



Full wwPDB EM Validation Report ⓘ

Jul 23, 2025 – 04:20 PM EDT

PDB ID : 9DN2 / pdb_00009dn2
EMDB ID : EMD-47024
Title : TJ5-1 Fab in complex with NG2 COBRA hemagglutinin
Authors : Nagashima, K.; Mousa, J.
Deposited on : 2024-09-16
Resolution : 3.24 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev118
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

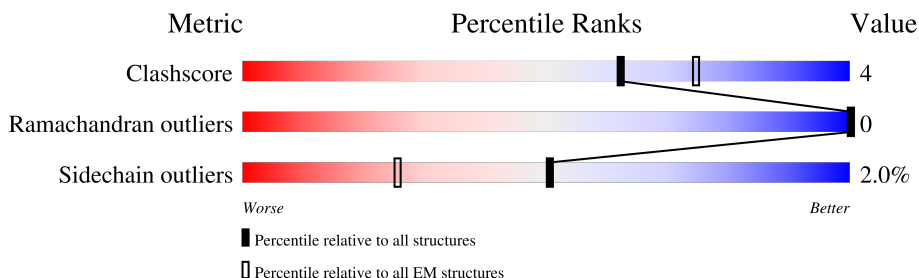
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.24 Å.

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




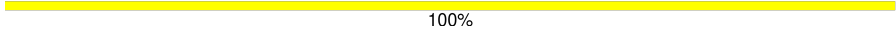



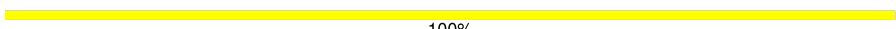









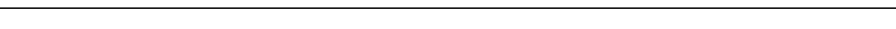
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	573	78% 9% 13%
1	B	573	78% 9% 13%
1	C	573	78% 9% 13%
2	H	118	78% 14% 8%
2	I	118	78% 14% 8%
2	J	118	76% 15% 8%
3	L	111	5% 84% 12% ..
3	M	111	84% 12% ..

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Mol	Chain	Length	Quality of chain
3	N	111	 85% 11%
4	D	2	 100%
4	E	2	 50% 50%
4	F	2	 50% 100%
4	K	2	 50% 50%
4	O	2	 100%
4	P	2	 50% 50%
4	Q	2	 50% 100%
4	S	2	 50% 50%
4	T	2	 100%
4	U	2	 50% 50%
4	V	2	 50% 100%
4	X	2	 50% 50%
5	G	3	 100%
5	R	3	 100%
5	W	3	 100%

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 17397 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 Hemagglutinin.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	501	Total	C	N	O	S	0	0
			3950	2466	702	764	18		
1	B	501	Total	C	N	O	S	0	0
			3950	2466	702	764	18		
1	C	501	Total	C	N	O	S	0	0
			3950	2466	702	764	18		

There are 162 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	142	GLY	ARG	conflict	UNP A0A2P1ADT1
A	144	SER	LYS	conflict	UNP A0A2P1ADT1
A	311	GLN	HIS	conflict	UNP A0A2P1ADT1
A	507	GLY	-	expression tag	UNP A0A2P1ADT1
A	508	TYR	-	expression tag	UNP A0A2P1ADT1
A	509	ILE	-	expression tag	UNP A0A2P1ADT1
A	510	PRO	-	expression tag	UNP A0A2P1ADT1
A	511	GLU	-	expression tag	UNP A0A2P1ADT1
A	512	ALA	-	expression tag	UNP A0A2P1ADT1
A	513	PRO	-	expression tag	UNP A0A2P1ADT1
A	514	ARG	-	expression tag	UNP A0A2P1ADT1
A	515	ASP	-	expression tag	UNP A0A2P1ADT1
A	516	GLY	-	expression tag	UNP A0A2P1ADT1
A	517	GLN	-	expression tag	UNP A0A2P1ADT1
A	518	ALA	-	expression tag	UNP A0A2P1ADT1
A	519	TYR	-	expression tag	UNP A0A2P1ADT1
A	520	VAL	-	expression tag	UNP A0A2P1ADT1
A	521	ARG	-	expression tag	UNP A0A2P1ADT1
A	522	LYS	-	expression tag	UNP A0A2P1ADT1
A	523	ASP	-	expression tag	UNP A0A2P1ADT1
A	524	GLY	-	expression tag	UNP A0A2P1ADT1
A	525	GLU	-	expression tag	UNP A0A2P1ADT1
A	526	TRP	-	expression tag	UNP A0A2P1ADT1
A	527	VAL	-	expression tag	UNP A0A2P1ADT1

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Chain	Residue	Modelled	Actual	Comment	Reference
A	528	LEU	-	expression tag	UNP A0A2P1ADT1
A	529	LEU	-	expression tag	UNP A0A2P1ADT1
A	530	SER	-	expression tag	UNP A0A2P1ADT1
A	531	THR	-	expression tag	UNP A0A2P1ADT1
A	532	PHE	-	expression tag	UNP A0A2P1ADT1
A	533	LEU	-	expression tag	UNP A0A2P1ADT1
A	534	GLY	-	expression tag	UNP A0A2P1ADT1
A	535	SER	-	expression tag	UNP A0A2P1ADT1
A	536	GLY	-	expression tag	UNP A0A2P1ADT1
A	537	LEU	-	expression tag	UNP A0A2P1ADT1
A	538	ASN	-	expression tag	UNP A0A2P1ADT1
A	539	ASP	-	expression tag	UNP A0A2P1ADT1
A	540	ILE	-	expression tag	UNP A0A2P1ADT1
A	541	PHE	-	expression tag	UNP A0A2P1ADT1
A	542	GLU	-	expression tag	UNP A0A2P1ADT1
A	543	ALA	-	expression tag	UNP A0A2P1ADT1
A	544	GLN	-	expression tag	UNP A0A2P1ADT1
A	545	LYS	-	expression tag	UNP A0A2P1ADT1
A	546	ILE	-	expression tag	UNP A0A2P1ADT1
A	547	GLU	-	expression tag	UNP A0A2P1ADT1
A	548	TRP	-	expression tag	UNP A0A2P1ADT1
A	549	HIS	-	expression tag	UNP A0A2P1ADT1
A	550	GLU	-	expression tag	UNP A0A2P1ADT1
A	551	GLY	-	expression tag	UNP A0A2P1ADT1
A	552	HIS	-	expression tag	UNP A0A2P1ADT1
A	553	HIS	-	expression tag	UNP A0A2P1ADT1
A	554	HIS	-	expression tag	UNP A0A2P1ADT1
A	555	HIS	-	expression tag	UNP A0A2P1ADT1
A	556	HIS	-	expression tag	UNP A0A2P1ADT1
A	557	HIS	-	expression tag	UNP A0A2P1ADT1
B	142	GLY	ARG	conflict	UNP A0A2P1ADT1
B	144	SER	LYS	conflict	UNP A0A2P1ADT1
B	311	GLN	HIS	conflict	UNP A0A2P1ADT1
B	507	GLY	-	expression tag	UNP A0A2P1ADT1
B	508	TYR	-	expression tag	UNP A0A2P1ADT1
B	509	ILE	-	expression tag	UNP A0A2P1ADT1
B	510	PRO	-	expression tag	UNP A0A2P1ADT1
B	511	GLU	-	expression tag	UNP A0A2P1ADT1
B	512	ALA	-	expression tag	UNP A0A2P1ADT1
B	513	PRO	-	expression tag	UNP A0A2P1ADT1
B	514	ARG	-	expression tag	UNP A0A2P1ADT1
B	515	ASP	-	expression tag	UNP A0A2P1ADT1

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Chain	Residue	Modelled	Actual	Comment	Reference
B	516	GLY	-	expression tag	UNP A0A2P1ADT1
B	517	GLN	-	expression tag	UNP A0A2P1ADT1
B	518	ALA	-	expression tag	UNP A0A2P1ADT1
B	519	TYR	-	expression tag	UNP A0A2P1ADT1
B	520	VAL	-	expression tag	UNP A0A2P1ADT1
B	521	ARG	-	expression tag	UNP A0A2P1ADT1
B	522	LYS	-	expression tag	UNP A0A2P1ADT1
B	523	ASP	-	expression tag	UNP A0A2P1ADT1
B	524	GLY	-	expression tag	UNP A0A2P1ADT1
B	525	GLU	-	expression tag	UNP A0A2P1ADT1
B	526	TRP	-	expression tag	UNP A0A2P1ADT1
B	527	VAL	-	expression tag	UNP A0A2P1ADT1
B	528	LEU	-	expression tag	UNP A0A2P1ADT1
B	529	LEU	-	expression tag	UNP A0A2P1ADT1
B	530	SER	-	expression tag	UNP A0A2P1ADT1
B	531	THR	-	expression tag	UNP A0A2P1ADT1
B	532	PHE	-	expression tag	UNP A0A2P1ADT1
B	533	LEU	-	expression tag	UNP A0A2P1ADT1
B	534	GLY	-	expression tag	UNP A0A2P1ADT1
B	535	SER	-	expression tag	UNP A0A2P1ADT1
B	536	GLY	-	expression tag	UNP A0A2P1ADT1
B	537	LEU	-	expression tag	UNP A0A2P1ADT1
B	538	ASN	-	expression tag	UNP A0A2P1ADT1
B	539	ASP	-	expression tag	UNP A0A2P1ADT1
B	540	ILE	-	expression tag	UNP A0A2P1ADT1
B	541	PHE	-	expression tag	UNP A0A2P1ADT1
B	542	GLU	-	expression tag	UNP A0A2P1ADT1
B	543	ALA	-	expression tag	UNP A0A2P1ADT1
B	544	GLN	-	expression tag	UNP A0A2P1ADT1
B	545	LYS	-	expression tag	UNP A0A2P1ADT1
B	546	ILE	-	expression tag	UNP A0A2P1ADT1
B	547	GLU	-	expression tag	UNP A0A2P1ADT1
B	548	TRP	-	expression tag	UNP A0A2P1ADT1
B	549	HIS	-	expression tag	UNP A0A2P1ADT1
B	550	GLU	-	expression tag	UNP A0A2P1ADT1
B	551	GLY	-	expression tag	UNP A0A2P1ADT1
B	552	HIS	-	expression tag	UNP A0A2P1ADT1
B	553	HIS	-	expression tag	UNP A0A2P1ADT1
B	554	HIS	-	expression tag	UNP A0A2P1ADT1
B	555	HIS	-	expression tag	UNP A0A2P1ADT1
B	556	HIS	-	expression tag	UNP A0A2P1ADT1
B	557	HIS	-	expression tag	UNP A0A2P1ADT1

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Chain	Residue	Modelled	Actual	Comment	Reference
C	142	GLY	ARG	conflict	UNP A0A2P1ADT1
C	144	SER	LYS	conflict	UNP A0A2P1ADT1
C	311	GLN	HIS	conflict	UNP A0A2P1ADT1
C	507	GLY	-	expression tag	UNP A0A2P1ADT1
C	508	TYR	-	expression tag	UNP A0A2P1ADT1
C	509	ILE	-	expression tag	UNP A0A2P1ADT1
C	510	PRO	-	expression tag	UNP A0A2P1ADT1
C	511	GLU	-	expression tag	UNP A0A2P1ADT1
C	512	ALA	-	expression tag	UNP A0A2P1ADT1
C	513	PRO	-	expression tag	UNP A0A2P1ADT1
C	514	ARG	-	expression tag	UNP A0A2P1ADT1
C	515	ASP	-	expression tag	UNP A0A2P1ADT1
C	516	GLY	-	expression tag	UNP A0A2P1ADT1
C	517	GLN	-	expression tag	UNP A0A2P1ADT1
C	518	ALA	-	expression tag	UNP A0A2P1ADT1
C	519	TYR	-	expression tag	UNP A0A2P1ADT1
C	520	VAL	-	expression tag	UNP A0A2P1ADT1
C	521	ARG	-	expression tag	UNP A0A2P1ADT1
C	522	LYS	-	expression tag	UNP A0A2P1ADT1
C	523	ASP	-	expression tag	UNP A0A2P1ADT1
C	524	GLY	-	expression tag	UNP A0A2P1ADT1
C	525	GLU	-	expression tag	UNP A0A2P1ADT1
C	526	TRP	-	expression tag	UNP A0A2P1ADT1
C	527	VAL	-	expression tag	UNP A0A2P1ADT1
C	528	LEU	-	expression tag	UNP A0A2P1ADT1
C	529	LEU	-	expression tag	UNP A0A2P1ADT1
C	530	SER	-	expression tag	UNP A0A2P1ADT1
C	531	THR	-	expression tag	UNP A0A2P1ADT1
C	532	PHE	-	expression tag	UNP A0A2P1ADT1
C	533	LEU	-	expression tag	UNP A0A2P1ADT1
C	534	GLY	-	expression tag	UNP A0A2P1ADT1
C	535	SER	-	expression tag	UNP A0A2P1ADT1
C	536	GLY	-	expression tag	UNP A0A2P1ADT1
C	537	LEU	-	expression tag	UNP A0A2P1ADT1
C	538	ASN	-	expression tag	UNP A0A2P1ADT1
C	539	ASP	-	expression tag	UNP A0A2P1ADT1
C	540	ILE	-	expression tag	UNP A0A2P1ADT1
C	541	PHE	-	expression tag	UNP A0A2P1ADT1
C	542	GLU	-	expression tag	UNP A0A2P1ADT1
C	543	ALA	-	expression tag	UNP A0A2P1ADT1
C	544	GLN	-	expression tag	UNP A0A2P1ADT1
C	545	LYS	-	expression tag	UNP A0A2P1ADT1

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Chain	Residue	Modelled	Actual	Comment	Reference
C	546	ILE	-	expression tag	UNP A0A2P1ADT1
C	547	GLU	-	expression tag	UNP A0A2P1ADT1
C	548	TRP	-	expression tag	UNP A0A2P1ADT1
C	549	HIS	-	expression tag	UNP A0A2P1ADT1
C	550	GLU	-	expression tag	UNP A0A2P1ADT1
C	551	GLY	-	expression tag	UNP A0A2P1ADT1
C	552	HIS	-	expression tag	UNP A0A2P1ADT1
C	553	HIS	-	expression tag	UNP A0A2P1ADT1
C	554	HIS	-	expression tag	UNP A0A2P1ADT1
C	555	HIS	-	expression tag	UNP A0A2P1ADT1
C	556	HIS	-	expression tag	UNP A0A2P1ADT1
C	557	HIS	-	expression tag	UNP A0A2P1ADT1

- Molecule 2 is a protein called TJ5-1 heavy chain Fab fragment.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	H	108	Total	C	N	O	S	0	0
			837	531	142	158	6		
2	I	108	Total	C	N	O	S	0	0
			837	531	142	158	6		
2	J	108	Total	C	N	O	S	0	0
			837	531	142	158	6		

- Molecule 3 is a protein called TJ5-1 light chain Fab fragment.

