Full wwPDB EM Validation Report ⓘ

May 19, 2025 – 04:43 AM EDT

PDB ID	:	7S6K / pdb_00007s6k
EMDB ID	:	EMD-24878
Title	:	J08 fragment antigen binding in complex with SARS-CoV-2-6P-Mut2 S protein (conformation 2)
Authors	:	Ozorowski, G.; Torres, J.L.; Ward, A.B.
Deposited on	:	2021-09-14
Resolution	:	3.40 Å(reported)

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

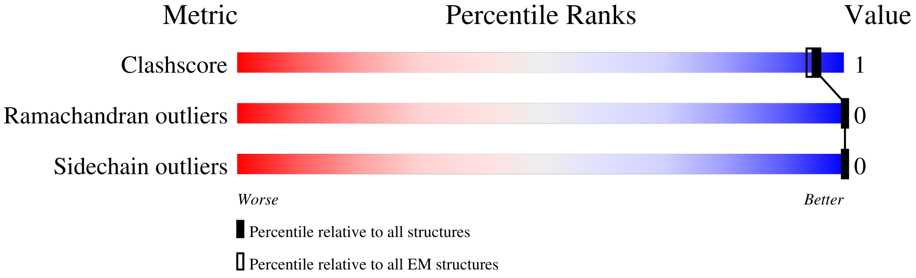
EMDB validation analysis	:	0.0.1.dev118
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance ⓘ

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

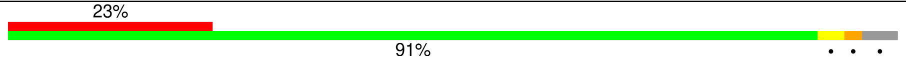
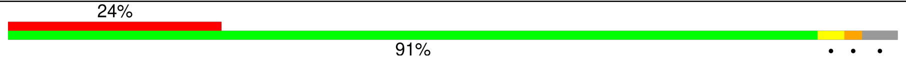
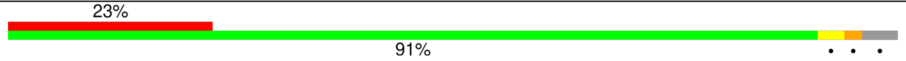
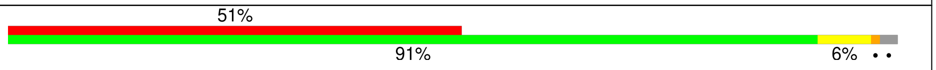
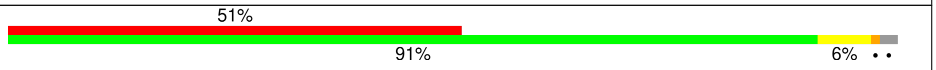
The reported resolution of this entry is 3.40 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	1280	
1	B	1280	
1	E	1280	
2	C	127	
2	F	127	
2	H	127	
3	D	105	
3	G	105	

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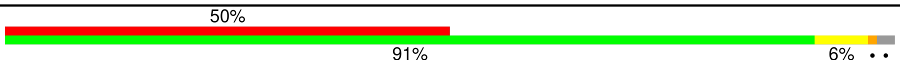
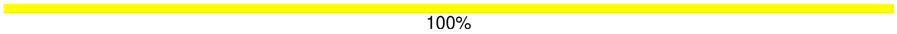
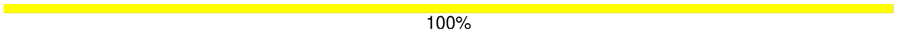
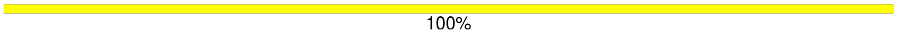
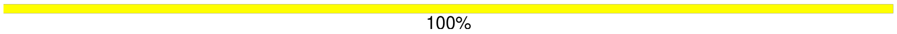
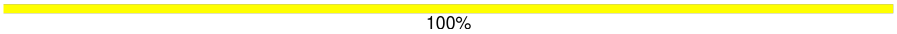
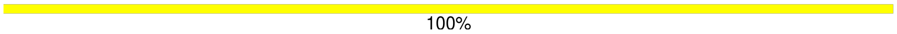
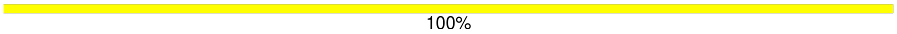
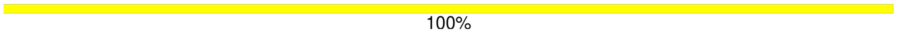
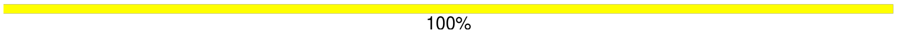
Mol	**Chain**	**Length**	**Quality of chain**
3	L	105	
4	I	2	
4	J	2	
4	K	2	
4	M	2	
4	N	2	
4	O	2	
4	P	2	
4	Q	2	
4	R	2	
4	S	2	
4	T	2	
4	U	2	

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 30903 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
			Total	C	N	O	S		
1	A	1070	8372	5345	1396	1591	40	0	0
1	B	1070	8372	5345	1396	1591	40	0	0
1	E	1070	8372	5345	1396	1591	40	0	0

There are 249 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	383	CYS	SER	engineered mutation	UNP P0DTC2
A	682	GLY	ARG	engineered mutation	UNP P0DTC2
A	683	SER	ARG	engineered mutation	UNP P0DTC2
A	685	SER	ARG	engineered mutation	UNP P0DTC2
A	817	PRO	PHE	engineered mutation	UNP P0DTC2
A	892	PRO	ALA	engineered mutation	UNP P0DTC2
A	899	PRO	ALA	engineered mutation	UNP P0DTC2
A	942	PRO	ALA	engineered mutation	UNP P0DTC2
A	985	CYS	ASP	engineered mutation	UNP P0DTC2
A	986	PRO	LYS	engineered mutation	UNP P0DTC2
A	987	PRO	VAL	engineered mutation	UNP P0DTC2
A	1209	GLY	-	expression tag	UNP P0DTC2
A	1210	SER	-	expression tag	UNP P0DTC2
A	1211	GLY	-	expression tag	UNP P0DTC2
A	1212	TYR	-	expression tag	UNP P0DTC2
A	1213	ILE	-	expression tag	UNP P0DTC2
A	1214	PRO	-	expression tag	UNP P0DTC2
A	1215	GLU	-	expression tag	UNP P0DTC2
A	1216	ALA	-	expression tag	UNP P0DTC2
A	1217	PRO	-	expression tag	UNP P0DTC2
A	1218	ARG	-	expression tag	UNP P0DTC2
A	1219	ASP	-	expression tag	UNP P0DTC2
A	1220	GLY	-	expression tag	UNP P0DTC2
A	1221	GLN	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1222	ALA	-	expression tag	UNP P0DTC2
A	1223	TYR	-	expression tag	UNP P0DTC2
A	1224	VAL	-	expression tag	UNP P0DTC2
A	1225	ARG	-	expression tag	UNP P0DTC2
A	1226	LYS	-	expression tag	UNP P0DTC2
A	1227	ASP	-	expression tag	UNP P0DTC2
A	1228	GLY	-	expression tag	UNP P0DTC2
A	1229	GLU	-	expression tag	UNP P0DTC2
A	1230	TRP	-	expression tag	UNP P0DTC2
A	1231	VAL	-	expression tag	UNP P0DTC2
A	1232	LEU	-	expression tag	UNP P0DTC2
A	1233	LEU	-	expression tag	UNP P0DTC2
A	1234	SER	-	expression tag	UNP P0DTC2
A	1235	THR	-	expression tag	UNP P0DTC2
A	1236	PHE	-	expression tag	UNP P0DTC2
A	1237	LEU	-	expression tag	UNP P0DTC2
A	1238	GLY	-	expression tag	UNP P0DTC2
A	1239	ARG	-	expression tag	UNP P0DTC2
A	1240	SER	-	expression tag	UNP P0DTC2
A	1241	LEU	-	expression tag	UNP P0DTC2
A	1242	GLU	-	expression tag	UNP P0DTC2
A	1243	VAL	-	expression tag	UNP P0DTC2
A	1244	LEU	-	expression tag	UNP P0DTC2
A	1245	PHE	-	expression tag	UNP P0DTC2
A	1246	GLN	-	expression tag	UNP P0DTC2
A	1247	GLY	-	expression tag	UNP P0DTC2
A	1248	PRO	-	expression tag	UNP P0DTC2
A	1249	GLY	-	expression tag	UNP P0DTC2
A	1250	SER	-	expression tag	UNP P0DTC2
A	1251	ALA	-	expression tag	UNP P0DTC2
A	1252	TRP	-	expression tag	UNP P0DTC2
A	1253	SER	-	expression tag	UNP P0DTC2
A	1254	HIS	-	expression tag	UNP P0DTC2
A	1255	PRO	-	expression tag	UNP P0DTC2
A	1256	GLN	-	expression tag	UNP P0DTC2
A	1257	PHE	-	expression tag	UNP P0DTC2
A	1258	GLU	-	expression tag	UNP P0DTC2
A	1259	LYS	-	expression tag	UNP P0DTC2
A	1260	GLY	-	expression tag	UNP P0DTC2
A	1261	GLY	-	expression tag	UNP P0DTC2
A	1262	GLY	-	expression tag	UNP P0DTC2
A	1263	SER	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	1264	GLY	-	expression tag	UNP P0DTC2
A	1265	GLY	-	expression tag	UNP P0DTC2
A	1266	GLY	-	expression tag	UNP P0DTC2
A	1267	GLY	-	expression tag	UNP P0DTC2
A	1268	SER	-	expression tag	UNP P0DTC2
A	1269	GLY	-	expression tag	UNP P0DTC2
A	1270	GLY	-	expression tag	UNP P0DTC2
A	1271	SER	-	expression tag	UNP P0DTC2
A	1272	ALA	-	expression tag	UNP P0DTC2
A	1273	TRP	-	expression tag	UNP P0DTC2
A	1274	SER	-	expression tag	UNP P0DTC2
A	1275	HIS	-	expression tag	UNP P0DTC2
A	1276	PRO	-	expression tag	UNP P0DTC2
A	1277	GLN	-	expression tag	UNP P0DTC2
A	1278	PHE	-	expression tag	UNP P0DTC2
A	1279	GLU	-	expression tag	UNP P0DTC2
A	1280	LYS	-	expression tag	UNP P0DTC2
B	383	CYS	SER	engineered mutation	UNP P0DTC2
B	682	GLY	ARG	engineered mutation	UNP P0DTC2
B	683	SER	ARG	engineered mutation	UNP P0DTC2
B	685	SER	ARG	engineered mutation	UNP P0DTC2
B	817	PRO	PHE	engineered mutation	UNP P0DTC2
B	892	PRO	ALA	engineered mutation	UNP P0DTC2
B	899	PRO	ALA	engineered mutation	UNP P0DTC2
B	942	PRO	ALA	engineered mutation	UNP P0DTC2
B	985	CYS	ASP	engineered mutation	UNP P0DTC2
B	986	PRO	LYS	engineered mutation	UNP P0DTC2
B	987	PRO	VAL	engineered mutation	UNP P0DTC2
B	1209	GLY	-	expression tag	UNP P0DTC2
B	1210	SER	-	expression tag	UNP P0DTC2
B	1211	GLY	-	expression tag	UNP P0DTC2
B	1212	TYR	-	expression tag	UNP P0DTC2
B	1213	ILE	-	expression tag	UNP P0DTC2
B	1214	PRO	-	expression tag	UNP P0DTC2
B	1215	GLU	-	expression tag	UNP P0DTC2
B	1216	ALA	-	expression tag	UNP P0DTC2
B	1217	PRO	-	expression tag	UNP P0DTC2
B	1218	ARG	-	expression tag	UNP P0DTC2
B	1219	ASP	-	expression tag	UNP P0DTC2
B	1220	GLY	-	expression tag	UNP P0DTC2
B	1221	GLN	-	expression tag	UNP P0DTC2
B	1222	ALA	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1223	TYR	-	expression tag	UNP P0DTC2
B	1224	VAL	-	expression tag	UNP P0DTC2
B	1225	ARG	-	expression tag	UNP P0DTC2
B	1226	LYS	-	expression tag	UNP P0DTC2
B	1227	ASP	-	expression tag	UNP P0DTC2
B	1228	GLY	-	expression tag	UNP P0DTC2
B	1229	GLU	-	expression tag	UNP P0DTC2
B	1230	TRP	-	expression tag	UNP P0DTC2
B	1231	VAL	-	expression tag	UNP P0DTC2
B	1232	LEU	-	expression tag	UNP P0DTC2
B	1233	LEU	-	expression tag	UNP P0DTC2
B	1234	SER	-	expression tag	UNP P0DTC2
B	1235	THR	-	expression tag	UNP P0DTC2
B	1236	PHE	-	expression tag	UNP P0DTC2
B	1237	LEU	-	expression tag	UNP P0DTC2
B	1238	GLY	-	expression tag	UNP P0DTC2
B	1239	ARG	-	expression tag	UNP P0DTC2
B	1240	SER	-	expression tag	UNP P0DTC2
B	1241	LEU	-	expression tag	UNP P0DTC2
B	1242	GLU	-	expression tag	UNP P0DTC2
B	1243	VAL	-	expression tag	UNP P0DTC2
B	1244	LEU	-	expression tag	UNP P0DTC2
B	1245	PHE	-	expression tag	UNP P0DTC2
B	1246	GLN	-	expression tag	UNP P0DTC2
B	1247	GLY	-	expression tag	UNP P0DTC2
B	1248	PRO	-	expression tag	UNP P0DTC2
B	1249	GLY	-	expression tag	UNP P0DTC2
B	1250	SER	-	expression tag	UNP P0DTC2
B	1251	ALA	-	expression tag	UNP P0DTC2
B	1252	TRP	-	expression tag	UNP P0DTC2
B	1253	SER	-	expression tag	UNP P0DTC2
B	1254	HIS	-	expression tag	UNP P0DTC2
B	1255	PRO	-	expression tag	UNP P0DTC2
B	1256	GLN	-	expression tag	UNP P0DTC2
B	1257	PHE	-	expression tag	UNP P0DTC2
B	1258	GLU	-	expression tag	UNP P0DTC2
B	1259	LYS	-	expression tag	UNP P0DTC2
B	1260	GLY	-	expression tag	UNP P0DTC2
B	1261	GLY	-	expression tag	UNP P0DTC2
B	1262	GLY	-	expression tag	UNP P0DTC2
B	1263	SER	-	expression tag	UNP P0DTC2
B	1264	GLY	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1265	GLY	-	expression tag	UNP P0DTC2
B	1266	GLY	-	expression tag	UNP P0DTC2
B	1267	GLY	-	expression tag	UNP P0DTC2
B	1268	SER	-	expression tag	UNP P0DTC2
B	1269	GLY	-	expression tag	UNP P0DTC2
B	1270	GLY	-	expression tag	UNP P0DTC2
B	1271	SER	-	expression tag	UNP P0DTC2
B	1272	ALA	-	expression tag	UNP P0DTC2
B	1273	TRP	-	expression tag	UNP P0DTC2
B	1274	SER	-	expression tag	UNP P0DTC2
B	1275	HIS	-	expression tag	UNP P0DTC2
B	1276	PRO	-	expression tag	UNP P0DTC2
B	1277	GLN	-	expression tag	UNP P0DTC2
B	1278	PHE	-	expression tag	UNP P0DTC2
B	1279	GLU	-	expression tag	UNP P0DTC2
B	1280	LYS	-	expression tag	UNP P0DTC2
E	383	CYS	SER	engineered mutation	UNP P0DTC2
E	682	GLY	ARG	engineered mutation	UNP P0DTC2
E	683	SER	ARG	engineered mutation	UNP P0DTC2
E	685	SER	ARG	engineered mutation	UNP P0DTC2
E	817	PRO	PHE	engineered mutation	UNP P0DTC2
E	892	PRO	ALA	engineered mutation	UNP P0DTC2
E	899	PRO	ALA	engineered mutation	UNP P0DTC2
E	942	PRO	ALA	engineered mutation	UNP P0DTC2
E	985	CYS	ASP	engineered mutation	UNP P0DTC2
E	986	PRO	LYS	engineered mutation	UNP P0DTC2
E	987	PRO	VAL	engineered mutation	UNP P0DTC2
E	1209	GLY	-	expression tag	UNP P0DTC2
E	1210	SER	-	expression tag	UNP P0DTC2
E	1211	GLY	-	expression tag	UNP P0DTC2
E	1212	TYR	-	expression tag	UNP P0DTC2
E	1213	ILE	-	expression tag	UNP P0DTC2
E	1214	PRO	-	expression tag	UNP P0DTC2
E	1215	GLU	-	expression tag	UNP P0DTC2
E	1216	ALA	-	expression tag	UNP P0DTC2
E	1217	PRO	-	expression tag	UNP P0DTC2
E	1218	ARG	-	expression tag	UNP P0DTC2
E	1219	ASP	-	expression tag	UNP P0DTC2
E	1220	GLY	-	expression tag	UNP P0DTC2
E	1221	GLN	-	expression tag	UNP P0DTC2
E	1222	ALA	-	expression tag	UNP P0DTC2
E	1223	TYR	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
E	1224	VAL	-	expression tag	UNP P0DTC2
E	1225	ARG	-	expression tag	UNP P0DTC2
E	1226	LYS	-	expression tag	UNP P0DTC2
E	1227	ASP	-	expression tag	UNP P0DTC2
E	1228	GLY	-	expression tag	UNP P0DTC2
E	1229	GLU	-	expression tag	UNP P0DTC2
E	1230	TRP	-	expression tag	UNP P0DTC2
E	1231	VAL	-	expression tag	UNP P0DTC2
E	1232	LEU	-	expression tag	UNP P0DTC2
E	1233	LEU	-	expression tag	UNP P0DTC2
E	1234	SER	-	expression tag	UNP P0DTC2
E	1235	THR	-	expression tag	UNP P0DTC2
E	1236	PHE	-	expression tag	UNP P0DTC2
E	1237	LEU	-	expression tag	UNP P0DTC2
E	1238	GLY	-	expression tag	UNP P0DTC2
E	1239	ARG	-	expression tag	UNP P0DTC2
E	1240	SER	-	expression tag	UNP P0DTC2
E	1241	LEU	-	expression tag	UNP P0DTC2
E	1242	GLU	-	expression tag	UNP P0DTC2
E	1243	VAL	-	expression tag	UNP P0DTC2
E	1244	LEU	-	expression tag	UNP P0DTC2
E	1245	PHE	-	expression tag	UNP P0DTC2
E	1246	GLN	-	expression tag	UNP P0DTC2
E	1247	GLY	-	expression tag	UNP P0DTC2
E	1248	PRO	-	expression tag	UNP P0DTC2
E	1249	GLY	-	expression tag	UNP P0DTC2
E	1250	SER	-	expression tag	UNP P0DTC2
E	1251	ALA	-	expression tag	UNP P0DTC2
E	1252	TRP	-	expression tag	UNP P0DTC2
E	1253	SER	-	expression tag	UNP P0DTC2
E	1254	HIS	-	expression tag	UNP P0DTC2
E	1255	PRO	-	expression tag	UNP P0DTC2
E	1256	GLN	-	expression tag	UNP P0DTC2
E	1257	PHE	-	expression tag	UNP P0DTC2
E	1258	GLU	-	expression tag	UNP P0DTC2
E	1259	LYS	-	expression tag	UNP P0DTC2
E	1260	GLY	-	expression tag	UNP P0DTC2
E	1261	GLY	-	expression tag	UNP P0DTC2
E	1262	GLY	-	expression tag	UNP P0DTC2
E	1263	SER	-	expression tag	UNP P0DTC2
E	1264	GLY	-	expression tag	UNP P0DTC2
E	1265	GLY	-	expression tag	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
E	1266	GLY	-	expression tag	UNP P0DTC2
E	1267	GLY	-	expression tag	UNP P0DTC2
E	1268	SER	-	expression tag	UNP P0DTC2
E	1269	GLY	-	expression tag	UNP P0DTC2
E	1270	GLY	-	expression tag	UNP P0DTC2
E	1271	SER	-	expression tag	UNP P0DTC2
E	1272	ALA	-	expression tag	UNP P0DTC2
E	1273	TRP	-	expression tag	UNP P0DTC2
E	1274	SER	-	expression tag	UNP P0DTC2
E	1275	HIS	-	expression tag	UNP P0DTC2
E	1276	PRO	-	expression tag	UNP P0DTC2
E	1277	GLN	-	expression tag	UNP P0DTC2
E	1278	PHE	-	expression tag	UNP P0DTC2
E	1279	GLU	-	expression tag	UNP P0DTC2
E	1280	LYS	-	expression tag	UNP P0DTC2

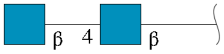
- Molecule 2 is a protein called J08 fragment antigen binding heavy chain variable domain.

Mol	Chain	Residues	Atoms	AltConf	Trace
2	H	122	Total C N O S 947 596 162 184 5	0	0
2	C	122	Total C N O S 947 596 162 184 5	0	0
2	F	122	Total C N O S 947 596 162 184 5	0	0

- Molecule 3 is a protein called J08 fragment antigen binding light chain variable domain.

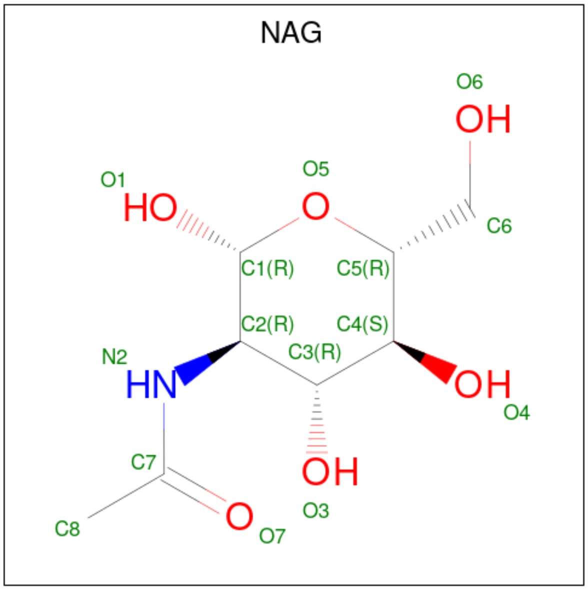
Mol	Chain	Residues	Atoms	AltConf	Trace
3	L	103	Total C N O S 772 486 127 156 3	0	0
3	D	103	Total C N O S 772 486 127 156 3	0	0
3	G	103	Total C N O S 772 486 127 156 3	0	0

- Molecule 4 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
4	I	2	Total 28	C 16	N 2	O 10	0	0
4	J	2	Total 28	C 16	N 2	O 10	0	0
4	K	2	Total 28	C 16	N 2	O 10	0	0
4	M	2	Total 28	C 16	N 2	O 10	0	0
4	N	2	Total 28	C 16	N 2	O 10	0	0
4	O	2	Total 28	C 16	N 2	O 10	0	0
4	P	2	Total 28	C 16	N 2	O 10	0	0
4	Q	2	Total 28	C 16	N 2	O 10	0	0
4	R	2	Total 28	C 16	N 2	O 10	0	0
4	S	2	Total 28	C 16	N 2	O 10	0	0
4	T	2	Total 28	C 16	N 2	O 10	0	0
4	U	2	Total 28	C 16	N 2	O 10	0	0

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).

