



Full wwPDB EM Validation Report ⓘ

Jun 17, 2024 – 10:59 am BST

PDB ID : 8Q0A
EMDB ID : EMD-18051
Title : Inward-facing, closed proteoliposome complex I at 3.1 Å. Initially purified in DDM.
Authors : Grba, D.N.; Hirst, J.
Deposited on : 2023-07-28
Resolution : 3.10 Å (reported)
Based on initial model : 7QSK

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

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

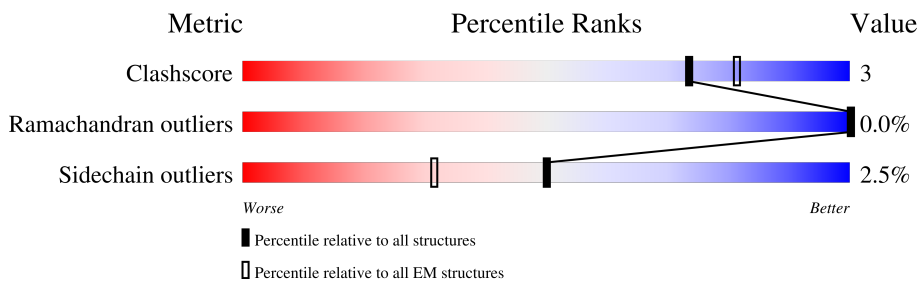
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.10 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	115	
2	B	216	
3	C	266	
4	D	463	
5	E	249	
6	F	464	
7	G	727	
8	H	318	


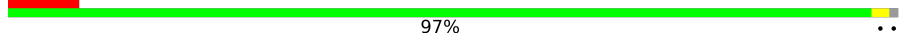



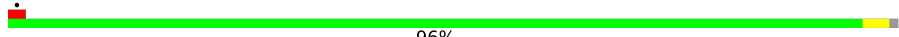




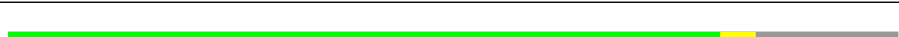

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Mol	Chain	Length	Quality of chain
9	I	212	75% 7% 17%
10	J	175	82% 18%
11	K	98	89% 11%
12	L	606	87% 13%
13	M	459	92% 7%
14	N	347	88% 12%
15	O	343	85% 8% 7%
16	P	380	81% 9% 10%
17	Q	175	65% 9% 26%
18	R	124	72% 6% 23%
19	S	99	76% 11% 12%
20	T	156	51% 5% 44%
20	U	156	51% 5% 44%
21	V	116	88% 10%
22	W	128	84% 6% 10%
23	X	172	93% 6%
24	Y	141	88% 11%
25	Z	144	91% 7%
26	a	70	100%
27	b	84	95%
28	c	76	63% 36%
29	d	120	97%
30	e	106	92% 7%
31	f	57	5% 95% 5%
32	g	154	63% 34%

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Mol	Chain	Length	Quality of chain
33	h	189	 71% 27%
34	i	128	 8% 97%
35	j	108	 6% 64% 34%
36	k	98	 5% 82% 17%
37	l	186	 83% 16%
38	m	129	 96%
39	n	179	 93%
40	o	137	 86% 11%
41	p	176	 96%
42	q	145	 94% 6%
43	r	113	 80% 16%
44	s	109	 41% 59%

2 Entry composition [i](#)

There are 59 unique types of molecules in this entry. The entry contains 69719 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called NADH-ubiquinone oxidoreductase chain 3.

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	209	1738	1120	298	317	3	0	0

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

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

There is a discrepancy between the modelled and reference sequences:

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	214	1659	1059	278	312	10	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	432	3326	2096	594	616	20	0	0

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	J	175	1345	906	191	236	12	0	0

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	L	606	4802	3195	737	827	43	0	0

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

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

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

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

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

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

There is a discrepancy between the modelled and reference sequences:

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	P	342	2754	1781	487	481	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	Q	129	1049	659	188	199	3	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	R	96	740	454	140	143	3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	S	87	700	440	131	127	2	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	T	88	707	454	104	144	5	0	0
20	U	88	707	454	104	144	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	V	115	928	600	157	168	3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	W	115	976	625	181	166	4	0	0

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

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

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	b	83	654	427	109	116	2	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
28	c	49	414	273	70	71	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	d	120	999	650	172	172	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	e	99	829	523	158	142	6	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	f	57	492	322	86	82	2	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	g	101	846	544	140	158	4	0	0

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

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	i	127	1097	722	191	183	1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	j	71	597	390	99	107	1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	k	81	653	427	110	114	2	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	l	156	1314	850	216	240	8	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	m	128	1070	686	188	196		0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	n	171	1487	952	272	256	7	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	o	122	1048	653	201	185	9	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	p	174	1458	913	269	268	8	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	q	145	1212	780	216	211	5	0	0

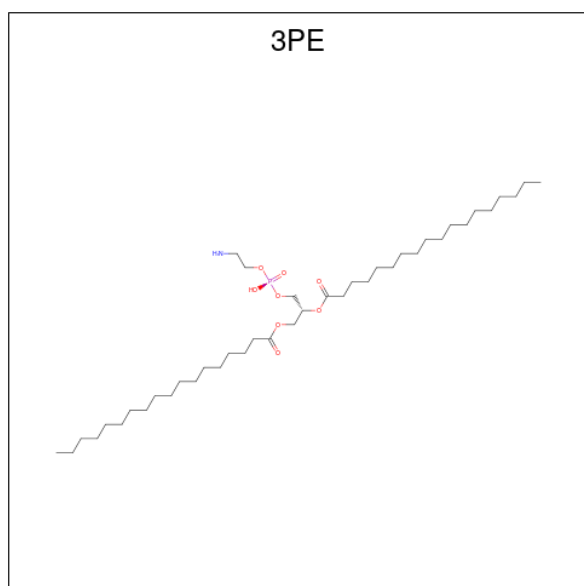
- Molecule 43 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	r	95	776	490	144	139	3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	s	45	380	238	67	74	1	0	0

- Molecule 45 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE) (formula: C₄₁H₈₂NO₈P).



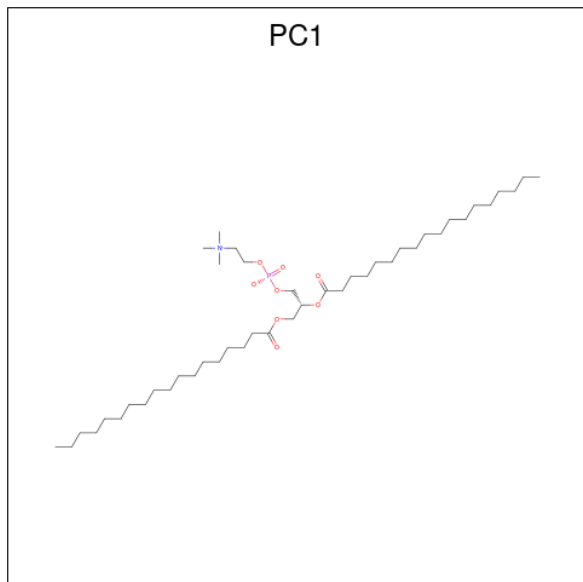
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
45	A	1	31	21	1	8	1	0
45	A	1	51	41	1	8	1	0
45	I	1	38	28	1	8	1	0
45	J	1	31	21	1	8	1	0
45	J	1	44	34	1	8	1	0
45	L	1	35	25	1	8	1	0
45	L	1	45	35	1	8	1	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
45	L	1	Total 40	C 30	N 1	O 8	P 1	0
45	L	1	Total 23	C 13	N 1	O 8	P 1	0
45	L	1	Total 51	C 41	N 1	O 8	P 1	0
45	L	1	Total 51	C 41	N 1	O 8	P 1	0
45	L	1	Total 39	C 29	N 1	O 8	P 1	0
45	M	1	Total 40	C 30	N 1	O 8	P 1	0
45	M	1	Total 45	C 35	N 1	O 8	P 1	0
45	N	1	Total 49	C 39	N 1	O 8	P 1	0
45	P	1	Total 35	C 25	N 1	O 8	P 1	0
45	P	1	Total 32	C 22	N 1	O 8	P 1	0
45	Y	1	Total 51	C 41	N 1	O 8	P 1	0
45	Y	1	Total 47	C 37	N 1	O 8	P 1	0
45	Z	1	Total 42	C 32	N 1	O 8	P 1	0
45	b	1	Total 41	C 31	N 1	O 8	P 1	0
45	b	1	Total 47	C 37	N 1	O 8	P 1	0
45	b	1	Total 51	C 41	N 1	O 8	P 1	0
45	e	1	Total 49	C 39	N 1	O 8	P 1	0
45	m	1	Total 50	C 40	N 1	O 8	P 1	0
45	m	1	Total 41	C 31	N 1	O 8	P 1	0
45	m	1	Total 42	C 32	N 1	O 8	P 1	0
45	q	1	Total 21	C 11	N 1	O 8	P 1	0

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



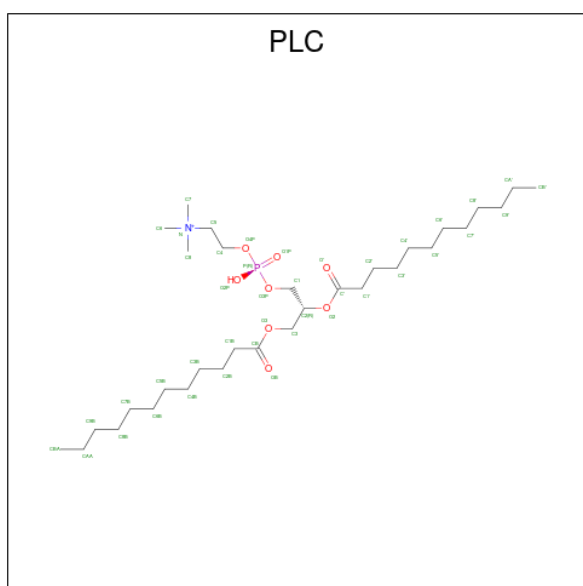
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
46	A	1	Total 35	25	1	8	1	0
46	A	1	Total 35	25	1	8	1	0
46	A	1	Total 33	23	1	8	1	0
46	B	1	Total 46	36	1	8	1	0
46	B	1	Total 48	38	1	8	1	0
46	H	1	Total 48	38	1	8	1	0
46	H	1	Total 39	29	1	8	1	0
46	I	1	Total 54	44	1	8	1	0
46	L	1	Total 45	35	1	8	1	0
46	M	1	Total 44	34	1	8	1	0
46	M	1	Total 35	25	1	8	1	0
46	Y	1	Total 45	35	1	8	1	0

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Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
46	Z	1	Total 44	C 34	N 1	O 8	P 1	0
46	d	1	Total 39	C 29	N 1	O 8	P 1	0
46	h	1	Total 47	C 37	N 1	O 8	P 1	0
46	q	1	Total 38	C 28	N 1	O 8	P 1	0

- Molecule 47 is DIUNDECYL PHOSPHATIDYL CHOLINE (three-letter code: PLC) (formula: $C_{32}H_{65}NO_8P$).



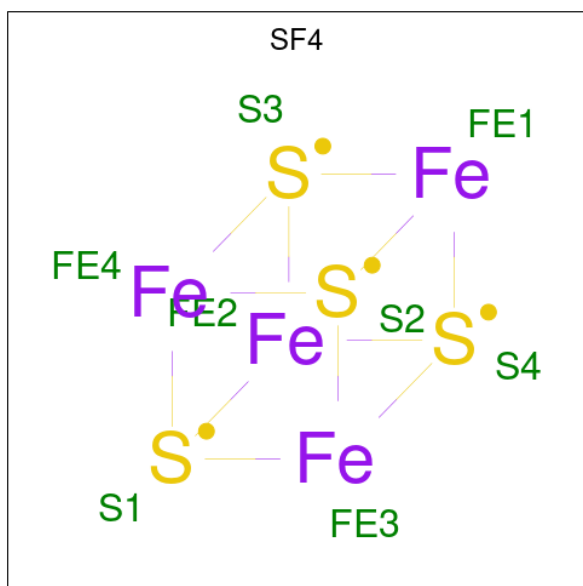
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
47	A	1	Total 38	C 28	N 1	O 8	P 1	0
47	B	1	Total 37	C 27	N 1	O 8	P 1	0
47	J	1	Total 38	C 28	N 1	O 8	P 1	0
47	L	1	Total 31	C 21	N 1	O 8	P 1	0
47	O	1	Total 32	C 22	N 1	O 8	P 1	0
47	P	1	Total 27	C 17	N 1	O 8	P 1	0
47	d	1	Total 36	C 26	N 1	O 8	P 1	0

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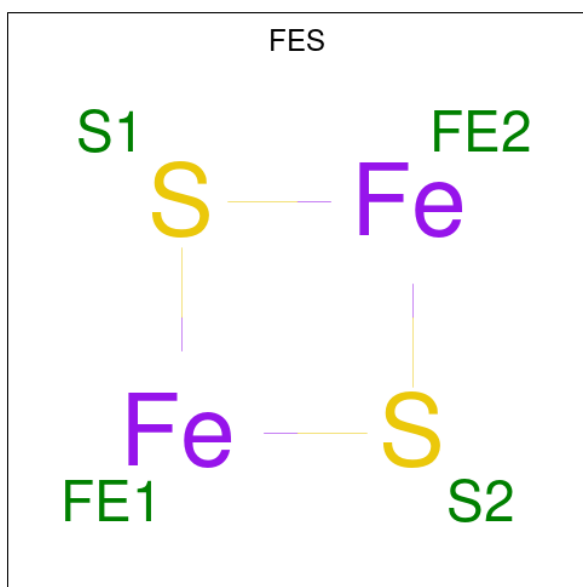
Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
47	g	1	32	22	1	8	1	0

- Molecule 48 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄).



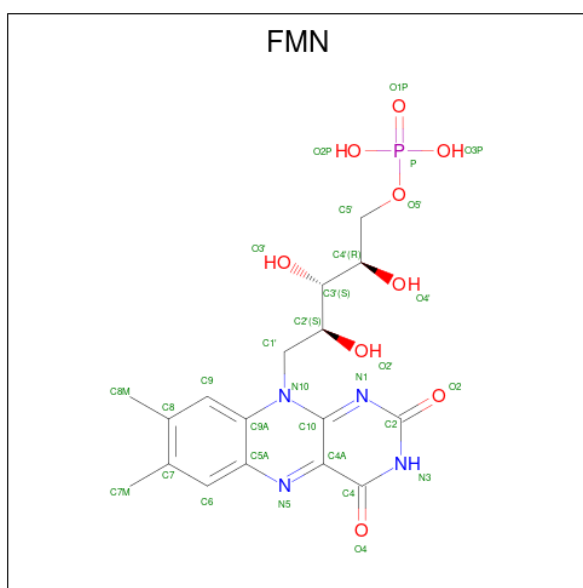
Mol	Chain	Residues	Atoms			AltConf
			Total	Fe	S	
48	B	1	8	4	4	0
48	F	1	8	4	4	0
48	G	1	8	4	4	0
48	G	1	8	4	4	0
48	I	1	8	4	4	0
48	I	1	8	4	4	0

- Molecule 49 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe₂S₂).



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

- Molecule 50 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$).

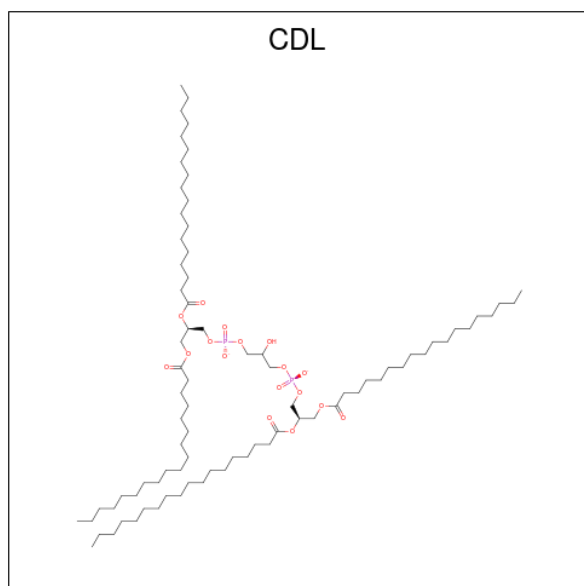


Mol	Chain	Residues	Atoms				AltConf	
50	F	1	Total	C	N	O	P	0
			31	17	4	9	1	

- Molecule 51 is POTASSIUM ION (three-letter code: K) (formula: K).

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

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



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
52	H	1	83	64	17	2	0
52	J	1	70	51	17	2	0
52	L	1	76	57	17	2	0
52	M	1	100	81	17	2	0
52	N	1	80	61	17	2	0
52	X	1	100	81	17	2	0
52	d	1	65	46	17	2	0
52	i	1	80	61	17	2	0
52	r	1	61	42	17	2	0

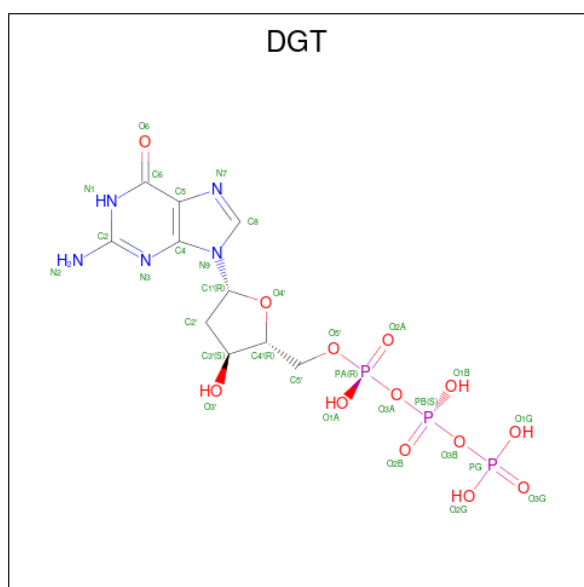
- Molecule 53 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	AltConf
53	M	1	Total Zn 1 1	0
53	R	1	Total Zn 1 1	0

- Molecule 54 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

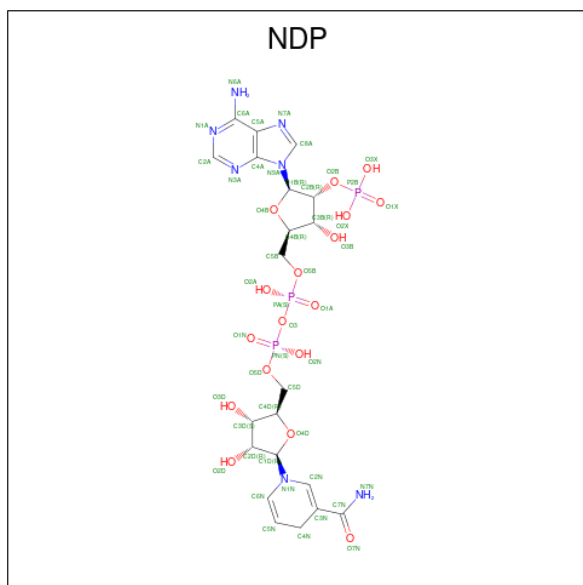
Mol	Chain	Residues	Atoms	AltConf
54	O	1	Total Mg 1 1	0

- Molecule 55 is 2'-DEOXYGUANOSINE-5'-TRIPHOSPHATE (three-letter code: DGT) (formula: C₁₀H₁₆N₅O₁₃P₃).



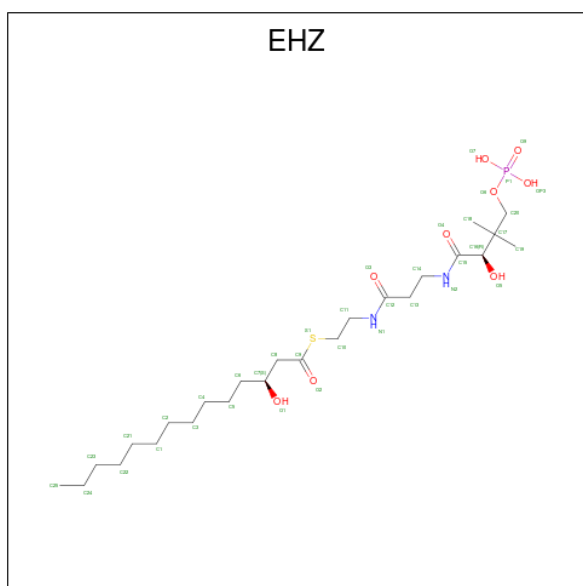
Mol	Chain	Residues	Atoms	AltConf
55	O	1	Total C N O P 31 10 5 13 3	0

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



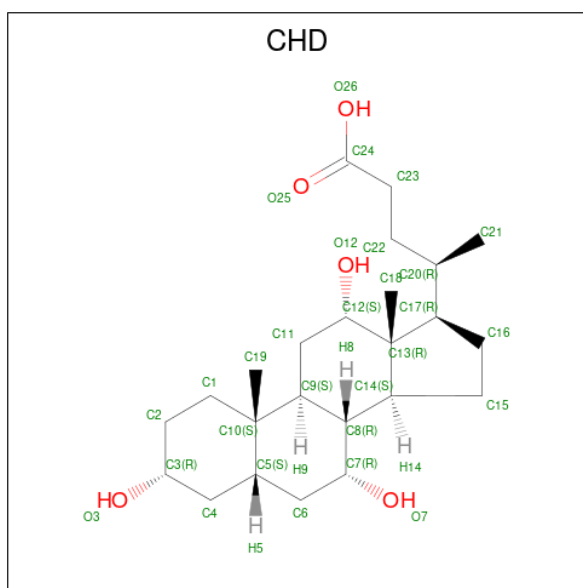
Mol	Chain	Residues	Atoms					AltConf
56	P	1	Total	C	N	O	P	0
			48	21	7	17	3	

- Molecule 57 is {S}-[2-[3-[(2 {R})-3,3-dimethyl-2-oxidanyl-4-phosphonoxy-butanoyl]amino]propanoylamino]ethyl] (3 {S})-3-oxidanyltetradecanethioate (three-letter code: EHZ) (formula: C₂₅H₄₉N₂O₉PS).



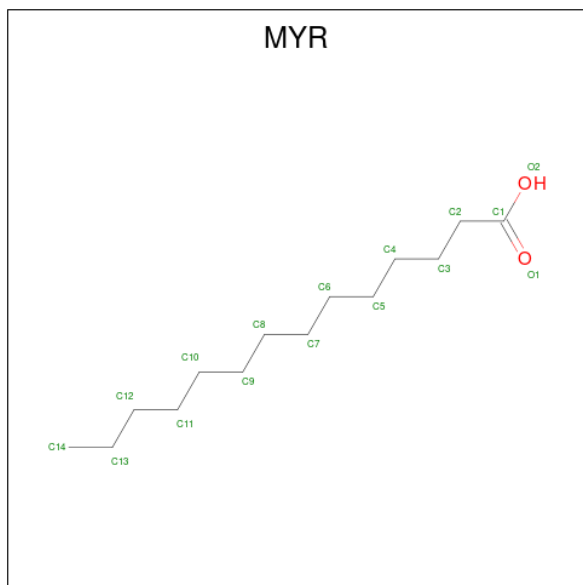
Mol	Chain	Residues	Atoms					AltConf	
57	T	1	Total	C	N	O	P	S	0
			37	25	2	8	1	1	
57	U	1	Total	C	N	O	P	S	0
			37	25	2	8	1	1	

- Molecule 58 is CHOLIC ACID (three-letter code: CHD) (formula: $C_{24}H_{40}O_5$).



Mol	Chain	Residues	Atoms		AltConf	
58	i	1	Total	C	O	0
			29	24	5	

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

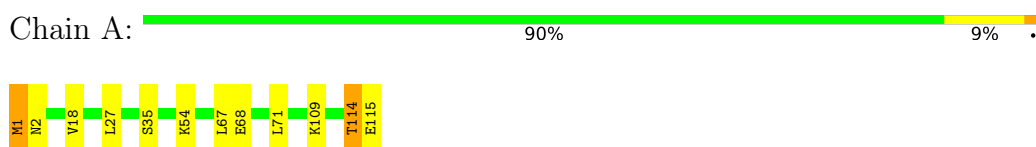


Mol	Chain	Residues	Atoms		AltConf	
59	o	1	Total	C	O	0
			15	14	1	

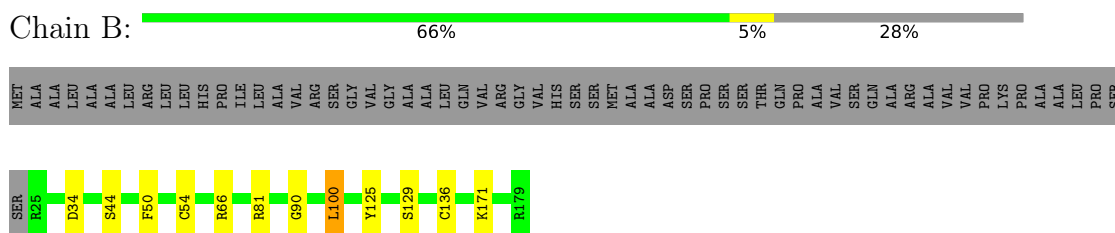
3 Residue-property plots [i](#)

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

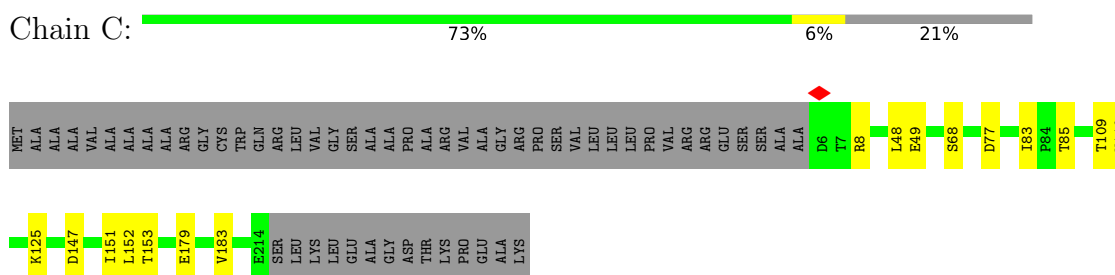
- Molecule 1: NADH-ubiquinone oxidoreductase chain 3



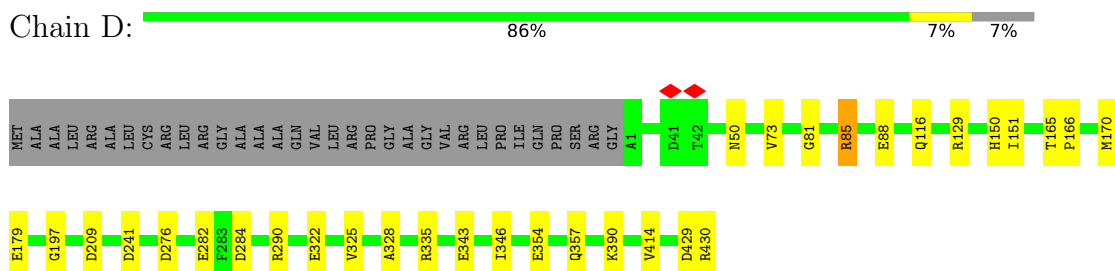
- Molecule 2: NADH dehydrogenase [ubiquinone] iron-sulfur protein 7, mitochondrial



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

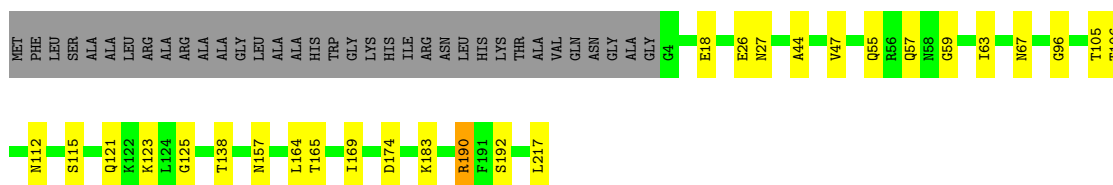


- Molecule 4: NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial




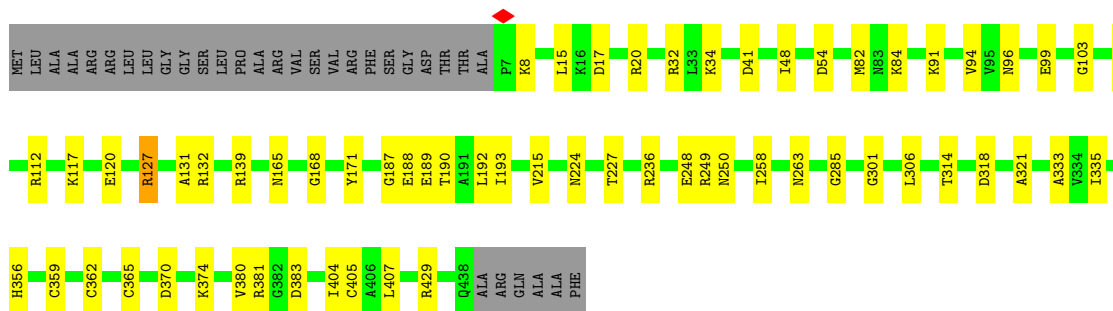
- Molecule 5: NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial

Chain E:  75% 11% 14%




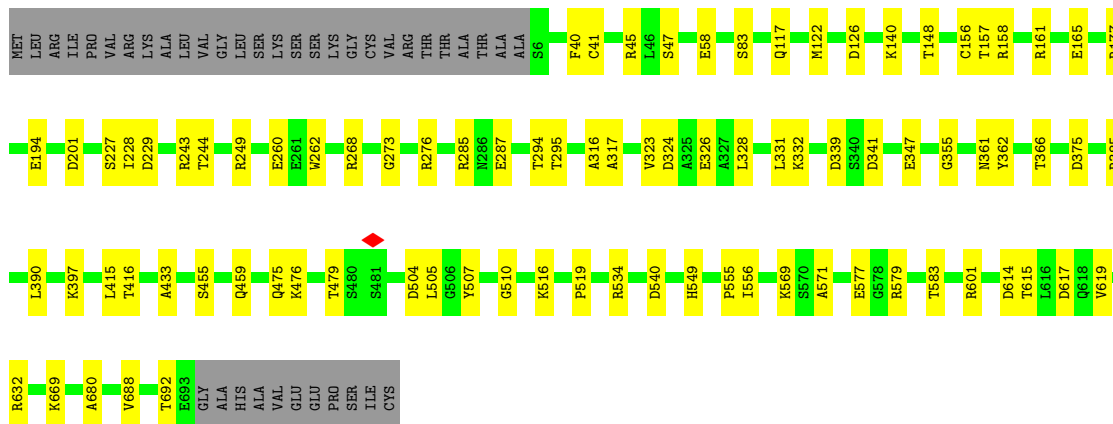
- Molecule 6: NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial

Chain F:  80% 13% 7%




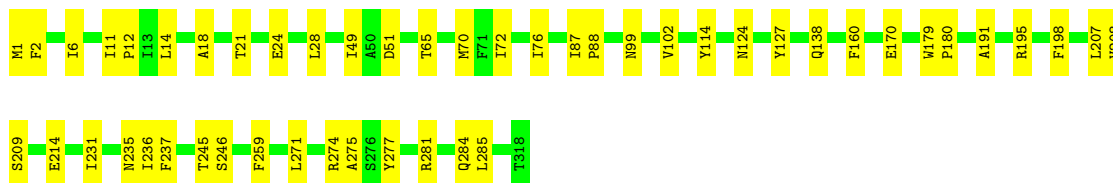
- Molecule 7: NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial

Chain G:  83% 12% 5%



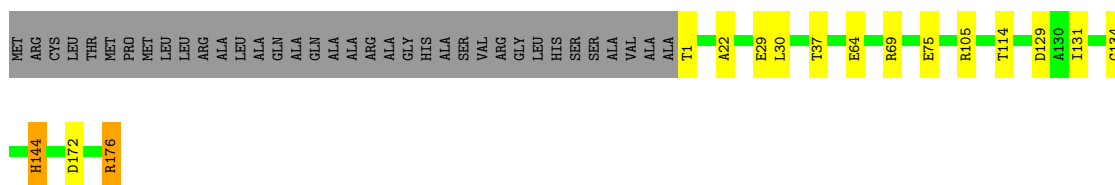
- Molecule 8: NADH-ubiquinone oxidoreductase chain 1

Chain H:  85% 15%




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

Chain I:  75% 7% 17%




- Molecule 10: NADH-ubiquinone oxidoreductase chain 6

Chain J:  82% 18%



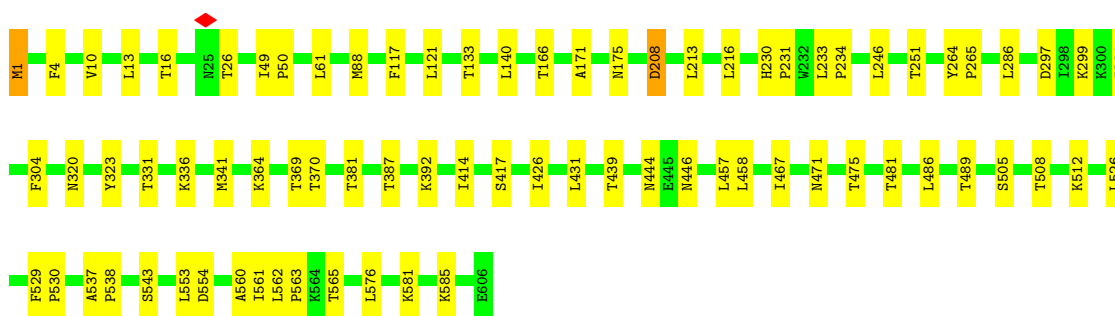
- Molecule 11: NADH-ubiquinone oxidoreductase chain 4L

Chain K:  89% 11%



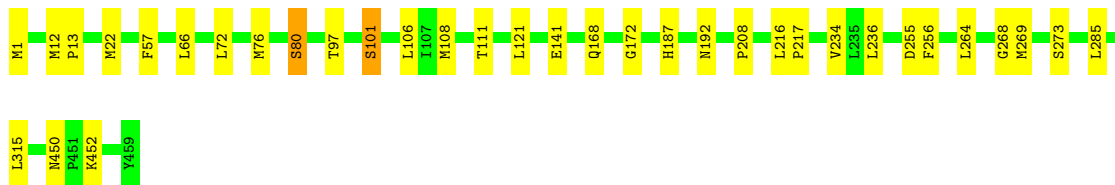
- Molecule 12: NADH-ubiquinone oxidoreductase chain 5

Chain L:  87% 13%




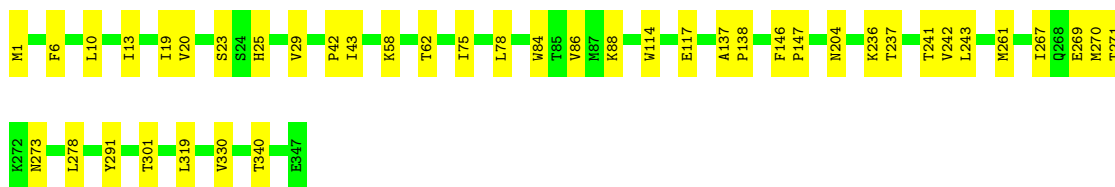
- Molecule 13: NADH-ubiquinone oxidoreductase chain 4

Chain M:  92% 7%




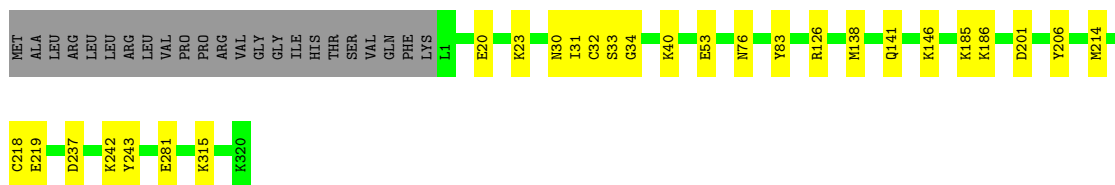
- Molecule 14: NADH-ubiquinone oxidoreductase chain 2

Chain N:  88% 12%




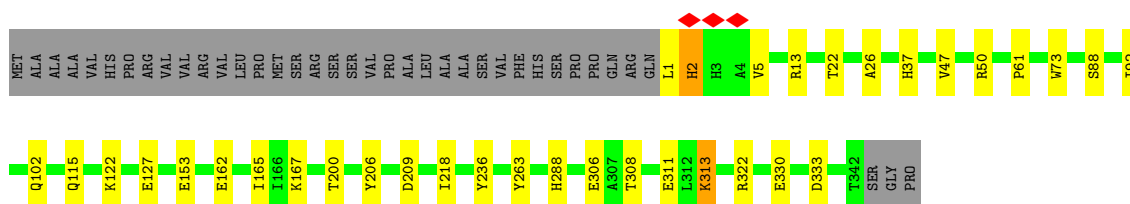
- Molecule 15: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial

Chain O:  85% 8% 7%



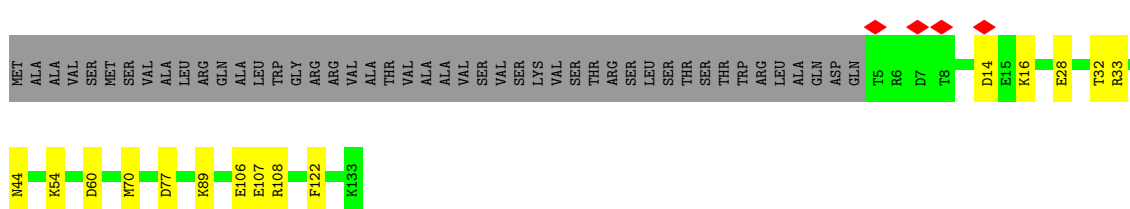
- Molecule 16: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 9, mitochondrial

Chain P:  81% 9% 10%



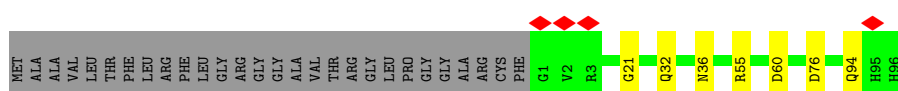
- Molecule 17: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

Chain Q:  65% 9% 26%

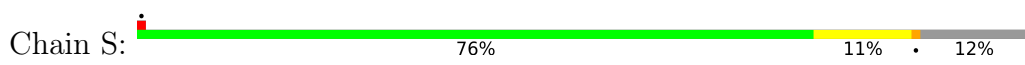


- Molecule 18: NADH dehydrogenase [ubiquinone] iron-sulfur protein 6, mitochondrial

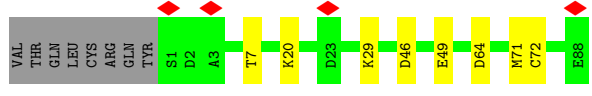
Chain R:  72% 6% 23%



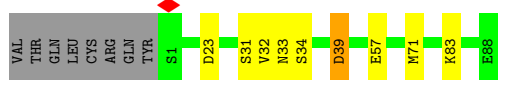
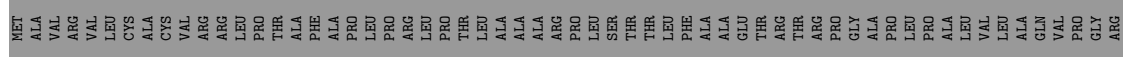
- Molecule 19: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 2



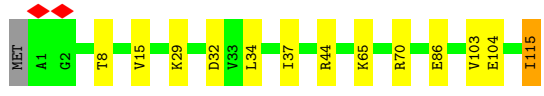
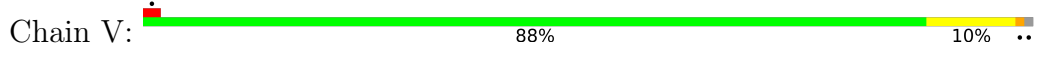
• Molecule 20: Acyl carrier protein, mitochondrial



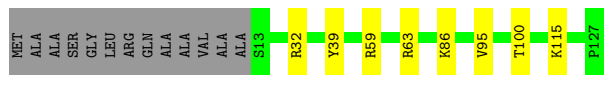
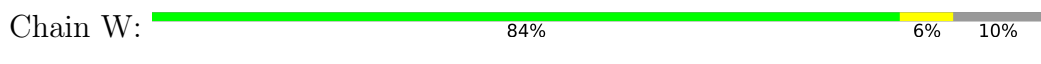
• Molecule 20: Acyl carrier protein, mitochondrial



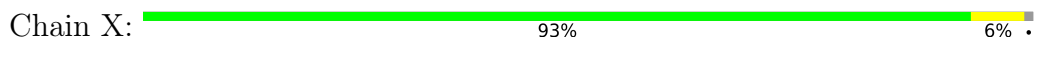
• Molecule 21: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5




• Molecule 22: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 6



• Molecule 23: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 8



• Molecule 24: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11

Chain Y:  88% 11%



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

Chain Z:  91% 7%



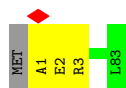
- Molecule 26: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1

Chain a:  100%

There are no outlier residues recorded for this chain.

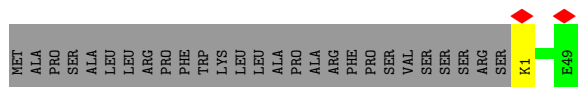
- Molecule 27: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 3

Chain b:  95%



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

Chain c:  63% 36%



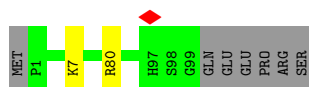
- Molecule 29: NADH dehydrogenase [ubiquinone] 1 subunit C2

Chain d:  97%

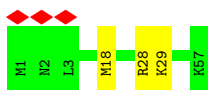


- Molecule 30: NADH dehydrogenase [ubiquinone] iron-sulfur protein 5

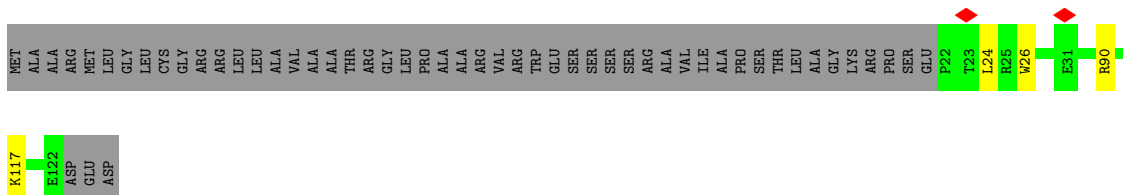
Chain e:  92% 7%



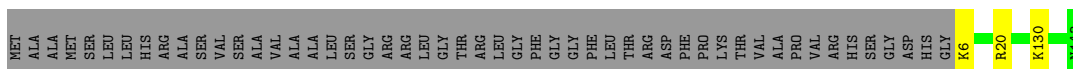
- Molecule 31: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 1



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



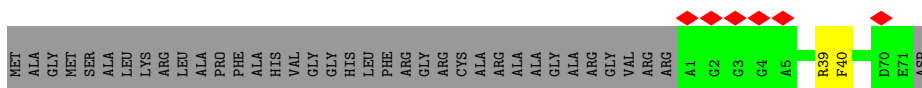
- Molecule 33: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 5, mitochondrial



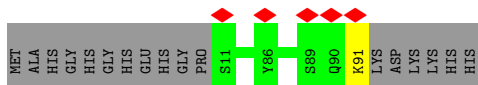
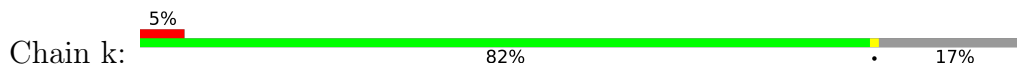
- Molecule 34: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 6




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

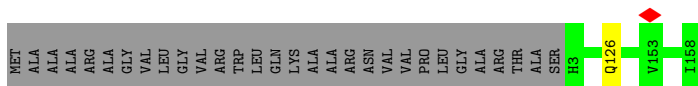


- Molecule 36: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 3



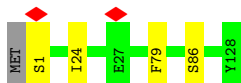
- Molecule 37: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 8, mitochondrial

Chain l:  83% 16%



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

Chain m:  96%




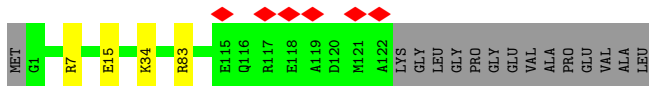
- Molecule 39: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9

Chain n:  93%



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

Chain o:  86% 11%



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

Chain p:  96%




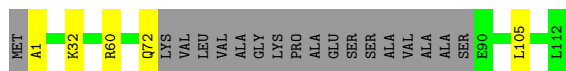
- Molecule 42: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 12

Chain q:  94% 6%

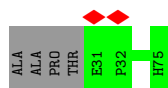
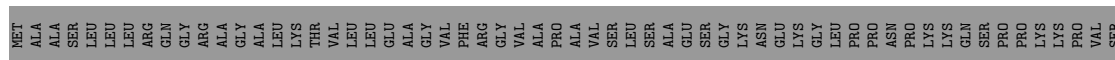


- Molecule 43: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 7

Chain r:  80% 16%



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



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	68095	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 ($e^-/\text{\AA}^2$)	39.9	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.176	Depositor
Minimum map value	-0.066	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.014	Depositor
Map size (Å)	486.0, 486.0, 486.0	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.35, 1.35, 1.35	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 3PE, 2MR, DGT, EHZ, FES, PLC, AME, FME, AYA, FMN, MG, NDP, CHD, CDL, MYR, K, SF4, PC1, SAC, ZN

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	0.30	0/936	0.41	0/1281
2	B	0.38	0/1272	0.52	0/1720
3	C	0.37	0/1789	0.51	0/2436
4	D	0.35	0/3537	0.49	0/4794
5	E	0.30	0/1699	0.47	0/2312
6	F	0.30	0/3401	0.50	0/4595
7	G	0.31	0/5367	0.50	0/7274
8	H	0.33	0/2571	0.45	0/3513
9	I	0.40	0/1445	0.53	0/1956
10	J	0.33	0/1370	0.42	0/1859
11	K	0.30	0/745	0.42	0/1008
12	L	0.29	0/4920	0.42	0/6694
13	M	0.31	0/3738	0.43	0/5097
14	N	0.31	0/2792	0.43	0/3800
15	O	0.32	0/2651	0.43	0/3587
16	P	0.31	0/2831	0.50	0/3841
17	Q	0.32	0/1072	0.51	0/1449
18	R	0.33	0/753	0.51	0/1014
19	S	0.26	0/711	0.52	0/956
20	T	0.27	0/719	0.39	0/971
20	U	0.28	0/719	0.40	0/971
21	V	0.29	0/948	0.43	0/1284
22	W	0.30	0/1000	0.51	0/1344
23	X	0.30	0/1439	0.48	0/1942
24	Y	0.28	0/1042	0.47	0/1414
25	Z	0.32	0/1181	0.50	0/1592
26	a	0.32	0/584	0.51	0/786
27	b	0.29	0/667	0.44	0/916
28	c	0.30	0/427	0.40	0/579
29	d	0.34	0/1018	0.48	0/1375
30	e	0.29	0/850	0.49	0/1136

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
31	f	0.28	0/505	0.48	0/681
32	g	0.31	0/873	0.46	0/1186
33	h	0.31	0/1188	0.47	0/1607
34	i	0.28	0/1127	0.47	0/1534
35	j	0.29	0/624	0.44	0/855
36	k	0.27	0/672	0.45	0/906
37	l	0.31	0/1369	0.45	0/1873
38	m	0.31	0/1088	0.51	0/1472
39	n	0.29	0/1540	0.48	0/2085
40	o	0.28	0/1073	0.51	0/1437
41	p	0.30	0/1491	0.48	0/2011
42	q	0.34	0/1242	0.49	0/1688
43	r	0.32	0/789	0.52	0/1068
44	s	0.27	0/392	0.47	0/531
All	All	0.31	0/68167	0.47	0/92430

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	921	0	952	10	0
2	B	1241	0	1251	8	0
3	C	1738	0	1685	11	0
4	D	3459	0	3404	22	0
5	E	1659	0	1664	15	0
6	F	3326	0	3282	34	0
7	G	5279	0	5301	47	0
8	H	2509	0	2621	33	0
9	I	1414	0	1370	10	0
10	J	1345	0	1352	14	0
11	K	745	0	785	6	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
12	L	4802	0	4960	41	0
13	M	3654	0	3852	18	0
14	N	2733	0	2912	22	0
15	O	2589	0	2565	15	0
16	P	2754	0	2773	18	0
17	Q	1049	0	1045	5	0
18	R	740	0	714	4	0
19	S	700	0	719	7	0
20	T	707	0	700	3	0
20	U	707	0	700	4	0
21	V	928	0	972	8	0
22	W	976	0	991	6	0
23	X	1402	0	1379	5	0
24	Y	1030	0	1039	8	0
25	Z	1152	0	1151	5	0
26	a	569	0	568	0	0
27	b	654	0	663	0	0
28	c	414	0	415	0	0
29	d	999	0	988	0	0
30	e	829	0	829	0	0
31	f	492	0	501	0	0
32	g	846	0	798	0	0
33	h	1154	0	1168	0	0
34	i	1097	0	1108	0	0
35	j	597	0	536	0	0
36	k	653	0	639	0	0
37	l	1314	0	1210	0	0
38	m	1070	0	1068	0	0
39	n	1487	0	1433	0	0
40	o	1048	0	1016	0	0
41	p	1458	0	1430	0	0
42	q	1212	0	1183	0	0
43	r	776	0	782	0	0
44	s	380	0	349	0	0
45	A	82	0	118	0	0
45	I	38	0	53	0	0
45	J	75	0	98	1	0
45	L	284	0	407	1	0
45	M	85	0	121	0	0
45	N	49	0	75	1	0
45	P	67	0	82	0	0
45	Y	98	0	153	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
45	Z	42	0	61	0	0
45	b	139	0	212	0	0
45	e	49	0	75	0	0
45	m	133	0	197	0	0
45	q	21	0	16	0	0
46	A	103	0	128	1	0
46	B	94	0	136	0	0
46	H	87	0	128	2	0
46	I	54	0	88	1	0
46	L	45	0	67	2	0
46	M	79	0	109	1	0
46	Y	45	0	67	1	0
46	Z	44	0	62	1	0
46	d	39	0	52	0	0
46	h	47	0	71	0	0
46	q	38	0	53	0	0
47	A	38	0	53	0	0
47	B	37	0	51	0	0
47	J	38	0	53	0	0
47	L	31	0	36	0	0
47	O	32	0	41	0	0
47	P	27	0	28	0	0
47	d	36	0	49	0	0
47	g	32	0	41	0	0
48	B	8	0	0	1	0
48	F	8	0	0	0	0
48	G	16	0	0	0	0
48	I	16	0	0	0	0
49	E	4	0	0	0	0
49	G	4	0	0	0	0
50	F	31	0	19	1	0
51	G	1	0	0	0	0
52	H	83	0	116	1	0
52	J	70	0	84	0	0
52	L	76	0	99	0	0
52	M	100	0	156	3	0
52	N	80	0	107	0	0
52	X	100	0	156	1	0
52	d	65	0	77	0	0
52	i	80	0	104	0	0
52	r	61	0	66	0	0
53	M	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
53	R	1	0	0	0	0
54	O	1	0	0	0	0
55	O	31	0	12	5	0
56	P	48	0	24	1	0
57	T	37	0	0	1	0
57	U	37	0	0	0	0
58	i	29	0	38	0	0
59	o	15	0	27	0	0
All	All	69719	0	70889	345	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 3.