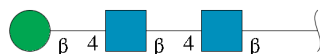
Mol	Chain	Residues	Atoms					AltConf	Trace
3	L	107	Total	C	N	O	S	0	0
			791	493	132	164	2		
3	M	107	Total	C	N	O	S	0	0
			791	493	132	164	2		
3	N	107	Total	C	N	O	S	0	0
			791	493	132	164	2		

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



Mol	Chain	Residues	Atoms				AltConf	Trace
4	D	2	Total	C	N	O	0	0
			28	16	2	10		
4	E	2	Total	C	N	O	0	0
			28	16	2	10		
4	F	2	Total	C	N	O	0	0
			28	16	2	10		
4	K	2	Total	C	N	O	0	0
			28	16	2	10		
4	O	2	Total	C	N	O	0	0
			28	16	2	10		
4	P	2	Total	C	N	O	0	0
			28	16	2	10		
4	Q	2	Total	C	N	O	0	0
			28	16	2	10		
4	S	2	Total	C	N	O	0	0
			28	16	2	10		
4	T	2	Total	C	N	O	0	0
			28	16	2	10		
4	U	2	Total	C	N	O	0	0
			28	16	2	10		
4	V	2	Total	C	N	O	0	0
			28	16	2	10		
4	X	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 5 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
5	G	3	Total	C	N	O	0	0
			39	22	2	15		
5	R	3	Total	C	N	O	0	0
			39	22	2	15		
5	W	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆) (labeled as "Ligand of Interest" by depositor).



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

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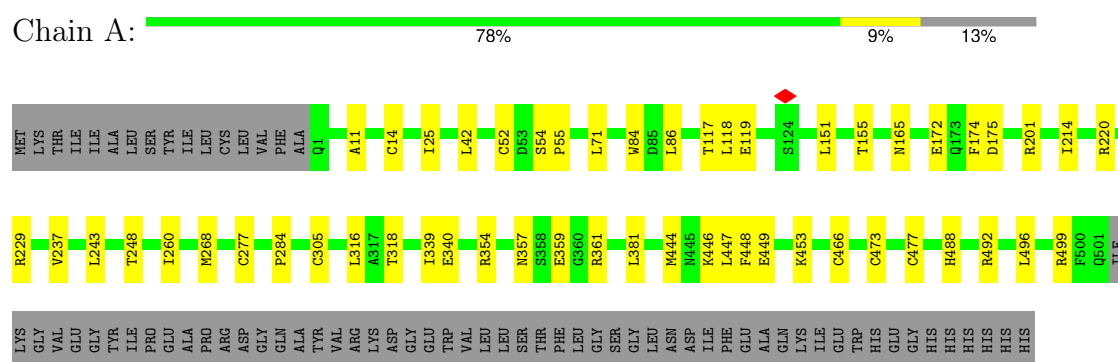
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Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
6	C	1	14	8	1	5	0

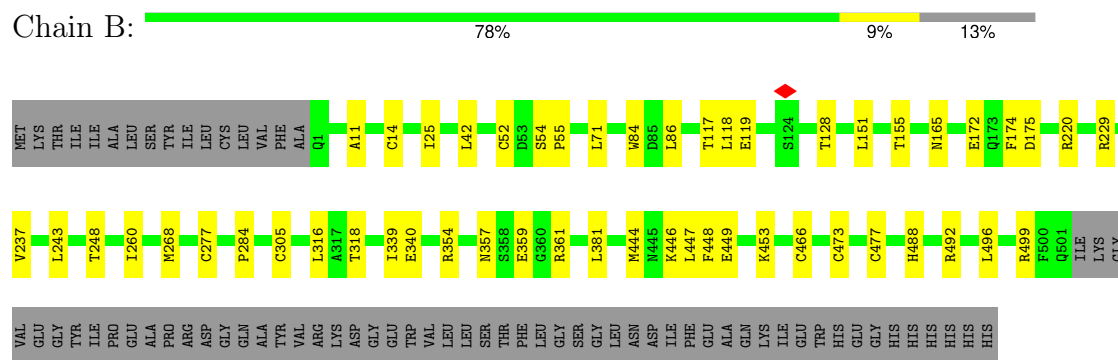
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

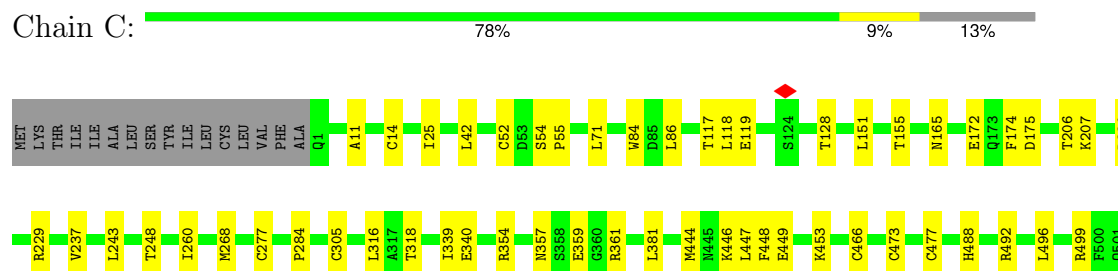
• Molecule 1: Hemagglutinin



• Molecule 1: Hemagglutinin




• Molecule 1: Hemagglutinin




ILE LYS VAL GLU GLY TYR ILE PRO GLU ALA PRO ARG ASP GLN ALA TYR VAL LYS ARG ASP GLY TRP VAL LEU LEU SER THR PHE LEU GLY SER LEU GLY ASN ASP ILE PHE GLU ALA GLN LYS ILE THR TRP HIS GLU HIS HIS HIS HIS

- Molecule 2: TJ5-1 heavy chain Fab fragment

Chain H:  78% 14% 8%

GLU V2 G8 A9 E11 V21 T35 H40 W41 V42 R43 Q44 W52 M53 I56 R57 P58 F71 Q72 G74 M89 S96 D97 Y102 Y103 C104 V105 V110 G119 GLN GLY THR VAL ILE VAL SER

- Molecule 2: TJ5-1 heavy chain Fab fragment

Chain I:  78% 14% 8%


GLU V2 G8 A9 E11 V21 T35 H40 W41 V42 R43 Q44 W52 M53 I56 R57 P58 F71 Q72 G74 M89 S96 D97 Y102 Y103 C104 V105 V110 G119 GLN GLY THR VAL ILE VAL SER

- Molecule 2: TJ5-1 heavy chain Fab fragment

Chain J:  76% 15% 8%


GLU V2 G8 A9 E11 V21 T35 H40 W41 V42 R43 Q44 W52 M53 I56 R57 P58 F71 Q72 G74 M89 S96 D97 A100 Y101 Y102 Y103 C104 V105 V110 G119 GLN GLY THR VAL ILE VAL SER

- Molecule 3: TJ5-1 light chain Fab fragment

Chain L:  5% 84% 12% . .


GLN SER VAL L4 T5 Q6 P7 P8 I21 Q44 P50 R56 R75 F76 S77 L89 G93 E97 D98 E99 A100 E101 Y102 Y103 C104 G121 V124 T125 V126 LEU

- Molecule 3: TJ5-1 light chain Fab fragment

Chain M:  5% 84% 12% . .

GLN SER VAL L4 T5 Q6 P7 P8 I21 Q44 P50 R75 F76 S77 L89 G93 E97 D98 E99 A100 E101 Y102 Y103 C104 G121 V124 T125 V126 LEU

- Molecule 3: TJ5-1 light chain Fab fragment

Chain N:  5% 85% 11% . .

GLN SER VAL L4 T5 Q6 P7 P8 I21 Q44 P50 R75 F76 S77 L89 G93 E97 D98 E99 A100 E101 Y102 Y103 C104 G121 V124 T125 V126 LEU

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

Chain D:  100%

MAG1
MAG2

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

Chain E:  50% 50%

MAG1
MAG2

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

Chain F:  50% 100%

MAG1
MAG2

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

Chain K:  50% 50%

MAG1
MAG2

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

Chain O:  100%

MAG1
MAG2

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

Chain P:  50% 50%

MAG1
MAG2

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

Chain Q:  50% 100%



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

Chain S:



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

Chain T:



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

Chain U:



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

Chain V:



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

Chain X:



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

Chain G:



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

Chain R:  100%

MAG1
MAG2
BMA3

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

Chain W:  100%

MAG1
MAG2
BMA3

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	248400	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60.216	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	2.252	Depositor
Minimum map value	-1.654	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.032	Depositor
Recommended contour level	0.15	Depositor
Map size (\AA)	419.71204, 419.71204, 419.71204	wwPDB
Map dimensions	384, 384, 384	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.093, 1.093, 1.093	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.11	0/4032	0.30	0/5457
1	B	0.11	0/4032	0.30	0/5457
1	C	0.11	0/4032	0.30	0/5457
2	H	0.10	0/858	0.32	0/1164
2	I	0.11	0/858	0.32	0/1164
2	J	0.11	0/858	0.32	0/1164
3	L	0.13	0/810	0.42	0/1107
3	M	0.13	0/810	0.42	0/1107
3	N	0.13	0/810	0.42	0/1107
All	All	0.11	0/17100	0.32	0/23184

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3950	0	3832	29	0
1	B	3950	0	3832	29	0
1	C	3950	0	3832	31	0
2	H	837	0	804	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	I	837	0	804	11	0
2	J	837	0	804	12	0
3	L	791	0	748	8	0
3	M	791	0	748	8	0
3	N	791	0	748	7	0
4	D	28	0	25	0	0
4	E	28	0	25	2	0
4	F	28	0	25	2	0
4	K	28	0	25	0	0
4	O	28	0	25	0	0
4	P	28	0	25	1	0
4	Q	28	0	25	2	0
4	S	28	0	25	0	0
4	T	28	0	25	0	0
4	U	28	0	25	2	0
4	V	28	0	25	2	0
4	X	28	0	25	0	0
5	G	39	0	34	0	0
5	R	39	0	34	0	0
5	W	39	0	34	0	0
6	A	70	0	65	0	0
6	B	70	0	65	1	0
6	C	70	0	65	1	0
All	All	17397	0	16749	140	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 4.

