Full wwPDB EM Validation Report ⓘ

Oct 6, 2025 – 10:54 am BST

PDB ID	:	9IHO / pdb_00009iho
EMDB ID	:	EMD-52875
Title	:	Open state without NUQM and without flavoprotein (classification state 4) of Pichia pastoris mitochondrial complex I in cMSP26 nanodiscs
Authors	:	Grba, D.N.; Hirst, J.
Deposited on	:	2025-02-21
Resolution	:	3.80 Å(reported)
Based on initial model	:	9ihr

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

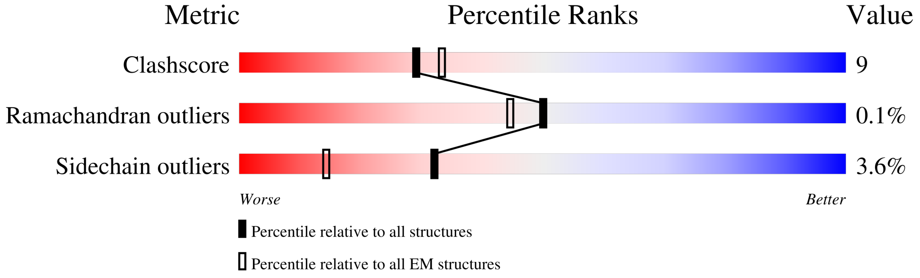
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up 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

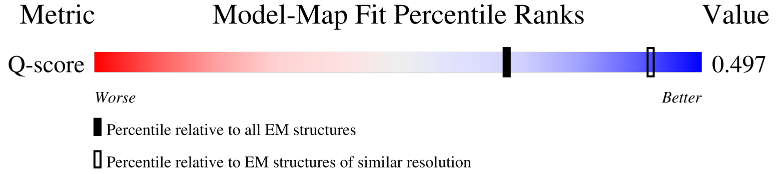
1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 3.80 Å.

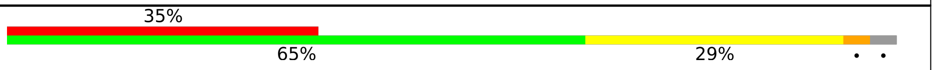
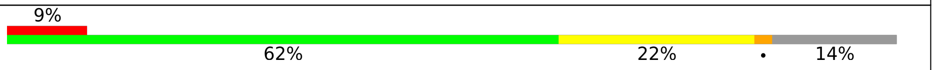
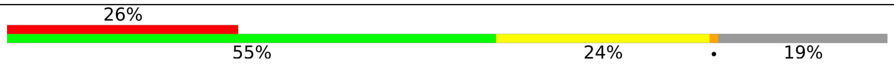
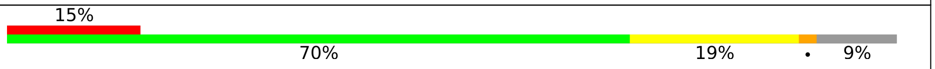
Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





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	10198 (3.30 - 4.30)

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

Mol	Chain	Length	Quality of chain
1	A	141	
2	B	204	
3	C	289	
4	D	482	

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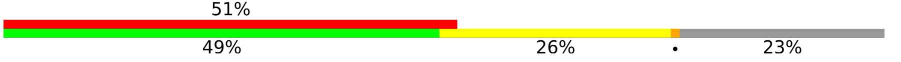
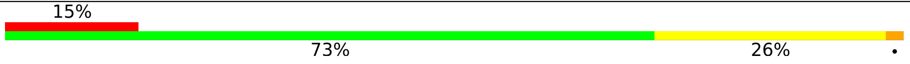
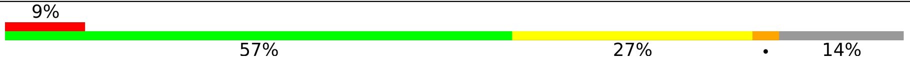
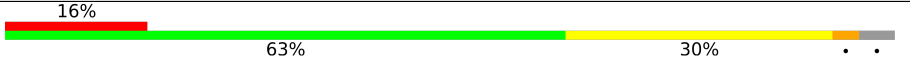
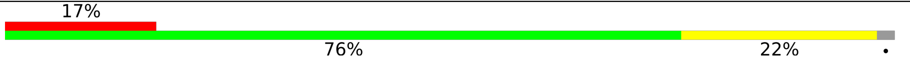
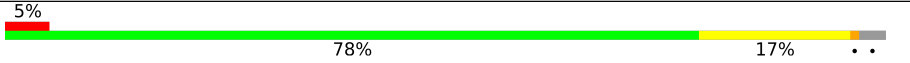
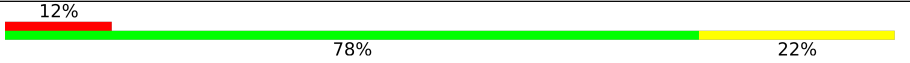
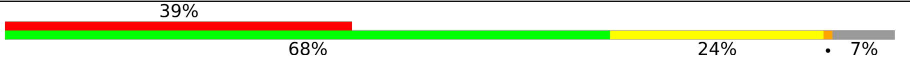
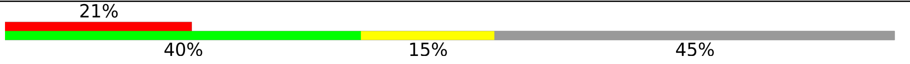
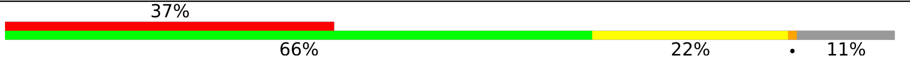
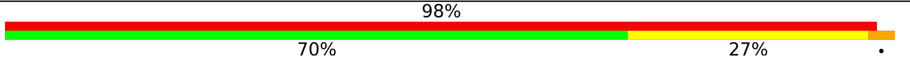
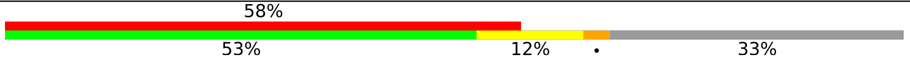
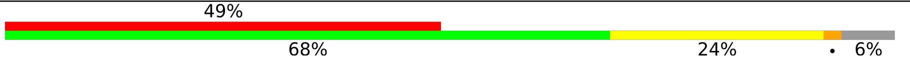
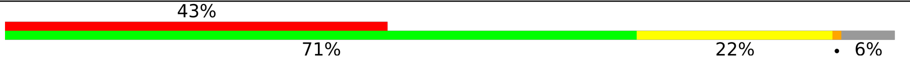
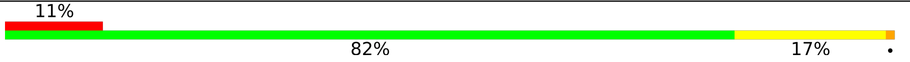
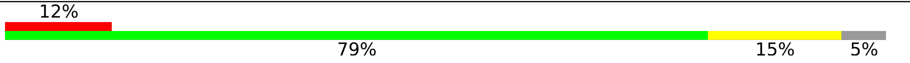
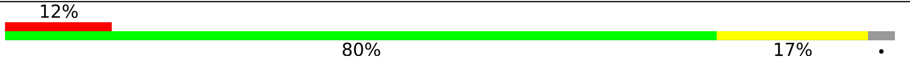
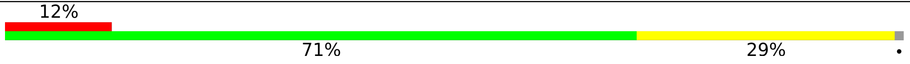
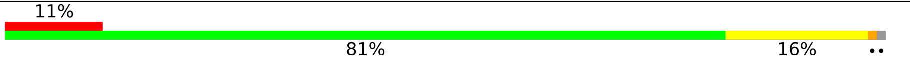
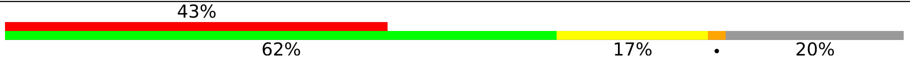
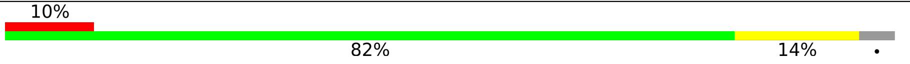
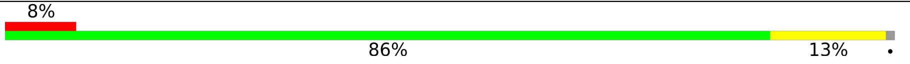
Mol	Chain	Length	Quality of chain
5	G	726	
6	H	353	
7	I	222	
8	J	161	
9	K	82	
10	L	642	
11	M	491	
12	N	523	
13	O	193	
14	P	384	
15	Q	159	
16	R	139	
17	S	90	
18	T	138	
19	U	130	
20	V	134	
21	W	122	
22	X	184	
23	Y	216	
24	Z	147	
25	a	150	
26	b	79	
27	c	182	
28	d	78	
29	e	106	

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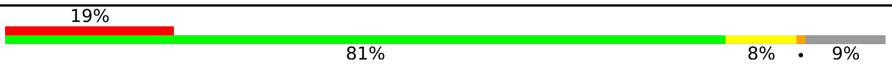
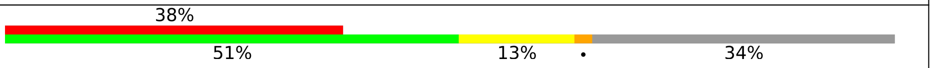
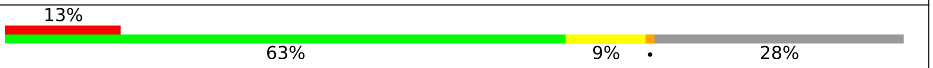
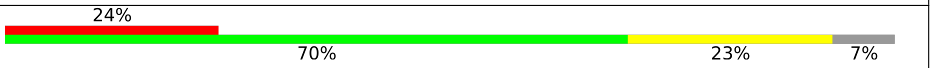
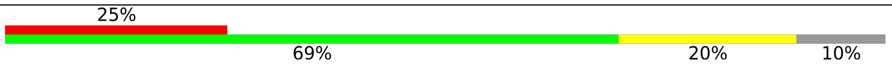
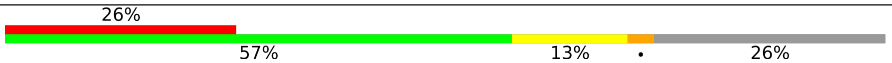
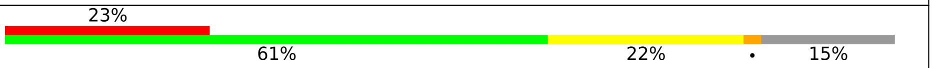
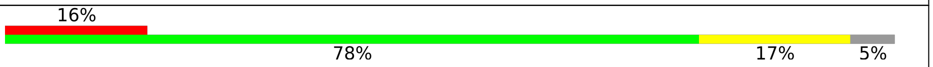
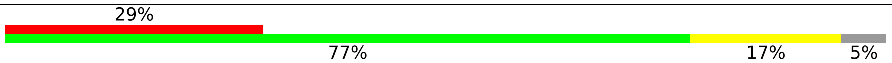
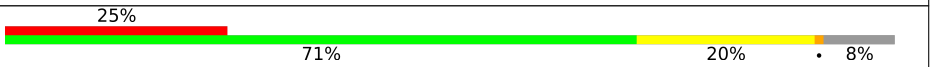
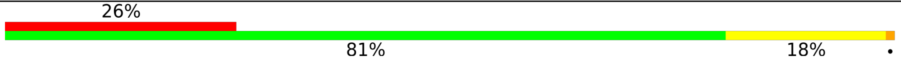
Mol	Chain	Length	Quality of chain
30	f	86	
31	g	239	
32	h	182	
33	i	74	
34	j	59	
35	k	61	
36	l	156	
37	m	81	
38	n	111	
39	o	87	
40	p	92	
41	q	140	

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
42	SF4	G	801	-	-	X	-
42	SF4	G	802	-	-	X	-
42	SF4	I	302	-	-	X	-

2 Entry composition (i)

There are 49 unique types of molecules in this entry. The entry contains 61836 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	137	1099	745	159	191	4	0	0

- Molecule 2 is a protein called BA75_00622T0.

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

- Molecule 3 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		
3	C	233	1922	1242	324	351	5	0	0

- Molecule 4 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		
4	D	440	3536	2259	602	657	18	0	0

- Molecule 5 is a protein called NUAM (75 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	G	556	4295	2693	751	836	15	0	0

- Molecule 6 is a protein called NADH-ubiquinone oxidoreductase chain 1.

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

- Molecule 7 is a protein called NUIM (TYKY) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

- Molecule 8 is a protein called NADH-ubiquinone oxidoreductase chain 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	J	155	1250	836	174	237	3	0	0

- Molecule 9 is a protein called NULM (ND4L) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

- Molecule 10 is a protein called NADH-ubiquinone oxidoreductase chain 5.

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

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

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

- Molecule 12 is a protein called NADH-ubiquinone oxidoreductase chain 2.

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

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

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

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 14 is a protein called NUEM (39 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	P	359	2851	1821	496	531	3	0	0

- Molecule 15 is a protein called NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	Q	88	727	462	122	141	2	0	0

- Molecule 16 is a protein called NUMM (13 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

- Molecule 17 is a protein called NI8M (B8) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 18 is a protein called Acyl carrier protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	T	93	730	459	116	154	1	0	0

- Molecule 19 is a protein called Acyl carrier protein.

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

- Molecule 20 is a protein called NUFM (B13) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

- Molecule 21 is a protein called BA75_04796T0.

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

- Molecule 22 is a protein called NADH-ubiquinone oxidoreductase.

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

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 23 is a protein called NUJM (B14.7) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

- Molecule 24 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13.

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

There is a discrepancy between the modelled and reference sequences:

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

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

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

- Molecule 26 is a protein called NI9M (B9) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

- Molecule 27 is a protein called BA75_00589T0.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	c	146	1143	727	203	211	2	0	0

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 28 is a protein called Pichia pastoris NADH-ubiquinone oxidoreductase subunit NEBM.

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

- Molecule 29 is a protein called BA75_05084T0.

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

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

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

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

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

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

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

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

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

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

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

- Molecule 35 is a protein called NB2M (B12) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

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

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

- Molecule 37 is a protein called NB5M (B15) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

- Molecule 38 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9.

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

- Molecule 39 is a protein called NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7.

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

- Molecule 40 is a protein called NIDM (PDSW) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I).

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

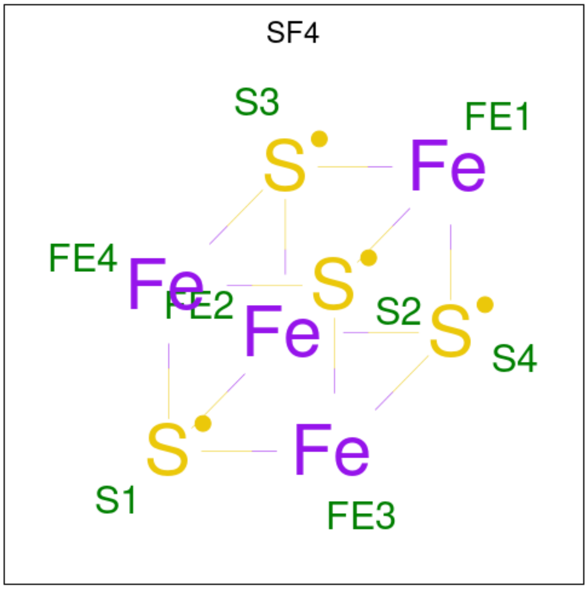
- Molecule 41 is a protein called NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit.

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

There is a discrepancy between the modelled and reference sequences:

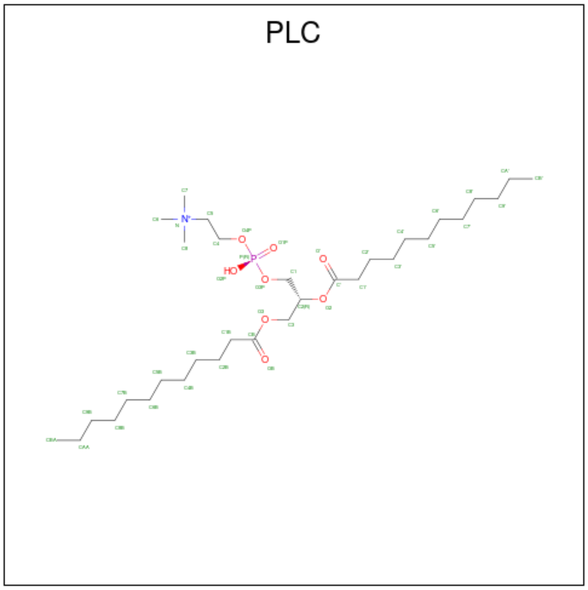
Chain	Residue	Modelled	Actual	Comment	Reference
q	0	ACE	-	acetylation	UNP E1UWE0

- Molecule 42 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4).



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

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



Mol	Chain	Residues	Atoms	AltConf
43	B	1	Total C N O P 31 21 1 8 1	0
43	D	1	Total C N O P 42 32 1 8 1	0
43	H	1	Total C N O P 24 14 1 8 1	0
43	L	1	Total C N O P 42 32 1 8 1	0
43	L	1	Total C N O P 35 25 1 8 1	0
43	L	1	Total C N O P 32 22 1 8 1	0
43	L	1	Total C N O P 42 32 1 8 1	0
43	M	1	Total C N O P 42 32 1 8 1	0
43	M	1	Total C N O P 42 32 1 8 1	0
43	P	1	Total C N O P 31 21 1 8 1	0
43	P	1	Total C N O P 31 21 1 8 1	0
43	Y	1	Total C N O P 36 26 1 8 1	0
43	Y	1	Total C N O P 36 26 1 8 1	0
43	Z	1	Total C N O P 42 32 1 8 1	0

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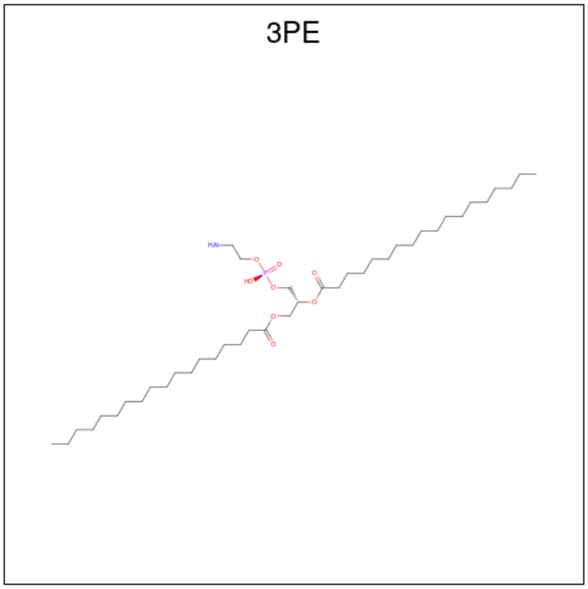
Mol	Chain	Residues	Atoms	AltConf
43	a	1	Total C N O P 22 12 1 8 1	0
43	b	1	Total C N O P 39 29 1 8 1	0
43	d	1	Total C N O P 42 32 1 8 1	0
43	d	1	Total C N O P 42 32 1 8 1	0
43	g	1	Total C N O P 39 29 1 8 1	0
43	q	1	Total C N O P 42 32 1 8 1	0
43	q	1	Total C N O P 36 26 1 8 1	0

- Molecule 44 is POTASSIUM ION (CCD ID: K) (formula: K).

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

- Molecule 45 is 1,2-Distearoyl-sn-glycerophosphoethanolamine (CCD ID: 3PE) (formula: $C_{41}H_{82}NO_8P$).



Mol	Chain	Residues	Atoms	AltConf
45	J	1	Total C N O P 51 41 1 8 1	0

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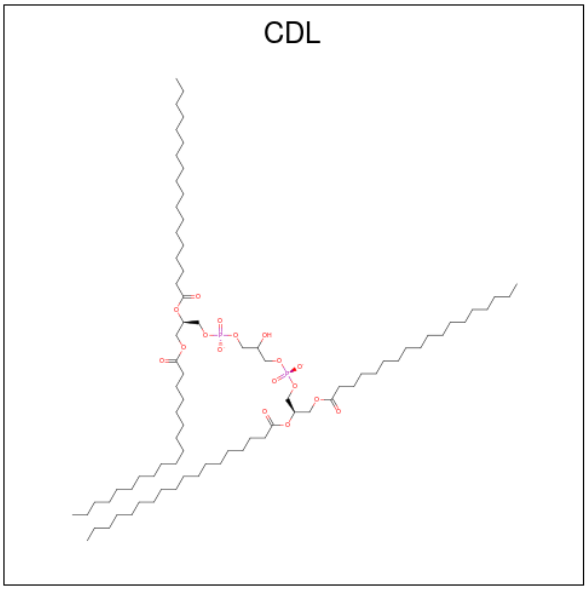
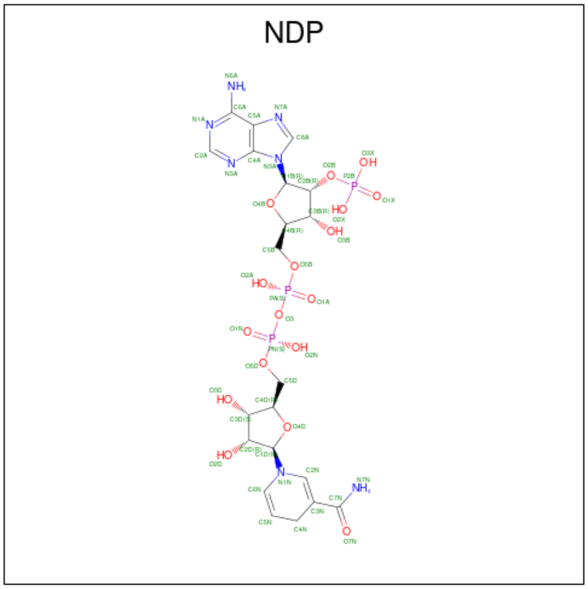
Mol	Chain	Residues	Atoms	AltConf
45	L	1	Total C N O P 51 41 1 8 1	0
45	L	1	Total C N O P 51 41 1 8 1	0
45	L	1	Total C N O P 35 25 1 8 1	0
45	L	1	Total C N O P 51 41 1 8 1	0
45	L	1	Total C N O P 42 32 1 8 1	0
45	L	1	Total C N O P 29 19 1 8 1	0
45	M	1	Total C N O P 51 41 1 8 1	0
45	M	1	Total C N O P 35 25 1 8 1	0
45	N	1	Total C N O P 40 30 1 8 1	0
45	Y	1	Total C N O P 25 15 1 8 1	0
45	Z	1	Total C N O P 36 26 1 8 1	0
45	b	1	Total C N O P 31 21 1 8 1	0
45	b	1	Total C N O P 40 30 1 8 1	0
45	h	1	Total C N O P 46 36 1 8 1	0
45	j	1	Total C N O P 27 17 1 8 1	0
45	m	1	Total C N O P 46 36 1 8 1	0

- Molecule 46 is CARDIOLIPIN (CCD ID: CDL) (formula: $C_{81}H_{156}O_{17}P_2$).



Mol	Chain	Residues	Atoms	AltConf
46	O	1	Total C O P 75 56 17 2	0
46	Z	1	Total C O P 49 30 17 2	0
46	b	1	Total C O P 59 40 17 2	0
46	q	1	Total C O P 60 41 17 2	0

- Molecule 47 is NADPH DIHYDRO-NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (CCD ID: NDP) (formula: $C_{21}H_{30}N_7O_{17}P_3$).

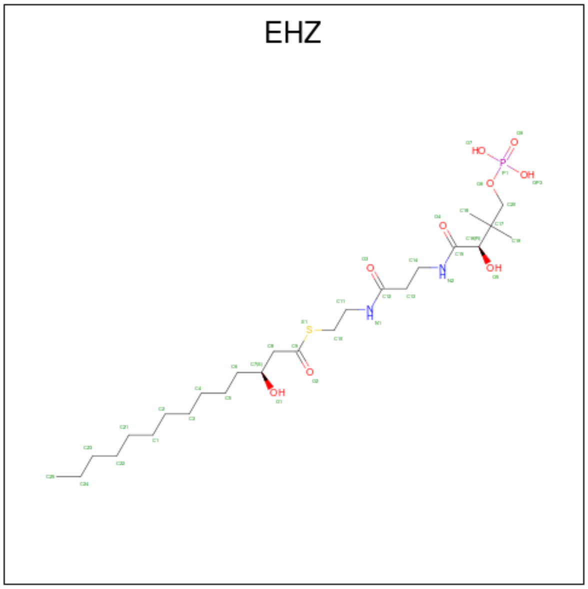


Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
47	P	1	48	21	7	17	3	0

- Molecule 48 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

- Molecule 49 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: $C_{25}H_{49}N_2O_9PS$).

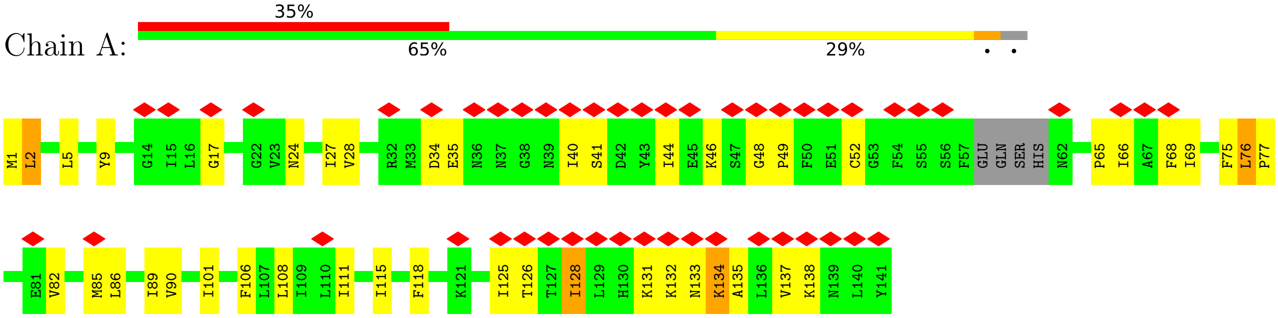


Mol	Chain	Residues	Atoms						AltConf
			Total	C	N	O	P	S	
49	T	1	37	25	2	8	1	1	0
49	U	1	37	25	2	8	1	1	0

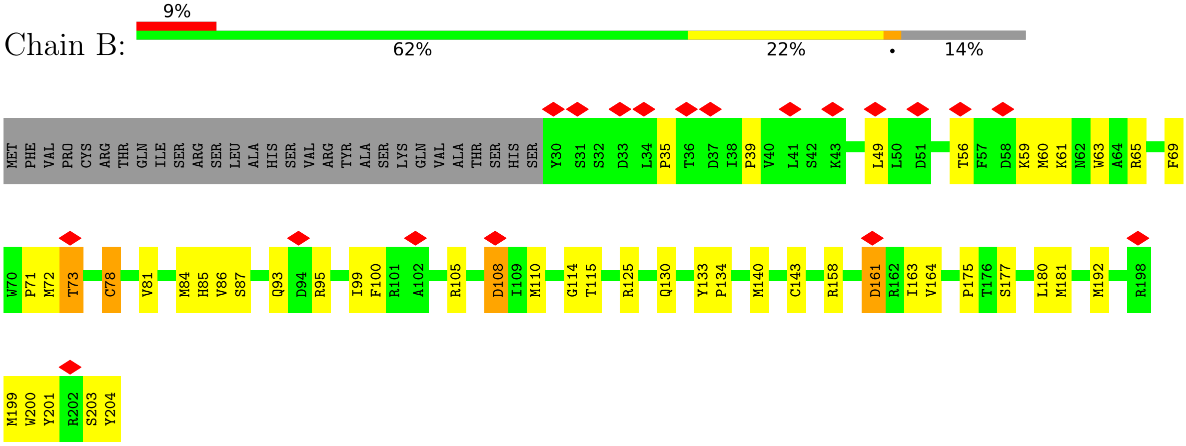
3 Residue-property plots ⓘ

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

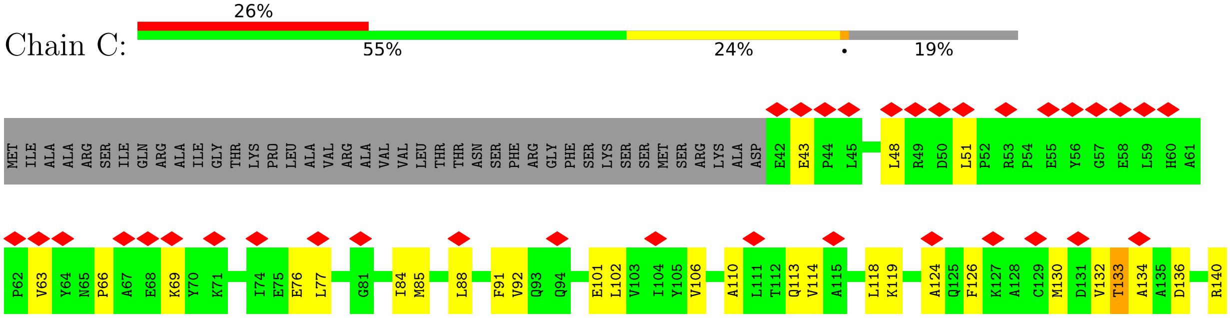
- Molecule 1: NADH-ubiquinone oxidoreductase chain 3

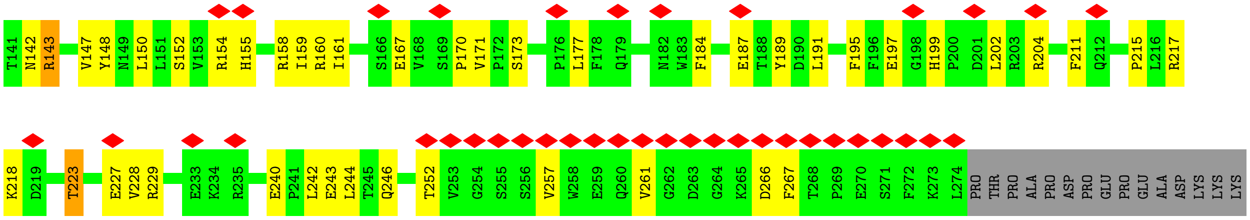


- Molecule 2: BA75_00622T0



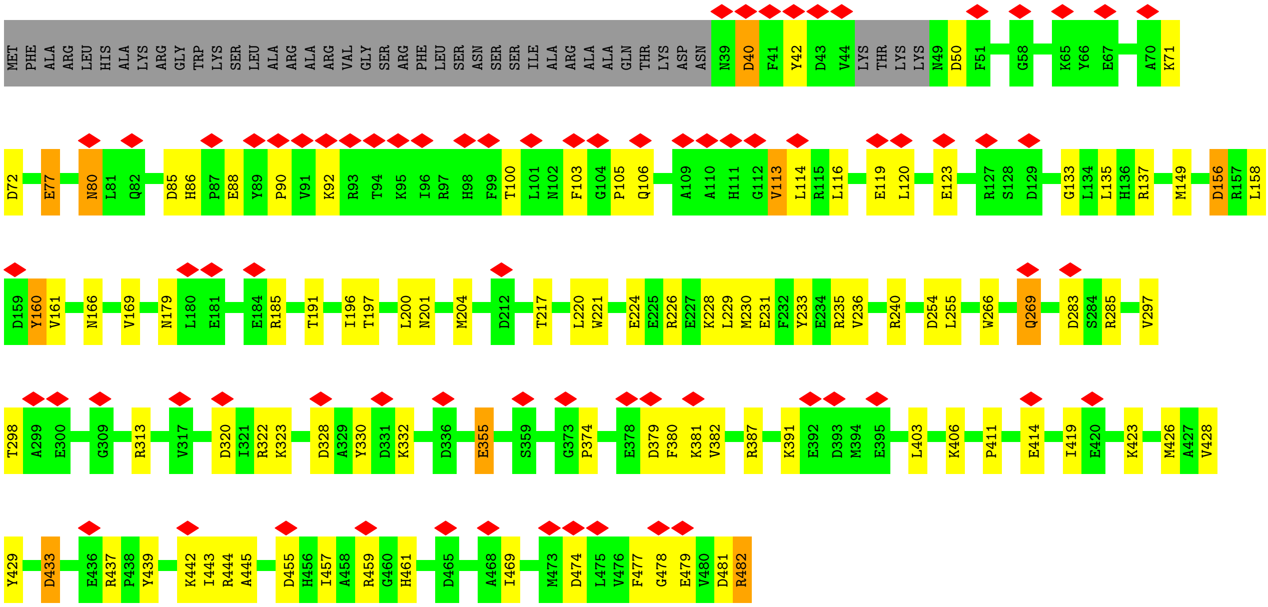
- Molecule 3: NUGM (30 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)





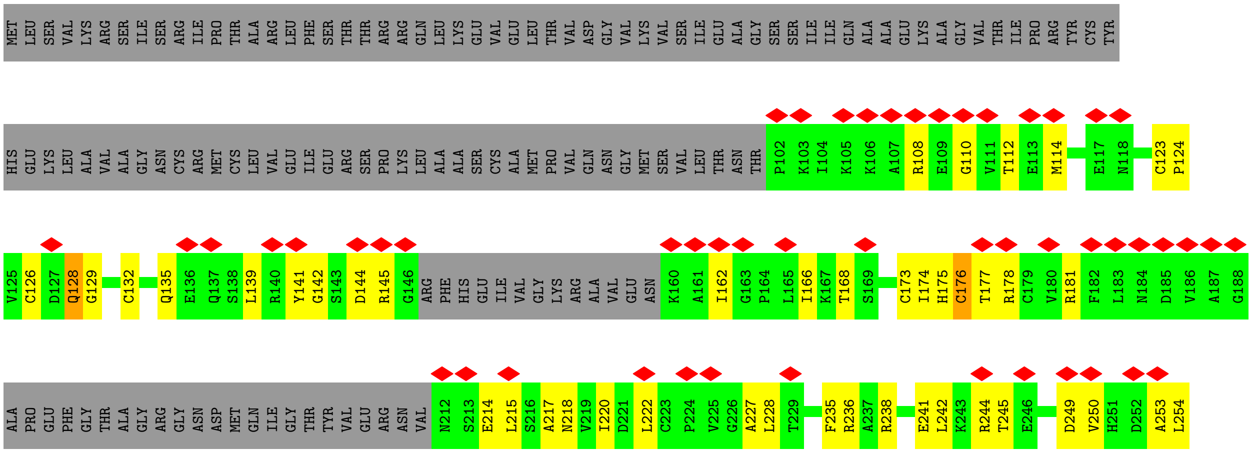
- Molecule 4: NUCM (49 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

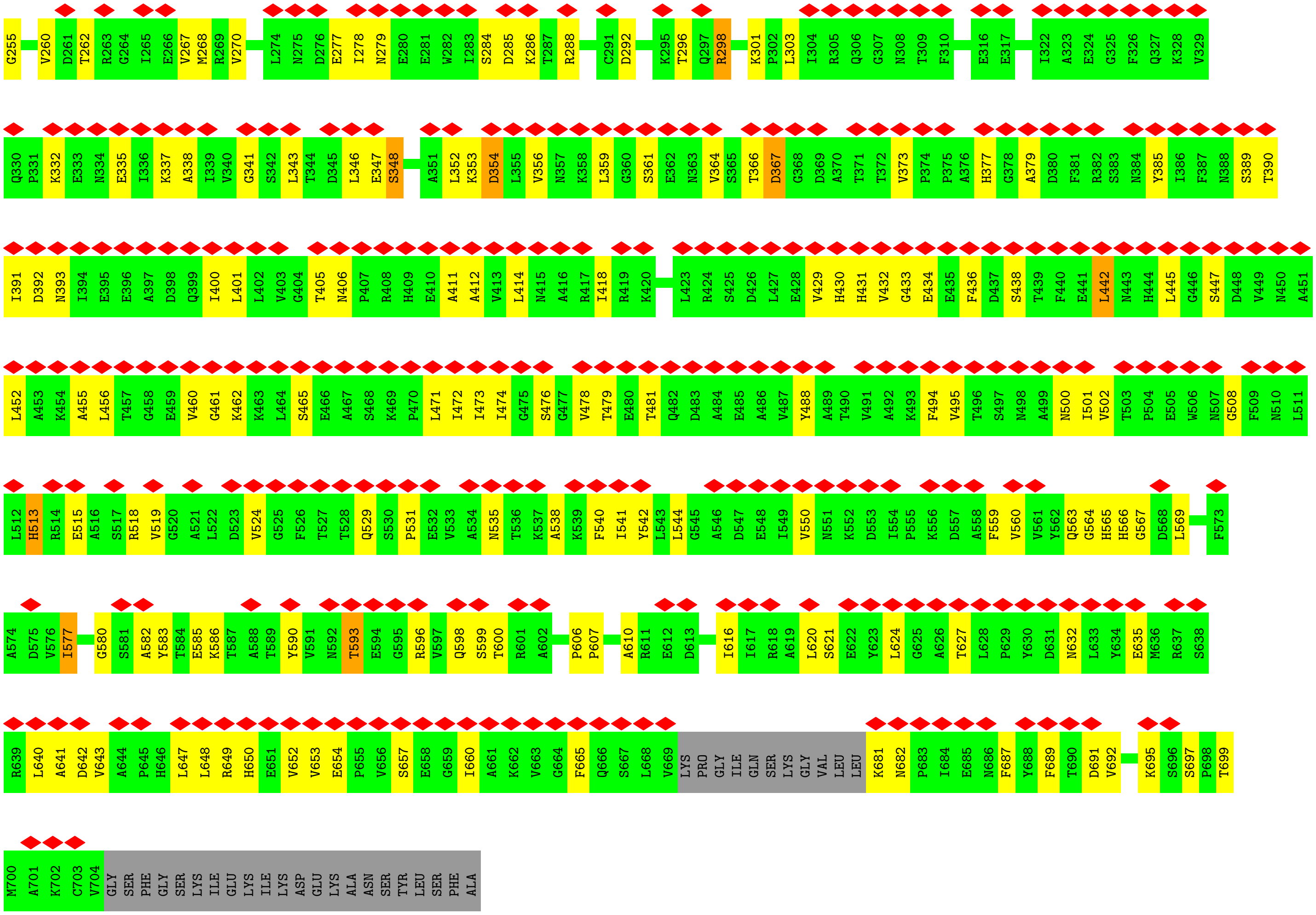
Chain D:



- Molecule 5: NUAM (75 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

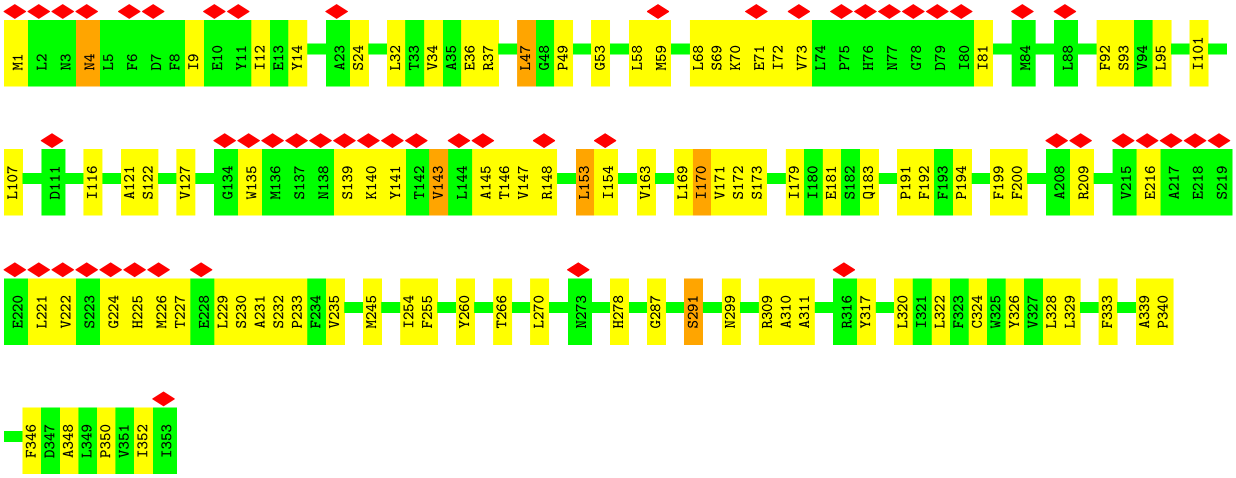
Chain G:



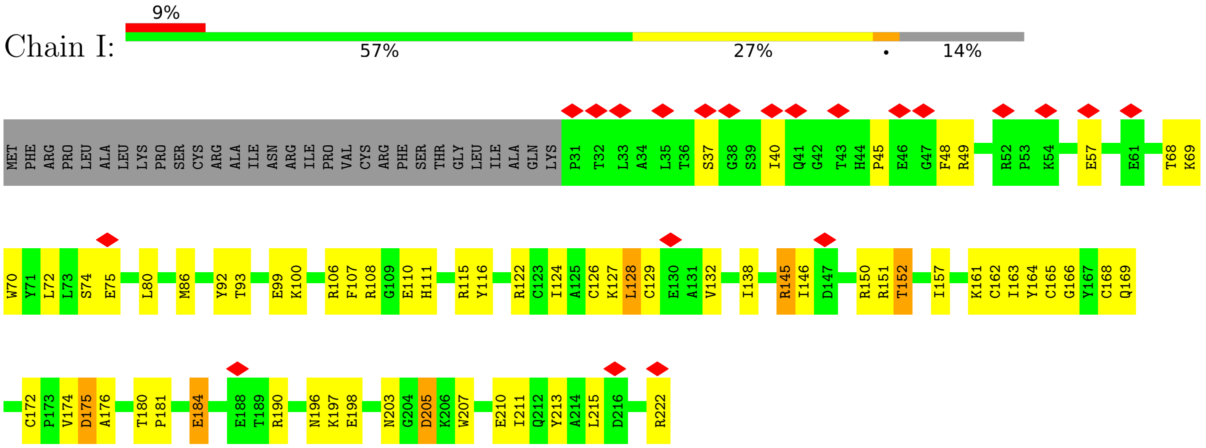


- Molecule 6: NADH-ubiquinone oxidoreductase chain 1

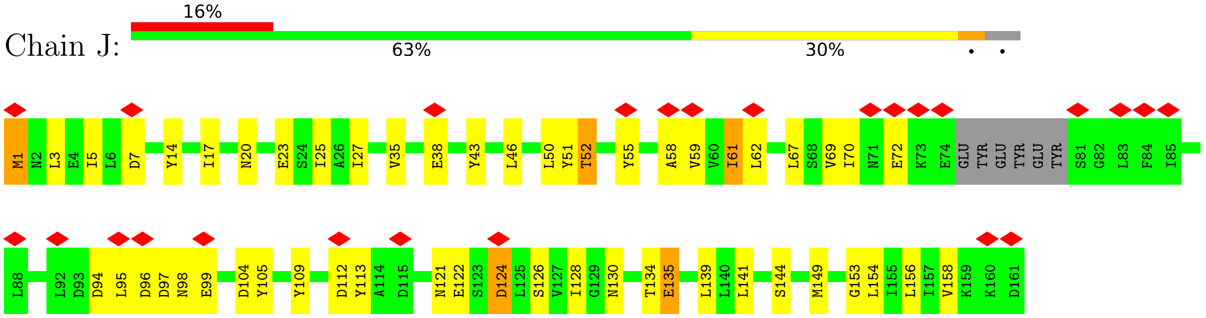
Chain H:



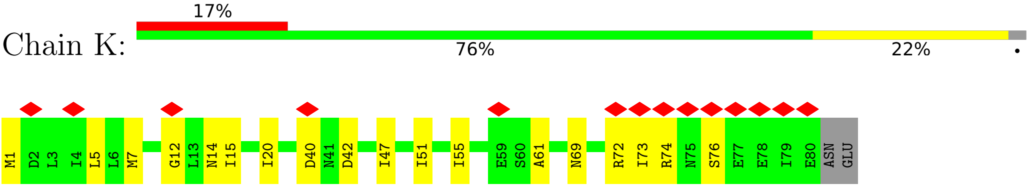
- Molecule 7: NUIM (TYKY) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)



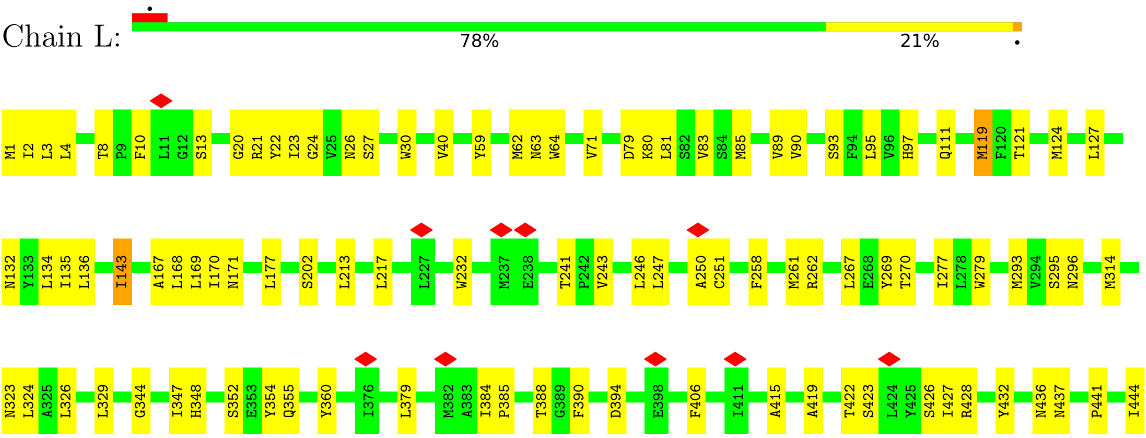
- Molecule 8: NADH-ubiquinone oxidoreductase chain 6

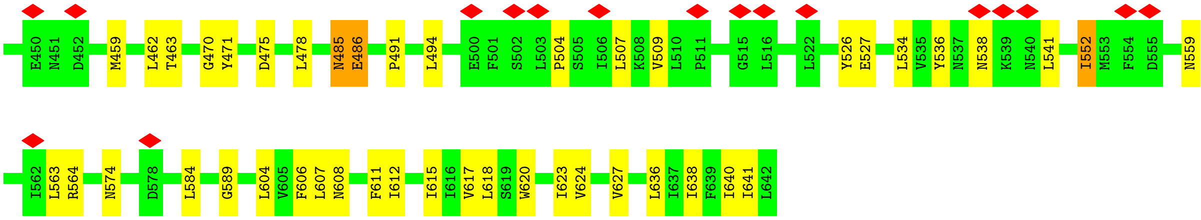


- Molecule 9: NULM (ND4L) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)



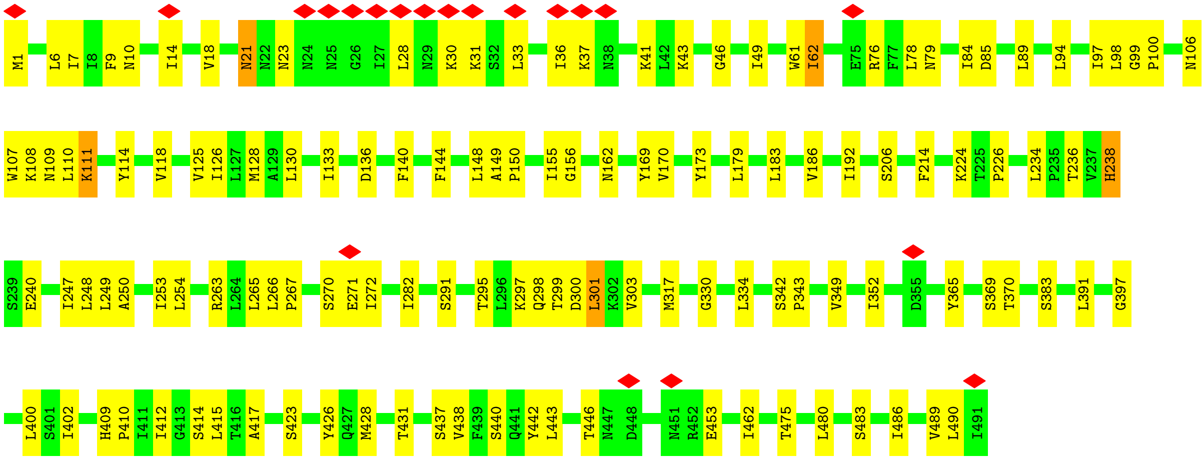
- Molecule 10: NADH-ubiquinone oxidoreductase chain 5





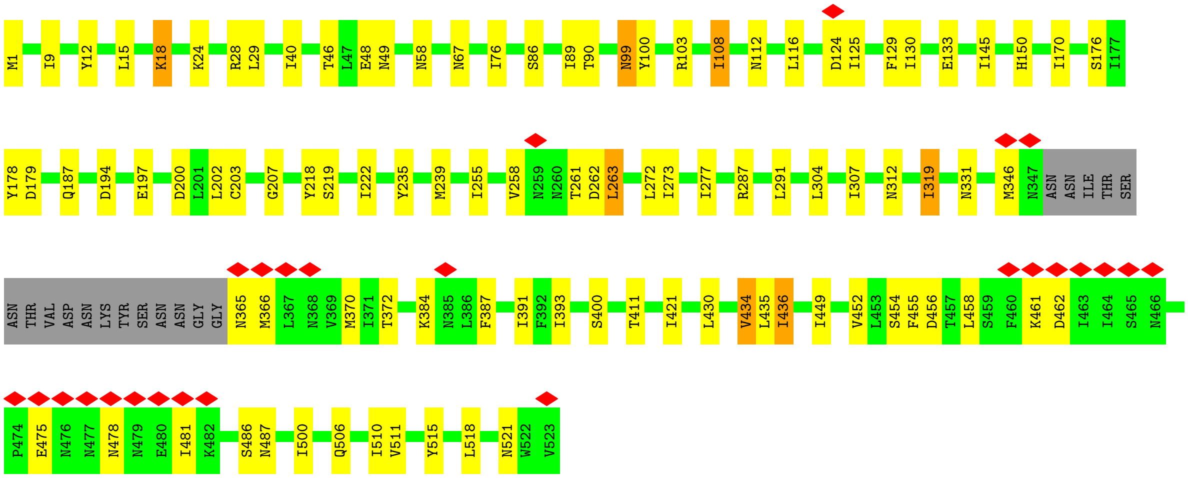
- Molecule 11: NADH-ubiquinone oxidoreductase chain 4

Chain M:



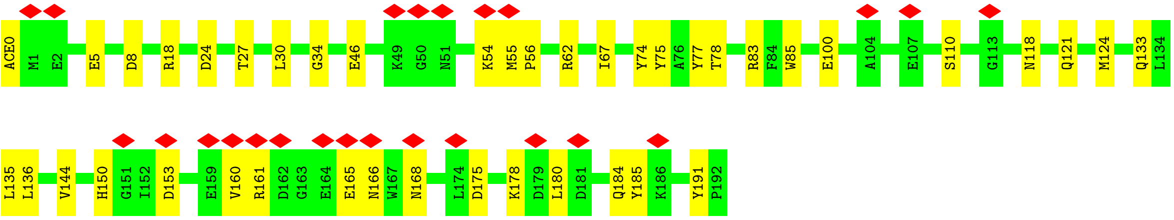
- Molecule 12: NADH-ubiquinone oxidoreductase chain 2

Chain N:



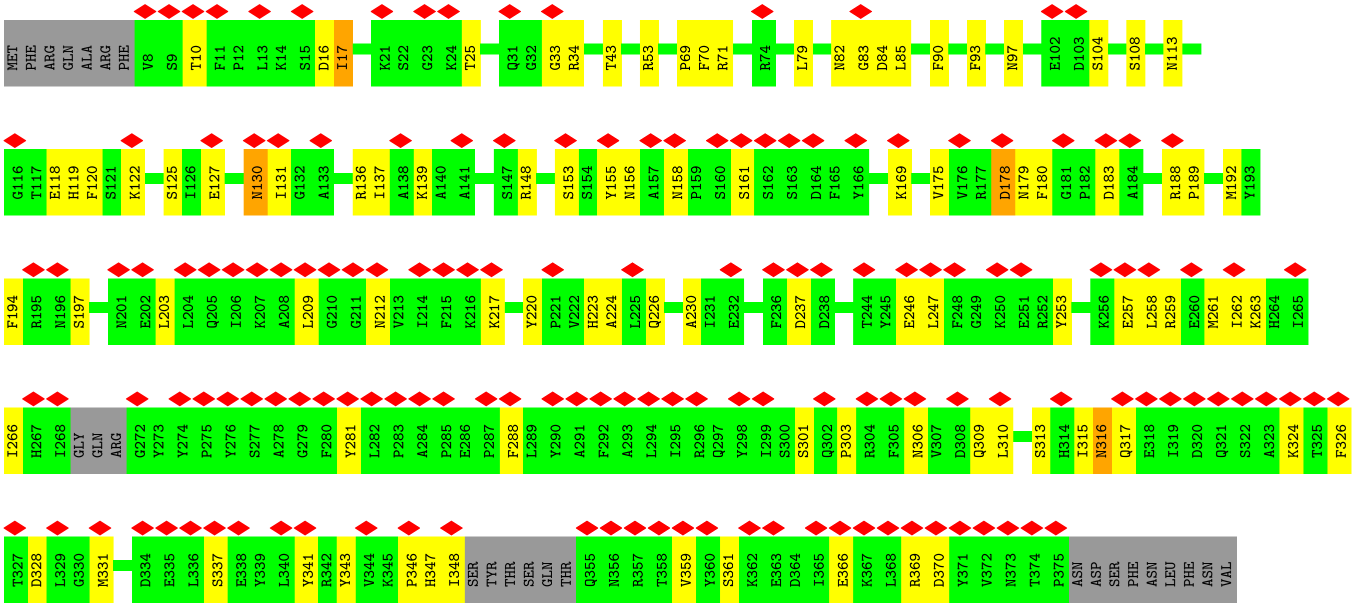
- Molecule 13: NUXM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain O:



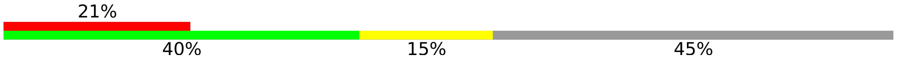
• Molecule 14: NUEM (39 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

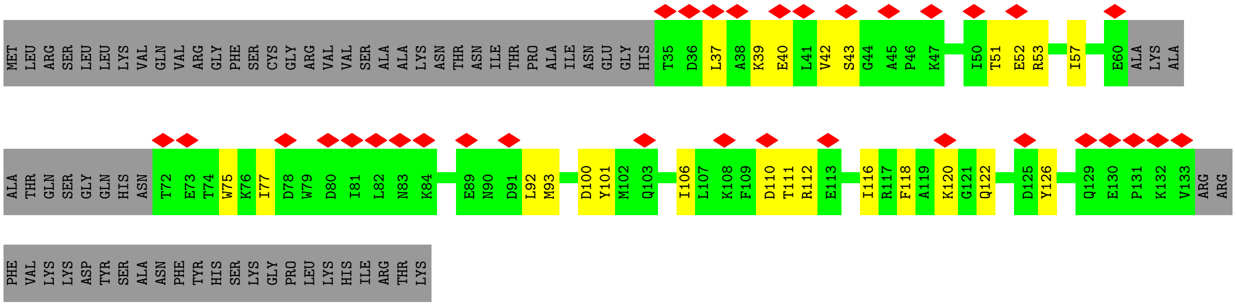
Chain P:



• Molecule 15: NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial

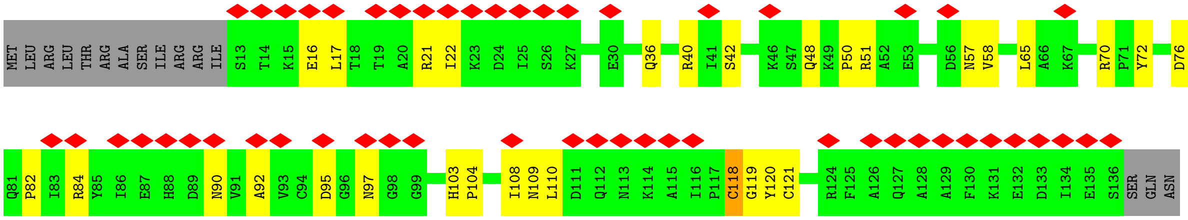
Chain Q:





