Full wwPDB EM Validation Report ⓘ

Dec 19, 2022 – 12:06 pm GMT

PDB ID	:	7O6Y
EMDB ID	:	EMD-12741
Title	:	Cryo-EM structure of respiratory complex I under turnover
Authors	:	Parey, K.; Vonck, J.
Deposited on	:	2021-04-12
Resolution	:	3.40 Å(reported)
Based on initial model	:	6RFR

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/EMValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

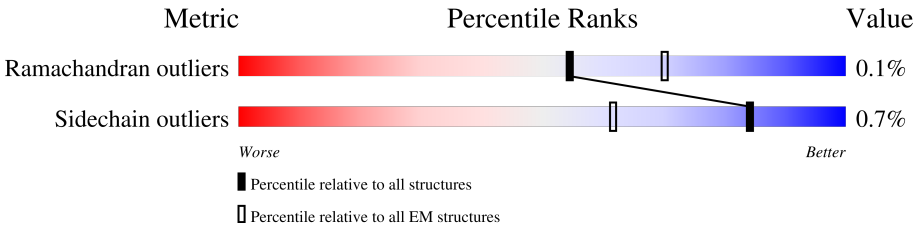
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.3

1 Overall quality at a glance

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

The reported resolution of this entry is 3.40 Å.

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



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

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	728	6% 94% • 5%
2	B	488	25% 93% • 6%
3	C	466	6% 87% • 12%
4	G	281	• 85% 15%
5	H	243	28% 88% 11%
6	I	229	7% 83% 17%
7	K	210	• 82% • 16%
8	L	89	7% 92% • •
9	S	249	46% 72% • 27%

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Mol	Chain	Length	Quality of chain
10	j	93	33% 97%
11	1	341	99%
12	2	469	99%
13	3	128	11% 90% 9%
14	4	486	5% 99%
15	5	655	49% 98%
16	6	185	8% 69% 27%
17	g	78	21% 96%
18	D	87	99%
19	E	375	6% 87% 11%
20	F	144	7% 83% 17%
21	J	198	46% 87% 13%
22	M	136	6% 86% 14%
23	O	109	50% 65% 35%
24	P	124	18% 99%
25	Q	132	58% 64% 36%
26	R	109	67% 94%
27	U	172	16% 98%
28	W	123	12% 98%
29	X	169	11% 97%
30	Y	161	76% 22%
31	Z	182	5% 99%
32	a	149	56% 83% 17%
33	b	74	8% 86% 14%
34	c	60	67% 73% 27%

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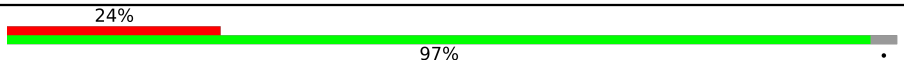
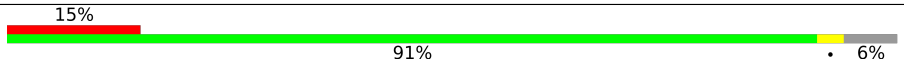
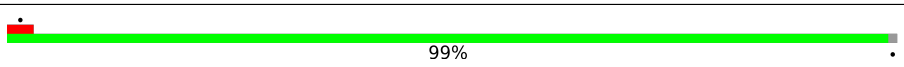
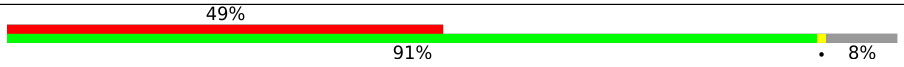
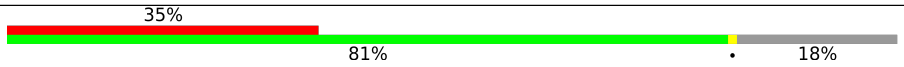
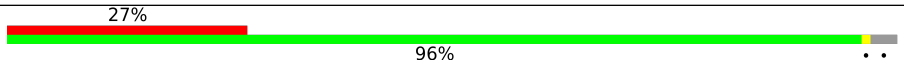
Mol	Chain	Length	Quality of chain
35	d	92	
36	e	67	
37	f	87	
38	h	138	
39	i	90	
40	n	139	
41	8	99	
42	9	89	

2 Entry composition

There are 56 unique types of molecules in this entry. The entry contains 64866 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 Subunit NUAM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	693	5269	3272	927	1041	29	0	0

- Molecule 2 is a protein called NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	457	3528	2230	619	655	24	0	0

- Molecule 3 is a protein called NUCM protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	410	3247	2070	553	602	22	0	0

- Molecule 4 is a protein called Subunit NUGM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	G	239	1978	1272	336	366	4	0	0

- Molecule 5 is a protein called Subunit NUHM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	H	216	1688	1060	284	326	18	0	0

- Molecule 6 is a protein called Subunit NUIM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
6	I	190	Total	C	N	O	S	0	0
			1519	966	254	289	10		

- Molecule 7 is a protein called Subunit NUKM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
7	K	177	Total	C	N	O	S	0	0
			1395	885	246	249	15		

- Molecule 8 is a protein called NADH-ubiquinone oxidoreductase chain 4L.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	L	86	Total	C	N	O	S	0	0
			669	448	106	112	3		

- Molecule 9 is a protein called Subunit NESM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
9	S	182	Total	C	N	O	S	0	0
			1492	961	255	274	2		

- Molecule 10 is a protein called Subunit NB5M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
10	j	90	Total	C	N	O	0	0
			724	465	132	127		

- Molecule 11 is a protein called NADH-ubiquinone oxidoreductase chain 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	1	340	Total	C	N	O	S	0	0
			2716	1850	393	466	7		

- Molecule 12 is a protein called NADH dehydrogenase subunit 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	2	469	Total	C	N	O	S	0	0
			3776	2558	550	656	12		

- Molecule 13 is a protein called NADH-ubiquinone oxidoreductase chain 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	3	117	Total	C	N	O	S	0	0
			930	642	129	156	3		

- Molecule 14 is a protein called Subunit NU4M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
14	4	481	Total	C	N	O	S	0	0
			3815	2573	581	647	14		

- Molecule 15 is a protein called Subunit NU5M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
15	5	648	Total	C	N	O	S	0	0
			5151	3453	775	895	28		

- Molecule 16 is a protein called NADH-ubiquinone oxidoreductase chain 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	6	135	Total	C	N	O	S	0	0
			1078	740	150	180	8		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
6	1	FME	-	insertion	UNP S5U3X7

- Molecule 17 is a protein called subunit NI9M of protein NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
17	g	76	Total	C	N	O	0	0
			622	408	113	101		

- Molecule 18 is a protein called Subunit NIMM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
18	D	86	Total	C	N	O	S	0	0
			681	432	127	119	3		

- Molecule 19 is a protein called Subunit NUEM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
19	E	334	Total	C	N	O	S	0	0
			2673	1697	468	498	10		

- Molecule 20 is a protein called Subunit NUFM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
20	F	120	Total	C	N	O	S	0	0
			981	624	164	191	2		

- Molecule 21 is a protein called Subunit NUJM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
21	J	172	Total	C	N	O	S	0	0
			1274	811	228	230	5		

- Molecule 22 is a protein called Subunit NUMM of protein NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
22	M	117	Total	C	N	O	S	0	0
			912	568	163	176	5		

- Molecule 23 is a protein called Acyl carrier protein ACPM1 of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
23	O	71	Total	C	N	O	0	0
			543	344	83	116		

- Molecule 24 is a protein called Subunit NB4M of protein NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
24	P	123	Total	C	N	O	S	0	0
			1036	667	182	185	2		

- Molecule 25 is a protein called Acyl carrier protein ACPM2 of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Q	85	Total	C	N	O	S	0	0
			648	405	103	138	2		

- Molecule 26 is a protein called Subunit NI2M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
26	R	106	Total	C	N	O	S	0	0
			884	562	168	151	3		

- Molecule 27 is a protein called Subunit NUPM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
27	U	171	Total	C	N	O	S	0	0
			1345	847	236	252	10		

- Molecule 28 is a protein called Subunit NB6M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
28	W	121	Total	C	N	O	S	0	0
			974	623	178	168	5		

- Molecule 29 is a protein called Subunit NUXM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
29	X	164	Total	C	N	O	S	0	0
			1275	828	217	226	4		

- Molecule 30 is a protein called Subunit NUYM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Y	125	Total	C	N	O	S	0	0
			1037	659	190	186	2		

- Molecule 31 is a protein called Subunit NUZM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Z	181	Total	C	N	O	S	0	0
			1389	893	240	255	1		

- Molecule 32 is a protein called Subunit NIAM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
32	a	124	Total	C	N	O	S	0	0
			1030	669	165	194	2		

- Molecule 33 is a protein called Subunit NEBM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
33	b	64	Total	C	N	O	0	0
			490	326	83	81		

- Molecule 34 is a protein called Subunit NB2M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
34	c	44	Total	C	N	O	0	0
			353	229	67	57		

- Molecule 35 is a protein called Subunit NIDM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
35	d	89	Total	C	N	O	S	0	0
			751	467	136	145	3		

- Molecule 36 is a protein called Subunit NUVM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
36	e	52	Total	C	N	O	S	0	0
			436	293	75	65	3		

- Molecule 37 is a protein called Subunit NI8M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
37	f	82	Total	C	N	O	S	0	0
			642	403	121	117	1		

- Molecule 38 is a protein called Subunit N7BM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
38	h	136	Total	C	N	O	S	0	0
			1130	727	193	208	2		

- Molecule 39 is a protein called Subunit NUUM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
39	i	83	Total	C	N	O	S	0	0
			646	413	117	115	1		

- Molecule 40 is a protein called Subunit NUNM of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
40	n	114	Total	C	N	O	S	0	0
			913	587	154	171	1		

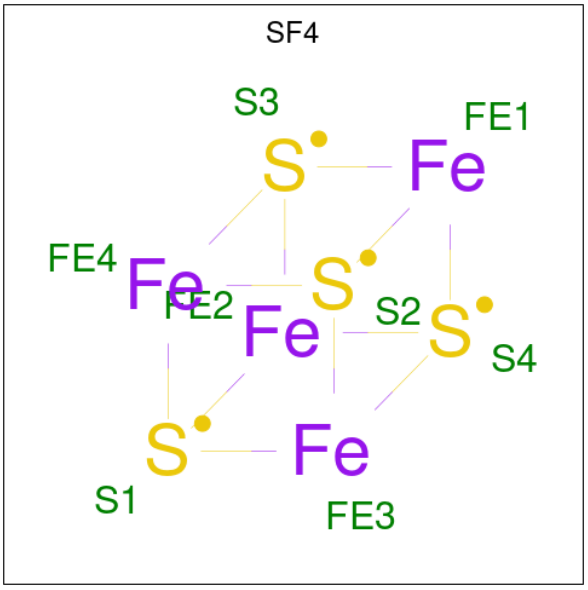
- Molecule 41 is a protein called Subunit NB8M of NADH:Ubiquinone Oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
41	8	71	Total	C	N	O	S	0	0
			594	375	109	102	8		

- Molecule 42 is a protein called Subunit NIPM of NADH:Ubiquinone Oxidoreductase (Complex I).

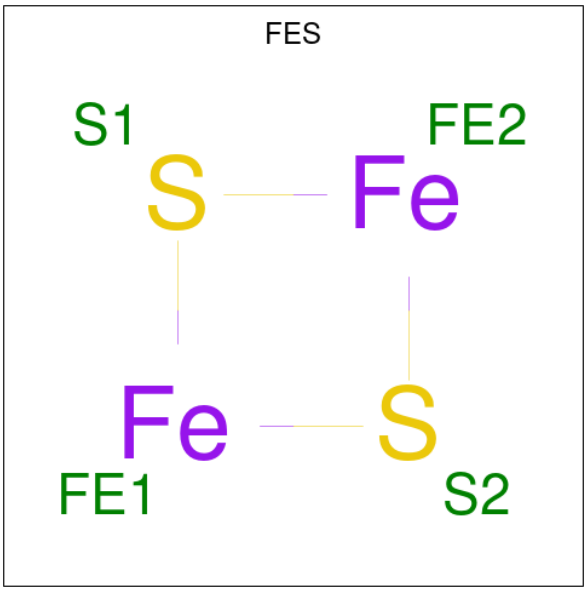
Mol	Chain	Residues	Atoms					AltConf	Trace
42	9	86	Total	C	N	O	S	0	0
			672	422	122	122	6		

- Molecule 43 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe_4S_4).



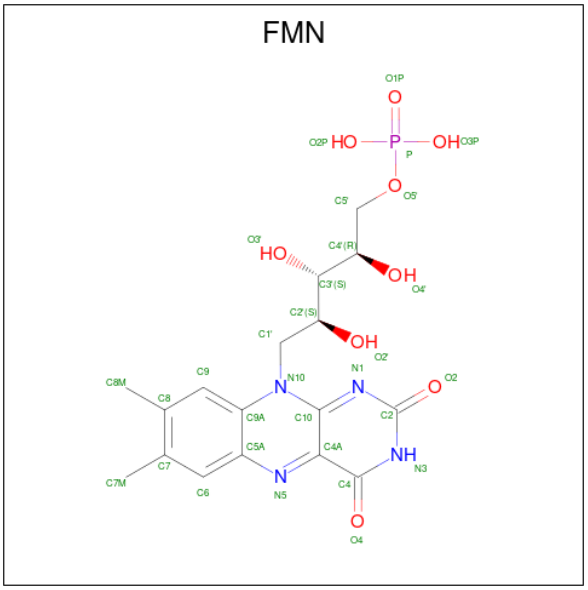
Mol	Chain	Residues	Atoms			AltConf
43	A	1	Total	Fe	S	0
			16	8	8	
43	A	1	Total	Fe	S	0
			16	8	8	
43	B	1	Total	Fe	S	0
			8	4	4	
43	I	1	Total	Fe	S	0
			16	8	8	
43	I	1	Total	Fe	S	0
			16	8	8	
43	K	1	Total	Fe	S	0
			8	4	4	

- Molecule 44 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2).



Mol	Chain	Residues	Atoms			AltConf
44	A	1	Total	Fe	S	0
			4	2	2	
44	H	1	Total	Fe	S	0
			4	2	2	

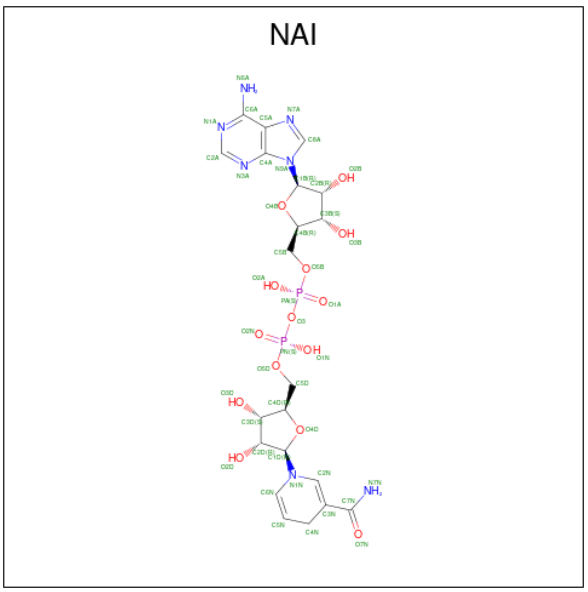
- Molecule 45 is FLAVIN MONONUCLEOTIDE (three-letter code: FMN) (formula: $C_{17}H_{21}N_4O_9P$).



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

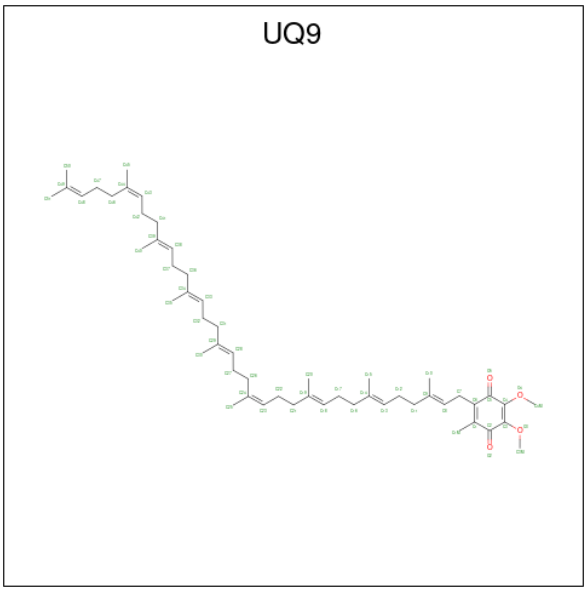
- Molecule 46 is 1,4-DIHYDRONICOTINAMIDE ADENINE DINUCLEOTIDE (three-letter

code: NAI) (formula: $C_{21}H_{29}N_7O_{14}P_2$).



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

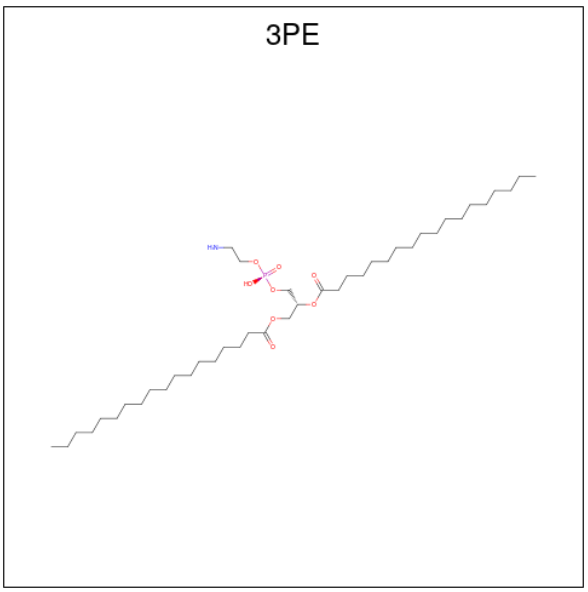
- Molecule 47 is Ubiquinone-9 (three-letter code: UQ9) (formula: $C_{54}H_{82}O_4$).



Mol	Chain	Residues	Atoms			AltConf
47	C	1	Total	C	O	0
			14	10	4	

- Molecule 48 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (three-letter code: 3PE)

(formula: $C_{41}H_{82}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
48	I	1	Total	C	N	O	P	0
			51	41	1	8	1	
48	1	1	Total	C	N	O	P	0
			77	57	2	16	2	
48	1	1	Total	C	N	O	P	0
			77	57	2	16	2	
48	2	1	Total	C	N	O	P	0
			42	32	1	8	1	
48	4	1	Total	C	N	O	P	0
			136	106	3	24	3	
48	4	1	Total	C	N	O	P	0
			136	106	3	24	3	
48	4	1	Total	C	N	O	P	0
			136	106	3	24	3	
48	5	1	Total	C	N	O	P	0
			127	97	3	24	3	
48	5	1	Total	C	N	O	P	0
			127	97	3	24	3	
48	5	1	Total	C	N	O	P	0
			127	97	3	24	3	
48	6	1	Total	C	N	O	P	0
			84	64	2	16	2	
48	6	1	Total	C	N	O	P	0
			84	64	2	16	2	
48	g	1	Total	C	N	O	P	0
			43	33	1	8	1	

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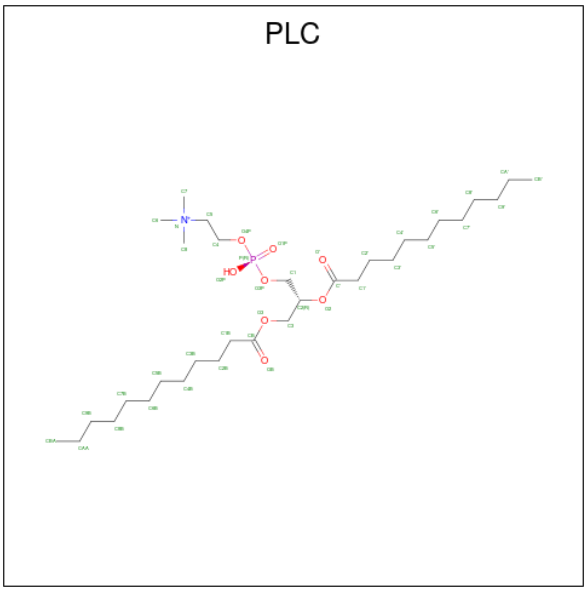
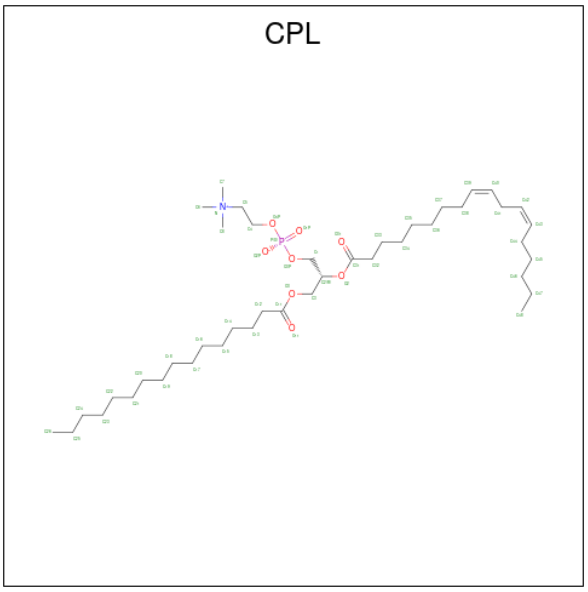
Mol	Chain	Residues	Atoms					AltConf
48	E	1	Total	C	N	O	P	0
			36	26	1	8	1	
48	J	1	Total	C	N	O	P	0
			41	31	1	8	1	
48	b	1	Total	C	N	O	P	0
			42	32	1	8	1	

- Molecule 49 is DIUNDECYL PHOSPHATIDYL CHOLINE (three-letter code: PLC) (formula: $C_{32}H_{65}NO_8P$).



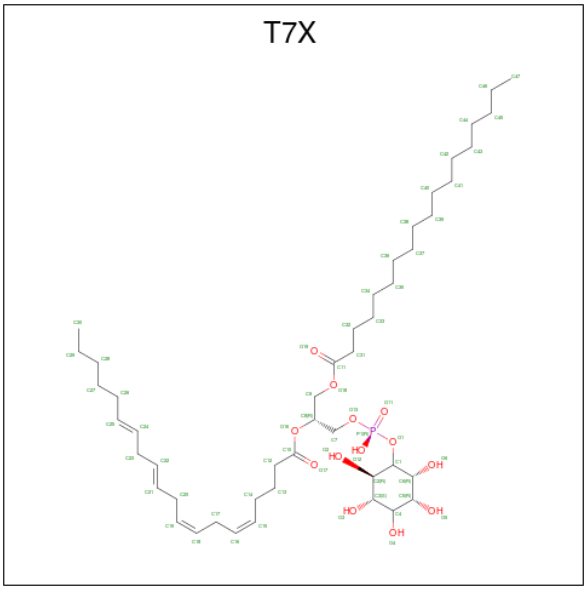
Mol	Chain	Residues	Atoms					AltConf
49	K	1	Total	C	N	O	P	0
			36	26	1	8	1	
49	1	1	Total	C	N	O	P	0
			77	57	2	16	2	
49	1	1	Total	C	N	O	P	0
			77	57	2	16	2	
49	4	1	Total	C	N	O	P	0
			35	25	1	8	1	
49	W	1	Total	C	N	O	P	0
			41	31	1	8	1	
49	i	1	Total	C	N	O	P	0
			42	32	1	8	1	

- Molecule 50 is 1-PALMITOYL-2-LINOLEOYL-SN-GLYCERO-3-PHOSPHOCHOLINE (three-letter code: CPL) (formula: $C_{42}H_{80}NO_8P$).



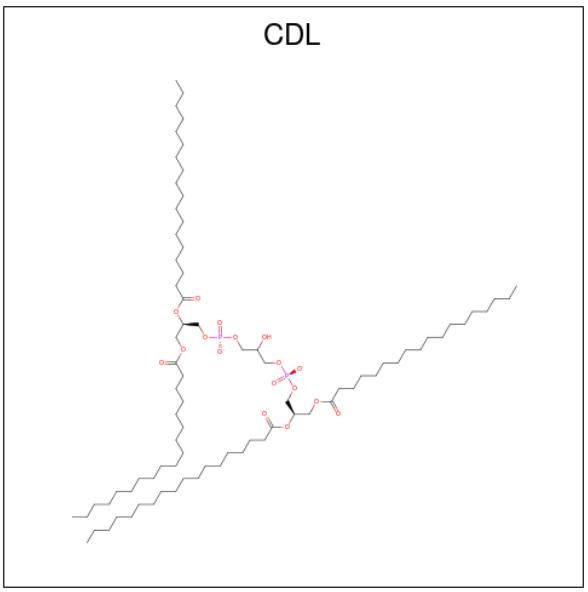
Mol	Chain	Residues	Atoms					AltConf
50	2	1	Total	C	N	O	P	0
			52	42	1	8	1	

- Molecule 51 is Phosphatidylinositol (three-letter code: T7X) (formula: $C_{47}H_{83}O_{13}P$).



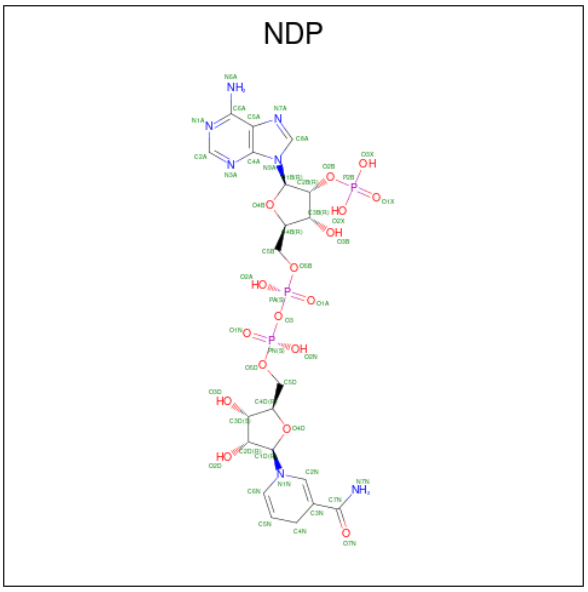
Mol	Chain	Residues	Atoms				AltConf
51	2	1	Total	C	O	P	0
			52	38	13	1	
51	3	1	Total	C	O	P	0
			44	30	13	1	
51	b	1	Total	C	O	P	0
			48	34	13	1	

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



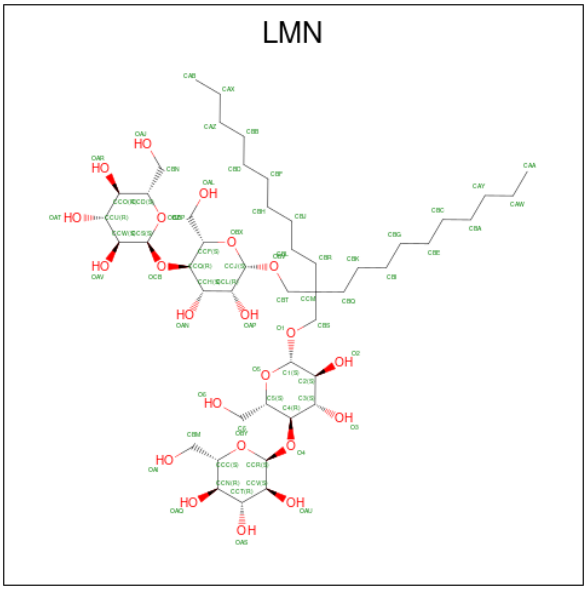
Mol	Chain	Residues	Atoms				AltConf
52	g	1	Total	C	O	P	0
			80	61	17	2	
52	E	1	Total	C	O	P	0
			72	53	17	2	
52	W	1	Total	C	O	P	0
			54	35	17	2	
52	X	1	Total	C	O	P	0
			86	67	17	2	
52	Z	1	Total	C	O	P	0
			76	57	17	2	
52	n	1	Total	C	O	P	0
			92	73	17	2	

- Molecule 53 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$).



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

- Molecule 54 is Lauryl Maltose Neopentyl Glycol (three-letter code: LMN) (formula: $C_{47}H_{88}O_{22}$).

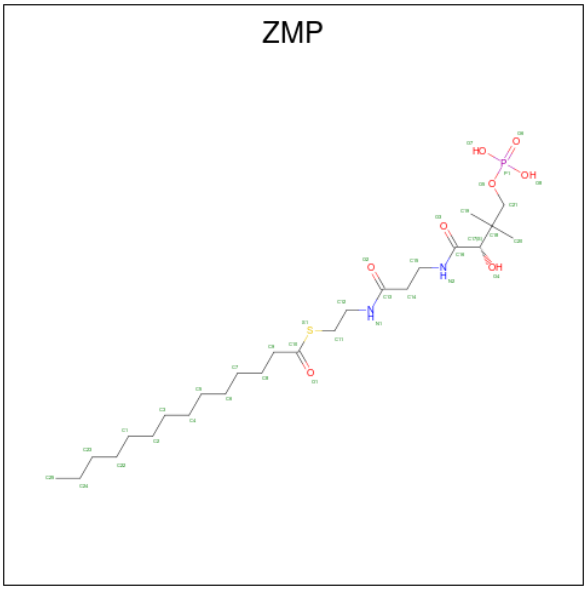


Mol	Chain	Residues	Atoms			AltConf
54	J	1	Total	C	O	0
			69	47	22	
54	a	1	Total	C	O	0
			65	43	22	

- Molecule 55 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 56 is S-[2-({N-[(2S)-2-hydroxy-3,3-dimethyl-4-(phosphonooxy)butanoyl]-beta-alanyl}amino)ethyl] tetradecanethioate (three-letter code: ZMP) (formula: $C_{25}H_{49}N_2O_8PS$).



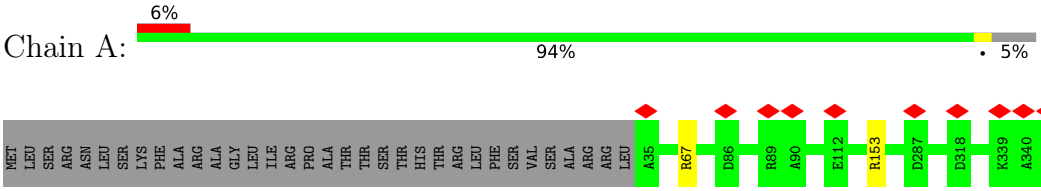
Mol	Chain	Residues	Atoms	AltConf
56	O	1	Total C N O P S 33 22 2 7 1 1	0
56	R	1	Total C N O P S 33 22 2 7 1 1	0

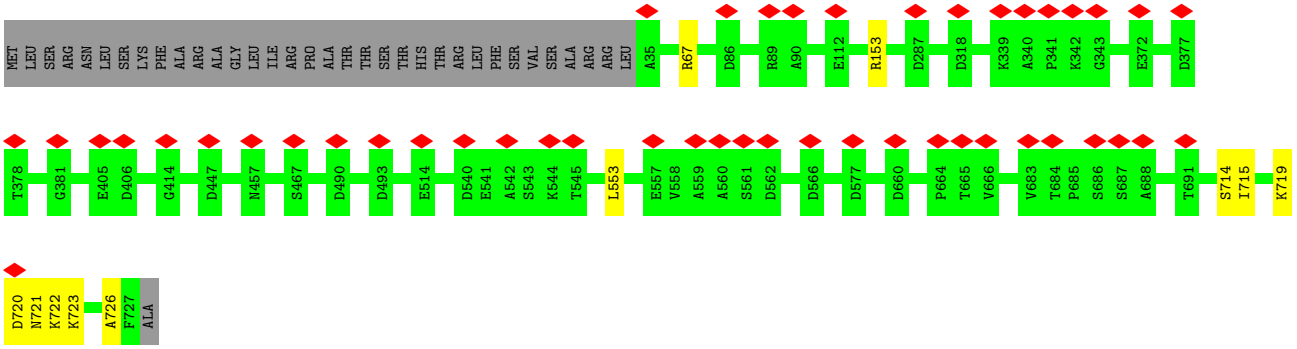
3 Residue-property plots (i)

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

• Molecule 1: Subunit NUAM of NADH:Ubiquinone Oxidoreductase (Complex I)

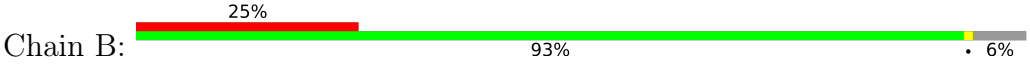
Chain A:

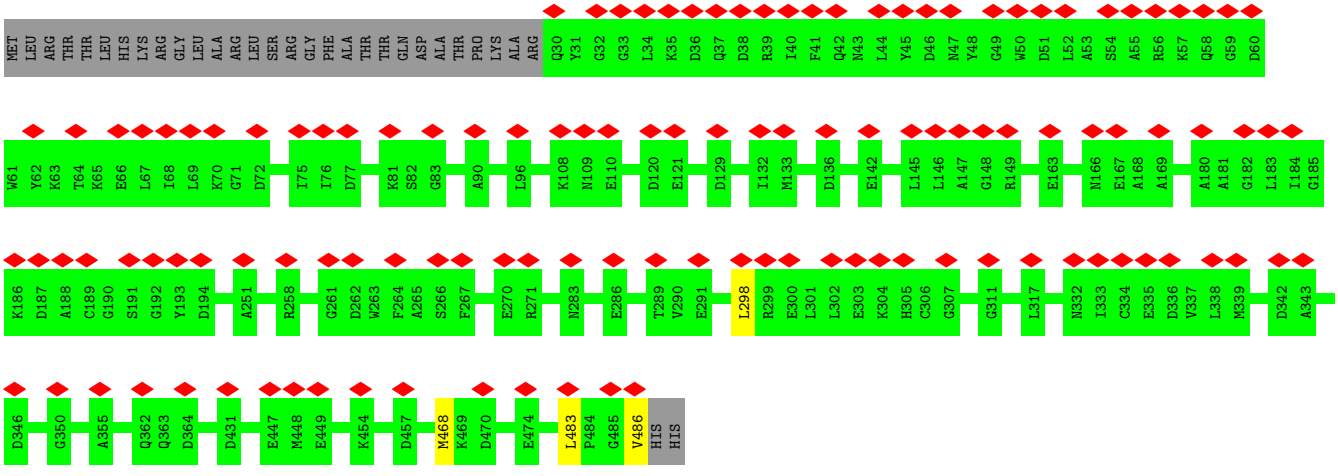




• Molecule 2: NADH dehydrogenase [ubiquinone] flavoprotein 1, mitochondrial

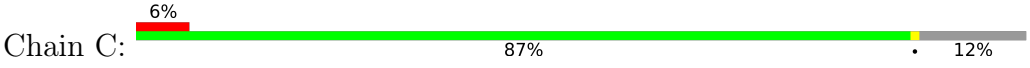
Chain B:

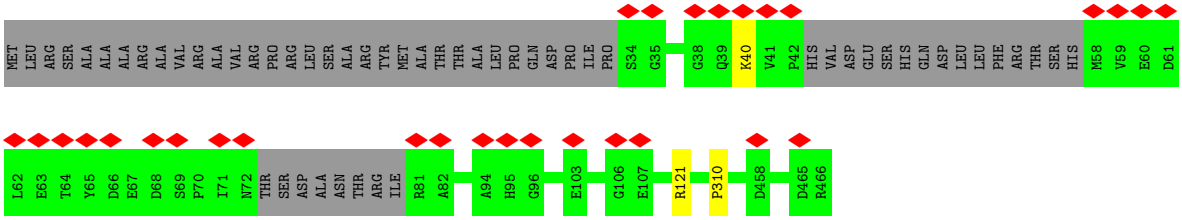




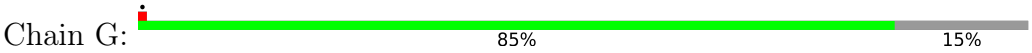
• Molecule 3: NUCM protein

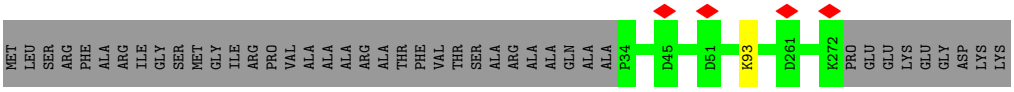
Chain C:



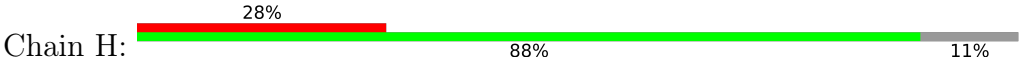


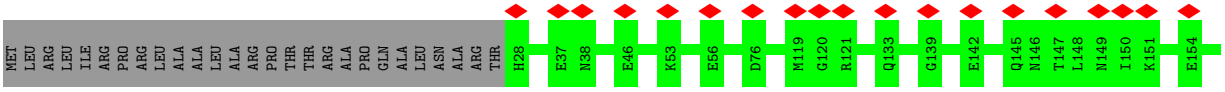
• Molecule 4: Subunit NUGM of NADH:Ubiquinone Oxidoreductase (Complex I)

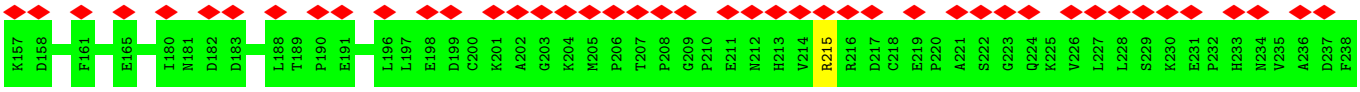


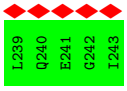


• Molecule 5: Subunit NUHM of NADH:Ubiquinone Oxidoreductase (Complex I)

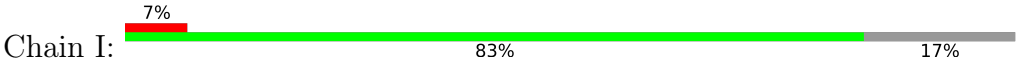


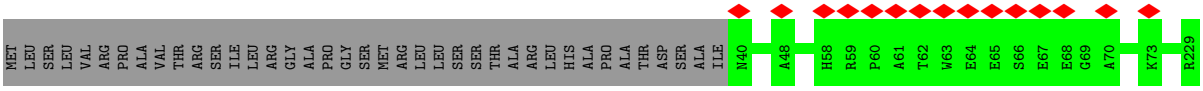




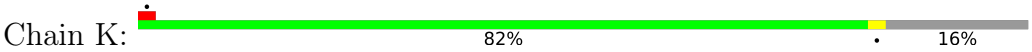


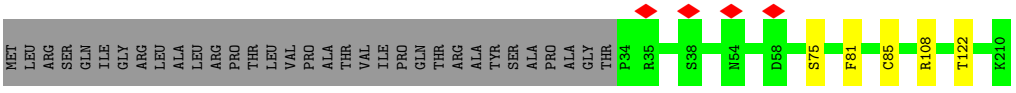
• Molecule 6: Subunit NUIM of NADH:Ubiquinone Oxidoreductase (Complex I)



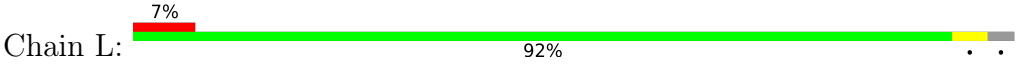


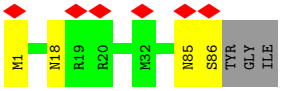
• Molecule 7: Subunit NUKM of NADH:Ubiquinone Oxidoreductase (Complex I)



