



Full wwPDB EM Validation Report ⓘ

Jun 12, 2024 – 10:47 AM JST

PDB ID : 8JUJ
EMDB ID : EMD-36664
Title : rat megalin
Authors : Goto, S.; Tsutsumi, A.; Lee, Y.; Hosojima, M.; Kabasawa, H.; Komochi, K.; Yun-san, L.; Nagatoshi, S.; Tsumoto, K.; Nishizawa, T.; Kikkawa, M.; Saito, A.
Deposited on : 2023-06-27
Resolution : 3.80 Å (reported)
Based on initial model : .

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

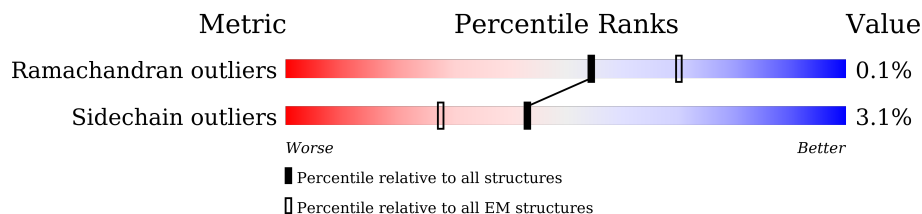
EMDB validation analysis : 0.0.1.dev92
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

1 Overall quality at a glance i

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

The reported resolution of this entry is 3.80 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)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	4660	
1	B	4660	
2	C	6	
2	I	6	
3	D	3	
3	J	3	
4	G	5	
4	K	5	
5	H	5	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
5	L	5	100%
5	O	5	100%
5	R	5	100%
6	M	6	83%
6	P	6	67%
7	N	5	100%
7	Q	5	100%
8	E	3	67%
8	T	3	67%
8	b	3	100%
8	c	3	33%
8	l	3	100%
8	o	3	67%
8	w	3	67%
8	x	3	33%
9	0	2	100%
9	3	2	100%
9	5	2	100%
9	F	2	100%
9	S	2	50%
9	U	2	100%
9	V	2	50%
9	X	2	50%
9	Z	2	50%
9	a	2	50%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	e	2	100% 100%
9	f	2	50% 100%
9	i	2	100% 100%
9	k	2	100% 100%
9	m	2	50% 50%
9	n	2	50% 100%
9	p	2	50% 50%
9	q	2	100% 100%
9	s	2	50% 100%
9	u	2	50% 100%
9	v	2	50% 100%
9	z	2	100% 100%
10	1	5	100% 20% 80%
10	2	5	80% 100%
10	W	5	60% 80% 20%
10	Y	5	100%
10	d	5	60% 80% 20%
10	g	5	100% 60% 40%
10	h	5	80% 60% 40%
10	r	5	80% 40% 60%
10	t	5	100%
10	y	5	40% 80% 20%
11	4	3	100% 67% 33%
11	j	3	100% 100%

2 Entry composition [i](#)

There are 15 unique types of molecules in this entry. The entry contains 70018 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 LDL receptor related protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	4308	Total	C	N	O	S	0	0
			33638	20708	5950	6605	375		
1	B	4308	Total	C	N	O	S	0	0
			33638	20708	5950	6605	375		

- Molecule 2 is a protein called unclear peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
2	C	6	Total	C	N	O	0	0
			33	21	6	6		
2	I	6	Total	C	N	O	0	0
			33	21	6	6		

- Molecule 3 is a protein called unclear peptide.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	3	Total	C	N	O	S	0	0
			16	9	3	3	1		
3	J	3	Total	C	N	O	S	0	0
			16	9	3	3	1		

- Molecule 4 is a protein called unclear peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	G	5	Total	C	N	O	0	0
			33	19	5	9		
4	K	5	Total	C	N	O	0	0
			33	19	5	9		

- Molecule 5 is a protein called unclear peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
5	H	5	Total	C	N	O	0	0
			28	16	6	6		
5	L	5	Total	C	N	O	0	0
			28	16	6	6		
5	O	5	Total	C	N	O	0	0
			28	16	6	6		
5	R	5	Total	C	N	O	0	0
			28	16	6	6		

- Molecule 6 is a protein called unclear peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
6	M	6	Total	C	N	O	0	0
			30	18	6	6		
6	P	6	Total	C	N	O	0	0
			30	18	6	6		

- Molecule 7 is a protein called unclear peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	N	5	Total	C	N	O	0	0
			28	16	6	6		
7	Q	5	Total	C	N	O	0	0
			28	16	6	6		

- Molecule 8 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
8	E	3	Total	C	N	O	0	0
			39	22	2	15		
8	T	3	Total	C	N	O	0	0
			39	22	2	15		
8	b	3	Total	C	N	O	0	0
			39	22	2	15		
8	c	3	Total	C	N	O	0	0
			39	22	2	15		
8	l	3	Total	C	N	O	0	0
			39	22	2	15		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
8	o	3	39	22	2	15	0	0
8	w	3	39	22	2	15	0	0
8	x	3	39	22	2	15	0	0

- Molecule 9 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



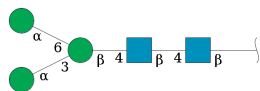
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
9	F	2	28	16	2	10	0	0
9	S	2	28	16	2	10	0	0
9	U	2	28	16	2	10	0	0
9	V	2	28	16	2	10	0	0
9	X	2	28	16	2	10	0	0
9	Z	2	28	16	2	10	0	0
9	a	2	28	16	2	10	0	0
9	e	2	28	16	2	10	0	0
9	f	2	28	16	2	10	0	0
9	i	2	28	16	2	10	0	0
9	k	2	28	16	2	10	0	0
9	m	2	28	16	2	10	0	0
9	n	2	28	16	2	10	0	0
9	p	2	28	16	2	10	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
9	q	2	Total 28	C 16	N 2	O 10	0	0
9	s	2	Total 28	C 16	N 2	O 10	0	0
9	u	2	Total 28	C 16	N 2	O 10	0	0
9	v	2	Total 28	C 16	N 2	O 10	0	0
9	z	2	Total 28	C 16	N 2	O 10	0	0
9	0	2	Total 28	C 16	N 2	O 10	0	0
9	3	2	Total 28	C 16	N 2	O 10	0	0
9	5	2	Total 28	C 16	N 2	O 10	0	0

- Molecule 10 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		
10	W	5	Total 61	C 34	N 2	O 25	0	0
10	Y	5	Total 61	C 34	N 2	O 25	0	0
10	d	5	Total 61	C 34	N 2	O 25	0	0
10	g	5	Total 61	C 34	N 2	O 25	0	0
10	h	5	Total 61	C 34	N 2	O 25	0	0
10	r	5	Total 61	C 34	N 2	O 25	0	0
10	t	5	Total 61	C 34	N 2	O 25	0	0
10	y	5	Total 61	C 34	N 2	O 25	0	0

Continued on next page...

Continued from previous page...

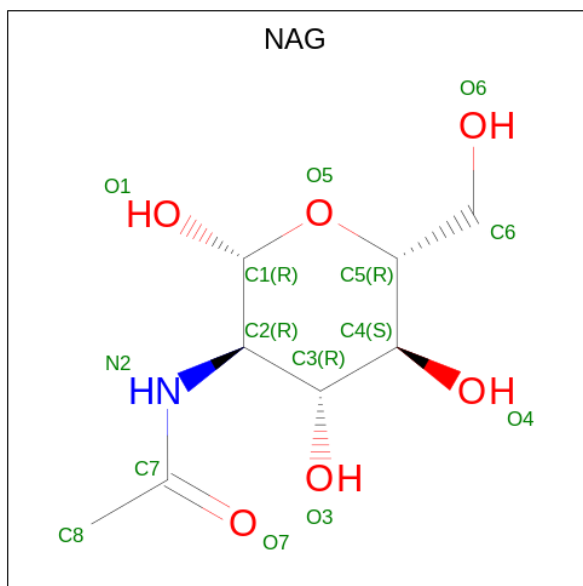
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
10	1	5	61	34	2	25	0	0
10	2	5	61	34	2	25	0	0

- Molecule 11 is an oligosaccharide called beta-D-mannopyranose-(1-3)-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		
11	j	3	39	22	2	15	0	0
11	4	3	39	22	2	15	0	0

- Molecule 12 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).



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

Continued on next page...

Continued from previous page...

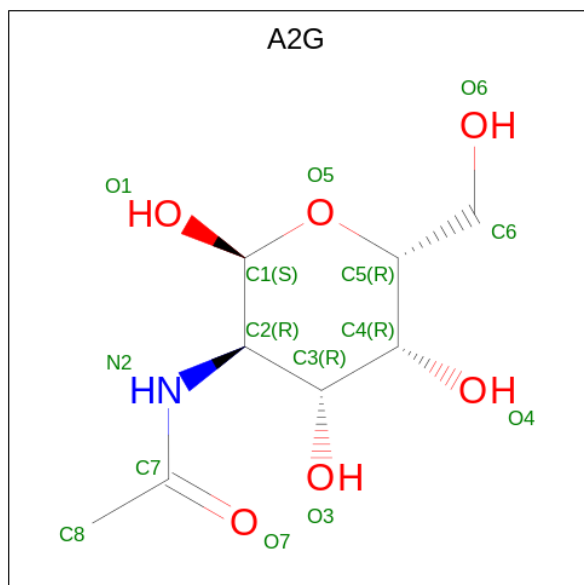
Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total 14	C 8	N 1	O 5	0
12	A	1	Total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

Continued on next page...

Continued from previous page...

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

- Molecule 13 is 2-acetamido-2-deoxy-alpha-D-galactopyranose (three-letter code: A2G) (formula: C₈H₁₅NO₆).



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

Continued on next page...

Continued from previous page...

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

- Molecule 14 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		AltConf
14	A	44	Total	Ca	0
			44	44	
14	B	44	Total	Ca	0
			44	44	

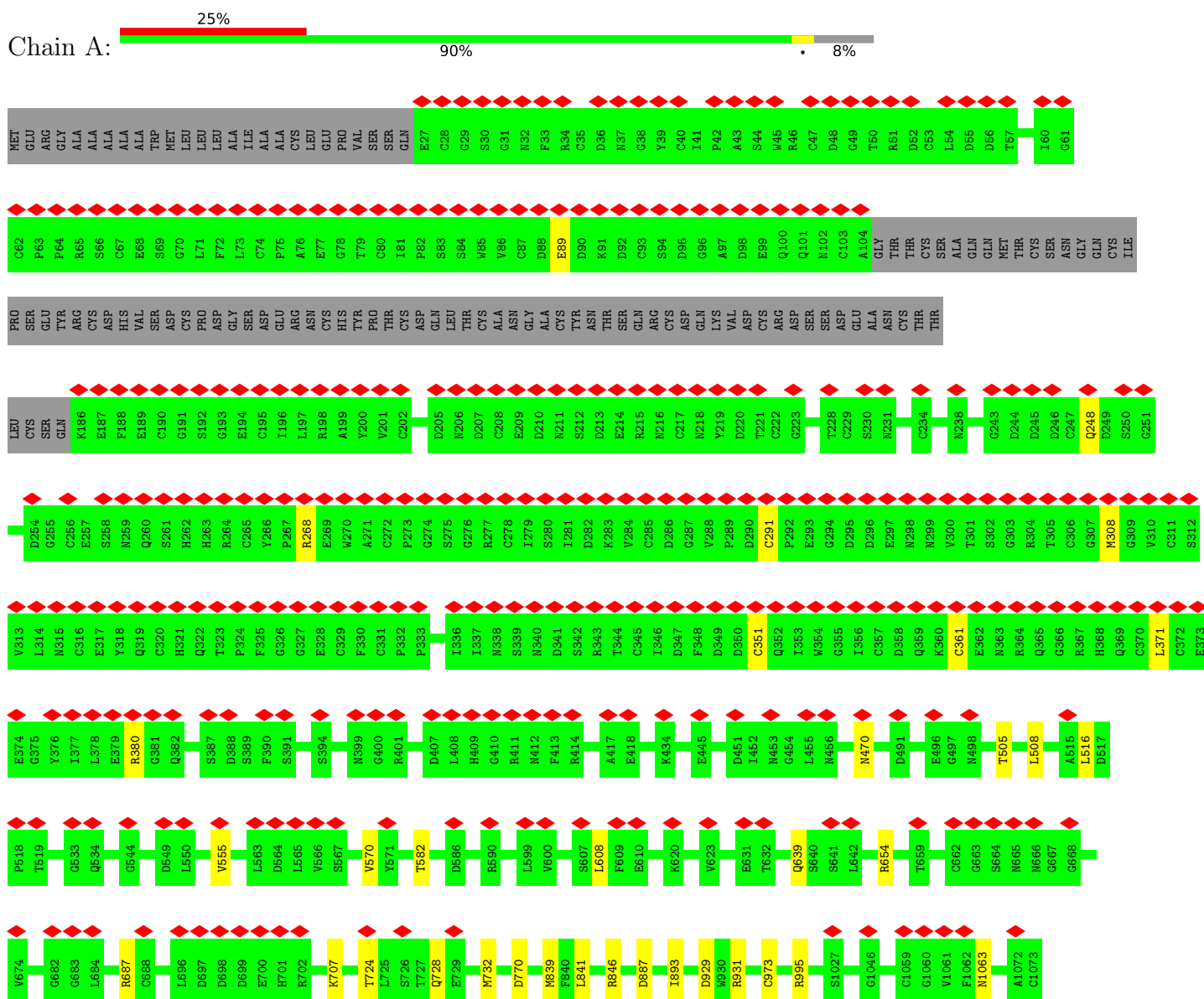
- Molecule 15 is NICKEL (II) ION (three-letter code: NI) (formula: Ni).

Mol	Chain	Residues	Atoms		AltConf
15	A	1	Total	Ni	0
			1	1	
15	B	1	Total	Ni	0
			1	1	

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: LDL receptor related protein 2



V1074	R1075	G1076	G1077	Q1083	R1088	L1093	D1094	Q1099	N1100	C1101	P1102	T1103	H1104	A1105	T1106	S1107	C1108	T1109	C1110	P1111	S1112	T1113	C1117	D1118	C1122	K1125	D1137	D1140	E1141	K1142	N1143	C1144	Q1145	A1146	S1147	G1148	T1149	C1150	Q1151	P1152	T1153	Q1154	F1155	R1156	P1158	D1159	H1160	R1161											
P1165	L1166	C1169	D1170	G1171	D1172	C1175	A1176	D1177	E1181	A1182	G1183	C1184	V1185	L1186	N1187	C1188	T1189	S1190	A1191	A1196	D1197	S1200	S1204	C1214	R1215	G1222	H1254	V1268	P1269	K1270	T1271	C1272	S1273	P1274	T1275	H1276	F1277	L1278	C1279	D1280	N1281	G1282	L1283	C1284	I1285	Y1286	K1287	A1288											
G1293	D1294	N1295	R1298	D1299	M1300	S1301	K1304	D1305	C1306	P1307	T1308	Q1309	P1310	F1311	H1312	C1313	P1314	S1315	T1316	Q1317	W1318	Q1319	C1320	P1321	G1322	Y1323	S1324	T1325	C1326	I1327	M1328	L1329	S1330	A1331	L1332	C1333	D1334	G1335	V1336	F1337	P1340	M1341	G1342	T1343	S1346	P1347	L1348	C1349	N1350	Q1351	D1352	C1354	S1355	H1356					
F1357	M1358	G1359	G1360	T1361	C1362	H1363	Q1364	M1365	A1372	T1373	C1374	L1375	C1376	M1384	D1385	T1386	K1387	E1390	C1401	M1408	R1409	C1414	R1427	C1435	H1455	F1468	V1477	R1590	L1651	M1864	M1906	R2014	A2017	Q2031	Y2062	M2066	M2070																						
R2127	R2149	V2174	L2175	V2188	D2254	R2318	L2452	Y2453	S2454	G2455	Y2692	G2698	L2704	L2709	D2728	C2767	N2770	L2777	F2778	R2779	N2780	C2781	N2782	F1468	F2787	T2788	C2789	S2790	N2791	P2796	L2797	S2798	C2801	N2802	N2806	C2807	H2808	D2809	N2810	D2811																			
T2812	S2813	D2814	E2815	K2816	N2817	C2818	P2819	P2820	H2821	T2822	C2823	P2824	P2825	D2826	P2827	T2828	K2829	C2830	Q2831	T2832	T2833	N2834	T2835	C2836	V2837	P2838	R2839	A2840	L2841	L2842	C2843	D2844	G2845	D2846	N2847	D2848	C2849	G2850	D2851	C2852	S2853	D2854	E2855	N2856	P2857	T2858	Y2859	C2860	A2861	S2862	H2863	T2864	C2865	R2866	S2867	E2868	N2869	F2870	Q2871
C2872	L2873	S2874	P2875	Q2876	R2877	P2880	S2881	Y2882	W2883	F2884	C2885	D2886	G2887	E2888	A2889	D2890	C2891	A2892	T2893	G2894	S2895	D2896	E2897	P2898	D2899	T2900	C2901	G2902	H2903	S2904	V2905	N2906	T2907	C2908	R2909	C2910	G2911	Q2912	F2913	Q2914	C2915	D2916	N2917	P2918	R2919	C2920	I2921	S2922	G2923	N2924	W2925	V2926	C2927	D2928	G2929	D2930	N2931	D2932	
C2933	G2934	D2935	N2936	D2937	E2938	E2939	D2940	Q2941	R2942	H2943	H2944	C2945	E2946	L2947	Q2948	N2949	C2950	S2951	S2952	T2953	Q2954	F2955	T2956	C2957	V2958	N2959	S2960	R2961	P2962	P2963	N2964	R2965	R2966	C2967	L2968	Y2971	W2972	V2973	C2974	D2975	G2976	D2977	A2978	D2979	C2980	S2981	D2982	A2983	L2984	E2985	P2986	L2987	Q2988	N2989	C2990	T2991	M2992	R2993	
T2994	C2995	S2996	A2997	G2998	E2999	F3000	S3001	C3002	A3003	N3004	G3005	C3007	V3008	Q3010	S3011	F3012	R3013	R3016	R3017	D3022	E3026	R3027	G3028	C3029	H3035	A3036	F3039	R3049	F3050	F3051	V3052	C3053	D3054	E3055	E3067	H3068	L3069	C3070	H3071	T3072	P3073	E3074	F3075	T3076	C3077	P3078	L3079	N3080	T2991	M2992	R2993								
R3083	C3084	D3085	G3087	H3088	C3089	I3090	E3091	M3092	G3093	R3094	V3095	C3096	N3097	V3099	D3100	D3101	C3102	S3103	D3104	N3105	S3106	D3107	E3108	K3109	G3110	C3111	G3112	I3113	N3114	L3117	D3118	S3119	S3120	I3121	S3122	R3123	C3124	C3128	T3129	D3130	T3131	I3132	T3133	S3134	K3144	L3145	S3146	S3147	D3148	L3149	K3149	R3150	S3151	E3160					
G3174	S3182	F3206	S3207	R3208	H3209	R3242	D3300	D3315	A3316	T3319	L3415	T3416	G3477	R3489	A3494	D3497	T3501	V3502	Q3503	L3504	R3505	D3506	R3507	T3508	L3509	C3510	M3511	P3512	M3513	S3514	S3515	S3516	G3522	E3525	K3533	G3536	S3541	D3548	L3549																				
C3550	F3554	C3555	R3556	L3557	G3558	R3563	A3576	R3577	Q3578	A3581	D3582	R3588	V3589	E3592	C3596	E3597	S3598	N3599	A3604	C3608	Q3614	N3619	L3622	D3623	N3624	D3628	T3629	S3630	H3631	S3634	R3638	N3660	D3661	C3662	G3663	D3664	D3671	N3679	K3689	T3690																			
N3691	V3719	F3720	S3724	C3741	N3755	C3756	R3777	D3794	K3797	K3798	H3801	C3807	H3811	L3826	D3827	S3832	A3833	C3834	F3835	T3836	R3837	F3838	P3839	F3845	A3846	A3847	C3850	K3851	N3853	H3854	S3859	C3863	E3866	N3867	D3871	E3876	L3877	H3878																					

LEU	CYS	SER	GLN
D2928	G2929	D2930	N2931
D2932	C2933	G2934	D2935
D2936	S2937	D2938	E2939
D2940	Q2941	R2942	H2943
H2944	C2945	E2946	L2947
Q2948	N2949	C2950	S2951
C2952	S2953	D2954	G2955
D2959	Q2960	S2961	H2962
H2963	R2964	C2965	Y2966
Y2967	R2968	E2969	V2970
A2971	C2972	P2973	G2974
S2975	G2976	R2977	C2978
I2979	S2980	I2981	D2982
K2983	V2984	C2985	C2986
Y2987	G2988	A2989	D2990
C2991	H2992	S2993	S2994
V2995	S2996	D2997	C2998
R2999	A2910	Q2912	F2913
Q2914	Q2915	Q2916	N2917
G2918	R2919	C2920	I2921
H2923	G2924	H2925	Q2926
F2927	T2928	E2929	N2929
S2930	N2931	V3000	T3001
Q302	Q303	S302	G303
D244	D245	T305	R304
C247	Q248	Q306	G307
M308	Q309	H368	Q369
C311	S312	V313	L314
N315	C316	E317	Y318
Q319	Q320	H321	Q322
T323	P324	F325	G326
Y327	E328	C329	F330
A331	P332	P333	G334
H335	I336	I337	N338
S339	N340	D341	S342
R343	T344	C345	I346
D347	F348	D349	D350
C351	Q352	I353	M354
E293	Q296	M355	E297
N299	V300	T301	Q302
G303	R304	T305	G306
G307	M308	Q369	C370
L371	C372	E373	E374
G375	Y376	I377	L378
E379	R380	G381	Q382
D386	P387	S388	P389
F390	S391	A392	D407
L408	H409	G410	R411
M412	I415	S419	M424
H435	V447	D451	I452
M453	M456	M470	L480
V487	M488	R489	E496
R500	L516	D517	P518
T519	L531	S532	G533
H542	S545	T552	A559
L563	L565	V566	S567
V570	D586	S598	E610
E610	V613	T616	E631
T632	N633	Y637	S641
S644	V647	L653	T659
G663	S664	N666	G667
R678	N681	G682	G683
L684	R687	L696	D697
D698	E700	H701	R702
A705	E729	F741	L841
R846	S855	H855	D899
R895	S970	H978	R995
S1027	G1060	V1061	F1062
V1074	R1075	G1076	G1077
Q1083	R1088	L1093	E1098
Q1099	M1100	P1102	T1103
H1104	A1105	T1106	S1107
S1108	T1109	L1112	T1113
D1118	V1121	C1122	I1123
P1124	K1125	S1136	D1137
K1142	N1143	C1144	Q1145
A1146	S1147	G1148	Q1151
P1152	T1153	S1164	L1166
Y1167	G1171	A1176	D1177
G1178	A1182	G1183	C1184
V1185	L1186	M1187	S1190
A1191	A1196	S1199	S1199
A1221	C1267	V1268	P1269
L1271	C1272	S1273	N1341
P1274	T1275	C1279	D1280
N1281	C1282	M1283	C1284
I1285	Y1286	S1353	H1356
F1357	M1358	G1359	T2697
G2698	T2699	R2700	H2712
D2717	D2723	E2732	R2753
R2760	D2766	L2777	F2778
R2779	N2780	C2781	S2783
T2784	T2785	E2786	F2787
T2788	M2791	C2794	I2795
P2796	L2797	S2798	N2802
G2803	I2804	M2805	S2806
A2861	H2863	T2864	C2865
R2866	S2867	N2805	M2806
D2810	T2812	S2813	K2816
M2817	C2818	P2819	P2820
H2821	T2822	C2823	P2824
P2825	D2826	F2827	T2828
K2829	Q2830	Q2831	T2832
T2833	M2834	I2835	C2836
V2837	P2838	R2839	A2840
L2842	C2843	D2844	G2845
D2846	M2847	D2848	C2849
G2850	D2851	G2852	S2853
E2855	M2856	P2857	Y2859
I2858	C2860	A2861	H2863
T2864	C2865	R2866	S2867
M2668	E2669	F2670	Q2671
C2672	L2673	S2674	P2675
Q2676	R2677	C2678	L2679
P2680	S2681	Y2682	W2683
F2684	C2685	D2686	G2687
E2688	A2689	D2690	C2691
A2692	D2693	S2694	V2695
G2696	E2697	P2698	A2699
T2700	C2701	H2702	S2703
H2704	C2705	N2706	A2707
C2708	R2709	C2710	Q2712
F2913	Q2914	Q2915	D2916
N2917	G2918	R2919	C2920
I2921	S2922	G2923	N2924
W2925	V2926	C2927	E2928
D2929	F2930	Q2931	H2932
L2934	H2935	D2936	E2937
C2938	S2939	Q2940	Q2941
C2942	W2943	H2944	E2945
L2947	Q2948	N2949	C2950
S2951	S2952	D2953	G2954
F2955	T2956	C2957	V2958
N2959	S2960	C2961	P2962
P2963	H2964	S2965	V2966
C2967	C2968	R2969	Q2970
Y2971	Q2972	F2973	C2974
D2975	G2976	D2977	A2978
D2979	C2980	S2981	D2982
A2983	L2984	D2985	E2986
L2987			

Q2988	Q2989	C2990	T2991	T2992	T2993	T2994	C2995	S2996	A2997	C2998	E2999	F3000	A3003	N3004	G3005	R3006	R3009	Q3010	S3011	R3017	N3018	D3019	D3022	Y3023	S3024	R3027	G3028	C3029	C3034	H3035	A3036	N3037	I3038	F3039	G3042	N3043	G3044	R3045	R3049	F3050	F3051	F3052	C3053	D3054	E3055	D3056	N3057	D3061	E3065									
Q3066	E3067	H3068	L3069	C3070	H3071	T3072	P3073	E3074	P3075	T3076	C3077	P3078	H3079	H3080	Q3081	F3082	R3083	C3084	D3085	N3086	G3087	H3088	C3089	I3090	Y3091	M3092	G3093	R3094	V3095	C3096	N3097	H3098	V3099	D3100	D3101	C3102	S3103	D3104	N3105	S3106	D3107	E3108	K3109	G3110	C3111	G3112	I3113	N3114	E3115	C3116	D3117	D3118	S3119	S3120	I3121	S3122	R3123	C3128
T3129	D3130	T3131	I3132	T3133	S3134	F3135	S3138	L3145	M3146	S3147	D3148	K3149	R3150	E3160	L3164	N3207	D3235	E3249	L3271	D3290	G3303	A3316	H3345	I3362	T3373	D3420	S3103	D3104	N3105	S3106	D3107	E3108	K3109	G3110	C3111	G3112	I3113	N3114	E3115	C3116	D3117	D3118	S3119	S3120	I3121	S3122	R3123	C3128										
S3515	S3516	G3522	N3523	N3524	E3525	C3534	K3538	D3548	L3549	C3550	P3551	F3554	C3555	Q3561	R3563	D3564	Q3578	D3582	R3588	V3589	L3590	C3591	E3592	H3593	H3594	R3595	A3604	L3622	D3623	D3628	T3629	S3630	H3631	S3634	R3635	N3645	I3670	D3671	E3672	T3675	A3676																	
A3677	Y3678	N3679	C3680	E3685	R3693	Q3714	G3715	C3716	E3717	S3718	V3719	P3720	C3734	D3746	C3747	G3748	A3769	Q3772	G3787	M3797	H3801	P3802	E3803	H3804	F3805	A3818	C3819	R3822	L3826	S3832	A3833	C3834	P3835	T3836	R3837	G3841	P3845	A3846	A3847	M3848	K3852																	
F3860	C3863	D3864	C3865	E3866	N3867	D3871	E3876	I3877	H3878	L3879	C3880	F3881	I3882	P3884	C3885	E3886	S3887	P3888	Q3889	R3890	F3891	C3892	C3893	D3894	N3895	S3896	R3897	Y3900	G3901	H3902	I3903	L3904	C3905	N3906	G3907	V3908	D3909	D3910	C3911	G3912	D3913	G3914	S3915	K3918	E3919	E3920	H3921	M3922	R3923	K3924	P3925	T3926	H3927					
K3928	P3929	C3930	T3931	D3932	T3933	E3934	Y3935	K3936	C3937	S3938	N3939	G3940	C3942	I3943	S3944	Q3945	H3946	Y3947	V3948	C3949	D3950	N3951	V3952	N3953	D3954	C3955	D3956	L3958	S3959	D3960	T3962	G3963	C3964	N3965	L3966	G3967	D3968	S4029	Y4030	E4031	C4032	F4033	C4034	V4035	D4036	S4040	M4041	S4042	T4043	H4044	Y4045	G4046	E4047	R4048	C4049	A4050		
F3989	I3990	C3991	S3992	C3993	R3994	P3995	G3996	F3997	K3998	P3999	S4000	T4001	L4002	D4003	K4004	M4005	S4006	C4007	Q4008	D4009	L4010	M4011	E4012	C4013	E4014	E4015	F4016	G4017	C4019	P4020	Q4021	S4022	C4023	R4024	M4025	S4026	K4027	G4028	S4029	Y4030	E4031	C4032	F4033	C4034	V4035	D4036	S4040	M4041	S4042	T4043	H4044	Y4045	G4046	E4047	R4048	C4049	A4050	
A4051	D4052	G4053	S4054	P4055	P4056	L4057	E4062	R4065	S4072	S4073	E4074	E4078	E4081	E4082	D4092	P4095	E4096	H4097	I4098	G4099	L4100	A4109	Q4110	G4111	Y4121	F4125	E4126	S4127	G4128	S4129	M4130	M4131	P4132	I4133	R4134	E4135	D4147	A4150	V4151	D4152	L4173	Q4185	L4186	D4187														
A4190	A4193	V4194	M4195	P4196	K4197	K4208	Q4209	P4210	M4217	E4220	H4221	R4222	S4223	V4224	L4225	V4226	S4227	E4228	M4229	G4235	D4239	M4242	D4243	D4244	Y4247	D4262	G4263	T4264	D4265	R4266	R4267	L4268	M4271	I4272	A4273	M4274	S4278	L4279	D4280	F4282	D4284	K4285	L4286	Y4287	K4291													
E4292	E4295	M4300	K4301	F4302	G4303	K4304	E4305	M4306	K4307	E4308	K4309	V4313	M4314	Q4319	I4322	F4323	H4324	Q4325	L4326	R4327	Y4328	M4329	Q4330	S4331	V4332	S4333	M4334	K4337	C4336	Q4338	V4339	C4340	S4341	H4342	L4343	C4344	L4345	L4346	R4347	P4348	G4349	C4353	A4354	Q4357	G4358	S4359	D4360	F4361	V4362	T4363	G4364							
S4365	T4366	V4367	Q4368	C4369	A4372	S4373	E4374	L4375	P4376	V4377	T4378	M4379	P4380	P4381	P4382	C4383	R4384	M4386	H4387	G4388	G4389	M4390	C4391	Y4392	P4393	D4394	E4395	M4396	E4397	L4398	P4399	K4400	C4401	K4402	C4403	S4404	S4405	G4406	Y4407	S4408	G4409	E4410	Y4411	C4412	E4413	V4414	L4415	LEU	SER	ARG	GLY	PRO	PRO	GLY	THR	THR		



- Molecule 5: unclear peptide

Chain L:  100%

There are no outlier residues recorded for this chain.

- Molecule 5: unclear peptide

Chain O:  100%


There are no outlier residues recorded for this chain.

- Molecule 5: unclear peptide

Chain R:  100%

There are no outlier residues recorded for this chain.

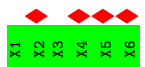
- Molecule 6: unclear peptide

Chain M:  83%
100%



- Molecule 6: unclear peptide

Chain P:  67%
100%



- Molecule 7: unclear peptide

Chain N:  100%

There are no outlier residues recorded for this chain.

- Molecule 7: unclear peptide

Chain Q: 100%

There are no outlier residues recorded for this chain.

- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E: 67%
33%



- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

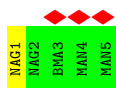
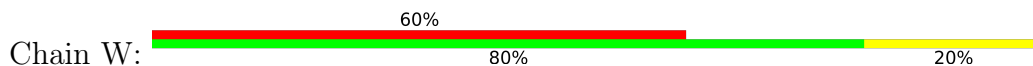


- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose





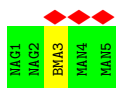
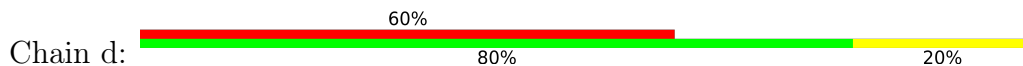
- Molecule 10: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



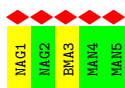
- Molecule 10: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



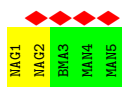
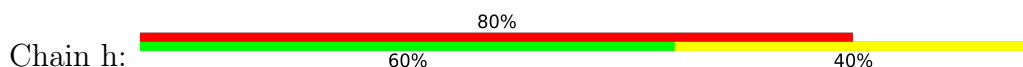
- Molecule 10: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



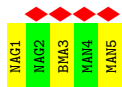
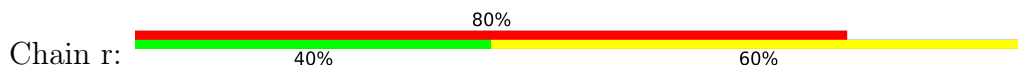
- Molecule 10: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 10: 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



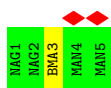
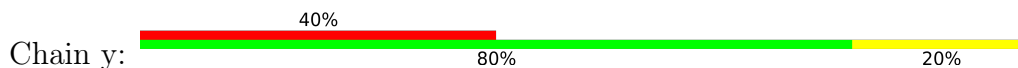
- Molecule 10: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



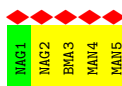
- Molecule 10: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



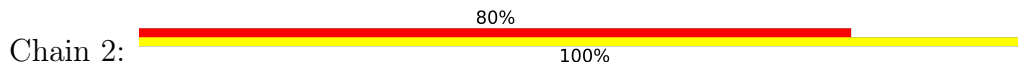
- Molecule 10: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 10: 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 10: 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 11: beta-D-mannopyranose-(1-3)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 11: beta-D-mannopyranose-(1-3)-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	101096	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	1600	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.214	Depositor
Minimum map value	-0.116	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.03	Depositor
Map size (\AA)	366.86002, 366.86002, 366.86002	wwPDB
Map dimensions	260, 260, 260	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.411, 1.411, 1.411	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NI, CA, MAN, BMA, A2G, 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	0.31	0/34456	0.58	0/46804
1	B	0.64	0/34456	0.66	0/46804
2	C	0.61	0/7	0.76	0/8
2	I	0.65	0/7	0.99	0/8
3	D	1.22	0/5	0.59	0/5
3	J	0.98	0/5	0.46	0/5
4	G	0.79	0/17	0.54	0/21
4	K	0.86	0/17	0.58	0/21
5	H	0.93	0/7	0.64	0/8
5	L	0.92	0/7	0.79	0/8
5	O	0.75	0/7	0.76	0/8
5	R	0.73	0/7	0.62	0/8
7	N	1.04	0/7	1.32	0/8
7	Q	0.46	0/7	1.79	0/8
All	All	0.51	0/69012	0.62	0/93724

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
All	All	0	2

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	3242	ARG	Sidechain
1	B	2839	ARG	Sidechain

5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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	4304/4660 (92%)	3970 (92%)	332 (8%)	2 (0%)	100	100
1	B	4304/4660 (92%)	3979 (92%)	322 (8%)	3 (0%)	51	83
2	C	1/6 (17%)	1 (100%)	0	0	100	100
2	I	1/6 (17%)	1 (100%)	0	0	100	100
3	D	1/3 (33%)	1 (100%)	0	0	100	100
3	J	1/3 (33%)	0	1 (100%)	0	100	100
4	G	2/5 (40%)	0	2 (100%)	0	100	100
4	K	2/5 (40%)	1 (50%)	1 (50%)	0	100	100
5	H	1/5 (20%)	1 (100%)	0	0	100	100
5	L	1/5 (20%)	1 (100%)	0	0	100	100
5	O	1/5 (20%)	0	1 (100%)	0	100	100
5	R	1/5 (20%)	1 (100%)	0	0	100	100
7	N	1/5 (20%)	1 (100%)	0	0	100	100
7	Q	1/5 (20%)	1 (100%)	0	0	100	100
All	All	8622/9378 (92%)	7958 (92%)	659 (8%)	5 (0%)	54	83

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	2840	ALA
1	B	2860	CYS
1	A	3209	TYR
1	A	846	ARG
1	B	1152	PRO

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	3791/4089 (93%)	3663 (97%)	128 (3%)	37	64
1	B	3791/4089 (93%)	3684 (97%)	107 (3%)	43	68
2	C	1/1 (100%)	1 (100%)	0	100	100
2	I	1/1 (100%)	1 (100%)	0	100	100
3	D	1/1 (100%)	1 (100%)	0	100	100
3	J	1/1 (100%)	1 (100%)	0	100	100
4	G	2/2 (100%)	2 (100%)	0	100	100
4	K	2/2 (100%)	2 (100%)	0	100	100
5	H	1/1 (100%)	1 (100%)	0	100	100
5	L	1/1 (100%)	1 (100%)	0	100	100
5	O	1/1 (100%)	1 (100%)	0	100	100
5	R	1/1 (100%)	1 (100%)	0	100	100
7	N	1/1 (100%)	1 (100%)	0	100	100
7	Q	1/1 (100%)	1 (100%)	0	100	100
All	All	7596/8192 (93%)	7361 (97%)	235 (3%)	43	65

All (235) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	89	GLU
1	A	248	GLN
1	A	268	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	291	CYS
1	A	308	MET
1	A	351	CYS
1	A	361	CYS
1	A	371	LEU
1	A	380	ARG
1	A	470	ASN
1	A	505	THR
1	A	508	LEU
1	A	516	LEU
1	A	555	VAL
1	A	570	VAL
1	A	582	THR
1	A	608	LEU
1	A	639	GLN
1	A	654	ARG
1	A	687	ARG
1	A	707	LYS
1	A	724	THR
1	A	728	GLN
1	A	732	MET
1	A	770	ASP
1	A	839	MET
1	A	841	LEU
1	A	887	ASP
1	A	893	ILE
1	A	929	ASP
1	A	931	ARG
1	A	973	CYS
1	A	995	ARG
1	A	1063	ASN
1	A	1142	LYS
1	A	1254	HIS
1	A	1298	ARG
1	A	1311	PHE
1	A	1319	GLN
1	A	1346	SER
1	A	1350	ASN
1	A	1351	GLN
1	A	1364	GLN
1	A	1365	CYS
1	A	1401	CYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	1408	MET
1	A	1409	ARG
1	A	1414	CYS
1	A	1427	ARG
1	A	1468	PHE
1	A	1477	VAL
1	A	1590	ARG
1	A	1651	LEU
1	A	1864	ASN
1	A	1906	MET
1	A	2014	ARG
1	A	2031	GLN
1	A	2062	TYR
1	A	2066	MET
1	A	2070	MET
1	A	2127	ARG
1	A	2149	ARG
1	A	2174	VAL
1	A	2175	LEU
1	A	2188	VAL
1	A	2254	ASP
1	A	2318	ARG
1	A	2452	LEU
1	A	2453	TYR
1	A	2692	TYR
1	A	2767	CYS
1	A	2809	ASP
1	A	2830	CYS
1	A	2834	ASN
1	A	2839	ARG
1	A	2854	ASP
1	A	2871	GLN
1	A	2901	CYS
1	A	2906	ASN
1	A	2931	ASN
1	A	2941	GLN
1	A	2972	TRP
1	A	2985	ASP
1	A	2992	MET
1	A	3006	ARG
1	A	3039	PHE
1	A	3081	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	3128	CYS
1	A	3205	PHE
1	A	3207	ASN
1	A	3209	TYR
1	A	3300	ASP
1	A	3315	ASP
1	A	3319	THR
1	A	3415	LEU
1	A	3416	THR
1	A	3505	ARG
1	A	3511	MET
1	A	3514	CYS
1	A	3533	LYS
1	A	3597	GLU
1	A	3608	CYS
1	A	3664	ASP
1	A	3691	ASN
1	A	3741	CYS
1	A	3850	GLU
1	A	3863	CYS
1	A	3867	ASN
1	A	3881	PHE
1	A	3891	PHE
1	A	3898	CYS
1	A	3916	ASP
1	A	3923	ARG
1	A	3947	TYR
1	A	3960	ASP
1	A	3961	GLU
1	A	3980	ASN
1	A	4041	MET
1	A	4044	HIS
1	A	4048	ARG
1	A	4062	GLU
1	A	4075	LYS
1	A	4217	MET
1	A	4237	SER
1	A	4314	ASN
1	A	4327	ARG
1	A	4353	CYS
1	A	4396	ASN
1	B	101	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	213	ASP
1	B	221	THR
1	B	245	ASP
1	B	264	ARG
1	B	268	ARG
1	B	290	ASP
1	B	322	GLN
1	B	358	ASP
1	B	361	CYS
1	B	371	LEU
1	B	424	MET
1	B	447	VAL
1	B	470	ASN
1	B	487	VAL
1	B	489	ARG
1	B	500	ARG
1	B	570	VAL
1	B	616	THR
1	B	631	GLU
1	B	632	THR
1	B	637	TYR
1	B	678	ARG
1	B	741	PHE
1	B	841	LEU
1	B	846	ARG
1	B	855	SER
1	B	895	HIS
1	B	899	ASP
1	B	978	HIS
1	B	995	ARG
1	B	1075	ARG
1	B	1104	HIS
1	B	1137	ASP
1	B	1153	THR
1	B	1300	MET
1	B	1468	PHE
1	B	1564	MET
1	B	1569	MET
1	B	1579	ARG
1	B	1660	ASP
1	B	1714	CYS
1	B	1808	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	1955	MET
1	B	1967	LEU
1	B	1987	VAL
1	B	2127	ARG
1	B	2149	ARG
1	B	2274	TYR
1	B	2599	LEU
1	B	2656	CYS
1	B	2692	TYR
1	B	2723	ASP
1	B	2732	GLU
1	B	2753	ARG
1	B	2760	ARG
1	B	2766	ASP
1	B	2777	LEU
1	B	2781	CYS
1	B	2828	THR
1	B	2851	ASP
1	B	2859	TYR
1	B	2860	CYS
1	B	2933	CYS
1	B	2959	ASN
1	B	2972	TRP
1	B	3006	ARG
1	B	3009	ARG
1	B	3017	ARG
1	B	3038	GLN
1	B	3091	GLU
1	B	3108	GLU
1	B	3130	ASP
1	B	3207	ASN
1	B	3235	ASP
1	B	3290	ASP
1	B	3373	THR
1	B	3505	ARG
1	B	3515	SER
1	B	3534	CYS
1	B	3693	ARG
1	B	3797	MET
1	B	3822	ARG
1	B	3852	LYS
1	B	3867	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	3897	ARG
1	B	3947	TYR
1	B	3961	GLU
1	B	3974	GLU
1	B	3975	ASN
1	B	3982	THR
1	B	4008	GLN
1	B	4041	MET
1	B	4044	HIS
1	B	4048	ARG
1	B	4062	GLU
1	B	4065	ARG
1	B	4078	GLU
1	B	4081	GLU
1	B	4127	SER
1	B	4217	MET
1	B	4313	VAL
1	B	4314	ASN
1	B	4319	GLN
1	B	4327	ARG
1	B	4353	CYS
1	B	4396	ASN

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

Mol	Chain	Res	Type
1	A	1458	ASN
1	A	1670	ASN
1	A	1712	HIS
1	A	1780	HIS
1	A	1920	GLN
1	A	2322	ASN
1	A	2349	GLN
1	A	2931	ASN
1	A	2959	ASN
1	A	3679	ASN
1	A	3714	GLN
1	A	4130	ASN
1	A	4131	ASN
1	A	4234	ASN
1	A	4390	ASN
1	B	100	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	1053	ASN
1	B	1367	GLN
1	B	1576	HIS
1	B	1698	GLN
1	B	1798	ASN
1	B	2097	ASN
1	B	2107	ASN
1	B	3057	ASN
1	B	3066	GLN
1	B	3733	HIS
1	B	3965	ASN
1	B	4131	ASN
1	B	4234	ASN
1	B	4390	ASN
7	N	2	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](#)

124 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	$\# Z > 2$
9	NAG	0	1	1,9	14,14,15	0.40	0	17,19,21	0.51	0
9	NAG	0	2	9	14,14,15	0.40	0	17,19,21	0.58	0
10	NAG	1	1	10,1	14,14,15	0.45	0	17,19,21	0.73	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	NAG	1	2	10	14,14,15	0.57	0	17,19,21	0.97	1 (5%)
10	BMA	1	3	10	11,11,12	1.00	1 (9%)	15,15,17	1.11	1 (6%)
10	MAN	1	4	10	11,11,12	0.95	1 (9%)	15,15,17	1.00	2 (13%)
10	MAN	1	5	10	11,11,12	0.80	0	15,15,17	0.88	1 (6%)
10	NAG	2	1	10,1	14,14,15	0.51	0	17,19,21	1.03	1 (5%)
10	NAG	2	2	10	14,14,15	0.58	0	17,19,21	0.81	1 (5%)
10	BMA	2	3	10	11,11,12	1.14	1 (9%)	15,15,17	1.30	2 (13%)
10	MAN	2	4	10	11,11,12	0.89	1 (9%)	15,15,17	0.86	1 (6%)
10	MAN	2	5	10	11,11,12	0.82	0	15,15,17	1.27	2 (13%)
9	NAG	3	1	1,9	14,14,15	0.41	0	17,19,21	0.51	0
9	NAG	3	2	9	14,14,15	0.39	0	17,19,21	0.55	0
11	NAG	4	1	11,1	14,14,15	0.43	0	17,19,21	0.41	0
11	NAG	4	2	11	14,14,15	0.39	0	17,19,21	0.45	0
11	BMA	4	3	11	11,11,12	0.80	1 (9%)	15,15,17	0.82	1 (6%)
9	NAG	5	1	1,9	14,14,15	0.55	0	17,19,21	0.81	1 (5%)
9	NAG	5	2	9	14,14,15	0.56	0	17,19,21	0.89	1 (5%)
8	NAG	E	1	1,8	14,14,15	0.40	0	17,19,21	0.48	0
8	NAG	E	2	8	14,14,15	0.41	0	17,19,21	0.82	1 (5%)
8	BMA	E	3	8	11,11,12	0.21	0	15,15,17	0.56	0
9	NAG	F	1	1,9	14,14,15	0.40	0	17,19,21	0.41	0
9	NAG	F	2	9	14,14,15	0.40	0	17,19,21	0.35	0
9	NAG	S	1	1,9	14,14,15	0.42	0	17,19,21	0.55	0
9	NAG	S	2	9	14,14,15	0.41	0	17,19,21	0.81	1 (5%)
8	NAG	T	1	1,8	14,14,15	0.36	0	17,19,21	0.66	0
8	NAG	T	2	8	14,14,15	0.50	0	17,19,21	0.75	0
8	BMA	T	3	8	11,11,12	0.25	0	15,15,17	0.62	0
9	NAG	U	1	1,9	14,14,15	0.41	0	17,19,21	0.45	0
9	NAG	U	2	9	14,14,15	0.39	0	17,19,21	0.42	0
9	NAG	V	1	1,9	14,14,15	0.63	0	17,19,21	1.10	2 (11%)
9	NAG	V	2	9	14,14,15	0.61	0	17,19,21	1.08	1 (5%)
10	NAG	W	1	10,1	14,14,15	0.40	0	17,19,21	0.99	2 (11%)
10	NAG	W	2	10	14,14,15	0.39	0	17,19,21	0.54	0
10	BMA	W	3	10	11,11,12	0.27	0	15,15,17	0.76	0
10	MAN	W	4	10	11,11,12	0.24	0	15,15,17	0.52	0
10	MAN	W	5	10	11,11,12	0.29	0	15,15,17	0.59	0
9	NAG	X	1	1,9	14,14,15	0.39	0	17,19,21	0.44	0
9	NAG	X	2	9	14,14,15	0.40	0	17,19,21	0.75	0
10	NAG	Y	1	10,1	14,14,15	0.47	0	17,19,21	0.63	0
10	NAG	Y	2	10	14,14,15	0.41	0	17,19,21	0.61	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
10	BMA	Y	3	10	11,11,12	0.38	0	15,15,17	0.62	0
10	MAN	Y	4	10	11,11,12	0.21	0	15,15,17	0.58	0
10	MAN	Y	5	10	11,11,12	0.30	0	15,15,17	0.58	0
9	NAG	Z	1	1,9	14,14,15	0.41	0	17,19,21	0.50	0
9	NAG	Z	2	9	14,14,15	0.41	0	17,19,21	0.75	1 (5%)
9	NAG	a	1	1,9	14,14,15	0.38	0	17,19,21	0.42	0
9	NAG	a	2	9	14,14,15	0.39	0	17,19,21	0.49	0
8	NAG	b	1	1,8	14,14,15	0.44	0	17,19,21	0.44	0
8	NAG	b	2	8	14,14,15	0.39	0	17,19,21	0.40	0
8	BMA	b	3	8	11,11,12	0.20	0	15,15,17	0.56	0
8	NAG	c	1	1,8	14,14,15	0.46	0	17,19,21	0.56	0
8	NAG	c	2	8	14,14,15	0.43	0	17,19,21	0.57	0
8	BMA	c	3	8	11,11,12	0.28	0	15,15,17	0.61	0
10	NAG	d	1	10,1	14,14,15	0.44	0	17,19,21	0.42	0
10	NAG	d	2	10	14,14,15	0.39	0	17,19,21	0.42	0
10	BMA	d	3	10	11,11,12	0.27	0	15,15,17	0.75	1 (6%)
10	MAN	d	4	10	11,11,12	0.26	0	15,15,17	0.62	0
10	MAN	d	5	10	11,11,12	0.27	0	15,15,17	0.53	0
9	NAG	e	1	1,9	14,14,15	0.59	0	17,19,21	1.26	2 (11%)
9	NAG	e	2	9	14,14,15	0.55	0	17,19,21	0.93	1 (5%)
9	NAG	f	1	1,9	14,14,15	0.43	0	17,19,21	0.40	0
9	NAG	f	2	9	14,14,15	0.41	0	17,19,21	0.49	0
10	NAG	g	1	10,1	14,14,15	0.50	0	17,19,21	1.40	2 (11%)
10	NAG	g	2	10	14,14,15	0.43	0	17,19,21	0.43	0
10	BMA	g	3	10	11,11,12	0.24	0	15,15,17	0.71	1 (6%)
10	MAN	g	4	10	11,11,12	0.29	0	15,15,17	0.53	0
10	MAN	g	5	10	11,11,12	0.29	0	15,15,17	0.52	0
10	NAG	h	1	10,1	14,14,15	0.45	0	17,19,21	1.16	1 (5%)
10	NAG	h	2	10	14,14,15	0.49	0	17,19,21	0.77	1 (5%)
10	BMA	h	3	10	11,11,12	0.37	0	15,15,17	0.72	0
10	MAN	h	4	10	11,11,12	0.30	0	15,15,17	0.60	0
10	MAN	h	5	10	11,11,12	0.31	0	15,15,17	0.54	0
9	NAG	i	1	1,9	14,14,15	0.41	0	17,19,21	0.55	0
9	NAG	i	2	9	14,14,15	0.41	0	17,19,21	0.55	0
11	NAG	j	1	11,1	14,14,15	0.41	0	17,19,21	0.39	0
11	NAG	j	2	11	14,14,15	0.40	0	17,19,21	0.46	0
11	BMA	j	3	11	11,11,12	0.27	0	15,15,17	0.53	0
9	NAG	k	1	1,9	14,14,15	0.64	0	17,19,21	1.10	1 (5%)
9	NAG	k	2	9	14,14,15	0.67	0	17,19,21	1.30	1 (5%)
8	NAG	l	1	1,8	14,14,15	0.50	0	17,19,21	1.00	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	NAG	l	2	8	14,14,15	0.57	0	17,19,21	0.75	1 (5%)
8	BMA	l	3	8	11,11,12	0.84	1 (9%)	15,15,17	1.03	2 (13%)
9	NAG	m	1	1,9	14,14,15	0.47	0	17,19,21	0.85	0
9	NAG	m	2	9	14,14,15	0.53	0	17,19,21	0.87	1 (5%)
9	NAG	n	1	1,9	14,14,15	0.55	0	17,19,21	0.93	1 (5%)
9	NAG	n	2	9	14,14,15	0.56	0	17,19,21	0.92	1 (5%)
8	NAG	o	1	1,8	14,14,15	0.43	0	17,19,21	0.54	0
8	NAG	o	2	8	14,14,15	0.42	0	17,19,21	0.41	0
8	BMA	o	3	8	11,11,12	0.28	0	15,15,17	0.64	0
9	NAG	p	1	1,9	14,14,15	0.38	0	17,19,21	0.79	1 (5%)
9	NAG	p	2	9	14,14,15	0.42	0	17,19,21	0.54	0
9	NAG	q	1	1,9	14,14,15	0.40	0	17,19,21	0.59	0
9	NAG	q	2	9	14,14,15	0.40	0	17,19,21	0.38	0
10	NAG	r	1	10,1	14,14,15	0.48	0	17,19,21	0.90	1 (5%)
10	NAG	r	2	10	14,14,15	0.42	0	17,19,21	0.66	0
10	BMA	r	3	10	11,11,12	0.28	0	15,15,17	0.73	1 (6%)
10	MAN	r	4	10	11,11,12	0.26	0	15,15,17	0.59	0
10	MAN	r	5	10	11,11,12	0.95	1 (9%)	15,15,17	0.92	1 (6%)
9	NAG	s	1	1,9	14,14,15	0.45	0	17,19,21	0.70	0
9	NAG	s	2	9	14,14,15	0.40	0	17,19,21	0.49	0
10	NAG	t	1	10,1	14,14,15	0.44	0	17,19,21	0.98	0
10	NAG	t	2	10	14,14,15	0.41	0	17,19,21	0.70	0
10	BMA	t	3	10	11,11,12	0.28	0	15,15,17	0.45	0
10	MAN	t	4	10	11,11,12	0.31	0	15,15,17	0.57	0
10	MAN	t	5	10	11,11,12	0.27	0	15,15,17	0.57	0
9	NAG	u	1	1,9	14,14,15	0.59	0	17,19,21	0.83	1 (5%)
9	NAG	u	2	9	14,14,15	0.57	0	17,19,21	1.00	1 (5%)
9	NAG	v	1	1,9	14,14,15	0.42	0	17,19,21	0.60	0
9	NAG	v	2	9	14,14,15	0.39	0	17,19,21	0.42	0
8	NAG	w	1	1,8	14,14,15	0.52	0	17,19,21	1.04	1 (5%)
8	NAG	w	2	8	14,14,15	0.38	0	17,19,21	0.66	0
8	BMA	w	3	8	11,11,12	0.22	0	15,15,17	0.63	0
8	NAG	x	1	1,8	14,14,15	0.48	0	17,19,21	0.74	0
8	NAG	x	2	8	14,14,15	0.40	0	17,19,21	0.99	1 (5%)
8	BMA	x	3	8	11,11,12	0.30	0	15,15,17	0.57	0
10	NAG	y	1	10,1	14,14,15	0.46	0	17,19,21	0.50	0
10	NAG	y	2	10	14,14,15	0.44	0	17,19,21	0.53	0
10	BMA	y	3	10	11,11,12	0.29	0	15,15,17	0.80	1 (6%)
10	MAN	y	4	10	11,11,12	0.28	0	15,15,17	0.52	0
10	MAN	y	5	10	11,11,12	0.27	0	15,15,17	0.52	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
9	NAG	z	1	1,9	14,14,15	0.54	0	17,19,21	1.14	1 (5%)
9	NAG	z	2	9	14,14,15	0.63	0	17,19,21	1.00	1 (5%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	0	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	0	2	9	-	2/6/23/26	0/1/1/1
10	NAG	1	1	10,1	-	2/6/23/26	0/1/1/1
10	NAG	1	2	10	-	0/6/23/26	0/1/1/1
10	BMA	1	3	10	-	0/2/19/22	0/1/1/1
10	MAN	1	4	10	-	0/2/19/22	0/1/1/1
10	MAN	1	5	10	-	0/2/19/22	0/1/1/1
10	NAG	2	1	10,1	-	0/6/23/26	0/1/1/1
10	NAG	2	2	10	-	0/6/23/26	0/1/1/1
10	BMA	2	3	10	-	2/2/19/22	0/1/1/1
10	MAN	2	4	10	-	0/2/19/22	0/1/1/1
10	MAN	2	5	10	-	0/2/19/22	0/1/1/1
9	NAG	3	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	3	2	9	-	3/6/23/26	0/1/1/1
11	NAG	4	1	11,1	-	0/6/23/26	0/1/1/1
11	NAG	4	2	11	-	2/6/23/26	0/1/1/1
11	BMA	4	3	11	-	0/2/19/22	0/1/1/1
9	NAG	5	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	5	2	9	-	0/6/23/26	0/1/1/1
8	NAG	E	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	E	2	8	-	3/6/23/26	0/1/1/1
8	BMA	E	3	8	-	0/2/19/22	0/1/1/1
9	NAG	F	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	F	2	9	-	3/6/23/26	0/1/1/1
9	NAG	S	1	1,9	-	2/6/23/26	0/1/1/1
9	NAG	S	2	9	-	3/6/23/26	0/1/1/1
8	NAG	T	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	T	2	8	-	0/6/23/26	0/1/1/1
8	BMA	T	3	8	-	0/2/19/22	0/1/1/1
9	NAG	U	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	U	2	9	-	0/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	V	1	1,9	-	1/6/23/26	0/1/1/1
9	NAG	V	2	9	-	1/6/23/26	0/1/1/1
10	NAG	W	1	10,1	-	2/6/23/26	0/1/1/1
10	NAG	W	2	10	-	0/6/23/26	0/1/1/1
10	BMA	W	3	10	-	0/2/19/22	0/1/1/1
10	MAN	W	4	10	-	0/2/19/22	0/1/1/1
10	MAN	W	5	10	-	0/2/19/22	0/1/1/1
9	NAG	X	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	X	2	9	-	2/6/23/26	0/1/1/1
10	NAG	Y	1	10,1	-	0/6/23/26	0/1/1/1
10	NAG	Y	2	10	-	1/6/23/26	0/1/1/1
10	BMA	Y	3	10	-	0/2/19/22	0/1/1/1
10	MAN	Y	4	10	-	0/2/19/22	0/1/1/1
10	MAN	Y	5	10	-	0/2/19/22	0/1/1/1
9	NAG	Z	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	Z	2	9	-	1/6/23/26	0/1/1/1
9	NAG	a	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	a	2	9	-	0/6/23/26	0/1/1/1
8	NAG	b	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	b	2	8	-	0/6/23/26	0/1/1/1
8	BMA	b	3	8	-	0/2/19/22	0/1/1/1
8	NAG	c	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	c	2	8	-	0/6/23/26	0/1/1/1
8	BMA	c	3	8	-	0/2/19/22	0/1/1/1
10	NAG	d	1	10,1	-	0/6/23/26	0/1/1/1
10	NAG	d	2	10	-	0/6/23/26	0/1/1/1
10	BMA	d	3	10	-	0/2/19/22	0/1/1/1
10	MAN	d	4	10	-	0/2/19/22	0/1/1/1
10	MAN	d	5	10	-	0/2/19/22	0/1/1/1
9	NAG	e	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	e	2	9	-	0/6/23/26	0/1/1/1
9	NAG	f	1	1,9	-	2/6/23/26	0/1/1/1
9	NAG	f	2	9	-	0/6/23/26	0/1/1/1
10	NAG	g	1	10,1	-	0/6/23/26	0/1/1/1
10	NAG	g	2	10	-	0/6/23/26	0/1/1/1
10	BMA	g	3	10	-	1/2/19/22	0/1/1/1
10	MAN	g	4	10	-	0/2/19/22	0/1/1/1
10	MAN	g	5	10	-	0/2/19/22	0/1/1/1
10	NAG	h	1	10,1	-	0/6/23/26	0/1/1/1
10	NAG	h	2	10	-	0/6/23/26	0/1/1/1
10	BMA	h	3	10	-	0/2/19/22	0/1/1/1
10	MAN	h	4	10	-	0/2/19/22	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	MAN	h	5	10	-	1/2/19/22	0/1/1/1
9	NAG	i	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	i	2	9	-	3/6/23/26	0/1/1/1
11	NAG	j	1	11,1	-	0/6/23/26	0/1/1/1
11	NAG	j	2	11	-	2/6/23/26	0/1/1/1
11	BMA	j	3	11	-	0/2/19/22	0/1/1/1
9	NAG	k	1	1,9	-	1/6/23/26	0/1/1/1
9	NAG	k	2	9	-	1/6/23/26	0/1/1/1
8	NAG	l	1	1,8	-	2/6/23/26	0/1/1/1
8	NAG	l	2	8	-	0/6/23/26	0/1/1/1
8	BMA	l	3	8	-	0/2/19/22	0/1/1/1
9	NAG	m	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	m	2	9	-	1/6/23/26	0/1/1/1
9	NAG	n	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	n	2	9	-	0/6/23/26	0/1/1/1
8	NAG	o	1	1,8	-	1/6/23/26	0/1/1/1
8	NAG	o	2	8	-	0/6/23/26	0/1/1/1
8	BMA	o	3	8	-	0/2/19/22	0/1/1/1
9	NAG	p	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	p	2	9	-	1/6/23/26	0/1/1/1
9	NAG	q	1	1,9	-	4/6/23/26	0/1/1/1
9	NAG	q	2	9	-	2/6/23/26	0/1/1/1
10	NAG	r	1	10,1	-	0/6/23/26	0/1/1/1
10	NAG	r	2	10	-	1/6/23/26	0/1/1/1
10	BMA	r	3	10	-	2/2/19/22	0/1/1/1
10	MAN	r	4	10	-	0/2/19/22	0/1/1/1
10	MAN	r	5	10	-	0/2/19/22	0/1/1/1
9	NAG	s	1	1,9	-	2/6/23/26	0/1/1/1
9	NAG	s	2	9	-	0/6/23/26	0/1/1/1
10	NAG	t	1	10,1	-	1/6/23/26	0/1/1/1
10	NAG	t	2	10	-	0/6/23/26	0/1/1/1
10	BMA	t	3	10	-	0/2/19/22	0/1/1/1
10	MAN	t	4	10	-	0/2/19/22	0/1/1/1
10	MAN	t	5	10	-	0/2/19/22	0/1/1/1
9	NAG	u	1	1,9	-	2/6/23/26	0/1/1/1
9	NAG	u	2	9	-	0/6/23/26	0/1/1/1
9	NAG	v	1	1,9	-	1/6/23/26	0/1/1/1
9	NAG	v	2	9	-	2/6/23/26	0/1/1/1
8	NAG	w	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	w	2	8	-	4/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	BMA	w	3	8	-	0/2/19/22	0/1/1/1
8	NAG	x	1	1,8	-	2/6/23/26	0/1/1/1
8	NAG	x	2	8	-	0/6/23/26	0/1/1/1
8	BMA	x	3	8	-	0/2/19/22	0/1/1/1
10	NAG	y	1	10,1	-	2/6/23/26	0/1/1/1
10	NAG	y	2	10	-	4/6/23/26	0/1/1/1
10	BMA	y	3	10	-	0/2/19/22	0/1/1/1
10	MAN	y	4	10	-	0/2/19/22	0/1/1/1
10	MAN	y	5	10	-	0/2/19/22	0/1/1/1
9	NAG	z	1	1,9	-	0/6/23/26	0/1/1/1
9	NAG	z	2	9	-	3/6/23/26	0/1/1/1

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	1	3	BMA	O5-C5	2.42	1.48	1.43
10	1	4	MAN	O5-C5	2.24	1.48	1.43
10	2	3	BMA	O5-C5	2.24	1.48	1.43
10	r	5	MAN	O5-C5	2.24	1.48	1.43
10	2	4	MAN	O5-C5	2.14	1.47	1.43
8	1	3	BMA	O5-C5	2.04	1.47	1.43
11	4	3	BMA	O5-C5	2.00	1.47	1.43

All (52) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	k	2	NAG	C1-O5-C5	4.06	117.69	112.19
9	e	1	NAG	C1-O5-C5	3.69	117.20	112.19
10	2	1	NAG	C1-O5-C5	3.68	117.18	112.19
10	1	3	BMA	C1-O5-C5	3.62	117.10	112.19
9	V	2	NAG	C1-O5-C5	3.57	117.03	112.19
8	w	1	NAG	C1-O5-C5	3.50	116.94	112.19
8	x	2	NAG	O5-C1-C2	-3.20	106.23	111.29
10	2	5	MAN	C1-C2-C3	3.18	113.58	109.67
9	z	1	NAG	C1-O5-C5	3.16	116.48	112.19
10	g	1	NAG	O5-C1-C2	3.13	116.22	111.29
10	h	1	NAG	C1-O5-C5	3.11	116.41	112.19
10	1	2	NAG	C1-O5-C5	3.04	116.32	112.19
9	V	1	NAG	C4-C3-C2	3.00	115.42	111.02
9	u	2	NAG	C1-O5-C5	2.91	116.13	112.19
9	n	2	NAG	C1-O5-C5	2.89	116.11	112.19

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	l	3	BMA	C1-O5-C5	2.87	116.08	112.19
10	2	3	BMA	C1-O5-C5	2.84	116.04	112.19
10	r	1	NAG	C1-C2-N2	2.78	115.23	110.49
9	e	2	NAG	C1-O5-C5	2.78	115.95	112.19
10	W	1	NAG	C1-O5-C5	2.74	115.91	112.19
9	k	1	NAG	C1-C2-N2	2.72	115.13	110.49
10	2	5	MAN	C1-O5-C5	2.70	115.85	112.19
10	2	3	BMA	C1-C2-C3	2.64	112.91	109.67
10	W	1	NAG	O5-C1-C2	-2.60	107.18	111.29
10	g	1	NAG	C3-C4-C5	-2.53	105.73	110.24
9	5	2	NAG	C1-O5-C5	2.52	115.61	112.19
10	1	4	MAN	C1-C2-C3	2.51	112.75	109.67
9	n	1	NAG	C4-C3-C2	2.45	114.61	111.02
9	5	1	NAG	C1-O5-C5	2.45	115.51	112.19
10	2	2	NAG	C1-O5-C5	2.43	115.49	112.19
8	l	2	NAG	C1-O5-C5	2.42	115.47	112.19
10	1	4	MAN	C1-O5-C5	2.35	115.38	112.19
8	E	2	NAG	C1-C2-N2	2.35	114.50	110.49
9	m	2	NAG	C1-O5-C5	2.31	115.32	112.19
8	l	3	BMA	C1-C2-C3	2.31	112.51	109.67
10	r	5	MAN	C1-O5-C5	2.29	115.29	112.19
10	d	3	BMA	C1-C2-C3	2.28	112.47	109.67
9	p	1	NAG	O5-C1-C2	-2.27	107.70	111.29
9	e	1	NAG	O5-C1-C2	2.27	114.88	111.29
10	y	3	BMA	C1-C2-C3	2.26	112.44	109.67
9	V	1	NAG	C2-N2-C7	2.21	126.06	122.90
11	4	3	BMA	C1-O5-C5	2.15	115.11	112.19
9	u	1	NAG	C1-O5-C5	2.15	115.10	112.19
10	r	3	BMA	C1-C2-C3	2.14	112.30	109.67
10	2	4	MAN	C1-O5-C5	2.12	115.06	112.19
9	z	2	NAG	C1-C2-N2	2.09	114.05	110.49
10	1	5	MAN	C1-O5-C5	2.08	115.01	112.19
10	g	3	BMA	C1-O5-C5	2.06	114.98	112.19
8	l	1	NAG	C1-O5-C5	2.03	114.94	112.19
9	S	2	NAG	C1-C2-N2	2.02	113.95	110.49
9	Z	2	NAG	C2-N2-C7	2.02	125.78	122.90
10	h	2	NAG	C1-O5-C5	2.01	114.92	112.19

There are no chirality outliers.

All (78) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	F	2	NAG	C3-C2-N2-C7
9	F	2	NAG	C8-C7-N2-C2
9	F	2	NAG	O7-C7-N2-C2
10	y	2	NAG	C8-C7-N2-C2
10	y	2	NAG	O7-C7-N2-C2
9	S	1	NAG	C8-C7-N2-C2
9	q	1	NAG	C8-C7-N2-C2
11	j	2	NAG	O5-C5-C6-O6
11	4	2	NAG	O5-C5-C6-O6
10	1	1	NAG	O5-C5-C6-O6
10	2	3	BMA	O5-C5-C6-O6
9	q	1	NAG	O7-C7-N2-C2
10	y	2	NAG	C1-C2-N2-C7
10	r	3	BMA	O5-C5-C6-O6
10	2	3	BMA	C4-C5-C6-O6
9	S	1	NAG	O7-C7-N2-C2
9	s	1	NAG	C8-C7-N2-C2
8	w	2	NAG	C8-C7-N2-C2
8	w	2	NAG	O7-C7-N2-C2
9	v	2	NAG	C8-C7-N2-C2
10	1	1	NAG	C4-C5-C6-O6
10	r	3	BMA	C4-C5-C6-O6
9	f	1	NAG	C8-C7-N2-C2
9	s	1	NAG	O7-C7-N2-C2
9	v	2	NAG	O7-C7-N2-C2
9	0	2	NAG	C8-C7-N2-C2
9	3	2	NAG	C8-C7-N2-C2
8	l	1	NAG	O5-C5-C6-O6
11	4	2	NAG	C4-C5-C6-O6
9	u	1	NAG	O5-C5-C6-O6
9	i	2	NAG	C8-C7-N2-C2
11	j	2	NAG	C4-C5-C6-O6
10	y	1	NAG	O5-C5-C6-O6
9	q	1	NAG	C1-C2-N2-C7
8	x	1	NAG	C4-C5-C6-O6
9	f	1	NAG	O7-C7-N2-C2
10	W	1	NAG	C8-C7-N2-C2
10	y	1	NAG	C4-C5-C6-O6
8	x	1	NAG	O5-C5-C6-O6
8	w	2	NAG	C1-C2-N2-C7
9	z	2	NAG	O5-C5-C6-O6
9	p	2	NAG	O5-C5-C6-O6
10	Y	2	NAG	O5-C5-C6-O6

Continued on next page...

