Full wwPDB EM Validation Report ⓘ

Sep 16, 2025 – 04:25 pm BST

PDB ID	:	9GST / pdb_00009gst
EMDB ID	:	EMD-51554
Title	:	LN02-ML85 Fab in complex with crosslinked DS-SOSIP HIV-1 Env trimer
Authors	:	Pedenko, B.; Effantin, G.; Weissenhorn, W.
Deposited on	:	2024-09-16
Resolution	:	3.10 Å(reported)

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

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

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

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

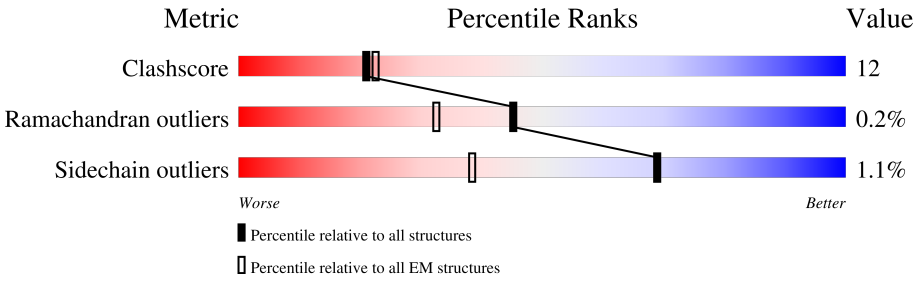
EMDB validation analysis	:	0.0.1.dev126
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0rc1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.10 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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	481	66% 24% • 9%
1	C	481	67% 22% • 11%
1	E	481	66% 22% 12%
2	B	161	52% 19% • 29%
2	D	161	52% 16% • • 30%
2	F	161	42% 30% 28%
3	H	224	43% 10% • 45%
4	L	214	32% 18% 50%

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Mol	Chain	Length	Quality of chain
5	G	2	100%
5	I	2	50% 50%
5	J	2	100%
5	K	2	100%
5	M	2	100%
5	N	2	100%
5	O	2	50% 50%
5	P	2	50% 50%
5	R	2	100%
5	S	2	100%
5	T	2	50% 50%
5	U	2	50% 50%
5	V	2	100%
5	W	2	50% 50%
5	X	2	100%
5	Y	2	100%
5	Z	2	100%
5	b	2	100%
5	c	2	100%
5	d	2	100%
5	e	2	100%
5	g	2	100%
5	h	2	50% 50%
5	i	2	100%
5	j	2	100%

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Mol	Chain	Length	Quality of chain
6	Q	5	60% 40%
7	a	5	20% 80%
8	f	4	75% 25%

2 Entry composition (i)

There are 9 unique types of molecules in this entry. The entry contains 15933 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 Envelope glycoprotein gp160.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	437	Total	C	N	O	S	0	0
			3432	2155	604	643	30		
1	C	430	Total	C	N	O	S	0	0
			3373	2118	592	633	30		
1	E	425	Total	C	N	O	S	0	0
			3349	2105	588	626	30		

There are 21 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	201	CYS	ILE	conflict	UNP A0A6H1VH54
A	375	SER	TYR	conflict	UNP A0A6H1VH54
A	433	CYS	ALA	conflict	UNP A0A6H1VH54
A	501	CYS	ALA	conflict	UNP A0A6H1VH54
A	509	ARG	GLU	conflict	UNP A0A6H1VH54
A	512	ARG	-	expression tag	UNP A0A6H1VH54
A	513	ARG	-	expression tag	UNP A0A6H1VH54
C	201	CYS	ILE	conflict	UNP A0A6H1VH54
C	375	SER	TYR	conflict	UNP A0A6H1VH54
C	433	CYS	ALA	conflict	UNP A0A6H1VH54
C	501	CYS	ALA	conflict	UNP A0A6H1VH54
C	509	ARG	GLU	conflict	UNP A0A6H1VH54
C	512	ARG	-	expression tag	UNP A0A6H1VH54
C	513	ARG	-	expression tag	UNP A0A6H1VH54
E	201	CYS	ILE	conflict	UNP A0A6H1VH54
E	375	SER	TYR	conflict	UNP A0A6H1VH54
E	433	CYS	ALA	conflict	UNP A0A6H1VH54
E	501	CYS	ALA	conflict	UNP A0A6H1VH54
E	509	ARG	GLU	conflict	UNP A0A6H1VH54
E	512	ARG	-	expression tag	UNP A0A6H1VH54
E	513	ARG	-	expression tag	UNP A0A6H1VH54

- Molecule 2 is a protein called Envelope glycoprotein gp160.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	115	Total	C	N	O	S	0	0
			917	579	157	175	6		
2	D	112	Total	C	N	O	S	0	0
			895	566	155	168	6		
2	F	116	Total	C	N	O	S	0	0
			930	586	162	176	6		

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	559	PRO	ILE	conflict	UNP A0A6H1VGP3
B	605	CYS	THR	conflict	UNP A0A6H1VGP3
B	665	ASP	LYS	conflict	UNP A0A6H1VGP3
B	666	TYR	TRP	conflict	UNP A0A6H1VGP3
B	667	LYS	-	expression tag	UNP A0A6H1VGP3
B	668	ASP	-	expression tag	UNP A0A6H1VGP3
B	669	ASP	-	expression tag	UNP A0A6H1VGP3
B	670	ASP	-	expression tag	UNP A0A6H1VGP3
B	671	ASP	-	expression tag	UNP A0A6H1VGP3
B	672	LYS	-	expression tag	UNP A0A6H1VGP3
D	559	PRO	ILE	conflict	UNP A0A6H1VGP3
D	605	CYS	THR	conflict	UNP A0A6H1VGP3
D	665	ASP	LYS	conflict	UNP A0A6H1VGP3
D	666	TYR	TRP	conflict	UNP A0A6H1VGP3
D	667	LYS	-	expression tag	UNP A0A6H1VGP3
D	668	ASP	-	expression tag	UNP A0A6H1VGP3
D	669	ASP	-	expression tag	UNP A0A6H1VGP3
D	670	ASP	-	expression tag	UNP A0A6H1VGP3
D	671	ASP	-	expression tag	UNP A0A6H1VGP3
D	672	LYS	-	expression tag	UNP A0A6H1VGP3
F	559	PRO	ILE	conflict	UNP A0A6H1VGP3
F	605	CYS	THR	conflict	UNP A0A6H1VGP3
F	665	ASP	LYS	conflict	UNP A0A6H1VGP3
F	666	TYR	TRP	conflict	UNP A0A6H1VGP3
F	667	LYS	-	expression tag	UNP A0A6H1VGP3
F	668	ASP	-	expression tag	UNP A0A6H1VGP3
F	669	ASP	-	expression tag	UNP A0A6H1VGP3
F	670	ASP	-	expression tag	UNP A0A6H1VGP3
F	671	ASP	-	expression tag	UNP A0A6H1VGP3
F	672	LYS	-	expression tag	UNP A0A6H1VGP3

- Molecule 3 is a protein called Heavy chain Fab of antibody LN02-ML85.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	H	123	Total	C	N	O	S	0	0
			938	593	167	171	7		

- Molecule 4 is a protein called Light chain of antibody LN02-ML85.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	L	108	Total	C	N	O	S	0	0
			821	523	131	163	4		

- Molecule 5 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
5	G	2	Total	C	N	O	0	0
			28	16	2	10		
5	I	2	Total	C	N	O	0	0
			28	16	2	10		
5	J	2	Total	C	N	O	0	0
			28	16	2	10		
5	K	2	Total	C	N	O	0	0
			28	16	2	10		
5	M	2	Total	C	N	O	0	0
			28	16	2	10		
5	N	2	Total	C	N	O	0	0
			28	16	2	10		
5	O	2	Total	C	N	O	0	0
			28	16	2	10		
5	P	2	Total	C	N	O	0	0
			28	16	2	10		
5	R	2	Total	C	N	O	0	0
			28	16	2	10		
5	S	2	Total	C	N	O	0	0
			28	16	2	10		
5	T	2	Total	C	N	O	0	0
			28	16	2	10		
5	U	2	Total	C	N	O	0	0
			28	16	2	10		
5	V	2	Total	C	N	O	0	0
			28	16	2	10		

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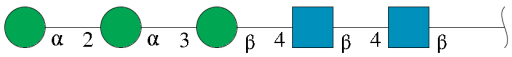
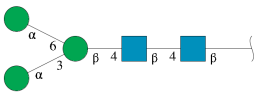
Mol	Chain	Residues	Atoms				AltConf	Trace
5	W	2	Total	C	N	O	0	0
			28	16	2	10		
5	X	2	Total	C	N	O	0	0
			28	16	2	10		
5	Y	2	Total	C	N	O	0	0
			28	16	2	10		
5	Z	2	Total	C	N	O	0	0
			28	16	2	10		
5	b	2	Total	C	N	O	0	0
			28	16	2	10		
5	c	2	Total	C	N	O	0	0
			28	16	2	10		
5	d	2	Total	C	N	O	0	0
			28	16	2	10		
5	e	2	Total	C	N	O	0	0
			28	16	2	10		
5	g	2	Total	C	N	O	0	0
			28	16	2	10		
5	h	2	Total	C	N	O	0	0
			28	16	2	10		
5	i	2	Total	C	N	O	0	0
			28	16	2	10		
5	j	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 6 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-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
6	Q	5	Total	C	N	O	0	0
			61	34	2	25		

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[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.

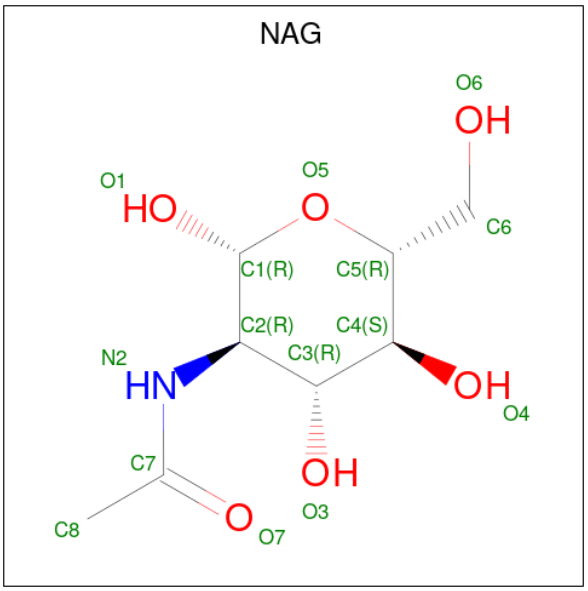


Mol	Chain	Residues	Atoms	AltConf	Trace
7	a	5	Total C N O 61 34 2 25	0	0

- Molecule 8 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-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
8	f	4	Total C N O 50 28 2 20	0	0

- Molecule 9 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
9	A	1	Total C N O 14 8 1 5	0
9	A	1	Total C N O 14 8 1 5	0

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Mol	Chain	Residues	Atoms	AltConf
9	A	1	Total C N O 14 8 1 5	0
9	A	1	Total C N O 14 8 1 5	0
9	A	1	Total C N O 14 8 1 5	0
9	B	1	Total C N O 14 8 1 5	0
9	B	1	Total C N O 14 8 1 5	0
9	B	1	Total C N O 14 8 1 5	0
9	B	1	Total C N O 14 8 1 5	0
9	C	1	Total C N O 14 8 1 5	0
9	C	1	Total C N O 14 8 1 5	0
9	C	1	Total C N O 14 8 1 5	0
9	C	1	Total C N O 14 8 1 5	0
9	C	1	Total C N O 14 8 1 5	0
9	C	1	Total C N O 14 8 1 5	0
9	C	1	Total C N O 14 8 1 5	0
9	D	1	Total C N O 14 8 1 5	0
9	D	1	Total C N O 14 8 1 5	0
9	E	1	Total C N O 14 8 1 5	0
9	E	1	Total C N O 14 8 1 5	0
9	E	1	Total C N O 14 8 1 5	0
9	E	1	Total C N O 14 8 1 5	0
9	E	1	Total C N O 14 8 1 5	0

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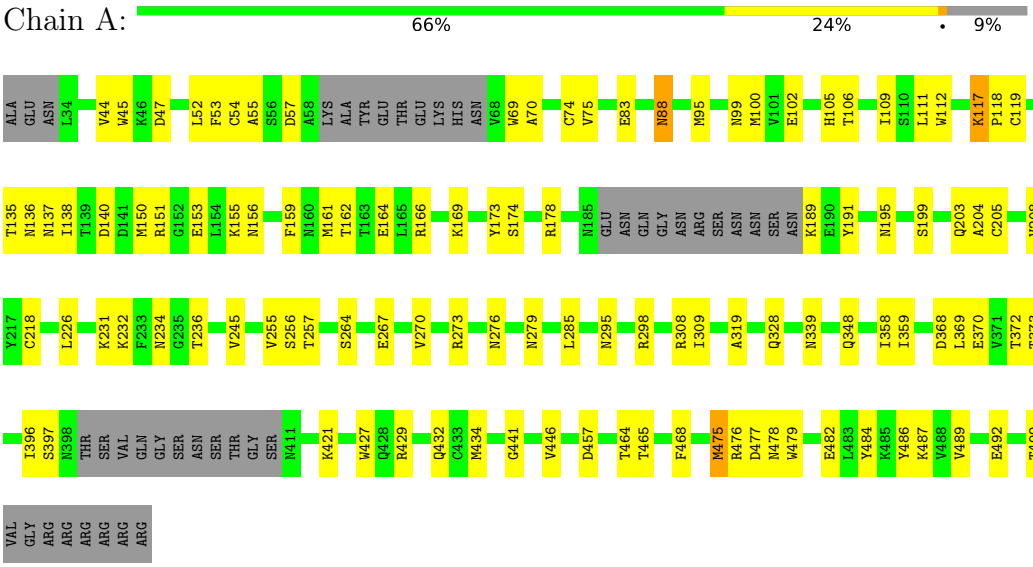
Mol	Chain	Residues	Atoms				AltConf
9	E	1	Total	C	N	O	0
			14	8	1	5	
9	E	1	Total	C	N	O	0
			14	8	1	5	
9	E	1	Total	C	N	O	0
			14	8	1	5	
9	E	1	Total	C	N	O	0
			14	8	1	5	
9	F	1	Total	C	N	O	0
			14	8	1	5	
9	F	1	Total	C	N	O	0
			14	8	1	5	

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.

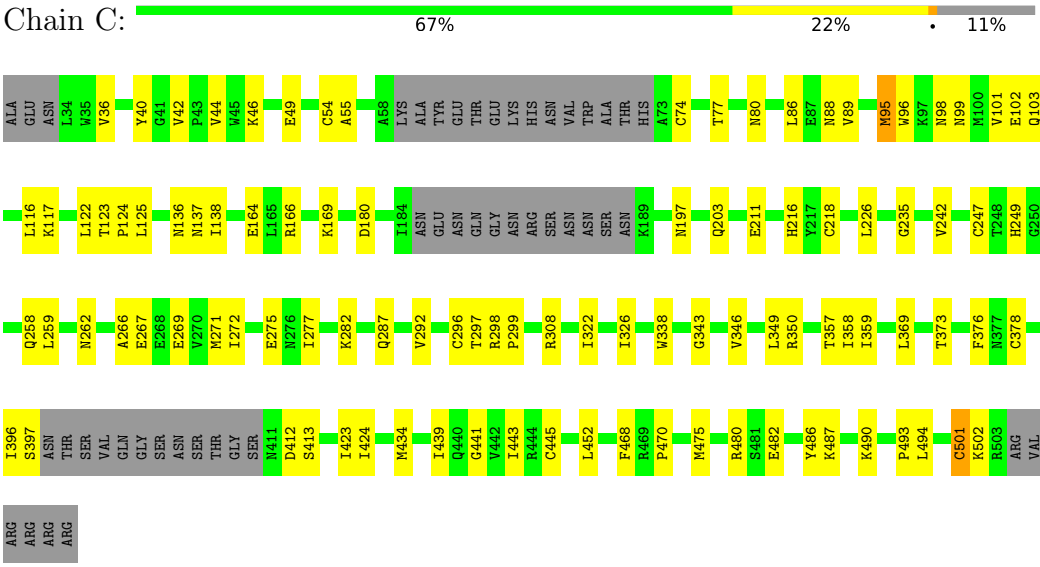
• Molecule 1: Envelope glycoprotein gp160

Chain A:



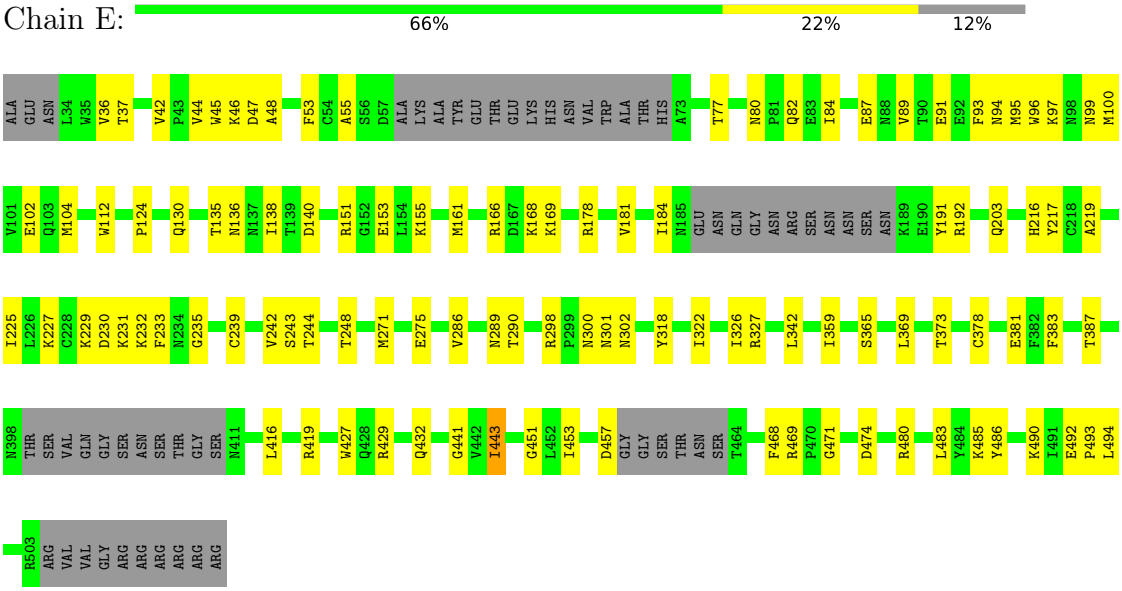
• Molecule 1: Envelope glycoprotein gp160

Chain C:



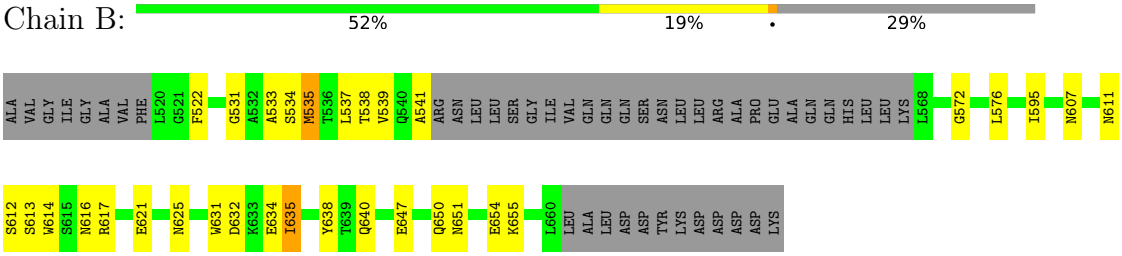
• Molecule 1: Envelope glycoprotein gp160

Chain E:



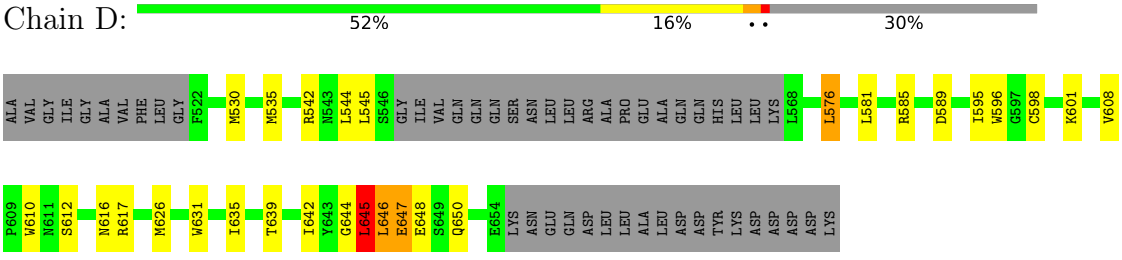
• Molecule 2: Envelope glycoprotein gp160

Chain B:



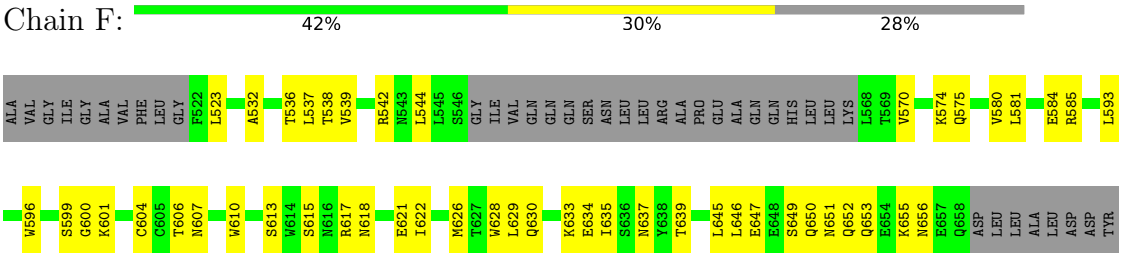
• Molecule 2: Envelope glycoprotein gp160

Chain D:



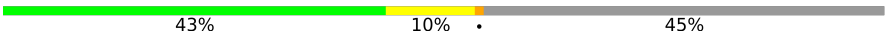
• Molecule 2: Envelope glycoprotein gp160

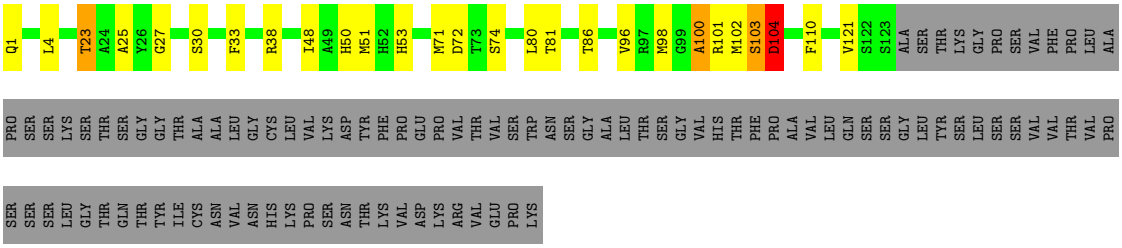
Chain F:



• Molecule 3: Heavy chain Fab of antibody LN02-ML85

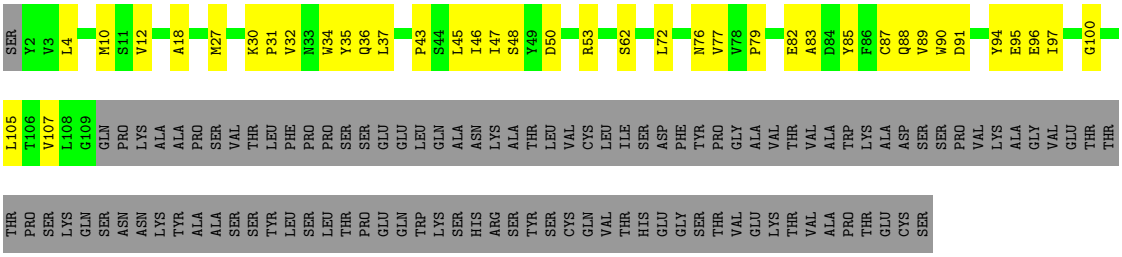
Chain H:





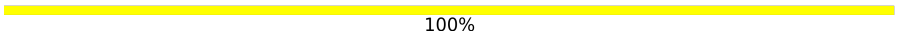
• Molecule 4: Light chain of antibody LN02-ML85

Chain L:



• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:

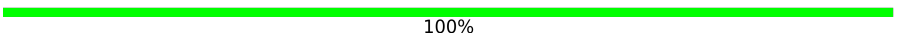


• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I:

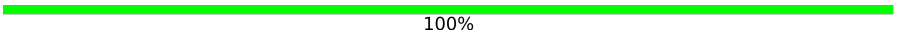
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:



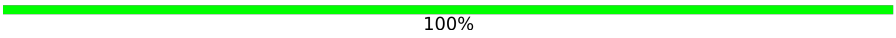
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain K:



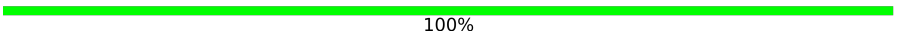
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain M:



• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:



• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

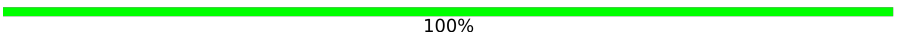
Chain O:

• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain P:

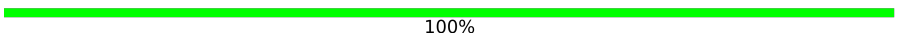
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain R:



• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:



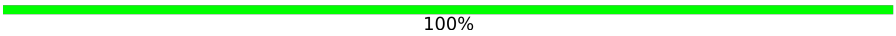
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain T: 

• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain U: 

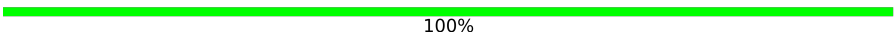
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V: 

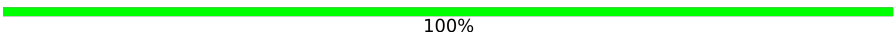
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W: 

• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

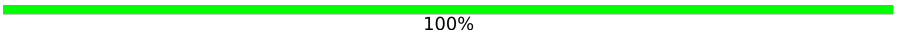
Chain X: 

• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Y: 

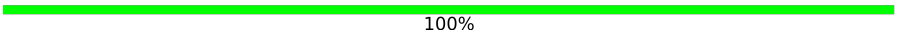
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:



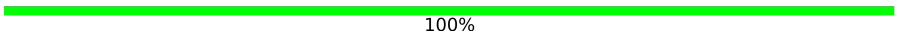
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain b:



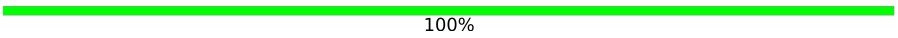
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain c:



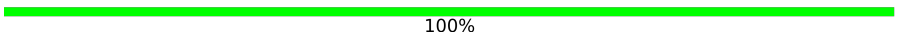
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain d:



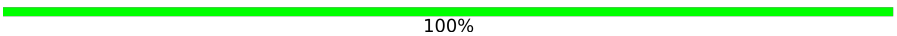
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain e:



• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain g:

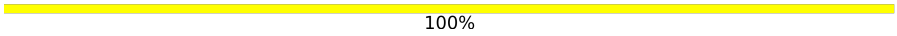


• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain h:

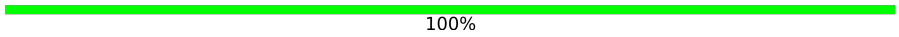
• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain i:



• Molecule 5: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain j:



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

Chain Q:

• Molecule 7: alpha-D-mannopyranose-(1-3)-[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 a:

• Molecule 8: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain f:

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	98398	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 ($e^-/Å^2$)	50.2	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.467	Depositor
Minimum map value	-0.167	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.0456	Depositor
Map size (Å)	295.68, 295.68, 295.68	wwPDB
Map dimensions	352, 352, 352	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.84, 0.84, 0.84	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MAN, BMA, NAG

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	0.39	0/3503	0.49	3/4756 (0.1%)
1	C	0.38	0/3441	0.49	1/4669 (0.0%)
1	E	0.24	0/3416	0.39	0/4634
2	B	0.42	1/934 (0.1%)	0.48	0/1267
2	D	0.44	1/912 (0.1%)	0.48	1/1238 (0.1%)
2	F	0.41	0/947	0.54	1/1284 (0.1%)
3	H	0.62	2/964 (0.2%)	0.61	2/1311 (0.2%)
4	L	0.20	0/845	0.41	0/1153
All	All	0.38	4/14962 (0.0%)	0.48	8/20312 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	H	100	ALA	N-CA	-6.90	1.38	1.46
3	H	103	SER	CA-C	-5.41	1.49	1.52
2	B	535	MET	CA-CB	-5.33	1.45	1.53
2	D	645	LEU	CA-C	-5.22	1.45	1.52

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	H	104	ASP	N-CA-C	-7.81	103.88	113.41
1	C	480	ARG	N-CA-C	-7.59	102.36	111.69
1	A	475	MET	N-CA-C	-6.28	104.89	113.30
3	H	101	ARG	N-CA-C	-6.20	100.06	109.85
2	F	532	ALA	N-CA-C	-5.52	105.41	111.82
2	D	646	LEU	N-CA-C	-5.46	99.17	110.80
1	A	476	ARG	N-CA-C	-5.44	105.00	111.69
1	A	88	ASN	N-CA-C	5.23	118.93	112.24

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3432	0	3365	87	0
1	C	3373	0	3316	86	0
1	E	3349	0	3293	89	0
2	B	917	0	887	32	0
2	D	895	0	873	28	0
2	F	930	0	906	41	0
3	H	938	0	926	22	0
4	L	821	0	769	24	0
5	G	28	0	25	0	0
5	I	28	0	25	3	0
5	J	28	0	25	0	0
5	K	28	0	25	0	0
5	M	28	0	25	0	0
5	N	28	0	25	0	0
5	O	28	0	25	1	0
5	P	28	0	25	1	0
5	R	28	0	25	0	0
5	S	28	0	25	0	0
5	T	28	0	25	0	0
5	U	28	0	25	0	0
5	V	28	0	25	0	0
5	W	28	0	25	0	0
5	X	28	0	25	0	0
5	Y	28	0	25	0	0
5	Z	28	0	25	0	0
5	b	28	0	25	0	0
5	c	28	0	25	0	0
5	d	28	0	25	0	0
5	e	28	0	25	0	0
5	g	28	0	25	0	0
5	h	28	0	25	1	0
5	i	28	0	25	1	0
5	j	28	0	25	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	Q	61	0	52	0	0
7	a	61	0	52	1	0
8	f	50	0	43	0	0
9	A	70	0	65	4	0
9	B	56	0	52	2	0
9	C	98	0	91	1	0
9	D	28	0	26	0	0
9	E	126	0	117	2	0
9	F	28	0	26	0	0
All	All	15933	0	15484	366	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 12.