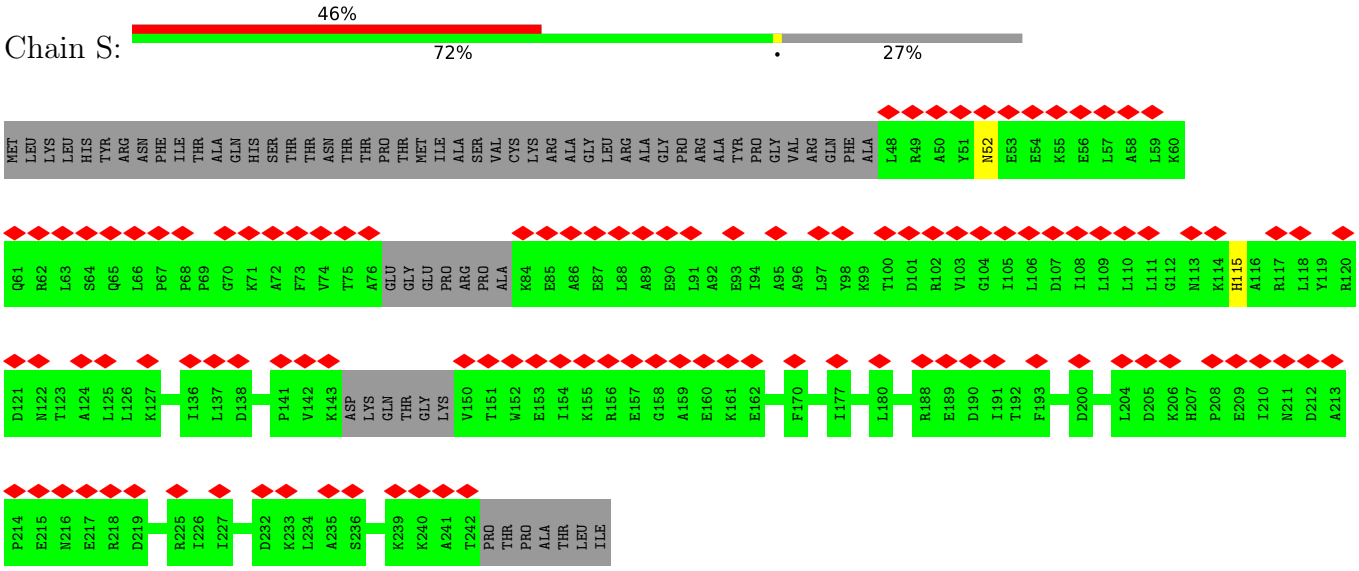


• Molecule 8: NADH-ubiquinone oxidoreductase chain 4L

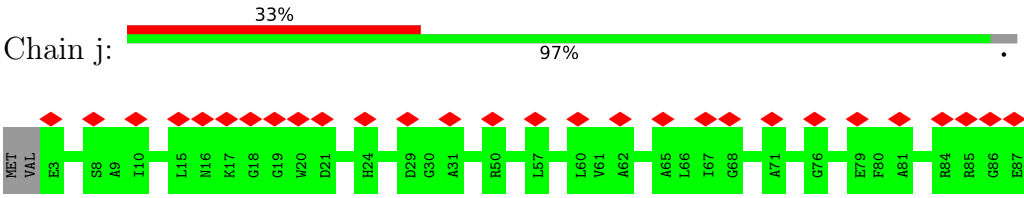




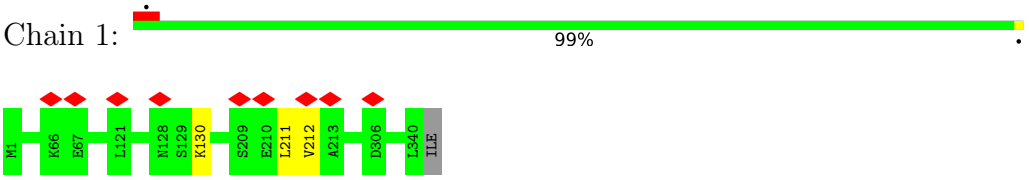
• Molecule 9: Subunit NESM of NADH:Ubiquinone Oxidoreductase (Complex I)



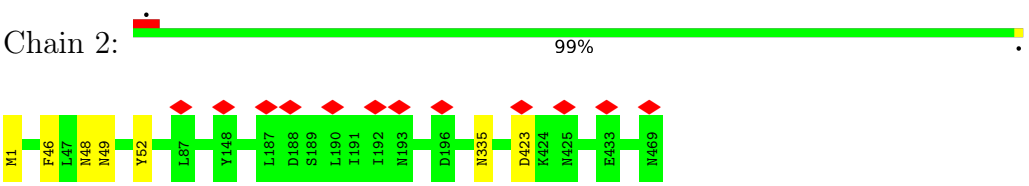
• Molecule 10: Subunit NB5M of NADH:Ubiquinone Oxidoreductase (Complex I)



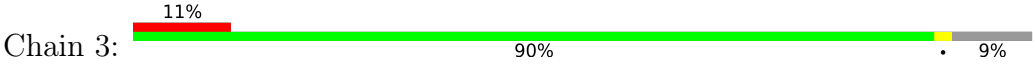
• Molecule 11: NADH-ubiquinone oxidoreductase chain 1

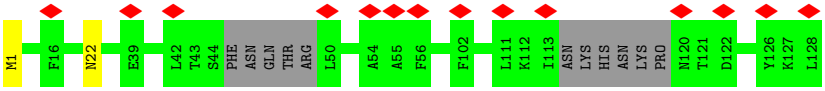


• Molecule 12: NADH dehydrogenase subunit 2



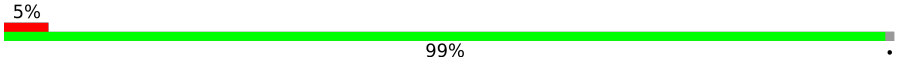
• Molecule 13: NADH-ubiquinone oxidoreductase chain 3

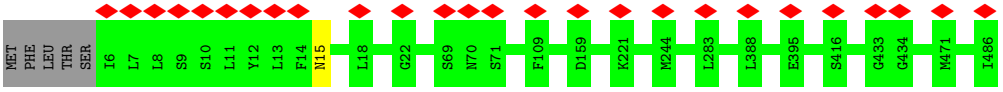




• Molecule 14: Subunit NU4M of NADH:Ubiquinone Oxidoreductase (Complex I)

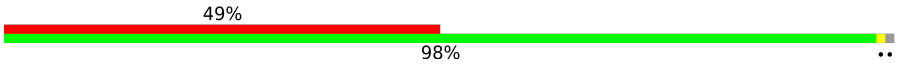
Chain 4:

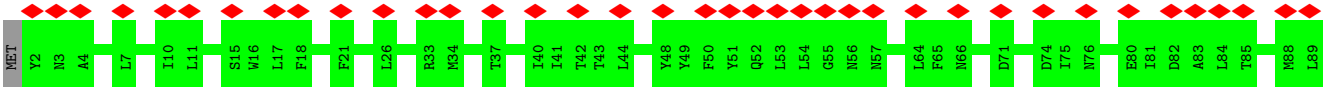


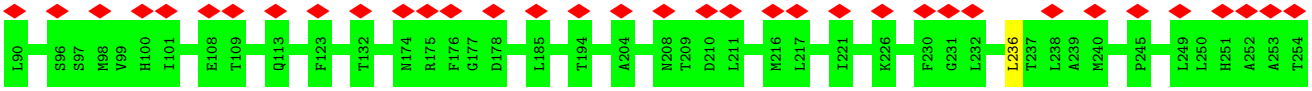


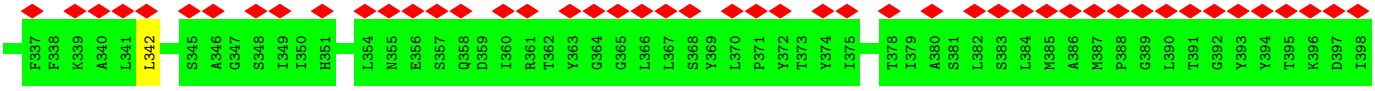
• Molecule 15: Subunit NU5M of NADH:Ubiquinone Oxidoreductase (Complex I)

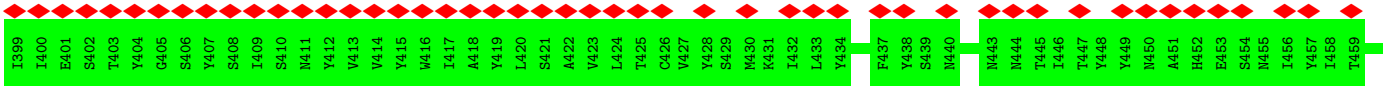
Chain 5:

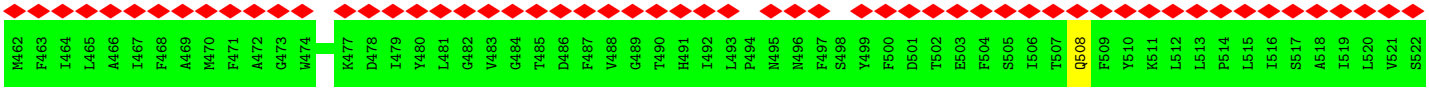


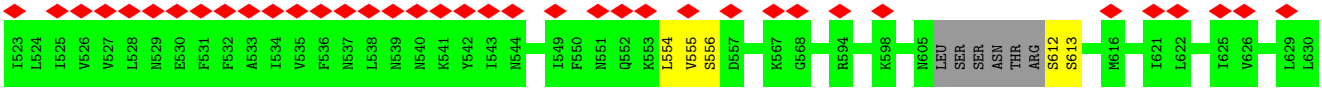


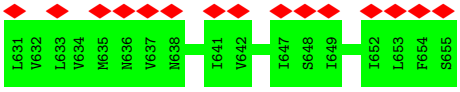






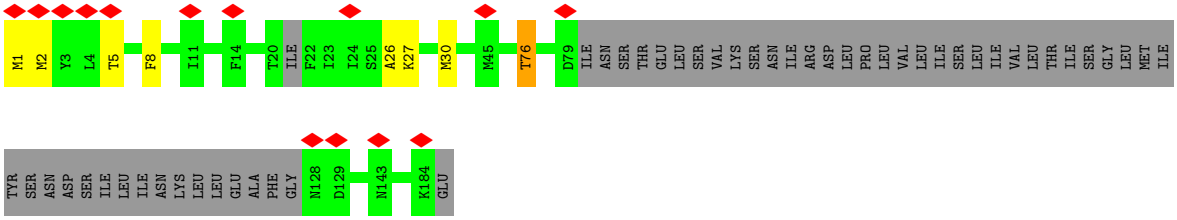




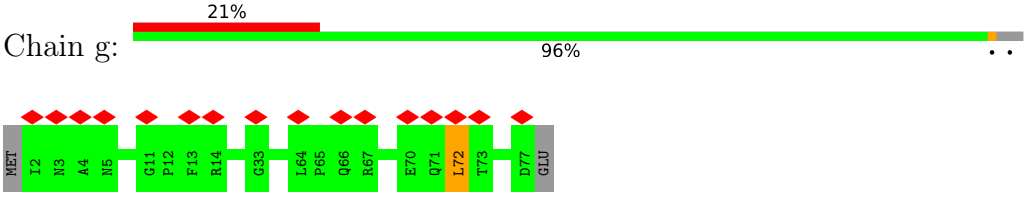


• Molecule 16: NADH-ubiquinone oxidoreductase chain 6

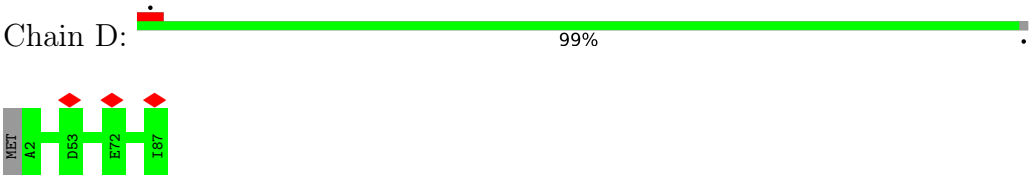
Chain 6:



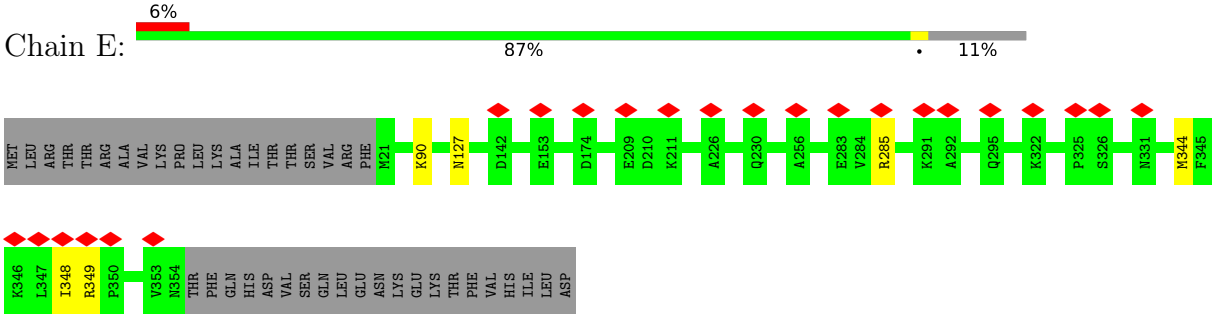
• Molecule 17: subunit NI9M of protein NADH:Ubiquinone Oxidoreductase (Complex I)



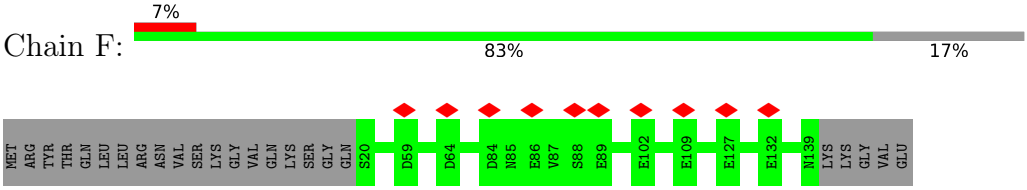
• Molecule 18: Subunit NIMM of NADH:Ubiquinone Oxidoreductase (Complex I)



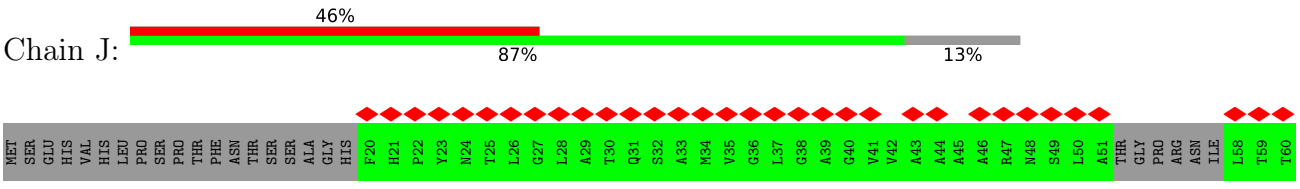
• Molecule 19: Subunit NUEM of NADH:Ubiquinone Oxidoreductase (Complex I)

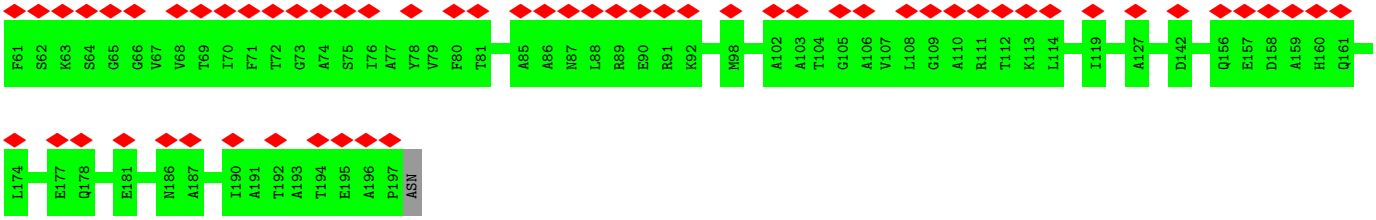


• Molecule 20: Subunit NUFM of NADH:Ubiquinone Oxidoreductase (Complex I)

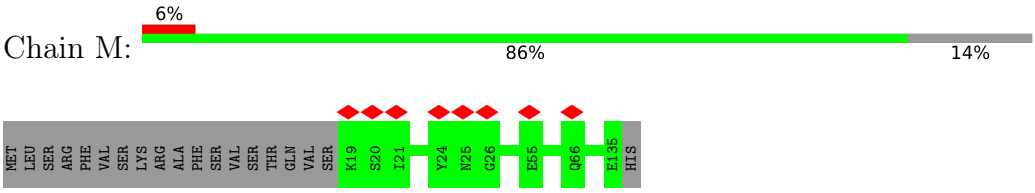


• Molecule 21: Subunit NUJM of NADH:Ubiquinone Oxidoreductase (Complex I)

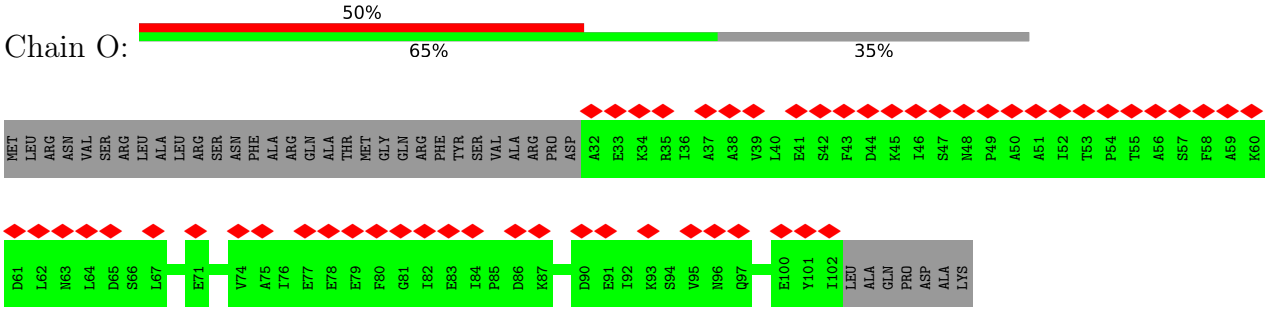




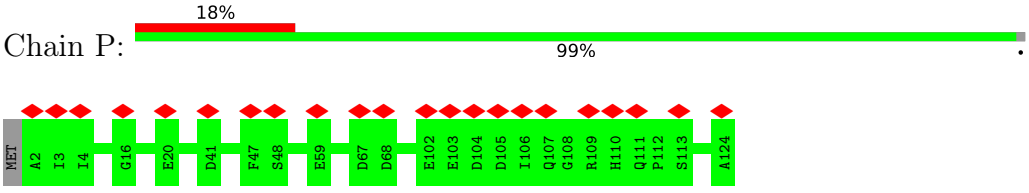
• Molecule 22: Subunit NUMM of protein NADH:Ubiquinone Oxidoreductase (Complex I)



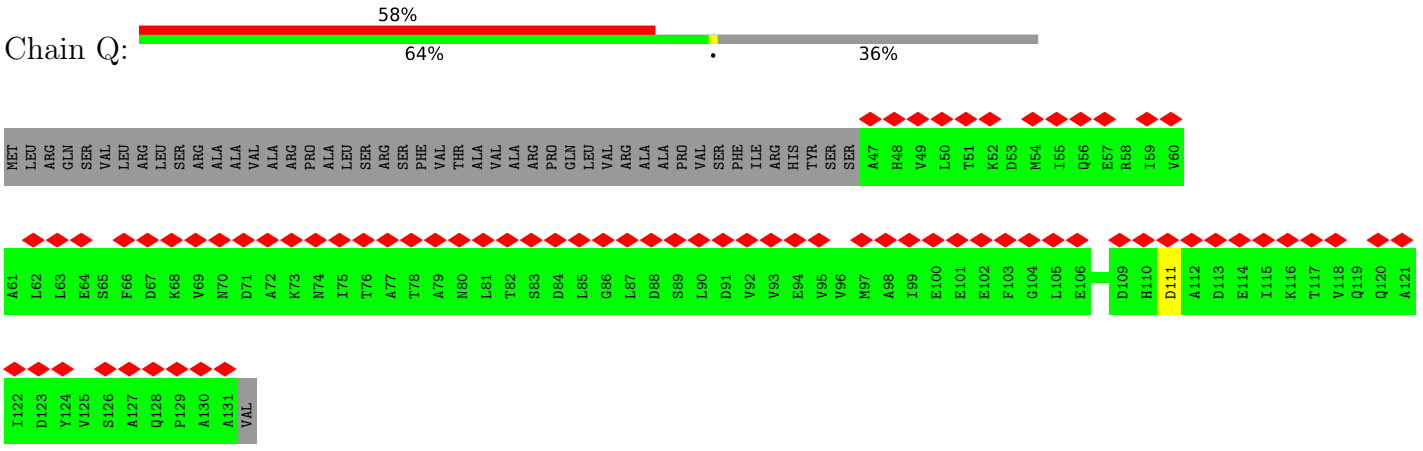
• Molecule 23: Acyl carrier protein ACPM1 of NADH:Ubiquinone Oxidoreductase (Complex I)



• Molecule 24: Subunit NB4M of protein NADH:Ubiquinone Oxidoreductase (Complex I)

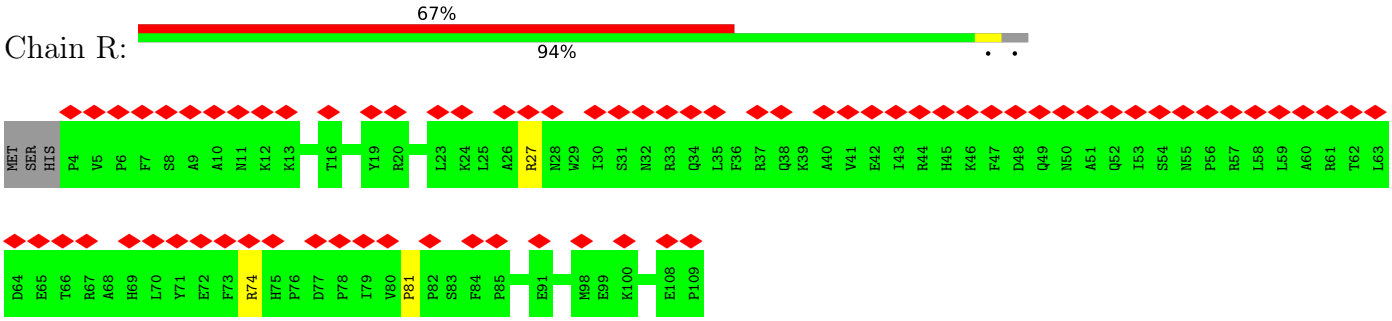


• Molecule 25: Acyl carrier protein ACPM2 of NADH:Ubiquinone Oxidoreductase (Complex I)



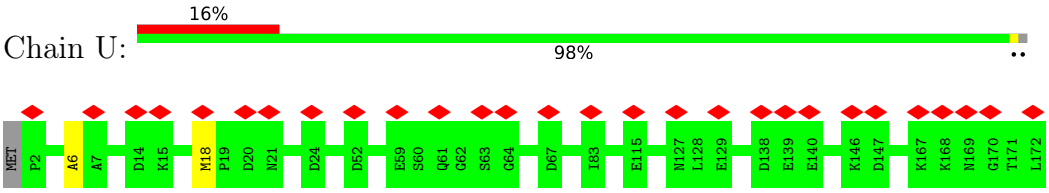
• Molecule 26: Subunit NI2M of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain R:



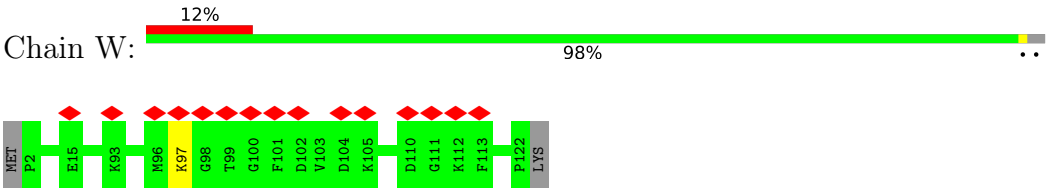
• Molecule 27: Subunit NUPM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain U:



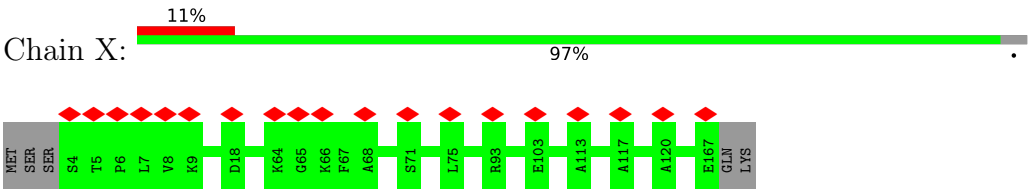
• Molecule 28: Subunit NB6M of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain W:



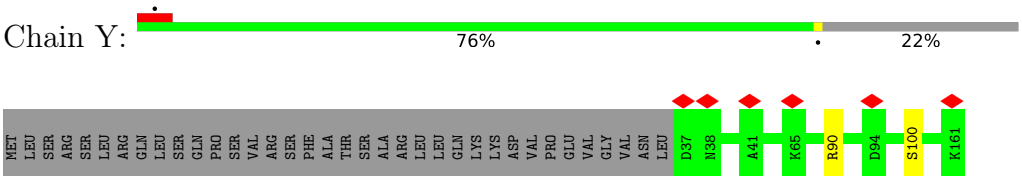
• Molecule 29: Subunit NUXM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain X:



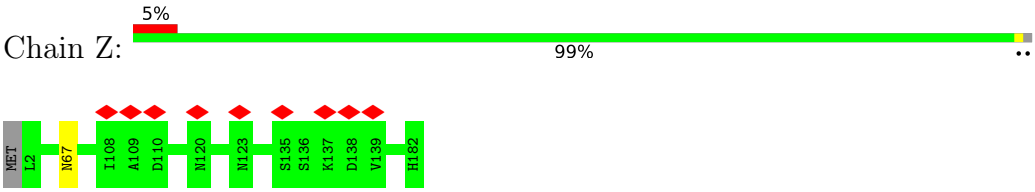
• Molecule 30: Subunit NUYM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain Y:



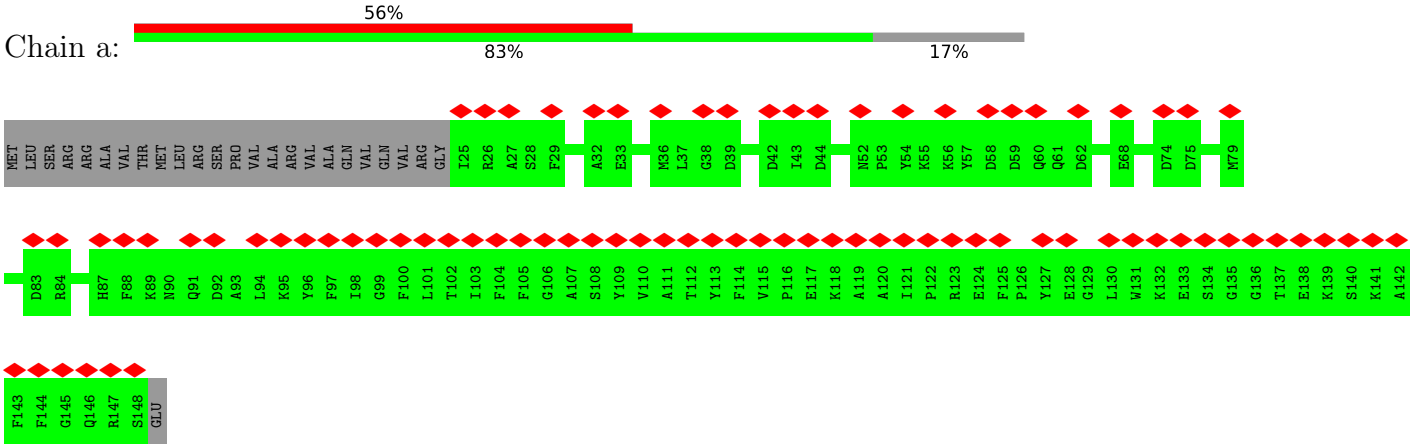
• Molecule 31: Subunit NUZM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain Z:



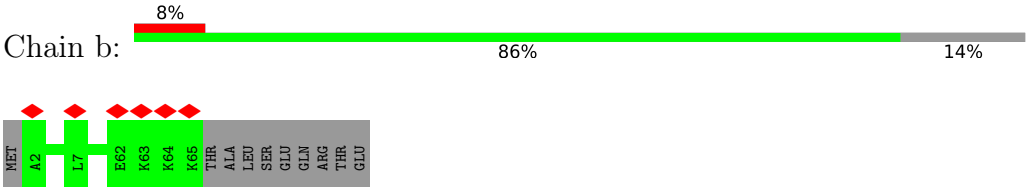
• Molecule 32: Subunit NIAM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain a:



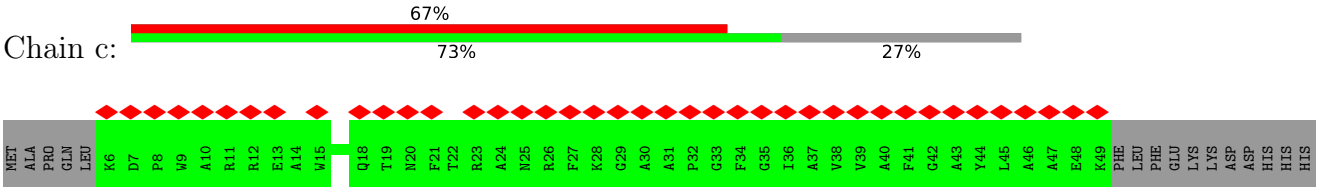
• Molecule 33: Subunit NEBM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain b:



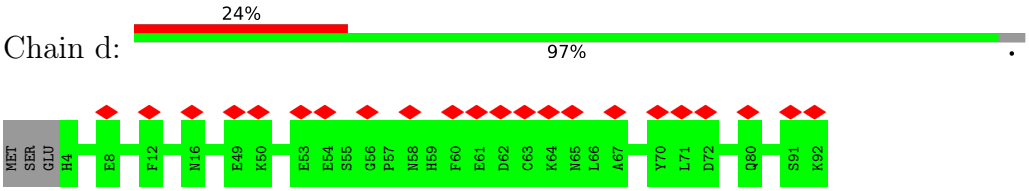
• Molecule 34: Subunit NB2M of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain c:



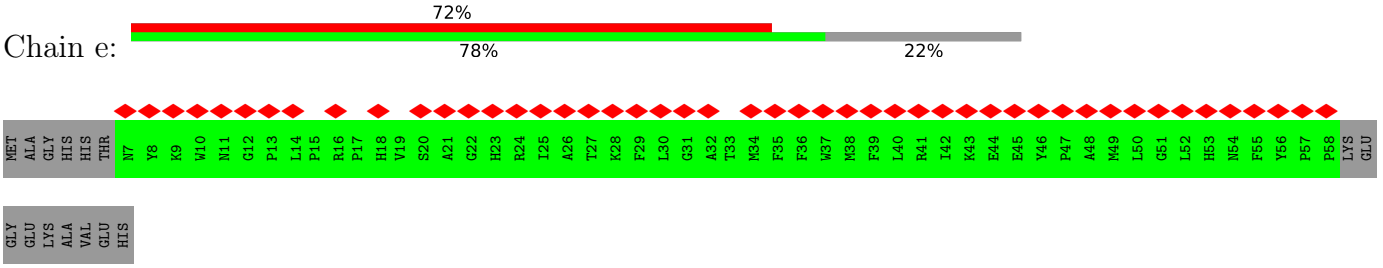
• Molecule 35: Subunit NIDM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain d:



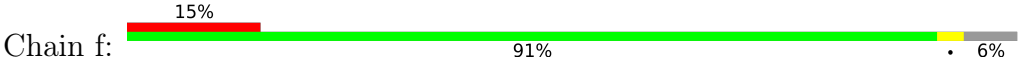
• Molecule 36: Subunit NUVM of NADH:Ubiquinone Oxidoreductase (Complex I)

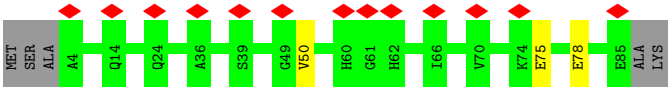
Chain e:



• Molecule 37: Subunit NI8M of NADH:Ubiquinone Oxidoreductase (Complex I)

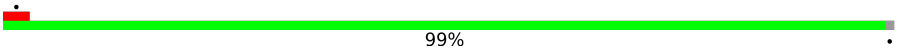
Chain f:

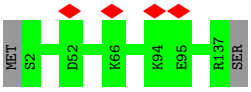




• Molecule 38: Subunit N7BM of NADH:Ubiquinone Oxidoreductase (Complex I)

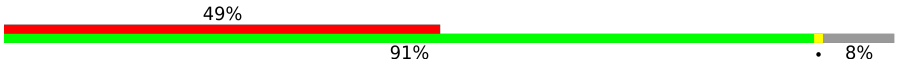
Chain h:

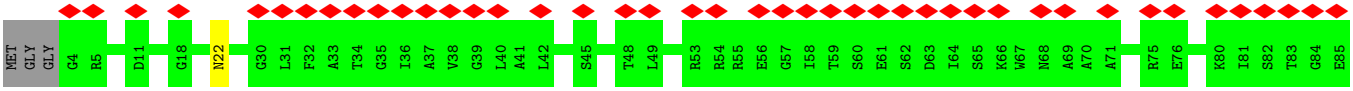


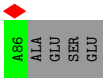


• Molecule 39: Subunit NUUM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain i:

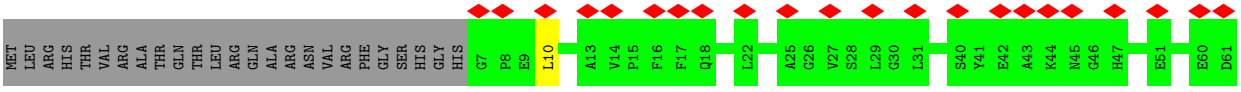


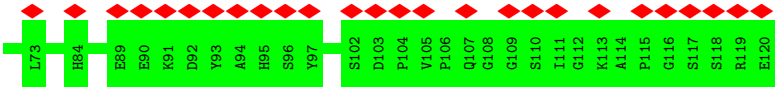




• Molecule 40: Subunit NUNM of NADH:Ubiquinone Oxidoreductase (Complex I)

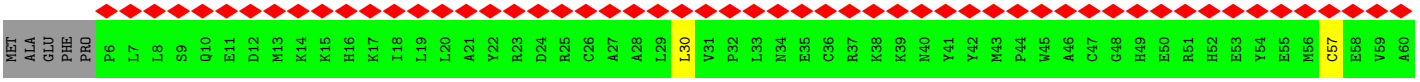
Chain n:

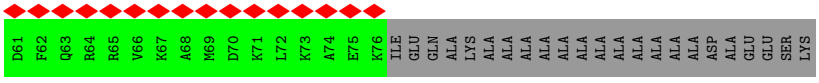




• Molecule 41: Subunit NB8M of NADH:Ubiquinone Oxidoreductase (Complex I)

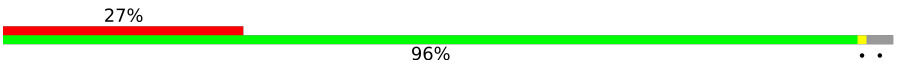
Chain 8:

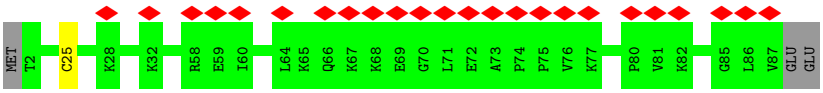




• Molecule 42: Subunit NIPM of NADH:Ubiquinone Oxidoreductase (Complex I)

Chain 9:




MET
T2
C25
K28
K32
R58
E59
I60
L64
K65
Q66
K67
K68
E69
G70
L71
E72
A73
P74
P75
V76
K77
P80
V81
K82
G85
L86
V87
GLU
GLU

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	54863	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 ($e^-/Å^2$)	40	Depositor
Minimum defocus (nm)	-800	Depositor
Maximum defocus (nm)	-3200	Depositor
Magnification	105000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.121	Depositor
Minimum map value	-0.046	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.0115	Depositor
Map size (Å)	331.2, 331.2, 331.2	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.828, 0.828, 0.828	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FES, ZN, ZMP, FME, 2MR, SF4, FMN, LMN, NDP, T7X, 3PE, CDL, CPL, NAI, PLC, UQ9

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	0.41	0/5363	0.55	1/7278 (0.0%)
2	B	0.37	0/3605	0.53	2/4866 (0.0%)
3	C	0.49	0/3307	0.56	0/4475
4	G	0.49	0/2040	0.54	0/2781
5	H	0.44	1/1725 (0.1%)	0.63	3/2343 (0.1%)
6	I	0.55	0/1557	0.54	0/2110
7	K	0.57	1/1434 (0.1%)	0.61	0/1950
8	L	0.43	0/667	0.68	3/903 (0.3%)
9	S	0.39	0/1517	0.56	0/2046
10	j	0.36	0/745	0.50	0/1006
11	1	0.46	0/2781	0.56	0/3798
12	2	0.49	2/3846 (0.1%)	0.59	3/5242 (0.1%)
13	3	0.42	0/939	0.57	0/1280
14	4	0.39	0/3908	0.53	0/5337
15	5	0.38	0/5280	0.53	2/7208 (0.0%)
16	6	0.52	2/1088 (0.2%)	0.67	2/1483 (0.1%)
17	g	0.37	0/648	0.51	0/887
18	D	0.36	0/697	0.50	0/940
19	E	0.40	0/2732	0.53	0/3702
20	F	0.40	0/1002	0.52	0/1359
21	J	0.34	0/1304	0.53	0/1774
22	M	0.39	0/935	0.47	0/1268
23	O	0.31	0/549	0.53	0/746
24	P	0.43	0/1061	0.50	0/1427
25	Q	0.36	0/654	0.61	2/890 (0.2%)
26	R	0.46	0/909	0.66	2/1229 (0.2%)
27	U	0.35	0/1374	0.51	1/1856 (0.1%)
28	W	0.40	0/998	0.52	0/1346
29	X	0.39	0/1314	0.47	0/1783
30	Y	0.46	0/1067	0.53	0/1442
31	Z	0.42	0/1430	0.54	0/1955
32	a	0.36	0/1064	0.51	0/1439

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	b	0.34	0/503	0.40	0/679
34	c	0.33	0/364	0.46	0/491
35	d	0.35	0/767	0.47	0/1031
36	e	0.31	0/456	0.50	0/619
37	f	0.51	2/652 (0.3%)	0.67	2/874 (0.2%)
38	h	0.47	0/1168	0.52	0/1589
39	i	0.31	0/666	0.45	0/907
40	n	0.37	0/940	0.52	1/1273 (0.1%)
41	8	0.46	1/606 (0.2%)	0.66	2/808 (0.2%)
42	9	0.57	1/684 (0.1%)	0.63	1/918 (0.1%)
All	All	0.43	10/64346 (0.0%)	0.55	27/87338 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
8	L	0	1
16	6	0	1
27	U	0	1
All	All	0	3

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
42	9	25	CYS	CB-SG	-9.75	1.65	1.82
5	H	215	ARG	C-N	8.46	1.53	1.34
7	K	75	SER	CA-CB	-7.93	1.41	1.52
12	2	49	ASN	C-O	-6.17	1.11	1.23
41	8	57	CYS	CB-SG	-5.75	1.72	1.81
37	f	78	GLU	CD-OE2	-5.50	1.19	1.25
16	6	76	THR	C-N	-5.33	1.21	1.34
16	6	30	MET	C-N	-5.29	1.21	1.34
37	f	75	GLU	CB-CG	5.03	1.61	1.52
12	2	52	TYR	C-N	5.01	1.45	1.34

All (27) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
42	9	25	CYS	CA-CB-SG	8.47	129.25	114.00
5	H	215	ARG	O-C-N	8.22	135.85	122.70

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
41	8	57	CYS	CA-CB-SG	8.12	128.62	114.00
8	L	18	ASN	O-C-N	7.97	135.45	122.70
25	Q	111	ASP	CB-CG-OD1	7.76	125.29	118.30
37	f	75	GLU	OE1-CD-OE2	-7.43	114.38	123.30
15	5	342	LEU	CA-CB-CG	7.12	131.67	115.30
26	R	81	PRO	CA-N-CD	-6.89	101.85	111.50
1	A	553	LEU	CB-CG-CD2	-6.54	99.87	111.00
8	L	18	ASN	CA-C-N	-6.48	102.95	117.20
5	H	215	ARG	CA-C-N	-6.41	103.09	117.20
5	H	215	ARG	C-N-CA	-6.25	106.06	121.70
27	U	18	MET	CA-CB-CG	6.08	123.63	113.30
26	R	74	ARG	CG-CD-NE	-6.00	99.20	111.80
16	6	26	ALA	O-C-N	5.92	132.16	122.70
12	2	48	ASN	CB-CA-C	5.82	122.03	110.40
25	Q	111	ASP	CB-CG-OD2	-5.76	113.11	118.30
12	2	49	ASN	CB-CA-C	5.60	121.60	110.40
37	f	50	VAL	C-N-CA	5.53	135.52	121.70
40	n	10	LEU	CB-CG-CD2	-5.49	101.67	111.00
2	B	298	LEU	CB-CG-CD2	-5.36	101.89	111.00
2	B	468	MET	CG-SD-CE	-5.14	91.98	100.20
12	2	46	PHE	CB-CA-C	5.14	120.67	110.40
15	5	236	LEU	CB-CG-CD1	-5.14	102.27	111.00
8	L	18	ASN	C-N-CA	-5.05	109.06	121.70
16	6	30	MET	CA-C-N	-5.01	106.17	117.20
41	8	30	LEU	CB-CG-CD2	-5.00	102.49	111.00

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
16	6	76	THR	Mainchain
8	L	1	FME	Mainchain
27	U	6	ALA	Peptide

