Full wwPDB EM Validation Report ⓘ

Sep 6, 2025 – 07:29 am BST

PDB ID	:	9Q9S / pdb_00009q9s
EMDB ID	:	EMD-52966
Title	:	HSV-2 prefusion glycoprotein B bound by Nb1_gbHSV
Authors	:	Vollmer, B.; Mulvaney, T.; Ebel, H.; Nentwig, J.; Gruenewald, K.
Deposited on	:	2025-02-26
Resolution	:	2.70 Å(reported)
Based on initial model	:	.

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

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

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

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

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

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 2.70 Å.

There are no overall percentile quality scores available for this entry.

MolProbity failed to run properly - the sequence quality summary graphics cannot be shown.

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 15738 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 Nb1_gbHSV.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	d	115	Total	C	N	O	S	0	0
			870	533	160	171	6		
1	e	115	Total	C	N	O	S	0	0
			870	533	160	171	6		
1	f	115	Total	C	N	O	S	0	0
			870	533	160	171	6		

- Molecule 2 is a protein called Envelope glycoprotein B.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A	530	Total	C	N	O	S	0	0
			4264	2694	748	799	23		
2	B	530	Total	C	N	O	S	0	0
			4264	2694	748	799	23		
2	C	530	Total	C	N	O	S	0	0
			4264	2694	748	799	23		

There are 132 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	905	GLY	-	expression tag	UNP P06763
A	906	THR	-	expression tag	UNP P06763
A	907	LEU	-	expression tag	UNP P06763
A	908	GLU	-	expression tag	UNP P06763
A	909	VAL	-	expression tag	UNP P06763
A	910	LEU	-	expression tag	UNP P06763
A	911	PHE	-	expression tag	UNP P06763
A	912	GLN	-	expression tag	UNP P06763
A	913	GLY	-	expression tag	UNP P06763
A	914	PRO	-	expression tag	UNP P06763
A	915	GLY	-	expression tag	UNP P06763
A	916	GLY	-	expression tag	UNP P06763
A	917	SER	-	expression tag	UNP P06763

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Chain	Residue	Modelled	Actual	Comment	Reference
A	918	GLY	-	expression tag	UNP P06763
A	919	SER	-	expression tag	UNP P06763
A	920	ALA	-	expression tag	UNP P06763
A	921	TRP	-	expression tag	UNP P06763
A	922	SER	-	expression tag	UNP P06763
A	923	HIS	-	expression tag	UNP P06763
A	924	PRO	-	expression tag	UNP P06763
A	925	GLN	-	expression tag	UNP P06763
A	926	PHE	-	expression tag	UNP P06763
A	927	GLU	-	expression tag	UNP P06763
A	928	LYS	-	expression tag	UNP P06763
A	929	GLY	-	expression tag	UNP P06763
A	930	GLY	-	expression tag	UNP P06763
A	931	GLY	-	expression tag	UNP P06763
A	932	SER	-	expression tag	UNP P06763
A	933	GLY	-	expression tag	UNP P06763
A	934	GLY	-	expression tag	UNP P06763
A	935	GLY	-	expression tag	UNP P06763
A	936	SER	-	expression tag	UNP P06763
A	937	GLY	-	expression tag	UNP P06763
A	938	GLY	-	expression tag	UNP P06763
A	939	SER	-	expression tag	UNP P06763
A	940	ALA	-	expression tag	UNP P06763
A	941	TRP	-	expression tag	UNP P06763
A	942	SER	-	expression tag	UNP P06763
A	943	HIS	-	expression tag	UNP P06763
A	944	PRO	-	expression tag	UNP P06763
A	945	GLN	-	expression tag	UNP P06763
A	946	PHE	-	expression tag	UNP P06763
A	947	GLU	-	expression tag	UNP P06763
A	948	LYS	-	expression tag	UNP P06763
B	905	GLY	-	expression tag	UNP P06763
B	906	THR	-	expression tag	UNP P06763
B	907	LEU	-	expression tag	UNP P06763
B	908	GLU	-	expression tag	UNP P06763
B	909	VAL	-	expression tag	UNP P06763
B	910	LEU	-	expression tag	UNP P06763
B	911	PHE	-	expression tag	UNP P06763
B	912	GLN	-	expression tag	UNP P06763
B	913	GLY	-	expression tag	UNP P06763
B	914	PRO	-	expression tag	UNP P06763
B	915	GLY	-	expression tag	UNP P06763

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Chain	Residue	Modelled	Actual	Comment	Reference
B	916	GLY	-	expression tag	UNP P06763
B	917	SER	-	expression tag	UNP P06763
B	918	GLY	-	expression tag	UNP P06763
B	919	SER	-	expression tag	UNP P06763
B	920	ALA	-	expression tag	UNP P06763
B	921	TRP	-	expression tag	UNP P06763
B	922	SER	-	expression tag	UNP P06763
B	923	HIS	-	expression tag	UNP P06763
B	924	PRO	-	expression tag	UNP P06763
B	925	GLN	-	expression tag	UNP P06763
B	926	PHE	-	expression tag	UNP P06763
B	927	GLU	-	expression tag	UNP P06763
B	928	LYS	-	expression tag	UNP P06763
B	929	GLY	-	expression tag	UNP P06763
B	930	GLY	-	expression tag	UNP P06763
B	931	GLY	-	expression tag	UNP P06763
B	932	SER	-	expression tag	UNP P06763
B	933	GLY	-	expression tag	UNP P06763
B	934	GLY	-	expression tag	UNP P06763
B	935	GLY	-	expression tag	UNP P06763
B	936	SER	-	expression tag	UNP P06763
B	937	GLY	-	expression tag	UNP P06763
B	938	GLY	-	expression tag	UNP P06763
B	939	SER	-	expression tag	UNP P06763
B	940	ALA	-	expression tag	UNP P06763
B	941	TRP	-	expression tag	UNP P06763
B	942	SER	-	expression tag	UNP P06763
B	943	HIS	-	expression tag	UNP P06763
B	944	PRO	-	expression tag	UNP P06763
B	945	GLN	-	expression tag	UNP P06763
B	946	PHE	-	expression tag	UNP P06763
B	947	GLU	-	expression tag	UNP P06763
B	948	LYS	-	expression tag	UNP P06763
C	905	GLY	-	expression tag	UNP P06763
C	906	THR	-	expression tag	UNP P06763
C	907	LEU	-	expression tag	UNP P06763
C	908	GLU	-	expression tag	UNP P06763
C	909	VAL	-	expression tag	UNP P06763
C	910	LEU	-	expression tag	UNP P06763
C	911	PHE	-	expression tag	UNP P06763
C	912	GLN	-	expression tag	UNP P06763
C	913	GLY	-	expression tag	UNP P06763

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Chain	Residue	Modelled	Actual	Comment	Reference
C	914	PRO	-	expression tag	UNP P06763
C	915	GLY	-	expression tag	UNP P06763
C	916	GLY	-	expression tag	UNP P06763
C	917	SER	-	expression tag	UNP P06763
C	918	GLY	-	expression tag	UNP P06763
C	919	SER	-	expression tag	UNP P06763
C	920	ALA	-	expression tag	UNP P06763
C	921	TRP	-	expression tag	UNP P06763
C	922	SER	-	expression tag	UNP P06763
C	923	HIS	-	expression tag	UNP P06763
C	924	PRO	-	expression tag	UNP P06763
C	925	GLN	-	expression tag	UNP P06763
C	926	PHE	-	expression tag	UNP P06763
C	927	GLU	-	expression tag	UNP P06763
C	928	LYS	-	expression tag	UNP P06763
C	929	GLY	-	expression tag	UNP P06763
C	930	GLY	-	expression tag	UNP P06763
C	931	GLY	-	expression tag	UNP P06763
C	932	SER	-	expression tag	UNP P06763
C	933	GLY	-	expression tag	UNP P06763
C	934	GLY	-	expression tag	UNP P06763
C	935	GLY	-	expression tag	UNP P06763
C	936	SER	-	expression tag	UNP P06763
C	937	GLY	-	expression tag	UNP P06763
C	938	GLY	-	expression tag	UNP P06763
C	939	SER	-	expression tag	UNP P06763
C	940	ALA	-	expression tag	UNP P06763
C	941	TRP	-	expression tag	UNP P06763
C	942	SER	-	expression tag	UNP P06763
C	943	HIS	-	expression tag	UNP P06763
C	944	PRO	-	expression tag	UNP P06763
C	945	GLN	-	expression tag	UNP P06763
C	946	PHE	-	expression tag	UNP P06763
C	947	GLU	-	expression tag	UNP P06763
C	948	LYS	-	expression tag	UNP P06763

- 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	D	2	Total	C	N	O	0	0
			28	16	2	10		
3	E	2	Total	C	N	O	0	0
			28	16	2	10		
3	F	2	Total	C	N	O	0	0
			28	16	2	10		
3	G	2	Total	C	N	O	0	0
			28	16	2	10		
3	H	2	Total	C	N	O	0	0
			28	16	2	10		
3	I	2	Total	C	N	O	0	0
			28	16	2	10		
3	J	2	Total	C	N	O	0	0
			28	16	2	10		
3	K	2	Total	C	N	O	0	0
			28	16	2	10		
3	L	2	Total	C	N	O	0	0
			28	16	2	10		
3	M	2	Total	C	N	O	0	0
			28	16	2	10		
3	N	2	Total	C	N	O	0	0
			28	16	2	10		
3	O	2	Total	C	N	O	0	0
			28	16	2	10		

MolProbity failed to run properly - this section is therefore empty.

3 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C3	Depositor
Number of particles used	158509	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	43.84	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.707	Depositor
Minimum map value	-0.332	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.013	Depositor
Recommended contour level	0.104	Depositor
Map size (Å)	348.6, 348.6, 348.6	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.83000004, 0.83000004, 0.83000004	Depositor

4 Model quality

4.1 Standard geometry

MolProbity failed to run properly - this section is therefore empty.

4.2 Too-close contacts

MolProbity failed to run properly - this section is therefore empty.

4.3 Torsion angles

4.3.1 Protein backbone

MolProbity failed to run properly - this section is therefore empty.

4.3.2 Protein sidechains

MolProbity failed to run properly - this section is therefore empty.

4.3.3 RNA

MolProbity failed to run properly - this section is therefore empty.

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

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

4.5 Carbohydrates

24 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	$\#\|Z\|>2$
3	NAG	D	1	2,3	14,14,15	1.75	4 (28%)	17,19,21	0.98	0
3	NAG	D	2	3	14,14,15	1.77	4 (28%)	17,19,21	1.06	1 (5%)
3	NAG	E	1	2,3	14,14,15	1.77	4 (28%)	17,19,21	1.11	2 (11%)
3	NAG	E	2	3	14,14,15	1.76	4 (28%)	17,19,21	1.01	1 (5%)
3	NAG	F	1	2,3	14,14,15	1.71	4 (28%)	17,19,21	0.94	0
3	NAG	F	2	3	14,14,15	1.75	4 (28%)	17,19,21	1.08	1 (5%)
3	NAG	G	1	2,3	14,14,15	1.76	5 (35%)	17,19,21	1.02	1 (5%)
3	NAG	G	2	3	14,14,15	1.66	4 (28%)	17,19,21	1.38	1 (5%)
3	NAG	H	1	2,3	14,14,15	1.84	4 (28%)	17,19,21	0.96	1 (5%)
3	NAG	H	2	3	14,14,15	1.74	3 (21%)	17,19,21	0.97	1 (5%)
3	NAG	I	1	2,3	14,14,15	1.84	5 (35%)	17,19,21	0.71	1 (5%)
3	NAG	I	2	3	14,14,15	1.73	4 (28%)	17,19,21	1.09	1 (5%)
3	NAG	J	1	2,3	14,14,15	1.83	4 (28%)	17,19,21	1.03	1 (5%)
3	NAG	J	2	3	14,14,15	1.71	4 (28%)	17,19,21	0.91	1 (5%)
3	NAG	K	1	2,3	14,14,15	1.86	5 (35%)	17,19,21	1.14	1 (5%)
3	NAG	K	2	3	14,14,15	1.74	3 (21%)	17,19,21	0.95	1 (5%)
3	NAG	L	1	2,3	14,14,15	1.85	4 (28%)	17,19,21	1.04	1 (5%)
3	NAG	L	2	3	14,14,15	1.74	4 (28%)	17,19,21	0.90	1 (5%)
3	NAG	M	1	2,3	14,14,15	1.83	5 (35%)	17,19,21	0.80	0
3	NAG	M	2	3	14,14,15	1.74	4 (28%)	17,19,21	0.92	1 (5%)
3	NAG	N	1	2,3	14,14,15	1.81	5 (35%)	17,19,21	0.85	0
3	NAG	N	2	3	14,14,15	1.76	4 (28%)	17,19,21	0.93	1 (5%)
3	NAG	O	1	2,3	14,14,15	1.75	4 (28%)	17,19,21	1.18	2 (11%)
3	NAG	O	2	3	14,14,15	1.74	4 (28%)	17,19,21	0.87	1 (5%)

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
3	NAG	D	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	D	2	3	-	0/6/23/26	0/1/1/1
3	NAG	E	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	E	2	3	-	0/6/23/26	0/1/1/1
3	NAG	F	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	G	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	G	2	3	-	0/6/23/26	0/1/1/1
3	NAG	H	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	H	2	3	-	0/6/23/26	0/1/1/1
3	NAG	I	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	I	2	3	-	0/6/23/26	0/1/1/1
3	NAG	J	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	J	2	3	-	0/6/23/26	0/1/1/1
3	NAG	K	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	K	2	3	-	0/6/23/26	0/1/1/1
3	NAG	L	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	L	2	3	-	0/6/23/26	0/1/1/1
3	NAG	M	1	2,3	-	0/6/23/26	0/1/1/1
3	NAG	M	2	3	-	0/6/23/26	0/1/1/1
3	NAG	N	1	2,3	-	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	2,3	-	0/6/23/26	0/1/1/1
3	NAG	O	2	3	-	0/6/23/26	0/1/1/1

