Full wwPDB EM Validation Report ⓘ

Jul 19, 2023 – 03:00 PM EDT

PDB ID	:	8D5A
EMDB ID	:	EMD-27207
Title	:	Middle state of SARS-CoV-2 BA.2 variant spike protein
Authors	:	Zhang, J.; Tang, W.C.; Gao, H.L.; Shi, W.; Peng, H.Q.; Volloch, S.R.; Xiao, T.S.; Chen, B.
Deposited on	:	2022-06-04
Resolution	:	3.10 Å(reported)
Based on initial model	:	7KRR

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:

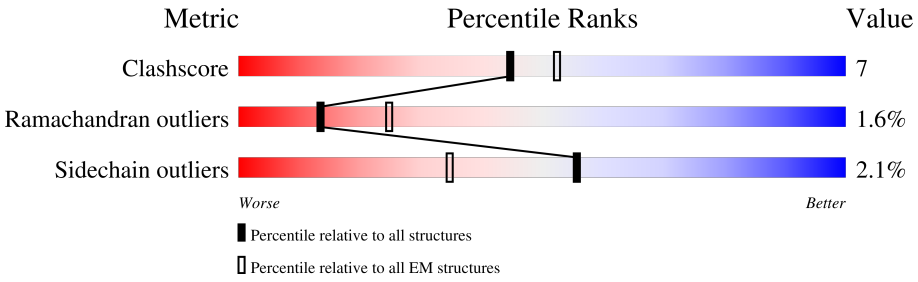
EMDB validation analysis	:	0.0.1.dev50
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.34

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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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

Mol	Chain	Length	Quality of chain
1	A	1305	78% 7% 14%
1	B	1305	80% 6% 14%
1	C	1305	77% 8% 14%
2	D	3	67% 33%
2	F	3	100%
2	H	3	100%
2	I	3	100%
2	K	3	100%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
2	L	3	100%
2	M	3	100%
2	P	3	100%
2	R	3	100%
2	S	3	100%
2	U	3	100%
2	V	3	100%
2	W	3	100%
2	Z	3	100%
2	b	3	100%
2	c	3	100%
2	e	3	100%
2	f	3	100%
3	E	2	100%
3	G	2	100%
3	N	2	100%
3	O	2	100%
3	Q	2	100%
3	X	2	100%
3	Y	2	100%
3	a	2	100%
4	J	3	100%
4	T	3	100%
4	d	3	100%

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

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	NAG	D	1	-	-	X	-
2	NAG	D	2	-	-	X	-
5	NAG	C	1402	X	-	-	-

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 27711 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 Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1118	Total	C	N	O	S	0	0
			8773	5610	1465	1658	40		
1	B	1125	Total	C	N	O	S	0	0
			8822	5639	1474	1669	40		
1	C	1122	Total	C	N	O	S	0	0
			8796	5623	1470	1663	40		

There are 198 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	19	ILE	THR	variant	UNP P0DTC2
A	?	-	LEU	deletion	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	?	-	PRO	deletion	UNP P0DTC2
A	27	SER	ALA	variant	UNP P0DTC2
A	142	ASP	GLY	variant	UNP P0DTC2
A	213	GLY	VAL	variant	UNP P0DTC2
A	339	ASP	GLY	variant	UNP P0DTC2
A	371	PHE	SER	variant	UNP P0DTC2
A	373	PRO	SER	variant	UNP P0DTC2
A	375	PHE	SER	variant	UNP P0DTC2
A	376	ALA	THR	variant	UNP P0DTC2
A	405	ASN	ASP	variant	UNP P0DTC2
A	408	SER	ARG	variant	UNP P0DTC2
A	417	ASN	LYS	variant	UNP P0DTC2
A	440	LYS	ASN	variant	UNP P0DTC2
A	477	ASN	SER	variant	UNP P0DTC2
A	478	LYS	THR	variant	UNP P0DTC2
A	484	ALA	GLU	variant	UNP P0DTC2
A	493	ARG	GLN	variant	UNP P0DTC2
A	498	ARG	GLN	variant	UNP P0DTC2
A	501	TYR	ASN	variant	UNP P0DTC2
A	505	HIS	TYR	variant	UNP P0DTC2
A	614	GLY	ASP	variant	UNP P0DTC2

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
A	655	TYR	HIS	variant	UNP P0DTC2
A	679	LYS	ASN	variant	UNP P0DTC2
A	681	HIS	PRO	variant	UNP P0DTC2
A	764	LYS	ASN	variant	UNP P0DTC2
A	796	TYR	ASP	variant	UNP P0DTC2
A	954	HIS	GLN	variant	UNP P0DTC2
A	969	LYS	ASN	variant	UNP P0DTC2
A	1274	SER	-	expression tag	UNP P0DTC2
A	1275	GLY	-	expression tag	UNP P0DTC2
A	1276	GLY	-	expression tag	UNP P0DTC2
A	1277	GLY	-	expression tag	UNP P0DTC2
A	1278	SER	-	expression tag	UNP P0DTC2
A	1279	ALA	-	expression tag	UNP P0DTC2
A	1280	TRP	-	expression tag	UNP P0DTC2
A	1281	SER	-	expression tag	UNP P0DTC2
A	1282	HIS	-	expression tag	UNP P0DTC2
A	1283	PRO	-	expression tag	UNP P0DTC2
A	1284	GLN	-	expression tag	UNP P0DTC2
A	1285	PHE	-	expression tag	UNP P0DTC2
A	1286	GLU	-	expression tag	UNP P0DTC2
A	1287	LYS	-	expression tag	UNP P0DTC2
A	1288	GLY	-	expression tag	UNP P0DTC2
A	1289	GLY	-	expression tag	UNP P0DTC2
A	1290	GLY	-	expression tag	UNP P0DTC2
A	1291	SER	-	expression tag	UNP P0DTC2
A	1292	GLY	-	expression tag	UNP P0DTC2
A	1293	GLY	-	expression tag	UNP P0DTC2
A	1294	GLY	-	expression tag	UNP P0DTC2
A	1295	SER	-	expression tag	UNP P0DTC2
A	1296	GLY	-	expression tag	UNP P0DTC2
A	1297	GLY	-	expression tag	UNP P0DTC2
A	1298	SER	-	expression tag	UNP P0DTC2
A	1299	SER	-	expression tag	UNP P0DTC2
A	1300	ALA	-	expression tag	UNP P0DTC2
A	1301	TRP	-	expression tag	UNP P0DTC2
A	1302	SER	-	expression tag	UNP P0DTC2
A	1303	HIS	-	expression tag	UNP P0DTC2
A	1304	PRO	-	expression tag	UNP P0DTC2
A	1305	GLN	-	expression tag	UNP P0DTC2
A	1306	PHE	-	expression tag	UNP P0DTC2
A	1307	GLU	-	expression tag	UNP P0DTC2
A	1308	LYS	-	expression tag	UNP P0DTC2

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	19	ILE	THR	variant	UNP P0DTC2
B	?	-	LEU	deletion	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2
B	?	-	PRO	deletion	UNP P0DTC2
B	27	SER	ALA	variant	UNP P0DTC2
B	142	ASP	GLY	variant	UNP P0DTC2
B	213	GLY	VAL	variant	UNP P0DTC2
B	339	ASP	GLY	variant	UNP P0DTC2
B	371	PHE	SER	variant	UNP P0DTC2
B	373	PRO	SER	variant	UNP P0DTC2
B	375	PHE	SER	variant	UNP P0DTC2
B	376	ALA	THR	variant	UNP P0DTC2
B	405	ASN	ASP	variant	UNP P0DTC2
B	408	SER	ARG	variant	UNP P0DTC2
B	417	ASN	LYS	variant	UNP P0DTC2
B	440	LYS	ASN	variant	UNP P0DTC2
B	477	ASN	SER	variant	UNP P0DTC2
B	478	LYS	THR	variant	UNP P0DTC2
B	484	ALA	GLU	variant	UNP P0DTC2
B	493	ARG	GLN	variant	UNP P0DTC2
B	498	ARG	GLN	variant	UNP P0DTC2
B	501	TYR	ASN	variant	UNP P0DTC2
B	505	HIS	TYR	variant	UNP P0DTC2
B	614	GLY	ASP	variant	UNP P0DTC2
B	655	TYR	HIS	variant	UNP P0DTC2
B	679	LYS	ASN	variant	UNP P0DTC2
B	681	HIS	PRO	variant	UNP P0DTC2
B	764	LYS	ASN	variant	UNP P0DTC2
B	796	TYR	ASP	variant	UNP P0DTC2
B	954	HIS	GLN	variant	UNP P0DTC2
B	969	LYS	ASN	variant	UNP P0DTC2
B	1274	SER	-	expression tag	UNP P0DTC2
B	1275	GLY	-	expression tag	UNP P0DTC2
B	1276	GLY	-	expression tag	UNP P0DTC2
B	1277	GLY	-	expression tag	UNP P0DTC2
B	1278	SER	-	expression tag	UNP P0DTC2
B	1279	ALA	-	expression tag	UNP P0DTC2
B	1280	TRP	-	expression tag	UNP P0DTC2
B	1281	SER	-	expression tag	UNP P0DTC2
B	1282	HIS	-	expression tag	UNP P0DTC2
B	1283	PRO	-	expression tag	UNP P0DTC2
B	1284	GLN	-	expression tag	UNP P0DTC2

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	1285	PHE	-	expression tag	UNP P0DTC2
B	1286	GLU	-	expression tag	UNP P0DTC2
B	1287	LYS	-	expression tag	UNP P0DTC2
B	1288	GLY	-	expression tag	UNP P0DTC2
B	1289	GLY	-	expression tag	UNP P0DTC2
B	1290	GLY	-	expression tag	UNP P0DTC2
B	1291	SER	-	expression tag	UNP P0DTC2
B	1292	GLY	-	expression tag	UNP P0DTC2
B	1293	GLY	-	expression tag	UNP P0DTC2
B	1294	GLY	-	expression tag	UNP P0DTC2
B	1295	SER	-	expression tag	UNP P0DTC2
B	1296	GLY	-	expression tag	UNP P0DTC2
B	1297	GLY	-	expression tag	UNP P0DTC2
B	1298	SER	-	expression tag	UNP P0DTC2
B	1299	SER	-	expression tag	UNP P0DTC2
B	1300	ALA	-	expression tag	UNP P0DTC2
B	1301	TRP	-	expression tag	UNP P0DTC2
B	1302	SER	-	expression tag	UNP P0DTC2
B	1303	HIS	-	expression tag	UNP P0DTC2
B	1304	PRO	-	expression tag	UNP P0DTC2
B	1305	GLN	-	expression tag	UNP P0DTC2
B	1306	PHE	-	expression tag	UNP P0DTC2
B	1307	GLU	-	expression tag	UNP P0DTC2
B	1308	LYS	-	expression tag	UNP P0DTC2
C	19	ILE	THR	variant	UNP P0DTC2
C	?	-	LEU	deletion	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	?	-	PRO	deletion	UNP P0DTC2
C	27	SER	ALA	variant	UNP P0DTC2
C	142	ASP	GLY	variant	UNP P0DTC2
C	213	GLY	VAL	variant	UNP P0DTC2
C	339	ASP	GLY	variant	UNP P0DTC2
C	371	PHE	SER	variant	UNP P0DTC2
C	373	PRO	SER	variant	UNP P0DTC2
C	375	PHE	SER	variant	UNP P0DTC2
C	376	ALA	THR	variant	UNP P0DTC2
C	405	ASN	ASP	variant	UNP P0DTC2
C	408	SER	ARG	variant	UNP P0DTC2
C	417	ASN	LYS	variant	UNP P0DTC2
C	440	LYS	ASN	variant	UNP P0DTC2
C	477	ASN	SER	variant	UNP P0DTC2
C	478	LYS	THR	variant	UNP P0DTC2

Continued on next page...

Continued from previous page...

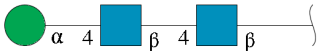
Chain	Residue	Modelled	Actual	Comment	Reference
C	484	ALA	GLU	variant	UNP P0DTC2
C	493	ARG	GLN	variant	UNP P0DTC2
C	498	ARG	GLN	variant	UNP P0DTC2
C	501	TYR	ASN	variant	UNP P0DTC2
C	505	HIS	TYR	variant	UNP P0DTC2
C	614	GLY	ASP	variant	UNP P0DTC2
C	655	TYR	HIS	variant	UNP P0DTC2
C	679	LYS	ASN	variant	UNP P0DTC2
C	681	HIS	PRO	variant	UNP P0DTC2
C	764	LYS	ASN	variant	UNP P0DTC2
C	796	TYR	ASP	variant	UNP P0DTC2
C	954	HIS	GLN	variant	UNP P0DTC2
C	969	LYS	ASN	variant	UNP P0DTC2
C	1274	SER	-	expression tag	UNP P0DTC2
C	1275	GLY	-	expression tag	UNP P0DTC2
C	1276	GLY	-	expression tag	UNP P0DTC2
C	1277	GLY	-	expression tag	UNP P0DTC2
C	1278	SER	-	expression tag	UNP P0DTC2
C	1279	ALA	-	expression tag	UNP P0DTC2
C	1280	TRP	-	expression tag	UNP P0DTC2
C	1281	SER	-	expression tag	UNP P0DTC2
C	1282	HIS	-	expression tag	UNP P0DTC2
C	1283	PRO	-	expression tag	UNP P0DTC2
C	1284	GLN	-	expression tag	UNP P0DTC2
C	1285	PHE	-	expression tag	UNP P0DTC2
C	1286	GLU	-	expression tag	UNP P0DTC2
C	1287	LYS	-	expression tag	UNP P0DTC2
C	1288	GLY	-	expression tag	UNP P0DTC2
C	1289	GLY	-	expression tag	UNP P0DTC2
C	1290	GLY	-	expression tag	UNP P0DTC2
C	1291	SER	-	expression tag	UNP P0DTC2
C	1292	GLY	-	expression tag	UNP P0DTC2
C	1293	GLY	-	expression tag	UNP P0DTC2
C	1294	GLY	-	expression tag	UNP P0DTC2
C	1295	SER	-	expression tag	UNP P0DTC2
C	1296	GLY	-	expression tag	UNP P0DTC2
C	1297	GLY	-	expression tag	UNP P0DTC2
C	1298	SER	-	expression tag	UNP P0DTC2
C	1299	SER	-	expression tag	UNP P0DTC2
C	1300	ALA	-	expression tag	UNP P0DTC2
C	1301	TRP	-	expression tag	UNP P0DTC2
C	1302	SER	-	expression tag	UNP P0DTC2

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
C	1303	HIS	-	expression tag	UNP P0DTC2
C	1304	PRO	-	expression tag	UNP P0DTC2
C	1305	GLN	-	expression tag	UNP P0DTC2
C	1306	PHE	-	expression tag	UNP P0DTC2
C	1307	GLU	-	expression tag	UNP P0DTC2
C	1308	LYS	-	expression tag	UNP P0DTC2

- Molecule 2 is an oligosaccharide called alpha-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
2	D	3	Total	C	N	O	0	0
			39	22	2	15		
2	F	3	Total	C	N	O	0	0
			39	22	2	15		
2	H	3	Total	C	N	O	0	0
			39	22	2	15		
2	I	3	Total	C	N	O	0	0
			39	22	2	15		
2	K	3	Total	C	N	O	0	0
			39	22	2	15		
2	L	3	Total	C	N	O	0	0
			39	22	2	15		
2	M	3	Total	C	N	O	0	0
			39	22	2	15		
2	P	3	Total	C	N	O	0	0
			39	22	2	15		
2	R	3	Total	C	N	O	0	0
			39	22	2	15		
2	S	3	Total	C	N	O	0	0
			39	22	2	15		
2	U	3	Total	C	N	O	0	0
			39	22	2	15		
2	V	3	Total	C	N	O	0	0
			39	22	2	15		
2	W	3	Total	C	N	O	0	0
			39	22	2	15		

Continued on next page...

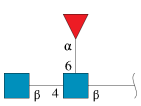
Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf	Trace
2	Z	3	Total C N O 39 22 2 15	0	0
2	b	3	Total C N O 39 22 2 15	0	0
2	c	3	Total C N O 39 22 2 15	0	0
2	e	3	Total C N O 39 22 2 15	0	0
2	f	3	Total C N O 39 22 2 15	0	0

- Molecule 3 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

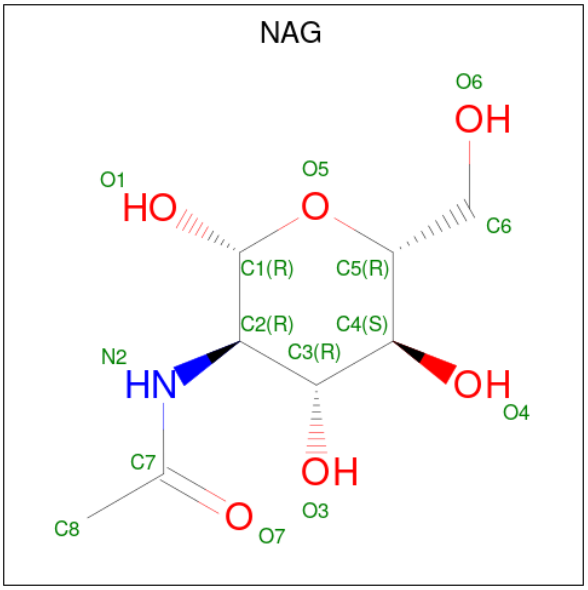
Mol	Chain	Residues	Atoms	AltConf	Trace
3	E	2	Total C N O 28 16 2 10	0	0
3	G	2	Total C N O 28 16 2 10	0	0
3	N	2	Total C N O 28 16 2 10	0	0
3	O	2	Total C N O 28 16 2 10	0	0
3	Q	2	Total C N O 28 16 2 10	0	0
3	X	2	Total C N O 28 16 2 10	0	0
3	Y	2	Total C N O 28 16 2 10	0	0
3	a	2	Total C N O 28 16 2 10	0	0

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



Mol	Chain	Residues	Atoms	AltConf	Trace
4	J	3	Total C N O 38 22 2 14	0	0
4	T	3	Total C N O 38 22 2 14	0	0
4	d	3	Total C N O 38 22 2 14	0	0

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$) (labeled as "Ligand of Interest" by depositor).



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

Continued on next page...

Continued from previous page...

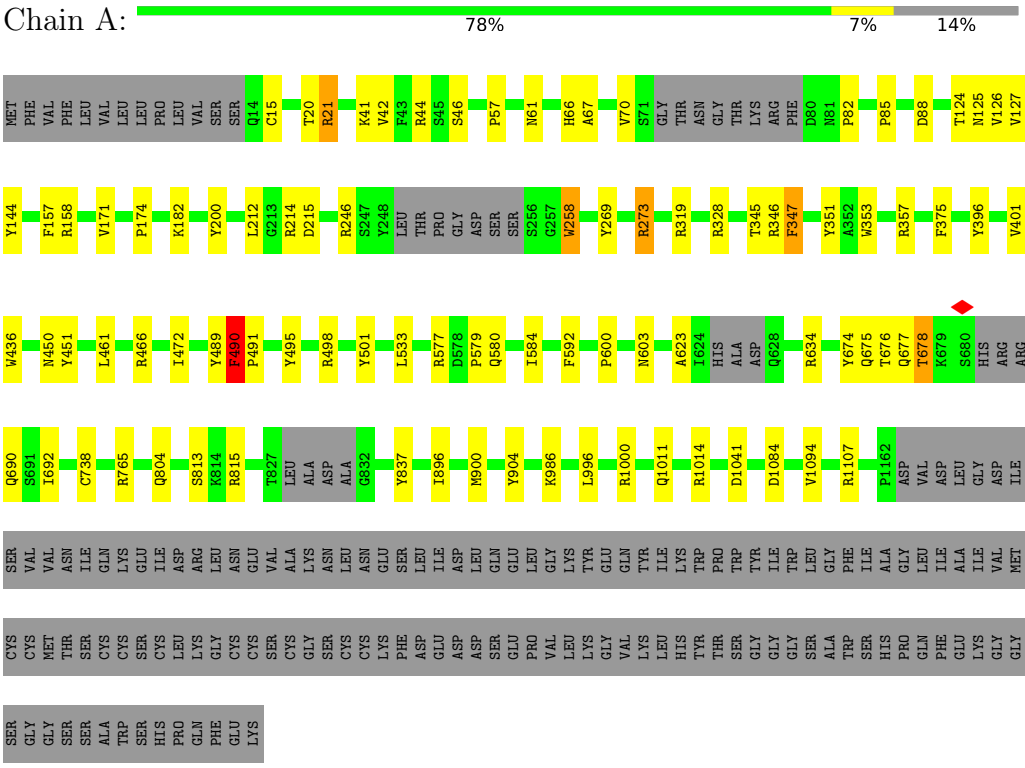
Mol	Chain	Residues	Atoms				AltConf
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	B	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	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.

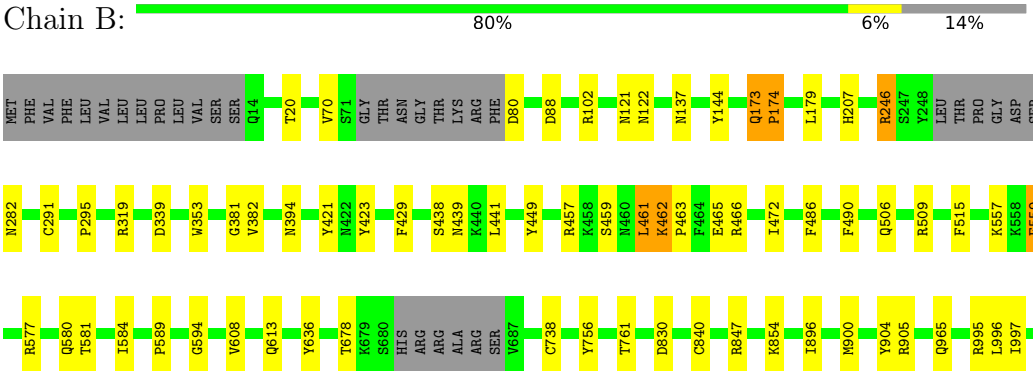
• Molecule 1: Spike glycoprotein

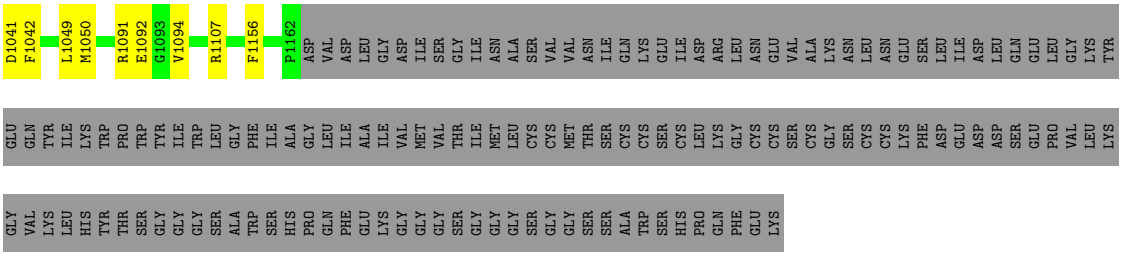
Chain A:



• Molecule 1: Spike glycoprotein

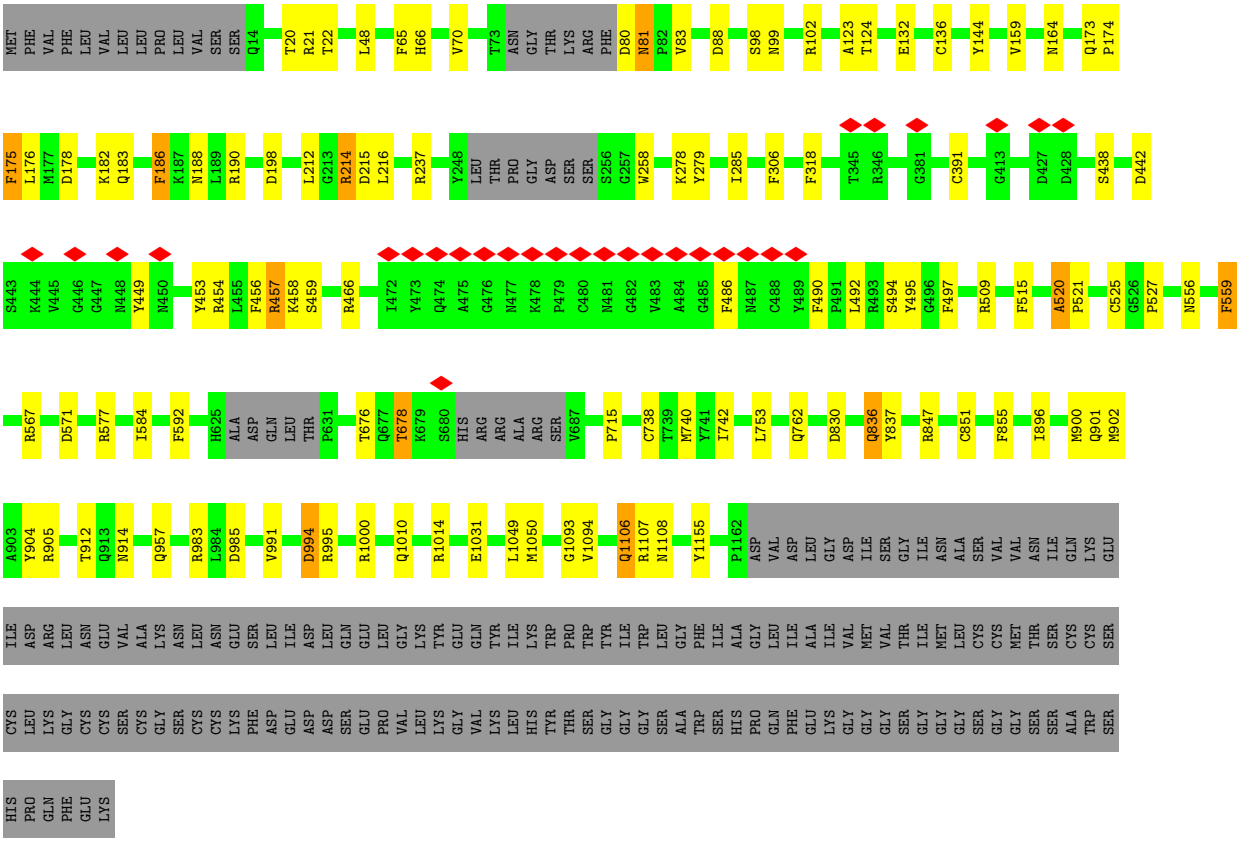
Chain B:





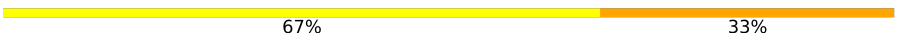
• Molecule 1: Spike glycoprotein

Chain C:



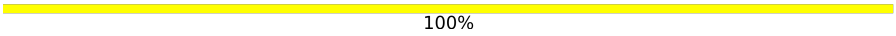
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain D:

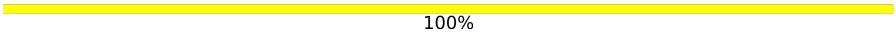


• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

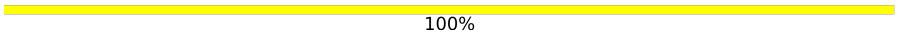
Chain F:



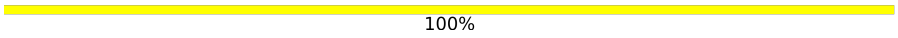
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain H: 

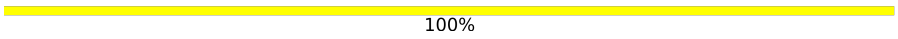
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I: 

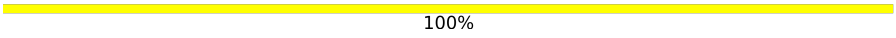
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain K: 

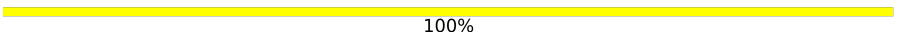
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain L: 

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

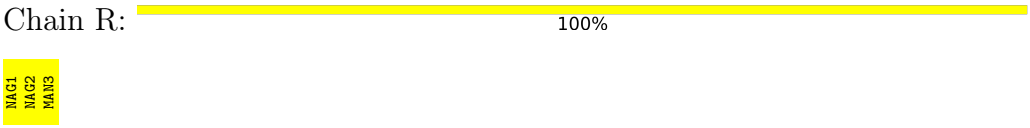
Chain M: 

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

Chain P: 

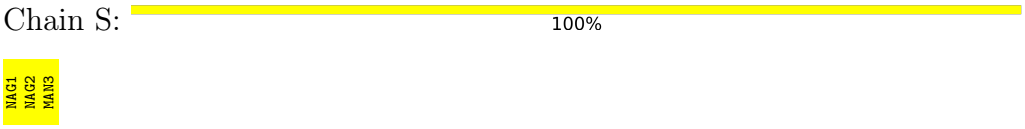
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain R:



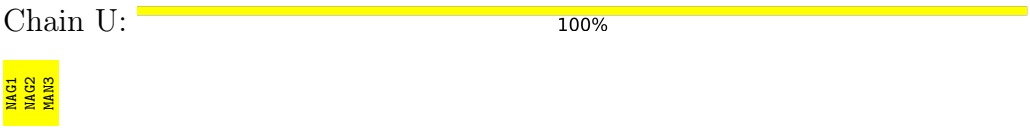
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:



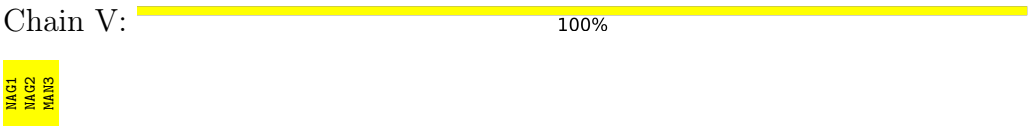
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain U:



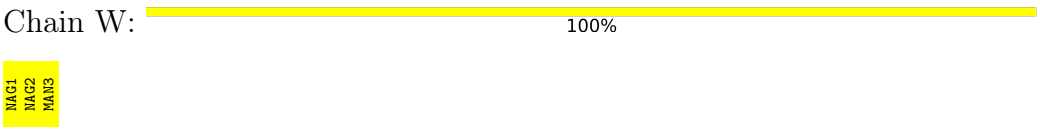
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:



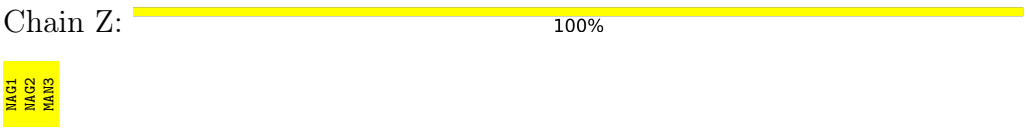
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain W:



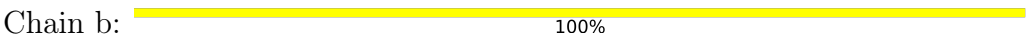
• Molecule 2: alpha-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:



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

Chain b:



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

Chain c: 100%

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

Chain e: 100%

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

Chain f: 100%

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

Chain E: 100%

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

Chain G: 100%

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

Chain N: 100%

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

Chain O: 100%

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

Chain Q: 100%

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

Chain X: 100%

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

Chain Y: 100%

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

Chain a: 100%

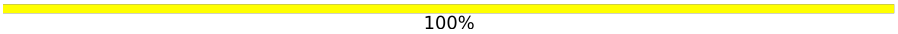
• Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J: 100%

• Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain T: 100%

• Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain d: 

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	113667	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	53.853	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.508	Depositor
Minimum map value	-0.186	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.011	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	398.4, 398.4, 398.4	wwPDB
Map dimensions	480, 480, 480	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.83, 0.83, 0.83	Depositor

5 Model quality

5.1 Standard geometry

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

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	0.73	0/8980	1.02	0/12212
1	B	0.72	0/9031	1.01	0/12284
1	C	0.74	0/9005	1.03	0/12247
All	All	0.73	0/27016	1.02	0/36743

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	8773	0	8560	126	0
1	B	8822	0	8599	139	0
1	C	8796	0	8576	147	0
2	D	39	0	34	15	0
2	F	39	0	34	0	0
2	H	39	0	34	0	0
2	I	39	0	34	0	0
2	K	39	0	34	0	0
2	L	39	0	34	0	0
2	M	39	0	34	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	P	39	0	34	2	0
2	R	39	0	34	0	0
2	S	39	0	34	0	0
2	U	39	0	34	0	0
2	V	39	0	34	0	0
2	W	39	0	34	0	0
2	Z	39	0	34	0	0
2	b	39	0	34	0	0
2	c	39	0	34	0	0
2	e	39	0	34	0	0
2	f	39	0	34	0	0
3	E	28	0	25	0	0
3	G	28	0	25	0	0
3	N	28	0	25	0	0
3	O	28	0	25	0	0
3	Q	28	0	25	0	0
3	X	28	0	25	0	0
3	Y	28	0	25	0	0
3	a	28	0	25	0	0
4	J	38	0	34	0	0
4	T	38	0	34	0	0
4	d	38	0	34	0	0
5	A	98	0	91	8	0
5	B	98	0	91	5	0
5	C	84	0	78	0	0
All	All	27711	0	26909	371	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 7.