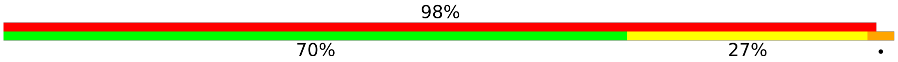
• Molecule 16: NUMM (13 kDa) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

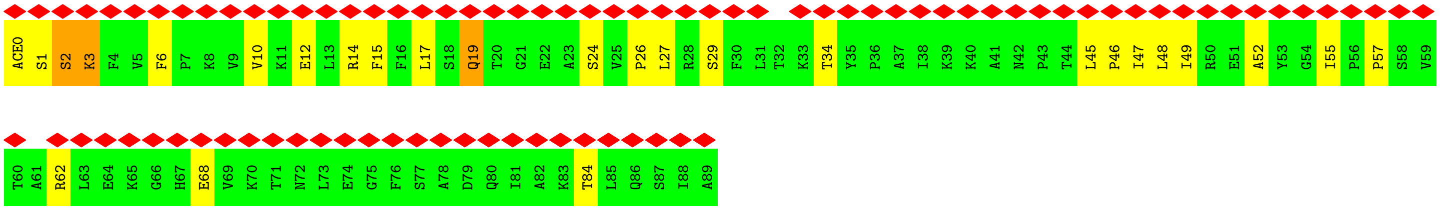
Chain R:



- Molecule 17: NI8M (B8) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

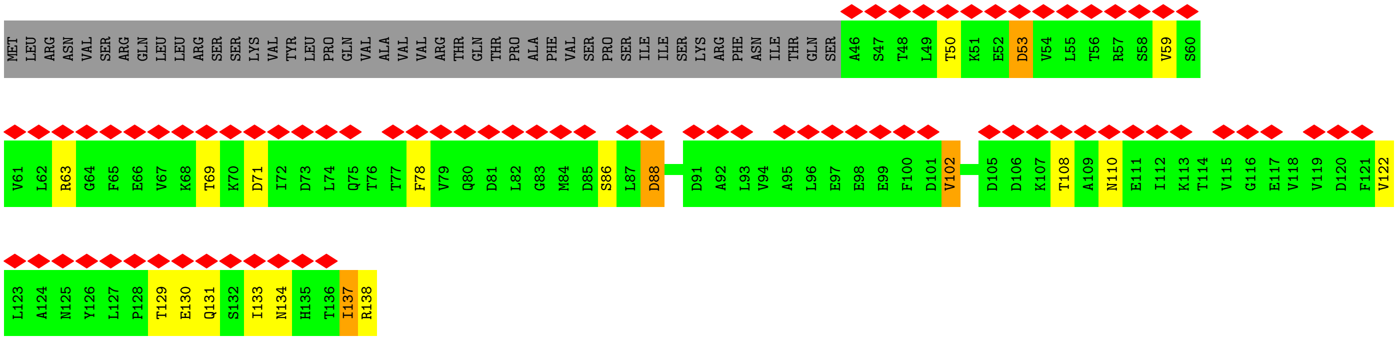
Chain S:





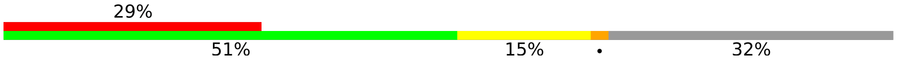
- Molecule 18: Acyl carrier protein

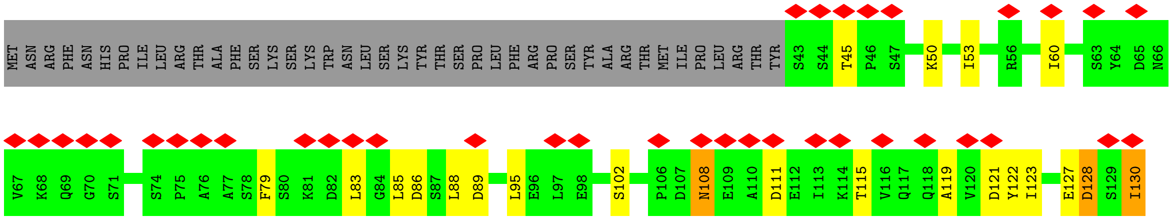
Chain T:



- Molecule 19: Acyl carrier protein

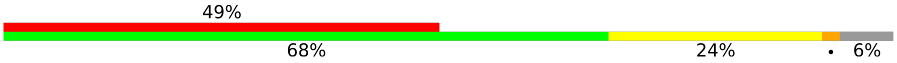
Chain U:

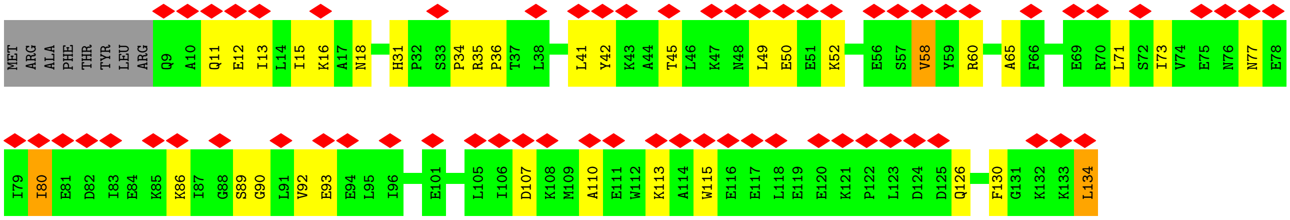




- Molecule 20: NUFM (B13) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

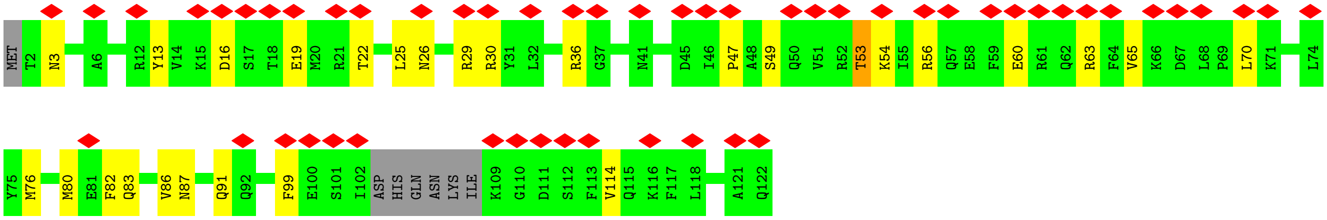
Chain V:





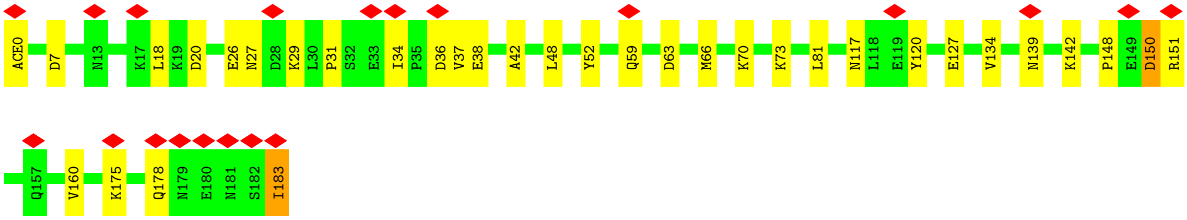
- Molecule 21: BA75_04796T0

Chain W:



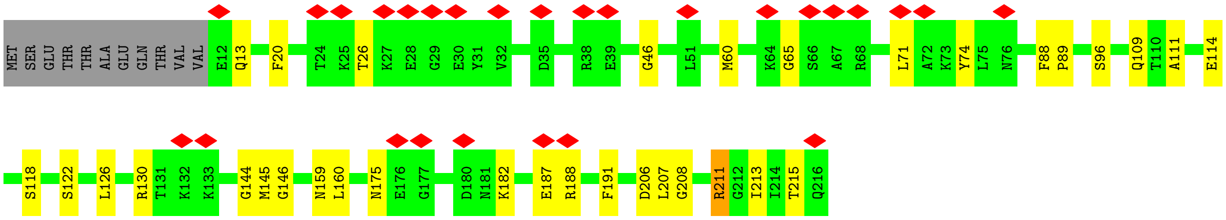
- Molecule 22: NADH-ubiquinone oxidoreductase

Chain X:



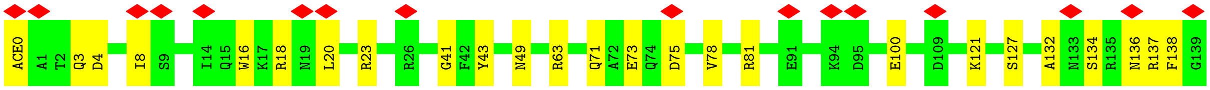
- Molecule 23: NUJM (B14.7) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

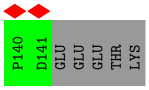
Chain Y:



- Molecule 24: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 13

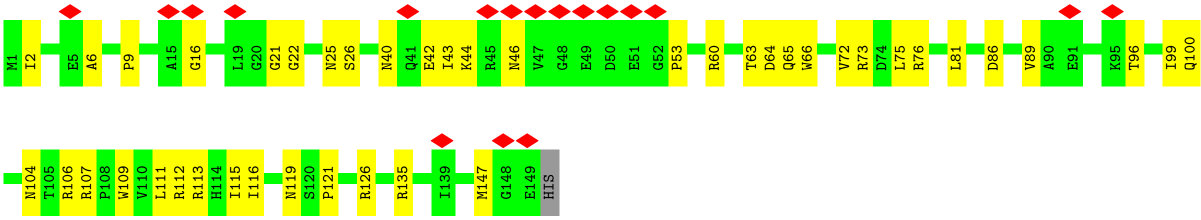
Chain Z:





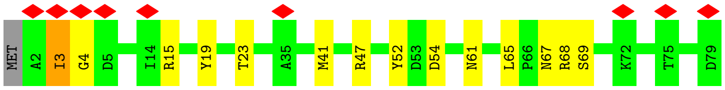
- Molecule 25: NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 1

Chain a:



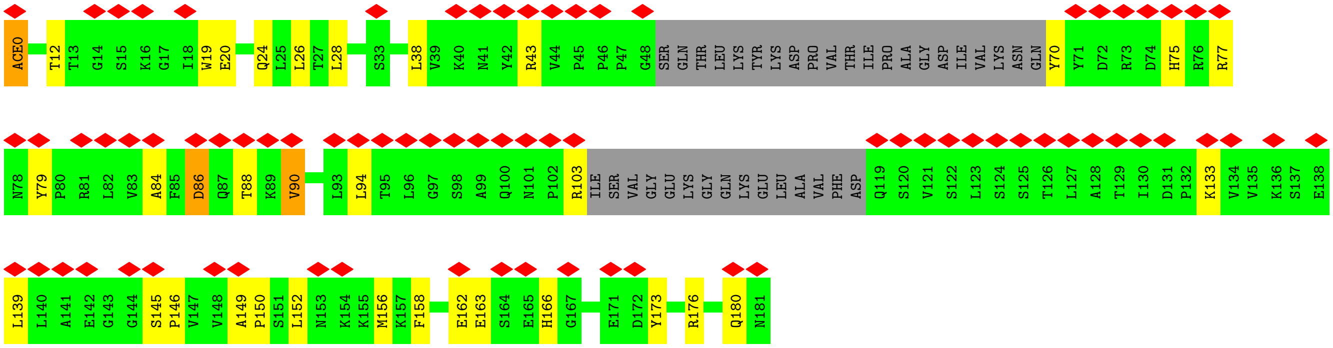
- Molecule 26: NI9M (B9) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain b:



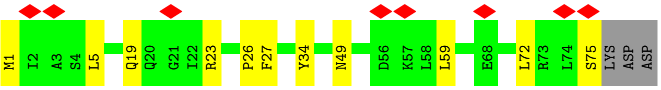
- Molecule 27: BA75_00589T0

Chain c:



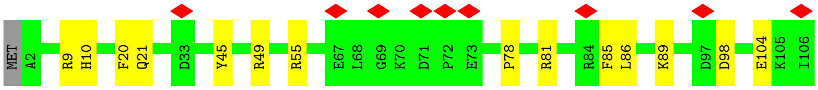
- Molecule 28: Pichia pastoris NADH-ubiquinone oxidoreductase subunit NEBM

Chain d:



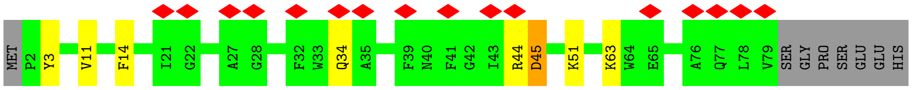
- Molecule 29: BA75_05084T0

Chain e:



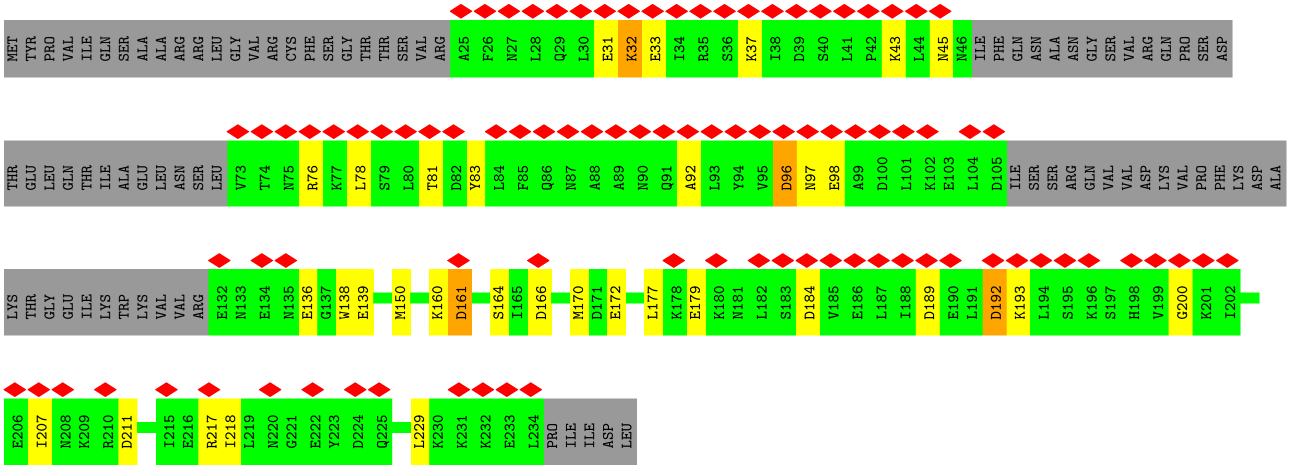
- Molecule 30: NUTM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain f:



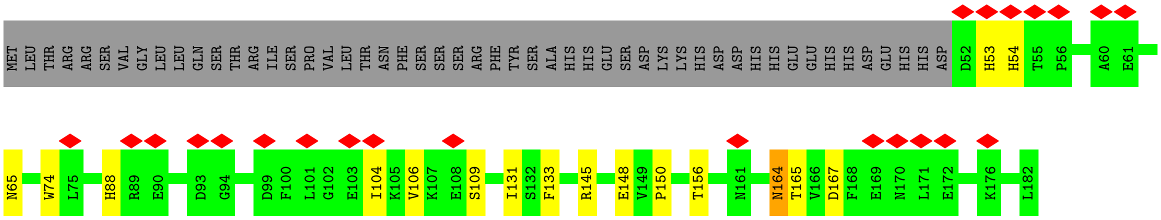
- Molecule 31: NESM (ESSS) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain g:



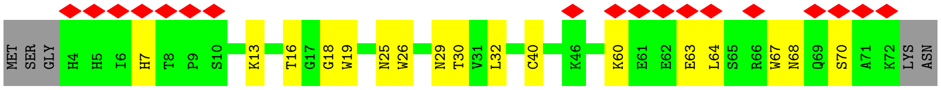
- Molecule 32: NUSM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain h:



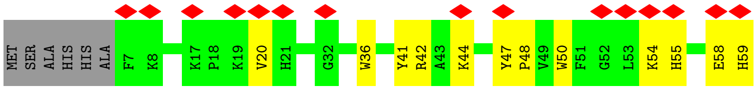
- Molecule 33: NUUM subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain i:



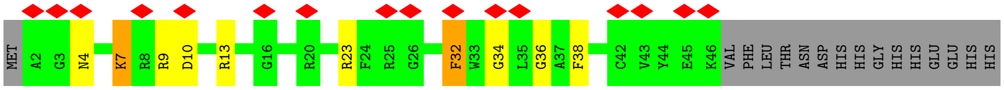
- Molecule 34: Subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain j:



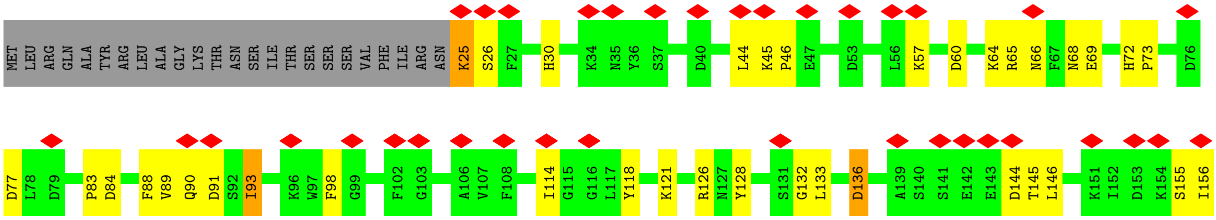
- Molecule 35: NB2M (B12) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain k:



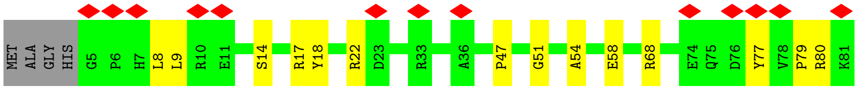
- Molecule 36: NIAM (ASHI) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain l:



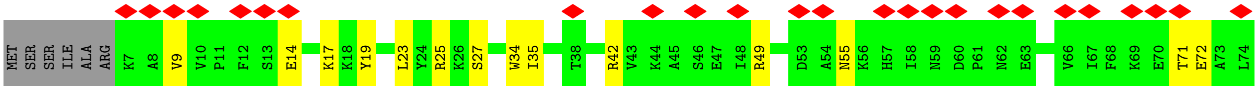
- Molecule 37: NB5M (B15) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

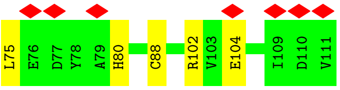
Chain m:



- Molecule 38: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 9

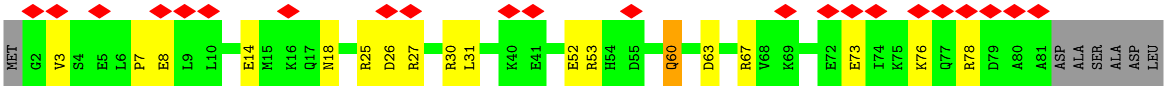
Chain n:





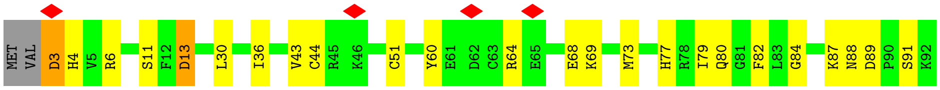
- Molecule 39: NADH dehydrogenase [ubiquinone] 1 beta subcomplex subunit 7

Chain o:



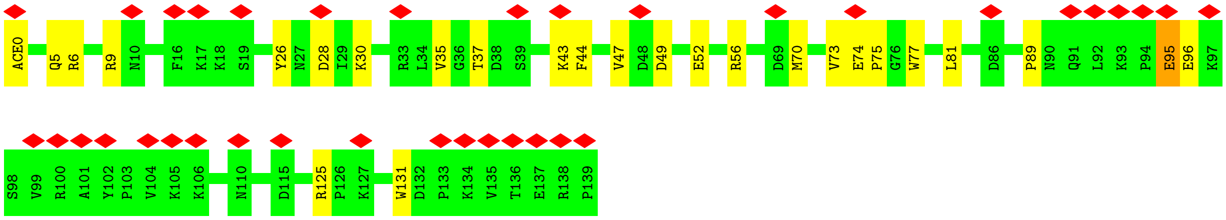
- Molecule 40: NIDM (PDSW) subunit of mitochondrial NADH:ubiquinone oxidoreductase (Complex I)

Chain p:



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

Chain q:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	18608	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 $(e^-/\text{Å}^2)$	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	0.072	Depositor
Minimum map value	-0.025	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.012	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: 3PE, ZN, EHZ, CDL, FME, NDP, 2MR, PLC, ACE, SF4, K

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.19	0/1115	0.30	0/1514
2	B	0.20	0/1450	0.28	0/1969
3	C	0.17	0/1981	0.26	0/2694
4	D	0.19	0/3612	0.28	0/4892
5	G	0.14	0/4371	0.28	0/5932
6	H	0.21	0/2880	0.28	0/3939
7	I	0.24	0/1596	0.33	0/2164
8	J	0.22	0/1262	0.28	0/1723
9	K	0.22	0/610	0.25	0/828
10	L	0.21	0/5236	0.28	0/7128
11	M	0.23	0/3940	0.29	0/5379
12	N	0.23	0/4110	0.27	0/5609
13	O	0.24	1/1621 (0.1%)	0.30	0/2199
14	P	0.15	0/2911	0.27	0/3932
15	Q	0.16	0/742	0.26	0/1000
16	R	0.15	0/998	0.26	0/1350
17	S	0.26	1/710 (0.1%)	0.27	0/961
18	T	0.11	0/737	0.24	0/1001
19	U	0.14	0/688	0.26	0/936
20	V	0.14	0/1044	0.27	0/1411
21	W	0.14	0/999	0.26	0/1340
22	X	0.24	1/1475 (0.1%)	0.28	0/1990
23	Y	0.18	0/1615	0.27	0/2175
24	Z	0.26	1/1210 (0.1%)	0.25	0/1639
25	a	0.19	0/1241	0.26	0/1670
26	b	0.16	0/666	0.25	0/911
27	c	0.23	1/1167 (0.1%)	0.27	0/1581
28	d	0.19	0/633	0.22	0/854
29	e	0.20	0/865	0.25	0/1158
30	f	0.17	0/663	0.22	0/896
31	g	0.15	0/1293	0.26	0/1735
32	h	0.18	0/1114	0.27	0/1516

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	i	0.16	0/571	0.25	0/777
34	j	0.15	0/484	0.26	0/658
35	k	0.14	0/382	0.24	0/514
36	l	0.17	0/1119	0.29	0/1520
37	m	0.18	0/661	0.27	0/893
38	n	0.14	0/884	0.23	0/1197
39	o	0.14	0/696	0.27	0/933
40	p	0.20	0/756	0.25	0/1020
41	q	0.25	1/1192 (0.1%)	0.29	0/1620
All	All	0.20	6/61300 (0.0%)	0.27	0/83158

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	S	0	ACE	C-N	6.20	1.45	1.33
27	c	0	ACE	C-N	6.14	1.45	1.33
22	X	0	ACE	C-N	6.11	1.45	1.33
41	q	0	ACE	C-N	6.06	1.45	1.33
24	Z	0	ACE	C-N	6.03	1.45	1.33
13	O	0	ACE	C-N	5.85	1.45	1.33

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1099	0	1140	38	0
2	B	1407	0	1372	42	0
3	C	1922	0	1861	61	0
4	D	3536	0	3437	79	0
5	G	4295	0	4257	133	0
6	H	2809	0	2880	66	0
7	I	1556	0	1499	60	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
8	J	1250	0	1274	44	0
9	K	617	0	657	16	0
10	L	5115	0	5338	98	0
11	M	3868	0	4127	88	0
12	N	4045	0	4327	68	0
13	O	1575	0	1523	27	0
14	P	2851	0	2847	69	0
15	Q	727	0	701	13	0
16	R	978	0	964	19	0
17	S	697	0	736	20	0
18	T	730	0	721	16	0
19	U	681	0	664	15	0
20	V	1025	0	1035	30	0
21	W	979	0	980	19	0
22	X	1450	0	1422	23	0
23	Y	1578	0	1567	25	0
24	Z	1176	0	1165	19	0
25	a	1215	0	1197	41	0
26	b	641	0	620	13	0
27	c	1143	0	1165	29	0
28	d	616	0	624	8	0
29	e	848	0	830	11	0
30	f	642	0	640	9	0
31	g	1280	0	1302	27	0
32	h	1078	0	1036	12	0
33	i	552	0	540	12	0
34	j	460	0	455	8	0
35	k	368	0	348	8	0
36	l	1082	0	1033	26	0
37	m	642	0	635	12	0
38	n	861	0	866	13	0
39	o	682	0	677	15	0
40	p	740	0	700	20	0
41	q	1156	0	1115	17	0
42	B	8	0	0	1	0
42	G	16	0	0	6	0
42	I	16	0	0	3	0
43	B	31	0	36	3	0
43	D	42	0	64	3	0
43	H	24	0	22	0	0
43	L	151	0	210	13	0
43	M	84	0	128	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
43	P	62	0	72	3	0
43	Y	72	0	98	4	0
43	Z	42	0	64	3	0
43	a	22	0	18	0	0
43	b	39	0	55	0	0
43	d	84	0	128	3	0
43	g	39	0	55	5	0
43	q	78	0	113	5	0
44	G	1	0	0	0	0
45	J	51	0	82	4	0
45	L	259	0	380	19	0
45	M	86	0	126	6	0
45	N	40	0	57	1	0
45	Y	25	0	24	1	0
45	Z	36	0	46	1	0
45	b	71	0	93	3	0
45	h	46	0	69	5	0
45	j	27	0	28	4	0
45	m	46	0	69	4	0
46	O	75	0	97	3	0
46	Z	49	0	42	1	0
46	b	59	0	62	3	0
46	q	60	0	64	5	0
47	P	48	0	25	2	0
48	R	1	0	0	0	0
49	T	37	0	0	0	0
49	U	37	0	0	2	0
All	All	61836	0	62604	1133	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 9.

All (1133) 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)
5:G:175:HIS:HA	42:G:801:SF4:S4	1.96	1.04
7:I:111:HIS:CD2	7:I:168:CYS:SG	2.49	1.03
7:I:111:HIS:CE1	42:I:302:SF4:S2	2.55	0.97
14:P:156:ASN:HD21	14:P:317:GLN:HA	1.39	0.86
16:R:103:HIS:CD2	16:R:121:CYS:SG	2.68	0.86
5:G:175:HIS:CA	42:G:801:SF4:S4	2.69	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:L:388:THR:HG22	10:L:470:GLY:H	1.48	0.78
7:I:172:CYS:SG	7:I:176:ALA:N	2.56	0.77
12:N:312:ASN:ND2	32:h:133:PHE:O	2.17	0.76
27:c:86:ASP:N	27:c:86:ASP:OD1	2.18	0.76
26:b:41:MET:HE2	45:b:103:3PE:H272	1.68	0.75
5:G:177:THR:N	42:G:801:SF4:S4	2.60	0.75
7:I:48:PHE:O	27:c:176:ARG:NH1	2.20	0.75
1:A:76:LEU:HD23	8:J:62:LEU:HD12	1.69	0.74
4:D:77:GLU:HG2	10:L:606:PHE:HA	1.68	0.74
16:R:16:GLU:HG2	16:R:42:SER:HB3	1.68	0.74
19:U:102:SER:HB2	19:U:130:ILE:HD11	1.68	0.74
5:G:337:LYS:HB3	5:G:541:ILE:HG12	1.71	0.73
5:G:236:ARG:NH1	5:G:268:MET:SD	2.61	0.73
4:D:105:PRO:HB3	4:D:113:VAL:HG12	1.69	0.72
6:H:226:MET:HG2	6:H:229:LEU:HD12	1.72	0.72
11:M:106:ASN:ND2	11:M:109:ASN:OD1	2.21	0.72
2:B:86:VAL:HG12	2:B:93:GLN:HB3	1.72	0.71
6:H:127:VAL:HG13	6:H:153:LEU:HD13	1.70	0.71
5:G:649:ARG:HB3	5:G:652:VAL:HB	1.72	0.71
43:L:701:PLC:H61	11:M:370:THR:HA	1.74	0.70
11:M:297:LYS:NZ	36:l:77:ASP:OD1	2.25	0.70
5:G:583:TYR:HA	5:G:586:LYS:HE2	1.74	0.70
11:M:442:TYR:OH	36:l:65:ARG:NH1	2.25	0.70
39:o:14:GLU:O	39:o:18:ASN:ND2	2.25	0.70
6:H:36:GLU:OE2	6:H:309:ARG:NH1	2.25	0.69
7:I:196:ASN:ND2	7:I:198:GLU:OE1	2.24	0.69
4:D:313:ARG:NH2	4:D:355:GLU:OE2	2.25	0.69
7:I:111:HIS:HE1	42:I:302:SF4:S2	2.04	0.69
14:P:263:LYS:NZ	14:P:281:TYR:OH	2.26	0.69
3:C:119:LYS:NZ	3:C:177:LEU:O	2.25	0.69
5:G:338:ALA:HB3	5:G:364:VAL:HG12	1.74	0.69
10:L:296:ASN:OD1	10:L:428:ARG:NH2	2.26	0.69
4:D:90:PRO:HD3	12:N:370:MET:HE1	1.74	0.69
5:G:531:PRO:O	5:G:535:ASN:ND2	2.26	0.69
14:P:148:ARG:NH1	14:P:237:ASP:O	2.27	0.68
4:D:231:GLU:OE2	27:c:43:ARG:NH1	2.26	0.68
10:L:23:ILE:O	10:L:27:SER:OG	2.11	0.68
33:i:25:ASN:O	33:i:29:ASN:ND2	2.27	0.68
7:I:108:ARG:NH1	7:I:165:CYS:O	2.27	0.67
7:I:172:CYS:HA	42:I:301:SF4:S2	2.34	0.67
43:L:701:PLC:O2P	33:i:16:THR:OG1	2.12	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:I:69:LYS:HE2	43:Z:202:PLC:H12	1.76	0.67
7:I:152:THR:O	7:I:197:LYS:NZ	2.27	0.67
2:B:163:ILE:HG22	2:B:164:VAL:HG13	1.75	0.67
10:L:4:LEU:O	10:L:8:THR:OG1	2.11	0.67
13:O:24:ASP:OD2	13:O:83:ARG:NH1	2.27	0.67
20:V:31:HIS:HB3	20:V:34:PRO:HG3	1.77	0.67
10:L:324:LEU:HD23	10:L:478:LEU:HD22	1.76	0.67
14:P:192:MET:H	47:P:501:NDP:H71N	1.42	0.67
5:G:286:LYS:NZ	5:G:687:PHE:O	2.27	0.66
21:W:83:GLN:O	21:W:87:ASN:ND2	2.27	0.66
10:L:202:SER:O	37:m:68:ARG:NH2	2.28	0.66
7:I:126:CYS:HB2	7:I:128:LEU:H	1.61	0.66
45:L:705:3PE:H231	23:Y:46:GLY:HA3	1.77	0.66
5:G:277:GLU:OE1	5:G:596:ARG:NH1	2.27	0.65
16:R:36:GLN:NE2	16:R:48:GLN:OE1	2.28	0.65
22:X:150:ASP:OD1	22:X:150:ASP:N	2.28	0.65
10:L:526:TYR:OH	43:L:708:PLC:O1P	2.12	0.65
22:X:175:LYS:HA	22:X:178:GLN:HB2	1.78	0.65
36:l:30:HIS:NE2	36:l:91:ASP:OD2	2.27	0.65
5:G:176:CYS:O	5:G:181:ARG:NH2	2.28	0.65
14:P:175:VAL:O	14:P:179:ASN:ND2	2.27	0.65
5:G:660:ILE:HD11	17:S:17:LEU:HD11	1.79	0.65
2:B:161:ASP:OD2	7:I:190:ARG:NH1	2.24	0.65
13:O:185:TYR:O	26:b:67:ASN:ND2	2.29	0.65
22:X:27:ASN:OD1	24:Z:137:ARG:NH1	2.29	0.65
5:G:168:THR:HG22	5:G:228:LEU:HD22	1.79	0.65
15:Q:120:LYS:NZ	15:Q:126:TYR:OH	2.30	0.65
19:U:111:ASP:OD1	38:n:25:ARG:NH1	2.30	0.65
12:N:331:ASN:OD1	12:N:400:SER:OG	2.15	0.64
27:c:94:LEU:O	27:c:103:ARG:NH2	2.30	0.64
24:Z:121:LYS:NZ	24:Z:136:ASN:O	2.31	0.64
5:G:431:HIS:HB2	5:G:442:LEU:HD22	1.80	0.64
24:Z:100:GLU:HB2	25:a:147:MET:HE2	1.80	0.64
31:g:76:ARG:HH22	31:g:97:ASN:HB2	1.62	0.64
14:P:70:PHE:HE2	14:P:90:PHE:HB3	1.61	0.64
5:G:515:GLU:HB2	5:G:518:ARG:HG2	1.79	0.64
2:B:158:ARG:NH1	3:C:227:GLU:OE1	2.31	0.64
5:G:260:VAL:HG22	5:G:270:VAL:HG22	1.79	0.64
12:N:312:ASN:OD1	12:N:521:ASN:ND2	2.31	0.64
22:X:73:LYS:NZ	32:h:165:THR:O	2.28	0.64
26:b:47:ARG:NH2	26:b:54:ASP:OD1	2.31	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:G:303:LEU:HB2	5:G:577:ILE:HB	1.80	0.64
5:G:135:GLN:NE2	42:G:802:SF4:S3	2.71	0.63
17:S:12:GLU:HA	17:S:46:PRO:HG2	1.80	0.63
6:H:93:SER:OG	6:H:122:SER:O	2.17	0.63
23:Y:208:GLY:O	23:Y:211:ARG:NH2	2.31	0.63
24:Z:136:ASN:ND2	24:Z:138:PHE:O	2.31	0.63
17:S:15:PHE:HB2	17:S:49:ILE:HG13	1.78	0.63
3:C:133:THR:HG23	3:C:147:VAL:HB	1.80	0.63
8:J:121:ASN:HD21	25:a:66:TRP:CD1	2.17	0.63
1:A:138:LYS:HB3	20:V:13:ILE:HB	1.80	0.63
43:B:302:PLC:H3A1	43:q:201:PLC:H9'1	1.81	0.63
5:G:565:HIS:O	5:G:566:HIS:ND1	2.32	0.63
6:H:37:ARG:HH12	6:H:59:MET:HE2	1.64	0.63
5:G:389:SER:O	5:G:393:ASN:ND2	2.32	0.63
7:I:165:CYS:SG	7:I:166:GLY:N	2.72	0.63
45:L:704:3PE:H341	45:Y:301:3PE:H361	1.80	0.63
11:M:76:ARG:NH2	11:M:79:ASN:OD1	2.32	0.63
18:T:69:THR:HG22	18:T:71:ASP:H	1.62	0.62
4:D:387:ARG:NH2	7:I:172:CYS:O	2.32	0.62
4:D:414:GLU:OE1	4:D:429:TYR:OH	2.17	0.62
10:L:295:SER:O	10:L:428:ARG:NH1	2.32	0.62
1:A:128:ILE:O	1:A:132:LYS:NZ	2.30	0.62
10:L:3:LEU:HD11	45:h:201:3PE:H262	1.80	0.62
7:I:129:CYS:HB3	7:I:138:ILE:HG21	1.81	0.62
25:a:65:GLN:HG3	29:e:10:HIS:HE2	1.63	0.62
36:l:25:LYS:NZ	36:l:26:SER:OG	2.33	0.62
22:X:117:ASN:OD1	25:a:60:ARG:NH1	2.29	0.62
30:f:45:ASP:OD1	30:f:45:ASP:N	2.33	0.62
31:g:161:ASP:OD1	31:g:161:ASP:N	2.25	0.62
3:C:173:SER:N	3:C:197:GLU:O	2.33	0.62
33:i:64:LEU:HD13	40:p:51:CYS:HA	1.81	0.62
38:n:102:ARG:NH1	38:n:104:GLU:OE1	2.32	0.62
6:H:107:LEU:HD11	25:a:25:ASN:HD22	1.65	0.62
14:P:223:HIS:HE2	14:P:343:TYR:HH	1.43	0.62
21:W:16:ASP:OD2	21:W:19:GLU:N	2.31	0.62
5:G:255:GLY:O	5:G:598:GLN:NE2	2.32	0.62
14:P:217:LYS:NZ	14:P:315:ILE:O	2.32	0.62
11:M:85:ASP:OD2	11:M:263:ARG:NH2	2.33	0.62
25:a:42:GLU:O	25:a:46:ASN:ND2	2.32	0.62
5:G:348:SER:HB3	5:G:544:LEU:HD21	1.82	0.61
19:U:89:ASP:OD1	38:n:49:ARG:NH2	2.33	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
23:Y:109:GLN:NE2	23:Y:114:GLU:OE2	2.33	0.61
2:B:140:MET:HG2	2:B:175:PRO:HG2	1.83	0.61
10:L:80:LYS:HB2	10:L:486:GLU:HG3	1.82	0.61
9:K:69:ASN:OD1	9:K:72:ARG:NH1	2.33	0.61
41:q:95:GLU:HG2	41:q:96:GLU:HG3	1.82	0.61
1:A:135:ALA:HB2	20:V:18:ASN:HB3	1.82	0.61
10:L:608:ASN:ND2	18:T:138:ARG:O	2.34	0.61
2:B:56:THR:OG1	43:B:302:PLC:O’	2.18	0.61
7:I:126:CYS:HB3	7:I:128:LEU:HD23	1.82	0.61
12:N:29:LEU:HD22	13:O:67:ILE:HD12	1.82	0.61
49:U:201:EHZ:O2	49:U:201:EHZ:O1	2.17	0.61
12:N:9:ILE:HD11	13:O:67:ILE:HD11	1.83	0.60
41:q:6:ARG:NH2	41:q:28:ASP:OD1	2.34	0.60
28:d:59:LEU:HD11	32:h:131:ILE:HD11	1.81	0.60
6:H:216:GLU:HA	6:H:224:GLY:HA3	1.83	0.60
16:R:65:LEU:O	16:R:70:ARG:NH2	2.31	0.60
28:d:1:MET:HE3	28:d:49:ASN:HB2	1.82	0.60
31:g:33:GLU:HG2	31:g:37:LYS:HE3	1.83	0.60
14:P:118:GLU:OE1	14:P:309:GLN:NE2	2.34	0.60
17:S:12:GLU:HB3	17:S:62:ARG:HB3	1.84	0.60
7:I:100:LYS:NZ	7:I:184:GLU:OE2	2.35	0.60
22:X:20:ASP:OD1	29:e:81:ARG:NH2	2.34	0.60
2:B:203:SER:O	14:P:71:ARG:NH1	2.33	0.60
5:G:390:THR:OG1	5:G:392:ASP:OD1	2.18	0.60
19:U:127:GLU:OE1	19:U:127:GLU:N	2.30	0.60
10:L:459:MET:O	10:L:463:THR:OG1	2.16	0.60
4:D:228:LYS:HD2	4:D:266:TRP:HD1	1.66	0.60
6:H:181:GLU:OE2	6:H:260:TYR:OH	2.13	0.60
10:L:20:GLY:O	10:L:111:GLN:NE2	2.34	0.60
14:P:43:THR:HG1	14:P:108:SER:HG	1.50	0.60
5:G:175:HIS:C	42:G:801:SF4:S4	2.84	0.60
13:O:62:ARG:NH2	46:b:102:CDL:OA4	2.33	0.60
4:D:254:ASP:OD1	4:D:255:LEU:N	2.34	0.59
8:J:104:ASP:OD1	30:f:63:LYS:NZ	2.33	0.59
12:N:384:LYS:NZ	12:N:456:ASP:OD2	2.29	0.59
16:R:92:ALA:HB3	16:R:108:ILE:HB	1.84	0.59
4:D:191:THR:OG1	4:D:328:ASP:O	2.20	0.59
4:D:428:VAL:HG12	4:D:443:ILE:HG12	1.84	0.59
11:M:155:ILE:HD12	11:M:170:VAL:HG11	1.84	0.59
14:P:257:GLU:OE2	14:P:369:ARG:NE	2.36	0.59
16:R:21:ARG:O	16:R:40:ARG:NH2	2.34	0.59

