48	l	718	PEE	C10-C11-C12-C13
48	l	719	PEE	C1-C2-O2-C10
48	l	719	PEE	C3-C2-O2-C10
54	a	201	CDL	CA6-CA4-OA6-CA5
54	l	712	CDL	CA6-CA4-OA6-CA5
48	s	401	PEE	O3P-C1-C2-C3
49	j	203	PLX	O4-C3-C4-C5
54	l	713	CDL	C57-C58-C59-C60
54	a	201	CDL	OB9-CB7-OB8-CB6
54	N	202	CDL	C31-CA7-OA8-CA6
49	j	203	PLX	O4-C3-C4-O6
47	A	503	NAI	O4D-C1D-N1N-C2N
48	C	311	PEE	C11-C12-C13-C14
48	s	401	PEE	O2-C2-C3-O3
49	e	201	PLX	O6-C4-C5-O8
48	U	101	PEE	C1-O3P-P-O4P
49	V	205	PLX	C2-O1-P1-O4
49	e	201	PLX	C3-O4-P1-O1
49	i	705	PLX	C3-O4-P1-O1
54	a	201	CDL	CB3-OB5-PB2-OB2
54	l	712	CDL	CB3-OB5-PB2-OB2
47	A	503	NAI	C2D-C1D-N1N-C6N
54	r	714	CDL	C81-C82-C83-C84
54	r	714	CDL	C44-C45-C46-C47
48	C	311	PEE	C33-C34-C35-C36
48	l	718	PEE	C38-C39-C40-C41
54	l	713	CDL	C63-C64-C65-C66
48	l	718	PEE	C2-C1-O3P-P
54	a	201	CDL	CA4-CA3-OA5-PA1
54	r	714	CDL	C15-C16-C17-C18
54	r	714	CDL	C54-C55-C56-C57
49	V	205	PLX	C29-C30-C31-C32
54	r	714	CDL	C83-C84-C85-C86
48	C	311	PEE	C30-C31-C32-C33
54	r	714	CDL	C63-C64-C65-C66
49	i	705	PLX	C15-C16-C17-C18

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Mol	Chain	Res	Type	Atoms
54	l	712	CDL	C24-C25-C26-C27
49	j	203	PLX	C11-C12-C13-C14
49	e	201	PLX	O8-C24-C25-C26
54	l	712	CDL	C76-C77-C78-C79
48	C	311	PEE	C38-C39-C40-C41
48	l	720	PEE	C36-C37-C38-C39
49	e	201	PLX	C24-C25-C26-C27
54	l	713	CDL	C32-C33-C34-C35
54	r	714	CDL	CB2-C1-CA2-OA2
48	V	202	PEE	C16-C17-C18-C19
49	e	201	PLX	C26-C27-C28-C29
54	l	713	CDL	C17-C18-C19-C20
48	U	101	PEE	C24-C25-C26-C27
48	l	718	PEE	C35-C36-C37-C38
54	i	401	CDL	CA6-CA4-OA6-CA5
54	n	102	CDL	CA6-CA4-OA6-CA5
49	n	101	PLX	C13-C14-C15-C16
54	l	713	CDL	C13-C14-C15-C16
48	m	202	PEE	C18-C19-C20-C21
54	l	713	CDL	C15-C16-C17-C18
48	m	202	PEE	O3-C30-C31-C32
49	V	205	PLX	C7-C8-C9-C10
49	C	312	PLX	C36-C37-C38-C39
54	a	201	CDL	OA5-CA3-CA4-CA6
48	V	202	PEE	C18-C19-C20-C21
54	n	102	CDL	C78-C79-C80-C81
54	l	712	CDL	C56-C57-C58-C59
49	n	101	PLX	C33-C34-C35-C36
54	N	202	CDL	OB6-CB4-CB6-OB8
54	l	712	CDL	OA6-CA4-CA6-OA8
48	l	720	PEE	C38-C39-C40-C41
48	s	401	PEE	C36-C37-C38-C39
48	V	202	PEE	C44-C45-C46-C47
54	N	202	CDL	CB2-C1-CA2-OA2
54	a	201	CDL	CA2-C1-CB2-OB2
54	l	713	CDL	C31-C32-C33-C34
49	V	205	PLX	C4-C5-O8-C24
48	U	101	PEE	C12-C13-C14-C15
54	n	102	CDL	C18-C19-C20-C21
48	l	719	PEE	C14-C15-C16-C17
49	V	205	PLX	O8-C24-C25-C26
54	n	102	CDL	C12-C13-C14-C15

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Mol	Chain	Res	Type	Atoms
48	l	719	PEE	O3P-C1-C2-C3
50	G	201	8Q1	C1-C6-C7-C8
49	e	201	PLX	C10-C11-C12-C13
48	l	719	PEE	O2-C2-C3-O3
48	s	401	PEE	C31-C32-C33-C34
50	G	201	8Q1	C28-O27-P24-O1
50	X	201	8Q1	C6-C7-C8-C9
48	l	720	PEE	O2-C10-C11-C12
48	l	719	PEE	C16-C17-C18-C19
48	l	719	PEE	C36-C37-C38-C39
47	A	503	NAI	O4D-C1D-N1N-C6N
54	n	102	CDL	C12-C11-CA5-OA6
54	r	714	CDL	C40-C41-C42-C43
48	C	311	PEE	C16-C17-C18-C19
48	l	718	PEE	C36-C37-C38-C39
54	a	201	CDL	C72-C73-C74-C75
54	r	714	CDL	C1-CB2-OB2-PB2
54	l	713	CDL	OB7-CB5-OB6-CB4
49	n	101	PLX	O4-C3-C4-O6
54	i	401	CDL	OA5-CA3-CA4-OA6
48	C	311	PEE	O3-C30-C31-C32
48	l	719	PEE	C18-C19-C20-C21
54	i	401	CDL	OA5-CA3-CA4-CA6
54	l	713	CDL	C32-C31-CA7-OA8
48	V	202	PEE	C31-C32-C33-C34
48	U	101	PEE	C16-C17-C18-C19
54	l	712	CDL	C74-C75-C76-C77
48	l	720	PEE	O3-C30-C31-C32
51	J	401	NDP	O4B-C4B-C5B-O5B
54	a	201	CDL	CA5-C11-C12-C13
54	r	714	CDL	C33-C34-C35-C36
54	a	201	CDL	C58-C59-C60-C61
54	l	712	CDL	C71-C72-C73-C74
54	n	102	CDL	CA5-C11-C12-C13
49	i	705	PLX	C35-C36-C37-C38
49	V	205	PLX	C26-C27-C28-C29
48	C	311	PEE	O5-C30-C31-C32
54	l	713	CDL	C82-C83-C84-C85
48	l	719	PEE	C1-C2-C3-O3
54	a	201	CDL	O1-C1-CB2-OB2
54	n	102	CDL	C12-C11-CA5-OA7
48	l	720	PEE	O4-C10-C11-C12

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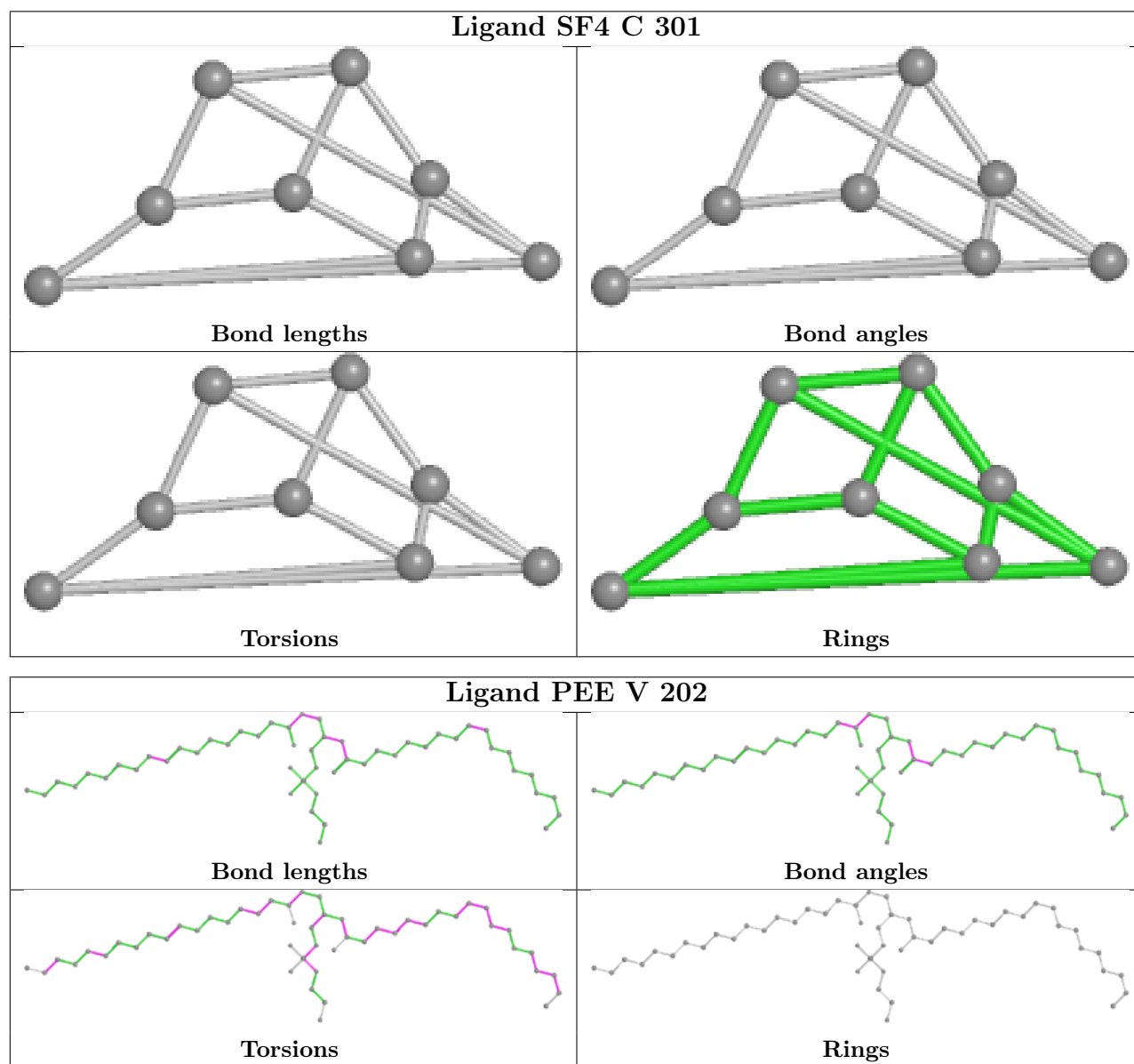
Mol	Chain	Res	Type	Atoms
54	n	102	CDL	C14-C15-C16-C17
47	A	503	NAI	C5B-O5B-PA-O1A
47	A	503	NAI	C2N-C3N-C7N-N7N
49	i	705	PLX	C3-O4-P1-O2
49	i	705	PLX	C2-O1-P1-O2
54	N	202	CDL	CB3-OB5-PB2-OB4
54	a	201	CDL	CB3-OB5-PB2-OB3
54	r	714	CDL	CA3-OA5-PA1-OA4
48	V	202	PEE	O3P-C1-C2-C3
48	U	101	PEE	O2-C10-C11-C12
48	l	719	PEE	C34-C35-C36-C37
49	n	101	PLX	C7-C8-C9-C10
54	l	713	CDL	C32-C31-CA7-OA9
48	m	202	PEE	C5-C4-O4P-P
49	i	705	PLX	C1-C2-O1-P1
50	G	201	8Q1	C29-C32-C34-O35
48	U	101	PEE	O3-C30-C31-C32
48	m	202	PEE	C23-C24-C25-C26
54	l	713	CDL	C12-C11-CA5-OA6
49	C	312	PLX	C11-C10-C9-C8
54	l	712	CDL	C72-C71-CB7-OB8
54	r	714	CDL	C52-C51-CB5-OB6
50	X	201	8Q1	N41-C42-C43-S44
56	s	403	UQ	C13-C14-C16-C17
48	l	720	PEE	O5-C30-C31-C32
54	l	713	CDL	C41-C42-C43-C44
48	C	311	PEE	C36-C37-C38-C39
48	U	101	PEE	O5-C30-C31-C32
54	l	713	CDL	C12-C11-CA5-OA7

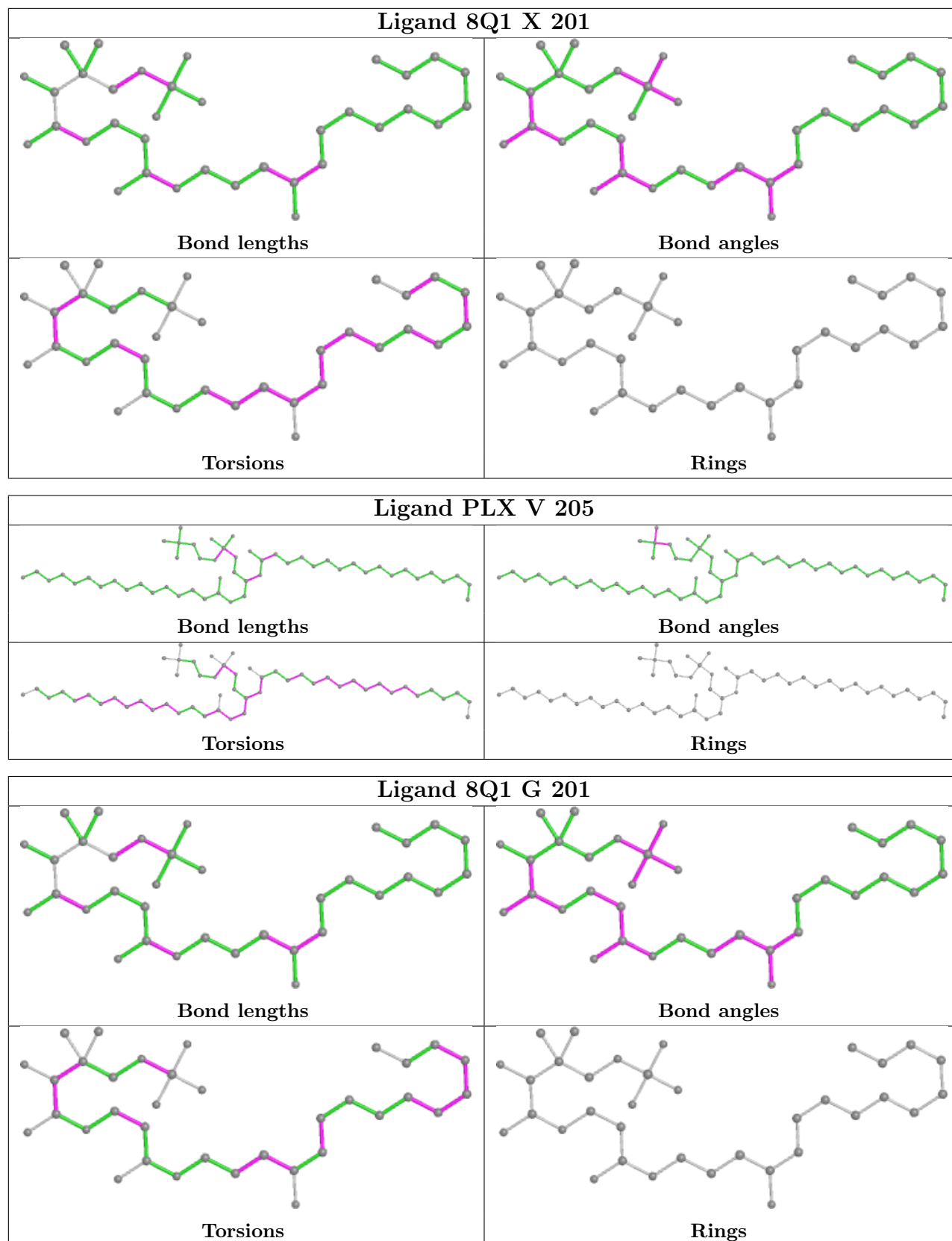
There are no ring outliers.

