wwPDB EM Validation Summary Report

Jun 17, 2024 – 11:42 AM EDT

PDB ID	:	9BRD
EMDB ID	:	EMD-44353
Title	:	Synaptic Vesicle V-ATPase with synaptophysin and SidK, State 3
Authors	:	Coupland, C.E.; Rubinstein, J.L.
Deposited on	:	2024-05-11
Resolution	:	3.50 Å(reported)

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

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

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

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

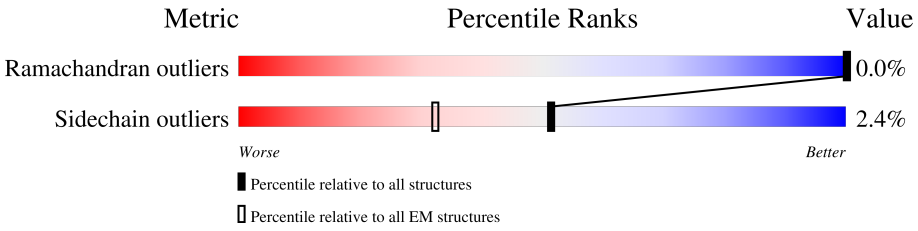
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.50 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	646	91% 7%
1	B	646	91% 7%
1	C	646	91% 7%
2	D	511	88% 10%
2	E	511	89% 10%
2	F	511	89% 10%
3	G	382	83% 96%
4	H	247	86% 13%
5	I	226	12% 98%

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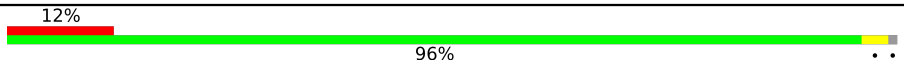
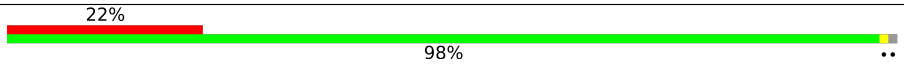
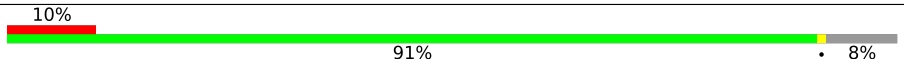
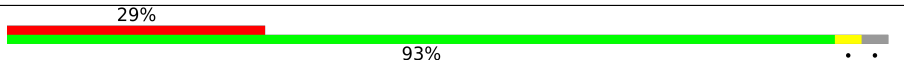
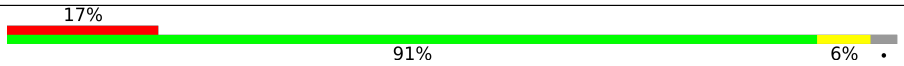
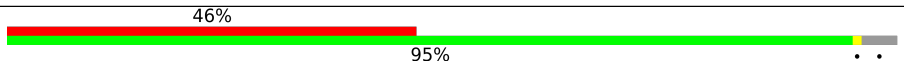
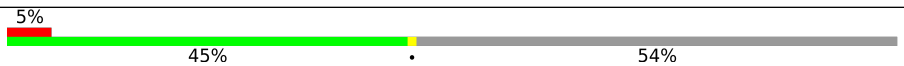
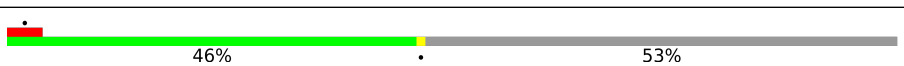
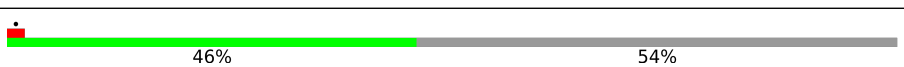
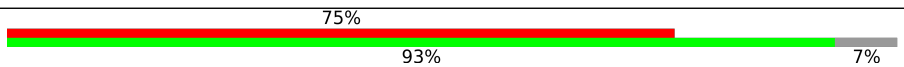
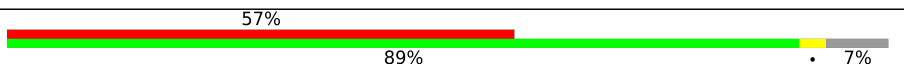
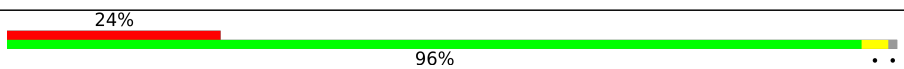
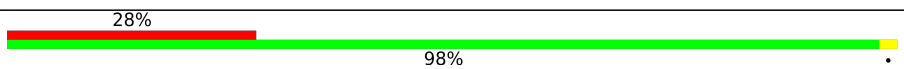
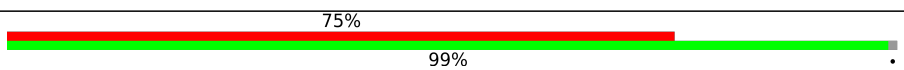
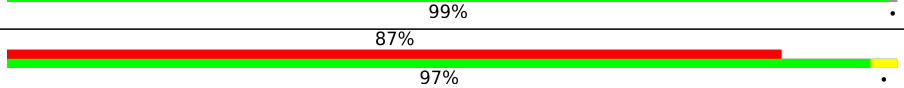
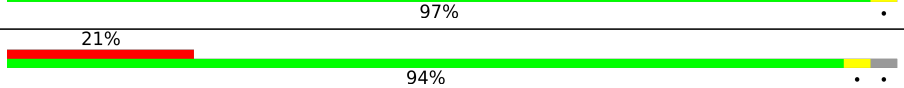
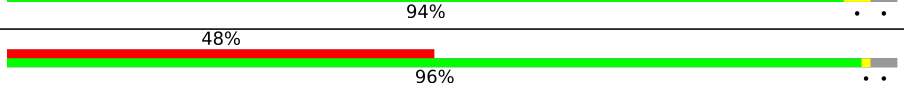
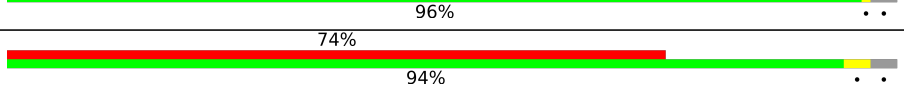
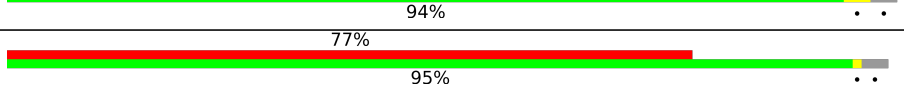
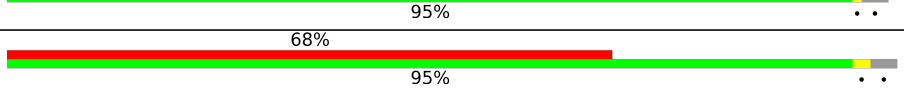
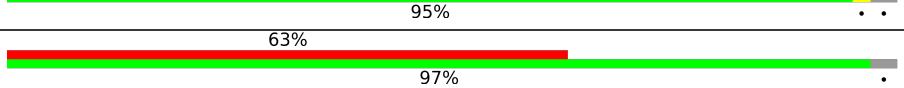
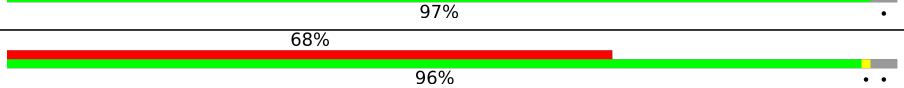
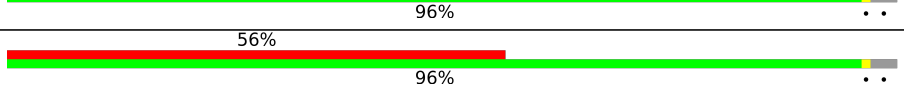
Mol	Chain	Length	Quality of chain
5	J	226	
5	K	226	
6	L	119	
7	M	118	
7	N	118	
7	O	118	
8	P	463	
9	Q	573	
9	R	573	
9	S	573	
10	T	463	
11	U	307	
12	a	832	
13	b	205	
14	d	351	
15	e	81	
16	f	86	
17	g	155	
17	h	155	
17	i	155	
17	j	155	
17	k	155	
17	l	155	
17	m	155	
17	n	155	

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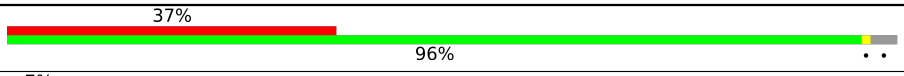
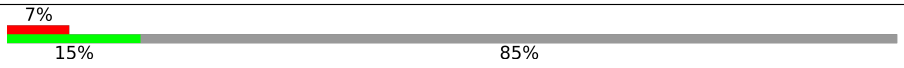
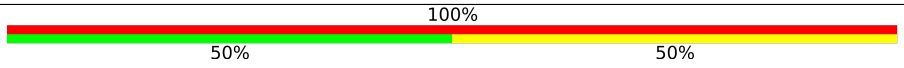
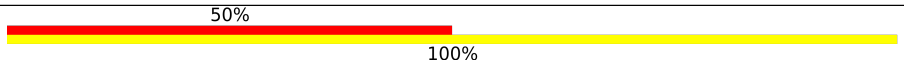
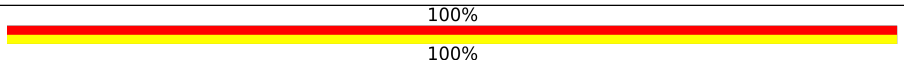
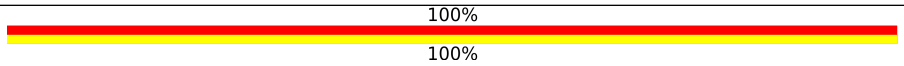
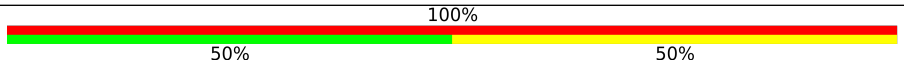
Mol	Chain	Length	Quality of chain
17	o	155	
18	p	350	
19	V	2	
19	W	2	
19	X	2	
19	Y	2	
19	Z	2	
19	c	2	
19	q	2	
19	r	2	
20	s	11	

2 Entry composition (i)

There are 27 unique types of molecules in this entry. The entry contains 72445 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 H(+)-transporting two-sector ATPase.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	600	Total	C	N	O	S	0	0
			4651	2949	786	889	27		
1	B	600	Total	C	N	O	S	0	0
			4651	2949	786	889	27		
1	C	600	Total	C	N	O	S	0	0
			4651	2949	786	889	27		

- Molecule 2 is a protein called V-type proton ATPase subunit B, brain isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	D	459	Total	C	N	O	S	0	0
			3595	2282	613	680	20		
2	E	459	Total	C	N	O	S	0	0
			3595	2282	613	680	20		
2	F	459	Total	C	N	O	S	0	0
			3595	2282	613	680	20		

- Molecule 3 is a protein called V-type proton ATPase subunit C 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
3	G	375	Total	C	N	O	0	0
			2155	1347	400	408		

- Molecule 4 is a protein called ATPase H+-transporting V1 subunit D.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	H	214	Total	C	N	O	S	0	0
			1726	1095	311	315	5		

- Molecule 5 is a protein called V-type proton ATPase subunit E 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	I	225	Total	C	N	O	S	0	0
			1778	1119	315	336	8		
5	J	223	Total	C	N	O	S	0	0
			1779	1120	315	334	10		
5	K	224	Total	C	N	O	S	0	0
			1657	1041	299	309	8		

- Molecule 6 is a protein called V-type proton ATPase subunit F.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	L	109	Total	C	N	O	S	0	0
			864	544	156	162	2		

- Molecule 7 is a protein called V-type proton ATPase subunit G.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	M	114	Total	C	N	O	S	0	0
			845	506	178	157	4		
7	N	114	Total	C	N	O	S	0	0
			916	548	190	173	5		
7	O	113	Total	C	N	O	S	0	0
			715	427	147	138	3		

- Molecule 8 is a protein called V-type proton ATPase subunit S1.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	P	204	Total	C	N	O	S	0	0
			1652	1087	259	297	9		

- Molecule 9 is a protein called Type IV secretion protein Dot.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Q	264	Total	C	N	O	S	0	0
			2130	1352	358	410	10		
9	R	267	Total	C	N	O	S	0	0
			2155	1369	362	413	11		
9	S	263	Total	C	N	O	S	0	0
			2126	1350	357	409	10		

- Molecule 10 is a protein called V-type proton ATPase subunit H.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	T	430	Total	C	N	O	0	0
			2136	1276	430	430		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
T	428	PHE	ILE	conflict	UNP A0A8I5ZQ24

- Molecule 11 is a protein called Synaptophysin.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	U	214	Total	C	N	O	0	0
			1150	702	221	227		

- Molecule 12 is a protein called V-type proton ATPase 116 kDa subunit a 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	a	770	Total	C	N	O	S	0	0
			6212	4052	1046	1074	40		

- Molecule 13 is a protein called ATPase, H+ transporting, V0 subunit B (Predicted), isoform CRA_a.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	b	203	Total	C	N	O	S	0	0
			1503	996	237	259	11		

- Molecule 14 is a protein called V-type proton ATPase subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	d	350	Total	C	N	O	S	0	0
			2833	1829	460	530	14		

- Molecule 15 is a protein called V-type proton ATPase subunit e 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	e	80	Total	C	N	O	S	0	0
			644	443	100	98	3		

- Molecule 16 is a protein called Rnasek protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	f	86	Total	C	N	O	S	0	0
			666	440	103	116	7		

- Molecule 17 is a protein called V-type proton ATPase 16 kDa proteolipid subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	g	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	h	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	i	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	j	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	k	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	l	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	m	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	n	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		
17	o	150	Total	C	N	O	S	0	0
			1068	699	171	190	8		

- Molecule 18 is a protein called Renin receptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	p	52	Total	C	N	O	S	0	0
			432	290	63	76	3		

- Molecule 19 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	V	2	Total	C	N	O	0	0
			28	16	2	10		
19	W	2	Total	C	N	O	0	0
			28	16	2	10		

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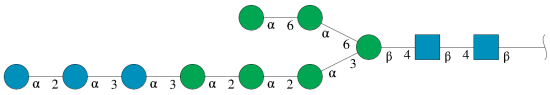
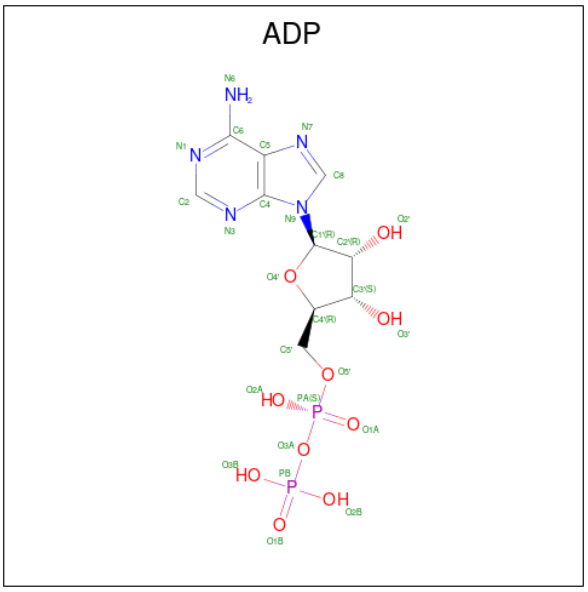
Mol	Chain	Residues	Atoms				AltConf	Trace
19	X	2	Total	C	N	O	0	0
			28	16	2	10		
19	Y	2	Total	C	N	O	0	0
			28	16	2	10		
19	Z	2	Total	C	N	O	0	0
			28	16	2	10		
19	c	2	Total	C	N	O	0	0
			28	16	2	10		
19	q	2	Total	C	N	O	0	0
			28	16	2	10		
19	r	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 20 is an oligosaccharide called alpha-D-glucopyranose-(1-2)-alpha-D-glucopyranose-(1-3)-alpha-D-glucopyranose-(1-3)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



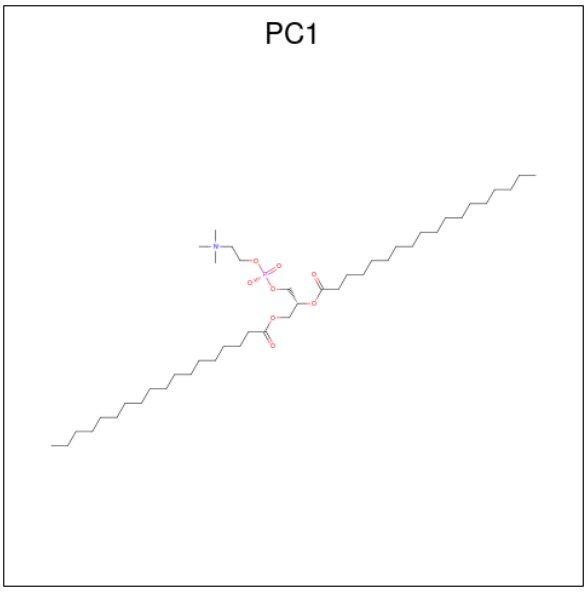
Mol	Chain	Residues	Atoms				AltConf	Trace
20	s	11	Total	C	N	O	0	0
			127	70	2	55		

- Molecule 21 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



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

- Molecule 22 is 1,2-DIACYL-SN-GLYCERO-3-PHOSPHOCHOLINE (three-letter code: PC1) (formula: $C_{44}H_{88}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
22	P	1	Total	C	N	O	P	0
			54	44	1	8	1	
22	P	1	Total	C	N	O	P	0
			54	44	1	8	1	

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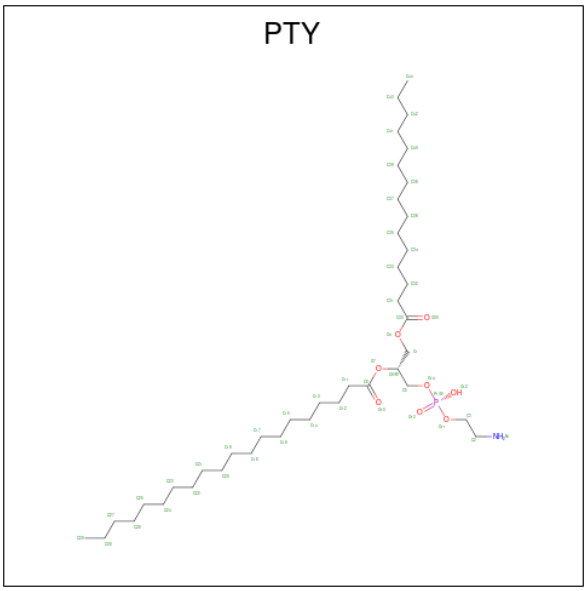
Mol	Chain	Residues	Atoms					AltConf
22	a	1	Total	C	N	O	P	0
			54	44	1	8	1	
22	b	1	Total	C	N	O	P	0
			54	44	1	8	1	
22	l	1	Total	C	N	O	P	0
			54	44	1	8	1	

- Molecule 23 is PHOSPHATIDYLETHANOLAMINE (three-letter code: PTY) (formula: $C_{40}H_{80}NO_8P$).



Mol	Chain	Residues	Atoms					AltConf
23	a	1	Total	C	N	O	P	0
			50	40	1	8	1	
23	a	1	Total	C	N	O	P	0
			50	40	1	8	1	
23	a	1	Total	C	N	O	P	0
			50	40	1	8	1	
23	b	1	Total	C	N	O	P	0
			50	40	1	8	1	
23	b	1	Total	C	N	O	P	0
			50	40	1	8	1	
23	p	1	Total	C	N	O	P	0
			50	40	1	8	1	
23	p	1	Total	C	N	O	P	0
			50	40	1	8	1	
23	p	1	Total	C	N	O	P	0
			50	40	1	8	1	

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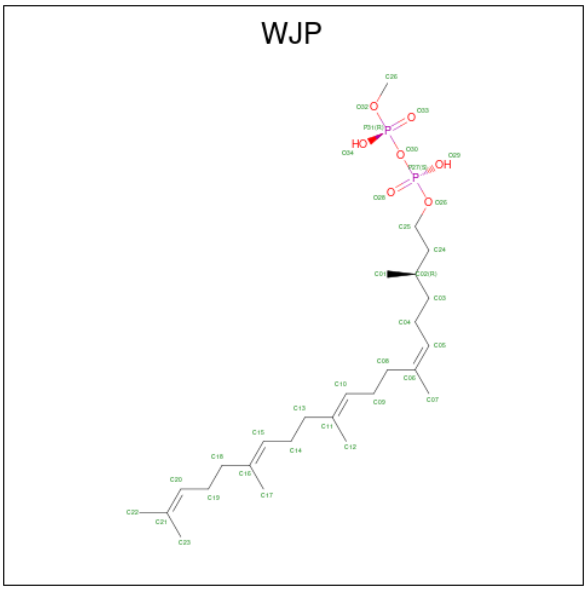
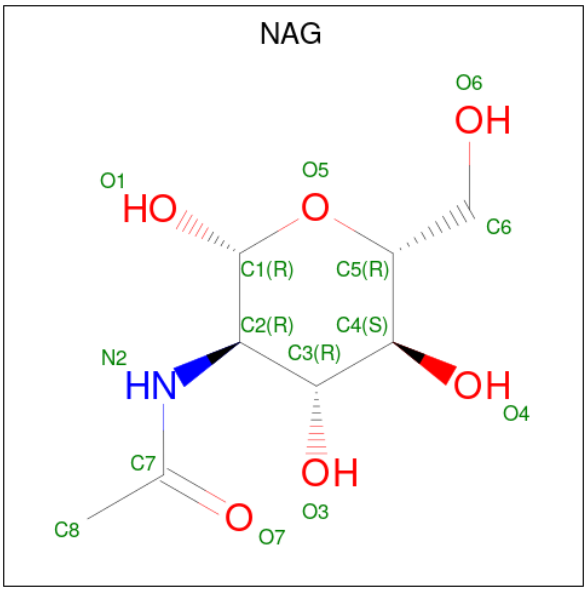
Mol	Chain	Residues	Atoms					AltConf
23	p	1	Total	C	N	O	P	0
			50	40	1	8	1	

- Molecule 24 is methyl (3R,6Z,10E,14E)-3,7,11,15,19-pentamethylicosa-6,10,14,18-tetraen-1-yl dihydrogen diphosphate (three-letter code: WJP) (formula: $C_{26}H_{48}O_7P_2$).



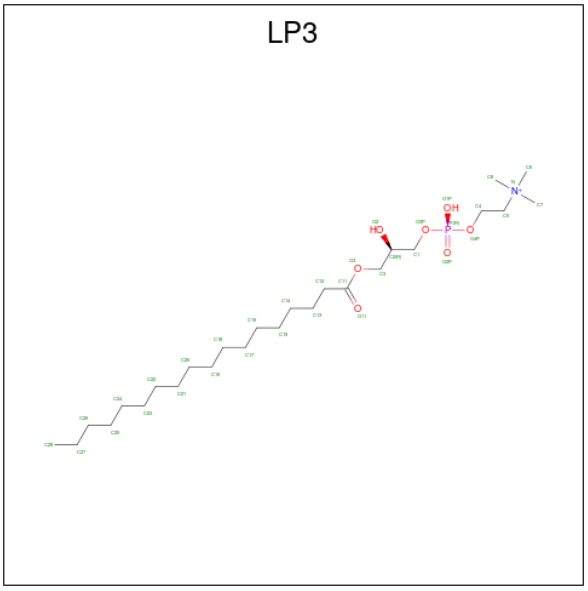
Mol	Chain	Residues	Atoms				AltConf
24	a	1	Total	C	O	P	0
			34	25	7	2	

- Molecule 25 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



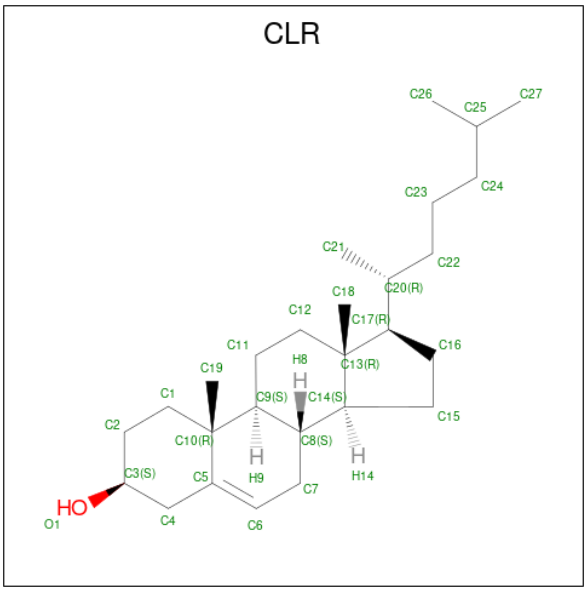
Mol	Chain	Residues	Atoms				AltConf
25	a	1	Total	C	N	O	0
			14	8	1	5	

- Molecule 26 is (7R)-4,7-DIHYDROXY-N,N,N-TRIMETHYL-10-OXO-3,5,9-TRIOXA-4-PHOSPHAHEPTACOSAN-1-AMINIUM 4-OXIDE (three-letter code: LP3) (formula: $C_{26}H_{55}NO_7P$).



Mol	Chain	Residues	Atoms					AltConf
26	a	1	Total	C	N	O	P	0
			35	26	1	7	1	

- Molecule 27 is CHOLESTEROL (three-letter code: CLR) (formula: $C_{27}H_{46}O$).



Mol	Chain	Residues	Atoms	AltConf
27	b	1	Total C O 28 27 1	0
27	h	1	Total C O 28 27 1	0
27	h	1	Total C O 28 27 1	0
27	i	1	Total C O 28 27 1	0
27	i	1	Total C O 28 27 1	0
27	i	1	Total C O 28 27 1	0
27	i	1	Total C O 28 27 1	0
27	j	1	Total C O 28 27 1	0
27	j	1	Total C O 28 27 1	0
27	j	1	Total C O 28 27 1	0
27	j	1	Total C O 28 27 1	0
27	k	1	Total C O 28 27 1	0
27	k	1	Total C O 28 27 1	0
27	k	1	Total C O 28 27 1	0

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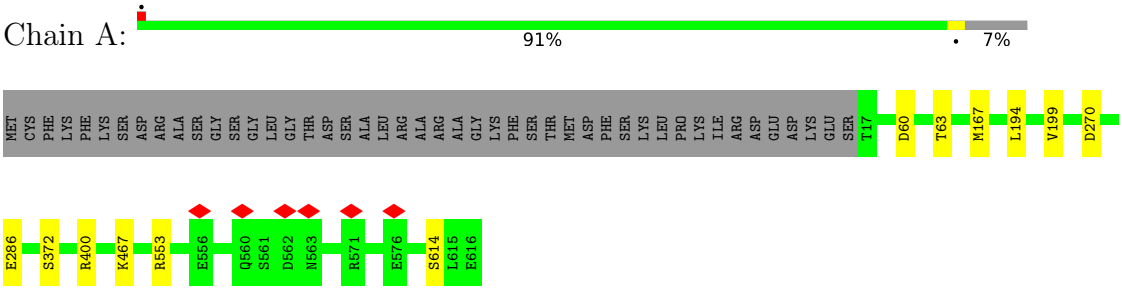
Mol	Chain	Residues	Atoms	AltConf
27	l	1	Total C O 28 27 1	0
27	l	1	Total C O 28 27 1	0
27	l	1	Total C O 28 27 1	0
27	l	1	Total C O 28 27 1	0
27	l	1	Total C O 28 27 1	0
27	m	1	Total C O 28 27 1	0
27	m	1	Total C O 28 27 1	0
27	m	1	Total C O 28 27 1	0
27	n	1	Total C O 28 27 1	0
27	n	1	Total C O 28 27 1	0
27	n	1	Total C O 28 27 1	0
27	n	1	Total C O 28 27 1	0
27	n	1	Total C O 28 27 1	0
27	o	1	Total C O 28 27 1	0
27	o	1	Total C O 28 27 1	0
27	o	1	Total C O 28 27 1	0

3 Residue-property plots (i)

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

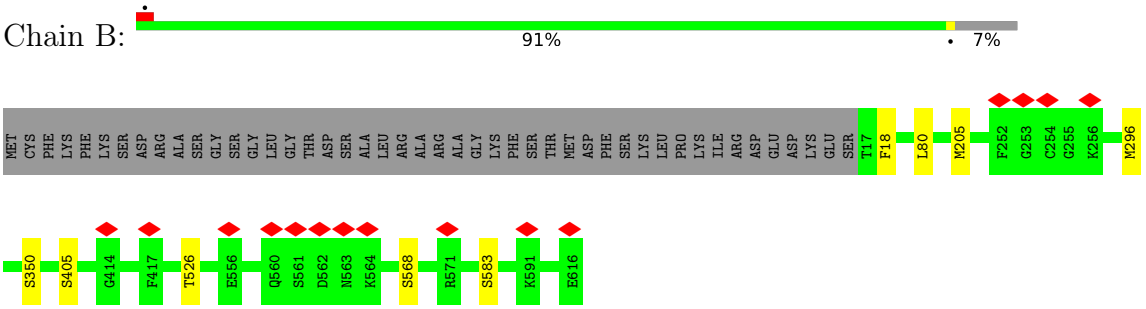
• Molecule 1: H(+)-transporting two-sector ATPase

Chain A:



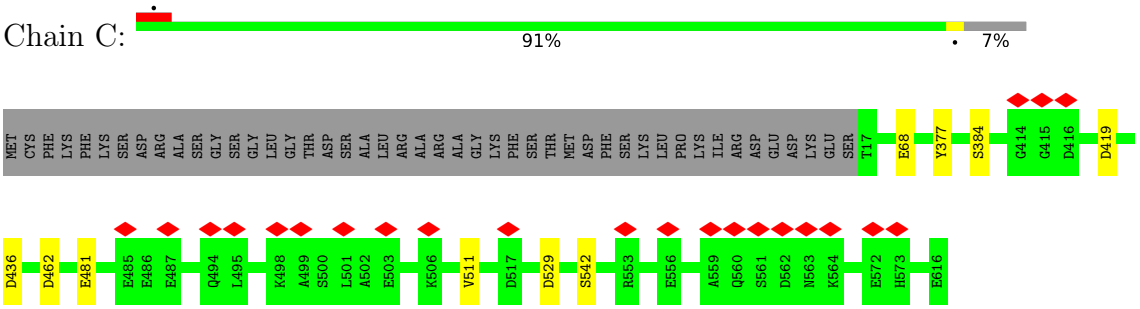
• Molecule 1: H(+)-transporting two-sector ATPase

Chain B:



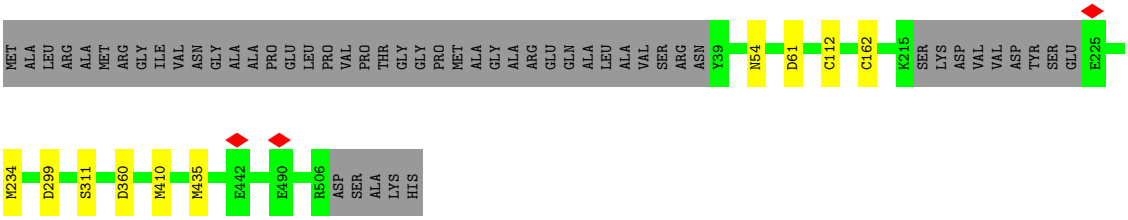
• Molecule 1: H(+)-transporting two-sector ATPase

Chain C:



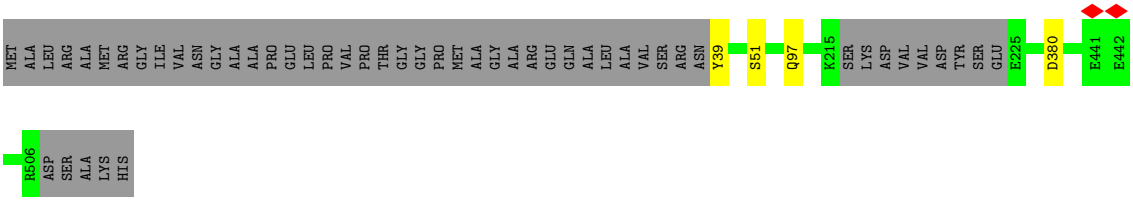
• Molecule 2: V-type proton ATPase subunit B, brain isoform

Chain D:



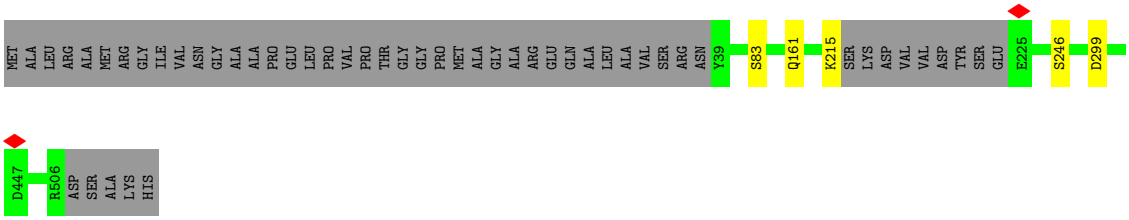
• Molecule 2: V-type proton ATPase subunit B, brain isoform

Chain E:



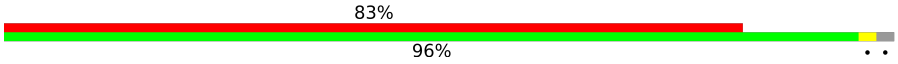
• Molecule 2: V-type proton ATPase subunit B, brain isoform