All (371) 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)
1:C:453:TYR:CZ	1:C:492:LEU:HD22	1.30	1.67
1:B:282:ASN:HD21	2:P:1:NAG:C1	1.12	1.61
1:A:61:ASN:HD22	5:A:1401:NAG:C1	1.22	1.50
1:A:603:ASN:HD22	5:A:1404:NAG:C1	1.23	1.48
1:B:594:GLY:HA3	1:B:613:GLN:NE2	1.35	1.40
1:C:905:ARG:NH1	1:C:1050:MET:HB3	1.30	1.39
1:C:851:CYS:SG	1:C:855:PHE:HE2	1.46	1.38
1:B:457:ARG:NH2	1:B:461:LEU:HB3	1.37	1.35

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:603:ASN:ND2	5:A:1404:NAG:C1	1.86	1.33
1:A:61:ASN:ND2	5:A:1401:NAG:C1	1.87	1.33
1:C:559:PHE:CD1	1:C:584:ILE:HG13	1.21	1.32
1:C:559:PHE:CD1	1:C:584:ILE:CG1	2.12	1.27
1:B:282:ASN:ND2	2:P:1:NAG:C1	1.98	1.24
1:C:453:TYR:OH	1:C:492:LEU:HD22	1.33	1.24
1:C:900:MET:O	1:C:904:TYR:CD2	1.93	1.22
1:B:457:ARG:HH22	1:B:461:LEU:CB	1.53	1.20
1:C:453:TYR:OH	1:C:492:LEU:CD2	1.90	1.20
1:B:246:ARG:HE	1:B:256:SER:N	1.40	1.19
1:C:851:CYS:SG	1:C:855:PHE:CE2	2.35	1.19
1:A:1107:ARG:HD3	1:B:904:TYR:CE2	1.78	1.19
1:C:453:TYR:CZ	1:C:492:LEU:CD2	2.26	1.19
1:A:171:VAL:CG2	2:D:2:NAG:O7	1.90	1.18
1:B:559:PHE:CE1	1:B:584:ILE:HG21	1.80	1.16
1:A:171:VAL:HG21	2:D:2:NAG:O7	0.98	1.14
1:B:594:GLY:CA	1:B:613:GLN:HE21	1.60	1.13
1:A:21:ARG:HB2	1:A:66:HIS:O	1.49	1.12
1:A:21:ARG:HB3	1:A:67:ALA:HA	1.21	1.12
1:A:57:PRO:HB3	1:A:273:ARG:HH12	0.99	1.11
1:A:171:VAL:HG21	2:D:2:NAG:C7	1.82	1.09
1:B:441:LEU:HD23	1:B:509:ARG:CZ	1.81	1.09
1:A:124:THR:HG22	2:D:1:NAG:H82	1.07	1.06
1:A:765:ARG:NH1	1:C:957:GLN:NE2	2.02	1.06
1:C:905:ARG:NH1	1:C:1050:MET:CB	2.18	1.05
1:B:462:LYS:HB2	1:B:463:PRO:CD	1.87	1.04
1:A:490:PHE:CD1	1:A:491:PRO:HD2	1.92	1.04
1:C:1010:GLN:HB3	1:C:1014:ARG:NH1	1.72	1.03
1:C:905:ARG:CZ	1:C:1050:MET:HB3	1.86	1.02
1:A:490:PHE:HD1	1:A:491:PRO:HD2	1.18	1.02
1:C:1010:GLN:HB3	1:C:1014:ARG:HH12	1.20	1.02
1:B:457:ARG:CZ	1:B:461:LEU:HB3	1.89	1.01
1:A:1107:ARG:HD3	1:B:904:TYR:CD2	1.94	1.01
1:C:900:MET:O	1:C:904:TYR:HD2	1.34	1.01
1:A:124:THR:CG2	2:D:1:NAG:H82	1.92	1.00
1:C:896:ILE:HD11	1:C:904:TYR:CE2	1.96	0.99
1:C:22:THR:HG23	1:C:66:HIS:HB2	1.44	0.99
1:A:273:ARG:HG3	1:A:273:ARG:HH11	1.25	0.98
1:A:57:PRO:HB3	1:A:273:ARG:NH1	1.79	0.98
1:B:905:ARG:CZ	1:B:1050:MET:HB3	1.93	0.98
1:B:353:TRP:O	1:B:466:ARG:NH1	1.97	0.97

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:347:PHE:HB3	1:A:401:VAL:HG23	1.46	0.97
1:C:742:ILE:O	1:C:1000:ARG:NH1	1.97	0.97
1:B:905:ARG:NH1	1:B:1050:MET:HB3	1.78	0.96
1:C:442:ASP:CG	1:C:509:ARG:HH21	1.70	0.96
1:A:124:THR:HG22	2:D:1:NAG:C8	1.95	0.95
1:B:905:ARG:NH1	1:B:1049:LEU:O	1.99	0.95
1:B:246:ARG:NE	1:B:256:SER:N	2.14	0.94
1:B:457:ARG:HH22	1:B:461:LEU:HB3	0.86	0.94
1:A:21:ARG:CB	1:A:67:ALA:HA	1.96	0.94
1:B:457:ARG:NH2	1:B:461:LEU:CB	2.18	0.94
1:C:453:TYR:CE2	1:C:492:LEU:HD22	2.03	0.94
1:C:279:TYR:CE1	1:C:285:ILE:HG13	2.02	0.94
1:C:449:TYR:HA	1:C:494:SER:OG	1.68	0.93
1:C:214:ARG:HE	1:C:214:ARG:HA	1.32	0.93
1:A:21:ARG:HH12	1:A:82:PRO:HD2	1.33	0.92
1:A:765:ARG:NH1	1:C:957:GLN:CD	2.21	0.92
1:B:441:LEU:HD23	1:B:509:ARG:NH1	1.83	0.91
1:B:580:GLN:O	5:B:1402:NAG:C8	2.20	0.90
1:A:1107:ARG:HD3	1:B:904:TYR:HE2	1.37	0.89
1:B:594:GLY:HA3	1:B:613:GLN:HE21	0.75	0.89
1:B:589:PRO:CG	1:C:855:PHE:HD1	1.87	0.88
1:A:57:PRO:CB	1:A:273:ARG:HH12	1.86	0.87
1:C:279:TYR:CE1	1:C:285:ILE:CG1	2.57	0.87
1:A:996:LEU:O	1:A:1000:ARG:HG3	1.75	0.86
1:C:905:ARG:NH2	1:C:1050:MET:HE3	1.90	0.86
1:A:21:ARG:HH22	1:A:82:PRO:HD2	1.40	0.85
1:B:462:LYS:HG2	1:B:465:GLU:OE2	1.76	0.84
1:C:905:ARG:HH12	1:C:1050:MET:HB3	1.40	0.84
1:B:441:LEU:HD23	1:B:509:ARG:NH2	1.93	0.84
1:C:905:ARG:NH2	1:C:1050:MET:CE	2.41	0.84
1:A:347:PHE:HB3	1:A:401:VAL:CG2	2.07	0.83
1:B:457:ARG:HH22	1:B:461:LEU:CG	1.89	0.83
1:A:85:PRO:HG2	1:A:269:TYR:OH	1.77	0.83
1:C:1010:GLN:CB	1:C:1014:ARG:HH12	1.90	0.83
1:A:125:ASN:OD1	2:D:1:NAG:H3	1.77	0.82
1:B:295:PRO:HG2	1:B:636:TYR:CE1	2.15	0.82
1:A:21:ARG:NH1	1:A:82:PRO:HD2	1.94	0.82
1:A:21:ARG:HH22	1:A:82:PRO:CD	1.93	0.82
1:B:319:ARG:NH2	1:C:740:MET:CE	2.44	0.81
1:B:441:LEU:CD2	1:B:509:ARG:NH2	2.43	0.81
1:B:896:ILE:HD11	1:B:904:TYR:CE1	2.16	0.81

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:278:LYS:HB2	1:C:306:PHE:CZ	2.15	0.81
1:C:466:ARG:HH21	1:C:466:ARG:HG3	1.45	0.80
1:A:490:PHE:HD1	1:A:491:PRO:CD	1.95	0.79
1:B:462:LYS:CB	1:B:463:PRO:CD	2.61	0.79
1:C:278:LYS:HB2	1:C:306:PHE:HZ	1.48	0.79
1:C:851:CYS:O	1:C:855:PHE:CD2	2.37	0.78
1:B:441:LEU:CD2	1:B:509:ARG:NH1	2.46	0.78
1:B:462:LYS:HB2	1:B:463:PRO:HD2	1.64	0.78
1:C:559:PHE:HD1	1:C:584:ILE:HG13	0.99	0.78
1:C:442:ASP:OD1	1:C:509:ARG:NH2	2.15	0.78
1:A:603:ASN:HD22	5:A:1404:NAG:C2	1.97	0.78
1:B:462:LYS:HB2	1:B:463:PRO:HD3	1.66	0.78
1:A:21:ARG:CB	1:A:66:HIS:O	2.30	0.77
1:B:580:GLN:O	5:B:1402:NAG:H82	1.84	0.77
1:C:905:ARG:NH1	1:C:1049:LEU:O	2.17	0.77
1:A:490:PHE:HB2	1:A:491:PRO:CD	2.15	0.76
1:A:21:ARG:NH2	1:A:82:PRO:HD2	1.99	0.76
1:A:347:PHE:O	1:A:451:TYR:HE1	1.67	0.76
1:B:319:ARG:NH2	1:C:740:MET:HE1	2.00	0.76
1:A:904:TYR:OH	1:C:1094:VAL:HB	1.86	0.76
1:A:142:ASP:HB2	1:A:158:ARG:CD	2.16	0.75
1:C:214:ARG:HE	1:C:214:ARG:CA	2.00	0.75
1:B:589:PRO:CG	1:C:855:PHE:CD1	2.69	0.74
1:B:441:LEU:CD2	1:B:509:ARG:CZ	2.64	0.74
1:C:851:CYS:O	1:C:855:PHE:HD2	1.69	0.74
1:B:457:ARG:NH1	1:B:461:LEU:HB3	2.02	0.74
1:B:589:PRO:HG2	1:C:855:PHE:HD1	1.50	0.74
1:C:442:ASP:OD2	1:C:509:ARG:NE	2.21	0.74
1:C:847:ARG:O	1:C:847:ARG:HG2	1.86	0.74
1:C:449:TYR:CA	1:C:494:SER:OG	2.37	0.73
1:C:905:ARG:HH21	1:C:1050:MET:HE3	1.52	0.72
1:A:603:ASN:ND2	5:A:1404:NAG:O5	2.23	0.72
1:B:462:LYS:CG	1:B:463:PRO:HD2	2.19	0.72
1:B:900:MET:O	1:B:904:TYR:HD1	1.73	0.72
1:C:48:LEU:HD21	1:C:306:PHE:CD2	2.25	0.72
1:C:81:ASN:HD22	1:C:81:ASN:H	1.36	0.71
1:C:442:ASP:OD2	1:C:509:ARG:NH2	2.23	0.71
1:A:490:PHE:HB2	1:A:491:PRO:HD2	1.71	0.71
1:B:559:PHE:CD1	1:B:584:ILE:HG13	2.26	0.70
1:A:765:ARG:HH11	1:C:957:GLN:CD	1.93	0.70
1:C:453:TYR:CE2	1:C:492:LEU:HD13	2.27	0.70

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:457:ARG:NH2	1:B:461:LEU:HD22	2.07	0.69
1:C:453:TYR:OH	1:C:492:LEU:HD21	1.89	0.69
1:B:462:LYS:CB	1:B:463:PRO:HD2	2.21	0.69
1:A:347:PHE:CB	1:A:401:VAL:CG2	2.69	0.69
1:B:589:PRO:HG2	1:C:855:PHE:CD1	2.27	0.69
1:C:1010:GLN:CB	1:C:1014:ARG:NH1	2.51	0.69
1:B:246:ARG:HE	1:B:256:SER:CA	2.06	0.69
1:C:559:PHE:CD1	1:C:584:ILE:CD1	2.76	0.69
1:B:608:VAL:CG2	1:B:636:TYR:OH	2.41	0.69
1:A:57:PRO:CB	1:A:273:ARG:NH1	2.51	0.68
1:B:896:ILE:HD11	1:B:904:TYR:HE1	1.57	0.68
1:C:214:ARG:HA	1:C:214:ARG:NE	2.08	0.67
1:B:441:LEU:CD2	1:B:509:ARG:HH22	2.06	0.67
1:A:124:THR:CG2	2:D:1:NAG:C8	2.63	0.67
1:A:498:ARG:HB2	1:A:501:TYR:HB3	1.74	0.67
1:B:608:VAL:HG23	1:B:636:TYR:OH	1.94	0.66
1:A:273:ARG:HG3	1:A:273:ARG:NH1	1.96	0.66
1:B:900:MET:O	1:B:904:TYR:CD1	2.47	0.66
1:A:142:ASP:HB2	1:A:158:ARG:HD2	1.77	0.66
1:B:441:LEU:CD2	1:B:509:ARG:HH12	2.09	0.66
1:B:457:ARG:HH22	1:B:461:LEU:CD1	2.08	0.66
1:B:457:ARG:HH21	1:B:461:LEU:HD22	1.60	0.66
1:A:1107:ARG:CD	1:B:904:TYR:CE2	2.70	0.66
1:A:21:ARG:CZ	1:A:82:PRO:HD2	2.26	0.65
1:B:441:LEU:HG	1:B:509:ARG:NH2	2.11	0.65
1:C:22:THR:CG2	1:C:66:HIS:HB2	2.24	0.65
1:C:438:SER:OG	1:C:509:ARG:HG3	1.96	0.65
1:C:454:ARG:HD3	1:C:457:ARG:HG2	1.79	0.65
1:A:900:MET:O	1:A:904:TYR:HD1	1.80	0.64
1:B:441:LEU:HG	1:B:509:ARG:HH22	1.62	0.64
1:A:171:VAL:CG2	2:D:2:NAG:H81	2.27	0.64
1:B:441:LEU:CG	1:B:509:ARG:NH2	2.61	0.64
1:C:905:ARG:CZ	1:C:1050:MET:CB	2.70	0.64
1:B:281:GLU:OE1	1:B:847:ARG:NH2	2.30	0.64
1:A:328:ARG:NH1	1:A:533:LEU:HB2	2.11	0.64
1:B:905:ARG:NH1	1:B:1050:MET:CB	2.59	0.64
1:A:328:ARG:HH21	1:A:580:GLN:HB2	1.63	0.64
1:C:457:ARG:O	1:C:459:SER:O	2.15	0.63
1:C:896:ILE:HD11	1:C:904:TYR:CZ	2.34	0.63
1:C:896:ILE:CD1	1:C:904:TYR:CE2	2.80	0.63
1:B:589:PRO:HG3	1:C:855:PHE:HD1	1.63	0.63

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:48:LEU:HD21	1:C:306:PHE:CE2	2.34	0.62
1:A:896:ILE:HD11	1:A:904:TYR:CE1	2.34	0.62
1:C:457:ARG:O	1:C:459:SER:N	2.32	0.62
1:C:905:ARG:HH12	1:C:1050:MET:CB	1.96	0.62
1:A:577:ARG:HB2	1:A:584:ILE:CD1	2.30	0.62
1:C:279:TYR:CD1	1:C:285:ILE:HG13	2.34	0.61
1:C:900:MET:HB3	1:C:904:TYR:HE2	1.65	0.61
1:C:454:ARG:HD3	1:C:456:PHE:O	2.00	0.61
1:C:900:MET:O	1:C:904:TYR:CE2	2.51	0.61
1:C:991:VAL:HG12	1:C:995:ARG:HH12	1.66	0.61
1:B:559:PHE:CZ	1:B:584:ILE:HG21	2.36	0.61
1:B:319:ARG:NH2	1:C:740:MET:HE2	2.15	0.60
1:A:813:SER:OG	1:A:815:ARG:NH1	2.35	0.60
1:A:158:ARG:HH12	1:A:258:TRP:HE1	1.48	0.60
1:A:357:ARG:HB2	1:A:396:TYR:CE1	2.35	0.60
1:B:462:LYS:HG3	1:B:463:PRO:HD2	1.82	0.60
1:C:183:GLN:O	1:C:186:PHE:CD1	2.54	0.60
1:B:457:ARG:NH2	1:B:461:LEU:HD13	2.17	0.60
1:C:466:ARG:HH21	1:C:466:ARG:CG	2.11	0.60
1:B:441:LEU:HD21	1:B:509:ARG:HH12	1.66	0.59
1:A:353:TRP:CZ3	1:A:466:ARG:NH2	2.70	0.59
1:C:1093:GLY:HA2	1:C:1107:ARG:HG3	1.83	0.59
1:B:457:ARG:NH2	1:B:461:LEU:CG	2.59	0.58
1:C:21:ARG:HD2	1:C:65:PHE:CD1	2.39	0.58
1:B:421:TYR:CD1	1:B:457:ARG:HB3	2.39	0.58
1:B:457:ARG:HH22	1:B:461:LEU:HD13	1.69	0.58
1:B:996:LEU:O	1:B:1000:ARG:HG3	2.04	0.58
1:A:1107:ARG:CD	1:B:904:TYR:HE2	2.10	0.58
1:B:441:LEU:CG	1:B:509:ARG:HH22	2.15	0.58
1:B:594:GLY:HA3	1:B:613:GLN:CD	2.17	0.57
1:B:457:ARG:NH2	1:B:461:LEU:CD2	2.68	0.57
1:A:1011:GLN:OE1	1:A:1014:ARG:NH1	2.37	0.57
1:A:490:PHE:CB	1:A:491:PRO:HD2	2.34	0.57
1:C:676:THR:HG23	1:C:676:THR:O	2.04	0.57
1:B:594:GLY:O	1:B:613:GLN:HG2	2.05	0.56
1:A:57:PRO:HG3	1:A:273:ARG:NH1	2.20	0.56
1:C:278:LYS:HG3	1:C:306:PHE:CE2	2.40	0.56
1:A:21:ARG:HB3	1:A:67:ALA:CA	2.14	0.56
1:C:182:LYS:HA	1:C:186:PHE:CE1	2.40	0.56
1:B:462:LYS:CG	1:B:465:GLU:OE2	2.51	0.56
1:A:61:ASN:HD21	5:A:1401:NAG:C1	2.09	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:328:ARG:HH12	1:A:533:LEU:HB2	1.69	0.56
1:B:559:PHE:CD1	1:B:559:PHE:N	2.73	0.56
1:C:912:THR:HG22	1:C:1106:GLN:NE2	2.21	0.56
1:A:678:THR:HG23	1:A:678:THR:O	2.04	0.56
1:A:896:ILE:HD11	1:A:904:TYR:HE1	1.70	0.56
1:B:295:PRO:CG	1:B:636:TYR:CE1	2.86	0.56
1:B:559:PHE:HB2	1:B:577:ARG:HH21	1.70	0.56
1:B:559:PHE:HB2	1:B:577:ARG:NH2	2.20	0.56
1:B:594:GLY:C	1:B:613:GLN:HG2	2.26	0.56
1:A:347:PHE:O	1:A:451:TYR:CE1	2.55	0.56
1:A:765:ARG:CZ	1:C:957:GLN:NE2	2.69	0.56
1:A:490:PHE:CD1	1:A:491:PRO:CD	2.77	0.55
1:A:57:PRO:CG	1:A:273:ARG:NH1	2.70	0.55
1:C:83:VAL:HG13	1:C:237:ARG:HD3	1.88	0.55
1:C:902:MET:SD	1:C:905:ARG:HD2	2.46	0.55
1:B:594:GLY:CA	1:B:613:GLN:NE2	2.31	0.54
1:C:442:ASP:CG	1:C:509:ARG:NH2	2.52	0.54
1:A:21:ARG:HB2	1:A:66:HIS:C	2.26	0.54
1:B:102:ARG:O	1:B:121:ASN:HB3	2.07	0.54
1:B:905:ARG:CZ	1:B:1050:MET:CB	2.79	0.54
1:B:1039:ARG:NH2	1:C:1031:GLU:OE2	2.40	0.54
1:A:21:ARG:HH12	1:A:82:PRO:CD	2.16	0.54
1:C:442:ASP:OD2	1:C:509:ARG:CZ	2.56	0.54
1:C:454:ARG:HD3	1:C:457:ARG:CG	2.38	0.54
1:A:142:ASP:CB	1:A:158:ARG:HD2	2.37	0.54
1:C:559:PHE:HB2	1:C:577:ARG:NH2	2.23	0.53
1:A:171:VAL:CG2	2:D:2:NAG:C7	2.66	0.53
1:B:580:GLN:O	5:B:1402:NAG:H81	2.04	0.53
1:C:278:LYS:CB	1:C:306:PHE:HZ	2.21	0.53
1:C:278:LYS:CB	1:C:306:PHE:CZ	2.90	0.53
2:D:1:NAG:H62	2:D:2:NAG:H82	1.91	0.53
1:B:457:ARG:HH12	1:B:461:LEU:HB3	1.72	0.53
1:A:490:PHE:CG	1:A:491:PRO:HD2	2.42	0.53
1:A:21:ARG:HG3	1:A:21:ARG:HH11	1.74	0.53
1:A:1094:VAL:CG2	1:B:904:TYR:OH	2.56	0.53
1:A:171:VAL:HG22	2:D:2:NAG:H81	1.91	0.52
1:B:102:ARG:NH1	1:B:122:ASN:HA	2.24	0.52
1:A:1107:ARG:HD3	1:B:904:TYR:HD2	1.68	0.52
1:C:453:TYR:CE1	1:C:492:LEU:HD22	2.24	0.52
1:B:559:PHE:HD1	1:B:559:PHE:H	1.56	0.52
1:B:246:ARG:O	1:B:246:ARG:HG2	2.09	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:900:MET:C	1:C:904:TYR:CD2	2.78	0.52
1:A:171:VAL:CG2	2:D:2:NAG:C8	2.88	0.52
1:B:319:ARG:HH21	1:C:740:MET:HE1	1.73	0.52
1:B:1094:VAL:CG2	1:C:904:TYR:OH	2.58	0.52
1:B:608:VAL:HG22	1:B:636:TYR:OH	2.10	0.51
1:B:319:ARG:HH21	1:C:740:MET:CE	2.23	0.51
1:A:1107:ARG:CD	1:B:904:TYR:CD2	2.82	0.51
1:A:676:THR:N	1:A:690:GLN:OE1	2.44	0.51
1:C:278:LYS:HB2	1:C:306:PHE:CE2	2.46	0.51
1:A:21:ARG:HH22	1:A:82:PRO:CG	2.24	0.51
1:A:904:TYR:OH	1:C:1094:VAL:CB	2.57	0.50
1:C:22:THR:HG23	1:C:22:THR:O	2.11	0.50
1:C:81:ASN:HD22	1:C:81:ASN:N	2.00	0.50
1:C:567:ARG:NH1	1:C:571:ASP:O	2.44	0.50
1:B:438:SER:HB2	1:B:509:ARG:HG3	1.93	0.49
1:C:20:THR:HG22	1:C:80:ASP:OD2	2.11	0.49
1:A:328:ARG:NH2	1:A:580:GLN:HB2	2.27	0.49
1:A:375:PHE:HD1	1:A:436:TRP:HA	1.75	0.49
1:A:900:MET:O	1:A:904:TYR:CD1	2.62	0.49
1:B:1094:VAL:HG21	1:C:904:TYR:OH	2.12	0.49
1:C:901:GLN:O	1:C:905:ARG:HG3	2.12	0.49
1:C:457:ARG:NE	1:C:457:ARG:HA	2.28	0.49
1:A:127:VAL:HG11	2:D:1:NAG:O6	2.13	0.48
1:B:557:LYS:HB2	1:B:559:PHE:HE1	1.78	0.48
1:B:319:ARG:HH22	1:C:740:MET:CE	2.24	0.48
1:A:85:PRO:CG	1:A:269:TYR:OH	2.57	0.48
1:B:559:PHE:CE1	1:B:584:ILE:CG2	2.74	0.48
1:B:577:ARG:HB2	1:B:584:ILE:CD1	2.42	0.48
1:C:214:ARG:CA	1:C:214:ARG:NE	2.72	0.48
1:C:900:MET:HB3	1:C:904:TYR:CE2	2.46	0.48
1:C:48:LEU:CD2	1:C:306:PHE:CE2	2.97	0.48
1:C:559:PHE:HD1	1:C:584:ILE:CG1	1.85	0.48
1:B:319:ARG:HH22	1:C:740:MET:HE1	1.79	0.48
1:B:577:ARG:CZ	1:B:584:ILE:HD11	2.44	0.48
1:B:295:PRO:CD	1:B:636:TYR:HE1	2.27	0.48
1:C:279:TYR:CE1	1:C:285:ILE:HG12	2.43	0.48
1:A:1107:ARG:NH1	1:B:904:TYR:CD2	2.82	0.47
1:B:457:ARG:HD3	1:B:459:SER:O	2.14	0.47
1:B:20:THR:HG22	1:B:80:ASP:OD2	2.14	0.47
1:A:498:ARG:HB2	1:A:501:TYR:CB	2.43	0.47
1:A:603:ASN:ND2	5:A:1404:NAG:C2	2.68	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:557:LYS:CB	1:B:559:PHE:HE1	2.28	0.47
1:B:905:ARG:NH2	1:B:1050:MET:CE	2.78	0.47
1:B:965:GLN:NE2	1:C:762:GLN:HE22	2.13	0.47
1:C:466:ARG:CG	1:C:466:ARG:NH2	2.72	0.47
1:A:42:VAL:CG1	1:C:567:ARG:HG2	2.44	0.47
1:A:142:ASP:CG	1:A:158:ARG:HD2	2.35	0.47
1:A:346:ARG:NH1	1:A:450:ASN:HB3	2.30	0.47
1:B:995:ARG:NH2	1:C:994:ASP:OD1	2.48	0.47
1:A:319:ARG:HG2	1:A:592:PHE:HB2	1.98	0.46
1:C:81:ASN:H	1:C:81:ASN:ND2	2.09	0.46
1:C:176:LEU:CD1	1:C:190:ARG:HD3	2.45	0.46
1:C:905:ARG:NH2	1:C:1050:MET:HE2	2.25	0.46
1:B:1091:ARG:NH1	1:B:1091:ARG:HG3	2.30	0.46
1:B:896:ILE:CD1	1:B:904:TYR:CE1	2.94	0.46
1:B:457:ARG:CD	1:B:459:SER:O	2.64	0.46
1:B:102:ARG:HH11	1:B:122:ASN:HA	1.81	0.46
1:A:44:ARG:HG2	1:C:567:ARG:HB2	1.97	0.45
1:A:996:LEU:O	1:A:1000:ARG:CG	2.58	0.45
1:A:171:VAL:HG21	2:D:2:NAG:C8	2.42	0.45
1:B:1107:ARG:HD3	1:C:904:TYR:CD1	2.52	0.45
1:A:1094:VAL:HG21	1:B:904:TYR:OH	2.17	0.45
1:C:278:LYS:HG3	1:C:306:PHE:HE2	1.80	0.45
1:A:765:ARG:NH1	1:C:957:GLN:CG	2.79	0.45
1:C:900:MET:C	1:C:904:TYR:HD2	2.13	0.45
1:C:678:THR:HG23	1:C:678:THR:O	2.16	0.45
1:A:490:PHE:CB	1:A:491:PRO:CD	2.88	0.45
1:B:1156:PHE:CZ	1:C:1155:TYR:HB3	2.52	0.45
1:A:142:ASP:HB2	1:A:158:ARG:HD3	1.95	0.45
1:A:674:TYR:CZ	1:A:690:GLN:HB3	2.52	0.45
1:B:557:LYS:HB3	1:B:559:PHE:CE1	2.52	0.44
1:C:449:TYR:C	1:C:494:SER:HG	2.20	0.44
1:C:83:VAL:CG1	1:C:237:ARG:HD3	2.48	0.44
1:B:423:TYR:O	1:B:423:TYR:CD1	2.71	0.44
1:B:581:THR:HG22	5:B:1402:NAG:C8	2.47	0.44
1:B:569:ILE:HD12	1:B:569:ILE:H	1.83	0.44
1:B:1039:ARG:NH1	1:B:1042:PHE:CZ	2.86	0.44
1:C:183:GLN:O	1:C:186:PHE:HD1	1.96	0.43
1:C:173:GLN:HB3	1:C:174:PRO:HD2	2.00	0.43
1:C:902:MET:HA	1:C:905:ARG:HD2	1.99	0.43
1:A:765:ARG:HH12	1:C:957:GLN:CG	2.32	0.43
1:A:328:ARG:O	1:A:579:PRO:CG	2.67	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:577:ARG:HB2	1:A:584:ILE:HD13	2.01	0.43
1:B:678:THR:HG23	1:B:678:THR:O	2.18	0.43
1:B:905:ARG:NH2	1:B:1050:MET:HE3	2.34	0.43
1:B:756:TYR:CE1	1:B:997:ILE:HG21	2.55	0.42
1:C:520:ALA:HB3	1:C:521:PRO:HD3	2.01	0.42
1:A:21:ARG:CB	1:A:67:ALA:CA	2.84	0.42
1:A:21:ARG:NH1	1:A:21:ARG:HG3	2.34	0.42
1:A:765:ARG:HH12	1:C:957:GLN:CD	2.18	0.42
1:B:382:VAL:HA	1:C:983:ARG:O	2.20	0.42
1:C:715:PRO:HG2	1:C:1108:ASN:O	2.19	0.42
1:A:472:ILE:HD12	1:A:490:PHE:HD2	1.83	0.42
1:A:600:PRO:HD3	1:A:692:ILE:HD11	2.02	0.42
1:A:42:VAL:HG11	1:C:567:ARG:HG2	2.02	0.42
1:B:580:GLN:O	5:B:1402:NAG:C7	2.68	0.42
1:C:99:ASN:O	1:C:102:ARG:NH1	2.27	0.42
1:A:676:THR:HG22	1:A:678:THR:HB	2.01	0.42
1:A:996:LEU:HD13	1:A:1000:ARG:HH21	1.85	0.42
1:A:21:ARG:HH22	1:A:82:PRO:HG2	1.84	0.41
1:C:1107:ARG:HG3	1:C:1107:ARG:H	1.44	0.41
1:B:905:ARG:HH21	1:B:1050:MET:HE3	1.85	0.41
1:B:457:ARG:HG2	1:B:459:SER:O	2.20	0.41
1:C:577:ARG:CZ	1:C:584:ILE:HD11	2.50	0.41
1:B:173:GLN:H	1:B:174:PRO:CD	2.33	0.41
1:B:439:ASN:ND2	1:B:506:GLN:HE21	2.18	0.41
1:C:457:ARG:NE	1:C:457:ARG:CA	2.84	0.41
1:C:1050:MET:HE2	1:C:1050:MET:HB2	1.97	0.41
1:C:896:ILE:HD11	1:C:904:TYR:HE2	1.72	0.41
1:A:126:VAL:HG23	1:A:174:PRO:HA	2.03	0.41
1:A:158:ARG:HH22	1:A:258:TRP:HZ2	1.69	0.41
1:B:144:TYR:CD1	1:B:246:ARG:HB3	2.56	0.41
1:A:347:PHE:HB2	1:A:401:VAL:CG2	2.49	0.40
1:A:675:GLN:HA	1:A:690:GLN:OE1	2.22	0.40
1:B:559:PHE:O	1:B:577:ARG:NH2	2.54	0.40
1:A:357:ARG:HB2	1:A:396:TYR:HE1	1.84	0.40
1:C:1010:GLN:O	1:C:1014:ARG:HG3	2.22	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	1108/1305 (85%)	1024 (92%)	66 (6%)	18 (2%)	9 37
1	B	1117/1305 (86%)	1013 (91%)	90 (8%)	14 (1%)	12 42
1	C	1114/1305 (85%)	1025 (92%)	67 (6%)	22 (2%)	7 31
All	All	3339/3915 (85%)	3062 (92%)	223 (7%)	54 (2%)	13 37

All (54) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	70	VAL
1	A	490	PHE
1	A	986	LYS
1	B	70	VAL
1	B	173	GLN
1	B	246	ARG
1	B	462	LYS
1	B	490	PHE
1	C	70	VAL
1	C	212	LEU
1	C	215	ASP
1	C	258	TRP
1	C	458	LYS
1	A	136	CYS
1	A	212	LEU
1	A	678	THR
1	A	1041	ASP
1	B	174	PRO
1	B	830	ASP
1	C	123	ALA
1	C	159	VAL
1	C	520	ALA
1	A	46	SER
1	A	215	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	1041	ASP
1	C	132	GLU
1	C	497	PHE
1	C	830	ASP
1	C	837	TYR
1	A	88	ASP
1	A	182	LYS
1	A	258	TRP
1	A	345	THR
1	A	623	ALA
1	B	137	ASN
1	B	291	CYS
1	C	88	ASP
1	C	124	THR
1	C	136	CYS
1	C	164	ASN
1	C	175	PHE
1	C	836	GLN
1	A	41	LYS
1	A	246	ARG
1	A	837	TYR
1	A	1084	ASP
1	B	88	ASP
1	C	186	PHE
1	C	490	PHE
1	B	449	TYR
1	B	472	ILE
1	C	527	PRO
1	C	678	THR
1	B	381	GLY

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	975/1130 (86%)	955 (98%)	20 (2%)	53 79

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	B	979/1130 (87%)	964 (98%)	15 (2%)	65 85
1	C	976/1130 (86%)	950 (97%)	26 (3%)	44 74
All	All	2930/3390 (86%)	2869 (98%)	61 (2%)	56 79

All (61) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	15	CYS
1	A	20	THR
1	A	21	ARG
1	A	144	TYR
1	A	157	PHE
1	A	200	TYR
1	A	214	ARG
1	A	273	ARG
1	A	347	PHE
1	A	351	TYR
1	A	422	ASN
1	A	429	PHE
1	A	461	LEU
1	A	489	TYR
1	A	490	PHE
1	A	495	TYR
1	A	634	ARG
1	A	677	GLN
1	A	738	CYS
1	A	804	GLN
1	B	179	LEU
1	B	207	HIS
1	B	339	ASP
1	B	394	ASN
1	B	429	PHE
1	B	461	LEU
1	B	486	PHE
1	B	515	PHE
1	B	559	PHE
1	B	574	ASP
1	B	738	CYS
1	B	761	THR
1	B	840	CYS
1	B	854	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	1092	GLU
1	C	81	ASN
1	C	98	SER
1	C	144	TYR
1	C	175	PHE
1	C	178	ASP
1	C	188	ASN
1	C	198	ASP
1	C	214	ARG
1	C	216	LEU
1	C	318	PHE
1	C	391	CYS
1	C	457	ARG
1	C	486	PHE
1	C	495	TYR
1	C	515	PHE
1	C	525	CYS
1	C	556	ASN
1	C	559	PHE
1	C	592	PHE
1	C	738	CYS
1	C	753	LEU
1	C	836	GLN
1	C	914	ASN
1	C	985	ASP
1	C	994	ASP
1	C	1106	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	61	ASN
1	A	69	HIS
1	A	87	ASN
1	A	603	ASN
1	A	677	GLN
1	A	907	ASN
1	B	282	ASN
1	B	317	ASN
1	B	354	ASN
1	B	506	GLN
1	B	613	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	1048	HIS
1	C	81	ASN
1	C	188	ASN
1	C	762	GLN
1	C	957	GLN
1	C	1005	GLN

5.3.3 RNA

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates

79 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	$\#\|Z\| > 2$
2	NAG	D	1	2	14,14,15	0.20	0	17,19,21	0.46	0
2	NAG	D	2	2	14,14,15	1.32	3 (21%)	17,19,21	0.98	1 (5%)
2	MAN	D	3	2	11,11,12	1.74	3 (27%)	15,15,17	1.03	0
3	NAG	E	1	1,3	14,14,15	1.46	3 (21%)	17,19,21	0.93	0
3	NAG	E	2	3	14,14,15	1.47	3 (21%)	17,19,21	1.25	2 (11%)
2	NAG	F	1	1,2	14,14,15	1.30	2 (14%)	17,19,21	0.93	0
2	NAG	F	2	2	14,14,15	1.62	4 (28%)	17,19,21	0.83	1 (5%)
2	MAN	F	3	2	11,11,12	1.75	4 (36%)	15,15,17	1.02	1 (6%)
3	NAG	G	1	1,3	14,14,15	1.10	1 (7%)	17,19,21	0.76	0
3	NAG	G	2	3	14,14,15	1.56	4 (28%)	17,19,21	0.91	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	NAG	H	1	1,2	14,14,15	1.34	2 (14%)	17,19,21	0.92	0
2	NAG	H	2	2	14,14,15	1.35	3 (21%)	17,19,21	0.88	1 (5%)
2	MAN	H	3	2	11,11,12	1.61	2 (18%)	15,15,17	1.30	1 (6%)
2	NAG	I	1	1,2	14,14,15	1.10	2 (14%)	17,19,21	0.72	0
2	NAG	I	2	2	14,14,15	1.41	3 (21%)	17,19,21	0.91	1 (5%)
2	MAN	I	3	2	11,11,12	1.35	1 (9%)	15,15,17	0.97	1 (6%)
4	NAG	J	1	1,4	14,14,15	1.39	2 (14%)	17,19,21	1.36	2 (11%)
4	NAG	J	2	4	14,14,15	1.48	3 (21%)	17,19,21	1.01	1 (5%)
4	FUC	J	3	4	10,10,11	1.60	3 (30%)	14,14,16	1.16	2 (14%)
2	NAG	K	1	1,2	14,14,15	0.84	1 (7%)	17,19,21	1.07	1 (5%)
2	NAG	K	2	2	14,14,15	1.51	2 (14%)	17,19,21	0.78	1 (5%)
2	MAN	K	3	2	11,11,12	1.43	1 (9%)	15,15,17	1.28	3 (20%)
2	NAG	L	1	1,2	14,14,15	1.15	1 (7%)	17,19,21	0.87	0
2	NAG	L	2	2	14,14,15	1.45	2 (14%)	17,19,21	0.97	1 (5%)
2	MAN	L	3	2	11,11,12	1.59	3 (27%)	15,15,17	1.37	2 (13%)
2	NAG	M	1	1,2	14,14,15	1.23	1 (7%)	17,19,21	1.13	2 (11%)
2	NAG	M	2	2	14,14,15	1.61	2 (14%)	17,19,21	1.02	1 (5%)
2	MAN	M	3	2	11,11,12	1.73	2 (18%)	15,15,17	0.92	1 (6%)
3	NAG	N	1	1,3	14,14,15	1.48	4 (28%)	17,19,21	0.98	1 (5%)
3	NAG	N	2	3	14,14,15	1.26	3 (21%)	17,19,21	0.88	0
3	NAG	O	1	1,3	14,14,15	1.43	3 (21%)	17,19,21	0.99	1 (5%)
3	NAG	O	2	3	14,14,15	1.45	4 (28%)	17,19,21	0.84	1 (5%)
2	NAG	P	1	2	14,14,15	0.22	0	17,19,21	0.41	0
2	NAG	P	2	2	14,14,15	1.43	2 (14%)	17,19,21	1.12	2 (11%)
2	MAN	P	3	2	11,11,12	1.57	1 (9%)	15,15,17	1.38	2 (13%)
3	NAG	Q	1	1,3	14,14,15	1.41	2 (14%)	17,19,21	0.62	0
3	NAG	Q	2	3	14,14,15	1.23	1 (7%)	17,19,21	1.28	2 (11%)
2	NAG	R	1	1,2	14,14,15	1.18	2 (14%)	17,19,21	1.09	1 (5%)
2	NAG	R	2	2	14,14,15	1.35	2 (14%)	17,19,21	1.21	2 (11%)
2	MAN	R	3	2	11,11,12	1.65	2 (18%)	15,15,17	1.12	2 (13%)
2	NAG	S	1	1,2	14,14,15	1.11	1 (7%)	17,19,21	0.99	0
2	NAG	S	2	2	14,14,15	1.18	0	17,19,21	1.16	1 (5%)
2	MAN	S	3	2	11,11,12	1.40	2 (18%)	15,15,17	0.56	0
4	NAG	T	1	1,4	14,14,15	1.06	1 (7%)	17,19,21	1.01	0
4	NAG	T	2	4	14,14,15	1.35	1 (7%)	17,19,21	0.78	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	FUC	T	3	4	10,10,11	1.70	2 (20%)	14,14,16	0.98	0
2	NAG	U	1	1,2	14,14,15	1.41	3 (21%)	17,19,21	1.15	1 (5%)
2	NAG	U	2	2	14,14,15	1.17	2 (14%)	17,19,21	0.95	0
2	MAN	U	3	2	11,11,12	1.38	1 (9%)	15,15,17	0.99	0
2	NAG	V	1	1,2	14,14,15	1.16	1 (7%)	17,19,21	0.80	0
2	NAG	V	2	2	14,14,15	1.20	2 (14%)	17,19,21	0.71	0
2	MAN	V	3	2	11,11,12	1.84	3 (27%)	15,15,17	1.10	2 (13%)
2	NAG	W	1	1,2	14,14,15	1.68	5 (35%)	17,19,21	1.01	1 (5%)
2	NAG	W	2	2	14,14,15	1.33	4 (28%)	17,19,21	0.97	1 (5%)
2	MAN	W	3	2	11,11,12	1.59	2 (18%)	15,15,17	0.94	1 (6%)
3	NAG	X	1	1,3	14,14,15	1.19	1 (7%)	17,19,21	0.79	0
3	NAG	X	2	3	14,14,15	1.56	4 (28%)	17,19,21	0.77	0
3	NAG	Y	1	1,3	14,14,15	1.48	2 (14%)	17,19,21	1.28	1 (5%)
3	NAG	Y	2	3	14,14,15	1.49	2 (14%)	17,19,21	0.97	1 (5%)
2	NAG	Z	1	1,2	14,14,15	1.35	3 (21%)	17,19,21	0.98	2 (11%)
2	NAG	Z	2	2	14,14,15	1.57	3 (21%)	17,19,21	0.89	1 (5%)
2	MAN	Z	3	2	11,11,12	1.89	3 (27%)	15,15,17	1.07	1 (6%)
3	NAG	a	1	1,3	14,14,15	1.43	3 (21%)	17,19,21	1.03	1 (5%)
3	NAG	a	2	3	14,14,15	1.52	5 (35%)	17,19,21	1.12	2 (11%)
2	NAG	b	1	1,2	14,14,15	1.31	3 (21%)	17,19,21	1.08	2 (11%)
2	NAG	b	2	2	14,14,15	1.40	2 (14%)	17,19,21	0.97	1 (5%)
2	MAN	b	3	2	11,11,12	1.68	2 (18%)	15,15,17	1.28	2 (13%)
2	NAG	c	1	1,2	14,14,15	1.21	2 (14%)	17,19,21	0.73	0
2	NAG	c	2	2	14,14,15	1.23	3 (21%)	17,19,21	1.12	2 (11%)
2	MAN	c	3	2	11,11,12	1.45	2 (18%)	15,15,17	0.97	1 (6%)
4	NAG	d	1	1,4	14,14,15	1.50	2 (14%)	17,19,21	1.20	1 (5%)
4	NAG	d	2	4	14,14,15	1.28	2 (14%)	17,19,21	0.95	0
4	FUC	d	3	4	10,10,11	1.82	3 (30%)	14,14,16	1.18	0
2	NAG	e	1	1,2	14,14,15	1.26	2 (14%)	17,19,21	0.84	0
2	NAG	e	2	2	14,14,15	1.28	1 (7%)	17,19,21	0.91	1 (5%)
2	MAN	e	3	2	11,11,12	1.59	3 (27%)	15,15,17	1.21	2 (13%)
2	NAG	f	1	1,2	14,14,15	1.14	1 (7%)	17,19,21	0.99	1 (5%)
2	NAG	f	2	2	14,14,15	1.37	2 (14%)	17,19,21	0.93	0
2	MAN	f	3	2	11,11,12	1.47	2 (18%)	15,15,17	1.31	2 (13%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	D	1	2	-	2/6/23/26	0/1/1/1
2	NAG	D	2	2	-	0/6/23/26	0/1/1/1
2	MAN	D	3	2	-	1/2/19/22	1/1/1/1
3	NAG	E	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	E	2	3	-	0/6/23/26	0/1/1/1
2	NAG	F	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	F	2	2	-	0/6/23/26	0/1/1/1
2	MAN	F	3	2	-	0/2/19/22	1/1/1/1
3	NAG	G	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	G	2	3	-	0/6/23/26	0/1/1/1
2	NAG	H	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	H	2	2	-	0/6/23/26	0/1/1/1
2	MAN	H	3	2	-	0/2/19/22	1/1/1/1
2	NAG	I	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	I	2	2	-	0/6/23/26	0/1/1/1
2	MAN	I	3	2	-	1/2/19/22	0/1/1/1
4	NAG	J	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	J	2	4	-	0/6/23/26	0/1/1/1
4	FUC	J	3	4	-	-	0/1/1/1
2	NAG	K	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	K	2	2	-	0/6/23/26	0/1/1/1
2	MAN	K	3	2	-	1/2/19/22	0/1/1/1
2	NAG	L	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	L	2	2	-	0/6/23/26	0/1/1/1
2	MAN	L	3	2	-	0/2/19/22	1/1/1/1
2	NAG	M	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	M	2	2	-	0/6/23/26	0/1/1/1
2	MAN	M	3	2	-	1/2/19/22	1/1/1/1
3	NAG	N	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	N	2	3	-	0/6/23/26	0/1/1/1
3	NAG	O	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	O	2	3	-	0/6/23/26	0/1/1/1
2	NAG	P	1	2	-	2/6/23/26	0/1/1/1
2	NAG	P	2	2	-	0/6/23/26	0/1/1/1
2	MAN	P	3	2	-	0/2/19/22	1/1/1/1
3	NAG	Q	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	Q	2	3	-	0/6/23/26	0/1/1/1
2	NAG	R	1	1,2	-	0/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	R	2	2	-	0/6/23/26	0/1/1/1
2	MAN	R	3	2	-	0/2/19/22	1/1/1/1
2	NAG	S	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	S	2	2	-	0/6/23/26	0/1/1/1
2	MAN	S	3	2	-	1/2/19/22	1/1/1/1
4	NAG	T	1	1,4	-	1/6/23/26	0/1/1/1
4	NAG	T	2	4	-	0/6/23/26	0/1/1/1
4	FUC	T	3	4	-	-	0/1/1/1
2	NAG	U	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	U	2	2	-	0/6/23/26	0/1/1/1
2	MAN	U	3	2	-	1/2/19/22	0/1/1/1
2	NAG	V	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	V	2	2	-	0/6/23/26	0/1/1/1
2	MAN	V	3	2	-	0/2/19/22	1/1/1/1
2	NAG	W	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	W	2	2	-	0/6/23/26	0/1/1/1
2	MAN	W	3	2	-	1/2/19/22	1/1/1/1
3	NAG	X	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	X	2	3	-	0/6/23/26	0/1/1/1
3	NAG	Y	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	Y	2	3	-	0/6/23/26	0/1/1/1
2	NAG	Z	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	Z	2	2	-	0/6/23/26	0/1/1/1
2	MAN	Z	3	2	-	0/2/19/22	1/1/1/1
3	NAG	a	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	a	2	3	-	0/6/23/26	0/1/1/1
2	NAG	b	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	b	2	2	-	0/6/23/26	0/1/1/1
2	MAN	b	3	2	-	0/2/19/22	1/1/1/1
2	NAG	c	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	c	2	2	-	0/6/23/26	0/1/1/1
2	MAN	c	3	2	-	1/2/19/22	0/1/1/1
4	NAG	d	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	d	2	4	-	0/6/23/26	0/1/1/1
4	FUC	d	3	4	-	-	0/1/1/1
2	NAG	e	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	e	2	2	-	0/6/23/26	0/1/1/1
2	MAN	e	3	2	-	1/2/19/22	0/1/1/1
2	NAG	f	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	f	2	2	-	0/6/23/26	0/1/1/1
2	MAN	f	3	2	-	0/2/19/22	1/1/1/1