All (345) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:131:ALA:O	6:F:171:TYR:OH	1.91	0.88
7:G:45:ARG:NH1	7:G:260:GLU:OE1	2.10	0.84
22:W:39:TYR:O	22:W:59:ARG:NH1	2.11	0.84
7:G:140:LYS:O	7:G:148:THR:OG1	1.96	0.82
1:A:67:LEU:HD11	11:K:68:ALA:HB3	1.63	0.80
15:O:20:GLU:O	15:O:23:LYS:NZ	2.14	0.80
1:A:71:LEU:O	10:J:147:TYR:OH	2.01	0.79
10:J:77:GLU:N	10:J:77:GLU:OE1	2.15	0.79
7:G:40:PHE:O	7:G:158:ARG:NH1	2.15	0.78
6:F:15:LEU:O	6:F:20:ARG:NH1	2.17	0.78
15:O:281:GLU:N	15:O:281:GLU:OE1	2.17	0.78
7:G:47:SER:OG	7:G:165:GLU:OE2	2.02	0.77
5:E:63:ILE:O	5:E:67:ASN:ND2	2.17	0.77
4:D:241:ASP:OD1	4:D:290:ARG:NH2	2.18	0.77
8:H:114:TYR:OH	10:J:61:LEU:O	2.02	0.77
10:J:23:LYS:NZ	11:K:18:GLY:O	2.18	0.76
12:L:370:THR:HG23	12:L:431:LEU:HD13	1.65	0.76
15:O:237:ASP:OD1	21:V:29:LYS:NZ	2.19	0.75
20:T:49:GLU:OE2	22:W:63:ARG:NH2	2.18	0.75
12:L:561:ILE:O	12:L:565:THR:OG1	2.04	0.75
14:N:291:TYR:OH	45:N:402:3PE:O14	2.05	0.74
5:E:112:ASN:OD1	5:E:115:SER:OG	2.01	0.74
13:M:187:HIS:O	13:M:192:ASN:ND2	2.20	0.73
7:G:260:GLU:OE2	7:G:397:LYS:NZ	2.21	0.73
4:D:116:GLN:NE2	4:D:276:ASP:OD2	2.21	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:248:GLU:OE1	6:F:249:ARG:NE	2.23	0.72
6:F:370:ASP:OD2	6:F:374:LYS:NZ	2.23	0.72
1:A:1:FME:O1	1:A:2:ASN:N	2.22	0.72
4:D:282:GLU:N	4:D:282:GLU:OE1	2.22	0.72
7:G:577:GLU:OE2	7:G:579:ARG:NH2	2.24	0.70
14:N:19:ILE:O	14:N:23:SER:OG	2.08	0.69
23:X:138:GLU:N	23:X:138:GLU:OE1	2.26	0.69
8:H:231:ILE:O	8:H:235:ASN:ND2	2.25	0.69
14:N:269:GLU:O	14:N:273:ASN:ND2	2.25	0.69
10:J:167:VAL:HG13	14:N:42:PRO:HG3	1.76	0.68
16:P:306:GLU:N	16:P:306:GLU:OE1	2.27	0.68
10:J:129:ASP:OD1	10:J:130:THR:N	2.27	0.68
45:J:203:3PE:O14	12:L:585:LYS:NZ	2.27	0.66
15:O:33:SER:N	55:O:402:DGT:O3G	2.28	0.66
5:E:27:ASN:ND2	5:E:57:GLN:OE1	2.28	0.66
16:P:236:TYR:OH	16:P:311:GLU:OE2	2.09	0.65
16:P:13:ARG:NH2	16:P:61:PRO:O	2.29	0.65
13:M:255:ASP:OD1	13:M:256:PHE:N	2.29	0.65
8:H:138:GLN:NE2	8:H:191:ALA:O	2.29	0.65
8:H:198:PHE:CD1	8:H:285:LEU:HD13	2.32	0.64
7:G:156:CYS:O	7:G:157:THR:OG1	2.16	0.64
19:S:30:GLN:OE1	19:S:33:ARG:NH2	2.29	0.64
25:Z:55:GLU:OE1	25:Z:58:ARG:NH2	2.31	0.64
10:J:109:LYS:NZ	10:J:110:ASP:OD1	2.30	0.64
12:L:467:ILE:O	12:L:471:ASN:ND2	2.30	0.64
15:O:30:ASN:OD1	15:O:31:ILE:N	2.30	0.64
12:L:140:LEU:O	12:L:140:LEU:HD23	1.99	0.63
12:L:171:ALA:O	12:L:175:ASN:ND2	2.32	0.63
25:Z:89:ASN:ND2	25:Z:122:GLU:O	2.31	0.63
12:L:246:LEU:O	12:L:251:THR:OG1	2.17	0.62
4:D:284:ASP:OD1	9:I:1:THR:OG1	2.17	0.62
7:G:326:GLU:N	7:G:326:GLU:OE1	2.32	0.62
13:M:76:MET:O	13:M:80:SER:OG	2.18	0.62
15:O:83:TYR:HH	55:O:402:DGT:HO3'	1.47	0.61
17:Q:33:ARG:NH1	17:Q:77:ASP:OD1	2.34	0.61
12:L:414:ILE:O	12:L:417:SER:OG	2.17	0.61
5:E:121:GLN:O	5:E:125:GLY:N	2.33	0.61
18:R:55:ARG:NE	18:R:76:ASP:OD1	2.32	0.61
3:C:48:LEU:HD12	3:C:49:GLU:N	3.10	0.61
7:G:194:GLU:OE1	7:G:385:ARG:NE	2.34	0.60
6:F:224:ASN:ND2	50:F:501:FMN:O2	2.35	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:M:97:THR:O	13:M:101:SER:OG	2.20	0.60
16:P:92:ILE:HD11	16:P:218:ILE:HD11	1.84	0.60
15:O:34:GLY:N	55:O:402:DGT:O3G	2.34	0.59
52:M:602:CDL:H473	52:X:201:CDL:H461	1.85	0.59
6:F:380:VAL:O	6:F:429:ARG:NH1	2.34	0.59
12:L:560:ALA:O	12:L:565:THR:HG23	2.02	0.59
6:F:250:ASN:ND2	6:F:318:ASP:OD2	2.35	0.58
7:G:362:TYR:OH	7:G:504:ASP:OD1	2.12	0.58
23:X:109:CYS:SG	23:X:110:VAL:N	2.76	0.58
7:G:433:ALA:O	7:G:476:LYS:NZ	2.18	0.58
15:O:138:MET:CE	55:O:402:DGT:HN2	2.16	0.58
15:O:53:GLU:OE2	15:O:126:ARG:NH1	2.37	0.58
1:A:35:SER:O	2:B:81:ARG:NH2	2.36	0.58
6:F:120:GLU:OE2	6:F:236:ARG:NH1	2.34	0.58
7:G:375:ASP:OD1	7:G:375:ASP:N	2.35	0.58
7:G:615:THR:OG1	7:G:617:ASP:OD1	2.13	0.58
8:H:18:ALA:O	8:H:21:THR:OG1	2.17	0.58
15:O:141:GLN:NE2	15:O:201:ASP:OD2	2.37	0.58
3:C:85:THR:HG21	21:V:115:ILE:HG13	1.85	0.58
4:D:88:GLU:OE2	4:D:430:ARG:NH1	2.36	0.57
14:N:137:ALA:HB3	14:N:138:PRO:HD3	1.85	0.57
13:M:450:ASN:OD1	13:M:452:LYS:NZ	2.37	0.57
5:E:105:THR:HG22	5:E:106:THR:H	1.69	0.57
6:F:263:ASN:ND2	6:F:285:GLY:O	2.36	0.57
14:N:243:LEU:HD22	14:N:330:VAL:HG11	1.86	0.57
5:E:55:GLN:O	5:E:59:GLY:N	2.35	0.56
5:E:96:GLY:N	5:E:138:THR:OG1	2.35	0.56
7:G:201:ASP:OD2	7:G:268:ARG:NH2	2.37	0.56
7:G:332:LYS:NZ	7:G:505:LEU:O	2.32	0.56
7:G:339:ASP:OD1	19:S:16:ARG:NH1	2.38	0.56
20:T:46:ASP:OD1	22:W:63:ARG:NH2	2.37	0.56
57:T:101:EHZ:O1	57:T:101:EHZ:O2	2.19	0.56
3:C:151:ILE:HG23	3:C:152:LEU:HG	1.87	0.56
12:L:341:MET:CE	12:L:457:LEU:HD12	2.35	0.56
13:M:208:PRO:HD3	13:M:236:LEU:HD22	1.88	0.56
17:Q:28:GLU:O	17:Q:32:THR:OG1	2.15	0.56
4:D:81:GLY:N	4:D:429:ASP:OD1	2.39	0.56
9:I:64:GLU:O	9:I:134:GLY:N	2.39	0.56
7:G:475:GLN:OE1	7:G:479:THR:HG21	2.06	0.56
6:F:94:VAL:HG11	6:F:192:LEU:HD21	1.88	0.56
13:M:141:GLU:N	13:M:141:GLU:OE1	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:114:THR:OG1	1:A:115:GLU:N	2.38	0.55
6:F:356:HIS:O	7:G:177:ARG:NH1	2.39	0.55
15:O:32:CYS:SG	15:O:186:LYS:NZ	2.78	0.55
6:F:314:THR:HG22	6:F:314:THR:O	2.07	0.55
7:G:285:ARG:NH2	7:G:555:PRO:O	2.40	0.55
11:K:82:SER:O	11:K:86:GLY:N	2.37	0.55
8:H:207:LEU:O	8:H:209:SER:N	2.40	0.55
5:E:217:LEU:HD11	6:F:48:ILE:HG12	1.89	0.54
8:H:99:ASN:N	46:H:402:PC1:O12	2.38	0.54
12:L:341:MET:HE1	12:L:457:LEU:HD12	1.89	0.54
6:F:188:GLU:OE1	6:F:190:THR:N	2.38	0.54
8:H:2:PHE:CE2	8:H:6:ILE:HD11	2.42	0.54
9:I:22:ALA:HB1	25:Z:34:MET:HE3	1.90	0.54
14:N:62:THR:HG21	14:N:114:TRP:CD1	2.43	0.54
24:Y:68:ILE:HG21	24:Y:99:ILE:HD12	1.90	0.54
24:Y:81:GLU:OE1	24:Y:81:GLU:N	2.41	0.54
7:G:415:LEU:O	7:G:416:THR:OG1	2.20	0.54
3:C:85:THR:HG21	21:V:115:ILE:CG1	2.38	0.53
7:G:276:ARG:NH1	7:G:680:ALA:O	2.39	0.53
21:V:8:THR:HG23	21:V:15:VAL:HG22	1.90	0.53
15:O:20:GLU:N	15:O:20:GLU:OE1	2.37	0.53
3:C:77:ASP:OD1	4:D:390:LYS:NZ	2.22	0.52
17:Q:107:GLU:OE1	17:Q:108:ARG:N	2.41	0.52
8:H:102:VAL:HG23	8:H:160:PHE:O	2.09	0.52
12:L:562:LEU:HB2	12:L:563:PRO:HD3	1.92	0.52
5:E:18:GLU:N	5:E:18:GLU:OE1	2.43	0.52
16:P:153:GLU:HG3	16:P:165:ILE:HD13	1.91	0.52
9:I:172:ASP:OD2	9:I:176:ARG:NH1	2.41	0.52
4:D:354:GLU:OE2	4:D:357:GLN:NE2	2.43	0.52
16:P:200:THR:HG21	16:P:288:HIS:HA	1.92	0.52
3:C:83:ILE:HG22	3:C:85:THR:HG22	1.93	0.51
12:L:208:ASP:N	12:L:208:ASP:OD1	2.42	0.51
6:F:407:LEU:HD23	6:F:407:LEU:O	2.11	0.51
14:N:236:LYS:HG3	14:N:237:THR:HG23	1.93	0.51
24:Y:127:GLY:O	24:Y:131:GLY:N	2.43	0.51
1:A:18:VAL:HG21	8:H:76:ILE:CG1	2.41	0.51
7:G:615:THR:O	7:G:619:VAL:HG23	2.11	0.51
8:H:65:THR:O	8:H:124:ASN:ND2	2.41	0.51
11:K:70:GLU:O	11:K:74:GLY:N	2.36	0.51
6:F:96:ASN:ND2	6:F:187:GLY:O	2.43	0.50
3:C:8:ARG:O	4:D:129:ARG:NH2	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:301:GLY:O	6:F:335:ILE:HD12	2.11	0.50
6:F:82:MET:O	6:F:91:LYS:NZ	2.32	0.50
7:G:475:GLN:O	7:G:479:THR:OG1	2.25	0.50
7:G:355:GLY:O	7:G:361:ASN:ND2	2.45	0.50
7:G:455:SER:O	7:G:459:GLN:NE2	2.43	0.50
12:L:297:ASP:OD1	12:L:299:LYS:N	2.44	0.49
8:H:195:ARG:HD3	8:H:231:ILE:HD11	1.94	0.49
6:F:17:ASP:OD1	6:F:20:ARG:NH1	2.45	0.49
8:H:198:PHE:CE1	8:H:285:LEU:HD13	2.46	0.49
46:I:204:PC1:O13	46:I:204:PC1:H132	2.12	0.49
20:U:39:ASP:OD1	20:U:39:ASP:N	2.45	0.49
1:A:18:VAL:HG21	8:H:76:ILE:HG12	1.95	0.49
46:H:402:PC1:O13	46:H:402:PC1:H133	2.13	0.49
14:N:78:LEU:HD22	14:N:84:TRP:CZ2	2.48	0.49
12:L:264:TYR:N	12:L:265:PRO:CD	2.76	0.48
1:A:115:GLU:N	1:A:115:GLU:OE1	2.46	0.48
52:M:602:CDL:H872	52:M:602:CDL:H232	1.95	0.48
4:D:322:GLU:OE1	4:D:322:GLU:N	2.39	0.48
5:E:123:LYS:NZ	5:E:174:ASP:OD1	2.34	0.48
12:L:230:HIS:N	12:L:231:PRO:CD	2.76	0.48
15:O:214:MET:O	15:O:218:CYS:N	2.45	0.48
14:N:146:PHE:N	14:N:147:PRO:CD	2.76	0.48
12:L:369:THR:O	12:L:369:THR:HG22	2.14	0.48
16:P:153:GLU:OE1	16:P:167:LYS:NZ	2.47	0.48
9:I:75:GLU:O	9:I:105:ARG:NH1	2.46	0.48
3:C:183:VAL:O	22:W:100:THR:OG1	2.32	0.48
4:D:165:THR:HG21	8:H:275:ALA:O	2.14	0.47
13:M:12:MET:HB2	13:M:13:PRO:HD3	1.95	0.47
13:M:269:MET:O	13:M:273:SER:OG	2.31	0.47
19:S:17:GLU:OE1	19:S:67:ARG:NH2	2.45	0.47
18:R:60:ASP:N	18:R:60:ASP:OD1	2.46	0.47
5:E:105:THR:HG22	5:E:106:THR:N	2.30	0.47
7:G:601:ARG:NH2	7:G:614:ASP:OD2	2.47	0.47
7:G:632:ARG:NH2	19:S:58:SER:O	2.46	0.47
12:L:133:THR:HG22	12:L:133:THR:O	2.14	0.47
13:M:285:LEU:HD23	13:M:285:LEU:O	2.14	0.47
46:Y:203:PC1:H142	46:Y:203:PC1:O13	2.14	0.47
3:C:109:THR:OG1	3:C:110:TYR:N	2.43	0.47
7:G:328:LEU:O	7:G:507:TYR:OH	2.28	0.47
6:F:258:ILE:N	6:F:258:ILE:HD12	2.29	0.47
7:G:617:ASP:OD1	7:G:617:ASP:N	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:179:TRP:N	8:H:180:PRO:CD	2.77	0.47
14:N:261:MET:HG3	14:N:340:THR:HG23	1.95	0.47
4:D:328:ALA:HB3	7:G:126:ASP:HB2	1.97	0.47
6:F:127:ARG:O	6:F:127:ARG:NE	2.39	0.47
12:L:13:LEU:O	12:L:16:THR:OG1	2.32	0.47
6:F:109:GLU:OE1	6:F:112:ARG:NH2	2.48	0.47
6:F:381:ARG:NH2	6:F:383:ASP:OD2	2.48	0.47
15:O:219:GLU:OE2	15:O:243:TYR:N	2.39	0.47
19:S:40:TYR:CD1	19:S:54:ILE:HD11	2.50	0.46
4:D:343:GLU:OE1	4:D:343:GLU:N	2.46	0.46
12:L:439:THR:OG1	20:U:57:GLU:OE1	2.28	0.46
14:N:270:MET:CE	14:N:278:LEU:HD23	2.45	0.46
16:P:50:ARG:NE	56:P:501:NDP:O2X	2.44	0.46
12:L:301:ILE:CG2	12:L:426:ILE:HD11	2.45	0.46
6:F:188:GLU:OE1	6:F:189:GLU:N	2.49	0.46
7:G:227:SER:OG	7:G:228:ILE:N	2.48	0.46
13:M:264:LEU:O	13:M:268:GLY:N	2.49	0.46
24:Y:100:LEU:O	24:Y:104:THR:HG22	2.15	0.46
13:M:216:LEU:HD23	13:M:216:LEU:C	2.36	0.46
3:C:68:SER:N	21:V:86:GLU:OE1	2.46	0.46
3:C:179:GLU:OE1	16:P:37:HIS:NE2	2.45	0.46
8:H:245:THR:HG22	8:H:246:SER:N	2.31	0.46
12:L:1:FME:O	12:L:4:PHE:N	2.48	0.46
16:P:127:GLU:OE1	16:P:127:GLU:N	4.99	0.46
16:P:162:GLU:OE1	16:P:162:GLU:N	2.43	0.46
12:L:323:TYR:CZ	12:L:475:THR:HG21	2.52	0.46
20:T:64:ASP:OD2	22:W:32:ARG:NH2	2.44	0.45
6:F:318:ASP:OD1	6:F:321:ALA:HB3	2.16	0.45
12:L:381:THR:O	12:L:392:LYS:NZ	2.42	0.45
2:B:44:SER:OG	8:H:51:ASP:OD1	2.07	0.45
8:H:87:ILE:N	8:H:88:PRO:CD	2.80	0.45
24:Y:80:ARG:NH1	24:Y:88:ASN:OD1	2.50	0.45
13:M:168:GLN:O	13:M:172:GLY:N	2.40	0.45
23:X:122:GLY:N	25:Z:65:GLU:OE2	2.47	0.45
14:N:13:ILE:CD1	14:N:43:ILE:HD12	2.47	0.45
14:N:13:ILE:HD11	14:N:43:ILE:HD12	1.98	0.45
5:E:44:ALA:O	5:E:47:VAL:HG23	2.17	0.45
10:J:103:MET:O	10:J:107:VAL:HG12	2.17	0.45
52:M:602:CDL:H541	14:N:242:VAL:HG11	1.99	0.45
2:B:50:PHE:CE2	2:B:100:LEU:HD12	2.51	0.45
5:E:164:LEU:HD13	5:E:169:ILE:HD13	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:H:24:GLU:HA	8:H:271:LEU:HD13	1.98	0.45
10:J:157:THR:HG21	11:K:62:ILE:HD12	1.98	0.45
9:I:69:ARG:NH2	18:R:36:ASN:OD1	2.50	0.44
8:H:28:LEU:HD22	8:H:275:ALA:HB2	2.00	0.44
8:H:277:TYR:OH	9:I:30:LEU:O	2.26	0.44
10:J:45:LEU:HD12	10:J:50:SER:HA	1.98	0.44
12:L:576:LEU:HD22	45:L:707:3PE:O22	2.18	0.44
7:G:243:ARG:O	7:G:244:THR:OG1	2.27	0.44
7:G:317:ALA:HB1	7:G:331:LEU:HD21	1.99	0.44
2:B:81:ARG:NE	8:H:214:GLU:OE1	2.43	0.44
8:H:49:ILE:N	8:H:49:ILE:HD12	2.32	0.44
12:L:166:THR:HG21	46:L:709:PC1:H153	1.99	0.44
4:D:151:ILE:HG23	4:D:170:MET:HB3	2.00	0.44
5:E:26:GLU:OE1	5:E:26:GLU:N	2.46	0.44
12:L:331:THR:HB	12:L:387:THR:HG22	1.98	0.44
6:F:41:ASP:OD1	6:F:117:LYS:NZ	2.49	0.44
7:G:366:THR:HG22	7:G:366:THR:O	2.18	0.44
1:A:27:LEU:HD12	46:A:203:PC1:H133	2.00	0.44
16:P:2:HIS:NE2	18:R:21:GLY:O	2.51	0.44
19:S:22:LEU:HD23	19:S:22:LEU:N	2.33	0.44
7:G:41:CYS:O	7:G:161:ARG:NH2	2.36	0.44
7:G:347:GLU:O	7:G:510:GLY:N	2.51	0.44
8:H:72:ILE:HD12	52:H:401:CDL:OA9	2.18	0.44
10:J:31:LEU:C	10:J:31:LEU:HD23	2.39	0.44
6:F:362:CYS:HB3	6:F:404:ILE:HD12	2.00	0.43
12:L:233:LEU:HB3	12:L:234:PRO:HD3	2.00	0.43
13:M:106:LEU:HD13	13:M:234:VAL:HG11	1.99	0.43
4:D:50:ASN:O	8:H:127:TYR:OH	2.26	0.43
13:M:108:MET:HB3	13:M:121:LEU:HD13	2.00	0.43
4:D:73:VAL:HG21	4:D:414:VAL:HG21	2.01	0.43
4:D:335:ARG:NH2	9:I:129:ASP:OD1	2.47	0.43
24:Y:74:CYS:SG	24:Y:75:ILE:N	2.91	0.43
7:G:58:GLU:OE1	7:G:83:SER:OG	2.15	0.43
7:G:294:THR:OG1	7:G:295:THR:N	2.49	0.43
10:J:5:ILE:HG23	10:J:6:VAL:N	2.34	0.43
10:J:123:GLY:O	10:J:126:VAL:HG22	2.18	0.43
14:N:241:THR:O	14:N:301:THR:OG1	2.34	0.43
22:W:95:VAL:HG12	22:W:95:VAL:O	2.19	0.43
46:L:709:PC1:H142	46:L:709:PC1:O13	2.17	0.43
4:D:346:ILE:HG23	7:G:117:GLN:HG2	2.01	0.43
14:N:20:VAL:HG13	14:N:29:VAL:HG13	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:54:LYS:O	1:A:114:THR:HG22	2.19	0.43
8:H:195:ARG:O	8:H:198:PHE:N	2.44	0.43
13:M:66:LEU:HD11	13:M:111:THR:CG2	2.49	0.42
24:Y:125:LYS:NZ	24:Y:129:LEU:HD21	2.34	0.42
2:B:66:ARG:NH2	4:D:179:GLU:OE2	2.47	0.42
12:L:444:ASN:OD1	12:L:446:ASN:ND2	2.52	0.42
17:Q:89:LYS:NZ	17:Q:107:GLU:OE2	2.25	0.42
7:G:262:TRP:HB2	7:G:390:LEU:HD11	2.01	0.42
10:J:120:ASN:OD1	10:J:122:LEU:HD13	2.19	0.42
7:G:273:GLY:O	7:G:549:HIS:NE2	2.49	0.42
11:K:40:LEU:HD22	14:N:75:ILE:HD12	2.01	0.42
13:M:216:LEU:HB3	13:M:217:PRO:HD3	2.00	0.42
16:P:330:GLU:N	16:P:333:ASP:OD2	2.46	0.42
19:S:42:GLU:N	19:S:42:GLU:OE1	2.52	0.42
6:F:224:ASN:HB3	6:F:227:THR:HG22	2.00	0.42
14:N:58:LYS:NZ	14:N:117:GLU:OE1	2.35	0.42
8:H:285:LEU:HD12	8:H:285:LEU:O	2.20	0.42
12:L:117:PHE:CE2	12:L:121:LEU:HD11	2.55	0.42
20:U:32:VAL:HG23	20:U:33:ASN:N	2.35	0.42
6:F:99:GLU:O	6:F:139:ARG:NE	2.53	0.42
7:G:569:LYS:O	7:G:583:THR:OG1	2.37	0.42
8:H:87:ILE:CG1	8:H:88:PRO:HD3	2.50	0.42
16:P:209:ASP:OD2	16:P:308:THR:N	2.50	0.42
4:D:165:THR:N	4:D:166:PRO:CD	2.83	0.42
6:F:306:LEU:C	6:F:306:LEU:HD12	2.40	0.42
14:N:267:ILE:O	14:N:271:THR:HG23	2.20	0.42
16:P:26:ALA:HB3	16:P:47:VAL:HG13	2.00	0.42
23:X:79:GLU:HB3	23:X:80:PRO:HD3	2.00	0.42
25:Z:12:VAL:HG13	25:Z:13:GLY:N	2.34	0.42
8:H:170:GLU:OE1	23:X:97:ARG:NH2	2.45	0.41
16:P:1:LEU:HD12	16:P:5:VAL:CG1	2.50	0.41
21:V:34:LEU:O	21:V:44:ARG:NH1	2.53	0.41
2:B:50:PHE:CZ	2:B:100:LEU:HD12	2.55	0.41
6:F:165:ASN:OD1	6:F:168:GLY:HA2	2.20	0.41
9:I:131:ILE:HG23	9:I:131:ILE:O	2.20	0.41
12:L:537:ALA:HB3	12:L:538:PRO:HD3	2.01	0.41
12:L:561:ILE:HG13	12:L:562:LEU:N	2.35	0.41
2:B:129:SER:OG	4:D:85:2MR:O	2.32	0.41
46:Z:202:PC1:H142	46:Z:202:PC1:O13	2.20	0.41
12:L:304:PHE:CZ	12:L:526:LEU:HD22	2.55	0.41
46:M:606:PC1:C38	24:Y:119:LEU:HD11	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
16:P:22:THR:OG1	16:P:88:SER:OG	2.21	0.41
4:D:197:GLY:O	4:D:325:VAL:N	2.52	0.41
7:G:323:VAL:HG12	7:G:324:ASP:N	2.35	0.41
12:L:213:LEU:HD23	12:L:216:LEU:HD12	2.03	0.41
7:G:534:ARG:NH2	7:G:556:ILE:O	2.52	0.41
8:H:281:ARG:O	8:H:284:GLN:N	2.53	0.41
12:L:286:LEU:C	12:L:286:LEU:HD13	2.41	0.41
13:M:108:MET:CB	13:M:121:LEU:HD13	2.51	0.41
6:F:94:VAL:HG11	6:F:192:LEU:CD2	2.50	0.41
7:G:324:ASP:CB	7:G:571:ALA:HB1	2.51	0.41
2:B:90:GLY:HA2	48:B:201:SF4:S2	2.61	0.41
12:L:486:LEU:HA	12:L:489:THR:HG23	2.02	0.41
9:I:114:THR:HG21	9:I:144:HIS:CE1	2.56	0.41
8:H:11:ILE:HB	8:H:12:PRO:HD3	2.03	0.40
14:N:25:HIS:N	14:N:86:VAL:HG23	2.36	0.40
16:P:206:TYR:CZ	16:P:313:LYS:HG2	2.55	0.40
17:Q:60:ASP:N	17:Q:60:ASP:OD1	2.54	0.40
7:G:316:ALA:HB3	7:G:519:PRO:HG3	2.02	0.40
7:G:688:VAL:O	7:G:692:THR:HG23	2.21	0.40
8:H:236:ILE:HG23	8:H:259:PHE:CZ	2.56	0.40
12:L:505:SER:O	12:L:508:THR:OG1	2.32	0.40
21:V:103:VAL:HG23	21:V:104:GLU:N	2.35	0.40
5:E:190:ARG:NE	5:E:192:SER:O	2.54	0.40
12:L:49:ILE:HB	12:L:50:PRO:HD3	2.02	0.40
12:L:458:LEU:HD23	12:L:458:LEU:O	2.22	0.40
15:O:83:TYR:OH	55:O:402:DGT:O3'	2.20	0.40
6:F:103:GLY:O	6:F:333:ALA:HB1	2.22	0.40
6:F:193:ILE:HG23	6:F:215:VAL:HA	2.03	0.40
12:L:562:LEU:CB	12:L:563:PRO:HD3	2.51	0.40
14:N:6:PHE:CE2	14:N:10:LEU:HD11	2.56	0.40
21:V:37:ILE:O	21:V:44:ARG:NH1	2.55	0.40
12:L:529:PHE:HB3	12:L:530:PRO:HD3	2.04	0.40
20:U:31:SER:OG	20:U:34:SER:OG	2.23	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	113/115 (98%)	108 (96%)	5 (4%)	0	100	100
2	B	153/216 (71%)	150 (98%)	3 (2%)	0	100	100
3	C	207/266 (78%)	200 (97%)	7 (3%)	0	100	100
4	D	427/463 (92%)	411 (96%)	16 (4%)	0	100	100
5	E	212/249 (85%)	198 (93%)	13 (6%)	1 (0%)	29	64
6	F	430/464 (93%)	413 (96%)	17 (4%)	0	100	100
7	G	686/727 (94%)	664 (97%)	22 (3%)	0	100	100
8	H	316/318 (99%)	303 (96%)	12 (4%)	1 (0%)	41	73
9	I	174/212 (82%)	167 (96%)	7 (4%)	0	100	100
10	J	173/175 (99%)	163 (94%)	10 (6%)	0	100	100
11	K	96/98 (98%)	91 (95%)	5 (5%)	0	100	100
12	L	604/606 (100%)	572 (95%)	32 (5%)	0	100	100
13	M	457/459 (100%)	444 (97%)	13 (3%)	0	100	100
14	N	345/347 (99%)	337 (98%)	8 (2%)	0	100	100
15	O	318/343 (93%)	311 (98%)	7 (2%)	0	100	100
16	P	340/380 (90%)	330 (97%)	10 (3%)	0	100	100
17	Q	127/175 (73%)	121 (95%)	6 (5%)	0	100	100
18	R	94/124 (76%)	92 (98%)	2 (2%)	0	100	100
19	S	85/99 (86%)	82 (96%)	3 (4%)	0	100	100
20	T	86/156 (55%)	85 (99%)	1 (1%)	0	100	100
20	U	86/156 (55%)	82 (95%)	4 (5%)	0	100	100
21	V	113/116 (97%)	110 (97%)	3 (3%)	0	100	100
22	W	113/128 (88%)	108 (96%)	5 (4%)	0	100	100
23	X	169/172 (98%)	164 (97%)	5 (3%)	0	100	100
24	Y	138/141 (98%)	136 (99%)	2 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
25	Z	139/144 (96%)	134 (96%)	5 (4%)	0	100	100
26	a	68/70 (97%)	68 (100%)	0	0	100	100
27	b	81/84 (96%)	77 (95%)	4 (5%)	0	100	100
28	c	47/76 (62%)	45 (96%)	2 (4%)	0	100	100
29	d	118/120 (98%)	114 (97%)	4 (3%)	0	100	100
30	e	97/106 (92%)	94 (97%)	3 (3%)	0	100	100
31	f	55/57 (96%)	50 (91%)	5 (9%)	0	100	100
32	g	99/154 (64%)	91 (92%)	8 (8%)	0	100	100
33	h	136/189 (72%)	130 (96%)	6 (4%)	0	100	100
34	i	125/128 (98%)	118 (94%)	7 (6%)	0	100	100
35	j	69/108 (64%)	67 (97%)	2 (3%)	0	100	100
36	k	79/98 (81%)	75 (95%)	4 (5%)	0	100	100
37	l	154/186 (83%)	146 (95%)	8 (5%)	0	100	100
38	m	126/129 (98%)	118 (94%)	8 (6%)	0	100	100
39	n	169/179 (94%)	165 (98%)	4 (2%)	0	100	100
40	o	120/137 (88%)	118 (98%)	2 (2%)	0	100	100
41	p	172/176 (98%)	170 (99%)	2 (1%)	0	100	100
42	q	143/145 (99%)	136 (95%)	7 (5%)	0	100	100
43	r	91/113 (80%)	88 (97%)	3 (3%)	0	100	100
44	s	43/109 (39%)	40 (93%)	3 (7%)	0	100	100
All	All	8193/9213 (89%)	7886 (96%)	305 (4%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	E	157	ASN
8	H	208	VAL

5.3.2 Protein sidechains [i](#)

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

The Analysed column shows the number of residues for which the sidechain conformation was

analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	100/100 (100%)	97 (97%)	3 (3%)	41	71
2	B	131/175 (75%)	125 (95%)	6 (5%)	27	59
3	C	190/228 (83%)	187 (98%)	3 (2%)	62	84
4	D	370/392 (94%)	368 (100%)	2 (0%)	88	94
5	E	183/205 (89%)	180 (98%)	3 (2%)	62	84
6	F	346/368 (94%)	336 (97%)	10 (3%)	42	72
7	G	578/608 (95%)	570 (99%)	8 (1%)	67	86
8	H	274/274 (100%)	270 (98%)	4 (2%)	65	85
9	I	151/175 (86%)	147 (97%)	4 (3%)	46	74
10	J	141/141 (100%)	130 (92%)	11 (8%)	12	40
11	K	85/85 (100%)	83 (98%)	2 (2%)	49	76
12	L	533/533 (100%)	519 (97%)	14 (3%)	46	74
13	M	412/412 (100%)	406 (98%)	6 (2%)	65	85
14	N	315/315 (100%)	312 (99%)	3 (1%)	76	90
15	O	283/303 (93%)	276 (98%)	7 (2%)	47	75
16	P	296/327 (90%)	288 (97%)	8 (3%)	44	74
17	Q	116/153 (76%)	109 (94%)	7 (6%)	19	49
18	R	79/97 (81%)	77 (98%)	2 (2%)	47	75
19	S	77/82 (94%)	74 (96%)	3 (4%)	32	65
20	T	81/135 (60%)	76 (94%)	5 (6%)	18	49
20	U	81/135 (60%)	77 (95%)	4 (5%)	25	57
21	V	101/102 (99%)	97 (96%)	4 (4%)	31	65
22	W	107/114 (94%)	105 (98%)	2 (2%)	57	81
23	X	154/155 (99%)	150 (97%)	4 (3%)	46	74
24	Y	101/102 (99%)	100 (99%)	1 (1%)	76	90
25	Z	120/121 (99%)	118 (98%)	2 (2%)	60	83
26	a	59/59 (100%)	59 (100%)	0	100	100
27	b	71/72 (99%)	69 (97%)	2 (3%)	43	73
28	c	45/68 (66%)	44 (98%)	1 (2%)	52	78
29	d	105/105 (100%)	102 (97%)	3 (3%)	42	72
30	e	89/96 (93%)	87 (98%)	2 (2%)	52	78

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
31	f	54/54 (100%)	51 (94%)	3 (6%)	21	52
32	g	92/131 (70%)	88 (96%)	4 (4%)	29	62
33	h	121/158 (77%)	118 (98%)	3 (2%)	47	75
34	i	120/121 (99%)	118 (98%)	2 (2%)	60	83
35	j	61/84 (73%)	59 (97%)	2 (3%)	38	69
36	k	63/76 (83%)	62 (98%)	1 (2%)	62	84
37	l	140/159 (88%)	139 (99%)	1 (1%)	84	93
38	m	113/114 (99%)	110 (97%)	3 (3%)	44	74
39	n	156/161 (97%)	152 (97%)	4 (3%)	46	74
40	o	110/120 (92%)	106 (96%)	4 (4%)	35	67
41	p	155/157 (99%)	150 (97%)	5 (3%)	39	69
42	q	130/130 (100%)	123 (95%)	7 (5%)	22	53
43	r	85/97 (88%)	81 (95%)	4 (5%)	26	59
44	s	44/92 (48%)	44 (100%)	0	100	100
All	All	7218/7891 (92%)	7039 (98%)	179 (2%)	50	75

All (179) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	68	GLU
1	A	109	LYS
1	A	114	THR
2	B	34	ASP
2	B	54	CYS
2	B	100	LEU
2	B	125	TYR
2	B	136	CYS
2	B	171	LYS
3	C	125	LYS
3	C	147	ASP
3	C	153	THR
4	D	150	HIS
4	D	209	ASP
5	E	165	THR
5	E	183	LYS
5	E	190	ARG
6	F	8	LYS

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Mol	Chain	Res	Type
6	F	32	ARG
6	F	34	LYS
6	F	54	ASP
6	F	84	LYS
6	F	127	ARG
6	F	132	ARG
6	F	359	CYS
6	F	365	CYS
6	F	405	CYS
7	G	122	MET
7	G	229	ASP
7	G	249	ARG
7	G	287	GLU
7	G	341	ASP
7	G	516	LYS
7	G	540	ASP
7	G	669	LYS
8	H	14	LEU
8	H	70	MET
8	H	237	PHE
8	H	274	ARG
9	I	29	GLU
9	I	37	THR
9	I	144	HIS
9	I	176	ARG
10	J	41	CYS
10	J	45	LEU
10	J	74	MET
10	J	86	ASN
10	J	87	LYS
10	J	112	GLU
10	J	133	SER
10	J	135	PHE
10	J	136	PHE
10	J	139	GLU
10	J	141	MET
11	K	53	PHE
11	K	59	MET
12	L	10	VAL
12	L	26	THR
12	L	61	LEU
12	L	88	MET

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Mol	Chain	Res	Type
12	L	208	ASP
12	L	320	ASN
12	L	336	LYS
12	L	364	LYS
12	L	481	THR
12	L	512	LYS
12	L	543	SER
12	L	553	LEU
12	L	554	ASP
12	L	581	LYS
13	M	22	MET
13	M	57	PHE
13	M	72	LEU
13	M	80	SER
13	M	101	SER
13	M	315	LEU
14	N	88	LYS
14	N	204	ASN
14	N	319	LEU
15	O	40	LYS
15	O	76	ASN
15	O	146	LYS
15	O	185	LYS
15	O	206	TYR
15	O	242	LYS
15	O	315	LYS
16	P	2	HIS
16	P	73	TRP
16	P	102	GLN
16	P	115	GLN
16	P	122	LYS
16	P	263	TYR
16	P	313	LYS
16	P	322	ARG
17	Q	14	ASP
17	Q	16	LYS
17	Q	44	ASN
17	Q	54	LYS
17	Q	70	MET
17	Q	106	GLU
17	Q	122	PHE
18	R	32	GLN

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Mol	Chain	Res	Type
18	R	94	GLN
19	S	16	ARG
19	S	61	GLN
19	S	74	LYS
20	T	7	THR
20	T	20	LYS
20	T	29	LYS
20	T	71	MET
20	T	72	CYS
20	U	23	ASP
20	U	39	ASP
20	U	71	MET
20	U	83	LYS
21	V	32	ASP
21	V	65	LYS
21	V	70	ARG
21	V	115	ILE
22	W	86	LYS
22	W	115	LYS
23	X	15	GLN
23	X	47	TRP
23	X	64	GLN
23	X	132	THR
24	Y	114	CYS
25	Z	50	MET
25	Z	98	LYS
27	b	2	GLU
27	b	3	ARG
28	c	1	LYS
29	d	25	LYS
29	d	111	GLU
29	d	120	ARG
30	e	7	LYS
30	e	80	ARG
31	f	18	MET
31	f	28	ARG
31	f	29	LYS
32	g	24	LEU
32	g	26	TRP
32	g	90	ARG
32	g	117	LYS
33	h	6	LYS

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Mol	Chain	Res	Type
33	h	20	ARG
33	h	130	LYS
34	i	43	GLU
34	i	51	GLN
35	j	39	ARG
35	j	40	PHE
36	k	91	LYS
37	l	126	GLN
38	m	24	ILE
38	m	79	PHE
38	m	86	SER
39	n	14	LYS
39	n	46	ARG
39	n	135	GLU
39	n	137	LYS
40	o	7	ARG
40	o	15	GLU
40	o	34	LYS
40	o	83	ARG
41	p	37	ASP
41	p	42	ARG
41	p	69	ARG
41	p	88	GLU
41	p	126	LYS
42	q	5	GLN
42	q	59	HIS
42	q	95	ASP
42	q	107	LYS
42	q	122	GLN
42	q	136	GLU
42	q	144	TYR
43	r	32	LYS
43	r	60	ARG
43	r	72	GLN
43	r	105	LEU

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

Mol	Chain	Res	Type
30	e	26	HIS
34	i	127	HIS
35	j	50	HIS

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Mol	Chain	Res	Type
40	o	43	GLN
40	o	84	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](#)

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
14	FME	N	1	14	8,9,10	1.50	1 (12%)	7,9,11	1.82	2 (28%)
10	FME	J	1	10	8,9,10	1.52	1 (12%)	7,9,11	1.66	2 (28%)
38	SAC	m	1	38	7,8,9	1.69	1 (14%)	8,9,11	1.26	1 (12%)
24	AYA	Y	1	24	6,7,8	1.81	2 (33%)	5,8,10	1.49	1 (20%)
8	FME	H	1	8	8,9,10	1.50	1 (12%)	7,9,11	1.89	3 (42%)
13	FME	M	1	13	8,9,10	1.48	1 (12%)	7,9,11	1.77	3 (42%)
27	AYA	b	1	27	6,7,8	1.82	1 (16%)	5,8,10	1.30	1 (20%)
11	FME	K	1	11	8,9,10	1.51	1 (12%)	7,9,11	1.54	1 (14%)
12	FME	L	1	12	8,9,10	1.51	1 (12%)	7,9,11	1.76	3 (42%)
29	AME	d	1	29	9,10,11	1.45	1 (11%)	9,11,13	1.44	2 (22%)
34	SAC	i	1	34	7,8,9	1.67	1 (14%)	8,9,11	1.51	1 (12%)
42	AME	q	1	42	9,10,11	1.48	1 (11%)	9,11,13	1.65	2 (22%)
43	AYA	r	1	43	6,7,8	1.79	2 (33%)	5,8,10	1.32	1 (20%)
4	2MR	D	85	4	10,12,13	2.38	2 (20%)	5,13,15	1.45	1 (20%)
1	FME	A	1	1	8,9,10	1.47	1 (12%)	7,9,11	1.55	2 (28%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the

Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
14	FME	N	1	14	-	2/7/9/11	-
10	FME	J	1	10	-	4/7/9/11	-
38	SAC	m	1	38	-	4/7/8/10	-
24	AYA	Y	1	24	-	0/4/6/8	-
8	FME	H	1	8	-	2/7/9/11	-
13	FME	M	1	13	-	3/7/9/11	-
27	AYA	b	1	27	-	0/4/6/8	-
11	FME	K	1	11	-	5/7/9/11	-
12	FME	L	1	12	-	1/7/9/11	-
29	AME	d	1	29	-	0/9/10/12	-
34	SAC	i	1	34	-	4/7/8/10	-
42	AME	q	1	42	-	5/9/10/12	-
43	AYA	r	1	43	-	0/4/6/8	-
4	2MR	D	85	4	-	0/10/13/15	-
1	FME	A	1	1	-	2/7/9/11	-

All (18) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	85	2MR	CZ-NH2	5.16	1.44	1.33
4	D	85	2MR	CZ-NE	5.07	1.45	1.34
11	K	1	FME	CN-N	3.73	1.45	1.33
10	J	1	FME	CN-N	3.69	1.45	1.33
14	N	1	FME	CN-N	3.67	1.45	1.33
12	L	1	FME	CN-N	3.60	1.45	1.33
8	H	1	FME	CN-N	3.58	1.45	1.33
13	M	1	FME	CN-N	3.57	1.45	1.33
1	A	1	FME	CN-N	3.57	1.45	1.33
38	m	1	SAC	C1A-N	3.46	1.46	1.34
34	i	1	SAC	C1A-N	3.35	1.45	1.34
42	q	1	AME	CT1-N	3.35	1.45	1.34
27	b	1	AYA	CT-N	3.32	1.45	1.34
29	d	1	AME	CT1-N	3.27	1.45	1.34
24	Y	1	AYA	CT-N	3.25	1.45	1.34
43	r	1	AYA	CT-N	3.16	1.45	1.34
43	r	1	AYA	OT-CT	-2.08	1.18	1.23
24	Y	1	AYA	OT-CT	-2.02	1.18	1.23

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
42	q	1	AME	CE-SD-CG	3.91	113.83	100.40
8	H	1	FME	CE-SD-CG	3.17	111.30	100.40
34	i	1	SAC	C2A-C1A-N	3.12	121.38	116.10
14	N	1	FME	CE-SD-CG	3.04	110.85	100.40
29	d	1	AME	CE-SD-CG	2.66	109.54	100.40
11	K	1	FME	CE-SD-CG	2.64	109.47	100.40
4	D	85	2MR	CD-NE-CZ	-2.63	118.48	123.41
10	J	1	FME	CE-SD-CG	2.63	109.43	100.40
12	L	1	FME	CE-SD-CG	2.61	109.36	100.40
13	M	1	FME	CE-SD-CG	2.54	109.13	100.40
24	Y	1	AYA	CM-CT-N	2.52	120.37	116.10
1	A	1	FME	CE-SD-CG	2.35	108.47	100.40
27	b	1	AYA	CM-CT-N	2.33	120.05	116.10
43	r	1	AYA	CM-CT-N	2.32	120.02	116.10
12	L	1	FME	CA-N-CN	-2.25	119.36	122.82
38	m	1	SAC	C2A-C1A-N	2.22	119.86	116.10
8	H	1	FME	CA-N-CN	-2.18	119.47	122.82
8	H	1	FME	O1-CN-N	-2.18	119.54	125.27
13	M	1	FME	CA-N-CN	-2.17	119.48	122.82
14	N	1	FME	CA-N-CN	-2.14	119.53	122.82
12	L	1	FME	O1-CN-N	-2.09	119.77	125.27
1	A	1	FME	O1-CN-N	-2.05	119.87	125.27
13	M	1	FME	O-C-CA	-2.04	119.44	124.78
42	q	1	AME	CT2-CT1-N	2.04	119.55	116.10
10	J	1	FME	CA-N-CN	-2.02	119.71	122.82
29	d	1	AME	CT2-CT1-N	2.01	119.50	116.10

There are no chirality outliers.

All (32) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	J	1	FME	O1-CN-N-CA
10	J	1	FME	N-CA-CB-CG
11	K	1	FME	O1-CN-N-CA
13	M	1	FME	C-CA-CB-CG
14	N	1	FME	O1-CN-N-CA
34	i	1	SAC	N-CA-CB-OG
34	i	1	SAC	C-CA-CB-OG
38	m	1	SAC	O-C-CA-CB
42	q	1	AME	C-CA-CB-CG
8	H	1	FME	CB-CG-SD-CE
14	N	1	FME	CB-CG-SD-CE
12	L	1	FME	CA-CB-CG-SD

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Mol	Chain	Res	Type	Atoms
42	q	1	AME	CB-CG-SD-CE
34	i	1	SAC	C2A-C1A-N-CA
34	i	1	SAC	OAC-C1A-N-CA
10	J	1	FME	CB-CG-SD-CE
11	K	1	FME	CB-CG-SD-CE
42	q	1	AME	N-CA-CB-CG
1	A	1	FME	CB-CG-SD-CE
1	A	1	FME	N-CA-CB-CG
11	K	1	FME	N-CA-CB-CG
38	m	1	SAC	C-CA-CB-OG
38	m	1	SAC	C-CA-N-C1A
8	H	1	FME	CB-CA-N-CN
42	q	1	AME	CB-CA-N-CT1
10	J	1	FME	C-CA-CB-CG
11	K	1	FME	CA-CB-CG-SD
11	K	1	FME	C-CA-CB-CG
13	M	1	FME	N-CA-CB-CG
38	m	1	SAC	CB-CA-N-C1A
42	q	1	AME	C-CA-N-CT1
13	M	1	FME	CB-CA-N-CN

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	L	1	FME	1	0
4	D	85	2MR	1	0
1	A	1	FME	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 80 ligands modelled in this entry, 4 are monoatomic - leaving 76 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
46	PC1	Y	203	-	44,44,53	1.04	3 (6%)	50,52,61	1.02	2 (4%)
47	PLC	A	206	-	37,37,41	0.54	0	43,45,49	0.59	0
45	3PE	J	203	-	43,43,50	0.93	4 (9%)	46,48,55	1.14	2 (4%)
46	PC1	h	201	-	46,46,53	1.00	4 (8%)	52,54,61	1.05	2 (3%)
45	3PE	I	203	-	37,37,50	0.99	4 (10%)	40,42,55	1.11	2 (5%)
52	CDL	r	201	-	60,60,99	1.10	8 (13%)	66,72,111	1.20	4 (6%)
55	DGT	O	402	54	26,33,33	2.65	8 (30%)	32,52,52	1.67	10 (31%)
47	PLC	d	203	-	35,35,41	0.54	0	41,43,49	0.54	0
46	PC1	A	203	-	34,34,53	1.16	4 (11%)	40,42,61	0.99	2 (5%)
57	EHZ	T	101	20	29,36,37	1.69	5 (17%)	35,44,47	1.76	7 (20%)
46	PC1	d	202	-	38,38,53	1.10	4 (10%)	44,46,61	1.08	2 (4%)
45	3PE	m	202	-	40,40,50	0.96	4 (10%)	43,45,55	1.06	2 (4%)
45	3PE	L	708	-	38,38,50	0.97	4 (10%)	41,43,55	1.14	2 (4%)
45	3PE	P	503	-	31,31,50	1.05	4 (12%)	34,36,55	1.13	2 (5%)
45	3PE	L	702	-	34,34,50	0.96	3 (8%)	37,39,55	1.06	1 (2%)
46	PC1	B	203	-	47,47,53	0.99	4 (8%)	53,55,61	1.04	2 (3%)
47	PLC	L	710	-	30,30,41	0.59	0	36,38,49	0.58	0
45	3PE	L	704	-	39,39,50	0.97	4 (10%)	42,44,55	1.09	2 (4%)
50	FMN	F	501	-	33,33,33	2.73	10 (30%)	48,50,50	1.73	15 (31%)
45	3PE	L	707	-	50,50,50	0.87	4 (8%)	53,55,55	1.09	2 (3%)
45	3PE	L	705	-	22,22,50	1.26	4 (18%)	25,27,55	1.29	2 (8%)
47	PLC	B	204	-	36,36,41	0.54	0	42,44,49	0.51	0
46	PC1	H	402	-	47,47,53	1.02	4 (8%)	53,55,61	1.02	2 (3%)
46	PC1	A	204	-	34,34,53	1.14	4 (11%)	40,42,61	1.05	2 (5%)
47	PLC	J	204	-	37,37,41	0.53	0	43,45,49	0.53	0
48	SF4	G	802	7	0,12,12	-	-	-	-	-
48	SF4	I	202	9	0,12,12	-	-	-	-	-
45	3PE	M	604	-	44,44,50	0.89	4 (9%)	47,49,55	1.06	2 (4%)
46	PC1	B	202	-	45,45,53	1.01	3 (6%)	51,53,61	1.06	2 (3%)
45	3PE	M	603	-	39,39,50	0.98	4 (10%)	42,44,55	1.08	2 (4%)
45	3PE	b	102	-	46,46,50	0.87	3 (6%)	49,51,55	1.09	2 (4%)
46	PC1	q	202	-	37,37,53	1.04	3 (8%)	43,45,61	0.90	1 (2%)
48	SF4	I	201	9	0,12,12	-	-	-	-	-

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
52	CDL	H	401	-	82,82,99	0.96	8 (9%)	88,94,111	1.09	4 (4%)
52	CDL	J	201	-	69,69,99	1.04	8 (11%)	75,81,111	1.18	4 (5%)
52	CDL	N	401	-	79,79,99	0.97	8 (10%)	85,91,111	1.13	4 (4%)
58	CHD	i	201	-	32,32,32	3.20	11 (34%)	51,51,51	2.32	18 (35%)
47	PLC	O	403	-	31,31,41	0.58	0	37,39,49	0.58	0
45	3PE	L	703	-	44,44,50	0.90	4 (9%)	47,49,55	1.10	2 (4%)
46	PC1	L	709	-	44,44,53	1.02	4 (9%)	50,52,61	1.03	2 (4%)
48	SF4	G	801	7	0,12,12	-	-	-	-	-
47	PLC	g	201	-	31,31,41	0.57	0	37,39,49	0.55	0
45	3PE	Z	201	-	41,41,50	0.96	4 (9%)	44,46,55	1.09	2 (4%)
46	PC1	A	205	-	32,32,53	1.20	4 (12%)	38,40,61	1.08	2 (5%)
46	PC1	M	606	-	34,34,53	1.15	4 (11%)	40,42,61	1.09	2 (5%)
59	MYR	o	201	40	14,14,15	0.44	0	13,13,15	0.90	0
46	PC1	H	403	-	38,38,53	1.11	4 (10%)	44,46,61	1.00	2 (4%)
56	NDP	P	501	-	45,52,52	4.24	22 (48%)	53,80,80	2.11	5 (9%)
45	3PE	q	201	-	20,20,50	1.31	4 (20%)	23,25,55	1.18	2 (8%)
57	EHZ	U	101	20	29,36,37	1.67	6 (20%)	35,44,47	1.71	7 (20%)
52	CDL	M	602	-	99,99,99	0.88	7 (7%)	105,111,111	1.12	4 (3%)
52	CDL	i	202	-	79,79,99	0.97	8 (10%)	85,91,111	1.14	4 (4%)
49	FES	G	803	7	0,4,4	-	-	-	-	-
45	3PE	m	203	-	41,41,50	0.94	4 (9%)	44,46,55	1.14	2 (4%)
52	CDL	X	201	-	99,99,99	0.87	7 (7%)	105,111,111	1.07	4 (3%)
45	3PE	Y	201	-	50,50,50	0.86	4 (8%)	53,55,55	1.10	2 (3%)
47	PLC	P	504	-	26,26,41	0.62	0	32,34,49	0.61	0
45	3PE	L	706	-	50,50,50	0.85	4 (8%)	53,55,55	1.06	2 (3%)
46	PC1	M	605	-	43,43,53	1.04	4 (9%)	49,51,61	1.02	2 (4%)
46	PC1	Z	202	-	43,43,53	1.05	4 (9%)	49,51,61	1.01	2 (4%)
49	FES	E	301	5	0,4,4	-	-	-	-	-
45	3PE	J	202	-	30,30,50	1.08	4 (13%)	33,35,55	1.23	3 (9%)
48	SF4	F	502	6	0,12,12	-	-	-	-	-
45	3PE	Y	202	-	46,46,50	0.89	4 (8%)	49,51,55	1.08	2 (4%)
45	3PE	e	201	-	48,48,50	0.88	4 (8%)	51,53,55	1.08	2 (3%)
45	3PE	A	202	-	50,50,50	0.86	4 (8%)	53,55,55	1.09	2 (3%)
46	PC1	I	204	-	53,53,53	0.94	4 (7%)	59,61,61	0.99	2 (3%)
45	3PE	b	101	-	40,40,50	0.94	3 (7%)	43,45,55	1.08	2 (4%)
45	3PE	A	201	-	30,30,50	1.10	4 (13%)	33,35,55	1.10	2 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
48	SF4	B	201	2	0,12,12	-	-	-		
52	CDL	L	701	-	75,75,99	0.99	8 (10%)	81,87,111	1.09	4 (4%)
45	3PE	N	402	-	48,48,50	0.87	4 (8%)	51,53,55	1.01	2 (3%)
52	CDL	d	201	-	64,64,99	1.06	8 (12%)	70,76,111	1.13	4 (5%)
45	3PE	P	502	-	34,34,50	1.03	4 (11%)	37,39,55	1.14	2 (5%)
45	3PE	b	103	-	50,50,50	0.87	4 (8%)	53,55,55	1.06	2 (3%)
45	3PE	m	201	-	49,49,50	0.86	4 (8%)	52,54,55	1.07	2 (3%)

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
46	PC1	Y	203	-	-	23/48/48/57	-
47	PLC	A	206	-	-	19/41/41/45	-
45	3PE	J	203	-	-	24/47/47/54	-
46	PC1	h	201	-	-	28/50/50/57	-
45	3PE	I	203	-	-	21/41/41/54	-
52	CDL	r	201	-	-	32/71/71/110	-
55	DGT	O	402	54	-	8/18/34/34	0/3/3/3
47	PLC	d	203	-	-	22/39/39/45	-
46	PC1	A	203	-	-	24/38/38/57	-
57	EHZ	T	101	20	-	5/42/44/45	-
46	PC1	d	202	-	-	11/42/42/57	-
45	3PE	m	202	-	-	22/44/44/54	-
45	3PE	L	708	-	-	14/42/42/54	-
45	3PE	P	503	-	-	16/35/35/54	-
45	3PE	L	702	-	-	13/37/37/54	-
46	PC1	B	203	-	-	17/51/51/57	-
47	PLC	L	710	-	-	16/34/34/45	-
45	3PE	L	704	-	-	18/43/43/54	-
50	FMN	F	501	-	-	9/18/18/18	0/3/3/3
45	3PE	L	707	-	-	19/54/54/54	-
45	3PE	L	705	-	-	12/26/26/54	-
47	PLC	B	204	-	-	14/40/40/45	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
46	PC1	H	402	-	-	16/51/51/57	-
46	PC1	A	204	-	-	18/38/38/57	-
47	PLC	J	204	-	-	18/41/41/45	-
52	CDL	i	202	-	-	27/90/90/110	-
48	SF4	G	802	7	-	-	0/6/5/5
48	SF4	I	202	9	-	-	0/6/5/5
45	3PE	M	604	-	-	25/48/48/54	-
46	PC1	B	202	-	-	26/49/49/57	-
45	3PE	M	603	-	-	25/43/43/54	-
45	3PE	b	102	-	-	23/50/50/54	-
46	PC1	q	202	-	-	19/40/40/57	-
52	CDL	H	401	-	-	42/93/93/110	-
52	CDL	J	201	-	-	36/80/80/110	-
52	CDL	N	401	-	-	40/90/90/110	-
58	CHD	i	201	-	-	4/9/74/74	1/4/4/4
48	SF4	I	201	9	-	-	0/6/5/5
47	PLC	O	403	-	-	9/34/34/45	-
45	3PE	L	703	-	-	18/48/48/54	-
46	PC1	L	709	-	-	24/48/48/57	-
48	SF4	G	801	7	-	-	0/6/5/5
47	PLC	g	201	-	-	6/34/34/45	-
45	3PE	Z	201	-	-	21/45/45/54	-
46	PC1	A	205	-	-	17/36/36/57	-
46	PC1	M	606	-	-	16/38/38/57	-
59	MYR	o	201	40	-	6/11/12/13	-
46	PC1	H	403	-	-	16/42/42/57	-
56	NDP	P	501	-	-	10/30/77/77	0/5/5/5
45	3PE	q	201	-	-	14/24/24/54	-
57	EHZ	U	101	20	-	10/42/44/45	-
52	CDL	M	602	-	-	54/110/110/110	-
52	CDL	X	201	-	-	40/110/110/110	-
45	3PE	m	203	-	-	14/45/45/54	-
49	FES	G	803	7	-	-	0/1/1/1
45	3PE	Y	201	-	-	30/54/54/54	-
47	PLC	P	504	-	-	4/29/29/45	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
45	3PE	L	706	-	-	22/54/54/54	-
46	PC1	M	605	-	-	20/47/47/57	-
46	PC1	Z	202	-	-	18/47/47/57	-
49	FES	E	301	5	-	-	0/1/1/1
45	3PE	J	202	-	-	14/34/34/54	-
48	SF4	F	502	6	-	-	0/6/5/5
45	3PE	Y	202	-	-	19/50/50/54	-
45	3PE	e	201	-	-	24/52/52/54	-
45	3PE	A	202	-	-	26/54/54/54	-
46	PC1	I	204	-	-	12/57/57/57	-
45	3PE	b	101	-	-	23/44/44/54	-
45	3PE	A	201	-	-	16/34/34/54	-
52	CDL	L	701	-	-	32/86/86/110	-
52	CDL	d	201	-	-	43/75/75/110	-
45	3PE	N	402	-	-	25/52/52/54	-
48	SF4	B	201	2	-	-	0/6/5/5
45	3PE	P	502	-	-	18/38/38/54	-
45	3PE	b	103	-	-	27/54/54/54	-
45	3PE	m	201	-	-	25/53/53/54	-