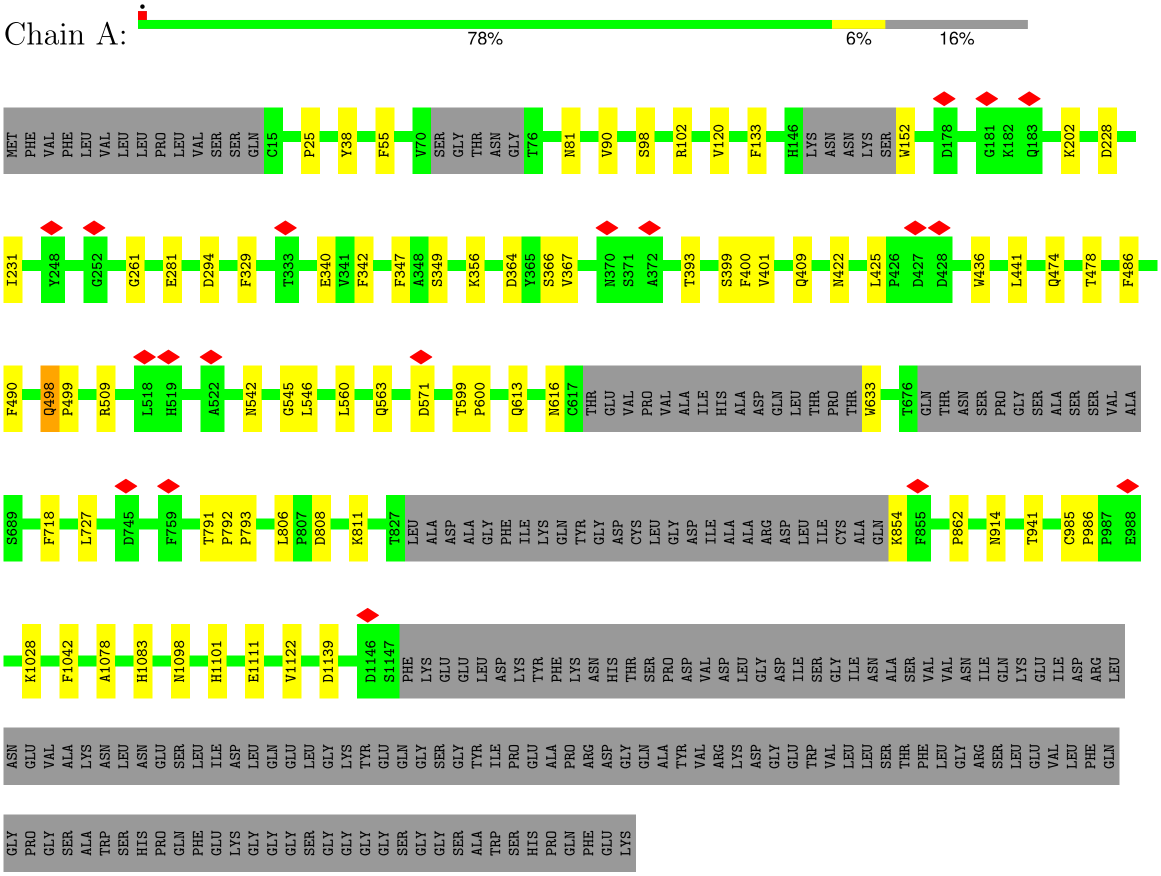


Mol	Chain	Residues	Atoms	AltConf
5	A	1	Total C N O 14 8 1 5	0
5	A	1	Total C N O 14 8 1 5	0
5	A	1	Total C N O 14 8 1 5	0
5	A	1	Total C N O 14 8 1 5	0
5	A	1	Total C N O 14 8 1 5	0
5	A	1	Total C N O 14 8 1 5	0
5	A	1	Total C N O 14 8 1 5	0
5	B	1	Total C N O 14 8 1 5	0
5	B	1	Total C N O 14 8 1 5	0
5	B	1	Total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

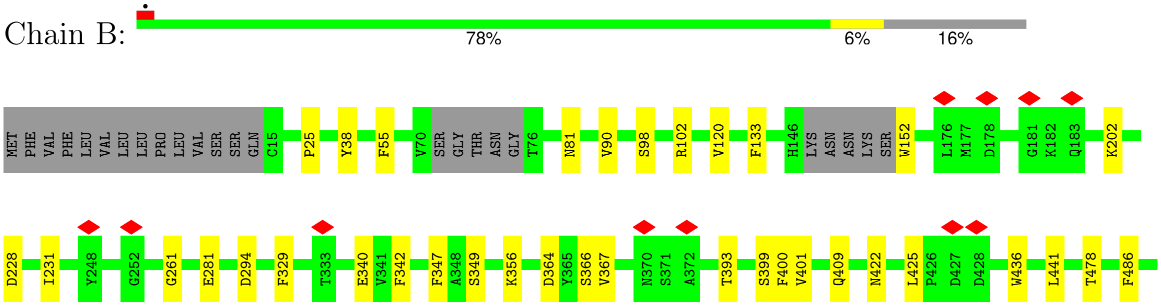
3 Residue-property plots ⓘ

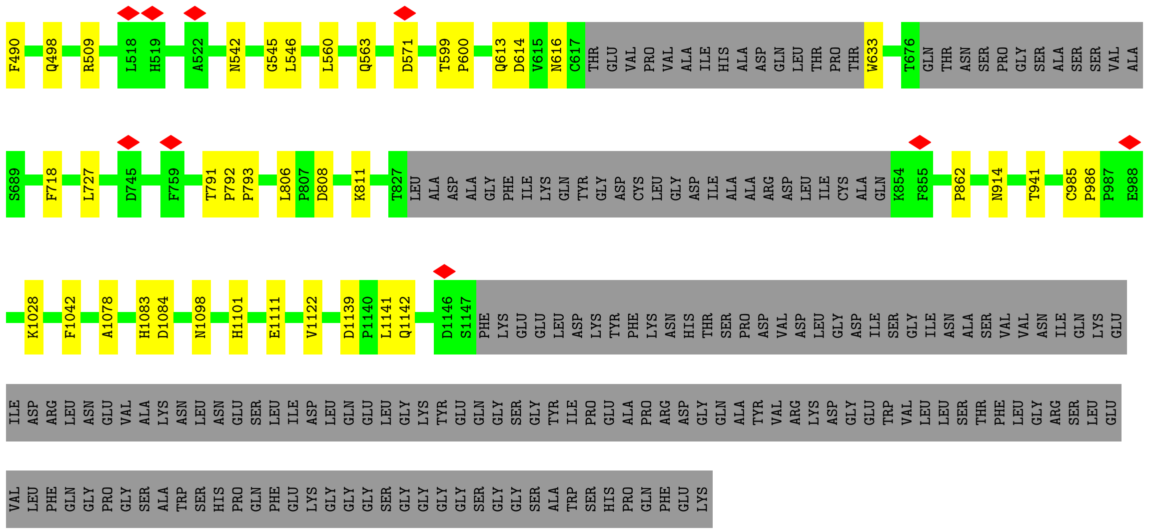
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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



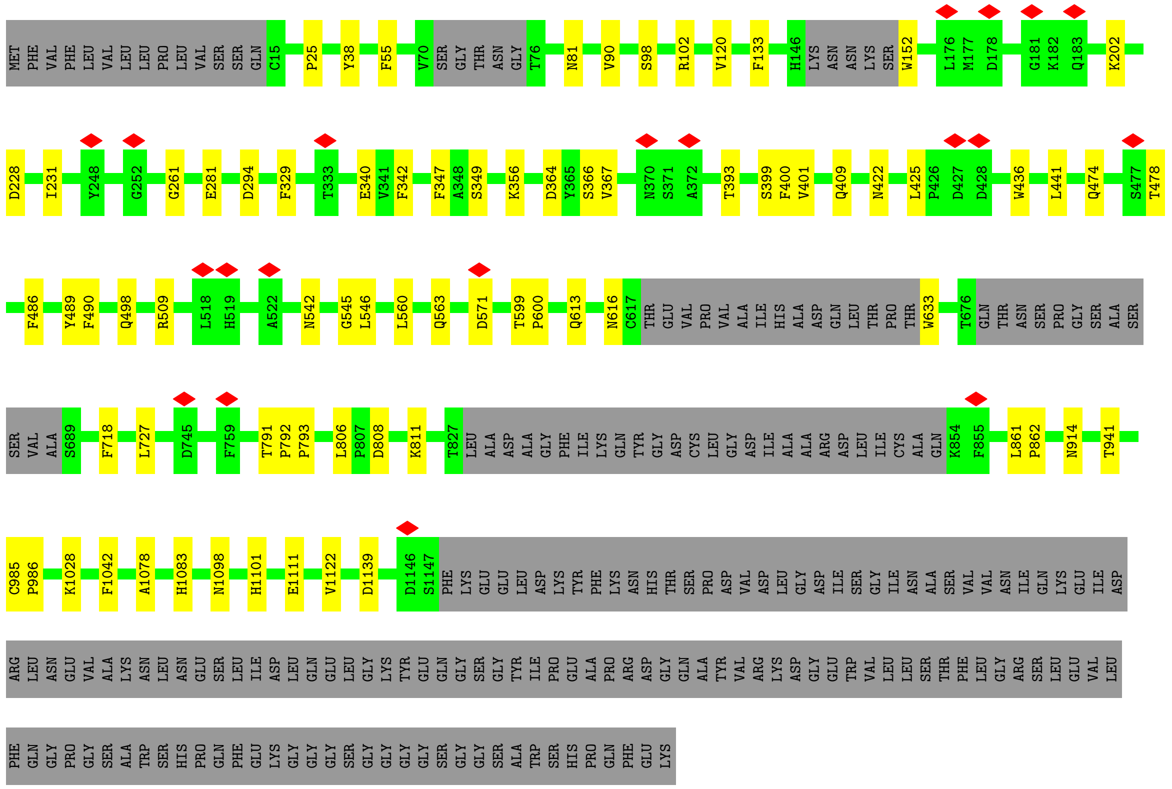
- Molecule 1: Spike glycoprotein





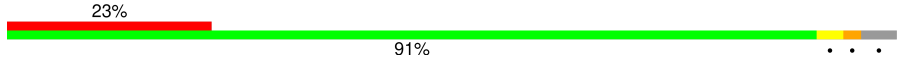
- Molecule 1: Spike glycoprotein

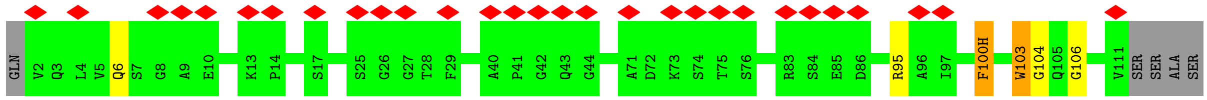
Chain E:



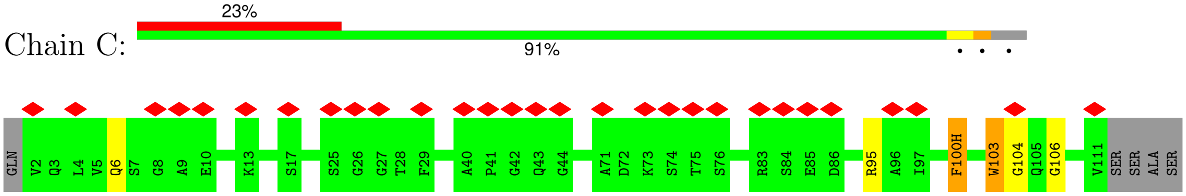
- Molecule 2: J08 fragment antigen binding heavy chain variable domain

Chain H:

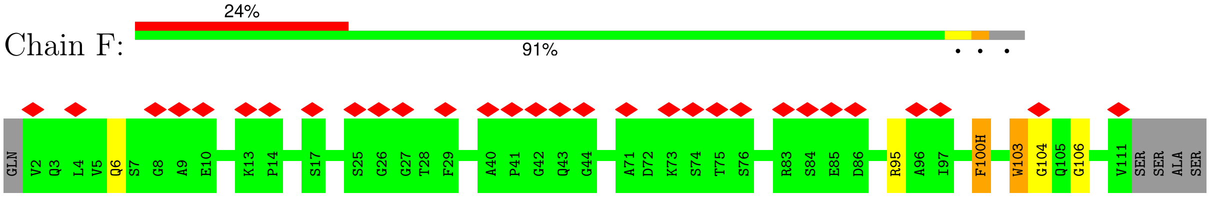




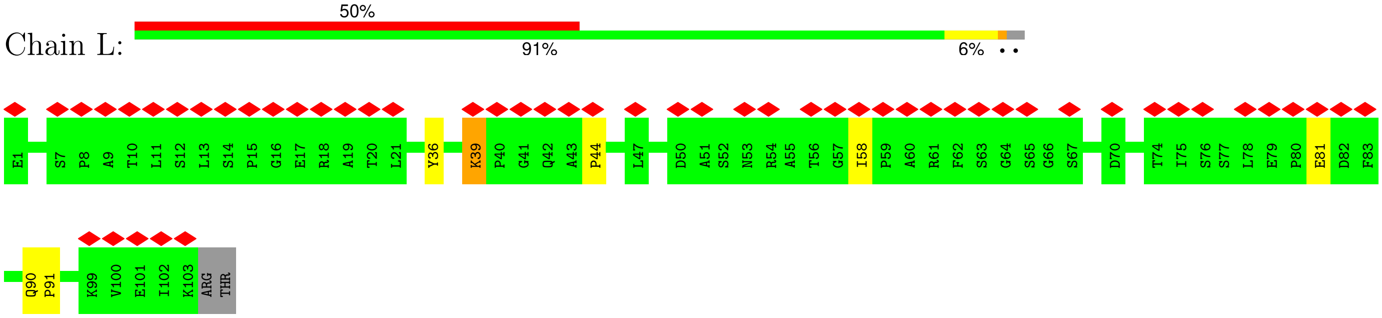
- Molecule 2: J08 fragment antigen binding heavy chain variable domain



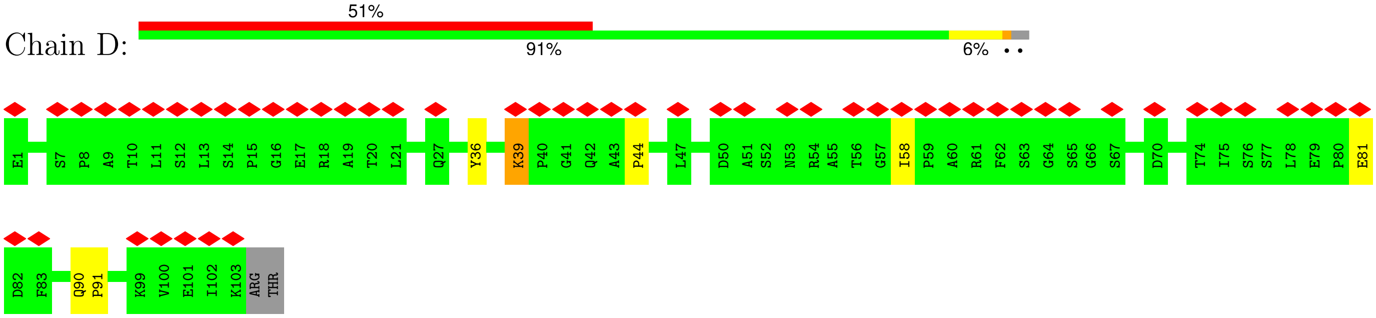
- Molecule 2: J08 fragment antigen binding heavy chain variable domain



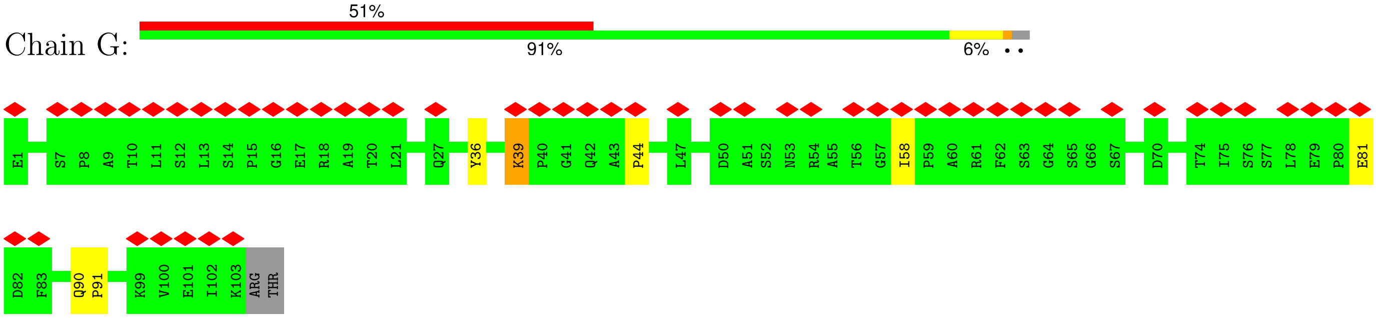
- Molecule 3: J08 fragment antigen binding light chain variable domain



- Molecule 3: J08 fragment antigen binding light chain variable domain

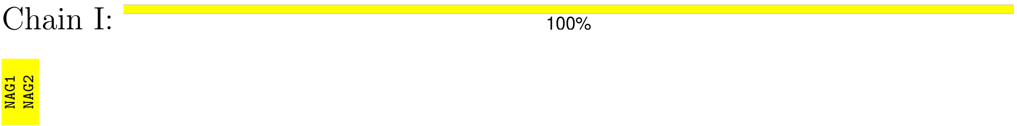


- Molecule 3: J08 fragment antigen binding light chain variable domain



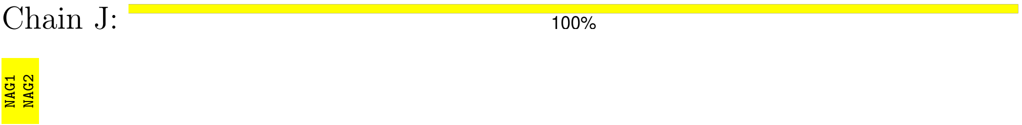
- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I:



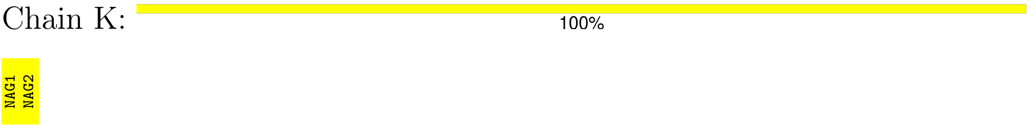
- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:



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

Chain K:

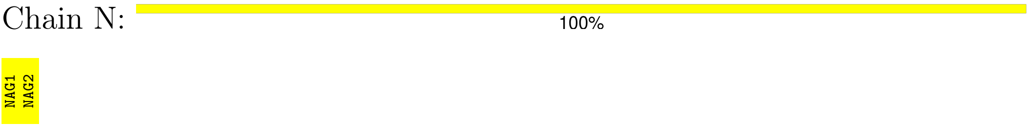


- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain M:

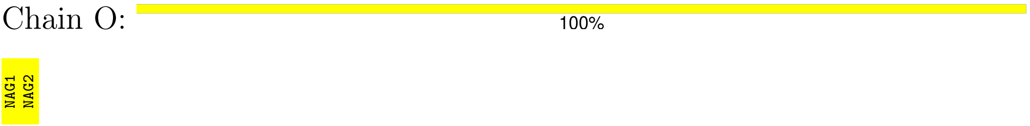
- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:



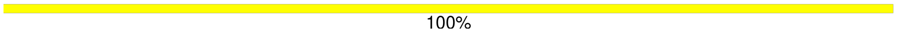
- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain O:



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

Chain P:

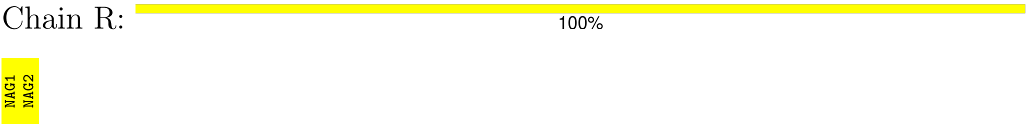


- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Q:

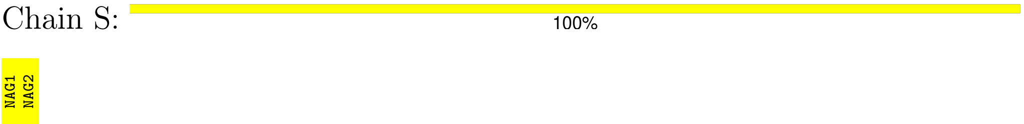
- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain R:



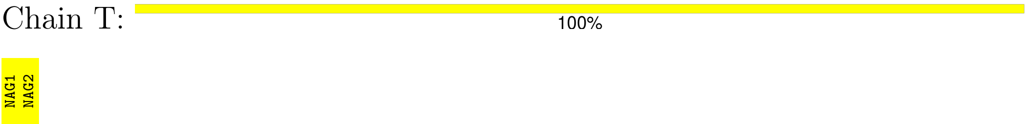
- Molecule 4: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:



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

Chain T:



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

Chain U:

4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C3	Depositor
Number of particles used	52678	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{Å}^2$)	50	Depositor
Minimum defocus (nm)	200	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	36000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	2.166	Depositor
Minimum map value	-1.125	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.036	Depositor
Recommended contour level	0.2	Depositor
Map size (Å)	441.59998, 441.59998, 441.59998	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.15, 1.15, 1.15	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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	1.03	9/8572 (0.1%)	1.28	81/11672 (0.7%)
1	B	1.03	8/8572 (0.1%)	1.28	81/11672 (0.7%)
1	E	1.03	9/8572 (0.1%)	1.28	84/11672 (0.7%)
2	C	1.03	2/966 (0.2%)	1.25	3/1308 (0.2%)
2	F	1.04	2/966 (0.2%)	1.25	3/1308 (0.2%)
2	H	1.03	2/966 (0.2%)	1.25	3/1308 (0.2%)
3	D	0.92	0/789	1.33	3/1073 (0.3%)
3	G	0.92	0/789	1.33	3/1073 (0.3%)
3	L	0.92	0/789	1.33	3/1073 (0.3%)
All	All	1.02	32/30981 (0.1%)	1.28	264/42159 (0.6%)

All (32) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	100(H)	PHE	CB-CG	-6.54	1.35	1.50
2	H	100(H)	PHE	CB-CG	-6.51	1.35	1.50
2	C	100(H)	PHE	CB-CG	-6.48	1.35	1.50
1	A	152	TRP	CZ2-CH2	6.42	1.49	1.37
1	B	152	TRP	CZ2-CH2	6.41	1.49	1.37
1	E	152	TRP	CZ2-CH2	6.40	1.49	1.37
1	E	633	TRP	CZ2-CH2	6.24	1.49	1.37
1	B	633	TRP	CZ2-CH2	6.22	1.49	1.37
1	A	633	TRP	CD2-CE3	6.21	1.50	1.40
1	A	633	TRP	CZ2-CH2	6.21	1.49	1.37
1	B	633	TRP	CD2-CE3	6.20	1.50	1.40
1	E	633	TRP	CD2-CE3	6.20	1.50	1.40
2	H	103	TRP	NE1-CE2	-6.14	1.30	1.37
2	C	103	TRP	NE1-CE2	-6.11	1.30	1.37
2	F	103	TRP	NE1-CE2	-6.11	1.30	1.37
1	A	914	ASN	CB-CG	-6.00	1.37	1.52
1	B	914	ASN	CB-CG	-5.99	1.37	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	914	ASN	CB-CG	-5.98	1.37	1.52
1	A	152	TRP	CD2-CE3	5.72	1.49	1.40
1	B	152	TRP	CD2-CE3	5.72	1.49	1.40
1	E	152	TRP	CD2-CE3	5.72	1.49	1.40
1	E	422	ASN	CB-CG	-5.46	1.38	1.52
1	A	422	ASN	CB-CG	-5.46	1.38	1.52
1	B	422	ASN	CB-CG	-5.44	1.38	1.52
1	A	498	GLN	CA-C	5.13	1.57	1.52
1	A	441	LEU	CB-CG	5.11	1.63	1.53
1	E	441	LEU	CB-CG	5.10	1.63	1.53
1	B	441	LEU	CB-CG	5.08	1.63	1.53
1	E	102	ARG	CD-NE	-5.03	1.39	1.46
1	B	102	ARG	CD-NE	-5.03	1.39	1.46
1	E	498	GLN	CA-C	5.01	1.57	1.52
1	A	102	ARG	CD-NE	-5.01	1.39	1.46

All (264) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	261	GLY	N-CA-C	-8.99	100.54	112.14
1	E	261	GLY	N-CA-C	-8.99	100.54	112.14
1	B	261	GLY	N-CA-C	-8.98	100.56	112.14
1	B	349	SER	CA-C-N	-8.86	111.41	122.48
1	B	349	SER	C-N-CA	-8.86	111.41	122.48
1	E	349	SER	CA-C-N	-8.85	111.42	122.48
1	E	349	SER	C-N-CA	-8.85	111.42	122.48
1	A	349	SER	CA-C-N	-8.84	111.43	122.48
1	A	349	SER	C-N-CA	-8.84	111.43	122.48
1	B	986	PRO	N-CA-C	8.60	121.19	110.70
1	E	986	PRO	N-CA-C	8.57	121.16	110.70
1	A	986	PRO	N-CA-C	8.54	121.12	110.70
1	B	498	GLN	CA-C-N	8.47	128.20	119.56
1	B	498	GLN	C-N-CA	8.47	128.20	119.56
1	E	498	GLN	CA-C-N	8.42	128.15	119.56
1	E	498	GLN	C-N-CA	8.42	128.15	119.56
1	A	498	GLN	CA-C-N	8.40	128.13	119.56
1	A	498	GLN	C-N-CA	8.40	128.13	119.56
1	E	862	PRO	CA-C-N	8.02	127.97	120.03
1	E	862	PRO	C-N-CA	8.02	127.97	120.03
1	B	862	PRO	CA-C-N	8.00	127.95	120.03
1	B	862	PRO	C-N-CA	8.00	127.95	120.03
1	A	862	PRO	CA-C-N	7.97	127.92	120.03