All (177) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	P	2	NAG	O5-C5	3.87	1.51	1.43
2	Z	3	MAN	O5-C5	3.75	1.51	1.43
2	W	3	MAN	O5-C5	3.66	1.50	1.43
4	T	2	NAG	O5-C5	3.65	1.50	1.43
2	M	2	NAG	O5-C5	3.53	1.50	1.43
2	L	3	MAN	O5-C5	3.43	1.50	1.43
2	V	3	MAN	O5-C1	3.42	1.49	1.43
2	e	2	NAG	O5-C5	3.39	1.50	1.43
2	K	2	NAG	O5-C5	3.34	1.50	1.43
2	L	2	NAG	O5-C5	3.33	1.50	1.43
3	Y	1	NAG	C1-C2	3.31	1.57	1.52
2	b	3	MAN	O5-C5	3.31	1.50	1.43
2	R	3	MAN	O5-C5	3.26	1.50	1.43
4	d	1	NAG	O5-C5	3.24	1.50	1.43
2	b	3	MAN	O5-C1	3.23	1.48	1.43
2	f	2	NAG	O4-C4	3.23	1.50	1.43
2	P	3	MAN	O5-C5	3.21	1.50	1.43
4	d	3	FUC	O5-C5	3.20	1.50	1.43
2	F	2	NAG	O5-C1	3.19	1.48	1.43
2	U	1	NAG	O5-C5	3.15	1.49	1.43
4	T	3	FUC	O5-C5	3.14	1.50	1.43
3	G	2	NAG	O5-C5	3.12	1.49	1.43
2	M	3	MAN	O5-C1	3.11	1.48	1.43
2	D	3	MAN	O5-C5	3.08	1.49	1.43
2	Z	2	NAG	O5-C5	3.07	1.49	1.43
2	D	2	NAG	O5-C5	3.07	1.49	1.43
2	V	3	MAN	O5-C5	3.06	1.49	1.43
2	b	2	NAG	O5-C5	3.06	1.49	1.43
2	f	3	MAN	O5-C1	3.05	1.48	1.43
3	Q	1	NAG	O5-C5	3.02	1.49	1.43
2	F	2	NAG	O5-C5	3.01	1.49	1.43
4	d	2	NAG	O5-C5	2.95	1.49	1.43
4	J	2	NAG	O5-C5	2.93	1.49	1.43
4	J	3	FUC	O5-C1	2.92	1.48	1.43
3	G	1	NAG	O5-C5	2.92	1.49	1.43
2	K	3	MAN	O5-C5	2.87	1.49	1.43
3	E	2	NAG	O4-C4	2.87	1.49	1.43
2	H	3	MAN	O5-C5	2.87	1.49	1.43
3	a	1	NAG	O5-C5	2.84	1.49	1.43
3	a	2	NAG	O5-C1	2.84	1.48	1.43
4	d	1	NAG	O5-C1	2.83	1.48	1.43
2	M	2	NAG	O5-C1	2.82	1.48	1.43
2	b	1	NAG	O5-C5	2.81	1.49	1.43

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	I	3	MAN	O5-C5	2.80	1.49	1.43
4	J	2	NAG	O5-C1	2.80	1.48	1.43
2	W	3	MAN	O5-C1	2.80	1.48	1.43
3	Y	2	NAG	O4-C4	2.79	1.49	1.43
2	c	1	NAG	O5-C5	2.78	1.49	1.43
2	M	3	MAN	O5-C5	2.78	1.49	1.43
2	U	3	MAN	O5-C5	2.78	1.49	1.43
2	D	3	MAN	O5-C1	2.77	1.48	1.43
3	E	1	NAG	O5-C5	2.76	1.49	1.43
3	X	1	NAG	C1-C2	2.74	1.56	1.52
2	Z	2	NAG	O4-C4	2.73	1.49	1.43
3	X	2	NAG	O5-C5	2.73	1.49	1.43
2	H	1	NAG	O4-C4	2.70	1.49	1.43
2	I	2	NAG	O5-C1	2.70	1.48	1.43
2	Z	2	NAG	O5-C1	2.70	1.48	1.43
2	W	1	NAG	C8-C7	2.67	1.56	1.50
3	O	2	NAG	C8-C7	2.65	1.56	1.50
2	M	1	NAG	O5-C1	2.62	1.47	1.43
4	d	3	FUC	O5-C1	2.61	1.47	1.43
2	b	2	NAG	O4-C4	2.61	1.49	1.43
3	O	2	NAG	O4-C4	2.61	1.49	1.43
2	R	2	NAG	O5-C5	2.60	1.48	1.43
2	F	3	MAN	O5-C5	2.60	1.48	1.43
2	W	1	NAG	O5-C1	2.60	1.47	1.43
4	T	1	NAG	O5-C5	2.59	1.48	1.43
2	H	3	MAN	O5-C1	2.58	1.47	1.43
2	c	2	NAG	O5-C1	2.58	1.47	1.43
2	S	1	NAG	O5-C1	2.57	1.47	1.43
3	E	2	NAG	O5-C5	2.56	1.48	1.43
2	F	1	NAG	O5-C5	2.56	1.48	1.43
3	E	1	NAG	O4-C4	2.56	1.49	1.43
3	G	2	NAG	O5-C1	2.55	1.47	1.43
4	J	1	NAG	C8-C7	2.53	1.55	1.50
2	S	3	MAN	O5-C5	2.53	1.48	1.43
2	e	1	NAG	O5-C5	2.51	1.48	1.43
2	I	2	NAG	O5-C5	2.51	1.48	1.43
2	U	2	NAG	C1-C2	2.51	1.56	1.52
3	G	2	NAG	O3-C3	2.50	1.48	1.43
3	O	1	NAG	O4-C4	2.49	1.48	1.43
2	I	2	NAG	O4-C4	2.49	1.48	1.43
3	G	2	NAG	C1-C2	2.48	1.56	1.52
2	W	1	NAG	O5-C5	2.48	1.48	1.43

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	a	2	NAG	O5-C5	2.46	1.48	1.43
3	E	2	NAG	O5-C1	2.45	1.47	1.43
3	Y	1	NAG	O5-C5	2.44	1.48	1.43
2	c	1	NAG	C1-C2	2.43	1.56	1.52
3	X	2	NAG	C1-C2	2.43	1.56	1.52
3	N	1	NAG	O5-C5	2.43	1.48	1.43
3	O	2	NAG	O5-C5	2.42	1.48	1.43
3	O	1	NAG	C1-C2	2.41	1.55	1.52
2	P	2	NAG	O4-C4	2.41	1.48	1.43
3	a	1	NAG	C1-C2	2.40	1.55	1.52
2	I	1	NAG	O5-C1	2.39	1.47	1.43
3	N	1	NAG	C8-C7	2.39	1.55	1.50
2	W	1	NAG	O4-C4	2.39	1.48	1.43
2	L	3	MAN	C2-C3	2.39	1.56	1.52
2	F	2	NAG	O4-C4	2.38	1.48	1.43
3	X	2	NAG	O5-C1	2.38	1.47	1.43
4	T	3	FUC	O5-C1	2.38	1.47	1.43
2	f	3	MAN	O5-C5	2.37	1.48	1.43
2	R	2	NAG	O4-C4	2.37	1.48	1.43
3	E	1	NAG	C1-C2	2.37	1.55	1.52
3	a	1	NAG	O5-C1	2.36	1.47	1.43
2	W	1	NAG	C1-C2	2.36	1.55	1.52
2	W	2	NAG	C8-C7	2.35	1.55	1.50
2	c	3	MAN	O5-C5	2.34	1.48	1.43
2	R	1	NAG	C1-C2	2.33	1.55	1.52
3	Q	1	NAG	C8-C7	2.33	1.55	1.50
3	O	2	NAG	O5-C1	2.33	1.47	1.43
3	N	2	NAG	O5-C1	2.33	1.47	1.43
4	J	1	NAG	O4-C4	2.33	1.48	1.43
4	J	3	FUC	O5-C5	2.32	1.48	1.43
2	H	1	NAG	O5-C5	2.32	1.48	1.43
2	F	3	MAN	C2-C3	2.32	1.55	1.52
2	L	1	NAG	O5-C5	2.31	1.48	1.43
2	D	2	NAG	C8-C7	2.31	1.55	1.50
3	N	2	NAG	C8-C7	2.30	1.55	1.50
2	H	2	NAG	O5-C5	2.29	1.48	1.43
2	e	3	MAN	O5-C1	2.28	1.47	1.43
2	Z	1	NAG	O4-C4	2.28	1.48	1.43
2	F	2	NAG	C1-C2	2.27	1.55	1.52
2	I	1	NAG	O5-C5	2.26	1.48	1.43
2	S	3	MAN	O5-C1	2.26	1.47	1.43
3	N	2	NAG	O5-C5	2.26	1.48	1.43

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	Q	2	NAG	C1-C2	2.25	1.55	1.52
2	L	2	NAG	O5-C1	2.25	1.47	1.43
2	Z	3	MAN	O5-C1	2.25	1.47	1.43
4	d	2	NAG	O5-C1	2.24	1.47	1.43
2	F	3	MAN	C1-C2	2.23	1.57	1.52
2	H	2	NAG	O4-C4	2.23	1.48	1.43
2	U	1	NAG	O4-C4	2.23	1.48	1.43
3	X	2	NAG	O3-C3	2.23	1.48	1.43
2	Z	1	NAG	C1-C2	2.23	1.55	1.52
3	N	1	NAG	C1-C2	2.22	1.55	1.52
2	W	2	NAG	O4-C4	2.21	1.48	1.43
4	J	3	FUC	C1-C2	2.21	1.57	1.52
2	K	2	NAG	O5-C1	2.20	1.47	1.43
2	e	3	MAN	O5-C5	2.20	1.47	1.43
2	W	2	NAG	O5-C5	2.19	1.47	1.43
3	a	2	NAG	C1-C2	2.19	1.55	1.52
2	c	3	MAN	O5-C1	2.18	1.47	1.43
3	N	1	NAG	O4-C4	2.18	1.48	1.43
3	O	1	NAG	O5-C1	2.17	1.47	1.43
3	a	2	NAG	C8-C7	2.17	1.55	1.50
3	Y	2	NAG	O5-C5	2.16	1.47	1.43
2	Z	3	MAN	O4-C4	2.16	1.48	1.43
2	f	1	NAG	O4-C4	2.16	1.48	1.43
2	K	1	NAG	O5-C5	2.15	1.47	1.43
2	R	1	NAG	O5-C5	2.14	1.47	1.43
2	b	1	NAG	O4-C4	2.14	1.48	1.43
2	H	2	NAG	C8-C7	2.13	1.55	1.50
2	V	1	NAG	O5-C5	2.12	1.47	1.43
2	D	2	NAG	O4-C4	2.12	1.48	1.43
4	d	3	FUC	O3-C3	2.12	1.48	1.43
2	e	1	NAG	O4-C4	2.10	1.47	1.43
2	V	2	NAG	O5-C5	2.10	1.47	1.43
2	U	1	NAG	C8-C7	2.10	1.54	1.50
2	Z	1	NAG	O5-C5	2.10	1.47	1.43
2	V	2	NAG	O5-C1	2.09	1.47	1.43
2	W	2	NAG	C1-C2	2.08	1.55	1.52
3	a	2	NAG	O3-C3	2.08	1.47	1.43
2	F	1	NAG	O3-C3	2.07	1.47	1.43
2	f	2	NAG	O5-C5	2.07	1.47	1.43
2	e	3	MAN	C2-C3	2.06	1.55	1.52
4	J	2	NAG	C8-C7	2.06	1.54	1.50
2	V	3	MAN	C1-C2	2.05	1.56	1.52

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	R	3	MAN	O5-C1	2.04	1.47	1.43
2	c	2	NAG	O4-C4	2.03	1.47	1.43
2	c	2	NAG	O5-C5	2.03	1.47	1.43
2	D	3	MAN	O2-C2	2.03	1.47	1.43
2	U	2	NAG	O5-C5	2.03	1.47	1.43
2	L	3	MAN	O5-C1	2.03	1.47	1.43
2	b	1	NAG	C1-C2	2.02	1.55	1.52
2	F	3	MAN	O5-C1	2.00	1.46	1.43

All (72) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	Q	2	NAG	C1-O5-C5	4.18	117.86	112.19
2	H	3	MAN	C1-O5-C5	4.01	117.63	112.19
2	P	3	MAN	C1-O5-C5	3.89	117.46	112.19
4	J	1	NAG	C1-O5-C5	3.79	117.33	112.19
2	S	2	NAG	C1-O5-C5	3.62	117.09	112.19
2	L	3	MAN	C1-O5-C5	3.55	117.00	112.19
4	d	1	NAG	O5-C5-C6	3.23	112.27	107.20
2	R	3	MAN	C1-O5-C5	3.21	116.53	112.19
2	b	3	MAN	C1-O5-C5	3.18	116.51	112.19
3	a	1	NAG	C1-O5-C5	3.17	116.48	112.19
2	R	2	NAG	C3-C4-C5	3.16	115.87	110.24
4	J	1	NAG	O5-C5-C6	3.10	112.06	107.20
2	M	2	NAG	C1-O5-C5	3.09	116.38	112.19
2	K	3	MAN	C1-C2-C3	3.07	113.44	109.67
2	F	3	MAN	O5-C5-C6	3.04	111.96	107.20
2	P	3	MAN	O5-C5-C6	3.01	111.92	107.20
2	P	2	NAG	C1-O5-C5	3.00	116.25	112.19
2	L	2	NAG	C1-O5-C5	2.99	116.24	112.19
2	W	1	NAG	C1-O5-C5	2.98	116.23	112.19
2	e	3	MAN	O5-C5-C6	2.98	111.87	107.20
2	f	3	MAN	O5-C5-C6	2.89	111.73	107.20
2	c	2	NAG	C1-O5-C5	2.86	116.07	112.19
2	Z	2	NAG	O5-C5-C6	2.84	111.66	107.20
2	b	3	MAN	O5-C5-C6	2.78	111.56	107.20
2	I	2	NAG	C1-O5-C5	2.76	115.93	112.19
3	G	2	NAG	C1-O5-C5	2.70	115.85	112.19
3	E	2	NAG	C1-O5-C5	2.65	115.78	112.19
4	J	2	NAG	C1-O5-C5	2.63	115.76	112.19
2	F	2	NAG	C4-C3-C2	-2.60	107.21	111.02
2	M	1	NAG	C1-O5-C5	2.60	115.71	112.19

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	H	2	NAG	O5-C1-C2	-2.51	107.33	111.29
2	M	3	MAN	C1-O5-C5	2.48	115.55	112.19
4	J	3	FUC	C1-C2-C3	2.47	112.70	109.67
2	R	1	NAG	C1-O5-C5	2.46	115.52	112.19
2	e	2	NAG	C1-O5-C5	2.45	115.51	112.19
2	V	3	MAN	O5-C5-C6	2.45	111.04	107.20
3	E	2	NAG	O5-C5-C6	2.42	111.00	107.20
3	a	2	NAG	C1-O5-C5	2.41	115.46	112.19
3	Y	1	NAG	C1-O5-C5	2.38	115.42	112.19
2	D	2	NAG	C1-O5-C5	2.38	115.41	112.19
3	N	1	NAG	C1-O5-C5	2.35	115.37	112.19
2	V	3	MAN	C1-O5-C5	2.33	115.35	112.19
2	b	1	NAG	O3-C3-C2	2.33	114.29	109.47
2	Z	1	NAG	O5-C5-C6	2.33	110.86	107.20
2	f	3	MAN	C1-O5-C5	2.31	115.32	112.19
2	M	1	NAG	O5-C1-C2	-2.30	107.65	111.29
2	K	3	MAN	C1-O5-C5	2.29	115.30	112.19
2	L	3	MAN	O5-C5-C6	2.29	110.80	107.20
2	I	3	MAN	C1-C2-C3	2.29	112.47	109.67
2	W	3	MAN	C1-C2-C3	2.27	112.45	109.67
2	R	2	NAG	O5-C5-C6	2.26	110.75	107.20
3	O	1	NAG	C1-O5-C5	2.25	115.23	112.19
2	W	2	NAG	O5-C1-C2	-2.24	107.75	111.29
2	c	2	NAG	C4-C3-C2	-2.24	107.73	111.02
2	b	2	NAG	O5-C1-C2	-2.24	107.75	111.29
2	R	3	MAN	O5-C5-C6	2.18	110.62	107.20
3	O	2	NAG	C1-O5-C5	2.17	115.13	112.19
3	a	2	NAG	O5-C1-C2	-2.17	107.87	111.29
2	K	3	MAN	O5-C5-C6	2.16	110.59	107.20
2	f	1	NAG	C1-O5-C5	2.16	115.11	112.19
3	Y	2	NAG	C1-O5-C5	2.15	115.11	112.19
2	K	1	NAG	O4-C4-C3	-2.14	105.40	110.35
4	J	3	FUC	O5-C5-C4	2.12	113.32	109.52
2	b	1	NAG	O5-C5-C6	2.11	110.52	107.20
2	c	3	MAN	C2-C3-C4	2.09	114.51	110.89
2	Z	3	MAN	O5-C5-C6	2.06	110.44	107.20
2	Z	1	NAG	C2-N2-C7	-2.05	119.98	122.90
3	Q	2	NAG	O5-C1-C2	-2.04	108.07	111.29
2	P	2	NAG	O5-C5-C6	2.02	110.37	107.20
2	e	3	MAN	C1-C2-C3	2.01	112.14	109.67
2	U	1	NAG	O4-C4-C3	-2.01	105.70	110.35
2	K	2	NAG	C4-C3-C2	-2.00	108.08	111.02

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	J	1	NAG	O5-C5-C6-O6
4	J	1	NAG	C4-C5-C6-O6
2	P	1	NAG	O5-C5-C6-O6
2	P	1	NAG	C4-C5-C6-O6
4	d	1	NAG	O5-C5-C6-O6
2	D	1	NAG	O5-C5-C6-O6
2	W	3	MAN	O5-C5-C6-O6
2	I	3	MAN	O5-C5-C6-O6
4	T	1	NAG	O5-C5-C6-O6
2	c	3	MAN	O5-C5-C6-O6
2	D	3	MAN	O5-C5-C6-O6
2	K	3	MAN	O5-C5-C6-O6
2	U	3	MAN	O5-C5-C6-O6
2	e	3	MAN	O5-C5-C6-O6
2	S	3	MAN	O5-C5-C6-O6
2	M	3	MAN	O5-C5-C6-O6
4	d	1	NAG	C4-C5-C6-O6
2	D	1	NAG	C4-C5-C6-O6

All (13) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	V	3	MAN	C1-C2-C3-C4-C5-O5
2	W	3	MAN	C1-C2-C3-C4-C5-O5
2	b	3	MAN	C1-C2-C3-C4-C5-O5
2	F	3	MAN	C1-C2-C3-C4-C5-O5
2	Z	3	MAN	C1-C2-C3-C4-C5-O5
2	H	3	MAN	C1-C2-C3-C4-C5-O5
2	D	3	MAN	C1-C2-C3-C4-C5-O5
2	S	3	MAN	C1-C2-C3-C4-C5-O5
2	f	3	MAN	C1-C2-C3-C4-C5-O5
2	L	3	MAN	C1-C2-C3-C4-C5-O5
2	R	3	MAN	C1-C2-C3-C4-C5-O5
2	M	3	MAN	C1-C2-C3-C4-C5-O5
2	P	3	MAN	C1-C2-C3-C4-C5-O5

3 monomers are involved in 17 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	P	1	NAG	2	0

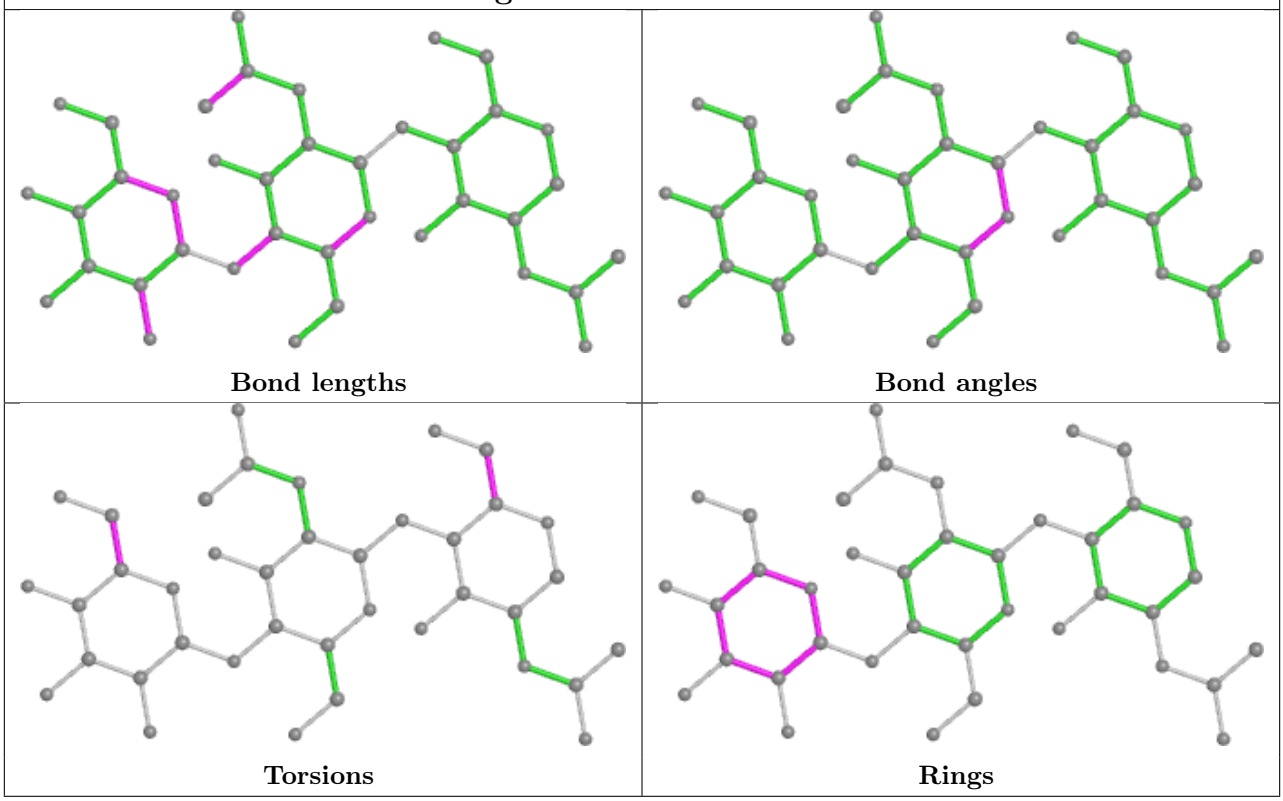
Continued on next page...

Continued from previous page...

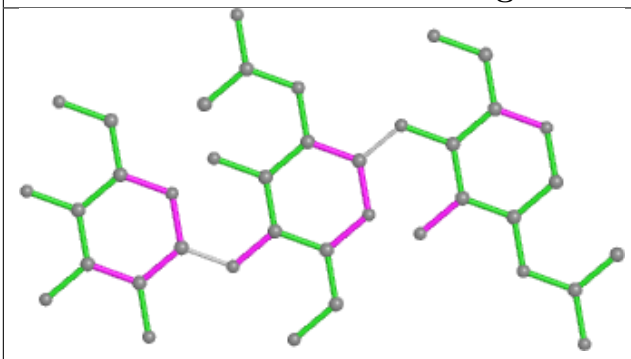
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	2	NAG	9	0
2	D	1	NAG	7	0