All (302) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	P	501	NDP	O4B-C1B	14.48	1.61	1.41
56	P	501	NDP	C6N-C5N	12.15	1.55	1.33
58	i	201	CHD	C11-C12	8.40	1.67	1.53
55	O	402	DGT	O6-C6	8.31	1.40	1.23
56	P	501	NDP	C7N-N7N	8.23	1.55	1.33
56	P	501	NDP	O4D-C1D	8.10	1.61	1.42
56	P	501	NDP	C2D-C1D	-7.35	1.30	1.53
50	F	501	FMN	C4A-N5	7.15	1.44	1.30
58	i	201	CHD	C16-C15	7.07	1.73	1.54
56	P	501	NDP	O4D-C4D	-6.56	1.30	1.45
50	F	501	FMN	C10-N1	6.46	1.46	1.33
58	i	201	CHD	C20-C17	-5.83	1.44	1.54
58	i	201	CHD	C13-C17	5.42	1.64	1.55
58	i	201	CHD	O12-C12	-5.39	1.34	1.43
56	P	501	NDP	O4B-C4B	-5.38	1.33	1.45
57	T	101	EHZ	C12-N1	5.36	1.45	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
58	i	201	CHD	C8-C9	5.30	1.64	1.53
56	P	501	NDP	P2B-O2B	5.27	1.69	1.59
57	U	101	EHZ	C15-N2	5.25	1.45	1.33
57	U	101	EHZ	C12-N1	5.17	1.45	1.33
57	T	101	EHZ	C15-N2	5.15	1.44	1.33
50	F	501	FMN	C5A-N5	5.11	1.49	1.39
50	F	501	FMN	C9A-N10	4.87	1.49	1.41
55	O	402	DGT	C2-N2	4.68	1.45	1.34
58	i	201	CHD	C6-C5	4.67	1.61	1.53
50	F	501	FMN	C2-N1	4.66	1.47	1.36
55	O	402	DGT	C2-N1	4.62	1.49	1.37
56	P	501	NDP	C2N-C3N	4.56	1.47	1.34
55	O	402	DGT	C2-N3	4.25	1.43	1.33
50	F	501	FMN	C2-N3	4.22	1.48	1.39
56	P	501	NDP	O7N-C7N	-4.12	1.14	1.24
58	i	201	CHD	C6-C7	3.92	1.59	1.52
58	i	201	CHD	C15-C14	3.92	1.62	1.54
56	P	501	NDP	O2D-C2D	3.91	1.52	1.43
56	P	501	NDP	C6A-N6A	3.72	1.47	1.34
56	P	501	NDP	C5A-C4A	-3.70	1.31	1.40
50	F	501	FMN	C4-N3	3.63	1.45	1.38
50	F	501	FMN	C10-N10	3.61	1.45	1.37
56	P	501	NDP	C4N-C3N	3.08	1.56	1.49
50	F	501	FMN	O2-C2	-3.08	1.18	1.24
55	O	402	DGT	C5-C6	-2.94	1.41	1.47
46	B	202	PC1	O21-C2	-2.81	1.39	1.46
50	F	501	FMN	O4-C4	-2.80	1.18	1.23
52	M	602	CDL	OB6-CB4	-2.76	1.39	1.46
52	r	201	CDL	OA6-CA4	-2.73	1.39	1.46
56	P	501	NDP	O3D-C3D	-2.70	1.36	1.43
55	O	402	DGT	C1 ¹ -N9	-2.70	1.41	1.49
45	J	203	3PE	O21-C2	-2.69	1.39	1.46
52	M	602	CDL	OA6-CA4	-2.69	1.39	1.46
52	L	701	CDL	OA6-CA4	-2.68	1.39	1.46
56	P	501	NDP	C4N-C5N	2.67	1.55	1.48
52	H	401	CDL	OA6-CA4	-2.67	1.39	1.46
46	Z	202	PC1	O21-C2	-2.64	1.40	1.46
45	b	101	3PE	O21-C2	-2.64	1.40	1.46
52	r	201	CDL	OB6-CB4	-2.63	1.40	1.46
52	X	201	CDL	OB6-CB4	-2.63	1.40	1.46
56	P	501	NDP	O3B-C3B	-2.63	1.36	1.43
46	L	709	PC1	O21-C2	-2.62	1.40	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
46	A	203	PC1	O21-C2	-2.61	1.40	1.46
52	d	201	CDL	OA6-CA4	-2.60	1.40	1.46
56	P	501	NDP	C2A-N3A	2.60	1.36	1.32
52	i	202	CDL	OA6-CA4	-2.60	1.40	1.46
46	d	202	PC1	O21-C2	-2.59	1.40	1.46
52	L	701	CDL	OB6-CB4	-2.59	1.40	1.46
52	i	202	CDL	OB6-CB4	-2.59	1.40	1.46
46	I	204	PC1	O21-C2	-2.58	1.40	1.46
45	b	102	3PE	O21-C2	-2.58	1.40	1.46
45	L	702	3PE	O21-C2	-2.57	1.40	1.46
45	P	502	3PE	O21-C2	-2.57	1.40	1.46
46	A	205	PC1	O21-C2	-2.56	1.40	1.46
45	L	704	3PE	O31-C31	2.56	1.40	1.33
46	B	203	PC1	O21-C2	-2.56	1.40	1.46
45	e	201	3PE	O21-C2	-2.55	1.40	1.46
58	i	201	CHD	C13-C12	-2.55	1.50	1.54
45	L	705	3PE	O21-C2	-2.55	1.40	1.46
52	N	401	CDL	OA6-CA4	-2.54	1.40	1.46
45	L	708	3PE	O21-C2	-2.54	1.40	1.46
46	H	402	PC1	O21-C2	-2.54	1.40	1.46
46	Y	203	PC1	O31-C31	2.54	1.40	1.33
52	H	401	CDL	OB6-CB4	-2.54	1.40	1.46
46	M	606	PC1	O21-C2	-2.54	1.40	1.46
52	X	201	CDL	OA8-CA7	2.52	1.40	1.33
45	m	201	3PE	O21-C2	-2.52	1.40	1.46
46	H	403	PC1	O21-C2	-2.52	1.40	1.46
52	r	201	CDL	OB8-CB7	2.52	1.40	1.33
52	d	201	CDL	OB6-CB4	-2.51	1.40	1.46
52	N	401	CDL	OB6-CB4	-2.51	1.40	1.46
52	J	201	CDL	OA6-CA4	-2.51	1.40	1.46
45	Y	201	3PE	O21-C2	-2.50	1.40	1.46
52	J	201	CDL	OB8-CB7	2.50	1.40	1.33
45	A	201	3PE	O21-C2	-2.49	1.40	1.46
45	Z	201	3PE	O21-C2	-2.49	1.40	1.46
52	L	701	CDL	OB8-CB7	2.49	1.40	1.33
45	q	201	3PE	O21-C2	-2.48	1.40	1.46
46	M	605	PC1	O31-C31	2.48	1.40	1.33
45	m	202	3PE	O21-C2	-2.48	1.40	1.46
57	T	101	EHZ	O4-C15	-2.47	1.18	1.23
52	J	201	CDL	OB6-CB4	-2.47	1.40	1.46
45	J	202	3PE	O21-C2	-2.47	1.40	1.46
45	m	202	3PE	O31-C31	2.47	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	A	202	3PE	O21-C2	-2.46	1.40	1.46
52	N	401	CDL	OA8-CA7	2.46	1.40	1.33
46	A	204	PC1	O31-C31	2.46	1.40	1.33
46	A	204	PC1	O21-C2	-2.46	1.40	1.46
45	I	203	3PE	O31-C31	2.45	1.40	1.33
46	M	605	PC1	O21-C2	-2.45	1.40	1.46
45	L	703	3PE	O31-C31	2.44	1.40	1.33
45	I	203	3PE	O21-C2	-2.44	1.40	1.46
46	Z	202	PC1	O31-C31	2.43	1.40	1.33
45	L	706	3PE	O21-C2	-2.43	1.40	1.46
52	i	202	CDL	OB8-CB7	2.42	1.40	1.33
45	Y	202	3PE	O21-C2	-2.42	1.40	1.46
57	U	101	EHZ	O3-C12	-2.42	1.18	1.23
45	L	707	3PE	O31-C3	-2.42	1.39	1.45
45	e	201	3PE	O31-C31	2.41	1.40	1.33
46	h	201	PC1	O21-C2	-2.41	1.40	1.46
45	b	103	3PE	O21-C2	-2.40	1.40	1.46
52	X	201	CDL	OB8-CB6	-2.40	1.39	1.45
45	m	203	3PE	O21-C2	-2.40	1.40	1.46
45	Z	201	3PE	O31-C31	2.40	1.40	1.33
52	i	202	CDL	OA8-CA7	2.40	1.40	1.33
46	H	402	PC1	O31-C31	2.40	1.40	1.33
45	m	203	3PE	O31-C31	2.39	1.40	1.33
46	M	606	PC1	O31-C31	2.39	1.40	1.33
46	I	204	PC1	O31-C31	2.38	1.40	1.33
57	T	101	EHZ	C9-S1	2.38	1.81	1.76
45	Y	201	3PE	O31-C3	-2.38	1.39	1.45
52	d	201	CDL	OB8-CB7	2.38	1.40	1.33
45	M	603	3PE	O21-C2	-2.37	1.40	1.46
52	J	201	CDL	OA8-CA7	2.37	1.40	1.33
52	M	602	CDL	OA8-CA7	2.37	1.40	1.33
57	T	101	EHZ	O3-C12	-2.37	1.18	1.23
46	A	205	PC1	O31-C31	2.37	1.40	1.33
52	H	401	CDL	OB8-CB7	2.37	1.40	1.33
45	b	101	3PE	O31-C31	2.37	1.40	1.33
45	A	201	3PE	O31-C31	2.36	1.40	1.33
52	X	201	CDL	OA6-CA4	-2.36	1.40	1.46
45	N	402	3PE	O21-C2	-2.35	1.40	1.46
46	h	201	PC1	O31-C31	2.35	1.40	1.33
52	M	602	CDL	OB8-CB7	2.35	1.40	1.33
45	M	603	3PE	O31-C31	2.35	1.40	1.33
45	q	201	3PE	O31-C31	2.34	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
52	H	401	CDL	OA8-CA6	-2.34	1.39	1.45
46	Y	203	PC1	O21-C2	-2.34	1.40	1.46
45	P	503	3PE	O31-C31	2.33	1.40	1.33
46	d	202	PC1	O31-C31	2.33	1.40	1.33
45	L	708	3PE	O31-C31	2.33	1.40	1.33
45	M	604	3PE	O31-C31	2.33	1.40	1.33
46	Y	203	PC1	O21-C21	2.33	1.40	1.34
52	d	201	CDL	OA8-CA7	2.33	1.40	1.33
52	r	201	CDL	OA8-CA6	-2.33	1.39	1.45
57	U	101	EHZ	O4-C15	-2.33	1.18	1.23
46	H	403	PC1	O31-C31	2.32	1.40	1.33
45	L	703	3PE	O21-C2	-2.32	1.40	1.46
46	q	202	PC1	O21-C2	-2.32	1.40	1.46
45	L	707	3PE	O21-C2	-2.32	1.40	1.46
46	B	203	PC1	O31-C31	2.31	1.40	1.33
46	L	709	PC1	O31-C31	2.31	1.40	1.33
45	J	203	3PE	O31-C3	-2.31	1.39	1.45
45	b	102	3PE	O31-C3	-2.30	1.39	1.45
52	L	701	CDL	OA8-CA7	2.30	1.40	1.33
45	A	201	3PE	O31-C3	-2.30	1.39	1.45
45	J	202	3PE	O31-C31	2.29	1.40	1.33
46	d	202	PC1	O31-C3	-2.29	1.39	1.45
45	b	103	3PE	O31-C31	2.29	1.40	1.33
45	L	705	3PE	O31-C31	2.29	1.40	1.33
56	P	501	NDP	C7N-C3N	2.29	1.53	1.48
45	P	502	3PE	O31-C3	-2.28	1.39	1.45
56	P	501	NDP	C6N-N1N	2.28	1.43	1.37
46	B	202	PC1	O31-C31	2.28	1.40	1.33
45	M	604	3PE	O21-C2	-2.28	1.40	1.46
45	A	202	3PE	O31-C3	-2.28	1.40	1.45
45	M	603	3PE	O21-C21	2.28	1.40	1.34
46	H	403	PC1	O31-C3	-2.27	1.40	1.45
46	A	203	PC1	O31-C31	2.27	1.40	1.33
52	N	401	CDL	OB8-CB7	2.27	1.40	1.33
45	J	203	3PE	O31-C31	2.27	1.40	1.33
45	P	503	3PE	O21-C2	-2.27	1.40	1.46
45	m	201	3PE	O31-C31	2.26	1.39	1.33
45	L	706	3PE	O31-C31	2.26	1.39	1.33
57	U	101	EHZ	C9-S1	2.26	1.81	1.76
45	N	402	3PE	O31-C31	2.25	1.39	1.33
52	M	602	CDL	OB8-CB6	-2.25	1.40	1.45
45	Y	202	3PE	O31-C3	-2.25	1.40	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
46	Z	202	PC1	O31-C3	-2.24	1.40	1.45
45	A	202	3PE	O31-C31	2.24	1.39	1.33
45	b	103	3PE	O31-C3	-2.24	1.40	1.45
45	M	603	3PE	O31-C3	-2.24	1.40	1.45
45	Y	201	3PE	O31-C31	2.24	1.39	1.33
45	Y	202	3PE	O31-C31	2.23	1.39	1.33
52	H	401	CDL	OB8-CB6	-2.23	1.40	1.45
52	X	201	CDL	OA6-CA5	2.23	1.40	1.34
45	L	704	3PE	O21-C2	-2.23	1.41	1.46
45	N	402	3PE	O31-C3	-2.23	1.40	1.45
45	P	502	3PE	O31-C31	2.23	1.39	1.33
52	r	201	CDL	OA8-CA7	2.23	1.39	1.33
46	H	402	PC1	O31-C3	-2.23	1.40	1.45
45	L	707	3PE	O21-C21	2.22	1.40	1.34
45	m	202	3PE	O21-C21	2.22	1.40	1.34
46	q	202	PC1	O21-C21	2.21	1.40	1.34
52	N	401	CDL	OB8-CB6	-2.21	1.40	1.45
45	Z	201	3PE	O31-C3	-2.21	1.40	1.45
45	e	201	3PE	O31-C3	-2.21	1.40	1.45
45	m	201	3PE	O31-C3	-2.21	1.40	1.45
45	q	201	3PE	O31-C3	-2.21	1.40	1.45
46	h	201	PC1	O31-C3	-2.21	1.40	1.45
55	O	402	DGT	PG-O2G	-2.21	1.46	1.54
45	L	707	3PE	O31-C31	2.20	1.39	1.33
45	L	704	3PE	O21-C21	2.20	1.40	1.34
46	L	709	PC1	O31-C3	-2.20	1.40	1.45
45	b	102	3PE	O31-C31	2.20	1.39	1.33
52	d	201	CDL	OA8-CA6	-2.20	1.40	1.45
46	H	403	PC1	O21-C21	2.20	1.40	1.34
45	Z	201	3PE	O21-C21	2.20	1.40	1.34
52	H	401	CDL	OA8-CA7	2.20	1.39	1.33
45	L	705	3PE	O31-C3	-2.20	1.40	1.45
52	J	201	CDL	OA6-CA5	2.19	1.40	1.34
46	h	201	PC1	O21-C21	2.19	1.40	1.34
46	A	203	PC1	O31-C3	-2.19	1.40	1.45
45	b	103	3PE	O21-C21	2.19	1.40	1.34
46	B	203	PC1	O21-C21	2.19	1.40	1.34
45	M	604	3PE	O21-C21	2.18	1.40	1.34
52	d	201	CDL	OB6-CB5	2.17	1.40	1.34
52	J	201	CDL	OA8-CA6	-2.17	1.40	1.45
45	m	201	3PE	O21-C21	2.17	1.40	1.34
52	J	201	CDL	OB6-CB5	2.17	1.40	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
46	B	202	PC1	O31-C3	-2.17	1.40	1.45
45	L	706	3PE	O31-C3	-2.16	1.40	1.45
45	b	101	3PE	O31-C3	-2.16	1.40	1.45
56	P	501	NDP	P2B-O1X	2.16	1.57	1.50
55	O	402	DGT	PG-O1G	-2.15	1.46	1.54
45	L	708	3PE	O31-C3	-2.15	1.40	1.45
45	N	402	3PE	O21-C21	2.15	1.40	1.34
46	H	402	PC1	O21-C21	2.15	1.40	1.34
52	d	201	CDL	OB8-CB6	-2.15	1.40	1.45
46	A	204	PC1	O21-C21	2.15	1.40	1.34
56	P	501	NDP	PA-O5B	2.14	1.68	1.59
45	I	203	3PE	O21-C21	2.14	1.40	1.34
45	J	202	3PE	O31-C3	-2.14	1.40	1.45
45	P	503	3PE	O21-C21	2.14	1.40	1.34
52	i	202	CDL	OB8-CB6	-2.13	1.40	1.45
52	L	701	CDL	OB8-CB6	-2.13	1.40	1.45
46	M	605	PC1	O31-C3	-2.13	1.40	1.45
45	m	203	3PE	O21-C21	2.13	1.40	1.34
52	M	602	CDL	OA8-CA6	-2.12	1.40	1.45
46	A	205	PC1	O21-C21	2.12	1.40	1.34
46	I	204	PC1	O21-C21	2.12	1.40	1.34
46	A	205	PC1	O31-C3	-2.12	1.40	1.45
45	q	201	3PE	O21-C21	2.11	1.40	1.34
45	A	201	3PE	O21-C21	2.11	1.40	1.34
46	L	709	PC1	O21-C21	2.11	1.40	1.34
52	N	401	CDL	OB6-CB5	2.11	1.40	1.34
46	Z	202	PC1	O21-C21	2.11	1.40	1.34
45	m	203	3PE	O31-C3	-2.11	1.40	1.45
46	I	204	PC1	O31-C3	-2.10	1.40	1.45
45	L	704	3PE	O31-C3	-2.10	1.40	1.45
45	Y	202	3PE	O21-C21	2.10	1.40	1.34
45	L	702	3PE	O21-C21	2.10	1.40	1.34
45	m	202	3PE	O31-C3	-2.10	1.40	1.45
46	M	606	PC1	O21-C21	2.10	1.40	1.34
52	H	401	CDL	OB6-CB5	2.10	1.40	1.34
45	L	703	3PE	O21-C21	2.10	1.40	1.34
52	r	201	CDL	OB8-CB6	-2.09	1.40	1.45
45	J	202	3PE	O21-C21	2.09	1.40	1.34
46	M	605	PC1	O21-C21	2.09	1.40	1.34
45	L	703	3PE	O31-C3	-2.09	1.40	1.45
52	J	201	CDL	OB8-CB6	-2.08	1.40	1.45
45	L	706	3PE	O21-C21	2.08	1.40	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	I	203	3PE	O31-C3	-2.08	1.40	1.45
46	q	202	PC1	O31-C3	-2.06	1.40	1.45
52	r	201	CDL	OB6-CB5	2.06	1.40	1.34
52	N	401	CDL	OA6-CA5	2.06	1.40	1.34
45	L	708	3PE	O21-C21	2.05	1.40	1.34
46	M	606	PC1	O31-C3	-2.05	1.40	1.45
52	L	701	CDL	OA8-CA6	-2.05	1.40	1.45
45	Y	201	3PE	O21-C21	2.05	1.40	1.34
52	i	202	CDL	OB6-CB5	2.04	1.40	1.34
45	A	202	3PE	O21-C21	2.04	1.40	1.34
45	L	705	3PE	O21-C21	2.04	1.40	1.34
52	N	401	CDL	OA8-CA6	-2.03	1.40	1.45
45	M	604	3PE	O31-C3	-2.03	1.40	1.45
45	J	203	3PE	O21-C21	2.03	1.40	1.34
46	A	203	PC1	O21-C21	2.03	1.40	1.34
45	P	502	3PE	O21-C21	2.02	1.40	1.34
52	M	602	CDL	OB6-CB5	2.02	1.40	1.34
45	P	503	3PE	O31-C3	-2.02	1.40	1.45
52	H	401	CDL	OA6-CA5	2.02	1.40	1.34
52	d	201	CDL	OA6-CA5	2.02	1.40	1.34
46	A	204	PC1	O31-C3	-2.02	1.40	1.45
52	i	202	CDL	OA8-CA6	-2.02	1.40	1.45
52	X	201	CDL	OB8-CB7	2.02	1.39	1.33
52	X	201	CDL	OB6-CB5	2.02	1.40	1.34
52	i	202	CDL	OA6-CA5	2.01	1.40	1.34
57	U	101	EHZ	O6-C20	-2.01	1.39	1.44
58	i	201	CHD	C11-C9	-2.01	1.50	1.53
46	d	202	PC1	O21-C21	2.01	1.40	1.34
52	L	701	CDL	OA6-CA5	2.01	1.40	1.34
45	e	201	3PE	O21-C21	2.01	1.40	1.34
45	L	702	3PE	O31-C3	-2.01	1.40	1.45
52	L	701	CDL	OB6-CB5	2.01	1.40	1.34
52	r	201	CDL	OA6-CA5	2.01	1.40	1.34
46	B	203	PC1	O31-C3	-2.00	1.40	1.45

All (185) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
56	P	501	NDP	C5A-C6A-N6A	8.60	133.41	120.35
56	P	501	NDP	C1B-N9A-C4A	-7.59	113.31	126.64
57	T	101	EHZ	C8-C9-S1	6.53	121.71	113.63
56	P	501	NDP	N6A-C6A-N1A	-6.16	105.79	118.57

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
58	i	201	CHD	C17-C13-C14	6.12	106.27	100.09
57	U	101	EHZ	C8-C9-S1	5.78	120.78	113.63
56	P	501	NDP	N3A-C2A-N1A	-5.67	119.81	128.68
58	i	201	CHD	C13-C17-C20	-5.53	112.89	119.50
58	i	201	CHD	C17-C13-C12	5.19	122.41	117.67
52	J	201	CDL	OA6-CA5-C11	4.62	121.46	111.50
50	F	501	FMN	C9-C8-C7	4.60	126.26	119.67
45	M	603	3PE	O21-C21-C22	4.58	121.37	111.50
50	F	501	FMN	C7M-C7-C6	4.58	127.95	119.49
45	m	203	3PE	O21-C21-C22	4.45	121.09	111.50
58	i	201	CHD	C18-C13-C12	-4.43	104.56	109.07
52	J	201	CDL	OB6-CB5-C51	4.41	121.00	111.50
45	L	707	3PE	O21-C21-C22	4.36	120.90	111.50
52	N	401	CDL	OB6-CB5-C51	4.31	120.78	111.50
58	i	201	CHD	C14-C13-C12	4.29	111.40	107.40
46	A	205	PC1	O21-C21-C22	4.27	120.71	111.50
52	i	202	CDL	OA6-CA5-C11	4.26	120.69	111.50
52	M	602	CDL	OB6-CB5-C51	4.26	120.68	111.50
45	L	705	3PE	O21-C21-C22	4.22	120.59	111.50
52	d	201	CDL	OA6-CA5-C11	4.20	120.56	111.50
45	L	703	3PE	O21-C21-C22	4.20	120.55	111.50
45	e	201	3PE	O21-C21-C22	4.20	120.55	111.50
45	I	203	3PE	O21-C21-C22	4.19	120.53	111.50
52	M	602	CDL	OA6-CA5-C11	4.19	120.53	111.50
45	J	202	3PE	O21-C21-C22	4.17	120.49	111.50
45	b	103	3PE	O21-C21-C22	4.16	120.47	111.50
46	Y	203	PC1	O21-C21-C22	4.15	120.44	111.50
45	Y	201	3PE	O21-C21-C22	4.15	120.44	111.50
46	H	402	PC1	O21-C21-C22	4.15	120.44	111.50
45	P	502	3PE	O21-C21-C22	4.11	120.36	111.50
46	A	204	PC1	O21-C21-C22	4.10	120.33	111.50
52	N	401	CDL	OA6-CA5-C11	4.08	120.29	111.50
52	r	201	CDL	OA6-CA5-C11	4.07	120.27	111.50
52	X	201	CDL	OB6-CB5-C51	4.07	120.27	111.50
46	h	201	PC1	O21-C21-C22	4.05	120.23	111.50
46	M	606	PC1	O21-C21-C22	4.04	120.20	111.50
52	r	201	CDL	OB6-CB5-C51	4.03	120.18	111.50
45	Y	202	3PE	O21-C21-C22	4.02	120.17	111.50
45	L	708	3PE	O21-C21-C22	4.02	120.17	111.50
45	L	704	3PE	O21-C21-C22	4.01	120.14	111.50
45	Z	201	3PE	O21-C21-C22	4.00	120.13	111.50
45	P	503	3PE	O21-C21-C22	3.99	120.09	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
52	L	701	CDL	OA6-CA5-C11	3.98	120.08	111.50
45	L	706	3PE	O21-C21-C22	3.94	119.99	111.50
46	I	204	PC1	O21-C21-C22	3.93	119.98	111.50
45	A	202	3PE	O21-C21-C22	3.92	119.96	111.50
46	B	203	PC1	O21-C21-C22	3.92	119.95	111.50
52	H	401	CDL	OB6-CB5-C51	3.91	119.93	111.50
46	d	202	PC1	O21-C21-C22	3.90	119.92	111.50
52	H	401	CDL	OA6-CA5-C11	3.89	119.89	111.50
52	X	201	CDL	OA6-CA5-C11	3.89	119.88	111.50
45	M	604	3PE	O21-C21-C22	3.88	119.86	111.50
52	i	202	CDL	OB6-CB5-C51	3.88	119.86	111.50
46	L	709	PC1	O21-C21-C22	3.87	119.85	111.50
58	i	201	CHD	C1-C10-C5	3.86	113.48	107.77
45	A	201	3PE	O21-C21-C22	3.85	119.80	111.50
58	i	201	CHD	C18-C13-C14	-3.84	105.19	111.21
52	L	701	CDL	OB6-CB5-C51	3.83	119.77	111.50
46	A	203	PC1	O21-C21-C22	3.82	119.73	111.50
45	J	203	3PE	O21-C21-C22	3.80	119.69	111.50
46	Z	202	PC1	O21-C21-C22	3.78	119.66	111.50
45	L	702	3PE	O21-C21-C22	3.78	119.65	111.50
46	B	202	PC1	O21-C21-C22	3.76	119.61	111.50
46	M	605	PC1	O21-C21-C22	3.75	119.59	111.50
45	b	102	3PE	O21-C21-C22	3.74	119.57	111.50
45	m	202	3PE	O21-C21-C22	3.73	119.53	111.50
45	b	101	3PE	O21-C21-C22	3.71	119.50	111.50
45	N	402	3PE	O21-C21-C22	3.70	119.47	111.50
45	m	201	3PE	O21-C21-C22	3.64	119.34	111.50
58	i	201	CHD	C18-C13-C17	-3.56	105.64	111.21
45	q	201	3PE	O21-C21-C22	3.54	120.67	110.80
50	F	501	FMN	C4-N3-C2	-3.40	119.36	125.64
52	d	201	CDL	OB6-CB5-C51	3.30	120.00	110.80
50	F	501	FMN	C8M-C8-C7	-3.29	113.99	120.74
46	H	403	PC1	O21-C21-C22	3.23	119.81	110.80
46	q	202	PC1	O21-C21-C22	3.22	118.45	111.50
57	U	101	EHZ	C14-C13-C12	-3.22	106.99	112.36
58	i	201	CHD	C9-C11-C12	-3.18	110.11	114.30
55	O	402	DGT	C2-N1-C6	-3.13	119.33	125.10
55	O	402	DGT	C5-C6-N1	3.12	119.47	113.95
52	i	202	CDL	OA8-CA7-C31	3.06	121.52	111.91
58	i	201	CHD	C6-C5-C4	-3.04	107.69	111.19
52	J	201	CDL	OB8-CB7-C71	2.97	121.23	111.91
45	J	203	3PE	O31-C31-C32	2.96	121.19	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	T	101	EHZ	C13-C14-N2	-2.94	105.96	111.90
52	d	201	CDL	OB8-CB7-C71	2.90	121.02	111.91
46	M	605	PC1	O31-C31-C32	2.83	120.80	111.91
55	O	402	DGT	PA-O3A-PB	-2.83	123.13	132.83
52	r	201	CDL	OB8-CB7-C71	2.82	120.75	111.91
46	Y	203	PC1	O31-C31-C32	2.80	120.69	111.91
57	T	101	EHZ	C13-C12-N1	2.79	121.12	116.42
58	i	201	CHD	C11-C9-C10	-2.79	110.85	113.73
45	q	201	3PE	O31-C31-C32	2.79	118.69	111.38
45	M	604	3PE	O31-C31-C32	2.79	120.66	111.91
55	O	402	DGT	O2G-PG-O3B	2.79	113.98	104.64
46	Z	202	PC1	O31-C31-C32	2.78	120.64	111.91
56	P	501	NDP	PN-O3-PA	-2.78	123.29	132.83
58	i	201	CHD	C23-C22-C20	-2.76	109.47	114.52
52	L	701	CDL	OA8-CA7-C31	2.75	120.54	111.91
46	d	202	PC1	O31-C31-C32	2.75	120.53	111.91
52	M	602	CDL	OA8-CA7-C31	2.75	120.53	111.91
45	L	704	3PE	O31-C31-C32	2.74	120.52	111.91
45	Y	201	3PE	O31-C31-C32	2.73	120.48	111.91
45	L	703	3PE	O31-C31-C32	2.73	120.47	111.91
57	U	101	EHZ	O2-C9-S1	-2.73	119.07	122.61
55	O	402	DGT	O1G-PG-O3B	2.72	113.76	104.64
46	H	403	PC1	O31-C31-C32	2.71	120.42	111.91
45	L	708	3PE	O31-C31-C32	2.71	120.42	111.91
45	m	203	3PE	O31-C31-C32	2.70	120.38	111.91
55	O	402	DGT	C2'-C3'-C4'	2.70	108.38	102.76
52	X	201	CDL	OA8-CA7-C31	2.70	120.37	111.91
45	m	201	3PE	O31-C31-C32	2.69	120.36	111.91
46	B	202	PC1	O31-C31-C32	2.69	120.36	111.91
52	H	401	CDL	OA8-CA7-C31	2.69	120.36	111.91
46	M	606	PC1	O31-C31-C32	2.69	120.35	111.91
52	H	401	CDL	OB8-CB7-C71	2.68	120.32	111.91
46	h	201	PC1	O31-C31-C32	2.68	120.31	111.91
46	B	203	PC1	O31-C31-C32	2.68	120.31	111.91
52	i	202	CDL	OB8-CB7-C71	2.67	120.30	111.91
58	i	201	CHD	C19-C10-C9	-2.67	107.51	111.18
50	F	501	FMN	C4A-C4-N3	2.66	119.93	113.19
45	L	705	3PE	O31-C31-C32	2.64	120.21	111.91
52	M	602	CDL	OB8-CB7-C71	2.64	120.20	111.91
52	X	201	CDL	OB8-CB7-C71	2.64	120.20	111.91
45	L	706	3PE	O31-C31-C32	2.64	120.19	111.91
45	J	202	3PE	O31-C31-C32	2.62	120.12	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
55	O	402	DGT	PB-O3B-PG	-2.62	123.85	132.83
50	F	501	FMN	C4A-C10-N10	2.60	120.28	116.48
50	F	501	FMN	C6-C7-C8	-2.60	115.94	119.67
45	P	503	3PE	O31-C31-C32	2.60	120.06	111.91
50	F	501	FMN	O4-C4-C4A	-2.60	119.71	126.60
57	T	101	EHZ	C14-C13-C12	-2.58	108.06	112.36
45	Z	201	3PE	O31-C31-C32	2.58	120.00	111.91
45	m	202	3PE	O31-C31-C32	2.58	120.00	111.91
52	N	401	CDL	OB8-CB7-C71	2.58	119.99	111.91
52	J	201	CDL	OA8-CA7-C31	2.58	119.99	111.91
45	A	201	3PE	O31-C31-C32	2.56	119.95	111.91
46	A	204	PC1	O31-C31-C32	2.56	119.94	111.91
46	L	709	PC1	O31-C31-C32	2.56	119.93	111.91
45	N	402	3PE	O31-C31-C32	2.55	119.92	111.91
52	d	201	CDL	OA8-CA7-C31	2.54	119.87	111.91
57	T	101	EHZ	O2-C9-S1	-2.53	119.33	122.61
45	Y	202	3PE	O31-C31-C32	2.53	119.85	111.91
45	P	502	3PE	O31-C31-C32	2.53	119.84	111.91
52	N	401	CDL	OA8-CA7-C31	2.53	119.84	111.91
52	r	201	CDL	OA8-CA7-C31	2.52	119.83	111.91
45	I	203	3PE	O31-C31-C32	2.52	119.81	111.91
45	b	102	3PE	O31-C31-C32	2.51	119.79	111.91
45	A	202	3PE	O31-C31-C32	2.51	119.78	111.91
45	L	707	3PE	O31-C31-C32	2.51	119.77	111.91
45	b	103	3PE	O31-C31-C32	2.49	119.74	111.91
57	U	101	EHZ	C13-C12-N1	2.48	120.60	116.42
45	M	603	3PE	O31-C31-C32	2.47	119.67	111.91
52	L	701	CDL	OB8-CB7-C71	2.47	119.66	111.91
46	H	402	PC1	O31-C31-C32	2.44	119.56	111.91
46	A	203	PC1	O31-C31-C32	2.42	119.50	111.91
57	T	101	EHZ	C19-C17-C16	2.41	112.99	108.82
46	A	205	PC1	O31-C31-C32	2.40	119.44	111.91
45	e	201	3PE	O31-C31-C32	2.39	119.42	111.91
45	b	101	3PE	O31-C31-C32	2.39	119.40	111.91
58	i	201	CHD	C15-C14-C8	2.36	121.64	118.33
58	i	201	CHD	C16-C17-C13	2.32	105.83	103.55
46	I	204	PC1	O31-C31-C32	2.30	119.12	111.91
50	F	501	FMN	C9A-C5A-N5	-2.27	119.97	122.43
50	F	501	FMN	C7M-C7-C8	-2.26	116.10	120.74
50	F	501	FMN	C5A-C9A-N10	2.23	120.26	117.95
50	F	501	FMN	C6-C5A-C9A	2.21	122.06	118.94
58	i	201	CHD	C1-C2-C3	2.17	113.25	110.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
55	O	402	DGT	O1B-PB-O2B	-2.16	101.54	112.24
55	O	402	DGT	O1A-PA-O2A	-2.15	101.60	112.24
55	O	402	DGT	O6-C6-C5	-2.14	120.19	124.37
57	U	101	EHZ	C11-N1-C12	-2.13	118.88	122.84
58	i	201	CHD	C16-C17-C20	-2.11	108.88	112.15
57	T	101	EHZ	C7-C8-C9	-2.10	109.09	113.89
50	F	501	FMN	C10-C4A-N5	-2.09	120.42	124.86
57	U	101	EHZ	C7-C8-C9	-2.04	109.23	113.89
50	F	501	FMN	C4A-C10-N1	-2.04	120.00	124.73
50	F	501	FMN	C4-C4A-C10	2.04	120.22	116.79
57	U	101	EHZ	C13-C14-N2	-2.02	107.81	111.90
45	J	202	3PE	C2-O21-C21	-2.01	112.84	117.79
58	i	201	CHD	C4-C3-C2	2.01	112.95	110.55

There are no chirality outliers.

All (1379) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
45	A	201	3PE	C11-O13-P-O12
45	A	201	3PE	C11-O13-P-O14
45	A	201	3PE	O13-C11-C12-N
45	A	202	3PE	O22-C21-O21-C2
45	A	202	3PE	C22-C21-O21-C2
45	I	203	3PE	C1-O11-P-O12
45	I	203	3PE	C1-O11-P-O14
45	I	203	3PE	C11-O13-P-O14
45	J	202	3PE	C11-O13-P-O11
45	J	202	3PE	C11-O13-P-O12
45	J	202	3PE	C12-C11-O13-P
45	J	203	3PE	C11-O13-P-O12
45	J	203	3PE	O13-C11-C12-N
45	J	203	3PE	O21-C2-C3-O31
45	L	703	3PE	C22-C21-O21-C2
45	L	704	3PE	C11-O13-P-O14
45	L	704	3PE	C22-C21-O21-C2
45	L	705	3PE	O13-C11-C12-N
45	L	705	3PE	C22-C21-O21-C2
45	L	706	3PE	C22-C21-O21-C2
45	L	707	3PE	C1-O11-P-O12
45	L	707	3PE	C1-O11-P-O14
45	L	708	3PE	O11-C1-C2-O21
45	L	708	3PE	O22-C21-O21-C2

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Mol	Chain	Res	Type	Atoms
45	L	708	3PE	C22-C21-O21-C2
45	M	603	3PE	C1-O11-P-O14
45	M	603	3PE	O13-C11-C12-N
45	M	603	3PE	O21-C2-C3-O31
45	M	603	3PE	O22-C21-O21-C2
45	M	603	3PE	C22-C21-O21-C2
45	M	604	3PE	C11-O13-P-O12
45	M	604	3PE	C22-C21-O21-C2
45	N	402	3PE	O13-C11-C12-N
45	P	502	3PE	C1-O11-P-O12
45	P	503	3PE	O13-C11-C12-N
45	P	503	3PE	C22-C21-O21-C2
45	Y	202	3PE	C12-C11-O13-P
45	Z	201	3PE	C11-O13-P-O14
45	Z	201	3PE	C12-C11-O13-P
45	b	101	3PE	C11-O13-P-O14
45	b	101	3PE	C12-C11-O13-P
45	b	101	3PE	C22-C21-O21-C2
45	b	103	3PE	C1-O11-P-O12
45	b	103	3PE	O13-C11-C12-N
45	b	103	3PE	C22-C21-O21-C2
45	e	201	3PE	C1-O11-P-O12
45	e	201	3PE	C1-O11-P-O14
45	m	201	3PE	C1-O11-P-O12
45	m	201	3PE	C1-O11-P-O14
45	m	201	3PE	O11-C1-C2-O21
45	m	202	3PE	C1-O11-P-O12
45	m	202	3PE	C1-O11-P-O13
45	m	202	3PE	C1-O11-P-O14
45	m	202	3PE	C12-C11-O13-P
45	m	202	3PE	O13-C11-C12-N
45	m	202	3PE	O32-C31-O31-C3
45	m	203	3PE	C11-O13-P-O14
45	m	203	3PE	O22-C21-O21-C2
45	q	201	3PE	C1-O11-P-O14
45	q	201	3PE	C11-O13-P-O11
45	q	201	3PE	C22-C21-O21-C2
46	A	203	PC1	C1-O11-P-O14
46	A	203	PC1	O13-C11-C12-N
46	A	204	PC1	C22-C21-O21-C2
46	A	205	PC1	O22-C21-O21-C2
46	A	205	PC1	C22-C21-O21-C2

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Mol	Chain	Res	Type	Atoms
46	B	202	PC1	C11-O13-P-O12
46	B	202	PC1	C11-O13-P-O14
46	B	202	PC1	C11-O13-P-O11
46	B	202	PC1	C1-O11-P-O14
46	B	202	PC1	O11-C1-C2-O21
46	B	202	PC1	C22-C21-O21-C2
46	B	203	PC1	C11-O13-P-O14
46	B	203	PC1	C11-O13-P-O11
46	B	203	PC1	C22-C21-O21-C2
46	H	402	PC1	C1-O11-P-O12
46	H	402	PC1	C1-O11-P-O14
46	H	402	PC1	C1-O11-P-O13
46	I	204	PC1	C11-O13-P-O12
46	I	204	PC1	C11-O13-P-O14
46	I	204	PC1	C11-O13-P-O11
46	L	709	PC1	C11-O13-P-O12
46	L	709	PC1	C11-O13-P-O11
46	L	709	PC1	O13-C11-C12-N
46	M	606	PC1	C1-O11-P-O12
46	M	606	PC1	C1-O11-P-O14
46	M	606	PC1	C1-O11-P-O13
46	M	606	PC1	C22-C21-O21-C2
46	Y	203	PC1	C1-O11-P-O12
46	Y	203	PC1	C1-O11-P-O14
46	Y	203	PC1	O21-C2-C3-O31
46	Y	203	PC1	C22-C21-O21-C2
46	Z	202	PC1	O11-C1-C2-O21
46	q	202	PC1	C11-O13-P-O12
46	q	202	PC1	O13-C11-C12-N
46	q	202	PC1	C2-C1-O11-P
47	A	206	PLC	C1-O3P-P-O2P
47	B	204	PLC	C1'-C'-O2-C2
47	J	204	PLC	C1'-C'-O2-C2
47	J	204	PLC	C4-O4P-P-O1P
47	J	204	PLC	C4-O4P-P-O2P
47	J	204	PLC	C4-O4P-P-O3P
47	L	710	PLC	C2-C1-O3P-P
47	L	710	PLC	O4P-C4-C5-N
47	L	710	PLC	C1-O3P-P-O4P
47	L	710	PLC	C4-O4P-P-O2P
47	P	504	PLC	C1-O3P-P-O2P
47	d	203	PLC	O4P-C4-C5-N

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Mol	Chain	Res	Type	Atoms
47	d	203	PLC	C1-O3P-P-O2P
50	F	501	FMN	C5'-O5'-P-O1P
50	F	501	FMN	C5'-O5'-P-O2P
52	H	401	CDL	C11-CA5-OA6-CA4
52	H	401	CDL	CB2-OB2-PB2-OB3
52	J	201	CDL	OA7-CA5-OA6-CA4
52	J	201	CDL	C11-CA5-OA6-CA4
52	J	201	CDL	C1-CB2-OB2-PB2
52	J	201	CDL	CB3-OB5-PB2-OB2
52	J	201	CDL	CB3-OB5-PB2-OB4
52	J	201	CDL	OB7-CB5-OB6-CB4
52	L	701	CDL	O1-C1-CA2-OA2
52	L	701	CDL	CA2-OA2-PA1-OA3
52	L	701	CDL	CA3-OA5-PA1-OA3
52	L	701	CDL	CB3-OB5-PB2-OB4
52	M	602	CDL	C1-CA2-OA2-PA1
52	M	602	CDL	C11-CA5-OA6-CA4
52	M	602	CDL	CB2-OB2-PB2-OB4
52	M	602	CDL	OB5-CB3-CB4-OB6
52	M	602	CDL	OB7-CB5-OB6-CB4
52	M	602	CDL	C51-CB5-OB6-CB4
52	N	401	CDL	CA3-OA5-PA1-OA4
52	N	401	CDL	OA7-CA5-OA6-CA4
52	N	401	CDL	C11-CA5-OA6-CA4
52	N	401	CDL	CB2-OB2-PB2-OB3
52	N	401	CDL	OB6-CB4-CB6-OB8
52	N	401	CDL	C51-CB5-OB6-CB4
52	X	201	CDL	O1-C1-CB2-OB2
52	X	201	CDL	C11-CA5-OA6-CA4
52	X	201	CDL	C51-CB5-OB6-CB4
52	d	201	CDL	O1-C1-CA2-OA2
52	d	201	CDL	CA2-OA2-PA1-OA3
52	d	201	CDL	CA2-OA2-PA1-OA4
52	d	201	CDL	CA2-OA2-PA1-OA5
52	d	201	CDL	CA3-OA5-PA1-OA3
52	d	201	CDL	CB3-OB5-PB2-OB2
52	d	201	CDL	CB3-OB5-PB2-OB3
52	d	201	CDL	CB3-OB5-PB2-OB4
52	i	202	CDL	C11-CA5-OA6-CA4
52	i	202	CDL	OB7-CB5-OB6-CB4
52	r	201	CDL	CA3-OA5-PA1-OA3
52	r	201	CDL	C11-CA5-OA6-CA4

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Mol	Chain	Res	Type	Atoms
52	r	201	CDL	CB2-OB2-PB2-OB3
52	r	201	CDL	CB2-OB2-PB2-OB5
52	r	201	CDL	CB3-OB5-PB2-OB2
52	r	201	CDL	CB3-OB5-PB2-OB3
52	r	201	CDL	CB3-OB5-PB2-OB4
55	O	402	DGT	PB-O3B-PG-O1G
56	P	501	NDP	C2B-O2B-P2B-O1X
56	P	501	NDP	C5D-O5D-PN-O3
56	P	501	NDP	O4D-C4D-C5D-O5D
57	T	101	EHZ	C6-C7-C8-C9
57	U	101	EHZ	O1-C7-C8-C9
57	U	101	EHZ	C6-C7-C8-C9
57	U	101	EHZ	C11-C10-S1-C9
58	i	201	CHD	C17-C20-C22-C23
45	P	502	3PE	O32-C31-O31-C3
46	H	403	PC1	O32-C31-O31-C3
52	J	201	CDL	OB9-CB7-OB8-CB6
52	d	201	CDL	OB9-CB7-OB8-CB6
45	L	704	3PE	C32-C31-O31-C3
45	P	502	3PE	C32-C31-O31-C3
46	H	403	PC1	C32-C31-O31-C3
52	J	201	CDL	C71-CB7-OB8-CB6
52	d	201	CDL	C71-CB7-OB8-CB6
47	g	201	PLC	C1B-CB-O3-C3
45	A	201	3PE	O32-C31-O31-C3
45	A	202	3PE	O32-C31-O31-C3
45	J	202	3PE	O32-C31-O31-C3
45	L	704	3PE	O32-C31-O31-C3
45	L	708	3PE	O32-C31-O31-C3
45	Y	201	3PE	O32-C31-O31-C3
45	Y	202	3PE	O32-C31-O31-C3
45	m	203	3PE	O32-C31-O31-C3
46	M	605	PC1	O32-C31-O31-C3
46	Z	202	PC1	O32-C31-O31-C3
46	d	202	PC1	O32-C31-O31-C3
46	h	201	PC1	O32-C31-O31-C3
52	J	201	CDL	OA9-CA7-OA8-CA6
52	M	602	CDL	OA9-CA7-OA8-CA6
52	M	602	CDL	OB9-CB7-OB8-CB6
52	i	202	CDL	OB9-CB7-OB8-CB6
45	J	202	3PE	O22-C21-O21-C2
45	L	704	3PE	O22-C21-O21-C2

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Mol	Chain	Res	Type	Atoms
45	L	705	3PE	O22-C21-O21-C2
45	M	604	3PE	O22-C21-O21-C2
45	b	101	3PE	O22-C21-O21-C2
45	b	103	3PE	O22-C21-O21-C2
45	q	201	3PE	O22-C21-O21-C2
46	B	202	PC1	O22-C21-O21-C2
46	B	203	PC1	O22-C21-O21-C2
46	Y	203	PC1	O22-C21-O21-C2
47	B	204	PLC	O'-C'-O2-C2
47	J	204	PLC	O'-C'-O2-C2
52	H	401	CDL	OA7-CA5-OA6-CA4
52	M	602	CDL	OA7-CA5-OA6-CA4
52	N	401	CDL	OB7-CB5-OB6-CB4
52	X	201	CDL	OA7-CA5-OA6-CA4
52	X	201	CDL	OB7-CB5-OB6-CB4
52	i	202	CDL	OA7-CA5-OA6-CA4
52	r	201	CDL	OA7-CA5-OA6-CA4
45	A	201	3PE	C32-C31-O31-C3
45	A	202	3PE	C32-C31-O31-C3
45	Y	201	3PE	C32-C31-O31-C3
45	e	201	3PE	C32-C31-O31-C3
45	m	202	3PE	C32-C31-O31-C3
45	m	203	3PE	C32-C31-O31-C3
46	Z	202	PC1	C32-C31-O31-C3
46	d	202	PC1	C32-C31-O31-C3
46	h	201	PC1	C32-C31-O31-C3
52	J	201	CDL	C31-CA7-OA8-CA6
52	M	602	CDL	C31-CA7-OA8-CA6
45	J	202	3PE	C22-C21-O21-C2
45	m	203	3PE	C22-C21-O21-C2
52	J	201	CDL	C51-CB5-OB6-CB4
52	i	202	CDL	C51-CB5-OB6-CB4
52	N	401	CDL	OA9-CA7-OA8-CA6
45	J	202	3PE	C32-C31-O31-C3
45	L	707	3PE	C32-C31-O31-C3
45	L	708	3PE	C32-C31-O31-C3
45	M	603	3PE	C32-C31-O31-C3
45	Y	202	3PE	C32-C31-O31-C3
46	M	605	PC1	C32-C31-O31-C3
52	M	602	CDL	C71-CB7-OB8-CB6
52	N	401	CDL	C71-CB7-OB8-CB6
52	i	202	CDL	C71-CB7-OB8-CB6

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Mol	Chain	Res	Type	Atoms
45	L	703	3PE	O22-C21-O21-C2
45	L	706	3PE	O22-C21-O21-C2
45	P	503	3PE	O22-C21-O21-C2
46	A	204	PC1	O22-C21-O21-C2
46	M	606	PC1	O22-C21-O21-C2
45	M	603	3PE	O32-C31-O31-C3
45	e	201	3PE	O32-C31-O31-C3
46	Y	203	PC1	O32-C31-O31-C3
52	N	401	CDL	OB9-CB7-OB8-CB6
52	J	201	CDL	O1-C1-CB2-OB2
52	N	401	CDL	C31-CA7-OA8-CA6
47	g	201	PLC	OB-CB-O3-C3
45	P	502	3PE	C22-C21-O21-C2
46	Z	202	PC1	C22-C21-O21-C2
46	h	201	PC1	C22-C21-O21-C2
47	A	206	PLC	C1'-C'-O2-C2
45	L	707	3PE	O32-C31-O31-C3
56	P	501	NDP	C3D-C4D-C5D-O5D
46	Y	203	PC1	C32-C31-O31-C3
52	J	201	CDL	CA2-C1-CB2-OB2
52	L	701	CDL	CB2-C1-CA2-OA2
52	d	201	CDL	CB2-C1-CA2-OA2
46	Z	202	PC1	O22-C21-O21-C2
47	A	206	PLC	C1B-CB-O3-C3
52	H	401	CDL	O1-C1-CA2-OA2
45	M	604	3PE	C31-C32-C33-C34
52	M	602	CDL	CA5-C11-C12-C13
45	P	502	3PE	O21-C2-C3-O31
46	M	606	PC1	O21-C2-C3-O31
45	P	502	3PE	O22-C21-O21-C2
45	I	203	3PE	C22-C21-O21-C2
47	P	504	PLC	C1'-C'-O2-C2
45	I	203	3PE	C21-C22-C23-C24
52	H	401	CDL	C31-CA7-OA8-CA6
47	B	204	PLC	C'-C1'-C2'-C3'
52	H	401	CDL	CB7-C71-C72-C73
52	J	201	CDL	CB7-C71-C72-C73
47	A	206	PLC	OB-CB-O3-C3
45	P	503	3PE	C21-C22-C23-C24
45	e	201	3PE	C31-C32-C33-C34
46	A	205	PC1	C21-C22-C23-C24
46	B	202	PC1	C31-C32-C33-C34

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Mol	Chain	Res	Type	Atoms
46	B	203	PC1	C21-C22-C23-C24
46	H	402	PC1	C31-C32-C33-C34
46	L	709	PC1	C21-C22-C23-C24
46	q	202	PC1	C21-C22-C23-C24
47	A	206	PLC	C'-C1'-C2'-C3'
47	d	203	PLC	C'-C1'-C2'-C3'
52	J	201	CDL	CA5-C11-C12-C13
52	L	701	CDL	CA5-C11-C12-C13
52	N	401	CDL	CA7-C31-C32-C33
52	X	201	CDL	CA7-C31-C32-C33
46	H	402	PC1	C11-C12-N-C13
46	H	402	PC1	C11-C12-N-C15
45	J	203	3PE	C31-C32-C33-C34
45	L	706	3PE	C31-C32-C33-C34
47	g	201	PLC	C'-C1'-C2'-C3'
52	H	401	CDL	CB5-C51-C52-C53
52	M	602	CDL	CB5-C51-C52-C53
52	d	201	CDL	CB7-C71-C72-C73
46	h	201	PC1	O22-C21-O21-C2
47	A	206	PLC	O'-C'-O2-C2
52	H	401	CDL	OA9-CA7-OA8-CA6
50	F	501	FMN	O3'-C3'-C4'-C5'
50	F	501	FMN	C2'-C3'-C4'-C5'
45	Z	201	3PE	C22-C21-O21-C2
45	A	201	3PE	C11-O13-P-O11
45	I	203	3PE	C1-O11-P-O13
45	I	203	3PE	C11-O13-P-O11
45	J	203	3PE	C1-O11-P-O13
45	L	704	3PE	C11-O13-P-O11
45	L	707	3PE	C1-O11-P-O13
45	N	402	3PE	C11-O13-P-O11
45	P	502	3PE	C11-O13-P-O11
45	b	101	3PE	C11-O13-P-O11
45	b	102	3PE	C11-O13-P-O11
45	b	103	3PE	C1-O11-P-O13
45	e	201	3PE	C1-O11-P-O13
45	m	201	3PE	C1-O11-P-O13
45	m	201	3PE	C11-O13-P-O11
45	m	202	3PE	C11-O13-P-O11
46	A	203	PC1	C11-O13-P-O11
46	A	203	PC1	C1-O11-P-O13
46	A	204	PC1	C1-O11-P-O13

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Mol	Chain	Res	Type	Atoms
46	A	205	PC1	C11-O13-P-O11
46	L	709	PC1	C1-O11-P-O13
46	Y	203	PC1	C1-O11-P-O13
46	Z	202	PC1	C11-O13-P-O11
46	h	201	PC1	C1-O11-P-O13
46	q	202	PC1	C11-O13-P-O11
47	A	206	PLC	C1-O3P-P-O4P
47	A	206	PLC	C4-O4P-P-O3P
47	L	710	PLC	C4-O4P-P-O3P
47	d	203	PLC	C1-O3P-P-O4P
52	H	401	CDL	CB2-OB2-PB2-OB5
52	L	701	CDL	CA3-OA5-PA1-OA2
52	L	701	CDL	CB2-OB2-PB2-OB5
52	L	701	CDL	CB3-OB5-PB2-OB2
52	M	602	CDL	CB2-OB2-PB2-OB5
52	N	401	CDL	CA3-OA5-PA1-OA2
52	N	401	CDL	CB2-OB2-PB2-OB5
52	d	201	CDL	CA3-OA5-PA1-OA2
52	i	202	CDL	CB3-OB5-PB2-OB2
47	d	203	PLC	C1B-CB-O3-C3
46	q	202	PC1	C32-C31-O31-C3
52	X	201	CDL	CA2-C1-CB2-OB2
45	I	203	3PE	O22-C21-O21-C2
45	Z	201	3PE	O22-C21-O21-C2
47	P	504	PLC	O'-C'-O2-C2
45	J	203	3PE	C32-C31-O31-C3
47	L	710	PLC	C1B-CB-O3-C3
52	r	201	CDL	C31-CA7-OA8-CA6
45	L	703	3PE	C23-C24-C25-C26
46	L	709	PC1	C23-C24-C25-C26
52	d	201	CDL	C72-C73-C74-C75
45	b	102	3PE	C22-C21-O21-C2
46	L	709	PC1	C22-C21-O21-C2
45	J	203	3PE	C32-C33-C34-C35
45	J	203	3PE	C25-C26-C27-C28
45	J	203	3PE	C26-C27-C28-C29
45	L	702	3PE	C29-C2A-C2B-C2C
45	L	703	3PE	C38-C39-C3A-C3B
45	L	708	3PE	C29-C2A-C2B-C2C
45	M	603	3PE	C38-C39-C3A-C3B
45	N	402	3PE	C24-C25-C26-C27
45	Y	201	3PE	C27-C28-C29-C2A