All (99) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	K	1	NAG	C1-C2	3.42	1.57	1.52
3	L	1	NAG	C1-C2	3.38	1.57	1.52
3	J	1	NAG	C1-C2	3.37	1.57	1.52
3	I	1	NAG	C1-C2	3.23	1.57	1.52
3	H	2	NAG	O5-C5	3.09	1.49	1.43
3	H	1	NAG	C1-C2	3.09	1.56	1.52
3	M	2	NAG	O5-C5	3.07	1.49	1.43
3	I	2	NAG	O5-C5	3.06	1.49	1.43
3	N	2	NAG	O5-C5	3.06	1.49	1.43
3	D	2	NAG	C1-C2	3.06	1.56	1.52
3	D	2	NAG	O5-C5	3.04	1.49	1.43
3	O	2	NAG	O5-C5	3.02	1.49	1.43
3	J	2	NAG	O5-C5	3.02	1.49	1.43
3	M	1	NAG	O4-C4	3.01	1.50	1.43
3	K	2	NAG	O5-C5	3.01	1.49	1.43
3	L	2	NAG	O5-C5	3.01	1.49	1.43
3	O	1	NAG	C1-C2	2.99	1.56	1.52
3	F	2	NAG	O5-C5	2.97	1.49	1.43
3	M	1	NAG	C1-C2	2.97	1.56	1.52
3	F	2	NAG	C1-C2	2.96	1.56	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	1	NAG	C1-C2	2.95	1.56	1.52
3	E	2	NAG	O5-C5	2.94	1.49	1.43
3	E	2	NAG	C1-C2	2.94	1.56	1.52
3	M	1	NAG	O5-C5	2.93	1.49	1.43
3	E	1	NAG	O5-C5	2.92	1.49	1.43
3	I	1	NAG	O5-C5	2.91	1.49	1.43
3	N	1	NAG	C1-C2	2.89	1.56	1.52
3	I	1	NAG	O4-C4	2.89	1.49	1.43
3	N	1	NAG	O4-C4	2.88	1.49	1.43
3	H	1	NAG	O4-C4	2.88	1.49	1.43
3	D	1	NAG	O4-C4	2.88	1.49	1.43
3	G	2	NAG	O5-C5	2.87	1.49	1.43
3	D	1	NAG	O5-C5	2.86	1.49	1.43
3	O	2	NAG	O5-C1	2.86	1.48	1.43
3	F	1	NAG	O5-C5	2.85	1.49	1.43
3	K	1	NAG	O4-C4	2.85	1.49	1.43
3	N	1	NAG	O5-C5	2.84	1.49	1.43
3	M	2	NAG	C1-C2	2.84	1.56	1.52
3	G	1	NAG	O5-C5	2.83	1.49	1.43
3	L	1	NAG	O4-C4	2.83	1.49	1.43
3	N	2	NAG	C1-C2	2.82	1.56	1.52
3	N	2	NAG	O5-C1	2.81	1.48	1.43
3	L	1	NAG	O5-C5	2.81	1.49	1.43
3	O	1	NAG	O4-C4	2.81	1.49	1.43
3	J	2	NAG	O5-C1	2.81	1.48	1.43
3	G	1	NAG	O4-C4	2.80	1.49	1.43
3	H	2	NAG	O5-C1	2.80	1.48	1.43
3	F	1	NAG	O4-C4	2.79	1.49	1.43
3	J	1	NAG	O4-C4	2.79	1.49	1.43
3	K	2	NAG	O5-C1	2.78	1.48	1.43
3	L	2	NAG	O5-C1	2.78	1.48	1.43
3	M	2	NAG	O5-C1	2.78	1.48	1.43
3	E	1	NAG	C1-C2	2.78	1.56	1.52
3	H	1	NAG	O5-C5	2.78	1.49	1.43
3	D	2	NAG	O5-C1	2.77	1.48	1.43
3	E	1	NAG	O4-C4	2.75	1.49	1.43
3	L	2	NAG	C1-C2	2.75	1.56	1.52
3	H	2	NAG	C1-C2	2.74	1.56	1.52
3	O	2	NAG	C1-C2	2.73	1.56	1.52
3	E	2	NAG	O5-C1	2.73	1.48	1.43
3	J	1	NAG	O5-C5	2.72	1.49	1.43
3	I	2	NAG	C1-C2	2.70	1.56	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	K	2	NAG	C1-C2	2.69	1.56	1.52
3	K	1	NAG	O5-C5	2.69	1.48	1.43
3	I	2	NAG	O5-C1	2.68	1.48	1.43
3	F	2	NAG	O5-C1	2.66	1.48	1.43
3	G	2	NAG	C1-C2	2.61	1.56	1.52
3	J	2	NAG	C1-C2	2.60	1.56	1.52
3	D	1	NAG	C1-C2	2.58	1.56	1.52
3	F	1	NAG	C1-C2	2.56	1.56	1.52
3	O	1	NAG	O5-C5	2.52	1.48	1.43
3	G	2	NAG	O5-C1	2.33	1.47	1.43
3	H	1	NAG	C8-C7	2.24	1.55	1.50
3	I	1	NAG	O5-C1	2.23	1.47	1.43
3	K	1	NAG	C8-C7	2.20	1.55	1.50
3	F	2	NAG	C8-C7	2.20	1.55	1.50
3	I	1	NAG	C8-C7	2.19	1.55	1.50
3	G	1	NAG	C8-C7	2.17	1.55	1.50
3	E	1	NAG	O5-C1	2.17	1.47	1.43
3	D	1	NAG	C8-C7	2.17	1.55	1.50
3	E	2	NAG	C8-C7	2.15	1.55	1.50
3	D	2	NAG	C8-C7	2.13	1.55	1.50
3	N	1	NAG	O5-C1	2.12	1.47	1.43
3	K	1	NAG	O5-C1	2.09	1.47	1.43
3	M	1	NAG	O5-C1	2.09	1.47	1.43
3	L	1	NAG	C8-C7	2.08	1.54	1.50
3	J	1	NAG	C8-C7	2.08	1.54	1.50
3	G	1	NAG	O5-C1	2.05	1.47	1.43
3	N	1	NAG	C8-C7	2.05	1.54	1.50
3	O	2	NAG	C8-C7	2.05	1.54	1.50
3	F	1	NAG	C8-C7	2.04	1.54	1.50
3	M	1	NAG	C8-C7	2.03	1.54	1.50
3	N	2	NAG	C8-C7	2.02	1.54	1.50
3	L	2	NAG	C8-C7	2.02	1.54	1.50
3	M	2	NAG	C8-C7	2.01	1.54	1.50
3	J	2	NAG	C8-C7	2.01	1.54	1.50
3	G	2	NAG	O3-C3	2.01	1.47	1.43
3	O	1	NAG	C8-C7	2.01	1.54	1.50
3	I	2	NAG	C8-C7	2.00	1.54	1.50

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	G	2	NAG	C1-O5-C5	5.03	119.01	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	F	2	NAG	C1-O5-C5	3.62	117.10	112.19
3	D	2	NAG	C1-O5-C5	3.40	116.80	112.19
3	I	2	NAG	C1-O5-C5	3.31	116.68	112.19
3	E	2	NAG	C1-O5-C5	3.15	116.46	112.19
3	O	1	NAG	C4-C3-C2	3.09	115.55	111.02
3	K	1	NAG	C4-C3-C2	3.03	115.45	111.02
3	E	1	NAG	C1-O5-C5	2.86	116.06	112.19
3	H	2	NAG	C1-O5-C5	2.83	116.02	112.19
3	G	1	NAG	C4-C3-C2	2.78	115.08	111.02
3	K	2	NAG	C1-O5-C5	2.75	115.92	112.19
3	L	1	NAG	C4-C3-C2	2.69	114.96	111.02
3	N	2	NAG	C1-O5-C5	2.56	115.66	112.19
3	J	2	NAG	C1-O5-C5	2.56	115.66	112.19
3	O	1	NAG	C3-C4-C5	2.50	114.71	110.24
3	M	2	NAG	C1-O5-C5	2.44	115.49	112.19
3	L	2	NAG	C1-O5-C5	2.38	115.42	112.19
3	O	2	NAG	C1-O5-C5	2.35	115.38	112.19
3	H	1	NAG	C4-C3-C2	2.35	114.46	111.02
3	J	1	NAG	C1-O5-C5	2.15	115.10	112.19
3	E	1	NAG	C3-C4-C5	2.09	113.97	110.24
3	I	1	NAG	C1-O5-C5	2.06	114.98	112.19

There are no chirality outliers.

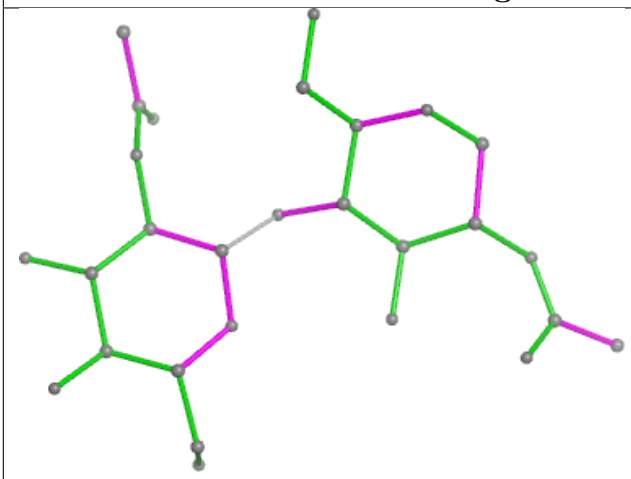
There are no torsion outliers.

There are no ring outliers.

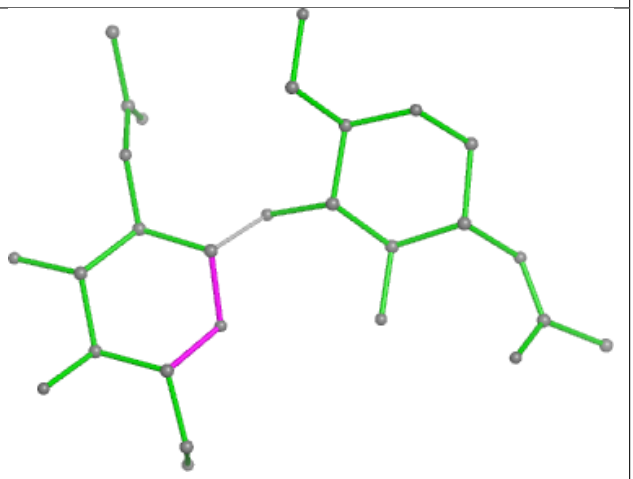
No monomer is involved in short contacts.

