Full wwPDB EM Validation Report

Nov 16, 2022 – 02:18 PM JST

PDB ID	:	6M15
EMDB ID	:	EMD-30037
Title	:	Cryo-EM structures of HKU2 spike glycoproteins
Authors	:	Wang, X.; Yu, J.; Qiao, S.; Guo, R.
Deposited on	:	2020-02-24
Resolution	:	2.38 Å(reported)

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

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

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

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

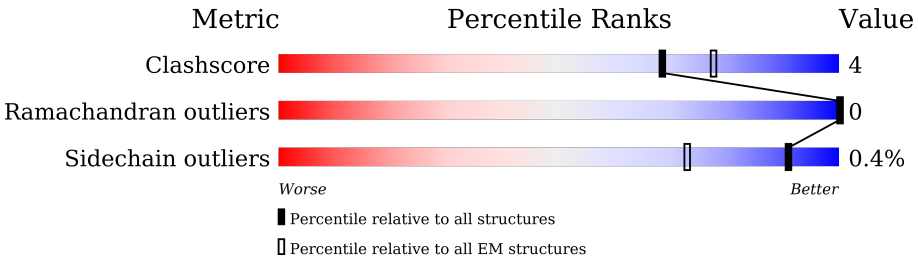
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

1 Overall quality at a glance

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

The reported resolution of this entry is 2.38 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	1118	79% 7% 14%
1	B	1118	78% 8% 14%
1	C	1118	78% 8% 14%
2	D	2	100%
2	E	2	50% 50%
2	F	2	50% 50%
2	G	2	100%
2	H	2	50% 50% 50%

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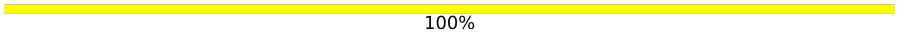
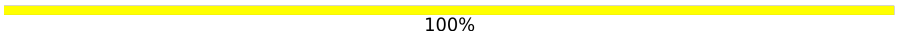
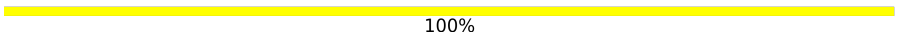
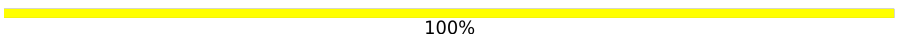
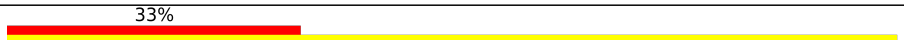
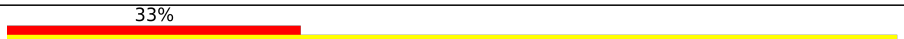
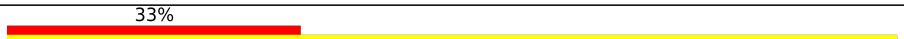
Mol	Chain	Length	Quality of chain
2	I	2	
2	K	2	
2	L	2	
2	M	2	
2	N	2	
2	O	2	
2	P	2	
2	R	2	
2	S	2	
2	T	2	
2	U	2	
2	V	2	
2	W	2	
3	J	3	
3	Q	3	
3	X	3	

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 23471 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	B	965	Total	C	N	O	S	0	0
			7467	4773	1257	1394	43		
1	A	965	Total	C	N	O	S	0	0
			7467	4773	1257	1394	43		
1	C	965	Total	C	N	O	S	0	0
			7467	4773	1257	1394	43		

There are 156 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	1067	LEU	-	expression tag	UNP A8JNZ2
B	1068	GLU	-	expression tag	UNP A8JNZ2
B	1069	VAL	-	expression tag	UNP A8JNZ2
B	1070	LEU	-	expression tag	UNP A8JNZ2
B	1071	PHE	-	expression tag	UNP A8JNZ2
B	1072	GLN	-	expression tag	UNP A8JNZ2
B	1073	GLY	-	expression tag	UNP A8JNZ2
B	1074	PRO	-	expression tag	UNP A8JNZ2
B	1075	GLY	-	expression tag	UNP A8JNZ2
B	1076	GLY	-	expression tag	UNP A8JNZ2
B	1077	GLY	-	expression tag	UNP A8JNZ2
B	1078	SER	-	expression tag	UNP A8JNZ2
B	1079	GLY	-	expression tag	UNP A8JNZ2
B	1080	GLY	-	expression tag	UNP A8JNZ2
B	1081	GLY	-	expression tag	UNP A8JNZ2
B	1082	SER	-	expression tag	UNP A8JNZ2
B	1083	GLY	-	expression tag	UNP A8JNZ2
B	1084	TYR	-	expression tag	UNP A8JNZ2
B	1085	ILE	-	expression tag	UNP A8JNZ2
B	1086	PRO	-	expression tag	UNP A8JNZ2
B	1087	GLU	-	expression tag	UNP A8JNZ2
B	1088	ALA	-	expression tag	UNP A8JNZ2
B	1089	PRO	-	expression tag	UNP A8JNZ2
B	1090	ARG	-	expression tag	UNP A8JNZ2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1091	ASP	-	expression tag	UNP A8JNZ2
B	1092	GLY	-	expression tag	UNP A8JNZ2
B	1093	GLN	-	expression tag	UNP A8JNZ2
B	1094	ALA	-	expression tag	UNP A8JNZ2
B	1095	TYR	-	expression tag	UNP A8JNZ2
B	1096	VAL	-	expression tag	UNP A8JNZ2
B	1097	ARG	-	expression tag	UNP A8JNZ2
B	1098	LYS	-	expression tag	UNP A8JNZ2
B	1099	ASP	-	expression tag	UNP A8JNZ2
B	1100	GLY	-	expression tag	UNP A8JNZ2
B	1101	GLU	-	expression tag	UNP A8JNZ2
B	1102	TRP	-	expression tag	UNP A8JNZ2
B	1103	VAL	-	expression tag	UNP A8JNZ2
B	1104	LEU	-	expression tag	UNP A8JNZ2
B	1105	LEU	-	expression tag	UNP A8JNZ2
B	1106	SER	-	expression tag	UNP A8JNZ2
B	1107	THR	-	expression tag	UNP A8JNZ2
B	1108	PHE	-	expression tag	UNP A8JNZ2
B	1109	LEU	-	expression tag	UNP A8JNZ2
B	1110	GLY	-	expression tag	UNP A8JNZ2
B	1111	TRP	-	expression tag	UNP A8JNZ2
B	1112	SER	-	expression tag	UNP A8JNZ2
B	1113	HIS	-	expression tag	UNP A8JNZ2
B	1114	PRO	-	expression tag	UNP A8JNZ2
B	1115	GLN	-	expression tag	UNP A8JNZ2
B	1116	PHE	-	expression tag	UNP A8JNZ2
B	1117	GLU	-	expression tag	UNP A8JNZ2
B	1118	LYS	-	expression tag	UNP A8JNZ2
A	1067	LEU	-	expression tag	UNP A8JNZ2
A	1068	GLU	-	expression tag	UNP A8JNZ2
A	1069	VAL	-	expression tag	UNP A8JNZ2
A	1070	LEU	-	expression tag	UNP A8JNZ2
A	1071	PHE	-	expression tag	UNP A8JNZ2
A	1072	GLN	-	expression tag	UNP A8JNZ2
A	1073	GLY	-	expression tag	UNP A8JNZ2
A	1074	PRO	-	expression tag	UNP A8JNZ2
A	1075	GLY	-	expression tag	UNP A8JNZ2
A	1076	GLY	-	expression tag	UNP A8JNZ2
A	1077	GLY	-	expression tag	UNP A8JNZ2
A	1078	SER	-	expression tag	UNP A8JNZ2
A	1079	GLY	-	expression tag	UNP A8JNZ2
A	1080	GLY	-	expression tag	UNP A8JNZ2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1081	GLY	-	expression tag	UNP A8JNZ2
A	1082	SER	-	expression tag	UNP A8JNZ2
A	1083	GLY	-	expression tag	UNP A8JNZ2
A	1084	TYR	-	expression tag	UNP A8JNZ2
A	1085	ILE	-	expression tag	UNP A8JNZ2
A	1086	PRO	-	expression tag	UNP A8JNZ2
A	1087	GLU	-	expression tag	UNP A8JNZ2
A	1088	ALA	-	expression tag	UNP A8JNZ2
A	1089	PRO	-	expression tag	UNP A8JNZ2
A	1090	ARG	-	expression tag	UNP A8JNZ2
A	1091	ASP	-	expression tag	UNP A8JNZ2
A	1092	GLY	-	expression tag	UNP A8JNZ2
A	1093	GLN	-	expression tag	UNP A8JNZ2
A	1094	ALA	-	expression tag	UNP A8JNZ2
A	1095	TYR	-	expression tag	UNP A8JNZ2
A	1096	VAL	-	expression tag	UNP A8JNZ2
A	1097	ARG	-	expression tag	UNP A8JNZ2
A	1098	LYS	-	expression tag	UNP A8JNZ2
A	1099	ASP	-	expression tag	UNP A8JNZ2
A	1100	GLY	-	expression tag	UNP A8JNZ2
A	1101	GLU	-	expression tag	UNP A8JNZ2
A	1102	TRP	-	expression tag	UNP A8JNZ2
A	1103	VAL	-	expression tag	UNP A8JNZ2
A	1104	LEU	-	expression tag	UNP A8JNZ2
A	1105	LEU	-	expression tag	UNP A8JNZ2
A	1106	SER	-	expression tag	UNP A8JNZ2
A	1107	THR	-	expression tag	UNP A8JNZ2
A	1108	PHE	-	expression tag	UNP A8JNZ2
A	1109	LEU	-	expression tag	UNP A8JNZ2
A	1110	GLY	-	expression tag	UNP A8JNZ2
A	1111	TRP	-	expression tag	UNP A8JNZ2
A	1112	SER	-	expression tag	UNP A8JNZ2
A	1113	HIS	-	expression tag	UNP A8JNZ2
A	1114	PRO	-	expression tag	UNP A8JNZ2
A	1115	GLN	-	expression tag	UNP A8JNZ2
A	1116	PHE	-	expression tag	UNP A8JNZ2
A	1117	GLU	-	expression tag	UNP A8JNZ2
A	1118	LYS	-	expression tag	UNP A8JNZ2
C	1067	LEU	-	expression tag	UNP A8JNZ2
C	1068	GLU	-	expression tag	UNP A8JNZ2
C	1069	VAL	-	expression tag	UNP A8JNZ2
C	1070	LEU	-	expression tag	UNP A8JNZ2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1071	PHE	-	expression tag	UNP A8JNZ2
C	1072	GLN	-	expression tag	UNP A8JNZ2
C	1073	GLY	-	expression tag	UNP A8JNZ2
C	1074	PRO	-	expression tag	UNP A8JNZ2
C	1075	GLY	-	expression tag	UNP A8JNZ2
C	1076	GLY	-	expression tag	UNP A8JNZ2
C	1077	GLY	-	expression tag	UNP A8JNZ2
C	1078	SER	-	expression tag	UNP A8JNZ2
C	1079	GLY	-	expression tag	UNP A8JNZ2
C	1080	GLY	-	expression tag	UNP A8JNZ2
C	1081	GLY	-	expression tag	UNP A8JNZ2
C	1082	SER	-	expression tag	UNP A8JNZ2
C	1083	GLY	-	expression tag	UNP A8JNZ2
C	1084	TYR	-	expression tag	UNP A8JNZ2
C	1085	ILE	-	expression tag	UNP A8JNZ2
C	1086	PRO	-	expression tag	UNP A8JNZ2
C	1087	GLU	-	expression tag	UNP A8JNZ2
C	1088	ALA	-	expression tag	UNP A8JNZ2
C	1089	PRO	-	expression tag	UNP A8JNZ2
C	1090	ARG	-	expression tag	UNP A8JNZ2
C	1091	ASP	-	expression tag	UNP A8JNZ2
C	1092	GLY	-	expression tag	UNP A8JNZ2
C	1093	GLN	-	expression tag	UNP A8JNZ2
C	1094	ALA	-	expression tag	UNP A8JNZ2
C	1095	TYR	-	expression tag	UNP A8JNZ2
C	1096	VAL	-	expression tag	UNP A8JNZ2
C	1097	ARG	-	expression tag	UNP A8JNZ2
C	1098	LYS	-	expression tag	UNP A8JNZ2
C	1099	ASP	-	expression tag	UNP A8JNZ2
C	1100	GLY	-	expression tag	UNP A8JNZ2
C	1101	GLU	-	expression tag	UNP A8JNZ2
C	1102	TRP	-	expression tag	UNP A8JNZ2
C	1103	VAL	-	expression tag	UNP A8JNZ2
C	1104	LEU	-	expression tag	UNP A8JNZ2
C	1105	LEU	-	expression tag	UNP A8JNZ2
C	1106	SER	-	expression tag	UNP A8JNZ2
C	1107	THR	-	expression tag	UNP A8JNZ2
C	1108	PHE	-	expression tag	UNP A8JNZ2
C	1109	LEU	-	expression tag	UNP A8JNZ2
C	1110	GLY	-	expression tag	UNP A8JNZ2
C	1111	TRP	-	expression tag	UNP A8JNZ2
C	1112	SER	-	expression tag	UNP A8JNZ2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1113	HIS	-	expression tag	UNP A8JNZ2
C	1114	PRO	-	expression tag	UNP A8JNZ2
C	1115	GLN	-	expression tag	UNP A8JNZ2
C	1116	PHE	-	expression tag	UNP A8JNZ2
C	1117	GLU	-	expression tag	UNP A8JNZ2
C	1118	LYS	-	expression tag	UNP A8JNZ2

- Molecule 2 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
2	D	2	Total	C	N	O	0	0
			28	16	2	10		
2	E	2	Total	C	N	O	0	0
			28	16	2	10		
2	F	2	Total	C	N	O	0	0
			28	16	2	10		
2	G	2	Total	C	N	O	0	0
			28	16	2	10		
2	H	2	Total	C	N	O	0	0
			28	16	2	10		
2	I	2	Total	C	N	O	0	0
			28	16	2	10		
2	K	2	Total	C	N	O	0	0
			28	16	2	10		
2	L	2	Total	C	N	O	0	0
			28	16	2	10		
2	M	2	Total	C	N	O	0	0
			28	16	2	10		
2	N	2	Total	C	N	O	0	0
			28	16	2	10		
2	O	2	Total	C	N	O	0	0
			28	16	2	10		
2	P	2	Total	C	N	O	0	0
			28	16	2	10		
2	R	2	Total	C	N	O	0	0
			28	16	2	10		
2	S	2	Total	C	N	O	0	0
			28	16	2	10		

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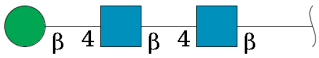
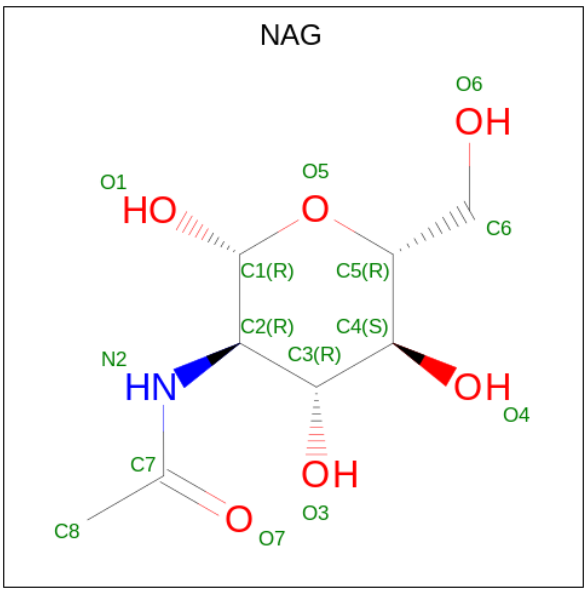
Mol	Chain	Residues	Atoms				AltConf	Trace
2	T	2	Total	C	N	O	0	0
			28	16	2	10		
2	U	2	Total	C	N	O	0	0
			28	16	2	10		
2	V	2	Total	C	N	O	0	0
			28	16	2	10		
2	W	2	Total	C	N	O	0	0
			28	16	2	10		

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



Mol	Chain	Residues	Atoms				AltConf	Trace
3	J	3	Total	C	N	O	0	0
			39	22	2	15		
3	Q	3	Total	C	N	O	0	0
			39	22	2	15		
3	X	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				AltConf
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	B	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	A	1	Total 126	C 72	N 9	O 45	0
4	C	1	Total 126	C 72	N 9	O 45	0
4	C	1	Total 126	C 72	N 9	O 45	0
4	C	1	Total 126	C 72	N 9	O 45	0
4	C	1	Total 126	C 72	N 9	O 45	0

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Mol	Chain	Residues	Atoms				AltConf
4	C	1	Total	C	N	O	0
			126	72	9	45	
4	C	1	Total	C	N	O	0
			126	72	9	45	
4	C	1	Total	C	N	O	0
			126	72	9	45	
4	C	1	Total	C	N	O	0
			126	72	9	45	
4	C	1	Total	C	N	O	0
			126	72	9	45	

- Molecule 5 is water.

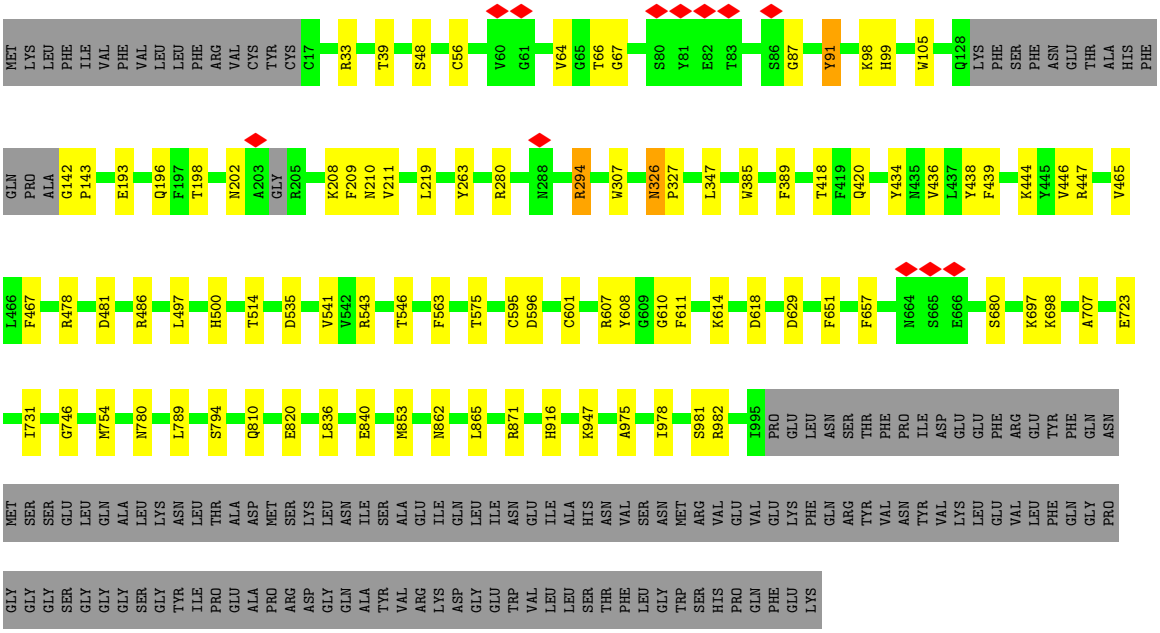
Mol	Chain	Residues	Atoms		AltConf
5	B	21	Total	O	0
			21	21	
5	A	26	Total	O	0
			26	26	
5	C	24	Total	O	0
			24	24	

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.

