Full wwPDB EM Validation Report

Oct 6, 2025 – 10:59 am BST

PDB ID	:	9IHQ / pdb_00009ihq
EMDB ID	:	EMD-52877
Title	:	Closed state with NUQM and without flavoprotein (classification state 2) of Pichia pastoris mitochondrial complex I in cMSP26 nanodiscs
Authors	:	Grba, D.N.; Hirst, J.
Deposited on	:	2025-02-21
Resolution	:	2.90 Å(reported)
Based on initial model	:	9IHR

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 (i) 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 (1)) were used in the production of this report:

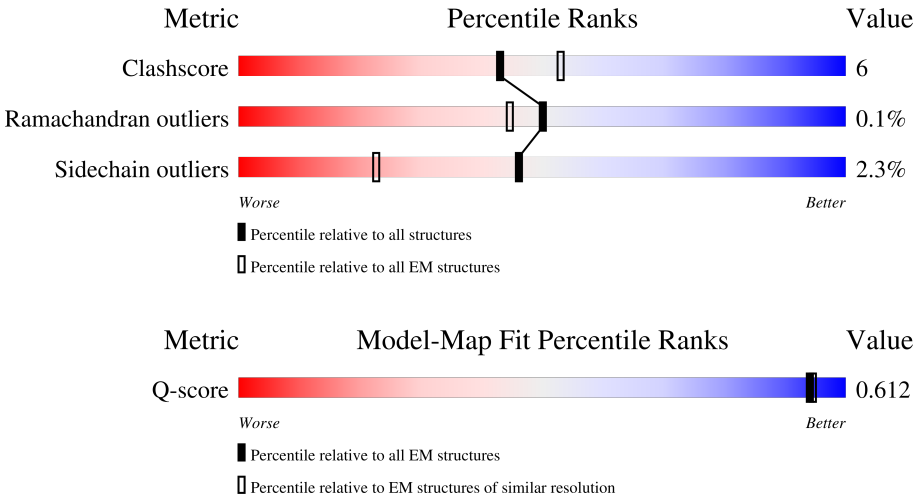
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

1 Overall quality at a glance

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

The reported resolution of this entry is 2.90 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)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	13054 (2.40 - 3.40)

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	1	190	14%, 67%, 21%, 11%
2	A	141	74%, 24%
3	B	204	72%, 13%, 14%
4	C	289	10%, 69%, 14%, 17%

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Mol	Chain	Length	Quality of chain
5	D	482	74% 19% 6%
6	G	726	26% 62% 19% 18%
7	H	353	76% 23%
8	I	222	66% 19% 14%
9	J	161	7% 76% 22%
10	K	82	6% 76% 20%
11	L	642	80% 20%
12	M	491	76% 22%
13	N	523	85% 12%
14	O	193	90% 10%
15	P	384	5% 75% 20%
16	Q	159	47% 8% 46%
17	R	139	17% 78% 11% 11%
18	S	90	70% 77% 22%
19	T	138	62% 6% 31%
20	U	130	8% 58% 10% 32%
21	V	134	79% 15% 6%
22	W	122	6% 75% 18% 6%
23	X	184	92% 8%
24	Y	216	6% 85% 10% 5%
25	Z	147	84% 12%
26	a	150	84% 15%
27	b	79	87% 11%
28	c	182	24% 74% 15% 12%
29	d	78	86% 10%

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Mol	Chain	Length	Quality of chain
30	e	106	92% 8%
31	f	86	84% 7% 9%
32	g	239	28% 54% 12% 34%
33	h	182	62% 9% 28%
34	i	74	11% 76% 16% 7%
35	j	59	10% 78% 10% 10%
36	k	61	10% 62% 11% 26%
37	l	156	74% 10% 15%
38	m	81	6% 89% 6% 5%
39	n	111	6% 85% 10% 5%
40	o	87	8% 71% 21% 8%
41	p	92	79% 18%
42	q	140	6% 81% 17%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
44	SF4	I	301	-	-	X	-
44	SF4	I	302	-	-	X	-

2 Entry composition

There are 51 unique types of molecules in this entry. The entry contains 64071 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 Altered inheritance of mitochondria protein 41, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1	169	1383	879	231	272	1	0	0

- Molecule 2 is a protein called NADH-ubiquinone oxidoreductase chain 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	A	141	1133	764	166	199	4	0	0

- Molecule 3 is a protein called BA75_00622T0.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	B	175	1407	901	241	249	16	0	0

- Molecule 4 is a protein called NUGM (30 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	C	240	1970	1273	331	361	5	0	0

- Molecule 5 is a protein called NUCM (49 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	D	451	3621	2310	619	674	18	0	0

- Molecule 6 is a protein called NUAM (75 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	592	Total	C	N	O	S	0	0
			4563	2862	798	882	21		

- Molecule 7 is a protein called NADH-ubiquinone oxidoreductase chain 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	H	353	Total	C	N	O	S	0	0
			2809	1903	414	478	14		

- Molecule 8 is a protein called NUIM (TYKY) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
8	I	192	Total	C	N	O	S	0	0
			1556	988	259	299	10		

- Molecule 9 is a protein called NADH-ubiquinone oxidoreductase chain 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	J	161	Total	C	N	O	S	0	0
			1313	878	180	252	3		

- Molecule 10 is a protein called NULM (ND4L) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
10	K	80	Total	C	N	O	S	0	0
			617	400	93	118	6		

- Molecule 11 is a protein called NADH-ubiquinone oxidoreductase chain 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	L	642	Total	C	N	O	S	0	0
			5115	3454	766	866	29		

- Molecule 12 is a protein called NADH-ubiquinone oxidoreductase chain 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	491	Total	C	N	O	S	0	0
			3868	2597	593	663	15		

- Molecule 13 is a protein called NADH-ubiquinone oxidoreductase chain 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	N	506	Total	C	N	O	S	0	0
			4045	2723	594	714	14		

- Molecule 14 is a protein called NUXM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	193	Total	C	N	O	S	0	0
			1575	1019	257	294	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
O	0	ACE	-	acetylation	UNP E1UWB9

- Molecule 15 is a protein called NUEM (39 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
15	P	368	Total	C	N	O	S	0	0
			2922	1862	510	547	3		

- Molecule 16 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	Q	86	Total	C	N	O	S	0	0
			711	451	119	139	2		

- Molecule 17 is a protein called NUMM (13 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
17	R	124	Total	C	N	O	S	0	0
			978	610	179	186	3		

- Molecule 18 is a protein called NI8M (B8) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
18	S	90	Total	C	N	O	0	0
			697	454	117	126		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
S	0	ACE	-	acetylation	UNP E1UWD3

- Molecule 19 is a protein called Acyl carrier protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	T	95	Total	C	N	O	S	0	0
			745	467	119	158	1		

- Molecule 20 is a protein called Acyl carrier protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	U	88	Total	C	N	O	0	0
			681	427	102	152		

- Molecule 21 is a protein called NUFM (B13) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
21	V	126	Total	C	N	O	S	0	0
			1025	658	165	201	1		

- Molecule 22 is a protein called BA75_04796T0.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	W	115	Total	C	N	O	S	0	0
			979	626	177	171	5		

- Molecule 23 is a protein called NADH-ubiquinone oxidoreductase.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	X	184	Total	C	N	O	S	0	0
			1450	905	253	282	10		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
X	0	ACE	-	acetylation	UNP E1UWB8

- Molecule 24 is a protein called NUJM (B14.7) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
24	Y	205	Total	C	N	O	S	0	0
			1578	1012	274	289	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
25	Z	142	Total	C	N	O	S	0	0
			1176	758	212	202	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Z	0	ACE	-	acetylation	UNP E1UWD8

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

Mol	Chain	Residues	Atoms					AltConf	Trace
26	a	149	Total	C	N	O	S	0	0
			1215	756	228	225	6		

- Molecule 27 is a protein called NI9M (B9) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
27	b	78	Total	C	N	O	S	0	0
			641	419	111	109	2		

- Molecule 28 is a protein called BA75_00589T0.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	c	161	Total	C	N	O	S	0	0
			1256	799	221	234	2		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
c	0	ACE	-	acetylation	UNP E1UWC1

- Molecule 29 is a protein called Pichia pastoris NADH-ubiquinone oxidoreductase subunit NEBM.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	d	75	Total	C	N	O	S	0	0
			616	406	106	103	1		

- Molecule 30 is a protein called BA75_05084T0.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	e	105	Total	C	N	O	S	0	0
			848	531	154	157	6		

- Molecule 31 is a protein called NUTM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
31	f	78	Total	C	N	O	0	0
			642	428	113	101		

- Molecule 32 is a protein called NESM (ESSS) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	158	Total	C	N	O	S	0	0
			1280	815	210	252	3		

- Molecule 33 is a protein called NUSM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
33	h	131	Total	C	N	O	0	0
			1078	699	183	196		

- Molecule 34 is a protein called NUUM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
34	i	69	Total	C	N	O	S	0	0
			552	358	95	97	2		

- Molecule 35 is a protein called Subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
35	j	53	Total	C	N	O	S	0	0
			460	319	76	64	1		

- Molecule 36 is a protein called NB2M (B12) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
36	k	45	Total	C	N	O	S	0	0
			368	240	71	56	1		

- Molecule 37 is a protein called NIAM (ASHI) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
37	l	132	Total	C	N	O	S	0	0
			1082	706	175	200	1		

- Molecule 38 is a protein called NB5M (B15) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms				AltConf	Trace
38	m	77	Total	C	N	O	0	0
			642	418	116	108		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
39	n	105	Total	C	N	O	S	0	0
			861	550	155	155	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	o	80	Total	C	N	O	S	0	0
			682	428	126	122	6		

- Molecule 41 is a protein called NIDM (PDSW) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
41	p	90	Total	C	N	O	S	0	0
			740	457	135	144	4		

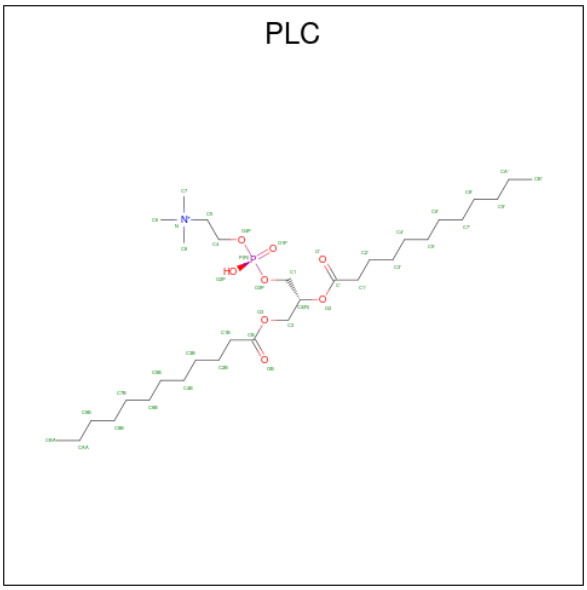
- Molecule 42 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	q	140	Total	C	N	O	S	0	0
			1156	741	201	211	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
q	0	ACE	-	acetylation	UNP E1UWE0

- Molecule 43 is DIUNDECYL PHOSPHATIDYL CHOLINE (CCD ID: PLC) (formula: $C_{32}H_{65}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
43	A	1	Total	C	N	O	P	0
			31	21	1	8	1	
43	B	1	Total	C	N	O	P	0
			31	21	1	8	1	
43	D	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	H	1	Total	C	N	O	P	0
			24	14	1	8	1	

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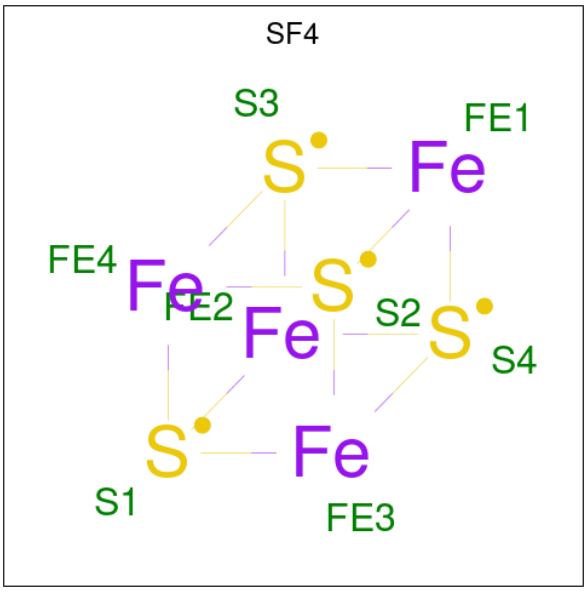
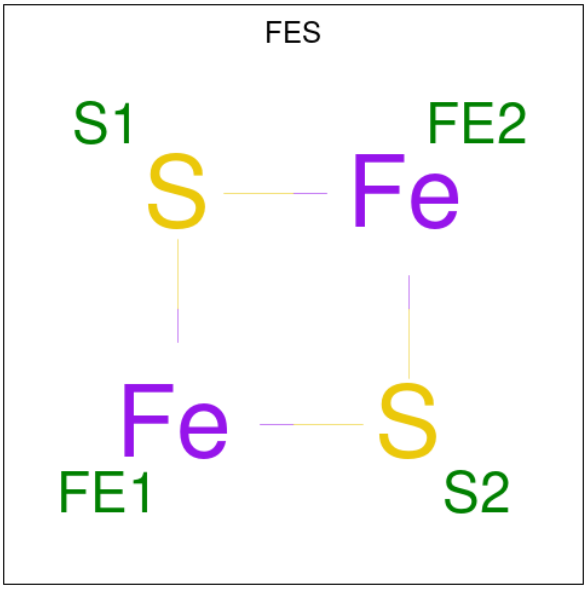
Mol	Chain	Residues	Atoms					AltConf
43	L	1	Total	C	N	O	P	0
			35	25	1	8	1	
43	L	1	Total	C	N	O	P	0
			32	22	1	8	1	
43	L	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	M	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	M	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	P	1	Total	C	N	O	P	0
			31	21	1	8	1	
43	Y	1	Total	C	N	O	P	0
			36	26	1	8	1	
43	Y	1	Total	C	N	O	P	0
			36	26	1	8	1	
43	Z	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	a	1	Total	C	N	O	P	0
			22	12	1	8	1	
43	b	1	Total	C	N	O	P	0
			39	29	1	8	1	
43	d	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	d	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	g	1	Total	C	N	O	P	0
			39	29	1	8	1	
43	h	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	q	1	Total	C	N	O	P	0
			42	32	1	8	1	
43	q	1	Total	C	N	O	P	0
			36	26	1	8	1	

- Molecule 44 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4).



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

- Molecule 45 is FE2/S2 (INORGANIC) CLUSTER (CCD ID: FES) (formula: Fe_2S_2).

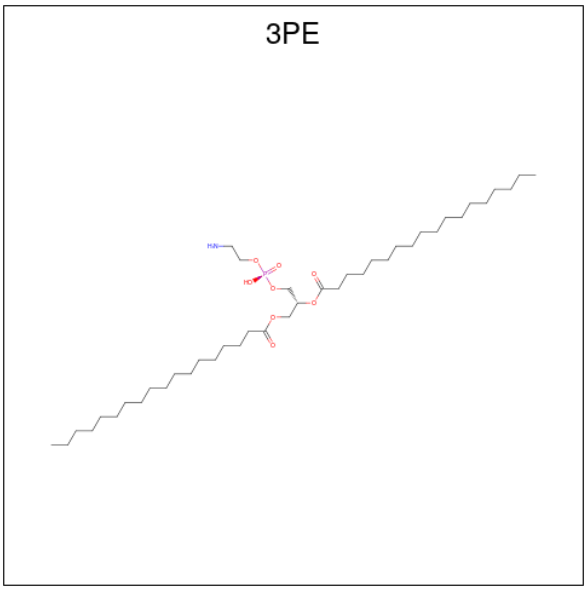


Mol	Chain	Residues	Atoms			AltConf
45	G	1	Total	Fe	S	0
			4	2	2	

- Molecule 46 is POTASSIUM ION (CCD ID: K) (formula: K).

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

- Molecule 47 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (CCD ID: 3PE) (formula: $C_{41}H_{82}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
47	H	1	Total	C	N	O	P	0
			31	21	1	8	1	
47	L	1	Total	C	N	O	P	0
			29	19	1	8	1	
47	L	1	Total	C	N	O	P	0
			42	32	1	8	1	
47	L	1	Total	C	N	O	P	0
			33	23	1	8	1	
47	L	1	Total	C	N	O	P	0
			51	41	1	8	1	
47	L	1	Total	C	N	O	P	0
			51	41	1	8	1	
47	L	1	Total	C	N	O	P	0
			46	36	1	8	1	

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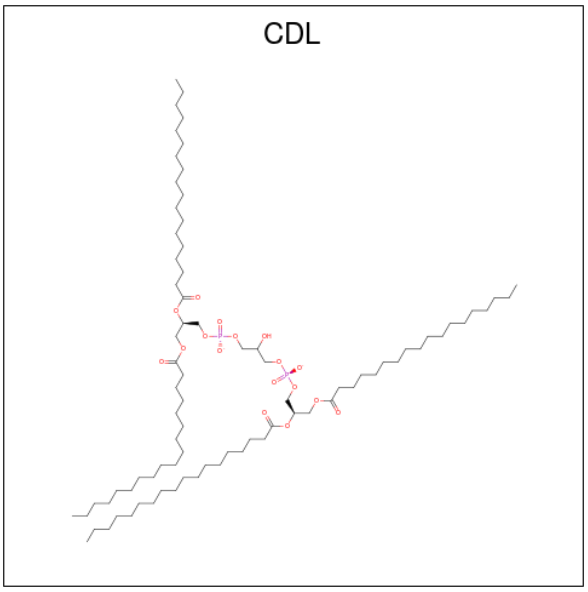
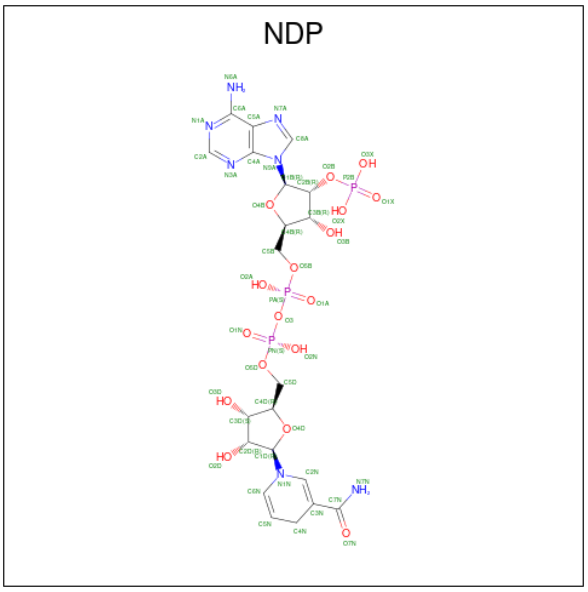
Mol	Chain	Residues	Atoms					AltConf
47	L	1	Total	C	N	O	P	0
			51	41	1	8	1	
47	L	1	Total	C	N	O	P	0
			46	36	1	8	1	
47	L	1	Total	C	N	O	P	0
			51	41	1	8	1	
47	M	1	Total	C	N	O	P	0
			35	25	1	8	1	
47	N	1	Total	C	N	O	P	0
			40	30	1	8	1	
47	O	1	Total	C	N	O	P	0
			31	21	1	8	1	
47	O	1	Total	C	N	O	P	0
			35	25	1	8	1	
47	Y	1	Total	C	N	O	P	0
			26	16	1	8	1	
47	Z	1	Total	C	N	O	P	0
			36	26	1	8	1	
47	b	1	Total	C	N	O	P	0
			40	30	1	8	1	
47	f	1	Total	C	N	O	P	0
			51	41	1	8	1	
47	j	1	Total	C	N	O	P	0
			27	17	1	8	1	
47	m	1	Total	C	N	O	P	0
			25	15	1	8	1	
47	m	1	Total	C	N	O	P	0
			35	25	1	8	1	

- Molecule 48 is CARDIOLIPIN (CCD ID: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



Mol	Chain	Residues	Atoms				AltConf
48	O	1	Total	C	O	P	0
			75	56	17	2	
48	P	1	Total	C	O	P	0
			42	23	17	2	
48	Z	1	Total	C	O	P	0
			49	30	17	2	
48	b	1	Total	C	O	P	0
			59	40	17	2	
48	c	1	Total	C	O	P	0
			60	41	17	2	

- Molecule 49 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$).

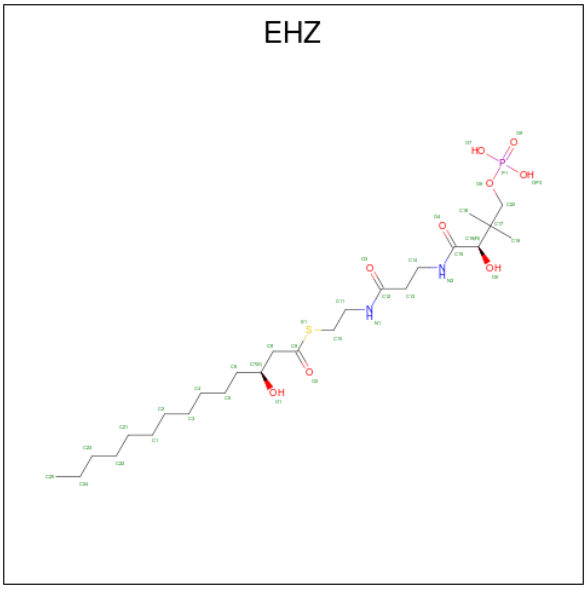


Mol	Chain	Residues	Atoms					AltConf
49	P	1	Total	C	N	O	P	0
			48	21	7	17	3	

- Molecule 50 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

- Molecule 51 is {S}-[2-[3-[[(2 {R})-3,3-dimethyl-2-oxidanyl-4-phosphonooxy-butanoyl]amino]propanoylamino]ethyl] (3 {S})-3-oxidanyltetradecanethioate (CCD ID: EHZ) (formula: $C_{25}H_{49}N_2O_9PS$).



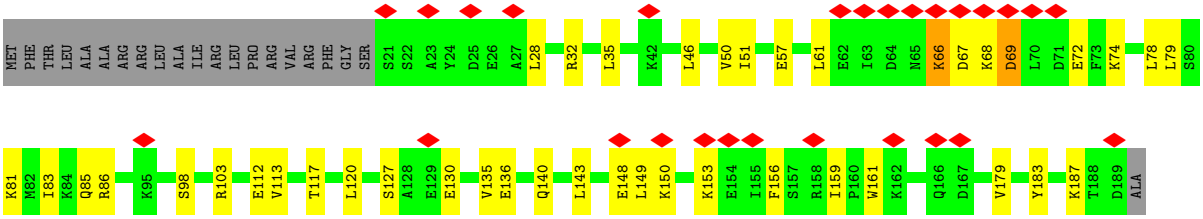
Mol	Chain	Residues	Atoms						AltConf
51	T	1	Total	C	N	O	P	S	0
			37	25	2	8	1	1	
51	U	1	Total	C	N	O	P	S	0
			37	25	2	8	1	1	

3 Residue-property plots (i)

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

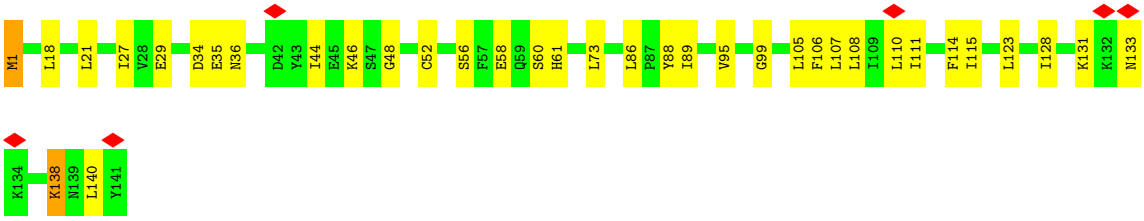
• Molecule 1: Altered inheritance of mitochondria protein 41, mitochondrial

Chain 1:



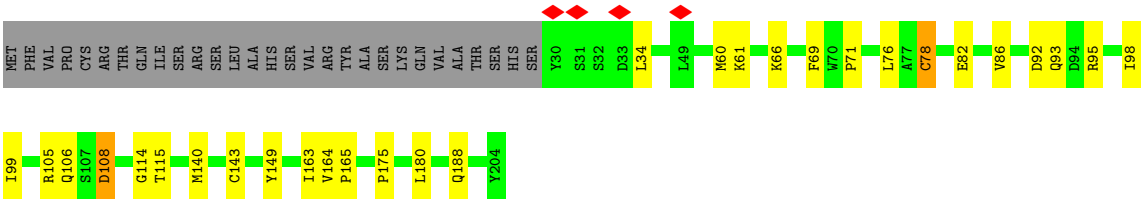
• Molecule 2: NADH-ubiquinone oxidoreductase chain 3

Chain A:



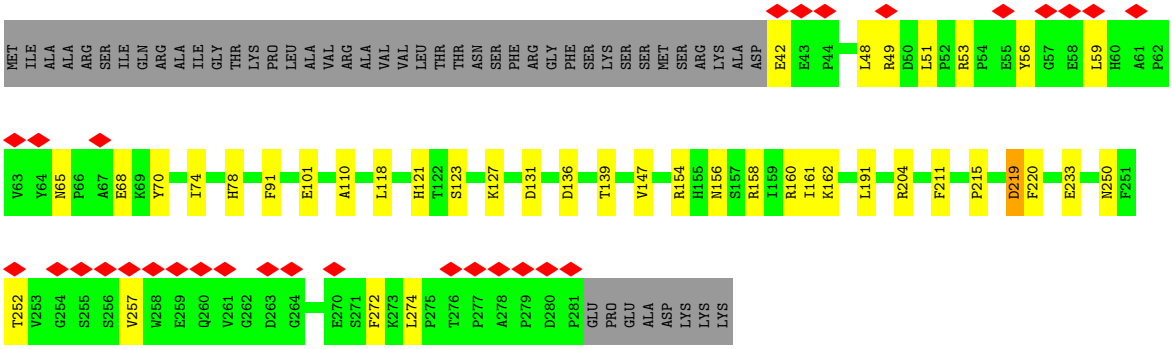
• Molecule 3: BA75_00622T0

Chain B:



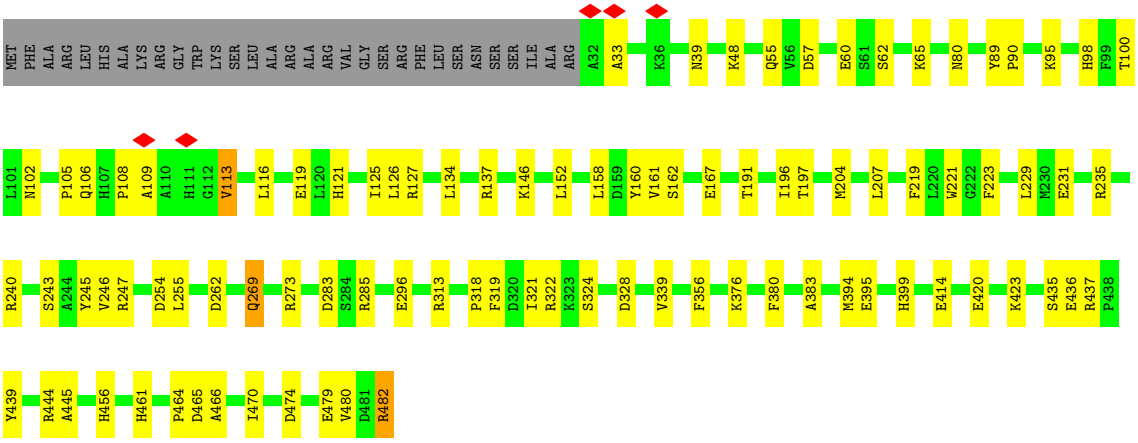
• Molecule 4: NUGM (30 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain C:



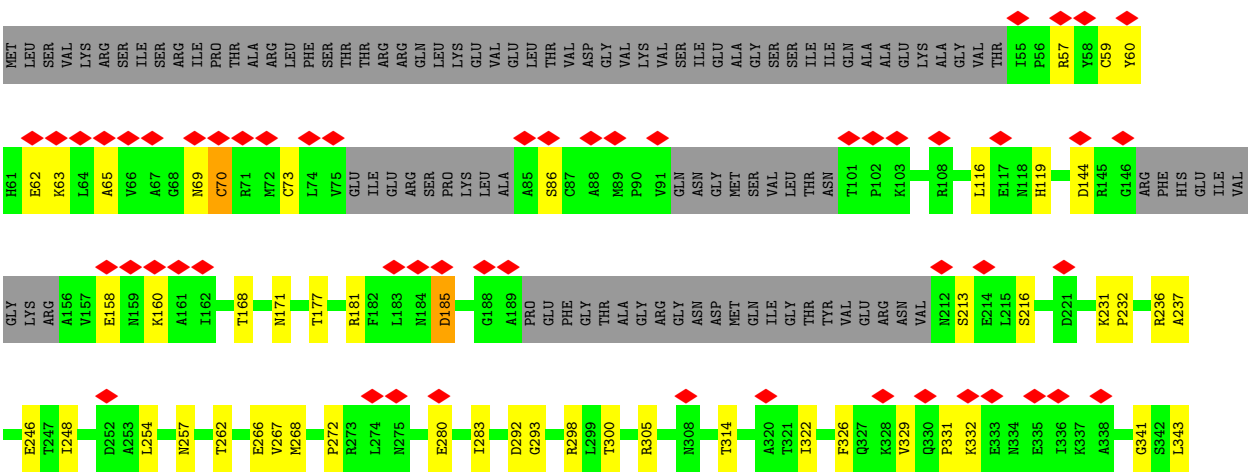
• Molecule 5: NUCM (49 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

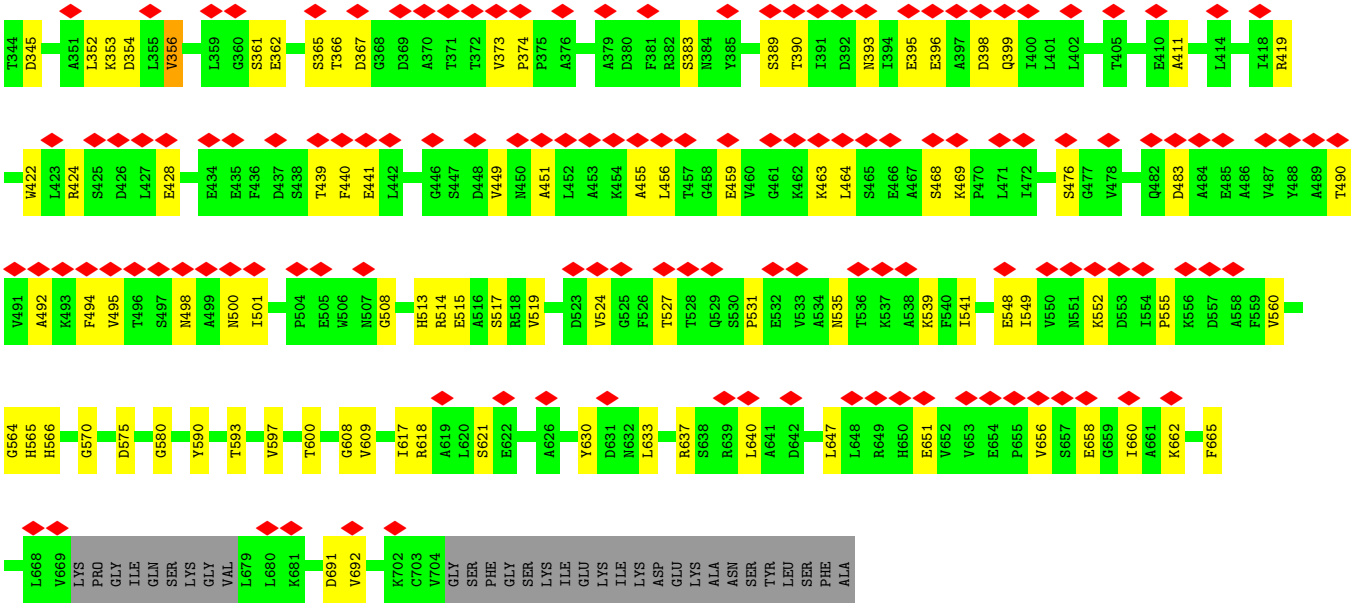
Chain D:



• Molecule 6: NUAM (75 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

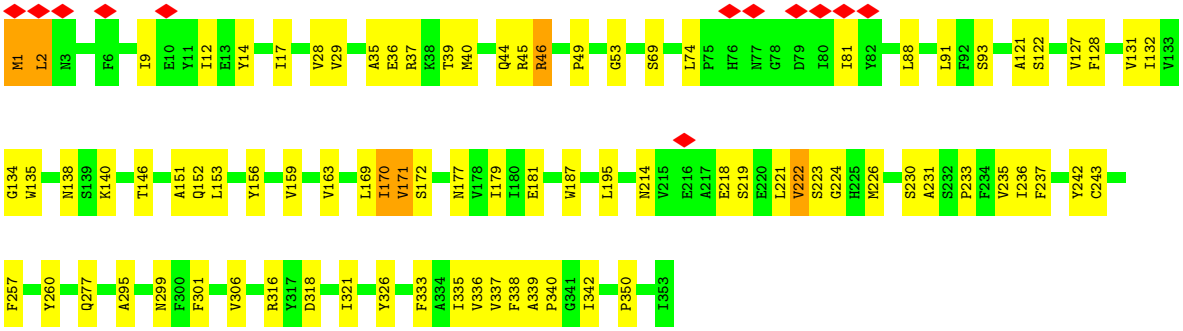
Chain G:





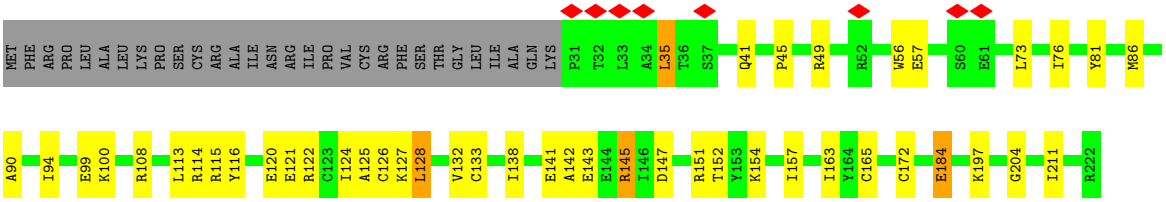
• Molecule 7: NADH-ubiquinone oxidoreductase chain 1

Chain H:



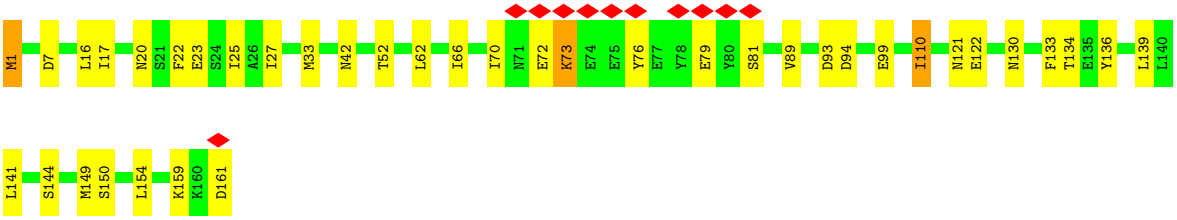
• Molecule 8: NUIM (TYKY) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain I:

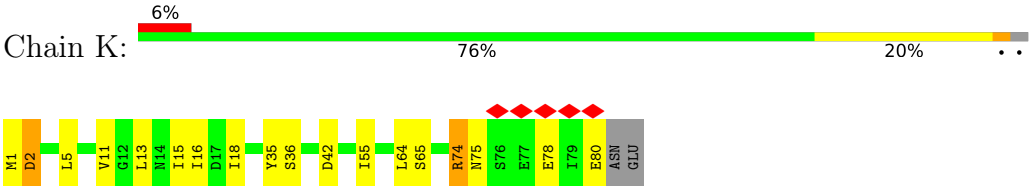


• Molecule 9: NADH-ubiquinone oxidoreductase chain 6

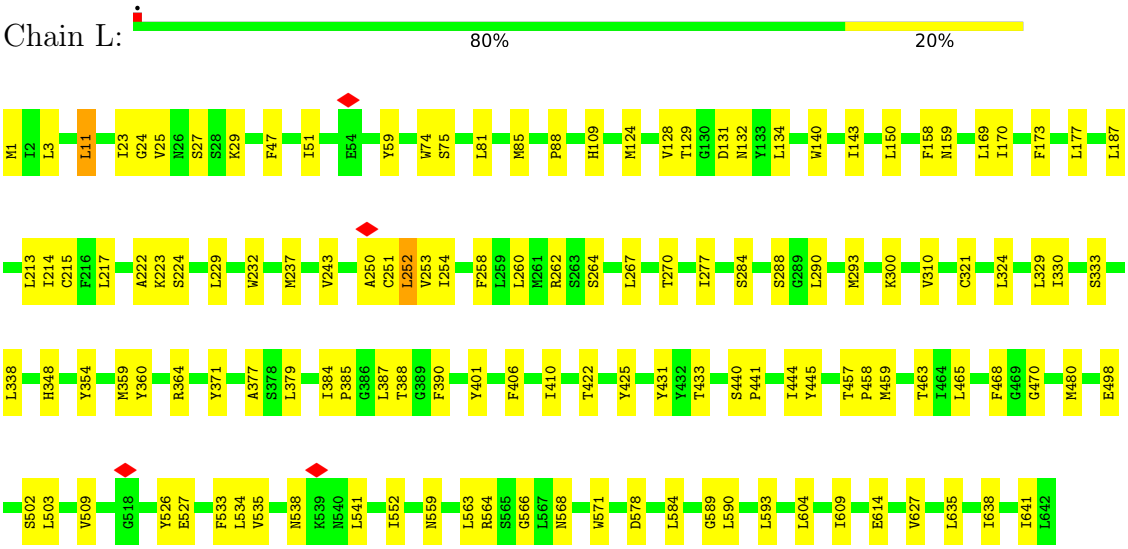
Chain J:



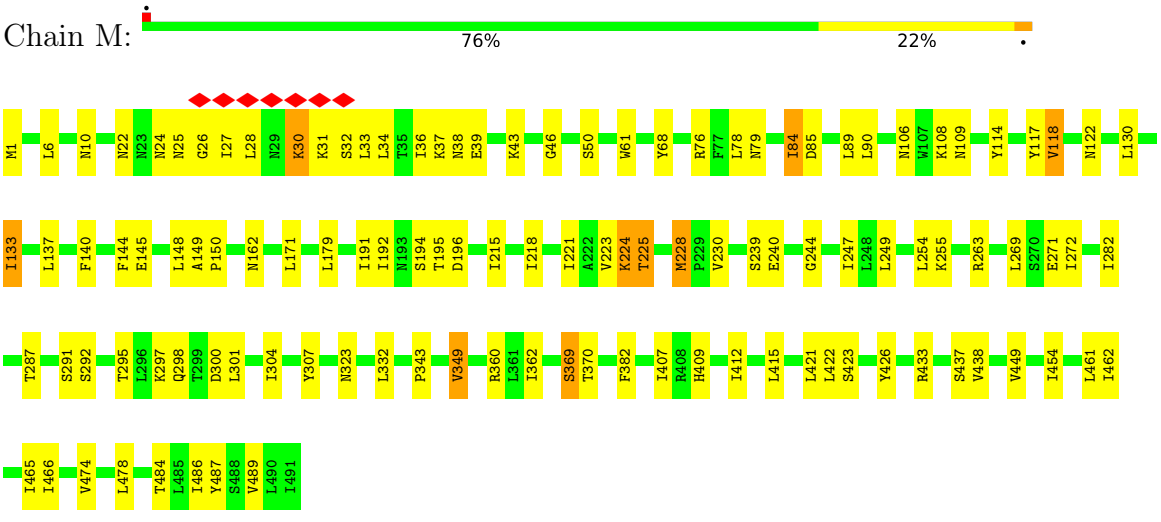
• Molecule 10: NULM (ND4L) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)



• Molecule 11: NADH-ubiquinone oxidoreductase chain 5

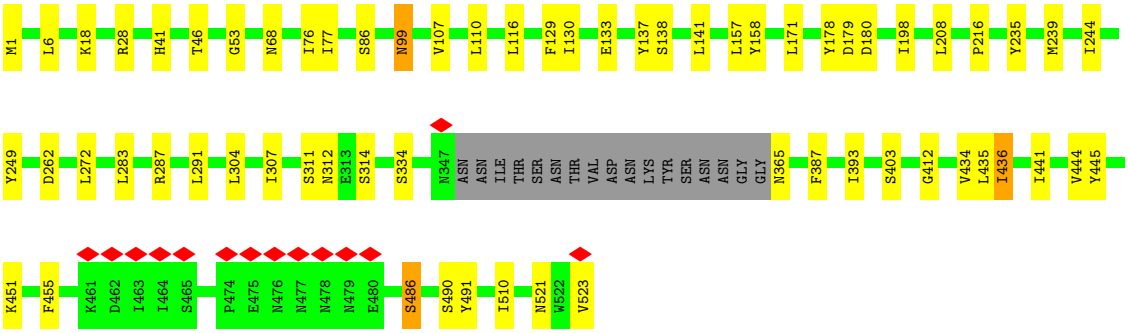


• Molecule 12: NADH-ubiquinone oxidoreductase chain 4



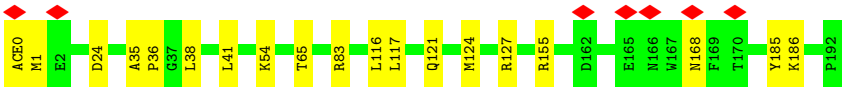
• Molecule 13: NADH-ubiquinone oxidoreductase chain 2

Chain N:



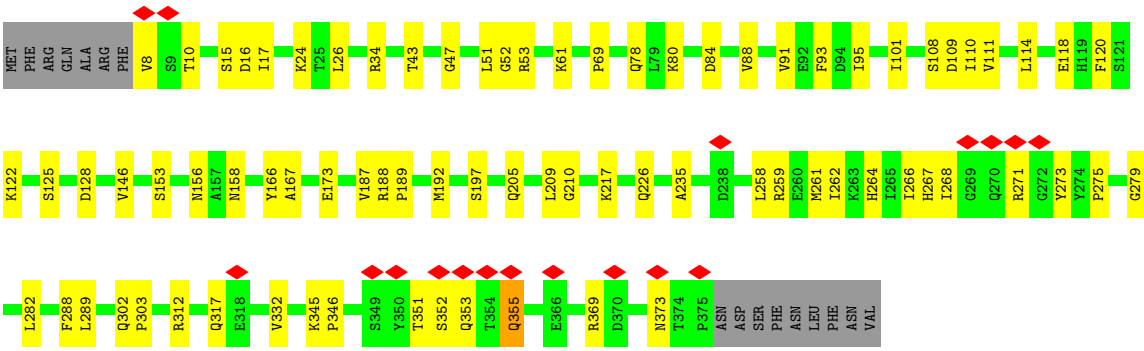
• Molecule 14: NUXM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain O:



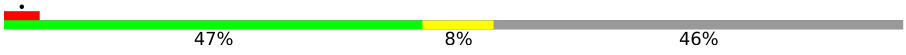
• Molecule 15: NUEM (39 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

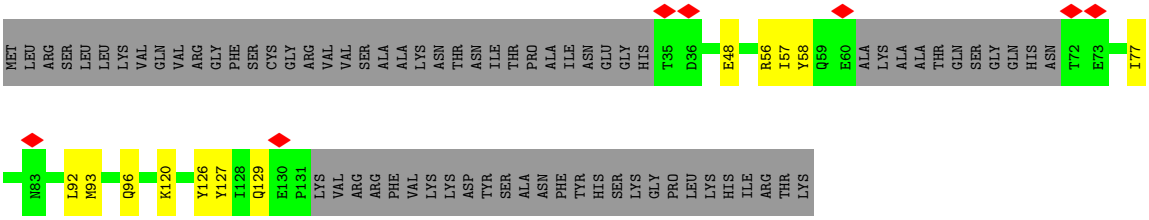
Chain P:



• Molecule 16: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

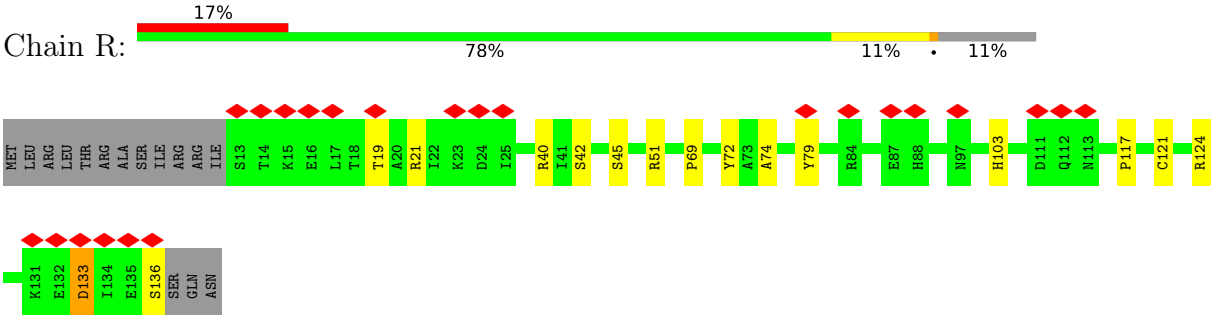
Chain Q:





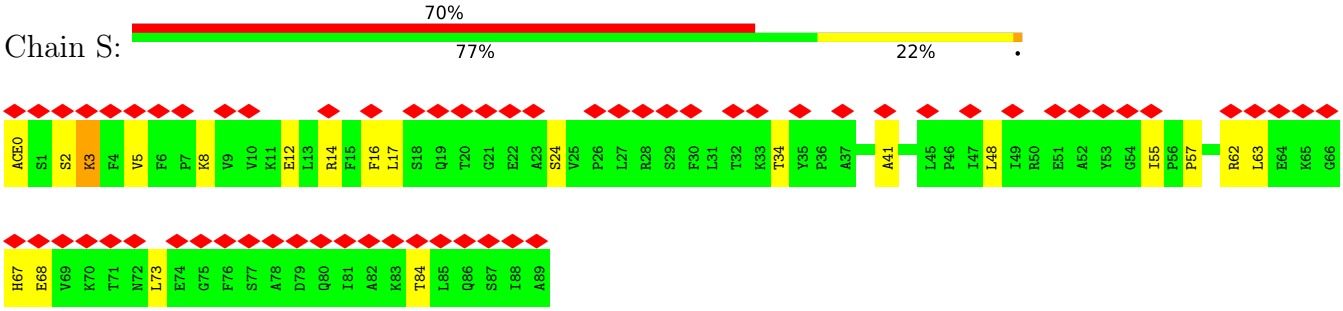
• Molecule 17: NUMM (13 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain R:



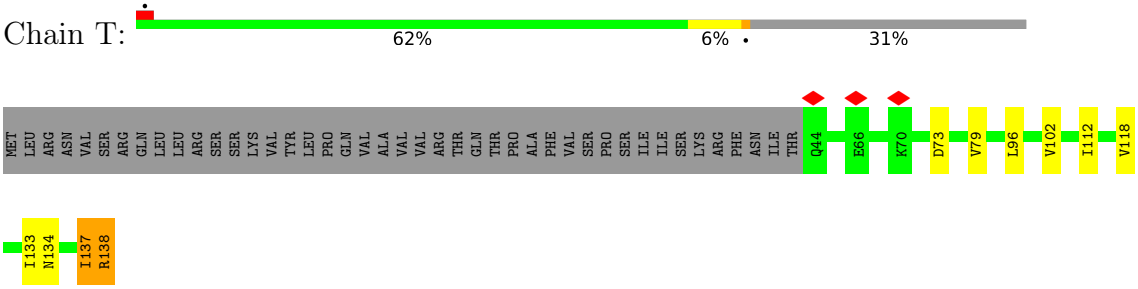
• Molecule 18: NI8M (B8) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain S:



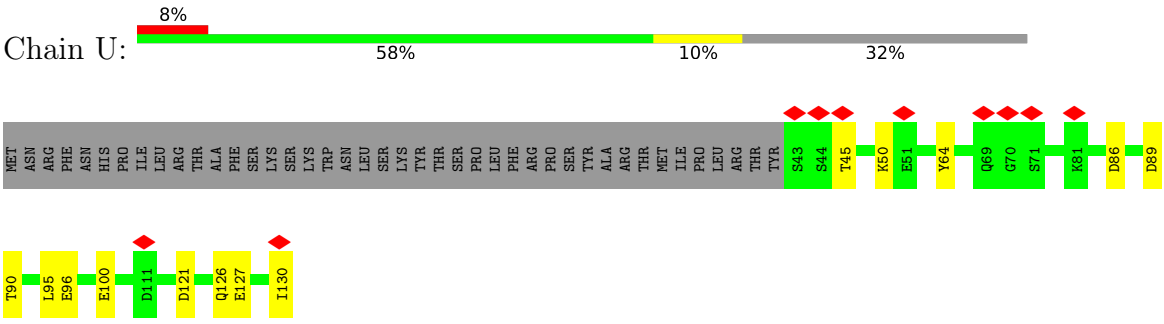
• Molecule 19: Acyl carrier protein

Chain T:



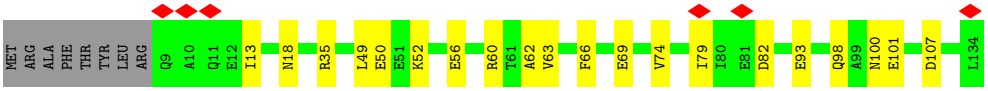
• Molecule 20: Acyl carrier protein

Chain U:

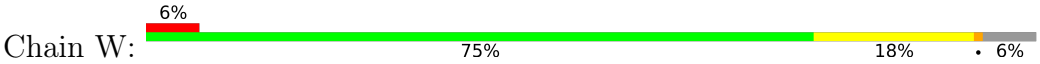


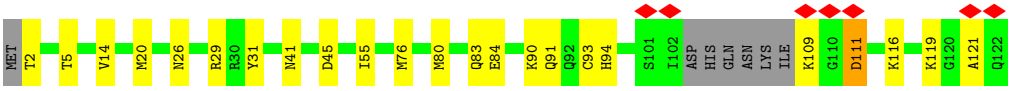
• Molecule 21: NUFM (B13) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain V:

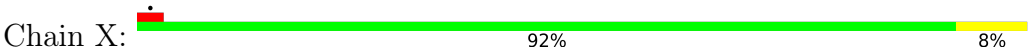


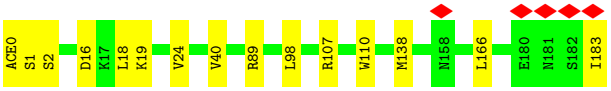
• Molecule 22: BA75_04796T0



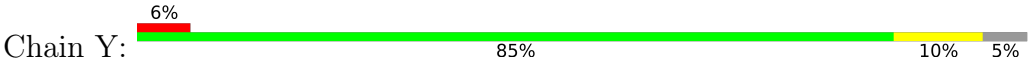


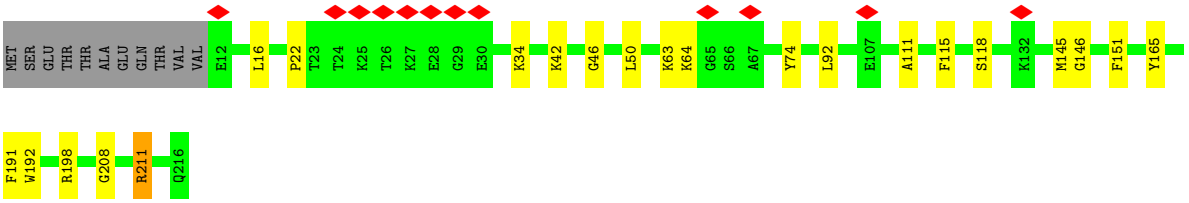
• Molecule 23: NADH-ubiquinone oxidoreductase



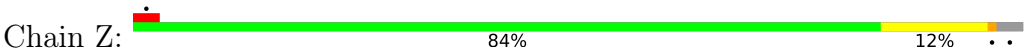


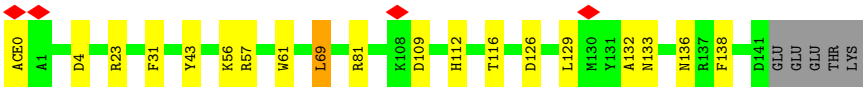
• Molecule 24: NUJM (B14.7) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)



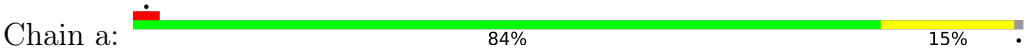


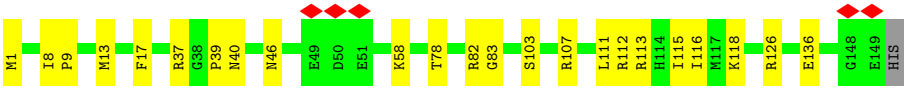
• Molecule 25: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13



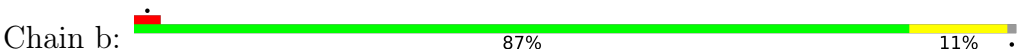


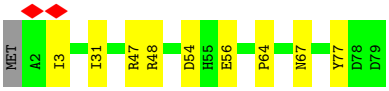
• Molecule 26: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1