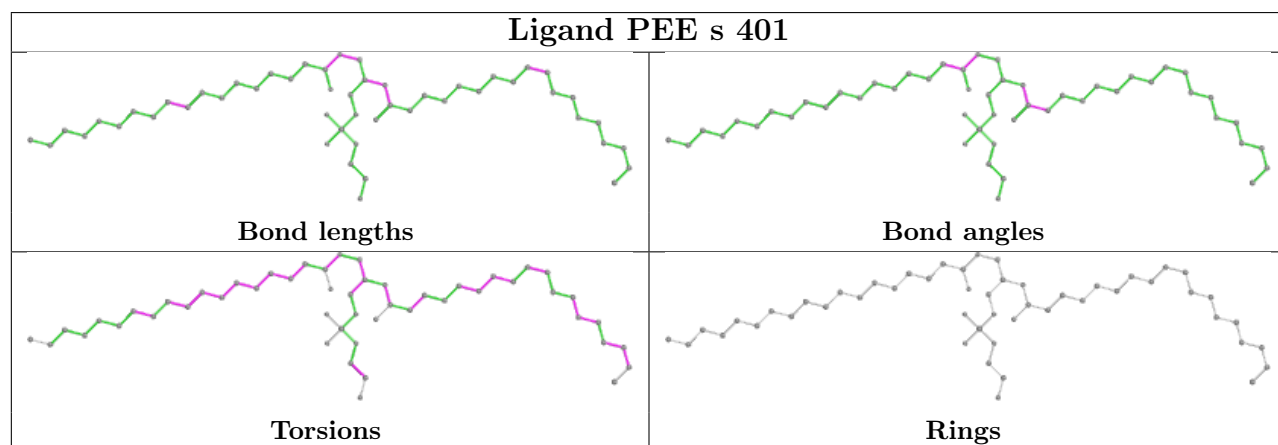
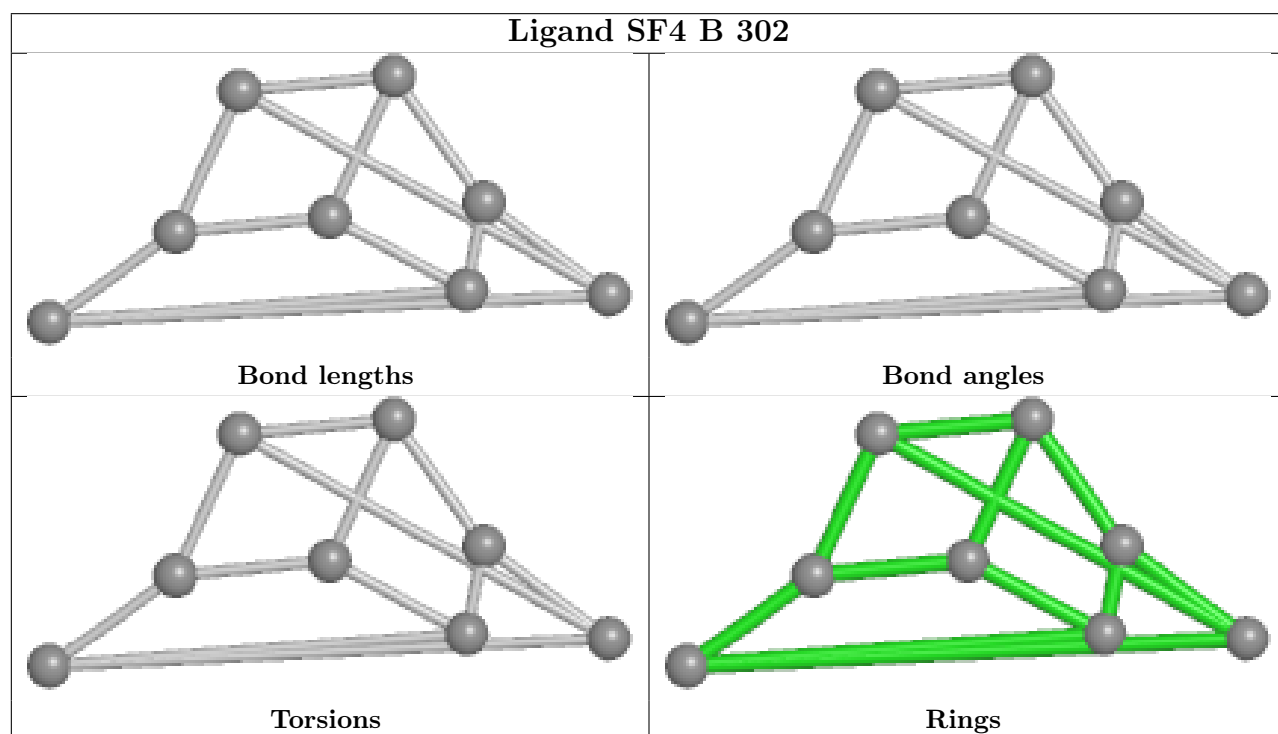
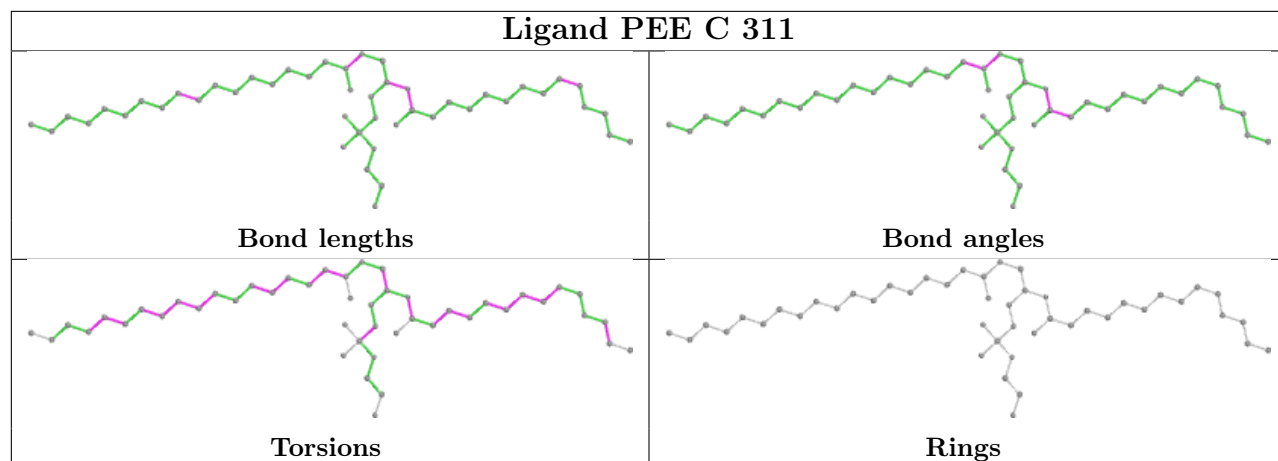
No monomer is involved in short contacts.

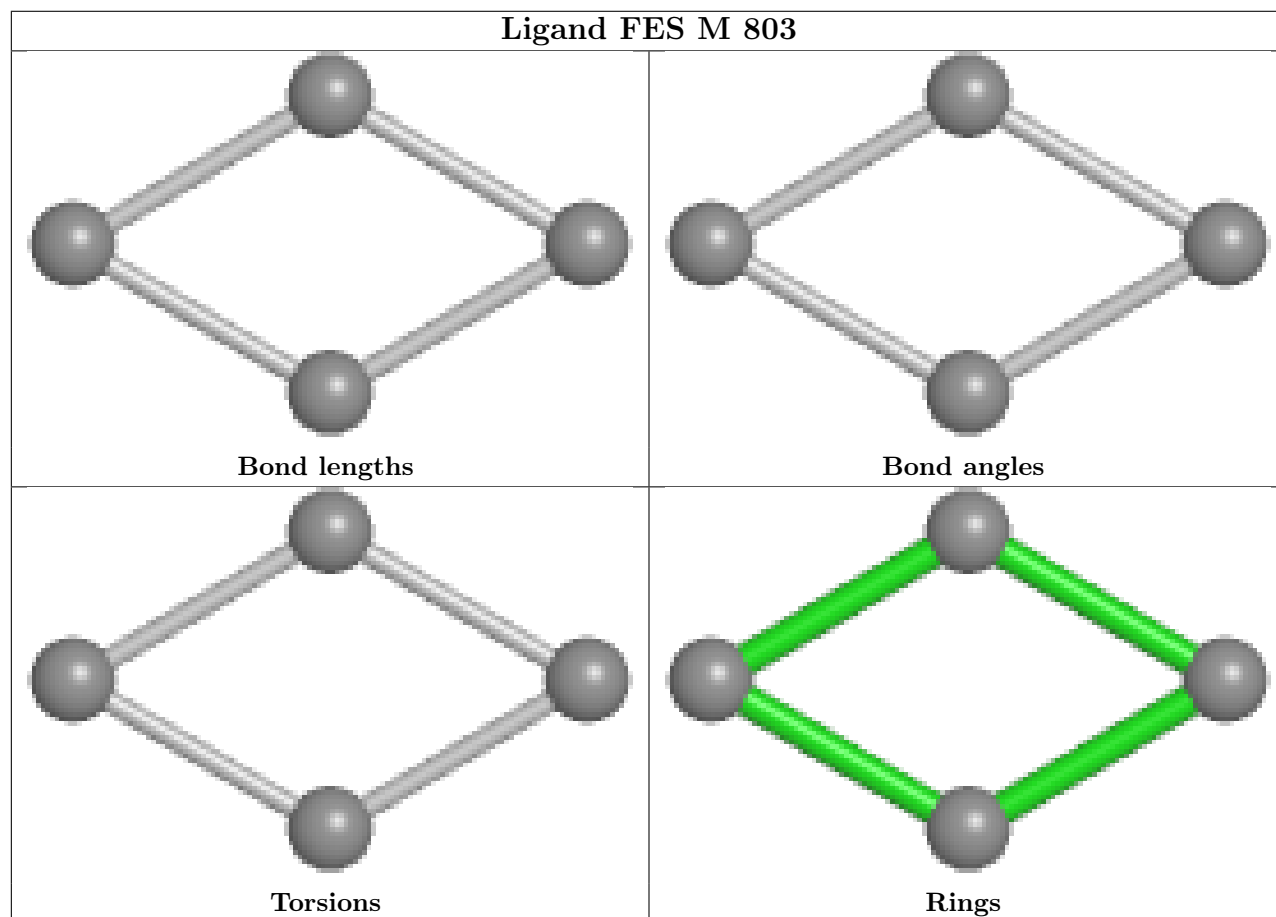
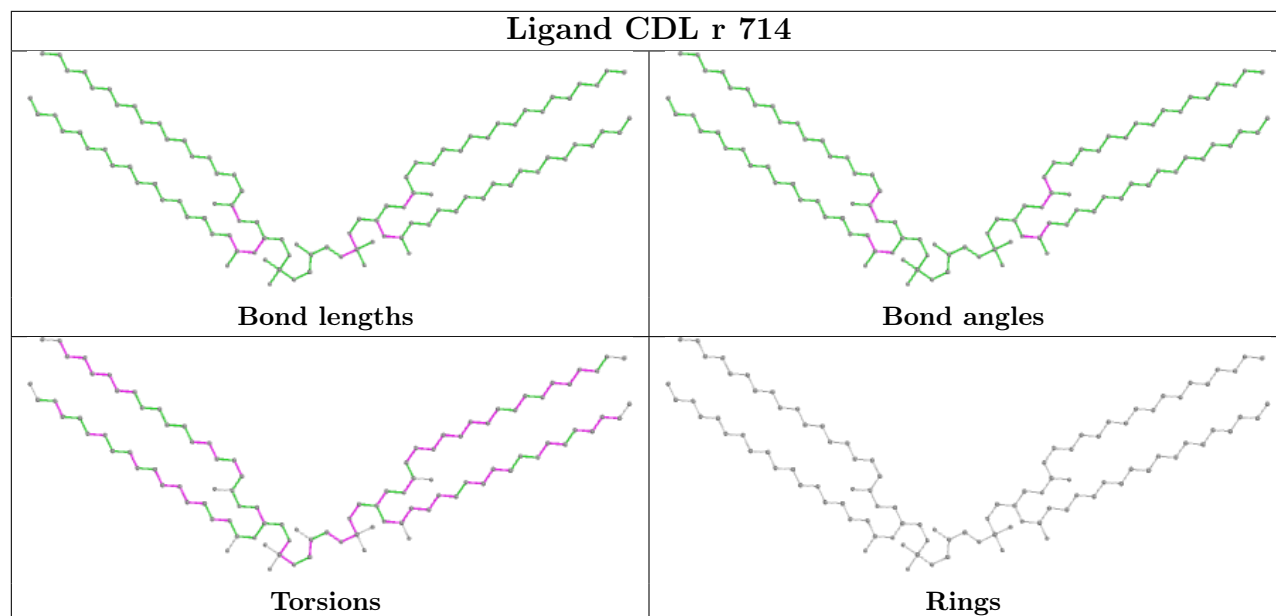
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