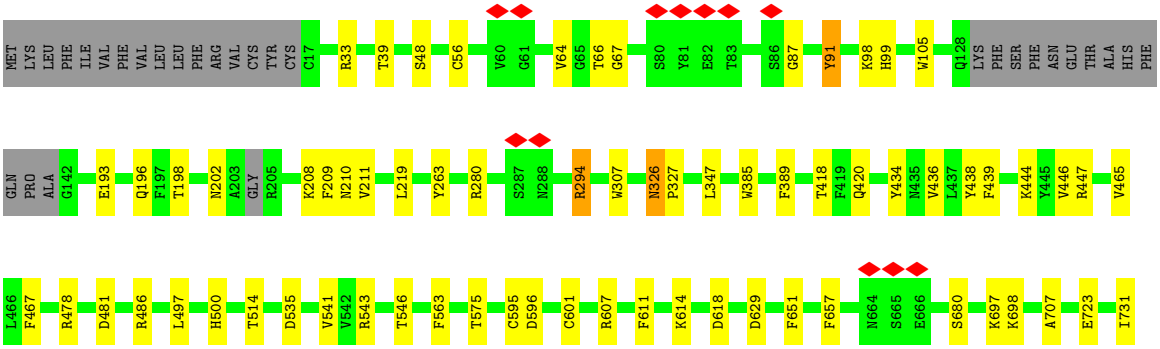
• Molecule 1: Spike glycoprotein

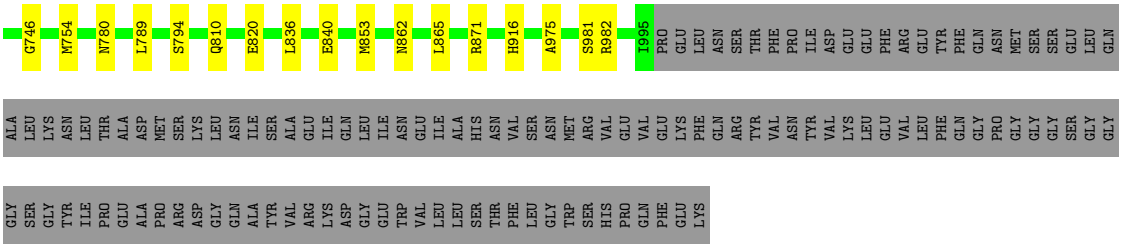
Chain B:



• Molecule 1: Spike glycoprotein

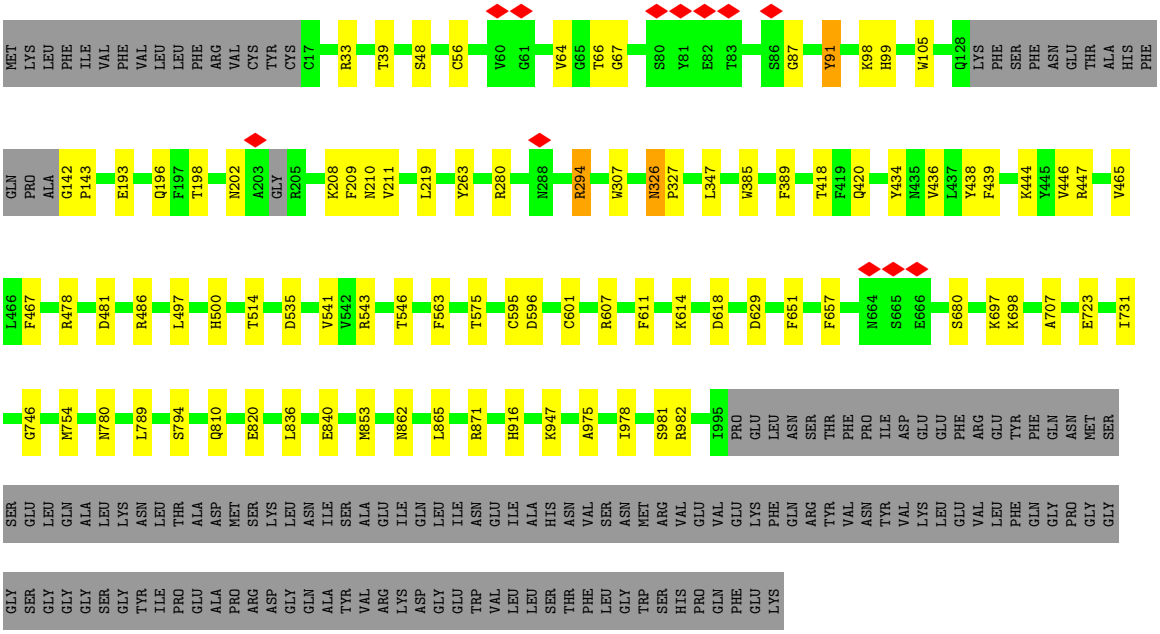
Chain A:





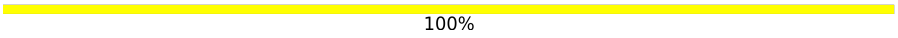
• Molecule 1: Spike glycoprotein

Chain C:



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

Chain D:



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

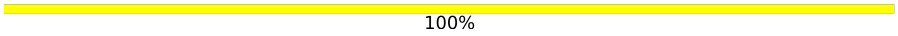
Chain E:

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

Chain F:

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

Chain G:



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

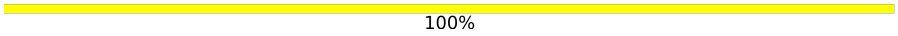
Chain H:

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

Chain I:

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

Chain K:



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

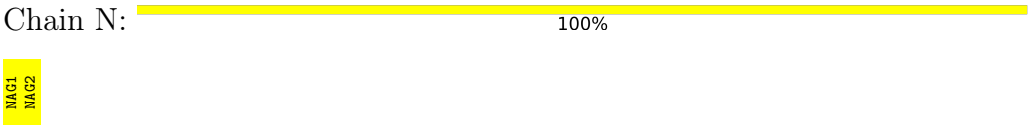
Chain L:

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

Chain M:

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

Chain N:



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

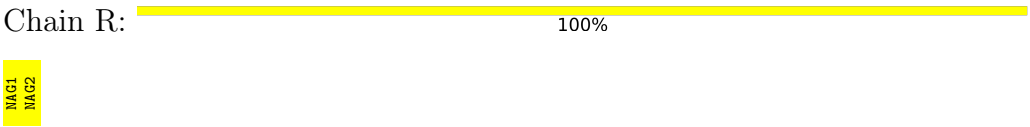
Chain O:

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

Chain P:

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

Chain R:



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

Chain S:

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

Chain T:

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

Chain U:

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

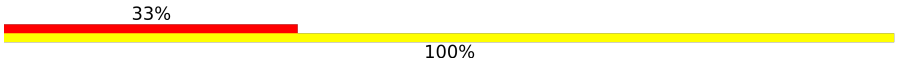
Chain V:

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

Chain W:

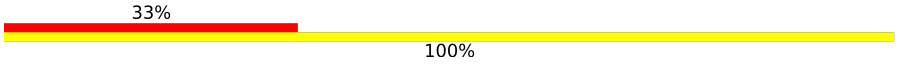
• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:



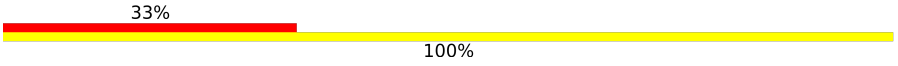
• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Q:



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

Chain X:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	421490	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	49.784	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.258	Depositor
Minimum map value	-0.131	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.0201	Depositor
Map size (Å)	271.616, 271.616, 271.616	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.061, 1.061, 1.061	Depositor

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	A	0.43	1/7646 (0.0%)	0.59	1/10418 (0.0%)
1	B	0.43	1/7646 (0.0%)	0.59	1/10418 (0.0%)
1	C	0.43	1/7646 (0.0%)	0.59	1/10418 (0.0%)
All	All	0.43	3/22938 (0.0%)	0.59	3/31254 (0.0%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	657	PHE	C-N	-5.66	1.21	1.34
1	B	657	PHE	C-N	-5.64	1.21	1.34
1	C	657	PHE	C-N	-5.63	1.21	1.34

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	91	TYR	CA-CB-CG	5.63	124.11	113.40
1	C	91	TYR	CA-CB-CG	5.63	124.10	113.40
1	A	91	TYR	CA-CB-CG	5.63	124.09	113.40

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	7467	0	7202	77	0
1	B	7467	0	7202	80	0
1	C	7467	0	7202	79	0
2	D	28	0	25	0	0
2	E	28	0	25	0	0
2	F	28	0	25	0	0
2	G	28	0	25	0	0
2	H	28	0	25	0	0
2	I	28	0	25	1	0
2	K	28	0	25	0	0
2	L	28	0	25	0	0
2	M	28	0	25	0	0
2	N	28	0	25	0	0
2	O	28	0	25	0	0
2	P	28	0	25	1	0
2	R	28	0	25	0	0
2	S	28	0	25	0	0
2	T	28	0	25	0	0
2	U	28	0	25	0	0
2	V	28	0	25	0	0
2	W	28	0	25	1	0
3	J	39	0	34	0	0
3	Q	39	0	34	0	0
3	X	39	0	34	0	0
4	A	126	0	117	0	0
4	B	126	0	117	0	0
4	C	126	0	117	0	0
5	A	26	0	0	1	0
5	B	21	0	0	1	0
5	C	24	0	0	1	0
All	All	23471	0	22509	176	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 4.

All (176) 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:B:546:THR:HG22	1:A:731:ILE:CG2	1.58	1.33
1:A:546:THR:HG22	1:C:731:ILE:CG2	1.58	1.32
1:B:731:ILE:CG2	1:C:546:THR:HG22	1.58	1.30
1:B:575:THR:HG22	5:B:1308:HOH:O	1.54	1.07

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:575:THR:HG22	5:C:1317:HOH:O	1.55	1.05
1:B:546:THR:HG22	1:A:731:ILE:HG22	1.42	1.02
1:B:731:ILE:HG22	1:C:546:THR:HG22	1.41	1.02
1:A:575:THR:HG22	5:A:1324:HOH:O	1.63	0.97
1:A:546:THR:HG22	1:C:731:ILE:HG22	1.41	0.96
1:B:607:ARG:O	1:C:820:GLU:CG	2.14	0.95
1:B:820:GLU:CG	1:A:607:ARG:O	2.15	0.94
1:A:820:GLU:CG	1:C:607:ARG:O	2.14	0.94
1:A:546:THR:HG22	1:C:731:ILE:HG21	1.52	0.91
1:B:546:THR:HG22	1:A:731:ILE:HG21	1.53	0.90
1:A:546:THR:CG2	1:C:731:ILE:CG2	2.49	0.90
1:B:731:ILE:HG21	1:C:546:THR:HG22	1.53	0.88
1:B:731:ILE:CG2	1:C:546:THR:CG2	2.49	0.88
1:B:546:THR:CG2	1:A:731:ILE:CG2	2.50	0.86
1:A:820:GLU:HG3	1:C:607:ARG:O	1.77	0.83
1:B:820:GLU:HG3	1:A:607:ARG:O	1.78	0.83
1:B:607:ARG:O	1:C:820:GLU:HG2	1.78	0.83
1:B:820:GLU:HG2	1:A:607:ARG:O	1.79	0.83
1:A:820:GLU:HG2	1:C:607:ARG:O	1.79	0.82
1:B:607:ARG:O	1:C:820:GLU:HG3	1.78	0.81
1:B:607:ARG:C	1:C:820:GLU:HG2	2.12	0.70
1:A:820:GLU:HG2	1:C:607:ARG:C	2.12	0.70
1:B:820:GLU:HG2	1:A:607:ARG:C	2.13	0.69
1:B:294:ARG:NH2	1:A:105:TRP:HZ2	1.91	0.68
1:A:294:ARG:NH2	1:C:105:TRP:HZ2	1.90	0.68
1:B:105:TRP:HZ2	1:C:294:ARG:NH2	1.90	0.68
1:B:546:THR:CG2	1:A:731:ILE:HG21	2.23	0.67
1:B:731:ILE:HG23	1:C:546:THR:HG22	1.73	0.66
1:A:546:THR:CG2	1:C:731:ILE:HG21	2.22	0.65
1:B:731:ILE:HG21	1:C:546:THR:CG2	2.22	0.64
1:B:546:THR:HG22	1:A:731:ILE:HG23	1.73	0.64
1:B:975:ALA:HA	1:C:981:SER:OG	2.01	0.60
1:A:981:SER:OG	1:C:975:ALA:HA	2.01	0.60
1:A:497:LEU:H	1:A:500:HIS:HD2	1.50	0.60
1:C:67:GLY:HA3	1:C:211:VAL:HG21	1.84	0.59
1:B:67:GLY:HA3	1:B:211:VAL:HG21	1.84	0.59
1:B:981:SER:OG	1:A:975:ALA:HA	2.02	0.59
1:C:497:LEU:H	1:C:500:HIS:HD2	1.50	0.59
1:A:67:GLY:HA3	1:A:211:VAL:HG21	1.84	0.58
1:B:497:LEU:H	1:B:500:HIS:HD2	1.50	0.58
1:B:434:TYR:O	1:B:447:ARG:NH1	2.37	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:434:TYR:O	1:C:447:ARG:NH1	2.37	0.57
1:A:434:TYR:O	1:A:447:ARG:NH1	2.37	0.57
1:A:546:THR:HG22	1:C:731:ILE:HG23	1.72	0.57
1:C:497:LEU:H	1:C:500:HIS:CD2	2.24	0.56
1:B:33:ARG:HD3	1:C:438:TYR:CE1	2.42	0.55
1:A:497:LEU:H	1:A:500:HIS:CD2	2.24	0.55
1:B:438:TYR:CE1	1:A:33:ARG:HD3	2.42	0.55
1:B:497:LEU:H	1:B:500:HIS:CD2	2.24	0.55
1:C:64:VAL:HG22	1:C:198:THR:HG22	1.90	0.54
1:A:438:TYR:CE1	1:C:33:ARG:HD3	2.42	0.54
1:A:64:VAL:HG22	1:A:198:THR:HG22	1.90	0.53
1:B:820:GLU:CG	1:A:607:ARG:C	2.76	0.53
1:B:64:VAL:HG22	1:B:198:THR:HG22	1.90	0.52
1:B:418:THR:HG21	1:A:596:ASP:OD2	2.09	0.52
1:B:596:ASP:OD2	1:C:418:THR:HG21	2.10	0.52
1:A:418:THR:HG21	1:C:596:ASP:OD2	2.10	0.51
1:A:982:ARG:O	1:C:975:ALA:HB1	2.11	0.51
1:C:436:VAL:HG12	1:C:446:VAL:HG12	1.93	0.51
1:B:436:VAL:HG12	1:B:446:VAL:HG12	1.93	0.51
1:A:436:VAL:HG12	1:A:446:VAL:HG12	1.93	0.51
1:B:514:THR:HG23	1:B:541:VAL:HG13	1.93	0.51
1:C:514:THR:HG23	1:C:541:VAL:HG13	1.93	0.51
1:B:56:CYS:HB3	1:B:208:LYS:HG2	1.93	0.50
1:B:975:ALA:HB1	1:C:982:ARG:O	2.10	0.50
1:A:263:TYR:HD2	1:A:420:GLN:HE21	1.58	0.50
1:B:263:TYR:HD2	1:B:420:GLN:HE21	1.58	0.50
1:C:56:CYS:HB3	1:C:208:LYS:HG2	1.93	0.50
1:A:575:THR:HG23	1:A:916:HIS:HB2	1.94	0.50
1:B:607:ARG:C	1:C:820:GLU:CG	2.76	0.50
1:A:514:THR:HG23	1:A:541:VAL:HG13	1.93	0.50
1:B:575:THR:HG23	1:B:916:HIS:HB2	1.94	0.50
1:C:263:TYR:HD2	1:C:420:GLN:HE21	1.58	0.50
1:A:56:CYS:HB3	1:A:208:LYS:HG2	1.93	0.50
1:B:982:ARG:O	1:A:975:ALA:HB1	2.11	0.50
1:C:575:THR:HG23	1:C:916:HIS:HB2	1.94	0.50
1:A:780:ASN:HB3	2:P:1:NAG:H82	1.94	0.49
1:A:820:GLU:CG	1:C:607:ARG:C	2.76	0.48
1:B:780:ASN:HB3	2:I:1:NAG:H82	1.94	0.48
1:A:697:LYS:NZ	1:A:723:GLU:OE1	2.40	0.48
1:C:780:ASN:HB3	2:W:1:NAG:H82	1.94	0.48
1:B:707:ALA:HB3	1:C:478:ARG:O	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:478:ARG:O	1:A:707:ALA:HB3	2.14	0.47
1:A:810:GLN:HE22	1:A:862:ASN:HD22	1.62	0.47
1:C:98:LYS:NZ	1:C:99:HIS:HE1	2.12	0.47
1:C:810:GLN:HE22	1:C:862:ASN:HD22	1.63	0.47
1:B:98:LYS:NZ	1:B:99:HIS:HE1	2.12	0.47
1:A:478:ARG:O	1:C:707:ALA:HB3	2.15	0.47
1:B:865:LEU:HA	1:C:865:LEU:HD11	1.96	0.47
1:B:810:GLN:HE22	1:B:862:ASN:HD22	1.62	0.47
1:A:98:LYS:NZ	1:A:99:HIS:HE1	2.12	0.46
1:A:865:LEU:HD11	1:C:865:LEU:HA	1.96	0.46
1:A:87:GLY:O	1:A:202:ASN:ND2	2.49	0.46
1:C:87:GLY:O	1:C:202:ASN:ND2	2.49	0.46
1:B:865:LEU:HD11	1:A:865:LEU:HA	1.97	0.46
1:C:98:LYS:HB2	1:C:193:GLU:OE2	2.16	0.46
1:B:347:LEU:HD11	1:B:385:TRP:HB2	1.98	0.46
1:A:595:CYS:HB3	1:A:601:CYS:HB3	1.87	0.46
1:C:697:LYS:NZ	1:C:723:GLU:OE1	2.40	0.46
1:C:680:SER:HA	1:C:698:LYS:HE2	1.98	0.45
1:A:347:LEU:HD11	1:A:385:TRP:HB2	1.98	0.45
1:B:680:SER:HA	1:B:698:LYS:HE2	1.98	0.45
1:B:87:GLY:O	1:B:202:ASN:ND2	2.49	0.45
1:B:614:LYS:HE2	1:B:618:ASP:OD2	2.17	0.45
1:C:142:GLY:HA2	1:C:143:PRO:HD3	1.82	0.45
1:C:465:VAL:HG12	1:C:467:PHE:HB2	1.99	0.45
1:A:326:ASN:HD22	1:A:327:PRO:HD2	1.82	0.45
1:C:326:ASN:HD22	1:C:327:PRO:HD2	1.82	0.45
1:B:98:LYS:HB2	1:B:193:GLU:OE2	2.16	0.45
1:B:326:ASN:HD22	1:B:327:PRO:HD2	1.82	0.45
1:A:98:LYS:HB2	1:A:193:GLU:OE2	2.16	0.45
1:C:347:LEU:HD11	1:C:385:TRP:HB2	1.98	0.45
1:C:614:LYS:HE2	1:C:618:ASP:OD2	2.17	0.45
1:A:48:SER:H	1:A:210:ASN:HD21	1.66	0.44
1:A:439:PHE:CG	1:A:444:LYS:HG3	2.52	0.44
1:A:465:VAL:HG12	1:A:467:PHE:HB2	1.99	0.44
1:A:680:SER:HA	1:A:698:LYS:HE2	1.98	0.44
1:B:439:PHE:CG	1:B:444:LYS:HG3	2.52	0.44
1:B:481:ASP:HB3	1:B:486:ARG:HH12	1.83	0.44
1:B:595:CYS:HB3	1:B:601:CYS:HB3	1.87	0.44
1:A:66:THR:HG22	1:A:196:GLN:HG2	2.00	0.44
1:C:439:PHE:CG	1:C:444:LYS:HG3	2.52	0.44
1:A:614:LYS:HE2	1:A:618:ASP:OD2	2.17	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:48:SER:H	1:C:210:ASN:HD21	1.66	0.44
1:B:836:LEU:HD13	1:B:840:GLU:HG3	1.99	0.44
1:C:91:TYR:HB2	1:C:209:PHE:HZ	1.83	0.44
1:B:48:SER:H	1:B:210:ASN:HD21	1.66	0.44
1:A:91:TYR:HB2	1:A:209:PHE:HZ	1.83	0.43
1:A:535:ASP:OD2	1:A:543:ARG:NH2	2.51	0.43
1:B:66:THR:HG22	1:B:196:GLN:HG2	2.00	0.43
1:C:836:LEU:HD13	1:C:840:GLU:HG3	1.99	0.43
1:B:465:VAL:HG12	1:B:467:PHE:HB2	1.99	0.43
1:B:535:ASP:OD2	1:B:543:ARG:NH2	2.51	0.43
1:A:836:LEU:HD13	1:A:840:GLU:HG3	1.99	0.43
1:C:481:ASP:HB3	1:C:486:ARG:HH12	1.83	0.43
1:B:607:ARG:HA	1:C:820:GLU:CG	2.48	0.43
1:C:629:ASP:OD2	1:C:871:ARG:HD2	2.19	0.43
1:B:91:TYR:HB2	1:B:209:PHE:HZ	1.83	0.43
1:B:629:ASP:OD2	1:B:871:ARG:HD2	2.19	0.43
1:A:481:ASP:HB3	1:A:486:ARG:HH12	1.83	0.43
1:B:280:ARG:HD3	1:B:307:TRP:HB3	2.01	0.43
1:B:697:LYS:NZ	1:B:723:GLU:OE1	2.40	0.43
1:A:629:ASP:OD2	1:A:871:ARG:HD2	2.19	0.42
1:A:820:GLU:CG	1:C:607:ARG:HA	2.48	0.42
1:C:280:ARG:HD3	1:C:307:TRP:HB3	2.01	0.42
1:A:481:ASP:HB3	1:A:486:ARG:NH1	2.34	0.42
1:C:66:THR:HG22	1:C:196:GLN:HG2	2.00	0.42
1:C:481:ASP:HB3	1:C:486:ARG:NH1	2.34	0.42
1:C:535:ASP:OD2	1:C:543:ARG:NH2	2.51	0.42
1:C:595:CYS:HB3	1:C:601:CYS:HB3	1.87	0.42
1:B:142:GLY:HA2	1:B:143:PRO:HD3	1.82	0.42
1:B:820:GLU:CG	1:A:607:ARG:HA	2.48	0.42
1:B:651:PHE:CZ	1:B:754:MET:HG3	2.55	0.42
1:A:651:PHE:CZ	1:A:754:MET:HG3	2.55	0.42
1:A:280:ARG:HD3	1:A:307:TRP:HB3	2.01	0.42
1:C:651:PHE:CZ	1:C:754:MET:HG3	2.55	0.42
1:B:481:ASP:HB3	1:B:486:ARG:NH1	2.34	0.42
1:B:789:LEU:HD22	1:B:794:SER:HB2	2.02	0.42
1:C:39:THR:HG22	1:C:219:LEU:HD11	2.02	0.41
1:A:789:LEU:HD22	1:A:794:SER:HB2	2.02	0.41
1:B:39:THR:HG22	1:B:219:LEU:HD11	2.02	0.41
1:B:947:LYS:HB2	1:B:978:ILE:HG13	2.03	0.41
1:A:39:THR:HG22	1:A:219:LEU:HD11	2.02	0.41
1:B:611:PHE:CE2	1:B:853:MET:HG2	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:608:TYR:O	1:B:610:GLY:N	2.54	0.41
1:C:789:LEU:HD22	1:C:794:SER:HB2	2.02	0.41
1:C:947:LYS:HB2	1:C:978:ILE:HG13	2.03	0.41
1:B:563:PHE:O	1:A:746:GLY:HA3	2.21	0.41
1:C:611:PHE:CE2	1:C:853:MET:HG2	2.56	0.41
1:A:563:PHE:O	1:C:746:GLY:HA3	2.21	0.40
1:A:611:PHE:CE2	1:A:853:MET:HG2	2.56	0.40
1:B:746:GLY:HA3	1:C:563:PHE:O	2.21	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	959/1118 (86%)	930 (97%)	29 (3%)	0	100	100
1	B	959/1118 (86%)	930 (97%)	29 (3%)	0	100	100
1	C	959/1118 (86%)	930 (97%)	29 (3%)	0	100	100
All	All	2877/3354 (86%)	2790 (97%)	87 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	809/963 (84%)	806 (100%)	3 (0%)	91 96
1	B	809/963 (84%)	806 (100%)	3 (0%)	91 96
1	C	809/963 (84%)	806 (100%)	3 (0%)	91 96
All	All	2427/2889 (84%)	2418 (100%)	9 (0%)	91 96

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	294	ARG
1	B	326	ASN
1	B	389	PHE
1	A	294	ARG
1	A	326	ASN
1	A	389	PHE
1	C	294	ARG
1	C	326	ASN
1	C	389	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	99	HIS
1	B	210	ASN
1	B	326	ASN
1	B	500	HIS
1	B	526	ASN
1	B	699	ASN
1	B	710	HIS
1	B	773	ASN
1	B	810	GLN
1	B	907	ASN
1	A	99	HIS
1	A	210	ASN
1	A	326	ASN
1	A	500	HIS
1	A	526	ASN
1	A	699	ASN
1	A	710	HIS
1	A	773	ASN
1	A	810	GLN
1	A	907	ASN