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	862	PRO	C-N-CA	7.97	127.92	120.03
1	A	811	LYS	CA-C-N	7.80	127.52	119.56
1	A	811	LYS	C-N-CA	7.80	127.52	119.56
1	B	811	LYS	CA-C-N	7.80	127.52	119.56
1	B	811	LYS	C-N-CA	7.80	127.52	119.56
1	E	811	LYS	CA-C-N	7.79	127.50	119.56
1	E	811	LYS	C-N-CA	7.79	127.50	119.56
3	G	39	LYS	N-CA-C	-7.59	100.52	110.39
3	D	39	LYS	N-CA-C	-7.58	100.53	110.39
3	L	39	LYS	N-CA-C	-7.56	100.56	110.39
1	E	81	ASN	CA-C-N	7.38	127.82	120.52
1	E	81	ASN	C-N-CA	7.38	127.82	120.52
1	B	81	ASN	CA-C-N	7.37	127.81	120.52
1	B	81	ASN	C-N-CA	7.37	127.81	120.52
1	A	81	ASN	CA-C-N	7.36	127.81	120.52
1	A	81	ASN	C-N-CA	7.36	127.81	120.52
2	F	106	GLY	N-CA-C	7.32	119.61	111.85
2	H	106	GLY	N-CA-C	7.30	119.59	111.85
2	C	106	GLY	N-CA-C	7.30	119.59	111.85
1	A	329	PHE	CA-C-N	7.23	127.26	119.89
1	A	329	PHE	C-N-CA	7.23	127.26	119.89
1	B	329	PHE	CA-C-N	7.22	127.26	119.89
1	B	329	PHE	C-N-CA	7.22	127.26	119.89
1	E	329	PHE	CA-C-N	7.17	127.21	119.89
1	E	329	PHE	C-N-CA	7.17	127.21	119.89
1	B	616	ASN	CA-C-N	6.94	134.19	121.70
1	B	616	ASN	C-N-CA	6.94	134.19	121.70
1	E	616	ASN	CA-C-N	6.92	134.16	121.70
1	E	616	ASN	C-N-CA	6.92	134.16	121.70
1	A	616	ASN	CA-C-N	6.92	134.15	121.70
1	A	616	ASN	C-N-CA	6.92	134.15	121.70
1	A	600	PRO	N-CA-C	-6.90	100.42	111.38
1	B	600	PRO	N-CA-C	-6.90	100.42	111.38
1	E	600	PRO	N-CA-C	-6.89	100.43	111.38
1	B	1111	GLU	CA-C-N	6.74	126.50	119.76
1	B	1111	GLU	C-N-CA	6.74	126.50	119.76
1	B	25	PRO	CA-C-N	6.74	126.65	119.85
1	B	25	PRO	C-N-CA	6.74	126.65	119.85
1	A	1111	GLU	CA-C-N	6.71	126.47	119.76
1	A	1111	GLU	C-N-CA	6.71	126.47	119.76
1	A	563	GLN	N-CA-C	6.71	118.67	111.36
1	B	563	GLN	N-CA-C	6.71	118.67	111.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	25	PRO	CA-C-N	6.68	126.60	119.85
1	A	25	PRO	C-N-CA	6.68	126.60	119.85
1	B	486	PHE	CA-CB-CG	-6.68	107.12	113.80
1	E	563	GLN	N-CA-C	6.68	118.64	111.36
1	E	1111	GLU	CA-C-N	6.68	126.44	119.76
1	E	1111	GLU	C-N-CA	6.68	126.44	119.76
1	E	25	PRO	CA-C-N	6.67	126.58	119.85
1	E	25	PRO	C-N-CA	6.67	126.58	119.85
1	B	808	ASP	CA-C-N	6.66	126.36	119.56
1	B	808	ASP	C-N-CA	6.66	126.36	119.56
1	A	486	PHE	CA-CB-CG	-6.65	107.15	113.80
1	A	808	ASP	CA-C-N	6.65	126.34	119.56
1	A	808	ASP	C-N-CA	6.65	126.34	119.56
1	E	486	PHE	CA-CB-CG	-6.65	107.15	113.80
1	E	808	ASP	CA-C-N	6.65	126.34	119.56
1	E	808	ASP	C-N-CA	6.65	126.34	119.56
1	E	861	LEU	CA-C-N	6.62	124.42	119.66
1	E	861	LEU	C-N-CA	6.62	124.42	119.66
1	B	560	LEU	CA-C-N	6.61	126.30	119.56
1	B	560	LEU	C-N-CA	6.61	126.30	119.56
1	A	400	PHE	N-CA-C	6.60	118.23	108.60
1	B	400	PHE	N-CA-C	6.58	118.21	108.60
1	B	613	GLN	N-CA-C	6.57	118.44	111.28
1	A	560	LEU	CA-C-N	6.57	126.26	119.56
1	A	560	LEU	C-N-CA	6.57	126.26	119.56
1	A	613	GLN	N-CA-C	6.56	118.43	111.28
1	E	613	GLN	N-CA-C	6.55	118.42	111.28
1	E	560	LEU	CA-C-N	6.54	126.23	119.56
1	E	560	LEU	C-N-CA	6.54	126.23	119.56
1	E	133	PHE	CA-CB-CG	6.53	120.33	113.80
1	A	133	PHE	CA-CB-CG	6.52	120.32	113.80
3	G	58	ILE	CA-C-N	6.51	126.49	119.78
3	G	58	ILE	C-N-CA	6.51	126.49	119.78
3	L	58	ILE	CA-C-N	6.50	126.48	119.78
3	L	58	ILE	C-N-CA	6.50	126.48	119.78
3	D	58	ILE	CA-C-N	6.50	126.47	119.78
3	D	58	ILE	C-N-CA	6.50	126.47	119.78
1	B	133	PHE	CA-CB-CG	6.50	120.30	113.80
2	C	95	ARG	CA-C-N	6.45	129.57	120.28
2	C	95	ARG	C-N-CA	6.45	129.57	120.28
1	A	490	PHE	N-CA-C	-6.42	100.24	109.48
2	H	95	ARG	CA-C-N	6.41	129.51	120.28

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	95	ARG	C-N-CA	6.41	129.51	120.28
1	E	490	PHE	N-CA-C	-6.41	100.25	109.48
2	F	95	ARG	CA-C-N	6.39	129.48	120.28
2	F	95	ARG	C-N-CA	6.39	129.48	120.28
1	B	490	PHE	N-CA-C	-6.38	100.29	109.48
1	A	985	CYS	CA-C-N	6.34	126.91	120.38
1	A	985	CYS	C-N-CA	6.34	126.91	120.38
1	E	985	CYS	CA-C-N	6.30	126.87	120.38
1	E	985	CYS	C-N-CA	6.30	126.87	120.38
1	B	985	CYS	CA-C-N	6.29	126.86	120.38
1	B	985	CYS	C-N-CA	6.29	126.86	120.38
1	A	791	THR	CA-C-N	6.22	126.79	120.38
1	A	791	THR	C-N-CA	6.22	126.79	120.38
1	B	425	LEU	CA-C-N	6.22	126.13	119.85
1	B	425	LEU	C-N-CA	6.22	126.13	119.85
1	E	791	THR	CA-C-N	6.22	126.78	120.38
1	E	791	THR	C-N-CA	6.22	126.78	120.38
1	A	425	LEU	CA-C-N	6.20	126.11	119.85
1	A	425	LEU	C-N-CA	6.20	126.11	119.85
1	E	425	LEU	CA-C-N	6.20	126.11	119.85
1	E	425	LEU	C-N-CA	6.20	126.11	119.85
1	E	400	PHE	N-CA-C	6.18	118.17	108.96
1	B	490	PHE	CA-C-N	6.17	125.80	119.56
1	B	490	PHE	C-N-CA	6.17	125.80	119.56
1	A	393	THR	N-CA-C	-6.17	104.64	111.36
1	E	393	THR	N-CA-C	-6.17	104.64	111.36
1	B	393	THR	N-CA-C	-6.16	104.65	111.36
1	B	791	THR	CA-C-N	6.16	126.73	120.38
1	B	791	THR	C-N-CA	6.16	126.73	120.38
1	E	490	PHE	CA-C-N	6.16	125.78	119.56
1	E	490	PHE	C-N-CA	6.16	125.78	119.56
1	A	490	PHE	CA-C-N	6.15	125.77	119.56
1	A	490	PHE	C-N-CA	6.15	125.77	119.56
1	B	294	ASP	CA-C-N	6.13	125.82	119.56
1	B	294	ASP	C-N-CA	6.13	125.82	119.56
1	A	294	ASP	CA-C-N	6.13	125.81	119.56
1	A	294	ASP	C-N-CA	6.13	125.81	119.56
1	E	294	ASP	CA-C-N	6.13	125.81	119.56
1	E	294	ASP	C-N-CA	6.13	125.81	119.56
1	A	281	GLU	N-CA-C	-6.11	101.88	110.50
1	E	281	GLU	N-CA-C	-6.11	101.89	110.50
1	B	281	GLU	N-CA-C	-6.11	101.89	110.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	600	PRO	CA-C-N	-6.09	114.31	120.10
1	B	600	PRO	C-N-CA	-6.09	114.31	120.10
1	E	600	PRO	CA-C-N	-6.09	114.31	120.10
1	E	600	PRO	C-N-CA	-6.09	114.31	120.10
1	A	600	PRO	CA-C-N	-6.08	114.33	120.10
1	A	600	PRO	C-N-CA	-6.08	114.33	120.10
1	A	792	PRO	N-CA-C	-6.07	103.29	110.70
1	E	792	PRO	N-CA-C	-6.06	103.31	110.70
1	B	792	PRO	N-CA-C	-6.05	103.31	110.70
1	B	231	ILE	N-CA-C	5.94	116.92	111.81
1	A	1098	ASN	CA-CB-CG	5.93	118.53	112.60
1	E	1098	ASN	CA-CB-CG	5.93	118.53	112.60
1	B	599	THR	CA-C-N	5.92	125.83	119.85
1	B	599	THR	C-N-CA	5.92	125.83	119.85
1	B	1098	ASN	CA-CB-CG	5.92	118.52	112.60
1	A	599	THR	CA-C-N	5.90	125.81	119.85
1	A	599	THR	C-N-CA	5.90	125.81	119.85
1	A	231	ILE	N-CA-C	5.89	116.88	111.81
1	E	599	THR	CA-C-N	5.89	125.80	119.85
1	E	599	THR	C-N-CA	5.89	125.80	119.85
1	E	231	ILE	N-CA-C	5.86	116.85	111.81
1	A	560	LEU	N-CA-C	-5.85	102.01	110.08
1	E	399	SER	N-CA-C	5.82	117.89	108.41
1	A	399	SER	N-CA-C	5.81	117.88	108.41
1	E	560	LEU	N-CA-C	-5.80	102.08	110.08
1	B	399	SER	N-CA-C	5.80	117.86	108.41
1	B	560	LEU	N-CA-C	-5.80	102.08	110.08
1	E	98	SER	N-CA-C	5.79	117.84	110.61
1	B	98	SER	N-CA-C	5.78	117.83	110.61
1	E	793	PRO	N-CA-C	-5.78	102.02	111.15
1	A	98	SER	N-CA-C	5.77	117.83	110.61
1	A	793	PRO	N-CA-C	-5.76	102.05	111.15
1	B	793	PRO	N-CA-C	-5.75	102.07	111.15
1	E	1139	ASP	CA-C-N	5.69	125.79	119.87
1	E	1139	ASP	C-N-CA	5.69	125.79	119.87
1	A	1139	ASP	CA-C-N	5.68	125.78	119.87
1	A	1139	ASP	C-N-CA	5.68	125.78	119.87
1	B	1139	ASP	CA-C-N	5.67	125.77	119.87
1	B	1139	ASP	C-N-CA	5.67	125.77	119.87
1	B	1122	VAL	N-CA-C	5.66	116.09	108.17
1	E	1122	VAL	N-CA-C	5.66	116.09	108.17
1	A	1122	VAL	N-CA-C	5.64	116.07	108.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	38	TYR	CA-C-N	5.59	126.08	120.04
1	A	38	TYR	C-N-CA	5.59	126.08	120.04
1	B	38	TYR	CA-C-N	5.57	126.05	120.04
1	B	38	TYR	C-N-CA	5.57	126.05	120.04
1	E	38	TYR	CA-C-N	5.56	126.05	120.04
1	E	38	TYR	C-N-CA	5.56	126.05	120.04
1	E	342	PHE	N-CA-C	-5.54	102.31	110.52
1	B	342	PHE	N-CA-C	-5.53	102.34	110.52
1	A	342	PHE	N-CA-C	-5.52	102.34	110.52
1	B	55	PHE	CA-CB-CG	5.50	119.30	113.80
1	A	349	SER	N-CA-C	-5.49	103.44	110.53
1	E	55	PHE	CA-CB-CG	5.49	119.29	113.80
1	E	349	SER	N-CA-C	-5.49	103.44	110.53
1	B	349	SER	N-CA-C	-5.49	103.45	110.53
1	A	55	PHE	CA-CB-CG	5.49	119.29	113.80
1	A	941	THR	CA-C-N	5.47	125.09	119.56
1	A	941	THR	C-N-CA	5.47	125.09	119.56
1	A	120	VAL	N-CA-C	5.45	115.83	107.77
1	A	727	LEU	CA-C-N	5.44	125.35	119.85
1	A	727	LEU	C-N-CA	5.44	125.35	119.85
1	B	727	LEU	CA-C-N	5.42	125.32	119.85
1	B	727	LEU	C-N-CA	5.42	125.32	119.85
1	B	120	VAL	N-CA-C	5.41	115.78	107.77
1	E	941	THR	CA-C-N	5.41	125.02	119.56
1	E	941	THR	C-N-CA	5.41	125.02	119.56
1	E	727	LEU	CA-C-N	5.37	125.28	119.85
1	E	727	LEU	C-N-CA	5.37	125.28	119.85
1	B	806	LEU	CA-C-N	5.37	125.29	119.76
1	B	806	LEU	C-N-CA	5.37	125.29	119.76
1	B	941	THR	CA-C-N	5.36	124.97	119.56
1	B	941	THR	C-N-CA	5.36	124.97	119.56
1	B	364	ASP	N-CA-C	-5.31	101.78	109.59
1	E	120	VAL	N-CA-C	5.31	115.77	108.12
1	A	364	ASP	N-CA-C	-5.31	101.79	109.59
1	E	364	ASP	N-CA-C	-5.31	101.79	109.59
1	A	806	LEU	CA-C-N	5.30	125.22	119.76
1	A	806	LEU	C-N-CA	5.30	125.22	119.76
1	A	571	ASP	CA-CB-CG	5.29	117.89	112.60
1	B	571	ASP	CA-CB-CG	5.26	117.86	112.60
1	E	571	ASP	CA-CB-CG	5.26	117.86	112.60
1	E	806	LEU	CA-C-N	5.26	125.17	119.76
1	E	806	LEU	C-N-CA	5.26	125.17	119.76

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	1101	HIS	N-CA-C	5.18	117.89	109.24
1	A	90	VAL	N-CA-C	5.18	117.49	108.95
1	E	90	VAL	N-CA-C	5.17	117.49	108.95
1	A	401	VAL	N-CA-C	5.17	115.41	108.17
1	B	1101	HIS	N-CA-C	5.17	117.87	109.24
1	B	90	VAL	N-CA-C	5.17	117.47	108.95
1	E	1101	HIS	N-CA-C	5.16	117.85	109.24
1	E	401	VAL	N-CA-C	5.15	115.38	108.17
1	B	401	VAL	N-CA-C	5.15	115.38	108.17
1	A	409	GLN	CA-C-N	-5.15	116.81	121.65
1	A	409	GLN	C-N-CA	-5.15	116.81	121.65
1	E	478	THR	CA-C-N	5.14	125.18	119.32
1	E	478	THR	C-N-CA	5.14	125.18	119.32
1	B	1078	ALA	CA-C-N	5.14	124.75	119.56
1	B	1078	ALA	C-N-CA	5.14	124.75	119.56
1	B	409	GLN	CA-C-N	-5.13	116.82	121.65
1	B	409	GLN	C-N-CA	-5.13	116.82	121.65
1	E	1078	ALA	CA-C-N	5.13	124.75	119.56
1	E	1078	ALA	C-N-CA	5.13	124.75	119.56
1	A	478	THR	CA-C-N	5.12	125.16	119.32
1	A	478	THR	C-N-CA	5.12	125.16	119.32
1	E	409	GLN	CA-C-N	-5.12	116.84	121.65
1	E	409	GLN	C-N-CA	-5.12	116.84	121.65
1	A	1078	ALA	CA-C-N	5.11	124.72	119.56
1	A	1078	ALA	C-N-CA	5.11	124.72	119.56
1	A	542	ASN	N-CA-C	5.11	119.87	113.43
1	B	478	THR	CA-C-N	5.11	125.14	119.32
1	B	478	THR	C-N-CA	5.11	125.14	119.32
1	B	542	ASN	N-CA-C	5.09	119.84	113.43
1	E	542	ASN	N-CA-C	5.09	119.84	113.43
1	E	489	TYR	N-CA-C	5.00	116.99	109.23

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	8372	0	8149	12	0
1	B	8372	0	8149	12	0
1	E	8372	0	8149	10	0
2	C	947	0	929	3	0
2	F	947	0	929	3	0
2	H	947	0	929	3	0
3	D	772	0	754	3	0
3	G	772	0	754	3	0
3	L	772	0	754	3	0
4	I	28	0	24	0	0
4	J	28	0	25	0	0
4	K	28	0	25	0	0
4	M	28	0	25	1	0
4	N	28	0	24	0	0
4	O	28	0	25	0	0
4	P	28	0	25	0	0
4	Q	28	0	25	1	0
4	R	28	0	24	0	0
4	S	28	0	25	0	0
4	T	28	0	25	0	0
4	U	28	0	25	1	0
5	A	98	0	91	0	0
5	B	98	0	91	0	0
5	E	98	0	91	0	0
All	All	30903	0	30066	51	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 1.

All (51) 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:E:436:TRP:HE1	1:E:509:ARG:HH21	1.58	0.52
1:B:436:TRP:HE1	1:B:509:ARG:HH21	1.58	0.52
1:A:436:TRP:HE1	1:A:509:ARG:HH21	1.58	0.51
3:D:36:TYR:HB3	3:D:44:PRO:HB2	1.93	0.50
3:G:36:TYR:HB3	3:G:44:PRO:HB2	1.93	0.49
1:E:366:SER:O	1:E:367:VAL:C	2.56	0.49
3:L:36:TYR:HB3	3:L:44:PRO:HB2	1.93	0.49
1:B:366:SER:O	1:B:367:VAL:C	2.56	0.48
1:A:366:SER:O	1:A:367:VAL:C	2.56	0.48
1:A:854:LYS:NZ	1:B:614:ASP:OD2	2.39	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:340:GLU:OE1	1:B:356:LYS:NZ	2.48	0.47
1:A:340:GLU:OE1	1:A:356:LYS:NZ	2.48	0.47
1:E:340:GLU:OE1	1:E:356:LYS:NZ	2.48	0.46
2:F:100(H):PHE:HB3	2:F:103:TRP:HE1	1.81	0.46
2:C:100(H):PHE:HB3	2:C:103:TRP:HE1	1.81	0.46
3:G:39:LYS:NZ	3:G:81:GLU:O	2.49	0.46
2:H:100(H):PHE:HB3	2:H:103:TRP:HE1	1.81	0.46
3:L:39:LYS:NZ	3:L:81:GLU:O	2.49	0.46
3:D:39:LYS:NZ	3:D:81:GLU:O	2.49	0.45
1:B:1083:HIS:O	4:Q:1:NAG:H81	2.17	0.45
1:E:1083:HIS:O	4:U:1:NAG:H81	2.17	0.45
1:A:347:PHE:CE1	1:A:509:ARG:HD2	2.53	0.44
1:E:347:PHE:CE1	1:E:509:ARG:HD2	2.53	0.44
1:B:347:PHE:CE1	1:B:509:ARG:HD2	2.53	0.43
1:A:1083:HIS:O	4:M:1:NAG:H81	2.17	0.43
3:G:90:GLN:O	3:G:91:PRO:C	2.62	0.43
2:H:100(H):PHE:CB	2:H:103:TRP:HE1	2.32	0.43
3:L:90:GLN:O	3:L:91:PRO:C	2.62	0.43
1:B:1084:ASP:N	1:B:1084:ASP:OD1	2.46	0.43
2:H:6:GLN:NE2	2:H:104:GLY:O	2.52	0.42
2:C:6:GLN:NE2	2:C:104:GLY:O	2.52	0.42
2:F:100(H):PHE:CB	2:F:103:TRP:HE1	2.32	0.42
1:E:545:GLY:O	1:E:546:LEU:HB2	2.19	0.42
2:F:6:GLN:NE2	2:F:104:GLY:O	2.52	0.42
1:A:545:GLY:O	1:A:546:LEU:HB2	2.19	0.42
1:B:545:GLY:O	1:B:546:LEU:HB2	2.19	0.42
2:C:100(H):PHE:CB	2:C:103:TRP:HE1	2.32	0.42
3:D:90:GLN:O	3:D:91:PRO:C	2.62	0.42
1:A:202:LYS:NZ	1:A:228:ASP:OD2	2.53	0.42
1:B:202:LYS:NZ	1:B:228:ASP:OD2	2.53	0.42
1:B:1141:LEU:O	1:B:1142:GLN:C	2.64	0.41
1:E:718:PHE:CD2	1:E:718:PHE:C	2.99	0.41
1:A:474:GLN:CD	1:A:474:GLN:N	2.79	0.41
1:E:202:LYS:NZ	1:E:228:ASP:OD2	2.53	0.41
1:B:1028:LYS:NZ	1:B:1042:PHE:O	2.54	0.41
1:E:474:GLN:CD	1:E:474:GLN:N	2.79	0.41
1:A:498:GLN:HA	1:A:499:PRO:HD3	1.91	0.40
1:A:1028:LYS:NZ	1:A:1042:PHE:O	2.54	0.40
1:E:1028:LYS:NZ	1:E:1042:PHE:O	2.54	0.40
1:B:718:PHE:CD2	1:B:718:PHE:C	2.99	0.40
1:A:718:PHE:CD2	1:A:718:PHE:C	2.99	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	1058/1280 (83%)	1024 (97%)	34 (3%)	0	100	100
1	B	1058/1280 (83%)	1024 (97%)	34 (3%)	0	100	100
1	E	1058/1280 (83%)	1024 (97%)	34 (3%)	0	100	100
2	C	120/127 (94%)	115 (96%)	5 (4%)	0	100	100
2	F	120/127 (94%)	115 (96%)	5 (4%)	0	100	100
2	H	120/127 (94%)	115 (96%)	5 (4%)	0	100	100
3	D	101/105 (96%)	97 (96%)	4 (4%)	0	100	100
3	G	101/105 (96%)	97 (96%)	4 (4%)	0	100	100
3	L	101/105 (96%)	97 (96%)	4 (4%)	0	100	100
All	All	3837/4536 (85%)	3708 (97%)	129 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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	938/1108 (85%)	938 (100%)	0	100	100
1	B	938/1108 (85%)	938 (100%)	0	100	100
1	E	938/1108 (85%)	938 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	C	103/107 (96%)	103 (100%)	0	100	100
2	F	103/107 (96%)	103 (100%)	0	100	100
2	H	103/107 (96%)	103 (100%)	0	100	100
3	D	85/87 (98%)	85 (100%)	0	100	100
3	G	85/87 (98%)	85 (100%)	0	100	100
3	L	85/87 (98%)	85 (100%)	0	100	100
All	All	3378/3906 (86%)	3378 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (15) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	122	ASN
1	A	804	GLN
1	A	935	GLN
1	A	1088	HIS
2	H	61	GLN
1	B	122	ASN
1	B	804	GLN
1	B	935	GLN
1	B	1088	HIS
1	E	122	ASN
1	E	804	GLN
1	E	935	GLN
1	E	1088	HIS
2	F	61	GLN
3	G	90	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