All (140) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:42:VAL:HG23	2:H:52:TRP:HA	1.83	0.61
2:J:42:VAL:HG23	2:J:52:TRP:HA	1.83	0.60
2:I:42:VAL:HG23	2:I:52:TRP:HA	1.83	0.59
1:C:42:LEU:HD11	1:C:316:LEU:HD12	1.86	0.58
1:A:339:ILE:HG22	1:A:340:GLU:HG3	1.85	0.58
1:B:339:ILE:HG22	1:B:340:GLU:HG3	1.85	0.58
1:C:339:ILE:HG22	1:C:340:GLU:HG3	1.85	0.58
1:A:14:CYS:HA	1:A:466:CYS:HB2	1.87	0.57
1:A:42:LEU:HD11	1:A:316:LEU:HD12	1.86	0.57
1:B:42:LEU:HD11	1:B:316:LEU:HD12	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:14:CYS:HA	1:B:466:CYS:HB2	1.87	0.57
1:C:14:CYS:HA	1:C:466:CYS:HB2	1.87	0.57
3:N:6:GLN:HG2	3:N:7:PRO:HD2	1.88	0.56
3:L:6:GLN:HG2	3:L:7:PRO:HD2	1.87	0.56
2:H:44:GLN:HB3	2:H:103:TYR:HE2	1.71	0.55
3:M:6:GLN:HG2	3:M:7:PRO:HD2	1.87	0.55
1:A:496:LEU:HA	1:A:499:ARG:HG2	1.89	0.55
1:C:496:LEU:HA	1:C:499:ARG:HG2	1.89	0.55
2:I:44:GLN:HB3	2:I:103:TYR:HE2	1.71	0.55
1:A:172:GLU:HG3	1:A:174:PHE:CE2	2.42	0.54
2:J:44:GLN:HB3	2:J:103:TYR:HE2	1.71	0.54
1:B:172:GLU:HG3	1:B:174:PHE:CE2	2.42	0.54
1:B:496:LEU:HA	1:B:499:ARG:HG2	1.89	0.54
1:C:172:GLU:HG3	1:C:174:PHE:CE2	2.42	0.54
1:C:446:LYS:O	1:C:447:LEU:HB3	2.10	0.52
1:B:446:LYS:O	1:B:447:LEU:HB3	2.10	0.52
1:A:446:LYS:O	1:A:447:LEU:HB3	2.10	0.51
1:A:449:GLU:O	1:A:453:LYS:HG2	2.12	0.50
2:J:21:VAL:HG23	2:J:89:MET:HB3	1.93	0.50
1:C:449:GLU:O	1:C:453:LYS:HG2	2.12	0.50
2:H:40:HIS:HB2	2:H:105:VAL:HB	1.94	0.50
1:B:449:GLU:O	1:B:453:LYS:HG2	2.12	0.50
2:H:21:VAL:HG23	2:H:89:MET:HB3	1.93	0.49
2:I:21:VAL:HG23	2:I:89:MET:HB3	1.93	0.49
1:B:71:LEU:HD22	1:B:151:LEU:HD11	1.95	0.49
2:I:40:HIS:HB2	2:I:105:VAL:HB	1.94	0.49
2:J:40:HIS:HB2	2:J:105:VAL:HB	1.94	0.49
2:I:53:MET:HE1	2:I:102:TYR:HE2	1.78	0.49
1:A:361:ARG:HG2	2:H:110:VAL:HG23	1.95	0.48
1:A:71:LEU:HD22	1:A:151:LEU:HD11	1.95	0.48
2:H:53:MET:HE1	2:H:102:TYR:HE2	1.79	0.48
1:C:71:LEU:HD22	1:C:151:LEU:HD11	1.95	0.48
1:A:14:CYS:HA	1:A:466:CYS:CB	2.44	0.48
1:A:318:THR:HG21	4:F:1:NAG:H62	1.96	0.48
1:C:318:THR:HG21	4:V:1:NAG:H62	1.95	0.48
2:J:53:MET:HE1	2:J:102:TYR:HE2	1.78	0.47
1:B:318:THR:HG21	4:Q:1:NAG:H62	1.96	0.47
1:C:14:CYS:HA	1:C:466:CYS:CB	2.44	0.47
3:N:75:ARG:HD2	3:N:93:GLY:O	2.15	0.47
1:B:14:CYS:HA	1:B:466:CYS:CB	2.44	0.47
2:I:53:MET:HE2	2:I:71:PHE:CE2	2.50	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:M:75:ARG:HD2	3:M:93:GLY:O	2.15	0.46
2:J:53:MET:HE1	2:J:102:TYR:CE2	2.50	0.46
2:H:53:MET:HE2	2:H:71:PHE:CE2	2.50	0.46
3:L:75:ARG:HD2	3:L:93:GLY:O	2.15	0.46
2:I:53:MET:HE1	2:I:102:TYR:CE2	2.50	0.46
2:J:53:MET:HE2	2:J:71:PHE:CE2	2.50	0.45
3:L:44:GLN:O	3:L:101:GLU:HB3	2.16	0.45
3:N:6:GLN:HE21	3:N:21:ILE:HG23	1.82	0.45
2:J:110:VAL:HG23	1:C:361:ARG:HG2	1.98	0.45
3:L:44:GLN:HB3	3:L:50:PRO:HA	1.98	0.45
3:N:44:GLN:HB3	3:N:50:PRO:HA	1.98	0.45
1:B:11:ALA:HB2	1:B:473:CYS:HB3	1.98	0.45
3:M:6:GLN:HE21	3:M:21:ILE:HG23	1.81	0.45
2:H:53:MET:HE1	2:H:102:TYR:CE2	2.50	0.45
3:M:44:GLN:O	3:M:101:GLU:HB3	2.16	0.45
1:B:237:VAL:HG21	1:B:243:LEU:HB2	1.99	0.45
1:A:11:ALA:HB2	1:A:473:CYS:HB3	1.98	0.44
1:A:237:VAL:HG21	1:A:243:LEU:HB2	1.99	0.44
3:L:6:GLN:HE21	3:L:21:ILE:HG23	1.82	0.44
3:M:44:GLN:HB3	3:M:50:PRO:HA	1.98	0.44
3:M:7:PRO:HA	3:M:8:PRO:HD3	1.88	0.44
1:C:172:GLU:HG3	1:C:174:PHE:CZ	2.53	0.44
1:C:220:ARG:HD2	1:C:229:ARG:HD3	2.00	0.44
3:N:44:GLN:O	3:N:101:GLU:HB3	2.16	0.44
2:J:35:THR:HA	2:J:58:PRO:HG2	2.00	0.44
1:C:11:ALA:HB2	1:C:473:CYS:HB3	1.98	0.44
1:A:172:GLU:HG3	1:A:174:PHE:CZ	2.53	0.44
2:I:35:THR:HA	2:I:58:PRO:HG2	2.00	0.44
1:A:446:LYS:C	1:A:448:PHE:H	2.26	0.44
1:C:117:THR:HG22	1:C:119:GLU:H	1.83	0.44
1:A:488:HIS:O	1:A:492:ARG:HB2	2.18	0.43
1:B:488:HIS:O	1:B:492:ARG:HB2	2.18	0.43
1:C:237:VAL:HG21	1:C:243:LEU:HB2	1.99	0.43
1:B:381:LEU:HD21	4:Q:2:NAG:H82	2.00	0.43
1:C:381:LEU:HD21	4:V:2:NAG:H82	2.01	0.43
1:B:117:THR:HG22	1:B:119:GLU:H	1.83	0.43
1:B:446:LYS:C	1:B:448:PHE:H	2.26	0.43
2:I:110:VAL:HG23	1:B:361:ARG:HG2	1.99	0.43
1:C:488:HIS:O	1:C:492:ARG:HB2	2.18	0.43
2:H:35:THR:HA	2:H:58:PRO:HG2	2.00	0.43
2:J:110:VAL:HG11	1:C:354:ARG:CZ	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:172:GLU:HG3	1:B:174:PHE:CZ	2.53	0.43
1:A:54:SER:HB3	1:A:55:PRO:HD3	2.01	0.43
1:A:268:MET:SD	1:A:284:PRO:HD3	2.59	0.43
1:A:220:ARG:HD2	1:A:229:ARG:HD3	2.00	0.43
1:A:381:LEU:HD21	4:F:2:NAG:H82	2.01	0.42
3:L:7:PRO:HA	3:L:8:PRO:HD3	1.89	0.42
1:B:54:SER:HB3	1:B:55:PRO:HD3	2.00	0.42
1:C:268:MET:SD	1:C:284:PRO:HD3	2.59	0.42
1:A:117:THR:HG22	1:A:119:GLU:H	1.83	0.42
1:A:165:ASN:HB2	4:E:1:NAG:H82	2.01	0.42
2:I:42:VAL:HG13	2:I:103:TYR:HB2	2.02	0.42
1:C:446:LYS:C	1:C:448:PHE:H	2.26	0.42
3:M:103:TYR:HE1	3:M:121:GLY:H	1.67	0.42
1:C:54:SER:HB3	1:C:55:PRO:HD3	2.01	0.42
3:L:103:TYR:HE1	3:L:121:GLY:H	1.67	0.42
1:B:268:MET:SD	1:B:284:PRO:HD3	2.59	0.42
1:A:357:ASN:HD22	1:A:359:GLU:H	1.66	0.42
1:B:220:ARG:HD2	1:B:229:ARG:HD3	2.00	0.42
1:B:357:ASN:HD22	1:B:359:GLU:H	1.67	0.42
1:B:84:TRP:HD1	1:B:86:LEU:N	2.18	0.42
2:J:42:VAL:HG13	2:J:103:TYR:HB2	2.01	0.42
1:C:84:TRP:HD1	1:C:86:LEU:N	2.18	0.42
1:A:84:TRP:HD1	1:A:86:LEU:N	2.18	0.41
3:L:77:SER:O	3:L:89:LEU:HD12	2.20	0.41
3:N:103:TYR:HE1	3:N:121:GLY:H	1.67	0.41
1:B:175:ASP:HB2	1:B:260:ILE:HG23	2.02	0.41
1:C:357:ASN:HD22	1:C:359:GLU:H	1.66	0.41
3:M:77:SER:O	3:M:89:LEU:HD12	2.20	0.41
1:C:175:ASP:HB2	1:C:260:ILE:HG23	2.02	0.41
3:N:77:SER:O	3:N:89:LEU:HD12	2.20	0.41
2:H:42:VAL:HG13	2:H:103:TYR:HB2	2.01	0.41
1:C:165:ASN:HB2	4:U:1:NAG:H82	2.01	0.41
1:B:128:THR:HB	6:B:604:NAG:H61	2.03	0.41
1:C:128:THR:HB	6:C:604:NAG:H61	2.03	0.41
1:A:354:ARG:CZ	2:H:110:VAL:HG11	2.51	0.41
1:A:84:TRP:CZ3	1:A:118:LEU:HD13	2.56	0.41
1:A:165:ASN:CB	4:E:1:NAG:H82	2.51	0.41
1:A:201:ARG:HG3	1:A:214:ILE:HD12	2.04	0.41
1:A:175:ASP:HB2	1:A:260:ILE:HG23	2.03	0.40
2:I:110:VAL:HG11	1:B:354:ARG:CZ	2.52	0.40
1:B:165:ASN:HB2	4:P:1:NAG:H82	2.01	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:84:TRP:CZ3	1:C:118:LEU:HD13	2.56	0.40
1:C:206:THR:HG22	1:C:207:LYS:H	1.86	0.40
1:C:357:ASN:ND2	1:C:359:GLU:H	2.19	0.40
2:J:43:ARG:HD2	2:J:100:ALA:HB3	2.03	0.40
1:C:165:ASN:CB	4:U:1:NAG:H82	2.51	0.40
1:B:84:TRP:CZ3	1:B:118:LEU:HD13	2.56	0.40
1:B:84:TRP:HZ3	1:B:118:LEU:HD13	1.87	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	499/573 (87%)	482 (97%)	17 (3%)	0	100	100
1	B	499/573 (87%)	482 (97%)	17 (3%)	0	100	100
1	C	499/573 (87%)	482 (97%)	17 (3%)	0	100	100
2	H	106/118 (90%)	103 (97%)	3 (3%)	0	100	100
2	I	106/118 (90%)	103 (97%)	3 (3%)	0	100	100
2	J	106/118 (90%)	103 (97%)	3 (3%)	0	100	100
3	L	105/111 (95%)	92 (88%)	13 (12%)	0	100	100
3	M	105/111 (95%)	92 (88%)	13 (12%)	0	100	100
3	N	105/111 (95%)	92 (88%)	13 (12%)	0	100	100
All	All	2130/2406 (88%)	2031 (95%)	99 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	435/496 (88%)	427 (98%)	8 (2%)	54	75
1	B	435/496 (88%)	427 (98%)	8 (2%)	54	75
1	C	435/496 (88%)	427 (98%)	8 (2%)	54	75
2	H	90/99 (91%)	88 (98%)	2 (2%)	47	71
2	I	90/99 (91%)	88 (98%)	2 (2%)	47	71
2	J	90/99 (91%)	88 (98%)	2 (2%)	47	71
3	L	87/91 (96%)	85 (98%)	2 (2%)	45	69
3	M	87/91 (96%)	85 (98%)	2 (2%)	45	69
3	N	87/91 (96%)	85 (98%)	2 (2%)	45	69
All	All	1836/2058 (89%)	1800 (98%)	36 (2%)	50	73

All (36) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	25	ILE
1	A	52	CYS
1	A	155	THR
1	A	248	THR
1	A	277	CYS
1	A	305	CYS
1	A	444	MET
1	A	477	CYS
2	H	2	VAL
2	H	56	ILE
2	I	2	VAL
2	I	56	ILE
2	J	2	VAL
2	J	56	ILE
3	L	21	ILE
3	L	104	CYS
3	M	21	ILE
3	M	104	CYS

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Mol	Chain	Res	Type
3	N	21	ILE
3	N	104	CYS
1	B	25	ILE
1	B	52	CYS
1	B	155	THR
1	B	248	THR
1	B	277	CYS
1	B	305	CYS
1	B	444	MET
1	B	477	CYS
1	C	25	ILE
1	C	52	CYS
1	C	155	THR
1	C	248	THR
1	C	277	CYS
1	C	305	CYS
1	C	444	MET
1	C	477	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	295	GLN
1	A	357	ASN
1	A	376	GLN
1	A	434	GLN
2	H	92	ASN
2	I	92	ASN
2	J	59	HIS
2	J	92	ASN
1	B	295	GLN
1	B	357	ASN
1	B	376	GLN
1	B	434	GLN
1	C	295	GLN
1	C	357	ASN
1	C	376	GLN
1	C	434	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

33 monosaccharides are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	NAG	D	1	4,1	14,14,15	0.73	0	17,19,21	1.32	2 (11%)
4	NAG	D	2	4	14,14,15	0.72	0	17,19,21	1.31	2 (11%)
4	NAG	E	1	4,1	14,14,15	0.82	0	17,19,21	1.52	5 (29%)
4	NAG	E	2	4	14,14,15	0.70	0	17,19,21	0.82	0
4	NAG	F	1	4,1	14,14,15	0.73	0	17,19,21	0.76	0
4	NAG	F	2	4	14,14,15	0.72	0	17,19,21	0.86	0
5	NAG	G	1	5,1	14,14,15	0.67	0	17,19,21	1.39	2 (11%)
5	NAG	G	2	5	14,14,15	0.71	0	17,19,21	1.44	3 (17%)
5	BMA	G	3	5	11,11,12	0.88	0	15,15,17	2.00	3 (20%)
4	NAG	K	1	4,1	14,14,15	0.66	0	17,19,21	1.24	2 (11%)
4	NAG	K	2	4	14,14,15	0.68	0	17,19,21	0.84	0
4	NAG	O	1	4,1	14,14,15	0.72	0	17,19,21	1.32	2 (11%)
4	NAG	O	2	4	14,14,15	0.72	0	17,19,21	1.31	2 (11%)
4	NAG	P	1	4,1	14,14,15	0.84	0	17,19,21	1.51	5 (29%)
4	NAG	P	2	4	14,14,15	0.69	0	17,19,21	0.82	0
4	NAG	Q	1	4,1	14,14,15	0.73	0	17,19,21	0.76	0
4	NAG	Q	2	4	14,14,15	0.72	0	17,19,21	0.87	0
5	NAG	R	1	5,1	14,14,15	0.65	0	17,19,21	1.39	2 (11%)
5	NAG	R	2	5	14,14,15	0.71	0	17,19,21	1.44	3 (17%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	BMA	R	3	5	11,11,12	0.88	0	15,15,17	2.01	3 (20%)
4	NAG	S	1	4,1	14,14,15	0.67	0	17,19,21	1.25	2 (11%)
4	NAG	S	2	4	14,14,15	0.68	0	17,19,21	0.84	0
4	NAG	T	1	4,1	14,14,15	0.72	0	17,19,21	1.32	2 (11%)
4	NAG	T	2	4	14,14,15	0.70	0	17,19,21	1.30	2 (11%)
4	NAG	U	1	4,1	14,14,15	0.84	0	17,19,21	1.51	5 (29%)
4	NAG	U	2	4	14,14,15	0.70	0	17,19,21	0.83	0
4	NAG	V	1	4,1	14,14,15	0.72	0	17,19,21	0.75	0
4	NAG	V	2	4	14,14,15	0.72	0	17,19,21	0.87	0
5	NAG	W	1	5,1	14,14,15	0.67	0	17,19,21	1.39	2 (11%)
5	NAG	W	2	5	14,14,15	0.70	0	17,19,21	1.44	3 (17%)
5	BMA	W	3	5	11,11,12	0.89	0	15,15,17	2.01	3 (20%)
4	NAG	X	1	4,1	14,14,15	0.67	0	17,19,21	1.24	2 (11%)
4	NAG	X	2	4	14,14,15	0.67	0	17,19,21	0.84	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	D	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	D	2	4	-	2/6/23/26	0/1/1/1
4	NAG	E	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	E	2	4	-	0/6/23/26	0/1/1/1
4	NAG	F	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	F	2	4	-	1/6/23/26	0/1/1/1
5	NAG	G	1	5,1	-	1/6/23/26	0/1/1/1
5	NAG	G	2	5	-	2/6/23/26	0/1/1/1
5	BMA	G	3	5	-	2/2/19/22	0/1/1/1
4	NAG	K	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	K	2	4	-	1/6/23/26	0/1/1/1
4	NAG	O	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	O	2	4	-	2/6/23/26	0/1/1/1
4	NAG	P	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	P	2	4	-	0/6/23/26	0/1/1/1
4	NAG	Q	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	Q	2	4	-	0/6/23/26	0/1/1/1
5	NAG	R	1	5,1	-	1/6/23/26	0/1/1/1

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

There are no bond length outliers.