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

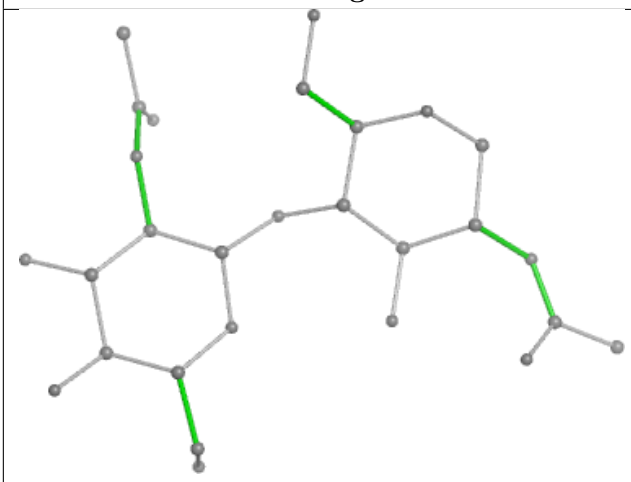
Oligosaccharide Chain D



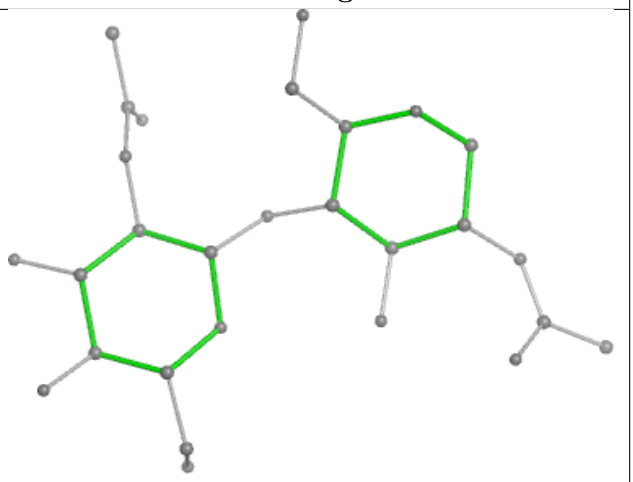
Bond lengths



Bond angles

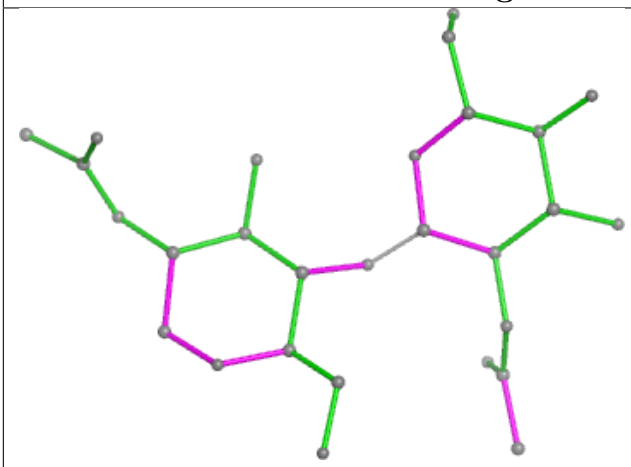


Torsions

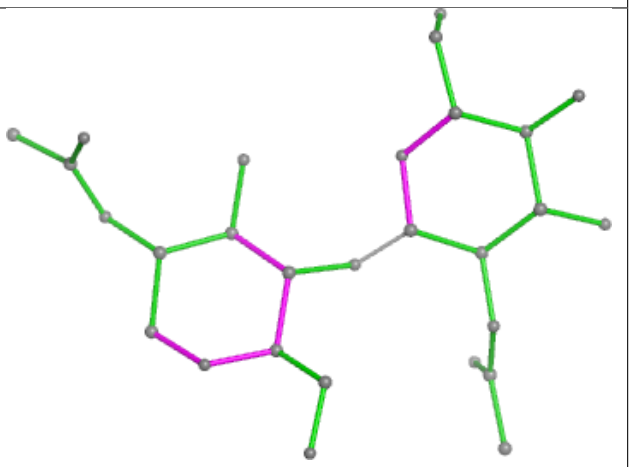


Rings

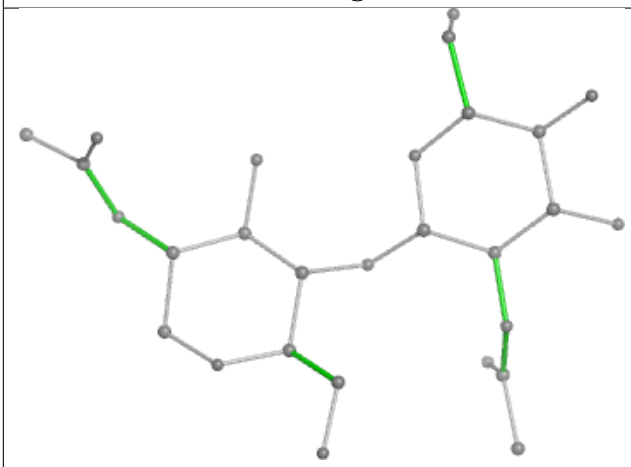
Oligosaccharide Chain E



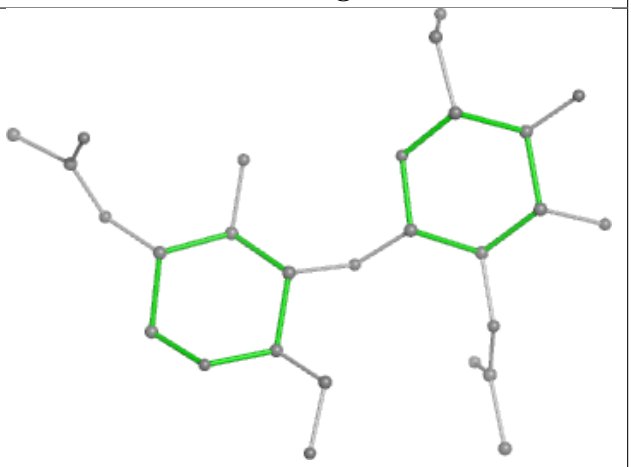
Bond lengths



Bond angles

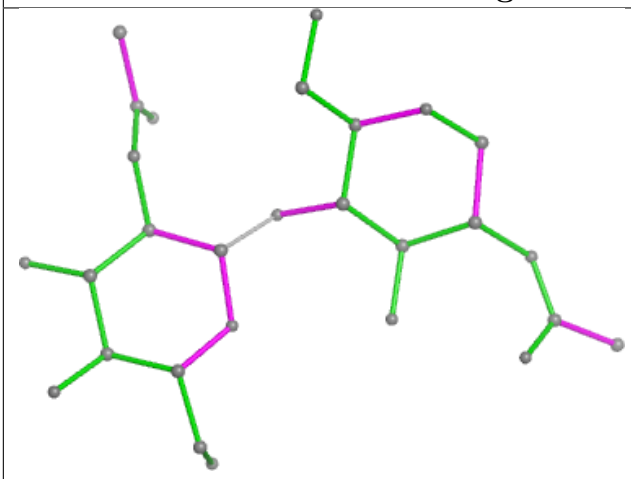


Torsions

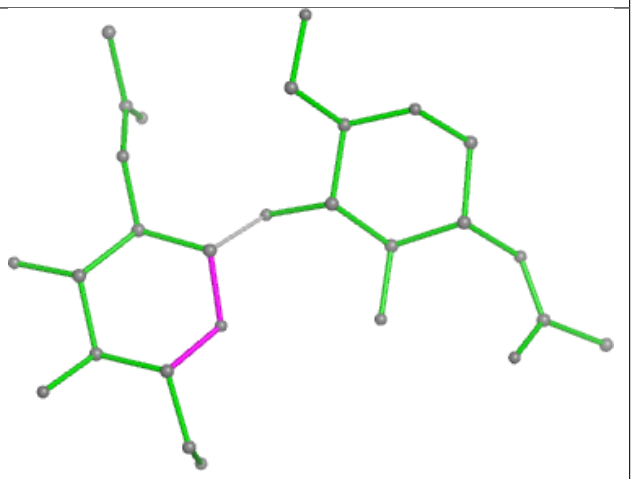


Rings

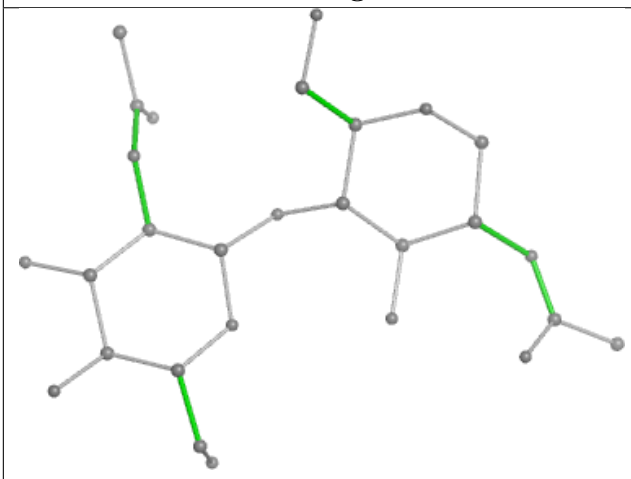
Oligosaccharide Chain F



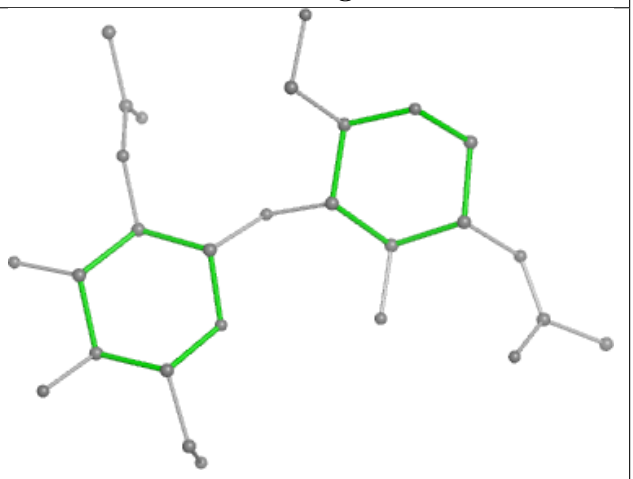
Bond lengths



Bond angles

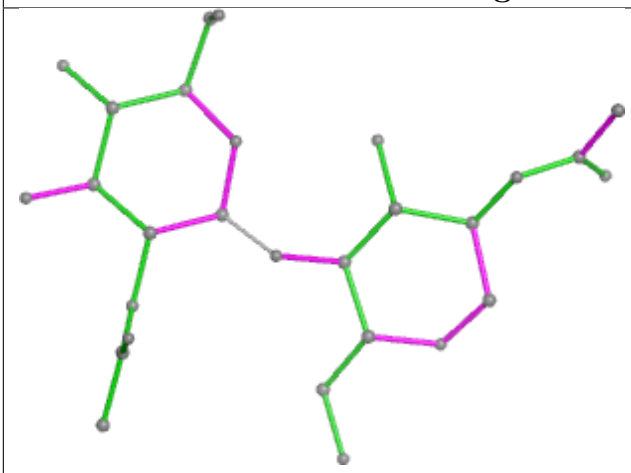


Torsions

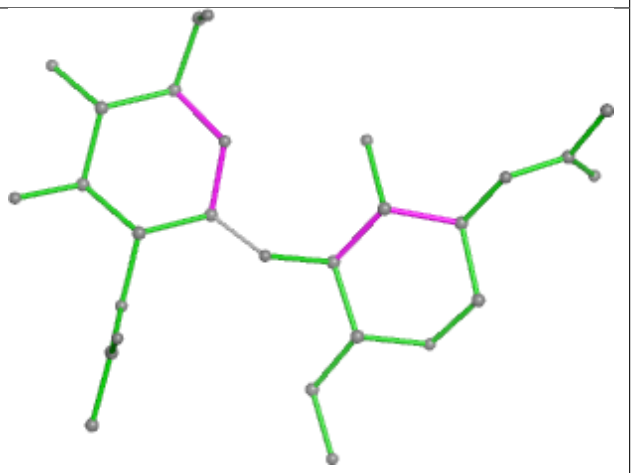


Rings

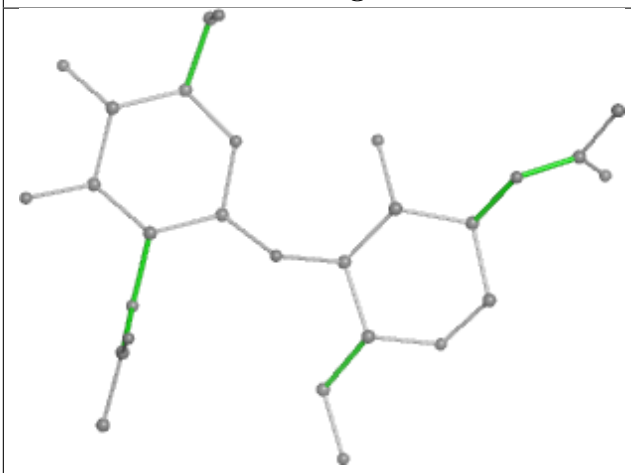
Oligosaccharide Chain G



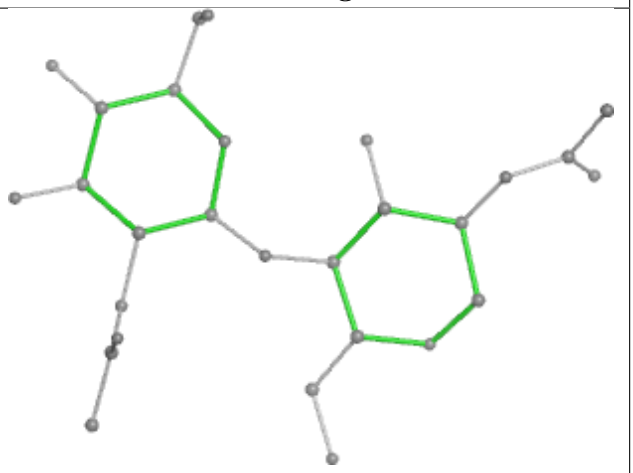
Bond lengths



Bond angles

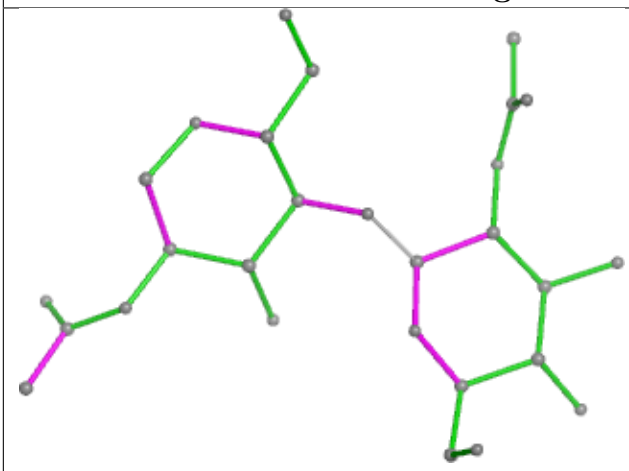


Torsions

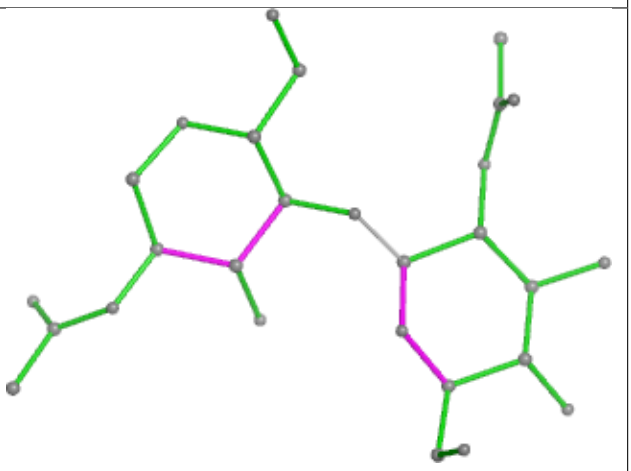


Rings