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
39:o:8:GLU:O	39:o:30:ARG:NH1	2.35	0.59
2:B:35:PRO:O	14:P:136:ARG:NH1	2.36	0.59
20:V:134:LEU:HD12	27:c:84:ALA:HB2	1.83	0.59
4:D:433:ASP:OD1	4:D:433:ASP:N	2.31	0.59
7:I:99:GLU:OE2	41:q:26:TYR:OH	2.18	0.59
7:I:210:GLU:HA	7:I:213:TYR:HD2	1.68	0.59
11:M:31:LYS:HB3	31:g:92:ALA:HA	1.85	0.59
11:M:130:LEU:HD23	11:M:133:ILE:HD11	1.83	0.59
31:g:32:LYS:NZ	31:g:32:LYS:O	2.35	0.59
5:G:400:ILE:HB	5:G:429:VAL:HG22	1.85	0.59
4:D:103:PHE:HB3	4:D:116:LEU:HB3	1.85	0.59
4:D:461:HIS:HD2	4:D:469:ILE:HD11	1.68	0.59
8:J:156:LEU:HD13	12:N:145:ILE:HD12	1.85	0.59
28:d:23:ARG:NH1	43:d:102:PLC:O1P	2.34	0.59
45:L:703:3PE:H2I2	12:N:434:VAL:HG13	1.86	0.58
12:N:487:ASN:OD1	28:d:19:GLN:NE2	2.34	0.58
16:R:57:ASN:OD1	16:R:58:VAL:N	2.33	0.58
17:S:45:LEU:HD12	17:S:46:PRO:HD2	1.85	0.58
10:L:538:ASN:HB3	10:L:541:LEU:HB2	1.85	0.58
32:h:53:HIS:O	32:h:54:HIS:ND1	2.37	0.58
9:K:40:ASP:OD2	29:e:49:ARG:NH2	2.35	0.58
15:Q:110:ASP:OD1	15:Q:111:THR:N	2.37	0.58
20:V:110:ALA:HA	20:V:115:TRP:HZ3	1.68	0.58
13:O:168:ASN:O	13:O:168:ASN:ND2	2.35	0.58
23:Y:20:PHE:HE1	43:Y:302:PLC:H12	1.68	0.58
5:G:242:LEU:O	5:G:244:ARG:NH1	2.37	0.58
16:R:82:PRO:O	16:R:84:ARG:NH1	2.36	0.58
3:C:218:LYS:HE3	4:D:439:TYR:CZ	2.39	0.58
5:G:166:ILE:HG12	5:G:220:ILE:HD11	1.85	0.58
45:J:201:3PE:H3A1	30:f:11:VAL:HG23	1.85	0.58
6:H:172:SER:HB2	6:H:350:PRO:HG2	1.84	0.58
11:M:412:ILE:HD12	37:m:54:ALA:HB2	1.86	0.58
32:h:88:HIS:O	32:h:88:HIS:ND1	2.34	0.58
3:C:261:VAL:HG11	4:D:411:PRO:HG3	1.85	0.57
12:N:197:GLU:OE1	25:a:135:ARG:NH1	2.36	0.57
8:J:134:THR:HB	13:O:124:MET:HE2	1.84	0.57
10:L:534:LEU:HD22	38:n:35:ILE:HG12	1.87	0.57
14:P:257:GLU:HG2	14:P:261:MET:HE2	1.85	0.57
1:A:27:ILE:O	2:B:61:LYS:NZ	2.38	0.57
10:L:277:ILE:HG23	10:L:314:MET:HE3	1.86	0.57
11:M:14:ILE:HG21	43:M:504:PLC:H5A2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:P:131:ILE:HG23	14:P:175:VAL:HG11	1.85	0.57
40:p:44:CYS:SG	40:p:69:LYS:NZ	2.68	0.57
12:N:170:ILE:HG13	12:N:207:GLY:HA3	1.86	0.57
22:X:48:LEU:O	22:X:120:TYR:OH	2.15	0.57
31:g:136:GLU:N	31:g:139:GLU:OE2	2.34	0.57
41:q:44:PHE:HZ	41:q:73:VAL:HG13	1.69	0.57
38:n:19:TYR:OH	38:n:72:GLU:OE2	2.22	0.57
6:H:32:LEU:HD21	6:H:245:MET:HE2	1.86	0.57
6:H:121:ALA:HB1	8:J:52:THR:HB	1.86	0.57
10:L:269:TYR:HH	40:p:60:TYR:HH	1.53	0.57
1:A:108:LEU:HD23	1:A:111:ILE:HD12	1.86	0.57
2:B:108:ASP:OD1	2:B:108:ASP:N	2.34	0.57
3:C:154:ARG:NH2	20:V:89:SER:O	2.38	0.57
5:G:353:LYS:NZ	17:S:12:GLU:OE1	2.37	0.57
10:L:627:VAL:HG21	12:N:262:ASP:HB3	1.86	0.57
13:O:118:ASN:OD1	13:O:121:GLN:NE2	2.38	0.57
14:P:188:ARG:HB2	14:P:246:GLU:HG2	1.87	0.57
1:A:138:LYS:HB2	20:V:15:ILE:HD11	1.87	0.57
12:N:304:LEU:HD23	12:N:307:ILE:HD12	1.87	0.57
11:M:144:PHE:CZ	11:M:224:LYS:HG3	2.40	0.56
31:g:164:SER:OG	31:g:166:ASP:OD1	2.17	0.56
3:C:223:THR:HG21	3:C:244:LEU:HD11	1.86	0.56
6:H:148:ARG:HH21	6:H:221:LEU:HD11	1.69	0.56
9:K:51:ILE:HD13	12:N:130:ILE:HD11	1.85	0.56
24:Z:71:GLN:NE2	24:Z:75:ASP:OD1	2.38	0.56
3:C:133:THR:OG1	3:C:134:ALA:N	2.38	0.56
5:G:249:ASP:OD1	5:G:250:VAL:N	2.38	0.56
8:J:20:ASN:ND2	8:J:23:GLU:OE1	2.38	0.56
12:N:124:ASP:OD1	12:N:125:ILE:N	2.39	0.56
14:P:209:LEU:HD21	14:P:288:PHE:HE2	1.69	0.56
20:V:42:TYR:HB3	20:V:71:LEU:HD22	1.86	0.56
12:N:112:ASN:HD22	12:N:235:TYR:HE2	1.53	0.56
2:B:161:ASP:OD1	2:B:161:ASP:N	2.26	0.56
45:L:702:3PE:H3D1	45:L:705:3PE:H2F1	1.87	0.56
5:G:432:VAL:HG22	5:G:445:LEU:HD12	1.87	0.56
17:S:52:ALA:HB3	17:S:55:ILE:HG12	1.88	0.56
22:X:26:GLU:HG3	24:Z:81:ARG:HG2	1.88	0.56
17:S:27:LEU:HD22	17:S:57:PRO:HB3	1.87	0.56
11:M:128:MET:HE1	11:M:248:LEU:HD22	1.88	0.56
3:C:150:LEU:HB2	3:C:159:ILE:HG22	1.87	0.55
11:M:110:LEU:HB2	11:M:114:TYR:CZ	2.41	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
22:X:27:ASN:HD21	29:e:78:PRO:HG2	1.71	0.55
3:C:88:LEU:HD13	3:C:114:VAL:HG22	1.89	0.55
11:M:437:SER:OG	11:M:438:VAL:N	2.39	0.55
14:P:130:ASN:HD22	14:P:169:LYS:HG2	1.71	0.55
22:X:29:LYS:HG2	25:a:96:THR:HG21	1.88	0.55
22:X:42:ALA:O	25:a:73:ARG:NH1	2.36	0.55
5:G:108:ARG:HB3	5:G:141:TYR:HB3	1.88	0.55
10:L:620:TRP:CE2	25:a:121:PRO:HG3	2.41	0.55
41:q:37:THR:HG22	41:q:43:LYS:HA	1.89	0.55
5:G:241:GLU:OE1	7:I:127:LYS:NZ	2.35	0.55
10:L:379:LEU:HD22	10:L:384:ILE:HG13	1.89	0.55
24:Z:23:ARG:HG2	27:c:28:LEU:HD22	1.87	0.55
36:l:118:TYR:O	37:m:80:ARG:NH2	2.40	0.55
5:G:112:THR:HG21	5:G:142:GLY:HA3	1.89	0.55
5:G:173:CYS:SG	5:G:174:ILE:N	2.79	0.55
6:H:53:GLY:HA3	6:H:58:LEU:HB2	1.88	0.55
45:J:201:3PE:H391	45:J:201:3PE:H331	1.88	0.55
10:L:170:ILE:HD12	10:L:232:TRP:HB3	1.88	0.55
14:P:34:ARG:NH1	14:P:83:GLY:O	2.39	0.55
1:A:75:PHE:HE2	8:J:58:ALA:HA	1.72	0.55
7:I:151:ARG:NH2	16:R:120:TYR:O	2.34	0.55
3:C:77:LEU:HD22	3:C:102:LEU:HB2	1.88	0.55
4:D:433:ASP:HB3	20:V:130:PHE:CZ	2.42	0.55
4:D:196:ILE:HG23	4:D:229:LEU:HD22	1.88	0.55
11:M:78:LEU:H	45:M:502:3PE:HN3	1.54	0.55
11:M:301:LEU:HD22	11:M:349:VAL:HG13	1.89	0.55
45:M:501:3PE:H392	45:h:201:3PE:H382	1.89	0.55
28:d:72:LEU:O	28:d:75:SER:OG	2.25	0.55
5:G:175:HIS:O	5:G:176:CYS:HB3	2.06	0.55
5:G:235:PHE:HB3	7:I:150:ARG:HG3	1.88	0.55
41:q:70:MET:HE1	41:q:81:LEU:HD23	1.89	0.55
1:A:106:PHE:CD1	8:J:144:SER:HB3	2.42	0.54
5:G:456:LEU:HD13	5:G:494:PHE:HB2	1.89	0.54
11:M:352:ILE:HD11	11:M:453:GLU:HB3	1.90	0.54
13:O:30:LEU:O	13:O:34:GLY:N	2.37	0.54
22:X:59:GLN:NE2	22:X:63:ASP:OD2	2.40	0.54
7:I:115:ARG:NH2	16:R:72:TYR:O	2.40	0.54
11:M:111:LYS:HE2	12:N:458:LEU:HD13	1.90	0.54
40:p:3:ASP:OD1	40:p:3:ASP:N	2.41	0.54
3:C:130:MET:HE3	4:D:444:ARG:HH21	1.72	0.54
5:G:332:LYS:H	5:G:335:GLU:HB2	1.72	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:L:261:MET:HE1	10:L:326:LEU:HD13	1.89	0.54
11:M:226:PRO:HG3	11:M:234:LEU:HD22	1.90	0.54
12:N:12:TYR:HD1	46:b:102:CDL:HA61	1.72	0.54
23:Y:159:ASN:OD1	23:Y:160:LEU:N	2.40	0.54
36:l:126:ARG:NH2	39:o:26:ASP:OD2	2.39	0.54
7:I:169:GLN:OE1	7:I:222:ARG:NH2	2.40	0.54
3:C:142:ASN:HB2	20:V:126:GLN:HE22	1.73	0.54
29:e:21:GLN:NE2	32:h:150:PRO:O	2.40	0.54
1:A:35:GLU:O	14:P:53:ARG:NH2	2.35	0.54
3:C:204:ARG:NH2	3:C:211:PHE:O	2.39	0.54
43:D:501:PLC:H42	7:I:70:TRP:HE1	1.73	0.54
10:L:491:PRO:O	36:l:128:TYR:OH	2.23	0.54
3:C:101:GLU:OE1	3:C:160:ARG:NH2	2.33	0.54
3:C:170:PRO:HB3	3:C:195:PHE:HD2	1.72	0.54
8:J:25:ILE:HD13	9:K:20:ILE:HD11	1.89	0.54
8:J:124:ASP:N	8:J:124:ASP:OD1	2.40	0.54
11:M:6:LEU:O	11:M:10:ASN:ND2	2.38	0.54
35:k:32:PHE:O	35:k:36:GLY:N	2.41	0.54
5:G:379:ALA:HA	5:G:385:TYR:HE2	1.71	0.54
11:M:267:PRO:O	40:p:87:LYS:NZ	2.41	0.54
22:X:31:PRO:HD2	22:X:34:ILE:HD12	1.90	0.54
6:H:81:ILE:HD11	30:f:14:PHE:HB3	1.90	0.54
10:L:485:ASN:OD1	10:L:485:ASN:N	2.40	0.54
26:b:3:ILE:HD13	26:b:3:ILE:H	1.73	0.54
9:K:7:MET:HB3	25:a:119:ASN:HD22	1.71	0.53
10:L:618:LEU:HD13	45:L:702:3PE:H3E2	1.89	0.53
24:Z:23:ARG:NH1	27:c:28:LEU:O	2.40	0.53
14:P:120:PHE:HB2	14:P:125:SER:HA	1.90	0.53
39:o:52:GLU:OE1	39:o:52:GLU:N	2.40	0.53
4:D:221:TRP:CZ2	7:I:86:MET:HG3	2.43	0.53
4:D:313:ARG:NH1	4:D:320:ASP:OD1	2.41	0.53
10:L:437:ASN:ND2	35:k:13:ARG:O	2.30	0.53
10:L:584:LEU:O	10:L:589:GLY:HA3	2.08	0.53
11:M:330:GLY:HA3	11:M:400:LEU:HB2	1.90	0.53
1:A:28:VAL:HG12	6:H:69:SER:HA	1.91	0.53
4:D:40:ASP:OD1	4:D:40:ASP:N	2.39	0.53
11:M:97:ILE:HD13	31:g:150:MET:HE1	1.90	0.53
17:S:15:PHE:N	17:S:48:LEU:O	2.37	0.53
3:C:106:VAL:HG11	3:C:114:VAL:HG21	1.91	0.53
10:L:10:PHE:HE1	43:L:701:PLC:H9A1	1.74	0.53
10:L:59:TYR:HE2	45:h:201:3PE:H251	1.74	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
17:S:17:LEU:HB3	17:S:27:LEU:HD23	1.90	0.53
7:I:110:GLU:OE2	7:I:203:ASN:ND2	2.41	0.53
8:J:5:ILE:HD12	30:f:34:GLN:HE22	1.72	0.53
16:R:95:ASP:OD1	16:R:95:ASP:N	2.40	0.53
3:C:126:PHE:CD1	3:C:152:SER:HB2	2.44	0.53
2:B:199:MET:HG3	2:B:203:SER:HB2	1.90	0.53
6:H:169:LEU:HD21	6:H:340:PRO:HG3	1.90	0.53
34:j:55:HIS:N	34:j:58:GLU:OE1	2.42	0.53
7:I:57:GLU:OE2	26:b:15:ARG:NH2	2.40	0.52
8:J:105:TYR:HA	29:e:55:ARG:HD3	1.91	0.52
4:D:201:ASN:HD21	4:D:423:LYS:HE3	1.73	0.52
4:D:391:LYS:HB3	16:R:104:PRO:HA	1.91	0.52
5:G:217:ALA:O	5:G:288:ARG:NH1	2.42	0.52
6:H:9:ILE:HA	6:H:12:ILE:HG22	1.89	0.52
45:h:201:3PE:H2I2	33:i:40:CYS:HB3	1.90	0.52
8:J:112:ASP:O	25:a:100:GLN:NE2	2.43	0.52
12:N:387:PHE:CD1	12:N:454:SER:HB3	2.45	0.52
13:O:165:GLU:OE1	13:O:165:GLU:N	2.37	0.52
36:l:144:ASP:O	36:l:146:LEU:N	2.42	0.52
5:G:379:ALA:HA	5:G:385:TYR:CE2	2.45	0.52
8:J:43:TYR:OH	25:a:106:ARG:O	2.24	0.52
4:D:166:ASN:ND2	4:D:426:MET:SD	2.82	0.52
14:P:192:MET:HB3	14:P:224:ALA:HB2	1.92	0.52
1:A:133:ASN:OD1	1:A:134:LYS:N	2.42	0.52
3:C:242:LEU:HD23	15:Q:101:TYR:HB3	1.92	0.52
4:D:230:MET:HE2	4:D:240:ARG:HE	1.75	0.52
5:G:238:ARG:HG3	7:I:127:LYS:HB2	1.92	0.52
5:G:356:VAL:HG13	5:G:361:SER:HB3	1.91	0.52
6:H:154:ILE:HD11	8:J:61:ILE:HG12	1.91	0.52
12:N:461:LYS:NZ	12:N:462:ASP:OD1	2.38	0.52
36:l:133:LEU:HD11	39:o:25:ARG:HB2	1.91	0.52
6:H:324:CYS:HA	6:H:328:LEU:HB2	1.92	0.52
3:C:243:GLU:HG3	14:P:33:GLY:HA3	1.90	0.52
5:G:567:GLY:HA3	41:q:131:TRP:CD1	2.44	0.52
5:G:606:PRO:HB2	5:G:610:ALA:HB3	1.91	0.52
3:C:229:ARG:NH2	3:C:240:GLU:OE2	2.40	0.52
5:G:128:GLN:HE22	5:G:132:CYS:HB3	1.75	0.52
5:G:541:ILE:O	5:G:560:VAL:HA	2.10	0.52
14:P:266:ILE:HG23	14:P:348:ILE:HA	1.92	0.52
19:U:122:TYR:HD1	19:U:123:ILE:HD13	1.75	0.52
33:i:26:TRP:O	33:i:30:THR:OG1	2.21	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:236:VAL:O	7:I:106:ARG:NH1	2.42	0.52
5:G:401:LEU:HD23	5:G:472:ILE:HG23	1.90	0.52
9:K:73:ILE:O	9:K:76:SER:OG	2.19	0.52
45:L:702:3PE:H2H1	12:N:272:LEU:HD11	1.92	0.52
12:N:28:ARG:HG2	12:N:86:SER:OG	2.10	0.52
17:S:2:SER:OG	17:S:3:LYS:N	2.42	0.52
5:G:389:SER:O	5:G:390:THR:OG1	2.28	0.51
45:L:704:3PE:H282	23:Y:144:GLY:HA3	1.92	0.51
28:d:27:PHE:O	28:d:34:TYR:OH	2.19	0.51
4:D:285:ARG:NE	7:I:75:GLU:OE2	2.29	0.51
5:G:292:ASP:OD1	5:G:697:SER:OG	2.27	0.51
8:J:95:LEU:O	30:f:44:ARG:NH1	2.43	0.51
22:X:70:LYS:HE3	26:b:65:LEU:HD13	1.90	0.51
4:D:156:ASP:N	4:D:156:ASP:OD1	2.41	0.51
5:G:478:VAL:O	5:G:481:THR:OG1	2.24	0.51
1:A:48:GLY:O	2:B:105:ARG:NH2	2.30	0.51
5:G:347:GLU:N	5:G:347:GLU:OE1	2.44	0.51
5:G:596:ARG:HG3	5:G:653:VAL:HG22	1.93	0.51
8:J:5:ILE:HD12	30:f:34:GLN:NE2	2.26	0.51
8:J:23:GLU:O	8:J:27:ILE:HG12	2.10	0.51
20:V:35:ARG:HB2	20:V:36:PRO:HD3	1.93	0.51
4:D:123:GLU:OE2	6:H:148:ARG:NH1	2.35	0.51
5:G:128:GLN:O	5:G:128:GLN:NE2	2.44	0.51
5:G:279:ASN:OD1	5:G:279:ASN:N	2.44	0.51
12:N:46:THR:OG1	12:N:49:ASN:OD1	2.28	0.51
14:P:212:ASN:OD1	14:P:212:ASN:N	2.43	0.51
4:D:85:ASP:HB2	12:N:372:THR:HG21	1.93	0.51
45:L:706:3PE:H31	36:l:83:PRO:HG3	1.93	0.51
22:X:66:MET:HB3	26:b:65:LEU:HD21	1.92	0.51
40:p:64:ARG:NH1	40:p:68:GLU:HB2	2.25	0.51
5:G:124:PRO:O	5:G:238:ARG:NH2	2.44	0.51
18:T:88:ASP:OD1	21:W:56:ARG:NH2	2.44	0.51
6:H:4:ASN:O	6:H:4:ASN:ND2	2.39	0.51
8:J:70:ILE:HG23	18:T:133:ILE:HD11	1.92	0.51
2:B:114:GLY:HA2	42:B:301:SF4:S2	2.50	0.51
2:B:200:TRP:HA	2:B:204:TYR:HB2	1.93	0.51
8:J:1:FME:HE2	8:J:3:LEU:HD21	1.93	0.51
8:J:154:LEU:HD11	9:K:61:ALA:HB1	1.93	0.51
9:K:12:GLY:O	18:T:138:ARG:NH2	2.43	0.51
11:M:36:ILE:HG22	11:M:37:LYS:HG3	1.93	0.51
22:X:127:GLU:OE2	22:X:142:LYS:NZ	2.38	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:133:THR:HB	4:D:442:LYS:HG2	1.91	0.51
18:T:88:ASP:OD1	18:T:88:ASP:N	2.42	0.51
4:D:387:ARG:NH1	7:I:175:ASP:OD1	2.43	0.50
5:G:540:PHE:HD1	5:G:559:PHE:HB3	1.76	0.50
10:L:22:TYR:OH	32:h:65:ASN:ND2	2.44	0.50
10:L:354:TYR:O	10:L:360:TYR:OH	2.26	0.50
6:H:317:TYR:HA	6:H:320:LEU:HD12	1.94	0.50
10:L:641:ILE:HD11	45:L:702:3PE:H272	1.93	0.50
2:B:95:ARG:HA	6:H:49:PRO:HA	1.93	0.50
21:W:54:LYS:HG2	21:W:99:PHE:CD1	2.46	0.50
33:i:67:TRP:O	33:i:70:SER:OG	2.23	0.50
6:H:291:SER:OG	25:a:21:GLY:HA3	2.11	0.50
24:Z:43:TYR:HD1	45:Z:201:3PE:H242	1.77	0.50
36:l:88:PHE:CD2	36:l:89:VAL:HG13	2.46	0.50
16:R:118:CYS:SG	16:R:119:GLY:N	2.83	0.50
26:b:19:TYR:O	26:b:23:THR:OG1	2.29	0.50
35:k:10:ASP:OD2	38:n:42:ARG:NE	2.36	0.50
3:C:170:PRO:HG3	21:W:13:TYR:CG	2.46	0.50
4:D:229:LEU:HD21	4:D:266:TRP:CZ2	2.47	0.50
10:L:241:THR:HG21	10:L:344:GLY:HA3	1.94	0.50
12:N:116:LEU:HD11	12:N:239:MET:HB3	1.94	0.50
14:P:130:ASN:OD1	14:P:130:ASN:N	2.44	0.50
2:B:115:THR:HA	2:B:143:CYS:HB3	1.93	0.50
9:K:5:LEU:HD22	10:L:617:VAL:HG12	1.93	0.50
3:C:154:ARG:NH2	20:V:90:GLY:HA3	2.27	0.50
5:G:474:ILE:HG23	5:G:478:VAL:HG21	1.93	0.50
8:J:38:GLU:OE2	25:a:109:TRP:N	2.34	0.50
14:P:306:ASN:OD1	14:P:306:ASN:N	2.42	0.50
31:g:31:GLU:O	31:g:97:ASN:ND2	2.44	0.50
2:B:69:PHE:O	2:B:71:PRO:HD3	2.11	0.50
43:D:501:PLC:H7A2	6:H:194:PRO:HB3	1.94	0.50
45:M:501:3PE:H3H1	43:g:301:PLC:H1A1	1.94	0.50
25:a:115:ILE:HG23	25:a:116:ILE:HG13	1.93	0.50
5:G:354:ASP:OD1	5:G:354:ASP:N	2.45	0.49
5:G:436:PHE:CE2	5:G:438:SER:HB2	2.47	0.49
10:L:217:LEU:HD13	10:L:277:ILE:HG12	1.93	0.49
11:M:486:ILE:HD12	40:p:79:ILE:HG22	1.94	0.49
2:B:39:PRO:HA	14:P:97:ASN:HD22	1.78	0.49
3:C:191:LEU:HA	3:C:215:PRO:HD2	1.93	0.49
11:M:43:LYS:HD3	11:M:114:TYR:CD1	2.47	0.49
11:M:43:LYS:NZ	11:M:107:TRP:O	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:N:202:LEU:HB2	12:N:263:LEU:HD11	1.94	0.49
12:N:518:LEU:HD22	12:N:521:ASN:HB2	1.93	0.49
14:P:230:ALA:HA	14:P:331:MET:HE1	1.92	0.49
14:P:303:PRO:HA	43:P:503:PLC:H73	1.93	0.49
18:T:53:ASP:OD1	18:T:53:ASP:N	2.43	0.49
39:o:26:ASP:OD1	39:o:26:ASP:N	2.43	0.49
2:B:105:ARG:HH21	6:H:73:VAL:HG11	1.77	0.49
3:C:148:TYR:HB2	3:C:161:ILE:HB	1.94	0.49
31:g:96:ASP:OD1	31:g:96:ASP:N	2.45	0.49
5:G:462:LYS:O	5:G:465:SER:OG	2.20	0.49
7:I:122:ARG:NH1	7:I:174:VAL:O	2.45	0.49
10:L:40:VAL:HG22	10:L:90:VAL:HG12	1.95	0.49
10:L:563:LEU:HD21	45:L:706:3PE:H242	1.94	0.49
22:X:183:ILE:HD13	22:X:183:ILE:H	1.76	0.49
23:Y:182:LYS:NZ	40:p:13:ASP:O	2.44	0.49
4:D:320:ASP:HB3	4:D:323:LYS:HG2	1.93	0.49
14:P:153:SER:O	14:P:189:PRO:HD2	2.12	0.49
7:I:175:ASP:OD1	7:I:175:ASP:N	2.44	0.49
12:N:366:MET:HA	12:N:366:MET:HE2	1.95	0.49
24:Z:16:TRP:HE1	27:c:0:ACE:H2	1.78	0.49
39:o:60:GLN:HE21	39:o:60:GLN:HA	1.78	0.49
4:D:283:ASP:OD1	27:c:173:TYR:OH	2.25	0.49
6:H:145:ALA:HB2	6:H:221:LEU:HD13	1.94	0.49
8:J:109:TYR:CE1	25:a:104:ASN:HB3	2.47	0.49
11:M:383:SER:OG	11:M:431:THR:OG1	2.31	0.49
25:a:60:ARG:HG2	25:a:63:THR:HG22	1.94	0.49
9:K:7:MET:HB3	25:a:119:ASN:ND2	2.27	0.49
12:N:24:LYS:HD2	12:N:100:TYR:CZ	2.48	0.49
10:L:436:ASN:OD1	10:L:437:ASN:N	2.45	0.49
12:N:129:PHE:O	12:N:133:GLU:HG2	2.13	0.49
15:Q:118:PHE:O	15:Q:122:GLN:HG2	2.13	0.49
19:U:108:ASN:OD1	19:U:108:ASN:N	2.44	0.49
2:B:87:SER:HA	2:B:93:GLN:HG2	1.93	0.49
7:I:100:LYS:HE3	41:q:70:MET:HE2	1.94	0.49
2:B:93:GLN:HE22	2:B:100:PHE:HD1	1.61	0.48
3:C:48:LEU:HA	3:C:51:LEU:HG	1.94	0.48
11:M:300:ASP:HB3	11:M:303:VAL:HB	1.95	0.48
25:a:75:LEU:HB2	25:a:81:LEU:HD23	1.95	0.48
39:o:3:VAL:HG11	39:o:31:LEU:HD11	1.94	0.48
3:C:229:ARG:HD2	14:P:34:ARG:HH21	1.78	0.48
7:I:146:ILE:HG21	16:R:22:ILE:HA	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:J:14:TYR:HA	8:J:17:ILE:HG12	1.94	0.48
14:P:220:TYR:N	14:P:317:GLN:OE1	2.46	0.48
36:l:155:SER:O	39:o:27:ARG:NH2	2.46	0.48
3:C:170:PRO:HB3	3:C:195:PHE:CD2	2.48	0.48
17:S:24:SER:HA	17:S:57:PRO:HG3	1.94	0.48
18:T:102:VAL:HG11	18:T:122:VAL:HG22	1.94	0.48
19:U:60:ILE:HG12	35:k:9:ARG:HE	1.79	0.48
27:c:163:GLU:HA	27:c:166:HIS:CE1	2.48	0.48
3:C:118:LEU:HD12	3:C:161:ILE:HD11	1.96	0.48
10:L:385:PRO:HB2	34:j:50:TRP:CZ3	2.48	0.48
43:L:701:PLC:H42	33:i:18:GLY:HA3	1.94	0.48
11:M:415:LEU:HD21	45:m:101:3PE:H2B1	1.95	0.48
15:Q:57:ILE:HG22	15:Q:75:TRP:HE3	1.78	0.48
41:q:47:VAL:HG11	41:q:52:GLU:HG3	1.95	0.48
5:G:616:ILE:O	5:G:620:LEU:N	2.38	0.48
6:H:24:SER:OG	25:a:16:GLY:O	2.28	0.48
10:L:127:LEU:HD22	10:L:143:ILE:HD11	1.95	0.48
12:N:176:SER:OG	12:N:200:ASP:OD2	2.23	0.48
2:B:125:ARG:NH1	2:B:163:ILE:O	2.46	0.48
5:G:657:SER:HB3	17:S:19:GLN:HB3	1.96	0.48
14:P:34:ARG:NH2	14:P:82:ASN:O	2.47	0.48
18:T:50:THR:OG1	18:T:53:ASP:OD1	2.32	0.48
41:q:47:VAL:HG12	41:q:49:ASP:H	1.78	0.48
8:J:97:ASP:O	25:a:112:ARG:HD2	2.13	0.48
12:N:291:LEU:HD22	12:N:449:ILE:HD11	1.95	0.48
23:Y:188:ARG:NH2	23:Y:206:ASP:OD1	2.42	0.48
25:a:2:ILE:HD12	46:q:203:CDL:HB4	1.94	0.48
5:G:430:HIS:CD2	5:G:460:VAL:HG13	2.48	0.48
5:G:632:ASN:ND2	5:G:635:GLU:OE2	2.47	0.48
6:H:34:VAL:HG22	6:H:59:MET:HB3	1.96	0.48
6:H:47:LEU:HD12	7:I:93:THR:HB	1.96	0.48
6:H:209:ARG:HH22	6:H:309:ARG:HH11	1.60	0.48
10:L:552:ILE:HG22	36:l:98:PHE:HD1	1.78	0.48
11:M:179:LEU:HB3	12:N:436:ILE:HD13	1.95	0.48
11:M:334:LEU:HB2	11:M:397:GLY:HA3	1.95	0.48
14:P:316:ASN:OD1	14:P:316:ASN:N	2.46	0.48
17:S:14:ARG:HG2	17:S:48:LEU:HD12	1.96	0.48
20:V:15:ILE:HG22	20:V:16:LYS:HG3	1.94	0.48
39:o:7:PRO:HG3	39:o:31:LEU:HG	1.96	0.48
5:G:262:THR:HG22	5:G:267:VAL:HG22	1.95	0.48
7:I:37:SER:HB2	27:c:146:PRO:HG2	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:I:111:HIS:HD2	7:I:168:CYS:SG	2.18	0.48
11:M:85:ASP:OD1	11:M:85:ASP:N	2.45	0.48
1:A:2:LEU:HD11	25:a:81:LEU:HD12	1.96	0.47
1:A:5:LEU:HD13	6:H:14:TYR:HD1	1.79	0.47
4:D:380:PHE:HB2	5:G:144:ASP:HB2	1.96	0.47
5:G:455:ALA:O	5:G:461:GLY:N	2.47	0.47
20:V:110:ALA:HA	20:V:115:TRP:CZ3	2.49	0.47
7:I:128:LEU:O	7:I:132:VAL:HG23	2.15	0.47
14:P:69:PRO:HB2	14:P:93:PHE:CD1	2.49	0.47
3:C:187:GLU:OE1	4:D:442:LYS:NZ	2.47	0.47
5:G:373:VAL:HG21	5:G:531:PRO:HA	1.95	0.47
6:H:70:LYS:HB2	6:H:231:ALA:HB2	1.95	0.47
6:H:346:PHE:O	26:b:52:TYR:OH	2.28	0.47
20:V:50:GLU:HA	20:V:60:ARG:HH21	1.79	0.47
45:m:101:3PE:H381	45:m:101:3PE:H3B1	1.58	0.47
3:C:142:ASN:HB2	20:V:126:GLN:NE2	2.29	0.47
5:G:542:TYR:OH	5:G:563:GLN:OE1	2.33	0.47
7:I:68:THR:HG23	7:I:72:LEU:HD12	1.95	0.47
10:L:95:LEU:HD13	10:L:462:LEU:HG	1.95	0.47
12:N:187:GLN:NE2	32:h:145:ARG:H	2.11	0.47
18:T:86:SER:HB3	21:W:25:LEU:HD21	1.96	0.47
3:C:63:VAL:HG12	27:c:75:HIS:NE2	2.30	0.47
5:G:343:LEU:O	5:G:590:TYR:OH	2.32	0.47
10:L:604:LEU:HD13	45:L:702:3PE:H352	1.97	0.47
43:L:701:PLC:H63	33:i:19:TRP:CZ2	2.50	0.47
12:N:346:MET:HE1	12:N:365:ASN:HB2	1.97	0.47
16:R:51:ARG:HD3	16:R:70:ARG:NH1	2.30	0.47
17:S:15:PHE:HE2	17:S:47:ILE:HG23	1.79	0.47
5:G:649:ARG:NE	5:G:654:GLU:OE2	2.48	0.47
6:H:141:TYR:HB2	6:H:227:THR:HG21	1.97	0.47
8:J:99:GLU:OE1	25:a:112:ARG:HD3	2.14	0.47
14:P:253:TYR:OH	14:P:337:SER:OG	2.32	0.47
21:W:76:MET:HG2	21:W:80:MET:HE3	1.96	0.47
46:q:203:CDL:H541	46:q:203:CDL:H511	1.70	0.47
1:A:17:GLY:HA3	6:H:92:PHE:HZ	1.80	0.47
2:B:61:LYS:HE2	2:B:65:ARG:HH22	1.78	0.47
3:C:171:VAL:O	3:C:197:GLU:N	2.35	0.47
8:J:98:ASN:OD1	25:a:106:ARG:NH2	2.46	0.47
10:L:79:ASP:O	10:L:83:VAL:HG23	2.15	0.47
10:L:246:LEU:O	10:L:251:CYS:HB2	2.14	0.47
10:L:279:TRP:CG	43:L:709:PLC:H1'1	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
10:L:347:ILE:HD13	10:L:355:GLN:HG2	1.97	0.47
10:L:612:ILE:HD13	12:N:219:SER:HB2	1.96	0.47
11:M:18:VAL:HG21	43:M:504:PLC:H1A2	1.96	0.47
11:M:61:TRP:CD1	11:M:89:LEU:HD21	2.50	0.47
13:O:110:SER:HB3	13:O:178:LYS:O	2.14	0.47
20:V:77:ASN:OD1	20:V:86:LYS:NZ	2.32	0.47
23:Y:88:PHE:HB2	23:Y:89:PRO:HD3	1.96	0.47
31:g:179:GLU:OE2	40:p:6:ARG:NH2	2.48	0.47
36:l:72:HIS:CD2	36:l:73:PRO:HD2	2.50	0.47
39:o:73:GLU:HA	39:o:76:LYS:HE2	1.96	0.47
40:p:13:ASP:OD1	40:p:13:ASP:N	2.47	0.47
1:A:9:TYR:OH	6:H:95:LEU:O	2.31	0.47
3:C:266:ASP:OD1	3:C:267:PHE:N	2.48	0.47
5:G:110:GLY:O	5:G:114:MET:HG2	2.14	0.47
10:L:527:GLU:OE1	35:k:23:ARG:NH2	2.48	0.47
11:M:128:MET:SD	11:M:253:ILE:HG13	2.55	0.47
14:P:324:LYS:HB3	14:P:328:ASP:CG	2.40	0.47
23:Y:111:ALA:HB3	43:Y:302:PLC:H11	1.97	0.47
43:Y:303:PLC:H8A2	37:m:47:PRO:HB3	1.96	0.47
3:C:132:VAL:HB	3:C:184:PHE:HB3	1.97	0.47
5:G:432:VAL:HG11	5:G:452:LEU:HD13	1.97	0.47
8:J:96:ASP:OD2	30:f:51:LYS:NZ	2.48	0.47
9:K:74:ARG:HE	18:T:133:ILE:HG22	1.80	0.47
11:M:282:ILE:HD13	37:m:51:GLY:HA2	1.97	0.47
19:U:88:LEU:HB3	38:n:49:ARG:HH12	1.80	0.47
1:A:82:VAL:HA	1:A:85:MET:HE2	1.97	0.47
5:G:641:ALA:HB2	5:G:648:LEU:HD11	1.97	0.47
11:M:162:ASN:HB2	11:M:240:GLU:CD	2.40	0.47
14:P:79:LEU:O	14:P:82:ASN:ND2	2.46	0.47
14:P:326:PHE:HD1	14:P:331:MET:HE3	1.80	0.47
31:g:172:GLU:HG2	40:p:36:ILE:HD11	1.97	0.47
37:m:18:TYR:OH	37:m:22:ARG:NH1	2.48	0.47
3:C:102:LEU:HD23	3:C:159:ILE:HG13	1.97	0.46
4:D:166:ASN:O	4:D:169:VAL:HG12	2.15	0.46
4:D:217:THR:OG1	6:H:310:ALA:O	2.20	0.46
5:G:691:ASP:OD1	5:G:691:ASP:N	2.48	0.46
7:I:138:ILE:HD13	7:I:157:ILE:HG12	1.97	0.46
10:L:471:TYR:OH	45:j:101:3PE:O14	2.22	0.46
13:O:18:ARG:NH2	13:O:100:GLU:OE2	2.47	0.46
21:W:26:ASN:O	21:W:30:ARG:HG3	2.14	0.46
21:W:60:GLU:HG2	21:W:63:ARG:HH21	1.80	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:42:TYR:CG	4:D:92:LYS:HE3	2.50	0.46
5:G:162:ILE:HG23	5:G:168:THR:HG21	1.98	0.46
10:L:422:THR:O	10:L:426:SER:OG	2.20	0.46
11:M:236:THR:O	11:M:240:GLU:HG2	2.15	0.46
11:M:391:LEU:HD13	43:M:503:PLC:HE'3	1.96	0.46
15:Q:37:LEU:HB3	21:W:70:LEU:HD11	1.96	0.46
2:B:201:TYR:HA	14:P:122:LYS:HE2	1.97	0.46
20:V:65:ALA:HB1	27:c:145:SER:HA	1.97	0.46
22:X:38:GLU:HB3	25:a:89:VAL:HG13	1.97	0.46
40:p:89:ASP:OD1	40:p:91:SER:OG	2.22	0.46
1:A:24:ASN:HB2	6:H:232:SER:OG	2.16	0.46
1:A:115:ILE:HD11	46:b:102:CDL:H561	1.96	0.46
3:C:252:THR:HA	4:D:437:ARG:HH21	1.80	0.46
5:G:218:ASN:O	5:G:222:LEU:HG	2.15	0.46
10:L:93:SER:OG	10:L:121:THR:OG1	2.25	0.46
10:L:574:ASN:OD1	11:M:298:GLN:NE2	2.49	0.46
11:M:149:ALA:HB3	11:M:150:PRO:HD3	1.97	0.46
15:Q:57:ILE:HG12	15:Q:77:ILE:HG12	1.97	0.46
1:A:24:ASN:ND2	6:H:68:LEU:O	2.48	0.46
3:C:76:GLU:HB3	27:c:150:PRO:HB3	1.97	0.46
6:H:183:GLN:NE2	6:H:255:PHE:O	2.47	0.46
10:L:243:VAL:HG13	10:L:247:LEU:HD13	1.98	0.46
45:j:101:3PE:H31	45:j:101:3PE:H321	1.61	0.46
40:p:84:GLY:O	40:p:88:ASN:ND2	2.45	0.46
1:A:27:ILE:HG23	43:P:502:PLC:H5A2	1.96	0.46
5:G:465:SER:O	5:G:500:ASN:ND2	2.48	0.46
6:H:287:GLY:O	6:H:291:SER:OG	2.22	0.46
7:I:75:GLU:OE1	7:I:75:GLU:N	2.38	0.46
8:J:1:FME:HCN	8:J:1:FME:HB3	1.62	0.46
10:L:564:ARG:NH1	36:l:77:ASP:O	2.29	0.46
11:M:46:GLY:HA3	11:M:118:VAL:HG11	1.96	0.46
17:S:26:PRO:O	17:S:29:SER:OG	2.28	0.46
3:C:66:PRO:O	3:C:69:LYS:HG2	2.15	0.46
5:G:278:ILE:HG23	5:G:391:ILE:HD12	1.98	0.46
10:L:385:PRO:HA	10:L:390:PHE:CG	2.50	0.46
21:W:49:SER:O	21:W:53:THR:OG1	2.30	0.46
41:q:28:ASP:OD2	41:q:56:ARG:NH2	2.32	0.46
2:B:59:LYS:NZ	2:B:192:MET:O	2.39	0.46
2:B:73:THR:O	2:B:73:THR:OG1	2.24	0.46
2:B:134:PRO:HD2	6:H:70:LYS:HD2	1.98	0.46
3:C:84:ILE:O	3:C:88:LEU:N	2.46	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:100:THR:OG1	4:D:119:GLU:OE1	2.25	0.46
4:D:322:ARG:HD2	4:D:330:TYR:CE1	2.51	0.46
4:D:379:ASP:HB3	4:D:382:VAL:HG22	1.97	0.46
5:G:519:VAL:HG21	5:G:593:THR:HA	1.97	0.46
12:N:194:ASP:OD1	12:N:194:ASP:N	2.44	0.46
43:g:301:PLC:H4'2	32:h:74:TRP:CE3	2.50	0.46
6:H:101:ILE:HG23	6:H:254:ILE:HD11	1.97	0.46
7:I:145:ARG:NH1	7:I:151:ARG:HG3	2.31	0.46
34:j:36:TRP:HB2	35:k:34:GLY:HA3	1.97	0.46
4:D:185:ARG:HB3	4:D:374:PRO:O	2.16	0.46
11:M:480:LEU:O	11:M:483:SER:OG	2.32	0.46
13:O:8:ASP:CG	13:O:150:HIS:HD1	2.24	0.46
14:P:301:SER:HB2	43:P:502:PLC:H11	1.97	0.46
27:c:20:GLU:OE2	27:c:24:GLN:NE2	2.49	0.46
41:q:77:TRP:CE2	41:q:89:PRO:HG2	2.51	0.46
4:D:433:ASP:CG	4:D:439:TYR:HB2	2.41	0.45
5:G:301:LYS:HD2	14:P:25:THR:HG21	1.98	0.45
9:K:15:ILE:HD11	18:T:137:ILE:HG23	1.96	0.45
10:L:623:ILE:HD13	12:N:203:CYS:SG	2.57	0.45
11:M:36:ILE:HG23	31:g:98:GLU:HG2	1.99	0.45
12:N:384:LYS:HD2	12:N:452:VAL:HG13	1.98	0.45
14:P:155:TYR:HE2	47:P:501:NDP:H5N	1.80	0.45
15:Q:53:ARG:NH2	15:Q:100:ASP:OD2	2.50	0.45
19:U:128:ASP:OD1	19:U:128:ASP:N	2.34	0.45
26:b:3:ILE:HG12	26:b:4:GLY:H	1.81	0.45
1:A:125:ILE:O	1:A:126:THR:OG1	2.31	0.45
13:O:55:MET:SD	13:O:56:PRO:HD2	2.57	0.45
14:P:203:LEU:O	14:P:259:ARG:NH1	2.46	0.45
18:T:59:VAL:O	18:T:63:ARG:N	2.40	0.45
20:V:49:LEU:HD22	20:V:60:ARG:HG3	1.97	0.45
9:K:42:ASP:OD2	12:N:178:TYR:OH	2.32	0.45
46:O:201:CDL:HA31	46:O:201:CDL:H1	1.98	0.45
14:P:139:LYS:HB2	14:P:179:ASN:HB3	1.98	0.45
14:P:180:PHE:HE2	14:P:183:ASP:HB2	1.81	0.45
16:R:17:LEU:O	16:R:50:PRO:HB3	2.16	0.45
7:I:145:ARG:HG3	7:I:151:ARG:HB2	1.98	0.45
45:L:706:3PE:H352	45:L:706:3PE:H382	1.60	0.45
11:M:247:ILE:HG23	11:M:343:PRO:HB3	1.98	0.45
13:O:180:LEU:O	13:O:184:GLN:HB2	2.16	0.45
14:P:226:GLN:O	14:P:230:ALA:N	2.48	0.45
27:c:26:LEU:HD13	46:q:203:CDL:H141	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:H:171:VAL:HG23	6:H:173:SER:H	1.81	0.45
12:N:486:SER:OG	13:O:46:GLU:OE1	2.30	0.45
14:P:341:TYR:CE2	14:P:359:VAL:HG13	2.51	0.45
22:X:148:PRO:HD2	22:X:151:ARG:HD2	1.98	0.45
1:A:86:LEU:HD23	1:A:89:ILE:HD12	1.98	0.45
3:C:143:ARG:NH1	3:C:167:GLU:OE2	2.50	0.45
4:D:231:GLU:OE1	4:D:235:ARG:NH2	2.42	0.45
4:D:381:LYS:HE3	27:c:77:ARG:HH21	1.82	0.45
6:H:191:PRO:HB3	24:Z:41:GLY:HA3	1.98	0.45
10:L:127:LEU:HD12	10:L:136:LEU:HG	1.99	0.45
11:M:462:ILE:HG12	45:M:501:3PE:H3H2	1.98	0.45
24:Z:132:ALA:HB2	29:e:85:PHE:CD1	2.52	0.45
31:g:136:GLU:HB2	31:g:138:TRP:CD1	2.52	0.45
36:l:60:ASP:O	36:l:64:LYS:N	2.50	0.45
3:C:217:ARG:HH12	15:Q:43:SER:HA	1.82	0.45
4:D:161:VAL:HG11	4:D:204:MET:HG2	1.98	0.45
43:D:501:PLC:H9'2	6:H:200:PHE:HD2	1.81	0.45
11:M:402:ILE:HD13	11:M:417:ALA:HA	1.97	0.45
11:M:410:PRO:O	11:M:414:SER:OG	2.34	0.45
36:l:136:ASP:OD1	36:l:136:ASP:N	2.45	0.45
5:G:434:GLU:HB2	5:G:681:LYS:HA	1.98	0.45
5:G:476:SER:HB3	5:G:513:HIS:HA	1.97	0.45
10:L:168:LEU:HD21	11:M:428:MET:HG3	1.98	0.45
23:Y:211:ARG:NH1	37:m:58:GLU:OE2	2.50	0.45
5:G:214:GLU:HG2	5:G:215:LEU:HG	1.99	0.45
6:H:171:VAL:HG21	6:H:179:ILE:HG12	1.98	0.45
12:N:89:ILE:HG13	12:N:90:THR:HG23	1.98	0.45
3:C:85:MET:SD	27:c:90:VAL:HG21	2.57	0.45
3:C:252:THR:HG22	4:D:437:ARG:CZ	2.47	0.45
5:G:642:ASP:OD1	5:G:642:ASP:N	2.50	0.45
10:L:26:ASN:O	10:L:30:TRP:HD1	2.00	0.45
10:L:62:MET:HE1	45:M:501:3PE:H362	2.00	0.45
12:N:481:ILE:HG21	28:d:26:PRO:HD2	1.99	0.45
31:g:189:ASP:OD2	31:g:193:LYS:NZ	2.40	0.45
43:g:301:PLC:H73	43:g:301:PLC:H42	1.83	0.45
33:i:60:LYS:HB2	33:i:63:GLU:OE1	2.17	0.45
1:A:49:PRO:HB2	6:H:140:LYS:HG3	2.00	0.44
1:A:52:CYS:HA	4:D:106:GLN:HB3	1.99	0.44
4:D:85:ASP:OD1	12:N:150:HIS:N	2.42	0.44
6:H:122:SER:OG	30:f:3:TYR:OH	2.24	0.44
43:L:701:PLC:H81	11:M:369:SER:O	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:P:70:PHE:CE2	14:P:90:PHE:HB3	2.47	0.44
15:Q:112:ARG:HE	15:Q:116:ILE:HD11	1.81	0.44
29:e:20:PHE:HB2	29:e:45:TYR:CE1	2.52	0.44
1:A:46:LYS:HA	2:B:130:GLN:HA	1.99	0.44
10:L:423:SER:O	10:L:427:ILE:HG12	2.16	0.44
11:M:183:LEU:HG	12:N:436:ILE:HD12	1.99	0.44
5:G:366:THR:HG21	5:G:518:ARG:HD2	1.99	0.44
5:G:471:LEU:HD23	5:G:471:LEU:HA	1.89	0.44
6:H:163:VAL:HG11	6:H:199:PHE:HB2	1.98	0.44
10:L:608:ASN:OD1	10:L:611:PHE:N	2.43	0.44
43:L:709:PLC:H3A1	43:L:709:PLC:H6A1	1.75	0.44
20:V:113:LYS:HA	20:V:115:TRP:CH2	2.51	0.44
27:c:19:TRP:CE2	46:q:203:CDL:HB21	2.51	0.44
45:m:101:3PE:H3H1	45:m:101:3PE:H3E1	1.78	0.44
39:o:63:ASP:OD2	39:o:67:ARG:NH2	2.51	0.44
2:B:63:TRP:HE1	43:q:202:PLC:P	2.40	0.44
5:G:367:ASP:OD1	5:G:367:ASP:N	2.33	0.44
12:N:108:ILE:HD13	12:N:108:ILE:HA	1.81	0.44
20:V:113:LYS:HA	20:V:115:TRP:CZ3	2.52	0.44
23:Y:213:ILE:O	23:Y:215:THR:N	2.50	0.44
25:a:42:GLU:HG3	25:a:43:ILE:HG13	1.99	0.44
33:i:68:ASN:OD1	33:i:68:ASN:N	2.51	0.44
4:D:114:LEU:HD22	4:D:477:PHE:CZ	2.52	0.44
4:D:197:THR:OG1	4:D:233:TYR:OH	2.34	0.44
5:G:524:VAL:HG12	5:G:643:VAL:HG11	1.99	0.44
7:I:180:THR:HG22	7:I:211:ILE:HD11	1.99	0.44
10:L:170:ILE:HG12	45:L:706:3PE:H241	2.00	0.44
20:V:65:ALA:HB3	27:c:146:PRO:HD3	1.99	0.44
32:h:164:ASN:OD1	32:h:164:ASN:N	2.47	0.44
38:n:23:LEU:HD13	38:n:71:THR:HG21	1.99	0.44
38:n:34:TRP:CZ2	38:n:80:HIS:HA	2.52	0.44
4:D:403:LEU:HD23	4:D:403:LEU:HA	1.73	0.44
5:G:254:LEU:HD11	5:G:411:ALA:HB1	1.99	0.44
6:H:322:LEU:O	6:H:326:TYR:HB2	2.17	0.44
25:a:96:THR:O	25:a:96:THR:OG1	2.34	0.44
6:H:139:SER:HB2	6:H:143:VAL:HG21	1.99	0.44
7:I:207:TRP:CE3	41:q:75:PRO:HB3	2.53	0.44
8:J:99:GLU:HG3	25:a:107:ARG:HD2	1.99	0.44
11:M:136:ASP:N	11:M:136:ASP:OD1	2.50	0.44
20:V:80:ILE:HG23	20:V:92:VAL:HG21	1.99	0.44
21:W:76:MET:HE2	21:W:76:MET:HB3	1.90	0.44

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
2:B:86:VAL:HG21	2:B:180:LEU:HD23	1.99	0.44
2:B:115:THR:OG1	2:B:143:CYS:SG	2.74	0.44
5:G:176:CYS:SG	5:G:178:ARG:HB2	2.58	0.44
13:O:78:THR:HG23	13:O:136:LEU:HD23	1.99	0.44
17:S:14:ARG:HA	17:S:48:LEU:HB2	1.99	0.44
43:Z:202:PLC:H4'2	46:Z:203:CDL:H722	2.00	0.44
37:m:14:SER:OG	37:m:17:ARG:NH2	2.50	0.44
1:A:44:ILE:HB	14:P:346:PRO:HB3	2.00	0.44
5:G:650:HIS:O	5:G:652:VAL:HG23	2.18	0.44
11:M:61:TRP:O	31:g:160:LYS:NZ	2.50	0.44
16:R:50:PRO:HD3	41:q:125:ARG:HE	1.82	0.44
20:V:58:VAL:HG11	27:c:139:LEU:HD23	2.00	0.44
22:X:52:TYR:CD1	22:X:142:LYS:HE3	2.53	0.44
24:Z:63:ARG:NH2	25:a:64:ASP:OD2	2.51	0.44
25:a:72:VAL:O	25:a:76:ARG:HG3	2.17	0.44
31:g:45:ASN:O	31:g:45:ASN:ND2	2.51	0.44
31:g:229:LEU:HA	40:p:11:SER:HB3	2.00	0.44
2:B:84:MET:HE1	4:D:204:MET:SD	2.58	0.43
12:N:18:LYS:HZ1	12:N:103:ARG:HD2	1.82	0.43
14:P:180:PHE:CE2	14:P:183:ASP:HB2	2.52	0.43
19:U:79:PHE:O	19:U:85:LEU:HB2	2.18	0.43
20:V:11:GLN:OE1	20:V:12:GLU:N	2.48	0.43
24:Z:127:SER:HB2	24:Z:132:ALA:HA	2.00	0.43
41:q:30:LYS:HB3	41:q:30:LYS:HE2	1.80	0.43
2:B:60:MET:HE3	43:q:201:PLC:H7A1	2.00	0.43
7:I:126:CYS:CB	7:I:128:LEU:H	2.28	0.43
45:J:201:3PE:H282	45:J:201:3PE:H252	1.82	0.43
10:L:559:ASN:ND2	36:l:84:ASP:O	2.32	0.43
13:O:27:THR:HG21	13:O:75:TYR:HD1	1.83	0.43
13:O:77:TYR:HE1	13:O:133:GLN:HE21	1.66	0.43
23:Y:126:LEU:HD22	23:Y:130:ARG:HG3	2.00	0.43
5:G:377:HIS:CD2	5:G:385:TYR:HB3	2.53	0.43
10:L:63:ASN:OD1	10:L:64:TRP:N	2.50	0.43
10:L:63:ASN:HD21	10:L:71:VAL:HG13	1.83	0.43
11:M:299:THR:HG21	37:m:22:ARG:HG3	2.00	0.43
46:O:201:CDL:HA22	46:O:201:CDL:H111	2.00	0.43
21:W:26:ASN:OD1	21:W:29:ARG:NH2	2.51	0.43
25:a:64:ASP:OD1	25:a:64:ASP:N	2.51	0.43
5:G:335:GLU:HA	5:G:538:ALA:HA	2.00	0.43
5:G:689:PHE:CE1	5:G:695:LYS:HA	2.53	0.43
6:H:135:TRP:HZ2	8:J:67:LEU:HD23	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
8:J:139:LEU:HD22	12:N:130:ILE:HD12	2.01	0.43
10:L:213:LEU:HD13	10:L:267:LEU:HA	2.00	0.43
10:L:441:PRO:HD2	10:L:444:ILE:HD12	1.99	0.43
45:M:501:3PE:H381	45:M:501:3PE:H3B2	1.72	0.43
43:M:503:PLC:H3'2	43:g:301:PLC:H3A1	1.99	0.43
23:Y:207:LEU:O	23:Y:211:ARG:NH2	2.32	0.43
10:L:279:TRP:CE2	43:L:709:PLC:H2	2.53	0.43
12:N:179:ASP:OD2	25:a:126:ARG:NH2	2.52	0.43
12:N:506:GLN:HE21	43:d:101:PLC:H1'1	1.84	0.43
19:U:85:LEU:HD22	19:U:89:ASP:HB3	1.98	0.43
23:Y:65:GLY:O	23:Y:71:LEU:HD23	2.18	0.43
34:j:42:ARG:NH1	45:j:101:3PE:O14	2.45	0.43
43:B:302:PLC:H31	43:q:201:PLC:H1'2	2.00	0.43
5:G:406:ASN:HB2	5:G:682:ASN:ND2	2.34	0.43
7:I:107:PHE:HD2	7:I:181:PRO:HA	1.84	0.43
8:J:50:LEU:HD23	8:J:50:LEU:HA	1.85	0.43
13:O:5:GLU:OE2	13:O:161:ARG:NH2	2.51	0.43
14:P:326:PHE:HB3	14:P:331:MET:O	2.19	0.43
25:a:6:ALA:O	25:a:9:PRO:HD2	2.17	0.43
25:a:40:ASN:O	25:a:44:LYS:HG3	2.19	0.43
34:j:44:LYS:HD2	35:k:38:PHE:CE1	2.53	0.43
37:m:79:PRO:O	39:o:78:ARG:NH1	2.51	0.43
1:A:41:SER:HB2	14:P:347:HIS:HE1	1.82	0.43
3:C:113:GLN:OE1	3:C:113:GLN:N	2.52	0.43
10:L:93:SER:O	10:L:97:HIS:ND1	2.39	0.43
10:L:132:ASN:OD1	10:L:135:ILE:HG12	2.19	0.43
12:N:475:GLU:OE1	12:N:478:ASN:ND2	2.52	0.43
14:P:113:ASN:HD22	14:P:137:ILE:HG21	1.84	0.43
22:X:36:ASP:OD1	22:X:37:VAL:N	2.52	0.43
36:l:25:LYS:HZ3	36:l:25:LYS:HB2	1.83	0.43
40:p:73:MET:HB3	40:p:77:HIS:CE1	2.53	0.43
4:D:80:ASN:O	12:N:287:ARG:NH2	2.39	0.43
5:G:359:LEU:HD11	5:G:624:LEU:HD13	2.00	0.43
10:L:167:ALA:O	10:L:171:ASN:ND2	2.52	0.43
10:L:526:TYR:OH	43:L:708:PLC:H41	2.18	0.43
11:M:140:PHE:O	11:M:144:PHE:HB2	2.19	0.43
11:M:423:SER:HA	11:M:426:TYR:CE2	2.54	0.43
23:Y:118:SER:HB2	23:Y:146:GLY:HA2	2.01	0.43
1:A:34:ASP:OD2	2:B:133:TYR:HB2	2.18	0.43
4:D:179:ASN:ND2	27:c:79:TYR:HA	2.34	0.43
4:D:297:VAL:HG22	4:D:457:ILE:HG12	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:G:501:ILE:HG23	5:G:508:GLY:HA3	2.01	0.43
6:H:170:ILE:HD11	6:H:339:ALA:HB1	2.01	0.43
7:I:45:PRO:HB3	27:c:158:PHE:O	2.19	0.43
8:J:128:ILE:HG23	9:K:47:ILE:HG12	2.01	0.43
10:L:169:LEU:HB2	45:L:706:3PE:H231	2.01	0.43
11:M:10:ASN:CG	11:M:126:ILE:HG13	2.44	0.43
15:Q:92:LEU:HG	15:Q:93:MET:HG2	2.00	0.43
17:S:14:ARG:NH1	17:S:68:GLU:OE2	2.52	0.43
20:V:73:ILE:O	20:V:77:ASN:ND2	2.38	0.43
31:g:32:LYS:HD2	31:g:32:LYS:HA	1.90	0.43
45:h:201:3PE:H332	45:h:201:3PE:H362	1.84	0.43
10:L:352:SER:HB3	10:L:444:ILE:HD11	2.01	0.43
11:M:148:LEU:HD23	11:M:148:LEU:HA	1.76	0.43
11:M:440:SER:O	38:n:102:ARG:NH2	2.51	0.43
24:Z:132:ALA:O	24:Z:134:SER:N	2.51	0.43
1:A:41:SER:HB2	14:P:347:HIS:CE1	2.54	0.42
7:I:162:CYS:SG	7:I:164:TYR:N	2.73	0.42
10:L:24:GLY:O	10:L:111:GLN:NE2	2.51	0.42
11:M:238:HIS:NE2	11:M:250:ALA:HB2	2.34	0.42
12:N:76:ILE:HD11	45:N:601:3PE:H321	2.01	0.42
17:S:6:PHE:HB3	17:S:10:VAL:HG21	2.01	0.42
31:g:184:ASP:OD2	31:g:217:ARG:NE	2.52	0.42
36:l:128:TYR:HB2	36:l:132:GLY:HA2	2.00	0.42
1:A:66:ILE:HG23	8:J:158:VAL:HG12	2.01	0.42
3:C:140:ARG:HE	3:C:140:ARG:HB2	1.65	0.42
4:D:71:LYS:HG3	4:D:72:ASP:OD1	2.19	0.42
6:H:143:VAL:O	6:H:146:THR:HG22	2.19	0.42
12:N:235:TYR:CE1	12:N:239:MET:HG3	2.54	0.42
12:N:255:ILE:HG21	12:N:263:LEU:HD22	2.01	0.42
16:R:76:ASP:O	16:R:80:LYS:HG3	2.19	0.42
40:p:69:LYS:HZ2	40:p:73:MET:HE2	1.84	0.42
2:B:177:SER:O	2:B:181:MET:HG3	2.19	0.42
4:D:224:GLU:HG2	7:I:92:TYR:CZ	2.53	0.42
5:G:377:HIS:HE1	5:G:479:THR:HG21	1.84	0.42
5:G:377:HIS:HB3	5:G:488:TYR:CZ	2.54	0.42
5:G:495:VAL:HG13	5:G:501:ILE:HG21	2.01	0.42
7:I:49:ARG:NH1	20:V:93:GLU:OE2	2.40	0.42
8:J:113:TYR:CD1	24:Z:78:VAL:HG22	2.54	0.42
11:M:186:VAL:HG13	12:N:421:ILE:HG12	2.00	0.42
12:N:510:ILE:HD11	43:d:101:PLC:H9'2	2.01	0.42
25:a:86:ASP:OD1	25:a:86:ASP:N	2.52	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
25:a:99:ILE:HD13	29:e:86:LEU:HD22	2.02	0.42
3:C:91:PHE:HB3	3:C:110:ALA:HB1	2.01	0.42
3:C:140:ARG:NH1	20:V:126:GLN:O	2.53	0.42
5:G:162:ILE:HD11	5:G:166:ILE:HD12	2.02	0.42
5:G:173:CYS:HA	5:G:227:ALA:HB2	2.02	0.42
5:G:502:VAL:HG21	5:G:665:PHE:HE2	1.84	0.42
10:L:21:ARG:NH2	33:i:13:LYS:HA	2.33	0.42
10:L:494:LEU:HD23	36:l:126:ARG:NH1	2.34	0.42
11:M:9:PHE:HE2	11:M:49:ILE:HG23	1.84	0.42
11:M:156:GLY:HA3	12:N:455:PHE:CE1	2.54	0.42
13:O:175:ASP:OD1	13:O:175:ASP:N	2.52	0.42
25:a:22:GLY:O	25:a:26:SER:OG	2.22	0.42
31:g:170:MET:HG2	31:g:200:GLY:HA2	2.01	0.42
5:G:298:ARG:HD2	5:G:298:ARG:HA	1.85	0.42
45:L:703:3PE:H2D1	45:L:703:3PE:H2G1	1.70	0.42
14:P:43:THR:OG1	14:P:104:SER:O	2.36	0.42
45:m:101:3PE:H341	45:m:101:3PE:H231	2.01	0.42
4:D:50:ASP:OD1	4:D:50:ASP:N	2.42	0.42
5:G:332:LYS:N	5:G:335:GLU:HB2	2.34	0.42
5:G:341:GLY:HA2	5:G:367:ASP:OD2	2.20	0.42
8:J:135:GLU:CD	12:N:58:ASN:HD21	2.28	0.42
45:L:703:3PE:H3D1	45:L:703:3PE:H3G2	1.93	0.42
11:M:342:SER:HB3	11:M:343:PRO:HD3	2.01	0.42
13:O:160:VAL:HG11	13:O:165:GLU:HG3	2.01	0.42
26:b:68:ARG:NH1	26:b:69:SER:O	2.51	0.42
2:B:49:LEU:HD12	2:B:49:LEU:HA	1.91	0.42
3:C:189:TYR:CZ	21:W:80:MET:HE1	2.55	0.42
4:D:269:GLN:HE21	4:D:269:GLN:HB3	1.60	0.42
5:G:129:GLY:HA2	42:G:802:SF4:S3	2.59	0.42
5:G:580:GLY:O	5:G:610:ALA:HB1	2.18	0.42
6:H:192:PHE:HD1	45:b:104:3PE:H3I1	1.85	0.42
11:M:33:LEU:HD23	11:M:36:ILE:HD12	2.00	0.42
11:M:446:THR:HB	37:m:8:LEU:HD13	2.02	0.42
13:O:124:MET:HE3	13:O:124:MET:HB3	1.96	0.42
21:W:82:PHE:CZ	21:W:86:VAL:HG21	2.55	0.42
28:d:5:LEU:HD23	28:d:5:LEU:HA	1.86	0.42
29:e:89:LYS:HD3	29:e:98:ASP:CG	2.45	0.42
7:I:205:ASP:OD1	7:I:205:ASP:N	2.51	0.42
8:J:149:MET:O	8:J:153:GLY:N	2.49	0.42
11:M:214:PHE:CD2	11:M:265:LEU:HD22	2.55	0.42
11:M:266:LEU:O	11:M:270:SER:OG	2.33	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:P:16:ASP:OD1	14:P:17:ILE:HG22	2.20	0.42
15:Q:51:THR:OG1	15:Q:52:GLU:HG3	2.19	0.42
27:c:156:MET:HA	27:c:180:GLN:HE22	1.85	0.42
1:A:46:LYS:HE3	1:A:46:LYS:HB2	1.75	0.42
3:C:202:LEU:O	21:W:80:MET:HE2	2.20	0.42
4:D:133:GLY:H	4:D:481:ASP:CG	2.28	0.42
5:G:432:VAL:HG11	5:G:452:LEU:HB2	2.02	0.42
8:J:94:ASP:OD1	25:a:113:ARG:NH1	2.53	0.42
8:J:109:TYR:OH	22:X:20:ASP:OD2	2.21	0.42
11:M:84:ILE:HG12	11:M:133:ILE:HG22	2.02	0.42
11:M:169:TYR:O	11:M:173:TYR:HB2	2.20	0.42
12:N:387:PHE:CE1	12:N:454:SER:HB3	2.55	0.42
14:P:262:ILE:O	14:P:266:ILE:HG12	2.19	0.42
23:Y:60:MET:HE2	23:Y:60:MET:HB3	1.92	0.42
34:j:47:TYR:CD2	34:j:48:PRO:HD3	2.55	0.42
1:A:46:LYS:NZ	6:H:71:GLU:OE1	2.29	0.42
6:H:266:THR:O	6:H:270:LEU:HG	2.20	0.42
6:H:348:ALA:O	24:Z:49:ASN:ND2	2.49	0.42
10:L:638:ILE:HG22	23:Y:145:MET:HE2	2.02	0.42
11:M:99:GLY:HA2	11:M:125:VAL:HG21	2.01	0.42
11:M:365:TYR:HA	11:M:443:LEU:HD11	2.01	0.42
14:P:194:PHE:H	14:P:197:SER:HB2	1.85	0.42
20:V:52:LYS:NZ	20:V:107:ASP:OD1	2.48	0.42
31:g:211:ASP:OD1	31:g:211:ASP:N	2.52	0.42
36:l:66:ASN:ND2	36:l:69:GLU:OE2	2.45	0.42
2:B:78:CYS:HA	4:D:160:TYR:CG	2.55	0.41
4:D:80:ASN:OD1	4:D:80:ASN:N	2.53	0.41
4:D:381:LYS:HE2	27:c:70:TYR:CZ	2.54	0.41
6:H:231:ALA:O	6:H:235:VAL:HG23	2.20	0.41
6:H:311:ALA:HB3	7:I:80:LEU:HD23	2.02	0.41
10:L:611:PHE:CZ	10:L:615:ILE:HD11	2.54	0.41
19:U:95:LEU:HD23	19:U:95:LEU:HA	1.86	0.41
36:l:90:GLN:HB2	36:l:93:ILE:HB	2.02	0.41
43:q:201:PLC:H6A2	43:q:202:PLC:H7’2	2.01	0.41
3:C:187:GLU:OE2	4:D:482:ARG:NH1	2.41	0.41
3:C:246:GLN:OE1	7:I:161:LYS:NZ	2.53	0.41
4:D:135:LEU:HD23	4:D:478:GLY:HA2	2.01	0.41
5:G:292:ASP:OD2	5:G:699:THR:OG1	2.30	0.41
6:H:173:SER:HB2	6:H:352:ILE:HG12	2.02	0.41
10:L:81:LEU:HD23	10:L:262:ARG:HD2	2.01	0.41
10:L:624:VAL:HG12	45:L:705:3PE:H332	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
11:M:272:ILE:HD12	11:M:272:ILE:HA	1.86	0.41
14:P:84:ASP:CG	14:P:85:LEU:H	2.28	0.41
23:Y:13:GLN:NE2	43:Y:303:PLC:H51	2.36	0.41
34:j:41:TYR:OH	45:j:101:3PE:O12	2.26	0.41
4:D:474:ASP:OD1	4:D:474:ASP:N	2.53	0.41
5:G:433:GLY:O	5:G:447:SER:HA	2.20	0.41
5:G:564:GLY:O	5:G:580:GLY:N	2.46	0.41
10:L:475:ASP:OD2	39:o:53:ARG:NH2	2.52	0.41
12:N:99:ASN:OD1	12:N:99:ASN:N	2.53	0.41
14:P:310:LEU:O	14:P:313:SER:OG	2.38	0.41
14:P:366:GLU:O	14:P:370:ASP:N	2.42	0.41
23:Y:187:GLU:OE1	23:Y:187:GLU:N	2.39	0.41
5:G:144:ASP:OD1	5:G:145:ARG:N	2.53	0.41
5:G:529:GLN:HE22	17:S:46:PRO:HA	1.85	0.41
8:J:51:TYR:O	8:J:55:TYR:HB2	2.21	0.41
10:L:85:MET:HE2	10:L:258:PHE:HB2	2.03	0.41
10:L:89:VAL:HG22	10:L:250:ALA:O	2.21	0.41
10:L:415:ALA:O	10:L:419:ALA:N	2.50	0.41
13:O:85:TRP:CH2	13:O:133:GLN:HB2	2.55	0.41
16:R:90:ASN:HA	16:R:110:LEU:HD12	2.02	0.41
19:U:50:LYS:HA	19:U:53:ILE:HB	2.01	0.41
19:U:119:ALA:O	19:U:123:ILE:HG12	2.21	0.41
38:n:14:GLU:OE1	38:n:17:LYS:NZ	2.47	0.41
2:B:85:HIS:HE1	4:D:226:ARG:HE	1.68	0.41
10:L:177:LEU:HD13	10:L:177:LEU:HA	1.91	0.41
12:N:411:THR:HG23	12:N:500:ILE:HA	2.01	0.41
3:C:155:HIS:HB3	27:c:149:ALA:HB3	2.03	0.41
3:C:199:HIS:CD2	3:C:202:LEU:HD13	2.56	0.41
5:G:285:ASP:OD1	5:G:285:ASP:N	2.53	0.41
5:G:352:LEU:HD22	5:G:544:LEU:HD22	2.03	0.41
10:L:124:MET:HE3	10:L:251:CYS:HA	2.02	0.41
45:L:702:3PE:H362	45:L:702:3PE:H331	1.72	0.41
5:G:175:HIS:O	5:G:176:CYS:CB	2.67	0.41
5:G:585:GLU:OE1	5:G:607:PRO:HD3	2.21	0.41
5:G:640:LEU:HD22	5:G:647:LEU:HD13	2.02	0.41
7:I:116:TYR:CE2	7:I:122:ARG:HA	2.56	0.41
10:L:13:SER:OG	10:L:119:MET:HB2	2.21	0.41
10:L:406:PHE:HB2	36:l:118:TYR:CE1	2.55	0.41
11:M:271:GLU:O	23:Y:207:LEU:HD21	2.20	0.41
18:T:129:THR:O	18:T:131:GLN:NE2	2.53	0.41
23:Y:211:ARG:H	23:Y:211:ARG:HE	1.67	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:g:192:ASP:OD1	31:g:192:ASP:N	2.53	0.41
3:C:158:ARG:HG3	27:c:152:LEU:HD11	2.01	0.41
6:H:230:SER:O	6:H:233:PRO:HD2	2.20	0.41
45:J:201:3PE:H2C1	45:J:201:3PE:H291	1.84	0.41
12:N:40:ILE:HD13	13:O:74:TYR:HB2	2.03	0.41
15:Q:39:LYS:O	15:Q:42:VAL:HG22	2.21	0.41
23:Y:122:SER:O	23:Y:126:LEU:N	2.38	0.41
32:h:106:VAL:HG23	32:h:109:SER:H	1.85	0.41
2:B:61:LYS:HE2	2:B:65:ARG:NH2	2.35	0.41
2:B:99:ILE:HD11	6:H:37:ARG:CZ	2.51	0.41
3:C:124:ALA:HB1	3:C:126:PHE:CE2	2.56	0.41
5:G:173:CYS:SG	5:G:175:HIS:CG	3.14	0.41
5:G:346:LEU:HD11	5:G:524:VAL:HG11	2.01	0.41
5:G:550:VAL:HG13	5:G:569:LEU:HD21	2.02	0.41
5:G:599:SER:OG	5:G:600:THR:N	2.54	0.41
5:G:621:SER:OG	5:G:627:THR:HA	2.21	0.41
6:H:278:HIS:CE1	25:a:53:PRO:HB2	2.56	0.41
7:I:215:LEU:HD23	7:I:215:LEU:HA	1.90	0.41
10:L:85:MET:HE1	10:L:329:LEU:HD21	2.03	0.41
11:M:7:ILE:HG12	11:M:130:LEU:HD11	2.03	0.41
11:M:97:ILE:O	11:M:100:PRO:HD2	2.21	0.41
12:N:319:ILE:HD13	12:N:319:ILE:HA	1.98	0.41
12:N:515:TYR:HB3	32:h:131:ILE:HD13	2.03	0.41
14:P:16:ASP:OD1	14:P:17:ILE:N	2.53	0.41
14:P:158:ASN:HB3	14:P:161:SER:HB2	2.03	0.41
14:P:178:ASP:N	14:P:178:ASP:OD1	2.52	0.41
27:c:38:LEU:HD23	27:c:38:LEU:HA	1.90	0.41
31:g:172:GLU:OE1	40:p:4:HIS:NE2	2.32	0.41
31:g:218:ILE:HD12	40:p:43:VAL:HG11	2.02	0.41
34:j:48:PRO:HB2	34:j:54:LYS:HB3	2.01	0.41
2:B:72:MET:HE3	2:B:110:MET:HG3	2.02	0.41
3:C:88:LEU:HD22	3:C:91:PHE:HD2	1.86	0.41
3:C:136:ASP:OD2	3:C:143:ARG:NH2	2.54	0.41
12:N:218:TYR:CE1	12:N:277:ILE:HD13	2.56	0.41
27:c:162:GLU:OE1	27:c:162:GLU:N	2.54	0.41
1:A:65:PRO:HD2	1:A:68:PHE:HD2	1.85	0.40
4:D:169:VAL:HG23	4:D:419:ILE:HG23	2.02	0.40
5:G:298:ARG:HH21	5:G:582:ALA:HB2	1.85	0.40
5:G:400:ILE:HG12	5:G:471:LEU:HB2	2.02	0.40
11:M:98:LEU:HA	11:M:98:LEU:HD23	1.84	0.40
1:A:135:ALA:HB1	20:V:16:LYS:O	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:158:LEU:HD22	4:D:482:ARG:HB2	2.03	0.40
4:D:445:ALA:HB1	4:D:479:GLU:HG2	2.03	0.40
5:G:253:ALA:HB1	5:G:593:THR:HB	2.03	0.40
9:K:14:ASN:HD22	18:T:134:ASN:HB3	1.87	0.40
11:M:291:SER:O	11:M:295:THR:OG1	2.39	0.40
11:M:409:HIS:ND1	11:M:412:ILE:HG22	2.36	0.40
12:N:458:LEU:O	12:N:461:LYS:HG2	2.21	0.40
13:O:191:TYR:CE1	26:b:61:ASN:HB2	2.56	0.40
49:U:201:EHZ:O1	38:n:55:ASN:OD1	2.39	0.40
36:l:46:PRO:HG3	36:l:72:HIS:NE2	2.36	0.40
41:q:5:GLN:O	41:q:9:ARG:HG3	2.20	0.40
46:q:203:CDL:H571	46:q:203:CDL:H542	1.92	0.40
1:A:101:ILE:HD11	45:b:103:3PE:H262	2.02	0.40
4:D:200:LEU:HD23	4:D:226:ARG:HG2	2.02	0.40
5:G:284:SER:HB3	5:G:412:ALA:HB3	2.03	0.40
10:L:293:MET:HE1	43:L:708:PLC:H4A2	2.02	0.40
43:L:708:PLC:H32	43:L:708:PLC:H1A2	1.80	0.40
11:M:462:ILE:HD11	43:g:301:PLC:H2	2.03	0.40
11:M:490:LEU:HD12	40:p:80:GLN:NE2	2.36	0.40
14:P:258:LEU:HD23	14:P:261:MET:HE3	2.03	0.40
14:P:361:SER:HB3	21:W:47:PRO:HG2	2.02	0.40
19:U:79:PHE:HA	19:U:83:LEU:HD12	2.01	0.40
22:X:81:LEU:HD23	22:X:81:LEU:HA	1.90	0.40
29:e:9:ARG:HG3	29:e:10:HIS:CD2	2.57	0.40
31:g:78:LEU:HD23	31:g:78:LEU:HA	1.87	0.40
35:k:4:ASN:O	35:k:7:LYS:HG3	2.21	0.40
38:n:27:SER:HA	38:n:75:LEU:HD21	2.04	0.40
39:o:63:ASP:O	39:o:67:ARG:HG3	2.20	0.40
3:C:84:ILE:HG22	3:C:92:VAL:HG21	2.04	0.40
4:D:86:HIS:CE1	4:D:88:GLU:HB2	2.57	0.40
4:D:149:MET:HE2	4:D:149:MET:HB3	1.86	0.40
7:I:74:SER:HB3	43:Z:202:PLC:H1A2	2.04	0.40
7:I:162:CYS:SG	7:I:163:ILE:N	2.94	0.40
8:J:122:GLU:HB3	8:J:126:SER:OG	2.21	0.40
8:J:141:LEU:HD13	46:O:201:CDL:H821	2.02	0.40
10:L:134:LEU:HD23	10:L:134:LEU:HA	1.87	0.40
10:L:504:PRO:HD2	10:L:507:LEU:HD12	2.02	0.40
10:L:636:LEU:O	10:L:640:ILE:HG13	2.22	0.40
11:M:41:LYS:HG3	31:g:83:TYR:CE1	2.57	0.40
11:M:62:ILE:H	11:M:62:ILE:HG13	1.53	0.40
11:M:206:SER:OG	23:Y:191:PHE:O	2.23	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:O:135:LEU:HD23	13:O:135:LEU:HA	1.93	0.40
14:P:247:LEU:HB3	14:P:326:PHE:CE2	2.57	0.40
24:Z:3:GLN:HG2	24:Z:4:ASP:H	1.86	0.40
26:b:3:ILE:HG12	26:b:4:GLY:N	2.36	0.40
36:l:121:LYS:HD2	37:m:77:TYR:CE1	2.57	0.40
41:q:74:GLU:HG3	41:q:75:PRO:HD2	2.03	0.40
1:A:76:LEU:HB3	1:A:77:PRO:HD3	2.04	0.40
4:D:455:ASP:OD2	21:W:3:ASN:N	2.41	0.40
5:G:123:CYS:HB2	5:G:124:PRO:HD3	2.04	0.40
5:G:456:LEU:HD22	5:G:494:PHE:CG	2.57	0.40
9:K:55:ILE:HD13	9:K:55:ILE:HA	1.86	0.40
10:L:323:ASN:OD1	10:L:323:ASN:N	2.54	0.40
45:L:705:3PE:H271	45:L:705:3PE:H242	1.80	0.40
11:M:21:ASN:HD22	11:M:21:ASN:C	2.29	0.40
11:M:249:LEU:O	11:M:254:LEU:HG	2.21	0.40
18:T:110:ASN:HD21	21:W:22:THR:HG23	1.86	0.40
23:Y:182:LYS:HA	23:Y:182:LYS:HD3	1.89	0.40
24:Z:18:ARG:NH2	24:Z:20:LEU:HD13	2.37	0.40
33:i:63:GLU:OE1	33:i:63:GLU:N	2.51	0.40
40:p:30:LEU:HD23	40:p:82:PHE:HA	2.02	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	133/141 (94%)	126 (95%)	6 (4%)	1 (1%)	16	49
2	B	173/204 (85%)	166 (96%)	7 (4%)	0	100	100
3	C	231/289 (80%)	221 (96%)	10 (4%)	0	100	100
4	D	435/482 (90%)	406 (93%)	29 (7%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	G	548/726 (76%)	515 (94%)	33 (6%)	0	100	100
6	H	351/353 (99%)	323 (92%)	27 (8%)	1 (0%)	37	69
7	I	190/222 (86%)	181 (95%)	9 (5%)	0	100	100
8	J	151/161 (94%)	144 (95%)	7 (5%)	0	100	100
9	K	78/82 (95%)	75 (96%)	3 (4%)	0	100	100
10	L	640/642 (100%)	622 (97%)	17 (3%)	1 (0%)	44	74
11	M	489/491 (100%)	470 (96%)	19 (4%)	0	100	100
12	N	502/523 (96%)	492 (98%)	10 (2%)	0	100	100
13	O	191/193 (99%)	185 (97%)	6 (3%)	0	100	100
14	P	353/384 (92%)	342 (97%)	11 (3%)	0	100	100
15	Q	84/159 (53%)	84 (100%)	0	0	100	100
16	R	122/139 (88%)	115 (94%)	7 (6%)	0	100	100
17	S	88/90 (98%)	83 (94%)	4 (4%)	1 (1%)	12	42
18	T	91/138 (66%)	85 (93%)	6 (7%)	0	100	100
19	U	86/130 (66%)	80 (93%)	6 (7%)	0	100	100
20	V	124/134 (92%)	119 (96%)	5 (4%)	0	100	100
21	W	111/122 (91%)	109 (98%)	2 (2%)	0	100	100
22	X	182/184 (99%)	176 (97%)	6 (3%)	0	100	100
23	Y	203/216 (94%)	190 (94%)	13 (6%)	0	100	100
24	Z	140/147 (95%)	135 (96%)	5 (4%)	0	100	100
25	a	147/150 (98%)	144 (98%)	3 (2%)	0	100	100
26	b	76/79 (96%)	71 (93%)	5 (7%)	0	100	100
27	c	140/182 (77%)	127 (91%)	13 (9%)	0	100	100
28	d	73/78 (94%)	72 (99%)	1 (1%)	0	100	100
29	e	103/106 (97%)	97 (94%)	6 (6%)	0	100	100
30	f	76/86 (88%)	74 (97%)	2 (3%)	0	100	100
31	g	152/239 (64%)	144 (95%)	8 (5%)	0	100	100
32	h	129/182 (71%)	123 (95%)	6 (5%)	0	100	100
33	i	67/74 (90%)	65 (97%)	2 (3%)	0	100	100
34	j	51/59 (86%)	51 (100%)	0	0	100	100
35	k	43/61 (70%)	41 (95%)	2 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
36	l	130/156 (83%)	121 (93%)	8 (6%)	1 (1%)	16	49
37	m	75/81 (93%)	71 (95%)	4 (5%)	0	100	100
38	n	103/111 (93%)	101 (98%)	2 (2%)	0	100	100
39	o	78/87 (90%)	75 (96%)	3 (4%)	0	100	100
40	p	88/92 (96%)	83 (94%)	5 (6%)	0	100	100
41	q	138/140 (99%)	133 (96%)	5 (4%)	0	100	100
All	All	7365/8315 (89%)	7037 (96%)	323 (4%)	5 (0%)	50	79