All (366) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:538:THR:HG21	3:H:102:MET:CE	1.96	0.96
1:C:138:ILE:HG22	1:C:326:ILE:HD11	1.53	0.91
2:B:538:THR:HG21	3:H:102:MET:HE2	1.54	0.87
1:C:218:CYS:HA	1:C:247:CYS:HB3	1.61	0.83
1:A:140:ASP:HA	1:A:151:ARG:HH21	1.47	0.79
1:A:358:ILE:HD11	1:A:465:THR:HG22	1.65	0.78
1:A:166:ARG:HH22	1:C:169:LYS:HZ3	1.31	0.78
1:C:275:GLU:OE1	1:C:282:LYS:NZ	2.16	0.78
1:C:55:ALA:HB3	1:C:216:HIS:HB2	1.65	0.78
1:A:255:VAL:HG22	1:A:475:MET:HE2	1.66	0.77
1:C:251:ILE:HD11	1:C:482:GLU:HB3	1.65	0.77
1:A:195:ASN:ND2	1:A:199:SER:O	2.17	0.76
4:L:34:TRP:HB2	4:L:47:ILE:HB	1.65	0.76
1:E:302:ASN:HB3	1:E:322:ILE:HG12	1.68	0.74
1:A:55:ALA:HB3	1:A:216:HIS:HB2	1.68	0.74
1:E:494:LEU:HD21	2:F:593:LEU:HD11	1.68	0.74
2:B:535:MET:C	2:B:537:LEU:H	1.95	0.73
2:B:538:THR:HG21	3:H:102:MET:HE1	1.69	0.73
3:H:4:LEU:HB2	3:H:23:THR:HG23	1.74	0.70
1:E:219:ALA:HB2	1:E:225:ILE:HG13	1.72	0.69
1:E:387:THR:HG22	1:E:416:LEU:HD13	1.74	0.69
4:L:53:ARG:NH2	4:L:62:SER:OG	2.27	0.68
1:A:83:GLU:HG3	1:A:245:VAL:HG12	1.77	0.66
2:B:535:MET:C	2:B:537:LEU:N	2.52	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:42:VAL:HG12	1:C:493:PRO:HA	1.76	0.66
2:D:644:GLY:O	2:D:646:LEU:N	2.25	0.66
3:H:4:LEU:HG	3:H:25:ALA:HB2	1.78	0.66
2:D:644:GLY:C	2:D:646:LEU:H	2.04	0.65
3:H:33:PHE:HB3	3:H:98:MET:HE3	1.78	0.65
3:H:96:VAL:HG11	3:H:110:PHE:HB3	1.79	0.65
2:B:613:SER:HB3	9:B:701:NAG:H5	1.77	0.65
1:C:298:ARG:NH2	1:C:441:GLY:O	2.30	0.65
1:E:429:ARG:NH1	1:E:432:GLN:OE1	2.30	0.65
1:E:365:SER:HB2	1:E:469:ARG:HH11	1.62	0.64
1:E:140:ASP:HA	1:E:151:ARG:HH12	1.62	0.64
1:A:298:ARG:NH2	1:A:441:GLY:O	2.30	0.64
4:L:12:VAL:HG11	4:L:18:ALA:HB2	1.80	0.64
1:A:499:THR:HG21	3:H:103:SER:HB3	1.81	0.63
1:E:97:LYS:NZ	1:E:275:GLU:OE2	2.31	0.63
4:L:35:TYR:HE2	4:L:88:GLN:HB3	1.64	0.63
1:E:178:ARG:NH2	9:E:608:NAG:O7	2.32	0.63
1:A:166:ARG:HH12	1:C:169:LYS:HZ1	1.44	0.63
1:C:249:HIS:ND1	1:C:486:TYR:OH	2.25	0.63
1:C:369:LEU:O	1:C:373:THR:OG1	2.17	0.62
2:F:617:ARG:HB2	2:F:622:ILE:HD11	1.80	0.62
1:E:286:VAL:O	1:E:451:GLY:HA2	1.98	0.62
1:E:490:LYS:HD2	2:F:585:ARG:HH12	1.66	0.61
3:H:51:MET:SD	3:H:71:MET:HG3	2.40	0.61
2:F:646:LEU:O	2:F:651:ASN:ND2	2.32	0.61
1:C:166:ARG:HH12	1:E:169:LYS:HZ1	1.48	0.61
1:E:99:ASN:HA	1:E:102:GLU:HG2	1.82	0.61
1:C:55:ALA:HB1	1:C:77:THR:HG22	1.81	0.61
1:E:490:LYS:HD2	2:F:585:ARG:NH1	2.16	0.61
1:A:256:SER:O	1:A:478:ASN:ND2	2.34	0.61
2:B:650:GLN:NE2	2:B:654:GLU:OE1	2.33	0.61
1:C:490:LYS:HE3	2:D:585:ARG:HH22	1.66	0.60
1:A:234:ASN:HB3	5:I:1:NAG:C7	2.31	0.60
1:A:150:MET:HE3	1:A:328:GLN:HG3	1.84	0.59
1:A:95:MET:HE3	1:A:484:TYR:HB2	1.84	0.59
1:E:44:VAL:HG23	1:E:492:GLU:HB2	1.85	0.59
1:A:117:LYS:H	1:A:118:PRO:HD2	1.67	0.59
1:A:155:LYS:HE2	1:A:178:ARG:NE	2.18	0.59
1:A:339:ASN:HB3	9:A:601:NAG:HN2	1.67	0.58
1:A:231:LYS:NZ	1:A:267:GLU:OE1	2.33	0.57
1:E:94:ASN:ND2	1:E:97:LYS:HG2	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:42:VAL:HG13	1:C:44:VAL:HG12	1.86	0.57
1:E:490:LYS:NZ	2:F:585:ARG:HH22	2.02	0.57
1:C:439:ILE:HB	1:C:443:ILE:HD11	1.86	0.57
1:A:308:ARG:NH2	1:C:197:ASN:OD1	2.37	0.57
1:C:180:ASP:HB3	1:C:423:ILE:HD12	1.87	0.57
1:E:233:PHE:HD1	1:E:235:GLY:H	1.52	0.57
1:C:272:ILE:HD13	1:C:349:LEU:HD12	1.87	0.57
2:F:606:THR:HG21	2:F:646:LEU:HD23	1.86	0.57
9:B:702:NAG:H83	9:B:702:NAG:H3	1.87	0.56
1:A:100:MET:HE1	1:A:486:TYR:CB	2.35	0.56
1:C:412:ASP:OD1	1:C:413:SER:N	2.36	0.56
2:D:644:GLY:O	2:D:647:GLU:N	2.38	0.56
2:B:607:ASN:ND2	2:B:650:GLN:OE1	2.34	0.56
1:A:166:ARG:HH22	1:C:169:LYS:NZ	2.02	0.56
2:B:634:GLU:OE1	2:B:635:ILE:HG12	2.05	0.56
1:C:55:ALA:HB2	1:C:218:CYS:SG	2.45	0.56
4:L:34:TRP:CE2	4:L:72:LEU:HB2	2.41	0.56
1:A:100:MET:HE1	1:A:486:TYR:HB2	1.87	0.56
2:D:631:TRP:NE1	2:D:635:ILE:HG13	2.21	0.56
1:A:140:ASP:HA	1:A:151:ARG:NH2	2.20	0.56
1:C:116:LEU:HD21	1:C:434:MET:HG3	1.86	0.56
2:F:652:GLN:O	2:F:656:ASN:ND2	2.39	0.56
5:h:2:NAG:H3	5:h:2:NAG:H83	1.88	0.55
1:E:48:ALA:HB2	1:E:490:LYS:HB2	1.87	0.55
2:B:535:MET:O	2:B:537:LEU:N	2.39	0.55
1:A:396:ILE:HG13	1:A:397:SER:H	1.71	0.55
1:E:233:PHE:CE2	1:E:239:CYS:HB2	2.41	0.55
2:F:617:ARG:HH21	2:F:634:GLU:HG3	1.71	0.55
1:A:236:THR:O	5:I:1:NAG:N2	2.39	0.55
1:C:322:ILE:HG21	1:C:326:ILE:HG22	1.88	0.55
1:A:166:ARG:HH12	1:C:169:LYS:NZ	2.05	0.54
1:C:164:GLU:OE1	1:C:308:ARG:NH1	2.35	0.54
1:E:232:LYS:HA	1:E:271:MET:HE1	1.89	0.54
2:B:631:TRP:CE2	2:B:635:ILE:HG13	2.43	0.54
1:A:105:HIS:O	1:A:109:ILE:HD12	2.06	0.54
2:B:635:ILE:O	2:B:638:TYR:HB2	2.08	0.54
4:L:91:ASP:O	4:L:95:GLU:N	2.40	0.54
1:A:178:ARG:HH22	9:A:604:NAG:H62	1.73	0.54
1:A:205:CYS:O	1:A:208:VAL:HG22	2.08	0.54
1:A:69:TRP:CD1	1:A:70:ALA:H	2.25	0.53
2:B:612:SER:O	2:B:616:ASN:ND2	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:153:GLU:OE1	1:E:419:ARG:NH2	2.41	0.53
4:L:4:LEU:HD11	4:L:89:VAL:HG22	1.90	0.53
4:L:45:LEU:HD21	4:L:48:SER:HB3	1.91	0.53
1:A:155:LYS:HE3	1:A:191:TYR:CZ	2.44	0.53
1:E:135:THR:HG22	1:E:136:ASN:H	1.72	0.53
1:C:357:THR:O	1:C:397:SER:OG	2.27	0.53
1:E:230:ASP:OD1	1:E:232:LYS:N	2.34	0.53
1:E:36:VAL:HG22	2:F:610:TRP:HE3	1.74	0.53
1:E:80:ASN:O	1:E:82:GLN:NE2	2.42	0.53
2:F:617:ARG:NH1	2:F:621:GLU:OE2	2.36	0.53
2:D:644:GLY:C	2:D:646:LEU:N	2.63	0.53
3:H:72:ASP:OD1	3:H:74:SER:OG	2.26	0.53
2:D:608:VAL:HG21	2:D:645:LEU:O	2.09	0.52
1:C:166:ARG:HH22	1:E:169:LYS:NZ	2.07	0.52
1:C:255:VAL:HG13	1:C:475:MET:SD	2.49	0.52
2:F:537:LEU:H	2:F:537:LEU:HD12	1.73	0.52
3:H:38:ARG:HB3	3:H:48:ILE:HD11	1.91	0.52
1:E:155:LYS:HE2	1:E:191:TYR:CZ	2.44	0.52
3:H:50:HIS:CD2	3:H:98:MET:HE1	2.44	0.52
2:D:612:SER:O	2:D:616:ASN:ND2	2.43	0.52
1:E:217:TYR:N	1:E:248:THR:OG1	2.40	0.52
2:D:581:LEU:O	2:D:585:ARG:HG3	2.10	0.52
4:L:27:MET:O	4:L:30:LYS:HD2	2.10	0.52
1:A:135:THR:HA	1:A:138:ILE:HG12	1.91	0.52
1:C:49:GLU:OE1	1:C:99:ASN:HB2	2.10	0.52
1:E:155:LYS:HD2	1:E:178:ARG:HH11	1.75	0.51
1:A:112:TRP:CG	1:A:427:TRP:HZ3	2.28	0.51
2:D:617:ARG:HH12	2:D:626:MET:HE1	1.75	0.51
1:A:429:ARG:NH2	1:A:432:GLN:OE1	2.42	0.51
1:E:378:CYS:HB3	1:E:383:PHE:CE1	2.45	0.51
1:A:457:ASP:OD1	1:A:457:ASP:N	2.44	0.51
1:E:289:ASN:OD1	1:E:290:THR:N	2.44	0.51
1:C:95:MET:HG3	1:C:96:TRP:CD1	2.45	0.51
1:E:369:LEU:O	1:E:373:THR:OG1	2.27	0.51
1:C:292:VAL:HG11	1:C:338:TRP:HE3	1.75	0.51
4:L:36:GLN:HB2	4:L:46:ILE:HD13	1.92	0.51
1:E:96:TRP:HB2	1:E:97:LYS:HE2	1.92	0.50
2:D:542:ARG:NH1	2:F:647:GLU:OE2	2.45	0.50
1:A:226:LEU:HB2	1:A:487:LYS:HG2	1.93	0.50
1:A:137:ASN:OD1	9:A:605:NAG:N2	2.44	0.50
1:A:204:ALA:HB2	1:A:434:MET:HE3	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:93:PHE:HB2	1:E:233:PHE:HZ	1.77	0.50
1:C:501:CYS:SG	1:C:502:LYS:N	2.84	0.50
1:E:217:TYR:H	1:E:248:THR:HG1	1.57	0.49
2:B:621:GLU:O	2:B:625:ASN:N	2.39	0.49
4:L:87:CYS:O	4:L:100:GLY:N	2.44	0.49
1:E:112:TRP:CD2	1:E:427:TRP:HZ3	2.29	0.49
1:E:248:THR:HG22	1:E:486:TYR:CD2	2.47	0.49
1:A:44:VAL:HG11	2:B:632:ASP:OD2	2.13	0.49
2:B:595:ILE:O	2:B:651:ASN:ND2	2.46	0.49
1:A:57:ASP:OD1	1:A:57:ASP:N	2.44	0.49
1:A:359:ILE:HD12	1:A:468:PHE:HE2	1.77	0.49
3:H:30:SER:HB2	3:H:53:HIS:CE1	2.47	0.49
1:A:150:MET:HE2	1:A:153:GLU:HG2	1.94	0.49
1:C:166:ARG:HH22	1:E:169:LYS:HZ3	1.60	0.49
1:E:100:MET:HE2	1:E:483:LEU:HD22	1.94	0.49
2:F:599:SER:OG	2:F:600:GLY:N	2.46	0.49
4:L:37:LEU:HD13	4:L:43:PRO:HG3	1.95	0.49
2:D:648:GLU:O	2:D:650:GLN:N	2.46	0.48
1:A:156:ASN:HD22	5:O:1:NAG:H83	1.78	0.48
1:A:119:CYS:HB3	1:A:203:GLN:O	2.14	0.48
2:B:572:GLY:O	2:B:576:LEU:HB2	2.13	0.48
1:C:54:CYS:HB3	1:C:74:CYS:HB3	1.64	0.48
1:C:376:PHE:HE2	1:C:378:CYS:HB2	1.78	0.48
1:A:53:PHE:CE1	1:A:218:CYS:HB2	2.48	0.48
1:A:368:ASP:O	1:A:372:THR:HG23	2.12	0.48
1:A:369:LEU:O	1:A:373:THR:OG1	2.29	0.48
1:C:80:ASN:N	1:C:80:ASN:OD1	2.45	0.48
1:C:259:LEU:HD23	1:C:452:LEU:HD23	1.96	0.48
4:L:32:VAL:N	4:L:50:ASP:OD1	2.39	0.48
2:F:613:SER:O	2:F:613:SER:OG	2.27	0.48
1:C:266:ALA:HB2	1:C:287:GLN:HG2	1.96	0.48
1:A:52:LEU:HD12	1:A:52:LEU:H	1.78	0.47
1:C:166:ARG:NH1	1:E:169:LYS:HZ1	2.12	0.47
2:F:607:ASN:HB2	2:F:650:GLN:HG3	1.95	0.47
2:B:640:GLN:HA	2:B:640:GLN:OE1	2.13	0.47
1:E:104:MET:HE3	1:E:217:TYR:HE2	1.79	0.47
1:A:134:VAL:O	1:A:136:ASN:N	2.48	0.47
1:A:174:SER:HB2	1:A:319:ALA:HB1	1.97	0.47
1:C:493:PRO:HG2	2:D:544:LEU:HD11	1.97	0.47
4:L:10:MET:HE1	4:L:12:VAL:CG1	2.45	0.47
1:A:95:MET:HE1	1:A:273:ARG:HD3	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:169:LYS:HZ1	1:E:166:ARG:NH2	2.13	0.47
2:D:639:THR:HA	2:D:642:ILE:HG13	1.96	0.47
1:E:45:TRP:NE1	1:E:91:GLU:OE2	2.46	0.47
1:E:138:ILE:HD11	1:E:151:ARG:HA	1.95	0.47
2:F:596:TRP:HA	2:F:651:ASN:ND2	2.29	0.47
4:L:83:ALA:HB3	4:L:85:TYR:CE1	2.50	0.47
1:A:102:GLU:O	1:A:106:THR:HG23	2.15	0.47
1:A:117:LYS:HB2	1:A:118:PRO:HD3	1.97	0.47
1:E:45:TRP:HA	1:E:490:LYS:O	2.14	0.47
1:E:298:ARG:NH1	1:E:302:ASN:OD1	2.48	0.47
3:H:80:LEU:HD12	3:H:81:THR:N	2.30	0.47
1:C:349:LEU:HD21	1:C:468:PHE:CE1	2.50	0.47
2:D:576:LEU:HD21	2:F:580:VAL:HG21	1.97	0.47
1:A:138:ILE:HD12	1:A:150:MET:O	2.14	0.46
2:B:611:ASN:HB2	2:B:614:TRP:CD2	2.49	0.46
2:F:653:GLN:HA	2:F:656:ASN:HD21	1.79	0.46
1:C:258:GLN:HG2	1:C:470:PRO:HB2	1.97	0.46
1:A:276:ASN:ND2	1:A:279:ASN:HB2	2.30	0.46
2:F:637:ASN:O	2:F:639:THR:N	2.47	0.46
1:A:270:VAL:O	1:A:348:GLN:HG2	2.15	0.46
1:E:494:LEU:HD23	1:E:494:LEU:HA	1.64	0.46
1:A:234:ASN:HB3	5:I:1:NAG:N2	2.30	0.46
2:F:618:ASN:O	2:F:622:ILE:HG13	2.15	0.46
1:E:36:VAL:HG22	2:F:610:TRP:CE3	2.51	0.46
2:F:570:VAL:O	2:F:574:LYS:HG2	2.16	0.46
1:C:358:ILE:HG23	1:C:396:ILE:HD13	1.97	0.46
1:E:203:GLN:NE2	1:E:318:TYR:HD2	2.13	0.46
1:A:189:LYS:HE3	1:A:189:LYS:HB2	1.75	0.46
1:C:349:LEU:HD23	1:C:359:ILE:HD12	1.96	0.46
2:D:595:ILE:HG22	2:D:596:TRP:CD1	2.50	0.46
1:A:69:TRP:CD1	1:A:111:LEU:HD23	2.51	0.45
1:C:95:MET:HG2	1:C:235:GLY:O	2.16	0.45
1:C:475:MET:HE3	1:C:475:MET:HB3	1.72	0.45
1:E:87:GLU:HB2	9:E:601:NAG:H82	1.97	0.45
1:C:86:LEU:HB2	1:C:89:VAL:HG11	1.97	0.45
1:E:93:PHE:HB2	1:E:233:PHE:CZ	2.52	0.45
1:A:55:ALA:HA	1:A:75:VAL:O	2.16	0.45
1:A:384:TYR:CE1	1:A:421:LYS:HB2	2.51	0.45
1:C:490:LYS:HE3	2:D:585:ARG:NH2	2.32	0.45
1:E:95:MET:HE2	1:E:480:ARG:HB3	1.99	0.45
1:E:230:ASP:OD1	1:E:231:LYS:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:635:ILE:HD13	2:F:635:ILE:HA	1.82	0.45
2:B:611:ASN:HB2	2:B:614:TRP:CE2	2.52	0.45
1:C:122:LEU:HD11	1:C:203:GLN:HB2	1.99	0.45
1:C:296:CYS:HB2	1:C:445:CYS:SG	2.56	0.45
1:A:257:THR:HG1	1:A:375:SER:H	1.65	0.45
1:C:494:LEU:HD23	1:C:494:LEU:HA	1.72	0.45
1:A:159:PHE:HE2	1:A:161:MET:CE	2.30	0.45
1:C:254:VAL:HG21	1:C:262:ASN:OD1	2.17	0.45
1:E:96:TRP:C	1:E:97:LYS:HE2	2.42	0.45
1:E:227:LYS:HA	1:E:485:LYS:O	2.17	0.45
2:F:630:GLN:HA	2:F:633:LYS:HG2	1.99	0.45
1:C:378:CYS:HB3	1:C:383:PHE:CE1	2.52	0.44
1:E:493:PRO:HG3	2:F:544:LEU:HD11	1.99	0.44
1:E:42:VAL:HG13	2:F:628:TRP:CG	2.53	0.44
1:C:298:ARG:NH1	1:C:381:GLU:OE1	2.51	0.44
2:D:617:ARG:HH22	2:D:626:MET:HE1	1.82	0.44
1:E:84:ILE:HB	1:E:244:THR:HG23	1.99	0.44
1:E:89:VAL:HG11	1:E:242:VAL:HB	1.99	0.44
1:E:46:LYS:HE3	1:E:492:GLU:OE2	2.18	0.44
4:L:94:TYR:O	4:L:96:GLU:HG3	2.17	0.44
1:A:45:TRP:HB2	1:A:489:VAL:HB	1.99	0.44
1:C:350:ARG:NH1	1:C:397:SER:OG	2.50	0.44
2:F:645:LEU:O	2:F:649:SER:OG	2.35	0.44
1:A:358:ILE:HG12	1:A:464:THR:O	2.18	0.44
2:B:535:MET:HE3	3:H:100:ALA:HB1	2.00	0.44
1:C:218:CYS:CA	1:C:247:CYS:HB3	2.39	0.44
1:C:267:GLU:OE2	1:C:267:GLU:N	2.51	0.44
1:E:298:ARG:HH21	1:E:381:GLU:HG3	1.83	0.44
1:C:102:GLU:O	1:C:106:THR:HG23	2.18	0.44
1:C:343:GLY:O	1:C:346:VAL:HG12	2.18	0.44
1:E:45:TRP:CZ3	2:F:523:LEU:HD13	2.53	0.44
2:F:615:SER:OG	2:F:617:ARG:HG3	2.18	0.44
4:L:76:ASN:OD1	4:L:76:ASN:O	2.36	0.44
2:F:581:LEU:HA	2:F:584:GLU:HG2	1.99	0.43
2:F:596:TRP:HA	2:F:651:ASN:HD21	1.82	0.43
1:A:47:ASP:OD1	1:A:47:ASP:N	2.51	0.43
2:D:530:MET:CE	2:D:631:TRP:HB2	2.48	0.43
1:C:123:THR:N	1:C:124:PRO:HD2	2.33	0.43
4:L:79:PRO:HA	4:L:107:VAL:HG21	2.00	0.43
5:i:1:NAG:H61	5:i:2:NAG:C7	2.48	0.43
2:B:531:GLY:HA3	3:H:100:ALA:O	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:533:ALA:O	2:B:534:SER:C	2.61	0.43
1:A:178:ARG:HH12	9:A:604:NAG:H62	1.84	0.43
1:E:84:ILE:HD12	1:E:84:ILE:N	2.33	0.43
1:E:490:LYS:HZ3	2:F:585:ARG:HH22	1.63	0.43
1:A:54:CYS:HB3	1:A:74:CYS:HB3	1.65	0.43
1:C:376:PHE:CE2	1:C:378:CYS:HB2	2.52	0.43
1:E:229:LYS:NZ	1:E:243:SER:HB3	2.34	0.43
1:E:342:LEU:HD23	1:E:342:LEU:HA	1.81	0.43
2:B:539:VAL:C	2:B:541:ALA:H	2.27	0.43
2:B:522:PHE:CD1	2:B:522:PHE:C	2.97	0.43
1:C:103:GLN:HG2	1:C:107:ASP:OD1	2.18	0.43
1:E:37:THR:HG23	2:F:604:CYS:O	2.18	0.43
1:E:155:LYS:HD3	1:E:181:VAL:HG21	2.01	0.43
2:F:536:THR:O	2:F:539:VAL:HG12	2.19	0.43
1:A:105:HIS:HA	1:A:479:TRP:HZ3	1.84	0.43
2:B:617:ARG:NH2	2:B:621:GLU:OE2	2.52	0.43
3:H:86:THR:O	3:H:121:VAL:HG21	2.19	0.43
2:B:647:GLU:OE2	2:F:538:THR:HB	2.19	0.42
1:C:98:ASN:O	1:C:101:VAL:HG22	2.19	0.42
2:D:535:MET:HB3	2:F:652:GLN:NE2	2.33	0.42
1:E:168:LYS:HA	1:E:168:LYS:HD3	1.73	0.42
4:L:31:PRO:O	4:L:89:VAL:HG12	2.18	0.42
1:A:232:LYS:HA	1:A:232:LYS:HD3	1.72	0.42
2:D:601:LYS:HB3	2:F:655:LYS:NZ	2.35	0.42
3:H:104:ASP:OD1	3:H:104:ASP:N	2.47	0.42
1:A:173:TYR:CD1	1:A:173:TYR:C	2.97	0.42
2:B:655:LYS:HE3	2:B:655:LYS:HB3	1.76	0.42
1:E:94:ASN:HD21	1:E:97:LYS:HE3	1.84	0.42
1:E:381:GLU:HG3	1:E:443:ILE:HD12	2.02	0.42
1:C:251:ILE:HD12	1:C:251:ILE:HA	1.93	0.42
1:E:457:ASP:OD1	1:E:457:ASP:N	2.50	0.42
1:A:358:ILE:HG22	1:A:396:ILE:HA	2.00	0.42
2:B:576:LEU:HD12	2:B:576:LEU:HA	1.86	0.42
2:B:655:LYS:HE2	2:F:601:LYS:HB3	2.01	0.42
1:C:269:GLU:HG3	1:C:271:MET:HE2	2.02	0.42
1:E:184:ILE:HG23	1:E:192:ARG:HG2	2.02	0.42
1:E:453:ILE:O	1:E:471:GLY:N	2.44	0.42
1:C:95:MET:HE3	1:C:95:MET:HB2	1.85	0.42
1:C:136:ASN:O	1:C:138:ILE:N	2.53	0.42
1:A:117:LYS:N	1:A:118:PRO:HD2	2.33	0.42
1:C:136:ASN:CG	1:C:137:ASN:H	2.28	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:L:10:MET:HE1	4:L:12:VAL:HG12	2.01	0.42
1:A:166:ARG:HD3	1:C:124:PRO:HA	2.01	0.42
1:A:166:ARG:NH2	1:C:169:LYS:HZ3	2.08	0.42
1:C:125:LEU:HD12	1:C:125:LEU:HA	1.88	0.41
1:C:136:ASN:O	1:C:138:ILE:HG23	2.20	0.41
1:C:277:ILE:HD12	1:C:277:ILE:HA	1.81	0.41
1:C:88:ASN:ND2	9:C:601:NAG:H62	2.34	0.41
3:H:50:HIS:CG	3:H:98:MET:HE1	2.55	0.41
1:A:155:LYS:HE2	1:A:178:ARG:CD	2.50	0.41
1:A:492:GLU:N	1:A:492:GLU:OE1	2.53	0.41
1:A:503:ARG:N	2:B:607:ASN:OD1	2.53	0.41
1:C:40:TYR:HE1	2:D:589:ASP:OD2	2.04	0.41
1:C:255:VAL:HA	1:C:475:MET:HE1	2.01	0.41
1:E:53:PHE:HB3	2:F:575:GLN:OE1	2.20	0.41
3:H:1:GLN:HG3	3:H:27:GLY:HA3	2.03	0.41
2:D:545:LEU:HD23	2:D:545:LEU:HA	1.84	0.41
1:E:138:ILE:HA	1:E:326:ILE:HB	2.01	0.41
1:E:217:TYR:N	1:E:248:THR:HG1	2.18	0.41
4:L:90:TRP:CE3	4:L:97:ILE:HG12	2.56	0.41
1:A:123:THR:N	1:A:124:PRO:HD2	2.35	0.41
1:C:108:ILE:HD13	1:C:108:ILE:HA	1.86	0.41
1:A:169:LYS:CE	1:E:166:ARG:HH22	2.33	0.41
1:C:89:VAL:HG13	1:C:242:VAL:HB	2.02	0.41
1:C:298:ARG:CZ	1:C:443:ILE:HD12	2.51	0.41
4:L:12:VAL:HG21	4:L:77:VAL:HG11	2.01	0.41
1:A:159:PHE:HA	5:P:1:NAG:H83	2.02	0.41
2:D:598:CYS:HB2	2:D:601:LYS:HD2	2.03	0.41
3:H:1:GLN:CD	3:H:1:GLN:N	2.79	0.41
1:E:140:ASP:HA	1:E:151:ARG:HH22	1.86	0.41
2:B:538:THR:CG2	3:H:102:MET:CE	2.84	0.41
1:E:47:ASP:N	1:E:47:ASP:OD1	2.54	0.41
1:A:162:THR:OG1	1:A:309:ILE:O	2.32	0.41
1:A:370:GLU:H	1:A:370:GLU:CD	2.29	0.41
1:C:493:PRO:CG	2:D:544:LEU:HD11	2.51	0.41
2:D:648:GLU:C	2:D:650:GLN:N	2.77	0.41
1:E:301:ASN:OD1	1:E:441:GLY:HA2	2.21	0.41
1:C:297:THR:HG23	1:C:299:PRO:HD3	2.03	0.40
2:D:535:MET:SD	2:D:535:MET:N	2.94	0.40
4:L:37:LEU:O	4:L:83:ALA:HB1	2.20	0.40
1:A:264:SER:OG	1:A:482:GLU:OE2	2.25	0.40
1:C:117:LYS:HD2	1:C:117:LYS:HA	1.92	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:474:ASP:OD1	1:E:474:ASP:N	2.52	0.40
4:L:82:GLU:HA	4:L:105:LEU:O	2.21	0.40
1:A:285:LEU:HD11	1:A:477:ASP:OD1	2.22	0.40
1:C:211:GLU:OE2	7:a:2:NAG:H5	2.22	0.40
1:E:55:ALA:HB1	1:E:77:THR:HA	2.02	0.40
1:E:359:ILE:HG23	1:E:468:PHE:CE1	2.57	0.40
1:A:295:ASN:OD1	1:A:446:VAL:HG13	2.22	0.40
1:C:36:VAL:HG22	2:D:610:TRP:CE3	2.57	0.40
1:E:124:PRO:HB2	1:E:161:MET:SD	2.62	0.40
2:F:542:ARG:HE	2:F:542:ARG:HB2	1.72	0.40
1:C:226:LEU:HB2	1:C:487:LYS:HG2	2.03	0.40
1:E:55:ALA:N	1:E:216:HIS:O	2.53	0.40
1:E:230:ASP:OD1	1:E:230:ASP:C	2.65	0.40
1:E:300:ASN:ND2	1:E:327:ARG:O	2.55	0.40

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	429/481 (89%)	401 (94%)	27 (6%)	1 (0%)	44 74
1	C	422/481 (88%)	391 (93%)	30 (7%)	1 (0%)	44 74
1	E	415/481 (86%)	391 (94%)	24 (6%)	0	100 100
2	B	111/161 (69%)	93 (84%)	18 (16%)	0	100 100
2	D	108/161 (67%)	100 (93%)	7 (6%)	1 (1%)	14 45
2	F	112/161 (70%)	102 (91%)	10 (9%)	0	100 100
3	H	121/224 (54%)	117 (97%)	4 (3%)	0	100 100
4	L	106/214 (50%)	102 (96%)	4 (4%)	0	100 100
All	All	1824/2364 (77%)	1697 (93%)	124 (7%)	3 (0%)	45 74

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	C	501	CYS
2	D	645	LEU
1	A	117	LYS

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	391/429 (91%)	387 (99%)	4 (1%)	73 86
1	C	385/429 (90%)	380 (99%)	5 (1%)	65 82
1	E	383/429 (89%)	381 (100%)	2 (0%)	86 92
2	B	99/137 (72%)	98 (99%)	1 (1%)	73 86
2	D	97/137 (71%)	95 (98%)	2 (2%)	48 72
2	F	101/137 (74%)	99 (98%)	2 (2%)	50 74
3	H	103/190 (54%)	101 (98%)	2 (2%)	52 75
4	L	87/179 (49%)	87 (100%)	0	100 100
All	All	1646/2067 (80%)	1628 (99%)	18 (1%)	69 84

All (18) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	88	ASN
1	A	99	ASN
1	A	164	GLU
1	A	213	ILE
2	B	635	ILE
1	C	46	LYS
1	C	95	MET
1	C	251	ILE
1	C	381	GLU
1	C	424	ILE
2	D	576	LEU

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Mol	Chain	Res	Type
2	D	647	GLU
1	E	130	GLN
1	E	443	ILE
2	F	626	MET
2	F	629	LEU
3	H	23	THR
3	H	104	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	99	ASN
1	A	114	GLN
1	A	130	GLN
1	A	293	GLN
1	A	355	ASN
1	A	374	HIS
1	A	462	ASN
1	C	377	ASN
2	D	607	ASN
2	D	616	ASN
2	D	652	GLN
1	E	99	ASN
1	E	114	GLN
1	E	130	GLN
1	E	352	HIS
1	E	422	GLN
1	E	425	ASN
2	F	540	GLN
2	F	543	ASN
2	F	651	ASN
2	F	652	GLN
2	F	656	ASN

5.3.3 RNA

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)

64 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	$\#\|Z\| > 2$
5	NAG	G	1	5,1	14,14,15	0.69	0	17,19,21	1.01	1 (5%)
5	NAG	G	2	5	14,14,15	0.48	0	17,19,21	0.94	2 (11%)
5	NAG	I	1	5,1	14,14,15	0.41	0	17,19,21	0.85	1 (5%)
5	NAG	I	2	5	14,14,15	0.20	0	17,19,21	0.42	0
5	NAG	J	1	5,1	14,14,15	0.24	0	17,19,21	0.55	0
5	NAG	J	2	5	14,14,15	0.20	0	17,19,21	0.36	0
5	NAG	K	1	5,1	14,14,15	0.27	0	17,19,21	0.41	0
5	NAG	K	2	5	14,14,15	0.17	0	17,19,21	0.38	0
5	NAG	M	1	5,1	14,14,15	0.47	0	17,19,21	0.38	0
5	NAG	M	2	5	14,14,15	0.18	0	17,19,21	0.44	0
5	NAG	N	1	5,1	14,14,15	0.19	0	17,19,21	0.59	0
5	NAG	N	2	5	14,14,15	0.19	0	17,19,21	0.45	0
5	NAG	O	1	5,1	14,14,15	0.83	1 (7%)	17,19,21	0.80	0
5	NAG	O	2	5	14,14,15	0.93	1 (7%)	17,19,21	1.44	1 (5%)
5	NAG	P	1	5,1	14,14,15	0.27	0	17,19,21	0.67	0
5	NAG	P	2	5	14,14,15	0.24	0	17,19,21	0.43	0
6	NAG	Q	1	1,6	14,14,15	0.28	0	17,19,21	0.56	0
6	NAG	Q	2	6	14,14,15	0.27	0	17,19,21	0.40	0
6	BMA	Q	3	6	11,11,12	0.54	0	15,15,17	0.76	0
6	MAN	Q	4	6	11,11,12	0.49	0	15,15,17	0.94	1 (6%)
6	MAN	Q	5	6	11,11,12	0.61	0	15,15,17	1.19	2 (13%)
5	NAG	R	1	5,1	14,14,15	0.26	0	17,19,21	0.42	0
5	NAG	R	2	5	14,14,15	0.23	0	17,19,21	0.41	0
5	NAG	S	1	5,1	14,14,15	0.51	0	17,19,21	0.48	0
5	NAG	S	2	5	14,14,15	0.14	0	17,19,21	0.49	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	NAG	T	1	5,1	14,14,15	0.52	0	17,19,21	0.93	1 (5%)
5	NAG	T	2	5	14,14,15	0.35	0	17,19,21	0.79	0
5	NAG	U	1	5,1	14,14,15	0.25	0	17,19,21	0.70	1 (5%)
5	NAG	U	2	5	14,14,15	0.23	0	17,19,21	0.38	0
5	NAG	V	1	5,1	14,14,15	0.33	0	17,19,21	0.58	0
5	NAG	V	2	5	14,14,15	0.22	0	17,19,21	0.44	0
5	NAG	W	1	5,1	14,14,15	0.99	1 (7%)	17,19,21	1.90	1 (5%)
5	NAG	W	2	5	14,14,15	0.20	0	17,19,21	0.39	0
5	NAG	X	1	5,1	14,14,15	0.25	0	17,19,21	0.50	0
5	NAG	X	2	5	14,14,15	0.20	0	17,19,21	0.40	0
5	NAG	Y	1	5,1	14,14,15	0.43	0	17,19,21	0.54	0
5	NAG	Y	2	5	14,14,15	0.20	0	17,19,21	0.52	0
5	NAG	Z	1	5,1	14,14,15	0.20	0	17,19,21	0.53	0
5	NAG	Z	2	5	14,14,15	0.17	0	17,19,21	0.45	0
7	NAG	a	1	7,1	14,14,15	0.31	0	17,19,21	0.76	1 (5%)
7	NAG	a	2	7	14,14,15	0.20	0	17,19,21	0.47	0
7	BMA	a	3	7	11,11,12	0.59	0	15,15,17	0.77	0
7	MAN	a	4	7	11,11,12	0.57	0	15,15,17	0.97	2 (13%)
7	MAN	a	5	7	11,11,12	1.08	1 (9%)	15,15,17	1.39	3 (20%)
5	NAG	b	1	5,1	14,14,15	0.26	0	17,19,21	0.42	0
5	NAG	b	2	5	14,14,15	0.20	0	17,19,21	0.41	0
5	NAG	c	1	5,1	14,14,15	0.55	0	17,19,21	0.39	0
5	NAG	c	2	5	14,14,15	0.16	0	17,19,21	0.39	0
5	NAG	d	1	5,1	14,14,15	0.37	0	17,19,21	0.47	0
5	NAG	d	2	5	14,14,15	0.15	0	17,19,21	0.40	0
5	NAG	e	1	5,1	14,14,15	0.22	0	17,19,21	0.61	0
5	NAG	e	2	5	14,14,15	0.23	0	17,19,21	0.36	0
8	NAG	f	1	8,1	14,14,15	0.32	0	17,19,21	0.56	0
8	NAG	f	2	8	14,14,15	0.28	0	17,19,21	0.38	0
8	BMA	f	3	8	11,11,12	0.50	0	15,15,17	0.67	0
8	MAN	f	4	8	11,11,12	0.58	0	15,15,17	1.14	2 (13%)
5	NAG	g	1	5,1	14,14,15	0.27	0	17,19,21	0.41	0
5	NAG	g	2	5	14,14,15	0.25	0	17,19,21	0.37	0
5	NAG	h	1	5,1	14,14,15	0.41	0	17,19,21	0.40	0
5	NAG	h	2	5	14,14,15	0.41	0	17,19,21	1.28	1 (5%)
5	NAG	i	1	5,1	14,14,15	0.35	0	17,19,21	0.47	0
5	NAG	i	2	5	14,14,15	0.20	0	17,19,21	0.46	0
5	NAG	j	1	5,1	14,14,15	0.21	0	17,19,21	0.52	0
5	NAG	j	2	5	14,14,15	0.16	0	17,19,21	0.43	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
5	NAG	G	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	G	2	5	-	2/6/23/26	0/1/1/1
5	NAG	I	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	I	2	5	-	0/6/23/26	0/1/1/1
5	NAG	J	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	J	2	5	-	0/6/23/26	0/1/1/1
5	NAG	K	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	K	2	5	-	0/6/23/26	0/1/1/1
5	NAG	M	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	M	2	5	-	2/6/23/26	0/1/1/1
5	NAG	N	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	N	2	5	-	0/6/23/26	0/1/1/1
5	NAG	O	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	O	2	5	-	3/6/23/26	0/1/1/1
5	NAG	P	1	5,1	-	1/6/23/26	0/1/1/1
5	NAG	P	2	5	-	0/6/23/26	0/1/1/1
6	NAG	Q	1	1,6	-	2/6/23/26	0/1/1/1
6	NAG	Q	2	6	-	0/6/23/26	0/1/1/1
6	BMA	Q	3	6	-	2/2/19/22	0/1/1/1
6	MAN	Q	4	6	-	0/2/19/22	0/1/1/1
6	MAN	Q	5	6	-	1/2/19/22	0/1/1/1
5	NAG	R	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	R	2	5	-	2/6/23/26	0/1/1/1
5	NAG	S	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	S	2	5	-	0/6/23/26	0/1/1/1
5	NAG	T	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	T	2	5	-	4/6/23/26	0/1/1/1
5	NAG	U	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	U	2	5	-	2/6/23/26	0/1/1/1
5	NAG	V	1	5,1	-	3/6/23/26	0/1/1/1
5	NAG	V	2	5	-	2/6/23/26	0/1/1/1
5	NAG	W	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	W	2	5	-	2/6/23/26	0/1/1/1
5	NAG	X	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	X	2	5	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	Y	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	Y	2	5	-	0/6/23/26	0/1/1/1
5	NAG	Z	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	Z	2	5	-	2/6/23/26	0/1/1/1
7	NAG	a	1	7,1	-	0/6/23/26	0/1/1/1
7	NAG	a	2	7	-	4/6/23/26	0/1/1/1
7	BMA	a	3	7	-	2/2/19/22	0/1/1/1
7	MAN	a	4	7	-	0/2/19/22	0/1/1/1
7	MAN	a	5	7	-	2/2/19/22	0/1/1/1
5	NAG	b	1	5,1	-	1/6/23/26	0/1/1/1
5	NAG	b	2	5	-	0/6/23/26	0/1/1/1
5	NAG	c	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	c	2	5	-	0/6/23/26	0/1/1/1
5	NAG	d	1	5,1	-	4/6/23/26	0/1/1/1
5	NAG	d	2	5	-	0/6/23/26	0/1/1/1
5	NAG	e	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	e	2	5	-	0/6/23/26	0/1/1/1
8	NAG	f	1	8,1	-	1/6/23/26	0/1/1/1
8	NAG	f	2	8	-	0/6/23/26	0/1/1/1
8	BMA	f	3	8	-	0/2/19/22	0/1/1/1
8	MAN	f	4	8	-	1/2/19/22	0/1/1/1
5	NAG	g	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	g	2	5	-	2/6/23/26	0/1/1/1
5	NAG	h	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	h	2	5	-	3/6/23/26	0/1/1/1
5	NAG	i	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	i	2	5	-	2/6/23/26	0/1/1/1
5	NAG	j	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	j	2	5	-	2/6/23/26	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	W	1	NAG	O5-C1	3.41	1.49	1.43
5	O	2	NAG	O5-C1	3.31	1.49	1.43
5	O	1	NAG	O5-C1	-3.04	1.38	1.43
7	a	5	MAN	C4-C5	2.04	1.57	1.53

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	W	1	NAG	C1-O5-C5	7.44	122.27	112.19
5	O	2	NAG	C1-O5-C5	5.66	119.86	112.19
5	h	2	NAG	C2-N2-C7	4.33	129.07	122.90
6	Q	5	MAN	C1-O5-C5	3.35	116.73	112.19
7	a	5	MAN	C1-O5-C5	3.20	116.53	112.19
8	f	4	MAN	C1-O5-C5	3.12	116.43	112.19
5	I	1	NAG	C1-O5-C5	2.87	116.08	112.19
5	T	1	NAG	C1-O5-C5	2.72	115.88	112.19
7	a	1	NAG	C1-O5-C5	2.63	115.76	112.19
5	G	2	NAG	C4-C3-C2	-2.43	107.46	111.02
7	a	5	MAN	C3-C4-C5	2.41	114.54	110.24
5	U	1	NAG	C1-O5-C5	2.41	115.45	112.19
7	a	5	MAN	O2-C2-C3	-2.34	105.46	110.14
7	a	4	MAN	C1-O5-C5	2.33	115.35	112.19
6	Q	4	MAN	C1-O5-C5	2.32	115.34	112.19
6	Q	5	MAN	O2-C2-C3	-2.22	105.70	110.14
7	a	4	MAN	O2-C2-C3	-2.20	105.74	110.14
8	f	4	MAN	O2-C2-C3	-2.19	105.75	110.14
5	G	1	NAG	C4-C3-C2	-2.06	108.00	111.02
5	G	2	NAG	C2-N2-C7	-2.03	120.02	122.90

There are no chirality outliers.