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

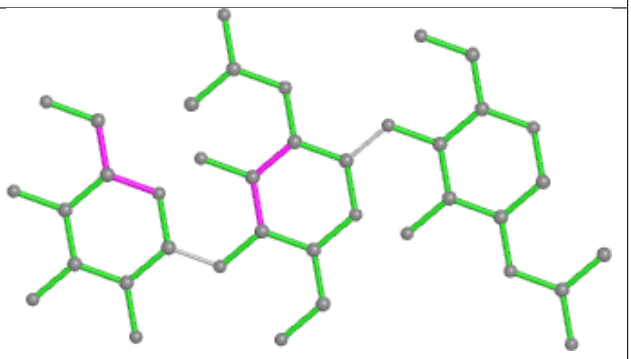
Oligosaccharide Chain D



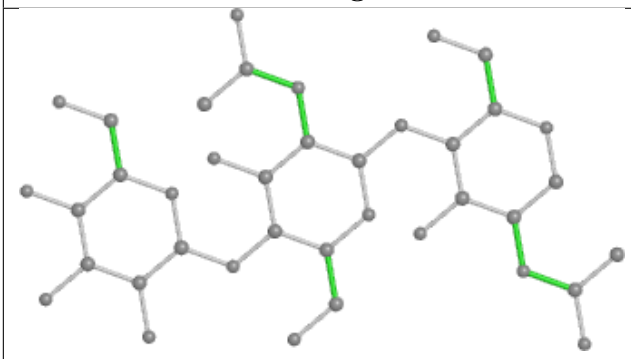
Oligosaccharide Chain F



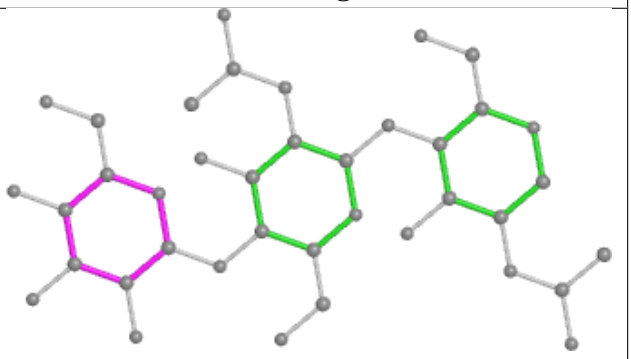
Bond lengths



Bond angles

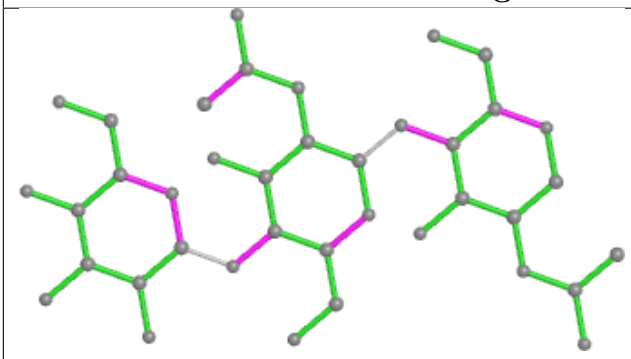


Torsions

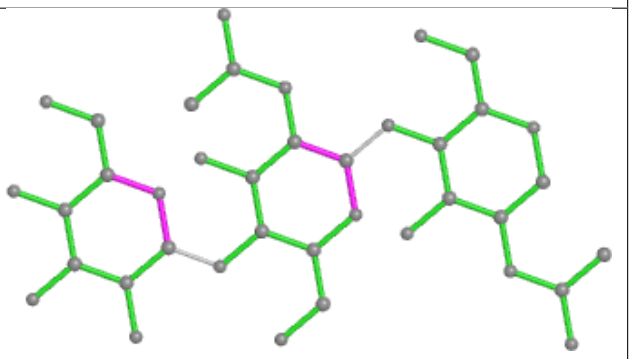


Rings

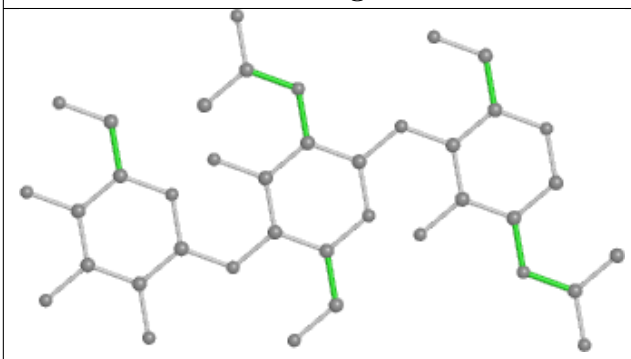
Oligosaccharide Chain H



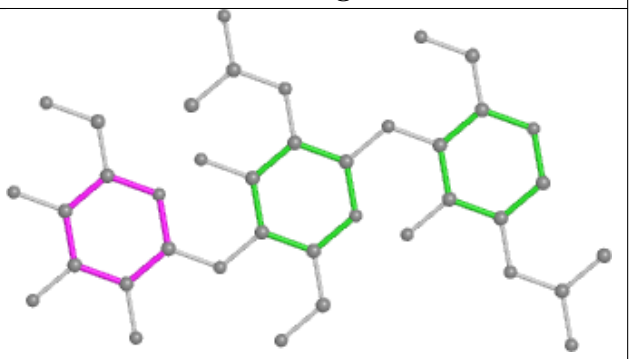
Bond lengths



Bond angles

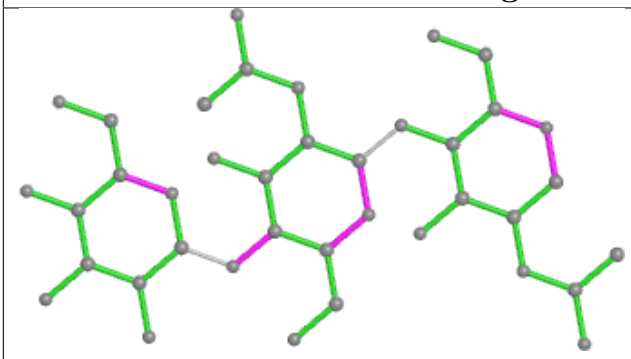


Torsions

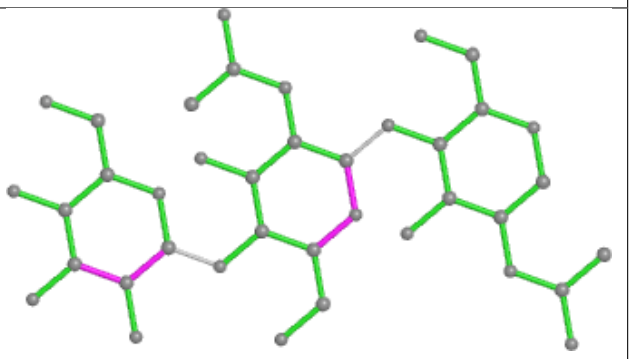


Rings

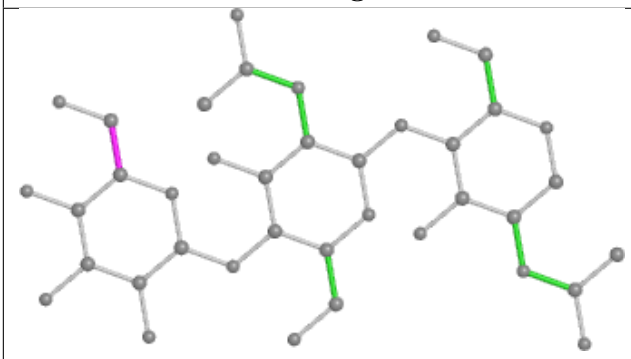
Oligosaccharide Chain I



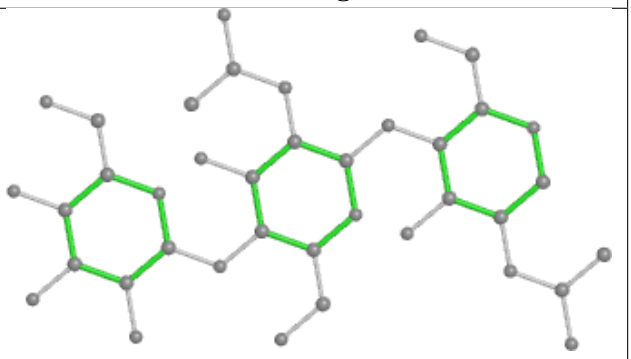
Bond lengths



Bond angles

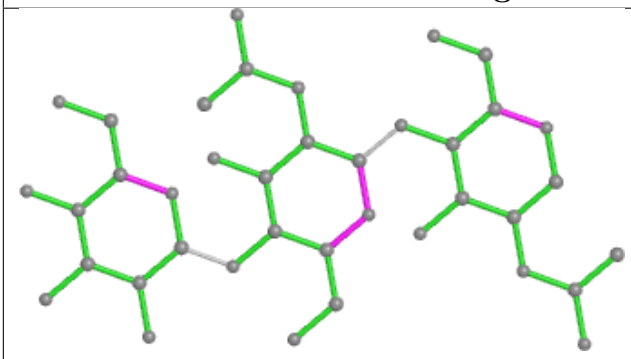


Torsions

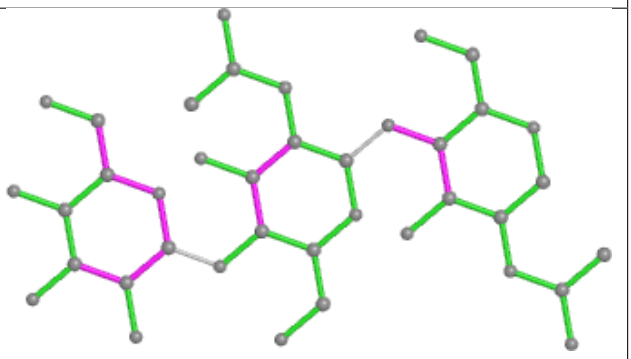


Rings

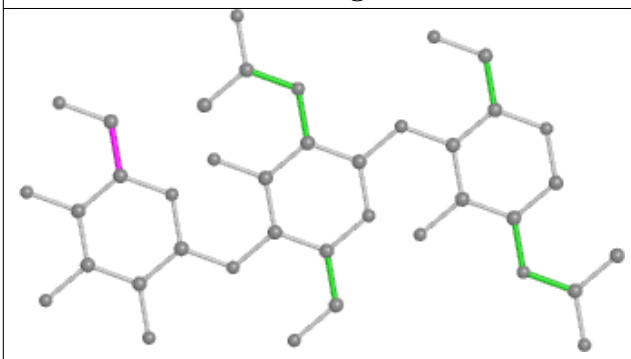
Oligosaccharide Chain K



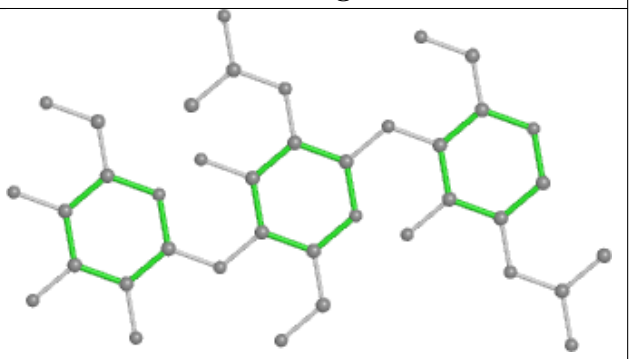
Bond lengths



Bond angles

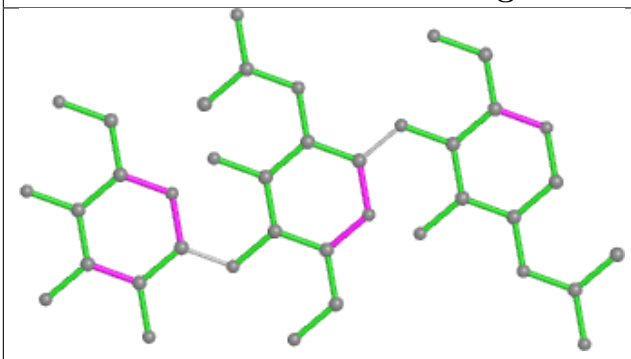


Torsions

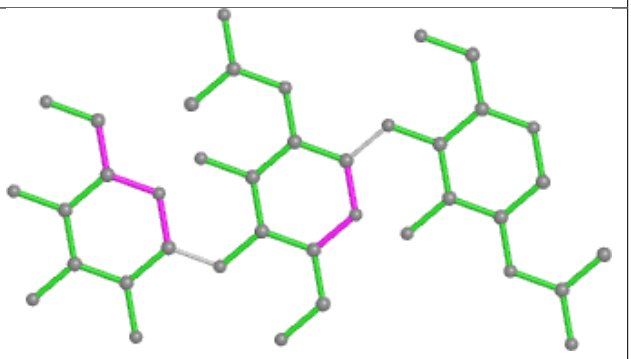


Rings

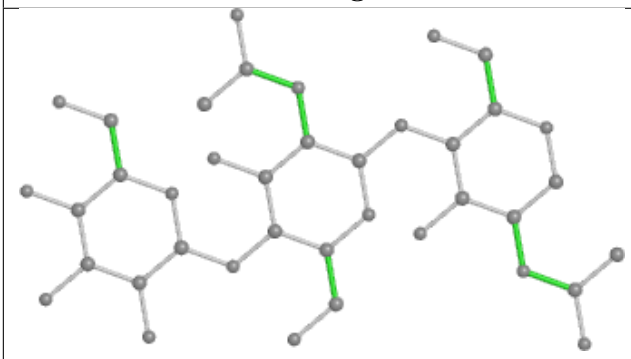
Oligosaccharide Chain L



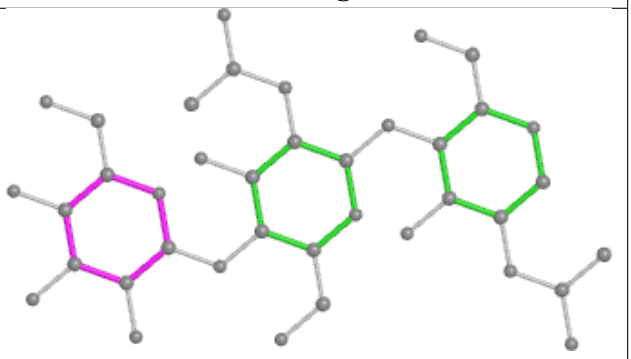
Bond lengths



Bond angles

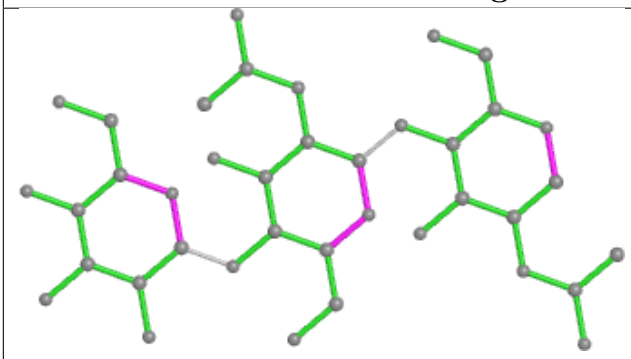


Torsions

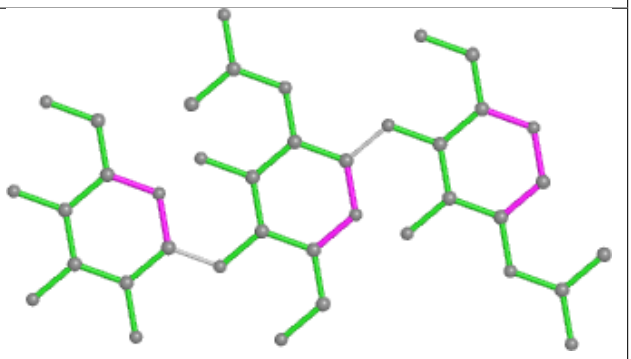


Rings

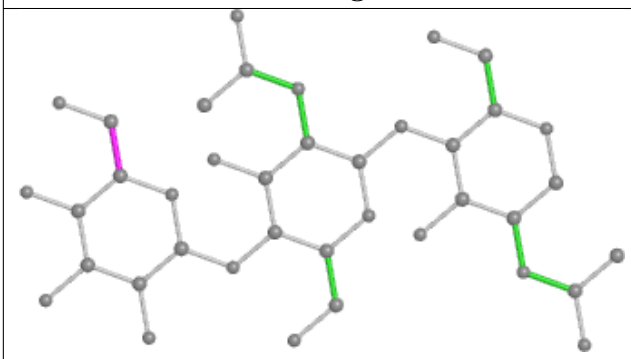
Oligosaccharide Chain M



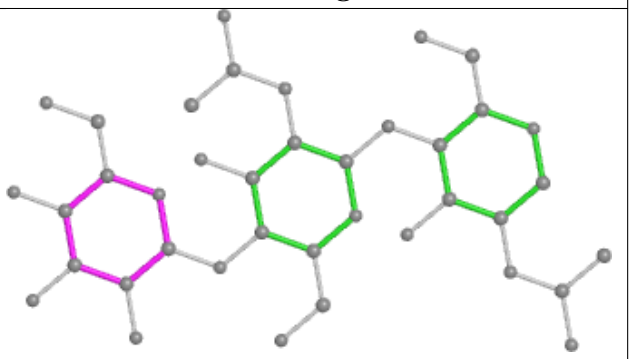
Bond lengths



Bond angles

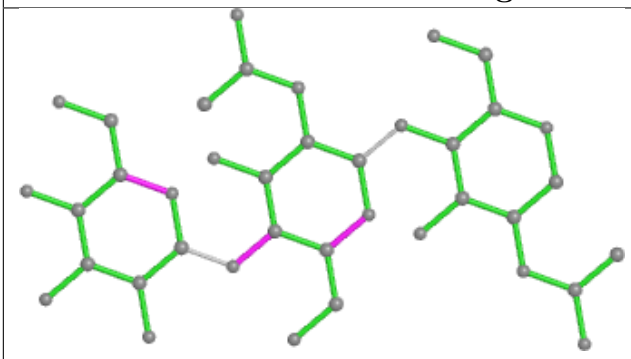


Torsions

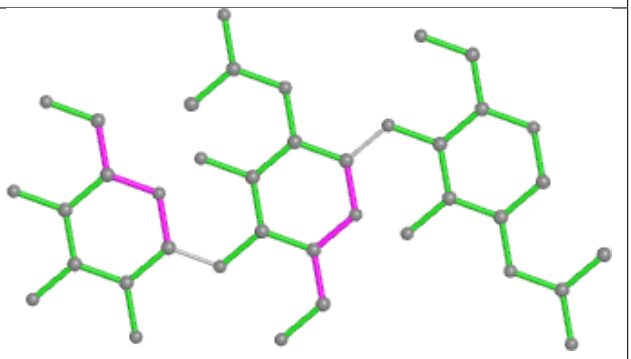


Rings

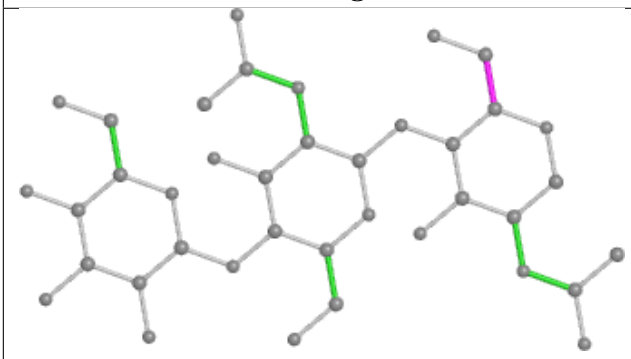
Oligosaccharide Chain P



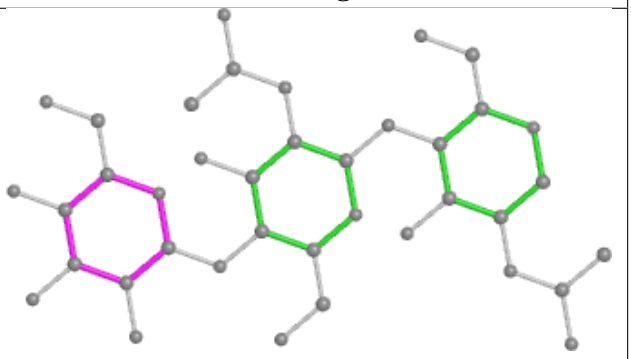
Bond lengths



Bond angles

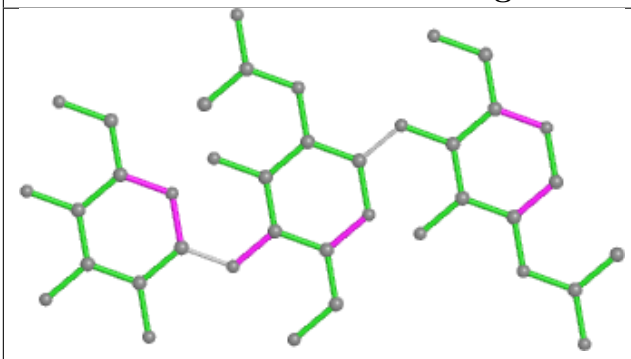


Torsions

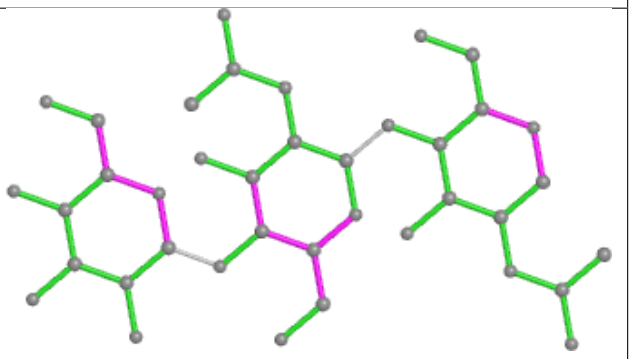


Rings

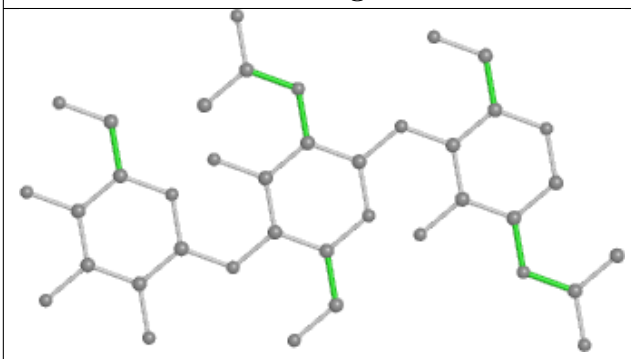
Oligosaccharide Chain R



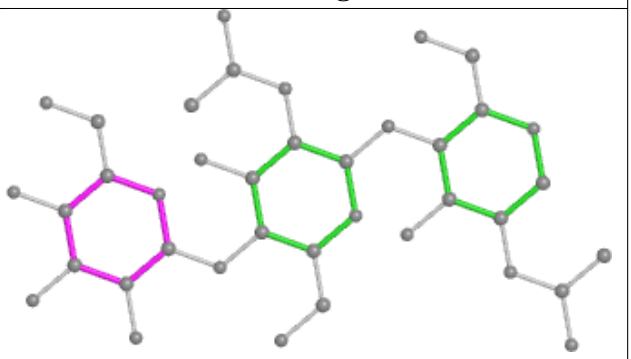
Bond lengths



Bond angles

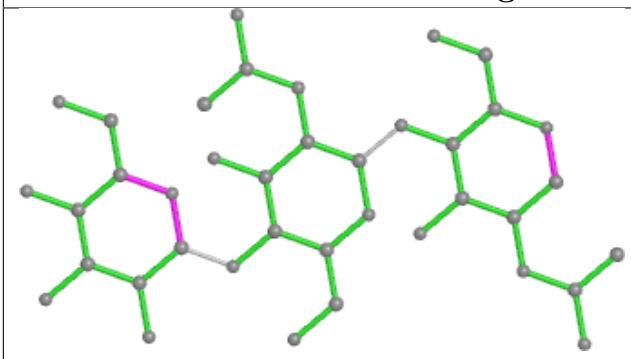


Torsions

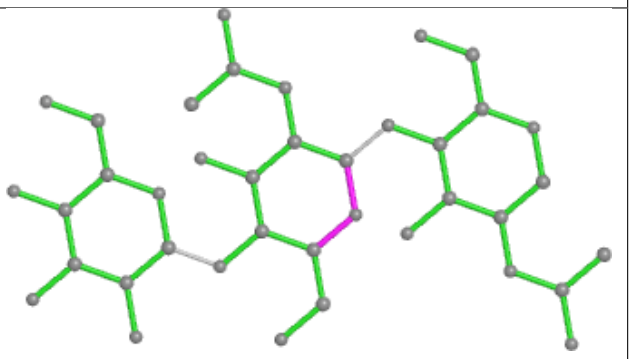


Rings

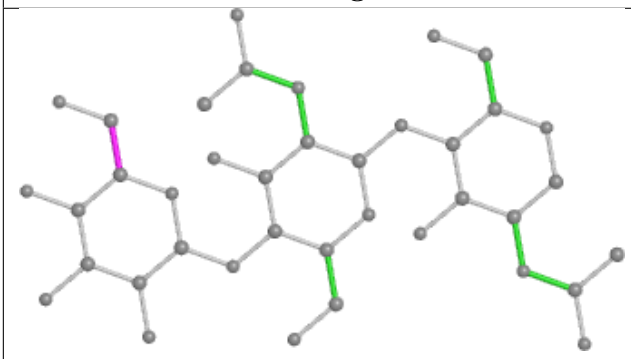
Oligosaccharide Chain S



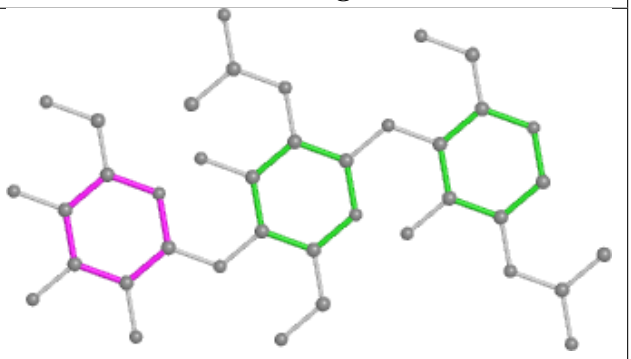
Bond lengths



Bond angles

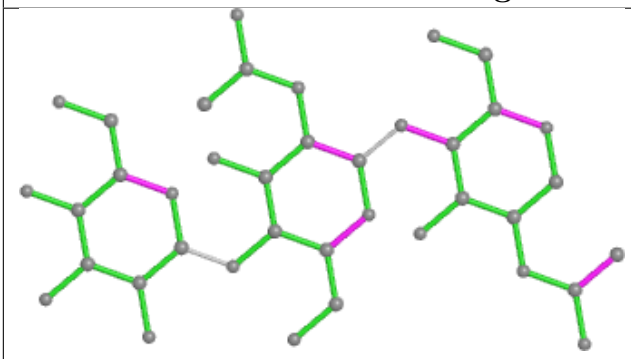


Torsions

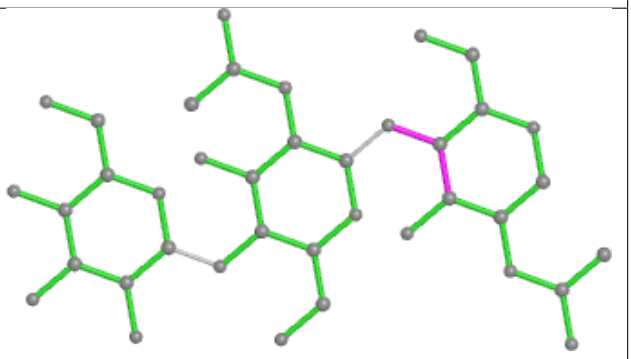


Rings

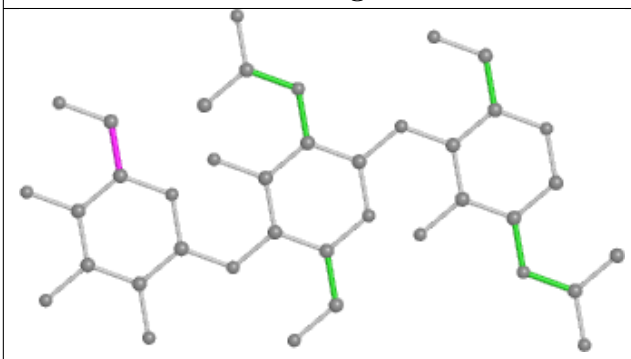
Oligosaccharide Chain U



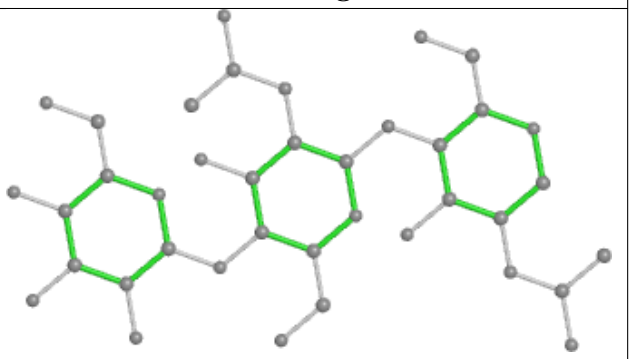
Bond lengths



Bond angles

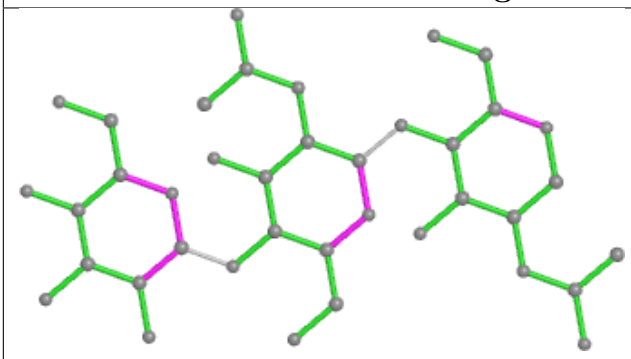


Torsions

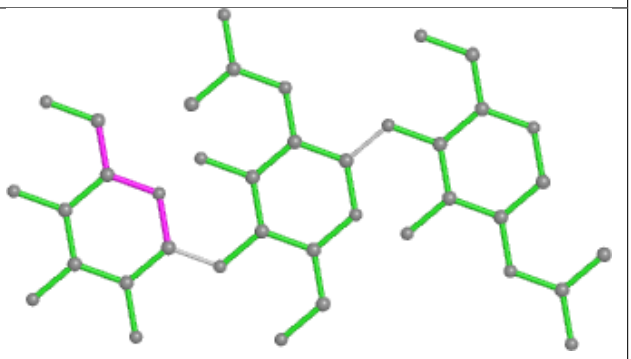


Rings

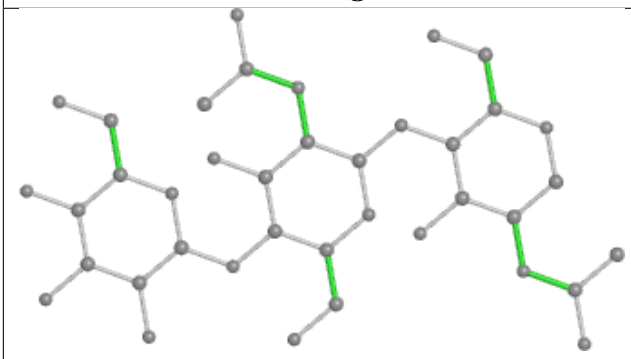
Oligosaccharide Chain V



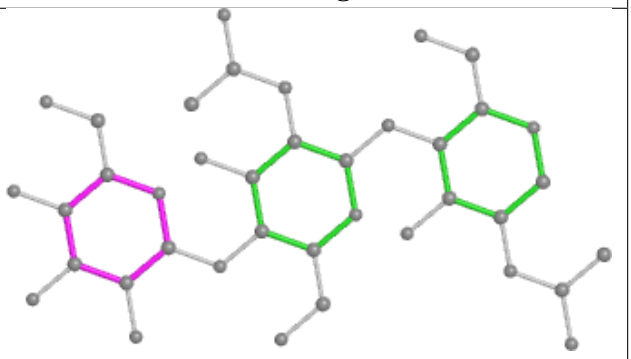
Bond lengths



Bond angles

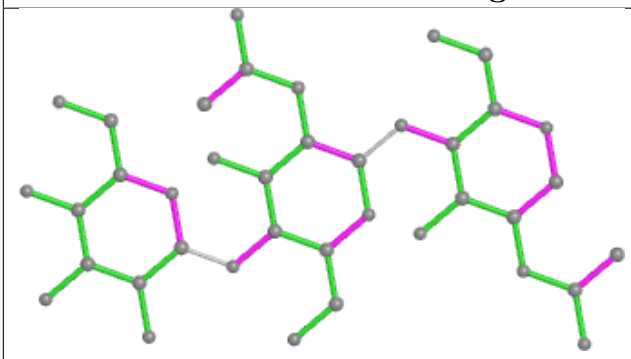


Torsions

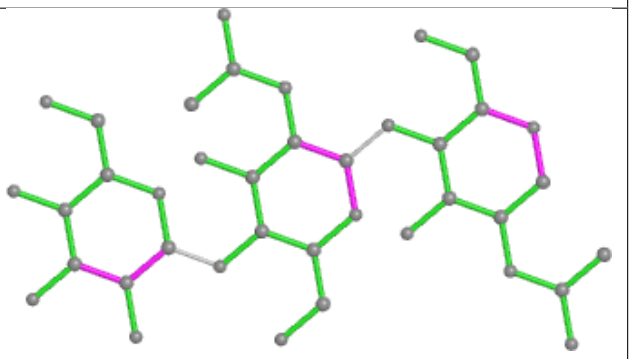


Rings

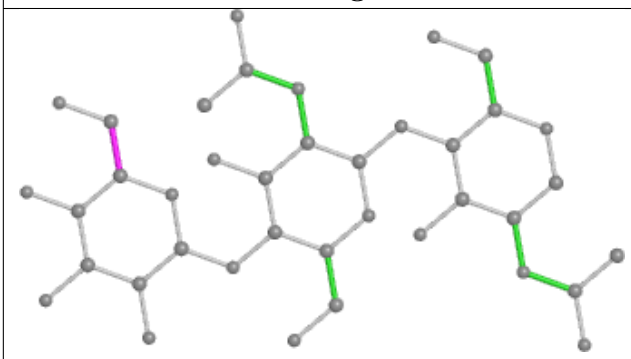
Oligosaccharide Chain W



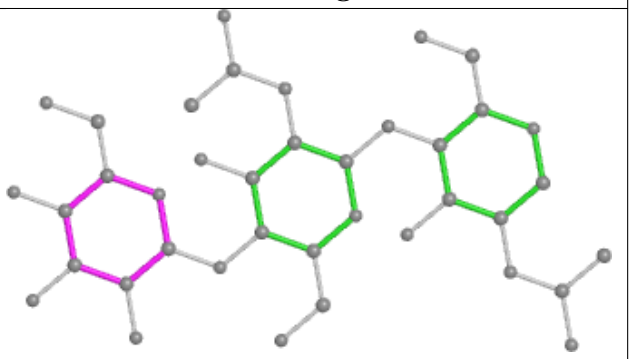
Bond lengths



Bond angles

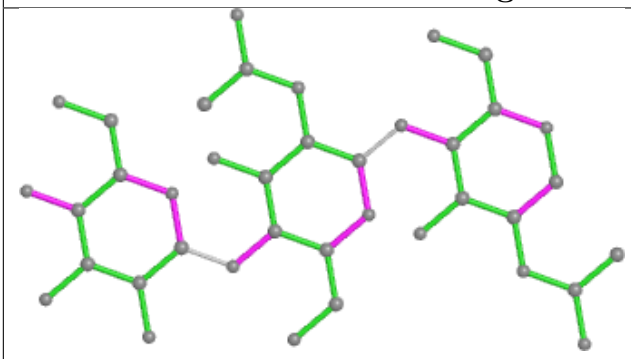


Torsions

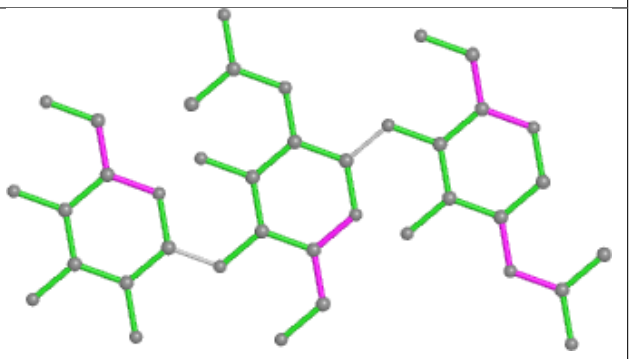


Rings

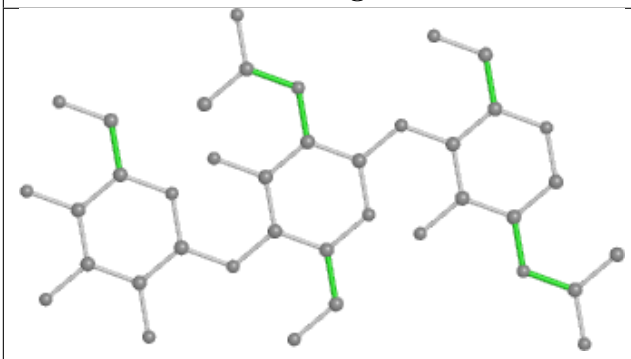
Oligosaccharide Chain Z



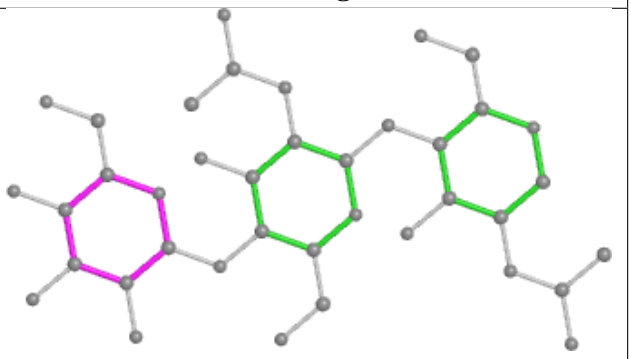
Bond lengths



Bond angles

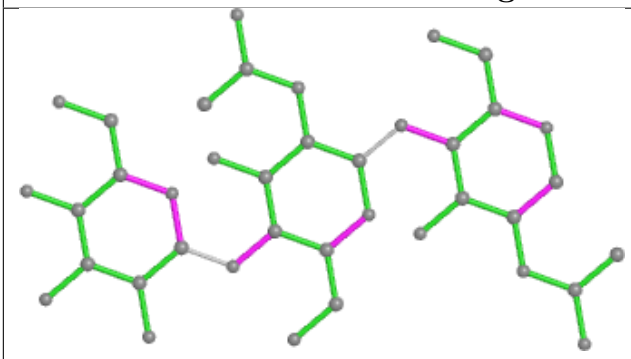


Torsions

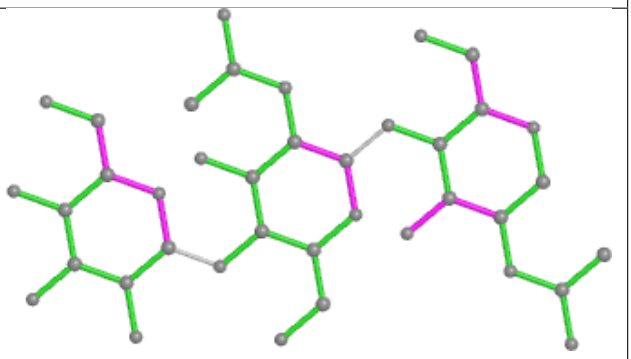


Rings

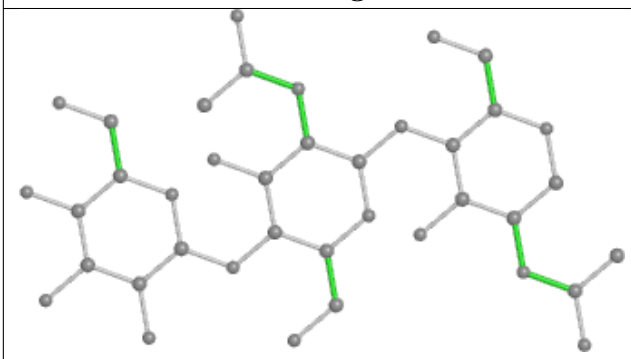