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
36	l	145	THR
6	H	222	VAL
17	S	2	SER
1	A	2	LEU
10	L	552	ILE

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	124/128 (97%)	115 (93%)	9 (7%)	11	36
2	B	154/180 (86%)	149 (97%)	5 (3%)	34	56
3	C	208/254 (82%)	202 (97%)	6 (3%)	37	58
4	D	375/408 (92%)	359 (96%)	16 (4%)	25	49
5	G	469/610 (77%)	450 (96%)	19 (4%)	26	50
6	H	307/307 (100%)	294 (96%)	13 (4%)	25	49
7	I	166/192 (86%)	158 (95%)	8 (5%)	21	46
8	J	143/149 (96%)	132 (92%)	11 (8%)	10	34
9	K	70/72 (97%)	70 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
10	L	576/576 (100%)	564 (98%)	12 (2%)	48	66
11	M	439/439 (100%)	425 (97%)	14 (3%)	34	56
12	N	474/489 (97%)	455 (96%)	19 (4%)	27	50
13	O	169/169 (100%)	165 (98%)	4 (2%)	44	62
14	P	309/332 (93%)	302 (98%)	7 (2%)	45	63
15	Q	76/135 (56%)	74 (97%)	2 (3%)	41	61
16	R	104/118 (88%)	101 (97%)	3 (3%)	37	58
17	S	77/77 (100%)	72 (94%)	5 (6%)	14	39
18	T	85/128 (66%)	78 (92%)	7 (8%)	9	32
19	U	80/120 (67%)	73 (91%)	7 (9%)	8	30
20	V	112/119 (94%)	107 (96%)	5 (4%)	23	47
21	W	107/114 (94%)	102 (95%)	5 (5%)	22	46
22	X	165/165 (100%)	158 (96%)	7 (4%)	25	49
23	Y	163/173 (94%)	158 (97%)	5 (3%)	35	56
24	Z	123/128 (96%)	121 (98%)	2 (2%)	58	73
25	a	128/129 (99%)	127 (99%)	1 (1%)	79	84
26	b	66/67 (98%)	65 (98%)	1 (2%)	60	74
27	c	128/159 (80%)	123 (96%)	5 (4%)	27	51
28	d	62/65 (95%)	62 (100%)	0	100	100
29	e	91/92 (99%)	90 (99%)	1 (1%)	70	79
30	f	64/71 (90%)	63 (98%)	1 (2%)	58	73
31	g	143/215 (66%)	135 (94%)	8 (6%)	17	43
32	h	118/167 (71%)	113 (96%)	5 (4%)	25	49
33	i	59/63 (94%)	57 (97%)	2 (3%)	32	55
34	j	46/50 (92%)	44 (96%)	2 (4%)	25	49
35	k	32/47 (68%)	30 (94%)	2 (6%)	15	40
36	l	116/137 (85%)	107 (92%)	9 (8%)	10	34
37	m	64/66 (97%)	63 (98%)	1 (2%)	58	73
38	n	95/100 (95%)	93 (98%)	2 (2%)	48	66
39	o	74/79 (94%)	73 (99%)	1 (1%)	62	75
40	p	83/85 (98%)	81 (98%)	2 (2%)	44	62

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
41	q	125/125 (100%)	123 (98%)	2 (2%)	58	73
All	All	6569/7299 (90%)	6333 (96%)	236 (4%)	32	54

All (236) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	40	ILE
1	A	69	ILE
1	A	76	LEU
1	A	90	VAL
1	A	118	PHE
1	A	128	ILE
1	A	131	LYS
1	A	134	LYS
1	A	137	VAL
2	B	73	THR
2	B	78	CYS
2	B	81	VAL
2	B	108	ASP
2	B	161	ASP
3	C	43	GLU
3	C	133	THR
3	C	143	ARG
3	C	223	THR
3	C	228	VAL
3	C	257	VAL
4	D	40	ASP
4	D	77	GLU
4	D	80	ASN
4	D	113	VAL
4	D	120	LEU
4	D	156	ASP
4	D	160	TYR
4	D	220	LEU
4	D	269	GLN
4	D	298	THR
4	D	332	LYS
4	D	355	GLU
4	D	406	LYS
4	D	433	ASP
4	D	459	ARG
4	D	482	ARG

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Mol	Chain	Res	Type
5	G	126	CYS
5	G	128	GLN
5	G	139	LEU
5	G	176	CYS
5	G	245	THR
5	G	296	THR
5	G	298	ARG
5	G	348	SER
5	G	354	ASP
5	G	367	ASP
5	G	405	THR
5	G	414	LEU
5	G	418	ILE
5	G	442	LEU
5	G	473	ILE
5	G	513	HIS
5	G	577	ILE
5	G	593	THR
5	G	692	VAL
6	H	4	ASN
6	H	47	LEU
6	H	72	ILE
6	H	116	ILE
6	H	143	VAL
6	H	147	VAL
6	H	153	LEU
6	H	170	ILE
6	H	225	HIS
6	H	291	SER
6	H	299	ASN
6	H	329	LEU
6	H	333	PHE
7	I	40	ILE
7	I	124	ILE
7	I	128	LEU
7	I	145	ARG
7	I	152	THR
7	I	175	ASP
7	I	184	GLU
7	I	205	ASP
8	J	7	ASP
8	J	35	VAL

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Mol	Chain	Res	Type
8	J	46	LEU
8	J	52	THR
8	J	59	VAL
8	J	61	ILE
8	J	69	VAL
8	J	72	GLU
8	J	124	ASP
8	J	130	ASN
8	J	135	GLU
10	L	2	ILE
10	L	119	MET
10	L	143	ILE
10	L	270	THR
10	L	348	HIS
10	L	394	ASP
10	L	432	TYR
10	L	485	ASN
10	L	486	GLU
10	L	509	VAL
10	L	536	TYR
10	L	607	LEU
11	M	21	ASN
11	M	23	ASN
11	M	28	LEU
11	M	30	LYS
11	M	62	ILE
11	M	94	LEU
11	M	108	LYS
11	M	111	LYS
11	M	192	ILE
11	M	238	HIS
11	M	301	LEU
11	M	317	MET
11	M	475	THR
11	M	489	VAL
12	N	15	LEU
12	N	18	LYS
12	N	48	GLU
12	N	67	ASN
12	N	99	ASN
12	N	108	ILE
12	N	222	ILE

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Mol	Chain	Res	Type
12	N	258	VAL
12	N	261	THR
12	N	263	LEU
12	N	273	ILE
12	N	319	ILE
12	N	391	ILE
12	N	393	ILE
12	N	430	LEU
12	N	434	VAL
12	N	435	LEU
12	N	436	ILE
12	N	511	VAL
13	O	54	LYS
13	O	144	VAL
13	O	153	ASP
13	O	166	ASN
14	P	10	THR
14	P	17	ILE
14	P	119	HIS
14	P	127	GLU
14	P	130	ASN
14	P	178	ASP
14	P	316	ASN
15	Q	40	GLU
15	Q	106	ILE
16	R	97	ASN
16	R	109	ASN
16	R	118	CYS
17	S	1	SER
17	S	3	LYS
17	S	19	GLN
17	S	34	THR
17	S	84	THR
18	T	53	ASP
18	T	78	PHE
18	T	88	ASP
18	T	102	VAL
18	T	108	THR
18	T	130	GLU
18	T	137	ILE
19	U	45	THR
19	U	86	ASP

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Mol	Chain	Res	Type
19	U	108	ASN
19	U	115	THR
19	U	121	ASP
19	U	128	ASP
19	U	130	ILE
20	V	41	LEU
20	V	45	THR
20	V	58	VAL
20	V	80	ILE
20	V	134	LEU
21	W	36	ARG
21	W	53	THR
21	W	65	VAL
21	W	91	GLN
21	W	114	VAL
22	X	7	ASP
22	X	18	LEU
22	X	134	VAL
22	X	139	ASN
22	X	150	ASP
22	X	160	VAL
22	X	183	ILE
23	Y	26	THR
23	Y	74	TYR
23	Y	96	SER
23	Y	175	ASN
23	Y	211	ARG
24	Z	8	ILE
24	Z	73	GLU
25	a	111	LEU
26	b	3	ILE
27	c	12	THR
27	c	86	ASP
27	c	88	THR
27	c	90	VAL
27	c	133	LYS
29	e	104	GLU
30	f	45	ASP
31	g	32	LYS
31	g	43	LYS
31	g	81	THR
31	g	96	ASP

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Mol	Chain	Res	Type
31	g	161	ASP
31	g	177	LEU
31	g	192	ASP
31	g	207	ILE
32	h	104	ILE
32	h	148	GLU
32	h	156	THR
32	h	164	ASN
32	h	167	ASP
33	i	7	HIS
33	i	32	LEU
34	j	20	VAL
34	j	59	HIS
35	k	7	LYS
35	k	32	PHE
36	l	25	LYS
36	l	44	LEU
36	l	45	LYS
36	l	57	LYS
36	l	68	ASN
36	l	93	ILE
36	l	114	ILE
36	l	136	ASP
36	l	156	ILE
37	m	9	LEU
38	n	9	VAL
38	n	88	CYS
39	o	60	GLN
40	p	3	ASP
40	p	13	ASP
41	q	35	VAL
41	q	95	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	197	HIS
3	C	199	HIS
4	D	150	GLN
4	D	399	HIS
7	I	44	HIS
8	J	118	ASN

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Mol	Chain	Res	Type
9	K	14	ASN
10	L	171	ASN
11	M	22	ASN
11	M	23	ASN
11	M	298	GLN
11	M	358	HIS
12	N	123	ASN
12	N	185	ASN
12	N	187	GLN
12	N	310	ASN
12	N	365	ASN
12	N	477	ASN
12	N	506	GLN
12	N	521	ASN
14	P	62	HIS
17	S	19	GLN
17	S	67	HIS
18	T	131	GLN
20	V	98	GLN
22	X	154	HIS
23	Y	55	HIS
23	Y	109	GLN
24	Z	19	ASN
24	Z	136	ASN
25	a	25	ASN
31	g	181	ASN
32	h	92	HIS
38	n	55	ASN
39	o	36	ASN
41	q	42	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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	$\#\|Z\| > 2$
11	FME	M	1	11	8,9,10	1.50	1 (12%)	7,9,11	1.65	1 (14%)
10	FME	L	1	10	8,9,10	1.50	1 (12%)	7,9,11	1.78	3 (42%)
4	2MR	D	137	4	10,12,13	2.38	2 (20%)	5,13,15	2.21	2 (40%)
12	FME	N	1	12	8,9,10	1.48	1 (12%)	7,9,11	1.72	3 (42%)
1	FME	A	1	1	8,9,10	1.50	1 (12%)	7,9,11	1.61	3 (42%)
9	FME	K	1	9	8,9,10	1.54	1 (12%)	7,9,11	1.32	1 (14%)
6	FME	H	1	6	8,9,10	1.52	1 (12%)	7,9,11	1.75	3 (42%)
8	FME	J	1	8	8,9,10	1.51	1 (12%)	7,9,11	1.62	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
11	FME	M	1	11	-	4/7/9/11	-
10	FME	L	1	10	-	5/7/9/11	-
4	2MR	D	137	4	-	3/10/13/15	-
12	FME	N	1	12	-	0/7/9/11	-
1	FME	A	1	1	-	2/7/9/11	-
9	FME	K	1	9	-	5/7/9/11	-
6	FME	H	1	6	-	4/7/9/11	-
8	FME	J	1	8	-	5/7/9/11	-

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	137	2MR	CZ-NE	5.14	1.45	1.34
4	D	137	2MR	CZ-NH2	5.05	1.44	1.33
9	K	1	FME	CN-N	3.79	1.46	1.33
6	H	1	FME	CN-N	3.66	1.45	1.33
8	J	1	FME	CN-N	3.66	1.45	1.33
11	M	1	FME	CN-N	3.65	1.45	1.33
10	L	1	FME	CN-N	3.64	1.45	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1	FME	CN-N	3.56	1.45	1.33
12	N	1	FME	CN-N	3.52	1.45	1.33

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	D	137	2MR	NE-CZ-NH2	3.66	122.83	119.48
6	H	1	FME	CE-SD-CG	2.85	110.19	100.40
10	L	1	FME	CE-SD-CG	2.66	109.54	100.40
4	D	137	2MR	CQ2-NH2-CZ	-2.64	118.03	123.86
11	M	1	FME	CE-SD-CG	2.53	109.10	100.40
8	J	1	FME	CE-SD-CG	2.49	108.95	100.40
9	K	1	FME	CE-SD-CG	2.43	108.76	100.40
12	N	1	FME	CE-SD-CG	2.29	108.28	100.40
12	N	1	FME	O1-CN-N	-2.26	119.32	125.27
12	N	1	FME	CA-N-CN	-2.26	119.35	122.82
10	L	1	FME	O1-CN-N	-2.24	119.38	125.27
1	A	1	FME	CE-SD-CG	2.18	107.89	100.40
6	H	1	FME	CA-N-CN	-2.17	119.48	122.82
10	L	1	FME	CA-N-CN	-2.16	119.50	122.82
1	A	1	FME	O1-CN-N	-2.13	119.66	125.27
1	A	1	FME	O-C-CA	-2.03	119.45	124.78
6	H	1	FME	O1-CN-N	-2.01	119.96	125.27

There are no chirality outliers.

All (28) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	1	FME	O-C-CA-CB
6	H	1	FME	N-CA-CB-CG
6	H	1	FME	C-CA-CB-CG
8	J	1	FME	O1-CN-N-CA
8	J	1	FME	CB-CA-N-CN
8	J	1	FME	N-CA-CB-CG
8	J	1	FME	C-CA-CB-CG
9	K	1	FME	CB-CA-N-CN
9	K	1	FME	N-CA-CB-CG
9	K	1	FME	CA-CB-CG-SD
10	L	1	FME	N-CA-CB-CG
11	M	1	FME	C-CA-CB-CG
11	M	1	FME	O-C-CA-CB
11	M	1	FME	CB-CG-SD-CE

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Mol	Chain	Res	Type	Atoms
4	D	137	2MR	NE-CD-CG-CB
10	L	1	FME	CA-CB-CG-SD
8	J	1	FME	CB-CG-SD-CE
11	M	1	FME	N-CA-CB-CG
6	H	1	FME	CB-CG-SD-CE
9	K	1	FME	CB-CG-SD-CE
10	L	1	FME	CB-CG-SD-CE
6	H	1	FME	CB-CA-N-CN
4	D	137	2MR	N-CA-CB-CG
4	D	137	2MR	CG-CD-NE-CZ
9	K	1	FME	C-CA-CB-CG
10	L	1	FME	C-CA-CB-CG
1	A	1	FME	CA-CB-CG-SD
10	L	1	FME	CB-CA-N-CN

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	J	1	FME	2	0

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 52 ligands modelled in this entry, 2 are monoatomic - leaving 50 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	q	202	-	35,35,41	0.56	0	41,43,49	0.57	0
45	3PE	b	103	-	30,30,50	1.09	4 (13%)	33,35,55	1.17	2 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
43	PLC	Z	202	-	41,41,41	0.52	0	47,49,49	0.59	1 (2%)
46	CDL	b	102	-	58,58,99	1.12	7 (12%)	64,70,111	1.24	4 (6%)
45	3PE	L	702	-	50,50,50	0.86	3 (6%)	53,55,55	1.14	2 (3%)
45	3PE	J	201	-	50,50,50	0.85	4 (8%)	53,55,55	1.11	2 (3%)
49	EHZ	U	201	-	29,36,37	1.68	5 (17%)	35,44,47	1.52	7 (20%)
47	NDP	P	501	-	45,52,52	4.27	22 (48%)	53,80,80	2.22	6 (11%)
43	PLC	d	102	-	41,41,41	0.52	0	47,49,49	0.51	0
43	PLC	Y	302	-	35,35,41	0.53	0	41,43,49	0.62	0
43	PLC	B	302	-	30,30,41	0.58	0	36,38,49	0.54	0
45	3PE	Z	201	-	35,35,50	1.01	4 (11%)	38,40,55	1.14	2 (5%)
46	CDL	q	203	-	59,59,99	1.12	8 (13%)	65,71,111	1.19	4 (6%)
43	PLC	q	201	-	41,41,41	0.50	0	47,49,49	0.56	0
45	3PE	L	706	-	41,41,50	0.95	3 (7%)	44,46,55	1.15	2 (4%)
45	3PE	L	705	-	50,50,50	0.85	4 (8%)	53,55,55	1.11	2 (3%)
43	PLC	d	101	-	41,41,41	0.53	0	47,49,49	0.50	0
42	SF4	G	801	5	0,12,12	-	-	-		
45	3PE	b	104	-	39,39,50	0.96	4 (10%)	42,44,55	1.15	2 (4%)
45	3PE	L	703	-	50,50,50	0.86	3 (6%)	53,55,55	1.09	2 (3%)
42	SF4	G	802	5	0,12,12	-	-	-		
43	PLC	L	708	-	34,34,41	0.56	0	40,42,49	0.61	0
43	PLC	a	201	-	21,21,41	0.68	0	27,29,49	0.65	0
43	PLC	D	501	-	41,41,41	0.51	0	47,49,49	0.57	0
45	3PE	h	201	-	45,45,50	0.91	3 (6%)	48,50,55	1.09	2 (4%)
43	PLC	M	503	-	41,41,41	0.53	0	47,49,49	0.56	0
42	SF4	B	301	2	0,12,12	-	-	-		
43	PLC	M	504	-	41,41,41	0.50	0	47,49,49	0.57	0
45	3PE	M	502	-	34,34,50	1.03	4 (11%)	37,39,55	1.16	2 (5%)
43	PLC	g	301	-	38,38,41	0.55	0	44,46,49	0.49	0
43	PLC	L	701	-	41,41,41	0.50	0	47,49,49	0.72	2 (4%)
49	EHZ	T	201	-	29,36,37	1.68	5 (17%)	35,44,47	1.46	3 (8%)
45	3PE	L	707	-	28,28,50	1.13	3 (10%)	31,33,55	1.16	2 (6%)
42	SF4	I	302	7	0,12,12	-	-	-		
46	CDL	Z	203	-	48,48,99	1.22	8 (16%)	54,60,111	1.23	4 (7%)
43	PLC	b	101	-	38,38,41	0.55	0	44,46,49	0.58	0
45	3PE	L	704	-	34,34,50	1.02	4 (11%)	37,39,55	1.14	2 (5%)
43	PLC	Y	303	-	35,35,41	0.55	0	41,43,49	0.55	0
45	3PE	j	101	-	26,26,50	1.16	4 (15%)	29,31,55	1.17	2 (6%)
45	3PE	M	501	-	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
43	PLC	H	401	-	23,23,41	0.66	0	29,31,49	0.68	0
45	3PE	Y	301	-	24,24,50	1.20	4 (16%)	27,29,55	1.36	2 (7%)
46	CDL	O	201	-	74,74,99	0.99	7 (9%)	80,86,111	1.16	4 (5%)
43	PLC	L	709	-	31,31,41	0.56	0	37,39,49	0.58	0
42	SF4	I	301	7	0,12,12	-	-	-		
45	3PE	N	601	-	39,39,50	0.97	4 (10%)	42,44,55	1.17	2 (4%)
43	PLC	L	710	-	41,41,41	0.53	0	47,49,49	0.50	0
43	PLC	P	502	-	30,30,41	0.60	0	36,38,49	0.54	0
45	3PE	m	101	-	45,45,50	0.90	4 (8%)	48,50,55	1.11	2 (4%)
43	PLC	P	503	-	30,30,41	0.58	0	36,38,49	0.62	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
43	PLC	q	202	-	-	15/39/39/45	-
45	3PE	b	103	-	-	19/34/34/54	-
43	PLC	Z	202	-	-	23/45/45/45	-
46	CDL	b	102	-	-	24/69/69/110	-
45	3PE	L	702	-	-	18/54/54/54	-
45	3PE	J	201	-	-	25/54/54/54	-
49	EHZ	U	201	-	-	14/42/44/45	-
47	NDP	P	501	-	-	14/30/77/77	0/5/5/5
43	PLC	d	102	-	-	19/45/45/45	-
43	PLC	Y	302	-	-	14/39/39/45	-
43	PLC	B	302	-	-	10/34/34/45	-
45	3PE	Z	201	-	-	13/39/39/54	-
46	CDL	q	203	-	-	28/70/70/110	-
43	PLC	q	201	-	-	26/45/45/45	-
45	3PE	L	706	-	-	22/45/45/54	-
45	3PE	L	705	-	-	23/54/54/54	-
43	PLC	d	101	-	-	13/45/45/45	-
42	SF4	G	801	5	-	-	0/6/5/5
45	3PE	b	104	-	-	24/43/43/54	-
45	3PE	L	703	-	-	27/54/54/54	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
42	SF4	G	802	5	-	-	0/6/5/5
43	PLC	L	708	-	-	12/38/38/45	-
43	PLC	a	201	-	-	8/23/23/45	-
43	PLC	D	501	-	-	11/45/45/45	-
45	3PE	h	201	-	-	17/49/49/54	-
43	PLC	M	503	-	-	15/45/45/45	-
45	3PE	M	502	-	-	18/38/38/54	-
43	PLC	M	504	-	-	19/45/45/45	-
42	SF4	B	301	2	-	-	0/6/5/5
43	PLC	g	301	-	-	13/42/42/45	-
43	PLC	L	701	-	-	16/45/45/45	-
49	EHZ	T	201	-	-	21/42/44/45	-
45	3PE	L	707	-	-	6/32/32/54	-
42	SF4	I	302	7	-	-	0/6/5/5
46	CDL	Z	203	-	-	29/58/58/110	-
43	PLC	b	101	-	-	7/42/42/45	-
45	3PE	L	704	-	-	15/38/38/54	-
43	PLC	Y	303	-	-	14/39/39/45	-
45	3PE	j	101	-	-	15/30/30/54	-
45	3PE	M	501	-	-	25/54/54/54	-
43	PLC	H	401	-	-	6/26/26/45	-
45	3PE	Y	301	-	-	15/27/27/54	-
46	CDL	O	201	-	-	35/85/85/110	-
43	PLC	L	709	-	-	12/35/35/45	-
42	SF4	I	301	7	-	-	0/6/5/5
45	3PE	N	601	-	-	20/43/43/54	-
43	PLC	L	710	-	-	15/45/45/45	-
43	PLC	P	502	-	-	15/34/34/45	-
45	3PE	m	101	-	-	22/49/49/54	-
43	PLC	P	503	-	-	12/34/34/45	-

All (125) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	P	501	NDP	O4B-C1B	14.86	1.61	1.41
47	P	501	NDP	C6N-C5N	12.05	1.54	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	P	501	NDP	C7N-N7N	8.29	1.55	1.33
47	P	501	NDP	O4D-C1D	8.00	1.61	1.42
47	P	501	NDP	C2D-C1D	-7.42	1.29	1.53
47	P	501	NDP	O4D-C4D	-6.41	1.30	1.45
47	P	501	NDP	P2B-O2B	5.51	1.69	1.59
49	T	201	EHZ	C15-N2	5.43	1.45	1.33
49	U	201	EHZ	C15-N2	5.32	1.45	1.33
49	T	201	EHZ	C12-N1	5.28	1.45	1.33
47	P	501	NDP	O4B-C4B	-5.21	1.33	1.45
49	U	201	EHZ	C12-N1	5.19	1.45	1.33
47	P	501	NDP	C2N-C3N	4.76	1.48	1.34
47	P	501	NDP	O7N-C7N	-4.00	1.15	1.24
47	P	501	NDP	C6A-N6A	3.86	1.48	1.34
47	P	501	NDP	O2D-C2D	3.86	1.52	1.43
47	P	501	NDP	C5A-C4A	-3.54	1.31	1.40
47	P	501	NDP	C4N-C3N	3.42	1.56	1.49
47	P	501	NDP	C4N-C5N	2.90	1.56	1.48
47	P	501	NDP	C2A-N3A	2.78	1.36	1.32
46	O	201	CDL	OB6-CB4	-2.75	1.39	1.46
45	L	706	3PE	O21-C2	-2.74	1.39	1.46
46	b	102	CDL	OB6-CB4	-2.67	1.39	1.46
45	h	201	3PE	O21-C2	-2.66	1.39	1.46
47	P	501	NDP	O3B-C3B	-2.66	1.36	1.43
45	L	707	3PE	O21-C2	-2.65	1.40	1.46
45	L	703	3PE	O21-C2	-2.65	1.40	1.46
45	L	705	3PE	O21-C2	-2.64	1.40	1.46
45	L	702	3PE	O21-C2	-2.64	1.40	1.46
46	q	203	CDL	OB6-CB4	-2.61	1.40	1.46
47	P	501	NDP	O3D-C3D	-2.59	1.36	1.43
45	j	101	3PE	O21-C2	-2.56	1.40	1.46
47	P	501	NDP	C7N-C3N	2.56	1.54	1.48
45	L	704	3PE	O21-C2	-2.55	1.40	1.46
45	b	104	3PE	O21-C2	-2.55	1.40	1.46
45	M	501	3PE	O21-C2	-2.54	1.40	1.46
46	b	102	CDL	OA6-CA4	-2.53	1.40	1.46
46	Z	203	CDL	OA6-CA5	2.52	1.40	1.35
46	Z	203	CDL	OB6-CB4	-2.51	1.40	1.46
45	J	201	3PE	O21-C2	-2.51	1.40	1.46
45	b	103	3PE	O21-C2	-2.49	1.40	1.46
46	b	102	CDL	OB8-CB7	2.47	1.40	1.33
45	N	601	3PE	O21-C2	-2.47	1.40	1.46
45	Z	201	3PE	O21-C2	-2.45	1.40	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	j	101	3PE	O31-C31	2.44	1.40	1.33
45	Y	301	3PE	O21-C21	2.44	1.40	1.35
46	O	201	CDL	OA8-CA7	2.44	1.40	1.33
46	O	201	CDL	OA6-CA5	2.42	1.41	1.34
45	M	502	3PE	O21-C2	-2.41	1.40	1.46
45	Y	301	3PE	O31-C31	2.40	1.40	1.33
45	Z	201	3PE	O31-C31	2.39	1.40	1.33
45	L	706	3PE	O31-C31	2.39	1.40	1.33
46	q	203	CDL	OB8-CB7	2.38	1.40	1.33
46	b	102	CDL	OA8-CA7	2.38	1.40	1.33
45	b	104	3PE	O31-C31	2.37	1.40	1.33
46	q	203	CDL	OA8-CA7	2.37	1.40	1.33
45	L	707	3PE	O31-C31	2.37	1.40	1.33
45	b	103	3PE	O31-C3	-2.36	1.39	1.45
45	L	705	3PE	O31-C3	-2.36	1.39	1.45
49	U	201	EHZ	O3-C12	-2.35	1.18	1.23
45	m	101	3PE	O21-C21	2.35	1.40	1.34
45	M	502	3PE	O31-C31	2.33	1.40	1.33
46	Z	203	CDL	OB8-CB7	2.32	1.40	1.33
45	h	201	3PE	O31-C31	2.31	1.40	1.33
46	Z	203	CDL	OA8-CA7	2.31	1.40	1.33
46	O	201	CDL	OB8-CB6	-2.31	1.39	1.45
45	L	703	3PE	O31-C31	2.31	1.40	1.33
45	N	601	3PE	O31-C31	2.31	1.40	1.33
45	J	201	3PE	O31-C3	-2.31	1.39	1.45
45	m	101	3PE	O31-C3	-2.31	1.39	1.45
46	q	203	CDL	OA6-CA4	-2.31	1.40	1.46
46	O	201	CDL	OB8-CB7	2.31	1.40	1.33
45	L	704	3PE	O31-C31	2.30	1.40	1.33
49	T	201	EHZ	C9-S1	2.30	1.81	1.76
49	T	201	EHZ	O4-C15	-2.29	1.18	1.23
49	U	201	EHZ	O4-C15	-2.29	1.18	1.23
45	L	702	3PE	O31-C31	2.29	1.40	1.33
46	q	203	CDL	OA6-CA5	2.28	1.40	1.34
49	U	201	EHZ	C9-S1	2.28	1.81	1.76
45	M	501	3PE	O31-C31	2.28	1.40	1.33
45	J	201	3PE	O31-C31	2.27	1.40	1.33
46	Z	203	CDL	OA6-CA4	-2.26	1.40	1.46
46	Z	203	CDL	OA8-CA6	-2.26	1.40	1.45
47	P	501	NDP	C6N-N1N	2.25	1.42	1.37
45	L	703	3PE	O31-C3	-2.25	1.40	1.45
47	P	501	NDP	P2B-O1X	2.24	1.57	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
46	q	203	CDL	OA8-CA6	-2.24	1.40	1.45
45	m	101	3PE	O31-C31	2.23	1.39	1.33
45	M	501	3PE	O31-C3	-2.22	1.40	1.45
45	L	702	3PE	O31-C3	-2.21	1.40	1.45
45	b	103	3PE	O31-C31	2.21	1.39	1.33
45	Y	301	3PE	O21-C2	-2.20	1.41	1.46
47	P	501	NDP	PA-O5B	2.20	1.68	1.59
45	b	103	3PE	O21-C21	2.20	1.40	1.34
45	L	704	3PE	O31-C3	-2.19	1.40	1.45
46	b	102	CDL	OA8-CA6	-2.19	1.40	1.45
46	q	203	CDL	OB8-CB6	-2.18	1.40	1.45
45	b	104	3PE	O31-C3	-2.17	1.40	1.45
45	M	502	3PE	O21-C21	2.17	1.40	1.34
45	L	707	3PE	O31-C3	-2.17	1.40	1.45
45	M	502	3PE	O31-C3	-2.16	1.40	1.45
46	Z	203	CDL	OB6-CB5	2.16	1.40	1.34
45	L	705	3PE	O31-C31	2.15	1.39	1.33
45	L	706	3PE	O31-C3	-2.15	1.40	1.45
45	N	601	3PE	O31-C3	-2.14	1.40	1.45
46	b	102	CDL	OB8-CB6	-2.14	1.40	1.45
45	h	201	3PE	O31-C3	-2.14	1.40	1.45
45	Z	201	3PE	O31-C3	-2.13	1.40	1.45
49	T	201	EHZ	O3-C12	-2.13	1.18	1.23
45	m	101	3PE	O21-C2	-2.12	1.41	1.46
46	q	203	CDL	OB6-CB5	2.11	1.40	1.34
45	Z	201	3PE	O21-C21	2.11	1.40	1.34
46	Z	203	CDL	OB8-CB6	-2.11	1.40	1.45
45	N	601	3PE	O21-C21	2.11	1.40	1.34
46	b	102	CDL	OA6-CA5	2.09	1.40	1.34
45	Y	301	3PE	O31-C3	-2.08	1.40	1.45
45	j	101	3PE	O31-C3	-2.07	1.40	1.45
46	O	201	CDL	OA8-CA6	-2.05	1.40	1.45
46	O	201	CDL	OA6-CA4	-2.05	1.41	1.46
45	L	704	3PE	O21-C21	2.03	1.40	1.34
45	j	101	3PE	O21-C21	2.03	1.40	1.34
45	b	104	3PE	O21-C21	2.03	1.40	1.34
45	M	501	3PE	O21-C21	2.02	1.40	1.34
45	L	705	3PE	O21-C21	2.01	1.40	1.34
45	J	201	3PE	O21-C21	2.00	1.40	1.34

All (69) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
47	P	501	NDP	C5A-C6A-N6A	8.81	133.74	120.35
47	P	501	NDP	C1B-N9A-C4A	-7.91	112.74	126.64
47	P	501	NDP	N6A-C6A-N1A	-6.18	105.75	118.57
47	P	501	NDP	N3A-C2A-N1A	-5.55	120.00	128.68
45	Y	301	3PE	O21-C21-C22	5.02	120.32	111.09
49	T	201	EHZ	C8-C9-S1	4.89	119.67	113.63
49	U	201	EHZ	C8-C9-S1	4.72	119.47	113.63
46	Z	203	CDL	OA6-CA5-C11	4.65	119.64	111.09
45	N	601	3PE	O21-C21-C22	4.45	121.08	111.50
46	q	203	CDL	OA6-CA5-C11	4.31	120.79	111.50
45	L	705	3PE	O21-C21-C22	4.18	120.51	111.50
45	m	101	3PE	O21-C21-C22	4.18	120.51	111.50
46	b	102	CDL	OA6-CA5-C11	4.16	120.47	111.50
45	Z	201	3PE	O21-C21-C22	4.15	120.44	111.50
46	O	201	CDL	OB6-CB5-C51	4.09	120.32	111.50
45	M	501	3PE	O21-C21-C22	4.07	120.26	111.50
46	b	102	CDL	OB6-CB5-C51	4.06	120.25	111.50
45	L	702	3PE	O21-C21-C22	4.01	120.14	111.50
45	b	104	3PE	O21-C21-C22	4.00	120.13	111.50
45	J	201	3PE	O21-C21-C22	4.00	120.11	111.50
45	L	707	3PE	O21-C21-C22	3.99	120.09	111.50
46	O	201	CDL	OA6-CA5-C11	3.98	120.09	111.50
45	M	502	3PE	O21-C21-C22	3.98	120.08	111.50
45	L	706	3PE	O21-C21-C22	3.96	120.03	111.50
45	h	201	3PE	O21-C21-C22	3.93	119.97	111.50
46	q	203	CDL	OB6-CB5-C51	3.91	119.93	111.50
45	b	103	3PE	O21-C21-C22	3.89	119.89	111.50
45	j	101	3PE	O21-C21-C22	3.89	119.88	111.50
45	L	704	3PE	O21-C21-C22	3.85	119.80	111.50
46	Z	203	CDL	OB6-CB5-C51	3.85	119.79	111.50
45	L	703	3PE	O21-C21-C22	3.81	119.71	111.50
47	P	501	NDP	C3N-C2N-N1N	-3.58	117.99	123.10
46	b	102	CDL	OB8-CB7-C71	3.43	120.39	111.38
47	P	501	NDP	PN-O3-PA	-3.42	121.09	132.83
45	L	706	3PE	O31-C31-C32	2.84	120.83	111.91
45	Y	301	3PE	O31-C31-C32	2.80	120.69	111.91
45	M	502	3PE	O31-C31-C32	2.75	120.54	111.91
45	L	702	3PE	O31-C31-C32	2.71	120.40	111.91
45	b	104	3PE	O31-C31-C32	2.70	120.39	111.91
45	N	601	3PE	O31-C31-C32	2.70	120.39	111.91
49	U	201	EHZ	C11-N1-C12	-2.69	117.85	122.84
46	O	201	CDL	OB8-CB7-C71	2.68	120.33	111.91
45	m	101	3PE	O31-C31-C32	2.68	120.33	111.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
46	Z	203	CDL	OB8-CB7-C71	2.67	120.29	111.91
46	q	203	CDL	OA8-CA7-C31	2.67	120.28	111.91
45	Z	201	3PE	O31-C31-C32	2.65	120.23	111.91
46	O	201	CDL	OA8-CA7-C31	2.65	120.22	111.91
45	h	201	3PE	O31-C31-C32	2.65	120.21	111.91
46	q	203	CDL	OB8-CB7-C71	2.64	120.19	111.91
45	j	101	3PE	O31-C31-C32	2.62	120.13	111.91
45	b	103	3PE	O31-C31-C32	2.61	120.11	111.91
45	M	501	3PE	O31-C31-C32	2.61	120.10	111.91
46	b	102	CDL	OA8-CA7-C31	2.61	120.08	111.91
46	Z	203	CDL	OA8-CA7-C31	2.60	120.07	111.91
45	L	707	3PE	O31-C31-C32	2.60	120.06	111.91
45	L	703	3PE	O31-C31-C32	2.57	119.97	111.91
45	L	704	3PE	O31-C31-C32	2.55	119.92	111.91
49	U	201	EHZ	C10-S1-C9	2.54	109.79	101.87
43	L	701	PLC	C3-C2-C1	2.48	117.64	111.79
49	U	201	EHZ	C13-C12-N1	2.43	120.50	116.42
45	L	705	3PE	O31-C31-C32	2.41	119.49	111.91
45	J	201	3PE	O31-C31-C32	2.40	119.42	111.91
43	L	701	PLC	C2-O2-C’	2.38	123.65	117.79
49	U	201	EHZ	C14-C13-C12	-2.29	108.55	112.36
49	T	201	EHZ	O2-C9-S1	-2.23	119.72	122.61
49	U	201	EHZ	O2-C9-S1	-2.20	119.75	122.61
49	T	201	EHZ	C10-S1-C9	2.14	108.52	101.87
43	Z	202	PLC	C3-C2-C1	2.04	116.61	111.79
49	U	201	EHZ	C14-N2-C15	-2.00	119.01	122.59

There are no chirality outliers.