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	$\#\|Z\| > 2$
4	NAG	I	1	1,4	14,14,15	1.95	6 (42%)	17,19,21	6.94	3 (17%)
4	NAG	I	2	4	14,14,15	2.02	6 (42%)	17,19,21	0.92	1 (5%)
4	NAG	J	1	1,4	14,14,15	2.13	6 (42%)	17,19,21	0.93	1 (5%)
4	NAG	J	2	4	14,14,15	2.05	6 (42%)	17,19,21	0.94	1 (5%)
4	NAG	K	1	1,4	14,14,15	2.19	5 (35%)	17,19,21	1.11	1 (5%)
4	NAG	K	2	4	14,14,15	2.00	6 (42%)	17,19,21	0.90	1 (5%)
4	NAG	M	1	1,4	14,14,15	2.19	7 (50%)	17,19,21	1.26	2 (11%)
4	NAG	M	2	4	14,14,15	1.96	6 (42%)	17,19,21	0.98	2 (11%)
4	NAG	N	1	1,4	14,14,15	1.95	6 (42%)	17,19,21	6.94	3 (17%)
4	NAG	N	2	4	14,14,15	2.02	6 (42%)	17,19,21	0.92	1 (5%)
4	NAG	O	1	1,4	14,14,15	2.13	6 (42%)	17,19,21	0.93	1 (5%)
4	NAG	O	2	4	14,14,15	2.05	6 (42%)	17,19,21	0.94	1 (5%)
4	NAG	P	1	1,4	14,14,15	2.19	5 (35%)	17,19,21	1.12	1 (5%)
4	NAG	P	2	4	14,14,15	2.00	6 (42%)	17,19,21	0.89	1 (5%)
4	NAG	Q	1	1,4	14,14,15	2.18	7 (50%)	17,19,21	1.25	2 (11%)
4	NAG	Q	2	4	14,14,15	1.97	6 (42%)	17,19,21	0.97	2 (11%)
4	NAG	R	1	1,4	14,14,15	1.96	6 (42%)	17,19,21	6.94	3 (17%)
4	NAG	R	2	4	14,14,15	2.03	6 (42%)	17,19,21	0.92	1 (5%)
4	NAG	S	1	1,4	14,14,15	2.13	6 (42%)	17,19,21	0.92	1 (5%)
4	NAG	S	2	4	14,14,15	2.05	6 (42%)	17,19,21	0.93	1 (5%)
4	NAG	T	1	1,4	14,14,15	2.18	5 (35%)	17,19,21	1.13	1 (5%)
4	NAG	T	2	4	14,14,15	1.99	6 (42%)	17,19,21	0.89	1 (5%)
4	NAG	U	1	1,4	14,14,15	2.18	7 (50%)	17,19,21	1.26	2 (11%)
4	NAG	U	2	4	14,14,15	1.97	6 (42%)	17,19,21	0.97	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	I	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	I	2	4	-	0/6/23/26	0/1/1/1
4	NAG	J	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	J	2	4	-	0/6/23/26	0/1/1/1
4	NAG	K	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	K	2	4	-	0/6/23/26	0/1/1/1
4	NAG	M	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	M	2	4	-	0/6/23/26	0/1/1/1
4	NAG	N	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	N	2	4	-	0/6/23/26	0/1/1/1
4	NAG	O	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	O	2	4	-	0/6/23/26	0/1/1/1
4	NAG	P	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	P	2	4	-	0/6/23/26	0/1/1/1
4	NAG	Q	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	Q	2	4	-	0/6/23/26	0/1/1/1
4	NAG	R	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	R	2	4	-	0/6/23/26	0/1/1/1
4	NAG	S	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	S	2	4	-	0/6/23/26	0/1/1/1
4	NAG	T	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	T	2	4	-	0/6/23/26	0/1/1/1
4	NAG	U	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	U	2	4	-	0/6/23/26	0/1/1/1

All (144) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	P	1	NAG	C1-C2	5.77	1.60	1.52
4	K	1	NAG	C1-C2	5.74	1.60	1.52
4	T	1	NAG	C1-C2	5.71	1.60	1.52
4	O	1	NAG	C1-C2	5.65	1.60	1.52
4	S	1	NAG	C1-C2	5.64	1.60	1.52
4	J	1	NAG	C1-C2	5.61	1.60	1.52
4	M	1	NAG	C1-C2	5.03	1.59	1.52
4	U	1	NAG	C1-C2	5.01	1.59	1.52
4	Q	1	NAG	C1-C2	4.99	1.59	1.52
4	O	2	NAG	C1-C2	4.87	1.59	1.52
4	J	2	NAG	C1-C2	4.85	1.58	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	R	1	NAG	C1-C2	4.83	1.58	1.52
4	S	2	NAG	C1-C2	4.82	1.58	1.52
4	R	2	NAG	C1-C2	4.81	1.58	1.52
4	N	1	NAG	C1-C2	4.79	1.58	1.52
4	I	1	NAG	C1-C2	4.77	1.58	1.52
4	I	2	NAG	C1-C2	4.75	1.58	1.52
4	N	2	NAG	C1-C2	4.73	1.58	1.52
4	Q	2	NAG	C1-C2	4.67	1.58	1.52
4	M	2	NAG	C1-C2	4.65	1.58	1.52
4	U	2	NAG	C1-C2	4.64	1.58	1.52
4	K	2	NAG	C1-C2	4.57	1.58	1.52
4	T	2	NAG	C1-C2	4.56	1.58	1.52
4	P	2	NAG	C1-C2	4.56	1.58	1.52
4	U	1	NAG	O5-C5	3.44	1.50	1.43
4	Q	1	NAG	O5-C5	3.44	1.50	1.43
4	M	1	NAG	O5-C5	3.41	1.50	1.43
4	K	1	NAG	O5-C5	3.37	1.50	1.43
4	P	1	NAG	O5-C5	3.36	1.50	1.43
4	T	1	NAG	O5-C5	3.36	1.50	1.43
4	K	2	NAG	O5-C5	3.32	1.49	1.43
4	P	2	NAG	O5-C5	3.31	1.49	1.43
4	T	2	NAG	O5-C5	3.30	1.49	1.43
4	O	2	NAG	O5-C5	3.09	1.49	1.43
4	S	2	NAG	O5-C5	3.09	1.49	1.43
4	J	2	NAG	O5-C5	3.08	1.49	1.43
4	U	2	NAG	O5-C5	3.03	1.49	1.43
4	M	2	NAG	O5-C5	3.01	1.49	1.43
4	N	2	NAG	O5-C5	3.00	1.49	1.43
4	R	2	NAG	O5-C5	3.00	1.49	1.43
4	I	2	NAG	O5-C5	2.99	1.49	1.43
4	Q	2	NAG	O5-C5	2.99	1.49	1.43
4	N	1	NAG	O5-C5	2.94	1.49	1.43
4	R	1	NAG	O5-C5	2.92	1.49	1.43
4	I	1	NAG	O5-C5	2.91	1.49	1.43
4	O	1	NAG	O5-C5	2.72	1.48	1.43
4	S	1	NAG	O5-C5	2.70	1.48	1.43
4	M	1	NAG	C4-C5	2.70	1.58	1.53
4	J	1	NAG	O5-C5	2.70	1.48	1.43
4	S	2	NAG	C3-C2	2.68	1.58	1.52
4	Q	1	NAG	C4-C5	2.68	1.58	1.53
4	O	2	NAG	C3-C2	2.67	1.58	1.52
4	J	2	NAG	C3-C2	2.65	1.58	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	U	1	NAG	C4-C5	2.64	1.58	1.53
4	P	1	NAG	O5-C1	2.55	1.48	1.43
4	T	1	NAG	O5-C1	2.55	1.48	1.43
4	K	1	NAG	O5-C1	2.52	1.47	1.43
4	U	2	NAG	C3-C2	2.51	1.57	1.52
4	Q	2	NAG	C3-C2	2.51	1.57	1.52
4	R	2	NAG	C3-C2	2.49	1.57	1.52
4	U	1	NAG	O5-C1	2.49	1.47	1.43
4	M	2	NAG	C3-C2	2.48	1.57	1.52
4	Q	1	NAG	O5-C1	2.47	1.47	1.43
4	I	2	NAG	C2-N2	2.46	1.50	1.46
4	I	2	NAG	C3-C2	2.46	1.57	1.52
4	N	2	NAG	C2-N2	2.45	1.50	1.46
4	N	2	NAG	C3-C2	2.45	1.57	1.52
4	M	1	NAG	O5-C1	2.45	1.47	1.43
4	R	2	NAG	C2-N2	2.40	1.50	1.46
4	S	2	NAG	C4-C5	2.37	1.58	1.53
4	J	2	NAG	C4-C5	2.36	1.58	1.53
4	O	2	NAG	C4-C5	2.36	1.58	1.53
4	O	1	NAG	C3-C2	2.34	1.57	1.52
4	J	1	NAG	C3-C2	2.34	1.57	1.52
4	U	1	NAG	C4-C3	2.32	1.58	1.52
4	S	1	NAG	C3-C2	2.32	1.57	1.52
4	Q	1	NAG	C4-C3	2.31	1.58	1.52
4	M	1	NAG	C4-C3	2.30	1.58	1.52
4	K	2	NAG	C3-C2	2.30	1.57	1.52
4	T	2	NAG	C3-C2	2.30	1.57	1.52
4	K	2	NAG	C4-C5	2.30	1.57	1.53
4	P	2	NAG	C3-C2	2.30	1.57	1.52
4	P	2	NAG	C4-C5	2.30	1.57	1.53
4	T	2	NAG	C4-C5	2.29	1.57	1.53
4	R	1	NAG	O5-C1	2.27	1.47	1.43
4	P	1	NAG	C4-C5	2.26	1.57	1.53
4	K	1	NAG	C4-C5	2.26	1.57	1.53
4	I	1	NAG	O5-C1	2.26	1.47	1.43
4	N	1	NAG	O5-C1	2.26	1.47	1.43
4	T	1	NAG	C4-C5	2.25	1.57	1.53
4	U	2	NAG	C4-C5	2.22	1.57	1.53
4	I	1	NAG	C4-C5	2.22	1.57	1.53
4	R	1	NAG	C4-C5	2.20	1.57	1.53
4	R	2	NAG	C4-C5	2.20	1.57	1.53
4	M	2	NAG	C4-C5	2.20	1.57	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	Q	2	NAG	C4-C5	2.20	1.57	1.53
4	N	1	NAG	C4-C5	2.19	1.57	1.53
4	N	2	NAG	C4-C5	2.18	1.57	1.53
4	I	2	NAG	C4-C5	2.15	1.57	1.53
4	J	2	NAG	C2-N2	2.14	1.49	1.46
4	Q	1	NAG	C3-C2	2.14	1.57	1.52
4	S	2	NAG	C2-N2	2.14	1.49	1.46
4	J	1	NAG	C4-C3	2.13	1.57	1.52
4	O	1	NAG	C4-C3	2.13	1.57	1.52
4	M	1	NAG	C3-C2	2.12	1.57	1.52
4	U	1	NAG	C3-C2	2.12	1.57	1.52
4	J	1	NAG	O5-C1	2.12	1.47	1.43
4	O	2	NAG	C2-N2	2.11	1.49	1.46
4	S	1	NAG	O5-C1	2.11	1.47	1.43
4	P	2	NAG	C4-C3	2.10	1.57	1.52
4	J	2	NAG	C4-C3	2.10	1.57	1.52
4	S	1	NAG	C4-C3	2.09	1.57	1.52
4	T	2	NAG	C4-C3	2.09	1.57	1.52
4	T	2	NAG	C2-N2	2.09	1.49	1.46
4	P	2	NAG	C2-N2	2.09	1.49	1.46
4	K	2	NAG	C4-C3	2.09	1.57	1.52
4	O	2	NAG	C4-C3	2.08	1.57	1.52
4	O	1	NAG	O5-C1	2.07	1.47	1.43
4	K	2	NAG	C2-N2	2.07	1.49	1.46
4	S	2	NAG	C4-C3	2.07	1.57	1.52
4	N	1	NAG	C3-C2	2.07	1.56	1.52
4	N	2	NAG	C4-C3	2.07	1.57	1.52
4	S	1	NAG	C4-C5	2.07	1.57	1.53
4	I	1	NAG	C3-C2	2.06	1.56	1.52
4	I	2	NAG	C4-C3	2.05	1.57	1.52
4	P	1	NAG	C3-C2	2.05	1.56	1.52
4	J	1	NAG	C4-C5	2.05	1.57	1.53
4	R	1	NAG	C3-C2	2.04	1.56	1.52
4	U	2	NAG	C4-C3	2.04	1.57	1.52
4	R	1	NAG	C4-C3	2.04	1.57	1.52
4	K	1	NAG	C3-C2	2.04	1.56	1.52
4	T	1	NAG	C3-C2	2.04	1.56	1.52
4	R	2	NAG	C4-C3	2.04	1.57	1.52
4	I	1	NAG	C4-C3	2.03	1.57	1.52
4	N	1	NAG	C4-C3	2.03	1.57	1.52
4	M	2	NAG	C2-N2	2.03	1.49	1.46
4	U	1	NAG	C2-N2	2.03	1.49	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	M	2	NAG	C4-C3	2.03	1.57	1.52
4	M	1	NAG	C2-N2	2.03	1.49	1.46
4	Q	2	NAG	C4-C3	2.02	1.57	1.52
4	U	2	NAG	C2-N2	2.02	1.49	1.46
4	Q	2	NAG	C2-N2	2.02	1.49	1.46
4	O	1	NAG	C4-C5	2.01	1.57	1.53
4	Q	1	NAG	C2-N2	2.01	1.49	1.46

All (36) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	I	1	NAG	C2-N2-C7	27.74	160.08	122.90
4	R	1	NAG	C2-N2-C7	27.73	160.06	122.90
4	N	1	NAG	C2-N2-C7	27.71	160.04	122.90
4	N	1	NAG	C8-C7-N2	5.29	124.89	116.12
4	R	1	NAG	C8-C7-N2	5.29	124.89	116.12
4	I	1	NAG	C8-C7-N2	5.28	124.88	116.12
4	R	1	NAG	O7-C7-N2	-3.26	116.23	121.98
4	N	1	NAG	O7-C7-N2	-3.23	116.28	121.98
4	I	1	NAG	O7-C7-N2	-3.22	116.28	121.98
4	U	1	NAG	C8-C7-N2	3.20	121.42	116.12
4	Q	1	NAG	C8-C7-N2	3.17	121.38	116.12
4	M	1	NAG	C8-C7-N2	3.17	121.38	116.12
4	U	1	NAG	O7-C7-C8	-2.65	117.34	122.05
4	M	1	NAG	O7-C7-C8	-2.62	117.39	122.05
4	Q	1	NAG	O7-C7-C8	-2.62	117.40	122.05
4	P	1	NAG	O4-C4-C3	-2.58	104.28	110.38
4	T	1	NAG	O4-C4-C3	-2.58	104.30	110.38
4	K	1	NAG	O4-C4-C3	-2.57	104.32	110.38
4	R	2	NAG	C8-C7-N2	2.45	120.19	116.12
4	I	2	NAG	C8-C7-N2	2.45	120.18	116.12
4	N	2	NAG	C8-C7-N2	2.45	120.17	116.12
4	K	2	NAG	C8-C7-N2	2.20	119.76	116.12
4	J	2	NAG	C8-C7-N2	2.19	119.75	116.12
4	O	2	NAG	C8-C7-N2	2.19	119.75	116.12
4	S	2	NAG	C8-C7-N2	2.19	119.74	116.12
4	P	2	NAG	C8-C7-N2	2.16	119.70	116.12
4	T	2	NAG	C8-C7-N2	2.16	119.70	116.12
4	M	2	NAG	C8-C7-N2	2.06	119.53	116.12
4	M	2	NAG	C1-O5-C5	2.06	114.94	112.19
4	U	2	NAG	C8-C7-N2	2.05	119.53	116.12
4	Q	2	NAG	C8-C7-N2	2.05	119.51	116.12

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	O	1	NAG	C8-C7-N2	2.04	119.50	116.12
4	U	2	NAG	C1-O5-C5	2.04	114.92	112.19
4	Q	2	NAG	C1-O5-C5	2.02	114.89	112.19
4	S	1	NAG	C8-C7-N2	2.02	119.46	116.12
4	J	1	NAG	C8-C7-N2	2.02	119.46	116.12

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	I	1	NAG	C8-C7-N2-C2
4	I	1	NAG	O7-C7-N2-C2
4	N	1	NAG	C8-C7-N2-C2
4	N	1	NAG	O7-C7-N2-C2
4	R	1	NAG	C8-C7-N2-C2
4	R	1	NAG	O7-C7-N2-C2

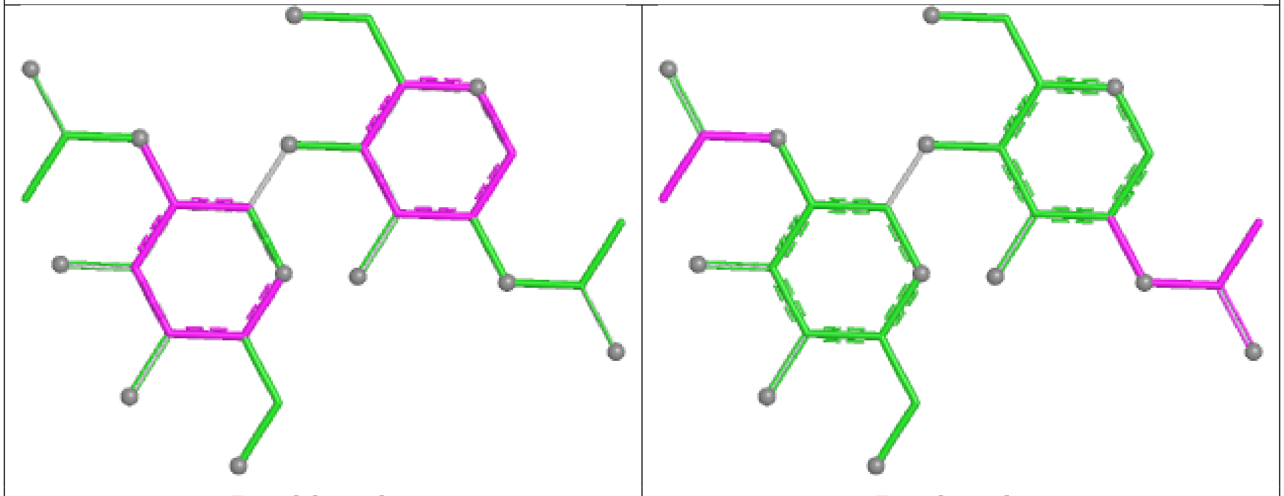
There are no ring outliers.

3 monomers are involved in 3 short contacts:

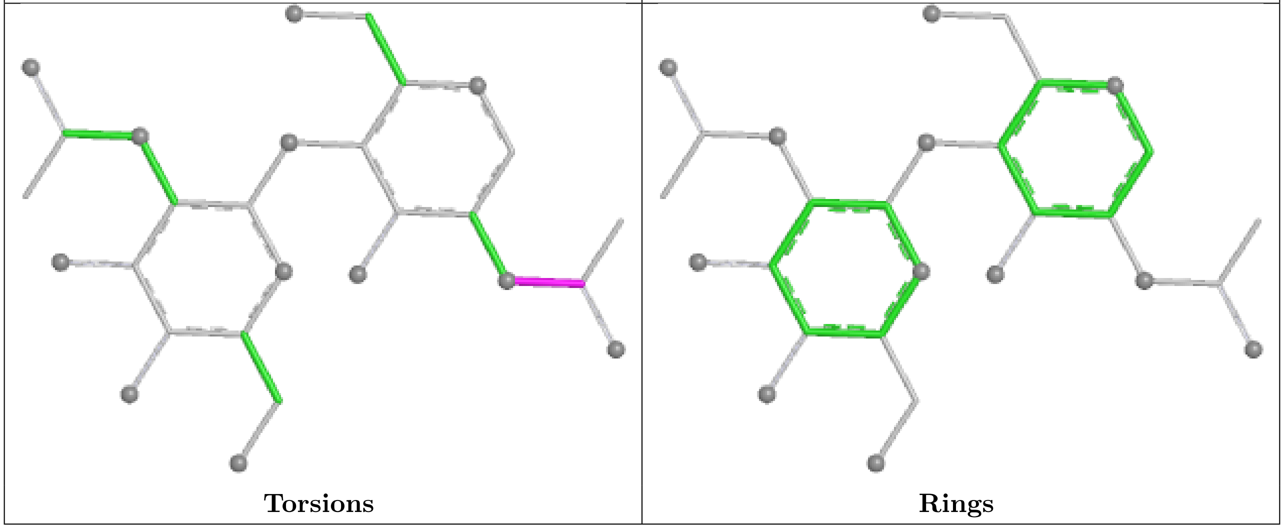
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	M	1	NAG	1	0
4	Q	1	NAG	1	0
4	U	1	NAG	1	0