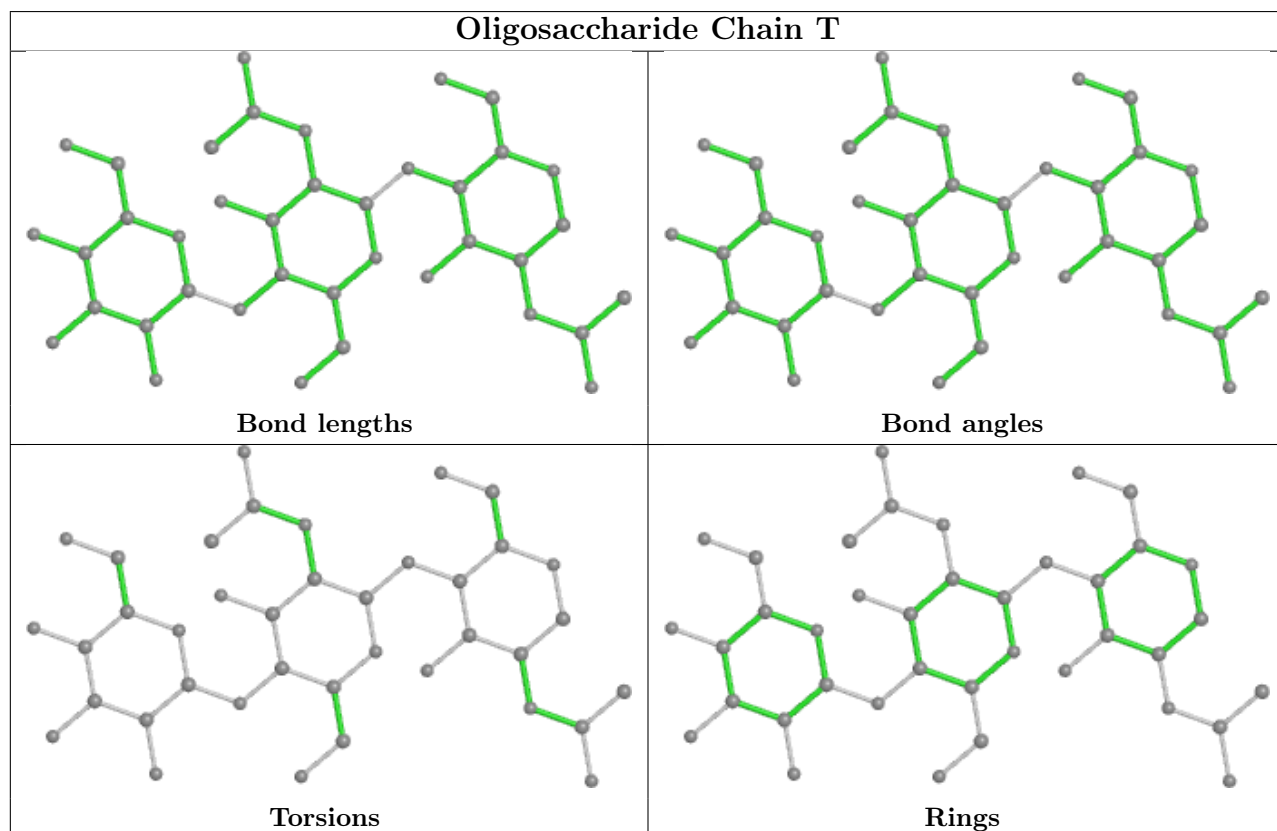
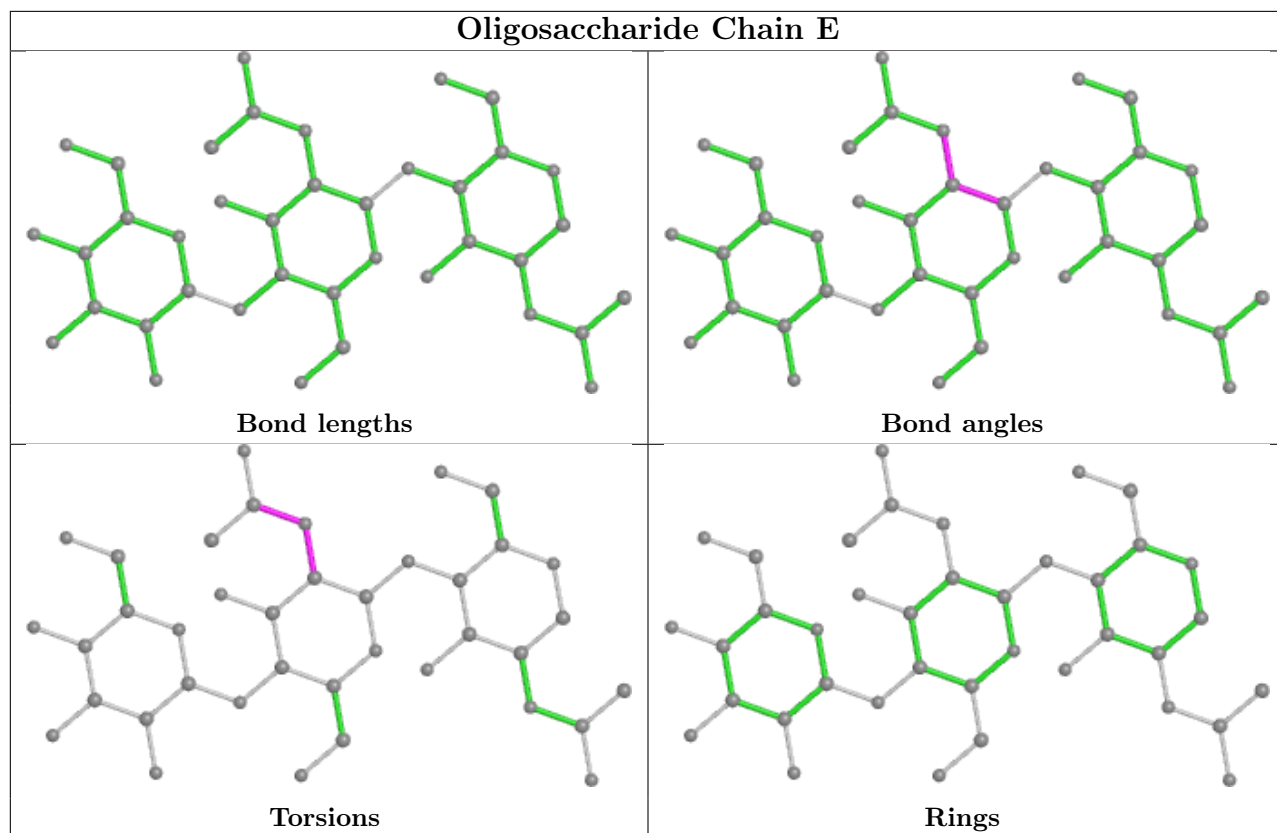
Continued from previous page...

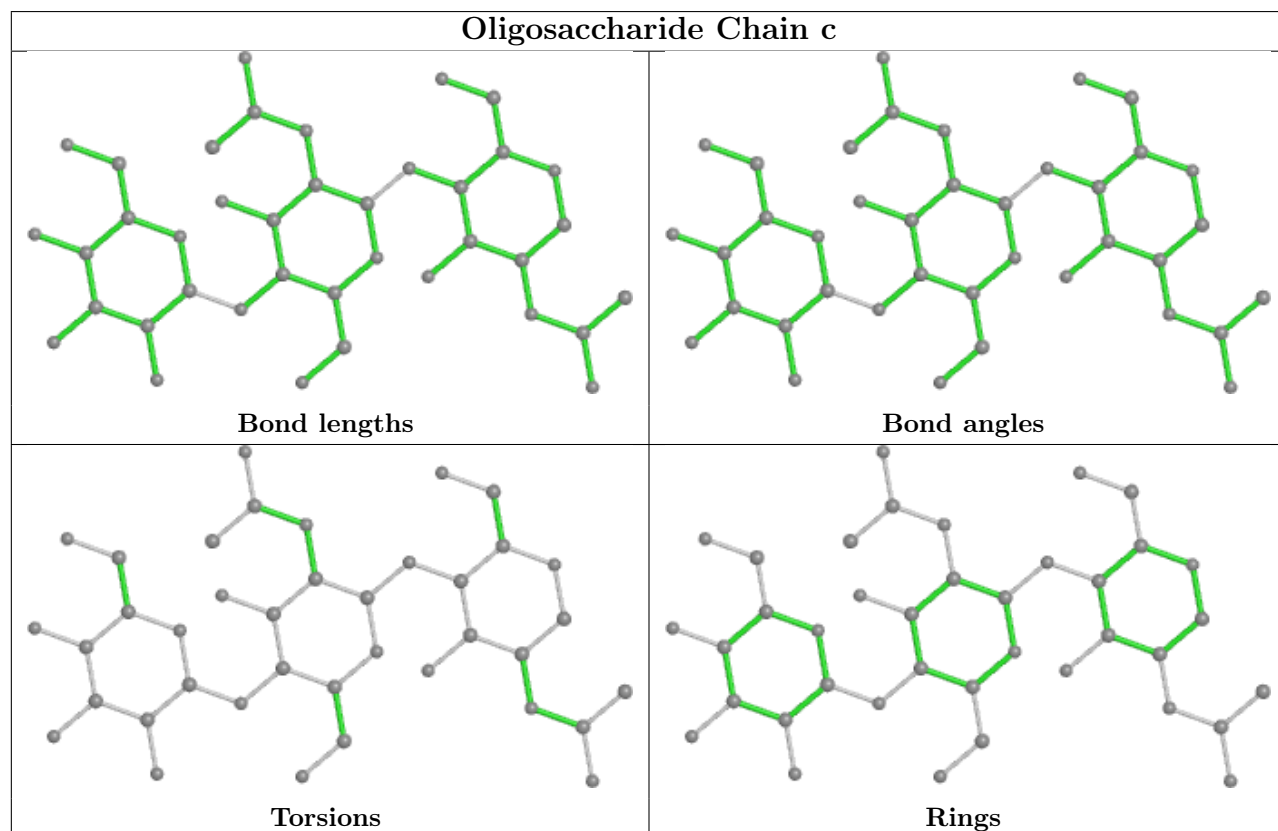
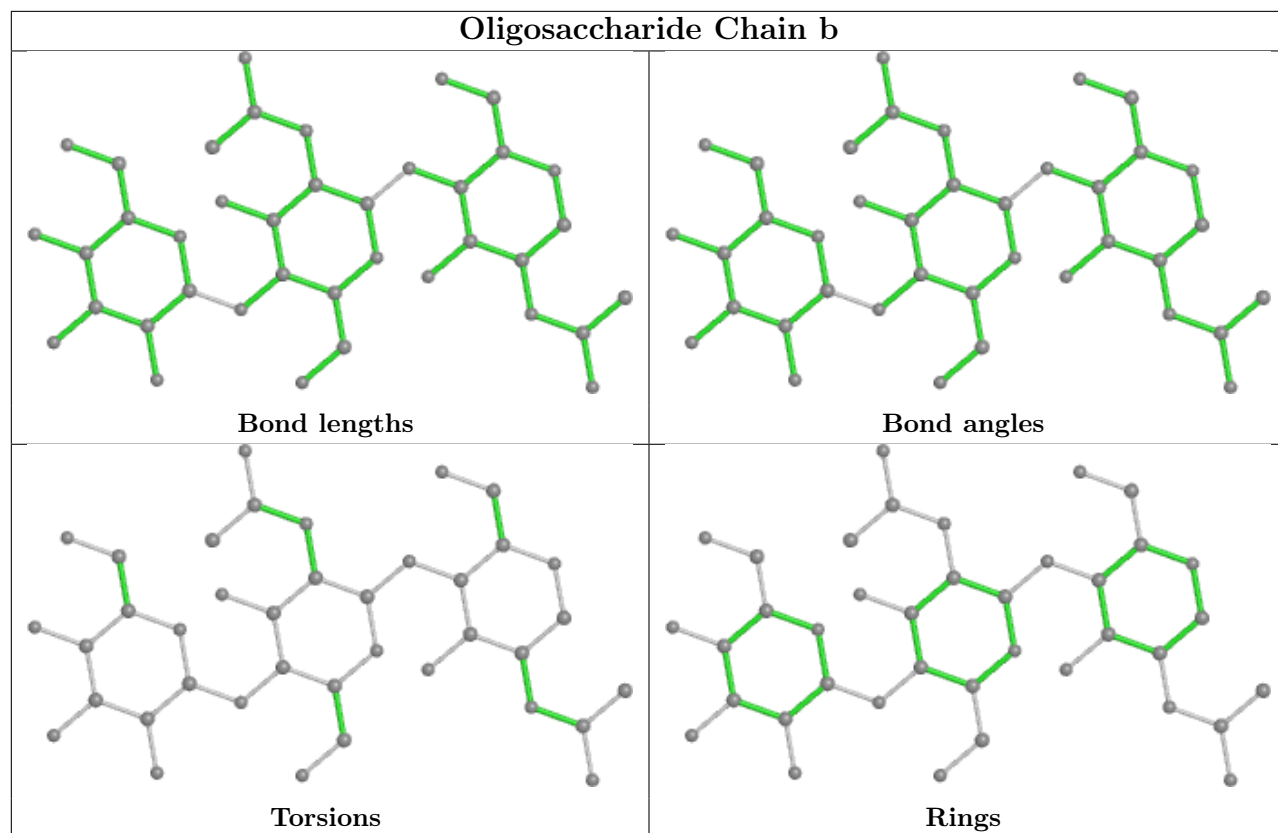
Mol	Chain	Res	Type	Atoms
10	h	5	MAN	O5-C5-C6-O6
9	3	2	NAG	O7-C7-N2-C2
9	S	2	NAG	O5-C5-C6-O6
9	v	1	NAG	O5-C5-C6-O6
9	V	2	NAG	O5-C5-C6-O6
9	i	2	NAG	O7-C7-N2-C2
9	0	2	NAG	O7-C7-N2-C2
8	E	2	NAG	C1-C2-N2-C7
8	o	1	NAG	O5-C5-C6-O6
9	X	2	NAG	O5-C5-C6-O6
9	3	2	NAG	O5-C5-C6-O6
9	i	2	NAG	O5-C5-C6-O6
9	q	1	NAG	C3-C2-N2-C7
10	W	1	NAG	O7-C7-N2-C2
10	g	3	BMA	O5-C5-C6-O6
9	q	2	NAG	C8-C7-N2-C2
9	X	2	NAG	C1-C2-N2-C7
10	t	1	NAG	C1-C2-N2-C7
9	V	1	NAG	C1-C2-N2-C7
8	w	2	NAG	C3-C2-N2-C7
9	Z	2	NAG	C3-C2-N2-C7
9	k	2	NAG	C3-C2-N2-C7
10	y	2	NAG	C3-C2-N2-C7
8	E	2	NAG	C8-C7-N2-C2
9	u	1	NAG	C4-C5-C6-O6
9	z	2	NAG	C1-C2-N2-C7
9	q	2	NAG	O7-C7-N2-C2
8	E	2	NAG	O7-C7-N2-C2
9	S	2	NAG	C1-C2-N2-C7
9	k	1	NAG	C4-C5-C6-O6
9	S	2	NAG	C3-C2-N2-C7
9	m	2	NAG	C3-C2-N2-C7
9	z	2	NAG	C3-C2-N2-C7
8	l	1	NAG	C4-C5-C6-O6
10	r	2	NAG	C8-C7-N2-C2

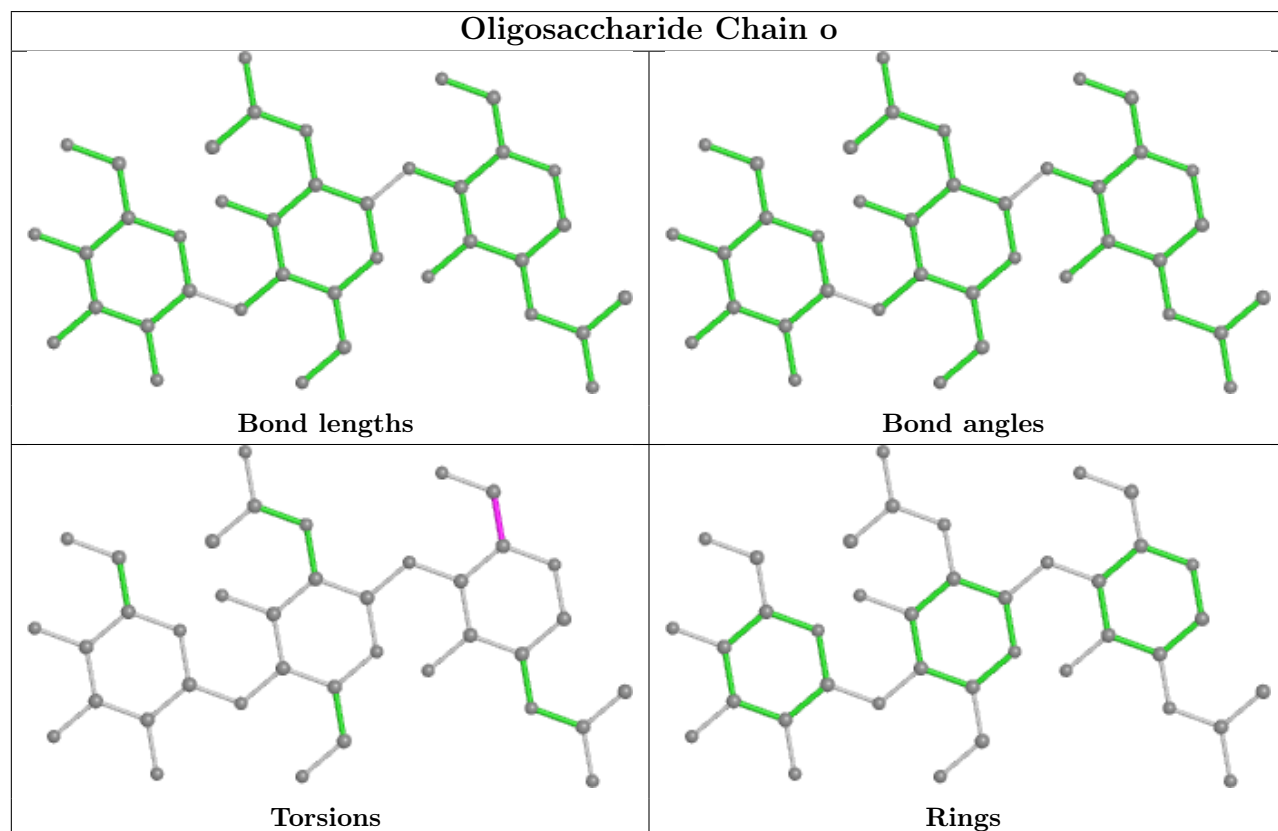
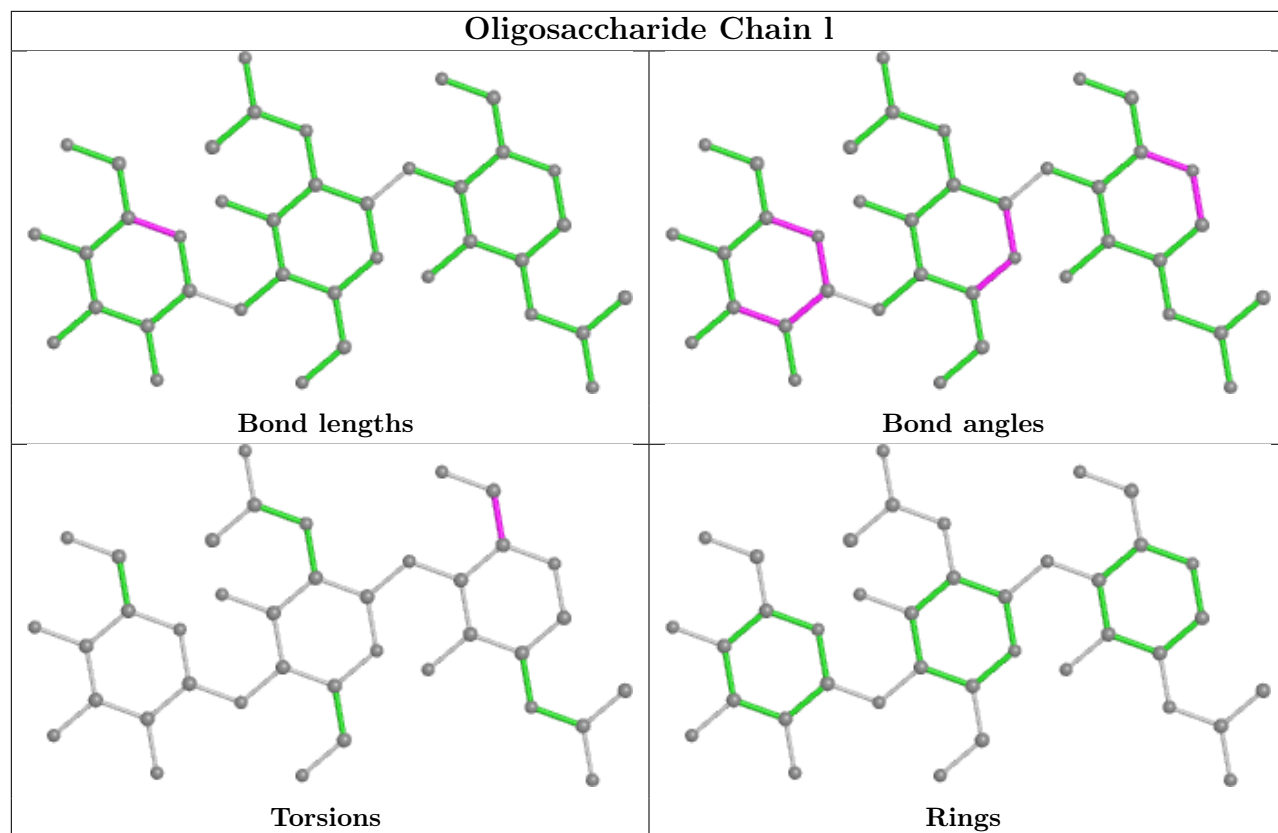
There are no ring outliers.

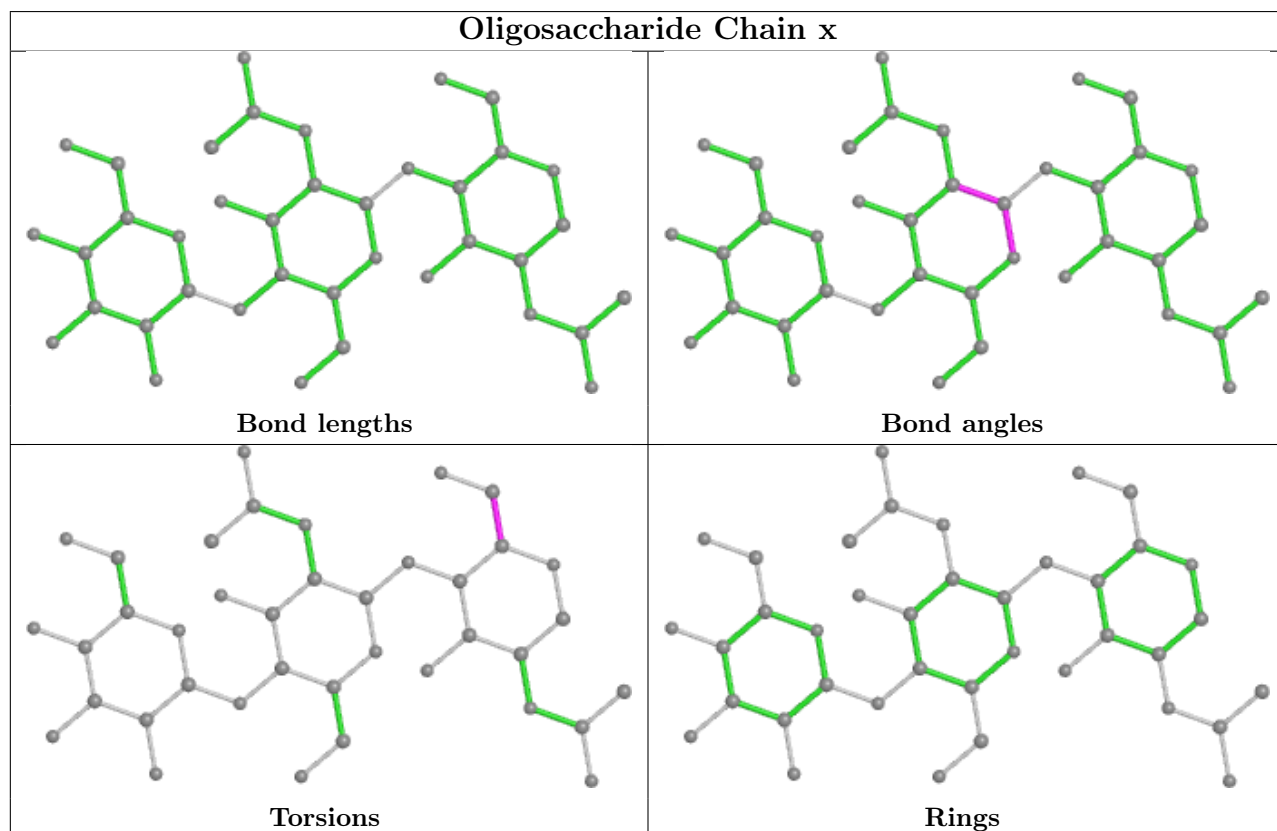
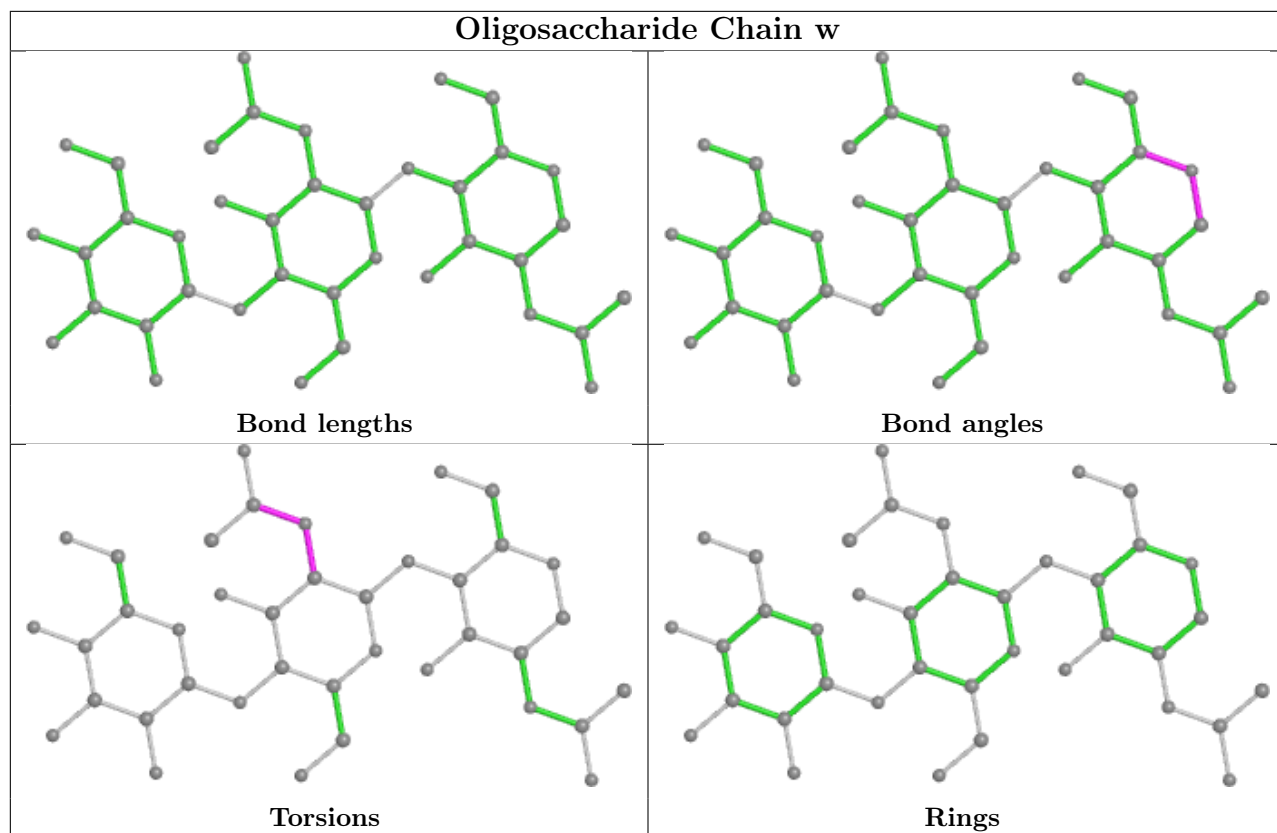
No monomer is involved in short contacts.

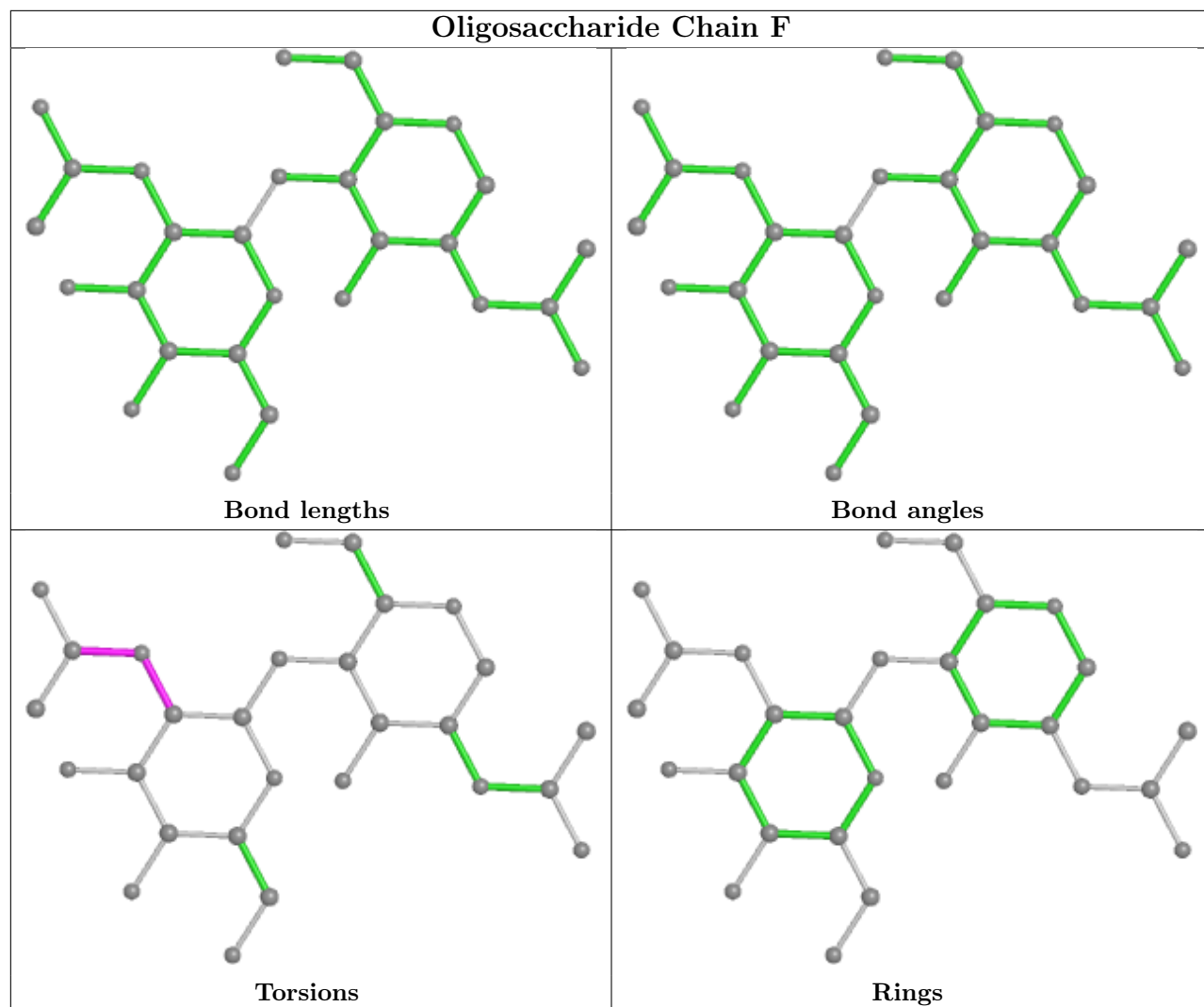
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