All (784) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
43	B	302	PLC	C4-O4P-P-O1P
43	D	501	PLC	C1’-C’-O2-C2
43	D	501	PLC	O’-C’-O2-C2
43	H	401	PLC	C4-O4P-P-O1P
43	L	701	PLC	C2-C1-O3P-P
43	L	709	PLC	C1’-C’-O2-C2
43	L	709	PLC	C4-O4P-P-O1P
43	L	710	PLC	C1-O3P-P-O1P
43	L	710	PLC	C1-O3P-P-O2P
43	M	503	PLC	C1’-C’-O2-C2
43	M	503	PLC	O’-C’-O2-C2

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Mol	Chain	Res	Type	Atoms
43	M	504	PLC	C1'-C'-O2-C2
43	M	504	PLC	C1-O3P-P-O1P
43	M	504	PLC	C1-O3P-P-O2P
43	M	504	PLC	C1-O3P-P-O4P
43	P	502	PLC	O4P-C4-C5-N
43	P	502	PLC	C1'-C'-O2-C2
43	P	503	PLC	O3P-C1-C2-O2
43	P	503	PLC	C4-O4P-P-O1P
43	Y	302	PLC	C5-C4-O4P-P
43	Y	302	PLC	C1'-C'-O2-C2
43	Y	302	PLC	O'-C'-O2-C2
43	Y	302	PLC	C1-O3P-P-O1P
43	Y	302	PLC	C1-O3P-P-O2P
43	Y	302	PLC	C1-O3P-P-O4P
43	Y	303	PLC	C1'-C'-O2-C2
43	Z	202	PLC	C1-O3P-P-O2P
43	a	201	PLC	C1-O3P-P-O1P
43	a	201	PLC	C1-O3P-P-O2P
43	a	201	PLC	C4-O4P-P-O1P
43	b	101	PLC	C1-O3P-P-O2P
43	d	102	PLC	C4-O4P-P-O2P
43	g	301	PLC	O4P-C4-C5-N
43	g	301	PLC	O'-C'-O2-C2
43	q	201	PLC	O3P-C1-C2-O2
43	q	201	PLC	C1-O3P-P-O2P
43	q	202	PLC	O4P-C4-C5-N
43	q	202	PLC	C1'-C'-O2-C2
43	q	202	PLC	C1-O3P-P-O2P
43	q	202	PLC	C4-O4P-P-O1P
43	q	202	PLC	C4-O4P-P-O3P
45	J	201	3PE	C1-O11-P-O14
45	J	201	3PE	C12-C11-O13-P
45	J	201	3PE	O22-C21-O21-C2
45	L	702	3PE	C22-C21-O21-C2
45	L	703	3PE	C1-O11-P-O12
45	L	703	3PE	C1-O11-P-O14
45	L	705	3PE	C11-O13-P-O11
45	L	705	3PE	C11-O13-P-O14
45	L	705	3PE	C22-C21-O21-C2
45	L	706	3PE	C1-O11-P-O12
45	L	706	3PE	C1-O11-P-O13
45	L	706	3PE	C1-O11-P-O14

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Mol	Chain	Res	Type	Atoms
45	M	501	3PE	C22-C21-O21-C2
45	M	502	3PE	C11-O13-P-O11
45	M	502	3PE	C11-O13-P-O12
45	M	502	3PE	C11-O13-P-O14
45	M	502	3PE	O13-C11-C12-N
45	N	601	3PE	C1-O11-P-O13
45	N	601	3PE	C1-O11-P-O14
45	N	601	3PE	C11-O13-P-O14
45	N	601	3PE	O13-C11-C12-N
45	N	601	3PE	C22-C21-O21-C2
45	Y	301	3PE	C1-O11-P-O12
45	Y	301	3PE	C1-O11-P-O14
45	Y	301	3PE	O13-C11-C12-N
45	Z	201	3PE	C1-O11-P-O12
45	b	103	3PE	O22-C21-O21-C2
45	b	104	3PE	C1-O11-P-O14
45	b	104	3PE	C11-O13-P-O11
45	b	104	3PE	C11-O13-P-O12
45	b	104	3PE	C22-C21-O21-C2
45	h	201	3PE	O13-C11-C12-N
45	j	101	3PE	O13-C11-C12-N
45	j	101	3PE	O32-C31-O31-C3
45	j	101	3PE	C32-C31-O31-C3
45	m	101	3PE	O32-C31-O31-C3
45	m	101	3PE	O22-C21-O21-C2
46	O	201	CDL	C11-CA5-OA6-CA4
46	O	201	CDL	C31-CA7-OA8-CA6
46	O	201	CDL	CB2-OB2-PB2-OB3
46	O	201	CDL	C51-CB5-OB6-CB4
46	Z	203	CDL	CB3-OB5-PB2-OB2
46	Z	203	CDL	CB3-OB5-PB2-OB3
46	Z	203	CDL	CB3-OB5-PB2-OB4
46	b	102	CDL	CB2-OB2-PB2-OB3
46	b	102	CDL	CB2-OB2-PB2-OB4
46	b	102	CDL	CB2-OB2-PB2-OB5
46	q	203	CDL	CB3-OB5-PB2-OB2
46	q	203	CDL	CB3-OB5-PB2-OB3
46	q	203	CDL	CB3-OB5-PB2-OB4
46	q	203	CDL	C51-CB5-OB6-CB4
47	P	501	NDP	C5B-O5B-PA-O3
47	P	501	NDP	C5D-O5D-PN-O1N
47	P	501	NDP	O4D-C1D-N1N-C6N

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Mol	Chain	Res	Type	Atoms
47	P	501	NDP	C2N-C3N-C7N-N7N
49	T	201	EHZ	C5-C6-C7-C8
49	T	201	EHZ	S1-C10-C11-N1
49	T	201	EHZ	C15-C16-C17-C19
49	T	201	EHZ	C15-C16-C17-C20
49	T	201	EHZ	O5-C16-C17-C19
49	T	201	EHZ	O5-C16-C17-C20
49	T	201	EHZ	C16-C17-C20-O6
49	T	201	EHZ	C18-C17-C20-O6
49	T	201	EHZ	C19-C17-C20-O6
49	T	201	EHZ	O2-C9-S1-C10
49	T	201	EHZ	C8-C9-S1-C10
49	U	201	EHZ	C4-C5-C6-C7
49	U	201	EHZ	C6-C7-C8-C9
49	U	201	EHZ	C16-C17-C20-O6
49	U	201	EHZ	C18-C17-C20-O6
49	U	201	EHZ	C19-C17-C20-O6
49	U	201	EHZ	O2-C9-S1-C10
49	U	201	EHZ	C8-C9-S1-C10
43	H	401	PLC	C1'-C'-O2-C2
45	Y	301	3PE	C22-C21-O21-C2
46	Z	203	CDL	C11-CA5-OA6-CA4
43	H	401	PLC	O'-C'-O2-C2
45	Y	301	3PE	O22-C21-O21-C2
45	L	703	3PE	O32-C31-O31-C3
45	L	705	3PE	O32-C31-O31-C3
46	O	201	CDL	OA9-CA7-OA8-CA6
46	b	102	CDL	OB9-CB7-OB8-CB6
46	b	102	CDL	C71-CB7-OB8-CB6
43	L	708	PLC	OB-CB-O3-C3
45	L	706	3PE	O32-C31-O31-C3
45	Z	201	3PE	O32-C31-O31-C3
46	Z	203	CDL	OA9-CA7-OA8-CA6
46	q	203	CDL	OB9-CB7-OB8-CB6
46	Z	203	CDL	OA7-CA5-OA6-CA4
43	L	709	PLC	O'-C'-O2-C2
43	M	504	PLC	O'-C'-O2-C2
43	P	502	PLC	O'-C'-O2-C2
43	Y	303	PLC	O'-C'-O2-C2
43	q	202	PLC	O'-C'-O2-C2
45	L	702	3PE	O22-C21-O21-C2
45	L	705	3PE	O22-C21-O21-C2

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Mol	Chain	Res	Type	Atoms
45	M	501	3PE	O22-C21-O21-C2
45	N	601	3PE	O22-C21-O21-C2
45	b	104	3PE	O22-C21-O21-C2
46	O	201	CDL	OA7-CA5-OA6-CA4
46	O	201	CDL	OB7-CB5-OB6-CB4
46	q	203	CDL	OA7-CA5-OA6-CA4
46	q	203	CDL	OB7-CB5-OB6-CB4
45	L	703	3PE	C32-C31-O31-C3
45	L	705	3PE	C32-C31-O31-C3
45	L	706	3PE	C32-C31-O31-C3
45	m	101	3PE	C32-C31-O31-C3
43	g	301	PLC	C1'-C'-O2-C2
45	J	201	3PE	C22-C21-O21-C2
45	b	103	3PE	C22-C21-O21-C2
45	m	101	3PE	C22-C21-O21-C2
46	q	203	CDL	C11-CA5-OA6-CA4
45	b	103	3PE	O32-C31-O31-C3
45	b	104	3PE	O32-C31-O31-C3
46	q	203	CDL	OA9-CA7-OA8-CA6
43	L	708	PLC	C1B-CB-O3-C3
45	Z	201	3PE	C32-C31-O31-C3
45	b	104	3PE	C32-C31-O31-C3
46	Z	203	CDL	C31-CA7-OA8-CA6
46	q	203	CDL	C71-CB7-OB8-CB6
45	N	601	3PE	O32-C31-O31-C3
45	N	601	3PE	C32-C31-O31-C3
45	L	704	3PE	C22-C21-O21-C2
43	g	301	PLC	C7'-C8'-C9'-CA'
47	P	501	NDP	O4B-C4B-C5B-O5B
47	P	501	NDP	C3B-C4B-C5B-O5B
45	b	103	3PE	C32-C31-O31-C3
46	q	203	CDL	C31-CA7-OA8-CA6
45	L	704	3PE	O22-C21-O21-C2
43	L	710	PLC	C1B-CB-O3-C3
43	Z	202	PLC	C'-C1'-C2'-C3'
43	P	503	PLC	C1'-C'-O2-C2
43	d	101	PLC	C'-C1'-C2'-C3'
43	L	710	PLC	OB-CB-O3-C3
45	L	702	3PE	C32-C31-O31-C3
43	M	504	PLC	C3'-C4'-C5'-C6'
43	L	708	PLC	CB-C1B-C2B-C3B
43	Y	302	PLC	C'-C1'-C2'-C3'

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Mol	Chain	Res	Type	Atoms
45	L	703	3PE	C21-C22-C23-C24
46	O	201	CDL	CA5-C11-C12-C13
47	P	501	NDP	O4D-C4D-C5D-O5D
47	P	501	NDP	C3D-C4D-C5D-O5D
49	T	201	EHZ	C5-C6-C7-O1
43	d	102	PLC	C'-C1'-C2'-C3'
45	L	706	3PE	C21-C22-C23-C24
43	P	503	PLC	O'-C'-O2-C2
47	P	501	NDP	C3B-C2B-O2B-P2B
43	L	708	PLC	C4'-C5'-C6'-C7'
45	L	702	3PE	O32-C31-O31-C3
43	L	701	PLC	C1-O3P-P-O4P
43	L	710	PLC	C1-O3P-P-O4P
43	P	502	PLC	C4-O4P-P-O3P
43	Z	202	PLC	C1-O3P-P-O4P
43	a	201	PLC	C1-O3P-P-O4P
43	d	102	PLC	C1-O3P-P-O4P
43	g	301	PLC	C4-O4P-P-O3P
43	q	201	PLC	C1-O3P-P-O4P
45	J	201	3PE	C1-O11-P-O13
45	L	703	3PE	C1-O11-P-O13
45	Z	201	3PE	C1-O11-P-O13
45	b	103	3PE	C1-O11-P-O13
45	b	103	3PE	C11-O13-P-O11
45	h	201	3PE	C11-O13-P-O11
46	O	201	CDL	CB3-OB5-PB2-OB2
45	Z	201	3PE	C21-C22-C23-C24
43	P	503	PLC	C1'-C2'-C3'-C4'
45	h	201	3PE	C34-C35-C36-C37
43	Z	202	PLC	C1'-C'-O2-C2
45	L	702	3PE	C32-C33-C34-C35
45	L	703	3PE	C33-C34-C35-C36
45	M	501	3PE	C33-C34-C35-C36
45	M	501	3PE	C3A-C3B-C3C-C3D
45	j	101	3PE	C33-C34-C35-C36
45	J	201	3PE	C3A-C3B-C3C-C3D
45	Y	301	3PE	C33-C34-C35-C36
46	O	201	CDL	C76-C77-C78-C79
43	Z	202	PLC	O'-C'-O2-C2
45	M	501	3PE	C34-C35-C36-C37
46	Z	203	CDL	C72-C73-C74-C75
43	Z	202	PLC	C1B-C2B-C3B-C4B

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Mol	Chain	Res	Type	Atoms
43	d	102	PLC	C3B-C4B-C5B-C6B
45	J	201	3PE	C33-C34-C35-C36
45	L	705	3PE	C2A-C2B-C2C-C2D
45	b	104	3PE	C36-C37-C38-C39
43	d	101	PLC	C7'-C8'-C9'-CA'
45	h	201	3PE	C2E-C2F-C2G-C2H
46	q	203	CDL	C14-C15-C16-C17
43	L	701	PLC	C'-C1'-C2'-C3'
43	P	502	PLC	C1B-C2B-C3B-C4B
45	b	103	3PE	C22-C23-C24-C25
46	O	201	CDL	C74-C75-C76-C77
45	J	201	3PE	C36-C37-C38-C39
45	L	706	3PE	C37-C38-C39-C3A
45	m	101	3PE	C24-C25-C26-C27
43	q	201	PLC	O'-C'-O2-C2
46	b	102	CDL	OA7-CA5-OA6-CA4
43	q	201	PLC	C1'-C'-O2-C2
45	L	706	3PE	C22-C21-O21-C2
46	b	102	CDL	C11-CA5-OA6-CA4
43	L	710	PLC	C3B-C4B-C5B-C6B
43	L	701	PLC	C3B-C4B-C5B-C6B
43	d	102	PLC	C1'-C2'-C3'-C4'
45	L	702	3PE	C2A-C2B-C2C-C2D
45	L	703	3PE	C35-C36-C37-C38
45	L	703	3PE	C37-C38-C39-C3A
45	Z	201	3PE	C33-C34-C35-C36
49	U	201	EHZ	C3-C4-C5-C6
43	M	504	PLC	C5'-C6'-C7'-C8'
43	d	101	PLC	C3'-C4'-C5'-C6'
46	O	201	CDL	C31-C32-C33-C34
45	M	501	3PE	O13-C11-C12-N
45	L	702	3PE	C38-C39-C3A-C3B
45	L	703	3PE	C32-C33-C34-C35
45	L	705	3PE	C2E-C2F-C2G-C2H
46	O	201	CDL	C72-C73-C74-C75
47	P	501	NDP	C1B-C2B-O2B-P2B
43	Y	302	PLC	C1'-C2'-C3'-C4'
43	Y	303	PLC	C1'-C2'-C3'-C4'
46	q	203	CDL	C53-C54-C55-C56
45	L	706	3PE	C33-C34-C35-C36
45	M	501	3PE	C3E-C3F-C3G-C3H
45	L	703	3PE	C23-C24-C25-C26

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Mol	Chain	Res	Type	Atoms
45	M	501	3PE	C35-C36-C37-C38
45	M	501	3PE	C24-C25-C26-C27
46	O	201	CDL	C71-C72-C73-C74
45	L	705	3PE	C21-C22-C23-C24
45	m	101	3PE	C31-C32-C33-C34
43	d	102	PLC	C4'-C5'-C6'-C7'
45	L	704	3PE	C25-C26-C27-C28
45	M	502	3PE	C23-C24-C25-C26
46	q	203	CDL	CB3-CB4-CB6-OB8
46	O	201	CDL	C52-C53-C54-C55
45	Z	201	3PE	C22-C21-O21-C2
43	Z	202	PLC	C1'-C2'-C3'-C4'
43	d	101	PLC	C5'-C6'-C7'-C8'
43	q	202	PLC	C1'-C2'-C3'-C4'
45	J	201	3PE	C34-C35-C36-C37
45	M	502	3PE	C22-C23-C24-C25
46	O	201	CDL	C78-C79-C80-C81
45	M	501	3PE	C36-C37-C38-C39
45	L	706	3PE	O22-C21-O21-C2
45	L	705	3PE	C26-C27-C28-C29
45	m	101	3PE	C3D-C3E-C3F-C3G
43	L	710	PLC	C4-C5-N-C8
45	L	702	3PE	C36-C37-C38-C39
43	L	701	PLC	C1B-CB-O3-C3
43	b	101	PLC	C1'-C'-O2-C2
43	M	503	PLC	C5'-C6'-C7'-C8'
45	L	702	3PE	C21-C22-C23-C24
45	h	201	3PE	O22-C21-O21-C2
46	Z	203	CDL	OB7-CB5-OB6-CB4
46	b	102	CDL	OB7-CB5-OB6-CB4
45	b	103	3PE	C31-C32-C33-C34
43	P	503	PLC	C1B-CB-O3-C3
45	M	501	3PE	C25-C26-C27-C28
45	M	502	3PE	C26-C27-C28-C29
45	N	601	3PE	C27-C28-C29-C2A
45	b	104	3PE	C33-C34-C35-C36
43	B	302	PLC	CB-C1B-C2B-C3B
43	Z	202	PLC	C2B-C3B-C4B-C5B
43	M	503	PLC	C6B-C7B-C8B-C9B
45	M	501	3PE	C2E-C2F-C2G-C2H
43	L	708	PLC	C1'-C'-O2-C2
45	h	201	3PE	C22-C21-O21-C2

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Mol	Chain	Res	Type	Atoms
46	Z	203	CDL	C51-CB5-OB6-CB4
46	b	102	CDL	C51-CB5-OB6-CB4
43	d	102	PLC	C4B-C5B-C6B-C7B
45	h	201	3PE	C26-C27-C28-C29
43	L	701	PLC	OB-CB-O3-C3
43	M	503	PLC	C1'-C2'-C3'-C4'
45	Z	201	3PE	O22-C21-O21-C2
45	L	707	3PE	O21-C2-C3-O31
46	q	203	CDL	OB6-CB4-CB6-OB8
45	L	705	3PE	C23-C24-C25-C26
45	M	501	3PE	C32-C33-C34-C35
45	Z	201	3PE	C22-C23-C24-C25
43	b	101	PLC	O'-C'-O2-C2
45	L	702	3PE	C2B-C2C-C2D-C2E
45	L	705	3PE	C3D-C3E-C3F-C3G
45	h	201	3PE	C22-C23-C24-C25
43	B	302	PLC	C4-O4P-P-O3P
43	L	701	PLC	C4-O4P-P-O3P
43	q	201	PLC	C4-O4P-P-O3P
45	Y	301	3PE	C1-O11-P-O13
46	O	201	CDL	CB2-OB2-PB2-OB5
45	L	706	3PE	C31-C32-C33-C34
43	q	201	PLC	O3P-C1-C2-C3
45	Y	301	3PE	O11-C1-C2-C3
45	b	104	3PE	O11-C1-C2-C3
45	h	201	3PE	O11-C1-C2-C3
45	j	101	3PE	O11-C1-C2-C3
46	Z	203	CDL	OA5-CA3-CA4-CA6
43	Y	302	PLC	C2B-C3B-C4B-C5B
45	b	103	3PE	C24-C25-C26-C27
45	J	201	3PE	C2A-C2B-C2C-C2D
45	J	201	3PE	C35-C36-C37-C38
43	Z	202	PLC	C3B-C4B-C5B-C6B
43	d	101	PLC	C5B-C6B-C7B-C8B
43	L	710	PLC	C4-C5-N-C7
43	L	709	PLC	C1-C2-C3-O3
43	Z	202	PLC	C2'-C3'-C4'-C5'
43	d	102	PLC	C1-C2-C3-O3
45	J	201	3PE	C1-C2-C3-O31
45	L	707	3PE	C1-C2-C3-O31
45	N	601	3PE	C1-C2-C3-O31
45	b	103	3PE	C28-C29-C2A-C2B

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Mol	Chain	Res	Type	Atoms
45	h	201	3PE	C1-C2-C3-O31
46	O	201	CDL	C11-C12-C13-C14
46	O	201	CDL	CB3-CB4-CB6-OB8
46	q	203	CDL	CA3-CA4-CA6-OA8
45	h	201	3PE	C2C-C2D-C2E-C2F
45	L	705	3PE	C2F-C2G-C2H-C2I
43	P	503	PLC	OB-CB-O3-C3
43	d	102	PLC	C2B-C3B-C4B-C5B
45	M	501	3PE	C31-C32-C33-C34
45	b	104	3PE	C31-C32-C33-C34
45	L	706	3PE	C36-C37-C38-C39
45	h	201	3PE	C27-C28-C29-C2A
43	L	708	PLC	C1B-C2B-C3B-C4B
45	Z	201	3PE	C34-C35-C36-C37
43	D	501	PLC	C3-C2-O2-C’
45	m	101	3PE	C3-C2-O21-C21
46	Z	203	CDL	CA6-CA4-OA6-CA5
43	Z	202	PLC	C7’-C8’-C9’-CA’
43	Z	202	PLC	C8’-C9’-CA’-CB’
45	L	703	3PE	C36-C37-C38-C39
45	M	502	3PE	C32-C31-O31-C3
43	Y	303	PLC	O3P-C1-C2-O2
45	L	705	3PE	C36-C37-C38-C39
45	L	706	3PE	C24-C25-C26-C27
46	O	201	CDL	OB6-CB4-CB6-OB8
43	L	708	PLC	O’-C’-O2-C2
49	T	201	EHZ	O5-C16-C17-C18
43	q	202	PLC	C’-C1’-C2’-C3’
45	j	101	3PE	C34-C35-C36-C37
45	m	101	3PE	C23-C24-C25-C26
43	M	504	PLC	C1B-CB-O3-C3
45	Y	301	3PE	C32-C31-O31-C3
45	m	101	3PE	C36-C37-C38-C39
43	Y	303	PLC	O3P-C1-C2-C3
46	b	102	CDL	OB5-CB3-CB4-CB6
45	L	704	3PE	C32-C31-O31-C3
43	Z	202	PLC	C6’-C7’-C8’-C9’
45	L	703	3PE	C38-C39-C3A-C3B
43	L	710	PLC	C1’-C’-O2-C2
43	M	503	PLC	C1B-CB-O3-C3
43	q	202	PLC	C2-C1-O3P-P
45	b	104	3PE	C3B-C3C-C3D-C3E

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Mol	Chain	Res	Type	Atoms
43	q	201	PLC	C1B-CB-O3-C3
43	M	504	PLC	C1-C2-C3-O3
43	Z	202	PLC	C1-C2-C3-O3
45	L	702	3PE	C1-C2-C3-O31
46	b	102	CDL	CA3-CA4-CA6-OA8
46	b	102	CDL	CB3-CB4-CB6-OB8
43	L	709	PLC	C2B-C3B-C4B-C5B
43	d	102	PLC	C7B-C8B-C9B-CAA
45	L	702	3PE	C23-C24-C25-C26
45	L	703	3PE	C2A-C2B-C2C-C2D
43	b	101	PLC	C7'-C8'-C9'-CA'
45	M	501	3PE	C3F-C3G-C3H-C3I
45	N	601	3PE	C29-C2A-C2B-C2C
45	b	104	3PE	C35-C36-C37-C38
43	D	501	PLC	C5'-C6'-C7'-C8'
45	L	702	3PE	C34-C35-C36-C37
45	L	705	3PE	C33-C34-C35-C36
45	b	103	3PE	C23-C24-C25-C26
43	L	710	PLC	C4-C5-N-C6
49	U	201	EHZ	C1-C2-C3-C4
43	D	501	PLC	C1-O3P-P-O4P
43	H	401	PLC	C4-O4P-P-O3P
43	Y	302	PLC	C4-O4P-P-O3P
43	d	101	PLC	C1-O3P-P-O4P
45	N	601	3PE	C11-O13-P-O11
43	L	708	PLC	C5'-C6'-C7'-C8'
43	M	503	PLC	C1B-C2B-C3B-C4B
43	L	701	PLC	C6B-C7B-C8B-C9B
46	b	102	CDL	C58-C59-C60-C61
43	M	503	PLC	O3P-C1-C2-O2
43	P	502	PLC	O3P-C1-C2-O2
43	d	101	PLC	O3P-C1-C2-O2
43	q	202	PLC	O3P-C1-C2-O2
45	h	201	3PE	O11-C1-C2-O21
46	Z	203	CDL	OB5-CB3-CB4-OB6
46	b	102	CDL	OB5-CB3-CB4-OB6
45	J	201	3PE	C31-C32-C33-C34
45	m	101	3PE	C29-C2A-C2B-C2C
45	M	502	3PE	O32-C31-O31-C3
43	P	502	PLC	C2B-C3B-C4B-C5B
43	B	302	PLC	O2-C2-C3-O3
43	M	504	PLC	O2-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
45	L	703	3PE	O21-C2-C3-O31
45	L	705	3PE	O21-C2-C3-O31
46	Z	203	CDL	OA6-CA4-CA6-OA8
46	Z	203	CDL	OB6-CB4-CB6-OB8
46	b	102	CDL	OB6-CB4-CB6-OB8
49	T	201	EHZ	C3-C4-C5-C6
45	M	501	3PE	C2D-C2E-C2F-C2G
43	d	102	PLC	C6B-C7B-C8B-C9B
45	M	501	3PE	C2-C1-O11-P
46	q	203	CDL	C1-CB2-OB2-PB2
43	q	201	PLC	C1'-C2'-C3'-C4'
45	L	703	3PE	C34-C35-C36-C37
49	U	201	EHZ	C2-C1-C21-C22
43	M	503	PLC	C6'-C7'-C8'-C9'
43	L	709	PLC	C3B-C4B-C5B-C6B
45	j	101	3PE	C22-C23-C24-C25
47	P	501	NDP	PN-O3-PA-O5B
43	P	503	PLC	O3P-C1-C2-C3
45	L	704	3PE	O11-C1-C2-C3
45	M	502	3PE	O11-C1-C2-C3
46	Z	203	CDL	OB5-CB3-CB4-CB6
46	q	203	CDL	OA5-CA3-CA4-CA6
43	M	504	PLC	OB-CB-O3-C3
45	L	703	3PE	C22-C23-C24-C25
46	O	201	CDL	C73-C74-C75-C76
43	L	701	PLC	C4B-C5B-C6B-C7B
43	B	302	PLC	C1B-C2B-C3B-C4B
47	P	501	NDP	C2B-O2B-P2B-O1X
45	Y	301	3PE	C31-C32-C33-C34
45	J	201	3PE	C38-C39-C3A-C3B
45	Z	201	3PE	C32-C33-C34-C35
46	b	102	CDL	C16-C17-C18-C19
45	L	704	3PE	C24-C25-C26-C27
45	L	706	3PE	C3A-C3B-C3C-C3D
43	d	102	PLC	C1B-C2B-C3B-C4B
43	q	201	PLC	C3-C2-O2-C'
45	Y	301	3PE	C3-C2-O21-C21
43	d	101	PLC	C1'-C2'-C3'-C4'
49	T	201	EHZ	C2-C3-C4-C5
45	L	704	3PE	O21-C21-C22-C23
45	m	101	3PE	C35-C36-C37-C38
43	B	302	PLC	C2-C1-O3P-P

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Mol	Chain	Res	Type	Atoms
43	M	503	PLC	C2-C1-O3P-P
45	L	706	3PE	C1-C2-C3-O31
46	Z	203	CDL	CB3-CB4-CB6-OB8
43	q	201	PLC	OB-CB-O3-C3
43	g	301	PLC	O3P-C1-C2-O2
46	q	203	CDL	OA5-CA3-CA4-OA6
43	M	503	PLC	C5B-C6B-C7B-C8B
45	L	704	3PE	C26-C27-C28-C29
43	L	710	PLC	O’-C’-O2-C2
49	T	201	EHZ	O1-C7-C8-C9
49	T	201	EHZ	C15-C16-C17-C18
49	U	201	EHZ	O1-C7-C8-C9
46	Z	203	CDL	C31-C32-C33-C34
43	M	503	PLC	OB-CB-O3-C3
45	L	704	3PE	O32-C31-O31-C3
45	Y	301	3PE	O32-C31-O31-C3
43	L	709	PLC	O2-C2-C3-O3
45	J	201	3PE	O21-C2-C3-O31
45	L	702	3PE	O21-C2-C3-O31
45	L	704	3PE	O21-C2-C3-O31
45	N	601	3PE	O21-C2-C3-O31
45	h	201	3PE	O21-C2-C3-O31
46	b	102	CDL	OA6-CA4-CA6-OA8
46	q	203	CDL	OA6-CA4-CA6-OA8
45	Y	301	3PE	C35-C36-C37-C38
46	O	201	CDL	C75-C76-C77-C78
46	Z	203	CDL	C72-C71-CB7-OB8
43	Z	202	PLC	C5’-C6’-C7’-C8’
46	O	201	CDL	C33-C34-C35-C36
45	L	704	3PE	C22-C23-C24-C25
45	L	706	3PE	C38-C39-C3A-C3B
46	q	203	CDL	C58-C59-C60-C61
43	b	101	PLC	C8’-C9’-CA’-CB’
45	M	501	3PE	C32-C31-O31-C3
43	d	102	PLC	C4-O4P-P-O3P
45	b	104	3PE	C1-O11-P-O13
45	j	101	3PE	C1-O11-P-O13
46	b	102	CDL	CB3-OB5-PB2-OB2
43	L	708	PLC	C2-C1-O3P-P
43	Y	303	PLC	C2-C1-O3P-P
43	q	201	PLC	C2-C1-O3P-P
45	M	502	3PE	C2-C1-O11-P

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Mol	Chain	Res	Type	Atoms
43	D	501	PLC	C4-C5-N-C6
43	D	501	PLC	C4-C5-N-C7
43	D	501	PLC	C1-O3P-P-O2P
43	L	701	PLC	C1-O3P-P-O1P
43	P	502	PLC	C4-O4P-P-O1P
43	Y	302	PLC	C4-O4P-P-O2P
43	d	101	PLC	C1-O3P-P-O2P
43	d	102	PLC	C1-O3P-P-O1P
43	g	301	PLC	C4-O4P-P-O1P
43	q	201	PLC	C4-C5-N-C6
43	q	201	PLC	C4-O4P-P-O1P
45	J	201	3PE	C1-O11-P-O12
45	Z	201	3PE	C1-O11-P-O14
45	b	103	3PE	C1-O11-P-O12
45	b	103	3PE	C1-O11-P-O14
45	b	103	3PE	C11-O13-P-O12
45	b	104	3PE	C11-O13-P-O14
45	h	201	3PE	C11-O13-P-O12
45	j	101	3PE	C1-O11-P-O14
46	O	201	CDL	CB2-OB2-PB2-OB4
46	O	201	CDL	CB3-OB5-PB2-OB3
46	O	201	CDL	CB3-OB5-PB2-OB4
46	b	102	CDL	CB3-OB5-PB2-OB3
47	P	501	NDP	C5B-O5B-PA-O2A
49	T	201	EHZ	C6-C7-C8-C9
43	L	708	PLC	O3P-C1-C2-C3
43	L	710	PLC	O3P-C1-C2-C3
43	P	502	PLC	O3P-C1-C2-C3
43	d	101	PLC	O3P-C1-C2-C3
43	g	301	PLC	O3P-C1-C2-C3
43	q	202	PLC	O3P-C1-C2-C3
43	P	503	PLC	C5-C4-O4P-P
43	d	102	PLC	C5-C4-O4P-P
43	g	301	PLC	C5-C4-O4P-P
43	q	202	PLC	C5-C4-O4P-P
45	M	502	3PE	C12-C11-O13-P
45	b	104	3PE	C12-C11-O13-P
43	g	301	PLC	C1'-C2'-C3'-C4'
45	L	702	3PE	C31-C32-C33-C34
45	L	707	3PE	C21-C22-C23-C24
45	N	601	3PE	C2B-C2C-C2D-C2E
43	L	708	PLC	O3P-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
43	L	710	PLC	O3P-C1-C2-O2
45	L	704	3PE	O11-C1-C2-O21
45	M	502	3PE	O11-C1-C2-O21
45	Y	301	3PE	O11-C1-C2-O21
45	b	104	3PE	O11-C1-C2-O21
45	j	101	3PE	O11-C1-C2-O21
45	m	101	3PE	C21-C22-C23-C24
46	Z	203	CDL	OA5-CA3-CA4-OA6
46	O	201	CDL	C36-C37-C38-C39
43	P	502	PLC	C4-C5-N-C8
45	b	104	3PE	C34-C35-C36-C37
43	B	302	PLC	O4P-C4-C5-N
43	D	501	PLC	O4P-C4-C5-N
43	H	401	PLC	O4P-C4-C5-N
43	L	709	PLC	O4P-C4-C5-N
43	L	710	PLC	O4P-C4-C5-N
43	M	504	PLC	O4P-C4-C5-N
43	Y	303	PLC	O4P-C4-C5-N
43	d	101	PLC	O4P-C4-C5-N
43	d	102	PLC	O4P-C4-C5-N
45	L	702	3PE	C3B-C3C-C3D-C3E
46	Z	203	CDL	CA3-CA4-CA6-OA8
45	M	501	3PE	C3D-C3E-C3F-C3G
45	m	101	3PE	C39-C3A-C3B-C3C
45	b	103	3PE	C21-C22-C23-C24
43	Y	303	PLC	C8B-C9B-CAA-CBA
43	B	302	PLC	C3B-C4B-C5B-C6B
45	m	101	3PE	C34-C35-C36-C37
46	O	201	CDL	C13-C14-C15-C16
45	M	501	3PE	O32-C31-O31-C3
43	q	201	PLC	C6B-C7B-C8B-C9B
43	M	504	PLC	C2B-C3B-C4B-C5B
43	D	501	PLC	C4-C5-N-C8
45	J	201	3PE	O31-C31-C32-C33
45	m	101	3PE	O21-C21-C22-C23
43	Y	303	PLC	C3B-C4B-C5B-C6B
45	L	706	3PE	C28-C29-C2A-C2B
43	P	503	PLC	C3-C2-O2-C’
46	O	201	CDL	CA6-CA4-OA6-CA5
46	q	203	CDL	CA6-CA4-OA6-CA5
43	q	201	PLC	C’-C1’-C2’-C3’
46	q	203	CDL	C12-C13-C14-C15

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Mol	Chain	Res	Type	Atoms
45	L	706	3PE	C34-C35-C36-C37
45	L	706	3PE	O21-C2-C3-O31
43	H	401	PLC	C1-O3P-P-O4P
43	L	709	PLC	C4-O4P-P-O3P
43	M	504	PLC	C4-O4P-P-O3P
43	P	503	PLC	C4-O4P-P-O3P
43	Y	303	PLC	C4-O4P-P-O3P
43	Z	202	PLC	C4-O4P-P-O3P
43	a	201	PLC	C4-O4P-P-O3P
45	L	705	3PE	C1-O11-P-O13
45	L	706	3PE	C11-O13-P-O11
45	L	707	3PE	C11-O13-P-O11
45	M	502	3PE	C1-O11-P-O13
46	Z	203	CDL	CA3-OA5-PA1-OA2
46	Z	203	CDL	CB2-OB2-PB2-OB5
46	q	203	CDL	CA2-OA2-PA1-OA5
46	q	203	CDL	CB2-OB2-PB2-OB5
43	q	201	PLC	C3'-C4'-C5'-C6'
45	m	101	3PE	C33-C34-C35-C36
46	q	203	CDL	CB5-C51-C52-C53
45	L	703	3PE	C3E-C3F-C3G-C3H
45	L	703	3PE	C2B-C2C-C2D-C2E
43	Z	202	PLC	C4-C5-N-C8
45	N	601	3PE	C25-C26-C27-C28
46	Z	203	CDL	C1-CA2-OA2-PA1
45	L	705	3PE	C38-C39-C3A-C3B
46	b	102	CDL	C11-C12-C13-C14
45	J	201	3PE	C3C-C3D-C3E-C3F
43	Y	303	PLC	C6B-C7B-C8B-C9B
45	M	501	3PE	C38-C39-C3A-C3B
45	Y	301	3PE	C34-C35-C36-C37
45	L	706	3PE	C35-C36-C37-C38
46	Z	203	CDL	C71-CB7-OB8-CB6
43	L	701	PLC	O3P-C1-C2-O2
45	N	601	3PE	O11-C1-C2-O21
45	M	502	3PE	C32-C33-C34-C35
46	b	102	CDL	C51-C52-C53-C54
45	b	104	3PE	C39-C3A-C3B-C3C
45	M	502	3PE	C21-C22-C23-C24
43	M	504	PLC	C2'-C3'-C4'-C5'
43	d	102	PLC	C8B-C9B-CAA-CBA
45	L	702	3PE	C33-C34-C35-C36

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Mol	Chain	Res	Type	Atoms
45	m	101	3PE	C38-C39-C3A-C3B
43	d	102	PLC	O2-C2-C3-O3
45	b	104	3PE	O21-C2-C3-O31
46	O	201	CDL	CB4-CB3-OB5-PB2
45	L	703	3PE	C26-C27-C28-C29
49	U	201	EHZ	C10-C11-N1-C12
43	B	302	PLC	C1-C2-C3-O3
45	L	703	3PE	C1-C2-C3-O31
45	J	201	3PE	C26-C27-C28-C29
43	q	201	PLC	C5B-C6B-C7B-C8B
43	L	701	PLC	C1-C2-O2-C’
43	q	201	PLC	C4-C5-N-C7
46	O	201	CDL	C51-C52-C53-C54
43	g	301	PLC	C1B-CB-O3-C3
43	B	302	PLC	C1’-C2’-C3’-C4’
45	J	201	3PE	C37-C38-C39-C3A
45	L	705	3PE	C22-C23-C24-C25
43	L	701	PLC	C1B-C2B-C3B-C4B
43	q	201	PLC	C2’-C3’-C4’-C5’
45	b	104	3PE	C22-C23-C24-C25
43	Y	303	PLC	C’-C1’-C2’-C3’
43	g	301	PLC	C5B-C6B-C7B-C8B
46	Z	203	CDL	CB7-C71-C72-C73
43	q	201	PLC	C4-C5-N-C8
43	Y	302	PLC	C5’-C6’-C7’-C8’
43	g	301	PLC	OB-CB-O3-C3
46	Z	203	CDL	OB9-CB7-OB8-CB6
45	m	101	3PE	C25-C26-C27-C28
43	P	503	PLC	C3’-C4’-C5’-C6’
45	m	101	3PE	C32-C33-C34-C35
43	Y	302	PLC	C4-C5-N-C7
43	a	201	PLC	C4-C5-N-C7
43	q	201	PLC	C5’-C6’-C7’-C8’
43	L	708	PLC	C3B-C4B-C5B-C6B
45	M	502	3PE	C33-C34-C35-C36
45	b	104	3PE	C32-C33-C34-C35
45	b	104	3PE	C3F-C3G-C3H-C3I
43	a	201	PLC	C1B-CB-O3-C3
45	L	703	3PE	O11-C1-C2-O21
45	L	704	3PE	C21-C22-C23-C24
45	N	601	3PE	C34-C35-C36-C37
43	L	709	PLC	C1’-C2’-C3’-C4’

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Mol	Chain	Res	Type	Atoms
43	L	710	PLC	C5B-C6B-C7B-C8B
43	M	503	PLC	O3P-C1-C2-C3
46	O	201	CDL	C82-C83-C84-C85
45	L	703	3PE	O13-C11-C12-N
43	M	504	PLC	C8'-C9'-CA'-CB'
43	L	701	PLC	C2B-C3B-C4B-C5B
43	Z	202	PLC	C7B-C8B-C9B-CAA
45	M	501	3PE	O31-C31-C32-C33
43	P	502	PLC	C1-O3P-P-O4P
46	O	201	CDL	C34-C35-C36-C37
45	L	703	3PE	C2D-C2E-C2F-C2G
43	M	503	PLC	C7B-C8B-C9B-CAA
43	q	201	PLC	C8'-C9'-CA'-CB'
45	L	703	3PE	C3A-C3B-C3C-C3D
46	b	102	CDL	C56-C57-C58-C59
45	b	103	3PE	O31-C31-C32-C33
46	O	201	CDL	C77-C78-C79-C80
45	L	704	3PE	C1-C2-C3-O31
45	L	705	3PE	C1-C2-C3-O31
45	b	104	3PE	C1-C2-C3-O31
45	J	201	3PE	O11-C1-C2-O21
43	Z	202	PLC	C2B-C1B-CB-O3
45	L	707	3PE	O21-C21-C22-C23
45	L	706	3PE	C2B-C2C-C2D-C2E
49	T	201	EHZ	O3-C12-C13-C14
49	U	201	EHZ	C15-C16-C17-C19
43	q	202	PLC	O2-C'-C1'-C2'
45	Z	201	3PE	O21-C21-C22-C23
45	L	705	3PE	O11-C1-C2-C3
45	N	601	3PE	O11-C1-C2-C3
45	j	101	3PE	O21-C21-C22-C23
45	h	201	3PE	C35-C36-C37-C38
45	j	101	3PE	C32-C33-C34-C35
43	q	202	PLC	O2-C2-C3-O3
45	J	201	3PE	O21-C21-C22-C23
43	P	502	PLC	C4-C5-N-C6
43	P	502	PLC	C4-C5-N-C7
47	P	501	NDP	C5D-O5D-PN-O3
43	P	502	PLC	CB-C1B-C2B-C3B
43	M	504	PLC	C1'-C2'-C3'-C4'
45	L	703	3PE	C2F-C2G-C2H-C2I
43	q	201	PLC	C2B-C3B-C4B-C5B

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Mol	Chain	Res	Type	Atoms
43	D	501	PLC	C8'-C9'-CA'-CB'
43	Z	202	PLC	C4'-C5'-C6'-C7'
43	L	709	PLC	C2B-C1B-CB-O3
45	N	601	3PE	C28-C29-C2A-C2B
45	b	103	3PE	O32-C31-C32-C33
46	q	203	CDL	C31-C32-C33-C34
45	M	501	3PE	O32-C31-C32-C33
45	L	705	3PE	C2C-C2D-C2E-C2F
45	m	101	3PE	C37-C38-C39-C3A
45	L	703	3PE	C2-C1-O11-P
46	b	102	CDL	C1-CA2-OA2-PA1
45	J	201	3PE	O22-C21-C22-C23
45	j	101	3PE	O22-C21-C22-C23
43	q	201	PLC	C7B-C8B-C9B-CAA
43	L	701	PLC	C4-O4P-P-O1P
43	Y	303	PLC	C4-O4P-P-O1P
43	a	201	PLC	C4-C5-N-C6
43	b	101	PLC	C1-O3P-P-O1P
43	d	102	PLC	C4-O4P-P-O1P
45	J	201	3PE	C11-O13-P-O14
45	L	705	3PE	C1-O11-P-O14
45	M	502	3PE	C1-O11-P-O14
45	j	101	3PE	C1-O11-P-O12
46	O	201	CDL	CA3-OA5-PA1-OA3
46	Z	203	CDL	CA3-OA5-PA1-OA3
46	b	102	CDL	CB3-OB5-PB2-OB4
43	q	202	PLC	O'-C'-C1'-C2'
43	L	701	PLC	C7'-C8'-C9'-CA'
49	T	201	EHZ	C1-C2-C3-C4
45	L	707	3PE	O22-C21-C22-C23
43	M	504	PLC	C7B-C8B-C9B-CAA
43	d	101	PLC	C2'-C3'-C4'-C5'
45	L	704	3PE	O22-C21-C22-C23
43	L	709	PLC	C5-C4-O4P-P
43	M	503	PLC	C5-C4-O4P-P
43	M	504	PLC	C3-C2-O2-C'
43	q	201	PLC	C5-C4-O4P-P
45	N	601	3PE	C12-C11-O13-P
45	j	101	3PE	C12-C11-O13-P
43	Z	202	PLC	C2B-C1B-CB-OB
43	Y	302	PLC	C4-C5-N-C6
43	Z	202	PLC	C4-C5-N-C7

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Mol	Chain	Res	Type	Atoms
43	b	101	PLC	C4-C5-N-C7
46	Z	203	CDL	C32-C31-CA7-OA8
45	M	501	3PE	C37-C38-C39-C3A
45	b	103	3PE	O21-C21-C22-C23
45	h	201	3PE	O31-C31-C32-C33
45	m	101	3PE	O31-C31-C32-C33
43	d	101	PLC	C6'-C7'-C8'-C9'
45	J	201	3PE	C2B-C2C-C2D-C2E
46	q	203	CDL	C51-C52-C53-C54
43	P	502	PLC	C2-C1-O3P-P
45	L	702	3PE	C25-C26-C27-C28
49	U	201	EHZ	C15-C16-C17-C20
43	Z	202	PLC	C5B-C6B-C7B-C8B
45	b	103	3PE	O22-C21-C22-C23
45	M	501	3PE	O21-C21-C22-C23
43	Y	303	PLC	C4-C5-N-C6
49	T	201	EHZ	N1-C12-C13-C14

There are no ring outliers.

44 monomers are involved in 113 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
43	q	202	PLC	2	0
45	b	103	3PE	2	0
43	Z	202	PLC	3	0
46	b	102	CDL	3	0
45	L	702	3PE	6	0
45	J	201	3PE	4	0
49	U	201	EHZ	2	0
47	P	501	NDP	2	0
43	d	102	PLC	1	0
43	Y	302	PLC	2	0
43	B	302	PLC	3	0
45	Z	201	3PE	1	0
46	q	203	CDL	5	0
43	q	201	PLC	4	0
45	L	706	3PE	5	0
45	L	705	3PE	4	0
43	d	101	PLC	2	0
42	G	801	SF4	4	0
45	b	104	3PE	1	0
45	L	703	3PE	3	0

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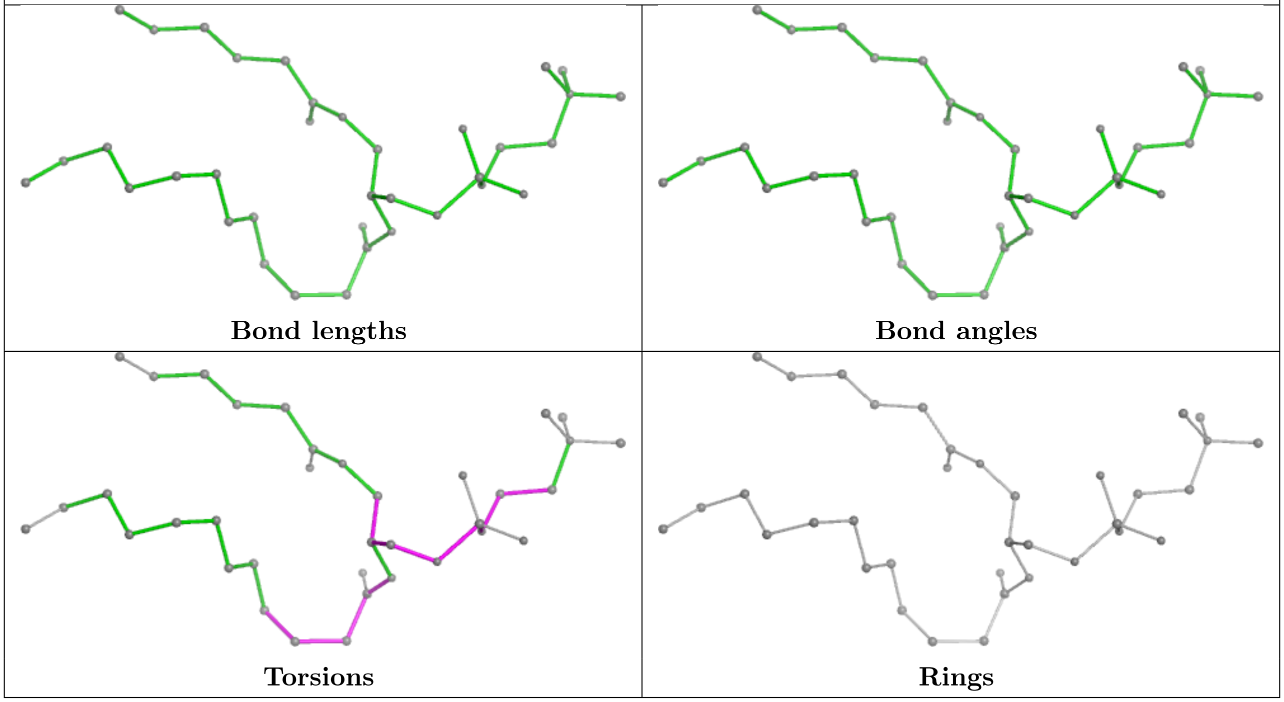
Mol	Chain	Res	Type	Clashes	Symm-Clashes
42	G	802	SF4	2	0
43	L	708	PLC	4	0
43	D	501	PLC	3	0
45	h	201	3PE	5	0
43	M	503	PLC	2	0
42	B	301	SF4	1	0
43	M	504	PLC	2	0
45	M	502	3PE	1	0
43	g	301	PLC	5	0
43	L	701	PLC	6	0
42	I	302	SF4	2	0
46	Z	203	CDL	1	0
45	L	704	3PE	2	0
43	Y	303	PLC	2	0
45	j	101	3PE	4	0
45	M	501	3PE	5	0
45	Y	301	3PE	1	0
46	O	201	CDL	3	0
43	L	709	PLC	3	0
42	I	301	SF4	1	0
45	N	601	3PE	1	0
43	P	502	PLC	2	0
45	m	101	3PE	4	0
43	P	503	PLC	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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 q 202