Oligosaccharide Chain b



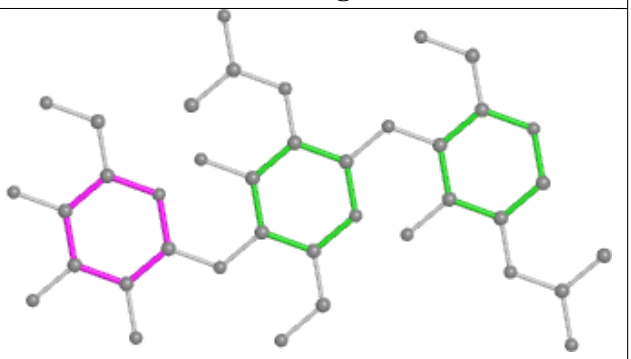
Bond lengths



Bond angles

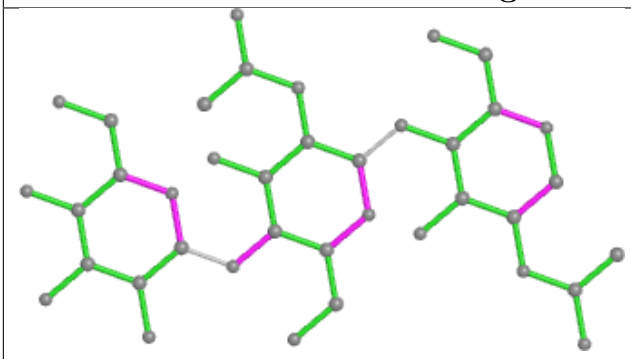


Torsions

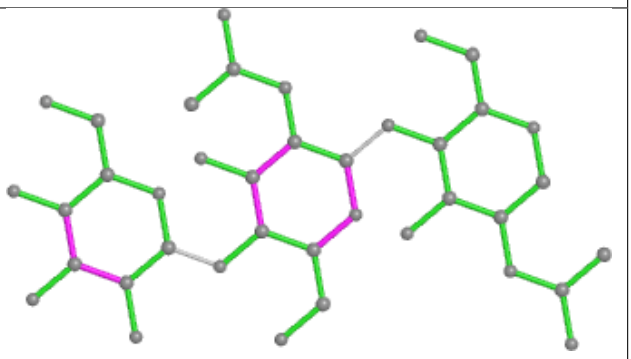


Rings

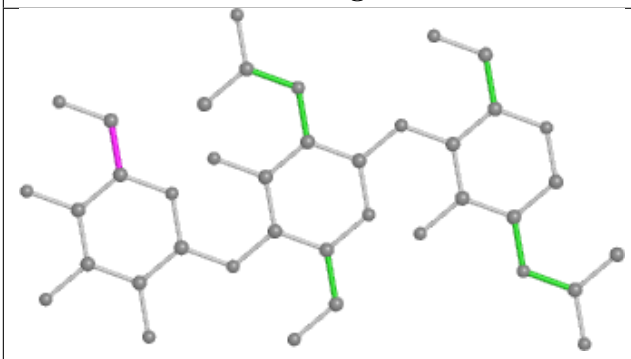
Oligosaccharide Chain c



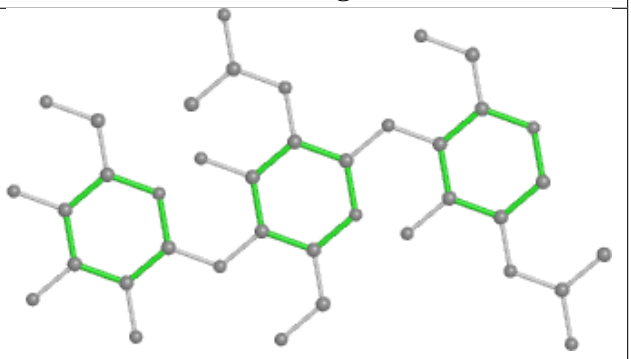
Bond lengths



Bond angles

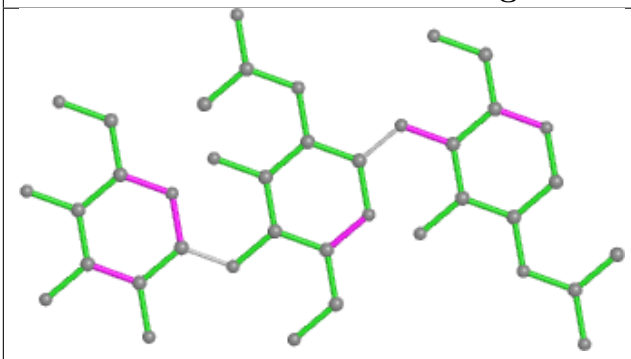


Torsions

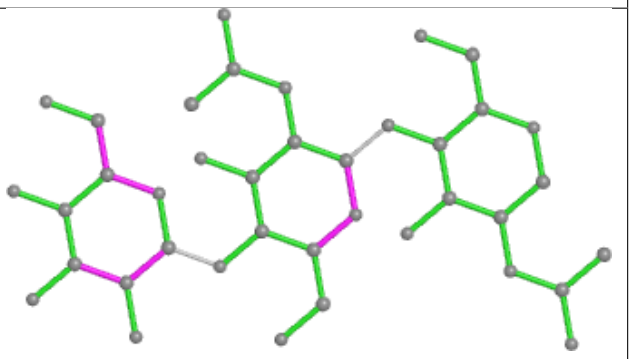


Rings

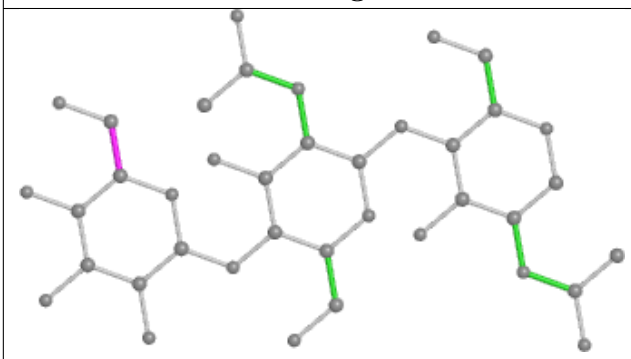
Oligosaccharide Chain e



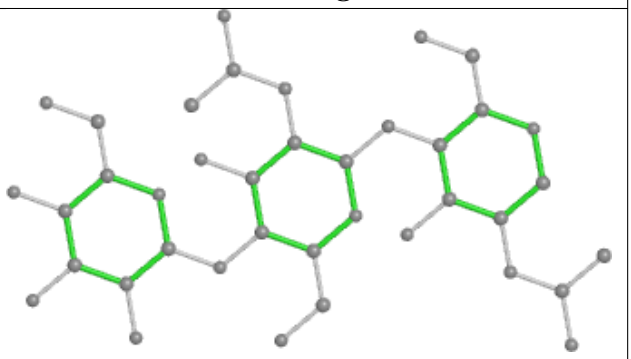
Bond lengths



Bond angles

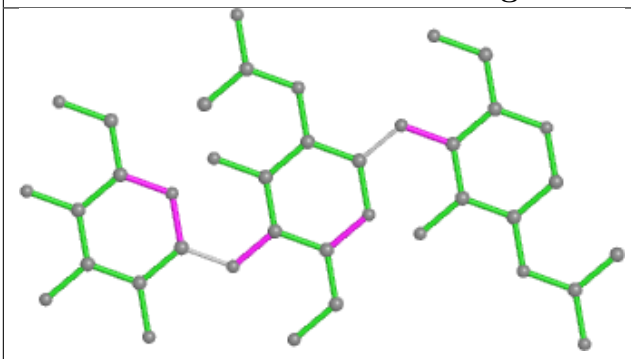


Torsions

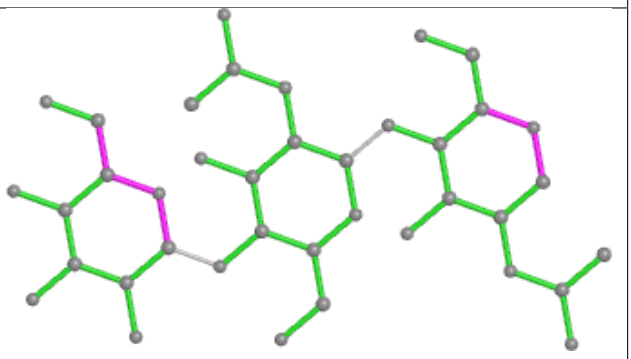


Rings

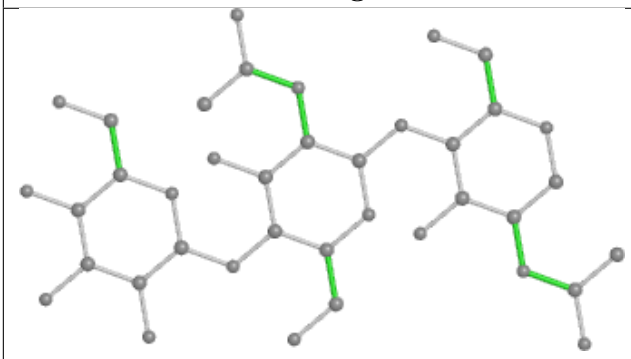
Oligosaccharide Chain f



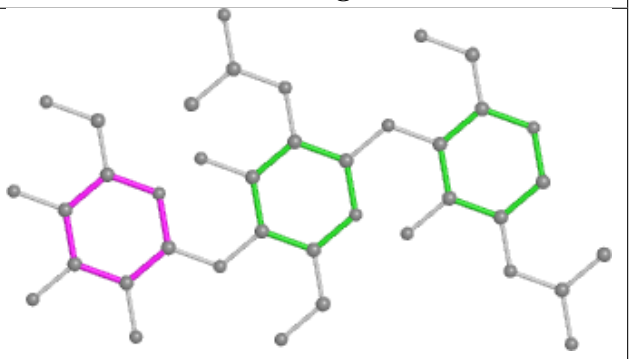
Bond lengths



Bond angles

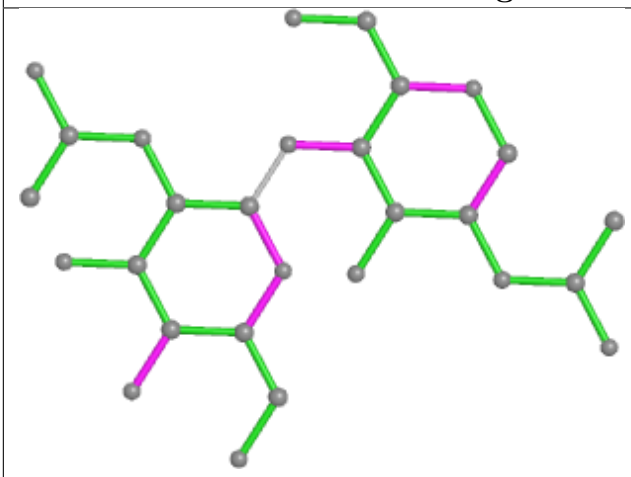


Torsions

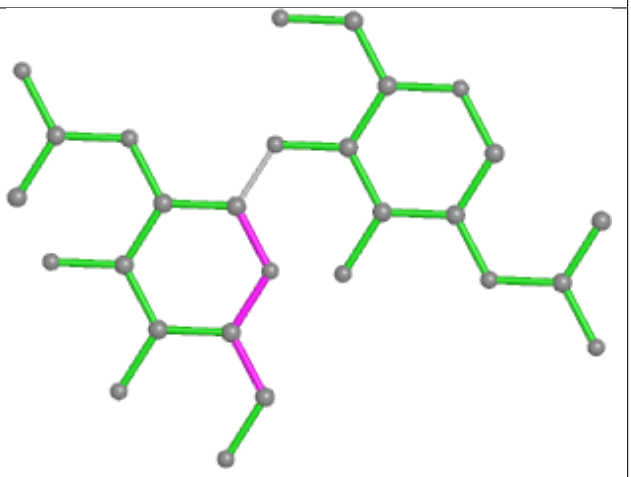


Rings

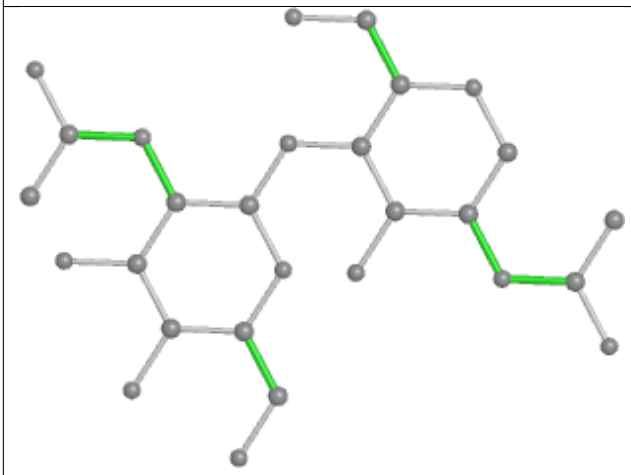
Oligosaccharide Chain E



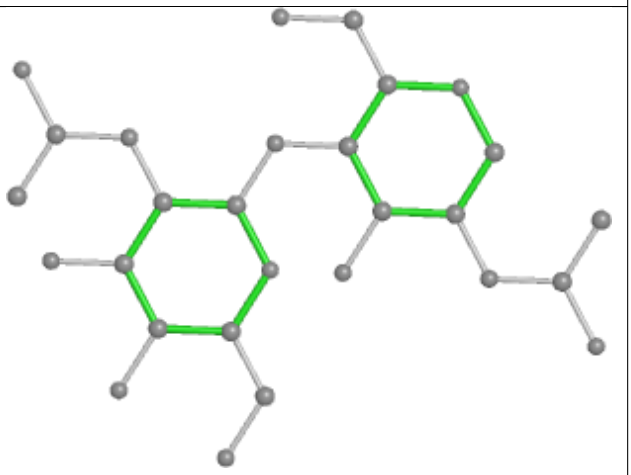
Bond lengths



Bond angles

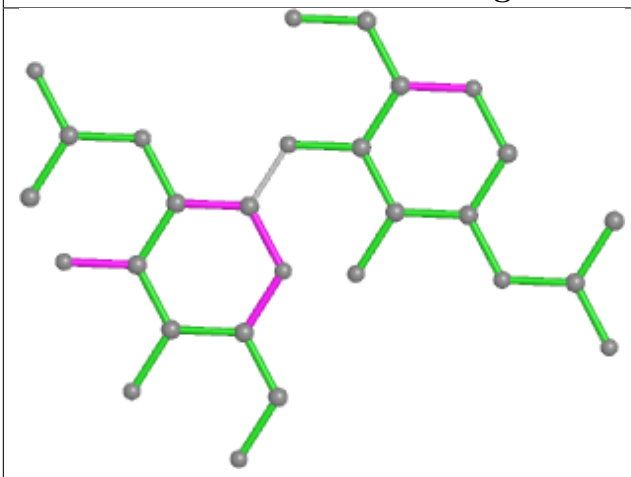


Torsions

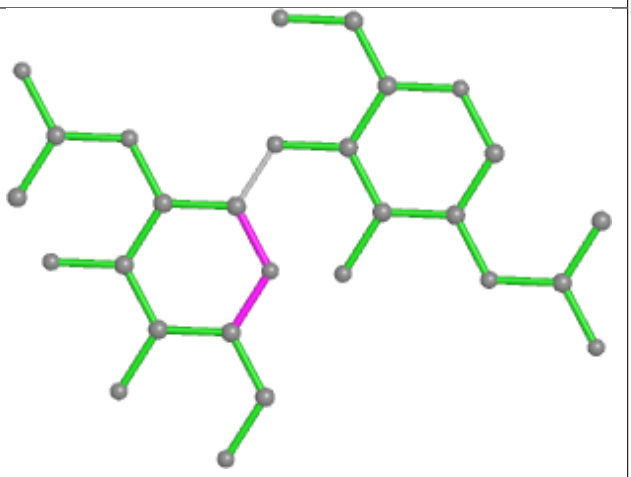


Rings

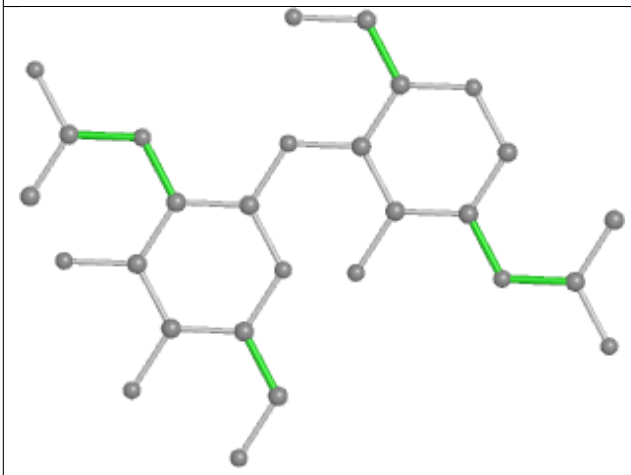
Oligosaccharide Chain G



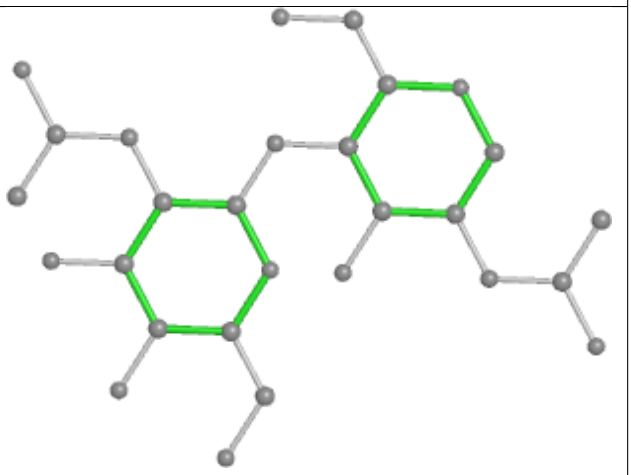
Bond lengths



Bond angles

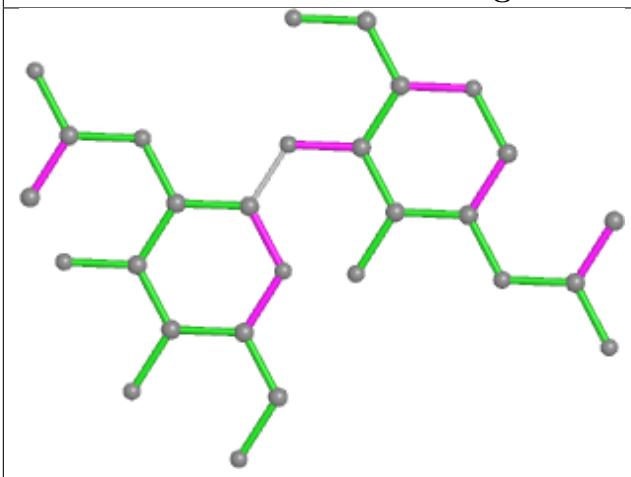


Torsions

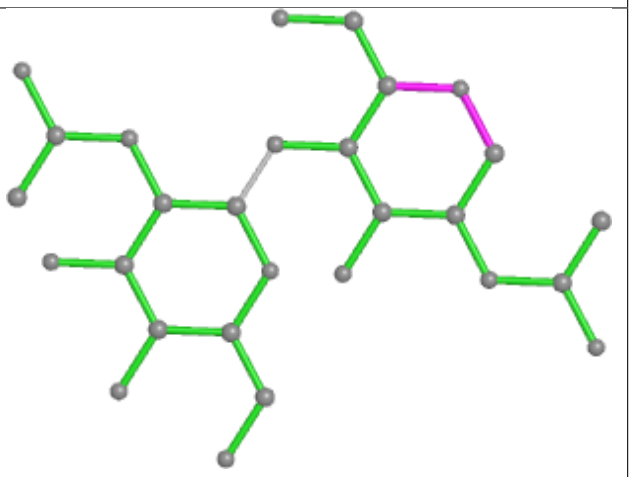


Rings

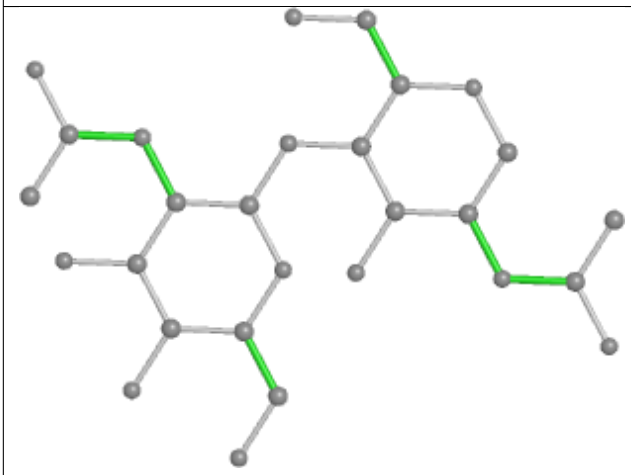
Oligosaccharide Chain N



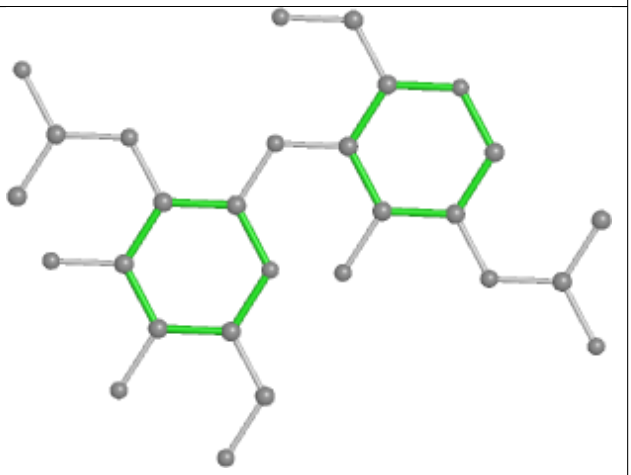
Bond lengths



Bond angles

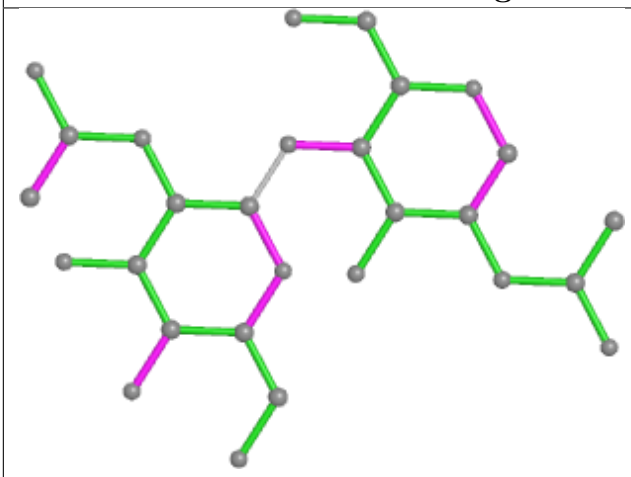


Torsions

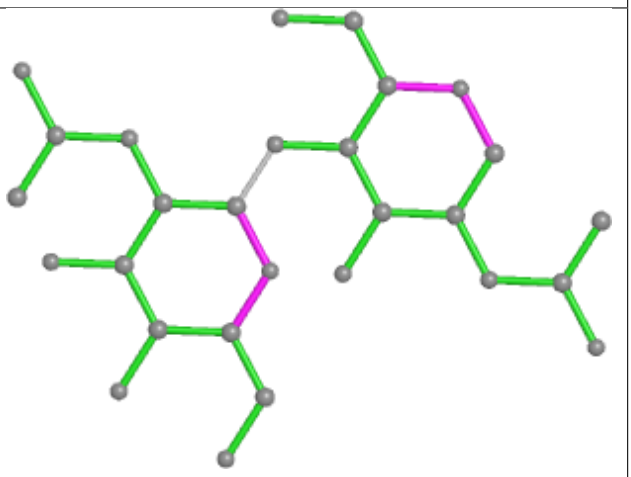


Rings

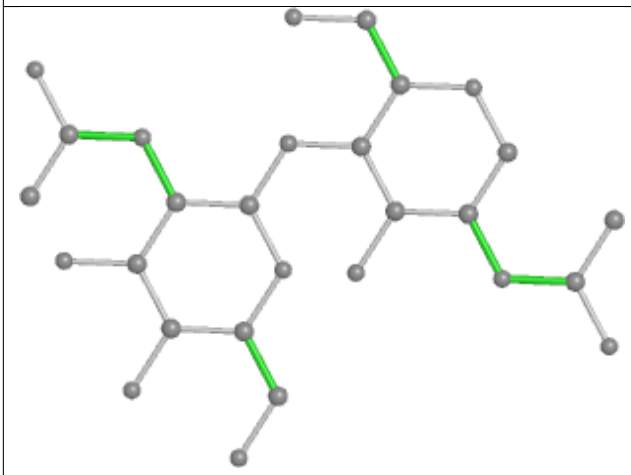
Oligosaccharide Chain O



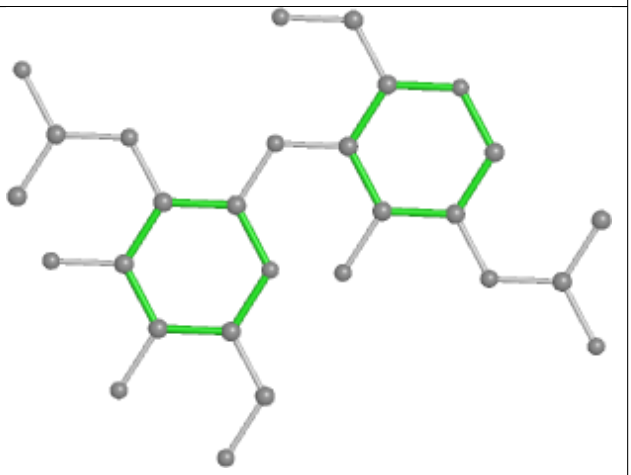
Bond lengths



Bond angles

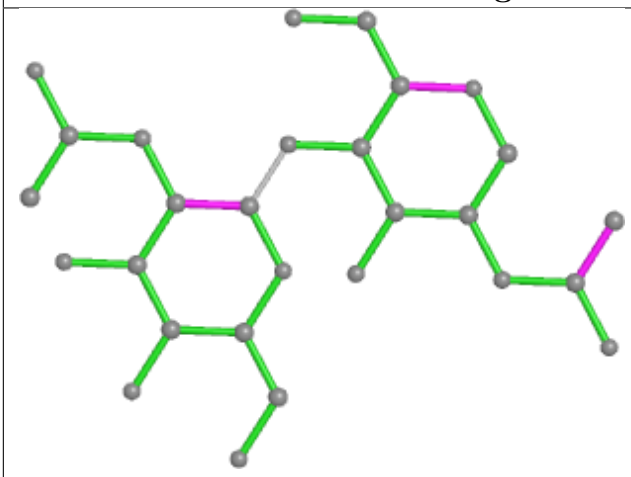


Torsions

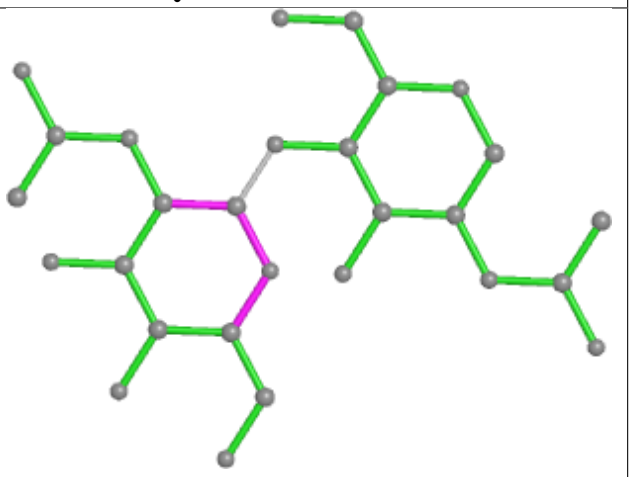


Rings

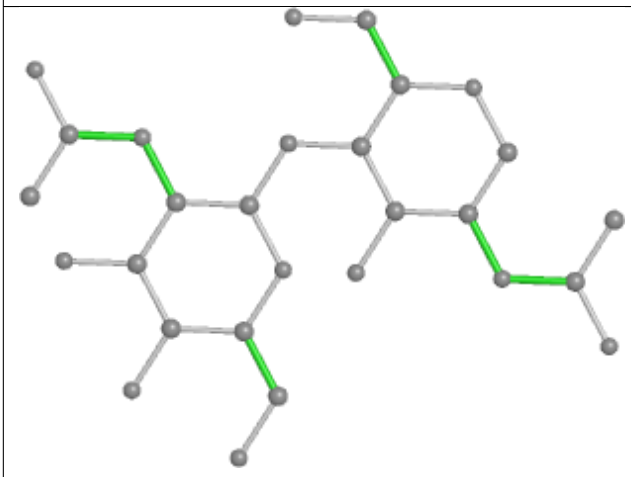
Oligosaccharide Chain Q



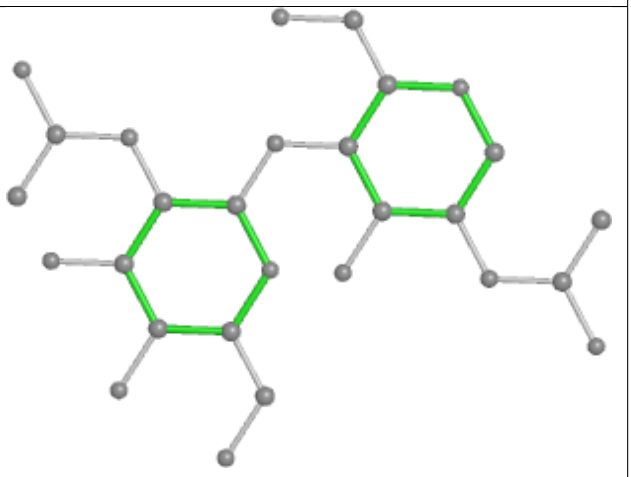
Bond lengths



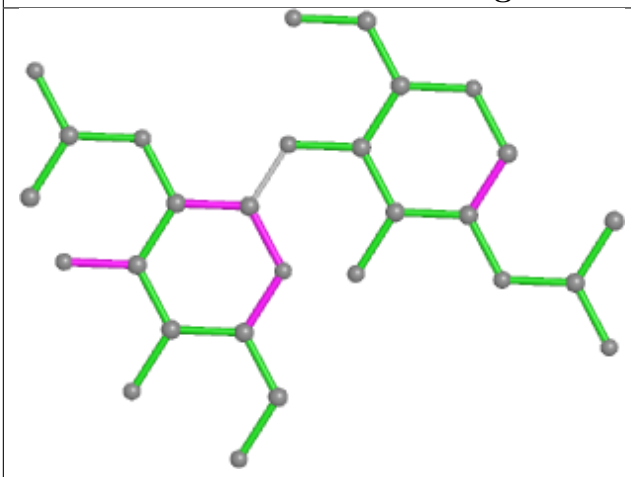
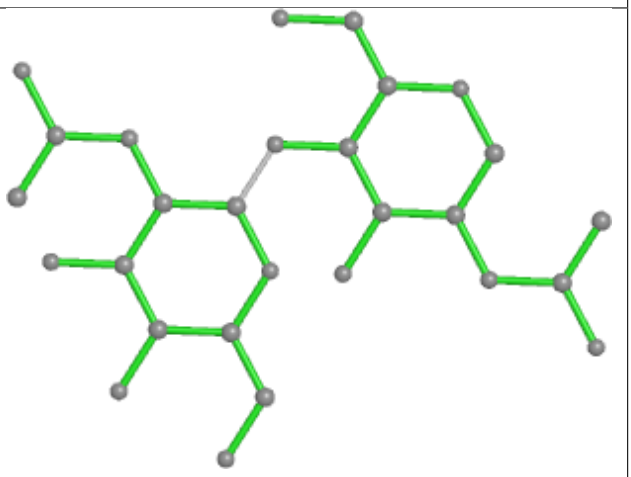
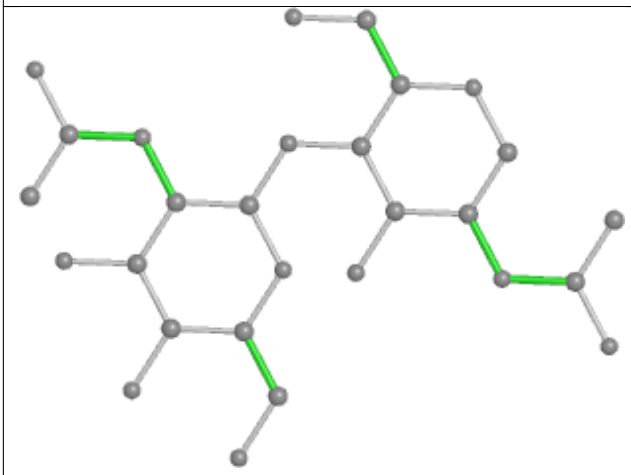
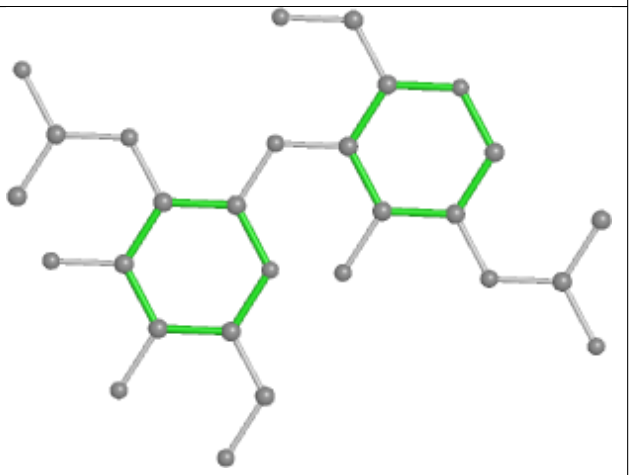
Bond angles



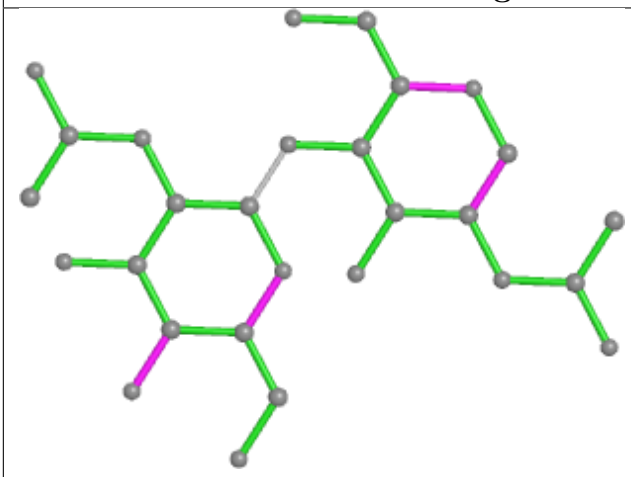
Torsions



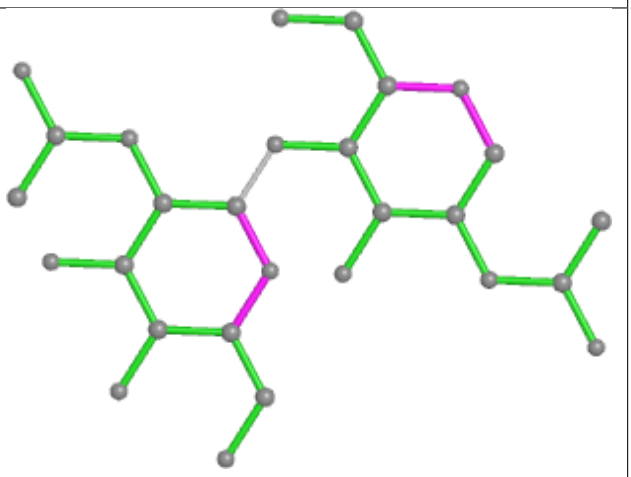
Rings

Oligosaccharide Chain X	
 Bond lengths	 Bond angles
 Torsions	 Rings

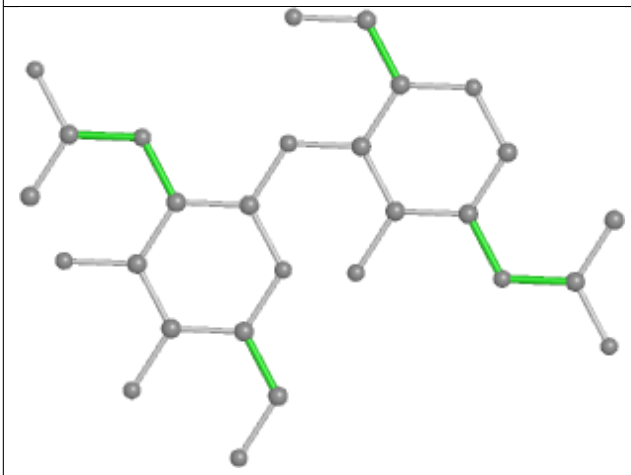
Oligosaccharide Chain Y



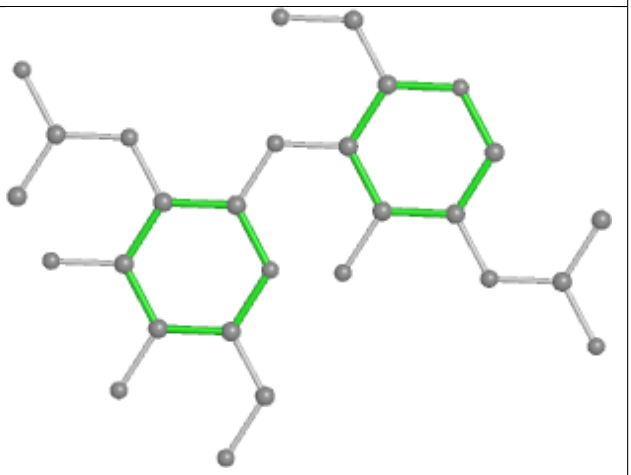
Bond lengths



Bond angles

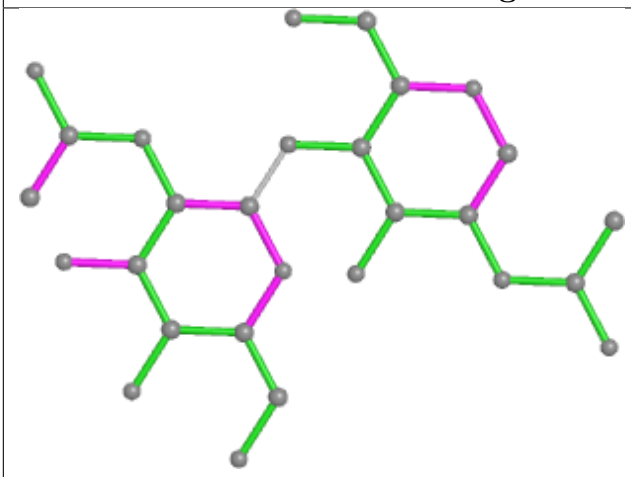


Torsions

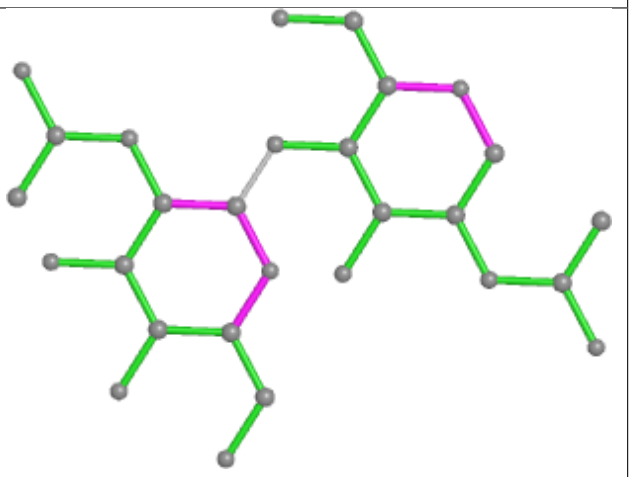


Rings

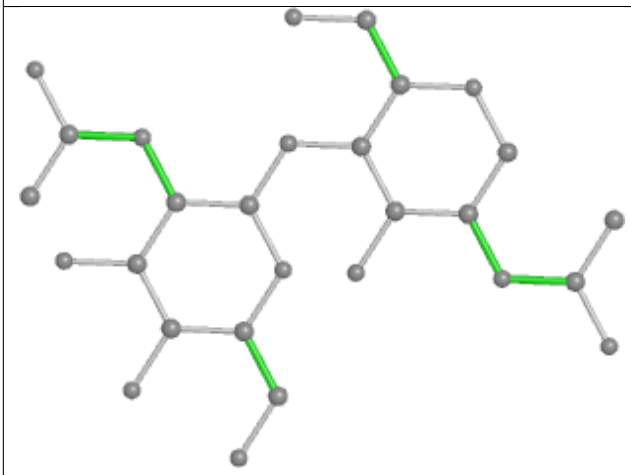
Oligosaccharide Chain a



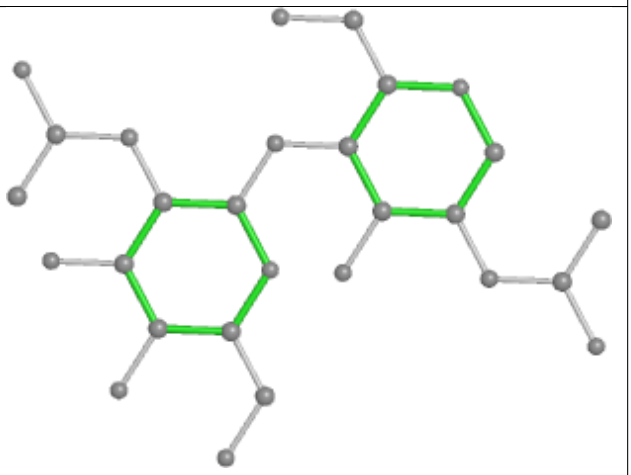
Bond lengths



Bond angles

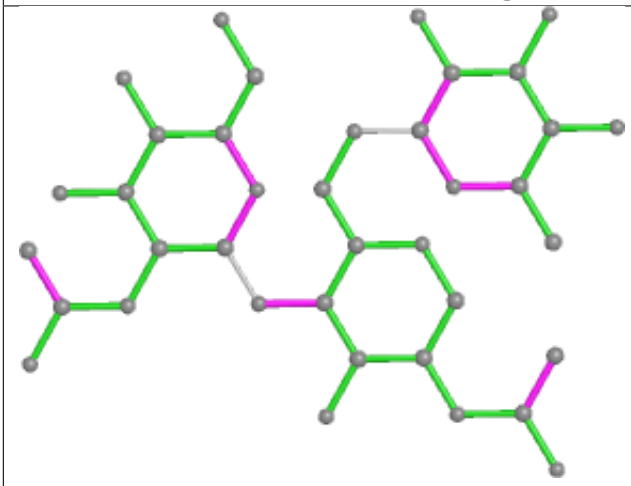


Torsions

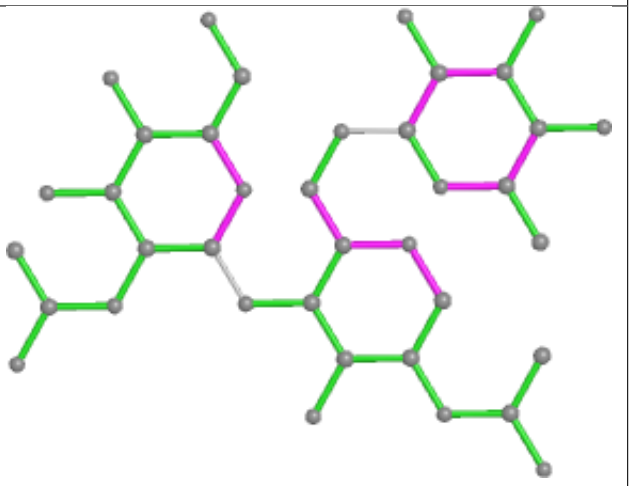


Rings

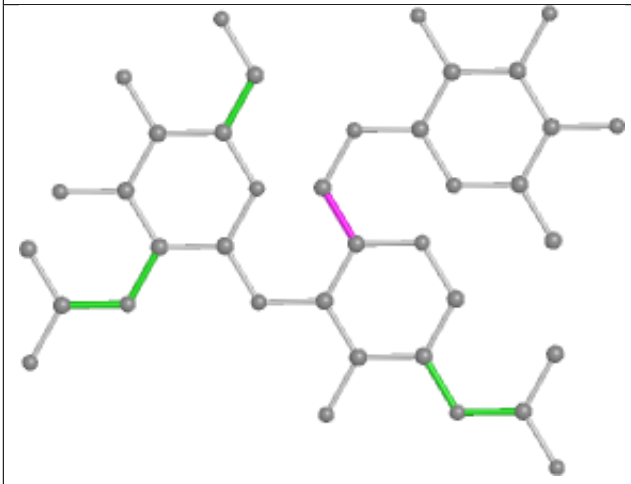
Oligosaccharide Chain J



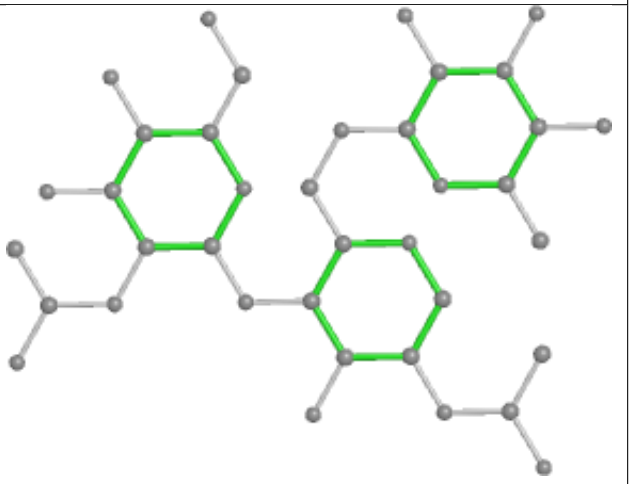
Bond lengths



Bond angles

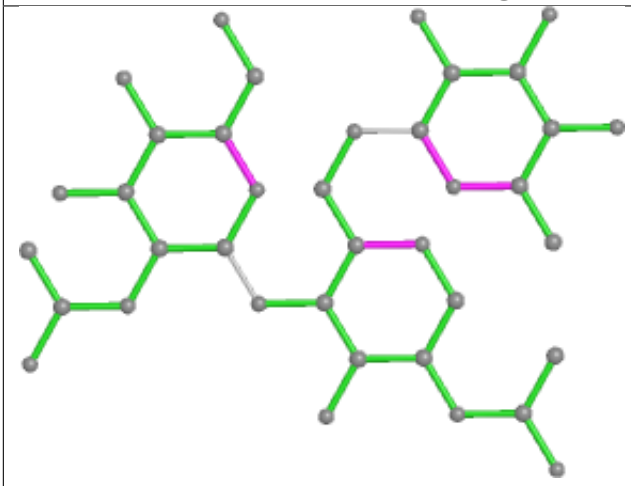


Torsions

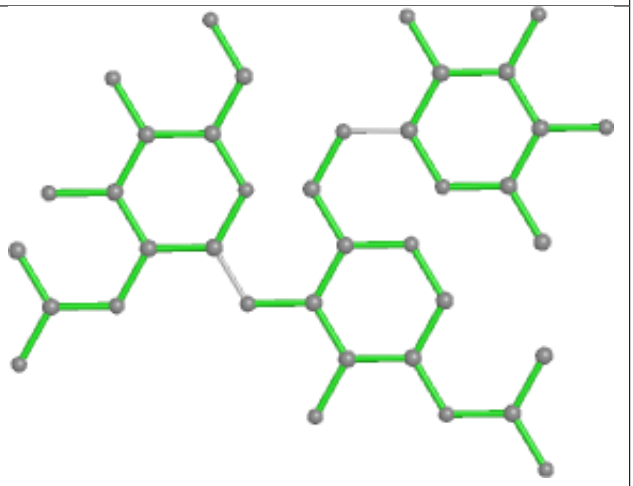


Rings

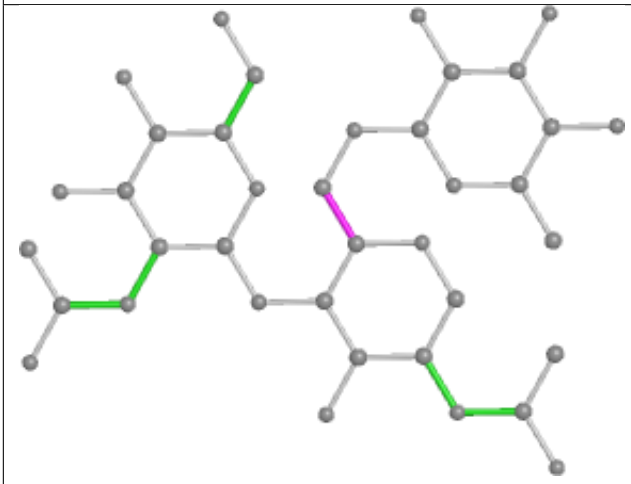
Oligosaccharide Chain T



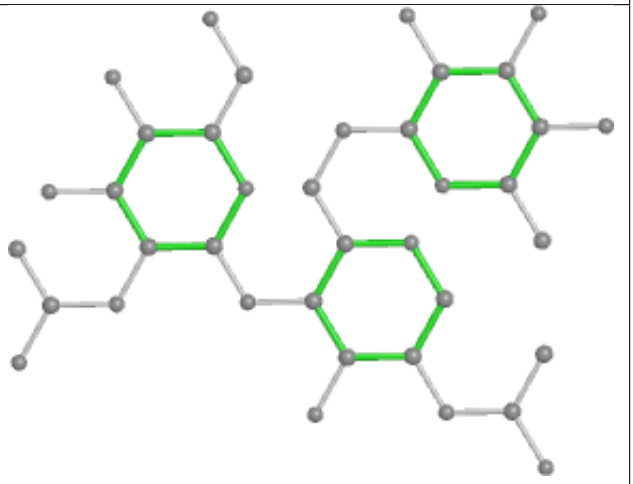
Bond lengths



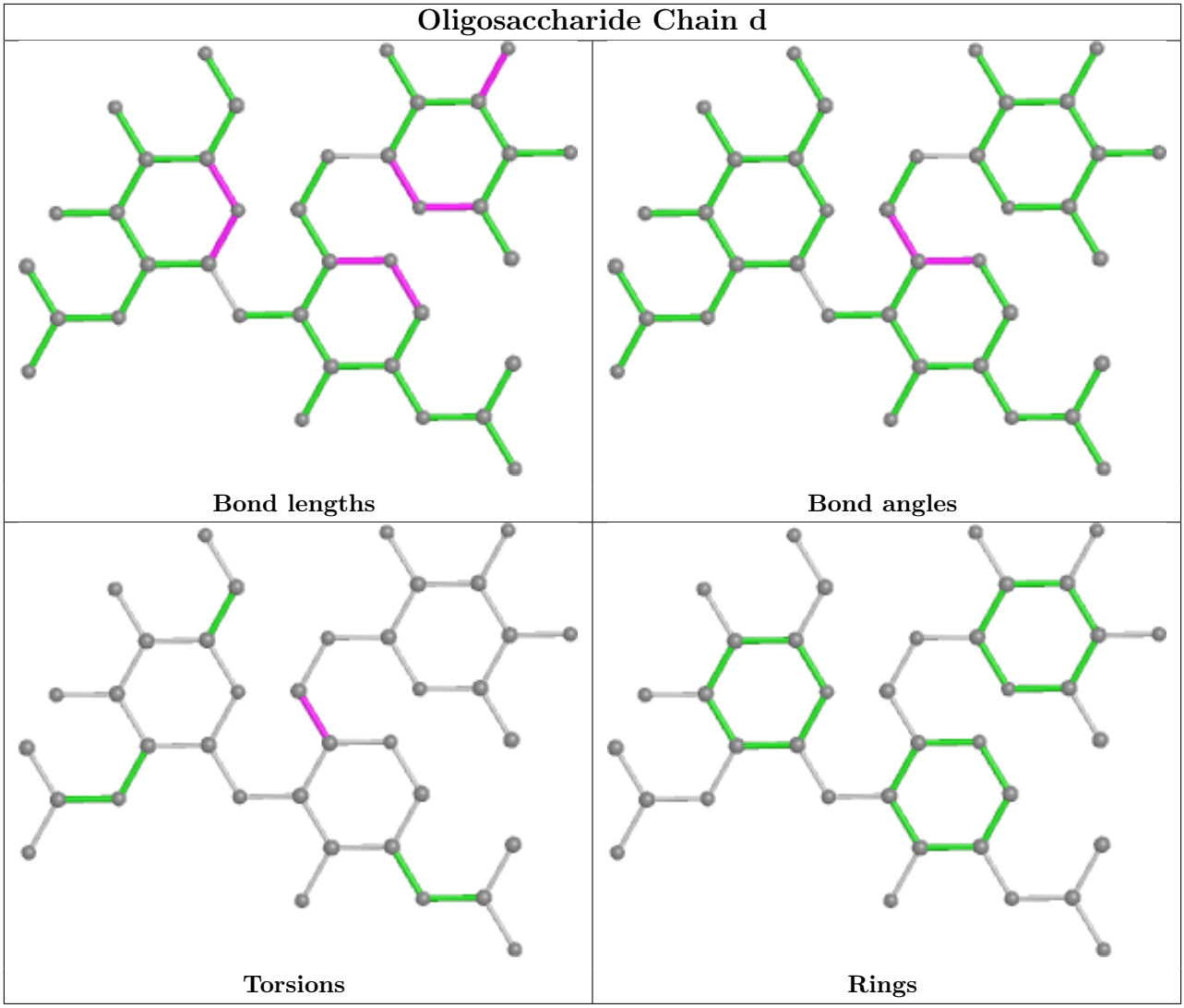
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