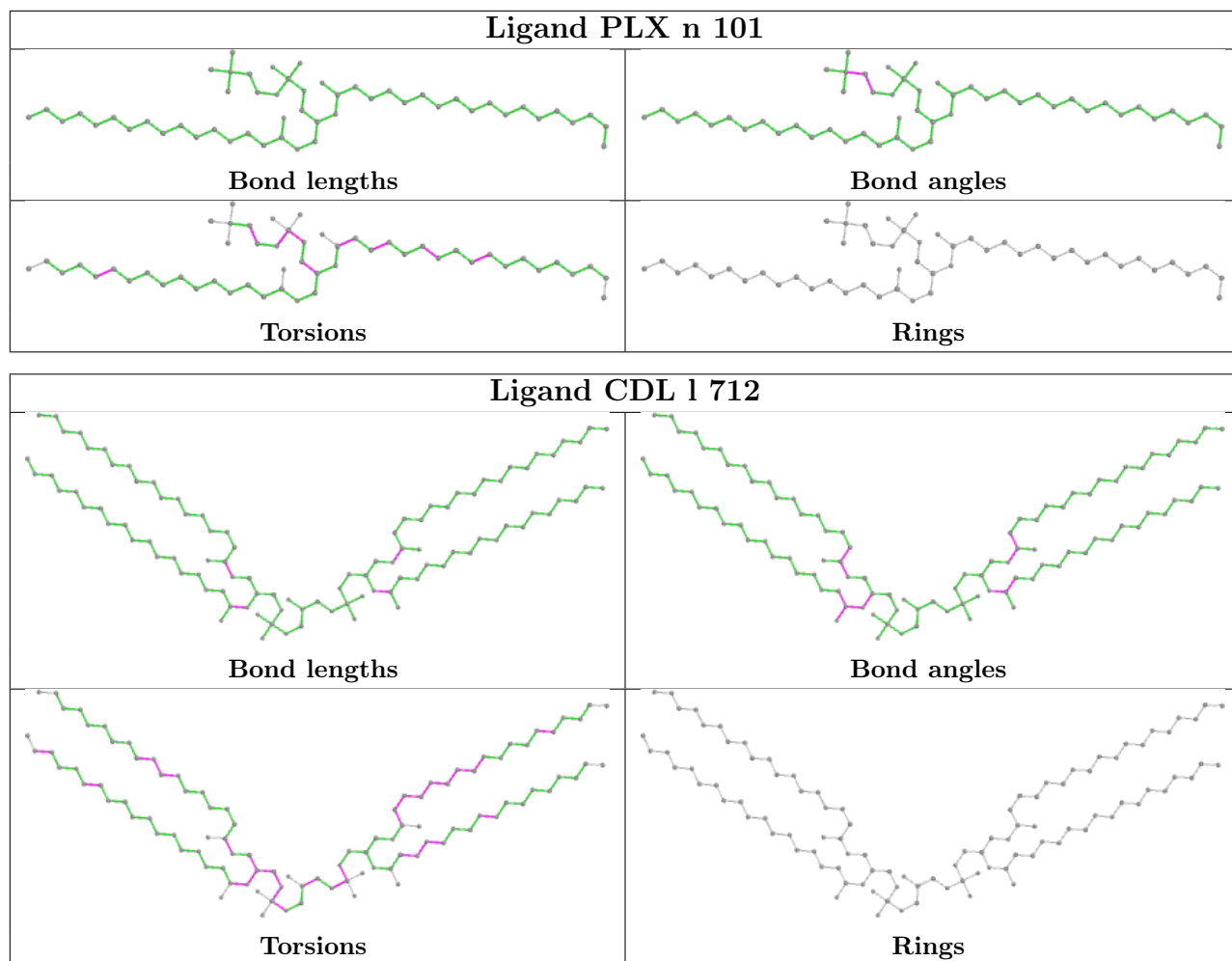
The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