All (57) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	R	3	BMA	C1-O5-C5	5.36	119.38	112.19
5	W	3	BMA	C1-O5-C5	5.36	119.37	112.19
5	G	3	BMA	C1-O5-C5	5.32	119.31	112.19
5	G	1	NAG	C2-N2-C7	3.81	128.01	122.90
5	W	1	NAG	C2-N2-C7	3.79	127.98	122.90
5	R	1	NAG	C2-N2-C7	3.79	127.98	122.90
4	O	1	NAG	C2-N2-C7	3.57	127.68	122.90
4	T	1	NAG	C2-N2-C7	3.56	127.67	122.90
4	D	1	NAG	C2-N2-C7	3.56	127.67	122.90
4	E	1	NAG	C4-C3-C2	3.46	116.09	111.02
4	P	1	NAG	C4-C3-C2	3.45	116.08	111.02
4	U	1	NAG	C4-C3-C2	3.44	116.06	111.02
4	O	2	NAG	C2-N2-C7	3.34	127.38	122.90
4	K	1	NAG	C2-N2-C7	3.33	127.36	122.90
4	S	1	NAG	C2-N2-C7	3.32	127.36	122.90
4	T	2	NAG	C2-N2-C7	3.31	127.33	122.90
4	D	2	NAG	C2-N2-C7	3.31	127.33	122.90
4	X	1	NAG	C2-N2-C7	3.30	127.33	122.90
5	G	2	NAG	C2-N2-C7	3.13	127.10	122.90
5	R	2	NAG	C2-N2-C7	3.10	127.06	122.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	W	2	NAG	C2-N2-C7	3.10	127.05	122.90
5	G	3	BMA	C3-C4-C5	2.87	115.43	110.23
5	R	3	BMA	C3-C4-C5	2.86	115.42	110.23
5	W	3	BMA	C3-C4-C5	2.86	115.42	110.23
5	R	1	NAG	O5-C1-C2	-2.77	107.00	111.29
5	W	1	NAG	O5-C1-C2	-2.76	107.01	111.29
5	G	1	NAG	O5-C1-C2	-2.75	107.03	111.29
5	R	3	BMA	C2-C3-C4	2.64	115.51	110.86
5	W	3	BMA	C2-C3-C4	2.64	115.50	110.86
4	O	2	NAG	C1-O5-C5	2.64	115.72	112.19
5	G	3	BMA	C2-C3-C4	2.63	115.49	110.86
4	D	2	NAG	C1-O5-C5	2.63	115.71	112.19
4	P	1	NAG	O5-C1-C2	-2.60	107.27	111.29
4	T	2	NAG	C1-O5-C5	2.59	115.66	112.19
4	E	1	NAG	O5-C1-C2	-2.59	107.29	111.29
4	U	1	NAG	O5-C1-C2	-2.59	107.29	111.29
5	W	2	NAG	C1-O5-C5	2.41	115.42	112.19
5	R	2	NAG	C1-O5-C5	2.41	115.41	112.19
5	G	2	NAG	C1-O5-C5	2.41	115.41	112.19
4	D	1	NAG	O5-C1-C2	-2.23	107.84	111.29
4	T	1	NAG	O5-C1-C2	-2.23	107.84	111.29
4	O	1	NAG	O5-C1-C2	-2.21	107.87	111.29
5	W	2	NAG	O5-C1-C2	-2.15	107.96	111.29
4	E	1	NAG	C1-O5-C5	-2.13	109.33	112.19
5	G	2	NAG	O5-C1-C2	-2.12	108.01	111.29
5	R	2	NAG	O5-C1-C2	-2.12	108.01	111.29
4	U	1	NAG	O4-C4-C3	-2.11	105.39	110.38
4	U	1	NAG	C1-O5-C5	-2.11	109.36	112.19
4	P	1	NAG	O4-C4-C3	-2.11	105.41	110.38
4	E	1	NAG	O4-C4-C3	-2.10	105.44	110.38
4	E	1	NAG	C2-N2-C7	2.08	125.69	122.90
4	P	1	NAG	C2-N2-C7	2.08	125.69	122.90
4	K	1	NAG	O5-C1-C2	-2.07	108.09	111.29
4	U	1	NAG	C2-N2-C7	2.07	125.67	122.90
4	S	1	NAG	O5-C1-C2	-2.06	108.11	111.29
4	P	1	NAG	C1-O5-C5	-2.05	109.44	112.19
4	X	1	NAG	O5-C1-C2	-2.04	108.13	111.29

There are no chirality outliers.

All (38) torsion outliers are listed below:

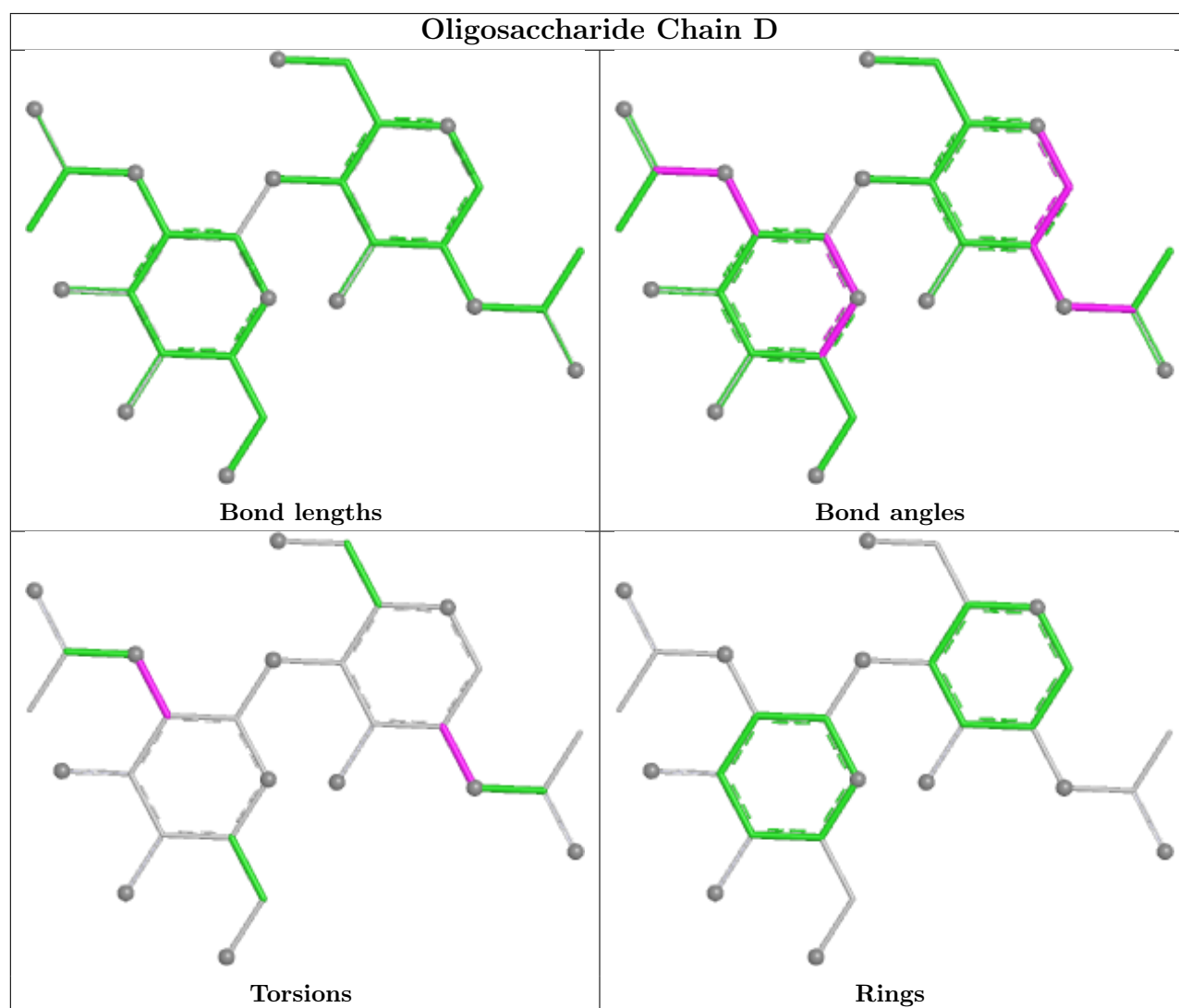
Mol	Chain	Res	Type	Atoms
5	G	3	BMA	O5-C5-C6-O6
5	R	3	BMA	O5-C5-C6-O6
5	W	3	BMA	O5-C5-C6-O6
5	G	3	BMA	C4-C5-C6-O6
5	R	3	BMA	C4-C5-C6-O6
5	W	3	BMA	C4-C5-C6-O6
4	K	2	NAG	O5-C5-C6-O6
4	S	2	NAG	O5-C5-C6-O6
4	X	2	NAG	O5-C5-C6-O6
4	D	1	NAG	C3-C2-N2-C7
4	D	2	NAG	C3-C2-N2-C7
4	K	1	NAG	C3-C2-N2-C7
4	O	1	NAG	C3-C2-N2-C7
4	O	2	NAG	C3-C2-N2-C7
4	S	1	NAG	C3-C2-N2-C7
4	T	1	NAG	C3-C2-N2-C7
4	T	2	NAG	C3-C2-N2-C7
4	X	1	NAG	C3-C2-N2-C7
5	G	1	NAG	C3-C2-N2-C7
5	G	2	NAG	C3-C2-N2-C7
5	R	1	NAG	C3-C2-N2-C7
5	R	2	NAG	C3-C2-N2-C7
5	W	1	NAG	C3-C2-N2-C7
5	W	2	NAG	C3-C2-N2-C7
4	D	1	NAG	C1-C2-N2-C7
4	D	2	NAG	C1-C2-N2-C7
4	F	2	NAG	C1-C2-N2-C7
4	K	1	NAG	C1-C2-N2-C7
4	O	1	NAG	C1-C2-N2-C7
4	O	2	NAG	C1-C2-N2-C7
4	S	1	NAG	C1-C2-N2-C7
4	T	1	NAG	C1-C2-N2-C7
4	T	2	NAG	C1-C2-N2-C7
4	V	2	NAG	C1-C2-N2-C7
4	X	1	NAG	C1-C2-N2-C7
5	G	2	NAG	C1-C2-N2-C7
5	R	2	NAG	C1-C2-N2-C7
5	W	2	NAG	C1-C2-N2-C7

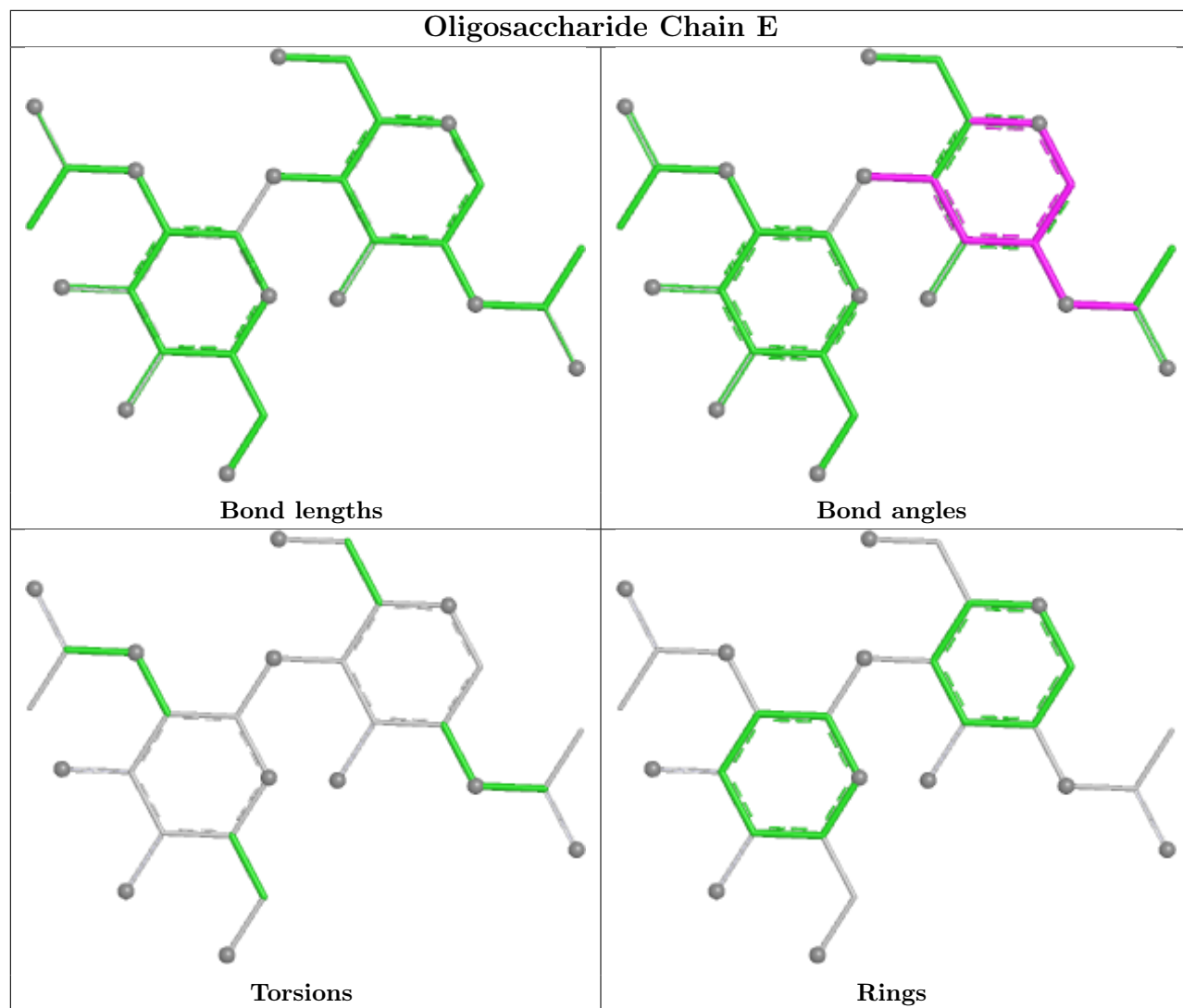
There are no ring outliers.

