



## wwPDB EM Validation Summary Report ⓘ

Nov 6, 2022 – 12:42 PM EST

PDB ID : 6CS1  
EMDB ID : EMD-7579  
Title : SARS Spike Glycoprotein, Trypsin-cleaved, Stabilized variant, two S1 CTDs in an upwards conformation  
Authors : Kirchdoerfer, R.N.; Wang, N.; Pallesen, J.; Turner, H.L.; Cottrell, C.A.; McLellan, J.S.; Ward, A.B.  
Deposited on : 2018-03-19  
Resolution : 4.60 Å (reported)  
Based on initial models : 5I08, 2AJF, 5X4S

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

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

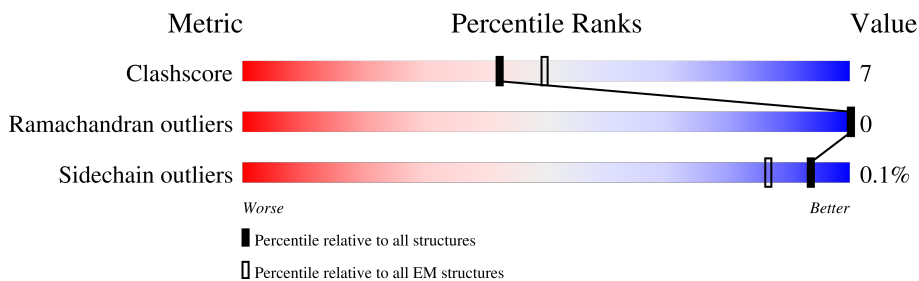
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*








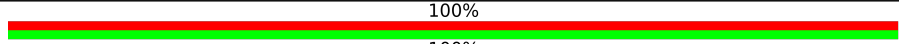
The reported resolution of this entry is 4.60 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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  $\leq 5\%$ . 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	1215	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">52%</div>  </div>
1	B	1215	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">44%</div>  </div>
1	C	1215	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">45%</div>  </div>
2	D	2	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">100%</div>  </div>
2	F	2	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">50%</div>  </div>
2	I	2	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">100%</div>  </div>
2	J	2	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">100%</div>  </div>
2	K	2	<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: center;">100%</div>  </div>

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Mol	Chain	Length	Quality of chain
2	M	2	100% 
2	R	2	100% 
2	T	2	100% 
2	W	2	100% 
3	E	3	100% 
3	L	3	100% 
3	Q	3	33% 
3	U	3	100% 
3	V	3	100% 
3	X	3	100% 
4	G	5	100% 
4	H	5	60% 
4	S	5	100% 
5	N	4	100% 
5	O	4	100% 
5	P	4	50% 

## 2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 25995 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, Fibritin.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	B	1068	8342	5331	1379	1586	46	0	0
1	C	1068	8339	5328	1379	1586	46	0	0
1	A	1066	8327	5320	1377	1584	46	0	0

There are 42 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	577	ALA	SER	conflict	UNP P59594
B	968	PRO	LYS	engineered mutation	UNP P59594
B	969	PRO	VAL	engineered mutation	UNP P59594
B	1191	GLY	-	linker	UNP P59594
B	1192	SER	ALA	linker	UNP D9IEJ2
B	1220	GLY	-	expression tag	UNP D9IEJ2
B	1221	ARG	-	expression tag	UNP D9IEJ2
B	1222	SER	-	expression tag	UNP D9IEJ2
B	1223	LEU	-	expression tag	UNP D9IEJ2
B	1224	GLU	-	expression tag	UNP D9IEJ2
B	1225	VAL	-	expression tag	UNP D9IEJ2
B	1226	LEU	-	expression tag	UNP D9IEJ2
B	1227	PHE	-	expression tag	UNP D9IEJ2
B	1228	GLN	-	expression tag	UNP D9IEJ2
C	577	ALA	SER	conflict	UNP P59594
C	968	PRO	LYS	engineered mutation	UNP P59594
C	969	PRO	VAL	engineered mutation	UNP P59594
C	1191	GLY	-	linker	UNP P59594
C	1192	SER	ALA	linker	UNP D9IEJ2
C	1220	GLY	-	expression tag	UNP D9IEJ2
C	1221	ARG	-	expression tag	UNP D9IEJ2
C	1222	SER	-	expression tag	UNP D9IEJ2
C	1223	LEU	-	expression tag	UNP D9IEJ2
C	1224	GLU	-	expression tag	UNP D9IEJ2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	1225	VAL	-	expression tag	UNP D9IEJ2
C	1226	LEU	-	expression tag	UNP D9IEJ2
C	1227	PHE	-	expression tag	UNP D9IEJ2
C	1228	GLN	-	expression tag	UNP D9IEJ2
A	577	ALA	SER	conflict	UNP P59594
A	968	PRO	LYS	engineered mutation	UNP P59594
A	969	PRO	VAL	engineered mutation	UNP P59594
A	1191	GLY	-	linker	UNP P59594
A	1192	SER	ALA	linker	UNP D9IEJ2
A	1220	GLY	-	expression tag	UNP D9IEJ2
A	1221	ARG	-	expression tag	UNP D9IEJ2
A	1222	SER	-	expression tag	UNP D9IEJ2
A	1223	LEU	-	expression tag	UNP D9IEJ2
A	1224	GLU	-	expression tag	UNP D9IEJ2
A	1225	VAL	-	expression tag	UNP D9IEJ2
A	1226	LEU	-	expression tag	UNP D9IEJ2
A	1227	PHE	-	expression tag	UNP D9IEJ2
A	1228	GLN	-	expression tag	UNP D9IEJ2

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



Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	D	2	28	16	2	10	0	0
2	F	2	28	16	2	10	0	0
2	I	2	28	16	2	10	0	0
2	J	2	28	16	2	10	0	0
2	K	2	28	16	2	10	0	0
2	M	2	28	16	2	10	0	0
2	R	2	28	16	2	10	0	0

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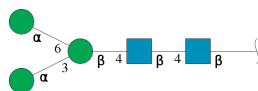
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	T	2	28	16	2	10	0	0
2	W	2	28	16	2	10	0	0

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



Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	E	3	39	22	2	15	0	0
3	L	3	39	22	2	15	0	0
3	Q	3	39	22	2	15	0	0
3	U	3	39	22	2	15	0	0
3	V	3	39	22	2	15	0	0
3	X	3	39	22	2	15	0	0

- Molecule 4 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



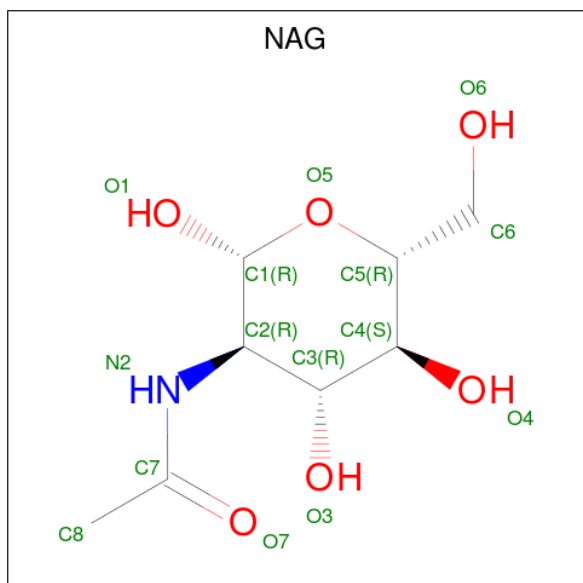
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	G	5	61	34	2	25	0	0
4	H	5	61	34	2	25	0	0
4	S	5	61	34	2	25	0	0

- Molecule 5 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-beta-D-mannopyranos e-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	N	4	50	28	2	20	0	0
5	O	4	50	28	2	20	0	0
5	P	4	50	28	2	20	0	0

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
6	B	1	56	32	4	20	0
6	B	1	56	32	4	20	0
6	B	1	56	32	4	20	0
6	B	1	56	32	4	20	0

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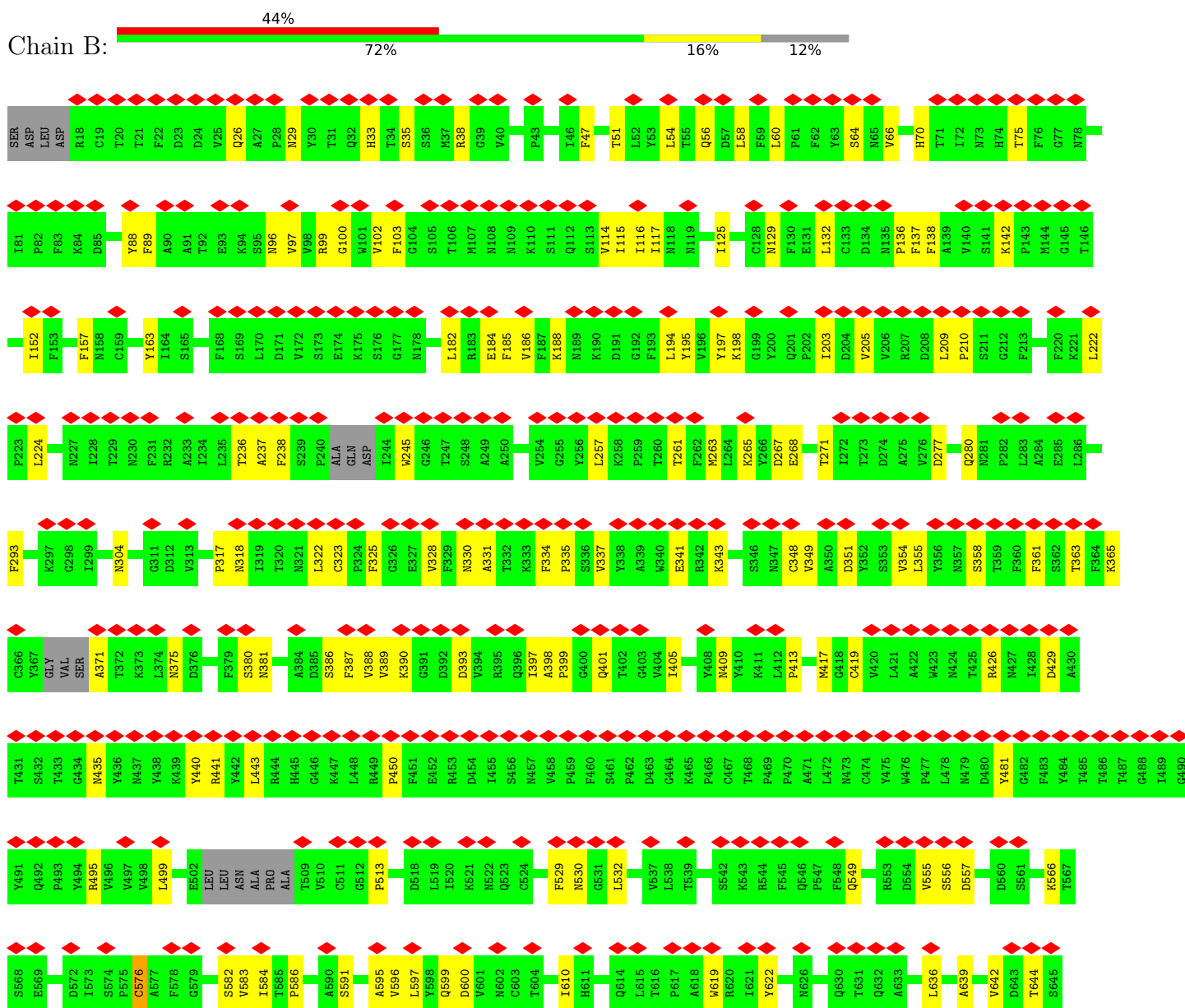
Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
6	C	1	Total 42	C 24	N 3	O 15	0
6	C	1	Total 42	C 24	N 3	O 15	0
6	C	1	Total 42	C 24	N 3	O 15	0
6	A	1	Total 70	C 40	N 5	O 25	0
6	A	1	Total 70	C 40	N 5	O 25	0
6	A	1	Total 70	C 40	N 5	O 25	0
6	A	1	Total 70	C 40	N 5	O 25	0
6	A	1	Total 70	C 40	N 5	O 25	0

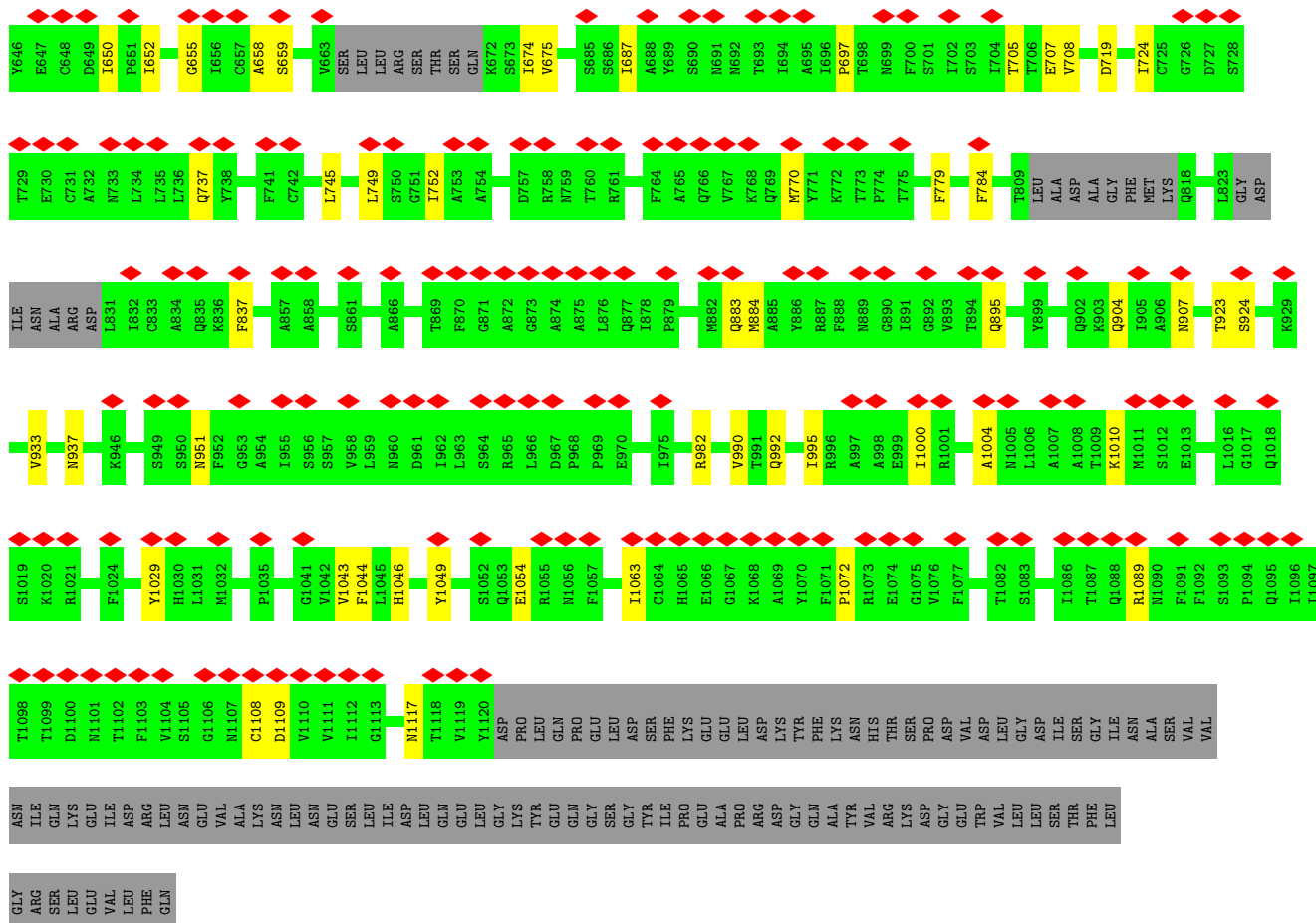


### 3 Residue-property plots

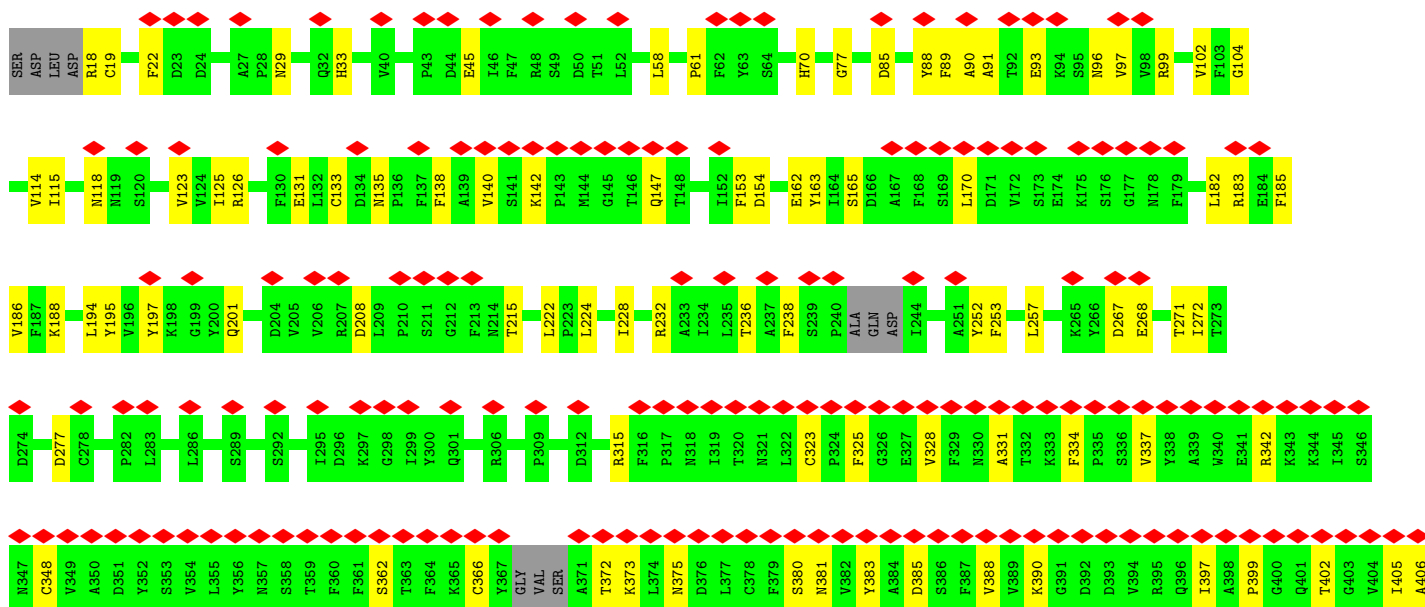
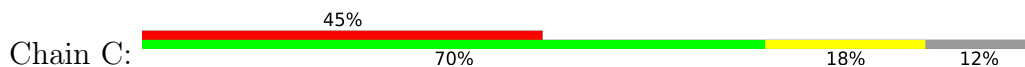
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