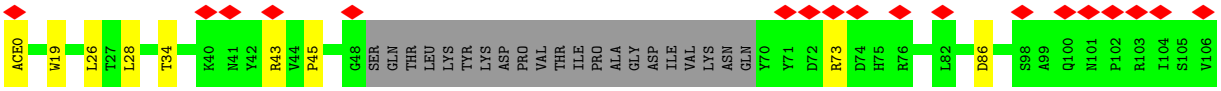
• Molecule 27: NI9M (B9) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

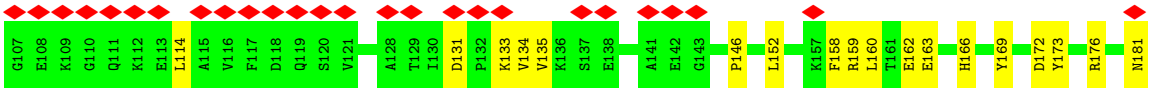




• Molecule 28: BA75_00589T0

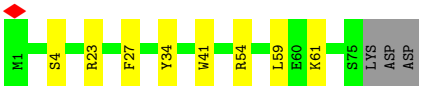
Chain c:





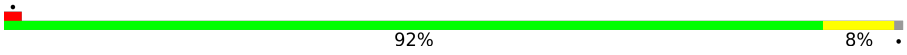
• Molecule 29: Pichia pastoris NADH-ubiquinone oxidoreductase subunit NEBM

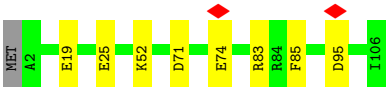
Chain d:



• Molecule 30: BA75_05084T0

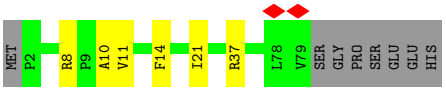
Chain e:





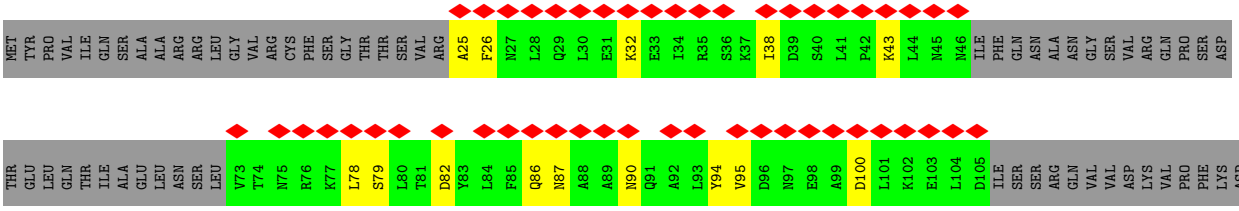
• Molecule 31: NUTM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

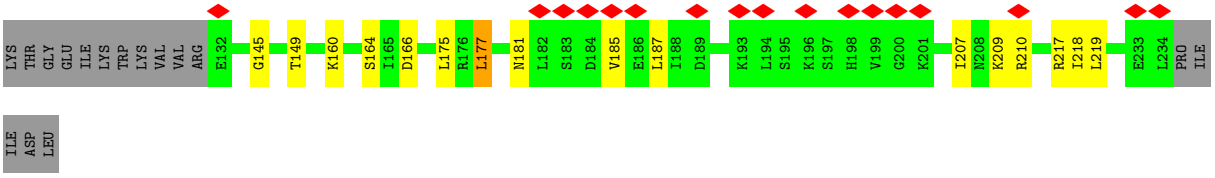
Chain f:



• Molecule 32: NESM (ESSS) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

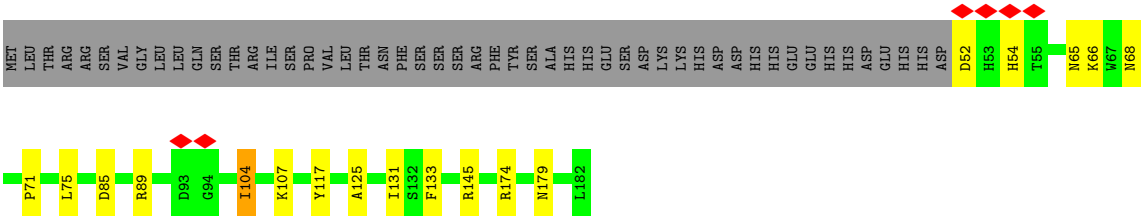
Chain g:





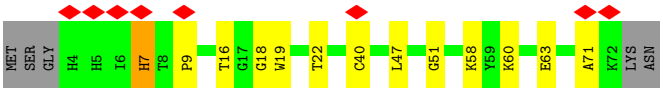
• Molecule 33: NUSM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain h:



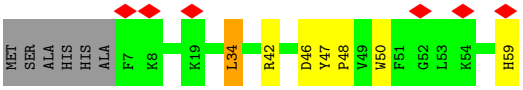
• Molecule 34: NUUM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain i:



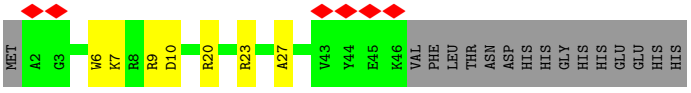
• Molecule 35: Subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain j:



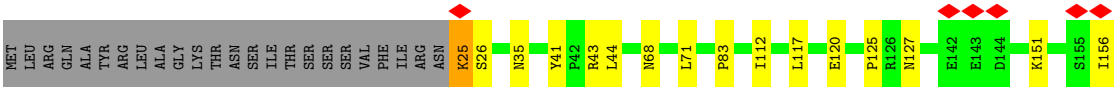
• Molecule 36: NB2M (B12) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain k:



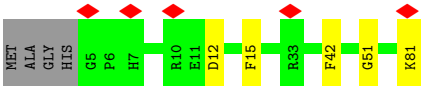
• Molecule 37: NIAM (ASHI) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain l:



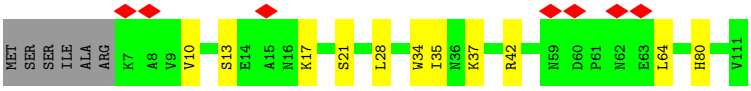
• Molecule 38: NB5M (B15) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain m:



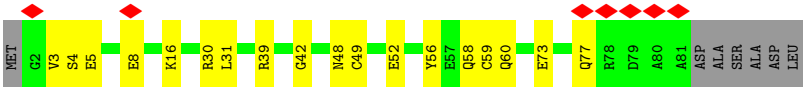
• Molecule 39: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9

Chain n:



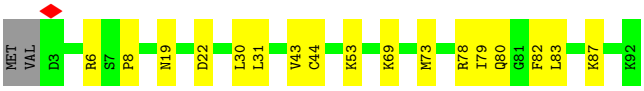
• Molecule 40: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7

Chain o:



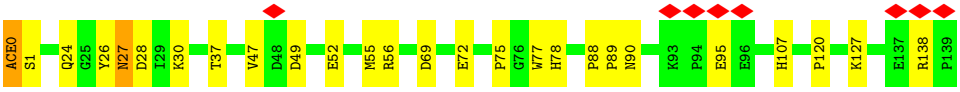
• Molecule 41: NIDM (PDSW) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain p:



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

Chain q:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	61256	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	47.79	Depositor
Minimum defocus (nm)	600	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	130000	Depositor
Image detector	TFS FALCON 4i (4k x 4k)	Depositor
Maximum map value	0.079	Depositor
Minimum map value	-0.036	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.0127	Depositor
Map size (Å)	501.66, 501.66, 501.66	wwPDB
Map dimensions	540, 540, 540	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.929, 0.929, 0.929	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

Bond lengths and bond angles in the following residue types are not validated in this section: SF4, K, CDL, 3PE, PLC, FME, EHZ, NDP, ACE, ZN, FES, 2MR

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	1	0.11	0/1405	0.25	0/1896
2	A	0.13	0/1151	0.23	0/1564
3	B	0.16	0/1450	0.27	0/1969
4	C	0.14	0/2033	0.26	0/2770
5	D	0.14	0/3698	0.26	0/5007
6	G	0.11	0/4642	0.27	0/6299
7	H	0.15	0/2880	0.27	0/3939
8	I	0.15	0/1596	0.28	0/2164
9	J	0.14	0/1329	0.28	0/1816
10	K	0.13	0/610	0.24	0/828
11	L	0.14	0/5236	0.26	0/7128
12	M	0.15	0/3940	0.27	0/5379
13	N	0.14	0/4110	0.26	0/5609
14	O	0.21	1/1621 (0.1%)	0.28	0/2199
15	P	0.13	0/2985	0.26	0/4035
16	Q	0.13	0/726	0.24	0/979
17	R	0.11	0/998	0.25	0/1350
18	S	0.26	1/710 (0.1%)	0.32	1/961 (0.1%)
19	T	0.10	0/752	0.23	0/1021
20	U	0.11	0/688	0.22	0/936
21	V	0.12	0/1044	0.24	0/1411
22	W	0.12	0/999	0.21	0/1340
23	X	0.20	1/1475 (0.1%)	0.25	0/1990
24	Y	0.12	0/1615	0.24	0/2175
25	Z	0.22	1/1210 (0.1%)	0.24	0/1639
26	a	0.13	0/1241	0.25	0/1670
27	b	0.13	0/666	0.25	0/911
28	c	0.21	1/1282 (0.1%)	0.25	0/1736
29	d	0.12	0/633	0.21	0/854
30	e	0.13	0/865	0.24	0/1158
31	f	0.12	0/663	0.20	0/896
32	g	0.11	0/1293	0.24	0/1735

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	h	0.13	0/1114	0.27	0/1516
34	i	0.14	0/571	0.31	0/777
35	j	0.11	0/484	0.25	0/658
36	k	0.12	0/382	0.23	0/514
37	l	0.13	0/1119	0.27	0/1520
38	m	0.12	0/661	0.23	0/893
39	n	0.12	0/884	0.23	0/1197
40	o	0.11	0/696	0.22	0/933
41	p	0.13	0/756	0.25	0/1020
42	q	0.22	1/1192 (0.1%)	0.29	0/1620
All	All	0.14	6/63405 (0.0%)	0.26	1/86012 (0.0%)

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	S	0	ACE	C-N	6.21	1.45	1.33
14	O	0	ACE	C-N	6.15	1.45	1.33
28	c	0	ACE	C-N	6.14	1.45	1.33
25	Z	0	ACE	C-N	6.13	1.45	1.33
42	q	0	ACE	C-N	6.08	1.45	1.33
23	X	0	ACE	C-N	5.96	1.45	1.33

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
18	S	2	SER	CB-CA-C	-5.28	109.51	115.79

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	1383	0	1390	24	0
2	A	1133	0	1167	32	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	B	1407	0	1372	28	0
4	C	1970	0	1905	26	0
5	D	3621	0	3531	62	0
6	G	4563	0	4527	89	0
7	H	2809	0	2880	60	0
8	I	1556	0	1499	31	0
9	J	1313	0	1320	36	0
10	K	617	0	657	18	0
11	L	5115	0	5338	90	0
12	M	3868	0	4127	75	0
13	N	4045	0	4327	42	0
14	O	1575	0	1523	11	0
15	P	2922	0	2915	53	0
16	Q	711	0	679	9	0
17	R	978	0	964	11	0
18	S	697	0	736	12	0
19	T	745	0	734	7	0
20	U	681	0	664	7	0
21	V	1025	0	1035	14	0
22	W	979	0	980	15	0
23	X	1450	0	1422	10	0
24	Y	1578	0	1567	16	0
25	Z	1176	0	1165	15	0
26	a	1215	0	1197	19	0
27	b	641	0	620	7	0
28	c	1256	0	1281	20	0
29	d	616	0	624	6	0
30	e	848	0	830	9	0
31	f	642	0	640	7	0
32	g	1280	0	1302	19	0
33	h	1078	0	1036	16	0
34	i	552	0	540	11	0
35	j	460	0	455	5	0
36	k	368	0	348	6	0
37	l	1082	0	1033	9	0
38	m	642	0	635	5	0
39	n	861	0	866	8	0
40	o	682	0	677	9	0
41	p	740	0	700	13	0
42	q	1156	0	1115	20	0
43	A	31	0	36	2	0
43	B	31	0	36	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
43	D	42	0	64	2	0
43	H	24	0	22	1	0
43	L	109	0	146	9	0
43	M	84	0	128	5	0
43	P	31	0	36	4	0
43	Y	72	0	98	5	0
43	Z	42	0	64	0	0
43	a	22	0	18	2	0
43	b	39	0	55	1	0
43	d	84	0	128	4	0
43	g	39	0	55	3	0
43	h	42	0	64	2	0
43	q	78	0	113	4	0
44	B	8	0	0	0	0
44	G	16	0	0	1	0
44	I	16	0	0	4	0
45	G	4	0	0	0	0
46	G	1	0	0	0	0
47	H	31	0	36	0	0
47	L	400	0	596	36	0
47	M	35	0	44	1	0
47	N	40	0	57	1	0
47	O	66	0	80	2	0
47	Y	26	0	26	2	0
47	Z	36	0	46	3	0
47	b	40	0	57	1	0
47	f	51	0	82	6	0
47	j	27	0	28	1	0
47	m	60	0	68	2	0
48	O	75	0	97	4	0
48	P	42	0	28	1	0
48	Z	49	0	42	0	0
48	b	59	0	62	3	0
48	c	60	0	64	3	0
49	P	48	0	25	0	0
50	R	1	0	0	0	0
51	T	37	0	0	0	0
51	U	37	0	0	1	0
All	All	64071	0	64824	826	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 6.

All (826) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:R:103:HIS:CD2	17:R:121:CYS:SG	2.68	0.87
12:M:24:ASN:HB3	12:M:30:LYS:HD2	1.65	0.78
43:L:705:PLC:H42	34:i:18:GLY:HA2	1.64	0.78
5:D:380:PHE:HB2	6:G:144:ASP:HB2	1.69	0.73
5:D:121:HIS:HB2	5:D:126:LEU:HD11	1.71	0.72
21:V:35:ARG:NH2	21:V:74:VAL:O	2.23	0.72
8:I:115:ARG:NH2	17:R:72:TYR:O	2.23	0.72
6:G:419:ARG:NH1	6:G:439:THR:O	2.23	0.71
12:M:36:ILE:HG22	12:M:37:LYS:HG3	1.73	0.71
16:Q:120:LYS:NZ	16:Q:126:TYR:OH	2.22	0.71
25:Z:57:ARG:NH2	27:b:56:GLU:O	2.24	0.71
35:j:42:ARG:NH2	35:j:46:ASP:OD2	2.24	0.70
6:G:356:VAL:HG13	6:G:361:SER:HB3	1.74	0.70
5:D:191:THR:OG1	5:D:328:ASP:O	2.10	0.70
15:P:268:ILE:HG22	15:P:275:PRO:HG3	1.73	0.69
15:P:353:GLN:NE2	22:W:41:ASN:OD1	2.25	0.69
4:C:101:GLU:OE1	4:C:160:ARG:NH2	2.25	0.69
6:G:59:CYS:HB3	6:G:70:CYS:HB3	1.73	0.69
3:B:163:ILE:HG22	3:B:164:VAL:HG13	1.73	0.69
11:L:223:LYS:HD3	11:L:252:LEU:HD12	1.75	0.69
8:I:163:ILE:HG13	8:I:165:CYS:HB3	1.74	0.69
32:g:160:LYS:HZ3	33:h:104:ILE:HD11	1.58	0.69
2:A:138:LYS:NZ	21:V:100:ASN:OD1	2.26	0.69
3:B:86:VAL:HG21	3:B:180:LEU:HD23	1.74	0.68
6:G:65:ALA:O	6:G:181:ARG:NH1	2.27	0.68
5:D:161:VAL:HG11	5:D:204:MET:HG2	1.76	0.67
41:p:44:CYS:SG	41:p:69:LYS:NZ	2.67	0.67
11:L:131:ASP:OD1	11:L:132:ASN:ND2	2.28	0.67
15:P:24:LYS:NZ	15:P:109:ASP:OD1	2.26	0.67
15:P:303:PRO:HA	43:P:502:PLC:H82	1.77	0.67
6:G:246:GLU:OE1	16:Q:129:GLN:NE2	2.27	0.67
47:L:712:3PE:H231	24:Y:46:GLY:HA3	1.76	0.66
9:J:1:FME:O1	31:f:37:ARG:NH1	2.29	0.66
12:M:84:ILE:HG13	12:M:133:ILE:HG22	1.78	0.66
11:L:526:TYR:O	39:n:37:LYS:NZ	2.25	0.66
10:K:74:ARG:HD3	19:T:133:ILE:HG22	1.78	0.66
47:L:707:3PE:H241	47:L:707:3PE:H362	1.77	0.66
2:A:128:ILE:HD11	10:K:78:GLU:HB3	1.76	0.66
7:H:299:ASN:HD22	43:a:201:PLC:H41	1.60	0.66
8:I:35:LEU:HD22	21:V:69:GLU:HG3	1.78	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L:360:TYR:HD2	11:L:433:THR:HG22	1.60	0.65
23:X:19:LYS:HB3	26:a:103:SER:HB3	1.77	0.65
12:M:106:ASN:ND2	12:M:109:ASN:OD1	2.29	0.65
7:H:221:LEU:O	7:H:223:SER:N	2.29	0.65
11:L:440:SER:HB3	11:L:444:ILE:HD12	1.79	0.65
21:V:50:GLU:HA	21:V:60:ARG:HH21	1.61	0.65
6:G:531:PRO:O	6:G:535:ASN:ND2	2.30	0.64
6:G:494:PHE:O	6:G:498:ASN:ND2	2.30	0.64
12:M:130:LEU:HD23	12:M:133:ILE:HD11	1.78	0.64
11:L:480:MET:O	40:o:39:ARG:NH2	2.27	0.64
15:P:369:ARG:O	15:P:373:ASN:ND2	2.30	0.64
47:L:711:3PE:H2H2	34:i:40:CYS:HB2	1.78	0.64
17:R:21:ARG:O	17:R:40:ARG:NH2	2.26	0.64
22:W:84:GLU:OE1	22:W:90:LYS:NZ	2.30	0.64
15:P:226:GLN:NE2	15:P:332:VAL:O	2.31	0.64
3:B:76:LEU:HB2	3:B:114:GLY:HA3	1.79	0.63
4:C:127:LYS:NZ	21:V:101:GLU:OE1	2.30	0.63
43:A:201:PLC:O2P	15:P:302:GLN:NE2	2.31	0.63
18:S:73:LEU:HD21	18:S:84:THR:HG21	1.81	0.63
6:G:555:PRO:O	42:q:138:ARG:NH2	2.32	0.62
43:L:705:PLC:H61	12:M:370:THR:HA	1.81	0.62
11:L:526:TYR:OH	43:L:702:PLC:O1P	2.15	0.62
15:P:43:THR:OG1	15:P:108:SER:OG	2.17	0.62
6:G:398:ASP:O	6:G:399:GLN:NE2	2.31	0.62
2:A:133:ASN:HB3	21:V:18:ASN:HB2	1.81	0.62
24:Y:16:LEU:HD11	43:Y:301:PLC:H2	1.82	0.62
3:B:108:ASP:N	3:B:108:ASP:OD1	2.31	0.62
6:G:476:SER:HB3	6:G:513:HIS:HA	1.82	0.62
9:J:93:ASP:OD1	26:a:118:LYS:NZ	2.33	0.62
6:G:63:LYS:NZ	6:G:280:GLU:OE2	2.31	0.61
15:P:110:ILE:HD13	15:P:235:ALA:HB1	1.82	0.61
15:P:173:GLU:OE1	15:P:188:ARG:NH2	2.33	0.61
15:P:192:MET:O	15:P:197:SER:OG	2.18	0.61
11:L:23:ILE:O	11:L:27:SER:OG	2.17	0.61
21:V:62:ALA:HB1	28:c:146:PRO:HB3	1.81	0.61
32:g:164:SER:OG	32:g:166:ASP:OD1	2.16	0.61
1:1:140:GLN:NE2	37:l:35:ASN:OD1	2.33	0.61
2:A:58:GLU:HG3	15:P:352:SER:HB3	1.81	0.61
11:L:140:TRP:CZ2	11:L:223:LYS:HG3	2.36	0.61
6:G:658:GLU:HG2	6:G:662:LYS:HE3	1.82	0.61
11:L:124:MET:HE3	11:L:251:CYS:HA	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:B:140:MET:HG2	3:B:175:PRO:HG2	1.81	0.61
6:G:343:LEU:HD11	6:G:691:ASP:HB2	1.83	0.61
1:1:153:LYS:HA	1:1:156:PHE:HD2	1.67	0.60
35:j:42:ARG:NH1	47:j:101:3PE:O12	2.35	0.60
7:H:316:ARG:NH1	7:H:318:ASP:OD2	2.34	0.60
9:J:81:SER:H	24:Y:63:LYS:HB3	1.64	0.60
11:L:568:ASN:ND2	47:L:701:3PE:O22	2.34	0.60
27:b:48:ARG:NH1	27:b:54:ASP:OD2	2.33	0.60
12:M:323:ASN:ND2	12:M:487:TYR:O	2.35	0.60
2:A:115:ILE:HG12	43:b:101:PLC:H4'1	1.84	0.60
12:M:191:ILE:HG13	12:M:192:ILE:HG13	1.83	0.60
2:A:29:GLU:OE1	3:B:61:LYS:NZ	2.35	0.60
4:C:219:ASP:OD1	4:C:219:ASP:N	2.33	0.60
9:J:22:PHE:HE2	9:J:70:ILE:HD12	1.67	0.60
2:A:140:LEU:HD12	21:V:13:ILE:HD12	1.84	0.59
5:D:80:ASN:O	13:N:287:ARG:NH2	2.34	0.59
1:1:127:SER:OG	1:1:130:GLU:OE1	2.20	0.59
2:A:86:LEU:HD23	2:A:89:ILE:HD12	1.83	0.59
3:B:86:VAL:HG12	3:B:93:GLN:HB3	1.82	0.59
6:G:177:THR:N	44:G:801:SF4:S4	2.74	0.59
6:G:396:GLU:OE1	6:G:469:LYS:NZ	2.31	0.59
11:L:187:LEU:HD13	12:M:407:ILE:HA	1.82	0.59
42:q:30:LYS:HE2	42:q:47:VAL:HG21	1.84	0.59
5:D:108:PRO:HG2	7:H:218:GLU:HG2	1.83	0.59
37:l:25:LYS:HD3	37:l:26:SER:H	1.67	0.59
11:L:11:LEU:HG	47:L:711:3PE:H2H1	1.85	0.58
1:1:69:ASP:O	1:1:74:LYS:NZ	2.26	0.58
17:R:51:ARG:NH2	17:R:69:PRO:O	2.35	0.58
18:S:3:LYS:O	18:S:3:LYS:NZ	2.32	0.58
6:G:354:ASP:OD2	6:G:630:TYR:OH	2.21	0.58
18:S:12:GLU:OE2	18:S:14:ARG:NH1	2.31	0.58
27:b:47:ARG:NH2	27:b:54:ASP:OD1	2.37	0.58
6:G:329:VAL:HG23	6:G:331:PRO:HD3	1.86	0.58
11:L:604:LEU:HD13	47:L:707:3PE:H352	1.84	0.58
28:c:131:ASP:HB3	28:c:134:VAL:HG23	1.86	0.58
7:H:121:ALA:HB1	9:J:52:THR:HB	1.85	0.58
8:I:141:GLU:HB2	8:I:154:LYS:HB3	1.85	0.58
1:1:86:ARG:NH1	1:1:112:GLU:OE1	2.36	0.58
47:L:710:3PE:H252	47:L:711:3PE:H222	1.84	0.58
13:N:129:PHE:O	13:N:133:GLU:HG2	2.04	0.58
40:o:42:GLY:O	40:o:48:ASN:ND2	2.36	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
28:c:162:GLU:OE1	28:c:162:GLU:N	2.37	0.58
29:d:59:LEU:HD11	33:h:131:ILE:HD11	1.86	0.58
40:o:4:SER:OG	40:o:5:GLU:OE1	2.20	0.58
4:C:250:ASN:OD1	4:C:252:THR:OG1	2.16	0.57
11:L:638:ILE:HG22	24:Y:145:MET:HE2	1.86	0.57
9:J:94:ASP:OD1	26:a:113:ARG:NH1	2.38	0.57
11:L:388:THR:HG22	11:L:470:GLY:H	1.69	0.57
21:V:52:LYS:NZ	21:V:107:ASP:OD1	2.37	0.57
25:Z:23:ARG:HG2	28:c:28:LEU:HD22	1.84	0.57
22:W:31:TYR:HB3	22:W:55:ILE:HD13	1.87	0.57
15:P:264:HIS:O	15:P:267:HIS:ND1	2.32	0.57
1:1:143:LEU:HD13	1:1:149:LEU:HB2	1.85	0.57
10:K:42:ASP:OD2	13:N:178:TYR:OH	2.21	0.57
12:M:36:ILE:HD11	32:g:95:VAL:HG22	1.87	0.57
9:J:17:ILE:O	15:P:271:ARG:NH2	2.37	0.57
1:1:81:LYS:HE2	1:1:85:GLN:HE21	1.70	0.57
13:N:116:LEU:HD11	13:N:239:MET:HB3	1.87	0.56
6:G:514:ARG:HG3	6:G:515:GLU:HG3	1.86	0.56
7:H:45:ARG:NH2	8:I:90:ALA:O	2.35	0.56
11:L:538:ASN:HB3	11:L:541:LEU:HB2	1.87	0.56
3:B:78:CYS:HB3	5:D:160:TYR:HB2	1.86	0.56
6:G:519:VAL:HG21	6:G:593:THR:HA	1.88	0.56
11:L:237:MET:HG3	11:L:300:LYS:HD3	1.87	0.56
13:N:46:THR:HB	29:d:54:ARG:HH22	1.70	0.56
12:M:61:TRP:CD1	12:M:89:LEU:HD21	2.40	0.56
8:I:128:LEU:O	8:I:132:VAL:HG23	2.05	0.56
47:L:709:3PE:H3D2	12:M:415:LEU:HD23	1.88	0.56
4:C:48:LEU:O	4:C:53:ARG:NH2	2.39	0.56
21:V:79:ILE:HG22	21:V:82:ASP:H	1.70	0.56
3:B:69:PHE:HB3	3:B:98:ILE:HG12	1.87	0.56
16:Q:57:ILE:HG12	16:Q:77:ILE:HG12	1.87	0.56
14:O:41:LEU:HD11	43:d:101:PLC:H3A2	1.88	0.56
42:q:24:GLN:C	43:q:202:PLC:H63	2.31	0.56
9:J:42:ASN:HB2	23:X:18:LEU:HD13	1.88	0.56
6:G:236:ARG:NH1	6:G:266:GLU:OE2	2.39	0.55
8:I:114:ARG:HD3	8:I:211:ILE:HG21	1.87	0.55
12:M:22:ASN:HD22	12:M:25:ASN:HD21	1.54	0.55
22:W:91:GLN:OE1	22:W:91:GLN:N	2.36	0.55
11:L:124:MET:HA	11:L:143:ILE:HD11	1.89	0.55
3:B:105:ARG:HB3	7:H:230:SER:HB3	1.87	0.55
8:I:73:LEU:HD22	8:I:76:ILE:HD12	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L:571:TRP:HB2	12:M:297:LYS:HE2	1.88	0.55
36:k:10:ASP:OD2	39:n:42:ARG:NE	2.39	0.55
3:B:115:THR:HA	3:B:143:CYS:HB3	1.88	0.55
22:W:84:GLU:HG2	22:W:90:LYS:HG3	1.89	0.55
2:A:36:ASN:HB3	15:P:53:ARG:HH22	1.72	0.55
7:H:277:GLN:NE2	23:X:166:LEU:O	2.39	0.55
12:M:6:LEU:O	12:M:10:ASN:ND2	2.35	0.55
14:O:185:TYR:O	27:b:67:ASN:ND2	2.39	0.55
6:G:365:SER:OG	6:G:552:LYS:NZ	2.39	0.55
9:J:62:LEU:HD11	10:K:16:ILE:HD11	1.88	0.55
11:L:379:LEU:HD22	11:L:384:ILE:HG13	1.88	0.55
15:P:24:LYS:HE2	15:P:26:LEU:HD21	1.88	0.55
18:S:5:VAL:HG22	18:S:41:ALA:HB1	1.89	0.55
11:L:24:GLY:HA3	34:i:22:THR:HG23	1.88	0.55
12:M:465:ILE:HD13	43:h:201:PLC:HT'2	1.88	0.54
5:D:221:TRP:CZ2	8:I:86:MET:HG3	2.43	0.54
9:J:139:LEU:HD22	13:N:130:ILE:HD12	1.89	0.54
41:p:30:LEU:HD23	41:p:82:PHE:HA	1.89	0.54
6:G:637:ARG:HA	6:G:640:LEU:HG	1.89	0.54
15:P:209:LEU:HD21	15:P:288:PHE:HE2	1.72	0.54
25:Z:126:ASP:O	25:Z:133:ASN:ND2	2.41	0.54
5:D:285:ARG:NH1	43:D:501:PLC:OB	2.39	0.54
10:K:2:ASP:OD1	10:K:2:ASP:N	2.39	0.54
11:L:590:LEU:HD12	43:M:1001:PLC:H3A2	1.89	0.54
4:C:160:ARG:NH1	5:D:414:GLU:OE2	2.40	0.54
7:H:172:SER:HB2	7:H:350:PRO:HG2	1.90	0.54
29:d:4:SER:OG	43:d:102:PLC:O1P	2.26	0.54
5:D:105:PRO:HG3	5:D:134:LEU:HD13	1.89	0.54
7:H:44:GLN:OE1	7:H:46:ARG:NH1	2.40	0.54
11:L:321:CYS:HB3	11:L:324:LEU:HG	1.90	0.53
12:M:221:ILE:O	12:M:225:THR:HG22	2.08	0.53
15:P:122:LYS:NZ	43:P:502:PLC:O2P	2.28	0.53
5:D:283:ASP:OD1	28:c:173:TYR:OH	2.21	0.53
6:G:399:GLN:HE22	6:G:428:GLU:HB2	1.73	0.53
7:H:181:GLU:OE2	7:H:260:TYR:OH	2.26	0.53
8:I:152:THR:O	8:I:197:LYS:NZ	2.42	0.53
11:L:534:LEU:HD22	39:n:35:ILE:HG12	1.89	0.53
25:Z:31:PHE:HZ	47:b:103:3PE:H371	1.73	0.53
1:1:113:VAL:O	1:1:117:THR:OG1	2.23	0.53
7:H:45:ARG:NH1	28:c:34:THR:O	2.32	0.53
12:M:196:ASP:OD1	33:h:117:TYR:OH	2.25	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:D:55:GLN:NE2	5:D:57:ASP:OD2	2.39	0.53
6:G:419:ARG:HB2	6:G:440:PHE:HD2	1.74	0.53
10:K:15:ILE:HG13	19:T:134:ASN:HD22	1.74	0.53
11:L:527:GLU:OE2	36:k:20:ARG:NE	2.42	0.53
6:G:464:LEU:O	6:G:500:ASN:ND2	2.41	0.53
7:H:151:ALA:HB1	7:H:321:ILE:HD11	1.90	0.53
5:D:125:ILE:HD11	5:D:466:ALA:HB2	1.90	0.53
10:K:55:ILE:HG21	13:N:133:GLU:HG3	1.91	0.53
16:Q:48:GLU:N	16:Q:48:GLU:OE1	2.42	0.53
22:W:111:ASP:OD1	22:W:111:ASP:N	2.40	0.53
47:L:711:3PE:H232	34:i:47:LEU:HD13	1.91	0.52
15:P:173:GLU:OE2	15:P:188:ARG:NE	2.42	0.52
26:a:1:MET:HG3	42:q:0:ACE:H1	1.91	0.52
11:L:290:LEU:HA	11:L:293:MET:HE2	1.89	0.52
6:G:298:ARG:NH1	6:G:565:HIS:O	2.42	0.52
12:M:85:ASP:CG	12:M:263:ARG:HH22	2.18	0.52
40:o:8:GLU:O	40:o:30:ARG:NH1	2.38	0.52
4:C:118:LEU:HD12	4:C:161:ILE:HD11	1.90	0.52
5:D:456:HIS:HB2	22:W:2:THR:HG22	1.91	0.52
8:I:121:GLU:O	8:I:151:ARG:NH1	2.42	0.52
11:L:566:GLY:HA3	47:L:703:3PE:H371	1.91	0.52
12:M:291:SER:O	12:M:295:THR:OG1	2.24	0.52
15:P:15:SER:HA	22:W:119:LYS:HA	1.92	0.52
15:P:153:SER:O	15:P:189:PRO:HD2	2.10	0.52
5:D:480:VAL:O	5:D:482:ARG:NH1	2.42	0.52
15:P:16:ASP:OD1	15:P:16:ASP:N	2.36	0.52
43:M:1001:PLC:H3'1	13:N:444:VAL:HG21	1.92	0.52
7:H:222:VAL:HG23	7:H:223:SER:H	1.75	0.52
48:b:102:CDL:H322	48:b:102:CDL:H162	1.92	0.52
2:A:131:LYS:NZ	5:D:296:GLU:OE1	2.43	0.52
25:Z:112:HIS:NE2	30:e:19:GLU:OE2	2.43	0.52
40:o:3:VAL:O	40:o:58:GLN:NE2	2.42	0.52
2:A:73:LEU:HB3	9:J:154:LEU:HD13	1.90	0.52
4:C:204:ARG:NH2	4:C:211:PHE:O	2.41	0.52
5:D:376:LYS:HD3	5:D:383:ALA:HB1	1.92	0.52
6:G:248:ILE:HG12	6:G:600:THR:HG22	1.92	0.52
6:G:352:LEU:HB2	6:G:617:ILE:HD13	1.91	0.52
43:L:705:PLC:H1A2	34:i:16:THR:HG23	1.92	0.51
5:D:445:ALA:HB1	5:D:479:GLU:HG2	1.92	0.51
12:M:449:VAL:HG12	12:M:454:ILE:HG13	1.92	0.51
37:l:112:ILE:HG23	37:l:117:LEU:HB2	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:322:ILE:O	6:G:326:PHE:N	2.42	0.51
10:K:13:LEU:HD23	19:T:138:ARG:HH21	1.75	0.51
12:M:148:LEU:HD13	12:M:171:LEU:HD12	1.92	0.51
13:N:486:SER:O	13:N:490:SER:OG	2.17	0.51
7:H:171:VAL:HG21	7:H:179:ILE:HG12	1.92	0.51
32:g:25:ALA:N	32:g:79:SER:HG	2.09	0.51
6:G:366:THR:O	6:G:552:LYS:NZ	2.38	0.51
15:P:166:TYR:OH	15:P:217:LYS:NZ	2.40	0.51
1:1:148:GLU:OE1	1:1:150:LYS:NZ	2.29	0.51
5:D:196:ILE:HG23	5:D:229:LEU:HD22	1.93	0.51
47:L:707:3PE:H3C1	47:L:707:3PE:H341	1.93	0.51
47:L:712:3PE:H32	47:L:712:3PE:H342	1.93	0.51
12:M:90:LEU:HD13	12:M:474:VAL:HG13	1.91	0.51
20:U:64:TYR:OH	20:U:89:ASP:OD1	2.28	0.51
6:G:597:VAL:O	6:G:651:GLU:N	2.34	0.51
9:J:110:ILE:HG22	25:Z:116:THR:HG22	1.92	0.51
9:J:159:LYS:HE3	9:J:161:ASP:HB2	1.93	0.51
11:L:563:LEU:HD21	47:L:703:3PE:H242	1.93	0.51
47:L:712:3PE:H392	24:Y:50:LEU:HG	1.92	0.51
5:D:235:ARG:NH2	5:D:262:ASP:OD2	2.37	0.51
7:H:36:GLU:OE1	7:H:242:TYR:OH	2.15	0.51
42:q:49:ASP:HB3	42:q:52:GLU:HG2	1.93	0.51
6:G:331:PRO:HB3	6:G:539:LYS:HB2	1.92	0.50
15:P:209:LEU:HD12	15:P:282:LEU:HB3	1.92	0.50
17:R:133:ASP:O	17:R:136:SER:OG	2.28	0.50
6:G:144:ASP:OD1	28:c:73:ARG:NH2	2.44	0.50
31:f:11:VAL:HG23	47:f:101:3PE:H3C1	1.92	0.50
5:D:62:SER:OG	13:N:283:LEU:O	2.25	0.50
7:H:318:ASP:OD1	7:H:318:ASP:N	2.43	0.50
13:N:180:ASP:OD1	26:a:126:ARG:NH2	2.44	0.50
25:Z:136:ASN:ND2	25:Z:138:PHE:O	2.44	0.50
7:H:28:VAL:HA	26:a:13:MET:HG2	1.92	0.50
7:H:169:LEU:HD21	7:H:340:PRO:HG3	1.94	0.50
11:L:224:SER:HB2	11:L:310:VAL:HG11	1.94	0.50
6:G:395:GLU:HB3	6:G:424:ARG:NH2	2.26	0.50
37:l:120:GLU:HB2	38:m:81:LYS:HE3	1.93	0.50
43:M:1001:PLC:H6'2	13:N:441:ILE:HG12	1.94	0.50
5:D:269:GLN:HG2	5:D:273:ARG:HH11	1.77	0.50
12:M:179:LEU:HB3	13:N:436:ILE:HG12	1.93	0.50
11:L:254:ILE:HB	11:L:329:LEU:HD11	1.91	0.50
5:D:394:MET:HE2	6:G:119:HIS:HD2	1.77	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L:75:SER:HB2	11:L:131:ASP:CG	2.37	0.50
12:M:30:LYS:H	12:M:30:LYS:HD3	1.77	0.50
21:V:49:LEU:HD22	21:V:60:ARG:HG3	1.94	0.50
3:B:92:ASP:O	3:B:95:ARG:HG2	2.12	0.49
15:P:302:GLN:O	43:P:502:PLC:H73	2.11	0.49
23:X:89:ARG:NH1	27:b:77:TYR:O	2.44	0.49
4:C:147:VAL:HG22	4:C:162:LYS:HG2	1.94	0.49
5:D:321:ILE:HB	5:D:420:GLU:HB2	1.94	0.49
2:A:111:ILE:HD13	48:b:102:CDL:H581	1.94	0.49
6:G:293:GLY:O	6:G:566:HIS:NE2	2.33	0.49
47:L:711:3PE:H3A1	33:h:75:LEU:HD23	1.92	0.49
17:R:117:PRO:HA	17:R:124:ARG:HA	1.94	0.49
6:G:660:ILE:HD11	18:S:17:LEU:HD11	1.95	0.49
11:L:253:VAL:HG12	11:L:310:VAL:HG21	1.94	0.49
13:N:510:ILE:HD11	43:d:102:PLC:H9'2	1.94	0.49
30:e:25:GLU:OE2	33:h:174:ARG:NH2	2.44	0.49
6:G:300:THR:HB	6:G:608:GLY:HA3	1.94	0.49
11:L:169:LEU:HB2	47:L:703:3PE:H231	1.94	0.49
11:L:354:TYR:O	11:L:360:TYR:OH	2.25	0.49
15:P:120:PHE:HB2	15:P:125:SER:HA	1.93	0.49
1:1:57:GLU:HB3	1:1:78:LEU:HD11	1.94	0.49
2:A:106:PHE:CD1	9:J:144:SER:HB2	2.47	0.49
22:W:116:LYS:O	22:W:121:ALA:N	2.46	0.49
11:L:359:MET:O	11:L:440:SER:OG	2.30	0.49
11:L:468:PHE:HZ	35:j:34:LEU:HD22	1.78	0.49
12:M:32:SER:OG	12:M:33:LEU:N	2.46	0.49
7:H:335:ILE:HA	7:H:338:PHE:HB3	1.94	0.49
8:I:120:GLU:HA	17:R:74:ALA:HB1	1.93	0.49
9:J:150:SER:O	9:J:154:LEU:HG	2.12	0.49
2:A:36:ASN:O	15:P:53:ARG:NH1	2.43	0.49
2:A:128:ILE:HD13	10:K:80:GLU:HG2	1.94	0.49
7:H:338:PHE:O	7:H:342:ILE:HG12	2.12	0.49
11:L:169:LEU:HD12	47:L:703:3PE:H222	1.95	0.49
47:L:711:3PE:H3B1	43:g:301:PLC:H2'2	1.95	0.49
3:B:69:PHE:O	3:B:98:ILE:HA	2.13	0.48
11:L:533:PHE:CE1	43:L:702:PLC:H31	2.47	0.48
11:L:627:VAL:HG21	13:N:262:ASP:HB3	1.94	0.48
18:S:14:ARG:HG2	18:S:48:LEU:HB2	1.94	0.48
1:1:156:PHE:HD1	1:1:161:TRP:HZ2	1.61	0.48
5:D:126:LEU:HD22	10:K:80:GLU:HB2	1.95	0.48
6:G:237:ALA:HB2	6:G:268:MET:HE2	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:G:373:VAL:HB	6:G:374:PRO:HD3	1.96	0.48
10:K:18:ILE:HG13	11:L:609:ILE:HG21	1.94	0.48
13:N:451:LYS:HG3	13:N:455:PHE:CD2	2.48	0.48
22:W:76:MET:HG2	22:W:80:MET:HE3	1.94	0.48
42:q:69:ASP:HB3	42:q:72:GLU:HG3	1.94	0.48
11:L:290:LEU:HD22	43:L:702:PLC:H7'2	1.95	0.48
28:c:19:TRP:CE2	48:c:201:CDL:HB21	2.48	0.48
6:G:367:ASP:HB2	6:G:548:GLU:HB2	1.94	0.48
7:H:35:ALA:HB2	26:a:9:PRO:HB2	1.96	0.48
11:L:222:ALA:HB2	11:L:229:LEU:HD13	1.95	0.48
21:V:63:VAL:HA	21:V:66:PHE:CE2	2.49	0.48
35:j:47:TYR:CD2	35:j:48:PRO:HD3	2.48	0.48
7:H:91:LEU:HD22	7:H:236:ILE:HG23	1.94	0.48
15:P:187:VAL:HG12	15:P:189:PRO:HD3	1.95	0.48
23:X:107:ARG:HA	23:X:110:TRP:NE1	2.28	0.48
32:g:218:ILE:HD12	41:p:43:VAL:HG11	1.94	0.48
2:A:21:LEU:HD11	7:H:88:LEU:HD11	1.94	0.48
3:B:69:PHE:O	3:B:71:PRO:HD3	2.13	0.48
4:C:49:ARG:HD2	28:c:45:PRO:HG3	1.95	0.48
8:I:127:LYS:N	44:I:302:SF4:S1	2.82	0.48
11:L:81:LEU:HD23	11:L:262:ARG:HD2	1.95	0.48
15:P:210:GLY:HA3	15:P:289:LEU:HD21	1.95	0.48
19:T:96:LEU:HD13	19:T:118:VAL:HG11	1.95	0.48
25:Z:61:TRP:CH2	27:b:64:PRO:HG2	2.49	0.48
6:G:495:VAL:HG22	6:G:501:ILE:HG21	1.96	0.48
6:G:618:ARG:O	6:G:621:SER:OG	2.25	0.48
18:S:62:ARG:HA	18:S:68:GLU:HG2	1.94	0.48
29:d:23:ARG:NH1	43:d:101:PLC:O1P	2.35	0.48
29:d:27:PHE:O	29:d:34:TYR:OH	2.26	0.48
11:L:284:SER:O	11:L:288:SER:OG	2.26	0.48
11:L:388:THR:HG21	11:L:465:LEU:O	2.13	0.48
14:O:1:MET:SD	33:h:179:ASN:ND2	2.87	0.48
15:P:205:GLN:O	15:P:259:ARG:NH1	2.22	0.48
5:D:158:LEU:O	5:D:479:GLU:N	2.47	0.48
5:D:318:PRO:HB3	5:D:339:VAL:HG21	1.95	0.48
5:D:461:HIS:HB3	5:D:465:ASP:HB2	1.95	0.48
6:G:341:GLY:O	6:G:517:SER:OG	2.30	0.48
13:N:76:ILE:HD12	47:N:601:3PE:H241	1.95	0.48
3:B:82:GLU:OE1	5:D:240:ARG:NH2	2.38	0.47
6:G:160:LYS:O	6:G:168:THR:OG1	2.32	0.47
6:G:549:ILE:HD11	6:G:570:GLY:HA2	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:76:ARG:HH12	12:M:79:ASN:HD22	1.62	0.47
51:U:201:EHZ:O2	51:U:201:EHZ:O1	2.28	0.47
24:Y:151:PHE:HD1	43:Y:303:PLC:H4'1	1.79	0.47
32:g:87:ASN:ND2	32:g:90:ASN:OD1	2.39	0.47
6:G:213:SER:HB3	6:G:216:SER:HB3	1.95	0.47
7:H:1:FME:HB2	7:H:2:LEU:H	1.46	0.47
15:P:47:GLY:HA2	15:P:52:GLY:HA3	1.96	0.47
6:G:57:ARG:HG3	6:G:60:TYR:HB3	1.97	0.47
8:I:81:TYR:OH	28:c:26:LEU:O	2.28	0.47
47:L:701:3PE:H352	38:m:42:PHE:HE1	1.79	0.47
12:M:332:LEU:HD13	12:M:478:LEU:HD22	1.96	0.47
28:c:172:ASP:OD1	28:c:172:ASP:N	2.46	0.47
47:f:101:3PE:H221	47:f:101:3PE:H2	1.66	0.47
11:L:401:TYR:HD1	11:L:503:LEU:HD22	1.80	0.47
23:X:24:VAL:O	25:Z:81:ARG:NH2	2.47	0.47
47:Z:203:3PE:H241	47:Z:203:3PE:H341	1.95	0.47
41:p:83:LEU:HD22	41:p:87:LYS:HE3	1.97	0.47
6:G:500:ASN:OD1	6:G:500:ASN:N	2.45	0.47
7:H:93:SER:OG	7:H:122:SER:O	2.30	0.47
7:H:153:LEU:HA	7:H:156:TYR:CE2	2.50	0.47
9:J:66:ILE:HD11	10:K:16:ILE:HG12	1.95	0.47
13:N:291:LEU:HD11	13:N:445:TYR:HB2	1.96	0.47
1:1:81:LYS:HE2	1:1:85:GLN:NE2	2.27	0.47
1:1:150:LYS:O	1:1:183:TYR:OH	2.22	0.47
11:L:169:LEU:HB3	47:L:703:3PE:H252	1.96	0.47
11:L:635:LEU:HD23	24:Y:92:LEU:HD23	1.97	0.47
11:L:641:ILE:HG12	47:L:707:3PE:H231	1.96	0.47
13:N:28:ARG:HG2	13:N:86:SER:OG	2.15	0.47
16:Q:96:GLN:OE1	42:q:127:LYS:NZ	2.41	0.47
22:W:26:ASN:OD1	22:W:29:ARG:NH2	2.44	0.47
6:G:305:ARG:NH1	6:G:575:ASP:OD1	2.48	0.47
9:J:79:GLU:HB2	15:P:271:ARG:HD3	1.97	0.47
12:M:78:LEU:H	47:M:1003:3PE:HN3	1.62	0.47
15:P:262:ILE:O	15:P:266:ILE:HG12	2.15	0.47
5:D:254:ASP:OD1	5:D:255:LEU:N	2.46	0.47
6:G:185:ASP:N	6:G:185:ASP:OD1	2.44	0.47
7:H:14:TYR:HA	7:H:17:ILE:HD12	1.97	0.47
7:H:39:THR:HB	7:H:306:VAL:HG11	1.97	0.47
18:S:17:LEU:HB2	18:S:24:SER:HB3	1.95	0.47
47:f:101:3PE:H3A1	47:f:101:3PE:H372	1.67	0.47
3:B:106:GLN:NE2	7:H:226:MET:O	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
9:J:76:TYR:CG	15:P:355:GLN:HG2	2.49	0.47
38:m:12:ASP:HB3	38:m:15:PHE:HB2	1.97	0.47
5:D:313:ARG:NH1	5:D:319:PHE:O	2.46	0.46
11:L:459:MET:O	11:L:463:THR:OG1	2.29	0.46
43:L:705:PLC:H63	34:i:19:TRP:CZ2	2.49	0.46
2:A:48:GLY:O	3:B:105:ARG:NH2	2.48	0.46
12:M:228:MET:HE3	12:M:287:THR:HG23	1.97	0.46
12:M:486:ILE:HD12	41:p:79:ILE:HG22	1.97	0.46
26:a:58:LYS:O	26:a:82:ARG:NH1	2.48	0.46
31:f:8:ARG:HA	31:f:11:VAL:HG12	1.97	0.46
32:g:145:GLY:O	32:g:149:THR:OG1	2.23	0.46
39:n:17:LYS:O	39:n:21:SER:OG	2.29	0.46
6:G:254:LEU:HD11	6:G:411:ALA:HB1	1.97	0.46
6:G:362:GLU:OE2	18:S:62:ARG:NH1	2.39	0.46
6:G:449:VAL:HG21	6:G:483:ASP:HB3	1.97	0.46
6:G:353:LYS:NZ	6:G:524:VAL:O	2.38	0.46
6:G:609:VAL:HG11	15:P:17:ILE:HB	1.97	0.46
11:L:88:PRO:HG3	11:L:330:ILE:HG23	1.96	0.46
32:g:207:ILE:HG22	32:g:209:LYS:HG2	1.98	0.46
2:A:46:LYS:O	3:B:105:ARG:NH1	2.35	0.46
2:A:95:VAL:HB	2:A:99:GLY:HA3	1.98	0.46
6:G:314:THR:HG22	15:P:17:ILE:HG23	1.96	0.46
12:M:50:SER:OG	12:M:122:ASN:OD1	2.33	0.46
4:C:156:ASN:OD1	5:D:324:SER:HB2	2.16	0.46
9:J:149:MET:SD	13:N:138:SER:OG	2.73	0.46
11:L:217:LEU:HD13	11:L:277:ILE:HG12	1.97	0.46
11:L:384:ILE:HB	11:L:387:LEU:HD12	1.98	0.46
20:U:86:ASP:O	20:U:90:THR:OG1	2.27	0.46
1:1:66:LYS:HE3	1:1:66:LYS:H	1.80	0.46
2:A:34:ASP:CG	2:A:35:GLU:H	2.24	0.46
11:L:134:LEU:HD23	11:L:134:LEU:HA	1.79	0.46
11:L:170:ILE:HD12	11:L:232:TRP:HB3	1.97	0.46
47:L:712:3PE:H321	47:L:712:3PE:H221	1.97	0.46
30:e:71:ASP:HB3	30:e:74:GLU:HB2	1.98	0.46
3:B:115:THR:OG1	3:B:143:CYS:SG	2.68	0.46
7:H:128:PHE:O	7:H:132:ILE:HG12	2.16	0.46
15:P:258:LEU:HD23	15:P:261:MET:HE3	1.97	0.46
39:n:10:VAL:O	39:n:13:SER:OG	2.31	0.46
3:B:165:PRO:HG3	15:P:78:GLN:HA	1.98	0.46
5:D:105:PRO:HB3	5:D:113:VAL:HG12	1.98	0.46
6:G:618:ARG:NE	6:G:630:TYR:O	2.49	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:L:707:3PE:H391	13:N:216:PRO:HB3	1.97	0.46
12:M:437:SER:OG	12:M:438:VAL:N	2.43	0.46
14:O:24:ASP:OD2	14:O:83:ARG:NH1	2.46	0.46
6:G:541:ILE:HB	6:G:560:VAL:HG22	1.97	0.46
12:M:46:GLY:HA3	12:M:118:VAL:HG11	1.98	0.46
12:M:239:SER:HB2	12:M:360:ARG:HH12	1.81	0.46
11:L:109:HIS:CE1	43:L:705:PLC:H51	2.52	0.45
11:L:441:PRO:HD2	11:L:444:ILE:HD12	1.98	0.45
33:h:71:PRO:HG2	43:h:201:PLC:H3A2	1.98	0.45
4:C:78:HIS:HB3	4:C:272:PHE:CZ	2.51	0.45
5:D:152:LEU:HD22	5:D:247:ARG:HG2	1.98	0.45
7:H:127:VAL:HG11	7:H:153:LEU:HD13	1.98	0.45
7:H:257:PHE:CE1	7:H:301:PHE:HZ	2.33	0.45
12:M:149:ALA:HB3	12:M:150:PRO:HD3	1.98	0.45
26:a:40:ASN:ND2	30:e:95:ASP:HB3	2.31	0.45
32:g:38:ILE:HG21	32:g:100:ASP:HB3	1.98	0.45
4:C:136:ASP:O	5:D:439:TYR:OH	2.33	0.45
33:h:85:ASP:OD2	33:h:89:ARG:NE	2.42	0.45
5:D:167:GLU:HB2	5:D:246:VAL:HB	1.98	0.45
15:P:95:ILE:HA	15:P:101:ILE:HD11	1.98	0.45
43:g:301:PLC:H71	33:h:66:LYS:HE3	1.98	0.45
42:q:75:PRO:HD3	42:q:107:HIS:CE1	2.51	0.45
4:C:154:ARG:HH21	21:V:98:GLN:HE21	1.65	0.45
9:J:141:LEU:HD13	48:O:201:CDL:H821	1.98	0.45
11:L:11:LEU:HD11	47:L:711:3PE:H2E1	1.98	0.45
12:M:43:LYS:HD3	12:M:114:TYR:CD1	2.51	0.45
12:M:271:GLU:HG2	24:Y:198:ARG:HH21	1.81	0.45
47:Y:302:3PE:H352	47:Y:302:3PE:H381	1.84	0.45
5:D:322:ARG:HG3	5:D:420:GLU:HB3	1.98	0.45
10:K:80:GLU:CD	10:K:80:GLU:H	2.24	0.45
43:L:705:PLC:H71	12:M:369:SER:O	2.17	0.45
25:Z:132:ALA:HB2	30:e:85:PHE:CD1	2.52	0.45
26:a:136:GLU:OE1	30:e:52:LYS:NZ	2.33	0.45
33:h:107:LYS:NZ	41:p:8:PRO:HG3	2.32	0.45
34:i:7:HIS:HD2	34:i:9:PRO:HG3	1.81	0.45
5:D:231:GLU:OE2	28:c:43:ARG:NH1	2.49	0.45
6:G:272:PRO:HB3	6:G:283:ILE:HG23	1.99	0.45
6:G:456:LEU:HD12	6:G:490:THR:HG22	1.99	0.45
15:P:51:LEU:HD23	15:P:114:LEU:HD22	1.97	0.45
20:U:86:ASP:OD1	20:U:86:ASP:N	2.50	0.45
20:U:96:GLU:HG3	36:k:6:TRP:CZ2	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
43:Y:303:PLC:H4A2	43:Y:303:PLC:H7'2	1.98	0.45
6:G:495:VAL:HA	6:G:501:ILE:HD12	1.98	0.45
6:G:597:VAL:HG21	6:G:647:LEU:HA	1.98	0.45
12:M:247:ILE:HG23	12:M:343:PRO:HB3	1.98	0.45
33:h:52:ASP:O	33:h:54:HIS:ND1	2.50	0.45
41:p:19:ASN:HB3	41:p:22:ASP:HB2	1.99	0.45
1:1:46:LEU:O	1:1:50:VAL:HG23	2.17	0.45
7:H:299:ASN:HB3	43:a:201:PLC:H83	1.99	0.45
13:N:6:LEU:HD13	13:N:110:LEU:HB2	1.98	0.45
23:X:16:ASP:OD2	30:e:83:ARG:HD2	2.17	0.45
1:1:35:LEU:HB2	1:1:51:ILE:HG21	1.99	0.44
12:M:249:LEU:O	12:M:254:LEU:HG	2.16	0.44
18:S:63:LEU:N	18:S:67:HIS:O	2.50	0.44
32:g:177:LEU:HD22	32:g:187:LEU:HD21	1.98	0.44
47:m:101:3PE:O14	47:m:102:3PE:N	2.30	0.44
8:I:138:ILE:HG12	8:I:157:ILE:HG12	2.00	0.44
9:J:7:ASP:OD2	31:f:8:ARG:NH2	2.46	0.44
12:M:34:LEU:O	12:M:39:GLU:HA	2.17	0.44
16:Q:56:ARG:NE	16:Q:127:TYR:OH	2.49	0.44
47:f:101:3PE:H381	47:f:101:3PE:H352	1.69	0.44
42:q:47:VAL:HG11	42:q:52:GLU:HG3	1.99	0.44
4:C:42:GLU:N	4:C:42:GLU:OE1	2.49	0.44
7:H:163:VAL:HG22	7:H:195:LEU:HD22	1.98	0.44
7:H:231:ALA:O	7:H:235:VAL:HG23	2.18	0.44
8:I:49:ARG:NH1	21:V:93:GLU:OE2	2.36	0.44
13:N:208:LEU:HD22	13:N:244:ILE:HG23	1.98	0.44
6:G:691:ASP:OD1	6:G:691:ASP:N	2.51	0.44
7:H:9:ILE:HA	7:H:12:ILE:HG22	2.00	0.44
47:L:707:3PE:H222	47:L:707:3PE:H332	1.99	0.44
12:M:462:ILE:HD11	43:g:301:PLC:H2	1.99	0.44
13:N:235:TYR:CZ	13:N:239:MET:HG3	2.51	0.44
15:P:345:LYS:NZ	22:W:45:ASP:OD1	2.39	0.44
43:Y:303:PLC:H5'1	43:Y:303:PLC:H3A1	1.99	0.44
1:1:79:LEU:HB2	1:1:120:LEU:HD13	1.99	0.44
13:N:491:TYR:OH	29:d:41:TRP:NE1	2.47	0.44
25:Z:43:TYR:HD1	47:Z:203:3PE:H242	1.81	0.44
28:c:160:LEU:HD21	28:c:176:ARG:HH11	1.83	0.44
3:B:99:ILE:HD11	7:H:37:ARG:CZ	2.48	0.44
7:H:135:TRP:CZ2	9:J:22:PHE:HB3	2.53	0.44
7:H:221:LEU:O	7:H:224:GLY:N	2.31	0.44
12:M:137:LEU:HB2	12:M:195:THR:HB	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
15:P:8:VAL:HG13	15:P:61:LYS:NZ	2.33	0.44
47:f:101:3PE:H2I2	47:f:101:3PE:H371	1.99	0.44
39:n:34:TRP:CD2	39:n:80:HIS:HD2	2.35	0.44
12:M:423:SER:HA	12:M:426:TYR:CE2	2.52	0.44
42:q:95:GLU:CD	42:q:95:GLU:H	2.26	0.44
2:A:108:LEU:O	2:A:111:ILE:HG22	2.18	0.44
5:D:464:PRO:HB2	7:H:316:ARG:HD3	1.99	0.44
6:G:633:LEU:HD11	6:G:637:ARG:HE	1.83	0.44
8:I:56:TRP:CE2	8:I:57:GLU:HG2	2.53	0.44
11:L:564:ARG:NH2	37:l:83:PRO:O	2.51	0.44
4:C:158:ARG:HG3	28:c:152:LEU:HD11	2.00	0.44
7:H:170:ILE:HD11	7:H:339:ALA:HB1	1.99	0.44
9:J:122:GLU:OE2	25:Z:56:LYS:NZ	2.49	0.44
12:M:484:THR:HG22	41:p:31:LEU:HD11	1.99	0.44
32:g:181:ASN:HB2	32:g:187:LEU:HD23	1.98	0.44
5:D:395:GLU:HG2	6:G:116:LEU:HD13	2.00	0.43
47:L:711:3PE:H2A1	47:L:711:3PE:H2D1	1.93	0.43
12:M:362:ILE:HD11	12:M:433:ARG:HD3	1.99	0.43
14:O:35:ALA:HB3	14:O:36:PRO:HD3	1.98	0.43
18:S:16:PHE:O	18:S:57:PRO:HA	2.17	0.43
27:b:31:ILE:HD13	48:b:102:CDL:H552	2.00	0.43
42:q:47:VAL:HG12	42:q:49:ASP:H	1.82	0.43
11:L:584:LEU:O	11:L:589:GLY:HA3	2.18	0.43
47:L:708:3PE:H2G2	13:N:434:VAL:HG13	1.99	0.43
12:M:30:LYS:HG2	12:M:32:SER:H	1.82	0.43
12:M:269:LEU:HB3	12:M:272:ILE:HG22	2.00	0.43
14:O:168:ASN:O	14:O:168:ASN:ND2	2.50	0.43
24:Y:118:SER:HB2	24:Y:146:GLY:HA2	2.00	0.43
47:Z:203:3PE:H321	47:Z:203:3PE:H232	2.00	0.43
4:C:131:ASP:HB2	5:D:444:ARG:HG3	1.99	0.43
12:M:382:PHE:CZ	12:M:461:LEU:HB2	2.54	0.43
22:W:93:CYS:SG	22:W:94:HIS:ND1	2.84	0.43
24:Y:111:ALA:N	43:Y:303:PLC:O2P	2.52	0.43
3:B:95:ARG:HA	7:H:49:PRO:HA	1.99	0.43
5:D:394:MET:HE2	6:G:119:HIS:CD2	2.52	0.43
5:D:423:LYS:NZ	5:D:474:ASP:O	2.41	0.43
6:G:332:LYS:HA	6:G:332:LYS:HD3	1.69	0.43
11:L:385:PRO:HB2	35:j:50:TRP:CZ3	2.53	0.43
48:O:201:CDL:H111	47:O:202:3PE:H332	1.99	0.43
24:Y:115:PHE:CE2	47:Y:302:3PE:H341	2.53	0.43
3:B:78:CYS:HB3	5:D:160:TYR:CB	2.47	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:f:101:3PE:H3C1	47:f:101:3PE:H392	1.75	0.43
41:p:53:LYS:HA	41:p:53:LYS:HD3	1.76	0.43
1:1:83:ILE:HG23	1:1:113:VAL:HG13	1.99	0.43
1:1:156:PHE:HA	1:1:159:ILE:HD12	1.99	0.43
6:G:389:SER:O	6:G:390:THR:OG1	2.28	0.43
6:G:564:GLY:O	6:G:580:GLY:N	2.43	0.43
8:I:116:TYR:CE2	8:I:122:ARG:HA	2.53	0.43
11:L:422:THR:HA	11:L:425:TYR:CE2	2.52	0.43
11:L:440:SER:HB2	11:L:445:TYR:CE1	2.54	0.43
26:a:8:ILE:HG12	48:c:201:CDL:H601	1.99	0.43
40:o:52:GLU:OE1	40:o:52:GLU:N	2.39	0.43
4:C:215:PRO:HA	4:C:220:PHE:CD1	2.53	0.43
11:L:74:TRP:CZ3	47:L:710:3PE:H2I2	2.54	0.43
47:L:703:3PE:H31	37:l:83:PRO:HG3	2.00	0.43
47:L:708:3PE:H272	47:L:708:3PE:H2A2	1.72	0.43
28:c:169:TYR:HB3	28:c:173:TYR:CD1	2.53	0.43
5:D:48:LYS:HB3	5:D:48:LYS:HE2	1.84	0.43
5:D:435:SER:OG	5:D:436:GLU:N	2.52	0.43
7:H:81:ILE:HG12	31:f:14:PHE:HB3	2.01	0.43
7:H:134:GLY:HA3	7:H:146:THR:HG21	2.01	0.43
12:M:140:PHE:O	12:M:144:PHE:HB2	2.19	0.43
13:N:521:ASN:O	13:N:523:VAL:N	2.51	0.43
1:1:98:SER:HB2	1:1:103:ARG:HA	2.01	0.43
2:A:105:LEU:HD13	48:O:201:CDL:H802	2.00	0.43
6:G:171:ASN:OD1	6:G:171:ASN:N	2.51	0.43
7:H:187:TRP:N	43:H:401:PLC:O2P	2.35	0.43
8:I:113:LEU:O	8:I:204:GLY:HA3	2.18	0.43
9:J:136:TYR:HB3	9:J:139:LEU:HD12	2.01	0.43
13:N:312:ASN:ND2	33:h:133:PHE:O	2.52	0.43
17:R:79:TYR:CE1	17:R:124:ARG:HD3	2.54	0.43
22:W:5:THR:OG1	22:W:83:GLN:NE2	2.52	0.43
26:a:37:ARG:NH1	26:a:46:ASN:O	2.51	0.43
28:c:163:GLU:HA	28:c:166:HIS:CE1	2.54	0.43
32:g:82:ASP:O	32:g:86:GLN:HG2	2.19	0.43
6:G:248:ILE:HD11	6:G:590:TYR:HB2	2.00	0.43
6:G:398:ASP:OD2	6:G:468:SER:OG	2.24	0.43
8:I:90:ALA:HB2	26:a:1:MET:HE1	2.01	0.43
9:J:73:LYS:NZ	19:T:134:ASN:OD1	2.48	0.43
9:J:134:THR:HB	14:O:124:MET:HE2	2.00	0.43
11:L:85:MET:HG3	11:L:258:PHE:CD1	2.54	0.43
11:L:385:PRO:HA	11:L:390:PHE:CG	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:L:578:ASP:OD2	12:M:307:TYR:OH	2.34	0.43
6:G:501:ILE:O	6:G:508:GLY:N	2.48	0.42
7:H:29:VAL:HG21	7:H:243:CYS:SG	2.59	0.42
7:H:230:SER:O	7:H:233:PRO:HD2	2.19	0.42
9:J:154:LEU:HD22	10:K:65:SER:HB3	2.01	0.42
12:M:162:ASN:HB2	12:M:240:GLU:CD	2.44	0.42
13:N:77:ILE:HG22	13:N:239:MET:HE1	2.00	0.42
32:g:175:LEU:HG	41:p:6:ARG:HH21	1.84	0.42
34:i:58:LYS:HA	34:i:58:LYS:HD3	1.84	0.42
1:1:61:LEU:HD22	1:1:78:LEU:HD22	2.00	0.42
5:D:109:ALA:HB2	7:H:219:SER:O	2.19	0.42
7:H:132:ILE:O	7:H:135:TRP:HB2	2.19	0.42
12:M:298:GLN:HB2	12:M:304:ILE:HG12	2.00	0.42
3:B:34:LEU:HD21	15:P:128:ASP:HB3	2.01	0.42
11:L:250:ALA:HB2	11:L:333:SER:HB3	2.01	0.42
12:M:145:GLU:OE1	12:M:148:LEU:HD12	2.20	0.42
13:N:403:SER:O	13:N:412:GLY:HA3	2.19	0.42
22:W:14:VAL:HB	22:W:20:MET:HE2	2.01	0.42
24:Y:208:GLY:O	24:Y:211:ARG:NH2	2.51	0.42
40:o:73:GLU:O	40:o:77:GLN:HG2	2.19	0.42
2:A:44:ILE:HB	15:P:346:PRO:HB3	2.01	0.42
2:A:60:SER:HB2	7:H:138:ASN:HA	2.01	0.42
4:C:191:LEU:HA	4:C:215:PRO:HD2	2.00	0.42
7:H:333:PHE:O	7:H:336:VAL:HG12	2.19	0.42
47:L:707:3PE:H3D2	47:L:707:3PE:H3A2	1.75	0.42
15:P:158:ASN:O	15:P:167:ALA:HA	2.19	0.42
24:Y:22:PRO:HD3	24:Y:191:PHE:CZ	2.54	0.42
42:q:30:LYS:NZ	42:q:56:ARG:HB3	2.35	0.42
3:B:61:LYS:HE3	7:H:69:SER:HB2	2.02	0.42
5:D:60:GLU:HG2	5:D:65:LYS:HG2	2.01	0.42
6:G:459:GLU:HG3	6:G:463:LYS:HE3	2.01	0.42
28:c:86:ASP:OD1	28:c:86:ASP:N	2.44	0.42
2:A:1:FME:SD	23:X:2:SER:HB3	2.60	0.42
5:D:116:LEU:HD22	5:D:470:ILE:HD11	2.02	0.42
12:M:68:TYR:HE1	33:h:107:LYS:HG3	1.84	0.42
15:P:118:GLU:CD	15:P:312:ARG:HH12	2.28	0.42
39:n:64:LEU:HA	39:n:64:LEU:HD12	1.80	0.42
42:q:88:PRO:HB2	42:q:90:ASN:OD1	2.19	0.42
4:C:91:PHE:HB3	4:C:110:ALA:HB1	2.01	0.42
6:G:451:ALA:O	6:G:455:ALA:N	2.42	0.42
12:M:30:LYS:NZ	12:M:32:SER:HB2	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:M:38:ASN:HB3	12:M:114:TYR:CE2	2.55	0.42
13:N:99:ASN:OD1	13:N:99:ASN:N	2.52	0.42
13:N:137:TYR:O	13:N:141:LEU:HG	2.20	0.42
13:N:249:TYR:HD2	13:N:307:ILE:HG12	1.84	0.42
18:S:16:PHE:HB3	18:S:55:ILE:HD12	2.01	0.42
20:U:50:LYS:NZ	20:U:121:ASP:OD1	2.43	0.42
32:g:26:PHE:CZ	32:g:90:ASN:HB3	2.55	0.42
5:D:119:GLU:CD	5:D:127:ARG:HH21	2.27	0.42
5:D:146:LYS:O	5:D:437:ARG:HG2	2.19	0.42
11:L:431:TYR:CE2	11:L:526:TYR:HB3	2.54	0.42
13:N:272:LEU:HD12	13:N:434:VAL:HG11	2.02	0.42
15:P:111:VAL:HG23	15:P:146:VAL:HG11	2.01	0.42
3:B:60:MET:HE3	43:q:201:PLC:H7A2	2.02	0.42
10:K:64:LEU:HD23	10:K:64:LEU:HA	1.90	0.42
47:L:707:3PE:H3B2	47:L:712:3PE:H2I1	2.00	0.42
12:M:26:GLY:O	12:M:28:LEU:HD12	2.20	0.42
13:N:53:GLY:O	33:h:145:ARG:NH1	2.53	0.42
26:a:115:ILE:HG23	26:a:116:ILE:HG13	2.02	0.42
33:h:65:ASN:OD1	33:h:68:ASN:ND2	2.52	0.42
34:i:60:LYS:HB2	34:i:63:GLU:HG3	2.00	0.42
2:A:56:SER:HB3	5:D:102:ASN:ND2	2.35	0.42
4:C:56:TYR:HB3	4:C:59:LEU:HD11	2.01	0.42
11:L:25:VAL:O	11:L:29:LYS:HG3	2.20	0.42
11:L:338:LEU:HD23	11:L:377:ALA:HB2	2.02	0.42
5:D:162:SER:HA	5:D:197:THR:HG23	2.02	0.41
6:G:395:GLU:HB3	6:G:424:ARG:HH22	1.84	0.41
9:J:17:ILE:HD12	15:P:273:TYR:OH	2.20	0.41
10:K:15:ILE:HD11	19:T:137:ILE:HG23	2.02	0.41
15:P:80:LYS:HD2	15:P:88:VAL:HB	2.02	0.41
23:X:98:LEU:HD23	23:X:138:MET:HE1	2.02	0.41
26:a:78:THR:OG1	26:a:83:GLY:HA3	2.20	0.41
2:A:18:LEU:HD21	31:f:10:ALA:HA	2.02	0.41
43:D:501:PLC:H63	43:D:501:PLC:H41	1.86	0.41
7:H:128:PHE:CZ	7:H:132:ILE:HD11	2.54	0.41
8:I:125:ALA:HB1	8:I:142:ALA:HB2	2.02	0.41
47:L:706:3PE:H241	47:L:706:3PE:H2	2.02	0.41
43:P:502:PLC:H3A2	48:P:503:CDL:HB62	2.02	0.41
32:g:217:ARG:HA	32:g:217:ARG:HD3	1.84	0.41
5:D:243:SER:O	5:D:245:TYR:N	2.50	0.41
11:L:371:TYR:OH	36:k:27:ALA:O	2.22	0.41
12:M:33:LEU:HD21	32:g:94:TYR:HB3	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:N:6:LEU:HD11	13:N:107:VAL:HG13	2.01	0.41
26:a:39:PRO:HG2	30:e:95:ASP:HB2	2.03	0.41
5:D:89:TYR:HA	5:D:90:PRO:HD3	1.94	0.41
6:G:248:ILE:HG22	6:G:257:ASN:ND2	2.35	0.41
6:G:292:ASP:OD1	6:G:292:ASP:N	2.54	0.41
11:L:260:LEU:HD13	11:L:277:ILE:HD13	2.02	0.41
11:L:559:ASN:O	11:L:564:ARG:HG2	2.20	0.41
32:g:210:ARG:HD3	32:g:210:ARG:HA	1.84	0.41
1:1:28:LEU:HB3	1:1:32:ARG:NH1	2.35	0.41
7:H:152:GLN:HE21	7:H:214:ASN:HB2	1.86	0.41
7:H:295:ALA:HB2	26:a:17:PHE:HB2	2.02	0.41
8:I:184:GLU:OE2	42:q:78:HIS:NE2	2.42	0.41
9:J:99:GLU:HG3	26:a:107:ARG:HD2	2.03	0.41
12:M:194:SER:HB2	33:h:125:ALA:HB2	2.03	0.41
12:M:282:ILE:CD1	38:m:51:GLY:HA2	2.51	0.41
14:O:117:LEU:HB3	14:O:121:GLN:HB2	2.02	0.41
20:U:95:LEU:HD12	39:n:28:LEU:HD12	2.02	0.41
37:l:125:PRO:HG2	37:l:151:LYS:NZ	2.36	0.41
9:J:20:ASN:ND2	9:J:23:GLU:OE2	2.54	0.41
11:L:177:LEU:O	11:L:215:CYS:HB3	2.20	0.41
11:L:213:LEU:HD13	11:L:267:LEU:HA	2.02	0.41
11:L:593:LEU:HB2	47:L:708:3PE:H342	2.03	0.41
13:N:304:LEU:HD23	13:N:307:ILE:HD12	2.03	0.41
17:R:103:HIS:HD2	17:R:121:CYS:SG	2.30	0.41
25:Z:109:ASP:OD1	25:Z:109:ASP:N	2.42	0.41
41:p:78:ARG:O	41:p:80:GLN:NE2	2.41	0.41
6:G:262:THR:HG22	6:G:267:VAL:HG22	2.02	0.41
6:G:383:SER:HB3	6:G:656:VAL:HG21	2.02	0.41
11:L:85:MET:O	11:L:88:PRO:HD2	2.20	0.41
12:M:409:HIS:CG	12:M:412:ILE:HG22	2.55	0.41
12:M:462:ILE:O	12:M:466:ILE:HG12	2.21	0.41
13:N:311:SER:H	13:N:314:SER:HB2	1.86	0.41
25:Z:132:ALA:HB2	30:e:85:PHE:CG	2.56	0.41
2:A:52:CYS:HA	5:D:106:GLN:HB3	2.01	0.41
5:D:100:THR:O	7:H:140:LYS:NZ	2.47	0.41
6:G:345:ASP:OD1	6:G:345:ASP:N	2.49	0.41
10:K:11:VAL:HG11	10:K:18:ILE:HD13	2.03	0.41
11:L:173:PHE:HD1	12:M:421:LEU:HD22	1.86	0.41
11:L:457:THR:HB	11:L:458:PRO:HD3	2.03	0.41
11:L:527:GLU:OE1	36:k:23:ARG:NH2	2.54	0.41
12:M:300:ASP:OD2	12:M:360:ARG:NH1	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:O:38:LEU:HD23	14:O:38:LEU:HA	1.92	0.41
48:O:201:CDL:H541	48:O:201:CDL:H512	1.54	0.41
17:R:19:THR:O	17:R:42:SER:HB2	2.21	0.41
32:g:219:LEU:HB3	34:i:71:ALA:HB2	2.02	0.41
47:m:102:3PE:H2B2	47:m:102:3PE:H282	1.88	0.41
41:p:44:CYS:SG	41:p:73:MET:HE1	2.61	0.41
43:A:201:PLC:H82	43:A:201:PLC:H41	1.95	0.41
4:C:65:ASN:HB3	4:C:68:GLU:HG2	2.02	0.41
5:D:207:LEU:HB3	5:D:219:PHE:HA	2.02	0.41
6:G:73:CYS:SG	6:G:86:SER:N	2.94	0.41
6:G:422:TRP:CZ2	6:G:441:GLU:HB2	2.56	0.41
8:I:145:ARG:HB3	8:I:147:ASP:OD1	2.21	0.41
8:I:172:CYS:HA	44:I:302:SF4:S2	2.61	0.41
9:J:16:LEU:O	24:Y:64:LYS:HD3	2.21	0.41
12:M:215:ILE:HA	12:M:218:ILE:HG22	2.02	0.41
12:M:239:SER:HB2	12:M:360:ARG:NH1	2.35	0.41
12:M:301:LEU:HB3	12:M:349:VAL:HG13	2.01	0.41
15:P:34:ARG:HG2	15:P:84:ASP:HB2	2.03	0.41
15:P:156:ASN:HD21	15:P:317:GLN:HA	1.86	0.41
15:P:279:GLY:HA2	31:f:21:ILE:HD13	2.03	0.41
28:c:159:ARG:HB3	28:c:181:ASN:HB2	2.03	0.41
32:g:78:LEU:HD23	32:g:78:LEU:HA	1.92	0.41
40:o:56:TYR:OH	40:o:60:GLN:NE2	2.49	0.41
4:C:48:LEU:HA	4:C:51:LEU:HG	2.04	0.41
6:G:389:SER:O	6:G:393:ASN:HB2	2.21	0.41
8:I:94:ILE:HG21	42:q:55:MET:HB2	2.02	0.41
11:L:47:PHE:CE1	11:L:51:ILE:HG13	2.56	0.41
11:L:59:TYR:CE2	34:i:51:GLY:HA3	2.56	0.41
12:M:33:LEU:HD23	12:M:33:LEU:HA	1.83	0.41
12:M:292:SER:HB3	12:M:422:LEU:HB3	2.03	0.41
43:M:1002:PLC:H7'1	43:M:1002:PLC:HT'2	1.87	0.41
19:T:73:ASP:OD1	19:T:73:ASP:N	2.53	0.41
24:Y:165:TYR:HD1	24:Y:192:TRP:HB3	1.86	0.41
42:q:27:ASN:OD1	43:q:202:PLC:H61	2.21	0.41
1:1:136:GLU:OE2	37:l:43:ARG:NH1	2.54	0.40
2:A:88:TYR:HB2	9:J:133:PHE:CZ	2.56	0.40
4:C:70:TYR:O	4:C:74:ILE:HG13	2.21	0.40
4:C:121:HIS:CD2	4:C:123:SER:HB2	2.57	0.40
5:D:399:HIS:CE1	6:G:144:ASP:HA	2.57	0.40
6:G:231:LYS:HB3	6:G:232:PRO:HD3	2.03	0.40
8:I:45:PRO:HB3	28:c:158:PHE:O	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:I:99:GLU:OE2	42:q:26:TYR:OH	2.32	0.40
11:L:150:LEU:HD22	11:L:243:VAL:HG22	2.03	0.40
11:L:177:LEU:HD13	11:L:177:LEU:HA	1.93	0.40
13:N:129:PHE:CE1	13:N:171:LEU:HB2	2.56	0.40
13:N:235:TYR:CE2	13:N:239:MET:HG3	2.56	0.40
14:O:124:MET:HE3	14:O:124:MET:HB3	1.99	0.40
16:Q:56:ARG:HG2	16:Q:58:TYR:HD1	1.85	0.40
37:l:41:TYR:OH	37:l:71:LEU:O	2.33	0.40
41:p:69:LYS:HG2	41:p:73:MET:HE2	2.03	0.40
2:A:107:LEU:HD13	7:H:337:VAL:HG22	2.03	0.40
4:C:274:LEU:HD23	4:C:274:LEU:HA	1.91	0.40
7:H:53:GLY:C	43:q:202:PLC:H41	2.45	0.40
8:I:143:GLU:OE2	17:R:45:SER:OG	2.33	0.40
11:L:214:ILE:HD13	11:L:214:ILE:HA	1.96	0.40
47:L:712:3PE:H12	24:Y:42:LYS:HD2	2.03	0.40
12:M:144:PHE:CZ	12:M:224:LYS:HD2	2.56	0.40
14:O:65:THR:HB	47:O:203:3PE:H282	2.03	0.40
16:Q:92:LEU:HG	16:Q:93:MET:HG2	2.03	0.40
23:X:40:VAL:HG21	25:Z:69:LEU:HD13	2.02	0.40
3:B:82:GLU:O	3:B:86:VAL:HG23	2.21	0.40
9:J:23:GLU:O	9:J:27:ILE:HG12	2.21	0.40
11:L:128:VAL:HG23	11:L:129:THR:HG23	2.03	0.40
11:L:406:PHE:O	11:L:410:ILE:HG12	2.21	0.40
11:L:498:GLU:O	11:L:502:SER:OG	2.21	0.40
12:M:117:TYR:OH	12:M:244:GLY:HA3	2.22	0.40
13:N:41:HIS:NE2	13:N:68:ASN:OD1	2.44	0.40
16:Q:93:MET:SD	42:q:120:PRO:HB2	2.62	0.40
20:U:100:GLU:HG2	36:k:9:ARG:HH22	1.85	0.40
40:o:31:LEU:HD12	40:o:59:CYS:HB2	2.02	0.40
42:q:77:TRP:CE2	42:q:89:PRO:HG2	2.57	0.40
1:1:135:VAL:HG11	1:1:179:VAL:HG22	2.04	0.40
2:A:61:HIS:HB2	9:J:72:GLU:CD	2.47	0.40
3:B:66:LYS:HG3	3:B:188:GLN:HB3	2.04	0.40
5:D:39:ASN:O	5:D:95:LYS:NZ	2.45	0.40
8:I:163:ILE:HG12	44:I:301:SF4:S3	2.62	0.40
9:J:130:ASN:O	9:J:134:THR:OG1	2.30	0.40
10:K:36:SER:OG	13:N:179:ASP:OD1	2.24	0.40
28:c:19:TRP:CD2	48:c:201:CDL:HB21	2.56	0.40
2:A:123:LEU:HD12	7:H:326:TYR:HE1	1.86	0.40
5:D:243:SER:HA	8:I:108:ARG:HH22	1.87	0.40
6:G:492:ALA:HB1	6:G:665:PHE:O	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:I:133:CYS:HA	44:I:301:SF4:S4	2.61	0.40
9:J:99:GLU:OE1	26:a:112:ARG:HD3	2.22	0.40
47:L:708:3PE:H3D2	43:M:1001:PLC:HE'2	2.02	0.40
12:M:223:VAL:HG22	12:M:230:VAL:HB	2.04	0.40
12:M:282:ILE:HD13	38:m:51:GLY:HA2	2.02	0.40
15:P:69:PRO:HA	15:P:91:VAL:O	2.22	0.40
42:q:28:ASP:OD2	42:q:56:ARG:NH2	2.48	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	1	167/190 (88%)	158 (95%)	9 (5%)	0	100	100
2	A	139/141 (99%)	135 (97%)	4 (3%)	0	100	100
3	B	173/204 (85%)	168 (97%)	5 (3%)	0	100	100
4	C	238/289 (82%)	231 (97%)	7 (3%)	0	100	100
5	D	448/482 (93%)	432 (96%)	15 (3%)	1 (0%)	44	73
6	G	580/726 (80%)	562 (97%)	18 (3%)	0	100	100
7	H	351/353 (99%)	338 (96%)	11 (3%)	2 (1%)	22	52
8	I	190/222 (86%)	186 (98%)	4 (2%)	0	100	100
9	J	159/161 (99%)	156 (98%)	3 (2%)	0	100	100
10	K	78/82 (95%)	78 (100%)	0	0	100	100
11	L	640/642 (100%)	626 (98%)	13 (2%)	1 (0%)	44	73
12	M	489/491 (100%)	475 (97%)	14 (3%)	0	100	100
13	N	502/523 (96%)	490 (98%)	12 (2%)	0	100	100
14	O	191/193 (99%)	186 (97%)	5 (3%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
15	P	366/384 (95%)	355 (97%)	11 (3%)	0	100	100
16	Q	82/159 (52%)	82 (100%)	0	0	100	100
17	R	122/139 (88%)	120 (98%)	2 (2%)	0	100	100
18	S	88/90 (98%)	85 (97%)	3 (3%)	0	100	100
19	T	93/138 (67%)	91 (98%)	2 (2%)	0	100	100
20	U	86/130 (66%)	81 (94%)	5 (6%)	0	100	100
21	V	124/134 (92%)	121 (98%)	3 (2%)	0	100	100
22	W	111/122 (91%)	110 (99%)	1 (1%)	0	100	100
23	X	182/184 (99%)	182 (100%)	0	0	100	100
24	Y	203/216 (94%)	194 (96%)	9 (4%)	0	100	100
25	Z	140/147 (95%)	137 (98%)	3 (2%)	0	100	100
26	a	147/150 (98%)	144 (98%)	3 (2%)	0	100	100
27	b	76/79 (96%)	74 (97%)	2 (3%)	0	100	100
28	c	157/182 (86%)	153 (98%)	4 (2%)	0	100	100
29	d	73/78 (94%)	72 (99%)	1 (1%)	0	100	100
30	e	103/106 (97%)	101 (98%)	2 (2%)	0	100	100
31	f	76/86 (88%)	76 (100%)	0	0	100	100
32	g	152/239 (64%)	146 (96%)	6 (4%)	0	100	100
33	h	129/182 (71%)	124 (96%)	5 (4%)	0	100	100
34	i	67/74 (90%)	62 (92%)	5 (8%)	0	100	100
35	j	51/59 (86%)	49 (96%)	2 (4%)	0	100	100
36	k	43/61 (70%)	42 (98%)	1 (2%)	0	100	100
37	l	130/156 (83%)	127 (98%)	3 (2%)	0	100	100
38	m	75/81 (93%)	74 (99%)	1 (1%)	0	100	100
39	n	103/111 (93%)	103 (100%)	0	0	100	100
40	o	78/87 (90%)	75 (96%)	3 (4%)	0	100	100
41	p	88/92 (96%)	86 (98%)	2 (2%)	0	100	100
42	q	138/140 (99%)	133 (96%)	5 (4%)	0	100	100
All	All	7628/8505 (90%)	7420 (97%)	204 (3%)	4 (0%)	50	77