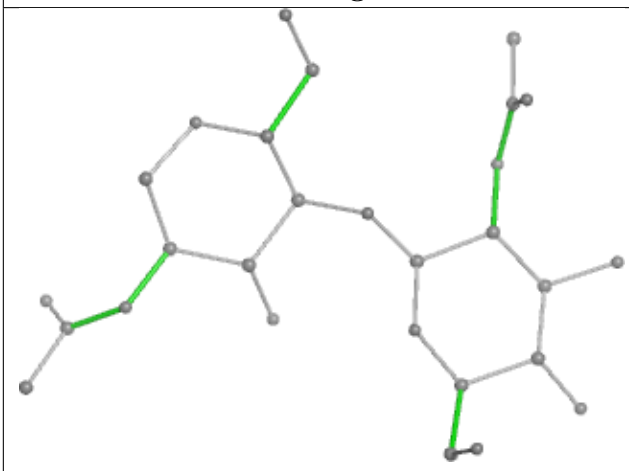
Oligosaccharide Chain H



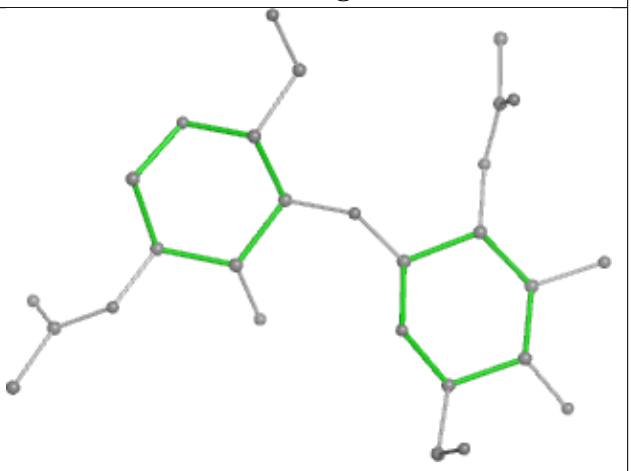
Bond lengths



Bond angles

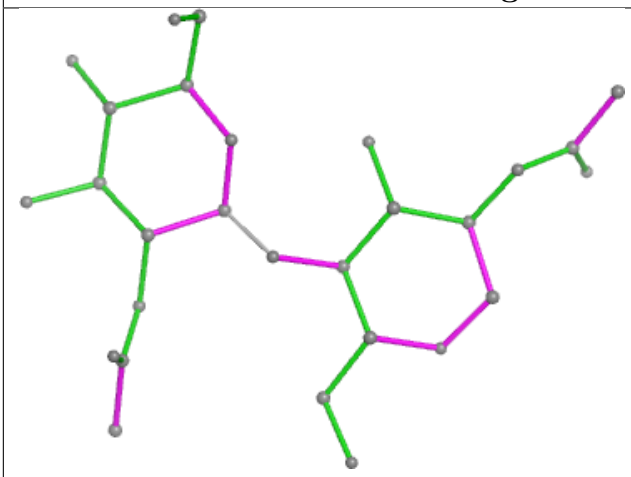


Torsions

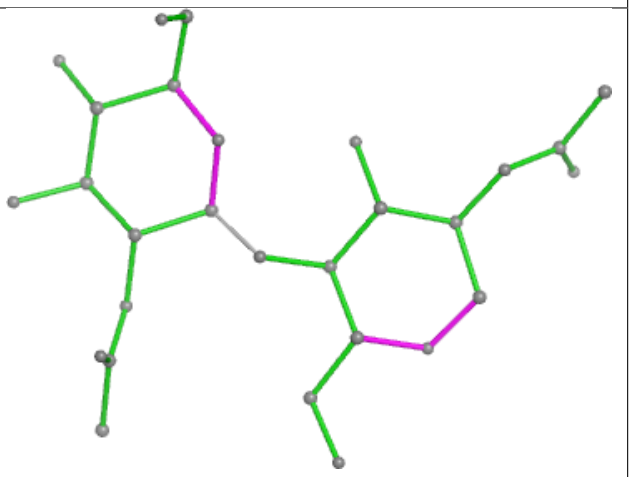


Rings

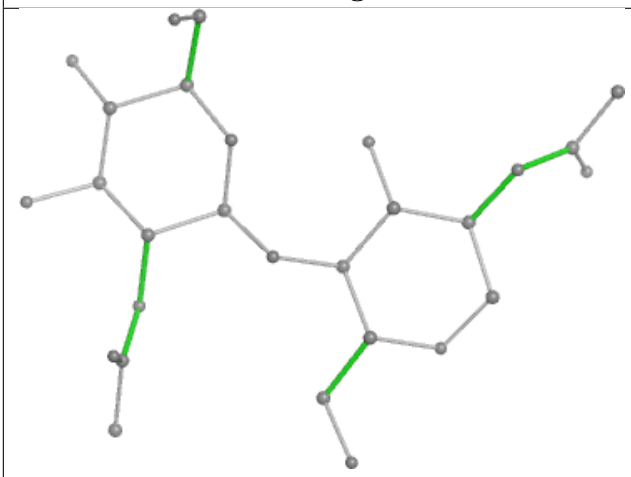
Oligosaccharide Chain I



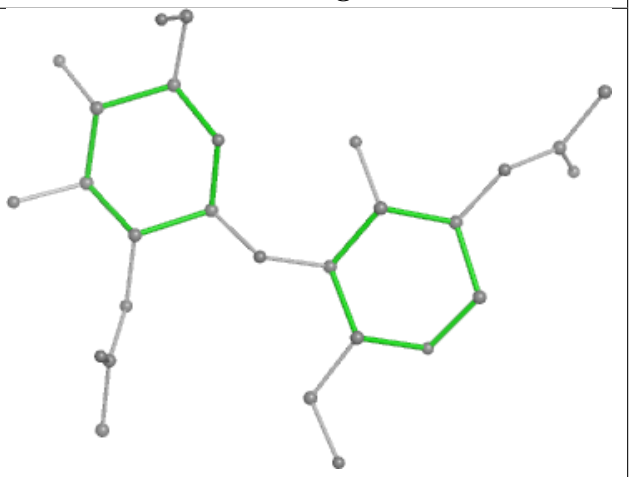
Bond lengths



Bond angles

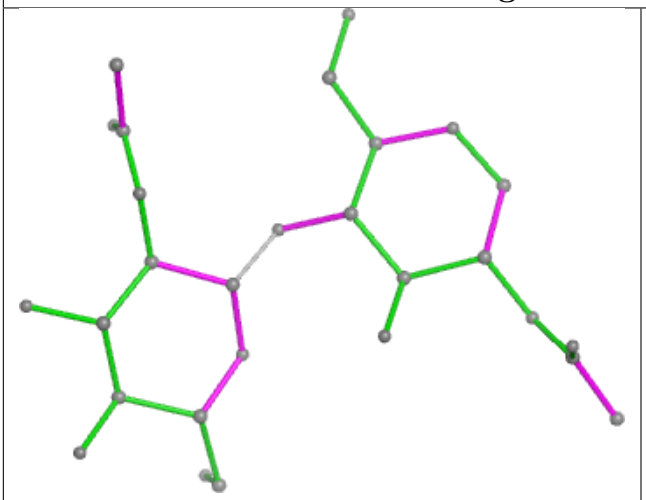


Torsions

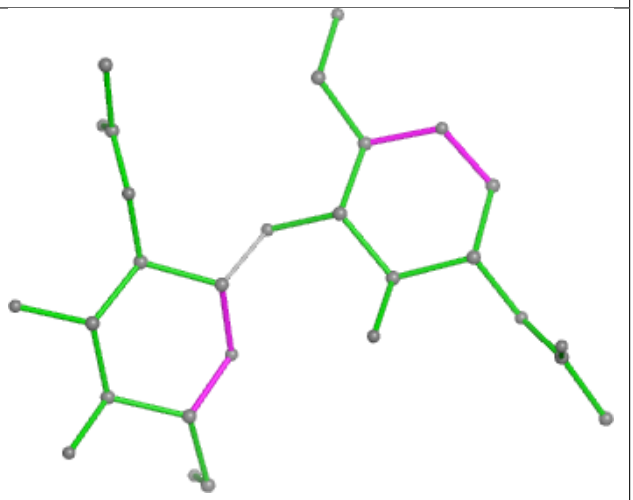


Rings

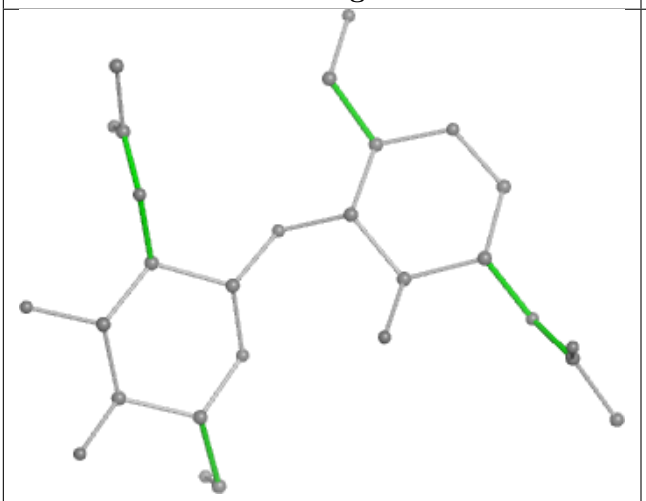
Oligosaccharide Chain J



Bond lengths



Bond angles



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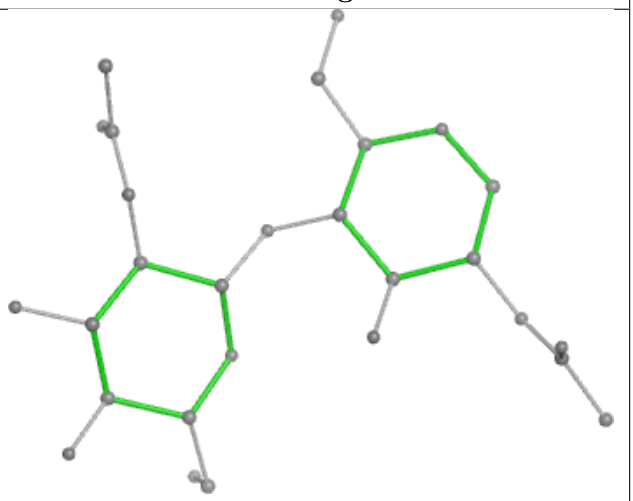
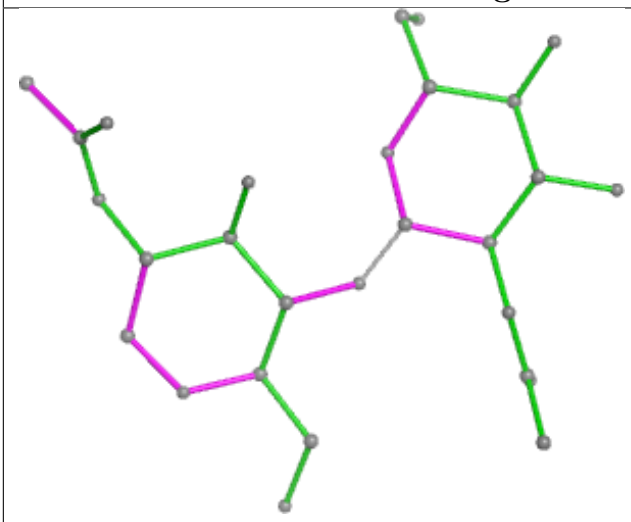
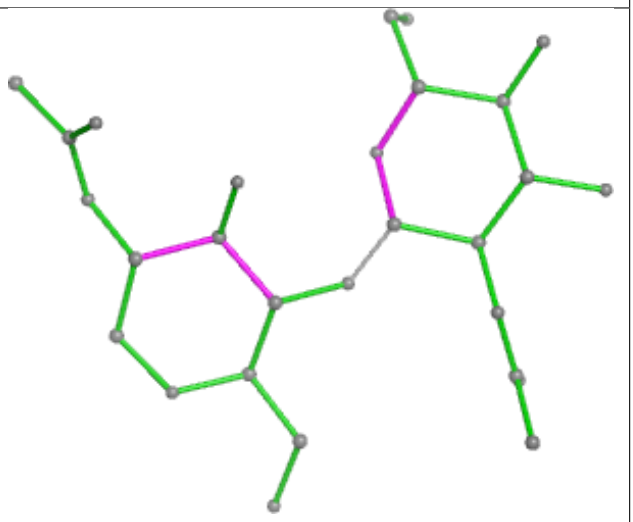


Rings

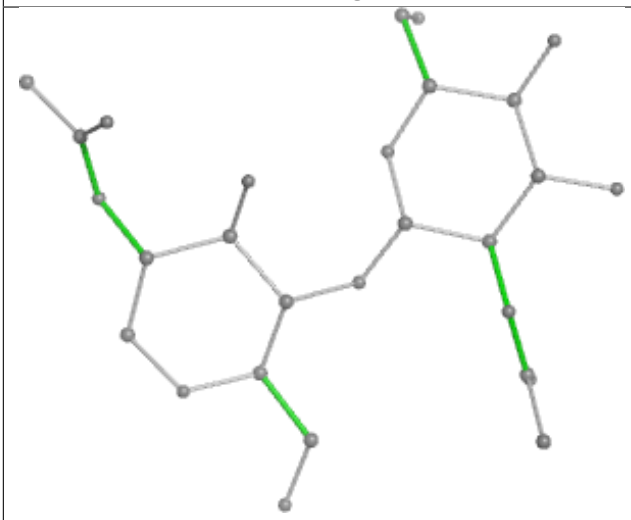
Oligosaccharide Chain K



Bond lengths



Bond angles



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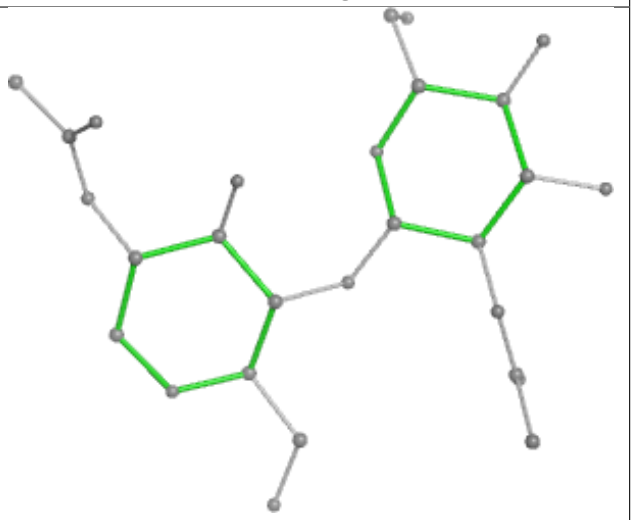
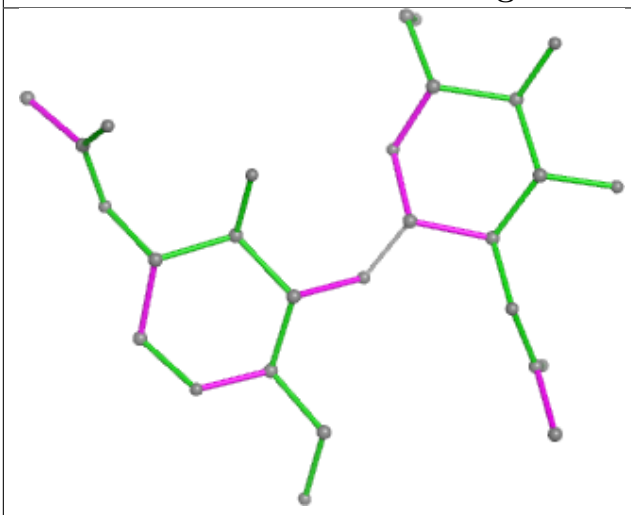
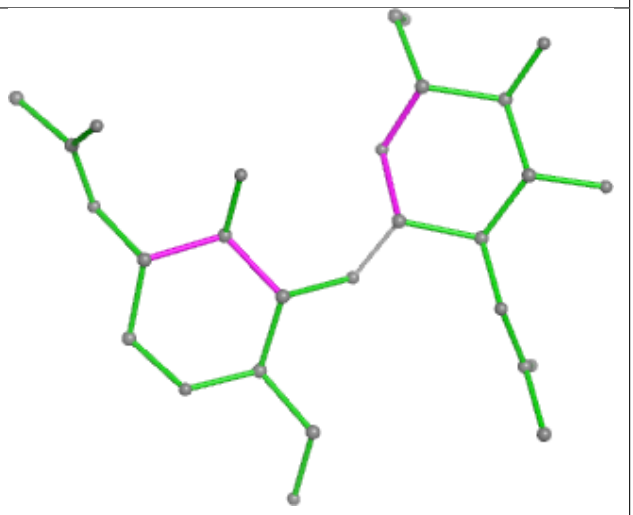