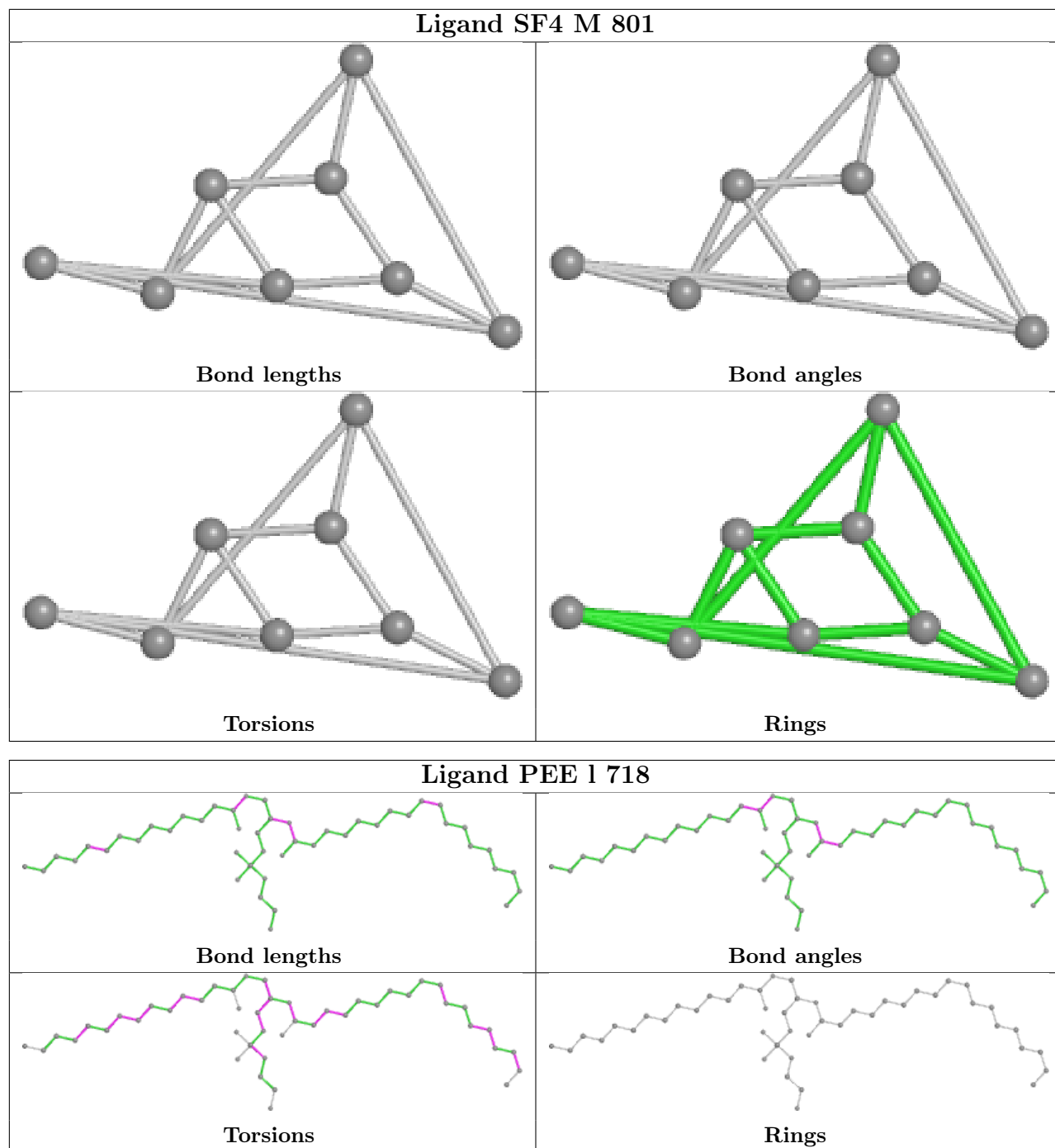


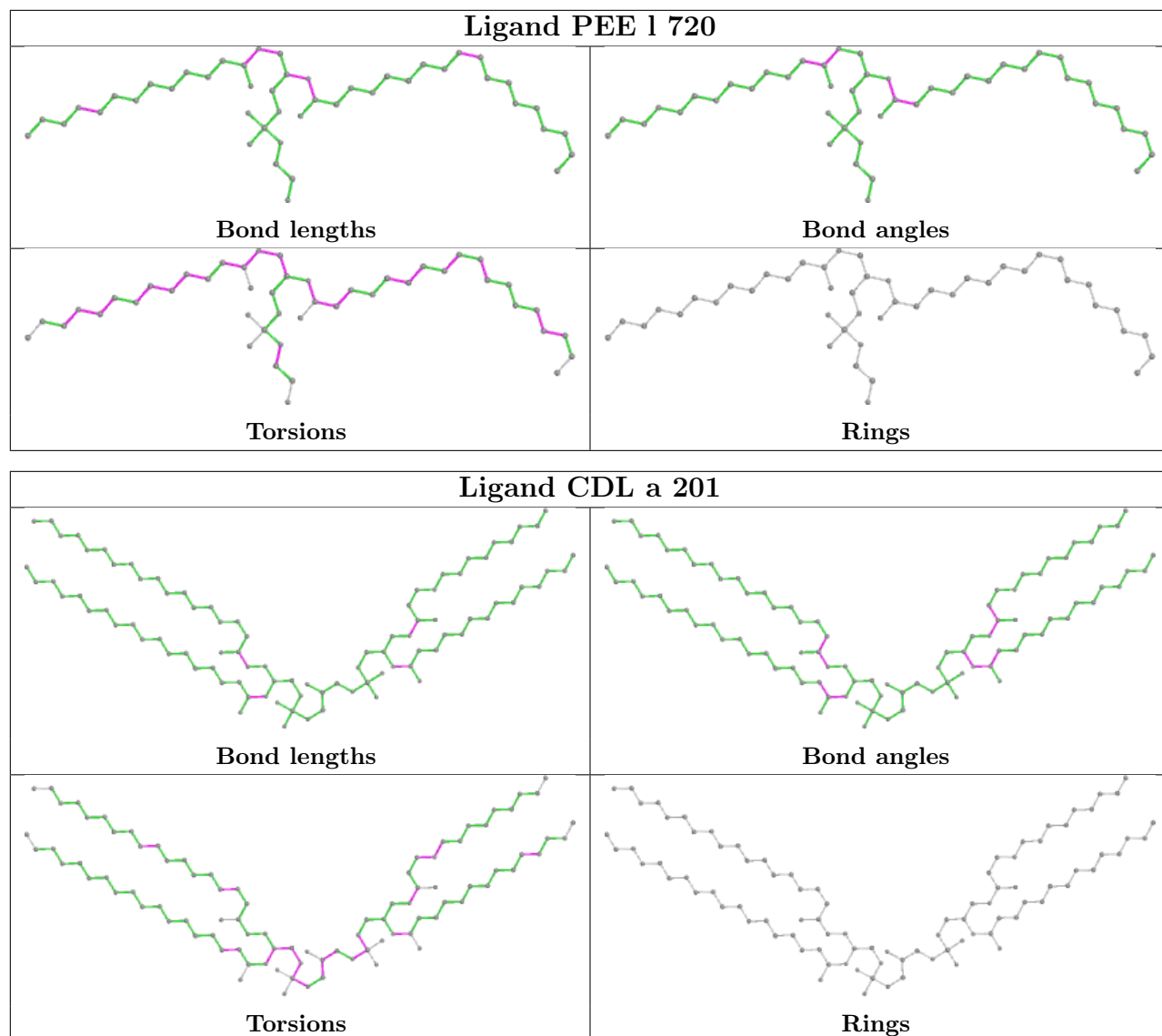


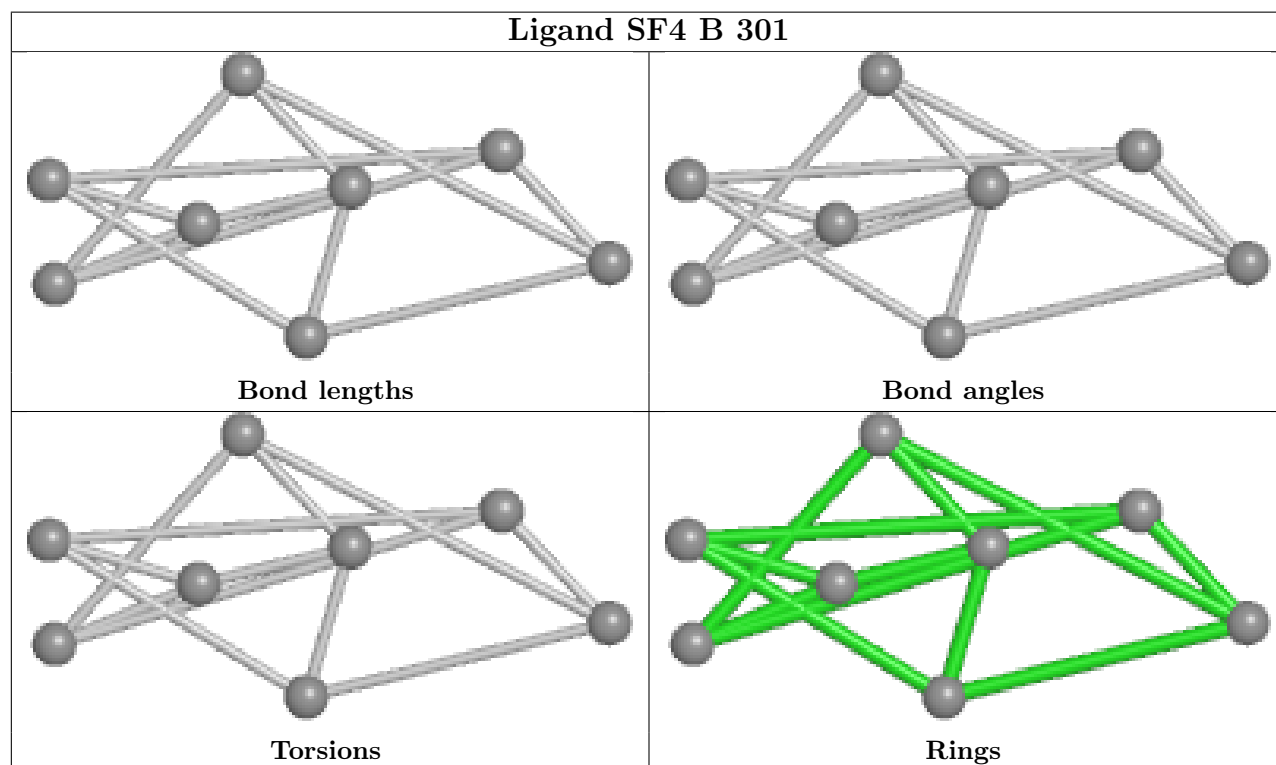
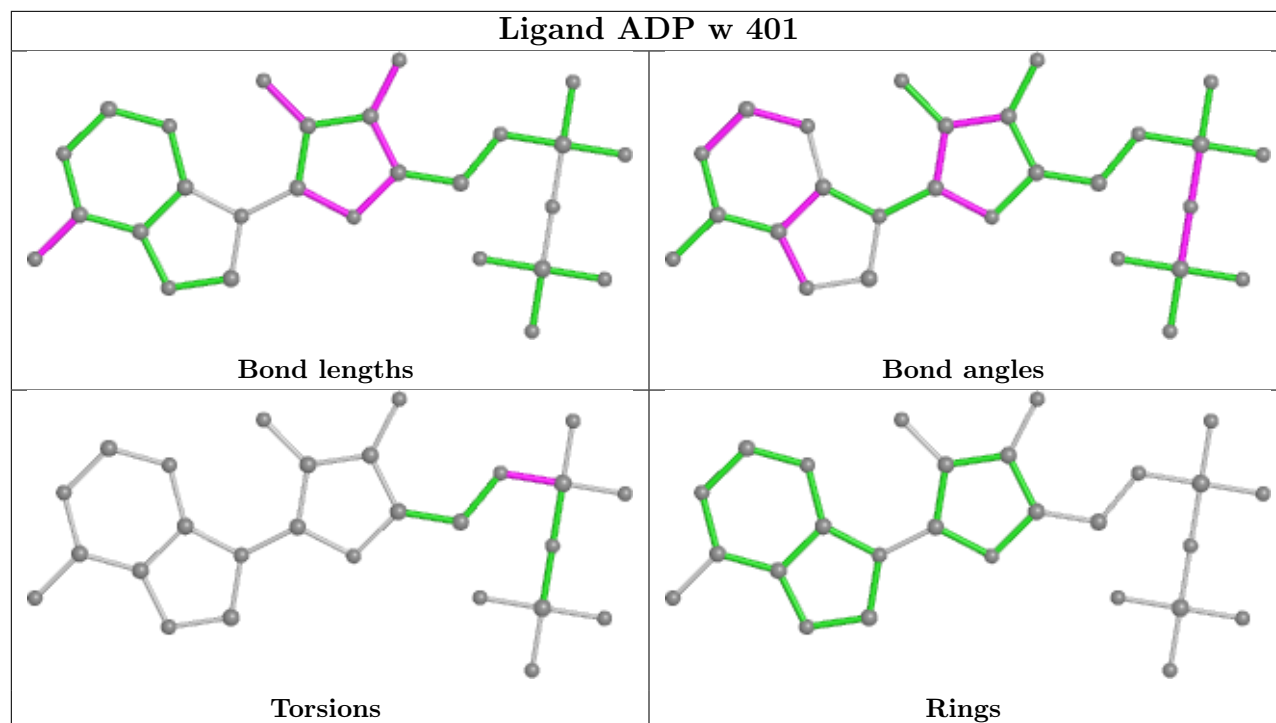


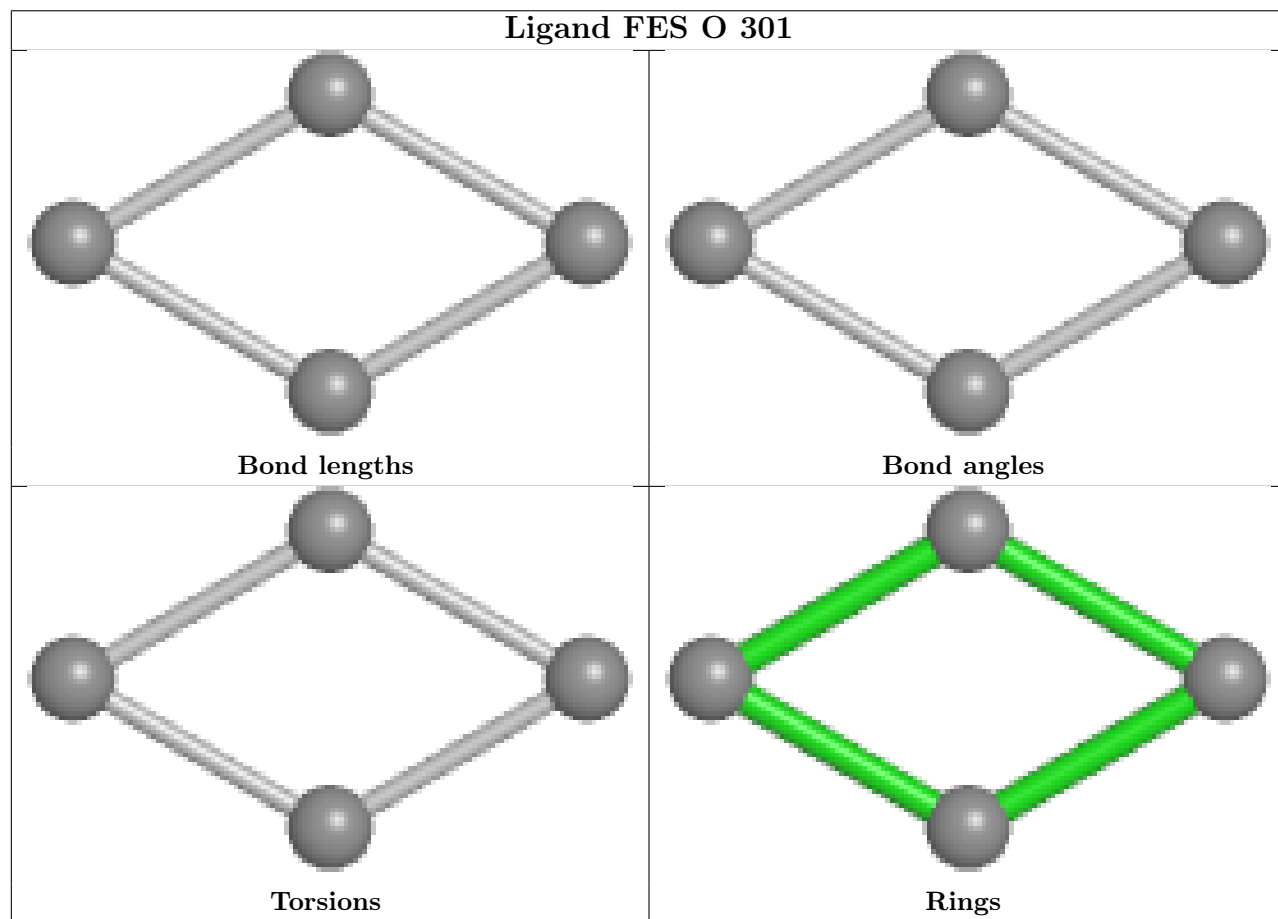
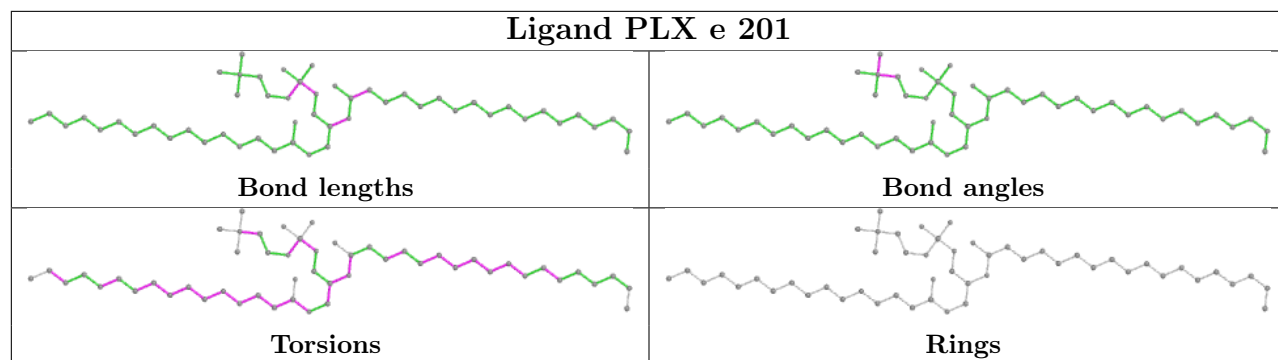