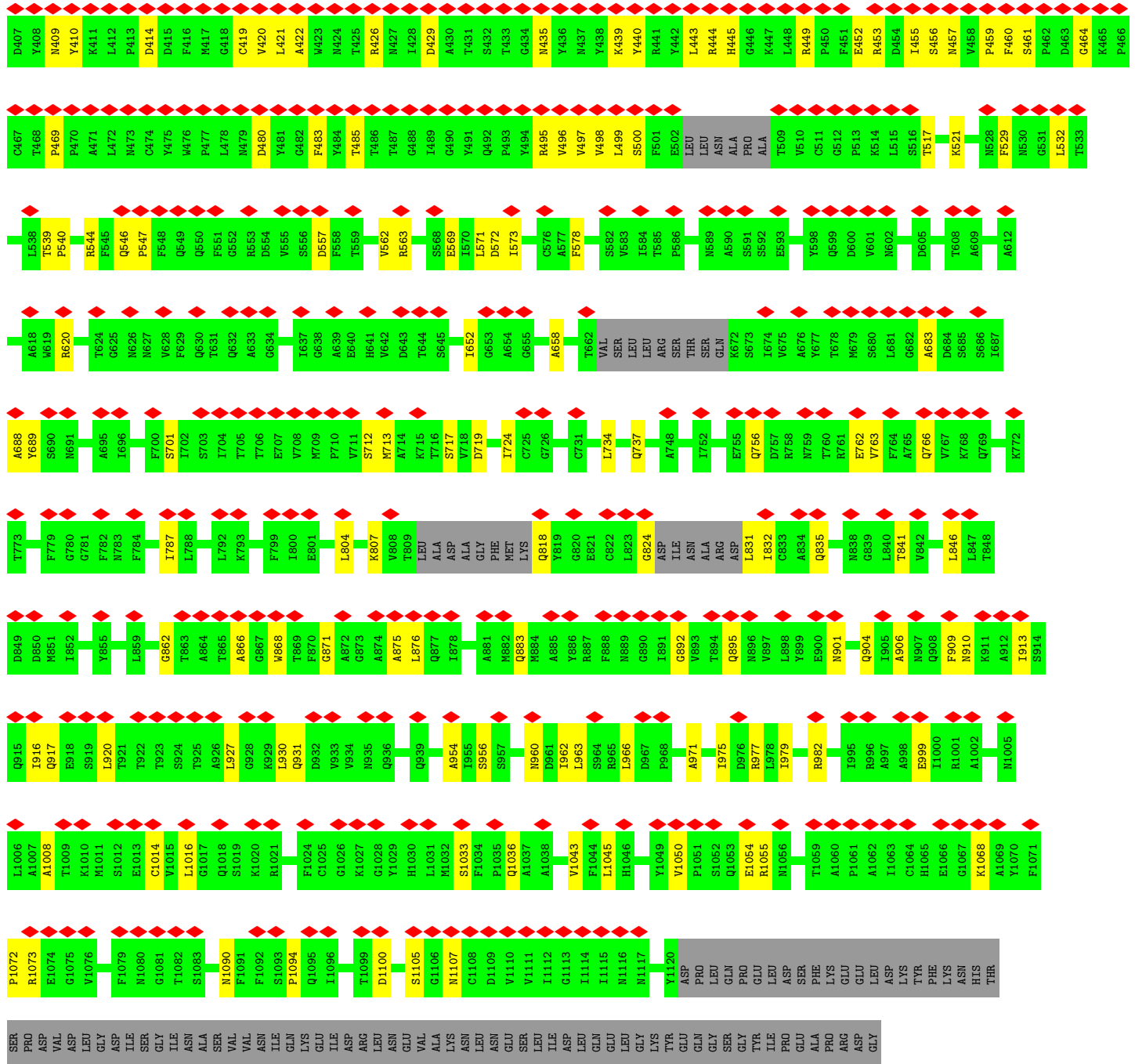
- Molecule 1: Spike glycoprotein,Fibrinin



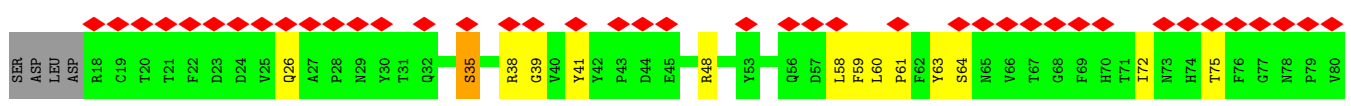


● Molecule 1: Spike glycoprotein, Fibritin

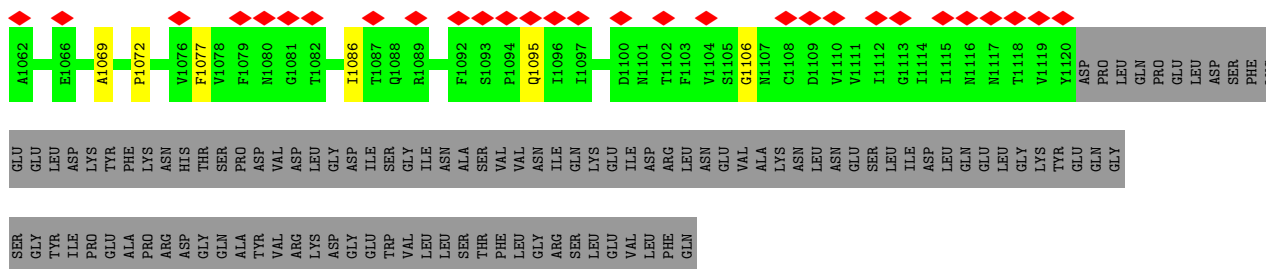




● Molecule 1: Spike glycoprotein, Fibritin



I81	P82	F83	K84	D85	G86	I87	Y88	F89	A90	A91	T92	E93	K94	S95	R99	G100	G101	G102	F103	G104	S105	T106	M107	M108	M109	K110	S111	Q112	S113	V114	I115	I116	I117	M118	M119	S120	T121	M122	V123	V124	I125	C128	N129	F130	E131	L132	C133	D134	M135	A139	V140	S141	K142	P143	M144	G145		
T146	Q147	T148	H149	D154	M155	A156	F157	A158	C159	T160	E162	Y163	I164	S165	D166	A167	F168	S169	L170	D171	V172	S173	E174	K175	S176	G177	M178	F179	K180	H181	L182	A250	A251	E184	F185	V186	F187	K188	M189	K190	D191	G192	F193	L194	Y195	V196	Y197	K198	G199	I203	D204	L209	L210	D211	N214			
T215	L216	I219	F220	K221	L222	L224	G225	L226	N227	I228	T229	N230	F231	R232	A233	I234	L235	T236	A237	F238	S239	P240	ALA	ASP	I244	V245	G246	T247	S248	A249	A250	A251	Y252	F253	V254	G255	Y256	L257	K258	P259	T260	T261	L264	K265	Y266	N269	G270	T271	L272	T273	D274	A275	V276	D277				
C278	S279	E285	L286	C288	S289	V290	K291	I295	D296	K297	G298	Q301	T302	S303	N304	F305	R306	V307	V308	F309	S310	Y314	P317	N318	I319	T320	S321	L322	C323	F324	F325	G326	E327	V328	F329	N330	A331	T332	K333	F334	P335	S336	V337	Y338	A339	W340	E341	R342	K343	K344	S345	S346	N347					
C348	V349	A350	D351	Y352	S353	V354	L355	Y356	N357	S358	T359	F360	F361	S362	T363	F364	K365	C366	GLY	VAL	SER	A371	T372	K373	L374	N375	D376	L377	C378	F379	S380	N381	V382	Y383	A384	D385	S386	F387	V388	V389	K390	G391	D392	D393	V394	R395	Q396	I397	A398	P399	G400	Q401	T402	G403	V404	I405	A406	D407
Y408	N409	Y410	K411	L412	P413	D414	D415	F416	M417	V420	L421	A422	N423	M424	T425	R426	N427	I428	D429	A430	T431	S432	K373	L374	N435	Y436	N437	Y438	K439	Y440	R441	Y442	L443	R444	H445	G446	K447	L448	R449	P450	F451	E452	R453	D454	I455	S456	N457	V458	P459	F460	S461	T462	G463	G464	K465	C467	T468	
P469	P470	A471	L472	N473	C474	Y475	M477	L478	N479	D480	Y481	G482	F483	Y484	T485	T486	T487	G488	L489	G490	Y491	D492	P493	Y494	R495	Y496	Y497	V498	L499	S500	F501	LEU	LEU	ASN	ALA	PRD	ALA	T509	V510	C511	G512	F513	K514	L515	S516	L519	N528	F529	M530	G531	L532	R544	F545	Q546				
Q549	R553	D554	V555	D557	D564	P565	K566	T567	S568	E569	D572	L573	C576	A577	V581	S582	Y583	L584	T585	P586	V587	S588	Y589	S591	S592	E593	Y594	L597	Y598	Q599	D600	V601	N602	C603	T604	D605	SER	THR	SER	GLN	K672	A609	S673	L674	V675	A676	F677	L678	A683	D684	A688	M619	R620					
I621	Y622	S623	T624	G625	N626	N627	V628	G632	A633	G634	C635	L636	I637	G638	A639	E640	H641	V642	D643	Y646	E647	C648	D649	I650	P651	L652	G663	A664	G665	G666	S667	T668	VAL	SER	LEU	LEU	ARG	LEU	SER	THR	SER	GLN	K672	A609	S673	L674	V675	A676	F677	L678	A683	D684	A688	M619	R620			
S690	M691	N692	A695	T698	N699	F700	S701	I702	S703	T704	I705	T706	E707	W708	S712	M713	A714	K715	T716	C725	G726	D727	G731	L734	W737	Y738	F741	C742	L745	A748	L749	I752	A753	D757	R758	N759	T760	R761	I762	E763	W763	F764	A765	Q766	V767	K768	Q769	M770										
Y771	F774	T775	L776	G780	G781	F782	F784	S785	Q786	D790	F791	L792	K793	F794	T795	K796	R797	S798	F799	I800	E801	D802	L803	M806	K807	W808	T809	LEU	ALA	ASP	ALA	PHE	MET	GLY	LYS	Q816	E821	C822	L823	GLY	ASP	ILE	ASN	ALA	ARG	ASP	LEU	T832	C833	A834	Q835	K836	F837					
L840	T841	V842	L843	P844	L847	T848	D849	N850	M851	I852	A853	A854	Y855	T856	A857	A858	L859	W860	T863	T865	A866	G867	W868	T869	F870	G871	A872	G873	A874	A875	L876	Q877	I878	P879	F880	A881	M882	Q883	M884	A885	Y886	R887	F888	G892	L966	D967	P968	E970	A971	E900	A903	Q904						
I905	A906	M907	Q908	F909	N910	K911	S914	Q915	I916	N917	E918	T921	T922	T923	S924	T925	A926	L927	G928	Q931	D932	N935	Q939	A940	L941	N942	K946	Q947	L948	S949	N950	N951	F952	G953	A954	I955	S956	D961	I962	L963	S964	R965	L966	D967	P968	E970	A971	Q974	R952									
V990	R996	E999	I1000	R1001	A1002	S1003	Q1004	N1005	L1006	A1007	K1010	M1011	L1016	G1017	Q1018	S1019	K1020	I1021	V1022	D1023	G1026	K1027	G1028	Y1029	L1031	M1032	S1033	F1034	P1035	Q1036	A1037	A1038	P1039	H1040	G1041	I985	S956	D961	I962	L963	S964	R965	L966	D967	P968	E970	A971	Q974	R952									
V1043	F1044	L1045	L1046	V1047	V1050	P1051	S1052	Q1053	E1054	R1055	N1056	F1057	T1058																																													



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



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



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



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



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



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



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



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



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



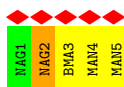
- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



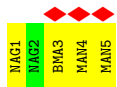
- Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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



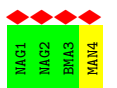
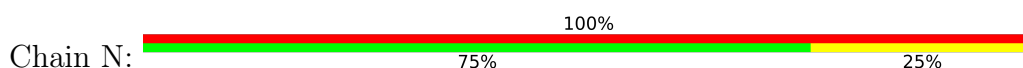
- Molecule 4: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



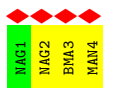
- Molecule 4: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



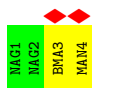
- Molecule 5: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	15314	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	65	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	29000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.131	Depositor
Minimum map value	-0.070	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.032	Depositor
Map size (Å)	329.59998, 329.59998, 329.59998	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.03, 1.03, 1.03	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z  >5	RMSZ	# Z  >5
1	A	0.32	0/8526	0.54	0/11601
1	B	0.33	0/8541	0.55	0/11622
1	C	0.32	0/8538	0.55	0/11617
All	All	0.32	0/25605	0.54	0/34840

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
1	C	0	1
All	All	0	3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	35	SER	Peptide
1	B	576	CYS	Peptide
1	C	85	ASP	Peptide

## 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	8327	0	8068	136	0
1	B	8342	0	8088	123	0
1	C	8339	0	8082	144	0
2	D	28	0	25	1	0
2	F	28	0	25	0	0
2	I	28	0	25	0	0
2	J	28	0	25	1	0
2	K	28	0	25	0	0
2	M	28	0	25	0	0
2	R	28	0	25	0	0
2	T	28	0	25	0	0
2	W	28	0	25	0	0
3	E	39	0	34	0	0
3	L	39	0	34	1	0
3	Q	39	0	34	1	0
3	U	39	0	34	0	0
3	V	39	0	34	0	0
3	X	39	0	34	0	0
4	G	61	0	52	1	0
4	H	61	0	52	0	0
4	S	61	0	52	2	0
5	N	50	0	43	0	0
5	O	50	0	43	1	0
5	P	50	0	43	0	0
6	A	70	0	65	0	0
6	B	56	0	52	0	0
6	C	42	0	39	1	0
All	All	25995	0	25108	369	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

The worst 5 of 369 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1089:ARG:HH21	1:C:876:LEU:HB2	1.57	0.68
1:A:188:LYS:HB2	1:A:195:TYR:HB2	1.76	0.67
1:A:390:LYS:HE3	1:A:392:ASP:HB2	1.75	0.66
1:C:93:GLU:HG3	1:C:183:ARG:HH21	1.59	0.66
1:C:131:GLU:HB2	1:C:154:ASP:HB2	1.77	0.65

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	1052/1215 (87%)	979 (93%)	73 (7%)	0	100	100
1	B	1054/1215 (87%)	977 (93%)	77 (7%)	0	100	100
1	C	1054/1215 (87%)	977 (93%)	77 (7%)	0	100	100
All	All	3160/3645 (87%)	2933 (93%)	227 (7%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	925/1053 (88%)	923 (100%)	2 (0%)	93	96
1	B	927/1053 (88%)	925 (100%)	2 (0%)	93	96
1	C	926/1053 (88%)	926 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	2778/3159 (88%)	2774 (100%)	4 (0%)	93 96

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	426	ARG
1	B	576	CYS
1	A	189	ASN
1	A	576	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 42 such sidechains are listed below:

Mol	Chain	Res	Type
1	A	301	GLN
1	A	896	ASN
1	A	733	ASN
1	A	835	GLN
1	A	910	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