Rings

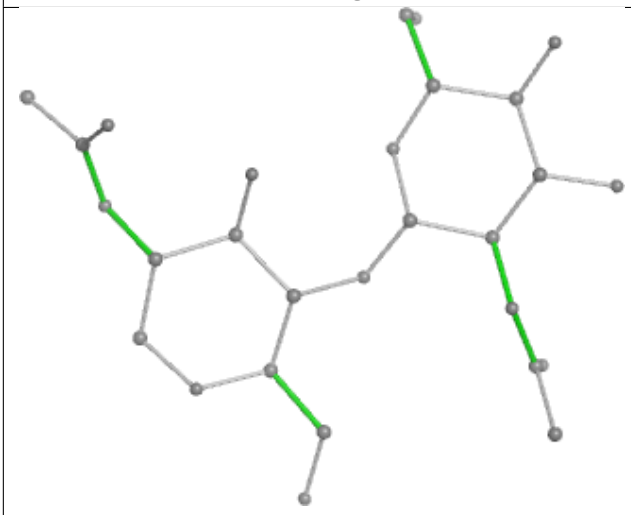
Oligosaccharide Chain L



Bond lengths



Bond angles



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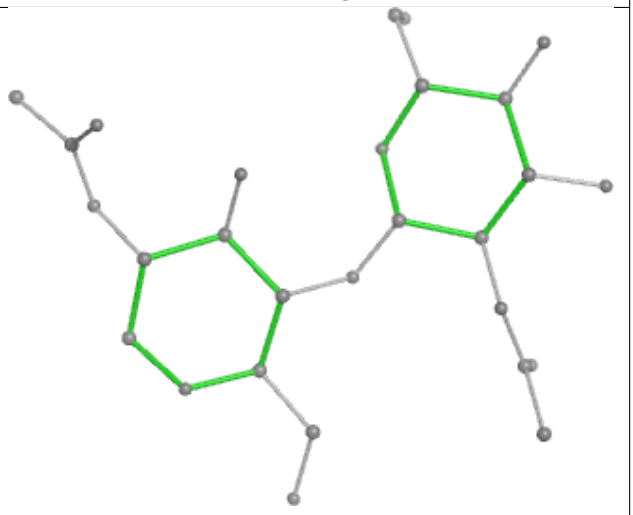
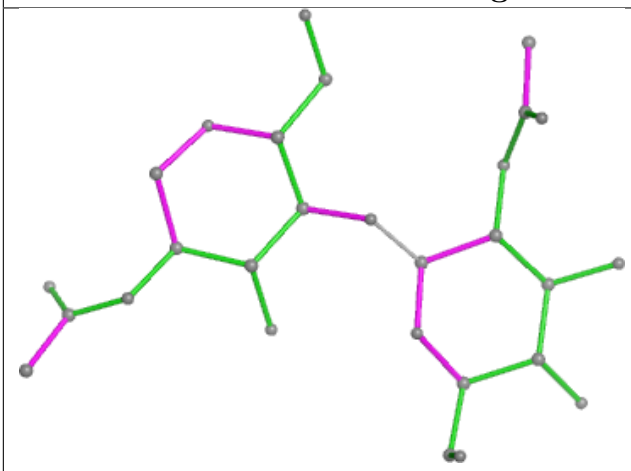
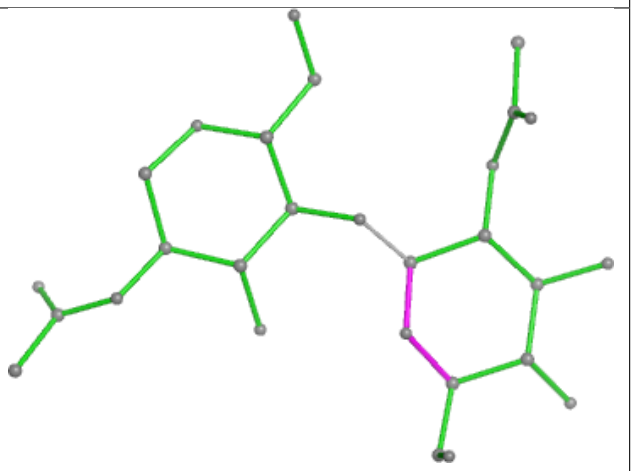


Rings

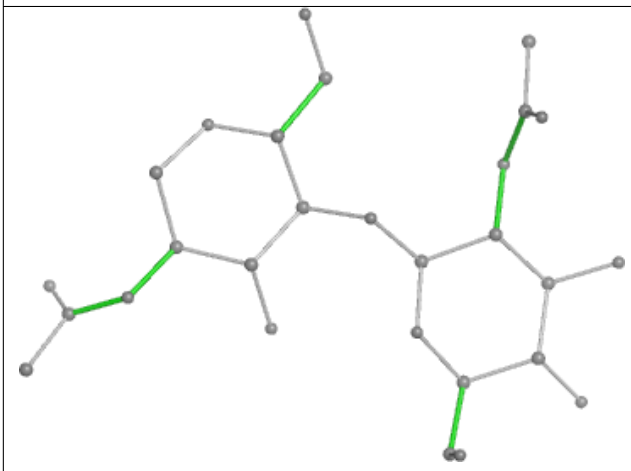
Oligosaccharide Chain M



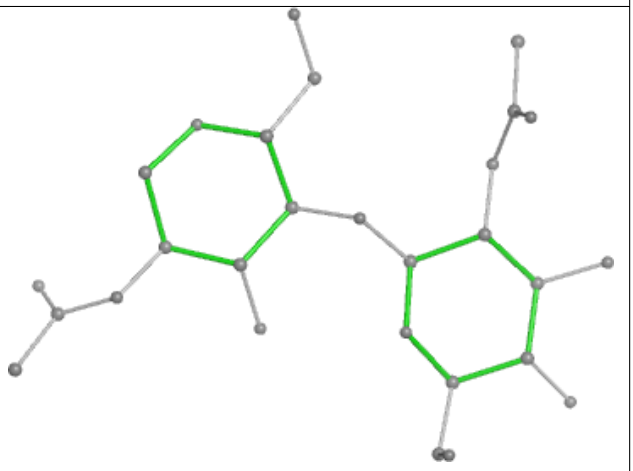
Bond lengths



Bond angles

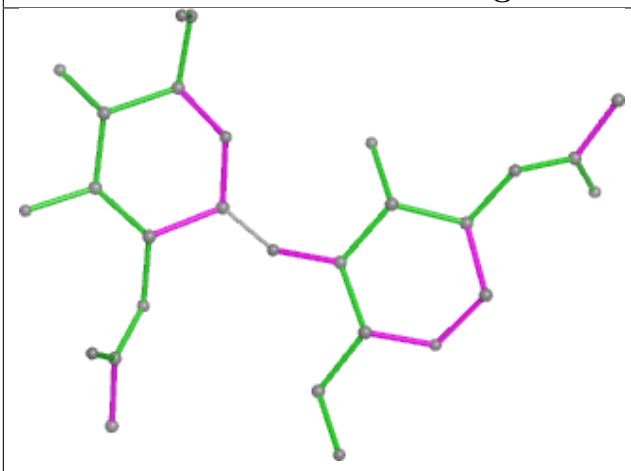


Torsions

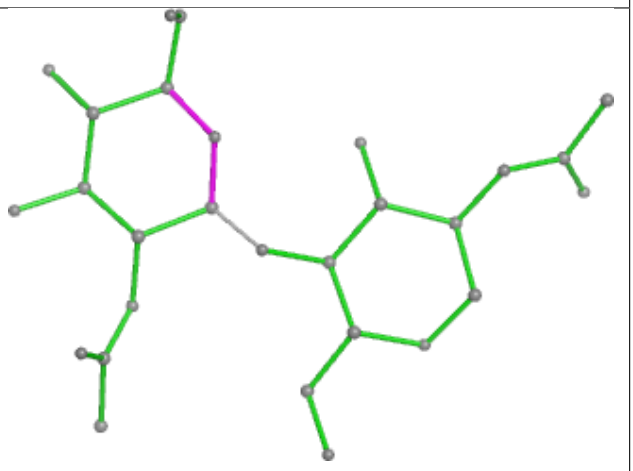


Rings

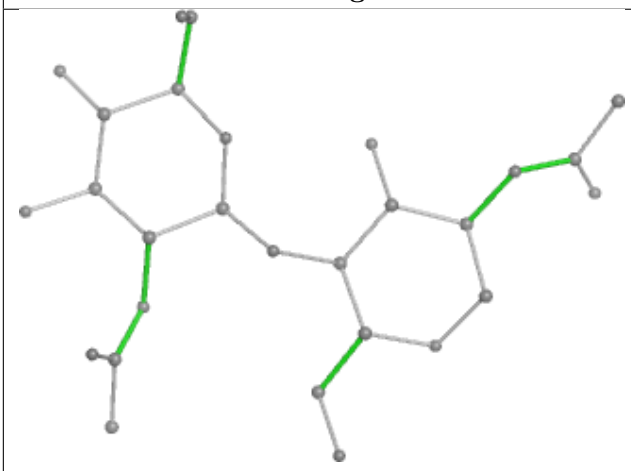
Oligosaccharide Chain N



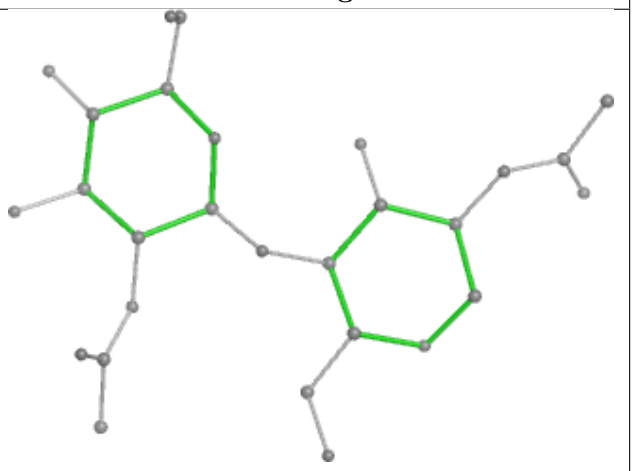
Bond lengths



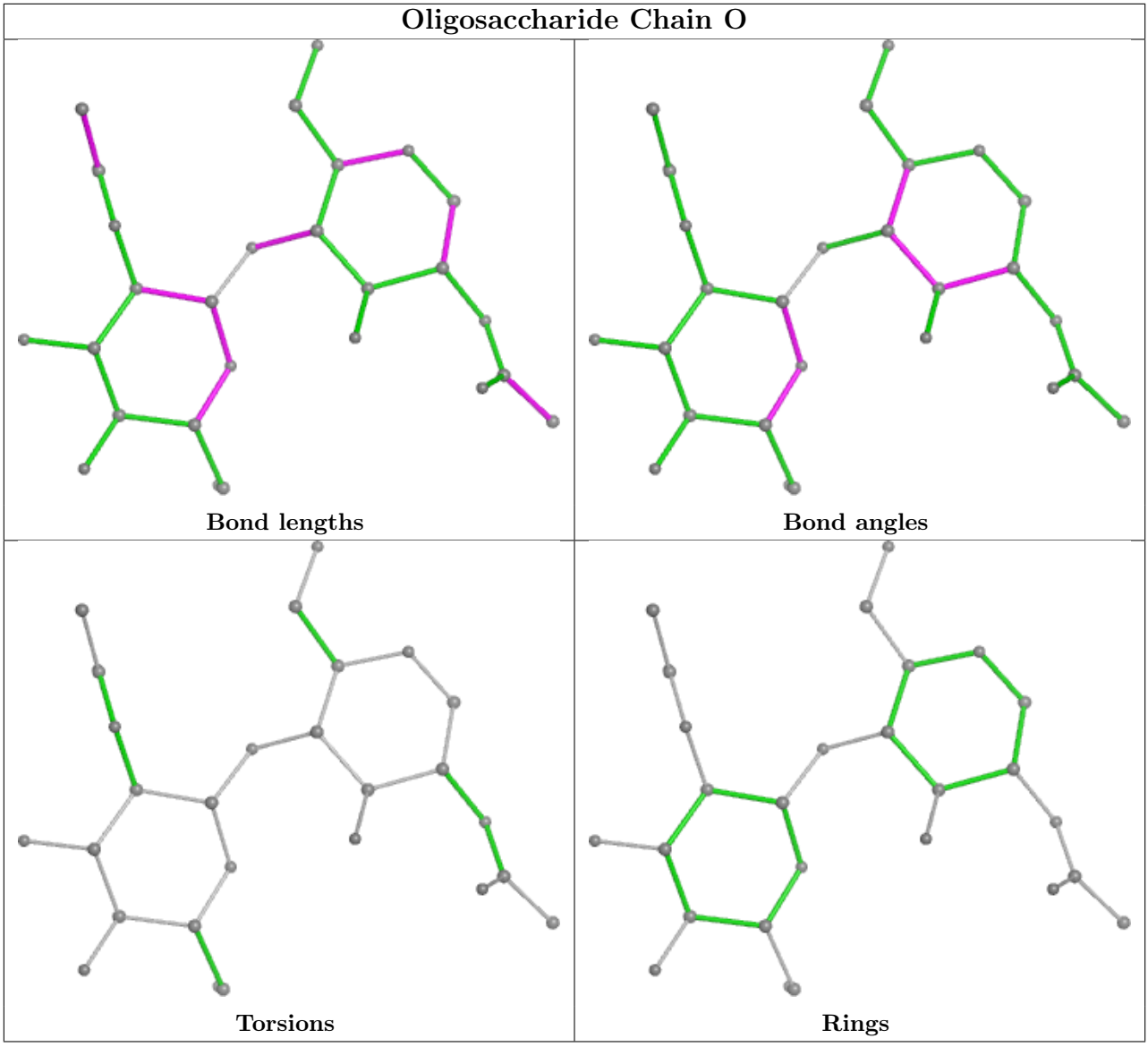
Bond angles



Torsions



Rings



4.6 Ligand geometry (i)

There are no ligands in this entry.