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Mol	Chain	Res	Type
1	C	99	HIS
1	C	210	ASN
1	C	326	ASN
1	C	500	HIS
1	C	526	ASN
1	C	699	ASN
1	C	710	HIS
1	C	773	ASN
1	C	810	GLN
1	C	897	GLN
1	C	907	ASN

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

45 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	1,2	14,14,15	0.43	0	17,19,21	2.70	4 (23%)
2	NAG	D	2	2	14,14,15	0.33	0	17,19,21	0.64	1 (5%)
2	NAG	E	1	1,2	14,14,15	0.36	0	17,19,21	0.60	0
2	NAG	E	2	2	14,14,15	0.45	0	17,19,21	1.01	1 (5%)
2	NAG	F	1	1,2	14,14,15	0.25	0	17,19,21	0.62	0
2	NAG	F	2	2	14,14,15	0.81	1 (7%)	17,19,21	2.21	3 (17%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	NAG	G	1	1,2	14,14,15	0.45	0	17,19,21	0.96	1 (5%)
2	NAG	G	2	2	14,14,15	0.41	0	17,19,21	1.06	2 (11%)
2	NAG	H	1	1,2	14,14,15	0.34	0	17,19,21	0.51	0
2	NAG	H	2	2	14,14,15	0.96	1 (7%)	17,19,21	2.17	3 (17%)
2	NAG	I	1	1,2	14,14,15	0.40	0	17,19,21	0.68	0
2	NAG	I	2	2	14,14,15	0.36	0	17,19,21	0.47	0
3	NAG	J	1	3,1	14,14,15	0.34	0	17,19,21	0.96	1 (5%)
3	NAG	J	2	3	14,14,15	0.41	0	17,19,21	1.16	1 (5%)
3	BMA	J	3	3	11,11,12	1.33	1 (9%)	15,15,17	1.46	3 (20%)
2	NAG	K	1	1,2	14,14,15	0.43	0	17,19,21	2.70	4 (23%)
2	NAG	K	2	2	14,14,15	0.33	0	17,19,21	0.63	1 (5%)
2	NAG	L	1	1,2	14,14,15	0.37	0	17,19,21	0.60	0
2	NAG	L	2	2	14,14,15	0.46	0	17,19,21	1.01	1 (5%)
2	NAG	M	1	1,2	14,14,15	0.25	0	17,19,21	0.61	0
2	NAG	M	2	2	14,14,15	0.81	1 (7%)	17,19,21	2.21	3 (17%)
2	NAG	N	1	1,2	14,14,15	0.47	0	17,19,21	0.97	1 (5%)
2	NAG	N	2	2	14,14,15	0.40	0	17,19,21	1.05	2 (11%)
2	NAG	O	1	1,2	14,14,15	0.34	0	17,19,21	0.51	0
2	NAG	O	2	2	14,14,15	0.96	1 (7%)	17,19,21	2.17	3 (17%)
2	NAG	P	1	1,2	14,14,15	0.40	0	17,19,21	0.68	0
2	NAG	P	2	2	14,14,15	0.36	0	17,19,21	0.46	0
3	NAG	Q	1	3,1	14,14,15	0.35	0	17,19,21	0.95	1 (5%)
3	NAG	Q	2	3	14,14,15	0.41	0	17,19,21	1.16	1 (5%)
3	BMA	Q	3	3	11,11,12	1.33	1 (9%)	15,15,17	1.46	3 (20%)
2	NAG	R	1	1,2	14,14,15	0.43	0	17,19,21	2.70	4 (23%)
2	NAG	R	2	2	14,14,15	0.33	0	17,19,21	0.63	1 (5%)
2	NAG	S	1	1,2	14,14,15	0.36	0	17,19,21	0.60	0
2	NAG	S	2	2	14,14,15	0.45	0	17,19,21	1.01	1 (5%)
2	NAG	T	1	1,2	14,14,15	0.25	0	17,19,21	0.62	0
2	NAG	T	2	2	14,14,15	0.81	1 (7%)	17,19,21	2.21	3 (17%)
2	NAG	U	1	1,2	14,14,15	0.45	0	17,19,21	0.96	1 (5%)
2	NAG	U	2	2	14,14,15	0.41	0	17,19,21	1.06	2 (11%)
2	NAG	V	1	1,2	14,14,15	0.34	0	17,19,21	0.51	0
2	NAG	V	2	2	14,14,15	0.96	1 (7%)	17,19,21	2.17	3 (17%)
2	NAG	W	1	1,2	14,14,15	0.41	0	17,19,21	0.68	0
2	NAG	W	2	2	14,14,15	0.36	0	17,19,21	0.46	0
3	NAG	X	1	3,1	14,14,15	0.35	0	17,19,21	0.96	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	NAG	X	2	3	14,14,15	0.41	0	17,19,21	1.16	1 (5%)
3	BMA	X	3	3	11,11,12	1.33	1 (9%)	15,15,17	1.46	3 (20%)

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	1,2	-	3/6/23/26	0/1/1/1
2	NAG	D	2	2	-	2/6/23/26	0/1/1/1
2	NAG	E	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	E	2	2	-	1/6/23/26	0/1/1/1
2	NAG	F	1	1,2	-	1/6/23/26	0/1/1/1
2	NAG	F	2	2	-	3/6/23/26	0/1/1/1
2	NAG	G	1	1,2	-	1/6/23/26	0/1/1/1
2	NAG	G	2	2	-	3/6/23/26	0/1/1/1
2	NAG	H	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	H	2	2	-	5/6/23/26	0/1/1/1
2	NAG	I	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	I	2	2	-	2/6/23/26	0/1/1/1
3	NAG	J	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	J	2	3	-	2/6/23/26	0/1/1/1
3	BMA	J	3	3	-	2/2/19/22	0/1/1/1
2	NAG	K	1	1,2	-	3/6/23/26	0/1/1/1
2	NAG	K	2	2	-	2/6/23/26	0/1/1/1
2	NAG	L	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	L	2	2	-	1/6/23/26	0/1/1/1
2	NAG	M	1	1,2	-	1/6/23/26	0/1/1/1
2	NAG	M	2	2	-	3/6/23/26	0/1/1/1
2	NAG	N	1	1,2	-	1/6/23/26	0/1/1/1
2	NAG	N	2	2	-	3/6/23/26	0/1/1/1
2	NAG	O	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	O	2	2	-	5/6/23/26	0/1/1/1
2	NAG	P	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	P	2	2	-	2/6/23/26	0/1/1/1
3	NAG	Q	1	3,1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	Q	2	3	-	2/6/23/26	0/1/1/1
3	BMA	Q	3	3	-	2/2/19/22	0/1/1/1
2	NAG	R	1	1,2	-	3/6/23/26	0/1/1/1
2	NAG	R	2	2	-	2/6/23/26	0/1/1/1
2	NAG	S	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	S	2	2	-	1/6/23/26	0/1/1/1
2	NAG	T	1	1,2	-	1/6/23/26	0/1/1/1
2	NAG	T	2	2	-	3/6/23/26	0/1/1/1
2	NAG	U	1	1,2	-	1/6/23/26	0/1/1/1
2	NAG	U	2	2	-	3/6/23/26	0/1/1/1
2	NAG	V	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	V	2	2	-	5/6/23/26	0/1/1/1
2	NAG	W	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	W	2	2	-	2/6/23/26	0/1/1/1
3	NAG	X	1	3,1	-	2/6/23/26	0/1/1/1
3	NAG	X	2	3	-	2/6/23/26	0/1/1/1
3	BMA	X	3	3	-	2/2/19/22	0/1/1/1

All (9) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	Q	3	BMA	C1-C2	3.05	1.59	1.52
3	X	3	BMA	C1-C2	3.05	1.59	1.52
3	J	3	BMA	C1-C2	3.03	1.59	1.52
2	H	2	NAG	C1-C2	2.93	1.56	1.52
2	V	2	NAG	C1-C2	2.92	1.56	1.52
2	O	2	NAG	C1-C2	2.91	1.56	1.52
2	T	2	NAG	C1-C2	2.39	1.55	1.52
2	F	2	NAG	C1-C2	2.38	1.55	1.52
2	M	2	NAG	C1-C2	2.37	1.55	1.52

All (60) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	K	1	NAG	C2-N2-C7	8.19	134.56	122.90
2	D	1	NAG	C2-N2-C7	8.18	134.55	122.90
2	R	1	NAG	C2-N2-C7	8.17	134.54	122.90
2	M	2	NAG	C2-N2-C7	7.88	134.12	122.90
2	T	2	NAG	C2-N2-C7	7.87	134.11	122.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	F	2	NAG	C2-N2-C7	7.86	134.10	122.90
2	O	2	NAG	C2-N2-C7	7.78	133.98	122.90
2	V	2	NAG	C2-N2-C7	7.77	133.97	122.90
2	H	2	NAG	C2-N2-C7	7.77	133.96	122.90
2	R	1	NAG	C1-C2-N2	5.49	119.87	110.49
2	K	1	NAG	C1-C2-N2	5.48	119.85	110.49
2	D	1	NAG	C1-C2-N2	5.48	119.85	110.49
2	T	2	NAG	C1-C2-N2	3.36	116.23	110.49
2	F	2	NAG	C1-C2-N2	3.36	116.22	110.49
2	M	2	NAG	C1-C2-N2	3.36	116.22	110.49
2	R	1	NAG	C1-O5-C5	3.21	116.55	112.19
2	D	1	NAG	C1-O5-C5	3.21	116.54	112.19
2	K	1	NAG	C1-O5-C5	3.20	116.53	112.19
2	V	2	NAG	C1-C2-N2	3.18	115.93	110.49
2	O	2	NAG	C1-C2-N2	3.18	115.92	110.49
2	H	2	NAG	C1-C2-N2	3.17	115.91	110.49
2	U	2	NAG	C2-N2-C7	3.11	127.33	122.90
2	G	2	NAG	C2-N2-C7	3.09	127.30	122.90
2	N	2	NAG	C2-N2-C7	3.05	127.25	122.90
3	X	2	NAG	C2-N2-C7	3.03	127.22	122.90
2	N	1	NAG	C2-N2-C7	3.02	127.21	122.90
2	G	1	NAG	C2-N2-C7	3.02	127.21	122.90
3	J	2	NAG	C2-N2-C7	3.02	127.20	122.90
3	Q	2	NAG	C2-N2-C7	3.01	127.20	122.90
2	U	1	NAG	C2-N2-C7	3.00	127.18	122.90
2	L	2	NAG	C2-N2-C7	3.00	127.18	122.90
2	E	2	NAG	C2-N2-C7	2.96	127.12	122.90
2	S	2	NAG	C2-N2-C7	2.96	127.12	122.90
3	J	3	BMA	C1-O5-C5	-2.90	108.27	112.19
3	Q	3	BMA	C1-O5-C5	-2.89	108.27	112.19
3	X	3	BMA	C1-O5-C5	-2.88	108.28	112.19
3	X	1	NAG	C1-O5-C5	2.57	115.68	112.19
3	J	1	NAG	C1-O5-C5	2.56	115.67	112.19
3	Q	1	NAG	C1-O5-C5	2.54	115.64	112.19
2	K	1	NAG	C4-C3-C2	-2.47	107.39	111.02
2	D	1	NAG	C4-C3-C2	-2.45	107.42	111.02
2	R	1	NAG	C4-C3-C2	-2.44	107.44	111.02
3	X	3	BMA	C2-C3-C4	2.30	114.87	110.89
3	J	3	BMA	C2-C3-C4	2.29	114.86	110.89
3	Q	3	BMA	C2-C3-C4	2.28	114.83	110.89
3	X	3	BMA	O5-C1-C2	-2.24	107.31	110.77
3	J	3	BMA	O5-C1-C2	-2.22	107.35	110.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	Q	3	BMA	O5-C1-C2	-2.21	107.36	110.77
2	H	2	NAG	C8-C7-N2	2.19	119.80	116.10
2	O	2	NAG	C8-C7-N2	2.18	119.79	116.10
2	V	2	NAG	C8-C7-N2	2.18	119.78	116.10
2	F	2	NAG	C8-C7-N2	2.14	119.72	116.10
2	M	2	NAG	C8-C7-N2	2.13	119.71	116.10
2	T	2	NAG	C8-C7-N2	2.12	119.70	116.10
2	U	2	NAG	C1-O5-C5	2.08	115.01	112.19
2	G	2	NAG	C1-O5-C5	2.07	115.00	112.19
2	N	2	NAG	C1-O5-C5	2.06	114.98	112.19
2	D	2	NAG	C1-O5-C5	2.04	114.96	112.19
2	K	2	NAG	C1-O5-C5	2.03	114.94	112.19
2	R	2	NAG	C1-O5-C5	2.02	114.93	112.19

There are no chirality outliers.

All (93) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	G	2	NAG	O5-C5-C6-O6
2	N	2	NAG	O5-C5-C6-O6
2	U	2	NAG	O5-C5-C6-O6
2	H	2	NAG	O5-C5-C6-O6
2	O	2	NAG	O5-C5-C6-O6
2	V	2	NAG	O5-C5-C6-O6
2	H	2	NAG	C4-C5-C6-O6
2	O	2	NAG	C4-C5-C6-O6
2	V	2	NAG	C4-C5-C6-O6
2	G	2	NAG	C4-C5-C6-O6
2	N	2	NAG	C4-C5-C6-O6
2	U	2	NAG	C4-C5-C6-O6
2	I	1	NAG	O5-C5-C6-O6
2	P	1	NAG	O5-C5-C6-O6
2	W	1	NAG	O5-C5-C6-O6
2	I	1	NAG	C4-C5-C6-O6
2	P	1	NAG	C4-C5-C6-O6
2	W	1	NAG	C4-C5-C6-O6
2	D	1	NAG	C8-C7-N2-C2
2	D	1	NAG	O7-C7-N2-C2
2	F	2	NAG	C8-C7-N2-C2
2	F	2	NAG	O7-C7-N2-C2
2	H	2	NAG	C8-C7-N2-C2
2	H	2	NAG	O7-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
2	K	1	NAG	C8-C7-N2-C2
2	K	1	NAG	O7-C7-N2-C2
2	M	2	NAG	C8-C7-N2-C2
2	M	2	NAG	O7-C7-N2-C2
2	O	2	NAG	C8-C7-N2-C2
2	O	2	NAG	O7-C7-N2-C2
2	R	1	NAG	C8-C7-N2-C2
2	R	1	NAG	O7-C7-N2-C2
2	T	2	NAG	C8-C7-N2-C2
2	T	2	NAG	O7-C7-N2-C2
2	V	2	NAG	C8-C7-N2-C2
2	V	2	NAG	O7-C7-N2-C2
3	J	1	NAG	C8-C7-N2-C2
3	J	1	NAG	O7-C7-N2-C2
3	Q	1	NAG	C8-C7-N2-C2
3	Q	1	NAG	O7-C7-N2-C2
3	X	1	NAG	C8-C7-N2-C2
3	X	1	NAG	O7-C7-N2-C2
3	J	3	BMA	O5-C5-C6-O6
3	Q	3	BMA	O5-C5-C6-O6
3	X	3	BMA	O5-C5-C6-O6
2	K	2	NAG	O5-C5-C6-O6
2	D	2	NAG	O5-C5-C6-O6
2	R	2	NAG	O5-C5-C6-O6
2	D	2	NAG	C4-C5-C6-O6
2	K	2	NAG	C4-C5-C6-O6
2	R	2	NAG	C4-C5-C6-O6
2	L	1	NAG	C4-C5-C6-O6
2	E	1	NAG	O5-C5-C6-O6
2	L	1	NAG	O5-C5-C6-O6
2	S	1	NAG	O5-C5-C6-O6
2	E	1	NAG	C4-C5-C6-O6
2	S	1	NAG	C4-C5-C6-O6
2	I	2	NAG	C4-C5-C6-O6
2	P	2	NAG	C4-C5-C6-O6
2	W	2	NAG	C4-C5-C6-O6
3	J	3	BMA	C4-C5-C6-O6
3	X	3	BMA	C4-C5-C6-O6
3	Q	3	BMA	C4-C5-C6-O6
2	F	1	NAG	O5-C5-C6-O6
2	M	1	NAG	O5-C5-C6-O6
2	T	1	NAG	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
2	E	2	NAG	C3-C2-N2-C7
2	L	2	NAG	C3-C2-N2-C7
2	S	2	NAG	C3-C2-N2-C7
2	I	2	NAG	O5-C5-C6-O6
2	P	2	NAG	O5-C5-C6-O6
2	W	2	NAG	O5-C5-C6-O6
2	D	1	NAG	C4-C5-C6-O6
2	K	1	NAG	C4-C5-C6-O6
2	R	1	NAG	C4-C5-C6-O6
2	F	2	NAG	C3-C2-N2-C7
2	G	1	NAG	C3-C2-N2-C7
2	G	2	NAG	C3-C2-N2-C7
2	H	2	NAG	C3-C2-N2-C7
2	M	2	NAG	C3-C2-N2-C7
2	N	1	NAG	C3-C2-N2-C7
2	N	2	NAG	C3-C2-N2-C7
2	O	2	NAG	C3-C2-N2-C7
2	T	2	NAG	C3-C2-N2-C7
2	U	1	NAG	C3-C2-N2-C7
2	U	2	NAG	C3-C2-N2-C7
2	V	2	NAG	C3-C2-N2-C7
3	J	2	NAG	C3-C2-N2-C7
3	Q	2	NAG	C3-C2-N2-C7
3	X	2	NAG	C3-C2-N2-C7
3	J	2	NAG	C4-C5-C6-O6
3	Q	2	NAG	C4-C5-C6-O6
3	X	2	NAG	C4-C5-C6-O6

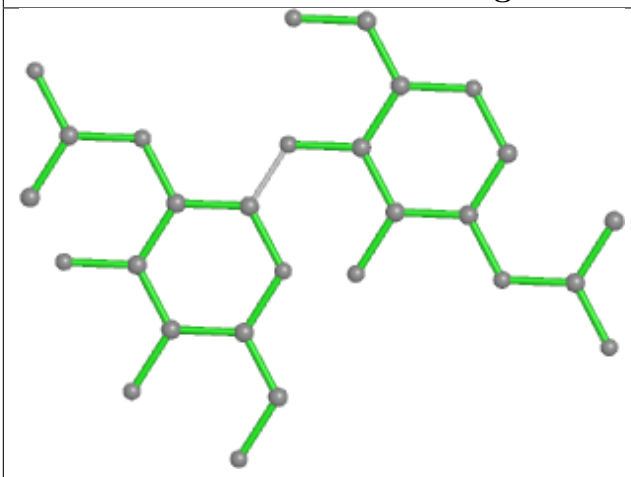
There are no ring outliers.

3 monomers are involved in 3 short contacts:

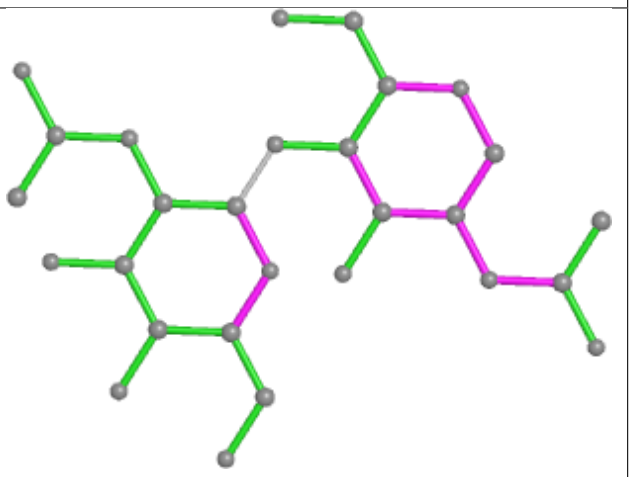
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	I	1	NAG	1	0
2	W	1	NAG	1	0
2	P	1	NAG	1	0