All (82) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	T	2	NAG	C3-C2-N2-C7
5	T	2	NAG	C8-C7-N2-C2
5	T	2	NAG	O7-C7-N2-C2
5	U	2	NAG	C4-C5-C6-O6
5	G	2	NAG	C8-C7-N2-C2
5	G	2	NAG	O7-C7-N2-C2
5	S	1	NAG	O5-C5-C6-O6
5	U	2	NAG	O5-C5-C6-O6
5	W	1	NAG	O5-C5-C6-O6
7	a	3	BMA	C4-C5-C6-O6
5	S	1	NAG	C4-C5-C6-O6
5	c	1	NAG	O5-C5-C6-O6
5	Y	1	NAG	O5-C5-C6-O6
5	M	1	NAG	C8-C7-N2-C2
5	M	1	NAG	O7-C7-N2-C2
5	O	1	NAG	C8-C7-N2-C2
5	O	1	NAG	O7-C7-N2-C2
5	O	2	NAG	C8-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
5	O	2	NAG	O7-C7-N2-C2
5	U	1	NAG	C8-C7-N2-C2
5	U	1	NAG	O7-C7-N2-C2
5	d	1	NAG	C8-C7-N2-C2
5	d	1	NAG	O7-C7-N2-C2
5	h	2	NAG	C8-C7-N2-C2
5	h	2	NAG	O7-C7-N2-C2
5	i	2	NAG	C8-C7-N2-C2
5	i	2	NAG	O7-C7-N2-C2
7	a	2	NAG	C8-C7-N2-C2
7	a	2	NAG	O7-C7-N2-C2
5	G	1	NAG	C4-C5-C6-O6
5	Y	1	NAG	C4-C5-C6-O6
5	R	2	NAG	O5-C5-C6-O6
6	Q	1	NAG	O5-C5-C6-O6
7	a	2	NAG	O5-C5-C6-O6
5	c	1	NAG	C4-C5-C6-O6
5	M	2	NAG	O5-C5-C6-O6
5	d	1	NAG	O5-C5-C6-O6
7	a	2	NAG	C4-C5-C6-O6
5	R	2	NAG	C4-C5-C6-O6
6	Q	1	NAG	C4-C5-C6-O6
5	j	2	NAG	O5-C5-C6-O6
5	V	1	NAG	O5-C5-C6-O6
5	i	1	NAG	O5-C5-C6-O6
5	M	2	NAG	C4-C5-C6-O6
7	a	3	BMA	O5-C5-C6-O6
5	V	1	NAG	C4-C5-C6-O6
5	i	1	NAG	C4-C5-C6-O6
5	j	2	NAG	C4-C5-C6-O6
5	J	1	NAG	O5-C5-C6-O6
5	J	1	NAG	C4-C5-C6-O6
5	Z	2	NAG	O5-C5-C6-O6
5	Z	2	NAG	C4-C5-C6-O6
5	I	1	NAG	O5-C5-C6-O6
5	W	2	NAG	C4-C5-C6-O6
8	f	4	MAN	O5-C5-C6-O6
7	a	5	MAN	O5-C5-C6-O6
6	Q	5	MAN	O5-C5-C6-O6
5	j	1	NAG	C4-C5-C6-O6
5	j	1	NAG	O5-C5-C6-O6
5	G	1	NAG	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
5	W	1	NAG	C4-C5-C6-O6
5	Z	1	NAG	O5-C5-C6-O6
5	Z	1	NAG	C4-C5-C6-O6
5	h	1	NAG	C4-C5-C6-O6
5	g	2	NAG	C4-C5-C6-O6
5	h	1	NAG	O5-C5-C6-O6
5	W	2	NAG	O5-C5-C6-O6
5	d	1	NAG	C4-C5-C6-O6
5	V	2	NAG	C4-C5-C6-O6
7	a	5	MAN	C4-C5-C6-O6
5	b	1	NAG	C4-C5-C6-O6
5	T	2	NAG	C1-C2-N2-C7
5	I	1	NAG	C3-C2-N2-C7
5	P	1	NAG	C3-C2-N2-C7
5	g	2	NAG	O5-C5-C6-O6
5	V	2	NAG	O5-C5-C6-O6
8	f	1	NAG	O5-C5-C6-O6
5	O	2	NAG	O5-C5-C6-O6
6	Q	3	BMA	O5-C5-C6-O6
5	V	1	NAG	C3-C2-N2-C7
5	h	2	NAG	C3-C2-N2-C7
6	Q	3	BMA	C4-C5-C6-O6

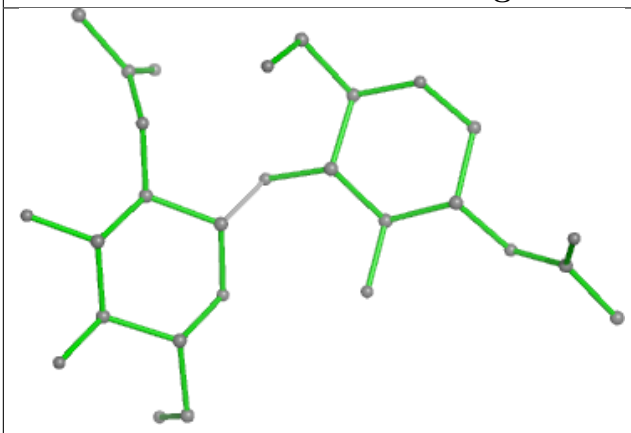
There are no ring outliers.

7 monomers are involved in 8 short contacts:

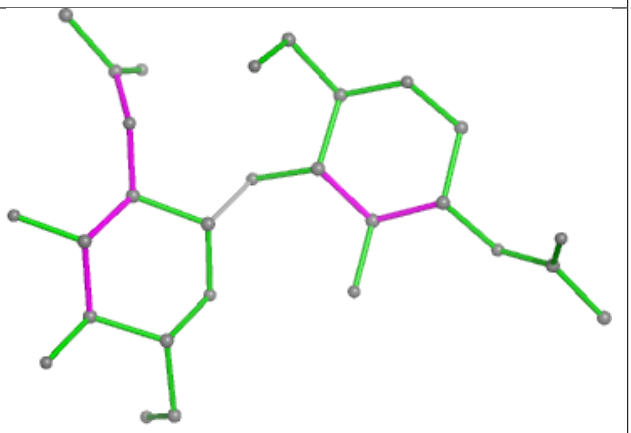
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	h	2	NAG	1	0
5	I	1	NAG	3	0
5	i	1	NAG	1	0
5	P	1	NAG	1	0
5	O	1	NAG	1	0
7	a	2	NAG	1	0
5	i	2	NAG	1	0

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

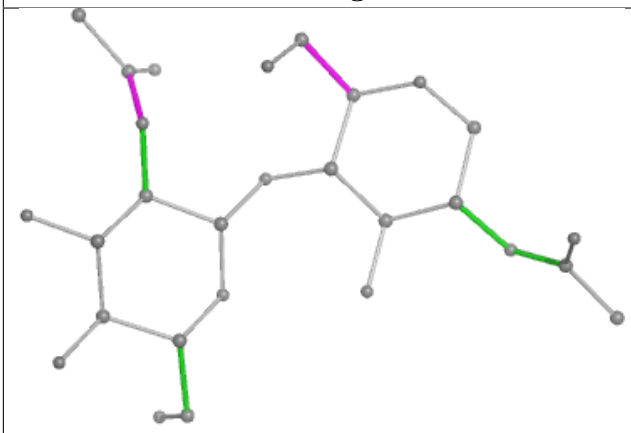
Oligosaccharide Chain G



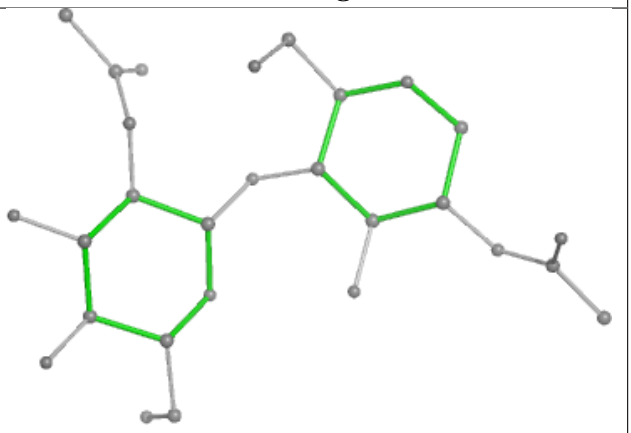
Bond lengths



Bond angles

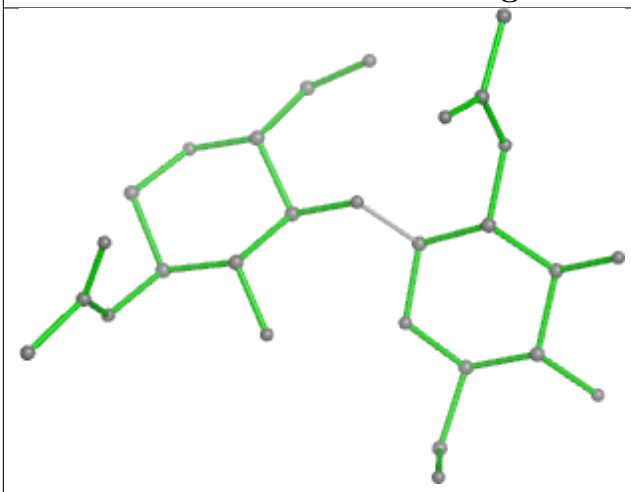


Torsions

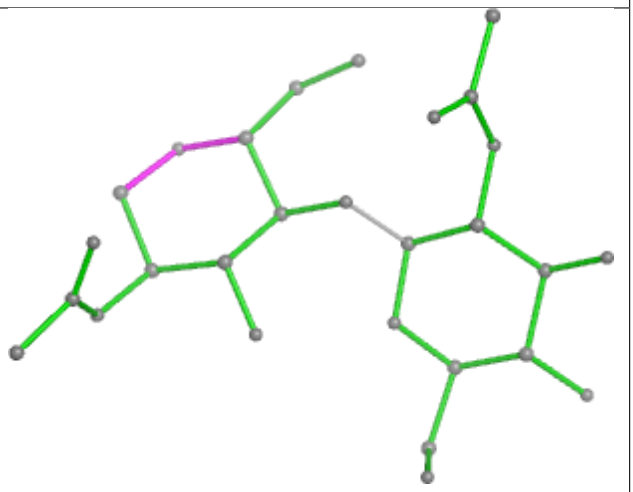


Rings

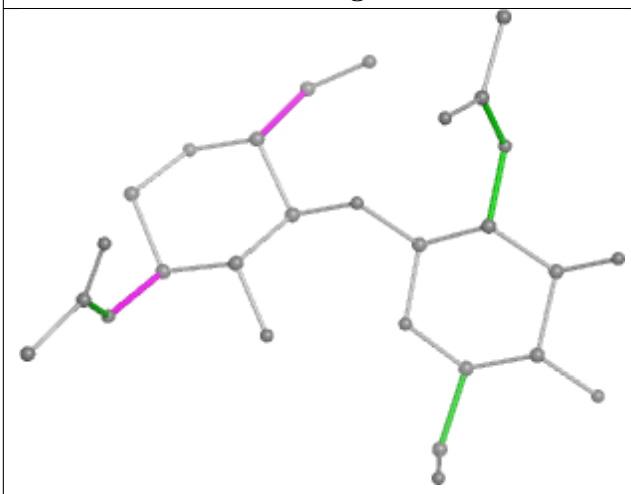
Oligosaccharide Chain I



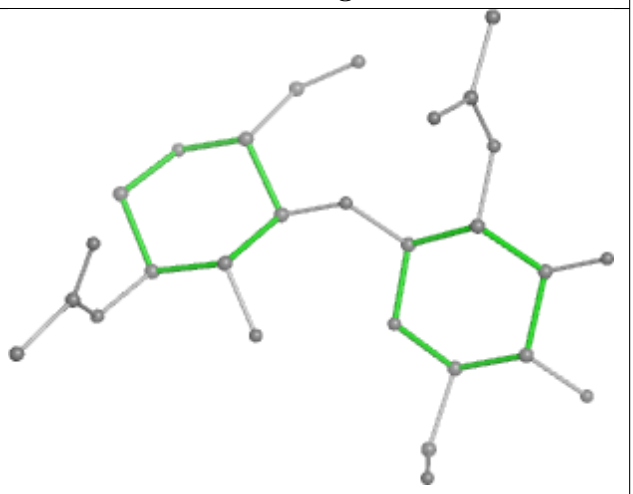
Bond lengths



Bond angles

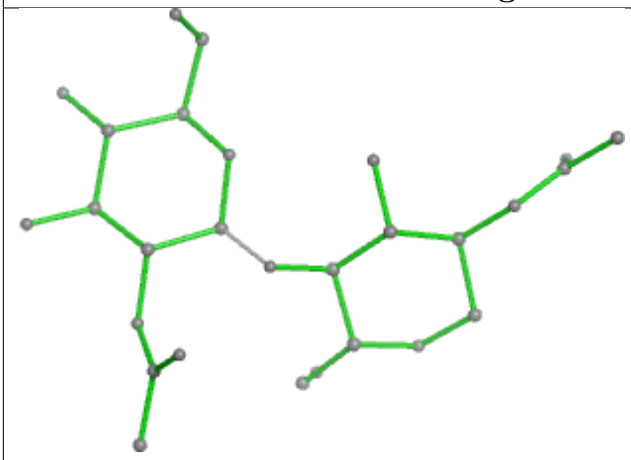


Torsions

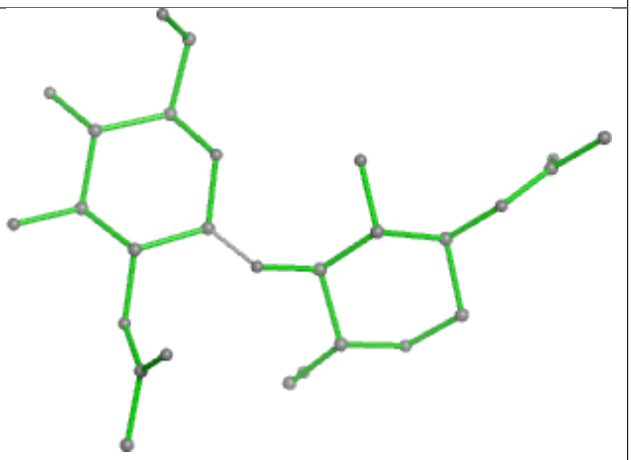


Rings

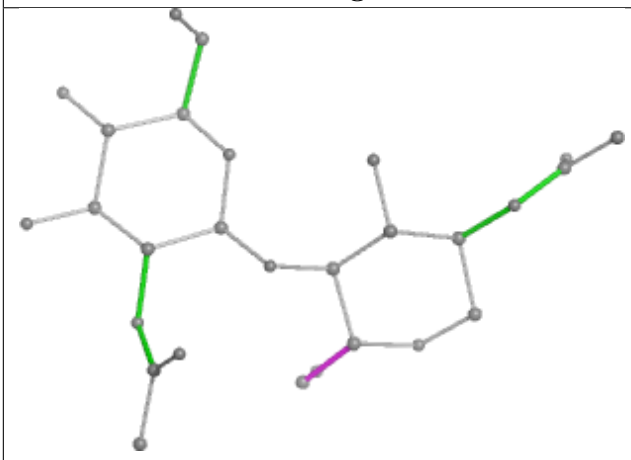
Oligosaccharide Chain J



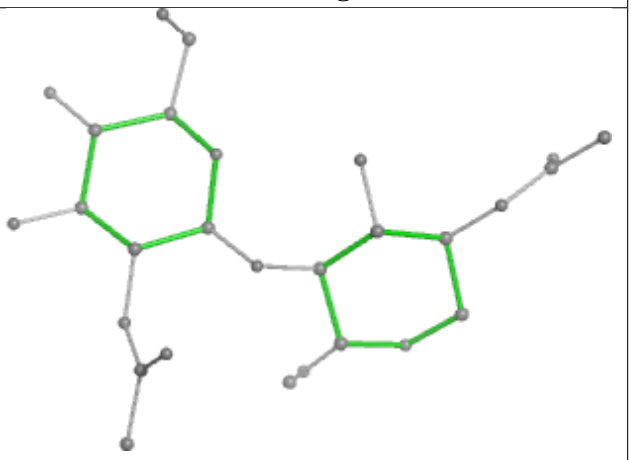
Bond lengths



Bond angles

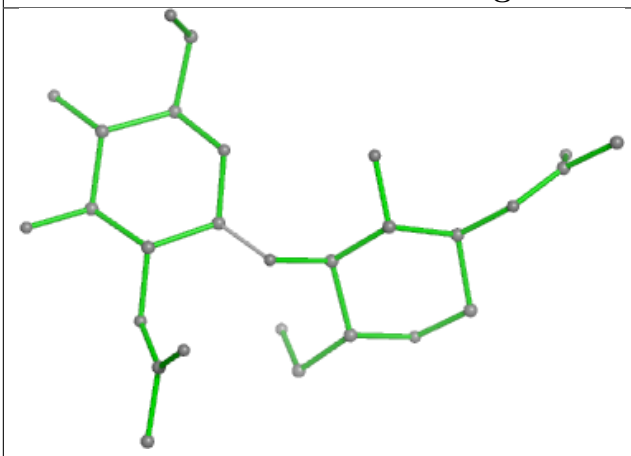


Torsions

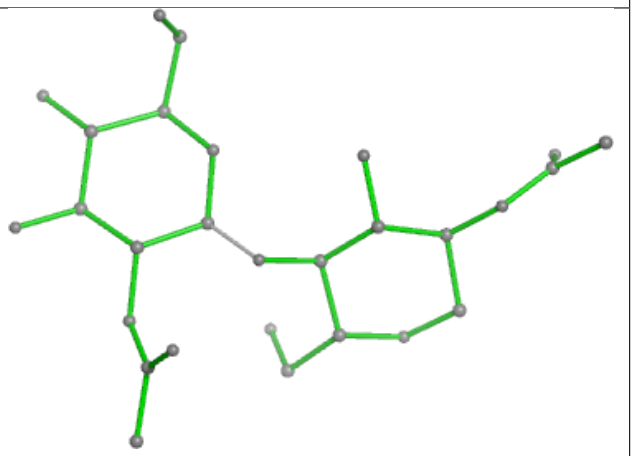


Rings

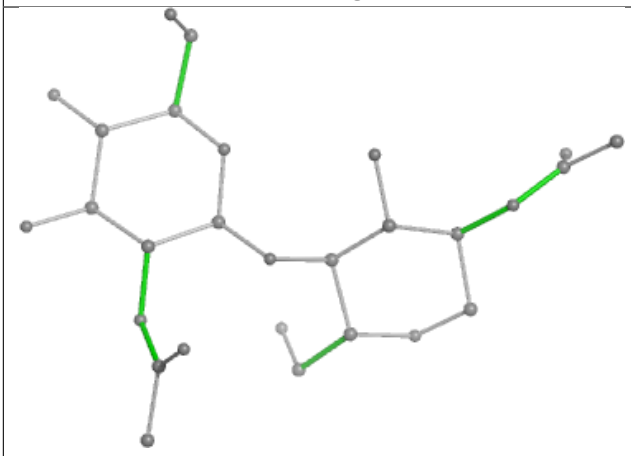
Oligosaccharide Chain K



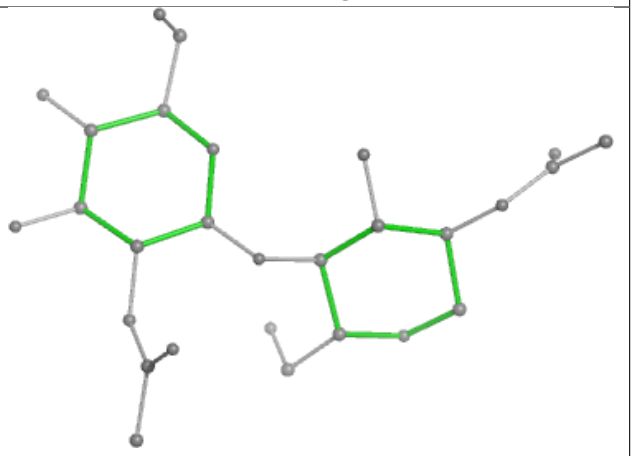
Bond lengths



Bond angles

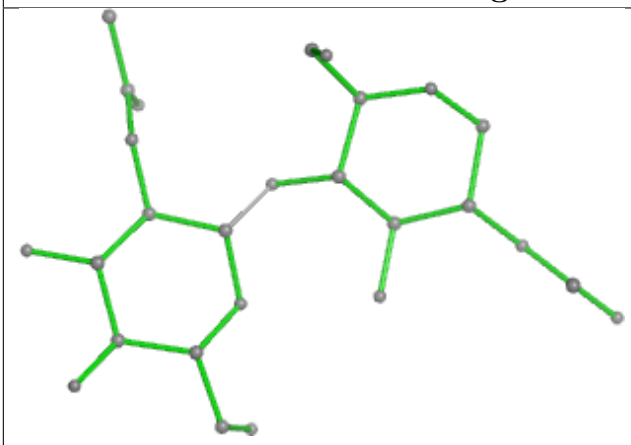


Torsions

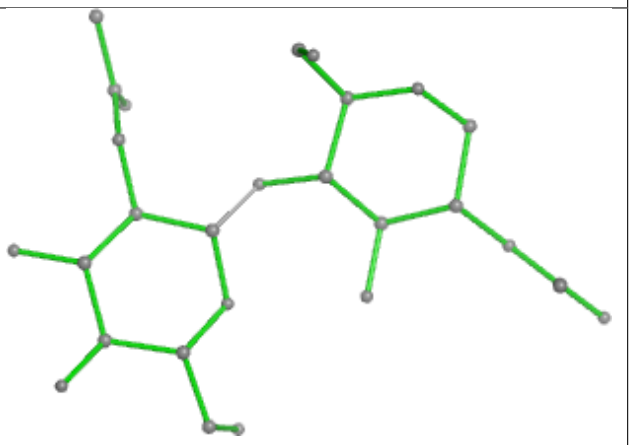


Rings

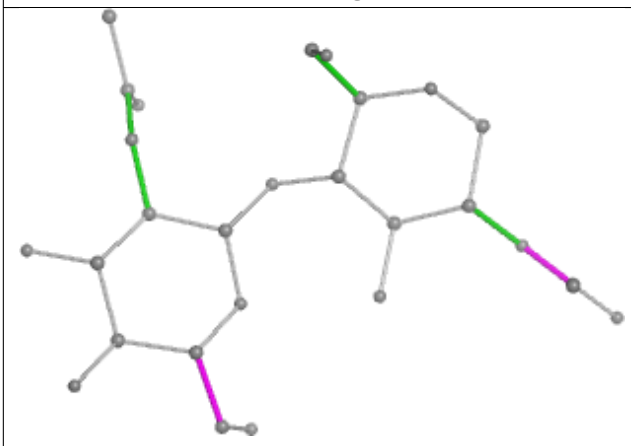
Oligosaccharide Chain M



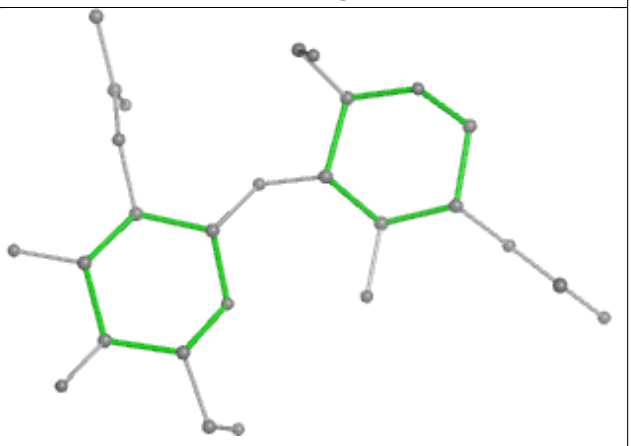
Bond lengths



Bond angles

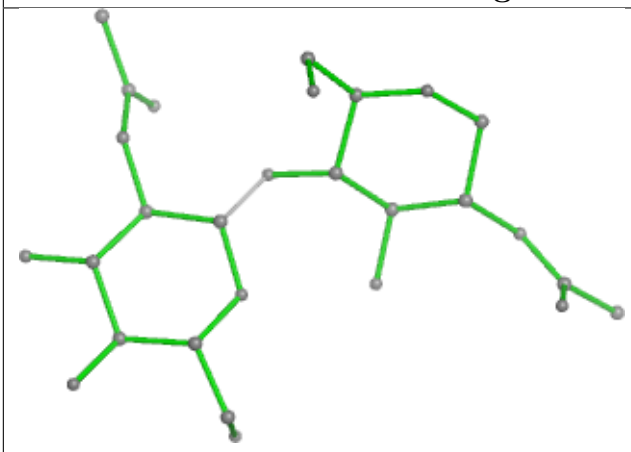


Torsions

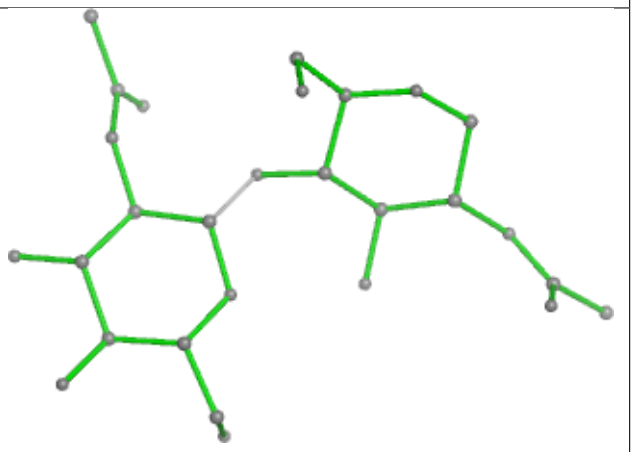


Rings

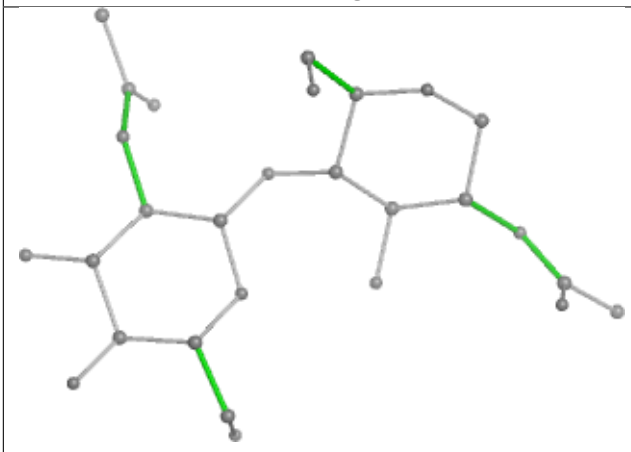
Oligosaccharide Chain N



Bond lengths



Bond angles



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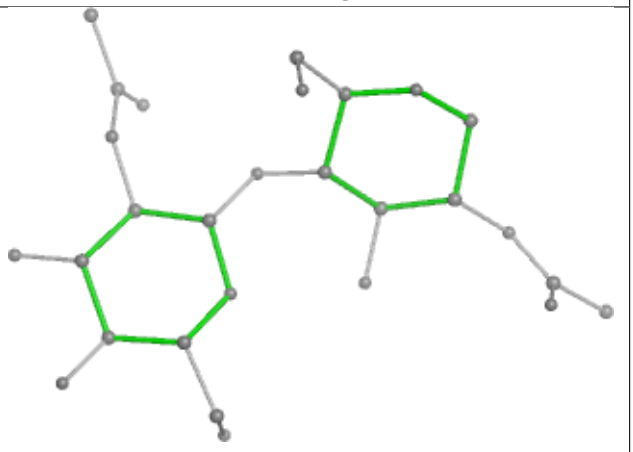
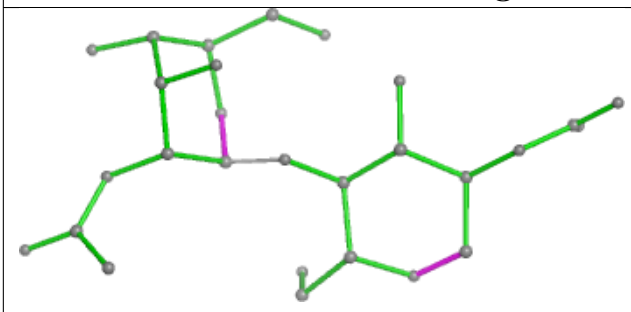
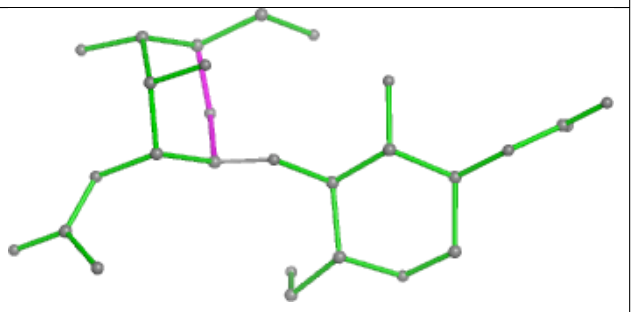


Rings

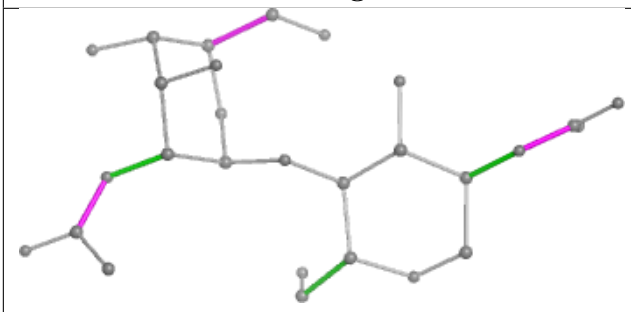
Oligosaccharide Chain O



Bond lengths



Bond angles



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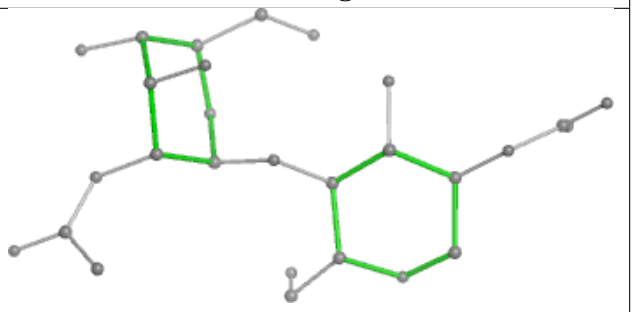
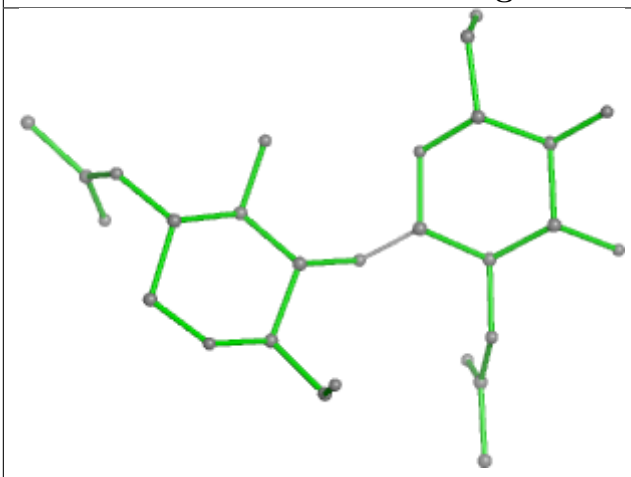
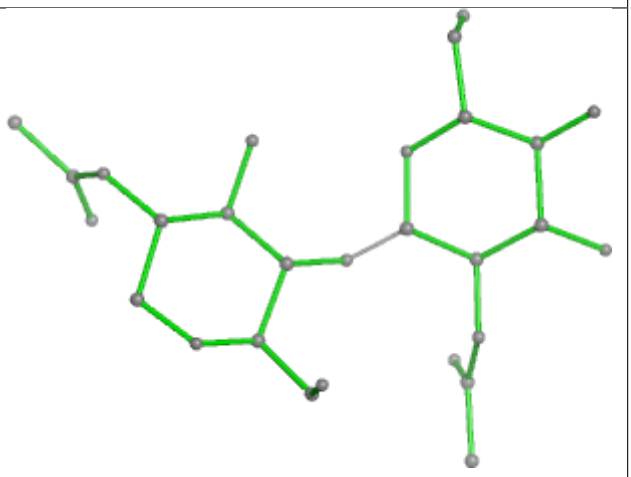
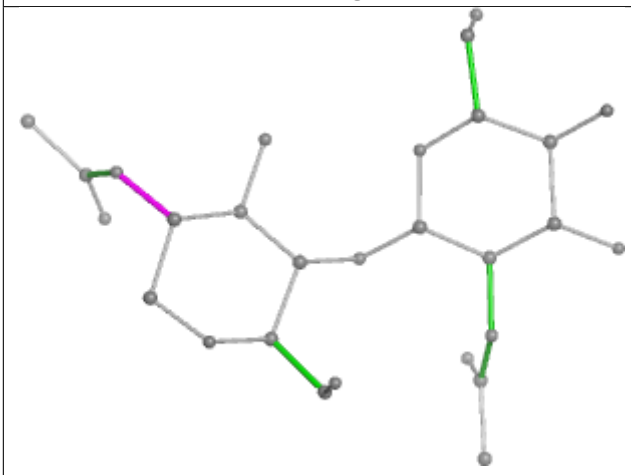
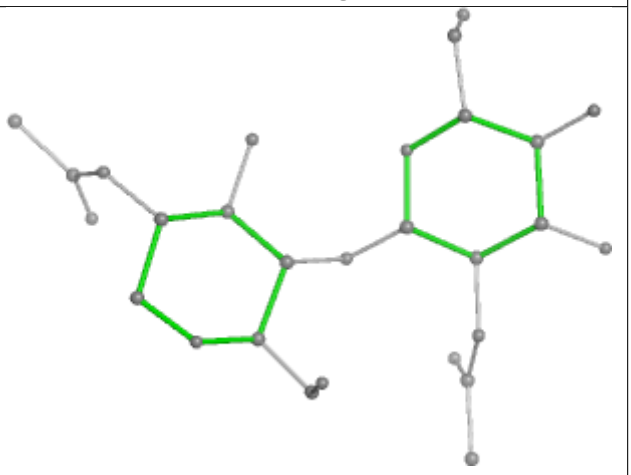
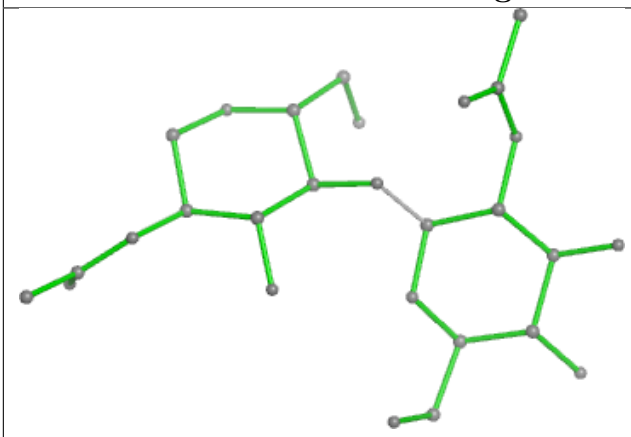


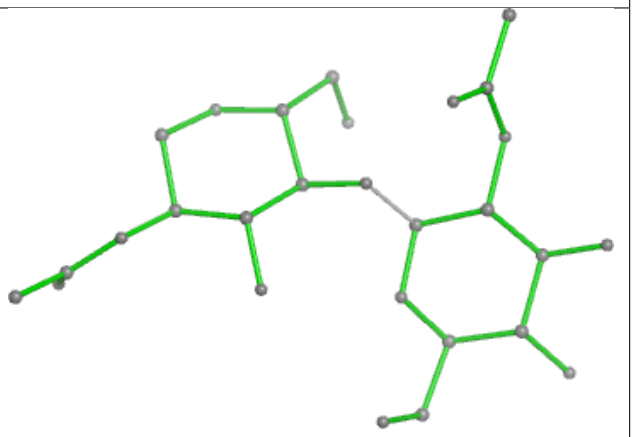
Rings

Oligosaccharide Chain P	
	
Bond lengths	**Bond angles**
	
Torsions	**Rings**

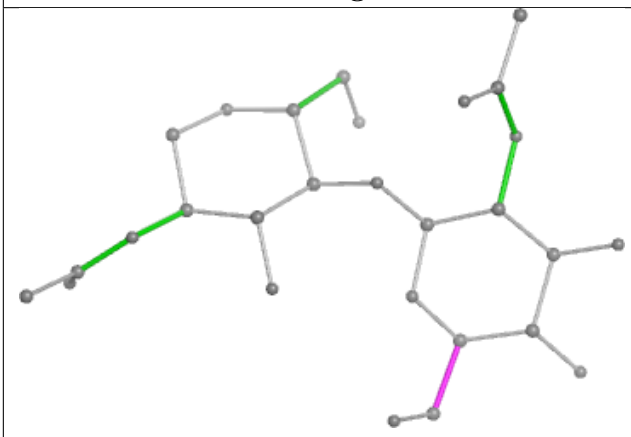
Oligosaccharide Chain R



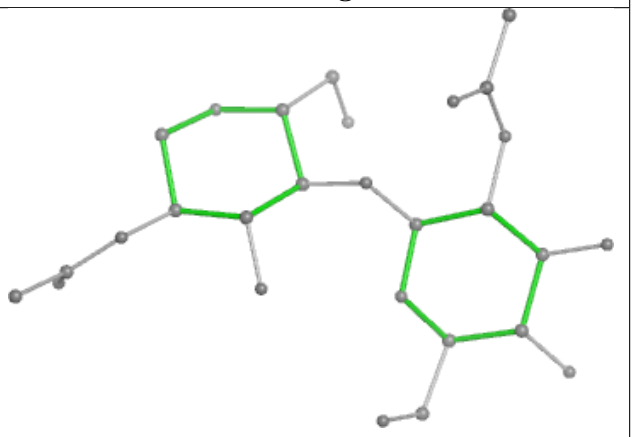
Bond lengths



Bond angles

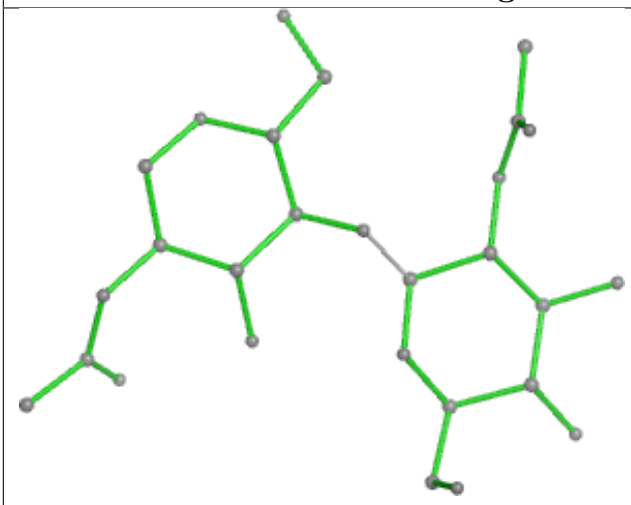


Torsions

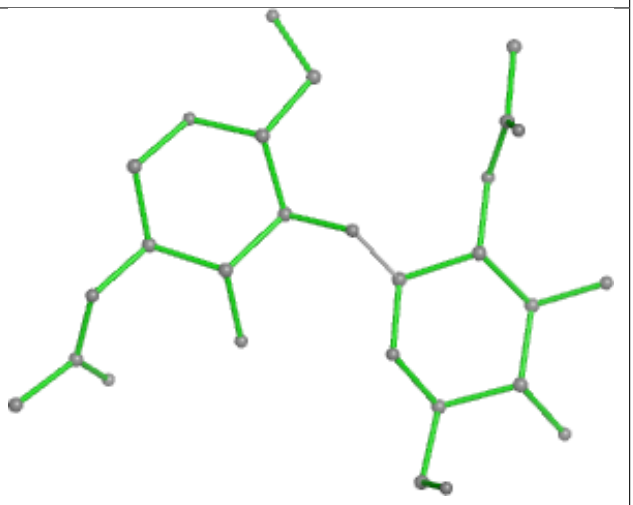


Rings

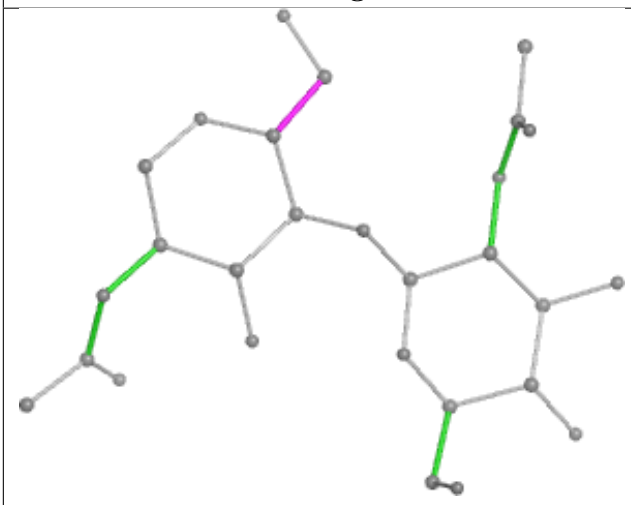
Oligosaccharide Chain S



Bond lengths



Bond angles



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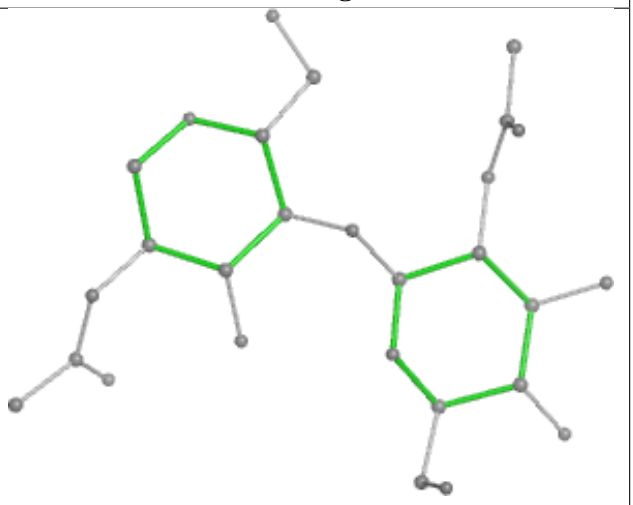
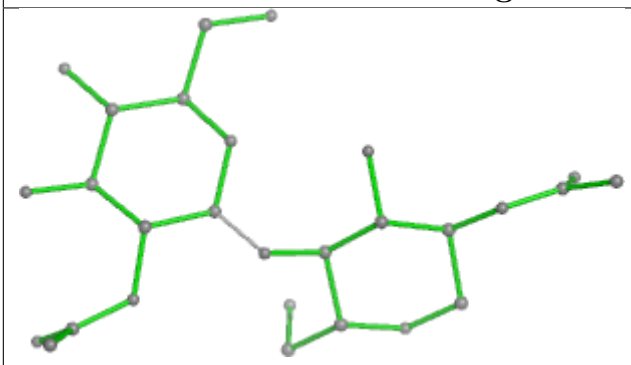
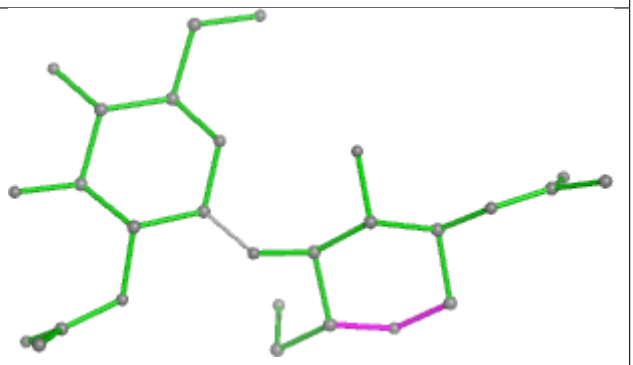