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	H	222	VAL
7	H	2	LEU
5	D	33	ALA
11	L	552	ILE

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	1	152/168 (90%)	146 (96%)	6 (4%)	27	62
2	A	128/128 (100%)	124 (97%)	4 (3%)	35	70
3	B	154/180 (86%)	151 (98%)	3 (2%)	52	81
4	C	214/254 (84%)	210 (98%)	4 (2%)	52	81
5	D	384/408 (94%)	378 (98%)	6 (2%)	58	84
6	G	498/610 (82%)	490 (98%)	8 (2%)	58	84
7	H	307/307 (100%)	298 (97%)	9 (3%)	37	72
8	I	166/192 (86%)	158 (95%)	8 (5%)	21	54
9	J	149/149 (100%)	143 (96%)	6 (4%)	27	61
10	K	70/72 (97%)	65 (93%)	5 (7%)	12	36
11	L	576/576 (100%)	564 (98%)	12 (2%)	48	78
12	M	439/439 (100%)	425 (97%)	14 (3%)	34	69
13	N	474/489 (97%)	462 (98%)	12 (2%)	42	75
14	O	169/169 (100%)	164 (97%)	5 (3%)	36	71
15	P	317/332 (96%)	313 (99%)	4 (1%)	65	88
16	Q	74/135 (55%)	74 (100%)	0	100	100
17	R	104/118 (88%)	103 (99%)	1 (1%)	73	91
18	S	77/77 (100%)	74 (96%)	3 (4%)	27	62
19	T	87/128 (68%)	82 (94%)	5 (6%)	17	47
20	U	80/120 (67%)	76 (95%)	4 (5%)	20	52
21	V	112/119 (94%)	111 (99%)	1 (1%)	75	92

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
22	W	107/114 (94%)	105 (98%)	2 (2%)	52	81
23	X	165/165 (100%)	163 (99%)	2 (1%)	67	89
24	Y	163/173 (94%)	160 (98%)	3 (2%)	54	82
25	Z	123/128 (96%)	120 (98%)	3 (2%)	44	76
26	a	128/129 (99%)	127 (99%)	1 (1%)	79	93
27	b	66/67 (98%)	65 (98%)	1 (2%)	60	85
28	c	140/159 (88%)	137 (98%)	3 (2%)	48	78
29	d	62/65 (95%)	61 (98%)	1 (2%)	58	84
30	e	91/92 (99%)	91 (100%)	0	100	100
31	f	64/71 (90%)	64 (100%)	0	100	100
32	g	143/215 (66%)	139 (97%)	4 (3%)	38	73
33	h	118/167 (71%)	117 (99%)	1 (1%)	79	93
34	i	59/63 (94%)	58 (98%)	1 (2%)	56	83
35	j	46/50 (92%)	44 (96%)	2 (4%)	25	57
36	k	32/47 (68%)	31 (97%)	1 (3%)	35	70
37	l	116/137 (85%)	111 (96%)	5 (4%)	25	57
38	m	64/66 (97%)	64 (100%)	0	100	100
39	n	95/100 (95%)	95 (100%)	0	100	100
40	o	74/79 (94%)	72 (97%)	2 (3%)	40	73
41	p	83/85 (98%)	83 (100%)	0	100	100
42	q	125/125 (100%)	122 (98%)	3 (2%)	44	76
All	All	6795/7467 (91%)	6640 (98%)	155 (2%)	46	77

All (155) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	1	66	LYS
1	1	67	ASP
1	1	68	LYS
1	1	69	ASP
1	1	72	GLU
1	1	187	LYS
2	A	27	ILE
2	A	110	LEU
2	A	114	PHE

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Mol	Chain	Res	Type
2	A	138	LYS
3	B	78	CYS
3	B	108	ASP
3	B	149	TYR
4	C	139	THR
4	C	219	ASP
4	C	233	GLU
4	C	257	VAL
5	D	98	HIS
5	D	113	VAL
5	D	223	PHE
5	D	269	GLN
5	D	356	PHE
5	D	482	ARG
6	G	62	GLU
6	G	69	ASN
6	G	70	CYS
6	G	158	GLU
6	G	185	ASP
6	G	356	VAL
6	G	527	THR
6	G	692	VAL
7	H	40	MET
7	H	46	ARG
7	H	74	LEU
7	H	131	VAL
7	H	159	VAL
7	H	170	ILE
7	H	171	VAL
7	H	177	ASN
7	H	237	PHE
8	I	35	LEU
8	I	41	GLN
8	I	100	LYS
8	I	124	ILE
8	I	126	CYS
8	I	128	LEU
8	I	145	ARG
8	I	184	GLU
9	J	25	ILE
9	J	33	MET
9	J	73	LYS

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Mol	Chain	Res	Type
9	J	89	VAL
9	J	110	ILE
9	J	121	ASN
10	K	2	ASP
10	K	5	LEU
10	K	35	TYR
10	K	74	ARG
10	K	75	ASN
11	L	3	LEU
11	L	11	LEU
11	L	158	PHE
11	L	159	ASN
11	L	252	LEU
11	L	264	SER
11	L	270	THR
11	L	348	HIS
11	L	364	ARG
11	L	509	VAL
11	L	535	VAL
11	L	614	GLU
12	M	27	ILE
12	M	30	LYS
12	M	31	LYS
12	M	84	ILE
12	M	108	LYS
12	M	118	VAL
12	M	133	ILE
12	M	224	LYS
12	M	225	THR
12	M	228	MET
12	M	255	LYS
12	M	349	VAL
12	M	369	SER
12	M	489	VAL
13	N	18	LYS
13	N	99	ASN
13	N	157	LEU
13	N	158	TYR
13	N	198	ILE
13	N	334	SER
13	N	365	ASN
13	N	387	PHE

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Mol	Chain	Res	Type
13	N	393	ILE
13	N	435	LEU
13	N	436	ILE
13	N	486	SER
14	O	54	LYS
14	O	116	LEU
14	O	127	ARG
14	O	155	ARG
14	O	186	LYS
15	P	10	THR
15	P	93	PHE
15	P	351	THR
15	P	355	GLN
17	R	133	ASP
18	S	3	LYS
18	S	8	LYS
18	S	34	THR
19	T	79	VAL
19	T	102	VAL
19	T	112	ILE
19	T	137	ILE
19	T	138	ARG
20	U	45	THR
20	U	126	GLN
20	U	127	GLU
20	U	130	ILE
21	V	56	GLU
22	W	109	LYS
22	W	111	ASP
23	X	1	SER
23	X	183	ILE
24	Y	34	LYS
24	Y	74	TYR
24	Y	211	ARG
25	Z	4	ASP
25	Z	69	LEU
25	Z	129	LEU
26	a	111	LEU
27	b	3	ILE
28	c	114	LEU
28	c	133	LYS
28	c	135	VAL

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Mol	Chain	Res	Type
29	d	61	LYS
32	g	32	LYS
32	g	43	LYS
32	g	177	LEU
32	g	185	VAL
33	h	104	ILE
34	i	7	HIS
35	j	34	LEU
35	j	59	HIS
36	k	7	LYS
37	l	25	LYS
37	l	44	LEU
37	l	68	ASN
37	l	127	ASN
37	l	156	ILE
40	o	16	LYS
40	o	49	CYS
42	q	1	SER
42	q	27	ASN
42	q	37	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (61) such sidechains are listed below:

Mol	Chain	Res	Type
1	1	85	GLN
2	A	130	HIS
3	B	93	GLN
3	B	118	ASN
4	C	142	ASN
5	D	107	HIS
5	D	269	GLN
6	G	175	HIS
6	G	297	GLN
6	G	482	GLN
7	H	76	HIS
9	J	101	ASN
11	L	109	HIS
11	L	439	ASN
11	L	451	ASN
11	L	550	GLN
11	L	574	ASN
11	L	608	ASN

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Mol	Chain	Res	Type
12	M	22	ASN
12	M	193	ASN
12	M	238	HIS
12	M	329	ASN
12	M	338	HIS
12	M	363	ASN
13	N	17	ASN
13	N	256	ASN
13	N	331	ASN
13	N	390	ASN
14	O	184	GLN
15	P	18	ASN
15	P	78	GLN
16	Q	86	ASN
17	R	34	GLN
17	R	57	ASN
18	S	72	ASN
18	S	80	GLN
21	V	77	ASN
23	X	158	ASN
24	Y	55	HIS
24	Y	109	GLN
24	Y	189	GLN
25	Z	65	HIS
25	Z	77	ASN
25	Z	133	ASN
27	b	12	GLN
27	b	20	HIS
29	d	20	GLN
30	e	10	HIS
30	e	21	GLN
30	e	64	HIS
31	f	48	HIS
32	g	181	ASN
33	h	118	GLN
33	h	140	HIS
34	i	4	HIS
37	l	63	ASN
38	m	16	GLN
40	o	18	ASN
40	o	36	ASN
40	o	77	GLN

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Mol	Chain	Res	Type
41	p	19	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

8 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	$\#\|Z\| > 2$
2	FME	A	1	2	8,9,10	1.53	1 (12%)	7,9,11	1.76	2 (28%)
7	FME	H	1	7	8,9,10	1.53	1 (12%)	7,9,11	1.56	1 (14%)
12	FME	M	1	12	8,9,10	1.51	1 (12%)	7,9,11	1.55	1 (14%)
10	FME	K	1	10	8,9,10	1.50	1 (12%)	7,9,11	1.56	1 (14%)
9	FME	J	1	9	8,9,10	1.49	1 (12%)	7,9,11	1.64	2 (28%)
5	2MR	D	137	5	10,12,13	2.36	2 (20%)	5,13,15	1.91	1 (20%)
11	FME	L	1	11	8,9,10	1.49	1 (12%)	7,9,11	1.62	2 (28%)
13	FME	N	1	13	8,9,10	1.49	1 (12%)	7,9,11	1.52	1 (14%)

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
2	FME	A	1	2	-	5/7/9/11	-
7	FME	H	1	7	-	5/7/9/11	-
12	FME	M	1	12	-	1/7/9/11	-
10	FME	K	1	10	-	2/7/9/11	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	FME	J	1	9	-	3/7/9/11	-
5	2MR	D	137	5	-	0/10/13/15	-
11	FME	L	1	11	-	0/7/9/11	-
13	FME	N	1	13	-	0/7/9/11	-

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	D	137	2MR	CZ-NH2	5.24	1.45	1.33
5	D	137	2MR	CZ-NE	4.87	1.44	1.34
7	H	1	FME	CN-N	3.74	1.45	1.33
2	A	1	FME	CN-N	3.71	1.45	1.33
12	M	1	FME	CN-N	3.71	1.45	1.33
10	K	1	FME	CN-N	3.66	1.45	1.33
9	J	1	FME	CN-N	3.62	1.45	1.33
13	N	1	FME	CN-N	3.59	1.45	1.33
11	L	1	FME	CN-N	3.59	1.45	1.33

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	D	137	2MR	CD-NE-CZ	-3.50	116.86	123.41
2	A	1	FME	CE-SD-CG	2.99	110.67	100.40
12	M	1	FME	CE-SD-CG	2.77	109.93	100.40
7	H	1	FME	CE-SD-CG	2.66	109.55	100.40
10	K	1	FME	CE-SD-CG	2.66	109.53	100.40
11	L	1	FME	CE-SD-CG	2.59	109.31	100.40
13	N	1	FME	CE-SD-CG	2.50	108.99	100.40
9	J	1	FME	CE-SD-CG	2.36	108.50	100.40
2	A	1	FME	CA-N-CN	-2.23	119.40	122.82
9	J	1	FME	O1-CN-N	-2.08	119.78	125.27
11	L	1	FME	O1-CN-N	-2.05	119.88	125.27

There are no chirality outliers.

All (16) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1	FME	O1-CN-N-CA
2	A	1	FME	CB-CA-N-CN
2	A	1	FME	N-CA-CB-CG
2	A	1	FME	C-CA-CB-CG

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Mol	Chain	Res	Type	Atoms
7	H	1	FME	N-CA-CB-CG
7	H	1	FME	C-CA-CB-CG
7	H	1	FME	O-C-CA-CB
9	J	1	FME	C-CA-CB-CG
10	K	1	FME	C-CA-CB-CG
2	A	1	FME	CB-CG-SD-CE
10	K	1	FME	N-CA-CB-CG
7	H	1	FME	CA-CB-CG-SD
7	H	1	FME	CB-CG-SD-CE
12	M	1	FME	CB-CG-SD-CE
9	J	1	FME	N-CA-CB-CG
9	J	1	FME	CB-CA-N-CN

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1	FME	1	0
7	H	1	FME	1	0
9	J	1	FME	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 58 ligands modelled in this entry, 2 are monoatomic - leaving 56 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	$\#\|Z\| > 2$
43	PLC	D	501	-	41,41,41	0.50	0	47,49,49	0.57	1 (2%)
47	3PE	L	707	-	50,50,50	0.86	4 (8%)	53,55,55	1.10	2 (3%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
47	3PE	j	101	-	26,26,50	1.16	4 (15%)	29,31,55	1.17	2 (6%)
48	CDL	b	102	-	58,58,99	1.11	8 (13%)	64,70,111	1.22	4 (6%)
48	CDL	Z	202	-	48,48,99	1.22	8 (16%)	54,60,111	1.27	4 (7%)
48	CDL	c	201	-	59,59,99	1.10	8 (13%)	65,71,111	1.17	4 (6%)
47	3PE	Z	203	-	35,35,50	1.01	4 (11%)	38,40,55	1.13	2 (5%)
47	3PE	m	102	-	34,34,50	1.03	4 (11%)	37,39,55	1.10	2 (5%)
43	PLC	q	202	-	35,35,41	0.55	0	41,43,49	0.63	0
47	3PE	f	101	-	50,50,50	0.86	4 (8%)	53,55,55	1.11	2 (3%)
47	3PE	m	101	-	24,24,50	1.21	4 (16%)	27,29,55	1.38	2 (7%)
47	3PE	L	711	-	45,45,50	0.90	4 (8%)	48,50,55	1.11	2 (4%)
47	3PE	N	601	-	39,39,50	0.97	4 (10%)	42,44,55	1.16	2 (4%)
44	SF4	I	302	8	0,12,12	-	-	-		
47	3PE	L	703	-	41,41,50	0.95	3 (7%)	44,46,55	1.15	2 (4%)
43	PLC	L	702	-	34,34,41	0.56	0	40,42,49	0.63	1 (2%)
43	PLC	d	102	-	41,41,41	0.52	0	47,49,49	0.51	0
44	SF4	B	301	3	0,12,12	-	-	-		
44	SF4	G	802	6	0,12,12	-	-	-		
43	PLC	h	201	-	41,41,41	0.51	0	47,49,49	0.52	0
43	PLC	d	101	-	41,41,41	0.52	0	47,49,49	0.54	0
51	EHZ	T	201	19	29,36,37	1.68	5 (17%)	35,44,47	1.58	7 (20%)
43	PLC	Y	301	-	35,35,41	0.55	0	41,43,49	0.51	0
44	SF4	I	301	8	0,12,12	-	-	-		
47	3PE	L	708	-	50,50,50	0.85	4 (8%)	53,55,55	1.11	2 (3%)
47	3PE	L	710	-	50,50,50	0.86	4 (8%)	53,55,55	1.11	2 (3%)
47	3PE	L	712	-	50,50,50	0.86	4 (8%)	53,55,55	1.12	2 (3%)
43	PLC	P	502	-	30,30,41	0.58	0	36,38,49	0.60	0
47	3PE	Y	302	-	25,25,50	1.18	4 (16%)	28,30,55	1.29	3 (10%)
47	3PE	L	709	-	45,45,50	0.90	4 (8%)	48,50,55	1.10	2 (4%)
51	EHZ	U	201	20	29,36,37	1.68	5 (17%)	35,44,47	1.61	8 (22%)
43	PLC	a	201	-	21,21,41	0.68	0	27,29,49	0.65	0
47	3PE	H	402	-	30,30,50	1.08	4 (13%)	33,35,55	1.16	2 (6%)
43	PLC	L	705	-	41,41,41	0.52	0	47,49,49	0.65	1 (2%)
48	CDL	O	201	-	74,74,99	0.99	7 (9%)	80,86,111	1.13	5 (6%)
43	PLC	M	1002	-	41,41,41	0.52	0	47,49,49	0.50	0
43	PLC	b	101	-	38,38,41	0.53	0	44,46,49	0.54	0
43	PLC	H	401	-	23,23,41	0.68	0	29,31,49	0.61	1 (3%)
43	PLC	M	1001	-	41,41,41	0.52	0	47,49,49	0.52	0
43	PLC	q	201	-	41,41,41	0.52	0	47,49,49	0.52	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
48	CDL	P	503	-	41,41,99	1.27	7 (17%)	47,53,111	1.32	4 (8%)
49	NDP	P	501	-	45,52,52	4.28	23 (51%)	53,80,80	2.11	5 (9%)
43	PLC	A	201	-	30,30,41	0.60	0	36,38,49	0.53	0
43	PLC	L	704	-	31,31,41	0.55	0	37,39,49	0.57	0
43	PLC	B	302	-	30,30,41	0.59	0	36,38,49	0.55	0
47	3PE	M	1003	-	34,34,50	1.02	4 (11%)	37,39,55	1.16	2 (5%)
44	SF4	G	801	6	0,12,12	-	-	-		
47	3PE	L	706	-	32,32,50	1.06	4 (12%)	35,37,55	1.18	2 (5%)
47	3PE	O	202	-	30,30,50	1.08	4 (13%)	33,35,55	1.12	2 (6%)
43	PLC	g	301	-	38,38,41	0.53	0	44,46,49	0.53	0
47	3PE	b	103	-	39,39,50	0.96	4 (10%)	42,44,55	1.12	2 (4%)
47	3PE	O	203	-	34,34,50	1.04	4 (11%)	37,39,55	1.17	2 (5%)
43	PLC	Z	201	-	41,41,41	0.52	0	47,49,49	0.53	0
47	3PE	L	701	-	28,28,50	1.13	4 (14%)	31,33,55	1.15	2 (6%)
43	PLC	Y	303	-	35,35,41	0.53	0	41,43,49	0.58	0
45	FES	G	803	6	0,4,4	-	-	-		

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
43	PLC	D	501	-	-	18/45/45/45	-
47	3PE	L	707	-	-	33/54/54/54	-
47	3PE	j	101	-	-	12/30/30/54	-
48	CDL	b	102	-	-	32/69/69/110	-
48	CDL	Z	202	-	-	27/58/58/110	-
48	CDL	c	201	-	-	35/70/70/110	-
47	3PE	Z	203	-	-	22/39/39/54	-
47	3PE	m	102	-	-	12/38/38/54	-
43	PLC	q	202	-	-	13/39/39/45	-
47	3PE	f	101	-	-	26/54/54/54	-
47	3PE	m	101	-	-	15/27/27/54	-
47	3PE	L	711	-	-	28/49/49/54	-
47	3PE	N	601	-	-	20/43/43/54	-
44	SF4	I	302	8	-	-	0/6/5/5
47	3PE	L	703	-	-	22/45/45/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
43	PLC	L	702	-	-	18/38/38/45	-
43	PLC	d	102	-	-	19/45/45/45	-
44	SF4	B	301	3	-	-	0/6/5/5
44	SF4	G	802	6	-	-	0/6/5/5
43	PLC	h	201	-	-	21/45/45/45	-
43	PLC	d	101	-	-	14/45/45/45	-
51	EHZ	T	201	19	-	22/42/44/45	-
43	PLC	Y	301	-	-	8/39/39/45	-
47	3PE	L	708	-	-	20/54/54/54	-
44	SF4	I	301	8	-	-	0/6/5/5
47	3PE	L	710	-	-	23/54/54/54	-
47	3PE	L	712	-	-	29/54/54/54	-
43	PLC	P	502	-	-	11/34/34/45	-
47	3PE	Y	302	-	-	12/28/28/54	-
47	3PE	L	709	-	-	23/49/49/54	-
51	EHZ	U	201	20	-	15/42/44/45	-
43	PLC	a	201	-	-	7/23/23/45	-
47	3PE	H	402	-	-	18/34/34/54	-
43	PLC	L	705	-	-	21/45/45/45	-
48	CDL	O	201	-	-	45/85/85/110	-
43	PLC	M	1002	-	-	15/45/45/45	-
43	PLC	b	101	-	-	14/42/42/45	-
43	PLC	H	401	-	-	8/26/26/45	-
43	PLC	M	1001	-	-	14/45/45/45	-
43	PLC	q	201	-	-	20/45/45/45	-
48	CDL	P	503	-	-	21/50/50/110	-
49	NDP	P	501	-	-	11/30/77/77	0/5/5/5
43	PLC	A	201	-	-	9/34/34/45	-
43	PLC	L	704	-	-	17/35/35/45	-
43	PLC	B	302	-	-	14/34/34/45	-
47	3PE	M	1003	-	-	15/38/38/54	-
44	SF4	G	801	6	-	-	0/6/5/5
47	3PE	L	706	-	-	16/36/36/54	-
47	3PE	O	202	-	-	21/34/34/54	-
43	PLC	g	301	-	-	16/42/42/45	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
47	3PE	b	103	-	-	29/43/43/54	-
47	3PE	O	203	-	-	21/38/38/54	-
43	PLC	Z	201	-	-	16/45/45/45	-
47	3PE	L	701	-	-	14/32/32/54	-
43	PLC	Y	303	-	-	17/39/39/45	-
45	FES	G	803	6	-	-	0/1/1/1