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

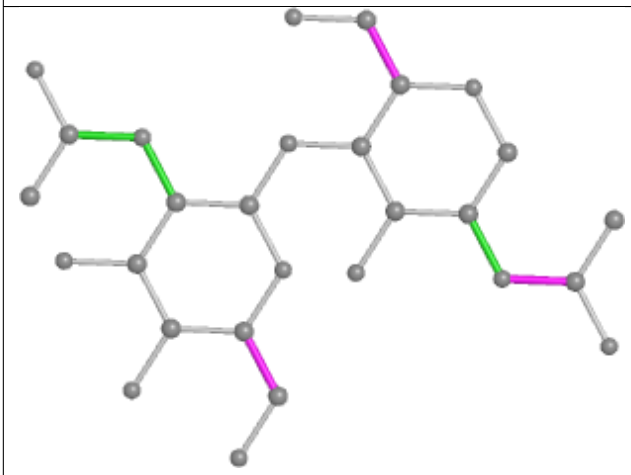
Oligosaccharide Chain D



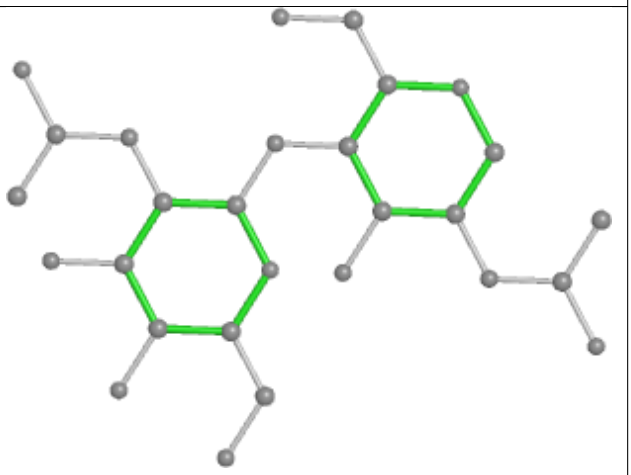
Bond lengths



Bond angles

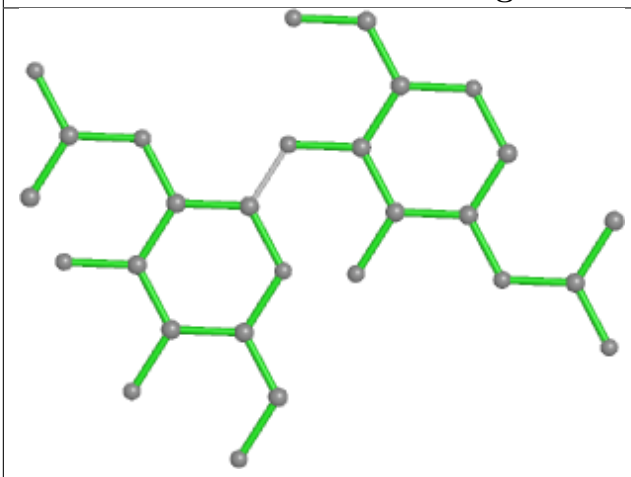


Torsions

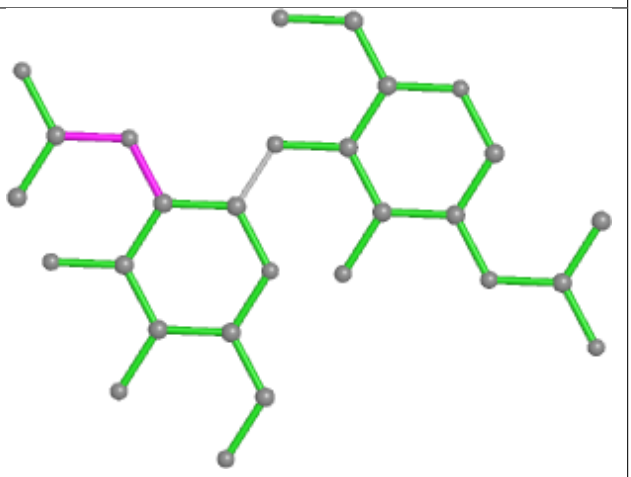


Rings

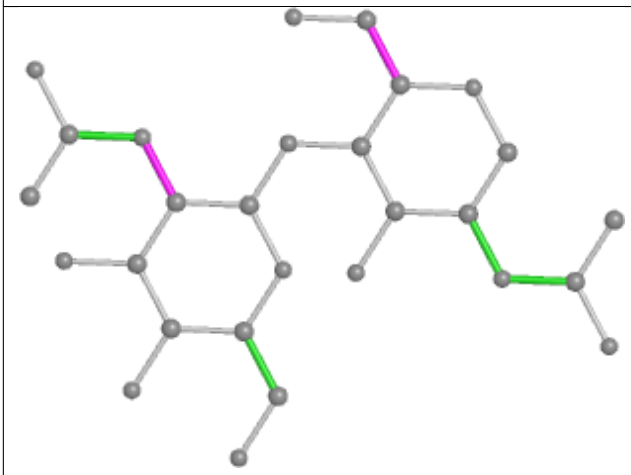
Oligosaccharide Chain E



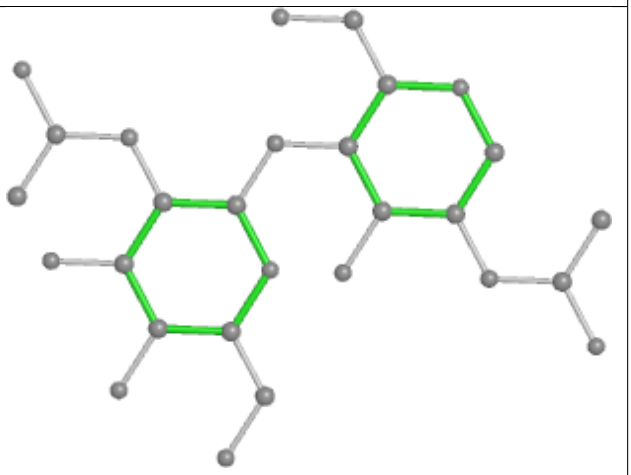
Bond lengths



Bond angles

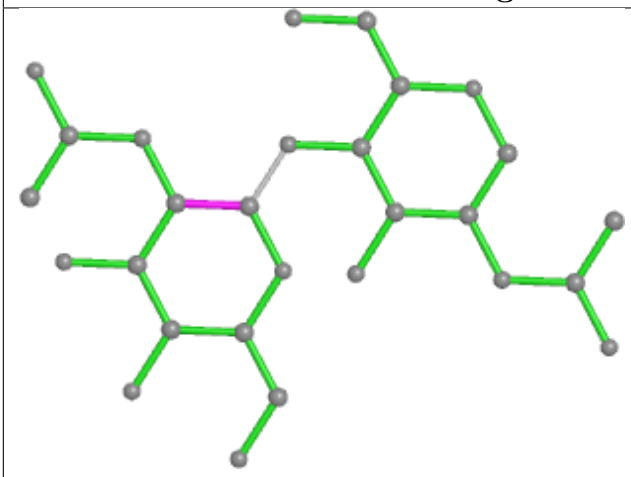


Torsions

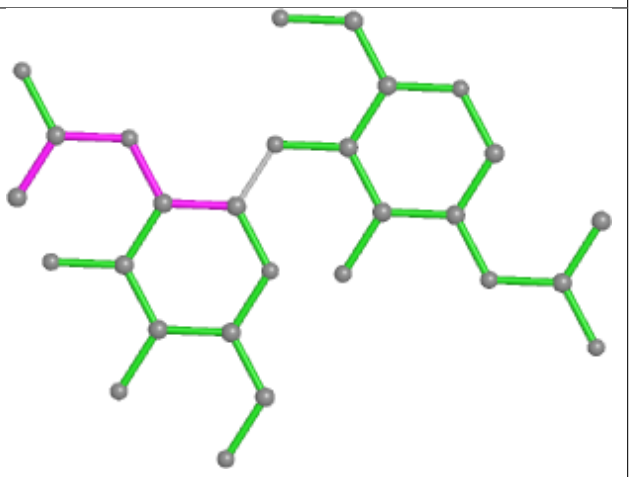


Rings

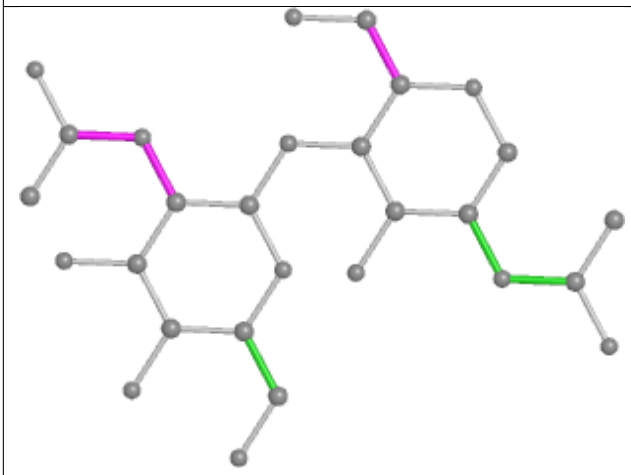
Oligosaccharide Chain F



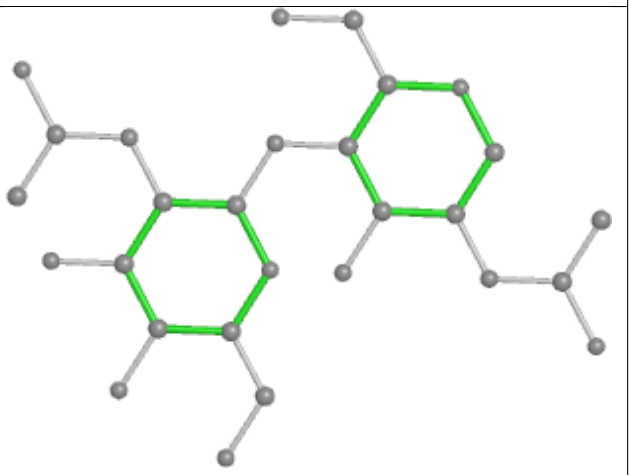
Bond lengths



Bond angles

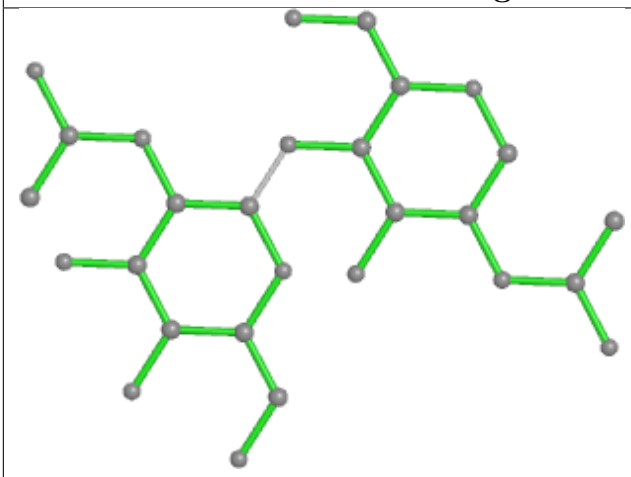


Torsions

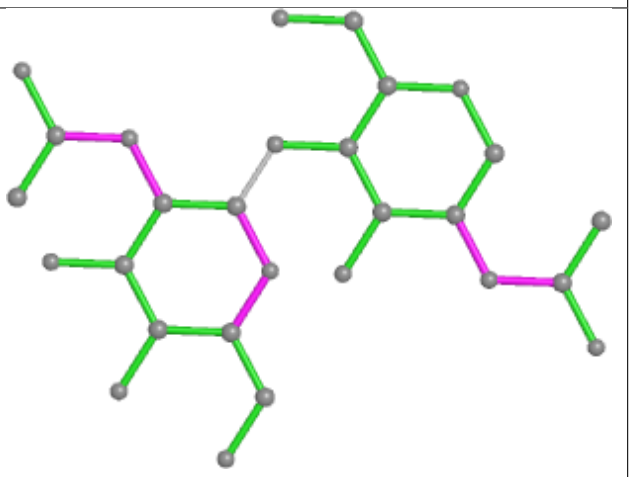


Rings

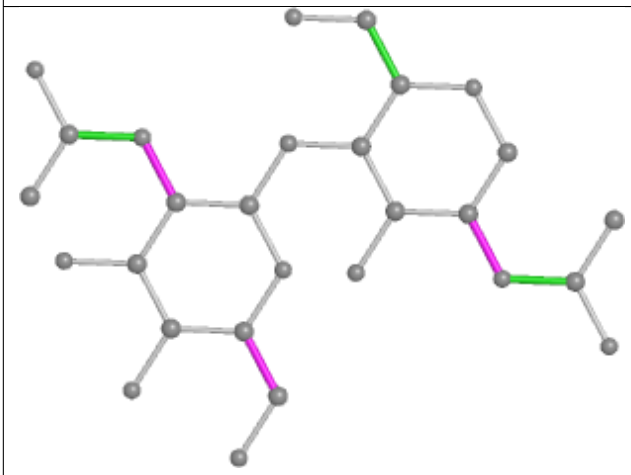
Oligosaccharide Chain G



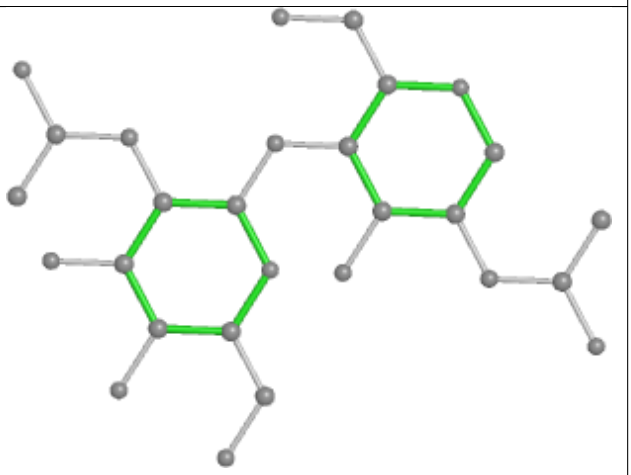
Bond lengths



Bond angles

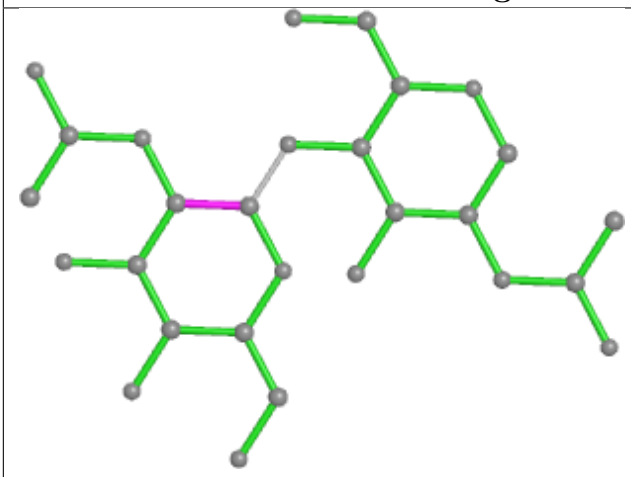


Torsions

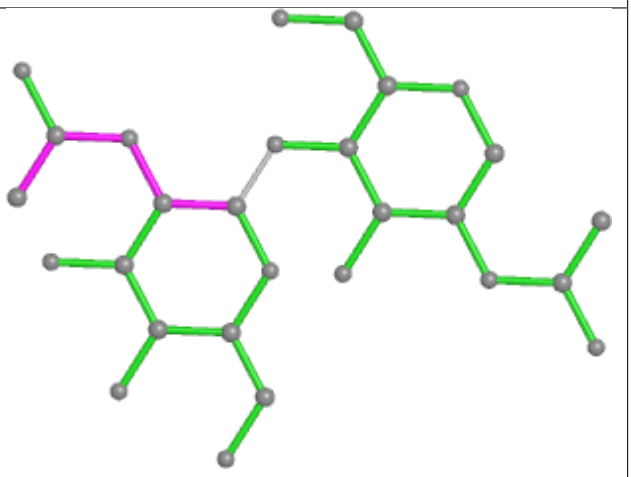


Rings

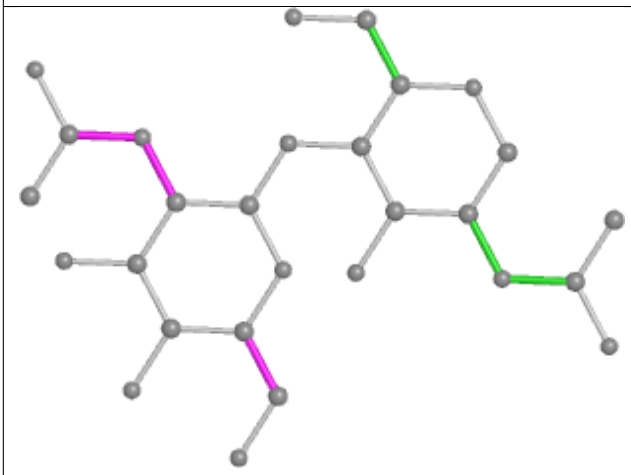
Oligosaccharide Chain H



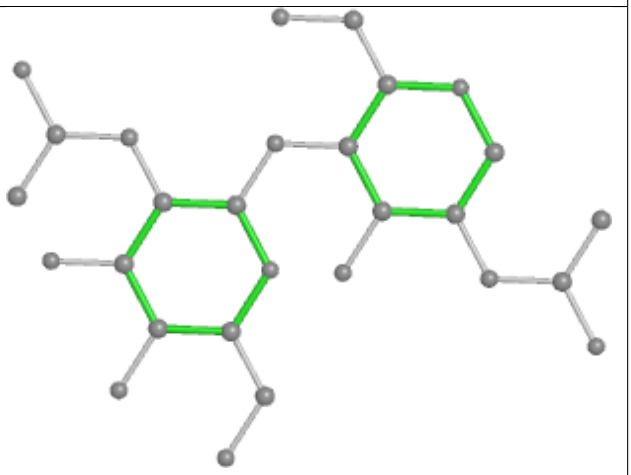
Bond lengths



Bond angles

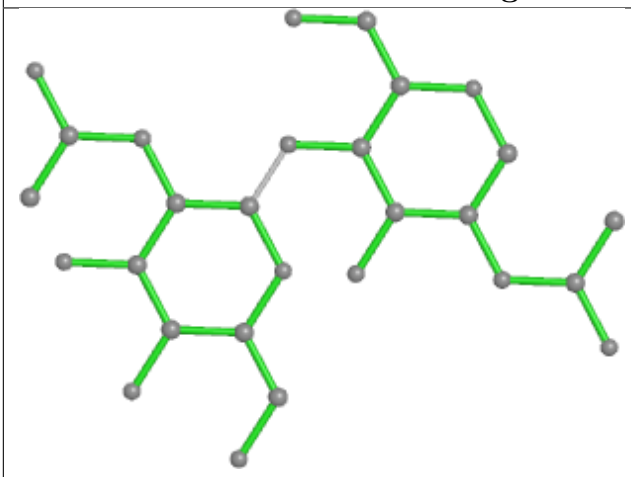


Torsions

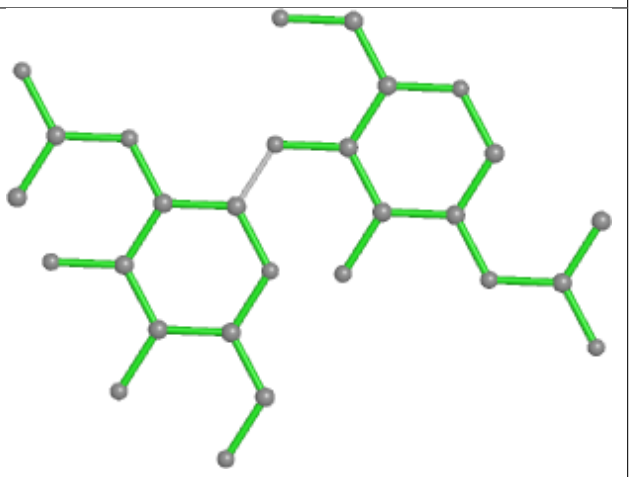


Rings

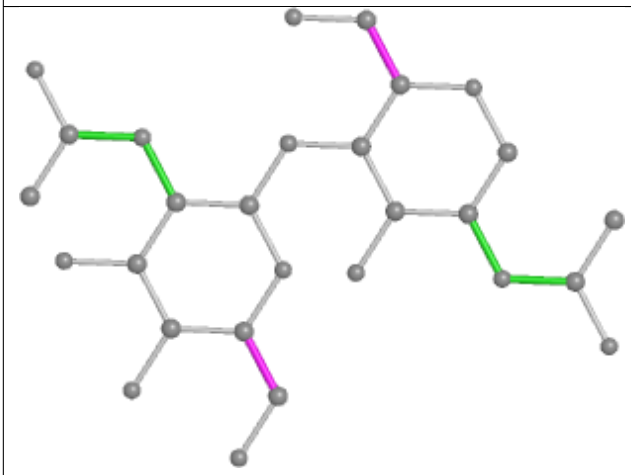
Oligosaccharide Chain I



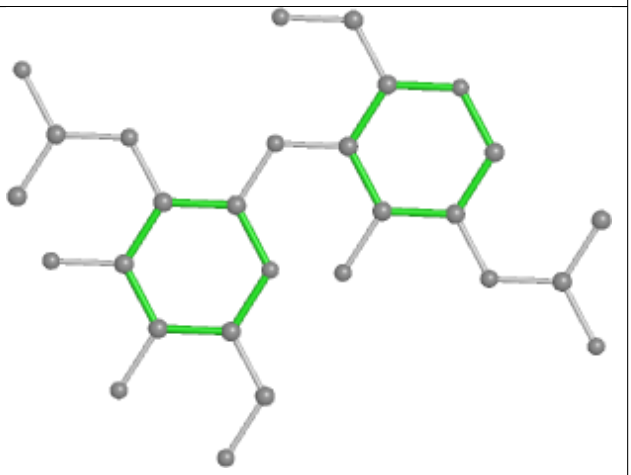
Bond lengths



Bond angles

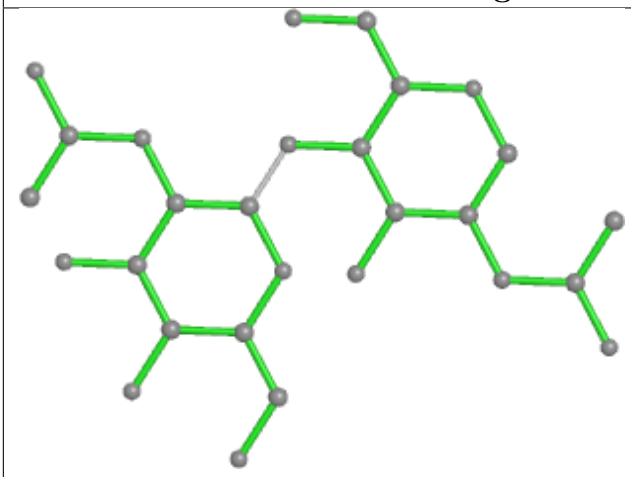


Torsions

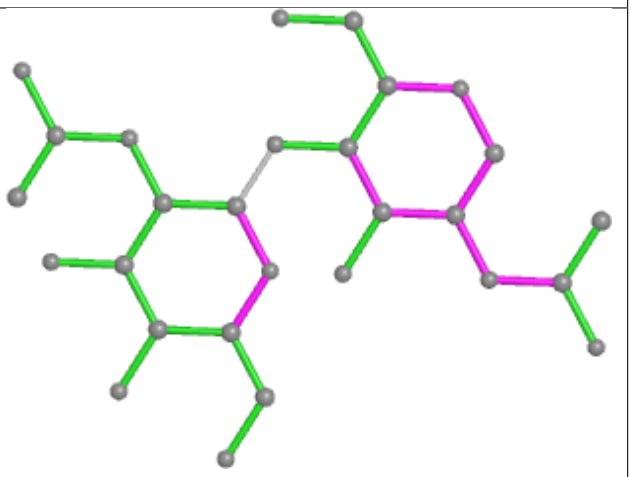


Rings

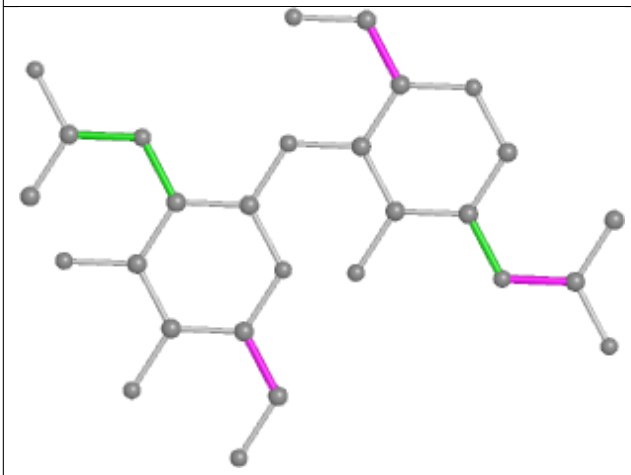
Oligosaccharide Chain K



Bond lengths



Bond angles



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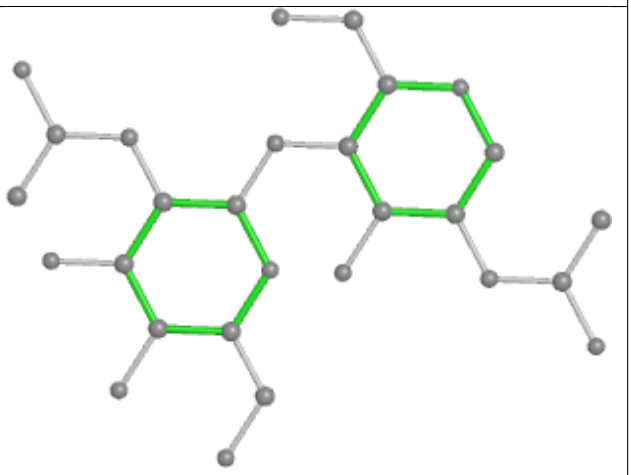
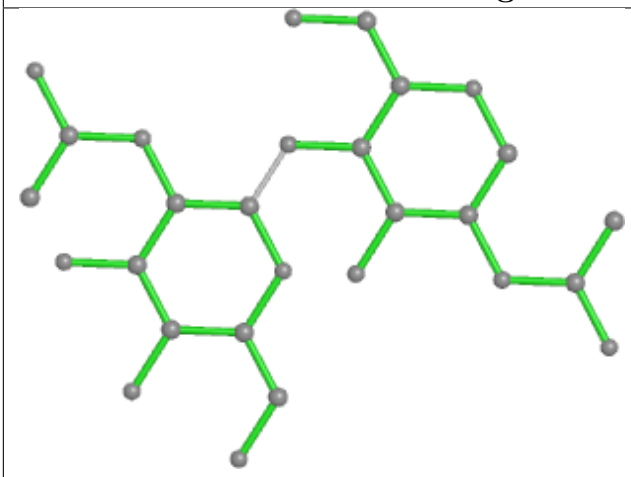
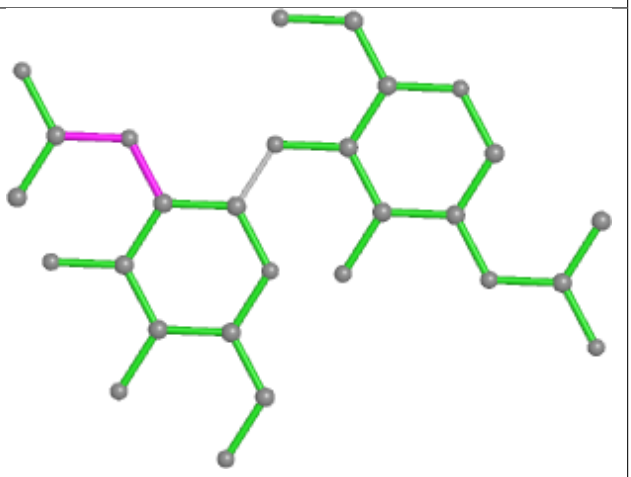