## 5.5 Carbohydrates [i](#)

63 monosaccharides are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	NAG	D	1	1,2	14,14,15	0.32	0	17,19,21	0.78	1 (5%)
2	NAG	D	2	2	14,14,15	0.25	0	17,19,21	0.56	0
3	NAG	E	1	1,3	14,14,15	0.52	0	17,19,21	0.62	0
3	NAG	E	2	3	14,14,15	0.20	0	17,19,21	0.58	0
3	BMA	E	3	3	11,11,12	0.71	0	15,15,17	0.88	1 (6%)
2	NAG	F	1	1,2	14,14,15	0.28	0	17,19,21	0.38	0
2	NAG	F	2	2	14,14,15	0.41	0	17,19,21	0.42	0
4	NAG	G	1	1,4	14,14,15	0.45	0	17,19,21	0.57	0
4	NAG	G	2	4	14,14,15	0.31	0	17,19,21	0.78	1 (5%)
4	BMA	G	3	4	11,11,12	1.56	2 (18%)	15,15,17	1.65	2 (13%)
4	MAN	G	4	4	11,11,12	0.79	1 (9%)	15,15,17	1.15	2 (13%)
4	MAN	G	5	4	11,11,12	0.75	0	15,15,17	1.24	2 (13%)
4	NAG	H	1	1,4	14,14,15	0.20	0	17,19,21	0.75	1 (5%)
4	NAG	H	2	4	14,14,15	0.43	0	17,19,21	0.71	0
4	BMA	H	3	4	11,11,12	0.73	0	15,15,17	1.05	1 (6%)
4	MAN	H	4	4	11,11,12	0.88	0	15,15,17	1.28	2 (13%)
4	MAN	H	5	4	11,11,12	0.76	0	15,15,17	1.26	2 (13%)
2	NAG	I	1	1,2	14,14,15	0.33	0	17,19,21	0.36	0
2	NAG	I	2	2	14,14,15	0.37	0	17,19,21	0.55	0
2	NAG	J	1	1,2	14,14,15	0.23	0	17,19,21	0.62	0
2	NAG	J	2	2	14,14,15	0.28	0	17,19,21	0.42	0
2	NAG	K	1	1,2	14,14,15	0.23	0	17,19,21	0.54	0
2	NAG	K	2	2	14,14,15	0.21	0	17,19,21	0.56	0
3	NAG	L	1	1,3	14,14,15	0.32	0	17,19,21	0.55	0
3	NAG	L	2	3	14,14,15	0.24	0	17,19,21	0.62	0
3	BMA	L	3	3	11,11,12	0.86	0	15,15,17	0.78	0
2	NAG	M	1	1,2	14,14,15	0.32	0	17,19,21	0.67	0
2	NAG	M	2	2	14,14,15	0.50	0	17,19,21	0.36	0
5	NAG	N	1	1,5	14,14,15	0.26	0	17,19,21	0.67	0
5	NAG	N	2	5	14,14,15	0.39	0	17,19,21	0.58	0
5	BMA	N	3	5	11,11,12	0.87	0	15,15,17	0.80	0
5	MAN	N	4	5	11,11,12	0.93	1 (9%)	15,15,17	1.35	2 (13%)
5	NAG	O	1	1,5	14,14,15	0.49	0	17,19,21	0.56	0
5	NAG	O	2	5	14,14,15	0.23	0	17,19,21	0.64	0
5	BMA	O	3	5	11,11,12	0.76	0	15,15,17	1.28	1 (6%)
5	MAN	O	4	5	11,11,12	0.96	0	15,15,17	0.99	2 (13%)
5	NAG	P	1	1,5	14,14,15	0.41	0	17,19,21	0.59	0
5	NAG	P	2	5	14,14,15	0.22	0	17,19,21	0.53	0
5	BMA	P	3	5	11,11,12	0.71	0	15,15,17	1.05	1 (6%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	MAN	P	4	5	11,11,12	1.38	2 (18%)	15,15,17	1.94	4 (26%)
3	NAG	Q	1	1,3	14,14,15	0.31	0	17,19,21	0.37	0
3	NAG	Q	2	3	14,14,15	0.19	0	17,19,21	0.56	0
3	BMA	Q	3	3	11,11,12	0.81	0	15,15,17	1.00	1 (6%)
2	NAG	R	1	1,2	14,14,15	0.48	0	17,19,21	0.61	0
2	NAG	R	2	2	14,14,15	0.25	0	17,19,21	0.53	0
4	NAG	S	1	1,4	14,14,15	0.37	0	17,19,21	0.61	0
4	NAG	S	2	4	14,14,15	0.50	0	17,19,21	0.70	0
4	BMA	S	3	4	11,11,12	1.16	2 (18%)	15,15,17	1.07	0
4	MAN	S	4	4	11,11,12	0.83	1 (9%)	15,15,17	1.21	2 (13%)
4	MAN	S	5	4	11,11,12	0.88	1 (9%)	15,15,17	1.30	2 (13%)
2	NAG	T	1	1,2	14,14,15	0.69	1 (7%)	17,19,21	0.82	0
2	NAG	T	2	2	14,14,15	0.46	0	17,19,21	0.42	0
3	NAG	U	1	1,3	14,14,15	0.64	1 (7%)	17,19,21	0.71	0
3	NAG	U	2	3	14,14,15	0.29	0	17,19,21	0.44	0
3	BMA	U	3	3	11,11,12	0.81	0	15,15,17	1.04	1 (6%)
3	NAG	V	1	1,3	14,14,15	0.41	0	17,19,21	1.08	1 (5%)
3	NAG	V	2	3	14,14,15	0.31	0	17,19,21	0.86	0
3	BMA	V	3	3	11,11,12	0.92	0	15,15,17	0.84	0
2	NAG	W	1	1,2	14,14,15	0.39	0	17,19,21	0.56	0
2	NAG	W	2	2	14,14,15	0.36	0	17,19,21	0.45	0
3	NAG	X	1	1,3	14,14,15	0.31	0	17,19,21	0.40	0
3	NAG	X	2	3	14,14,15	0.29	0	17,19,21	0.41	0
3	BMA	X	3	3	11,11,12	0.73	0	15,15,17	0.94	1 (6%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	D	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	D	2	2	-	2/6/23/26	0/1/1/1
3	NAG	E	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	E	2	3	-	2/6/23/26	0/1/1/1
3	BMA	E	3	3	-	2/2/19/22	0/1/1/1
2	NAG	F	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	F	2	2	-	2/6/23/26	0/1/1/1
4	NAG	G	1	1,4	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	G	2	4	-	1/6/23/26	0/1/1/1
4	BMA	G	3	4	-	0/2/19/22	0/1/1/1
4	MAN	G	4	4	-	2/2/19/22	0/1/1/1
4	MAN	G	5	4	-	2/2/19/22	0/1/1/1
4	NAG	H	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	H	2	4	-	2/6/23/26	0/1/1/1
4	BMA	H	3	4	-	2/2/19/22	0/1/1/1
4	MAN	H	4	4	-	0/2/19/22	0/1/1/1
4	MAN	H	5	4	-	0/2/19/22	0/1/1/1
2	NAG	I	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	I	2	2	-	2/6/23/26	0/1/1/1
2	NAG	J	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	J	2	2	-	2/6/23/26	0/1/1/1
2	NAG	K	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	K	2	2	-	2/6/23/26	0/1/1/1
3	NAG	L	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	L	2	3	-	2/6/23/26	0/1/1/1
3	BMA	L	3	3	-	0/2/19/22	0/1/1/1
2	NAG	M	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	M	2	2	-	2/6/23/26	0/1/1/1
5	NAG	N	1	1,5	-	1/6/23/26	0/1/1/1
5	NAG	N	2	5	-	2/6/23/26	0/1/1/1
5	BMA	N	3	5	-	0/2/19/22	0/1/1/1
5	MAN	N	4	5	-	0/2/19/22	0/1/1/1
5	NAG	O	1	1,5	-	0/6/23/26	0/1/1/1
5	NAG	O	2	5	-	0/6/23/26	0/1/1/1
5	BMA	O	3	5	-	0/2/19/22	0/1/1/1
5	MAN	O	4	5	-	0/2/19/22	0/1/1/1
5	NAG	P	1	1,5	-	2/6/23/26	0/1/1/1
5	NAG	P	2	5	-	2/6/23/26	0/1/1/1
5	BMA	P	3	5	-	2/2/19/22	0/1/1/1
5	MAN	P	4	5	-	2/2/19/22	0/1/1/1
3	NAG	Q	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	Q	2	3	-	2/6/23/26	0/1/1/1
3	BMA	Q	3	3	-	1/2/19/22	0/1/1/1
2	NAG	R	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	R	2	2	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	S	1	1,4	-	2/6/23/26	0/1/1/1
4	NAG	S	2	4	-	2/6/23/26	0/1/1/1
4	BMA	S	3	4	-	2/2/19/22	0/1/1/1
4	MAN	S	4	4	-	0/2/19/22	0/1/1/1
4	MAN	S	5	4	-	0/2/19/22	0/1/1/1
2	NAG	T	1	1,2	-	1/6/23/26	0/1/1/1
2	NAG	T	2	2	-	1/6/23/26	0/1/1/1
3	NAG	U	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	U	2	3	-	2/6/23/26	0/1/1/1
3	BMA	U	3	3	-	1/2/19/22	0/1/1/1
3	NAG	V	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	V	2	3	-	0/6/23/26	0/1/1/1
3	BMA	V	3	3	-	1/2/19/22	0/1/1/1
2	NAG	W	1	1,2	-	2/6/23/26	0/1/1/1
2	NAG	W	2	2	-	2/6/23/26	0/1/1/1
3	NAG	X	1	1,3	-	1/6/23/26	0/1/1/1
3	NAG	X	2	3	-	2/6/23/26	0/1/1/1
3	BMA	X	3	3	-	2/2/19/22	0/1/1/1

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	G	3	BMA	C2-C3	3.62	1.57	1.52
5	P	4	MAN	O5-C1	3.10	1.48	1.43
5	P	4	MAN	C1-C2	2.96	1.59	1.52
4	G	3	BMA	C4-C3	2.59	1.58	1.52
5	N	4	MAN	C1-C2	2.44	1.57	1.52

The worst 5 of 33 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	P	4	MAN	C1-O5-C5	5.86	120.14	112.19
4	G	3	BMA	C2-C3-C4	3.98	117.78	110.89
4	H	5	MAN	C1-O5-C5	3.81	117.36	112.19
5	N	4	MAN	C1-O5-C5	3.79	117.33	112.19
4	G	3	BMA	C1-C2-C3	3.77	114.30	109.67

There are no chirality outliers.

5 of 82 torsion outliers are listed below:

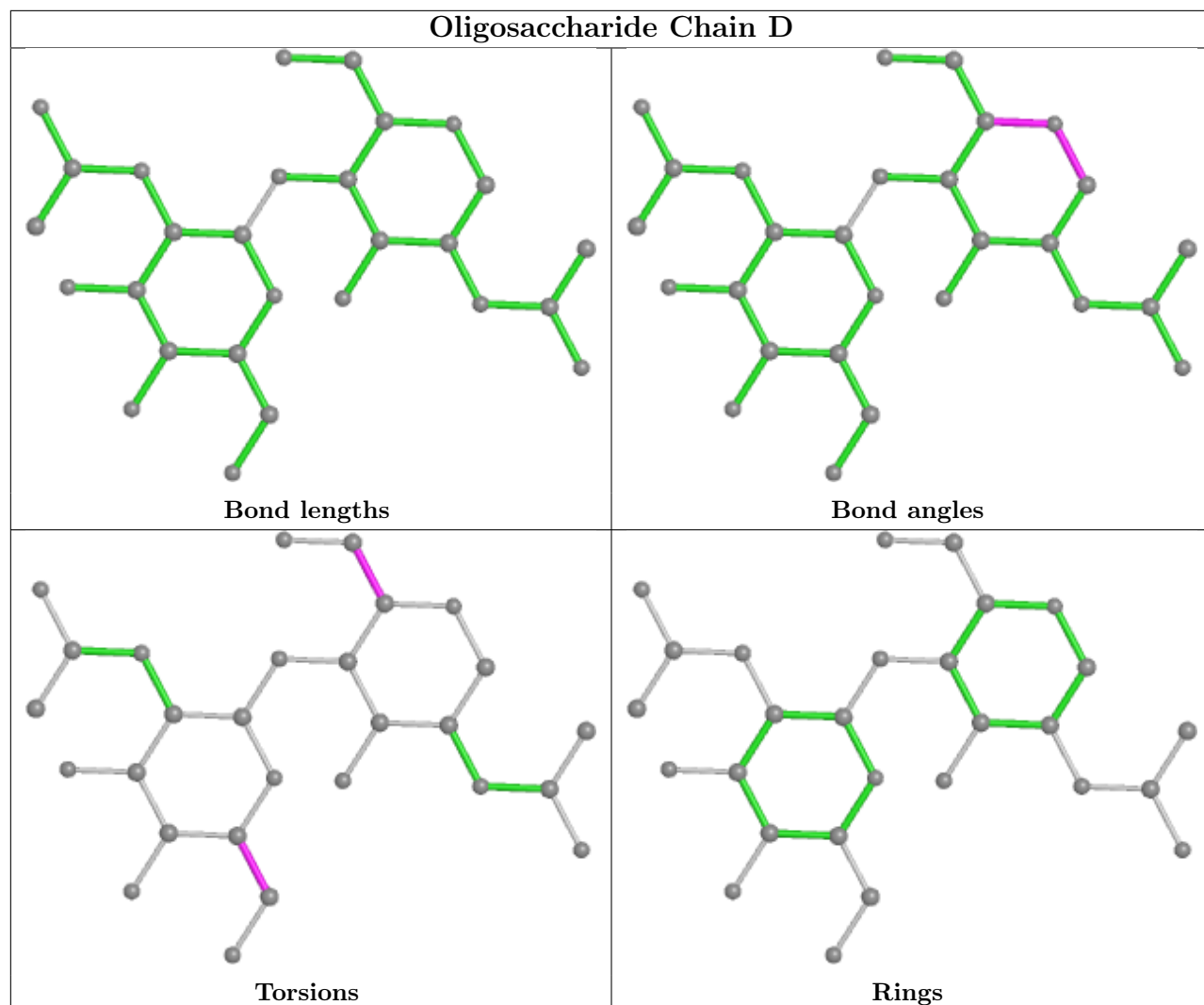
Mol	Chain	Res	Type	Atoms
4	G	4	MAN	O5-C5-C6-O6
2	W	1	NAG	O5-C5-C6-O6
2	W	2	NAG	O5-C5-C6-O6
2	M	1	NAG	O5-C5-C6-O6
2	J	2	NAG	O5-C5-C6-O6

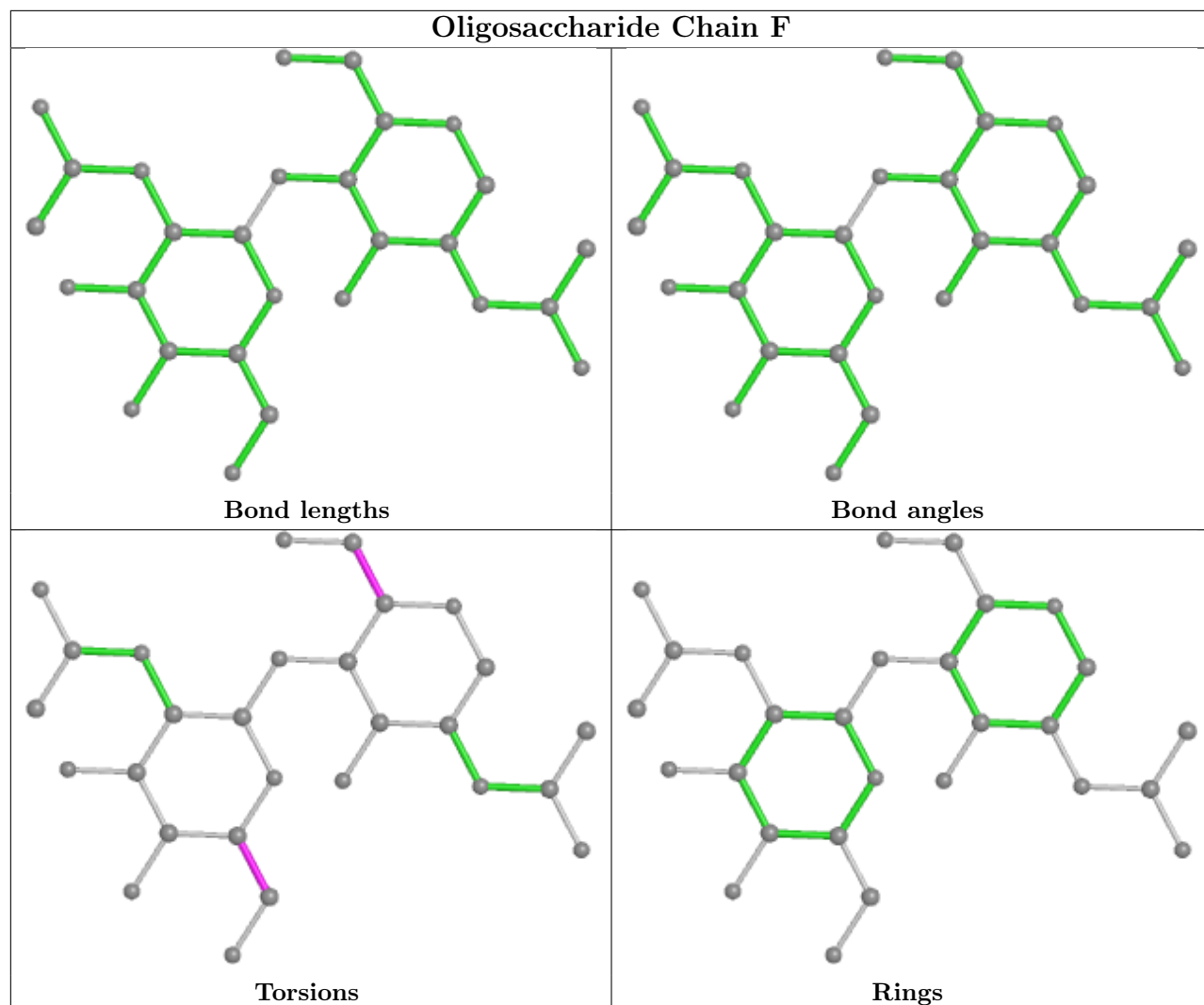
There are no ring outliers.

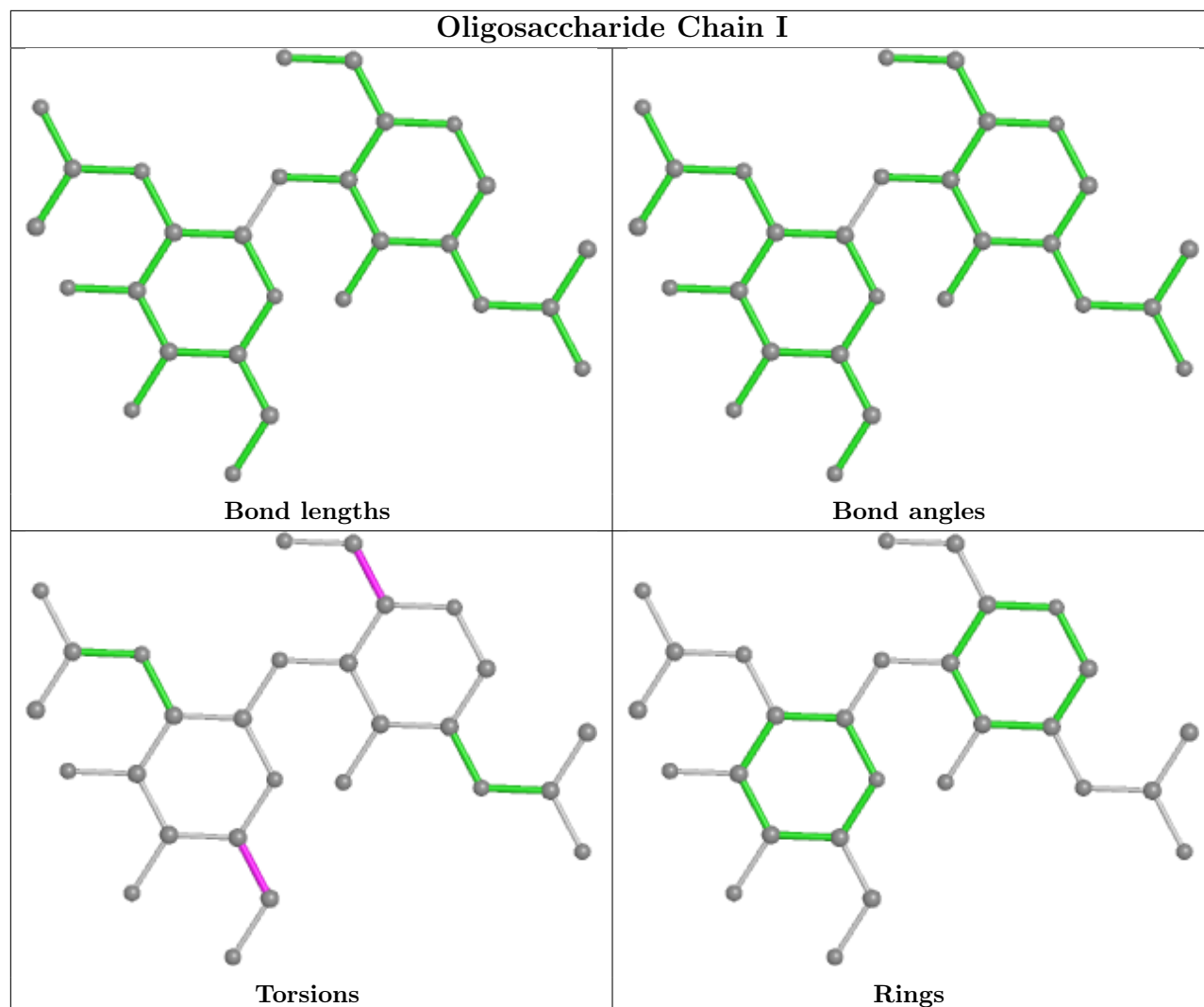
8 monomers are involved in 8 short contacts:

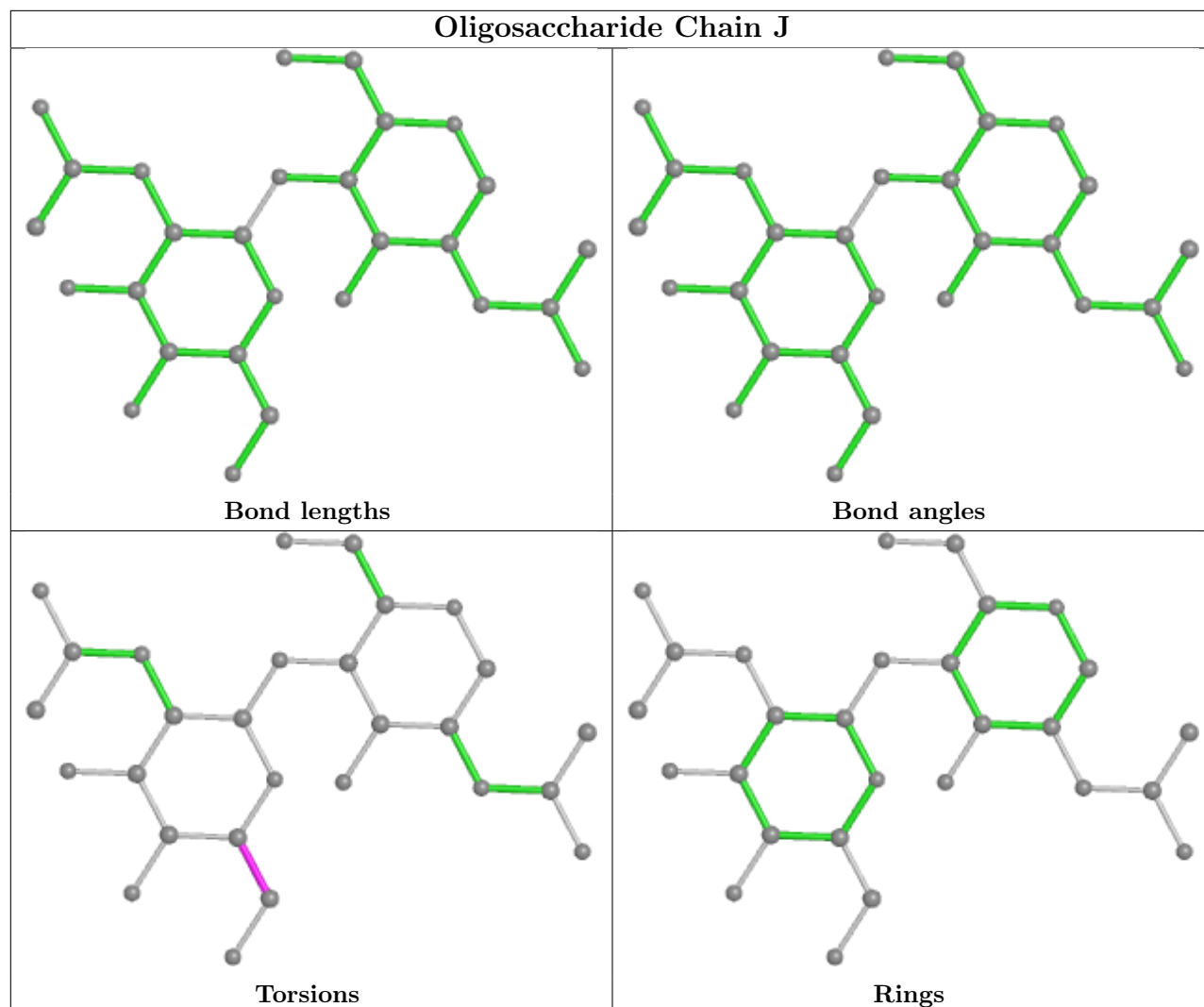
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	O	2	NAG	1	0
4	G	2	NAG	1	0
3	L	1	NAG	1	0
4	S	2	NAG	1	0
2	D	1	NAG	1	0
2	J	1	NAG	1	0
4	S	1	NAG	1	0
3	Q	1	NAG	1	0

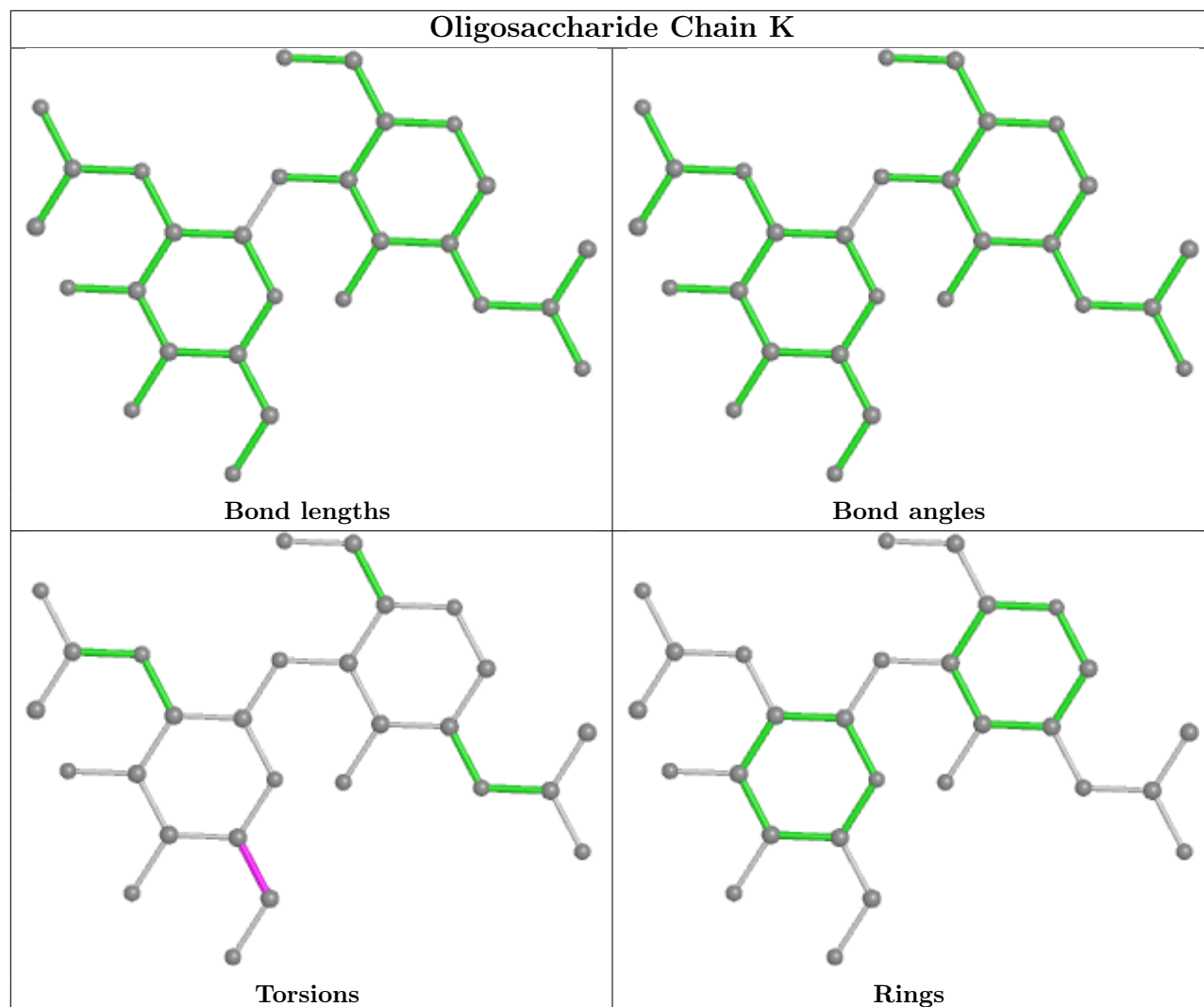
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