All (154) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	P	501	NDP	O4B-C1B	14.86	1.61	1.41
49	P	501	NDP	C6N-C5N	12.21	1.55	1.33
49	P	501	NDP	C7N-N7N	8.27	1.55	1.33
49	P	501	NDP	O4D-C1D	8.02	1.61	1.42
49	P	501	NDP	C2D-C1D	-7.21	1.30	1.53
49	P	501	NDP	O4D-C4D	-6.51	1.30	1.45
49	P	501	NDP	P2B-O2B	5.53	1.69	1.59
51	T	201	EHZ	C15-N2	5.40	1.45	1.33
51	U	201	EHZ	C15-N2	5.33	1.45	1.33
51	U	201	EHZ	C12-N1	5.27	1.45	1.33
51	T	201	EHZ	C12-N1	5.25	1.45	1.33
49	P	501	NDP	O4B-C4B	-5.20	1.33	1.45
49	P	501	NDP	C2N-C3N	4.69	1.48	1.34
49	P	501	NDP	O7N-C7N	-4.07	1.14	1.24
49	P	501	NDP	O2D-C2D	3.95	1.52	1.43
49	P	501	NDP	C6A-N6A	3.84	1.48	1.34
49	P	501	NDP	C5A-C4A	-3.60	1.31	1.40
49	P	501	NDP	C4N-C3N	3.26	1.56	1.49
49	P	501	NDP	C2A-N3A	2.76	1.36	1.32
49	P	501	NDP	C4N-C5N	2.71	1.56	1.48
48	O	201	CDL	OB6-CB4	-2.70	1.39	1.46
49	P	501	NDP	O3B-C3B	-2.68	1.36	1.43
48	c	201	CDL	OB6-CB4	-2.63	1.40	1.46
47	b	103	3PE	O21-C2	-2.61	1.40	1.46
47	L	703	3PE	O21-C2	-2.61	1.40	1.46
47	L	712	3PE	O21-C2	-2.60	1.40	1.46
48	b	102	CDL	OA6-CA4	-2.59	1.40	1.46
48	b	102	CDL	OB6-CB4	-2.57	1.40	1.46
47	L	708	3PE	O21-C2	-2.57	1.40	1.46
47	j	101	3PE	O21-C2	-2.56	1.40	1.46
49	P	501	NDP	O3D-C3D	-2.56	1.37	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	m	102	3PE	O21-C2	-2.55	1.40	1.46
48	P	503	CDL	OB6-CB4	-2.55	1.40	1.46
47	L	707	3PE	O21-C2	-2.55	1.40	1.46
48	Z	202	CDL	OB6-CB4	-2.54	1.40	1.46
47	L	710	3PE	O21-C2	-2.53	1.40	1.46
47	Y	302	3PE	O21-C2	-2.53	1.40	1.46
47	L	711	3PE	O21-C2	-2.53	1.40	1.46
47	f	101	3PE	O21-C2	-2.52	1.40	1.46
48	P	503	CDL	OA6-CA4	-2.51	1.40	1.46
47	Z	203	3PE	O21-C2	-2.50	1.40	1.46
47	L	701	3PE	O21-C2	-2.49	1.40	1.46
47	M	1003	3PE	O21-C2	-2.48	1.40	1.46
47	O	202	3PE	O31-C31	2.48	1.40	1.33
48	O	201	CDL	OA8-CA7	2.48	1.40	1.33
47	H	402	3PE	O21-C2	-2.48	1.40	1.46
48	c	201	CDL	OB8-CB7	2.48	1.40	1.33
47	O	203	3PE	O21-C2	-2.44	1.40	1.46
49	P	501	NDP	C6N-N1N	2.44	1.43	1.37
48	b	102	CDL	OB8-CB7	2.43	1.40	1.33
48	c	201	CDL	OA6-CA4	-2.43	1.40	1.46
47	m	101	3PE	O21-C21	2.42	1.40	1.35
47	L	703	3PE	O31-C31	2.42	1.40	1.33
48	Z	202	CDL	OA8-CA7	2.42	1.40	1.33
47	N	601	3PE	O21-C2	-2.41	1.40	1.46
47	m	102	3PE	O31-C31	2.41	1.40	1.33
48	b	102	CDL	OA8-CA7	2.39	1.40	1.33
48	P	503	CDL	OA8-CA7	2.38	1.40	1.33
48	Z	202	CDL	OA6-CA5	2.38	1.40	1.35
48	Z	202	CDL	OB8-CB7	2.38	1.40	1.33
47	M	1003	3PE	O31-C31	2.37	1.40	1.33
47	Y	302	3PE	O31-C31	2.37	1.40	1.33
47	L	701	3PE	O31-C31	2.36	1.40	1.33
47	m	101	3PE	O31-C31	2.36	1.40	1.33
51	U	201	EHZ	C9-S1	2.36	1.81	1.76
47	L	706	3PE	O31-C31	2.35	1.40	1.33
47	Z	203	3PE	O31-C31	2.34	1.40	1.33
47	O	203	3PE	O31-C31	2.34	1.40	1.33
47	j	101	3PE	O31-C31	2.33	1.40	1.33
47	N	601	3PE	O31-C31	2.33	1.40	1.33
47	H	402	3PE	O31-C31	2.32	1.40	1.33
47	L	711	3PE	O31-C31	2.32	1.40	1.33
47	L	709	3PE	O31-C31	2.32	1.40	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	O	201	CDL	OA6-CA4	-2.31	1.40	1.46
47	b	103	3PE	O31-C31	2.31	1.40	1.33
47	f	101	3PE	O31-C31	2.31	1.40	1.33
47	L	707	3PE	O31-C3	-2.30	1.39	1.45
47	L	706	3PE	O21-C21	2.29	1.40	1.34
49	P	501	NDP	C7N-C3N	2.29	1.53	1.48
47	L	706	3PE	O21-C2	-2.29	1.40	1.46
47	L	710	3PE	O31-C31	2.28	1.40	1.33
48	O	201	CDL	OB8-CB6	-2.28	1.40	1.45
51	T	201	EHZ	O4-C15	-2.27	1.18	1.23
47	L	708	3PE	O31-C31	2.27	1.40	1.33
47	L	712	3PE	O31-C3	-2.27	1.40	1.45
48	c	201	CDL	OA8-CA7	2.27	1.40	1.33
48	P	503	CDL	OB6-CB5	2.27	1.40	1.35
47	L	709	3PE	O21-C2	-2.26	1.40	1.46
48	O	201	CDL	OB8-CB7	2.26	1.39	1.33
51	T	201	EHZ	O3-C12	-2.26	1.18	1.23
47	m	101	3PE	O21-C2	-2.24	1.41	1.46
49	P	501	NDP	PA-O5B	2.24	1.68	1.59
47	L	712	3PE	O31-C31	2.23	1.39	1.33
47	Z	203	3PE	O31-C3	-2.23	1.40	1.45
47	O	203	3PE	O31-C3	-2.23	1.40	1.45
51	T	201	EHZ	C9-S1	2.23	1.81	1.76
48	c	201	CDL	OA8-CA6	-2.22	1.40	1.45
51	U	201	EHZ	O4-C15	-2.22	1.19	1.23
47	N	601	3PE	O31-C3	-2.22	1.40	1.45
48	O	201	CDL	OA6-CA5	2.22	1.40	1.34
47	L	708	3PE	O31-C3	-2.21	1.40	1.45
47	L	709	3PE	O21-C21	2.21	1.40	1.34
47	O	203	3PE	O21-C21	2.20	1.40	1.34
47	L	710	3PE	O31-C3	-2.20	1.40	1.45
49	P	501	NDP	P2B-O1X	2.20	1.57	1.50
47	O	202	3PE	O21-C2	-2.20	1.41	1.46
47	H	402	3PE	O31-C3	-2.20	1.40	1.45
47	b	103	3PE	O31-C3	-2.19	1.40	1.45
51	U	201	EHZ	O3-C12	-2.19	1.18	1.23
47	L	709	3PE	O31-C3	-2.19	1.40	1.45
47	f	101	3PE	O31-C3	-2.19	1.40	1.45
47	Y	302	3PE	O21-C21	2.19	1.40	1.35
48	Z	202	CDL	OA6-CA4	-2.18	1.41	1.46
48	c	201	CDL	OA6-CA5	2.17	1.40	1.34
48	P	503	CDL	OA8-CA6	-2.17	1.40	1.45

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	M	1003	3PE	O31-C3	-2.17	1.40	1.45
47	O	202	3PE	O21-C21	2.17	1.40	1.34
47	N	601	3PE	O21-C21	2.17	1.40	1.34
47	L	711	3PE	O31-C3	-2.16	1.40	1.45
48	P	503	CDL	OB8-CB6	-2.16	1.40	1.45
47	L	711	3PE	O21-C21	2.16	1.40	1.34
47	Y	302	3PE	O31-C3	-2.15	1.40	1.45
48	Z	202	CDL	OB6-CB5	2.15	1.40	1.34
47	m	101	3PE	O31-C3	-2.15	1.40	1.45
48	Z	202	CDL	OB8-CB6	-2.15	1.40	1.45
47	L	701	3PE	O31-C3	-2.15	1.40	1.45
47	L	707	3PE	O31-C31	2.15	1.39	1.33
47	j	101	3PE	O31-C3	-2.14	1.40	1.45
47	H	402	3PE	O21-C21	2.14	1.40	1.34
47	L	703	3PE	O31-C3	-2.13	1.40	1.45
48	b	102	CDL	OB8-CB6	-2.12	1.40	1.45
48	c	201	CDL	OB8-CB6	-2.12	1.40	1.45
48	P	503	CDL	OA6-CA5	2.11	1.40	1.34
47	Z	203	3PE	O21-C21	2.11	1.40	1.34
47	L	701	3PE	O21-C21	2.11	1.40	1.34
47	m	102	3PE	O31-C3	-2.11	1.40	1.45
47	L	706	3PE	O31-C3	-2.10	1.40	1.45
47	f	101	3PE	O21-C21	2.10	1.40	1.34
48	b	102	CDL	OA8-CA6	-2.10	1.40	1.45
48	Z	202	CDL	OA8-CA6	-2.10	1.40	1.45
47	M	1003	3PE	O21-C21	2.10	1.40	1.34
47	L	707	3PE	O21-C21	2.09	1.40	1.34
47	j	101	3PE	O21-C21	2.09	1.40	1.34
47	O	202	3PE	O31-C3	-2.08	1.40	1.45
47	L	710	3PE	O21-C21	2.08	1.40	1.34
48	b	102	CDL	OB6-CB5	2.06	1.40	1.34
47	m	102	3PE	O21-C21	2.06	1.40	1.34
47	L	712	3PE	O21-C21	2.04	1.40	1.34
49	P	501	NDP	C5B-C4B	2.02	1.57	1.51
48	O	201	CDL	OA8-CA6	-2.02	1.40	1.45
48	b	102	CDL	OA6-CA5	2.02	1.40	1.34
47	b	103	3PE	O21-C21	2.01	1.40	1.34
48	c	201	CDL	OB6-CB5	2.01	1.40	1.34
47	L	708	3PE	O21-C21	2.00	1.40	1.34

All (88) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
49	P	501	NDP	C5A-C6A-N6A	8.56	133.36	120.35
49	P	501	NDP	C1B-N9A-C4A	-7.78	112.97	126.64
49	P	501	NDP	N6A-C6A-N1A	-6.02	106.09	118.57
49	P	501	NDP	N3A-C2A-N1A	-5.57	119.97	128.68
51	U	201	EHZ	C8-C9-S1	5.34	120.24	113.63
47	m	101	3PE	O21-C21-C22	5.19	120.64	111.09
51	T	201	EHZ	C8-C9-S1	5.18	120.03	113.63
48	P	503	CDL	OB6-CB5-C51	4.90	120.10	111.09
47	Y	302	3PE	O21-C21-C22	4.84	120.00	111.09
48	Z	202	CDL	OA6-CA5-C11	4.77	119.86	111.09
47	L	706	3PE	O21-C21-C22	4.64	121.50	111.50
47	N	601	3PE	O21-C21-C22	4.35	120.88	111.50
47	L	712	3PE	O21-C21-C22	4.30	120.76	111.50
47	L	703	3PE	O21-C21-C22	4.26	120.69	111.50
47	f	101	3PE	O21-C21-C22	4.16	120.46	111.50
47	L	710	3PE	O21-C21-C22	4.15	120.44	111.50
48	Z	202	CDL	OB6-CB5-C51	4.10	120.34	111.50
47	H	402	3PE	O21-C21-C22	4.03	120.20	111.50
47	L	708	3PE	O21-C21-C22	4.03	120.19	111.50
47	L	711	3PE	O21-C21-C22	4.02	120.17	111.50
48	b	102	CDL	OB6-CB5-C51	4.02	120.16	111.50
47	M	1003	3PE	O21-C21-C22	4.01	120.15	111.50
47	O	203	3PE	O21-C21-C22	4.00	120.13	111.50
47	L	707	3PE	O21-C21-C22	3.99	120.11	111.50
48	c	201	CDL	OB6-CB5-C51	3.96	120.04	111.50
48	P	503	CDL	OA6-CA5-C11	3.96	120.03	111.50
47	m	102	3PE	O21-C21-C22	3.91	119.92	111.50
47	L	701	3PE	O21-C21-C22	3.87	119.83	111.50
47	Z	203	3PE	O21-C21-C22	3.87	119.83	111.50
48	b	102	CDL	OA6-CA5-C11	3.86	119.83	111.50
47	j	101	3PE	O21-C21-C22	3.86	119.82	111.50
48	O	201	CDL	OB6-CB5-C51	3.81	119.72	111.50
47	L	709	3PE	O21-C21-C22	3.81	119.70	111.50
47	b	103	3PE	O21-C21-C22	3.78	119.64	111.50
48	c	201	CDL	OA6-CA5-C11	3.77	119.64	111.50
48	O	201	CDL	OA6-CA5-C11	3.68	119.42	111.50
47	O	202	3PE	O21-C21-C22	3.63	119.33	111.50
48	b	102	CDL	OB8-CB7-C71	3.35	120.16	111.38
47	O	203	3PE	O31-C31-C32	2.88	120.96	111.91
49	P	501	NDP	PN-O3-PA	-2.79	123.27	132.83
48	c	201	CDL	OB8-CB7-C71	2.77	120.60	111.91
47	L	703	3PE	O31-C31-C32	2.76	120.58	111.91
47	O	202	3PE	O31-C31-C32	2.76	120.56	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
47	L	711	3PE	O31-C31-C32	2.74	120.52	111.91
48	O	201	CDL	OB8-CB7-C71	2.71	120.42	111.91
47	m	101	3PE	O31-C31-C32	2.69	120.34	111.91
48	Z	202	CDL	OB8-CB7-C71	2.69	120.34	111.91
48	b	102	CDL	OA8-CA7-C31	2.66	120.24	111.91
47	j	101	3PE	O31-C31-C32	2.65	120.24	111.91
47	L	707	3PE	O31-C31-C32	2.65	120.22	111.91
47	N	601	3PE	O31-C31-C32	2.65	120.21	111.91
48	P	503	CDL	OA8-CA7-C31	2.62	120.13	111.91
47	L	701	3PE	O31-C31-C32	2.61	120.11	111.91
47	L	709	3PE	O31-C31-C32	2.61	120.10	111.91
47	L	706	3PE	O31-C31-C32	2.61	120.09	111.91
47	f	101	3PE	O31-C31-C32	2.59	120.04	111.91
47	b	103	3PE	O31-C31-C32	2.58	120.02	111.91
47	Z	203	3PE	O31-C31-C32	2.58	120.01	111.91
48	c	201	CDL	OA8-CA7-C31	2.58	120.00	111.91
51	U	201	EHZ	C14-C13-C12	-2.57	108.07	112.36
48	O	201	CDL	OA8-CA7-C31	2.55	119.92	111.91
47	m	102	3PE	O31-C31-C32	2.53	119.86	111.91
47	L	710	3PE	O31-C31-C32	2.50	119.75	111.91
47	L	712	3PE	O31-C31-C32	2.50	119.74	111.91
47	M	1003	3PE	O31-C31-C32	2.50	119.74	111.91
47	L	708	3PE	O31-C31-C32	2.48	119.68	111.91
48	Z	202	CDL	OA8-CA7-C31	2.47	119.65	111.91
47	H	402	3PE	O31-C31-C32	2.45	119.60	111.91
51	T	201	EHZ	C13-C12-N1	2.44	120.54	116.42
51	U	201	EHZ	C10-S1-C9	2.41	109.36	101.87
47	Y	302	3PE	O31-C31-C32	2.34	119.24	111.91
51	T	201	EHZ	C11-N1-C12	-2.32	118.54	122.84
51	T	201	EHZ	O2-C9-S1	-2.31	119.61	122.61
43	L	702	PLC	C3-C2-C1	2.30	117.24	111.79
51	U	201	EHZ	C13-C12-N1	2.28	120.26	116.42
43	D	501	PLC	C2-O2-C'	2.26	123.36	117.79
51	U	201	EHZ	C7-C8-C9	-2.16	108.97	113.89
48	P	503	CDL	CB4-OB6-CB5	-2.12	113.94	117.90
51	U	201	EHZ	C13-C14-N2	-2.08	107.70	111.90
48	O	201	CDL	CB4-OB6-CB5	-2.06	112.72	117.79
51	T	201	EHZ	C14-C13-C12	-2.06	108.93	112.36
47	Y	302	3PE	C2-O21-C21	-2.06	114.06	117.90
43	L	705	PLC	C3-C2-C1	2.05	116.65	111.79
51	T	201	EHZ	C10-S1-C9	2.04	108.23	101.87
51	U	201	EHZ	O2-C9-S1	-2.03	119.98	122.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
51	U	201	EHZ	C5-C6-C7	-2.02	109.04	114.85
51	T	201	EHZ	C7-C8-C9	-2.02	109.28	113.89
43	H	401	PLC	C3-C2-C1	2.02	116.56	111.79

There are no chirality outliers.

All (949) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
43	A	201	PLC	O4P-C4-C5-N
43	A	201	PLC	C1'-C'-O2-C2
43	A	201	PLC	O'-C'-O2-C2
43	A	201	PLC	C4-O4P-P-O3P
43	B	302	PLC	O4P-C4-C5-N
43	B	302	PLC	C1-O3P-P-O2P
43	D	501	PLC	C3-C2-O2-C'
43	D	501	PLC	O4P-C4-C5-N
43	D	501	PLC	C1'-C'-O2-C2
43	H	401	PLC	C1-O3P-P-O4P
43	H	401	PLC	C4-O4P-P-O1P
43	H	401	PLC	C4-O4P-P-O2P
43	L	702	PLC	O4P-C4-C5-N
43	L	704	PLC	C1-O3P-P-O1P
43	L	704	PLC	C1-O3P-P-O2P
43	L	704	PLC	C1-O3P-P-O4P
43	L	705	PLC	C1-O3P-P-O1P
43	L	705	PLC	C1-O3P-P-O2P
43	L	705	PLC	C1-O3P-P-O4P
43	M	1002	PLC	O4P-C4-C5-N
43	P	502	PLC	O2-C2-C3-O3
43	Y	301	PLC	O4P-C4-C5-N
43	Y	301	PLC	C1'-C'-O2-C2
43	Y	303	PLC	O'-C'-O2-C2
43	Y	303	PLC	C1-O3P-P-O1P
43	Z	201	PLC	O2-C2-C3-O3
43	Z	201	PLC	O4P-C4-C5-N
43	Z	201	PLC	C4-O4P-P-O1P
43	a	201	PLC	O4P-C4-C5-N
43	b	101	PLC	C1-O3P-P-O1P
43	b	101	PLC	C1-O3P-P-O2P
43	b	101	PLC	C4-O4P-P-O1P
43	d	101	PLC	C1-O3P-P-O2P
43	d	101	PLC	C4-O4P-P-O1P

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Mol	Chain	Res	Type	Atoms
43	d	101	PLC	C4-O4P-P-O2P
43	d	102	PLC	O4P-C4-C5-N
43	g	301	PLC	C1'-C'-O2-C2
43	g	301	PLC	O'-C'-O2-C2
43	h	201	PLC	O3P-C1-C2-O2
43	h	201	PLC	C2-C1-O3P-P
43	h	201	PLC	C1-O3P-P-O1P
43	h	201	PLC	C1-O3P-P-O2P
43	h	201	PLC	C1-O3P-P-O4P
43	h	201	PLC	C4-O4P-P-O1P
43	h	201	PLC	C4-O4P-P-O3P
43	q	201	PLC	C1-O3P-P-O4P
43	q	202	PLC	O4P-C4-C5-N
43	q	202	PLC	C1'-C'-O2-C2
47	H	402	3PE	C1-O11-P-O12
47	H	402	3PE	C1-O11-P-O14
47	H	402	3PE	C11-O13-P-O11
47	H	402	3PE	C11-O13-P-O12
47	H	402	3PE	C11-O13-P-O14
47	H	402	3PE	C22-C21-O21-C2
47	L	701	3PE	O13-C11-C12-N
47	L	703	3PE	C1-O11-P-O12
47	L	703	3PE	C11-O13-P-O11
47	L	703	3PE	C11-O13-P-O14
47	L	703	3PE	C32-C31-O31-C3
47	L	706	3PE	C1-O11-P-O12
47	L	706	3PE	C1-O11-P-O14
47	L	706	3PE	C22-C21-O21-C2
47	L	707	3PE	C11-O13-P-O12
47	L	707	3PE	C11-O13-P-O14
47	L	707	3PE	C22-C21-O21-C2
47	L	708	3PE	C1-O11-P-O13
47	L	708	3PE	C1-O11-P-O14
47	L	709	3PE	C1-O11-P-O12
47	L	709	3PE	C1-O11-P-O13
47	L	709	3PE	C1-O11-P-O14
47	L	709	3PE	C11-O13-P-O12
47	L	710	3PE	O22-C21-O21-C2
47	L	710	3PE	C22-C21-O21-C2
47	L	711	3PE	C11-O13-P-O11
47	L	711	3PE	C11-O13-P-O12
47	L	711	3PE	C11-O13-P-O14

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Mol	Chain	Res	Type	Atoms
47	L	711	3PE	O13-C11-C12-N
47	L	711	3PE	C22-C21-O21-C2
47	L	712	3PE	C1-O11-P-O12
47	L	712	3PE	C1-O11-P-O14
47	L	712	3PE	C11-O13-P-O12
47	L	712	3PE	C11-O13-P-O14
47	L	712	3PE	O22-C21-O21-C2
47	M	1003	3PE	O13-C11-C12-N
47	N	601	3PE	C12-C11-O13-P
47	N	601	3PE	O13-C11-C12-N
47	N	601	3PE	C22-C21-O21-C2
47	O	202	3PE	C1-O11-P-O14
47	O	202	3PE	O32-C31-O31-C3
47	O	202	3PE	C32-C31-O31-C3
47	O	203	3PE	C1-O11-P-O12
47	O	203	3PE	C1-O11-P-O14
47	O	203	3PE	C11-O13-P-O12
47	O	203	3PE	C11-O13-P-O14
47	Y	302	3PE	C1-O11-P-O13
47	Y	302	3PE	C1-O11-P-O14
47	Y	302	3PE	O22-C21-O21-C2
47	Y	302	3PE	C22-C21-O21-C2
47	Z	203	3PE	C1-O11-P-O12
47	Z	203	3PE	C1-O11-P-O14
47	Z	203	3PE	C11-O13-P-O11
47	Z	203	3PE	C11-O13-P-O12
47	b	103	3PE	C1-O11-P-O14
47	b	103	3PE	C11-O13-P-O12
47	b	103	3PE	C11-O13-P-O14
47	b	103	3PE	O22-C21-O21-C2
47	b	103	3PE	C22-C21-O21-C2
47	f	101	3PE	C1-O11-P-O12
47	f	101	3PE	C1-O11-P-O14
47	f	101	3PE	O11-C1-C2-O21
47	f	101	3PE	O22-C21-O21-C2
47	f	101	3PE	C22-C21-O21-C2
47	j	101	3PE	C1-O11-P-O12
47	j	101	3PE	C1-O11-P-O14
47	j	101	3PE	C11-O13-P-O12
47	m	101	3PE	C1-O11-P-O12
47	m	101	3PE	C1-O11-P-O13
47	m	101	3PE	C1-O11-P-O14

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Mol	Chain	Res	Type	Atoms
47	m	101	3PE	C11-O13-P-O14
47	m	101	3PE	C22-C21-O21-C2
47	m	102	3PE	C11-O13-P-O12
48	O	201	CDL	OB7-CB5-OB6-CB4
48	P	503	CDL	OA6-CA4-CA6-OA8
48	P	503	CDL	OB6-CB4-CB6-OB8
48	P	503	CDL	OB7-CB5-OB6-CB4
48	P	503	CDL	C51-CB5-OB6-CB4
48	Z	202	CDL	CA3-OA5-PA1-OA2
48	Z	202	CDL	CA3-OA5-PA1-OA4
48	Z	202	CDL	CB2-OB2-PB2-OB3
48	Z	202	CDL	CB3-OB5-PB2-OB2
48	Z	202	CDL	CB3-OB5-PB2-OB3
48	Z	202	CDL	OB7-CB5-OB6-CB4
48	b	102	CDL	CA3-OA5-PA1-OA3
48	b	102	CDL	C11-CA5-OA6-CA4
48	c	201	CDL	CA2-OA2-PA1-OA3
48	c	201	CDL	CB2-OB2-PB2-OB5
48	c	201	CDL	CB3-OB5-PB2-OB2
48	c	201	CDL	CB3-OB5-PB2-OB3
48	c	201	CDL	CB3-OB5-PB2-OB4
48	c	201	CDL	C71-CB7-OB8-CB6
49	P	501	NDP	PA-O3-PN-O5D
51	T	201	EHZ	C5-C6-C7-C8
51	T	201	EHZ	C15-C16-C17-C18
51	T	201	EHZ	C15-C16-C17-C19
51	T	201	EHZ	C15-C16-C17-C20
51	T	201	EHZ	O5-C16-C17-C18
51	T	201	EHZ	O5-C16-C17-C19
51	T	201	EHZ	O5-C16-C17-C20
51	T	201	EHZ	O2-C9-S1-C10
51	T	201	EHZ	C8-C9-S1-C10
51	U	201	EHZ	C6-C7-C8-C9
51	U	201	EHZ	S1-C10-C11-N1
51	U	201	EHZ	C16-C17-C20-O6
51	U	201	EHZ	C18-C17-C20-O6
51	U	201	EHZ	C19-C17-C20-O6
51	U	201	EHZ	O2-C9-S1-C10
51	U	201	EHZ	C8-C9-S1-C10
43	a	201	PLC	C1'-C'-O2-C2
48	Z	202	CDL	C11-CA5-OA6-CA4
43	a	201	PLC	O'-C'-O2-C2

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Mol	Chain	Res	Type	Atoms
47	m	101	3PE	O22-C21-O21-C2
47	L	703	3PE	O32-C31-O31-C3
47	m	101	3PE	O32-C31-O31-C3
48	c	201	CDL	OB9-CB7-OB8-CB6
48	Z	202	CDL	OA7-CA5-OA6-CA4
47	m	101	3PE	C32-C31-O31-C3
47	L	712	3PE	O32-C31-O31-C3
47	N	601	3PE	O32-C31-O31-C3
47	b	103	3PE	O32-C31-O31-C3
47	j	101	3PE	O32-C31-O31-C3
48	b	102	CDL	OB9-CB7-OB8-CB6
43	Y	301	PLC	O'-C'-O2-C2
43	q	202	PLC	O'-C'-O2-C2
47	H	402	3PE	O22-C21-O21-C2
47	L	706	3PE	O22-C21-O21-C2
47	L	707	3PE	O22-C21-O21-C2
47	L	709	3PE	O22-C21-O21-C2
47	L	711	3PE	O22-C21-O21-C2
47	N	601	3PE	O22-C21-O21-C2
48	O	201	CDL	OA7-CA5-OA6-CA4
48	b	102	CDL	OA7-CA5-OA6-CA4
48	c	201	CDL	OB7-CB5-OB6-CB4
43	L	705	PLC	OB-CB-O3-C3
47	N	601	3PE	C32-C31-O31-C3
48	b	102	CDL	C71-CB7-OB8-CB6
43	Y	303	PLC	C1'-C'-O2-C2
47	L	709	3PE	C22-C21-O21-C2
47	L	712	3PE	C22-C21-O21-C2
48	O	201	CDL	C11-CA5-OA6-CA4
48	O	201	CDL	C51-CB5-OB6-CB4
48	Z	202	CDL	C51-CB5-OB6-CB4
47	L	708	3PE	O32-C31-O31-C3
43	L	702	PLC	C1B-CB-O3-C3
43	L	705	PLC	C1B-CB-O3-C3
47	L	708	3PE	C32-C31-O31-C3
47	L	712	3PE	C32-C31-O31-C3
47	O	203	3PE	C32-C31-O31-C3
47	Z	203	3PE	C32-C31-O31-C3
47	b	103	3PE	C32-C31-O31-C3
47	j	101	3PE	C32-C31-O31-C3
48	O	201	CDL	C31-CA7-OA8-CA6
43	D	501	PLC	O'-C'-O2-C2

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Mol	Chain	Res	Type	Atoms
43	L	702	PLC	OB-CB-O3-C3
47	Z	203	3PE	O32-C31-O31-C3
47	f	101	3PE	O32-C31-O31-C3
48	O	201	CDL	OA9-CA7-OA8-CA6
48	c	201	CDL	OA9-CA7-OA8-CA6
48	b	102	CDL	O1-C1-CB2-OB2
47	f	101	3PE	C32-C31-O31-C3
48	c	201	CDL	C31-CA7-OA8-CA6
47	O	203	3PE	O32-C31-O31-C3
43	B	302	PLC	C1'-C'-O2-C2
43	h	201	PLC	C1'-C'-O2-C2
47	L	703	3PE	C22-C21-O21-C2
47	O	202	3PE	C22-C21-O21-C2
47	Z	203	3PE	C22-C21-O21-C2
48	c	201	CDL	C11-CA5-OA6-CA4
48	c	201	CDL	C51-CB5-OB6-CB4
49	P	501	NDP	O4B-C4B-C5B-O5B
49	P	501	NDP	C3B-C4B-C5B-O5B
47	L	709	3PE	C32-C31-O31-C3
48	b	102	CDL	CA2-C1-CB2-OB2
43	B	302	PLC	O'-C'-O2-C2
43	h	201	PLC	O'-C'-O2-C2
47	L	703	3PE	O22-C21-O21-C2
47	O	202	3PE	O22-C21-O21-C2
47	Z	203	3PE	O22-C21-O21-C2
48	c	201	CDL	OA7-CA5-OA6-CA4
43	P	502	PLC	C1B-CB-O3-C3
43	Y	303	PLC	C1B-CB-O3-C3
49	P	501	NDP	O4D-C1D-N1N-C6N
47	Z	203	3PE	C21-C22-C23-C24
48	c	201	CDL	CA7-C31-C32-C33
47	L	703	3PE	O11-C1-C2-O21
47	L	707	3PE	O11-C1-C2-O21
43	d	101	PLC	C'-C1'-C2'-C3'
43	d	102	PLC	C'-C1'-C2'-C3'
47	L	712	3PE	O21-C2-C3-O31
43	Y	303	PLC	OB-CB-O3-C3
47	L	708	3PE	C22-C21-O21-C2
47	L	706	3PE	C31-C32-C33-C34
47	L	711	3PE	C21-C22-C23-C24
43	Z	201	PLC	C1B-CB-O3-C3
43	q	201	PLC	CB-C1B-C2B-C3B

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Mol	Chain	Res	Type	Atoms
47	L	711	3PE	C31-C32-C33-C34
43	M	1002	PLC	C'-C1'-C2'-C3'
43	Y	303	PLC	C'-C1'-C2'-C3'
43	q	201	PLC	C'-C1'-C2'-C3'
47	f	101	3PE	C31-C32-C33-C34
48	O	201	CDL	CA5-C11-C12-C13
48	c	201	CDL	CA5-C11-C12-C13
43	Z	201	PLC	C5B-C6B-C7B-C8B
51	T	201	EHZ	C5-C6-C7-O1
47	L	709	3PE	C2-C3-O31-C31
43	h	201	PLC	C6B-C7B-C8B-C9B
48	O	201	CDL	CA7-C31-C32-C33
43	q	201	PLC	C1B-CB-O3-C3
43	P	502	PLC	OB-CB-O3-C3
47	L	707	3PE	C32-C31-O31-C3
49	P	501	NDP	C3B-C2B-O2B-P2B
47	L	709	3PE	O32-C31-O31-C3
48	P	503	CDL	CA5-C11-C12-C13
43	q	201	PLC	C1'-C'-O2-C2
43	B	302	PLC	C1-O3P-P-O4P
43	H	401	PLC	C4-O4P-P-O3P
43	M	1001	PLC	C1-O3P-P-O4P
43	M	1002	PLC	C1-O3P-P-O4P
43	Y	303	PLC	C1-O3P-P-O4P
43	b	101	PLC	C1-O3P-P-O4P
43	b	101	PLC	C4-O4P-P-O3P
43	d	101	PLC	C1-O3P-P-O4P
43	d	101	PLC	C4-O4P-P-O3P
43	g	301	PLC	C4-O4P-P-O3P
43	q	201	PLC	C4-O4P-P-O3P
47	H	402	3PE	C1-O11-P-O13
47	L	701	3PE	C11-O13-P-O11
47	L	706	3PE	C1-O11-P-O13
47	L	707	3PE	C11-O13-P-O11
47	L	709	3PE	C11-O13-P-O11
47	L	712	3PE	C11-O13-P-O11
47	M	1003	3PE	C11-O13-P-O11
47	O	202	3PE	C11-O13-P-O11
47	O	203	3PE	C1-O11-P-O13
47	O	203	3PE	C11-O13-P-O11
47	Z	203	3PE	C1-O11-P-O13
47	b	103	3PE	C11-O13-P-O11

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Mol	Chain	Res	Type	Atoms
47	f	101	3PE	C1-O11-P-O13
47	j	101	3PE	C1-O11-P-O13
47	j	101	3PE	C11-O13-P-O11
47	m	102	3PE	C11-O13-P-O11
48	P	503	CDL	CB3-OB5-PB2-OB2
48	Z	202	CDL	CB2-OB2-PB2-OB5
48	b	102	CDL	CB2-OB2-PB2-OB5
48	b	102	CDL	CB3-OB5-PB2-OB2
48	c	201	CDL	CA3-OA5-PA1-OA2
43	Y	303	PLC	CB-C1B-C2B-C3B
43	q	201	PLC	O'-C'-O2-C2
47	L	708	3PE	O22-C21-O21-C2
48	O	201	CDL	C76-C77-C78-C79
43	Z	201	PLC	OB-CB-O3-C3
47	Y	302	3PE	C33-C34-C35-C36
43	L	702	PLC	C2B-C3B-C4B-C5B
43	q	202	PLC	C7'-C8'-C9'-CA'
47	L	708	3PE	C39-C3A-C3B-C3C
47	L	710	3PE	C35-C36-C37-C38
43	d	102	PLC	C1'-C2'-C3'-C4'
43	h	201	PLC	C4'-C5'-C6'-C7'
43	q	201	PLC	C2B-C3B-C4B-C5B
47	L	708	3PE	C3D-C3E-C3F-C3G
48	O	201	CDL	C81-C82-C83-C84
47	L	708	3PE	C37-C38-C39-C3A
48	c	201	CDL	C56-C57-C58-C59
43	q	201	PLC	OB-CB-O3-C3
47	L	707	3PE	C37-C38-C39-C3A
47	L	709	3PE	C37-C38-C39-C3A
47	Z	203	3PE	C28-C29-C2A-C2B
43	q	202	PLC	C1'-C2'-C3'-C4'
43	q	202	PLC	C3'-C4'-C5'-C6'
47	m	102	3PE	C27-C28-C29-C2A
43	q	202	PLC	CB-C1B-C2B-C3B
47	L	703	3PE	C21-C22-C23-C24
43	d	101	PLC	C6B-C7B-C8B-C9B
47	L	709	3PE	C33-C34-C35-C36
47	L	710	3PE	C28-C29-C2A-C2B
47	L	712	3PE	C38-C39-C3A-C3B
47	O	202	3PE	C27-C28-C29-C2A
47	N	601	3PE	C29-C2A-C2B-C2C
48	O	201	CDL	CB7-C71-C72-C73

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Mol	Chain	Res	Type	Atoms
47	L	706	3PE	C33-C34-C35-C36
47	L	707	3PE	C35-C36-C37-C38
47	L	712	3PE	C36-C37-C38-C39
47	f	101	3PE	C37-C38-C39-C3A
48	O	201	CDL	C78-C79-C80-C81
48	c	201	CDL	C12-C13-C14-C15
47	L	711	3PE	C37-C38-C39-C3A
43	B	302	PLC	C1B-C2B-C3B-C4B
47	L	709	3PE	C35-C36-C37-C38
47	f	101	3PE	C2B-C2C-C2D-C2E
48	O	201	CDL	C80-C81-C82-C83
48	Z	202	CDL	CB5-C51-C52-C53
47	H	402	3PE	C22-C23-C24-C25
47	L	707	3PE	C39-C3A-C3B-C3C
47	L	708	3PE	C29-C2A-C2B-C2C
47	L	710	3PE	C26-C27-C28-C29
47	f	101	3PE	C3A-C3B-C3C-C3D
43	L	702	PLC	C1'-C2'-C3'-C4'
43	L	705	PLC	C7'-C8'-C9'-CA'
47	Y	302	3PE	C35-C36-C37-C38
47	L	708	3PE	O13-C11-C12-N
43	D	501	PLC	C4'-C5'-C6'-C7'
43	Z	201	PLC	C2'-C3'-C4'-C5'
48	c	201	CDL	C51-C52-C53-C54
43	L	702	PLC	C4'-C5'-C6'-C7'
47	L	709	3PE	C32-C33-C34-C35
47	L	707	3PE	C32-C33-C34-C35
47	L	707	3PE	C3E-C3F-C3G-C3H
47	L	707	3PE	C2E-C2F-C2G-C2H
48	O	201	CDL	C77-C78-C79-C80
43	Y	301	PLC	C4B-C5B-C6B-C7B
47	L	708	3PE	C3E-C3F-C3G-C3H
47	L	708	3PE	C22-C23-C24-C25
47	L	711	3PE	C2B-C2C-C2D-C2E
43	L	704	PLC	C1-C2-C3-O3
48	b	102	CDL	CB5-C51-C52-C53
43	L	704	PLC	C1'-C'-O2-C2
47	b	103	3PE	C38-C39-C3A-C3B
43	L	702	PLC	C3'-C4'-C5'-C6'
47	L	707	3PE	C2B-C2C-C2D-C2E
48	O	201	CDL	C15-C16-C17-C18
47	L	707	3PE	O32-C31-O31-C3

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Mol	Chain	Res	Type	Atoms
43	B	302	PLC	C'-C1'-C2'-C3'
48	O	201	CDL	O1-C1-CA2-OA2
48	b	102	CDL	O1-C1-CA2-OA2
43	D	501	PLC	C6B-C7B-C8B-C9B
47	O	203	3PE	C27-C28-C29-C2A
47	b	103	3PE	C35-C36-C37-C38
47	L	707	3PE	C33-C34-C35-C36
47	L	712	3PE	C3B-C3C-C3D-C3E
48	O	201	CDL	C14-C15-C16-C17
43	L	704	PLC	O'-C'-O2-C2
43	q	201	PLC	C1B-C2B-C3B-C4B
47	O	202	3PE	C26-C27-C28-C29
43	g	301	PLC	C4-C5-N-C8
47	L	708	3PE	C21-C22-C23-C24
47	Y	302	3PE	C31-C32-C33-C34
43	h	201	PLC	C1B-CB-O3-C3
47	M	1003	3PE	C31-C32-C33-C34
47	L	708	3PE	C33-C34-C35-C36
47	N	601	3PE	C2D-C2E-C2F-C2G
47	L	712	3PE	C23-C24-C25-C26
47	L	709	3PE	C31-C32-C33-C34
47	L	712	3PE	C21-C22-C23-C24
48	O	201	CDL	C33-C34-C35-C36
48	P	503	CDL	C71-CB7-OB8-CB6
43	M	1001	PLC	C'-C1'-C2'-C3'
47	L	707	3PE	C31-C32-C33-C34
47	O	203	3PE	C31-C32-C33-C34
47	M	1003	3PE	C22-C23-C24-C25
47	L	712	3PE	C2C-C2D-C2E-C2F
43	h	201	PLC	OB-CB-O3-C3
43	M	1001	PLC	C1B-C2B-C3B-C4B
47	b	103	3PE	C31-C32-C33-C34
43	L	702	PLC	C1'-C'-O2-C2
43	L	705	PLC	C1'-C'-O2-C2
43	d	102	PLC	C1'-C'-O2-C2
47	O	203	3PE	C22-C21-O21-C2
43	P	502	PLC	O3P-C1-C2-O2
43	q	201	PLC	O3P-C1-C2-O2
43	d	102	PLC	C3'-C4'-C5'-C6'
43	d	102	PLC	C6'-C7'-C8'-C9'
43	L	702	PLC	O'-C'-O2-C2
43	L	705	PLC	O'-C'-O2-C2

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Mol	Chain	Res	Type	Atoms
47	O	203	3PE	O22-C21-O21-C2
43	L	705	PLC	C2'-C3'-C4'-C5'
48	O	201	CDL	OB6-CB4-CB6-OB8
48	c	201	CDL	OB6-CB4-CB6-OB8
47	L	710	3PE	C39-C3A-C3B-C3C
47	L	712	3PE	C39-C3A-C3B-C3C
48	O	201	CDL	C52-C53-C54-C55
49	P	501	NDP	O4D-C4D-C5D-O5D
47	L	711	3PE	C33-C34-C35-C36
51	U	201	EHZ	C1-C2-C3-C4
43	d	102	PLC	O'-C'-O2-C2
43	M	1002	PLC	C4-O4P-P-O3P
43	d	102	PLC	C1-O3P-P-O4P
47	L	703	3PE	C1-O11-P-O13
47	L	707	3PE	C1-O11-P-O13
47	L	712	3PE	C1-O11-P-O13
47	m	102	3PE	C1-O11-P-O13
48	b	102	CDL	CA3-OA5-PA1-OA2
47	L	709	3PE	C26-C27-C28-C29
47	L	707	3PE	C21-C22-C23-C24
47	L	703	3PE	O11-C1-C2-C3
47	L	707	3PE	O11-C1-C2-C3
47	M	1003	3PE	O11-C1-C2-C3
47	O	202	3PE	O11-C1-C2-C3
47	f	101	3PE	O11-C1-C2-C3
43	P	502	PLC	C1'-C2'-C3'-C4'
47	L	703	3PE	C39-C3A-C3B-C3C
47	f	101	3PE	C34-C35-C36-C37
48	O	201	CDL	CB2-C1-CA2-OA2
48	b	102	CDL	CB2-C1-CA2-OA2
43	q	201	PLC	C3B-C4B-C5B-C6B
47	L	712	3PE	C25-C26-C27-C28
47	m	101	3PE	C33-C34-C35-C36
51	T	201	EHZ	C1-C2-C3-C4
47	L	703	3PE	C31-C32-C33-C34
43	Z	201	PLC	C1'-C2'-C3'-C4'
47	L	710	3PE	C2C-C2D-C2E-C2F
47	b	103	3PE	C3B-C3C-C3D-C3E
51	U	201	EHZ	C2-C3-C4-C5
43	D	501	PLC	C1-C2-C3-O3
43	L	705	PLC	C6B-C7B-C8B-C9B
43	M	1001	PLC	C7B-C8B-C9B-CAA

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Mol	Chain	Res	Type	Atoms
43	P	502	PLC	C1-C2-C3-O3
43	Z	201	PLC	C1-C2-C3-O3
47	L	701	3PE	C22-C23-C24-C25
47	L	706	3PE	C1-C2-C3-O31
47	L	710	3PE	C1-C2-C3-O31
48	O	201	CDL	CB3-CB4-CB6-OB8
48	P	503	CDL	CA3-CA4-CA6-OA8
48	b	102	CDL	CA3-CA4-CA6-OA8
48	b	102	CDL	CB3-CB4-CB6-OB8
48	c	201	CDL	CA3-CA4-CA6-OA8
43	b	101	PLC	C'-C1'-C2'-C3'
47	L	711	3PE	C2E-C2F-C2G-C2H
51	T	201	EHZ	C3-C4-C5-C6
51	U	201	EHZ	C2-C1-C21-C22
43	L	704	PLC	C4B-C5B-C6B-C7B
48	O	201	CDL	C36-C37-C38-C39
47	L	710	3PE	C3F-C3G-C3H-C3I
48	Z	202	CDL	C74-C75-C76-C77
48	b	102	CDL	C31-C32-C33-C34
47	L	708	3PE	C35-C36-C37-C38
47	f	101	3PE	C36-C37-C38-C39
47	f	101	3PE	C21-C22-C23-C24
47	M	1003	3PE	C29-C2A-C2B-C2C
48	O	201	CDL	C53-C54-C55-C56
47	b	103	3PE	C37-C38-C39-C3A
48	Z	202	CDL	C71-CB7-OB8-CB6
48	O	201	CDL	C75-C76-C77-C78
47	L	709	3PE	C3-C2-O21-C21
47	O	202	3PE	C3-C2-O21-C21
47	m	101	3PE	C1-C2-O21-C21
48	O	201	CDL	CA3-CA4-OA6-CA5
48	Z	202	CDL	CA6-CA4-OA6-CA5
43	M	1002	PLC	C6B-C7B-C8B-C9B
43	Y	303	PLC	C7'-C8'-C9'-CA'
48	P	503	CDL	OA5-CA3-CA4-OA6
48	b	102	CDL	OB5-CB3-CB4-OB6
43	d	102	PLC	C5B-C6B-C7B-C8B
43	g	301	PLC	C3'-C4'-C5'-C6'
43	d	102	PLC	C7B-C8B-C9B-CAA
47	L	710	3PE	C36-C37-C38-C39
47	O	202	3PE	C23-C24-C25-C26
47	O	202	3PE	C21-C22-C23-C24

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Mol	Chain	Res	Type	Atoms
47	N	601	3PE	C2F-C2G-C2H-C2I
43	M	1002	PLC	O2-C2-C3-O3
43	d	101	PLC	C5B-C6B-C7B-C8B
43	L	704	PLC	C1B-C2B-C3B-C4B
43	b	101	PLC	C1'-C2'-C3'-C4'
47	L	709	3PE	C39-C3A-C3B-C3C
47	b	103	3PE	C39-C3A-C3B-C3C
47	f	101	3PE	C3C-C3D-C3E-C3F
47	O	203	3PE	C33-C34-C35-C36
47	Z	203	3PE	C22-C23-C24-C25
47	L	707	3PE	C3A-C3B-C3C-C3D
48	O	201	CDL	C83-C84-C85-C86
48	Z	202	CDL	C51-C52-C53-C54
47	O	203	3PE	C21-C22-C23-C24
47	L	703	3PE	C23-C24-C25-C26
47	L	711	3PE	C2C-C2D-C2E-C2F
49	P	501	NDP	C3D-C4D-C5D-O5D
43	A	201	PLC	O3P-C1-C2-C3
43	M	1001	PLC	O3P-C1-C2-C3
43	P	502	PLC	O3P-C1-C2-C3
43	Y	303	PLC	O3P-C1-C2-C3
43	h	201	PLC	O3P-C1-C2-C3
43	q	201	PLC	O3P-C1-C2-C3
47	L	711	3PE	O11-C1-C2-C3
47	b	103	3PE	O11-C1-C2-C3
48	P	503	CDL	OA5-CA3-CA4-CA6
48	b	102	CDL	OA5-CA3-CA4-CA6
47	j	101	3PE	O13-C11-C12-N
43	L	704	PLC	C2B-C3B-C4B-C5B
43	h	201	PLC	C5'-C6'-C7'-C8'
47	L	706	3PE	C23-C24-C25-C26
47	L	711	3PE	C35-C36-C37-C38
43	d	102	PLC	CB-C1B-C2B-C3B
43	h	201	PLC	C'-C1'-C2'-C3'
47	H	402	3PE	C2-C1-O11-P
48	Z	202	CDL	C1-CA2-OA2-PA1
47	L	706	3PE	C38-C39-C3A-C3B
47	L	710	3PE	C33-C34-C35-C36
47	H	402	3PE	C23-C24-C25-C26
48	P	503	CDL	C31-CA7-OA8-CA6
47	L	709	3PE	C22-C23-C24-C25
48	Z	202	CDL	C31-C32-C33-C34

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Mol	Chain	Res	Type	Atoms
43	Y	301	PLC	C1-C2-C3-O3
43	d	101	PLC	C1-C2-C3-O3
47	H	402	3PE	C1-C2-C3-O31
47	L	703	3PE	C1-C2-C3-O31
47	L	707	3PE	C1-C2-C3-O31
47	L	711	3PE	C1-C2-C3-O31
47	L	712	3PE	C1-C2-C3-O31
47	N	601	3PE	C1-C2-C3-O31
47	b	103	3PE	C1-C2-C3-O31
48	c	201	CDL	CB3-CB4-CB6-OB8
48	O	201	CDL	C32-C33-C34-C35
47	L	707	3PE	C2A-C2B-C2C-C2D
47	Z	203	3PE	C34-C35-C36-C37
47	Z	203	3PE	C27-C28-C29-C2A
43	M	1002	PLC	C2'-C3'-C4'-C5'
43	D	501	PLC	C7B-C8B-C9B-CAA
48	Z	202	CDL	OB9-CB7-OB8-CB6
43	q	201	PLC	C7B-C8B-C9B-CAA
48	c	201	CDL	C11-C12-C13-C14
47	b	103	3PE	C1-O11-P-O13
47	m	101	3PE	C11-O13-P-O11
47	m	102	3PE	C21-C22-C23-C24
43	h	201	PLC	C3'-C4'-C5'-C6'
43	A	201	PLC	O3P-C1-C2-O2
43	B	302	PLC	O3P-C1-C2-O2
43	Z	201	PLC	O3P-C1-C2-O2
47	L	711	3PE	O11-C1-C2-O21
47	M	1003	3PE	O11-C1-C2-O21
47	O	202	3PE	O11-C1-C2-O21
48	Z	202	CDL	OA5-CA3-CA4-OA6
48	c	201	CDL	OA5-CA3-CA4-OA6
48	P	503	CDL	CA7-C31-C32-C33
47	b	103	3PE	C3F-C3G-C3H-C3I
47	f	101	3PE	C3D-C3E-C3F-C3G
51	T	201	EHZ	C21-C1-C2-C3
47	L	701	3PE	O21-C2-C3-O31
48	b	102	CDL	OB6-CB4-CB6-OB8
48	c	201	CDL	OA6-CA4-CA6-OA8
43	M	1001	PLC	C1B-CB-O3-C3
47	L	709	3PE	C34-C35-C36-C37
47	Z	203	3PE	C23-C24-C25-C26
47	O	202	3PE	C22-C23-C24-C25

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Mol	Chain	Res	Type	Atoms
43	Y	303	PLC	C5'-C6'-C7'-C8'
43	h	201	PLC	C1B-C2B-C3B-C4B
47	Z	203	3PE	C32-C33-C34-C35
47	L	711	3PE	C22-C23-C24-C25
47	M	1003	3PE	C2-C1-O11-P
48	O	201	CDL	C1-CA2-OA2-PA1
47	L	703	3PE	C36-C37-C38-C39
47	N	601	3PE	C2A-C2B-C2C-C2D
43	L	705	PLC	C'-C1'-C2'-C3'
48	Z	202	CDL	CA7-C31-C32-C33
48	P	503	CDL	OB9-CB7-OB8-CB6
43	M	1001	PLC	C2B-C3B-C4B-C5B
43	d	102	PLC	C7'-C8'-C9'-CA'
47	L	712	3PE	C2A-C2B-C2C-C2D
49	P	501	NDP	PN-O3-PA-O5B
48	O	201	CDL	C51-C52-C53-C54
43	B	302	PLC	O3P-C1-C2-C3
43	g	301	PLC	O3P-C1-C2-C3
43	d	101	PLC	C2B-C3B-C4B-C5B
47	L	708	3PE	C3B-C3C-C3D-C3E
47	L	701	3PE	C23-C24-C25-C26
47	b	103	3PE	C32-C33-C34-C35
47	f	101	3PE	C39-C3A-C3B-C3C
48	O	201	CDL	C74-C75-C76-C77
51	T	201	EHZ	C18-C17-C20-O6
43	L	705	PLC	C1-C2-O2-C'
43	Y	303	PLC	C3-C2-O2-C'
48	c	201	CDL	CA6-CA4-OA6-CA5
47	N	601	3PE	C27-C28-C29-C2A
43	M	1002	PLC	C1B-CB-O3-C3
48	P	503	CDL	C11-C12-C13-C14
43	B	302	PLC	C2-C1-O3P-P
43	L	702	PLC	C2-C1-O3P-P
43	L	705	PLC	C2-C1-O3P-P
43	M	1002	PLC	C1-C2-C3-O3
48	P	503	CDL	CB3-CB4-CB6-OB8
43	M	1001	PLC	OB-CB-O3-C3
43	L	702	PLC	O3P-C1-C2-O2
43	L	704	PLC	O3P-C1-C2-O2
43	Y	301	PLC	O3P-C1-C2-O2
43	q	202	PLC	O3P-C1-C2-O2
47	Z	203	3PE	O11-C1-C2-O21