Rings

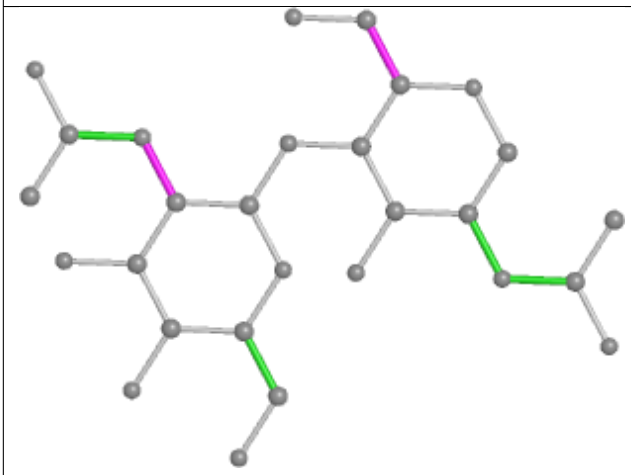
Oligosaccharide Chain L



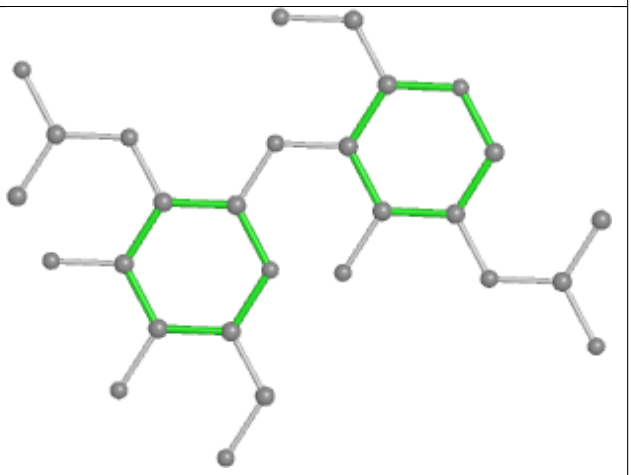
Bond lengths



Bond angles

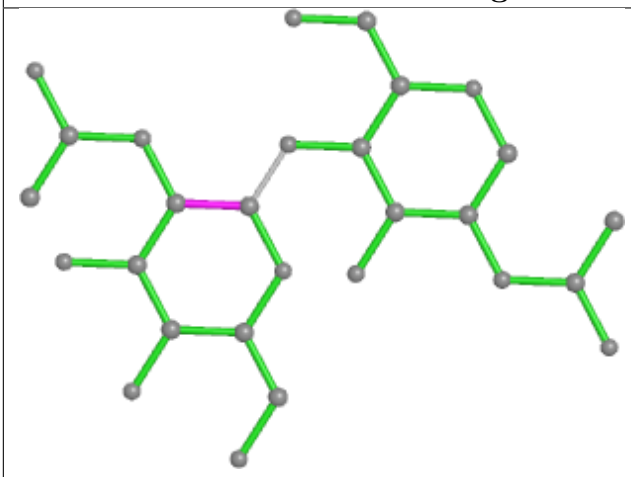


Torsions

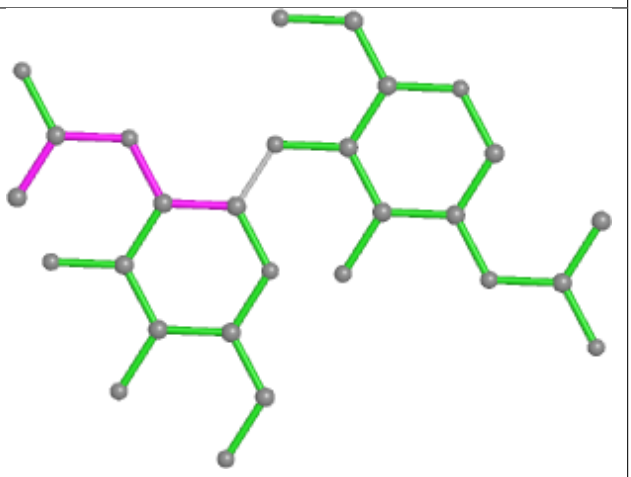


Rings

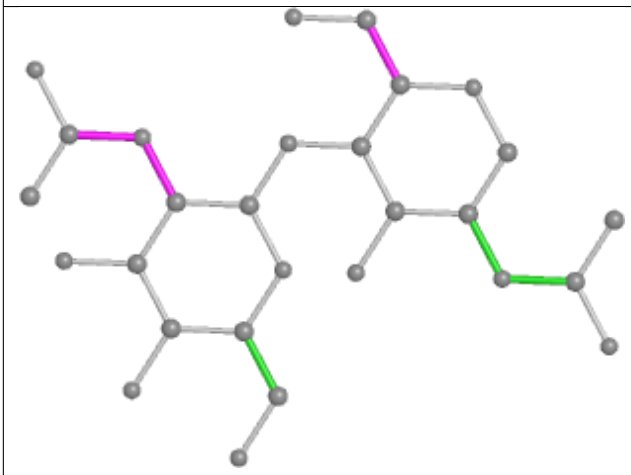
Oligosaccharide Chain M



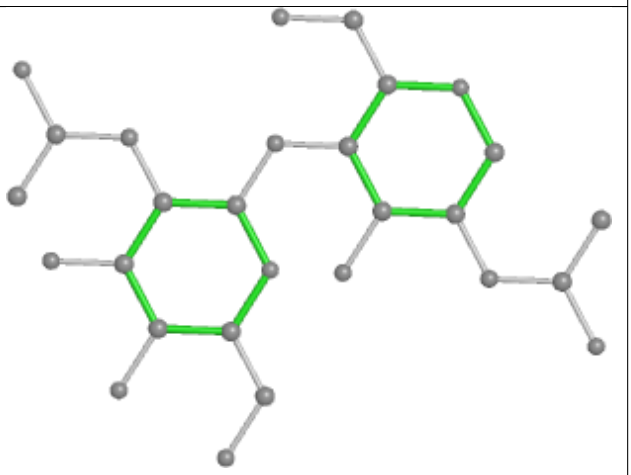
Bond lengths



Bond angles

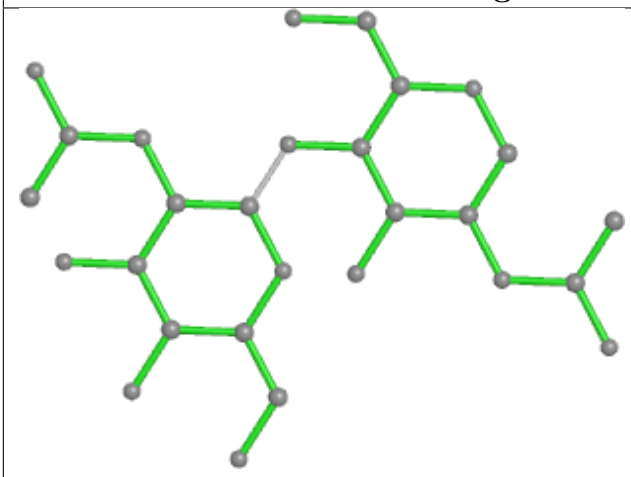


Torsions

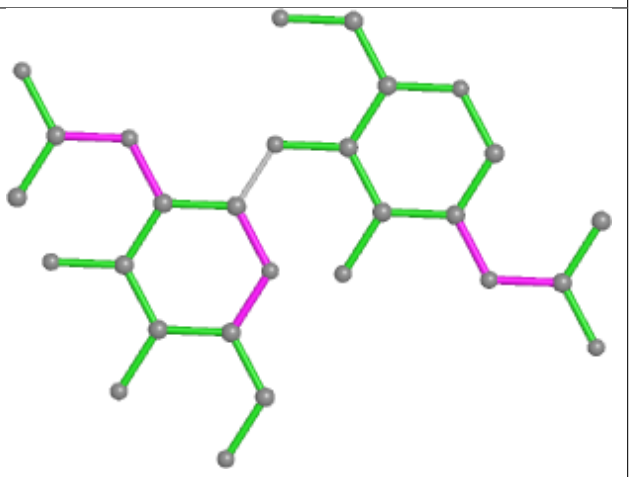


Rings

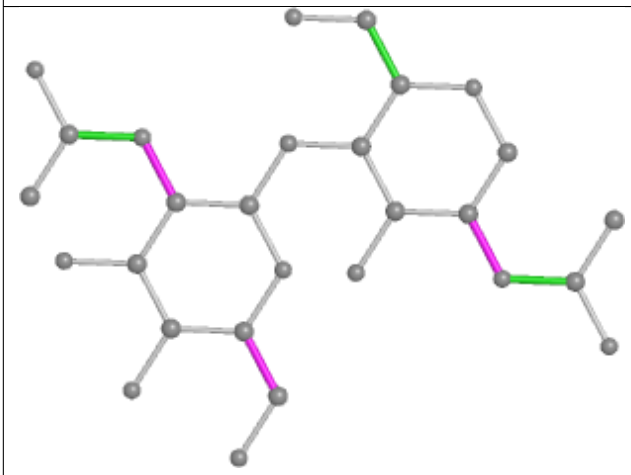
Oligosaccharide Chain N



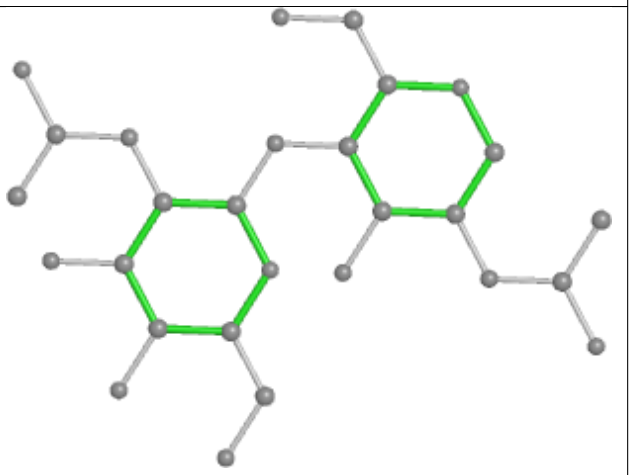
Bond lengths



Bond angles

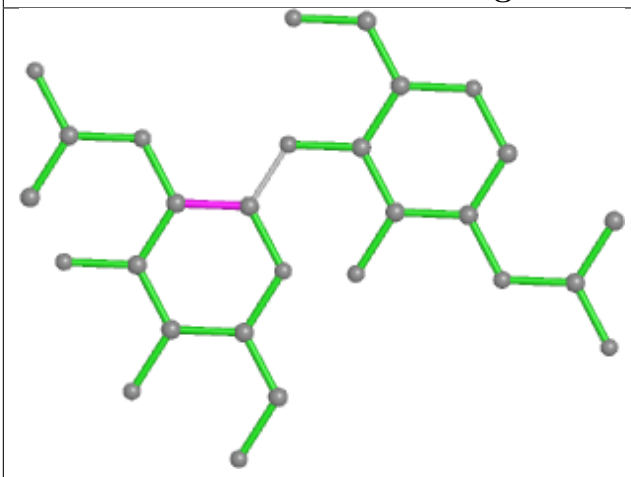


Torsions

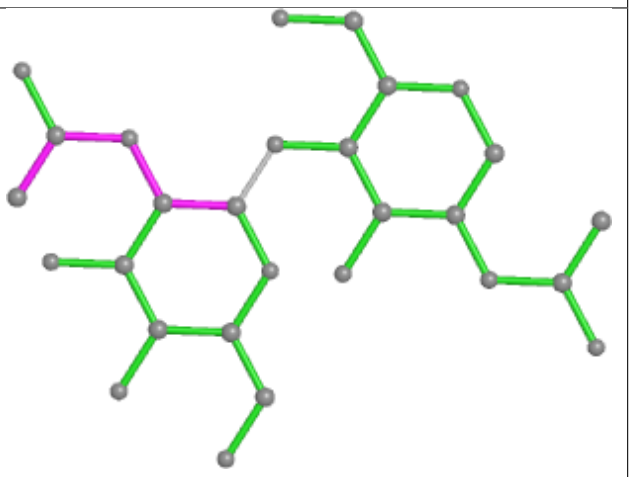


Rings

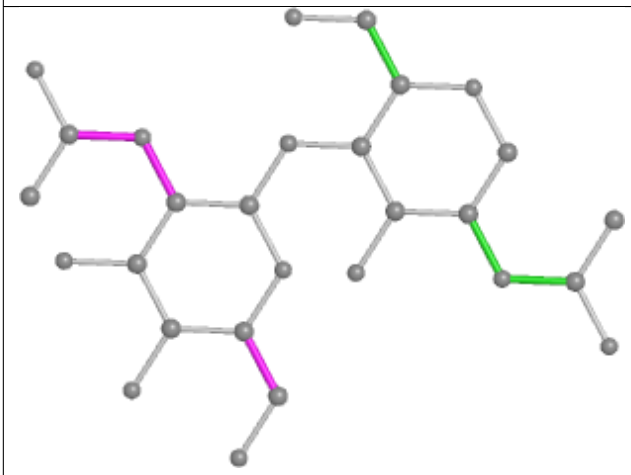
Oligosaccharide Chain O



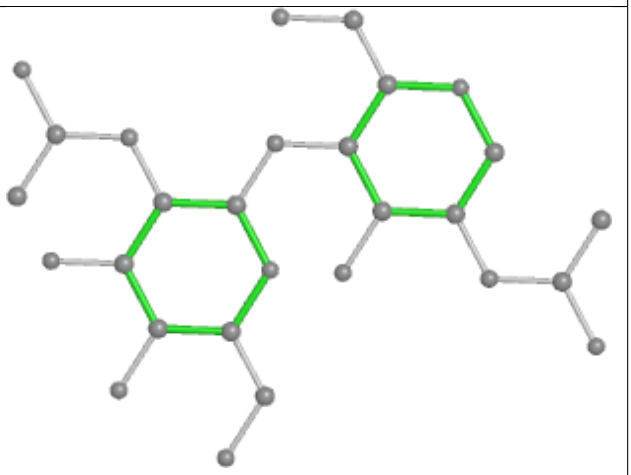
Bond lengths



Bond angles

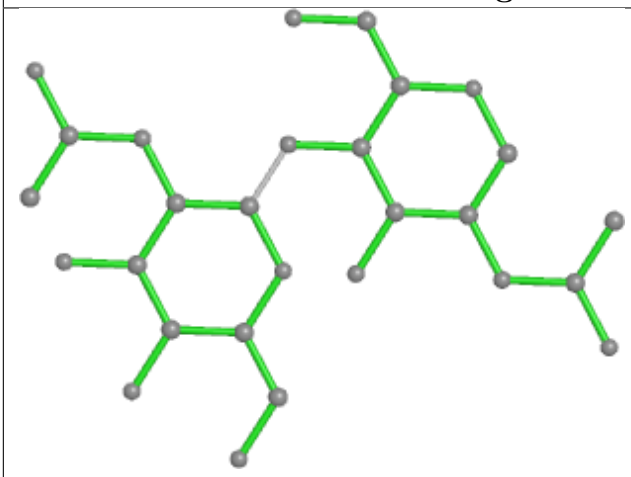


Torsions

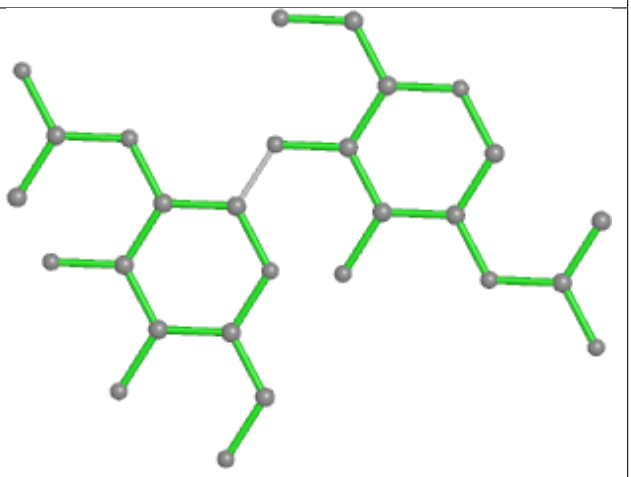


Rings

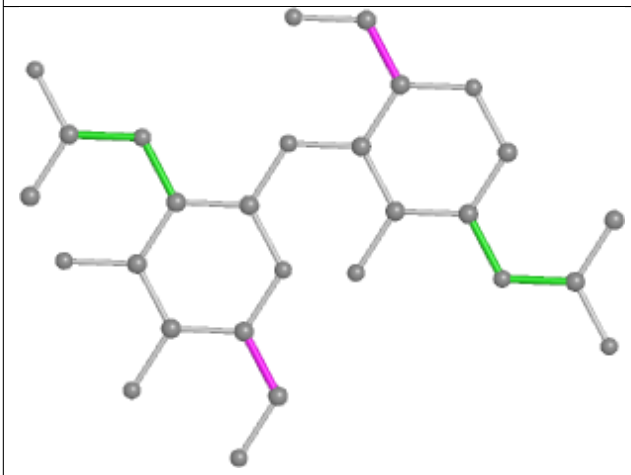
Oligosaccharide Chain P



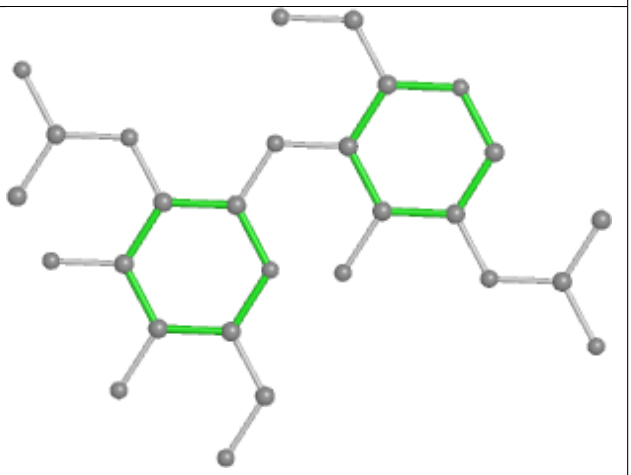
Bond lengths



Bond angles

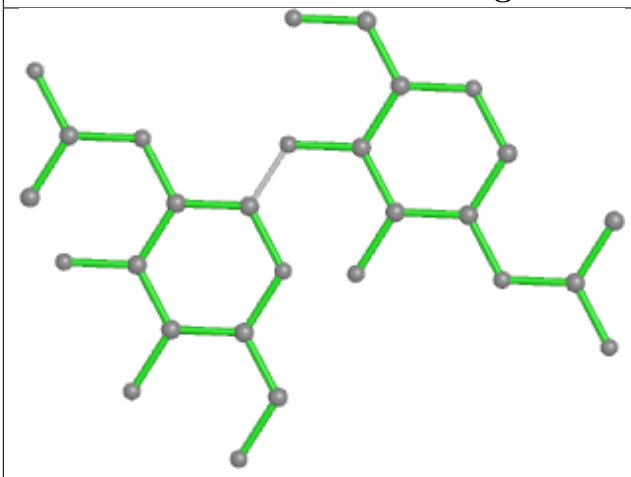


Torsions

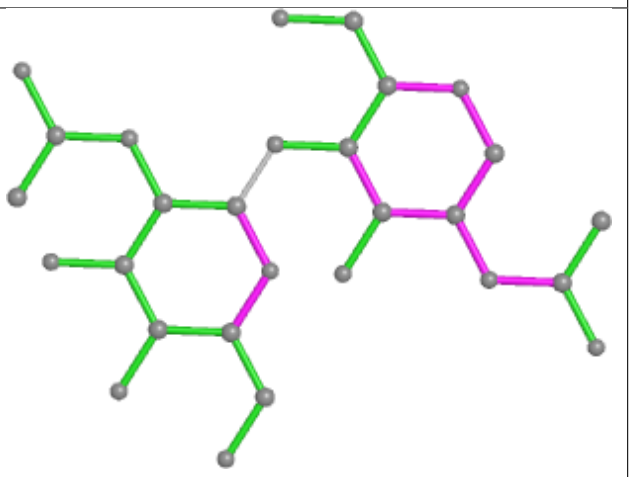


Rings

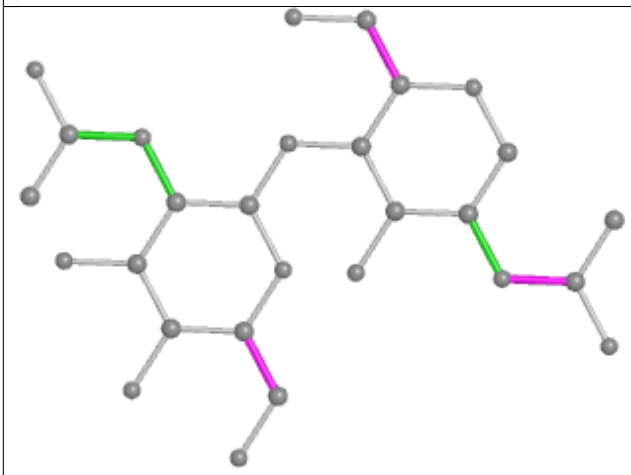
Oligosaccharide Chain R



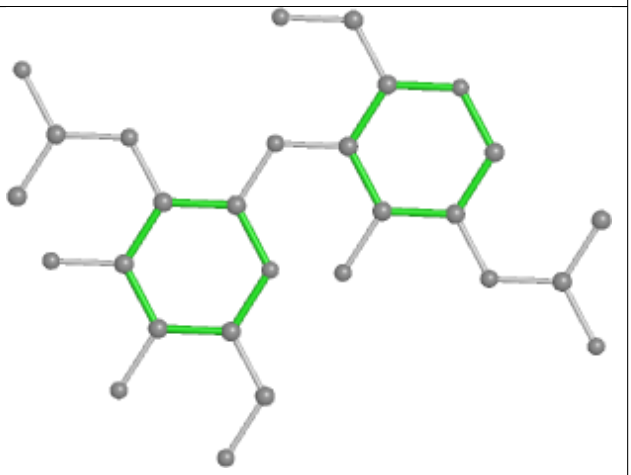
Bond lengths



Bond angles

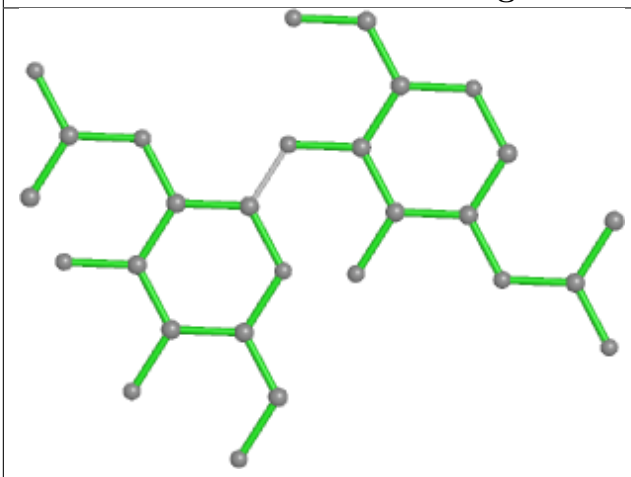


Torsions

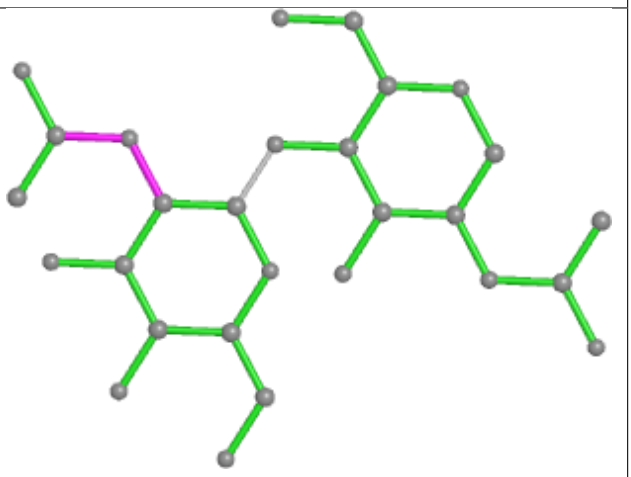


Rings

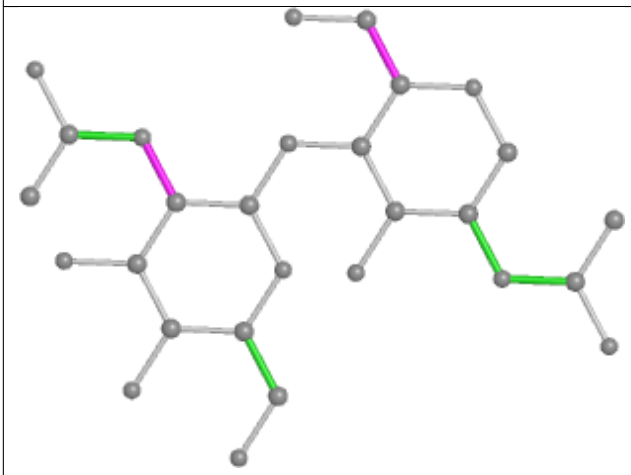
Oligosaccharide Chain S



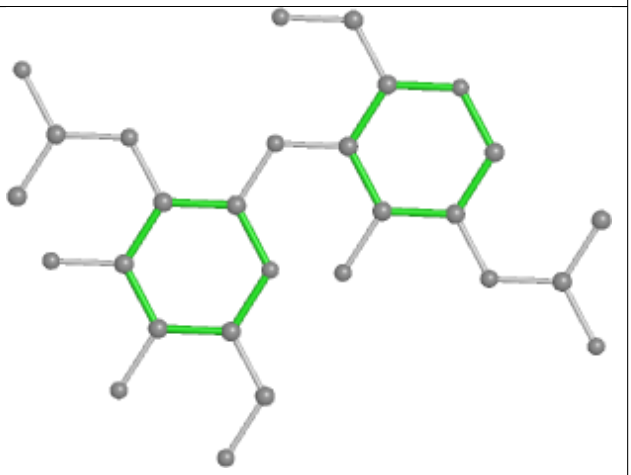
Bond lengths



Bond angles

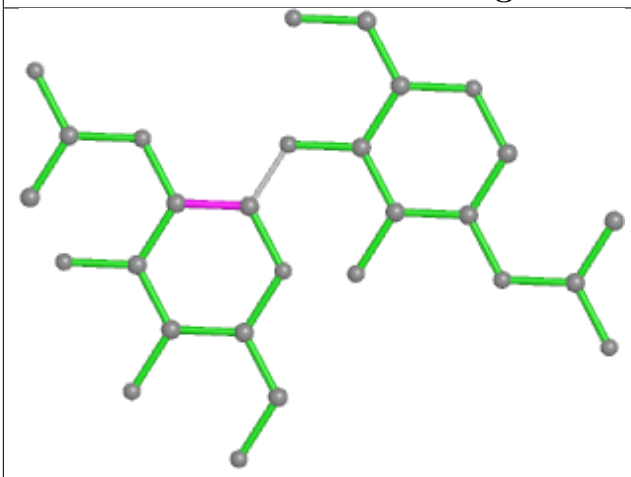


Torsions

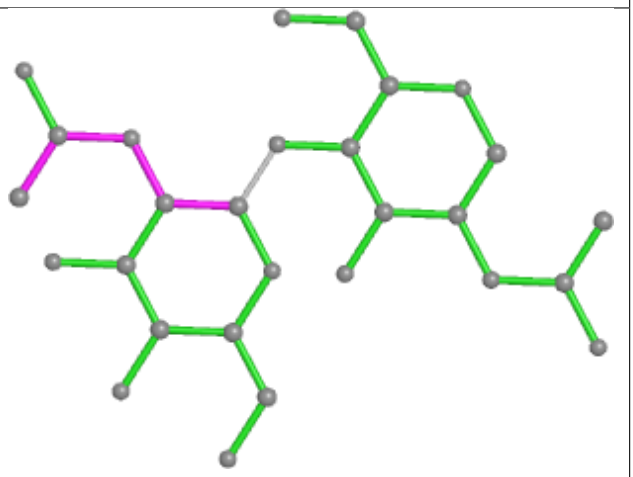


Rings

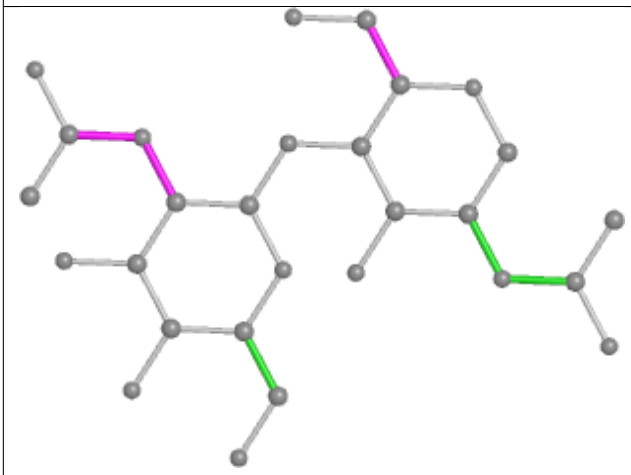
Oligosaccharide Chain T



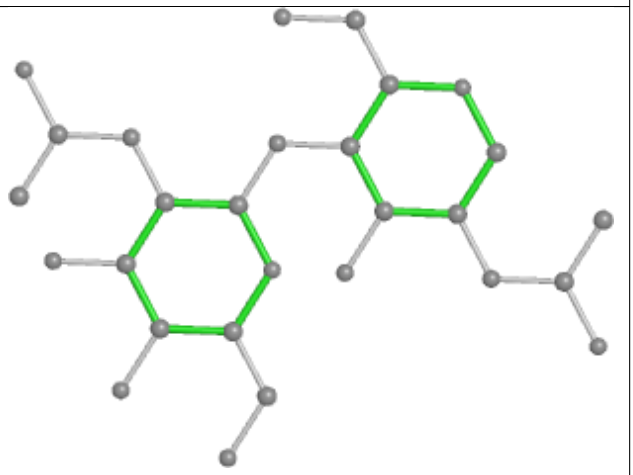
Bond lengths



Bond angles

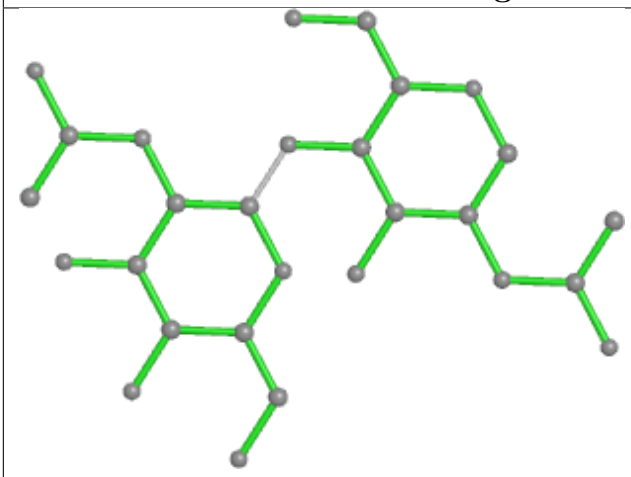


Torsions

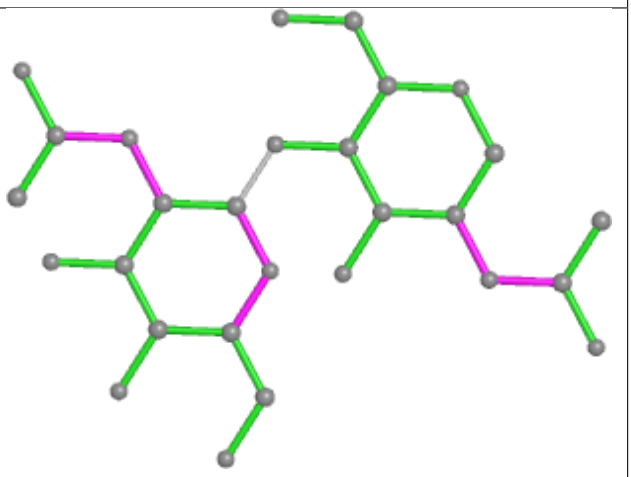


Rings

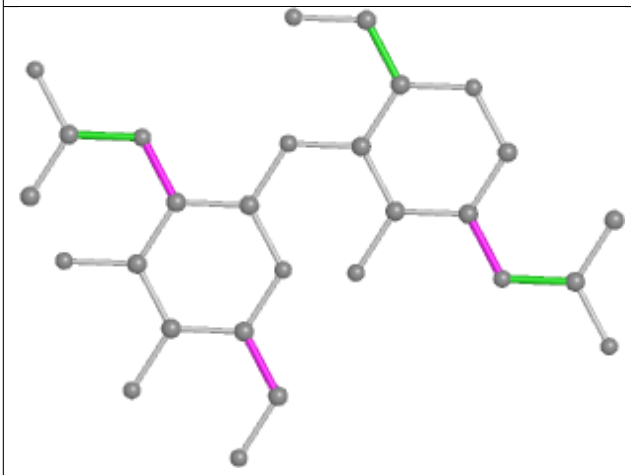
Oligosaccharide Chain U



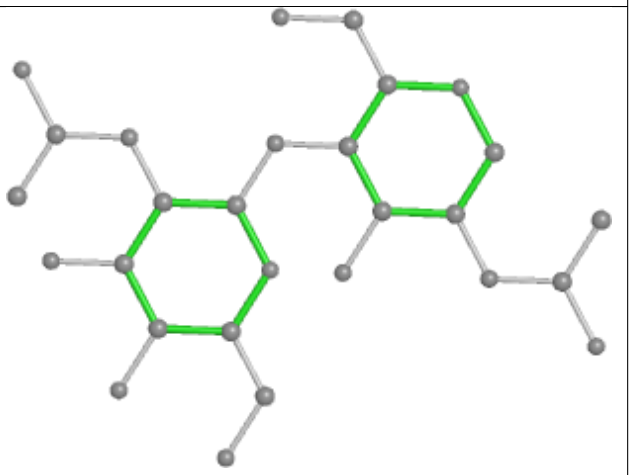
Bond lengths



Bond angles

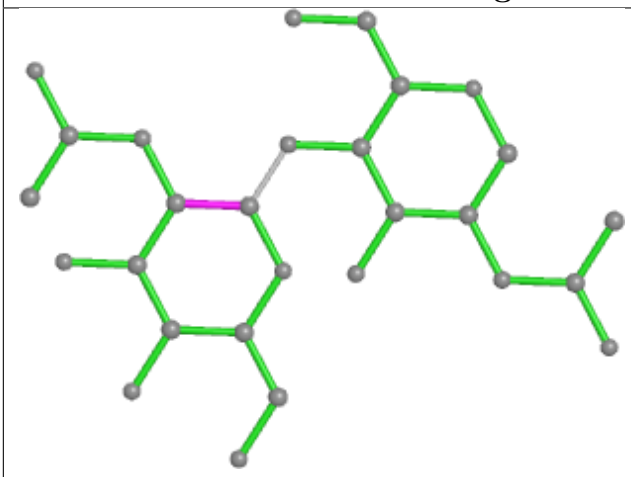


Torsions

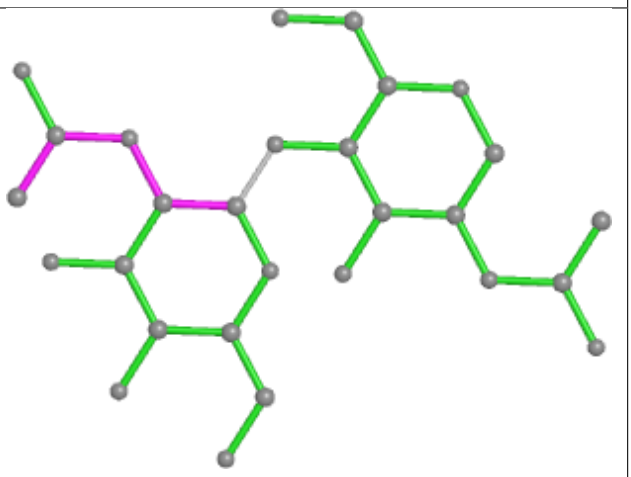


Rings

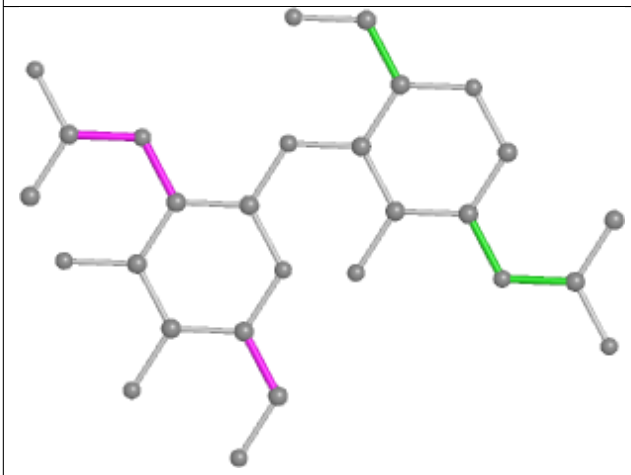
Oligosaccharide Chain V



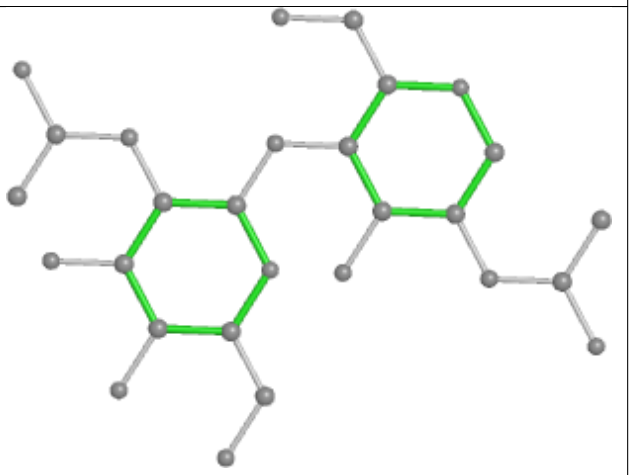
Bond lengths



Bond angles

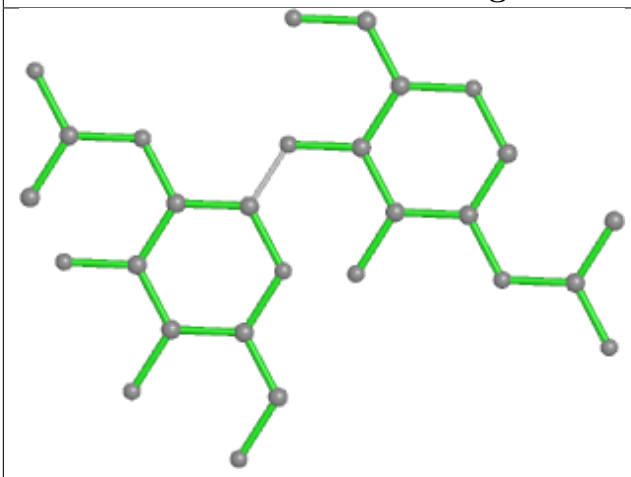


Torsions

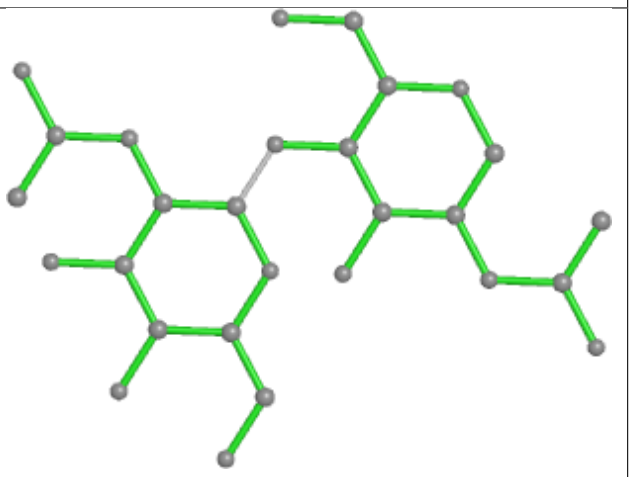


Rings

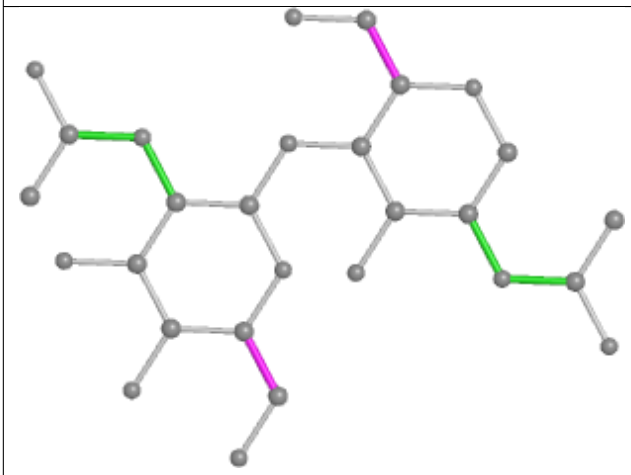
Oligosaccharide Chain W



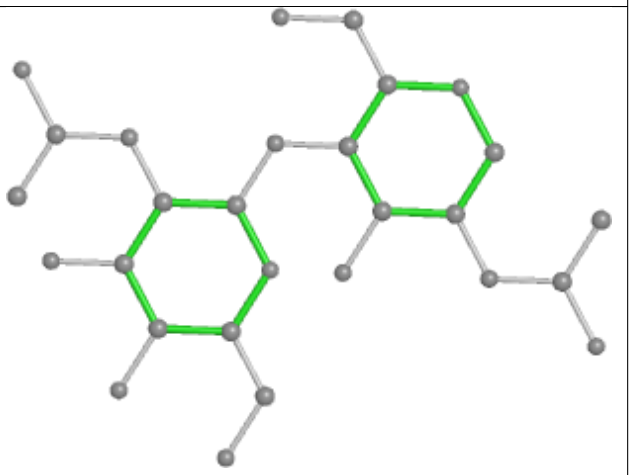
Bond lengths



Bond angles

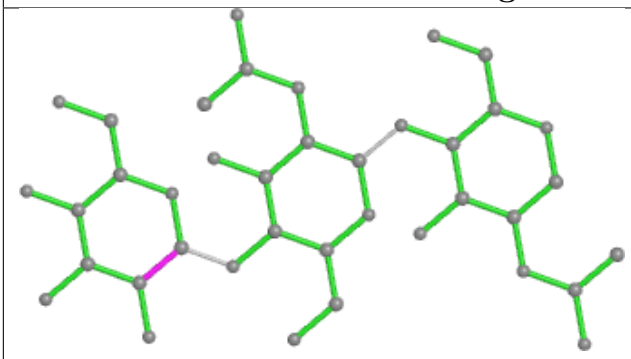


Torsions

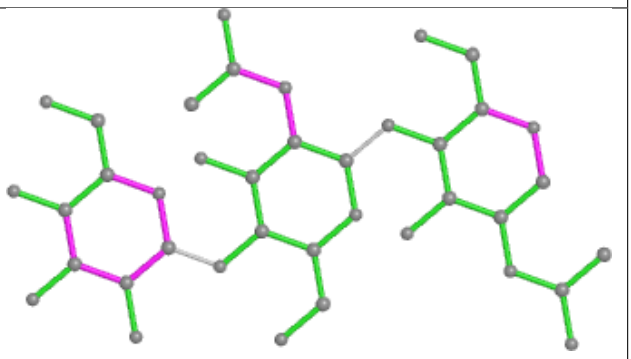


Rings

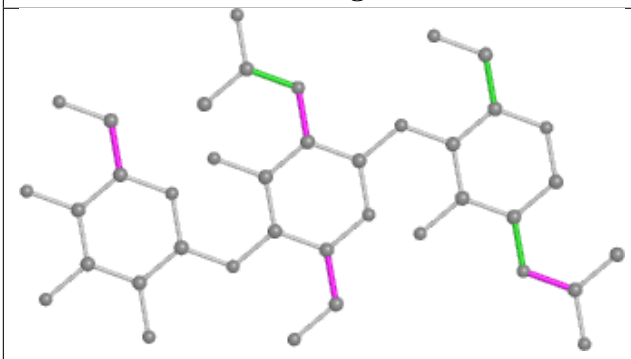
Oligosaccharide Chain J



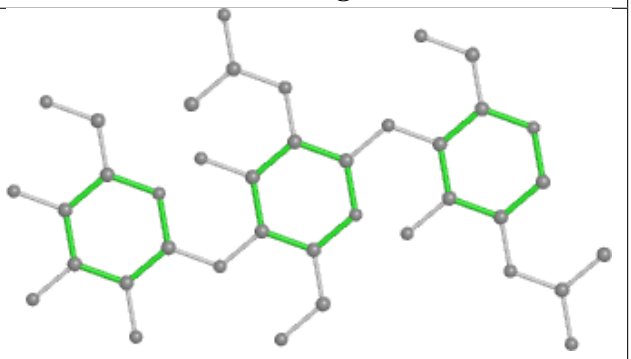
Bond lengths



Bond angles

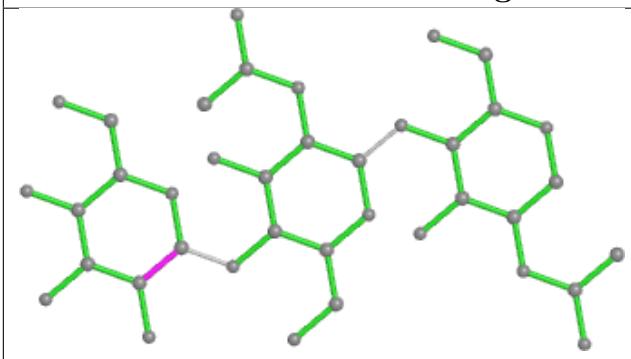


Torsions

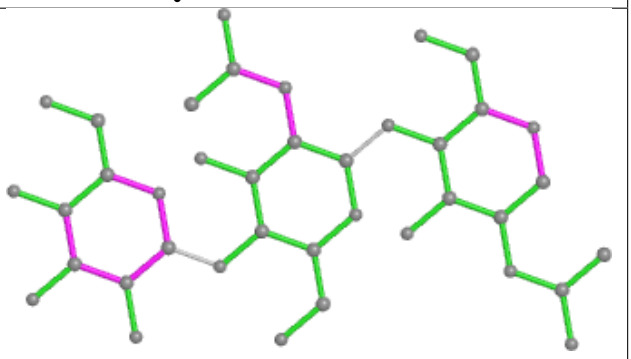


Rings

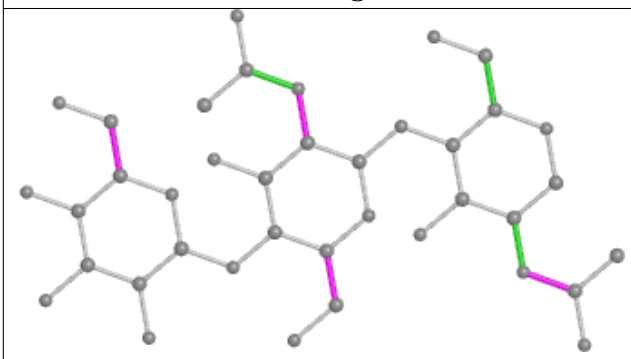
Oligosaccharide Chain Q



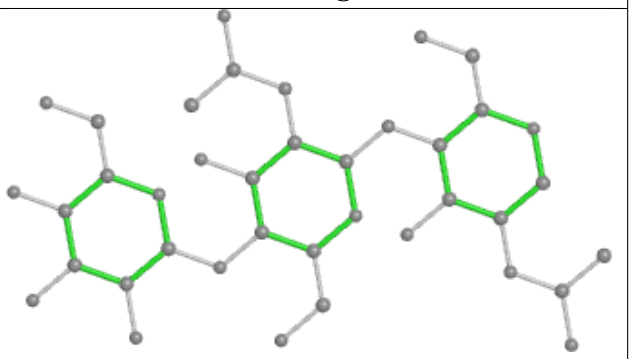
Bond lengths



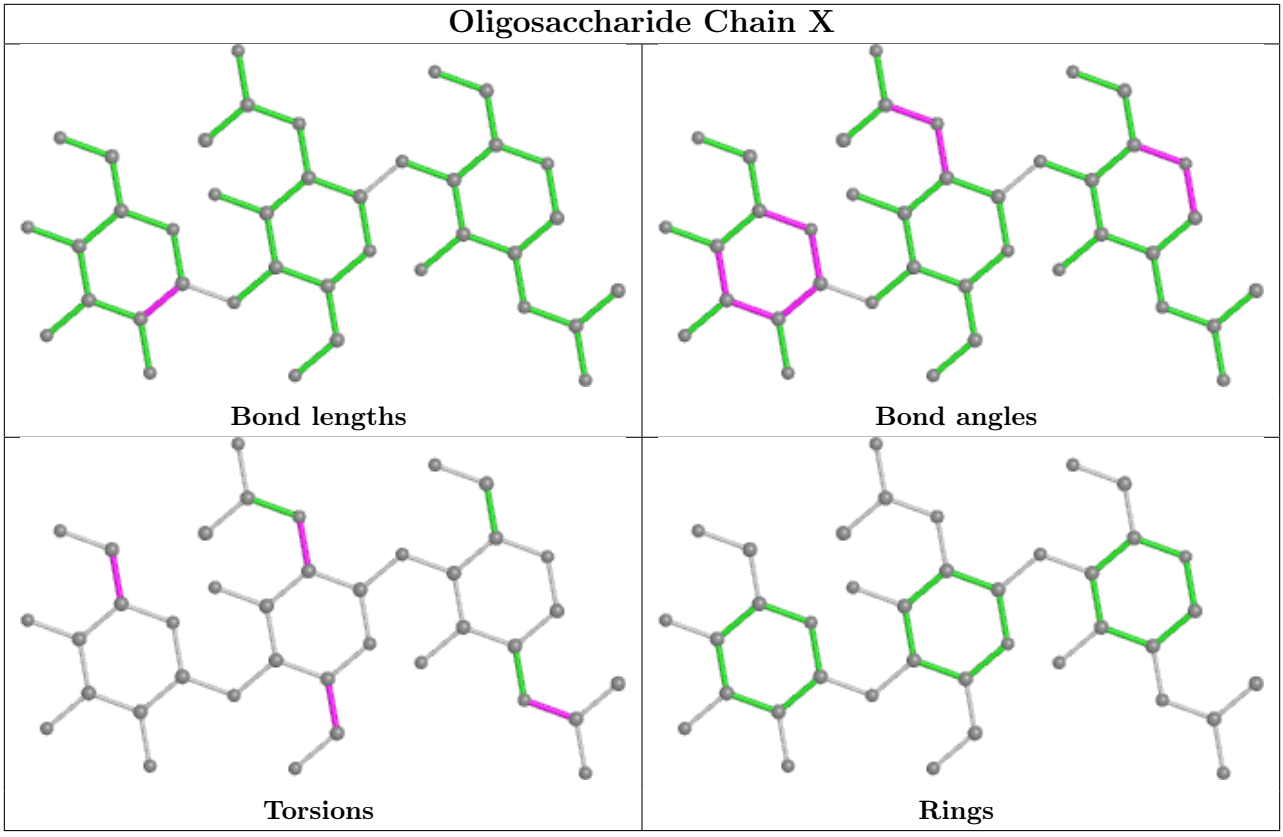