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Mol	Chain	Res	Type	Atoms
45	b	102	3PE	C2D-C2E-C2F-C2G
45	m	203	3PE	C24-C25-C26-C27
46	B	202	PC1	C3C-C3D-C3E-C3F
46	h	201	PC1	C27-C28-C29-C2A
46	h	201	PC1	C37-C38-C39-C3A
52	H	401	CDL	C78-C79-C80-C81
52	N	401	CDL	C55-C56-C57-C58
45	J	202	3PE	C33-C34-C35-C36
45	L	703	3PE	C32-C33-C34-C35
45	Y	201	3PE	C23-C24-C25-C26
52	X	201	CDL	C82-C83-C84-C85
45	b	102	3PE	O22-C21-O21-C2
46	L	709	PC1	O22-C21-O21-C2
45	A	202	3PE	C36-C37-C38-C39
45	Y	201	3PE	C22-C23-C24-C25
45	m	202	3PE	C32-C33-C34-C35
47	J	204	PLC	C5B-C6B-C7B-C8B
52	M	602	CDL	C83-C84-C85-C86
46	q	202	PC1	O11-C1-C2-O21
45	L	706	3PE	C27-C28-C29-C2A
45	Y	202	3PE	C28-C29-C2A-C2B
46	B	202	PC1	C25-C26-C27-C28
52	H	401	CDL	C59-C60-C61-C62
52	H	401	CDL	C72-C73-C74-C75
52	J	201	CDL	C31-C32-C33-C34
52	M	602	CDL	C34-C35-C36-C37
52	X	201	CDL	C35-C36-C37-C38
52	X	201	CDL	C58-C59-C60-C61
52	i	202	CDL	O1-C1-CA2-OA2
45	A	202	3PE	C38-C39-C3A-C3B
45	L	703	3PE	C25-C26-C27-C28
45	L	708	3PE	C25-C26-C27-C28
45	M	603	3PE	C39-C3A-C3B-C3C
52	M	602	CDL	CB7-C71-C72-C73
47	O	403	PLC	O2-C2-C3-O3
45	L	702	3PE	C2E-C2F-C2G-C2H
45	b	103	3PE	C36-C37-C38-C39
46	A	204	PC1	C23-C24-C25-C26
47	B	204	PLC	C5B-C6B-C7B-C8B
52	X	201	CDL	C16-C17-C18-C19
45	A	201	3PE	C24-C25-C26-C27
45	L	706	3PE	C25-C26-C27-C28

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Mol	Chain	Res	Type	Atoms
45	Z	201	3PE	C28-C29-C2A-C2B
45	e	201	3PE	C24-C25-C26-C27
46	L	709	PC1	C35-C36-C37-C38
46	q	202	PC1	C28-C29-C2A-C2B
47	O	403	PLC	C2'-C3'-C4'-C5'
52	M	602	CDL	C12-C13-C14-C15
52	M	602	CDL	C16-C17-C18-C19
52	X	201	CDL	C22-C23-C24-C25
45	M	603	3PE	C21-C22-C23-C24
46	Y	203	PC1	C31-C32-C33-C34
45	Y	202	3PE	C36-C37-C38-C39
45	b	103	3PE	C35-C36-C37-C38
46	B	203	PC1	C36-C37-C38-C39
46	H	402	PC1	C28-C29-C2A-C2B
45	e	201	3PE	C34-C35-C36-C37
46	B	202	PC1	C22-C23-C24-C25
46	Z	202	PC1	C37-C38-C39-C3A
52	M	602	CDL	C39-C40-C41-C42
45	L	707	3PE	C22-C21-O21-C2
45	e	201	3PE	C2A-C2B-C2C-C2D
46	Y	203	PC1	C24-C25-C26-C27
52	d	201	CDL	C42-C43-C44-C45
45	e	201	3PE	C21-C22-C23-C24
46	B	203	PC1	C31-C32-C33-C34
47	d	203	PLC	CB-C1B-C2B-C3B
52	r	201	CDL	CB7-C71-C72-C73
45	P	502	3PE	C34-C35-C36-C37
45	m	201	3PE	C32-C33-C34-C35
46	L	709	PC1	C3E-C3F-C3G-C3H
46	M	606	PC1	C32-C33-C34-C35
46	Z	202	PC1	C22-C23-C24-C25
52	M	602	CDL	C56-C57-C58-C59
52	i	202	CDL	C74-C75-C76-C77
45	b	101	3PE	C26-C27-C28-C29
47	B	204	PLC	C4B-C5B-C6B-C7B
52	H	401	CDL	C14-C15-C16-C17
52	J	201	CDL	C53-C54-C55-C56
52	r	201	CDL	C71-C72-C73-C74
45	Y	202	3PE	O13-C11-C12-N
45	A	202	3PE	C2B-C2C-C2D-C2E
45	e	201	3PE	C26-C27-C28-C29
47	d	203	PLC	C5B-C6B-C7B-C8B

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Mol	Chain	Res	Type	Atoms
52	J	201	CDL	C38-C39-C40-C41
52	L	701	CDL	C36-C37-C38-C39
52	M	602	CDL	C18-C19-C20-C21
52	i	202	CDL	C57-C58-C59-C60
45	N	402	3PE	C21-C22-C23-C24
46	A	204	PC1	C21-C22-C23-C24
45	J	203	3PE	O32-C31-O31-C3
45	b	103	3PE	C2B-C2C-C2D-C2E
52	L	701	CDL	C39-C40-C41-C42
52	M	602	CDL	C37-C38-C39-C40
52	X	201	CDL	C39-C40-C41-C42
45	b	101	3PE	C2A-C2B-C2C-C2D
46	h	201	PC1	C22-C23-C24-C25
45	L	702	3PE	C23-C24-C25-C26
45	Y	202	3PE	C3A-C3B-C3C-C3D
46	A	205	PC1	C23-C24-C25-C26
46	B	203	PC1	C3A-C3B-C3C-C3D
46	I	204	PC1	C3E-C3F-C3G-C3H
46	L	709	PC1	C36-C37-C38-C39
46	Z	202	PC1	C35-C36-C37-C38
46	h	201	PC1	C2D-C2E-C2F-C2G
52	d	201	CDL	C35-C36-C37-C38
47	d	203	PLC	OB-CB-O3-C3
45	A	202	3PE	C2E-C2F-C2G-C2H
45	Y	202	3PE	C33-C34-C35-C36
45	Y	202	3PE	C2D-C2E-C2F-C2G
45	m	201	3PE	C39-C3A-C3B-C3C
52	L	701	CDL	C52-C53-C54-C55
52	X	201	CDL	C52-C53-C54-C55
45	L	707	3PE	O22-C21-O21-C2
45	L	706	3PE	C34-C35-C36-C37
45	L	707	3PE	C33-C34-C35-C36
46	M	606	PC1	C23-C24-C25-C26
46	A	205	PC1	C32-C31-O31-C3
45	L	702	3PE	C22-C21-O21-C2
45	Y	201	3PE	C22-C21-O21-C2
47	d	203	PLC	C1'-C'-O2-C2
46	I	204	PC1	C2A-C2B-C2C-C2D
52	H	401	CDL	C11-C12-C13-C14
46	A	203	PC1	C32-C33-C34-C35
46	L	709	PC1	C39-C3A-C3B-C3C
50	F	501	FMN	O3'-C3'-C4'-O4'

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Mol	Chain	Res	Type	Atoms
47	L	710	PLC	OB-CB-O3-C3
52	r	201	CDL	OA9-CA7-OA8-CA6
45	J	203	3PE	C39-C3A-C3B-C3C
46	h	201	PC1	C28-C29-C2A-C2B
45	b	103	3PE	C2E-C2F-C2G-C2H
46	A	204	PC1	C33-C34-C35-C36
45	A	202	3PE	C25-C26-C27-C28
52	i	202	CDL	CB2-C1-CA2-OA2
45	L	702	3PE	O22-C21-O21-C2
45	Y	201	3PE	O22-C21-O21-C2
47	d	203	PLC	O'-C'-O2-C2
52	H	401	CDL	C54-C55-C56-C57
45	L	707	3PE	C25-C26-C27-C28
45	N	402	3PE	C35-C36-C37-C38
45	m	201	3PE	C22-C23-C24-C25
46	q	202	PC1	C2D-C2E-C2F-C2G
47	J	204	PLC	C1'-C2'-C3'-C4'
46	H	402	PC1	C11-C12-N-C14
45	Y	201	3PE	C21-C22-C23-C24
46	A	205	PC1	C31-C32-C33-C34
45	M	603	3PE	C35-C36-C37-C38
45	Y	202	3PE	C2B-C2C-C2D-C2E
52	M	602	CDL	C14-C15-C16-C17
52	d	201	CDL	C11-CA5-OA6-CA4
45	b	102	3PE	C26-C27-C28-C29
52	H	401	CDL	C60-C61-C62-C63
45	Y	202	3PE	C2E-C2F-C2G-C2H
46	H	402	PC1	C37-C38-C39-C3A
58	i	201	CHD	C21-C20-C22-C23
46	B	203	PC1	C26-C27-C28-C29
46	A	205	PC1	O32-C31-O31-C3
45	L	702	3PE	C27-C28-C29-C2A
45	L	706	3PE	C3A-C3B-C3C-C3D
52	H	401	CDL	OB7-CB5-OB6-CB4
52	i	202	CDL	CA5-C11-C12-C13
47	J	204	PLC	C1B-CB-O3-C3
46	H	402	PC1	C32-C33-C34-C35
52	H	401	CDL	C74-C75-C76-C77
52	N	401	CDL	C22-C23-C24-C25
52	d	201	CDL	C40-C41-C42-C43
46	Z	202	PC1	C32-C33-C34-C35
52	N	401	CDL	C16-C17-C18-C19

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Mol	Chain	Res	Type	Atoms
52	N	401	CDL	C32-C33-C34-C35
45	L	703	3PE	C21-C22-C23-C24
45	I	203	3PE	C29-C2A-C2B-C2C
45	N	402	3PE	C33-C34-C35-C36
46	H	402	PC1	C27-C28-C29-C2A
45	b	103	3PE	C32-C33-C34-C35
47	d	203	PLC	C7B-C8B-C9B-CAA
52	H	401	CDL	C31-C32-C33-C34
45	L	706	3PE	C22-C23-C24-C25
45	m	203	3PE	C22-C23-C24-C25
47	B	204	PLC	C2B-C3B-C4B-C5B
46	M	605	PC1	C22-C21-O21-C2
52	H	401	CDL	C51-CB5-OB6-CB4
52	L	701	CDL	C11-CA5-OA6-CA4
45	N	402	3PE	O11-C1-C2-O21
46	A	205	PC1	O11-C1-C2-O21
52	M	602	CDL	OA5-CA3-CA4-OA6
46	q	202	PC1	O32-C31-O31-C3
45	m	201	3PE	C28-C29-C2A-C2B
46	M	605	PC1	C34-C35-C36-C37
52	r	201	CDL	O1-C1-CB2-OB2
52	L	701	CDL	OA7-CA5-OA6-CA4
52	d	201	CDL	OA7-CA5-OA6-CA4
52	i	202	CDL	CB5-C51-C52-C53
45	Z	201	3PE	O21-C2-C3-O31
45	b	101	3PE	C2D-C2E-C2F-C2G
45	M	603	3PE	C3A-C3B-C3C-C3D
45	Y	201	3PE	C2E-C2F-C2G-C2H
55	O	402	DGT	O4'-C4'-C5'-O5'
52	M	602	CDL	C81-C82-C83-C84
59	o	201	MYR	C5-C6-C7-C8
46	M	605	PC1	O22-C21-O21-C2
52	r	201	CDL	C51-CB5-OB6-CB4
45	N	402	3PE	C2C-C2D-C2E-C2F
52	i	202	CDL	C31-C32-C33-C34
50	F	501	FMN	C2'-C3'-C4'-O4'
45	J	203	3PE	C11-O13-P-O11
45	M	603	3PE	C1-O11-P-O13
45	Z	201	3PE	C1-O11-P-O13
45	q	201	3PE	C1-O11-P-O13
46	B	202	PC1	C1-O11-P-O13
46	Y	203	PC1	C11-O13-P-O11

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Mol	Chain	Res	Type	Atoms
52	r	201	CDL	CA3-OA5-PA1-OA2
45	L	702	3PE	C25-C26-C27-C28
45	P	503	3PE	C32-C31-O31-C3
46	M	606	PC1	C32-C31-O31-C3
45	L	703	3PE	O11-C1-C2-C3
45	L	708	3PE	O11-C1-C2-C3
45	N	402	3PE	O11-C1-C2-C3
45	m	202	3PE	O11-C1-C2-C3
46	B	202	PC1	O11-C1-C2-C3
46	Z	202	PC1	O11-C1-C2-C3
52	M	602	CDL	OA5-CA3-CA4-CA6
52	M	602	CDL	OB5-CB3-CB4-CB6
52	d	201	CDL	OB5-CB3-CB4-CB6
52	N	401	CDL	C71-C72-C73-C74
45	A	202	3PE	C32-C33-C34-C35
45	m	203	3PE	C3D-C3E-C3F-C3G
46	A	203	PC1	C25-C26-C27-C28
52	X	201	CDL	C63-C64-C65-C66
45	b	101	3PE	C24-C25-C26-C27
52	H	401	CDL	C13-C14-C15-C16
45	m	201	3PE	C22-C21-O21-C2
47	J	204	PLC	OB-CB-O3-C3
46	q	202	PC1	C29-C2A-C2B-C2C
45	L	702	3PE	C1-C2-C3-O31
45	M	604	3PE	C1-C2-C3-O31
45	P	502	3PE	C1-C2-C3-O31
45	b	101	3PE	C1-C2-C3-O31
46	M	606	PC1	C1-C2-C3-O31
47	A	206	PLC	C1-C2-C3-O3
47	A	206	PLC	C3'-C4'-C5'-C6'
47	J	204	PLC	C1-C2-C3-O3
52	d	201	CDL	CA3-CA4-CA6-OA8
52	i	202	CDL	C71-C72-C73-C74
46	B	203	PC1	C3D-C3E-C3F-C3G
46	B	202	PC1	C33-C34-C35-C36
52	J	201	CDL	C56-C57-C58-C59
45	A	202	3PE	C3B-C3C-C3D-C3E
46	M	605	PC1	C2D-C2E-C2F-C2G
47	A	206	PLC	C6'-C7'-C8'-C9'
52	r	201	CDL	C12-C13-C14-C15
45	L	703	3PE	C31-C32-C33-C34
45	Y	201	3PE	C28-C29-C2A-C2B

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Mol	Chain	Res	Type	Atoms
45	m	201	3PE	C3C-C3D-C3E-C3F
47	J	204	PLC	C8B-C9B-CAA-CBA
45	J	202	3PE	C36-C37-C38-C39
45	e	201	3PE	C22-C23-C24-C25
52	M	602	CDL	C64-C65-C66-C67
45	m	201	3PE	C3F-C3G-C3H-C3I
46	M	605	PC1	C23-C24-C25-C26
59	o	201	MYR	C9-C10-C11-C12
45	L	708	3PE	C33-C34-C35-C36
46	M	605	PC1	C27-C28-C29-C2A
46	I	204	PC1	C31-C32-C33-C34
46	A	203	PC1	C22-C23-C24-C25
52	X	201	CDL	C44-C45-C46-C47
45	M	604	3PE	C1-C2-O21-C21
52	X	201	CDL	C77-C78-C79-C80
52	L	701	CDL	CA7-C31-C32-C33
45	N	402	3PE	C22-C23-C24-C25
46	H	402	PC1	C23-C24-C25-C26
52	H	401	CDL	C57-C58-C59-C60
45	Y	202	3PE	C2-C1-O11-P
45	e	201	3PE	C39-C3A-C3B-C3C
45	Z	201	3PE	C32-C31-O31-C3
46	L	709	PC1	C32-C31-O31-C3
46	L	709	PC1	O11-C1-C2-O21
46	h	201	PC1	O11-C1-C2-O21
45	b	103	3PE	C3F-C3G-C3H-C3I
46	B	202	PC1	C28-C29-C2A-C2B
45	P	503	3PE	O32-C31-O31-C3
46	A	204	PC1	C31-C32-C33-C34
46	M	606	PC1	O32-C31-O31-C3
45	Z	201	3PE	C27-C28-C29-C2A
52	i	202	CDL	C13-C14-C15-C16
45	A	201	3PE	C32-C33-C34-C35
45	Y	202	3PE	C25-C26-C27-C28
46	L	709	PC1	O32-C31-O31-C3
56	P	501	NDP	O4D-C1D-N1N-C6N
45	q	201	3PE	C32-C31-O31-C3
52	d	201	CDL	C31-CA7-OA8-CA6
55	O	402	DGT	PB-O3A-PA-O2A
52	r	201	CDL	OB7-CB5-OB6-CB4
45	N	402	3PE	C37-C38-C39-C3A
45	P	503	3PE	C27-C28-C29-C2A

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Mol	Chain	Res	Type	Atoms
52	i	202	CDL	C76-C77-C78-C79
45	I	203	3PE	C32-C31-O31-C3
52	r	201	CDL	C16-C17-C18-C19
45	A	202	3PE	C31-C32-C33-C34
45	L	706	3PE	C35-C36-C37-C38
45	m	202	3PE	C2A-C2B-C2C-C2D
47	g	201	PLC	C1'-C2'-C3'-C4'
52	J	201	CDL	C51-C52-C53-C54
45	L	707	3PE	O11-C1-C2-C3
45	q	201	3PE	O11-C1-C2-C3
46	A	205	PC1	O11-C1-C2-C3
46	L	709	PC1	O11-C1-C2-C3
46	Y	203	PC1	O11-C1-C2-C3
46	q	202	PC1	O11-C1-C2-C3
47	L	710	PLC	O3P-C1-C2-C3
52	X	201	CDL	OA5-CA3-CA4-CA6
52	d	201	CDL	OA5-CA3-CA4-CA6
52	i	202	CDL	OB5-CB3-CB4-CB6
45	e	201	3PE	O13-C11-C12-N
46	I	204	PC1	C33-C34-C35-C36
52	d	201	CDL	C41-C42-C43-C44
52	i	202	CDL	C54-C55-C56-C57
46	d	202	PC1	C23-C24-C25-C26
52	N	401	CDL	C76-C77-C78-C79
52	X	201	CDL	C71-CB7-OB8-CB6
52	M	602	CDL	CA7-C31-C32-C33
45	m	201	3PE	C2-C1-O11-P
52	d	201	CDL	CA4-CA3-OA5-PA1
52	X	201	CDL	C32-C33-C34-C35
52	H	401	CDL	C73-C74-C75-C76
46	A	203	PC1	C32-C31-O31-C3
46	B	202	PC1	C32-C31-O31-C3
52	d	201	CDL	C11-C12-C13-C14
45	A	202	3PE	C1-C2-C3-O31
45	J	203	3PE	C1-C2-C3-O31
45	L	705	3PE	C1-C2-C3-O31
45	M	603	3PE	C1-C2-C3-O31
45	Z	201	3PE	C1-C2-C3-O31
46	A	203	PC1	C1-C2-C3-O31
47	L	710	PLC	C1-C2-C3-O3
52	N	401	CDL	CB3-CB4-CB6-OB8
52	i	202	CDL	CA3-CA4-CA6-OA8

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Mol	Chain	Res	Type	Atoms
45	m	201	3PE	O22-C21-O21-C2
45	I	203	3PE	C26-C27-C28-C29
52	d	201	CDL	C44-C45-C46-C47
45	Z	201	3PE	O32-C31-O31-C3
52	d	201	CDL	C36-C37-C38-C39
52	M	602	CDL	C24-C25-C26-C27
52	L	701	CDL	C51-CB5-OB6-CB4
45	m	203	3PE	C38-C39-C3A-C3B
45	Z	201	3PE	C25-C26-C27-C28
45	M	604	3PE	C11-O13-P-O11
45	P	502	3PE	C1-O11-P-O13
45	m	203	3PE	C11-O13-P-O11
46	Y	203	PC1	C21-C22-C23-C24
45	J	203	3PE	C23-C24-C25-C26
46	M	605	PC1	C32-C33-C34-C35
45	A	201	3PE	O11-C1-C2-O21
45	L	706	3PE	O11-C1-C2-O21
45	P	503	3PE	O11-C1-C2-O21
45	b	101	3PE	O11-C1-C2-O21
45	b	102	3PE	O11-C1-C2-O21
46	A	203	PC1	O11-C1-C2-O21
46	M	606	PC1	O11-C1-C2-O21
52	H	401	CDL	OB5-CB3-CB4-OB6
52	r	201	CDL	OB5-CB3-CB4-OB6
45	b	101	3PE	C23-C24-C25-C26
45	q	201	3PE	O32-C31-O31-C3
52	d	201	CDL	OA9-CA7-OA8-CA6
45	m	202	3PE	C33-C34-C35-C36
45	Y	202	3PE	O21-C2-C3-O31
46	A	203	PC1	O21-C2-C3-O31
52	d	201	CDL	OA6-CA4-CA6-OA8
52	i	202	CDL	OA6-CA4-CA6-OA8
45	b	102	3PE	C28-C29-C2A-C2B
59	o	201	MYR	C10-C11-C12-C13
47	A	206	PLC	C4'-C5'-C6'-C7'
52	L	701	CDL	C55-C56-C57-C58
52	H	401	CDL	CB2-C1-CA2-OA2
45	b	102	3PE	C22-C23-C24-C25
46	Y	203	PC1	C36-C37-C38-C39
45	M	604	3PE	C36-C37-C38-C39
52	N	401	CDL	C78-C79-C80-C81
45	L	704	3PE	C35-C36-C37-C38

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Mol	Chain	Res	Type	Atoms
45	L	707	3PE	C36-C37-C38-C39
45	M	603	3PE	C33-C34-C35-C36
46	h	201	PC1	C29-C2A-C2B-C2C
45	I	203	3PE	C2E-C2F-C2G-C2H
45	b	103	3PE	C2-C1-O11-P
46	Z	202	PC1	C38-C39-C3A-C3B
46	H	402	PC1	O21-C21-C22-C23
57	U	101	EHZ	O2-C9-S1-C10
52	M	602	CDL	C59-C60-C61-C62
52	M	602	CDL	C79-C80-C81-C82
45	Z	201	3PE	C21-C22-C23-C24
45	e	201	3PE	C2C-C2D-C2E-C2F
52	N	401	CDL	C18-C19-C20-C21
45	I	203	3PE	O32-C31-O31-C3
45	P	502	3PE	C32-C33-C34-C35
46	Z	202	PC1	C25-C26-C27-C28
45	A	202	3PE	O11-C1-C2-C3
45	M	603	3PE	O11-C1-C2-C3
45	b	101	3PE	O11-C1-C2-C3
45	b	103	3PE	O11-C1-C2-C3
45	m	201	3PE	O11-C1-C2-C3
46	A	204	PC1	O11-C1-C2-C3
46	h	201	PC1	O11-C1-C2-C3
47	B	204	PLC	O3P-C1-C2-C3
52	N	401	CDL	OB5-CB3-CB4-CB6
45	M	604	3PE	C32-C33-C34-C35
45	m	201	3PE	C36-C37-C38-C39
45	b	103	3PE	C38-C39-C3A-C3B
52	M	602	CDL	C62-C63-C64-C65
45	A	202	3PE	C23-C24-C25-C26
47	J	204	PLC	C1B-C2B-C3B-C4B
45	A	202	3PE	C34-C35-C36-C37
47	L	710	PLC	C1'-C'-O2-C2
55	O	402	DGT	C3'-C4'-C5'-O5'
47	g	201	PLC	C7'-C8'-C9'-CA'
46	M	605	PC1	C2A-C2B-C2C-C2D
52	d	201	CDL	C38-C39-C40-C41
45	M	604	3PE	C38-C39-C3A-C3B
46	I	204	PC1	C2C-C2D-C2E-C2F
52	r	201	CDL	C72-C73-C74-C75
52	d	201	CDL	C31-C32-C33-C34
45	L	707	3PE	C3-C2-O21-C21

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Mol	Chain	Res	Type	Atoms
45	P	503	3PE	C3-C2-O21-C21
52	N	401	CDL	CA6-CA4-OA6-CA5
52	X	201	CDL	CA6-CA4-OA6-CA5
57	U	101	EHZ	C8-C9-S1-C10
45	N	402	3PE	C2-C1-O11-P
46	A	204	PC1	C1-C2-C3-O31
46	B	202	PC1	C1-C2-C3-O31
46	Y	203	PC1	C1-C2-C3-O31
47	O	403	PLC	C1-C2-C3-O3
47	d	203	PLC	C1-C2-C3-O3
52	H	401	CDL	CB3-CB4-CB6-OB8
52	M	602	CDL	CB3-CB4-CB6-OB8
45	J	203	3PE	C3D-C3E-C3F-C3G
45	I	203	3PE	O11-C1-C2-O21
45	L	703	3PE	O11-C1-C2-O21
45	L	707	3PE	O11-C1-C2-O21
45	M	603	3PE	O11-C1-C2-O21
45	e	201	3PE	O11-C1-C2-O21
46	A	204	PC1	O11-C1-C2-O21
46	Y	203	PC1	O11-C1-C2-O21
47	L	710	PLC	O3P-C1-C2-O2
52	i	202	CDL	OB5-CB3-CB4-OB6
52	L	701	CDL	OB7-CB5-OB6-CB4
55	O	402	DGT	PB-O3B-PG-O2G
57	T	101	EHZ	O1-C7-C8-C9
57	U	101	EHZ	O3-C12-C13-C14
46	h	201	PC1	C36-C37-C38-C39
46	A	203	PC1	O32-C31-O31-C3
52	X	201	CDL	OB9-CB7-OB8-CB6
45	M	604	3PE	O21-C2-C3-O31
45	b	101	3PE	O21-C2-C3-O31
46	H	403	PC1	O21-C2-C3-O31
52	J	201	CDL	OB6-CB4-CB6-OB8
52	M	602	CDL	OB6-CB4-CB6-OB8
46	h	201	PC1	C23-C24-C25-C26
45	e	201	3PE	C36-C37-C38-C39
57	U	101	EHZ	N1-C12-C13-C14
45	A	202	3PE	C24-C25-C26-C27
46	B	202	PC1	O32-C31-O31-C3
47	L	710	PLC	O'-C'-O2-C2
45	Z	201	3PE	C32-C33-C34-C35
52	H	401	CDL	C62-C63-C64-C65

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Mol	Chain	Res	Type	Atoms
52	H	401	CDL	C12-C13-C14-C15
52	r	201	CDL	C18-C19-C20-C21
45	M	603	3PE	C3F-C3G-C3H-C3I
45	L	703	3PE	C39-C3A-C3B-C3C
52	H	401	CDL	C56-C57-C58-C59
52	X	201	CDL	C71-C72-C73-C74
52	i	202	CDL	C37-C38-C39-C40
52	X	201	CDL	C31-CA7-OA8-CA6
45	M	604	3PE	C22-C23-C24-C25
52	X	201	CDL	C80-C81-C82-C83
45	L	702	3PE	C11-O13-P-O11
45	L	705	3PE	C11-O13-P-O11
45	Z	201	3PE	C11-O13-P-O11
46	M	605	PC1	C1-O11-P-O13
46	h	201	PC1	C11-O13-P-O11
46	q	202	PC1	C1-O11-P-O13
47	B	204	PLC	C1-O3P-P-O4P
52	H	401	CDL	CA2-OA2-PA1-OA5
45	Y	201	3PE	C2C-C2D-C2E-C2F
45	b	101	3PE	C2F-C2G-C2H-C2I
52	X	201	CDL	C54-C55-C56-C57
45	L	704	3PE	C2-C1-O11-P
46	B	203	PC1	C2-C1-O11-P
46	h	201	PC1	C2-C1-O11-P
50	F	501	FMN	C4'-C5'-O5'-P
52	d	201	CDL	C1-CA2-OA2-PA1
45	J	202	3PE	C11-O13-P-O14
45	J	203	3PE	C1-O11-P-O14
45	L	705	3PE	C1-O11-P-O14
45	L	705	3PE	C11-O13-P-O14
45	M	603	3PE	C11-O13-P-O14
45	M	604	3PE	C11-O13-P-O14
45	N	402	3PE	C11-O13-P-O12
45	N	402	3PE	C11-O13-P-O14
45	P	502	3PE	C1-O11-P-O14
45	P	502	3PE	C11-O13-P-O12
45	P	502	3PE	C11-O13-P-O14
45	Z	201	3PE	C1-O11-P-O14
45	b	102	3PE	C11-O13-P-O12
45	b	102	3PE	C11-O13-P-O14
45	b	103	3PE	C1-O11-P-O14
45	m	201	3PE	C11-O13-P-O12

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Mol	Chain	Res	Type	Atoms
45	m	201	3PE	C11-O13-P-O14
45	m	202	3PE	C11-O13-P-O12
45	m	202	3PE	C11-O13-P-O14
45	q	201	3PE	C1-O11-P-O12
46	A	203	PC1	C11-O13-P-O12
46	A	203	PC1	C11-O13-P-O14
46	A	203	PC1	C1-O11-P-O12
46	A	204	PC1	C1-O11-P-O12
46	A	204	PC1	C1-O11-P-O14
46	A	205	PC1	C11-O13-P-O12
46	L	709	PC1	C11-O13-P-O14
46	L	709	PC1	C1-O11-P-O12
46	L	709	PC1	C1-O11-P-O14
46	M	605	PC1	C1-O11-P-O14
46	Y	203	PC1	C11-O13-P-O12
46	Z	202	PC1	C11-O13-P-O12
46	Z	202	PC1	C11-O13-P-O14
46	h	201	PC1	C11-O13-P-O14
46	h	201	PC1	C1-O11-P-O12
46	h	201	PC1	C1-O11-P-O14
46	q	202	PC1	C11-O13-P-O14
47	A	206	PLC	C4-O4P-P-O1P
47	L	710	PLC	C1-O3P-P-O2P
52	H	401	CDL	CA2-OA2-PA1-OA3
52	J	201	CDL	CB3-OB5-PB2-OB3
52	L	701	CDL	CA3-OA5-PA1-OA4
52	L	701	CDL	CB2-OB2-PB2-OB4
52	L	701	CDL	CB3-OB5-PB2-OB3
52	M	602	CDL	CB2-OB2-PB2-OB3
52	N	401	CDL	CA2-OA2-PA1-OA4
52	N	401	CDL	CA3-OA5-PA1-OA3
52	i	202	CDL	CB3-OB5-PB2-OB3
56	P	501	NDP	C5D-O5D-PN-O1N
56	P	501	NDP	C5D-O5D-PN-O2N
45	A	201	3PE	O11-C1-C2-C3
45	L	706	3PE	O11-C1-C2-C3
45	b	102	3PE	O11-C1-C2-C3
45	e	201	3PE	O11-C1-C2-C3
46	A	203	PC1	O11-C1-C2-C3
45	b	103	3PE	C23-C24-C25-C26
46	M	605	PC1	C26-C27-C28-C29
57	T	101	EHZ	C4-C5-C6-C7

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Mol	Chain	Res	Type	Atoms
46	H	403	PC1	C22-C21-O21-C2
45	Y	201	3PE	C38-C39-C3A-C3B
45	I	203	3PE	C12-C11-O13-P
45	L	702	3PE	C12-C11-O13-P
45	M	603	3PE	C12-C11-O13-P
45	M	604	3PE	C12-C11-O13-P
45	N	402	3PE	C12-C11-O13-P
45	Y	201	3PE	C12-C11-O13-P
45	b	103	3PE	C12-C11-O13-P
45	e	201	3PE	C12-C11-O13-P
45	m	201	3PE	C12-C11-O13-P
45	m	203	3PE	C12-C11-O13-P
45	q	201	3PE	C12-C11-O13-P
47	J	204	PLC	C5-C4-O4P-P
47	d	203	PLC	C5-C4-O4P-P
45	Y	202	3PE	C31-C32-C33-C34
52	X	201	CDL	C13-C14-C15-C16
46	I	204	PC1	C29-C2A-C2B-C2C
52	H	401	CDL	C71-CB7-OB8-CB6
45	I	203	3PE	C2F-C2G-C2H-C2I
52	X	201	CDL	C37-C38-C39-C40
45	A	202	3PE	O11-C1-C2-O21
45	Y	201	3PE	O11-C1-C2-O21
45	m	202	3PE	O11-C1-C2-O21
45	q	201	3PE	O11-C1-C2-O21
47	B	204	PLC	O3P-C1-C2-O2
52	N	401	CDL	OB5-CB3-CB4-OB6
52	X	201	CDL	OA5-CA3-CA4-OA6
52	d	201	CDL	OA5-CA3-CA4-OA6
52	d	201	CDL	OB5-CB3-CB4-OB6
45	b	103	3PE	C3B-C3C-C3D-C3E
45	A	202	3PE	C3D-C3E-C3F-C3G
46	Y	203	PC1	C37-C38-C39-C3A
45	q	201	3PE	O21-C21-C22-C23
52	X	201	CDL	OA9-CA7-OA8-CA6
46	h	201	PC1	C32-C33-C34-C35
46	H	403	PC1	C11-C12-N-C13
45	b	102	3PE	C2C-C2D-C2E-C2F
52	L	701	CDL	C31-C32-C33-C34
45	Y	201	3PE	C1-C2-C3-O31
45	Y	202	3PE	C1-C2-C3-O31
45	b	103	3PE	C1-C2-C3-O31

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Mol	Chain	Res	Type	Atoms
46	A	204	PC1	O13-C11-C12-N
46	d	202	PC1	C1-C2-C3-O31
47	A	206	PLC	O4P-C4-C5-N
47	B	204	PLC	O4P-C4-C5-N
52	J	201	CDL	CB3-CB4-CB6-OB8
59	o	201	MYR	C1-C2-C3-C4
46	H	403	PC1	O22-C21-O21-C2
45	A	202	3PE	O21-C2-C3-O31
45	Y	201	3PE	O21-C2-C3-O31
45	b	103	3PE	O21-C2-C3-O31
46	B	202	PC1	O21-C2-C3-O31
46	d	202	PC1	O21-C2-C3-O31
47	A	206	PLC	O2-C2-C3-O3
47	J	204	PLC	O2-C2-C3-O3
47	d	203	PLC	O2-C2-C3-O3
52	X	201	CDL	OA6-CA4-CA6-OA8
52	r	201	CDL	OA6-CA4-CA6-OA8
45	L	706	3PE	C2E-C2F-C2G-C2H
46	B	203	PC1	C3B-C3C-C3D-C3E
47	O	403	PLC	C8'-C9'-CA'-CB'
47	A	206	PLC	C2-C1-O3P-P
45	L	703	3PE	C3D-C3E-C3F-C3G
45	Y	201	3PE	C2A-C2B-C2C-C2D
46	L	709	PC1	C33-C34-C35-C36
45	I	203	3PE	C27-C28-C29-C2A
45	J	203	3PE	C38-C39-C3A-C3B
45	M	604	3PE	C28-C29-C2A-C2B
45	L	703	3PE	C3C-C3D-C3E-C3F
57	T	101	EHZ	C3-C4-C5-C6
46	H	403	PC1	C32-C33-C34-C35
52	L	701	CDL	C62-C63-C64-C65
52	r	201	CDL	C31-C32-C33-C34
46	H	403	PC1	C11-C12-N-C14
46	H	403	PC1	C11-C12-N-C15
45	b	103	3PE	C2A-C2B-C2C-C2D
52	M	602	CDL	C33-C34-C35-C36
45	L	704	3PE	C33-C34-C35-C36
45	Y	201	3PE	C36-C37-C38-C39
52	i	202	CDL	C52-C53-C54-C55
45	N	402	3PE	C2A-C2B-C2C-C2D
45	Y	201	3PE	C34-C35-C36-C37
45	b	103	3PE	C3E-C3F-C3G-C3H

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Mol	Chain	Res	Type	Atoms
52	X	201	CDL	C31-C32-C33-C34
47	O	403	PLC	C1B-CB-O3-C3
46	h	201	PC1	C2A-C2B-C2C-C2D
46	L	709	PC1	C3A-C3B-C3C-C3D
45	L	703	3PE	C3-C2-O21-C21
45	L	704	3PE	C1-C2-O21-C21
45	L	705	3PE	C3-C2-O21-C21
46	q	202	PC1	C1-C2-O21-C21
47	J	204	PLC	C1-C2-O2-C'
45	Y	201	3PE	O11-C1-C2-C3
52	r	201	CDL	OB5-CB3-CB4-CB6
52	H	401	CDL	OB9-CB7-OB8-CB6
45	L	706	3PE	C24-C25-C26-C27
46	H	403	PC1	C36-C37-C38-C39
45	b	101	3PE	C31-C32-C33-C34
45	m	201	3PE	C21-C22-C23-C24
52	M	602	CDL	C40-C41-C42-C43
45	J	203	3PE	O21-C21-C22-C23
45	P	502	3PE	C2-C1-O11-P
45	P	503	3PE	C2-C1-O11-P
52	i	202	CDL	C1-CA2-OA2-PA1
46	Y	203	PC1	C3C-C3D-C3E-C3F
45	L	703	3PE	O32-C31-O31-C3
45	b	103	3PE	O11-C1-C2-O21
46	h	201	PC1	C11-C12-N-C13
45	e	201	3PE	C2E-C2F-C2G-C2H
45	M	604	3PE	O32-C31-O31-C3
45	L	707	3PE	C2C-C2D-C2E-C2F
46	Y	203	PC1	C38-C39-C3A-C3B
46	d	202	PC1	C34-C35-C36-C37
46	A	204	PC1	O32-C31-O31-C3
45	L	702	3PE	O21-C2-C3-O31
45	L	705	3PE	O21-C2-C3-O31
46	M	605	PC1	O21-C2-C3-O31
45	L	703	3PE	C32-C31-O31-C3
45	L	704	3PE	C1-O11-P-O13
45	L	706	3PE	C1-O11-P-O13
45	L	707	3PE	C11-O13-P-O11
45	M	603	3PE	C11-O13-P-O11
45	M	604	3PE	C1-O11-P-O13
45	P	503	3PE	C1-O11-P-O13
45	Y	201	3PE	C1-O11-P-O13

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Mol	Chain	Res	Type	Atoms
45	Y	201	3PE	C11-O13-P-O11
45	Y	202	3PE	C1-O11-P-O13
45	b	101	3PE	C1-O11-P-O13
45	e	201	3PE	C11-O13-P-O11
46	A	204	PC1	C11-O13-P-O11
47	d	203	PLC	C4-O4P-P-O3P
52	H	401	CDL	CA3-OA5-PA1-OA2
52	J	201	CDL	CA3-OA5-PA1-OA2
52	M	602	CDL	CB3-OB5-PB2-OB2
52	d	201	CDL	CB2-OB2-PB2-OB5
46	H	403	PC1	C3B-C3C-C3D-C3E
45	M	603	3PE	C3D-C3E-C3F-C3G
45	M	604	3PE	C2E-C2F-C2G-C2H
46	Z	202	PC1	C36-C37-C38-C39
47	A	206	PLC	C2-C3-O3-CB
45	L	706	3PE	C3F-C3G-C3H-C3I
46	H	403	PC1	C1-C2-C3-O31
46	M	605	PC1	C1-C2-C3-O31
52	J	201	CDL	C35-C36-C37-C38
45	L	703	3PE	O21-C21-C22-C23
46	L	709	PC1	C32-C33-C34-C35
46	A	205	PC1	C32-C33-C34-C35
45	P	502	3PE	C21-C22-C23-C24
52	X	201	CDL	C20-C21-C22-C23
55	O	402	DGT	PA-O3A-PB-O1B
56	P	501	NDP	PN-O3-PA-O2A
45	m	201	3PE	C26-C27-C28-C29
52	J	201	CDL	C76-C77-C78-C79
52	X	201	CDL	C72-C73-C74-C75
46	H	402	PC1	C36-C37-C38-C39
46	Z	202	PC1	C39-C3A-C3B-C3C
46	M	605	PC1	C2-C1-O11-P
52	H	401	CDL	CA4-CA3-OA5-PA1
52	H	401	CDL	C1-CB2-OB2-PB2
52	H	401	CDL	C79-C80-C81-C82
52	M	602	CDL	C31-C32-C33-C34
46	I	204	PC1	C22-C23-C24-C25
52	N	401	CDL	CB2-C1-CA2-OA2
52	N	401	CDL	C74-C75-C76-C77
45	M	604	3PE	C32-C31-O31-C3
46	A	204	PC1	C32-C31-O31-C3
45	N	402	3PE	C29-C2A-C2B-C2C

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Mol	Chain	Res	Type	Atoms
45	P	503	3PE	C25-C26-C27-C28
52	L	701	CDL	C33-C34-C35-C36
45	m	203	3PE	C35-C36-C37-C38
46	I	204	PC1	C34-C35-C36-C37
45	P	503	3PE	O11-C1-C2-C3
52	N	401	CDL	C34-C35-C36-C37
45	b	102	3PE	O13-C11-C12-N
52	L	701	CDL	C57-C58-C59-C60
45	N	402	3PE	C34-C35-C36-C37
45	b	103	3PE	C3D-C3E-C3F-C3G
45	b	102	3PE	C34-C35-C36-C37
45	m	201	3PE	C2A-C2B-C2C-C2D
45	m	202	3PE	C35-C36-C37-C38
45	J	203	3PE	C33-C34-C35-C36
45	L	707	3PE	C2A-C2B-C2C-C2D
45	M	604	3PE	C33-C34-C35-C36
45	b	102	3PE	C33-C34-C35-C36
45	M	604	3PE	C24-C25-C26-C27
46	H	403	PC1	C35-C36-C37-C38
57	U	101	EHZ	S1-C10-C11-N1
45	L	708	3PE	C26-C27-C28-C29
45	b	102	3PE	C32-C33-C34-C35
45	e	201	3PE	C37-C38-C39-C3A
45	A	202	3PE	C28-C29-C2A-C2B
52	L	701	CDL	C14-C15-C16-C17
46	A	203	PC1	C23-C24-C25-C26
46	M	605	PC1	C33-C34-C35-C36
47	B	204	PLC	C1-C2-C3-O3
45	e	201	3PE	O22-C21-O21-C2
45	Y	201	3PE	C2B-C2C-C2D-C2E
45	Y	201	3PE	C33-C34-C35-C36
52	M	602	CDL	C13-C14-C15-C16
52	r	201	CDL	O1-C1-CA2-OA2
45	L	704	3PE	C23-C24-C25-C26
57	U	101	EHZ	N2-C15-C16-C17
45	Z	201	3PE	C23-C24-C25-C26
52	J	201	CDL	C73-C74-C75-C76
45	L	706	3PE	C3-C2-O21-C21
47	J	204	PLC	C3-C2-O2-C'
45	L	704	3PE	C27-C28-C29-C2A
46	h	201	PC1	C11-C12-N-C14
52	X	201	CDL	C19-C20-C21-C22

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Mol	Chain	Res	Type	Atoms
52	M	602	CDL	C51-C52-C53-C54
52	i	202	CDL	C61-C62-C63-C64
46	A	205	PC1	C2-C1-O11-P
45	L	702	3PE	C2C-C2D-C2E-C2F
47	d	203	PLC	O3P-C1-C2-O2
45	q	201	3PE	O22-C21-C22-C23
52	X	201	CDL	C62-C63-C64-C65
58	i	201	CHD	C22-C23-C24-O25
45	L	706	3PE	C36-C37-C38-C39
46	q	202	PC1	C2B-C2C-C2D-C2E
45	Z	201	3PE	C2C-C2D-C2E-C2F
45	b	102	3PE	C29-C2A-C2B-C2C
45	m	202	3PE	C23-C24-C25-C26
46	h	201	PC1	C35-C36-C37-C38
46	A	203	PC1	O22-C21-O21-C2
52	X	201	CDL	C34-C35-C36-C37
57	T	101	EHZ	C11-C10-S1-C9
45	A	201	3PE	O21-C2-C3-O31
45	N	402	3PE	O21-C2-C3-O31
45	L	706	3PE	C39-C3A-C3B-C3C
45	b	102	3PE	C2A-C2B-C2C-C2D
46	M	605	PC1	C2C-C2D-C2E-C2F
45	P	503	3PE	C24-C25-C26-C27
52	d	201	CDL	CA2-C1-CB2-OB2
58	i	201	CHD	C22-C23-C24-O26
52	r	201	CDL	C14-C15-C16-C17
45	Y	201	3PE	C39-C3A-C3B-C3C
52	J	201	CDL	C33-C34-C35-C36
52	M	602	CDL	C74-C75-C76-C77
52	M	602	CDL	C17-C18-C19-C20
52	X	201	CDL	C72-C71-CB7-OB8
59	o	201	MYR	C6-C7-C8-C9
45	M	604	3PE	C37-C38-C39-C3A
46	I	204	PC1	C2D-C2E-C2F-C2G
52	r	201	CDL	CA3-CA4-CA6-OA8
52	J	201	CDL	C36-C37-C38-C39
59	o	201	MYR	C4-C5-C6-C7
52	r	201	CDL	C52-C51-CB5-OB6
45	Y	201	3PE	C3B-C3C-C3D-C3E
45	J	202	3PE	C35-C36-C37-C38
45	m	202	3PE	O21-C21-C22-C23
52	J	201	CDL	C74-C75-C76-C77

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Mol	Chain	Res	Type	Atoms
52	X	201	CDL	C78-C79-C80-C81
45	L	707	3PE	C3A-C3B-C3C-C3D
46	Y	203	PC1	C35-C36-C37-C38
46	B	202	PC1	C38-C39-C3A-C3B
46	h	201	PC1	C33-C34-C35-C36
52	N	401	CDL	C24-C25-C26-C27
52	L	701	CDL	C32-C31-CA7-OA8
45	m	203	3PE	C3C-C3D-C3E-C3F
46	A	203	PC1	C34-C35-C36-C37
45	I	203	3PE	O11-C1-C2-C3
46	M	606	PC1	O11-C1-C2-C3
52	H	401	CDL	OB5-CB3-CB4-CB6
46	A	204	PC1	O31-C31-C32-C33
45	b	103	3PE	C3C-C3D-C3E-C3F
46	B	202	PC1	C21-C22-C23-C24
46	q	202	PC1	C2F-C2G-C2H-C2I
52	d	201	CDL	C52-C51-CB5-OB6
46	H	403	PC1	C3E-C3F-C3G-C3H
46	q	202	PC1	C26-C27-C28-C29
52	L	701	CDL	C64-C65-C66-C67
45	Y	202	3PE	O31-C31-C32-C33
46	B	203	PC1	O21-C21-C22-C23
45	m	202	3PE	C2B-C2C-C2D-C2E
47	A	206	PLC	C4B-C5B-C6B-C7B
45	L	708	3PE	C27-C28-C29-C2A
46	B	202	PC1	C34-C35-C36-C37
45	L	707	3PE	C27-C28-C29-C2A
46	H	402	PC1	C2B-C2C-C2D-C2E
50	F	501	FMN	C5'-O5'-P-O3P
45	A	201	3PE	O31-C31-C32-C33
45	b	101	3PE	O31-C31-C32-C33
46	A	205	PC1	O21-C21-C22-C23
52	L	701	CDL	CA2-OA2-PA1-OA5
55	O	402	DGT	PB-O3B-PG-O3G
45	N	402	3PE	C38-C39-C3A-C3B
45	Y	201	3PE	C29-C2A-C2B-C2C
46	M	605	PC1	C35-C36-C37-C38
46	h	201	PC1	C11-C12-N-C15
45	I	203	3PE	C25-C26-C27-C28
45	m	201	3PE	C3B-C3C-C3D-C3E
45	L	708	3PE	C2B-C2C-C2D-C2E
45	m	203	3PE	C3F-C3G-C3H-C3I

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Mol	Chain	Res	Type	Atoms
52	d	201	CDL	O1-C1-CB2-OB2
45	L	703	3PE	C3B-C3C-C3D-C3E
47	g	201	PLC	C4'-C5'-C6'-C7'
47	L	710	PLC	C1'-C2'-C3'-C4'
52	r	201	CDL	C15-C16-C17-C18
46	B	202	PC1	O31-C31-C32-C33
47	B	204	PLC	C2B-C1B-CB-O3
52	N	401	CDL	C52-C51-CB5-OB6
46	B	203	PC1	C32-C33-C34-C35
45	b	101	3PE	C33-C34-C35-C36
46	Y	203	PC1	C3A-C3B-C3C-C3D
52	N	401	CDL	C11-C12-C13-C14
45	A	201	3PE	O21-C21-C22-C23
45	P	502	3PE	O31-C31-C32-C33
52	d	201	CDL	C34-C35-C36-C37
52	J	201	CDL	CA7-C31-C32-C33
52	X	201	CDL	CA3-CA4-CA6-OA8
45	L	704	3PE	C24-C25-C26-C27
45	J	202	3PE	O11-C1-C2-O21
46	H	403	PC1	O11-C1-C2-O21
45	b	102	3PE	O31-C31-C32-C33
47	d	203	PLC	C2B-C1B-CB-O3
46	d	202	PC1	C11-C12-N-C14
45	J	203	3PE	C3A-C3B-C3C-C3D
45	L	706	3PE	C2F-C2G-C2H-C2I
45	N	402	3PE	C2E-C2F-C2G-C2H
52	L	701	CDL	C13-C14-C15-C16
46	H	403	PC1	C3F-C3G-C3H-C3I
46	d	202	PC1	C37-C38-C39-C3A
52	J	201	CDL	C72-C71-CB7-OB8
45	J	203	3PE	C37-C38-C39-C3A
45	L	706	3PE	O31-C31-C32-C33
52	L	701	CDL	C52-C51-CB5-OB6
46	q	202	PC1	C25-C26-C27-C28
52	M	602	CDL	C55-C56-C57-C58
52	N	401	CDL	C20-C21-C22-C23
45	J	202	3PE	O11-C1-C2-C3
45	L	707	3PE	C34-C35-C36-C37
45	L	704	3PE	O21-C21-C22-C23
45	L	705	3PE	O31-C31-C32-C33
45	N	402	3PE	O31-C31-C32-C33
45	Y	201	3PE	O31-C31-C32-C33

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Mol	Chain	Res	Type	Atoms
45	b	102	3PE	O21-C21-C22-C23
45	N	402	3PE	C36-C37-C38-C39
45	Z	201	3PE	C2E-C2F-C2G-C2H
45	N	402	3PE	C27-C28-C29-C2A
46	A	205	PC1	O31-C31-C32-C33
47	L	710	PLC	O2-C'-C1'-C2'
46	B	202	PC1	C11-C12-N-C14
46	L	709	PC1	C11-C12-N-C14
46	L	709	PC1	C11-C12-N-C15
46	d	202	PC1	C11-C12-N-C15
56	P	501	NDP	C2B-O2B-P2B-O2X
47	J	204	PLC	C2B-C1B-CB-O3
52	J	201	CDL	C12-C11-CA5-OA6
45	A	202	3PE	C27-C28-C29-C2A
52	J	201	CDL	C75-C76-C77-C78
45	m	202	3PE	C2-C1-O11-P
45	J	202	3PE	C38-C39-C3A-C3B
46	M	606	PC1	C25-C26-C27-C28
45	b	101	3PE	O32-C31-C32-C33
56	P	501	NDP	O4B-C4B-C5B-O5B
47	O	403	PLC	C4'-C5'-C6'-C7'
46	A	203	PC1	O21-C21-C22-C23
46	A	205	PC1	O22-C21-C22-C23
46	B	203	PC1	O22-C21-C22-C23
45	b	103	3PE	C34-C35-C36-C37
45	e	201	3PE	C22-C21-O21-C2
45	M	604	3PE	C21-C22-C23-C24
47	B	204	PLC	C2B-C1B-CB-OB
45	m	202	3PE	C2E-C2F-C2G-C2H
52	r	201	CDL	C53-C54-C55-C56
52	N	401	CDL	C57-C58-C59-C60
46	B	202	PC1	C11-C12-N-C15
47	d	203	PLC	C2B-C1B-CB-OB
52	M	602	CDL	C80-C81-C82-C83
45	J	203	3PE	C36-C37-C38-C39
45	b	102	3PE	O32-C31-C32-C33
46	h	201	PC1	C26-C27-C28-C29
46	A	203	PC1	C22-C21-O21-C2
45	A	201	3PE	O32-C31-C32-C33
45	A	201	3PE	O22-C21-C22-C23
45	P	502	3PE	O32-C31-C32-C33
46	B	202	PC1	O32-C31-C32-C33

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Mol	Chain	Res	Type	Atoms
47	d	203	PLC	O2-C'-C1'-C2'
45	I	203	3PE	C22-C23-C24-C25
46	M	606	PC1	C26-C27-C28-C29
52	d	201	CDL	C37-C38-C39-C40
46	H	402	PC1	O22-C21-C22-C23
45	A	201	3PE	C2-C1-O11-P
45	Y	202	3PE	O32-C31-C32-C33
45	L	706	3PE	C23-C24-C25-C26
46	B	203	PC1	C37-C38-C39-C3A
45	A	202	3PE	C11-O13-P-O12
45	J	203	3PE	C11-O13-P-O14
45	L	704	3PE	C1-O11-P-O14
45	P	503	3PE	C11-O13-P-O14
45	Z	201	3PE	C1-O11-P-O12
45	b	102	3PE	C1-O11-P-O12
45	b	103	3PE	C11-O13-P-O14
45	q	201	3PE	C11-O13-P-O12
46	A	203	PC1	C11-C12-N-C14
46	M	606	PC1	C11-O13-P-O14
47	O	403	PLC	C1-O3P-P-O1P
47	d	203	PLC	C4-O4P-P-O1P
52	d	201	CDL	CB2-OB2-PB2-OB3
55	O	402	DGT	C5'-O5'-PA-O2A
45	L	705	3PE	O32-C31-C32-C33
45	N	402	3PE	O32-C31-C32-C33
52	J	201	CDL	C72-C71-CB7-OB9
52	N	401	CDL	C52-C51-CB5-OB7
52	d	201	CDL	C76-C77-C78-C79
52	r	201	CDL	CA7-C31-C32-C33
45	L	702	3PE	O13-C11-C12-N
45	L	708	3PE	O13-C11-C12-N
45	M	604	3PE	O13-C11-C12-N
45	Z	201	3PE	O13-C11-C12-N
45	b	101	3PE	O13-C11-C12-N
52	H	401	CDL	C81-C82-C83-C84
45	A	202	3PE	C33-C34-C35-C36
45	M	604	3PE	C23-C24-C25-C26
46	Z	202	PC1	C34-C35-C36-C37
45	L	705	3PE	C1-C2-O21-C21
45	L	706	3PE	C1-C2-O21-C21
45	M	603	3PE	C1-C2-O21-C21
45	P	503	3PE	C12-C11-O13-P

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Mol	Chain	Res	Type	Atoms
45	b	102	3PE	C12-C11-O13-P
46	A	204	PC1	C12-C11-O13-P
47	P	504	PLC	C3-C2-O2-C'
57	U	101	EHZ	O4-C15-C16-C17
45	m	202	3PE	C31-C32-C33-C34
45	Y	201	3PE	O32-C31-C32-C33
46	A	205	PC1	O32-C31-C32-C33
47	J	204	PLC	C2B-C1B-CB-OB
52	L	701	CDL	C52-C51-CB5-OB7
46	A	203	PC1	C11-C12-N-C13
45	A	202	3PE	O21-C21-C22-C23
45	Y	201	3PE	O21-C21-C22-C23
45	m	201	3PE	O21-C21-C22-C23
52	H	401	CDL	C72-C71-CB7-OB8
52	M	602	CDL	C72-C71-CB7-OB8
52	N	401	CDL	C72-C71-CB7-OB8
45	L	704	3PE	C25-C26-C27-C28
45	M	603	3PE	C3B-C3C-C3D-C3E
52	N	401	CDL	C51-C52-C53-C54
46	d	202	PC1	C22-C23-C24-C25
52	M	602	CDL	C72-C73-C74-C75
47	L	710	PLC	O'-C'-C1'-C2'
52	N	401	CDL	C56-C57-C58-C59
52	r	201	CDL	C13-C14-C15-C16
46	M	605	PC1	O21-C21-C22-C23
45	L	704	3PE	O22-C21-C22-C23
52	H	401	CDL	C34-C35-C36-C37
45	A	202	3PE	C2-C1-O11-P
46	B	203	PC1	C2B-C2C-C2D-C2E
47	O	403	PLC	C7'-C8'-C9'-CA'
47	A	206	PLC	O3P-C1-C2-O2
50	F	501	FMN	N10-C1'-C2'-O2'
52	J	201	CDL	C12-C11-CA5-OA7
46	d	202	PC1	C35-C36-C37-C38
45	b	101	3PE	O21-C21-C22-C23
47	O	403	PLC	OB-CB-O3-C3
52	H	401	CDL	C52-C53-C54-C55
45	b	101	3PE	O22-C21-C22-C23
46	A	203	PC1	O22-C21-C22-C23
47	d	203	PLC	O'-C'-C1'-C2'
45	J	203	3PE	C34-C35-C36-C37
52	M	602	CDL	C15-C16-C17-C18