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Mol	Chain	Res	Type	Atoms
47	b	103	3PE	O11-C1-C2-O21
48	O	201	CDL	OA5-CA3-CA4-OA6
48	b	102	CDL	OA5-CA3-CA4-OA6
43	g	301	PLC	C4B-C5B-C6B-C7B
48	c	201	CDL	C54-C55-C56-C57
49	P	501	NDP	C1B-C2B-O2B-P2B
51	T	201	EHZ	O1-C7-C8-C9
51	U	201	EHZ	O1-C7-C8-C9
48	P	503	CDL	OA9-CA7-OA8-CA6
43	L	704	PLC	O2-C2-C3-O3
47	L	706	3PE	O21-C2-C3-O31
47	L	707	3PE	O21-C2-C3-O31
47	L	710	3PE	O21-C2-C3-O31
47	L	711	3PE	O21-C2-C3-O31
47	N	601	3PE	O21-C2-C3-O31
47	b	103	3PE	O21-C2-C3-O31
47	L	703	3PE	C32-C33-C34-C35
47	f	101	3PE	C3B-C3C-C3D-C3E
47	N	601	3PE	C25-C26-C27-C28
47	f	101	3PE	C26-C27-C28-C29
43	d	102	PLC	C4'-C5'-C6'-C7'
47	L	710	3PE	C37-C38-C39-C3A
47	H	402	3PE	C25-C26-C27-C28
47	O	203	3PE	C25-C26-C27-C28
43	P	502	PLC	C4-O4P-P-O3P
47	N	601	3PE	C1-O11-P-O13
48	O	201	CDL	CA2-OA2-PA1-OA5
48	O	201	CDL	CB2-OB2-PB2-OB5
47	L	711	3PE	C24-C25-C26-C27
43	L	704	PLC	C2-C1-O3P-P
47	L	706	3PE	C2-C1-O11-P
47	O	202	3PE	C2-C1-O11-P
48	c	201	CDL	C1-CB2-OB2-PB2
43	M	1002	PLC	OB-CB-O3-C3
43	A	201	PLC	C4-O4P-P-O1P
43	B	302	PLC	C1-O3P-P-O1P
43	D	501	PLC	C4-C5-N-C6
43	H	401	PLC	C1-O3P-P-O2P
43	M	1001	PLC	C1-O3P-P-O1P
43	M	1002	PLC	C1-O3P-P-O1P
43	M	1002	PLC	C4-O4P-P-O2P
43	Y	303	PLC	C1-O3P-P-O2P

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Mol	Chain	Res	Type	Atoms
43	Z	201	PLC	C4-C5-N-C8
43	b	101	PLC	C4-O4P-P-O2P
43	d	101	PLC	C1-O3P-P-O1P
43	d	102	PLC	C1-O3P-P-O2P
43	g	301	PLC	C4-C5-N-C6
43	g	301	PLC	C4-O4P-P-O1P
43	q	201	PLC	C1-O3P-P-O2P
43	q	201	PLC	C4-O4P-P-O1P
43	q	201	PLC	C4-O4P-P-O2P
47	L	701	3PE	C11-O13-P-O14
47	L	703	3PE	C1-O11-P-O14
47	L	707	3PE	C1-O11-P-O12
47	L	707	3PE	C1-O11-P-O14
47	L	710	3PE	C1-O11-P-O12
47	M	1003	3PE	C11-O13-P-O12
47	M	1003	3PE	C11-O13-P-O14
47	O	202	3PE	C11-O13-P-O14
47	Y	302	3PE	C1-O11-P-O12
47	Z	203	3PE	C11-O13-P-O14
47	j	101	3PE	C11-O13-P-O14
47	m	101	3PE	C11-O13-P-O12
47	m	102	3PE	C11-O13-P-O14
48	O	201	CDL	CA2-OA2-PA1-OA3
48	O	201	CDL	CA3-OA5-PA1-OA3
48	O	201	CDL	CB2-OB2-PB2-OB3
48	O	201	CDL	CB2-OB2-PB2-OB4
48	P	503	CDL	CB3-OB5-PB2-OB4
48	Z	202	CDL	CA3-OA5-PA1-OA3
48	Z	202	CDL	CB2-OB2-PB2-OB4
48	b	102	CDL	CA3-OA5-PA1-OA4
48	b	102	CDL	CB2-OB2-PB2-OB4
48	b	102	CDL	CB3-OB5-PB2-OB3
48	b	102	CDL	CB3-OB5-PB2-OB4
48	c	201	CDL	CA3-OA5-PA1-OA4
48	c	201	CDL	CB2-OB2-PB2-OB4
51	T	201	EHZ	C6-C7-C8-C9
43	D	501	PLC	O3P-C1-C2-C3
43	L	702	PLC	O3P-C1-C2-C3
43	Y	301	PLC	O3P-C1-C2-C3
43	Z	201	PLC	O3P-C1-C2-C3
47	L	706	3PE	O11-C1-C2-C3
47	O	203	3PE	O11-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
48	O	201	CDL	OA5-CA3-CA4-CA6
48	Z	202	CDL	OA5-CA3-CA4-CA6
48	c	201	CDL	OA5-CA3-CA4-CA6
47	O	202	3PE	O13-C11-C12-N
47	L	711	3PE	C3A-C3B-C3C-C3D
43	g	301	PLC	C5-C4-O4P-P
47	L	712	3PE	C12-C11-O13-P
47	b	103	3PE	C12-C11-O13-P
47	j	101	3PE	C12-C11-O13-P
47	L	707	3PE	C38-C39-C3A-C3B
47	M	1003	3PE	C21-C22-C23-C24
43	D	501	PLC	O3P-C1-C2-O2
43	g	301	PLC	O3P-C1-C2-O2
47	L	706	3PE	O11-C1-C2-O21
47	O	203	3PE	O11-C1-C2-O21
47	m	102	3PE	O11-C1-C2-O21
47	L	708	3PE	C34-C35-C36-C37
43	a	201	PLC	C1B-CB-O3-C3
48	c	201	CDL	CB5-C51-C52-C53
43	M	1002	PLC	C1B-C2B-C3B-C4B
48	b	102	CDL	C55-C56-C57-C58
43	b	101	PLC	C4-C5-N-C7
43	q	201	PLC	C4-C5-N-C6
43	H	401	PLC	O4P-C4-C5-N
43	L	704	PLC	O4P-C4-C5-N
43	d	101	PLC	O4P-C4-C5-N
43	g	301	PLC	O4P-C4-C5-N
51	T	201	EHZ	C2-C1-C21-C22
43	D	501	PLC	O2-C2-C3-O3
43	Y	301	PLC	O2-C2-C3-O3
43	d	101	PLC	O2-C2-C3-O3
47	H	402	3PE	O21-C2-C3-O31
47	L	703	3PE	O21-C2-C3-O31
48	b	102	CDL	OA6-CA4-CA6-OA8
43	d	102	PLC	C5'-C6'-C7'-C8'
47	N	601	3PE	C2B-C2C-C2D-C2E
47	j	101	3PE	C2-C1-O11-P
48	b	102	CDL	C51-CB5-OB6-CB4
43	A	201	PLC	C4B-C5B-C6B-C7B
43	Y	303	PLC	C1B-C2B-C3B-C4B
47	M	1003	3PE	C33-C34-C35-C36
51	U	201	EHZ	C21-C22-C23-C24

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Mol	Chain	Res	Type	Atoms
43	Y	303	PLC	C4-C5-N-C7
43	g	301	PLC	C4-C5-N-C7
47	L	710	3PE	C3E-C3F-C3G-C3H
47	Y	302	3PE	C36-C37-C38-C39
51	T	201	EHZ	C19-C17-C20-O6
43	h	201	PLC	C2B-C3B-C4B-C5B
43	d	102	PLC	C8'-C9'-CA'-CB'
43	q	202	PLC	C1B-C2B-C3B-C4B
48	Z	202	CDL	CB7-C71-C72-C73
47	b	103	3PE	C3A-C3B-C3C-C3D
47	L	708	3PE	C3-C2-O21-C21
48	b	102	CDL	OB5-CB3-CB4-CB6
48	b	102	CDL	OB7-CB5-OB6-CB4
43	L	705	PLC	C1'-C2'-C3'-C4'
47	j	101	3PE	C31-C32-C33-C34
43	L	705	PLC	C3B-C4B-C5B-C6B
43	M	1001	PLC	O3P-C1-C2-O2
47	L	710	3PE	O11-C1-C2-O21
47	L	710	3PE	C3D-C3E-C3F-C3G
43	b	101	PLC	C4-C5-N-C8
43	D	501	PLC	C1-O3P-P-O4P
43	Z	201	PLC	C4-O4P-P-O3P
43	a	201	PLC	C4-O4P-P-O3P
43	q	202	PLC	C4-O4P-P-O3P
47	L	710	3PE	C1-O11-P-O13
47	M	1003	3PE	C1-O11-P-O13
47	O	202	3PE	C1-O11-P-O13
47	Y	302	3PE	C11-O13-P-O11
47	L	701	3PE	C1-C2-C3-O31
43	Y	303	PLC	C4-C5-N-C8
49	P	501	NDP	PN-O3-PA-O1A
47	N	601	3PE	C33-C34-C35-C36
51	T	201	EHZ	C22-C23-C24-C25
43	L	704	PLC	CB-C1B-C2B-C3B
47	f	101	3PE	C29-C2A-C2B-C2C
47	L	707	3PE	C25-C26-C27-C28
43	g	301	PLC	C7'-C8'-C9'-CA'
48	b	102	CDL	C57-C58-C59-C60
47	b	103	3PE	C23-C24-C25-C26
43	L	705	PLC	C5B-C6B-C7B-C8B
47	L	711	3PE	C2D-C2E-C2F-C2G
47	N	601	3PE	C2E-C2F-C2G-C2H

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Mol	Chain	Res	Type	Atoms
51	T	201	EHZ	C4-C5-C6-C7
47	L	706	3PE	O13-C11-C12-N
48	O	201	CDL	C72-C73-C74-C75
43	M	1001	PLC	C4'-C5'-C6'-C7'
47	L	711	3PE	C39-C3A-C3B-C3C
47	L	703	3PE	C24-C25-C26-C27
43	q	202	PLC	C2B-C3B-C4B-C5B
47	M	1003	3PE	O21-C2-C3-O31
47	L	701	3PE	C33-C34-C35-C36
51	T	201	EHZ	S1-C10-C11-N1
47	L	712	3PE	C2B-C2C-C2D-C2E
47	L	712	3PE	C33-C34-C35-C36
43	L	704	PLC	C2B-C1B-CB-O3
43	L	705	PLC	C6'-C7'-C8'-C9'
47	L	711	3PE	C25-C26-C27-C28
47	b	103	3PE	C36-C37-C38-C39
47	L	712	3PE	C26-C27-C28-C29
48	b	102	CDL	C16-C17-C18-C19
48	Z	202	CDL	CB3-CB4-OB6-CB5
48	Z	202	CDL	CB6-CB4-OB6-CB5
48	P	503	CDL	C12-C13-C14-C15
43	D	501	PLC	C4-C5-N-C7
43	M	1001	PLC	C4-C5-N-C8
43	Z	201	PLC	C4-C5-N-C7
43	q	201	PLC	C4-C5-N-C7
43	Z	201	PLC	C7B-C8B-C9B-CAA
47	L	706	3PE	C22-C23-C24-C25
47	L	711	3PE	C38-C39-C3A-C3B
47	H	402	3PE	C21-C22-C23-C24
43	q	202	PLC	O3P-C1-C2-C3
47	L	710	3PE	O11-C1-C2-C3
47	L	712	3PE	C37-C38-C39-C3A
47	L	710	3PE	C3C-C3D-C3E-C3F
43	b	101	PLC	C5'-C6'-C7'-C8'
43	M	1001	PLC	C4-C5-N-C6
43	M	1001	PLC	C4-C5-N-C7
47	L	701	3PE	O22-C21-O21-C2
51	T	201	EHZ	C11-C10-S1-C9
51	U	201	EHZ	C11-C10-S1-C9
48	Z	202	CDL	C73-C74-C75-C76
43	A	201	PLC	C2-C1-O3P-P
47	b	103	3PE	C2-C1-O11-P

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Mol	Chain	Res	Type	Atoms
47	L	703	3PE	C25-C26-C27-C28
47	L	709	3PE	C3A-C3B-C3C-C3D
47	L	707	3PE	C2F-C2G-C2H-C2I
47	L	711	3PE	C27-C28-C29-C2A
47	L	707	3PE	C23-C24-C25-C26
47	O	202	3PE	C31-C32-C33-C34
43	D	501	PLC	C4-C5-N-C8
43	L	702	PLC	C4-C5-N-C7
43	D	501	PLC	C2'-C3'-C4'-C5'
43	M	1002	PLC	C3B-C4B-C5B-C6B
43	L	704	PLC	O3P-C1-C2-C3
47	m	102	3PE	O11-C1-C2-C3
51	U	201	EHZ	C21-C1-C2-C3
43	B	302	PLC	O2-C2-C3-O3
47	Y	302	3PE	O31-C31-C32-C33
47	m	102	3PE	O21-C21-C22-C23
43	M	1002	PLC	C5B-C6B-C7B-C8B
47	L	712	3PE	C2E-C2F-C2G-C2H
43	b	101	PLC	C6'-C7'-C8'-C9'
48	b	102	CDL	CA2-OA2-PA1-OA5
43	P	502	PLC	C2B-C3B-C4B-C5B
43	Z	201	PLC	C4-C5-N-C6
43	q	201	PLC	C4-C5-N-C8
43	L	705	PLC	C2-C3-O3-CB
43	L	702	PLC	C2'-C3'-C4'-C5'
47	H	402	3PE	O31-C31-C32-C33
47	L	703	3PE	C33-C34-C35-C36
48	c	201	CDL	C14-C15-C16-C17
47	L	701	3PE	O21-C21-C22-C23
47	L	707	3PE	O31-C31-C32-C33
47	N	601	3PE	O31-C31-C32-C33
43	d	101	PLC	C4B-C5B-C6B-C7B
47	f	101	3PE	C35-C36-C37-C38
47	b	103	3PE	C33-C34-C35-C36
43	d	102	PLC	C2B-C1B-CB-O3
47	L	710	3PE	O31-C31-C32-C33
47	O	202	3PE	O31-C31-C32-C33
47	O	203	3PE	O21-C21-C22-C23
43	g	301	PLC	C3B-C4B-C5B-C6B
47	L	711	3PE	O31-C31-C32-C33
47	Z	203	3PE	O21-C21-C22-C23
48	O	201	CDL	C11-C12-C13-C14

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Mol	Chain	Res	Type	Atoms
47	Z	203	3PE	O11-C1-C2-C3
48	O	201	CDL	C13-C14-C15-C16
48	O	201	CDL	C32-C31-CA7-OA8
47	H	402	3PE	C27-C28-C29-C2A
43	b	101	PLC	C4-C5-N-C6
49	P	501	NDP	C5D-O5D-PN-O3
47	L	701	3PE	C22-C21-O21-C2
51	U	201	EHZ	C1-C21-C22-C23
47	m	102	3PE	C2-C1-O11-P
43	L	704	PLC	C3B-C4B-C5B-C6B
47	m	101	3PE	O31-C31-C32-C33
47	L	712	3PE	C22-C23-C24-C25
43	H	401	PLC	C4-C5-N-C8
43	L	702	PLC	C4-C5-N-C6
47	N	601	3PE	O32-C31-C32-C33
47	L	709	3PE	C3E-C3F-C3G-C3H
47	m	102	3PE	C35-C36-C37-C38
48	c	201	CDL	CB2-C1-CA2-OA2
47	L	701	3PE	O22-C21-C22-C23
47	L	707	3PE	O32-C31-C32-C33
47	m	102	3PE	O22-C21-C22-C23
43	d	102	PLC	C2B-C1B-CB-OB
47	L	711	3PE	O32-C31-C32-C33
47	Z	203	3PE	C29-C2A-C2B-C2C
43	g	301	PLC	C4'-C5'-C6'-C7'
43	a	201	PLC	OB-CB-O3-C3
47	L	710	3PE	O32-C31-C32-C33
43	D	501	PLC	C1-O3P-P-O1P
43	Y	303	PLC	C4-C5-N-C6
43	a	201	PLC	C4-O4P-P-O1P
43	q	202	PLC	C4-O4P-P-O1P
48	O	201	CDL	CB3-OB5-PB2-OB3
48	P	503	CDL	CA2-OA2-PA1-OA3
47	H	402	3PE	O13-C11-C12-N
47	L	707	3PE	O13-C11-C12-N
47	f	101	3PE	O13-C11-C12-N
47	O	203	3PE	O22-C21-C22-C23
47	m	101	3PE	O32-C31-C32-C33
48	c	201	CDL	C33-C34-C35-C36
43	h	201	PLC	C6'-C7'-C8'-C9'
43	L	702	PLC	C3B-C4B-C5B-C6B
43	B	302	PLC	CB-C1B-C2B-C3B

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Mol	Chain	Res	Type	Atoms
47	O	203	3PE	C32-C33-C34-C35
43	B	302	PLC	C5-C4-O4P-P
43	D	501	PLC	C5-C4-O4P-P
43	L	702	PLC	C5-C4-O4P-P
43	b	101	PLC	C5-C4-O4P-P
43	d	102	PLC	C5-C4-O4P-P
43	h	201	PLC	C5-C4-O4P-P
47	L	701	3PE	C12-C11-O13-P
47	L	708	3PE	C12-C11-O13-P
47	L	709	3PE	C12-C11-O13-P
47	L	710	3PE	C12-C11-O13-P
47	M	1003	3PE	C12-C11-O13-P
47	O	203	3PE	C12-C11-O13-P
47	Y	302	3PE	C12-C11-O13-P
47	Z	203	3PE	C12-C11-O13-P
47	f	101	3PE	C12-C11-O13-P
47	m	101	3PE	C12-C11-O13-P
47	O	202	3PE	O32-C31-C32-C33
43	L	705	PLC	C2B-C1B-CB-O3
43	P	502	PLC	O2-C'-C1'-C2'
47	b	103	3PE	O21-C21-C22-C23
43	L	705	PLC	C8'-C9'-CA'-CB'
43	L	702	PLC	O2-C'-C1'-C2'
48	P	503	CDL	C32-C31-CA7-OA8
43	H	401	PLC	C2-C1-O3P-P
47	L	701	3PE	C21-C22-C23-C24
43	L	705	PLC	C2B-C1B-CB-OB
48	P	503	CDL	C32-C31-CA7-OA9
48	O	201	CDL	C32-C31-CA7-OA9
47	f	101	3PE	O21-C21-C22-C23
47	b	103	3PE	O22-C21-C22-C23
47	L	712	3PE	C3C-C3D-C3E-C3F
43	P	502	PLC	O'-C'-C1'-C2'

There are no ring outliers.

46 monomers are involved in 112 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
43	D	501	PLC	2	0
47	L	707	3PE	8	0
47	j	101	3PE	1	0
48	b	102	CDL	3	0

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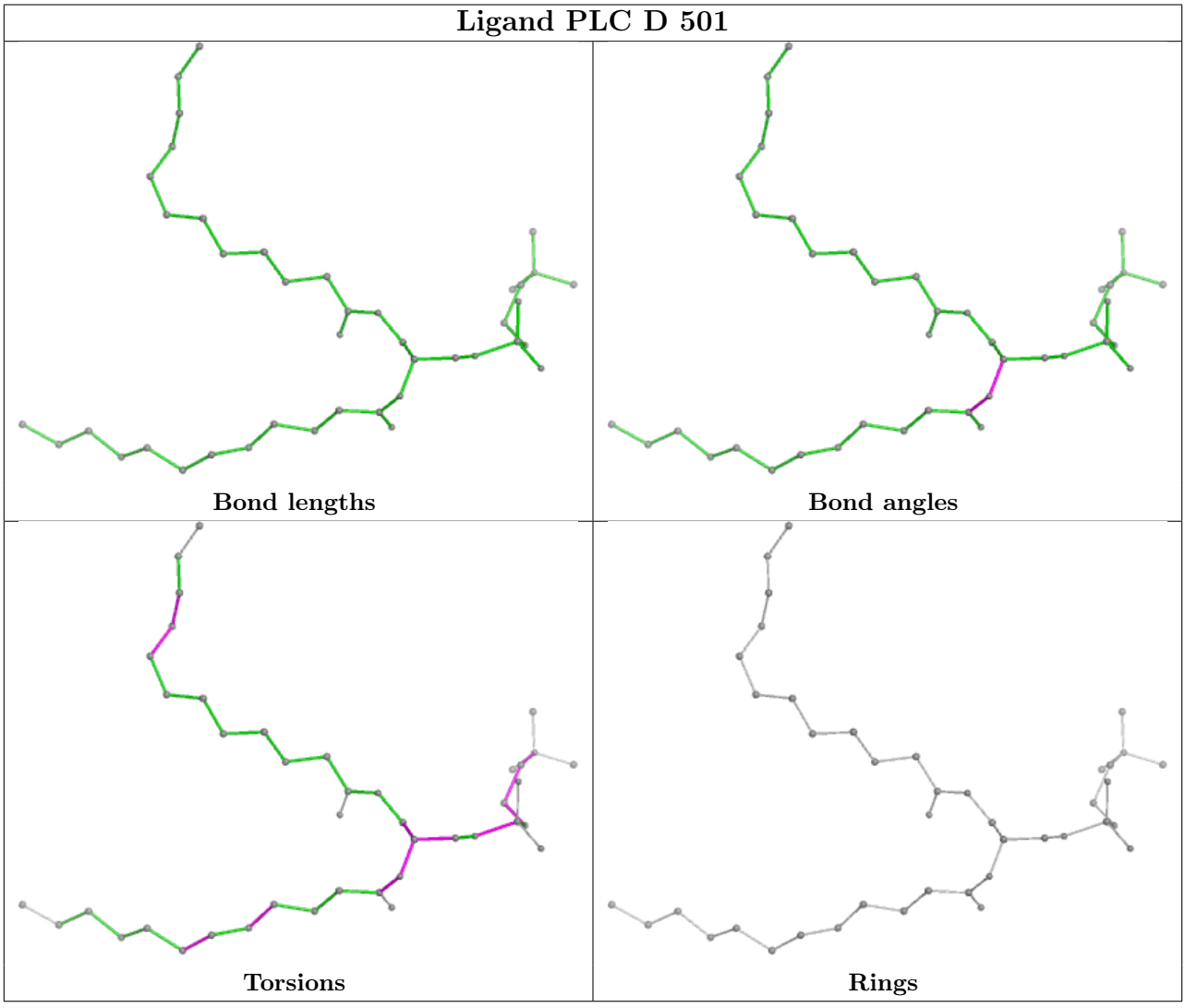
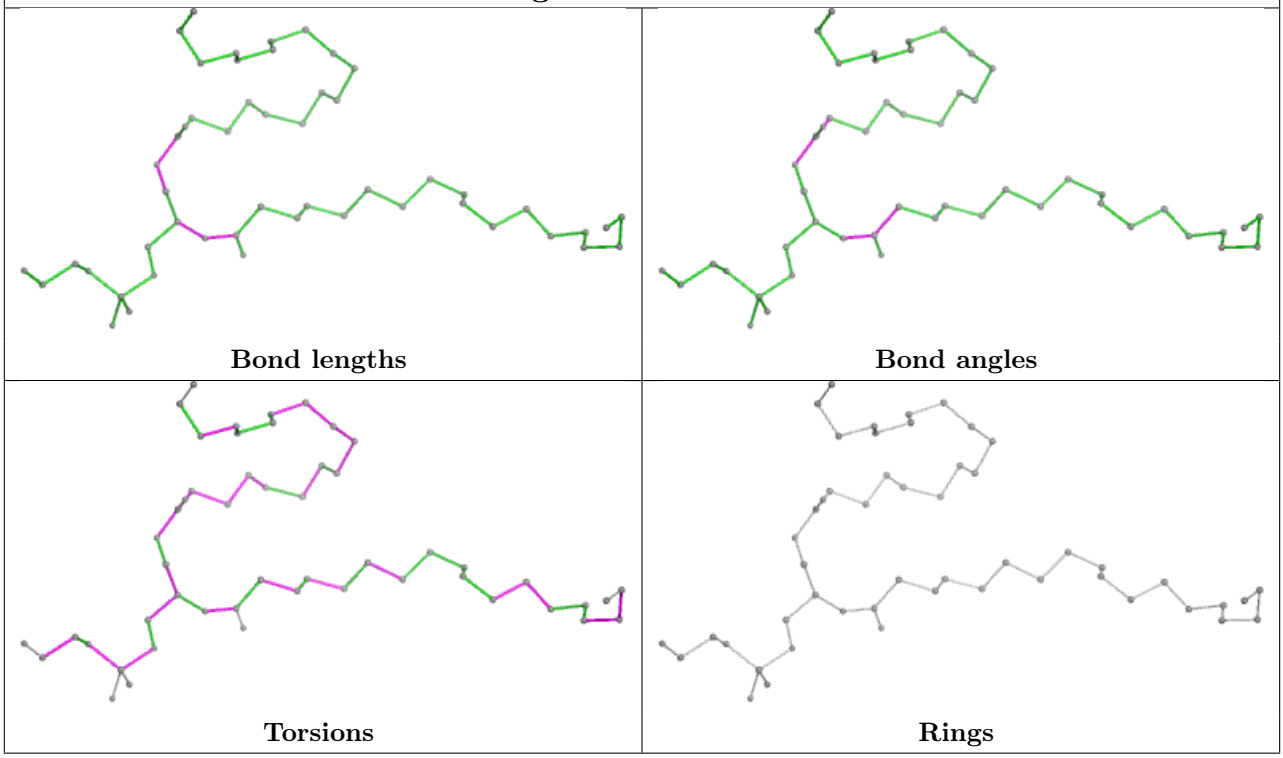
Mol	Chain	Res	Type	Clashes	Symm-Clashes
48	c	201	CDL	3	0
47	Z	203	3PE	3	0
47	m	102	3PE	2	0
43	q	202	PLC	3	0
47	f	101	3PE	6	0
47	m	101	3PE	1	0
47	L	711	3PE	8	0
47	N	601	3PE	1	0
44	I	302	SF4	2	0
47	L	703	3PE	6	0
43	L	702	PLC	3	0
43	d	102	PLC	2	0
43	h	201	PLC	2	0
43	d	101	PLC	2	0
43	Y	301	PLC	1	0
44	I	301	SF4	2	0
47	L	708	3PE	4	0
47	L	710	3PE	2	0
47	L	712	3PE	6	0
43	P	502	PLC	4	0
47	Y	302	3PE	2	0
47	L	709	3PE	1	0
51	U	201	EHZ	1	0
43	a	201	PLC	2	0
43	L	705	PLC	6	0
48	O	201	CDL	4	0
43	M	1002	PLC	1	0
43	b	101	PLC	1	0
43	H	401	PLC	1	0
43	M	1001	PLC	4	0
43	q	201	PLC	1	0
48	P	503	CDL	1	0
43	A	201	PLC	2	0
47	M	1003	3PE	1	0
44	G	801	SF4	1	0
47	L	706	3PE	1	0
47	O	202	3PE	1	0
43	g	301	PLC	3	0
47	b	103	3PE	1	0
47	O	203	3PE	1	0
47	L	701	3PE	2	0
43	Y	303	PLC	4	0

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

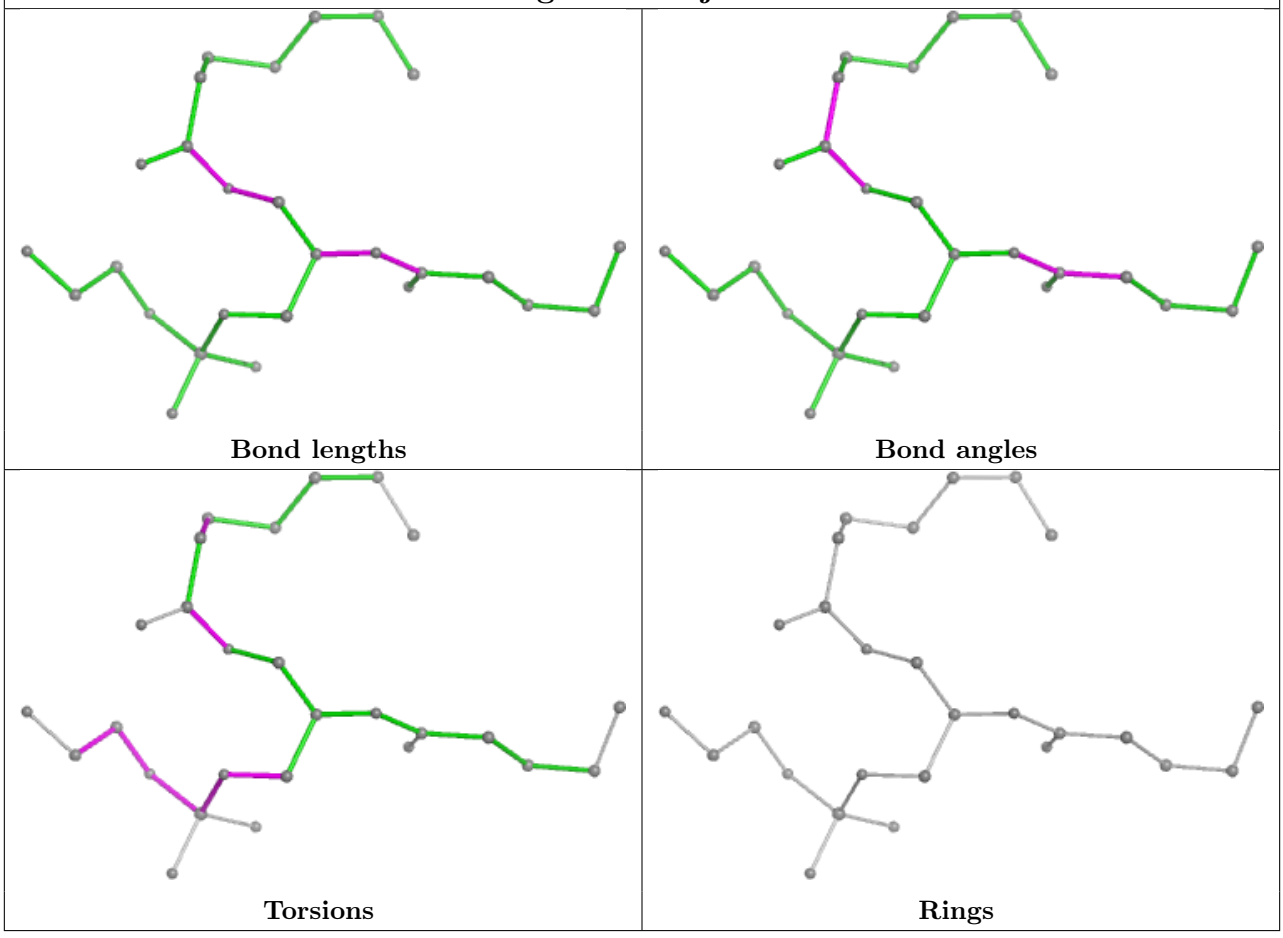
Ligand PLC D 501



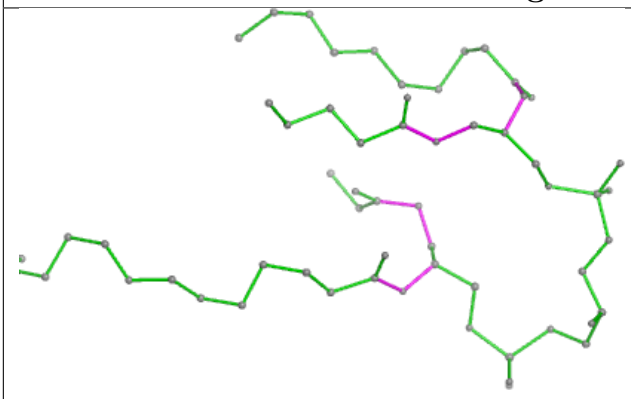
Ligand 3PE L 707



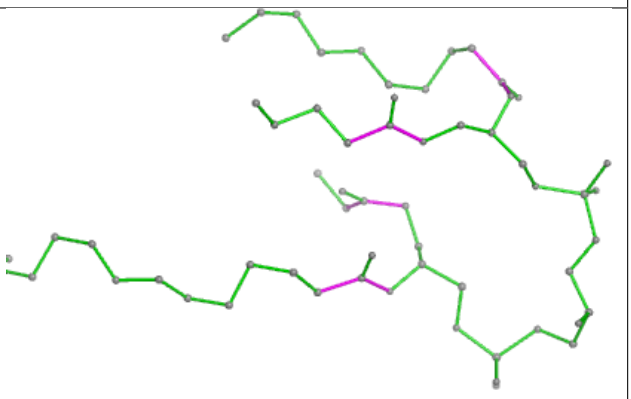
Ligand 3PE j 101



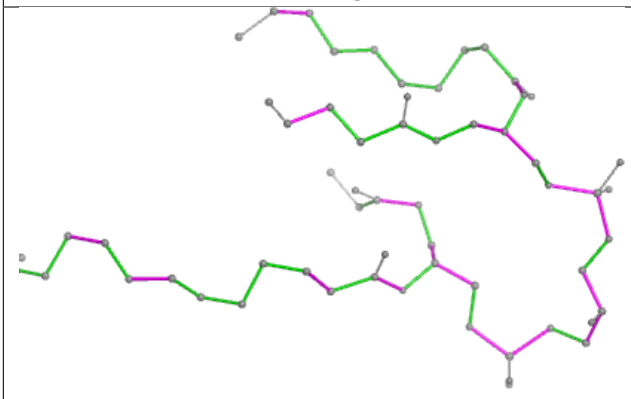
Ligand CDL b 102



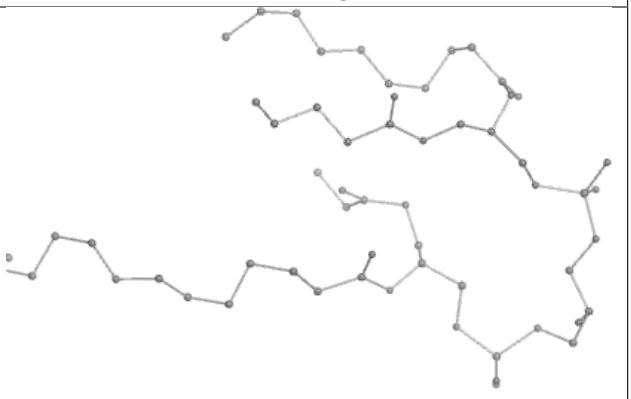
Bond lengths



Bond angles

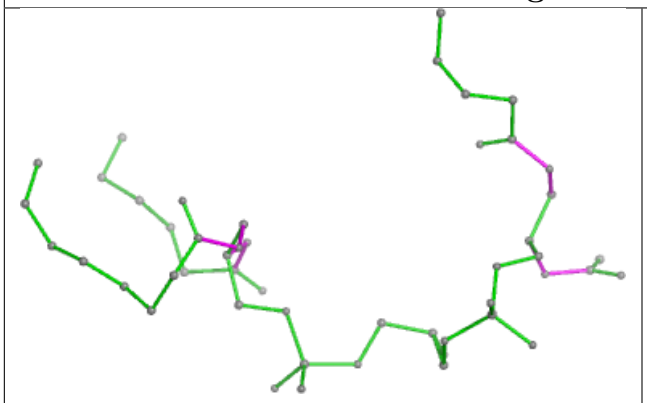


Torsions



Rings

Ligand CDL Z 202



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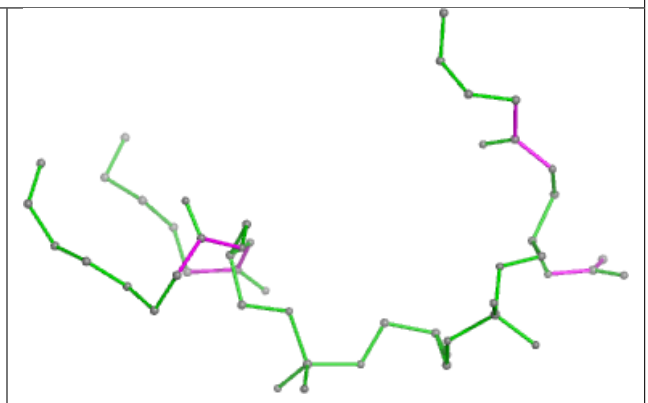

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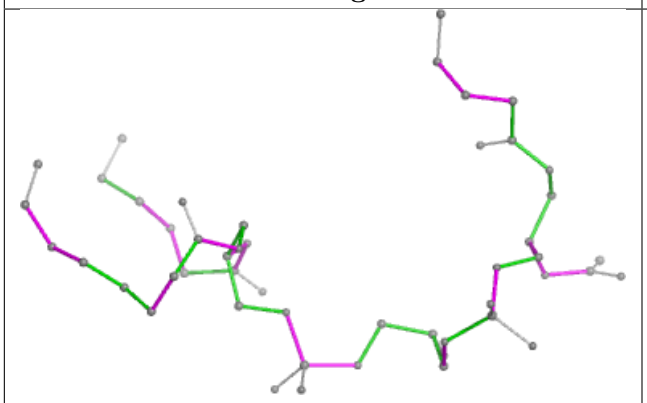

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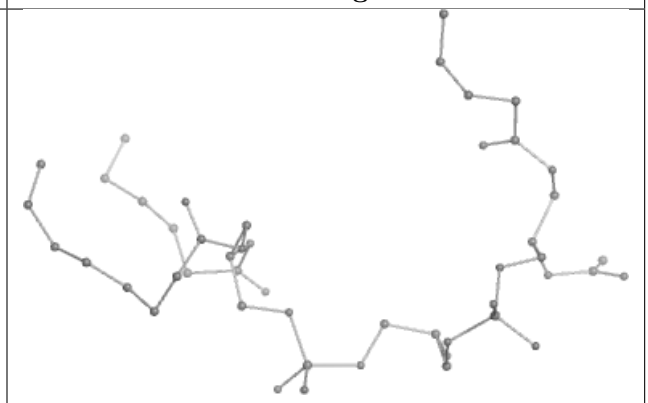
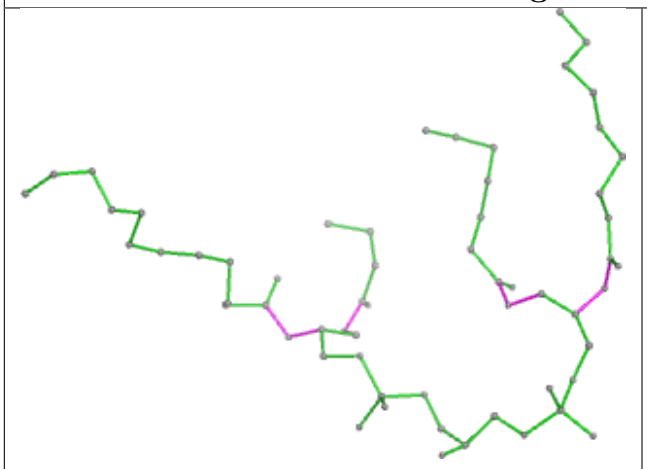


Rings

Ligand CDL c 201



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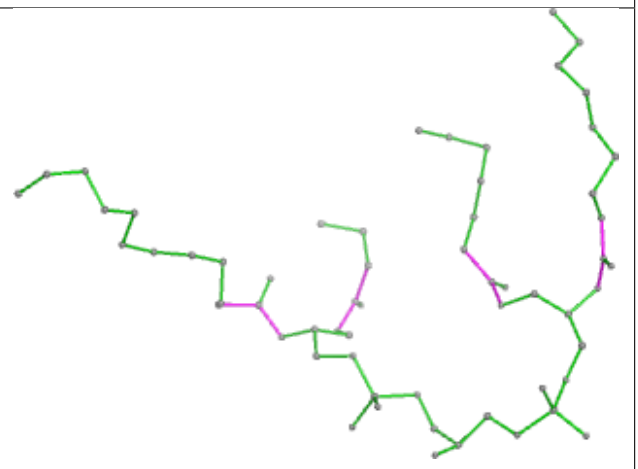
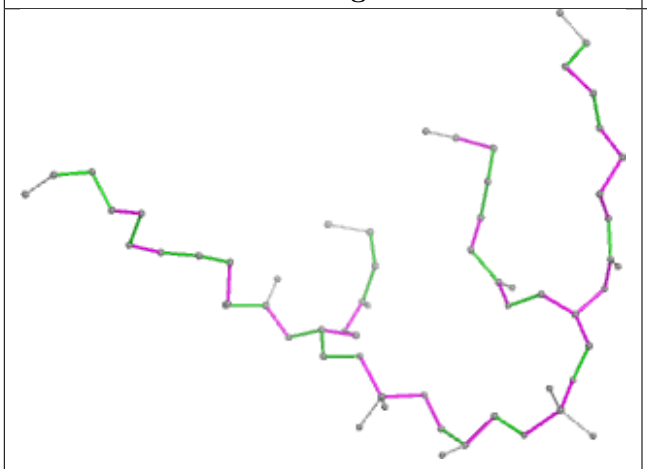


Bond angles



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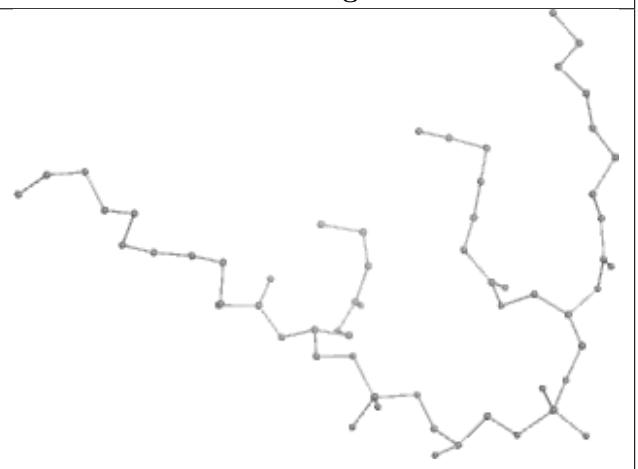
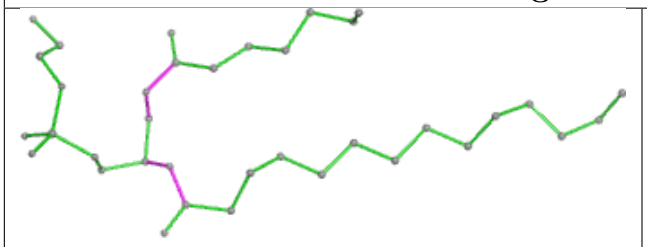


Rings

Ligand 3PE Z 203



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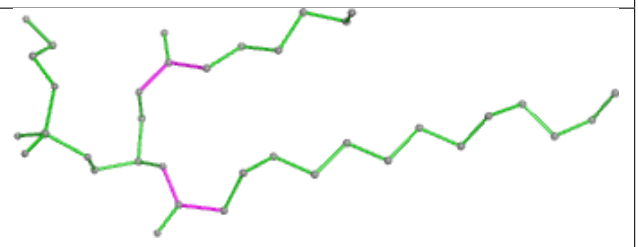
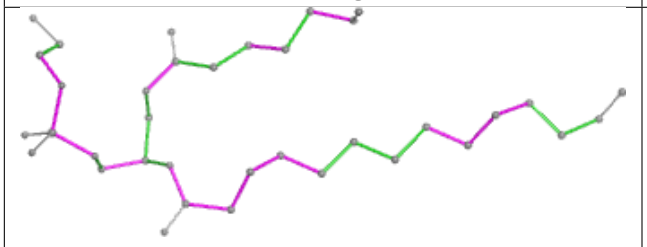


Bond angles



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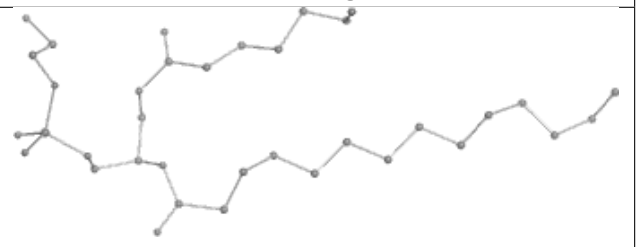
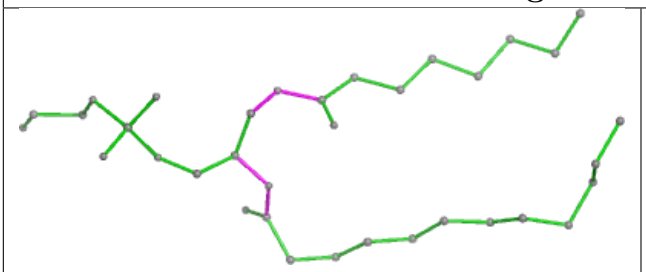


Rings

Ligand 3PE m 102



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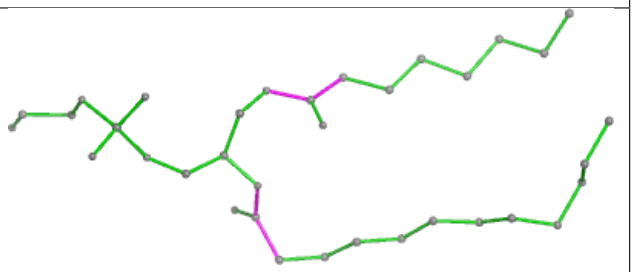
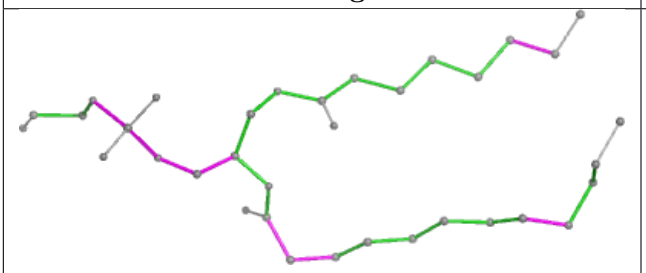


Bond angles



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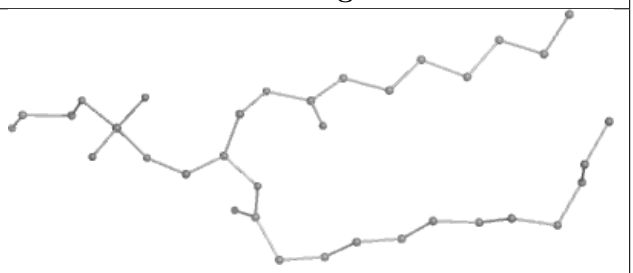
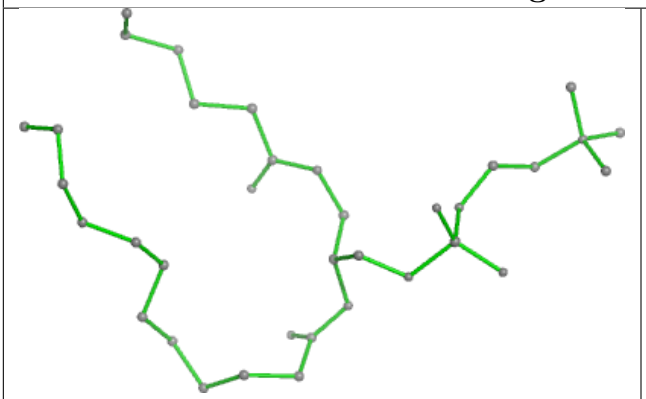


Rings

Ligand PLC q 202



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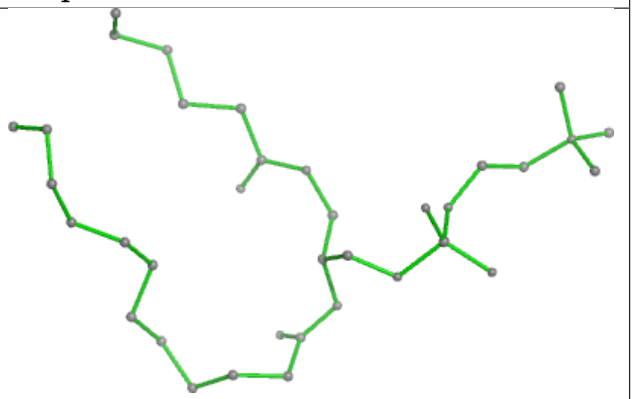
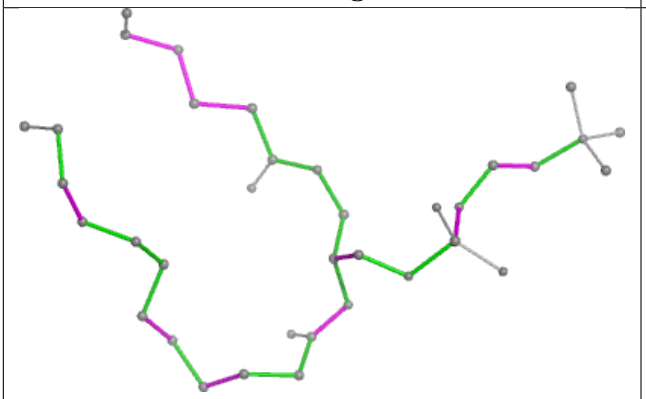


Bond angles



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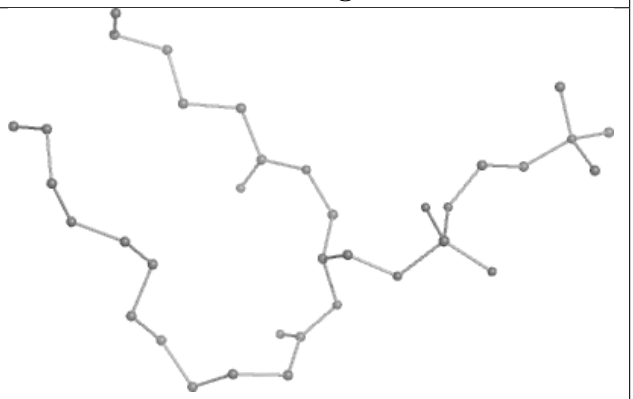
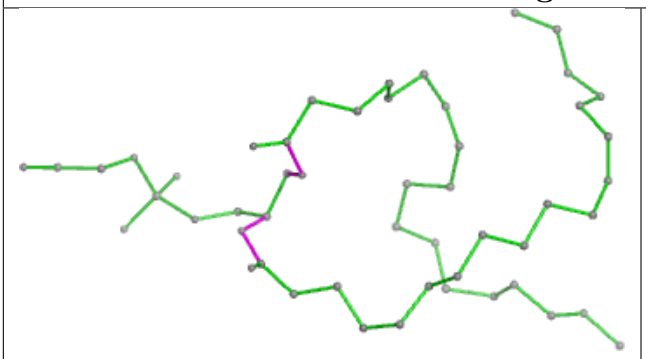


Rings

Ligand 3PE f 101



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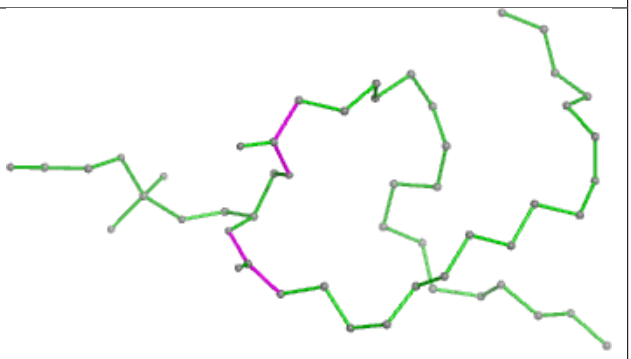
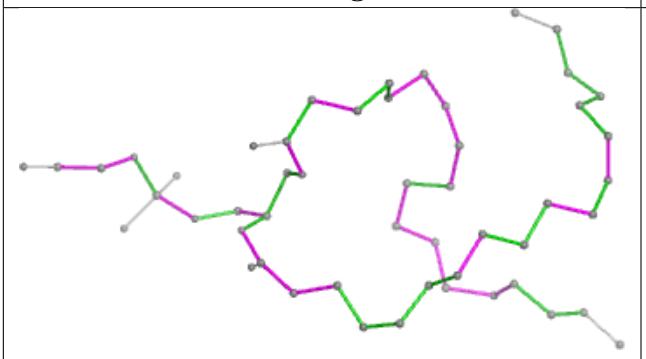


Bond angles



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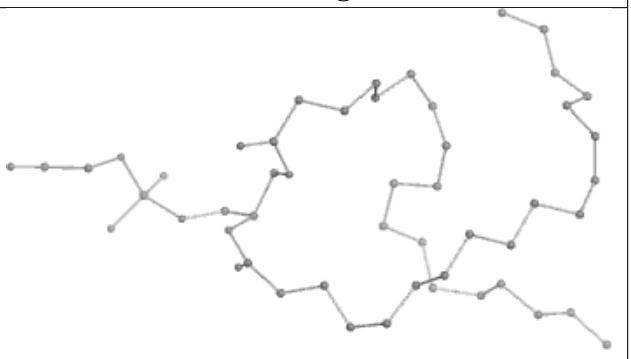
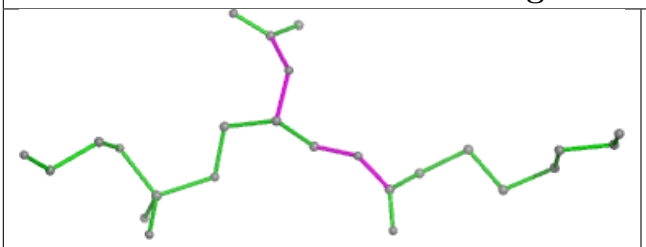


Rings

Ligand 3PE m 101



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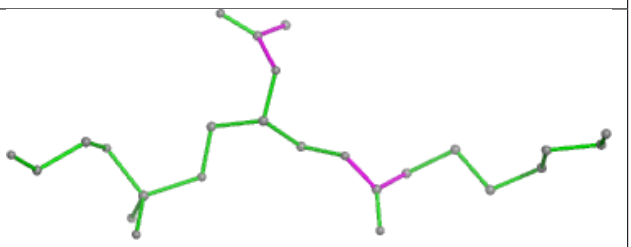
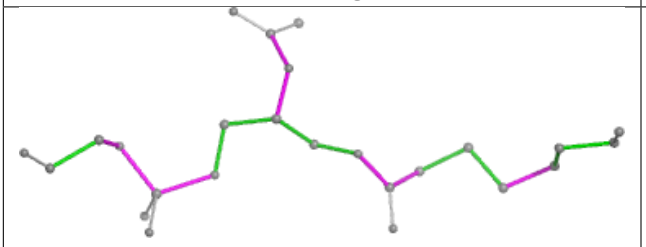