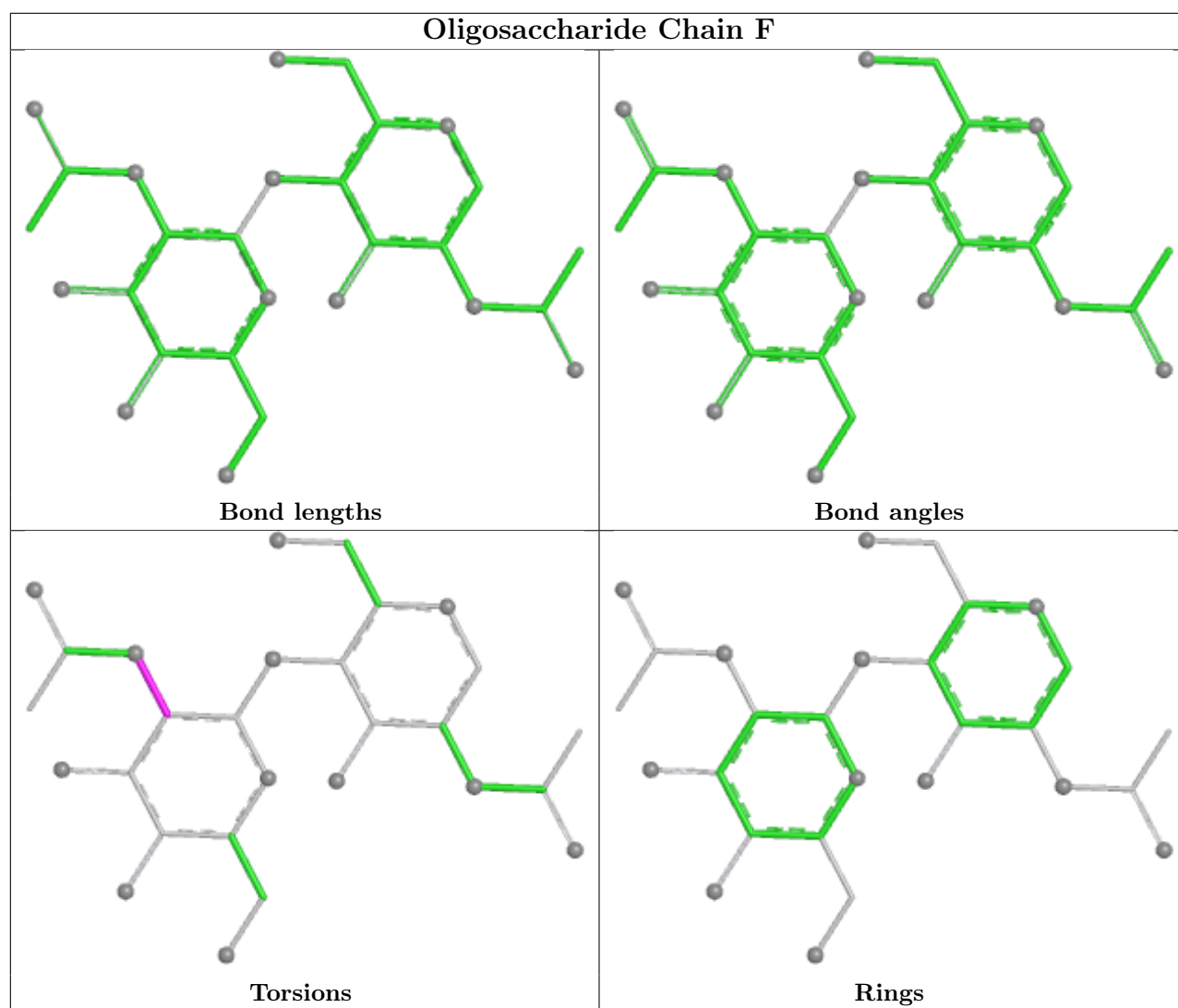
9 monomers are involved in 11 short contacts:

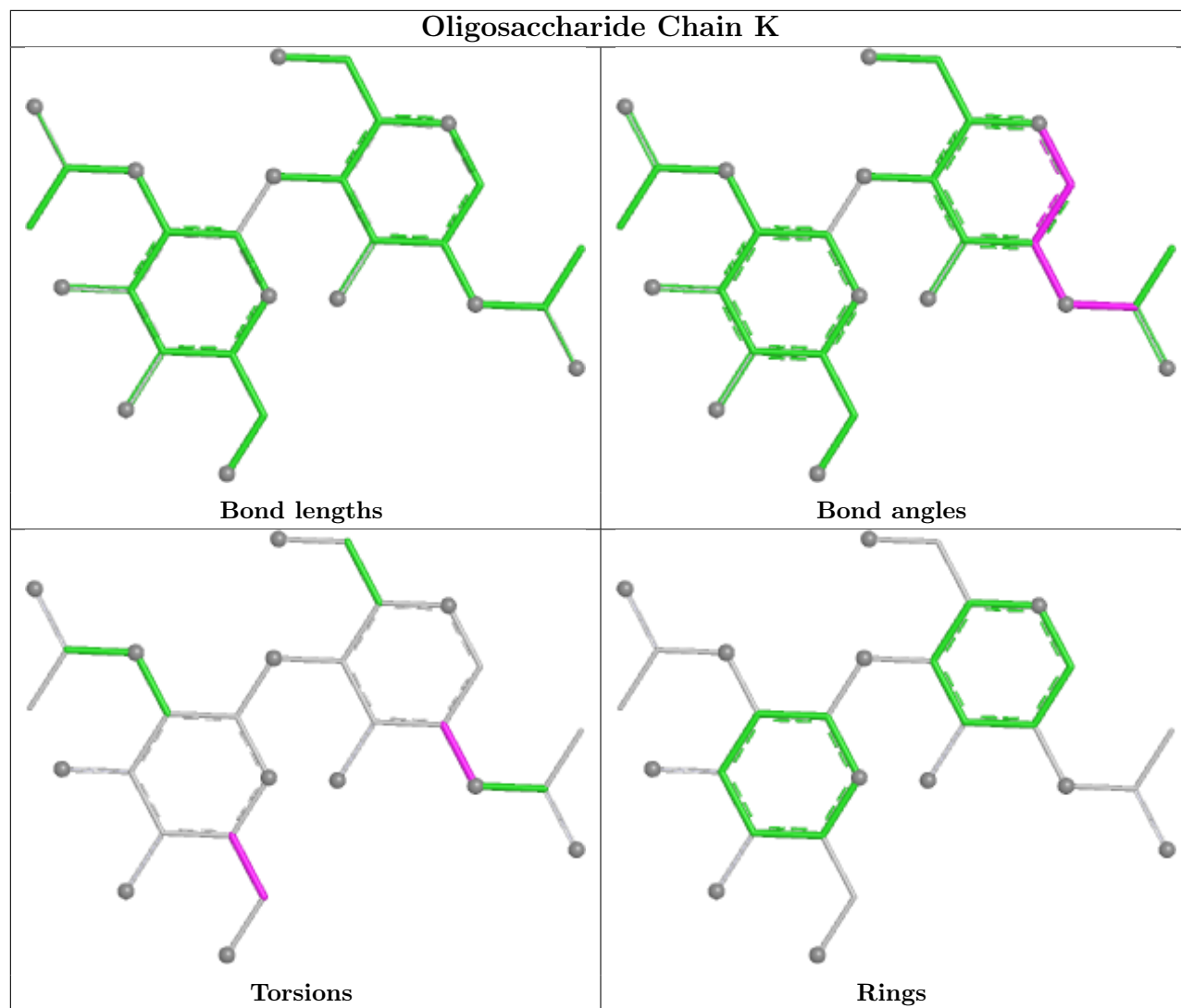
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	V	1	NAG	1	0
4	Q	1	NAG	1	0
4	V	2	NAG	1	0
4	F	2	NAG	1	0
4	U	1	NAG	2	0
4	Q	2	NAG	1	0
4	F	1	NAG	1	0
4	P	1	NAG	1	0
4	E	1	NAG	2	0

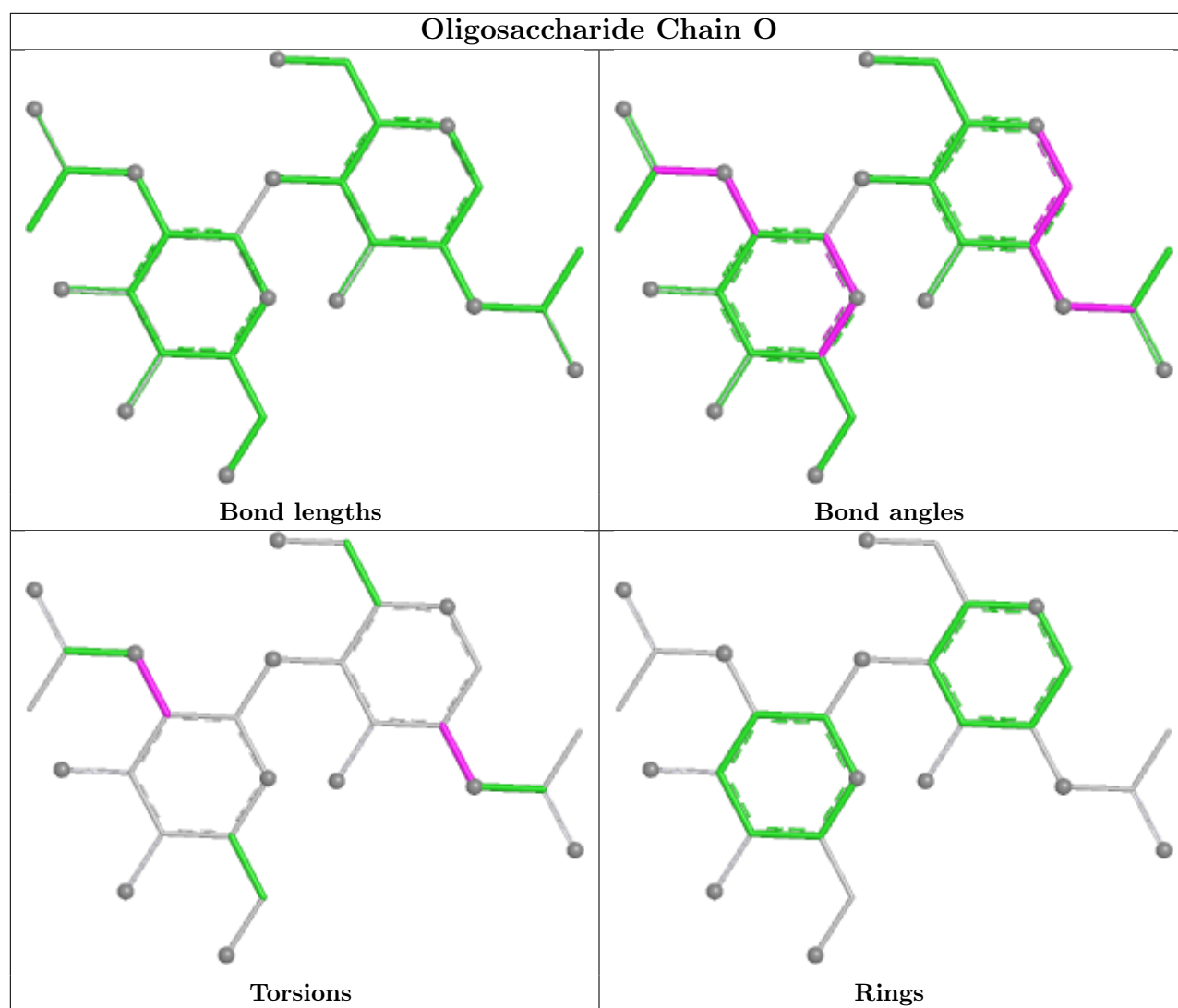
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