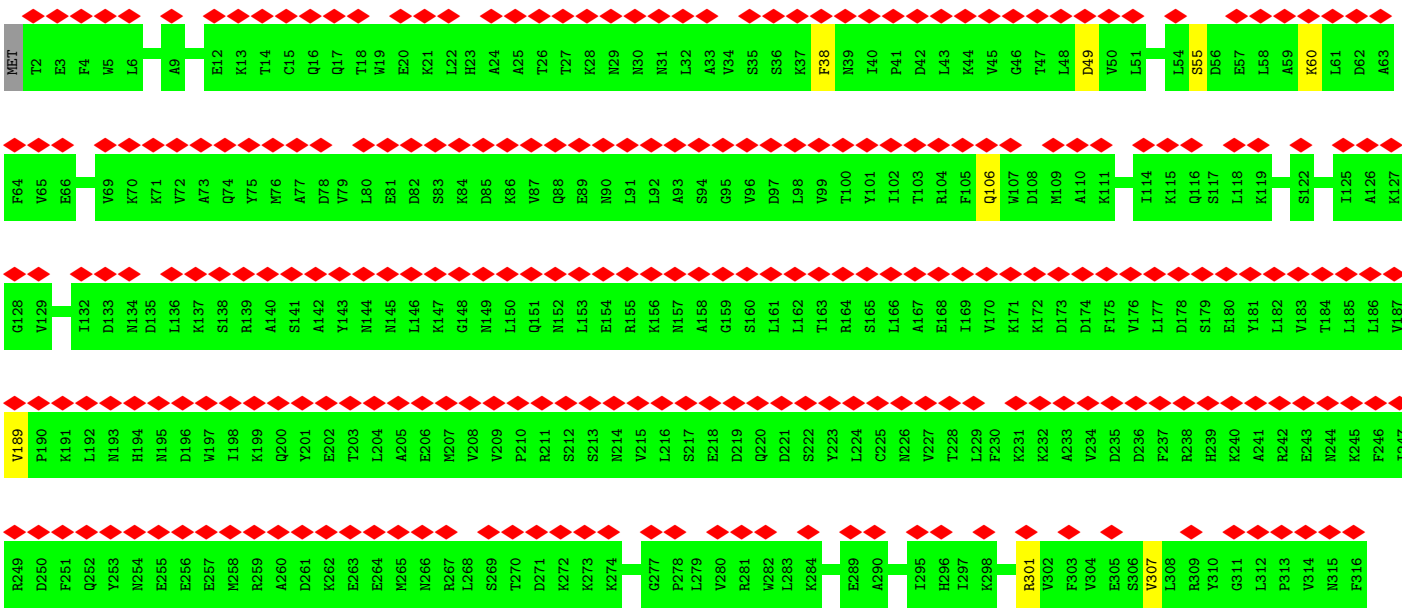
Chain F:

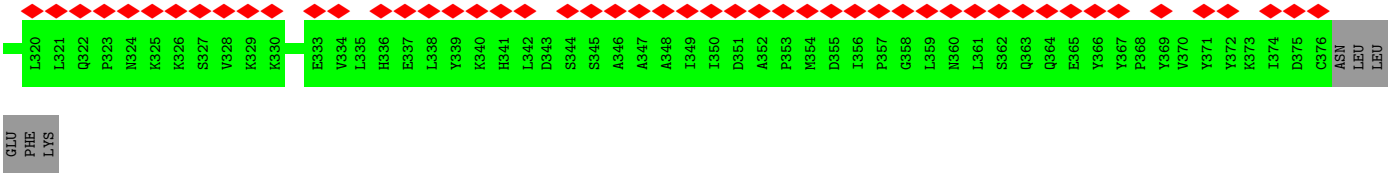


• Molecule 3: V-type proton ATPase subunit C 1

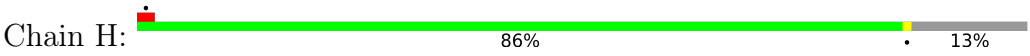
Chain G:

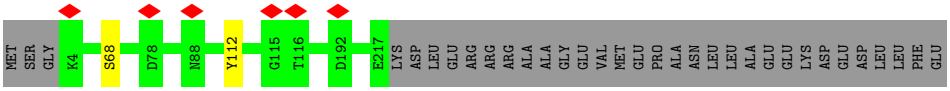




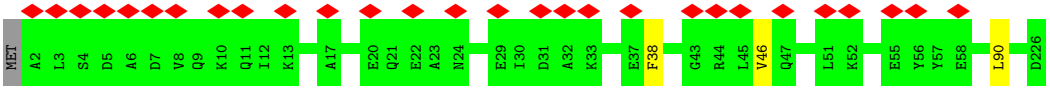


• Molecule 4: ATPase H+-transporting V1 subunit D

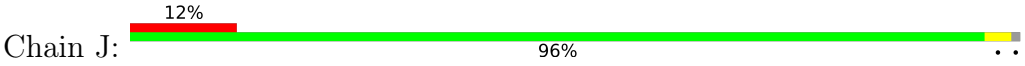


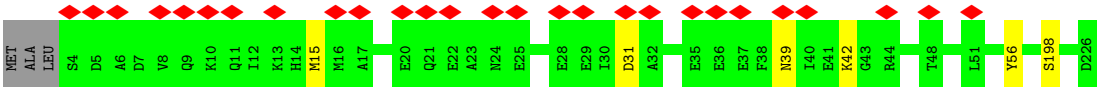


• Molecule 5: V-type proton ATPase subunit E 1

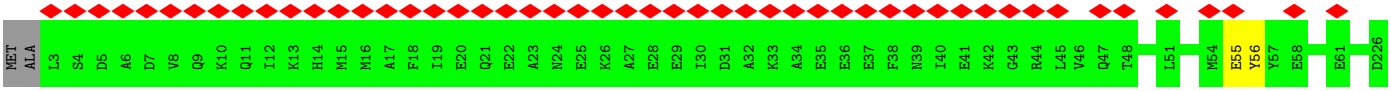


• Molecule 5: V-type proton ATPase subunit E 1

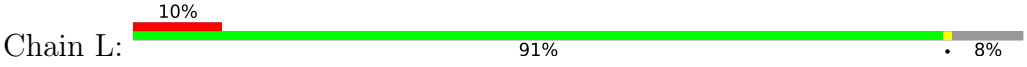


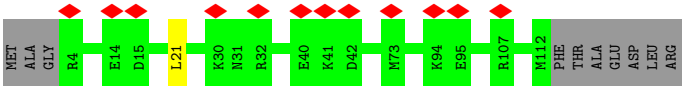


• Molecule 5: V-type proton ATPase subunit E 1

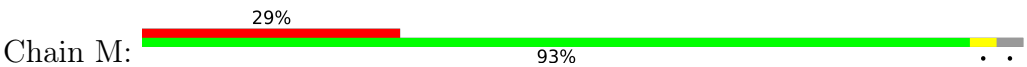


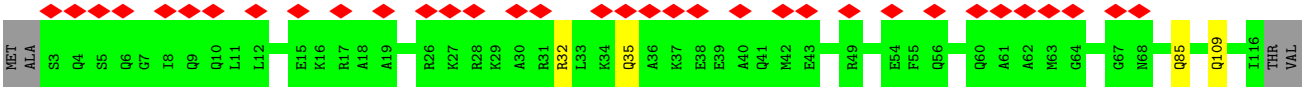
• Molecule 6: V-type proton ATPase subunit F



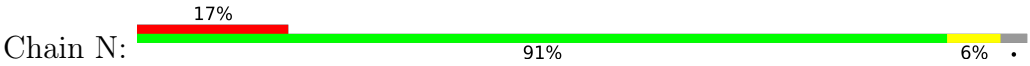


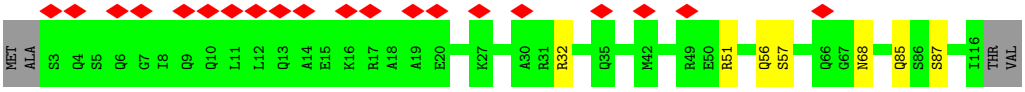
• Molecule 7: V-type proton ATPase subunit G



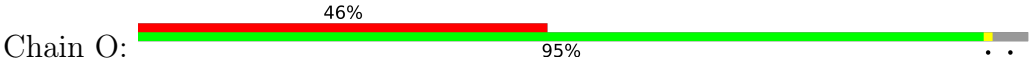


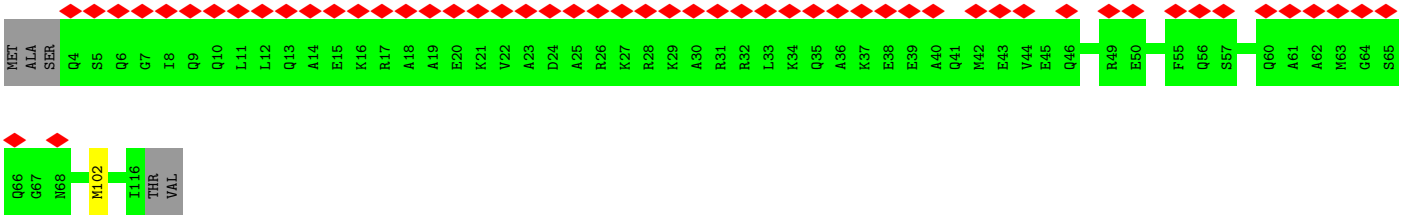
• Molecule 7: V-type proton ATPase subunit G



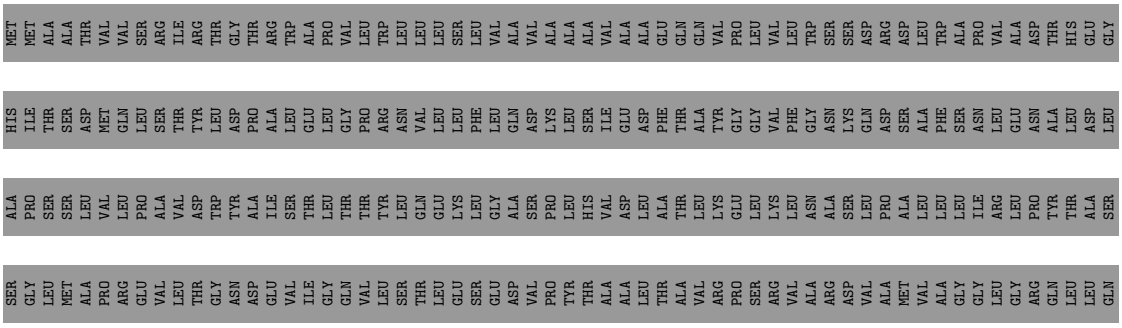


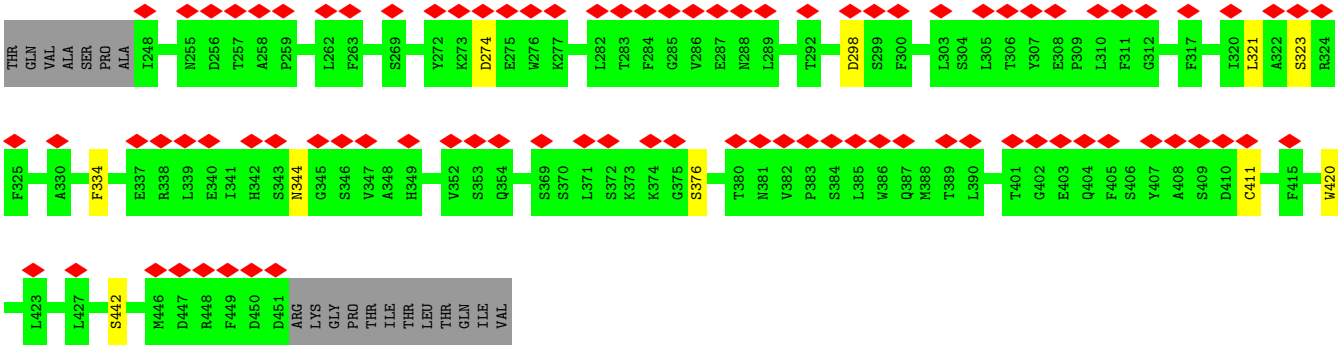
• Molecule 7: V-type proton ATPase subunit G



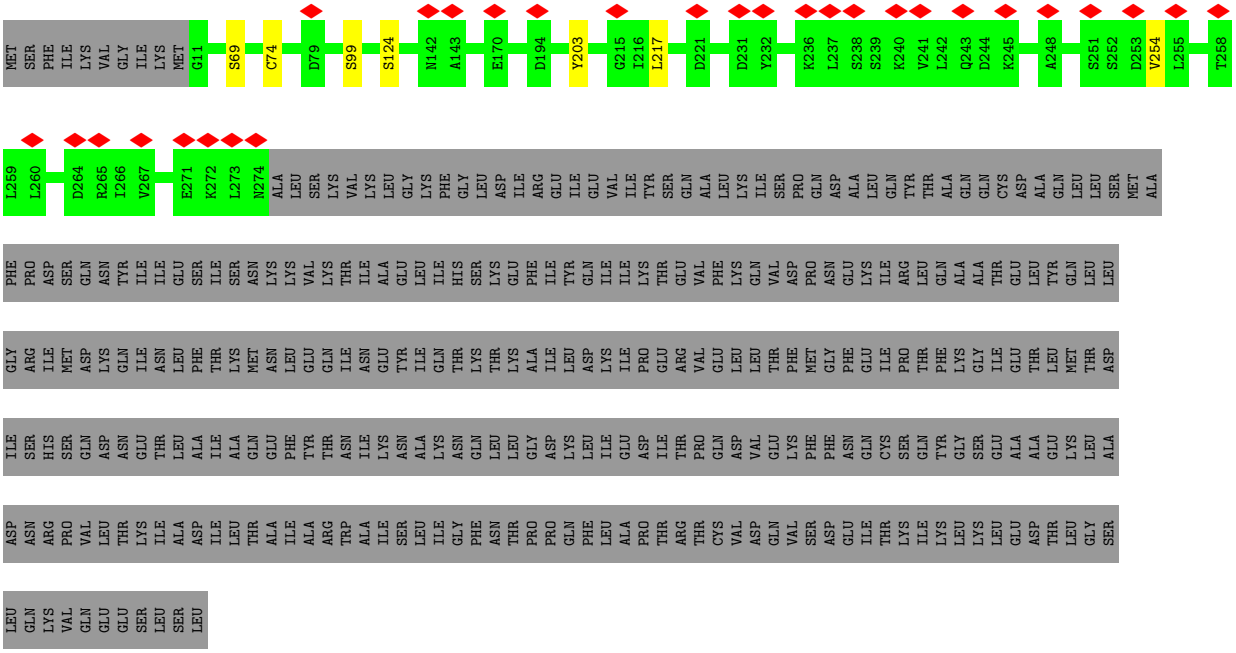


• Molecule 8: V-type proton ATPase subunit S1



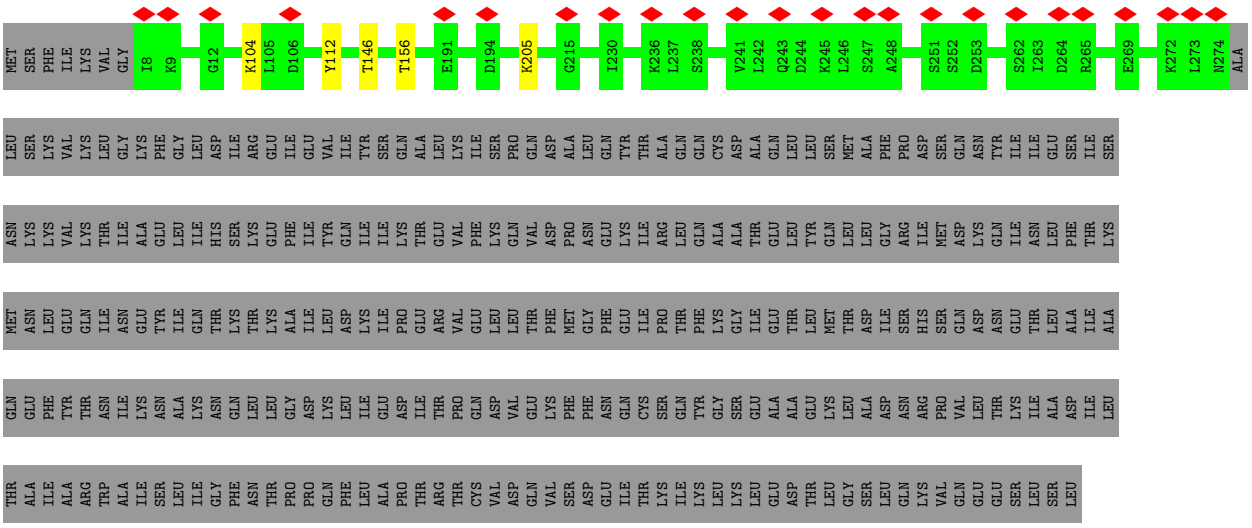


• Molecule 9: Type IV secretion protein Dot



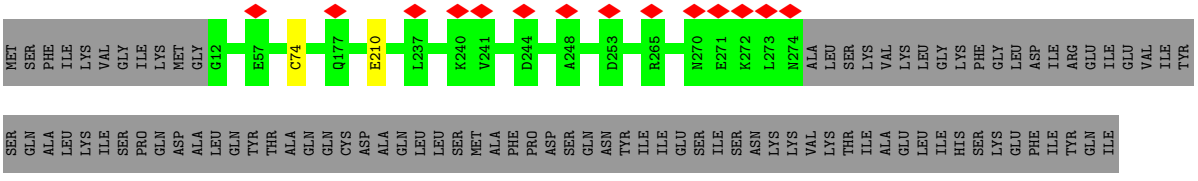
• Molecule 9: Type IV secretion protein Dot

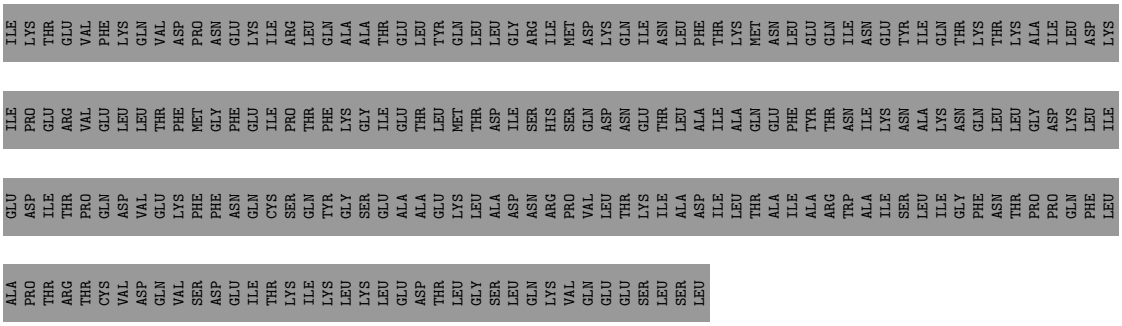
Chain R:



• Molecule 9: Type IV secretion protein Dot

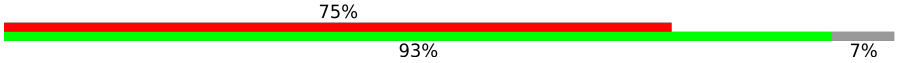
Chain S:

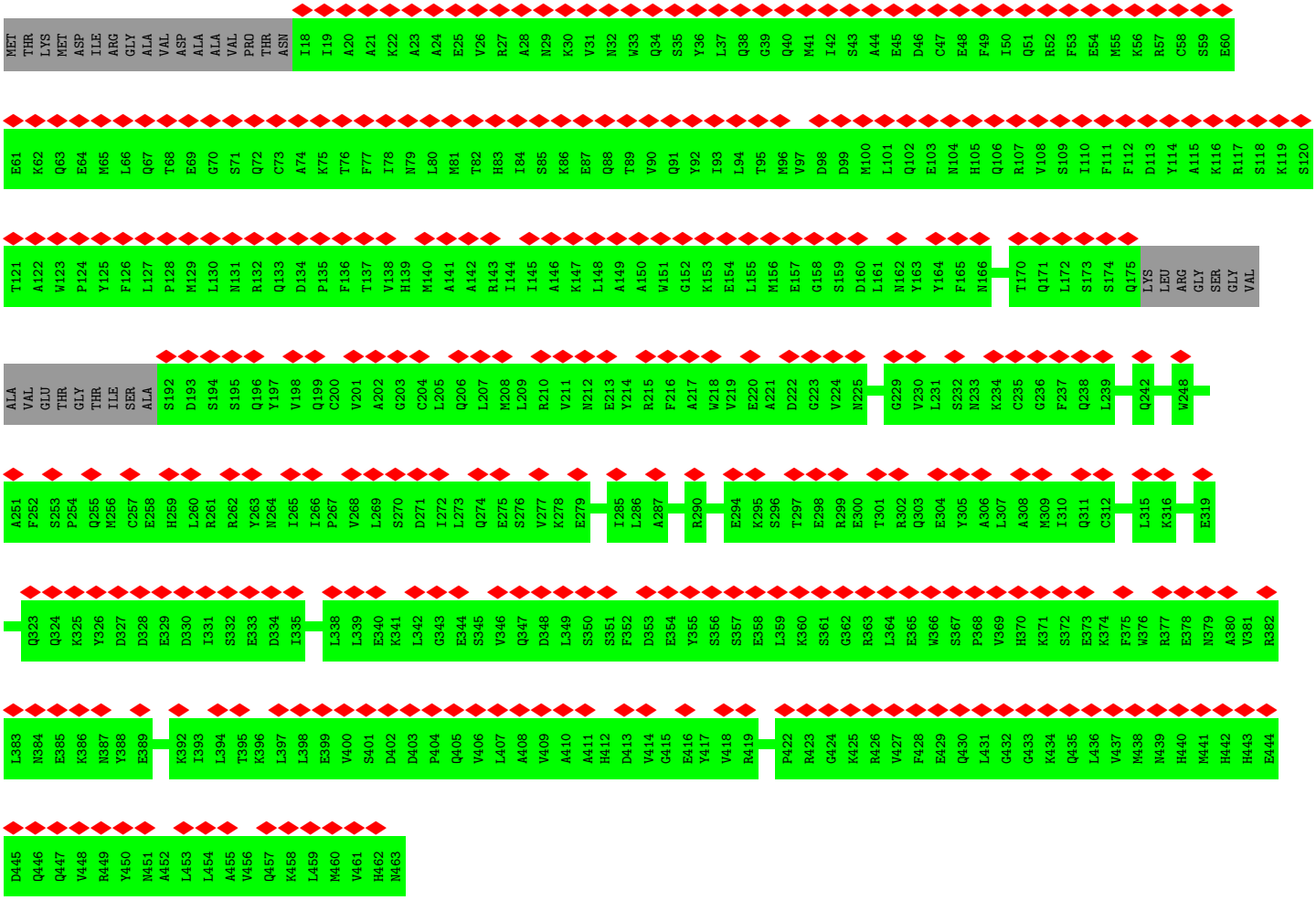




• Molecule 10: V-type proton ATPase subunit H

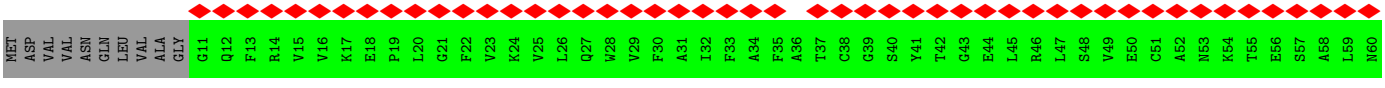
Chain T:

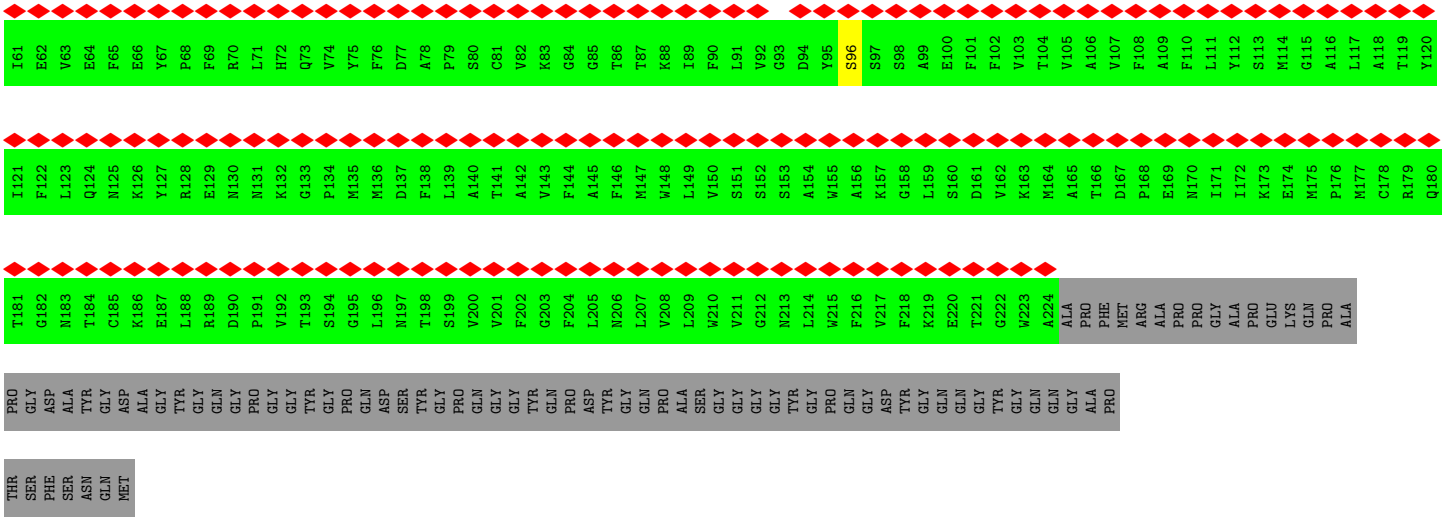




• Molecule 11: Synaptophysin

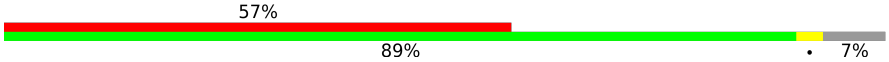
Chain U:

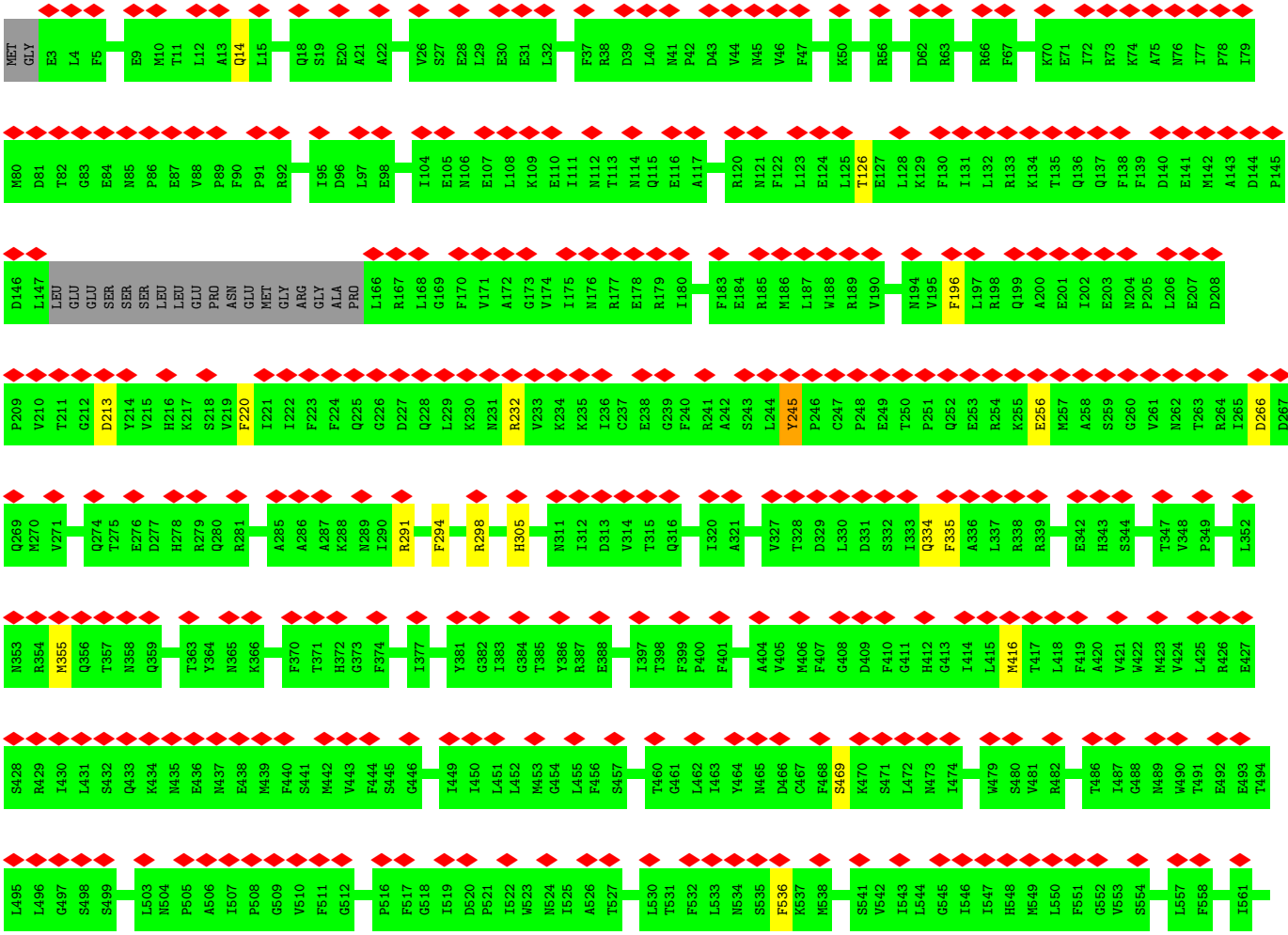


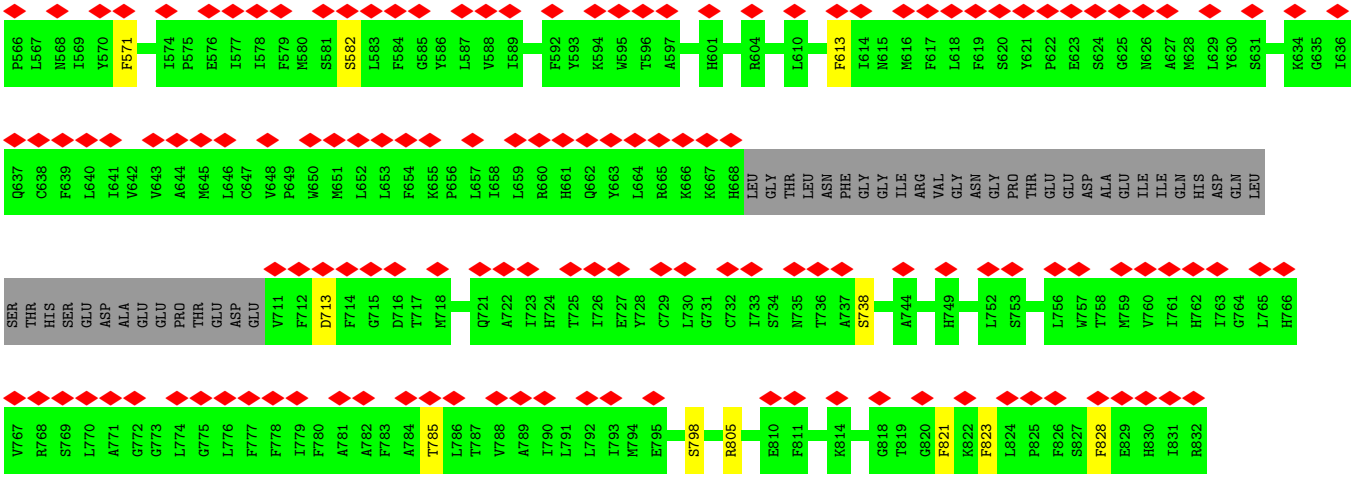


• Molecule 12: V-type proton ATPase 116 kDa subunit a 1

Chain a:

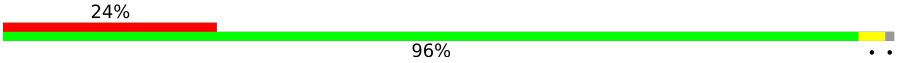


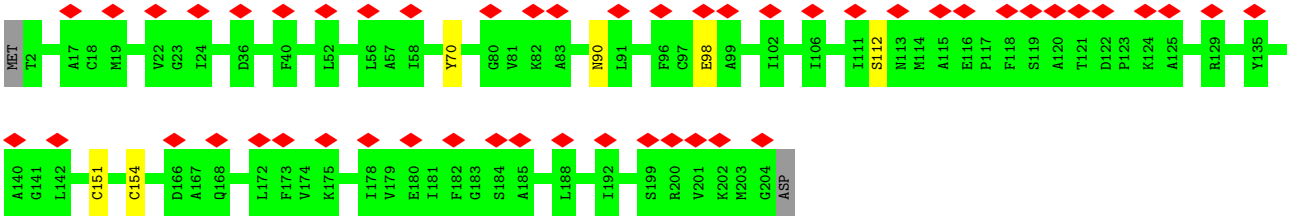




• Molecule 13: ATPase, H+ transporting, V0 subunit B (Predicted), isoform CRA_a

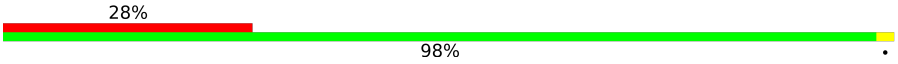
Chain b:

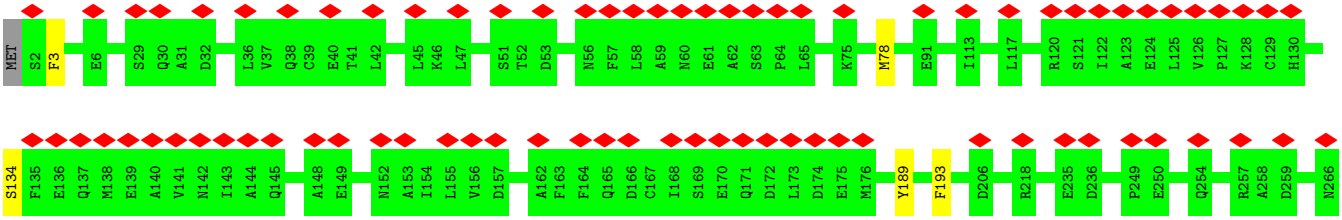




• Molecule 14: V-type proton ATPase subunit

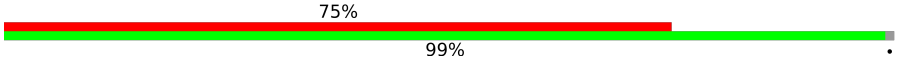
Chain d:

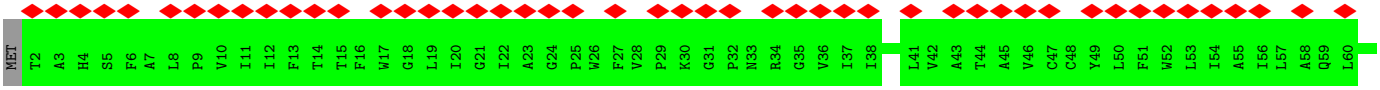


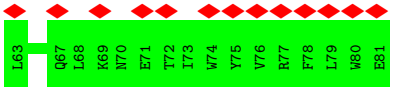


• Molecule 15: V-type proton ATPase subunit e 2

Chain e:

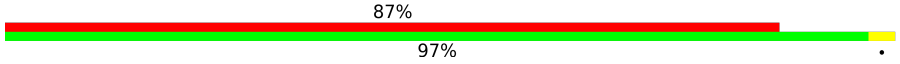


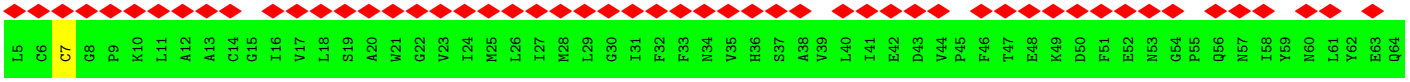


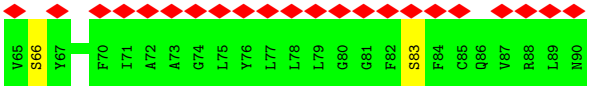


• Molecule 16: Rnasek protein

Chain f:

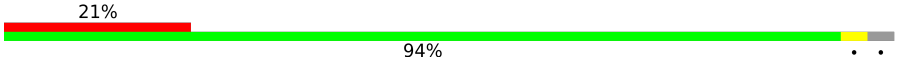


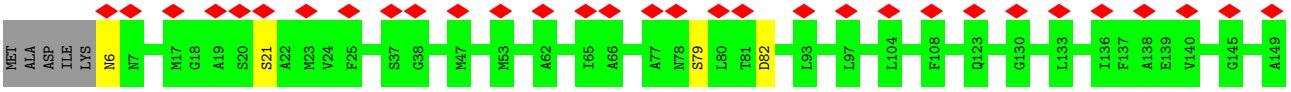




• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

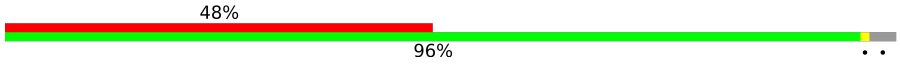
Chain g:

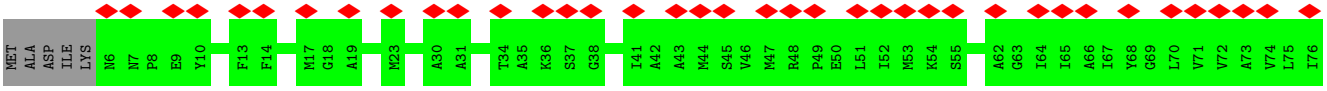


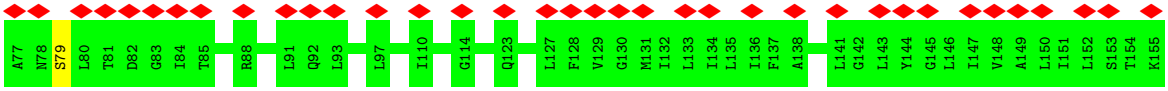


• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

Chain h:

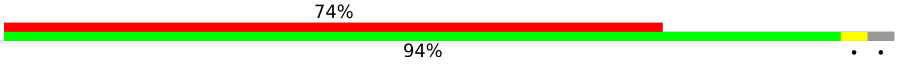


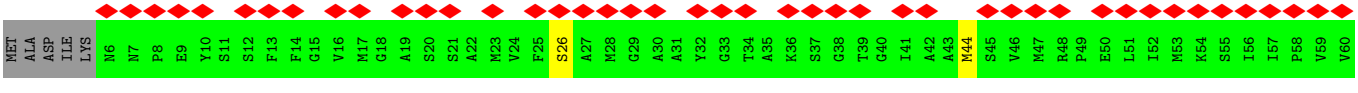


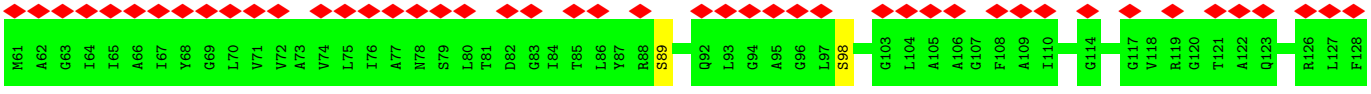


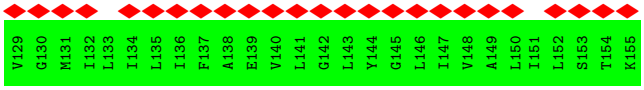
• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

Chain i:



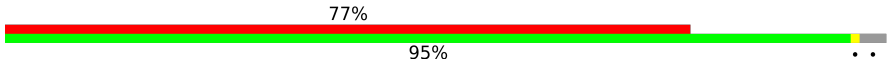






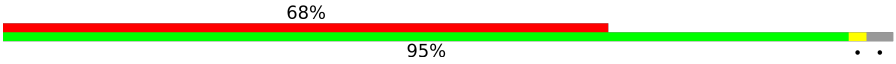
• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

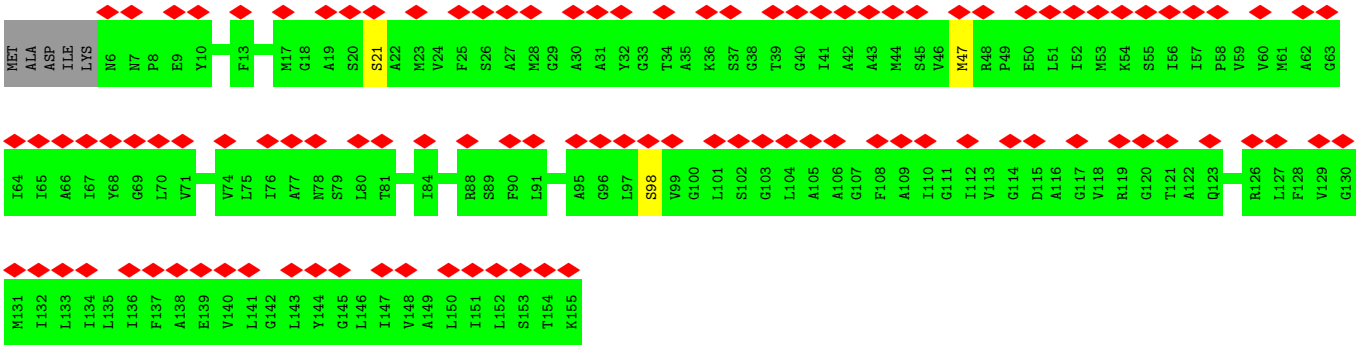
Chain j:



• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

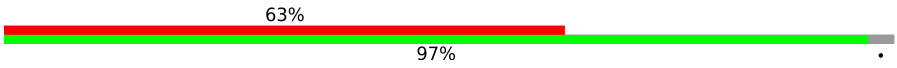
Chain k:

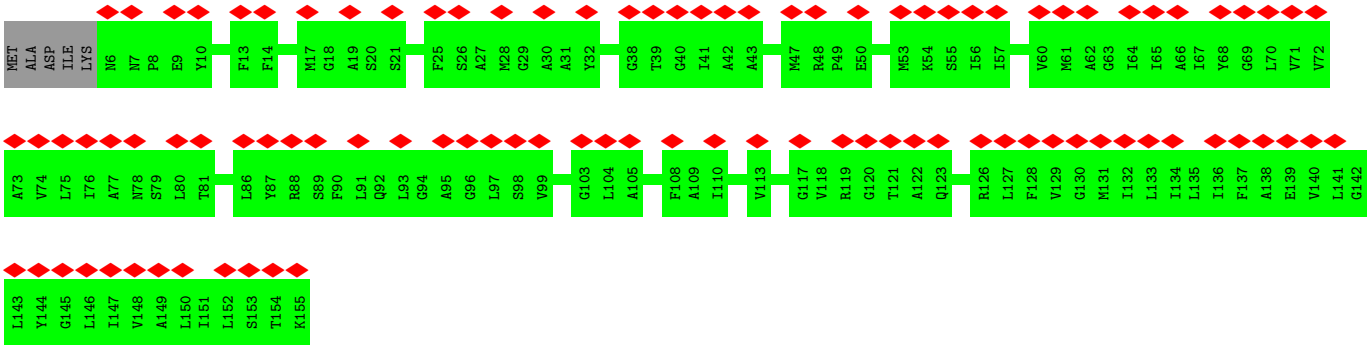




• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

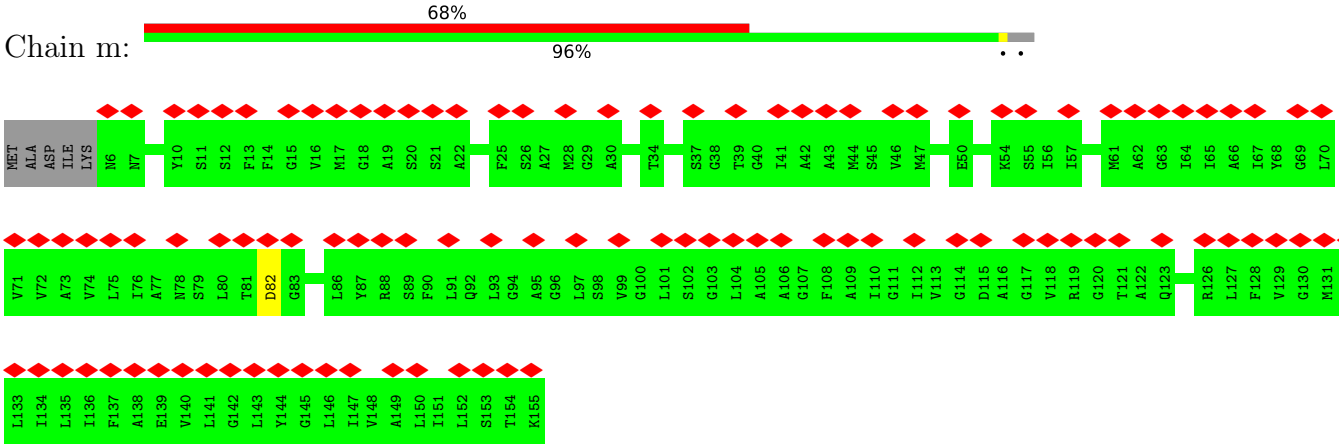
Chain l:





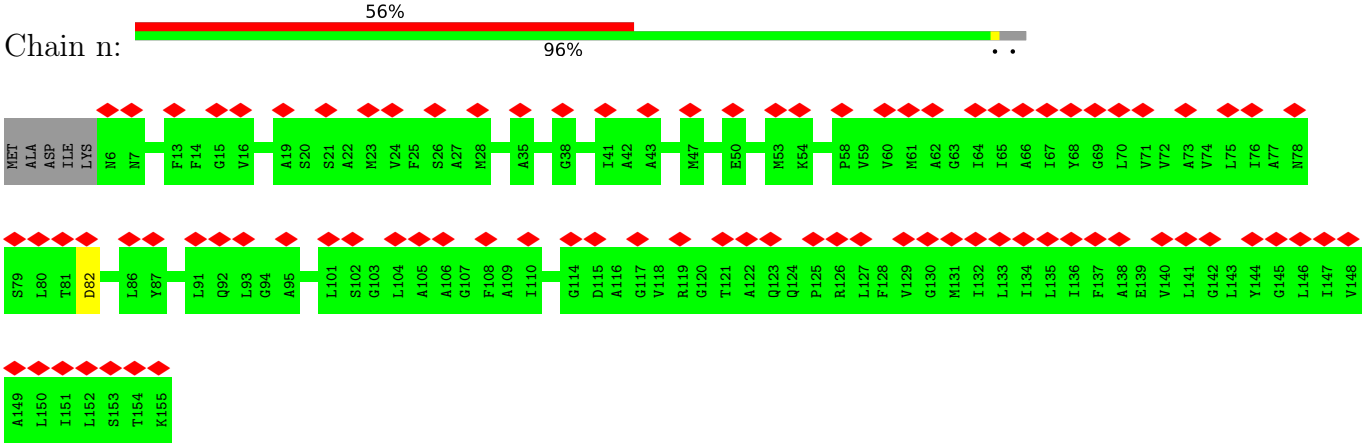
• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

Chain m:



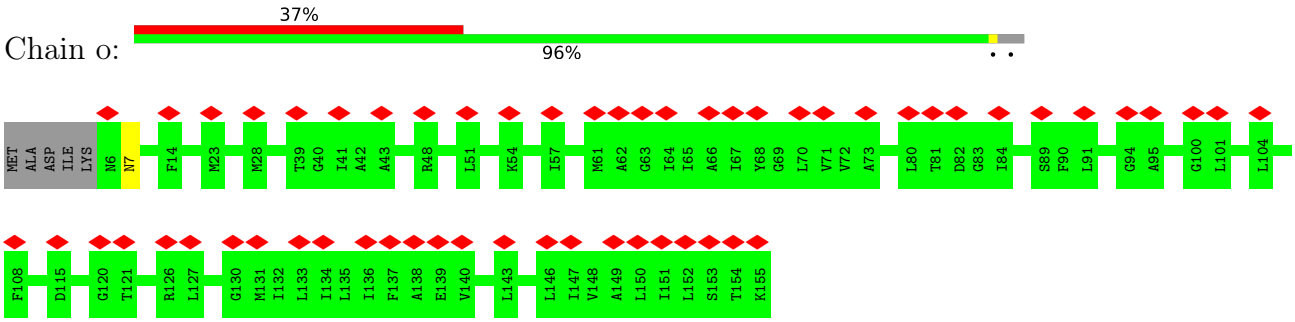
• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

Chain n:



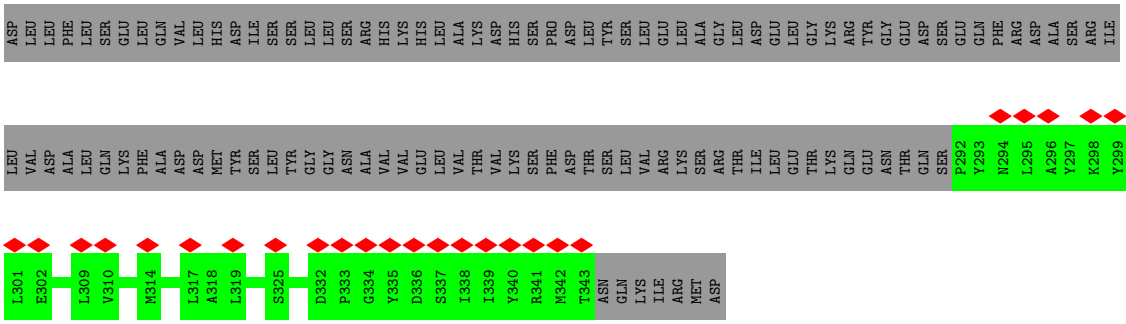
• Molecule 17: V-type proton ATPase 16 kDa proteolipid subunit

Chain o:



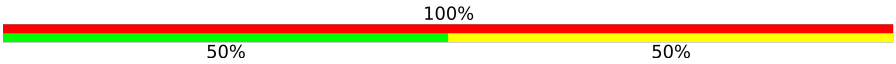
• Molecule 18: Renin receptor

Chain p:



• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:



• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

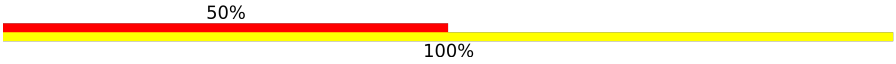
Chain W:

• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain X:

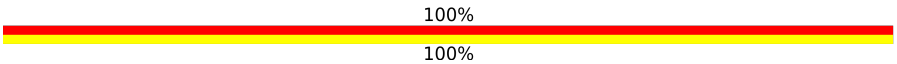
• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Y:



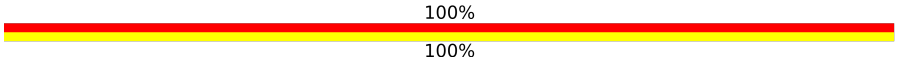
• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:



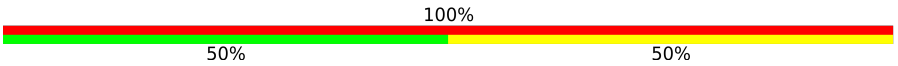
• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain c:



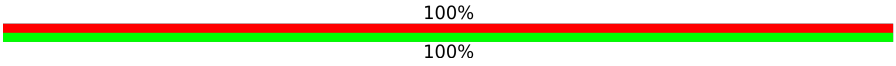
• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain q:



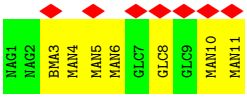
• Molecule 19: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain r:



• Molecule 20: alpha-D-glucopyranose-(1-2)-alpha-D-glucopyranose-(1-3)-alpha-D-glucopyranose-(1-3)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain s:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	198766	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	37.5	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	1900	Depositor
Magnification	Not provided	
Image detector	TFS FALCON 4i (4k x 4k)	Depositor
Maximum map value	1.587	Depositor
Minimum map value	-0.952	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.040	Depositor
Recommended contour level	0.185	Depositor
Map size (Å)	527.36, 527.36, 527.36	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.3733333, 1.3733333, 1.3733333	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: WJP, BMA, ADP, PC1, LP3, NAG, MAN, CLR, PTY, GLC

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	0.27	0/4746	0.50	0/6425
1	B	0.27	0/4746	0.49	0/6425
1	C	0.27	0/4746	0.49	0/6425
2	D	0.28	0/3666	0.50	0/4967
2	E	0.27	0/3666	0.50	0/4967
2	F	0.28	0/3666	0.50	0/4967
3	G	0.25	0/2177	0.43	0/3017
4	H	0.25	0/1744	0.51	0/2332
5	I	0.25	0/1794	0.47	0/2408
5	J	0.25	0/1796	0.48	0/2408
5	K	0.25	0/1671	0.48	0/2255
6	L	0.24	0/877	0.53	0/1183
7	M	0.26	0/850	0.56	0/1140
7	N	0.25	0/921	0.54	0/1226
7	O	0.25	0/718	0.49	0/981
8	P	0.29	0/1707	0.48	0/2324
9	Q	0.24	0/2164	0.42	0/2915
9	R	0.24	0/2189	0.43	0/2947
9	S	0.25	0/2160	0.42	0/2910
10	T	0.23	0/2134	0.36	0/2976
11	U	0.25	0/1158	0.41	0/1601
12	a	0.27	0/6367	0.49	0/8613
13	b	0.29	0/1537	0.45	0/2088
14	d	0.27	0/2899	0.46	0/3927
15	e	0.27	0/669	0.45	0/920
16	f	0.26	0/682	0.38	0/926
17	g	0.28	0/1083	0.46	0/1466
17	h	0.28	0/1083	0.46	0/1466
17	i	0.28	0/1083	0.47	0/1466
17	j	0.28	0/1083	0.46	0/1466
17	k	0.28	0/1083	0.45	0/1466
17	l	0.28	0/1083	0.45	0/1466

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
17	m	0.27	0/1083	0.46	0/1466
17	n	0.28	0/1083	0.46	0/1466
17	o	0.28	0/1083	0.48	0/1466
18	p	0.28	0/445	0.42	0/609
All	All	0.27	0/71642	0.47	0/97076

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

Mol	Chain	#Chirality outliers	#Planarity outliers
12	a	0	1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
12	a	298	ARG	Sidechain

5.2 Too-close contacts (i)

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

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	598/646 (93%)	568 (95%)	30 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	598/646 (93%)	574 (96%)	24 (4%)	0	100	100
1	C	598/646 (93%)	574 (96%)	24 (4%)	0	100	100
2	D	455/511 (89%)	444 (98%)	11 (2%)	0	100	100
2	E	455/511 (89%)	440 (97%)	15 (3%)	0	100	100
2	F	455/511 (89%)	428 (94%)	27 (6%)	0	100	100
3	G	373/382 (98%)	352 (94%)	20 (5%)	1 (0%)	41	75
4	H	212/247 (86%)	209 (99%)	3 (1%)	0	100	100
5	I	223/226 (99%)	218 (98%)	5 (2%)	0	100	100
5	J	221/226 (98%)	217 (98%)	4 (2%)	0	100	100
5	K	222/226 (98%)	217 (98%)	5 (2%)	0	100	100
6	L	107/119 (90%)	102 (95%)	5 (5%)	0	100	100
7	M	112/118 (95%)	112 (100%)	0	0	100	100
7	N	112/118 (95%)	111 (99%)	1 (1%)	0	100	100
7	O	111/118 (94%)	108 (97%)	3 (3%)	0	100	100
8	P	202/463 (44%)	185 (92%)	17 (8%)	0	100	100
9	Q	262/573 (46%)	257 (98%)	5 (2%)	0	100	100
9	R	265/573 (46%)	258 (97%)	7 (3%)	0	100	100
9	S	261/573 (46%)	258 (99%)	3 (1%)	0	100	100
10	T	426/463 (92%)	419 (98%)	7 (2%)	0	100	100
11	U	212/307 (69%)	208 (98%)	4 (2%)	0	100	100
12	a	764/832 (92%)	725 (95%)	38 (5%)	1 (0%)	51	84
13	b	201/205 (98%)	196 (98%)	5 (2%)	0	100	100
14	d	348/351 (99%)	342 (98%)	6 (2%)	0	100	100
15	e	78/81 (96%)	74 (95%)	4 (5%)	0	100	100
16	f	84/86 (98%)	82 (98%)	2 (2%)	0	100	100
17	g	148/155 (96%)	146 (99%)	2 (1%)	0	100	100
17	h	148/155 (96%)	147 (99%)	1 (1%)	0	100	100
17	i	148/155 (96%)	147 (99%)	1 (1%)	0	100	100
17	j	148/155 (96%)	148 (100%)	0	0	100	100
17	k	148/155 (96%)	147 (99%)	1 (1%)	0	100	100
17	l	148/155 (96%)	148 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
17	m	148/155 (96%)	148 (100%)	0	0	100	100
17	n	148/155 (96%)	147 (99%)	1 (1%)	0	100	100
17	o	148/155 (96%)	148 (100%)	0	0	100	100
18	p	50/350 (14%)	49 (98%)	1 (2%)	0	100	100
All	All	9337/11503 (81%)	9053 (97%)	282 (3%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	G	189	VAL
12	a	245	TYR

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	507/545 (93%)	495 (98%)	12 (2%)	49	76
1	B	507/545 (93%)	498 (98%)	9 (2%)	59	81
1	C	507/545 (93%)	497 (98%)	10 (2%)	55	79
2	D	393/431 (91%)	383 (98%)	10 (2%)	47	75
2	E	393/431 (91%)	389 (99%)	4 (1%)	76	88
2	F	393/431 (91%)	388 (99%)	5 (1%)	69	86
3	G	77/344 (22%)	70 (91%)	7 (9%)	9	36
4	H	185/212 (87%)	183 (99%)	2 (1%)	73	88
5	I	184/198 (93%)	181 (98%)	3 (2%)	62	83
5	J	187/198 (94%)	181 (97%)	6 (3%)	39	69
5	K	154/198 (78%)	152 (99%)	2 (1%)	69	86
6	L	93/100 (93%)	92 (99%)	1 (1%)	73	88
7	M	72/100 (72%)	68 (94%)	4 (6%)	21	54
7	N	93/100 (93%)	86 (92%)	7 (8%)	13	43

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	O	45/100 (45%)	44 (98%)	1 (2%)	52	78
8	P	182/395 (46%)	172 (94%)	10 (6%)	21	54
9	Q	241/519 (46%)	234 (97%)	7 (3%)	42	71
9	R	244/519 (47%)	239 (98%)	5 (2%)	55	79
9	S	241/519 (46%)	239 (99%)	2 (1%)	81	91
11	U	24/241 (10%)	23 (96%)	1 (4%)	30	63
12	a	667/738 (90%)	638 (96%)	29 (4%)	29	62
13	b	156/158 (99%)	150 (96%)	6 (4%)	33	65
14	d	305/306 (100%)	299 (98%)	6 (2%)	55	79
15	e	67/68 (98%)	67 (100%)	0	100	100
16	f	72/72 (100%)	69 (96%)	3 (4%)	30	63
17	g	109/113 (96%)	105 (96%)	4 (4%)	34	65
17	h	109/113 (96%)	108 (99%)	1 (1%)	78	90
17	i	109/113 (96%)	105 (96%)	4 (4%)	34	65
17	j	109/113 (96%)	107 (98%)	2 (2%)	59	81
17	k	109/113 (96%)	106 (97%)	3 (3%)	43	72
17	l	109/113 (96%)	109 (100%)	0	100	100
17	m	109/113 (96%)	108 (99%)	1 (1%)	78	90
17	n	109/113 (96%)	108 (99%)	1 (1%)	78	90
17	o	109/113 (96%)	108 (99%)	1 (1%)	78	90
18	p	47/313 (15%)	47 (100%)	0	100	100
All	All	7017/9343 (75%)	6848 (98%)	169 (2%)	51	76

5 of 169 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
12	a	256	GLU
14	d	3	PHE
12	a	305	HIS
12	a	738	SER
16	f	66	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
7	O	98	GLN
9	Q	17	GLN
12	a	14	GLN
12	a	353	ASN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

27 monosaccharides 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	$\#\|Z\| > 2$
19	NAG	V	1	19	14,14,15	0.75	0	17,19,21	1.11	1 (5%)
19	NAG	V	2	19	14,14,15	0.71	0	17,19,21	0.88	0
19	NAG	W	1	8,19	14,14,15	0.71	0	17,19,21	1.21	1 (5%)
19	NAG	W	2	19	14,14,15	0.78	0	17,19,21	1.01	1 (5%)
19	NAG	X	1	8,19	14,14,15	0.60	0	17,19,21	1.16	2 (11%)
19	NAG	X	2	19	14,14,15	0.80	0	17,19,21	0.80	0
19	NAG	Y	1	8,19	14,14,15	0.82	0	17,19,21	1.58	4 (23%)
19	NAG	Y	2	19	14,14,15	0.71	0	17,19,21	1.04	1 (5%)
19	NAG	Z	1	8,19	14,14,15	0.75	0	17,19,21	1.34	2 (11%)
19	NAG	Z	2	19	14,14,15	0.72	0	17,19,21	1.33	2 (11%)
19	NAG	c	1	19	14,14,15	0.73	0	17,19,21	1.37	1 (5%)
19	NAG	c	2	19	14,14,15	0.68	0	17,19,21	1.11	1 (5%)
19	NAG	q	1	8,19	14,14,15	0.76	0	17,19,21	0.81	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
19	NAG	q	2	19	14,14,15	0.72	0	17,19,21	1.15	1 (5%)
19	NAG	r	1	19	14,14,15	0.76	0	17,19,21	0.76	0
19	NAG	r	2	19	14,14,15	0.71	0	17,19,21	0.86	0
20	NAG	s	1	20	14,14,15	0.79	0	17,19,21	0.83	0
20	MAN	s	10	20	11,11,12	0.71	0	15,15,17	1.20	1 (6%)
20	MAN	s	11	20	11,11,12	0.77	0	15,15,17	0.96	1 (6%)
20	NAG	s	2	20	14,14,15	0.76	0	17,19,21	0.81	0
20	BMA	s	3	20	11,11,12	0.80	0	15,15,17	2.18	3 (20%)
20	MAN	s	4	20	11,11,12	0.71	0	15,15,17	1.38	1 (6%)
20	MAN	s	5	20	11,11,12	0.75	0	15,15,17	1.29	1 (6%)
20	MAN	s	6	20	11,11,12	0.88	1 (9%)	15,15,17	0.97	0
20	GLC	s	7	20	11,11,12	0.66	0	15,15,17	0.61	0
20	GLC	s	8	20	11,11,12	0.62	0	15,15,17	0.97	1 (6%)
20	GLC	s	9	20	11,11,12	0.62	0	15,15,17	0.81	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
19	NAG	V	1	19	-	2/6/23/26	0/1/1/1
19	NAG	V	2	19	-	0/6/23/26	0/1/1/1
19	NAG	W	1	8,19	-	0/6/23/26	0/1/1/1
19	NAG	W	2	19	-	0/6/23/26	0/1/1/1
19	NAG	X	1	8,19	-	0/6/23/26	0/1/1/1
19	NAG	X	2	19	-	0/6/23/26	0/1/1/1
19	NAG	Y	1	8,19	-	0/6/23/26	0/1/1/1
19	NAG	Y	2	19	-	1/6/23/26	0/1/1/1
19	NAG	Z	1	8,19	-	2/6/23/26	0/1/1/1
19	NAG	Z	2	19	-	1/6/23/26	0/1/1/1
19	NAG	c	1	19	-	2/6/23/26	0/1/1/1
19	NAG	c	2	19	-	2/6/23/26	0/1/1/1
19	NAG	q	1	8,19	-	1/6/23/26	0/1/1/1
19	NAG	q	2	19	-	2/6/23/26	0/1/1/1
19	NAG	r	1	19	-	2/6/23/26	0/1/1/1
19	NAG	r	2	19	-	0/6/23/26	0/1/1/1
20	NAG	s	1	20	-	0/6/23/26	0/1/1/1
20	MAN	s	10	20	-	0/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
20	MAN	s	11	20	-	0/2/19/22	0/1/1/1
20	NAG	s	2	20	-	2/6/23/26	0/1/1/1
20	BMA	s	3	20	-	1/2/19/22	0/1/1/1
20	MAN	s	4	20	-	2/2/19/22	0/1/1/1
20	MAN	s	5	20	-	2/2/19/22	0/1/1/1
20	MAN	s	6	20	-	0/2/19/22	0/1/1/1
20	GLC	s	7	20	-	1/2/19/22	0/1/1/1
20	GLC	s	8	20	-	0/2/19/22	0/1/1/1
20	GLC	s	9	20	-	0/2/19/22	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
20	s	6	MAN	O5-C1	-2.32	1.40	1.43

The worst 5 of 25 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
20	s	3	BMA	C1-O5-C5	6.25	120.66	112.19
20	s	4	MAN	C1-O5-C5	4.08	117.72	112.19
19	c	1	NAG	C2-N2-C7	3.92	128.49	122.90
19	Y	1	NAG	C1-O5-C5	3.80	117.34	112.19
19	Z	1	NAG	C2-N2-C7	3.54	127.95	122.90

There are no chirality outliers.

5 of 23 torsion outliers are listed below:

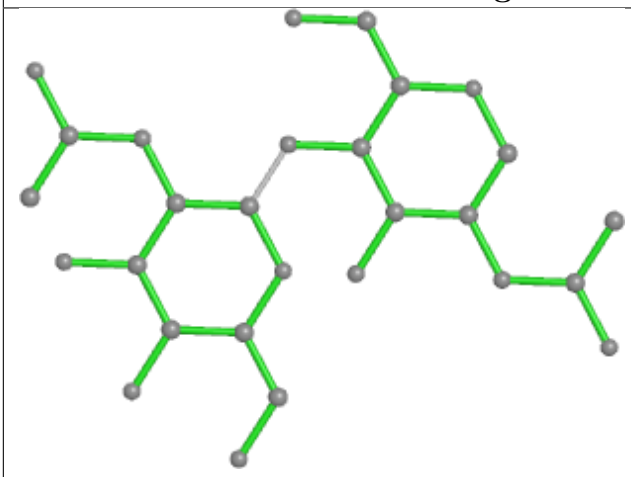
Mol	Chain	Res	Type	Atoms
19	V	1	NAG	C1-C2-N2-C7
19	Z	2	NAG	C3-C2-N2-C7
19	r	1	NAG	C3-C2-N2-C7
20	s	5	MAN	O5-C5-C6-O6
20	s	2	NAG	O5-C5-C6-O6

There are no ring outliers.