4.7 Other polymers (i)

There are no such residues in this entry.

4.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

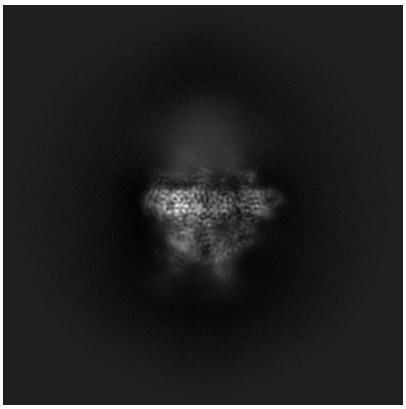
5 Map visualisation

This section contains visualisations of the EMDB entry EMD-52966. These allow visual inspection of the internal detail of the map and identification of artifacts.

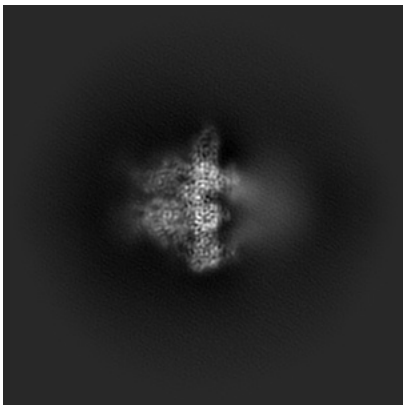
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

5.1 Orthogonal projections

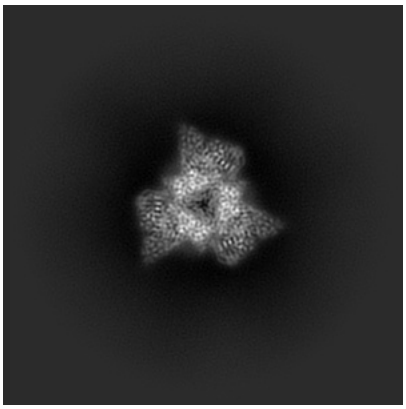
5.1.1 Primary map



X

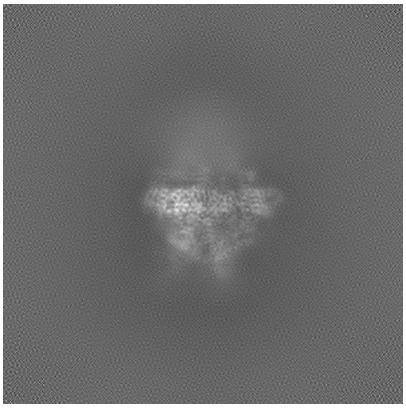


Y

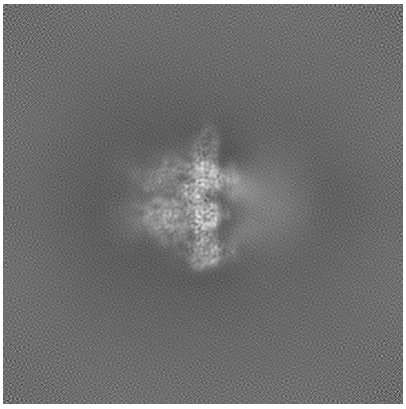


Z

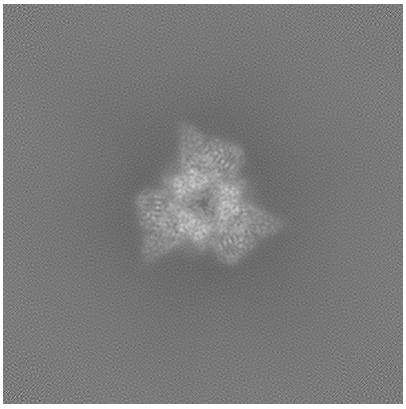
5.1.2 Raw map



X



Y

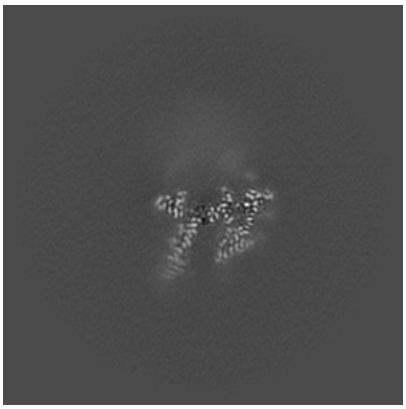


Z

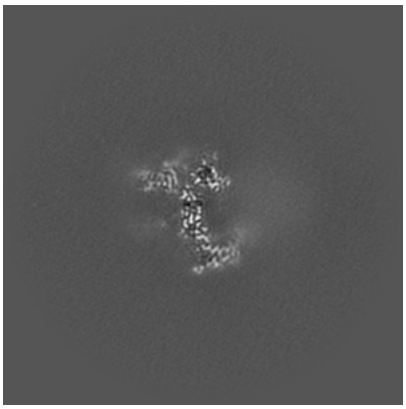
The images above show the map projected in three orthogonal directions.

5.2 Central slices (i)

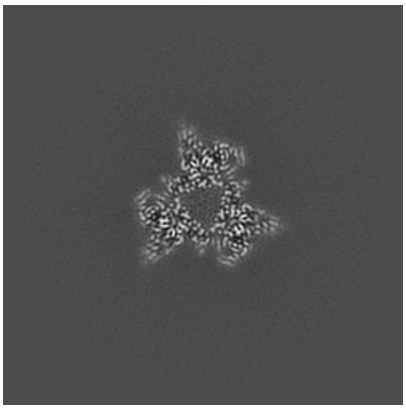
5.2.1 Primary map



X Index: 210

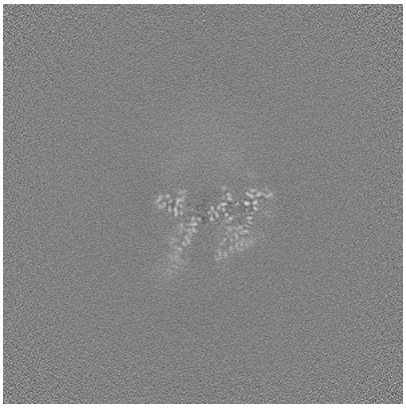


Y Index: 210

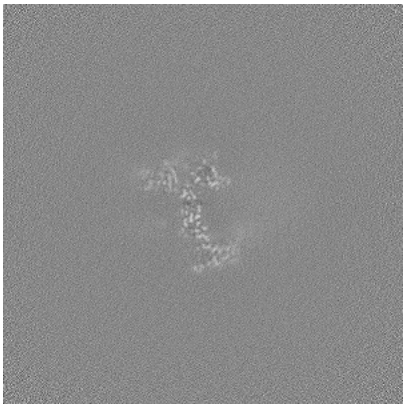


Z Index: 210

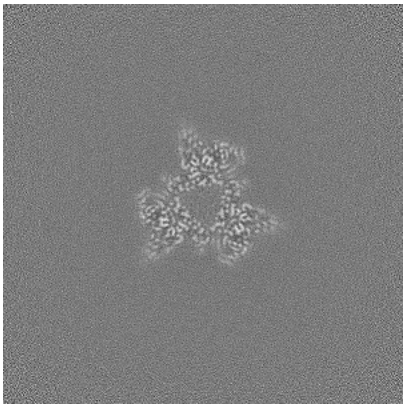
5.2.2 Raw map



X Index: 210



Y Index: 210

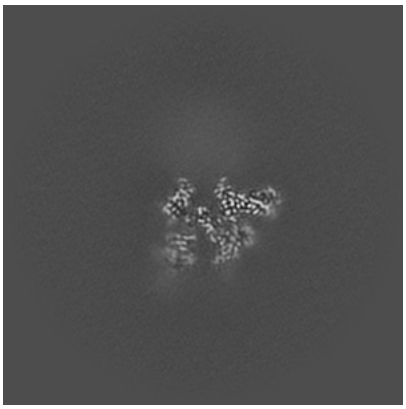


Z Index: 210

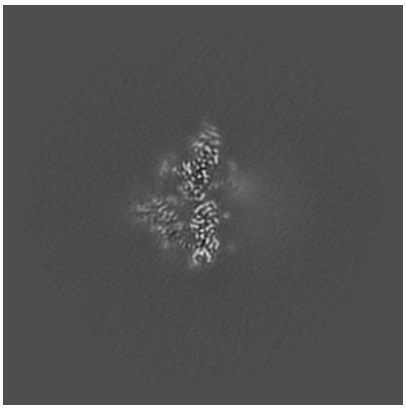
The images above show central slices of the map in three orthogonal directions.

5.3 Largest variance slices (i)

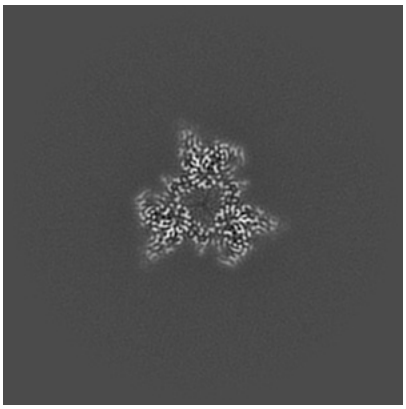
5.3.1 Primary map



X Index: 201

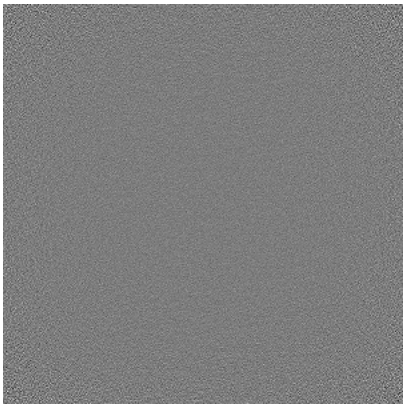


Y Index: 184

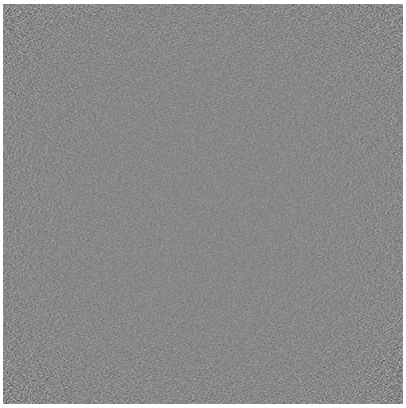


Z Index: 209

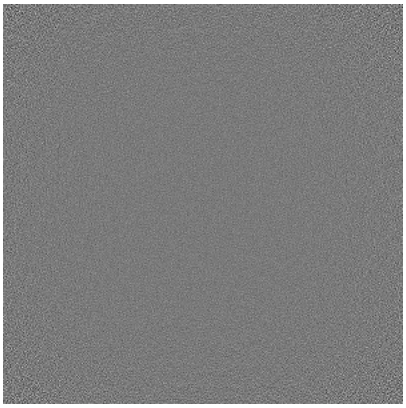
5.3.2 Raw map



X Index: 0



Y Index: 0

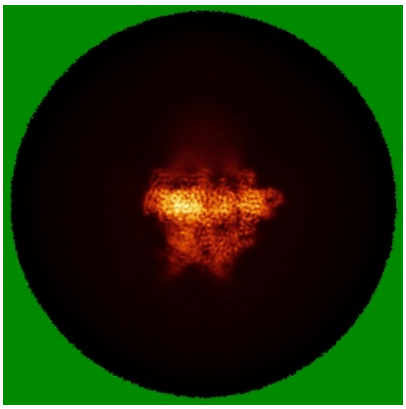


Z Index: 0

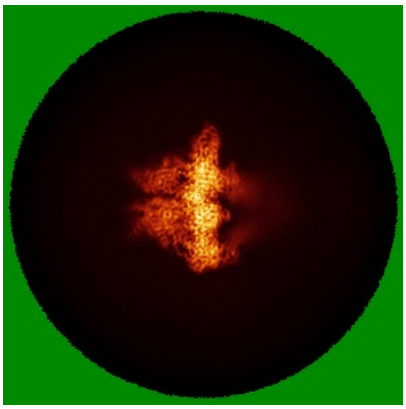
The images above show the largest variance slices of the map in three orthogonal directions.