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Mol	Chain	Res	Type	Atoms
47	d	203	PLC	C8B-C9B-CAA-CBA
45	m	201	3PE	O22-C21-C22-C23
52	M	602	CDL	C72-C71-CB7-OB9
46	Y	203	PC1	C39-C3A-C3B-C3C
52	M	602	CDL	C77-C78-C79-C80
45	L	708	3PE	O21-C21-C22-C23
47	B	204	PLC	O2-C'-C1'-C2'
52	M	602	CDL	C52-C51-CB5-OB6
45	I	203	3PE	C2C-C2D-C2E-C2F
45	M	603	3PE	O31-C31-C32-C33
52	M	602	CDL	C12-C11-CA5-OA6

All (1) ring outliers are listed below:

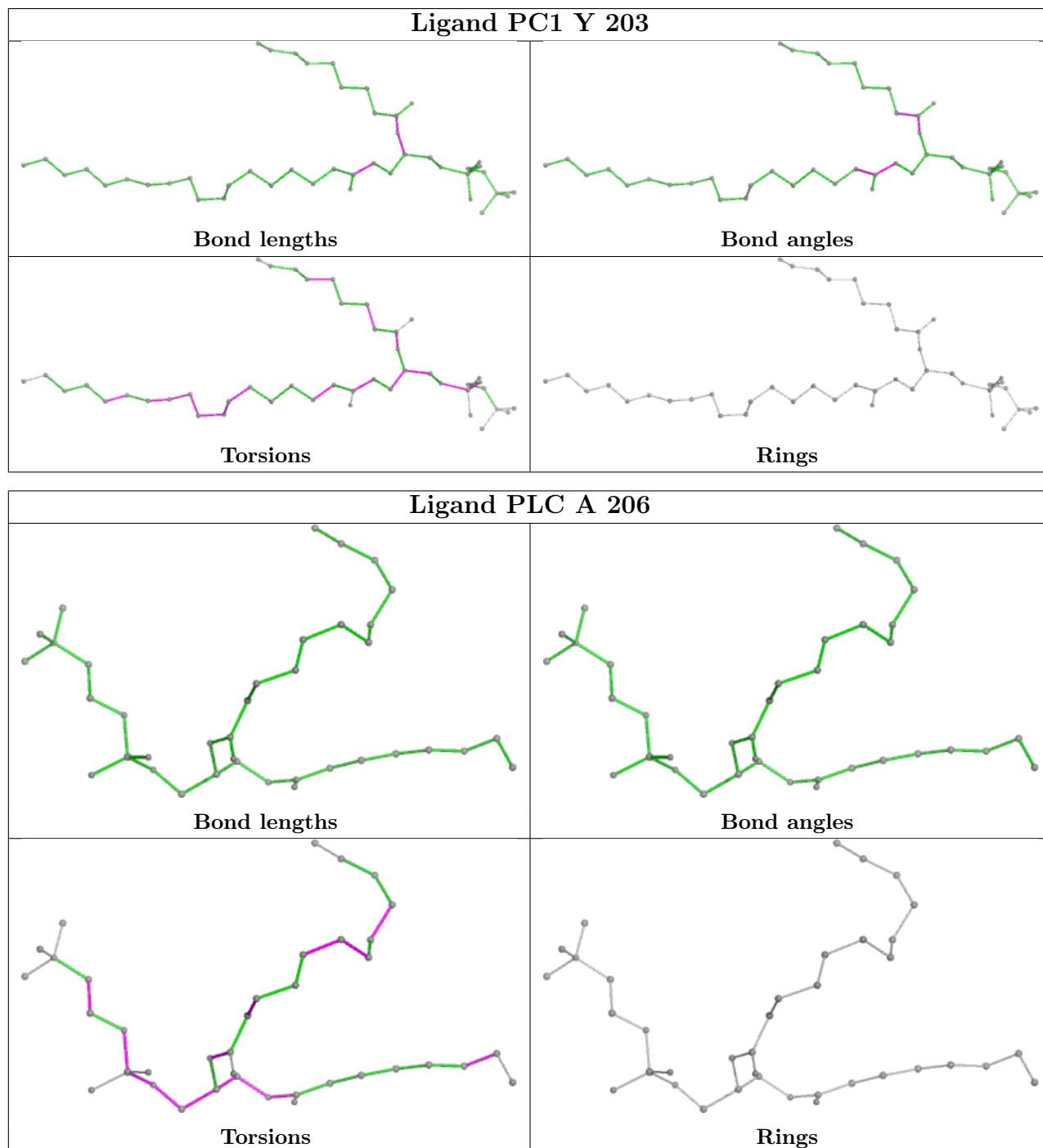
Mol	Chain	Res	Type	Atoms
58	i	201	CHD	C1-C10-C2-C3-C4-C5

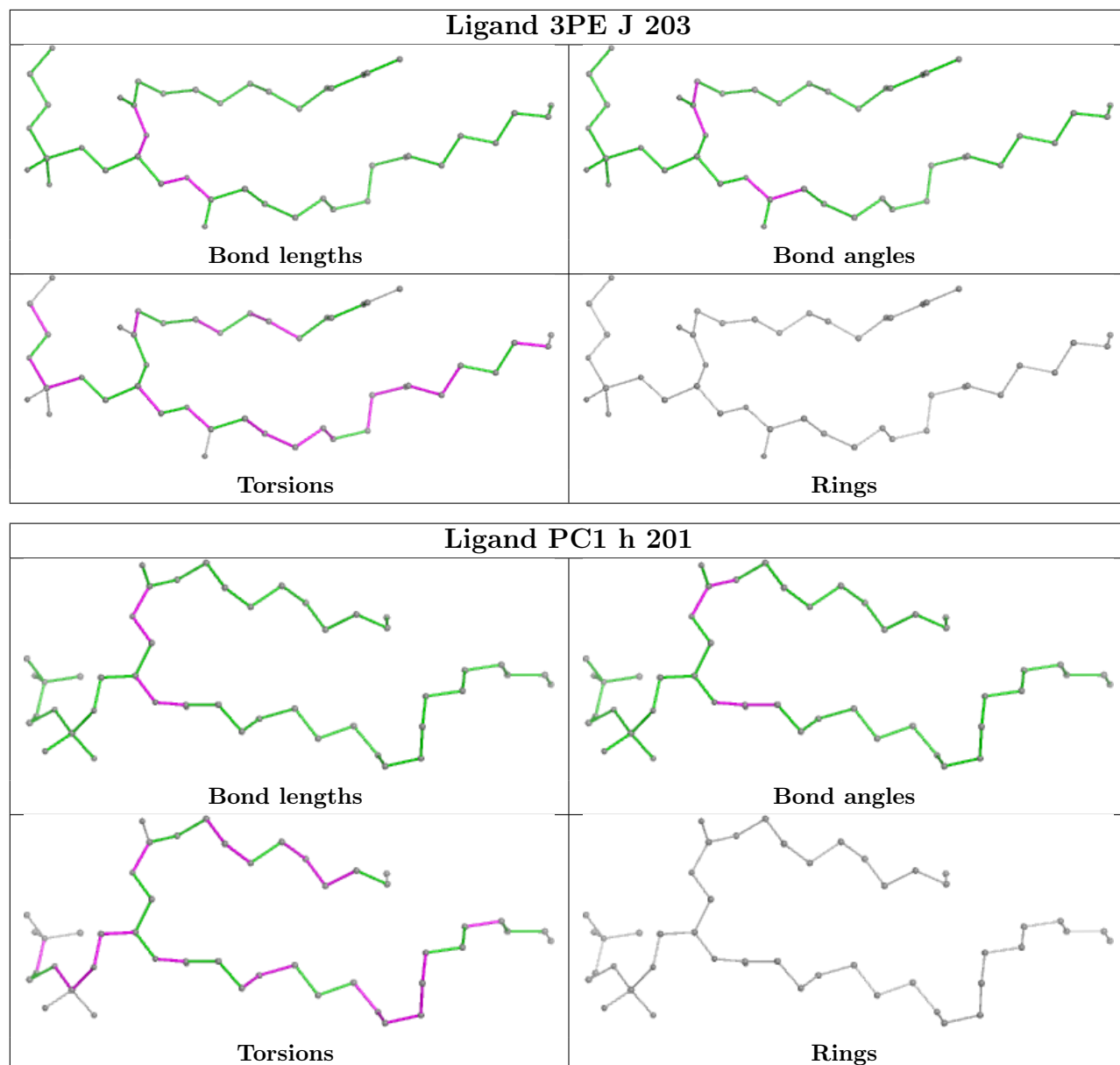
18 monomers are involved in 25 short contacts:

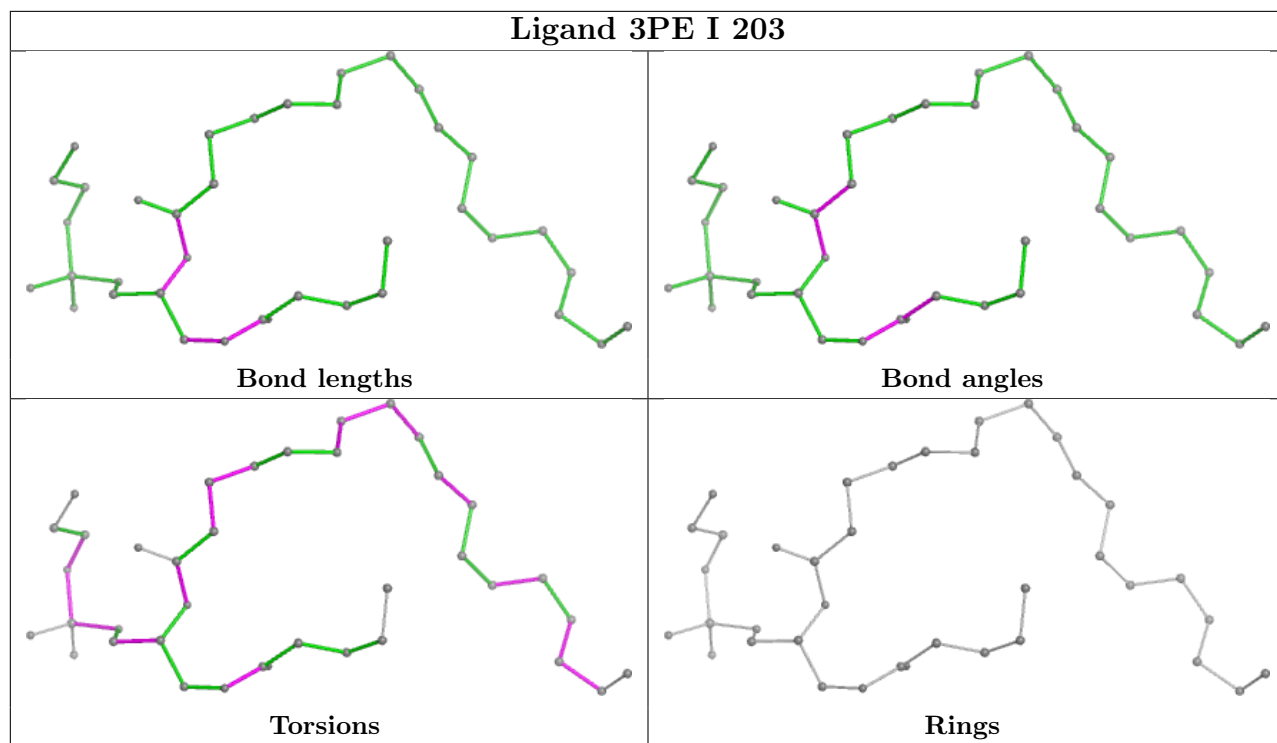
Mol	Chain	Res	Type	Clashes	Symm-Clashes
46	Y	203	PC1	1	0
45	J	203	3PE	1	0
55	O	402	DGT	5	0
46	A	203	PC1	1	0
57	T	101	EHZ	1	0
50	F	501	FMN	1	0
45	L	707	3PE	1	0
46	H	402	PC1	2	0
52	H	401	CDL	1	0
46	L	709	PC1	2	0
46	M	606	PC1	1	0
56	P	501	NDP	1	0
52	M	602	CDL	3	0
52	X	201	CDL	1	0
46	Z	202	PC1	1	0
46	I	204	PC1	1	0
48	B	201	SF4	1	0
45	N	402	3PE	1	0

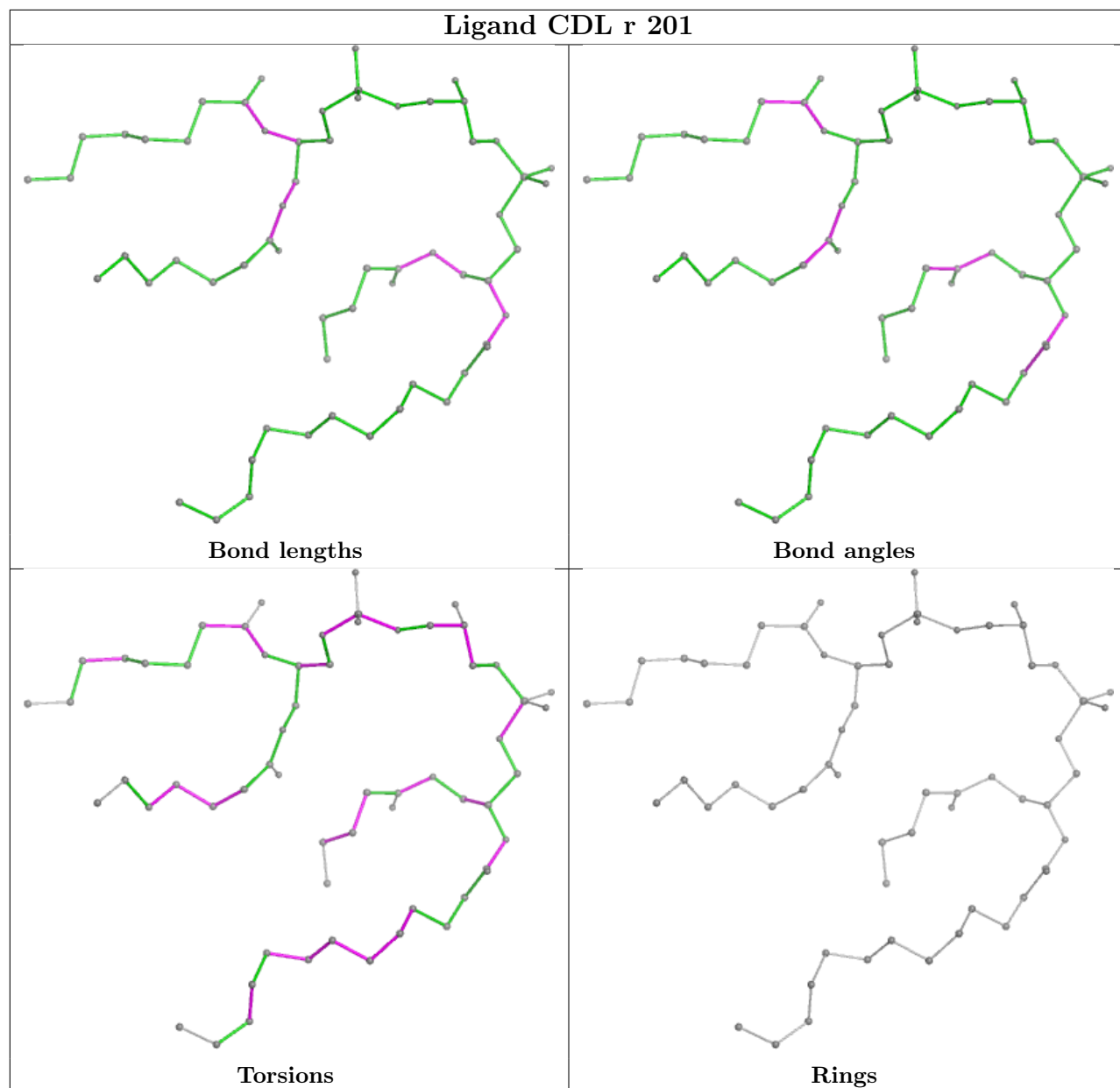
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will

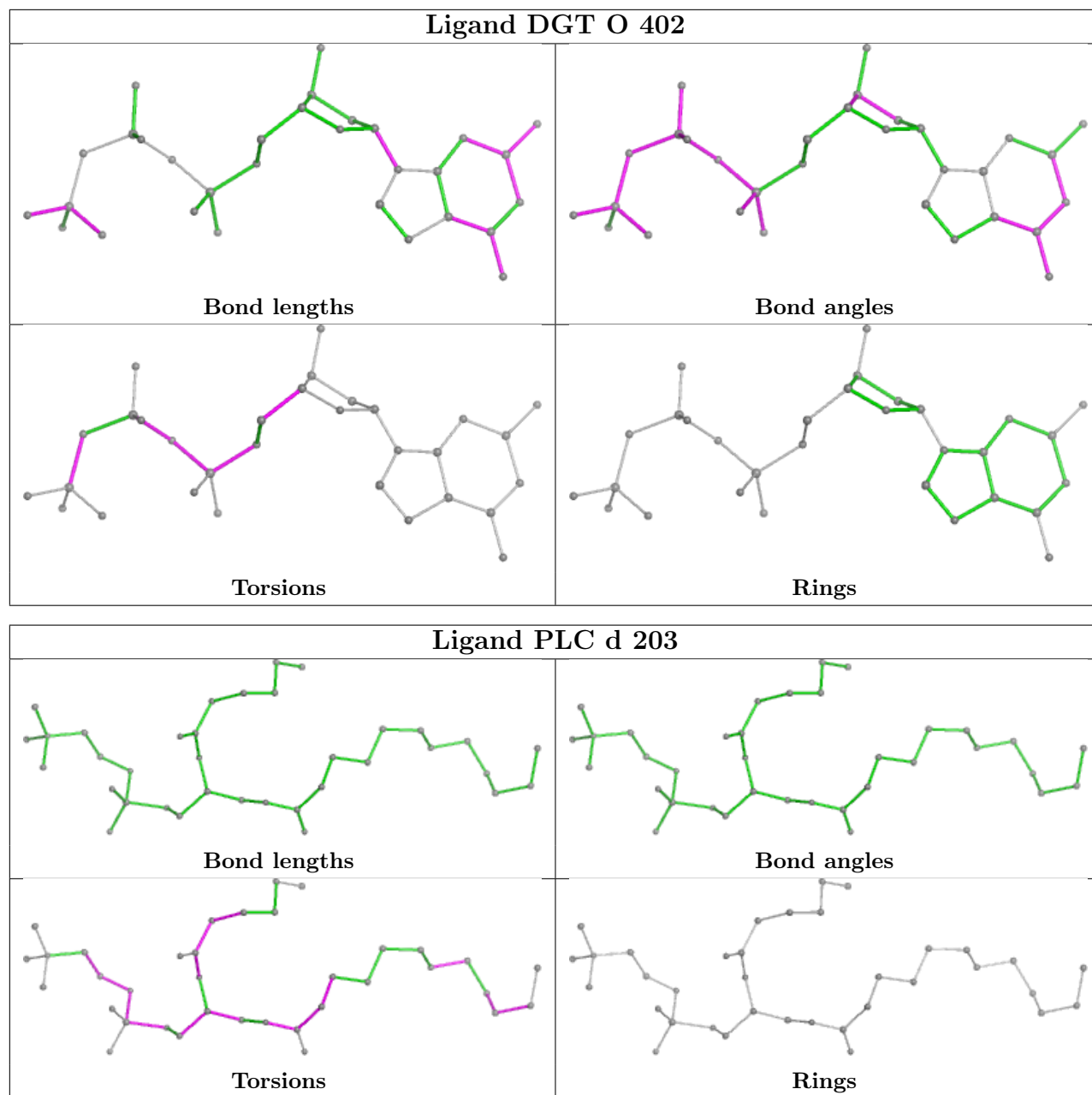
also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

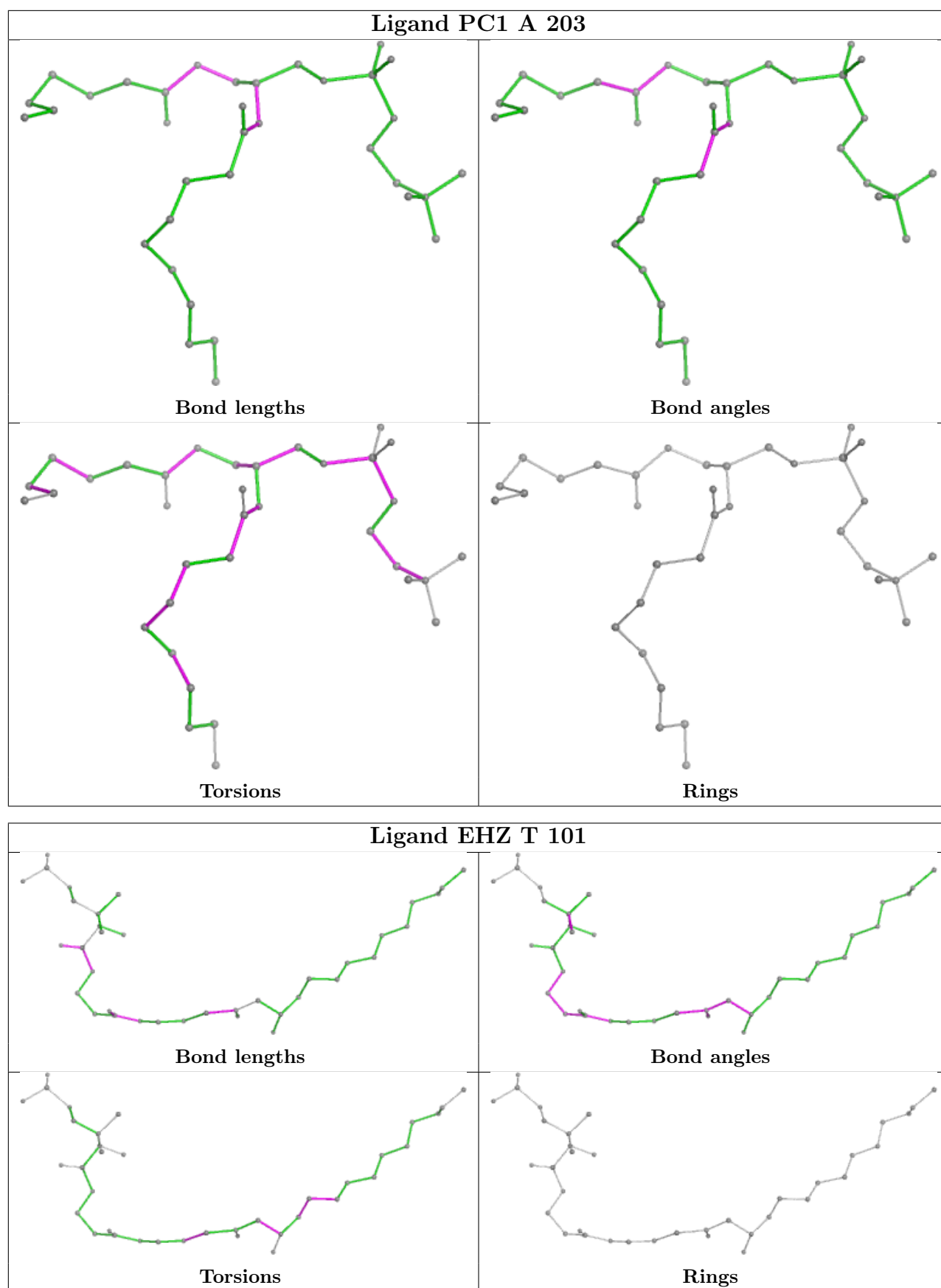


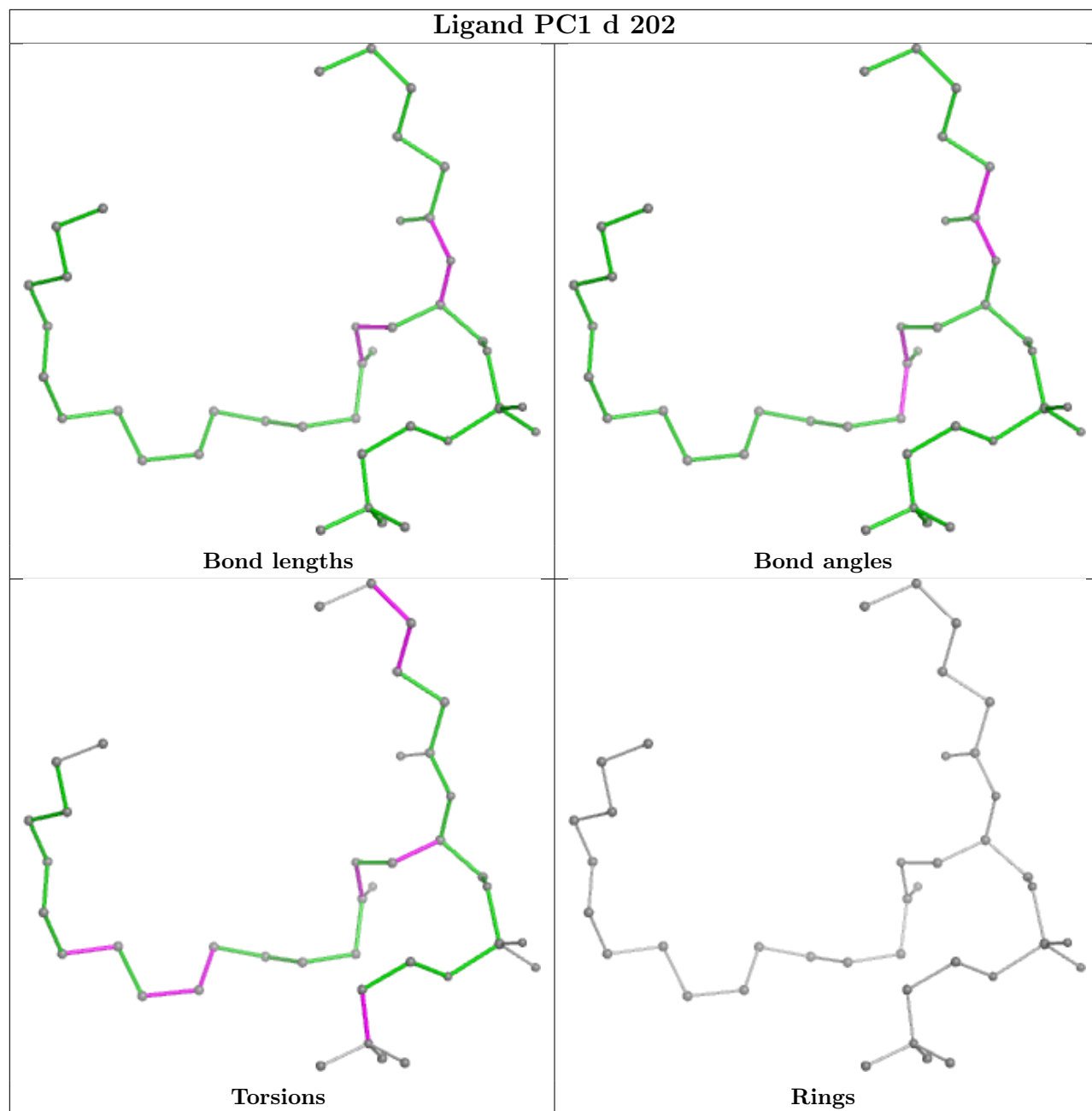


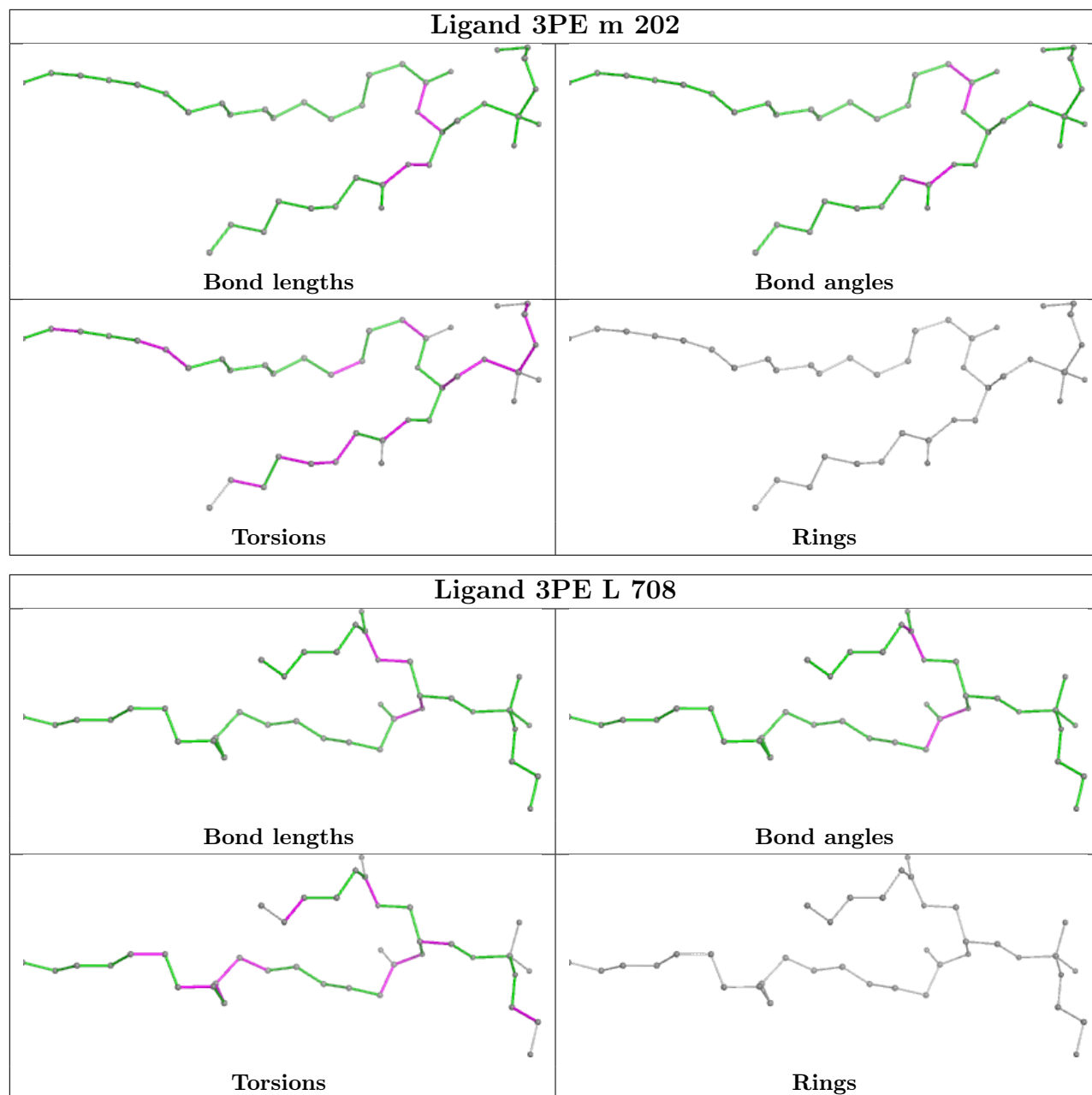


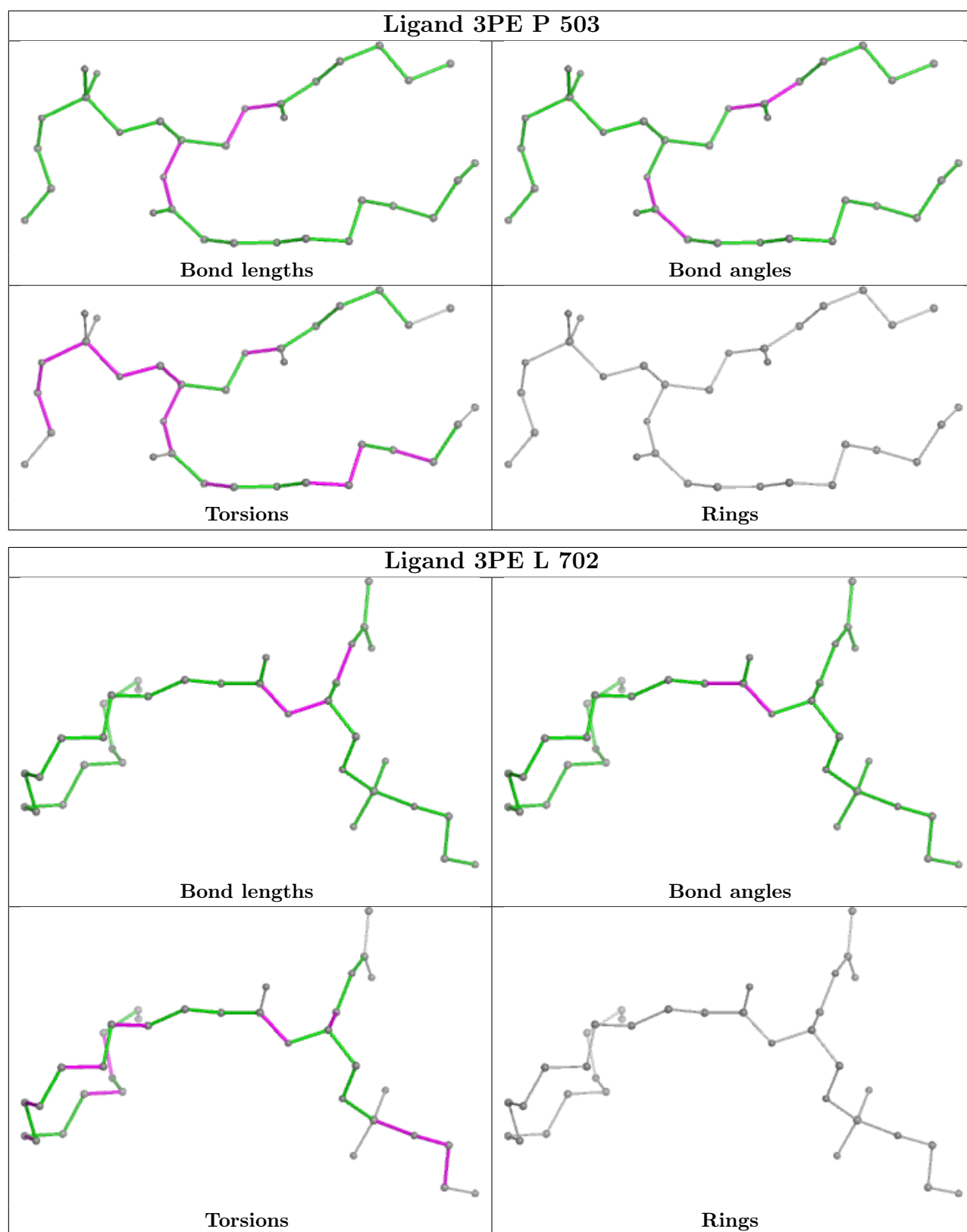


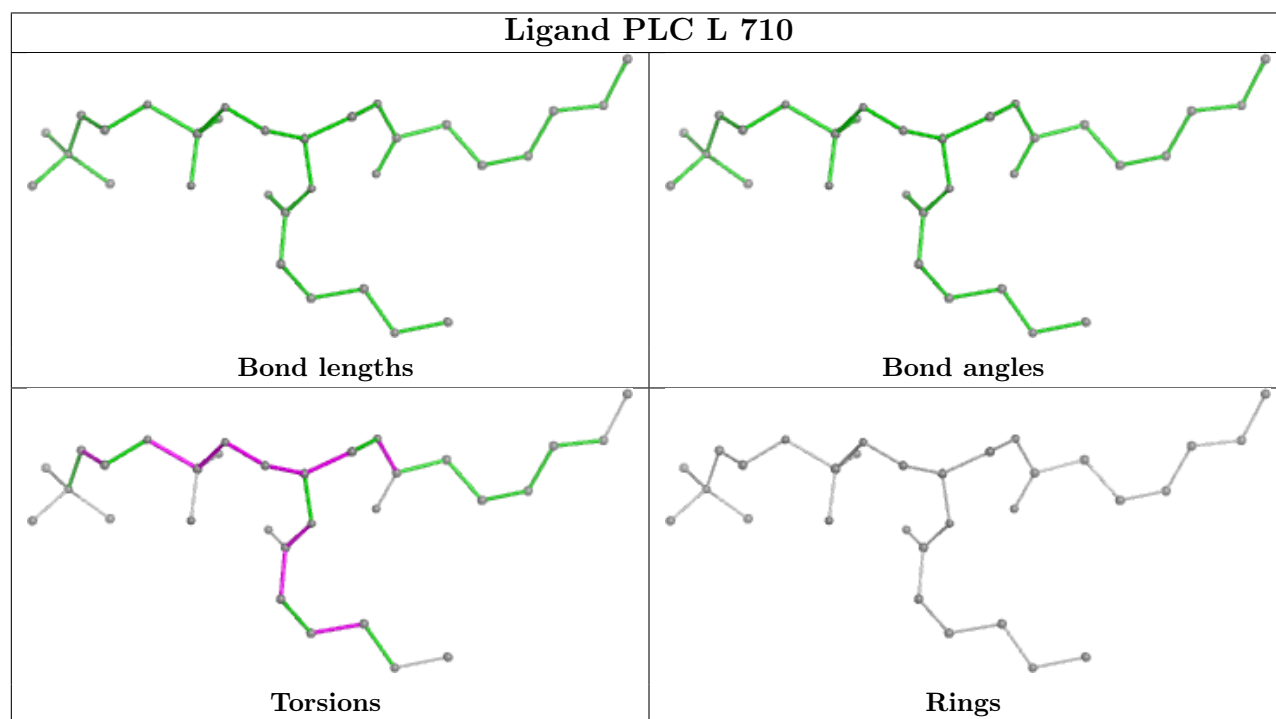
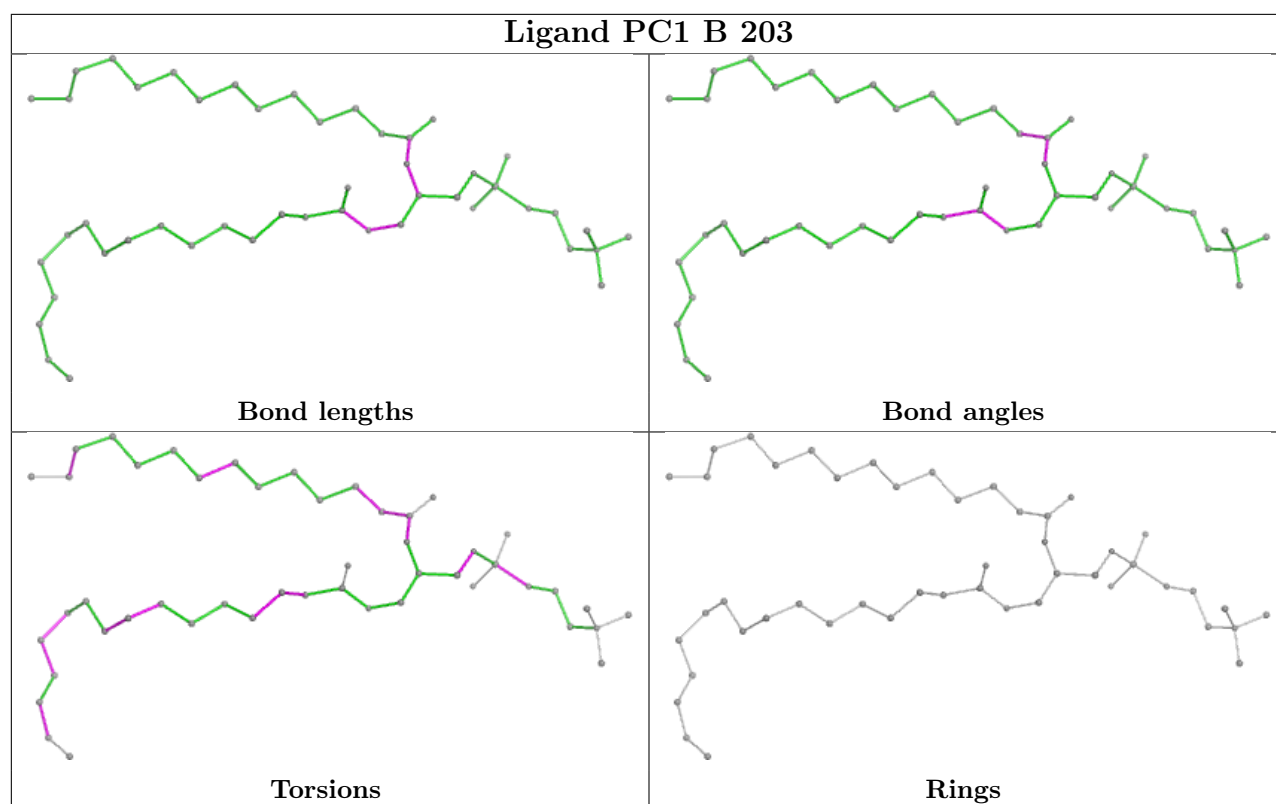


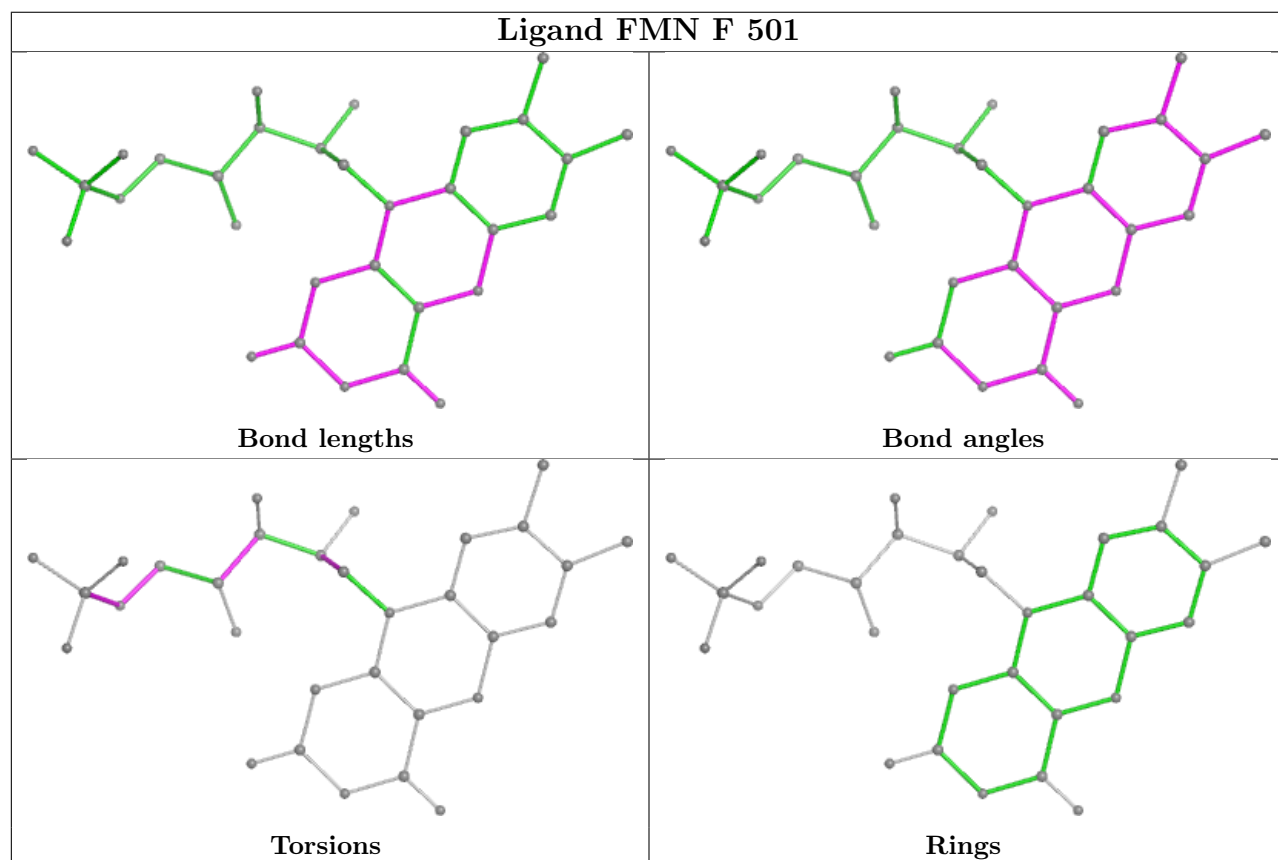
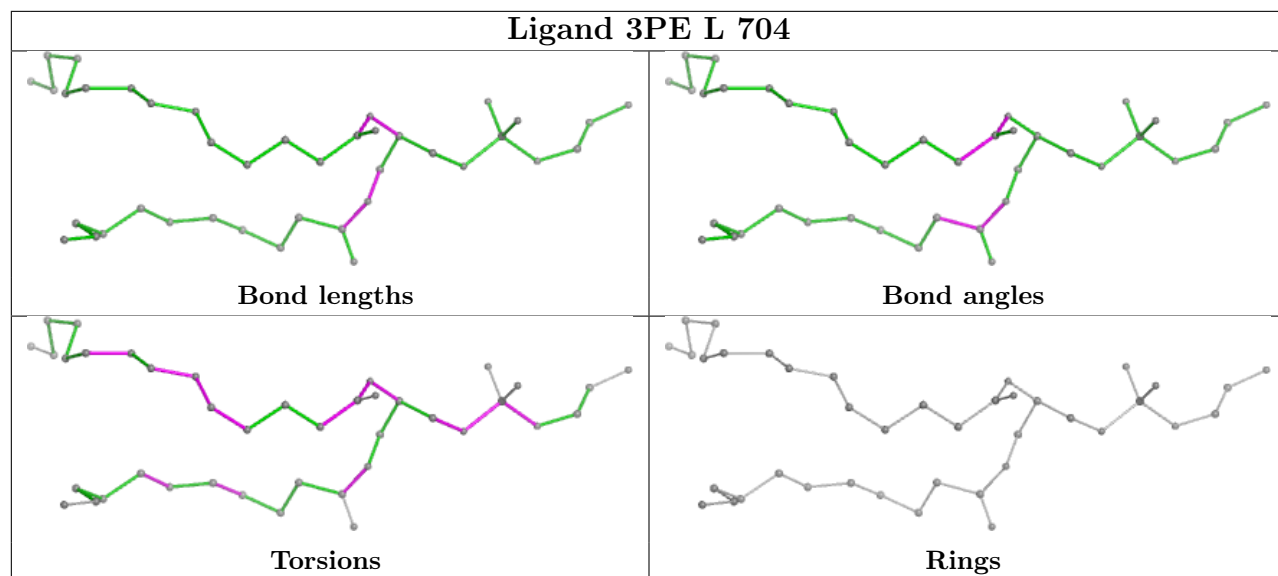


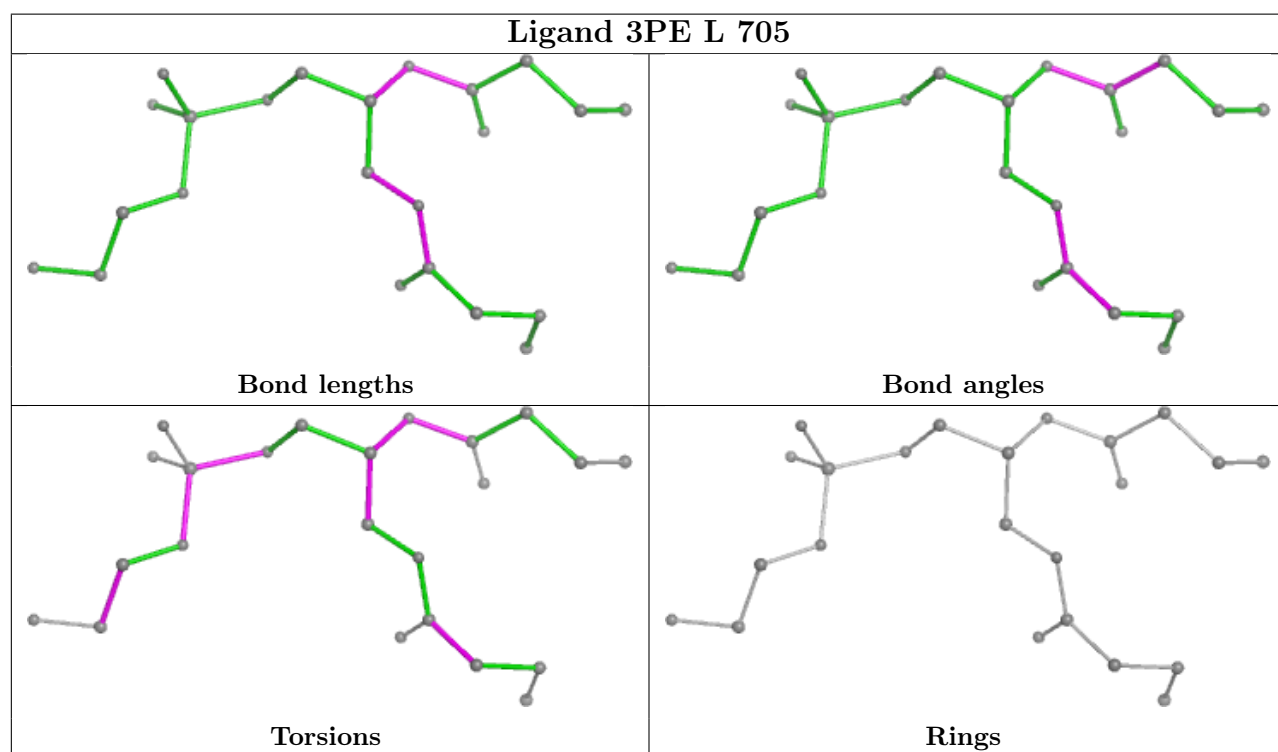
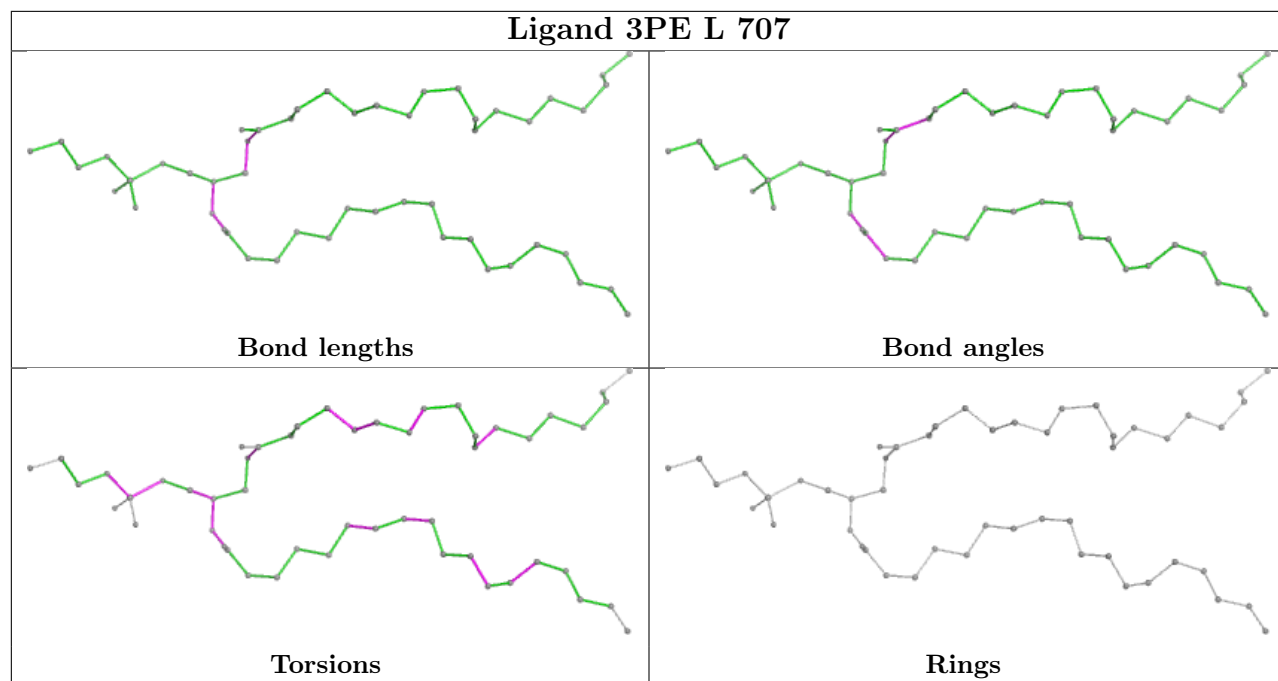


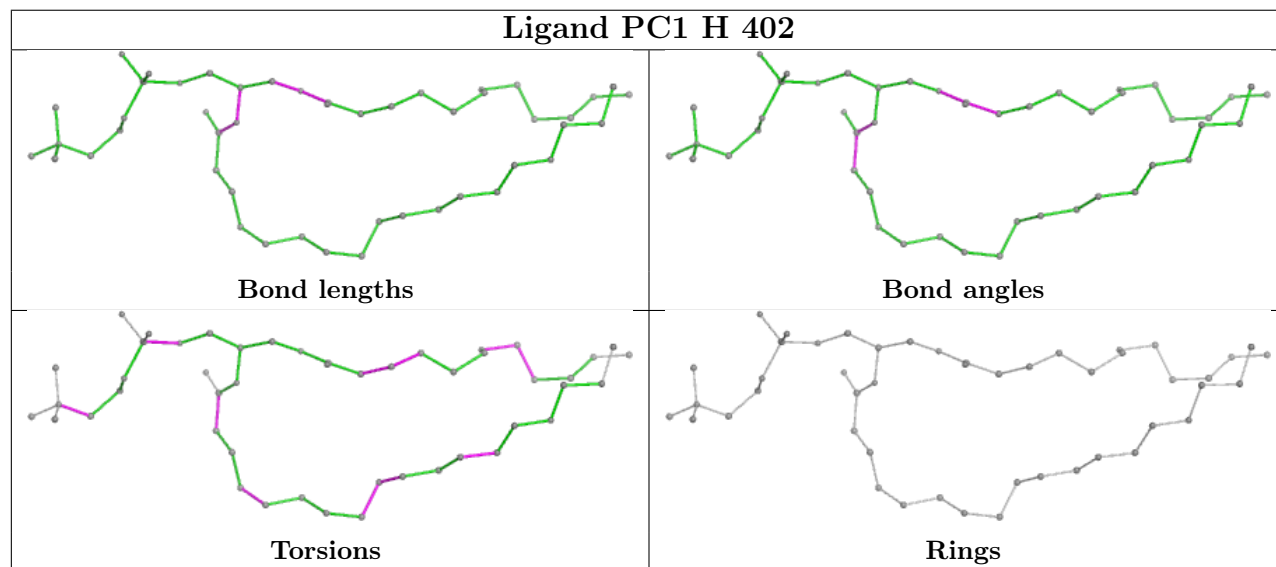
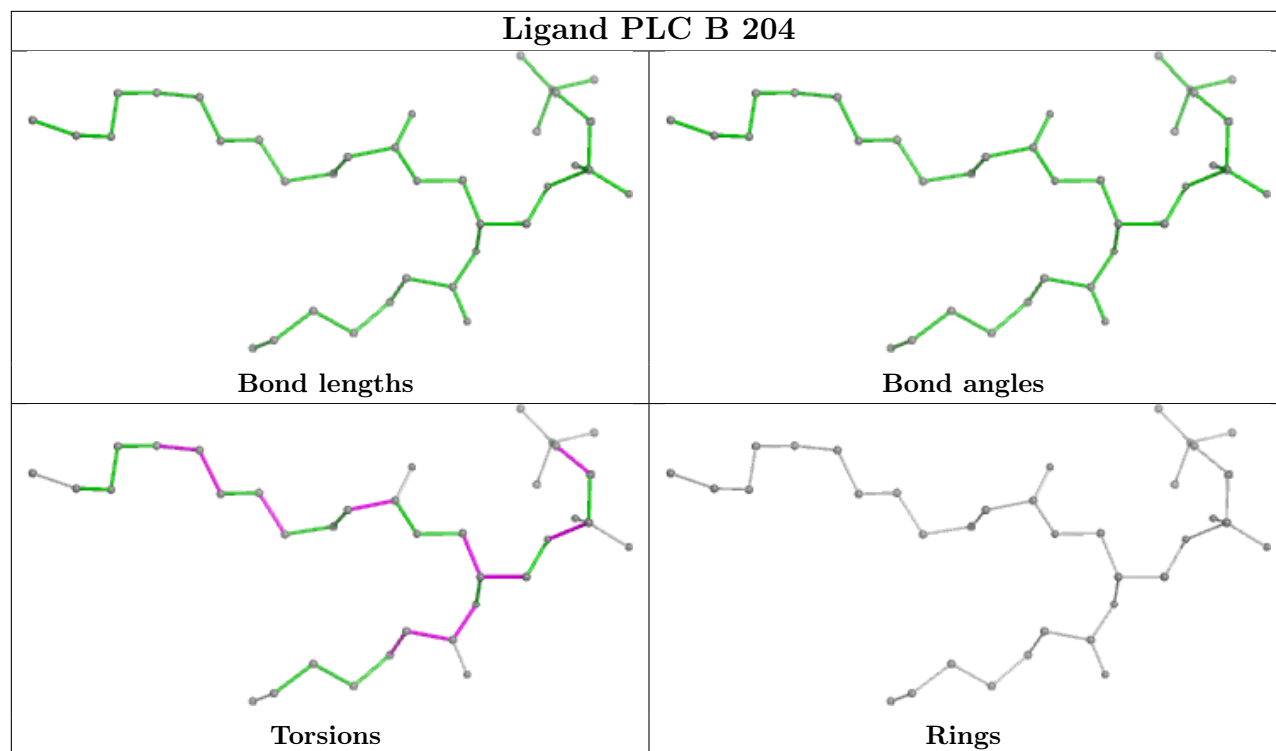