5.2 Too-close contacts (i)

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

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	691/728 (95%)	667 (96%)	23 (3%)	1 (0%)	51 82
2	B	455/488 (93%)	441 (97%)	14 (3%)	0	100 100
3	C	403/466 (86%)	386 (96%)	16 (4%)	1 (0%)	47 78
4	G	237/281 (84%)	231 (98%)	5 (2%)	1 (0%)	34 67
5	H	214/243 (88%)	192 (90%)	22 (10%)	0	100 100
6	I	188/229 (82%)	182 (97%)	6 (3%)	0	100 100
7	K	175/210 (83%)	168 (96%)	6 (3%)	1 (1%)	25 57
8	L	84/89 (94%)	84 (100%)	0	0	100 100
9	S	176/249 (71%)	166 (94%)	10 (6%)	0	100 100
10	j	88/93 (95%)	83 (94%)	5 (6%)	0	100 100
11	1	338/341 (99%)	323 (96%)	15 (4%)	0	100 100
12	2	467/469 (100%)	463 (99%)	4 (1%)	0	100 100
13	3	111/128 (87%)	108 (97%)	3 (3%)	0	100 100
14	4	479/486 (99%)	464 (97%)	15 (3%)	0	100 100
15	5	644/655 (98%)	622 (97%)	21 (3%)	1 (0%)	47 78
16	6	129/185 (70%)	125 (97%)	4 (3%)	0	100 100
17	g	74/78 (95%)	63 (85%)	10 (14%)	1 (1%)	11 37
18	D	84/87 (97%)	80 (95%)	4 (5%)	0	100 100
19	E	332/375 (88%)	317 (96%)	14 (4%)	1 (0%)	41 72
20	F	118/144 (82%)	111 (94%)	7 (6%)	0	100 100
21	J	168/198 (85%)	164 (98%)	4 (2%)	0	100 100
22	M	115/136 (85%)	114 (99%)	1 (1%)	0	100 100
23	O	69/109 (63%)	65 (94%)	4 (6%)	0	100 100
24	P	121/124 (98%)	121 (100%)	0	0	100 100
25	Q	83/132 (63%)	80 (96%)	3 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
26	R	104/109 (95%)	103 (99%)	1 (1%)	0	100	100
27	U	169/172 (98%)	166 (98%)	3 (2%)	0	100	100
28	W	119/123 (97%)	117 (98%)	2 (2%)	0	100	100
29	X	162/169 (96%)	158 (98%)	4 (2%)	0	100	100
30	Y	123/161 (76%)	119 (97%)	4 (3%)	0	100	100
31	Z	179/182 (98%)	171 (96%)	8 (4%)	0	100	100
32	a	122/149 (82%)	116 (95%)	6 (5%)	0	100	100
33	b	62/74 (84%)	62 (100%)	0	0	100	100
34	c	42/60 (70%)	40 (95%)	2 (5%)	0	100	100
35	d	87/92 (95%)	84 (97%)	3 (3%)	0	100	100
36	e	50/67 (75%)	47 (94%)	3 (6%)	0	100	100
37	f	80/87 (92%)	77 (96%)	3 (4%)	0	100	100
38	h	134/138 (97%)	130 (97%)	4 (3%)	0	100	100
39	i	81/90 (90%)	79 (98%)	2 (2%)	0	100	100
40	n	111/139 (80%)	107 (96%)	4 (4%)	0	100	100
41	8	69/99 (70%)	66 (96%)	3 (4%)	0	100	100
42	9	84/89 (94%)	80 (95%)	4 (5%)	0	100	100
All	All	7821/8723 (90%)	7542 (96%)	272 (4%)	7 (0%)	54	82

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	K	81	PHE
1	A	726	ALA
17	g	72	LEU
4	G	93	LYS
19	E	344	MET
15	5	555	VAL
3	C	310	PRO

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	566/595 (95%)	557 (98%)	9 (2%)	62	81
2	B	364/389 (94%)	362 (100%)	2 (0%)	88	94
3	C	346/393 (88%)	345 (100%)	1 (0%)	92	97
4	G	216/245 (88%)	216 (100%)	0	100	100
5	H	191/212 (90%)	191 (100%)	0	100	100
6	I	156/187 (83%)	156 (100%)	0	100	100
7	K	154/180 (86%)	151 (98%)	3 (2%)	57	78
8	L	74/76 (97%)	72 (97%)	2 (3%)	44	70
9	S	157/211 (74%)	155 (99%)	2 (1%)	69	84
10	j	71/73 (97%)	71 (100%)	0	100	100
11	1	300/301 (100%)	297 (99%)	3 (1%)	76	88
12	2	432/432 (100%)	430 (100%)	2 (0%)	88	94
13	3	102/113 (90%)	101 (99%)	1 (1%)	76	88
14	4	429/434 (99%)	428 (100%)	1 (0%)	93	98
15	5	573/580 (99%)	568 (99%)	5 (1%)	78	90
16	6	119/166 (72%)	115 (97%)	4 (3%)	37	65
17	g	63/65 (97%)	62 (98%)	1 (2%)	62	81
18	D	68/69 (99%)	68 (100%)	0	100	100
19	E	290/329 (88%)	285 (98%)	5 (2%)	60	80
20	F	108/129 (84%)	108 (100%)	0	100	100
21	J	124/147 (84%)	124 (100%)	0	100	100
22	M	97/115 (84%)	97 (100%)	0	100	100
23	O	60/91 (66%)	60 (100%)	0	100	100
24	P	109/110 (99%)	109 (100%)	0	100	100
25	Q	72/111 (65%)	72 (100%)	0	100	100
26	R	97/100 (97%)	96 (99%)	1 (1%)	76	88
27	U	147/148 (99%)	147 (100%)	0	100	100
28	W	100/102 (98%)	99 (99%)	1 (1%)	76	88
29	X	128/133 (96%)	128 (100%)	0	100	100
30	Y	107/140 (76%)	105 (98%)	2 (2%)	57	78

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
31	Z	147/148 (99%)	146 (99%)	1 (1%)	84 92
32	a	108/129 (84%)	108 (100%)	0	100 100
33	b	50/59 (85%)	50 (100%)	0	100 100
34	c	30/45 (67%)	30 (100%)	0	100 100
35	d	82/85 (96%)	82 (100%)	0	100 100
36	e	44/55 (80%)	44 (100%)	0	100 100
37	f	70/73 (96%)	70 (100%)	0	100 100
38	h	121/123 (98%)	121 (100%)	0	100 100
39	i	64/68 (94%)	63 (98%)	1 (2%)	62 81
40	n	98/119 (82%)	98 (100%)	0	100 100
41	8	63/76 (83%)	63 (100%)	0	100 100
42	9	73/76 (96%)	73 (100%)	0	100 100
All	All	6770/7432 (91%)	6723 (99%)	47 (1%)	84 92

All (47) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	67	ARG
1	A	153	ARG
1	A	714	SER
1	A	715	ILE
1	A	719	LYS
1	A	720	ASP
1	A	721	ASN
1	A	722	LYS
1	A	723	LYS
2	B	483	LEU
2	B	486	VAL
3	C	40	LYS
7	K	85	CYS
7	K	108	ARG
7	K	122	THR
8	L	85	ASN
8	L	86	SER
9	S	52	ASN
9	S	115	HIS
11	1	130	LYS
11	1	211	LEU

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Mol	Chain	Res	Type
11	1	212	VAL
12	2	335	ASN
12	2	423	ASP
13	3	22	ASN
14	4	15	ASN
15	5	508	GLN
15	5	554	LEU
15	5	556	SER
15	5	612	SER
15	5	613	SER
16	6	2	MET
16	6	5	THR
16	6	8	PHE
16	6	27	LYS
17	g	72	LEU
19	E	90	LYS
19	E	127	ASN
19	E	285	ARG
19	E	348	ILE
19	E	349	ARG
26	R	27	ARG
28	W	97	LYS
30	Y	90	ARG
30	Y	100	SER
31	Z	67	ASN
39	i	22	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (39) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	220	ASN
1	A	285	HIS
1	A	721	ASN
1	A	724	ASN
1	A	725	GLN
2	B	272	ASN
3	C	91	HIS
3	C	186	HIS
3	C	284	GLN
5	H	224	GLN
9	S	167	GLN
11	1	128	ASN

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Mol	Chain	Res	Type
11	1	307	ASN
12	2	119	HIS
12	2	292	ASN
14	4	51	ASN
14	4	103	ASN
14	4	193	ASN
15	5	229	GLN
15	5	251	HIS
15	5	552	GLN
15	5	562	HIS
15	5	617	ASN
17	g	21	HIS
17	g	71	GLN
21	J	31	GLN
22	M	25	ASN
24	P	92	GLN
25	Q	119	GLN
30	Y	93	ASN
30	Y	132	GLN
32	a	90	ASN
32	a	146	GLN
34	c	25	ASN
35	d	58	ASN
37	f	11	HIS
40	n	95	HIS
41	8	16	HIS
42	9	49	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)

6 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	$\#\|Z\| > 2$
8	FME	L	1	8	8,9,10	0.98	0	7,9,11	0.84	0
16	FME	6	1	16	8,9,10	0.49	0	7,9,11	0.97	1 (14%)
13	FME	3	1	13	8,9,10	0.87	0	7,9,11	1.49	1 (14%)
11	FME	1	1	11	8,9,10	0.94	0	7,9,11	0.70	0
12	FME	2	1	12	8,9,10	0.97	1 (12%)	7,9,11	1.04	0
3	2MR	C	121	3	10,12,13	1.90	1 (10%)	5,13,15	2.61	2 (40%)

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
8	FME	L	1	8	-	3/7/9/11	-
16	FME	6	1	16	-	6/7/9/11	-
13	FME	3	1	13	-	2/7/9/11	-
11	FME	1	1	11	-	0/7/9/11	-
12	FME	2	1	12	-	5/7/9/11	-
3	2MR	C	121	3	-	2/10/13/15	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	121	2MR	CZ-NE	5.19	1.45	1.34
12	2	1	FME	CA-N	-2.02	1.43	1.46

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	C	121	2MR	CD-NE-CZ	4.13	131.15	123.41
3	C	121	2MR	NE-CZ-NH2	3.95	123.10	119.48
13	3	1	FME	C-CA-N	2.96	115.07	109.73
16	6	1	FME	O-C-CA	-2.43	118.41	124.78

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	121	2MR	C-CA-CB-CG
8	L	1	FME	O1-CN-N-CA
12	2	1	FME	C-CA-CB-CG
12	2	1	FME	O-C-CA-CB
16	6	1	FME	O1-CN-N-CA
16	6	1	FME	N-CA-CB-CG
16	6	1	FME	C-CA-CB-CG
16	6	1	FME	CA-CB-CG-SD
8	L	1	FME	N-CA-CB-CG
12	2	1	FME	CA-CB-CG-SD
13	3	1	FME	CA-CB-CG-SD
12	2	1	FME	CB-CG-SD-CE
13	3	1	FME	CB-CG-SD-CE
16	6	1	FME	CB-CG-SD-CE
12	2	1	FME	N-CA-CB-CG
8	L	1	FME	CB-CG-SD-CE
3	C	121	2MR	CA-CB-CG-CD
16	6	1	FME	CB-CA-N-CN

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 49 ligands modelled in this entry, 1 is monoatomic - leaving 48 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	$\#\|Z\| > 2$
52	CDL	n	201	-	91,91,99	0.94	7 (7%)	97,103,111	0.97	4 (4%)
45	FMN	B	502	-	33,33,33	1.14	2 (6%)	48,50,50	1.29	6 (12%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
52	CDL	X	201	-	85,85,99	0.96	6 (7%)	91,97,111	1.00	4 (4%)
43	SF4	I	503	6	0,12,12	-	-	-		
43	SF4	A	801	1	0,12,12	-	-	-		
49	PLC	K	302	-	35,35,41	0.32	0	41,43,49	0.34	0
48	3PE	6	202	-	46,46,50	0.88	4 (8%)	49,51,55	0.90	2 (4%)
48	3PE	I	501	-	50,50,50	0.85	3 (6%)	53,55,55	0.98	3 (5%)
48	3PE	5	703	-	43,43,50	0.29	0	46,48,55	0.33	0
48	3PE	5	701	-	41,41,50	0.94	4 (9%)	44,46,55	0.99	2 (4%)
56	ZMP	O	201	23	26,32,36	1.85	5 (19%)	31,39,45	2.00	8 (25%)
48	3PE	1	403	11	40,40,50	0.92	3 (7%)	43,45,55	0.81	1 (2%)
46	NAI	B	503	-	42,48,48	0.60	0	47,73,73	0.85	2 (4%)
48	3PE	b	502	-	41,41,50	0.94	4 (9%)	44,46,55	0.86	2 (4%)
48	3PE	2	503	-	41,41,50	0.94	4 (9%)	44,46,55	0.90	2 (4%)
52	CDL	W	402	-	53,53,99	1.24	6 (11%)	59,65,111	1.17	4 (6%)
54	LMN	a	201	-	68,68,72	1.65	14 (20%)	92,94,98	0.95	3 (3%)
49	PLC	4	504	-	34,34,41	1.32	5 (14%)	40,42,49	1.22	3 (7%)
48	3PE	4	502	-	42,42,50	0.94	4 (9%)	45,47,55	1.02	3 (6%)
43	SF4	I	502	6	0,12,12	-	-	-		
44	FES	H	301	5	0,4,4	-	-	-		
48	3PE	6	201	-	35,35,50	1.01	4 (11%)	38,40,55	1.13	2 (5%)
51	T7X	3	201	-	44,44,61	1.01	3 (6%)	54,56,73	1.07	5 (9%)
48	3PE	5	702	-	40,40,50	0.95	4 (10%)	43,45,55	1.08	3 (6%)
48	3PE	J	201	-	40,40,50	0.95	3 (7%)	43,45,55	0.98	3 (6%)
54	LMN	J	202	-	72,72,72	1.54	13 (18%)	96,98,98	1.27	13 (13%)
48	3PE	1	402	-	35,35,50	1.00	4 (11%)	38,40,55	1.00	2 (5%)
53	NDP	E	401	-	45,52,52	2.25	8 (17%)	53,80,80	1.83	11 (20%)
47	UQ9	C	601	-	14,14,58	2.63	6 (42%)	18,20,73	0.99	0
56	ZMP	R	201	26,25	26,32,36	1.74	4 (15%)	31,39,45	1.47	3 (9%)
43	SF4	B	501	2	0,12,12	-	-	-		
49	PLC	1	401	-	34,34,41	1.31	4 (11%)	40,42,49	1.29	4 (10%)
52	CDL	E	403	-	71,71,99	1.04	7 (9%)	77,83,111	1.06	6 (7%)
52	CDL	g	201	-	79,79,99	1.01	7 (8%)	85,91,111	1.08	6 (7%)
48	3PE	g	202	-	42,42,50	0.94	4 (9%)	45,47,55	0.88	2 (4%)
51	T7X	2	502	-	52,52,61	0.91	5 (9%)	62,64,73	1.41	8 (12%)
49	PLC	1	404	-	41,41,41	1.23	5 (12%)	47,49,49	1.20	5 (10%)
50	CPL	2	501	-	51,51,51	1.13	3 (5%)	57,59,59	1.23	5 (8%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
44	FES	A	803	1	0,4,4	-	-	-		
48	3PE	4	501	-	41,41,50	0.93	4 (9%)	44,46,55	0.96	2 (4%)
52	CDL	Z	201	-	75,75,99	1.04	7 (9%)	81,87,111	1.00	4 (4%)
48	3PE	4	503	-	50,50,50	0.85	3 (6%)	53,55,55	0.93	3 (5%)
48	3PE	E	402	-	35,35,50	1.00	3 (8%)	38,40,55	1.14	3 (7%)
51	T7X	b	501	-	48,48,61	0.94	4 (8%)	57,60,73	1.17	4 (7%)
43	SF4	A	802	1	0,12,12	-	-	-		
43	SF4	K	301	7	0,12,12	-	-	-		
49	PLC	W	401	-	40,40,41	1.21	3 (7%)	46,48,49	1.17	4 (8%)
49	PLC	i	1101	-	41,41,41	1.22	5 (12%)	47,49,49	1.13	3 (6%)

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
52	CDL	n	201	-	-	59/102/102/110	-
45	FMN	B	502	-	-	7/18/18/18	0/3/3/3
52	CDL	X	201	-	-	40/96/96/110	-
43	SF4	A	801	1	-	-	0/6/5/5
43	SF4	I	503	6	-	-	0/6/5/5
49	PLC	K	302	-	-	7/39/39/45	-
48	3PE	6	202	-	-	22/50/50/54	-
48	3PE	I	501	-	-	29/54/54/54	-
48	3PE	5	703	-	-	26/47/47/54	-
48	3PE	5	701	-	-	18/45/45/54	-
56	ZMP	O	201	23	-	18/37/39/43	-
48	3PE	1	403	11	-	16/44/44/54	-
48	3PE	b	502	-	-	26/45/45/54	-
46	NAI	B	503	-	-	7/25/72/72	0/5/5/5
48	3PE	2	503	-	-	21/45/45/54	-
52	CDL	W	402	-	-	34/64/64/110	-
54	LMN	a	201	-	-	22/46/126/130	0/4/4/4
49	PLC	4	504	-	-	23/38/38/45	-
48	3PE	4	502	-	-	24/46/46/54	-
43	SF4	I	502	6	-	-	0/6/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
44	FES	H	301	5	-	-	0/1/1/1
48	3PE	6	201	-	-	21/39/39/54	-
51	T7X	3	201	-	-	13/39/63/80	0/1/1/1
48	3PE	5	702	-	-	22/44/44/54	-
48	3PE	J	201	-	-	18/44/44/54	-
54	LMN	J	202	-	-	40/50/130/130	0/4/4/4
48	3PE	1	402	-	-	20/39/39/54	-
53	NDP	E	401	-	-	6/30/77/77	0/5/5/5
47	UQ9	C	601	-	-	1/4/28/81	0/1/1/1
56	ZMP	R	201	26,25	-	10/37/39/43	-
43	SF4	B	501	2	-	-	0/6/5/5
49	PLC	1	401	-	-	15/38/38/45	-
52	CDL	E	403	-	-	36/82/82/110	-
52	CDL	g	201	-	-	36/90/90/110	-
48	3PE	g	202	-	-	22/46/46/54	-
51	T7X	2	502	-	-	23/47/71/80	0/1/1/1
49	PLC	1	404	-	-	22/45/45/45	-
50	CPL	2	501	-	-	22/55/55/55	-
44	FES	A	803	1	-	-	0/1/1/1
48	3PE	4	501	-	-	22/45/45/54	-
52	CDL	Z	201	-	-	38/86/86/110	-
48	3PE	4	503	-	-	26/54/54/54	-
48	3PE	E	402	-	-	16/39/39/54	-
51	T7X	b	501	-	-	18/43/67/80	0/1/1/1
43	SF4	A	802	1	-	-	0/6/5/5
43	SF4	K	301	7	-	-	0/6/5/5
49	PLC	W	401	-	-	19/44/44/45	-
49	PLC	i	1101	-	-	25/45/45/45	-

All (184) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
53	E	401	NDP	P2B-O2B	12.05	1.82	1.59
56	O	201	ZMP	C16-N2	5.69	1.46	1.33
47	C	601	UQ9	O4-C4	-5.55	1.23	1.36
56	R	201	ZMP	C16-N2	5.54	1.45	1.33
47	C	601	UQ9	O3-C3	-5.33	1.23	1.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
56	O	201	ZMP	C13-N1	5.32	1.45	1.33
56	R	201	ZMP	C13-N1	5.00	1.44	1.33
54	a	201	LMN	O5-C5	4.28	1.54	1.44
54	J	202	LMN	O5-C5	4.20	1.54	1.44
54	a	201	LMN	CBQ-CCM	3.95	1.61	1.54
54	a	201	LMN	CBT-CCM	3.67	1.62	1.53
54	a	201	LMN	CBR-CCM	3.62	1.60	1.54
54	J	202	LMN	CBR-CCM	3.61	1.60	1.54
54	J	202	LMN	CBT-CCM	3.49	1.61	1.53
47	C	601	UQ9	C4-C5	-3.44	1.39	1.48
54	a	201	LMN	OBY-CCR	3.43	1.50	1.41
54	J	202	LMN	CBQ-CCM	3.31	1.60	1.54
45	B	502	FMN	C4A-N5	3.27	1.37	1.30
53	E	401	NDP	PN-O5D	3.20	1.72	1.59
53	E	401	NDP	O2B-C2B	-3.19	1.32	1.44
50	2	501	CPL	O3-C11	3.17	1.42	1.33
54	a	201	LMN	CBS-CCM	3.15	1.60	1.53
54	J	202	LMN	OBY-CCR	3.12	1.49	1.41
47	C	601	UQ9	C3-C2	-3.10	1.39	1.48
49	1	401	PLC	O3-CB	3.10	1.42	1.33
49	W	401	PLC	O2-C'	3.07	1.43	1.34
49	4	504	PLC	O2-C'	3.03	1.42	1.34
52	W	402	CDL	OB6-CB5	3.03	1.42	1.34
49	i	1101	PLC	O3-CB	3.00	1.42	1.33
49	4	504	PLC	O3-CB	2.99	1.42	1.33
49	W	401	PLC	O3-CB	2.98	1.42	1.33
49	1	404	PLC	O3-CB	2.95	1.41	1.33
54	a	201	LMN	OBX-CCJ	2.95	1.49	1.41
48	E	402	3PE	O21-C2	-2.94	1.39	1.46
54	J	202	LMN	CBS-CCM	2.93	1.60	1.53
50	2	501	CPL	O2-C31	2.90	1.42	1.34
49	1	404	PLC	O2-C2	-2.89	1.39	1.46
49	i	1101	PLC	O2-C'	2.86	1.42	1.34
49	1	401	PLC	O2-C'	2.85	1.42	1.34
53	E	401	NDP	O4B-C4B	-2.80	1.38	1.45
52	X	201	CDL	OB6-CB5	2.80	1.42	1.34
48	I	501	3PE	O21-C2	-2.77	1.39	1.46
48	J	201	3PE	O21-C2	-2.77	1.39	1.46
52	n	201	CDL	OB6-CB5	2.76	1.42	1.34
48	4	503	3PE	O21-C2	-2.74	1.39	1.46
51	3	201	T7X	O16-C8	-2.74	1.39	1.46
48	5	702	3PE	O21-C2	-2.73	1.39	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	1	404	PLC	O2-C'	2.68	1.41	1.34
48	4	502	3PE	O21-C2	-2.67	1.39	1.46
48	b	502	3PE	O21-C2	-2.66	1.39	1.46
50	2	501	CPL	O2-C2	-2.66	1.39	1.46
52	g	201	CDL	OA6-CA4	-2.66	1.39	1.46
52	g	201	CDL	OB6-CB5	2.66	1.41	1.34
48	2	503	3PE	O21-C2	-2.64	1.40	1.46
52	W	402	CDL	OB8-CB7	2.64	1.41	1.33
52	Z	201	CDL	OB6-CB4	-2.63	1.40	1.46
48	g	202	3PE	O21-C2	-2.62	1.40	1.46
52	Z	201	CDL	OA6-CA4	-2.61	1.40	1.46
54	J	202	LMN	C6-C5	-2.60	1.43	1.51
48	4	501	3PE	O21-C2	-2.60	1.40	1.46
48	5	701	3PE	O21-C2	-2.59	1.40	1.46
52	X	201	CDL	OA8-CA6	-2.59	1.39	1.45
48	6	202	3PE	O21-C2	-2.57	1.40	1.46
49	1	401	PLC	O2-C2	-2.57	1.40	1.46
52	W	402	CDL	OA6-CA4	-2.56	1.40	1.46
54	a	201	LMN	C6-C5	-2.56	1.43	1.51
49	i	1101	PLC	O2-C2	-2.56	1.40	1.46
52	Z	201	CDL	OA8-CA6	-2.56	1.39	1.45
48	1	403	3PE	O31-C31	2.55	1.40	1.33
52	E	403	CDL	OA6-CA4	-2.54	1.40	1.46
48	6	201	3PE	O21-C2	-2.54	1.40	1.46
49	4	504	PLC	O2-C2	-2.53	1.40	1.46
52	E	403	CDL	OB6-CB4	-2.52	1.40	1.46
52	Z	201	CDL	OB6-CB5	2.51	1.41	1.34
52	n	201	CDL	OA6-CA4	-2.51	1.40	1.46
45	B	502	FMN	C10-N1	2.51	1.38	1.33
52	E	403	CDL	OB6-CB5	2.50	1.41	1.34
52	W	402	CDL	OA8-CA6	-2.50	1.39	1.45
48	1	402	3PE	O21-C2	-2.49	1.40	1.46
49	W	401	PLC	O2-C2	-2.49	1.40	1.46
52	g	201	CDL	OB8-CB7	2.48	1.40	1.33
54	J	202	LMN	C3-C2	-2.48	1.46	1.52
52	n	201	CDL	OA8-CA6	-2.47	1.39	1.45
56	O	201	ZMP	O2-C13	-2.46	1.18	1.23
52	X	201	CDL	OB6-CB4	-2.44	1.40	1.46
52	X	201	CDL	OB8-CB7	2.43	1.40	1.33
52	Z	201	CDL	OB8-CB6	-2.43	1.39	1.45
48	4	502	3PE	O31-C31	2.42	1.40	1.33
48	6	202	3PE	O31-C31	2.42	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
53	E	401	NDP	C7N-C3N	-2.41	1.43	1.48
48	4	501	3PE	O31-C31	2.41	1.40	1.33
48	5	702	3PE	O31-C3	-2.41	1.39	1.45
54	J	202	LMN	OBX-CCJ	2.41	1.48	1.41
54	a	201	LMN	OBZ-CCS	2.38	1.47	1.41
54	a	201	LMN	C3-C2	-2.38	1.46	1.52
48	g	202	3PE	O31-C31	2.37	1.40	1.33
48	2	503	3PE	O31-C31	2.37	1.40	1.33
52	g	201	CDL	OA8-CA6	-2.37	1.39	1.45
52	g	201	CDL	OB6-CB4	-2.36	1.40	1.46
52	E	403	CDL	OA8-CA6	-2.35	1.39	1.45
51	b	501	T7X	O16-C10	2.35	1.40	1.34
51	b	501	T7X	O18-C11	2.34	1.40	1.33
48	5	701	3PE	O31-C3	-2.34	1.39	1.45
48	1	402	3PE	O31-C31	2.34	1.40	1.33
51	2	502	T7X	O16-C8	-2.34	1.40	1.46
48	4	503	3PE	O31-C31	2.34	1.40	1.33
47	C	601	UQ9	C6-C5	-2.34	1.38	1.47
52	n	201	CDL	OB8-CB6	-2.33	1.39	1.45
48	b	502	3PE	O31-C31	2.33	1.40	1.33
51	3	201	T7X	O18-C11	2.33	1.40	1.33
52	E	403	CDL	OB8-CB6	-2.33	1.39	1.45
56	O	201	ZMP	C10-S1	2.32	1.81	1.76
48	I	501	3PE	O31-C31	2.32	1.40	1.33
51	2	502	T7X	O18-C11	2.30	1.40	1.33
52	n	201	CDL	OB6-CB4	-2.30	1.40	1.46
48	6	201	3PE	O31-C3	-2.28	1.39	1.45
48	1	403	3PE	O21-C21	2.27	1.40	1.34
48	J	201	3PE	O31-C31	2.27	1.40	1.33
52	X	201	CDL	OB8-CB6	-2.26	1.40	1.45
48	g	202	3PE	O31-C3	-2.26	1.40	1.45
52	Z	201	CDL	OA8-CA7	2.26	1.39	1.33
54	a	201	LMN	CBR-CBL	2.26	1.60	1.52
48	J	201	3PE	O31-C3	-2.26	1.40	1.45
48	1	403	3PE	O21-C2	-2.25	1.41	1.46
52	Z	201	CDL	OB8-CB7	2.25	1.39	1.33
48	I	501	3PE	O31-C3	-2.24	1.40	1.45
54	J	202	LMN	O2-C2	2.24	1.48	1.43
48	5	701	3PE	O21-C21	2.23	1.40	1.34
52	E	403	CDL	OB8-CB7	2.23	1.39	1.33
56	R	201	ZMP	C10-S1	2.23	1.81	1.76
48	E	402	3PE	O31-C31	2.23	1.39	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
54	J	202	LMN	CBR-CBL	2.23	1.60	1.52
52	n	201	CDL	OB8-CB7	2.22	1.39	1.33
51	2	502	T7X	P1-O1	2.21	1.66	1.60
48	b	502	3PE	O31-C3	-2.20	1.40	1.45
48	5	701	3PE	O31-C31	2.20	1.39	1.33
52	g	201	CDL	OA8-CA7	2.20	1.39	1.33
56	R	201	ZMP	O2-C13	-2.20	1.18	1.23
54	a	201	LMN	O2-C2	2.20	1.48	1.43
49	4	504	PLC	P-O3P	2.20	1.68	1.59
48	6	201	3PE	O31-C31	2.20	1.39	1.33
51	2	502	T7X	O18-C9	-2.18	1.40	1.45
48	g	202	3PE	O21-C21	2.17	1.40	1.34
52	X	201	CDL	OA6-CA4	-2.17	1.41	1.46
47	C	601	UQ9	C1-C2	-2.17	1.39	1.47
51	b	501	T7X	O16-C8	-2.16	1.41	1.46
48	4	503	3PE	O31-C3	-2.16	1.40	1.45
52	g	201	CDL	OB8-CB6	-2.16	1.40	1.45
48	1	402	3PE	O31-C3	-2.16	1.40	1.45
48	1	402	3PE	O21-C21	2.16	1.40	1.34
48	2	503	3PE	O31-C3	-2.16	1.40	1.45
48	6	201	3PE	O21-C21	2.15	1.40	1.34
53	E	401	NDP	O5D-C5D	-2.15	1.36	1.44
48	4	501	3PE	O21-C21	2.14	1.40	1.34
51	2	502	T7X	O16-C10	2.14	1.40	1.34
56	O	201	ZMP	O3-C16	-2.14	1.19	1.23
48	5	702	3PE	O31-C31	2.13	1.39	1.33
48	4	502	3PE	O21-C21	2.13	1.40	1.34
52	W	402	CDL	OA8-CA7	2.13	1.39	1.33
51	b	501	T7X	O18-C9	-2.13	1.40	1.45
54	J	202	LMN	OBZ-CCS	2.13	1.47	1.41
48	E	402	3PE	O31-C3	-2.13	1.40	1.45
48	4	502	3PE	O31-C3	-2.12	1.40	1.45
51	3	201	T7X	O18-C9	-2.12	1.40	1.45
48	b	502	3PE	O21-C21	2.12	1.40	1.34
48	6	202	3PE	O31-C3	-2.12	1.40	1.45
52	n	201	CDL	OA8-CA7	2.11	1.39	1.33
53	E	401	NDP	O4B-C1B	-2.11	1.38	1.41
52	E	403	CDL	OA8-CA7	2.09	1.39	1.33
48	6	202	3PE	O21-C21	2.09	1.40	1.34
54	a	201	LMN	O1-C1	2.09	1.43	1.40
49	4	504	PLC	P-O4P	2.08	1.67	1.59
49	i	1101	PLC	P-O3P	2.07	1.67	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	2	503	3PE	O21-C21	2.05	1.40	1.34
49	1	401	PLC	P-O3P	2.05	1.67	1.59
54	a	201	LMN	OAT-CCU	2.03	1.47	1.43
54	J	202	LMN	CCV-CCT	-2.02	1.47	1.52
49	i	1101	PLC	P-O4P	2.02	1.67	1.59
48	4	501	3PE	O31-C3	-2.02	1.40	1.45
52	W	402	CDL	OB8-CB6	-2.02	1.40	1.45
48	5	702	3PE	O21-C21	2.01	1.40	1.34
49	1	404	PLC	P-O4P	2.01	1.67	1.59
53	E	401	NDP	O3B-C3B	-2.01	1.38	1.43
49	1	404	PLC	C1'-C'	2.00	1.56	1.50

All (150) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
53	E	401	NDP	PN-O3-PA	-7.25	107.96	132.83
56	O	201	ZMP	C9-C10-S1	6.98	121.58	113.46
51	2	502	T7X	C6-C1-C2	5.47	118.75	110.85
56	R	201	ZMP	C9-C10-S1	5.25	119.57	113.46
50	2	501	CPL	C37-C38-C39	-4.71	85.46	112.43
52	g	201	CDL	OA6-CA5-C11	4.60	121.41	111.50
52	W	402	CDL	OB6-CB5-C51	4.58	121.38	111.50
49	1	401	PLC	C7-N-C6	4.50	120.55	108.97
48	E	402	3PE	O21-C21-C22	4.48	121.16	111.50
52	X	201	CDL	OB6-CB5-C51	4.47	121.13	111.50
50	2	501	CPL	O2-C31-C32	4.40	120.98	111.50
51	b	501	T7X	C6-C1-C2	4.35	117.13	110.85
49	1	404	PLC	O2-C'-C1'	4.34	120.86	111.50
52	g	201	CDL	OB6-CB5-C51	4.32	120.82	111.50
51	b	501	T7X	O16-C10-C12	4.31	120.78	111.50
52	n	201	CDL	OB6-CB5-C51	4.29	120.75	111.50
48	6	201	3PE	O21-C21-C22	4.27	120.70	111.50
49	4	504	PLC	O2-C'-C1'	4.18	120.50	111.50
48	5	702	3PE	O21-C21-C22	4.18	120.50	111.50
52	W	402	CDL	OA6-CA5-C11	4.15	120.44	111.50
52	E	403	CDL	OA6-CA5-C11	4.14	120.42	111.50
51	2	502	T7X	O16-C10-C12	4.13	120.40	111.50
52	Z	201	CDL	OA6-CA5-C11	4.12	120.37	111.50
48	4	503	3PE	O21-C21-C22	4.11	120.36	111.50
48	5	701	3PE	O21-C21-C22	4.11	120.36	111.50
49	1	401	PLC	O2-C'-C1'	4.09	120.32	111.50
48	6	202	3PE	O21-C21-C22	4.06	120.25	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
52	X	201	CDL	OA6-CA5-C11	4.04	120.21	111.50
52	n	201	CDL	OA6-CA5-C11	4.03	120.18	111.50
49	i	1101	PLC	O2-C'-C1'	4.00	120.13	111.50
51	3	201	T7X	O16-C10-C12	4.00	120.12	111.50
49	W	401	PLC	C7-N-C6	3.99	119.25	108.97
48	4	502	3PE	O21-C21-C22	3.99	120.11	111.50
48	I	501	3PE	O21-C21-C22	3.99	120.09	111.50
52	E	403	CDL	OB6-CB5-C51	3.91	119.92	111.50
49	4	504	PLC	C7-N-C6	3.90	119.01	108.97
49	i	1101	PLC	C7-N-C6	3.90	119.00	108.97
48	4	501	3PE	O21-C21-C22	3.87	119.83	111.50
56	O	201	ZMP	O1-C10-C9	-3.85	119.44	123.99
48	1	402	3PE	O21-C21-C22	3.83	119.76	111.50
49	1	404	PLC	C7-N-C6	3.82	118.79	108.97
48	J	201	3PE	O21-C21-C22	3.78	119.64	111.50
48	2	503	3PE	O21-C21-C22	3.73	119.53	111.50
48	g	202	3PE	O21-C21-C22	3.63	119.33	111.50
52	Z	201	CDL	OB6-CB5-C51	3.61	119.28	111.50
56	O	201	ZMP	C14-C13-N1	3.56	122.42	116.42
48	b	502	3PE	O21-C21-C22	3.56	119.16	111.50
48	1	403	3PE	O21-C21-C22	3.55	119.14	111.50
45	B	502	FMN	C4-N3-C2	-3.47	119.22	125.64
54	J	202	LMN	CCT-CCN-CCC	3.44	116.38	110.24
53	E	401	NDP	O2B-P2B-O1X	-3.43	96.15	109.39
54	J	202	LMN	OBY-CCC-CCN	3.41	115.88	109.69
49	W	401	PLC	O2-C'-C1'	3.40	118.83	111.50
53	E	401	NDP	PN-O5D-C5D	-3.30	102.33	121.68
53	E	401	NDP	PA-O5B-C5B	-3.29	102.37	121.68
54	J	202	LMN	CCL-CCH-CCQ	3.22	117.04	109.68
51	2	502	T7X	C5-C6-C1	3.17	116.92	109.68
51	2	502	T7X	C3-C2-C1	3.14	116.86	109.68
51	b	501	T7X	C5-C6-C1	3.08	116.72	109.68
52	g	201	CDL	OB8-CB7-C71	3.04	121.46	111.91
56	R	201	ZMP	O1-C10-C9	-3.00	120.45	123.99
45	B	502	FMN	O4-C4-C4A	-2.96	118.75	126.60
51	3	201	T7X	O18-C11-C31	2.96	121.19	111.91
52	n	201	CDL	OB8-CB7-C71	2.92	121.07	111.91
54	J	202	LMN	OCB-CCS-CCW	2.92	115.66	108.10
48	I	501	3PE	O31-C31-C32	2.91	121.03	111.91
45	B	502	FMN	C4A-C4-N3	2.90	120.55	113.19
54	J	202	LMN	CCS-OBZ-CCD	-2.85	108.09	113.69
52	W	402	CDL	OB8-CB7-C71	2.85	120.84	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
51	2	502	T7X	O18-C11-C31	2.84	120.83	111.91
48	4	502	3PE	O31-C31-C32	2.84	120.81	111.91
53	E	401	NDP	O5D-PN-O1N	-2.83	98.03	109.07
56	O	201	ZMP	O1-C10-S1	-2.80	118.97	122.61
52	Z	201	CDL	OB8-CB7-C71	2.79	120.67	111.91
52	E	403	CDL	OA8-CA7-C31	2.77	120.59	111.91
54	J	202	LMN	O3-C3-C2	-2.72	104.06	110.35
48	6	201	3PE	O31-C31-C32	2.71	120.40	111.91
49	4	504	PLC	O3-CB-C1B	2.70	120.40	111.91
52	g	201	CDL	OA8-CA7-C31	2.70	120.39	111.91
54	a	201	LMN	CCR-O4-C4	-2.70	111.28	117.96
49	W	401	PLC	C3-C2-C1	-2.68	105.46	111.79
56	O	201	ZMP	C19-C18-C17	2.67	113.45	108.82
52	X	201	CDL	OB8-CB7-C71	2.67	120.28	111.91
56	O	201	ZMP	C15-C14-C13	2.66	116.80	112.36
48	4	501	3PE	O31-C31-C32	2.65	120.23	111.91
49	1	404	PLC	O3-CB-C1B	2.65	120.22	111.91
48	J	201	3PE	O31-C31-C32	2.63	120.17	111.91
54	J	202	LMN	CCJ-CCL-CCH	2.63	115.48	110.00
52	Z	201	CDL	OA8-CA7-C31	2.63	120.17	111.91
52	E	403	CDL	OB8-CB7-C71	2.63	120.16	111.91
49	W	401	PLC	O3-CB-C1B	2.62	120.12	111.91
45	B	502	FMN	C4A-C10-N1	-2.62	118.66	124.73
49	i	1101	PLC	O3-CB-C1B	2.61	120.11	111.91
48	E	402	3PE	C2-O21-C21	-2.60	111.39	117.79
51	b	501	T7X	O18-C11-C31	2.60	120.06	111.91
49	1	401	PLC	O3-CB-C1B	2.59	120.03	111.91
51	2	502	T7X	P1-O1-C1	2.57	128.77	119.41
53	E	401	NDP	O3X-P2B-O2X	2.57	117.45	107.64
50	2	501	CPL	O3-C11-C12	2.55	119.92	111.91
52	X	201	CDL	OA8-CA7-C31	2.54	119.87	111.91
53	E	401	NDP	C2A-N1A-C6A	-2.51	114.46	118.75
48	5	702	3PE	O31-C31-C32	2.50	119.77	111.91
52	E	403	CDL	CB4-OB6-CB5	-2.49	111.65	117.79
53	E	401	NDP	O2N-PN-O1N	2.49	124.53	112.24
52	g	201	CDL	CA4-OA6-CA5	-2.47	111.70	117.79
48	1	402	3PE	O31-C31-C32	2.47	119.65	111.91
48	6	202	3PE	O31-C31-C32	2.44	119.58	111.91
48	E	402	3PE	O31-C31-C32	2.43	119.54	111.91
56	O	201	ZMP	C12-N1-C13	-2.43	118.32	122.84
48	b	502	3PE	O31-C31-C32	2.43	119.53	111.91
51	2	502	T7X	O12-P1-O1	2.42	116.33	106.78

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
54	J	202	LMN	CBK-CBQ-CCM	-2.41	109.42	117.16
48	g	202	3PE	O31-C31-C32	2.38	119.38	111.91
48	2	503	3PE	O31-C31-C32	2.38	119.38	111.91
54	J	202	LMN	OCB-CCQ-CCH	-2.37	100.97	107.28
48	4	503	3PE	O31-C31-C32	2.35	119.27	111.91
52	n	201	CDL	OA8-CA7-C31	2.32	119.17	111.91
46	B	503	NAI	C5A-C6A-N6A	2.31	123.86	120.35
49	1	404	PLC	C2-O2-C'	-2.29	112.16	117.79
48	5	701	3PE	O31-C31-C32	2.28	119.07	111.91
56	O	201	ZMP	O2-C13-C14	-2.28	117.85	122.02
52	W	402	CDL	OA8-CA7-C31	2.28	119.05	111.91
54	J	202	LMN	OCB-CCQ-CCF	2.26	115.63	109.45
53	E	401	NDP	C3N-C2N-N1N	-2.25	119.88	123.10
49	1	401	PLC	C4-C5-N	-2.23	108.32	115.78
45	B	502	FMN	C4-C4A-C10	2.23	120.54	116.79
48	J	201	3PE	C2-O21-C21	-2.22	112.32	117.79
54	a	201	LMN	CCS-OCB-CCQ	-2.22	112.47	117.96
46	B	503	NAI	C3D-C2D-C1D	2.19	105.59	101.43
48	4	503	3PE	C2-O21-C21	-2.17	112.45	117.79
52	E	403	CDL	CA4-OA6-CA5	-2.16	112.47	117.79
51	3	201	T7X	C8-O16-C10	-2.15	112.49	117.79
49	1	404	PLC	O2-C'-O'	-2.14	118.53	123.70
50	2	501	CPL	C6-N-C5	2.13	118.62	109.92
54	J	202	LMN	O4-C4-C5	-2.12	103.65	109.45
48	4	502	3PE	C2-O21-C21	-2.11	112.59	117.79
45	B	502	FMN	C4A-C10-N10	2.11	119.56	116.48
54	a	201	LMN	C1-O5-C5	-2.09	109.58	113.69
51	3	201	T7X	O1-C1-C2	2.08	113.50	108.66
51	3	201	T7X	O1-C1-C6	2.07	113.47	108.66
53	E	401	NDP	C5B-C4B-C3B	-2.06	107.47	115.18
48	I	501	3PE	C2-O21-C21	-2.05	112.75	117.79
52	g	201	CDL	CB4-OB6-CB5	-2.05	112.75	117.79
48	5	702	3PE	C2-O21-C21	-2.05	112.75	117.79
54	J	202	LMN	CBM-CCC-CCN	-2.04	108.23	113.00
56	R	201	ZMP	O1-C10-S1	-2.02	119.99	122.61
50	2	501	CPL	C4-C5-N	-2.02	109.05	115.78
53	E	401	NDP	C3B-C2B-C1B	-2.01	99.10	102.89
54	J	202	LMN	CCW-CCU-CCO	2.01	114.33	110.82
51	2	502	T7X	C9-C8-C7	-2.00	107.05	111.79

There are no chirality outliers.