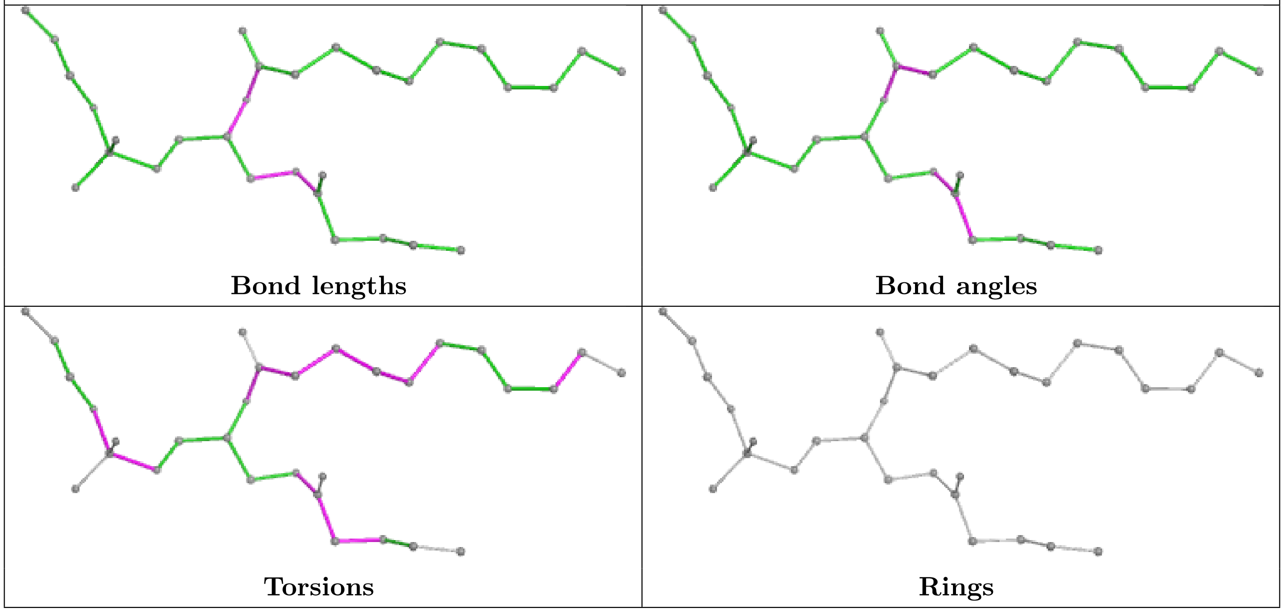
Bond lengths

Bond angles

Torsions

Rings

Ligand 3PE b 103



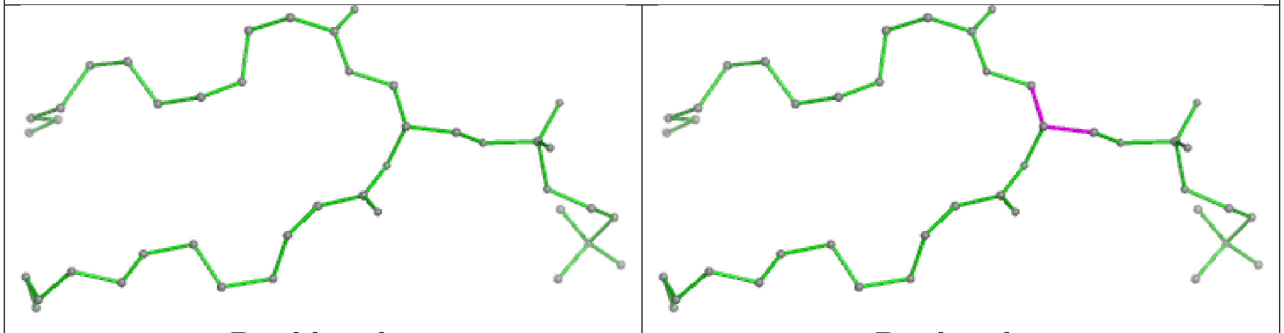
Bond lengths

Bond angles

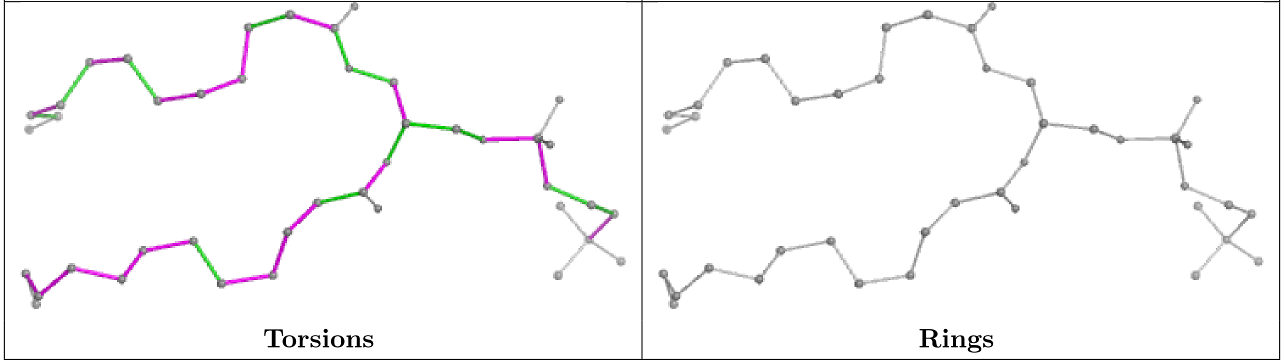
Torsions

Rings

Ligand PLC Z 202

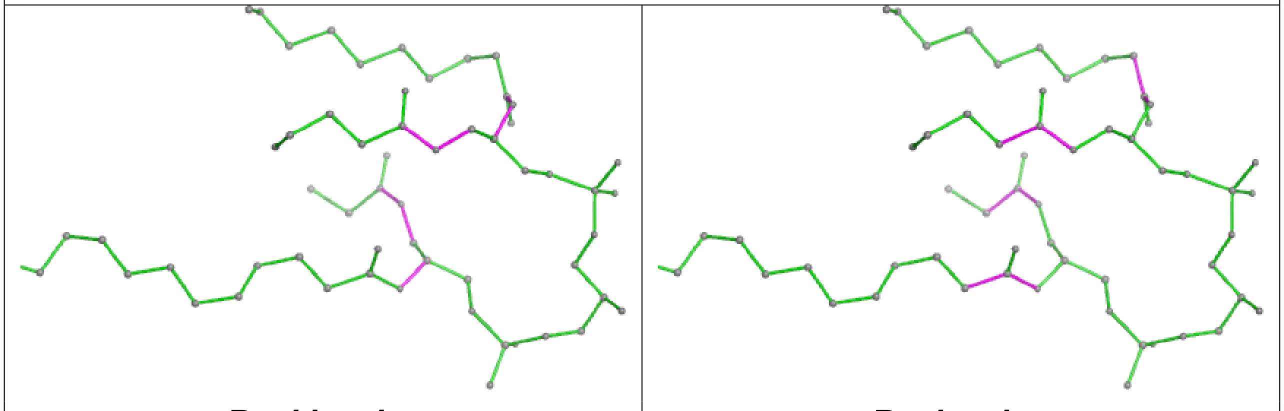


Bond lengths Bond angles

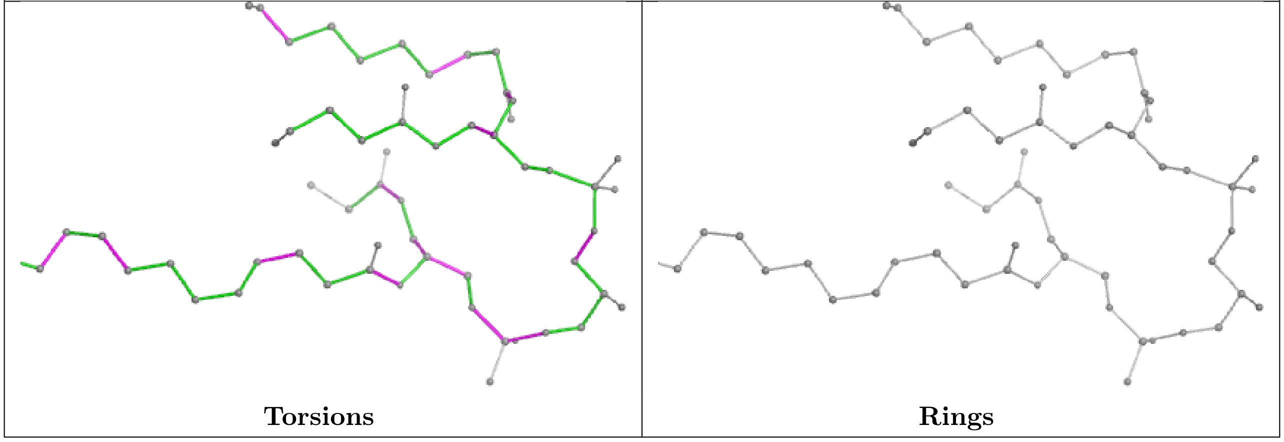


Torsions Rings

Ligand CDL b 102

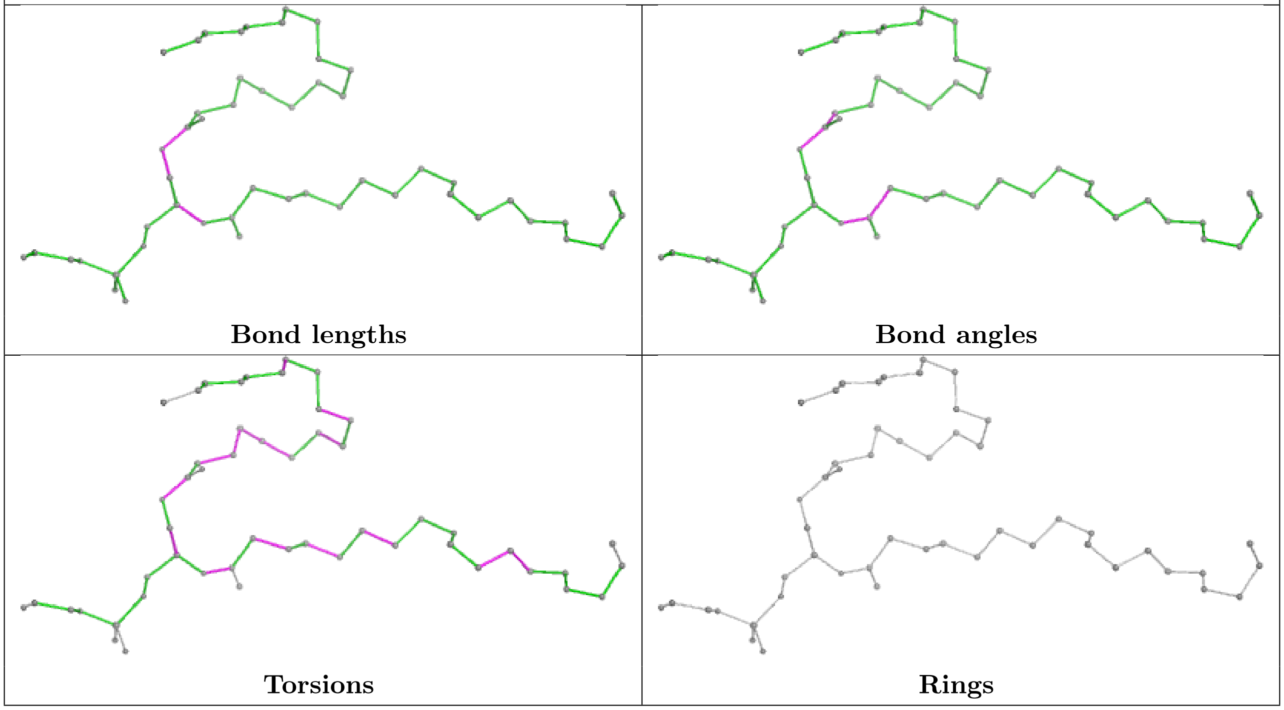


Bond lengths Bond angles

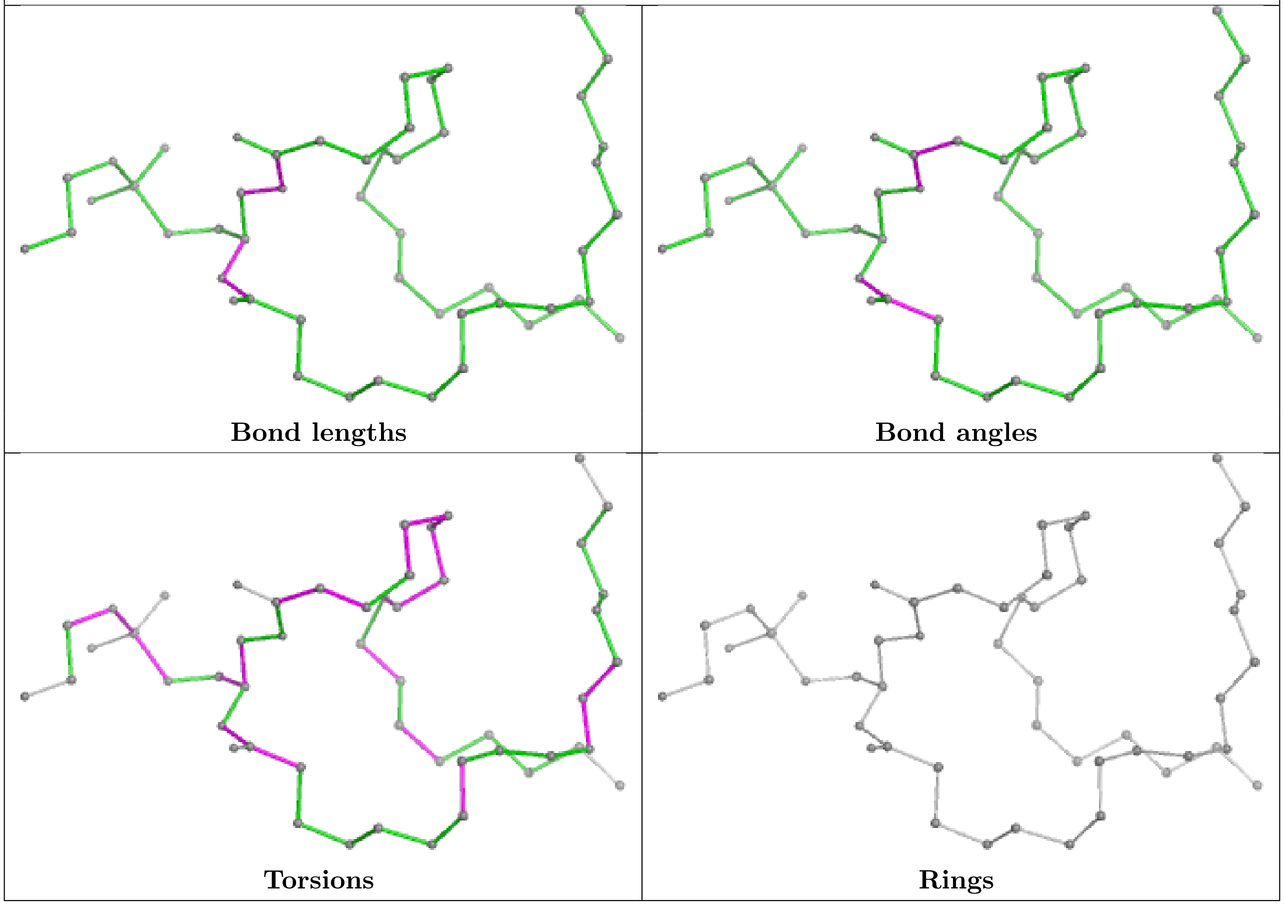


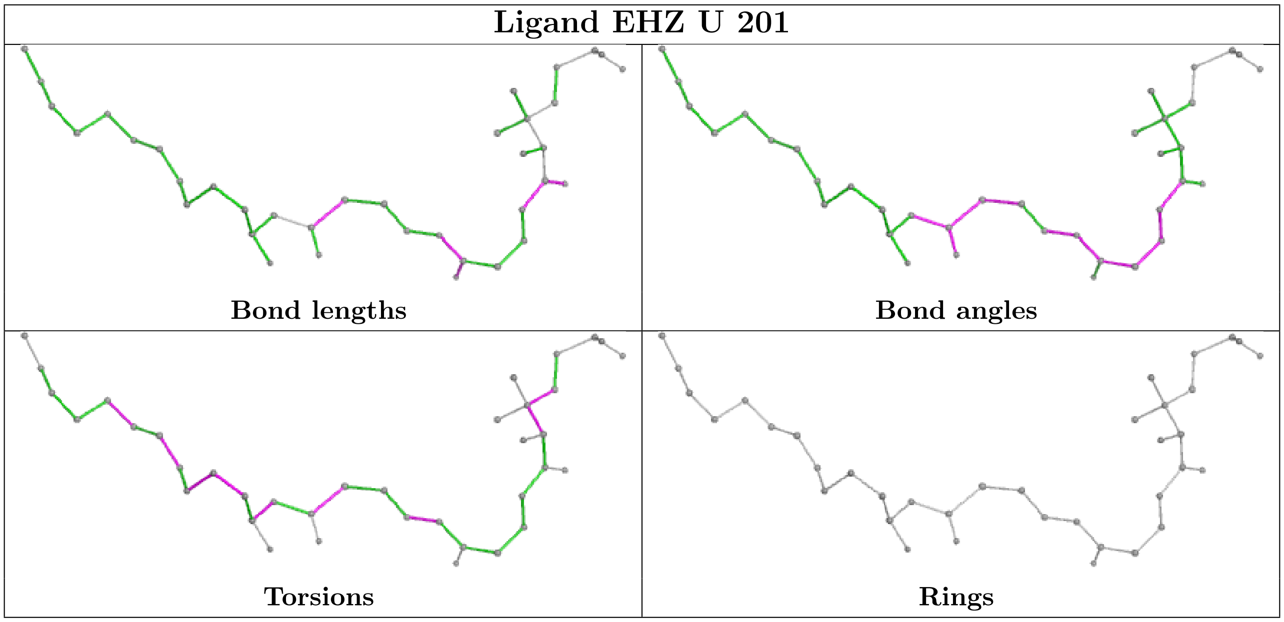
Torsions Rings

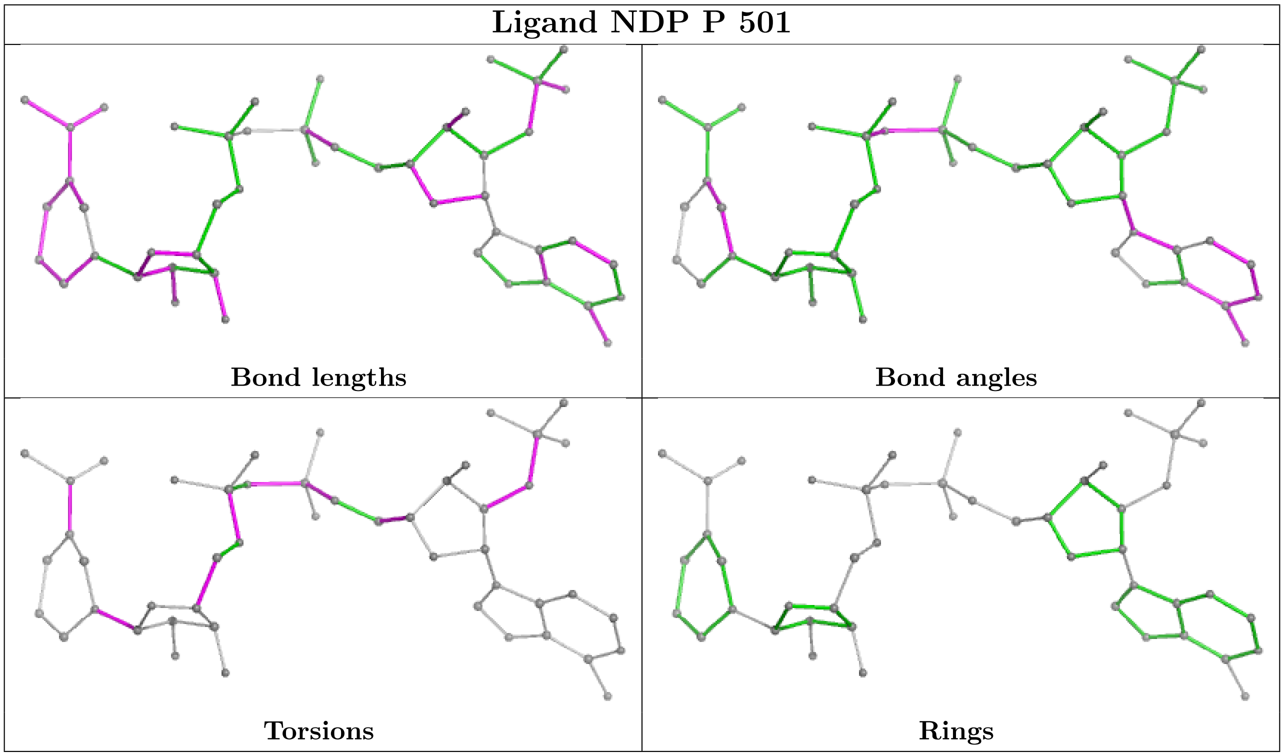
Ligand 3PE L 702


Bond lengths
Bond angles
Torsions
Rings

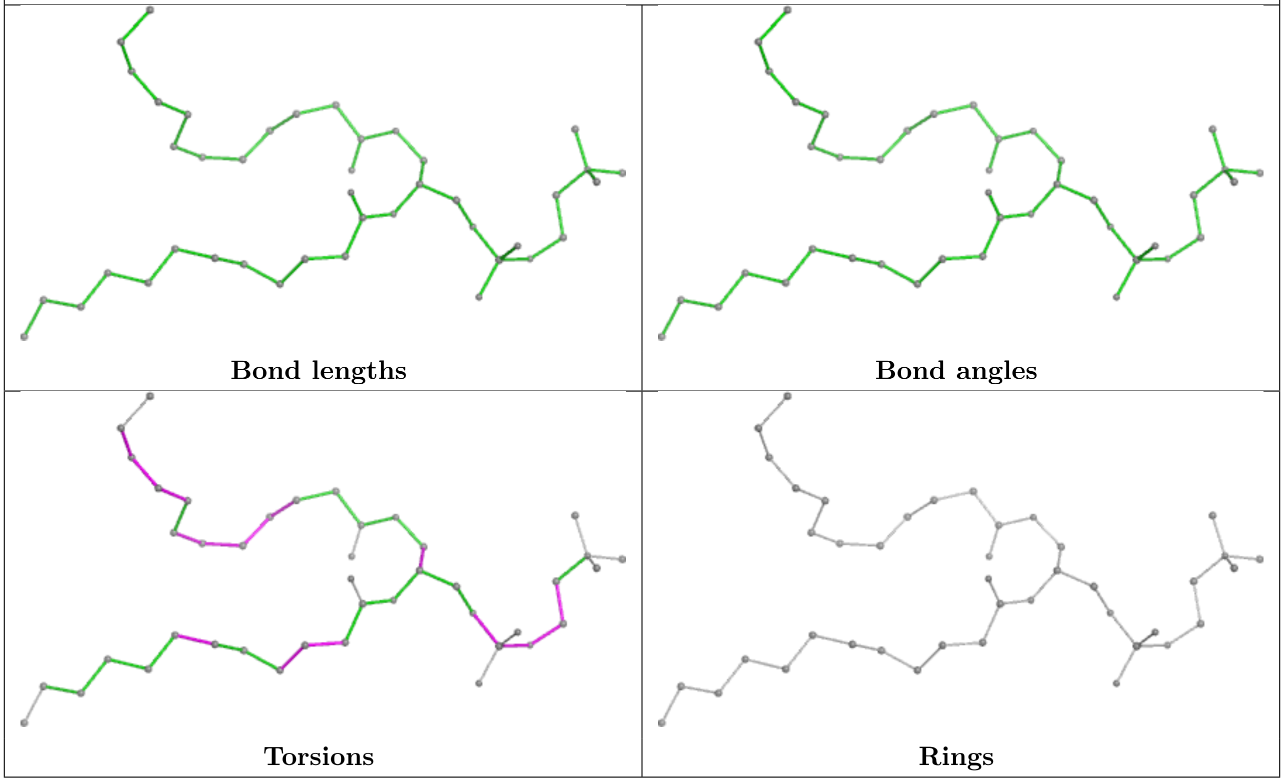
Ligand 3PE J 201


Bond lengths
Bond angles
Torsions
Rings

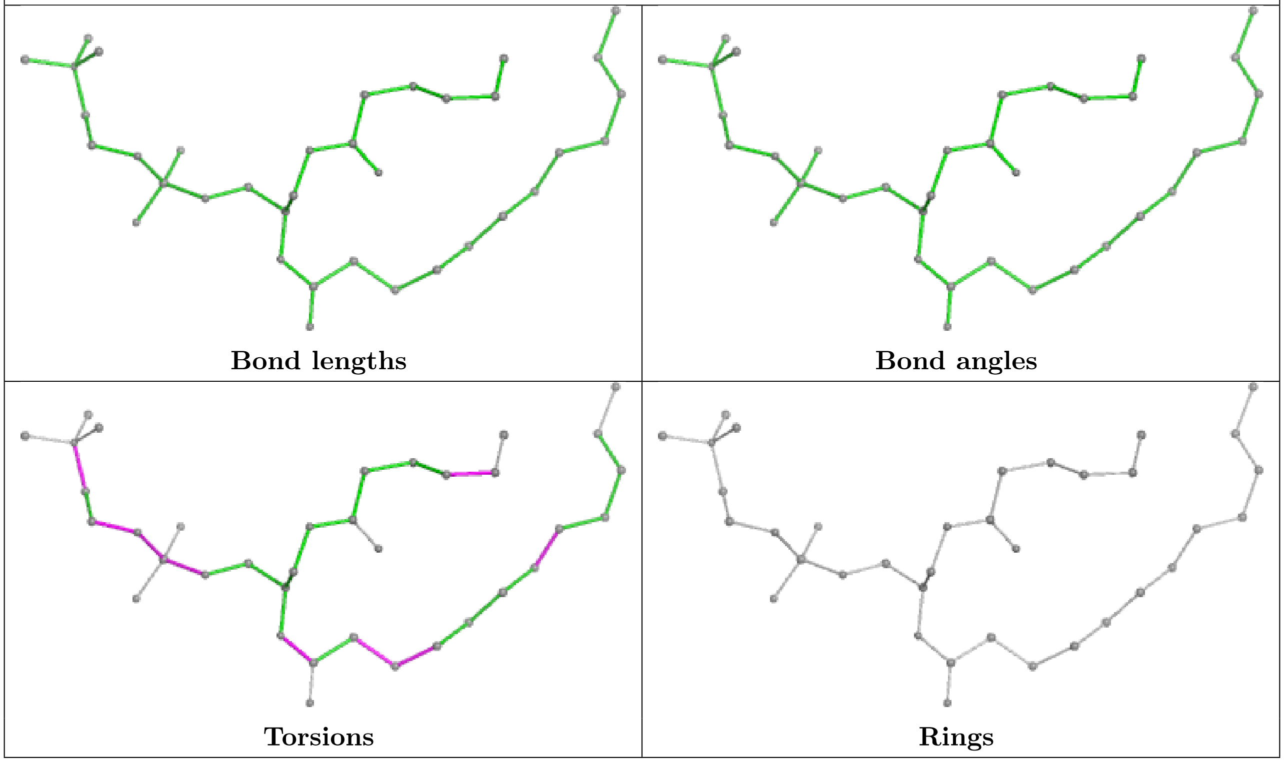

Ligand EHZ U 201
Bond lengths
Bond angles
Torsions
Rings


Ligand NDP P 501
Bond lengths
Bond angles
Torsions
Rings

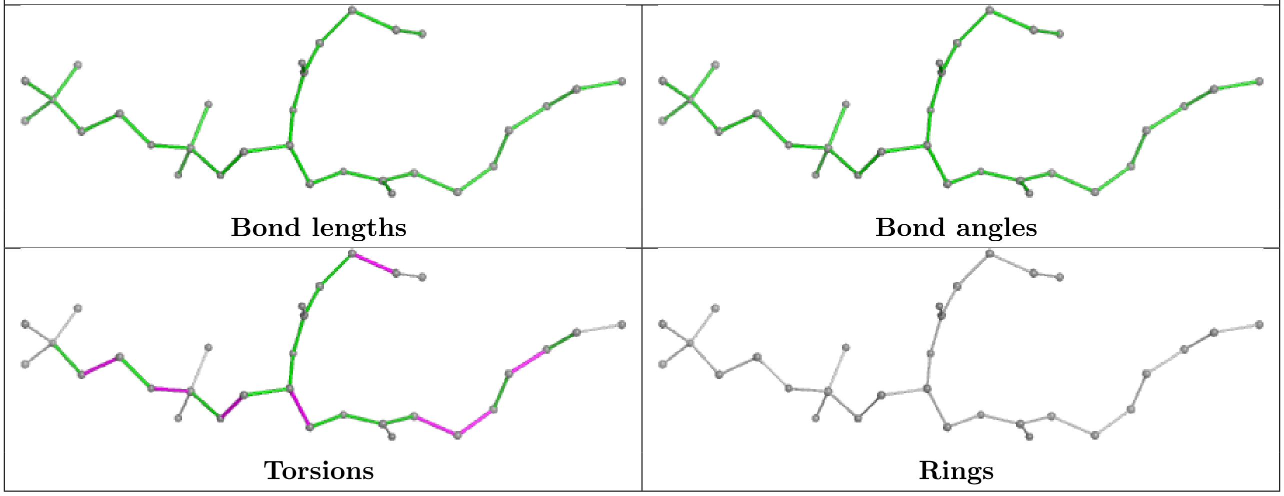
Ligand PLC d 102



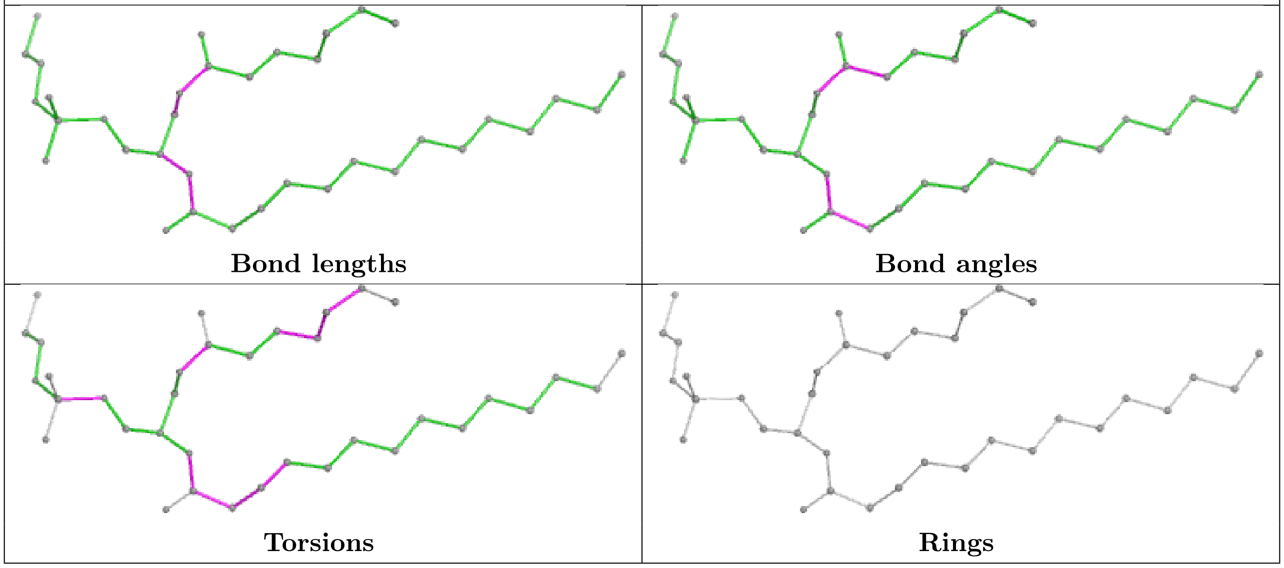
Ligand PLC Y 302



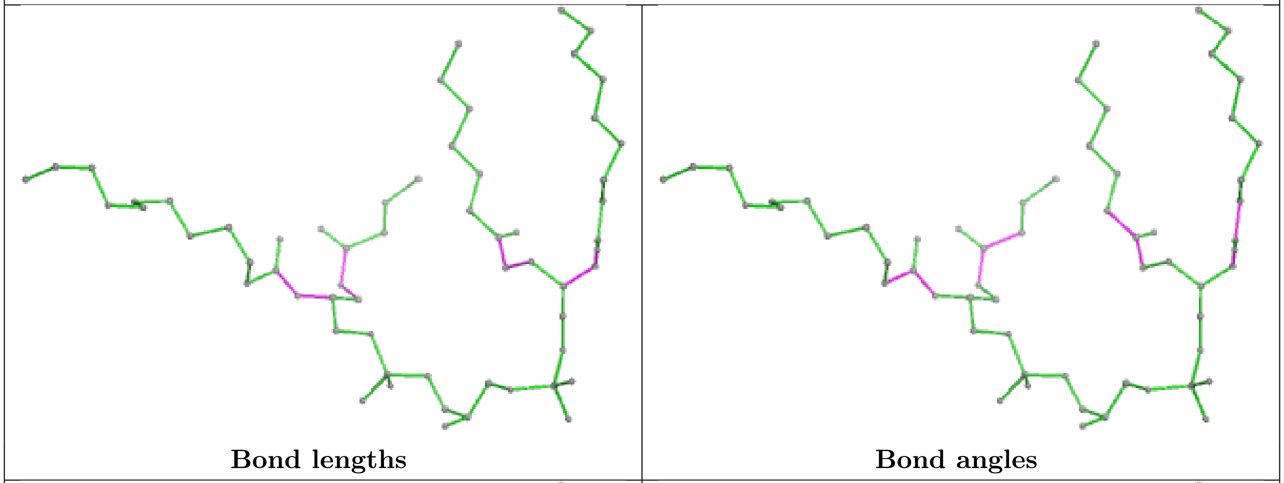
Ligand PLC B 302



Ligand 3PE Z 201

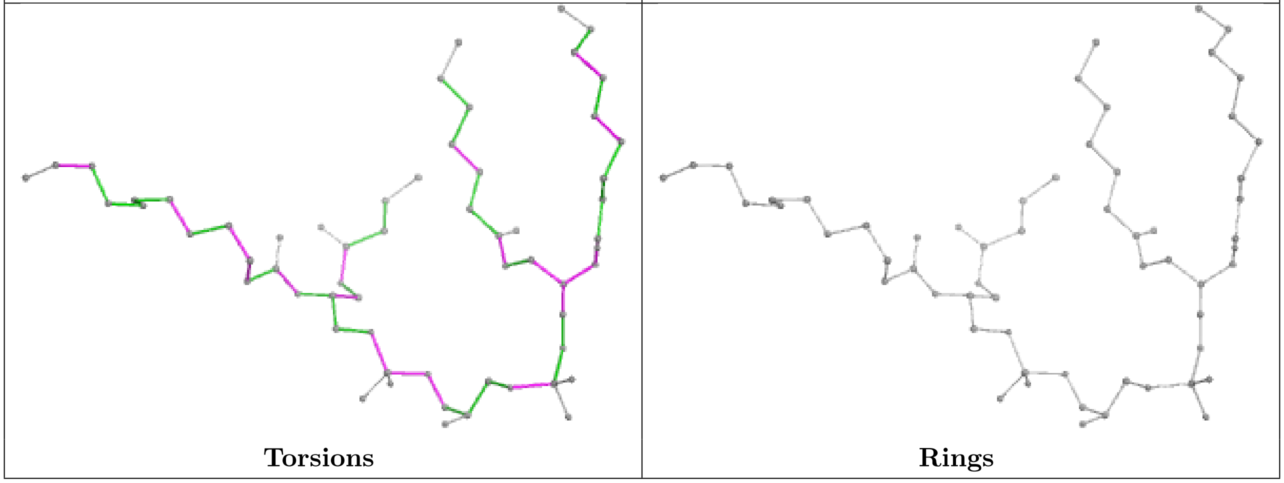


Ligand CDL q 203



Bond lengths

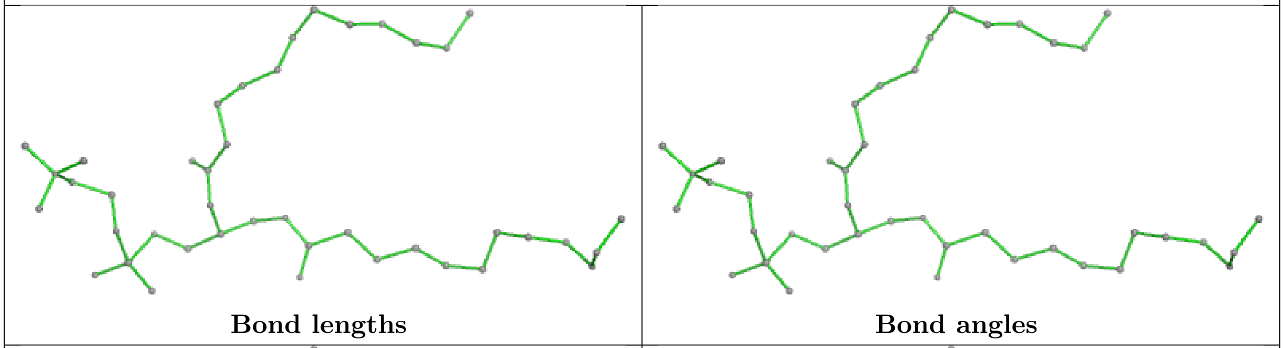
Bond angles



Torsions

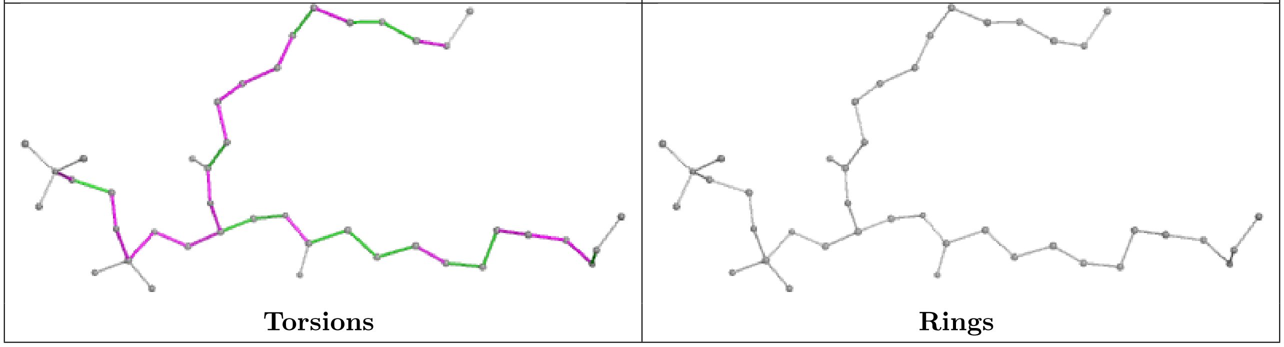
Rings

Ligand PLC q 201



Bond lengths

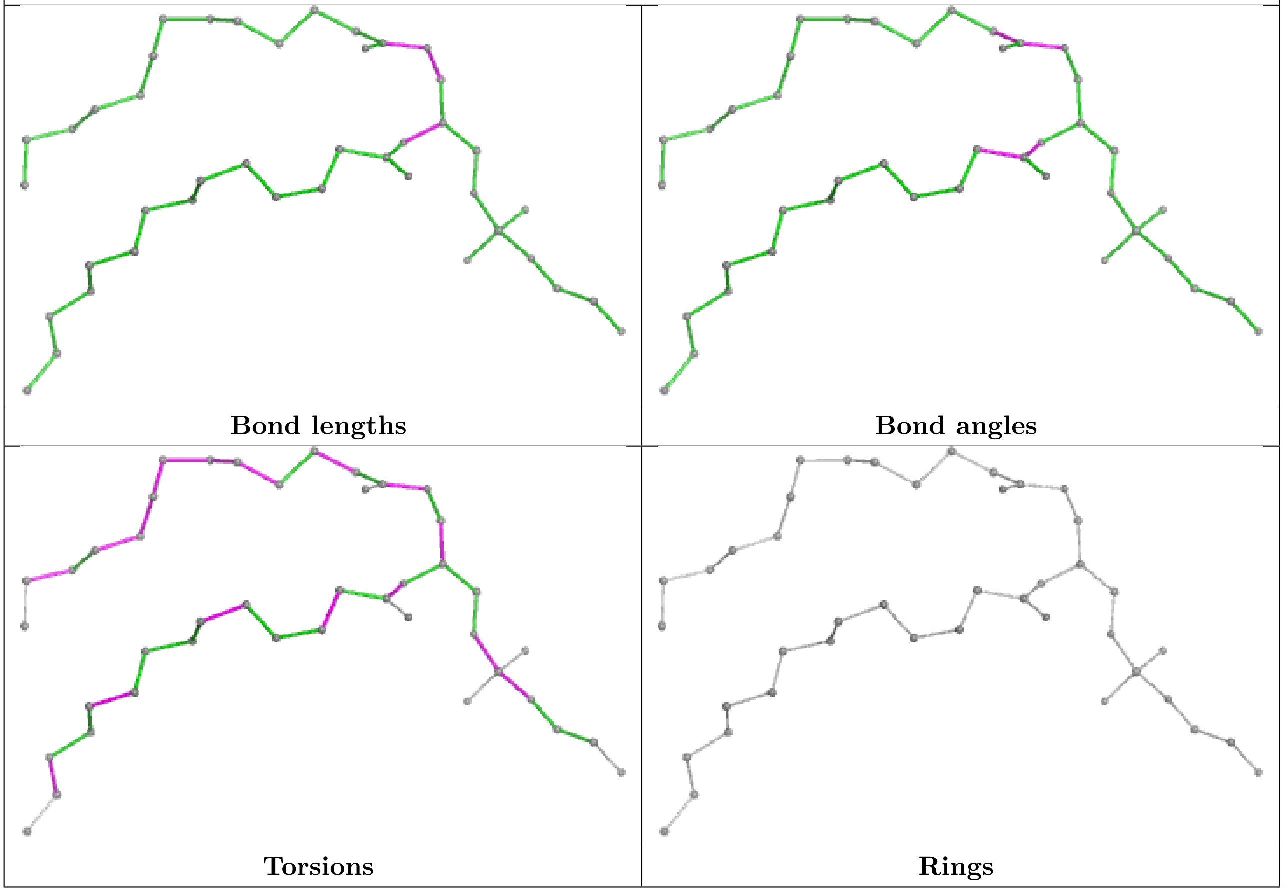
Bond angles



Torsions

Rings

Ligand 3PE L 706



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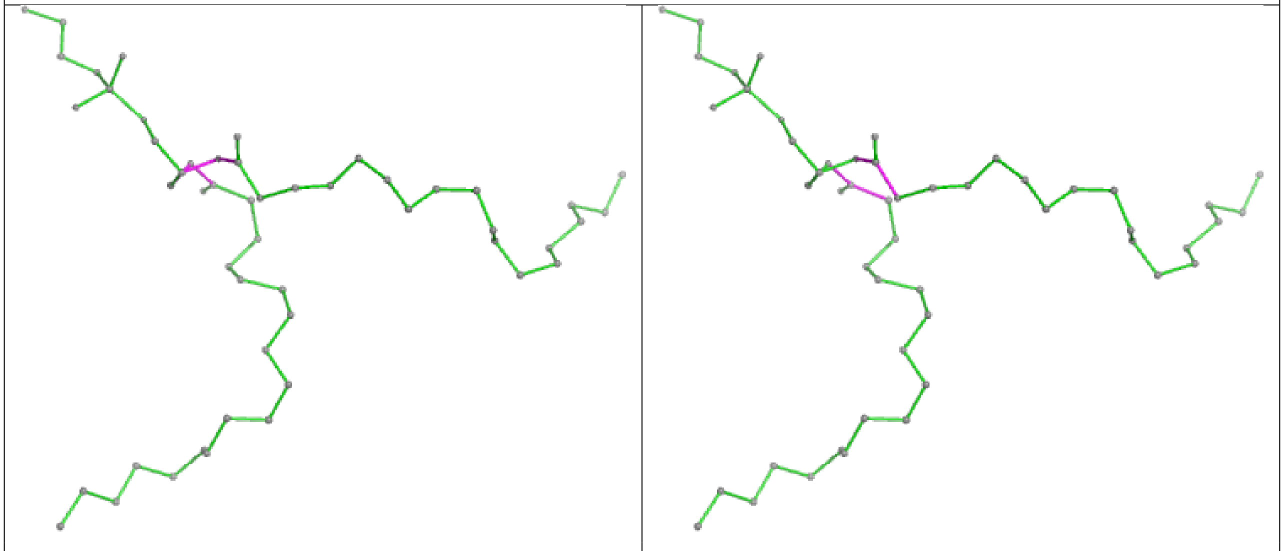
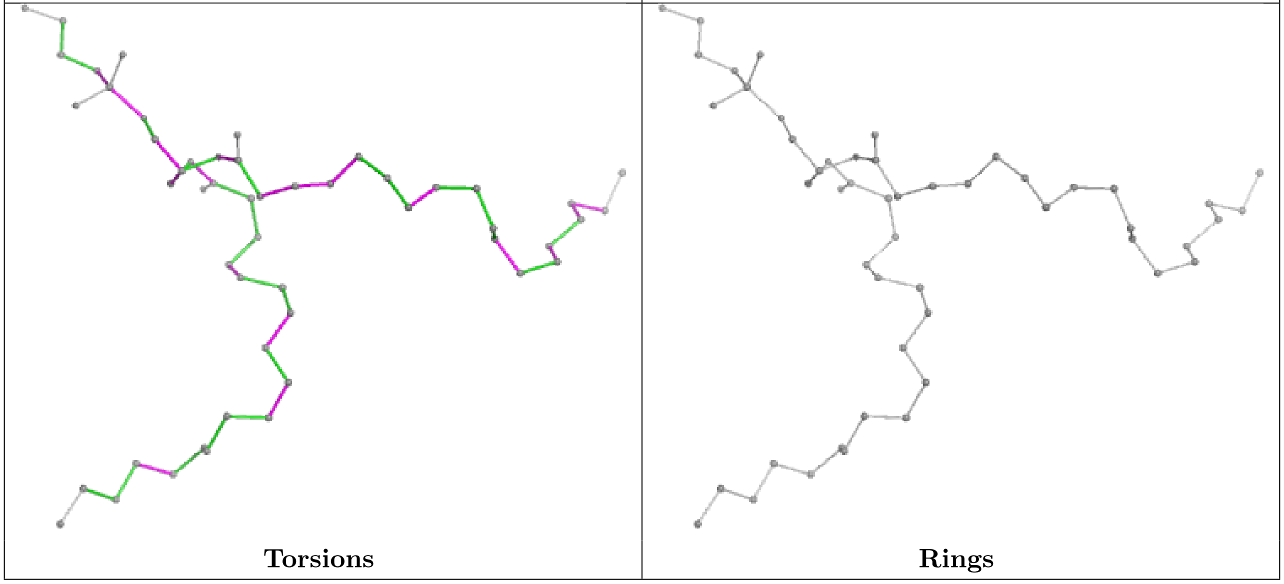
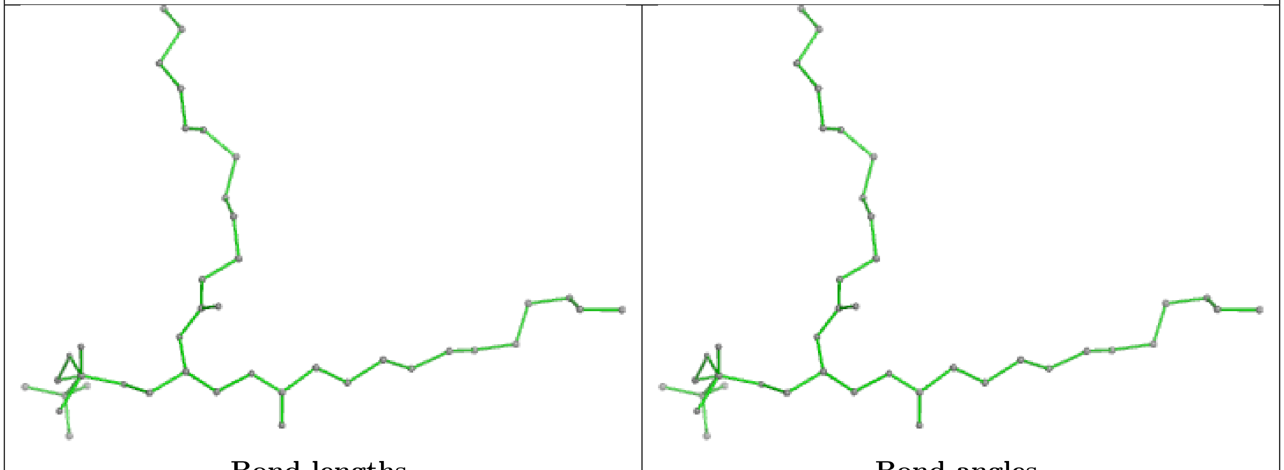