20 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	$\#\|Z\| > 2$
5	NAG	C	1404	1	14,14,15	1.26	1 (7%)	17,19,21	0.76	0
5	NAG	B	1406	1	14,14,15	1.39	1 (7%)	17,19,21	1.05	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	NAG	B	1401	1	14,14,15	1.40	2 (14%)	17,19,21	1.04	0
5	NAG	B	1403	1	14,14,15	1.42	2 (14%)	17,19,21	0.99	1 (5%)
5	NAG	A	1407	1	14,14,15	1.38	3 (21%)	17,19,21	0.88	0
5	NAG	A	1402	1	14,14,15	1.25	2 (14%)	17,19,21	0.66	0
5	NAG	B	1402	1	14,14,15	0.20	0	17,19,21	0.42	0
5	NAG	B	1407	1	14,14,15	1.63	3 (21%)	17,19,21	1.15	0
5	NAG	B	1404	1	14,14,15	1.30	2 (14%)	17,19,21	0.86	0
5	NAG	C	1403	1	14,14,15	1.38	2 (14%)	17,19,21	0.75	0
5	NAG	A	1401	-	14,14,15	0.23	0	17,19,21	0.39	0
5	NAG	A	1405	1	14,14,15	1.46	2 (14%)	17,19,21	0.69	0
5	NAG	A	1404	-	14,14,15	0.21	0	17,19,21	0.41	0
5	NAG	C	1402	1	14,14,15	1.32	1 (7%)	17,19,21	1.68	1 (5%)
5	NAG	A	1406	1	14,14,15	1.18	1 (7%)	17,19,21	1.07	0
5	NAG	B	1405	1	14,14,15	1.33	2 (14%)	17,19,21	0.98	0
5	NAG	A	1403	1	14,14,15	1.39	4 (28%)	17,19,21	0.91	1 (5%)
5	NAG	C	1406	1	14,14,15	1.37	2 (14%)	17,19,21	0.79	0
5	NAG	C	1401	1	14,14,15	1.40	3 (21%)	17,19,21	0.75	1 (5%)
5	NAG	C	1405	1	14,14,15	1.18	2 (14%)	17,19,21	0.90	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	C	1404	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1406	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1401	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1403	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1407	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1402	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1402	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1407	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1404	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1403	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1401	-	-	0/6/23/26	0/1/1/1
5	NAG	C	1402	1	1/1/5/7	1/6/23/26	0/1/1/1
5	NAG	A	1404	-	-	0/6/23/26	0/1/1/1
5	NAG	A	1405	1	-	0/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	A	1406	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1405	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1403	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1406	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1401	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1405	1	-	0/6/23/26	0/1/1/1

All (35) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	1401	NAG	O5-C5	3.73	1.51	1.43
5	B	1407	NAG	O5-C1	3.54	1.49	1.43
5	B	1406	NAG	C1-C2	3.29	1.57	1.52
5	A	1405	NAG	O5-C1	3.26	1.48	1.43
5	C	1401	NAG	O5-C5	3.18	1.49	1.43
5	C	1406	NAG	O5-C5	3.07	1.49	1.43
5	C	1404	NAG	O5-C5	2.98	1.49	1.43
5	B	1407	NAG	O5-C5	2.98	1.49	1.43
5	C	1403	NAG	C1-C2	2.94	1.56	1.52
5	B	1404	NAG	O5-C1	2.88	1.48	1.43
5	A	1403	NAG	O5-C5	2.87	1.49	1.43
5	B	1405	NAG	O5-C5	2.87	1.49	1.43
5	B	1405	NAG	C1-C2	2.80	1.56	1.52
5	A	1407	NAG	O5-C5	2.71	1.48	1.43
5	C	1402	NAG	O5-C5	2.66	1.48	1.43
5	C	1403	NAG	O5-C5	2.58	1.48	1.43
5	A	1402	NAG	O5-C5	2.52	1.48	1.43
5	C	1405	NAG	O5-C5	2.50	1.48	1.43
5	A	1405	NAG	O5-C5	2.48	1.48	1.43
5	A	1407	NAG	C1-C2	2.44	1.56	1.52
5	B	1403	NAG	O5-C5	2.41	1.48	1.43
5	A	1402	NAG	C8-C7	2.36	1.55	1.50
5	C	1405	NAG	O5-C1	2.30	1.47	1.43
5	B	1401	NAG	O5-C1	2.29	1.47	1.43
5	C	1401	NAG	C8-C7	2.28	1.55	1.50
5	A	1406	NAG	C1-C2	2.21	1.55	1.52
5	B	1403	NAG	C1-C2	2.21	1.55	1.52
5	A	1403	NAG	C8-C7	2.18	1.55	1.50
5	A	1403	NAG	C1-C2	2.16	1.55	1.52
5	A	1403	NAG	O3-C3	2.13	1.48	1.43
5	B	1404	NAG	O5-C5	2.12	1.47	1.43
5	C	1401	NAG	C1-C2	2.09	1.55	1.52

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	1407	NAG	C8-C7	2.09	1.54	1.50
5	C	1406	NAG	C1-C2	2.05	1.55	1.52
5	A	1407	NAG	O5-C1	2.02	1.46	1.43

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	C	1402	NAG	C1-O5-C5	5.28	119.35	112.19
5	B	1406	NAG	C1-O5-C5	2.42	115.47	112.19
5	B	1403	NAG	C1-O5-C5	2.11	115.06	112.19
5	A	1403	NAG	C3-C4-C5	2.08	113.94	110.24
5	B	1406	NAG	O5-C5-C4	-2.06	105.82	110.83
5	C	1401	NAG	O5-C5-C4	-2.04	105.87	110.83

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
5	C	1402	NAG	C1

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	1402	NAG	O5-C5-C6-O6
5	B	1402	NAG	C4-C5-C6-O6
5	C	1402	NAG	C1-C2-N2-C7

There are no ring outliers.

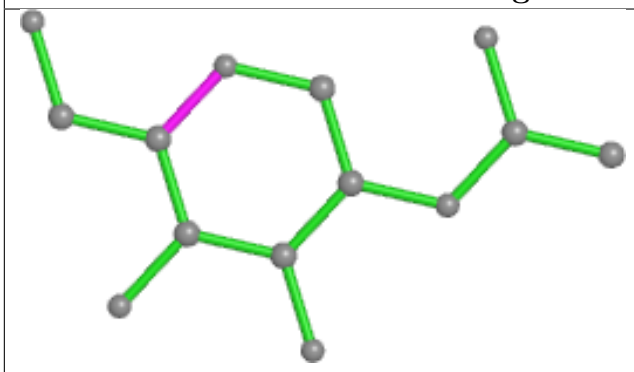
3 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	1402	NAG	5	0
5	A	1401	NAG	3	0
5	A	1404	NAG	5	0

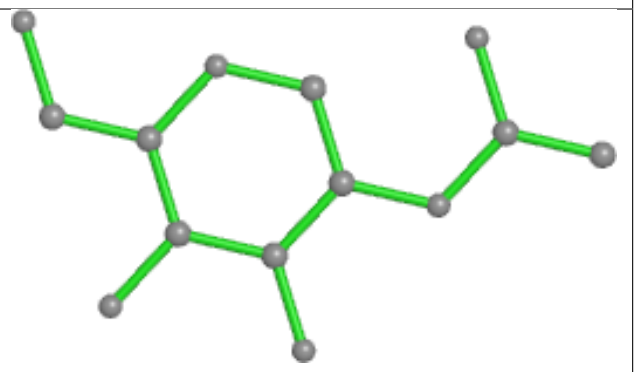
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included.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

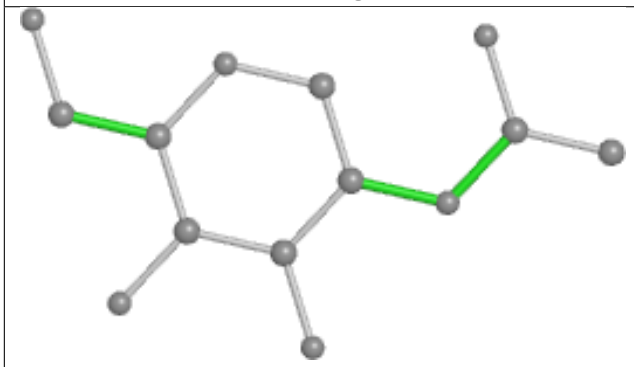
Ligand NAG C 1404



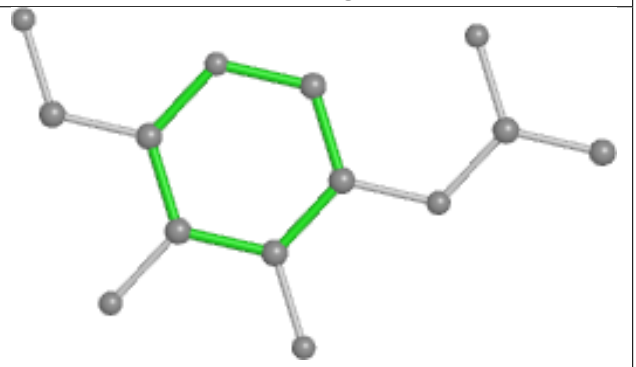
Bond lengths



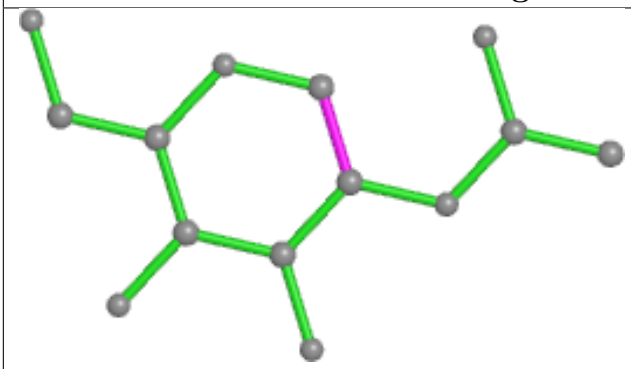
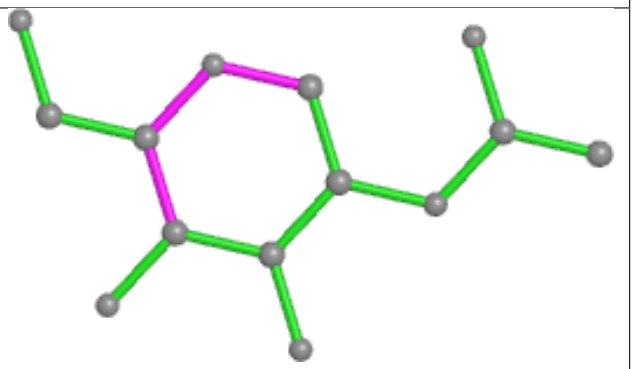
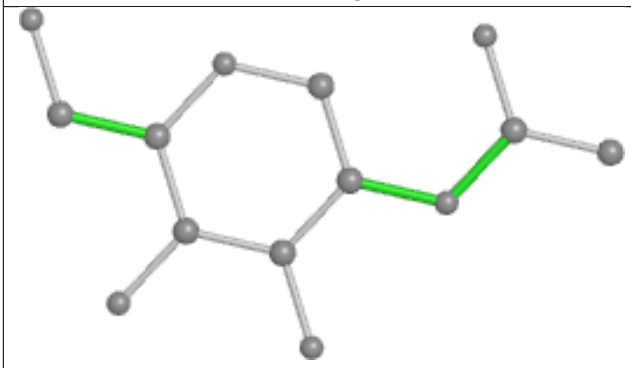
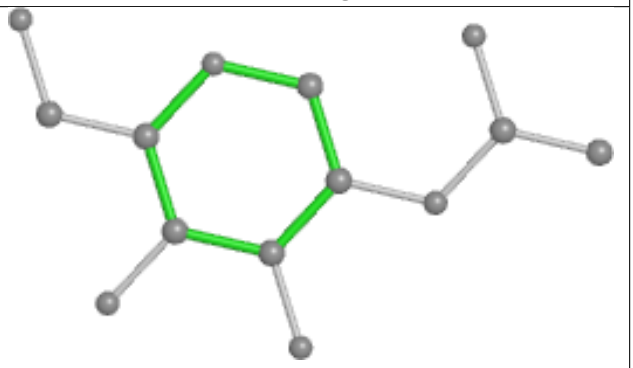
Bond angles

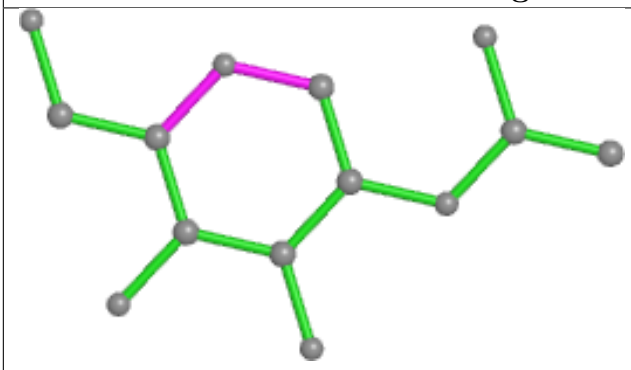
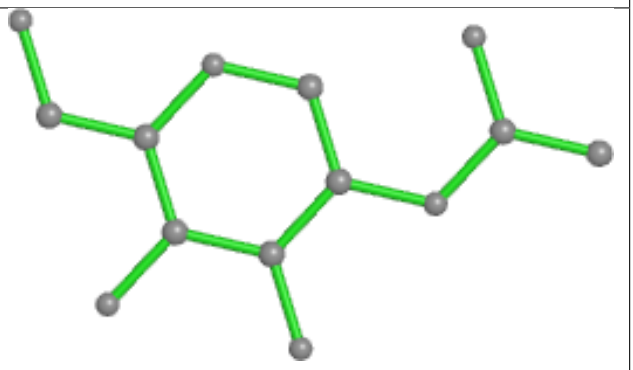
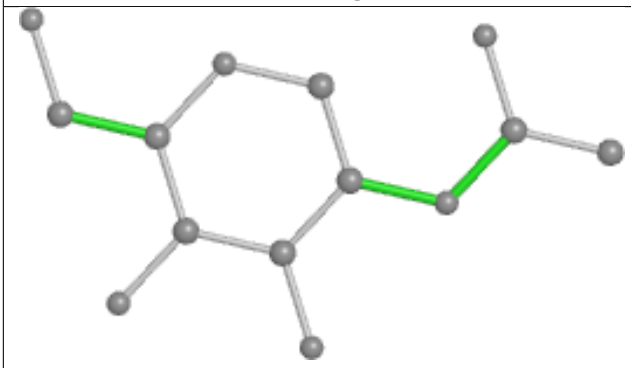
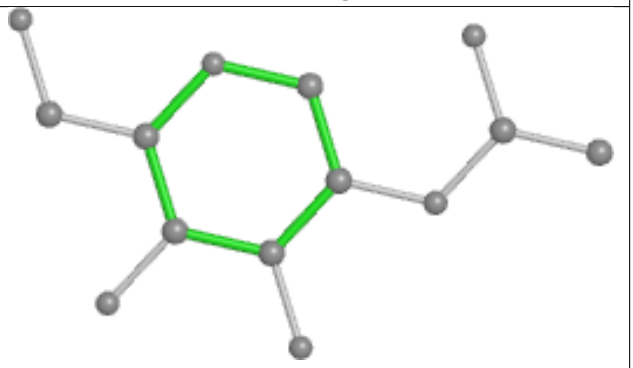


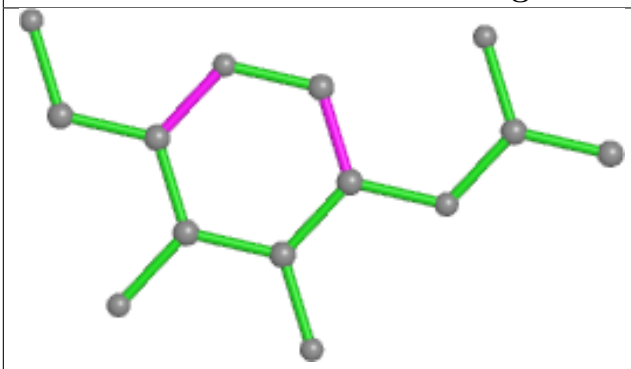
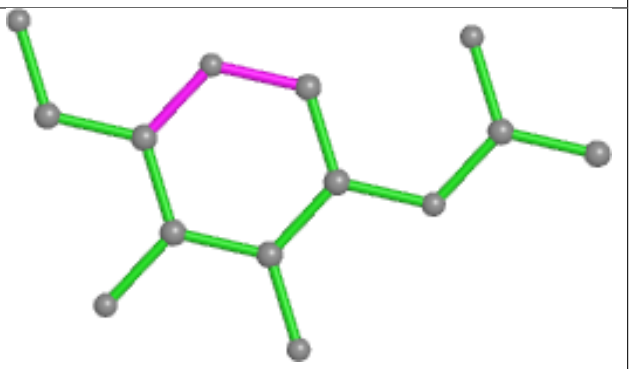
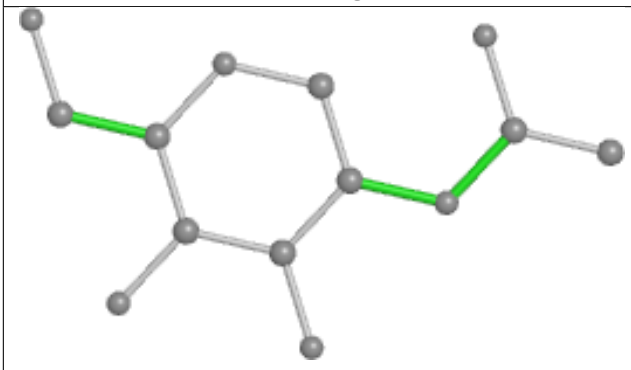
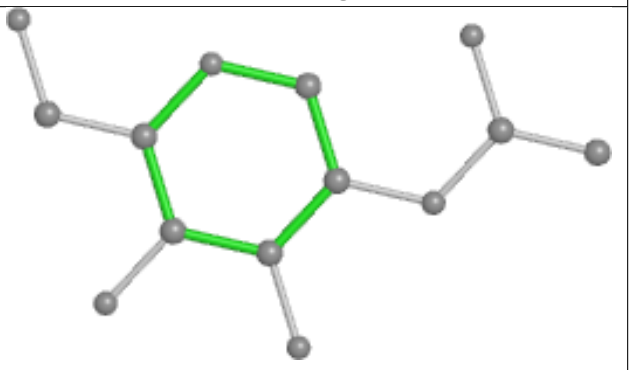
Torsions

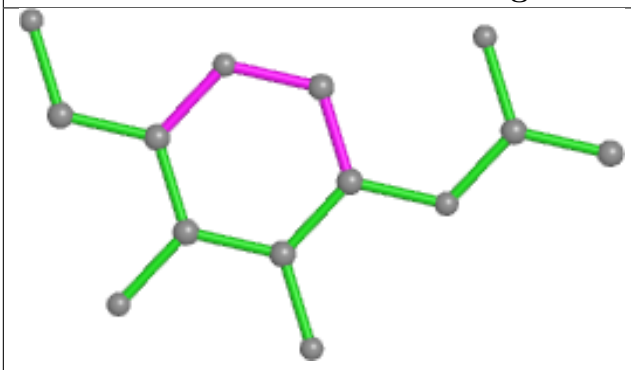
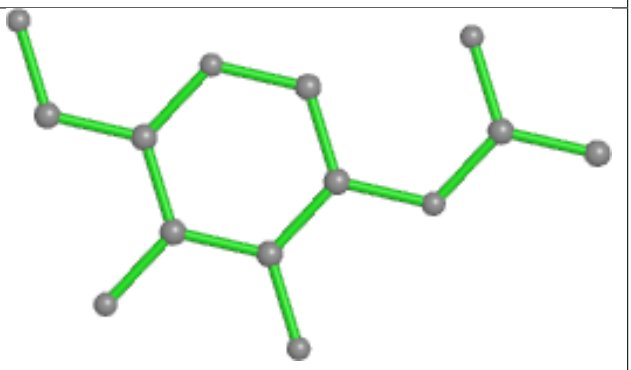
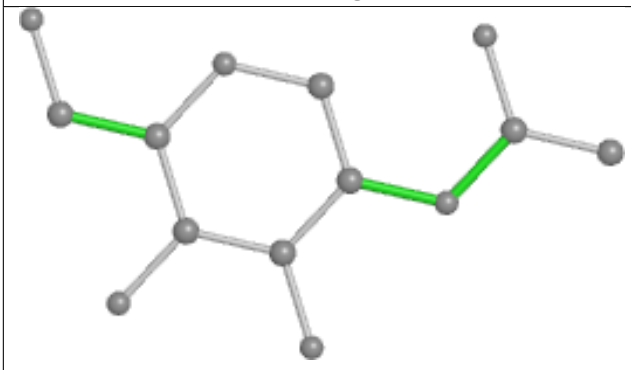
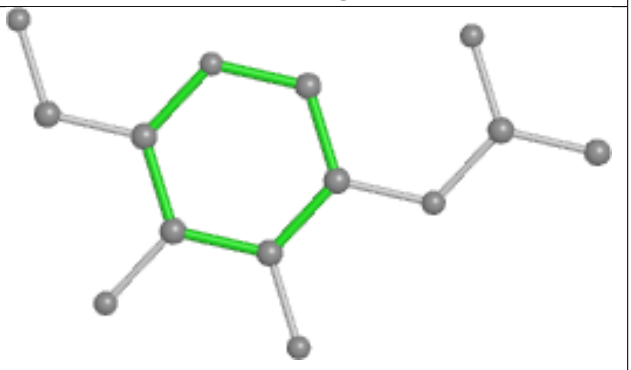


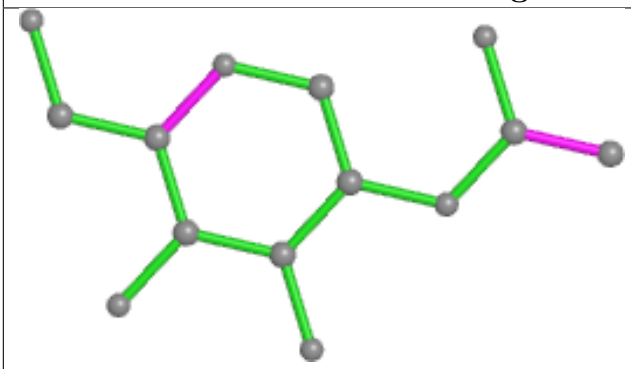
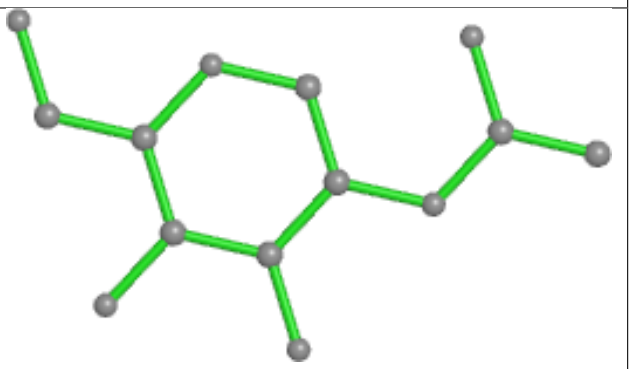
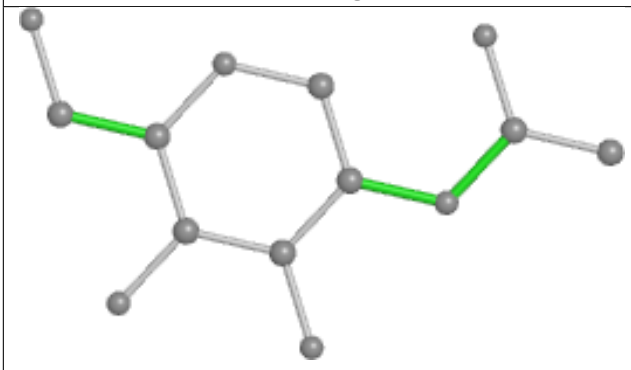
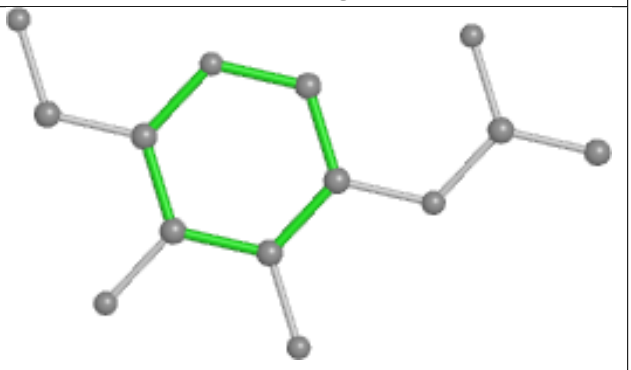
Rings

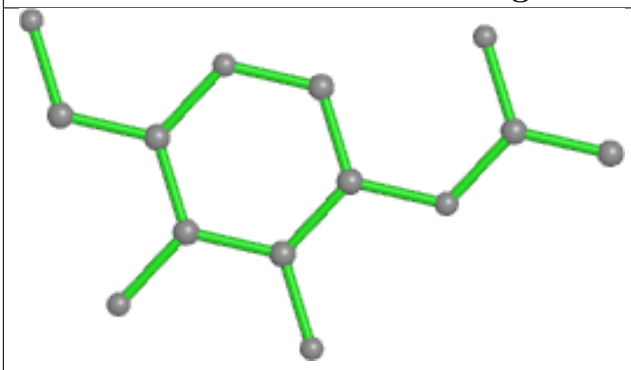
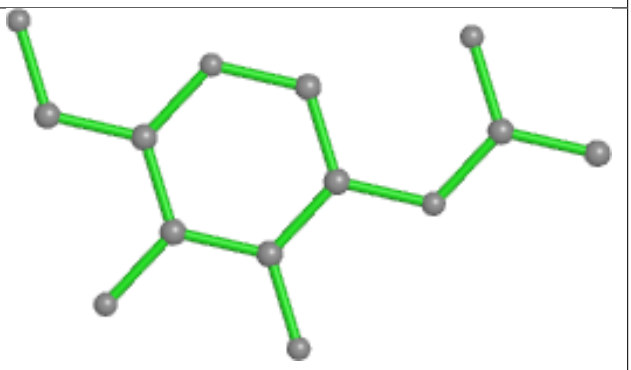
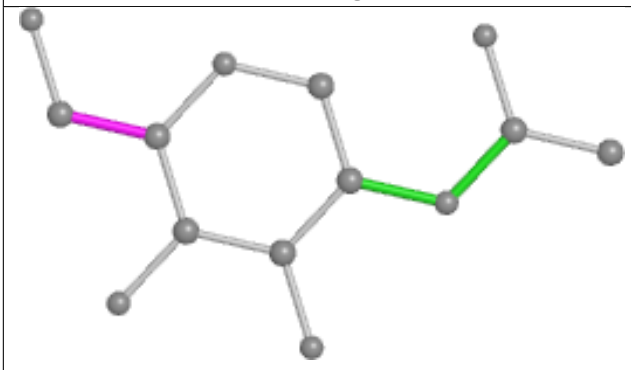
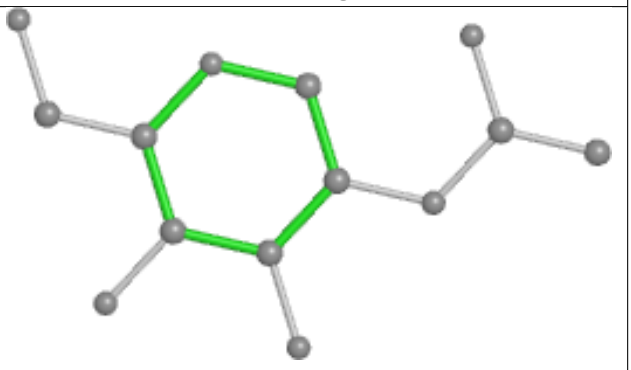
Ligand NAG B 1406	
 Bond lengths	 Bond angles
 Torsions	 Rings

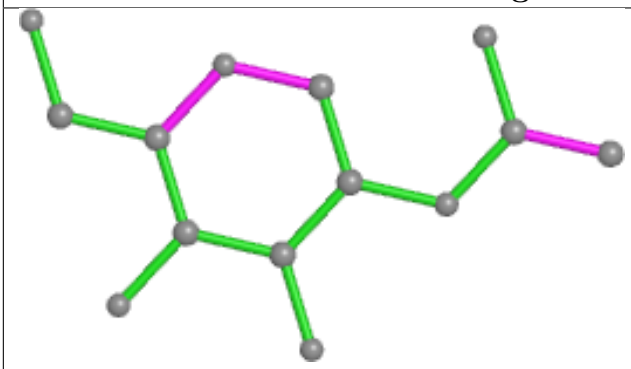
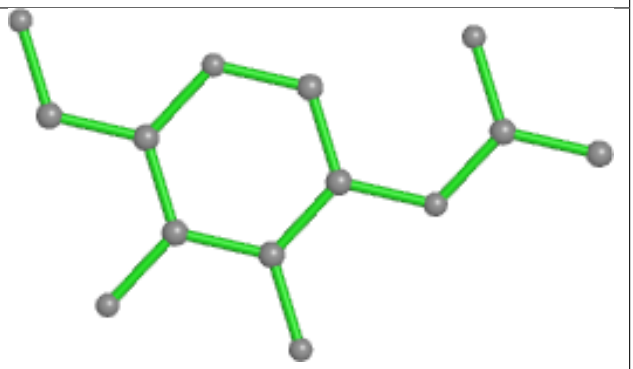
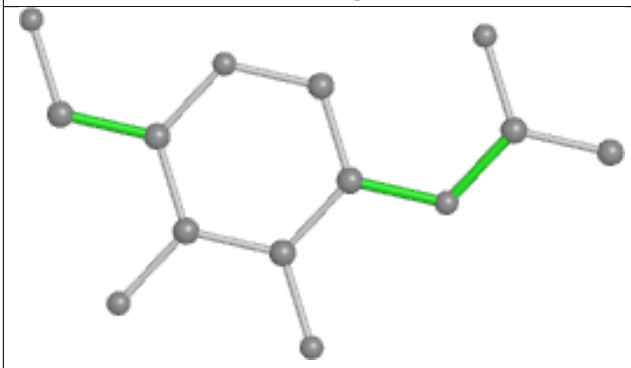
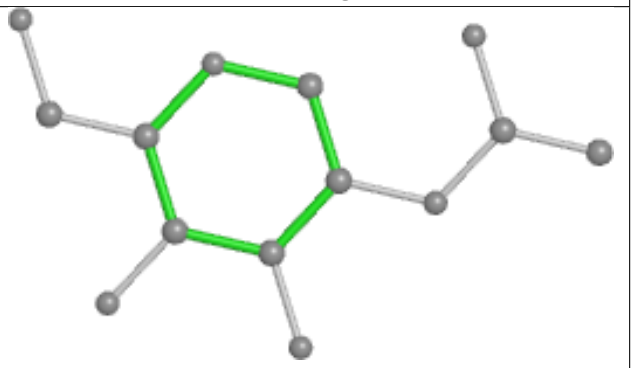
Ligand NAG B 1401	
 Bond lengths	 Bond angles
 Torsions	 Rings

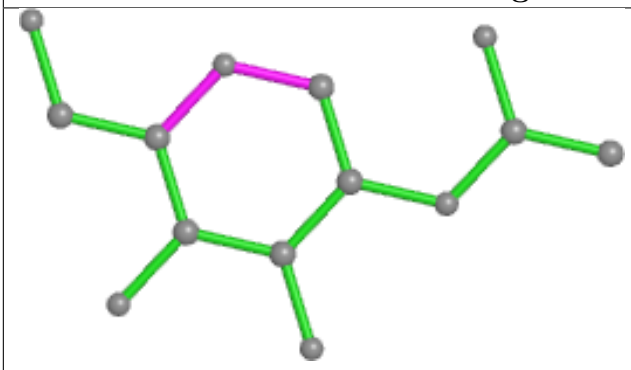
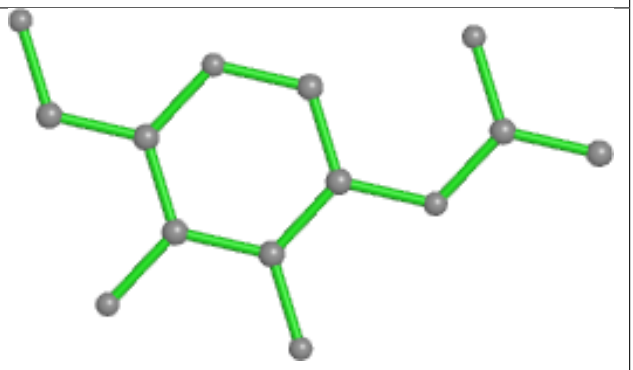
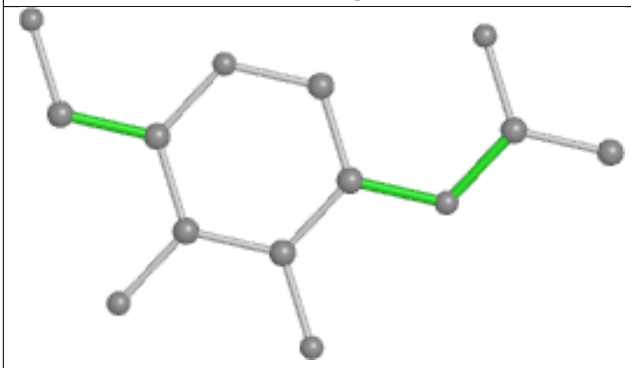
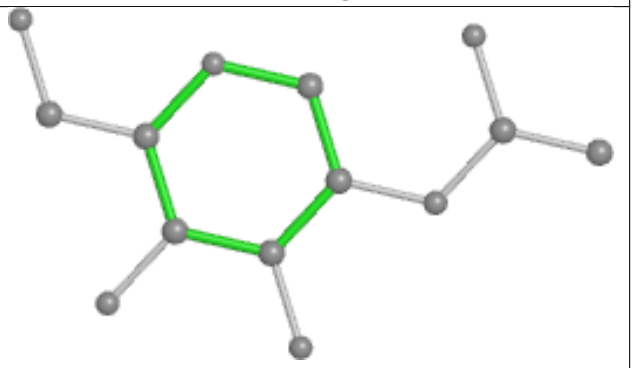
Ligand NAG B 1403	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand NAG A 1407	
 Bond lengths	 Bond angles
 Torsions	 Rings