Rings

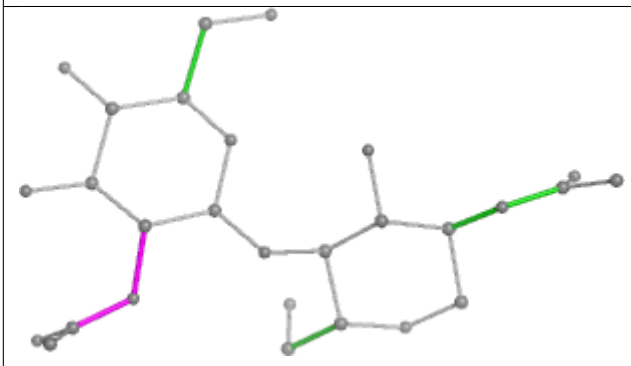
Oligosaccharide Chain T



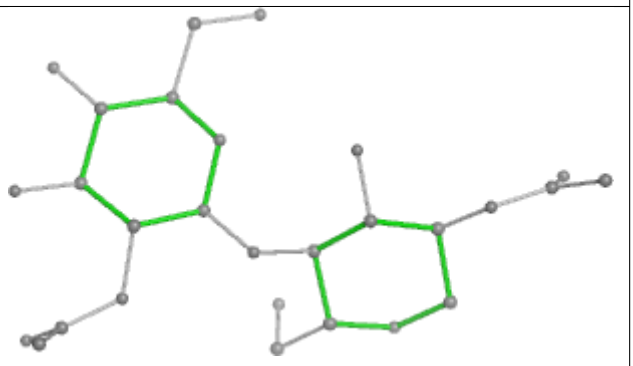
Bond lengths



Bond angles

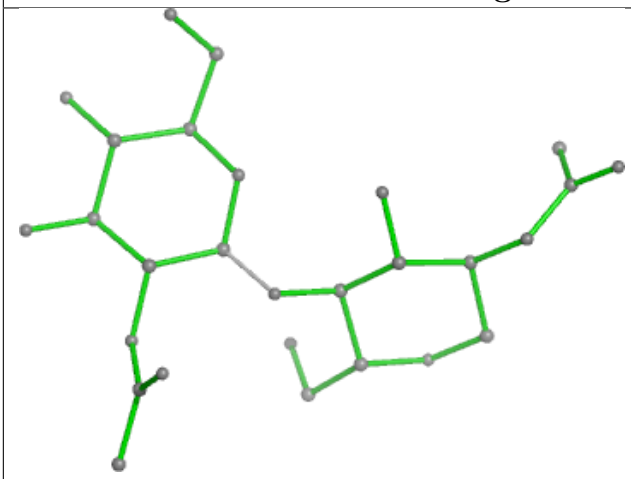


Torsions

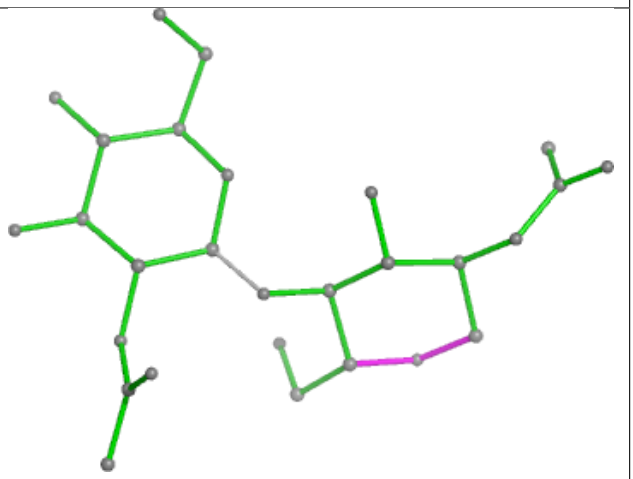


Rings

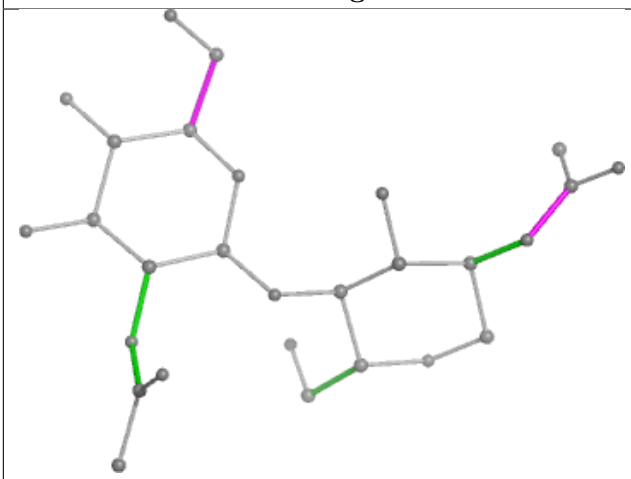
Oligosaccharide Chain U



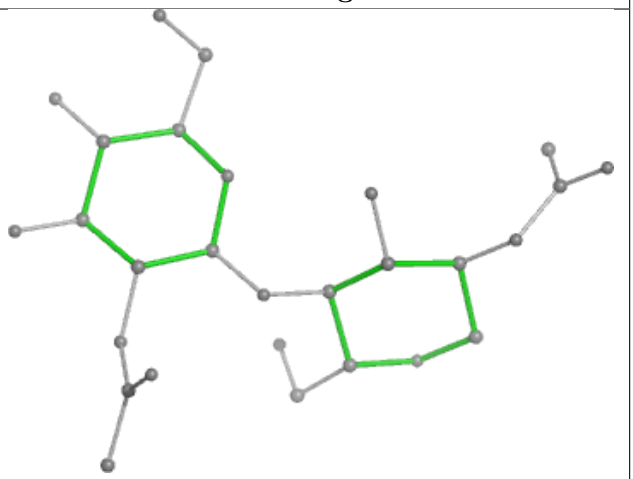
Bond lengths



Bond angles

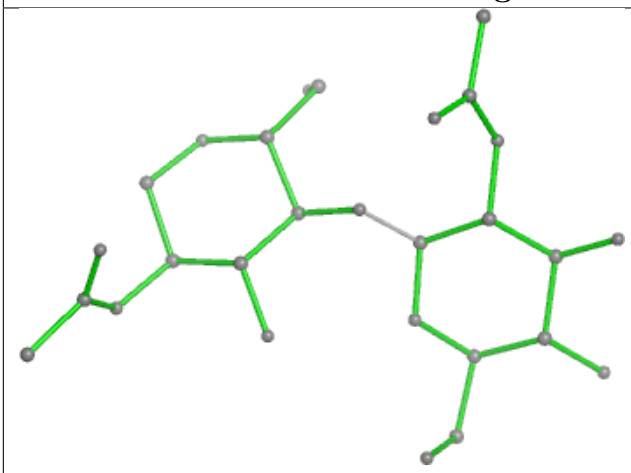


Torsions

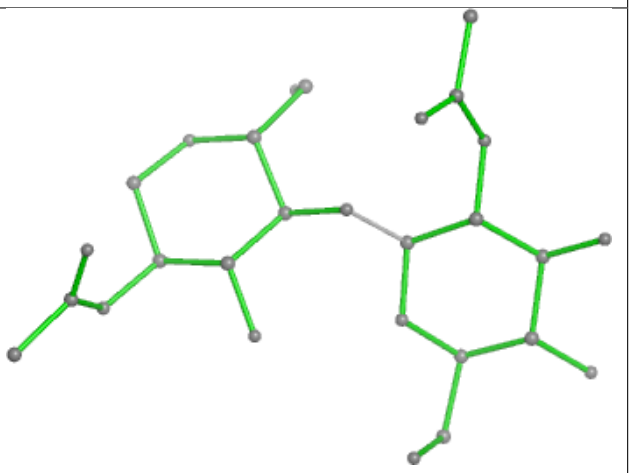


Rings

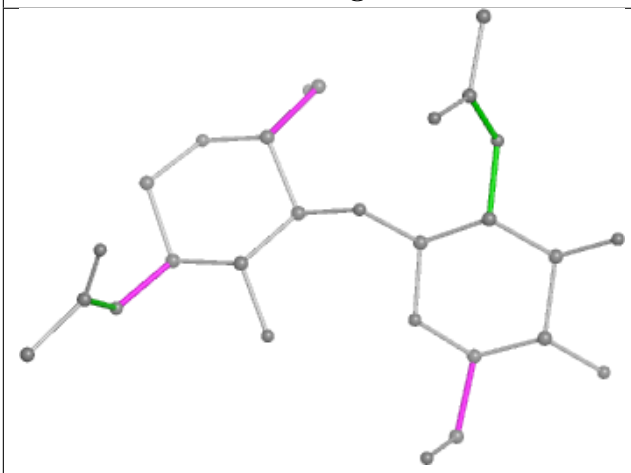
Oligosaccharide Chain V



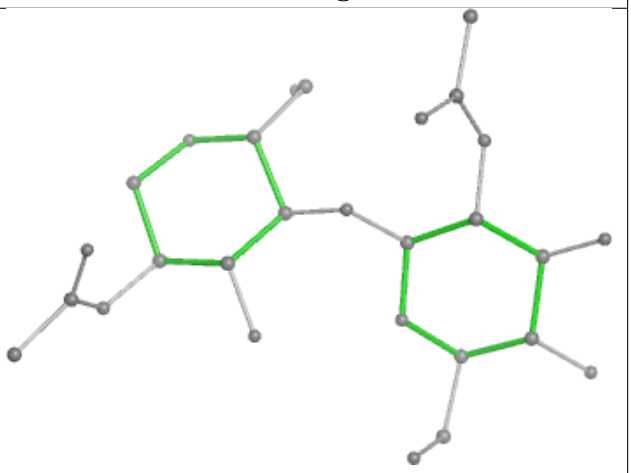
Bond lengths



Bond angles

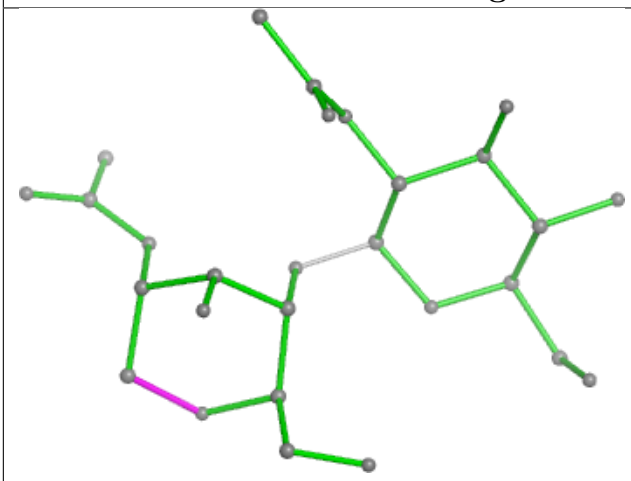


Torsions



Rings

Oligosaccharide Chain W



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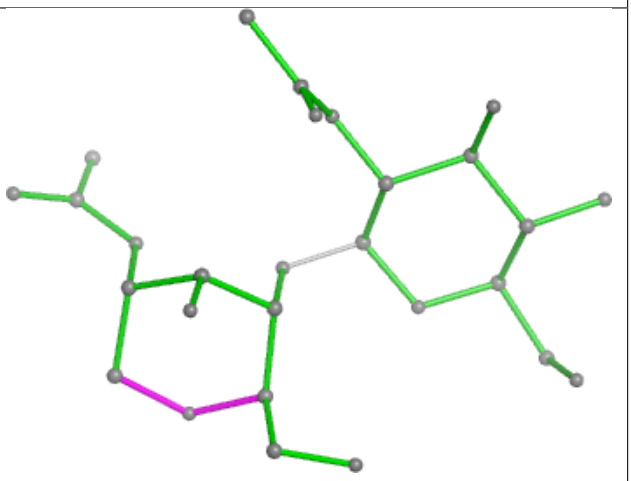
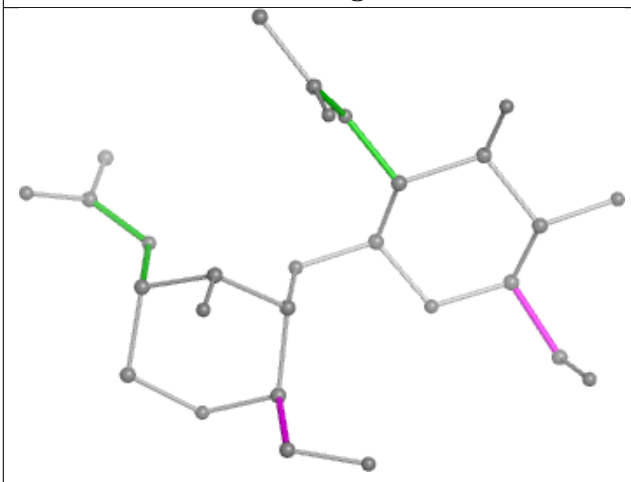
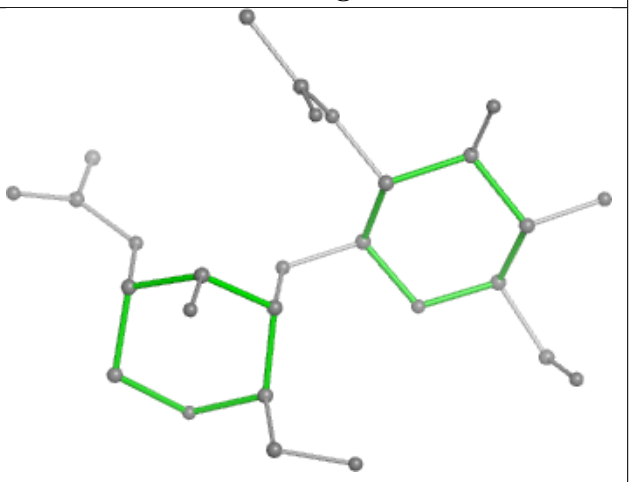


Bond angles

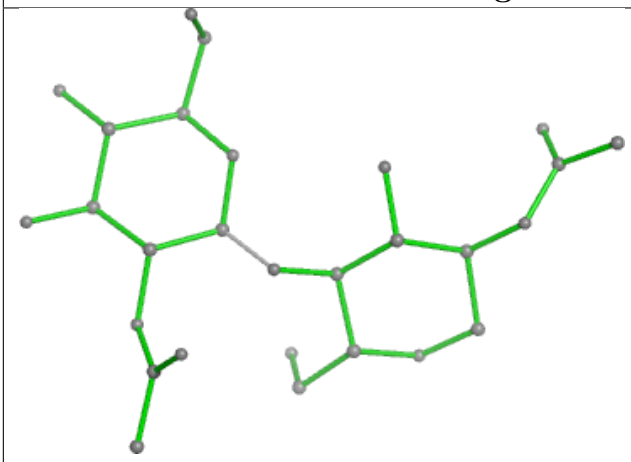


Torsions

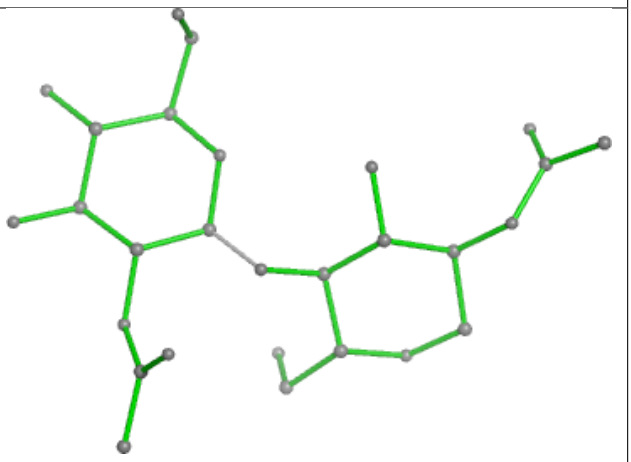


Rings

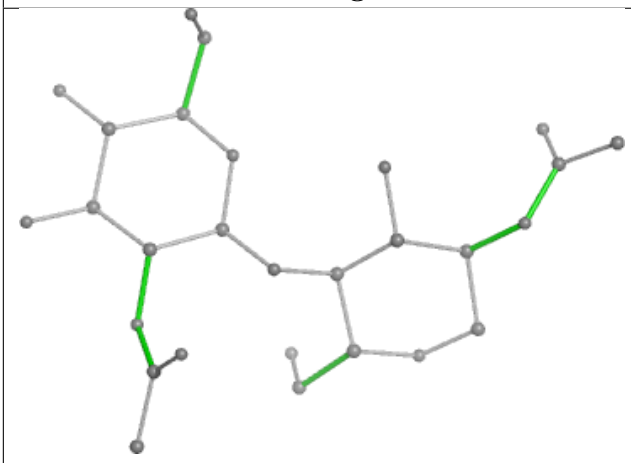
Oligosaccharide Chain X



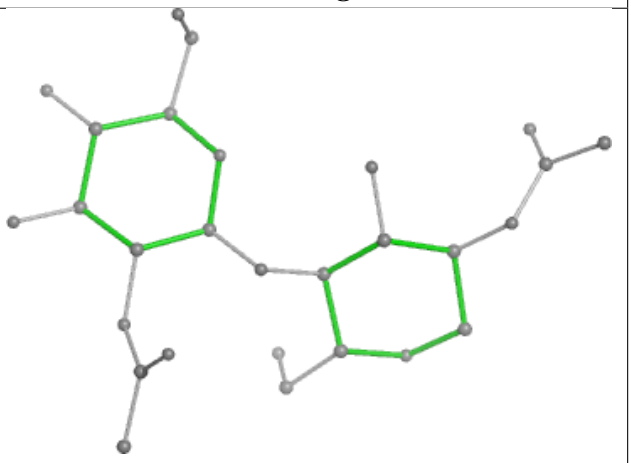
Bond lengths



Bond angles

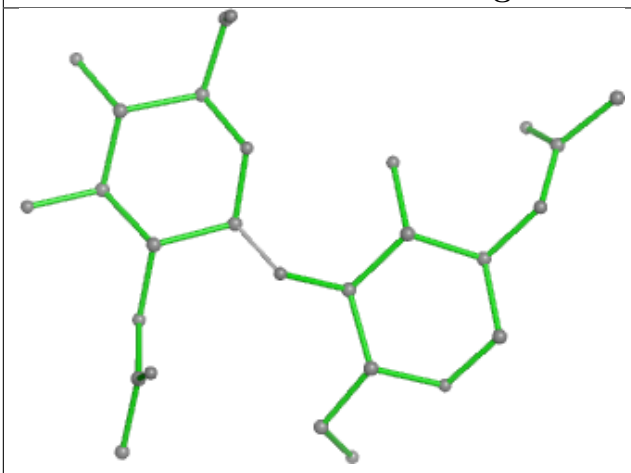


Torsions

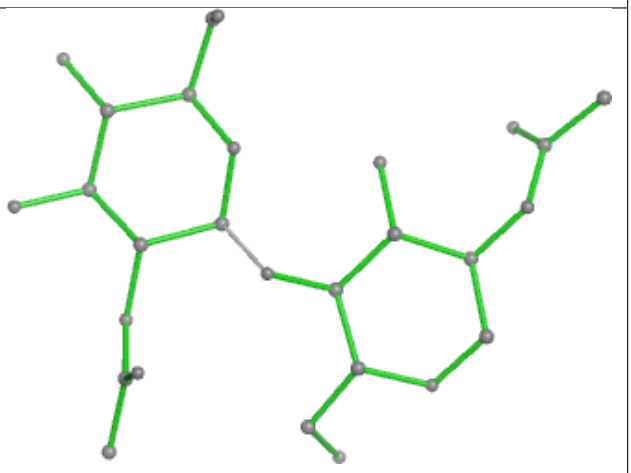


Rings

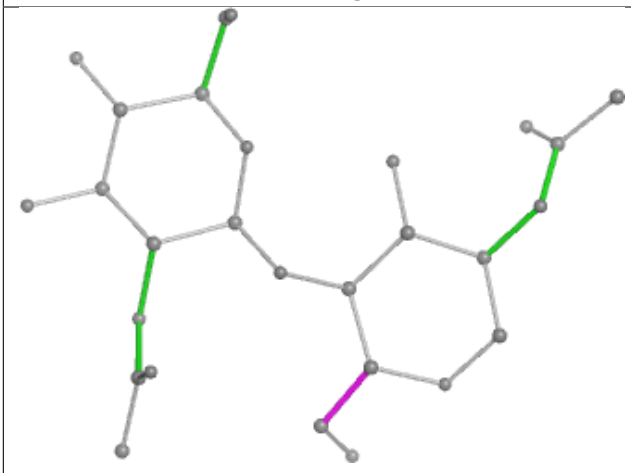
Oligosaccharide Chain Y



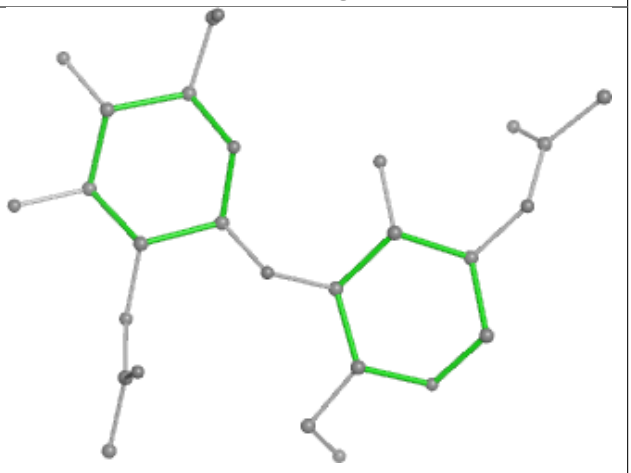
Bond lengths



Bond angles

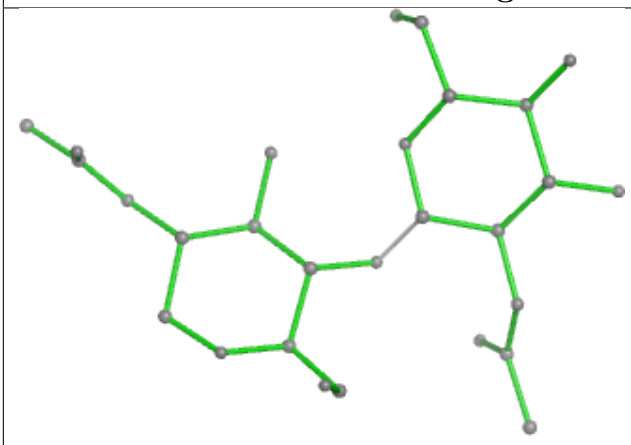


Torsions



Rings

Oligosaccharide Chain Z



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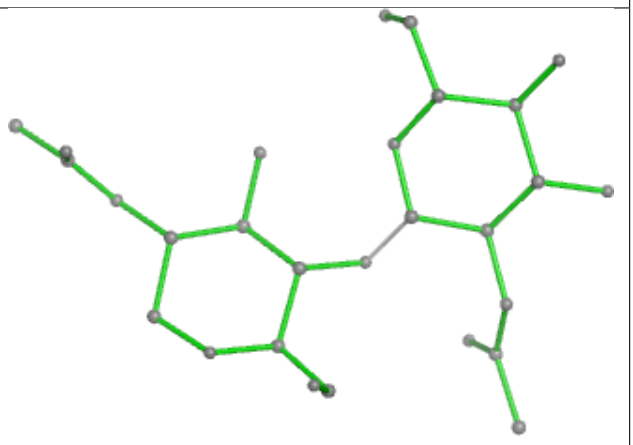
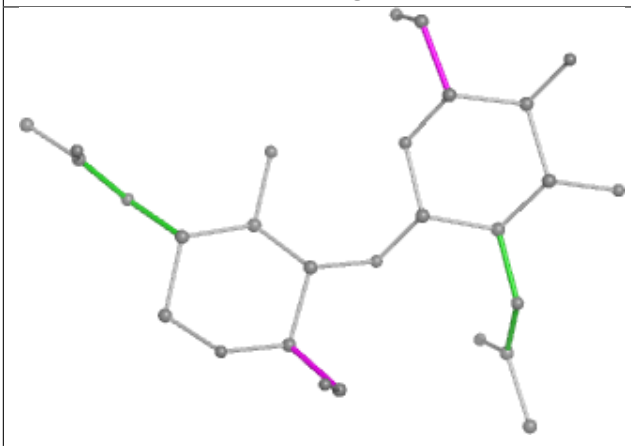


Bond angles



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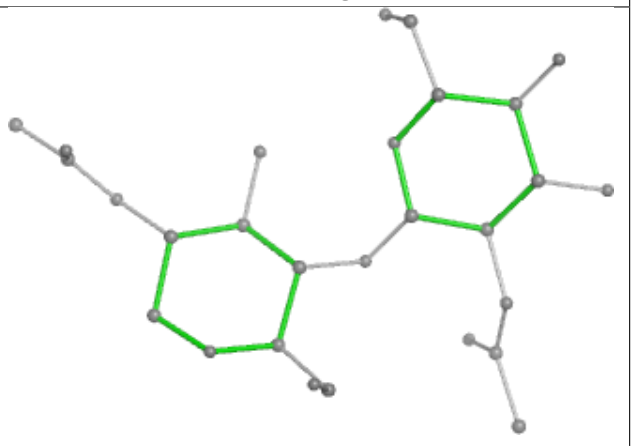
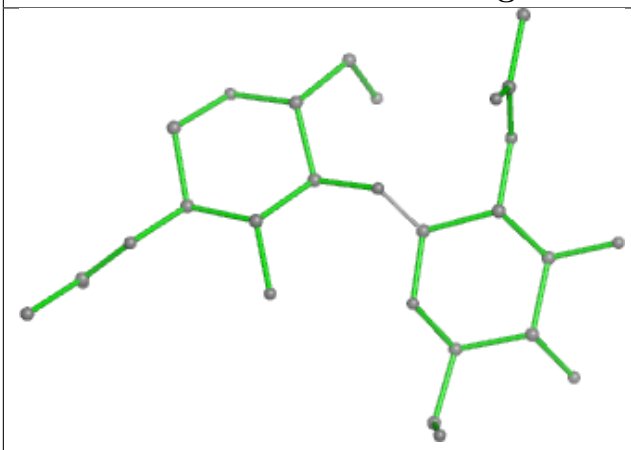
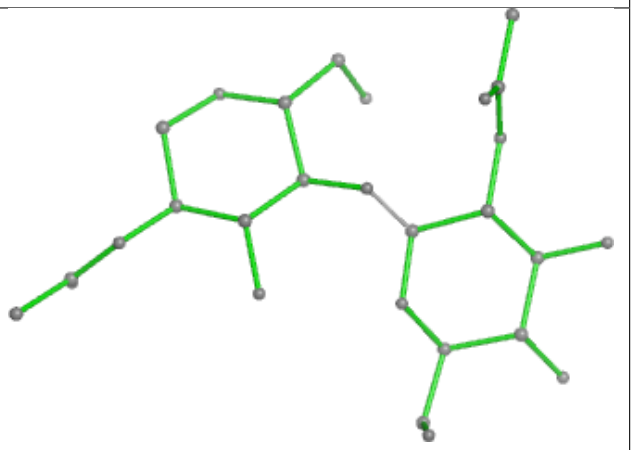


Rings

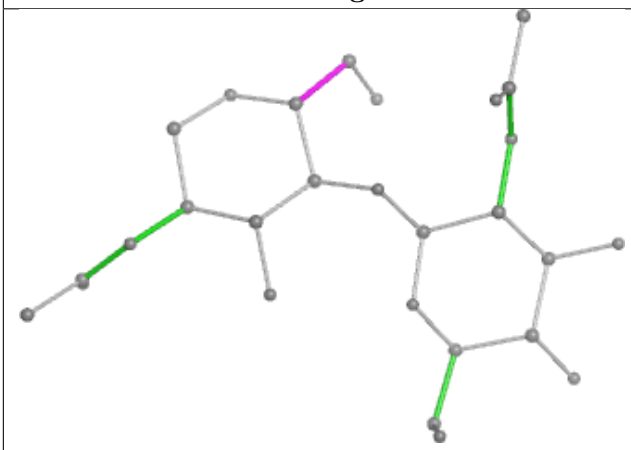
Oligosaccharide Chain b



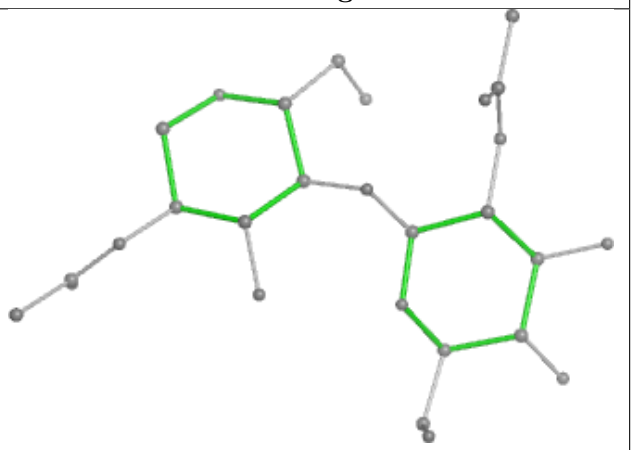
Bond lengths



Bond angles

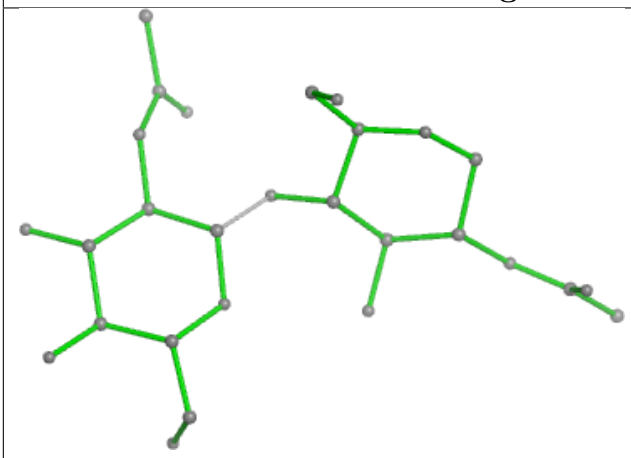


Torsions



Rings

Oligosaccharide Chain c



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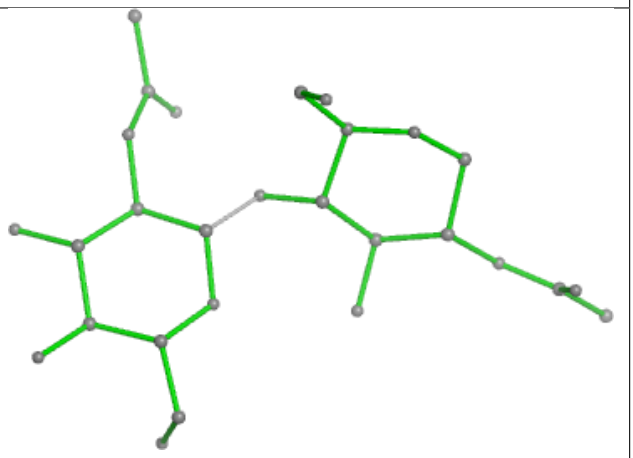
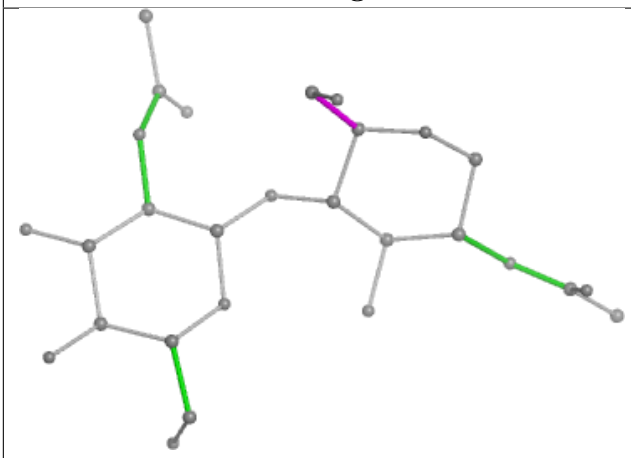


Bond angles



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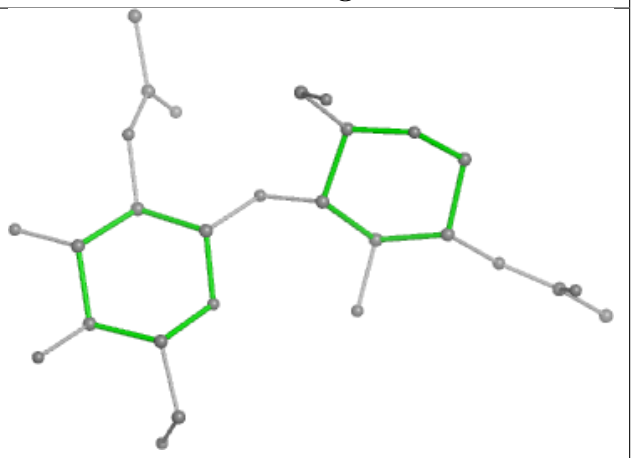
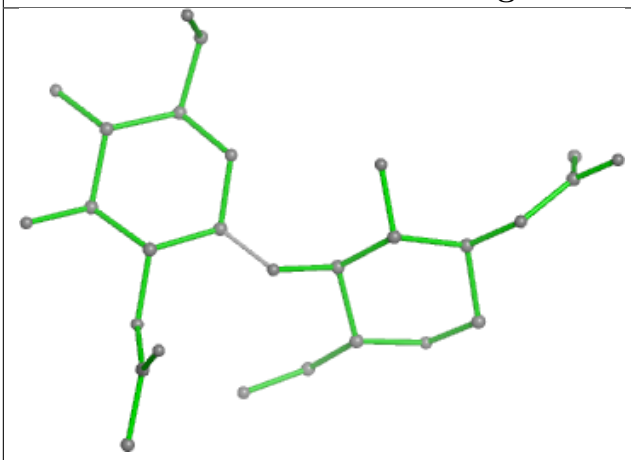


Rings

Oligosaccharide Chain d



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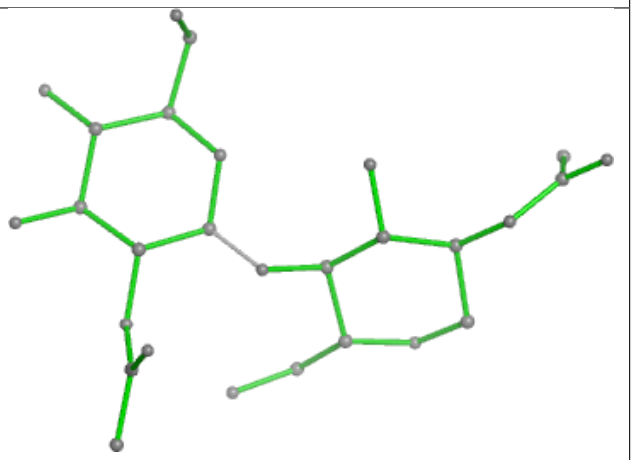
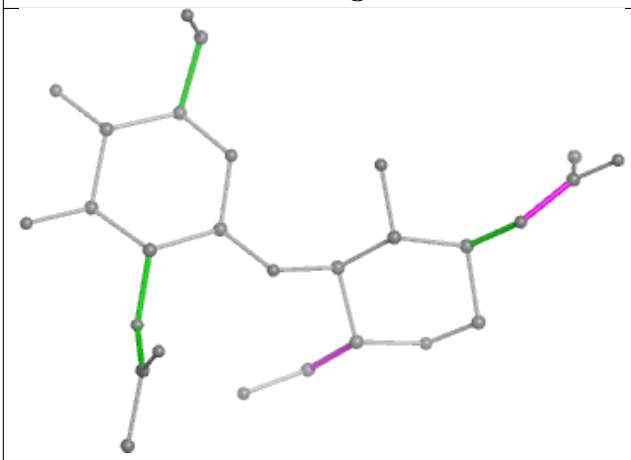
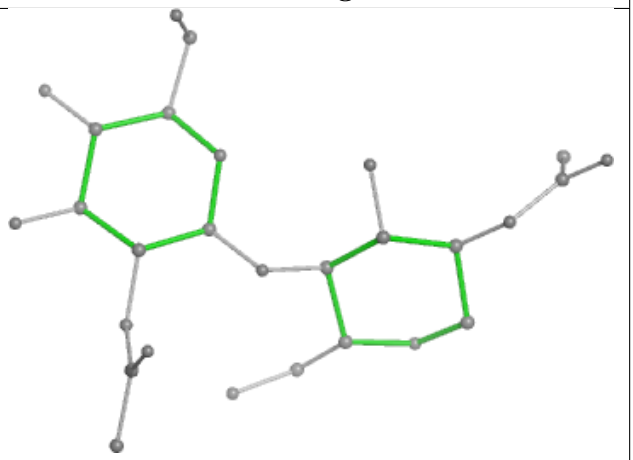