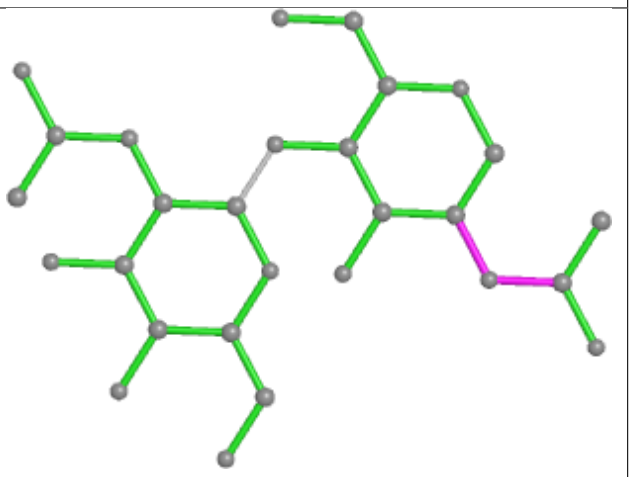
No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

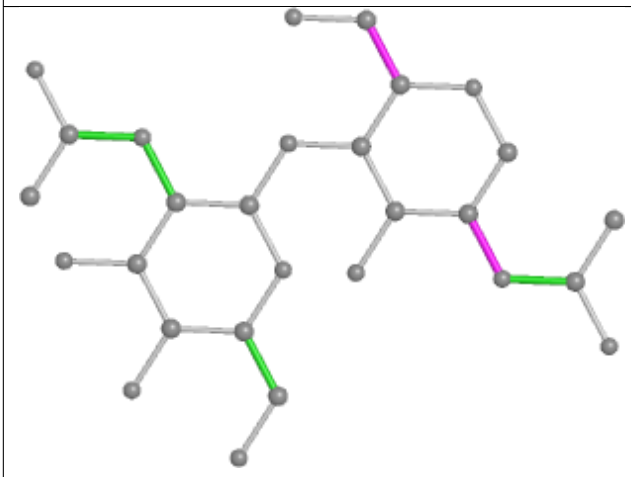
Oligosaccharide Chain V



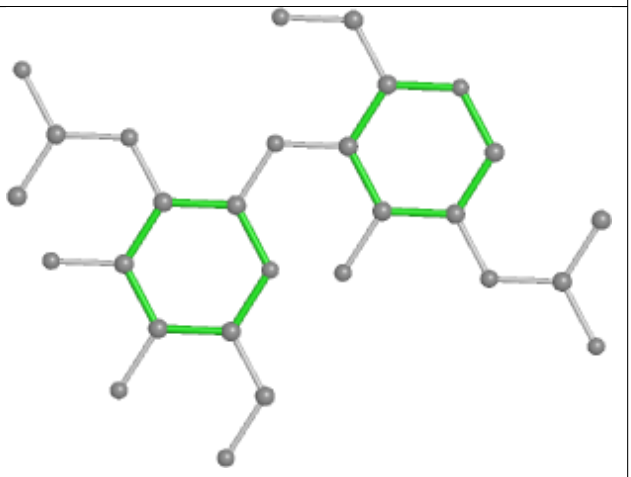
Bond lengths



Bond angles

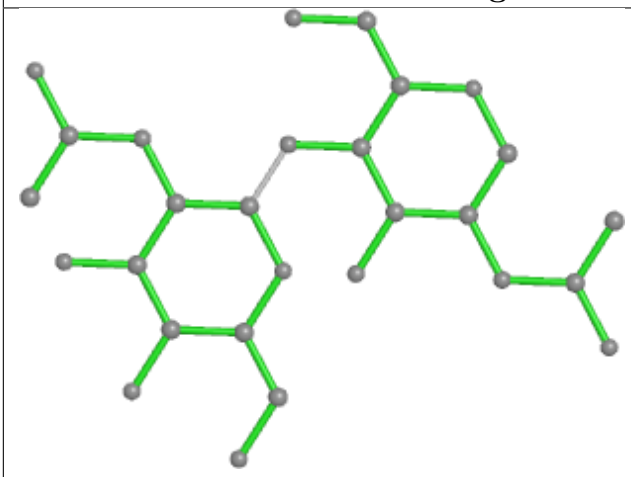


Torsions

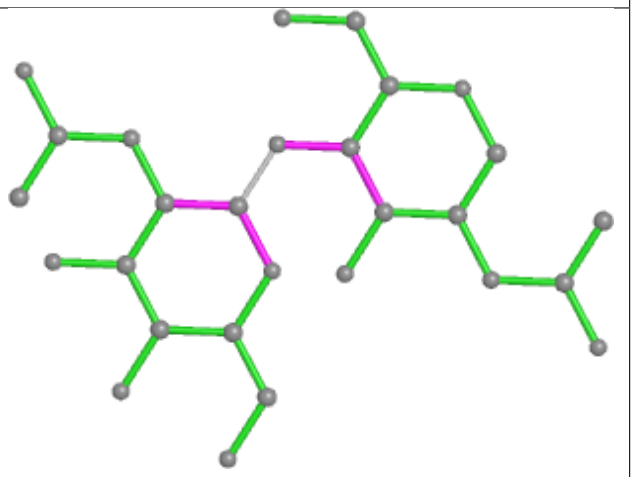


Rings

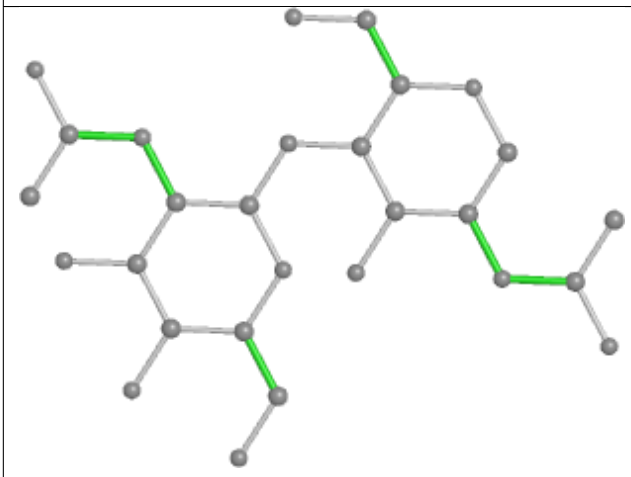
Oligosaccharide Chain W



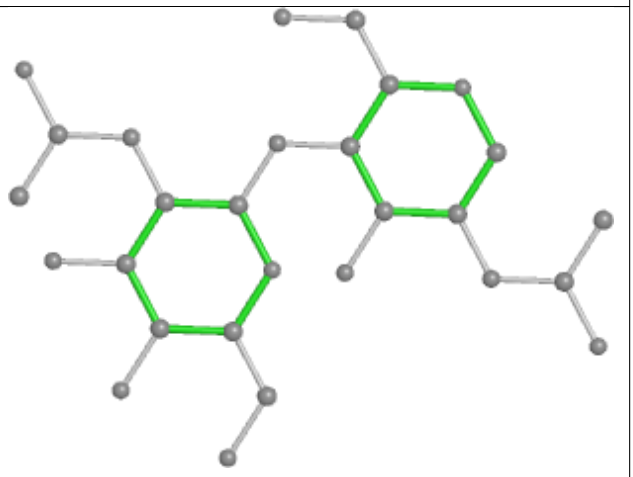
Bond lengths



Bond angles

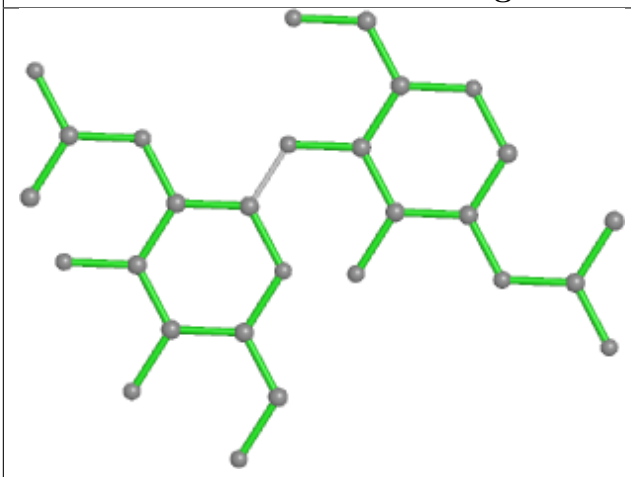


Torsions

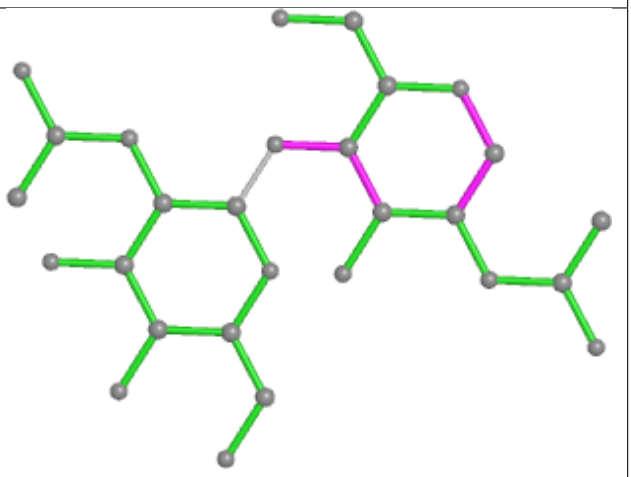


Rings

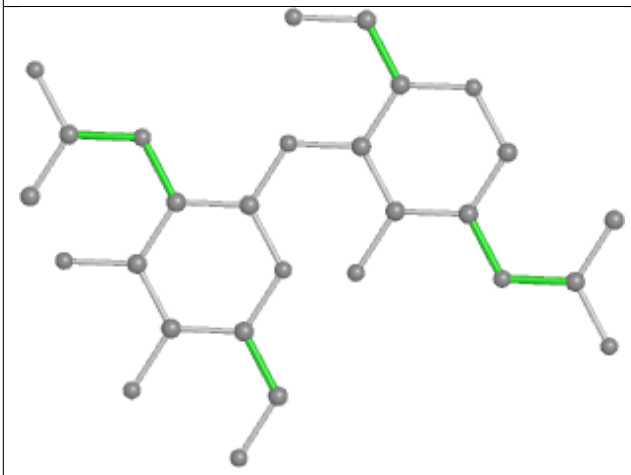
Oligosaccharide Chain X



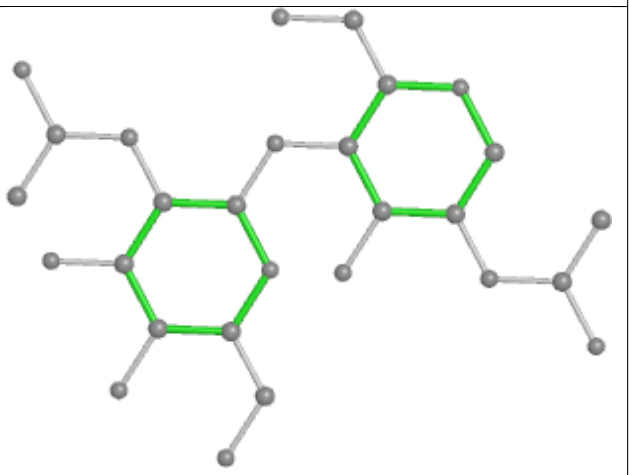
Bond lengths



Bond angles

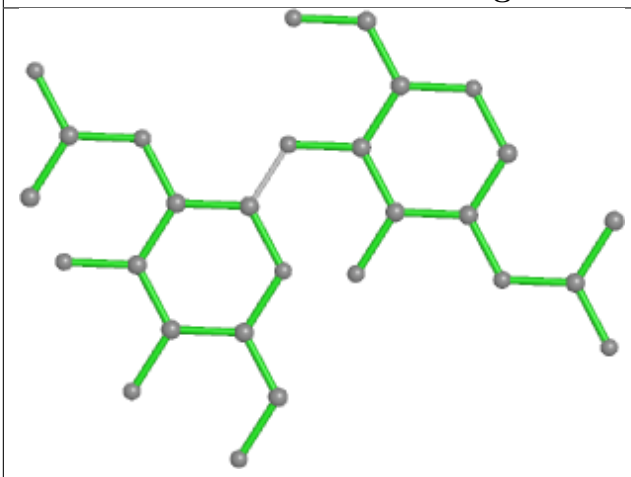


Torsions

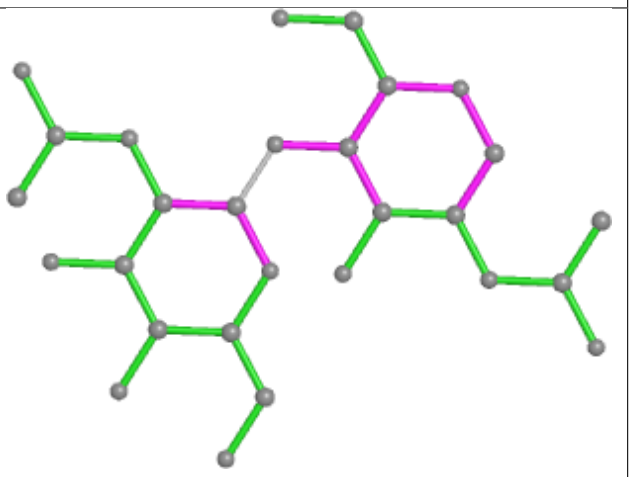


Rings

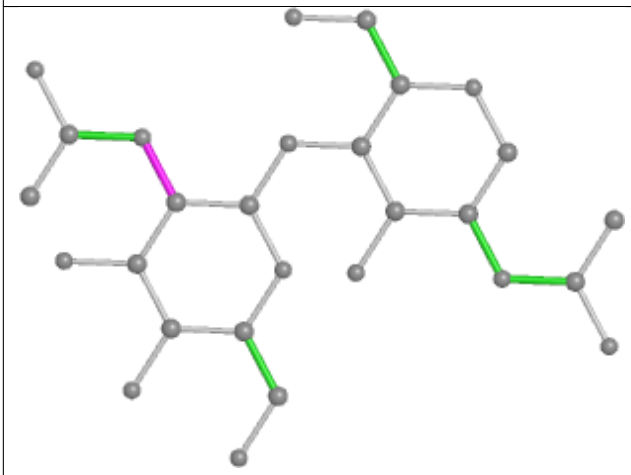
Oligosaccharide Chain Y



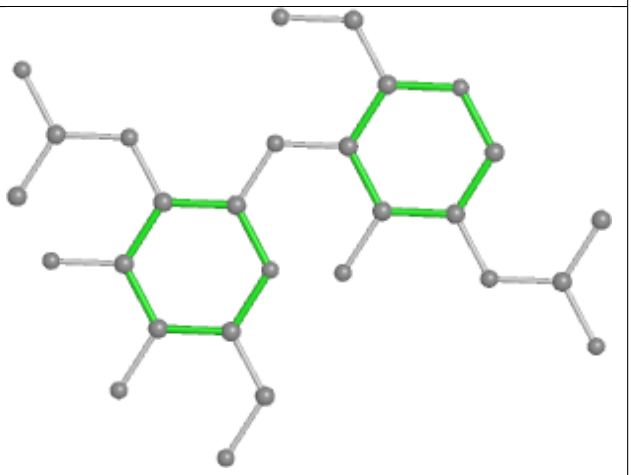
Bond lengths



Bond angles

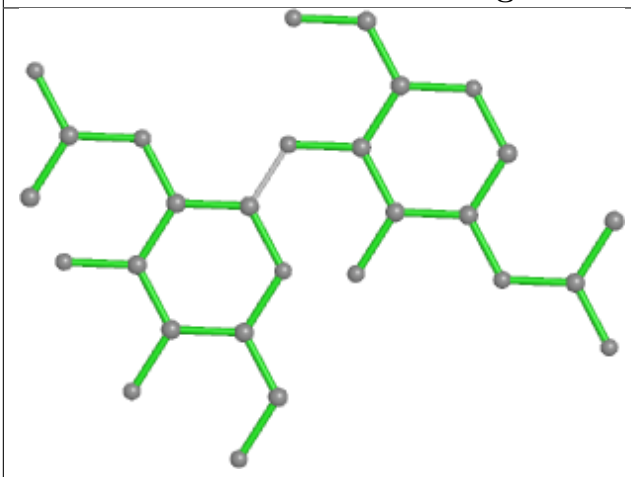


Torsions

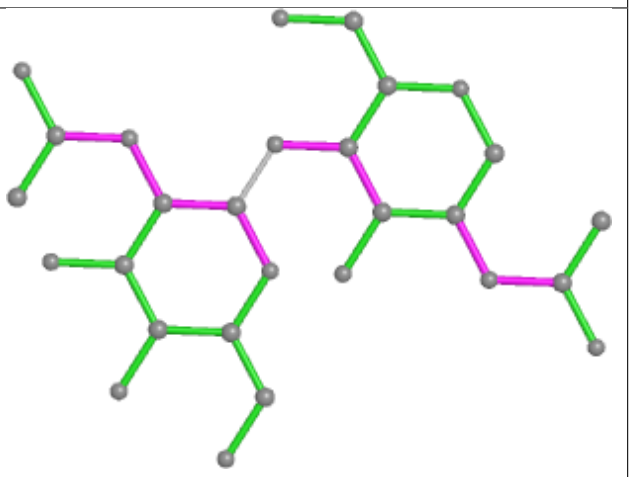


Rings

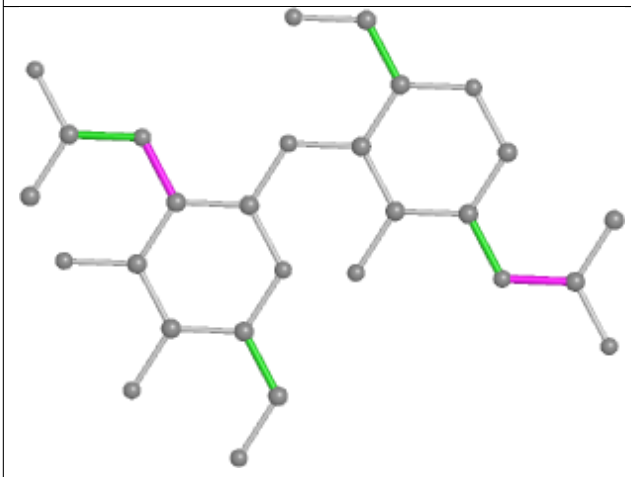
Oligosaccharide Chain Z



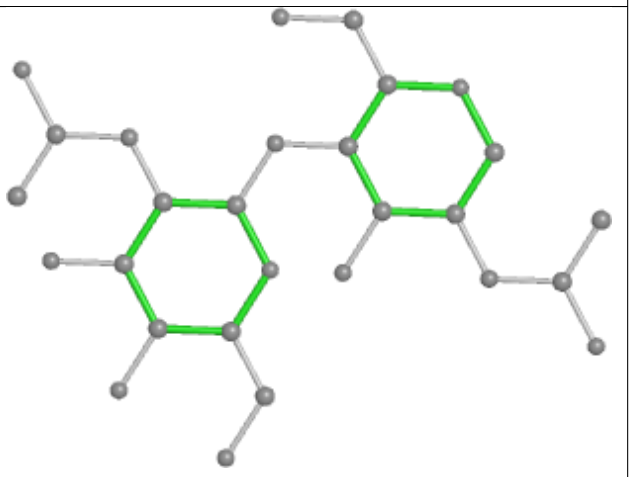
Bond lengths



Bond angles

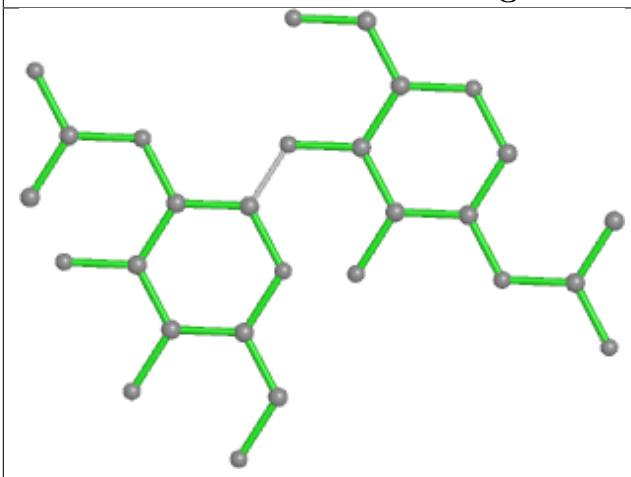


Torsions

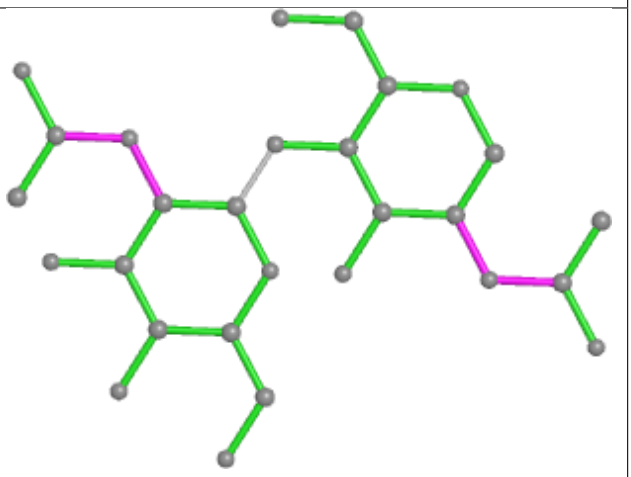


Rings

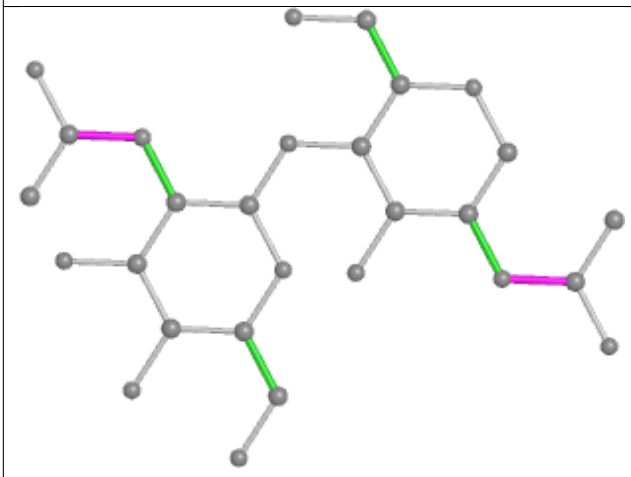
Oligosaccharide Chain c



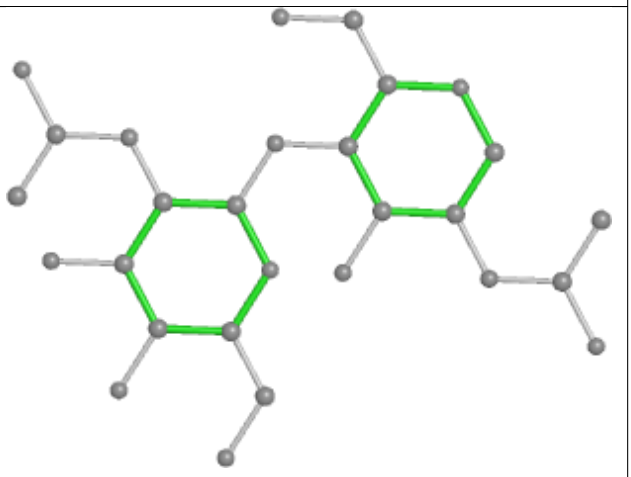
Bond lengths



Bond angles

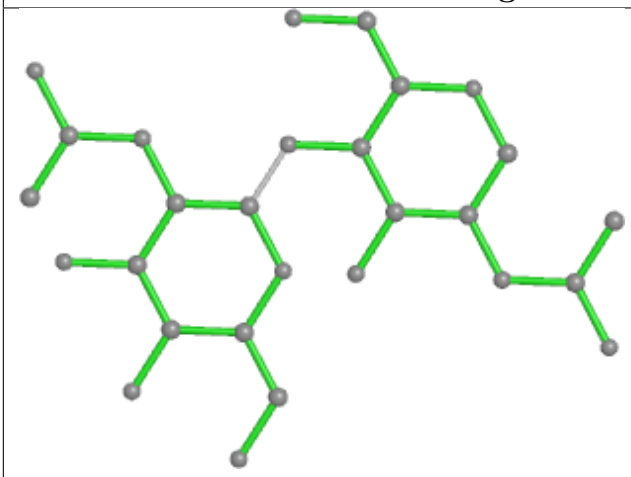


Torsions

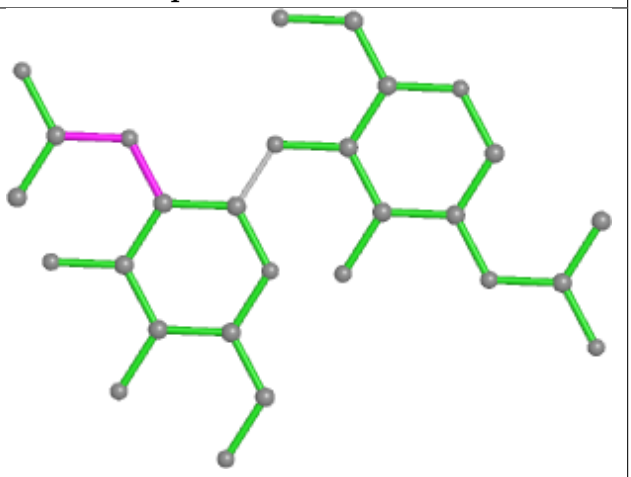


Rings

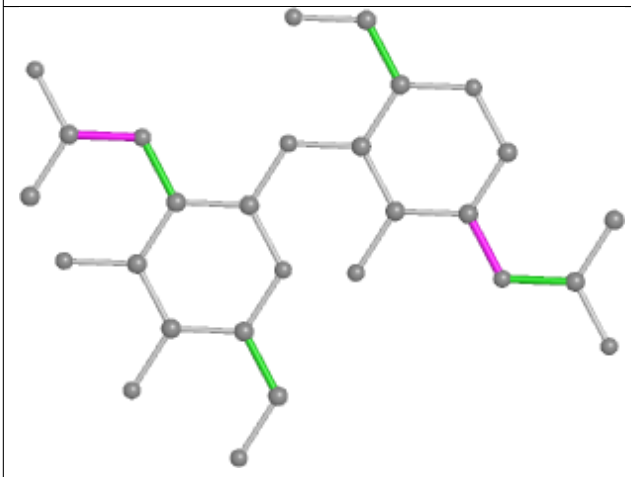
Oligosaccharide Chain q



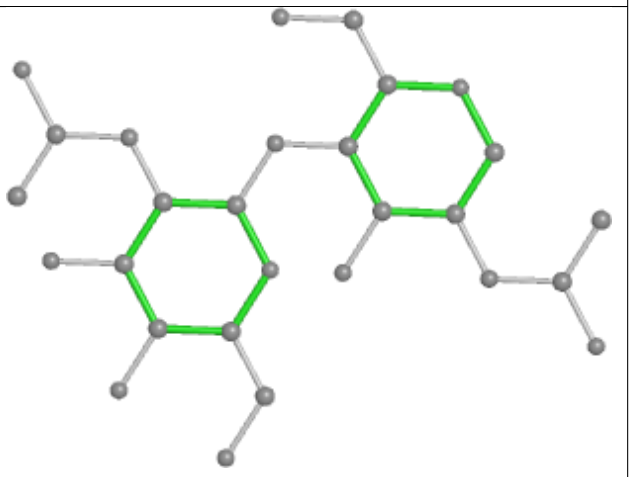
Bond lengths



Bond angles

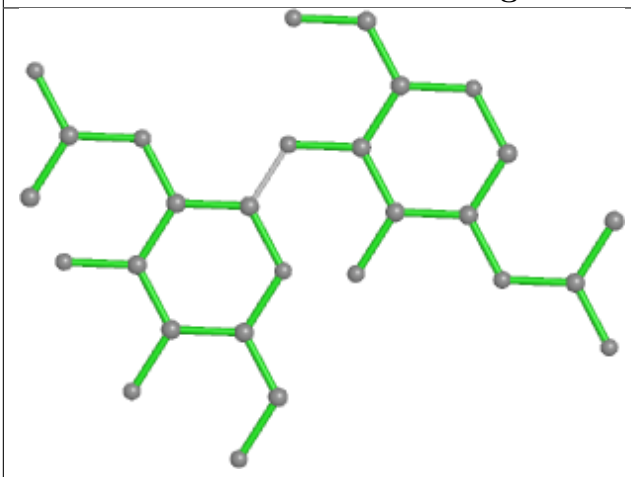


Torsions



Rings

Oligosaccharide Chain r



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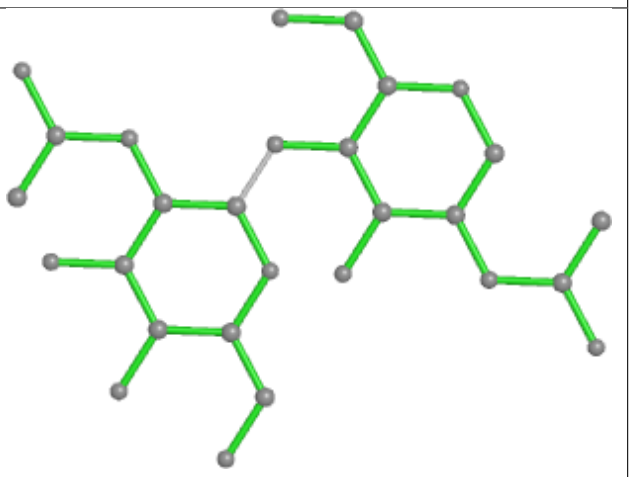
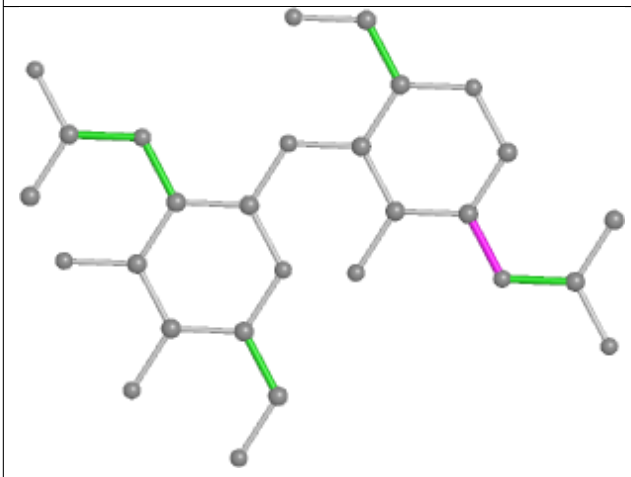
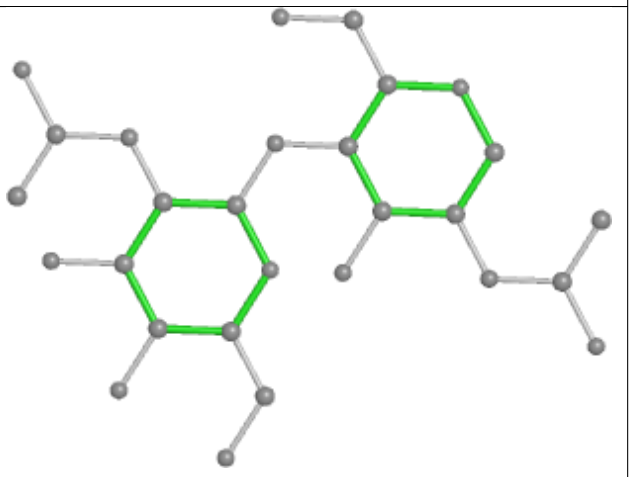


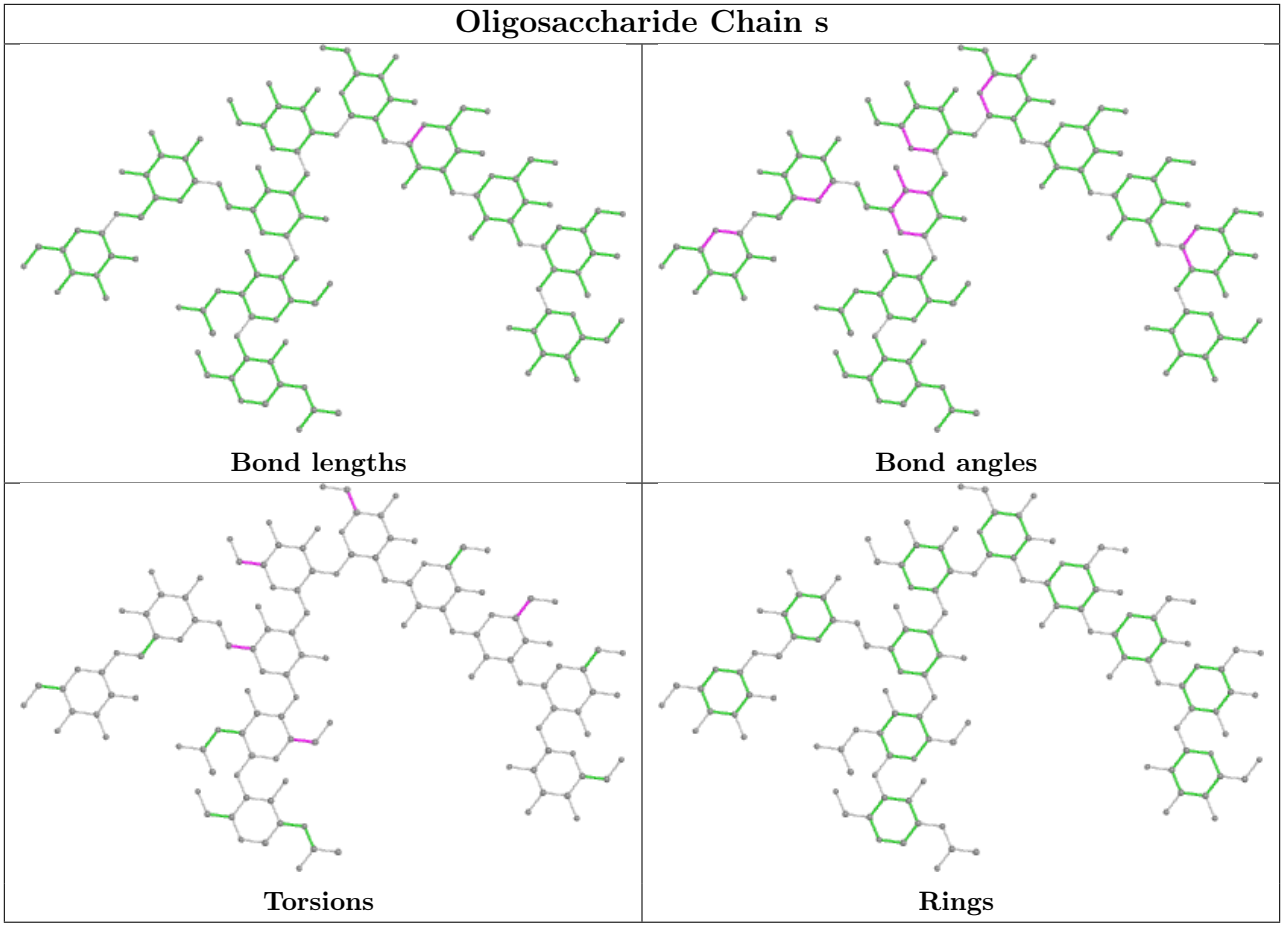
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