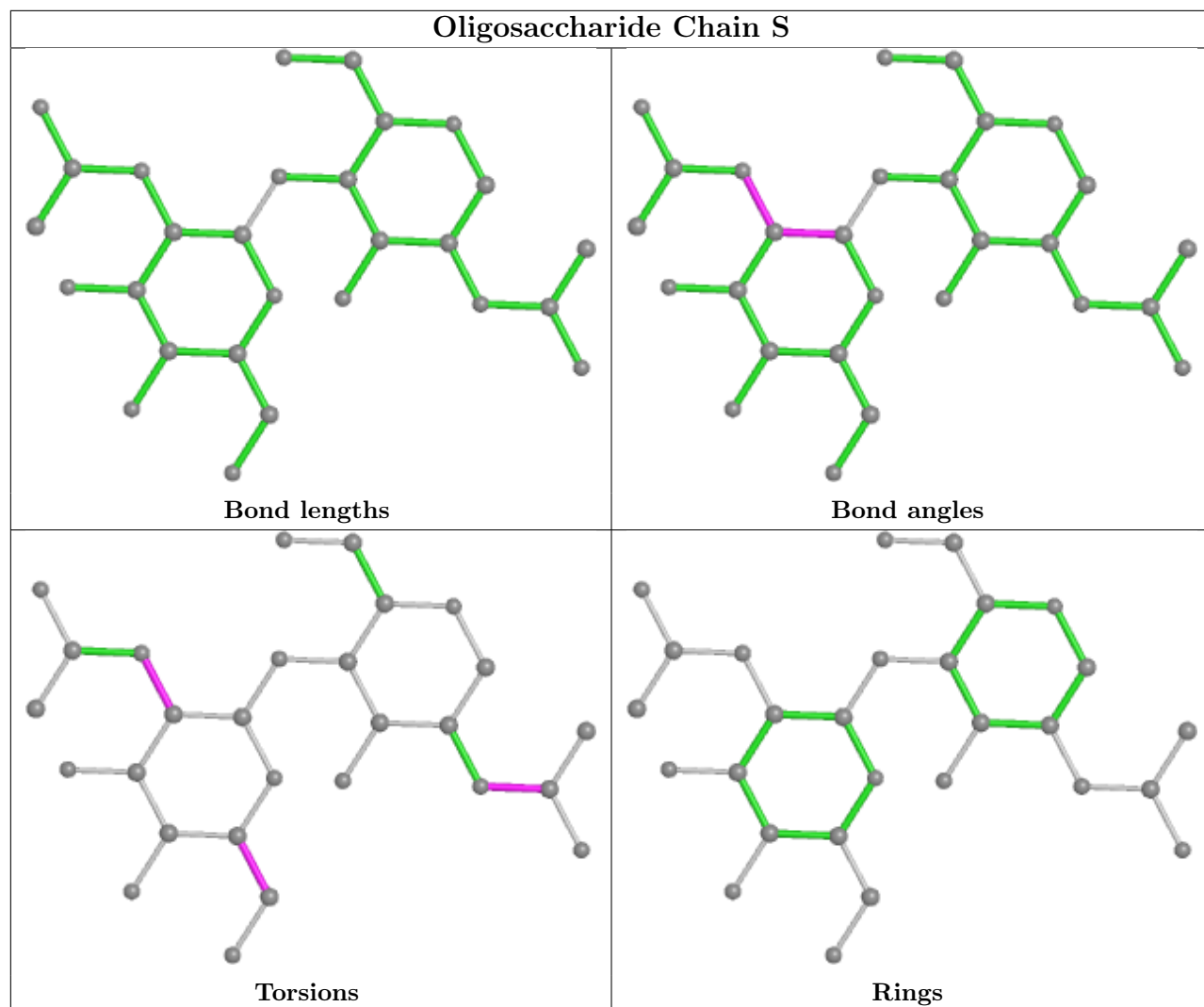


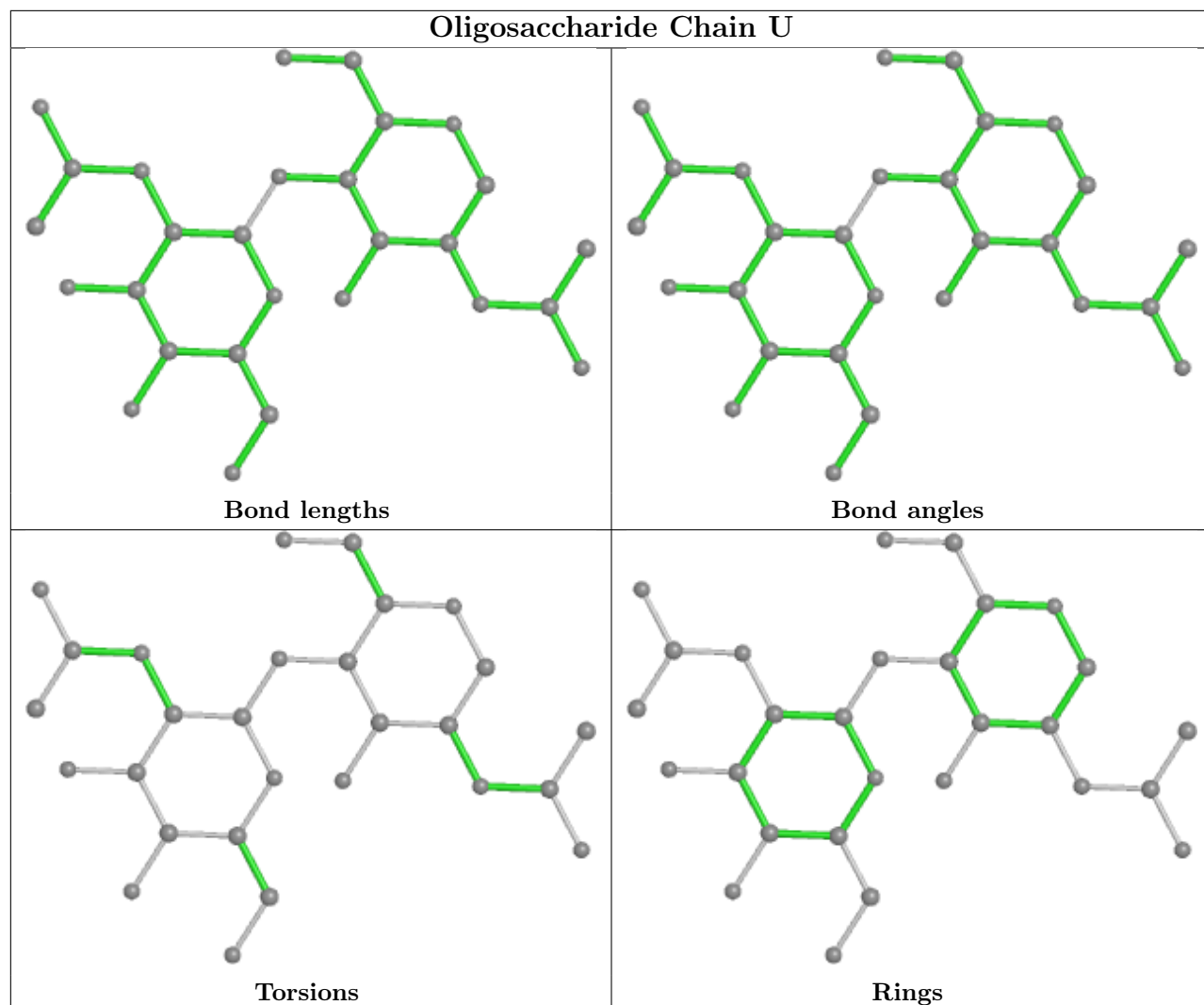


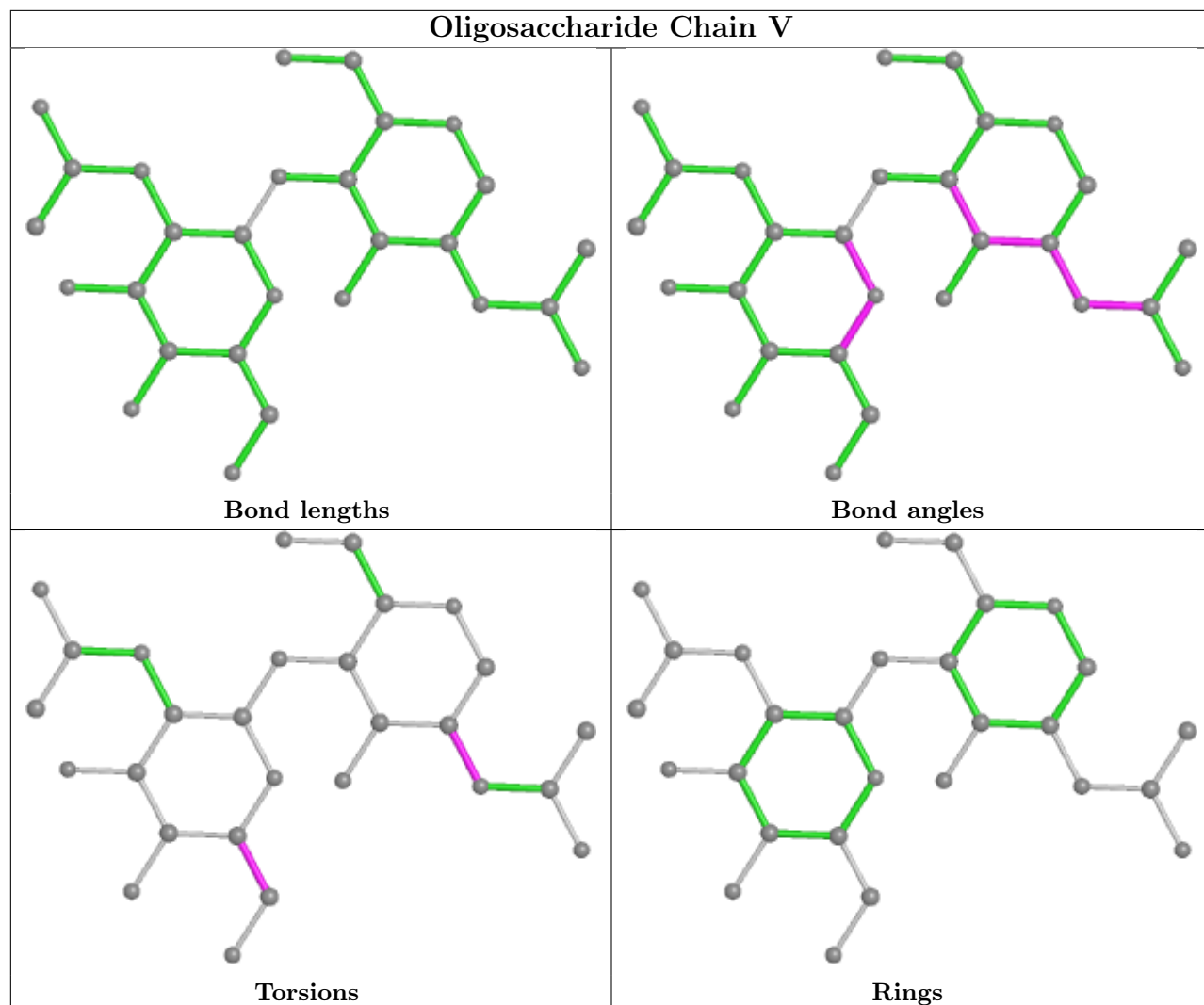


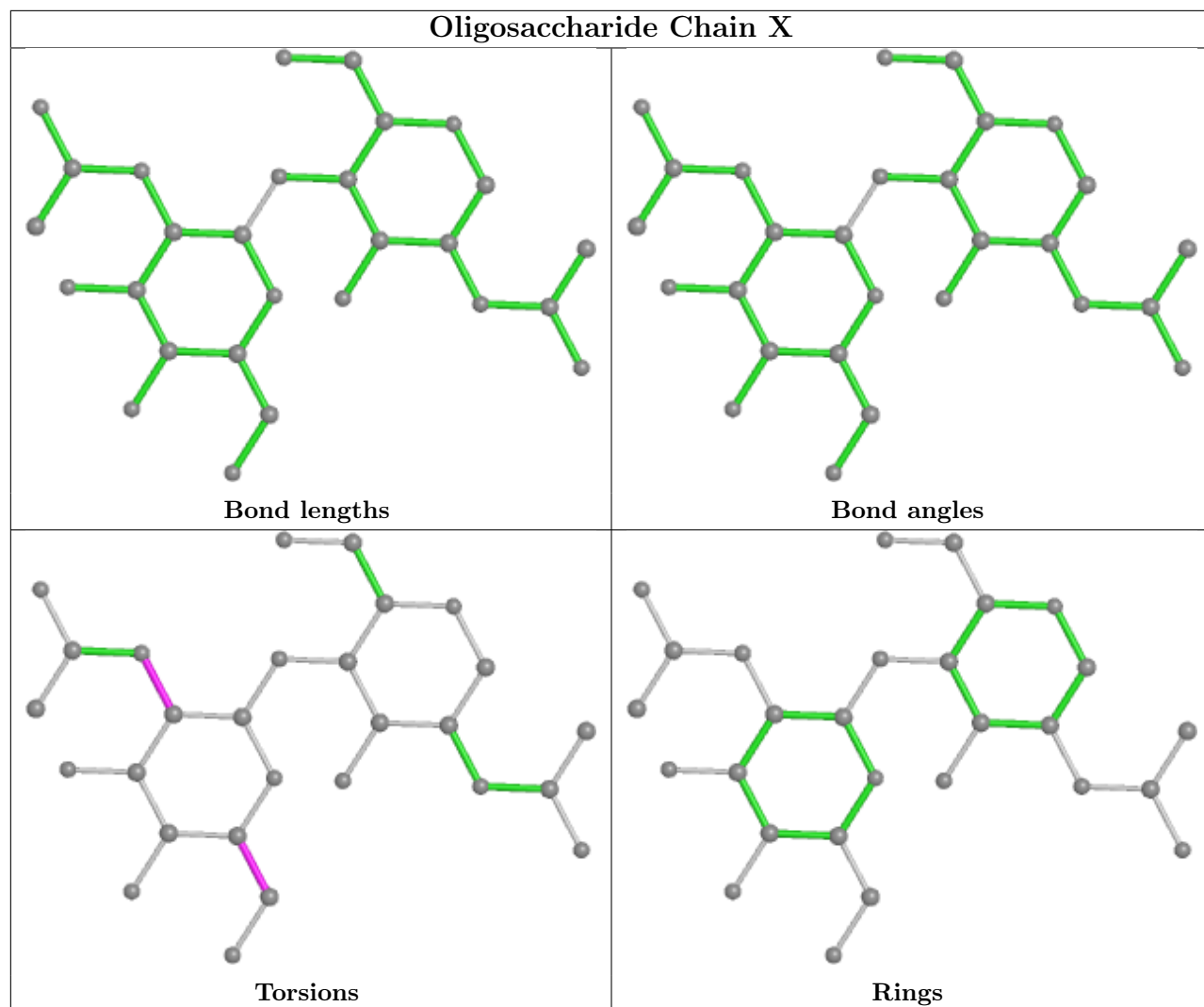


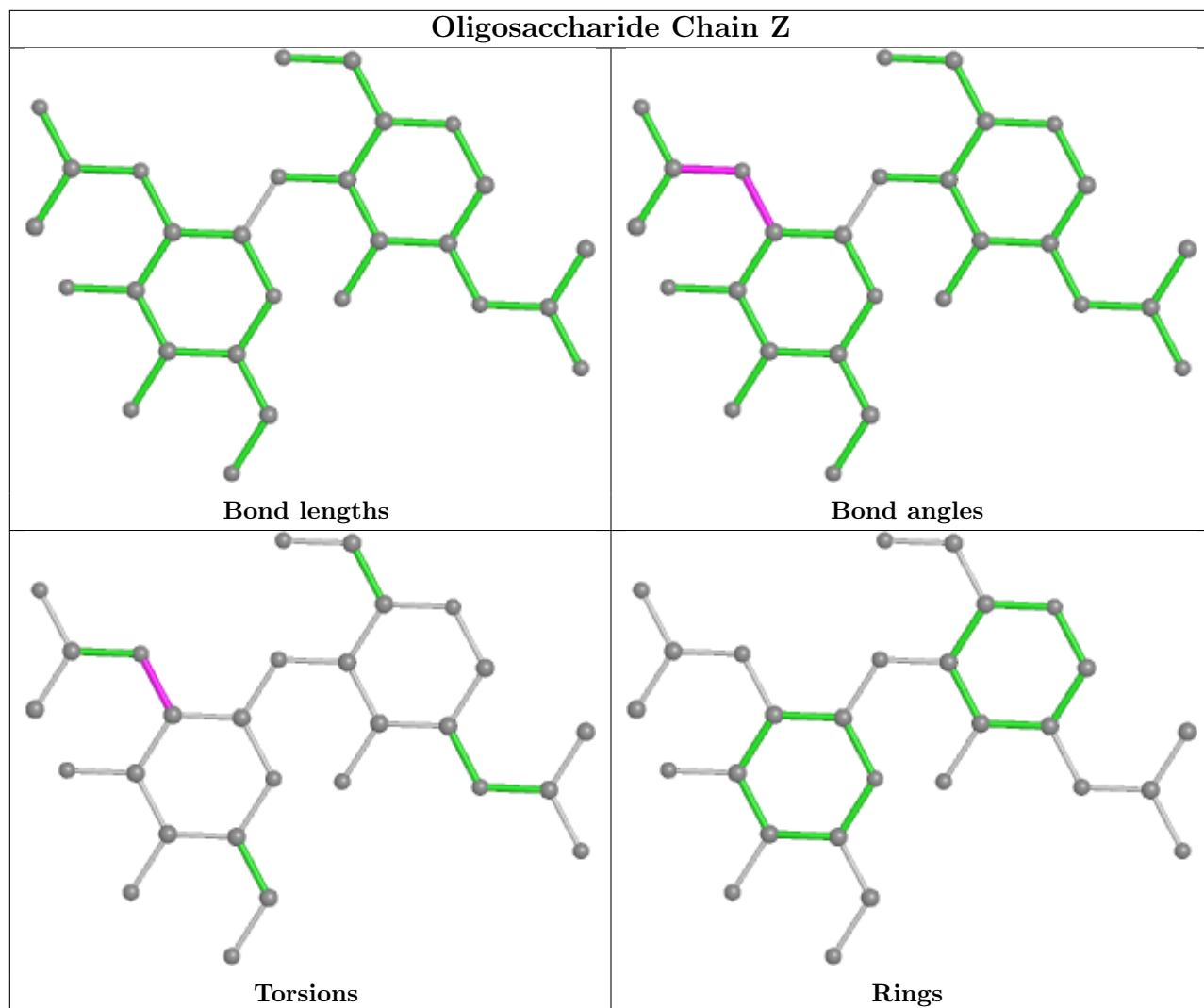


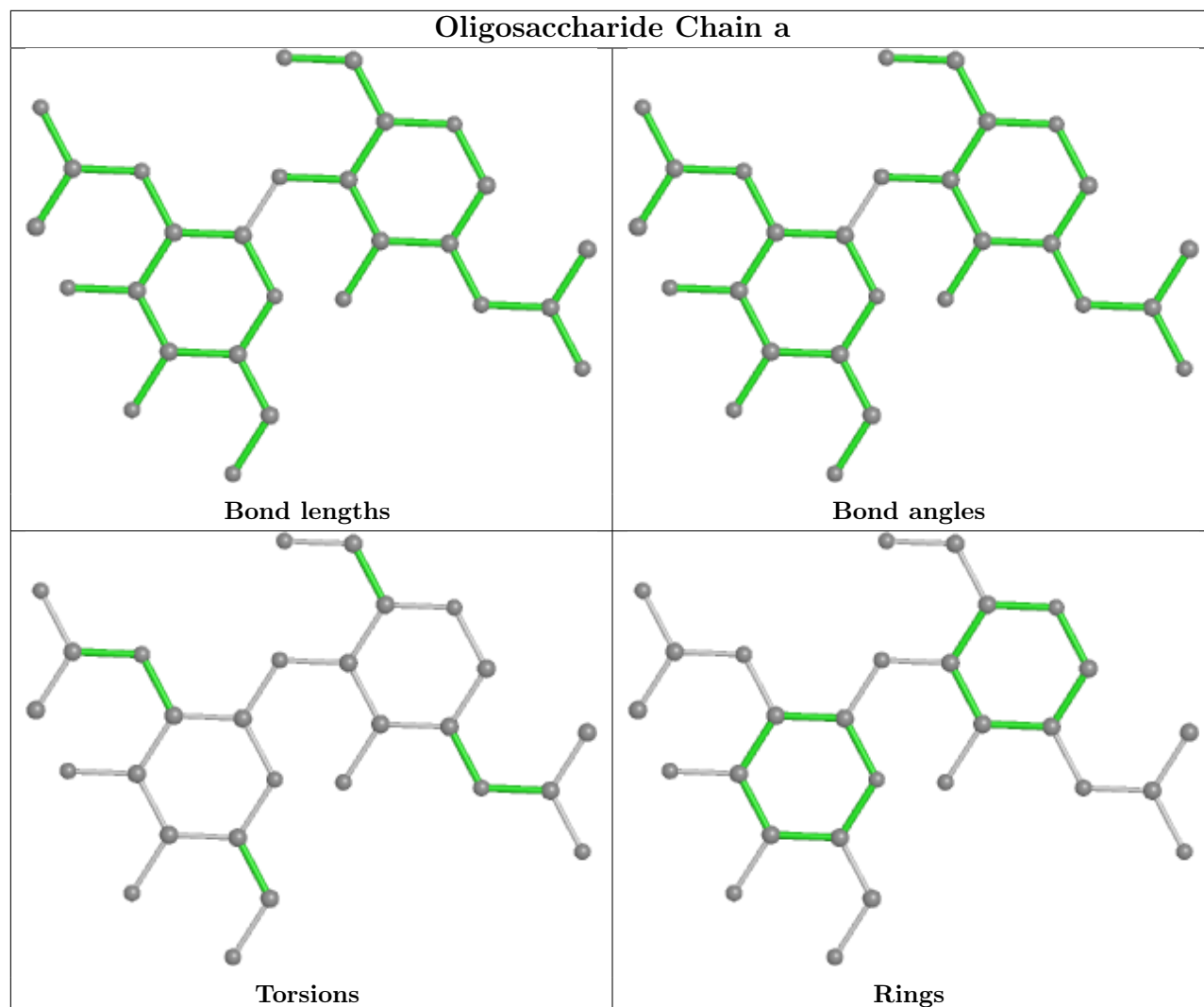


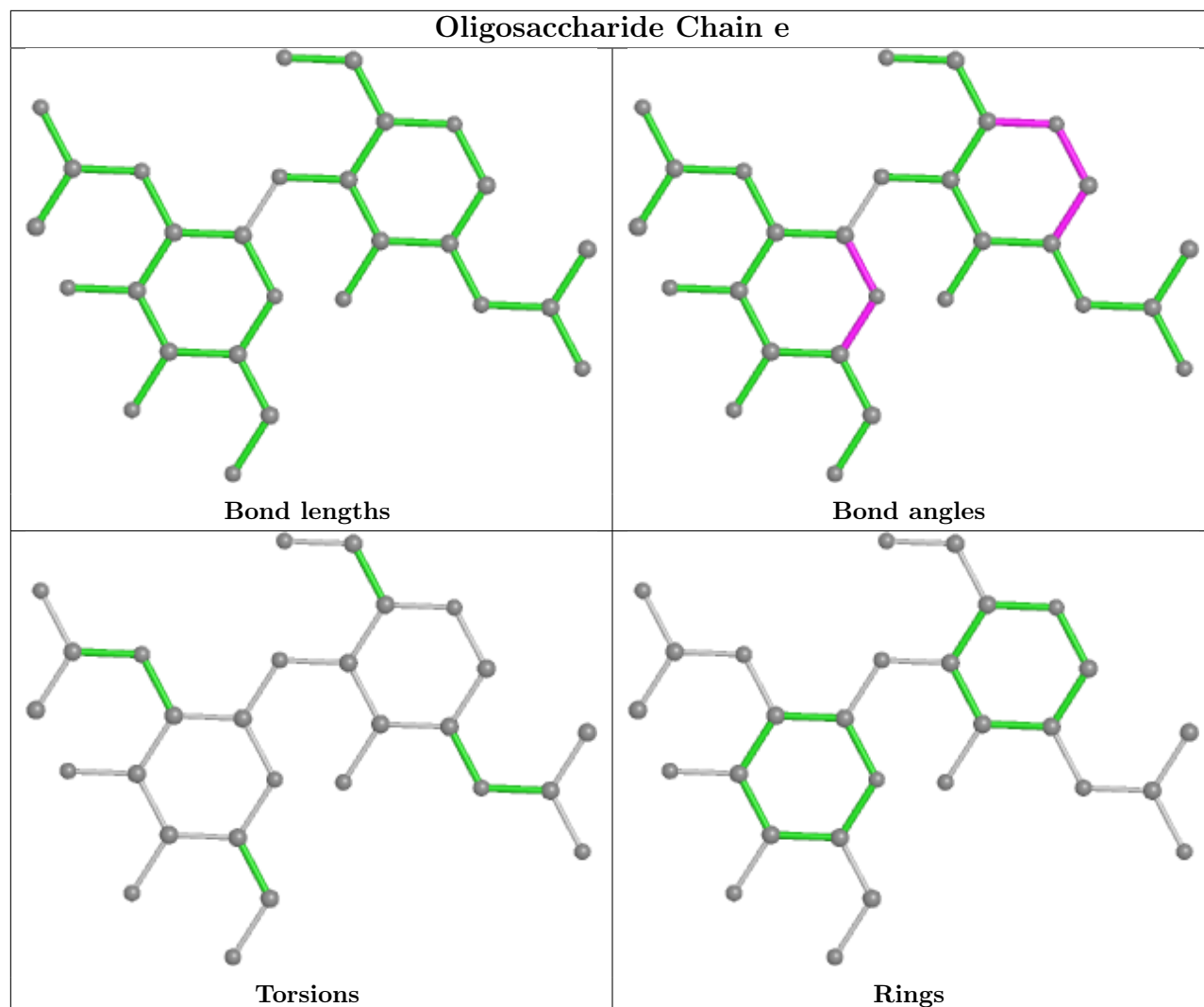


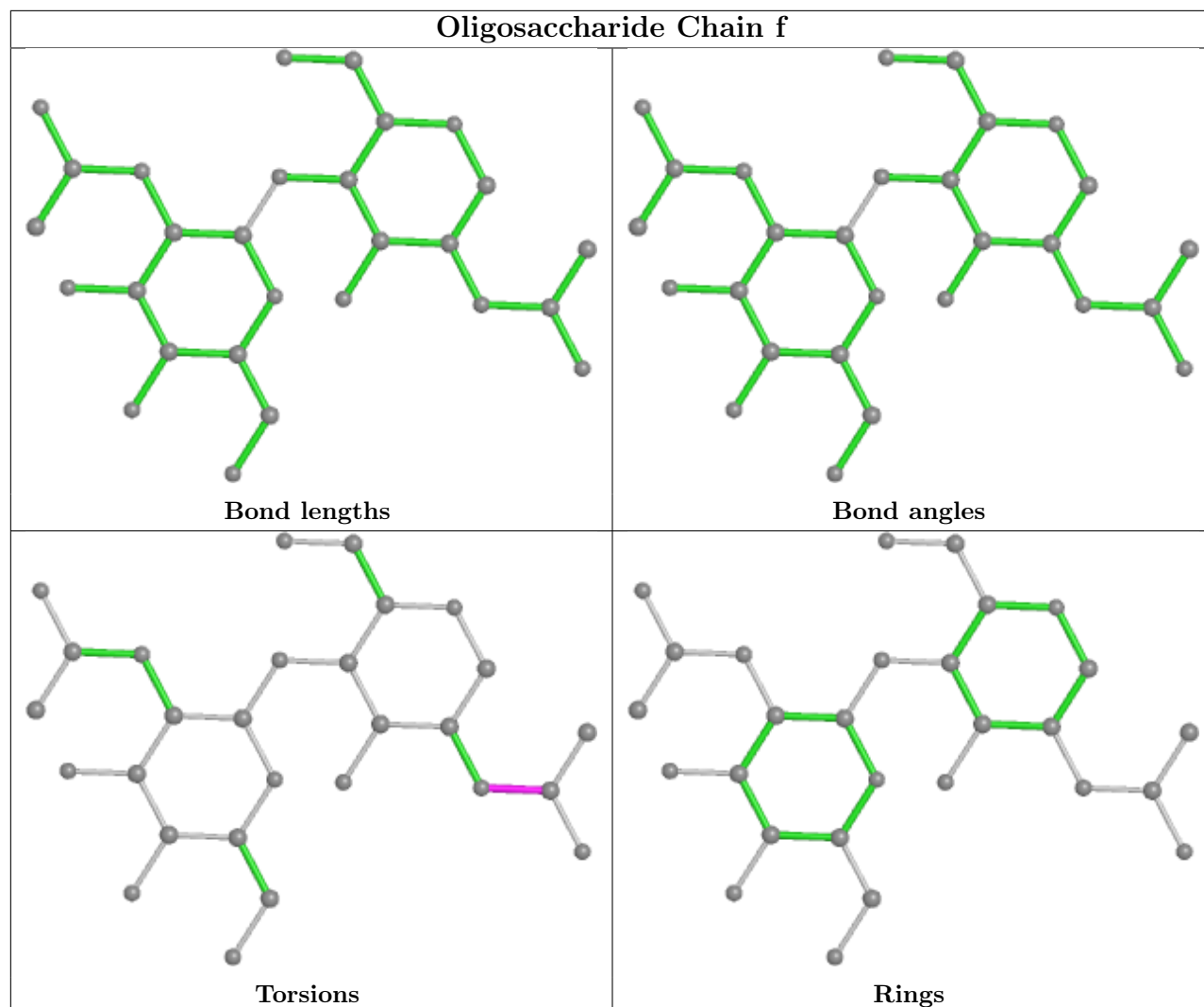


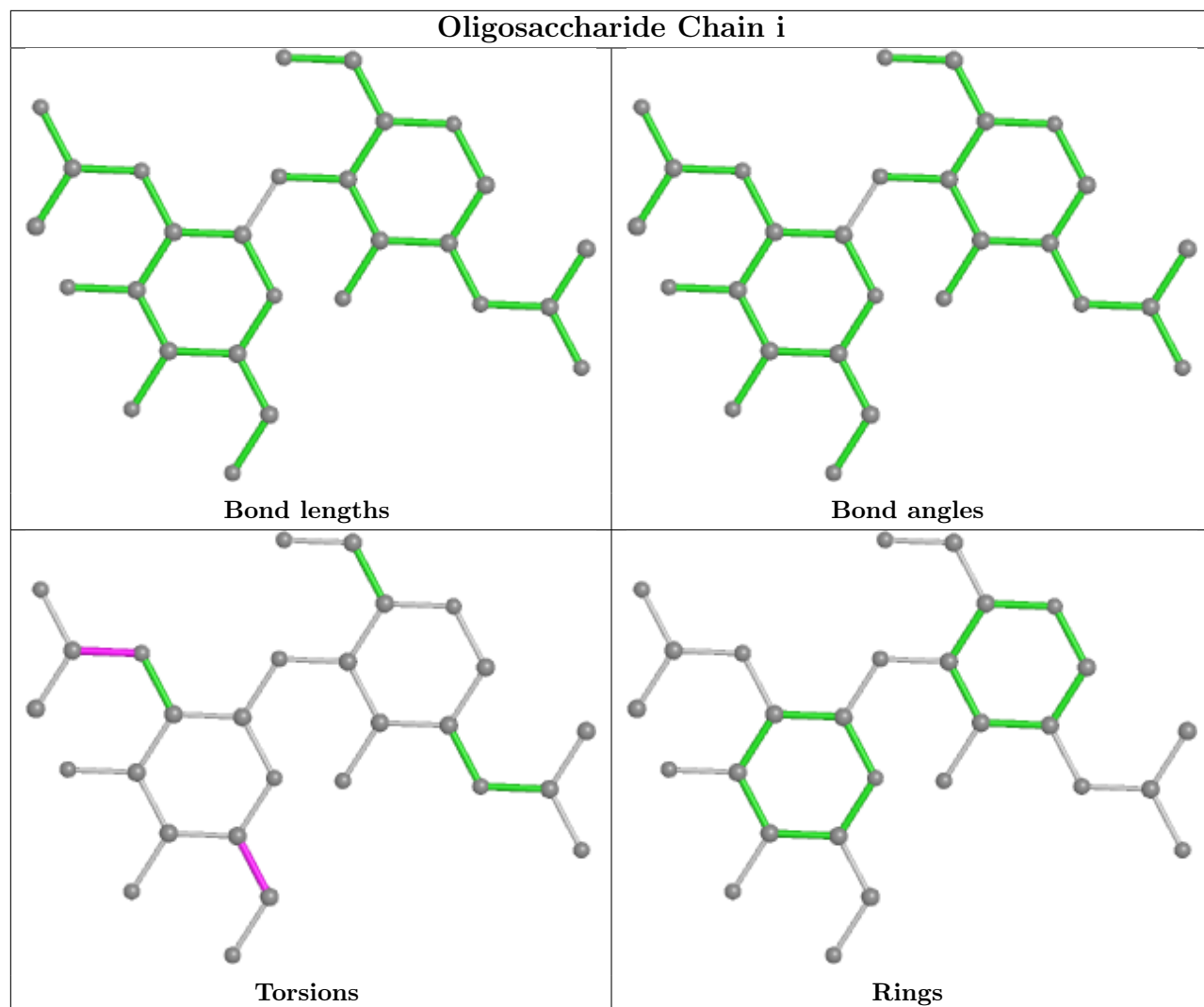


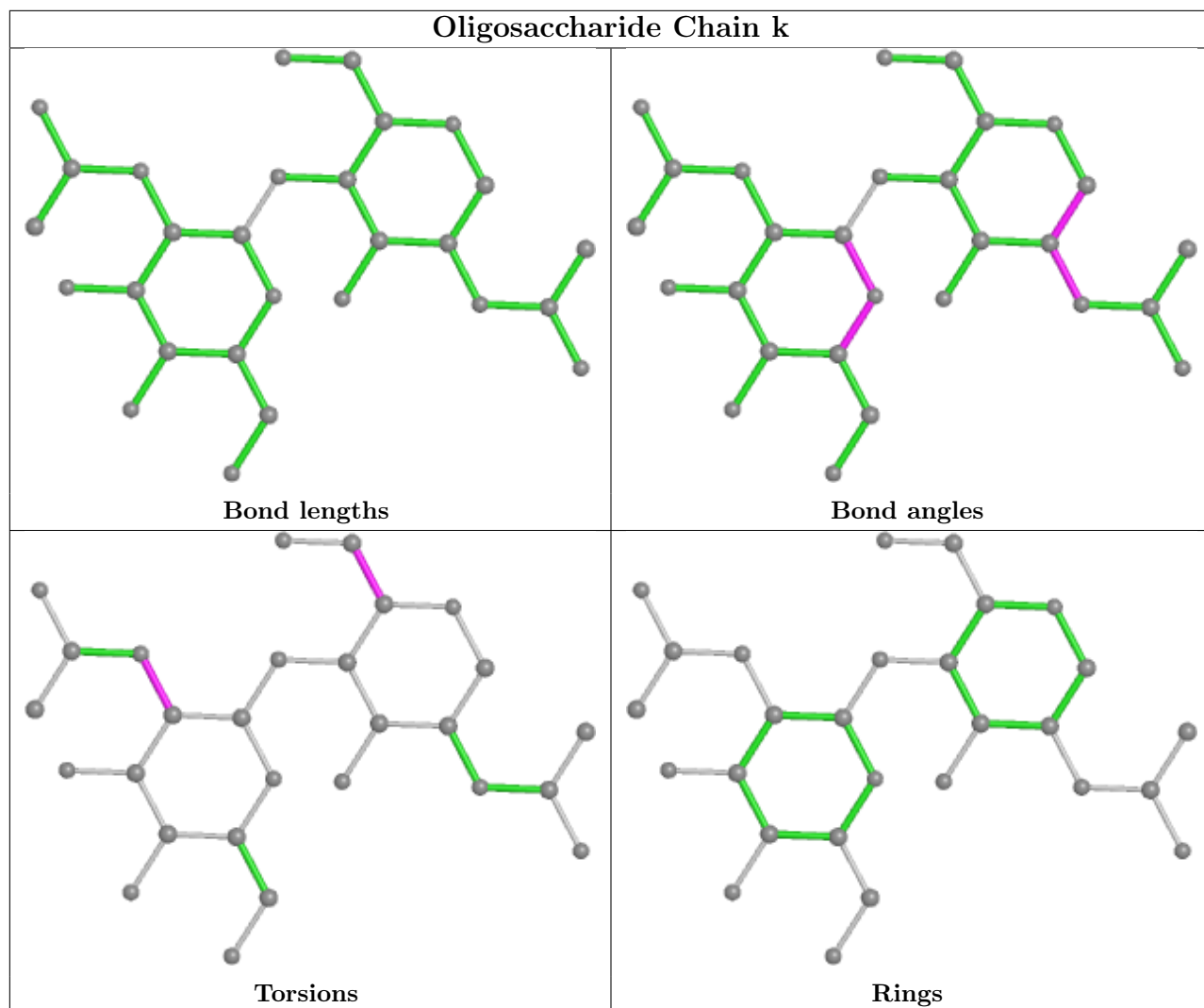


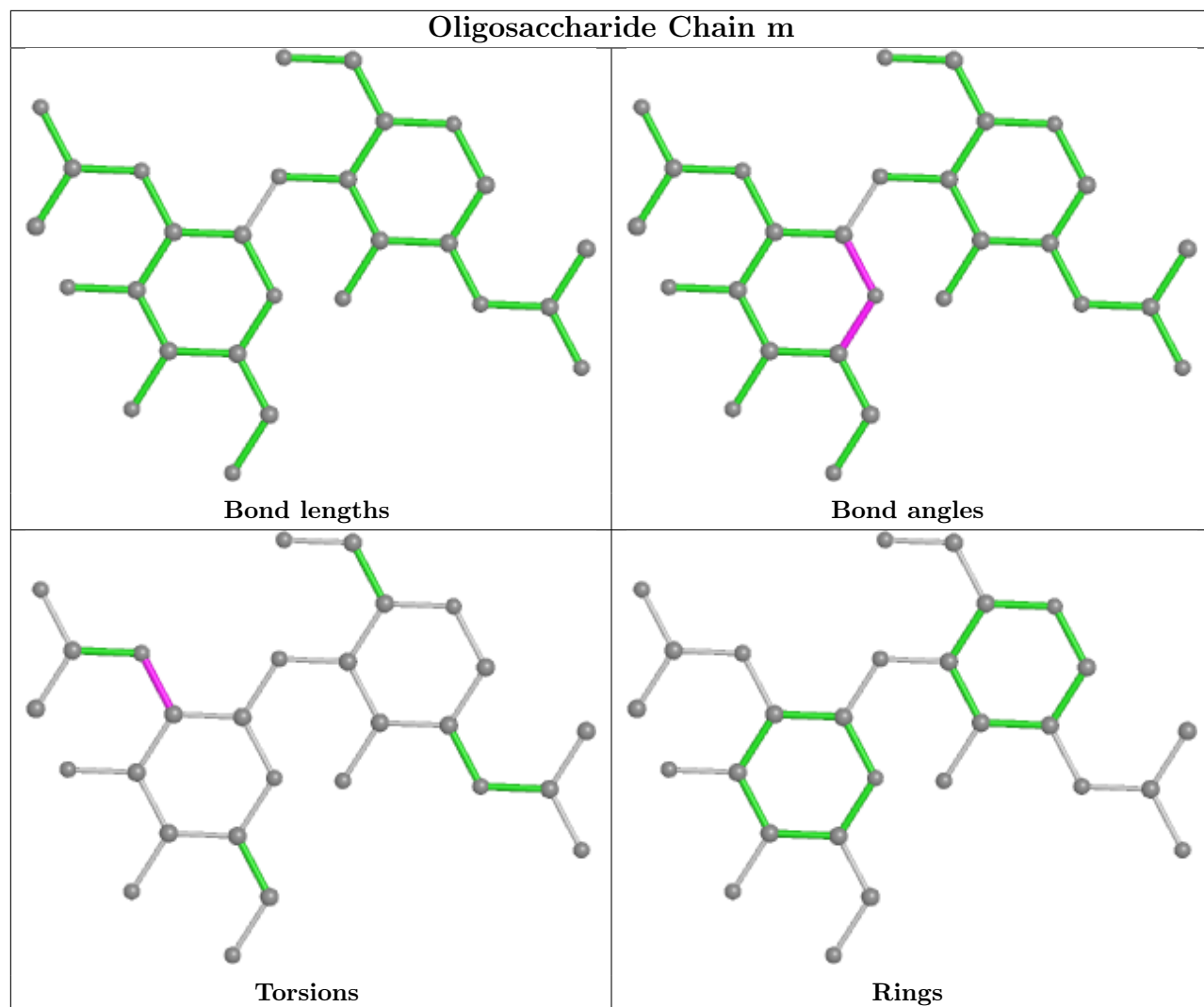


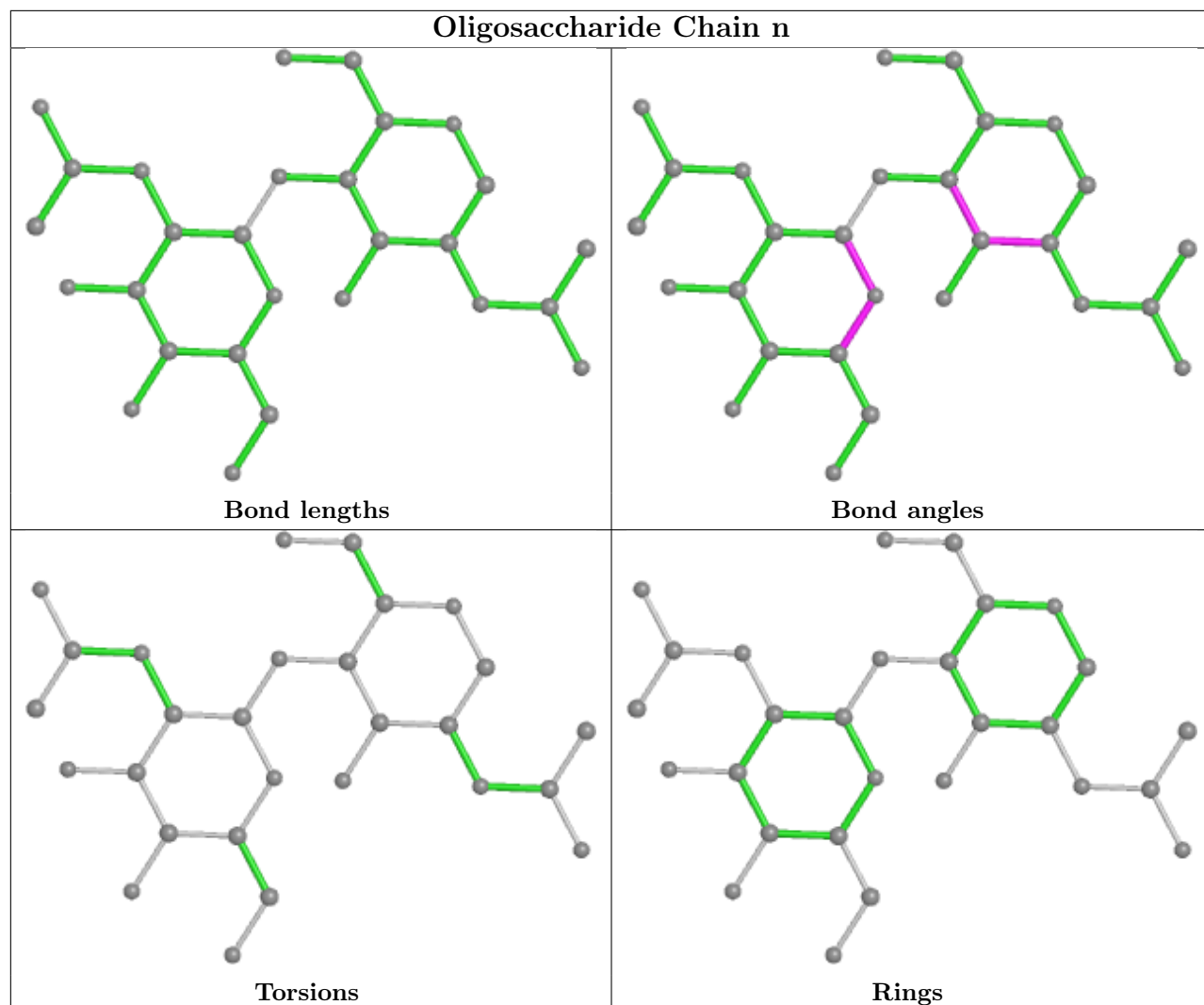


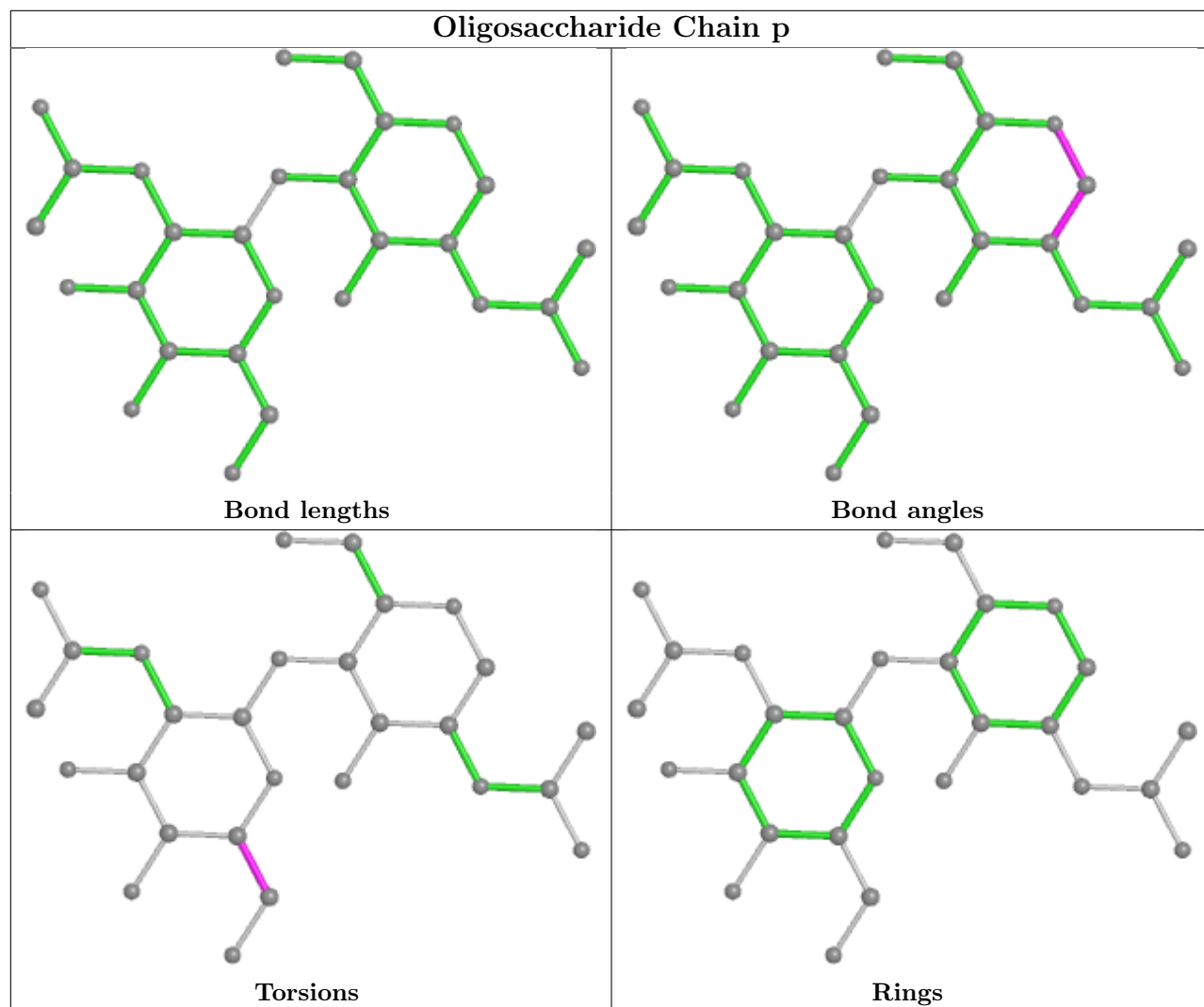


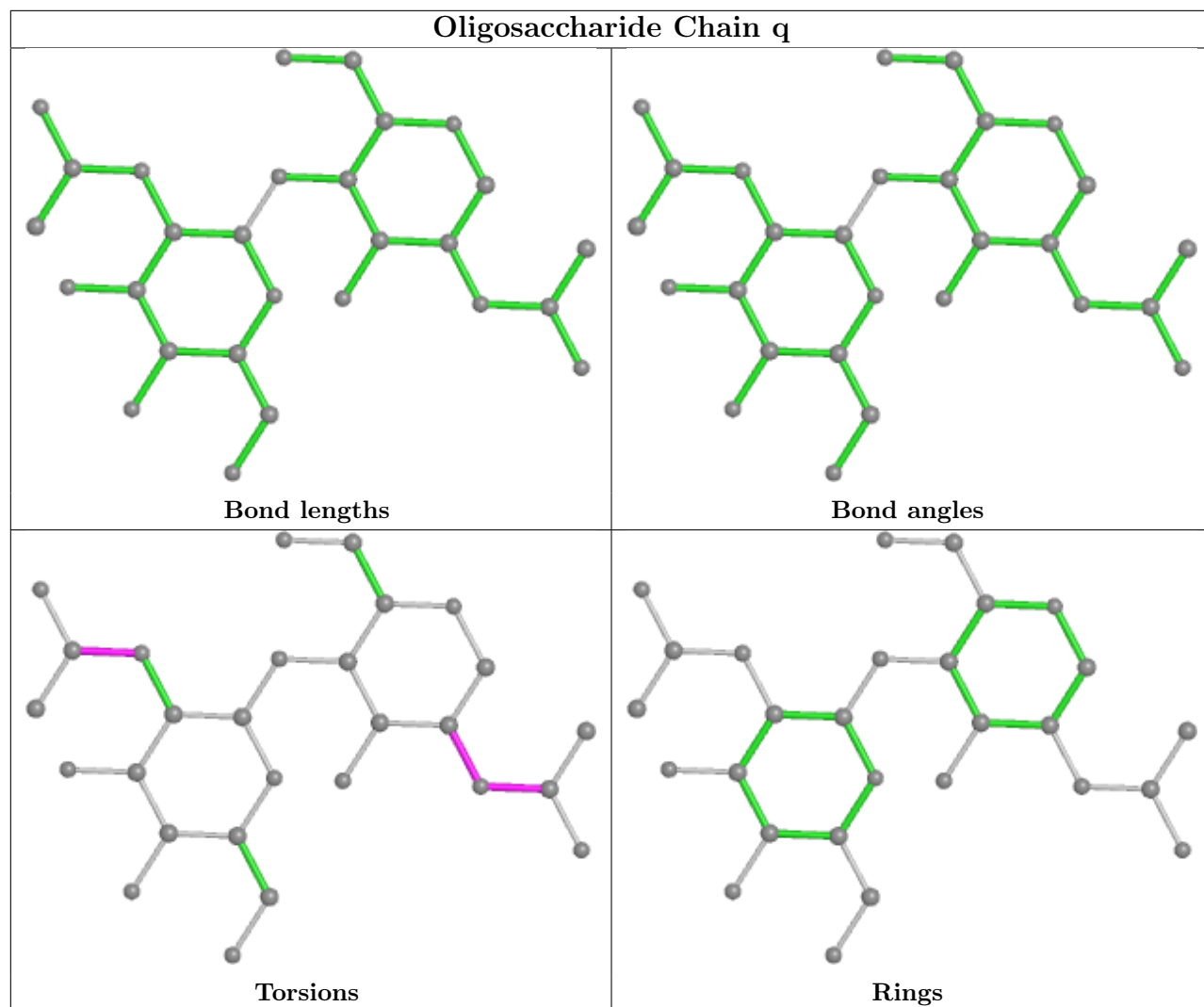


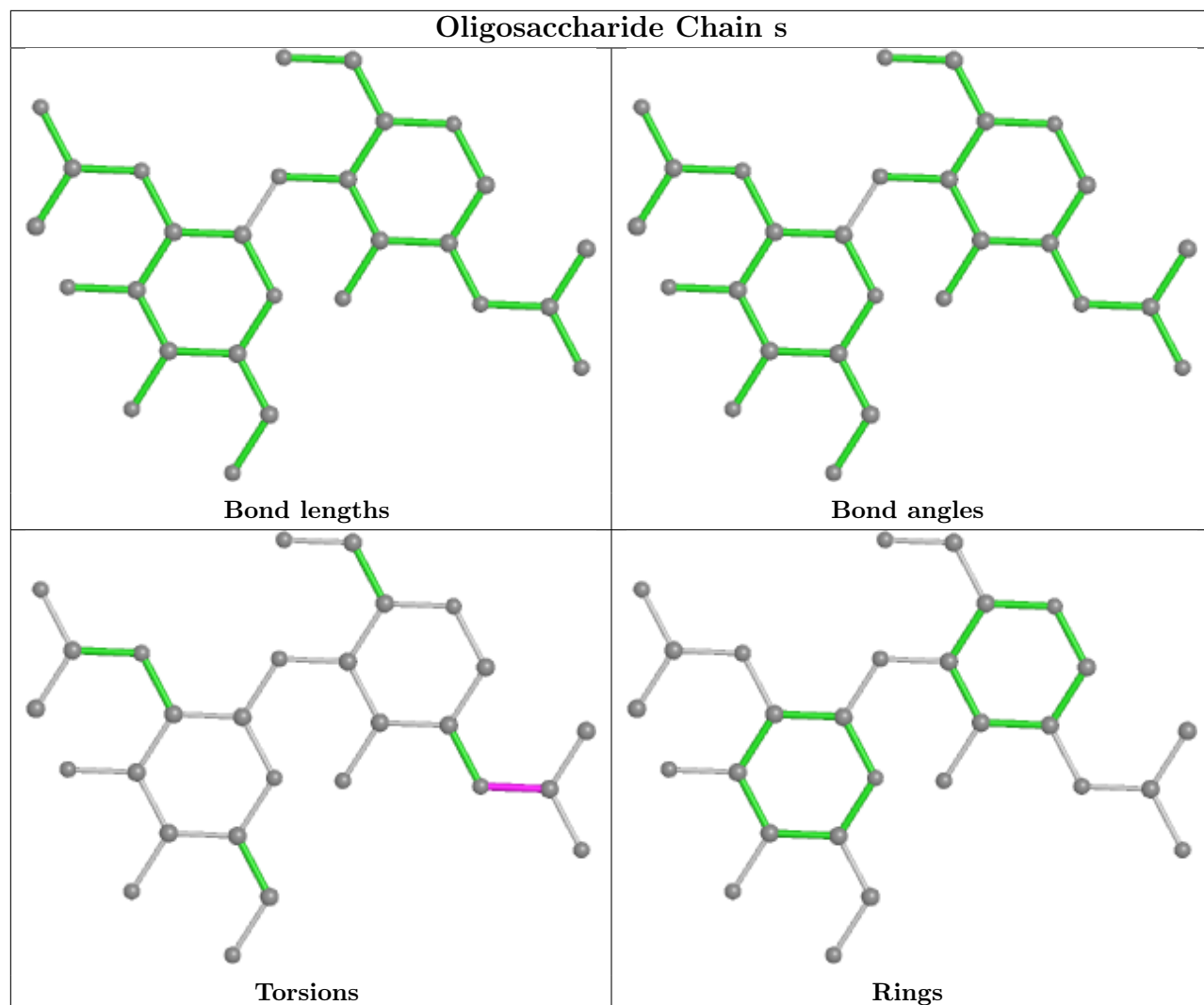


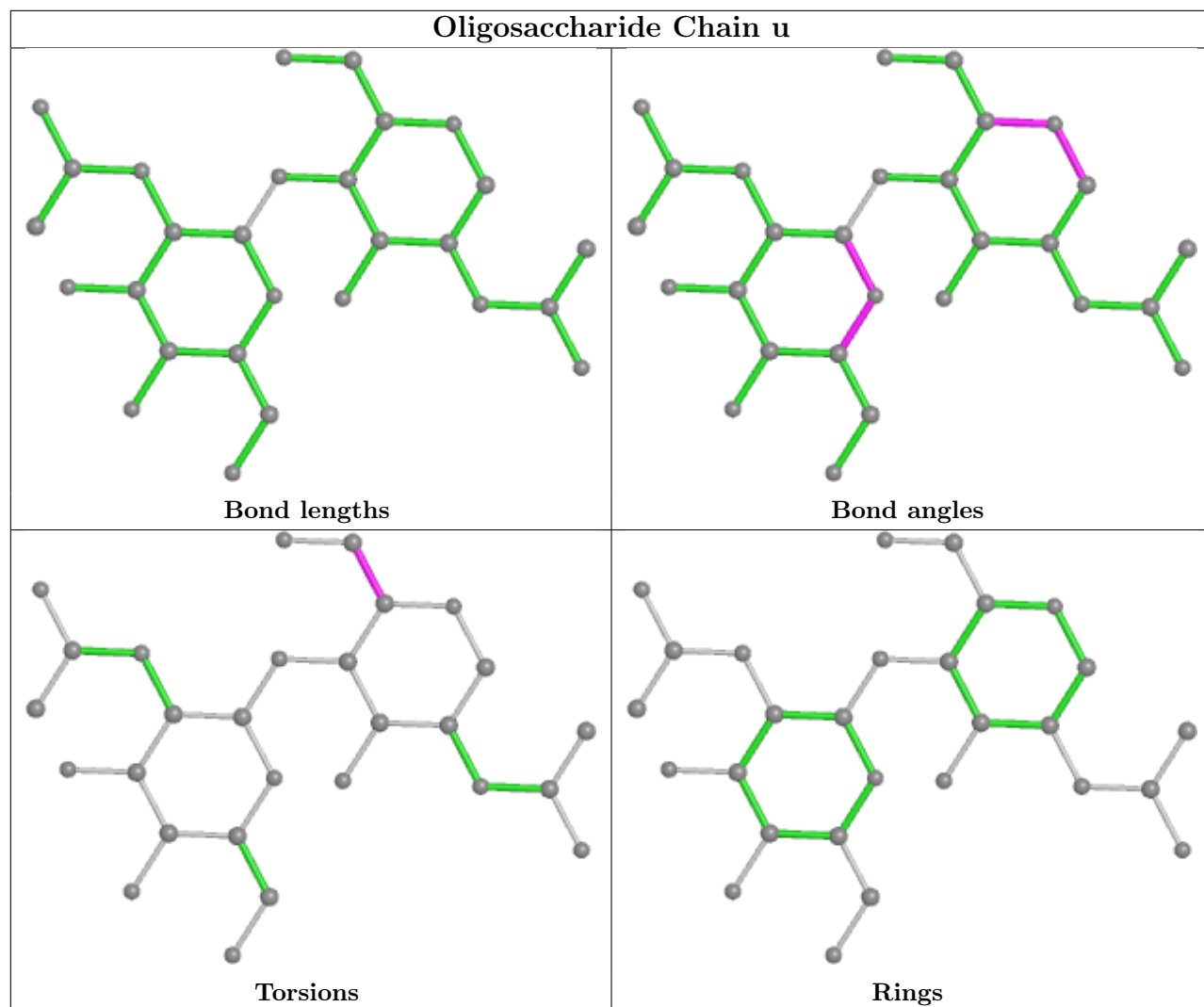


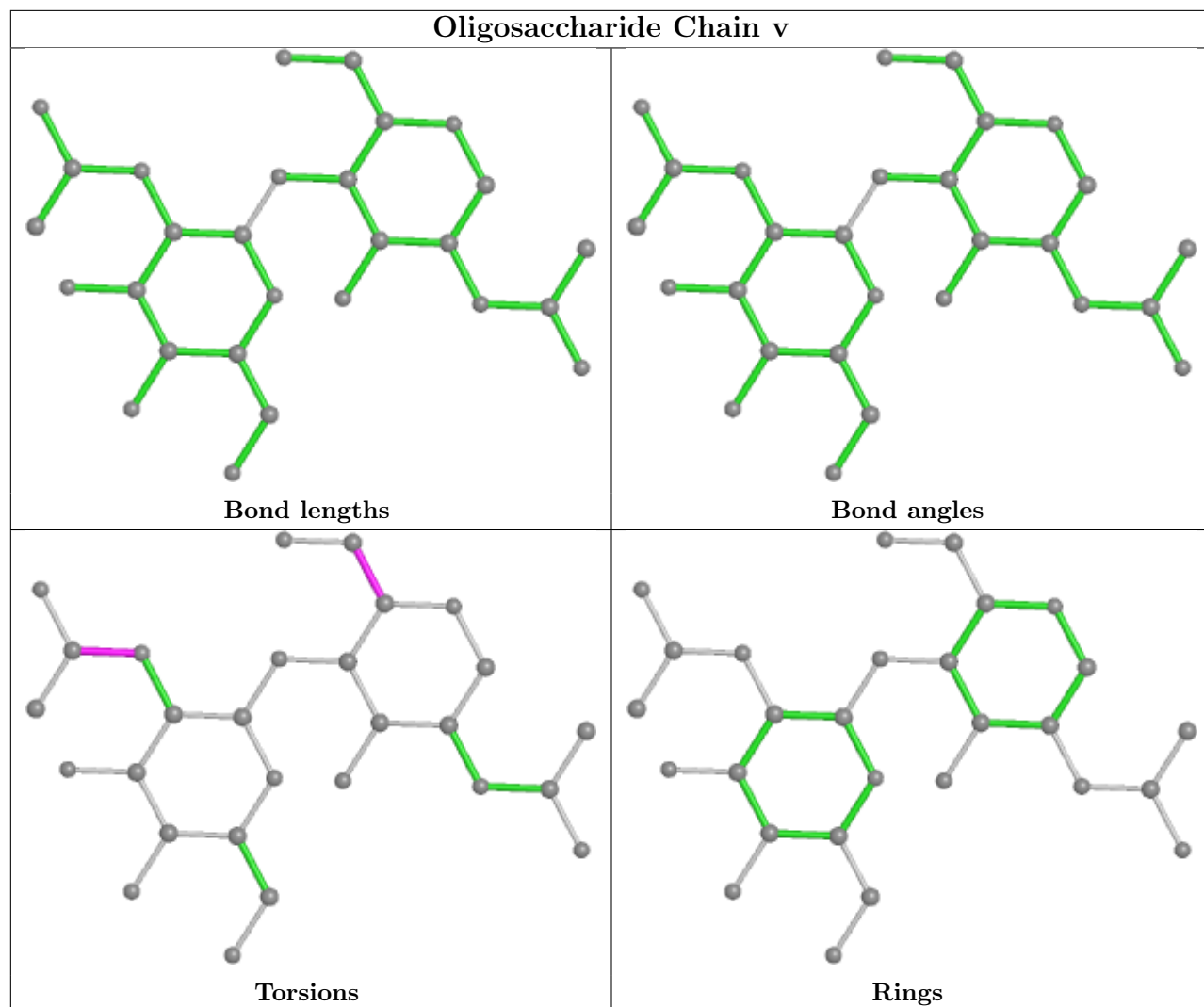


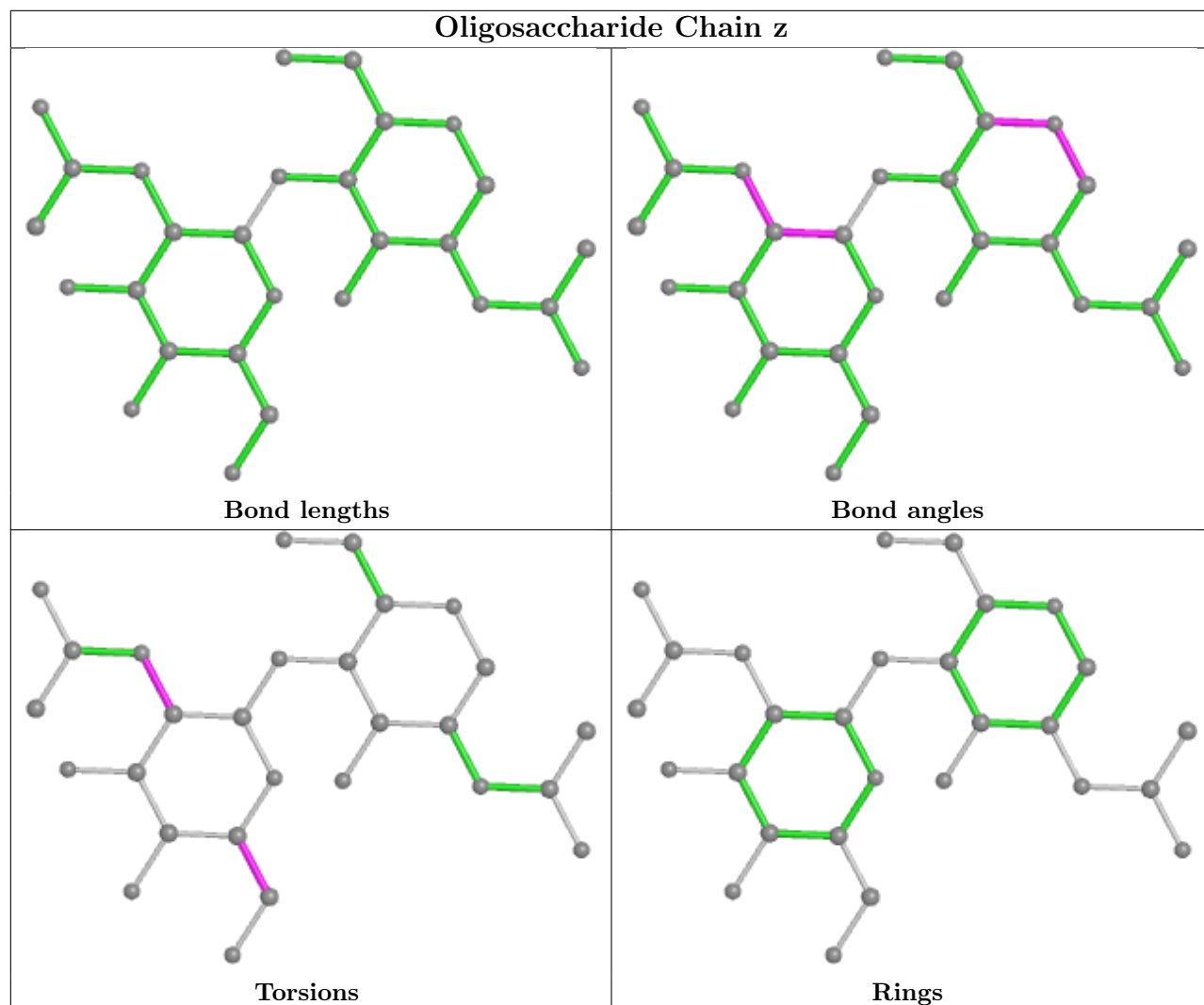


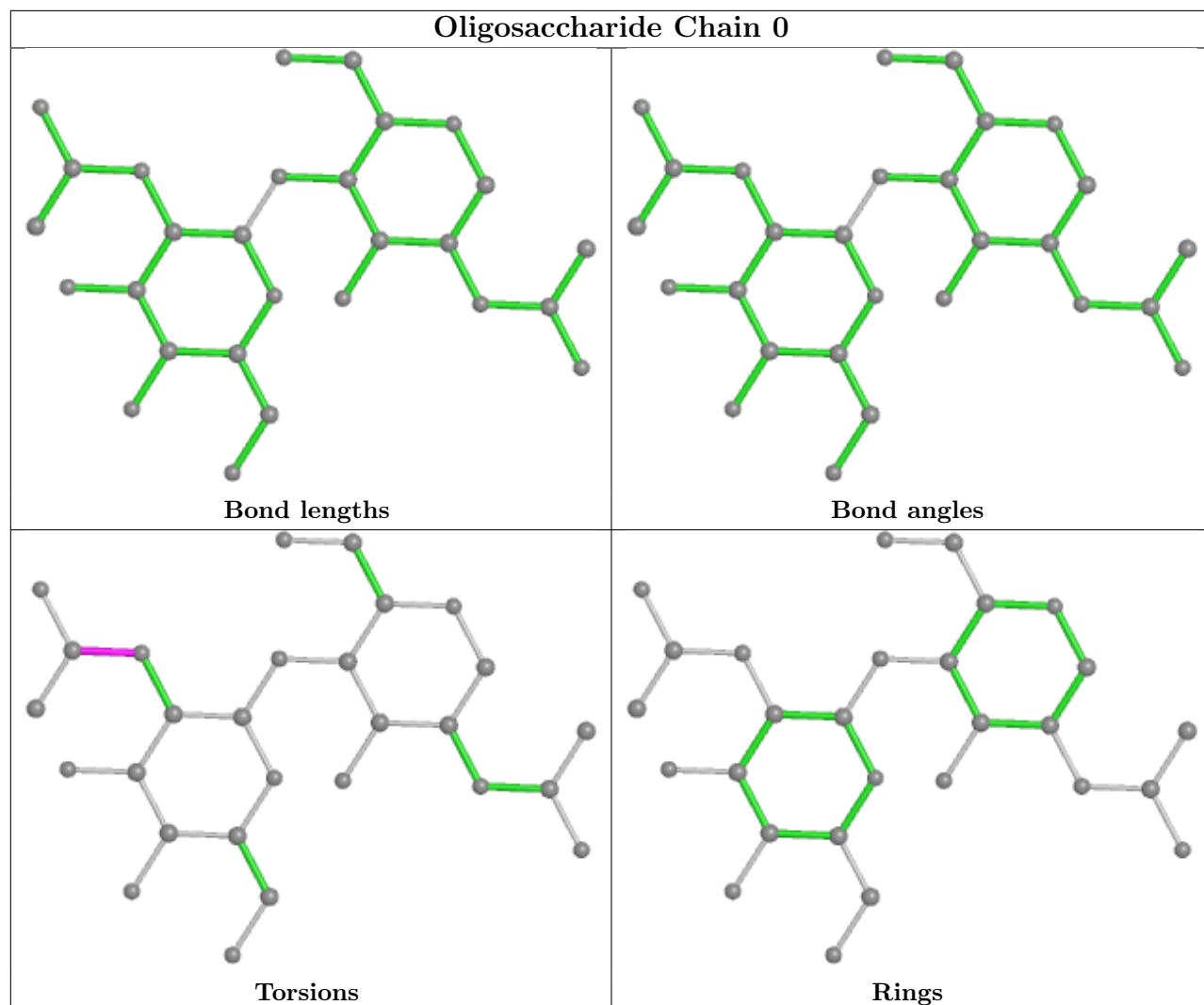


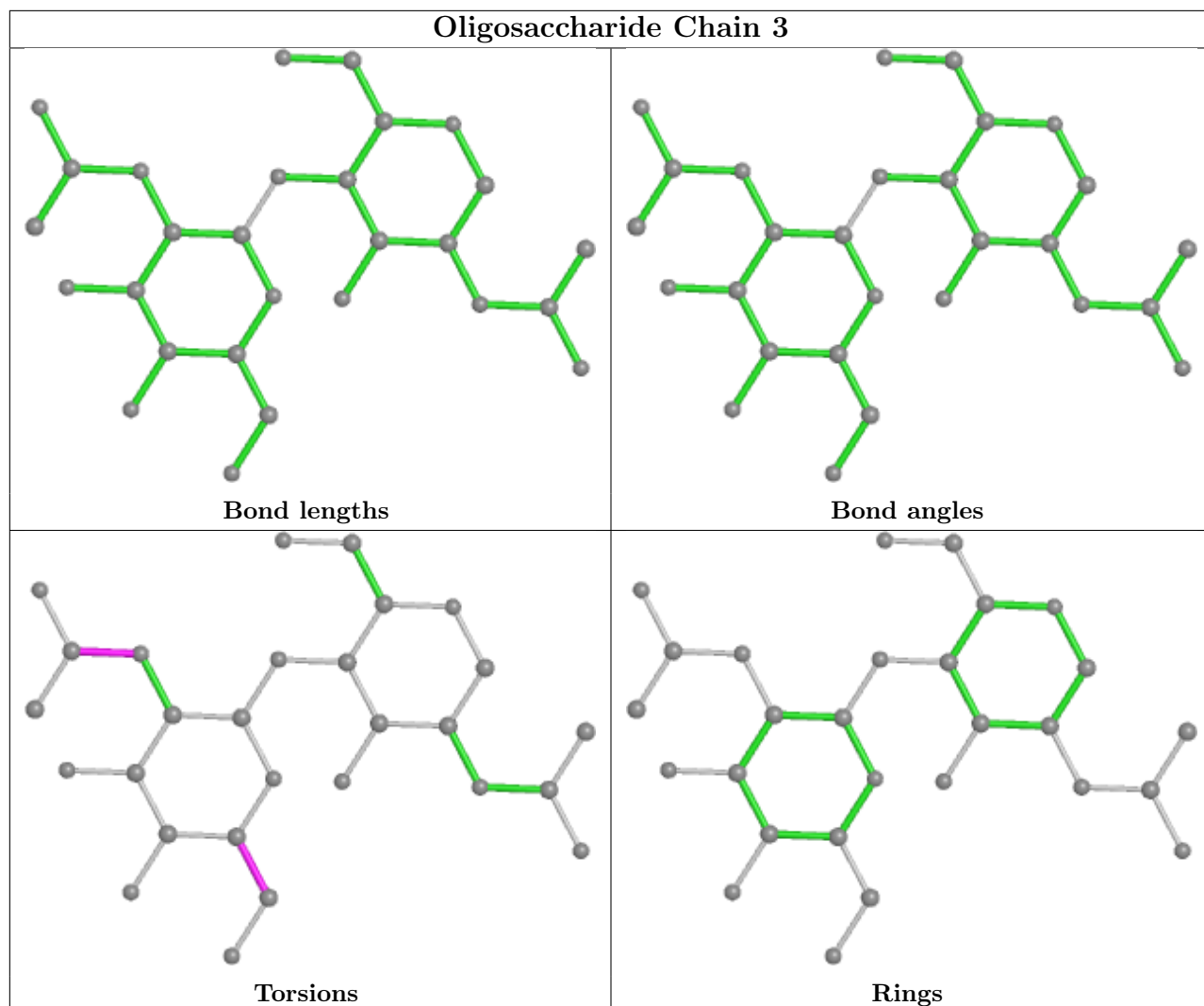


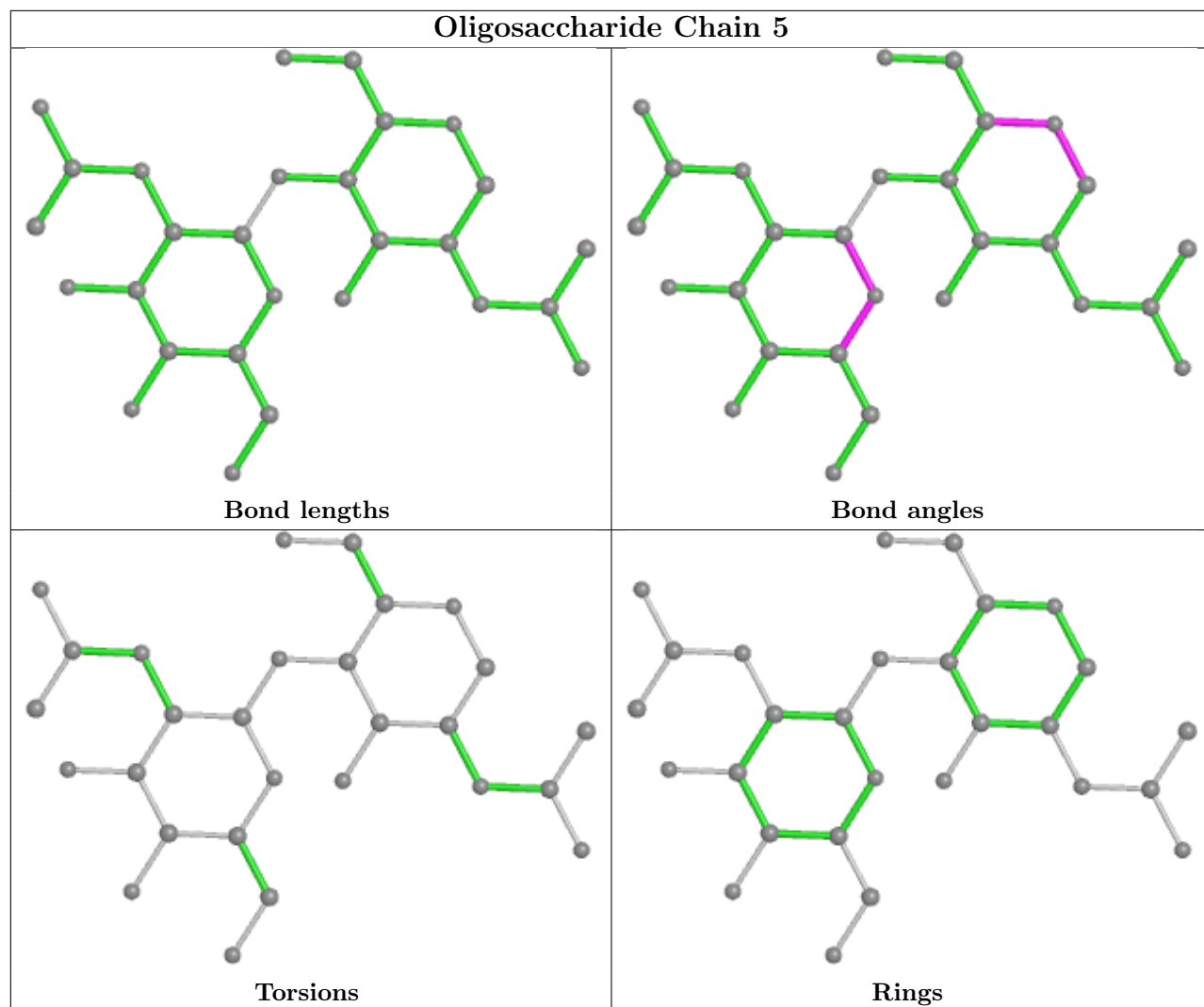


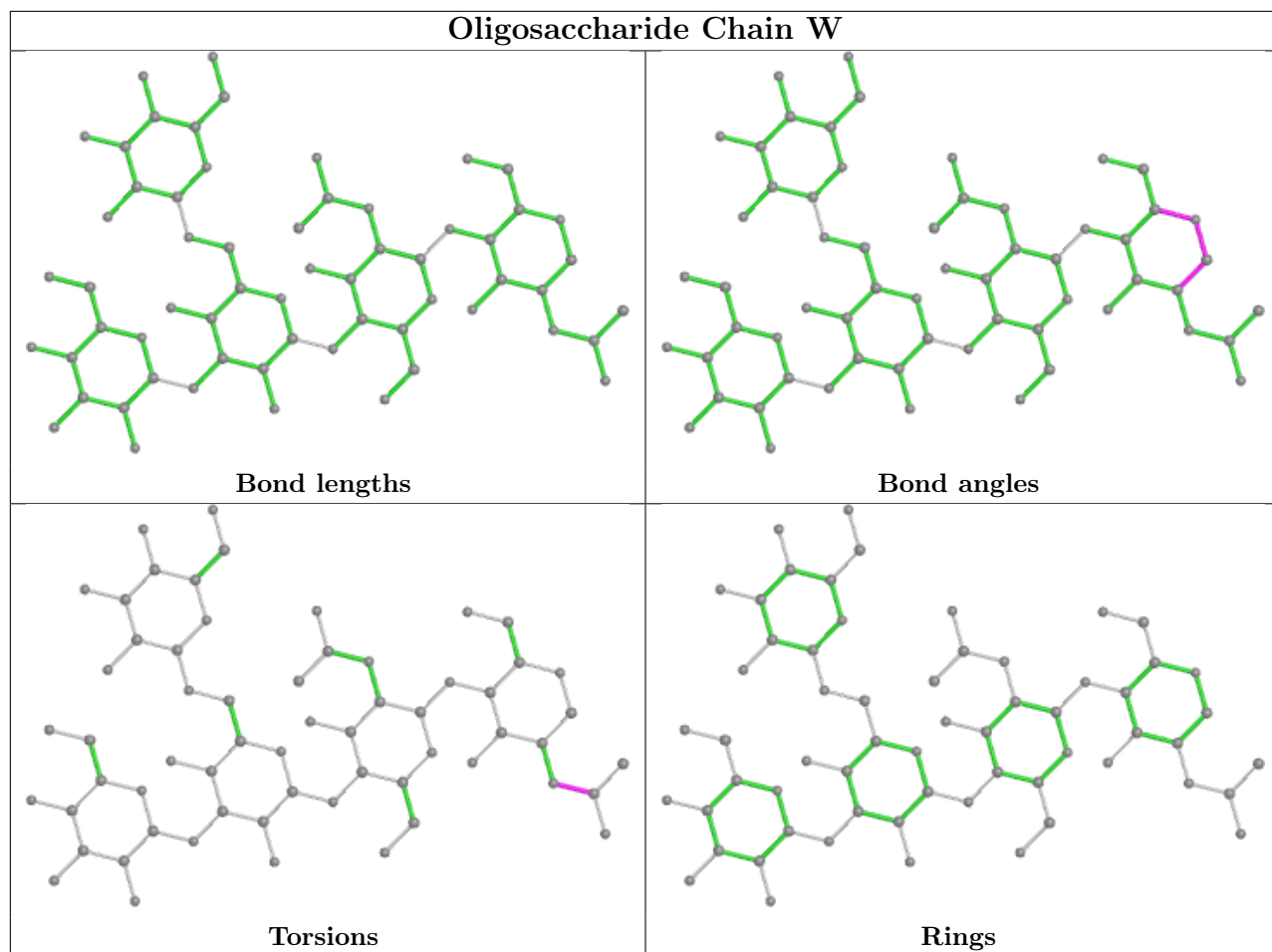


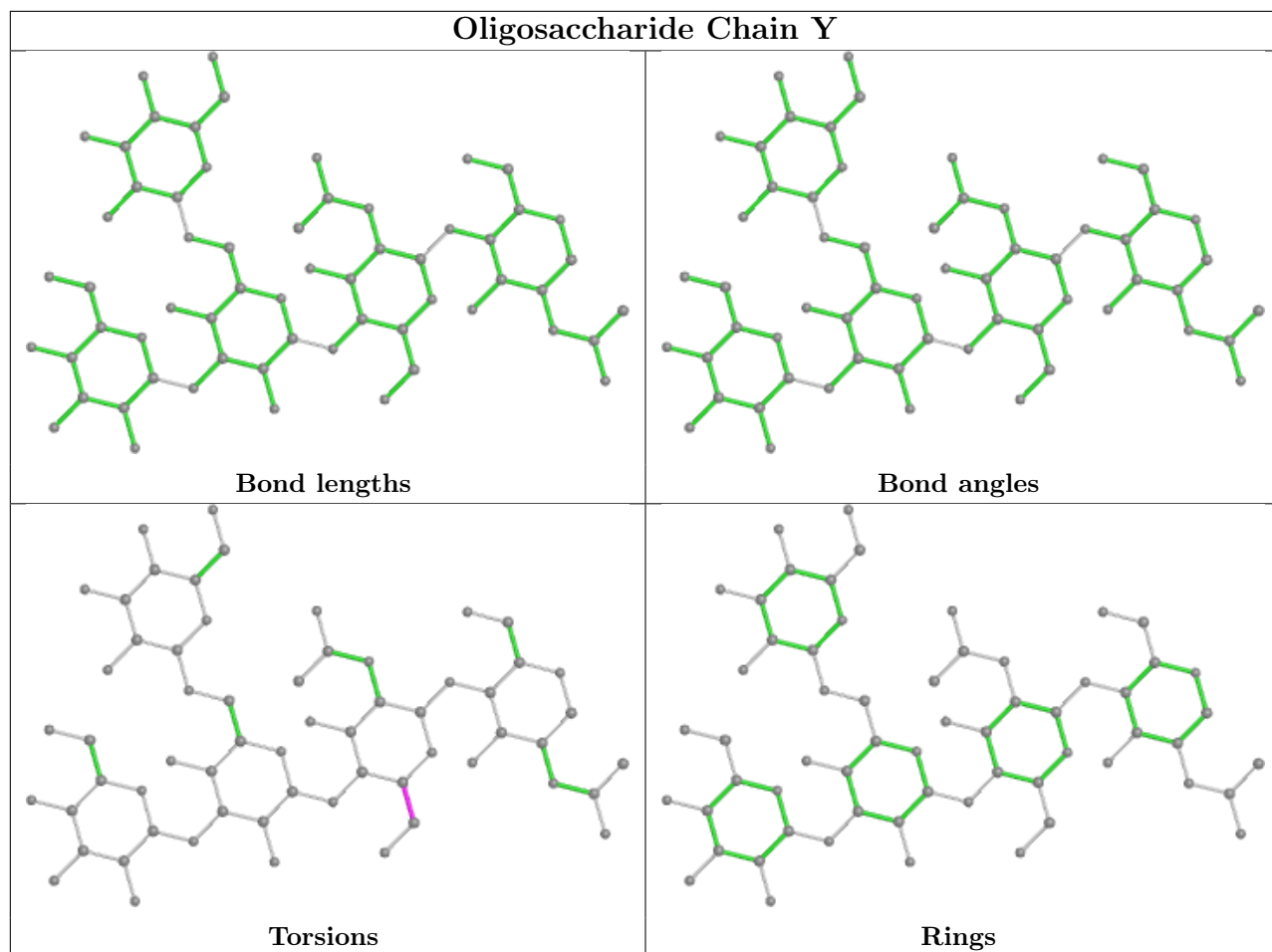


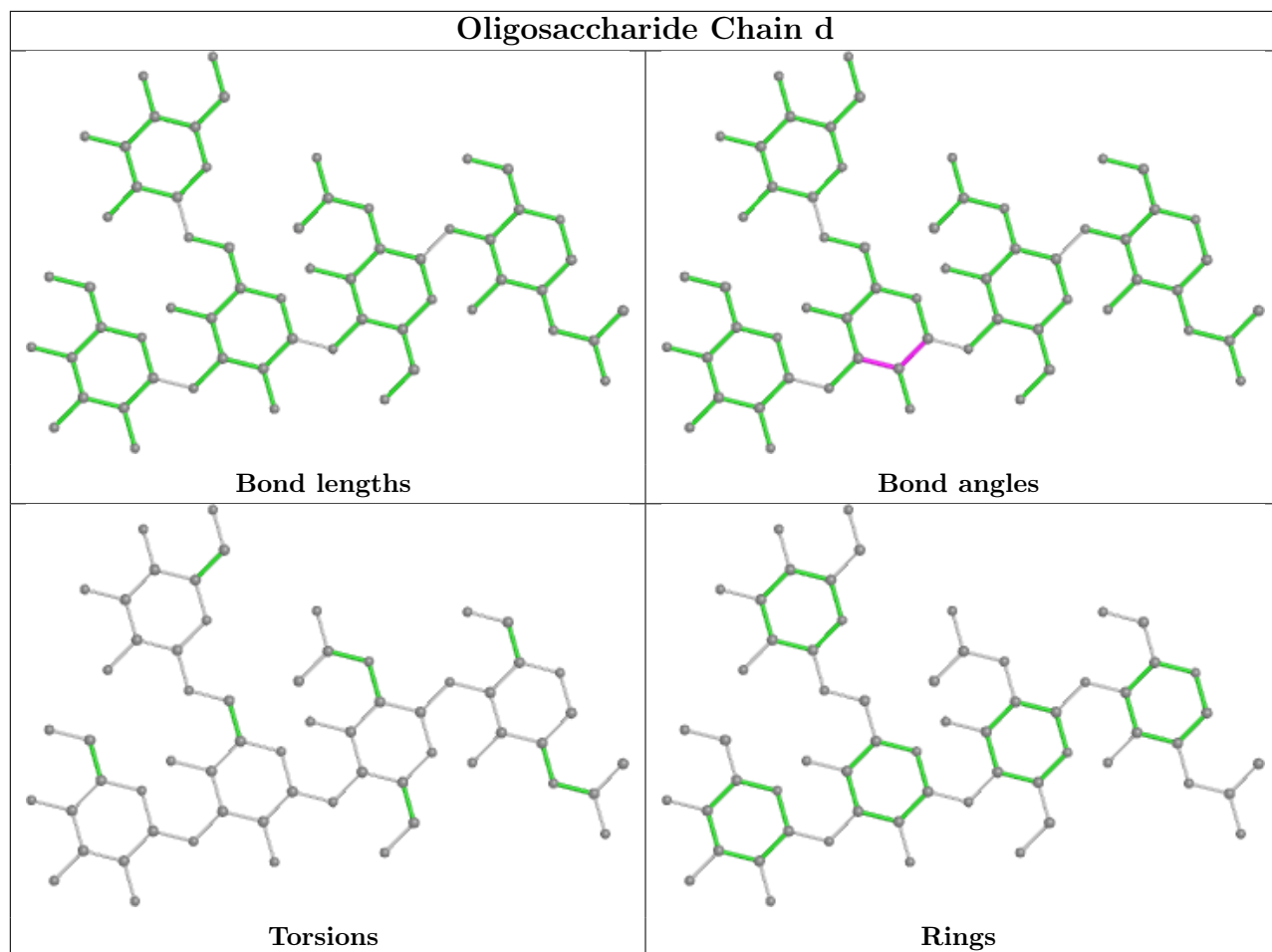


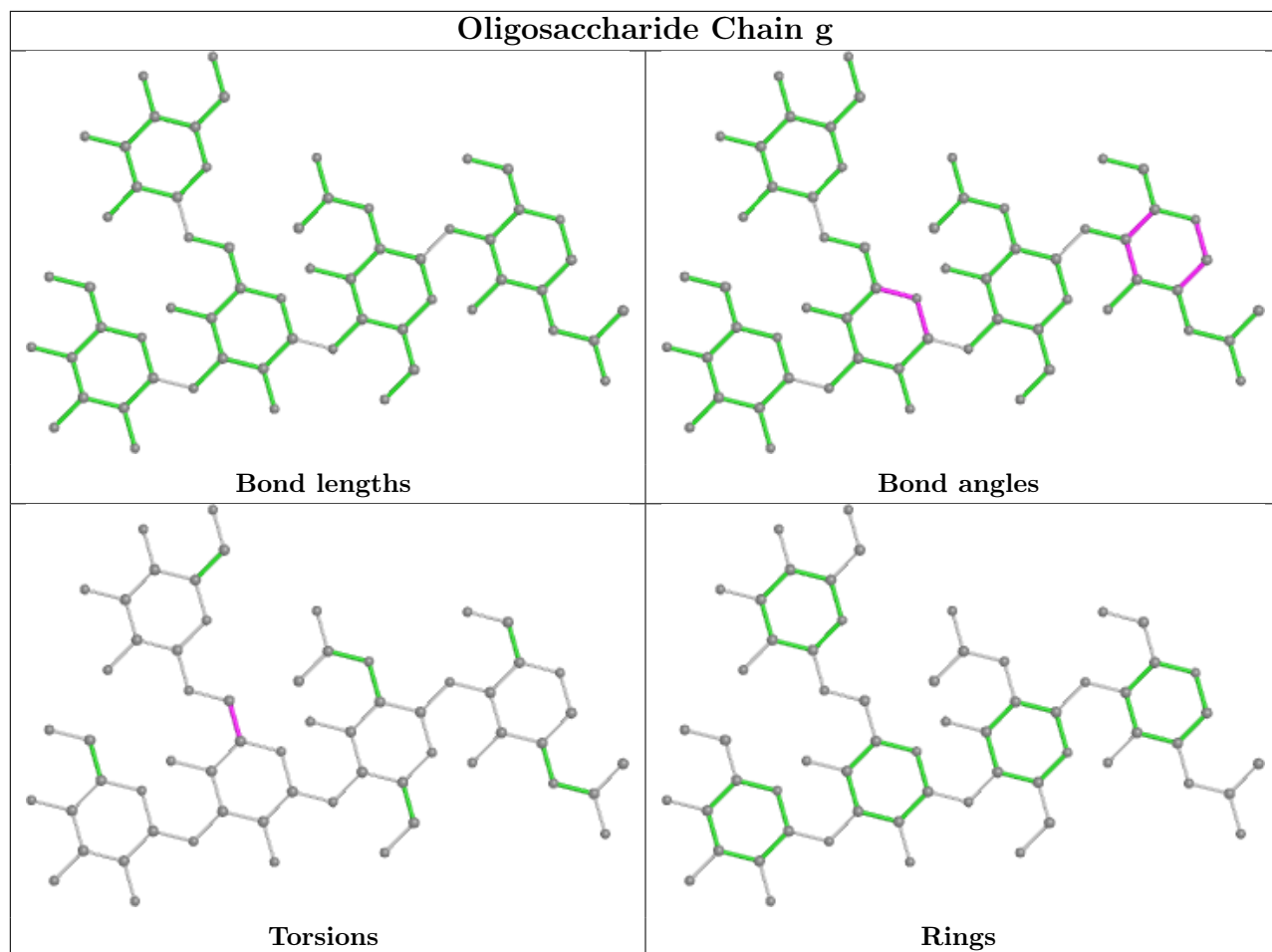


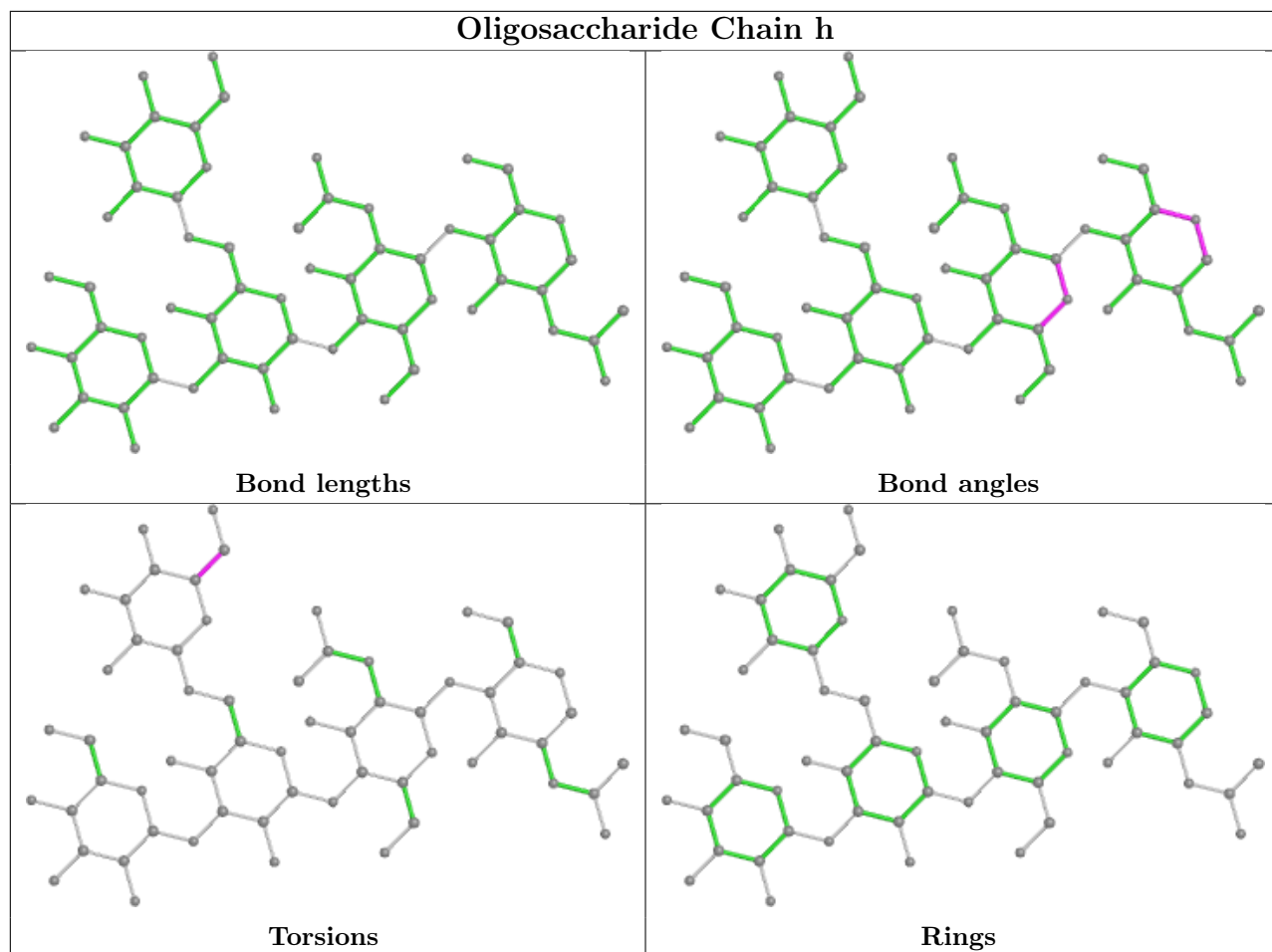


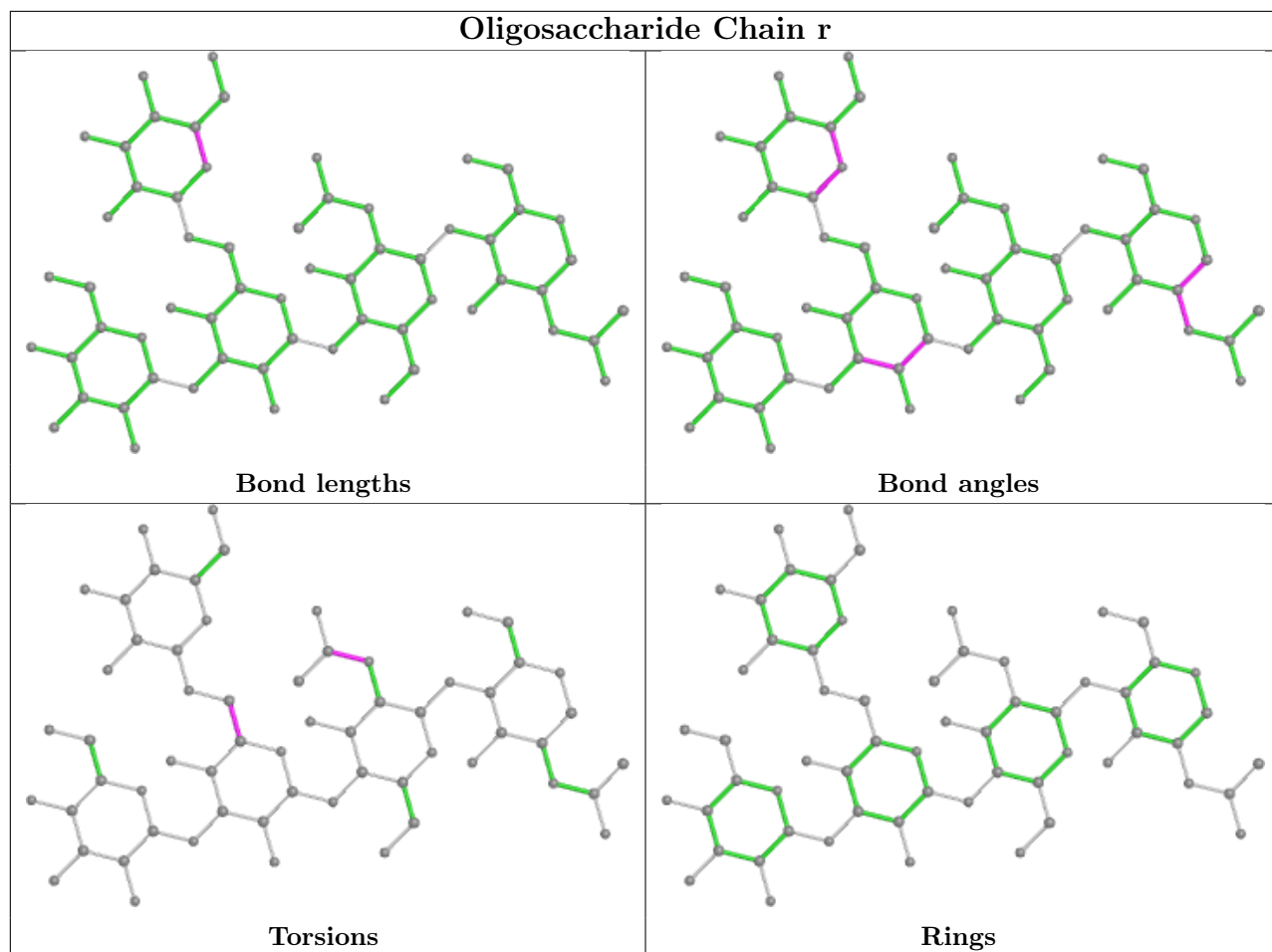


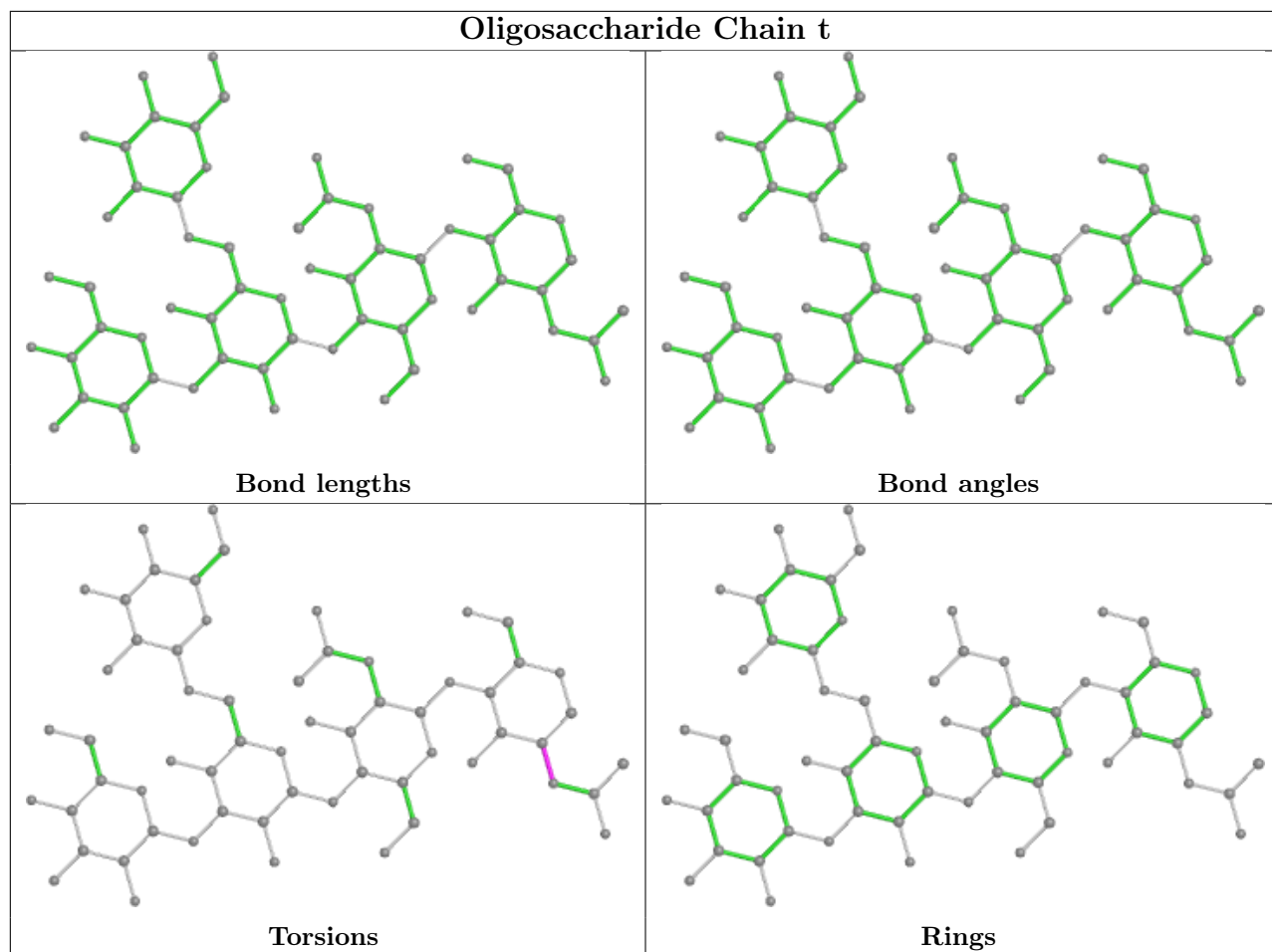


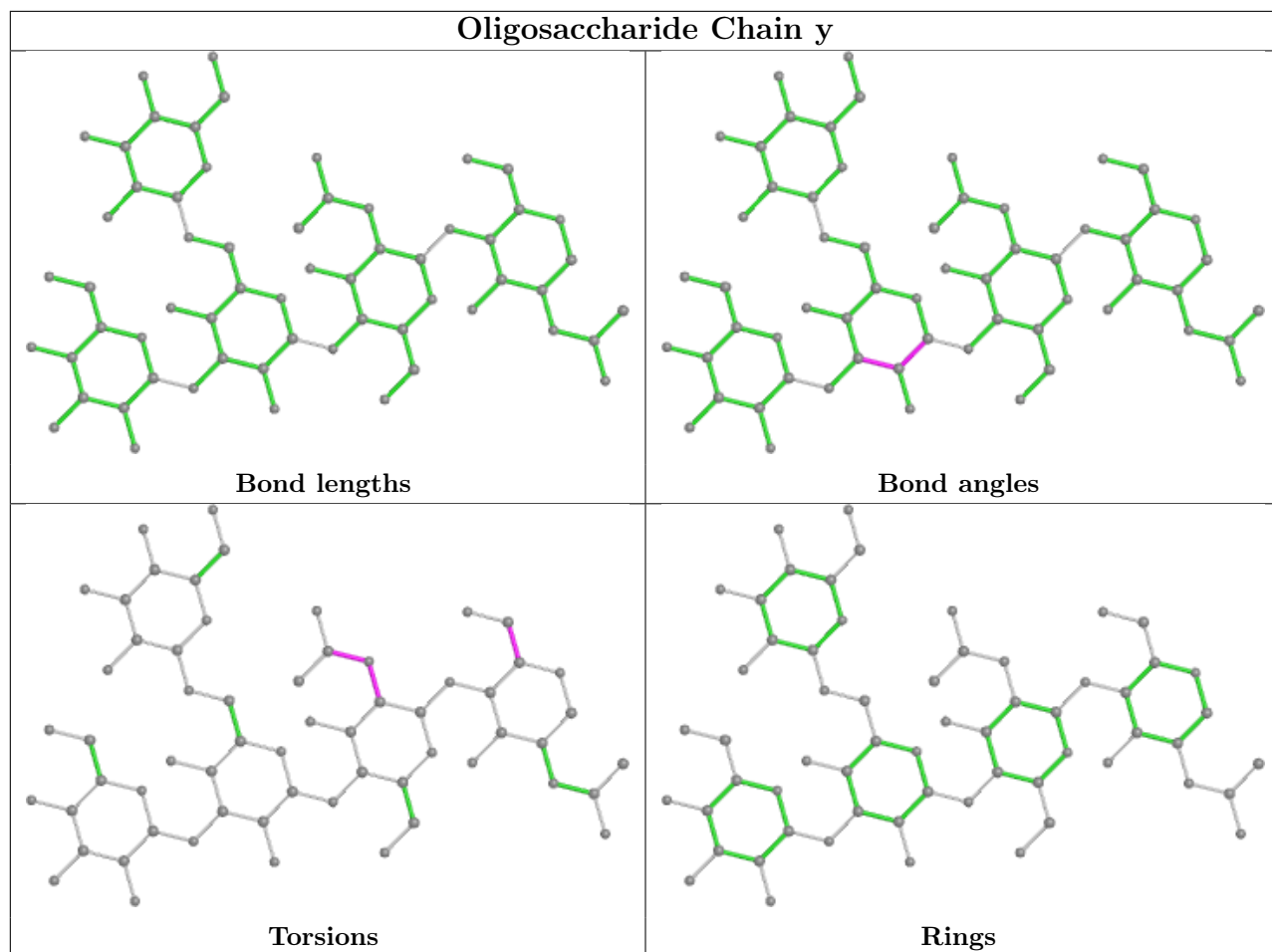


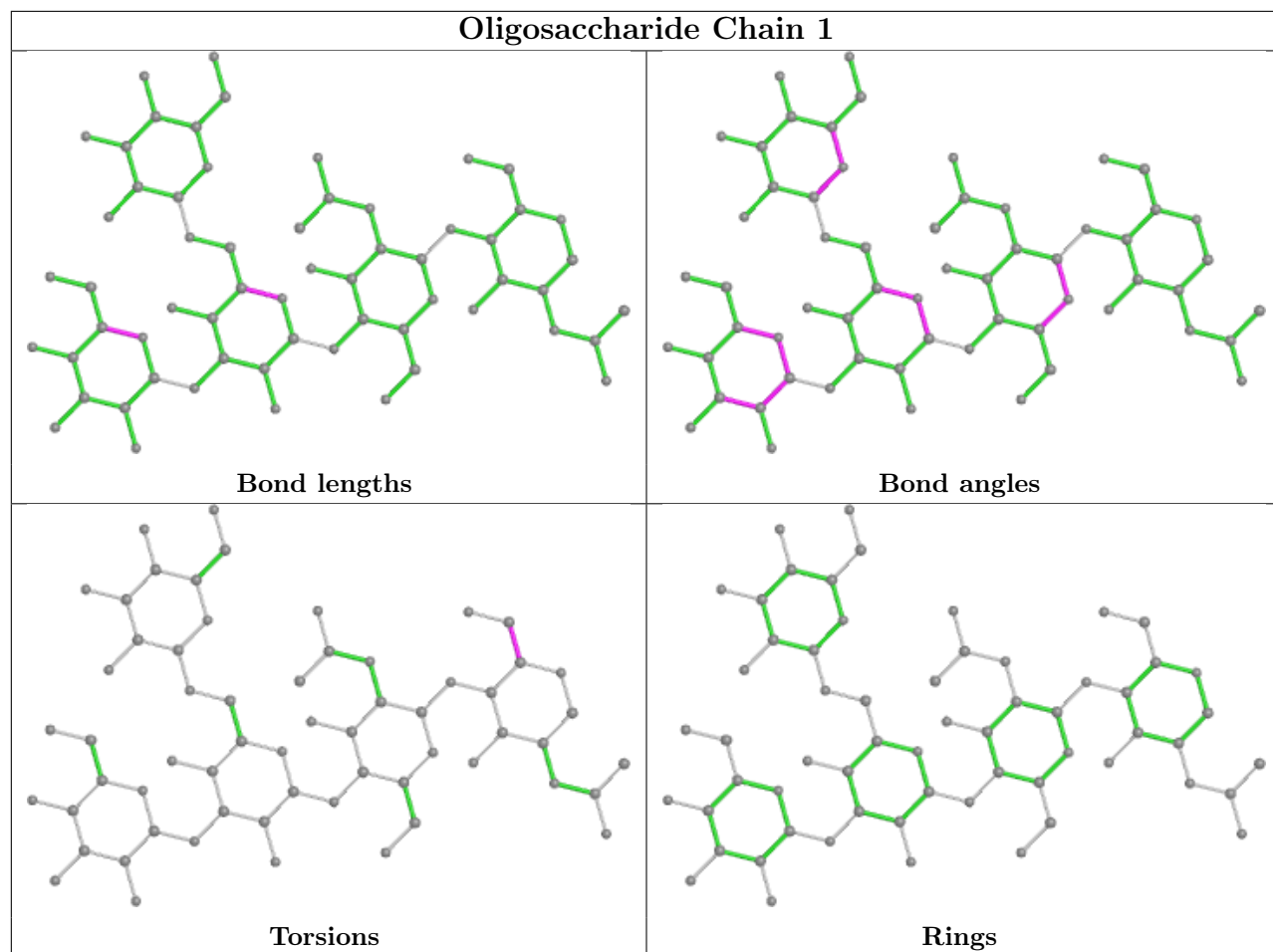


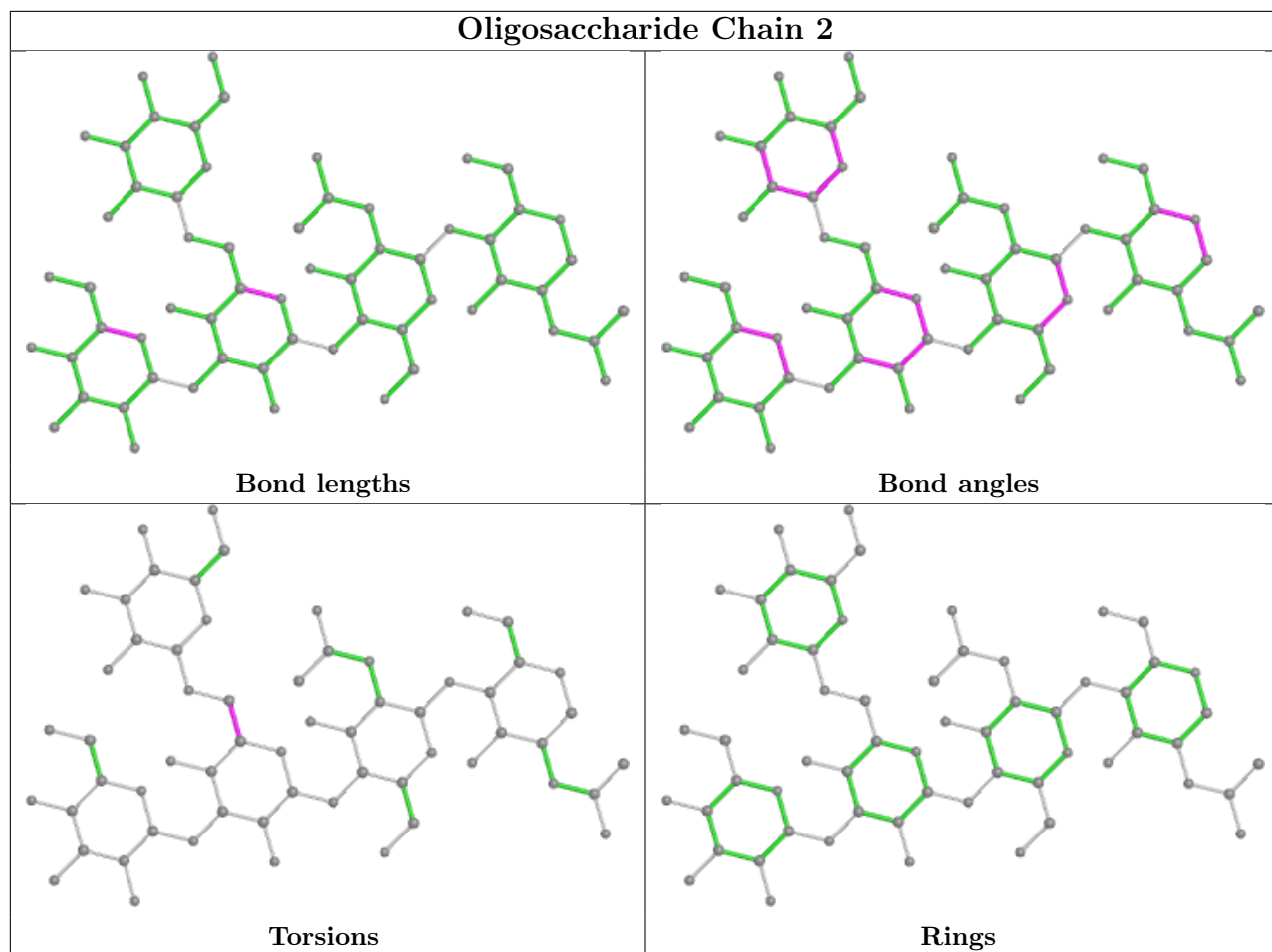


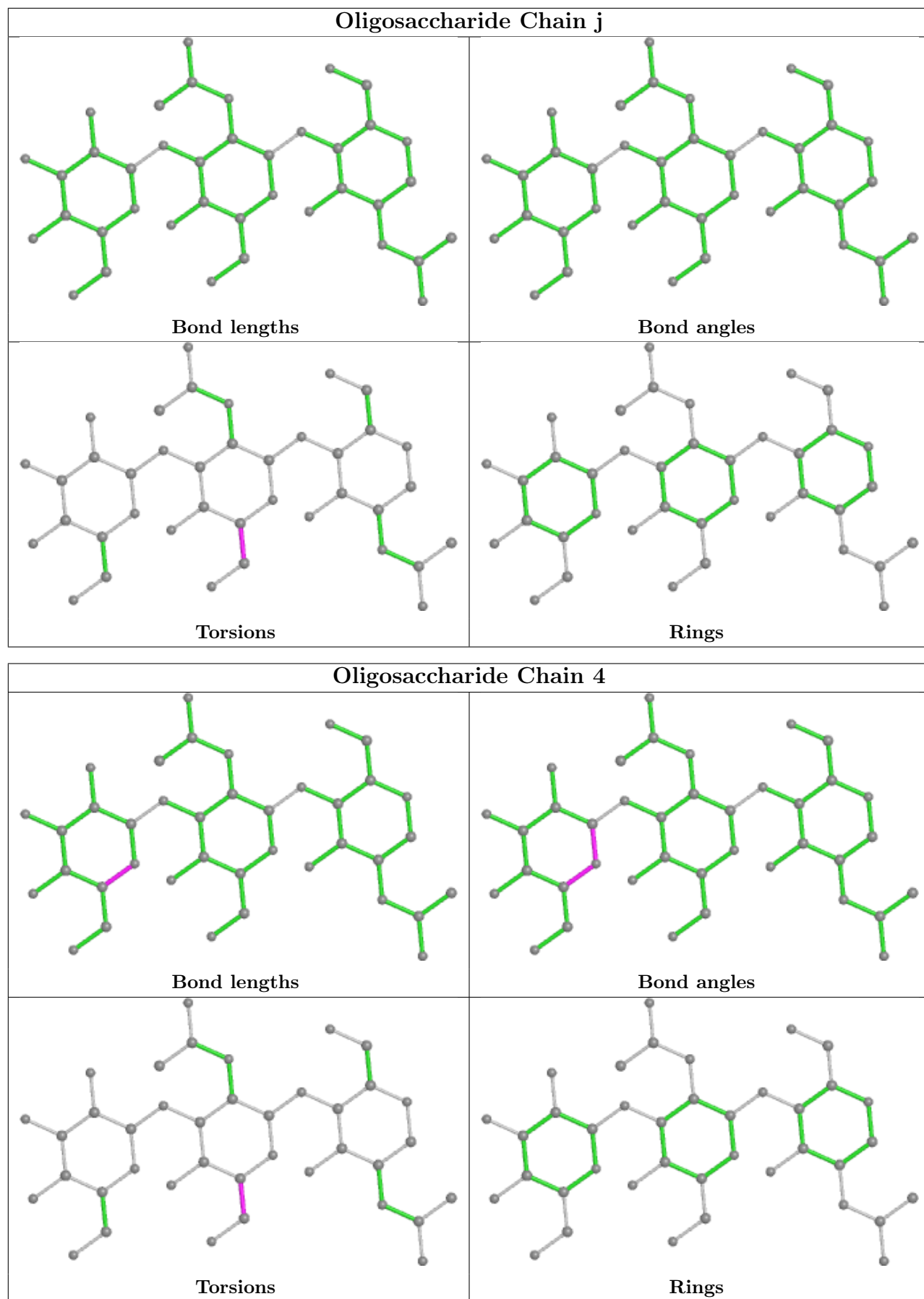












5.6 Ligand geometry

Of 136 ligands modelled in this entry, 90 are monoatomic - leaving 46 for Mogul analysis.

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
12	NAG	A	4701	1	14,14,15	0.40	0	17,19,21	0.38	0
12	NAG	A	4705	1	14,14,15	0.61	0	17,19,21	1.05	1 (5%)
12	NAG	A	4711	1	14,14,15	0.54	0	17,19,21	0.77	0
12	NAG	A	4710	1	14,14,15	0.38	0	17,19,21	0.53	0
12	NAG	A	4703	1	14,14,15	0.59	0	17,19,21	0.99	1 (5%)
13	A2G	B	4721	1	14,14,15	1.18	1 (7%)	17,19,21	1.60	6 (35%)
12	NAG	A	4702	1	14,14,15	0.39	0	17,19,21	0.51	0
13	A2G	A	4713	1	14,14,15	0.50	0	17,19,21	1.11	1 (5%)
13	A2G	A	4716	1	14,14,15	0.46	0	17,19,21	1.04	2 (11%)
12	NAG	A	4704	1	14,14,15	0.42	0	17,19,21	0.78	1 (5%)
12	NAG	B	4701	1	14,14,15	0.41	0	17,19,21	0.41	0
12	NAG	B	4708	1	14,14,15	0.59	0	17,19,21	1.06	2 (11%)
12	NAG	B	4705	1	14,14,15	0.40	0	17,19,21	0.63	0
13	A2G	B	4713	1	14,14,15	0.60	0	17,19,21	1.44	3 (17%)
13	A2G	B	4723	1	14,14,15	0.47	0	17,19,21	0.65	0
12	NAG	B	4711	1	14,14,15	0.63	0	17,19,21	1.14	2 (11%)
13	A2G	A	4714	1	14,14,15	0.62	0	17,19,21	0.66	0
13	A2G	B	4717	1	14,14,15	0.53	0	17,19,21	1.00	2 (11%)
13	A2G	B	4718	1	14,14,15	0.59	0	17,19,21	1.05	2 (11%)
12	NAG	A	4709	1	14,14,15	0.53	0	17,19,21	0.92	1 (5%)
12	NAG	A	4706	1	14,14,15	0.46	0	17,19,21	1.18	1 (5%)
12	NAG	B	4703	1	14,14,15	0.62	0	17,19,21	1.15	2 (11%)