All (890) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
45	B	502	FMN	C3'-C4'-C5'-O5'
45	B	502	FMN	O4'-C4'-C5'-O5'
45	B	502	FMN	C5'-O5'-P-O1P
45	B	502	FMN	C5'-O5'-P-O2P
45	B	502	FMN	C5'-O5'-P-O3P
46	B	503	NAI	C3B-C4B-C5B-O5B
48	I	501	3PE	C1-O11-P-O14
48	I	501	3PE	C11-O13-P-O11
48	1	402	3PE	C1-O11-P-O12
48	1	402	3PE	C1-O11-P-O13
48	1	402	3PE	C1-O11-P-O14
48	1	402	3PE	O13-C11-C12-N
48	1	402	3PE	C22-C21-O21-C2
48	1	403	3PE	O32-C31-O31-C3
48	1	403	3PE	C32-C31-O31-C3
48	2	503	3PE	C1-O11-P-O12
48	4	501	3PE	C1-O11-P-O12
48	4	501	3PE	C1-O11-P-O14
48	4	501	3PE	C11-O13-P-O12
48	4	501	3PE	C11-O13-P-O14
48	4	501	3PE	O13-C11-C12-N
48	4	502	3PE	C11-O13-P-O11
48	4	502	3PE	C11-O13-P-O14
48	4	503	3PE	C1-O11-P-O14
48	5	701	3PE	O13-C11-C12-N
48	5	701	3PE	C22-C21-O21-C2
48	5	702	3PE	O13-C11-C12-N
48	5	703	3PE	C1-O11-P-O12
48	5	703	3PE	C1-O11-P-O14
48	5	703	3PE	C11-O13-P-O11
48	5	703	3PE	C11-O13-P-O12
48	5	703	3PE	C11-O13-P-O14
48	5	703	3PE	O13-C11-C12-N
48	6	201	3PE	C1-O11-P-O12
48	6	201	3PE	C1-O11-P-O13
48	6	201	3PE	C1-O11-P-O14
48	6	201	3PE	C11-O13-P-O14
48	6	202	3PE	C1-O11-P-O13
48	6	202	3PE	C1-O11-P-O14
48	g	202	3PE	C11-O13-P-O12
48	g	202	3PE	O13-C11-C12-N
48	g	202	3PE	C22-C21-O21-C2
48	E	402	3PE	C1-O11-P-O12

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Mol	Chain	Res	Type	Atoms
48	E	402	3PE	C1-O11-P-O13
48	E	402	3PE	C1-O11-P-O14
48	E	402	3PE	C11-O13-P-O12
48	E	402	3PE	C11-O13-P-O14
48	E	402	3PE	O13-C11-C12-N
48	J	201	3PE	C11-O13-P-O12
48	J	201	3PE	O13-C11-C12-N
48	J	201	3PE	O22-C21-O21-C2
48	J	201	3PE	C22-C21-O21-C2
48	b	502	3PE	C1-O11-P-O14
49	K	302	PLC	C1'-C'-O2-C2
49	K	302	PLC	O'-C'-O2-C2
49	1	401	PLC	O4P-C4-C5-N
49	1	401	PLC	O'-C'-O2-C2
49	1	401	PLC	C1-O3P-P-O1P
49	1	404	PLC	O4P-C4-C5-N
49	1	404	PLC	C1'-C'-O2-C2
49	1	404	PLC	O'-C'-O2-C2
49	1	404	PLC	C1-O3P-P-O2P
49	1	404	PLC	C1-O3P-P-O4P
49	4	504	PLC	C4-O4P-P-O1P
49	4	504	PLC	C4-O4P-P-O2P
49	W	401	PLC	C4-O4P-P-O2P
49	W	401	PLC	C4-O4P-P-O3P
49	i	1101	PLC	C1-O3P-P-O2P
49	i	1101	PLC	C1-O3P-P-O4P
49	i	1101	PLC	C4-O4P-P-O1P
49	i	1101	PLC	C4-O4P-P-O2P
49	i	1101	PLC	C4-O4P-P-O3P
50	2	501	CPL	C1-O3P-P-O1P
50	2	501	CPL	C1-O3P-P-O2P
51	2	502	T7X	C6-C1-O1-P1
51	2	502	T7X	C1-O1-P1-O12
51	2	502	T7X	C12-C10-O16-C8
51	2	502	T7X	O19-C11-O18-C9
51	2	502	T7X	C31-C11-O18-C9
51	2	502	T7X	C19-C20-C21-C22
51	3	201	T7X	C2-C1-O1-P1
51	3	201	T7X	C6-C1-O1-P1
51	3	201	T7X	C31-C11-O18-C9
51	b	501	T7X	C12-C10-O16-C8
52	g	201	CDL	CB2-C1-CA2-OA2

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Mol	Chain	Res	Type	Atoms
52	E	403	CDL	CB3-OB5-PB2-OB3
52	E	403	CDL	CB3-OB5-PB2-OB4
52	W	402	CDL	CA3-OA5-PA1-OA3
52	X	201	CDL	CB2-OB2-PB2-OB3
52	X	201	CDL	OB7-CB5-OB6-CB4
52	X	201	CDL	C51-CB5-OB6-CB4
52	Z	201	CDL	C11-CA5-OA6-CA4
52	Z	201	CDL	CB3-OB5-PB2-OB4
52	n	201	CDL	C1-CA2-OA2-PA1
52	n	201	CDL	CA3-OA5-PA1-OA2
52	n	201	CDL	CA3-OA5-PA1-OA3
52	n	201	CDL	C11-CA5-OA6-CA4
52	n	201	CDL	CB3-OB5-PB2-OB3
52	n	201	CDL	CB3-OB5-PB2-OB4
52	n	201	CDL	OB7-CB5-OB6-CB4
53	E	401	NDP	C2B-O2B-P2B-O3X
53	E	401	NDP	O4D-C4D-C5D-O5D
54	J	202	LMN	C2-C1-O1-CBS
54	J	202	LMN	O5-C1-O1-CBS
54	J	202	LMN	CBK-CBQ-CCM-CBR
54	J	202	LMN	CBK-CBQ-CCM-CBS
54	J	202	LMN	CBK-CBQ-CCM-CBT
54	J	202	LMN	CBL-CBR-CCM-CBQ
54	J	202	LMN	CBL-CBR-CCM-CBS
54	J	202	LMN	CBL-CBR-CCM-CBT
54	J	202	LMN	O1-CBS-CCM-CBQ
54	J	202	LMN	O1-CBS-CCM-CBR
54	J	202	LMN	OBV-CBT-CCM-CBR
54	J	202	LMN	OBX-CCJ-OBV-CBT
54	a	201	LMN	C2-C1-O1-CBS
54	a	201	LMN	O5-C1-O1-CBS
54	a	201	LMN	OBY-CCR-O4-C4
54	a	201	LMN	CBK-CBQ-CCM-CBR
54	a	201	LMN	CBK-CBQ-CCM-CBS
54	a	201	LMN	CBK-CBQ-CCM-CBT
54	a	201	LMN	OBX-CCJ-OBV-CBT
54	a	201	LMN	CCL-CCJ-OBV-CBT
56	O	201	ZMP	O4-C17-C18-C21
56	O	201	ZMP	C16-C17-C18-C21
56	O	201	ZMP	O4-C17-C18-C19
56	O	201	ZMP	C16-C17-C18-C19
56	O	201	ZMP	O4-C17-C18-C20

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Mol	Chain	Res	Type	Atoms
56	O	201	ZMP	C16-C17-C18-C20
56	O	201	ZMP	C12-C11-S1-C10
56	O	201	ZMP	O1-C10-S1-C11
56	O	201	ZMP	C9-C10-S1-C11
56	O	201	ZMP	C7-C8-C9-C10
56	R	201	ZMP	C19-C18-C21-O5
56	R	201	ZMP	C20-C18-C21-O5
56	R	201	ZMP	C17-C18-C21-O5
56	R	201	ZMP	C12-C11-S1-C10
56	R	201	ZMP	C7-C8-C9-C10
48	1	402	3PE	O32-C31-O31-C3
48	4	501	3PE	O32-C31-O31-C3
48	4	502	3PE	O32-C31-O31-C3
51	3	201	T7X	O19-C11-O18-C9
52	n	201	CDL	OA9-CA7-OA8-CA6
48	1	402	3PE	C32-C31-O31-C3
48	4	501	3PE	C32-C31-O31-C3
48	4	502	3PE	C32-C31-O31-C3
52	n	201	CDL	C31-CA7-OA8-CA6
52	Z	201	CDL	OA9-CA7-OA8-CA6
52	n	201	CDL	OB9-CB7-OB8-CB6
48	1	402	3PE	O22-C21-O21-C2
48	5	701	3PE	O22-C21-O21-C2
48	g	202	3PE	O22-C21-O21-C2
51	b	501	T7X	O17-C10-O16-C8
52	n	201	CDL	OA7-CA5-OA6-CA4
49	1	401	PLC	C1'-C'-O2-C2
52	E	403	CDL	C11-CA5-OA6-CA4
52	n	201	CDL	C51-CB5-OB6-CB4
49	1	404	PLC	OB-CB-O3-C3
52	Z	201	CDL	OB9-CB7-OB8-CB6
52	Z	201	CDL	C31-CA7-OA8-CA6
52	n	201	CDL	C71-CB7-OB8-CB6
56	O	201	ZMP	C14-C15-N2-C16
51	2	502	T7X	O17-C10-O16-C8
52	E	403	CDL	OA7-CA5-OA6-CA4
52	Z	201	CDL	OA7-CA5-OA6-CA4
49	i	1101	PLC	OB-CB-O3-C3
54	J	202	LMN	OAL-CBP-CCF-OBX
52	E	403	CDL	O1-C1-CA2-OA2
52	W	402	CDL	O1-C1-CA2-OA2
52	Z	201	CDL	O1-C1-CB2-OB2

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Mol	Chain	Res	Type	Atoms
49	1	404	PLC	C1B-CB-O3-C3
49	i	1101	PLC	C1B-CB-O3-C3
54	a	201	LMN	OAI-CBM-CCC-OBY
48	I	501	3PE	C22-C21-O21-C2
48	4	502	3PE	C22-C21-O21-C2
48	4	503	3PE	C22-C21-O21-C2
48	b	502	3PE	C22-C21-O21-C2
51	3	201	T7X	C12-C10-O16-C8
52	X	201	CDL	C11-CA5-OA6-CA4
52	X	201	CDL	C54-C55-C56-C57
52	X	201	CDL	C71-C72-C73-C74
46	B	503	NAI	O4B-C4B-C5B-O5B
53	E	401	NDP	C3D-C4D-C5D-O5D
52	Z	201	CDL	C71-CB7-OB8-CB6
48	b	502	3PE	O22-C21-O21-C2
52	X	201	CDL	OA7-CA5-OA6-CA4
54	J	202	LMN	OAI-CBM-CCC-CCN
48	4	503	3PE	C3C-C3D-C3E-C3F
50	2	501	CPL	C35-C36-C37-C38
48	I	501	3PE	C27-C28-C29-C2A
54	J	202	LMN	CCW-CCS-OCB-CCQ
49	K	302	PLC	C1B-CB-O3-C3
49	K	302	PLC	OB-CB-O3-C3
48	5	702	3PE	C22-C21-O21-C2
48	6	202	3PE	C3D-C3E-C3F-C3G
52	E	403	CDL	CB2-C1-CA2-OA2
48	4	502	3PE	O22-C21-O21-C2
48	4	503	3PE	O22-C21-O21-C2
54	a	201	LMN	OAI-CBM-CCC-CCN
54	J	202	LMN	CBC-CBE-CBG-CBI
49	W	401	PLC	C4-C5-N-C8
48	4	503	3PE	C32-C31-O31-C3
54	J	202	LMN	OBZ-CCS-OCB-CCQ
48	4	502	3PE	C2E-C2F-C2G-C2H
52	Z	201	CDL	C72-C73-C74-C75
54	J	202	LMN	OAL-CBP-CCF-CCQ
52	g	201	CDL	O1-C1-CA2-OA2
52	E	403	CDL	O1-C1-CB2-OB2
48	4	503	3PE	C27-C28-C29-C2A
52	n	201	CDL	C60-C61-C62-C63
48	I	501	3PE	O22-C21-O21-C2
51	3	201	T7X	O17-C10-O16-C8

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Mol	Chain	Res	Type	Atoms
48	1	403	3PE	C22-C21-O21-C2
52	W	402	CDL	C11-CA5-OA6-CA4
48	b	502	3PE	C24-C25-C26-C27
52	Z	201	CDL	C17-C18-C19-C20
52	n	201	CDL	C53-C54-C55-C56
49	1	401	PLC	C'-C1'-C2'-C3'
48	4	503	3PE	O32-C31-O31-C3
54	J	202	LMN	OAJ-CBN-CCD-OBZ
48	5	701	3PE	C21-C22-C23-C24
48	5	702	3PE	C21-C22-C23-C24
48	J	201	3PE	C31-C32-C33-C34
48	4	503	3PE	C29-C2A-C2B-C2C
48	1	402	3PE	C31-C32-C33-C34
48	5	701	3PE	C31-C32-C33-C34
49	4	504	PLC	CB-C1B-C2B-C3B
51	b	501	T7X	C10-C12-C13-C14
49	i	1101	PLC	C6B-C7B-C8B-C9B
48	1	403	3PE	O22-C21-O21-C2
49	1	401	PLC	CB-C1B-C2B-C3B
49	1	404	PLC	CB-C1B-C2B-C3B
48	6	202	3PE	C35-C36-C37-C38
52	g	201	CDL	C12-C13-C14-C15
54	J	202	LMN	OAI-CBM-CCC-OBY
52	W	402	CDL	CA5-C11-C12-C13
48	5	702	3PE	O22-C21-O21-C2
51	2	502	T7X	C10-C12-C13-C14
52	g	201	CDL	C11-CA5-OA6-CA4
48	I	501	3PE	C1-O11-P-O13
48	2	503	3PE	C1-O11-P-O13
48	4	501	3PE	C1-O11-P-O13
48	4	501	3PE	C11-O13-P-O11
48	5	703	3PE	C1-O11-P-O13
48	g	202	3PE	C1-O11-P-O13
48	g	202	3PE	C11-O13-P-O11
48	J	201	3PE	C1-O11-P-O13
48	b	502	3PE	C1-O11-P-O13
49	1	401	PLC	C1-O3P-P-O4P
49	1	404	PLC	C4-O4P-P-O3P
49	4	504	PLC	C4-O4P-P-O3P
50	2	501	CPL	C1-O3P-P-O4P
52	E	403	CDL	CA2-OA2-PA1-OA5
52	E	403	CDL	CB3-OB5-PB2-OB2

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Mol	Chain	Res	Type	Atoms
52	W	402	CDL	CB3-OB5-PB2-OB2
52	Z	201	CDL	CA3-OA5-PA1-OA2
52	n	201	CDL	CA2-OA2-PA1-OA5
52	n	201	CDL	CB2-OB2-PB2-OB5
52	n	201	CDL	CB3-OB5-PB2-OB2
48	2	503	3PE	C21-C22-C23-C24
49	4	504	PLC	C6B-C7B-C8B-C9B
52	X	201	CDL	C17-C18-C19-C20
52	Z	201	CDL	C54-C55-C56-C57
52	W	402	CDL	CB2-C1-CA2-OA2
52	W	402	CDL	OA7-CA5-OA6-CA4
49	W	401	PLC	C4-C5-N-C6
49	W	401	PLC	C4-C5-N-C7
52	E	403	CDL	C31-CA7-OA8-CA6
52	W	402	CDL	C31-CA7-OA8-CA6
51	2	502	T7X	C1-O1-P1-O13
50	2	501	CPL	C20-C21-C22-C23
49	4	504	PLC	C1'-C'-O2-C2
52	W	402	CDL	C51-CB5-OB6-CB4
49	W	401	PLC	C2'-C3'-C4'-C5'
51	b	501	T7X	C32-C33-C34-C35
52	Z	201	CDL	C32-C33-C34-C35
48	2	503	3PE	C36-C37-C38-C39
48	4	502	3PE	C29-C2A-C2B-C2C
48	4	503	3PE	C33-C34-C35-C36
48	5	703	3PE	C26-C27-C28-C29
48	6	202	3PE	C37-C38-C39-C3A
48	E	402	3PE	C32-C33-C34-C35
49	1	404	PLC	C2B-C3B-C4B-C5B
52	n	201	CDL	C51-C52-C53-C54
56	R	201	ZMP	C3-C4-C5-C6
51	2	502	T7X	C9-C8-O16-C10
49	4	504	PLC	O'-C'-O2-C2
52	g	201	CDL	OA7-CA5-OA6-CA4
52	W	402	CDL	OB7-CB5-OB6-CB4
48	I	501	3PE	C38-C39-C3A-C3B
48	4	502	3PE	C26-C27-C28-C29
48	g	202	3PE	C2C-C2D-C2E-C2F
52	g	201	CDL	C72-C73-C74-C75
52	Z	201	CDL	C37-C38-C39-C40
54	J	202	LMN	CBA-CBC-CBE-CBG
54	J	202	LMN	CBJ-CBL-CBR-CCM

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Mol	Chain	Res	Type	Atoms
54	a	201	LMN	CBJ-CBL-CBR-CCM
48	4	502	3PE	C2D-C2E-C2F-C2G
48	5	701	3PE	C36-C37-C38-C39
50	2	501	CPL	C21-C22-C23-C24
52	X	201	CDL	C51-C52-C53-C54
52	Z	201	CDL	C56-C57-C58-C59
52	n	201	CDL	CB5-C51-C52-C53
48	5	703	3PE	O21-C2-C3-O31
48	1	402	3PE	C24-C25-C26-C27
48	6	202	3PE	C32-C33-C34-C35
49	i	1101	PLC	C3'-C4'-C5'-C6'
54	a	201	LMN	CCH-CCQ-OCB-CCS
48	2	503	3PE	C32-C33-C34-C35
49	1	404	PLC	C1B-C2B-C3B-C4B
52	g	201	CDL	C15-C16-C17-C18
52	n	201	CDL	C41-C42-C43-C44
48	E	402	3PE	C31-C32-C33-C34
48	I	501	3PE	C2D-C2E-C2F-C2G
48	6	202	3PE	C3E-C3F-C3G-C3H
49	i	1101	PLC	C1'-C2'-C3'-C4'
49	i	1101	PLC	C6'-C7'-C8'-C9'
49	i	1101	PLC	C4B-C5B-C6B-C7B
50	2	501	CPL	C32-C33-C34-C35
52	g	201	CDL	C51-C52-C53-C54
52	g	201	CDL	C74-C75-C76-C77
52	n	201	CDL	C14-C15-C16-C17
52	n	201	CDL	C54-C55-C56-C57
48	I	501	3PE	C3B-C3C-C3D-C3E
48	2	503	3PE	C3B-C3C-C3D-C3E
48	4	503	3PE	C36-C37-C38-C39
48	5	703	3PE	C23-C24-C25-C26
48	5	703	3PE	C29-C2A-C2B-C2C
48	6	201	3PE	C32-C33-C34-C35
51	2	502	T7X	C36-C37-C38-C39
48	6	201	3PE	C21-C22-C23-C24
49	i	1101	PLC	C'-C1'-C2'-C3'
48	I	501	3PE	C26-C27-C28-C29
48	2	503	3PE	C33-C34-C35-C36
48	4	501	3PE	C33-C34-C35-C36
48	5	701	3PE	C37-C38-C39-C3A
48	5	702	3PE	C26-C27-C28-C29
49	1	401	PLC	C2B-C3B-C4B-C5B

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Mol	Chain	Res	Type	Atoms
52	X	201	CDL	C14-C15-C16-C17
52	n	201	CDL	C59-C60-C61-C62
54	J	202	LMN	CBD-CBF-CBH-CBJ
48	I	501	3PE	C22-C23-C24-C25
48	1	403	3PE	C29-C2A-C2B-C2C
48	5	701	3PE	C32-C33-C34-C35
48	6	201	3PE	C28-C29-C2A-C2B
49	i	1101	PLC	C5B-C6B-C7B-C8B
51	2	502	T7X	C31-C32-C33-C34
51	2	502	T7X	C34-C35-C36-C37
51	3	201	T7X	C31-C32-C33-C34
52	g	201	CDL	C33-C34-C35-C36
48	4	503	3PE	C37-C38-C39-C3A
48	b	502	3PE	C33-C34-C35-C36
52	g	201	CDL	C22-C23-C24-C25
54	J	202	LMN	CBB-CBD-CBF-CBH
48	4	502	3PE	C21-C22-C23-C24
48	4	501	3PE	C3D-C3E-C3F-C3G
48	E	402	3PE	C37-C38-C39-C3A
49	i	1101	PLC	C5'-C6'-C7'-C8'
48	5	703	3PE	C37-C38-C39-C3A
48	b	502	3PE	C23-C24-C25-C26
56	O	201	ZMP	C2-C3-C4-C5
52	E	403	CDL	C33-C34-C35-C36
52	Z	201	CDL	CB3-CB4-CB6-OB8
52	Z	201	CDL	C14-C15-C16-C17
51	b	501	T7X	C11-C31-C32-C33
49	1	401	PLC	C1'-C2'-C3'-C4'
52	X	201	CDL	C11-C12-C13-C14
52	n	201	CDL	C33-C34-C35-C36
48	I	501	3PE	C28-C29-C2A-C2B
48	I	501	3PE	C2A-C2B-C2C-C2D
48	5	701	3PE	C35-C36-C37-C38
48	b	502	3PE	C25-C26-C27-C28
54	J	202	LMN	CAX-CAZ-CBB-CBD
54	a	201	LMN	CAY-CBA-CBC-CBE
52	E	403	CDL	OA9-CA7-OA8-CA6
52	W	402	CDL	OA9-CA7-OA8-CA6
51	3	201	T7X	C10-C12-C13-C14
54	J	202	LMN	C5-C4-O4-CCR
48	5	701	3PE	C33-C34-C35-C36
48	b	502	3PE	C2A-C2B-C2C-C2D

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Mol	Chain	Res	Type	Atoms
52	n	201	CDL	C34-C35-C36-C37
48	6	201	3PE	C35-C36-C37-C38
49	4	504	PLC	C3B-C4B-C5B-C6B
52	E	403	CDL	C72-C73-C74-C75
54	J	202	LMN	OBY-CCR-O4-C4
54	a	201	LMN	CCF-CCQ-OCB-CCS
54	a	201	LMN	OAL-CBP-CCF-CCQ
52	g	201	CDL	C42-C43-C44-C45
52	E	403	CDL	C59-C60-C61-C62
48	g	202	3PE	C21-C22-C23-C24
48	5	703	3PE	C38-C39-C3A-C3B
54	J	202	LMN	C3-C4-O4-CCR
54	J	202	LMN	CAY-CBA-CBC-CBE
48	5	703	3PE	C2B-C2C-C2D-C2E
49	1	401	PLC	C3'-C4'-C5'-C6'
48	2	503	3PE	C31-C32-C33-C34
52	g	201	CDL	CA7-C31-C32-C33
48	5	701	3PE	C28-C29-C2A-C2B
48	5	703	3PE	C3B-C3C-C3D-C3E
52	g	201	CDL	C14-C15-C16-C17
52	X	201	CDL	C57-C58-C59-C60
48	1	402	3PE	C23-C24-C25-C26
48	g	202	3PE	C29-C2A-C2B-C2C
49	i	1101	PLC	C7'-C8'-C9'-CA'
52	X	201	CDL	CA7-C31-C32-C33
52	Z	201	CDL	CA5-C11-C12-C13
50	2	501	CPL	C12-C11-O3-C3
48	I	501	3PE	C3C-C3D-C3E-C3F
52	E	403	CDL	C55-C56-C57-C58
49	4	504	PLC	C2B-C3B-C4B-C5B
52	n	201	CDL	C11-C12-C13-C14
52	n	201	CDL	C74-C75-C76-C77
50	2	501	CPL	C18-C19-C20-C21
48	5	703	3PE	C21-C22-C23-C24
56	O	201	ZMP	C13-C14-C15-N2
54	J	202	LMN	O1-CBS-CCM-CBT
48	I	501	3PE	C2E-C2F-C2G-C2H
48	5	701	3PE	C26-C27-C28-C29
48	6	202	3PE	C3C-C3D-C3E-C3F
51	3	201	T7X	C36-C37-C38-C39
52	X	201	CDL	C31-C32-C33-C34
49	i	1101	PLC	O3P-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
52	g	201	CDL	OA5-CA3-CA4-OA6
48	5	702	3PE	C32-C33-C34-C35
48	g	202	3PE	C2B-C2C-C2D-C2E
52	X	201	CDL	C56-C57-C58-C59
52	n	201	CDL	O1-C1-CA2-OA2
48	2	503	3PE	C22-C23-C24-C25
48	5	703	3PE	C34-C35-C36-C37
48	2	503	3PE	O21-C2-C3-O31
48	5	702	3PE	C27-C28-C29-C2A
52	E	403	CDL	C31-C32-C33-C34
52	n	201	CDL	C57-C58-C59-C60
48	5	703	3PE	C31-C32-C33-C34
49	i	1101	PLC	C4'-C5'-C6'-C7'
52	g	201	CDL	CA5-C11-C12-C13
48	b	502	3PE	C29-C2A-C2B-C2C
49	i	1101	PLC	C3B-C4B-C5B-C6B
48	4	503	3PE	C1-O11-P-O13
48	E	402	3PE	C11-O13-P-O11
52	W	402	CDL	CA3-OA5-PA1-OA2
52	X	201	CDL	CB2-OB2-PB2-OB5
53	E	401	NDP	O4D-C1D-N1N-C6N
52	X	201	CDL	C13-C14-C15-C16
52	n	201	CDL	C35-C36-C37-C38
46	B	503	NAI	C2D-C1D-N1N-C2N
48	6	202	3PE	C33-C34-C35-C36
48	b	502	3PE	C32-C31-O31-C3
48	5	703	3PE	O11-C1-C2-C3
52	Z	201	CDL	OA5-CA3-CA4-CA6
48	4	502	3PE	C23-C24-C25-C26
49	W	401	PLC	C6'-C7'-C8'-C9'
50	2	501	CPL	C44-C45-C46-C47
48	b	502	3PE	C2C-C2D-C2E-C2F
50	2	501	CPL	C12-C13-C14-C15
51	2	502	T7X	C12-C13-C14-C15
48	4	501	3PE	C3A-C3B-C3C-C3D
52	Z	201	CDL	C57-C58-C59-C60
54	J	202	LMN	OAJ-CBN-CCD-CCO
52	g	201	CDL	C19-C20-C21-C22
48	1	402	3PE	C35-C36-C37-C38
49	4	504	PLC	C1'-C2'-C3'-C4'
48	4	503	3PE	C1-C2-C3-O31
48	5	701	3PE	C1-C2-C3-O31

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Mol	Chain	Res	Type	Atoms
48	5	702	3PE	C1-C2-C3-O31
48	5	703	3PE	C1-C2-C3-O31
48	6	201	3PE	C1-C2-C3-O31
48	g	202	3PE	C1-C2-C3-O31
48	E	402	3PE	C1-C2-C3-O31
48	b	502	3PE	C27-C28-C29-C2A
49	1	404	PLC	C1-C2-C3-O3
49	4	504	PLC	C1-C2-C3-O3
52	E	403	CDL	CA3-CA4-CA6-OA8
52	E	403	CDL	CB3-CB4-CB6-OB8
52	W	402	CDL	CA3-CA4-CA6-OA8
52	W	402	CDL	CB3-CB4-CB6-OB8
52	X	201	CDL	CA3-CA4-CA6-OA8
48	I	501	3PE	C32-C31-O31-C3
48	I	501	3PE	C3A-C3B-C3C-C3D
48	6	201	3PE	C26-C27-C28-C29
49	1	404	PLC	C4'-C5'-C6'-C7'
48	4	501	3PE	C21-C22-C23-C24
52	g	201	CDL	CB7-C71-C72-C73
48	4	503	3PE	C26-C27-C28-C29
50	2	501	CPL	O11-C11-O3-C3
48	4	502	3PE	C24-C25-C26-C27
52	g	201	CDL	C72-C71-CB7-OB8
52	g	201	CDL	C31-C32-C33-C34
53	E	401	NDP	O4B-C4B-C5B-O5B
48	1	402	3PE	C34-C35-C36-C37
48	2	503	3PE	C27-C28-C29-C2A
48	4	501	3PE	C26-C27-C28-C29
52	Z	201	CDL	C13-C14-C15-C16
48	g	202	3PE	C27-C28-C29-C2A
49	1	404	PLC	C1'-C2'-C3'-C4'
52	E	403	CDL	C38-C39-C40-C41
48	1	402	3PE	C28-C29-C2A-C2B
52	Z	201	CDL	C33-C34-C35-C36
52	E	403	CDL	C71-CB7-OB8-CB6
48	2	503	3PE	O11-C1-C2-O21
52	n	201	CDL	OA5-CA3-CA4-OA6
48	6	201	3PE	O21-C21-C22-C23
51	2	502	T7X	C32-C33-C34-C35
54	J	202	LMN	CCH-CCQ-OCB-CCS
48	b	502	3PE	O32-C31-O31-C3
48	4	503	3PE	C2F-C2G-C2H-C2I

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Mol	Chain	Res	Type	Atoms
48	b	502	3PE	C37-C38-C39-C3A
52	X	201	CDL	CB5-C51-C52-C53
48	4	503	3PE	C39-C3A-C3B-C3C
51	3	201	T7X	C32-C33-C34-C35
48	4	503	3PE	O21-C2-C3-O31
48	6	201	3PE	O21-C2-C3-O31
52	X	201	CDL	C35-C36-C37-C38
52	X	201	CDL	C32-C33-C34-C35
48	I	501	3PE	C39-C3A-C3B-C3C
48	4	501	3PE	C36-C37-C38-C39
48	4	501	3PE	C3B-C3C-C3D-C3E
48	5	703	3PE	C35-C36-C37-C38
48	6	202	3PE	C36-C37-C38-C39
48	6	202	3PE	C3B-C3C-C3D-C3E
56	O	201	ZMP	C1-C2-C3-C4
52	Z	201	CDL	CA2-C1-CB2-OB2
52	n	201	CDL	CB2-C1-CA2-OA2
48	g	202	3PE	C2F-C2G-C2H-C2I
52	W	402	CDL	C54-C55-C56-C57
52	Z	201	CDL	C19-C20-C21-C22
48	b	502	3PE	C38-C39-C3A-C3B
54	a	201	LMN	O5-C5-C6-O6
56	R	201	ZMP	C5-C6-C7-C8
48	5	702	3PE	O11-C1-C2-C3
50	2	501	CPL	O3P-C1-C2-C3
52	g	201	CDL	OA5-CA3-CA4-CA6
52	n	201	CDL	OA5-CA3-CA4-CA6
49	W	401	PLC	C'-C1'-C2'-C3'
48	2	503	3PE	O13-C11-C12-N
48	b	502	3PE	O13-C11-C12-N
48	g	202	3PE	C25-C26-C27-C28
52	W	402	CDL	C12-C13-C14-C15
52	g	201	CDL	O1-C1-CB2-OB2
48	I	501	3PE	O32-C31-O31-C3
48	4	501	3PE	C32-C33-C34-C35
52	n	201	CDL	C72-C73-C74-C75
54	J	202	LMN	CCF-CCQ-OCB-CCS
52	n	201	CDL	CA5-C11-C12-C13
49	i	1101	PLC	C1B-C2B-C3B-C4B
52	E	403	CDL	C16-C17-C18-C19
52	E	403	CDL	C57-C58-C59-C60
48	1	403	3PE	C34-C35-C36-C37

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Mol	Chain	Res	Type	Atoms
52	g	201	CDL	C37-C38-C39-C40
52	X	201	CDL	C60-C61-C62-C63
48	5	702	3PE	C33-C34-C35-C36
48	2	503	3PE	C1-C2-C3-O31
48	6	202	3PE	C1-C2-C3-O31
48	6	202	3PE	C24-C25-C26-C27
48	E	402	3PE	C33-C34-C35-C36
51	2	502	T7X	C1-O1-P1-O11
48	1	402	3PE	C21-C22-C23-C24
49	K	302	PLC	C2B-C3B-C4B-C5B
48	b	502	3PE	C32-C33-C34-C35
52	n	201	CDL	C37-C38-C39-C40
54	J	202	LMN	CAA-CAW-CAY-CBA
48	J	201	3PE	C11-O13-P-O11
51	3	201	T7X	C15-C16-C17-C18
51	b	501	T7X	C16-C17-C18-C19
51	b	501	T7X	C22-C23-C24-C25
48	5	702	3PE	C38-C39-C3A-C3B
48	5	703	3PE	C2A-C2B-C2C-C2D
49	4	504	PLC	C2'-C3'-C4'-C5'
54	a	201	LMN	C4-C5-C6-O6
48	5	703	3PE	C24-C25-C26-C27
48	4	502	3PE	O11-C1-C2-O21
48	5	703	3PE	O11-C1-C2-O21
49	4	504	PLC	O3P-C1-C2-O2
52	X	201	CDL	OA5-CA3-CA4-OA6
52	Z	201	CDL	OB5-CB3-CB4-OB6
48	b	502	3PE	C35-C36-C37-C38
49	W	401	PLC	C8B-C9B-CAA-CBA
52	E	403	CDL	OB9-CB7-OB8-CB6
48	I	501	3PE	C2F-C2G-C2H-C2I
48	1	402	3PE	C25-C26-C27-C28
52	X	201	CDL	C53-C54-C55-C56
51	b	501	T7X	C34-C35-C36-C37
52	n	201	CDL	C22-C23-C24-C25
48	1	402	3PE	O21-C2-C3-O31
48	6	202	3PE	O21-C2-C3-O31
48	g	202	3PE	O21-C2-C3-O31
48	5	702	3PE	C32-C31-O31-C3
48	I	501	3PE	C32-C33-C34-C35
52	n	201	CDL	C16-C17-C18-C19
49	W	401	PLC	C1B-C2B-C3B-C4B

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Mol	Chain	Res	Type	Atoms
45	B	502	FMN	C4'-C5'-O5'-P
48	1	402	3PE	C2-C1-O11-P
48	1	403	3PE	C2B-C2C-C2D-C2E
48	6	201	3PE	C25-C26-C27-C28
54	a	201	LMN	OAL-CBP-CCF-OBX
48	J	201	3PE	C22-C23-C24-C25
49	1	404	PLC	C5B-C6B-C7B-C8B
50	2	501	CPL	C33-C34-C35-C36
48	b	502	3PE	C2D-C2E-C2F-C2G
48	2	503	3PE	O11-C1-C2-C3
48	6	201	3PE	O11-C1-C2-C3
48	g	202	3PE	O11-C1-C2-C3
52	Z	201	CDL	OB5-CB3-CB4-CB6
48	J	201	3PE	C24-C25-C26-C27
48	4	502	3PE	C28-C29-C2A-C2B
53	E	401	NDP	C2B-O2B-P2B-O1X
49	W	401	PLC	O2-C'-C1'-C2'
48	5	702	3PE	C2C-C2D-C2E-C2F
49	1	404	PLC	C2'-C3'-C4'-C5'
48	J	201	3PE	C39-C3A-C3B-C3C
52	n	201	CDL	C42-C43-C44-C45
51	b	501	T7X	C7-C8-O16-C10
52	X	201	CDL	CA6-CA4-OA6-CA5
52	g	201	CDL	C38-C39-C40-C41
48	I	501	3PE	C1-C2-C3-O31
48	1	402	3PE	C1-C2-C3-O31
51	3	201	T7X	C7-C8-C9-O18
52	g	201	CDL	C1-CB2-OB2-PB2
48	5	702	3PE	O32-C31-O31-C3
48	5	702	3PE	O11-C1-C2-O21
48	6	201	3PE	O11-C1-C2-O21
50	2	501	CPL	O3P-C1-C2-O2
51	2	502	T7X	O13-C7-C8-O16
52	Z	201	CDL	OA5-CA3-CA4-OA6
52	E	403	CDL	C56-C57-C58-C59
52	X	201	CDL	C71-CB7-OB8-CB6
48	5	701	3PE	C38-C39-C3A-C3B
52	W	402	CDL	C51-C52-C53-C54
52	E	403	CDL	CA2-C1-CB2-OB2
48	I	501	3PE	C3D-C3E-C3F-C3G
48	5	701	3PE	O21-C2-C3-O31
48	5	702	3PE	O21-C2-C3-O31

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Mol	Chain	Res	Type	Atoms
48	E	402	3PE	O21-C2-C3-O31
49	4	504	PLC	O2-C2-C3-O3
52	E	403	CDL	OA6-CA4-CA6-OA8
52	W	402	CDL	OA6-CA4-CA6-OA8
52	Z	201	CDL	OA6-CA4-CA6-OA8
49	W	401	PLC	C5B-C6B-C7B-C8B
54	J	202	LMN	OBV-CBT-CCM-CBQ
48	1	403	3PE	C38-C39-C3A-C3B
48	5	702	3PE	C34-C35-C36-C37
48	6	202	3PE	C39-C3A-C3B-C3C
48	4	502	3PE	C25-C26-C27-C28
54	J	202	LMN	OBV-CBT-CCM-CBS
52	n	201	CDL	C43-C44-C45-C46
46	B	503	NAI	PN-O3-PA-O2A
48	4	503	3PE	O31-C31-C32-C33
51	2	502	T7X	C11-C31-C32-C33
52	n	201	CDL	C64-C65-C66-C67
48	4	502	3PE	C36-C37-C38-C39
48	6	201	3PE	C11-O13-P-O11
51	2	502	T7X	C7-O13-P1-O1
51	3	201	T7X	C7-O13-P1-O1
52	Z	201	CDL	CB3-OB5-PB2-OB2
52	X	201	CDL	CA4-CA3-OA5-PA1
52	X	201	CDL	OB9-CB7-OB8-CB6
48	1	403	3PE	C1-O11-P-O12
48	4	503	3PE	C1-O11-P-O12
48	g	202	3PE	C1-O11-P-O12
48	g	202	3PE	C1-O11-P-O14
48	g	202	3PE	C11-O13-P-O14
48	J	201	3PE	C1-O11-P-O12
48	J	201	3PE	C1-O11-P-O14
48	J	201	3PE	C11-O13-P-O14
49	1	401	PLC	C1-O3P-P-O2P
49	1	404	PLC	C1-O3P-P-O1P
49	1	404	PLC	C4-O4P-P-O2P
49	W	401	PLC	C4-O4P-P-O1P
49	i	1101	PLC	C1-O3P-P-O1P
51	b	501	T7X	C7-O13-P1-O11
52	E	403	CDL	CA2-OA2-PA1-OA3
52	W	402	CDL	CB3-OB5-PB2-OB3
52	W	402	CDL	CB3-OB5-PB2-OB4
52	X	201	CDL	CA2-OA2-PA1-OA4