Bond angles

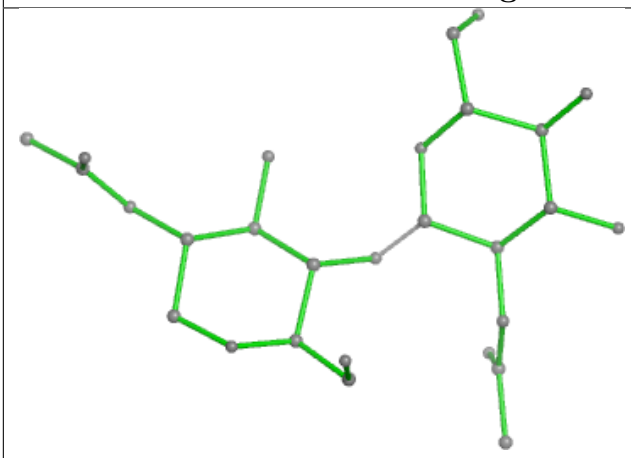


Torsions

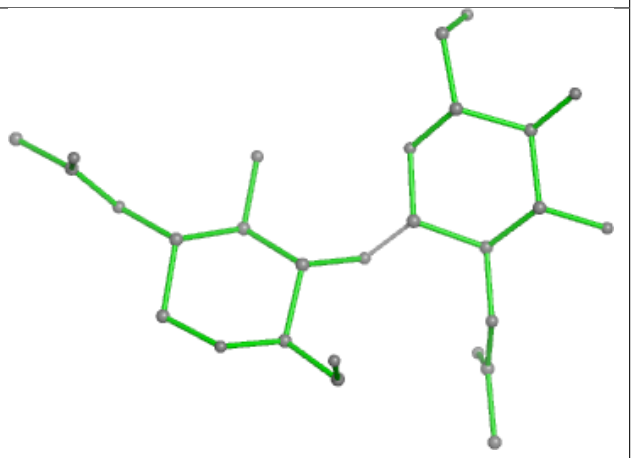


Rings

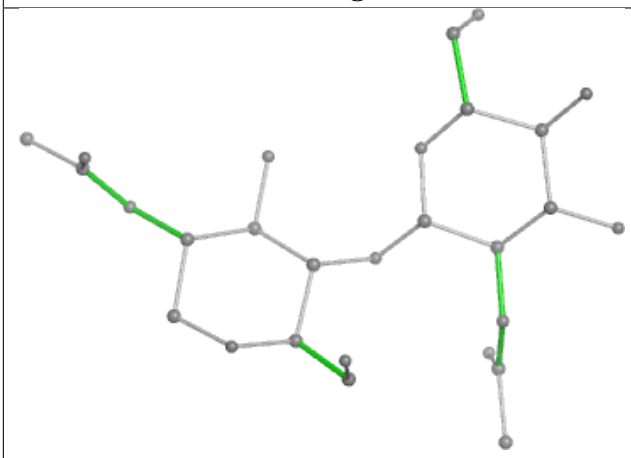
Oligosaccharide Chain e



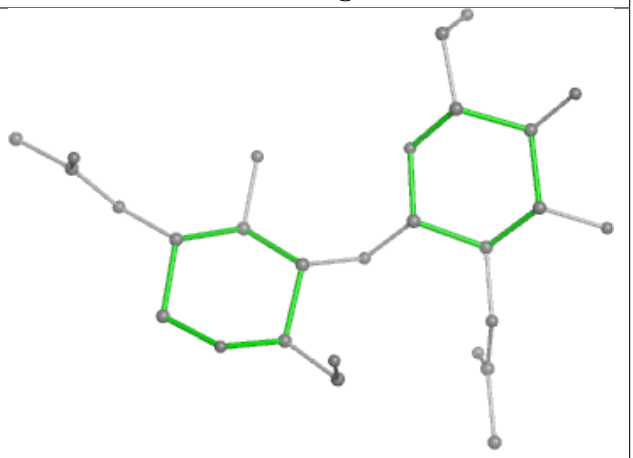
Bond lengths



Bond angles

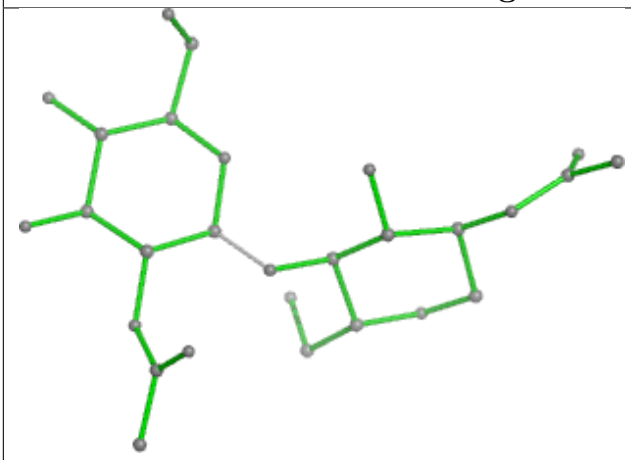


Torsions



Rings

Oligosaccharide Chain g



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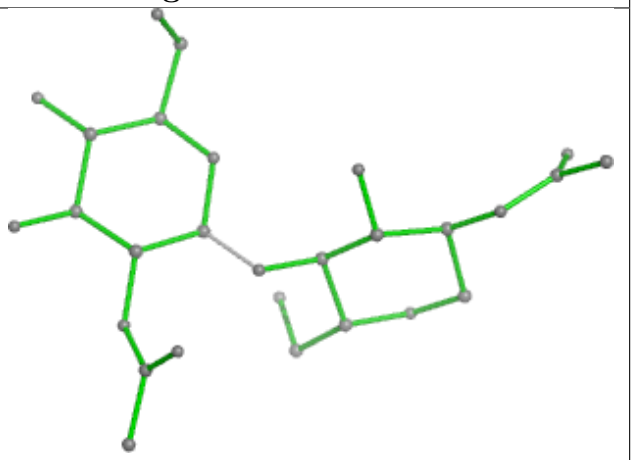
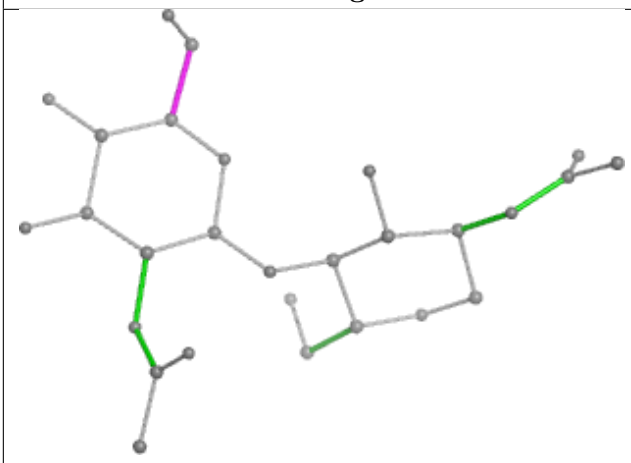
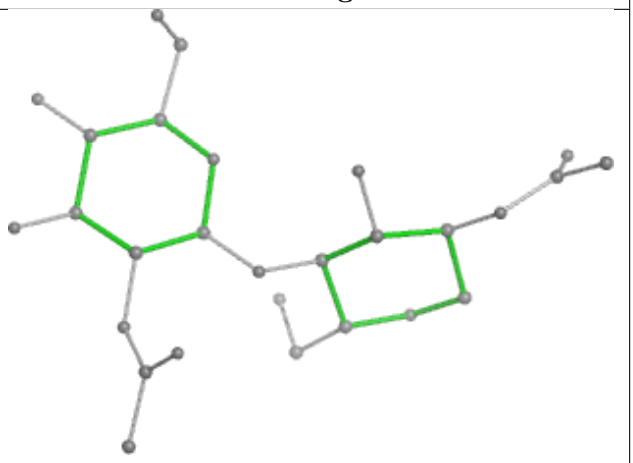


Bond angles

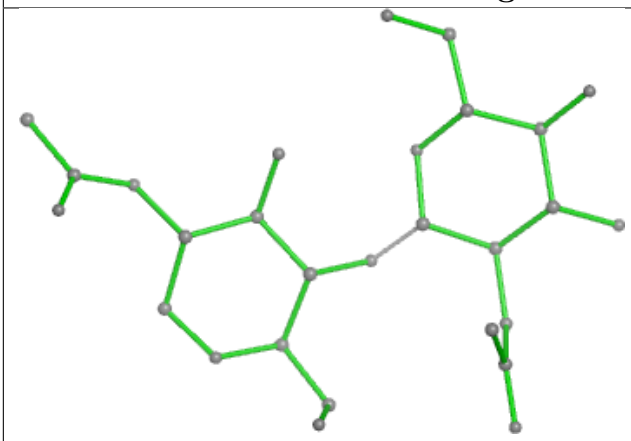


Torsions



Rings

Oligosaccharide Chain h



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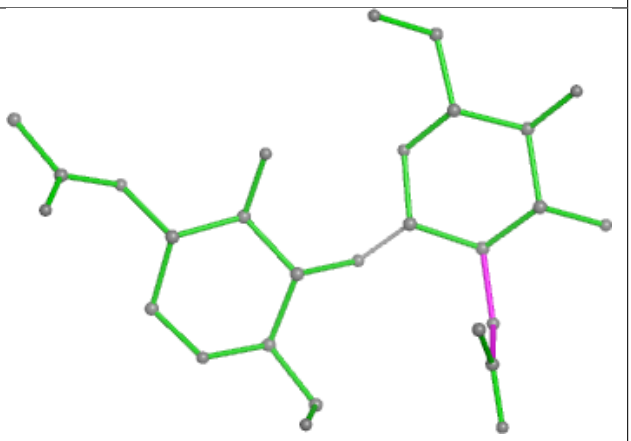
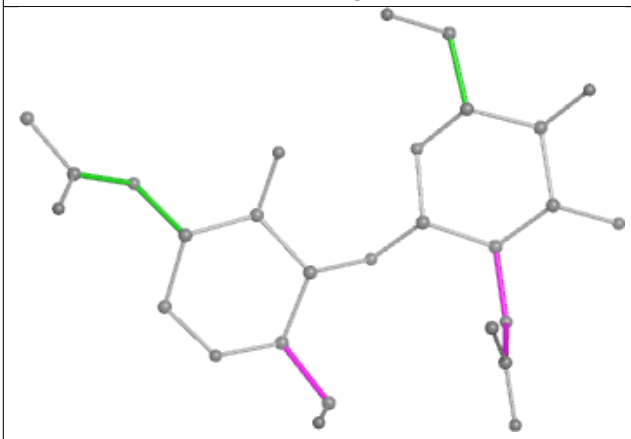


Bond angles



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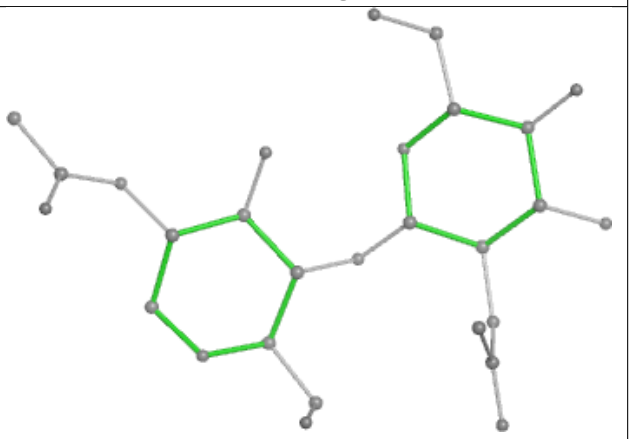
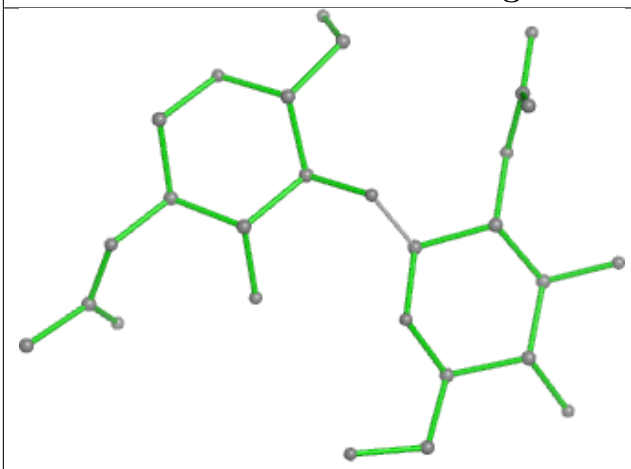
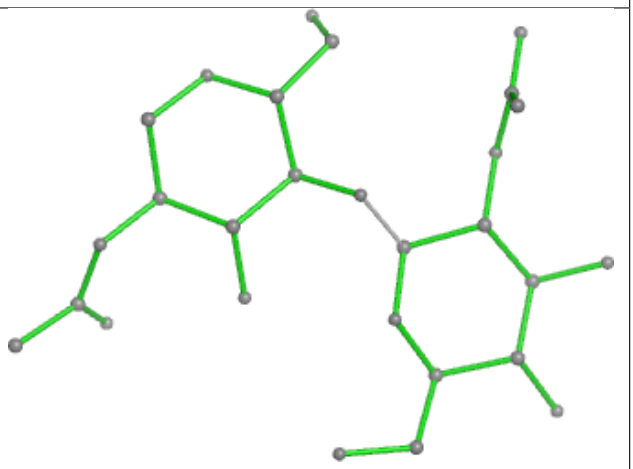


Rings

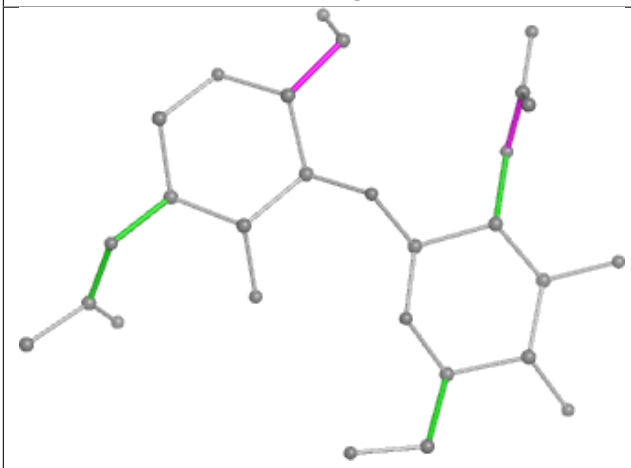
Oligosaccharide Chain i



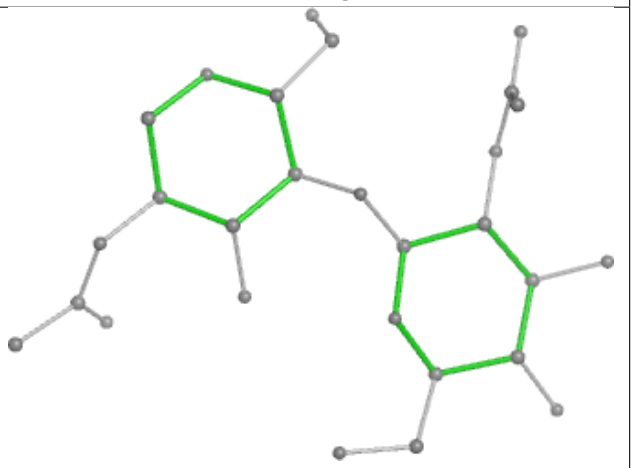
Bond lengths



Bond angles

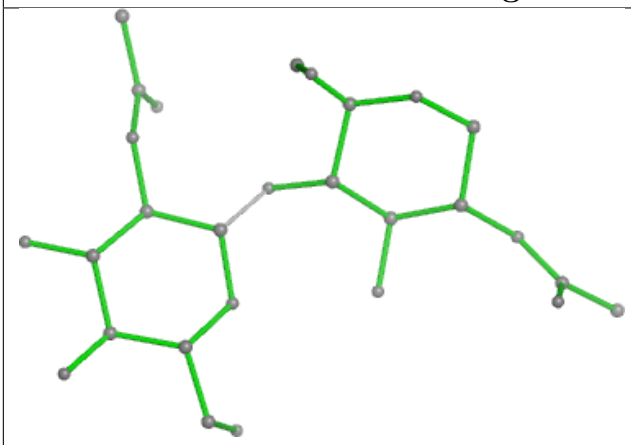


Torsions

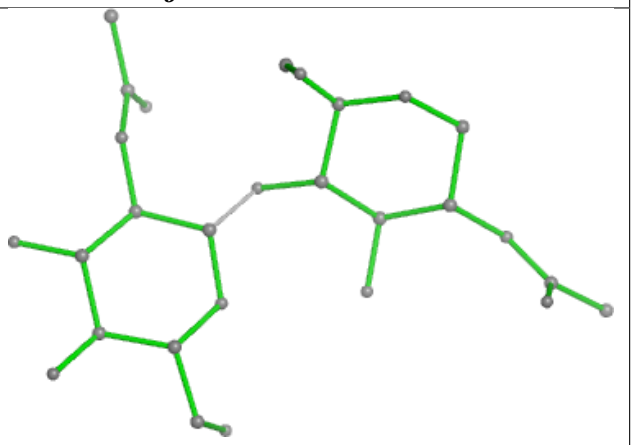


Rings

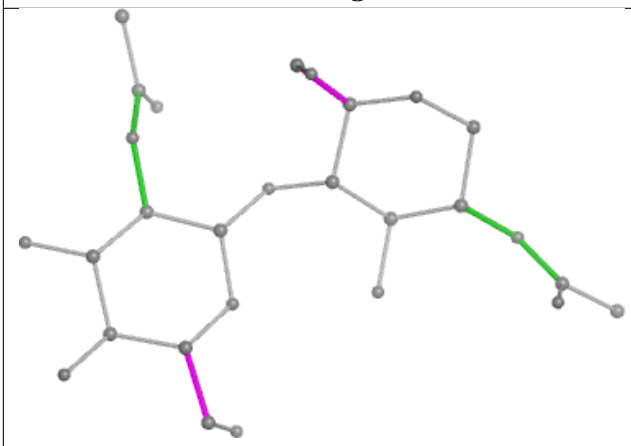
Oligosaccharide Chain j



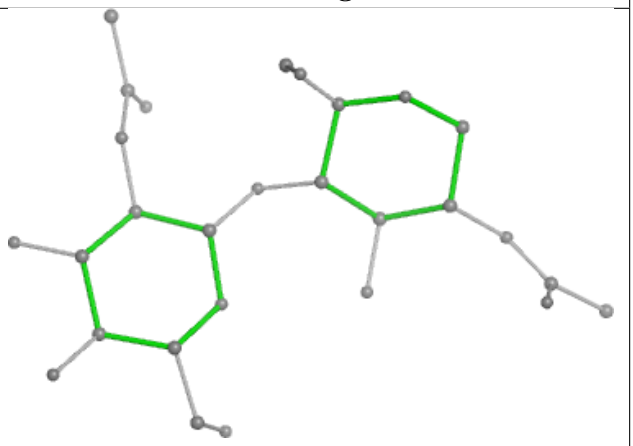
Bond lengths



Bond angles

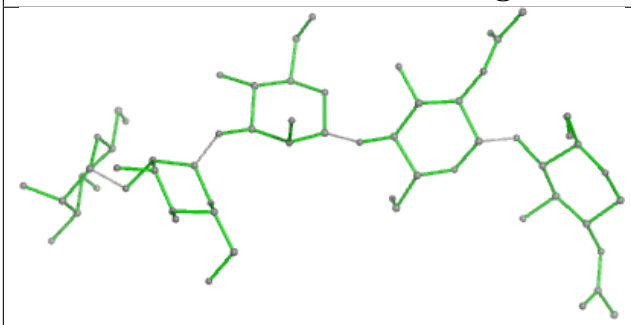


Torsions

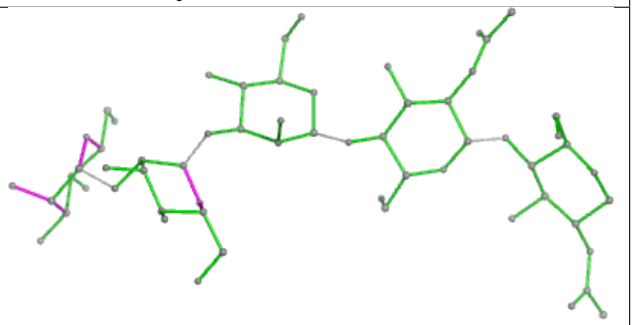


Rings

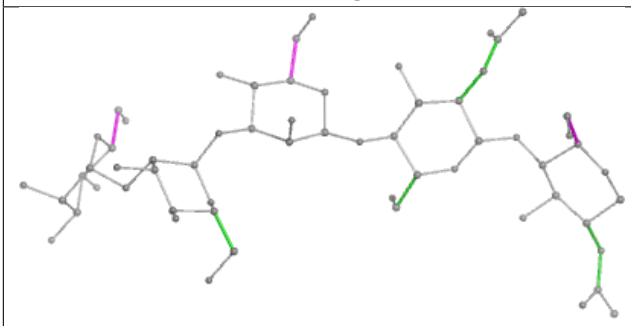
Oligosaccharide Chain Q



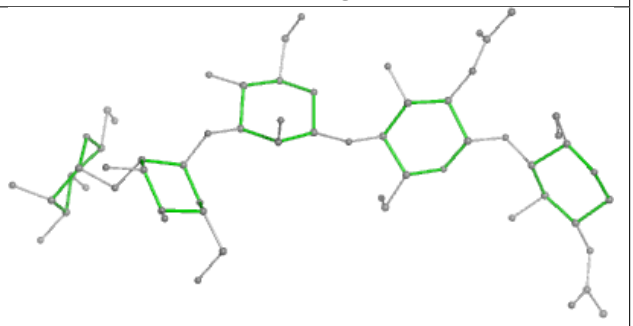
Bond lengths



Bond angles

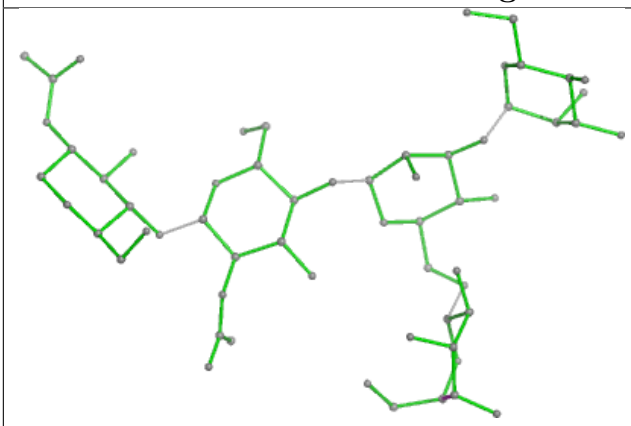


Torsions

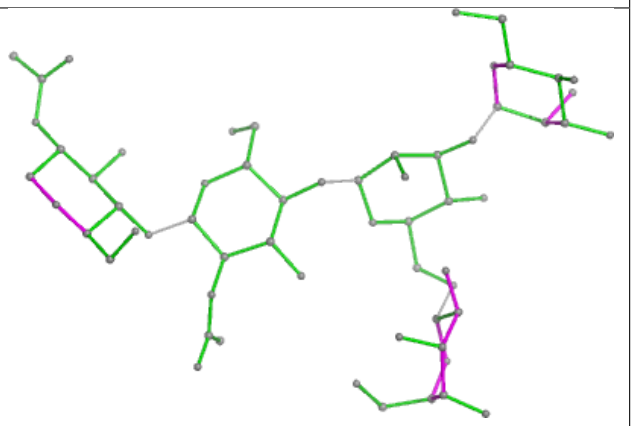


Rings

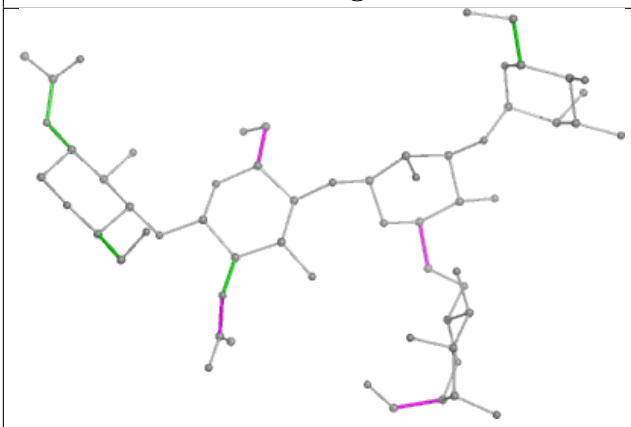
Oligosaccharide Chain a



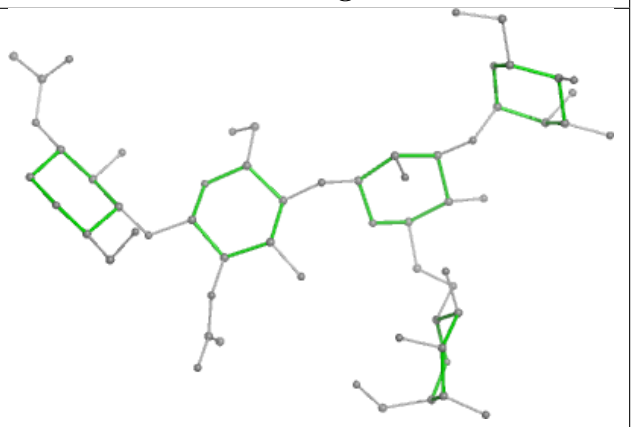
Bond lengths



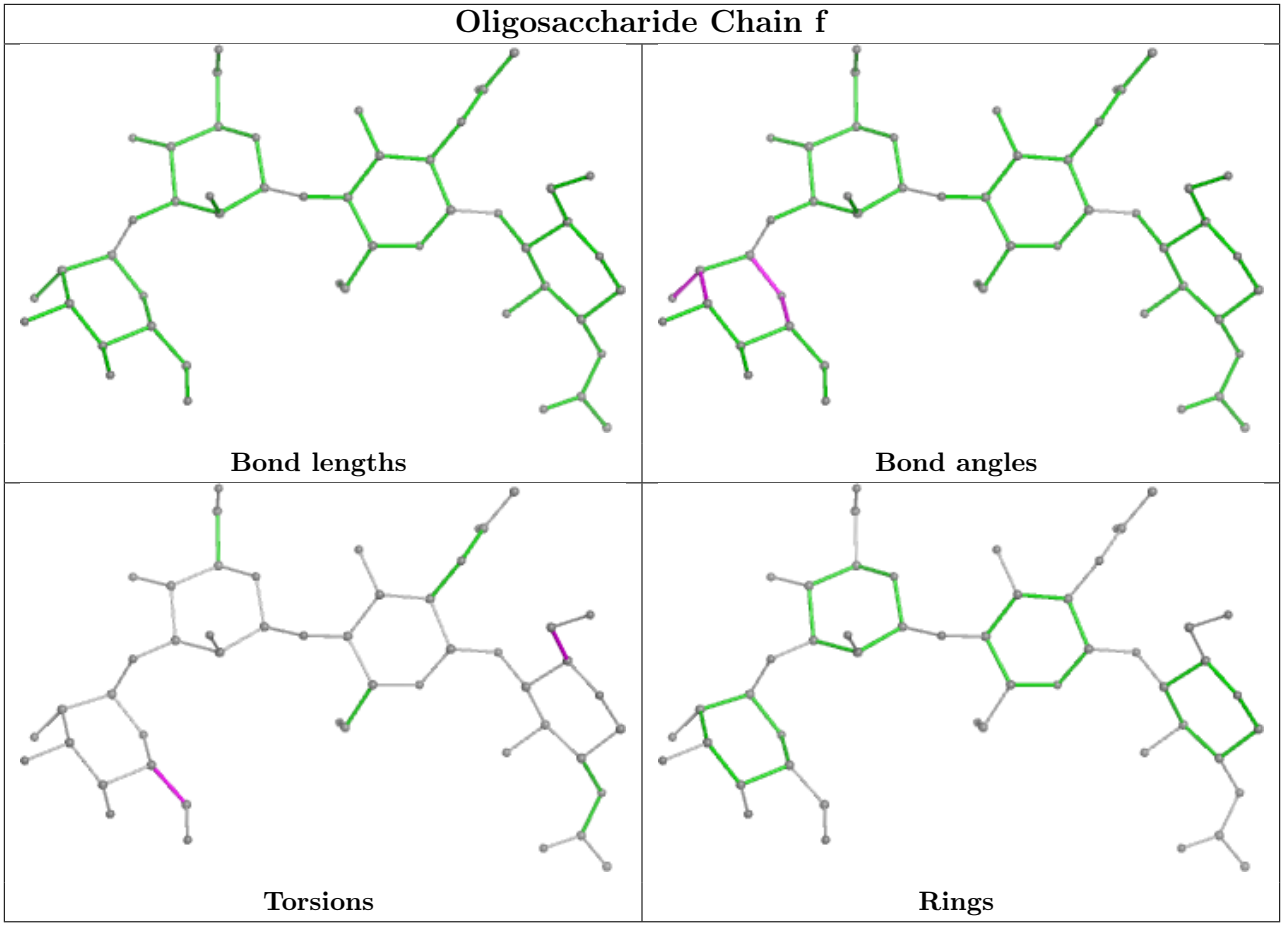
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

29 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	$\#\|Z\| > 2$
9	NAG	D	702	2	14,14,15	0.25	0	17,19,21	0.46	0
9	NAG	A	602	1	14,14,15	0.19	0	17,19,21	0.45	0
9	NAG	E	604	1	14,14,15	0.20	0	17,19,21	0.41	0
9	NAG	C	602	1	14,14,15	0.32	0	17,19,21	0.40	0
9	NAG	C	605	1	14,14,15	0.23	0	17,19,21	0.43	0
9	NAG	A	604	1	14,14,15	0.20	0	17,19,21	0.52	0
9	NAG	C	606	1	14,14,15	0.23	0	17,19,21	0.40	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
9	NAG	C	607	1	14,14,15	0.23	0	17,19,21	0.42	0
9	NAG	E	608	1	14,14,15	0.19	0	17,19,21	0.40	0
9	NAG	C	603	1	14,14,15	0.20	0	17,19,21	0.50	0
9	NAG	D	701	2	14,14,15	0.18	0	17,19,21	0.43	0
9	NAG	E	601	1	14,14,15	0.23	0	17,19,21	0.56	0
9	NAG	E	602	1	14,14,15	0.24	0	17,19,21	0.55	0
9	NAG	E	606	1	14,14,15	0.17	0	17,19,21	0.48	0
9	NAG	B	703	2	14,14,15	0.19	0	17,19,21	0.43	0
9	NAG	E	607	1	14,14,15	0.20	0	17,19,21	0.42	0
9	NAG	F	701	2	14,14,15	0.19	0	17,19,21	0.45	0
9	NAG	E	605	1	14,14,15	0.19	0	17,19,21	0.38	0
9	NAG	E	603	1	14,14,15	0.30	0	17,19,21	0.37	0
9	NAG	F	702	2	14,14,15	0.35	0	17,19,21	0.73	0
9	NAG	B	701	2	14,14,15	0.19	0	17,19,21	0.46	0
9	NAG	E	609	1	14,14,15	0.19	0	17,19,21	0.52	0
9	NAG	A	601	1	14,14,15	0.25	0	17,19,21	0.45	0
9	NAG	C	601	1	14,14,15	0.79	1 (7%)	17,19,21	1.25	1 (5%)
9	NAG	A	605	1	14,14,15	0.32	0	17,19,21	0.46	0
9	NAG	C	604	1	14,14,15	0.23	0	17,19,21	0.34	0
9	NAG	B	702	2	14,14,15	0.40	0	17,19,21	1.23	1 (5%)
9	NAG	A	603	1	14,14,15	0.20	0	17,19,21	0.38	0
9	NAG	B	704	2	14,14,15	0.37	0	17,19,21	1.20	2 (11%)

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
9	NAG	D	702	2	-	2/6/23/26	0/1/1/1
9	NAG	A	602	1	-	1/6/23/26	0/1/1/1
9	NAG	E	604	1	-	3/6/23/26	0/1/1/1
9	NAG	C	602	1	-	0/6/23/26	0/1/1/1
9	NAG	C	605	1	-	2/6/23/26	0/1/1/1
9	NAG	A	604	1	-	2/6/23/26	0/1/1/1
9	NAG	C	606	1	-	0/6/23/26	0/1/1/1
9	NAG	C	607	1	-	2/6/23/26	0/1/1/1
9	NAG	E	608	1	-	2/6/23/26	0/1/1/1
9	NAG	C	603	1	-	4/6/23/26	0/1/1/1
9	NAG	D	701	2	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	E	601	1	-	2/6/23/26	0/1/1/1
9	NAG	E	602	1	-	3/6/23/26	0/1/1/1
9	NAG	E	606	1	-	2/6/23/26	0/1/1/1
9	NAG	B	703	2	-	0/6/23/26	0/1/1/1
9	NAG	E	607	1	-	2/6/23/26	0/1/1/1
9	NAG	F	701	2	-	2/6/23/26	0/1/1/1
9	NAG	E	605	1	-	3/6/23/26	0/1/1/1
9	NAG	E	603	1	-	2/6/23/26	0/1/1/1
9	NAG	F	702	2	-	0/6/23/26	0/1/1/1
9	NAG	B	701	2	-	2/6/23/26	0/1/1/1
9	NAG	E	609	1	-	1/6/23/26	0/1/1/1
9	NAG	A	601	1	-	0/6/23/26	0/1/1/1
9	NAG	C	601	1	-	2/6/23/26	0/1/1/1
9	NAG	A	605	1	-	1/6/23/26	0/1/1/1
9	NAG	C	604	1	-	4/6/23/26	0/1/1/1
9	NAG	B	702	2	-	5/6/23/26	0/1/1/1
9	NAG	A	603	1	-	2/6/23/26	0/1/1/1
9	NAG	B	704	2	-	3/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	C	601	NAG	O5-C1	2.82	1.48	1.43

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	C	601	NAG	C1-O5-C5	4.92	118.86	112.19
9	B	702	NAG	C2-N2-C7	4.23	128.92	122.90
9	B	704	NAG	C4-C3-C2	-2.80	106.91	111.02
9	B	704	NAG	O5-C1-C2	-2.36	107.56	111.29

There are no chirality outliers.

All (57) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	B	704	NAG	C8-C7-N2-C2
9	B	704	NAG	O7-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
9	C	603	NAG	C4-C5-C6-O6
9	E	607	NAG	C4-C5-C6-O6
9	C	603	NAG	O5-C5-C6-O6
9	E	607	NAG	O5-C5-C6-O6
9	D	702	NAG	C4-C5-C6-O6
9	C	605	NAG	O5-C5-C6-O6
9	C	604	NAG	O5-C5-C6-O6
9	E	601	NAG	O5-C5-C6-O6
9	C	605	NAG	C4-C5-C6-O6
9	E	606	NAG	O5-C5-C6-O6
9	C	604	NAG	C4-C5-C6-O6
9	B	702	NAG	C8-C7-N2-C2
9	B	702	NAG	O7-C7-N2-C2
9	C	604	NAG	C8-C7-N2-C2
9	C	604	NAG	O7-C7-N2-C2
9	E	602	NAG	C8-C7-N2-C2
9	E	602	NAG	O7-C7-N2-C2
9	E	604	NAG	C8-C7-N2-C2
9	E	604	NAG	O7-C7-N2-C2
9	E	605	NAG	C8-C7-N2-C2
9	E	605	NAG	O7-C7-N2-C2
9	D	702	NAG	O5-C5-C6-O6
9	C	601	NAG	O5-C5-C6-O6
9	C	607	NAG	O5-C5-C6-O6
9	C	607	NAG	C4-C5-C6-O6
9	B	701	NAG	C4-C5-C6-O6
9	E	601	NAG	C4-C5-C6-O6
9	B	702	NAG	O5-C5-C6-O6
9	E	608	NAG	O5-C5-C6-O6
9	B	704	NAG	C1-C2-N2-C7
9	F	701	NAG	C4-C5-C6-O6
9	E	608	NAG	C4-C5-C6-O6
9	E	609	NAG	O5-C5-C6-O6
9	A	603	NAG	C4-C5-C6-O6
9	B	701	NAG	O5-C5-C6-O6
9	E	604	NAG	O5-C5-C6-O6
9	F	701	NAG	O5-C5-C6-O6
9	A	604	NAG	C4-C5-C6-O6
9	E	603	NAG	C4-C5-C6-O6
9	E	605	NAG	O5-C5-C6-O6
9	A	604	NAG	O5-C5-C6-O6
9	D	701	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
9	C	601	NAG	C4-C5-C6-O6
9	A	603	NAG	O5-C5-C6-O6
9	E	602	NAG	O5-C5-C6-O6
9	E	606	NAG	C4-C5-C6-O6
9	E	603	NAG	O5-C5-C6-O6
9	C	603	NAG	C3-C2-N2-C7
9	A	602	NAG	C4-C5-C6-O6
9	A	605	NAG	O5-C5-C6-O6
9	C	603	NAG	C1-C2-N2-C7
9	D	701	NAG	C1-C2-N2-C7
9	D	701	NAG	O5-C5-C6-O6
9	B	702	NAG	C3-C2-N2-C7
9	B	702	NAG	C4-C5-C6-O6

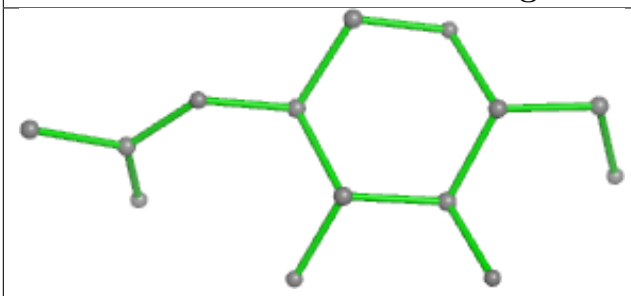
There are no ring outliers.