48 ligands 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	$\#\|Z\| > 2$
23	PTY	p	402	-	49,49,49	0.47	0	52,54,54	0.42	0
26	LP3	a	907	-	34,34,34	0.51	0	39,41,41	0.56	0
27	CLR	l	206	-	31,31,31	0.38	0	48,48,48	0.54	0
27	CLR	b	304	-	31,31,31	0.39	0	48,48,48	0.60	0
24	WJP	a	905	-	31,33,34	1.58	5 (16%)	39,43,44	7.00	9 (23%)
27	CLR	n	202	-	31,31,31	0.38	0	48,48,48	0.67	0
27	CLR	h	202	-	31,31,31	0.37	0	48,48,48	0.96	4 (8%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
23	PTY	p	401	-	49,49,49	0.47	0	52,54,54	0.43	0
27	CLR	h	201	-	31,31,31	0.38	0	48,48,48	0.74	0
22	PC1	P	501	-	53,53,53	0.49	0	59,61,61	0.52	1 (1%)
23	PTY	b	303	-	49,49,49	0.47	0	52,54,54	0.39	0
27	CLR	m	203	-	31,31,31	0.40	0	48,48,48	0.78	1 (2%)
23	PTY	p	404	-	49,49,49	0.46	0	52,54,54	0.39	0
23	PTY	p	403	-	49,49,49	0.46	0	52,54,54	0.44	0
27	CLR	n	205	-	31,31,31	0.36	0	48,48,48	0.57	0
27	CLR	j	203	-	31,31,31	0.43	0	48,48,48	0.73	1 (2%)
27	CLR	l	205	-	31,31,31	0.34	0	48,48,48	0.51	0
23	PTY	b	302	-	49,49,49	0.47	0	52,54,54	0.40	0
27	CLR	k	203	-	31,31,31	0.37	0	48,48,48	0.56	0
27	CLR	j	202	-	31,31,31	0.41	0	48,48,48	0.87	3 (6%)
27	CLR	o	203	-	31,31,31	0.36	0	48,48,48	0.67	0
22	PC1	P	502	-	53,53,53	0.50	0	59,61,61	0.47	1 (1%)
21	ADP	A	701	-	24,29,29	0.92	1 (4%)	29,45,45	1.52	4 (13%)
27	CLR	i	203	-	31,31,31	0.46	0	48,48,48	0.84	1 (2%)
27	CLR	j	201	-	31,31,31	0.38	0	48,48,48	0.66	0
27	CLR	j	204	-	31,31,31	0.37	0	48,48,48	0.70	0
23	PTY	a	903	-	49,49,49	0.46	0	52,54,54	0.40	0
27	CLR	l	203	-	31,31,31	0.36	0	48,48,48	0.62	0
27	CLR	k	201	-	31,31,31	0.35	0	48,48,48	0.65	0
27	CLR	n	201	-	31,31,31	0.35	0	48,48,48	0.81	2 (4%)
23	PTY	a	902	-	49,49,49	0.46	0	52,54,54	0.37	0
22	PC1	b	301	-	53,53,53	0.51	0	59,61,61	0.48	1 (1%)
27	CLR	m	201	-	31,31,31	0.40	0	48,48,48	0.66	0
27	CLR	i	204	-	31,31,31	0.37	0	48,48,48	0.62	0
27	CLR	l	202	-	31,31,31	0.35	0	48,48,48	0.73	0
27	CLR	o	201	-	31,31,31	0.39	0	48,48,48	0.87	1 (2%)
27	CLR	i	201	-	31,31,31	0.38	0	48,48,48	0.76	1 (2%)
27	CLR	n	203	-	31,31,31	0.36	0	48,48,48	0.66	0
27	CLR	m	202	-	31,31,31	0.35	0	48,48,48	0.67	0
27	CLR	l	204	-	31,31,31	0.38	0	48,48,48	0.71	0
27	CLR	k	202	-	31,31,31	0.35	0	48,48,48	0.48	0
27	CLR	o	202	-	31,31,31	0.44	0	48,48,48	0.98	3 (6%)
27	CLR	n	204	-	31,31,31	0.36	0	48,48,48	0.75	0
25	NAG	a	906	12	14,14,15	0.75	0	17,19,21	1.16	1 (5%)
22	PC1	a	901	-	53,53,53	0.50	0	59,61,61	0.47	1 (1%)
27	CLR	i	202	-	31,31,31	0.39	0	48,48,48	0.76	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
22	PC1	l	201	-	53,53,53	0.49	0	59,61,61	0.49	1 (1%)
23	PTY	a	904	-	49,49,49	0.47	0	52,54,54	0.37	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
23	PTY	p	402	-	-	25/53/53/53	-
26	LP3	a	907	-	-	14/36/36/36	-
27	CLR	l	206	-	-	4/10/68/68	0/4/4/4
27	CLR	b	304	-	-	4/10/68/68	0/4/4/4
24	WJP	a	905	-	-	16/37/37/40	-
27	CLR	n	202	-	-	1/10/68/68	0/4/4/4
27	CLR	h	202	-	-	7/10/68/68	0/4/4/4
23	PTY	p	401	-	-	16/53/53/53	-
27	CLR	h	201	-	-	3/10/68/68	0/4/4/4
22	PC1	P	501	-	-	25/57/57/57	-
23	PTY	b	303	-	-	23/53/53/53	-
27	CLR	m	203	-	-	5/10/68/68	0/4/4/4
23	PTY	p	404	-	-	23/53/53/53	-
23	PTY	p	403	-	-	25/53/53/53	-
27	CLR	n	205	-	-	4/10/68/68	0/4/4/4
27	CLR	j	203	-	-	6/10/68/68	0/4/4/4
27	CLR	l	205	-	-	5/10/68/68	0/4/4/4
23	PTY	b	302	-	-	23/53/53/53	-
27	CLR	k	203	-	-	2/10/68/68	0/4/4/4
27	CLR	j	202	-	-	7/10/68/68	0/4/4/4
27	CLR	o	203	-	-	3/10/68/68	0/4/4/4
22	PC1	P	502	-	-	19/57/57/57	-
21	ADP	A	701	-	-	3/12/32/32	0/3/3/3
27	CLR	i	203	-	-	5/10/68/68	0/4/4/4
27	CLR	j	201	-	-	4/10/68/68	0/4/4/4
27	CLR	j	204	-	-	4/10/68/68	0/4/4/4
23	PTY	a	903	-	-	19/53/53/53	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
27	CLR	l	203	-	-	4/10/68/68	0/4/4/4
27	CLR	k	201	-	-	3/10/68/68	0/4/4/4
27	CLR	n	201	-	-	1/10/68/68	0/4/4/4
23	PTY	a	902	-	-	19/53/53/53	-
22	PC1	b	301	-	-	23/57/57/57	-
27	CLR	m	201	-	-	4/10/68/68	0/4/4/4
27	CLR	i	204	-	-	6/10/68/68	0/4/4/4
27	CLR	l	202	-	-	4/10/68/68	0/4/4/4
27	CLR	o	201	-	-	6/10/68/68	0/4/4/4
27	CLR	i	201	-	-	3/10/68/68	0/4/4/4
27	CLR	n	203	-	-	2/10/68/68	0/4/4/4
27	CLR	m	202	-	-	1/10/68/68	0/4/4/4
27	CLR	l	204	-	-	2/10/68/68	0/4/4/4
27	CLR	k	202	-	-	2/10/68/68	0/4/4/4
27	CLR	o	202	-	-	6/10/68/68	0/4/4/4
27	CLR	n	204	-	-	3/10/68/68	0/4/4/4
25	NAG	a	906	12	-	2/6/23/26	0/1/1/1
22	PC1	a	901	-	-	23/57/57/57	-
27	CLR	i	202	-	-	4/10/68/68	0/4/4/4
22	PC1	l	201	-	-	23/57/57/57	-
23	PTY	a	904	-	-	22/53/53/53	-

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
24	a	905	WJP	C18-C16	3.73	1.59	1.51
24	a	905	WJP	C07-C06	2.97	1.58	1.50
24	a	905	WJP	P31-O32	2.95	1.66	1.54
24	a	905	WJP	C13-C11	2.63	1.56	1.51
24	a	905	WJP	C17-C16	2.62	1.57	1.50

The worst 5 of 36 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
24	a	905	WJP	C08-C06-C05	23.21	168.09	121.12
24	a	905	WJP	C17-C16-C18	-21.02	79.92	115.27
24	a	905	WJP	C17-C16-C15	17.18	167.76	123.68
24	a	905	WJP	C18-C16-C15	-16.28	88.18	121.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
24	a	905	WJP	C07-C06-C08	-16.19	88.04	115.27

There are no chirality outliers.

5 of 458 torsion outliers are listed below:

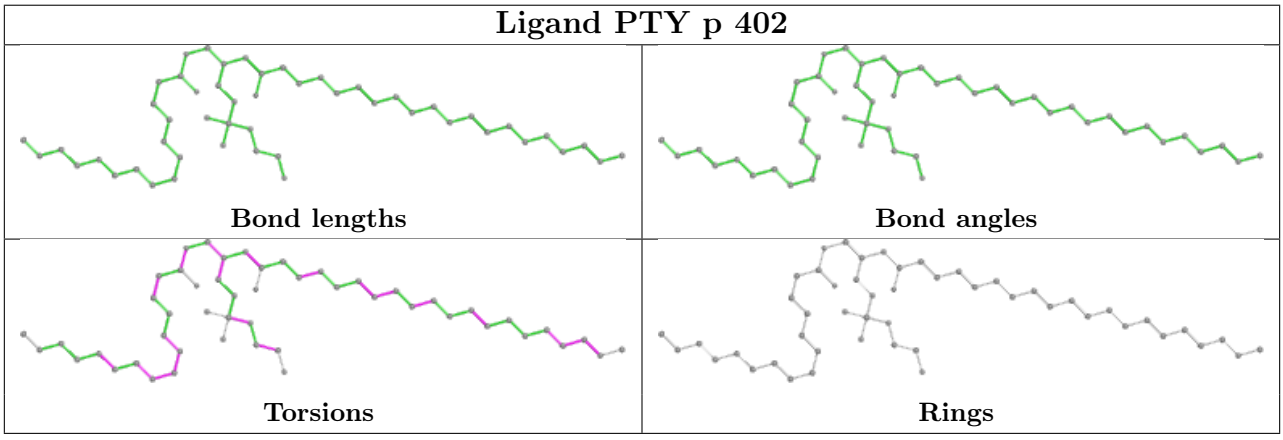
Mol	Chain	Res	Type	Atoms
21	A	701	ADP	C5'-O5'-PA-O1A
21	A	701	ADP	C5'-O5'-PA-O2A
21	A	701	ADP	C5'-O5'-PA-O3A
22	P	501	PC1	C22-C21-O21-C2
22	P	502	PC1	C11-O13-P-O12

There are no ring outliers.

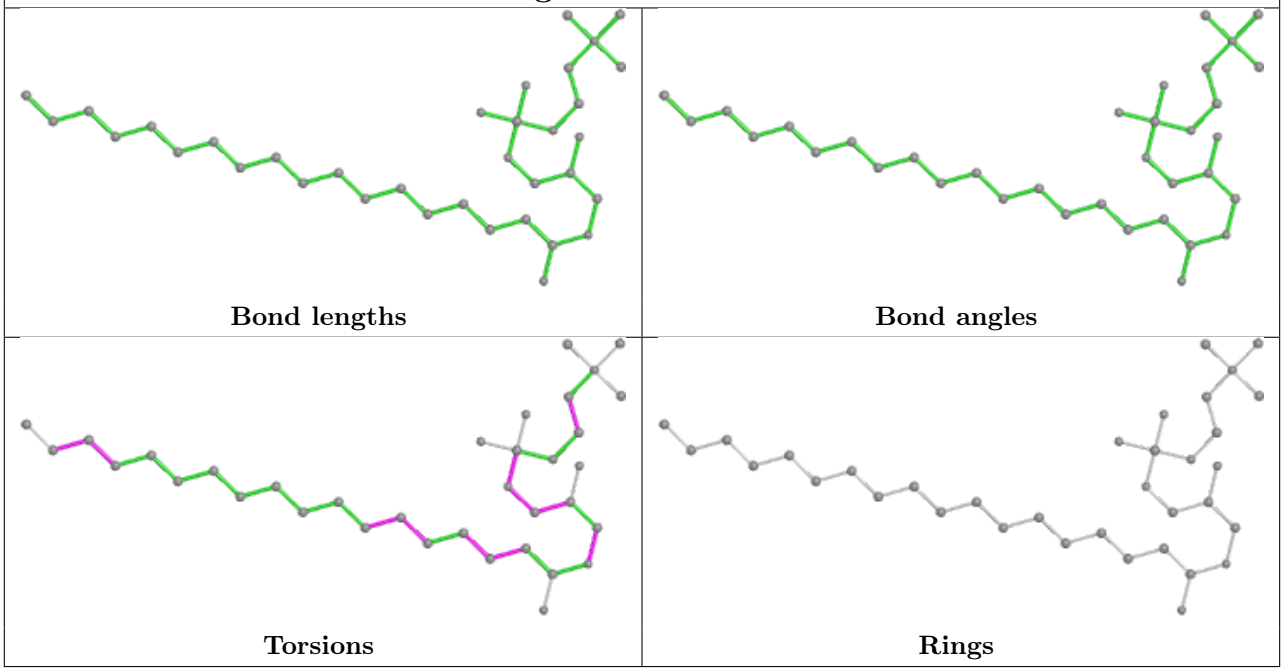
No monomer is involved in short contacts.