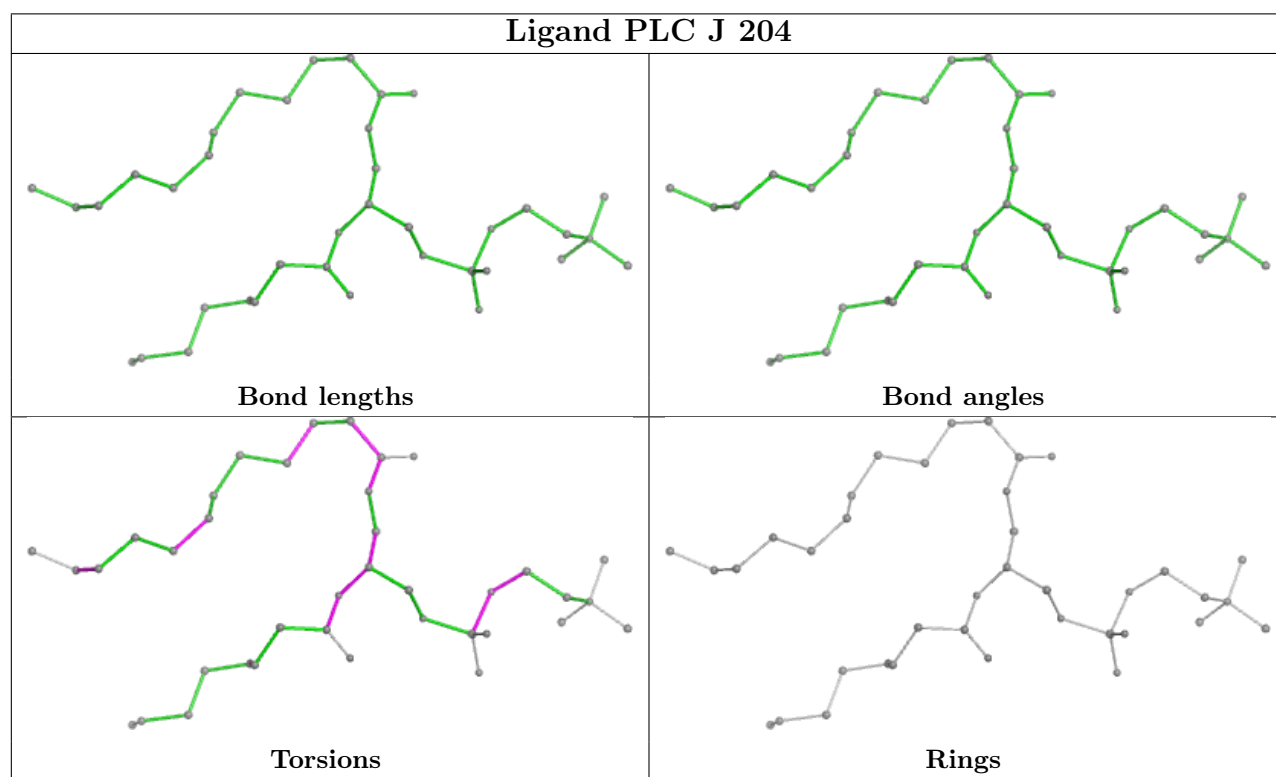
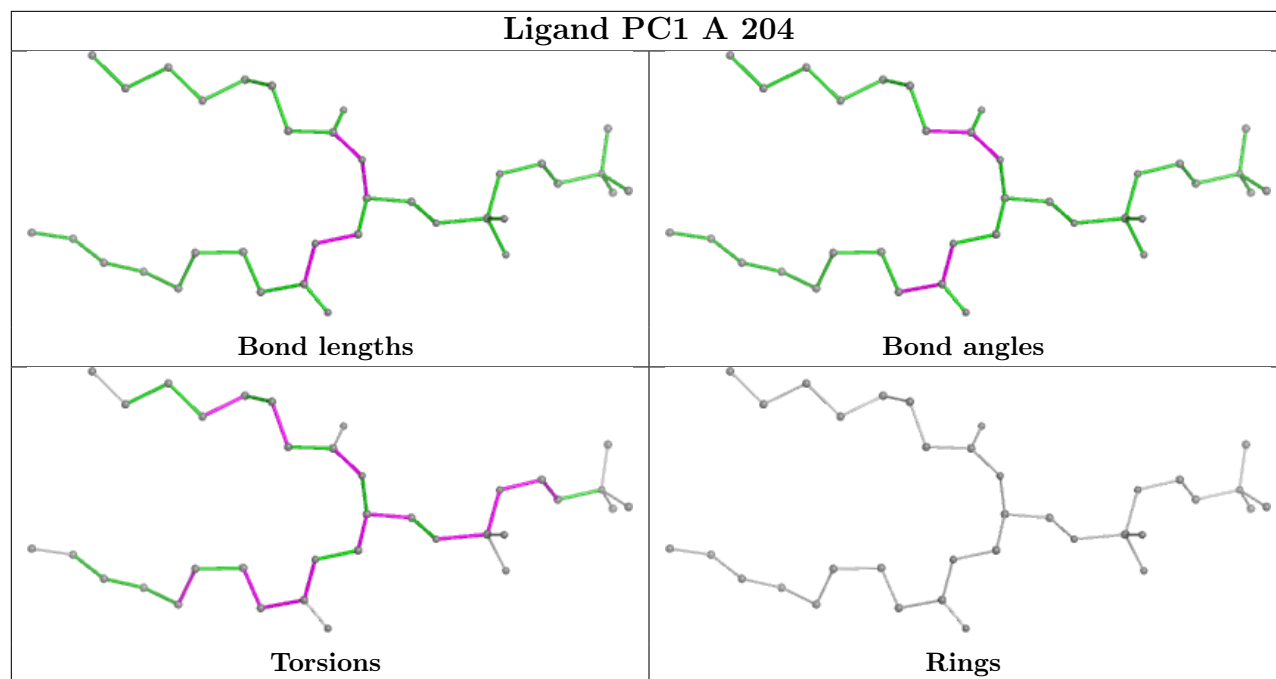


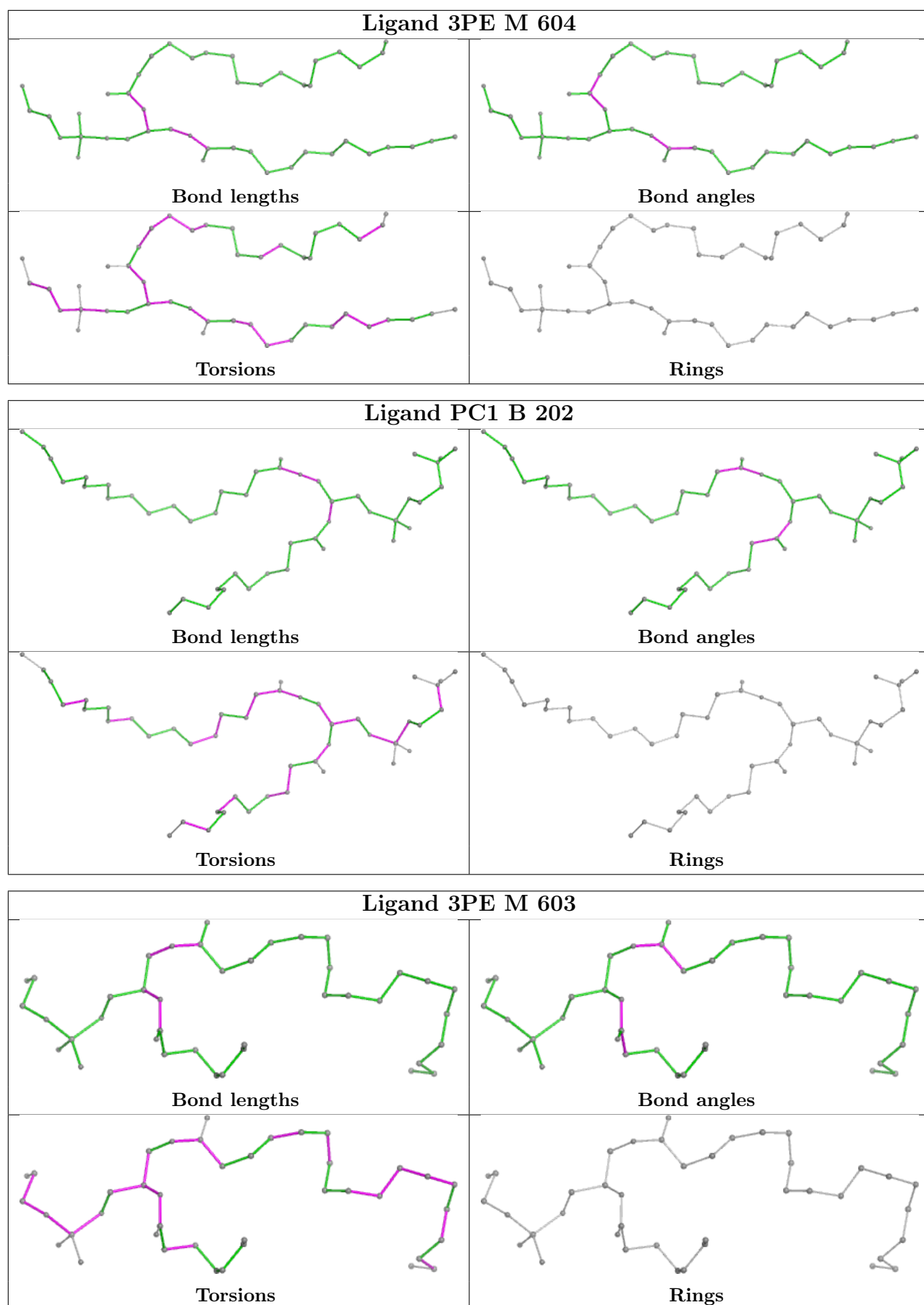


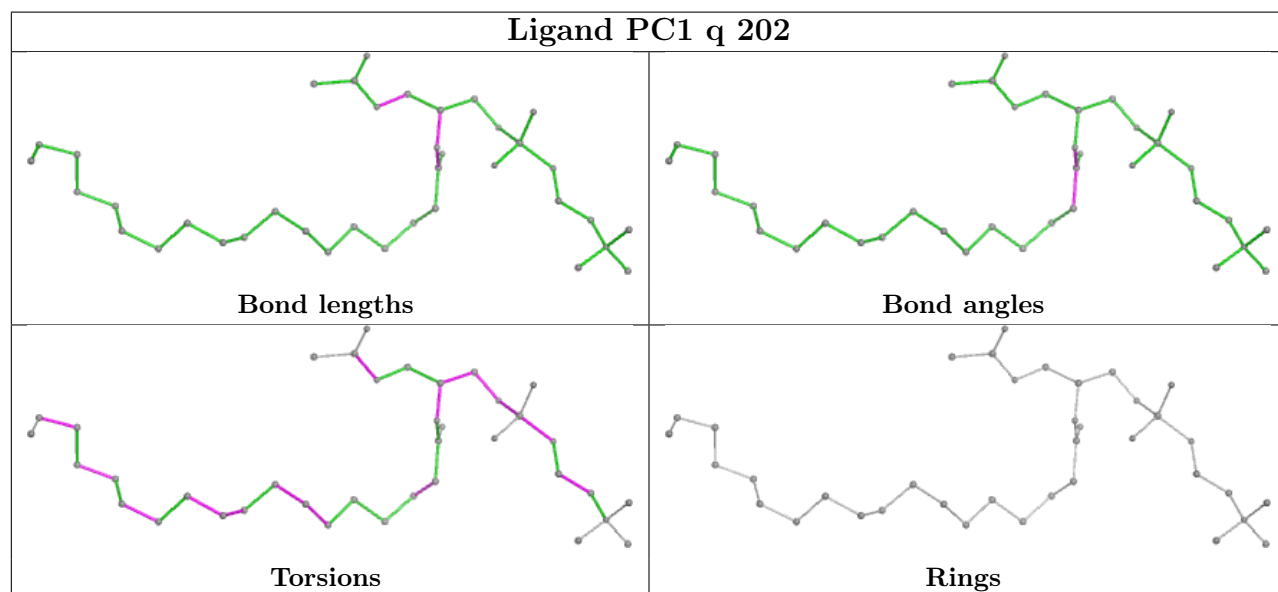
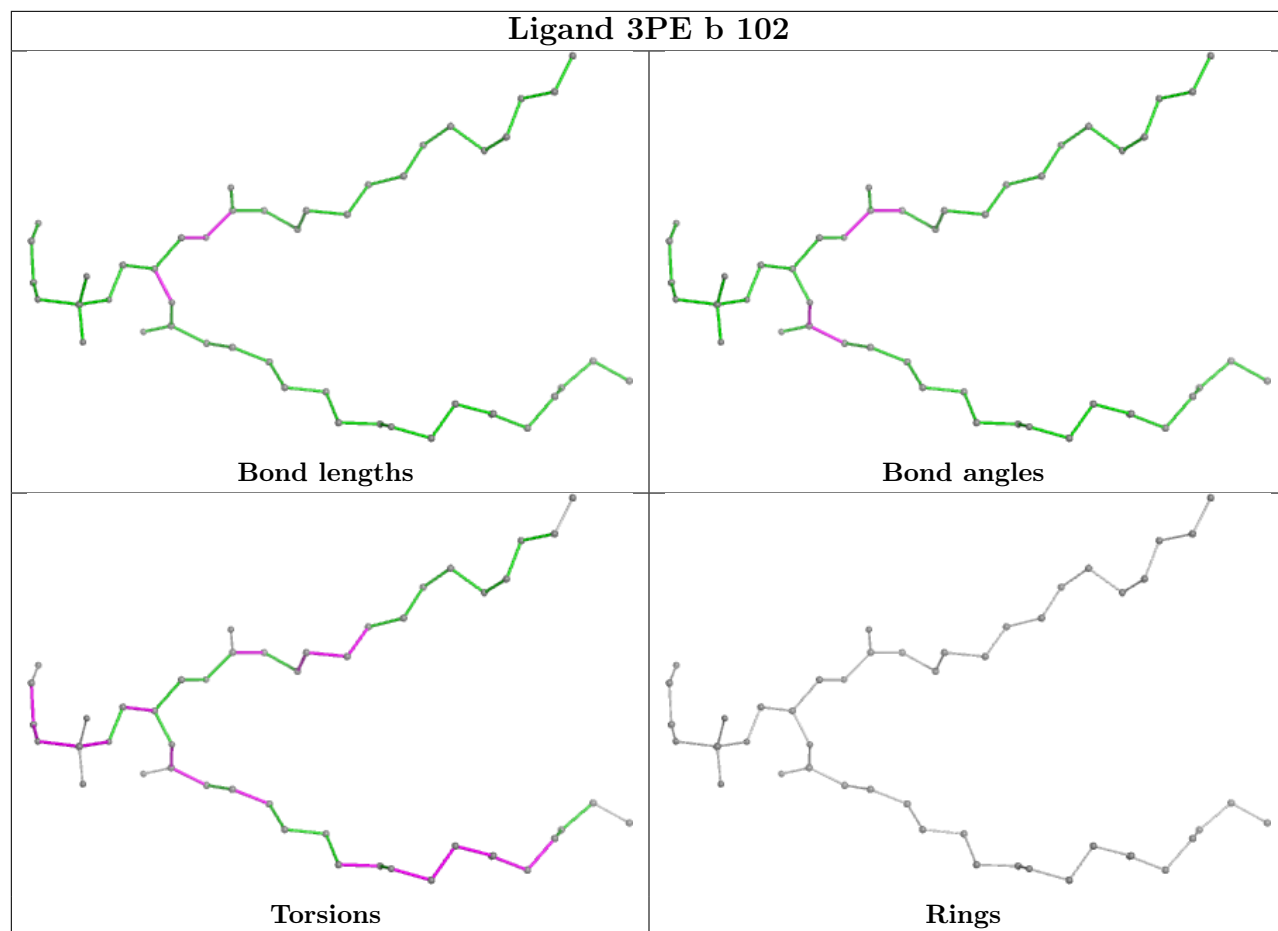


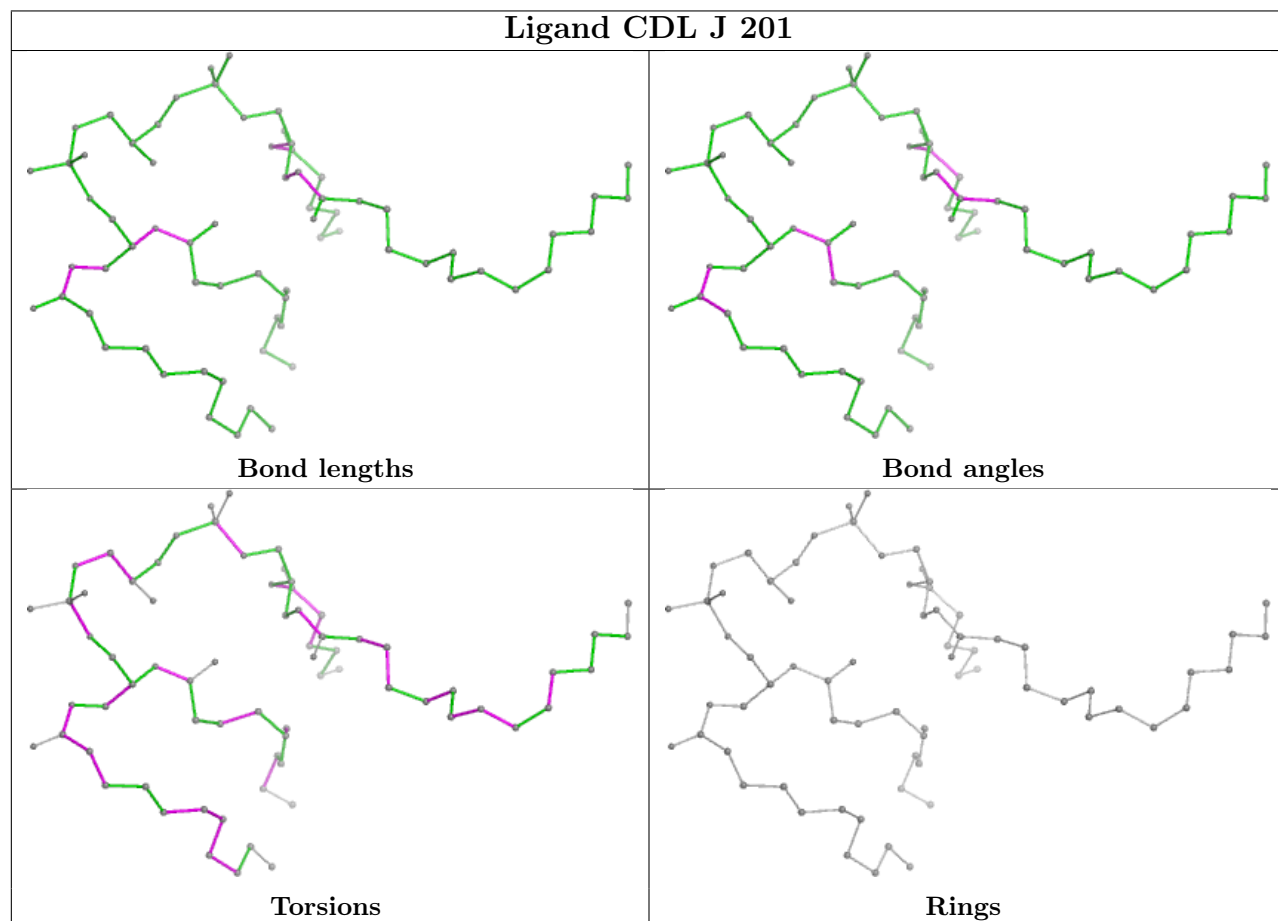
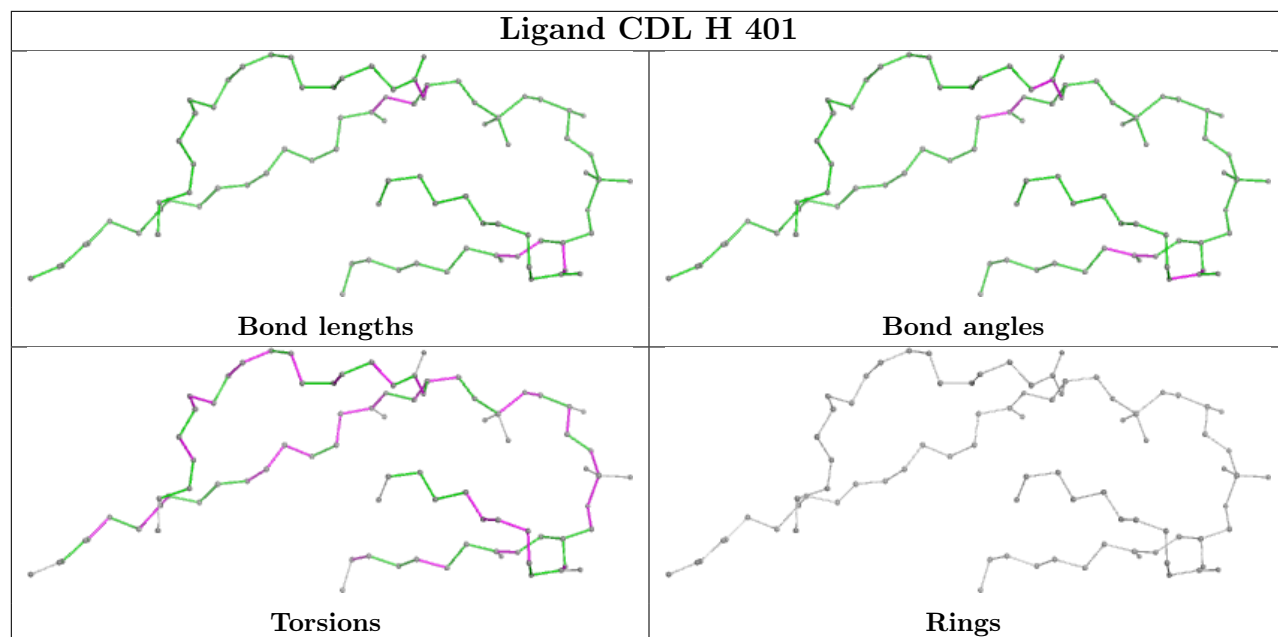


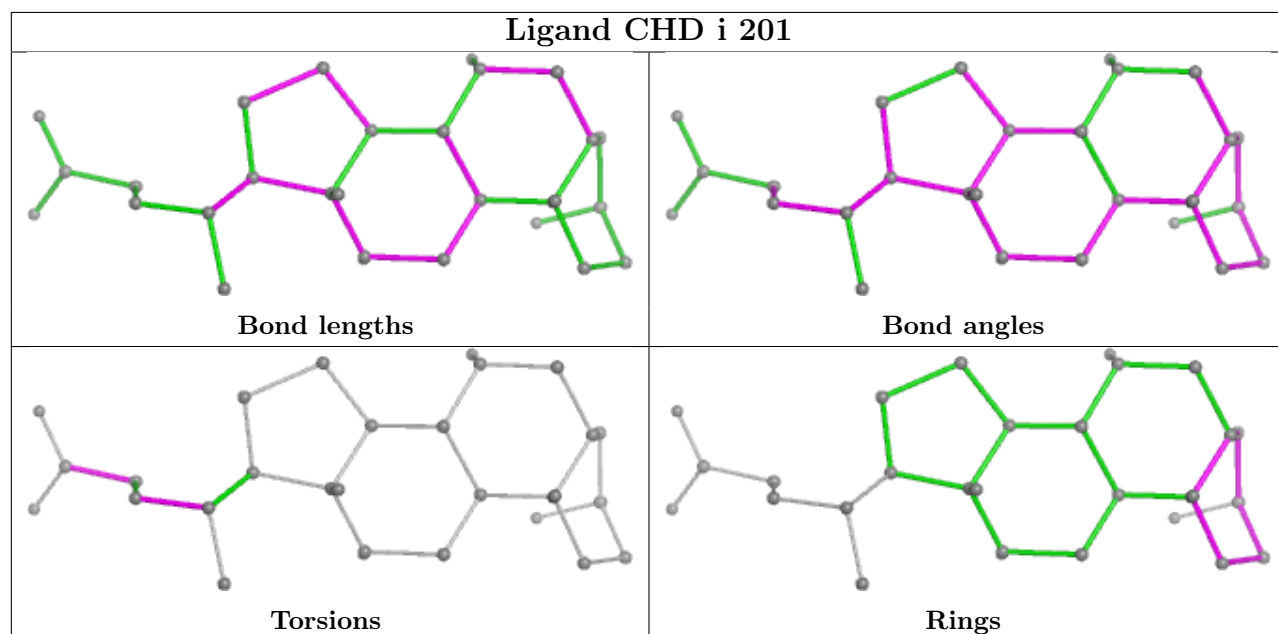
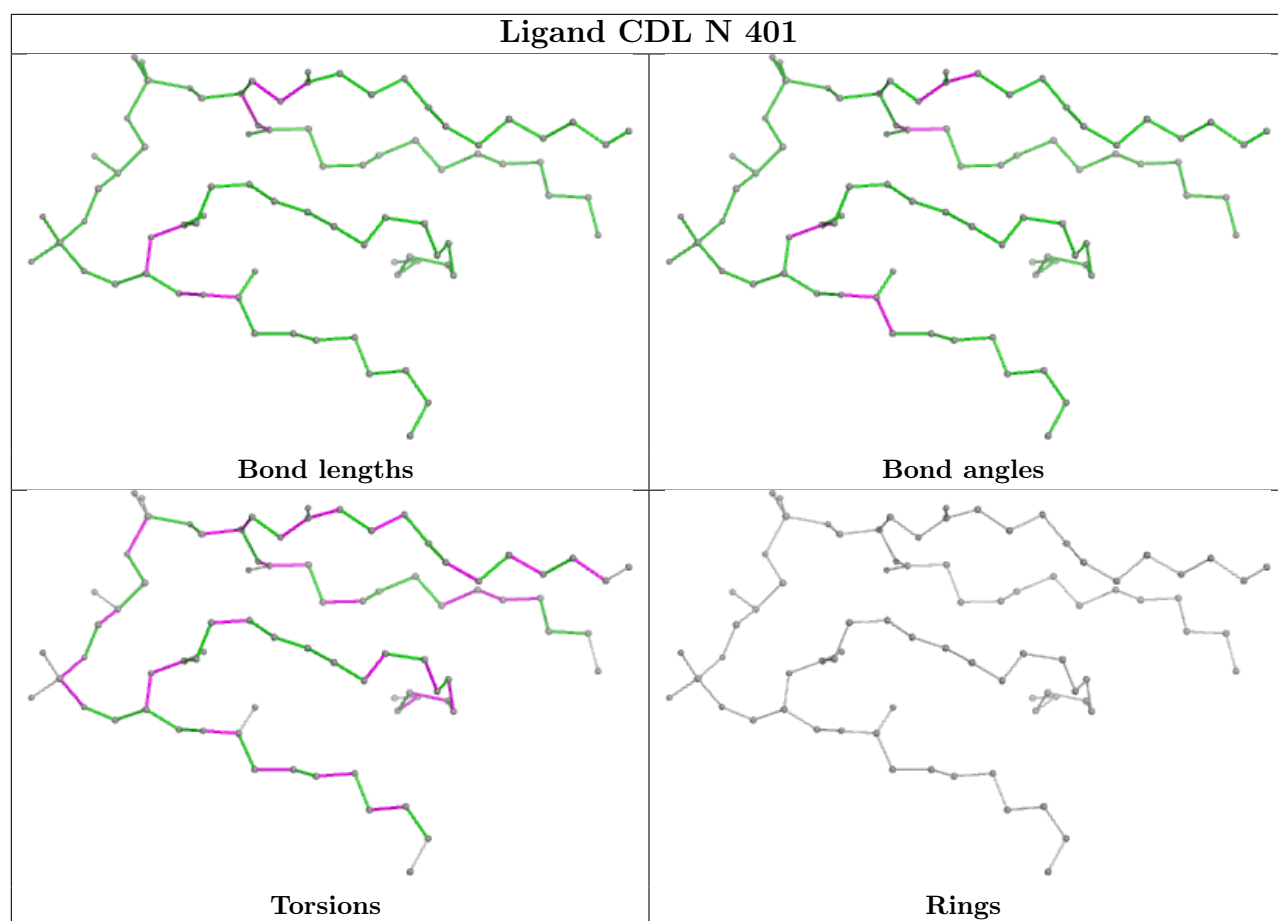


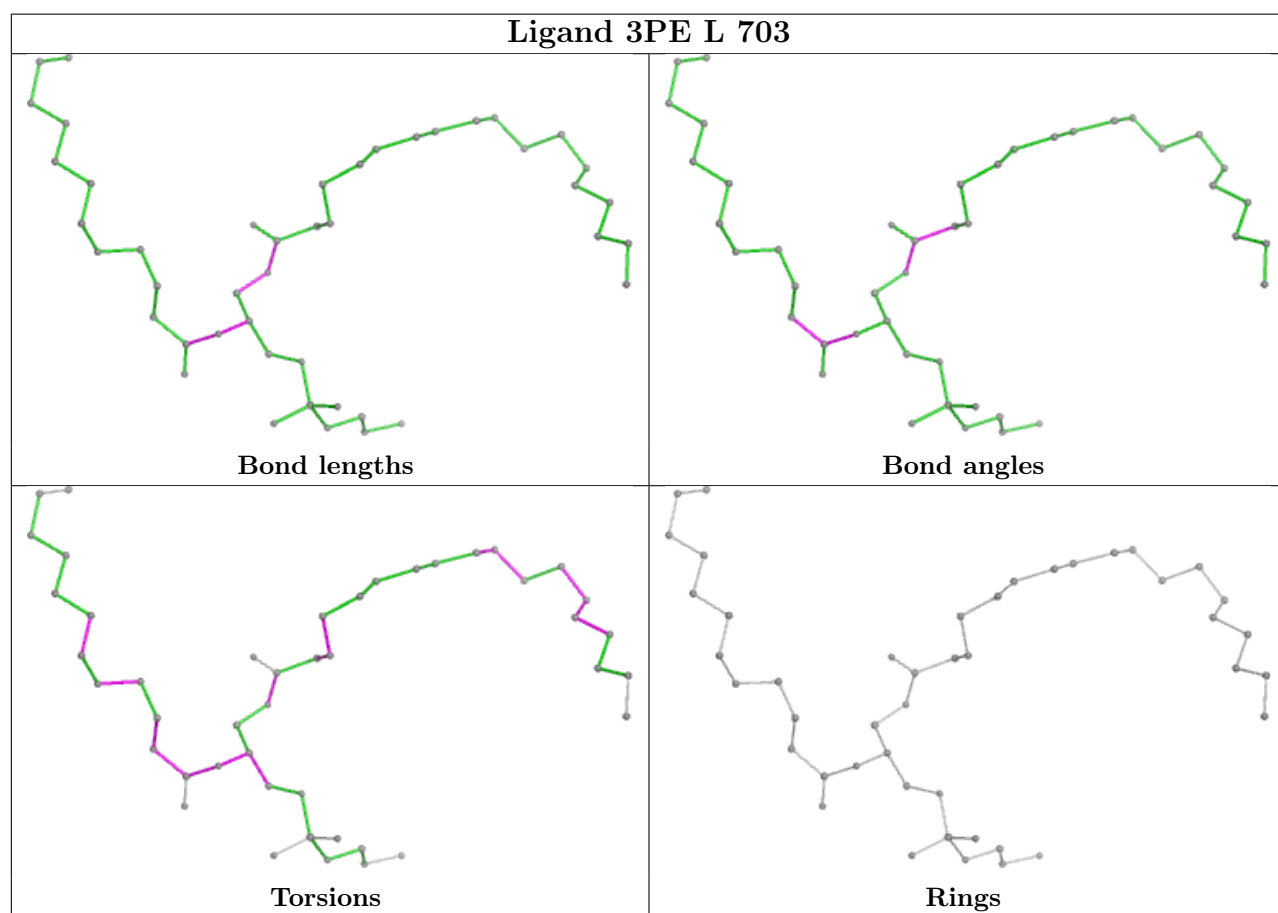
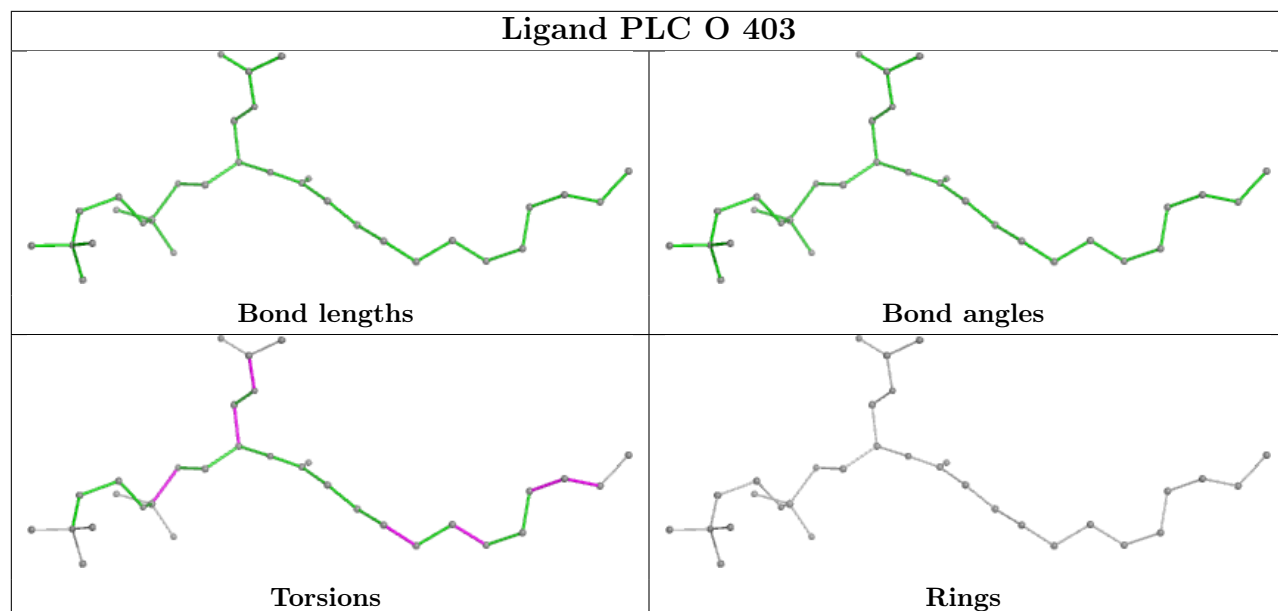


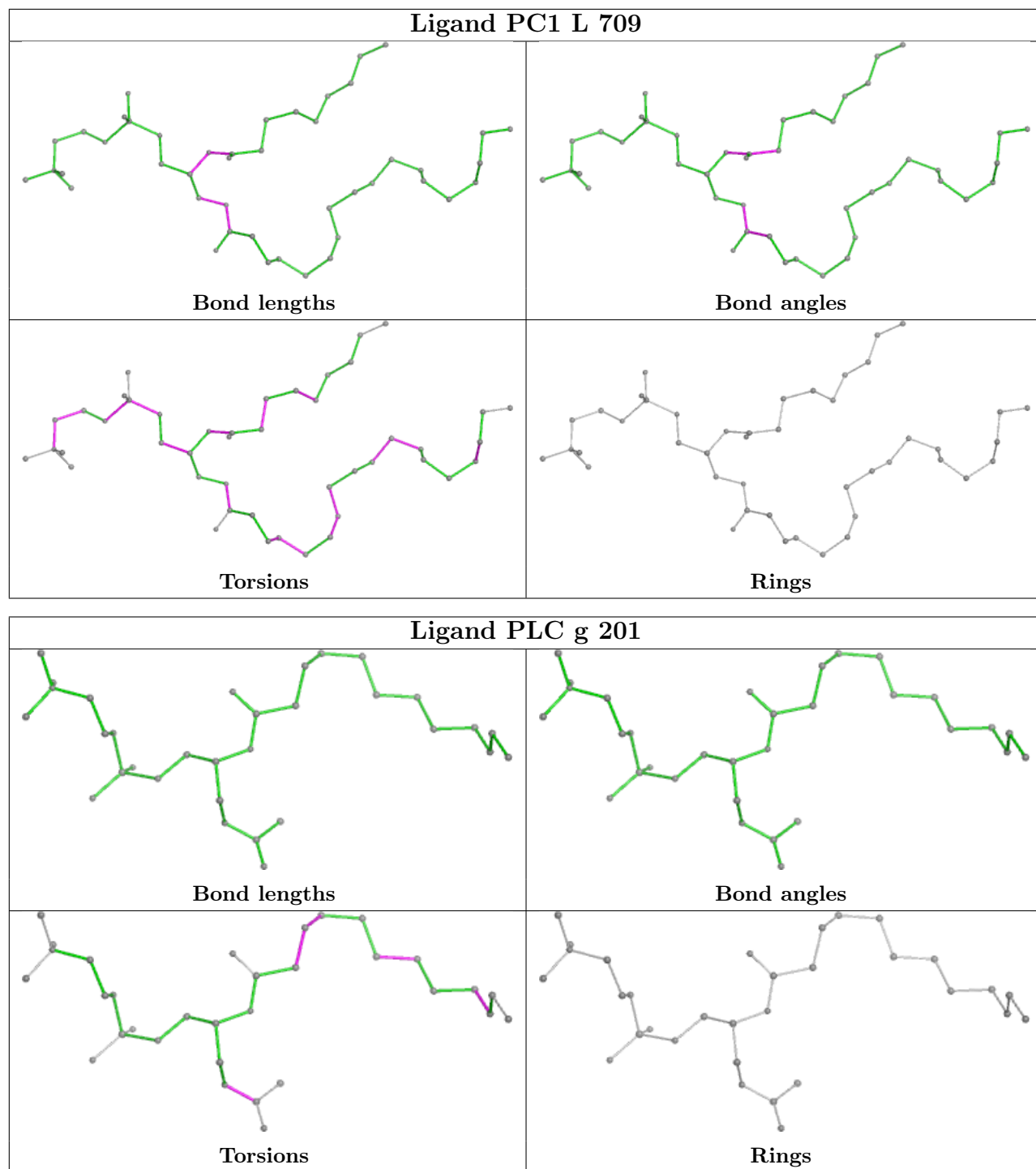


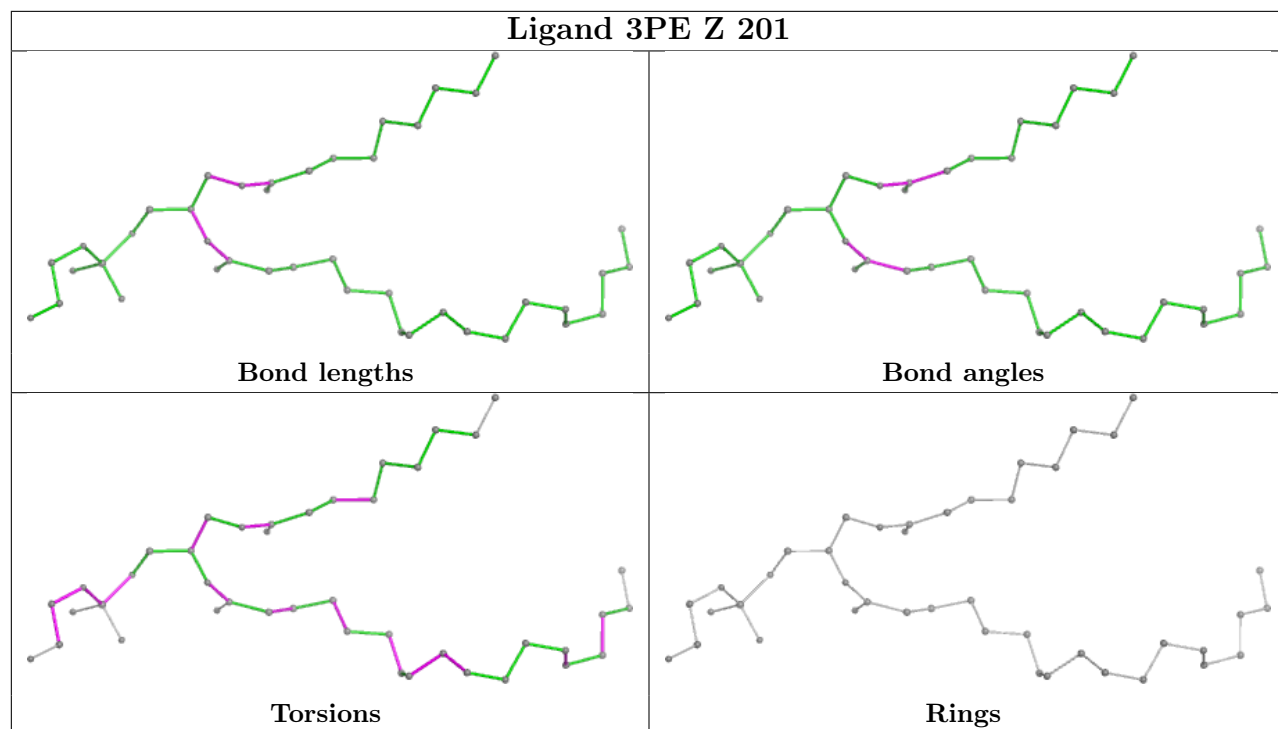


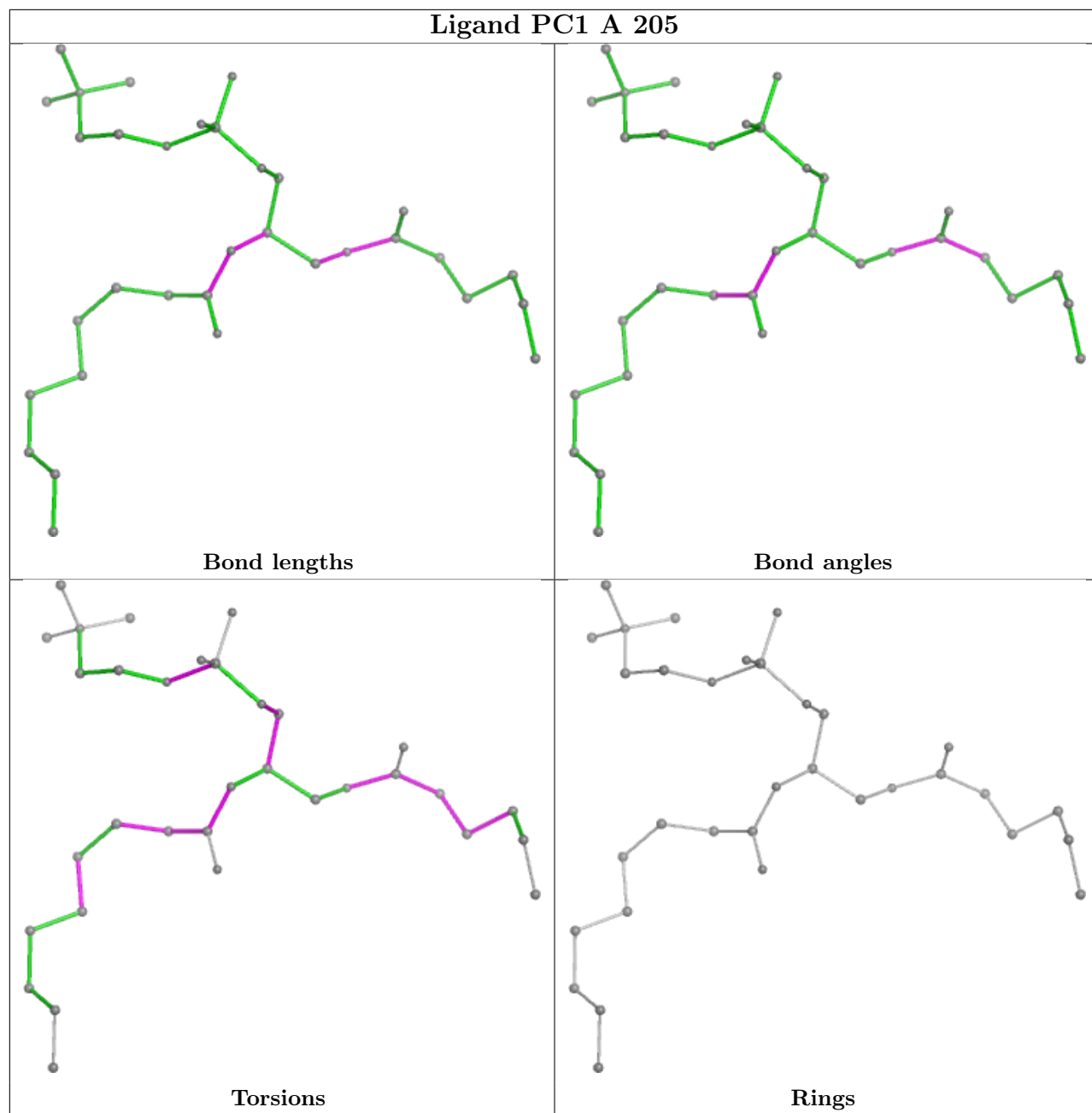


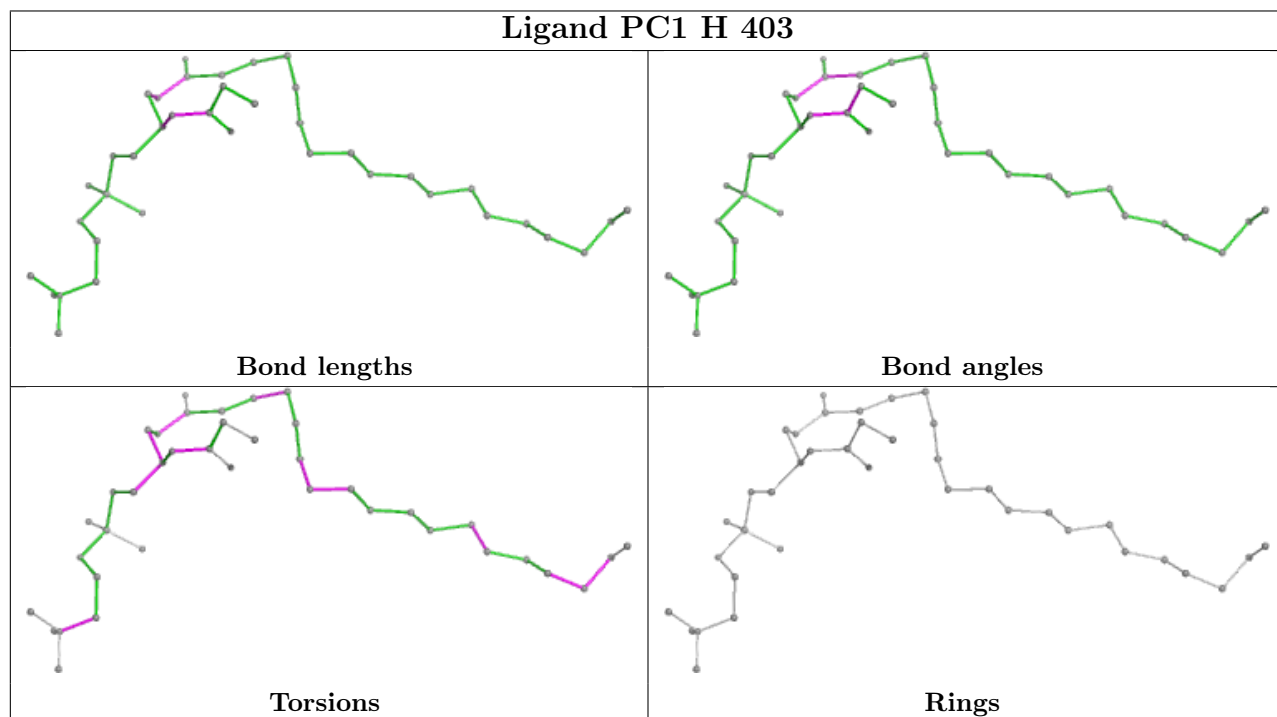
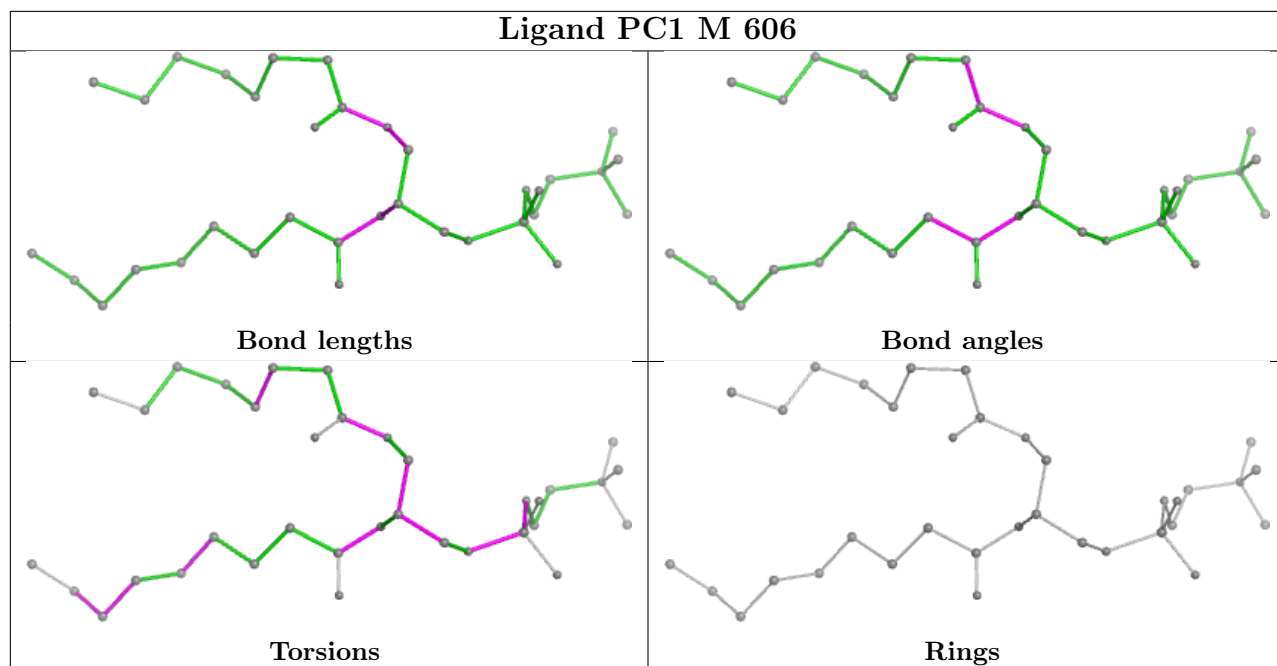


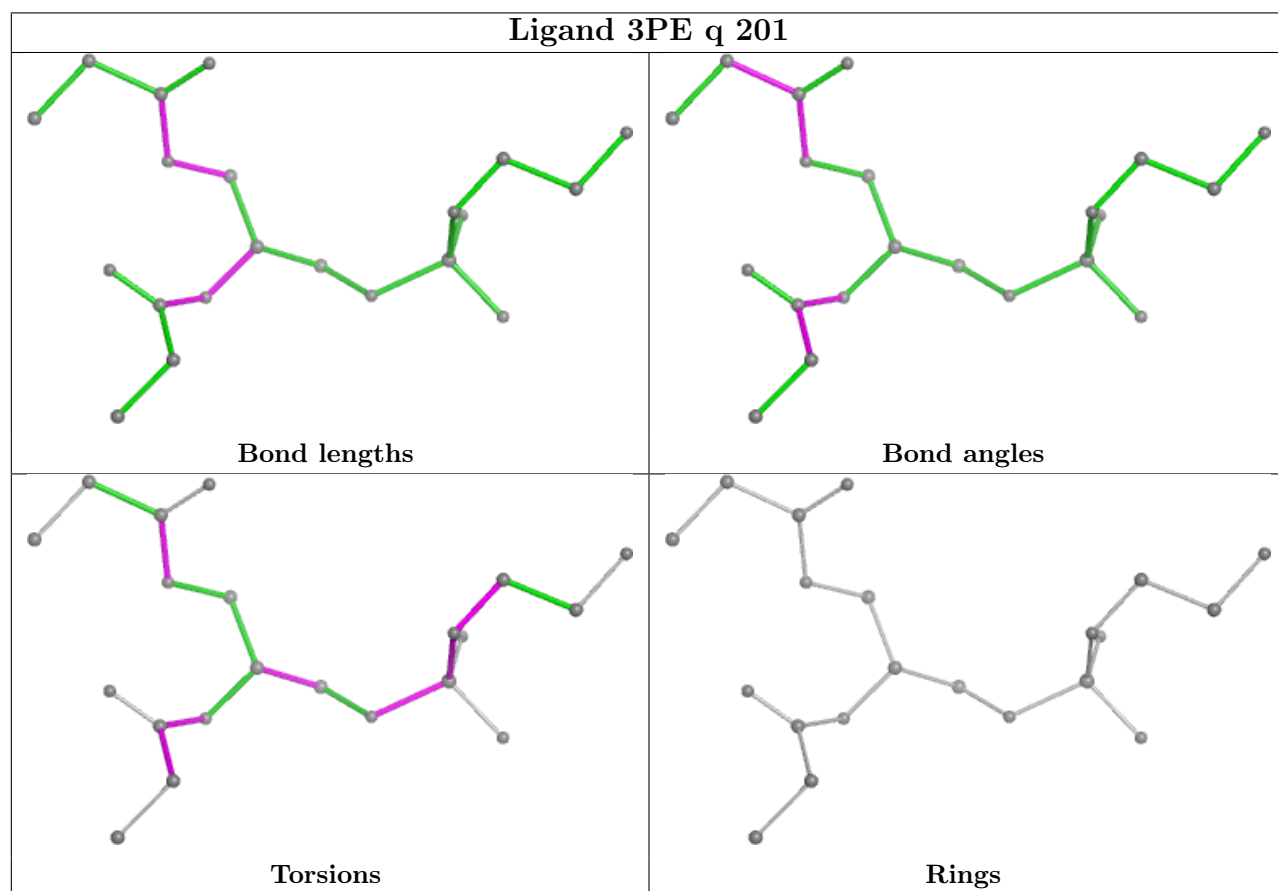
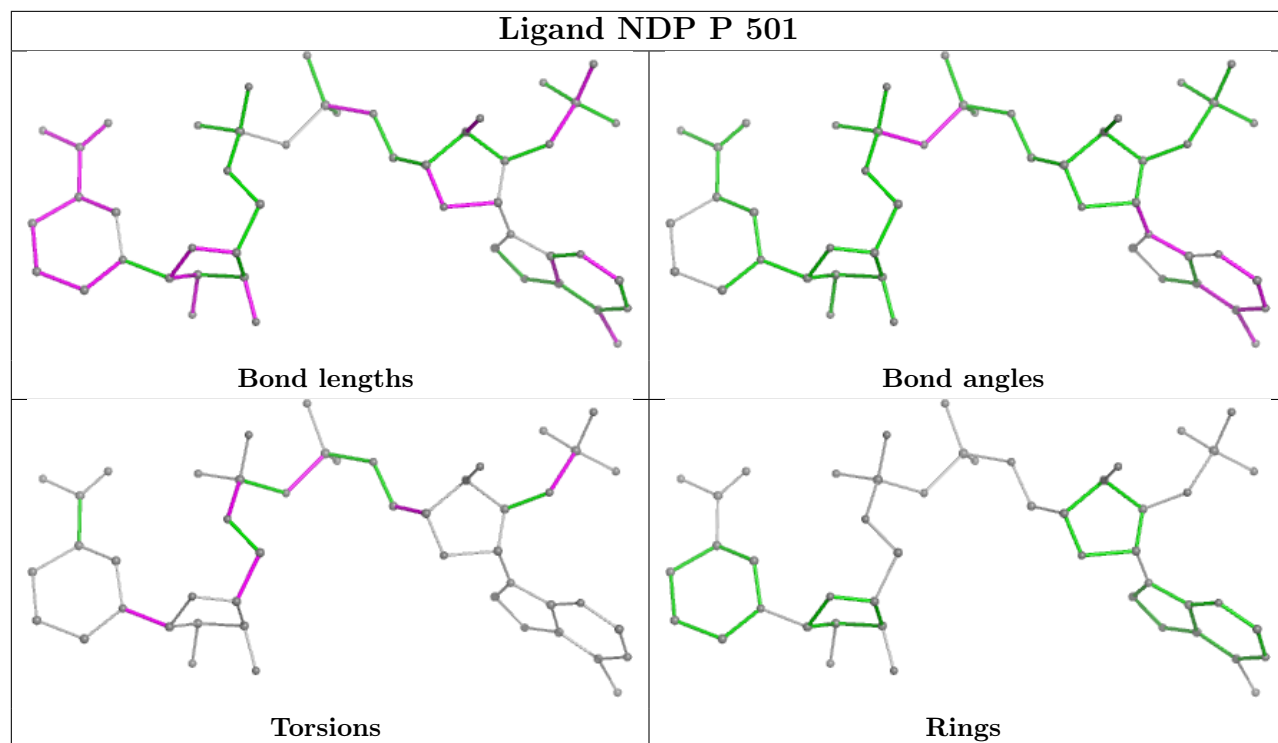