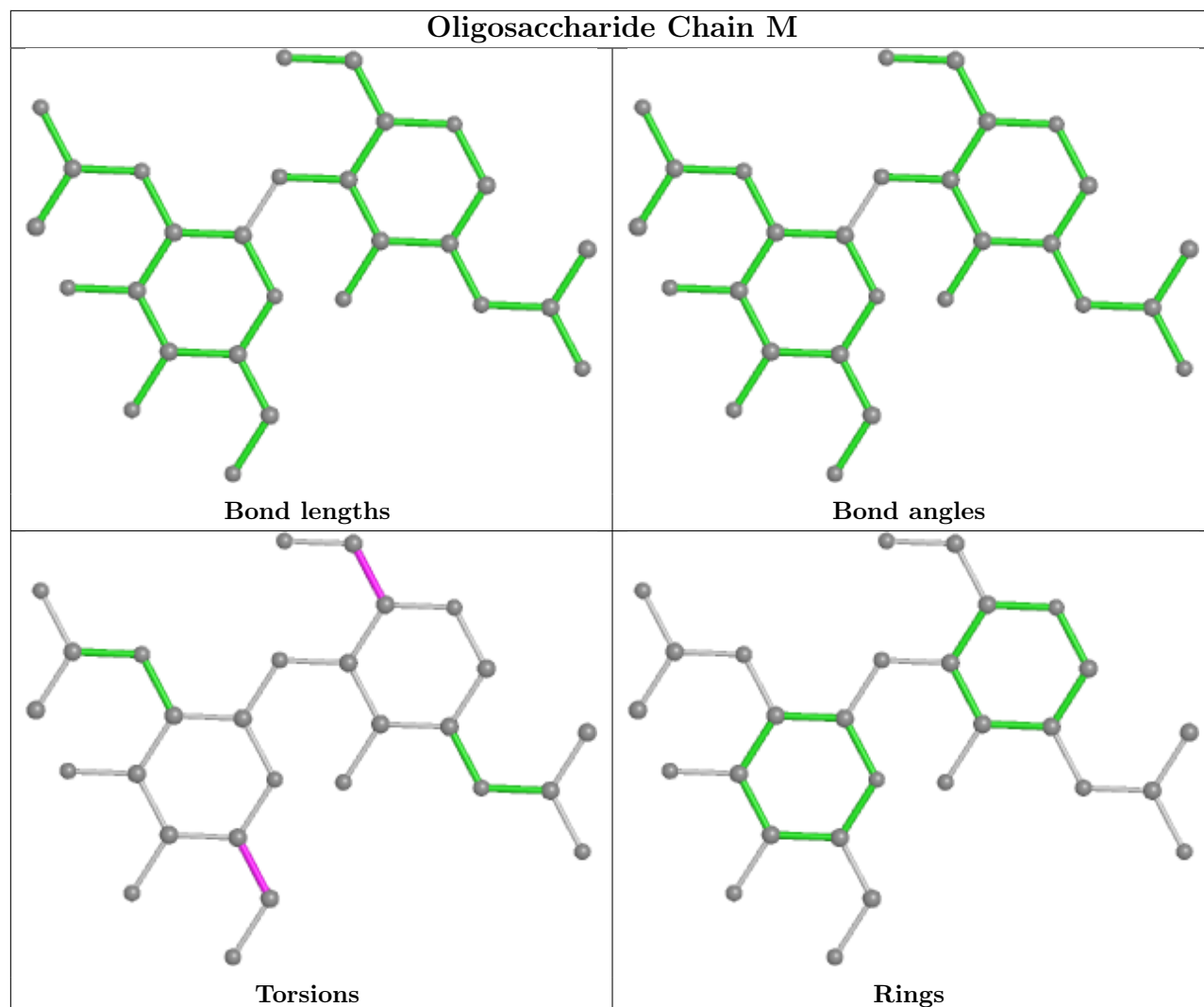




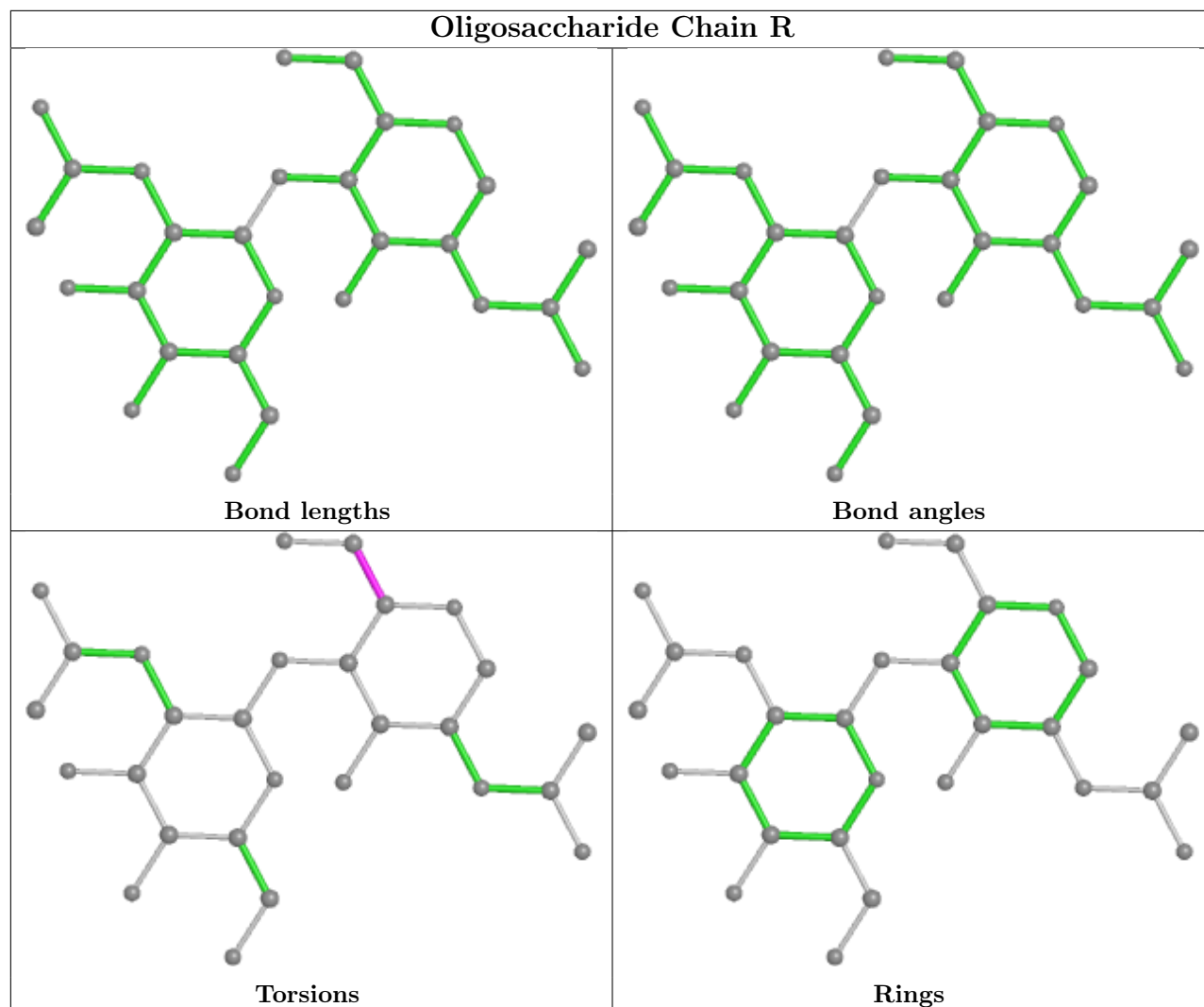


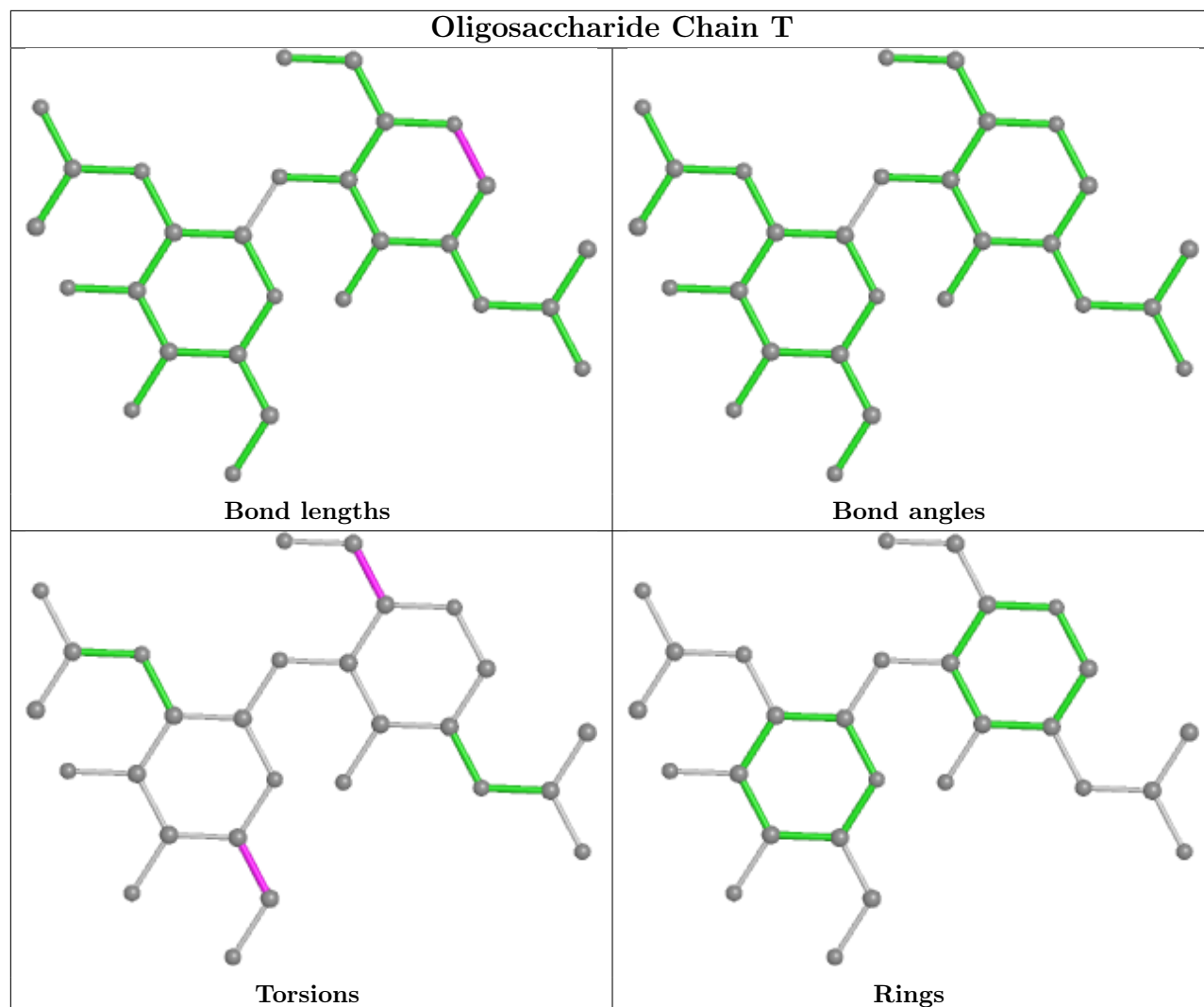


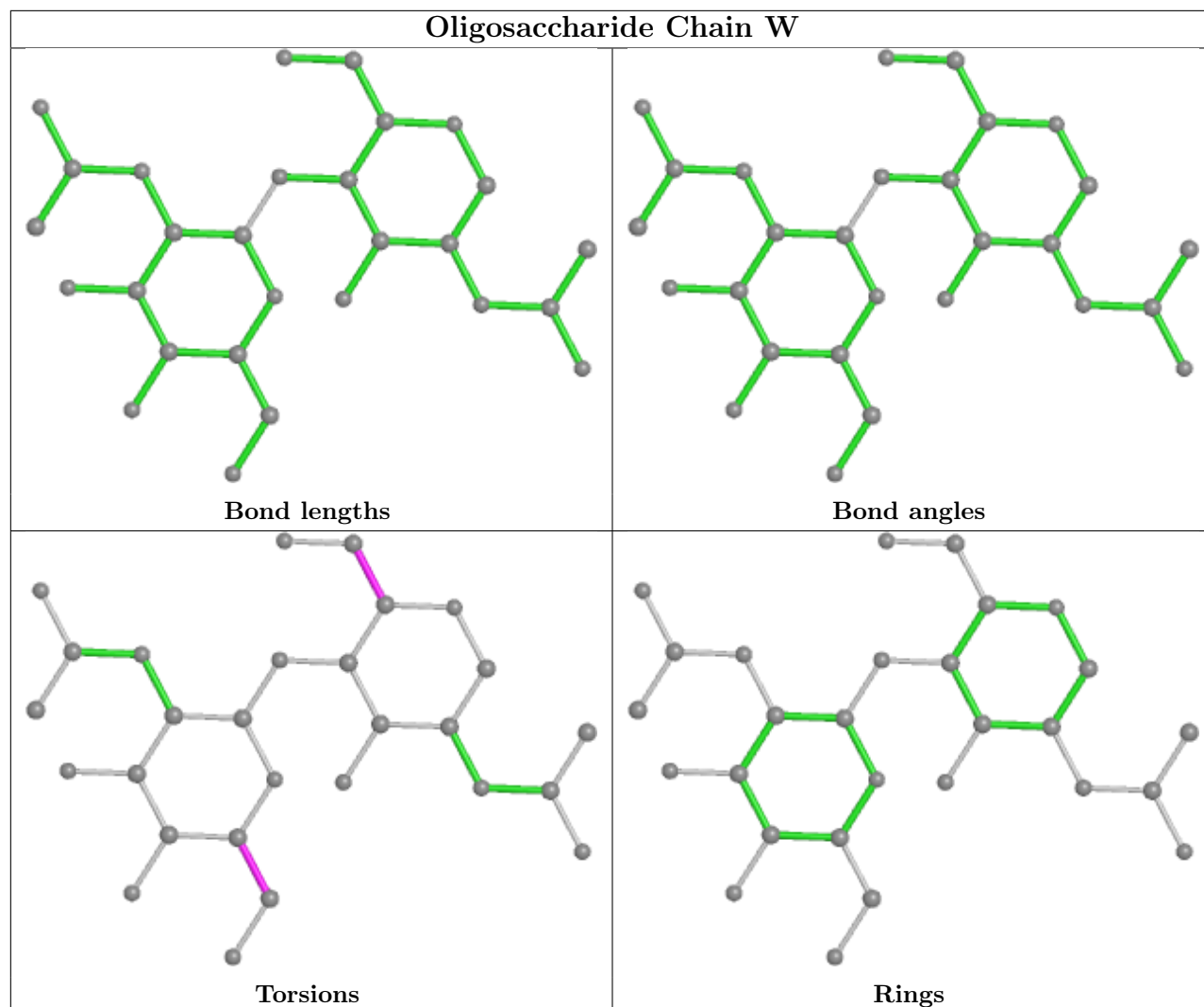


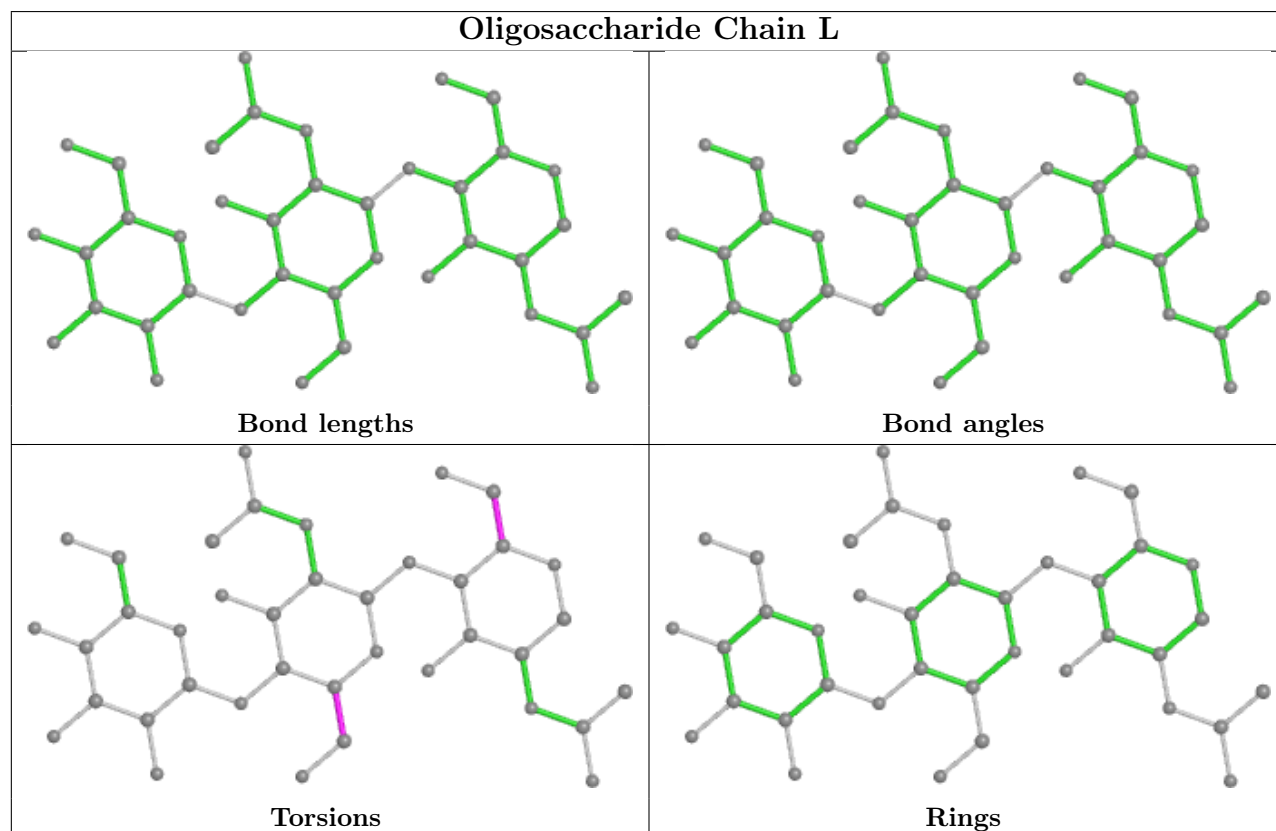
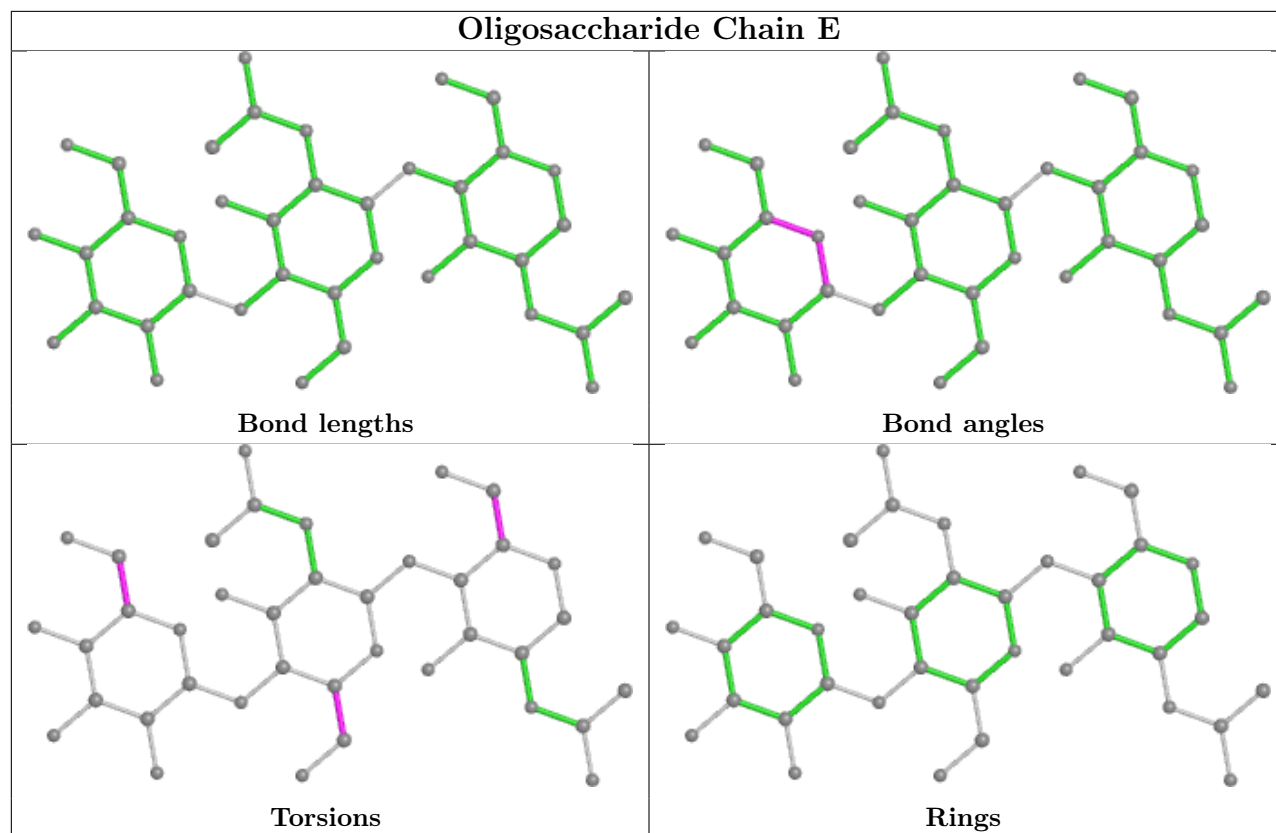


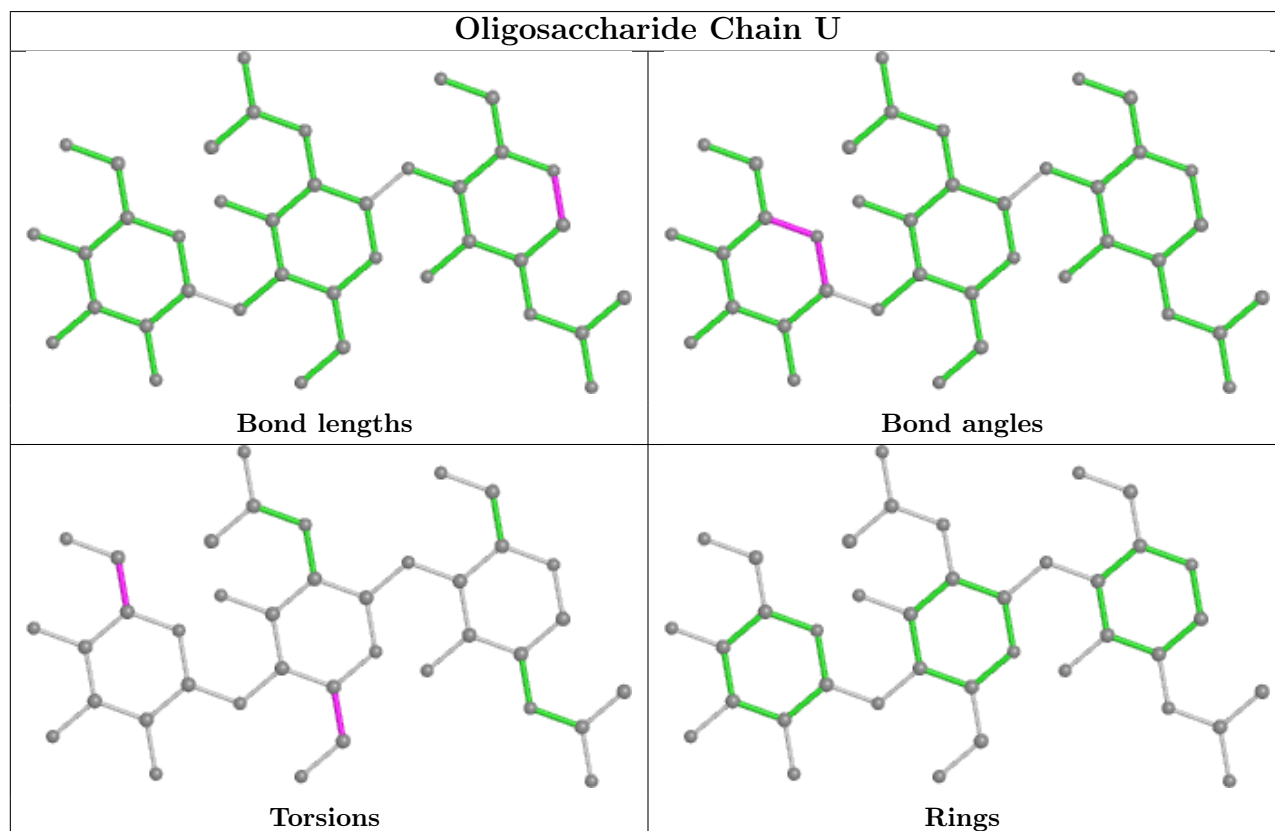
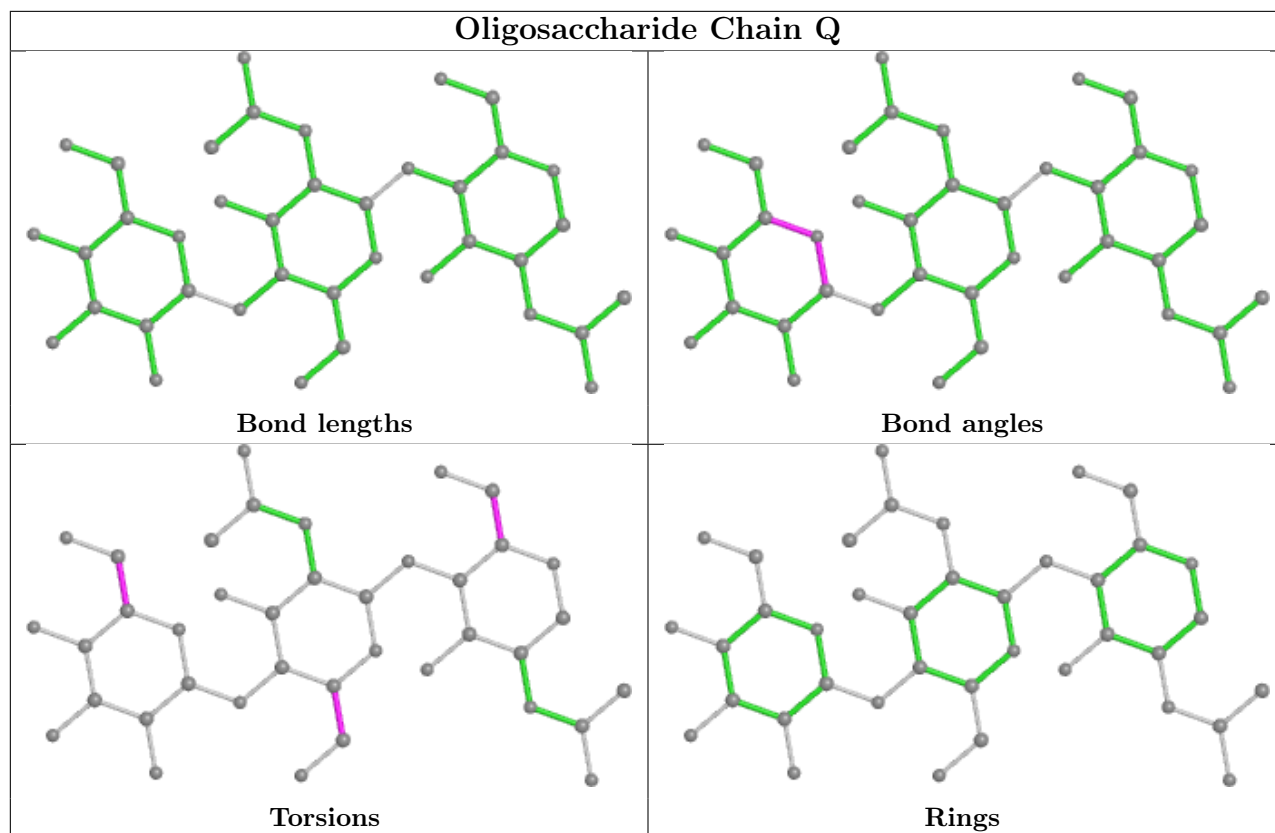


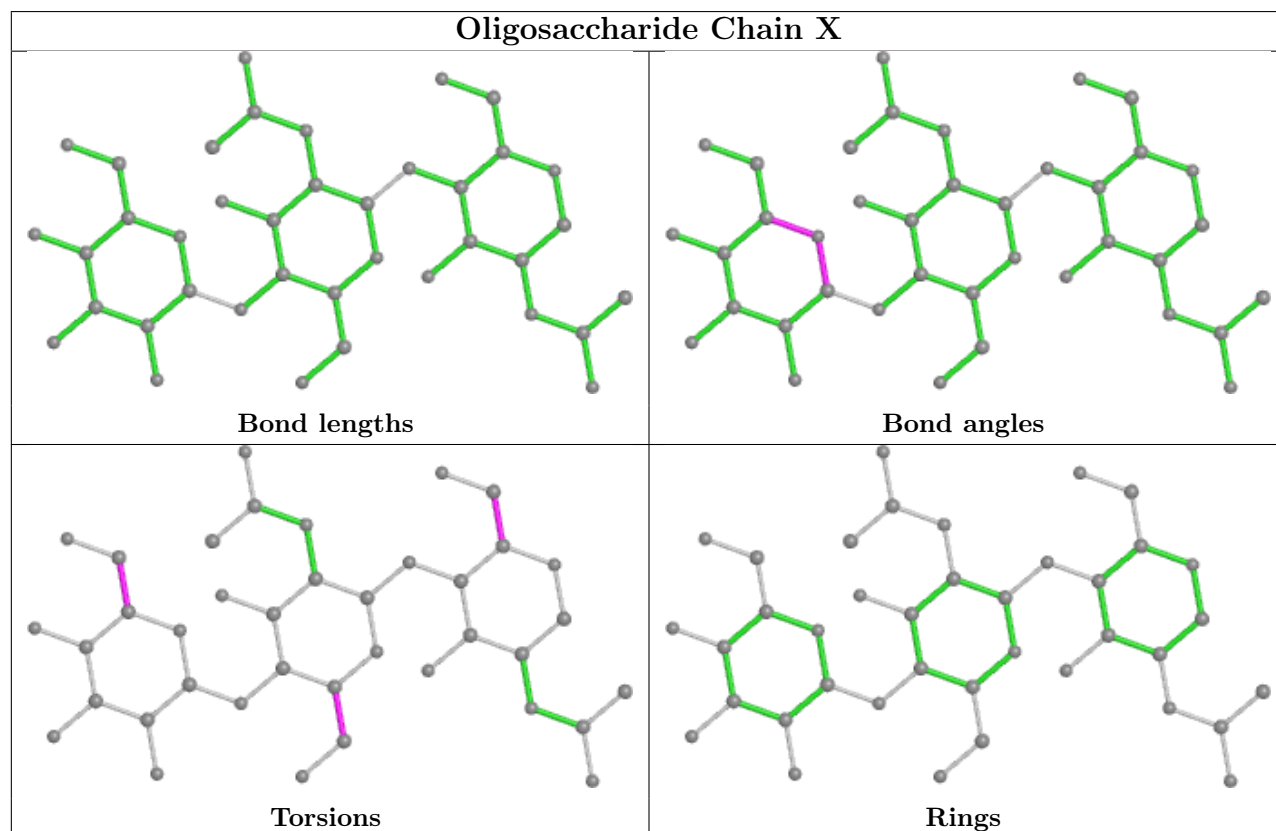
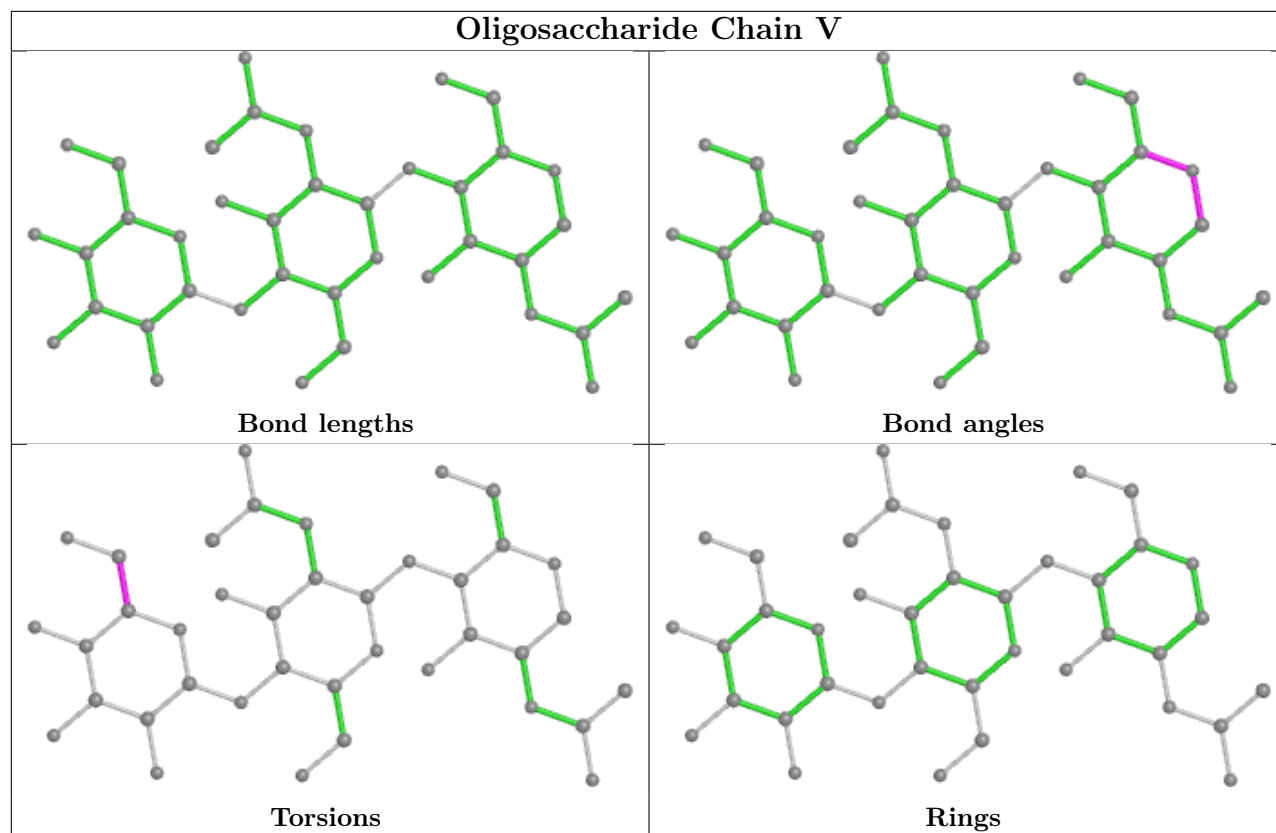