Bond lengths **Bond angles**

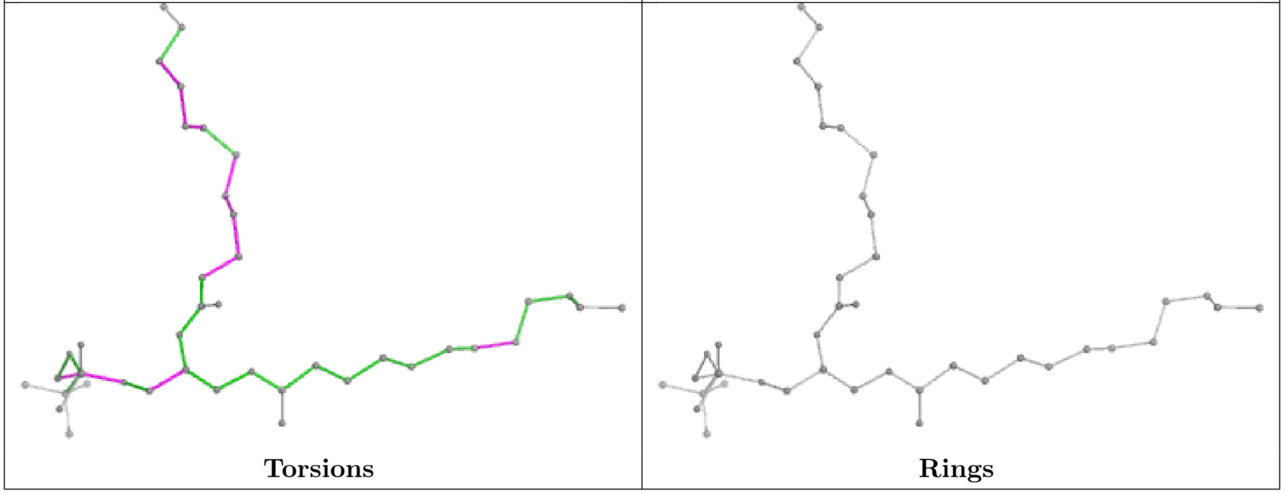


Torsions **Rings**

Ligand PLC d 101

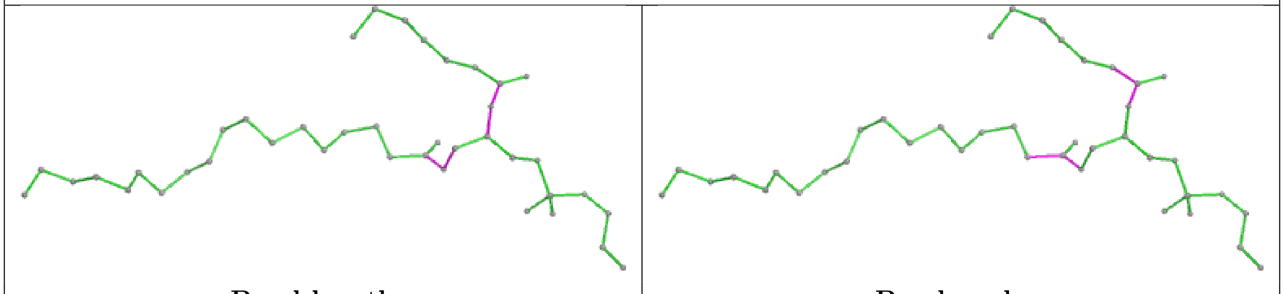


Bond lengths Bond angles

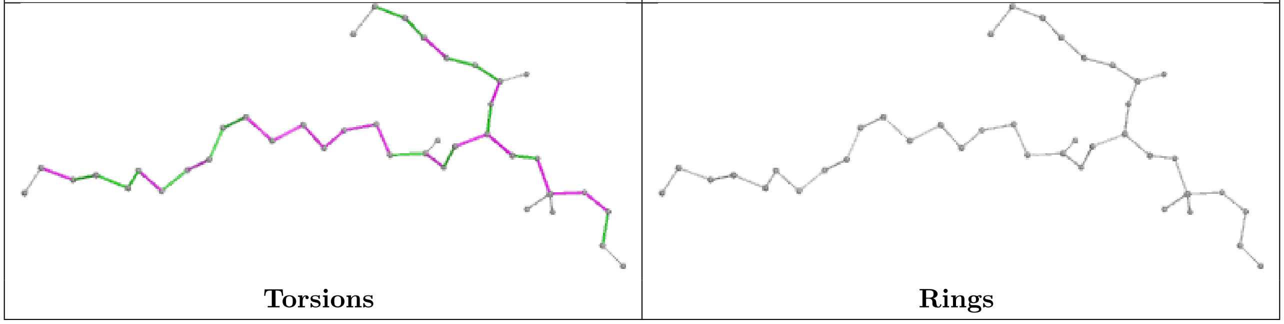


Torsions Rings

Ligand 3PE b 104

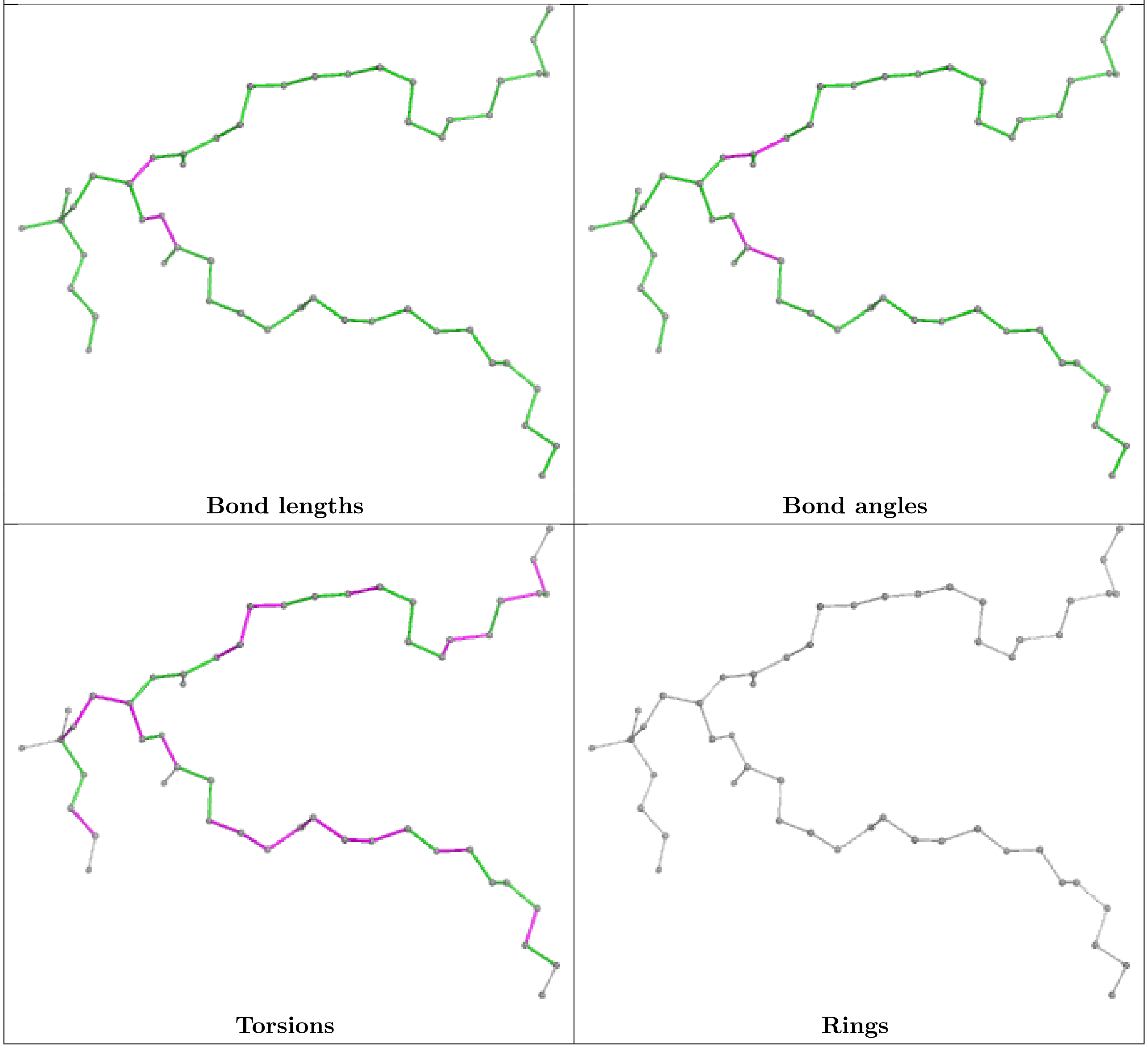


Bond lengths Bond angles



Torsions Rings

Ligand 3PE L 703



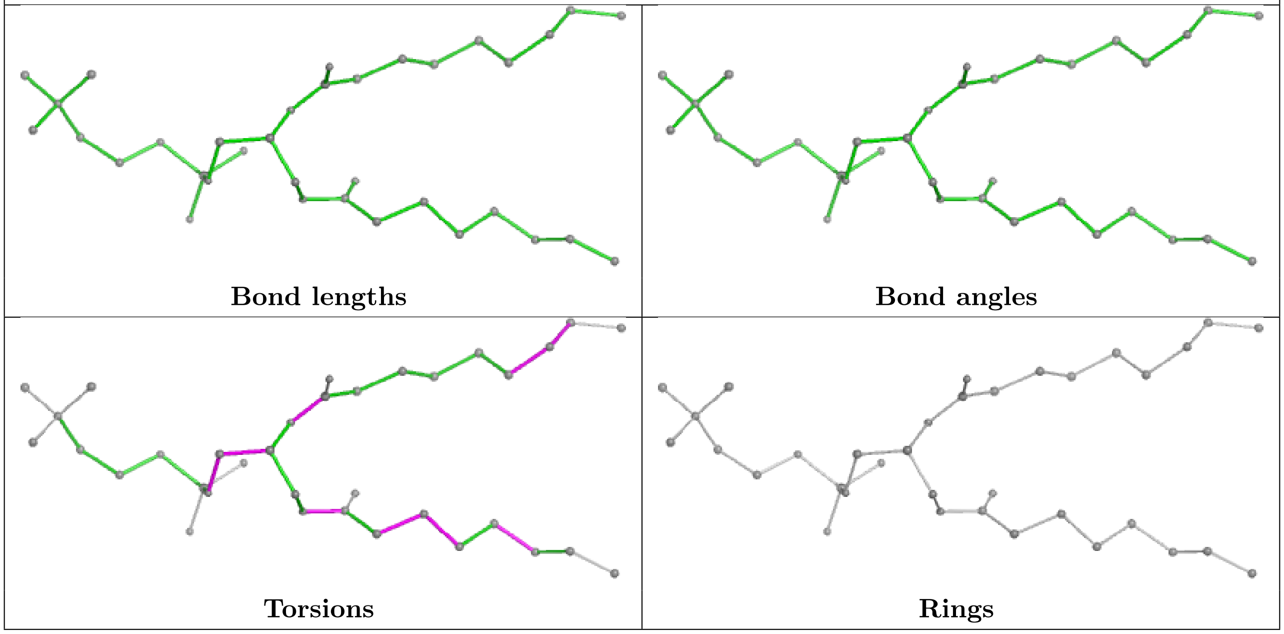
Bond lengths

Bond angles

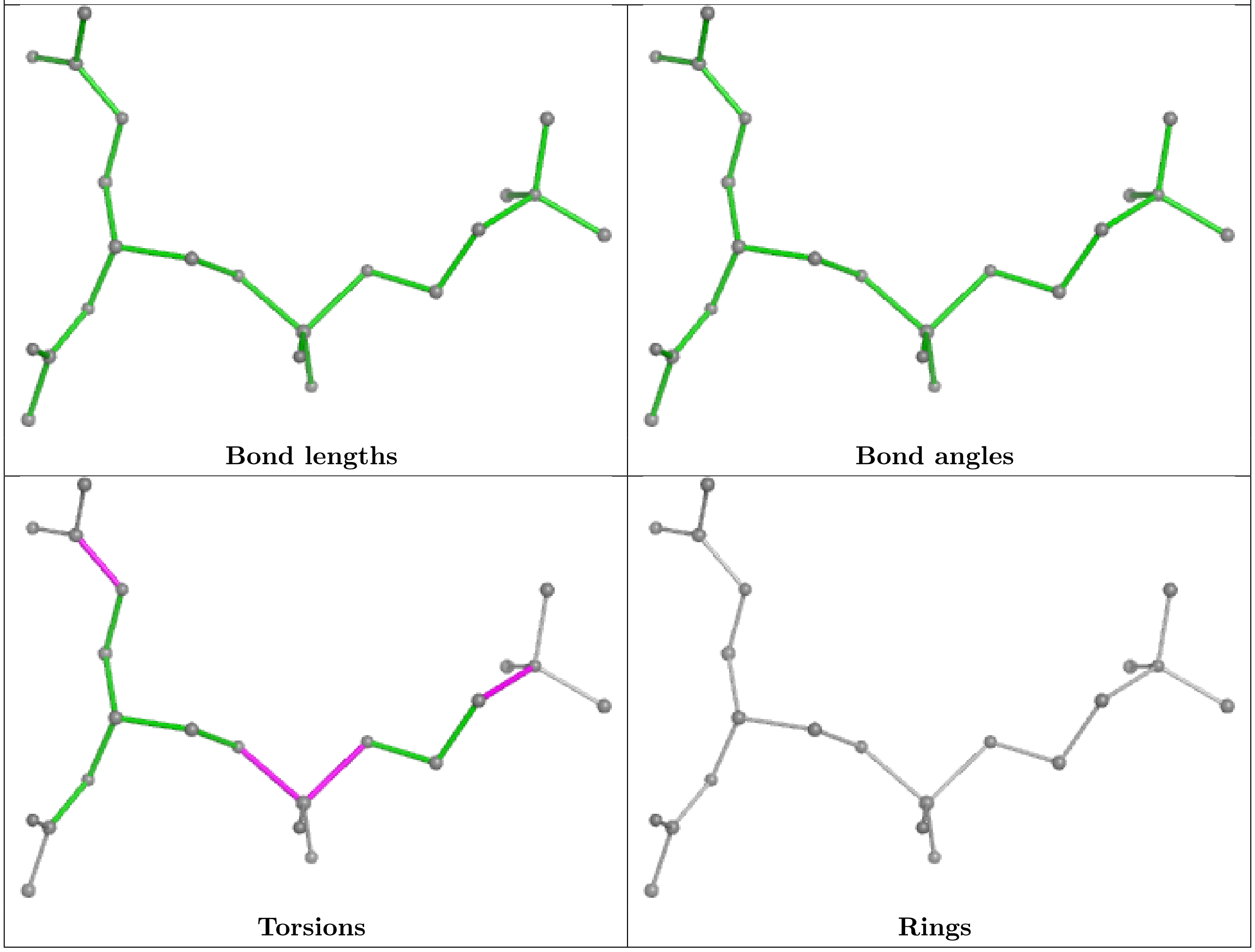
Torsions

Rings

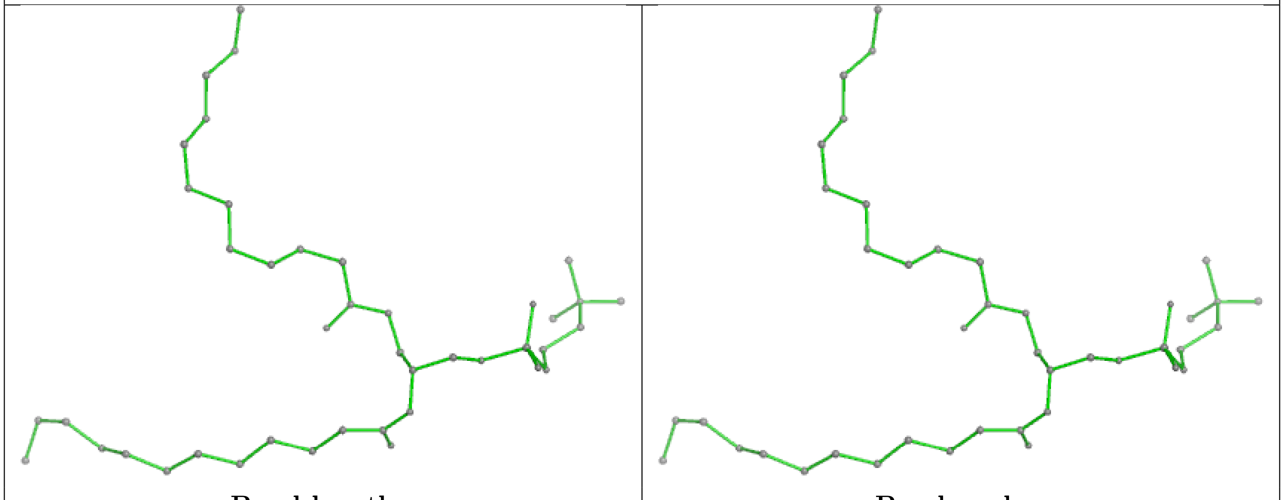
Ligand PLC L 708


Bond lengths
Bond angles
Torsions
Rings

Ligand PLC a 201

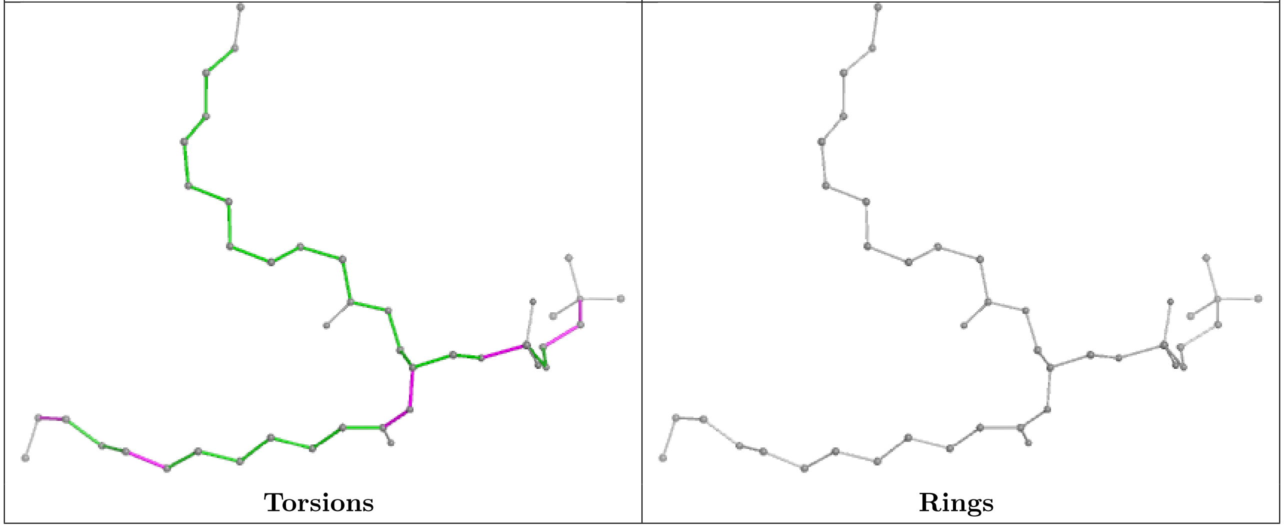

Bond lengths
Bond angles
Torsions
Rings

Ligand PLC D 501



Bond lengths

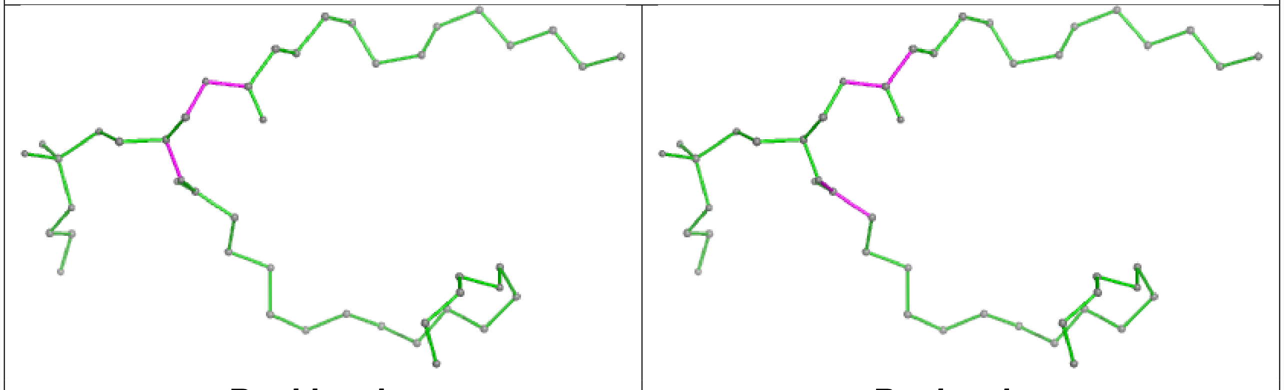
Bond angles



Torsions

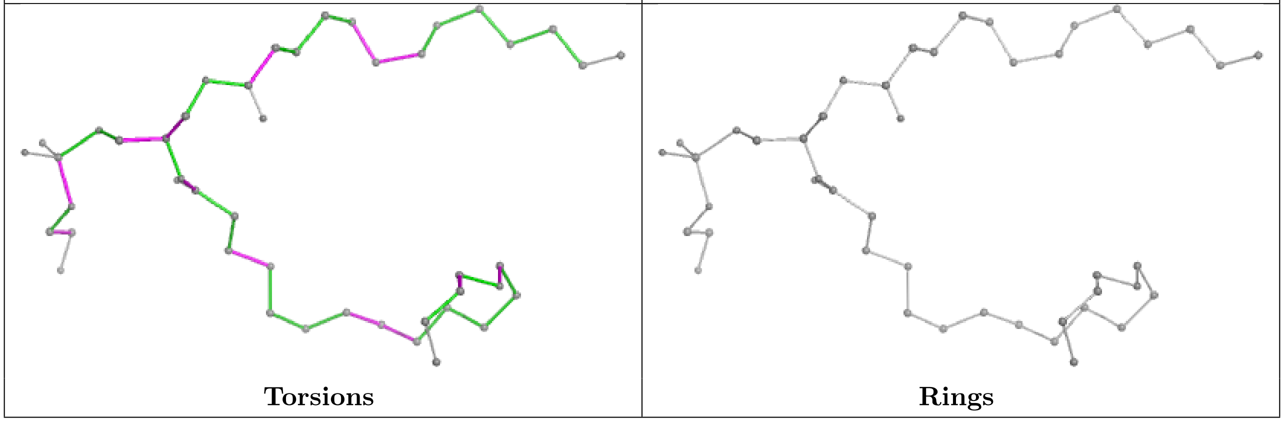
Rings

Ligand 3PE h 201



Bond lengths

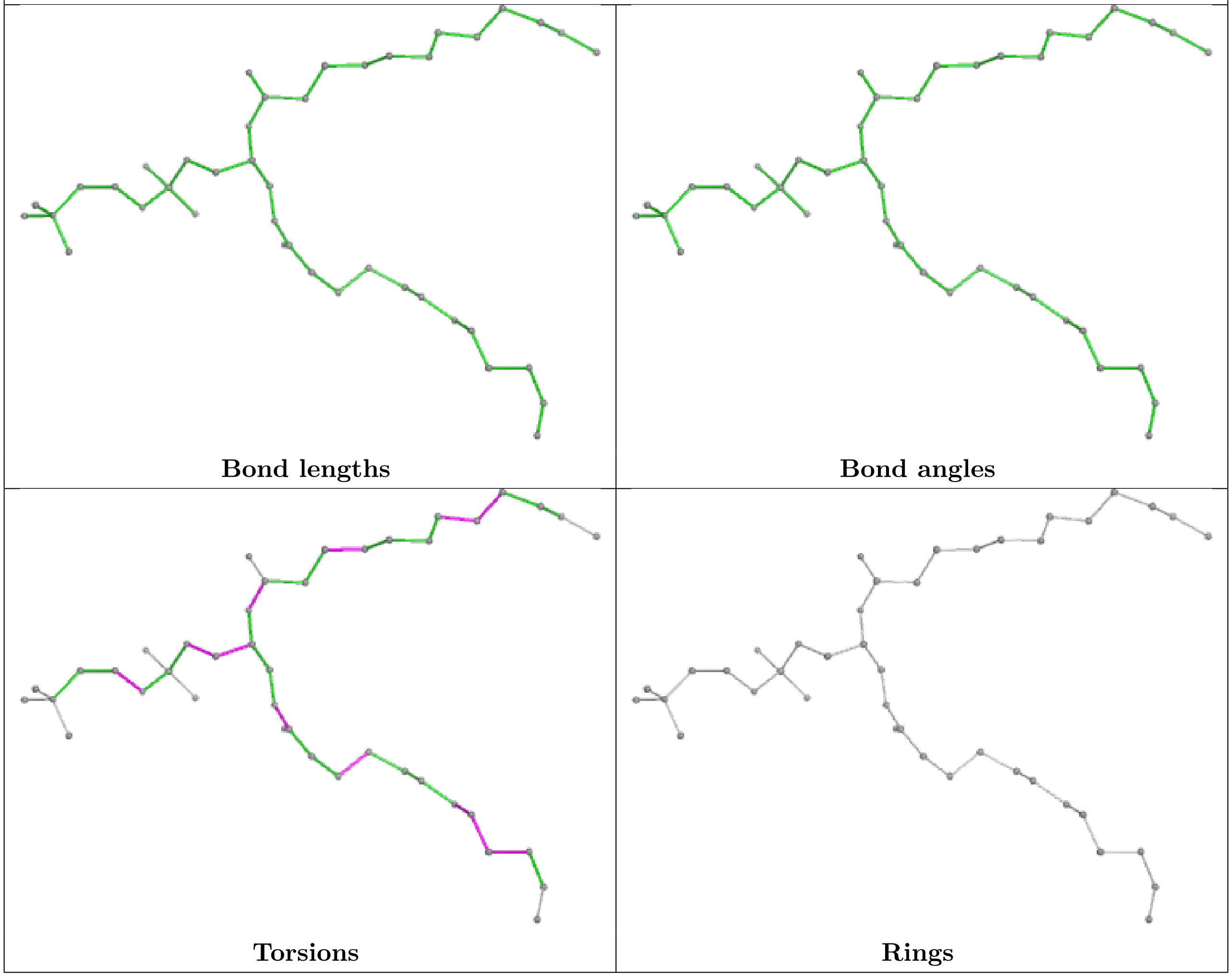
Bond angles



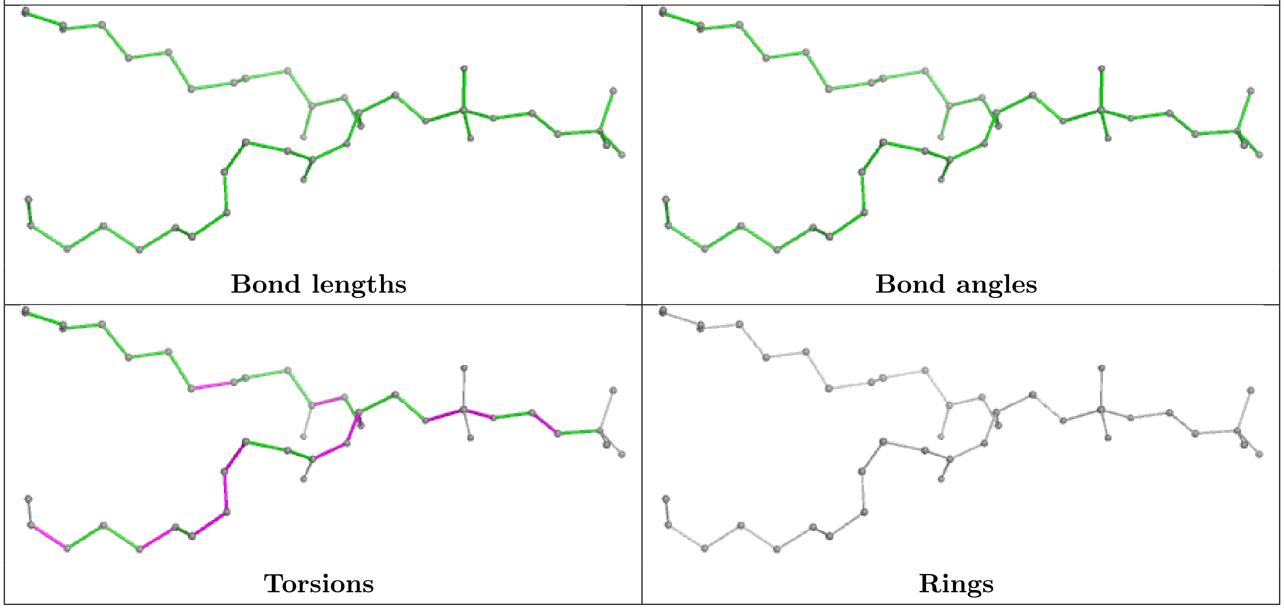
Torsions

Rings

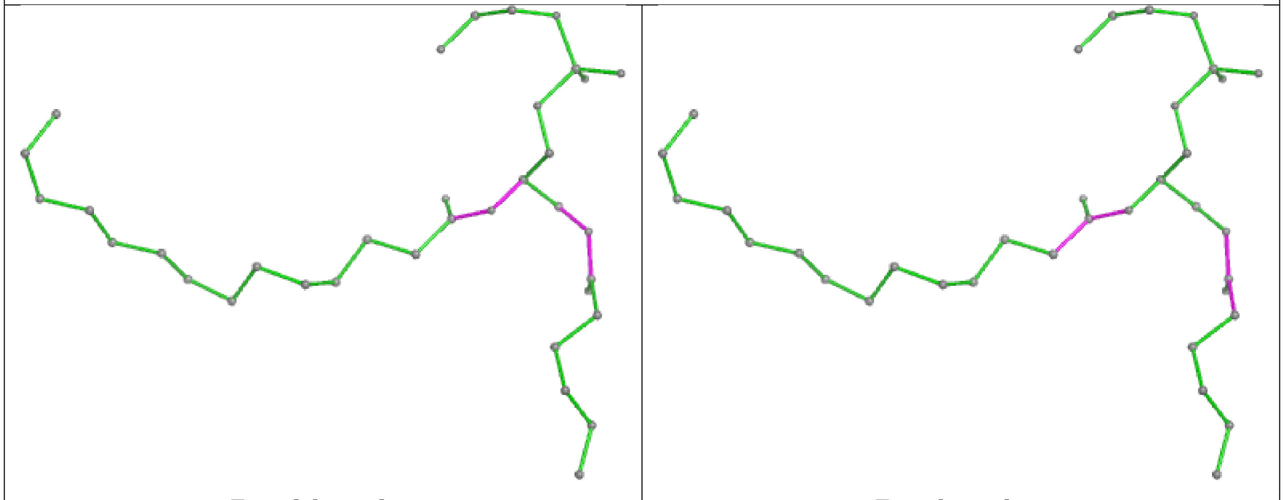
Ligand PLC M 503



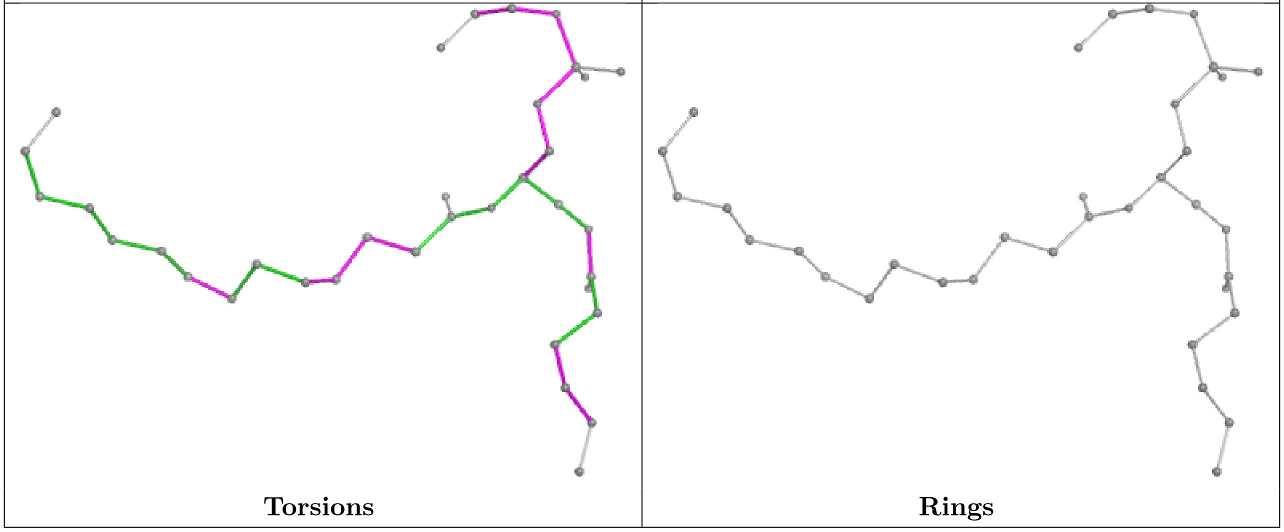
Ligand PLC M 504



Ligand 3PE M 502

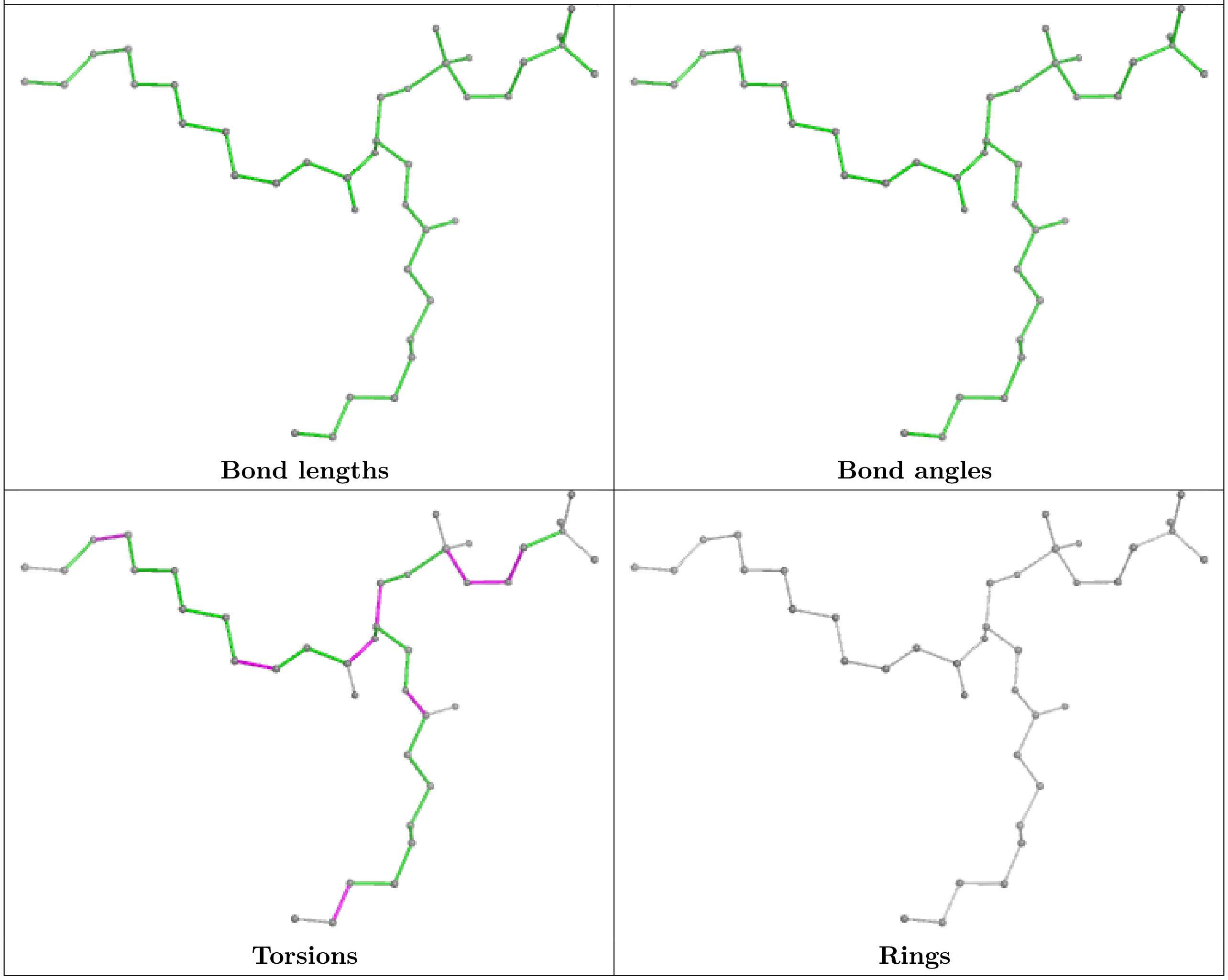


Bond lengths **Bond angles**



Torsions **Rings**

Ligand PLC g 301



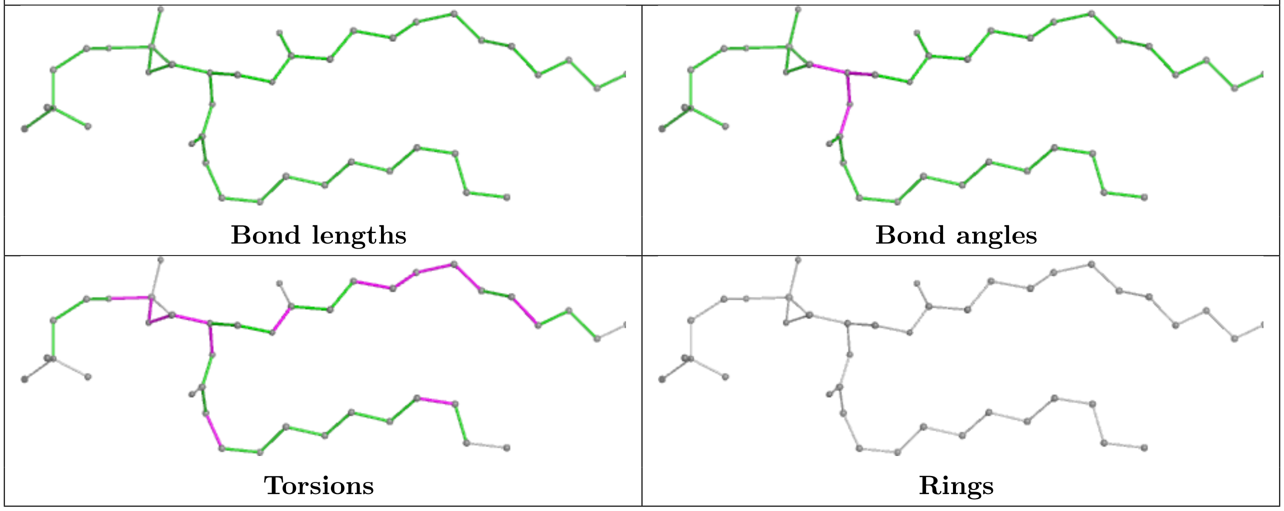
Bond lengths

Bond angles

Torsions

Rings

Ligand PLC L 701



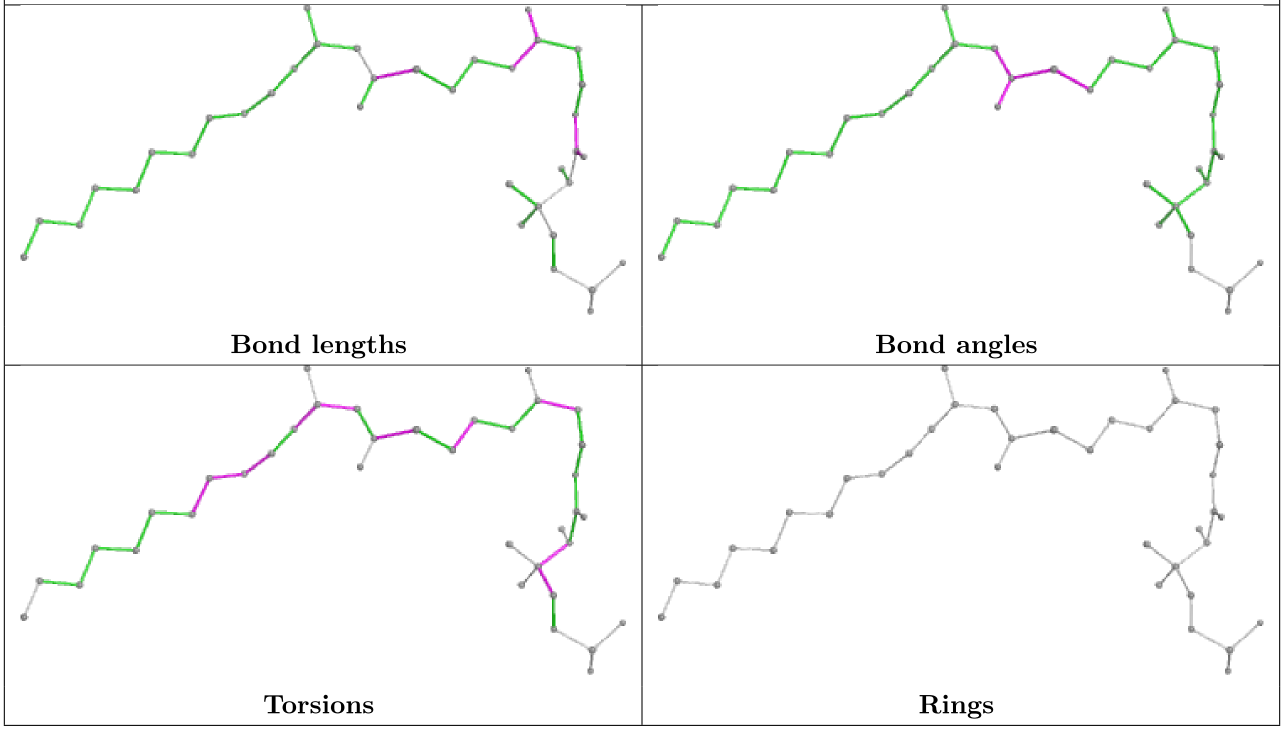
Bond lengths

Bond angles

Torsions

Rings

Ligand EHZ T 201



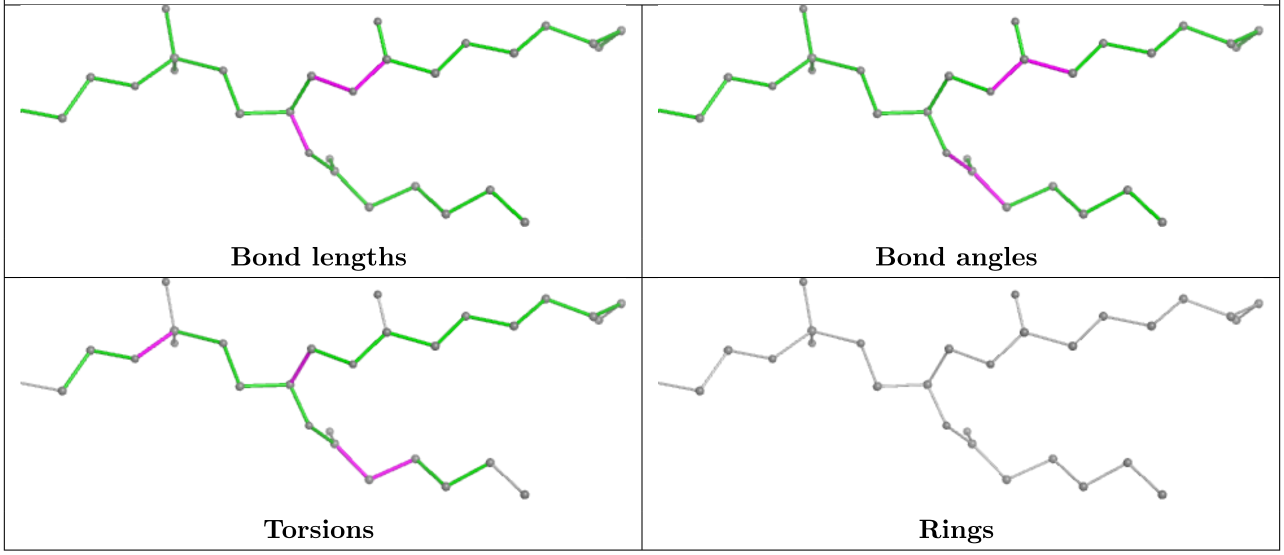
Bond lengths

Bond angles

Torsions

Rings

Ligand 3PE L 707



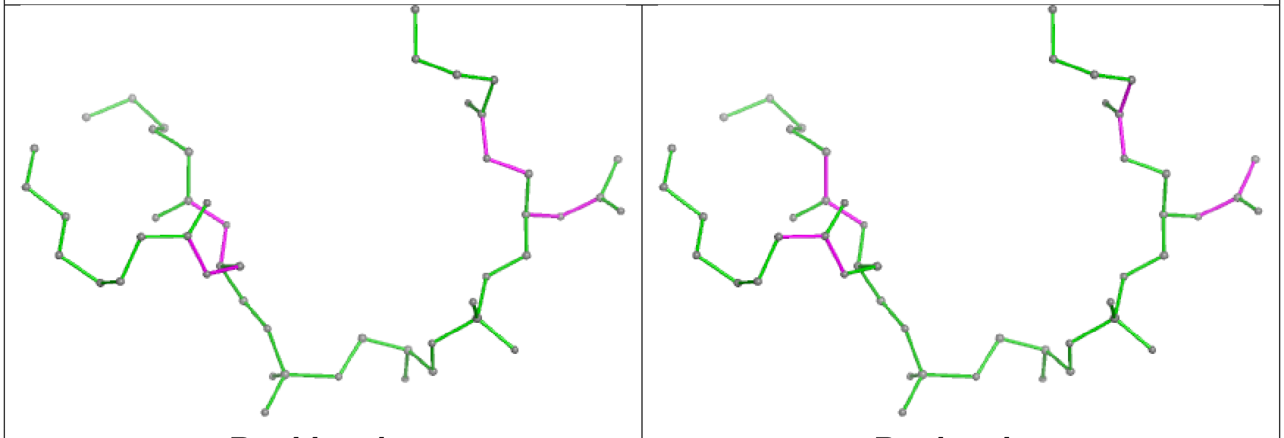
Bond lengths

Bond angles

Torsions

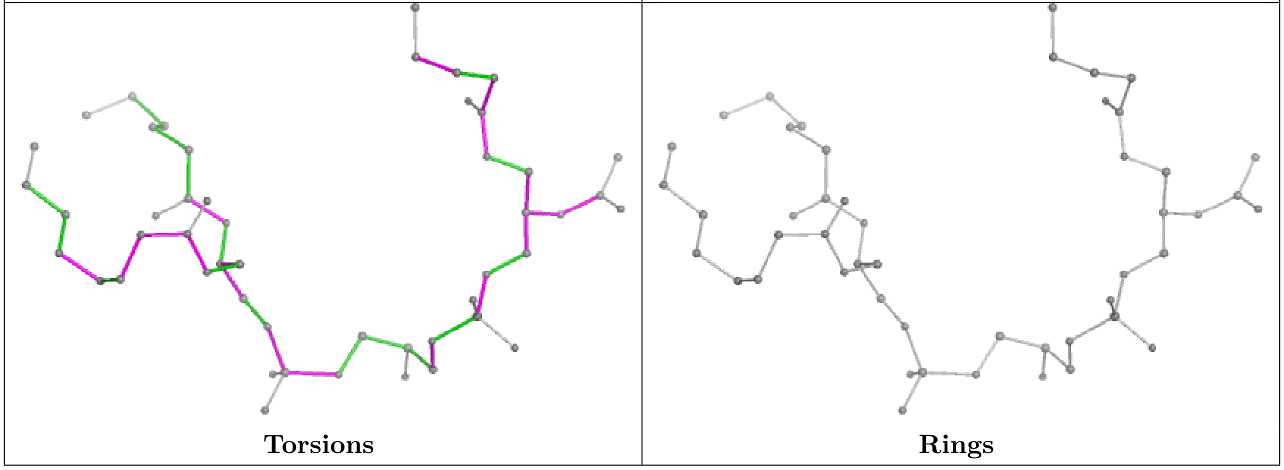
Rings

Ligand CDL Z 203



Bond lengths

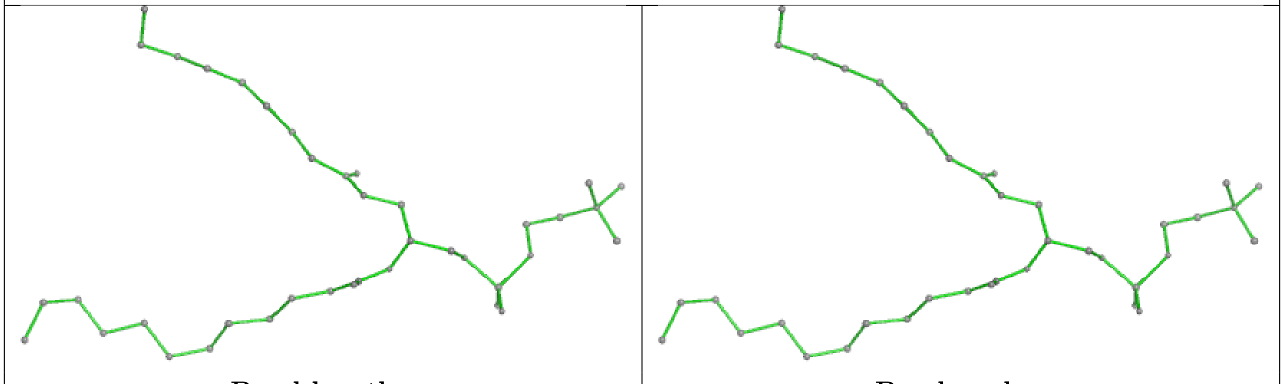
Bond angles



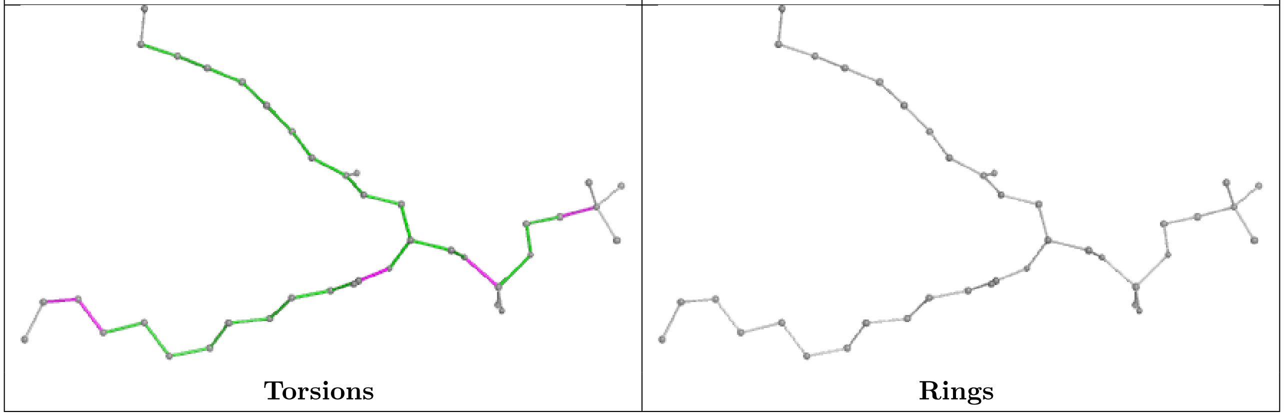
Torsions

Rings

Ligand PLC b 101

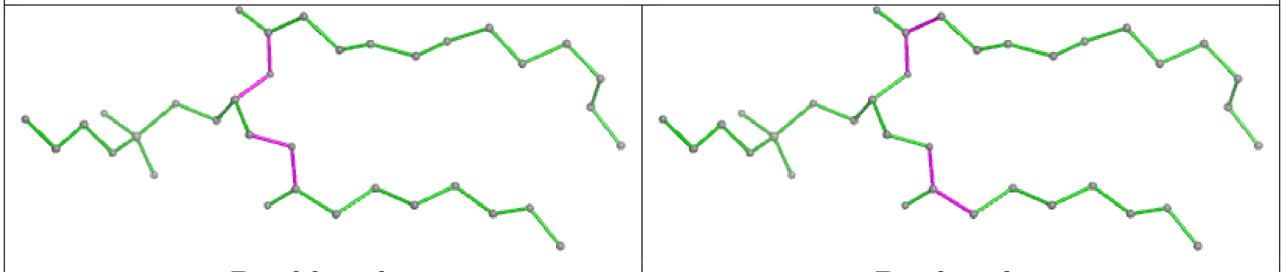


Bond lengths Bond angles

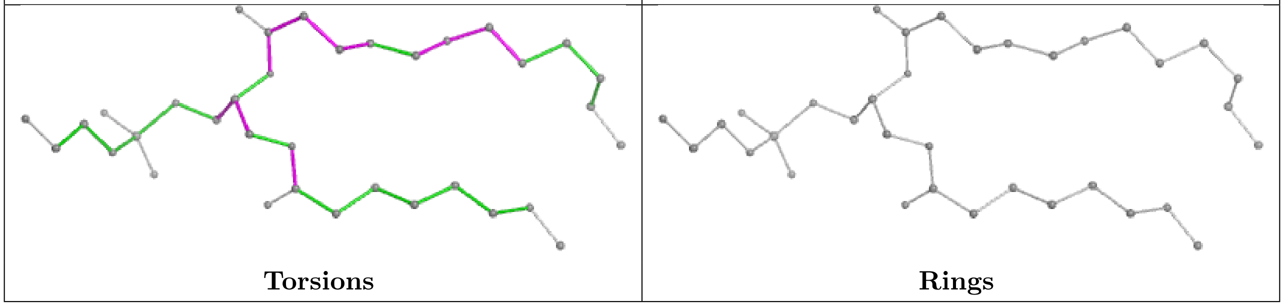


Torsions Rings

Ligand 3PE L 704

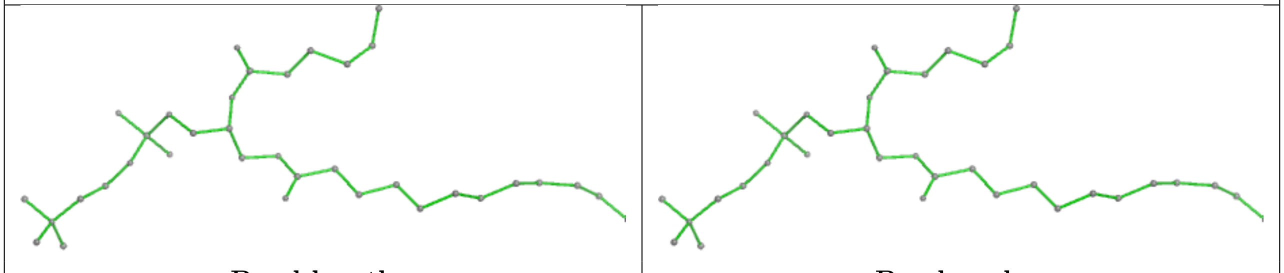


Bond lengths Bond angles

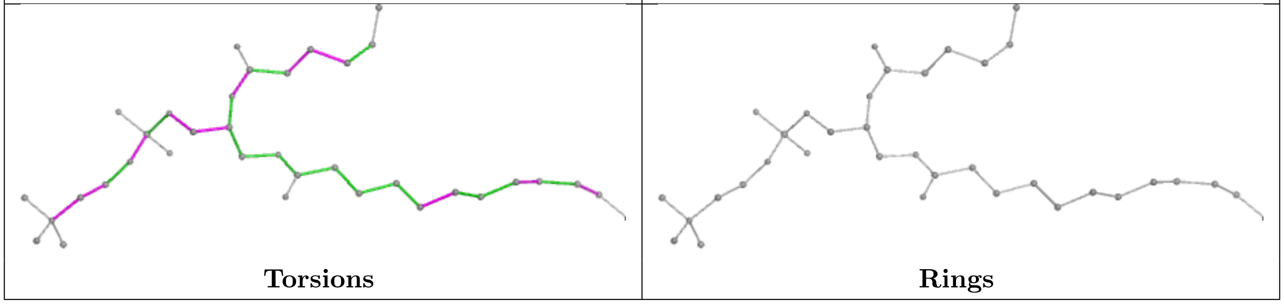


Torsions Rings

Ligand PLC Y 303

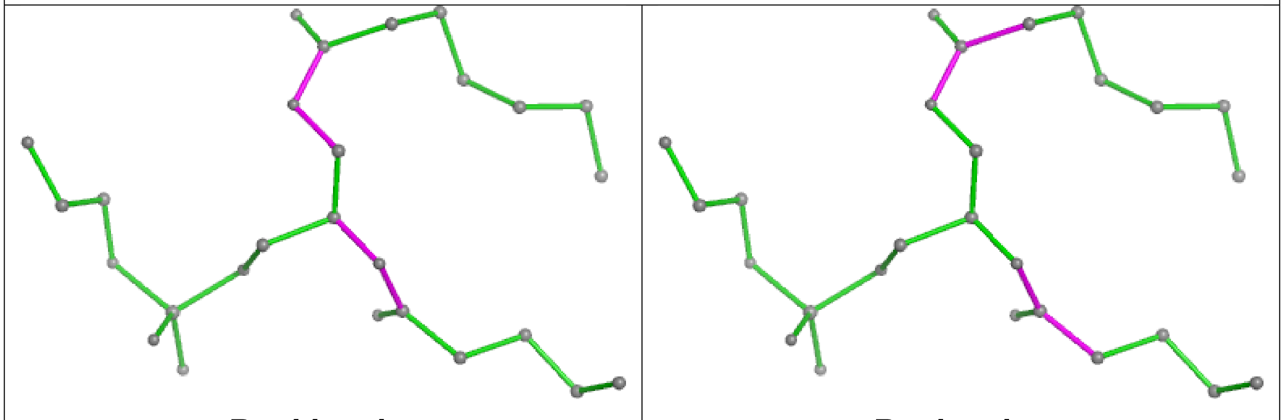


Bond lengths Bond angles

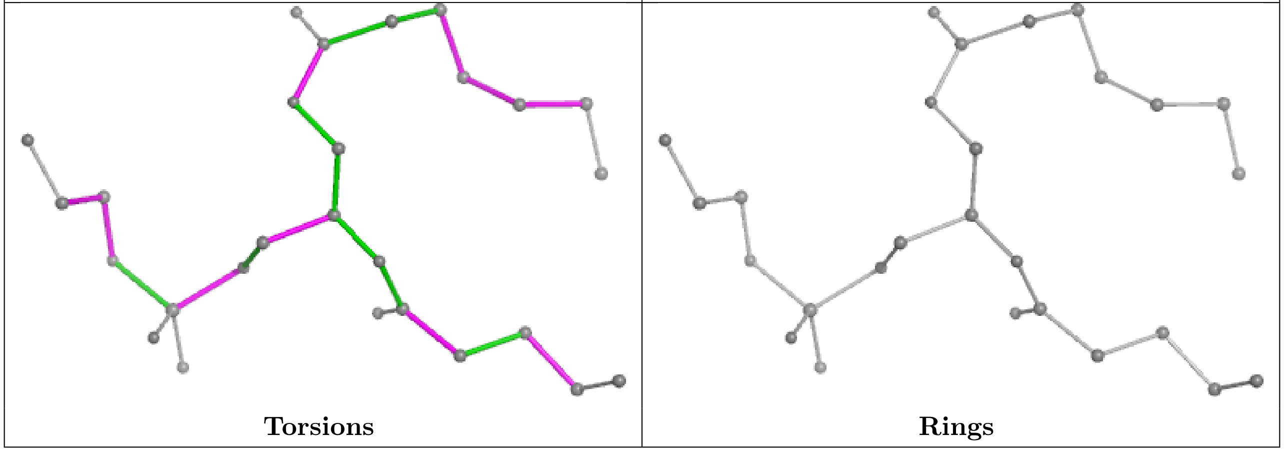


Torsions Rings

Ligand 3PE j 101

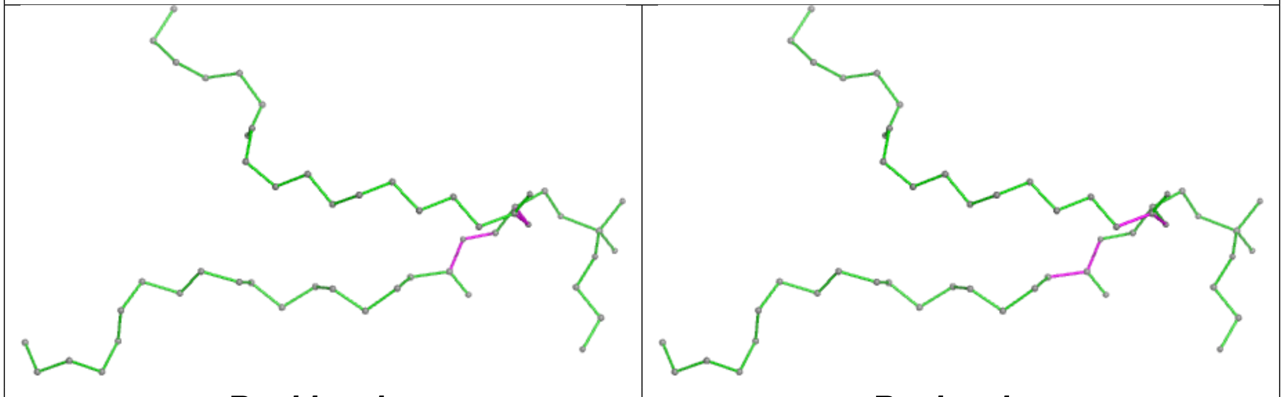


Bond lengths Bond angles

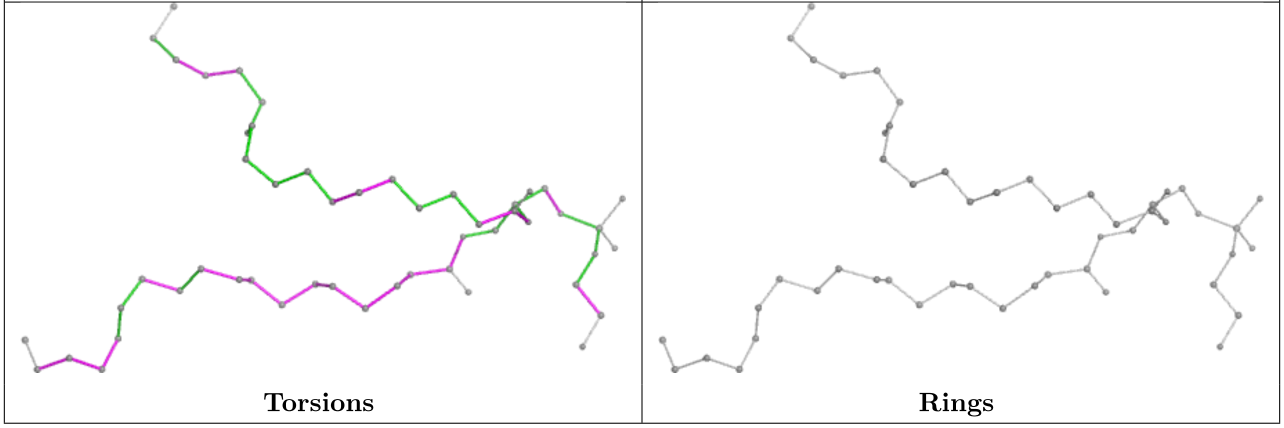


Torsions Rings

Ligand 3PE M 501

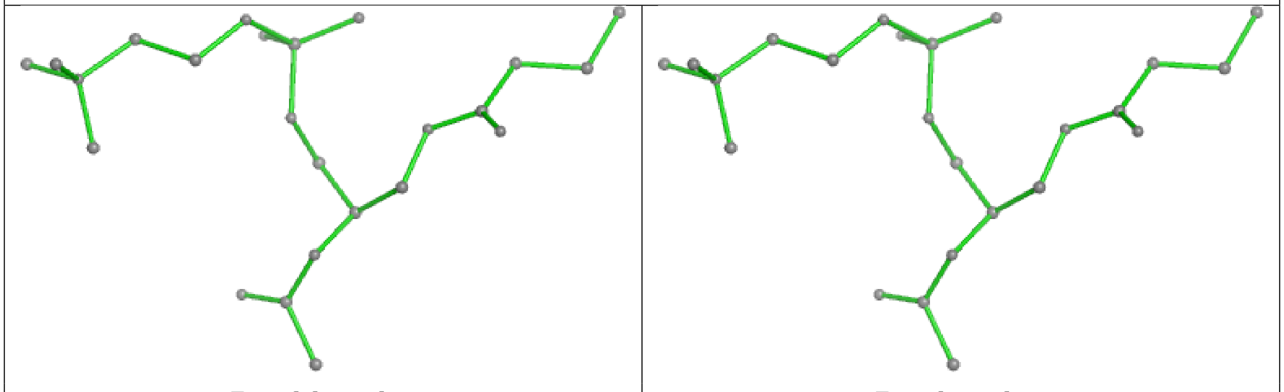


Bond lengths Bond angles

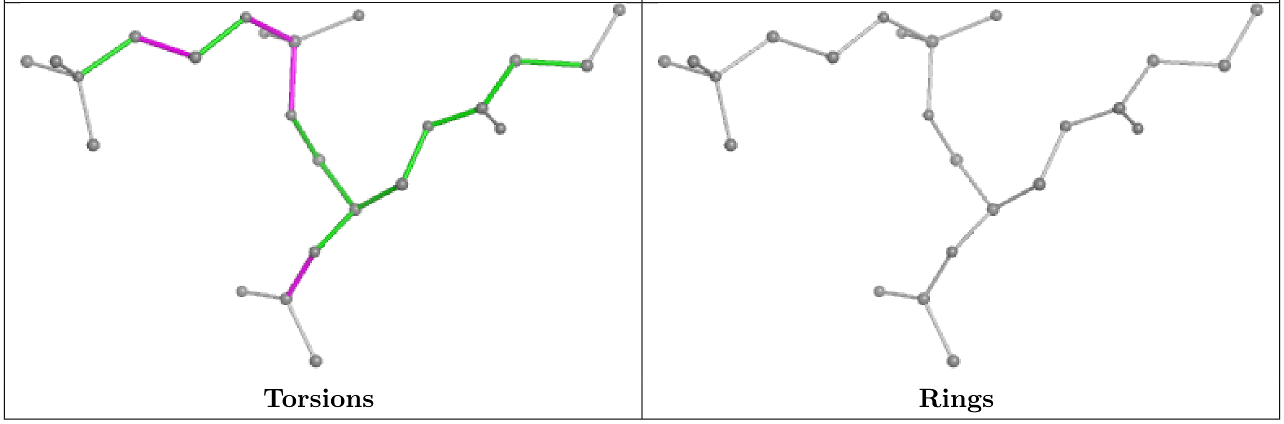


Torsions Rings

Ligand PLC H 401

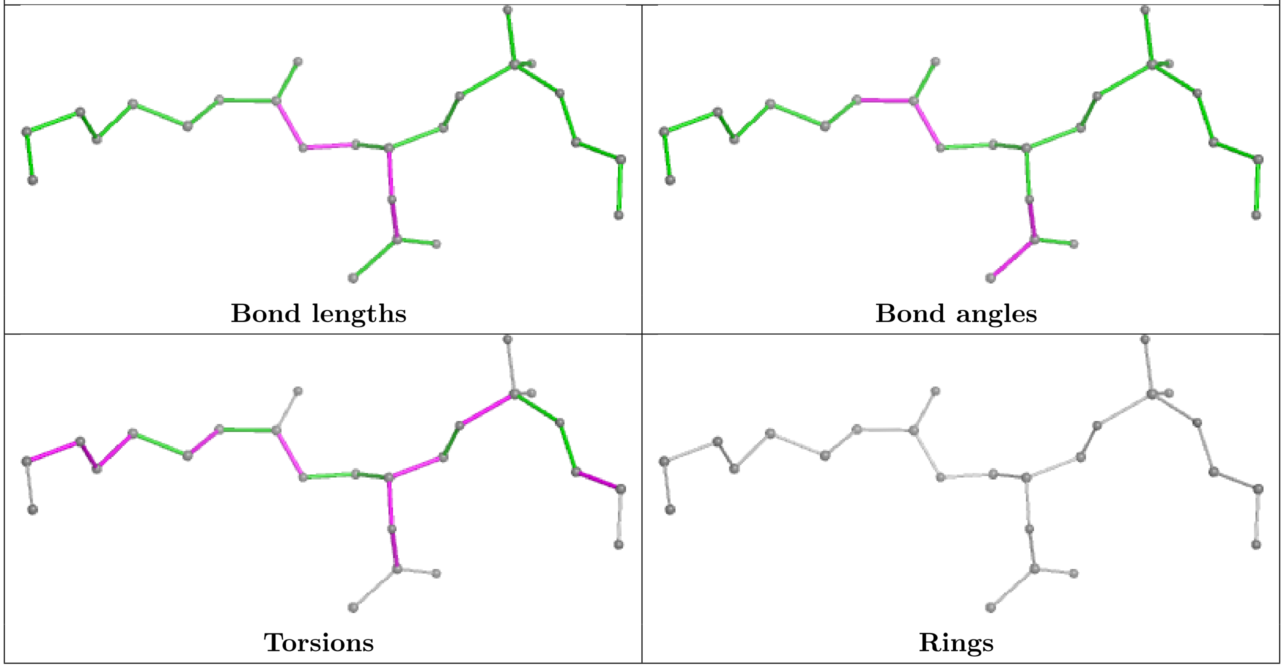


Bond lengths Bond angles



Torsions Rings

Ligand 3PE Y 301



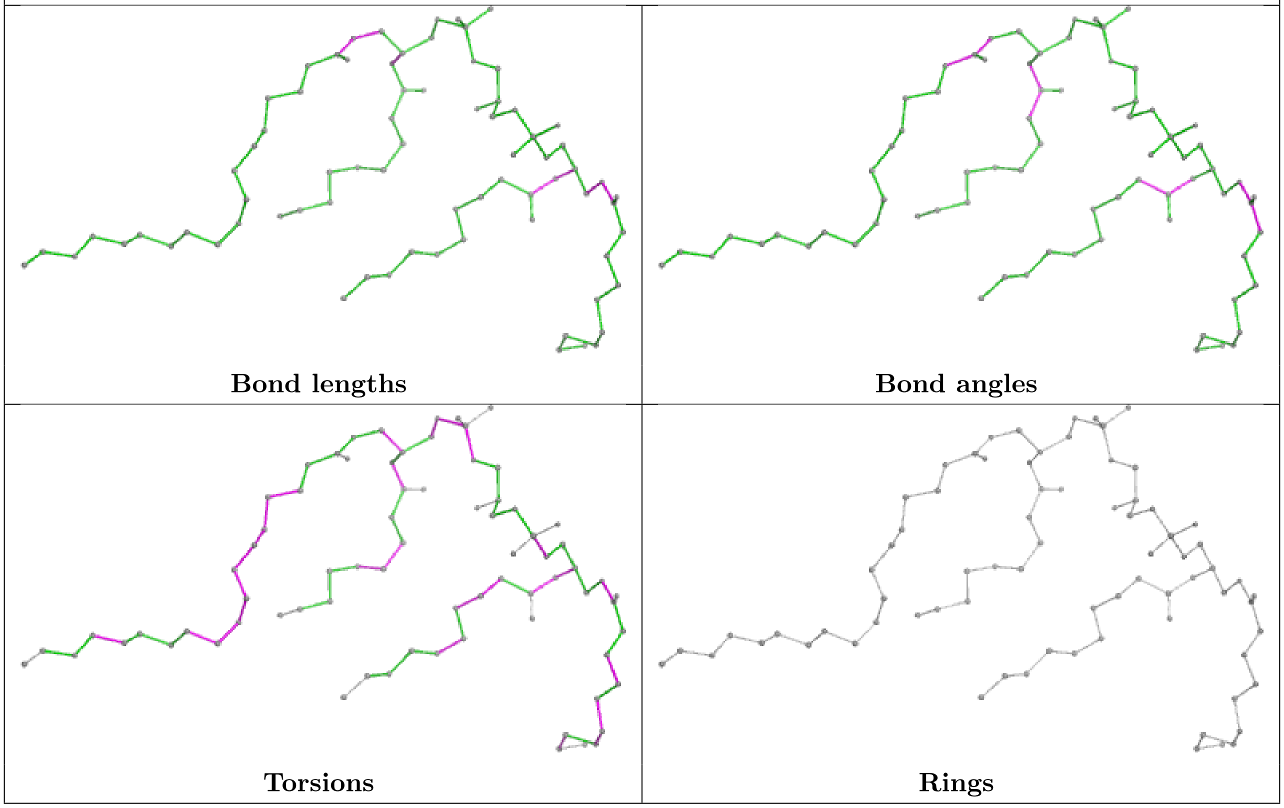
Bond lengths

Bond angles

Torsions

Rings

Ligand CDL O 201



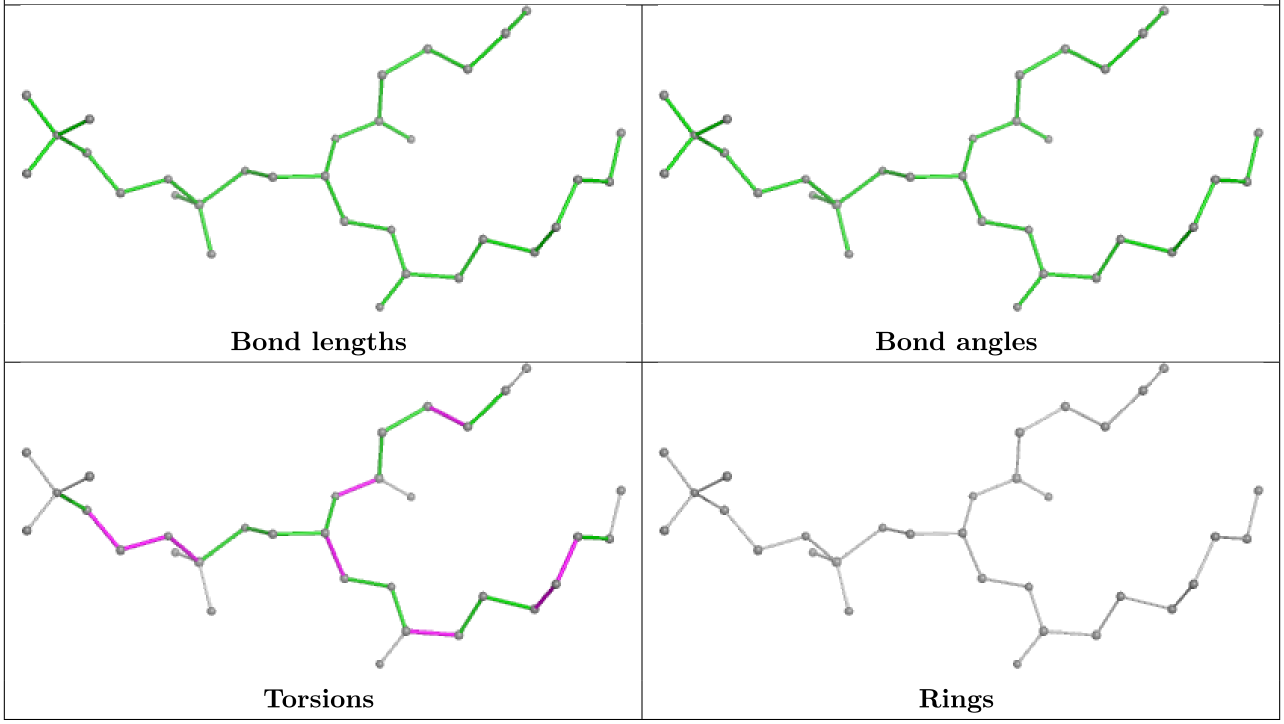
Bond lengths

Bond angles

Torsions

Rings

Ligand PLC L 709



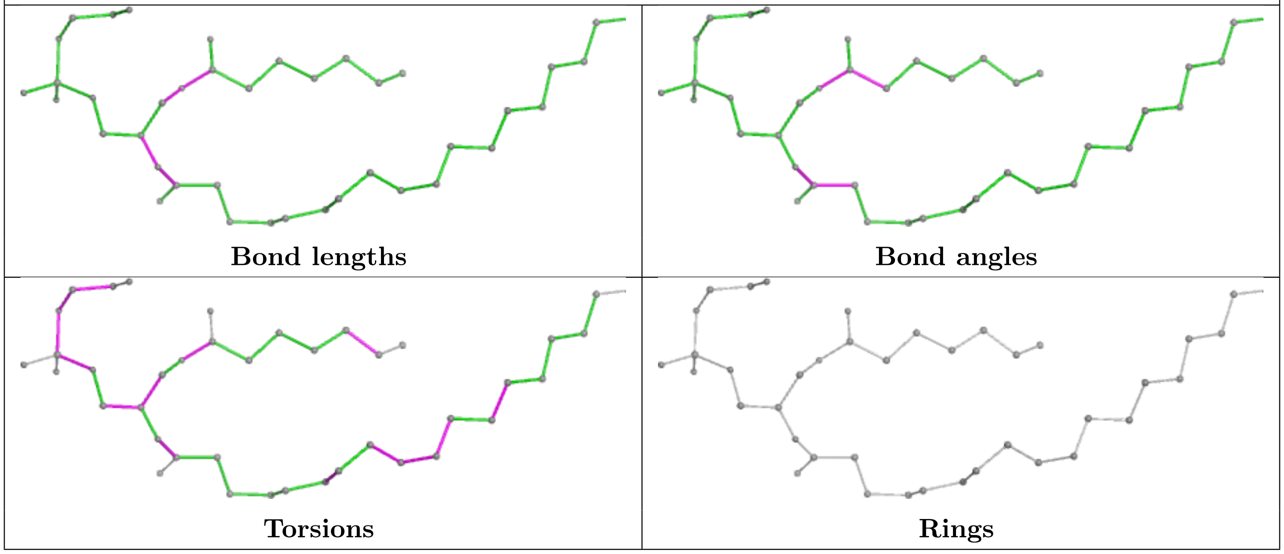
Bond lengths

Bond angles

Torsions

Rings

Ligand 3PE N 601



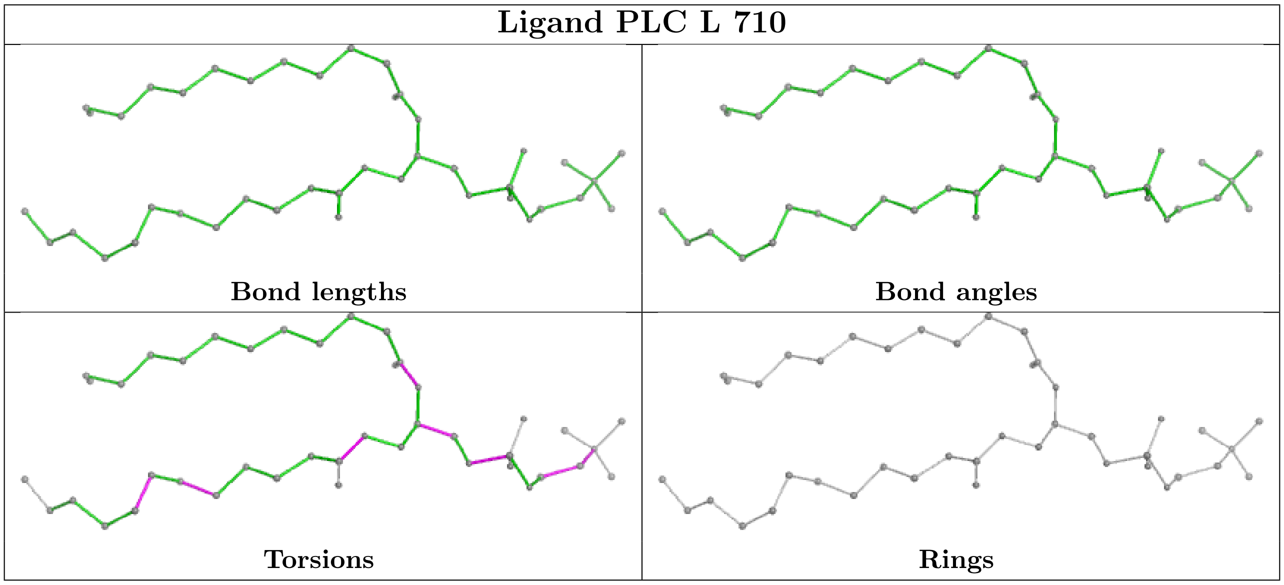
Bond lengths

Bond angles

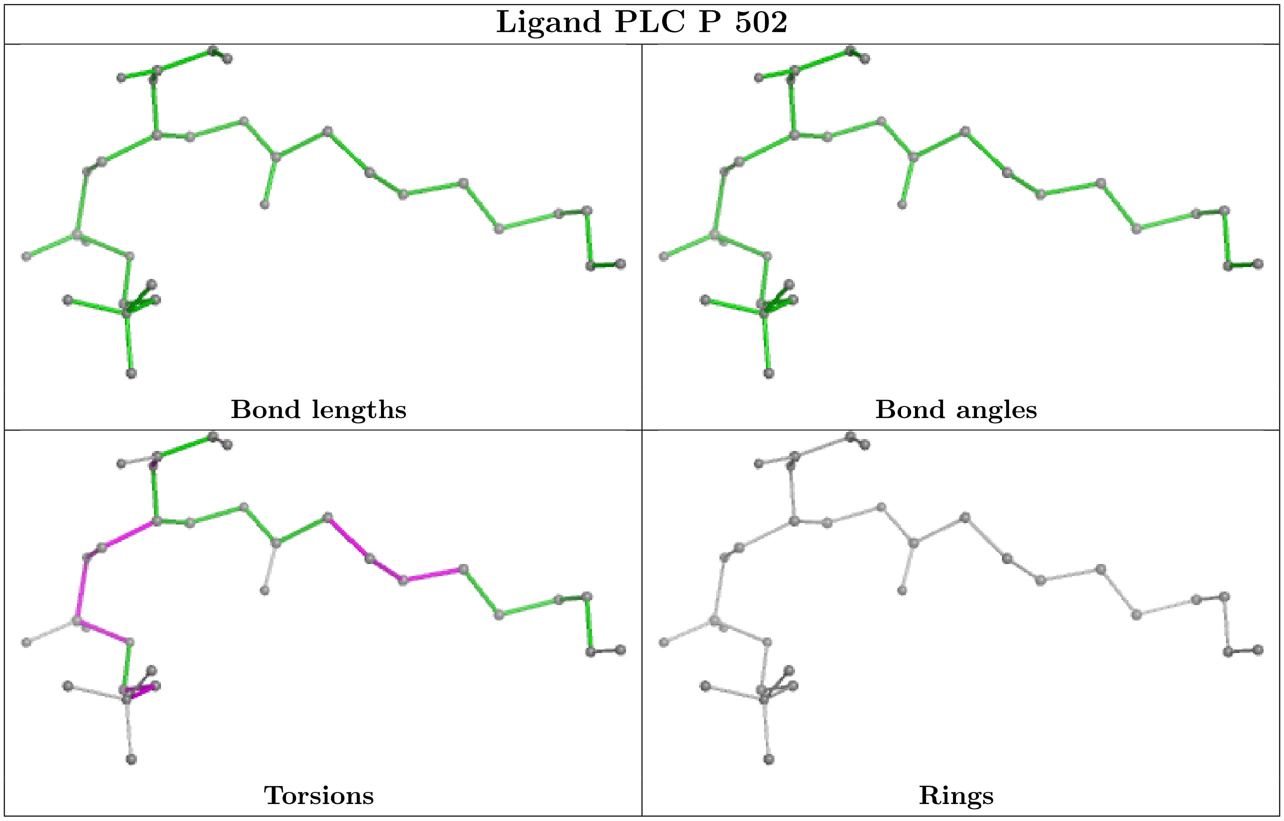
Torsions

Rings

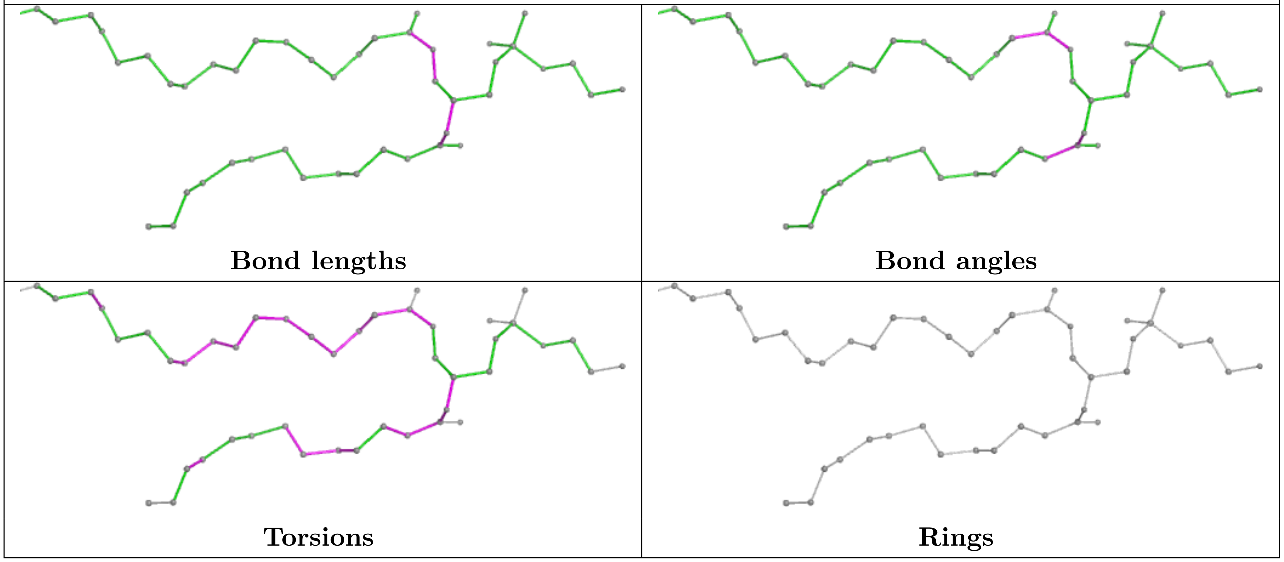
Ligand PLC L 710



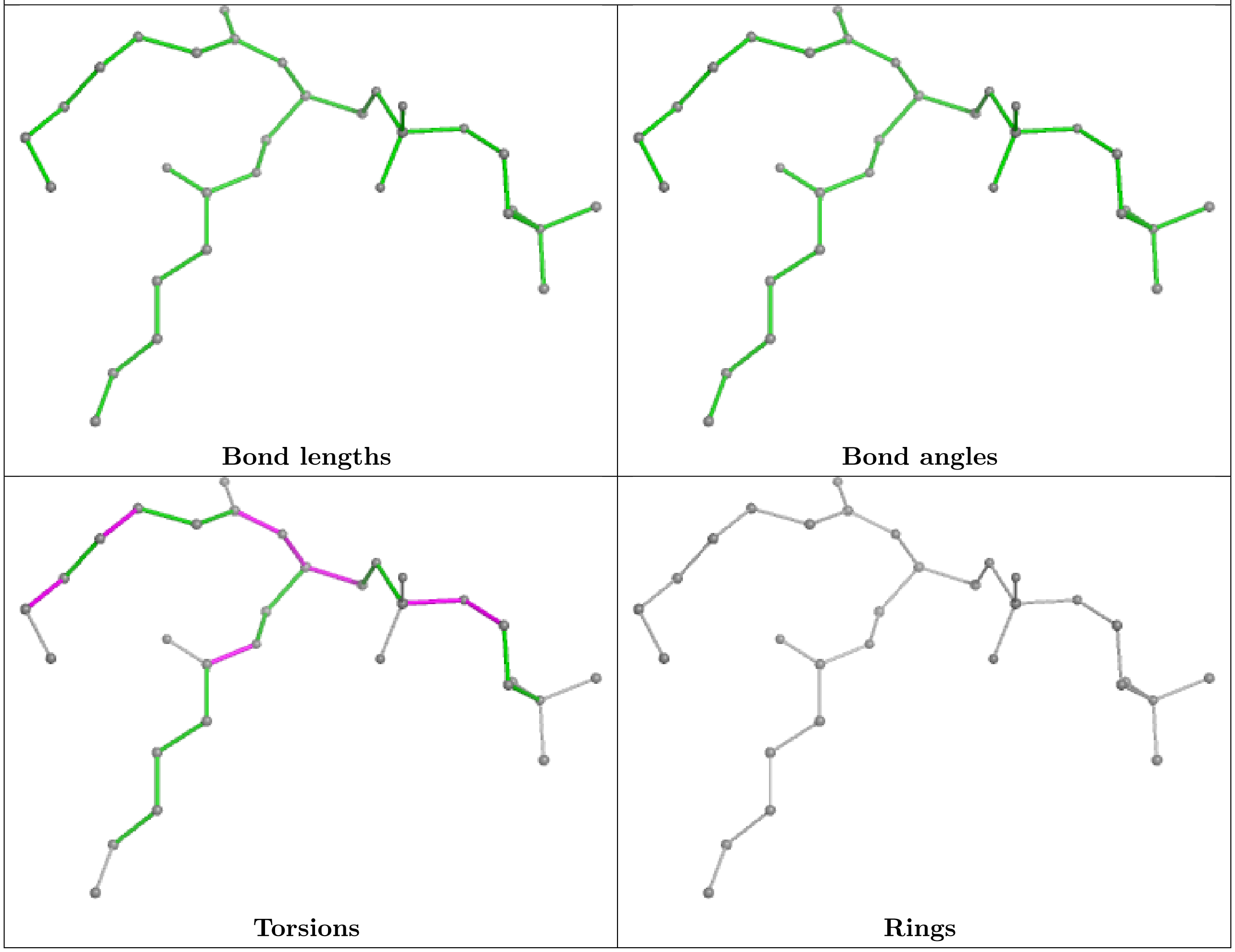
Ligand PLC P 502



Ligand 3PE m 101



Ligand PLC P 503



5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

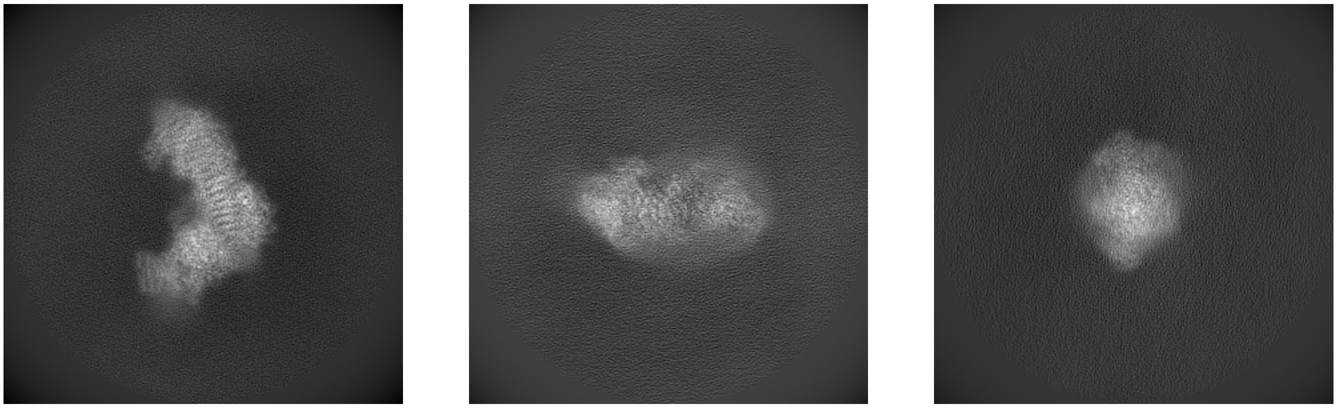
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-52875. 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.

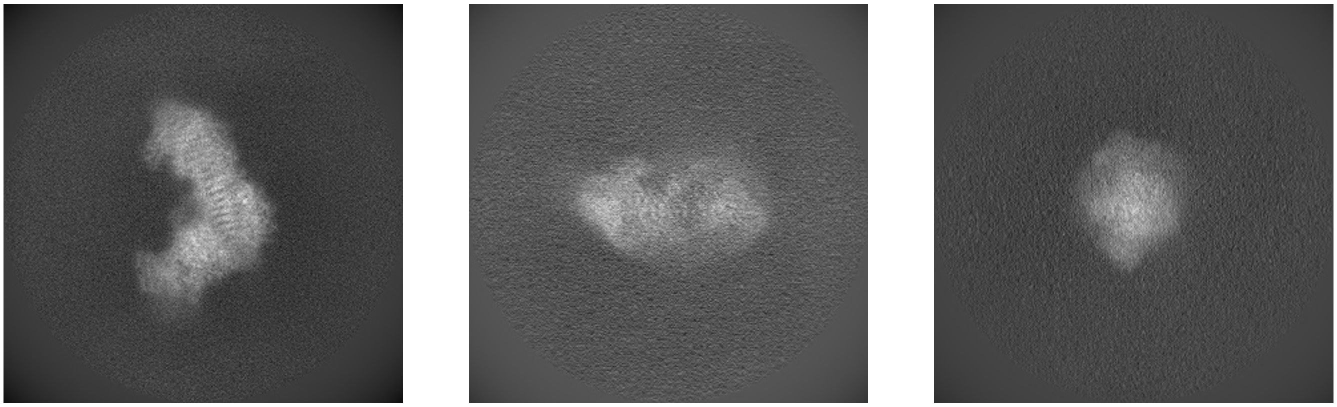
6.1 Orthogonal projections

6.1.1 Primary map



X Y Z

6.1.2 Raw map

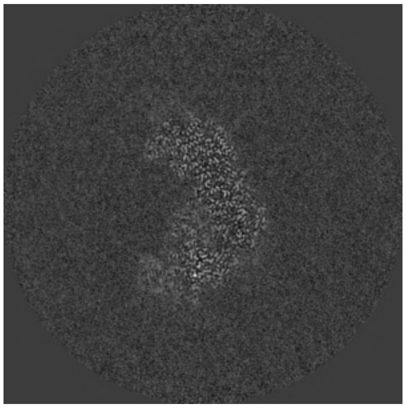


X Y Z

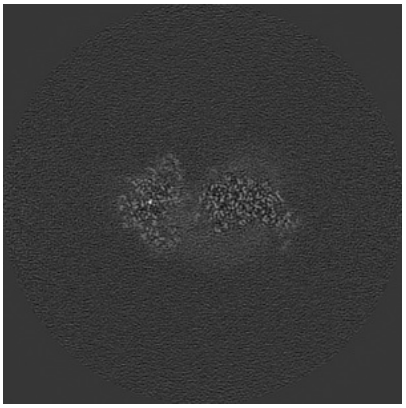
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

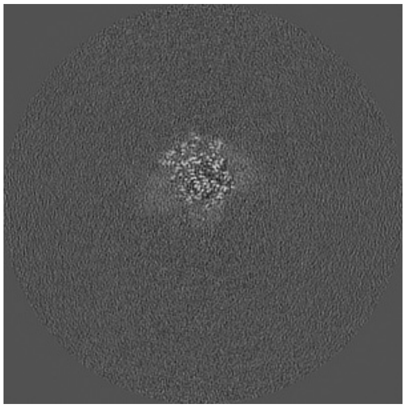
6.2.1 Primary map



X Index: 270

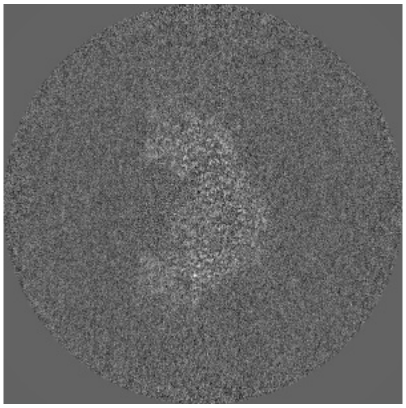


Y Index: 270

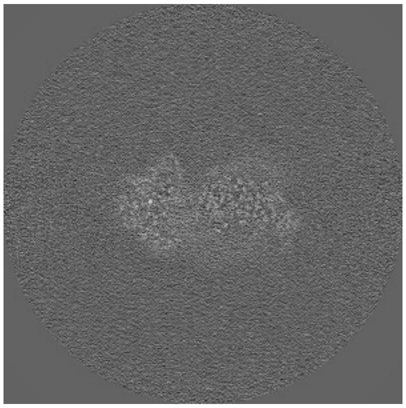


Z Index: 270

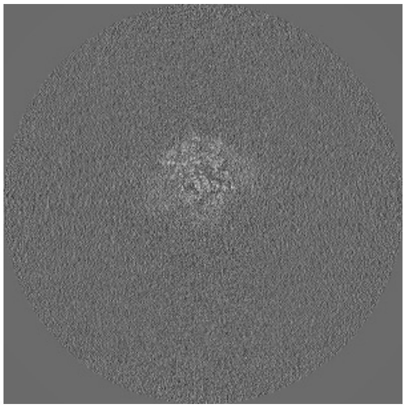