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

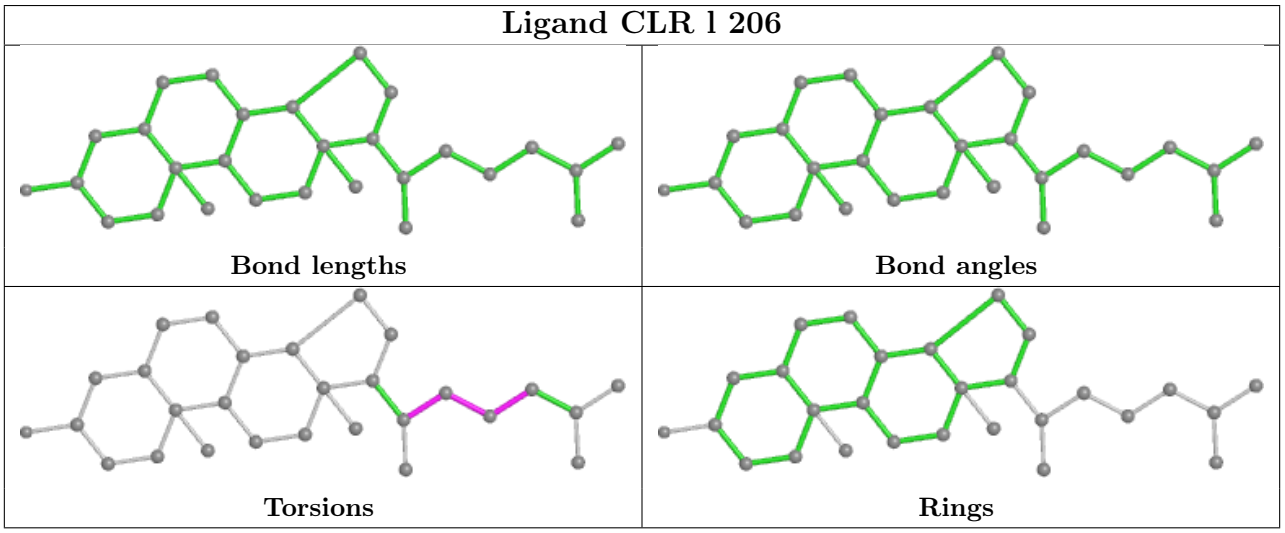
Ligand PTY p 402



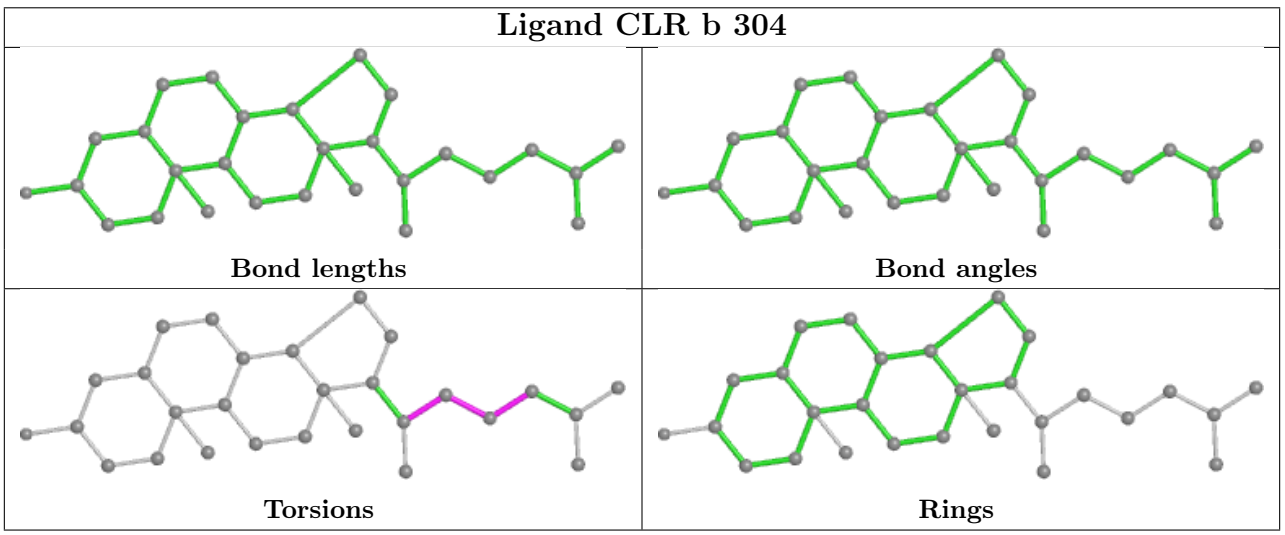
Ligand LP3 a 907



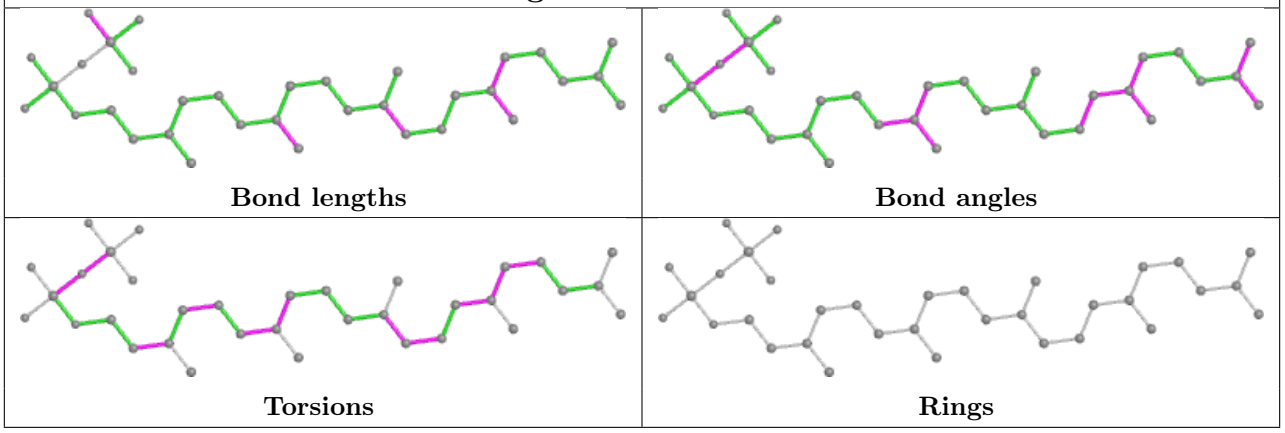
Ligand CLR l 206



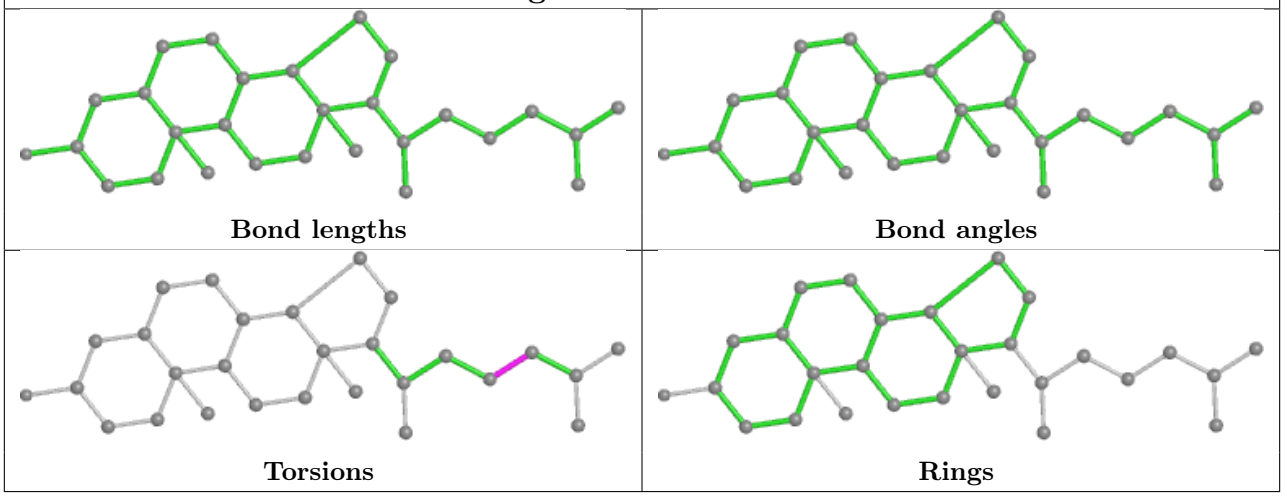
Ligand CLR b 304



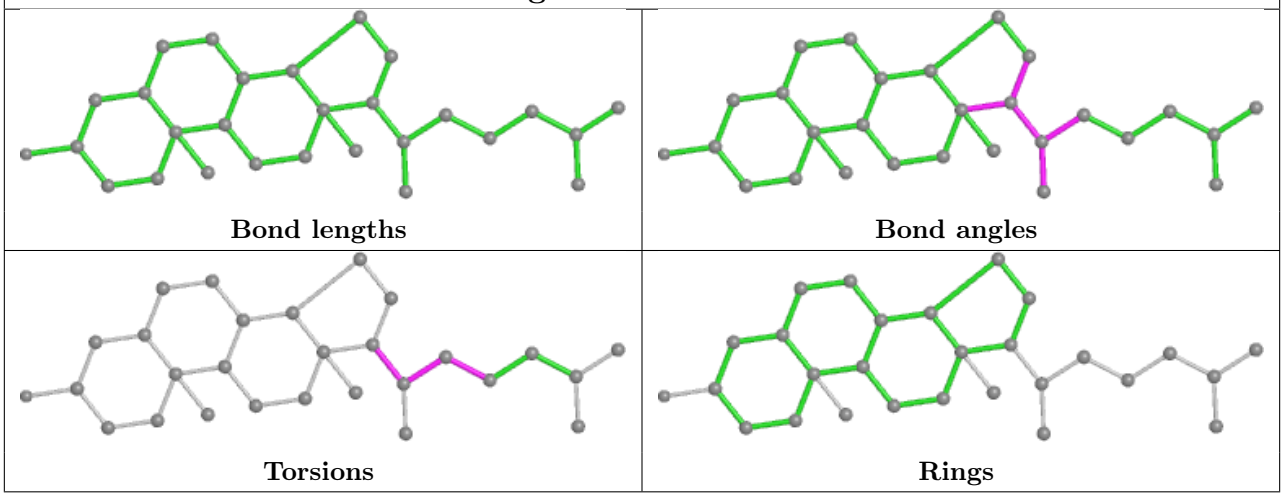
Ligand WJP a 905



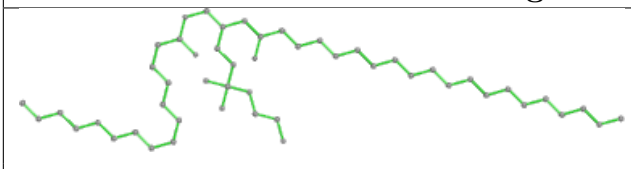
Ligand CLR n 202



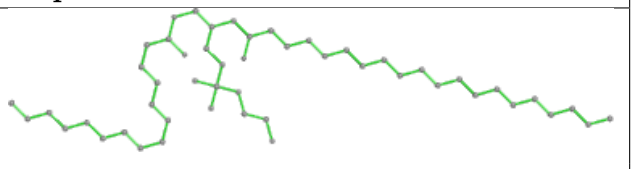
Ligand CLR h 202



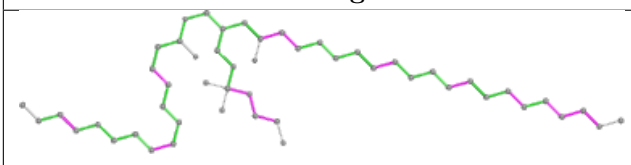
Ligand PTY p 401



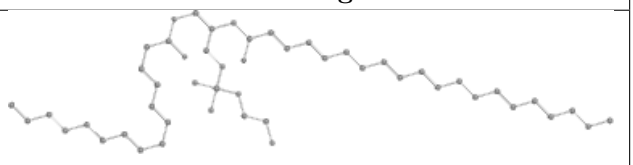
Bond lengths



Bond angles

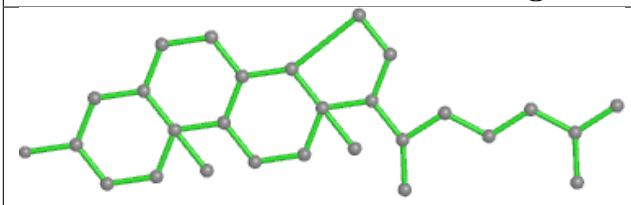


Torsions

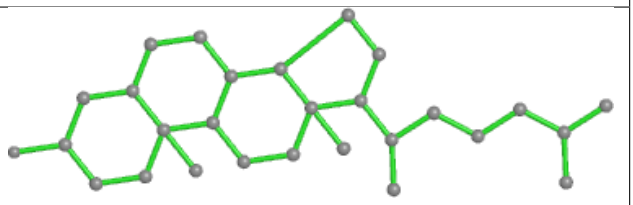


Rings

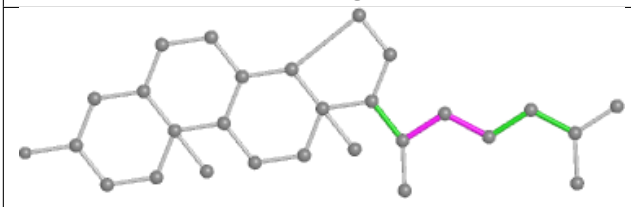
Ligand CLR h 201



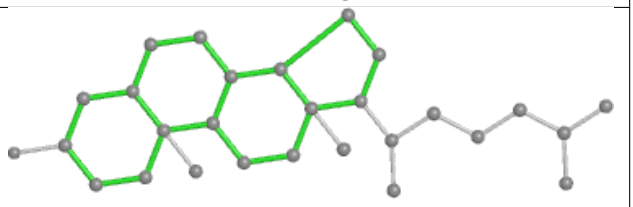
Bond lengths



Bond angles

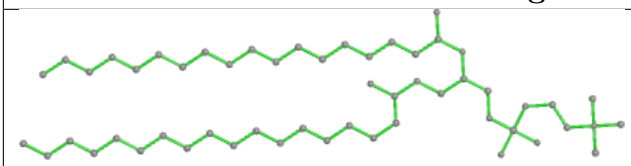


Torsions

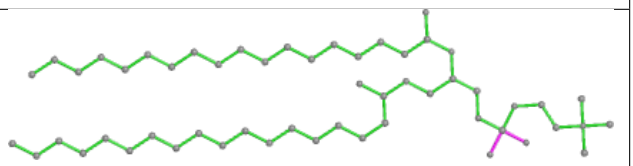


Rings

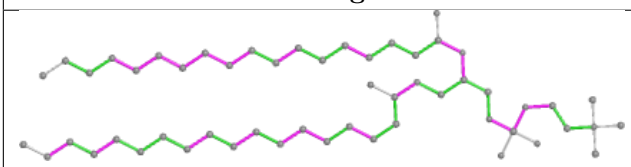
Ligand PC1 P 501



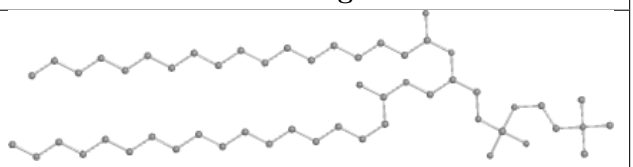
Bond lengths



Bond angles

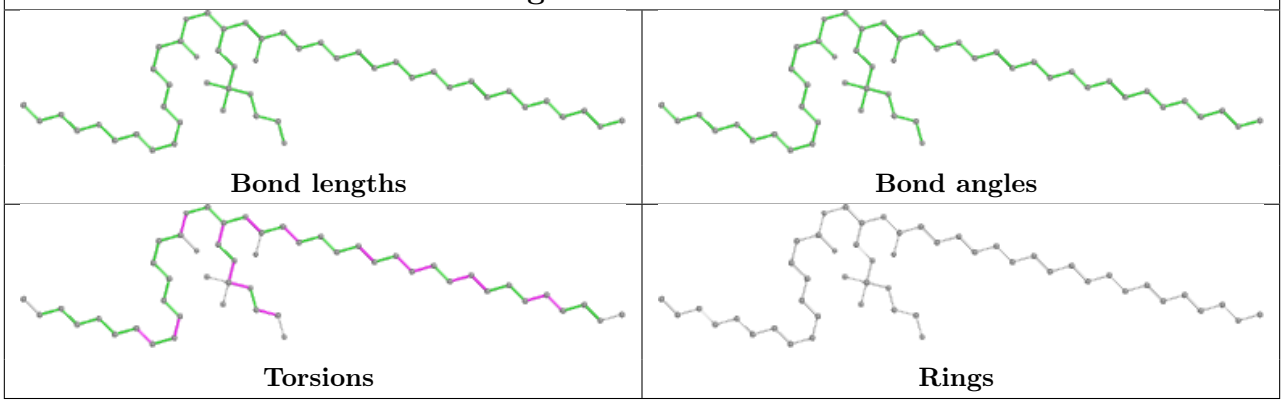


Torsions

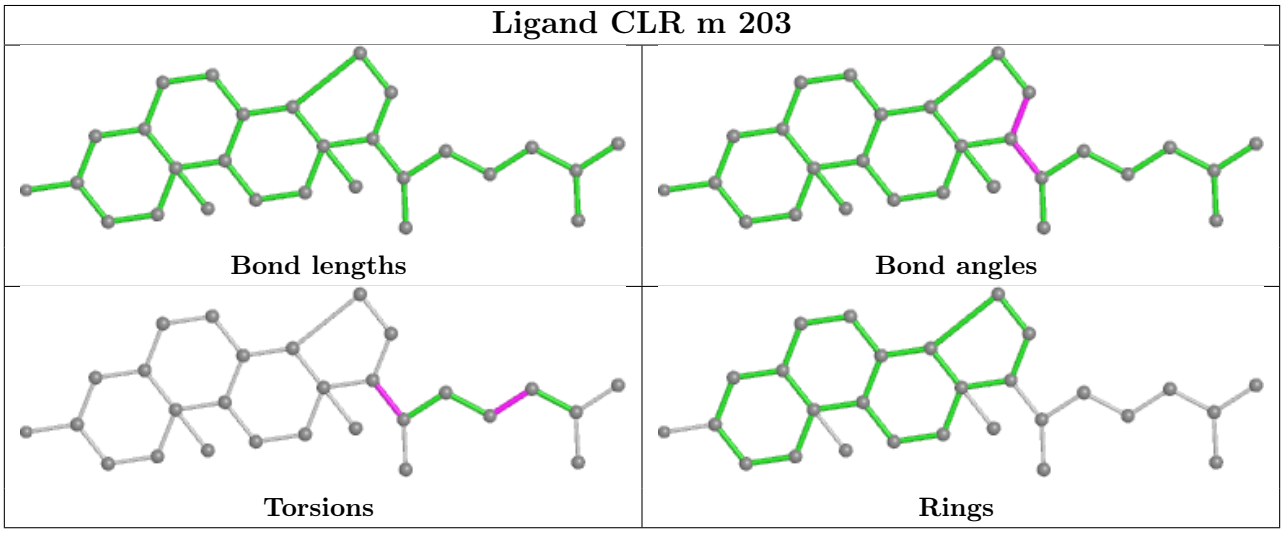


Rings

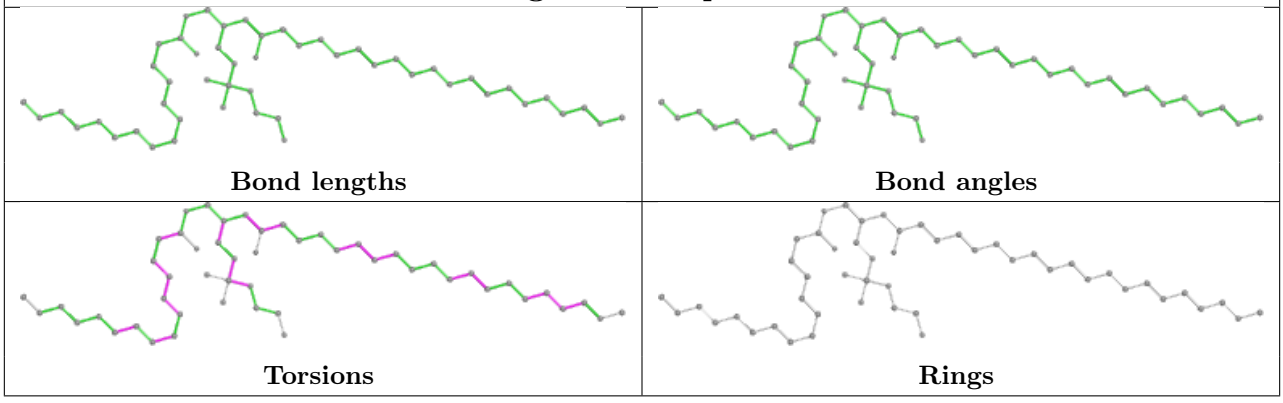
Ligand PTY b 303



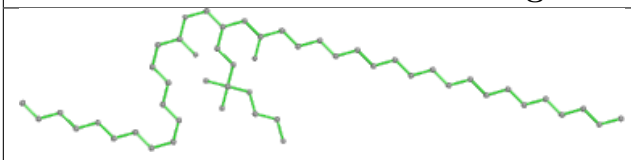
Ligand CLR m 203



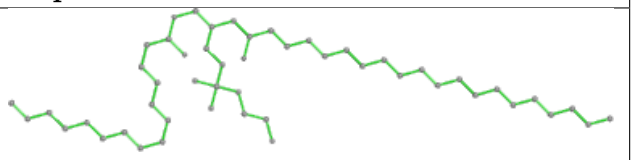
Ligand PTY p 404



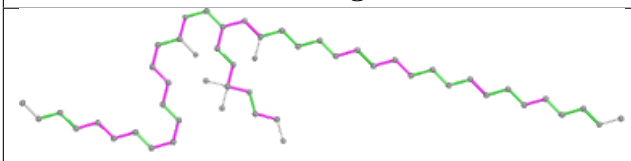
Ligand PTY p 403



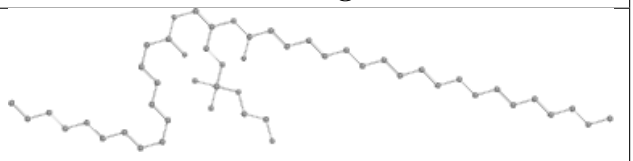
Bond lengths



Bond angles

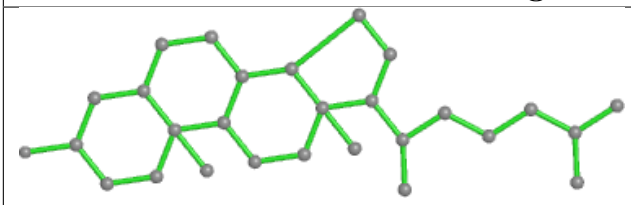


Torsions

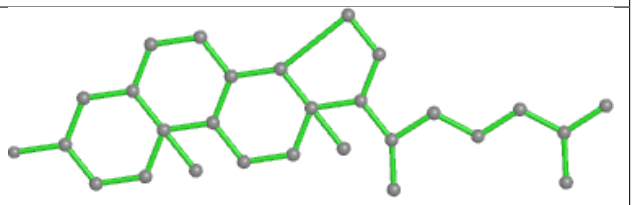


Rings

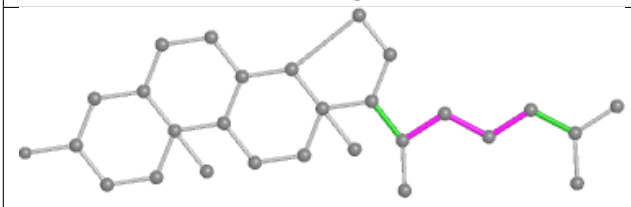
Ligand CLR n 205



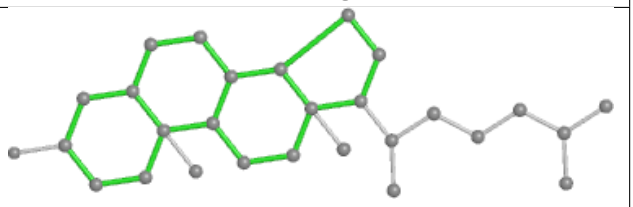
Bond lengths



Bond angles

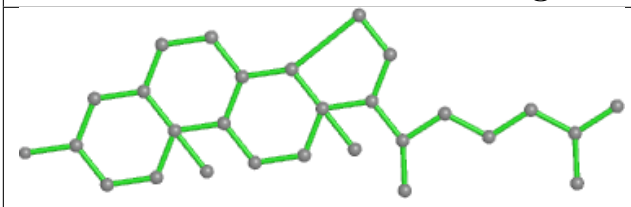


Torsions

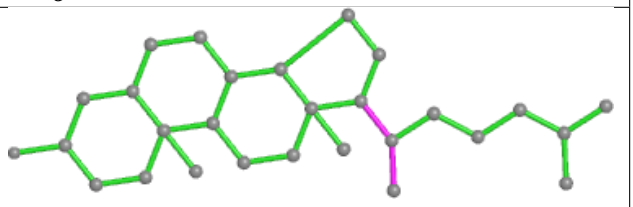


Rings

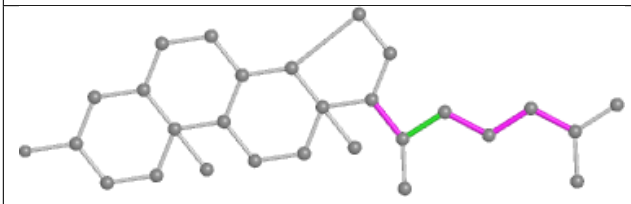
Ligand CLR j 203



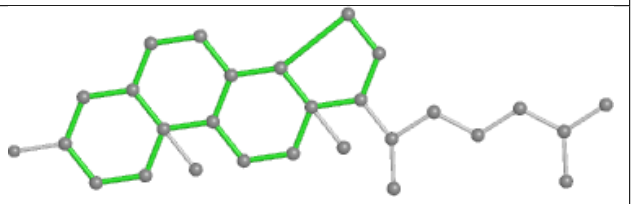
Bond lengths



Bond angles

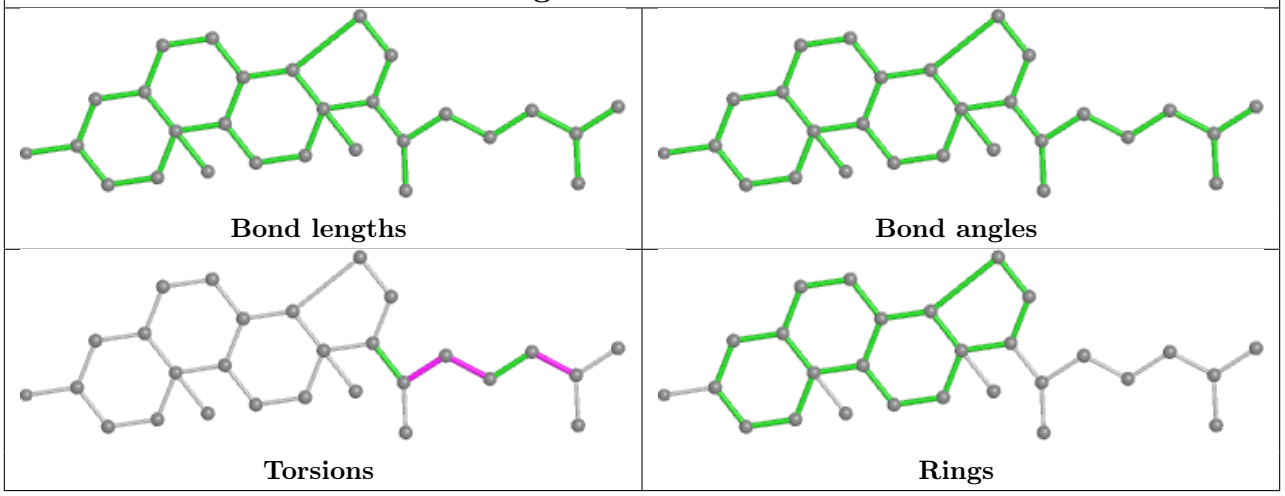


Torsions

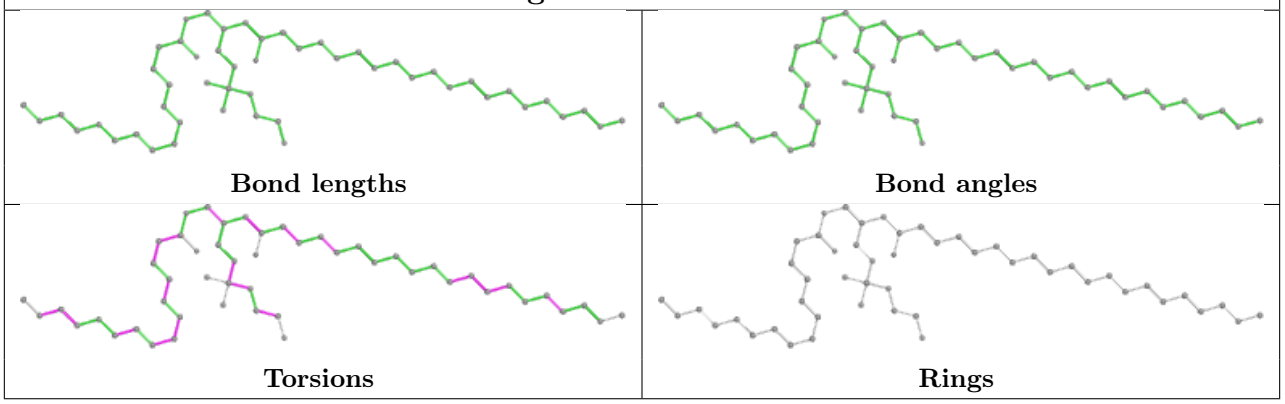


Rings

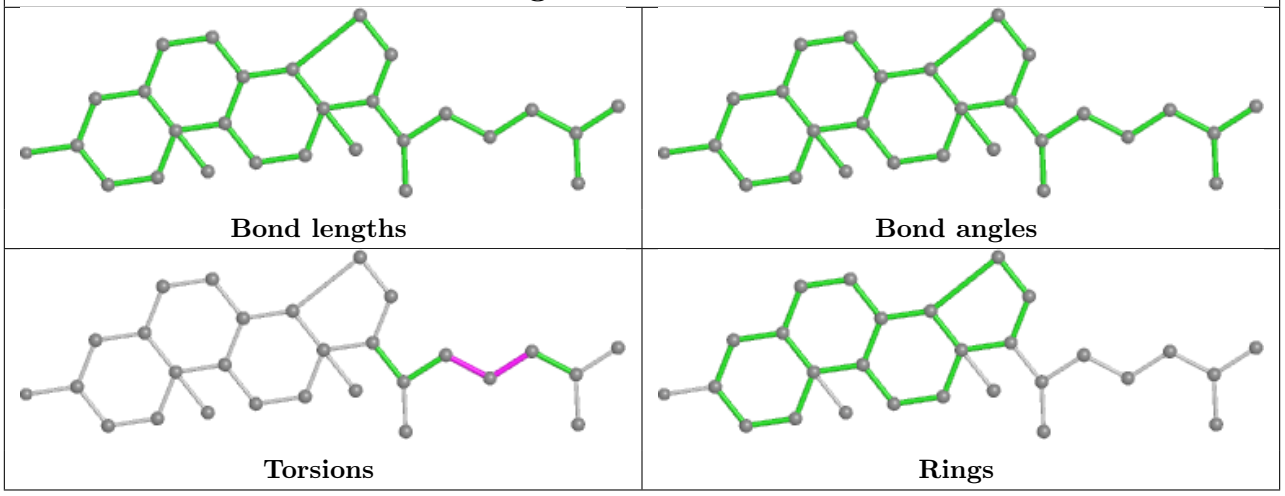
Ligand CLR l 205



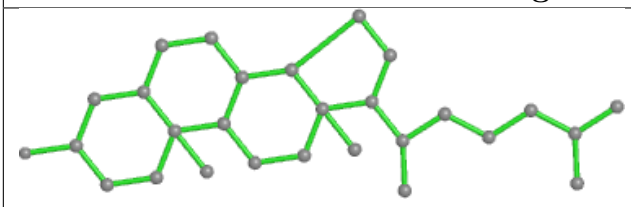
Ligand PTY b 302



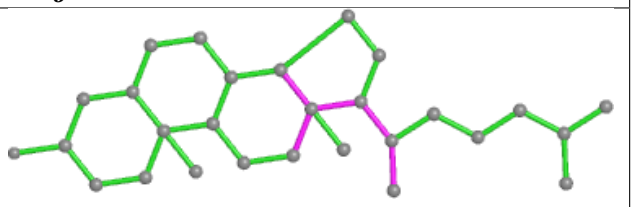
Ligand CLR k 203



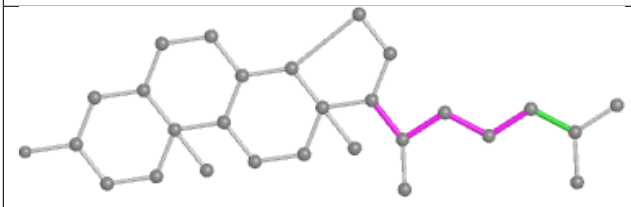
Ligand CLR j 202



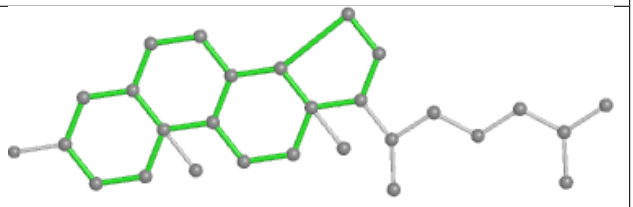
Bond lengths



Bond angles

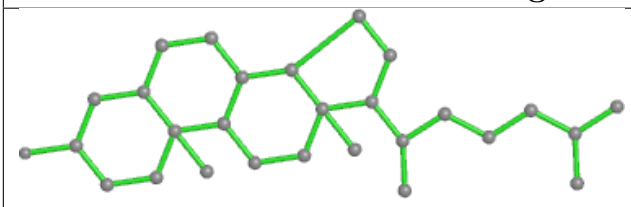


Torsions

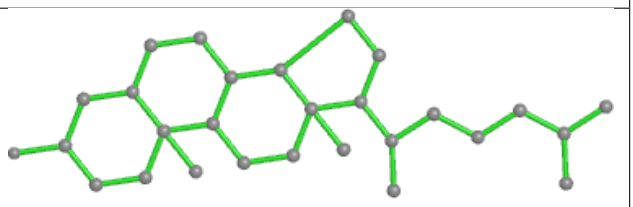


Rings

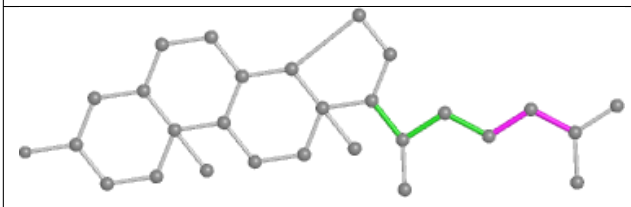
Ligand CLR o 203



Bond lengths



Bond angles



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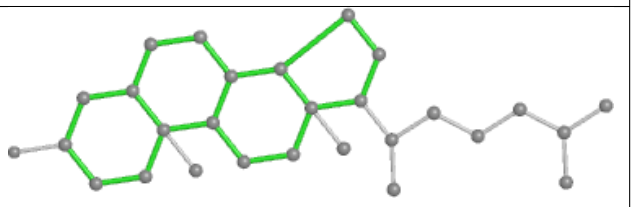
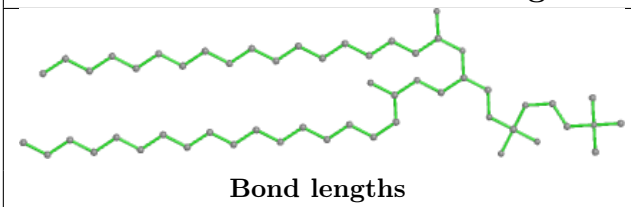
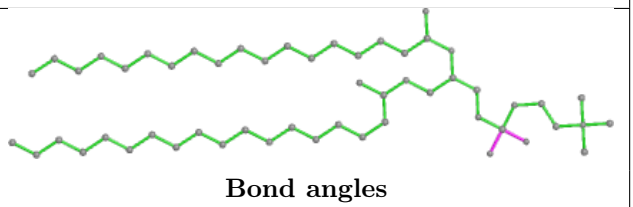


Rings

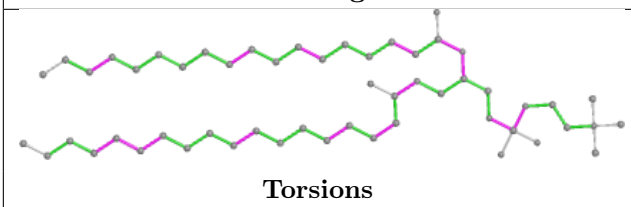
Ligand PC1 P 502



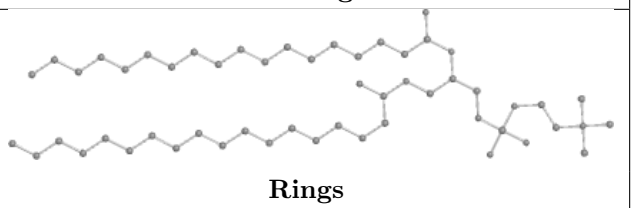
Bond lengths



Bond angles

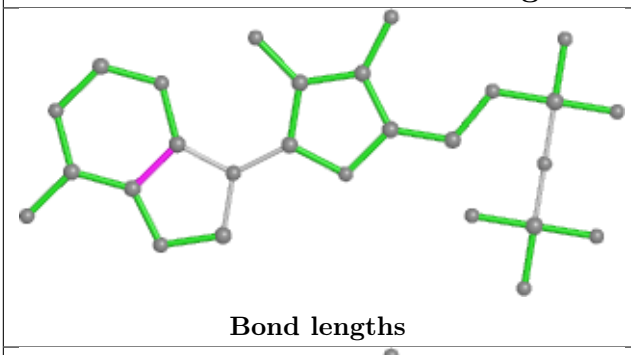


Torsions

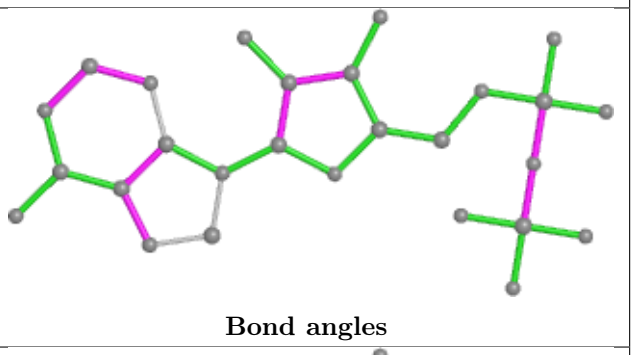


Rings

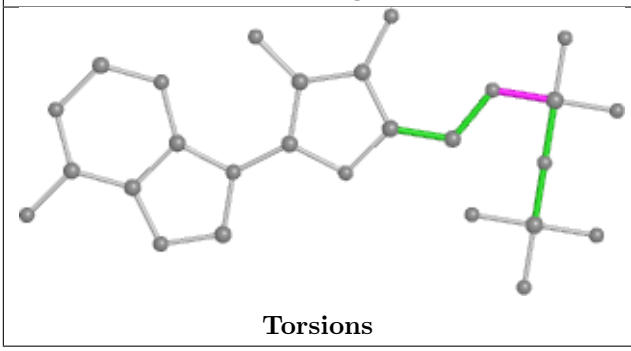
Ligand ADP A 701



Bond lengths



Bond angles



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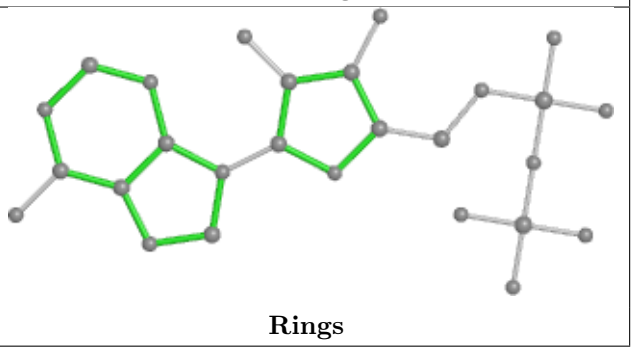
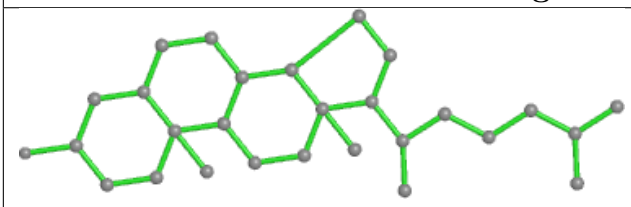


Rings

Ligand CLR i 203



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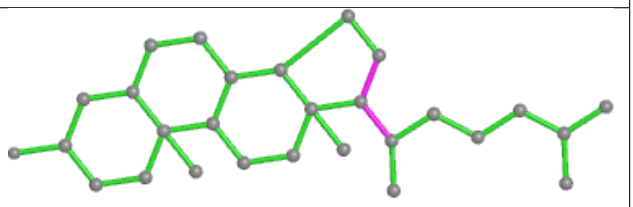
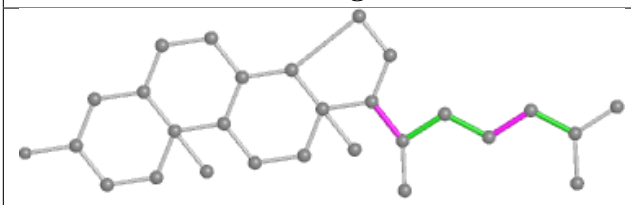
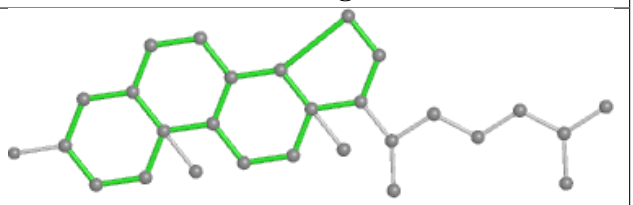


Bond angles

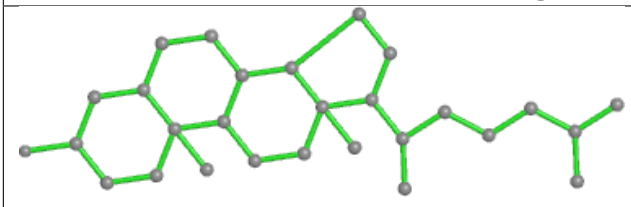


Torsions

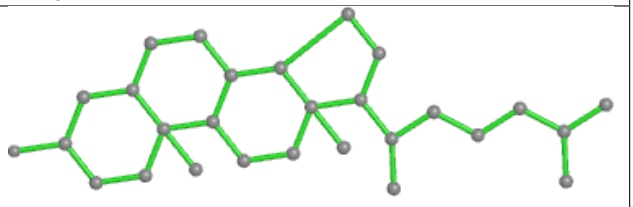


Rings

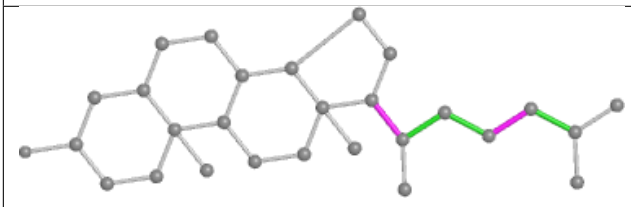
Ligand CLR j 201



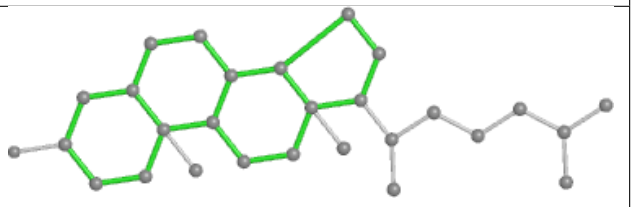
Bond lengths



Bond angles

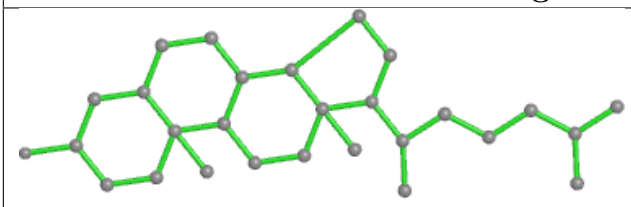


Torsions

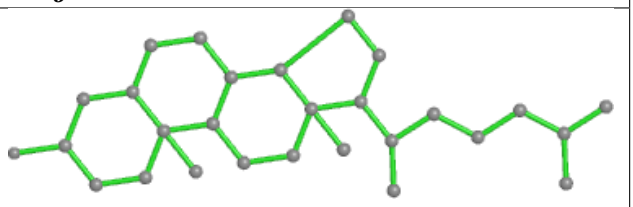


Rings

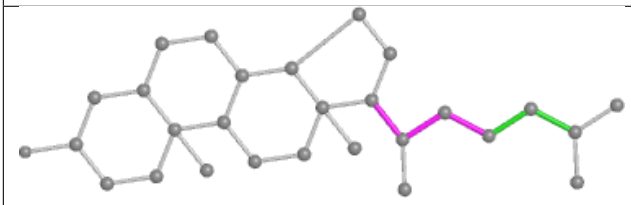
Ligand CLR j 204



Bond lengths



Bond angles



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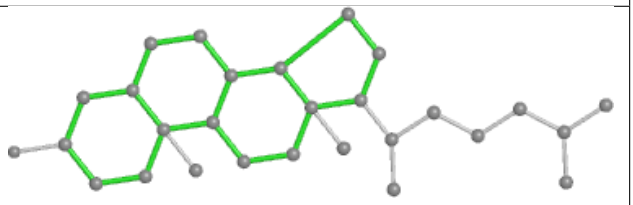
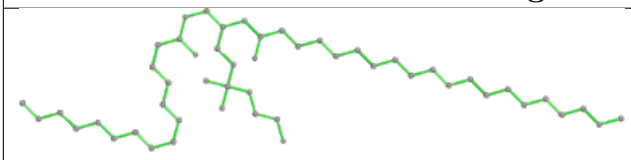
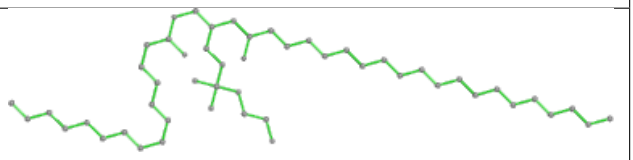


Rings

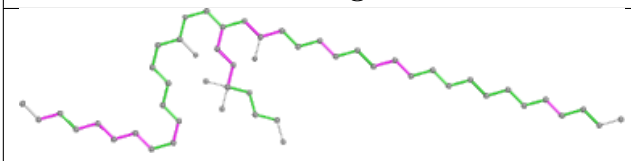
Ligand PTY a 903



Bond lengths



Bond angles



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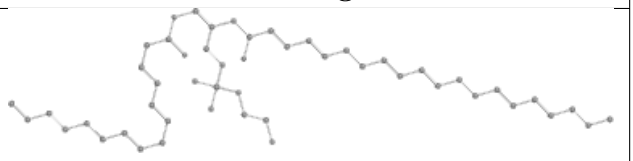
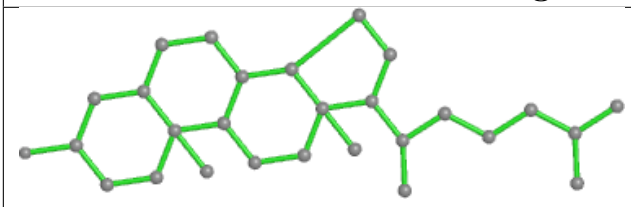


Rings

Ligand CLR l 203



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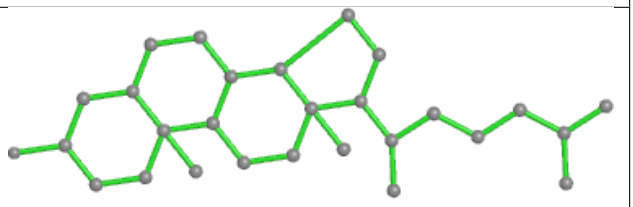
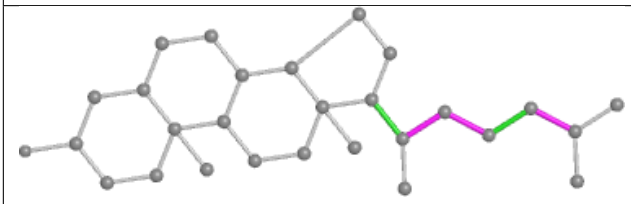


Bond angles



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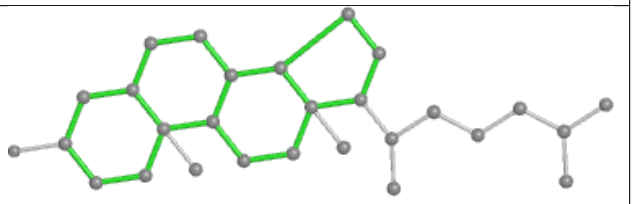
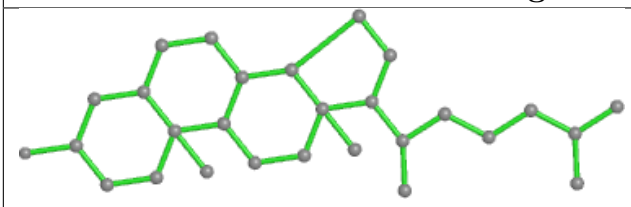


Rings

Ligand CLR k 201



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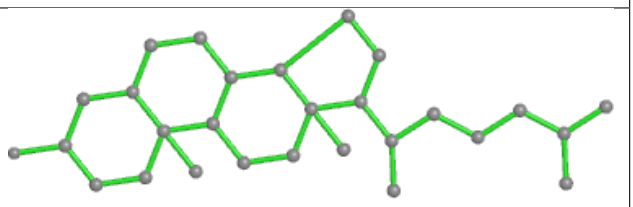
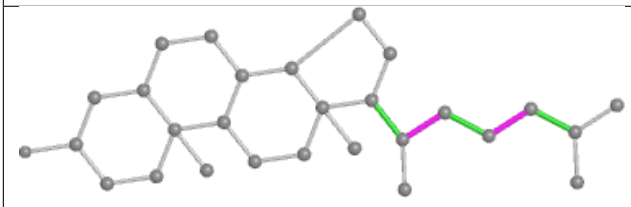
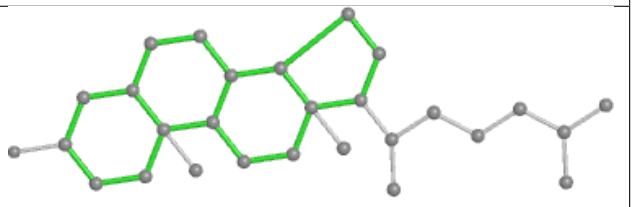


Bond angles

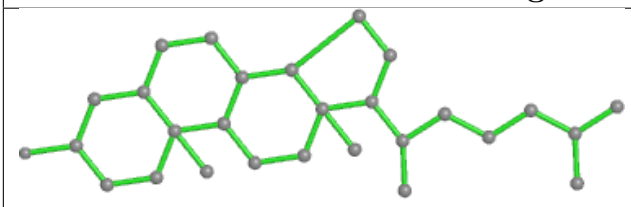


Torsions

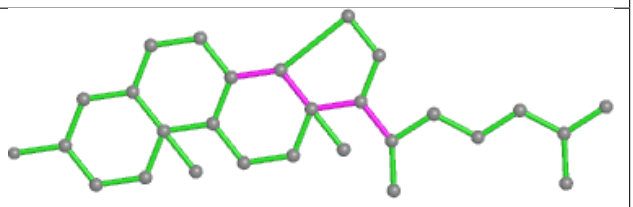


Rings

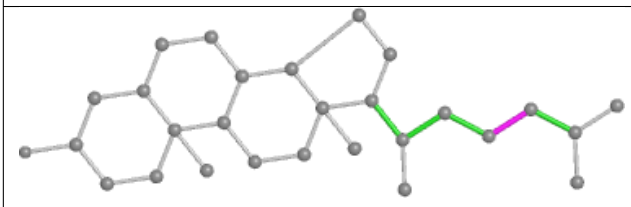
Ligand CLR n 201



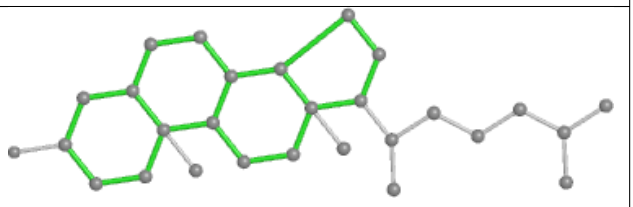
Bond lengths



Bond angles

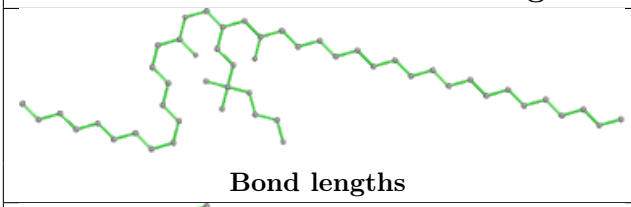


Torsions

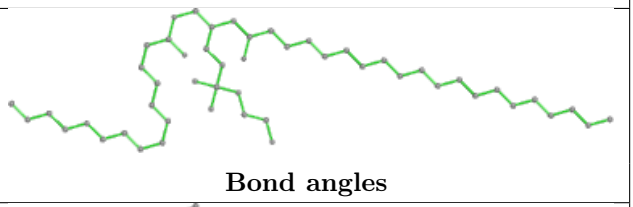


Rings

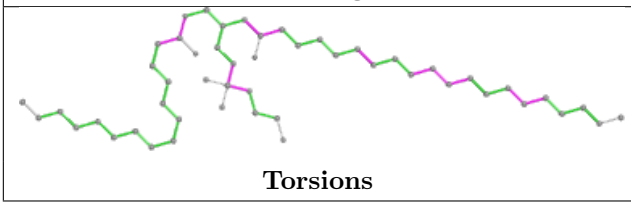
Ligand PTY a 902



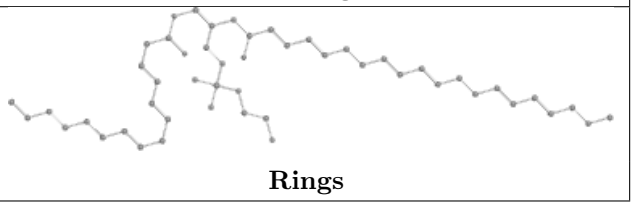
Bond lengths



Bond angles

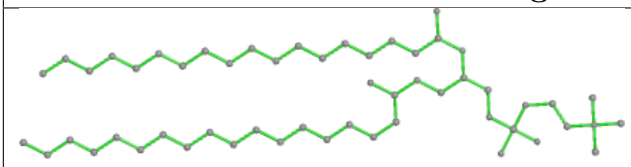


Torsions



Rings

Ligand PC1 b 301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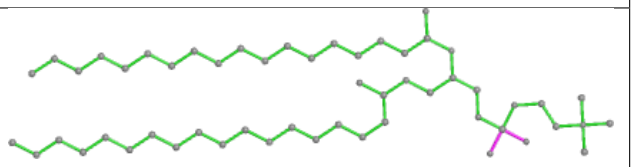
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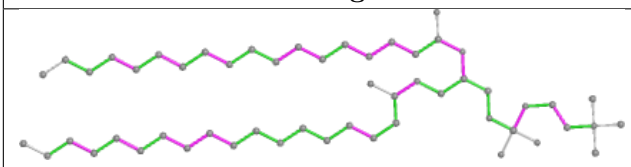
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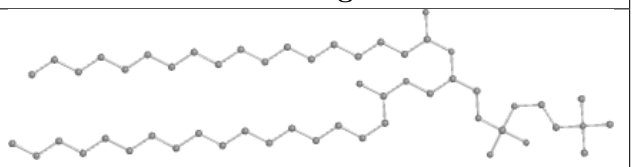
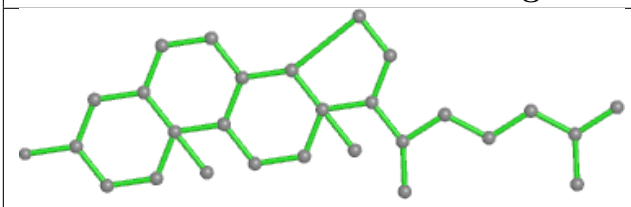