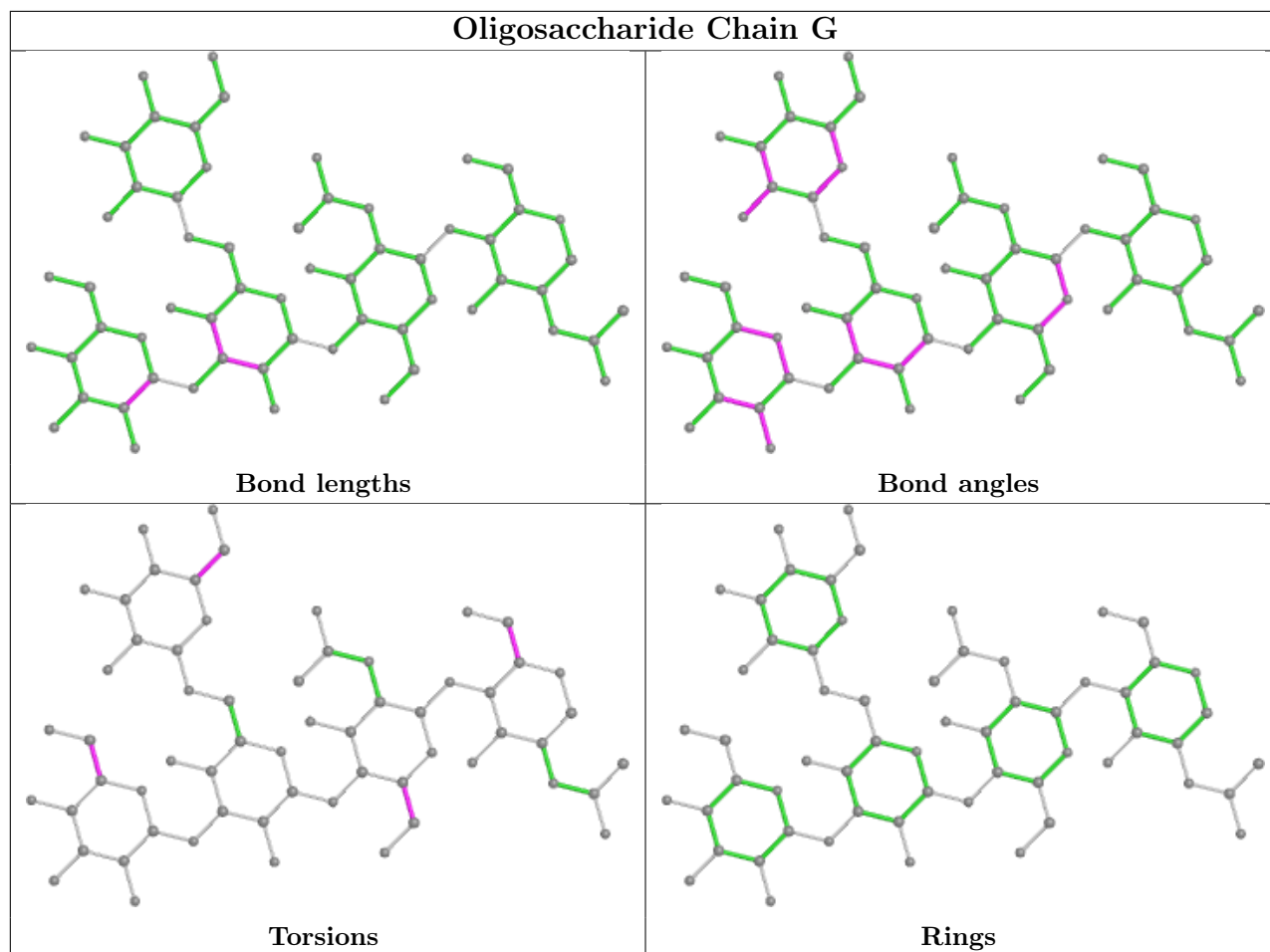


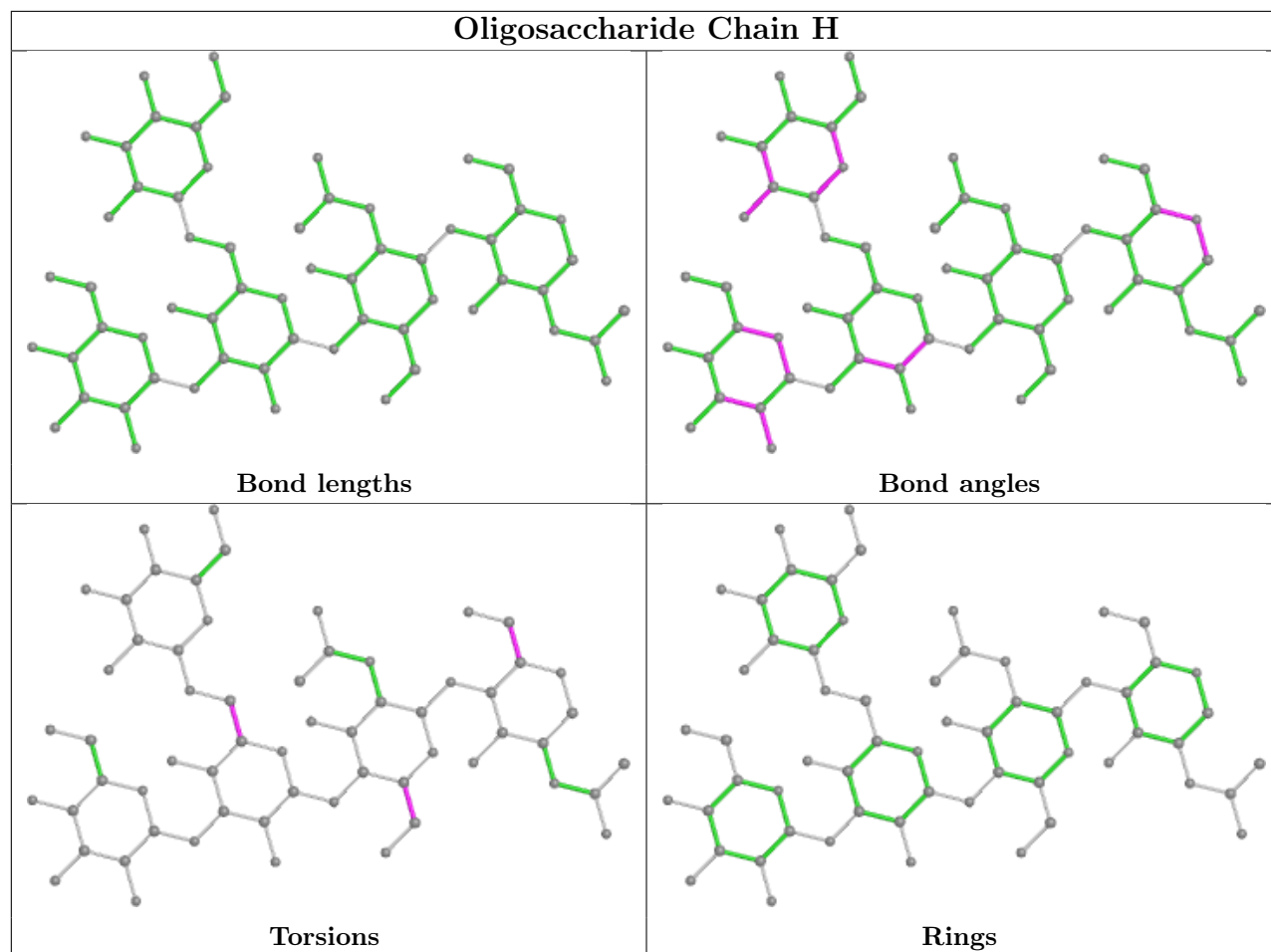




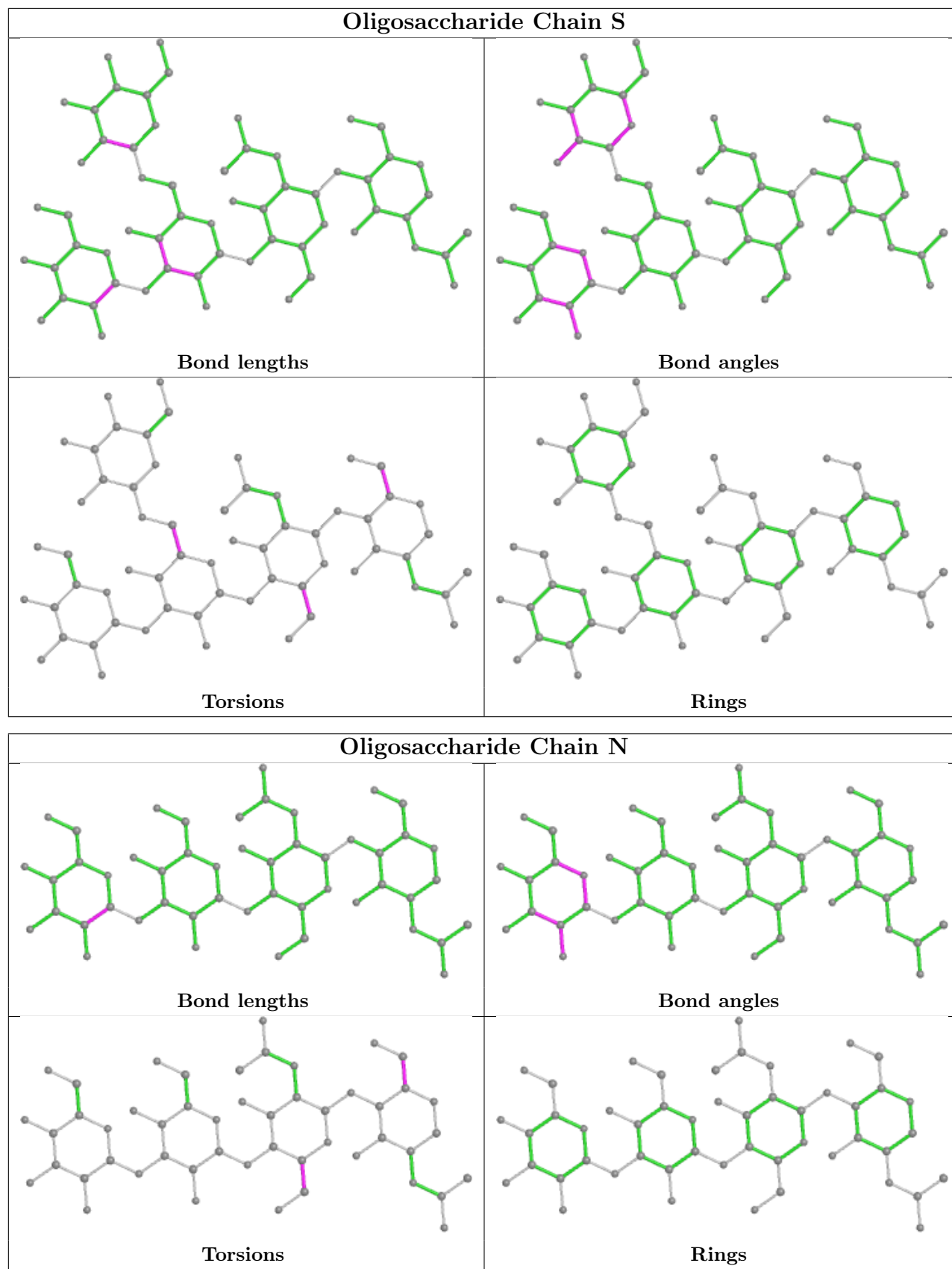


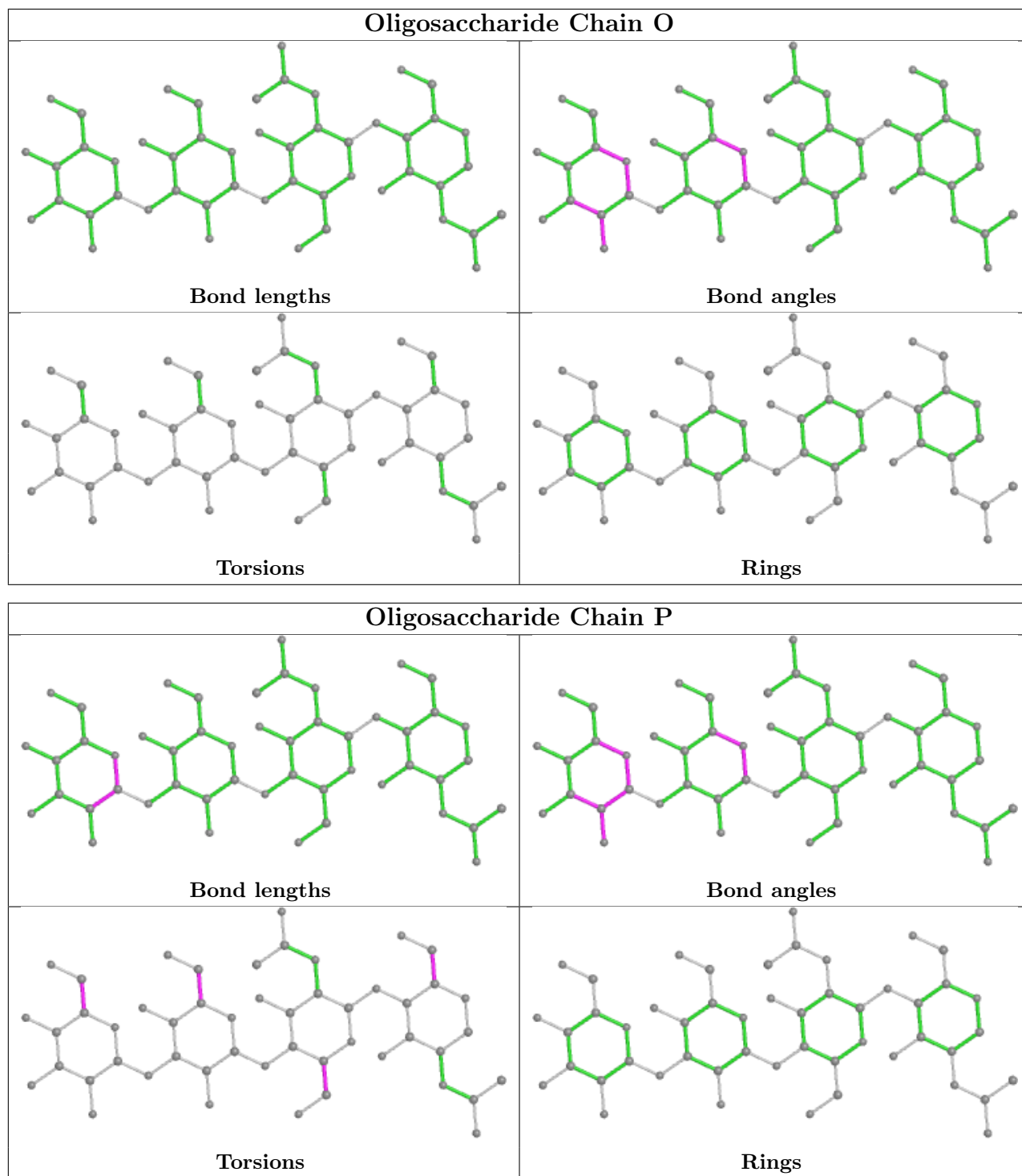












## 5.6 Ligand geometry [i](#)

12 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
6	NAG	A	1317	1	14,14,15	0.41	0	17,19,21	0.41	0
6	NAG	A	1301	1	14,14,15	0.37	0	17,19,21	0.55	0
6	NAG	C	1321	1	14,14,15	0.43	0	17,19,21	0.46	0
6	NAG	A	1323	1	14,14,15	0.25	0	17,19,21	0.35	0
6	NAG	C	1308	1	14,14,15	0.27	0	17,19,21	0.40	0
6	NAG	B	1302	1	14,14,15	0.52	0	17,19,21	0.60	0
6	NAG	B	1322	1	14,14,15	0.24	0	17,19,21	0.60	0
6	NAG	A	1316	1	14,14,15	0.36	0	17,19,21	0.65	1 (5%)
6	NAG	B	1301	1	14,14,15	0.24	0	17,19,21	0.57	0
6	NAG	A	1307	1	14,14,15	0.20	0	17,19,21	0.43	0
6	NAG	C	1327	1	14,14,15	0.33	0	17,19,21	0.53	0
6	NAG	B	1323	1	14,14,15	0.19	0	17,19,21	0.36	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	A	1317	1	-	2/6/23/26	0/1/1/1
6	NAG	A	1301	1	-	2/6/23/26	0/1/1/1
6	NAG	C	1321	1	-	2/6/23/26	0/1/1/1
6	NAG	A	1323	1	-	0/6/23/26	0/1/1/1
6	NAG	C	1308	1	-	2/6/23/26	0/1/1/1
6	NAG	B	1302	1	-	1/6/23/26	0/1/1/1
6	NAG	B	1322	1	-	2/6/23/26	0/1/1/1
6	NAG	A	1316	1	-	2/6/23/26	0/1/1/1
6	NAG	B	1301	1	-	2/6/23/26	0/1/1/1
6	NAG	A	1307	1	-	2/6/23/26	0/1/1/1
6	NAG	C	1327	1	-	1/6/23/26	0/1/1/1
6	NAG	B	1323	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	1316	NAG	C1-O5-C5	2.25	115.24	112.19

There are no chirality outliers.