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

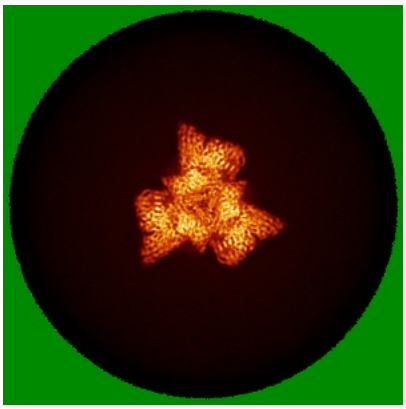
5.4.1 Primary map



X

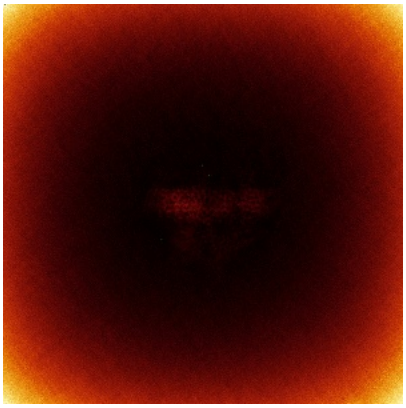


Y

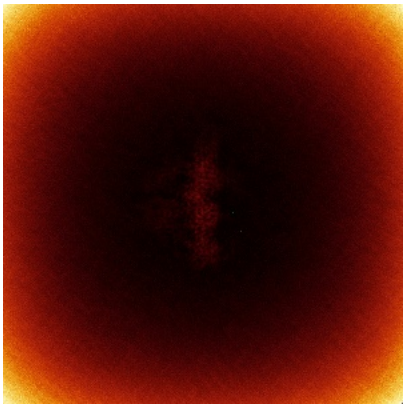


Z

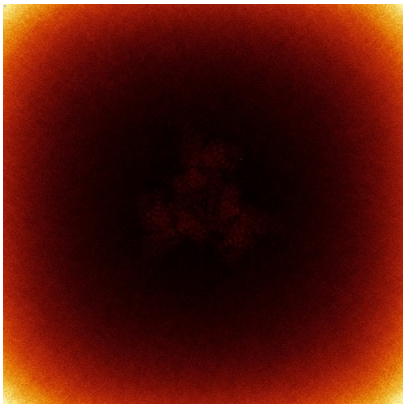
5.4.2 Raw map



X



Y

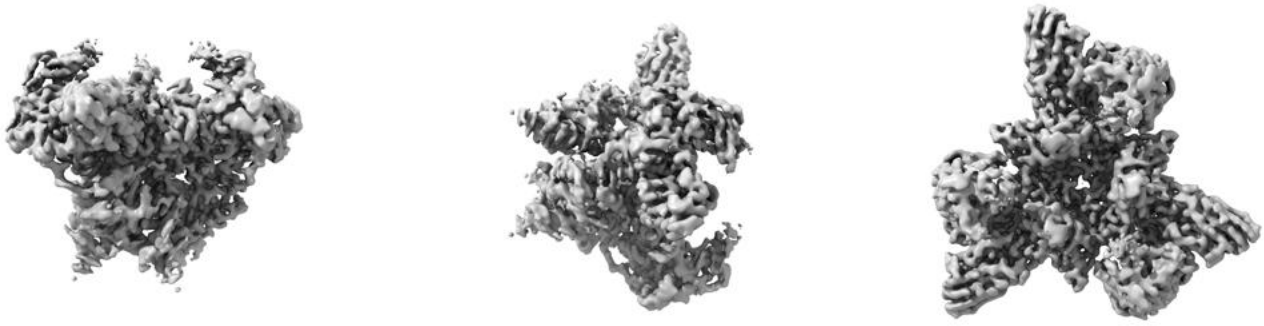


Z

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.

5.5 Orthogonal surface views (i)

5.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.104. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

5.5.2 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.

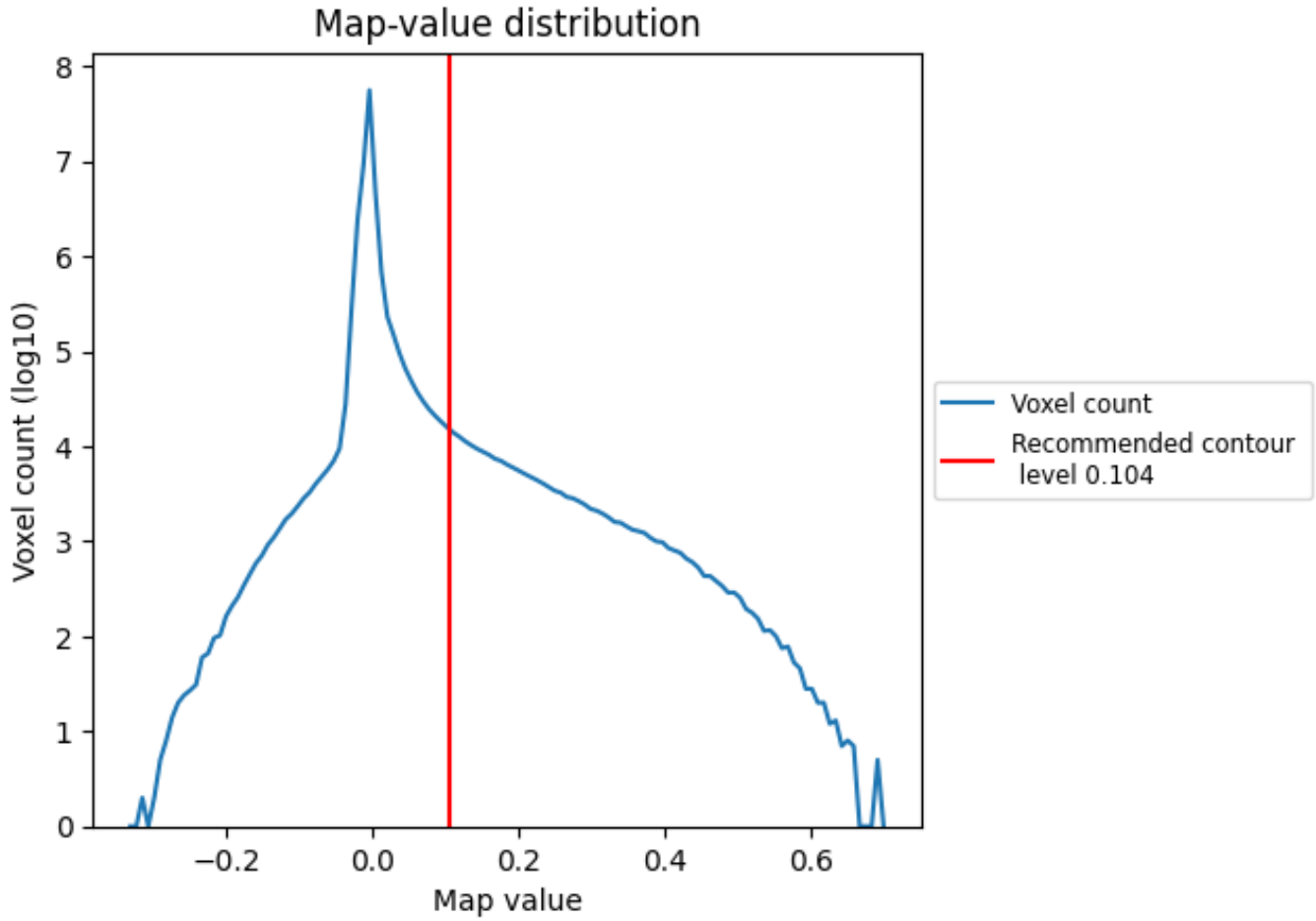
5.6 Mask visualisation (i)

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

6 Map analysis

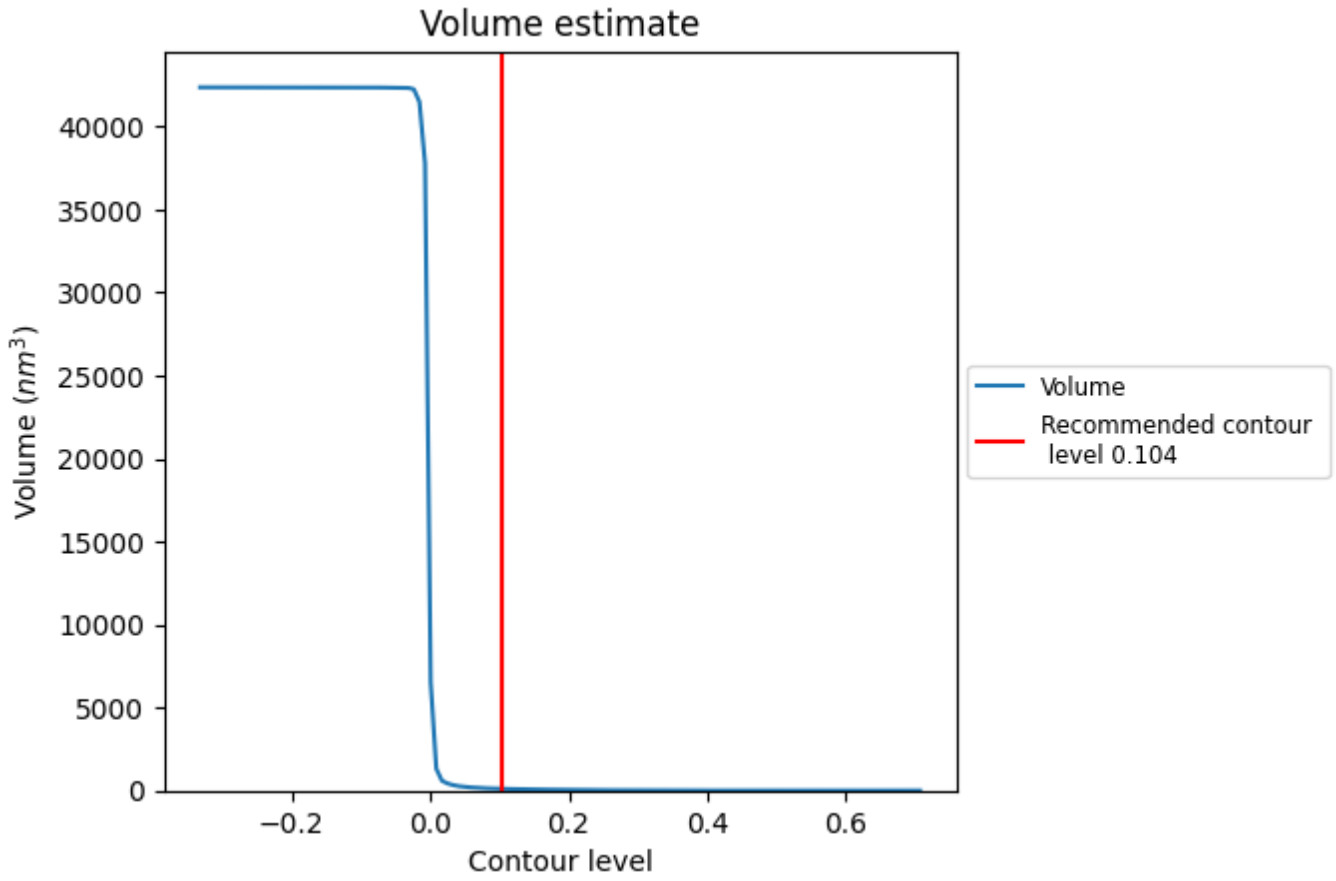
This section contains the results of statistical analysis of the map.

6.1 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.

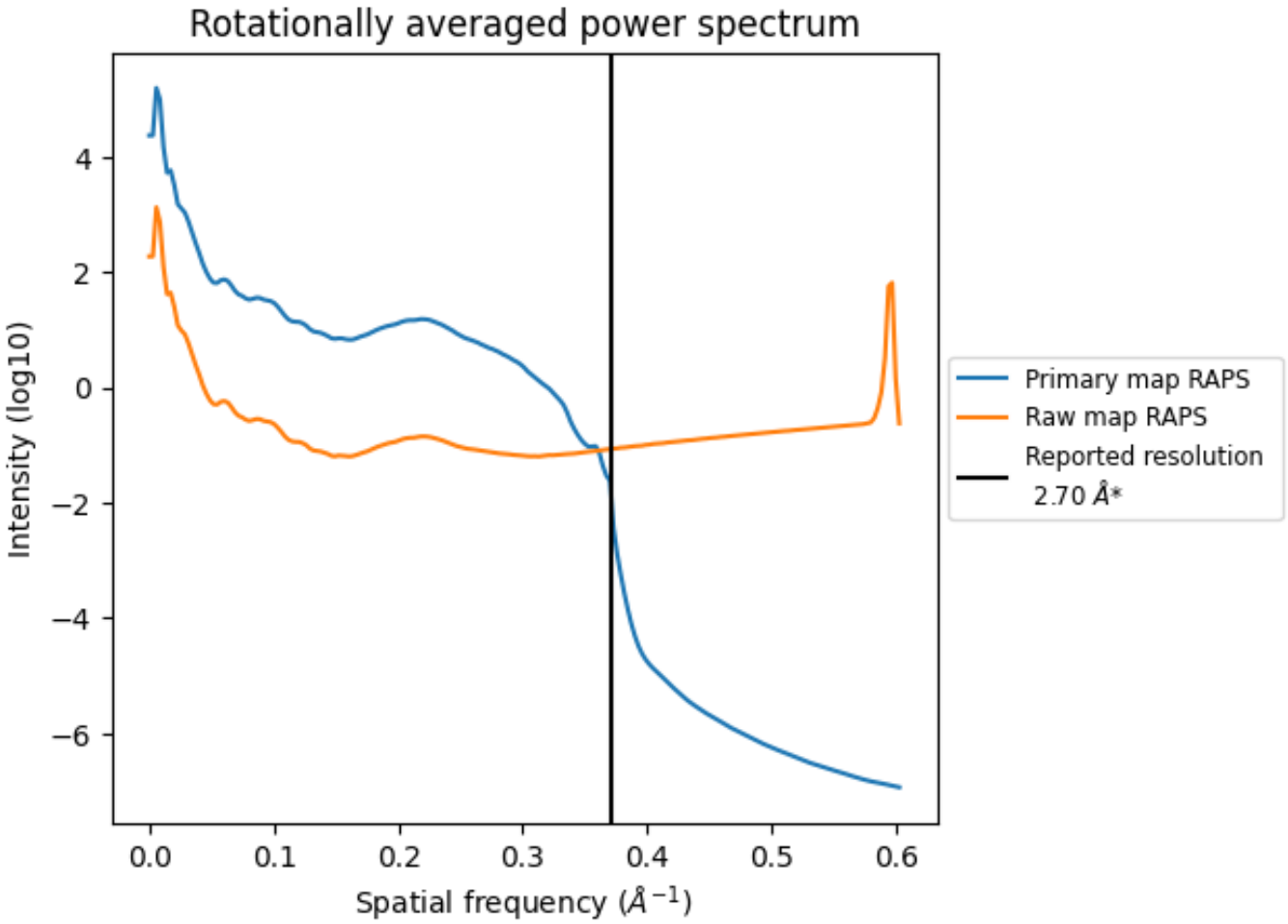
6.2 Volume estimate



The volume at the recommended contour level is 105 nm^3; this corresponds to an approximate mass of 95 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.