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Mol	Chain	Res	Type	Atoms
52	X	201	CDL	CB2-OB2-PB2-OB4
52	Z	201	CDL	CA3-OA5-PA1-OA4
52	Z	201	CDL	CB3-OB5-PB2-OB3
52	n	201	CDL	CA2-OA2-PA1-OA4
52	n	201	CDL	CB2-OB2-PB2-OB4
49	4	504	PLC	O3P-C1-C2-C3
49	i	1101	PLC	O3P-C1-C2-C3
52	E	403	CDL	OA5-CA3-CA4-CA6
48	1	403	3PE	C24-C25-C26-C27
48	E	402	3PE	C21-C22-C23-C24
52	E	403	CDL	C36-C37-C38-C39
48	I	501	3PE	C36-C37-C38-C39
48	2	503	3PE	C35-C36-C37-C38
52	Z	201	CDL	C59-C60-C61-C62
47	C	601	UQ9	C5-C4-O4-C4M
49	4	504	PLC	C5-C4-O4P-P
49	W	401	PLC	C7B-C8B-C9B-CAA
52	W	402	CDL	CA7-C31-C32-C33
51	2	502	T7X	C33-C34-C35-C36
48	g	202	3PE	O11-C1-C2-O21
49	i	1101	PLC	CB-C1B-C2B-C3B
52	E	403	CDL	OA5-CA3-CA4-OA6
52	W	402	CDL	OA5-CA3-CA4-OA6
52	g	201	CDL	C76-C77-C78-C79
52	Z	201	CDL	C31-C32-C33-C34
52	n	201	CDL	C20-C21-C22-C23
46	B	503	NAI	O4D-C1D-N1N-C2N
48	1	403	3PE	C36-C37-C38-C39
52	n	201	CDL	C39-C40-C41-C42
46	B	503	NAI	C2D-C1D-N1N-C6N
48	6	202	3PE	O21-C21-C22-C23
48	4	502	3PE	C1-C2-C3-O31
48	6	201	3PE	C27-C28-C29-C2A
49	K	302	PLC	O4P-C4-C5-N
49	i	1101	PLC	O4P-C4-C5-N
52	Z	201	CDL	CA3-CA4-CA6-OA8
48	4	502	3PE	O21-C2-C3-O31
49	1	401	PLC	O2-C2-C3-O3
51	b	501	T7X	O16-C8-C9-O18
52	E	403	CDL	OB6-CB4-CB6-OB8
52	X	201	CDL	OA6-CA4-CA6-OA8
52	Z	201	CDL	OB6-CB4-CB6-OB8

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Mol	Chain	Res	Type	Atoms
52	n	201	CDL	C76-C77-C78-C79
54	J	202	LMN	CBF-CBH-CBJ-CBL
56	O	201	ZMP	O3-C16-C17-O4
49	i	1101	PLC	C8'-C9'-CA'-CB'
52	Z	201	CDL	C11-C12-C13-C14
48	2	503	3PE	C37-C38-C39-C3A
49	1	401	PLC	C3B-C4B-C5B-C6B
48	4	502	3PE	C22-C23-C24-C25
48	4	503	3PE	C3E-C3F-C3G-C3H
49	W	401	PLC	C3'-C4'-C5'-C6'
48	E	402	3PE	C38-C39-C3A-C3B
48	1	403	3PE	C3-C2-O21-C21
48	4	502	3PE	O11-C1-C2-C3
51	2	502	T7X	O13-C7-C8-C9
48	4	503	3PE	C3D-C3E-C3F-C3G
48	1	403	3PE	C22-C23-C24-C25
51	b	501	T7X	C33-C34-C35-C36
52	W	402	CDL	C1-CA2-OA2-PA1
52	Z	201	CDL	CA4-CA3-OA5-PA1
48	g	202	3PE	C26-C27-C28-C29
48	4	502	3PE	C34-C35-C36-C37
49	4	504	PLC	C4-C5-N-C7
52	g	201	CDL	CB5-C51-C52-C53
48	I	501	3PE	O21-C2-C3-O31
49	1	404	PLC	O2-C2-C3-O3
52	W	402	CDL	OB6-CB4-CB6-OB8
48	5	702	3PE	C11-O13-P-O11
48	6	202	3PE	C11-O13-P-O11
49	4	504	PLC	C1-O3P-P-O4P
49	W	401	PLC	C1-O3P-P-O4P
51	b	501	T7X	C7-O13-P1-O1
52	g	201	CDL	CB2-OB2-PB2-OB5
49	W	401	PLC	C6B-C7B-C8B-C9B
52	g	201	CDL	C13-C14-C15-C16
52	g	201	CDL	C41-C42-C43-C44
52	X	201	CDL	C64-C65-C66-C67
49	1	401	PLC	C1-C2-C3-O3
48	5	702	3PE	C35-C36-C37-C38
48	5	702	3PE	C2A-C2B-C2C-C2D
52	n	201	CDL	C1-CB2-OB2-PB2
52	g	201	CDL	C32-C33-C34-C35
54	J	202	LMN	CAW-CAY-CBA-CBC

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Mol	Chain	Res	Type	Atoms
48	5	702	3PE	C22-C23-C24-C25
54	J	202	LMN	CAZ-CBB-CBD-CBF
52	X	201	CDL	OA5-CA3-CA4-CA6
48	6	202	3PE	O13-C11-C12-N
49	1	401	PLC	O3P-C1-C2-O2
48	4	501	3PE	C39-C3A-C3B-C3C
48	4	502	3PE	C37-C38-C39-C3A
48	1	402	3PE	C36-C37-C38-C39
54	a	201	LMN	CBC-CBE-CBG-CBI
48	J	201	3PE	C26-C27-C28-C29
56	O	201	ZMP	C11-C12-N1-C13
52	E	403	CDL	C53-C54-C55-C56
48	g	202	3PE	C36-C37-C38-C39
52	W	402	CDL	C32-C31-CA7-OA8
56	O	201	ZMP	O2-C13-C14-C15
52	W	402	CDL	CA6-CA4-OA6-CA5
52	g	201	CDL	C72-C71-CB7-OB9
50	2	501	CPL	C45-C46-C47-C48
52	n	201	CDL	C19-C20-C21-C22
56	R	201	ZMP	C1-C2-C3-C4
50	2	501	CPL	C39-C40-C41-C42
50	2	501	CPL	C40-C41-C42-C43
51	b	501	T7X	C15-C16-C17-C18
49	4	504	PLC	C2-C1-O3P-P
52	W	402	CDL	OA5-CA3-CA4-CA6
54	a	201	LMN	CBA-CBC-CBE-CBG
54	a	201	LMN	CAW-CAY-CBA-CBC
52	W	402	CDL	C32-C33-C34-C35
48	5	701	3PE	C25-C26-C27-C28
49	K	302	PLC	CB-C1B-C2B-C3B
52	g	201	CDL	CA2-C1-CB2-OB2
48	b	502	3PE	C34-C35-C36-C37
52	X	201	CDL	C12-C13-C14-C15
48	6	201	3PE	O22-C21-C22-C23
48	E	402	3PE	C39-C3A-C3B-C3C
48	4	502	3PE	C2C-C2D-C2E-C2F
52	E	403	CDL	C51-C52-C53-C54
52	g	201	CDL	C44-C45-C46-C47
48	I	501	3PE	C35-C36-C37-C38
48	J	201	3PE	O31-C31-C32-C33
52	n	201	CDL	C58-C59-C60-C61
48	b	502	3PE	C26-C27-C28-C29

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Mol	Chain	Res	Type	Atoms
51	2	502	T7X	C13-C14-C15-C16
48	J	201	3PE	C23-C24-C25-C26
48	2	503	3PE	O21-C21-C22-C23
48	I	501	3PE	C24-C25-C26-C27
48	6	202	3PE	C3F-C3G-C3H-C3I
54	a	201	LMN	CBG-CBI-CBK-CBQ
48	5	703	3PE	C2C-C2D-C2E-C2F
50	2	501	CPL	C4-O4P-P-O3P
49	4	504	PLC	C4-C5-N-C8
56	O	201	ZMP	N1-C13-C14-C15
52	n	201	CDL	C56-C57-C58-C59
48	4	503	3PE	C2C-C2D-C2E-C2F
48	J	201	3PE	O21-C21-C22-C23
48	b	502	3PE	O21-C21-C22-C23
50	2	501	CPL	O31-C31-O2-C2
48	4	501	3PE	C22-C23-C24-C25
48	6	201	3PE	C24-C25-C26-C27
52	X	201	CDL	C72-C71-CB7-OB8
49	4	504	PLC	C4B-C5B-C6B-C7B
52	n	201	CDL	C31-C32-C33-C34
51	b	501	T7X	O16-C10-C12-C13
52	g	201	CDL	C32-C31-CA7-OA8
51	b	501	T7X	C13-C14-C15-C16
48	b	502	3PE	O11-C1-C2-O21
52	E	403	CDL	OB5-CB3-CB4-OB6
48	5	703	3PE	C39-C3A-C3B-C3C
50	2	501	CPL	C22-C23-C24-C25
50	2	501	CPL	C42-C43-C44-C45
52	W	402	CDL	CB7-C71-C72-C73
56	R	201	ZMP	C16-C17-C18-C20
48	2	503	3PE	O31-C31-C32-C33
52	X	201	CDL	C40-C41-C42-C43
46	B	503	NAI	O4D-C1D-N1N-C6N
48	4	503	3PE	O21-C21-C22-C23
48	4	501	3PE	C3C-C3D-C3E-C3F
52	Z	201	CDL	C73-C74-C75-C76
52	W	402	CDL	C72-C71-CB7-OB8
48	1	403	3PE	C26-C27-C28-C29
52	n	201	CDL	C44-C45-C46-C47
51	b	501	T7X	C31-C32-C33-C34
48	1	403	3PE	O31-C31-C32-C33
48	6	201	3PE	O31-C31-C32-C33

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Mol	Chain	Res	Type	Atoms
52	X	201	CDL	C62-C63-C64-C65
48	5	701	3PE	C2A-C2B-C2C-C2D
51	b	501	T7X	O17-C10-C12-C13
48	4	501	3PE	C24-C25-C26-C27
48	2	503	3PE	O32-C31-C32-C33
48	J	201	3PE	O22-C21-C22-C23
48	2	503	3PE	O22-C21-C22-C23
48	4	503	3PE	O22-C21-C22-C23
52	g	201	CDL	C32-C31-CA7-OA9
52	X	201	CDL	C72-C71-CB7-OB9
49	4	504	PLC	C1-O3P-P-O1P
52	W	402	CDL	CA2-OA2-PA1-OA3
52	n	201	CDL	CA2-OA2-PA1-OA3
56	R	201	ZMP	C6-C7-C8-C9
48	4	503	3PE	O13-C11-C12-N
48	b	502	3PE	O22-C21-C22-C23
48	5	701	3PE	O21-C21-C22-C23
48	4	503	3PE	C38-C39-C3A-C3B
52	n	201	CDL	C32-C33-C34-C35
49	1	404	PLC	C2B-C1B-CB-O3
48	4	501	3PE	C34-C35-C36-C37
52	E	403	CDL	C71-C72-C73-C74
49	W	401	PLC	O'-C'-C1'-C2'
52	X	201	CDL	C38-C39-C40-C41
48	b	502	3PE	C12-C11-O13-P
52	W	402	CDL	CA3-CA4-OA6-CA5
54	J	202	LMN	CCV-CCR-O4-C4
52	W	402	CDL	C31-C32-C33-C34
49	4	504	PLC	C4-C5-N-C6
48	6	202	3PE	O31-C31-C32-C33
52	n	201	CDL	C12-C11-CA5-OA6
49	1	404	PLC	O2-C'-C1'-C2'
51	2	502	T7X	O18-C11-C31-C32
52	n	201	CDL	C61-C62-C63-C64
48	I	501	3PE	O31-C31-C32-C33
52	E	403	CDL	C72-C71-CB7-OB8
48	6	201	3PE	O32-C31-C32-C33
48	6	202	3PE	O32-C31-C32-C33
45	B	502	FMN	C2'-C1'-N10-C10
48	6	202	3PE	C3A-C3B-C3C-C3D
52	X	201	CDL	C61-C62-C63-C64
48	I	501	3PE	O32-C31-C32-C33

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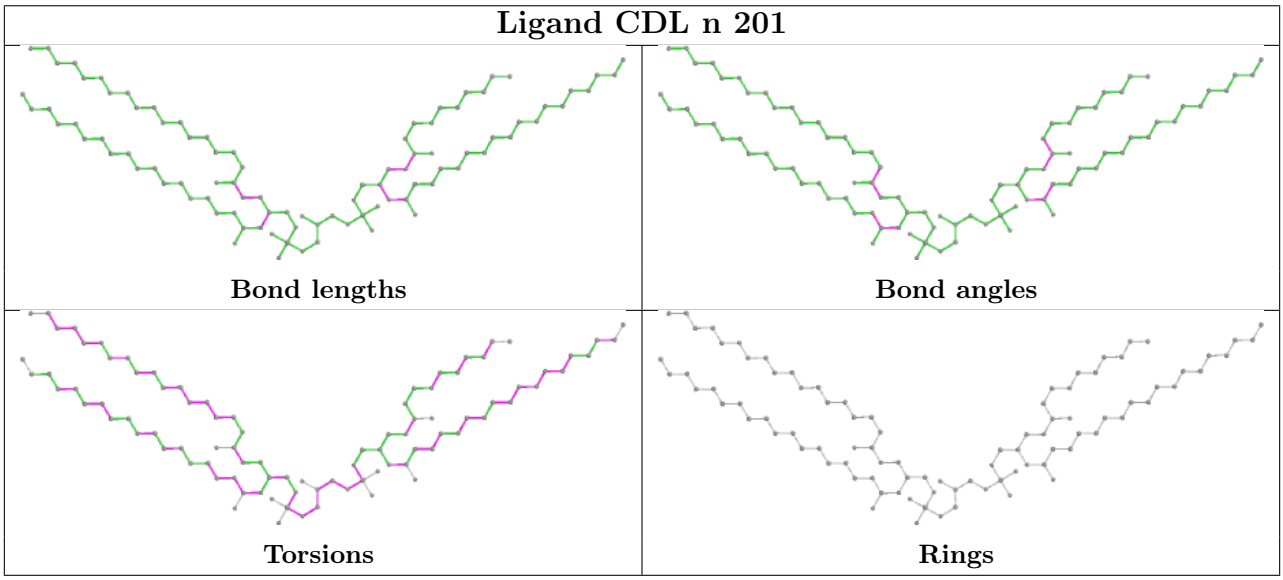
Mol	Chain	Res	Type	Atoms
52	W	402	CDL	C72-C71-CB7-OB9
52	n	201	CDL	C12-C11-CA5-OA7
49	W	401	PLC	C4'-C5'-C6'-C7'
52	n	201	CDL	O1-C1-CB2-OB2
48	1	403	3PE	O32-C31-C32-C33
49	1	404	PLC	O'-C'-C1'-C2'
48	5	702	3PE	C24-C25-C26-C27

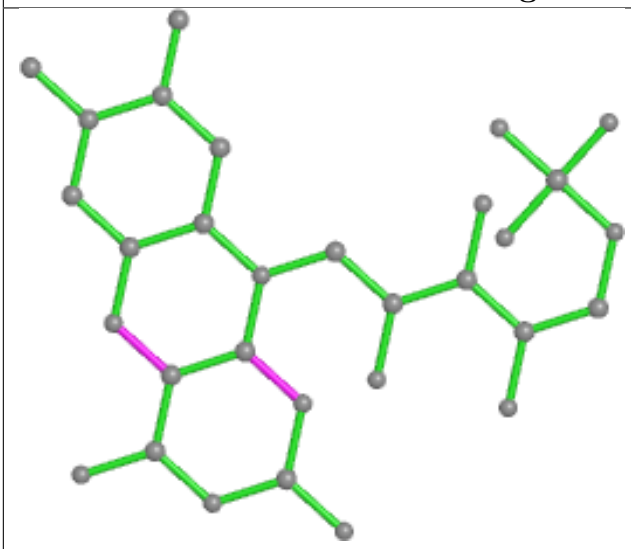
There are no ring outliers.

No monomer is involved in short contacts.

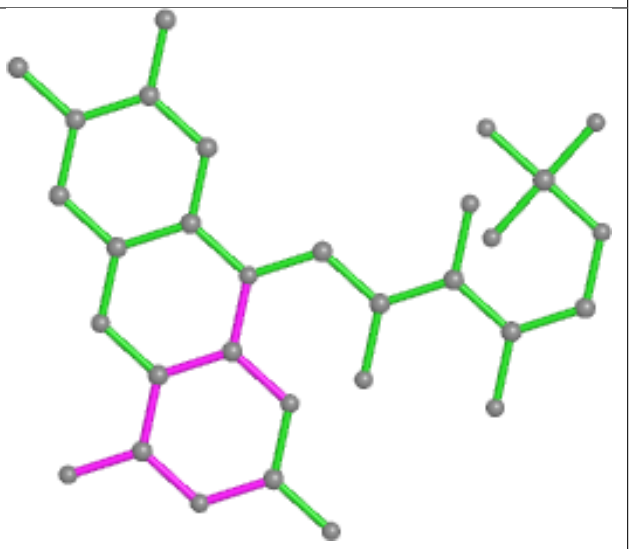
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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



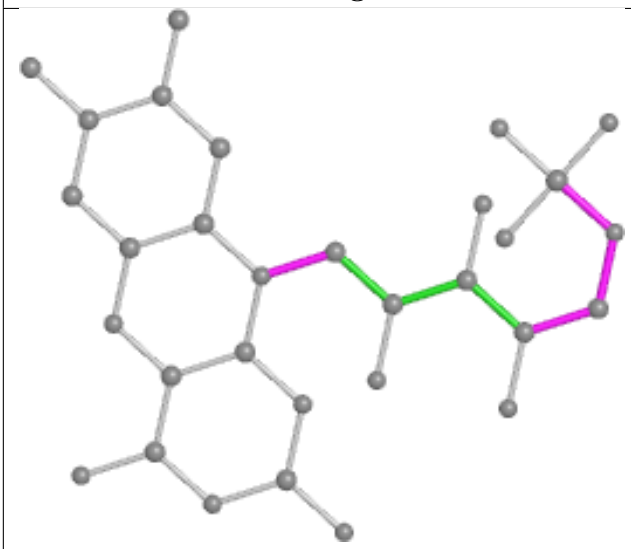
Ligand FMN B 502



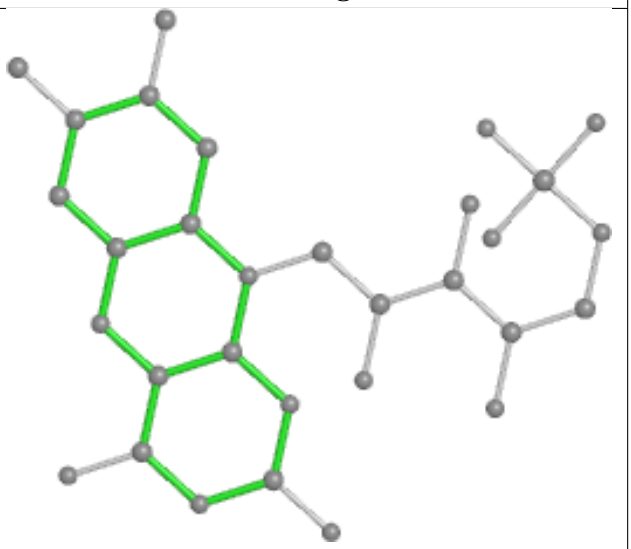
Bond lengths



Bond angles

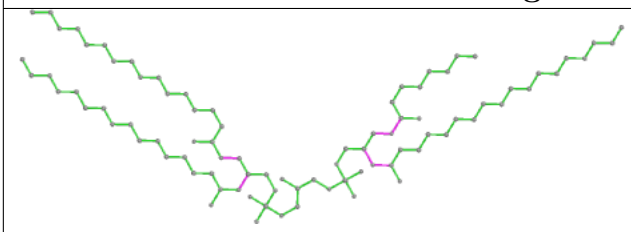


Torsions

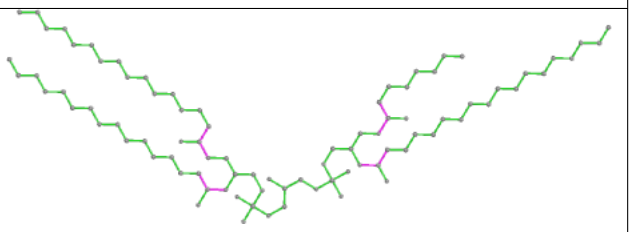


Rings

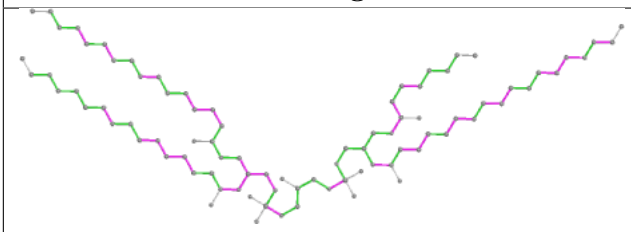
Ligand CDL X 201



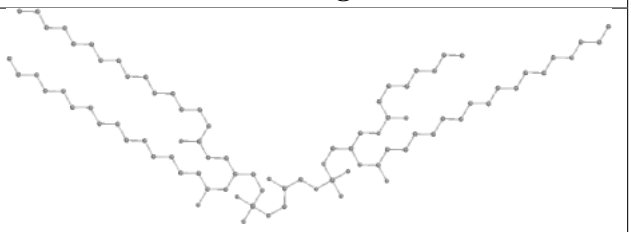
Bond lengths



Bond angles

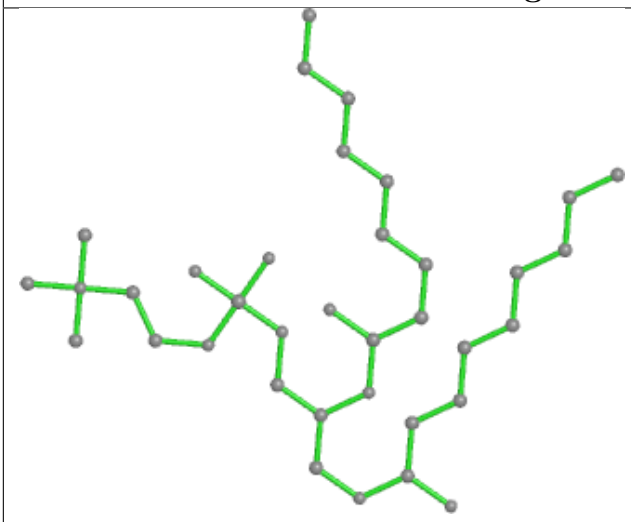


Torsions

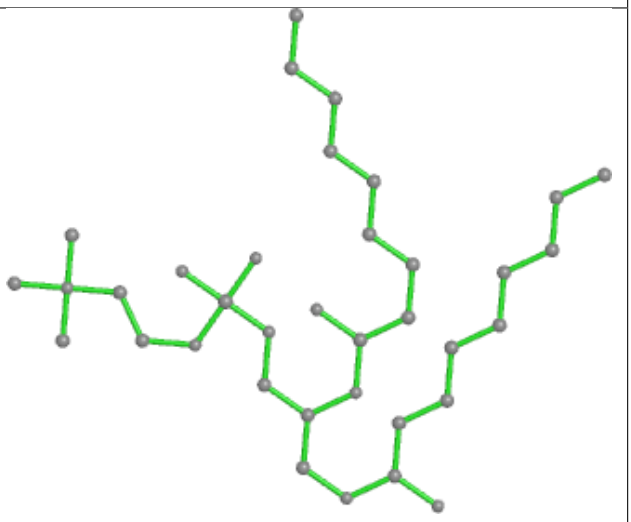


Rings

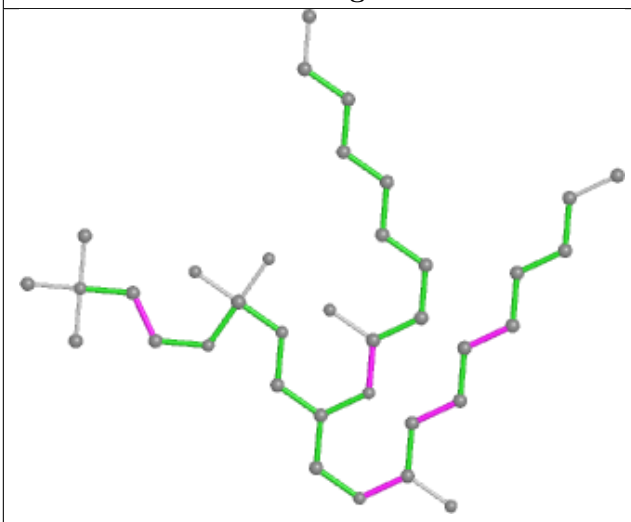
Ligand PLC K 302



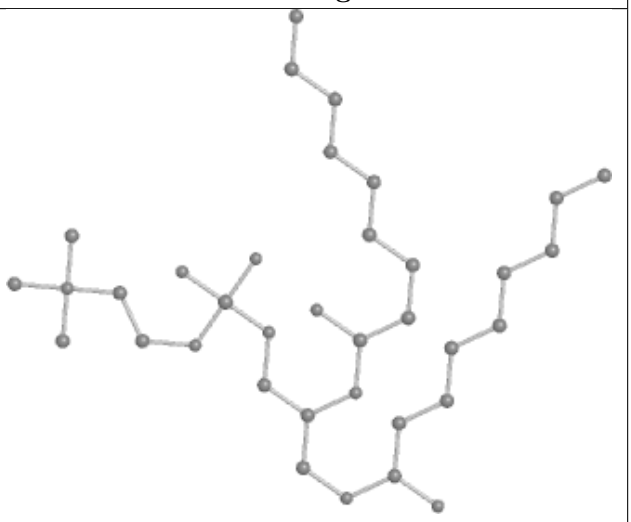
Bond lengths



Bond angles

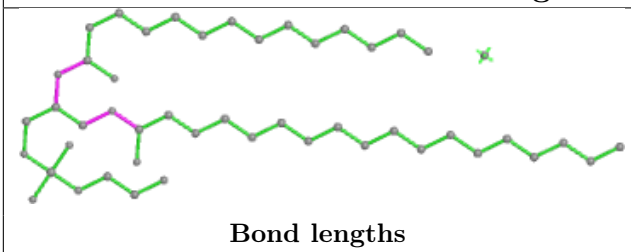


Torsions

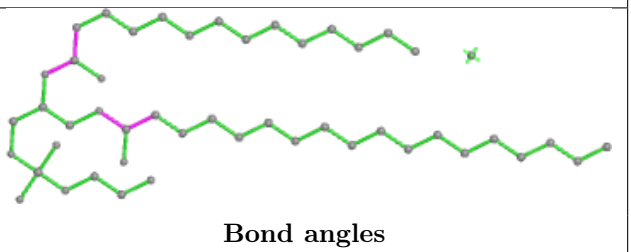


Rings

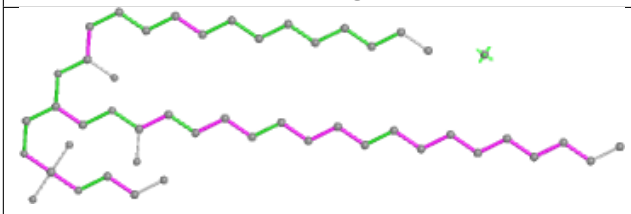
Ligand 3PE 6 202



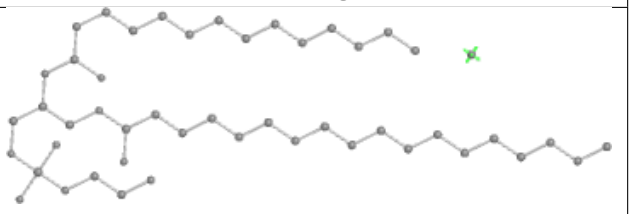
Bond lengths



Bond angles

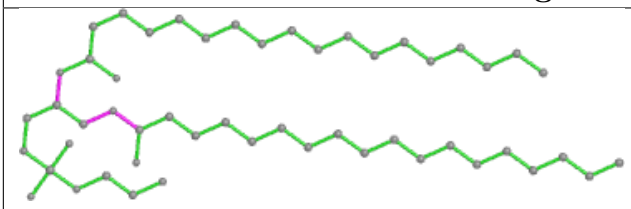


Torsions



Rings

Ligand 3PE I 501



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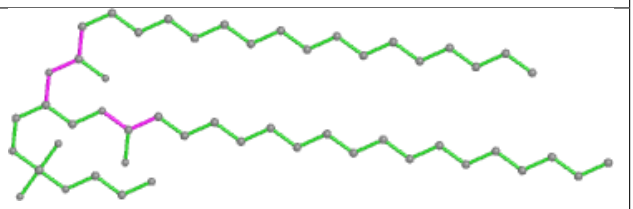
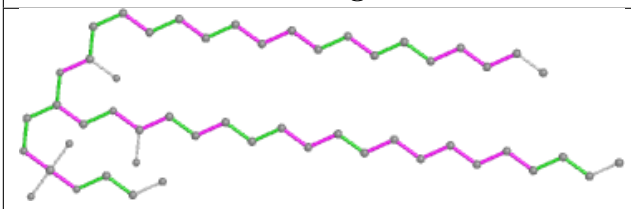


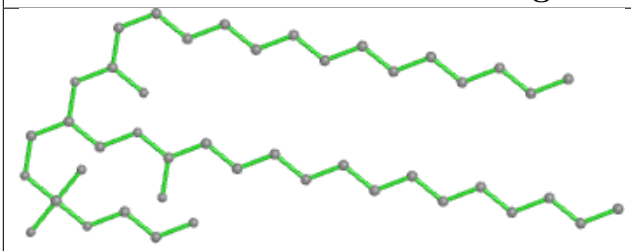
Bond angles



Torsions

Rings

Ligand 3PE 5 703



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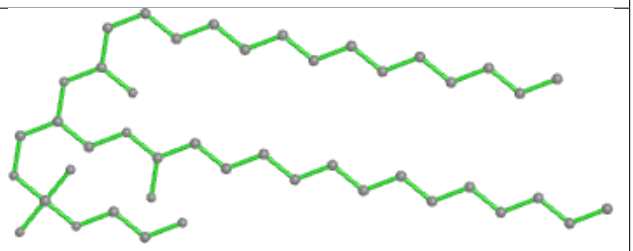
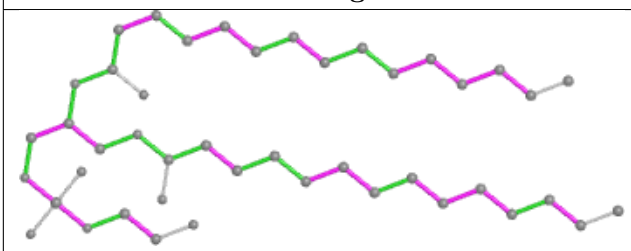


Bond angles



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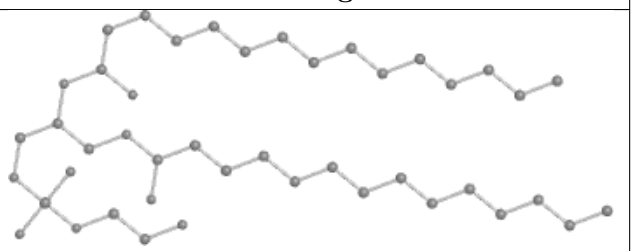
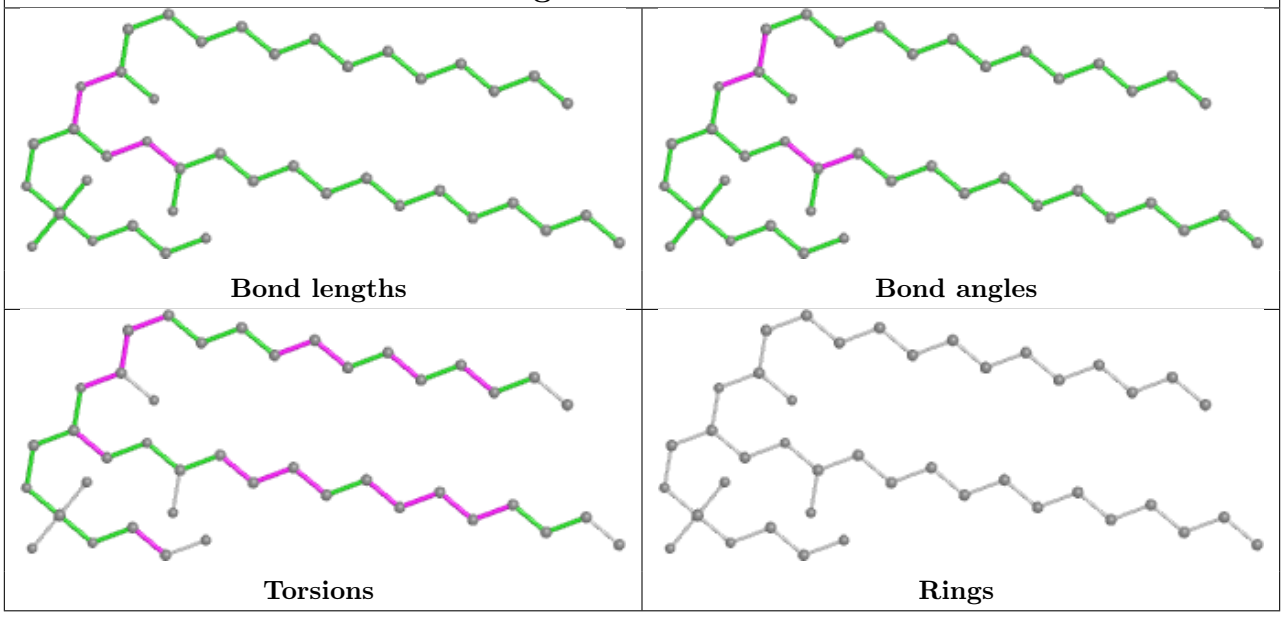
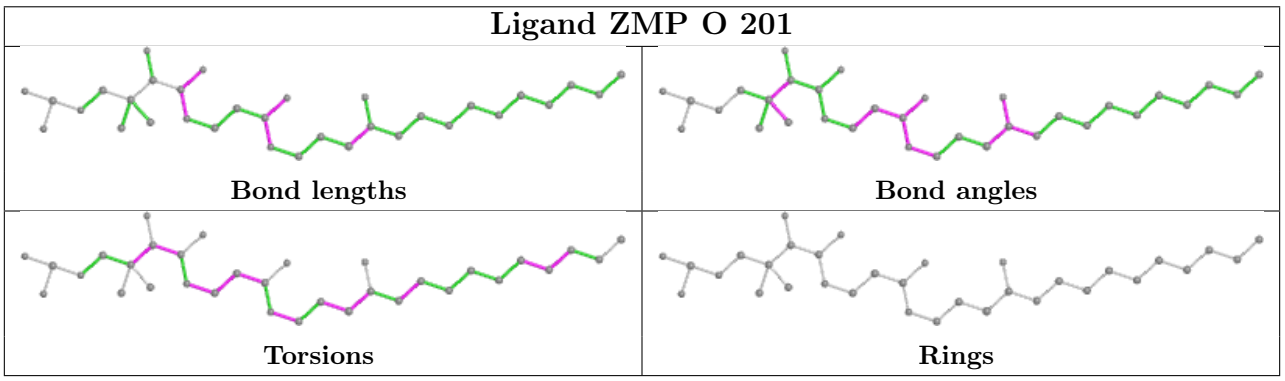


Rings

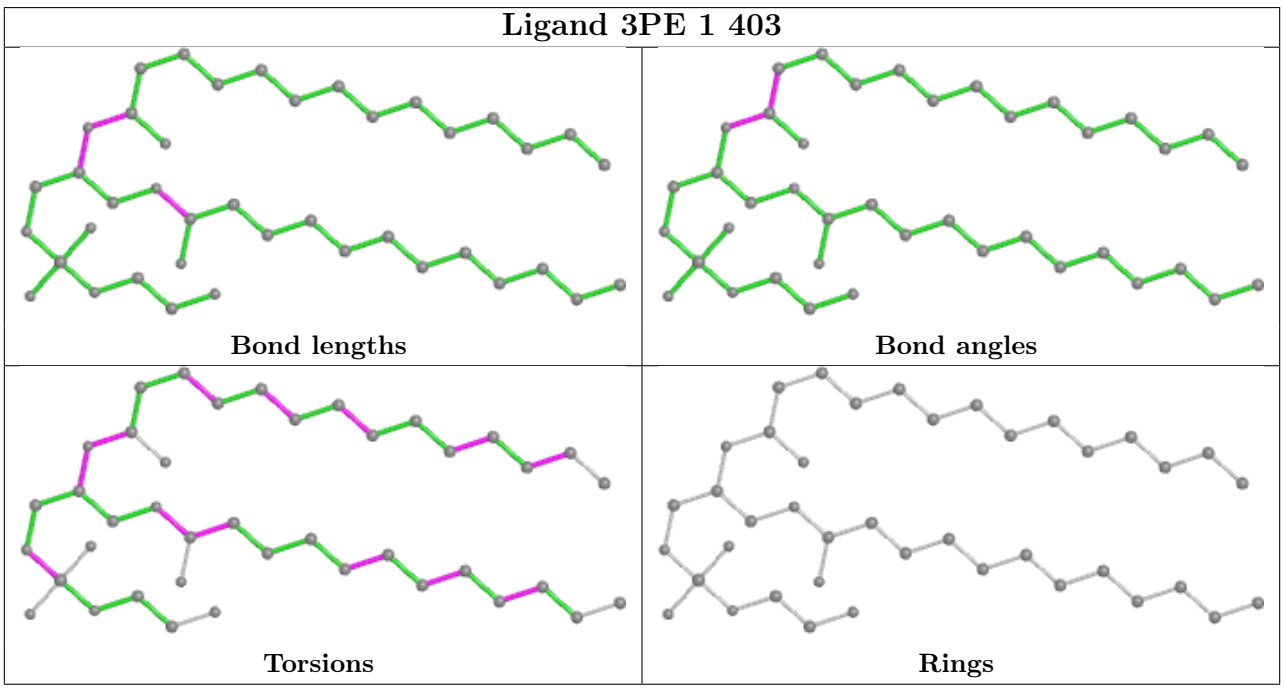
Ligand 3PE 5 701



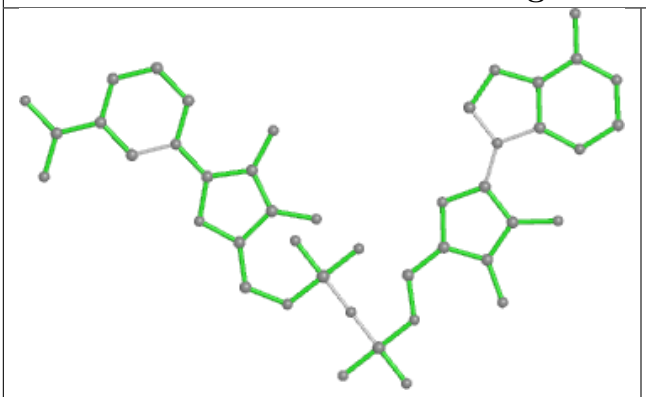
Ligand ZMP O 201



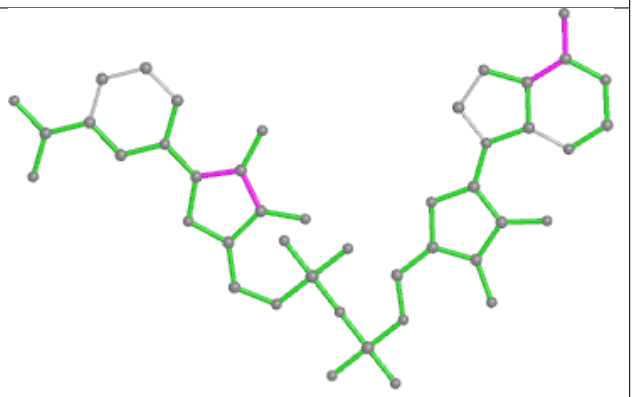
Ligand 3PE 1 403



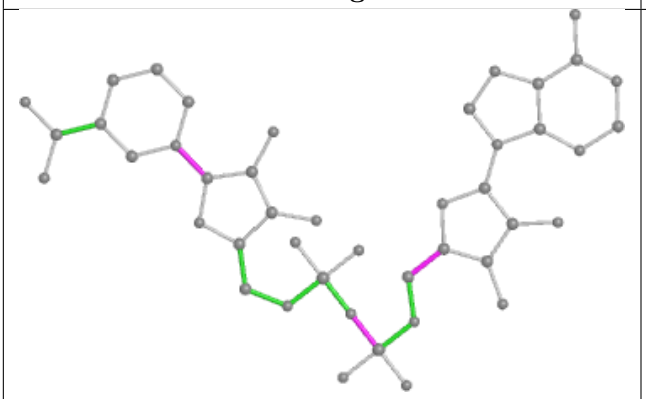
Ligand NAI B 503



Bond lengths



Bond angles



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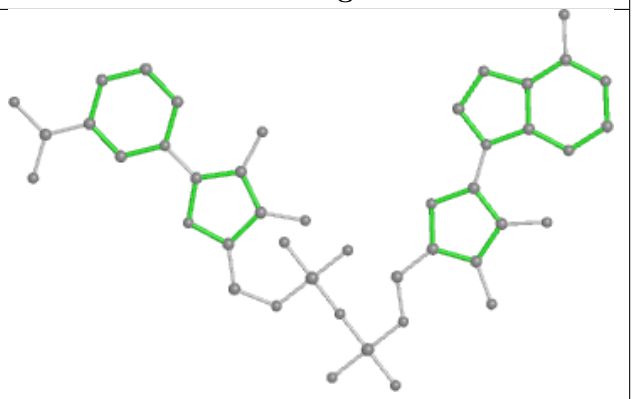
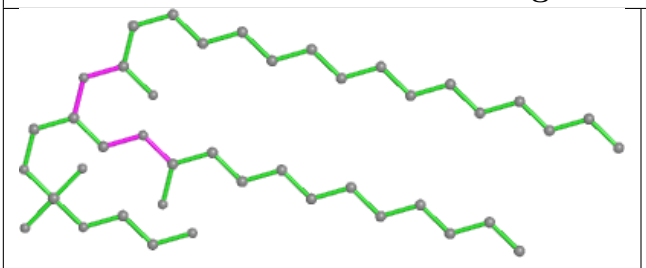