8 monomers are involved in 9 short contacts:

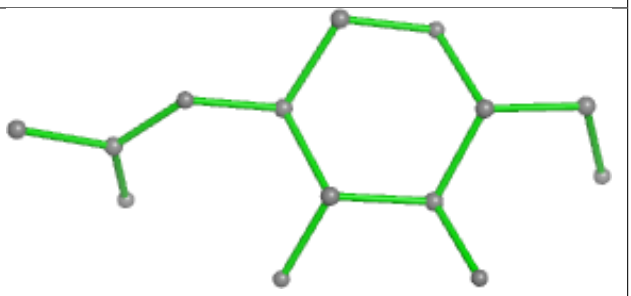
Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	A	604	NAG	2	0
9	E	608	NAG	1	0
9	E	601	NAG	1	0
9	B	701	NAG	1	0
9	A	601	NAG	1	0
9	C	601	NAG	1	0
9	A	605	NAG	1	0
9	B	702	NAG	1	0

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

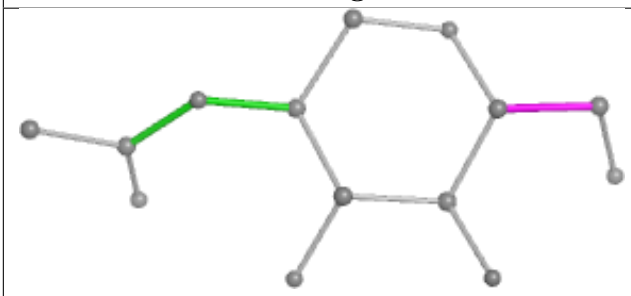
Ligand NAG D 702



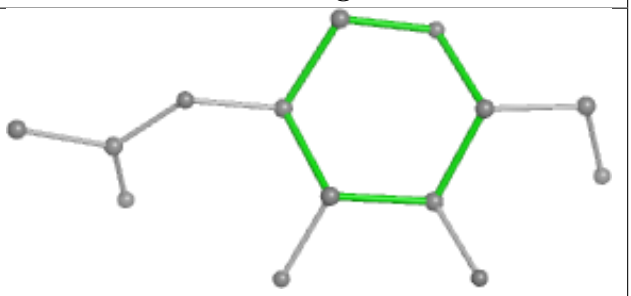
Bond lengths



Bond angles

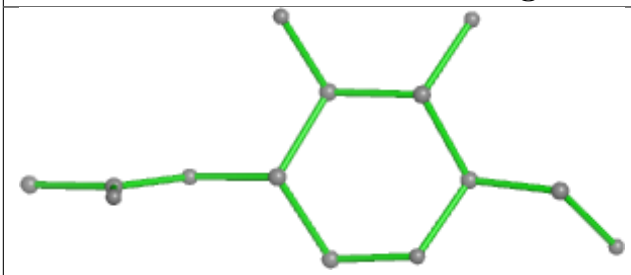


Torsions



Rings

Ligand NAG A 602



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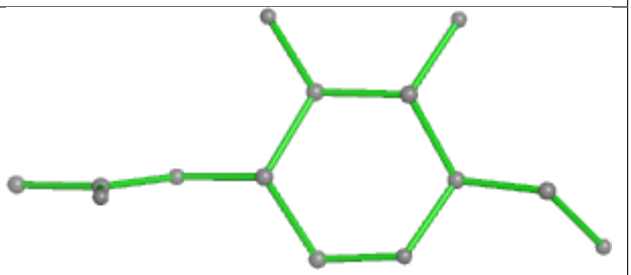
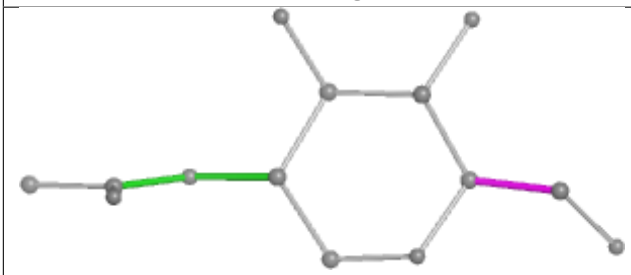


Bond angles



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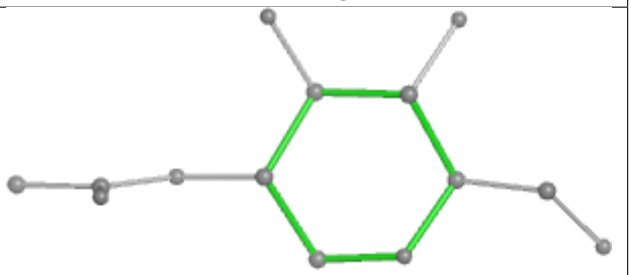
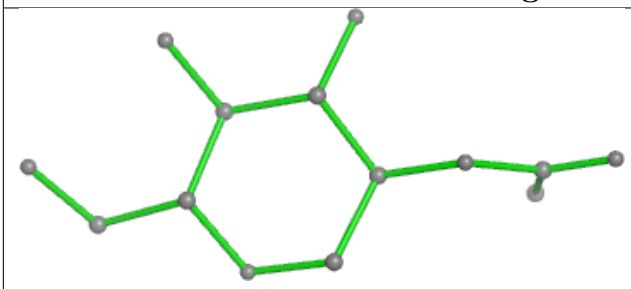
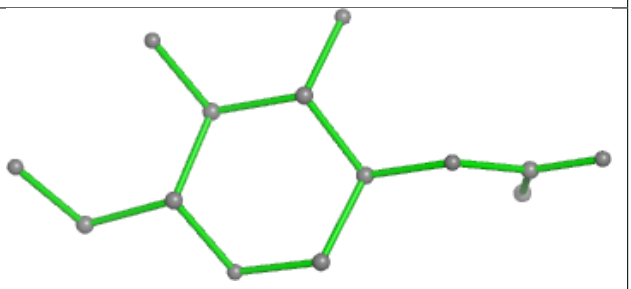


Rings

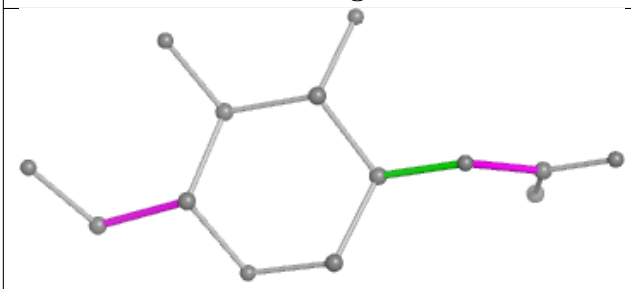
Ligand NAG E 604



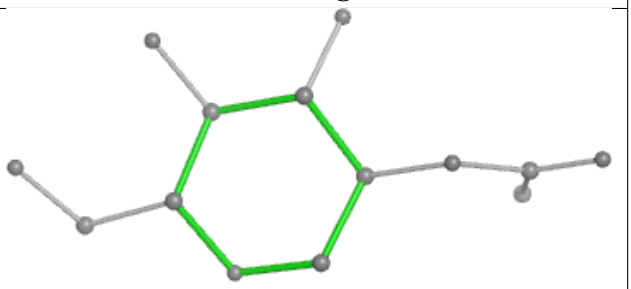
Bond lengths



Bond angles

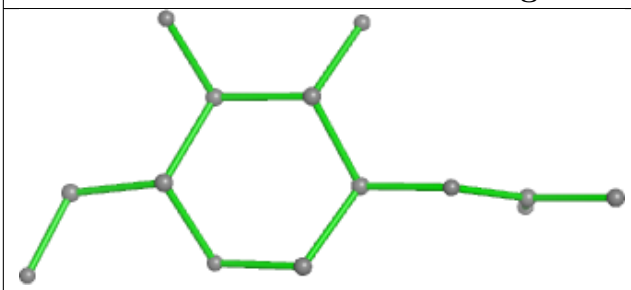


Torsions



Rings

Ligand NAG C 602



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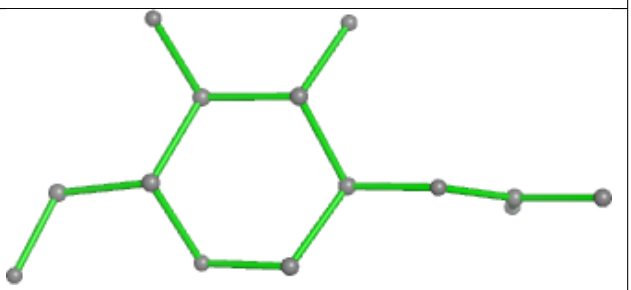
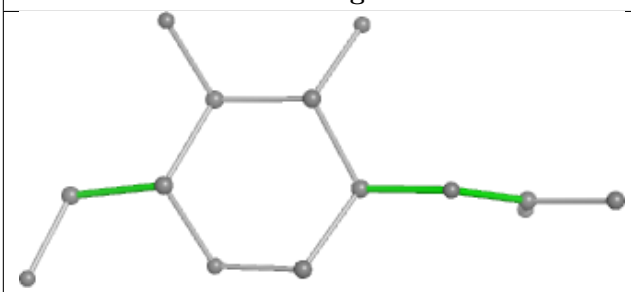
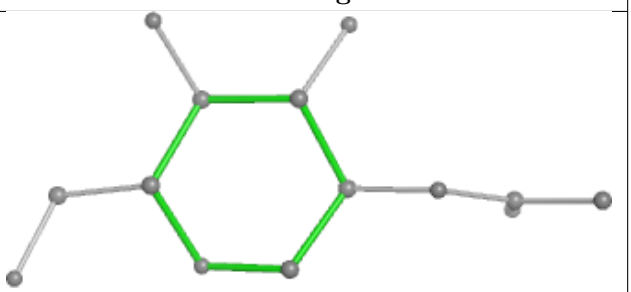


Bond angles

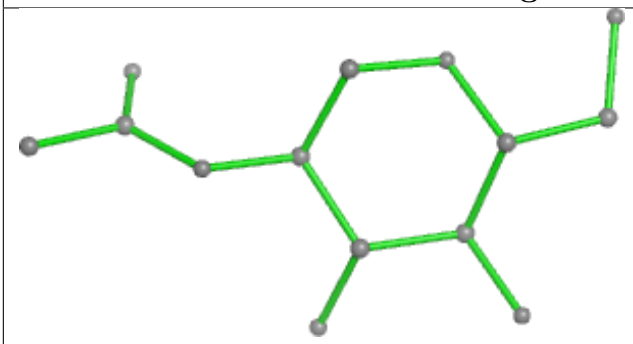


Torsions



Rings

Ligand NAG C 605



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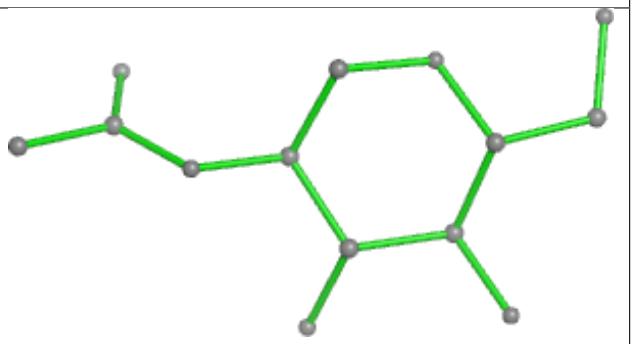
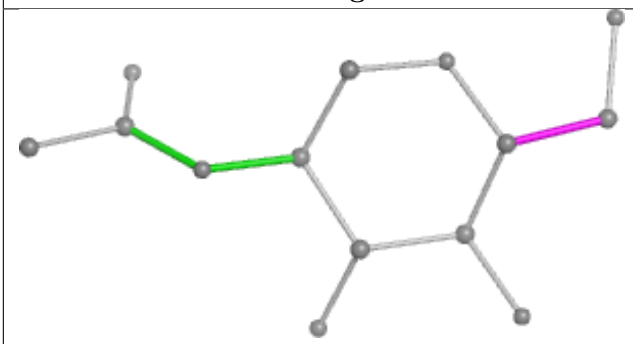


Bond angles



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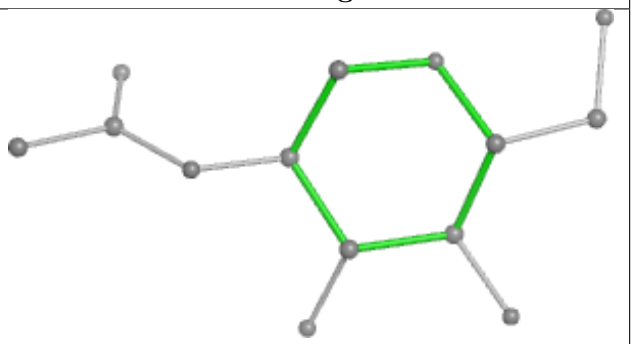
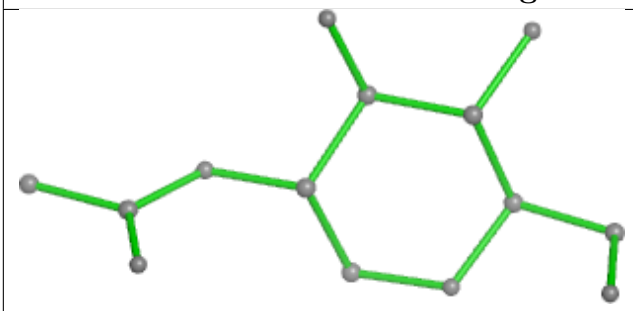


Rings

Ligand NAG A 604



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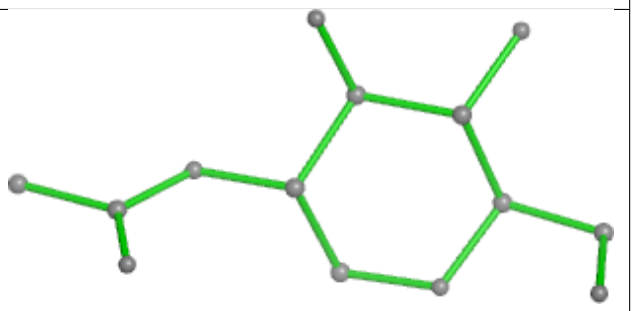
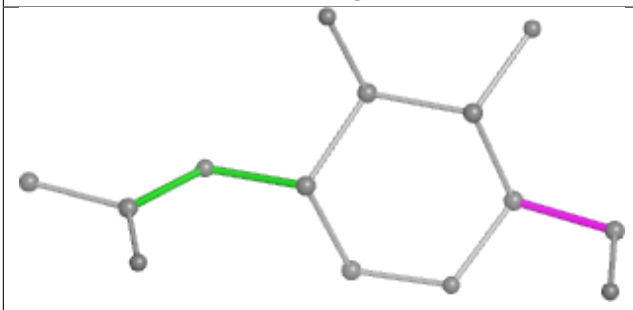
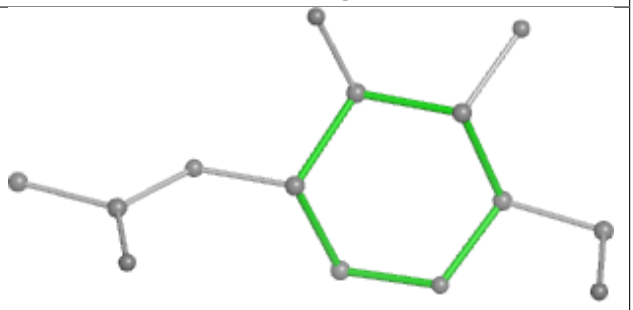