Rings

Ligand CLR m 201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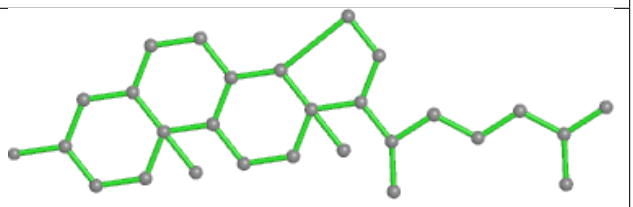
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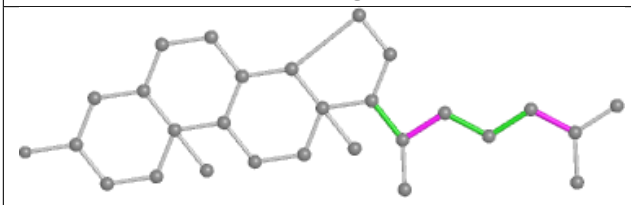
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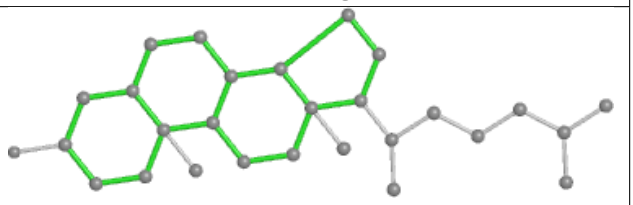
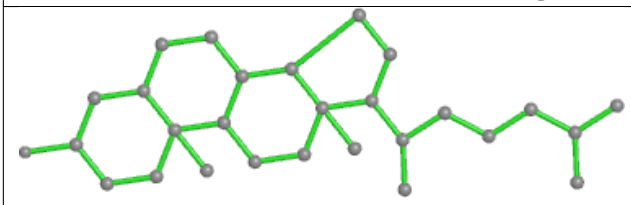

Rings

Ligand CLR i 204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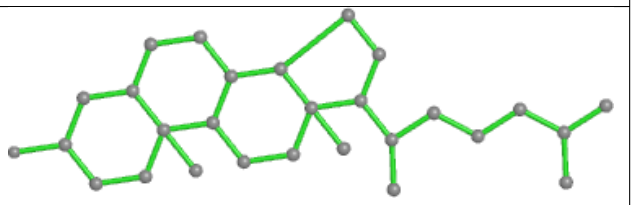
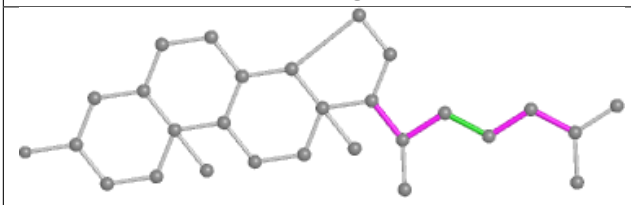

Bond angles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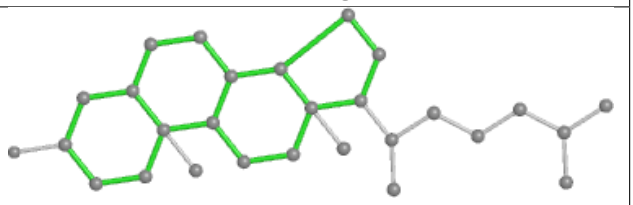
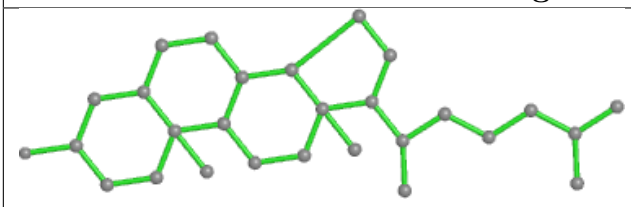
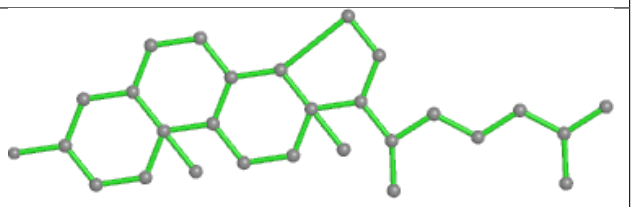

Rings

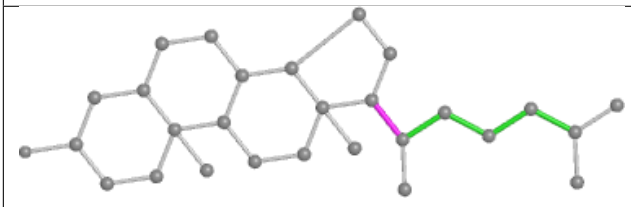
Ligand CLR l 202



Bond lengths



Bond angles



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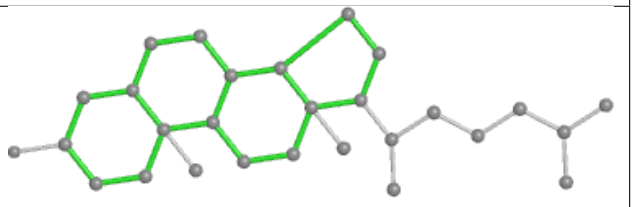
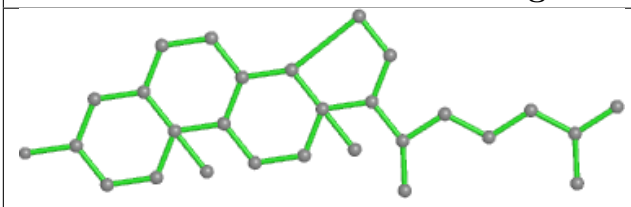


Rings

Ligand CLR o 201



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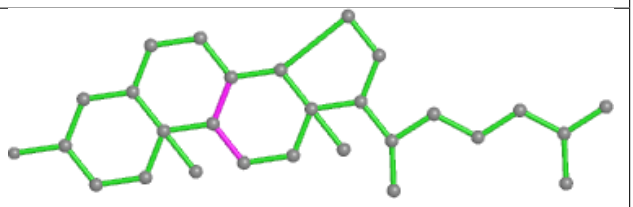

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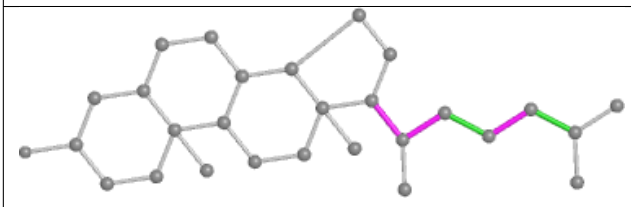

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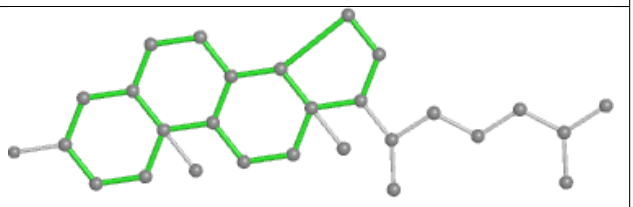
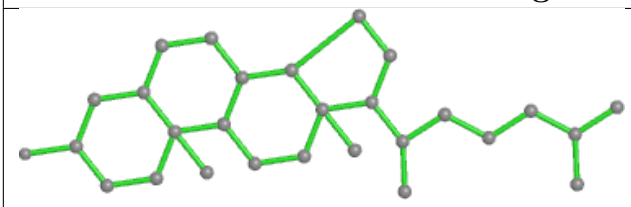


Rings

Ligand CLR i 201



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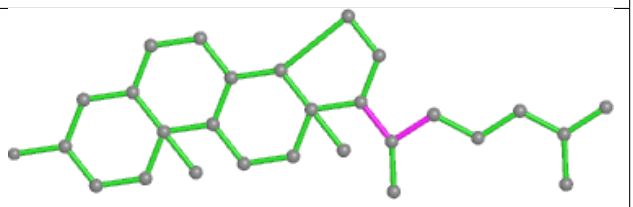
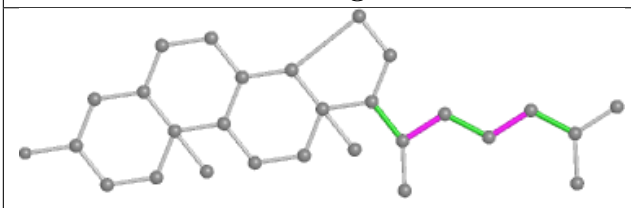


Bond angles



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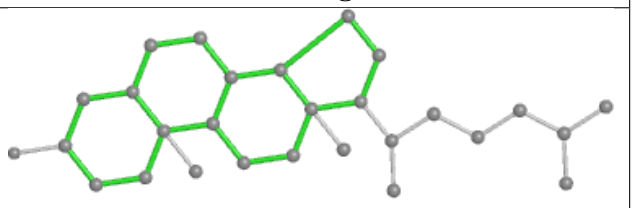
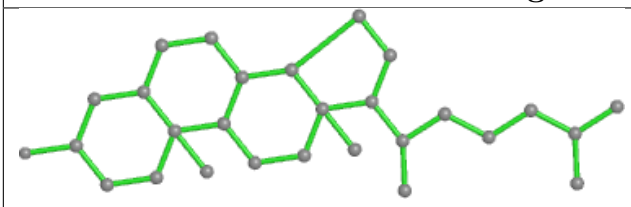


Rings

Ligand CLR n 203



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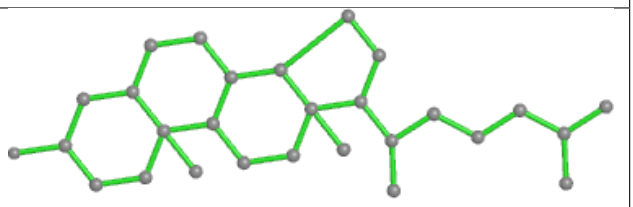

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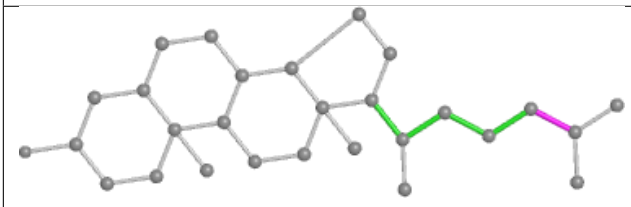

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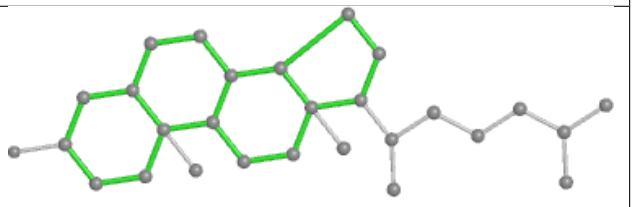
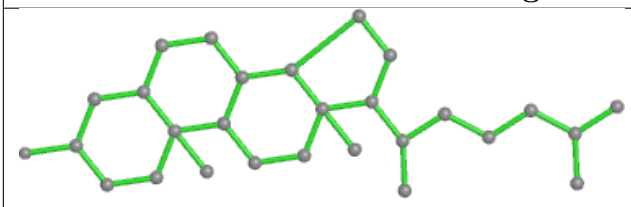
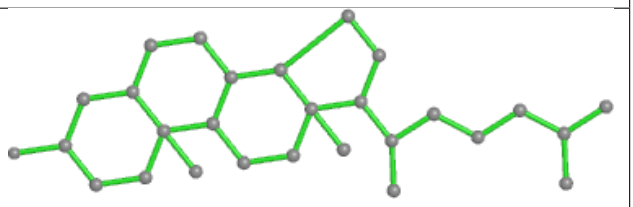


Rings

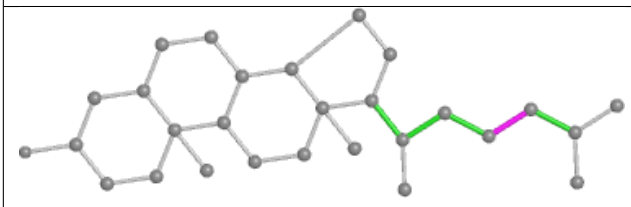
Ligand CLR m 202



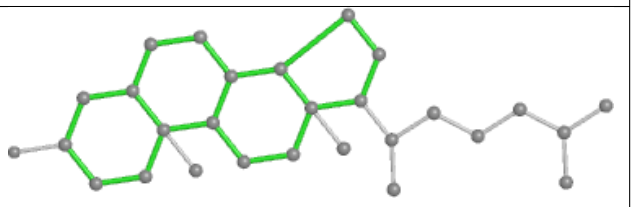
Bond lengths



Bond angles

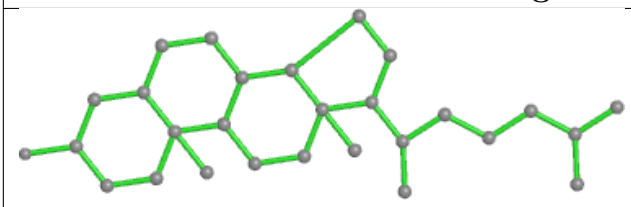


Torsions



Rings

Ligand CLR l 204



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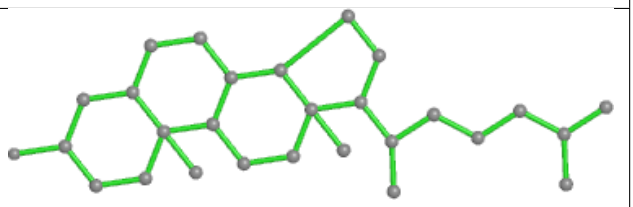
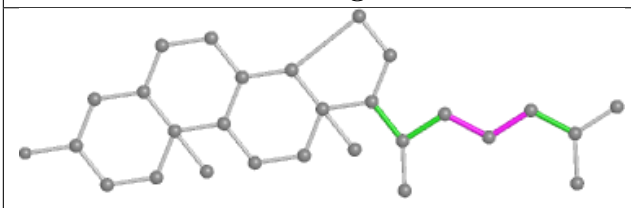


Bond angles



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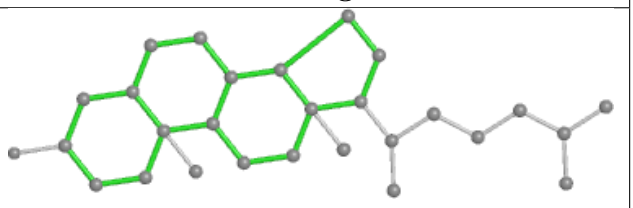
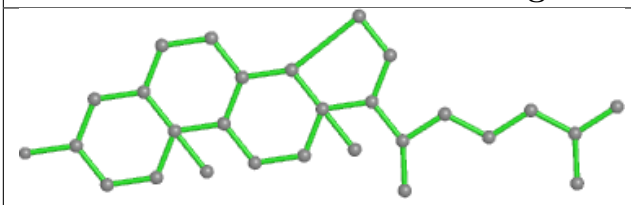


Rings

Ligand CLR k 202



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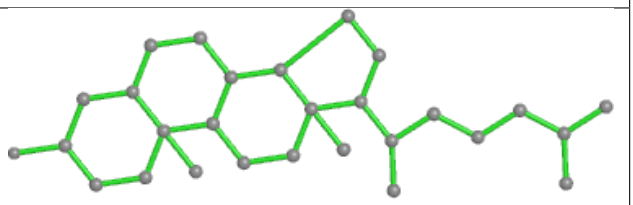
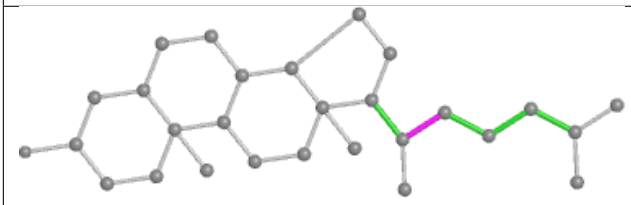
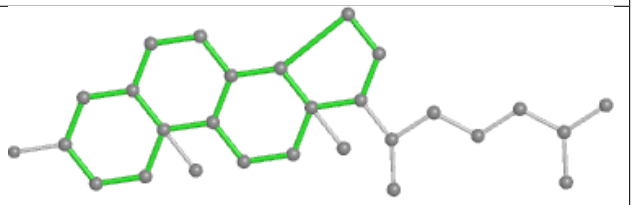


Bond angles

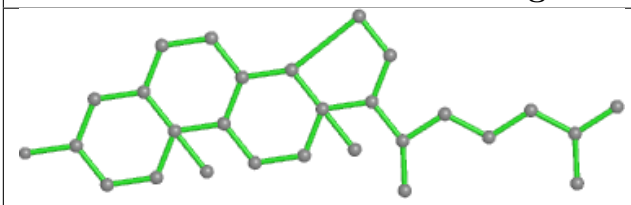


Torsions

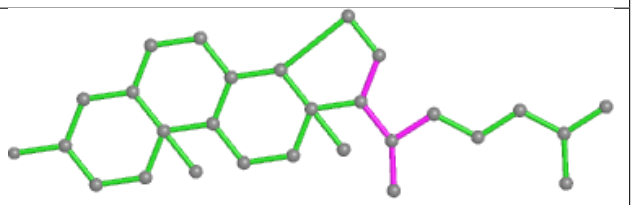


Rings

Ligand CLR o 202



Bond lengths



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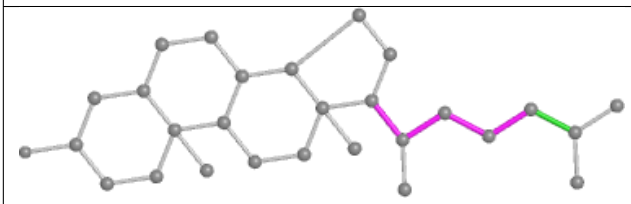

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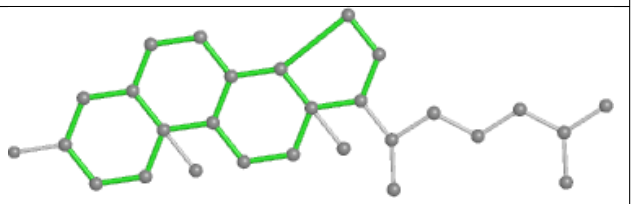
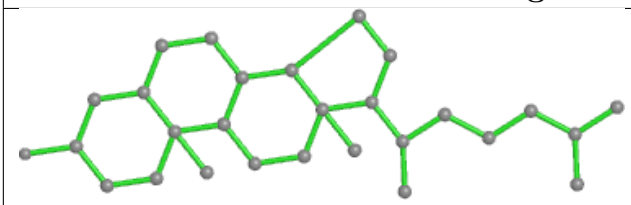
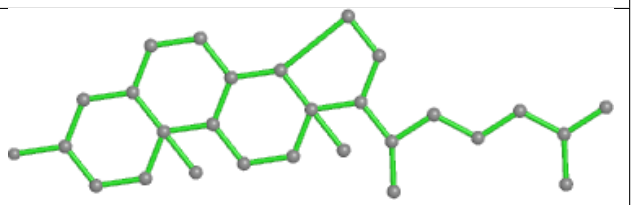


Rings

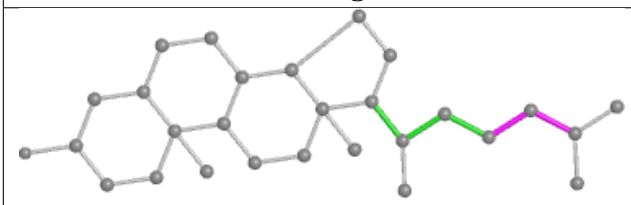
Ligand CLR n 204



Bond lengths



Bond angles



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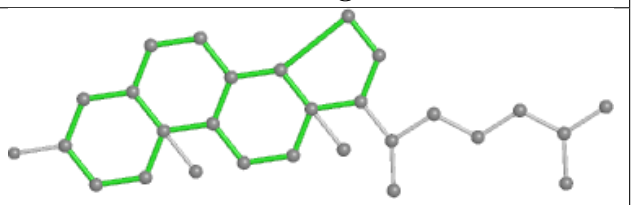
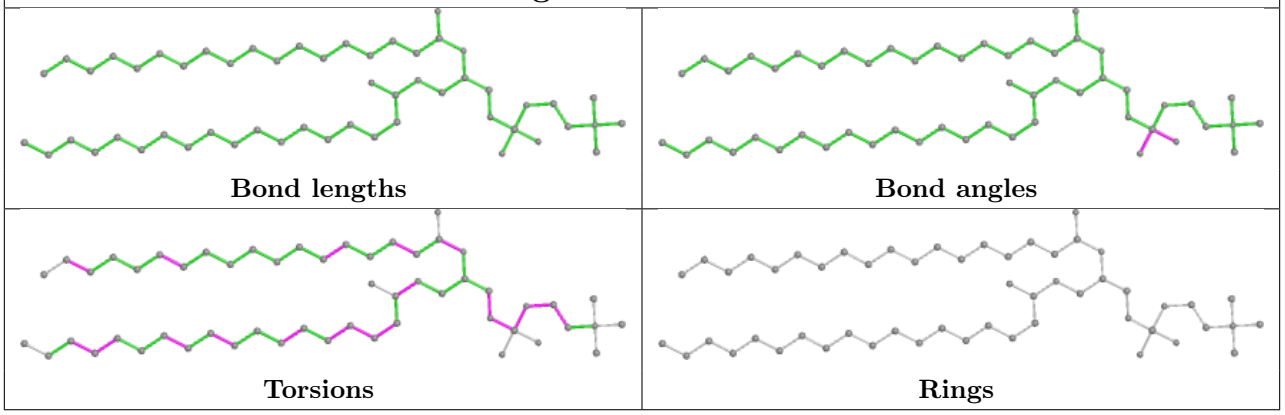
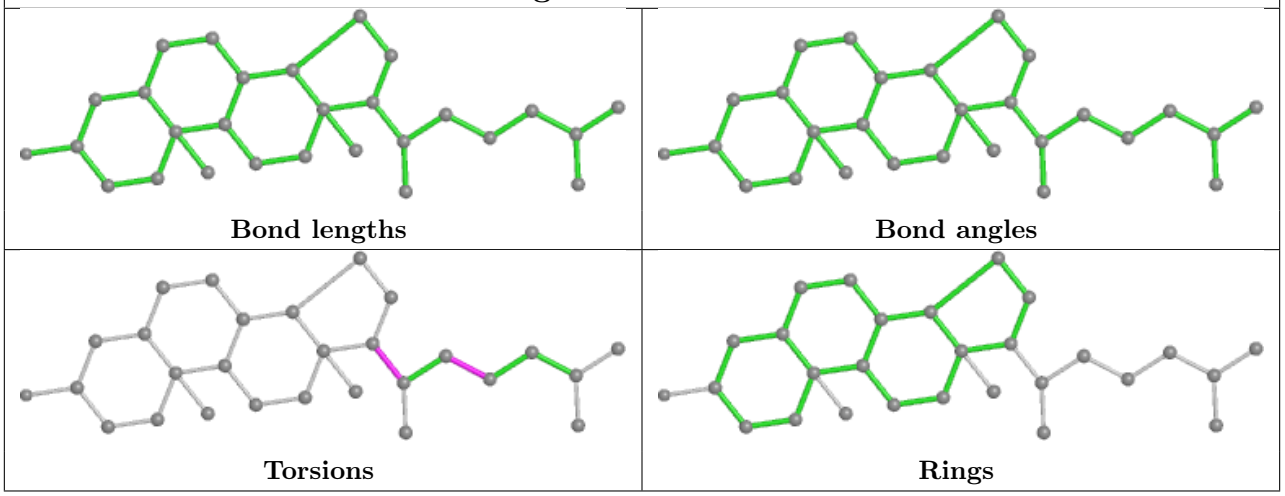


Rings

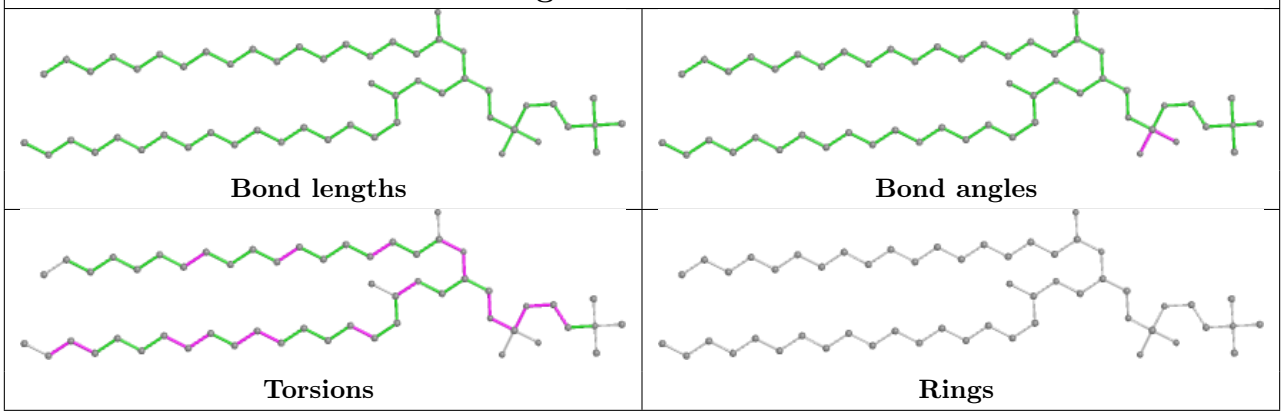
Ligand PC1 a 901



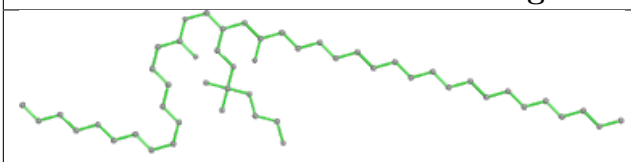
Ligand CLR i 202



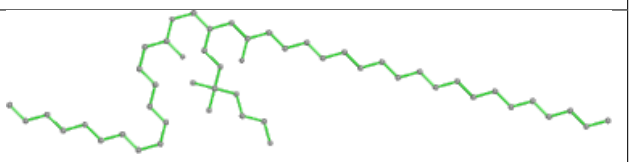
Ligand PC1 l 201



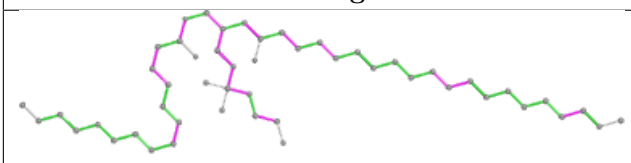
Ligand PTY a 904



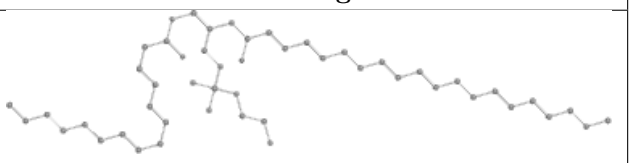
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

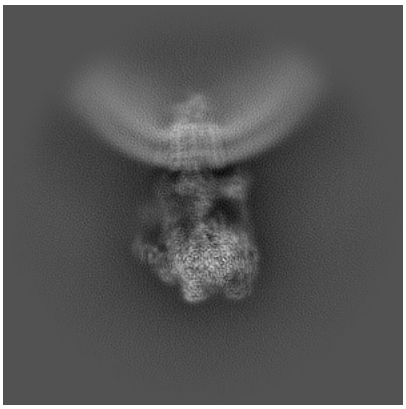
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-44353. These allow visual inspection of the internal detail of the map and identification of artifacts.

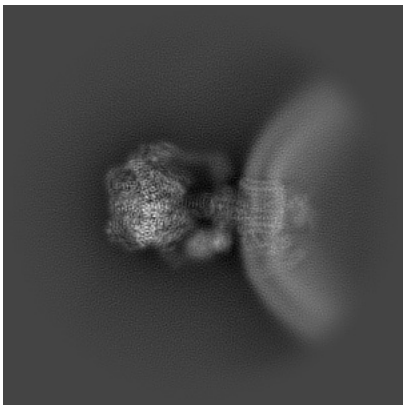
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

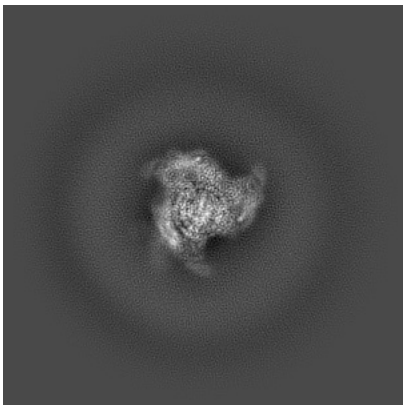
6.1.1 Primary map



X

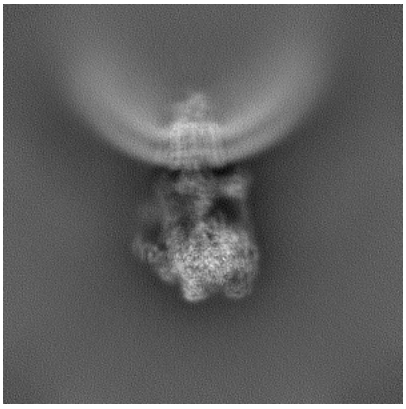


Y

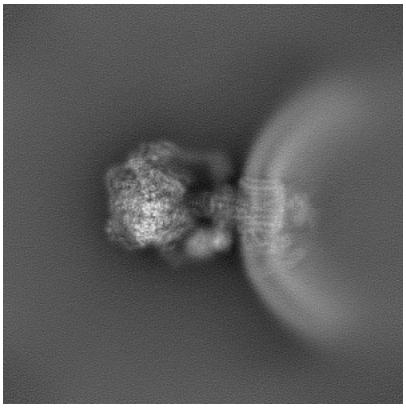


Z

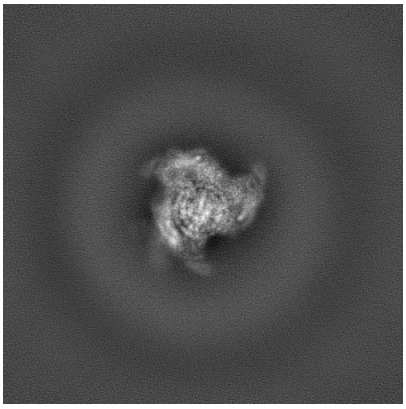
6.1.2 Raw map



X



Y

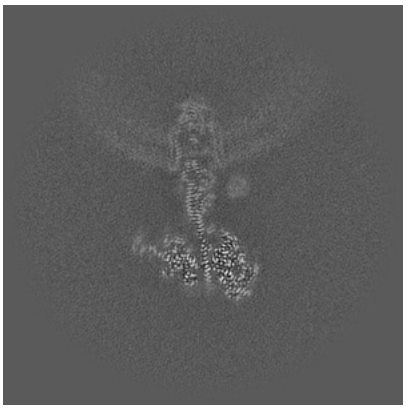


Z

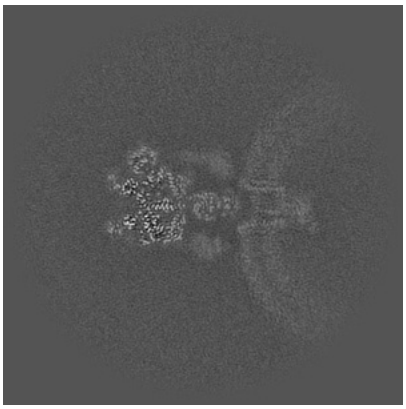
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