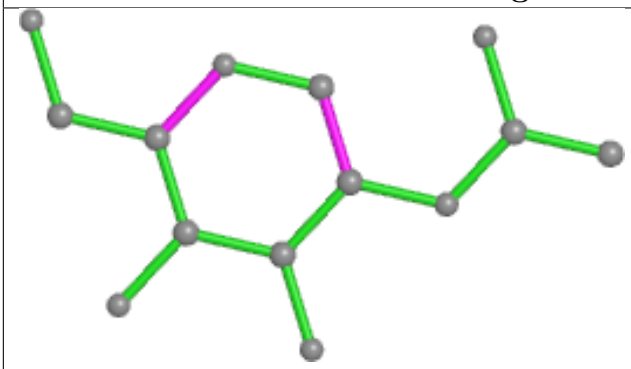
Ligand NAG A 1402	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand NAG B 1402	
 Bond lengths	 Bond angles
 Torsions	 Rings

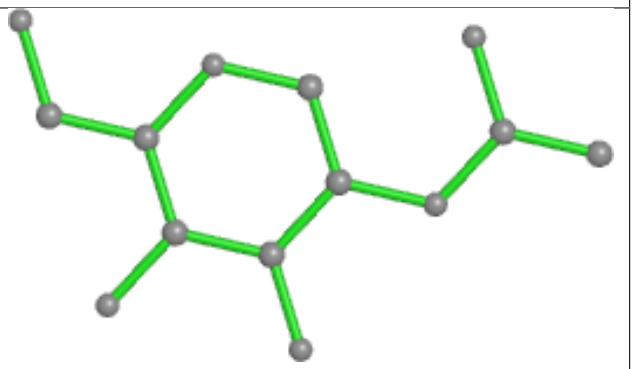
Ligand NAG B 1407	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand NAG B 1404	
 Bond lengths	 Bond angles
 Torsions	 Rings

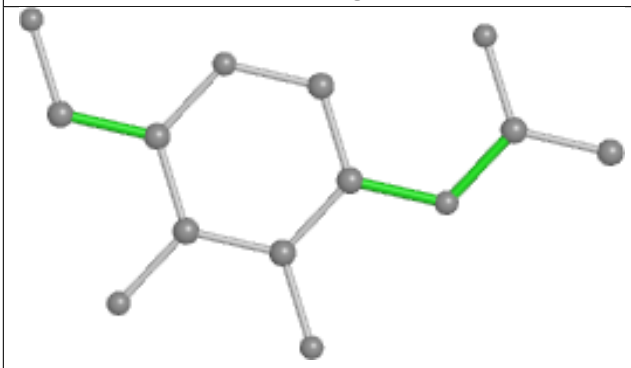
Ligand NAG C 1403



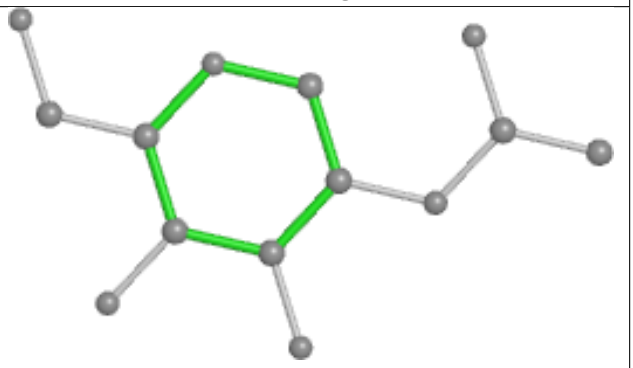
Bond lengths



Bond angles

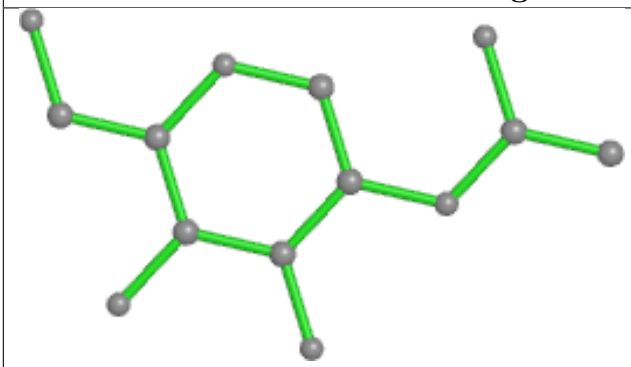


Torsions

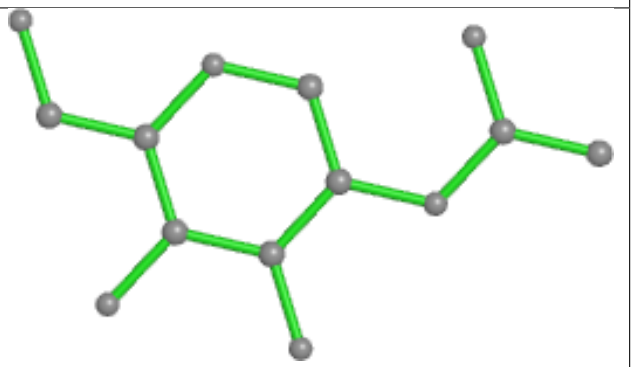


Rings

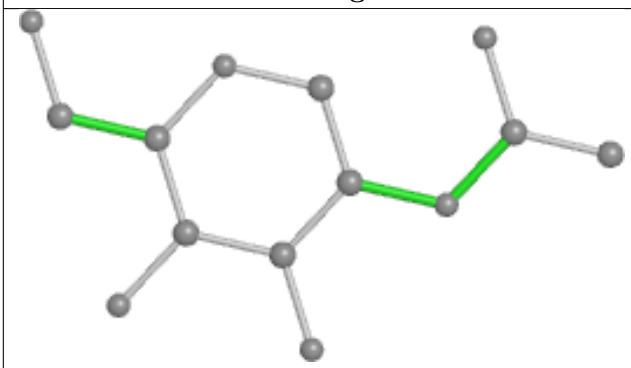
Ligand NAG A 1401



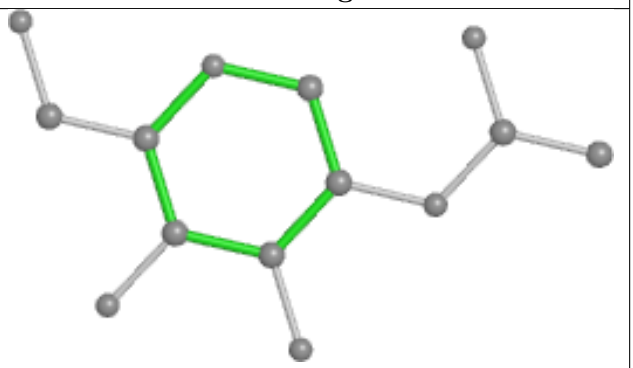
Bond lengths



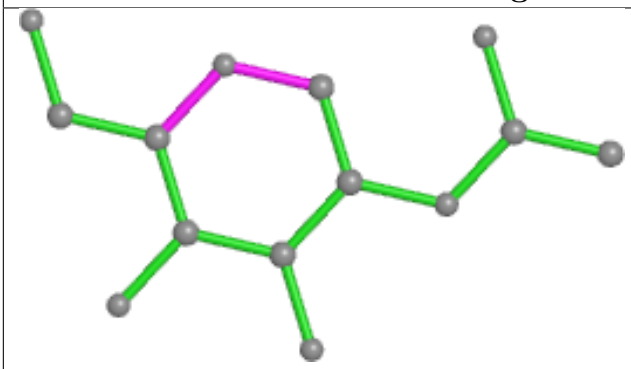
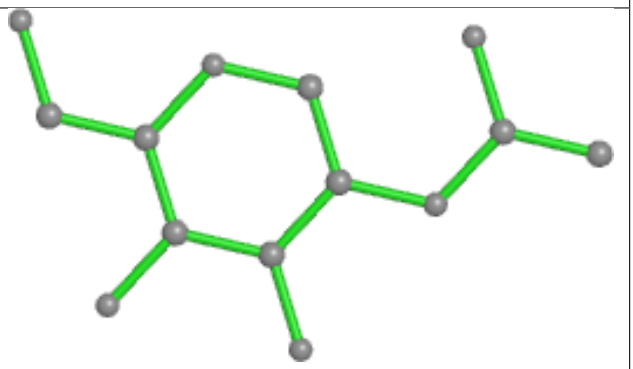
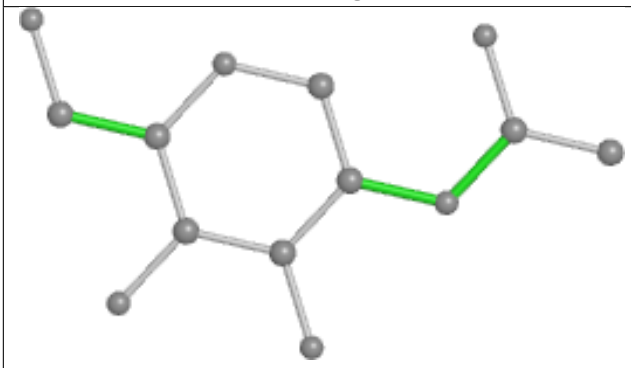
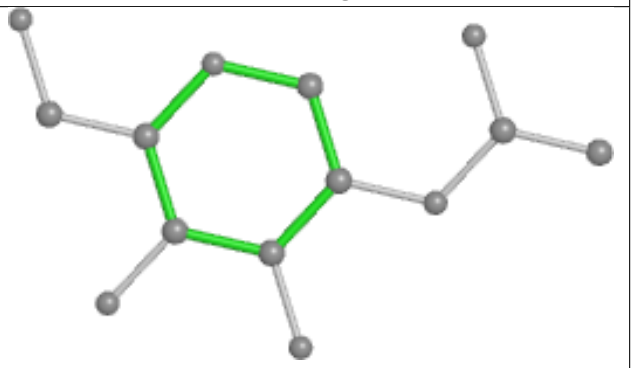
Bond angles

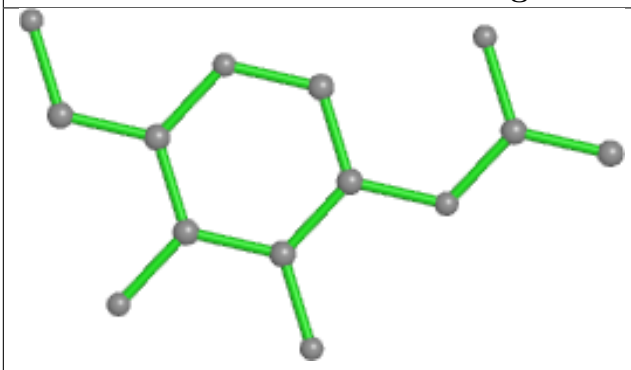
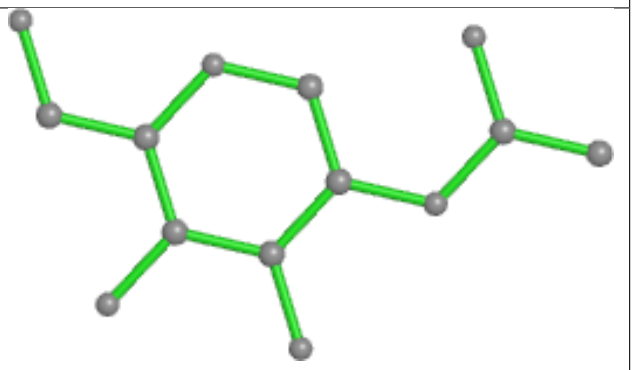
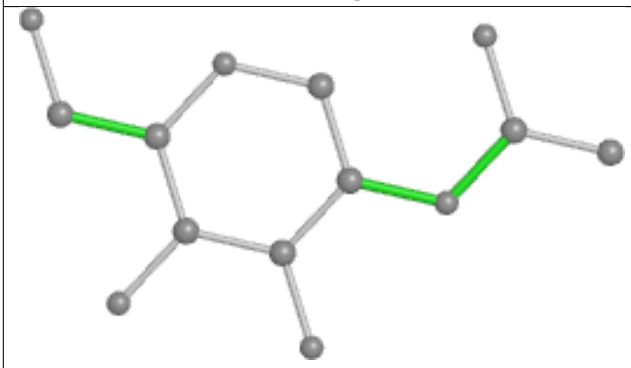
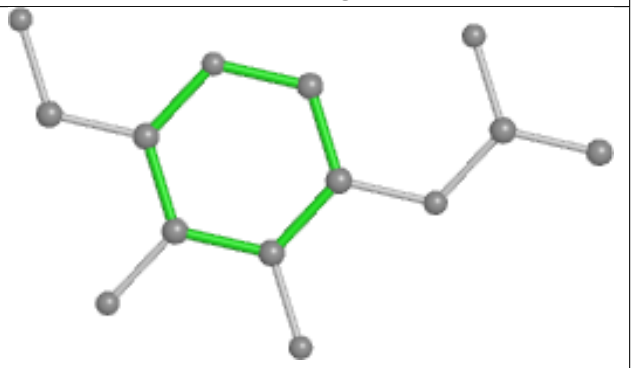


Torsions

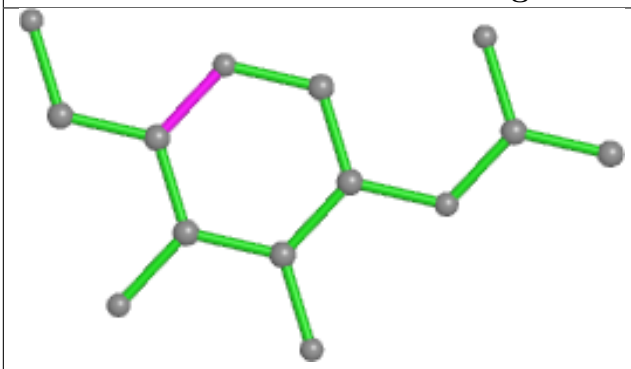


Rings

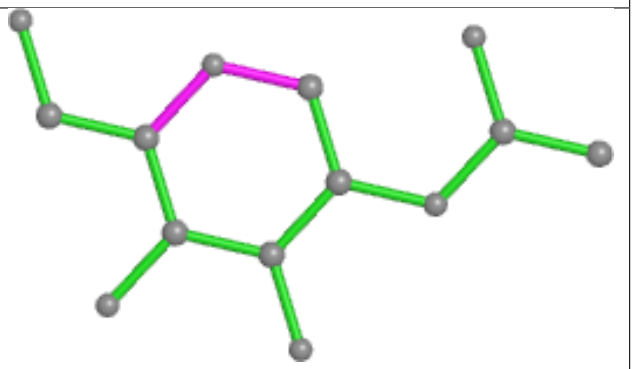
Ligand NAG A 1405	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand NAG A 1404	
 Bond lengths	 Bond angles
 Torsions	 Rings

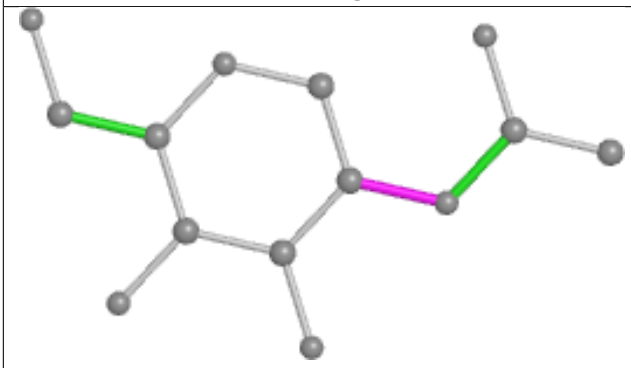
Ligand NAG C 1402



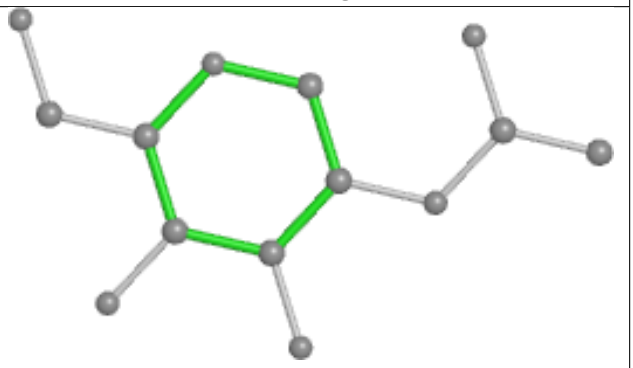
Bond lengths



Bond angles

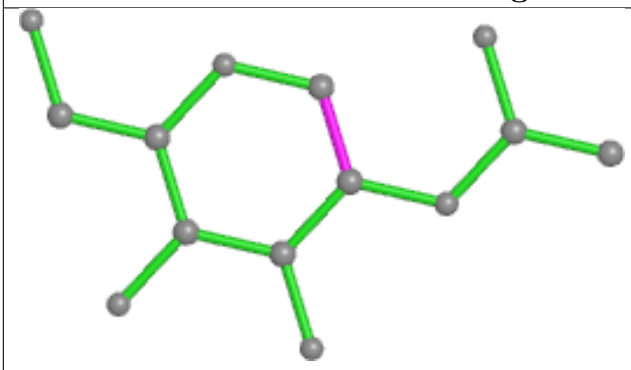


Torsions

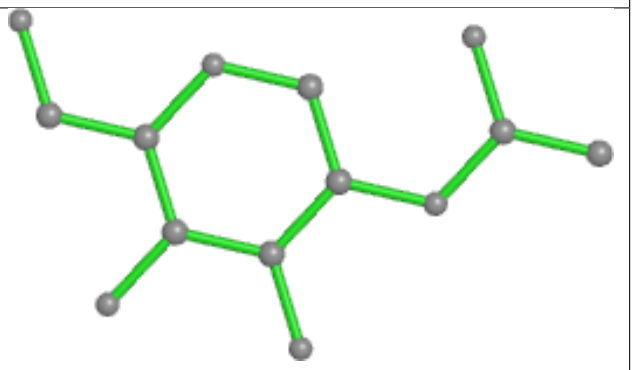


Rings

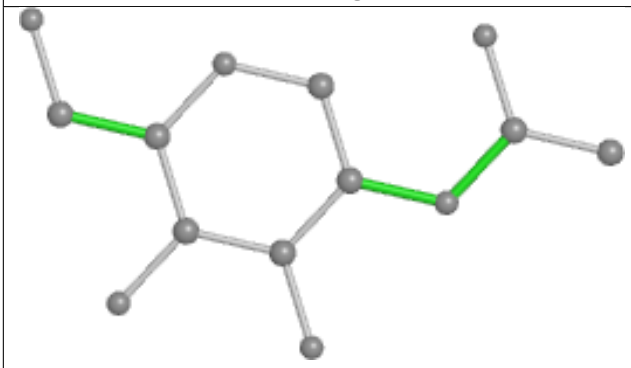
Ligand NAG A 1406



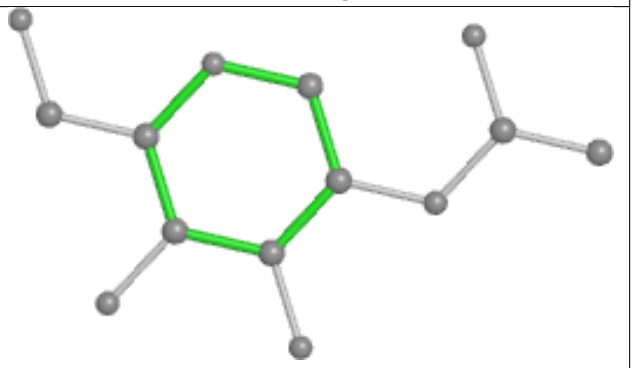
Bond lengths



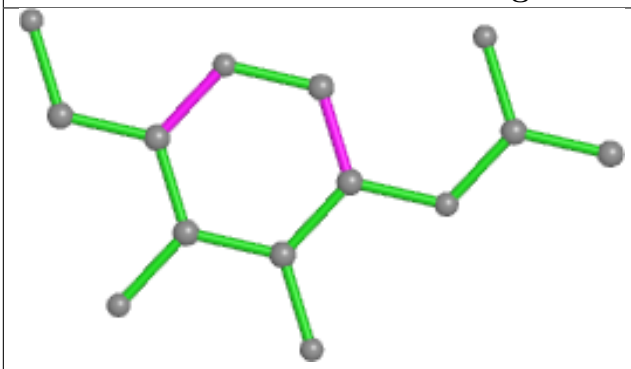
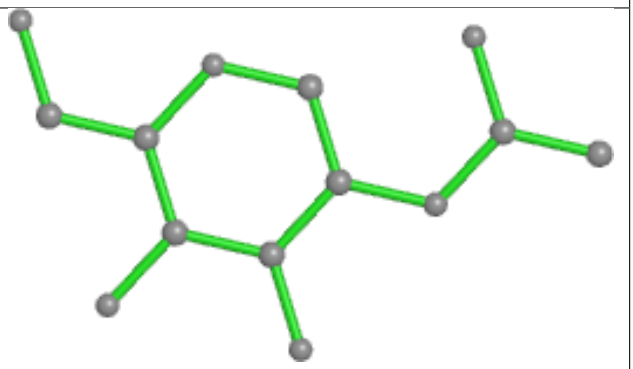
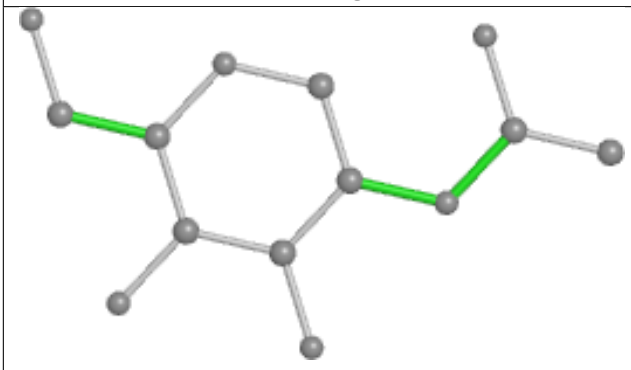
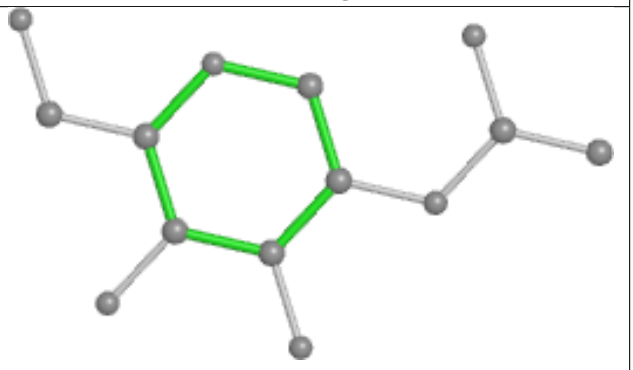
Bond angles

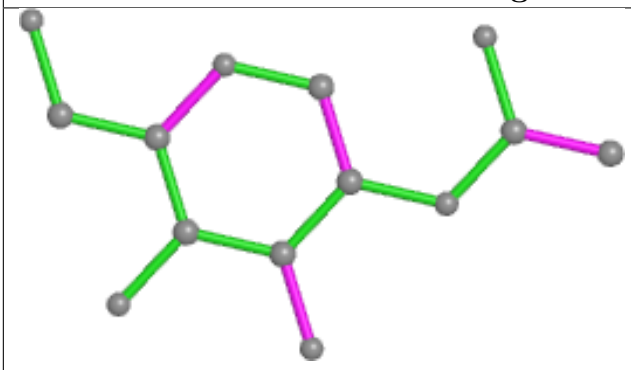
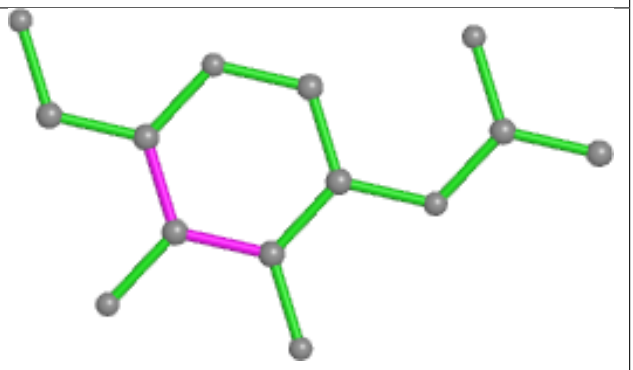
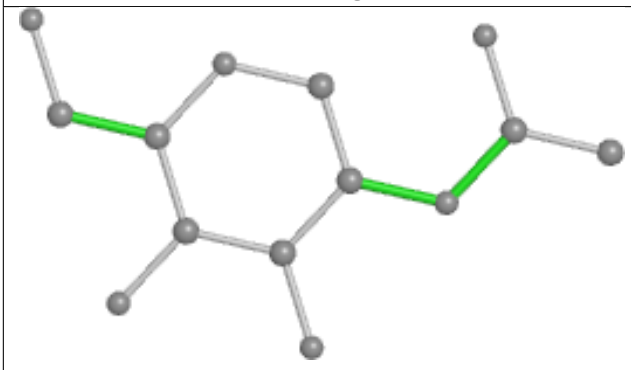
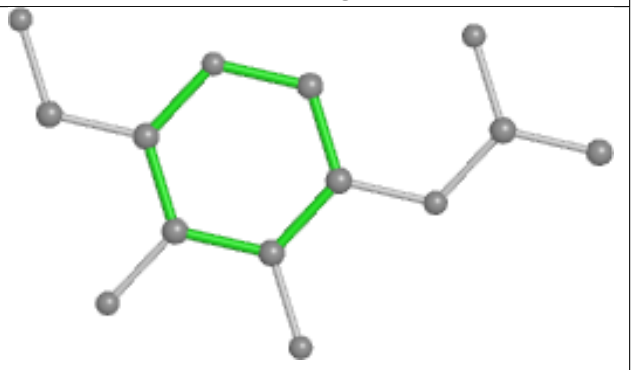


Torsions

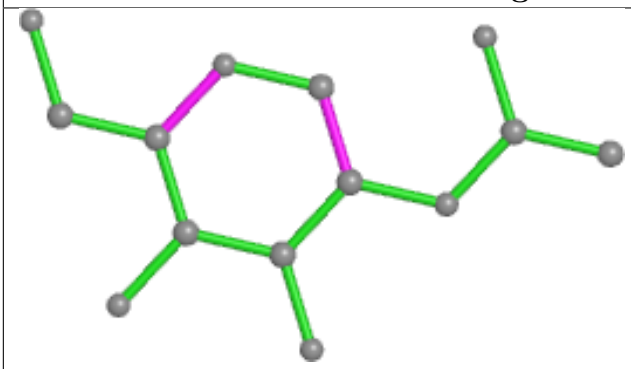


Rings

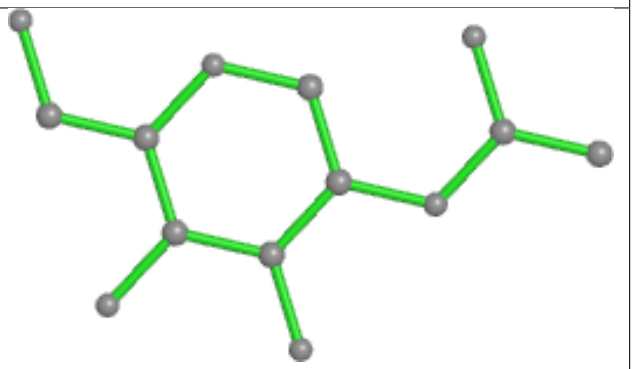
Ligand NAG B 1405	
 Bond lengths	 Bond angles
 Torsions	 Rings

Ligand NAG A 1403	
 Bond lengths	 Bond angles
 Torsions	 Rings

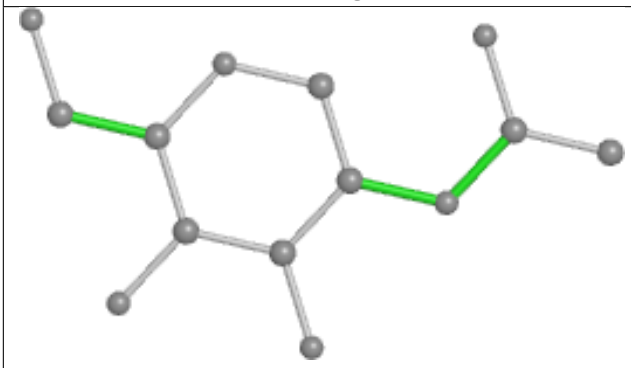
Ligand NAG C 1406



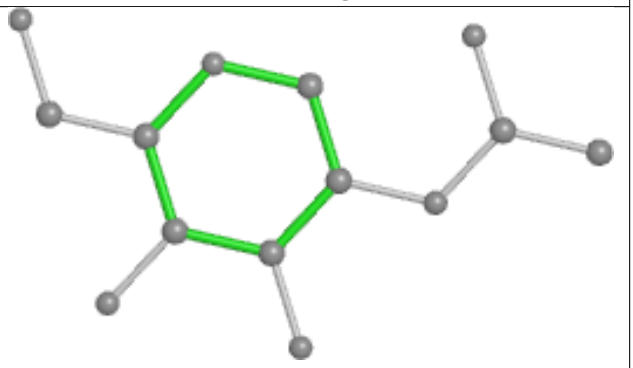
Bond lengths



Bond angles

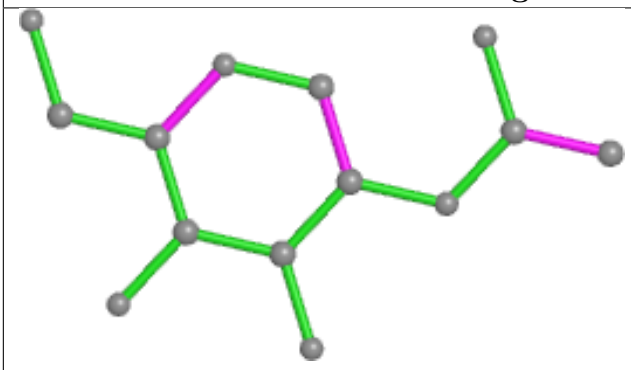


Torsions

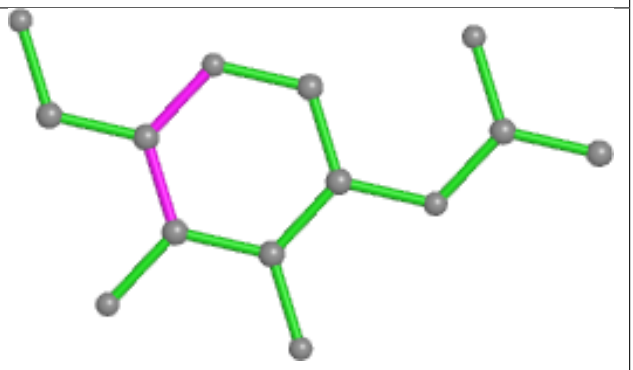


Rings

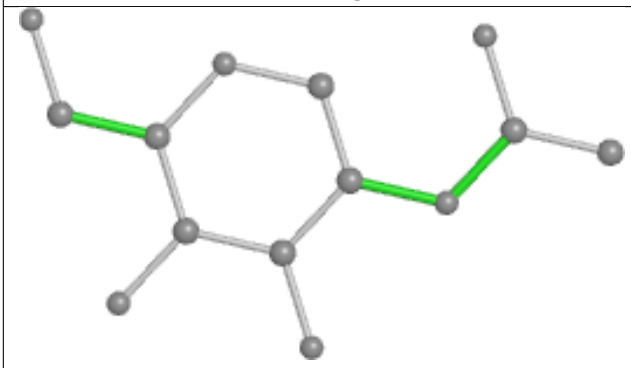
Ligand NAG C 1401



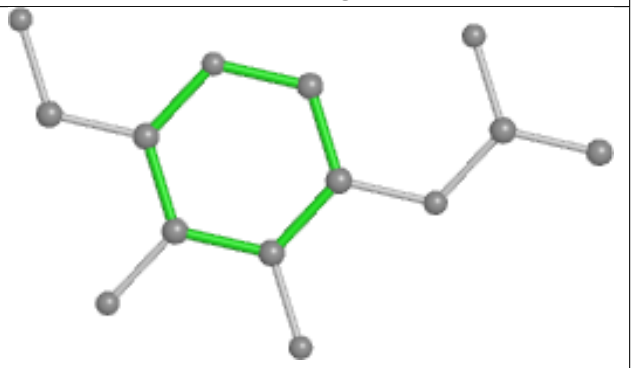
Bond lengths



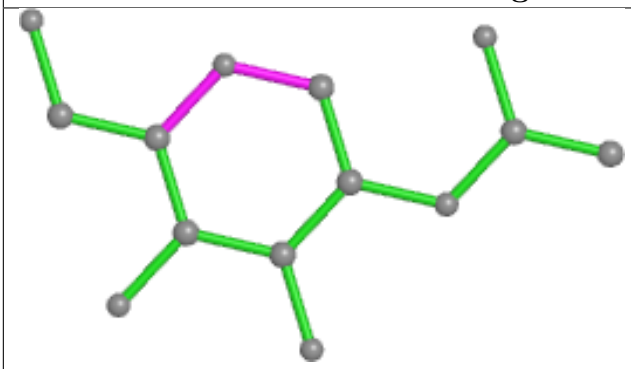
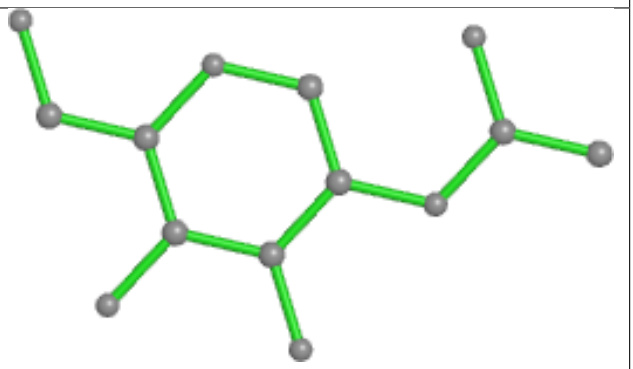
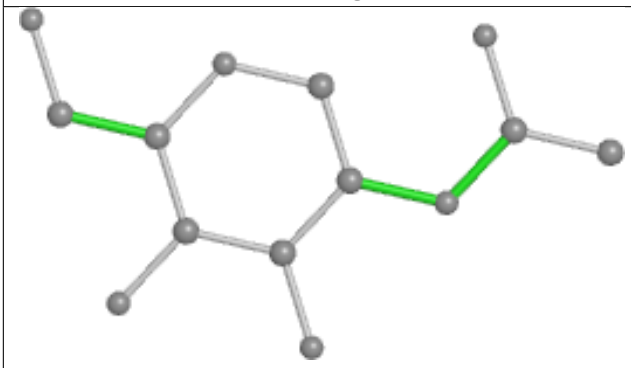
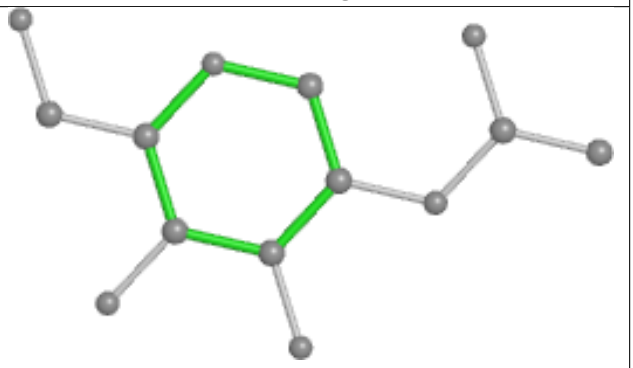
Bond angles



Torsions



Rings

Ligand NAG C 1405	
 Bond lengths	 Bond angles
 Torsions	 Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

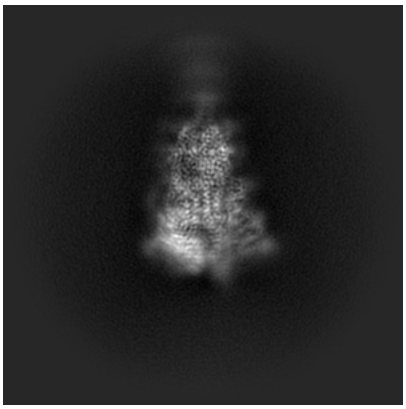
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-27207. These allow visual inspection of the internal detail of the map and identification of artifacts.