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 I

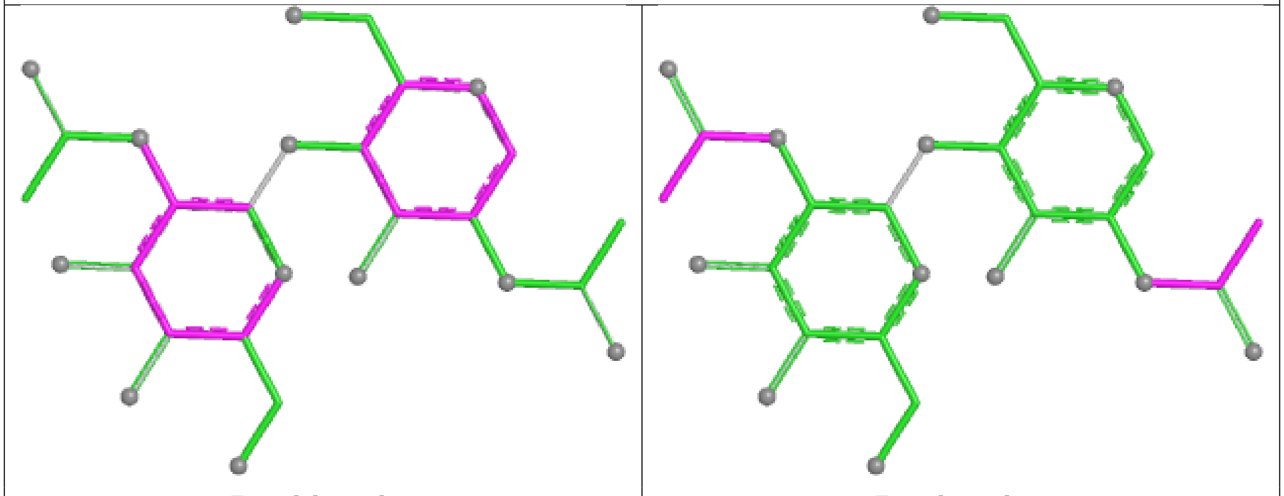


Bond lengths **Bond angles**



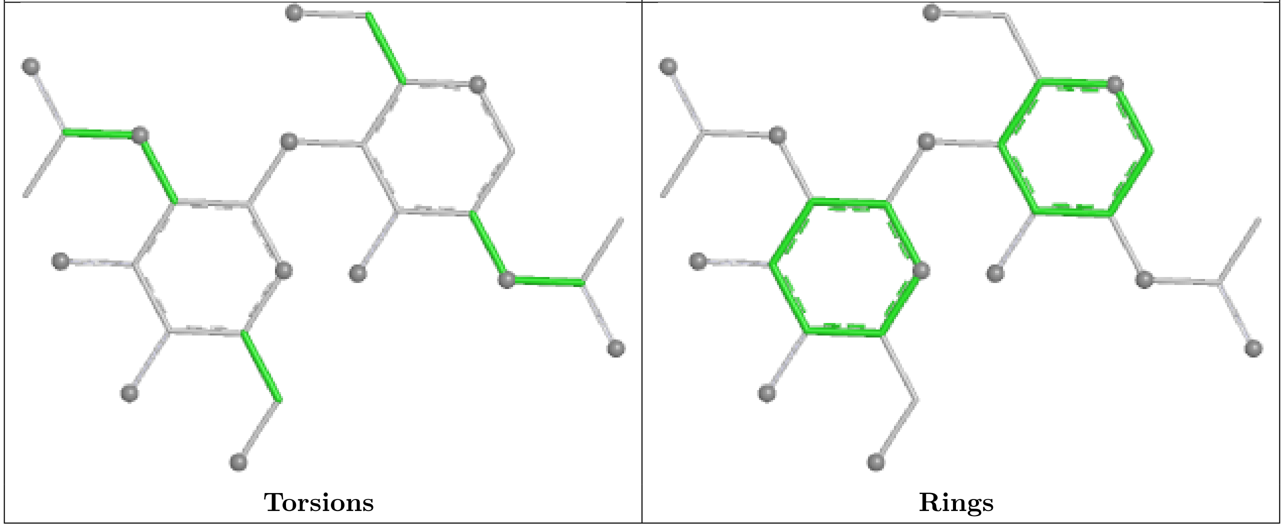
Torsions **Rings**

Oligosaccharide Chain J



Bond lengths

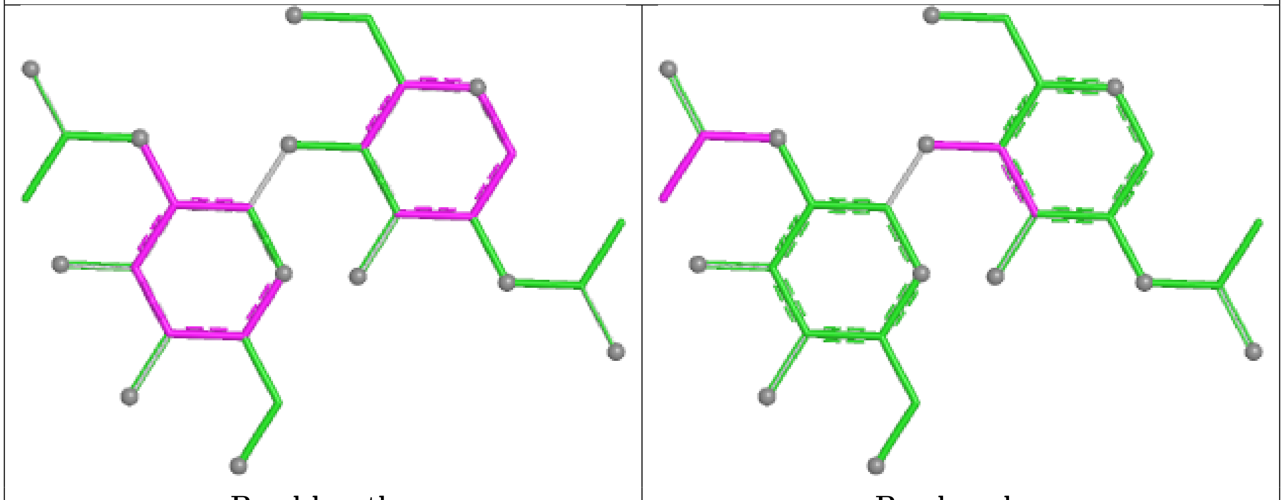
Bond angles



Torsions

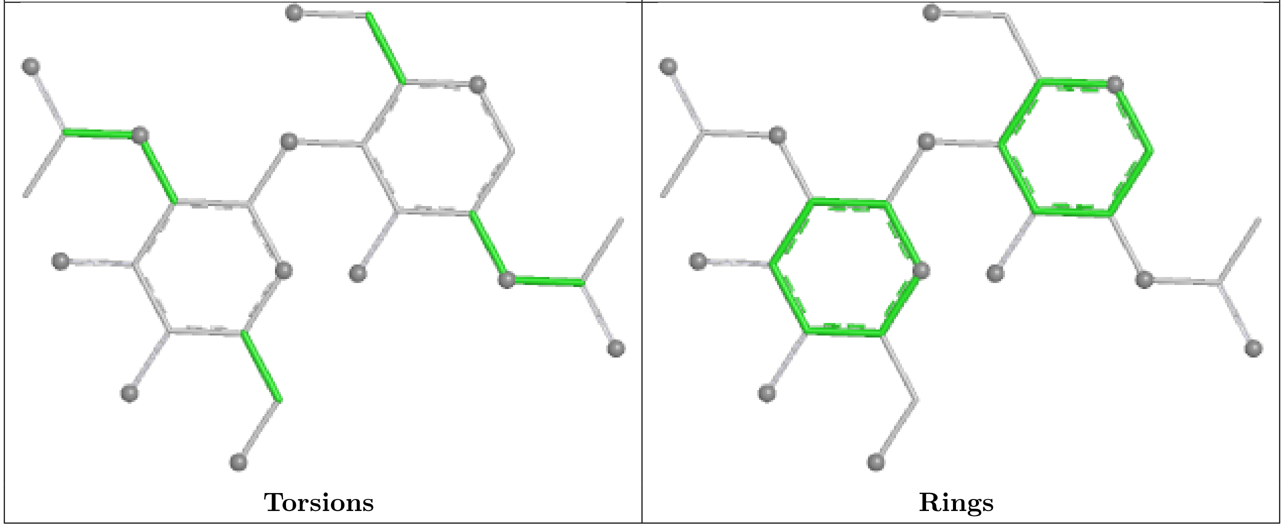
Rings

Oligosaccharide Chain K



Bond lengths

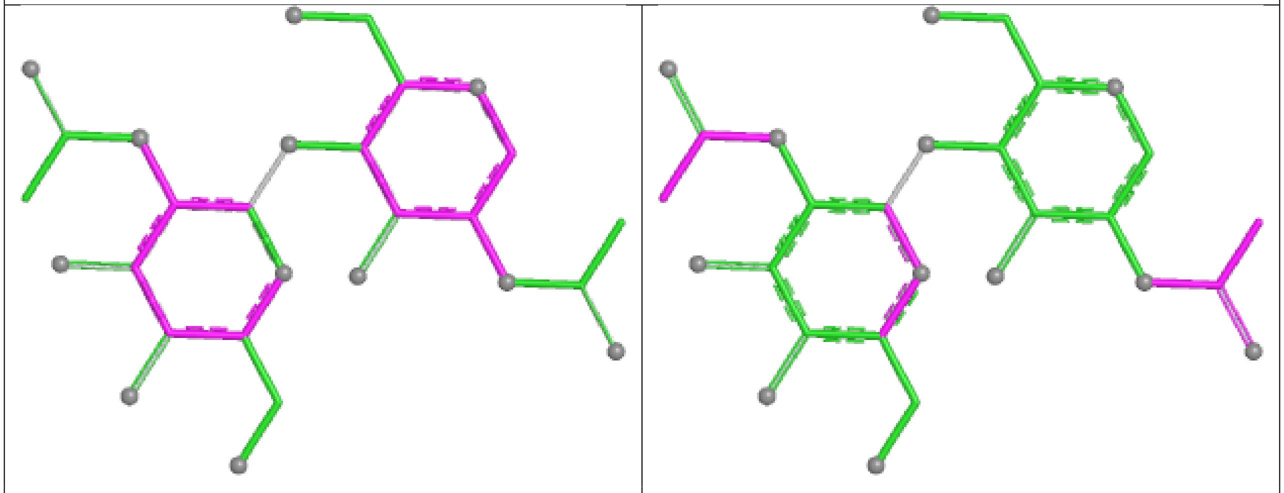
Bond angles



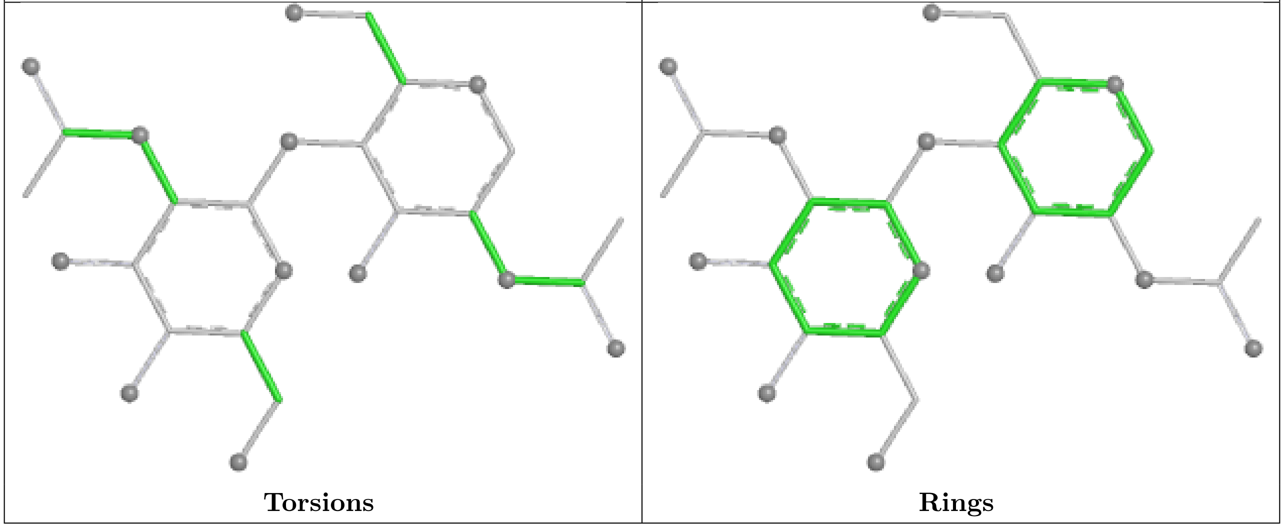
Torsions

Rings

Oligosaccharide Chain M

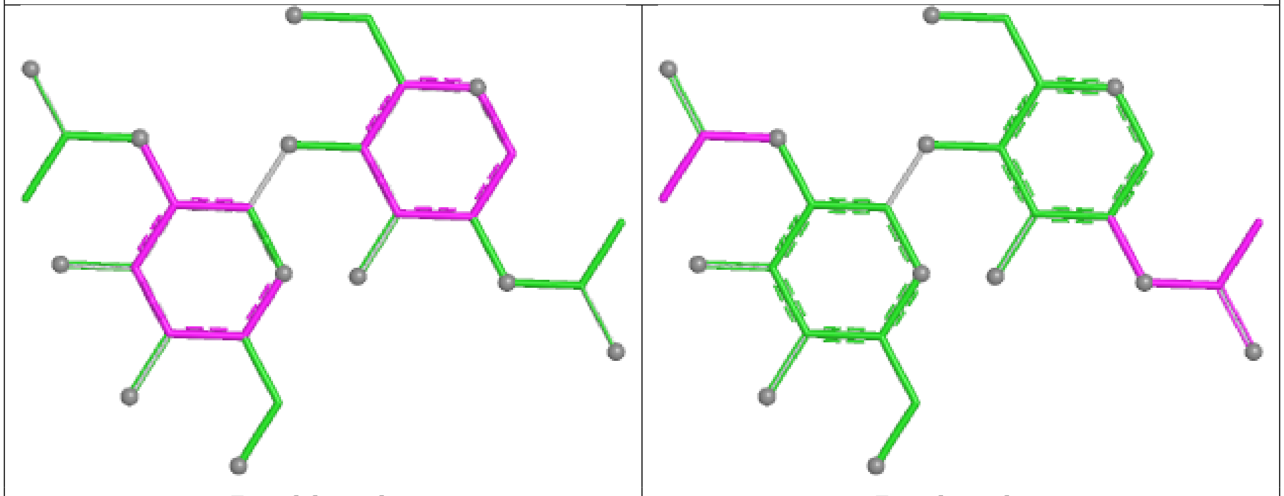


Bond lengths **Bond angles**



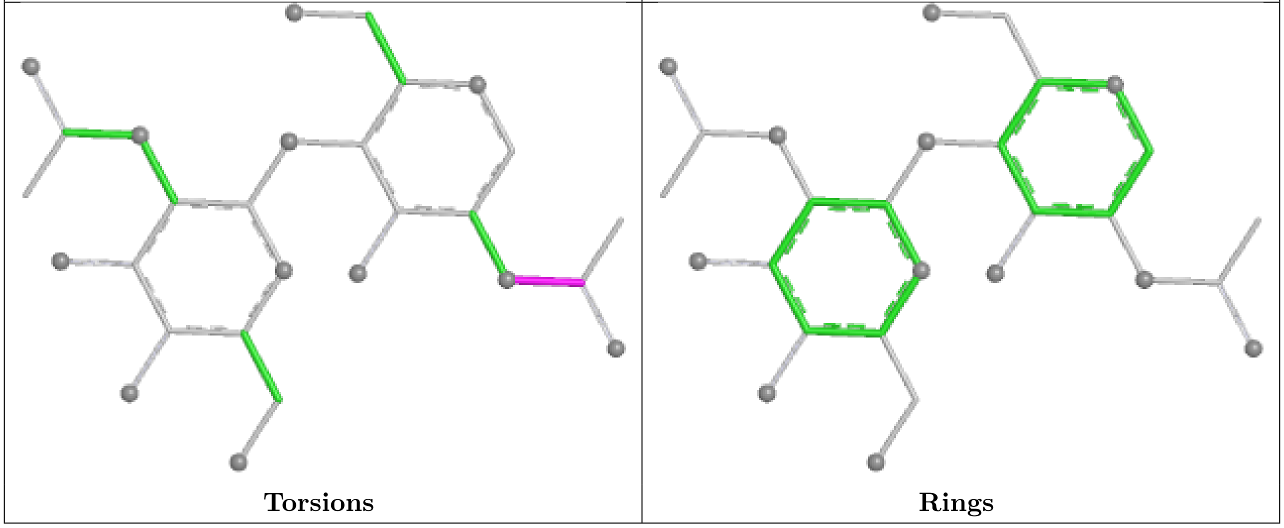
Torsions **Rings**

Oligosaccharide Chain N



Bond lengths

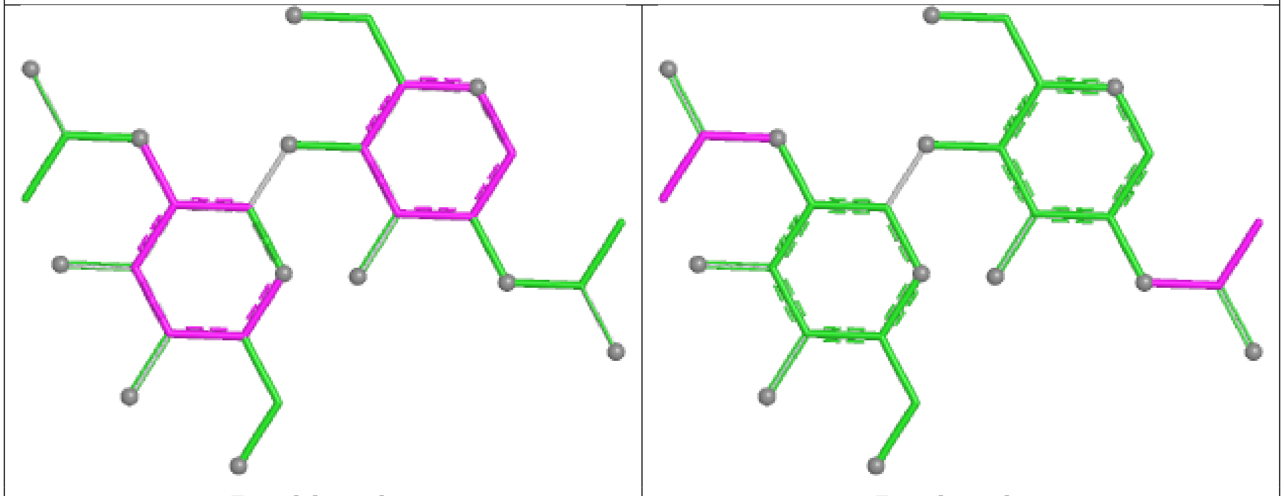
Bond angles



Torsions

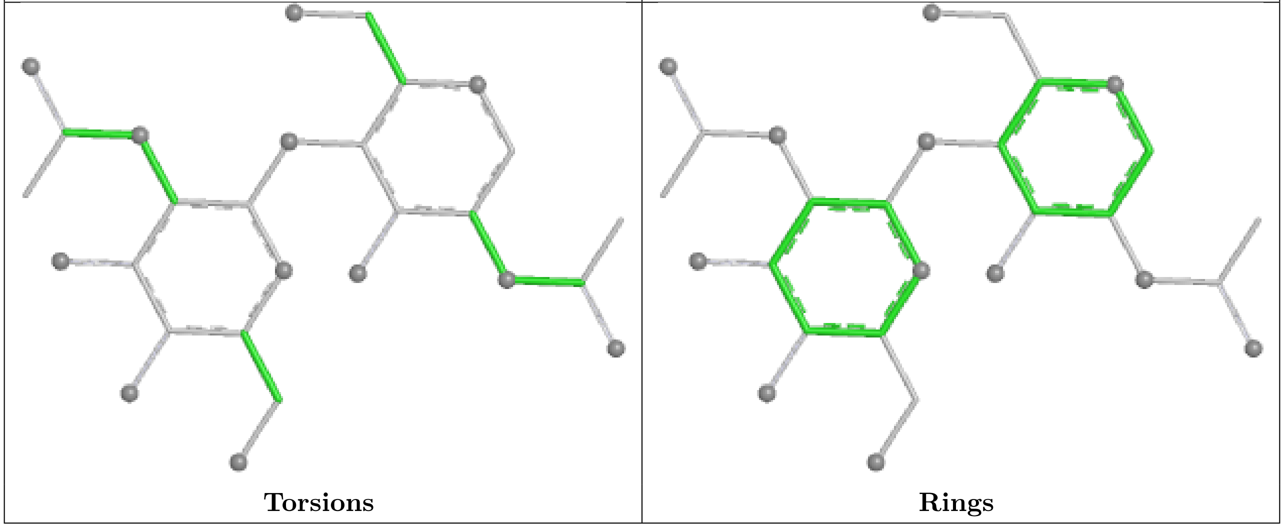
Rings

Oligosaccharide Chain O



Bond lengths

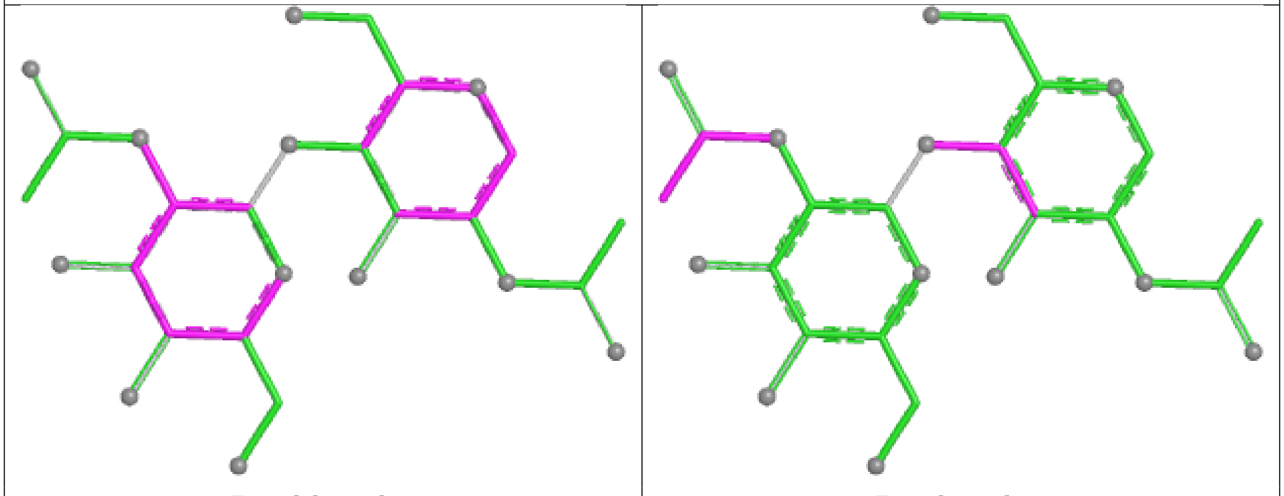
Bond angles



Torsions

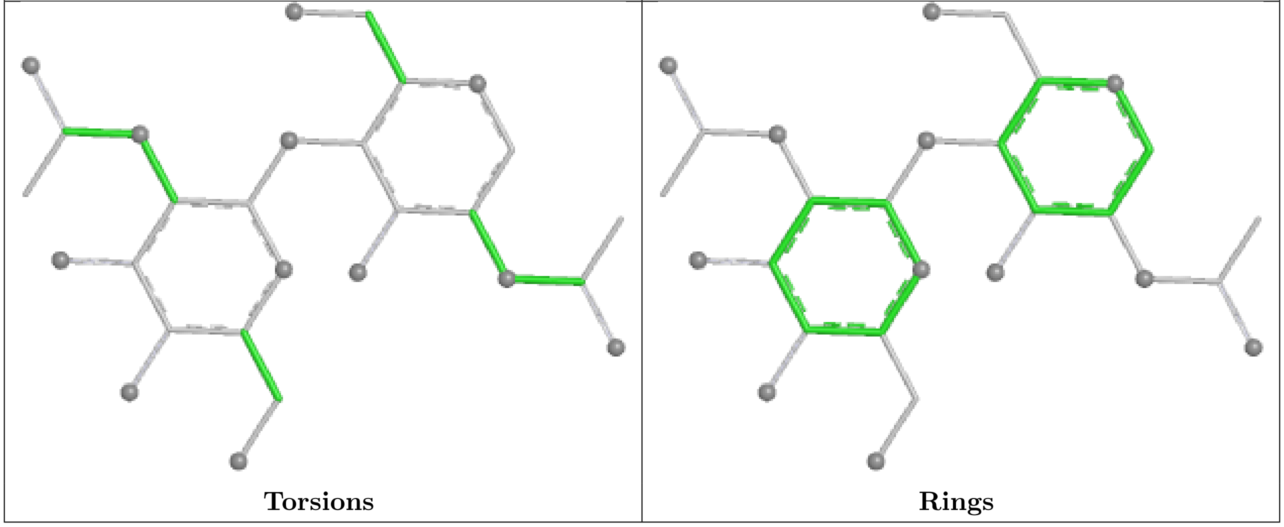
Rings

Oligosaccharide Chain P



Bond lengths

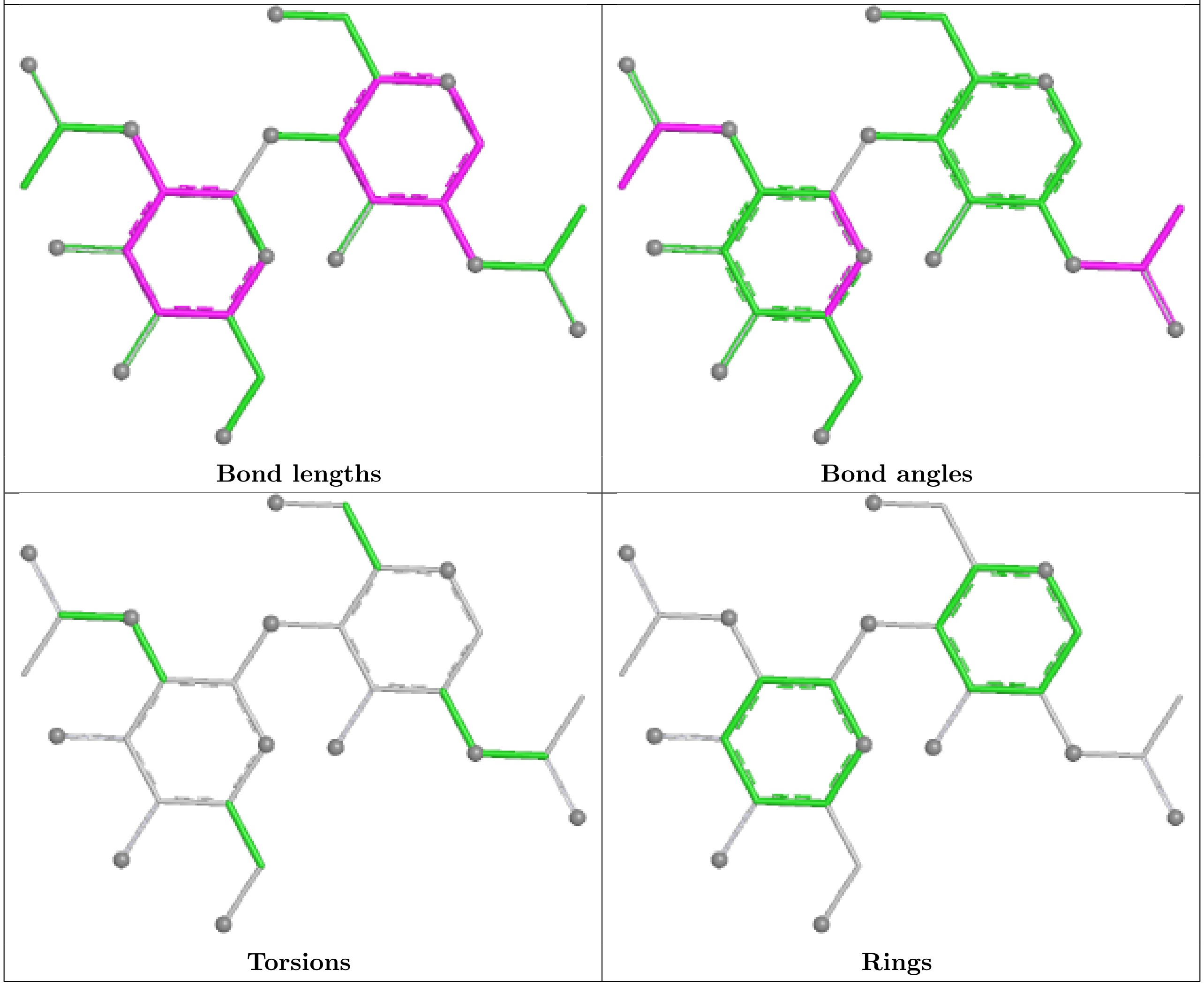
Bond angles



Torsions

Rings

Oligosaccharide Chain Q



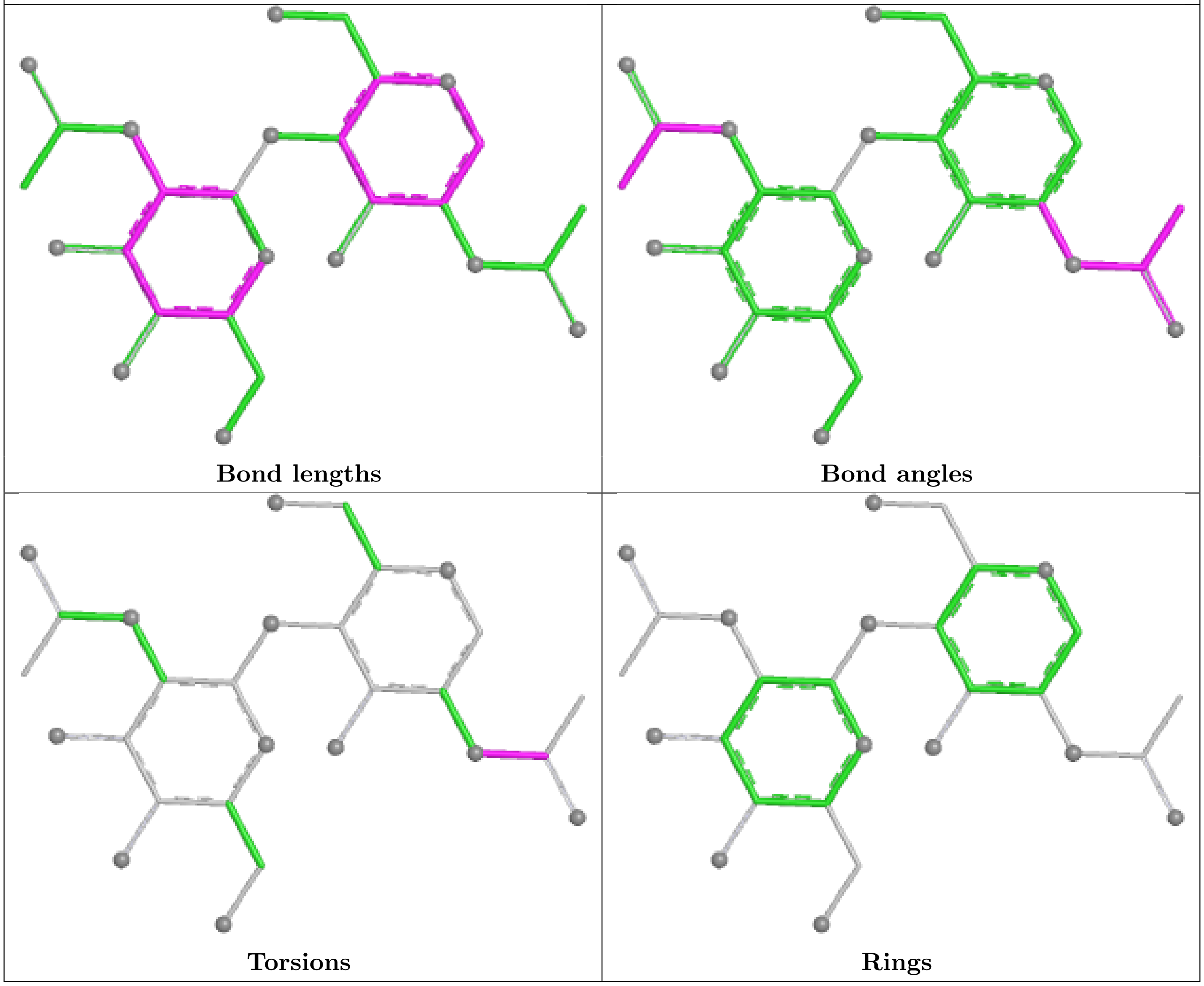
Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain R



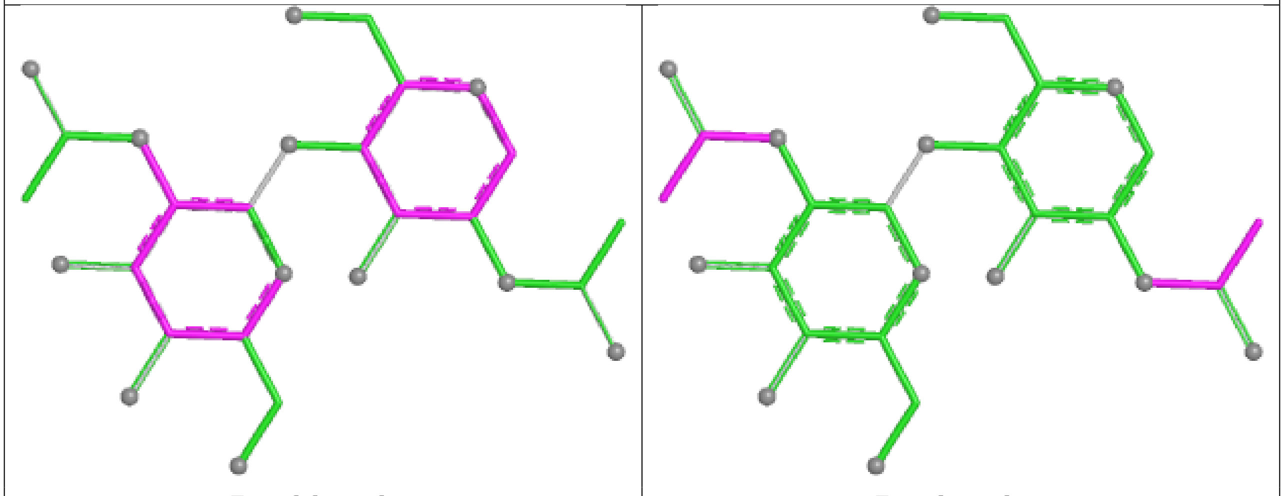
Bond lengths

Bond angles

Torsions

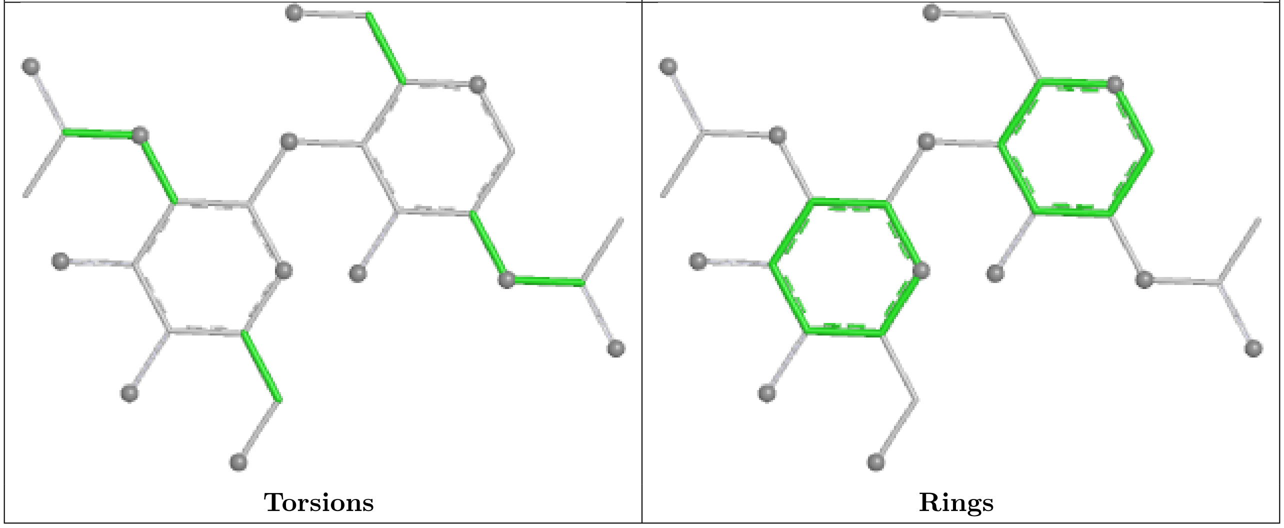
Rings

Oligosaccharide Chain S



Bond lengths

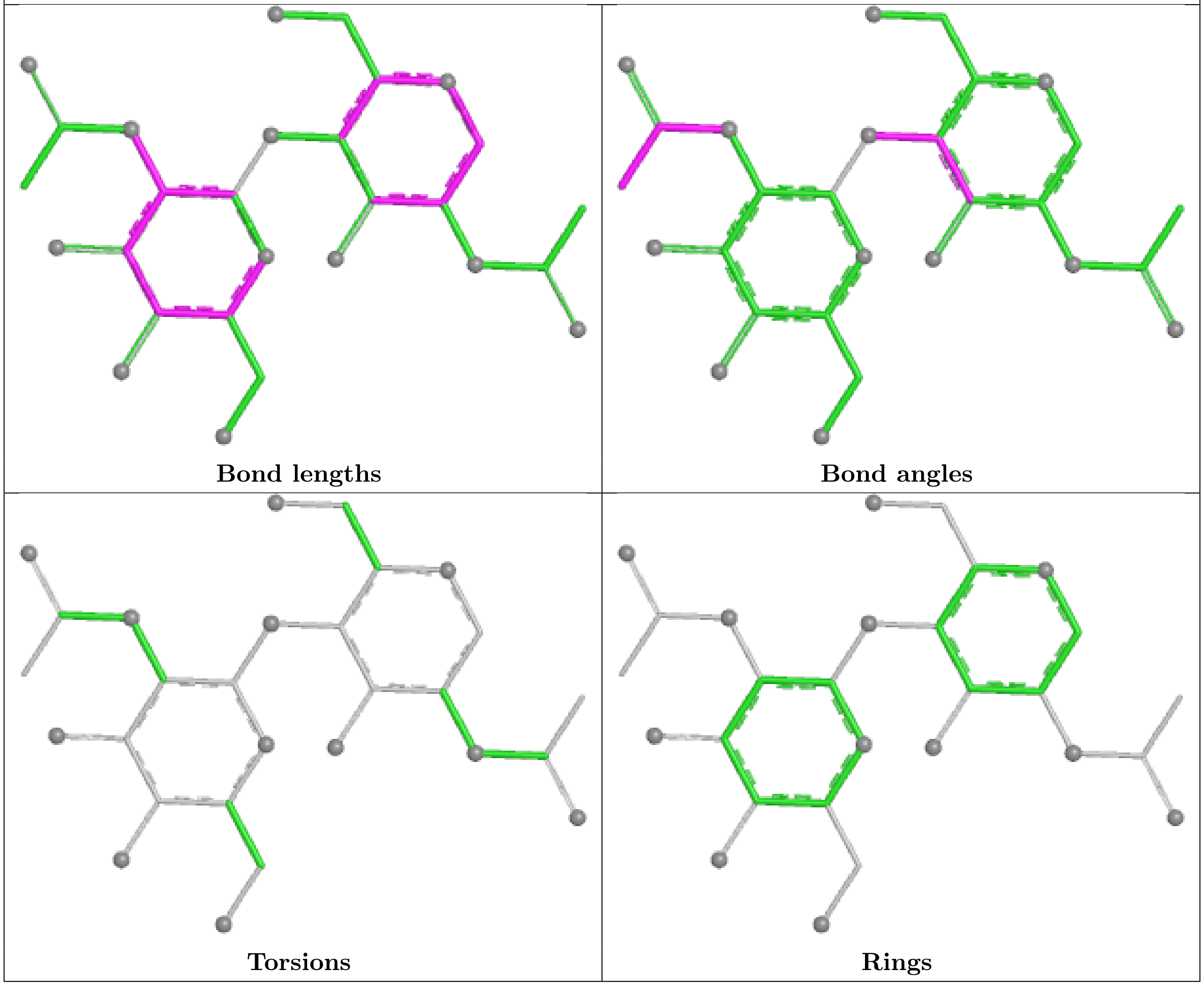
Bond angles



Torsions

Rings

Oligosaccharide Chain T



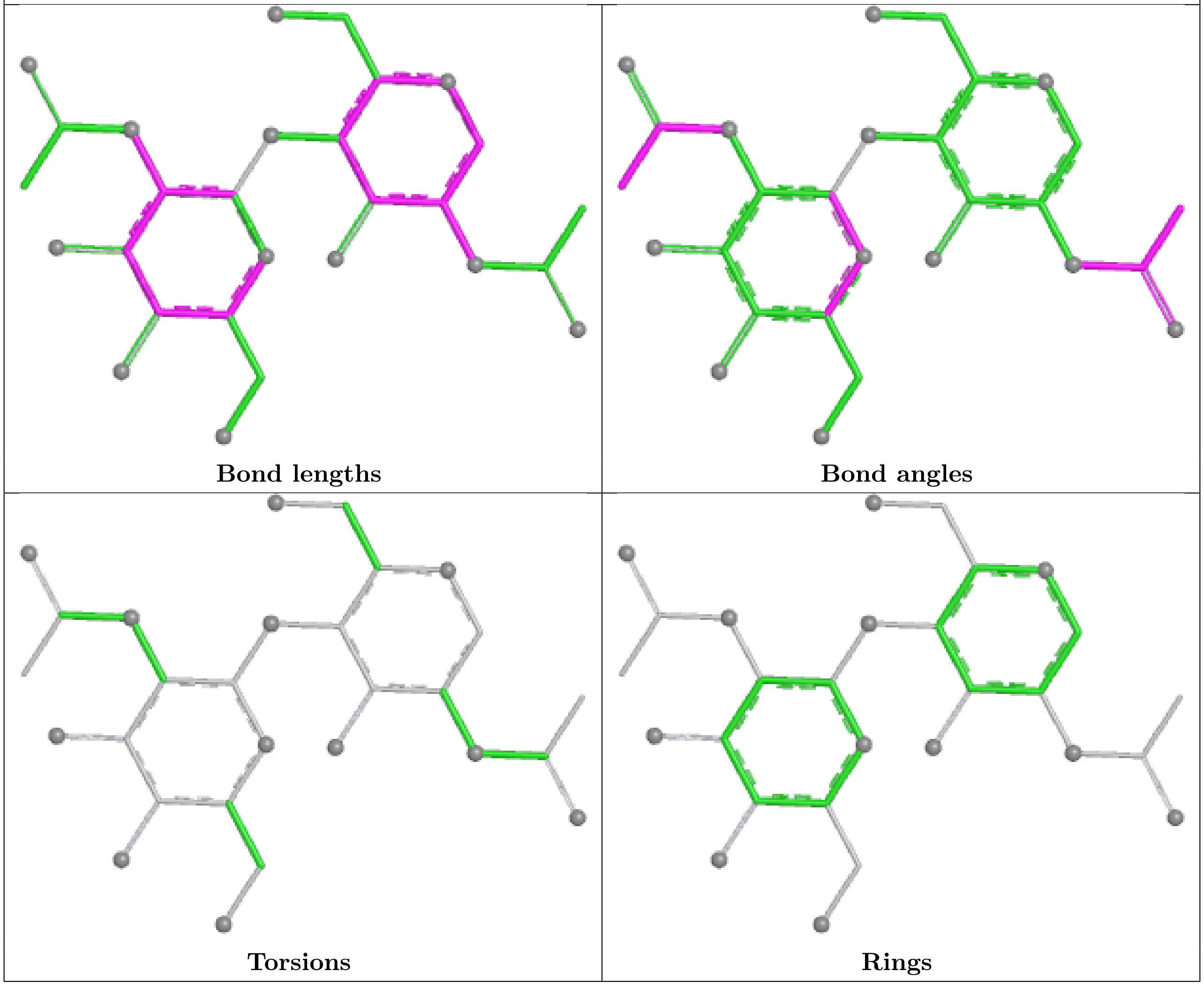
Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain U



5.6 Ligand geometry ⓘ

21 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
5	NAG	A	1303	1	14,14,15	2.25	6 (42%)	17,19,21	0.99	1 (5%)
5	NAG	A	1302	1	14,14,15	2.14	6 (42%)	17,19,21	1.01	1 (5%)
5	NAG	E	1301	1	14,14,15	2.35	6 (42%)	17,19,21	1.06	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$\|Z\|>2$	Counts	RMSZ	#$\|Z\|>2$
5	NAG	E	1306	1	14,14,15	2.23	5 (35%)	17,19,21	1.13	2 (11%)
5	NAG	B	1303	1	14,14,15	2.25	6 (42%)	17,19,21	1.00	1 (5%)
5	NAG	A	1305	1	14,14,15	2.17	5 (35%)	17,19,21	1.15	2 (11%)
5	NAG	E	1307	1	14,14,15	2.32	6 (42%)	17,19,21	1.02	1 (5%)
5	NAG	E	1304	1	14,14,15	2.27	6 (42%)	17,19,21	1.04	2 (11%)
5	NAG	A	1304	1	14,14,15	2.26	6 (42%)	17,19,21	1.04	2 (11%)
5	NAG	E	1303	1	14,14,15	2.24	6 (42%)	17,19,21	1.00	1 (5%)
5	NAG	B	1304	1	14,14,15	2.27	6 (42%)	17,19,21	1.04	2 (11%)
5	NAG	B	1301	1	14,14,15	2.34	6 (42%)	17,19,21	1.06	2 (11%)
5	NAG	A	1306	1	14,14,15	2.23	5 (35%)	17,19,21	1.13	2 (11%)
5	NAG	E	1302	1	14,14,15	2.15	6 (42%)	17,19,21	1.01	1 (5%)
5	NAG	A	1307	1	14,14,15	2.33	6 (42%)	17,19,21	1.01	1 (5%)
5	NAG	B	1307	1	14,14,15	2.33	6 (42%)	17,19,21	1.01	1 (5%)
5	NAG	B	1302	1	14,14,15	2.15	6 (42%)	17,19,21	1.01	1 (5%)
5	NAG	B	1306	1	14,14,15	2.22	5 (35%)	17,19,21	1.13	2 (11%)
5	NAG	B	1305	1	14,14,15	2.17	5 (35%)	17,19,21	1.15	2 (11%)
5	NAG	A	1301	1	14,14,15	2.33	6 (42%)	17,19,21	1.06	2 (11%)
5	NAG	E	1305	1	14,14,15	2.17	5 (35%)	17,19,21	1.15	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
5	NAG	A	1303	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1302	1	-	0/6/23/26	0/1/1/1
5	NAG	E	1301	1	-	0/6/23/26	0/1/1/1
5	NAG	E	1306	1	-	1/6/23/26	0/1/1/1
5	NAG	B	1303	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1305	1	-	1/6/23/26	0/1/1/1
5	NAG	E	1307	1	-	0/6/23/26	0/1/1/1
5	NAG	E	1304	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1304	1	-	0/6/23/26	0/1/1/1
5	NAG	E	1303	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1304	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1301	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1306	1	-	1/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	E	1302	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1307	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1307	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1302	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1306	1	-	1/6/23/26	0/1/1/1
5	NAG	B	1305	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1301	1	-	0/6/23/26	0/1/1/1
5	NAG	E	1305	1	-	1/6/23/26	0/1/1/1

All (120) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	1307	NAG	C1-C2	6.18	1.60	1.52
5	A	1307	NAG	C1-C2	6.17	1.60	1.52