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

27 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	$\#\|Z\| > 2$
4	NAG	C	1221	1	14,14,15	0.25	0	17,19,21	0.54	0
4	NAG	C	1217	-	14,14,15	1.21	1 (7%)	17,19,21	1.28	1 (5%)
4	NAG	B	1210	1	14,14,15	0.50	0	17,19,21	1.12	2 (11%)
4	NAG	B	1204	1	14,14,15	0.65	0	17,19,21	0.74	1 (5%)
4	NAG	A	1214	1	14,14,15	0.36	0	17,19,21	1.03	2 (11%)
4	NAG	C	1218	1	14,14,15	0.40	0	17,19,21	0.78	1 (5%)
4	NAG	A	1213	1	14,14,15	0.45	0	17,19,21	1.00	1 (5%)
4	NAG	B	1214	1	14,14,15	0.36	0	17,19,21	1.03	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	NAG	C	1207	1	14,14,15	0.52	0	17,19,21	0.51	0
4	NAG	A	1207	1	14,14,15	0.51	0	17,19,21	0.51	0
4	NAG	C	1203	1	14,14,15	0.46	0	17,19,21	0.71	1 (5%)
4	NAG	C	1213	1	14,14,15	0.46	0	17,19,21	0.99	1 (5%)
4	NAG	B	1203	1	14,14,15	0.45	0	17,19,21	0.71	1 (5%)
4	NAG	A	1218	1	14,14,15	0.39	0	17,19,21	0.77	1 (5%)
4	NAG	B	1218	1	14,14,15	0.40	0	17,19,21	0.77	1 (5%)
4	NAG	B	1221	1	14,14,15	0.25	0	17,19,21	0.54	0
4	NAG	B	1217	-	14,14,15	1.21	1 (7%)	17,19,21	1.28	1 (5%)
4	NAG	C	1204	1	14,14,15	0.65	0	17,19,21	0.75	1 (5%)
4	NAG	A	1204	1	14,14,15	0.64	0	17,19,21	0.74	1 (5%)
4	NAG	A	1217	-	14,14,15	1.20	1 (7%)	17,19,21	1.27	1 (5%)
4	NAG	A	1203	1	14,14,15	0.45	0	17,19,21	0.71	1 (5%)
4	NAG	C	1210	1	14,14,15	0.50	0	17,19,21	1.12	2 (11%)
4	NAG	B	1213	1	14,14,15	0.46	0	17,19,21	1.00	1 (5%)
4	NAG	A	1221	1	14,14,15	0.26	0	17,19,21	0.54	0
4	NAG	B	1207	1	14,14,15	0.51	0	17,19,21	0.51	0
4	NAG	C	1214	1	14,14,15	0.36	0	17,19,21	1.03	2 (11%)
4	NAG	A	1210	1	14,14,15	0.50	0	17,19,21	1.12	2 (11%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	C	1221	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1217	-	-	4/6/23/26	0/1/1/1
4	NAG	B	1210	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1204	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1214	1	-	1/6/23/26	0/1/1/1
4	NAG	C	1218	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1213	1	-	3/6/23/26	0/1/1/1
4	NAG	B	1214	1	-	1/6/23/26	0/1/1/1
4	NAG	C	1207	1	-	2/6/23/26	0/1/1/1
4	NAG	A	1207	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1203	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1213	1	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	B	1203	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1218	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1218	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1221	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1217	-	-	4/6/23/26	0/1/1/1
4	NAG	C	1204	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1204	1	-	0/6/23/26	0/1/1/1
4	NAG	A	1217	-	-	4/6/23/26	0/1/1/1
4	NAG	A	1203	1	-	0/6/23/26	0/1/1/1
4	NAG	C	1210	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1213	1	-	3/6/23/26	0/1/1/1
4	NAG	A	1221	1	-	2/6/23/26	0/1/1/1
4	NAG	B	1207	1	-	2/6/23/26	0/1/1/1
4	NAG	C	1214	1	-	1/6/23/26	0/1/1/1
4	NAG	A	1210	1	-	2/6/23/26	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1217	NAG	O5-C1	3.96	1.50	1.43
4	B	1217	NAG	O5-C1	3.96	1.50	1.43
4	C	1217	NAG	O5-C1	3.96	1.50	1.43

All (27) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	C	1217	NAG	C1-O5-C5	4.73	118.61	112.19