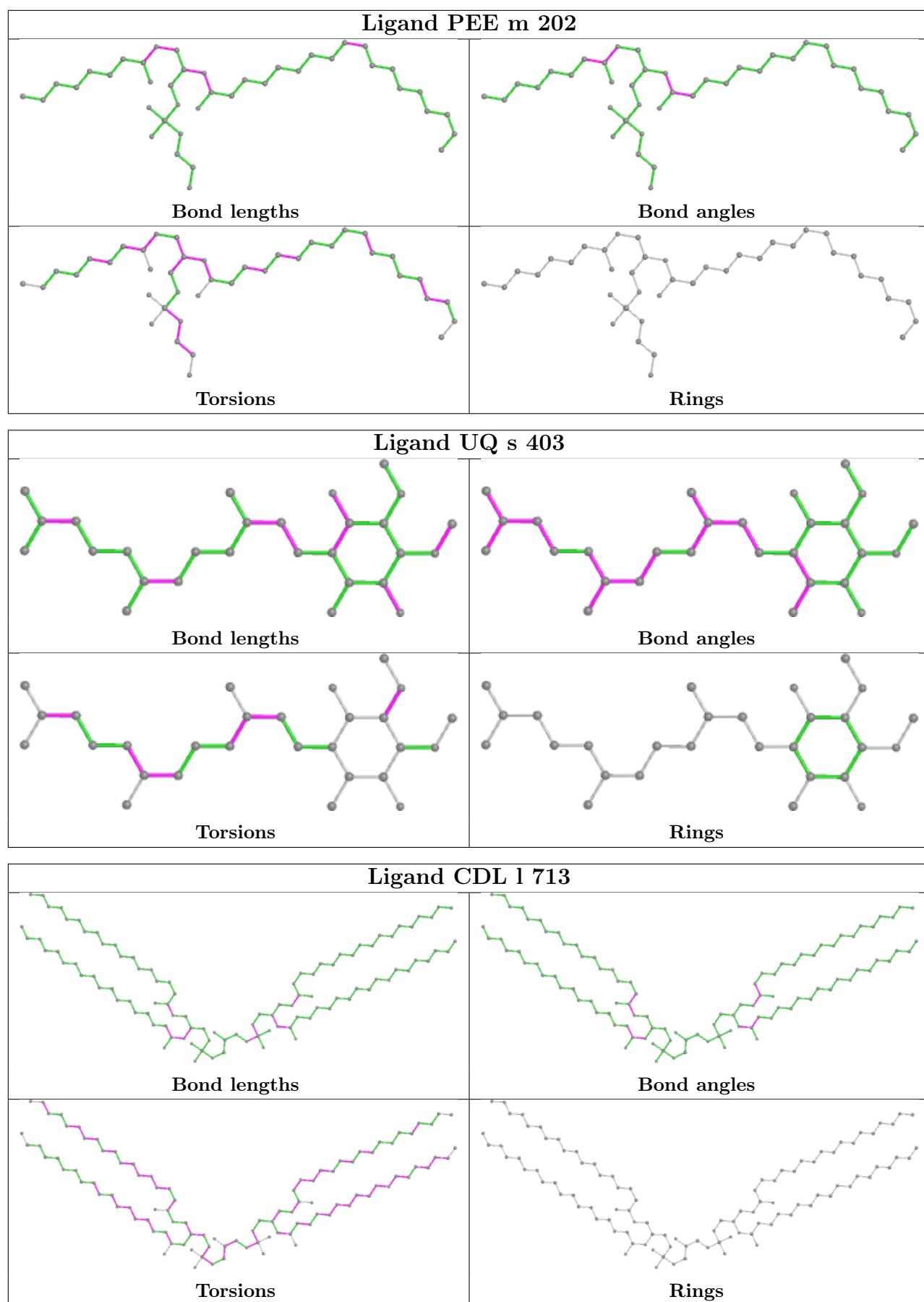


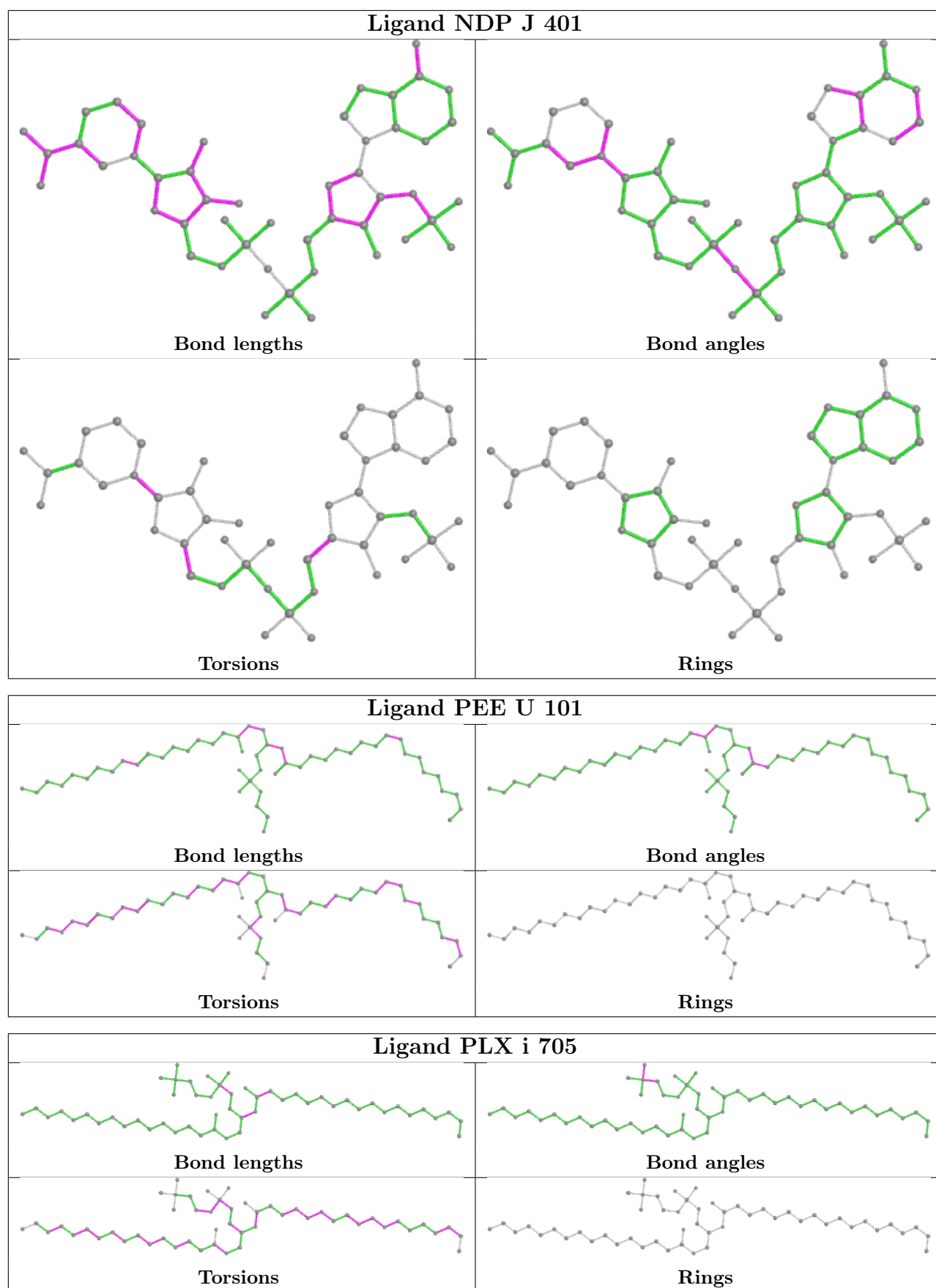


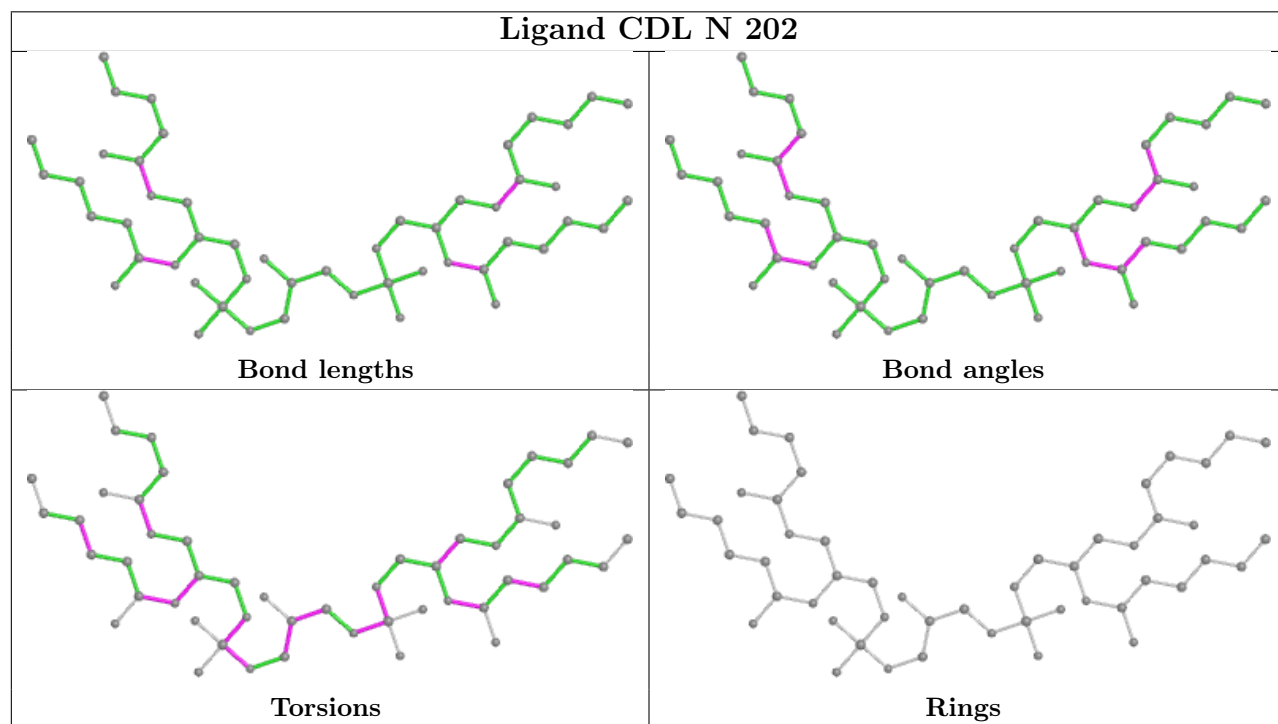
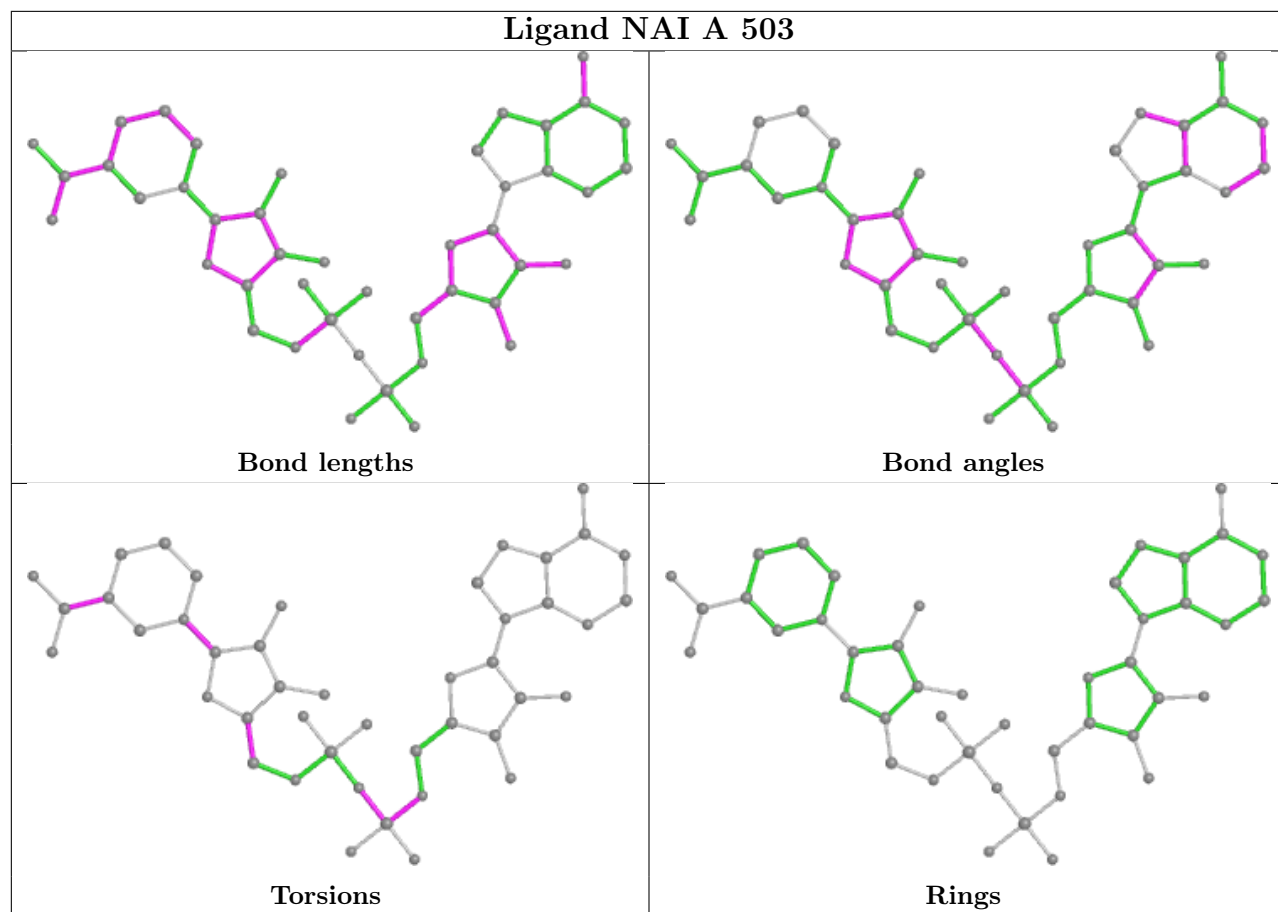


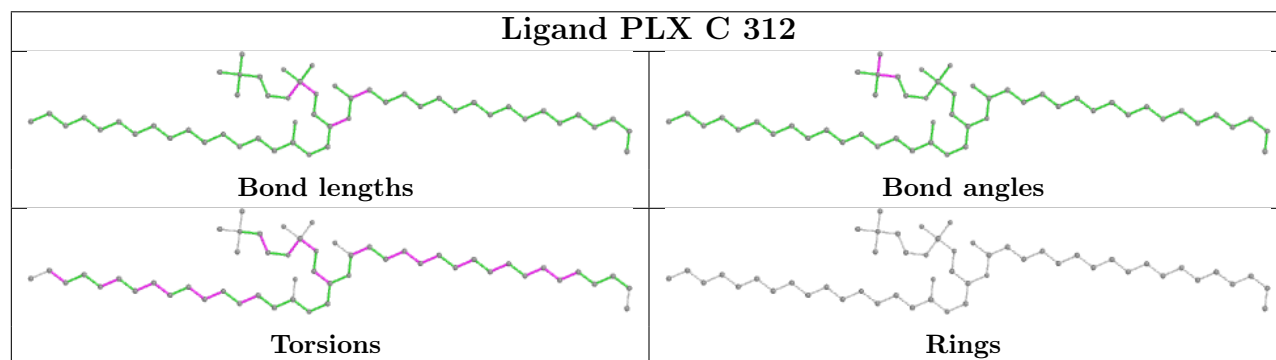
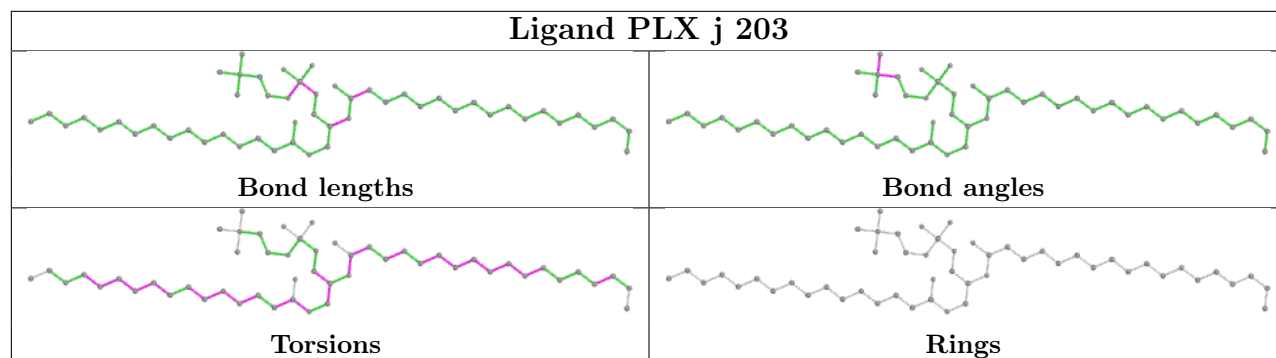
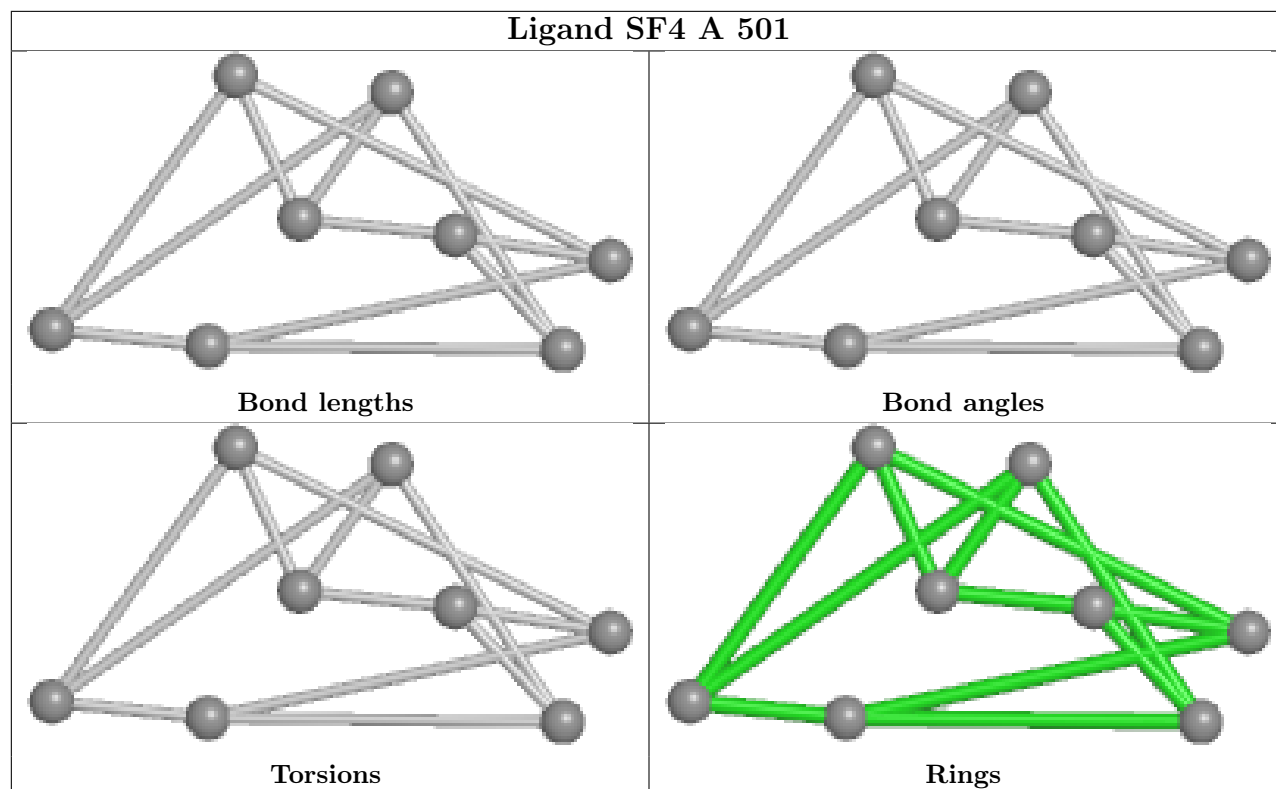