5	E	1307	NAG	C1-C2	6.17	1.60	1.52
5	E	1301	NAG	C1-C2	6.17	1.60	1.52
5	B	1301	NAG	C1-C2	6.14	1.60	1.52
5	A	1301	NAG	C1-C2	6.12	1.60	1.52
5	E	1304	NAG	C1-C2	6.11	1.60	1.52
5	B	1304	NAG	C1-C2	6.11	1.60	1.52
5	A	1304	NAG	C1-C2	6.10	1.60	1.52
5	A	1306	NAG	C1-C2	6.07	1.60	1.52
5	E	1306	NAG	C1-C2	6.07	1.60	1.52
5	B	1306	NAG	C1-C2	6.05	1.60	1.52
5	B	1303	NAG	C1-C2	5.66	1.60	1.52
5	A	1303	NAG	C1-C2	5.63	1.60	1.52
5	E	1303	NAG	C1-C2	5.59	1.60	1.52
5	B	1305	NAG	C1-C2	5.53	1.59	1.52
5	E	1305	NAG	C1-C2	5.52	1.59	1.52
5	A	1305	NAG	C1-C2	5.51	1.59	1.52
5	B	1302	NAG	C1-C2	5.40	1.59	1.52
5	E	1302	NAG	C1-C2	5.38	1.59	1.52
5	A	1302	NAG	C1-C2	5.36	1.59	1.52
5	B	1303	NAG	O5-C5	3.49	1.50	1.43
5	A	1303	NAG	O5-C5	3.47	1.50	1.43
5	E	1303	NAG	O5-C5	3.47	1.50	1.43
5	E	1301	NAG	O5-C5	3.39	1.50	1.43
5	A	1301	NAG	O5-C5	3.39	1.50	1.43
5	B	1301	NAG	O5-C5	3.39	1.50	1.43
5	A	1307	NAG	O5-C5	3.28	1.49	1.43
5	E	1307	NAG	O5-C5	3.26	1.49	1.43
5	B	1307	NAG	O5-C5	3.26	1.49	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	1305	NAG	O5-C5	3.24	1.49	1.43
5	E	1305	NAG	O5-C5	3.23	1.49	1.43
5	A	1302	NAG	O5-C5	3.20	1.49	1.43
5	B	1305	NAG	O5-C5	3.19	1.49	1.43
5	B	1302	NAG	O5-C5	3.19	1.49	1.43
5	E	1302	NAG	O5-C5	3.17	1.49	1.43
5	B	1304	NAG	O5-C5	3.06	1.49	1.43
5	A	1304	NAG	O5-C5	3.05	1.49	1.43
5	E	1306	NAG	O5-C5	3.04	1.49	1.43
5	A	1306	NAG	O5-C5	3.04	1.49	1.43
5	E	1304	NAG	O5-C5	3.04	1.49	1.43
5	B	1306	NAG	O5-C5	3.03	1.49	1.43
5	B	1305	NAG	O5-C1	2.76	1.48	1.43
5	E	1305	NAG	O5-C1	2.75	1.48	1.43
5	A	1305	NAG	O5-C1	2.75	1.48	1.43
5	B	1301	NAG	O5-C1	2.74	1.48	1.43
5	E	1301	NAG	O5-C1	2.71	1.48	1.43
5	B	1307	NAG	O5-C1	2.71	1.48	1.43
5	A	1307	NAG	O5-C1	2.69	1.48	1.43
5	A	1301	NAG	O5-C1	2.69	1.48	1.43
5	A	1306	NAG	O5-C1	2.68	1.48	1.43
5	E	1307	NAG	O5-C1	2.67	1.48	1.43
5	A	1303	NAG	O5-C1	2.66	1.48	1.43
5	E	1303	NAG	O5-C1	2.66	1.48	1.43
5	E	1306	NAG	O5-C1	2.65	1.48	1.43
5	B	1306	NAG	O5-C1	2.63	1.48	1.43
5	B	1303	NAG	O5-C1	2.62	1.48	1.43
5	E	1302	NAG	O5-C1	2.61	1.48	1.43
5	E	1304	NAG	O5-C1	2.61	1.48	1.43
5	B	1302	NAG	O5-C1	2.60	1.48	1.43
5	A	1302	NAG	O5-C1	2.58	1.48	1.43
5	B	1304	NAG	O5-C1	2.58	1.48	1.43
5	A	1304	NAG	O5-C1	2.57	1.48	1.43
5	B	1301	NAG	C3-C2	2.40	1.57	1.52
5	E	1301	NAG	C3-C2	2.39	1.57	1.52
5	A	1301	NAG	C3-C2	2.38	1.57	1.52
5	E	1303	NAG	C3-C2	2.37	1.57	1.52
5	A	1303	NAG	C3-C2	2.36	1.57	1.52
5	B	1303	NAG	C3-C2	2.35	1.57	1.52
5	B	1307	NAG	C3-C2	2.35	1.57	1.52
5	A	1307	NAG	C3-C2	2.34	1.57	1.52
5	E	1307	NAG	C3-C2	2.33	1.57	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	1303	NAG	C4-C5	2.26	1.57	1.53
5	A	1303	NAG	C4-C5	2.25	1.57	1.53
5	B	1304	NAG	C3-C2	2.25	1.57	1.52
5	E	1305	NAG	C3-C2	2.25	1.57	1.52
5	B	1306	NAG	C3-C2	2.25	1.57	1.52
5	A	1306	NAG	C3-C2	2.25	1.57	1.52
5	B	1303	NAG	C4-C5	2.25	1.57	1.53
5	A	1305	NAG	C3-C2	2.24	1.57	1.52
5	E	1306	NAG	C3-C2	2.24	1.57	1.52
5	A	1304	NAG	C3-C2	2.24	1.57	1.52
5	B	1305	NAG	C3-C2	2.23	1.57	1.52
5	E	1304	NAG	C3-C2	2.22	1.57	1.52
5	A	1305	NAG	C4-C5	2.21	1.57	1.53
5	E	1302	NAG	C3-C2	2.21	1.57	1.52
5	A	1307	NAG	C4-C5	2.21	1.57	1.53
5	E	1307	NAG	C4-C5	2.20	1.57	1.53
5	B	1305	NAG	C4-C5	2.20	1.57	1.53
5	B	1307	NAG	C4-C5	2.20	1.57	1.53
5	E	1305	NAG	C4-C5	2.20	1.57	1.53
5	E	1301	NAG	C4-C5	2.20	1.57	1.53
5	B	1301	NAG	C4-C5	2.20	1.57	1.53
5	E	1302	NAG	C4-C5	2.20	1.57	1.53
5	A	1302	NAG	C3-C2	2.19	1.57	1.52
5	A	1302	NAG	C4-C5	2.19	1.57	1.53
5	A	1301	NAG	C4-C5	2.19	1.57	1.53
5	B	1302	NAG	C3-C2	2.19	1.57	1.52
5	E	1304	NAG	C4-C5	2.18	1.57	1.53
5	B	1304	NAG	C4-C5	2.15	1.57	1.53
5	B	1302	NAG	C4-C5	2.14	1.57	1.53
5	A	1304	NAG	C4-C5	2.14	1.57	1.53
5	E	1306	NAG	C4-C5	2.10	1.57	1.53
5	A	1304	NAG	C2-N2	2.10	1.49	1.46
5	B	1304	NAG	C2-N2	2.10	1.49	1.46
5	E	1307	NAG	C2-N2	2.10	1.49	1.46
5	E	1301	NAG	C2-N2	2.09	1.49	1.46
5	E	1304	NAG	C2-N2	2.08	1.49	1.46
5	E	1303	NAG	C2-N2	2.07	1.49	1.46
5	B	1306	NAG	C4-C5	2.07	1.57	1.53
5	A	1301	NAG	C2-N2	2.06	1.49	1.46
5	A	1307	NAG	C2-N2	2.06	1.49	1.46
5	B	1303	NAG	C2-N2	2.05	1.49	1.46
5	B	1307	NAG	C2-N2	2.05	1.49	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	A	1306	NAG	C4-C5	2.05	1.57	1.53
5	B	1302	NAG	C4-C3	2.05	1.57	1.52
5	A	1303	NAG	C2-N2	2.05	1.49	1.46
5	B	1301	NAG	C2-N2	2.03	1.49	1.46
5	A	1302	NAG	C4-C3	2.02	1.57	1.52
5	E	1302	NAG	C4-C3	2.02	1.57	1.52