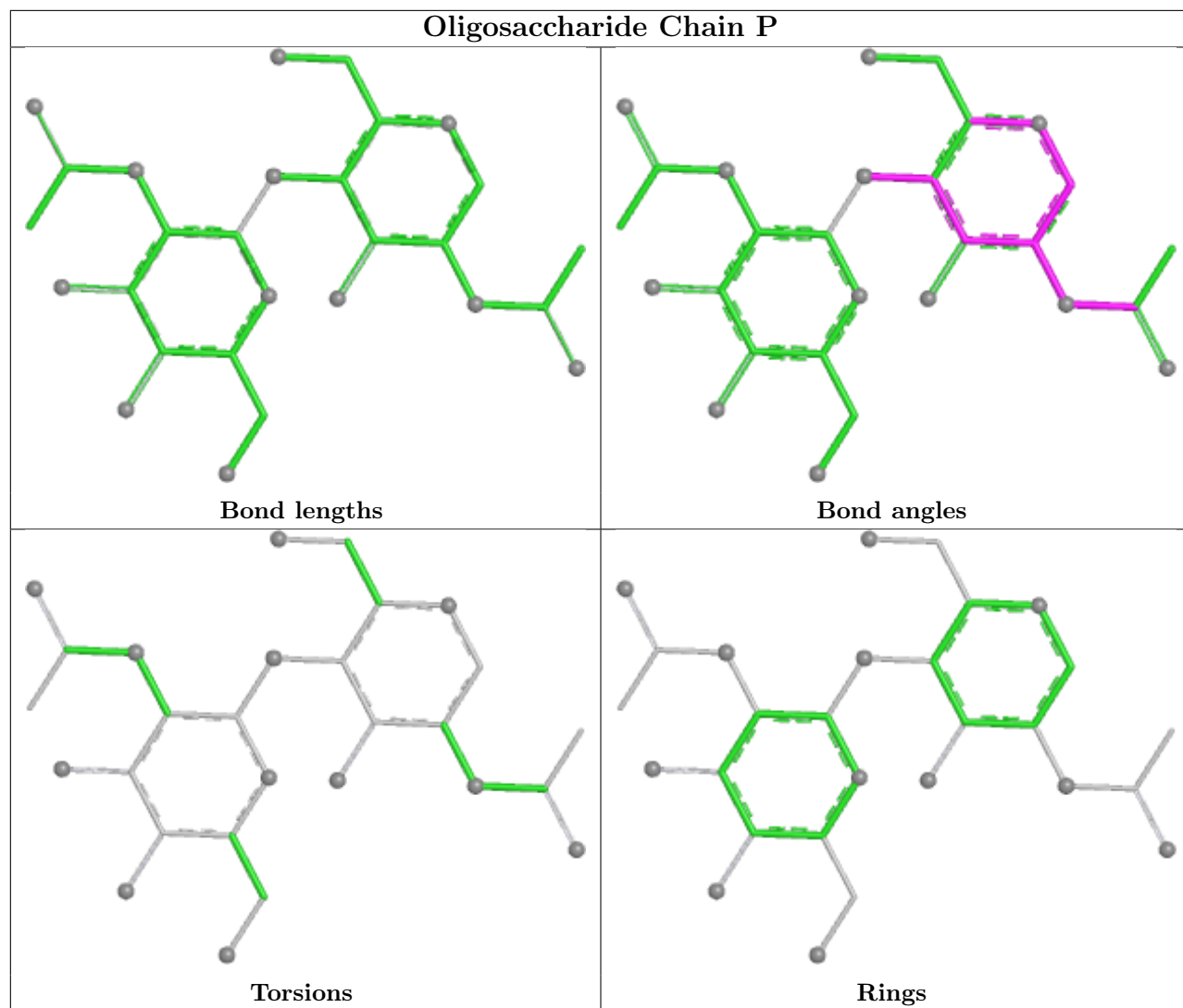


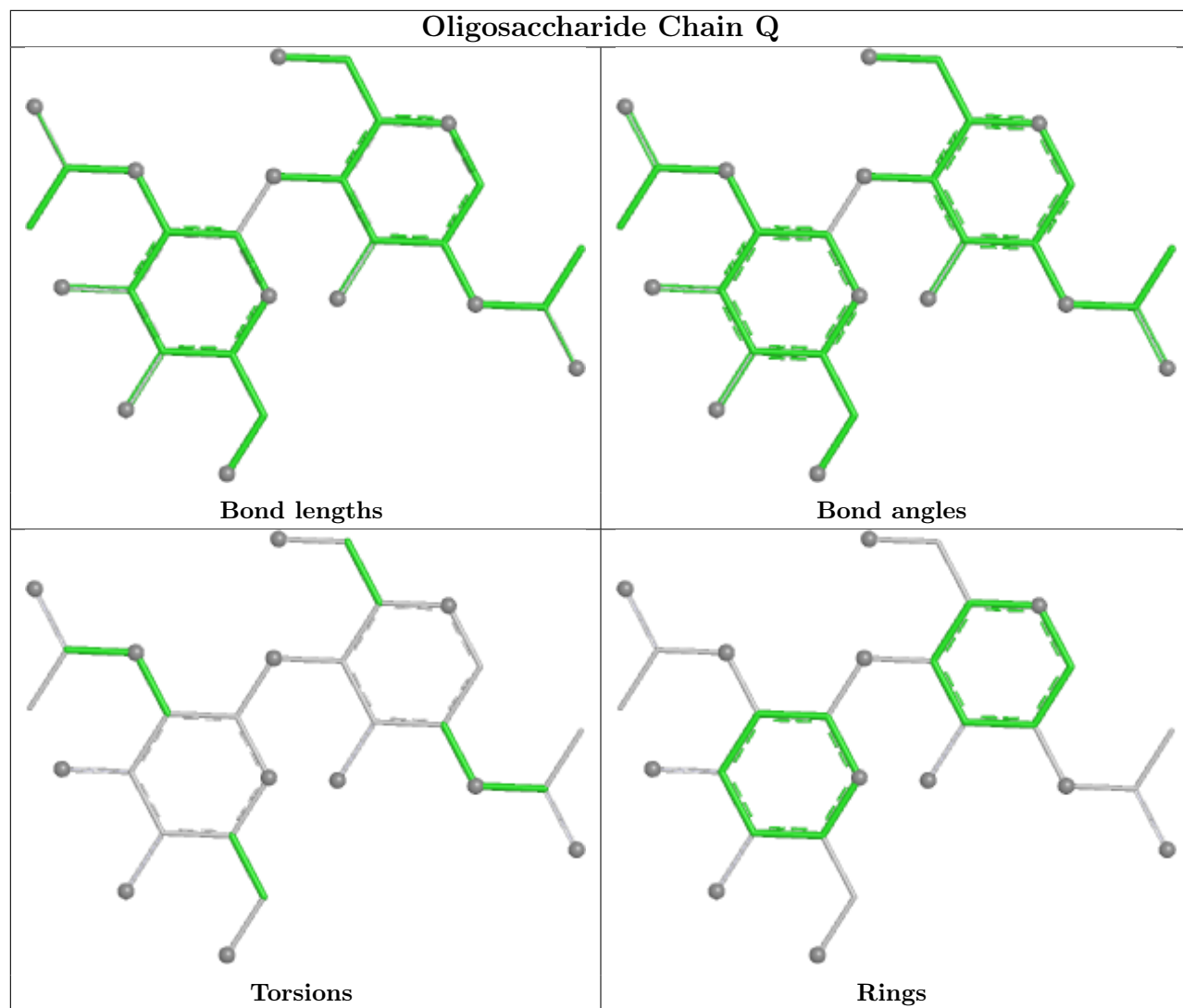


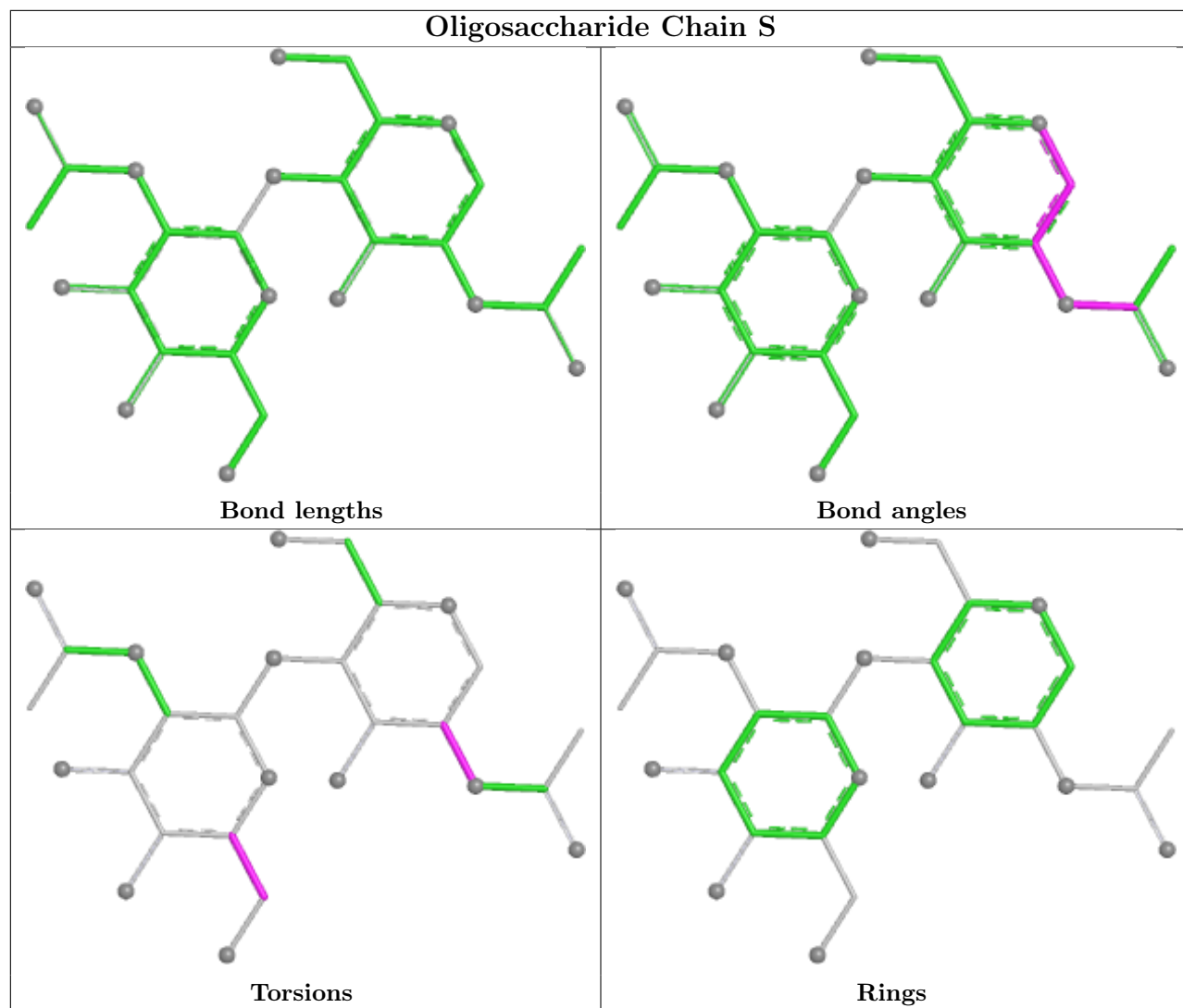


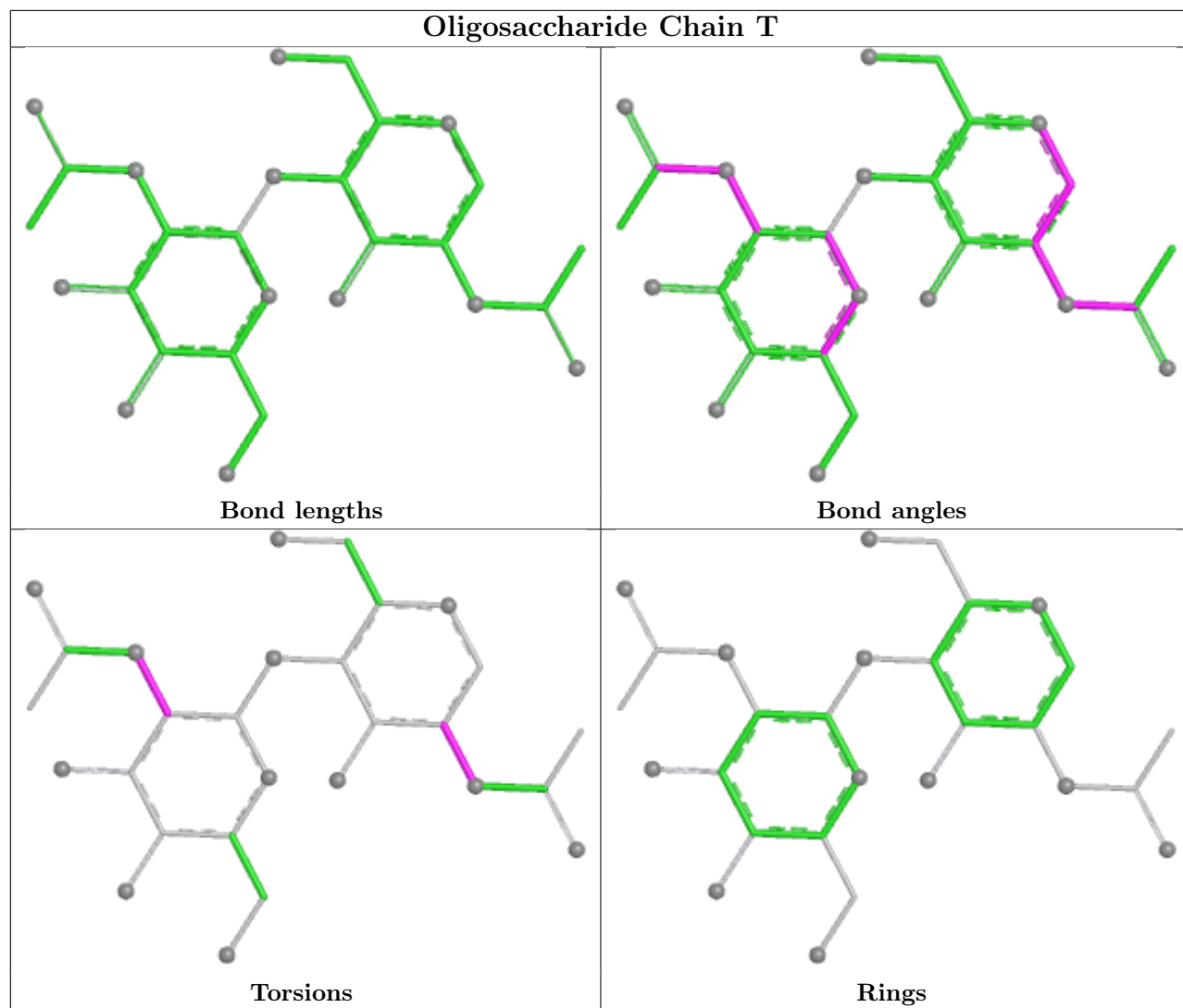