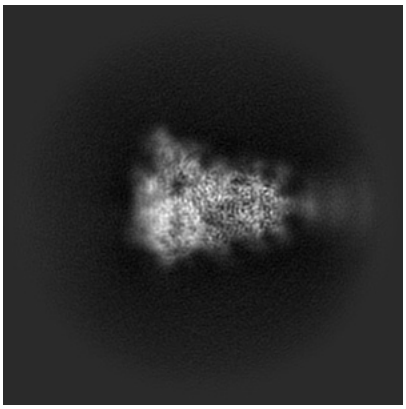
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

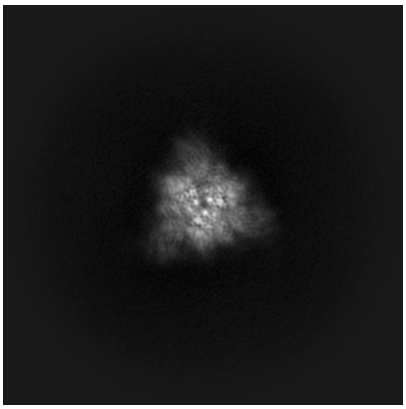
6.1.1 Primary map



X

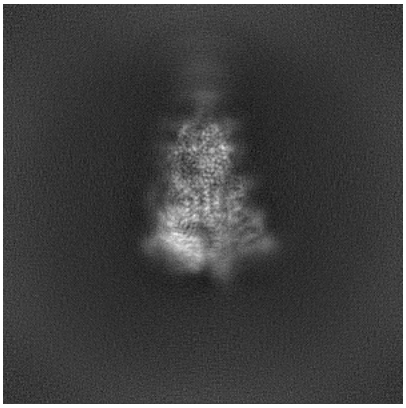


Y

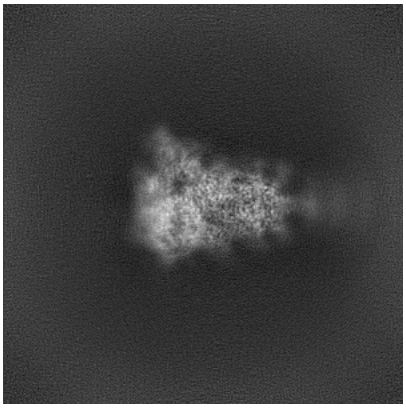


Z

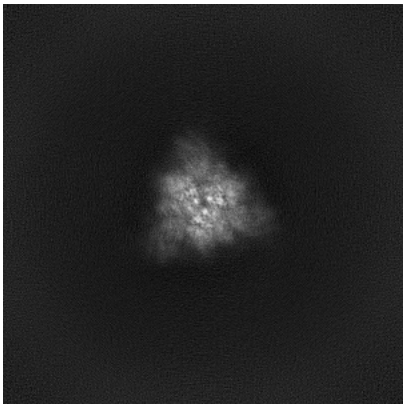
6.1.2 Raw map



X



Y

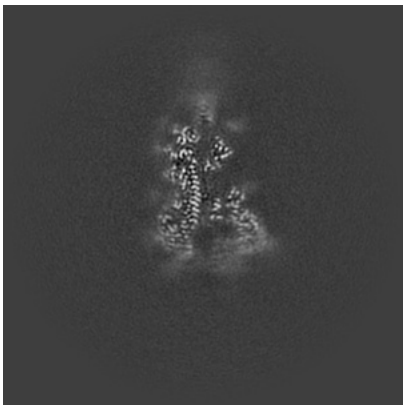


Z

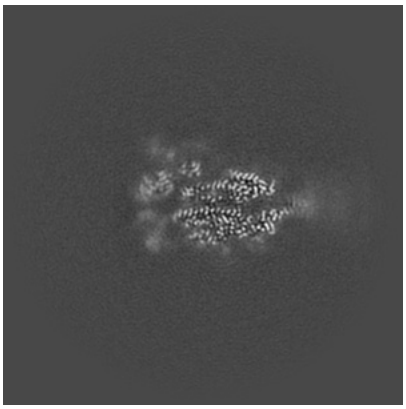
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

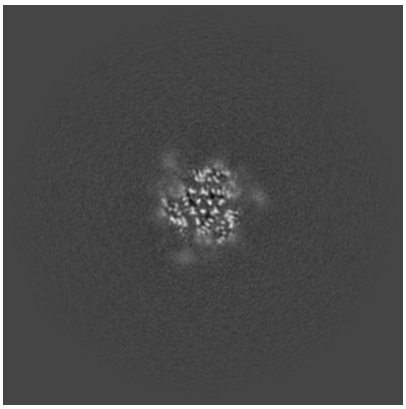
6.2.1 Primary map



X Index: 240

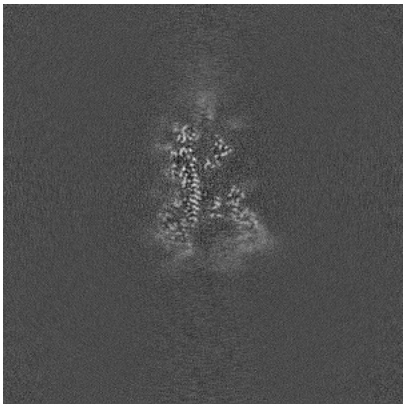


Y Index: 240

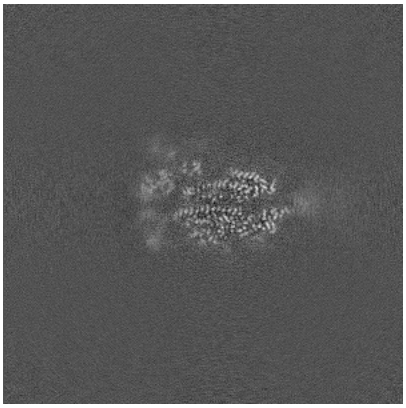


Z Index: 240

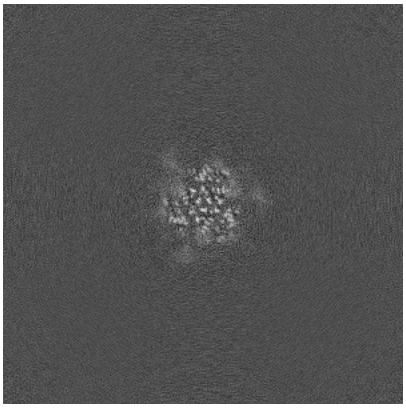
6.2.2 Raw map



X Index: 240



Y Index: 240

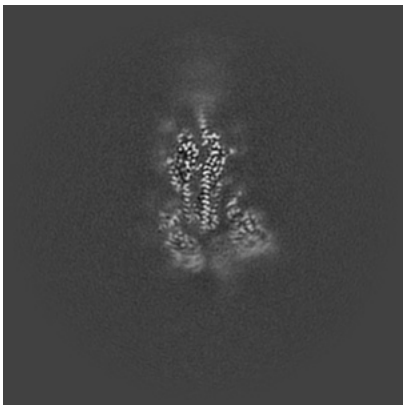


Z Index: 240

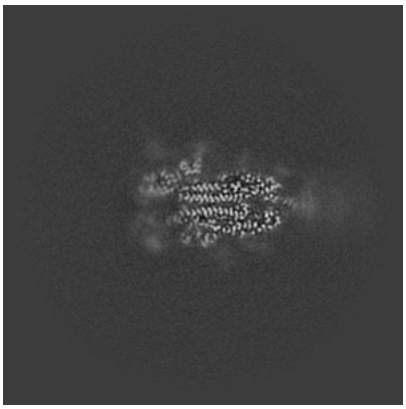
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

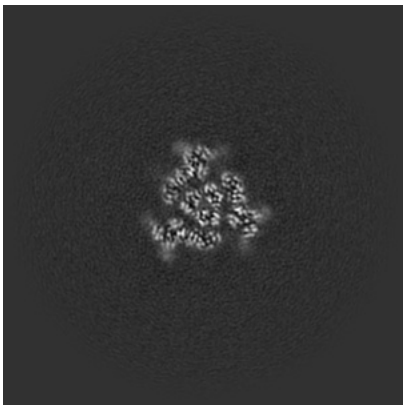
6.3.1 Primary map



X Index: 231

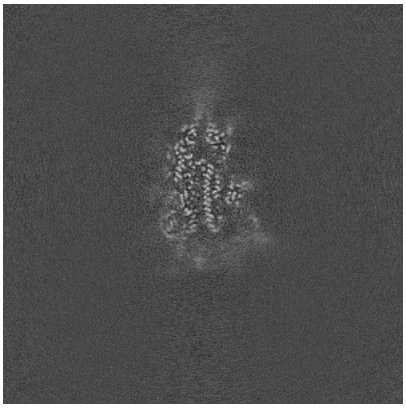


Y Index: 245

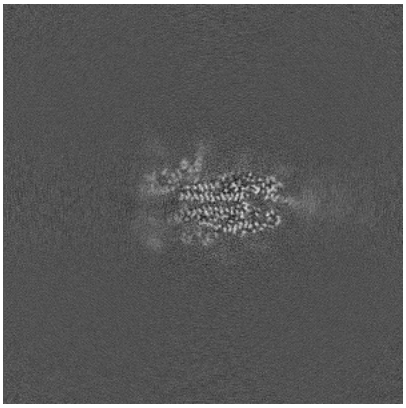


Z Index: 220

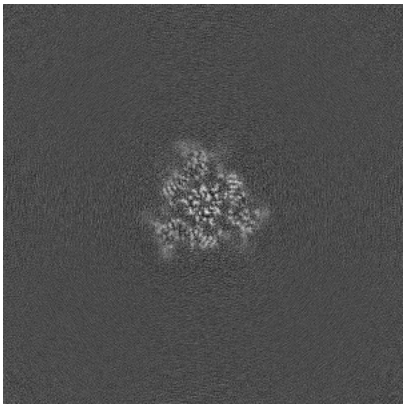
6.3.2 Raw map



X Index: 247



Y Index: 246

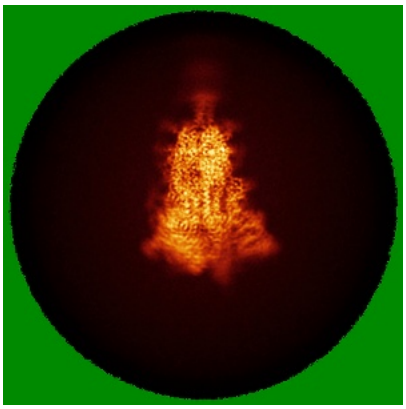


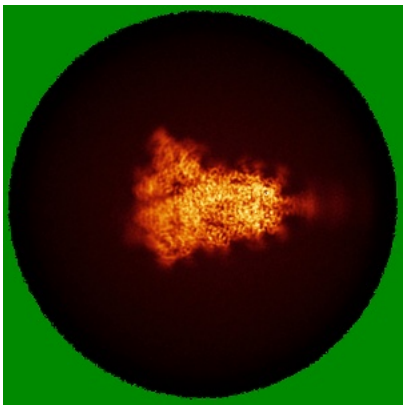
Z Index: 226

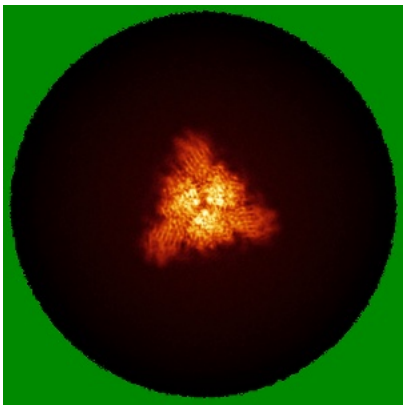
The images above show the largest variance slices of the map in three orthogonal directions.

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

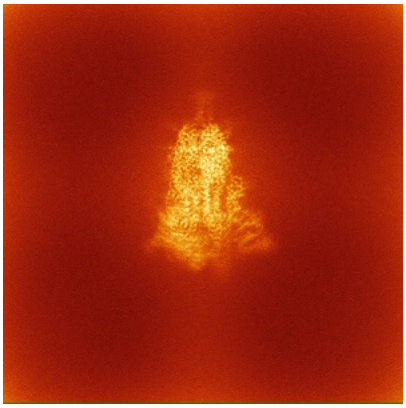
6.4.1 Primary map

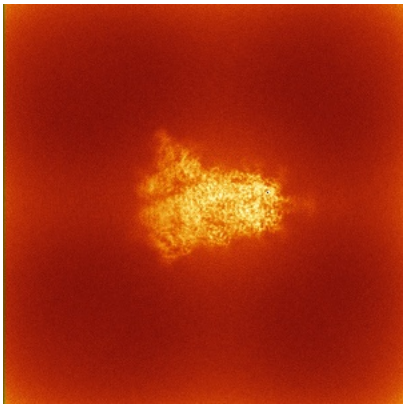

X

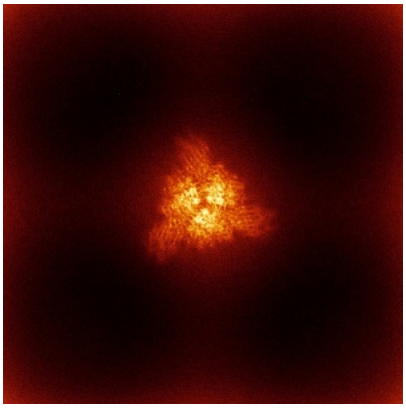

Y


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.

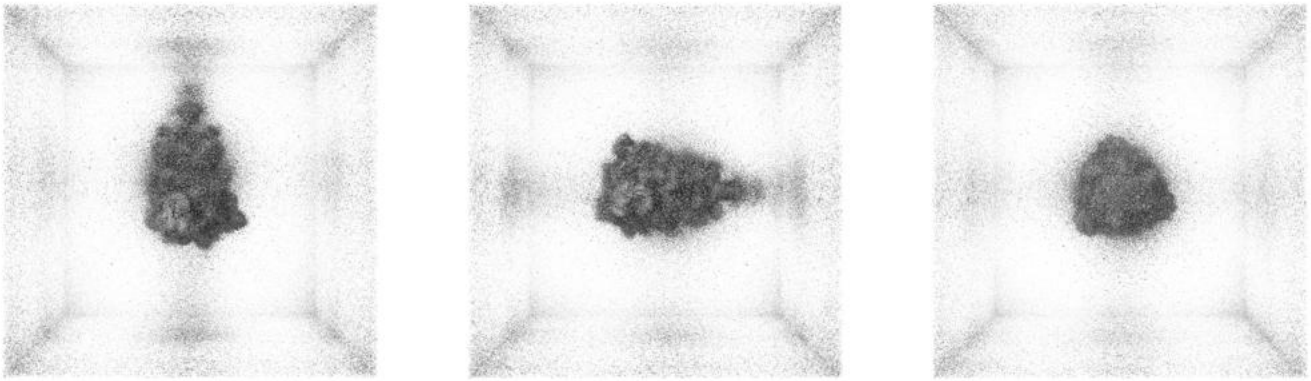
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.03. 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.

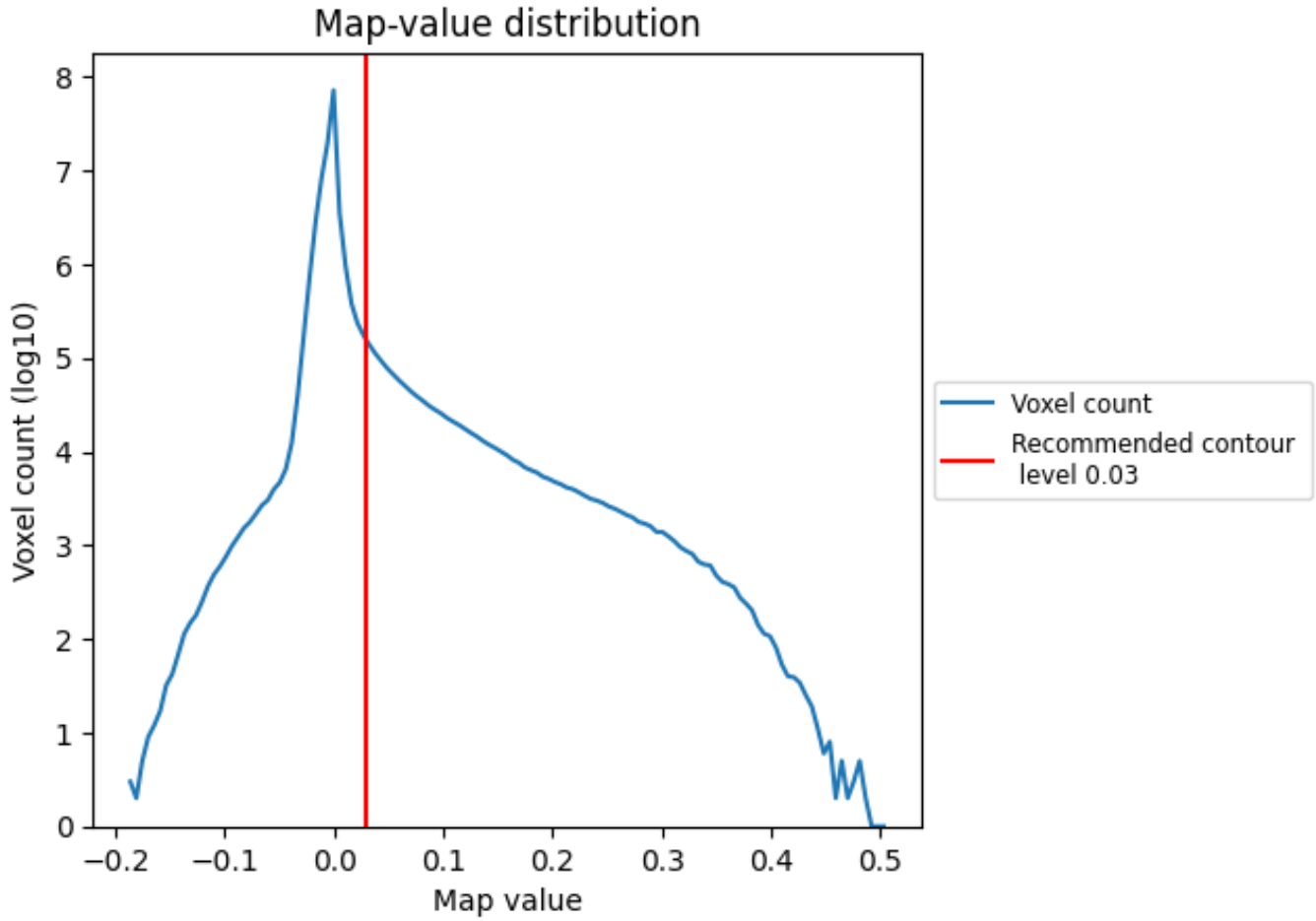
6.6 Mask visualisation (i)

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

7 Map analysis

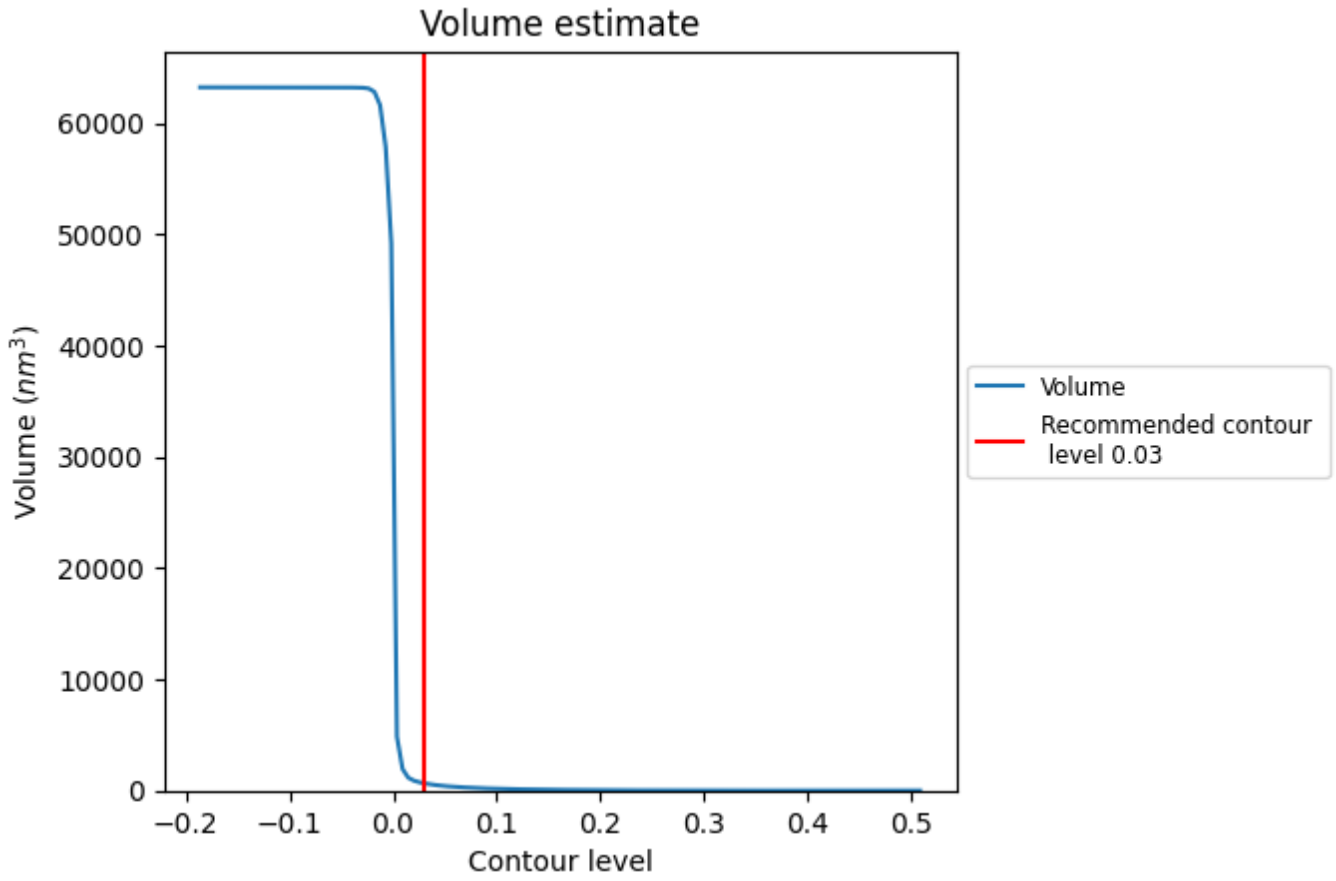
This section contains the results of statistical analysis of the map.

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.

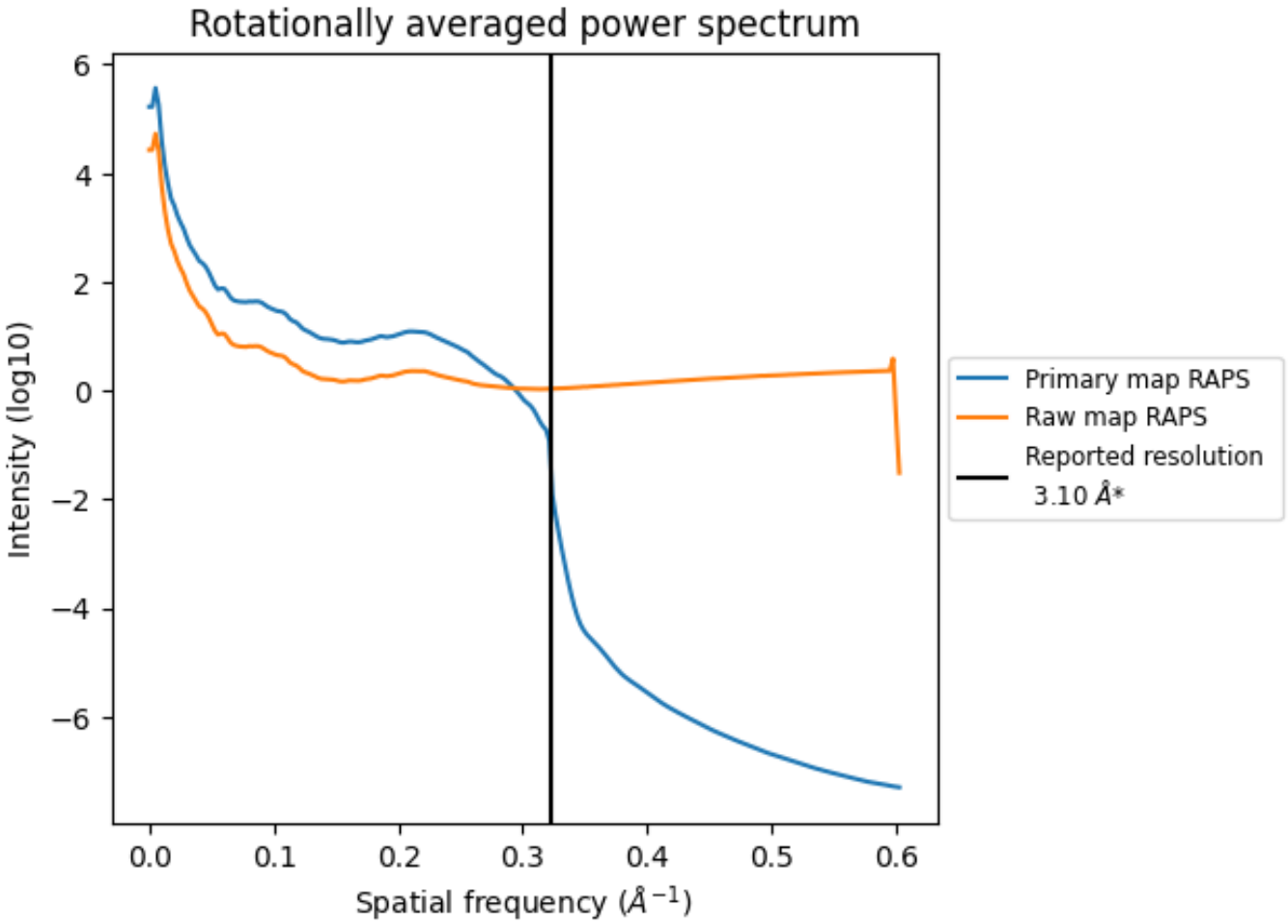
7.2 Volume estimate



The volume at the recommended contour level is 655 nm^3; this corresponds to an approximate mass of 592 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)

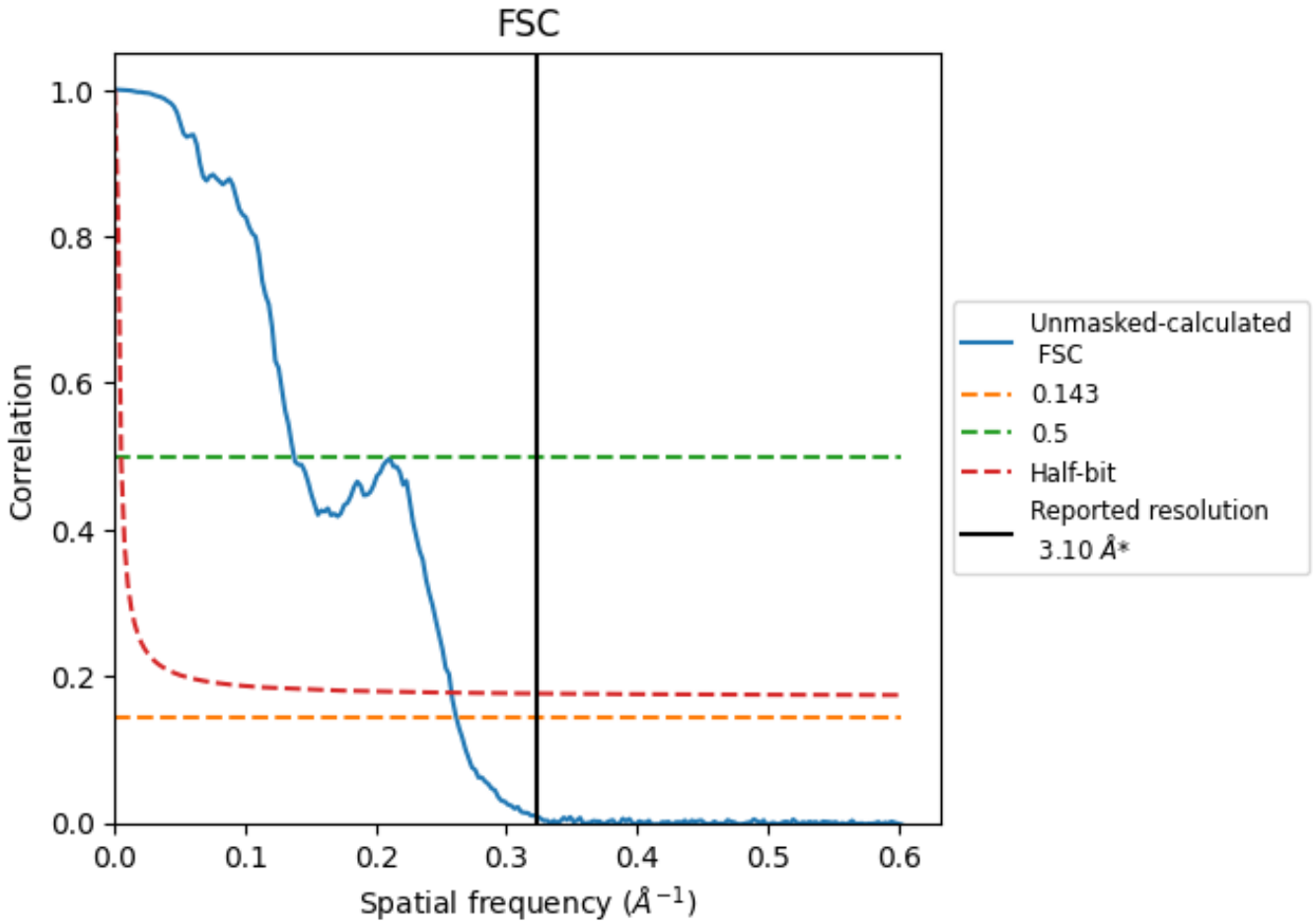


*Reported resolution corresponds to spatial frequency of 0.323 Å^{-1}

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)

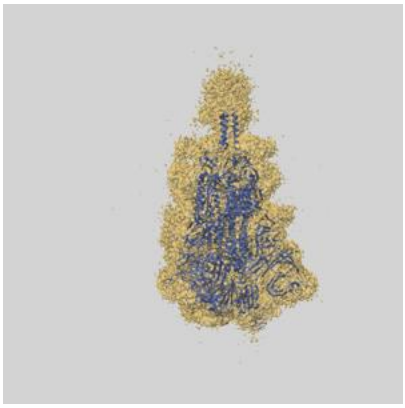
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.10	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.82	7.28	3.88

*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 3.82 differs from the reported value 3.1 by more than 10 %

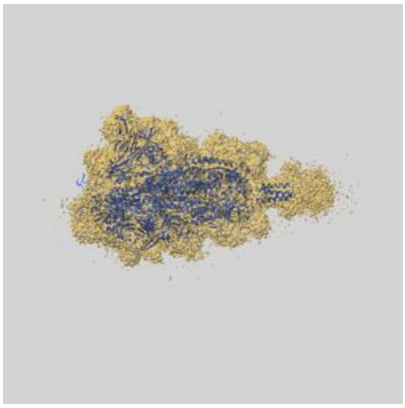
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-27207 and PDB model 8D5A. Per-residue inclusion information can be found in section 3 on page 14.

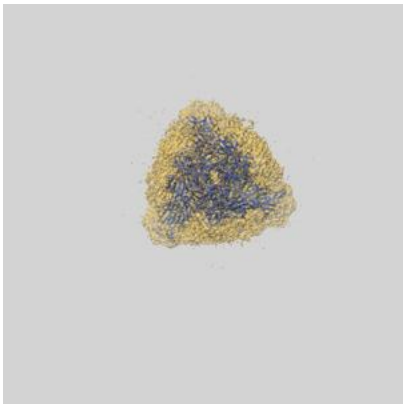
9.1 Map-model overlay



X



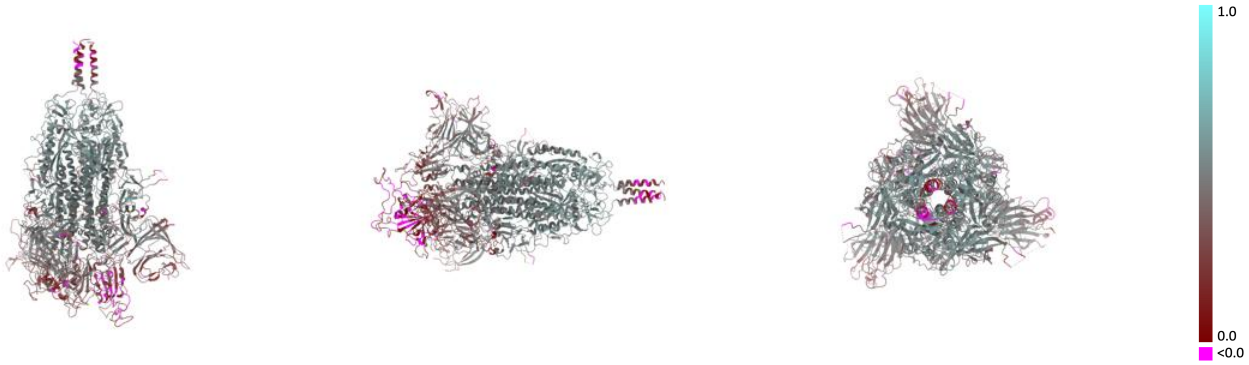
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.03 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.

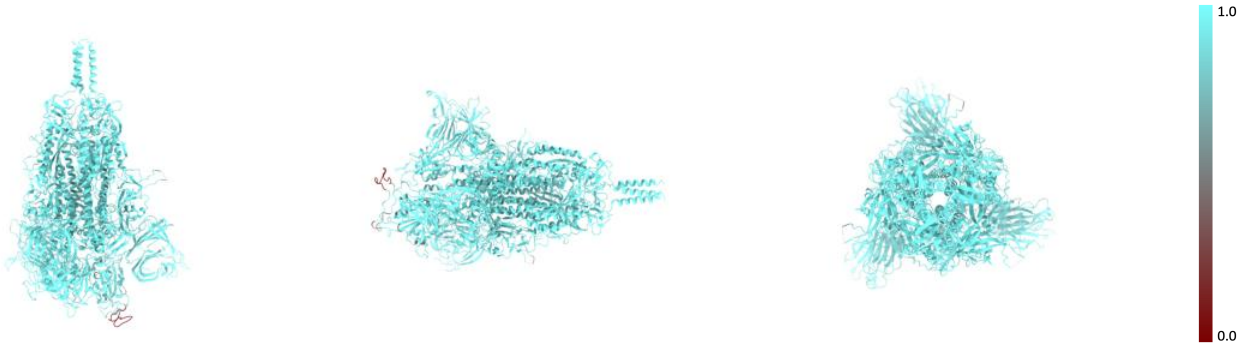
9.2 Q-score mapped to coordinate model (i)



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.

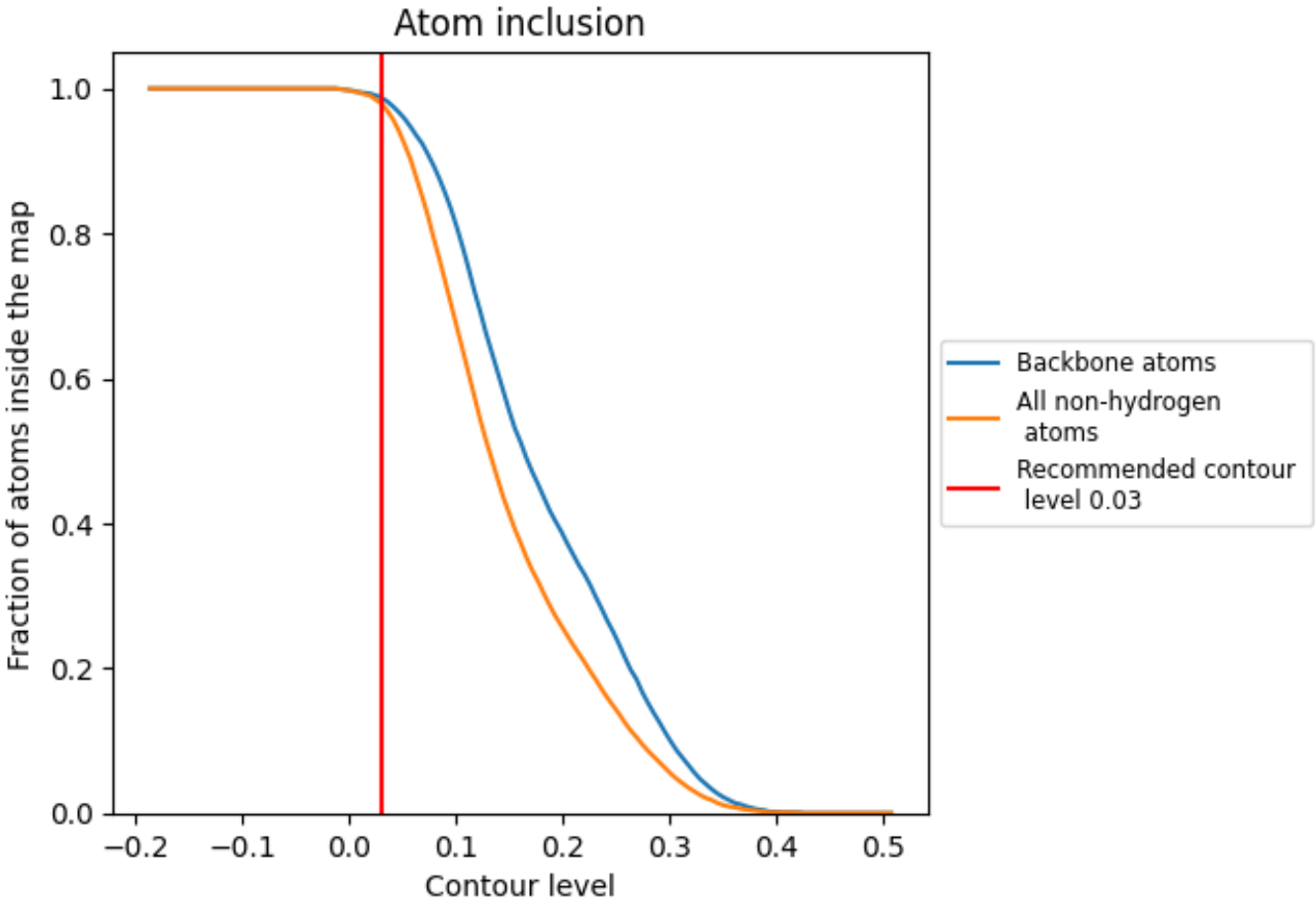
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.03).

9.4 Atom inclusion (i)



At the recommended contour level, 99% of all backbone atoms, 98% 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 (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9800	0.4140
A	0.9910	0.4290
B	0.9930	0.4400
C	0.9570	0.3800
D	0.8970	0.1680
E	0.8210	0.1940
F	1.0000	0.2120
G	1.0000	0.3380
H	1.0000	0.4220
I	1.0000	0.4060
J	0.9740	0.4380
K	1.0000	0.3900
L	1.0000	0.4070
M	0.9740	0.2070
N	1.0000	0.3640
O	0.9640	0.2580
P	1.0000	0.1850
Q	1.0000	0.3350
R	1.0000	0.4780
S	1.0000	0.4200
T	0.9740	0.4150
U	0.9740	0.3960
V	1.0000	0.4260
W	0.9740	0.1910
X	1.0000	0.2150
Y	0.9640	0.2120
Z	1.0000	0.2940
a	1.0000	0.4160
b	1.0000	0.4780
c	1.0000	0.3770
d	0.9740	0.4640
e	0.9740	0.3390
f	1.0000	0.3670