5 of 20 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	1316	NAG	O5-C5-C6-O6
6	B	1322	NAG	O5-C5-C6-O6
6	C	1321	NAG	O5-C5-C6-O6
6	A	1301	NAG	O5-C5-C6-O6
6	A	1307	NAG	O5-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	C	1321	NAG	1	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

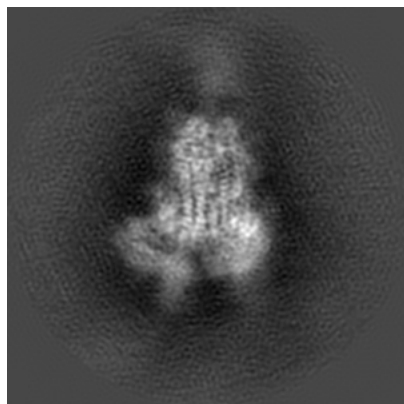
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-7579. These allow visual inspection of the internal detail of the map and identification of artifacts.

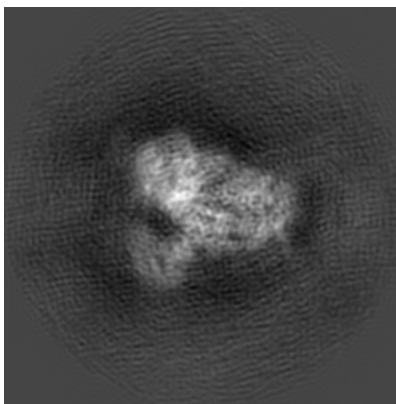
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

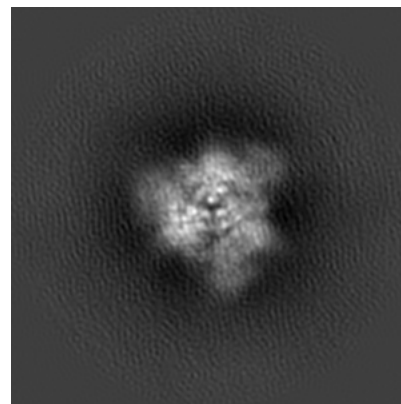
#### 6.1.1 Primary map



X

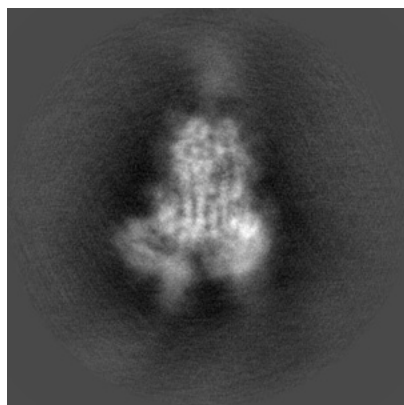


Y

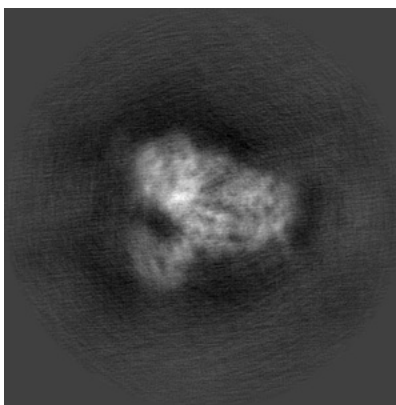


Z

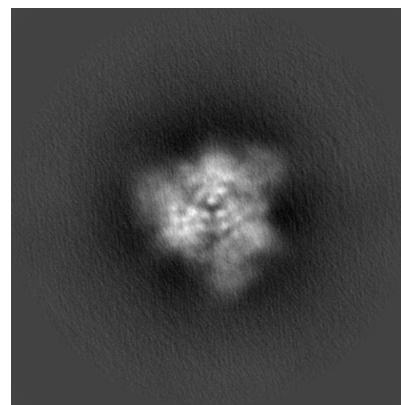
#### 6.1.2 Raw map



X



Y

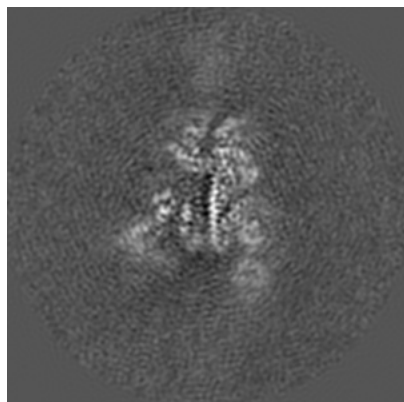


Z

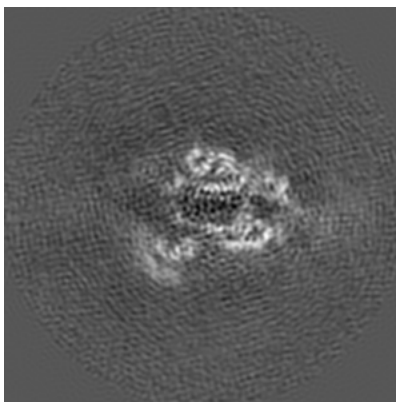
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

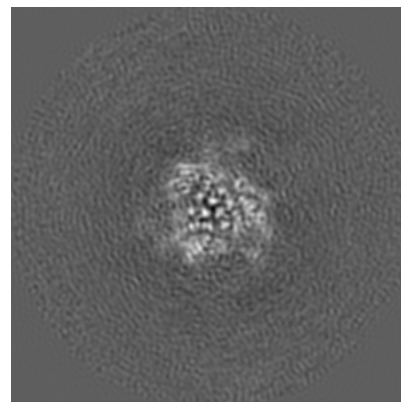
### 6.2.1 Primary map



X Index: 160

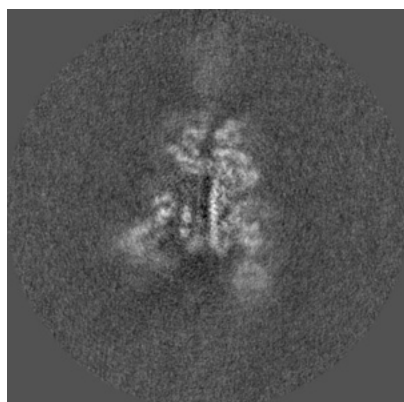


Y Index: 160

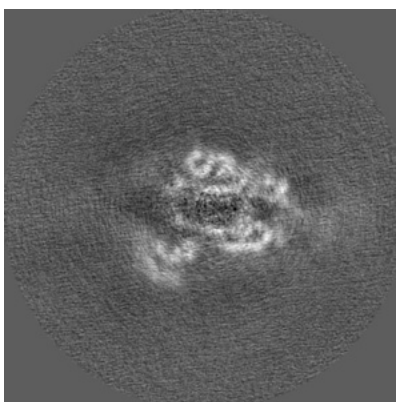


Z Index: 160

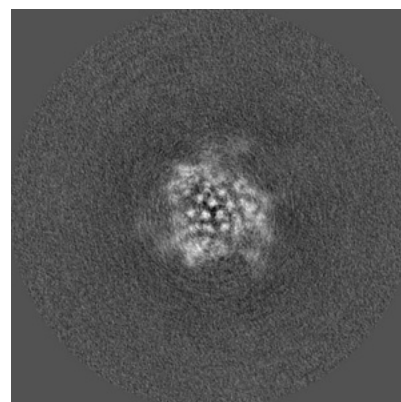
### 6.2.2 Raw map



X Index: 160



Y Index: 160

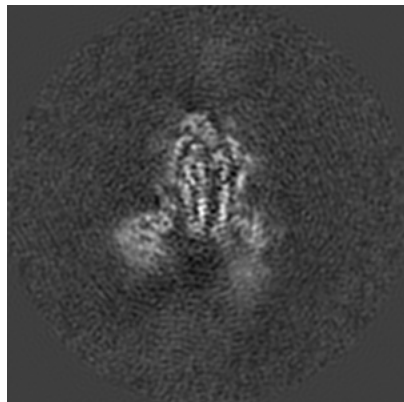


Z Index: 160

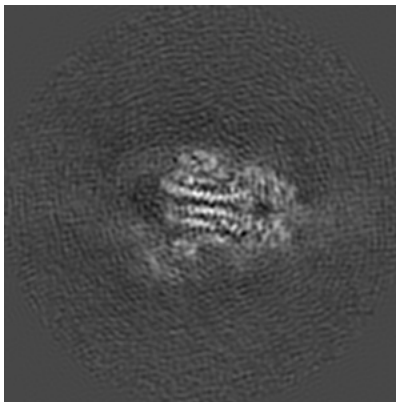
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

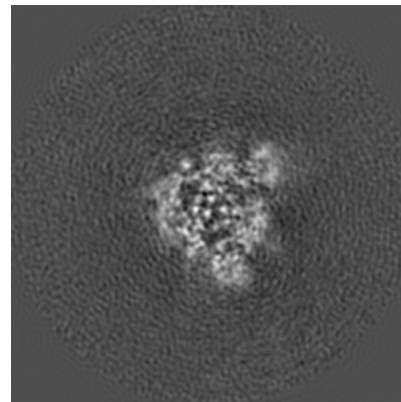
### 6.3.1 Primary map



X Index: 168

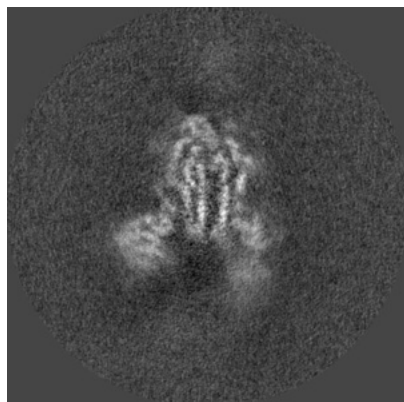


Y Index: 155

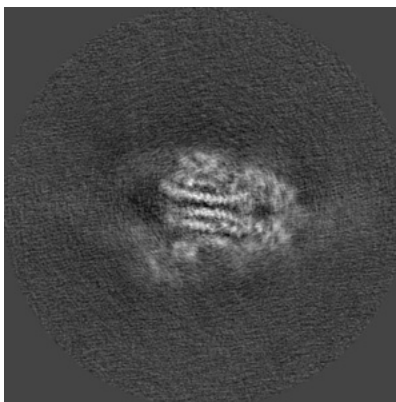


Z Index: 147

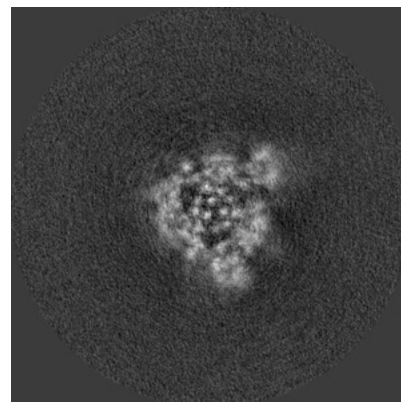
### 6.3.2 Raw map



X Index: 168



Y Index: 155



Z Index: 147

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

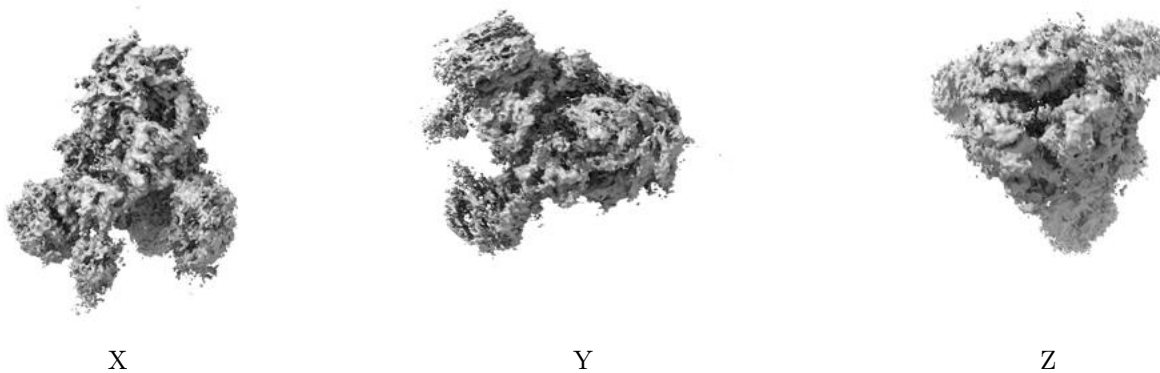
## 6.4 Orthogonal surface views [i](#)

### 6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.032. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.4.2 Raw map



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.



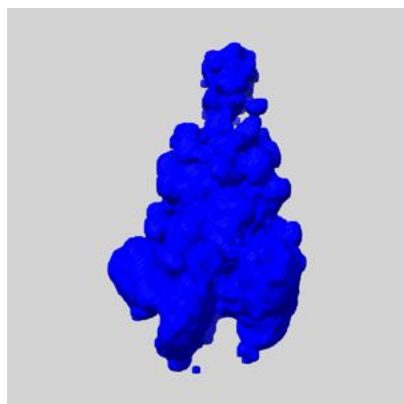
## 6.5 Mask visualisation [i](#)

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

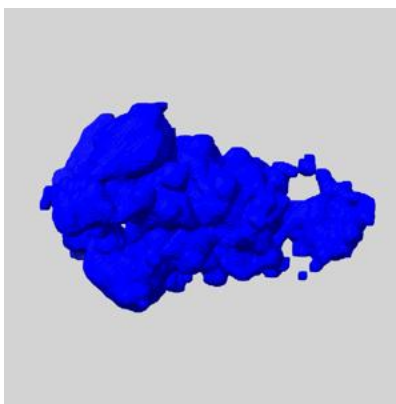
A mask typically either:

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

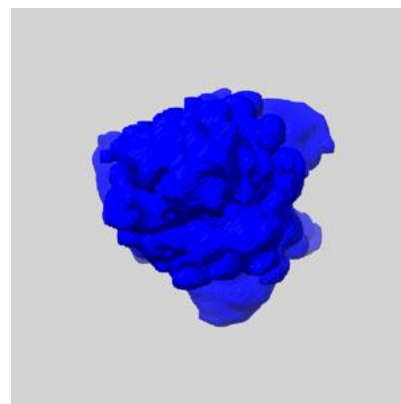
### 6.5.1 emd\_7579\_msk\_1.map [i](#)



X



Y

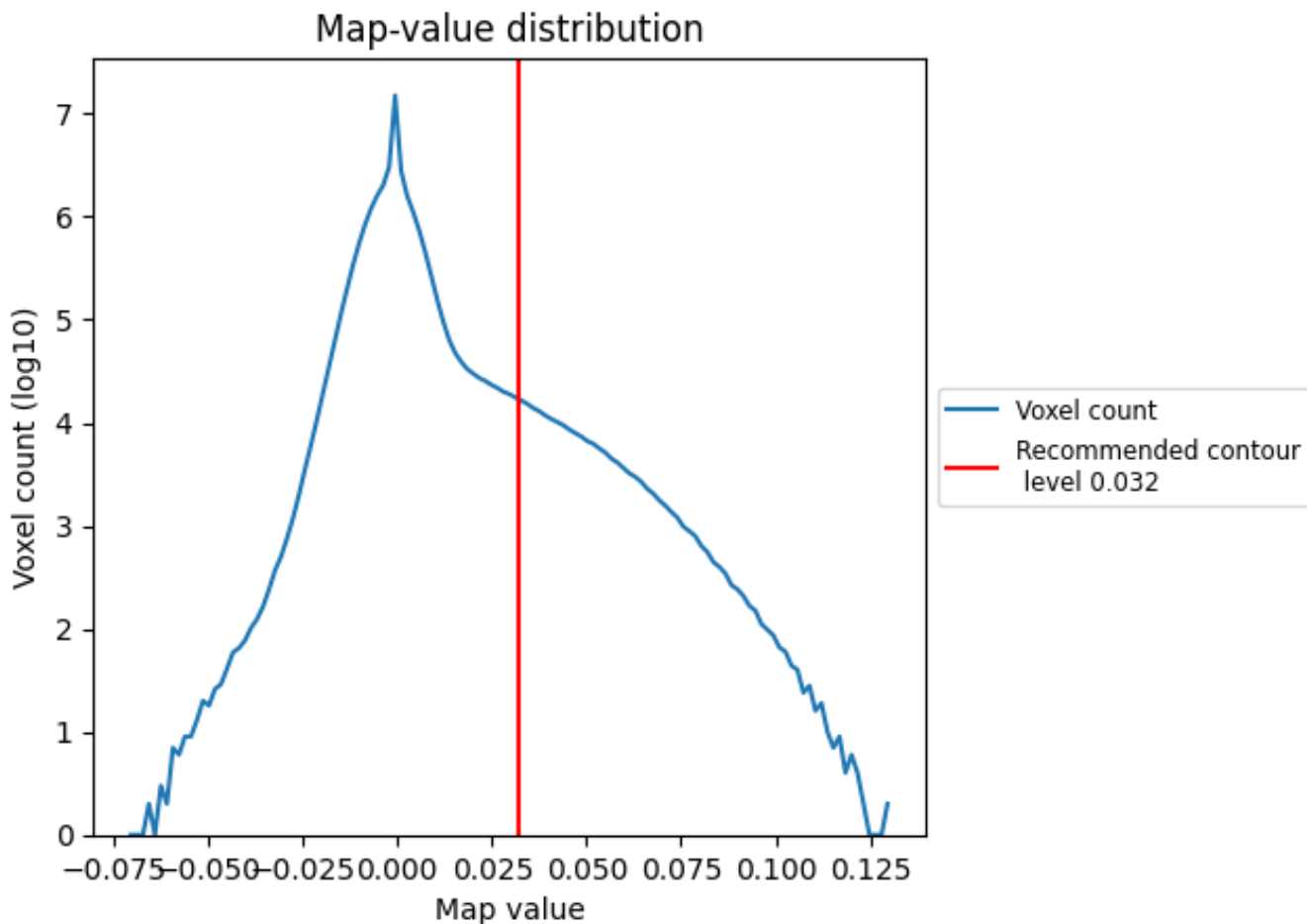


Z

## 7 Map analysis [i](#)

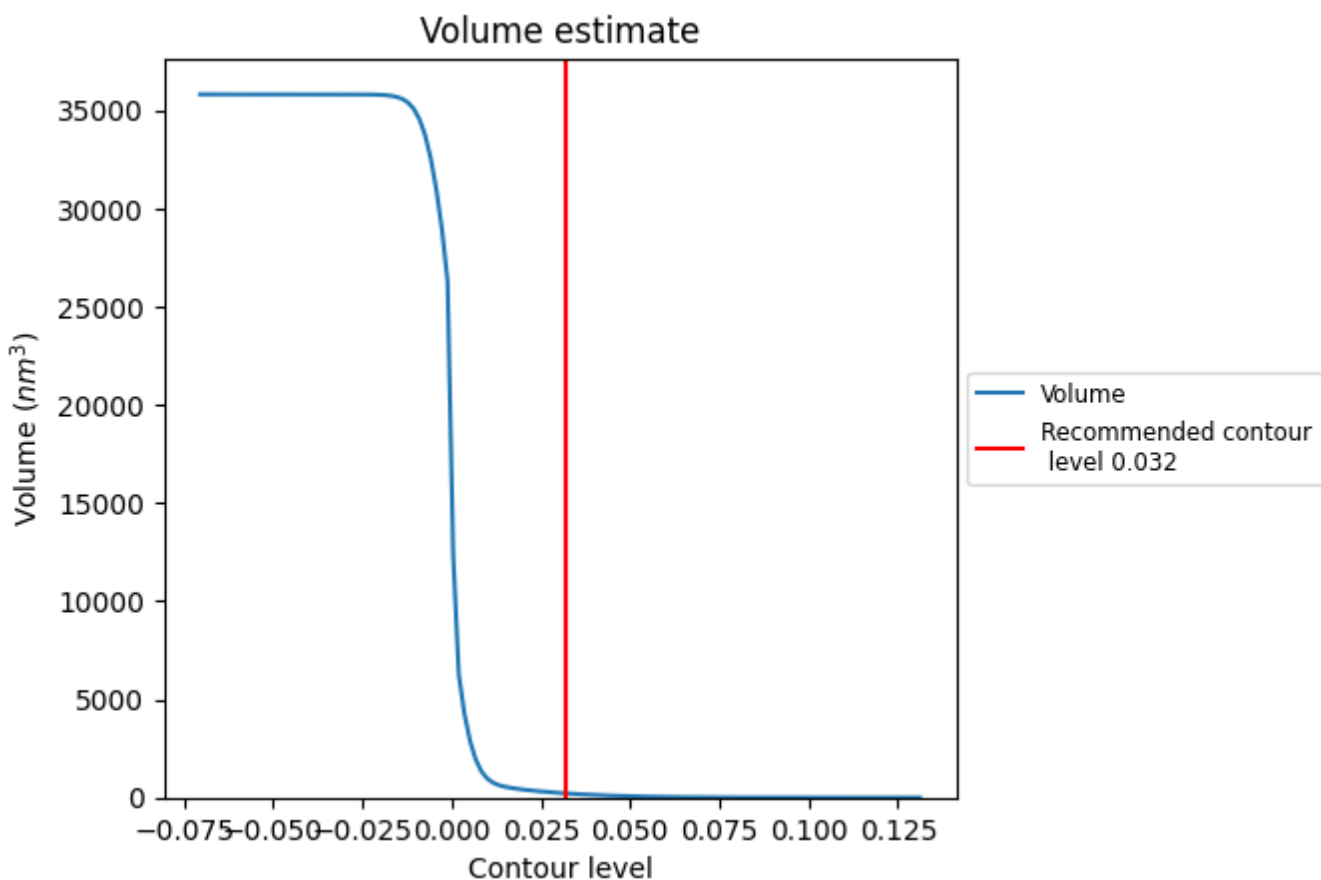
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



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.