13	A2G	A	4719	1	14,14,15	0.49	0	17,19,21	1.01	1 (5%)
13	A2G	B	4719	1	14,14,15	0.50	0	17,19,21	0.91	0
12	NAG	B	4702	1	14,14,15	0.42	0	17,19,21	0.51	0
12	NAG	B	4707	1	14,14,15	0.40	0	17,19,21	0.46	0
13	A2G	A	4715	1	14,14,15	0.61	0	17,19,21	1.51	2 (11%)
13	A2G	A	4721	1	14,14,15	0.45	0	17,19,21	1.13	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
12	NAG	B	4712	1	14,14,15	0.40	0	17,19,21	0.53	0
13	A2G	B	4714	1	14,14,15	0.46	0	17,19,21	0.74	0
13	A2G	A	4723	1	14,14,15	0.48	0	17,19,21	1.06	2 (11%)
13	A2G	B	4716	1	14,14,15	0.54	0	17,19,21	1.05	1 (5%)
13	A2G	A	4720	1	14,14,15	0.55	0	17,19,21	1.30	1 (5%)
13	A2G	B	4722	1	14,14,15	0.56	0	17,19,21	0.77	0
12	NAG	B	4710	1	14,14,15	0.69	0	17,19,21	0.90	1 (5%)
13	A2G	A	4717	1	14,14,15	0.62	1 (7%)	17,19,21	1.58	4 (23%)
13	A2G	A	4722	1	14,14,15	0.60	0	17,19,21	1.32	2 (11%)
13	A2G	B	4715	1	14,14,15	0.44	0	17,19,21	1.18	2 (11%)
13	A2G	B	4720	1	14,14,15	0.58	0	17,19,21	1.35	2 (11%)
13	A2G	A	4718	1	14,14,15	0.63	0	17,19,21	0.97	0
12	NAG	B	4704	1	14,14,15	0.55	0	17,19,21	1.03	1 (5%)
12	NAG	A	4712	1	14,14,15	0.54	0	17,19,21	1.39	2 (11%)
12	NAG	B	4706	1	14,14,15	0.60	0	17,19,21	1.04	1 (5%)
12	NAG	A	4708	1	14,14,15	0.41	0	17,19,21	0.53	0
12	NAG	A	4707	1	14,14,15	0.57	0	17,19,21	1.06	1 (5%)
12	NAG	B	4709	1	14,14,15	0.62	0	17,19,21	0.96	1 (5%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
12	NAG	A	4701	1	-	1/6/23/26	0/1/1/1
12	NAG	A	4705	1	-	1/6/23/26	0/1/1/1
12	NAG	A	4711	1	-	2/6/23/26	0/1/1/1
12	NAG	A	4710	1	-	3/6/23/26	0/1/1/1
12	NAG	A	4703	1	-	0/6/23/26	0/1/1/1
13	A2G	B	4721	1	-	1/6/23/26	0/1/1/1
12	NAG	A	4702	1	-	0/6/23/26	0/1/1/1
13	A2G	A	4713	1	-	0/6/23/26	0/1/1/1
13	A2G	A	4716	1	-	0/6/23/26	0/1/1/1
12	NAG	A	4704	1	-	0/6/23/26	0/1/1/1
12	NAG	B	4701	1	-	0/6/23/26	0/1/1/1
12	NAG	B	4708	1	-	0/6/23/26	0/1/1/1
12	NAG	B	4705	1	-	3/6/23/26	0/1/1/1
13	A2G	B	4713	1	-	1/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
13	A2G	B	4723	1	-	0/6/23/26	0/1/1/1
12	NAG	B	4711	1	-	0/6/23/26	0/1/1/1
13	A2G	A	4714	1	-	0/6/23/26	0/1/1/1
13	A2G	B	4717	1	-	0/6/23/26	0/1/1/1
13	A2G	B	4718	1	-	0/6/23/26	0/1/1/1
12	NAG	A	4709	1	-	0/6/23/26	0/1/1/1
12	NAG	A	4706	1	-	2/6/23/26	0/1/1/1
12	NAG	B	4703	1	-	0/6/23/26	0/1/1/1
13	A2G	A	4719	1	-	1/6/23/26	0/1/1/1
13	A2G	B	4719	1	-	0/6/23/26	0/1/1/1
12	NAG	B	4702	1	-	3/6/23/26	0/1/1/1
12	NAG	B	4707	1	-	0/6/23/26	0/1/1/1
13	A2G	A	4715	1	-	2/6/23/26	0/1/1/1
13	A2G	A	4721	1	-	1/6/23/26	0/1/1/1
12	NAG	B	4712	1	-	3/6/23/26	0/1/1/1
13	A2G	B	4714	1	-	0/6/23/26	0/1/1/1
13	A2G	A	4723	1	-	1/6/23/26	0/1/1/1
13	A2G	B	4716	1	-	0/6/23/26	0/1/1/1
13	A2G	A	4720	1	-	0/6/23/26	0/1/1/1
13	A2G	B	4722	1	-	0/6/23/26	0/1/1/1
12	NAG	B	4710	1	-	1/6/23/26	0/1/1/1
13	A2G	A	4717	1	-	2/6/23/26	0/1/1/1
13	A2G	A	4722	1	-	0/6/23/26	0/1/1/1
13	A2G	B	4715	1	-	2/6/23/26	0/1/1/1