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	B	1304	NAG	C8-C7-N2	2.62	120.47	116.12
5	A	1304	NAG	C8-C7-N2	2.61	120.45	116.12
5	E	1304	NAG	C8-C7-N2	2.61	120.44	116.12
5	A	1301	NAG	C8-C7-N2	2.59	120.42	116.12
5	E	1301	NAG	C8-C7-N2	2.59	120.41	116.12
5	B	1301	NAG	C8-C7-N2	2.58	120.40	116.12
5	A	1305	NAG	C8-C7-N2	2.56	120.36	116.12
5	E	1305	NAG	C8-C7-N2	2.55	120.34	116.12
5	B	1305	NAG	C8-C7-N2	2.53	120.31	116.12
5	A	1302	NAG	C8-C7-N2	2.32	119.96	116.12
5	E	1302	NAG	C8-C7-N2	2.30	119.93	116.12
5	B	1302	NAG	C8-C7-N2	2.28	119.90	116.12
5	E	1303	NAG	C8-C7-N2	2.25	119.85	116.12
5	B	1303	NAG	C8-C7-N2	2.25	119.85	116.12
5	A	1303	NAG	C8-C7-N2	2.24	119.84	116.12
5	B	1307	NAG	C8-C7-N2	2.24	119.83	116.12
5	E	1307	NAG	C8-C7-N2	2.23	119.82	116.12
5	A	1307	NAG	C8-C7-N2	2.22	119.80	116.12
5	A	1301	NAG	O7-C7-C8	-2.15	118.23	122.05
5	B	1306	NAG	O7-C7-C8	-2.15	118.23	122.05
5	E	1301	NAG	O7-C7-C8	-2.14	118.24	122.05
5	A	1305	NAG	O7-C7-C8	-2.13	118.27	122.05
5	E	1306	NAG	O7-C7-C8	-2.13	118.27	122.05
5	E	1306	NAG	C1-O5-C5	2.12	115.03	112.19
5	E	1305	NAG	O7-C7-C8	-2.12	118.27	122.05
5	A	1306	NAG	O7-C7-C8	-2.12	118.27	122.05
5	A	1306	NAG	C1-O5-C5	2.12	115.03	112.19
5	B	1301	NAG	O7-C7-C8	-2.11	118.29	122.05
5	B	1306	NAG	C1-O5-C5	2.11	115.02	112.19
5	B	1305	NAG	O7-C7-C8	-2.10	118.32	122.05
5	B	1304	NAG	O7-C7-C8	-2.10	118.32	122.05
5	A	1304	NAG	O7-C7-C8	-2.09	118.34	122.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	E	1304	NAG	O7-C7-C8	-2.08	118.35	122.05

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	1305	NAG	O5-C5-C6-O6
5	B	1305	NAG	O5-C5-C6-O6
5	E	1305	NAG	O5-C5-C6-O6
5	A	1306	NAG	O5-C5-C6-O6
5	B	1306	NAG	O5-C5-C6-O6
5	E	1306	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

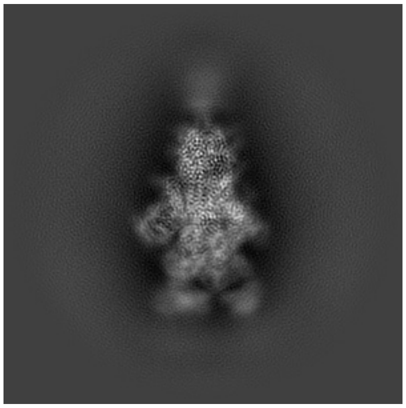
6 Map visualisation

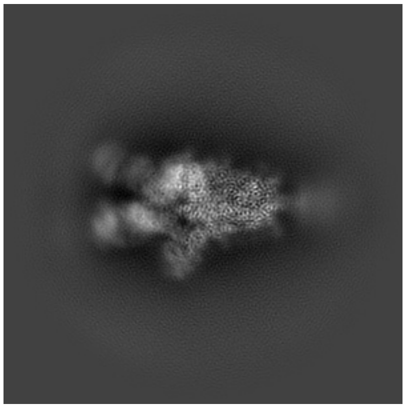
This section contains visualisations of the EMDB entry EMD-24878. These allow visual inspection of the internal detail of the map and identification of artifacts.

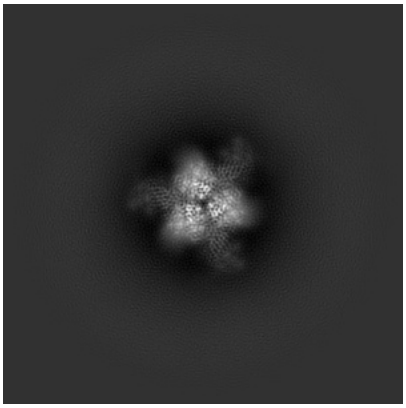
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

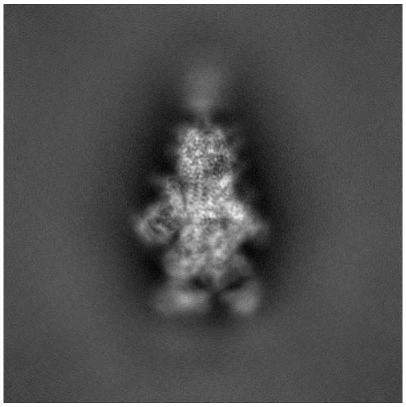
6.1.1 Primary map

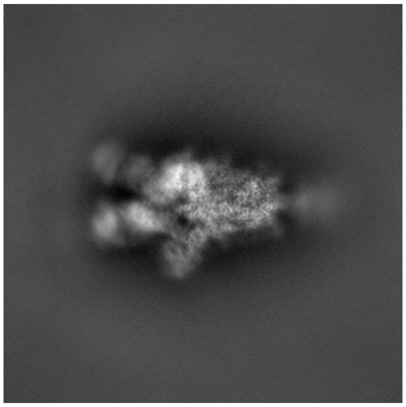

X

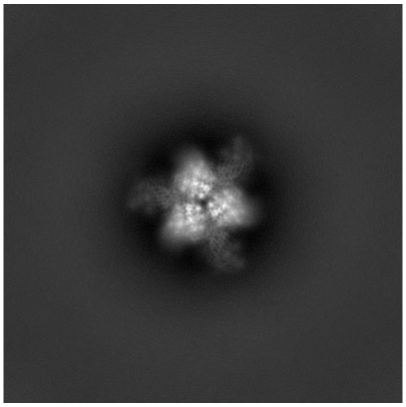

Y


Z

6.1.2 Raw map


X

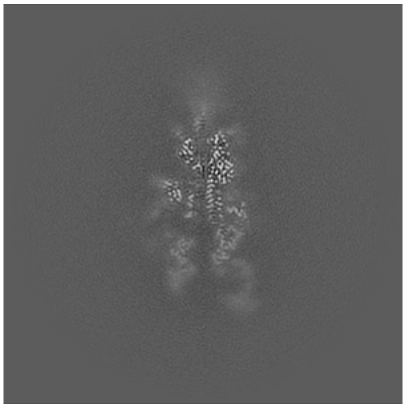

Y

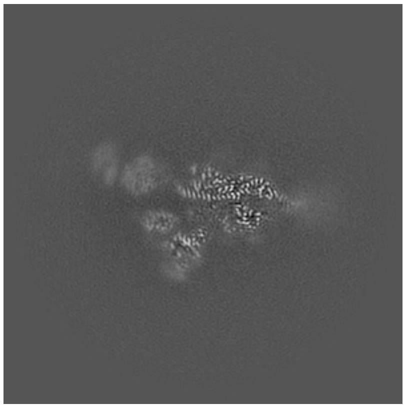

Z

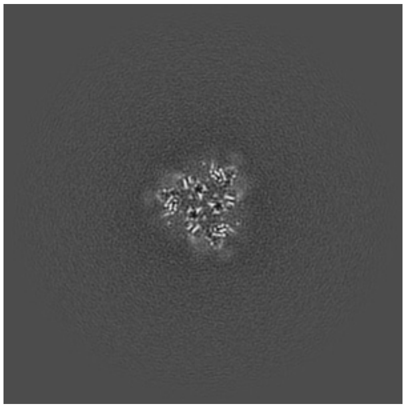
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

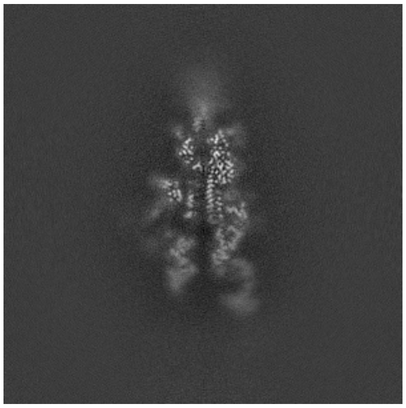
6.2.1 Primary map

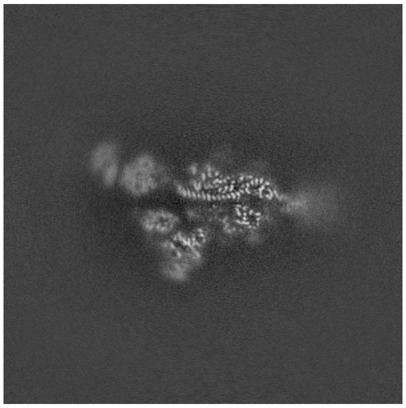

X Index: 192

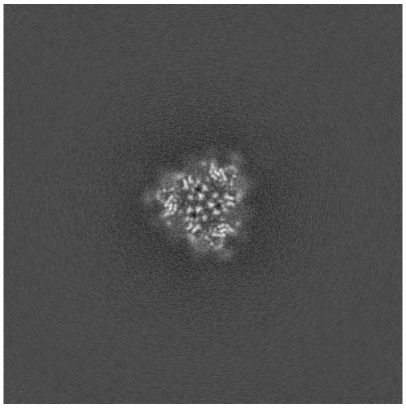

Y Index: 192


Z Index: 192

6.2.2 Raw map


X Index: 192

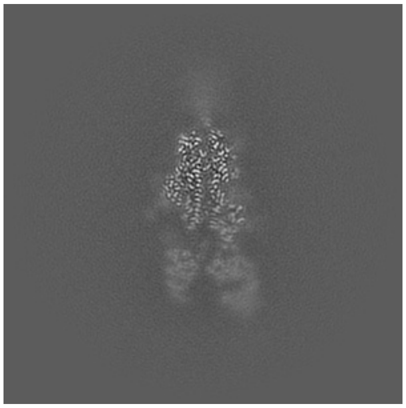

Y Index: 192


Z Index: 192

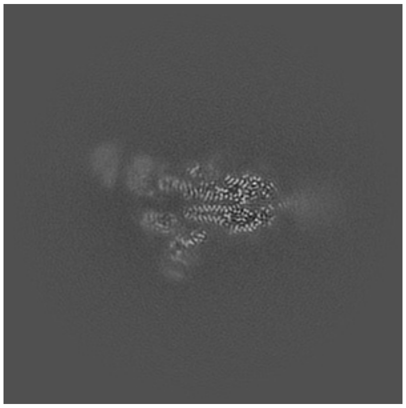
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

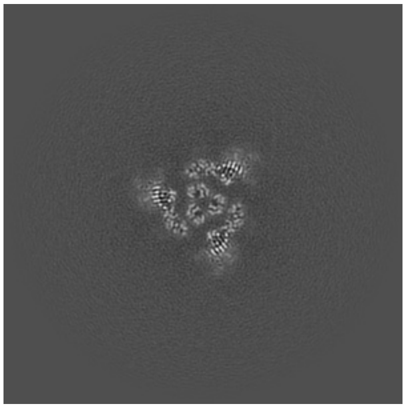
6.3.1 Primary map



X Index: 185

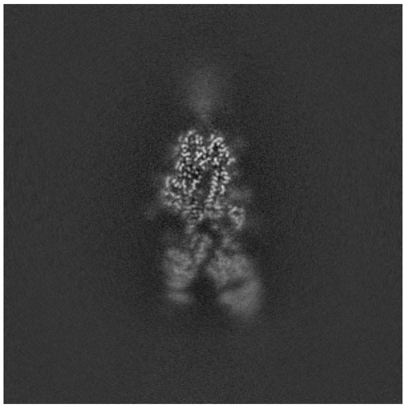


Y Index: 188

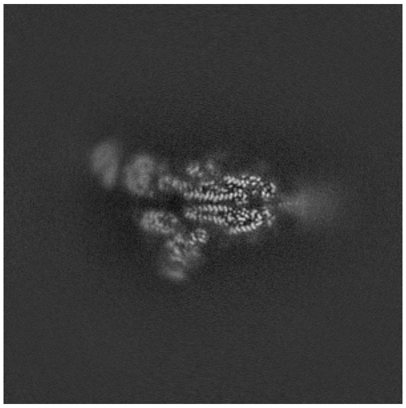


Z Index: 180

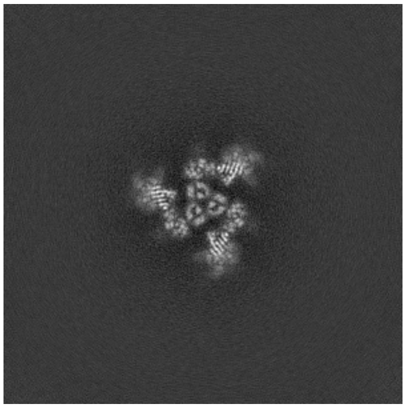
6.3.2 Raw map



X Index: 182



Y Index: 189

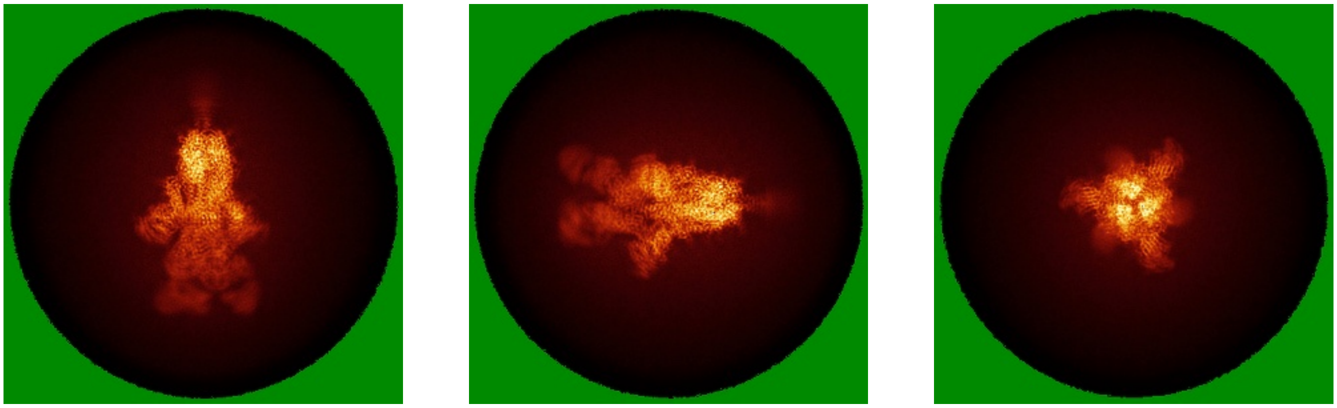


Z Index: 179

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

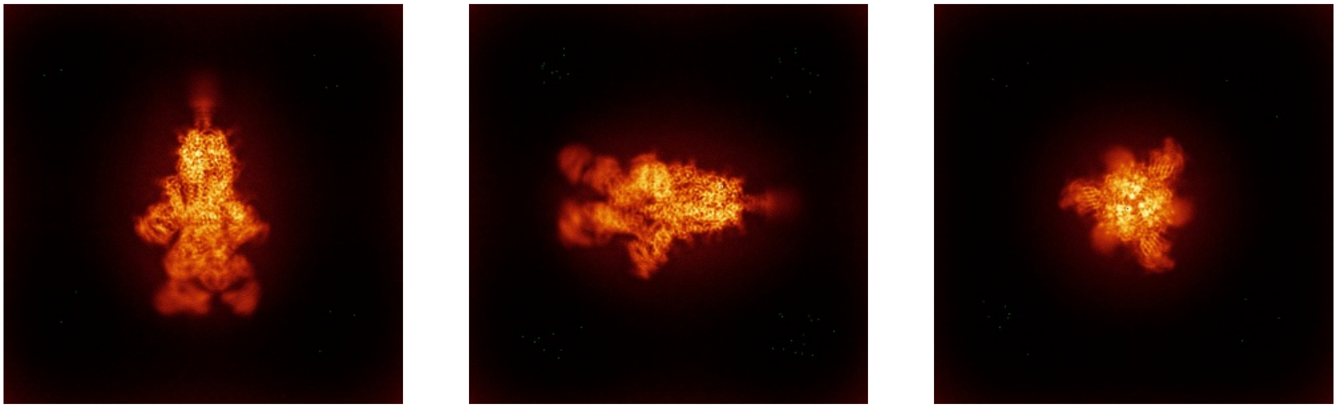
6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map



X Y Z

6.4.2 Raw map

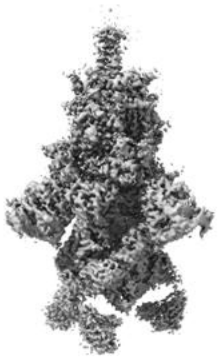


X Y Z

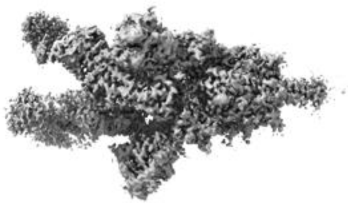
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views

6.5.1 Primary map



X



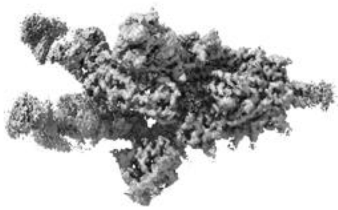
Y

Z

The images above show the 3D surface view of the map at the recommended contour level 0.2. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map