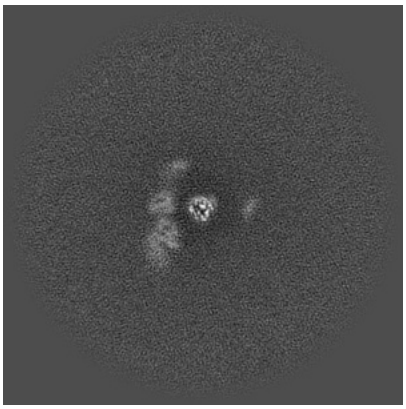
6.2.1 Primary map



X Index: 192

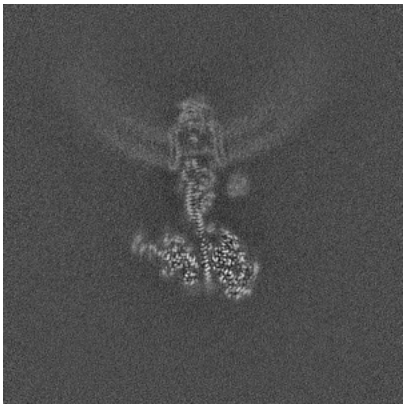


Y Index: 192

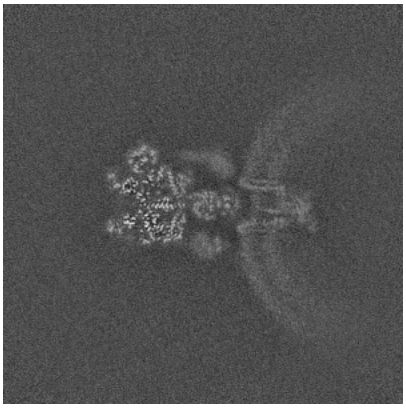


Z Index: 192

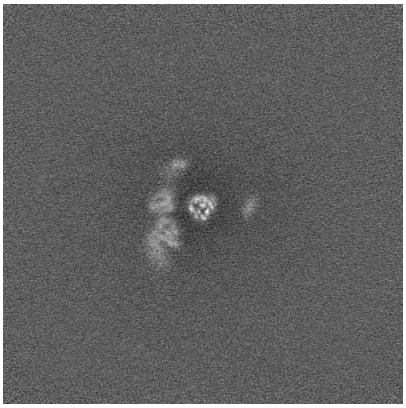
6.2.2 Raw map



X Index: 192



Y Index: 192



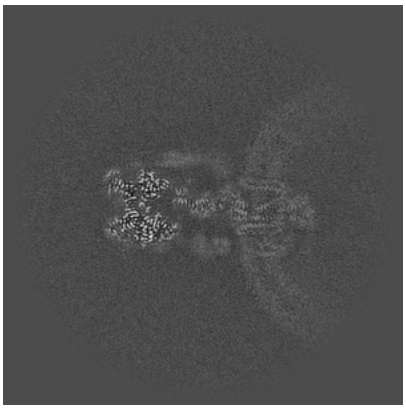
Z Index: 192

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

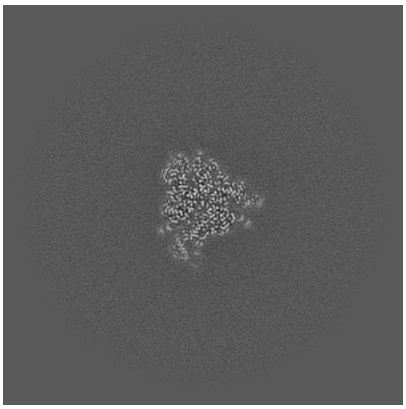
6.3 Largest variance slices (i)

6.3.1 Primary map

X Index: 191

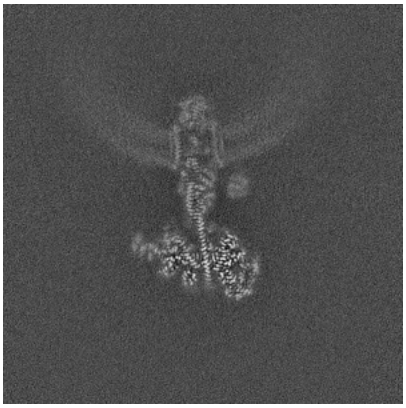


Y Index: 185

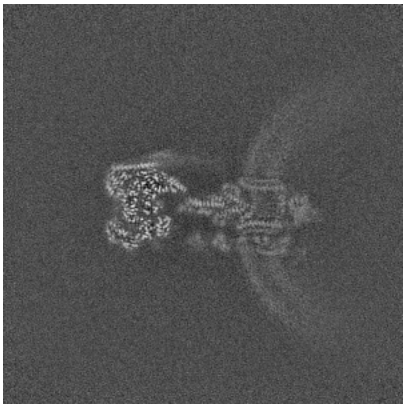


Z Index: 136

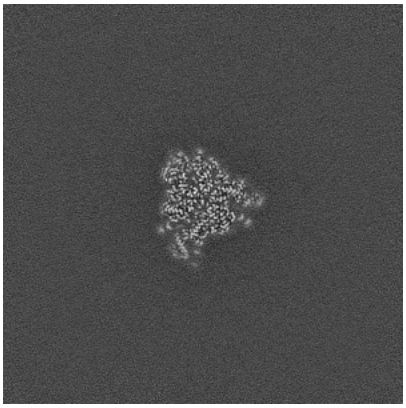
6.3.2 Raw map



X Index: 191



Y Index: 179

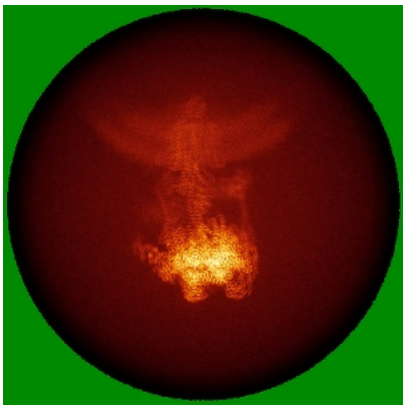


Z Index: 136

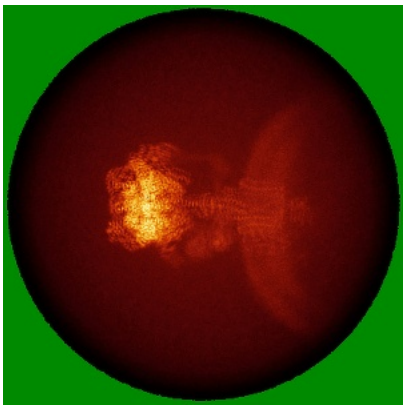
The images above show the largest variance slices of the map in three orthogonal directions.

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

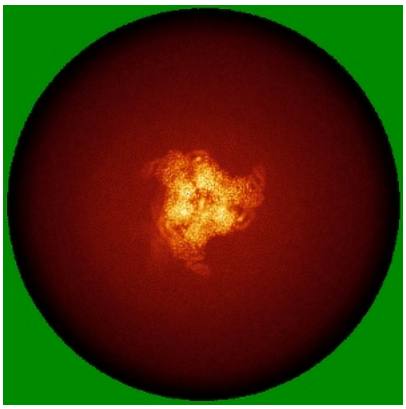
6.4.1 Primary map



X

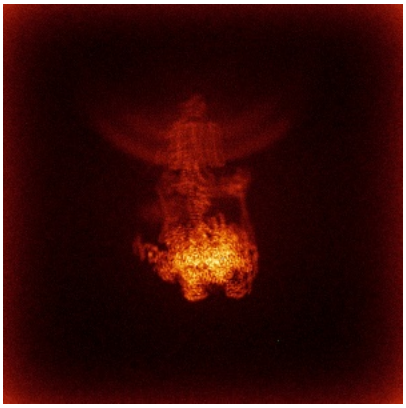


Y

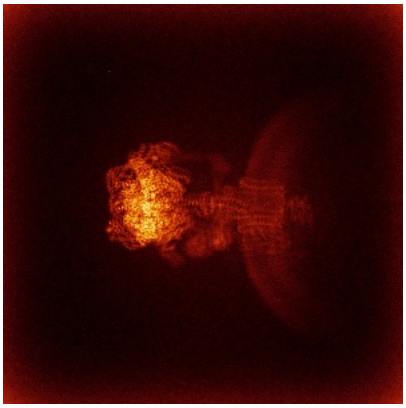


Z

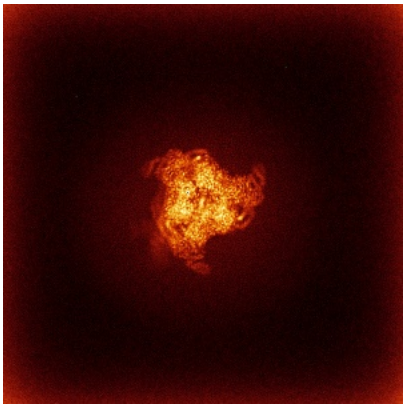
6.4.2 Raw map



X



Y



Z

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

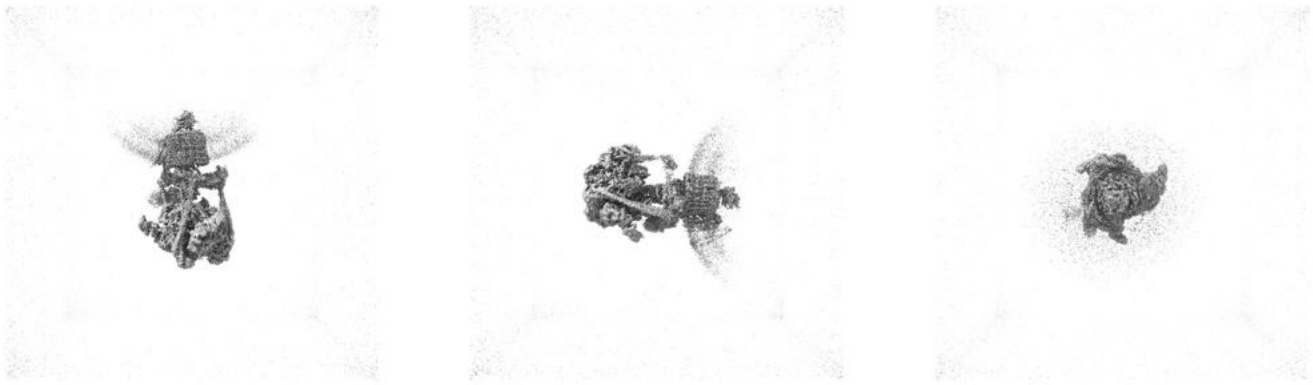
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.185. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

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

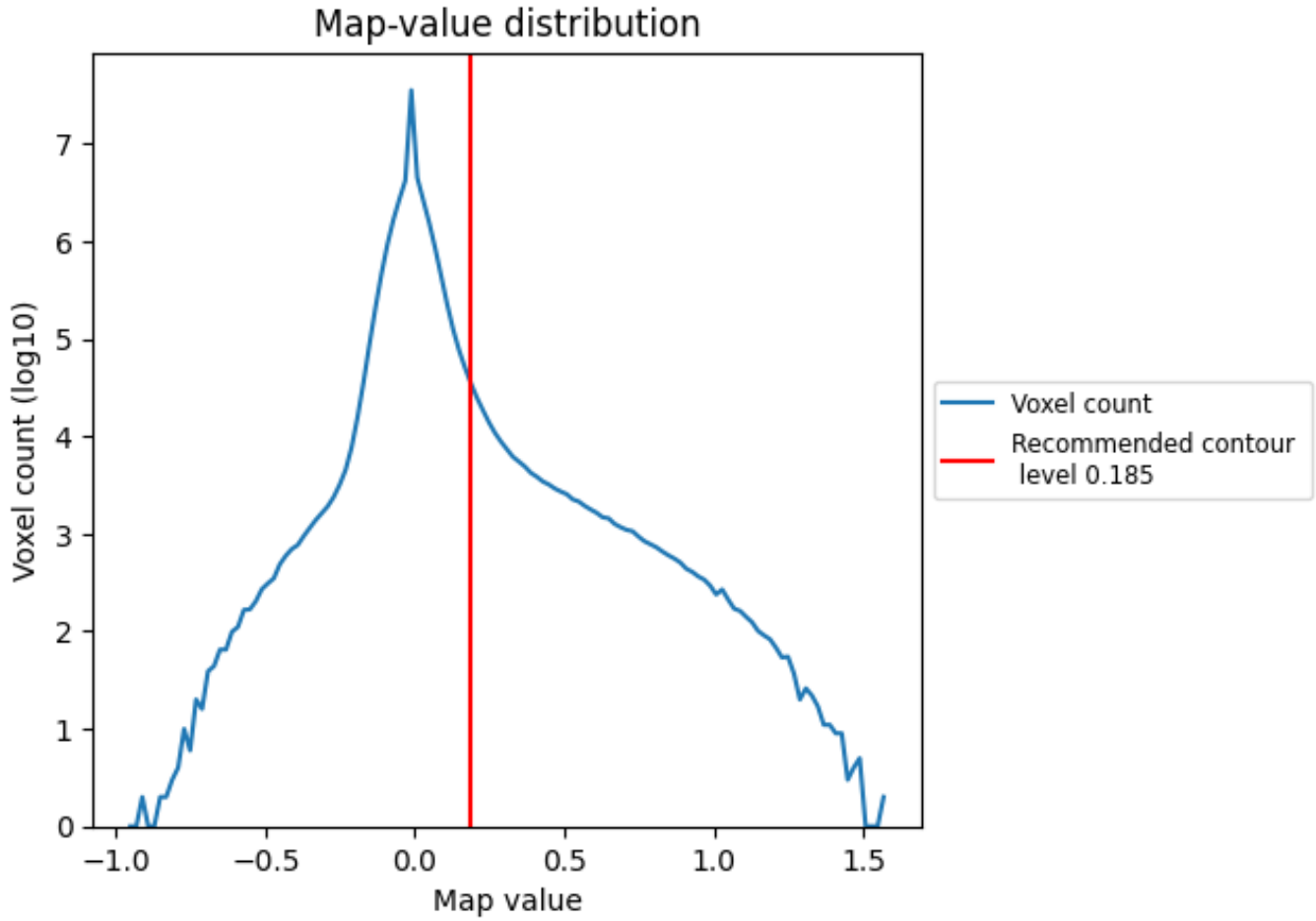
6.6 Mask visualisation (i)

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

7 Map analysis

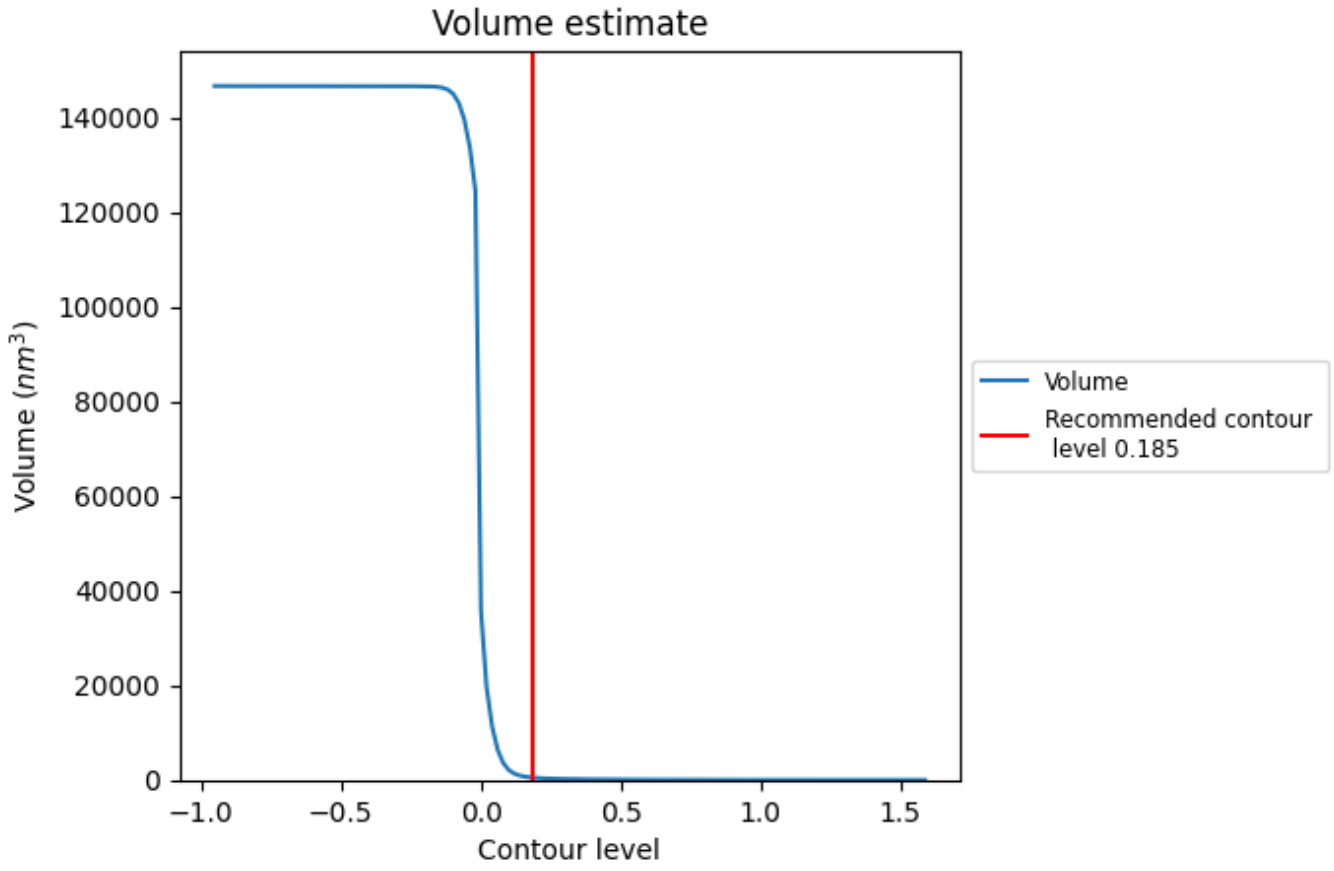
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

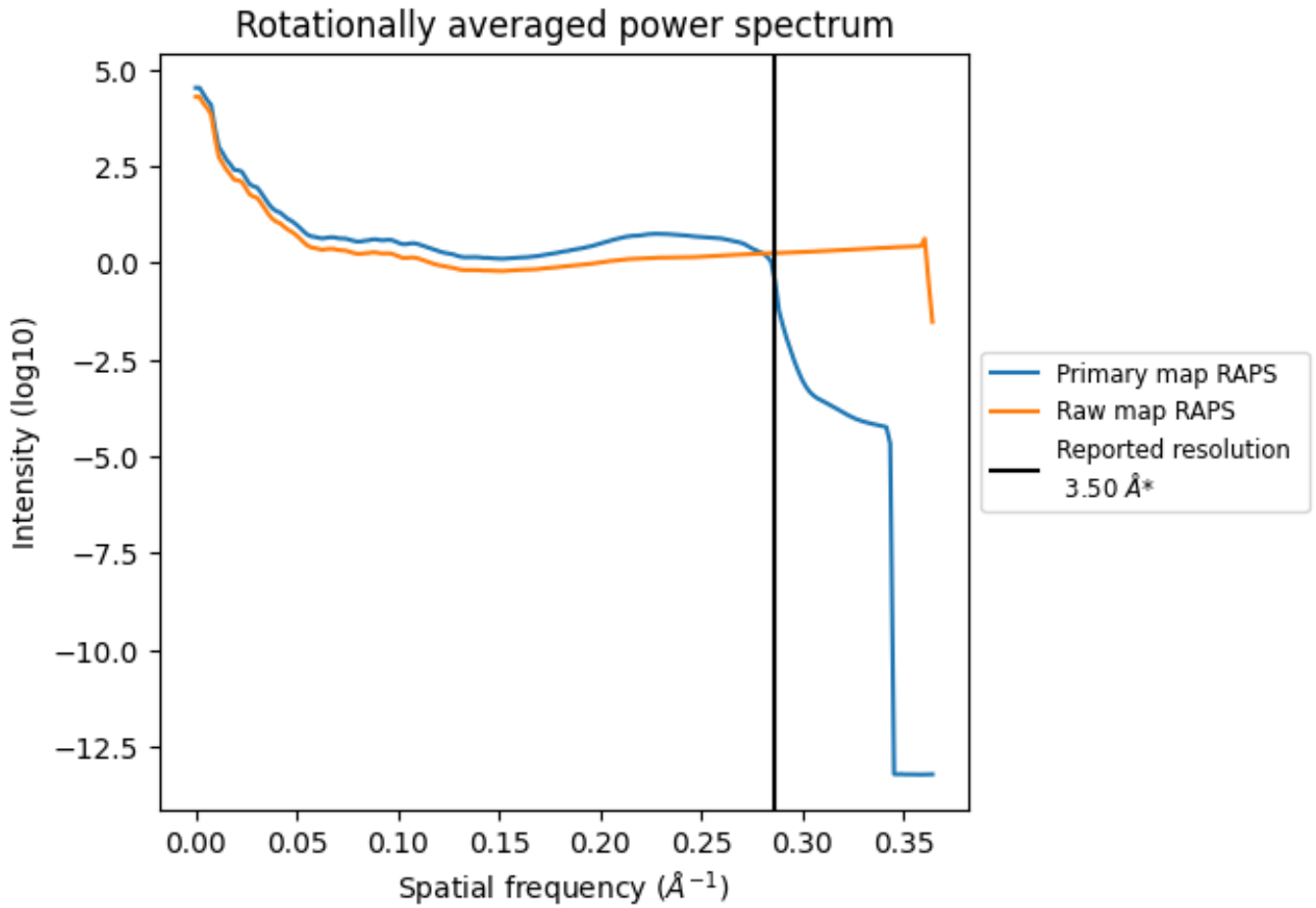
7.2 Volume estimate (i)



The volume at the recommended contour level is 499 nm^3; this corresponds to an approximate mass of 450 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum (i)

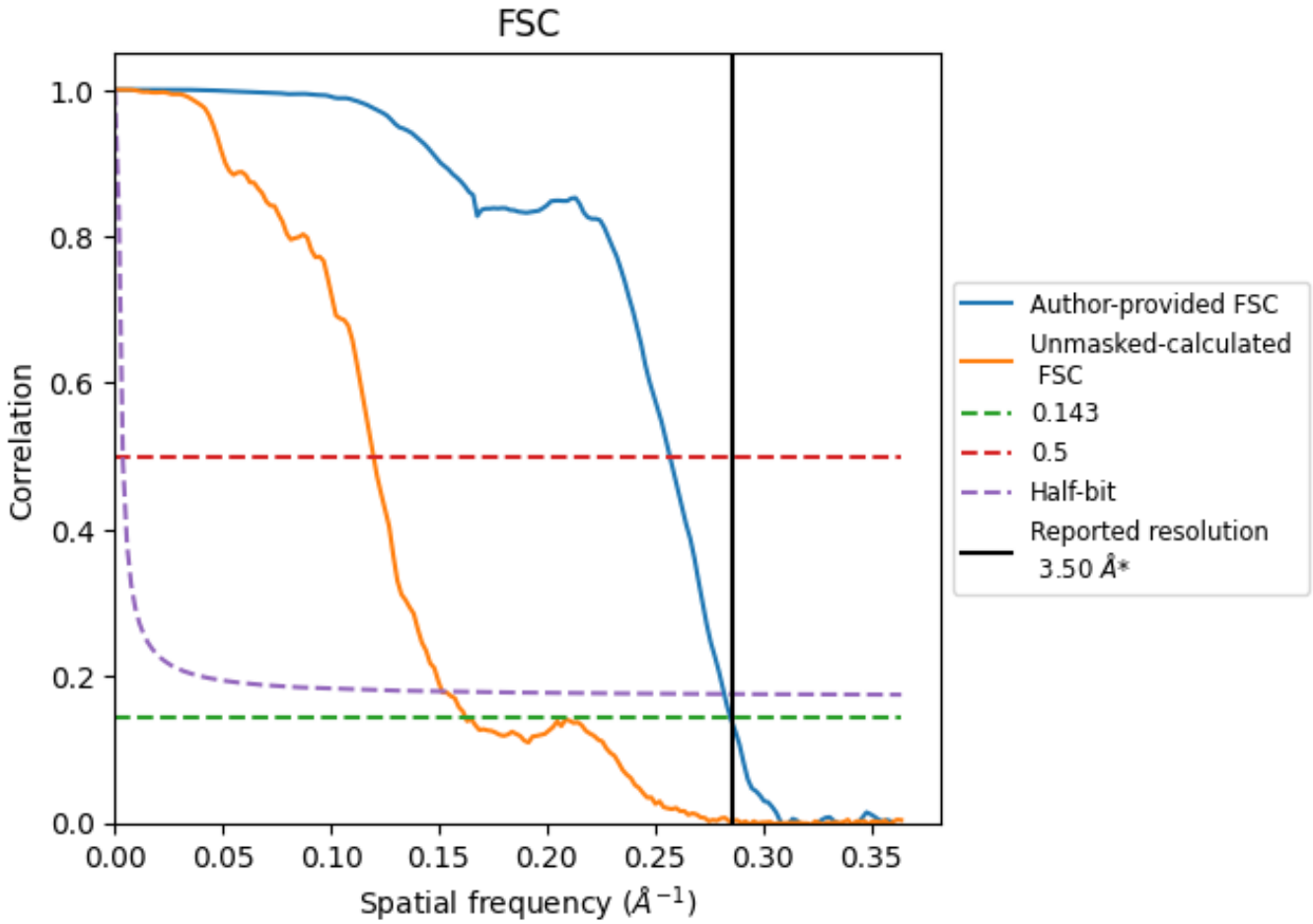


*Reported resolution corresponds to spatial frequency of 0.286 $Å^{-1}$

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 0.286 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.51	3.89	3.54
Unmasked-calculated*	6.16	8.36	6.60

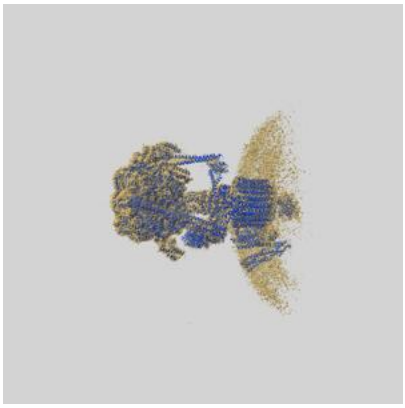
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.16 differs from the reported value 3.5 by more than 10 %

9 Map-model fit

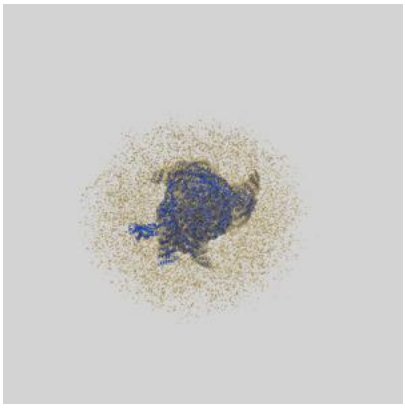
This section contains information regarding the fit between EMDB map EMD-44353 and PDB model 9BRD. Per-residue inclusion information can be found in section 3 on page 16.

9.1 Map-model overlay

X



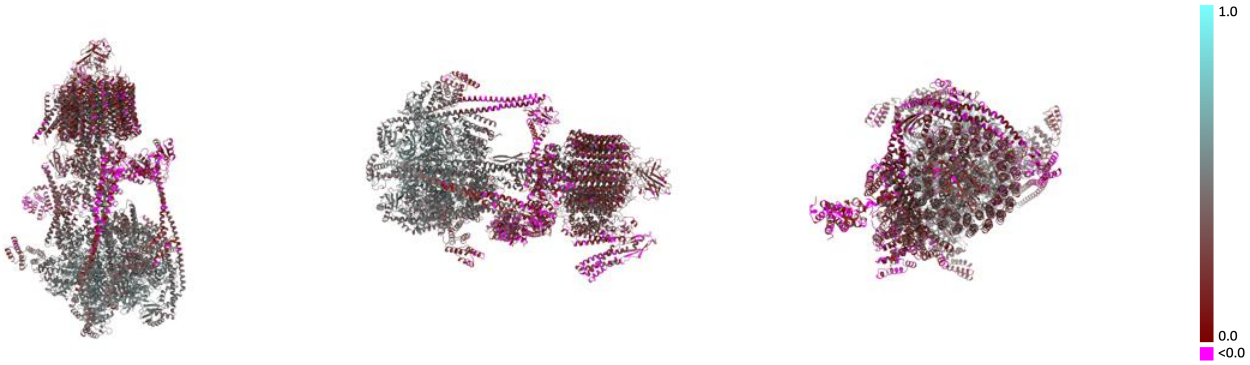
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.185 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

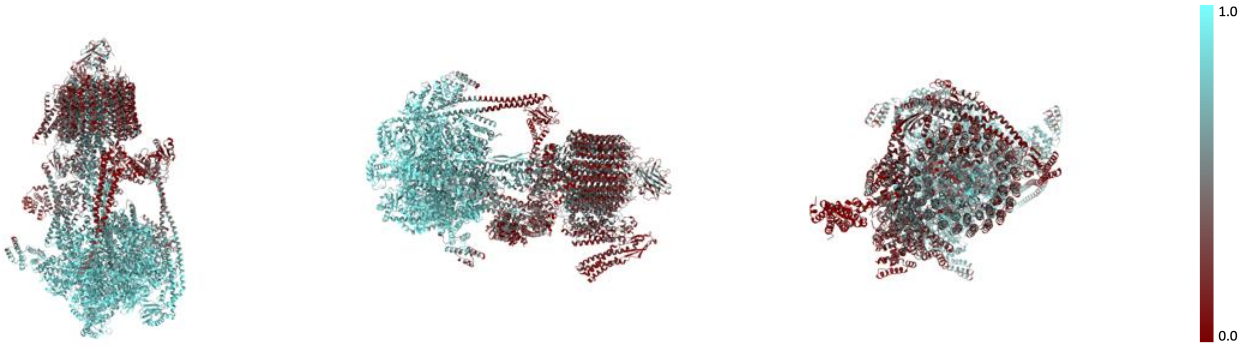
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

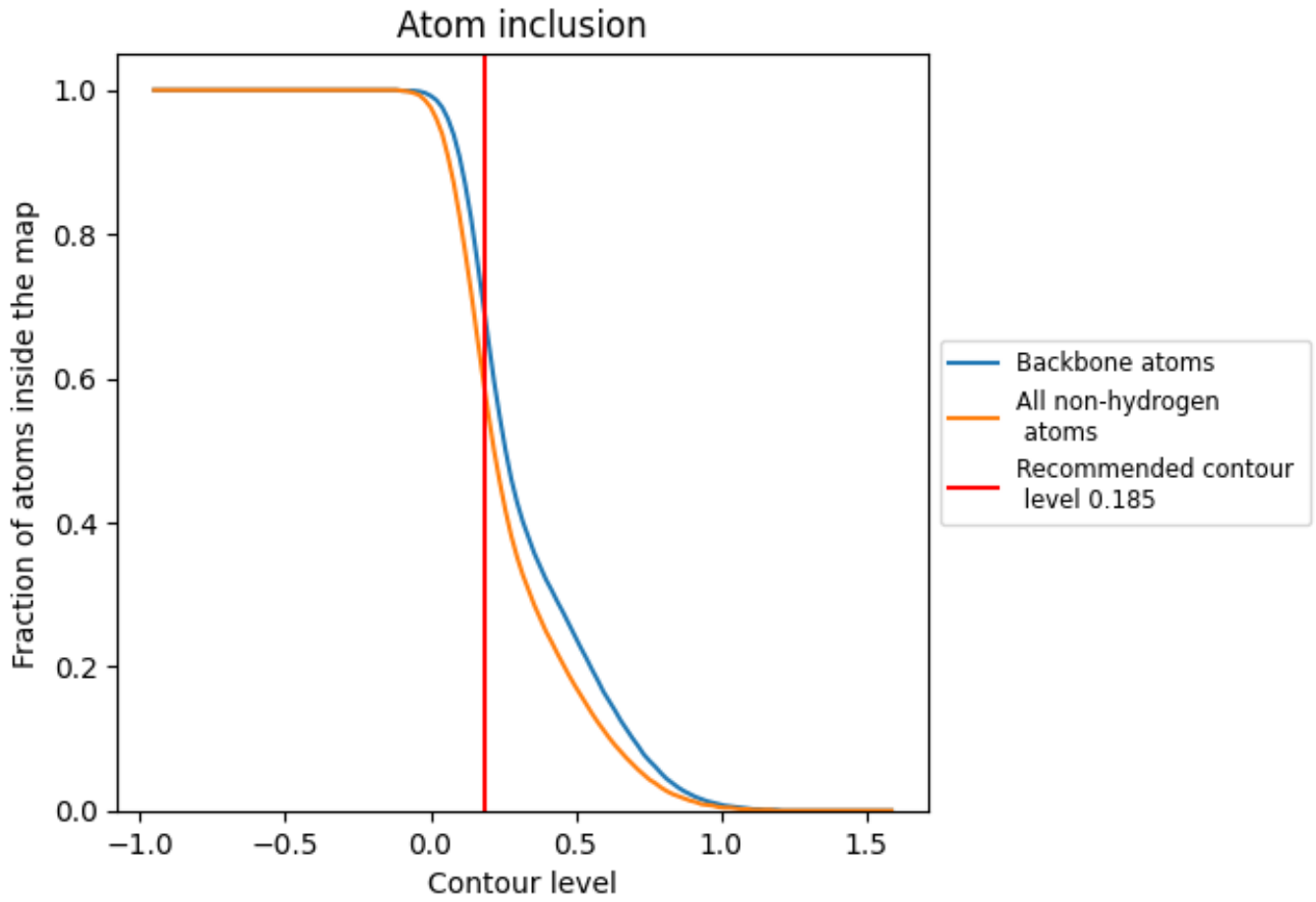
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.185).

9.4 Atom inclusion (i)



At the recommended contour level, 69% of all backbone atoms, 59% 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 (0.185) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5880	0.3510
A	0.8430	0.4940
B	0.8120	0.4820
C	0.8080	0.4710
D	0.8530	0.5110
E	0.8690	0.5140
F	0.8690	0.5120
G	0.2150	0.0830
H	0.7390	0.4320
I	0.7180	0.4000
J	0.7200	0.3680
K	0.6980	0.3660
L	0.6570	0.3720
M	0.6310	0.3150
N	0.6620	0.3080
O	0.5510	0.2490
P	0.4210	0.2740
Q	0.7020	0.3570
R	0.7140	0.3500
S	0.7480	0.3820
T	0.2470	0.1220
U	0.0570	0.0590
V	0.1430	0.0320
W	0.0710	0.0100
X	0.2500	0.1750
Y	0.3930	0.3350
Z	0.2140	0.2230
a	0.3280	0.2100
b	0.4910	0.3580
c	0.3210	0.1100
d	0.5210	0.3490
e	0.2770	0.2280
f	0.2080	0.1400
g	0.5340	0.3640
h	0.3820	0.3030

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Chain	Atom inclusion	Q-score
i	0.2390	0.2180
j	0.2220	0.2160
k	0.2700	0.2060
l	0.2890	0.2180
m	0.2850	0.2180
n	0.3060	0.2520
o	0.4130	0.3080
p	0.2610	0.2900
q	0.1070	0.0340
r	0.1790	0.0680
s	0.3460	0.2230