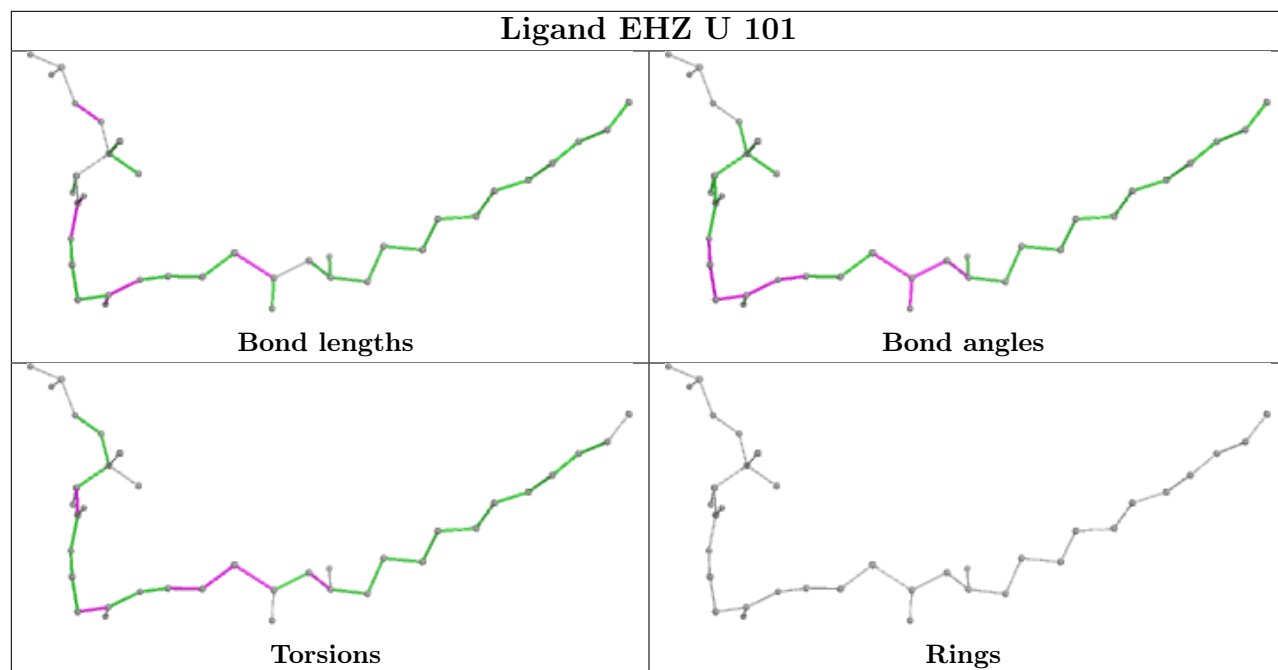


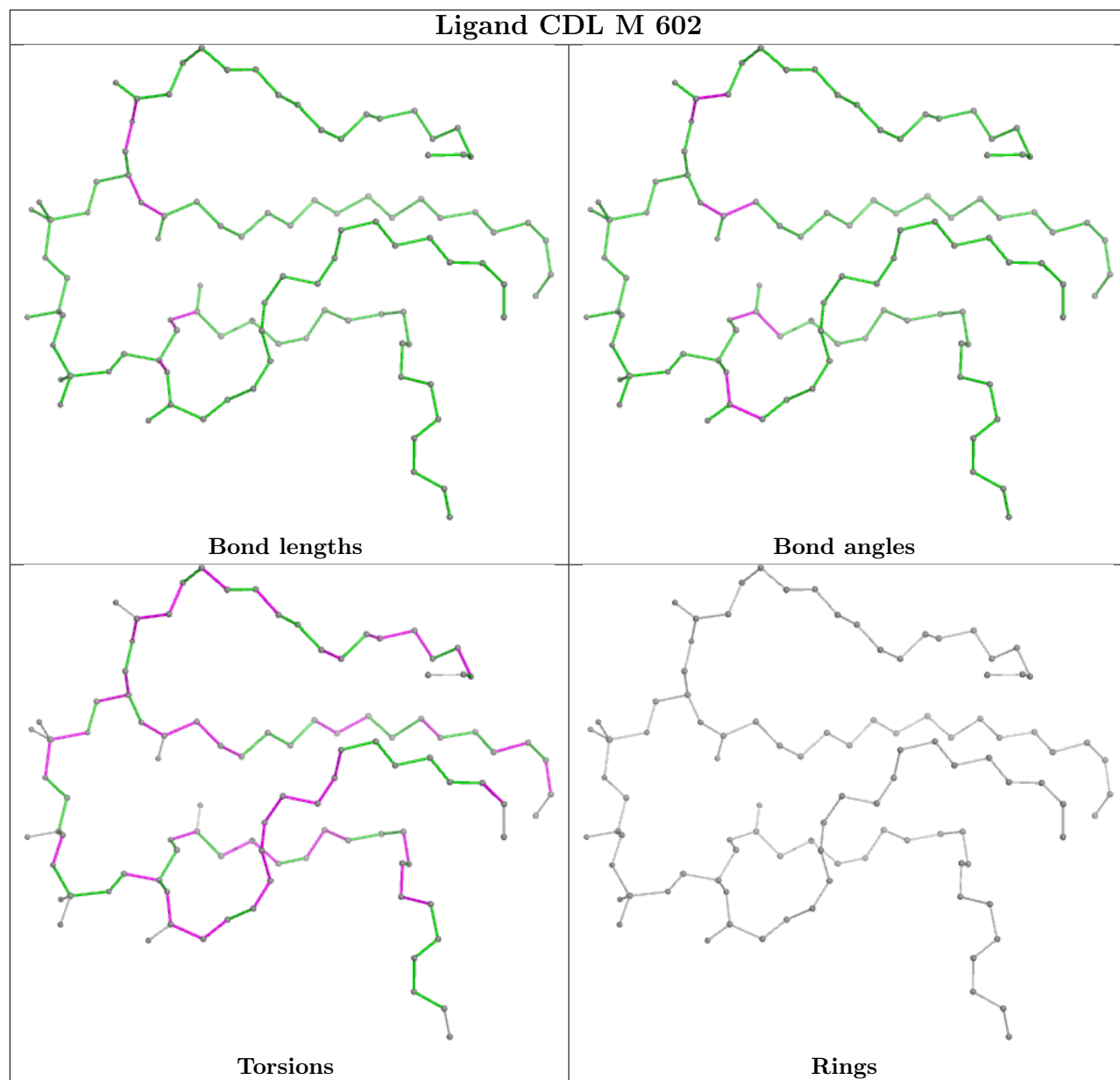


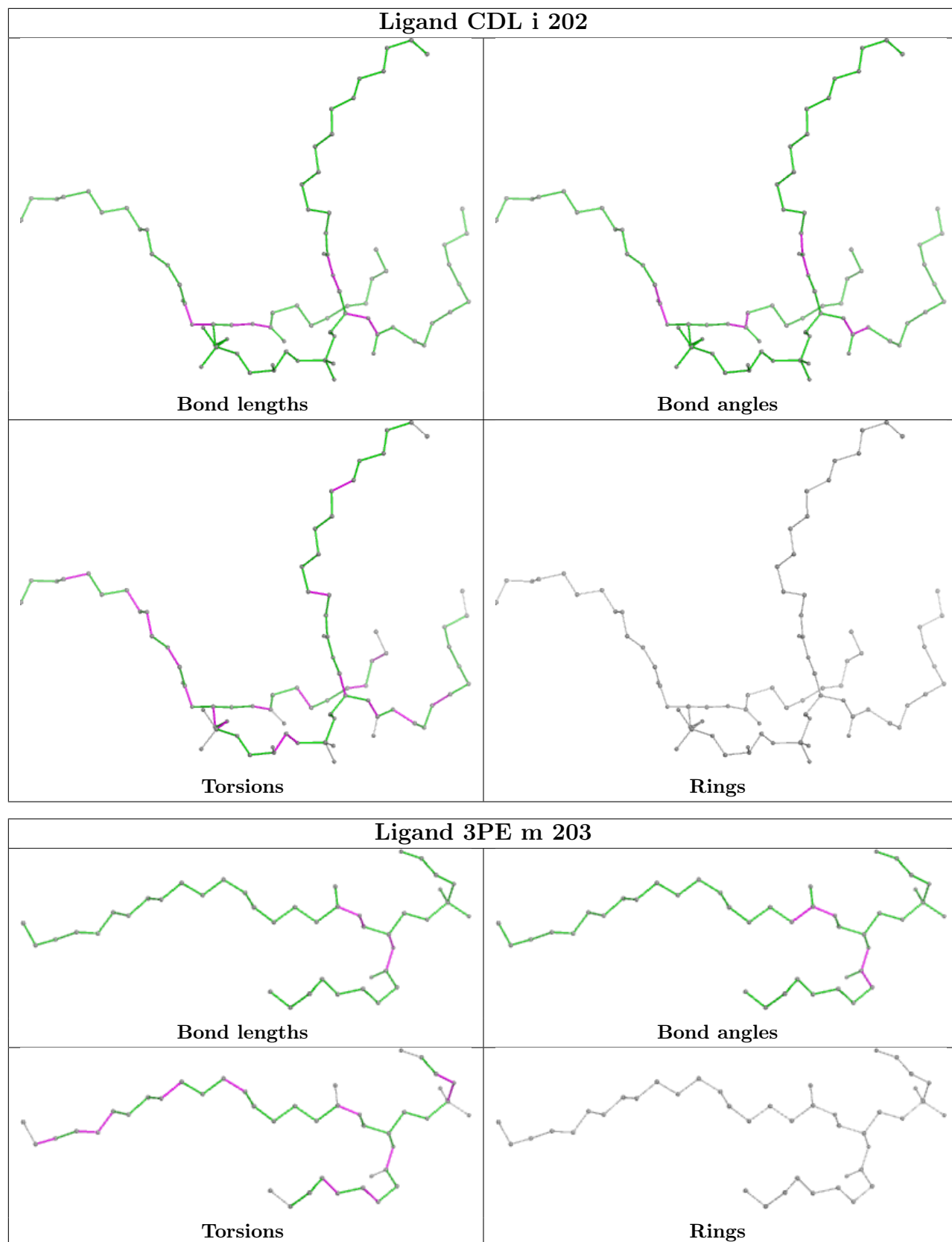


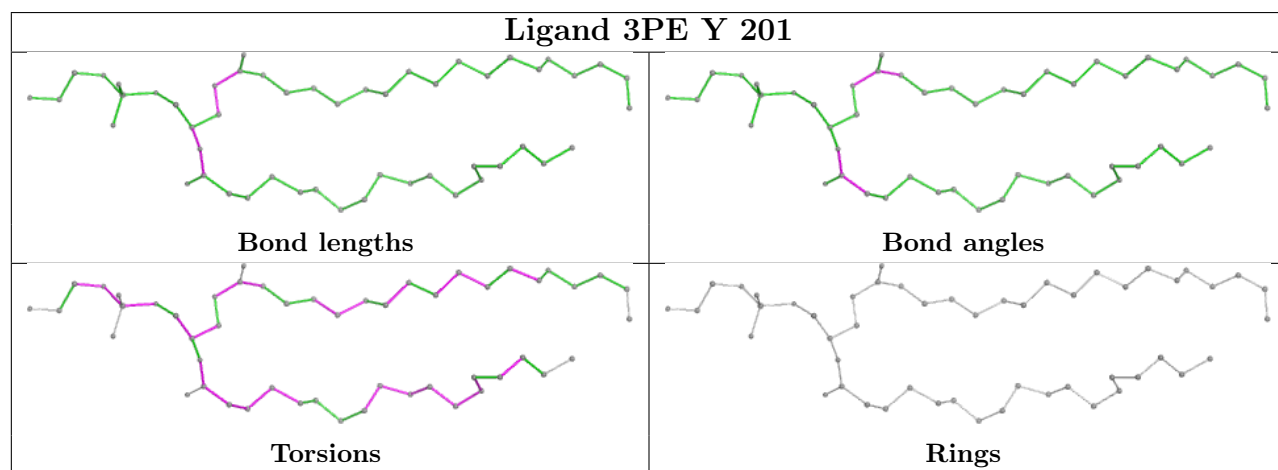
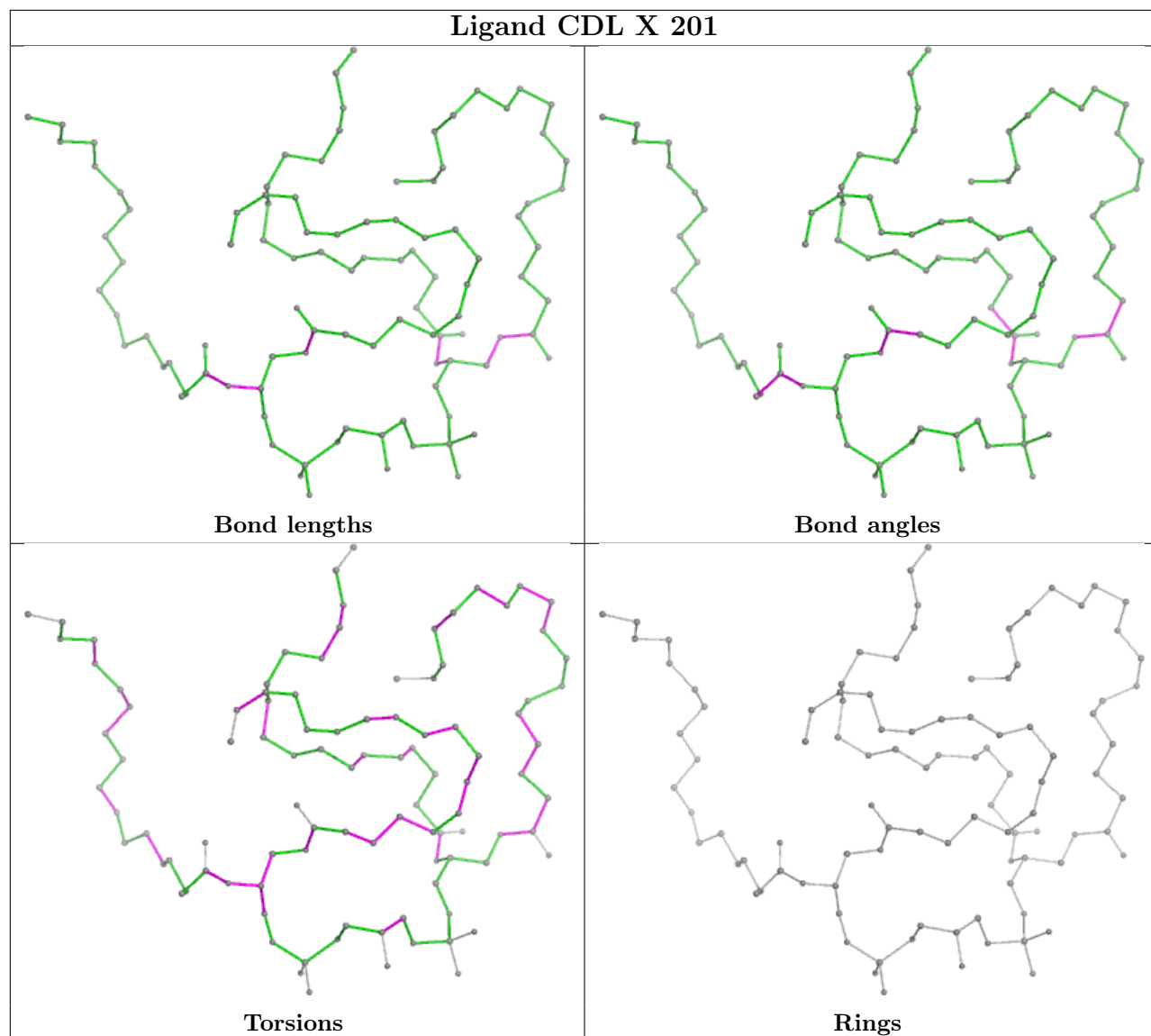


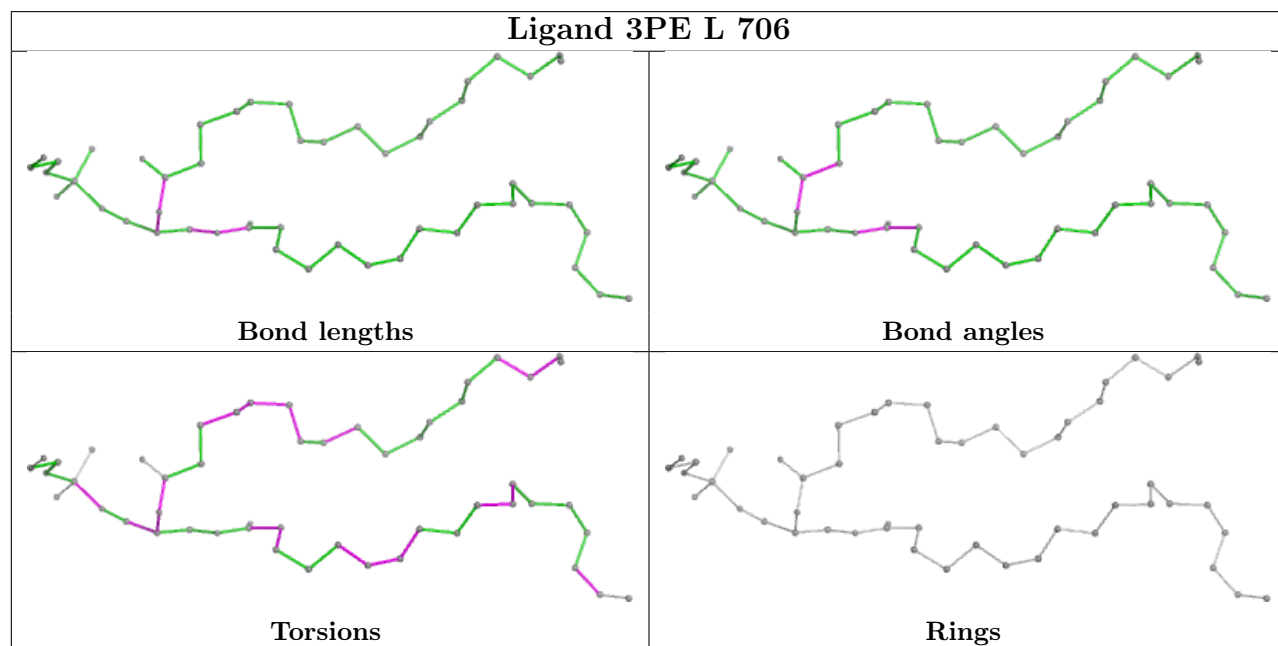
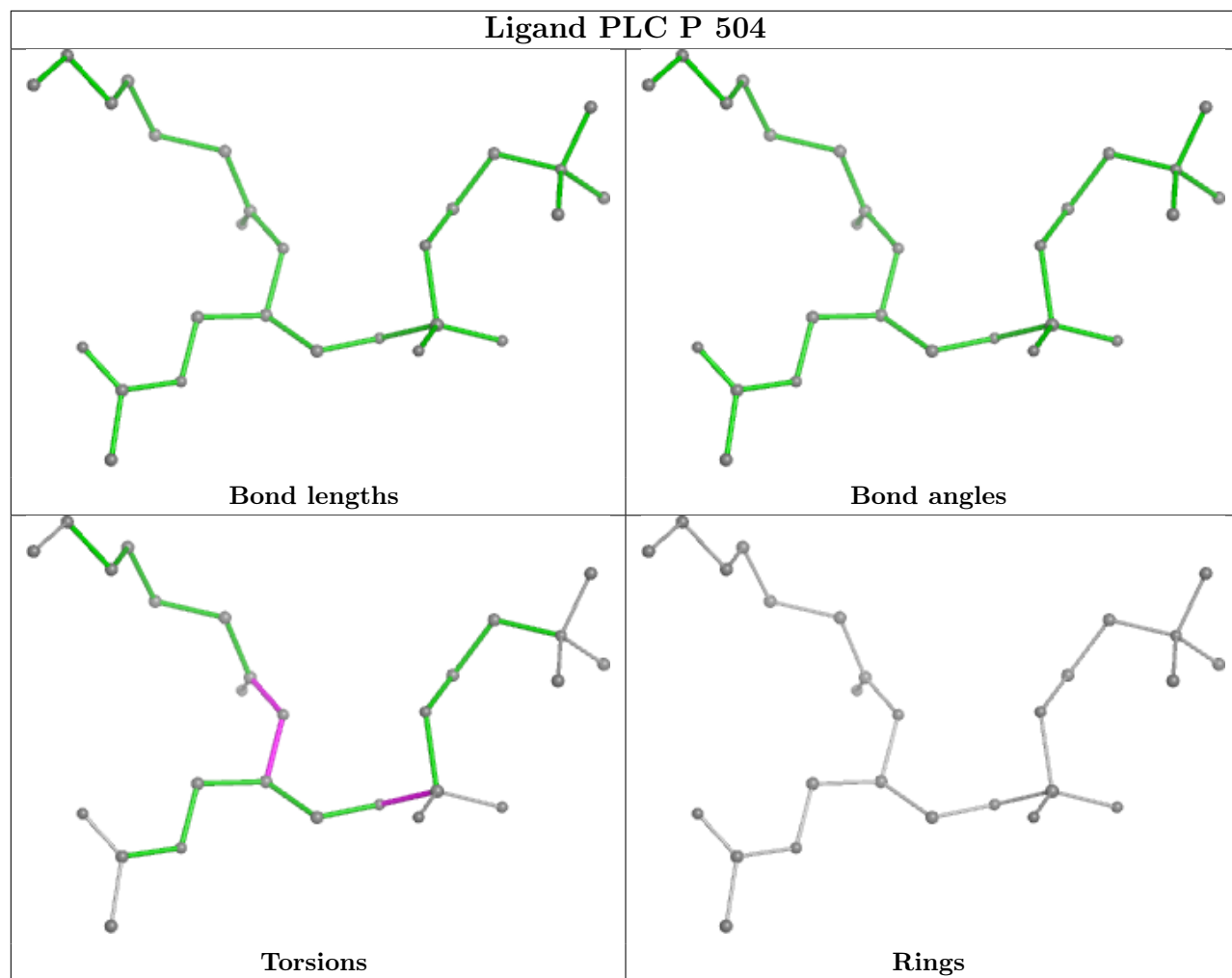


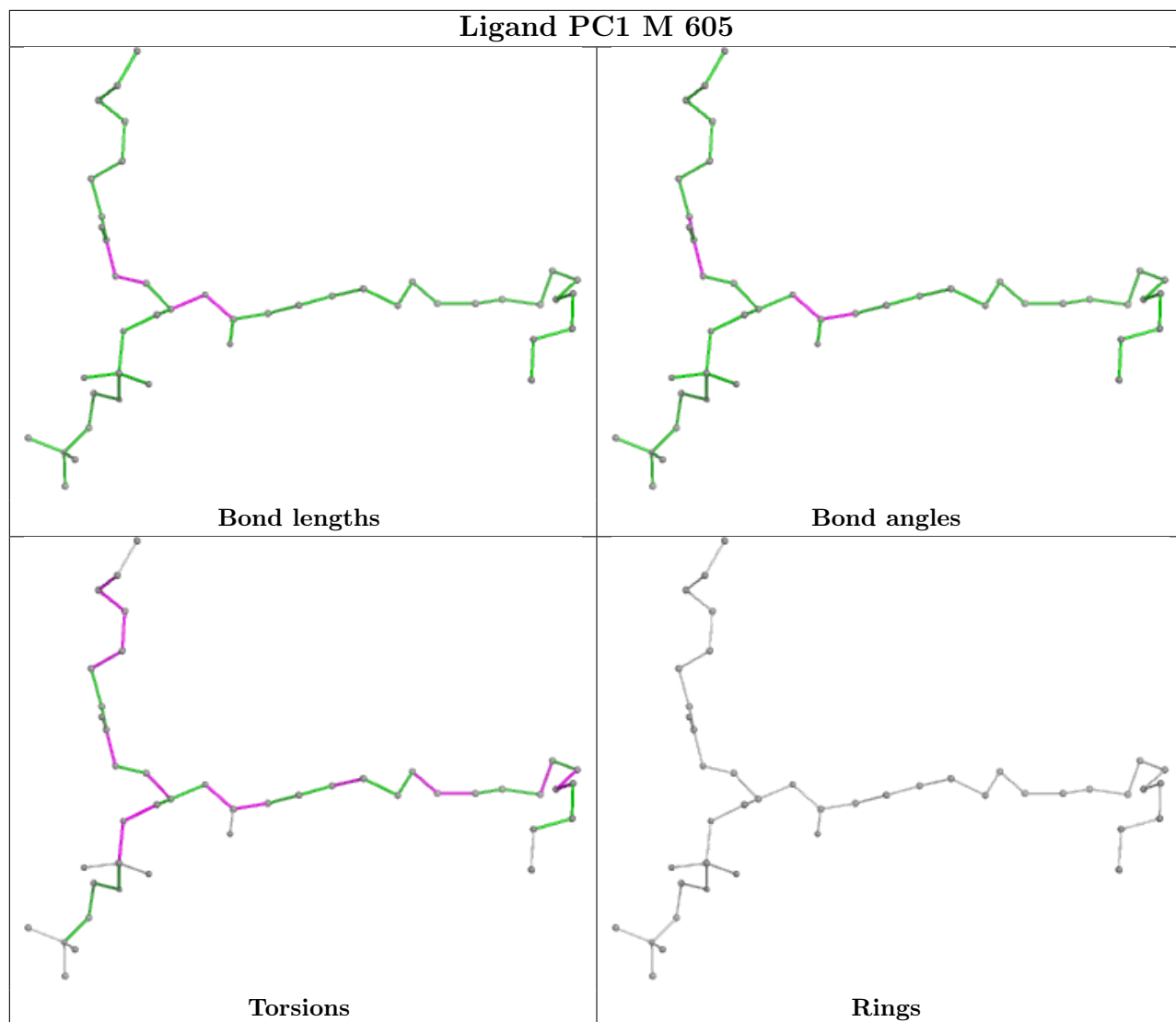


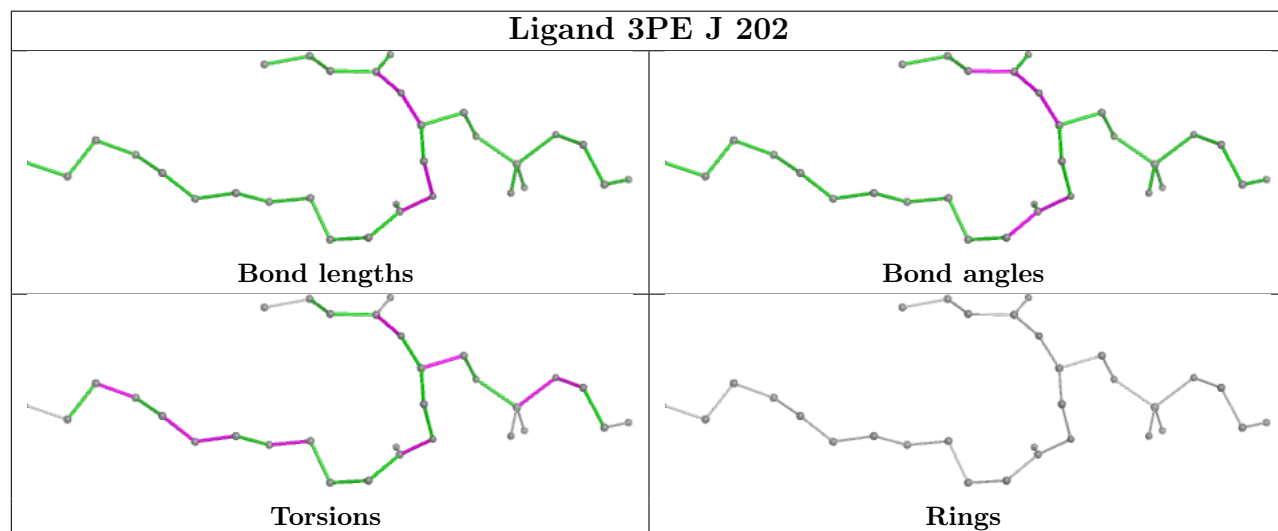
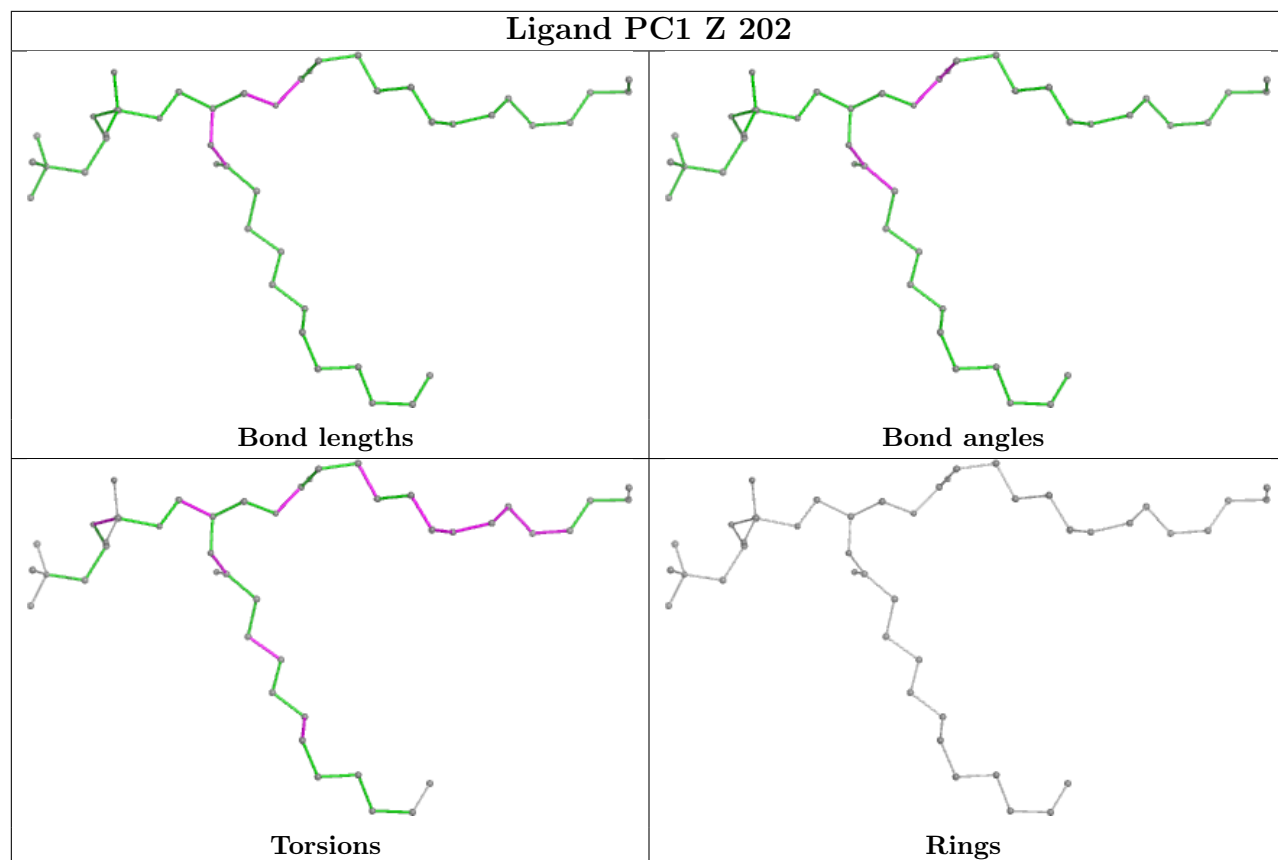


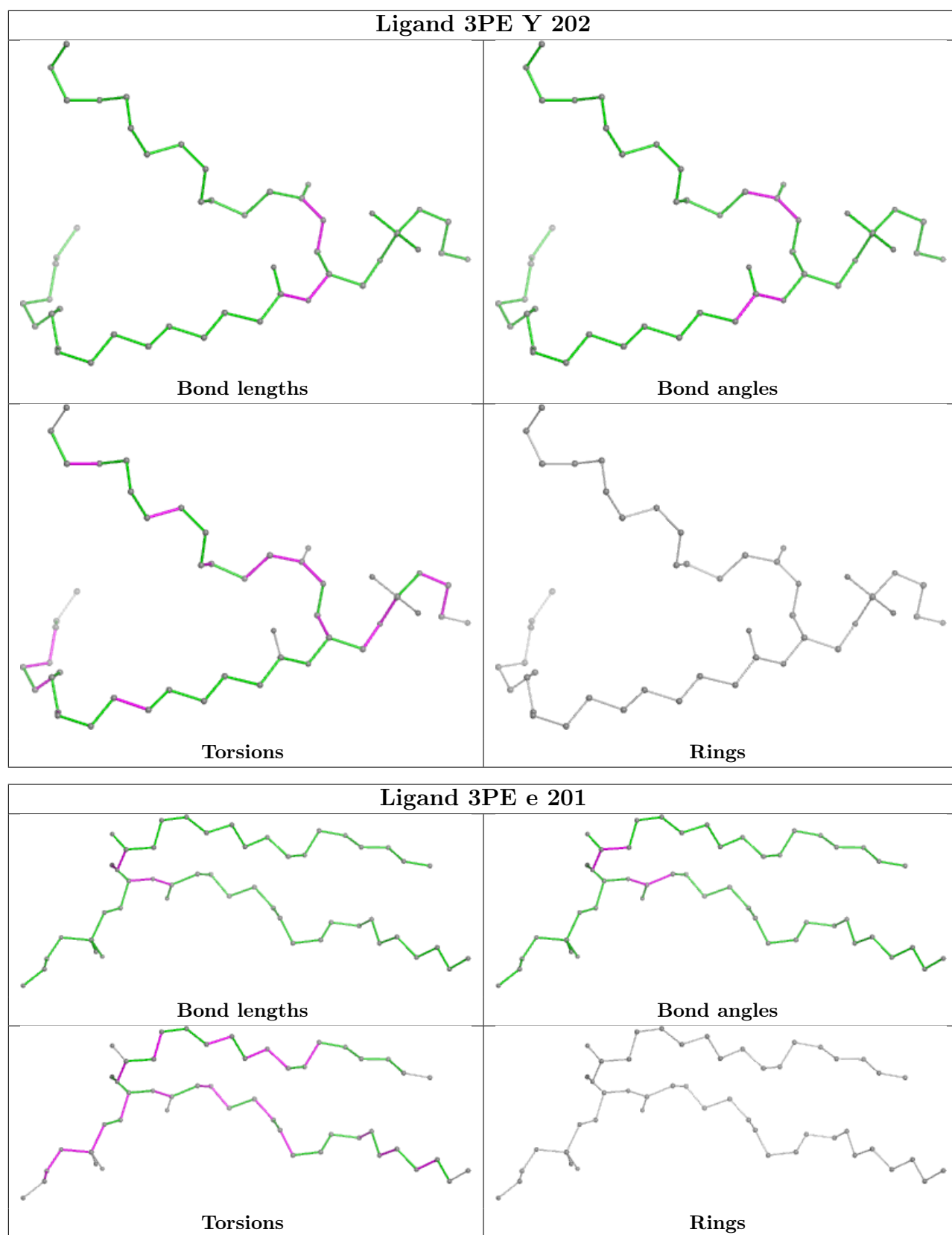


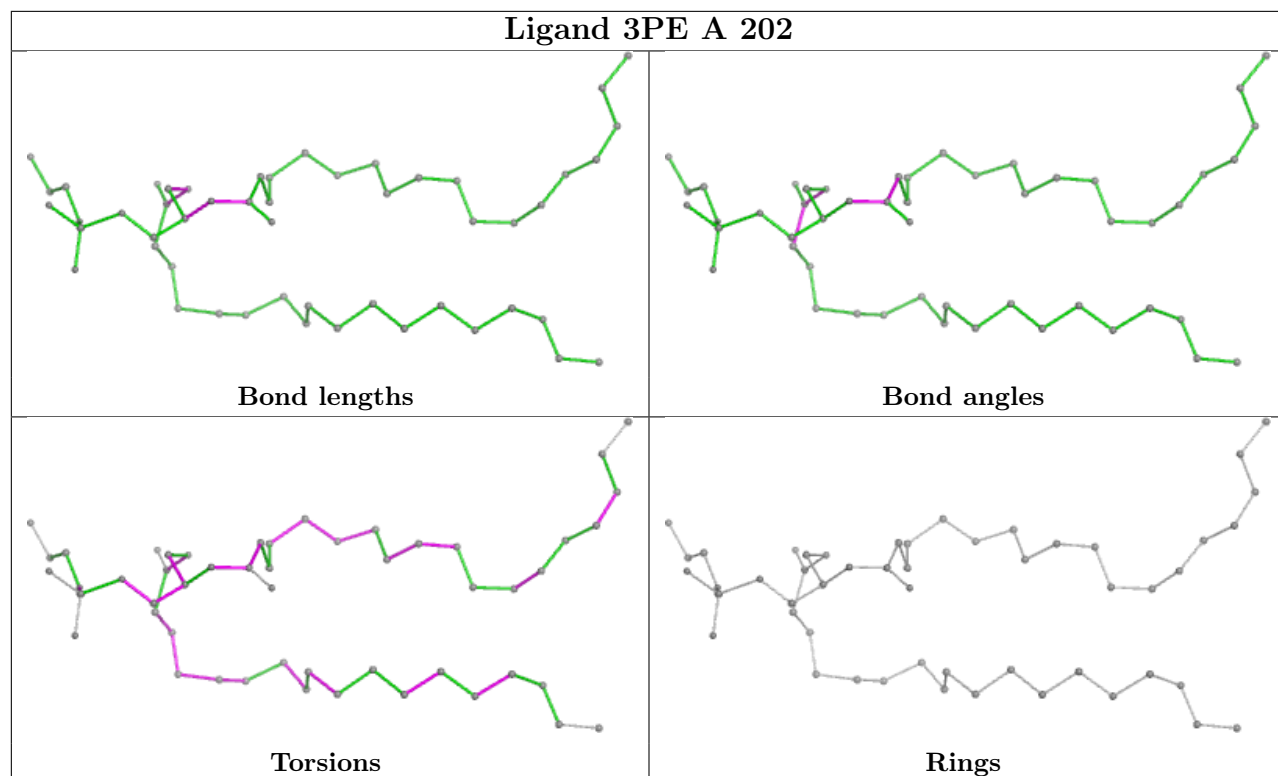


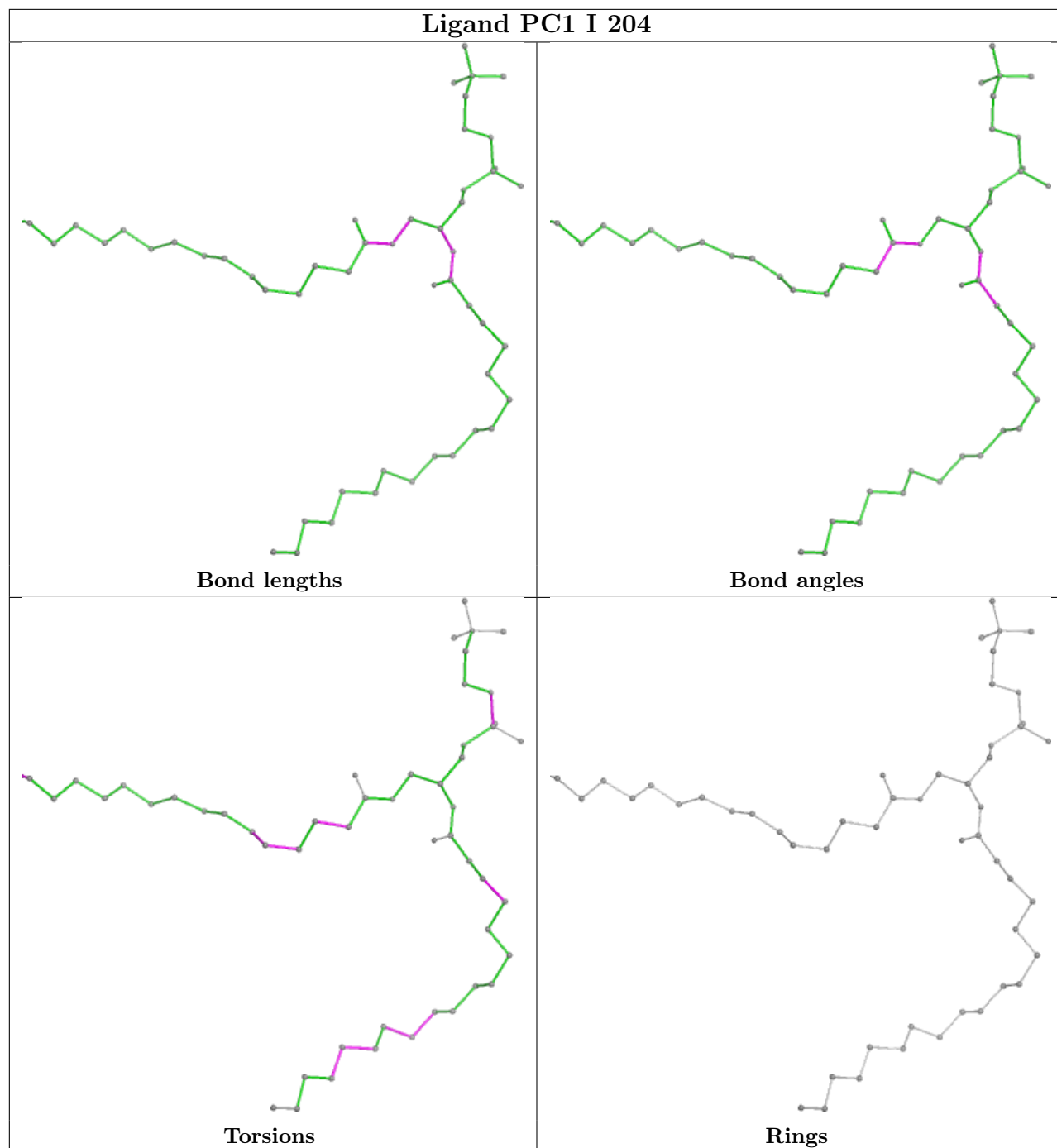


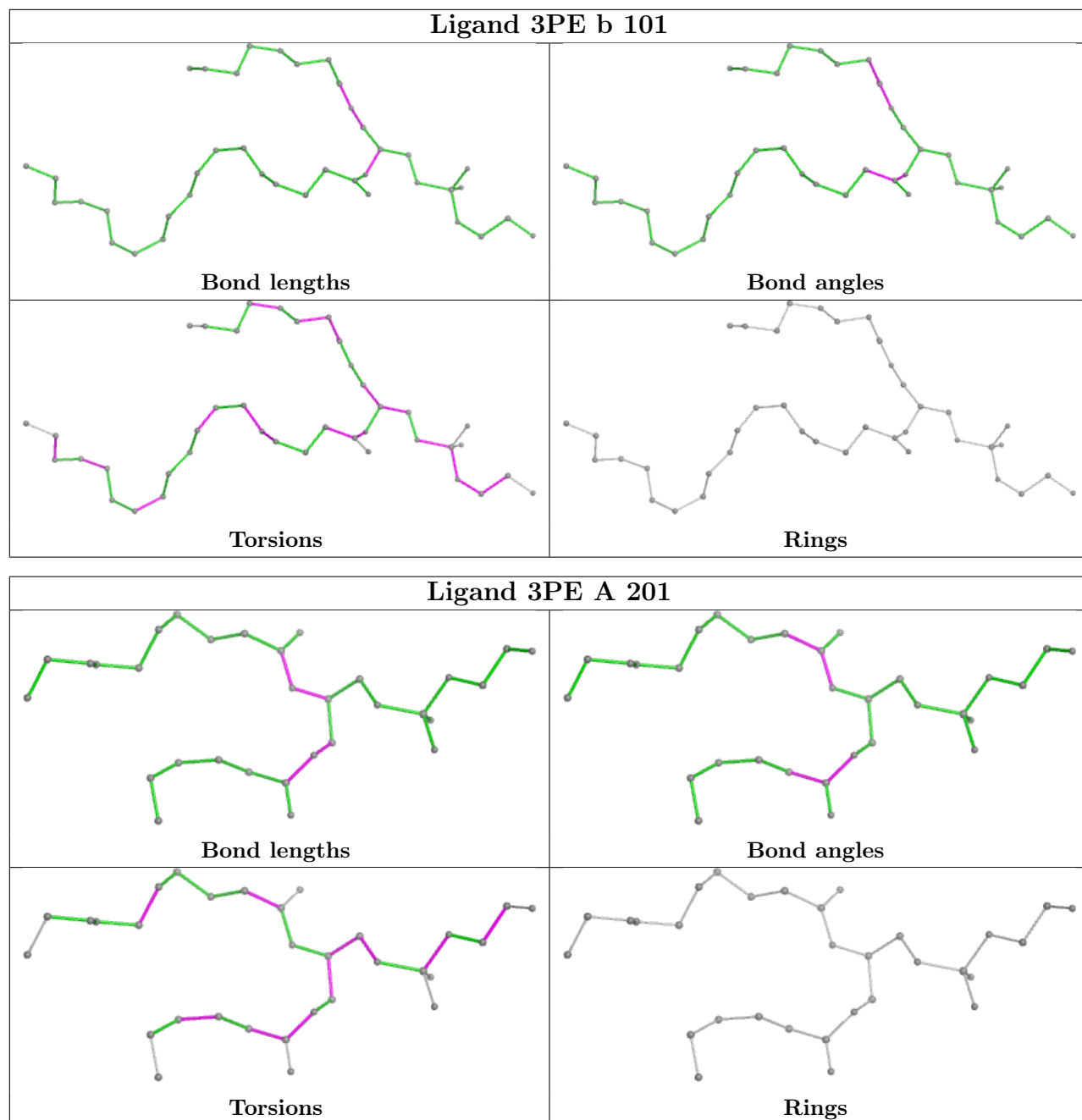


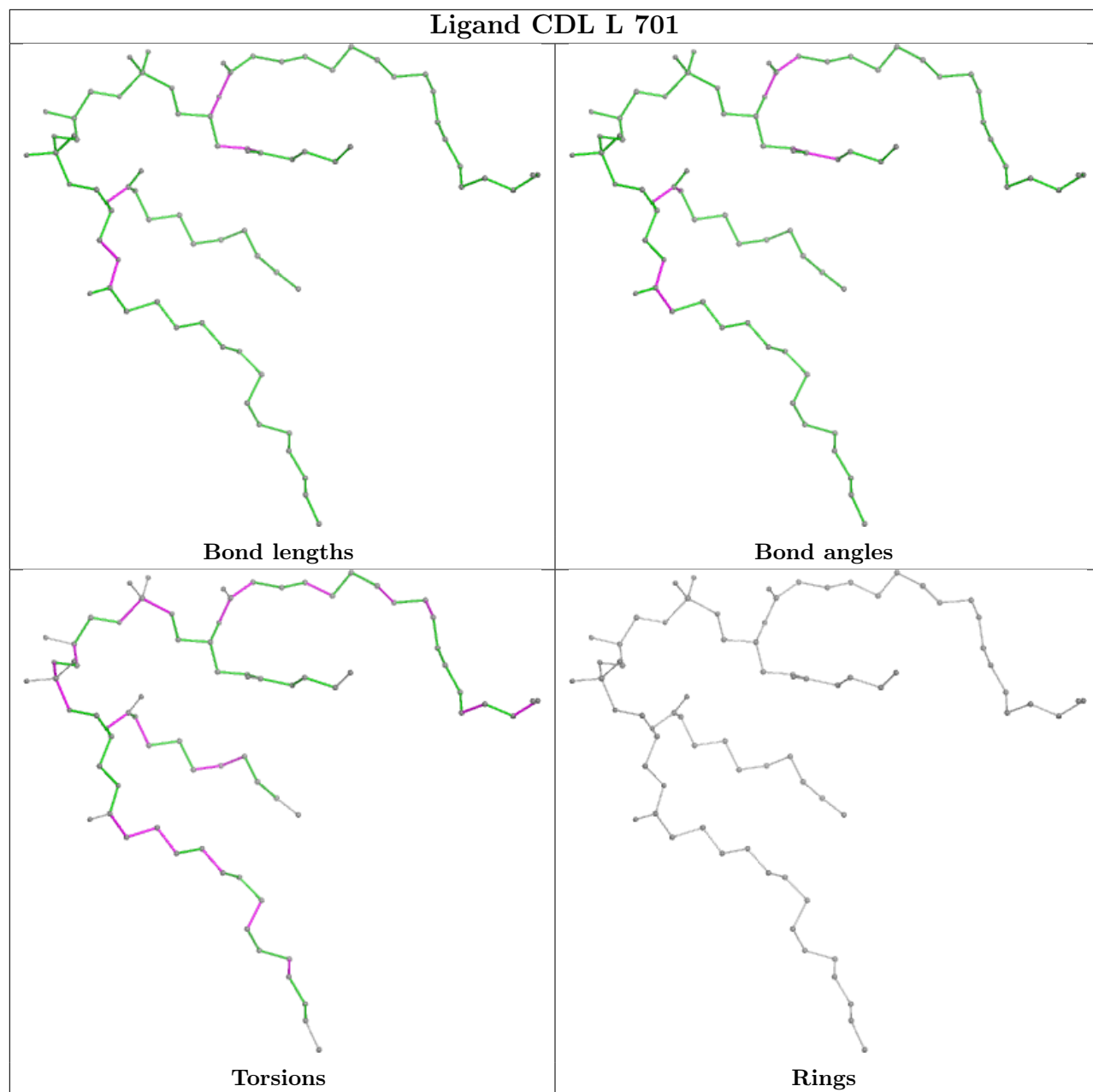


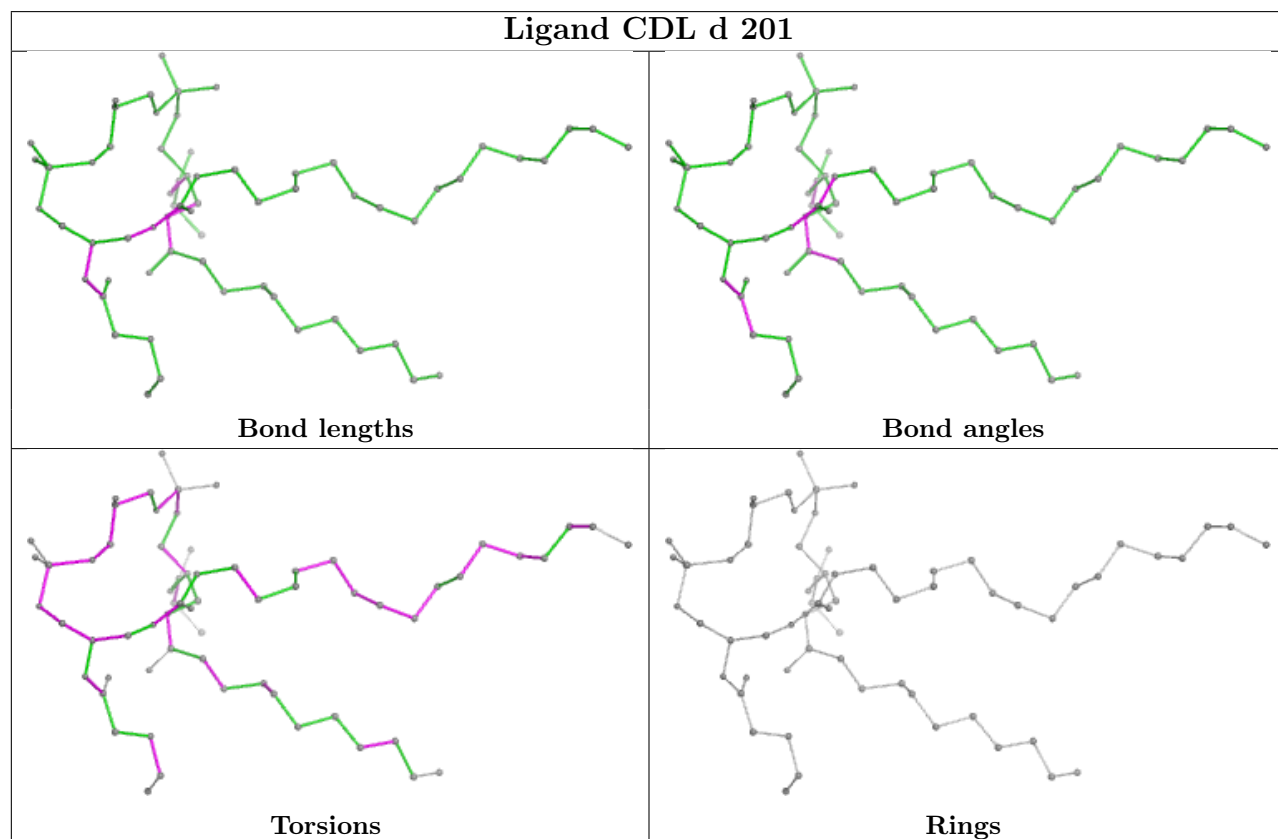
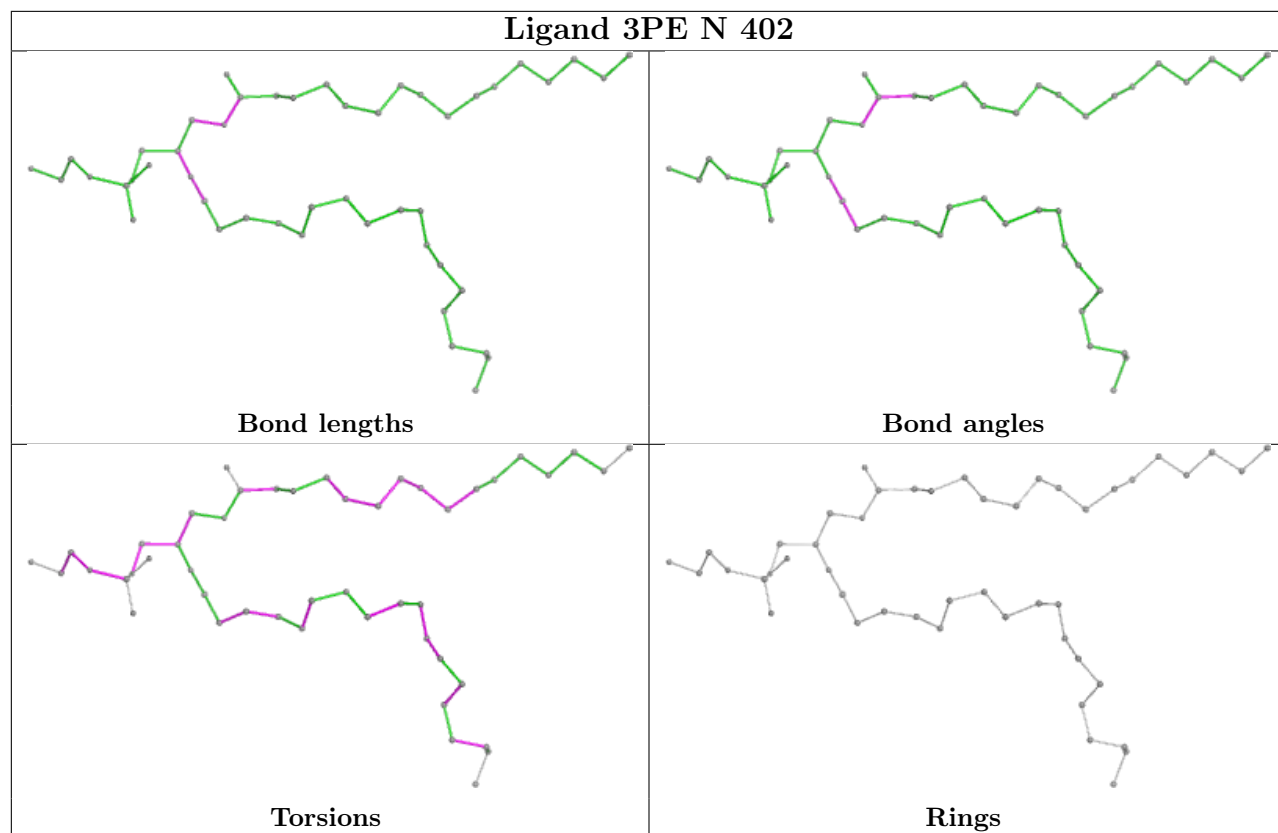