X



Y

Z

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

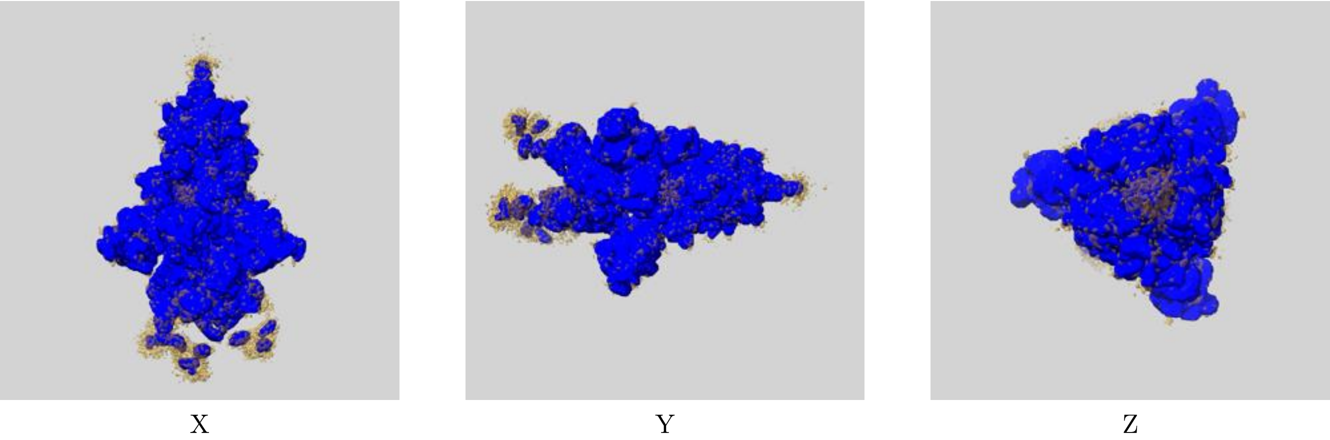
6.6 Mask visualisation ⓘ

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

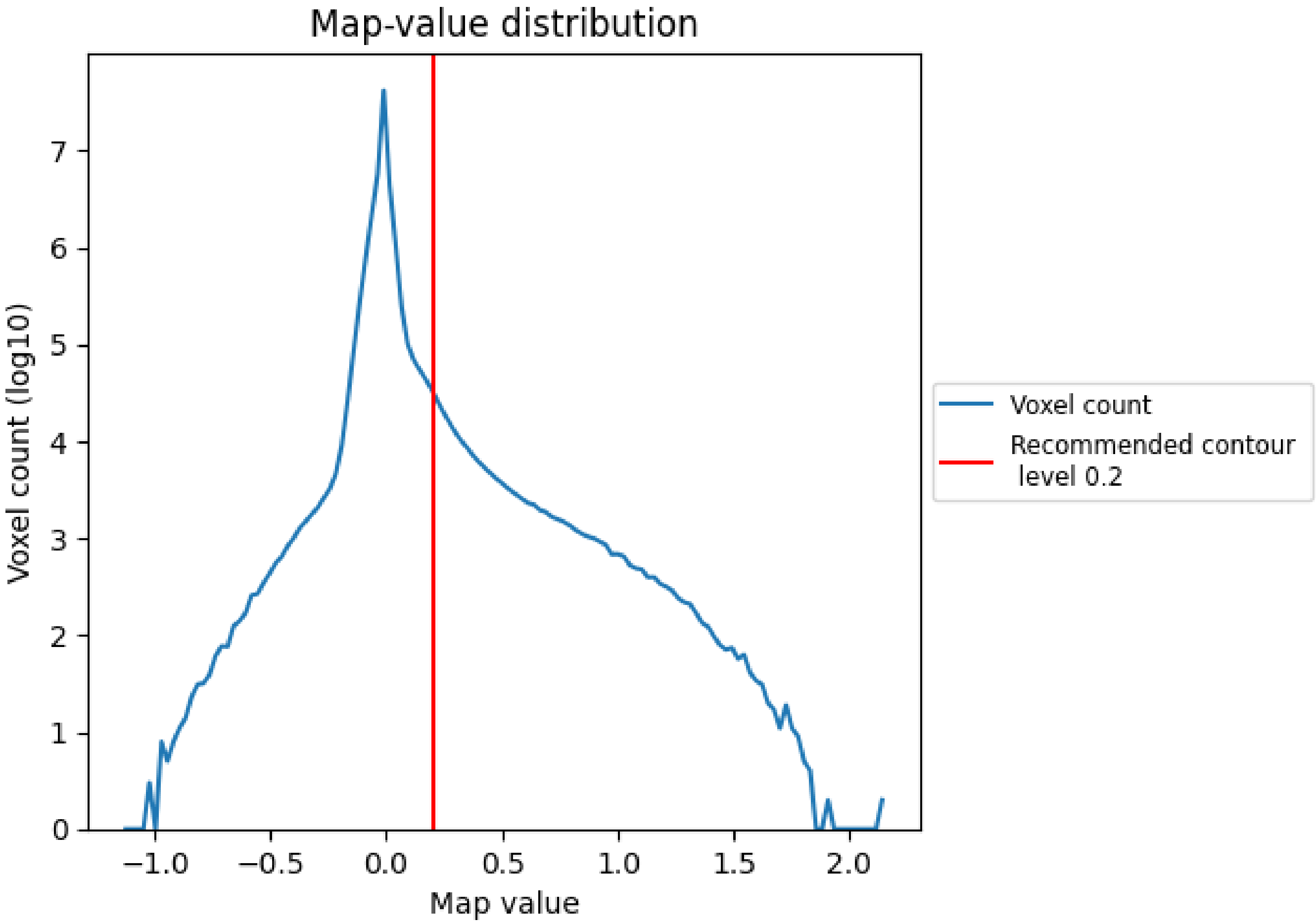
6.6.1 emd_24878_msk_1.map ⓘ



7 Map analysis ⓘ

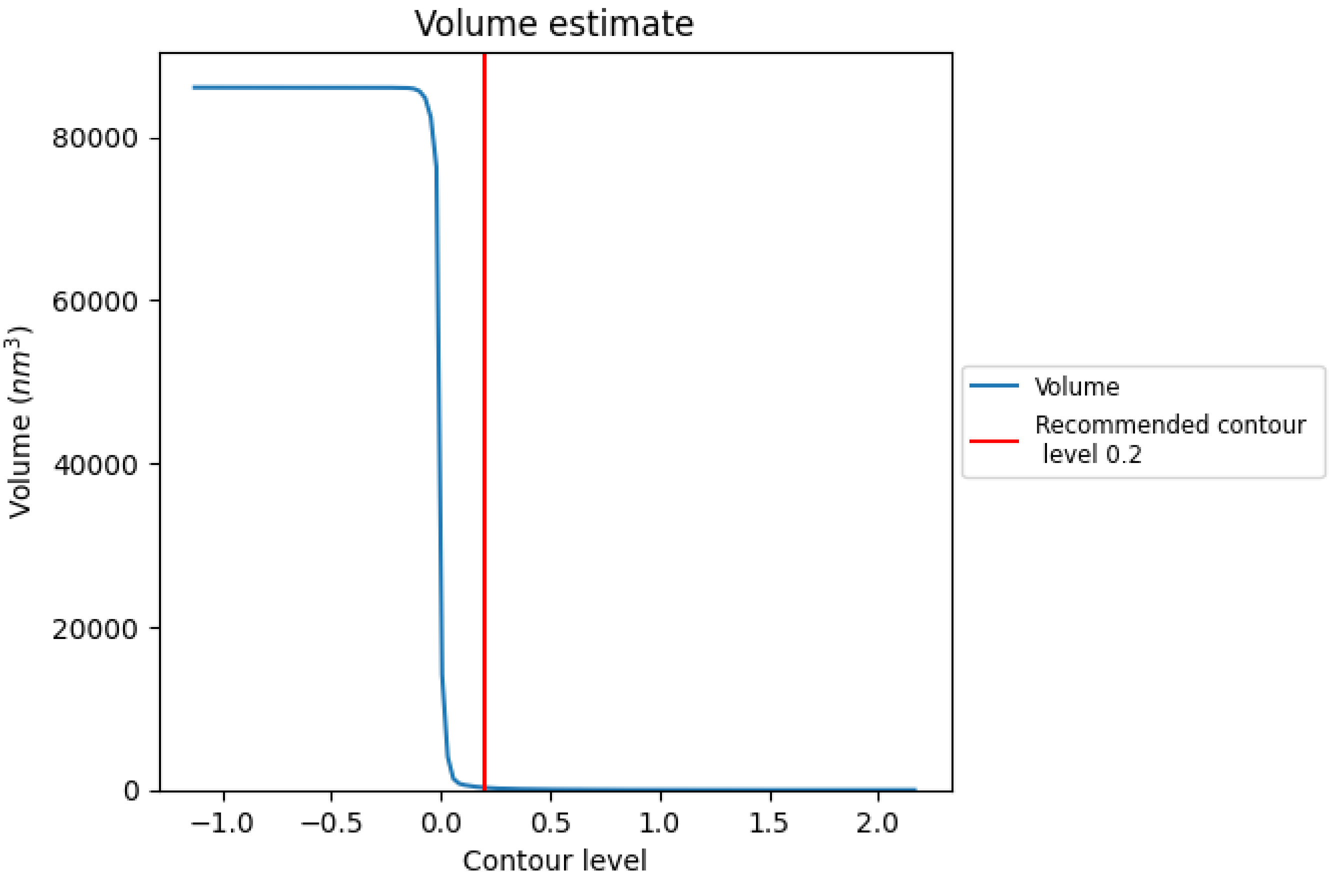
This section contains the results of statistical analysis of the map.

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.

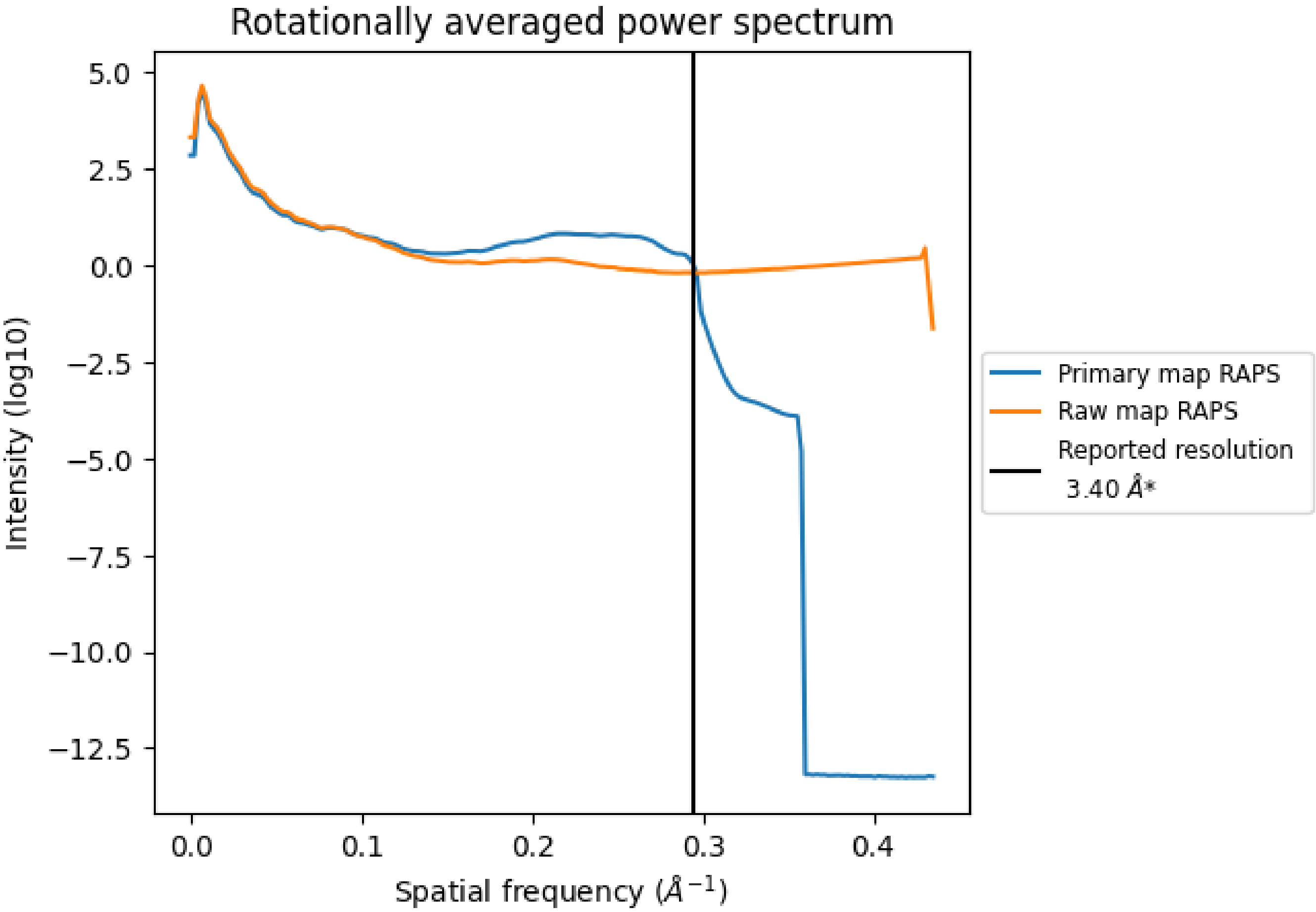
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 286 nm^3; this corresponds to an approximate mass of 258 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 ⓘ

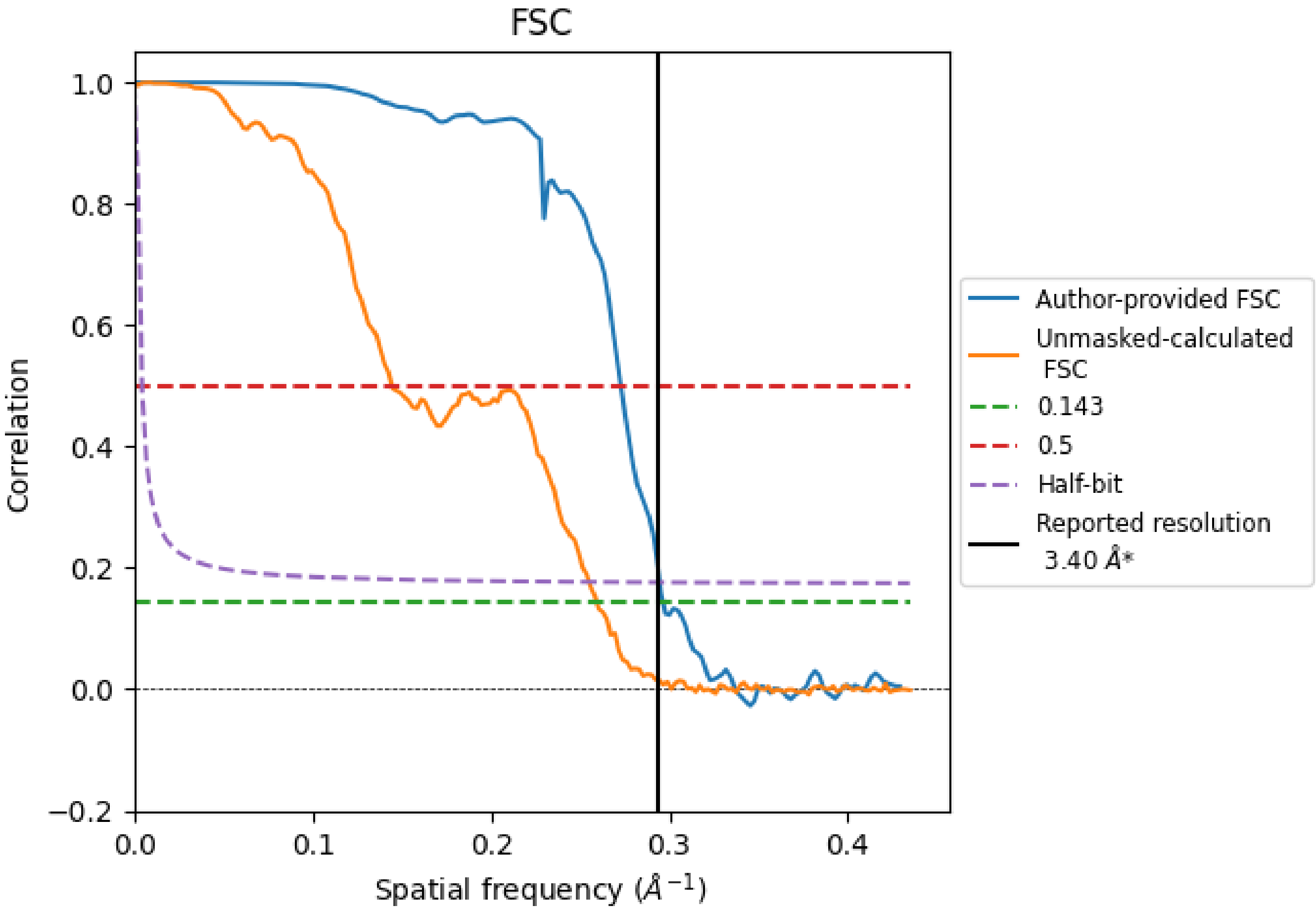


*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8 Fourier-Shell correlation ⓘ

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC ⓘ



*Reported resolution corresponds to spatial frequency of 0.294 $\AA^{-1}$

8.2 Resolution estimates ⓘ

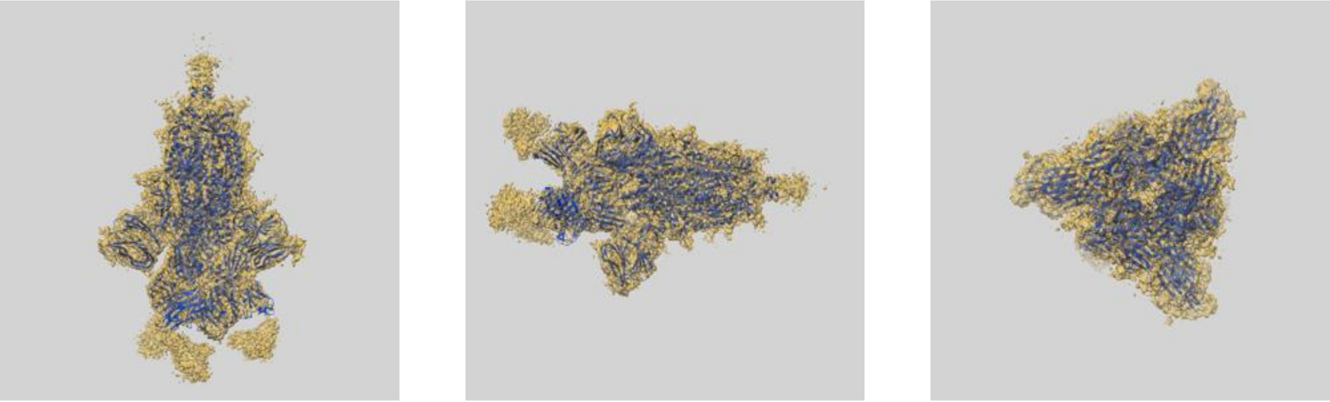
Resolution estimate (Å)	**Estimation criterion (FSC cut-off)**		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.37	3.66	3.39
Unmasked-calculated*	3.86	6.92	3.92

*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 3.86 differs from the reported value 3.4 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-24878 and PDB model 7S6K. Per-residue inclusion information can be found in section 3 on page 13.

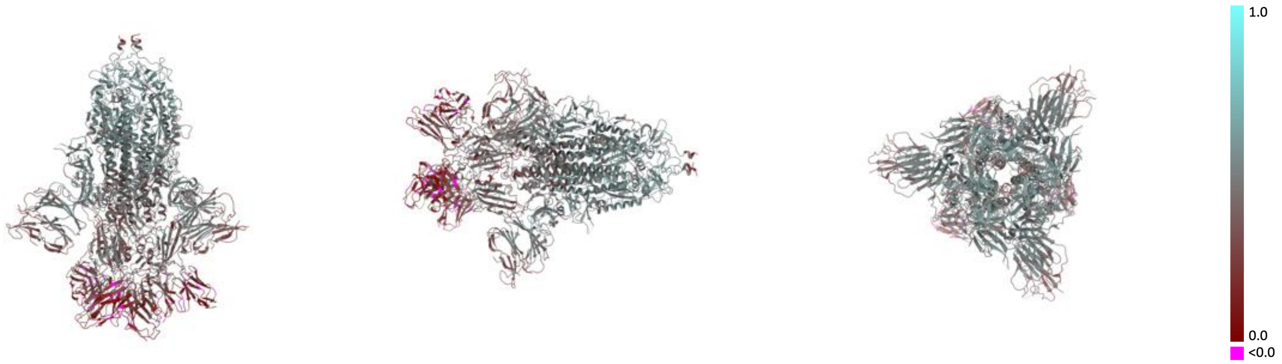
9.1 Map-model overlay ⓘ



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.2 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.

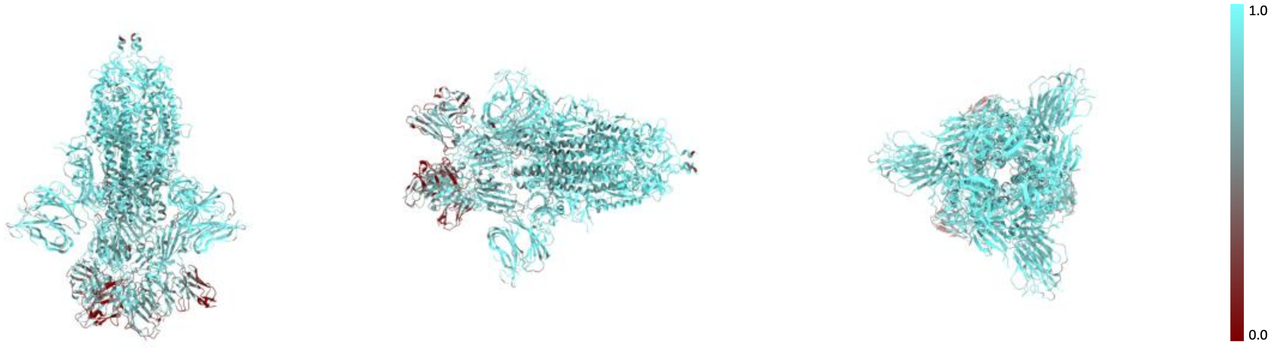
9.2 Q-score mapped to coordinate model ⓘ



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.

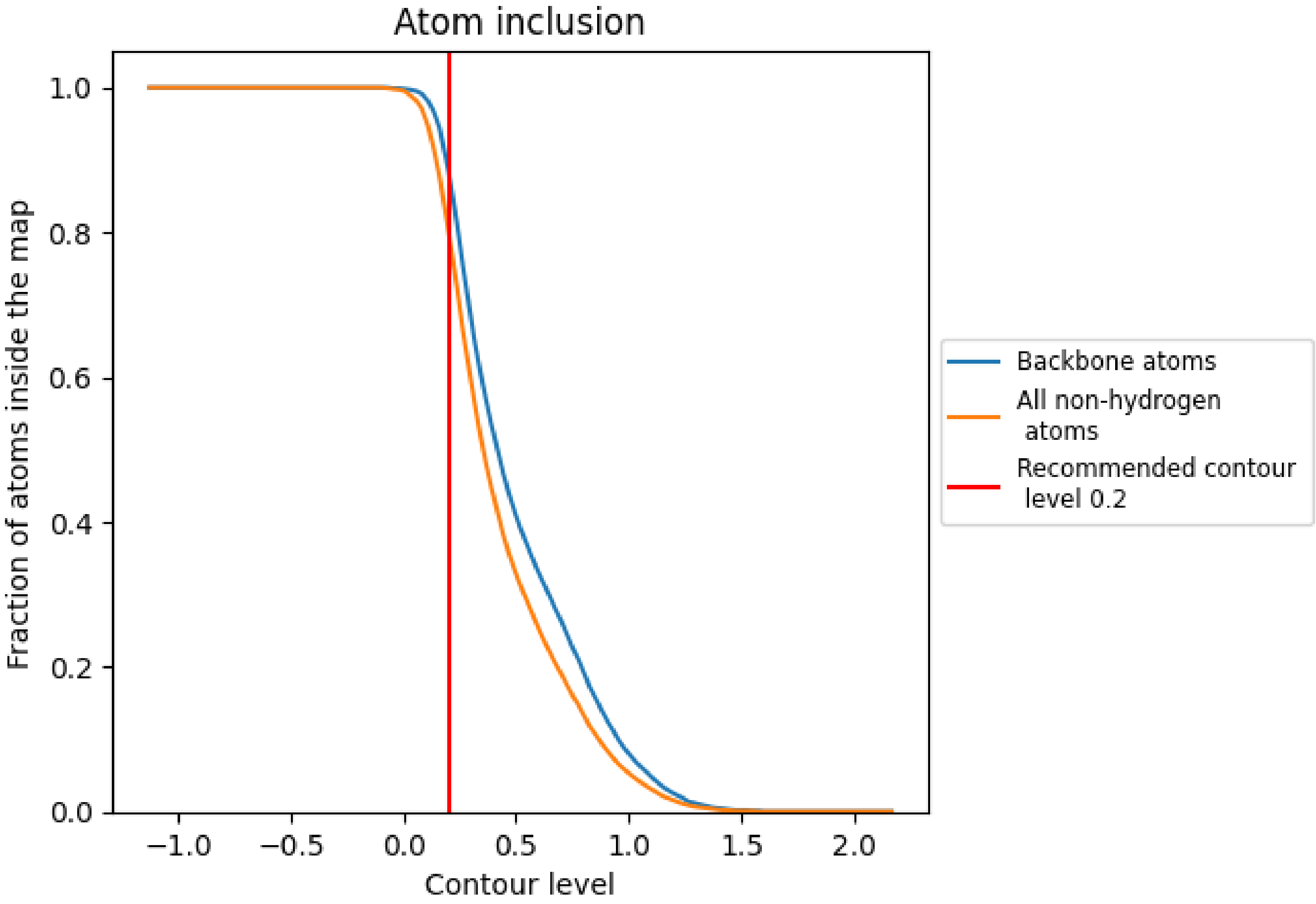
9.3 Atom inclusion mapped to coordinate model ⓘ



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 (0.2).

9.4 Atom inclusion ⓘ



At the recommended contour level, 88% of all backbone atoms, 80% 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 (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8020	0.4160
A	0.8600	0.4590
B	0.8600	0.4580
C	0.6020	0.2350
D	0.4190	0.1690
E	0.8590	0.4590
F	0.6000	0.2360
G	0.4210	0.1660
H	0.6010	0.2380
I	0.8570	0.4530
J	0.7140	0.3950
K	0.8570	0.4560
L	0.4290	0.1650
M	0.6430	0.3380
N	0.8930	0.4450
O	0.7140	0.3960
P	0.8570	0.4650
Q	0.7140	0.3470
R	0.8930	0.4360
S	0.6790	0.4100
T	0.8570	0.4470
U	0.6430	0.3530