Bond angles



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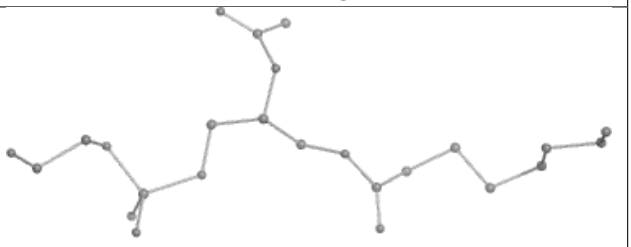
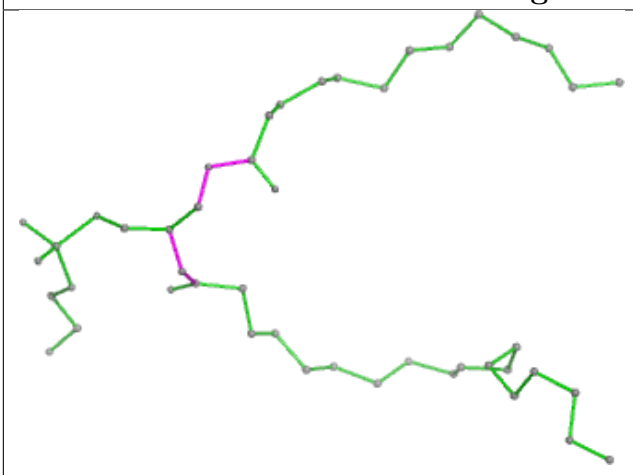


Rings

Ligand 3PE L 711



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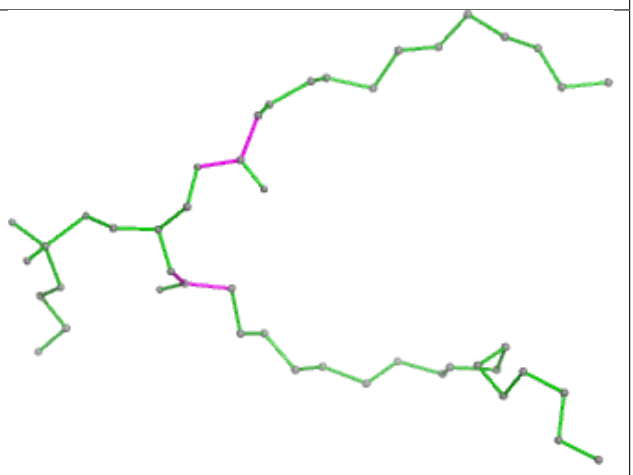
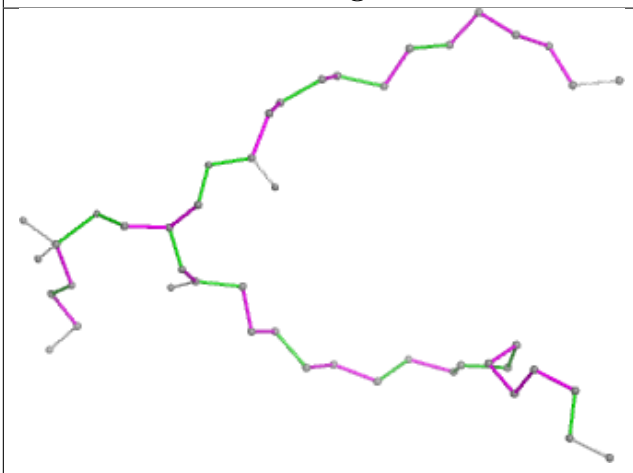
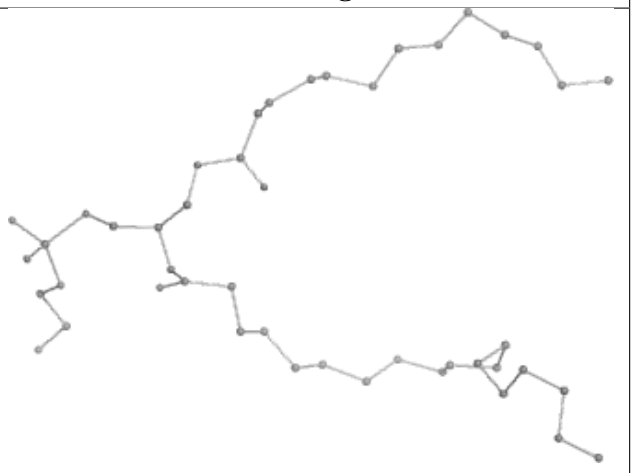


Bond angles

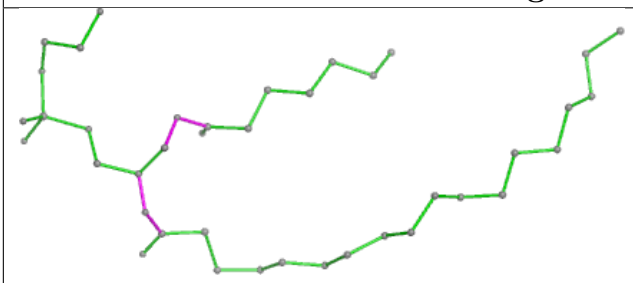


Torsions

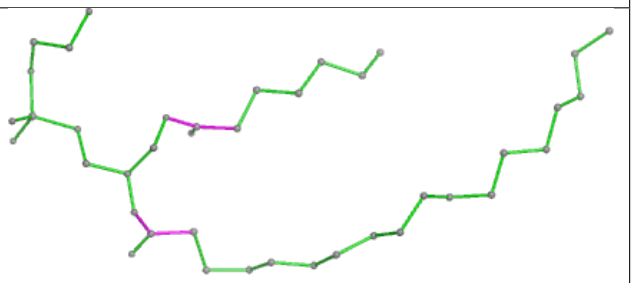


Rings

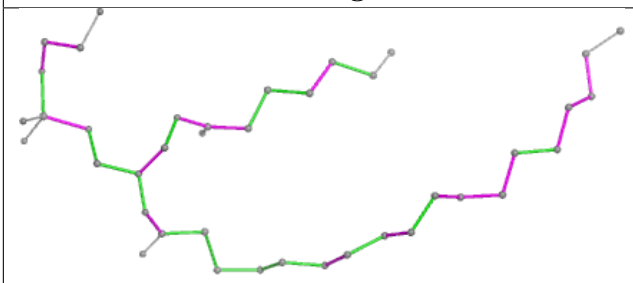
Ligand 3PE N 601



Bond lengths



Bond angles



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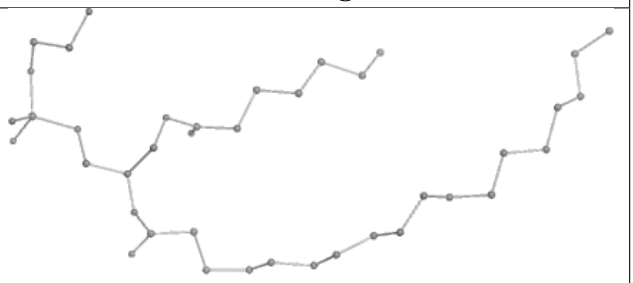
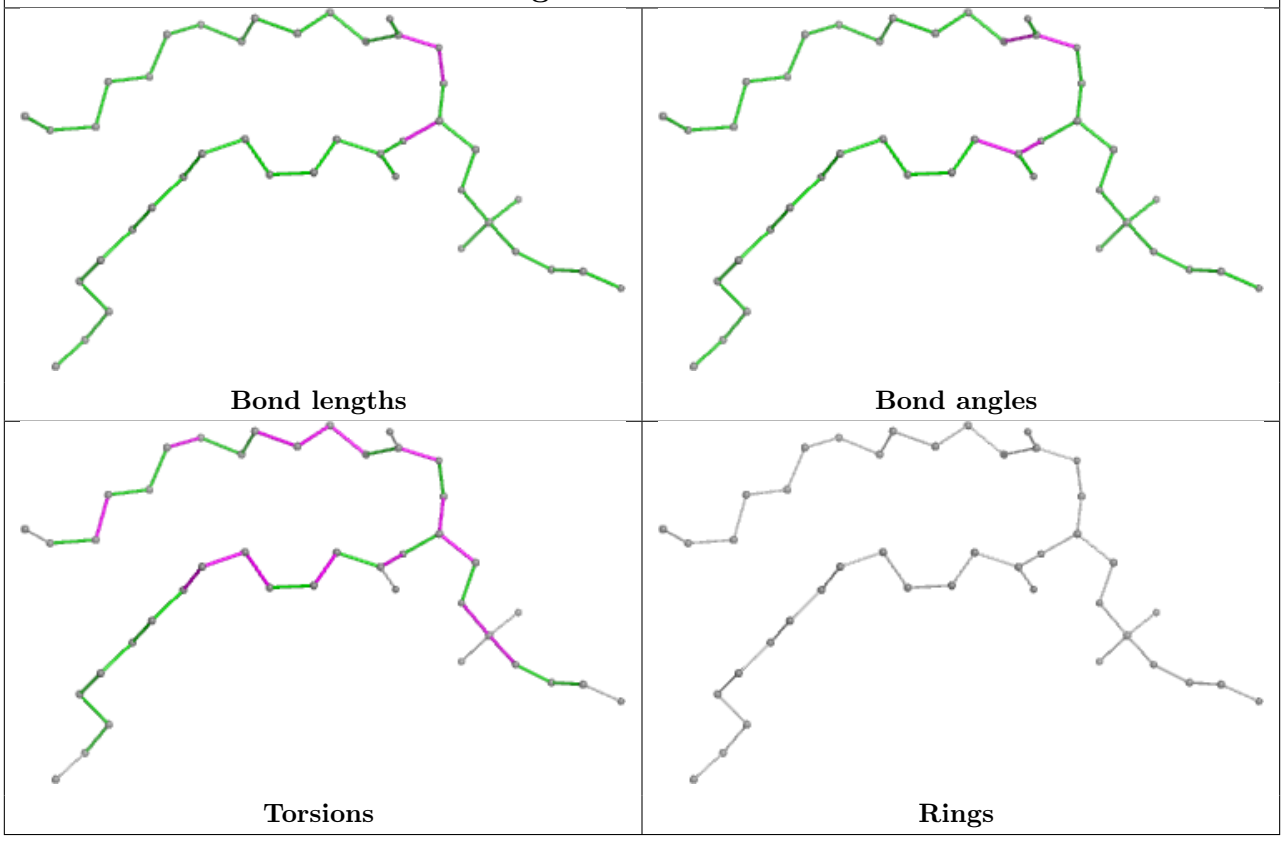
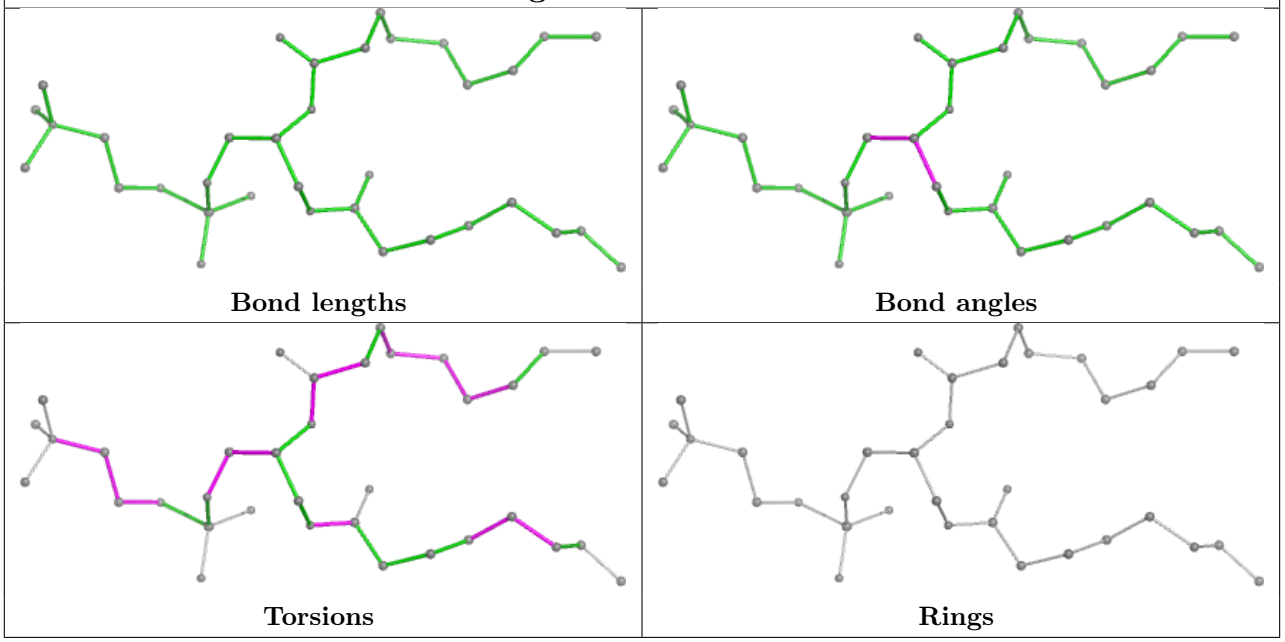


Rings

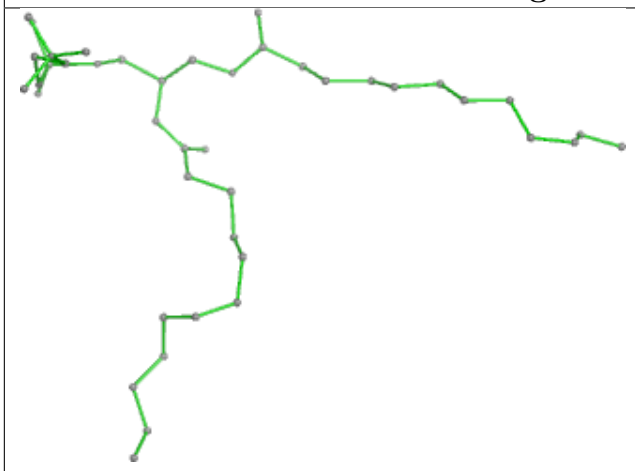
Ligand 3PE L 703



Ligand PLC L 702



Ligand PLC d 102



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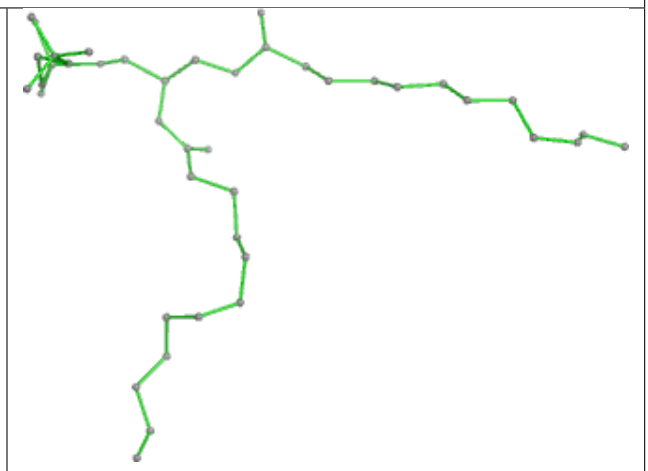
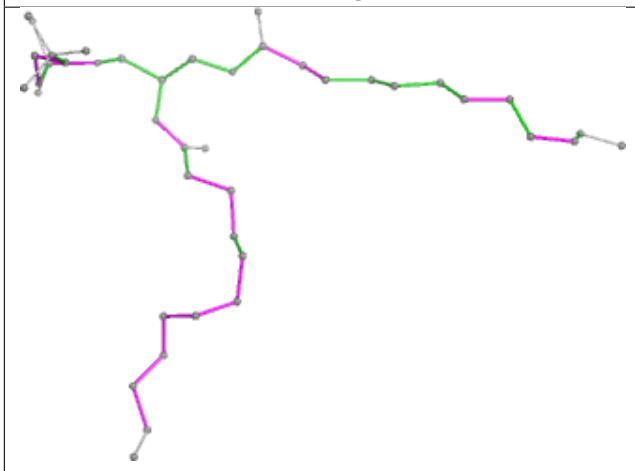


Bond angles



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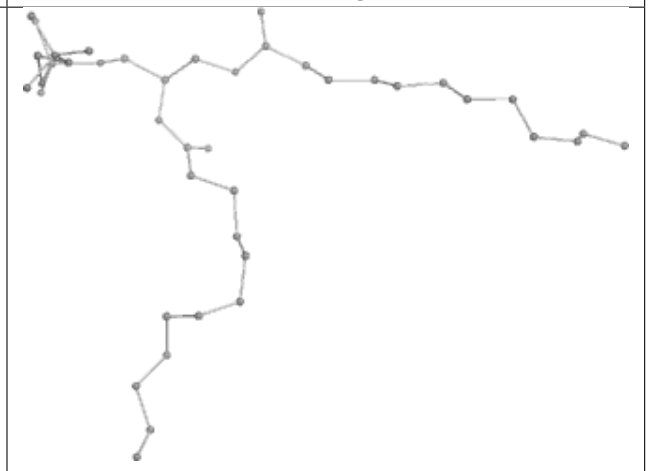
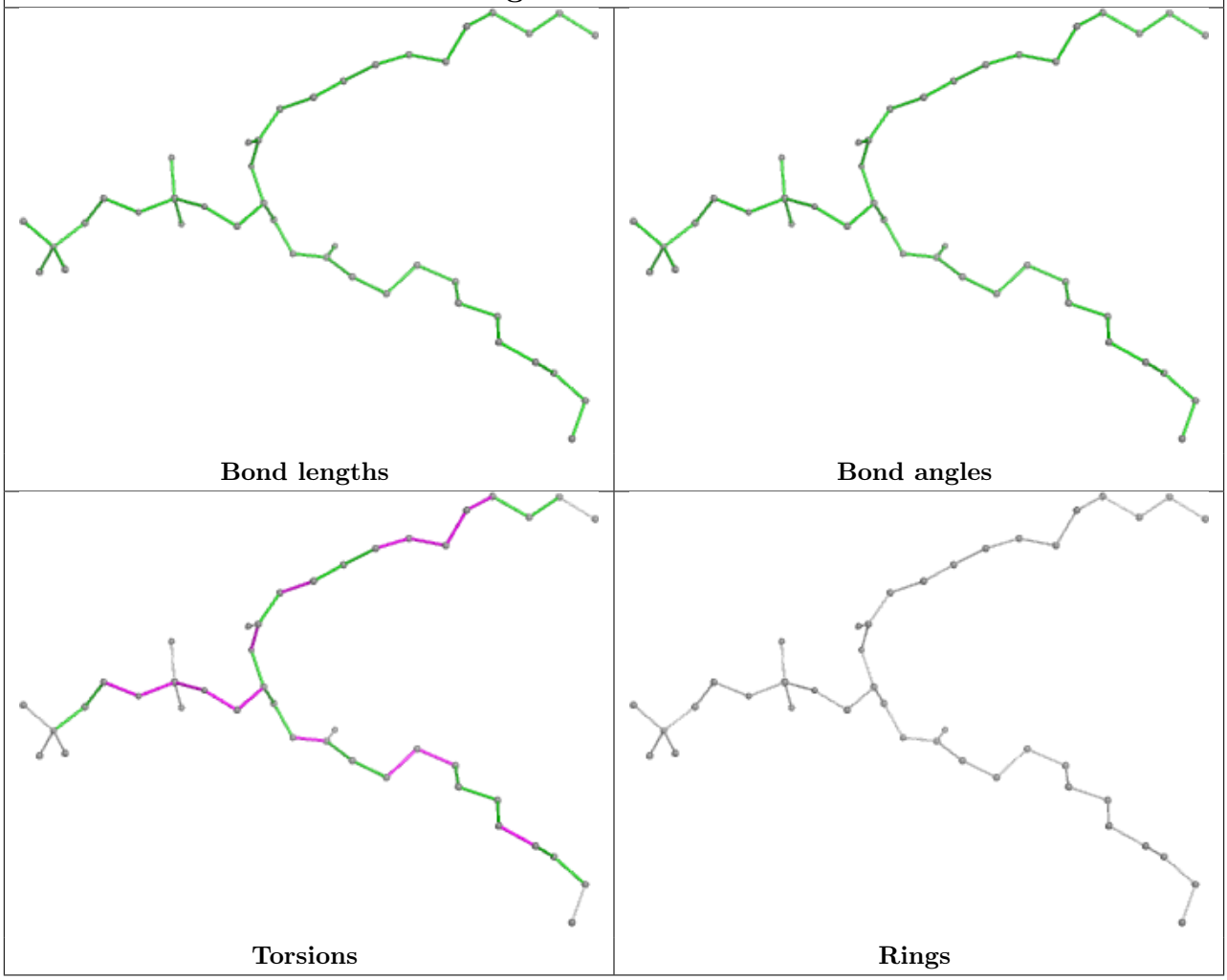
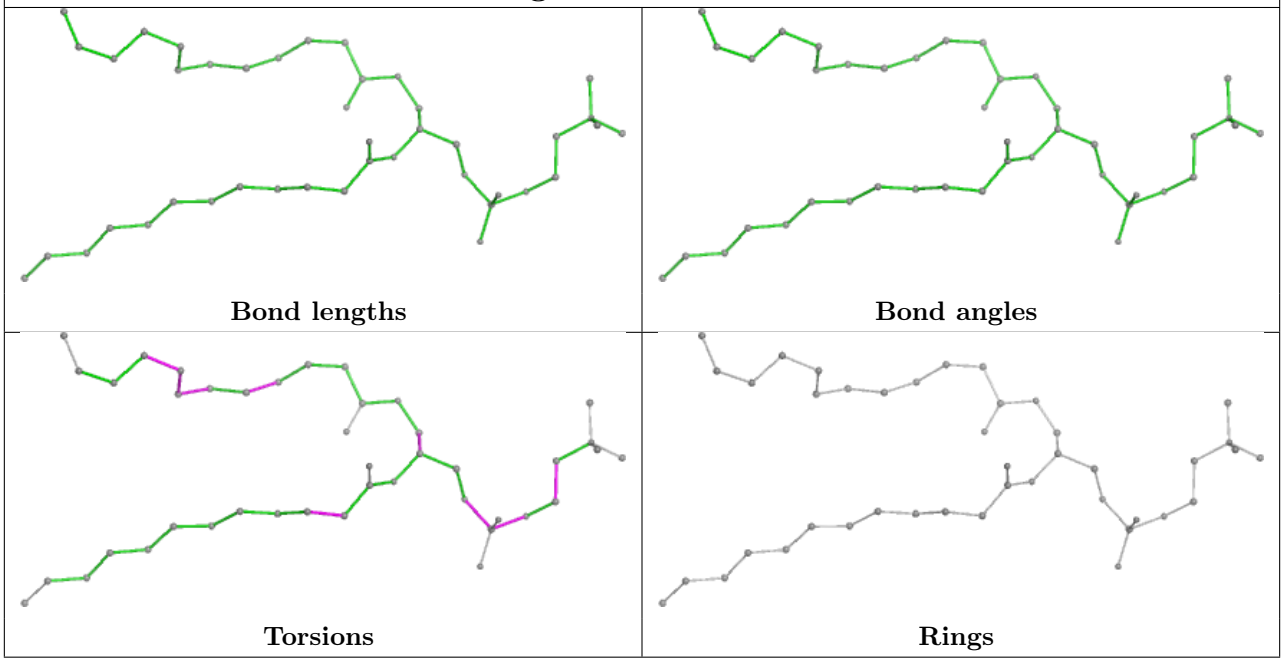


Rings

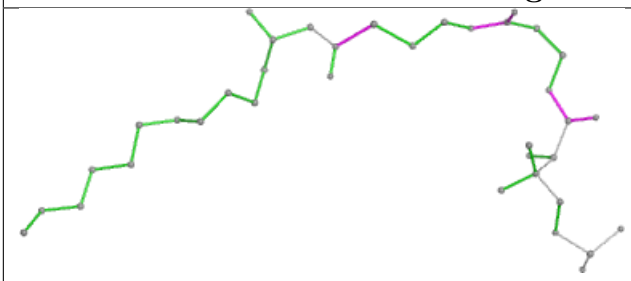
Ligand PLC h 201



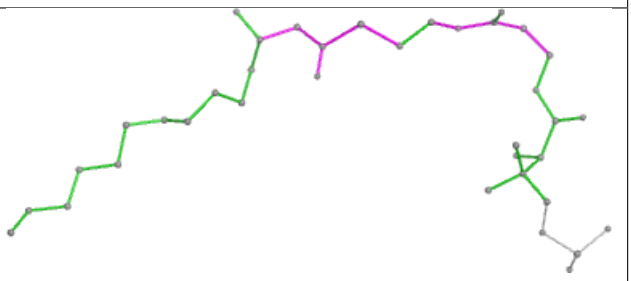
Ligand PLC d 101



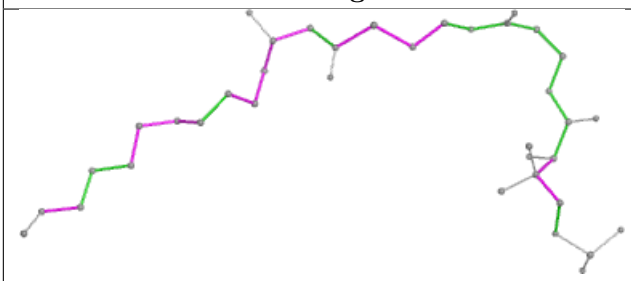
Ligand EHZ T 201



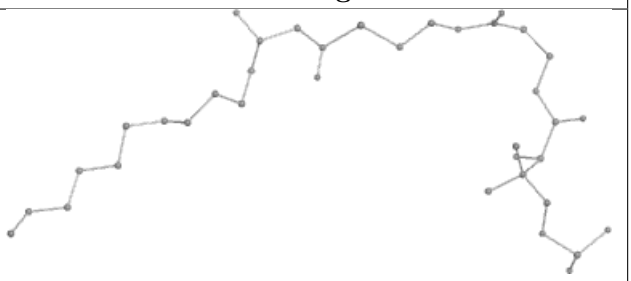
Bond lengths



Bond angles

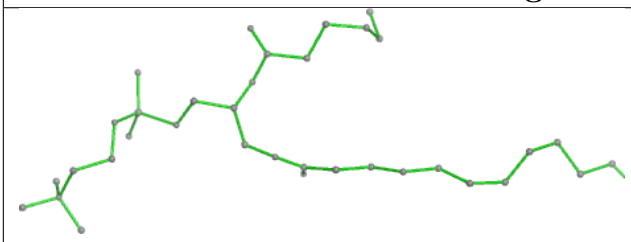


Torsions

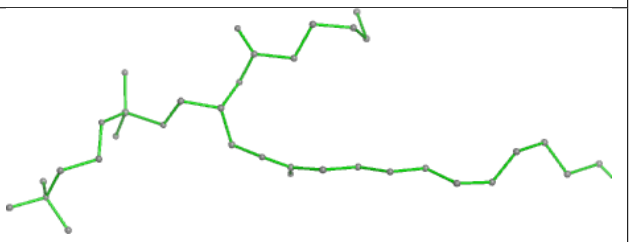


Rings

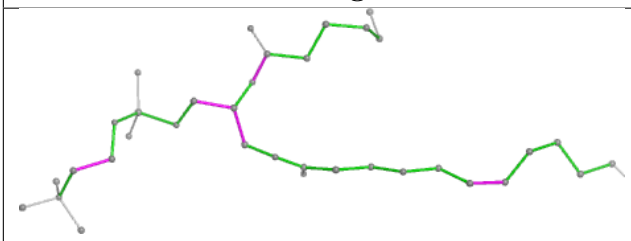
Ligand PLC Y 301



Bond lengths



Bond angles



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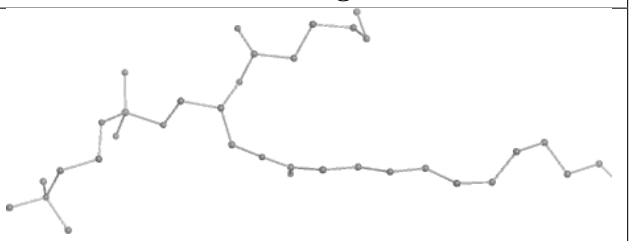
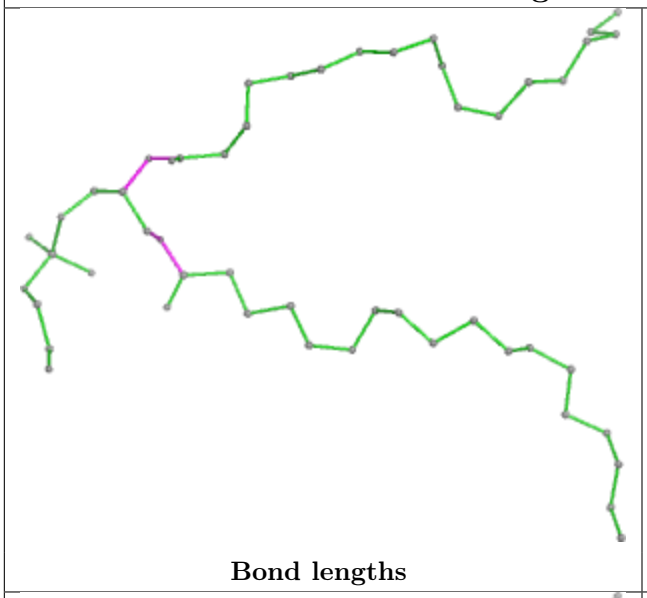
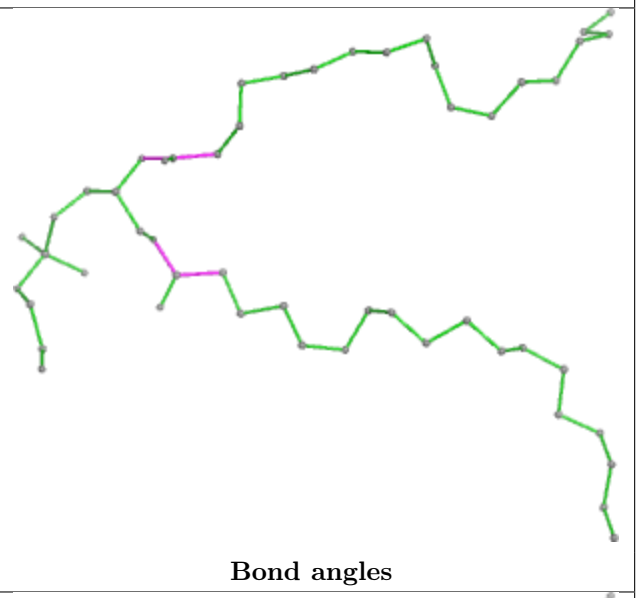


Rings

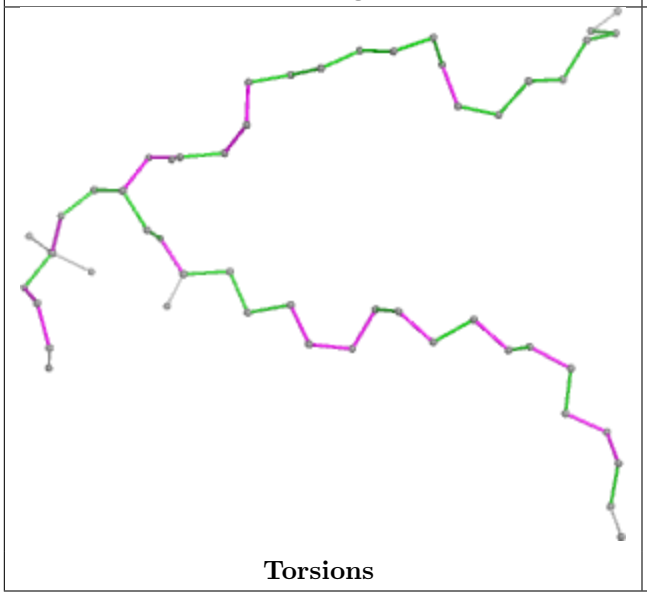
Ligand 3PE L 708



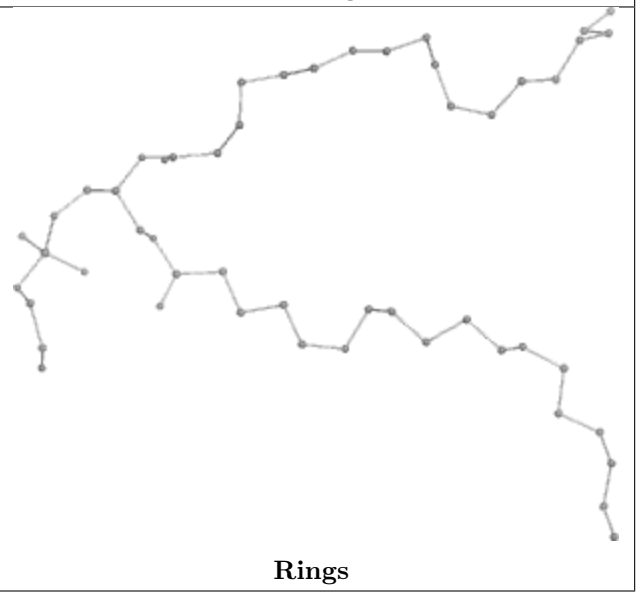
Bond lengths



Bond angles

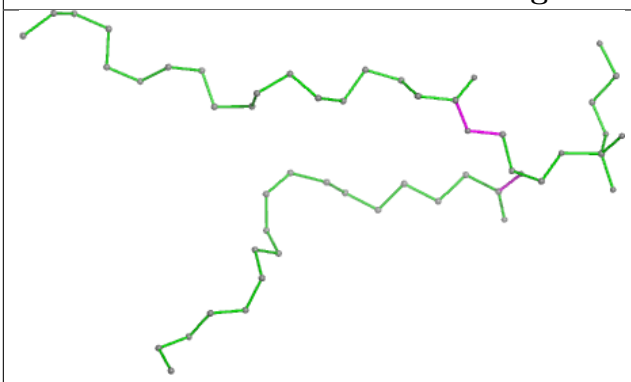


Torsions

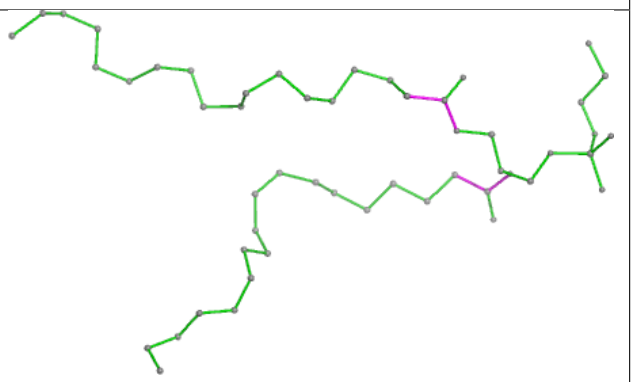


Rings

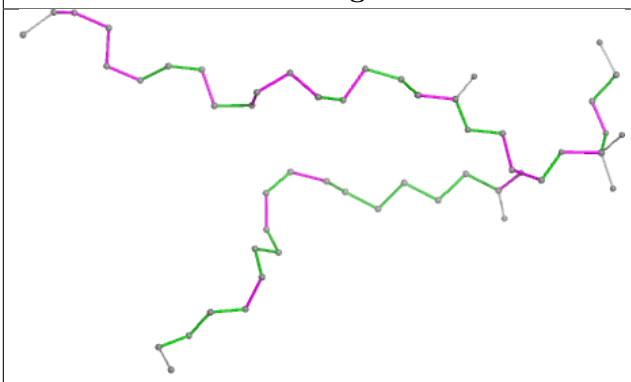
Ligand 3PE L 710



Bond lengths



Bond angles



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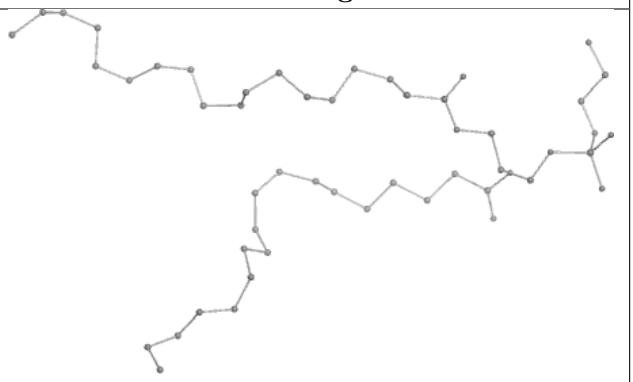
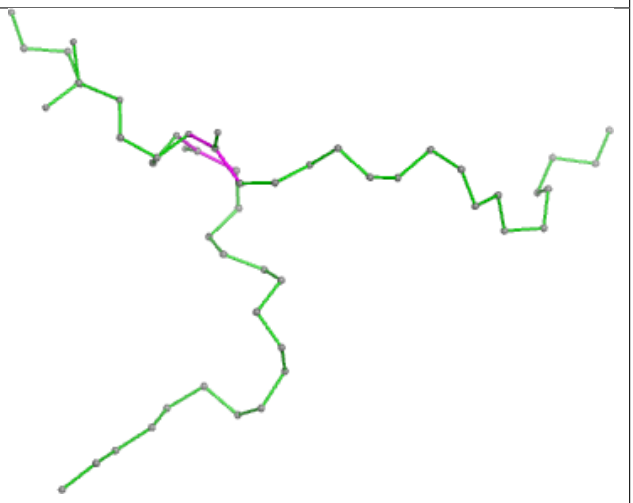


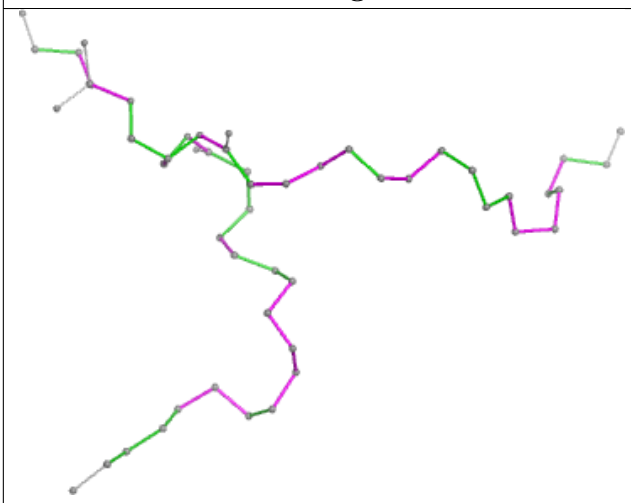
Rings

Ligand 3PE L 712

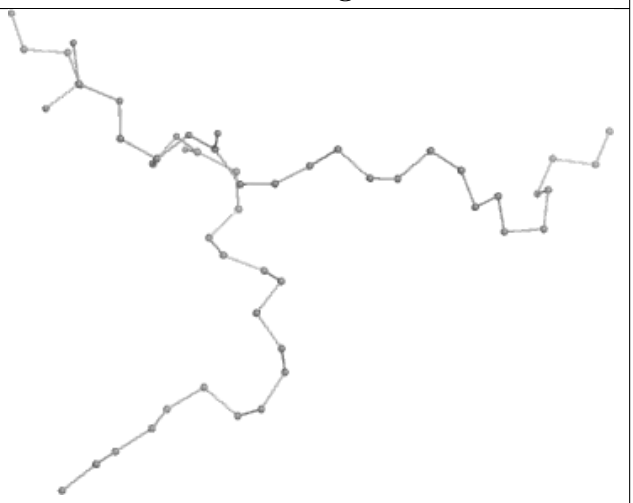
Bond lengths



Bond angles

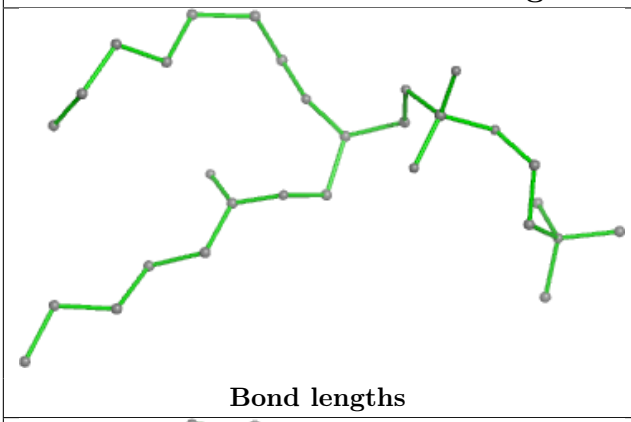


Torsions

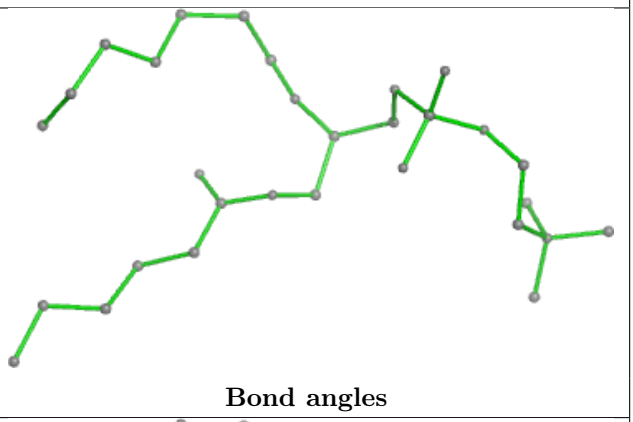


Rings

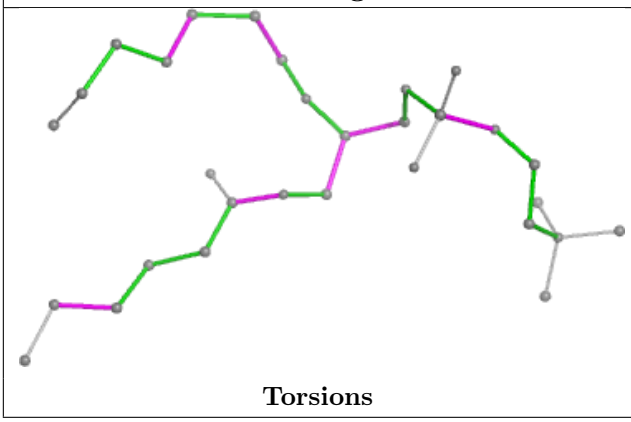
Ligand PLC P 502



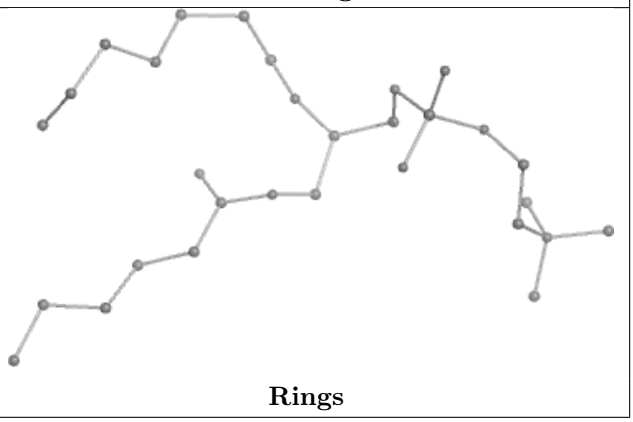
Bond lengths



Bond angles

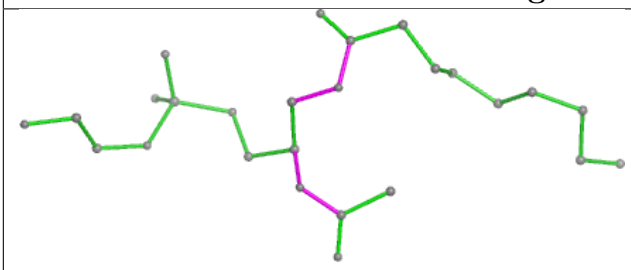


Torsions

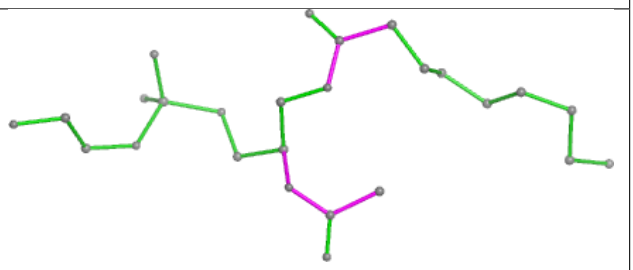


Rings

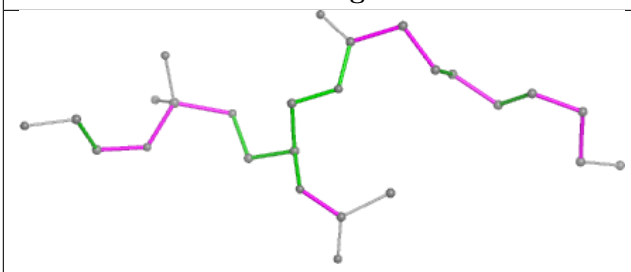
Ligand 3PE Y 302



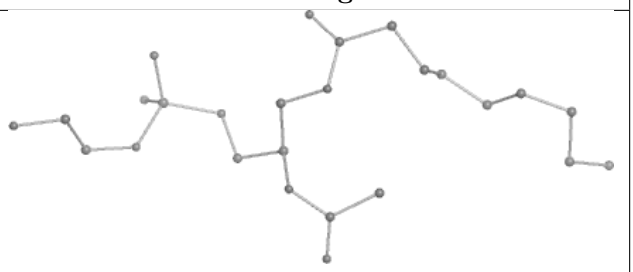
Bond lengths



Bond angles

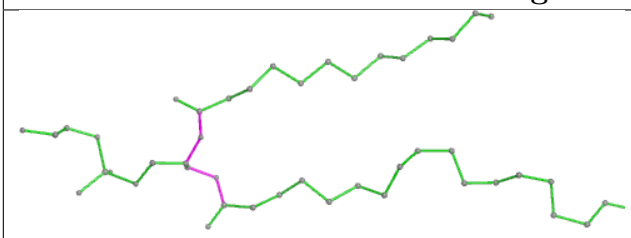


Torsions



Rings

Ligand 3PE L 709



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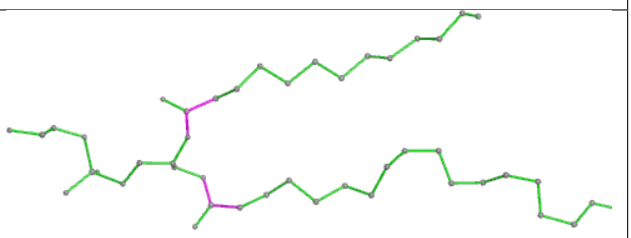
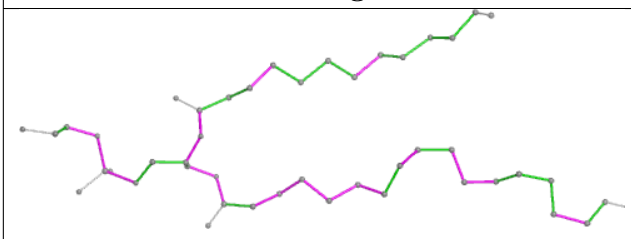
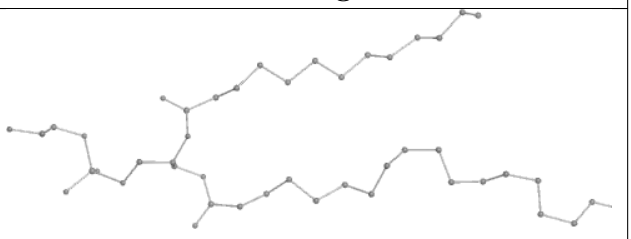