13	A2G	B	4720	1	-	2/6/23/26	0/1/1/1
13	A2G	A	4718	1	-	1/6/23/26	0/1/1/1
12	NAG	B	4704	1	-	1/6/23/26	0/1/1/1
12	NAG	A	4712	1	-	0/6/23/26	0/1/1/1
12	NAG	B	4706	1	-	3/6/23/26	0/1/1/1
12	NAG	A	4708	1	-	0/6/23/26	0/1/1/1
12	NAG	A	4707	1	-	1/6/23/26	0/1/1/1
12	NAG	B	4709	1	-	0/6/23/26	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
13	B	4721	A2G	O5-C1	-2.83	1.39	1.43
13	A	4717	A2G	O5-C1	-2.05	1.40	1.43

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	A	4717	A2G	C1-O5-C5	-4.68	105.85	112.19
13	A	4715	A2G	C2-N2-C7	4.65	129.52	122.90
13	A	4722	A2G	C1-O5-C5	-4.38	106.25	112.19
13	B	4720	A2G	C1-O5-C5	-4.14	106.58	112.19
12	A	4706	NAG	C1-O5-C5	4.04	117.66	112.19
13	A	4713	A2G	C1-O5-C5	-3.99	106.79	112.19
12	A	4712	NAG	C1-O5-C5	3.96	117.56	112.19
12	A	4707	NAG	C1-O5-C5	3.65	117.14	112.19
12	A	4712	NAG	O5-C1-C2	3.56	116.91	111.29
13	B	4716	A2G	C1-O5-C5	-3.45	107.52	112.19
13	B	4713	A2G	C1-C2-N2	3.39	116.29	110.49
12	B	4703	NAG	C1-O5-C5	3.32	116.69	112.19
13	A	4720	A2G	O5-C5-C6	3.32	112.41	107.20
13	A	4716	A2G	C1-O5-C5	-3.14	107.94	112.19
13	B	4721	A2G	C1-C2-N2	3.07	115.72	110.49
12	B	4704	NAG	C1-O5-C5	3.01	116.27	112.19
12	A	4705	NAG	C1-O5-C5	3.01	116.26	112.19
13	B	4718	A2G	C1-O5-C5	-2.95	108.20	112.19
13	A	4723	A2G	O5-C5-C6	2.93	111.79	107.20
12	B	4711	NAG	C1-O5-C5	2.89	116.11	112.19
12	A	4709	NAG	C1-O5-C5	2.87	116.08	112.19
13	B	4721	A2G	C2-N2-C7	2.85	126.95	122.90
13	B	4720	A2G	O5-C1-C2	2.82	115.74	111.29
13	B	4718	A2G	O5-C1-C2	2.77	115.66	111.29
12	B	4709	NAG	C1-O5-C5	2.77	115.94	112.19
13	B	4715	A2G	O5-C5-C6	2.75	111.52	107.20
13	A	4722	A2G	O5-C1-C2	2.65	115.47	111.29
13	B	4713	A2G	O5-C1-C2	2.57	115.34	111.29
13	A	4717	A2G	C1-C2-N2	2.57	114.87	110.49
13	A	4715	A2G	O5-C5-C6	2.55	111.20	107.20
12	B	4706	NAG	C2-N2-C7	2.49	126.45	122.90
13	B	4717	A2G	C1-C2-N2	2.47	114.71	110.49
13	A	4721	A2G	C2-N2-C7	2.44	126.37	122.90
12	A	4703	NAG	C1-O5-C5	2.43	115.48	112.19
12	B	4708	NAG	C1-O5-C5	2.42	115.47	112.19
13	A	4717	A2G	O5-C1-C2	2.42	115.11	111.29
13	B	4717	A2G	O5-C5-C6	2.41	110.98	107.20
13	B	4721	A2G	O3-C3-C2	-2.40	104.50	109.47
12	B	4710	NAG	C2-N2-C7	2.38	126.30	122.90
13	B	4713	A2G	C1-O5-C5	-2.30	109.08	112.19
13	A	4717	A2G	C2-N2-C7	2.29	126.16	122.90
12	A	4704	NAG	O5-C1-C2	2.24	114.82	111.29
13	A	4716	A2G	O5-C1-C2	2.24	114.82	111.29

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	A	4721	A2G	O5-C5-C6	2.16	110.60	107.20
12	B	4708	NAG	O5-C1-C2	2.15	114.69	111.29
13	B	4721	A2G	O5-C5-C4	-2.14	105.63	110.83
13	B	4715	A2G	O5-C1-C2	2.11	114.62	111.29
13	A	4723	A2G	C1-O5-C5	-2.11	109.33	112.19
13	B	4721	A2G	O4-C4-C3	-2.11	105.47	110.35
12	B	4711	NAG	O5-C1-C2	2.10	114.61	111.29
13	A	4719	A2G	O5-C5-C6	2.10	110.49	107.20
12	B	4703	NAG	O5-C1-C2	2.09	114.58	111.29