6.3 Rotationally averaged power spectrum (i)

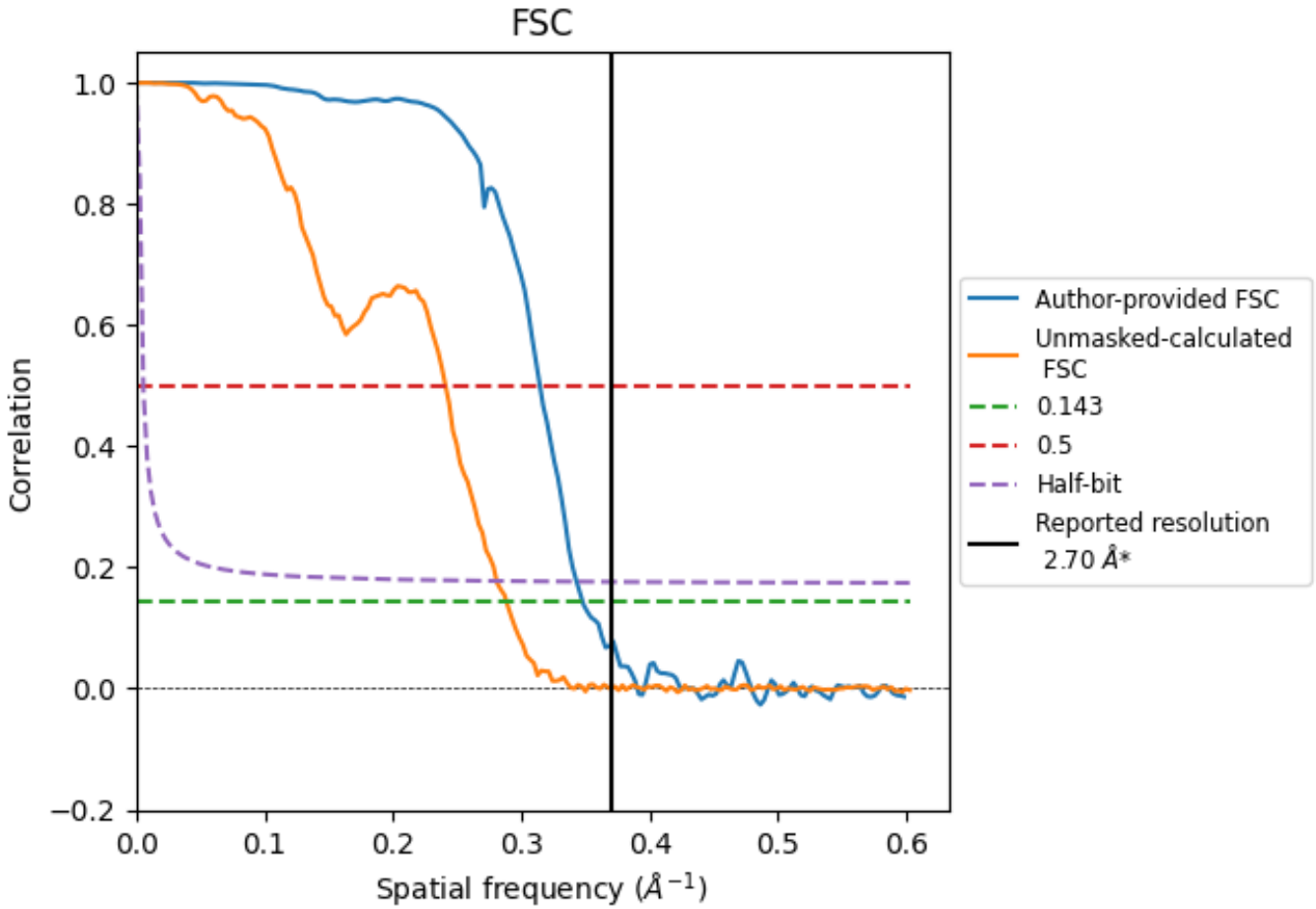


*Reported resolution corresponds to spatial frequency of 0.370 Å^{-1}

7 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.

7.1 FSC



*Reported resolution corresponds to spatial frequency of 0.370 Å^{-1}

7.2 Resolution estimates (i)

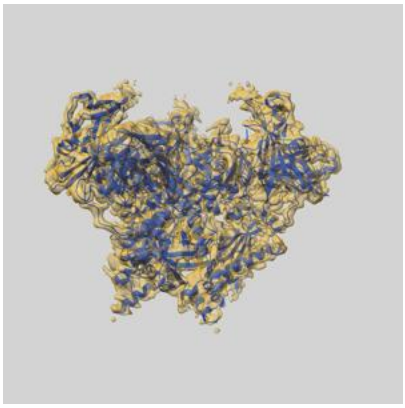
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.70	-	-
Author-provided FSC curve	2.88	3.18	2.92
Unmasked-calculated*	3.47	4.15	3.56

*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 3.47 differs from the reported value 2.7 by more than 10 %

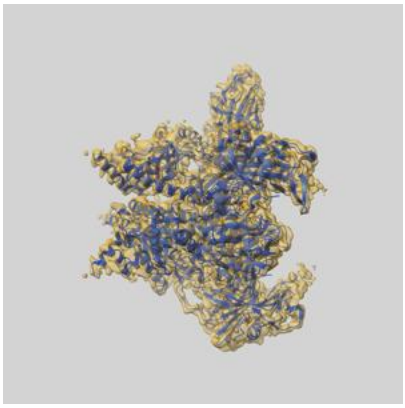
8 Map-model fit

This section contains information regarding the fit between EMDB map EMD-52966 and PDB model 9Q9S. Per-residue inclusion information can be found in section ?? on page ??.

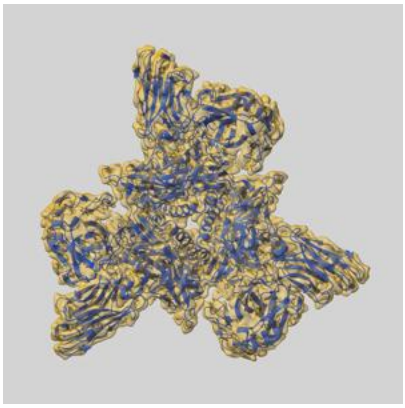
8.1 Map-model overlay



X



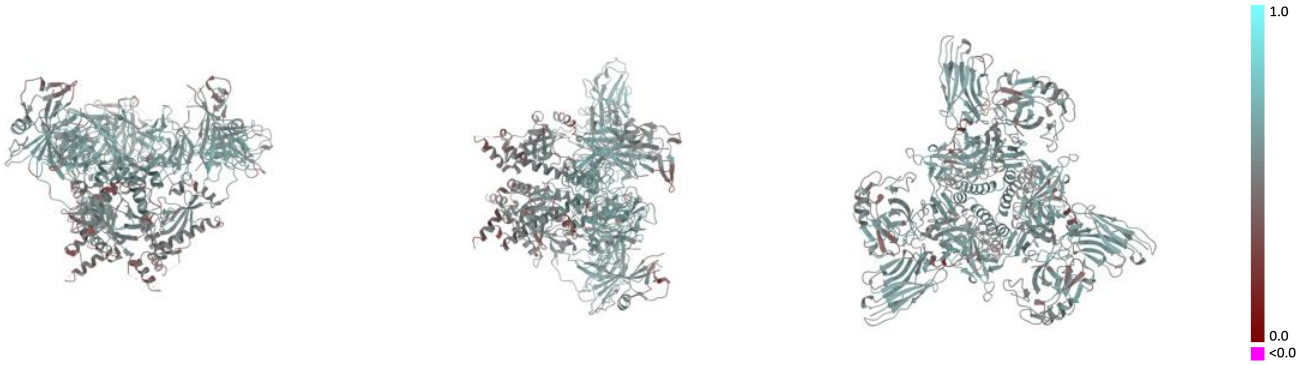
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.104 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.

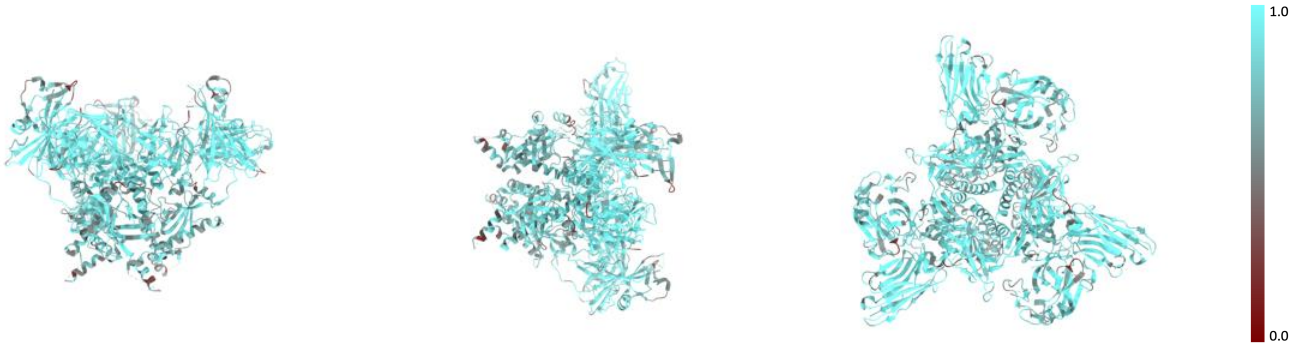
8.2 Q-score mapped to coordinate model (i)



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.

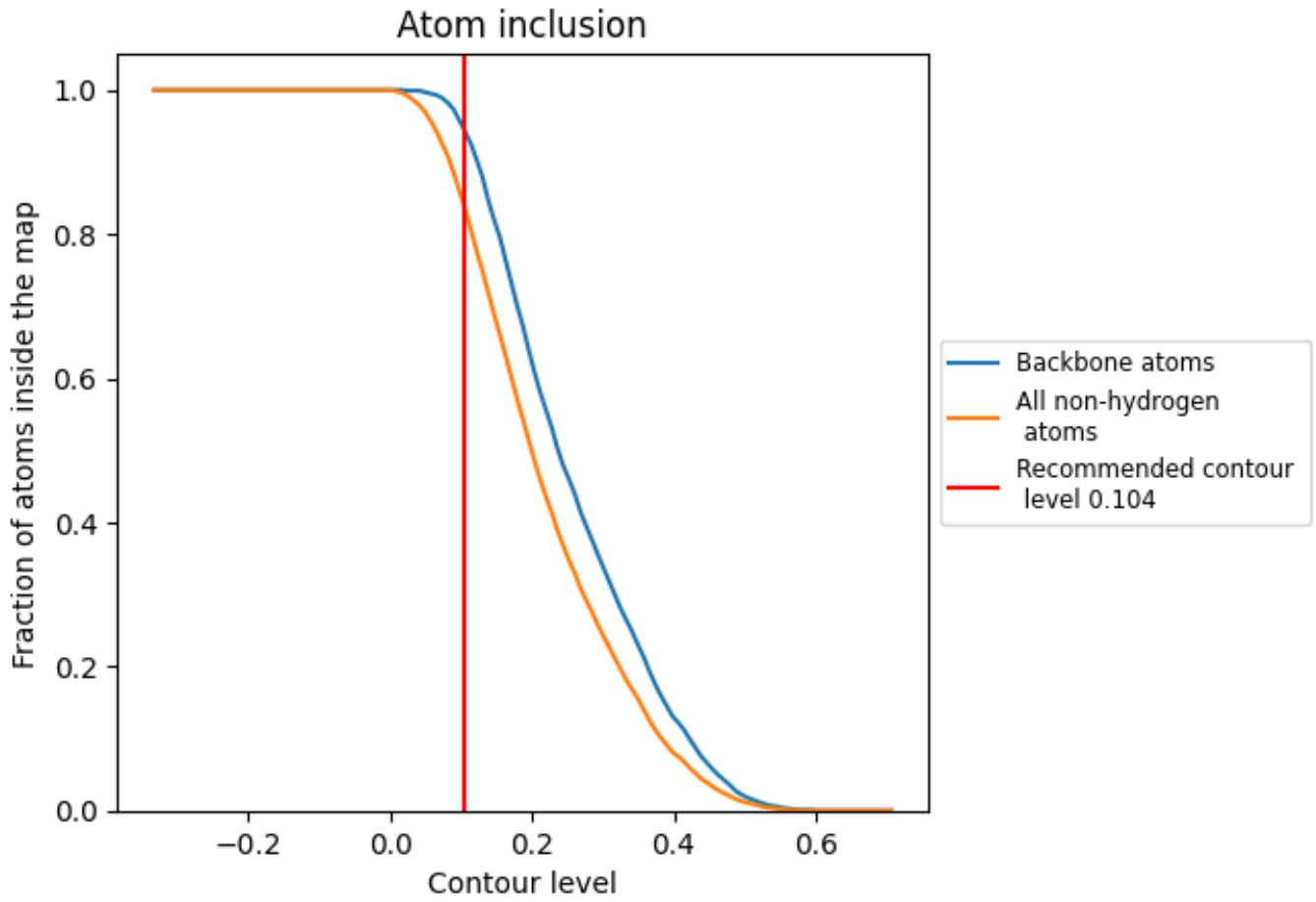
8.3 Atom inclusion mapped to coordinate model (i)



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 (0.104).

8.4 Atom inclusion (i)



At the recommended contour level, 95% of all backbone atoms, 84% of all non-hydrogen atoms, are inside the map.

8.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.104) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8410	0.5280
A	0.8480	0.5280
B	0.8440	0.5300
C	0.8470	0.5310
D	0.4640	0.4230
E	0.4640	0.4350
F	0.5000	0.4350
G	0.2860	0.3150
H	0.2860	0.2620
I	0.2860	0.3220
J	0.0710	0.2000
K	0.0710	0.1770
L	0.0710	0.1800
M	0.1430	0.1800
N	0.1070	0.1410
O	0.1070	0.1270
d	0.8990	0.5530
e	0.8930	0.5530
f	0.8970	0.5530