Bond angles

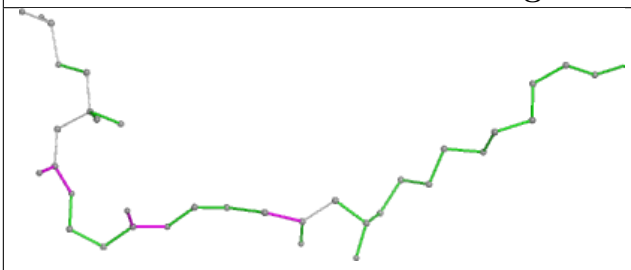


Torsions

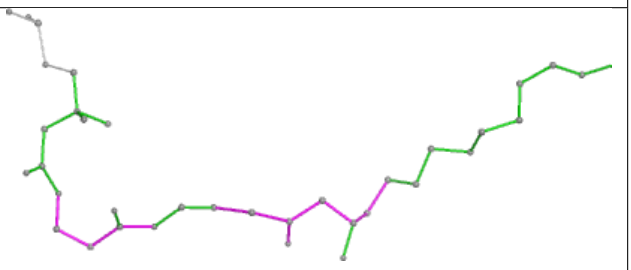


Rings

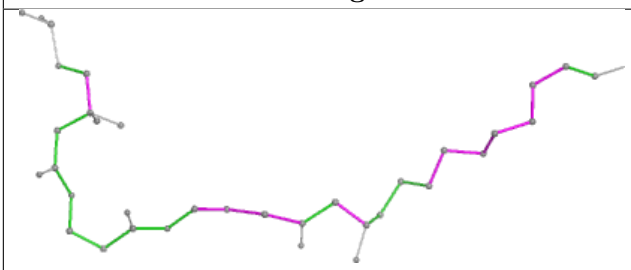
Ligand EHZ U 201



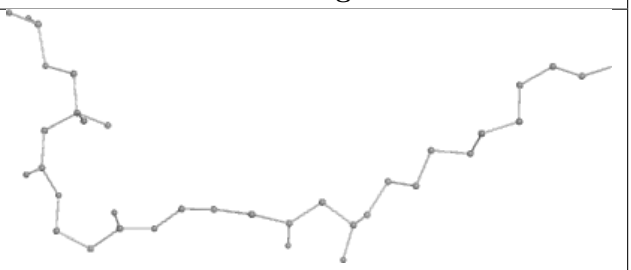
Bond lengths



Bond angles

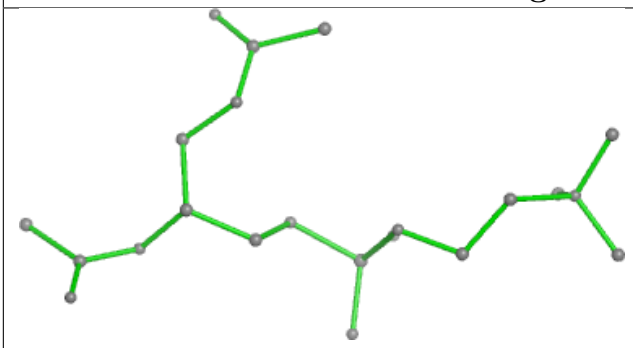


Torsions

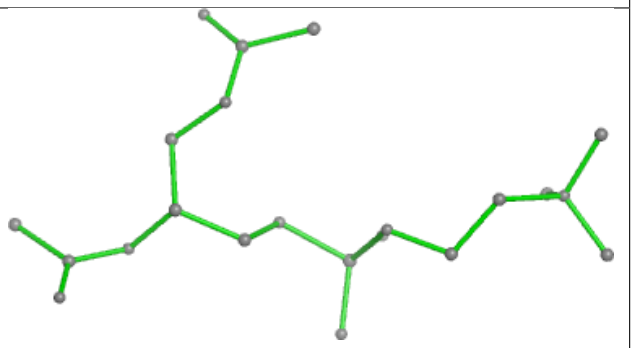


Rings

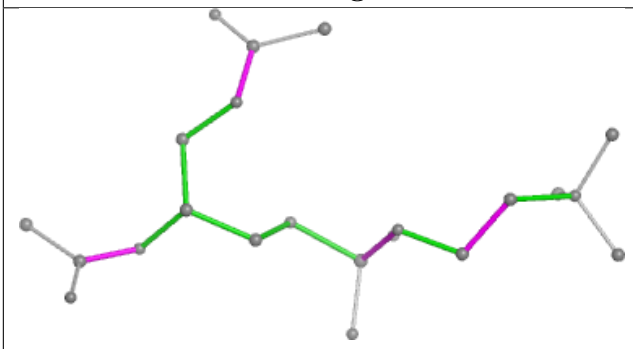
Ligand PLC a 201



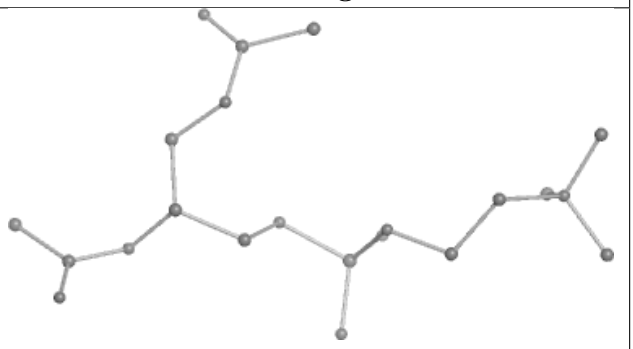
Bond lengths



Bond angles

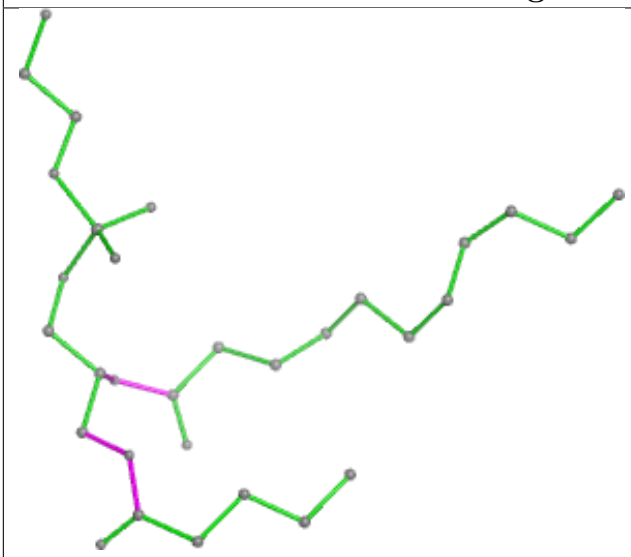


Torsions

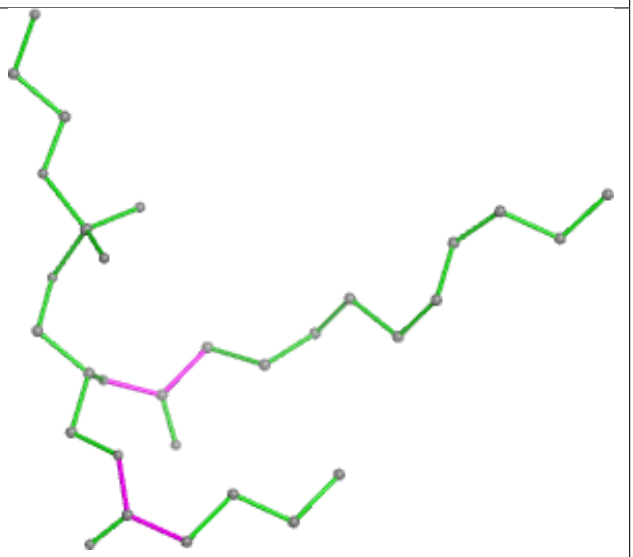


Rings

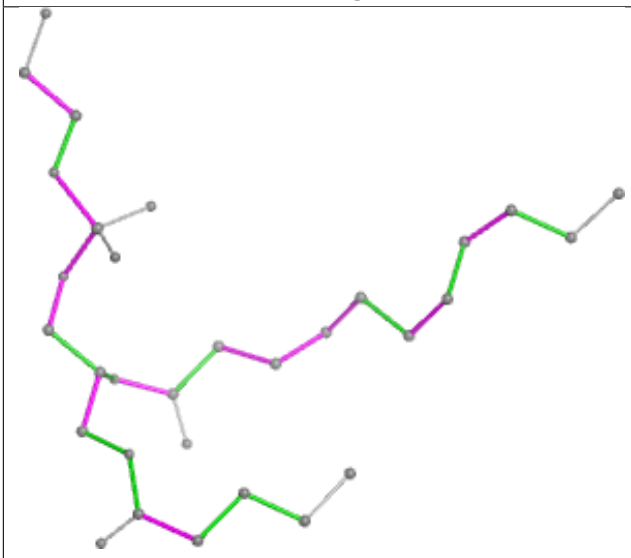
Ligand 3PE H 402



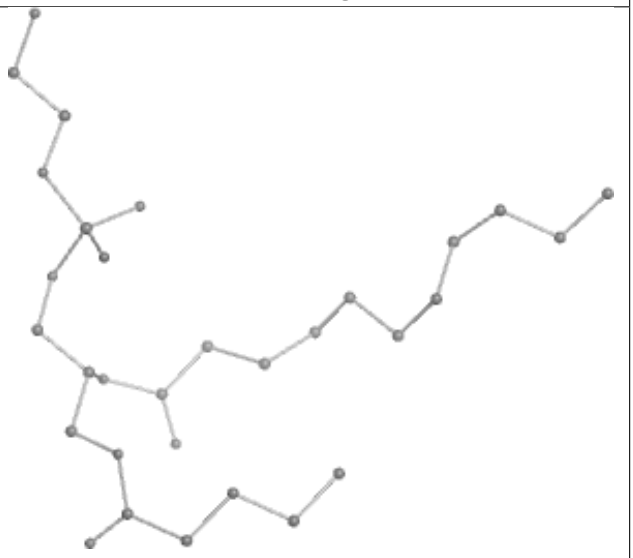
Bond lengths



Bond angles

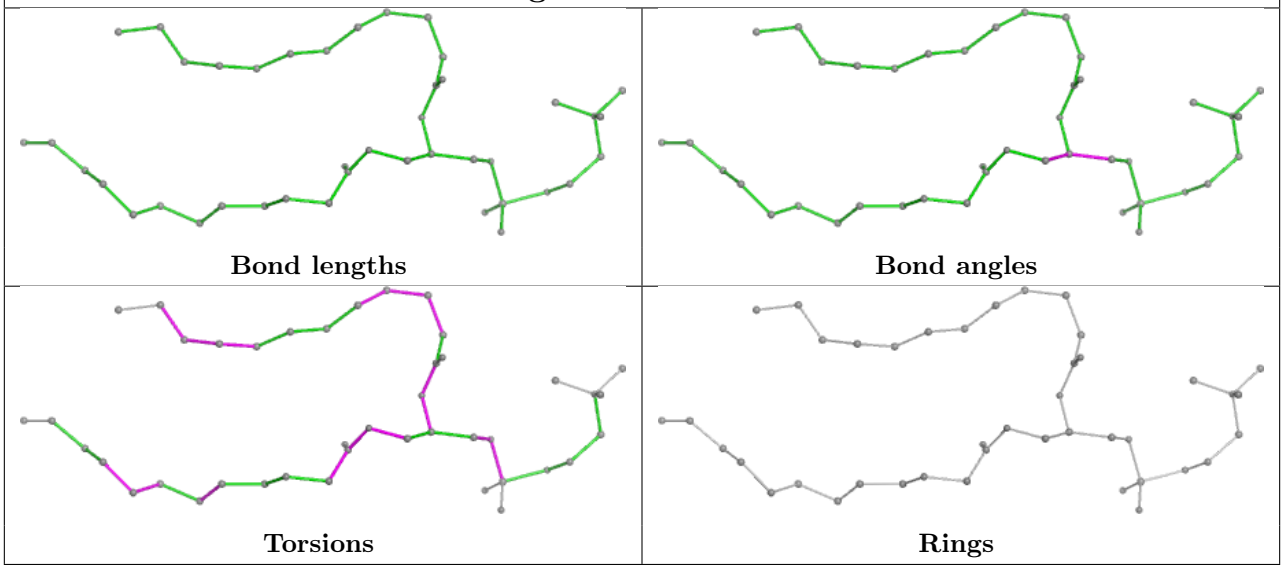


Torsions

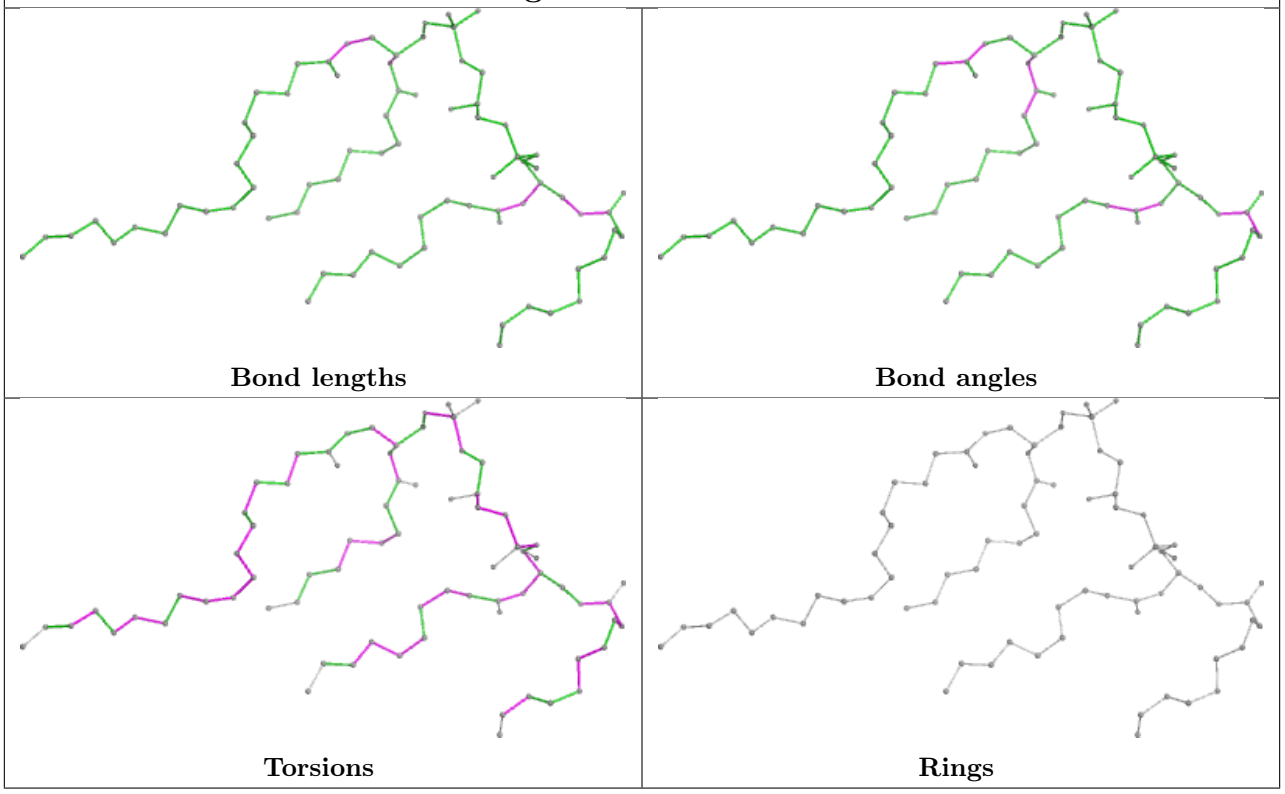


Rings

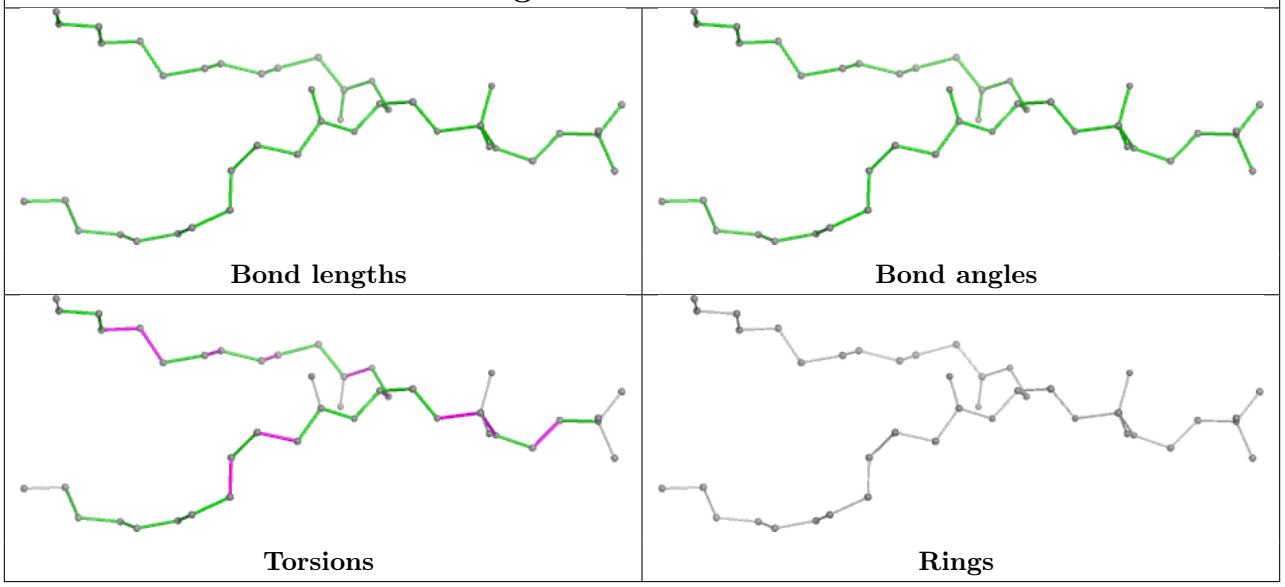
Ligand PLC L 705



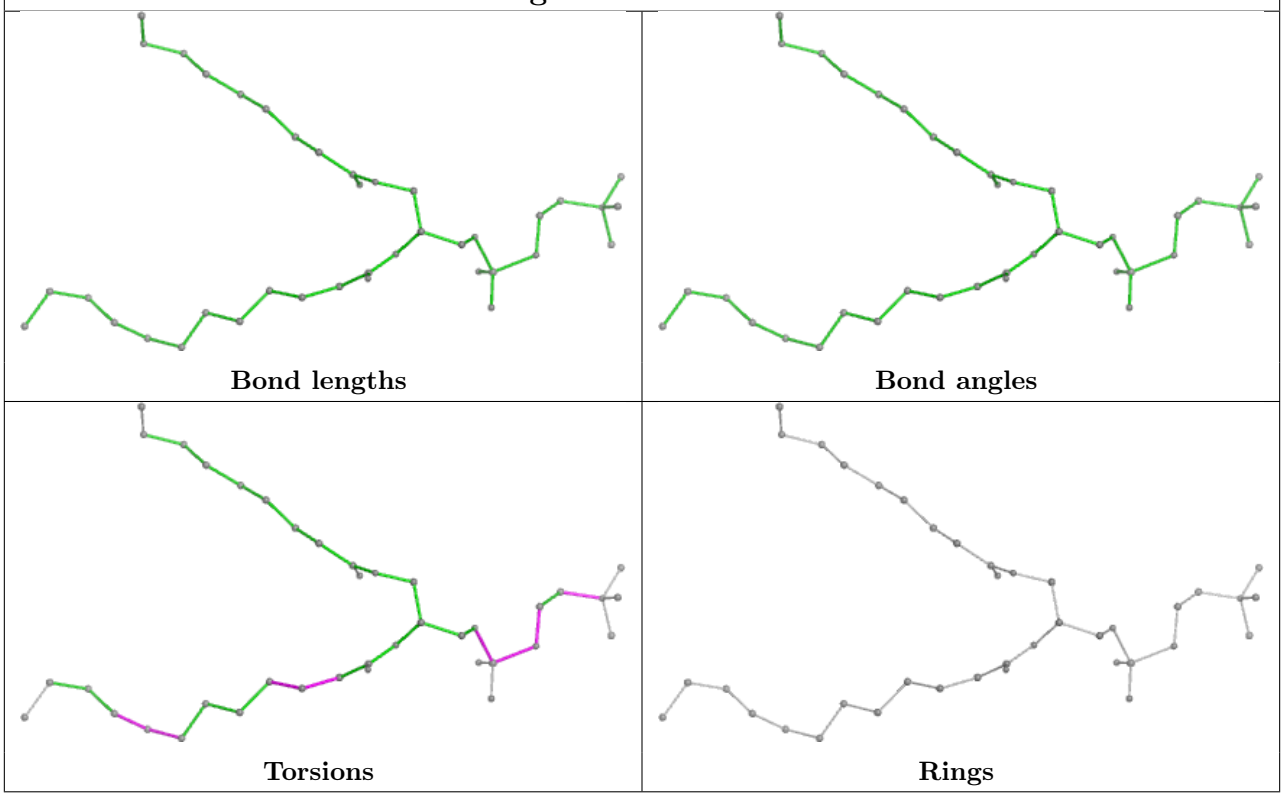
Ligand CDL O 201



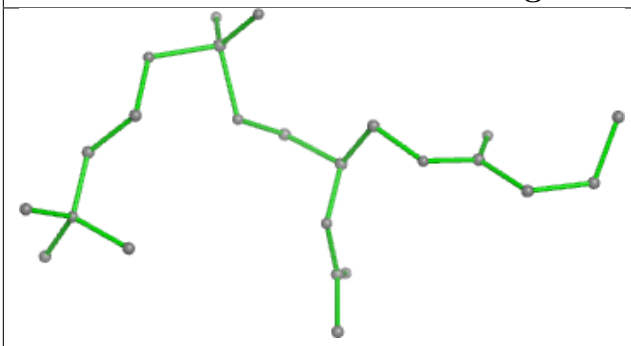
Ligand PLC M 1002



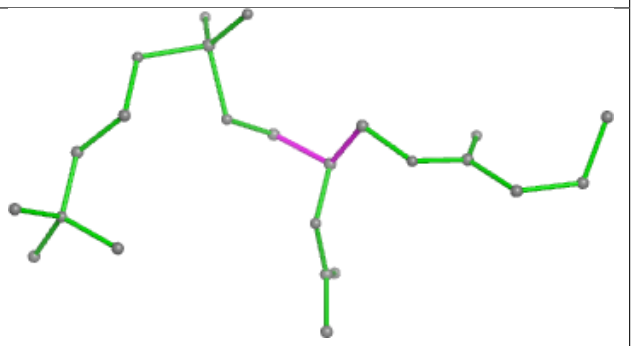
Ligand PLC b 101



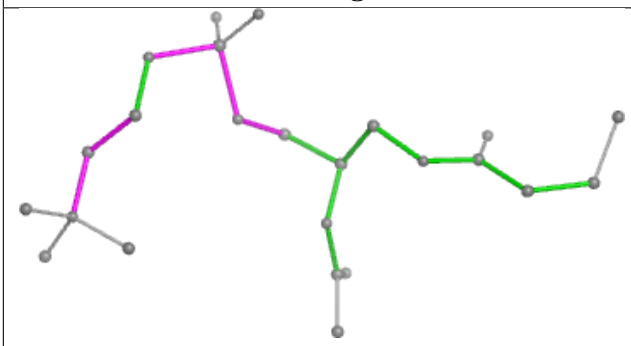
Ligand PLC H 401



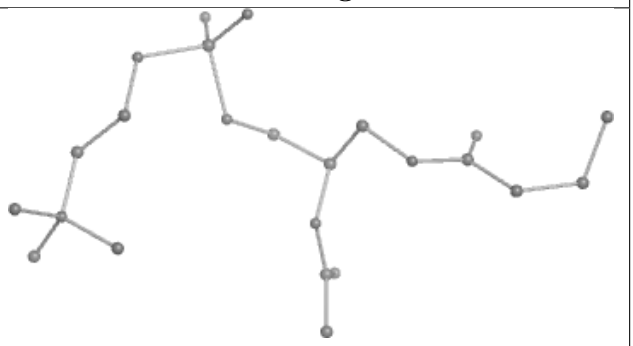
Bond lengths



Bond angles

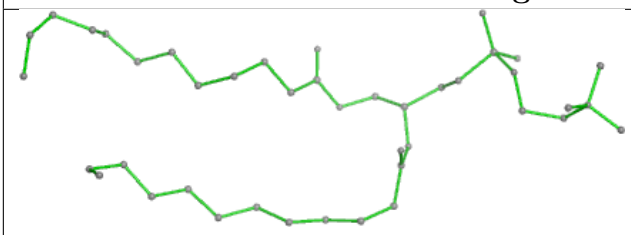


Torsions

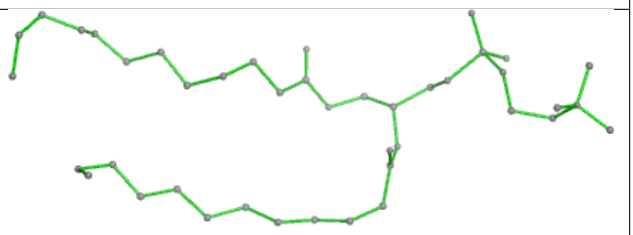


Rings

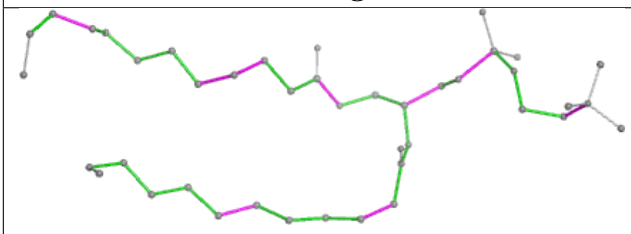
Ligand PLC M 1001



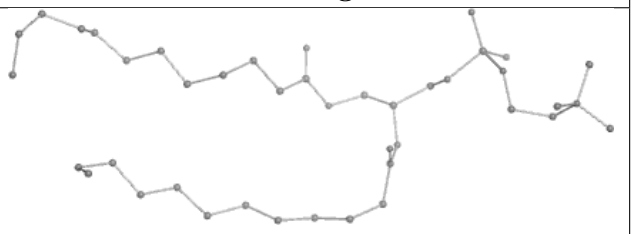
Bond lengths



Bond angles

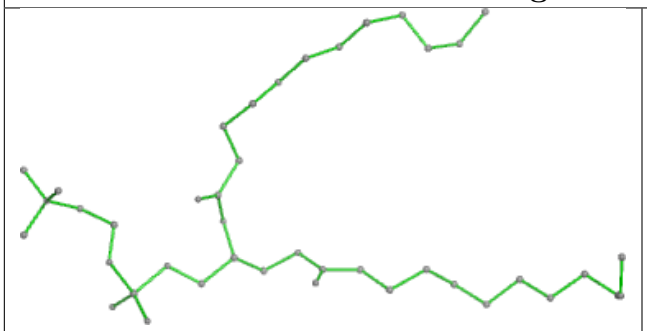


Torsions

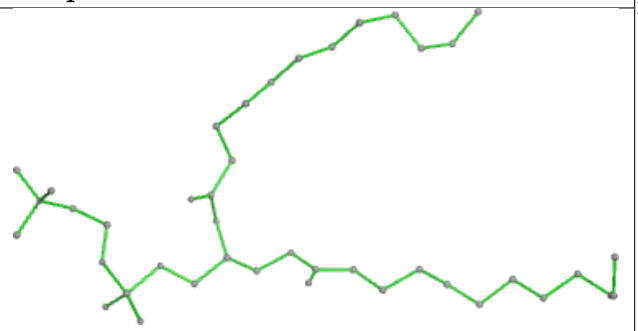


Rings

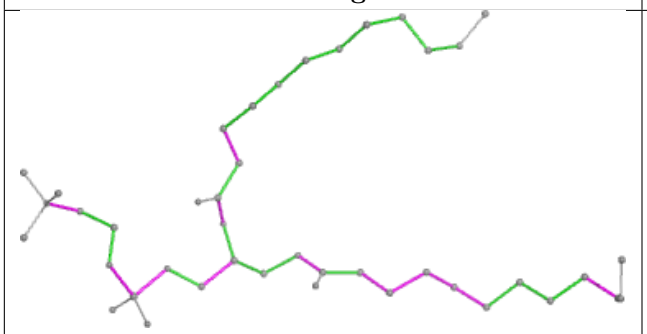
Ligand PLC q 201



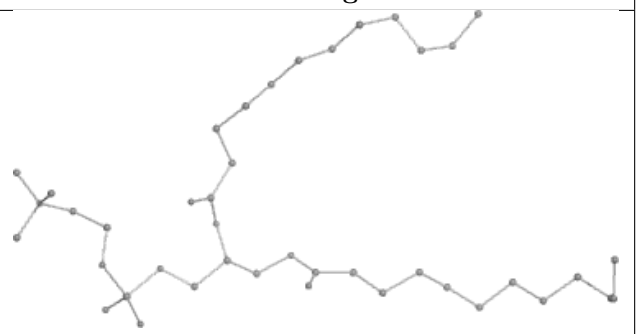
Bond lengths



Bond angles

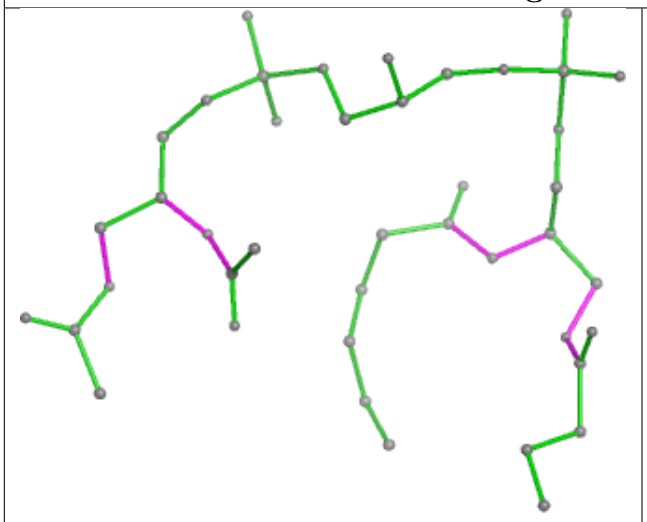


Torsions

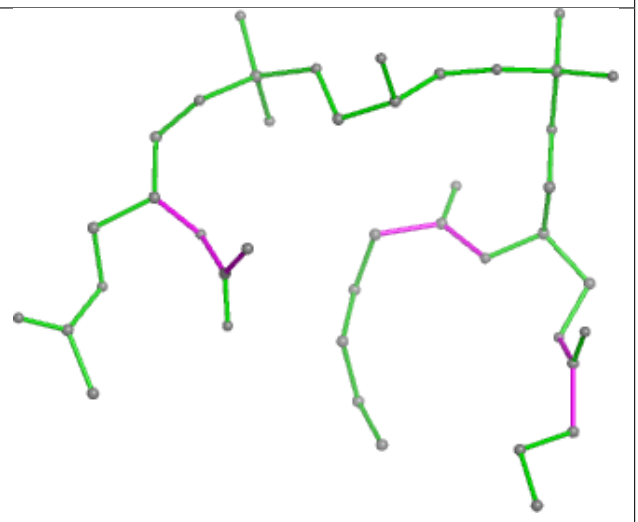


Rings

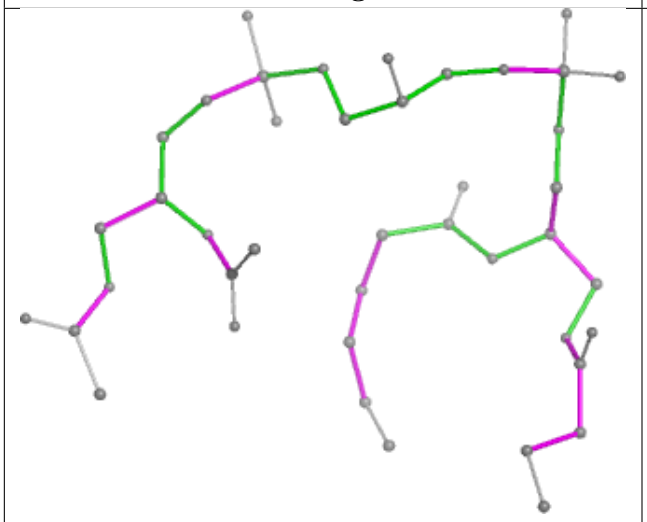
Ligand CDL P 503



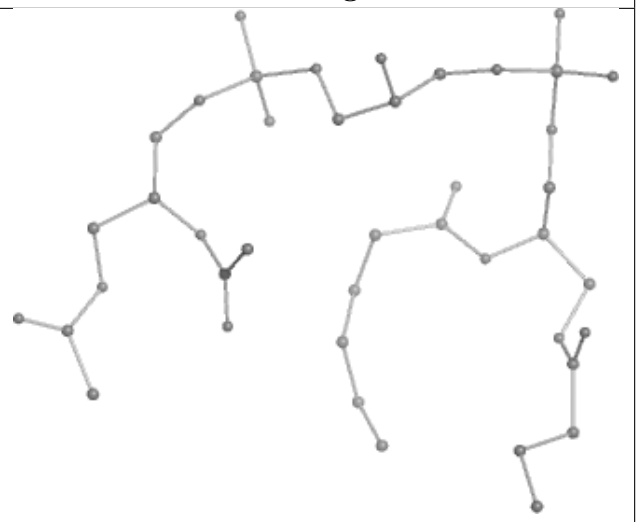
Bond lengths



Bond angles

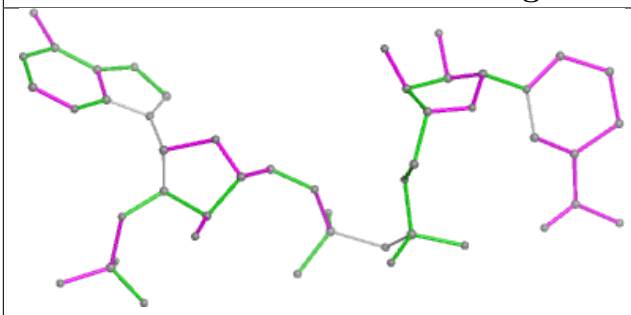


Torsions

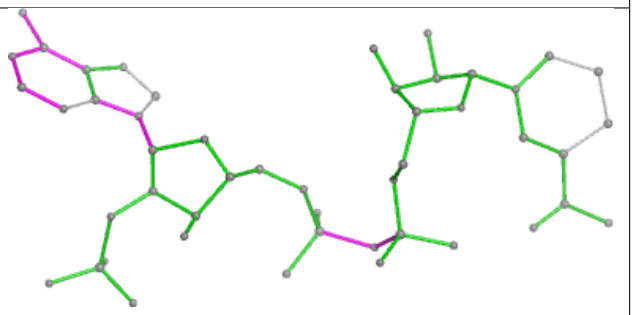


Rings

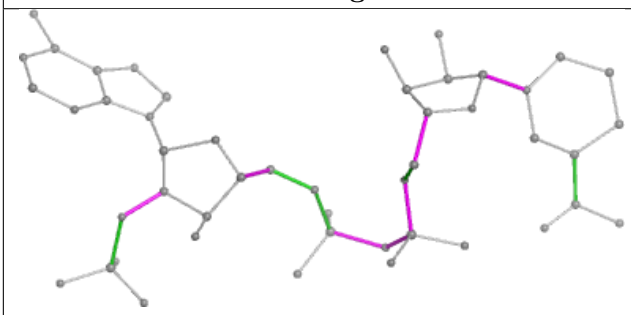
Ligand NDP P 501



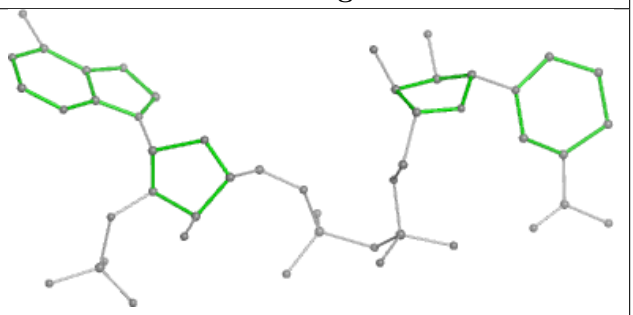
Bond lengths



Bond angles

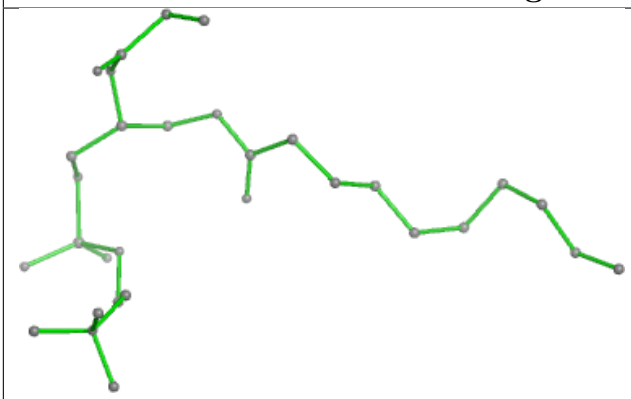


Torsions

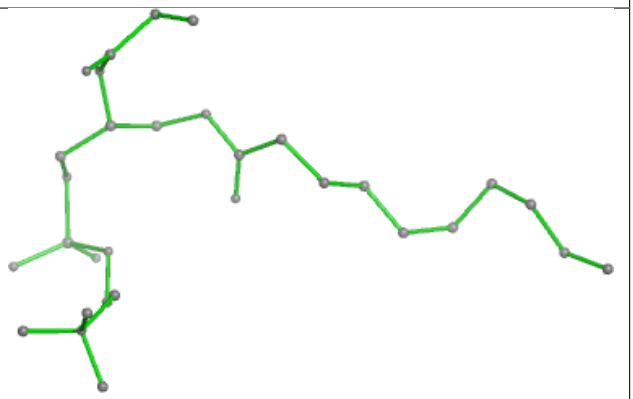


Rings

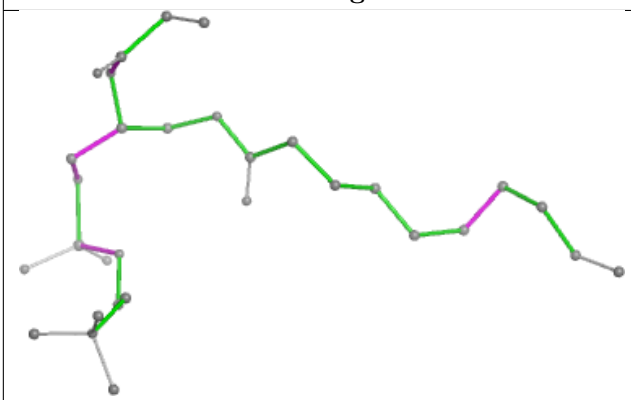
Ligand PLC A 201



Bond lengths



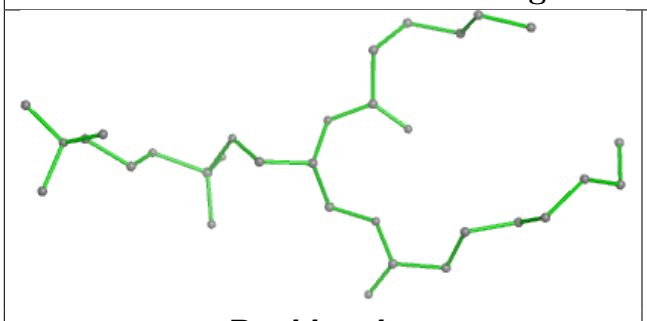
Bond angles



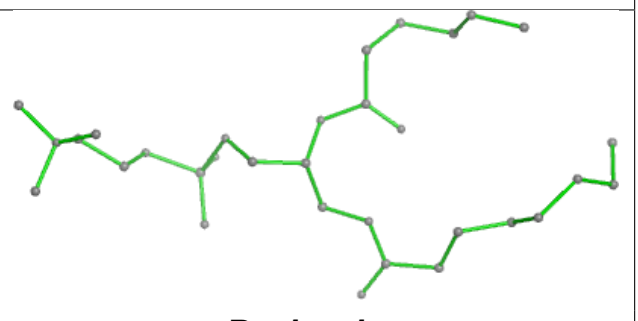
Torsions

Rings

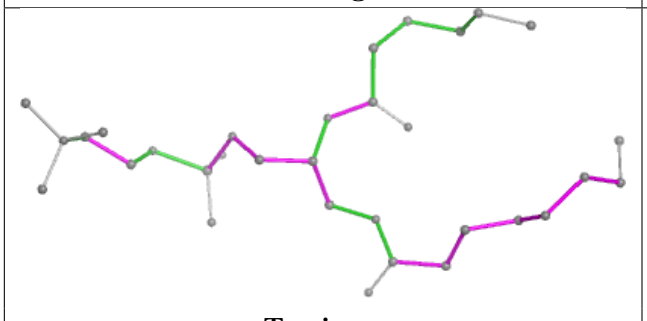
Ligand PLC L 704



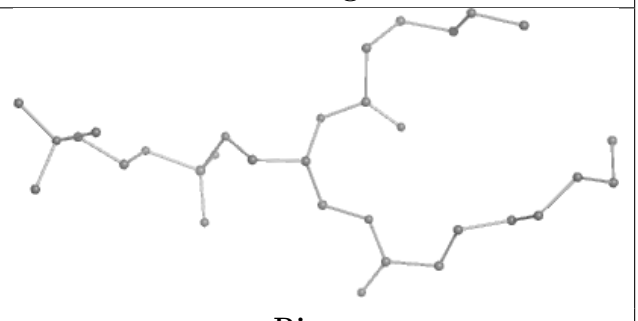
Bond lengths



Bond angles

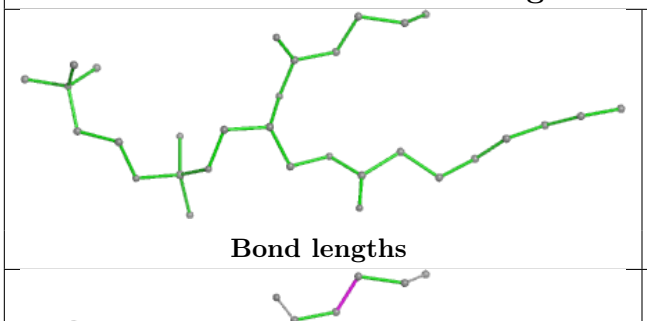


Torsions

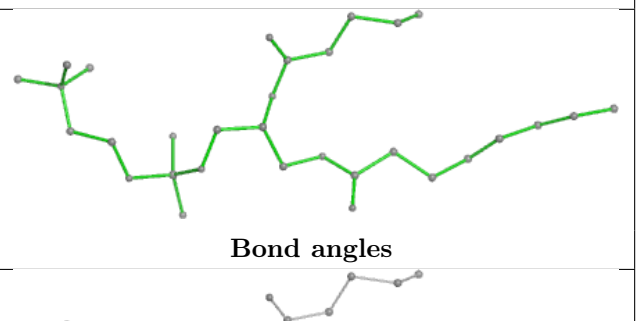


Rings

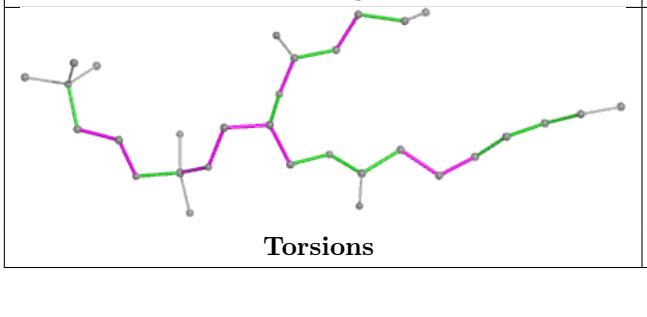
Ligand PLC B 302



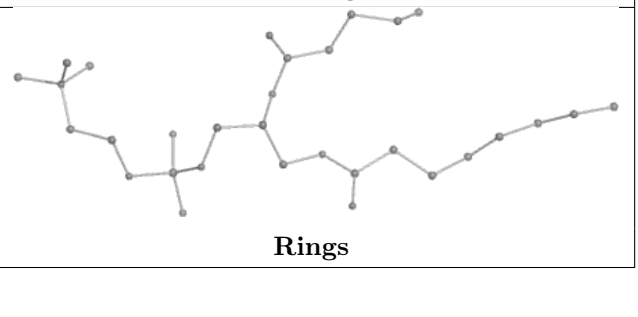
Bond lengths



Bond angles

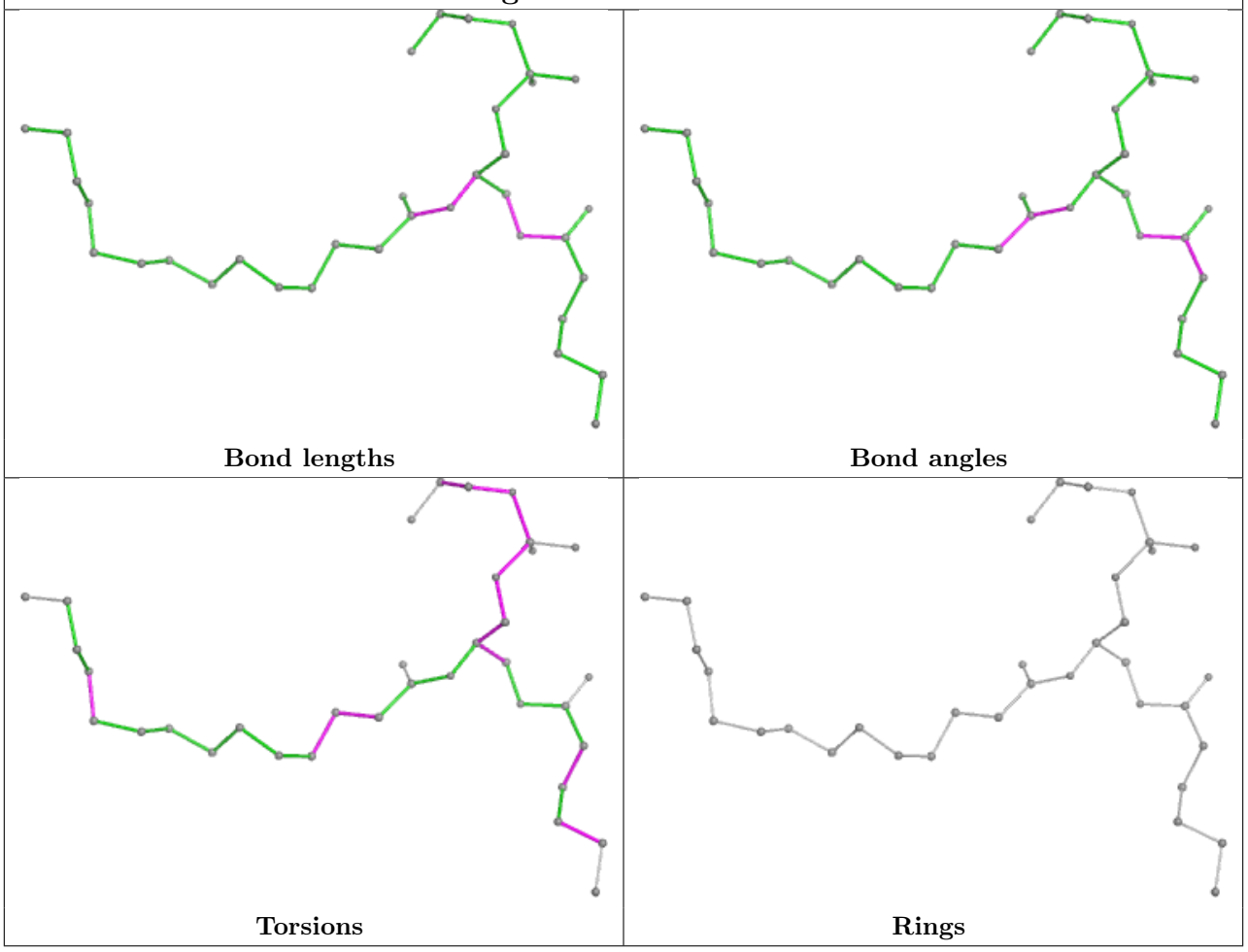


Torsions

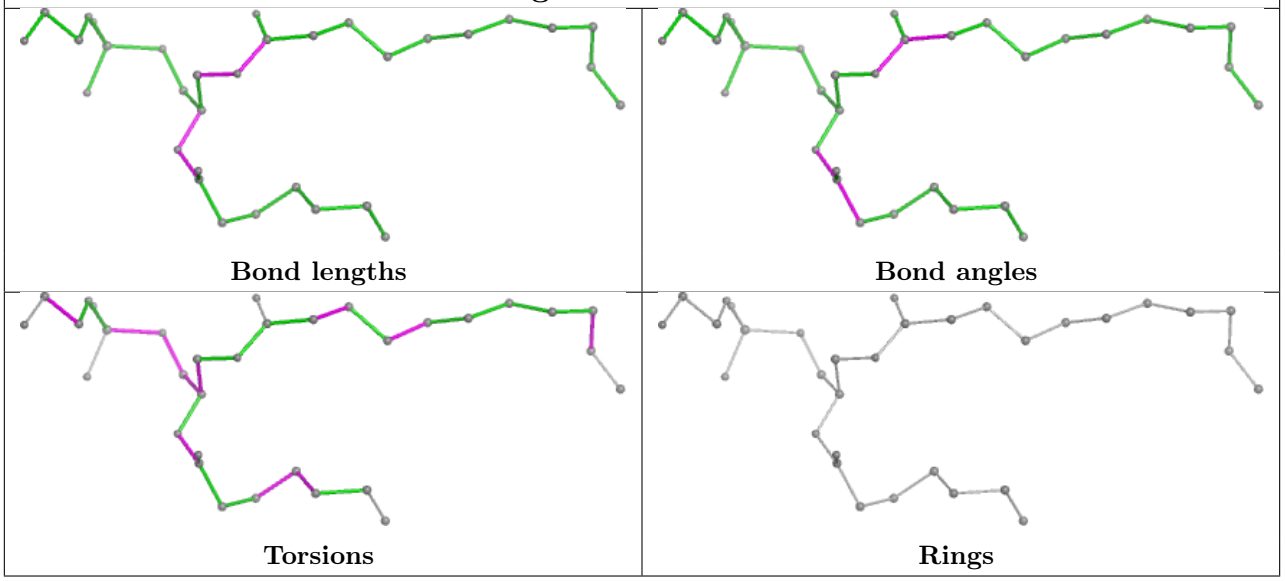


Rings

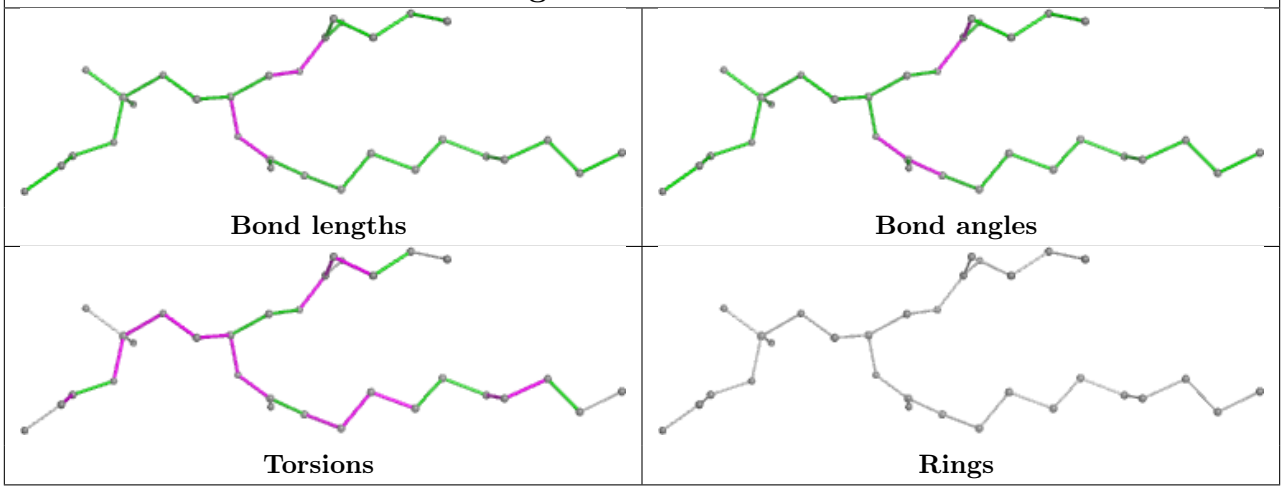
Ligand 3PE M 1003



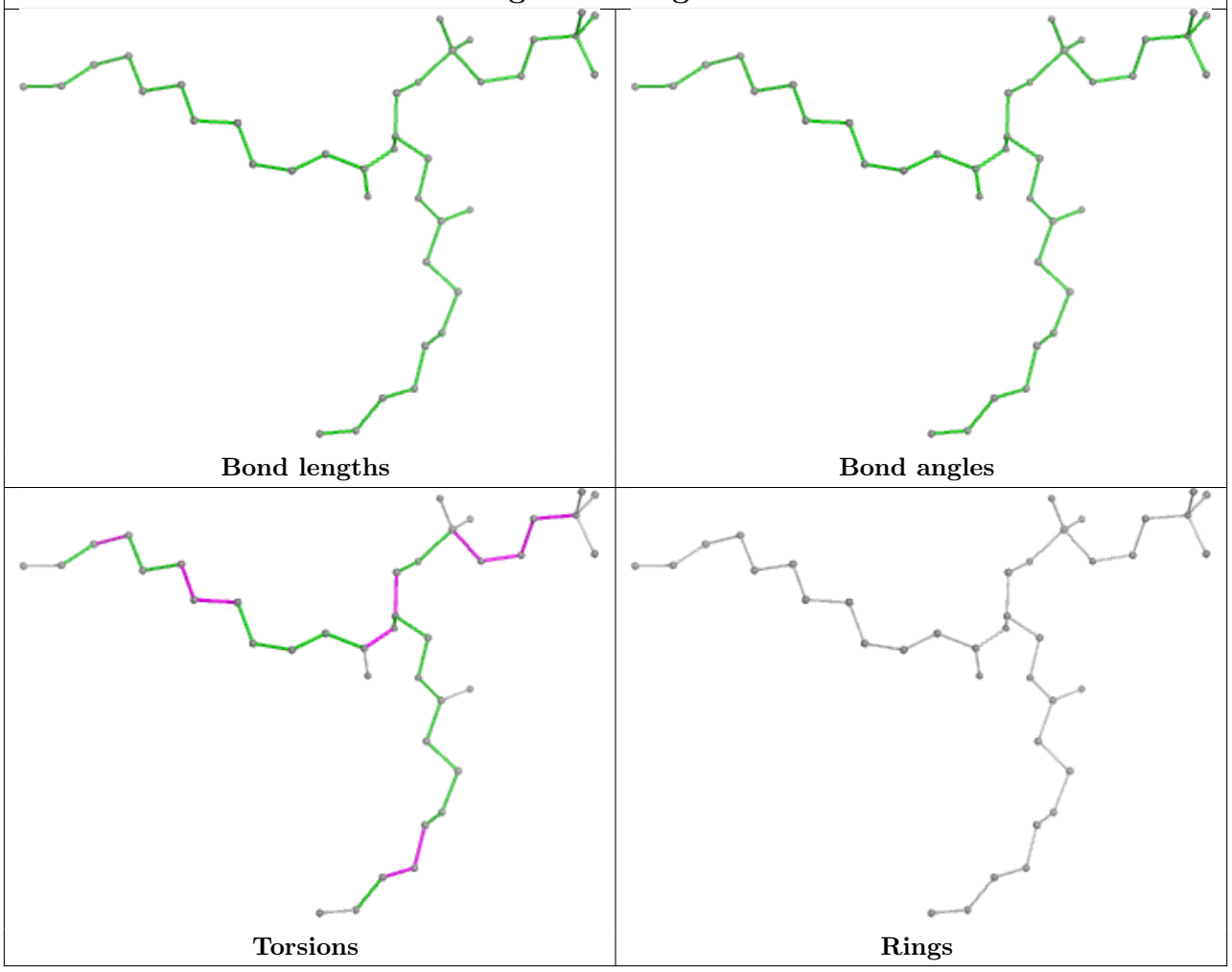
Ligand 3PE L 706



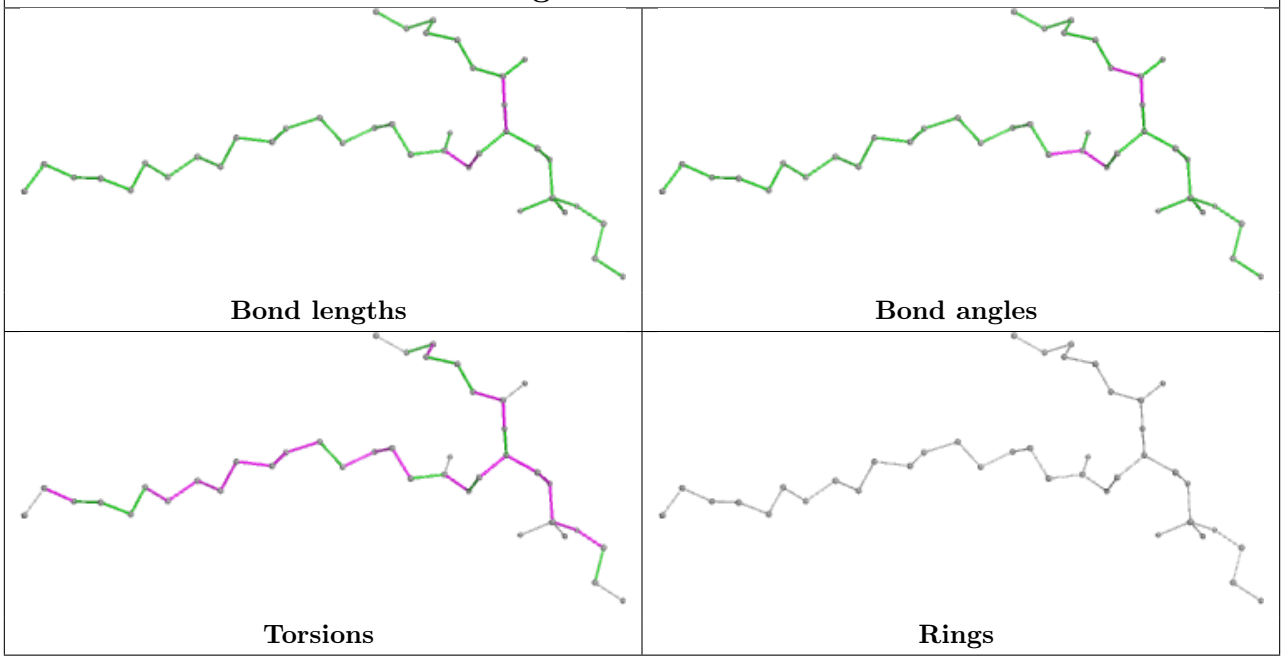
Ligand 3PE O 202



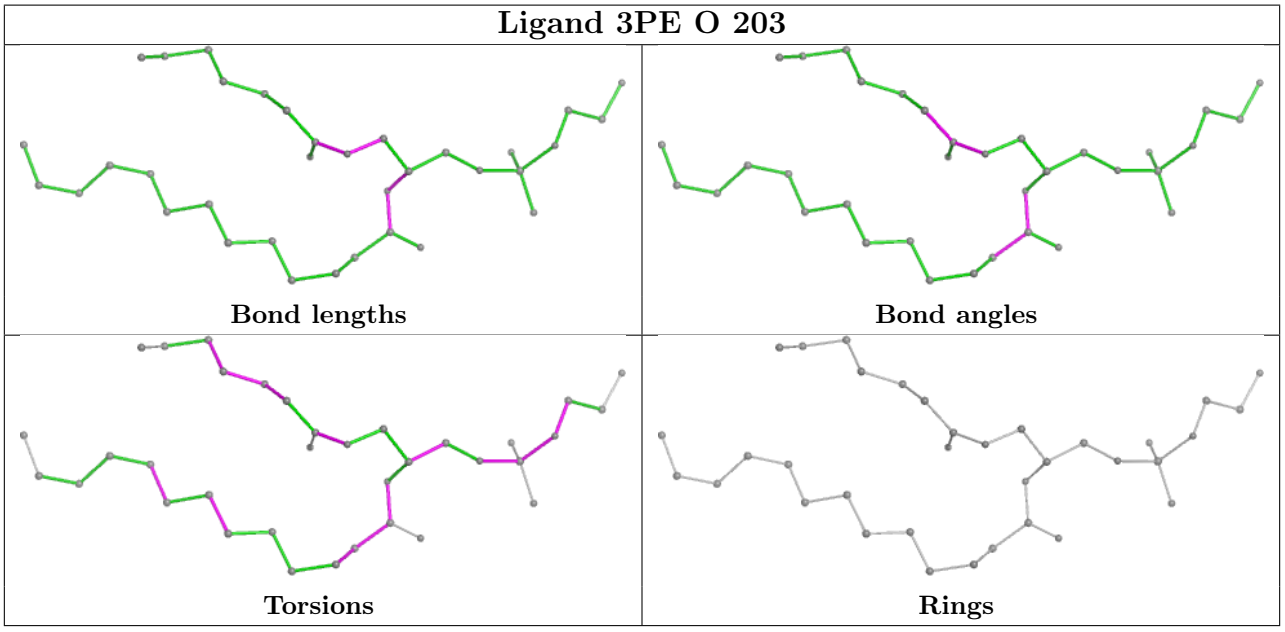
Ligand PLC g 301



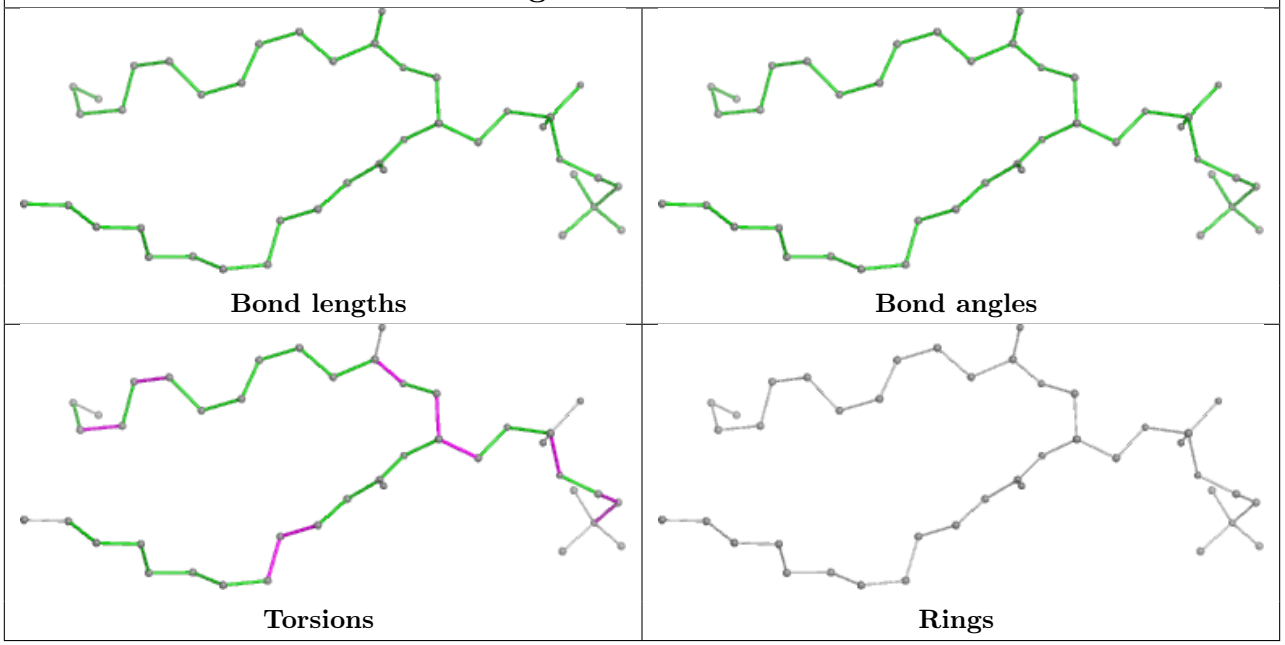
Ligand 3PE b 103



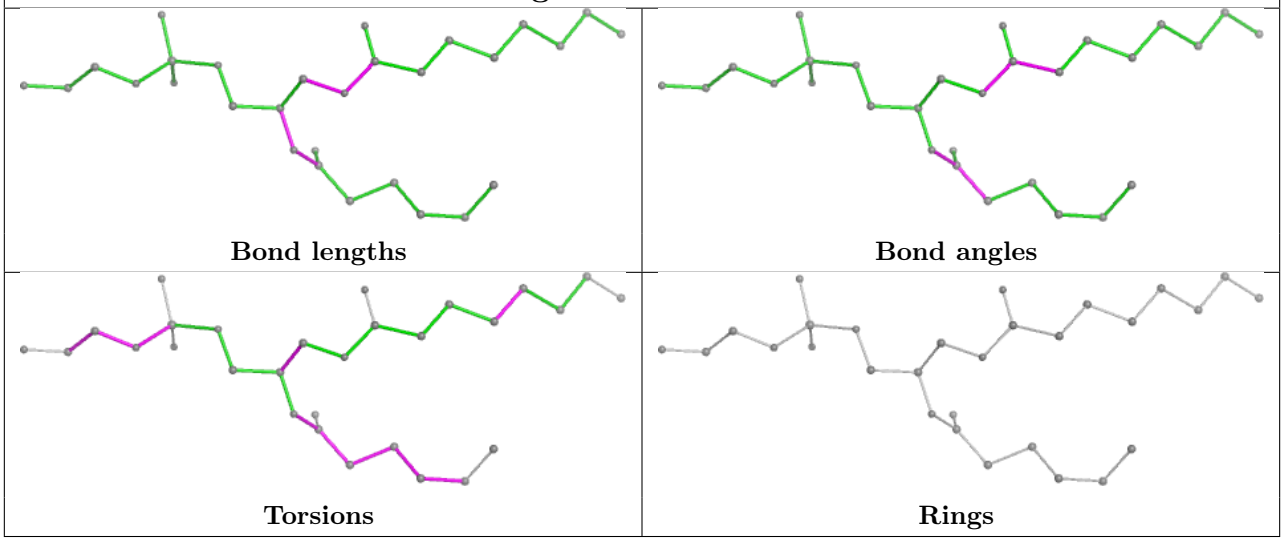
Ligand 3PE O 203



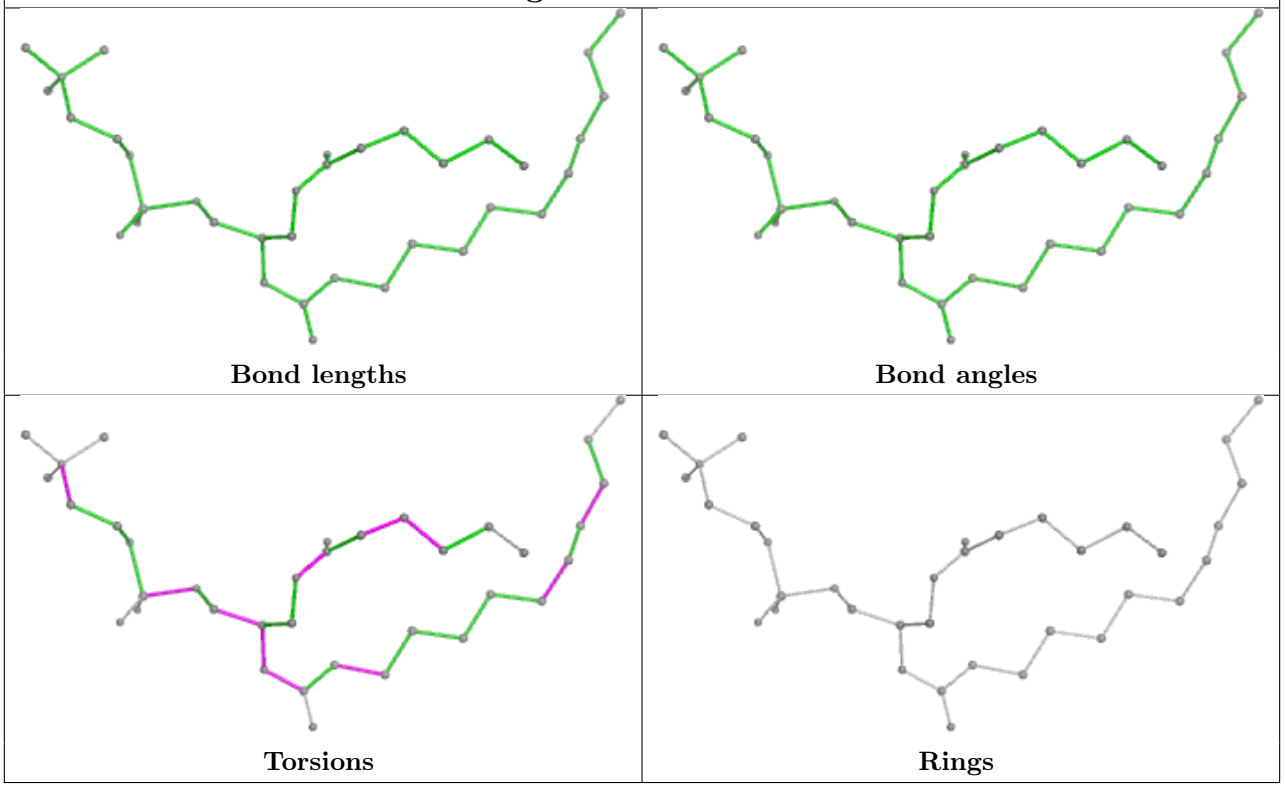
Ligand PLC Z 201



Ligand 3PE L 701



Ligand PLC Y 303



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

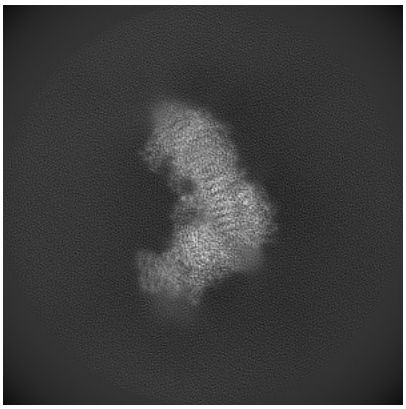
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-52877. These allow visual inspection of the internal detail of the map and identification of artifacts.

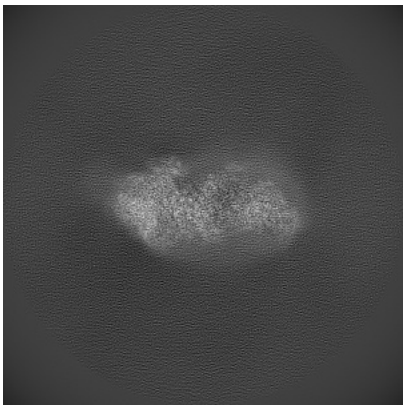
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

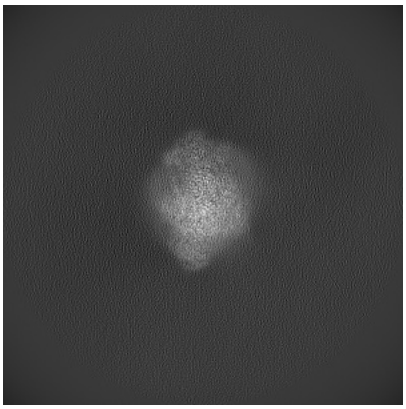
6.1.1 Primary map



X

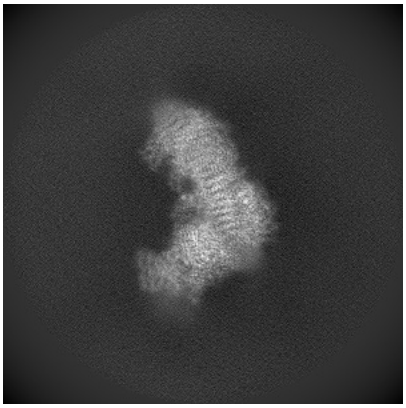


Y

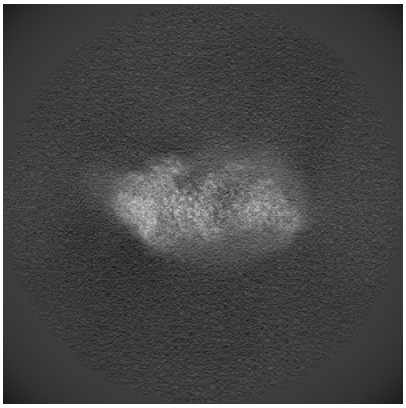


Z

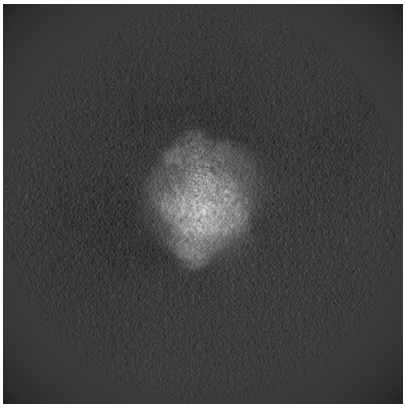
6.1.2 Raw map



X



Y

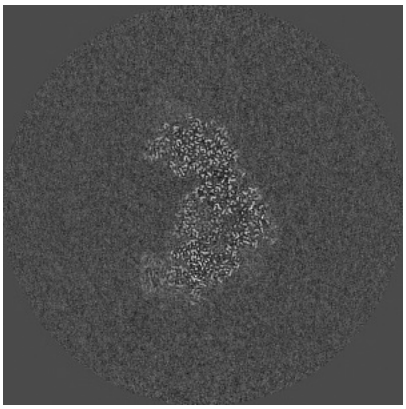


Z

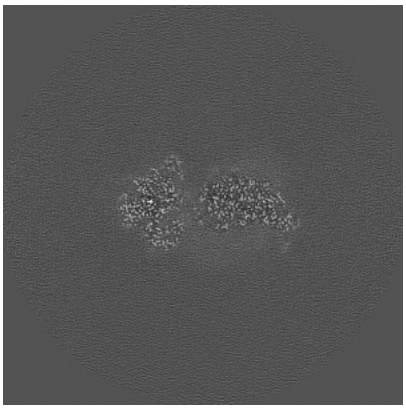
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

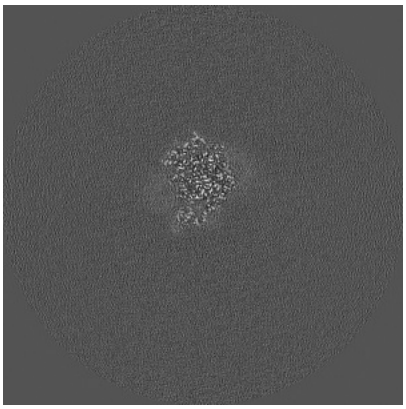
6.2.1 Primary map



X Index: 270

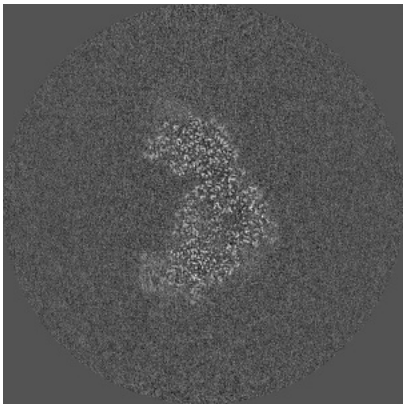


Y Index: 270