4	B	1217	NAG	C1-O5-C5	4.72	118.58	112.19
4	A	1217	NAG	C1-O5-C5	4.69	118.55	112.19
4	B	1213	NAG	C2-N2-C7	3.07	127.28	122.90
4	C	1213	NAG	C2-N2-C7	3.07	127.28	122.90
4	A	1213	NAG	C2-N2-C7	3.07	127.28	122.90
4	A	1210	NAG	C2-N2-C7	3.06	127.26	122.90
4	B	1210	NAG	C2-N2-C7	3.06	127.26	122.90
4	C	1214	NAG	C2-N2-C7	3.04	127.24	122.90
4	A	1214	NAG	C2-N2-C7	3.04	127.24	122.90
4	B	1214	NAG	C2-N2-C7	3.04	127.23	122.90
4	C	1210	NAG	C2-N2-C7	3.03	127.22	122.90
4	C	1218	NAG	C1-O5-C5	2.84	116.04	112.19
4	B	1218	NAG	C1-O5-C5	2.82	116.02	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	1218	NAG	C1-O5-C5	2.81	116.00	112.19
4	C	1210	NAG	C1-O5-C5	2.52	115.61	112.19
4	A	1210	NAG	C1-O5-C5	2.51	115.60	112.19
4	B	1210	NAG	C1-O5-C5	2.49	115.57	112.19
4	C	1203	NAG	C1-O5-C5	2.38	115.42	112.19
4	B	1203	NAG	C1-O5-C5	2.37	115.41	112.19
4	A	1203	NAG	C1-O5-C5	2.37	115.41	112.19
4	B	1214	NAG	C1-O5-C5	2.09	115.03	112.19
4	C	1214	NAG	C1-O5-C5	2.09	115.02	112.19
4	A	1214	NAG	C1-O5-C5	2.08	115.00	112.19
4	C	1204	NAG	C1-O5-C5	-2.07	109.38	112.19
4	A	1204	NAG	C1-O5-C5	-2.07	109.39	112.19
4	B	1204	NAG	C1-O5-C5	-2.06	109.40	112.19

There are no chirality outliers.

All (48) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	1213	NAG	O5-C5-C6-O6
4	A	1213	NAG	O5-C5-C6-O6
4	C	1213	NAG	O5-C5-C6-O6
4	B	1213	NAG	C4-C5-C6-O6
4	A	1213	NAG	C4-C5-C6-O6
4	C	1213	NAG	C4-C5-C6-O6
4	B	1217	NAG	C4-C5-C6-O6
4	B	1221	NAG	C4-C5-C6-O6
4	A	1217	NAG	C4-C5-C6-O6
4	A	1221	NAG	C4-C5-C6-O6
4	C	1217	NAG	C4-C5-C6-O6
4	C	1221	NAG	C4-C5-C6-O6
4	B	1217	NAG	C8-C7-N2-C2
4	B	1217	NAG	O7-C7-N2-C2
4	A	1217	NAG	C8-C7-N2-C2
4	A	1217	NAG	O7-C7-N2-C2
4	C	1217	NAG	C8-C7-N2-C2
4	C	1217	NAG	O7-C7-N2-C2
4	B	1217	NAG	O5-C5-C6-O6
4	A	1217	NAG	O5-C5-C6-O6
4	C	1217	NAG	O5-C5-C6-O6
4	B	1221	NAG	O5-C5-C6-O6
4	A	1221	NAG	O5-C5-C6-O6
4	C	1221	NAG	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
4	B	1210	NAG	O5-C5-C6-O6
4	A	1210	NAG	O5-C5-C6-O6
4	C	1210	NAG	O5-C5-C6-O6
4	B	1218	NAG	C4-C5-C6-O6
4	B	1218	NAG	O5-C5-C6-O6
4	C	1218	NAG	O5-C5-C6-O6
4	A	1218	NAG	C4-C5-C6-O6
4	C	1218	NAG	C4-C5-C6-O6
4	A	1218	NAG	O5-C5-C6-O6
4	A	1207	NAG	C4-C5-C6-O6
4	B	1207	NAG	C4-C5-C6-O6
4	A	1207	NAG	O5-C5-C6-O6
4	C	1207	NAG	C4-C5-C6-O6
4	B	1207	NAG	O5-C5-C6-O6
4	C	1207	NAG	O5-C5-C6-O6
4	B	1210	NAG	C3-C2-N2-C7
4	B	1213	NAG	C3-C2-N2-C7
4	B	1214	NAG	C3-C2-N2-C7
4	A	1210	NAG	C3-C2-N2-C7
4	A	1213	NAG	C3-C2-N2-C7
4	A	1214	NAG	C3-C2-N2-C7
4	C	1210	NAG	C3-C2-N2-C7
4	C	1213	NAG	C3-C2-N2-C7
4	C	1214	NAG	C3-C2-N2-C7

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

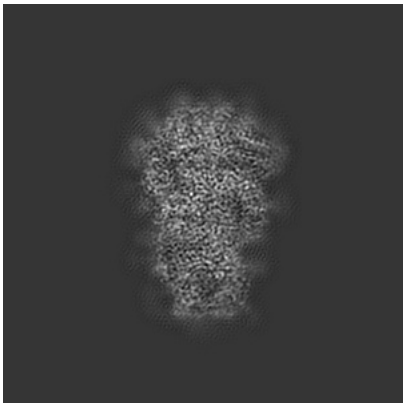
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-30037. These allow visual inspection of the internal detail of the map and identification of artifacts.

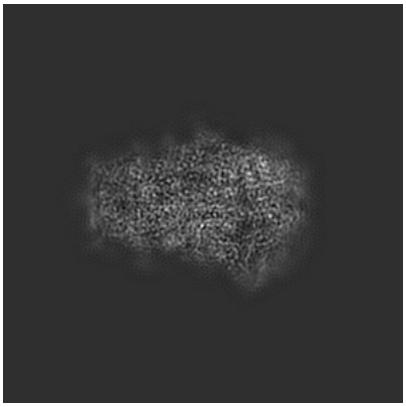
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

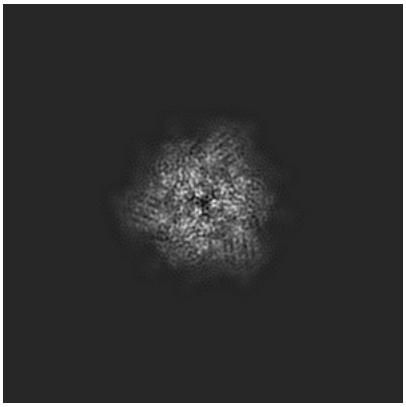
6.1.1 Primary map



X



Y

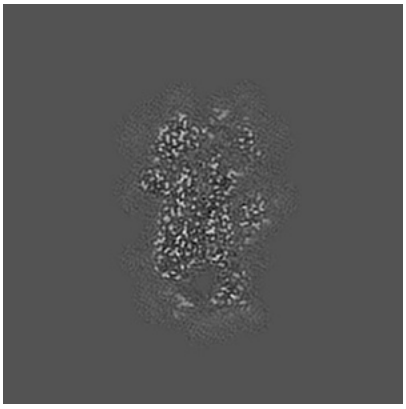


Z

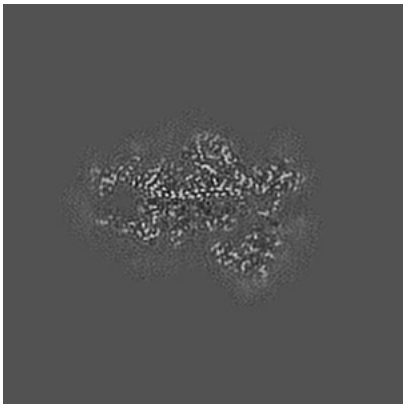
The images above show the map projected in three orthogonal directions.