13	B	4721	A2G	O7-C7-N2	2.07	125.75	121.95

There are no chirality outliers.

All (38) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
12	A	4710	NAG	C8-C7-N2-C2
12	A	4710	NAG	O7-C7-N2-C2
12	B	4702	NAG	C8-C7-N2-C2
12	B	4702	NAG	O7-C7-N2-C2
12	B	4706	NAG	C3-C2-N2-C7
12	B	4706	NAG	C8-C7-N2-C2
12	B	4706	NAG	O7-C7-N2-C2
13	A	4715	A2G	C3-C2-N2-C7
12	B	4712	NAG	C8-C7-N2-C2
12	B	4712	NAG	O7-C7-N2-C2
13	B	4720	A2G	C1-C2-N2-C7
12	B	4705	NAG	C8-C7-N2-C2
12	A	4710	NAG	C1-C2-N2-C7
12	B	4702	NAG	C1-C2-N2-C7
12	B	4705	NAG	O7-C7-N2-C2
12	B	4712	NAG	C1-C2-N2-C7
12	A	4711	NAG	O5-C5-C6-O6
13	A	4723	A2G	O5-C5-C6-O6
13	A	4718	A2G	O5-C5-C6-O6
12	A	4707	NAG	O5-C5-C6-O6
12	B	4704	NAG	O5-C5-C6-O6
13	A	4717	A2G	O5-C5-C6-O6
13	B	4721	A2G	O5-C5-C6-O6
12	A	4701	NAG	O5-C5-C6-O6
13	A	4715	A2G	O5-C5-C6-O6
12	A	4706	NAG	O5-C5-C6-O6
13	B	4715	A2G	O5-C5-C6-O6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
12	B	4710	NAG	O5-C5-C6-O6
12	B	4705	NAG	C3-C2-N2-C7
13	A	4721	A2G	C1-C2-N2-C7
12	A	4711	NAG	C4-C5-C6-O6
12	A	4705	NAG	C3-C2-N2-C7
12	A	4706	NAG	C3-C2-N2-C7
13	A	4717	A2G	C3-C2-N2-C7
13	B	4713	A2G	C3-C2-N2-C7
13	B	4715	A2G	C1-C2-N2-C7
13	A	4719	A2G	C1-C2-N2-C7
13	B	4720	A2G	C3-C2-N2-C7

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

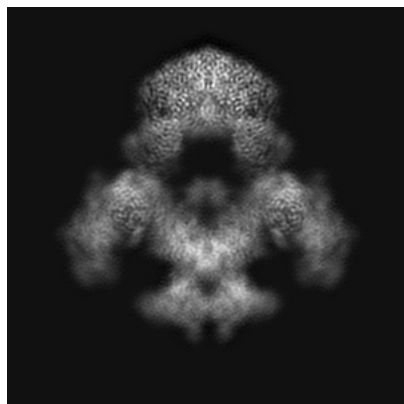
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-36664. These allow visual inspection of the internal detail of the map and identification of artifacts.

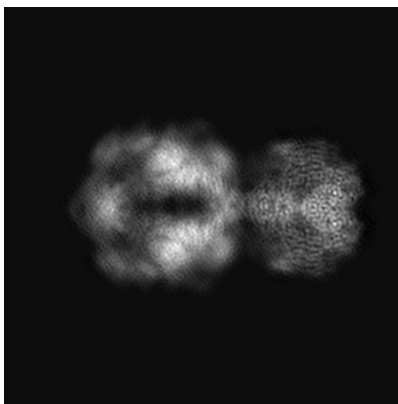
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

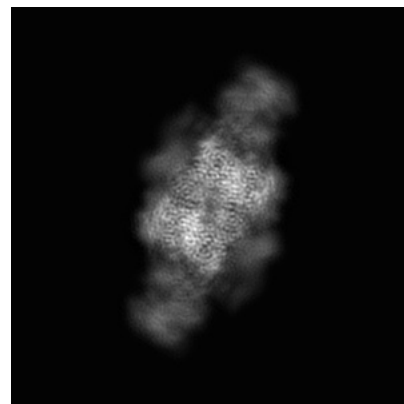
6.1.1 Primary map



X

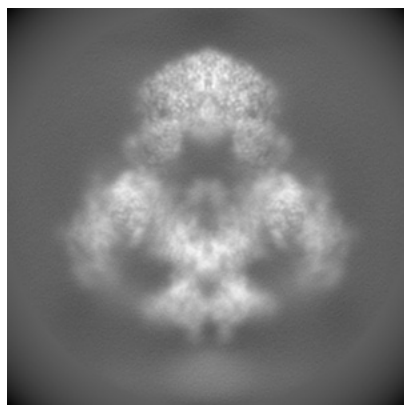


Y

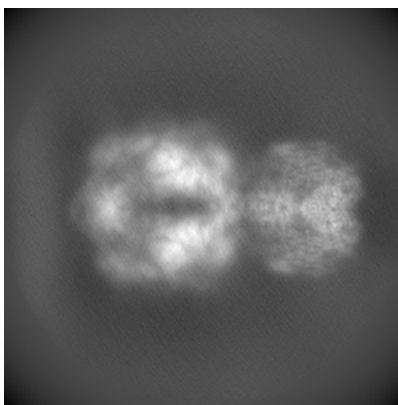


Z

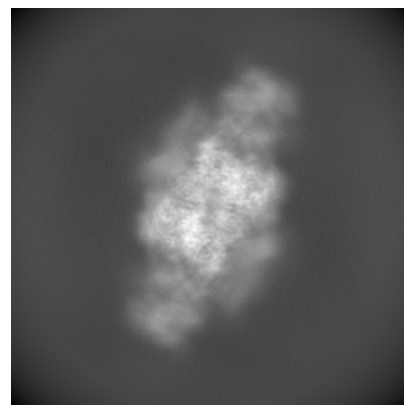
6.1.2 Raw map



X



Y

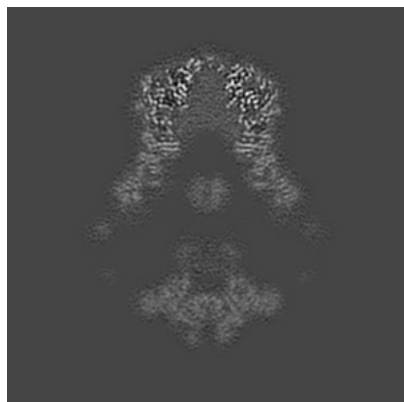


Z

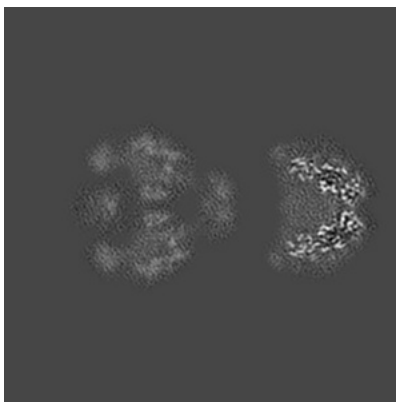
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

6.2.1 Primary map



X Index: 130

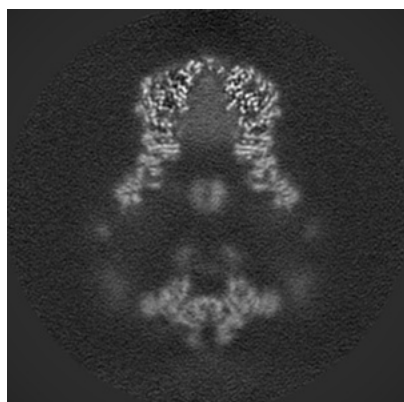


Y Index: 130

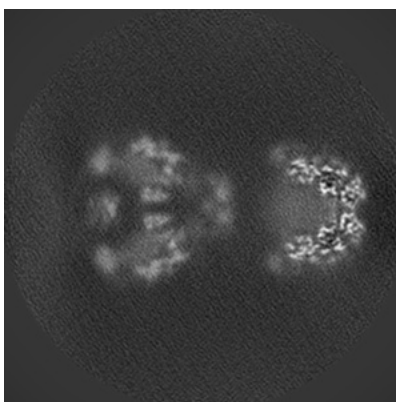


Z Index: 130

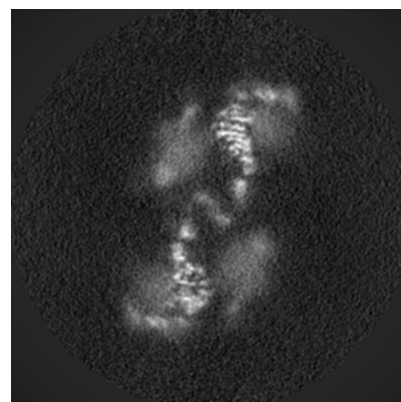
6.2.2 Raw map



X Index: 130



Y Index: 130

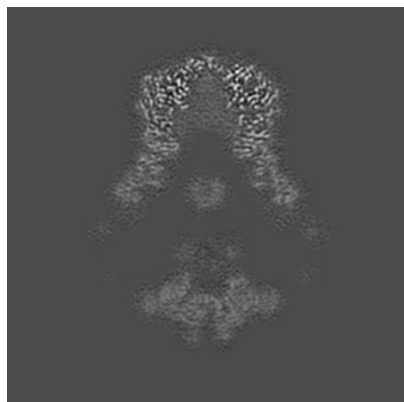


Z Index: 130

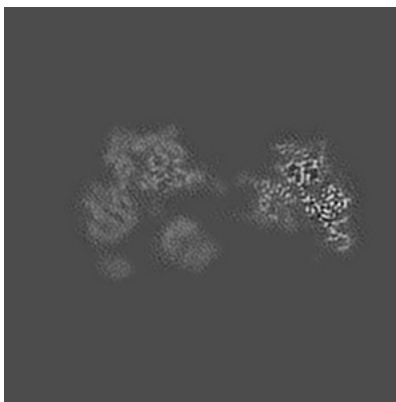
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

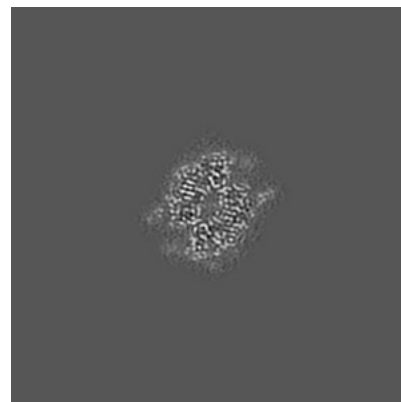
6.3.1 Primary map



X Index: 131

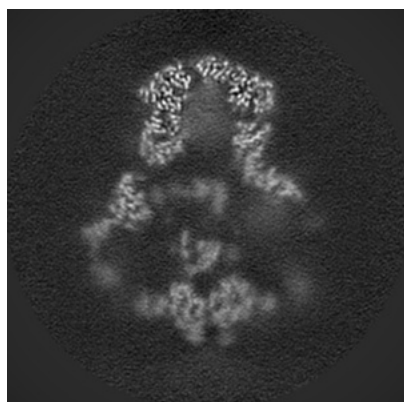


Y Index: 149

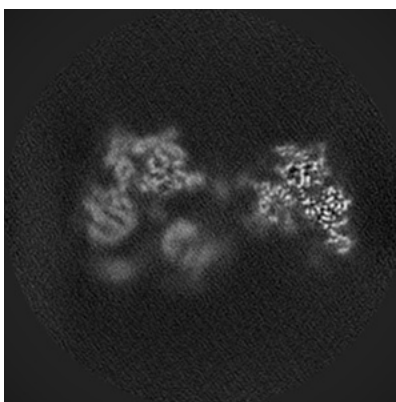


Z Index: 215

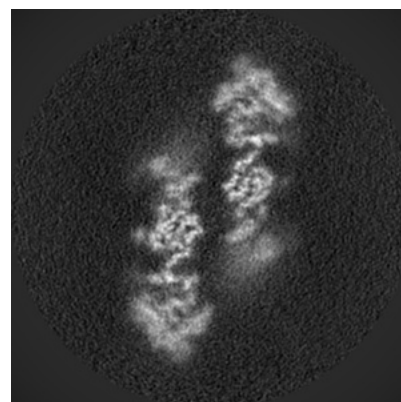
6.3.2 Raw map



X Index: 124



Y Index: 149

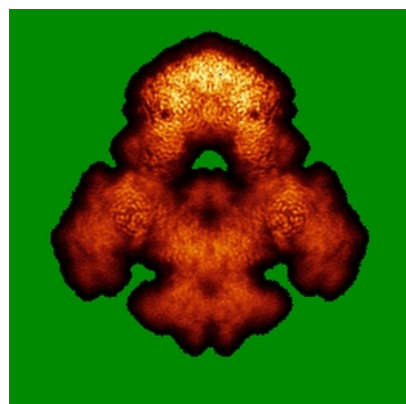


Z Index: 113

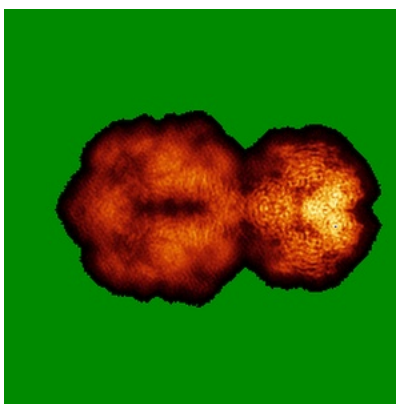
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