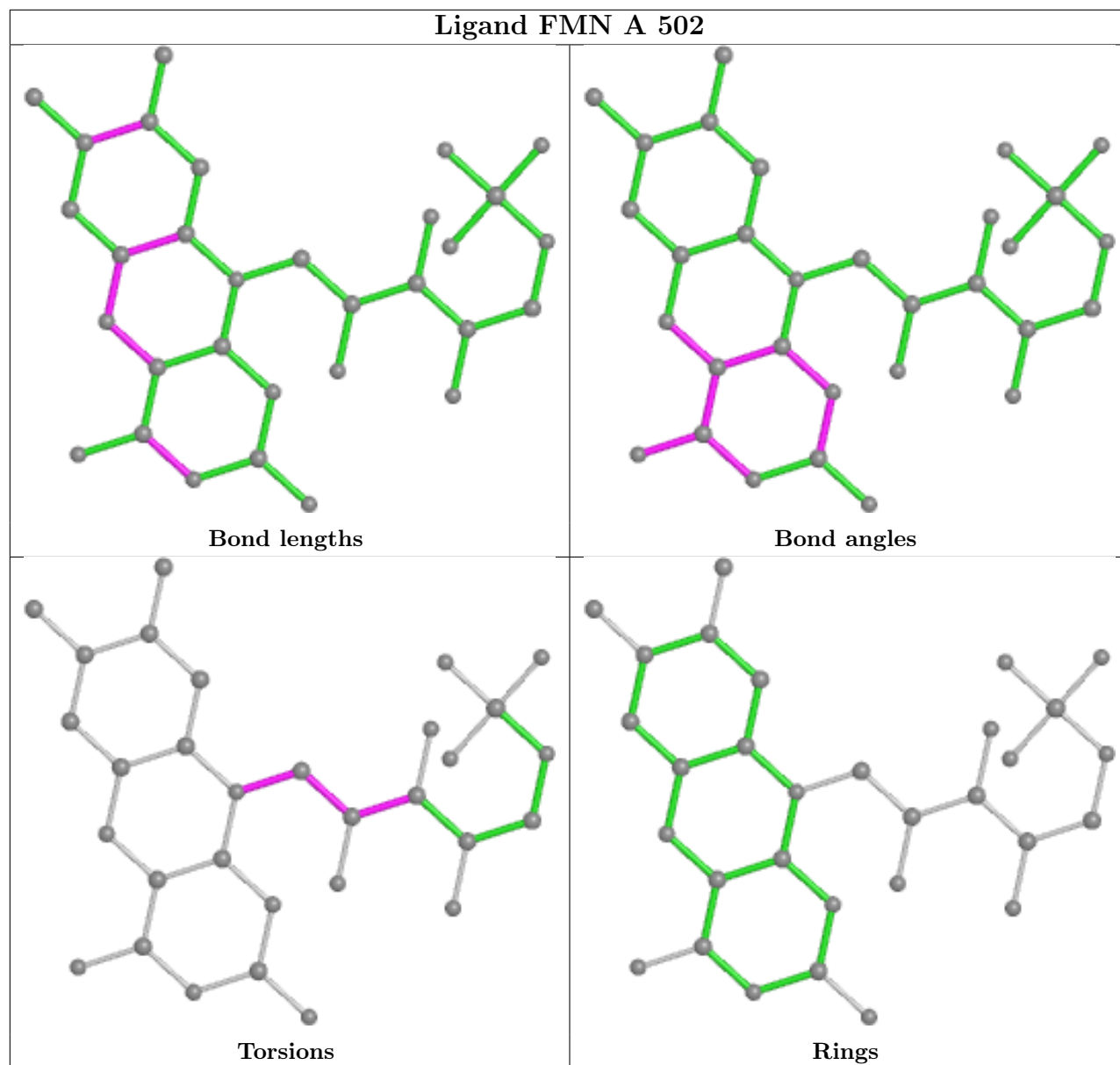
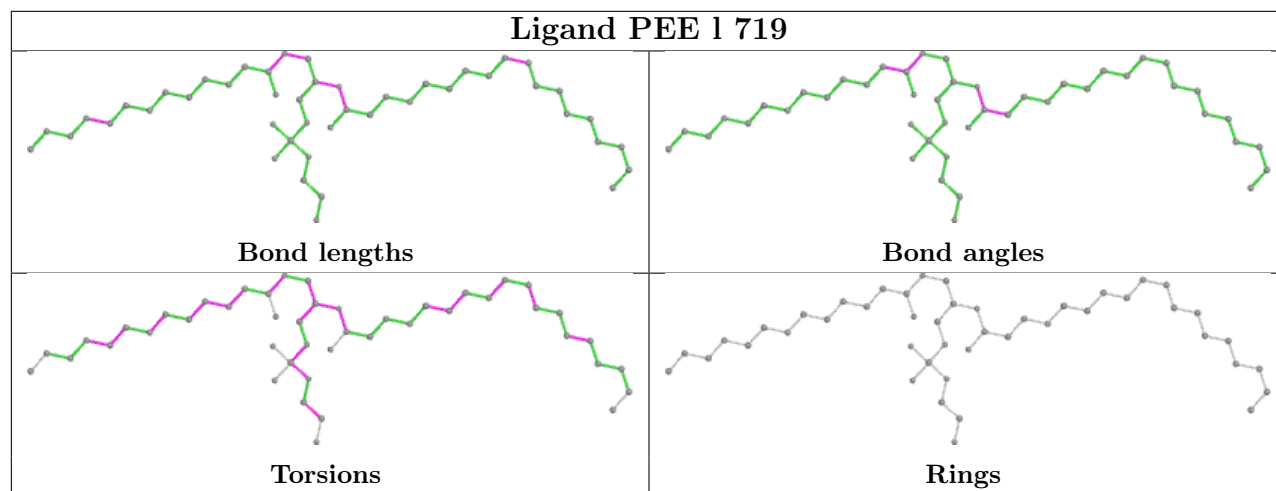


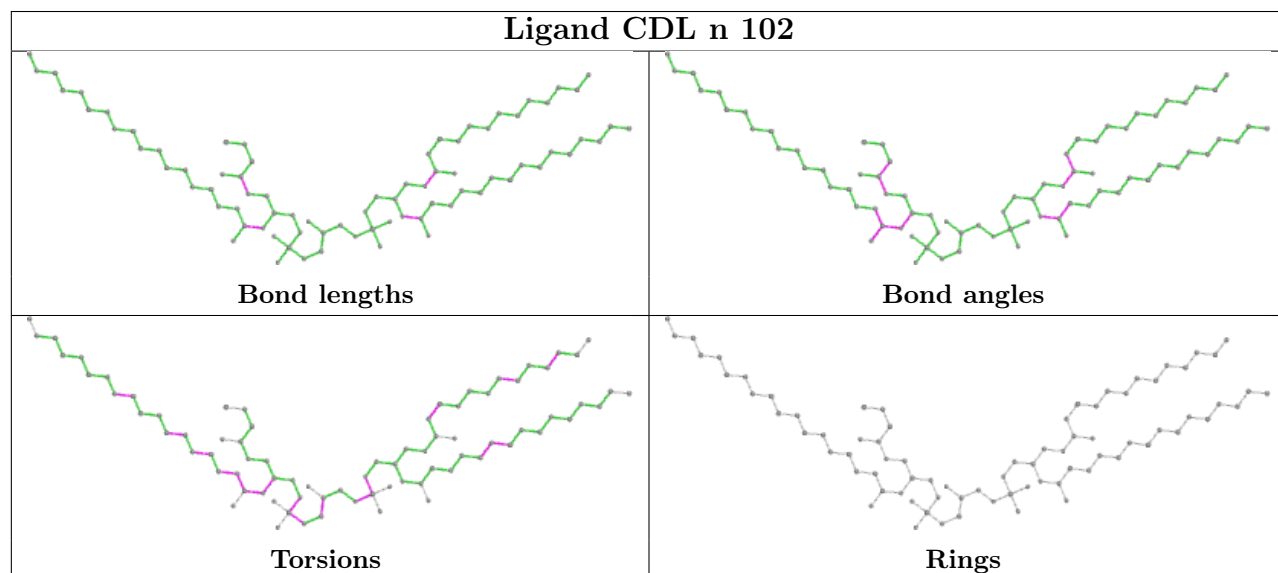
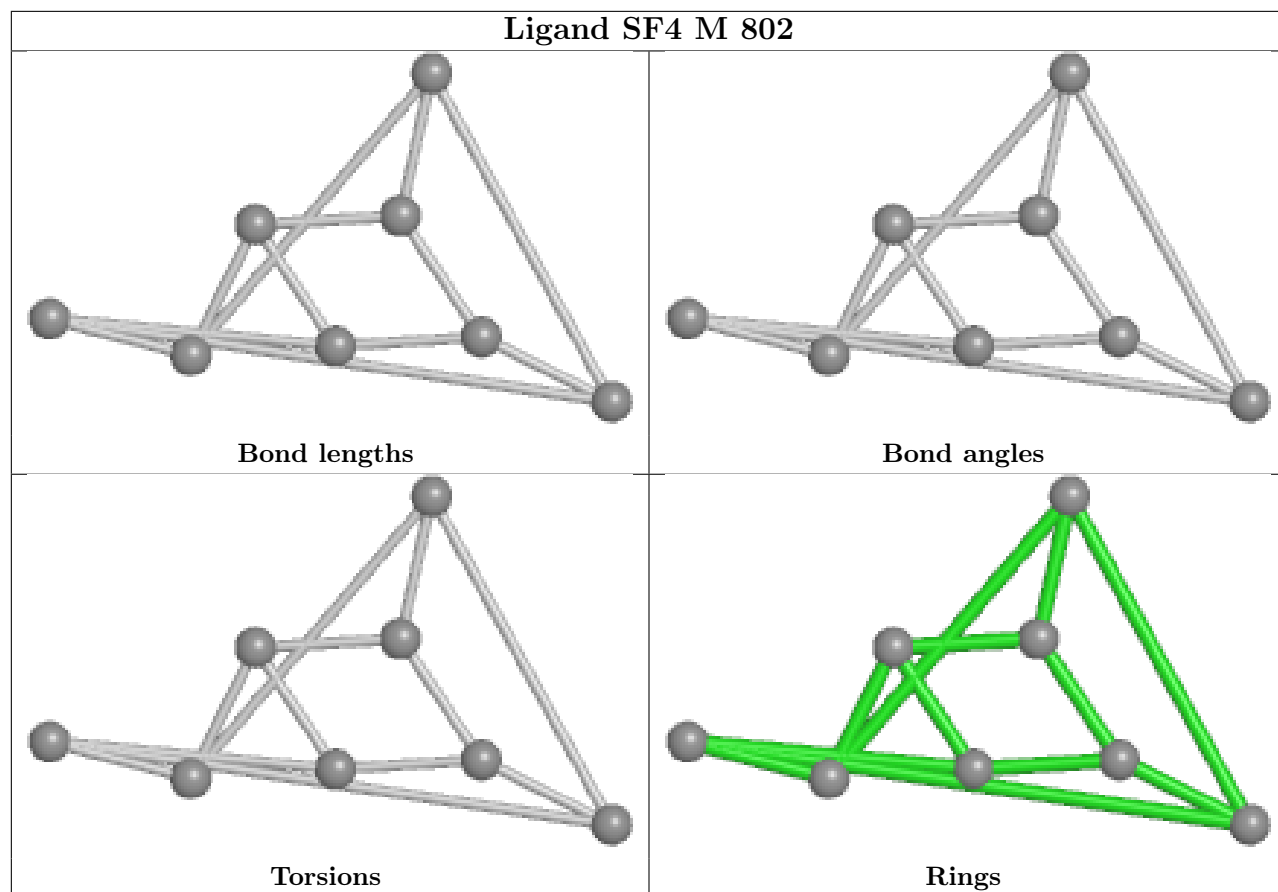


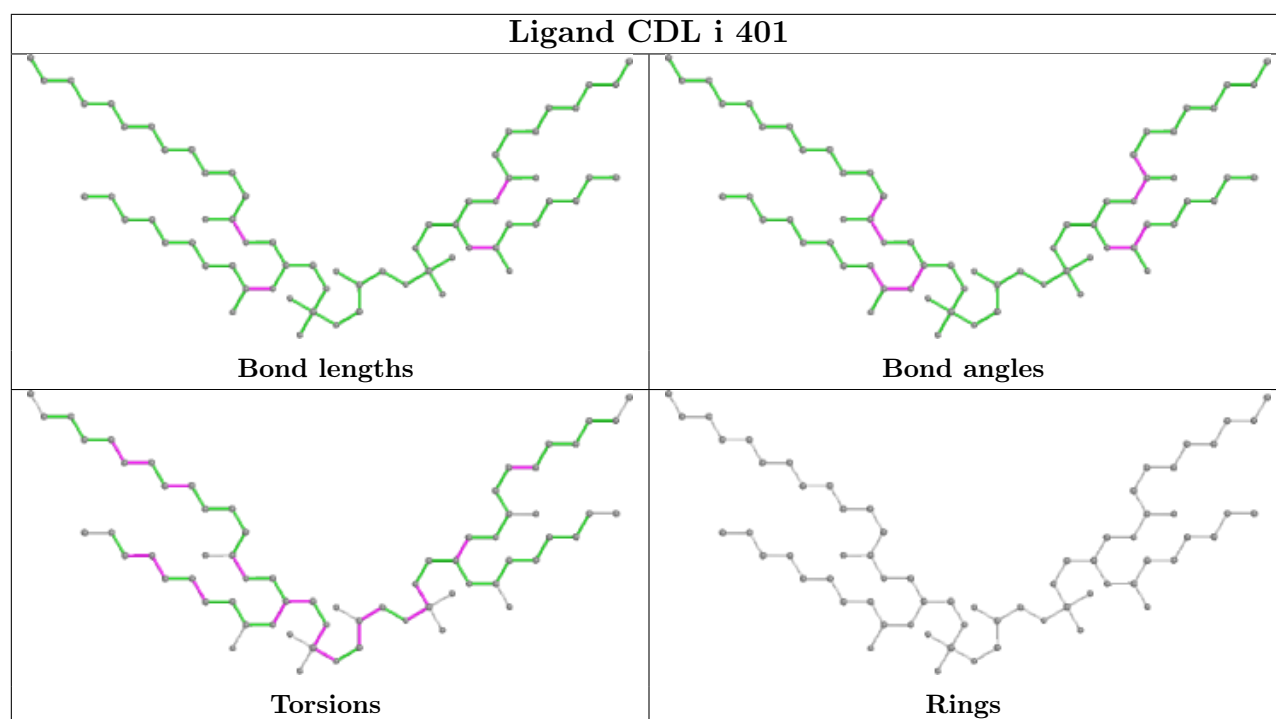












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

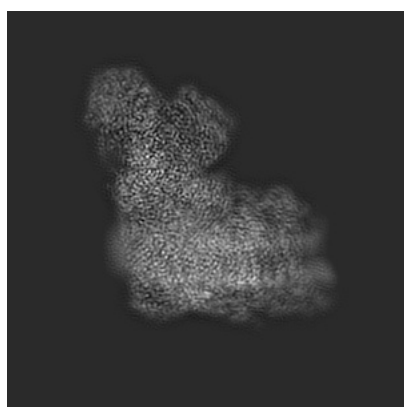
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-31646. These allow visual inspection of the internal detail of the map and identification of artifacts.