6.2 Central slices

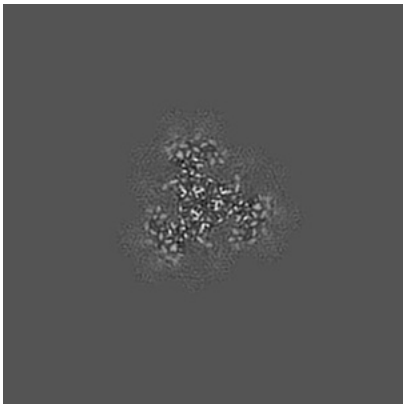
6.2.1 Primary map



X Index: 128



Y Index: 128

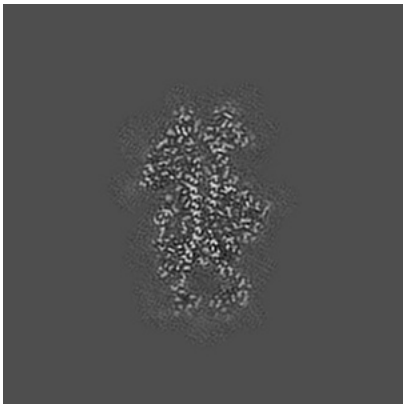


Z Index: 128

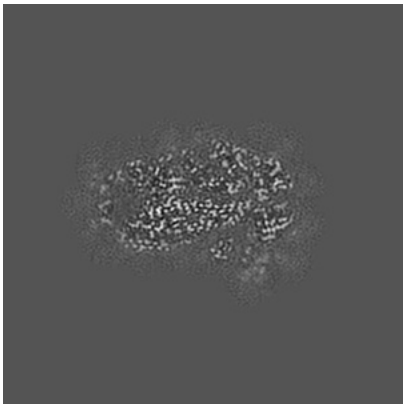
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

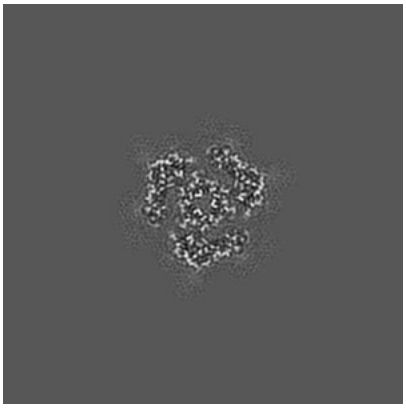
6.3.1 Primary map



X Index: 123



Y Index: 134



Z Index: 141

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

6.4 Orthogonal surface views (i)

6.4.1 Primary map

X

Y

Z

The images above show the 3D surface view of the map at the recommended contour level 0.0201. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

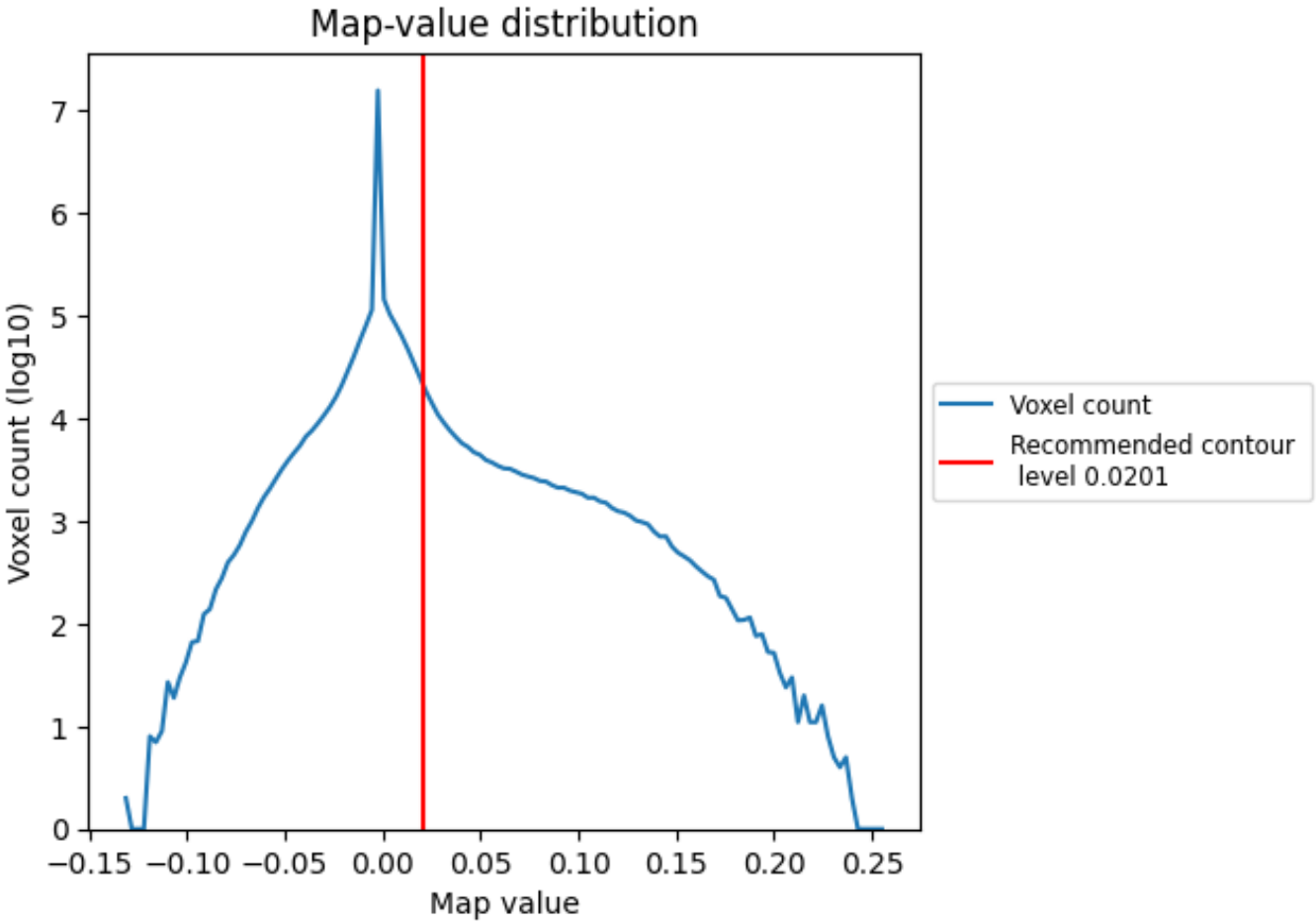
6.5 Mask visualisation (i)

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

7 Map analysis

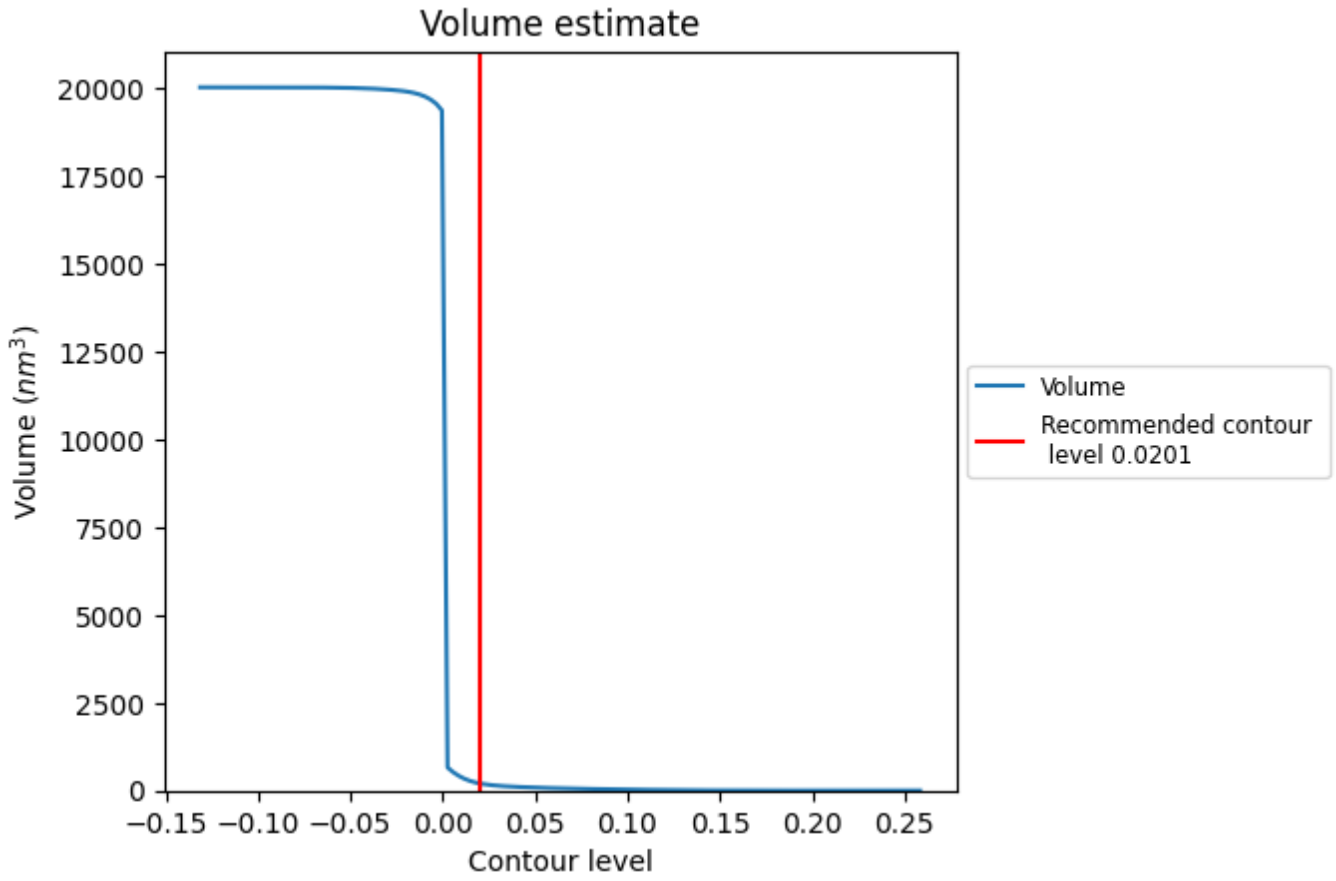
This section contains the results of statistical analysis of the map.

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.

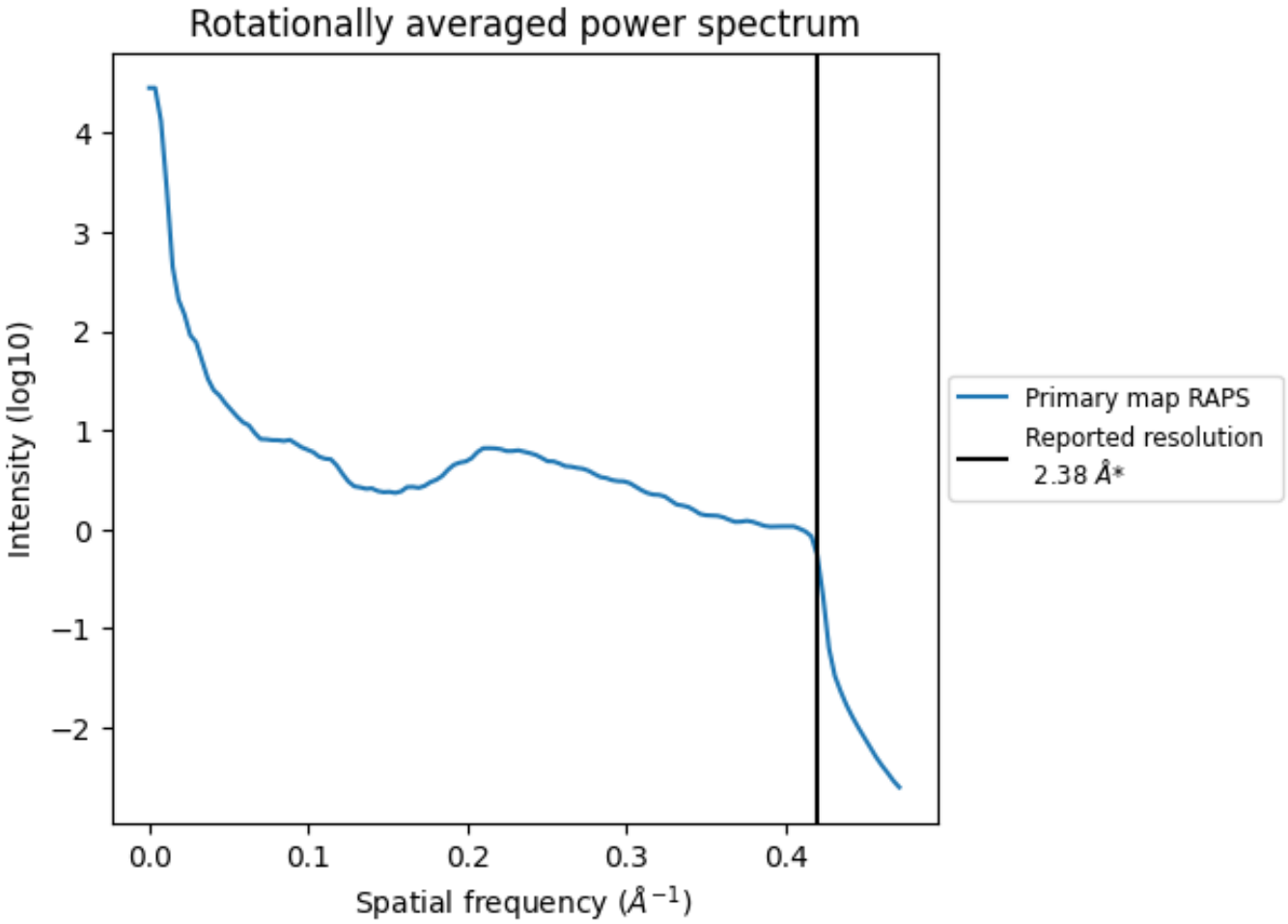
7.2 Volume estimate



The volume at the recommended contour level is 203 nm^3; this corresponds to an approximate mass of 183 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 0.420 Å^{-1}

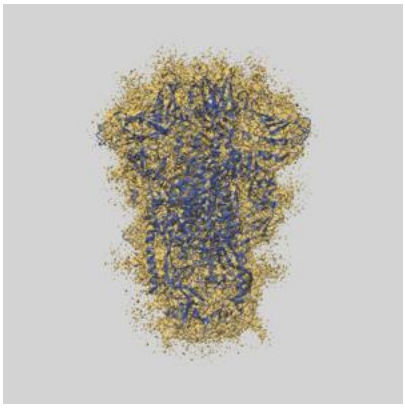
8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

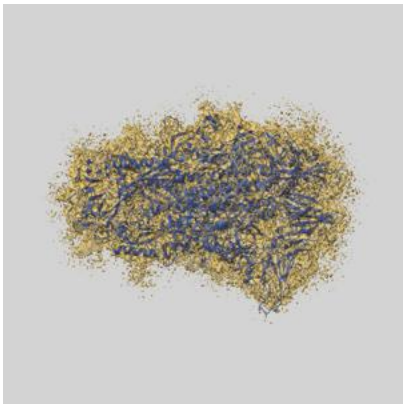
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-30037 and PDB model 6M15. Per-residue inclusion information can be found in section 3 on page 12.

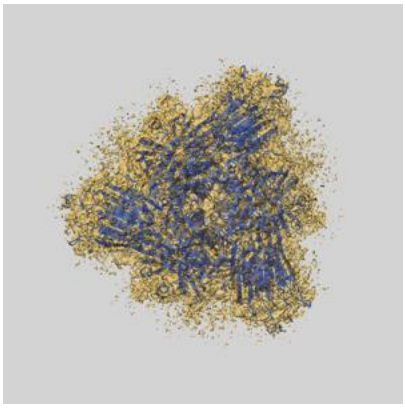
9.1 Map-model overlay



X



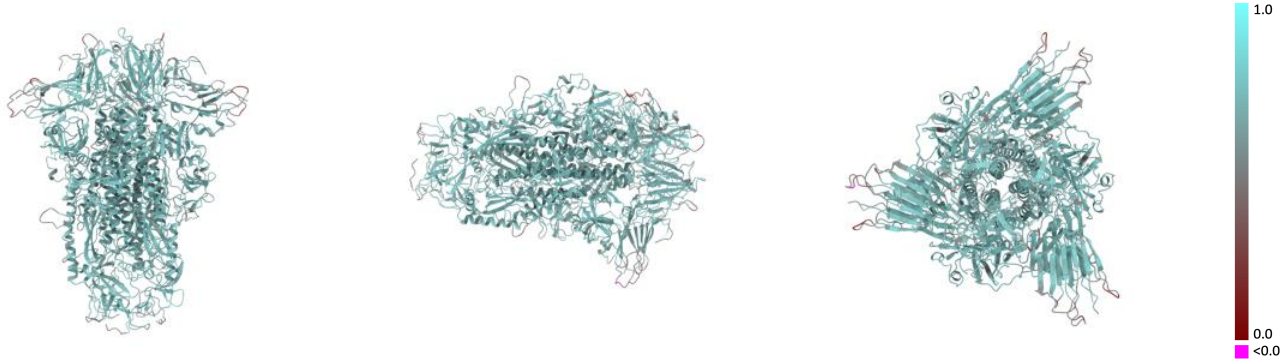
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0201 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.

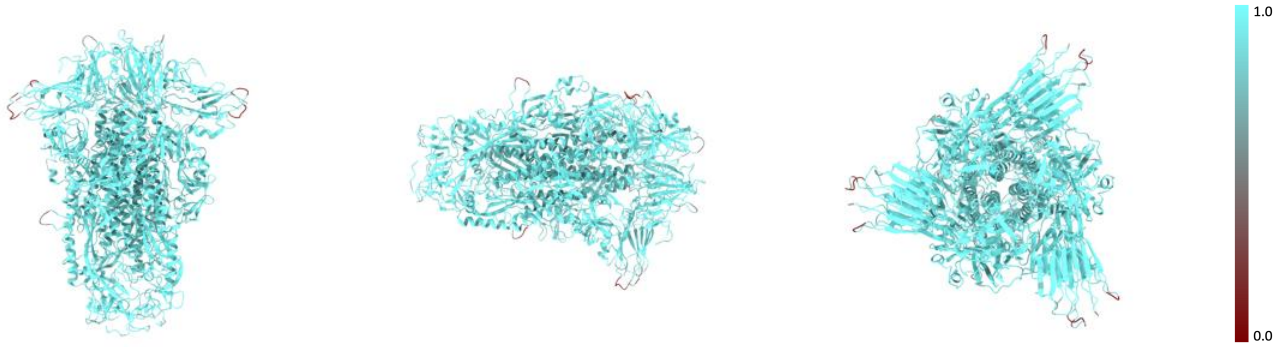
9.2 Q-score mapped to coordinate model (i)



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.

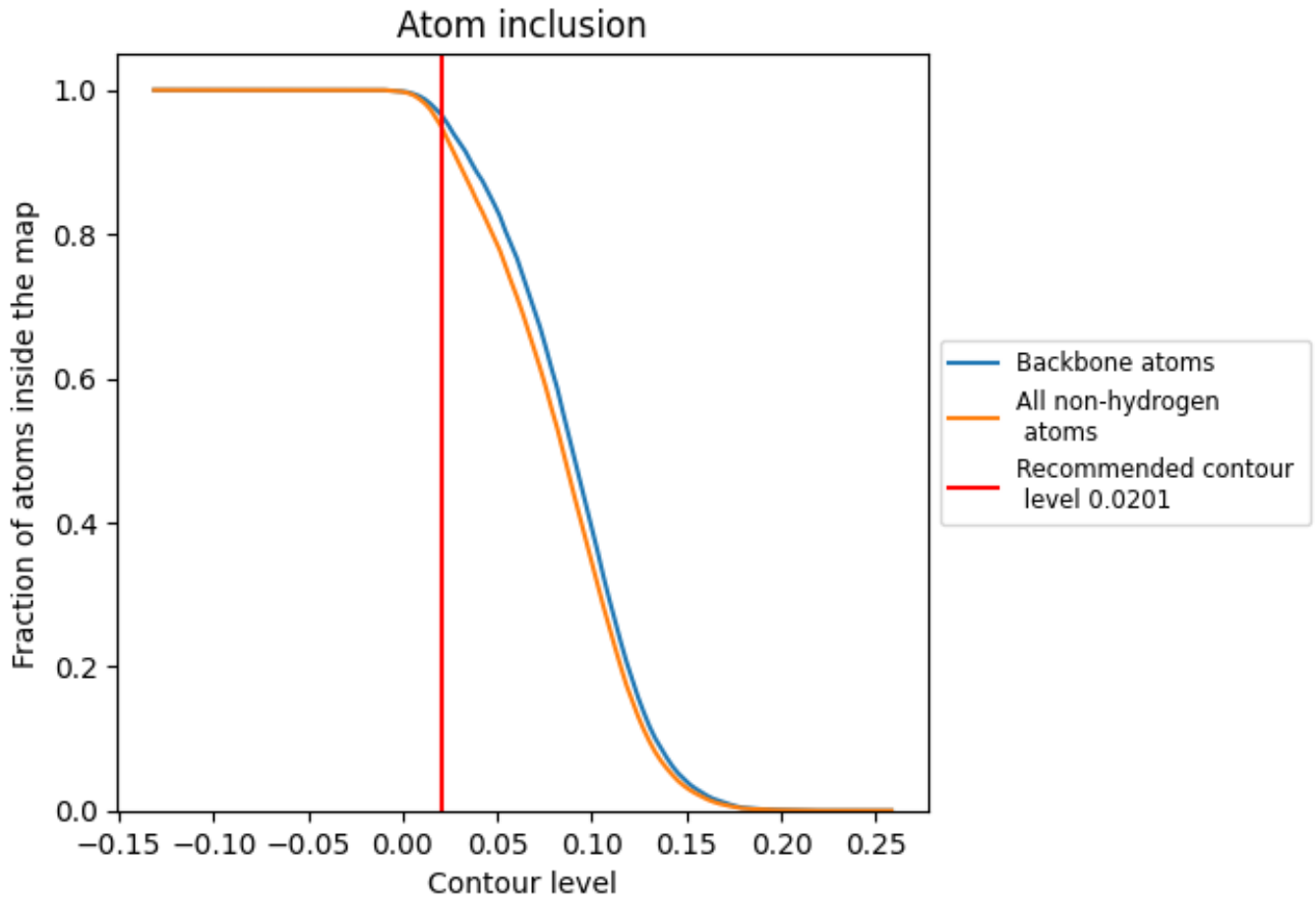
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.0201).

9.4 Atom inclusion (i)



At the recommended contour level, 97% of all backbone atoms, 95% 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 (0.0201) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9506	0.6670
A	0.9563	0.6700
B	0.9587	0.6750
C	0.9567	0.6690
D	1.0000	0.6360
E	0.7500	0.5280
F	0.6786	0.5190
G	0.7857	0.4750
H	0.6429	0.3510
I	0.7500	0.5120
J	0.7436	0.5060
K	1.0000	0.6400
L	0.7500	0.5260
M	0.6786	0.5160
N	0.7500	0.4750
O	0.6429	0.3730
P	0.6786	0.5030
Q	0.7179	0.4880
R	1.0000	0.6450
S	0.7500	0.5150
T	0.6429	0.5010
U	0.6786	0.4720
V	0.6429	0.3670
W	0.7143	0.5020
X	0.7436	0.4830