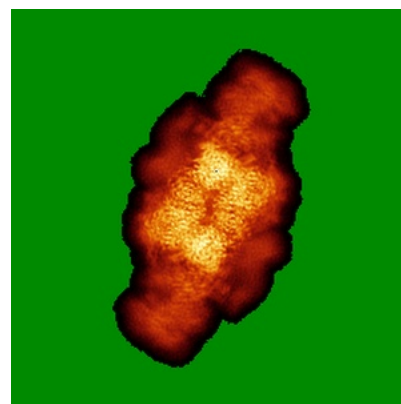
6.4.1 Primary map



X

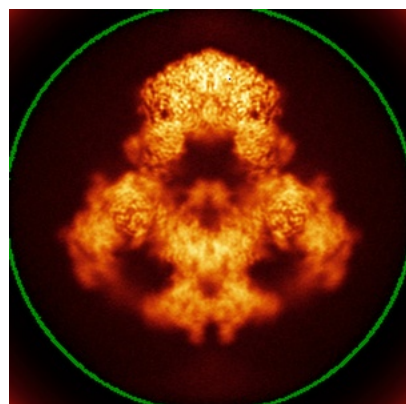


Y

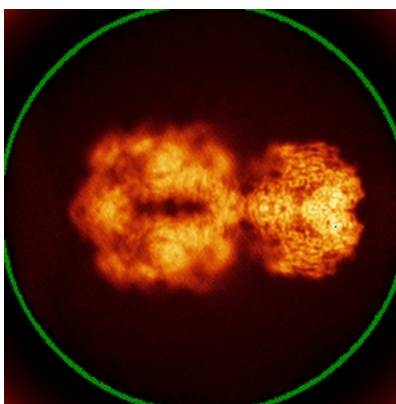


Z

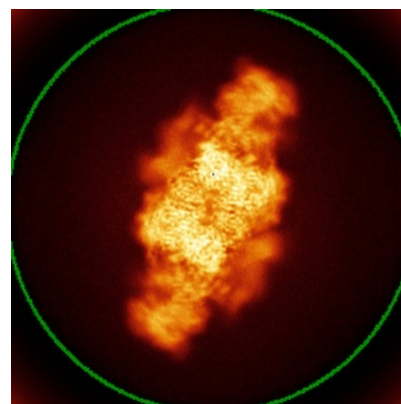
6.4.2 Raw map



X



Y

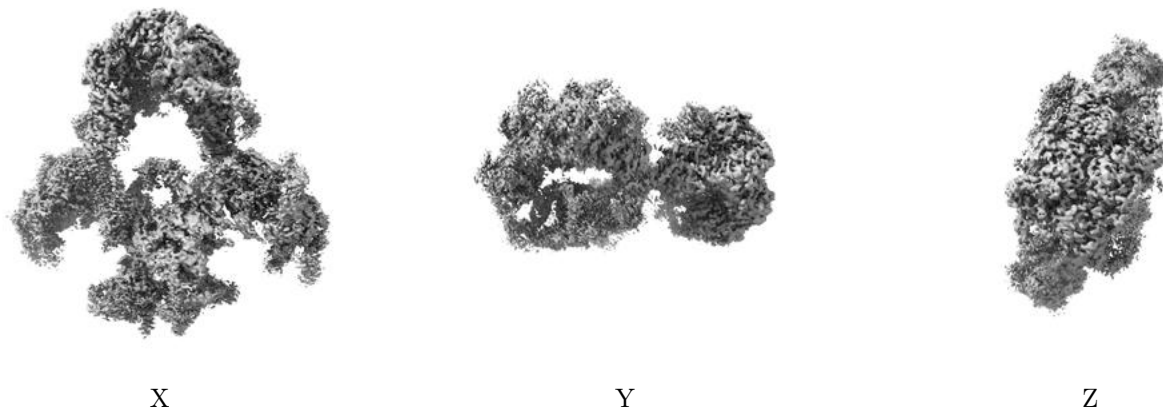


Z

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

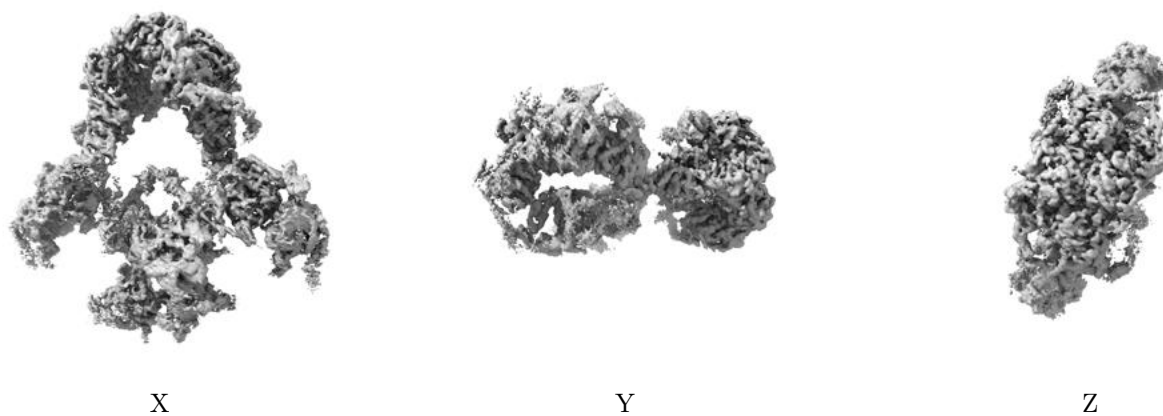
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.03. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



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

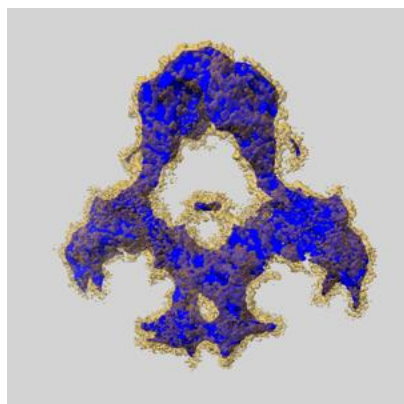
6.6 Mask visualisation [i](#)

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

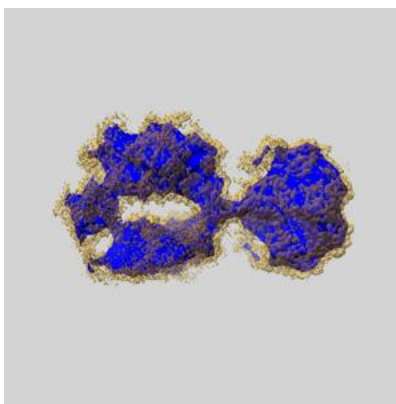
A mask typically either:

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

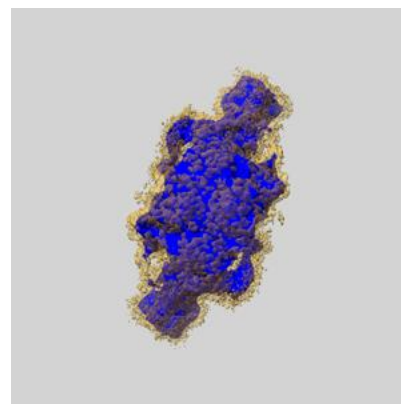
6.6.1 emd_36664_msk_1.map [i](#)



X



Y

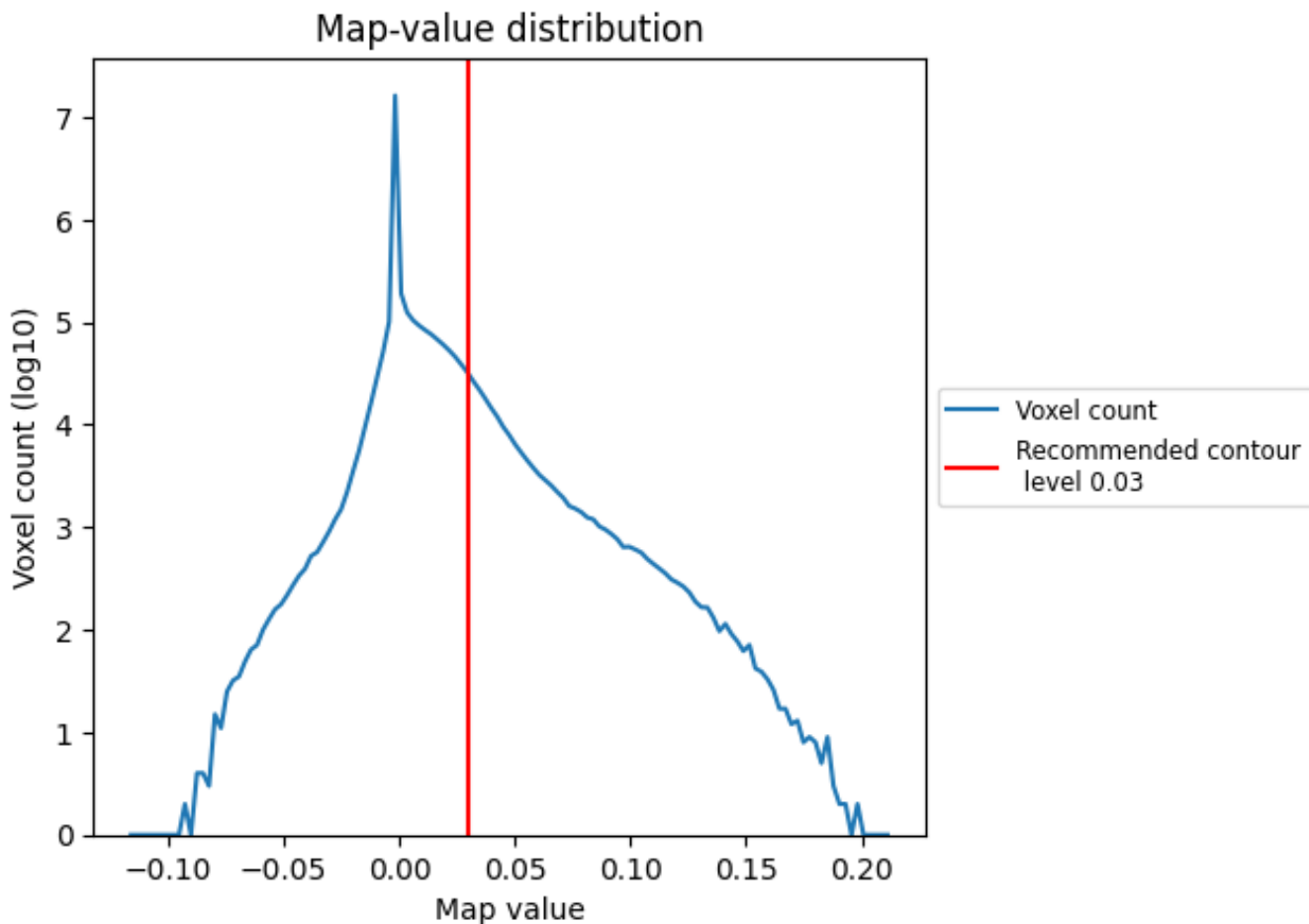


Z

7 Map analysis [i](#)

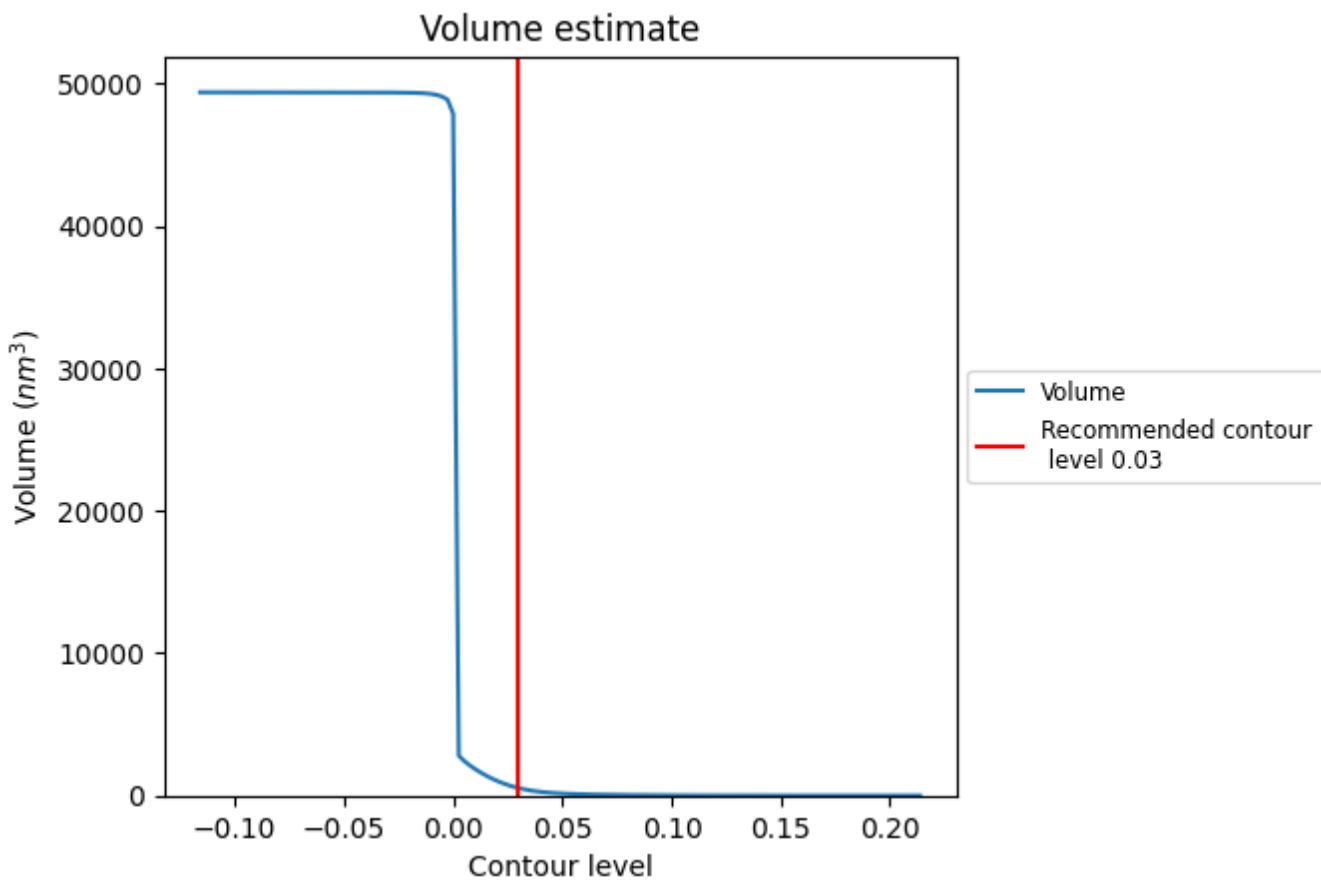
This section contains the results of statistical analysis of the map.

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.

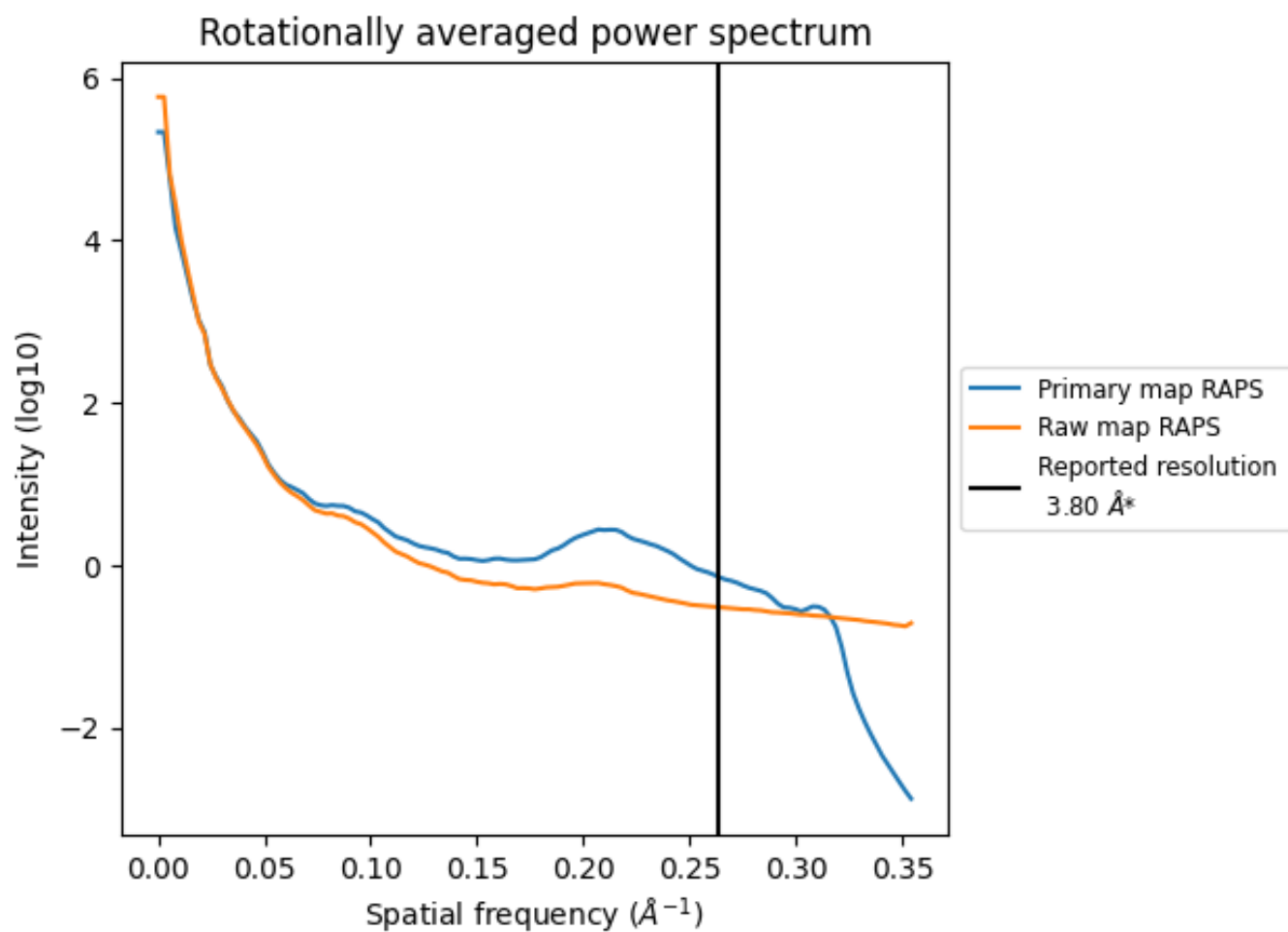
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 525 nm³; this corresponds to an approximate mass of 474 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](#)

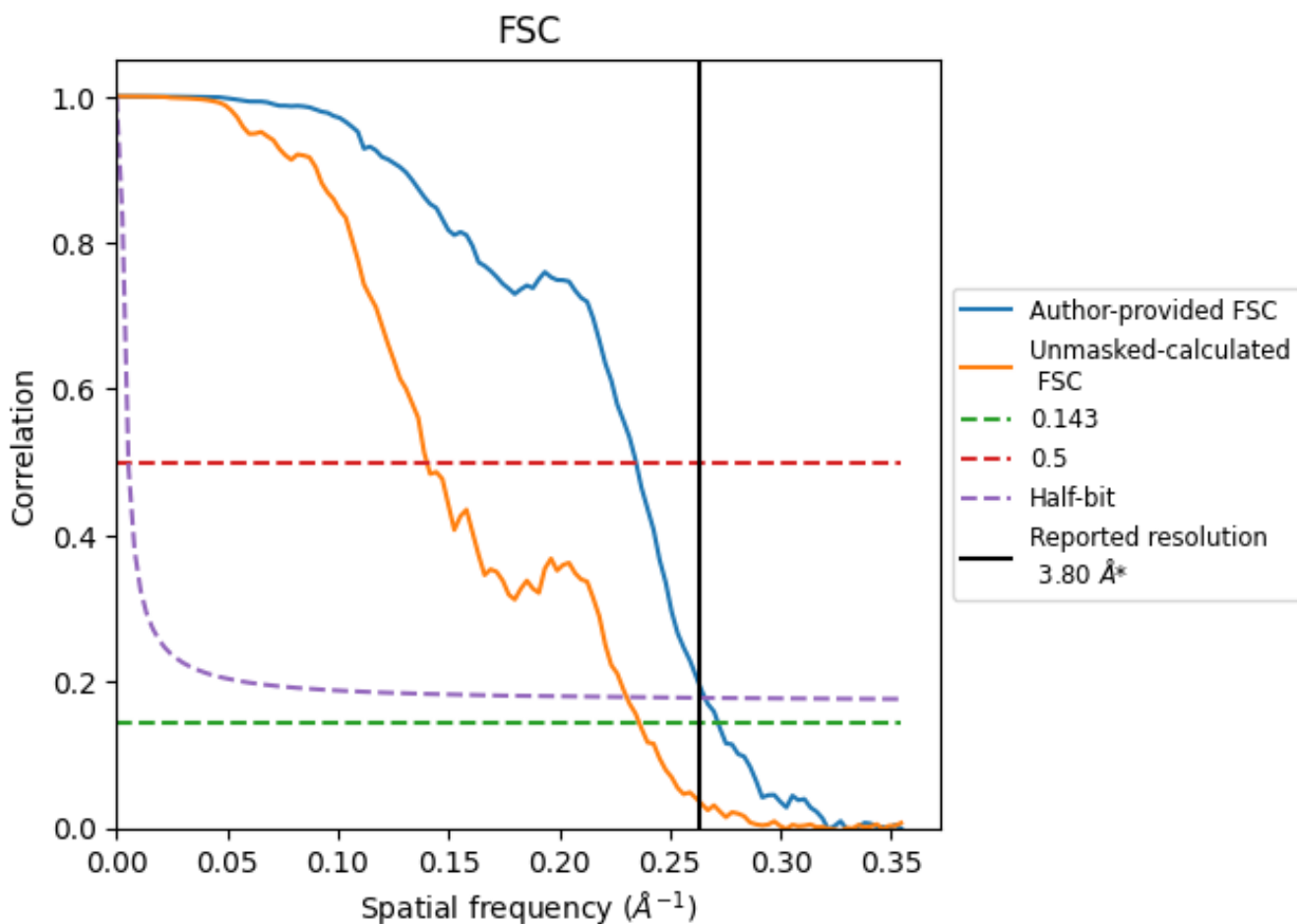


*Reported resolution corresponds to spatial frequency of 0.263 Å⁻¹

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 0.263 Å⁻¹

8.2 Resolution estimates [i](#)

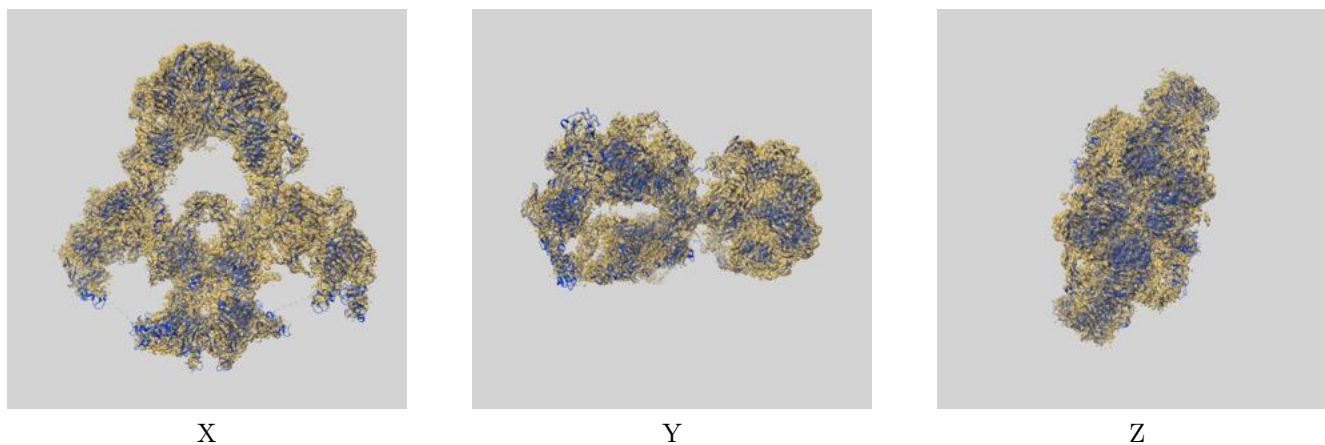
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.68	4.26	3.76
Unmasked-calculated*	4.23	7.13	4.34

*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 4.23 differs from the reported value 3.8 by more than 10 %

9 Map-model fit [i](#)

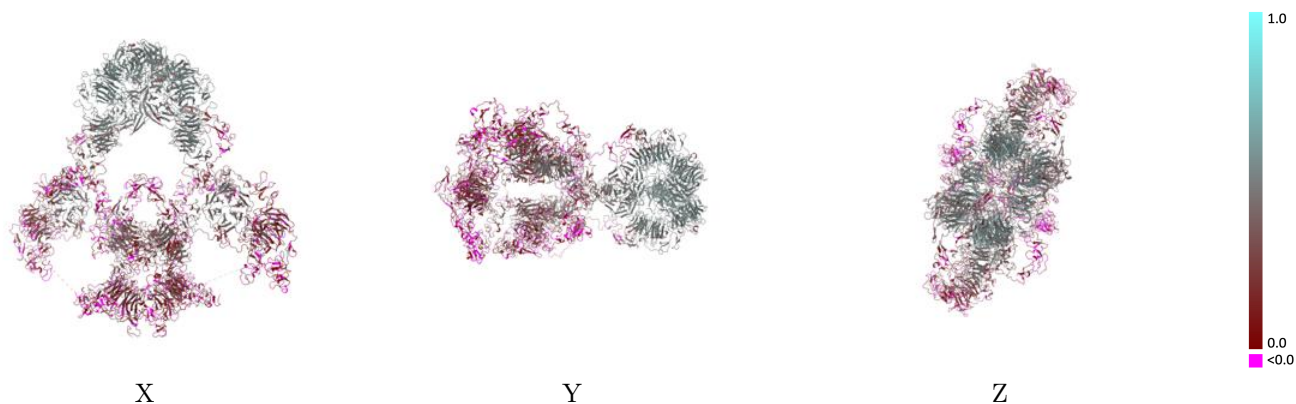
This section contains information regarding the fit between EMDB map EMD-36664 and PDB model 8JUU. Per-residue inclusion information can be found in section 3 on page 13.

9.1 Map-model overlay [i](#)



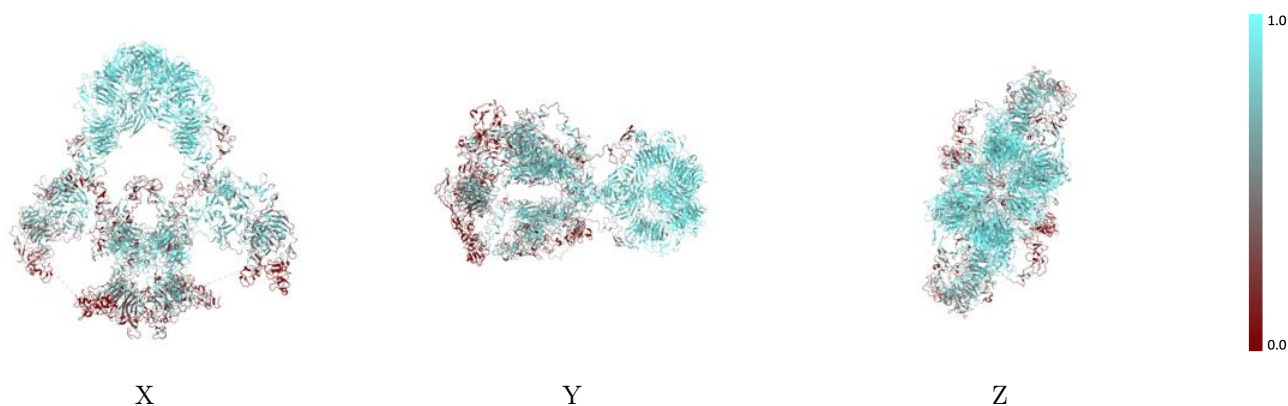
The images above show the 3D surface view of the map at the recommended contour level 0.03 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



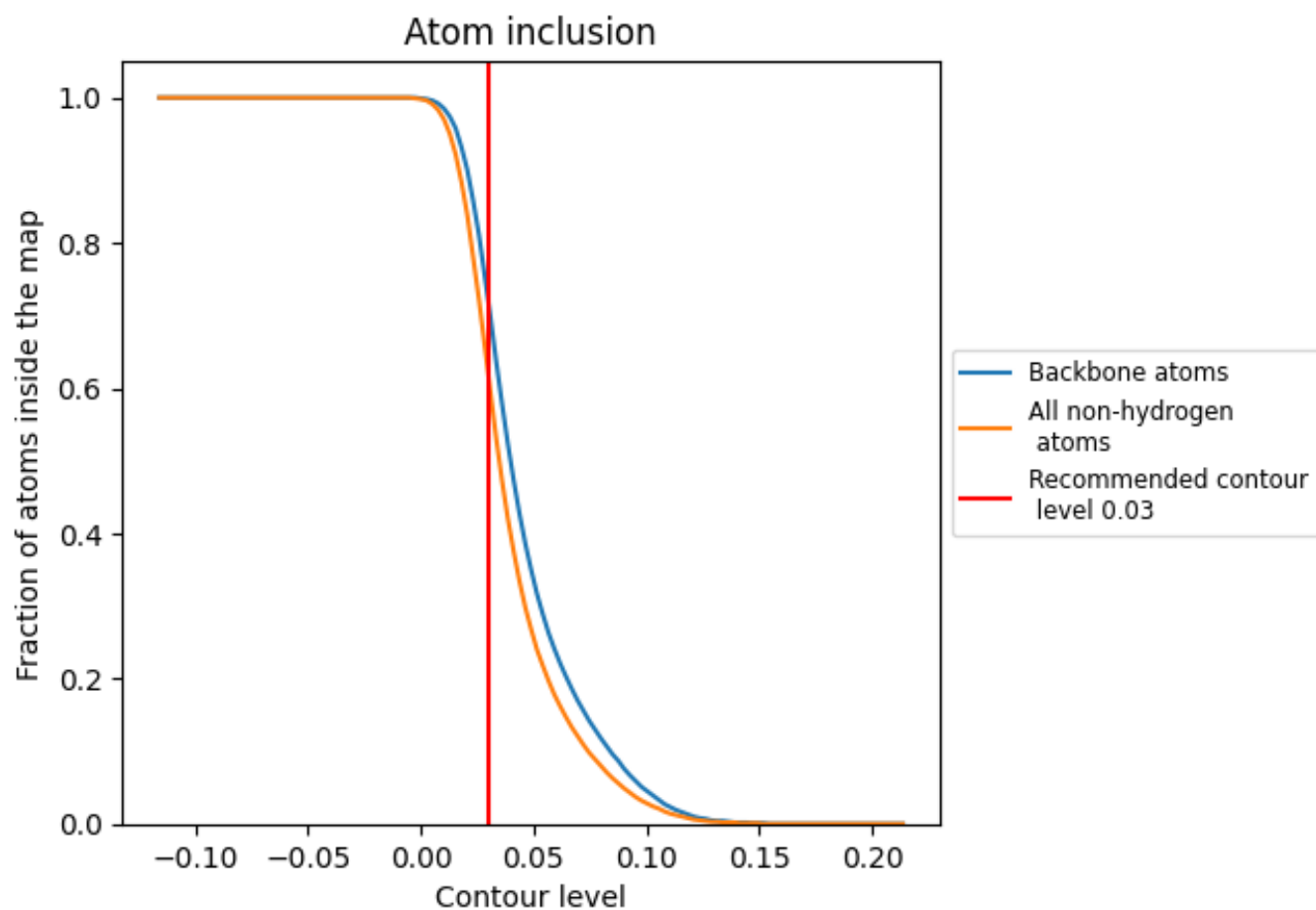
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.03).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 72% of all backbone atoms, 62% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

















































The table lists the average atom inclusion at the recommended contour level (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6160	 0.2910
0	 0.1790	 0.1980
1	 0.1470	 0.0530
2	 0.2130	 0.1250
3	 0.0000	 0.0110
4	 0.1280	 0.0760
5	 0.1430	 0.2140
A	 0.6200	 0.2900
B	 0.6210	 0.2940
C	 0.9090	 0.4680
D	 0.7500	 0.3370
E	 0.1540	 0.0630
F	 0.7500	 0.3140
G	 0.8180	 0.4800
H	 0.7140	 0.3330
I	 0.9090	 0.4880
J	 0.7500	 0.3780
K	 0.7580	 0.3720
L	 0.7860	 0.4220
M	 0.3330	 0.1600
N	 0.8930	 0.4140
O	 0.9640	 0.4720
P	 0.4670	 0.1510
Q	 1.0000	 0.4880
R	 0.9290	 0.3910
S	 0.2500	 0.1690
T	 0.5130	 0.2980
U	 0.6430	 0.3810
V	 0.4290	 0.2320
W	 0.4430	 0.3610
X	 0.5000	 0.2450
Y	 0.8690	 0.4650
Z	 0.5360	 0.3450
a	 0.5000	 0.3060
b	 0.1790	 0.2150



Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
c	 0.4620	 0.2950
d	 0.4590	 0.2960
e	 0.1790	 0.2740
f	 0.3930	 0.2000
g	 0.0980	 0.1360
h	 0.2460	 0.1010
i	 0.1430	 0.1490
j	 0.1280	 0.1430
k	 0.1430	 0.1040
l	 0.1280	 0.0670
m	 0.6790	 0.3170
n	 0.3210	 0.2720
o	 0.4360	 0.3370
p	 0.6790	 0.3510
q	 0.2140	 0.2240
r	 0.3280	 0.3190
s	 0.5360	 0.3350
t	 0.8850	 0.4900
u	 0.5000	 0.3300
v	 0.3930	 0.3380
w	 0.1540	 0.1440
x	 0.5380	 0.2900
y	 0.4750	 0.2590
z	 0.0710	 0.0560