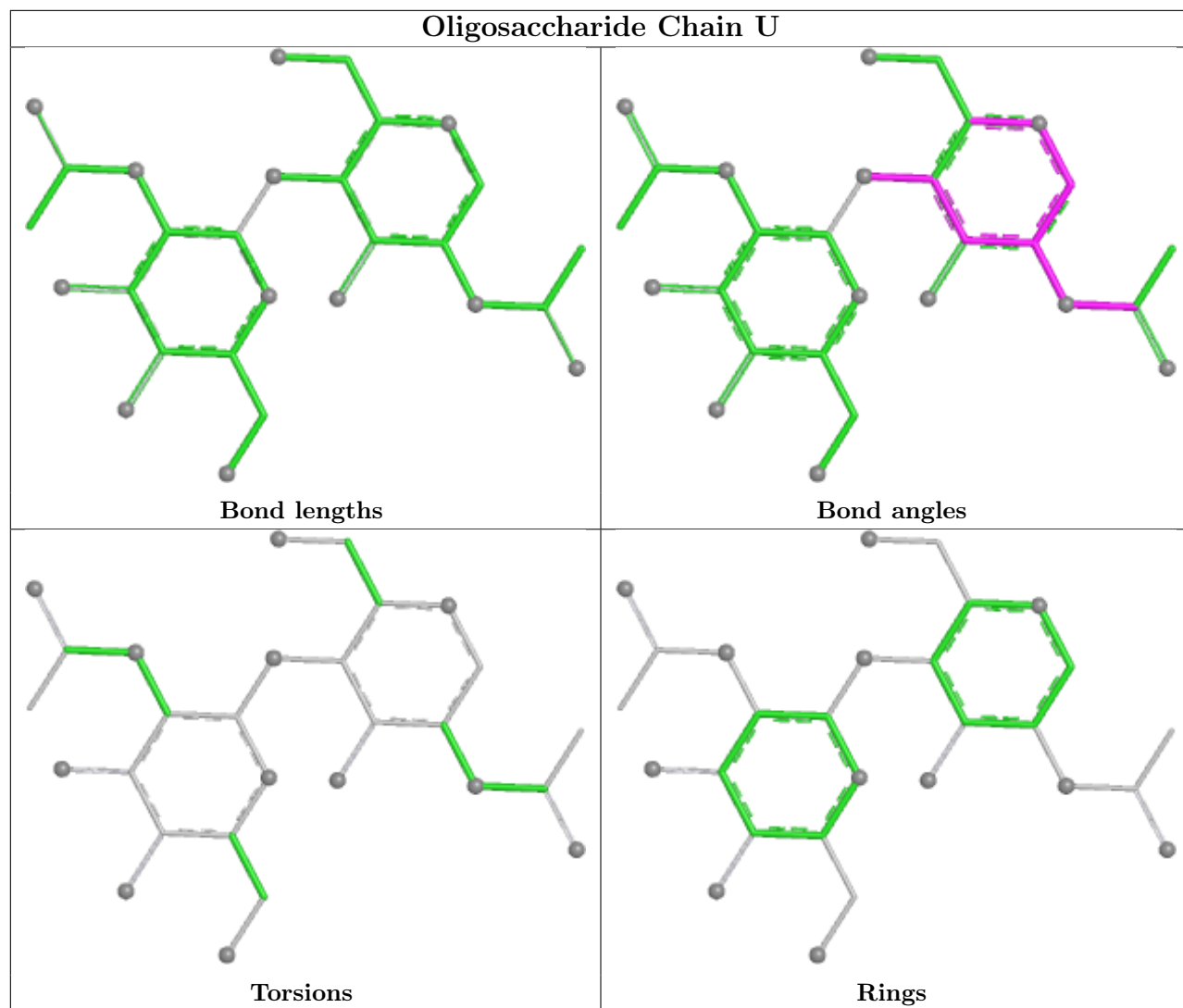


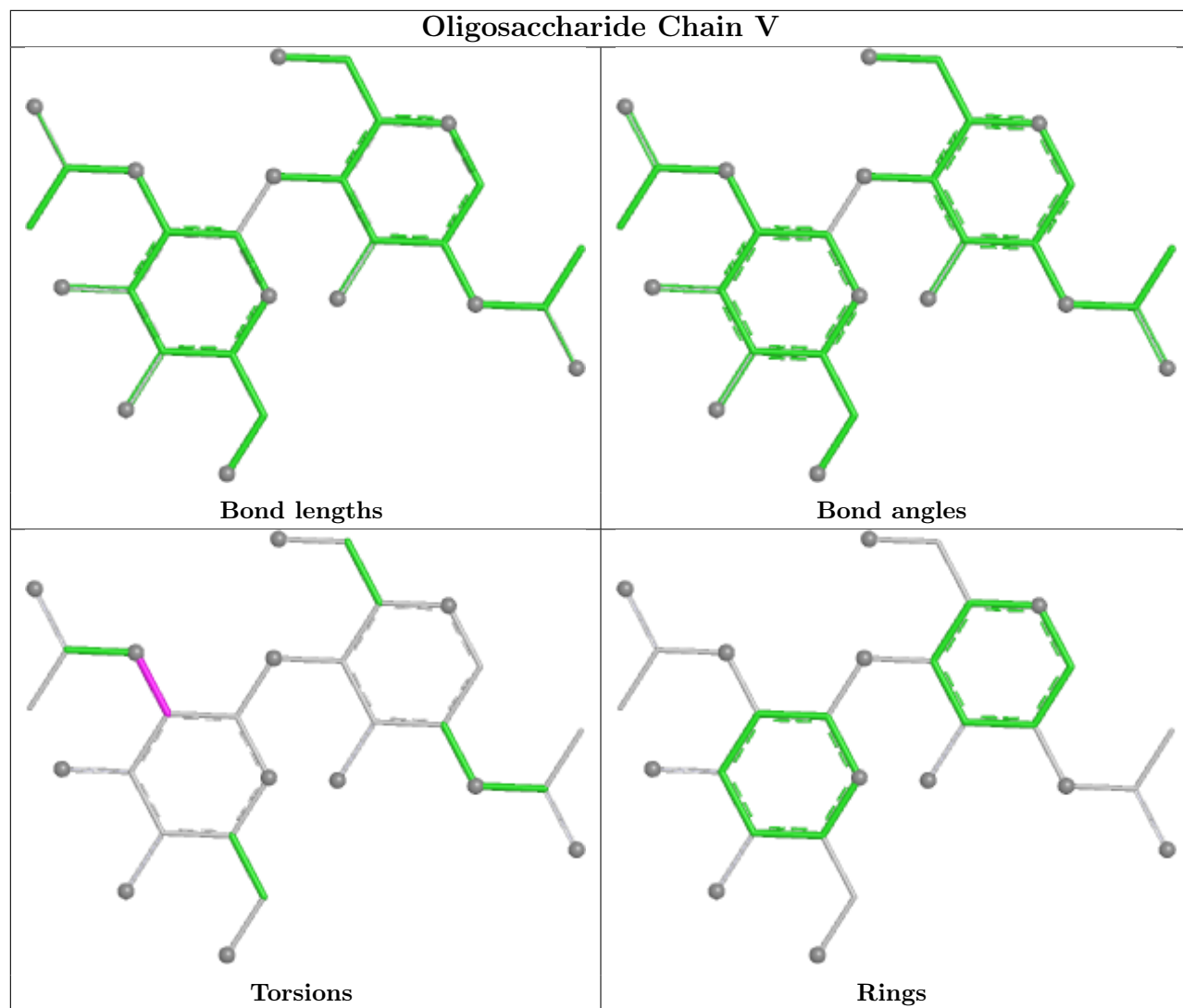


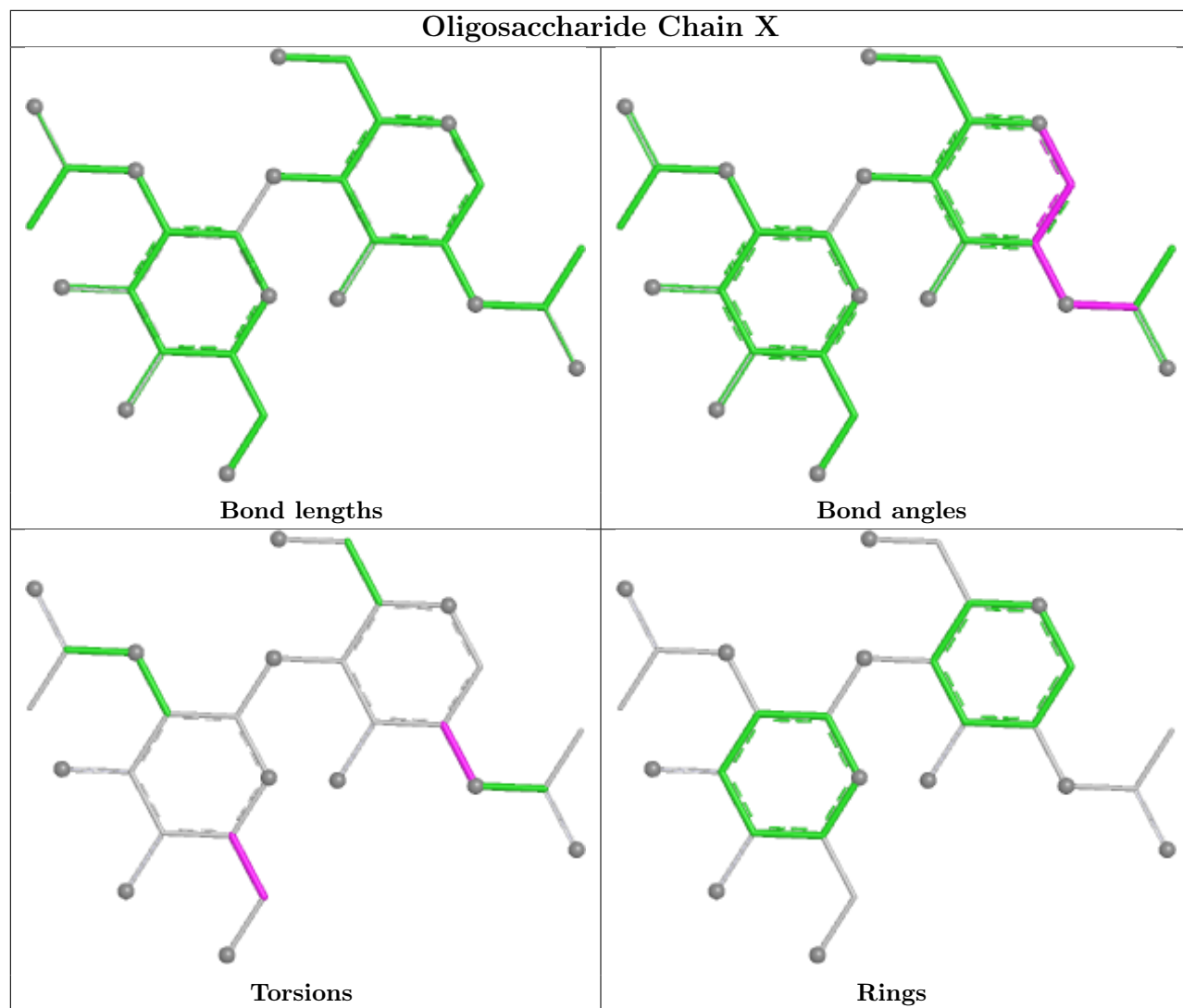


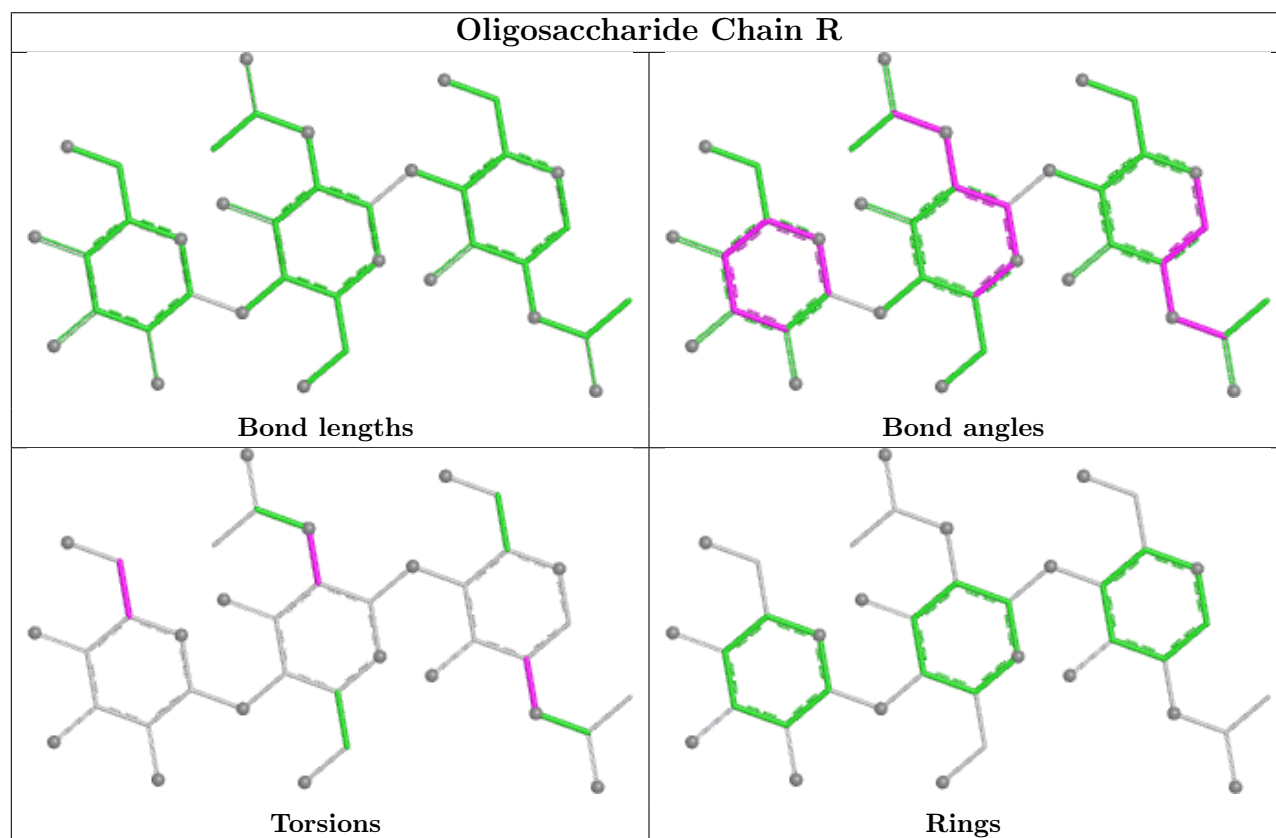
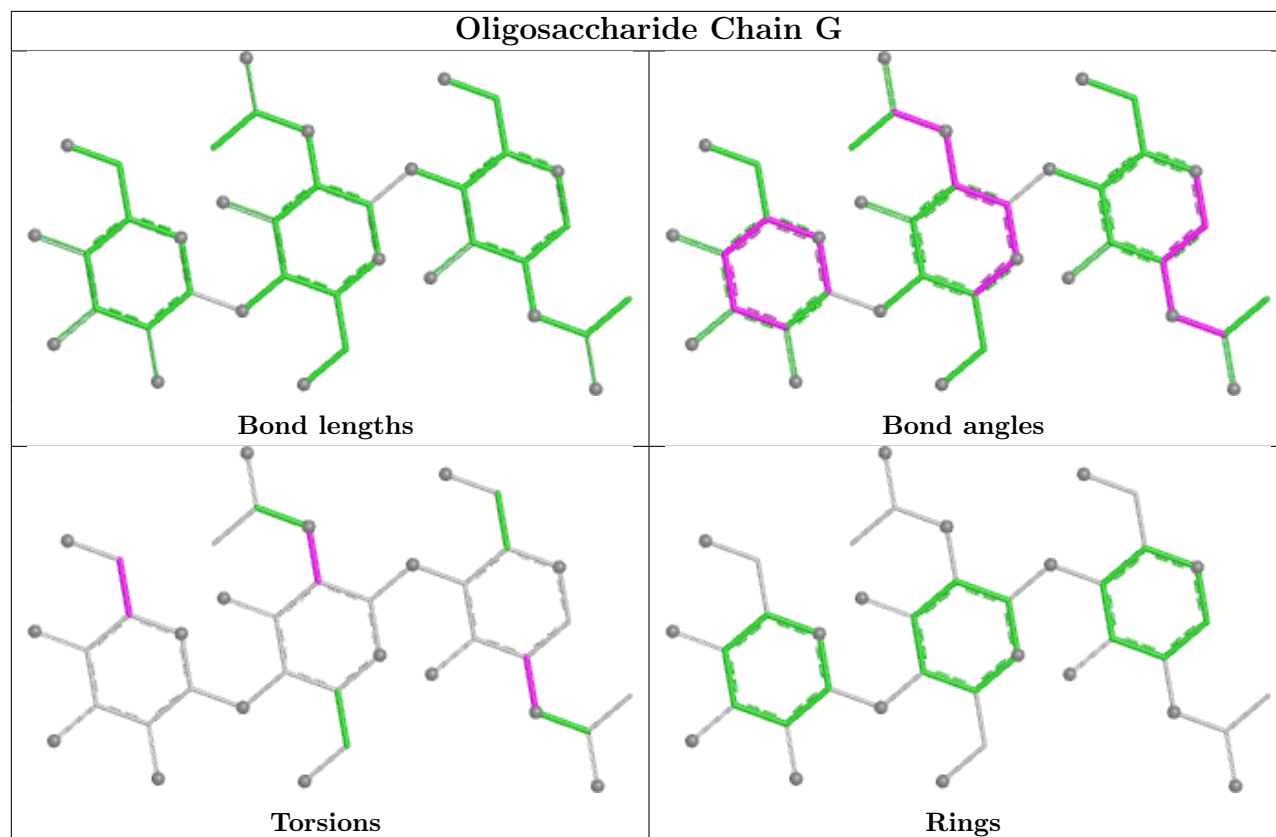