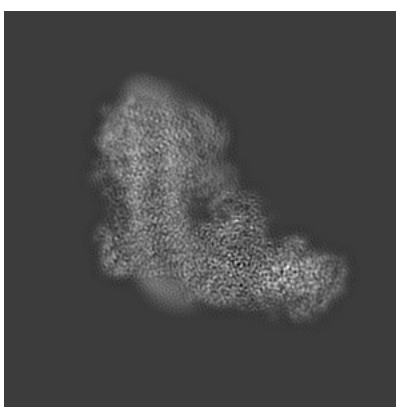
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

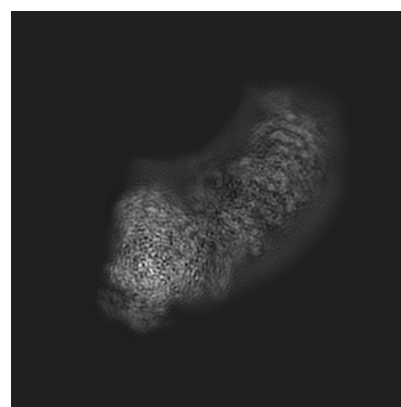
6.1.1 Primary map



X



Y

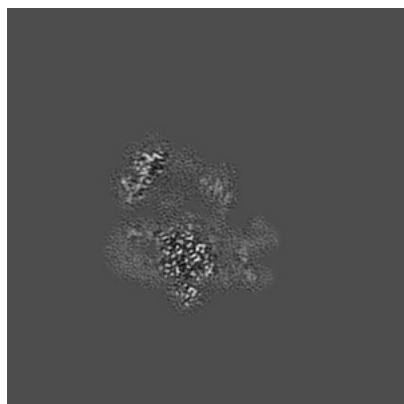


Z

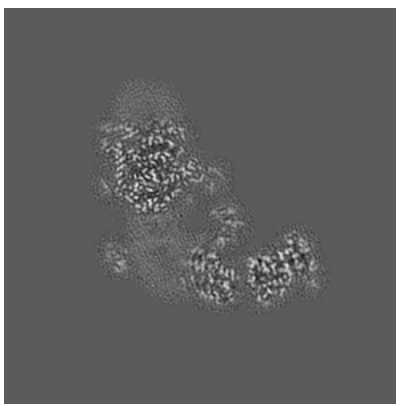
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

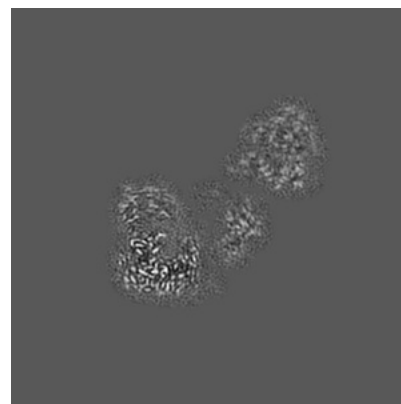
6.2.1 Primary map



X Index: 155



Y Index: 155



Z Index: 155

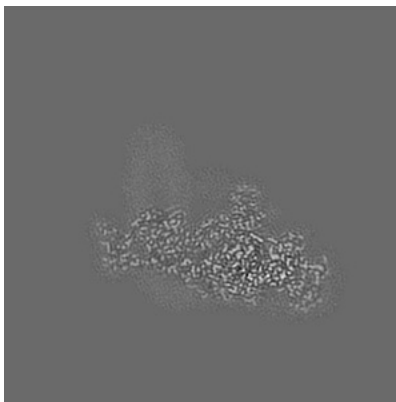
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

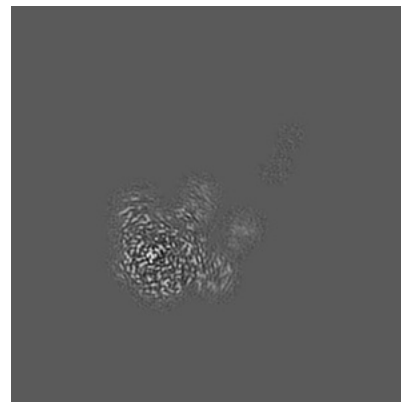
6.3.1 Primary map



X Index: 108



Y Index: 111



Z Index: 178

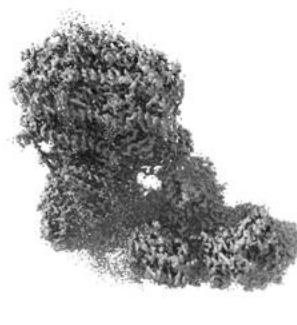
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0202. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

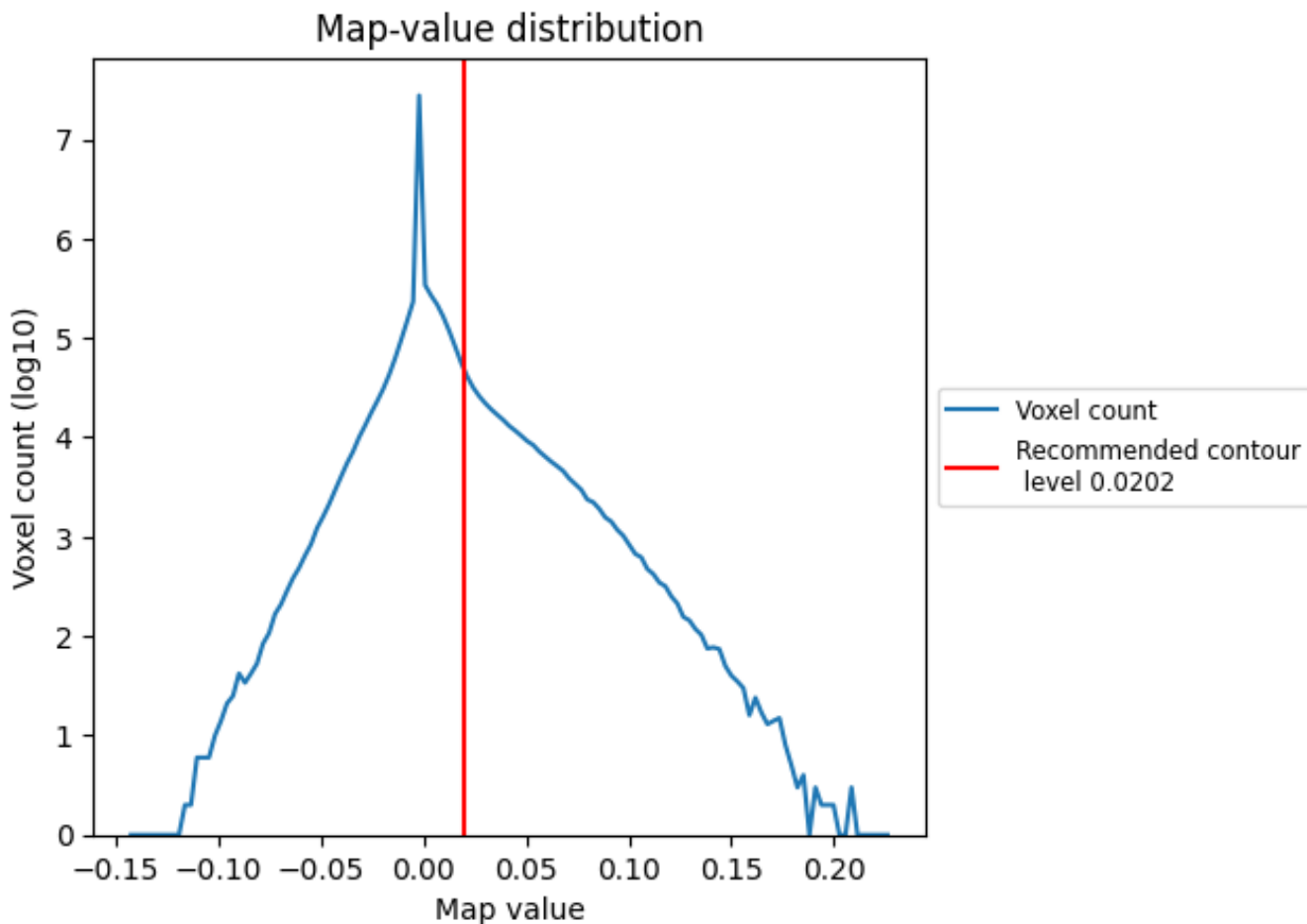
6.5 Mask visualisation

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

7 Map analysis [i](#)

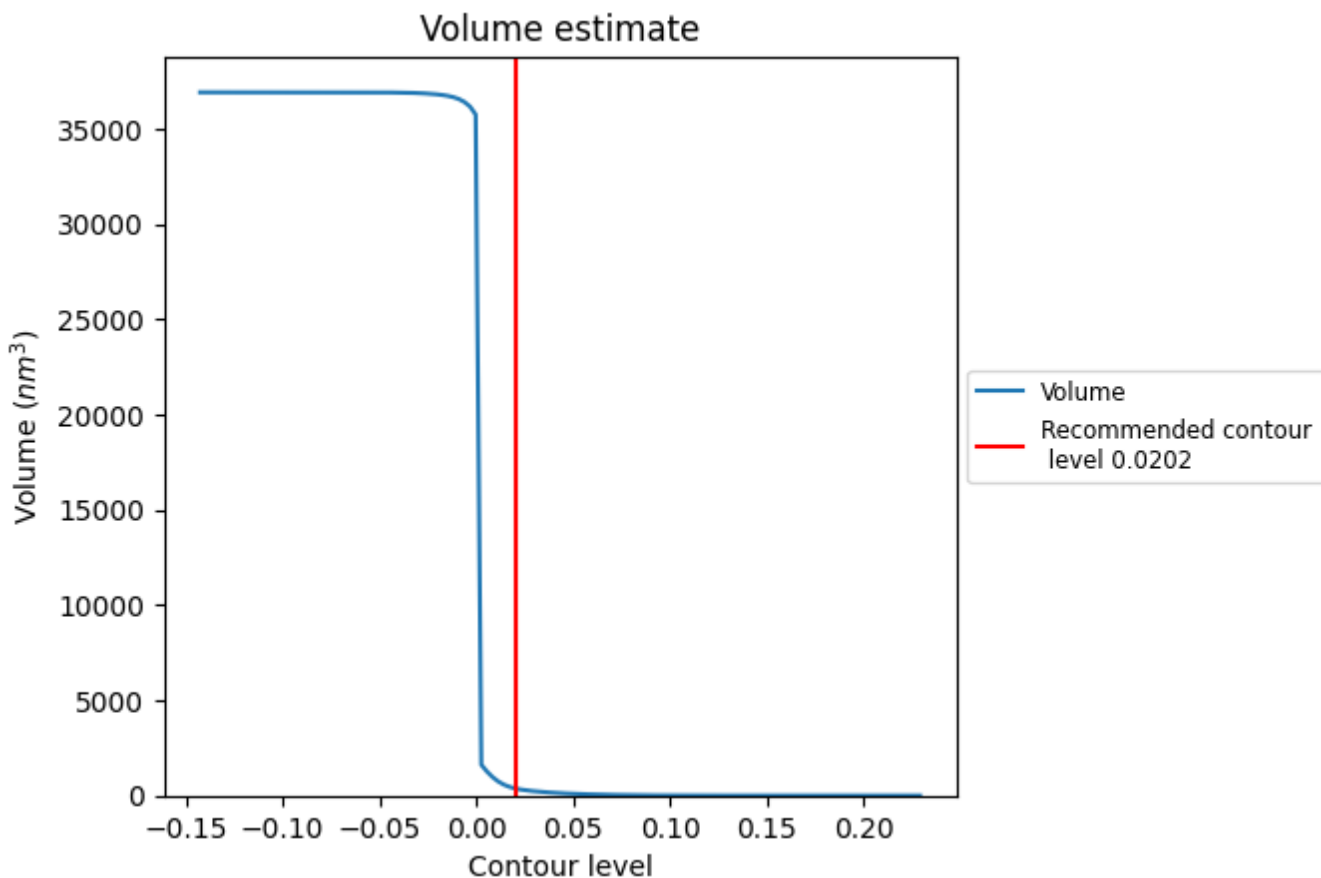
This section contains the results of statistical analysis of the map.

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.