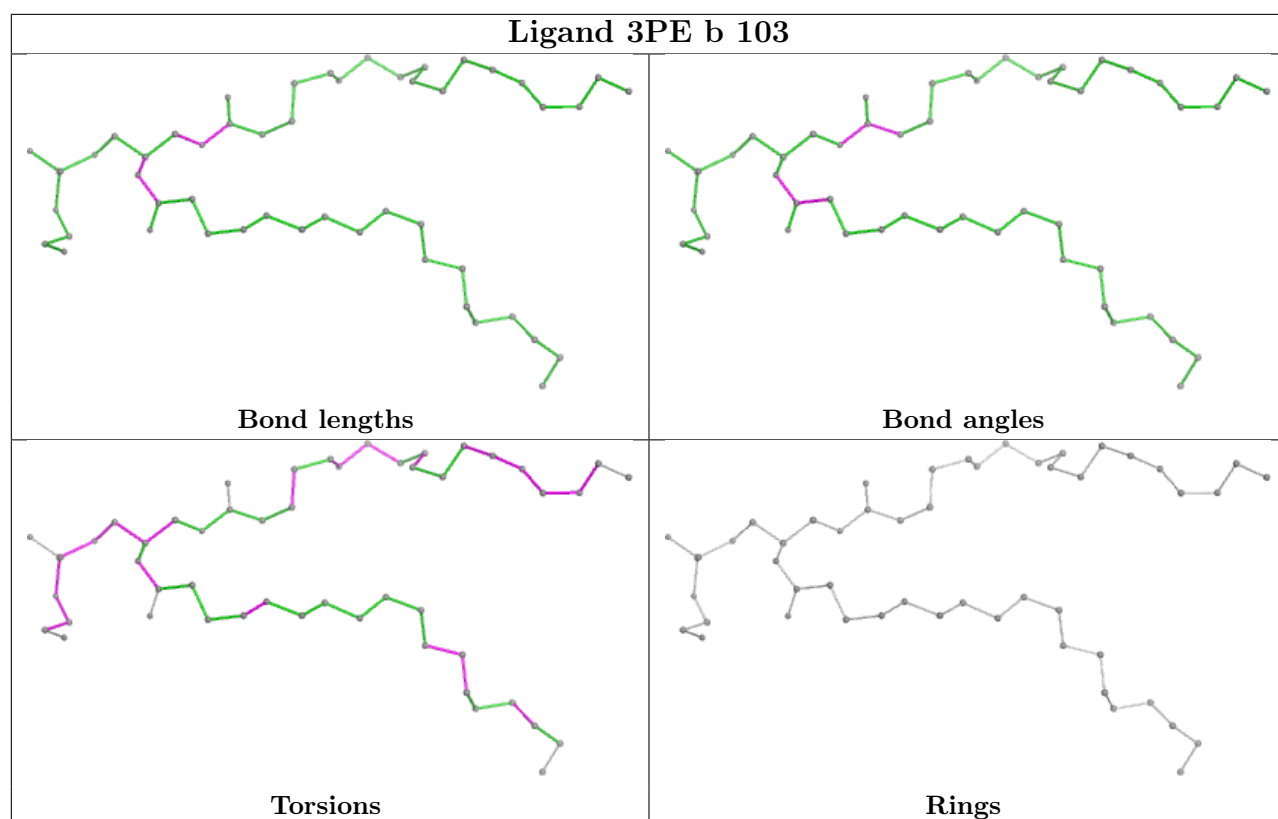
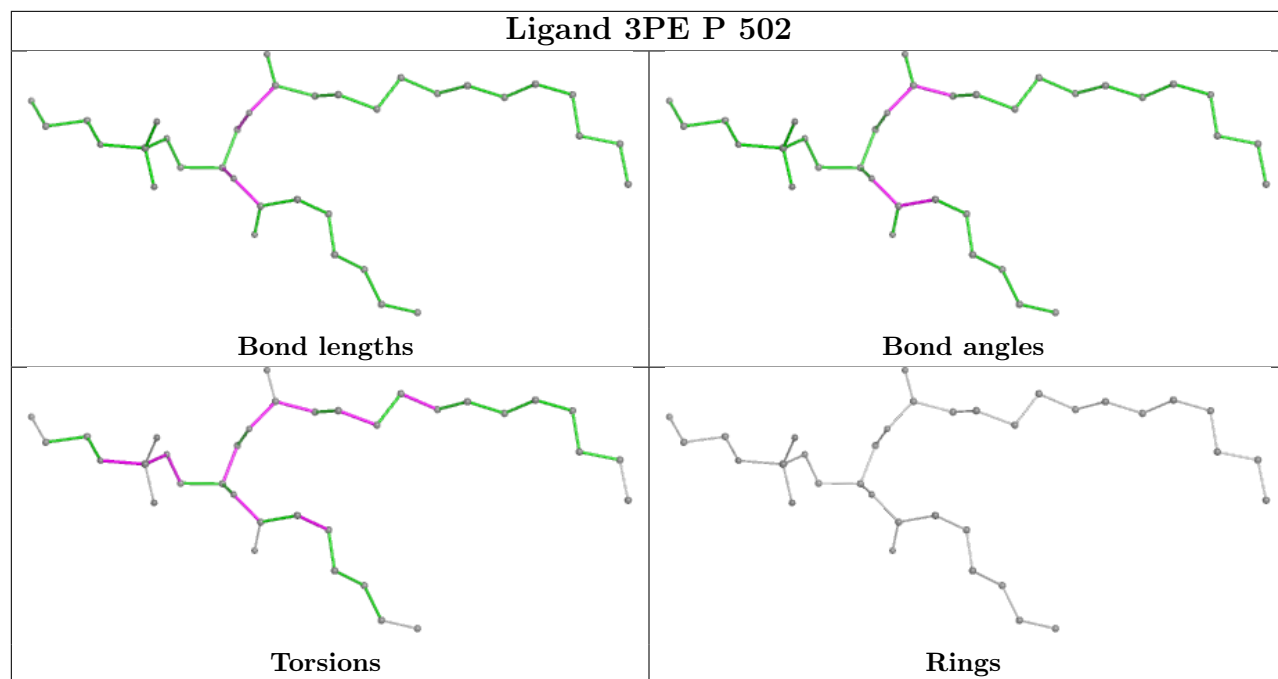


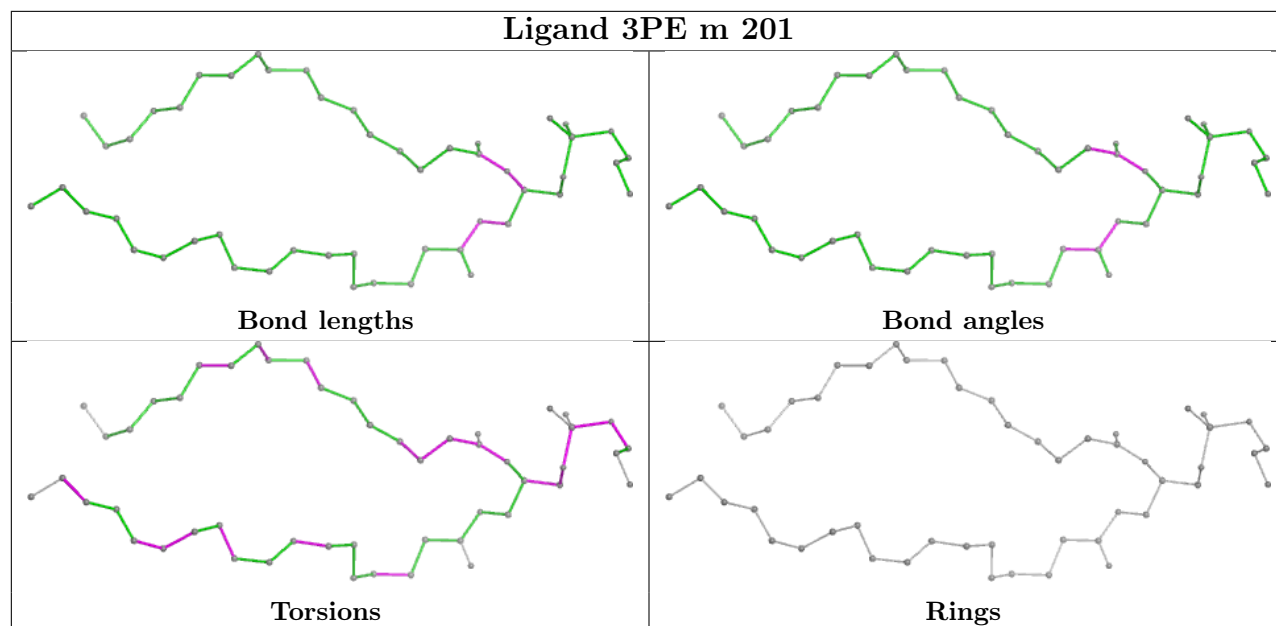












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

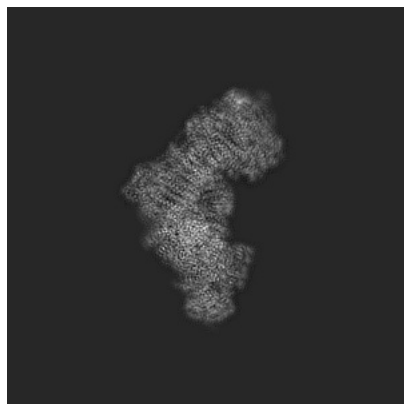
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-18051. These allow visual inspection of the internal detail of the map and identification of artifacts.

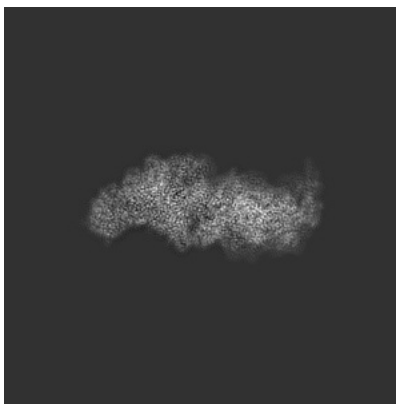
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

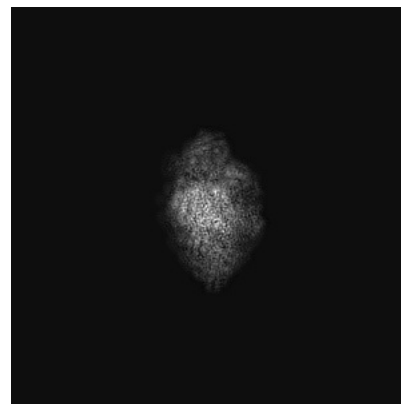
6.1.1 Primary map



X

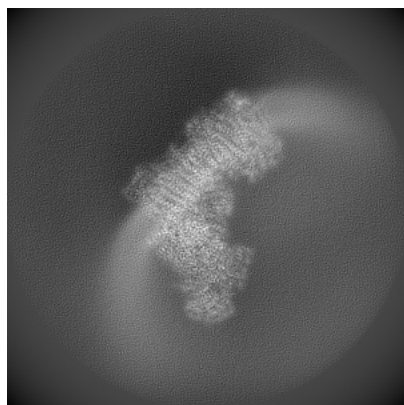


Y

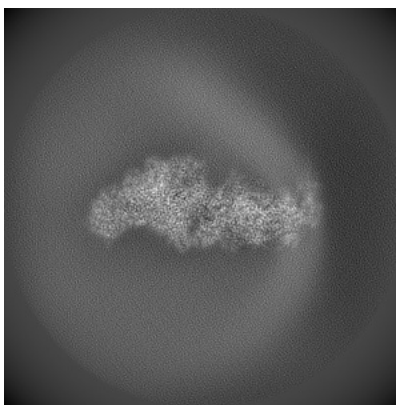


Z

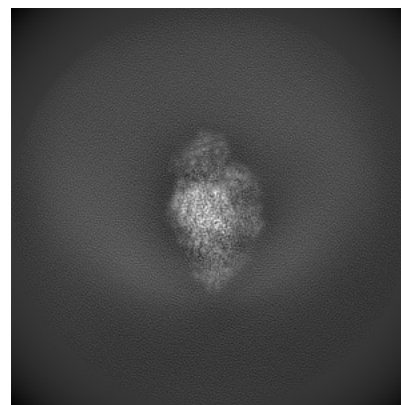
6.1.2 Raw map



X



Y

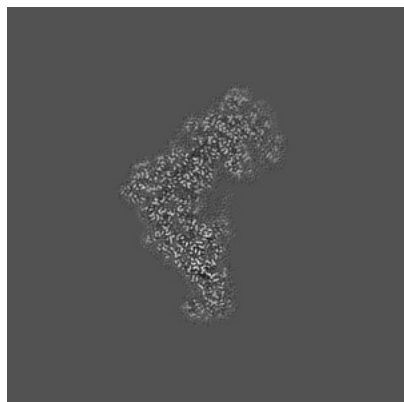


Z

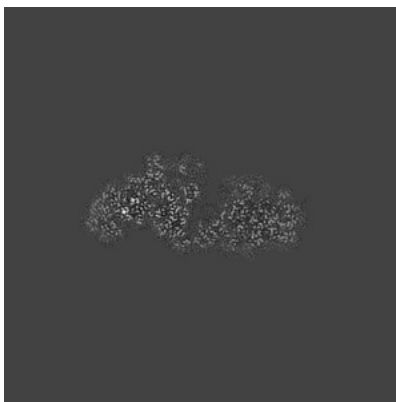
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

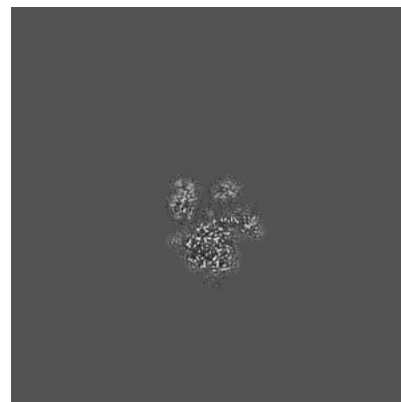
6.2.1 Primary map



X Index: 180

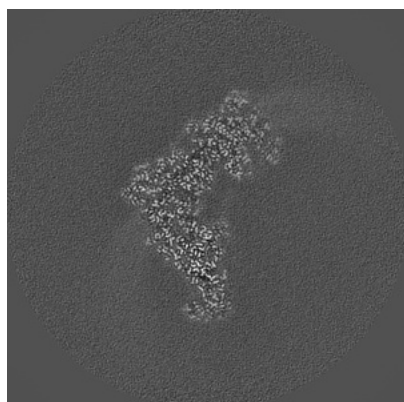


Y Index: 180

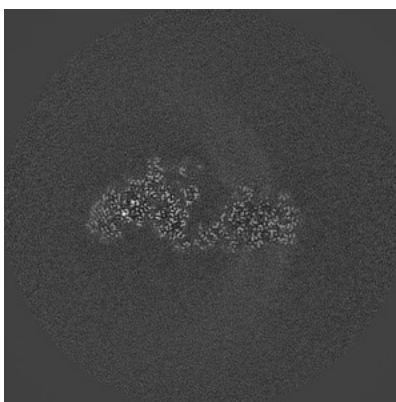


Z Index: 180

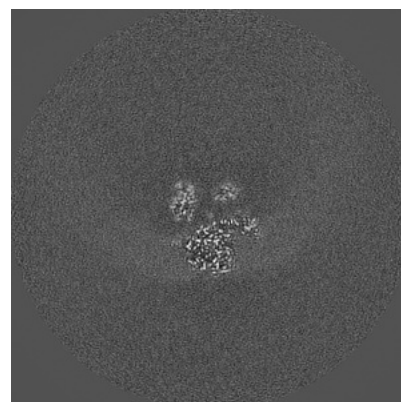
6.2.2 Raw map



X Index: 180



Y Index: 180

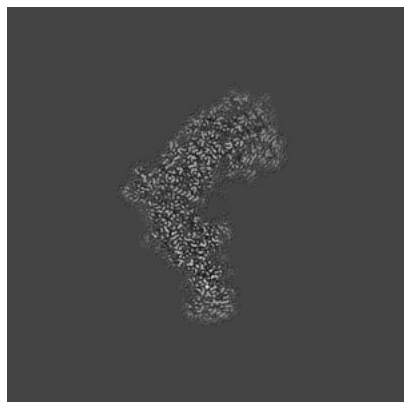


Z Index: 180

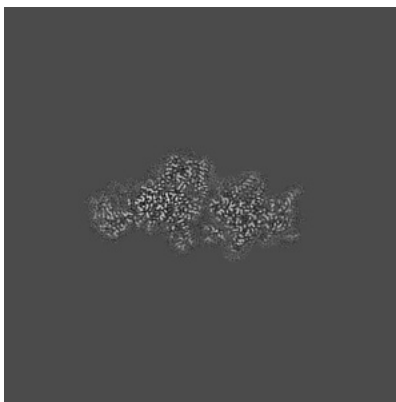
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

6.3.1 Primary map



X Index: 176

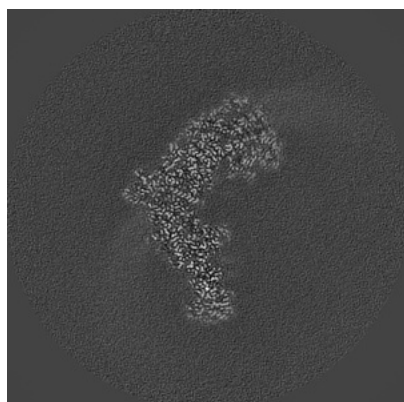


Y Index: 169

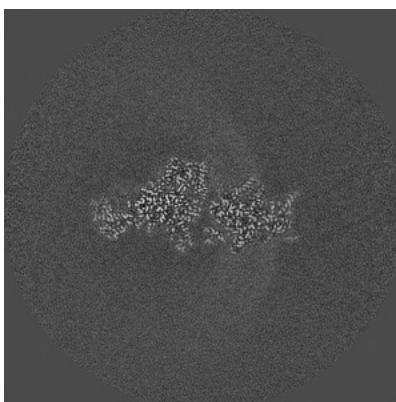


Z Index: 148

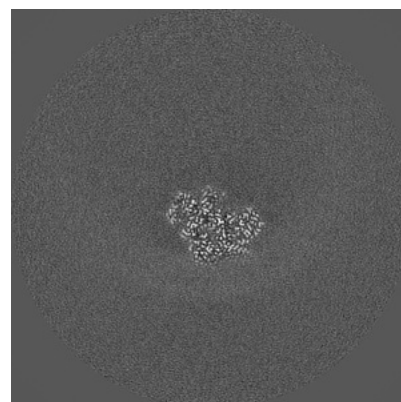
6.3.2 Raw map



X Index: 176



Y Index: 169

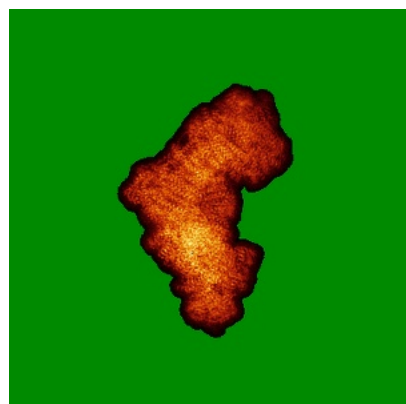


Z Index: 158

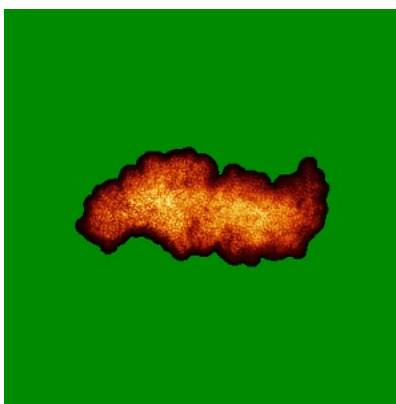
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

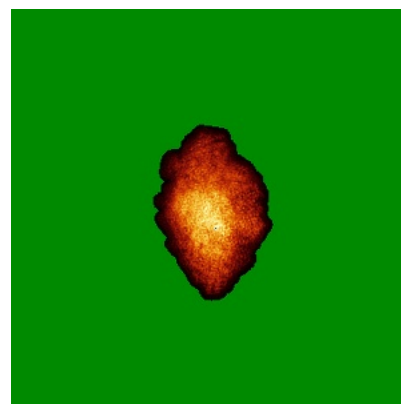
6.4.1 Primary map



X

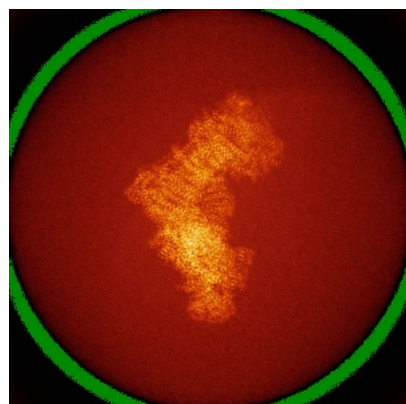


Y

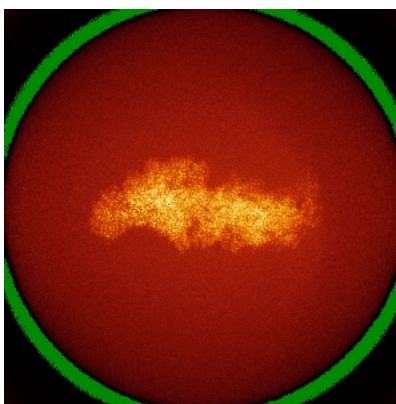


Z

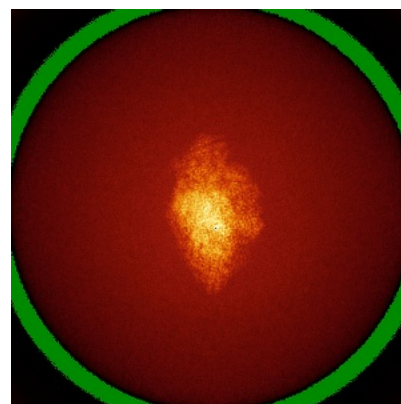
6.4.2 Raw map



X



Y

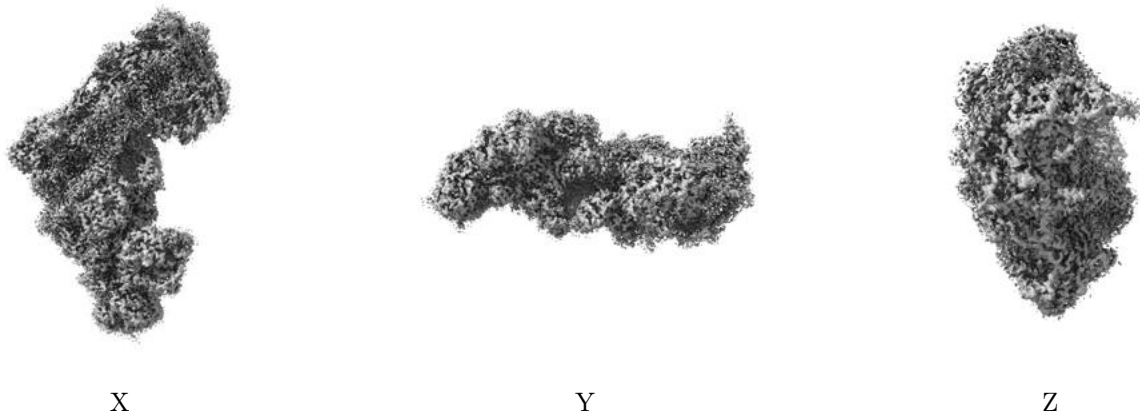


Z

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

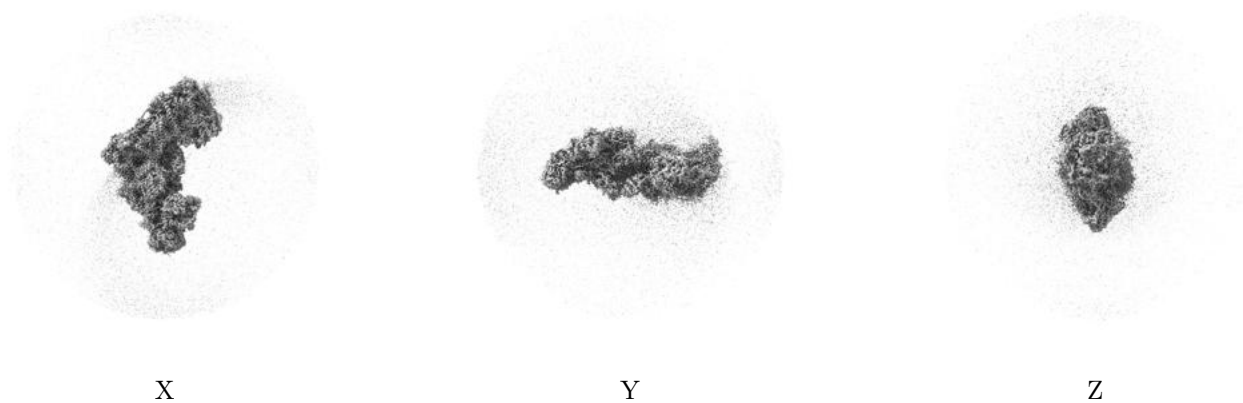
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.014. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

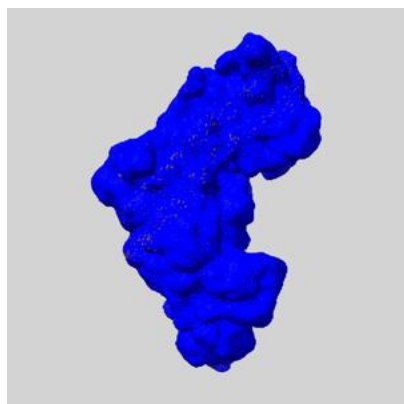
6.6 Mask visualisation [i](#)

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

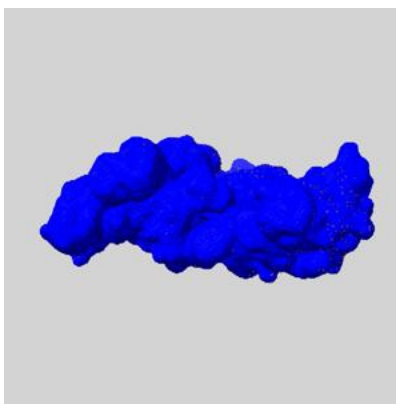
A mask typically either:

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

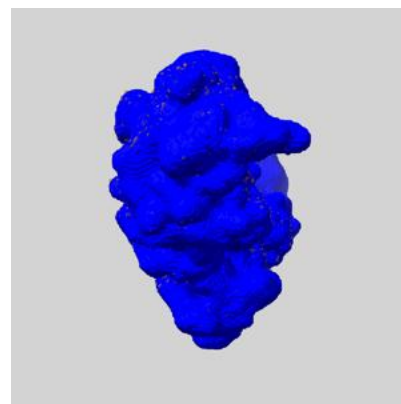
6.6.1 emd_18051_msk_1.map [i](#)



X



Y

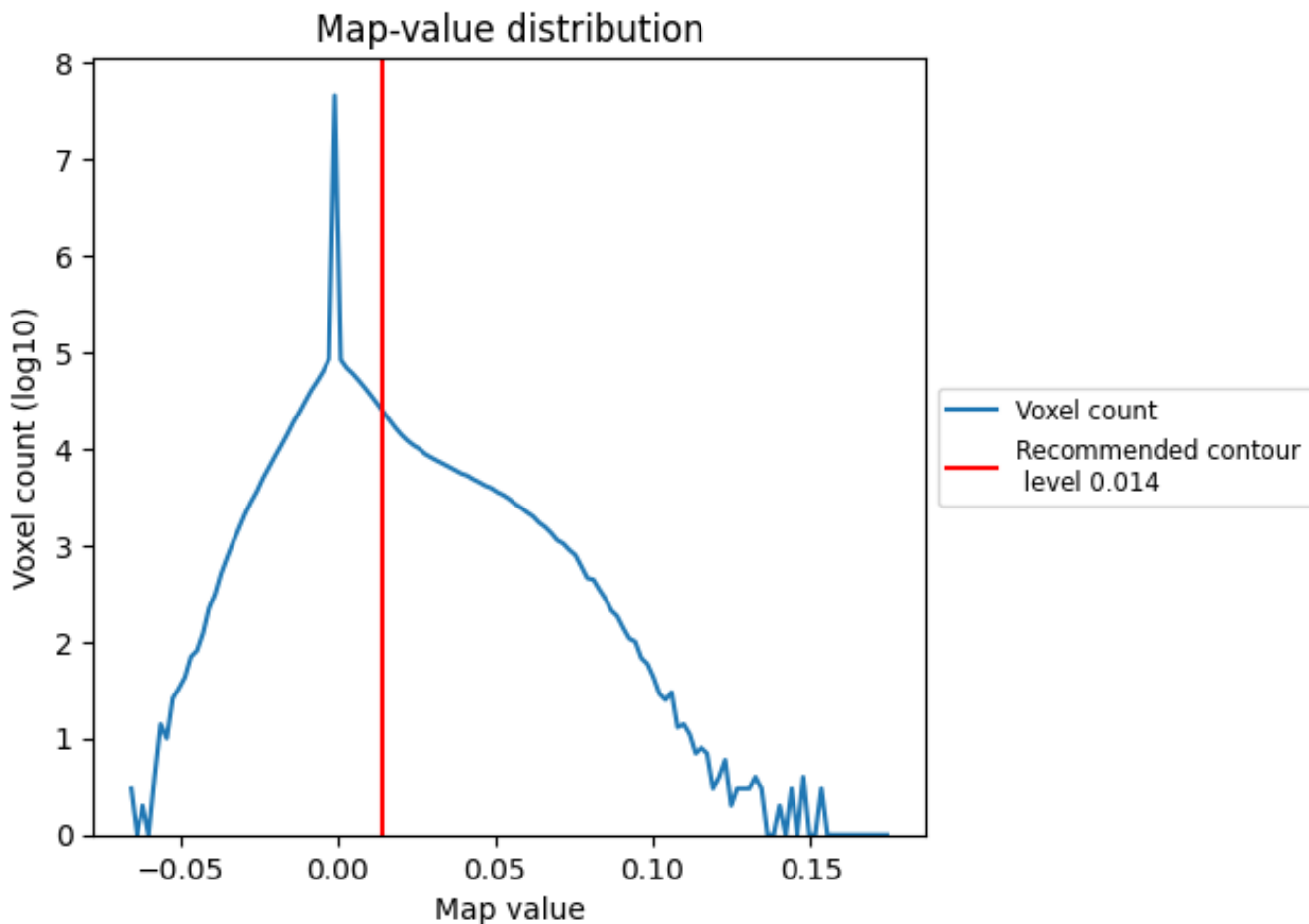


Z

7 Map analysis [i](#)

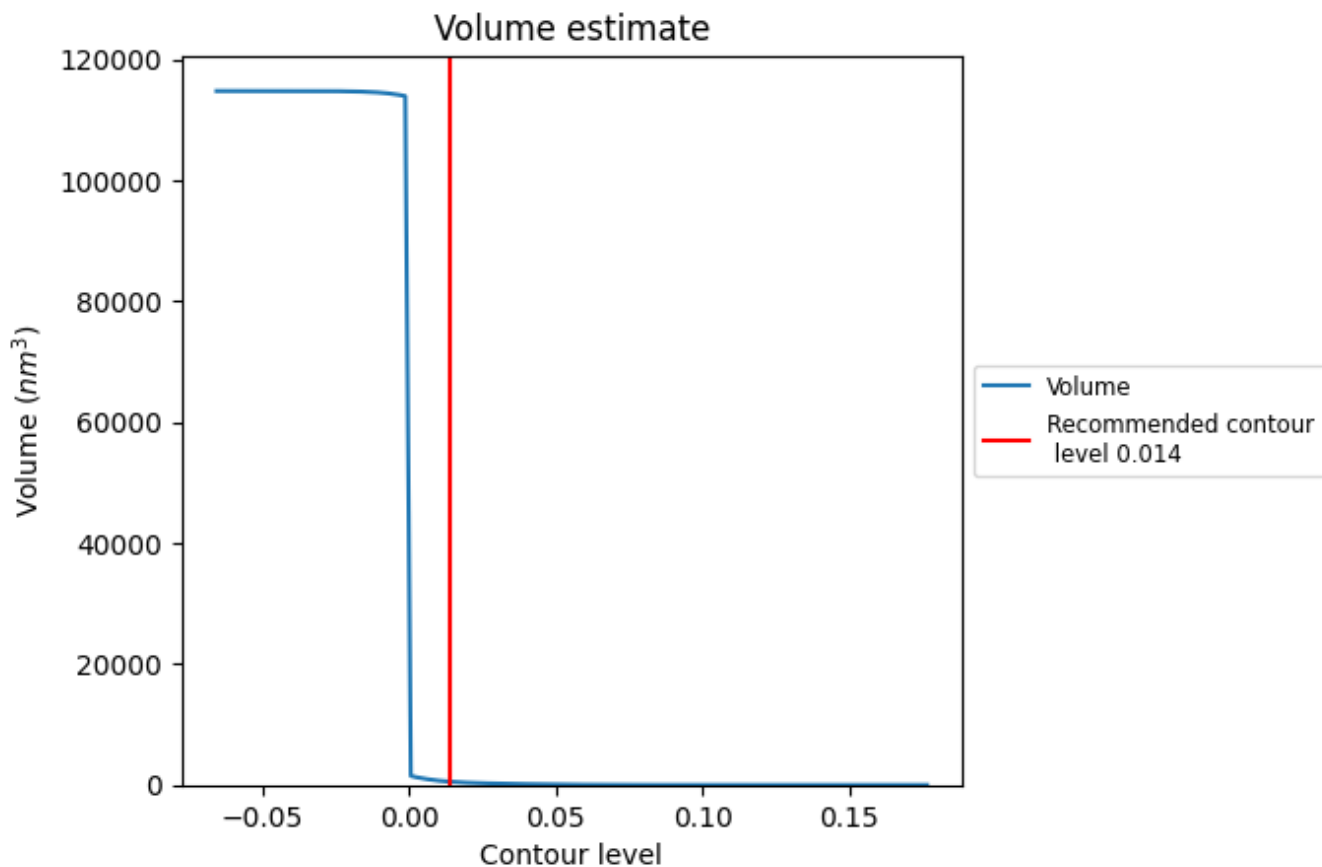
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

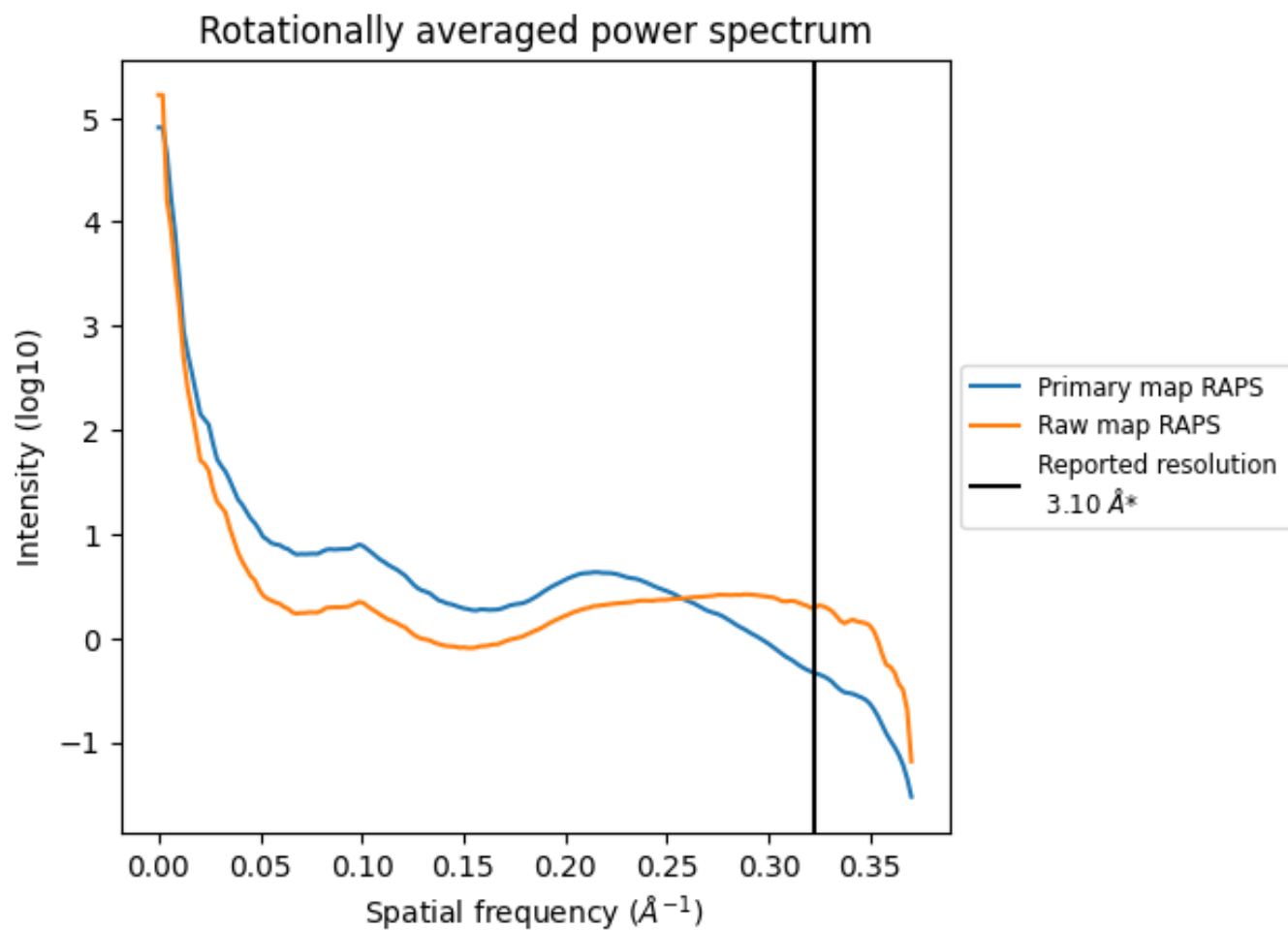
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 534 nm³; this corresponds to an approximate mass of 483 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

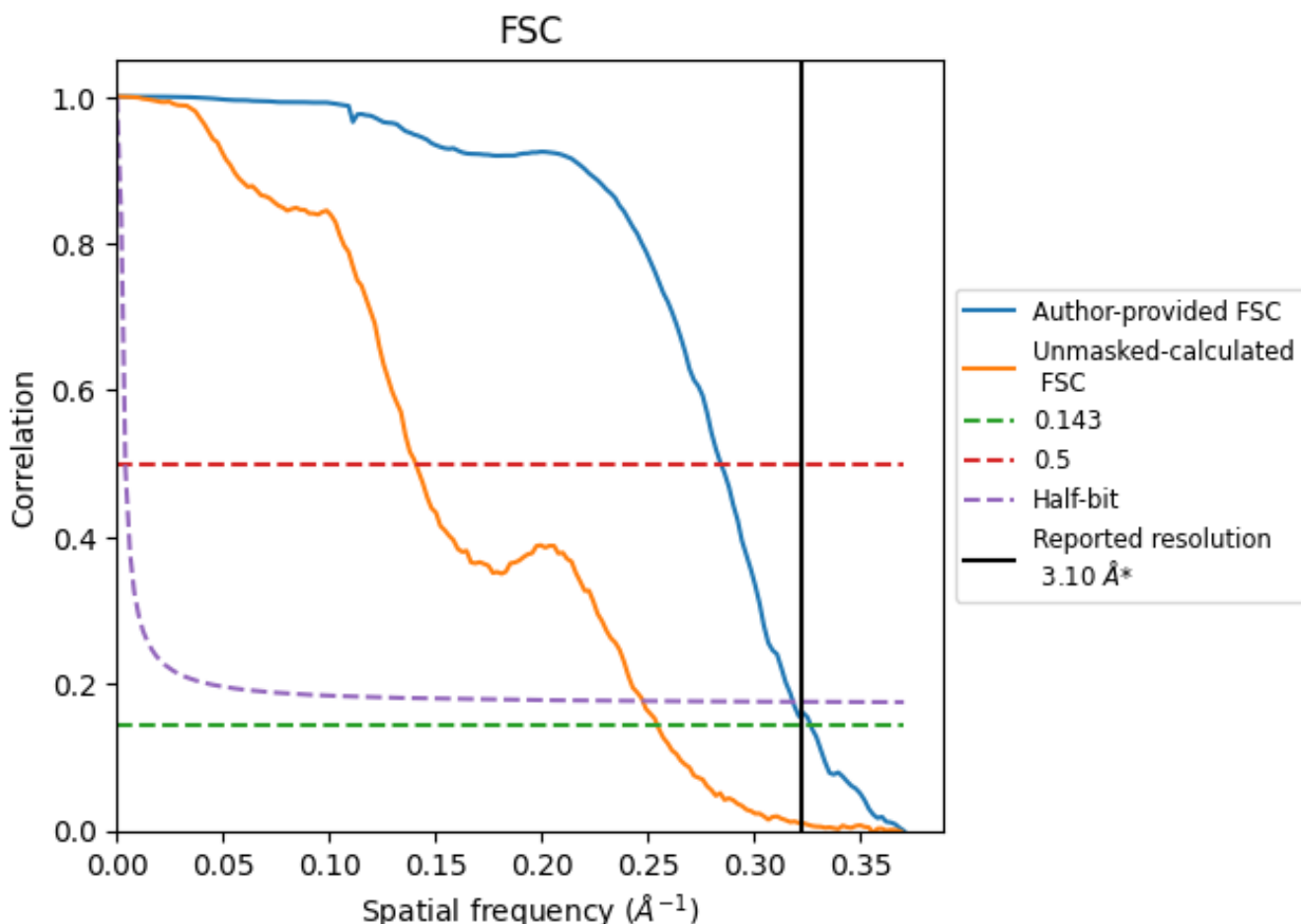


*Reported resolution corresponds to spatial frequency of 0.323 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.323 Å⁻¹

8.2 Resolution estimates [i](#)

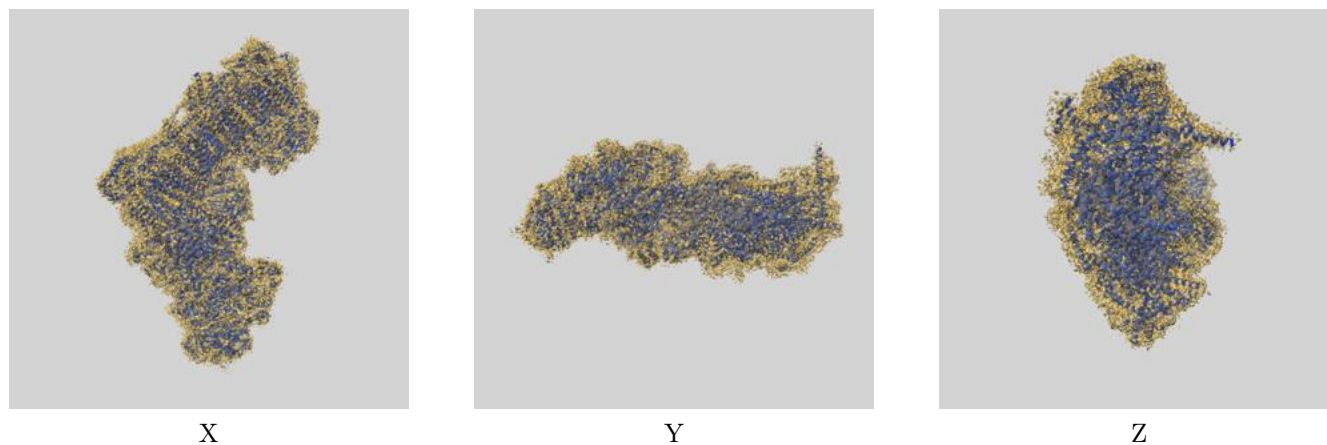
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.06	3.52	3.14
Unmasked-calculated*	3.93	7.11	4.04

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.93 differs from the reported value 3.1 by more than 10 %

9 Map-model fit [i](#)

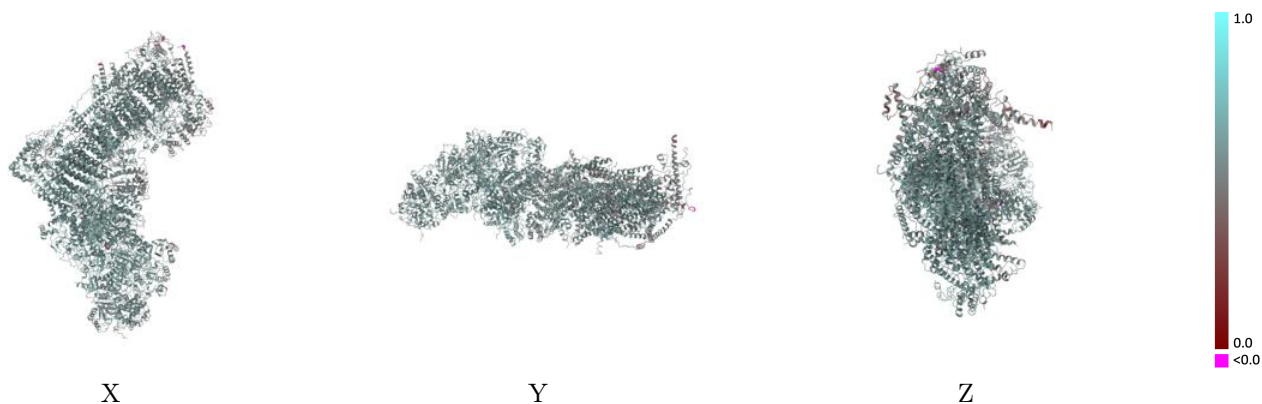
This section contains information regarding the fit between EMDB map EMD-18051 and PDB model 8Q0A. Per-residue inclusion information can be found in section 3 on page 22.

9.1 Map-model overlay [i](#)



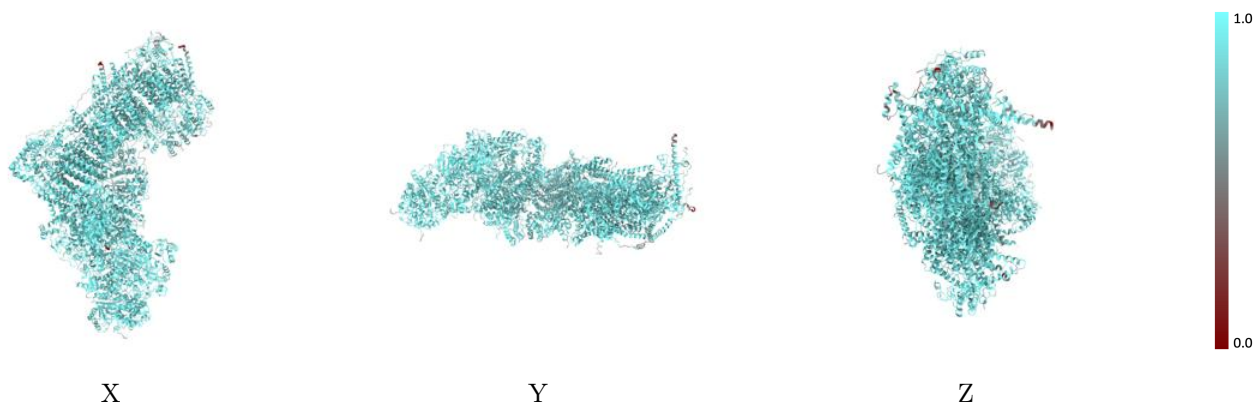
The images above show the 3D surface view of the map at the recommended contour level 0.014 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



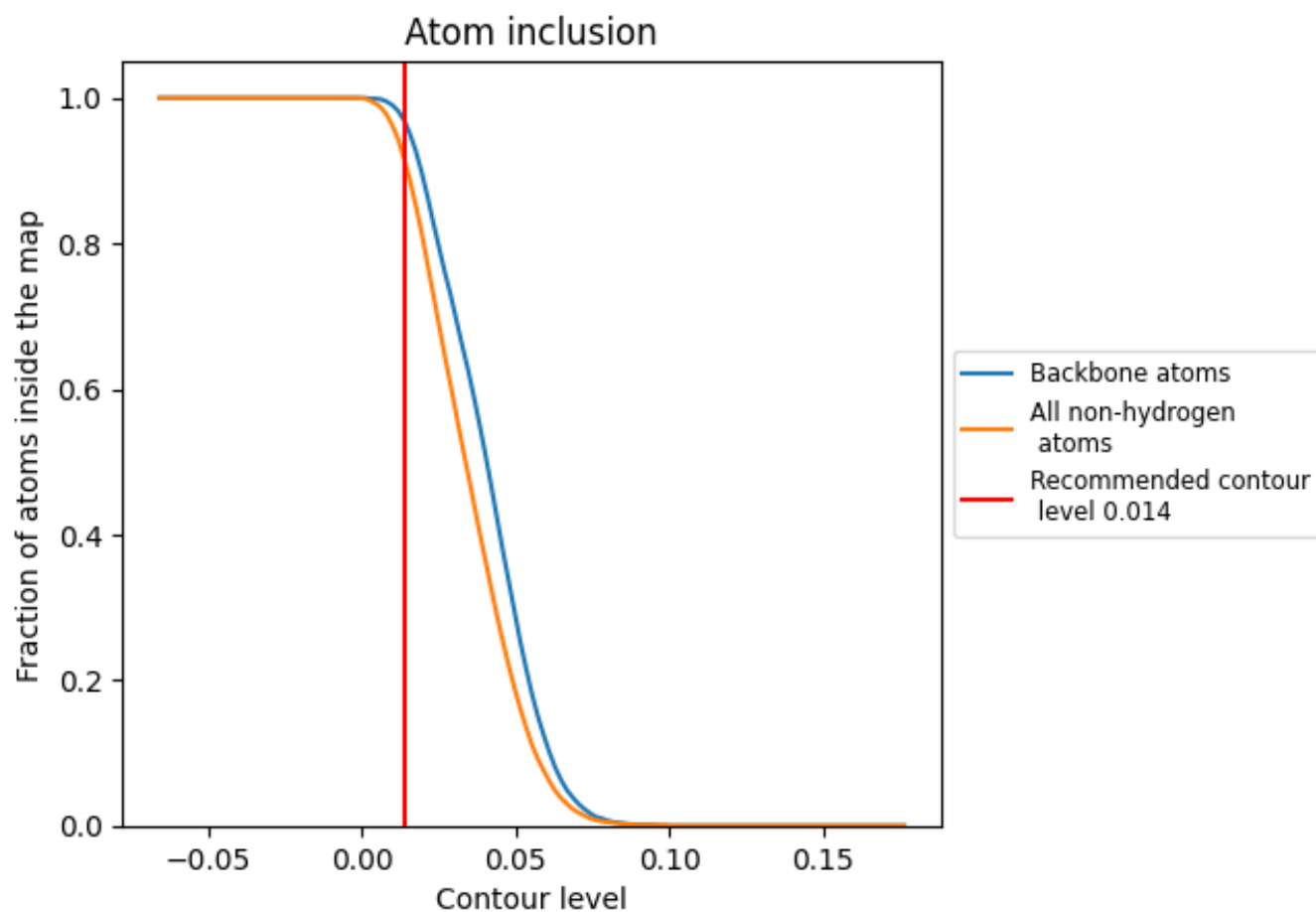
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.014).

9.4 Atom inclusion [i](#)



At the recommended contour level, 97% of all backbone atoms, 91% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary























The table lists the average atom inclusion at the recommended contour level (0.014) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9140	0.5730
A	0.9030	0.5920
B	0.9540	0.6110
C	0.9640	0.6130
D	0.9600	0.6110
E	0.9180	0.5560
F	0.9370	0.5700
G	0.9380	0.5840
H	0.9620	0.6050
I	0.9620	0.6150
J	0.8940	0.5810
K	0.9530	0.5990
L	0.8970	0.5650
M	0.9500	0.5990
N	0.9670	0.6070
O	0.9090	0.5600
P	0.9260	0.5860
Q	0.9150	0.5880
R	0.8960	0.5750
S	0.8850	0.5270
T	0.8330	0.4950
U	0.8280	0.4940
V	0.9220	0.5820
W	0.9230	0.5870
X	0.8910	0.5660
Y	0.8840	0.5600
Z	0.9190	0.5710
a	0.9560	0.6030
b	0.8470	0.5610
c	0.8590	0.5500
d	0.9000	0.5780
e	0.9000	0.5650
f	0.8310	0.5300
g	0.8770	0.5560
h	0.9260	0.5850



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Chain	Atom inclusion	Q-score
i	 0.7890	 0.4870
j	 0.7970	 0.4890
k	 0.7930	 0.4770
l	 0.8980	 0.5480
m	 0.8590	 0.5510
n	 0.8780	 0.5350
o	 0.8390	 0.4970
p	 0.8880	 0.5430
q	 0.9180	 0.5860
r	 0.9330	 0.5840
s	 0.8460	 0.5190