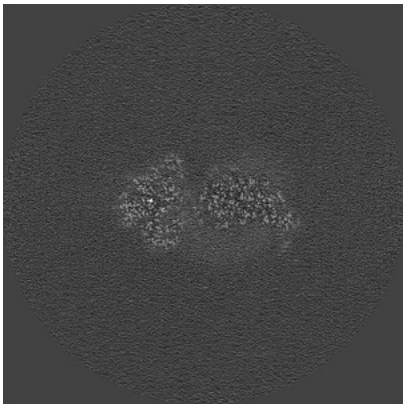


Z Index: 270

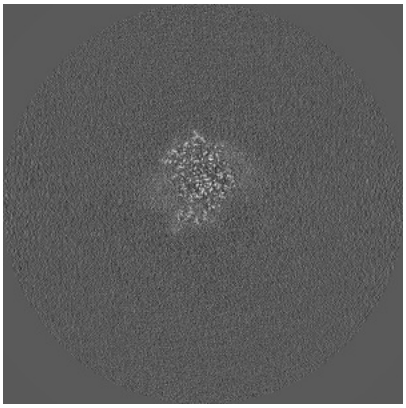
6.2.2 Raw map



X Index: 270



Y Index: 270

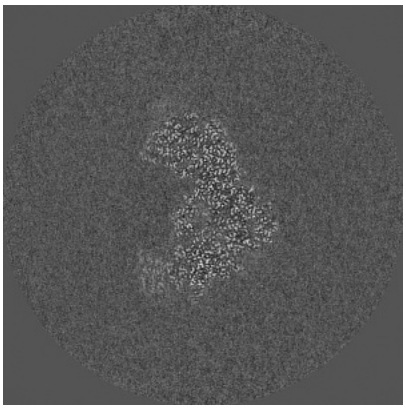


Z Index: 270

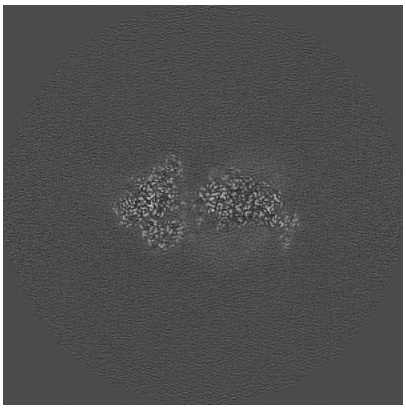
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

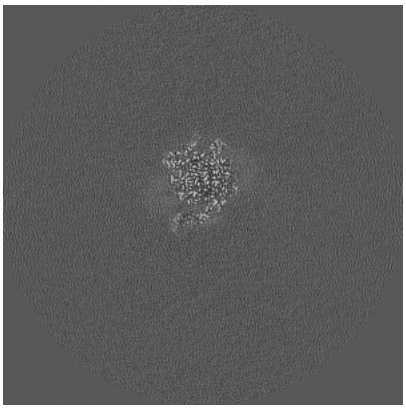
6.3.1 Primary map



X Index: 265

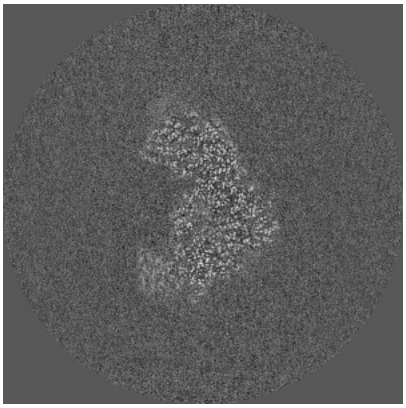


Y Index: 268

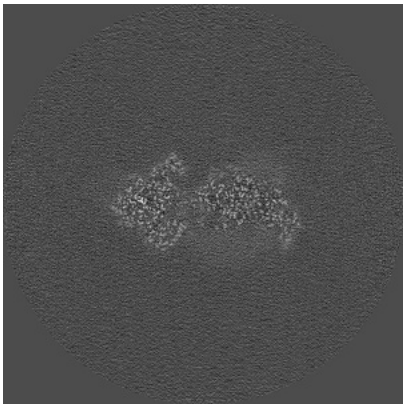


Z Index: 273

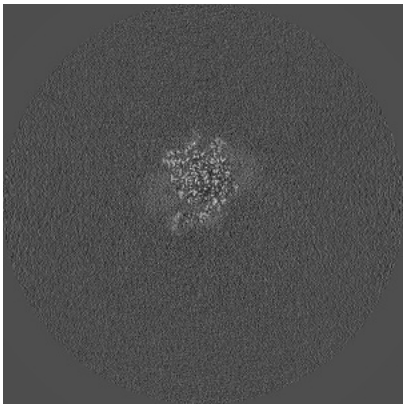
6.3.2 Raw map



X Index: 265



Y Index: 266

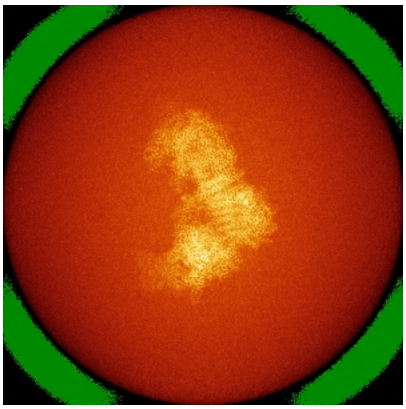


Z Index: 273

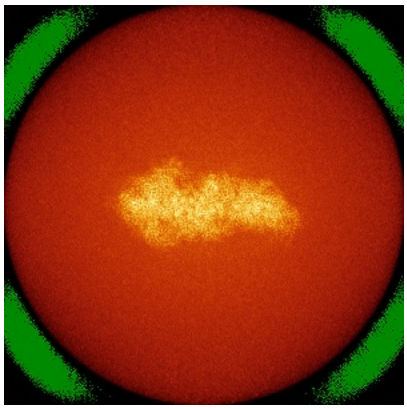
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

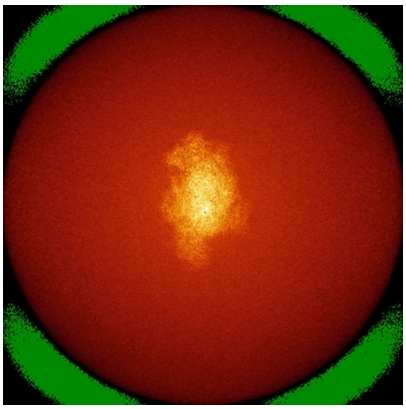
6.4.1 Primary map



X

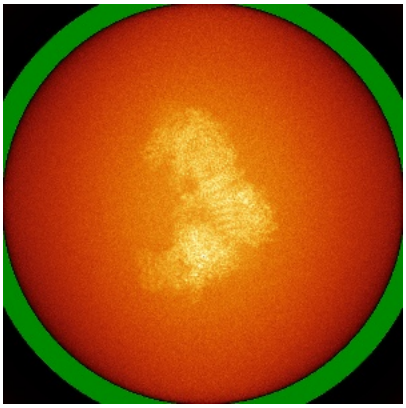


Y

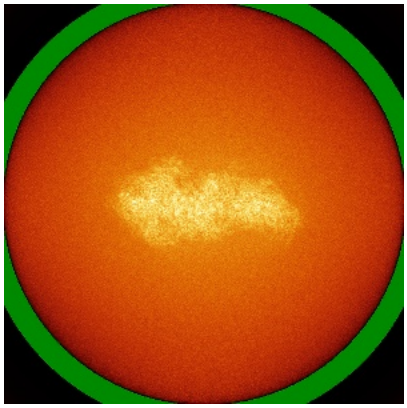


Z

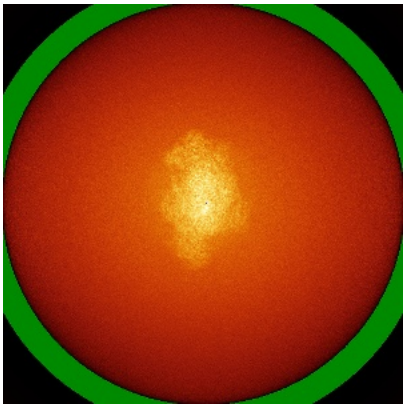
6.4.2 Raw map



X



Y

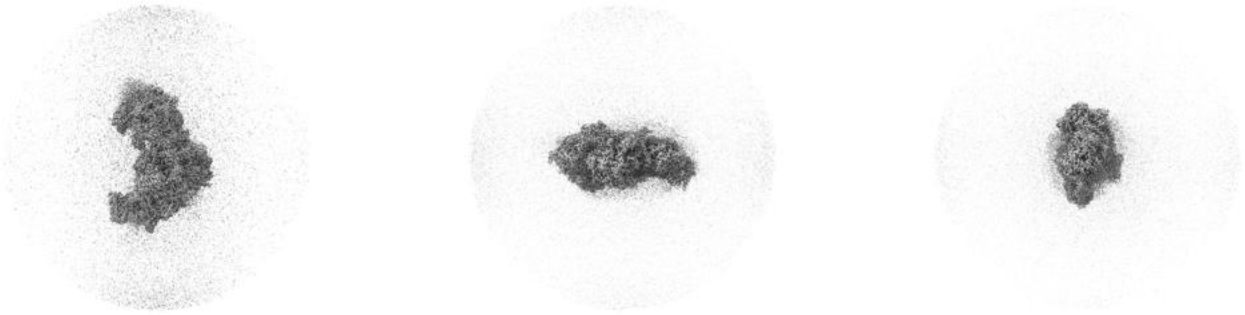


Z

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

6.5 Orthogonal surface views (i)

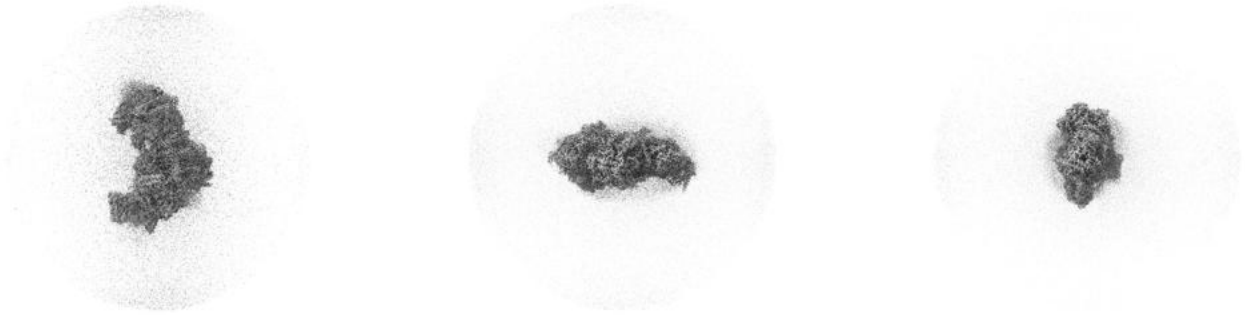
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0127. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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.

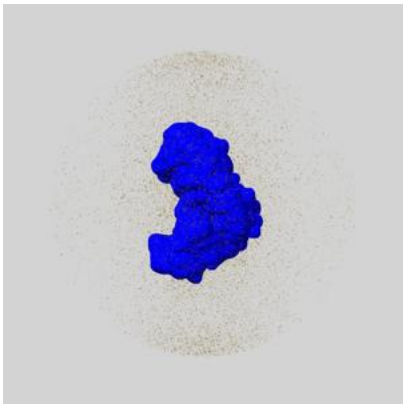
6.6 Mask visualisation (i)

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

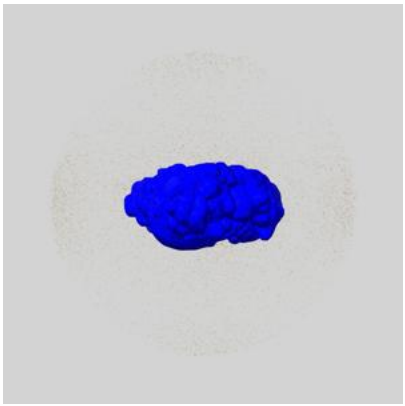
A mask typically either:

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

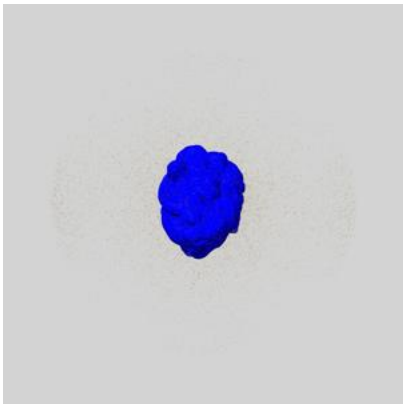
6.6.1 emd_52877_msk_1.map (i)



X



Y

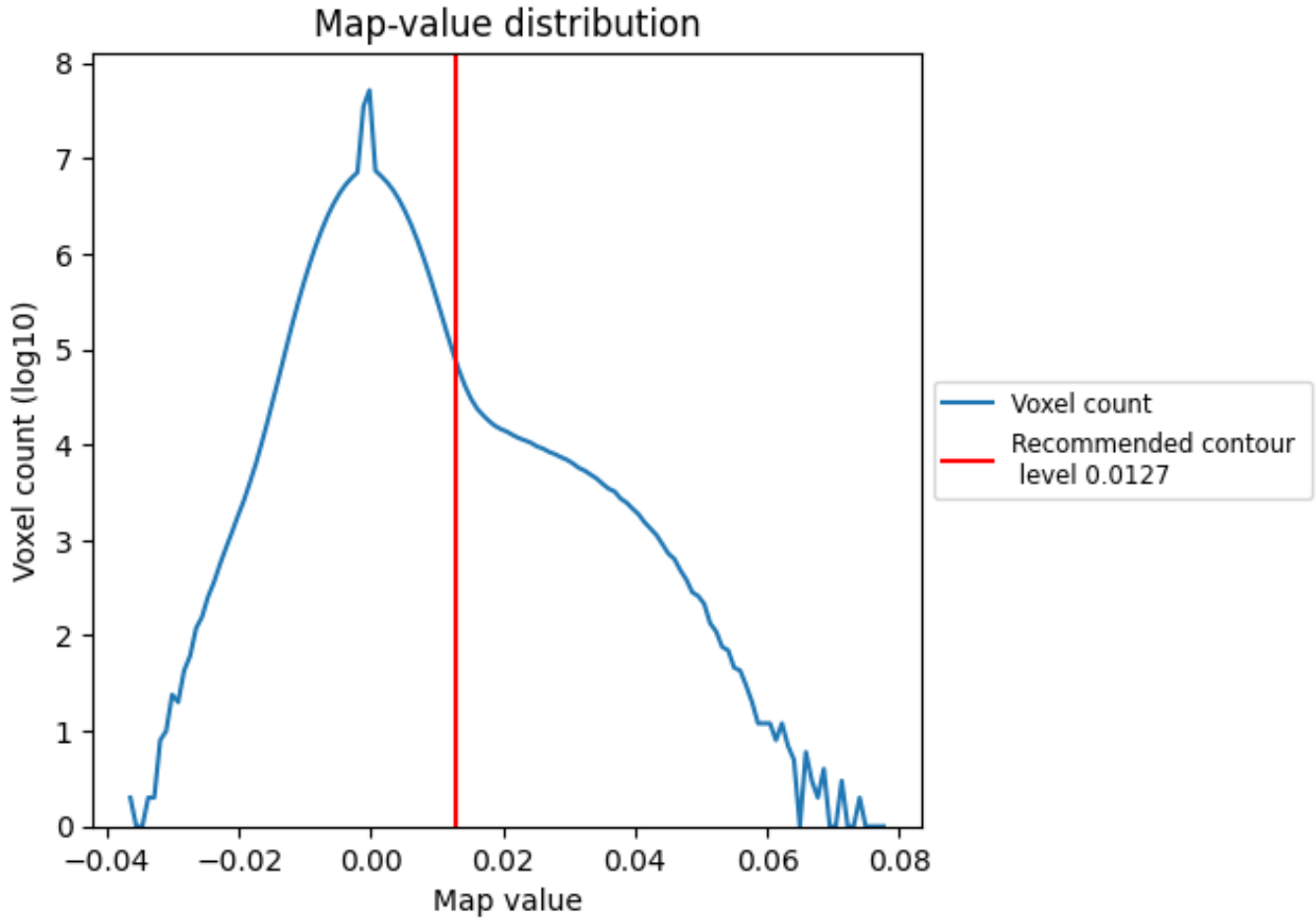


Z

7 Map analysis

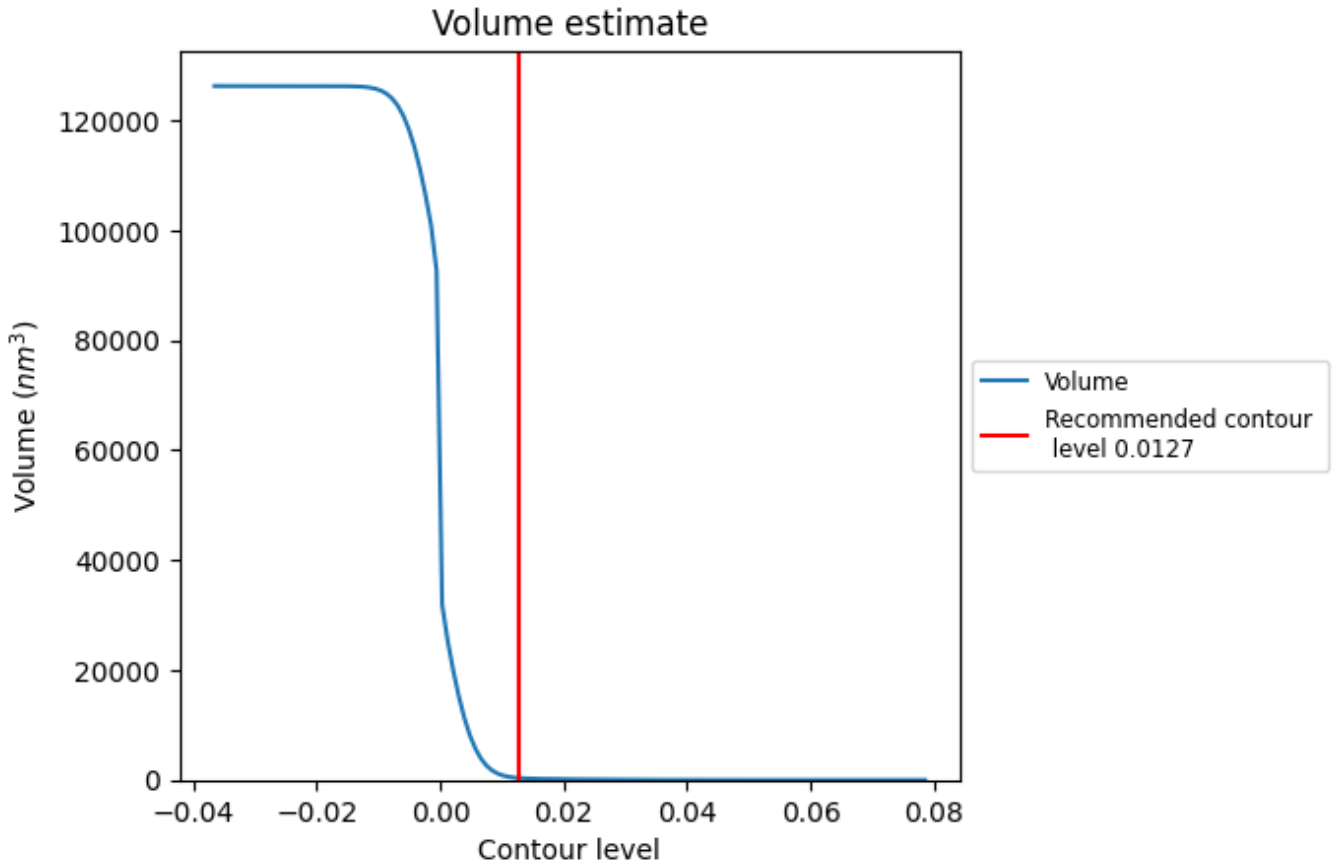
This section contains the results of statistical analysis of the map.

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.

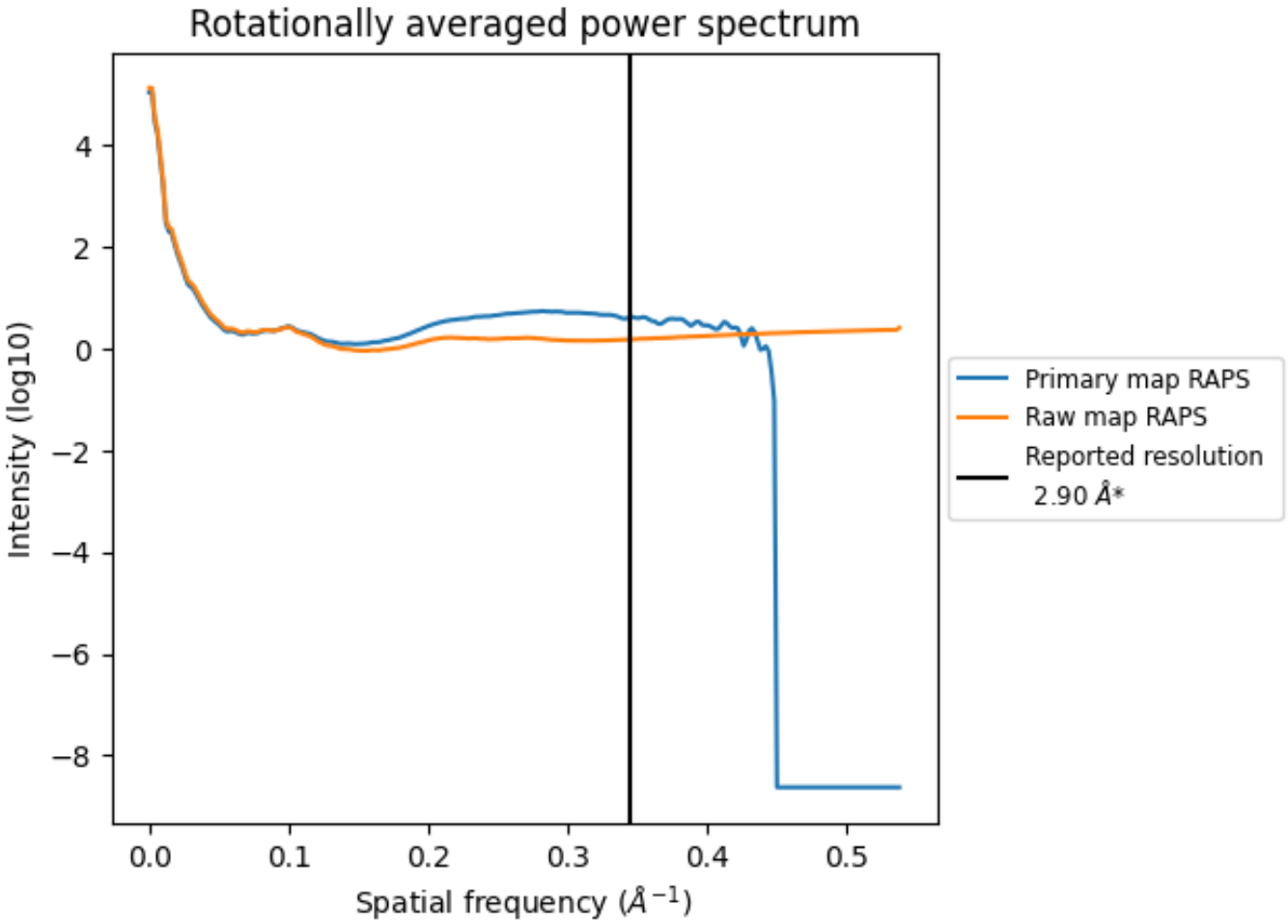
7.2 Volume estimate



The volume at the recommended contour level is 362 nm^3; this corresponds to an approximate mass of 327 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)

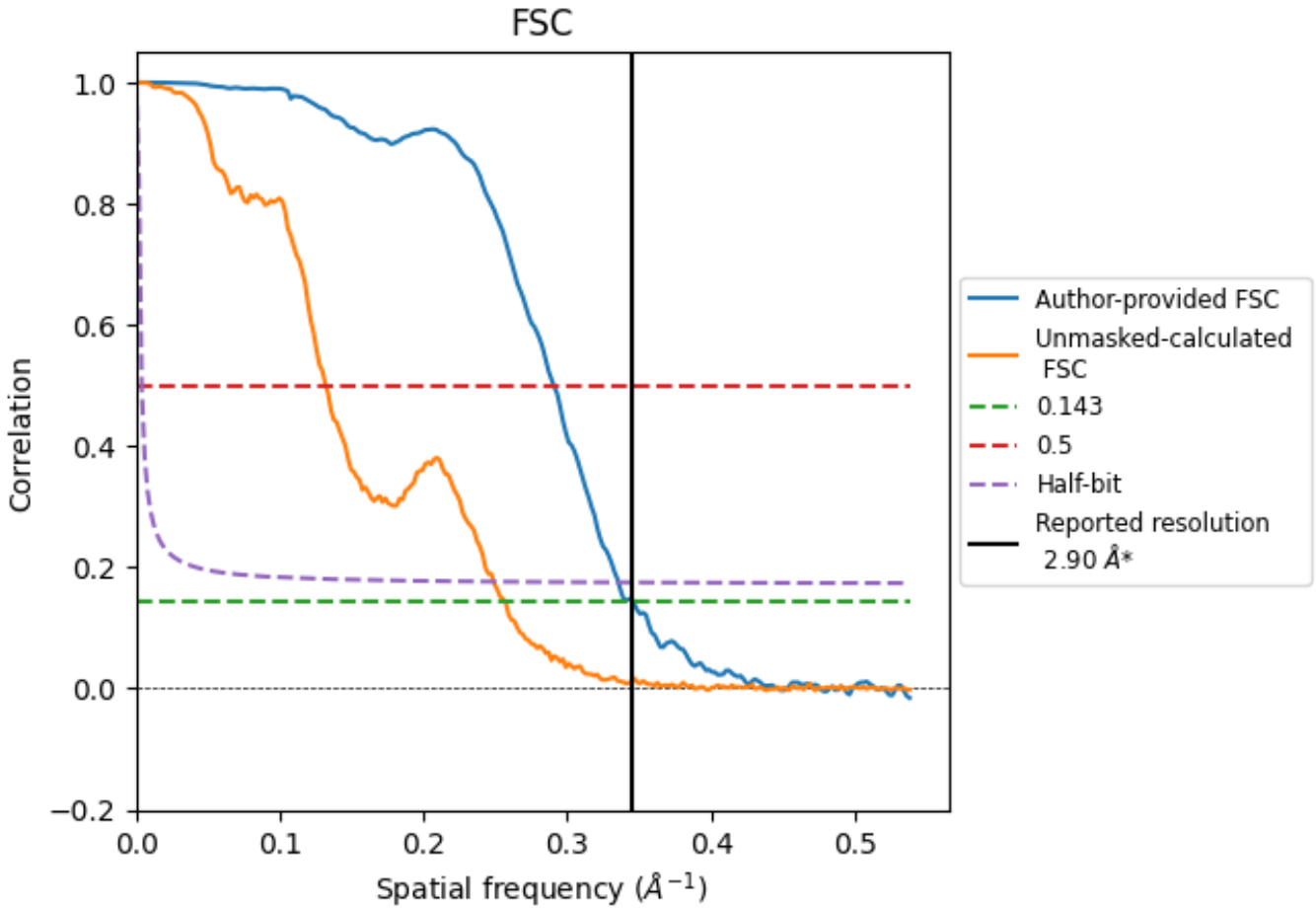


*Reported resolution corresponds to spatial frequency of 0.345 Å^{-1}

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 0.345 Å^{-1}

8.2 Resolution estimates (i)

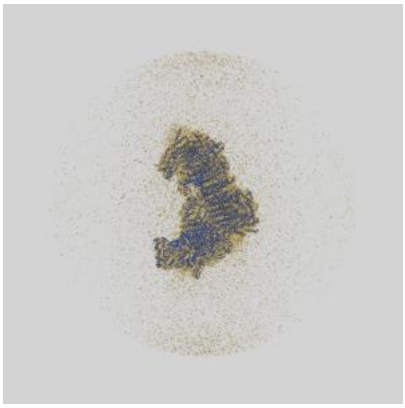
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.90	-	-
Author-provided FSC curve	2.89	3.44	2.98
Unmasked-calculated*	3.89	7.58	4.02

*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 3.89 differs from the reported value 2.9 by more than 10 %

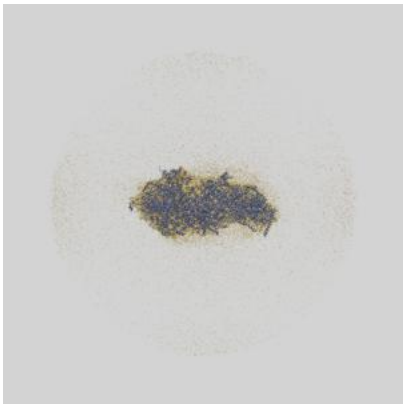
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-52877 and PDB model 9IHQ. Per-residue inclusion information can be found in section 3 on page 20.

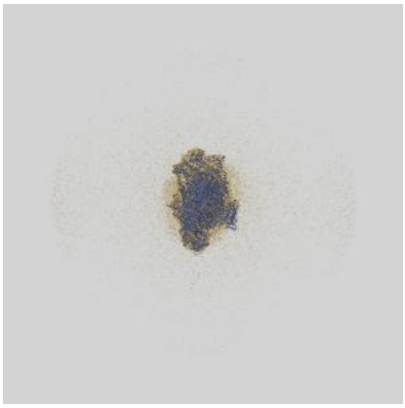
9.1 Map-model overlay



X



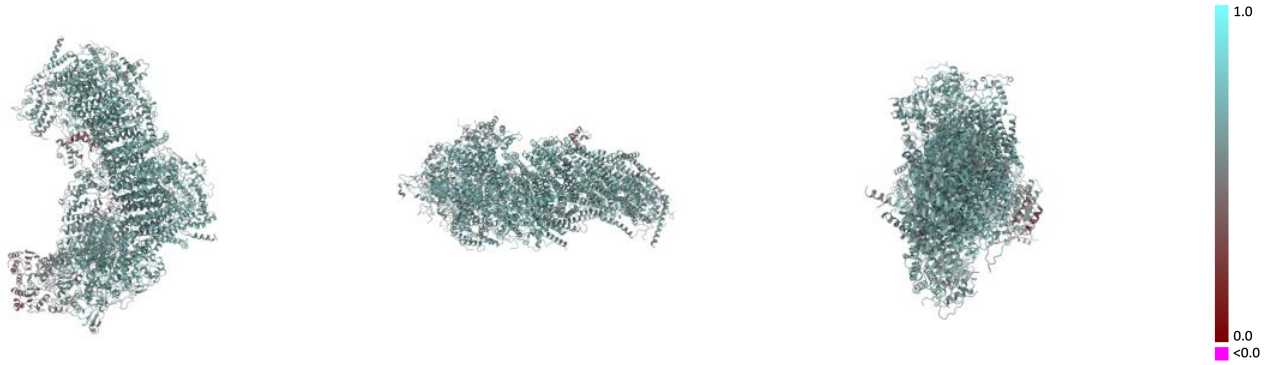
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0127 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

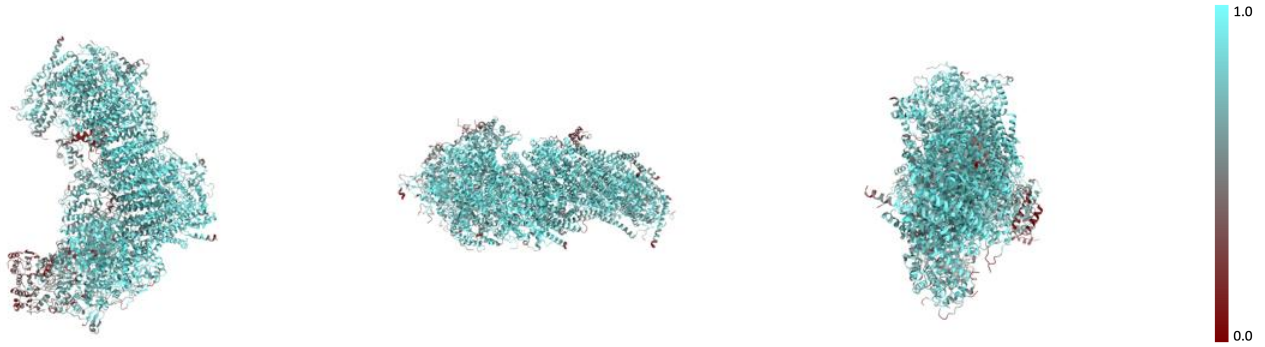
9.2 Q-score mapped to coordinate model (i)



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.

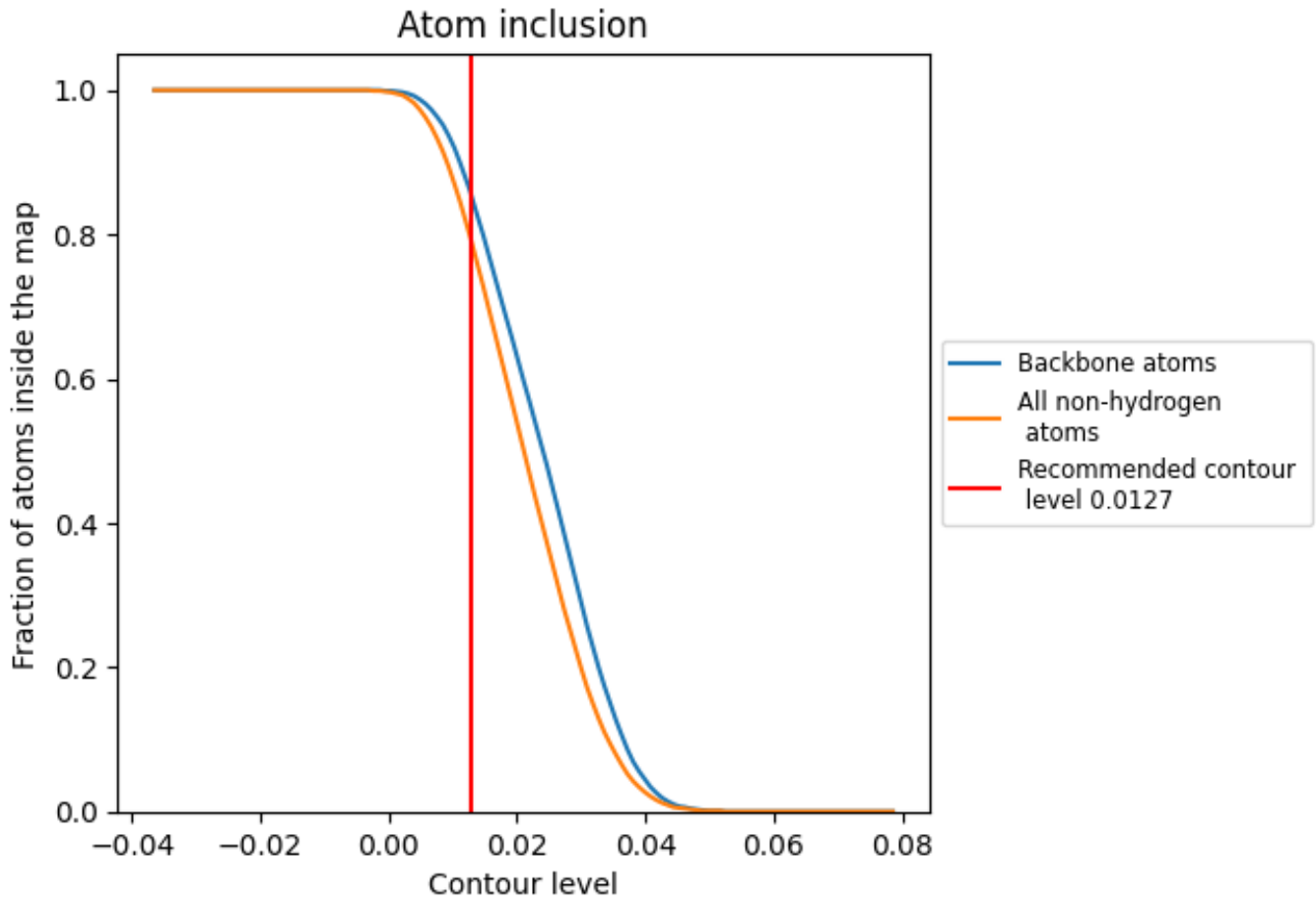
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.0127).

9.4 Atom inclusion (i)



At the recommended contour level, 86% of all backbone atoms, 80% 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 (0.0127) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7970	0.6120
1	0.6520	0.5430
A	0.8100	0.6270
B	0.9030	0.6560
C	0.7930	0.6130
D	0.8920	0.6470
G	0.5550	0.5120
H	0.8610	0.6410
I	0.8850	0.6480
J	0.8140	0.6110
K	0.8420	0.6450
L	0.8630	0.6400
M	0.9140	0.6600
N	0.9080	0.6560
O	0.8180	0.6270
P	0.8140	0.6120
Q	0.7960	0.6070
R	0.6990	0.5680
S	0.2940	0.4080
T	0.7420	0.5970
U	0.6550	0.5540
V	0.7450	0.5850
W	0.8380	0.6240
X	0.8630	0.6360
Y	0.8080	0.6260
Z	0.8530	0.6320
a	0.8670	0.6420
b	0.8040	0.6300
c	0.6010	0.5480
d	0.8540	0.6430
e	0.8660	0.6450
f	0.7960	0.6140
g	0.5330	0.5200
h	0.7790	0.6030
i	0.7290	0.5810

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Chain	Atom inclusion	Q-score
j	0.6740	0.5720
k	0.7290	0.5730
l	0.8180	0.6140
m	0.7920	0.6150
n	0.7450	0.5780
o	0.7640	0.5900
p	0.8770	0.6420
q	0.8210	0.6170