Rings

Ligand 3PE b 502



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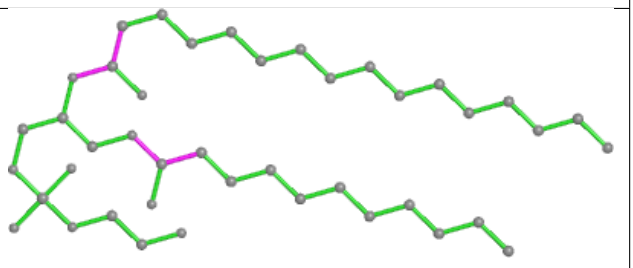
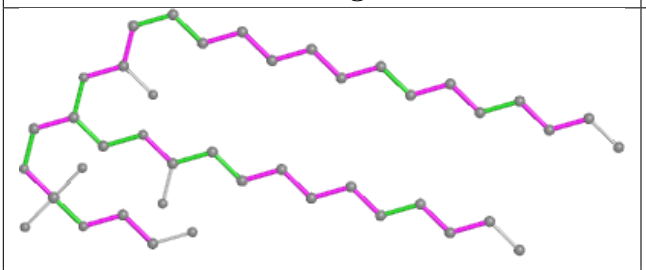


Bond angles



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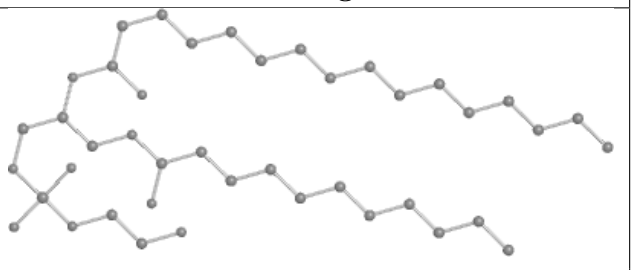

Rings

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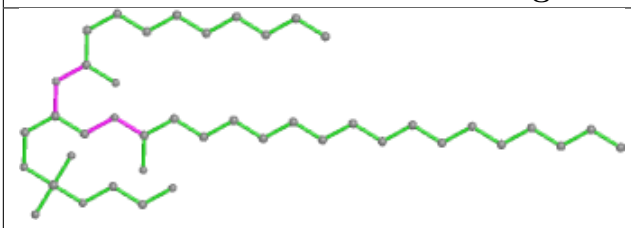

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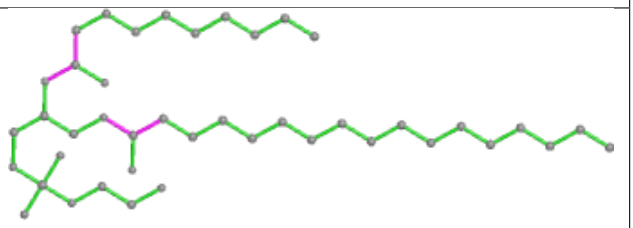

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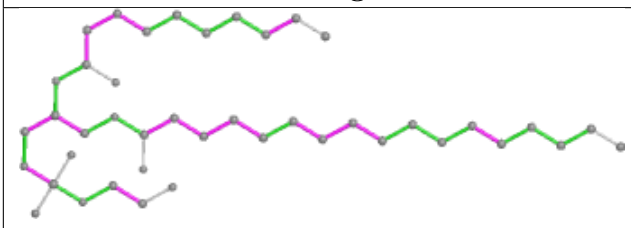

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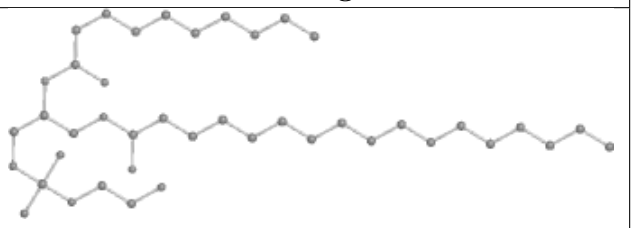
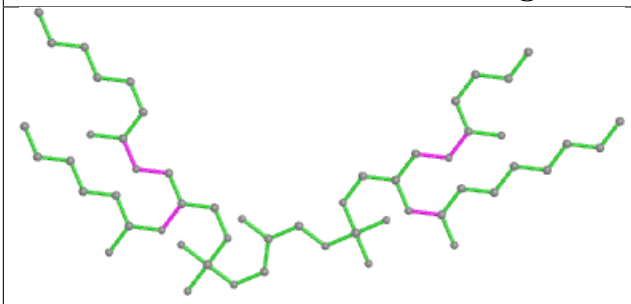


Rings

Ligand CDL W 402



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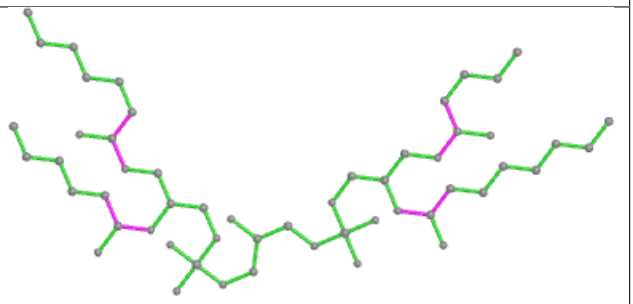

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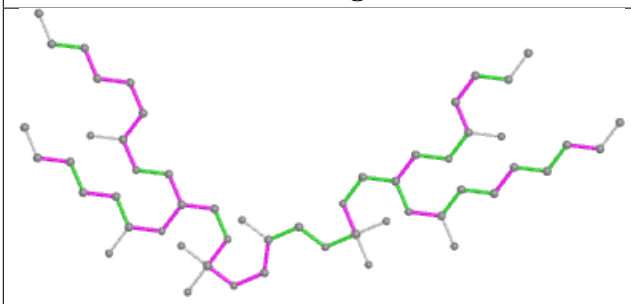

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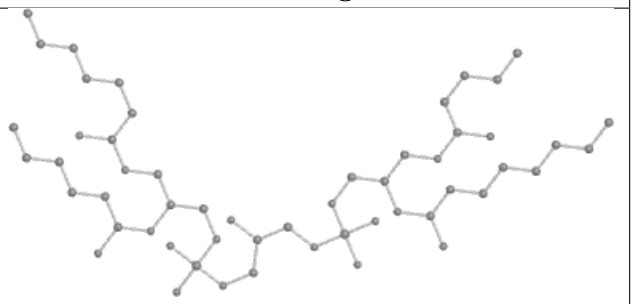
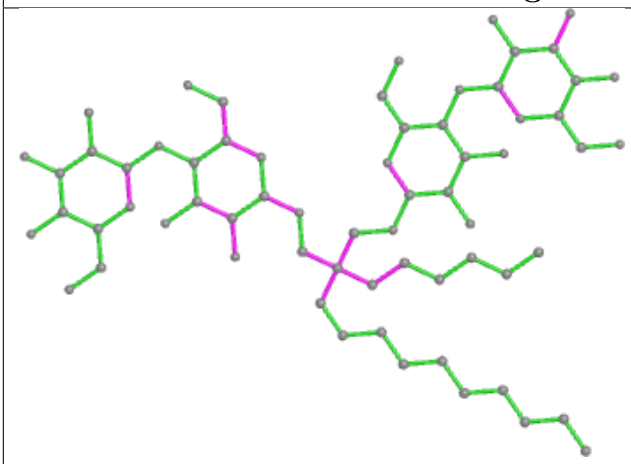


Rings

Ligand LMN a 201



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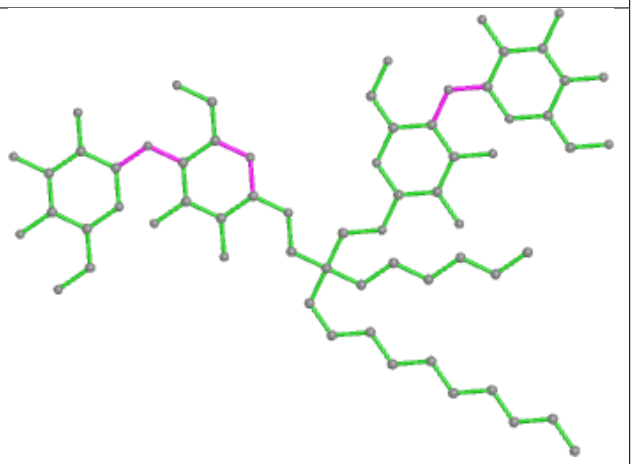

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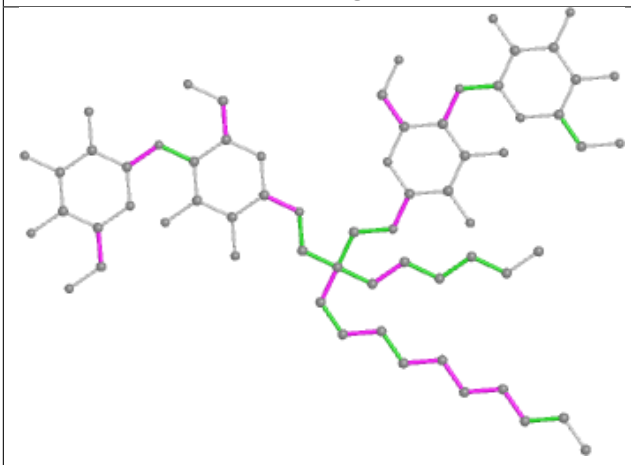

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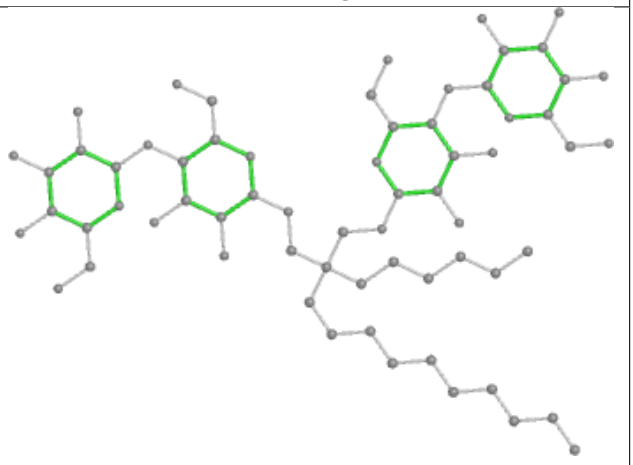
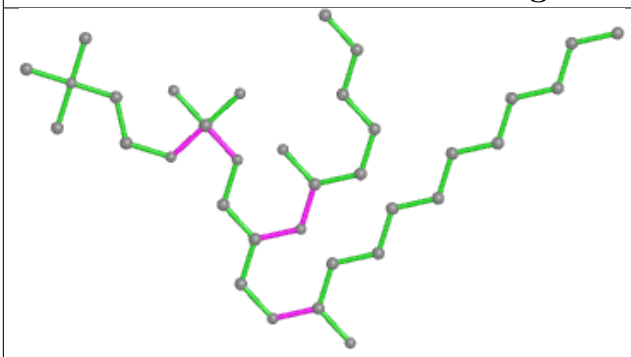


Rings

Ligand PLC 4 504



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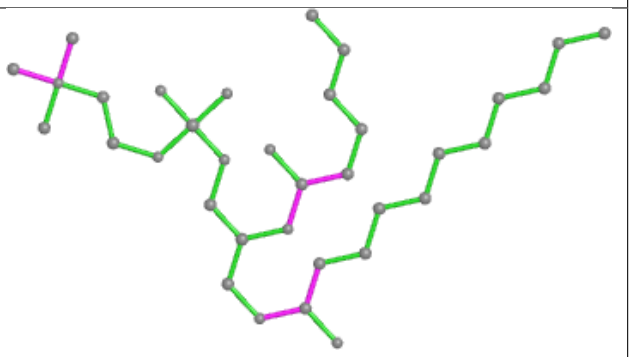
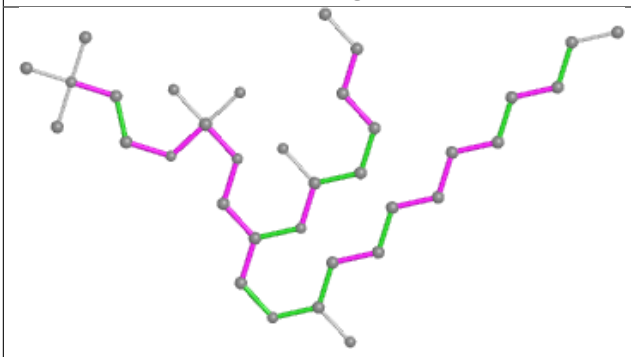


Bond angles



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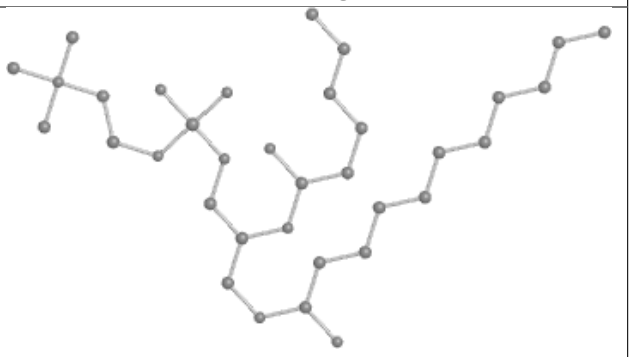
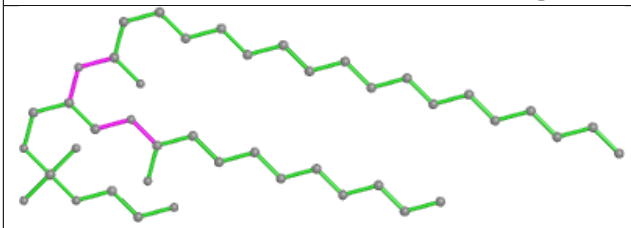


Rings

Ligand 3PE 4 502



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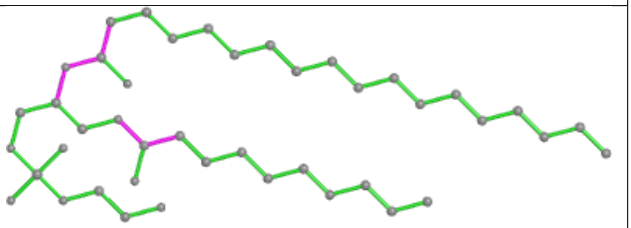

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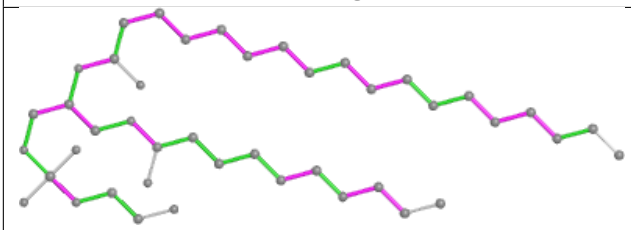
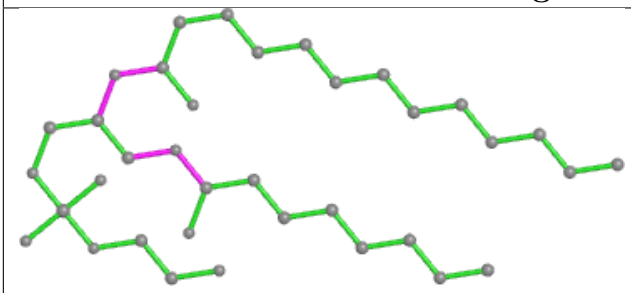


Torsions

Rings

Ligand 3PE 6 201



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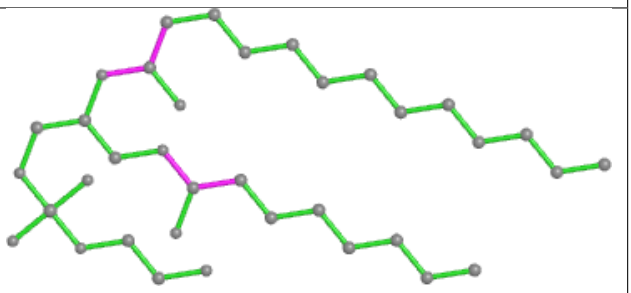
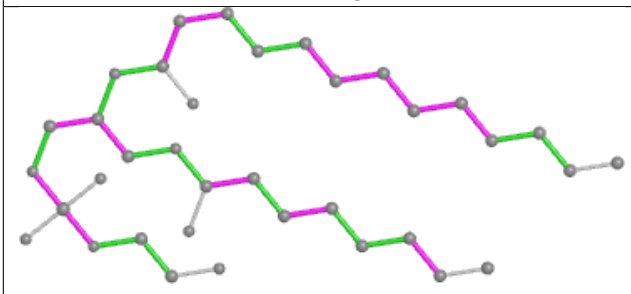
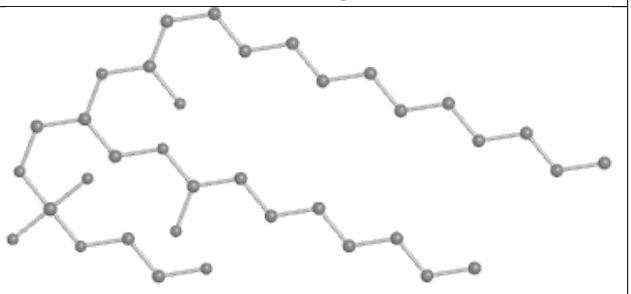


Bond angles

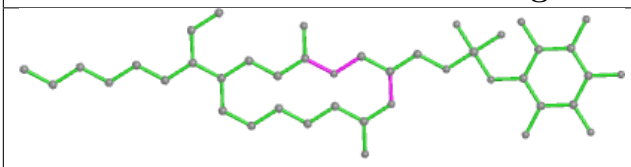


Torsions



Rings

Ligand T7X 3 201



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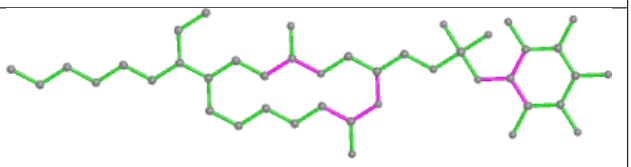
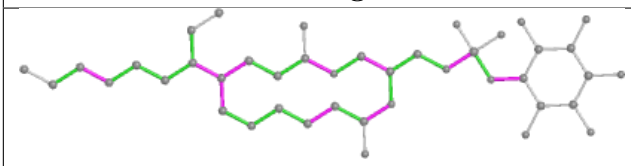
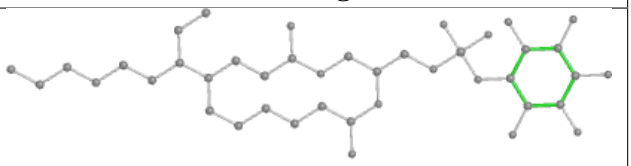


Bond angles

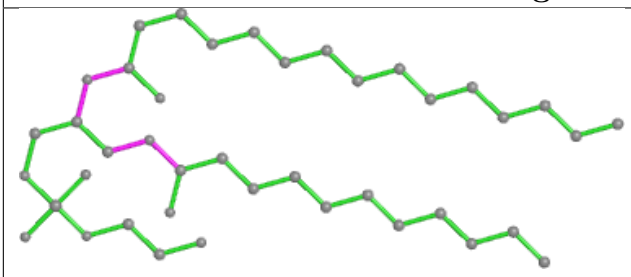


Torsions



Rings

Ligand 3PE 5 702



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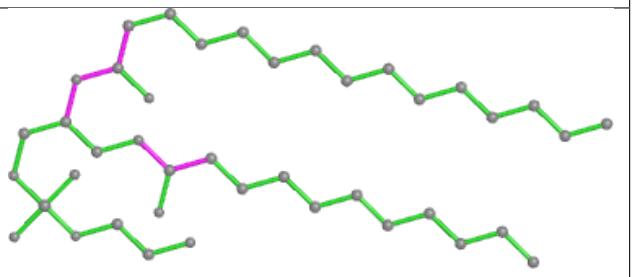
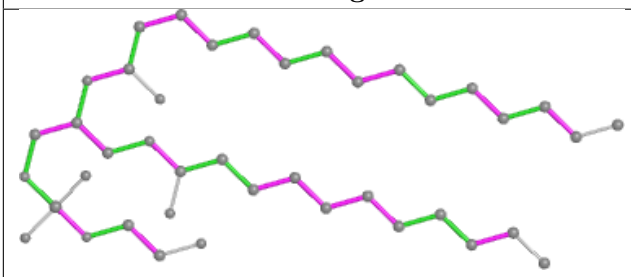


Bond angles



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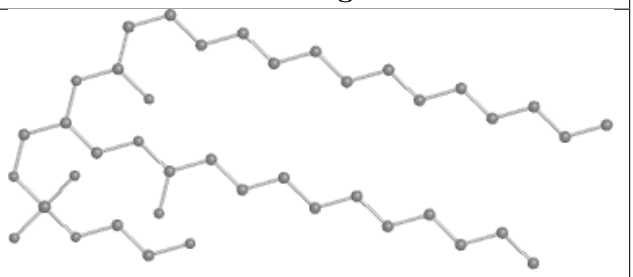
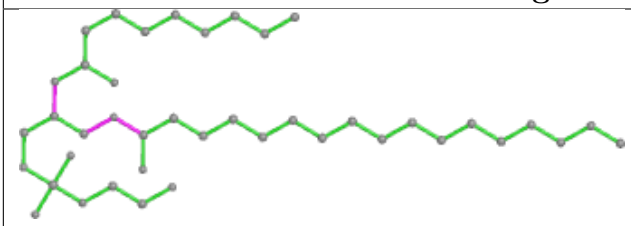


Rings

Ligand 3PE J 201



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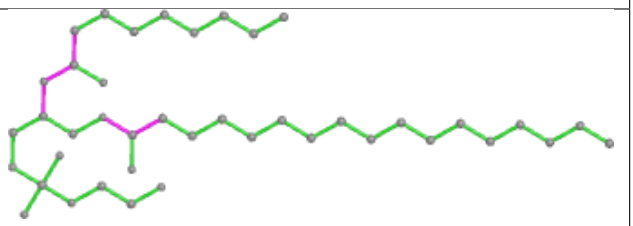
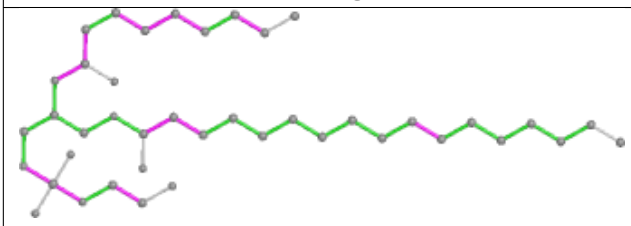


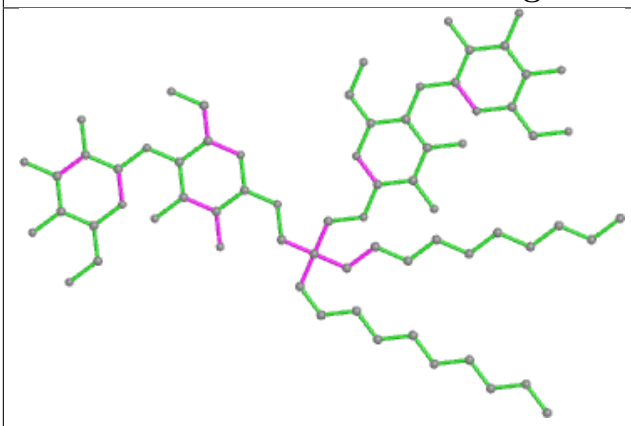
Bond angles



Torsions

Rings

Ligand LMN J 202



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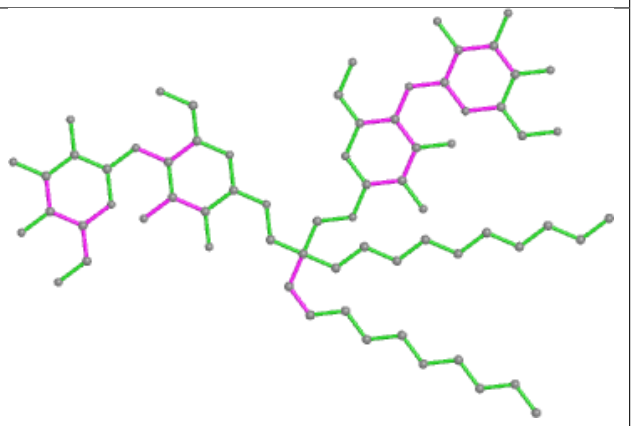
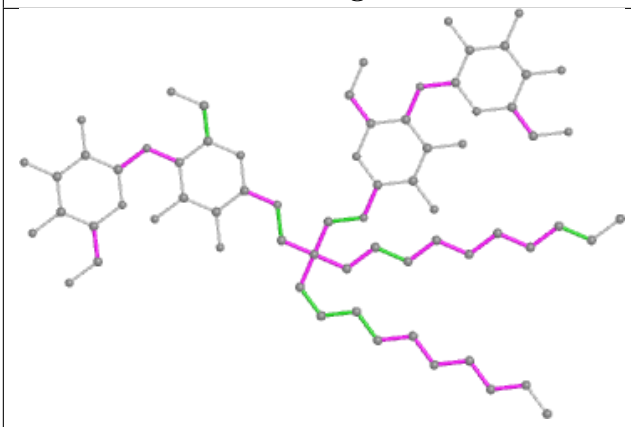
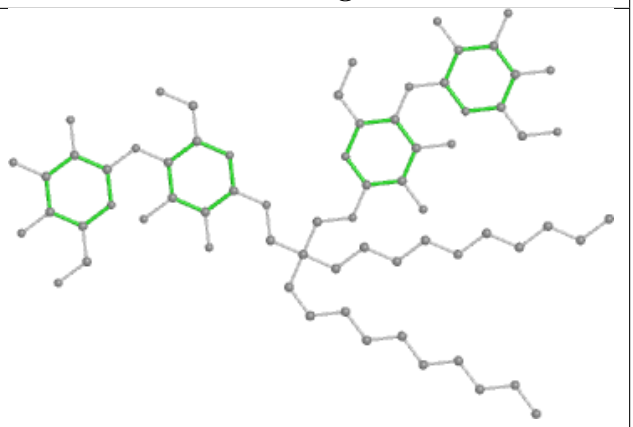


Bond angles

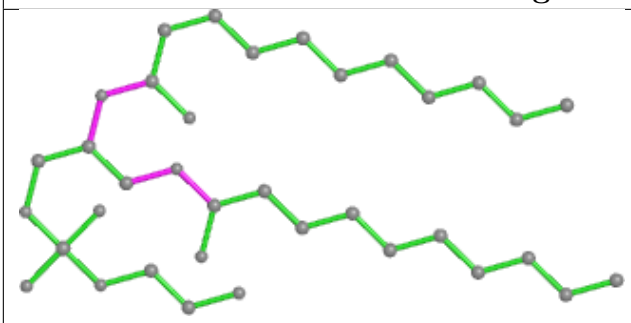


Torsions

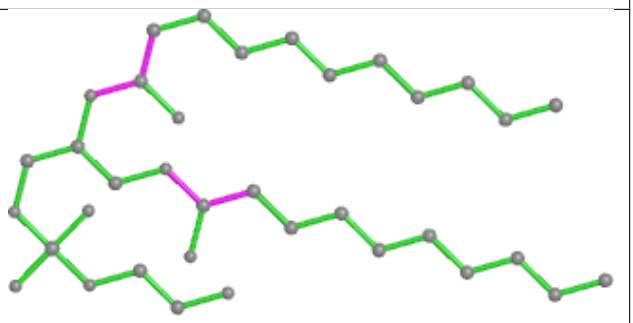


Rings

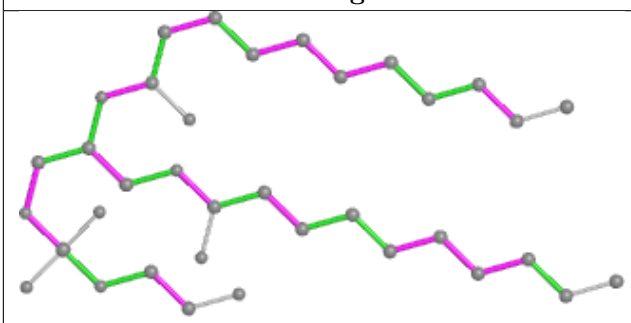
Ligand 3PE 1 402



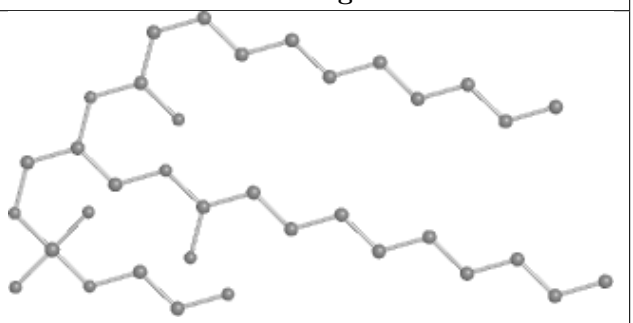
Bond lengths



Bond angles

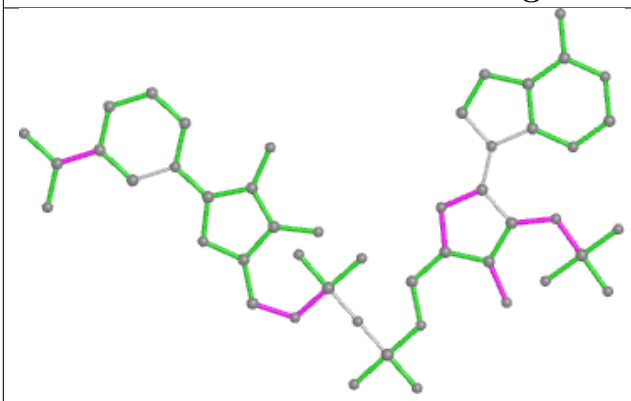


Torsions

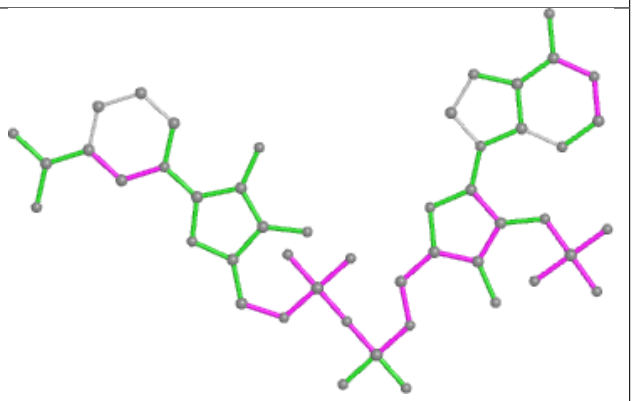


Rings

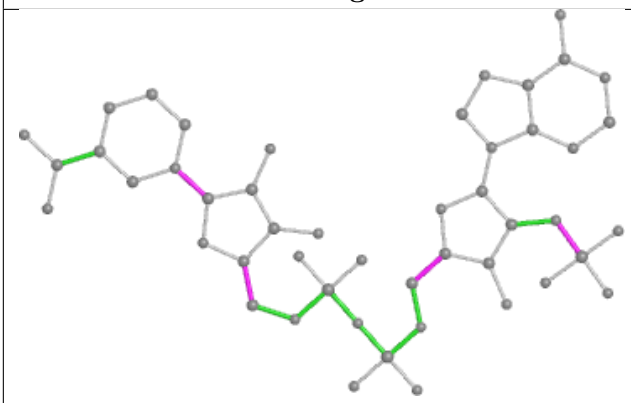
Ligand NDP E 401



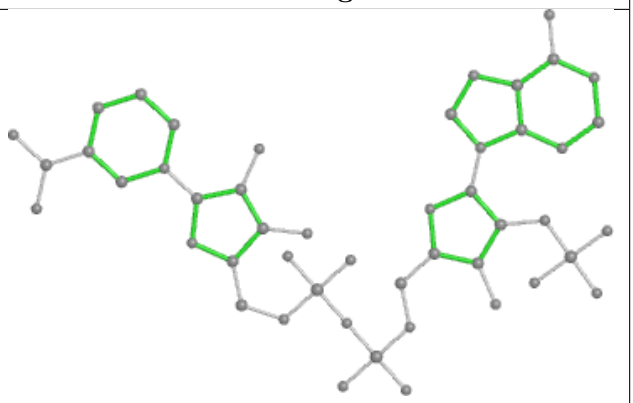
Bond lengths



Bond angles

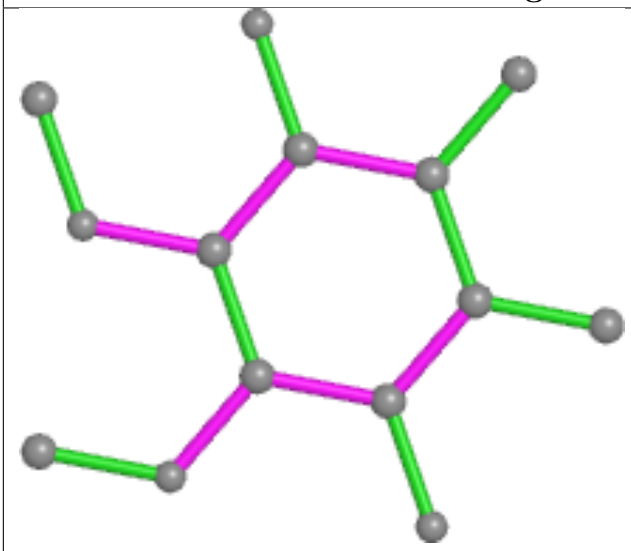


Torsions



Rings

Ligand UQ9 C 601



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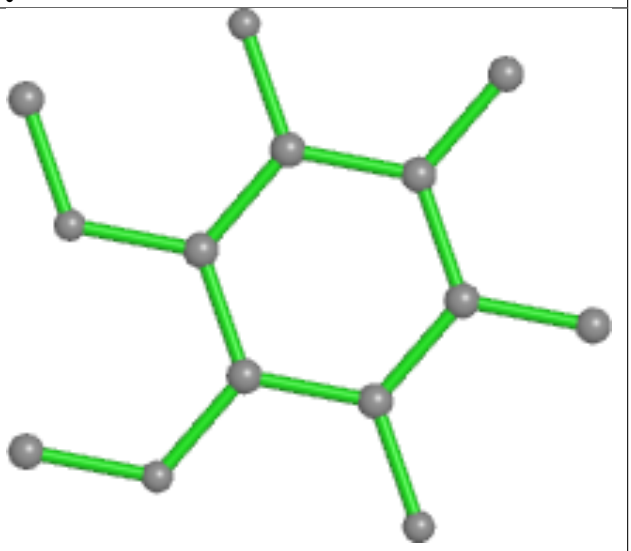
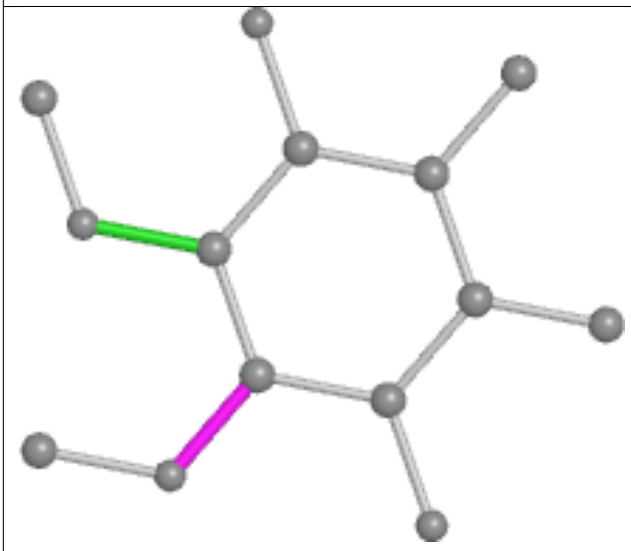
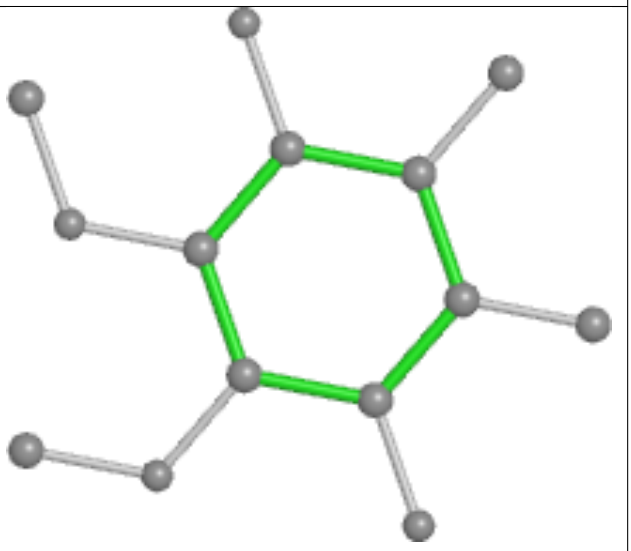


Bond angles

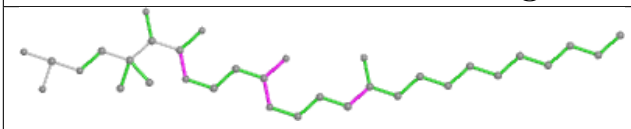


Torsions



Rings

Ligand ZMP R 201



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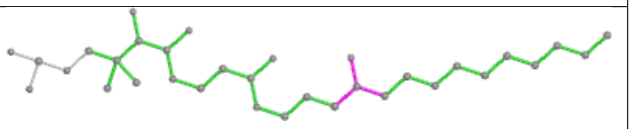

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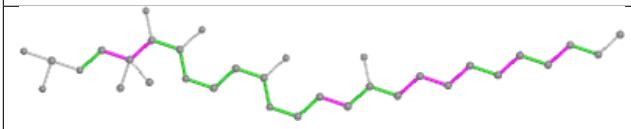

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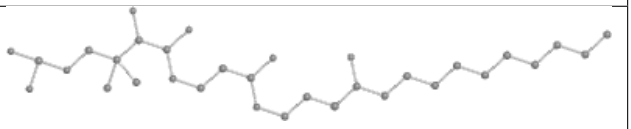
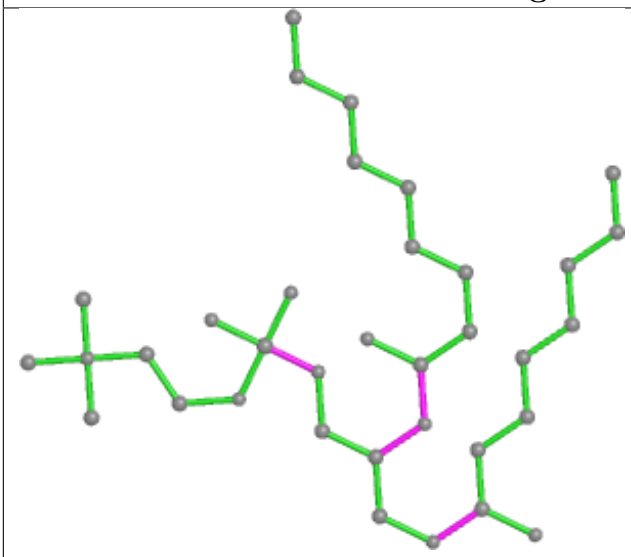