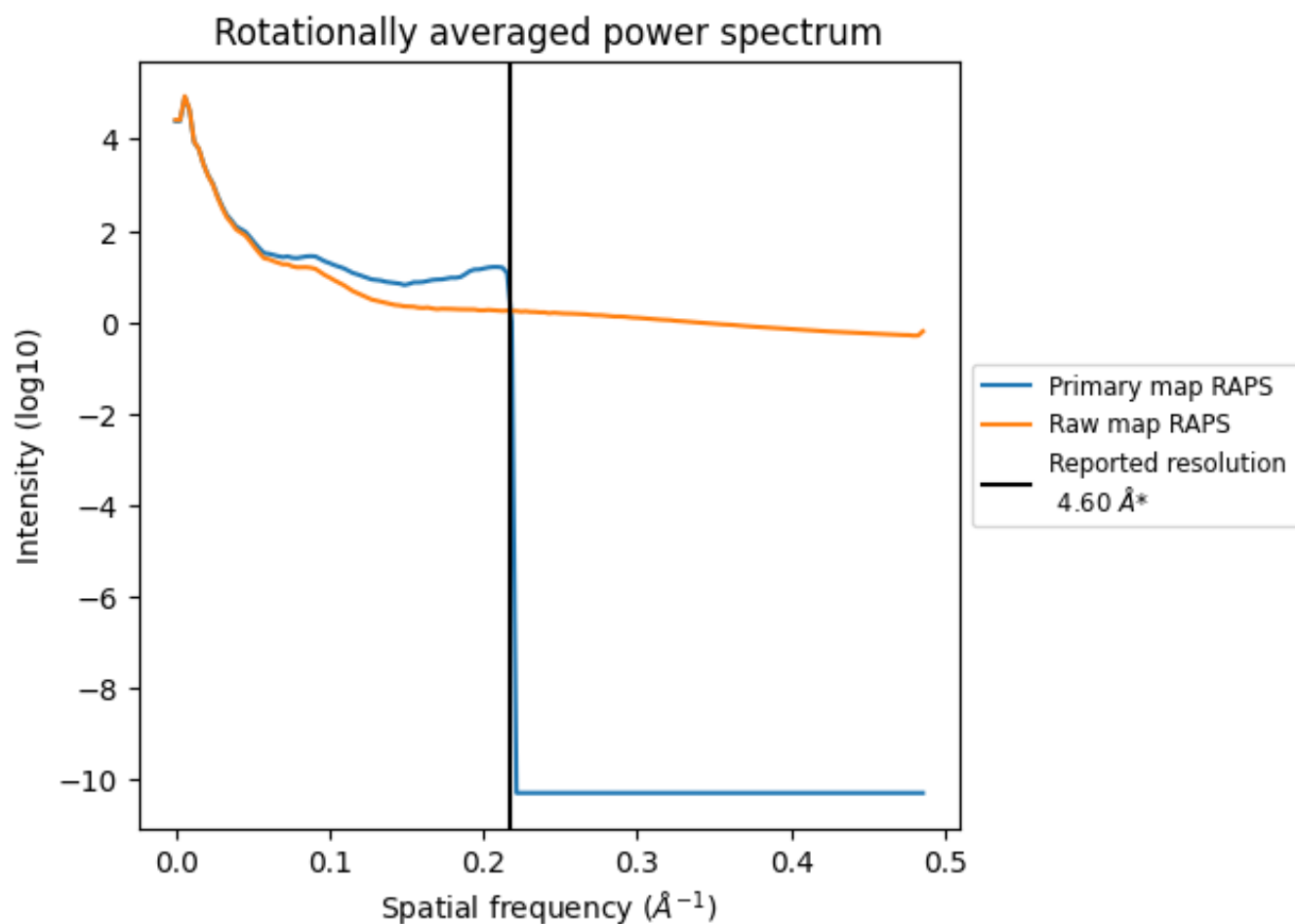
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 213 nm<sup>3</sup>; this corresponds to an approximate mass of 192 kDa.

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

### 7.3 Rotationally averaged power spectrum [i](#)

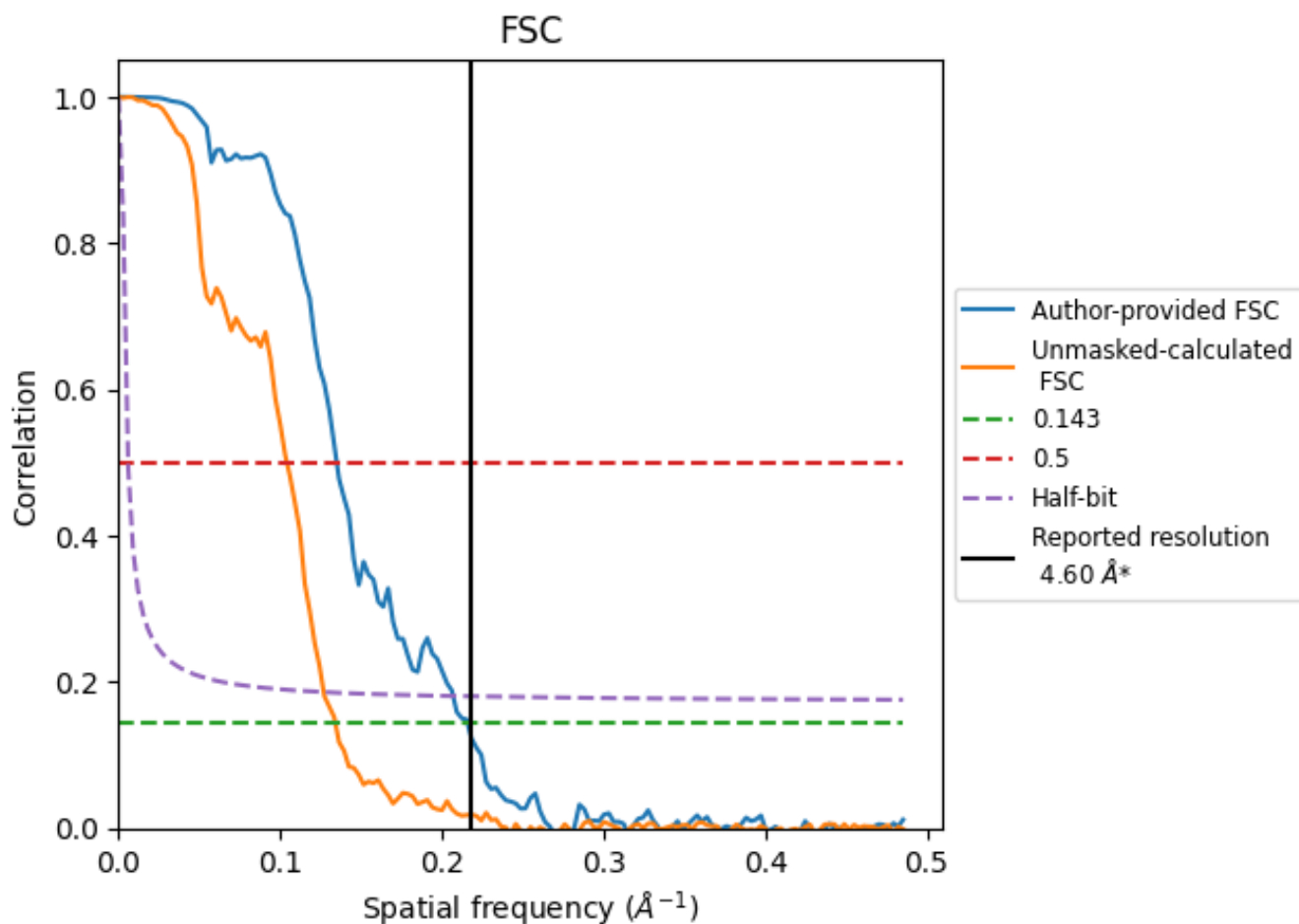


\*Reported resolution corresponds to spatial frequency of 0.217 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

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 [i](#)



\*Reported resolution corresponds to spatial frequency of 0.217 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

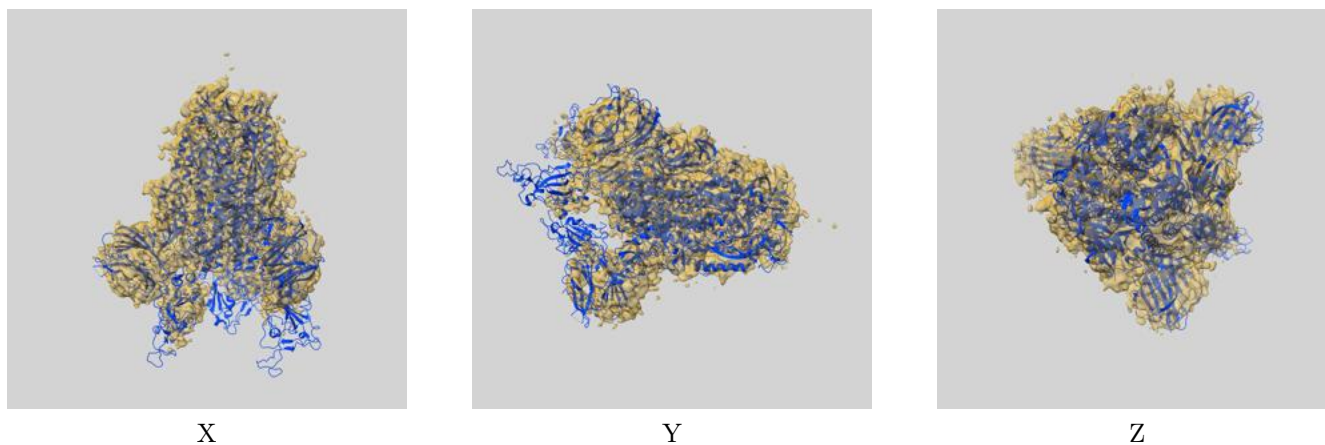
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.60	-	-
Author-provided FSC curve	4.63	7.41	4.83
Unmasked-calculated*	7.45	9.60	7.87

\*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 7.45 differs from the reported value 4.6 by more than 10 %

## 9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-7579 and PDB model 6CS1. Per-residue inclusion information can be found in section 3 on page 9.

### 9.1 Map-model overlay [i](#)



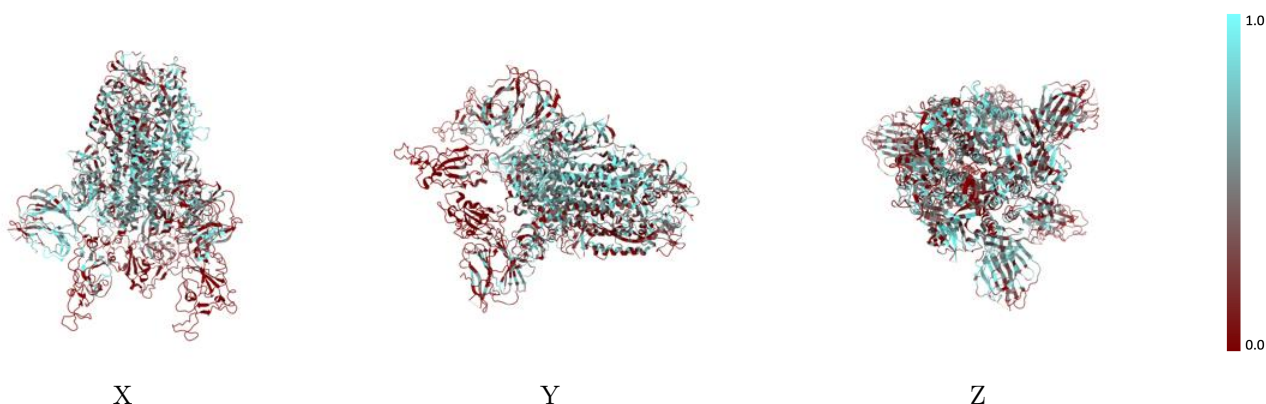
The images above show the 3D surface view of the map at the recommended contour level 0.032 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

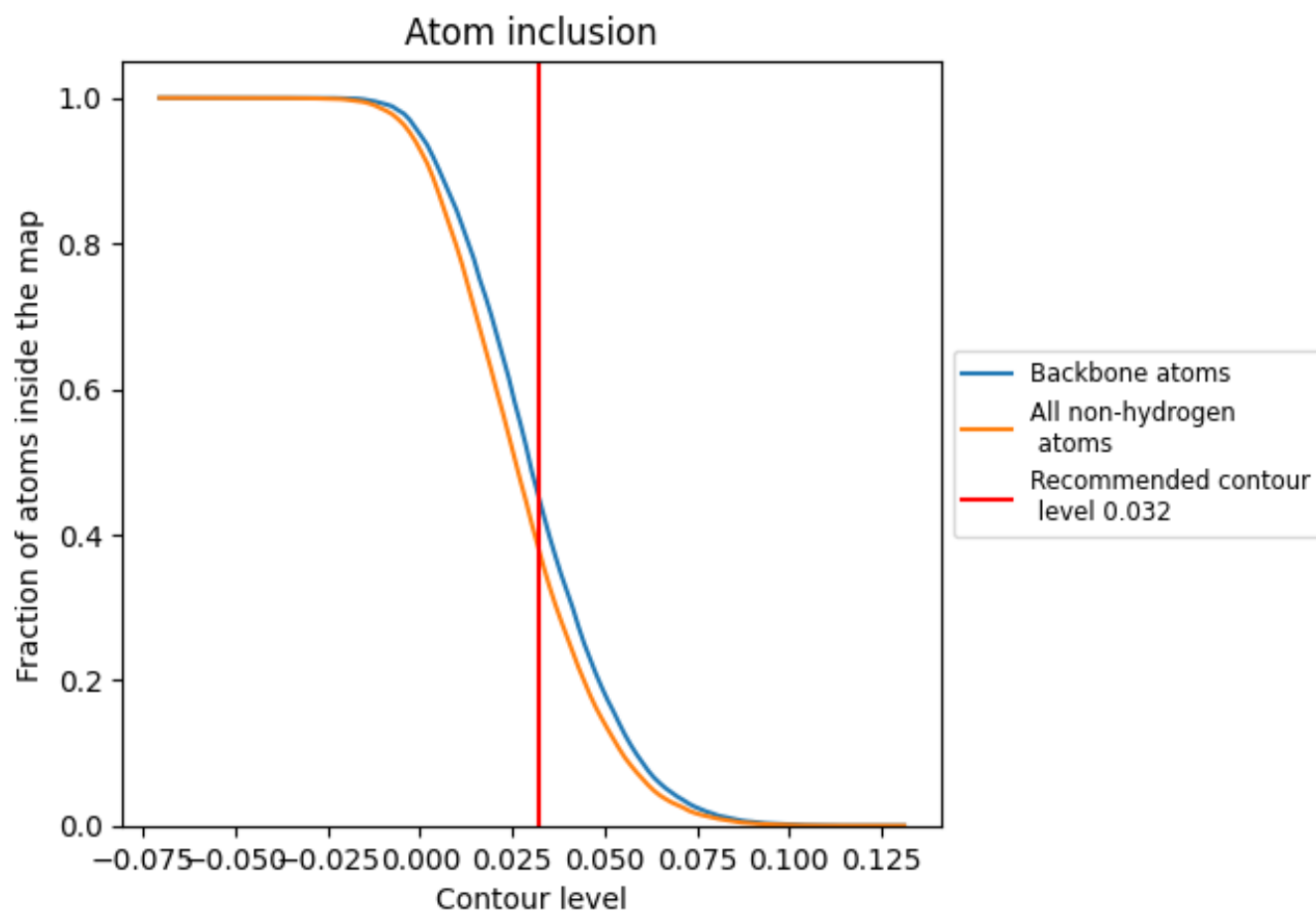
## 9.3 Atom inclusion mapped to coordinate model [i](#)



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 (0.032).





















































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 46% of all backbone atoms, 38% 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 (0.032) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.3839	 0.0410
A	 0.3434	 0.0250
B	 0.4195	 0.0580
C	 0.4132	 0.0380
D	 0.0000	 -0.1130
E	 0.0256	 -0.0080
F	 0.0357	 0.0870
G	 0.1639	 0.0420
H	 0.4098	 0.2230
I	 0.1429	 0.0230
J	 0.1429	 -0.0700
K	 0.1786	 0.1480
L	 0.0513	 -0.0060
M	 0.1786	 0.0430
N	 0.1000	 0.0850
O	 0.2000	 0.1490
P	 0.2600	 0.0770
Q	 0.5128	 0.1790
R	 0.0000	 -0.0930
S	 0.0000	 0.0890
T	 0.1786	 0.0940
U	 0.0000	 -0.1300
V	 0.0256	 -0.0160
W	 0.0000	 -0.0130
X	 0.0256	 -0.0640