Bond angles

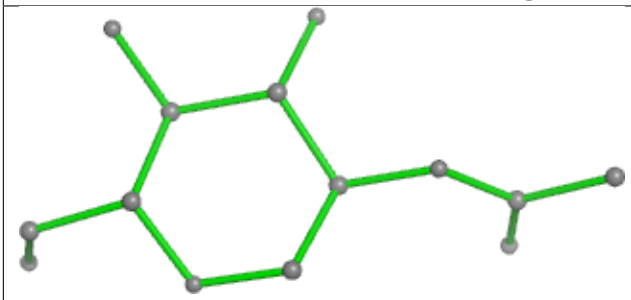


Torsions

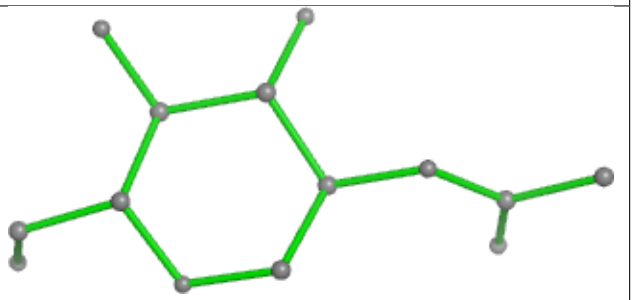


Rings

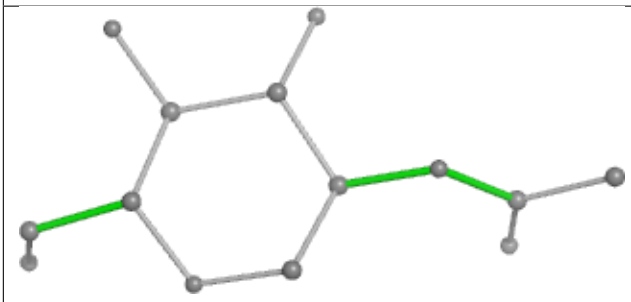
Ligand NAG C 606



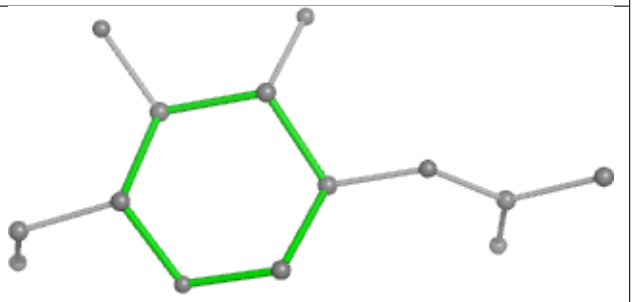
Bond lengths



Bond angles

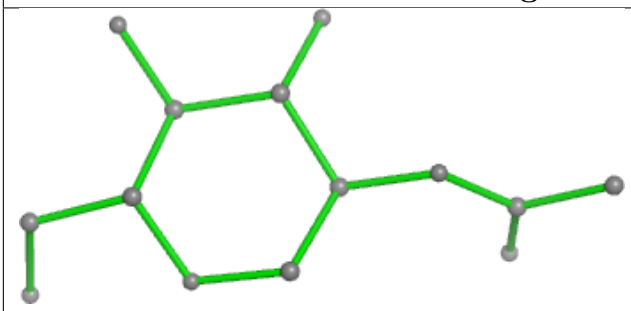


Torsions

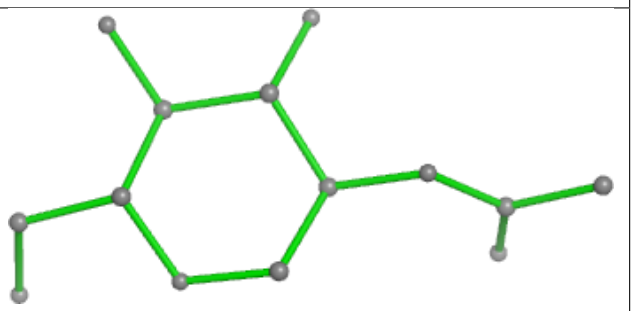


Rings

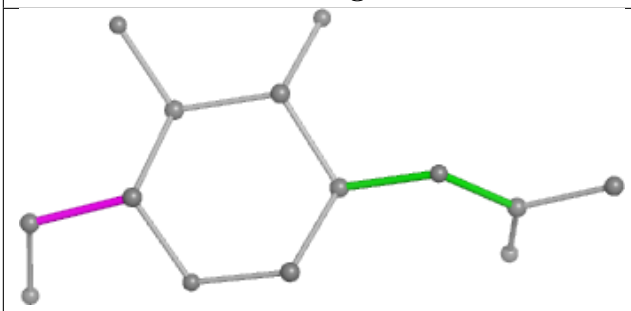
Ligand NAG C 607



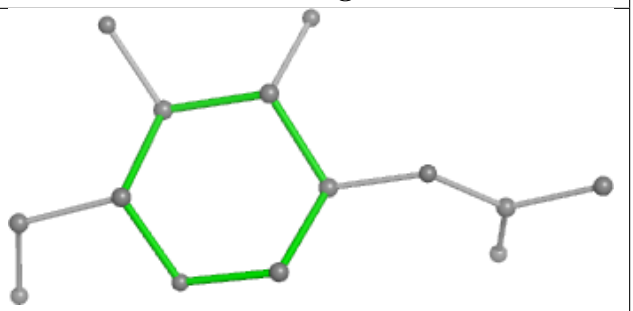
Bond lengths



Bond angles

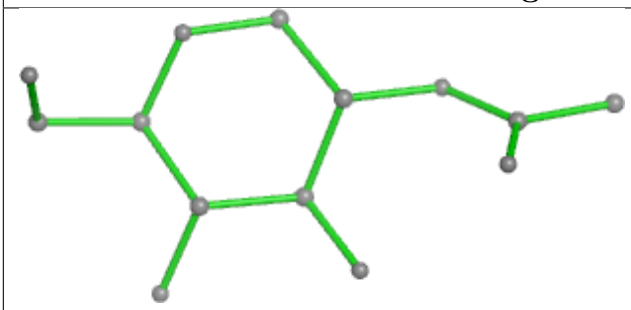


Torsions

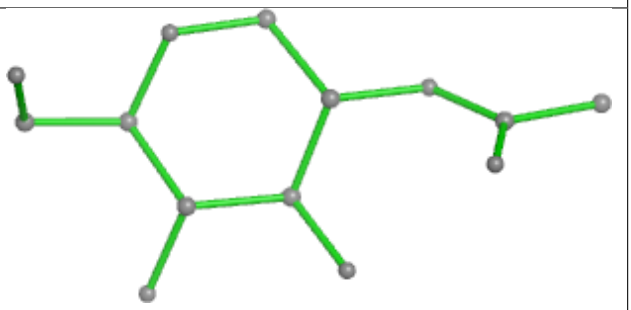


Rings

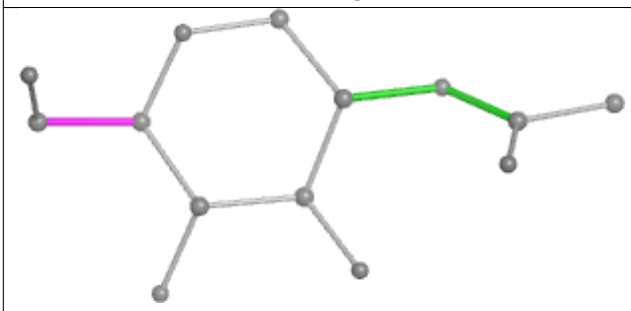
Ligand NAG E 608



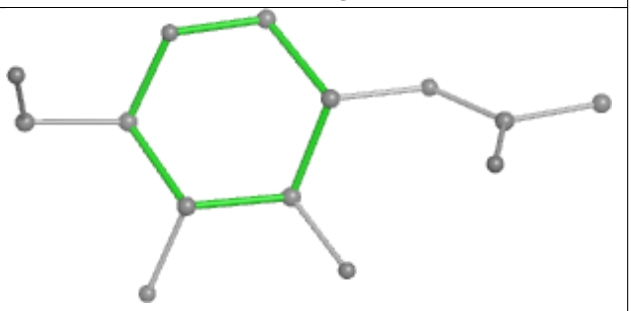
Bond lengths



Bond angles

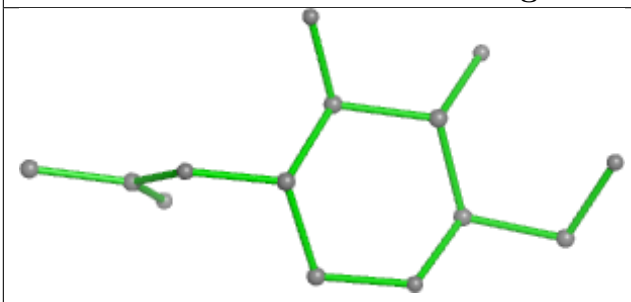


Torsions

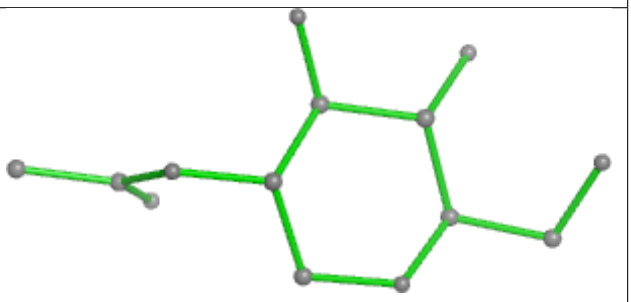


Rings

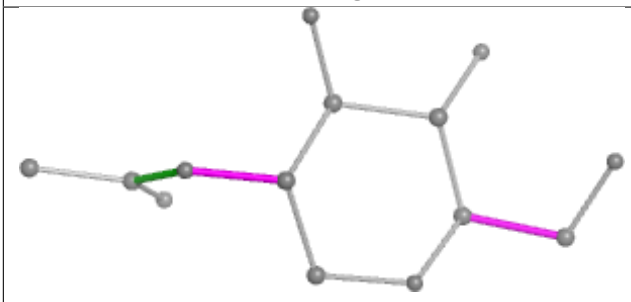
Ligand NAG C 603



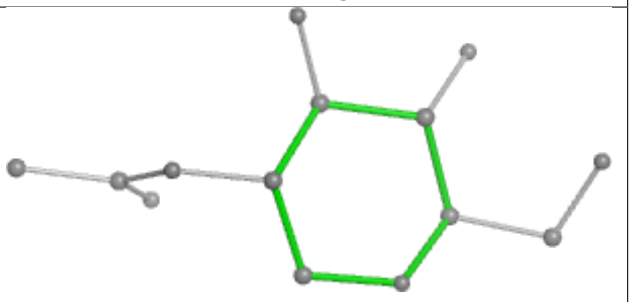
Bond lengths



Bond angles

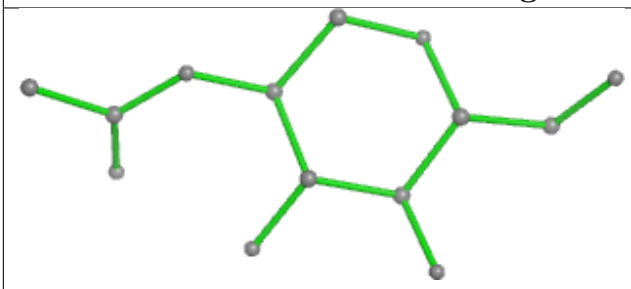


Torsions

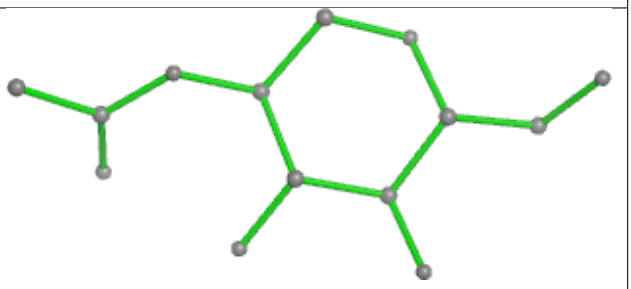


Rings

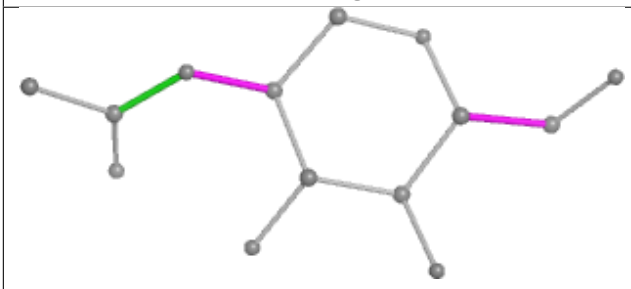
Ligand NAG D 701



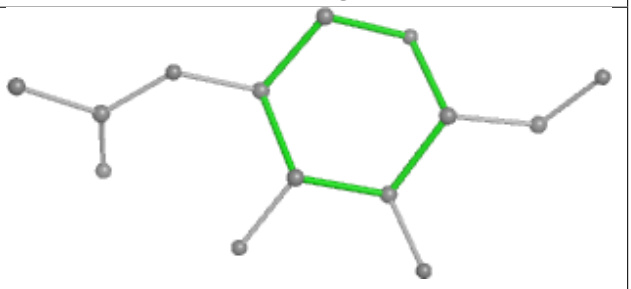
Bond lengths



Bond angles

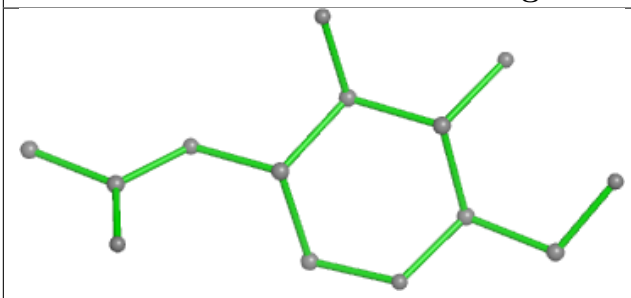


Torsions

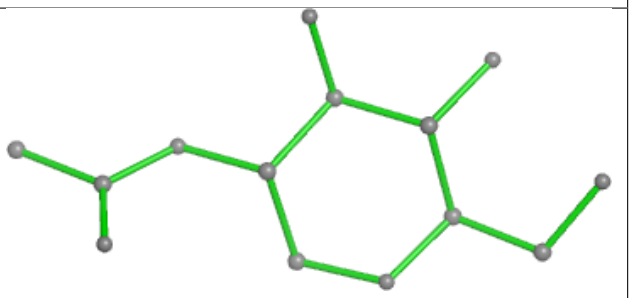


Rings

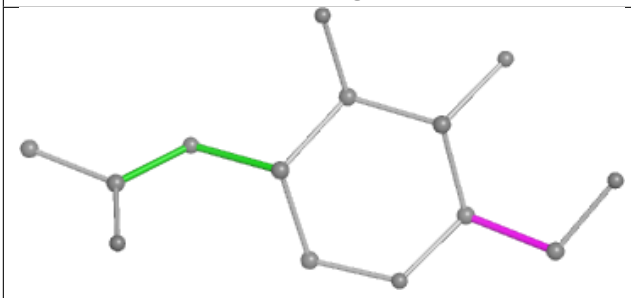
Ligand NAG E 601



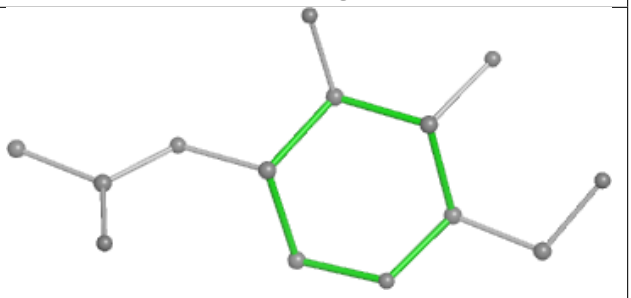
Bond lengths



Bond angles

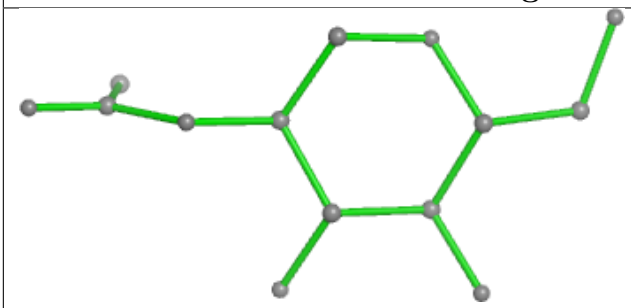


Torsions

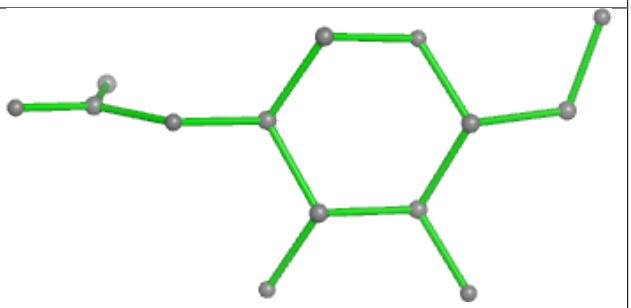


Rings

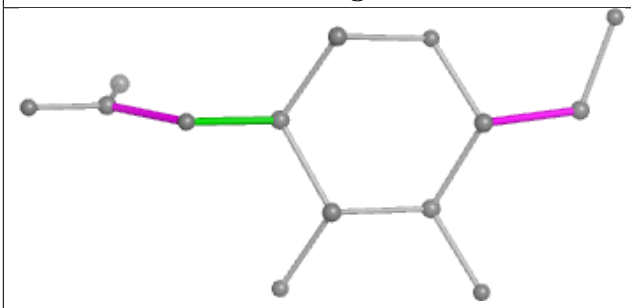
Ligand NAG E 602



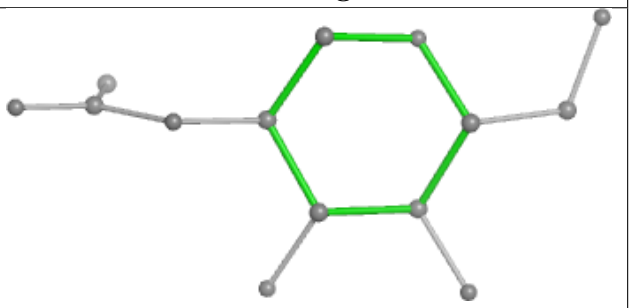
Bond lengths



Bond angles

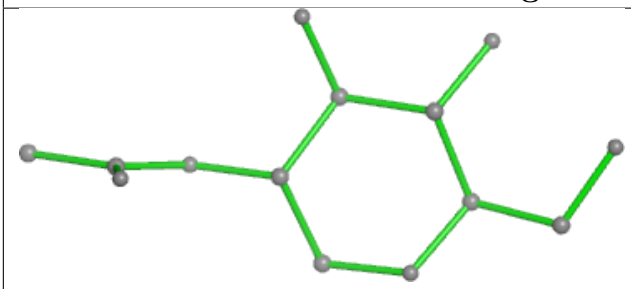


Torsions

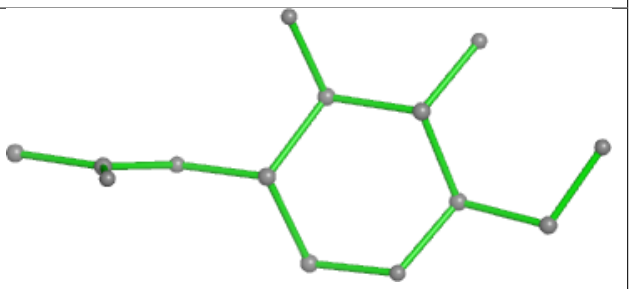


Rings

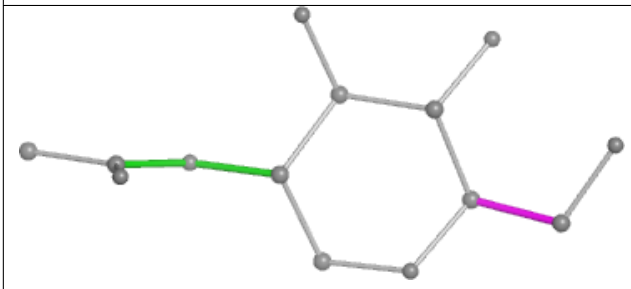
Ligand NAG E 606



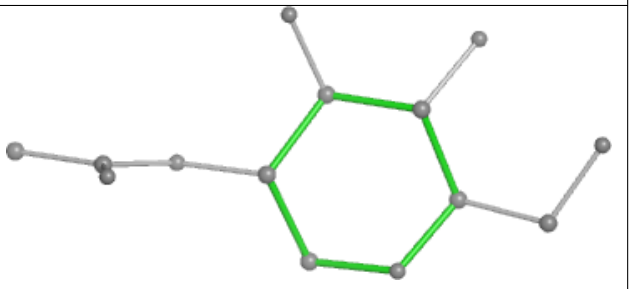
Bond lengths



Bond angles

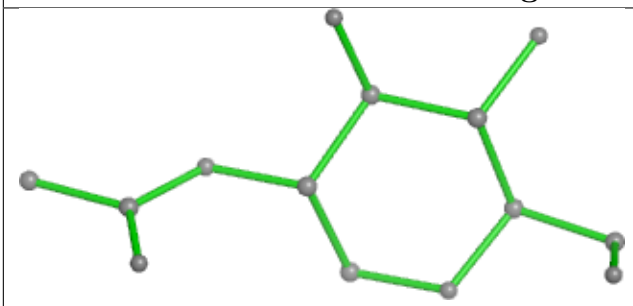


Torsions

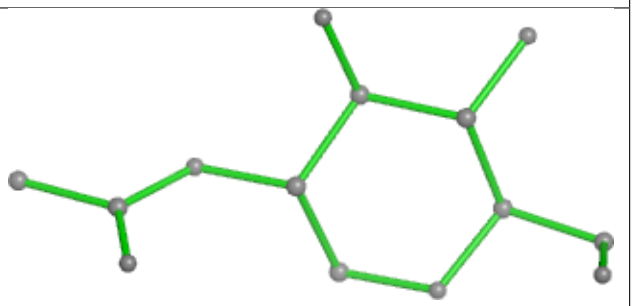


Rings

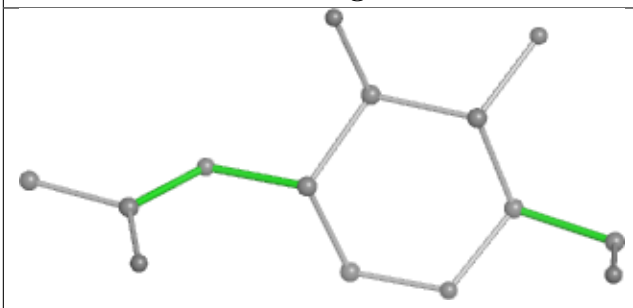
Ligand NAG B 703



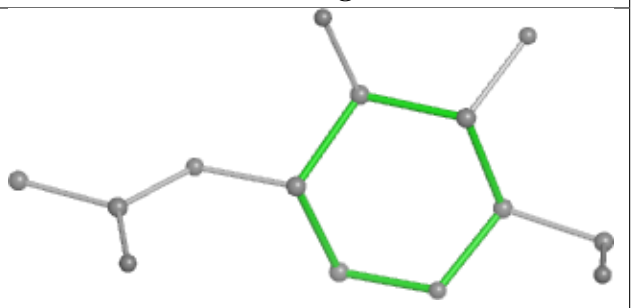
Bond lengths



Bond angles

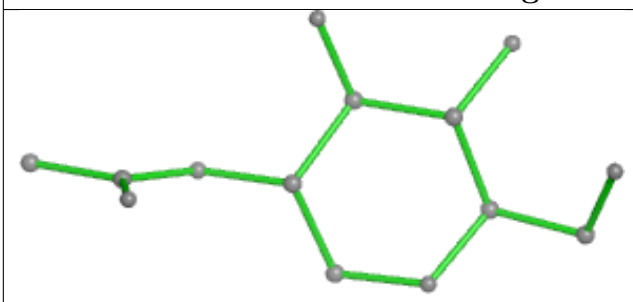


Torsions

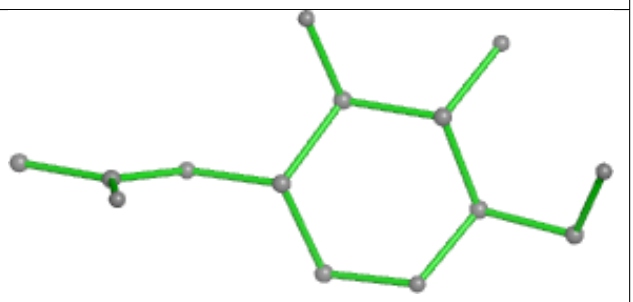


Rings

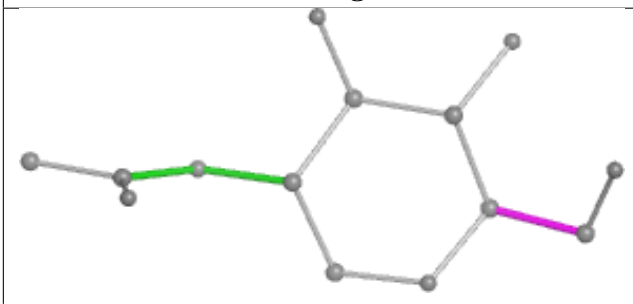
Ligand NAG E 607



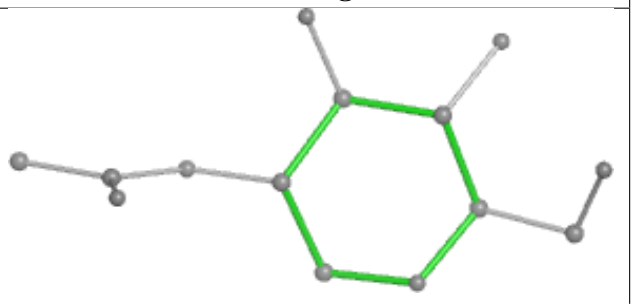
Bond lengths



Bond angles

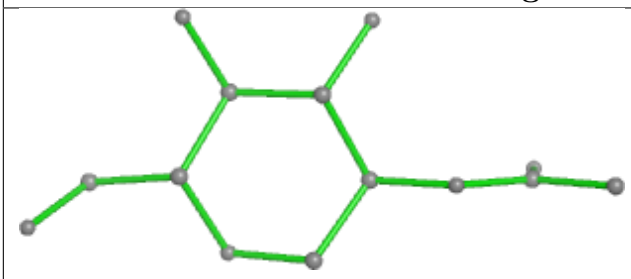


Torsions

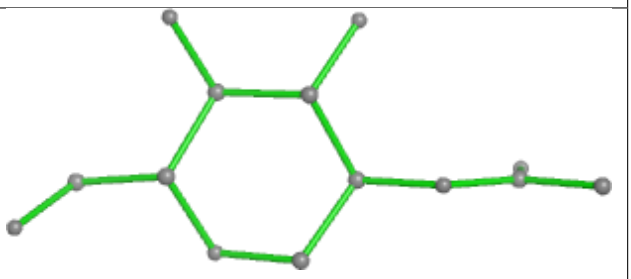


Rings

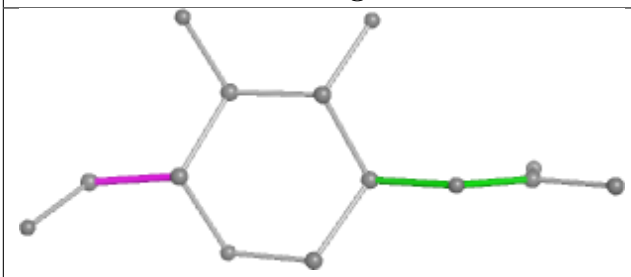
Ligand NAG F 701



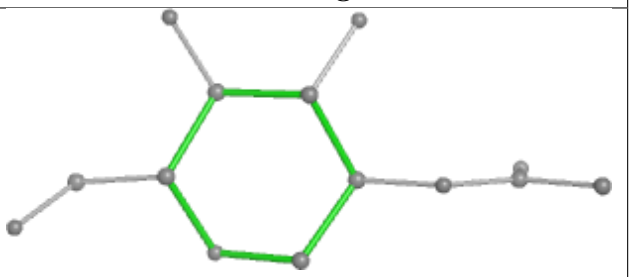
Bond lengths



Bond angles

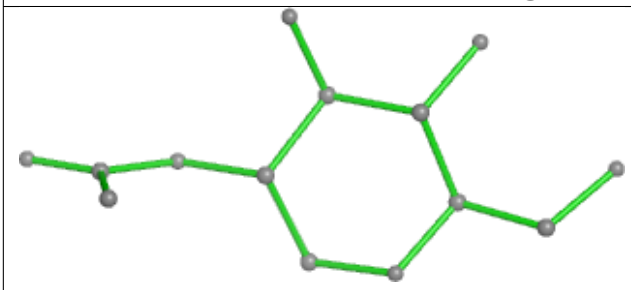


Torsions

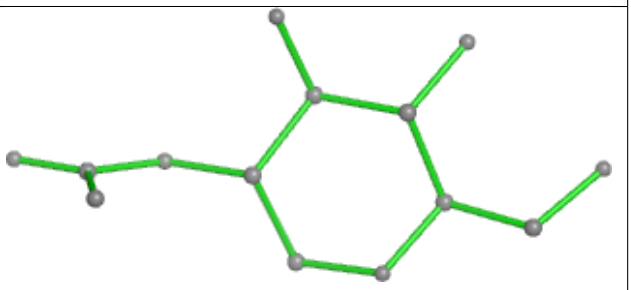


Rings

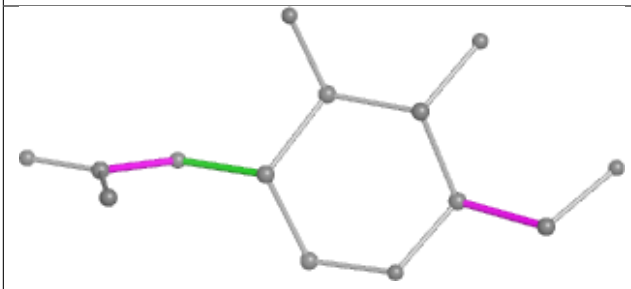
Ligand NAG E 605



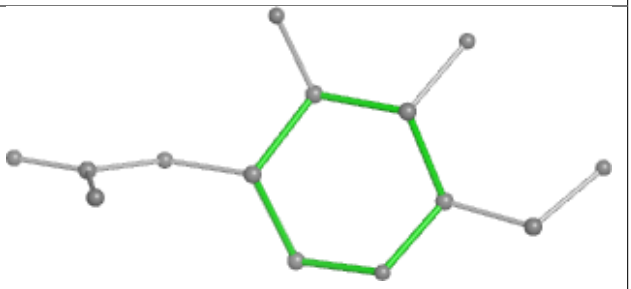
Bond lengths



Bond angles

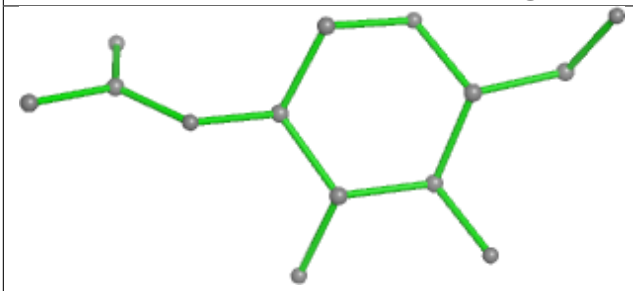


Torsions

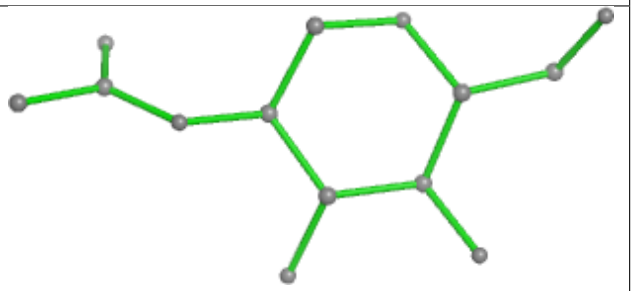


Rings

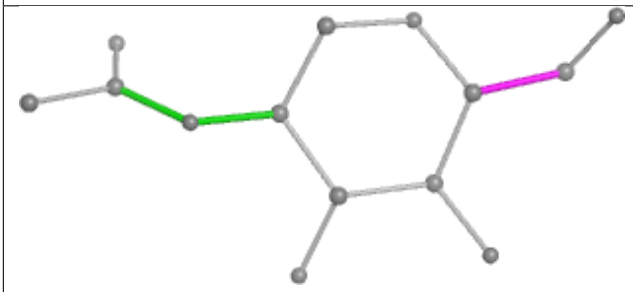
Ligand NAG E 603



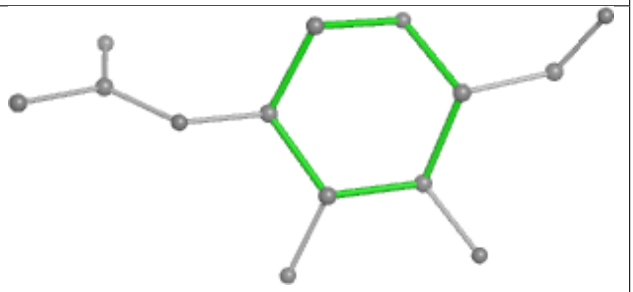
Bond lengths



Bond angles

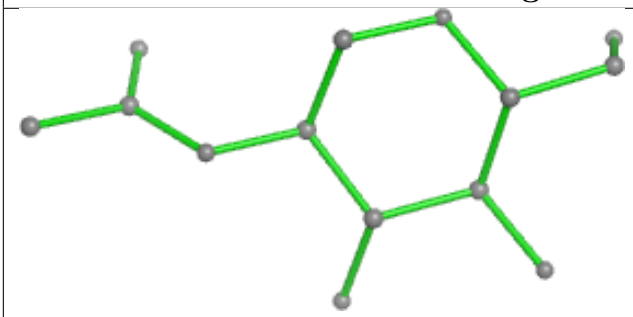


Torsions

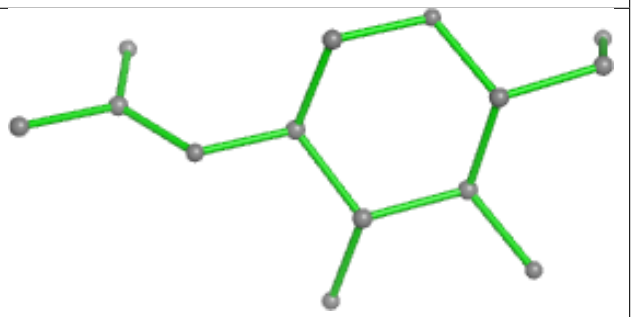


Rings

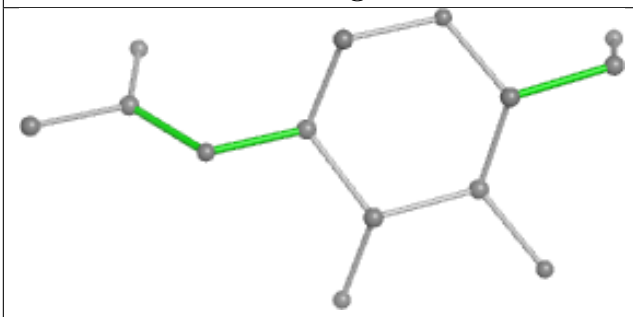
Ligand NAG F 702



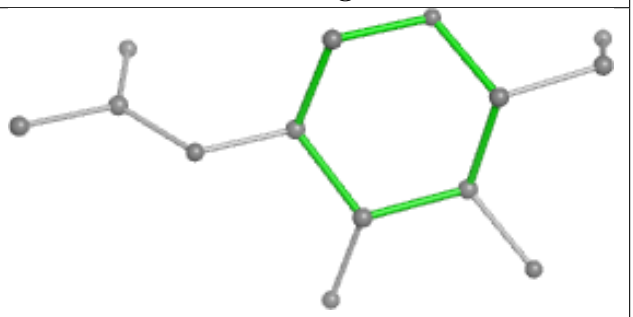
Bond lengths



Bond angles

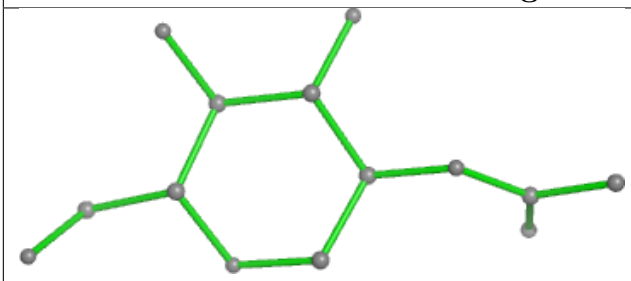


Torsions

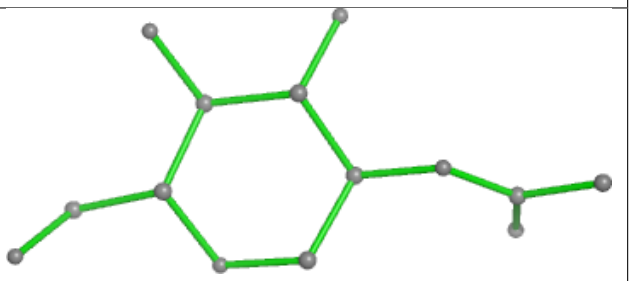


Rings

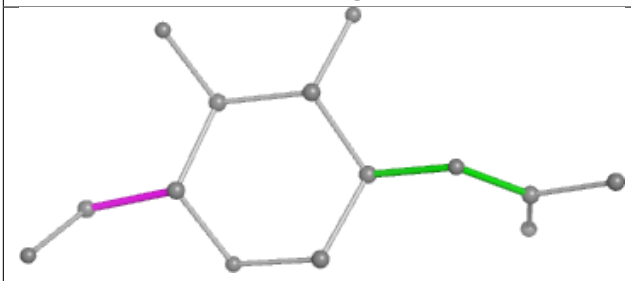
Ligand NAG B 701



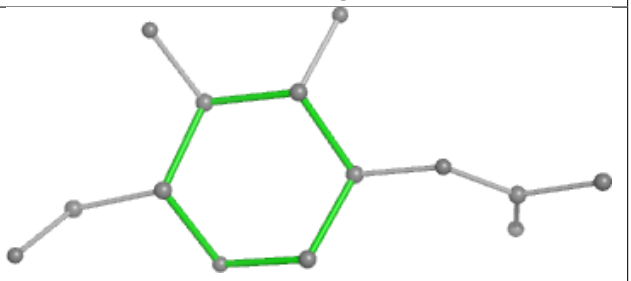
Bond lengths



Bond angles

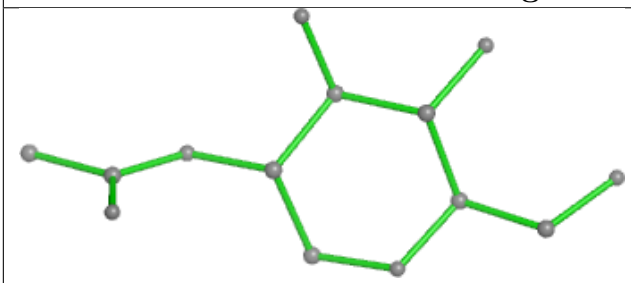


Torsions

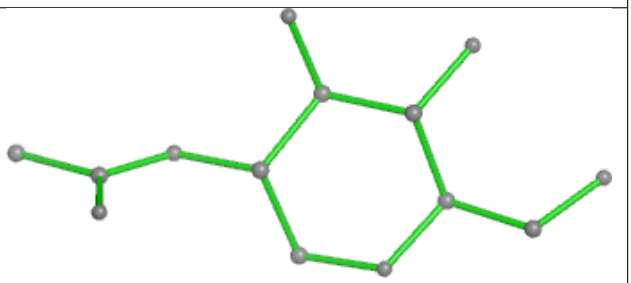


Rings

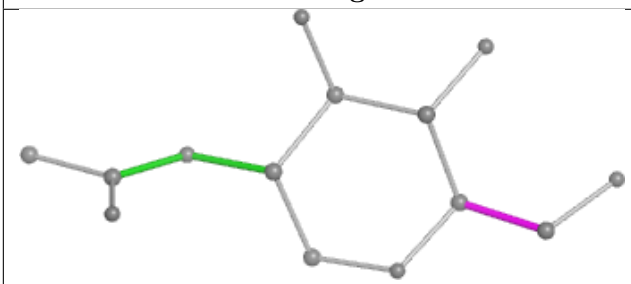
Ligand NAG E 609



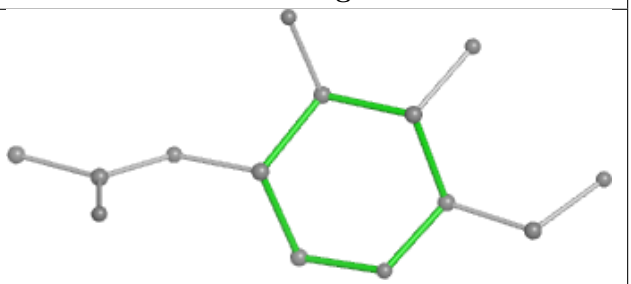
Bond lengths



Bond angles

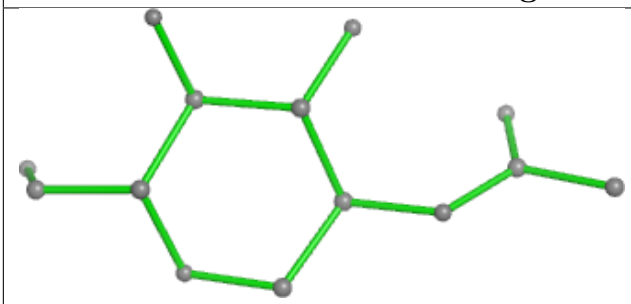


Torsions

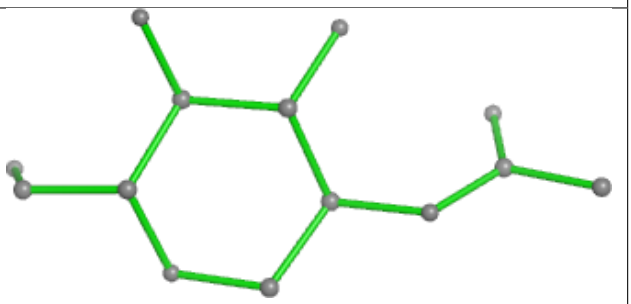


Rings

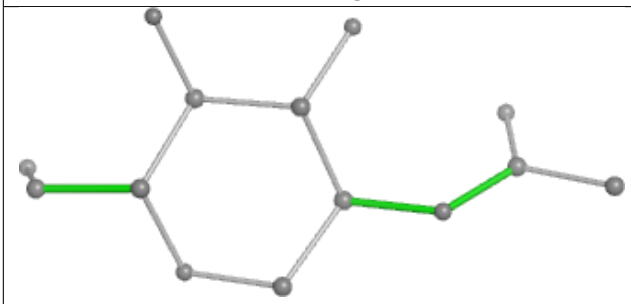
Ligand NAG A 601



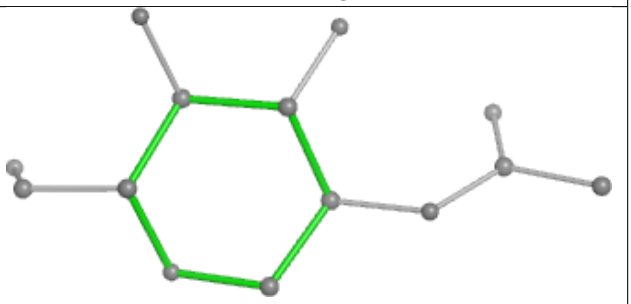
Bond lengths



Bond angles

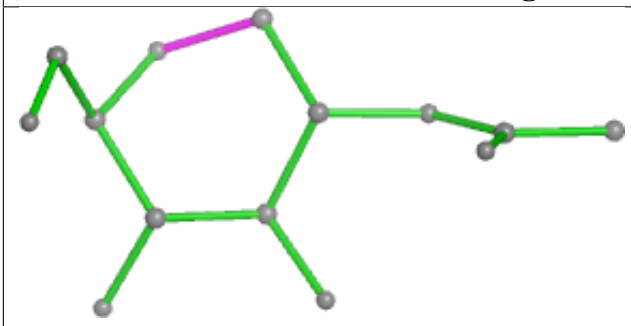


Torsions

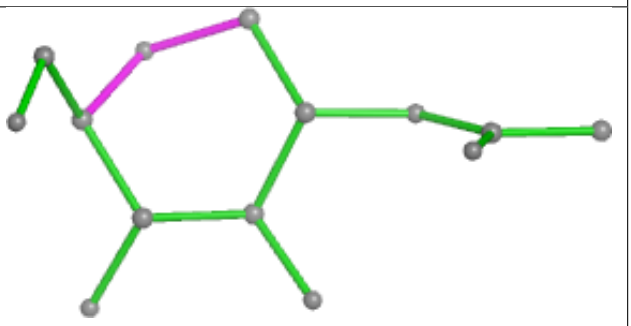


Rings

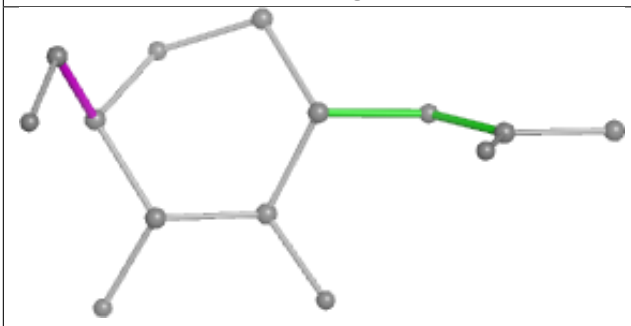
Ligand NAG C 601



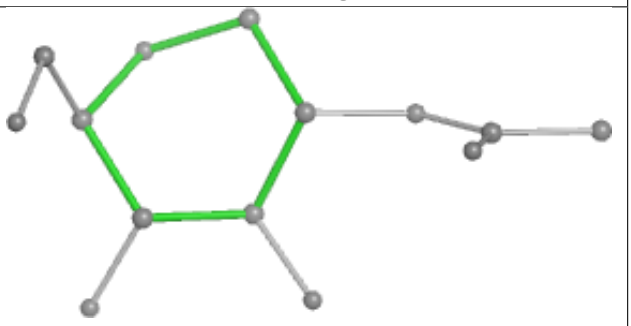
Bond lengths



Bond angles

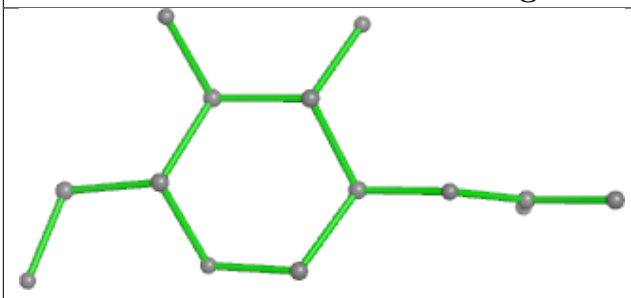


Torsions

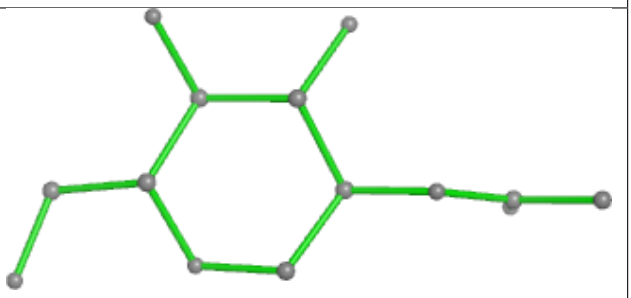


Rings

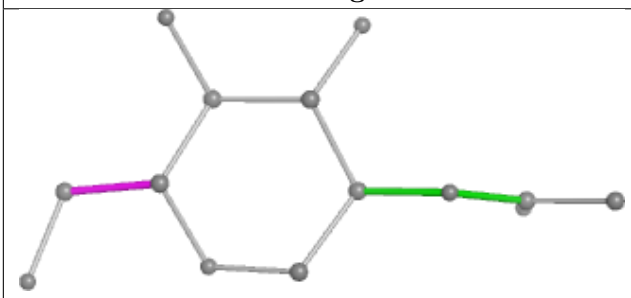
Ligand NAG A 605



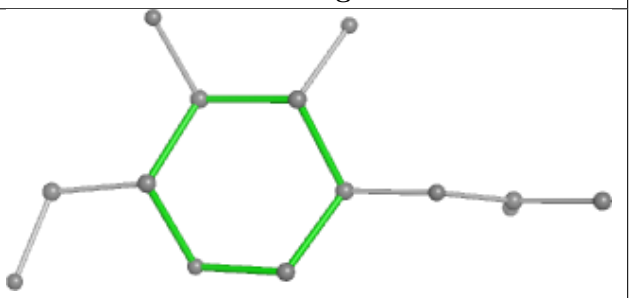
Bond lengths



Bond angles

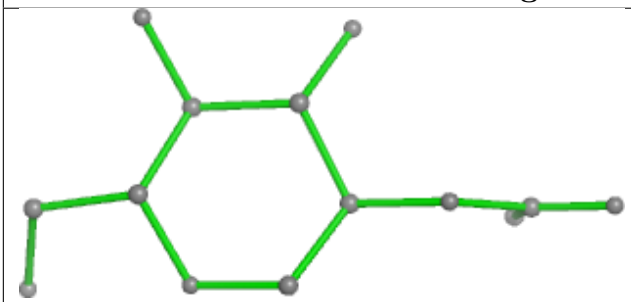


Torsions

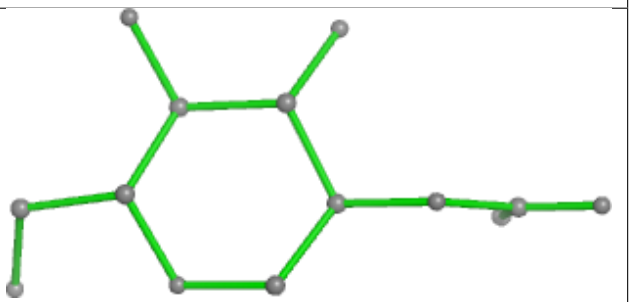


Rings

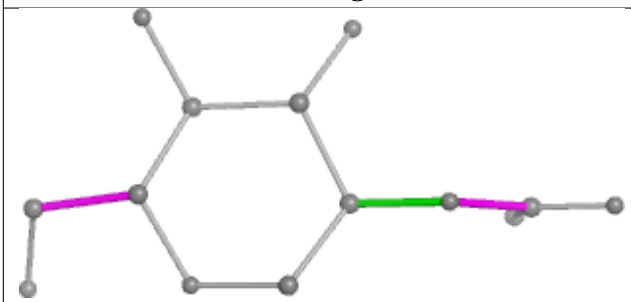
Ligand NAG C 604



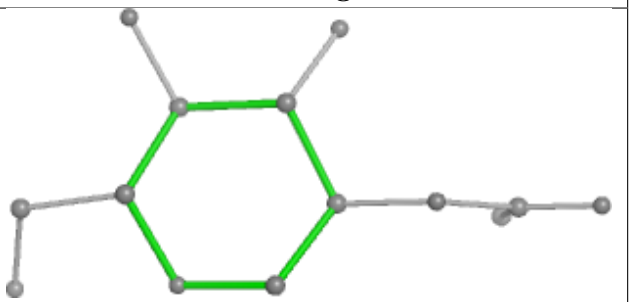
Bond lengths



Bond angles

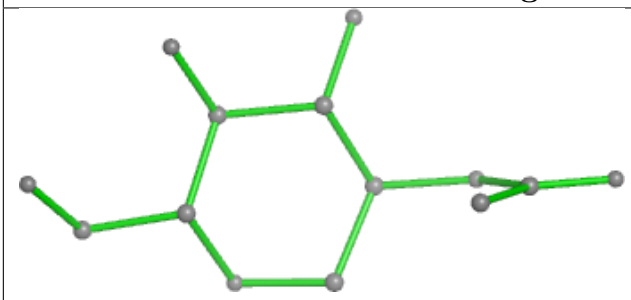


Torsions

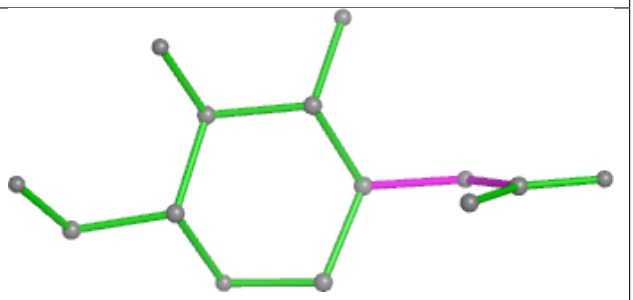


Rings

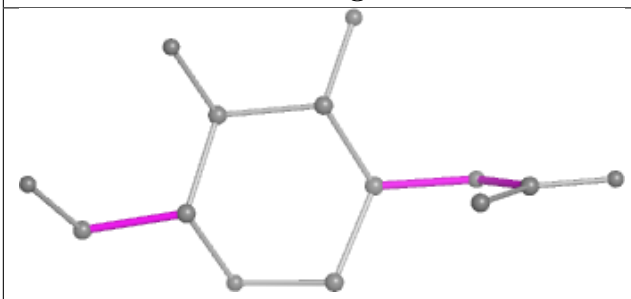
Ligand NAG B 702



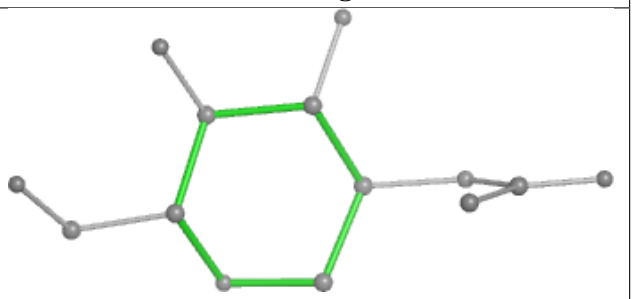
Bond lengths



Bond angles

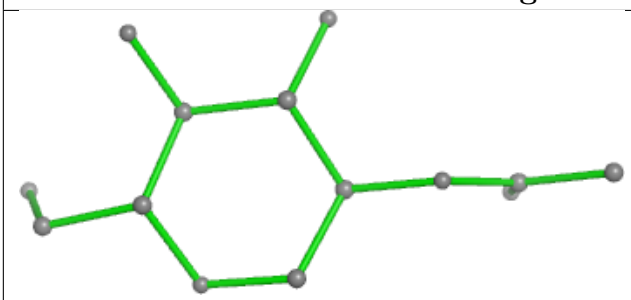


Torsions

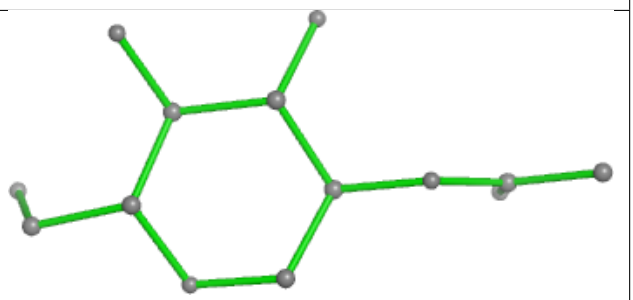


Rings

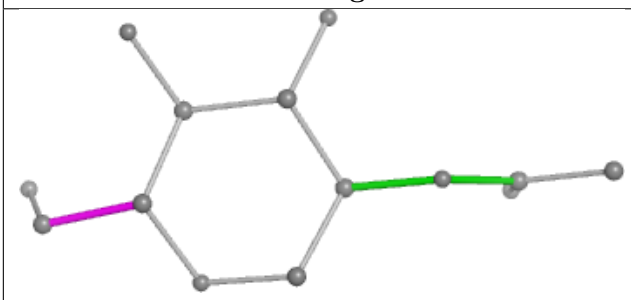
Ligand NAG A 603



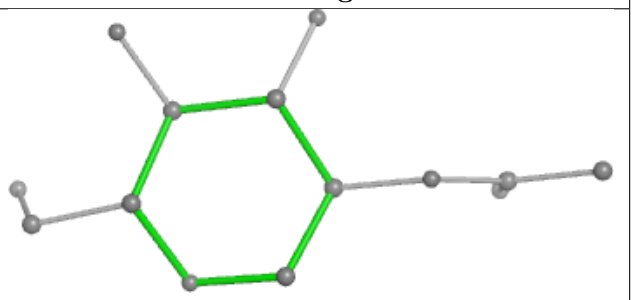
Bond lengths



Bond angles

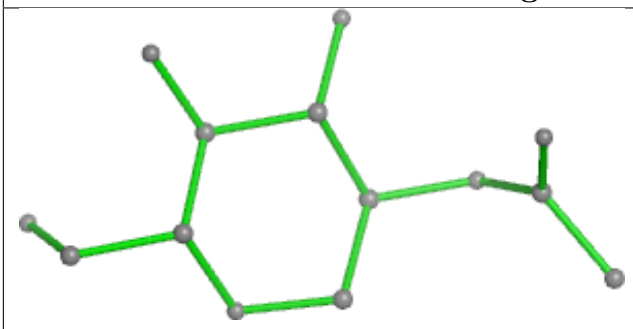


Torsions

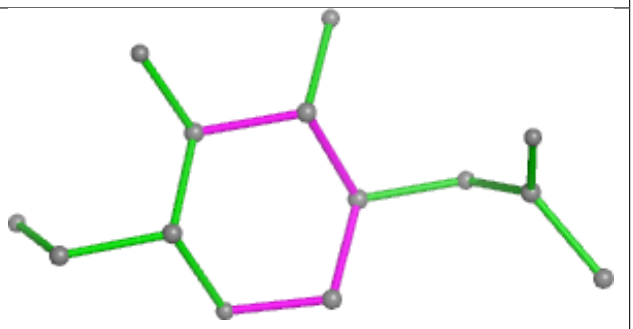


Rings

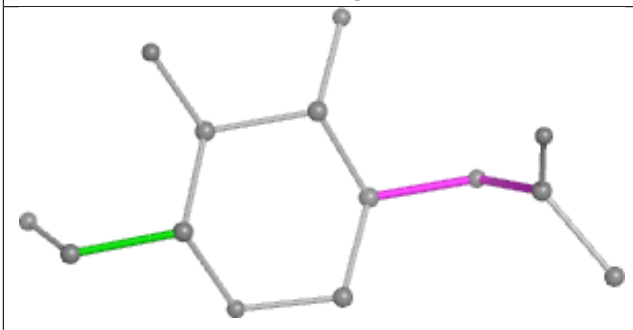
Ligand NAG B 704



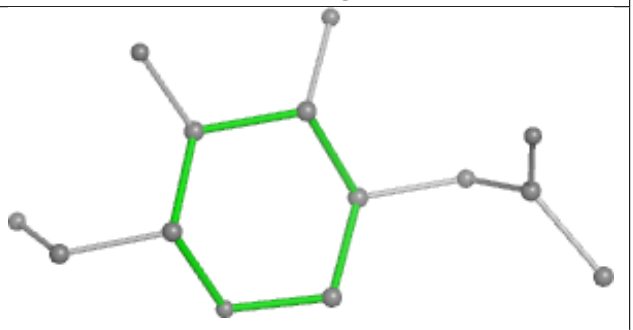
Bond lengths



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.

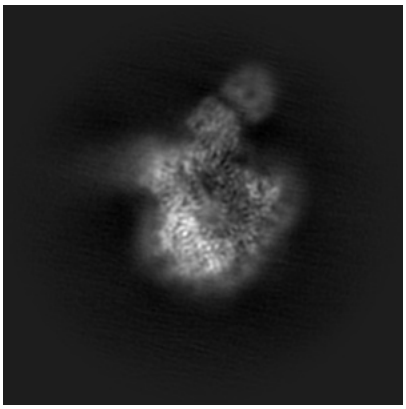
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-51554. These allow visual inspection of the internal detail of the map and identification of artifacts.