6.2.2 Raw map



X Index: 270



Y Index: 270

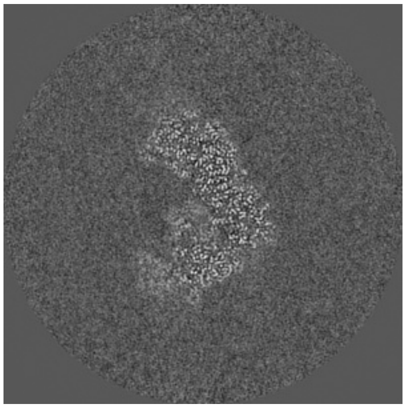


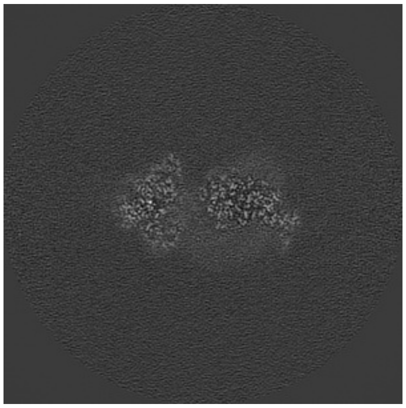
Z Index: 270

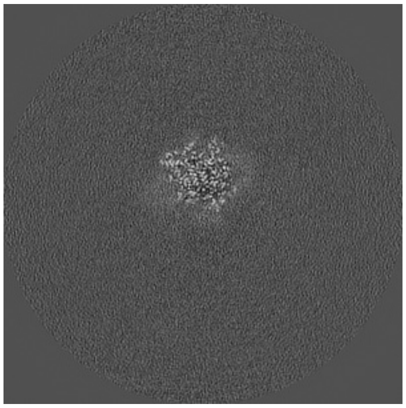
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

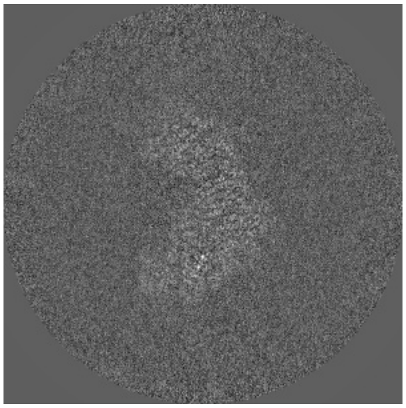
6.3.1 Primary map

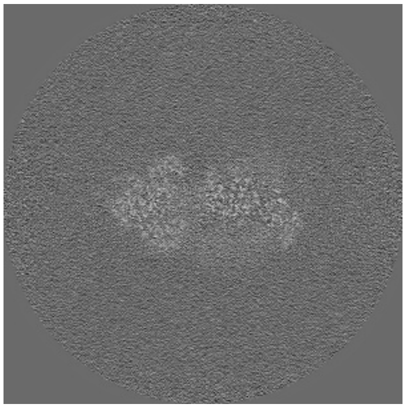

X Index: 265

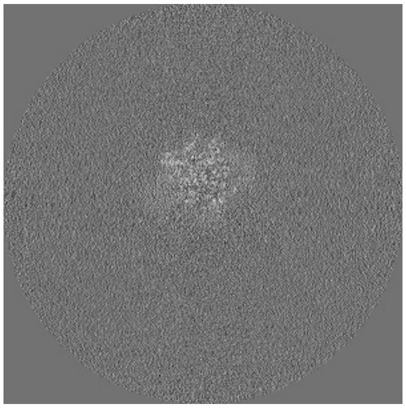

Y Index: 268


Z Index: 272

6.3.2 Raw map


X Index: 272

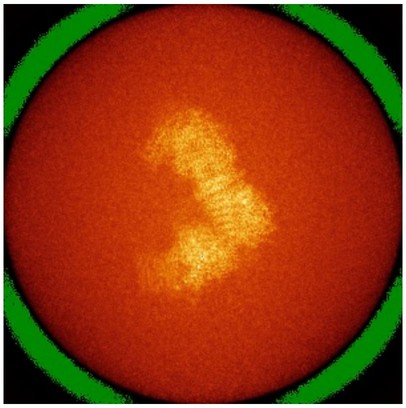

Y Index: 266

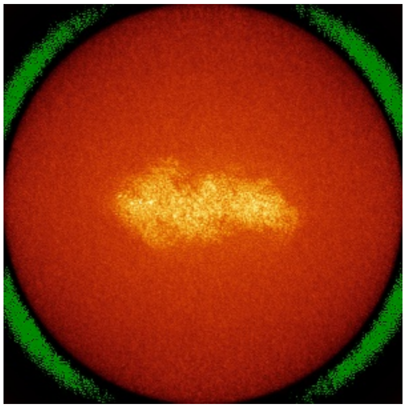

Z Index: 272

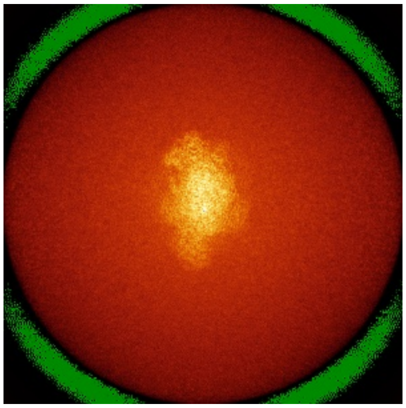
The images above show the largest variance slices of the map in three orthogonal directions.

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

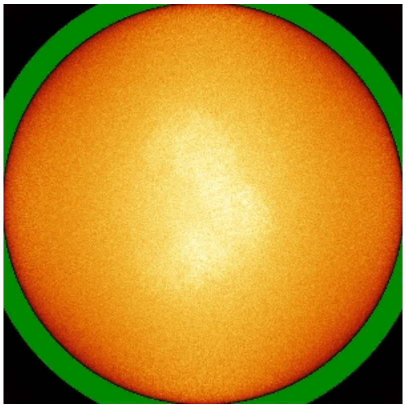
6.4.1 Primary map

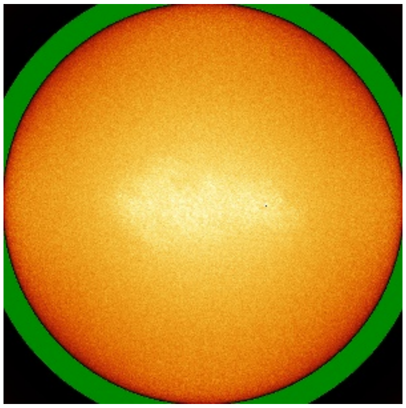

X

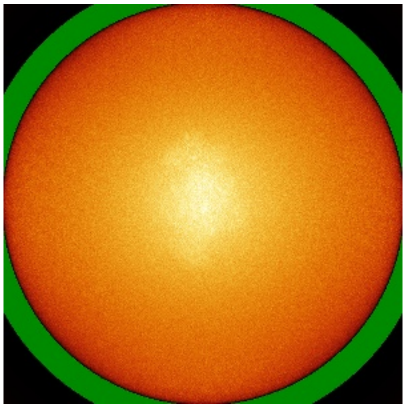

Y


Z

6.4.2 Raw map


X

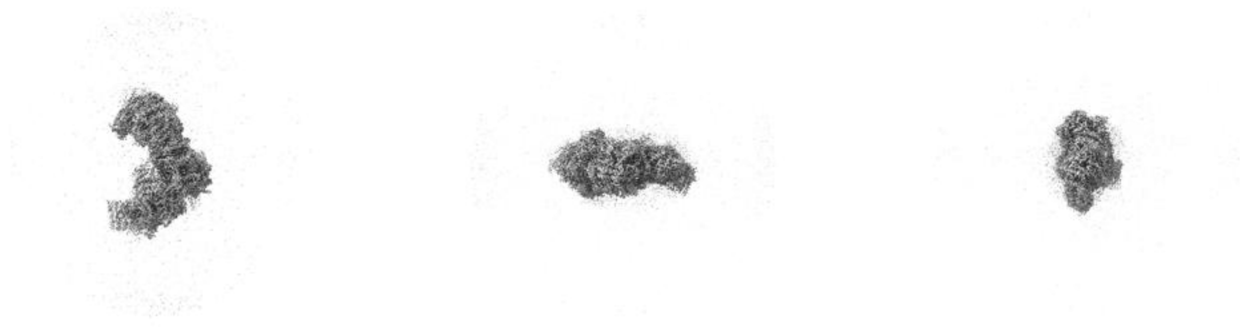

Y


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 ⓘ

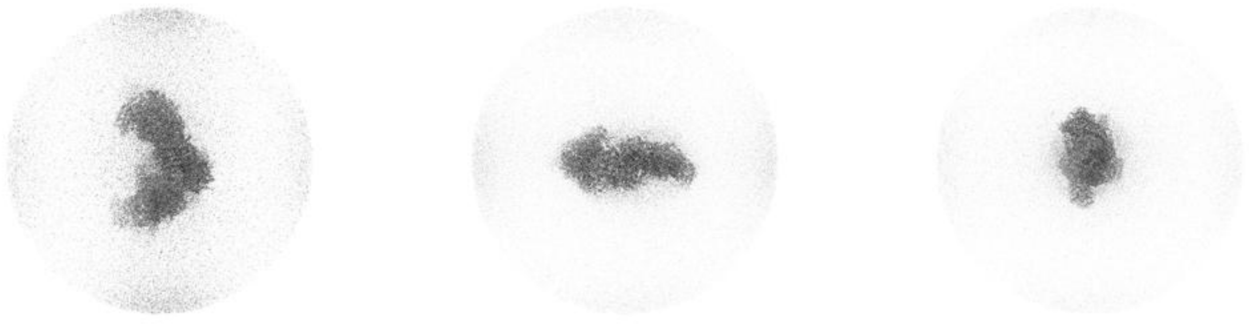
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.012. 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.

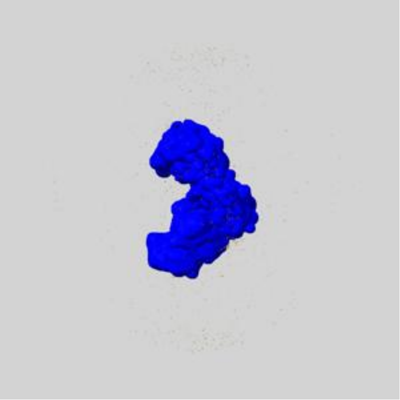
6.6 Mask visualisation ⓘ

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

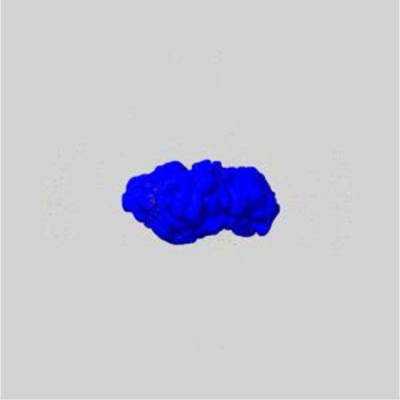
A mask typically either:

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

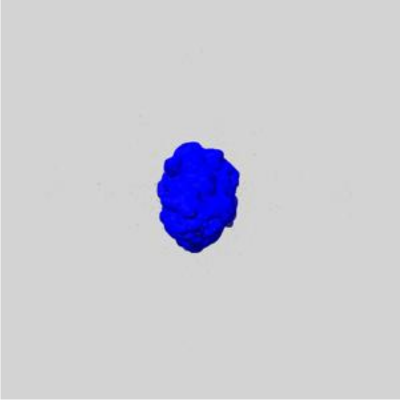
6.6.1 emd_52875_msk_1.map ⓘ



X



Y

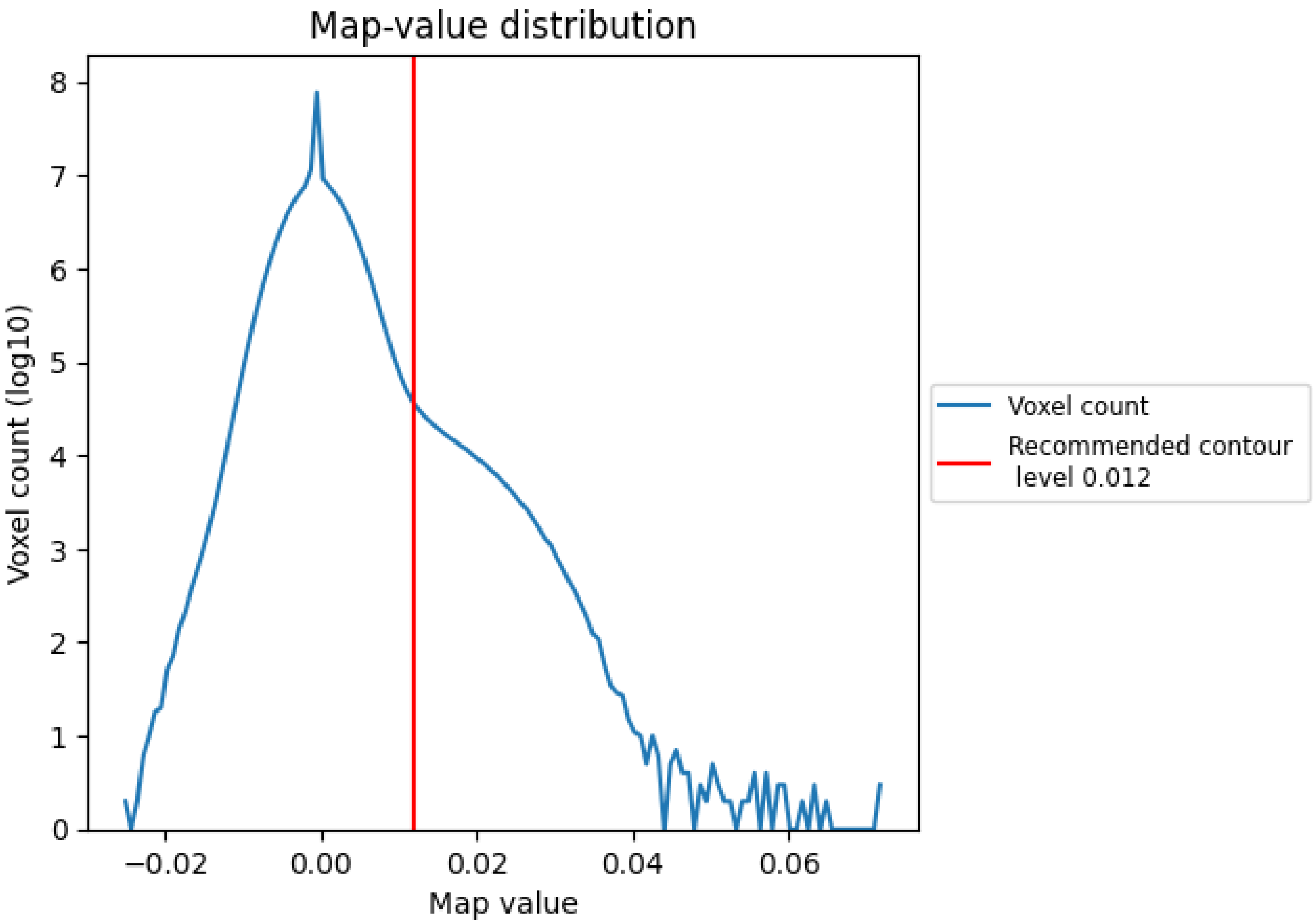


Z

7 Map analysis ⓘ

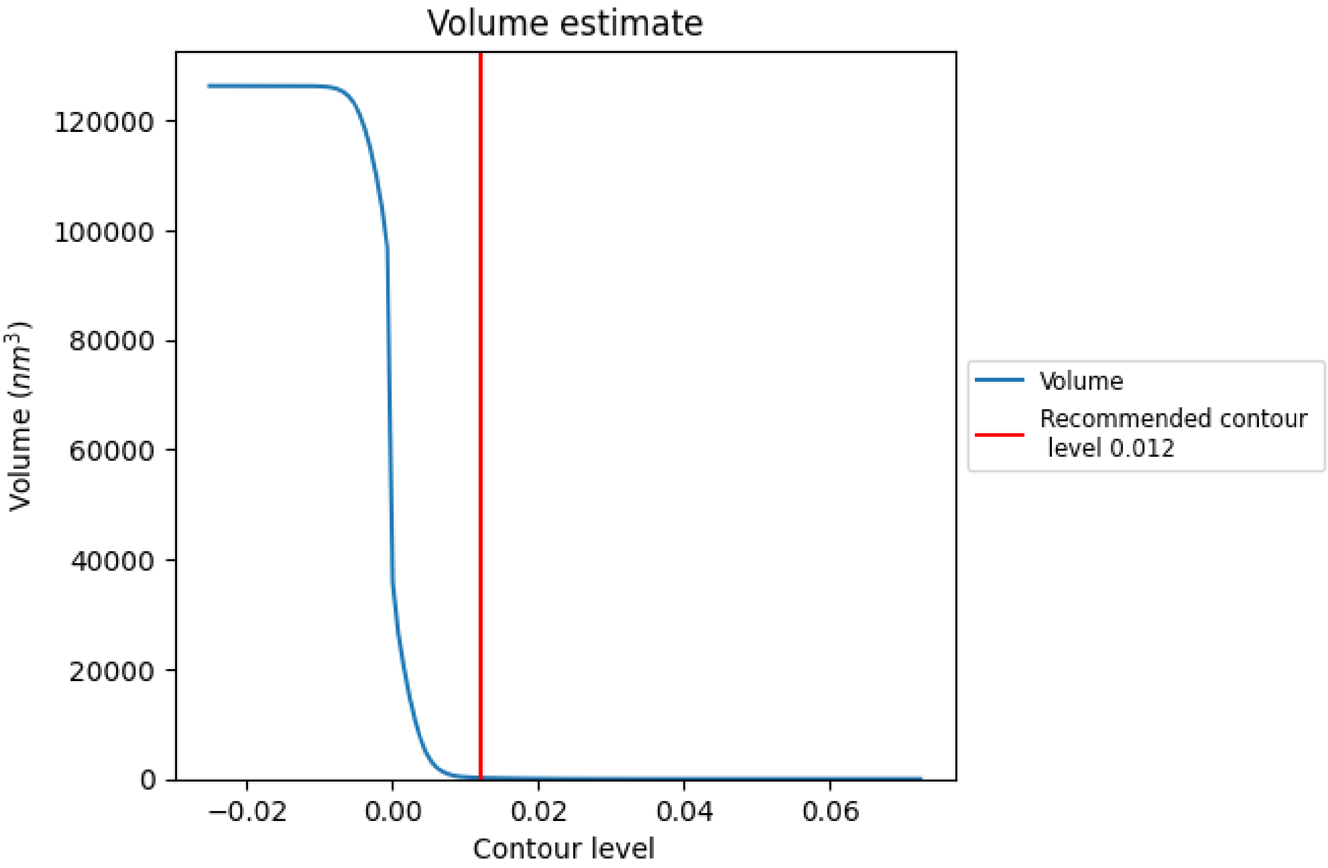
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ



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

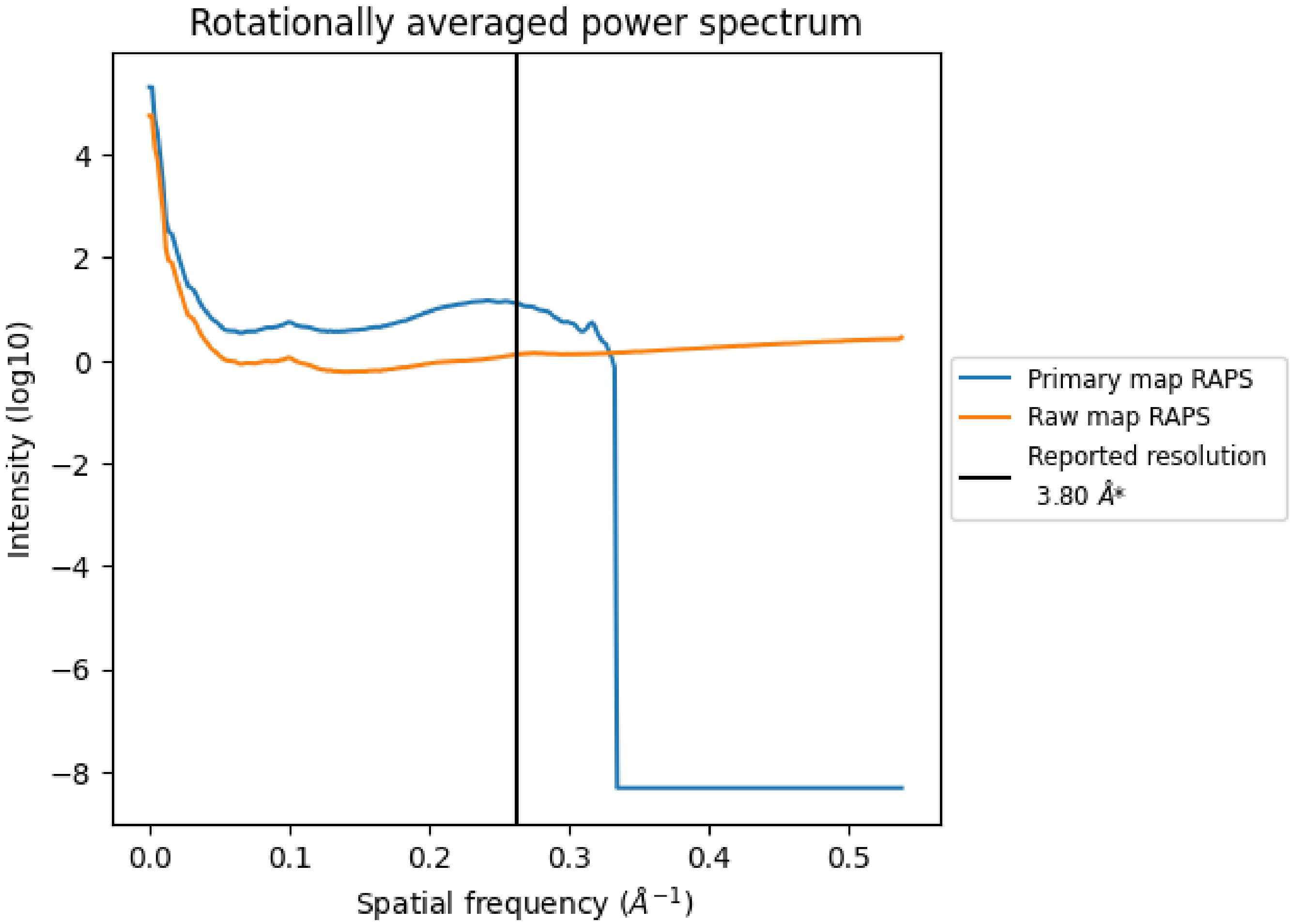
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 214 nm^3; this corresponds to an approximate mass of 193 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 ⓘ

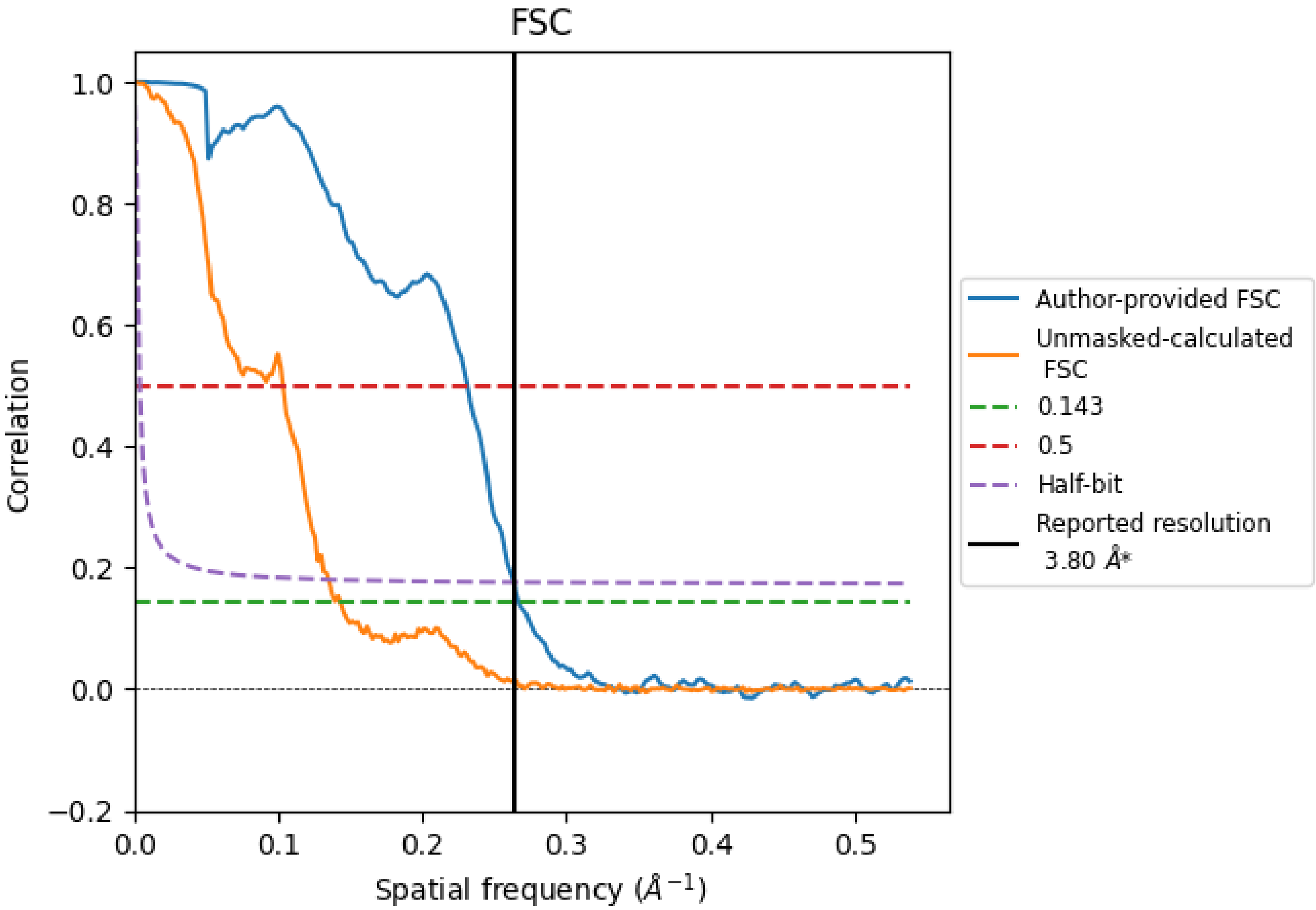


*Reported resolution corresponds to spatial frequency of 0.263 Å^{-1}

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 0.263 Å^{-1}

8.2 Resolution estimates ⓘ

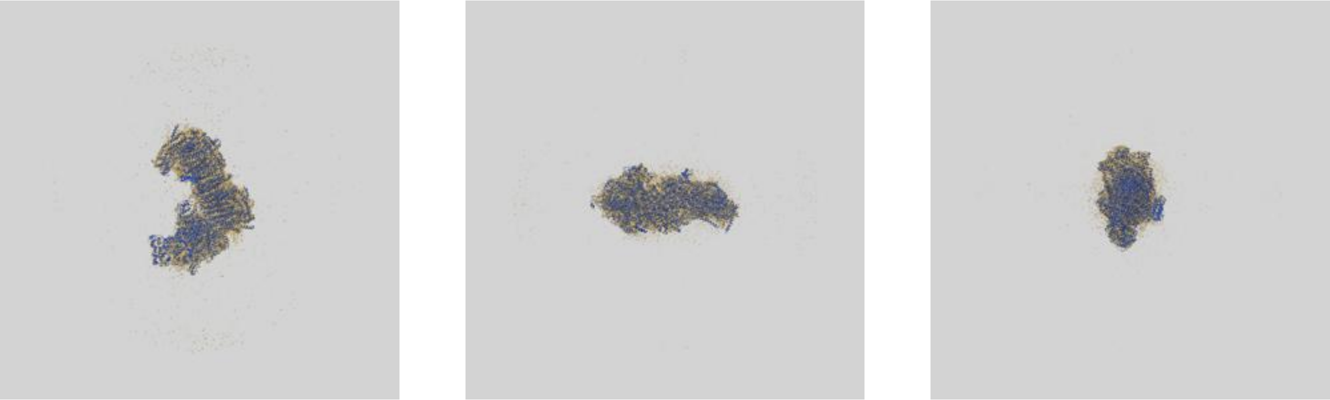
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.75	4.32	3.79
Unmasked-calculated*	6.99	9.69	7.41

*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 6.99 differs from the reported value 3.8 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-52875 and PDB model 9IHO. Per-residue inclusion information can be found in section 3 on page 18.

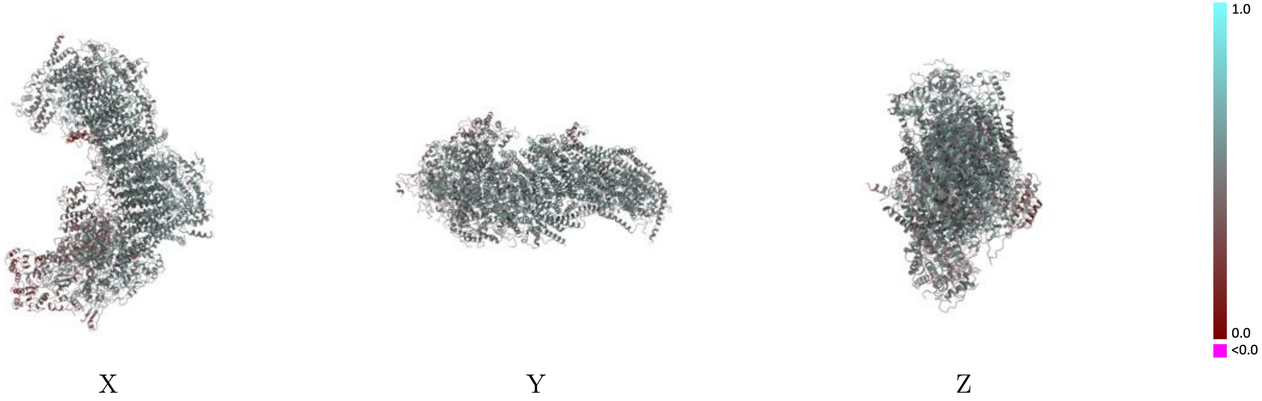
9.1 Map-model overlay ⓘ



X Y Z

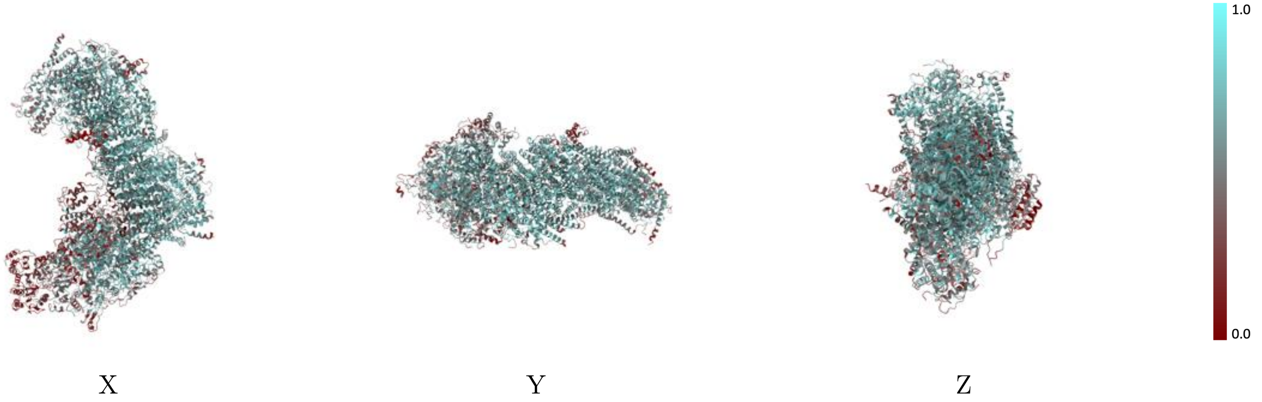
The images above show the 3D surface view of the map at the recommended contour level 0.012 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model



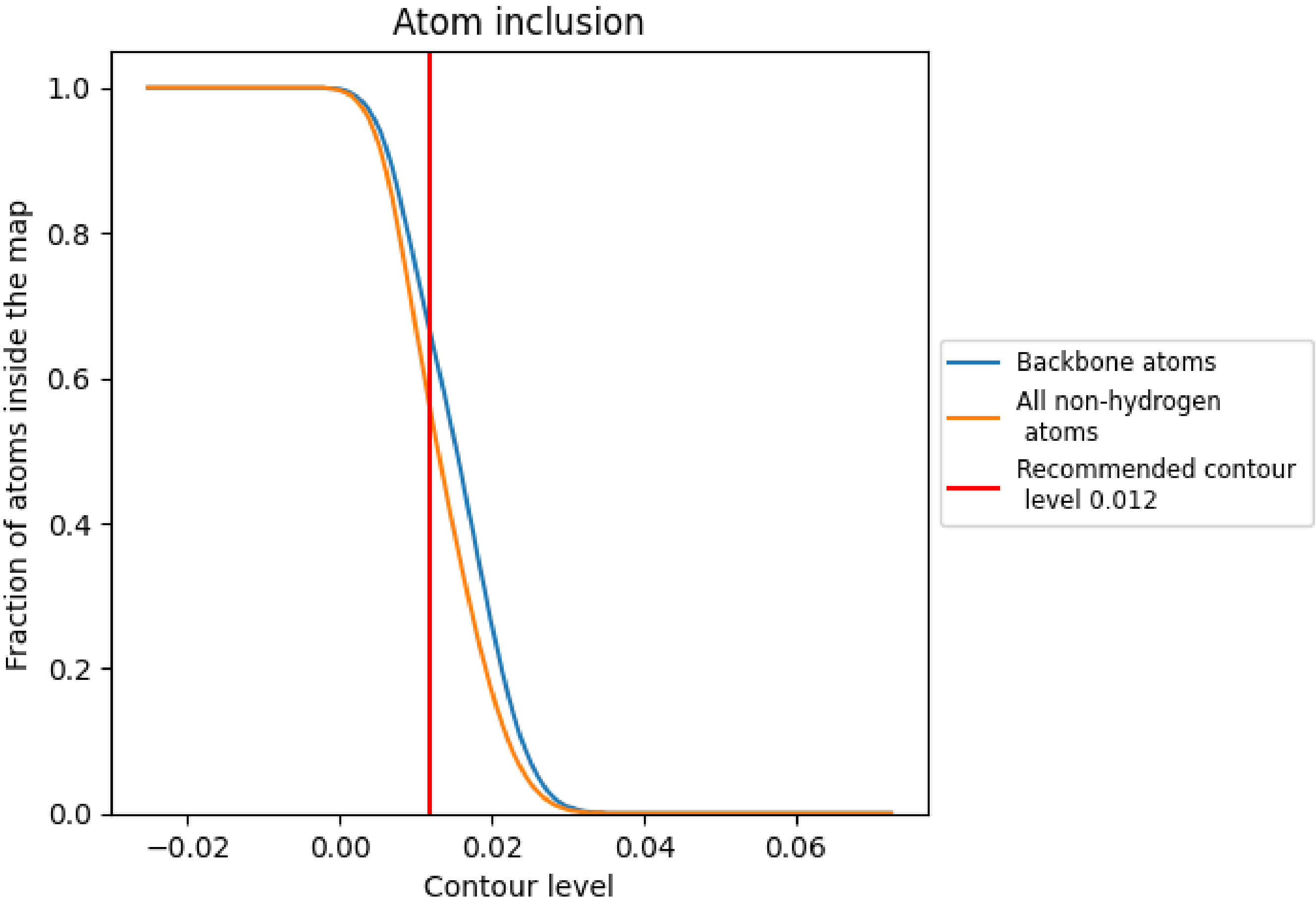
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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



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 (0.012).

9.4 Atom inclusion ⓘ



At the recommended contour level, 66% of all backbone atoms, 55% 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 (0.012) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5530	0.4970
A	0.5050	0.4810
B	0.6360	0.5220
C	0.5140	0.4760
D	0.6090	0.5090
G	0.3130	0.3940
H	0.6080	0.5200
I	0.6780	0.5200
J	0.5810	0.5190
K	0.6090	0.5170
L	0.6450	0.5340
M	0.6850	0.5440
N	0.6820	0.5390
O	0.6340	0.5300
P	0.4470	0.4570
Q	0.4990	0.4730
R	0.4520	0.4550
S	0.0730	0.2890
T	0.2010	0.4000
U	0.4210	0.4660
V	0.3970	0.4430
W	0.4290	0.4440
X	0.6430	0.5280
Y	0.5930	0.5210
Z	0.6120	0.5280
a	0.6460	0.5350
b	0.5810	0.5420
c	0.3660	0.4530
d	0.6640	0.5300
e	0.6730	0.5310
f	0.5800	0.5090
g	0.3390	0.4460
h	0.5840	0.5150
i	0.5470	0.5010
j	0.4880	0.4820

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Chain	Atom inclusion	Q-score
k	0.4960	0.4790
l	0.5510	0.4960
m	0.5690	0.5140
n	0.5270	0.4890
o	0.5380	0.4900
p	0.6900	0.5330
q	0.5500	0.5060