Rings

Ligand PLC 1 401



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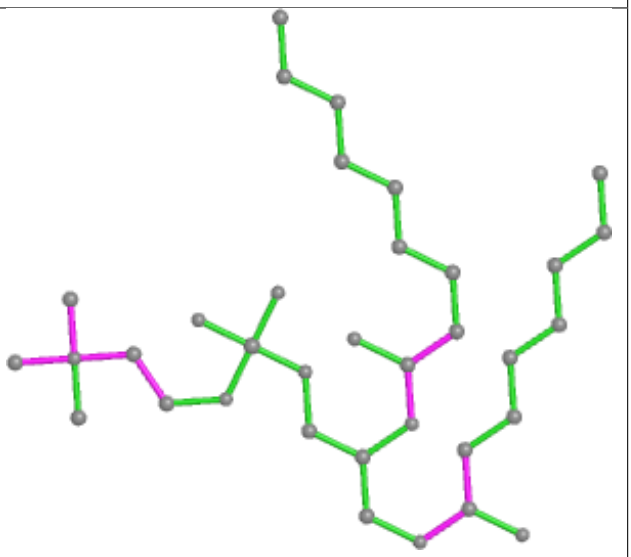
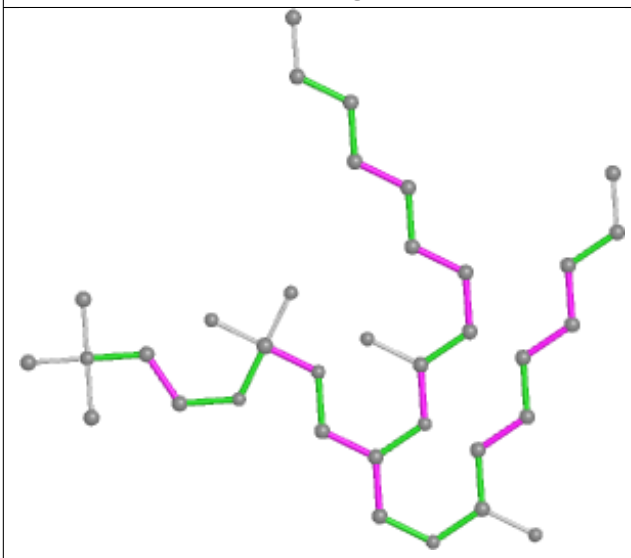


Bond angles



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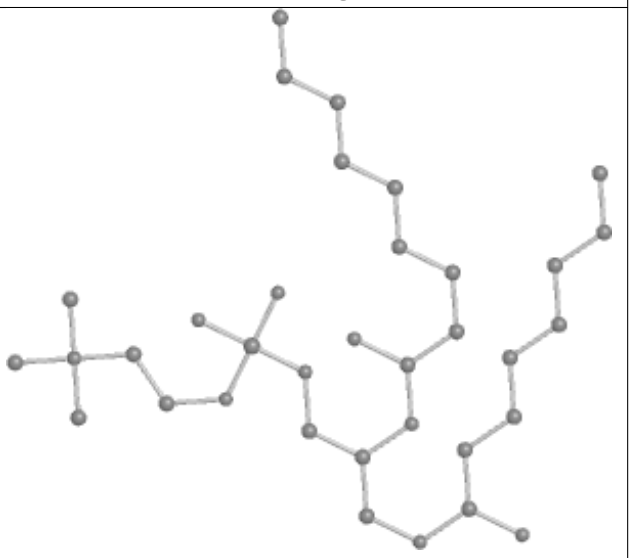
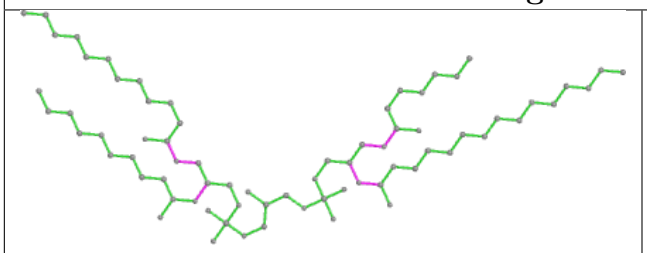


Rings

Ligand CDL E 403



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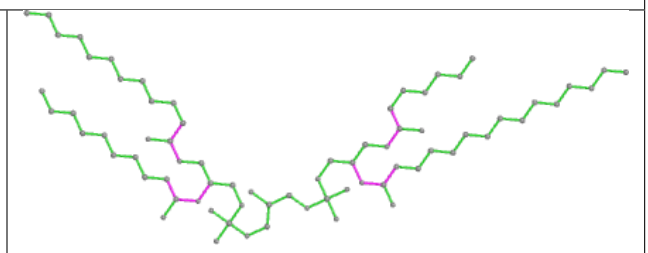
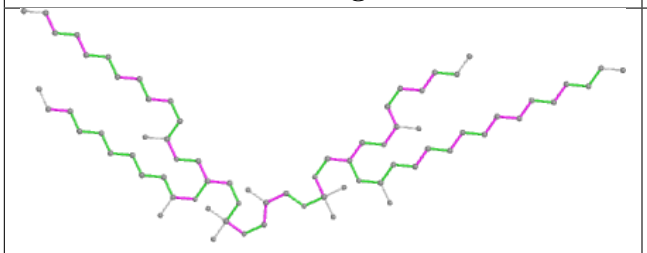


Bond angles



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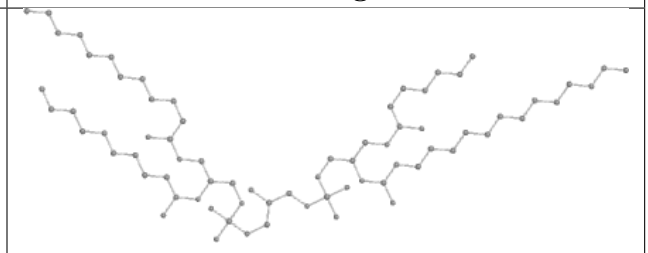
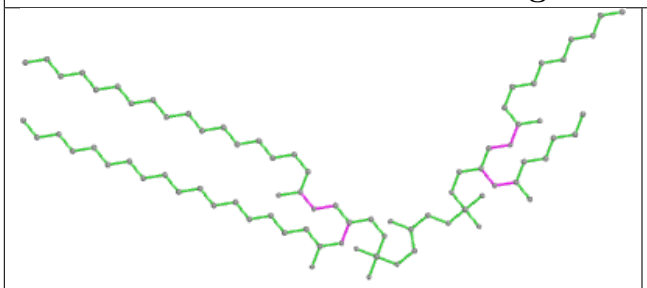


Rings

Ligand CDL g 201



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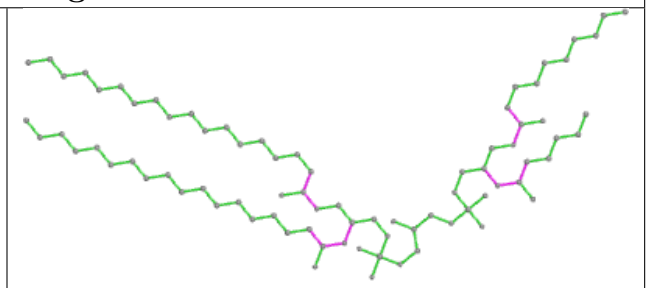

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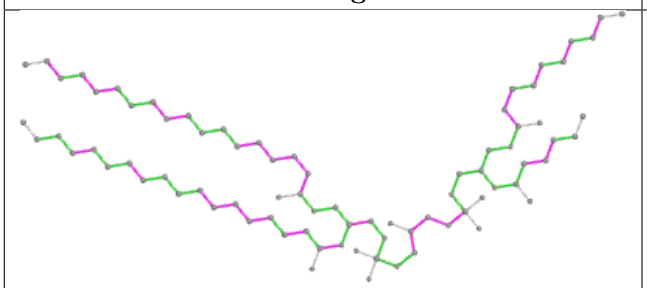

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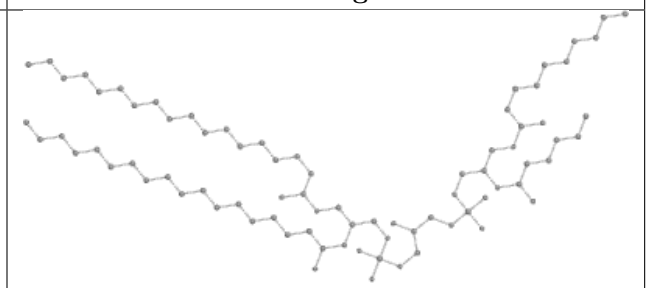
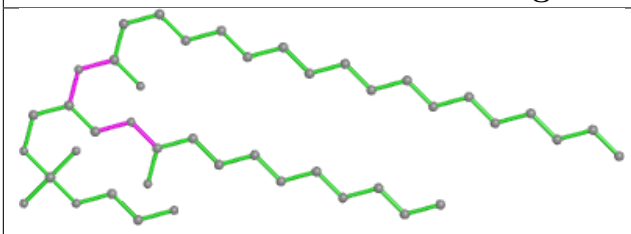
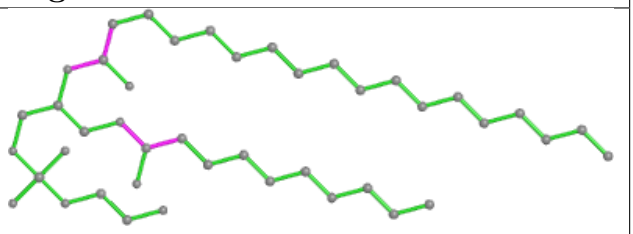


Rings

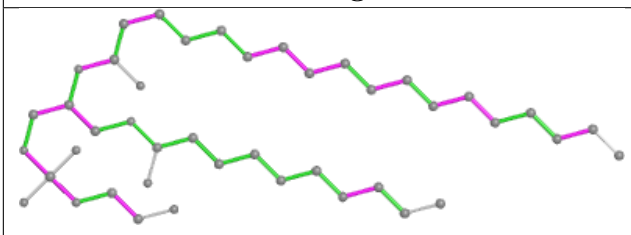
Ligand 3PE g 202



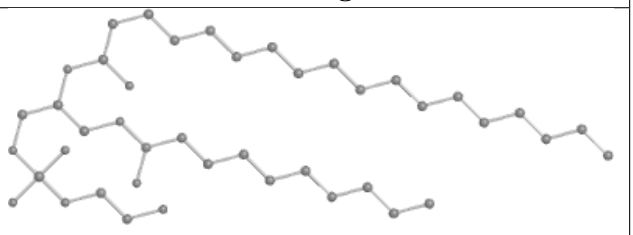
Bond lengths



Bond angles

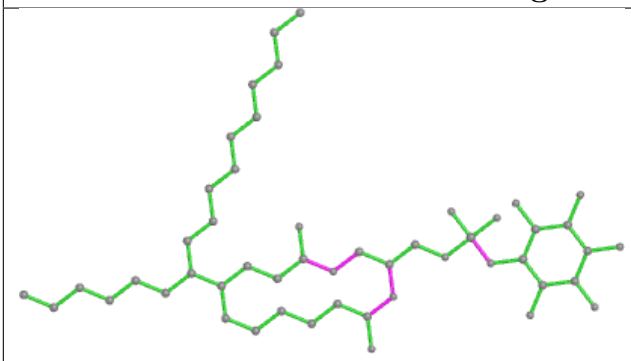


Torsions

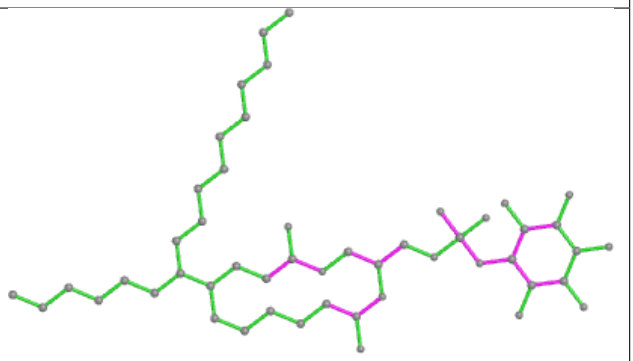


Rings

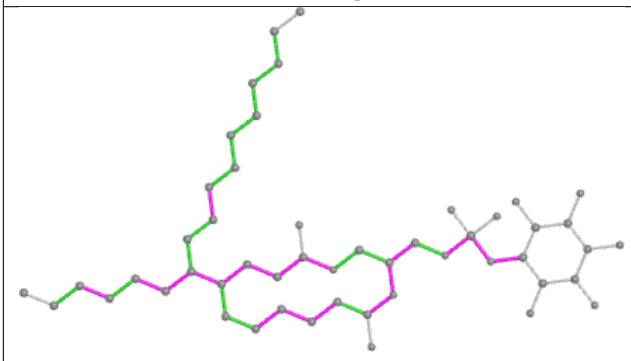
Ligand T7X 2 502



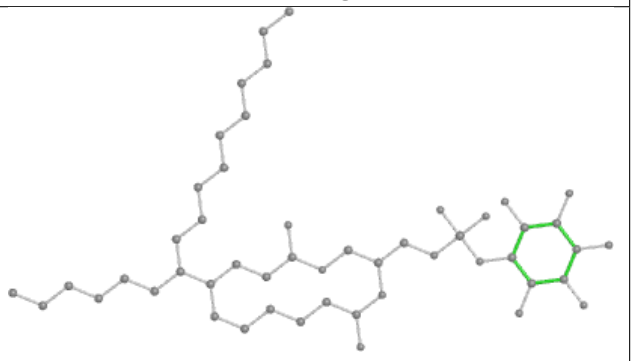
Bond lengths



Bond angles

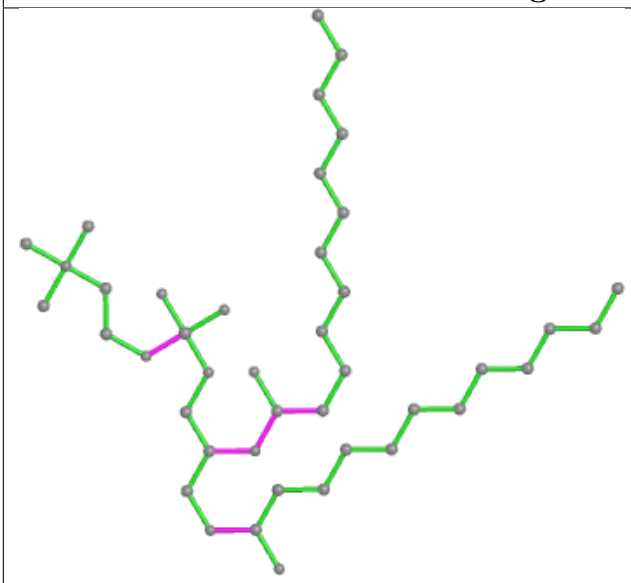


Torsions



Rings

Ligand PLC 1 404



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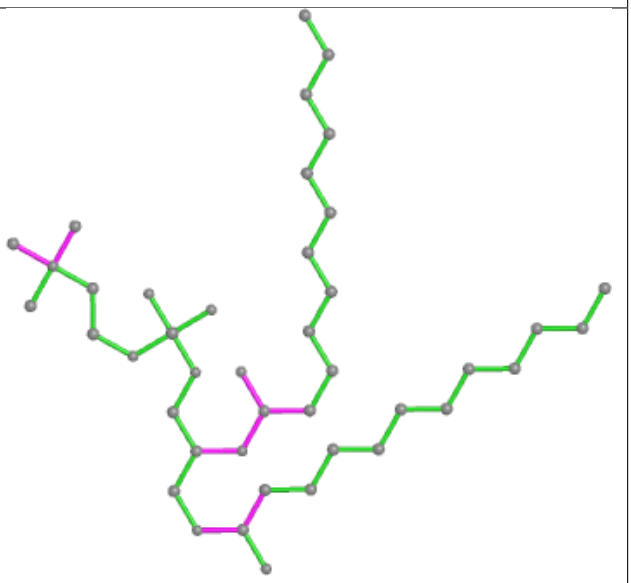
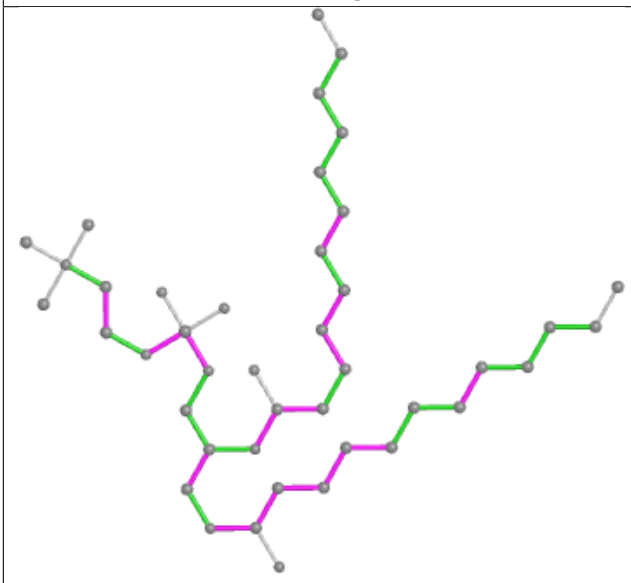
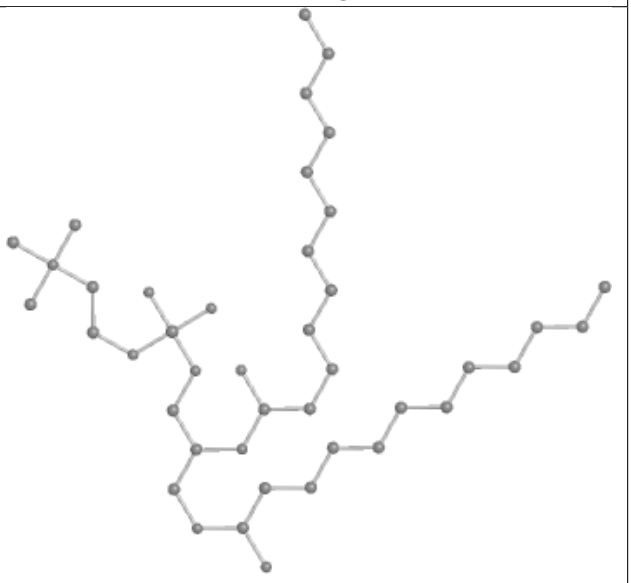


Bond angles

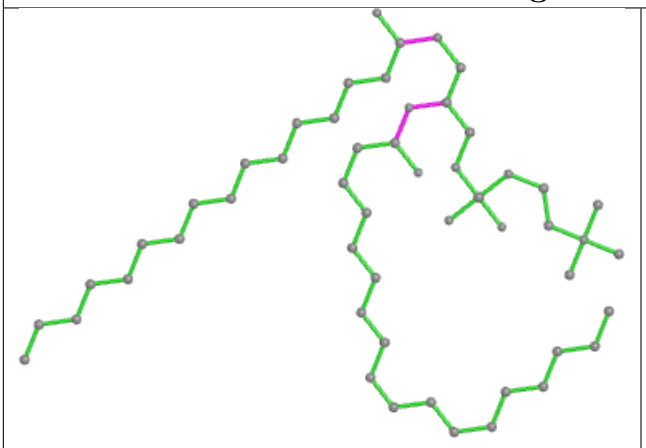


Torsions

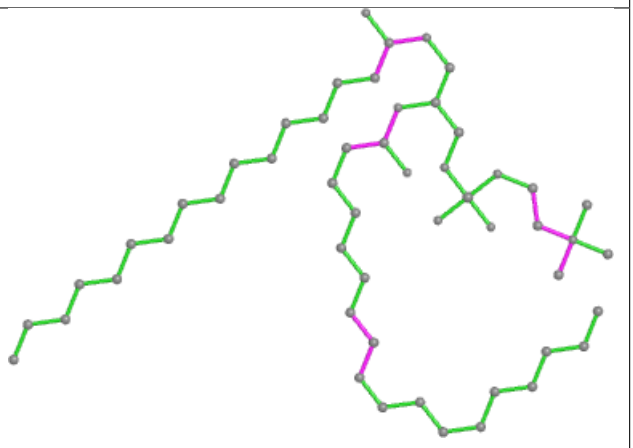


Rings

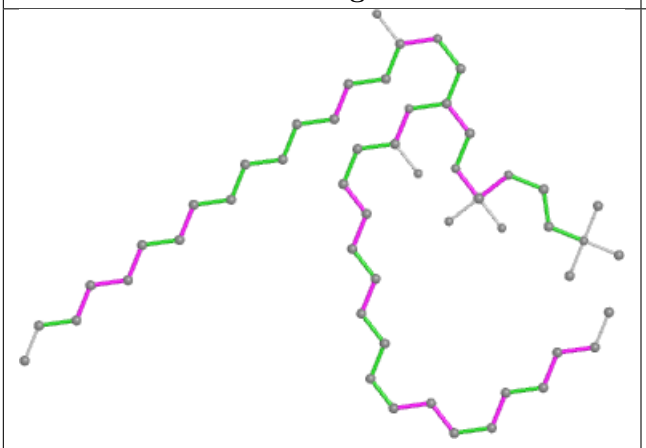
Ligand CPL 2 501



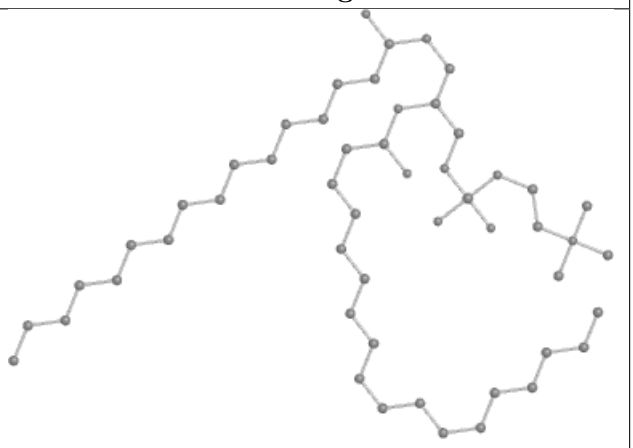
Bond lengths



Bond angles

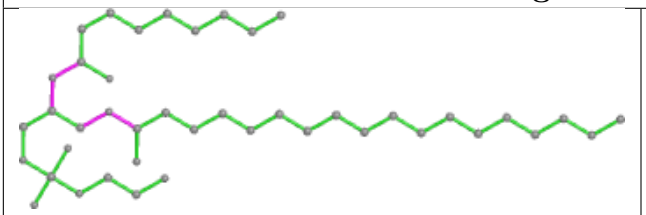


Torsions

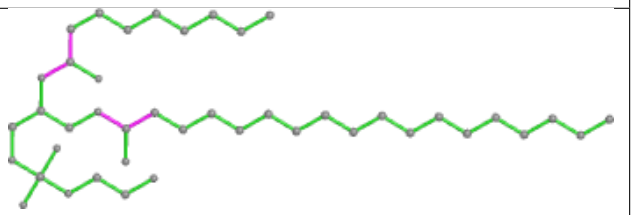


Rings

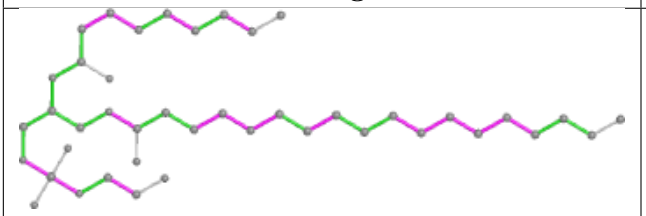
Ligand 3PE 4 501



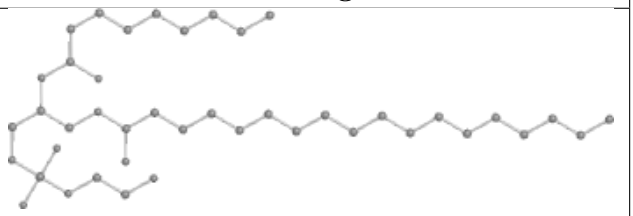
Bond lengths



Bond angles

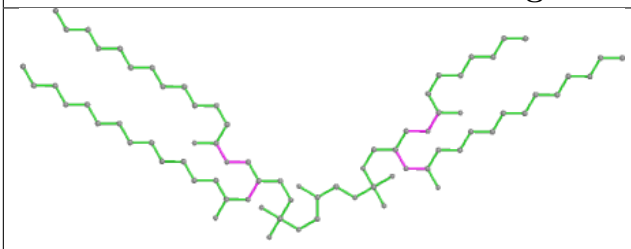


Torsions



Rings

Ligand CDL Z 201



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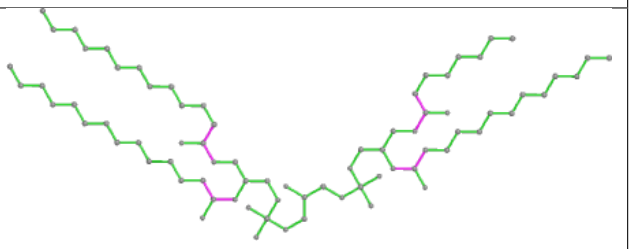
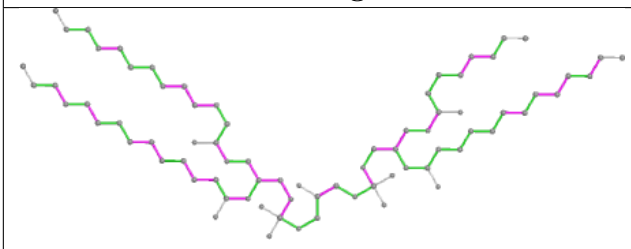
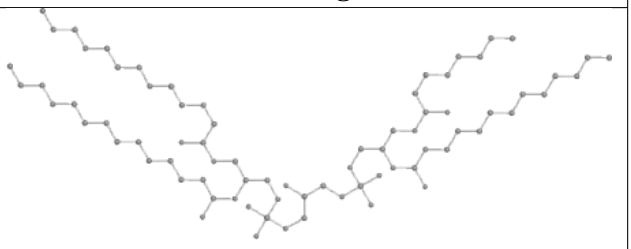


Bond angles

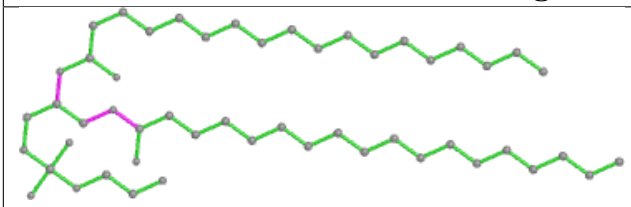


Torsions

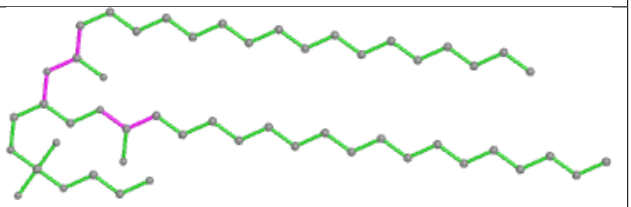


Rings

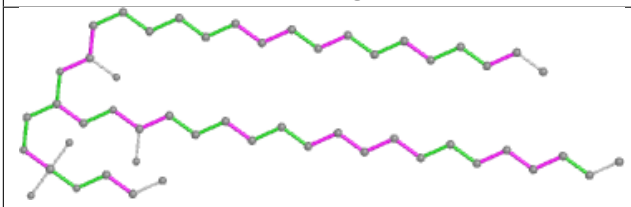
Ligand 3PE 4 503



Bond lengths



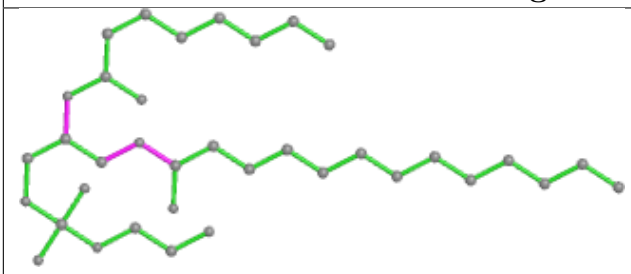
Bond angles



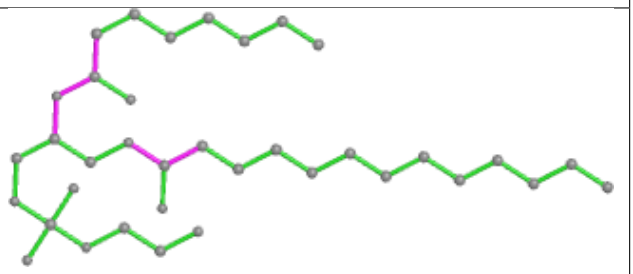
Torsions

Rings

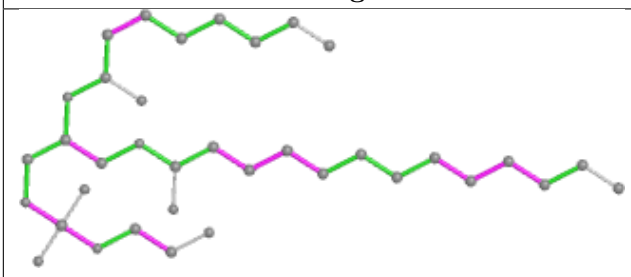
Ligand 3PE E 402



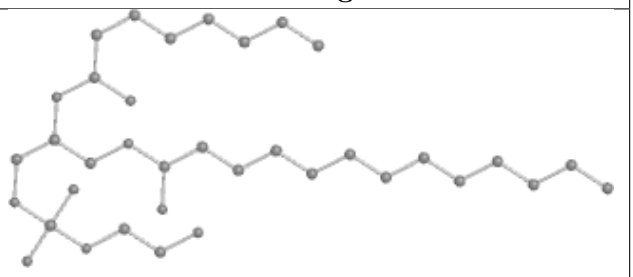
Bond lengths



Bond angles

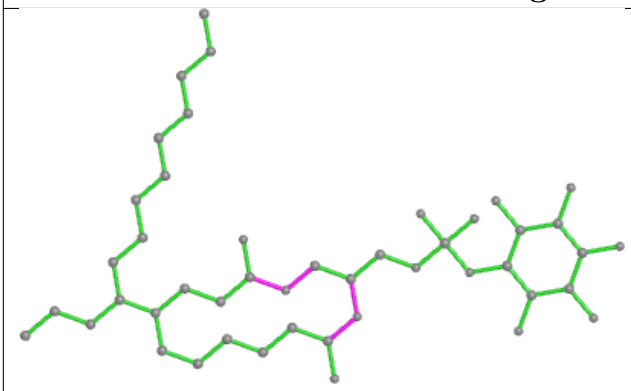


Torsions

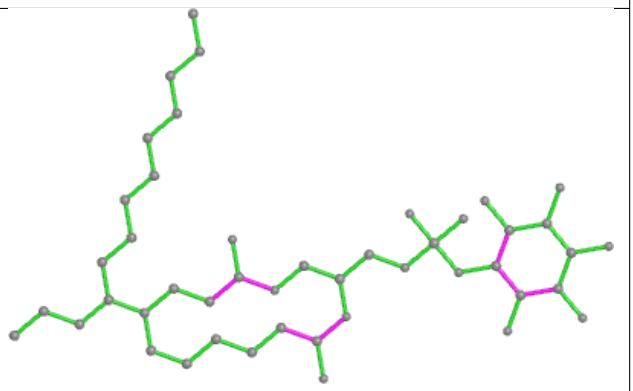


Rings

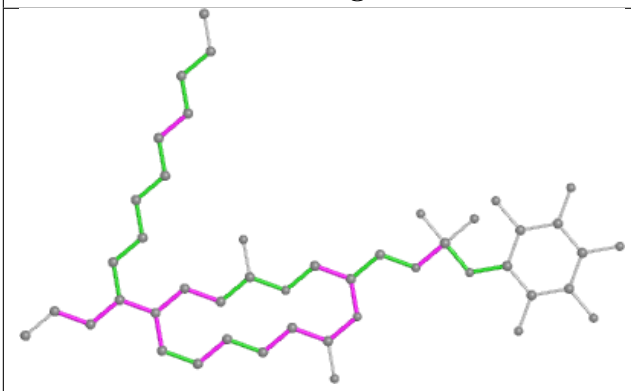
Ligand T7X b 501



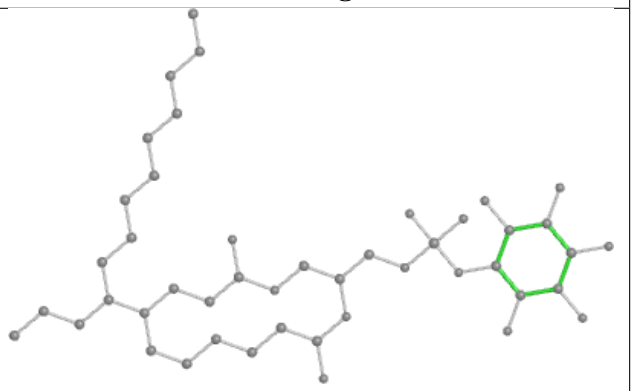
Bond lengths



Bond angles

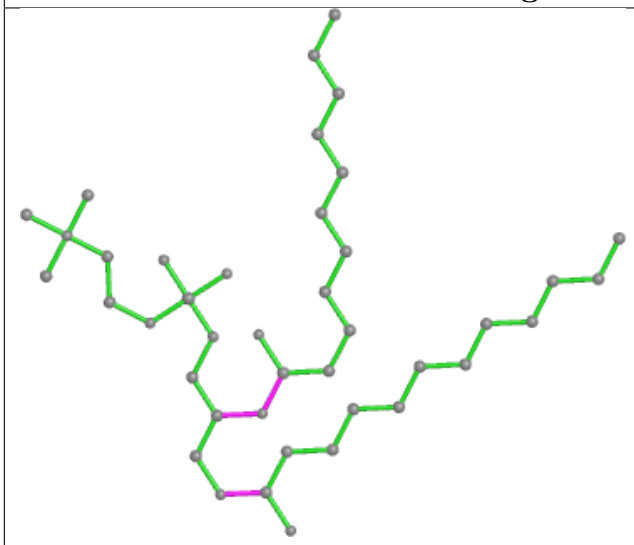


Torsions

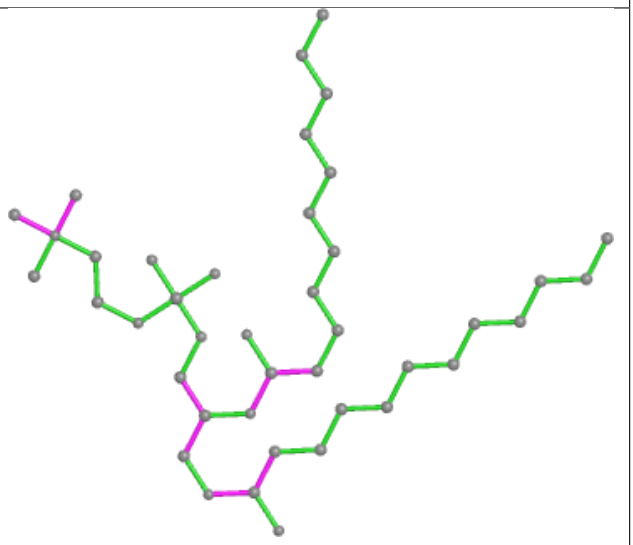


Rings

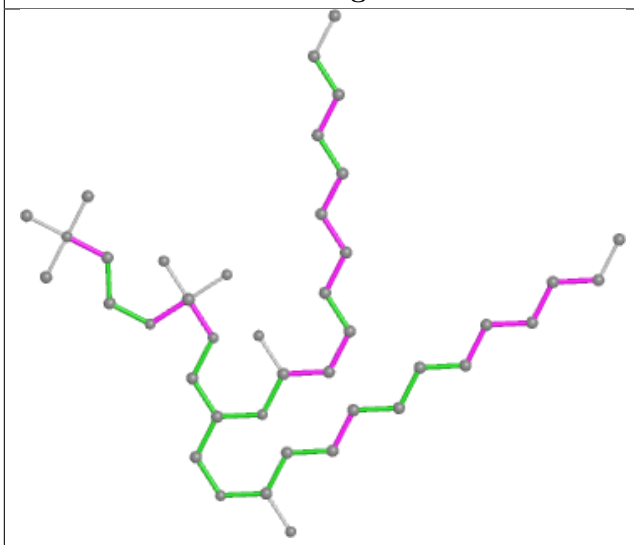
Ligand PLC W 401



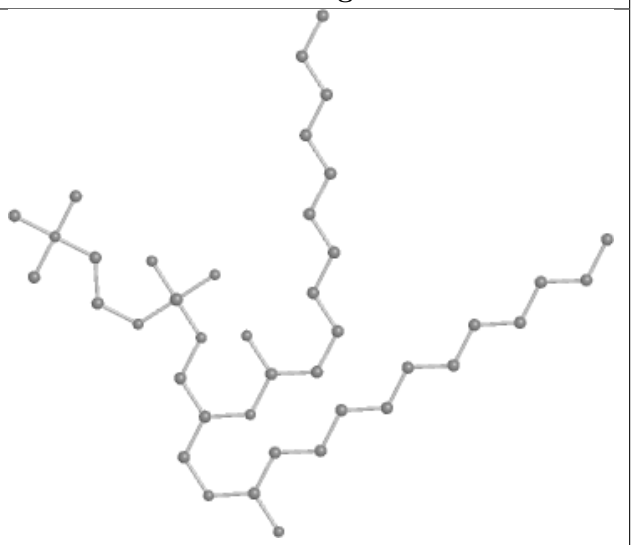
Bond lengths



Bond angles

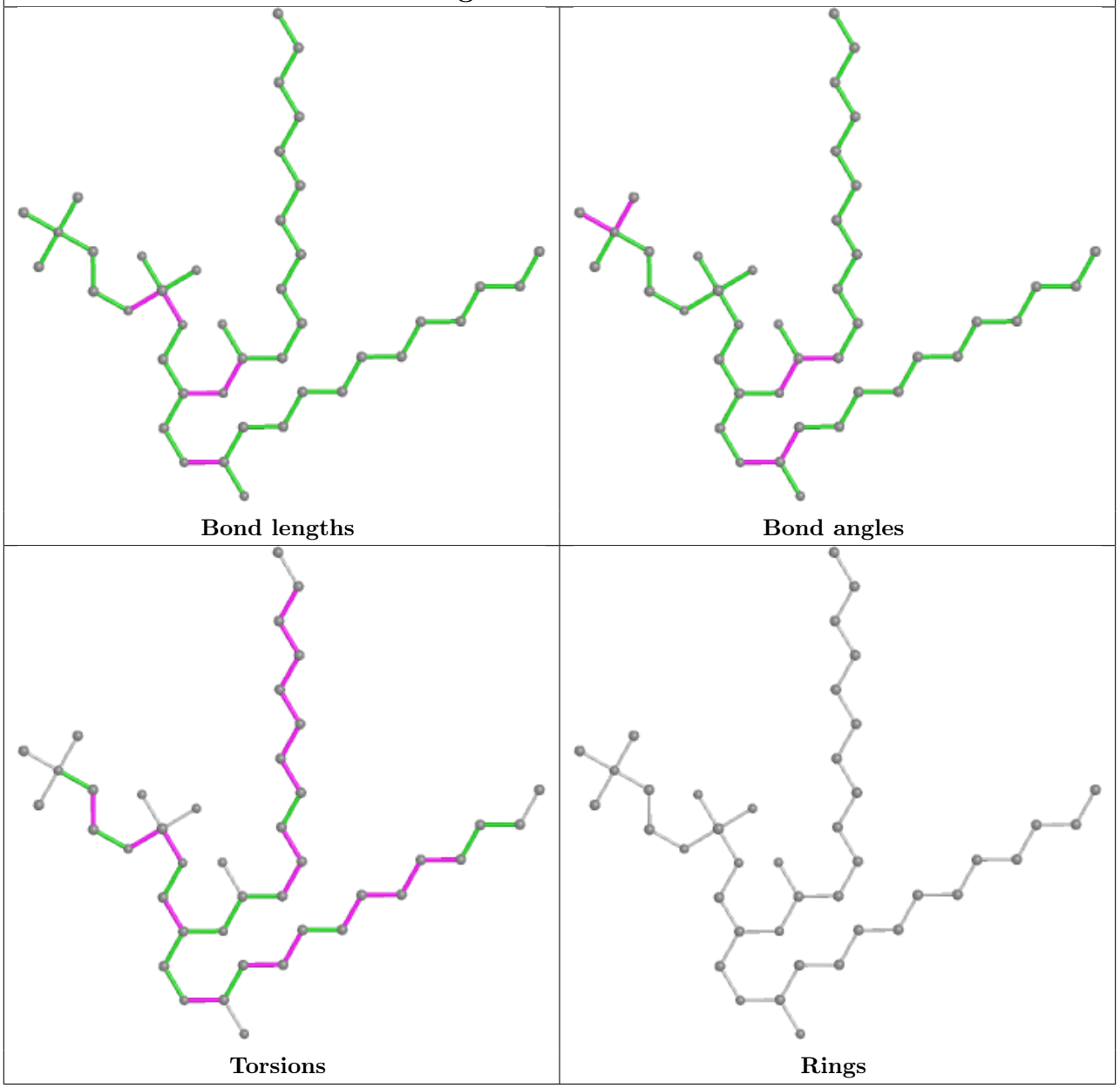


Torsions



Rings

Ligand PLC i 1101



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
40	n	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	n	119:ARG	C	120:GLU	N	3.11

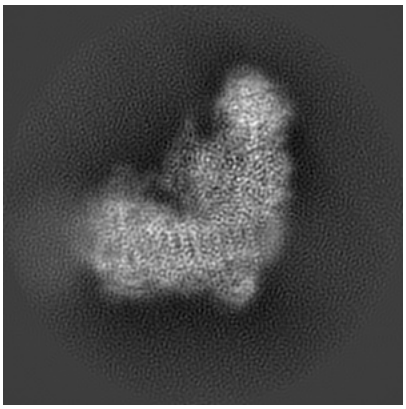
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-12741. These allow visual inspection of the internal detail of the map and identification of artifacts.