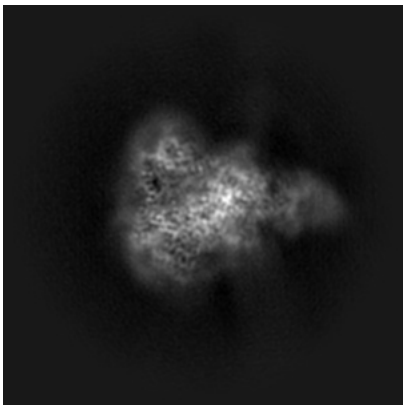
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

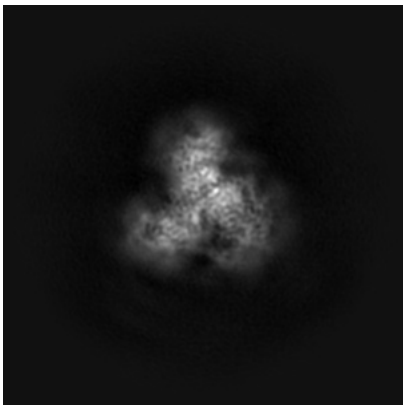
6.1.1 Primary map



X

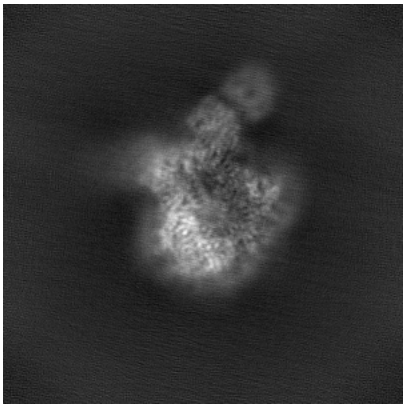


Y

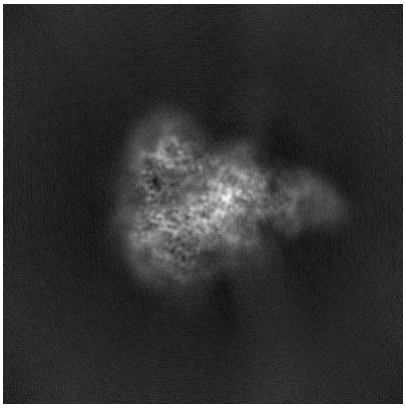


Z

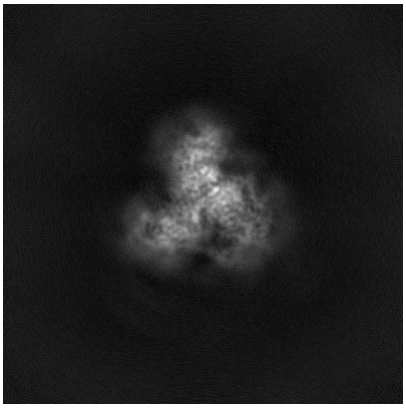
6.1.2 Raw map



X



Y

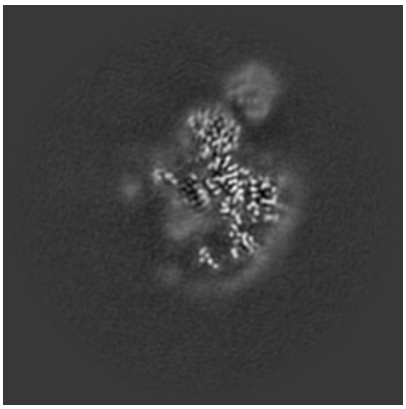


Z

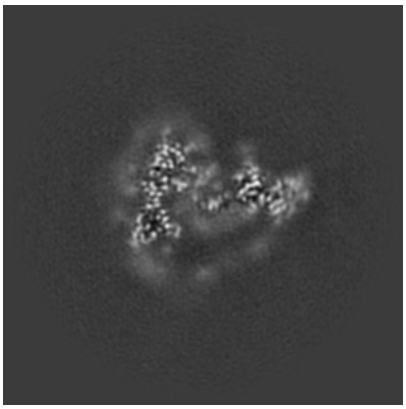
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

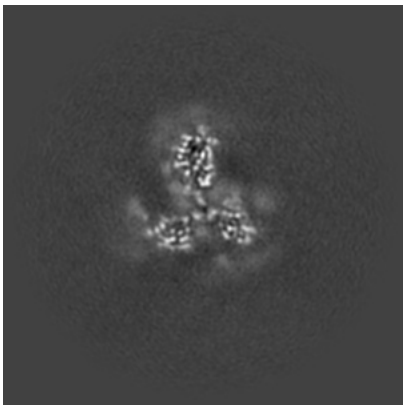
6.2.1 Primary map



X Index: 176

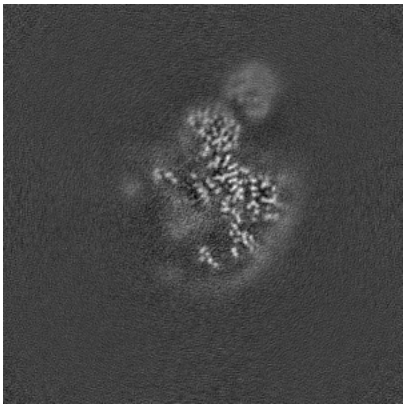


Y Index: 176

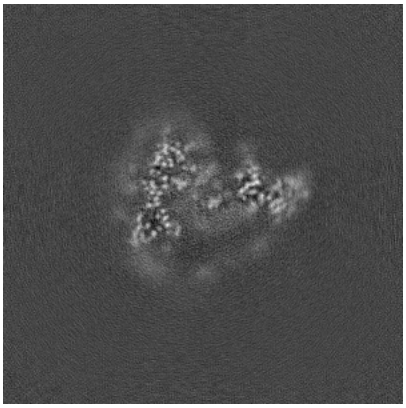


Z Index: 176

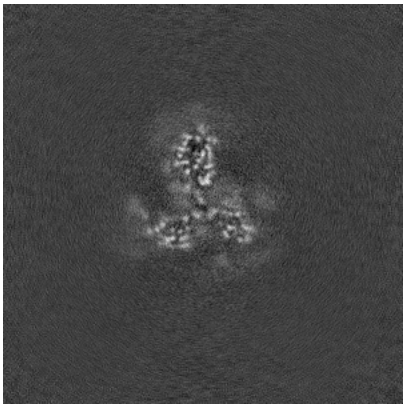
6.2.2 Raw map



X Index: 176



Y Index: 176

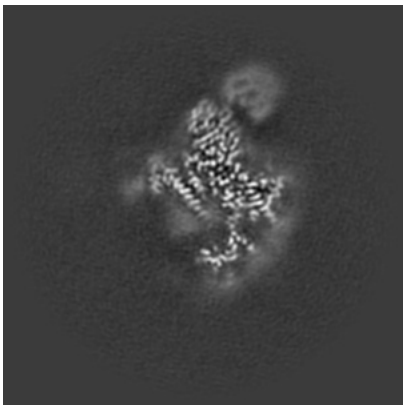


Z Index: 176

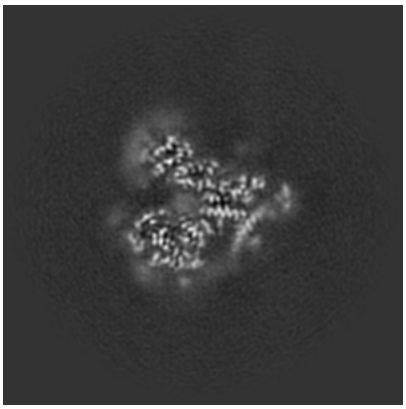
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

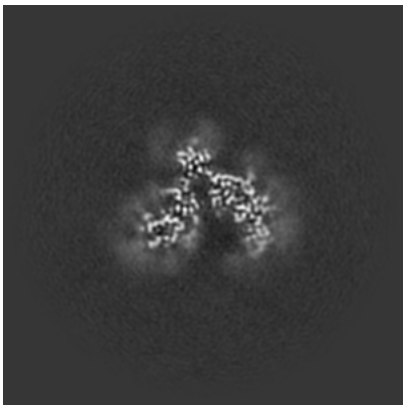
6.3.1 Primary map



X Index: 181

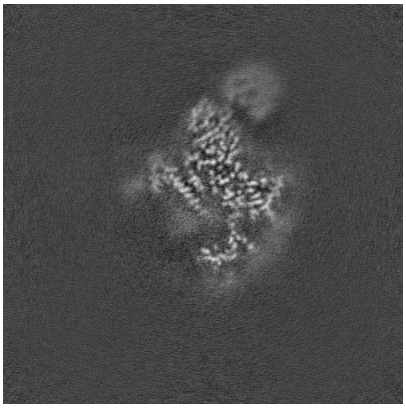


Y Index: 163

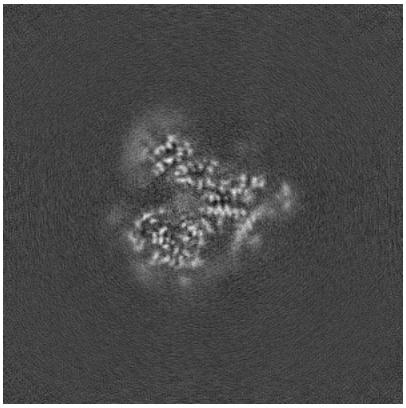


Z Index: 139

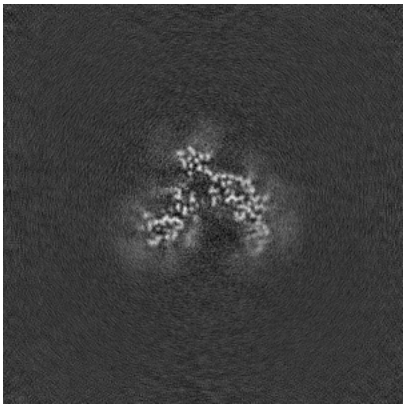
6.3.2 Raw map



X Index: 181



Y Index: 163

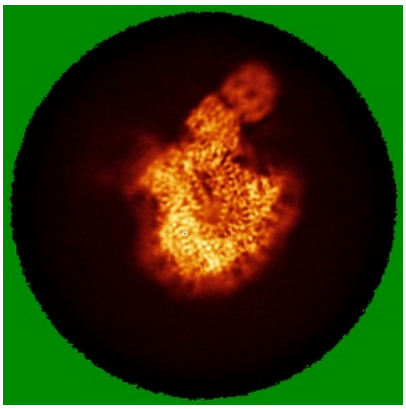


Z Index: 138

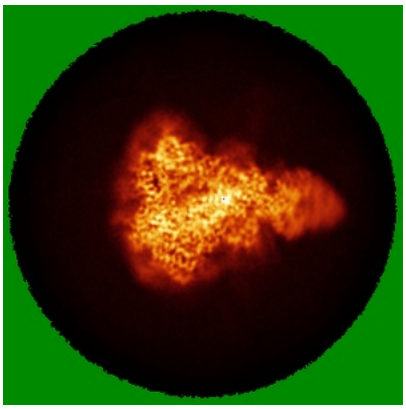
The images above show the largest variance slices of the map in three orthogonal directions.

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

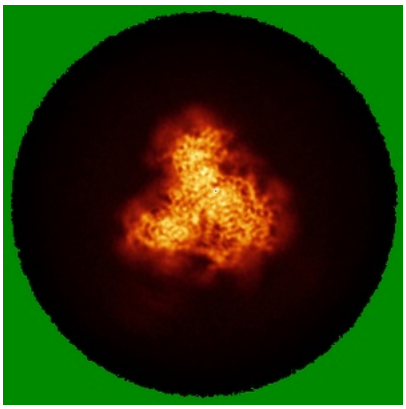
6.4.1 Primary map



X

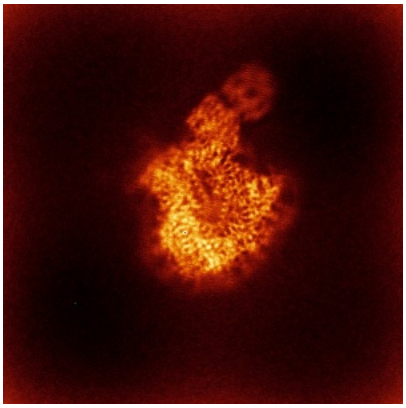


Y

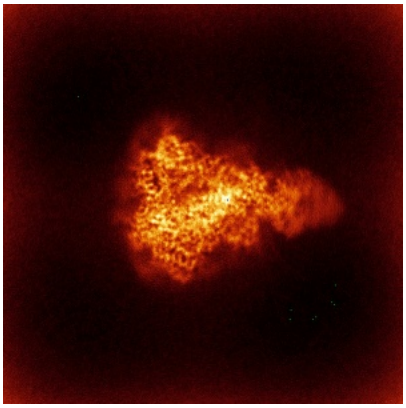


Z

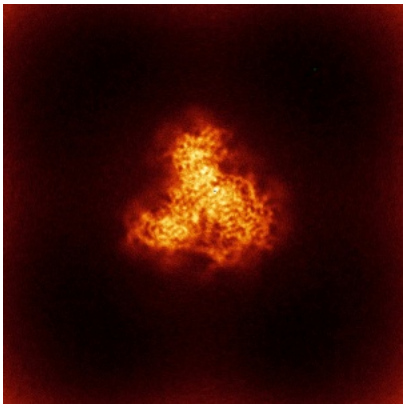
6.4.2 Raw map



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.

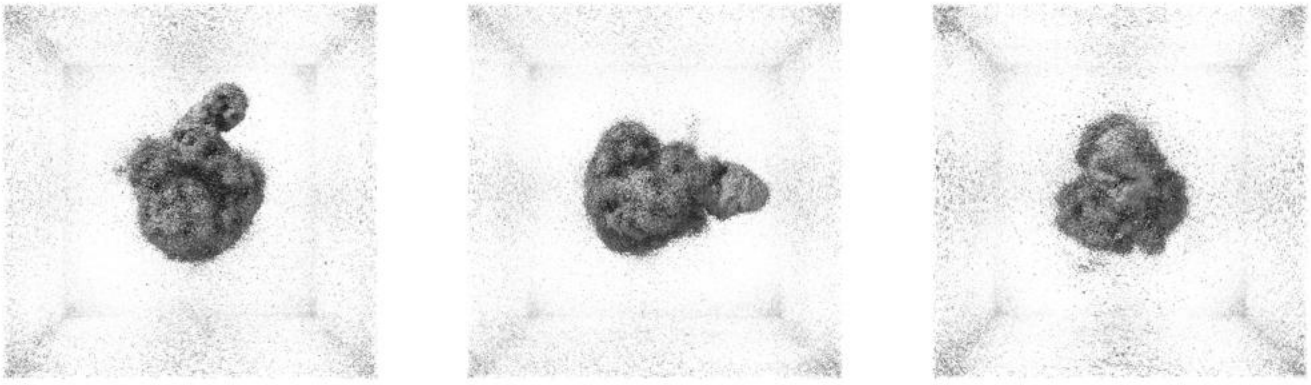
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0456. 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.

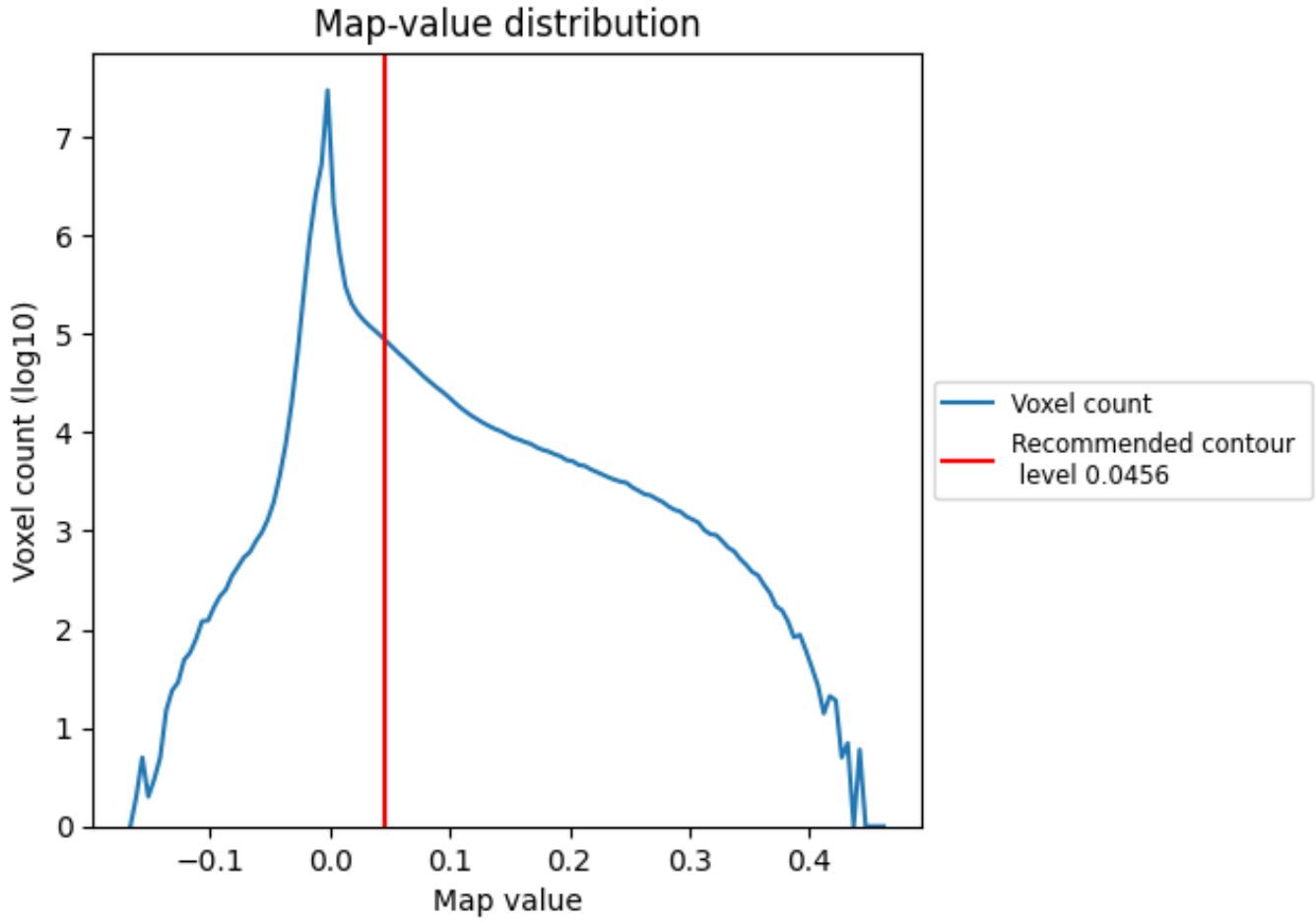
6.6 Mask visualisation (i)

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

7 Map analysis

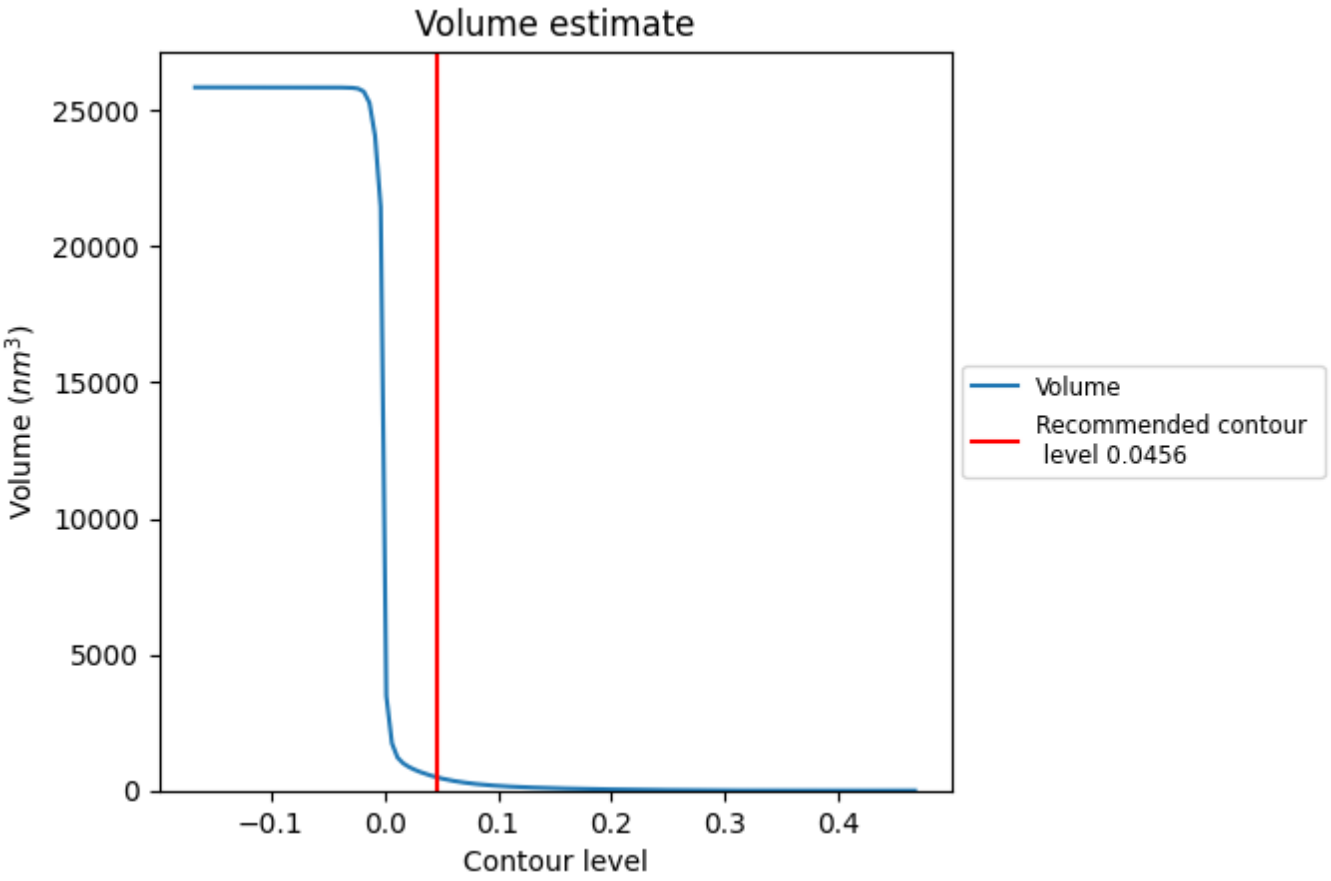
This section contains the results of statistical analysis of the map.

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.

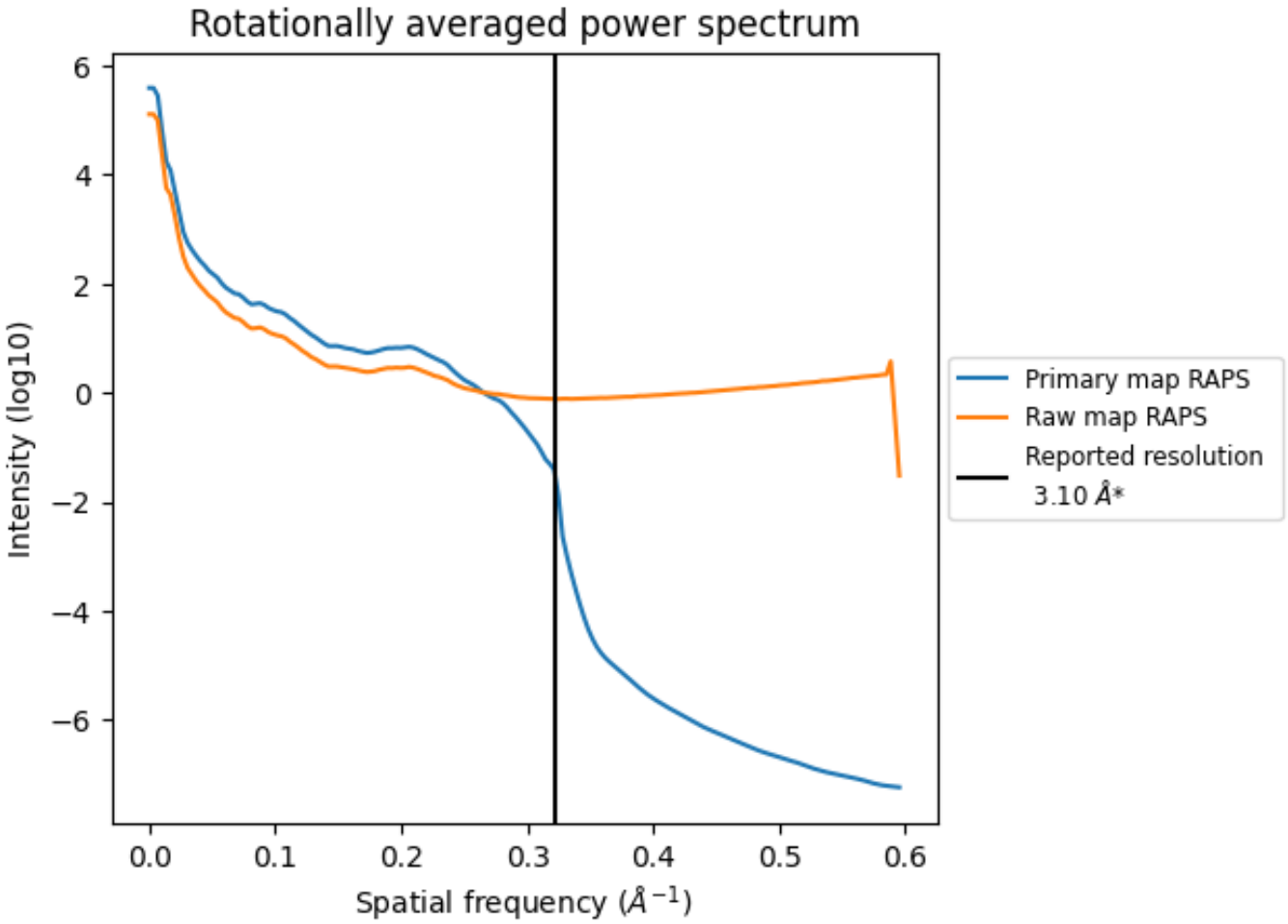
7.2 Volume estimate



The volume at the recommended contour level is 495 nm^3; this corresponds to an approximate mass of 447 kDa.

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

7.3 Rotationally averaged power spectrum (i)

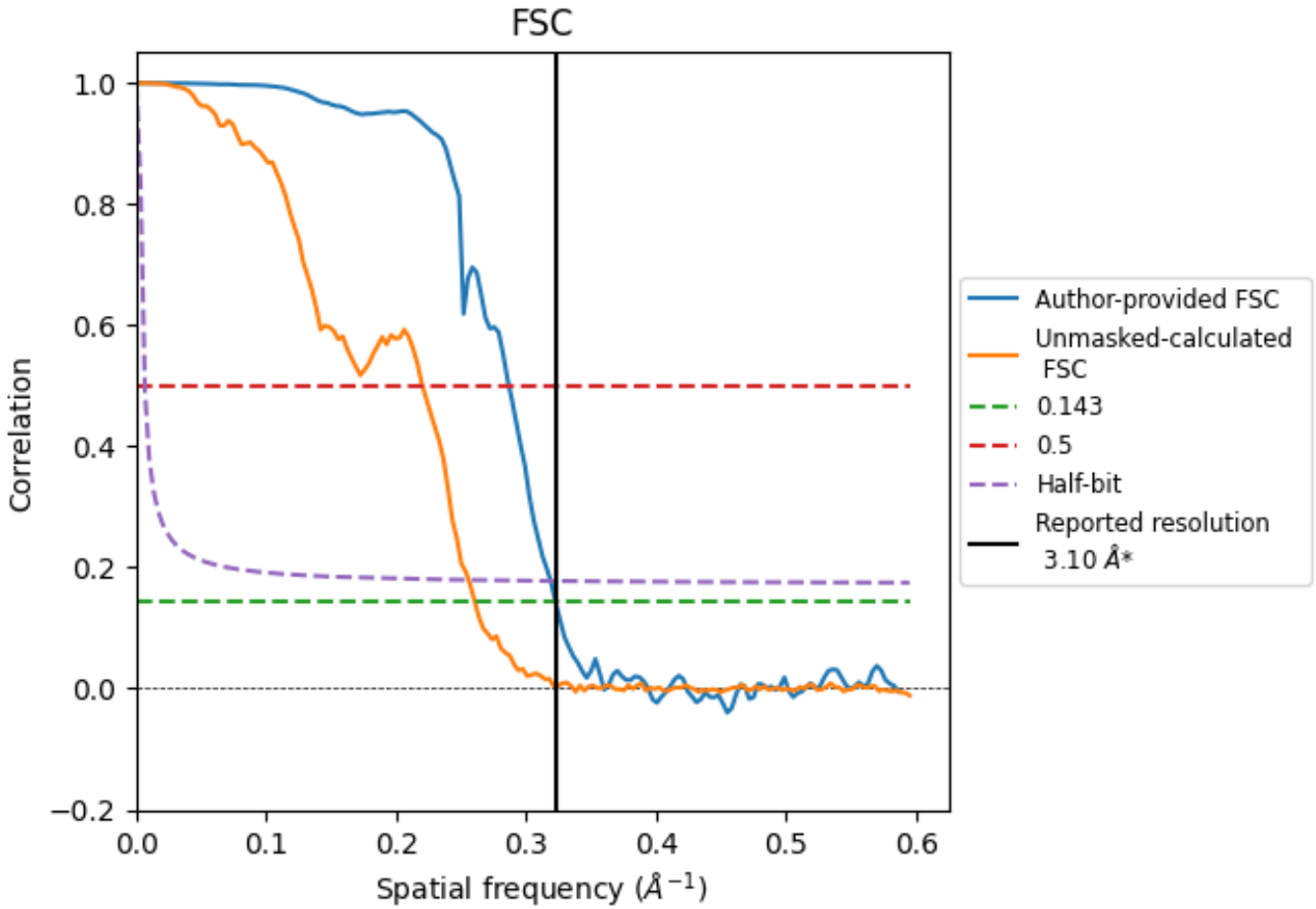


*Reported resolution corresponds to spatial frequency of 0.323 $Å^{-1}$

8 Fourier-Shell correlation

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 0.323 Å^{-1}

8.2 Resolution estimates (i)

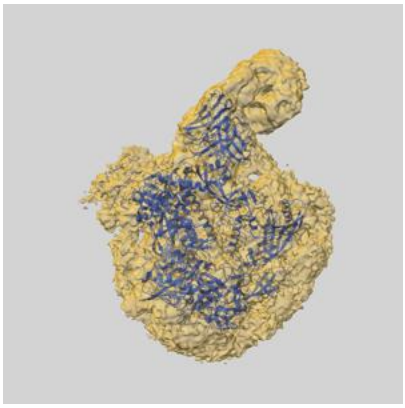
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	3.10	3.49	3.13
Unmasked-calculated*	3.84	4.54	3.91

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.84 differs from the reported value 3.1 by more than 10 %

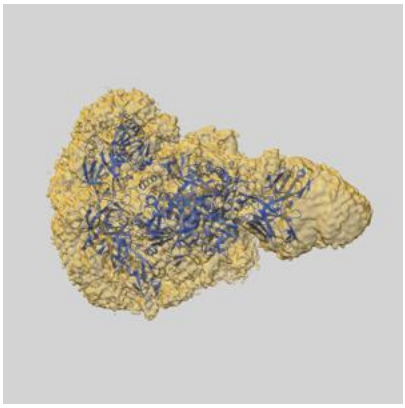
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-51554 and PDB model 9GST. Per-residue inclusion information can be found in section 3 on page 12.

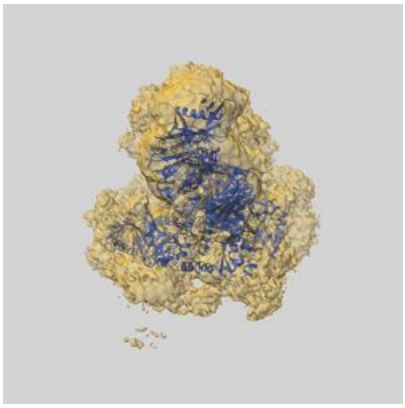
9.1 Map-model overlay



X



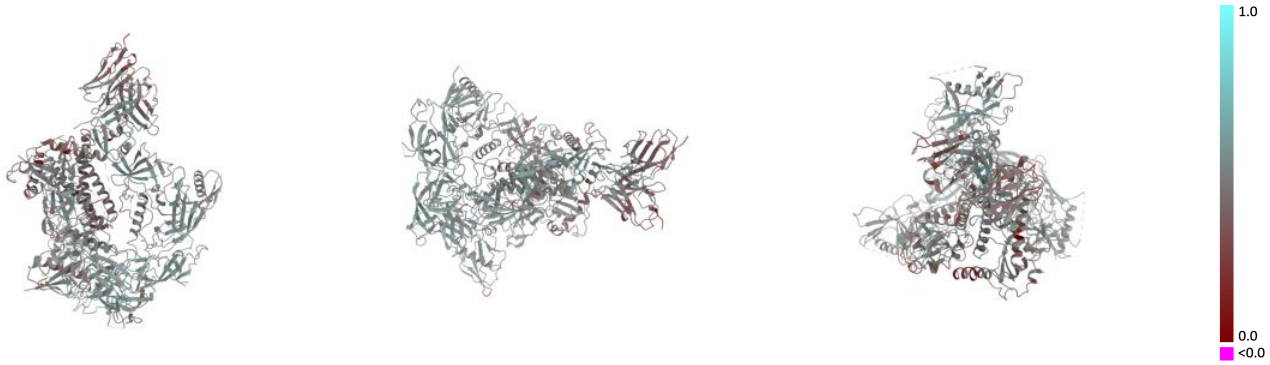
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0456 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.

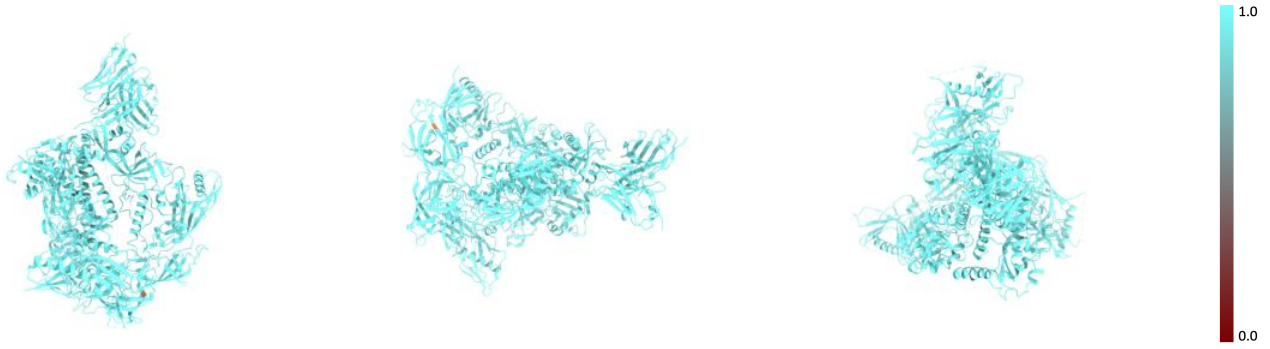
9.2 Q-score mapped to coordinate model (i)



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.

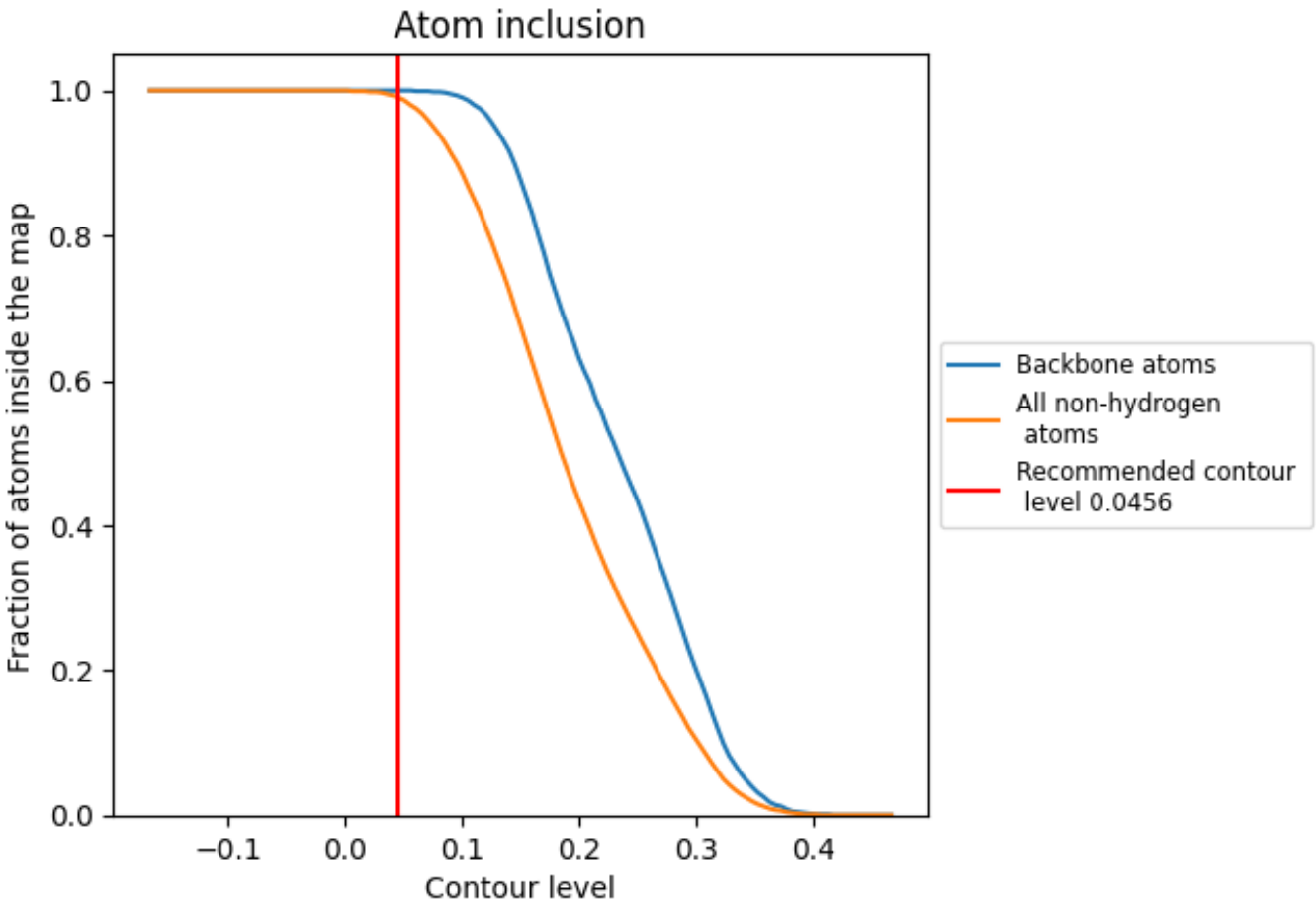
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.0456).

9.4 Atom inclusion (i)



At the recommended contour level, 100% of all backbone atoms, 99% 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 (0.0456) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9910	0.4730
A	0.9920	0.5100
B	0.9840	0.4350
C	0.9930	0.4960
D	0.9890	0.4130
E	0.9930	0.4900
F	0.9870	0.4180
G	1.0000	0.4440
H	0.9850	0.4420
I	1.0000	0.3650
J	1.0000	0.4290
K	1.0000	0.4410
L	0.9880	0.3940
M	1.0000	0.4320
N	0.9640	0.4150
O	1.0000	0.4610
P	1.0000	0.4210
Q	1.0000	0.4490
R	1.0000	0.4450
S	1.0000	0.5070
T	0.9290	0.4360
U	0.8930	0.4790
V	1.0000	0.4350
W	0.9290	0.3780
X	1.0000	0.4310
Y	1.0000	0.4600
Z	1.0000	0.4140
a	1.0000	0.4440
b	1.0000	0.4150
c	1.0000	0.4600
d	1.0000	0.4790
e	1.0000	0.3590
f	1.0000	0.4500
g	1.0000	0.3660
h	0.9640	0.3860

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Chain	Atom inclusion	Q-score
i	1.0000	0.4440
j	1.0000	0.4350