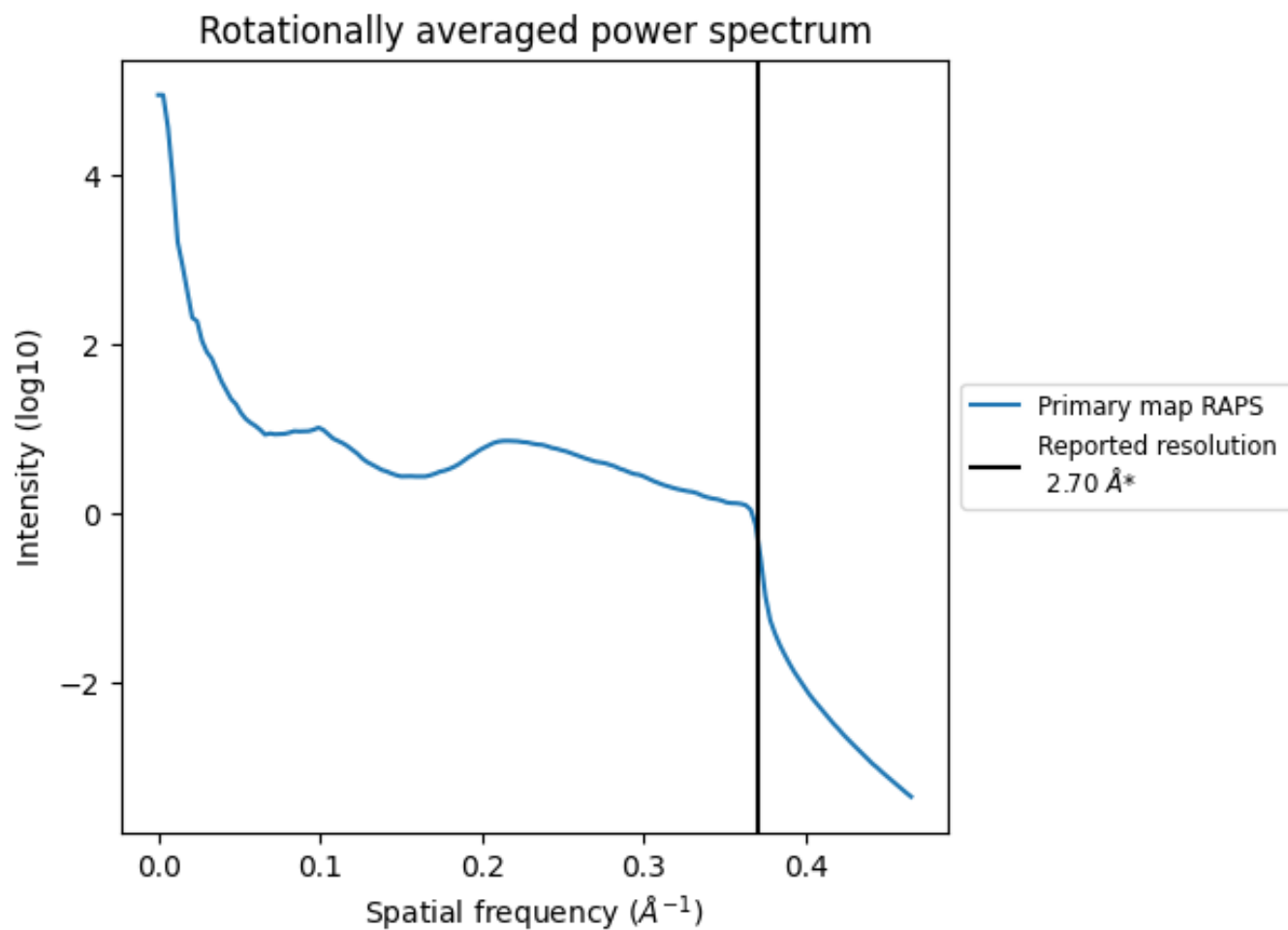
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 371 nm^3 ; this corresponds to an approximate mass of 335 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 0.370 \AA^{-1}

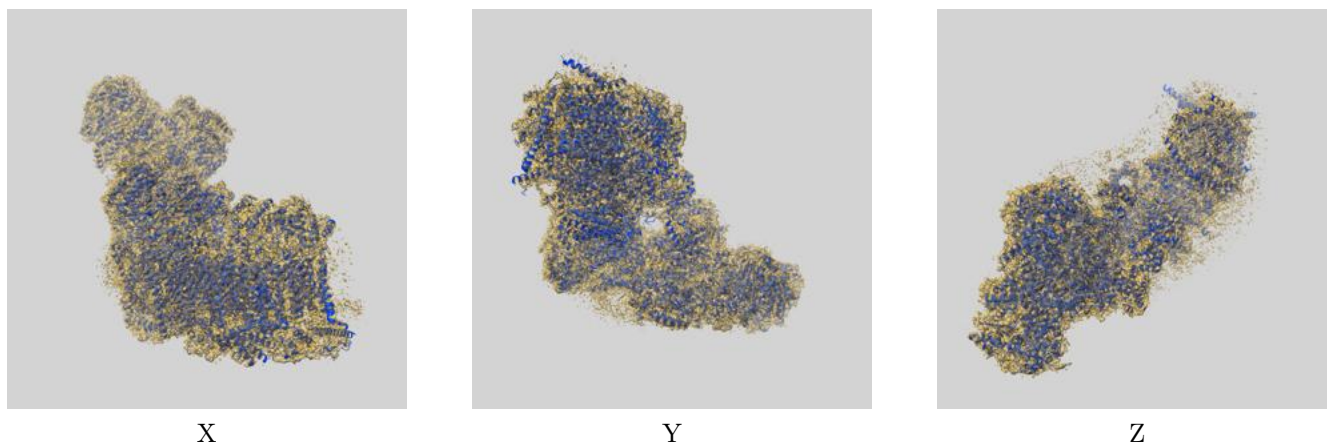
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

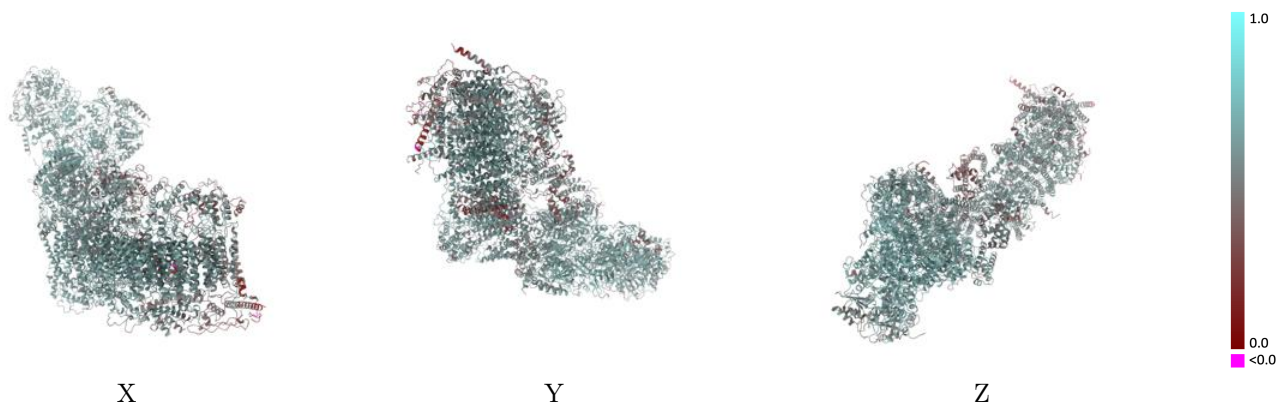
This section contains information regarding the fit between EMDB map EMD-31646 and PDB model 7V2K. Per-residue inclusion information can be found in section 3 on page 20.

9.1 Map-model overlay [i](#)



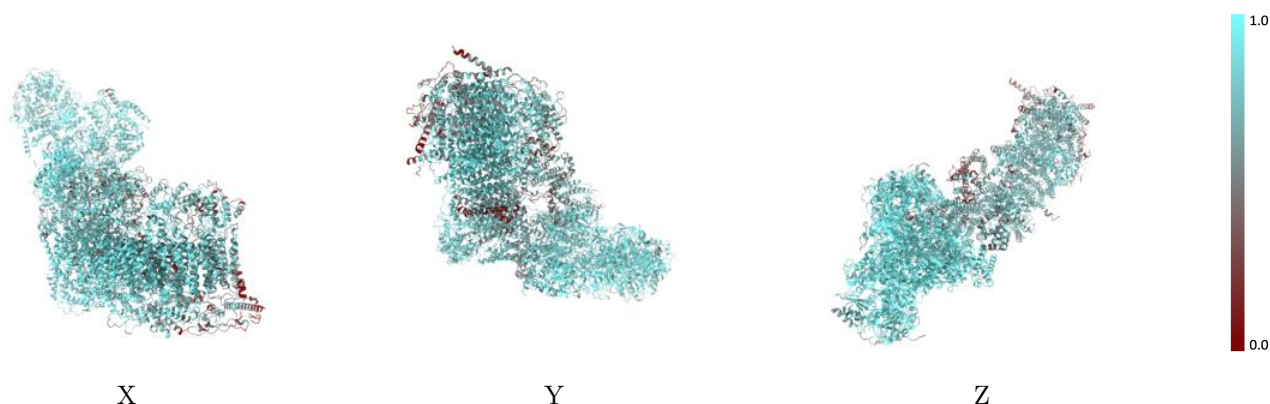
The images above show the 3D surface view of the map at the recommended contour level 0.0202 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



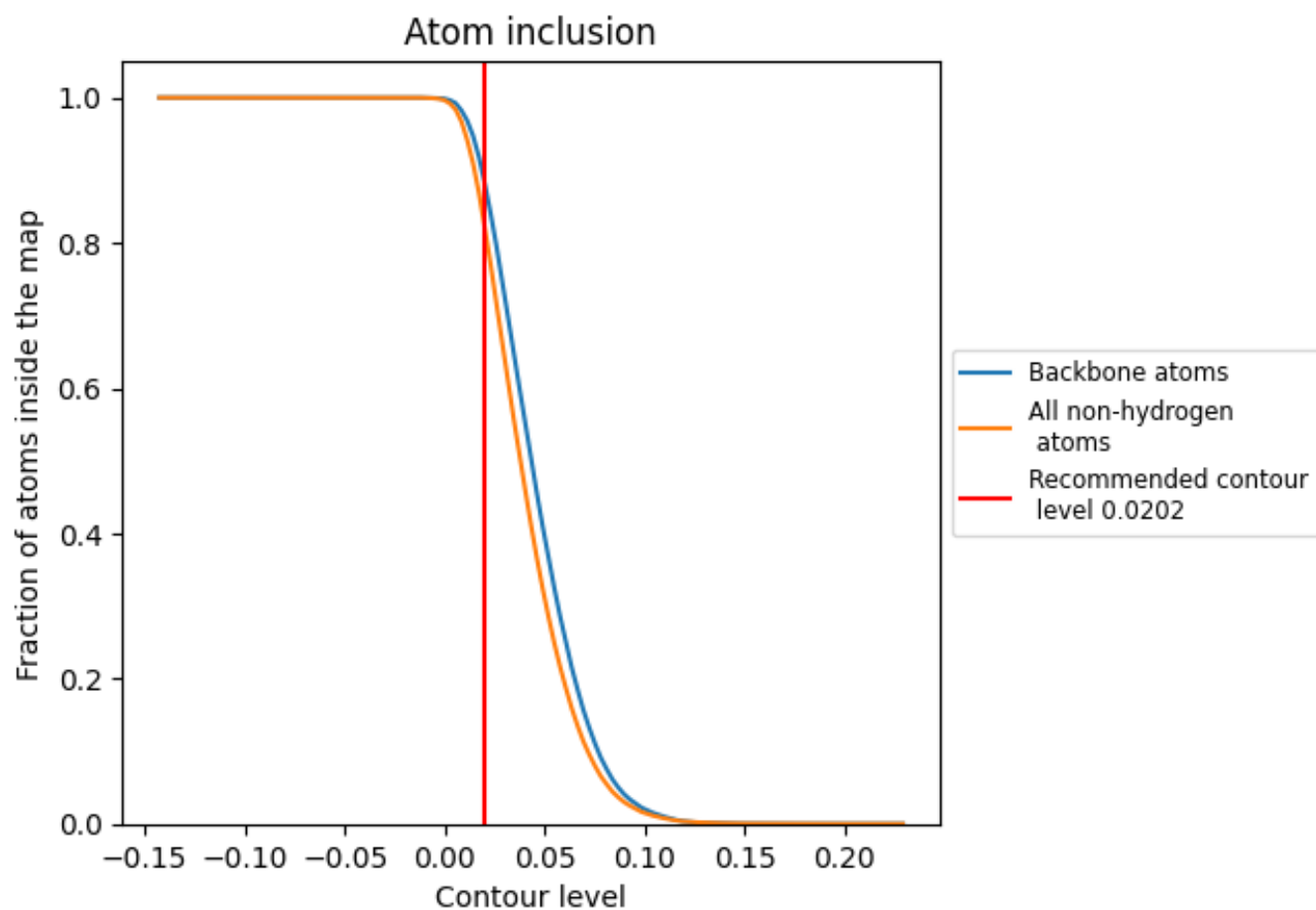
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0202).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 88% of all backbone atoms, 82% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary























The table lists the average atom inclusion at the recommended contour level (0.0202) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8181	 0.5730
A	 0.8867	 0.5920
B	 0.9640	 0.6520
C	 0.9227	 0.6320
E	 0.8524	 0.5820
F	 0.8110	 0.5270
G	 0.5291	 0.3950
H	 0.8603	 0.5560
I	 0.8175	 0.5830
J	 0.8292	 0.5700
K	 0.8052	 0.5440
L	 0.9044	 0.6240
M	 0.9262	 0.6220
N	 0.8413	 0.6050
O	 0.8255	 0.5580
P	 0.9574	 0.6430
Q	 0.9187	 0.6360
S	 0.9259	 0.6170
T	 0.8657	 0.6130
U	 0.8603	 0.5990
V	 0.4248	 0.4060
W	 0.8895	 0.6020
X	 0.6243	 0.4860
Y	 0.5368	 0.4200
Z	 0.5167	 0.4080
a	 0.8087	 0.5780
b	 0.6372	 0.4670
c	 0.7052	 0.5170
d	 0.7216	 0.5230
e	 0.7036	 0.5290
f	 0.7126	 0.5160
g	 0.8813	 0.5990
h	 0.8747	 0.6000
i	 0.9112	 0.6230
j	 0.7808	 0.5490



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Chain	Atom inclusion	Q-score
k	 0.7318	 0.5450
l	 0.7545	 0.5590
m	 0.7508	 0.5530
n	 0.6566	 0.5290
o	 0.7425	 0.5300
p	 0.7156	 0.5260
r	 0.9001	 0.6170
s	 0.9110	 0.6150
u	 0.8880	 0.5940
v	 0.5212	 0.4060
w	 0.7045	 0.5210