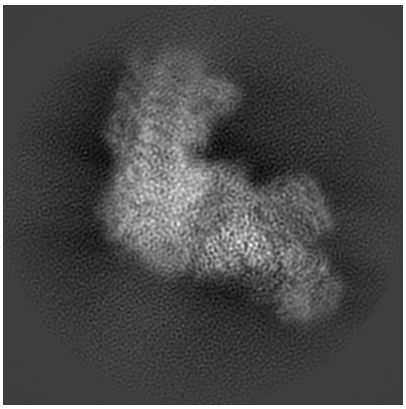
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

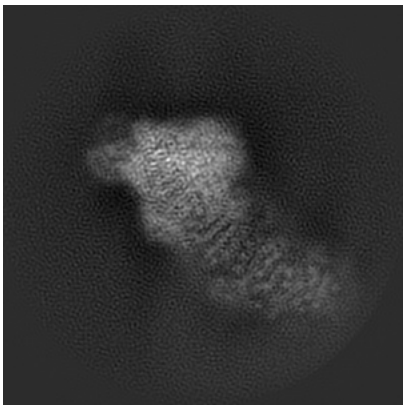
6.1.1 Primary map



X

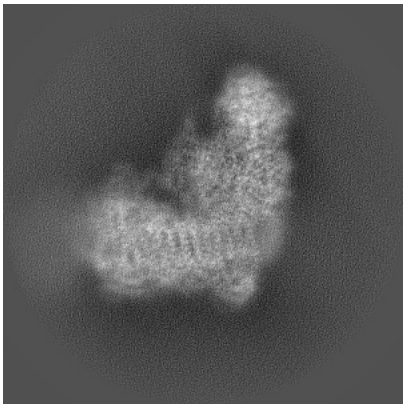


Y

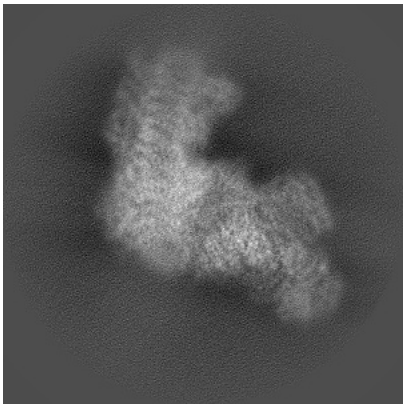


Z

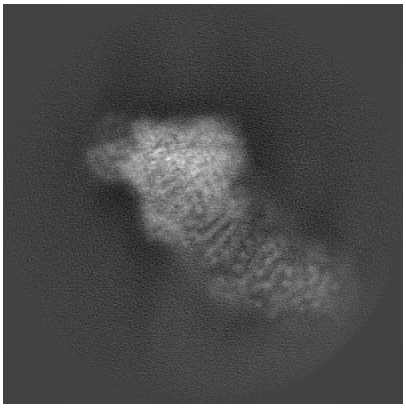
6.1.2 Raw map



X



Y

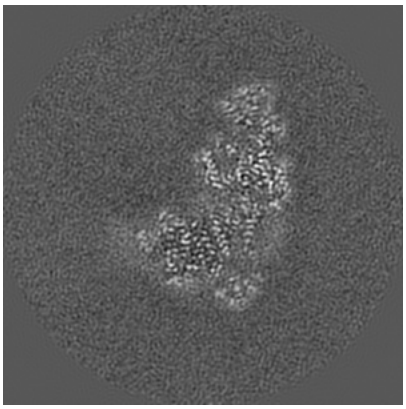


Z

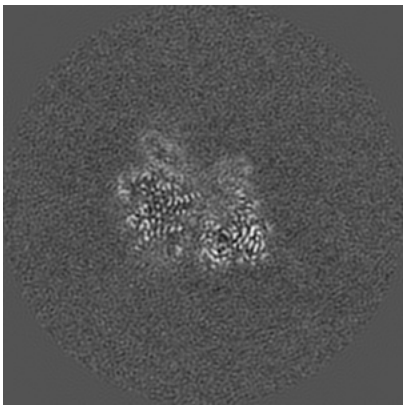
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

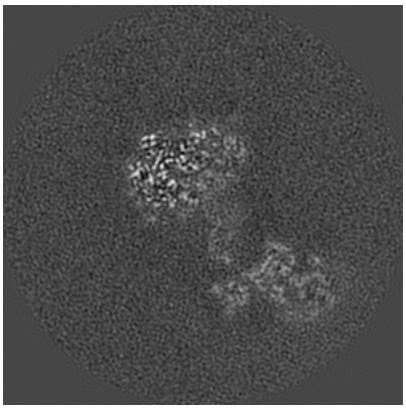
6.2.1 Primary map



X Index: 200

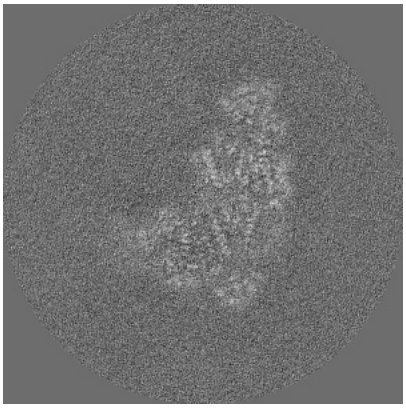


Y Index: 200

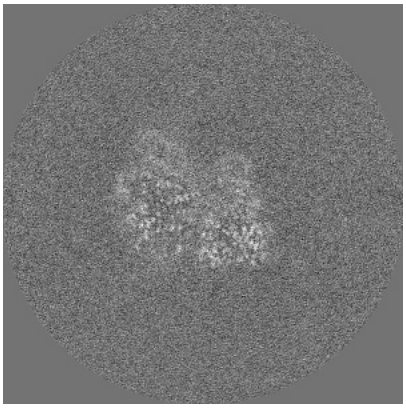


Z Index: 200

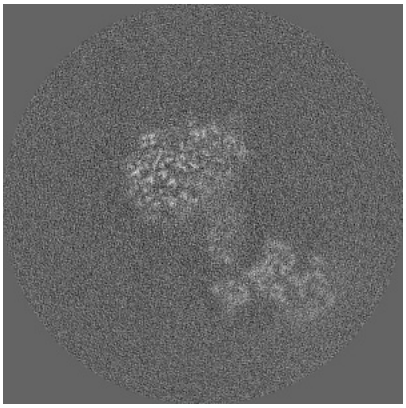
6.2.2 Raw map



X Index: 200



Y Index: 200

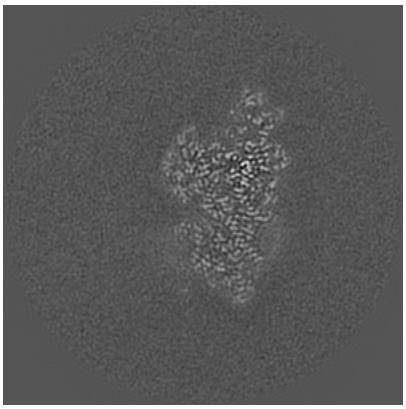


Z Index: 200

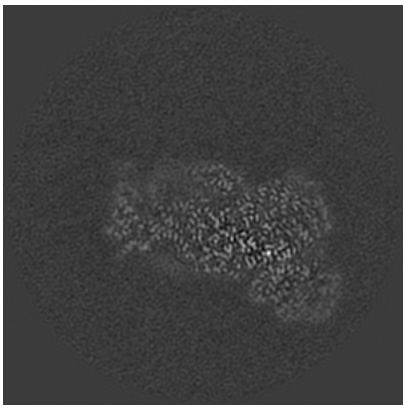
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

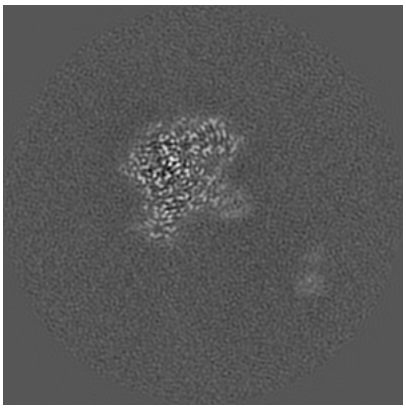
6.3.1 Primary map



X Index: 166

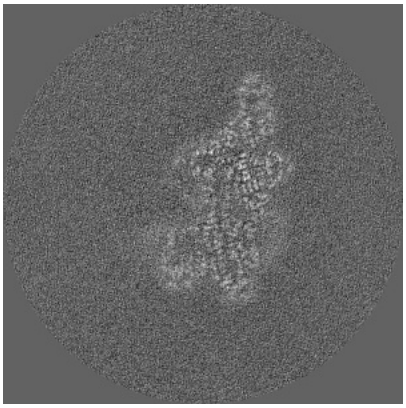


Y Index: 248

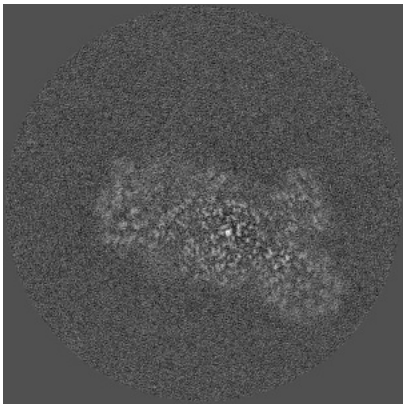


Z Index: 233

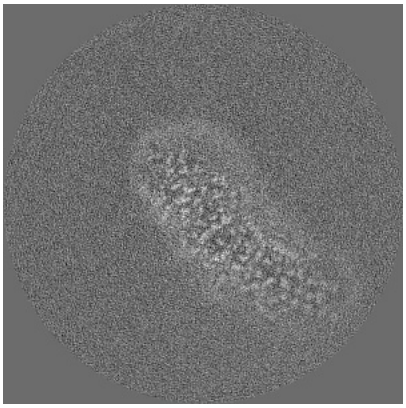
6.3.2 Raw map



X Index: 179



Y Index: 236

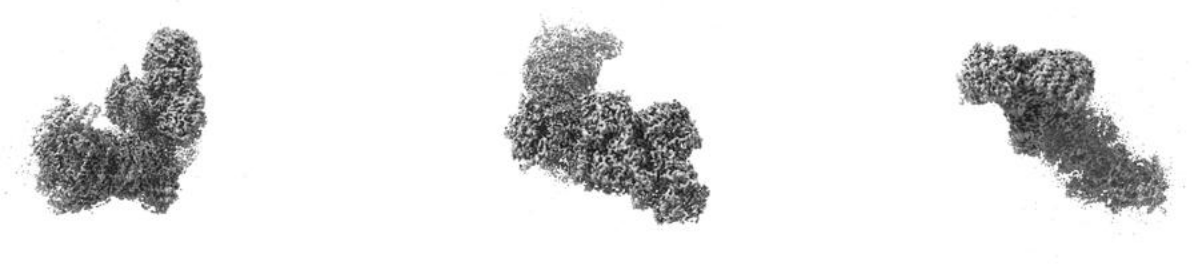


Z Index: 175

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

6.4 Orthogonal surface views (i)

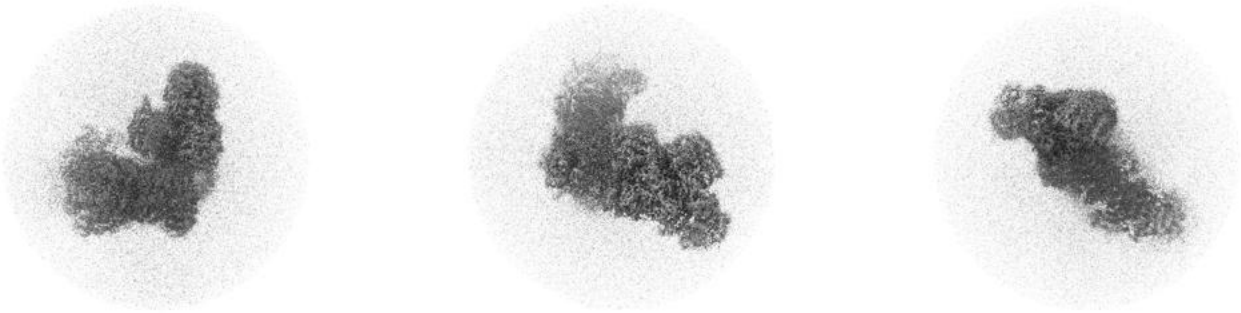
6.4.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0115. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



X Y Z

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

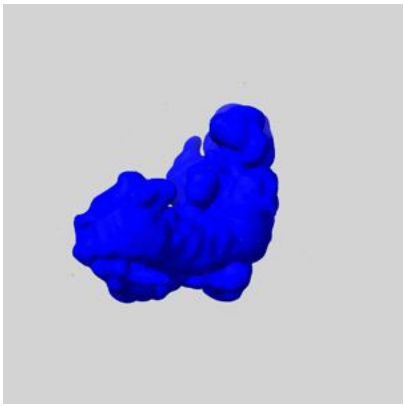
6.5 Mask visualisation

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

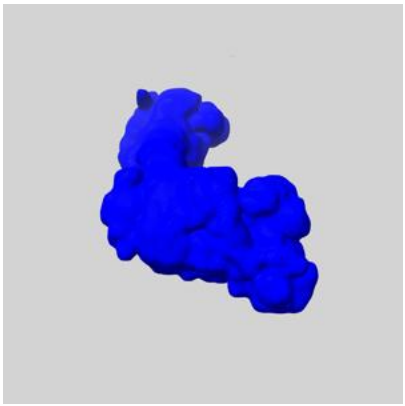
A mask typically either:

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

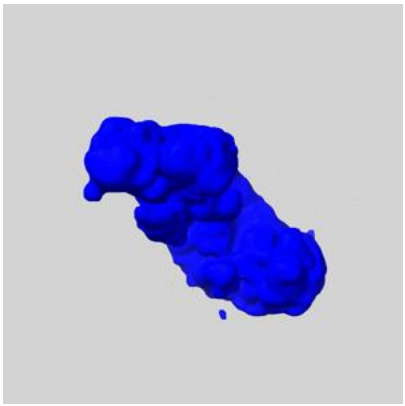
6.5.1 emd_12741_msk_1.map



X



Y

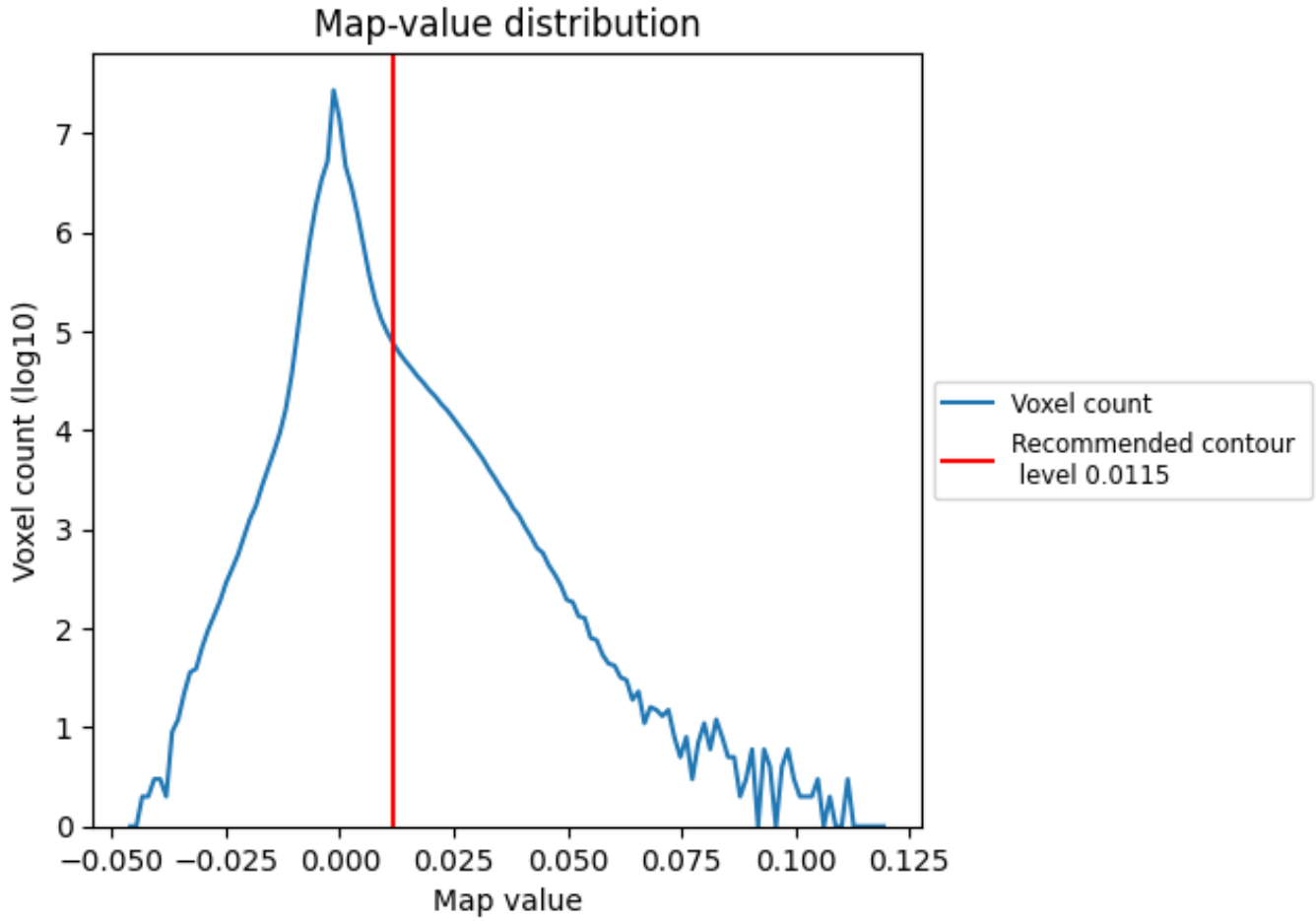


Z

7 Map analysis

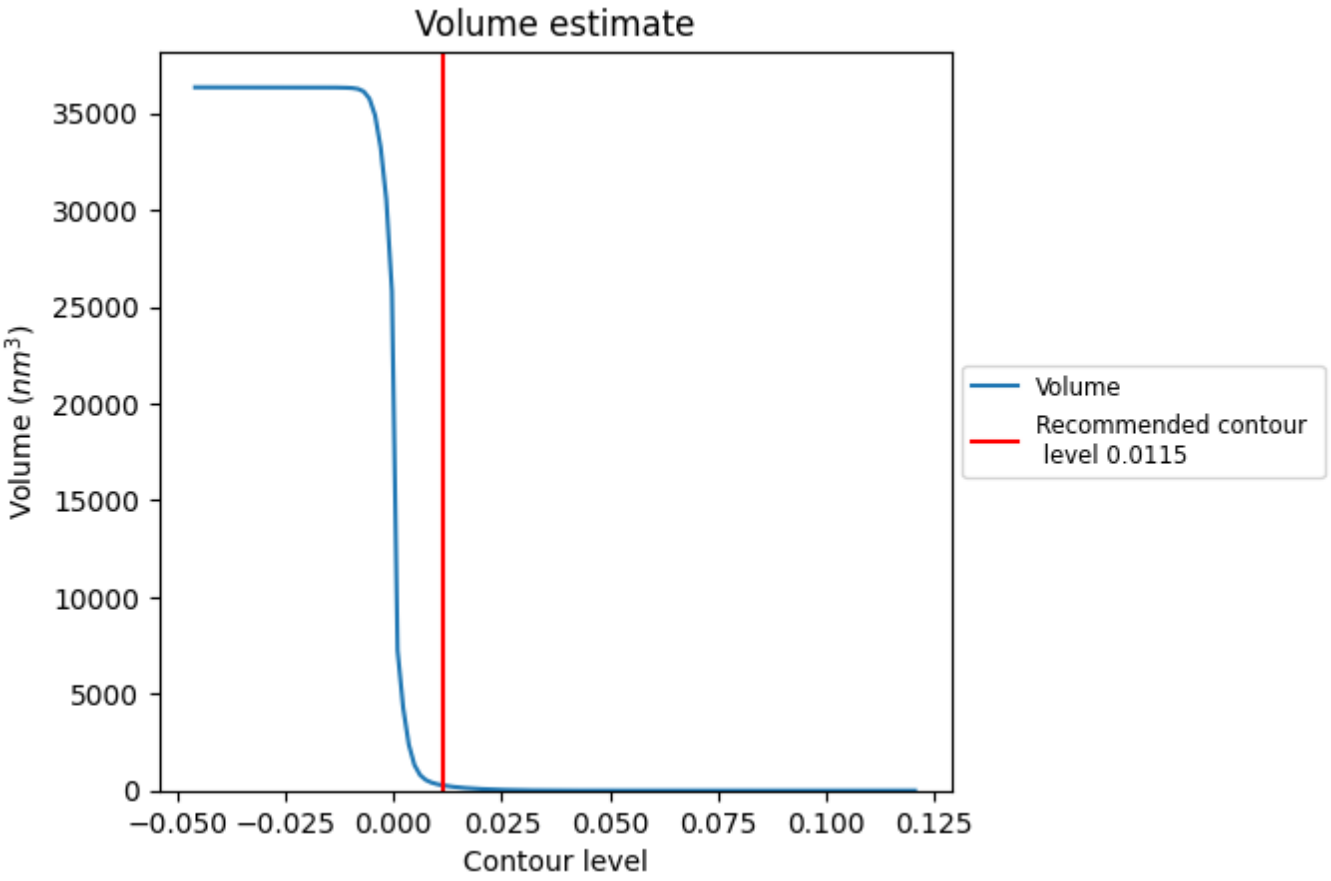
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

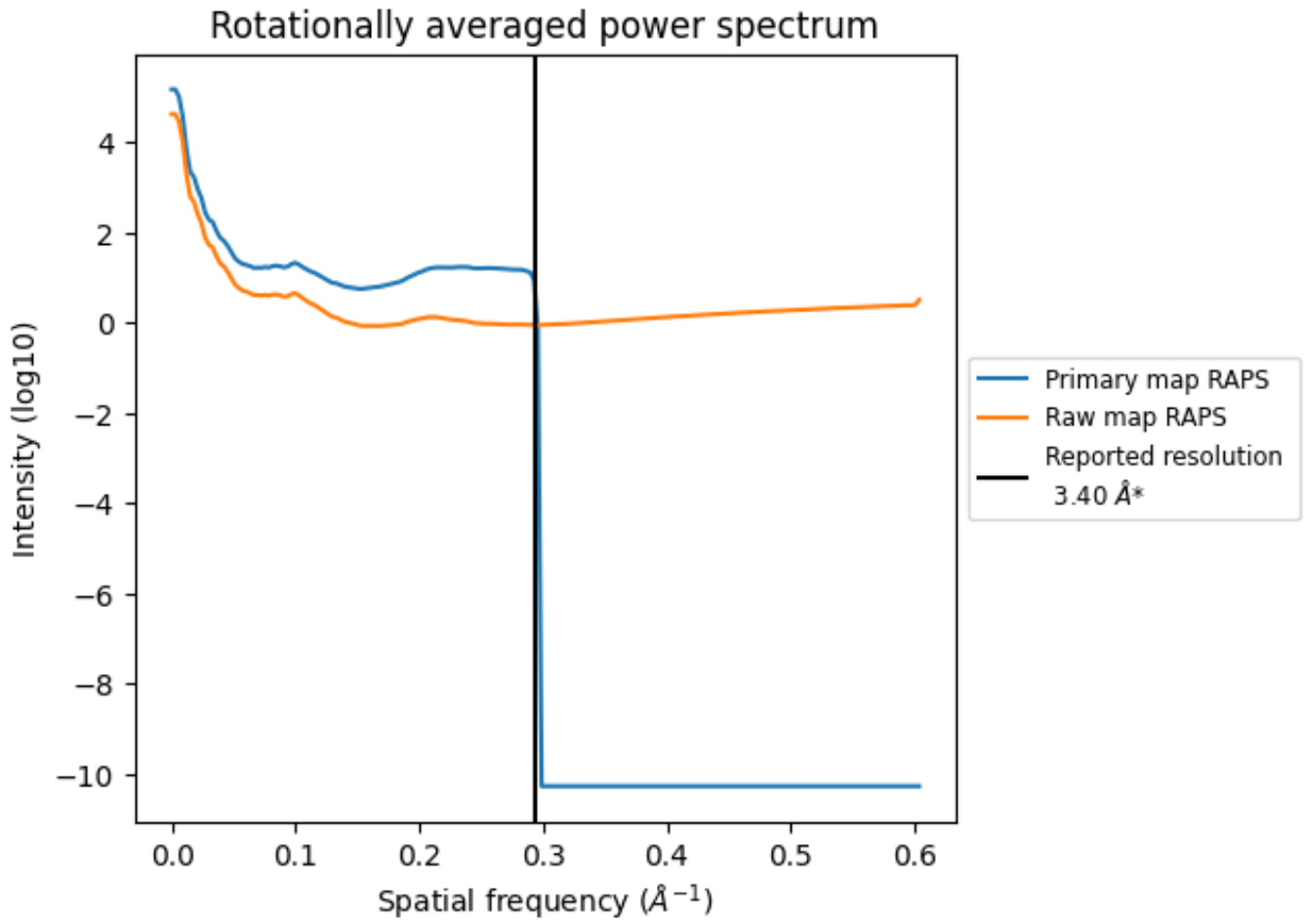
7.2 Volume estimate (i)



The volume at the recommended contour level is 266 nm^3; this corresponds to an approximate mass of 240 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)

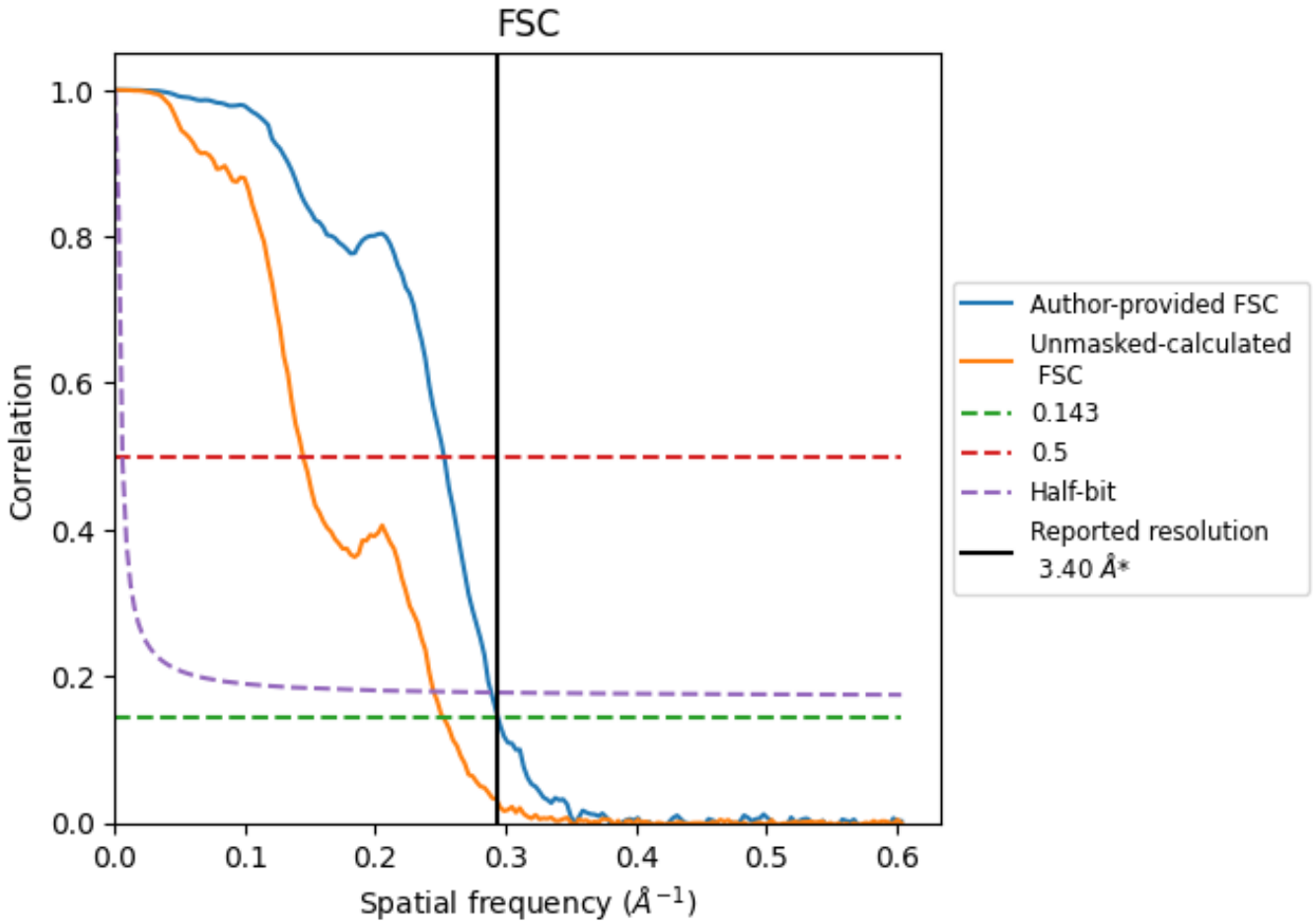


*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8 Fourier-Shell correlation

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

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8.2 Resolution estimates (i)

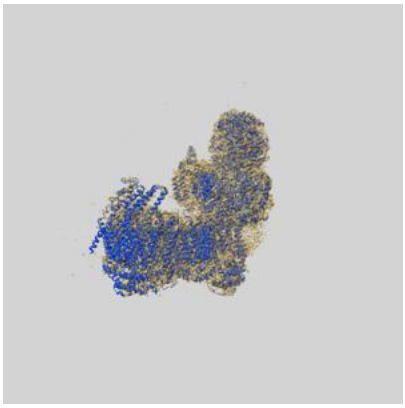
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.40	3.96	3.46
Unmasked-calculated*	3.96	6.92	4.08

*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 3.96 differs from the reported value 3.4 by more than 10 %

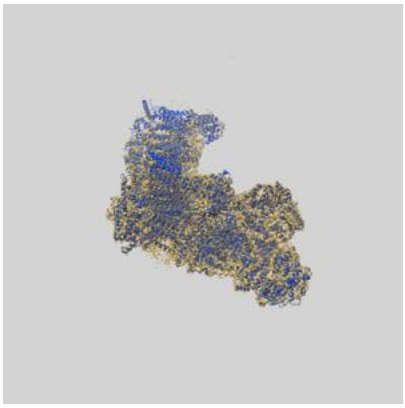
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-12741 and PDB model 7O6Y. Per-residue inclusion information can be found in section 3 on page 21.

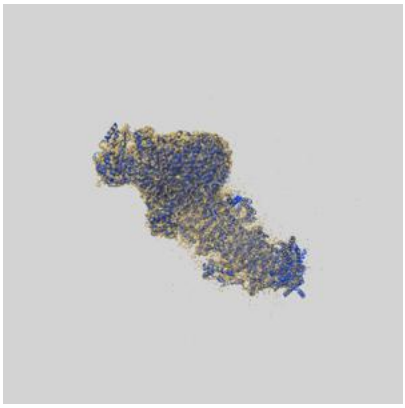
9.1 Map-model overlay



X



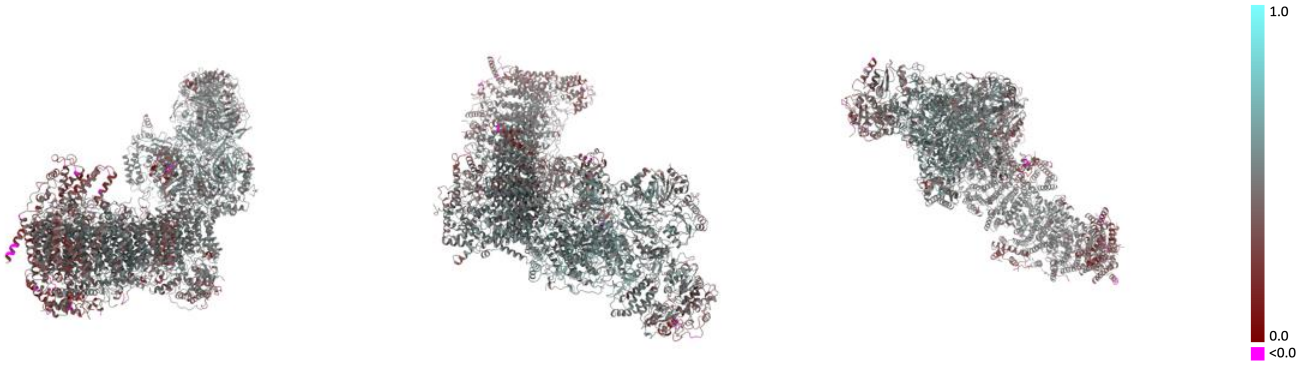
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0115 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.

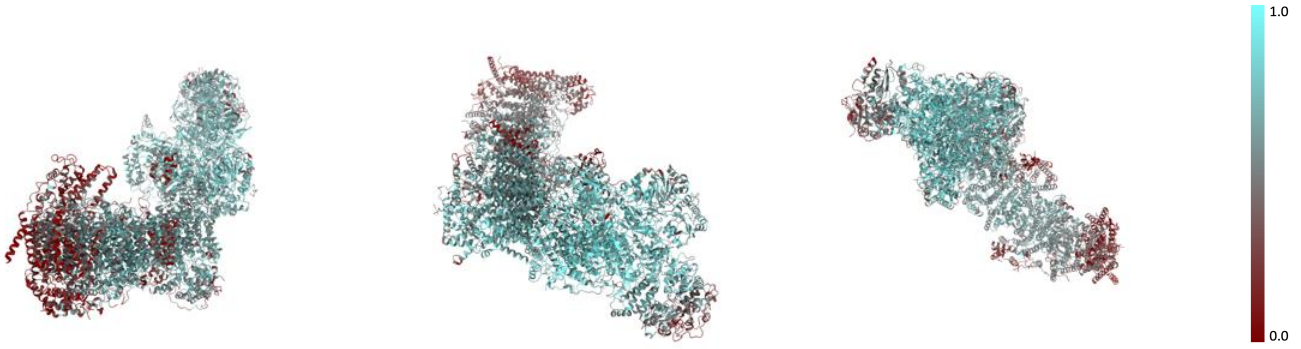
9.2 Q-score mapped to coordinate model



X Y Z

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

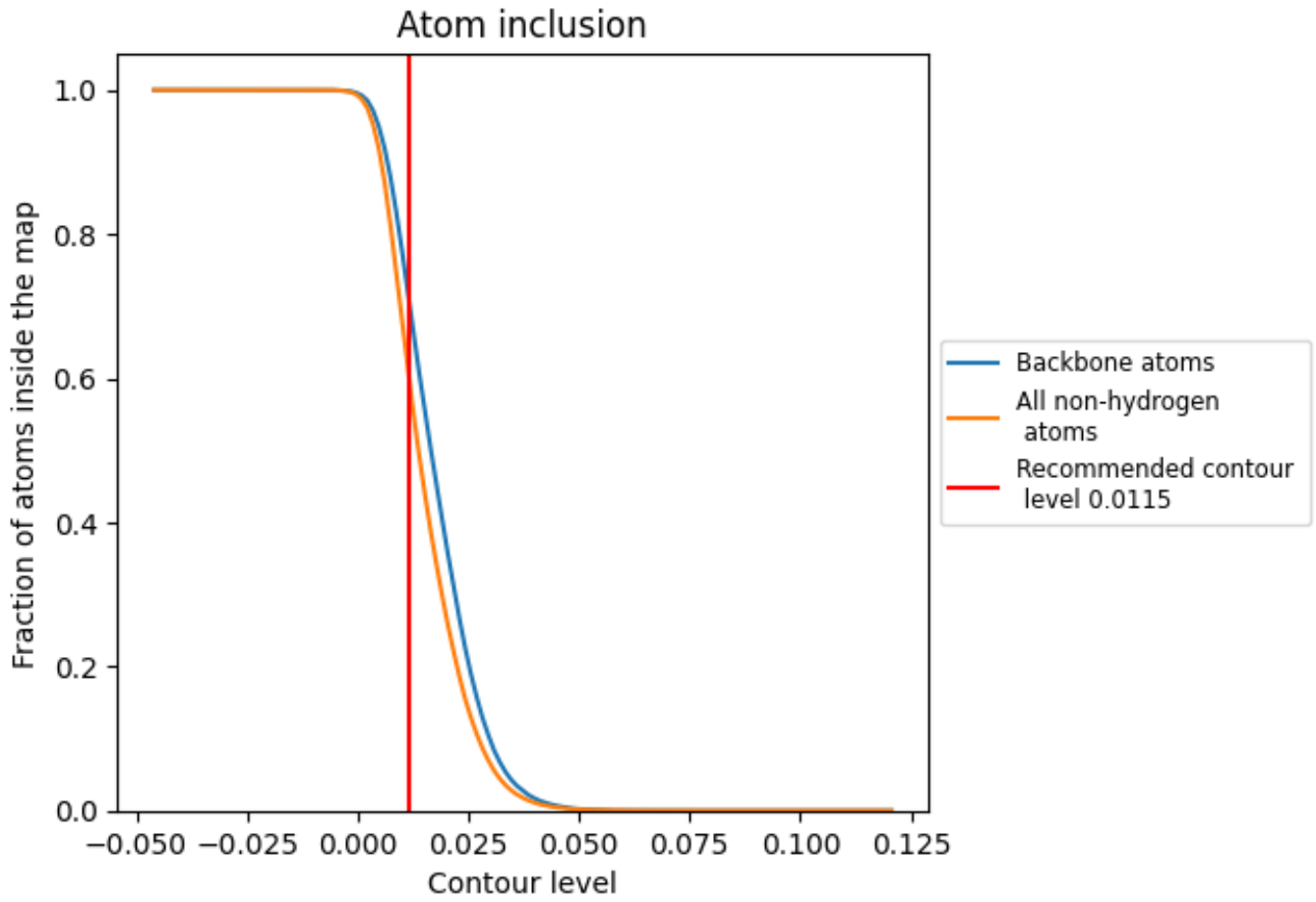
9.3 Atom inclusion mapped to coordinate model



X Y Z

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 (0.0115).

9.4 Atom inclusion (i)



At the recommended contour level, 71% of all backbone atoms, 61% 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 (0.0115) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6050	0.4680
1	0.7027	0.5090
2	0.7168	0.5060
3	0.6412	0.4750
4	0.6329	0.5010
5	0.4041	0.4330
6	0.6082	0.4630
8	0.1109	0.2870
9	0.5167	0.4090
A	0.7222	0.5040
B	0.5712	0.4530
C	0.7647	0.5240
D	0.7134	0.5050
E	0.6864	0.4930
F	0.7081	0.5010
G	0.8106	0.5390
H	0.5192	0.3980
I	0.8097	0.5410
J	0.3756	0.3910
K	0.8033	0.5410
L	0.6408	0.4780
M	0.7561	0.5150
O	0.2705	0.2780
P	0.6502	0.4550
Q	0.1628	0.2710
R	0.3157	0.3550
S	0.3505	0.3580
U	0.6177	0.4590
W	0.6667	0.4770
X	0.6667	0.4760
Y	0.7653	0.5240
Z	0.7324	0.5110
a	0.3007	0.3720
b	0.5436	0.4440
c	0.1711	0.3080

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
d	0.5239	0.4490
e	0.1082	0.3150
f	0.5984	0.4370
g	0.5345	0.4480
h	0.8058	0.5400
i	0.3787	0.4050
j	0.5150	0.4520
n	0.4283	0.4110