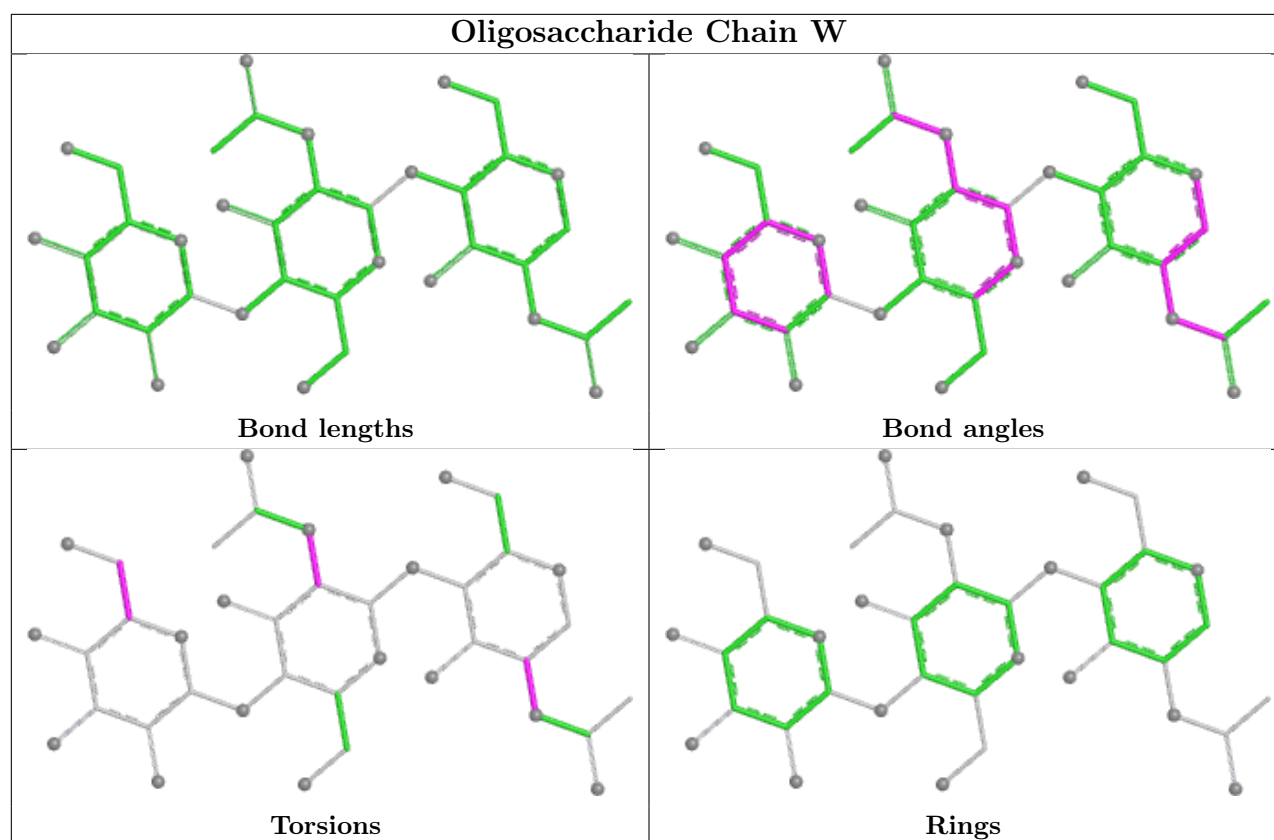












5.6 Ligand geometry [i](#)

15 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
6	NAG	C	605	1	14,14,15	0.71	0	17,19,21	2.34	4 (23%)
6	NAG	B	604	1	14,14,15	0.69	0	17,19,21	1.40	2 (11%)
6	NAG	C	603	1	14,14,15	0.70	0	17,19,21	0.74	0
6	NAG	A	604	1	14,14,15	0.69	0	17,19,21	1.39	2 (11%)
6	NAG	B	603	1	14,14,15	0.70	0	17,19,21	0.74	0
6	NAG	C	602	1	14,14,15	0.73	0	17,19,21	0.77	0
6	NAG	C	601	1	14,14,15	0.73	0	17,19,21	0.88	0
6	NAG	A	603	1	14,14,15	0.71	0	17,19,21	0.74	0
6	NAG	B	605	1	14,14,15	0.71	0	17,19,21	2.34	4 (23%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	NAG	B	602	1	14,14,15	0.72	0	17,19,21	0.77	0
6	NAG	A	601	1	14,14,15	0.72	0	17,19,21	0.87	0
6	NAG	B	601	1	14,14,15	0.73	0	17,19,21	0.87	0
6	NAG	A	602	1	14,14,15	0.73	0	17,19,21	0.77	0
6	NAG	A	605	1	14,14,15	0.72	0	17,19,21	2.34	4 (23%)
6	NAG	C	604	1	14,14,15	0.68	0	17,19,21	1.39	2 (11%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	C	605	1	-	4/6/23/26	0/1/1/1
6	NAG	B	604	1	-	3/6/23/26	0/1/1/1
6	NAG	C	603	1	-	0/6/23/26	0/1/1/1
6	NAG	A	604	1	-	3/6/23/26	0/1/1/1
6	NAG	B	603	1	-	0/6/23/26	0/1/1/1
6	NAG	C	602	1	-	0/6/23/26	0/1/1/1
6	NAG	C	601	1	-	0/6/23/26	0/1/1/1
6	NAG	A	603	1	-	0/6/23/26	0/1/1/1
6	NAG	B	605	1	-	4/6/23/26	0/1/1/1
6	NAG	B	602	1	-	0/6/23/26	0/1/1/1
6	NAG	A	601	1	-	0/6/23/26	0/1/1/1
6	NAG	B	601	1	-	0/6/23/26	0/1/1/1
6	NAG	A	602	1	-	0/6/23/26	0/1/1/1
6	NAG	A	605	1	-	4/6/23/26	0/1/1/1
6	NAG	C	604	1	-	3/6/23/26	0/1/1/1

There are no bond length outliers.

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	605	NAG	C2-N2-C7	8.12	133.78	122.90
6	C	605	NAG	C2-N2-C7	8.10	133.75	122.90
6	B	605	NAG	C2-N2-C7	8.09	133.74	122.90
6	B	604	NAG	C1-O5-C5	3.56	116.95	112.19
6	A	604	NAG	C1-O5-C5	3.52	116.91	112.19
6	C	604	NAG	C1-O5-C5	3.52	116.90	112.19
6	A	604	NAG	C2-N2-C7	3.10	127.06	122.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	C	604	NAG	C2-N2-C7	3.09	127.03	122.90
6	B	604	NAG	C2-N2-C7	3.06	127.01	122.90
6	C	605	NAG	C1-C2-N2	2.60	114.53	110.43
6	B	605	NAG	C1-C2-N2	2.60	114.53	110.43
6	A	605	NAG	C1-C2-N2	2.58	114.50	110.43
6	A	605	NAG	O5-C1-C2	-2.33	107.69	111.29
6	C	605	NAG	O5-C1-C2	-2.32	107.69	111.29
6	B	605	NAG	O5-C1-C2	-2.29	107.75	111.29
6	C	605	NAG	C8-C7-N2	2.21	119.79	116.12
6	B	605	NAG	C8-C7-N2	2.21	119.78	116.12
6	A	605	NAG	C8-C7-N2	2.20	119.76	116.12

There are no chirality outliers.

All (21) torsion outliers are listed below:

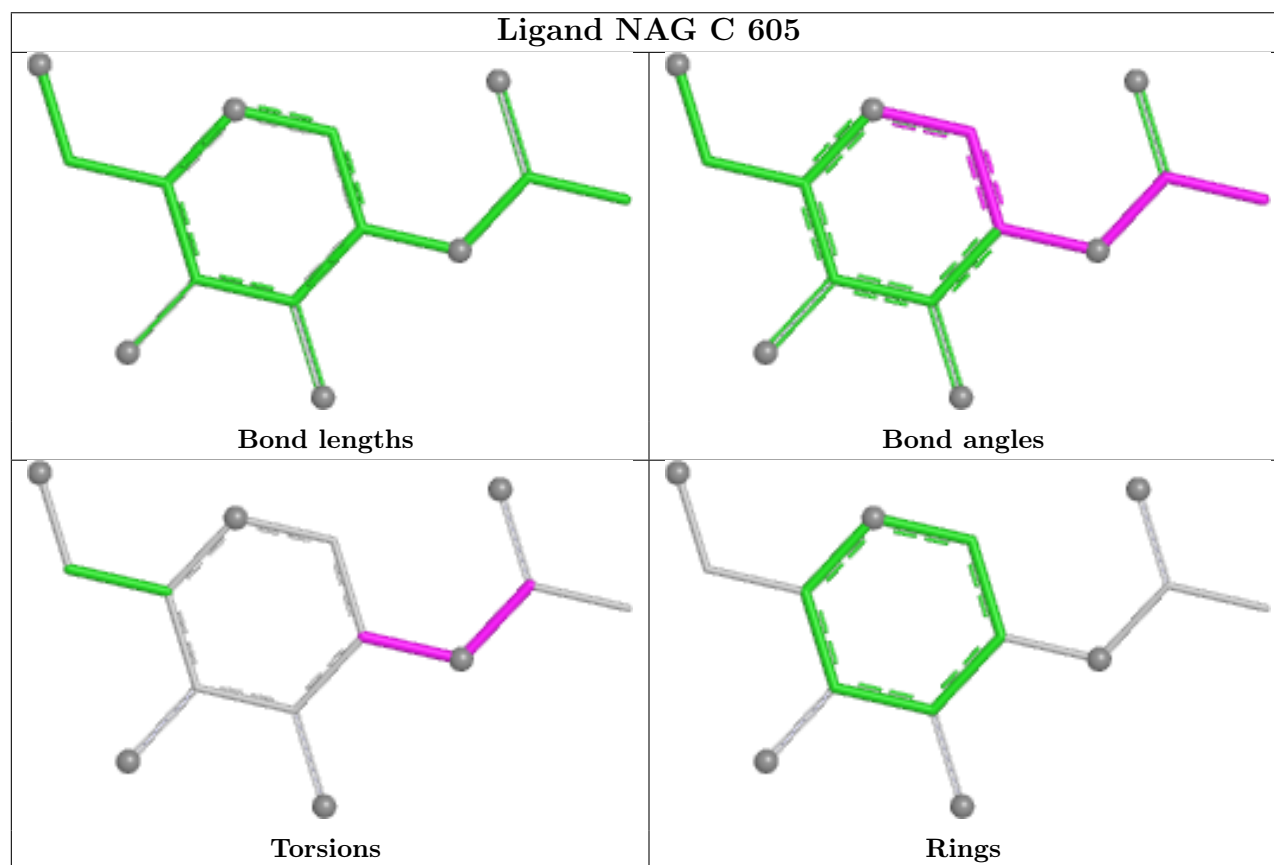
Mol	Chain	Res	Type	Atoms
6	A	605	NAG	C8-C7-N2-C2
6	A	605	NAG	O7-C7-N2-C2
6	B	605	NAG	C8-C7-N2-C2
6	B	605	NAG	O7-C7-N2-C2
6	C	605	NAG	C8-C7-N2-C2
6	C	605	NAG	O7-C7-N2-C2
6	A	604	NAG	O5-C5-C6-O6
6	B	604	NAG	O5-C5-C6-O6
6	C	604	NAG	O5-C5-C6-O6
6	A	604	NAG	C3-C2-N2-C7
6	B	604	NAG	C3-C2-N2-C7
6	C	604	NAG	C3-C2-N2-C7
6	A	604	NAG	C1-C2-N2-C7
6	A	605	NAG	C1-C2-N2-C7
6	B	604	NAG	C1-C2-N2-C7
6	B	605	NAG	C1-C2-N2-C7
6	C	604	NAG	C1-C2-N2-C7
6	C	605	NAG	C1-C2-N2-C7
6	A	605	NAG	C3-C2-N2-C7
6	B	605	NAG	C3-C2-N2-C7
6	C	605	NAG	C3-C2-N2-C7

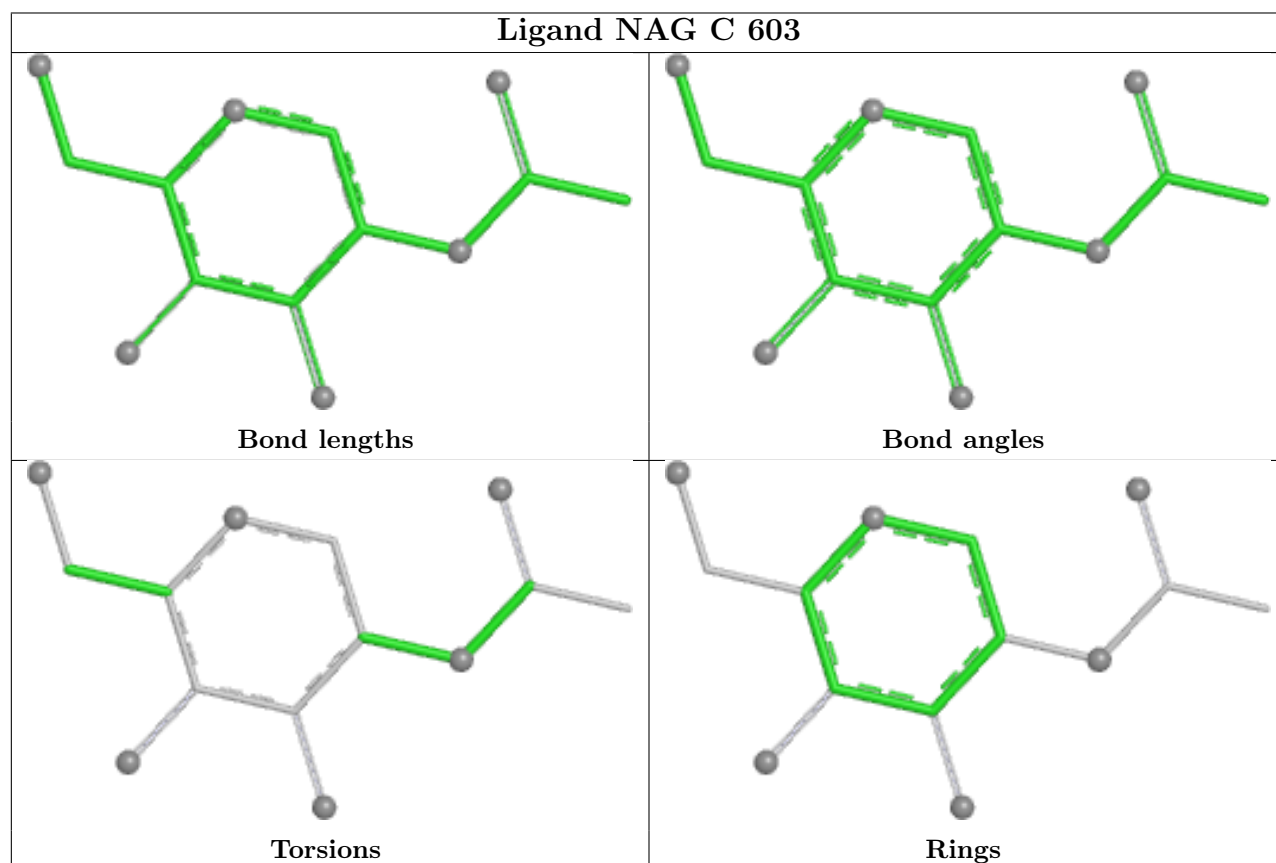
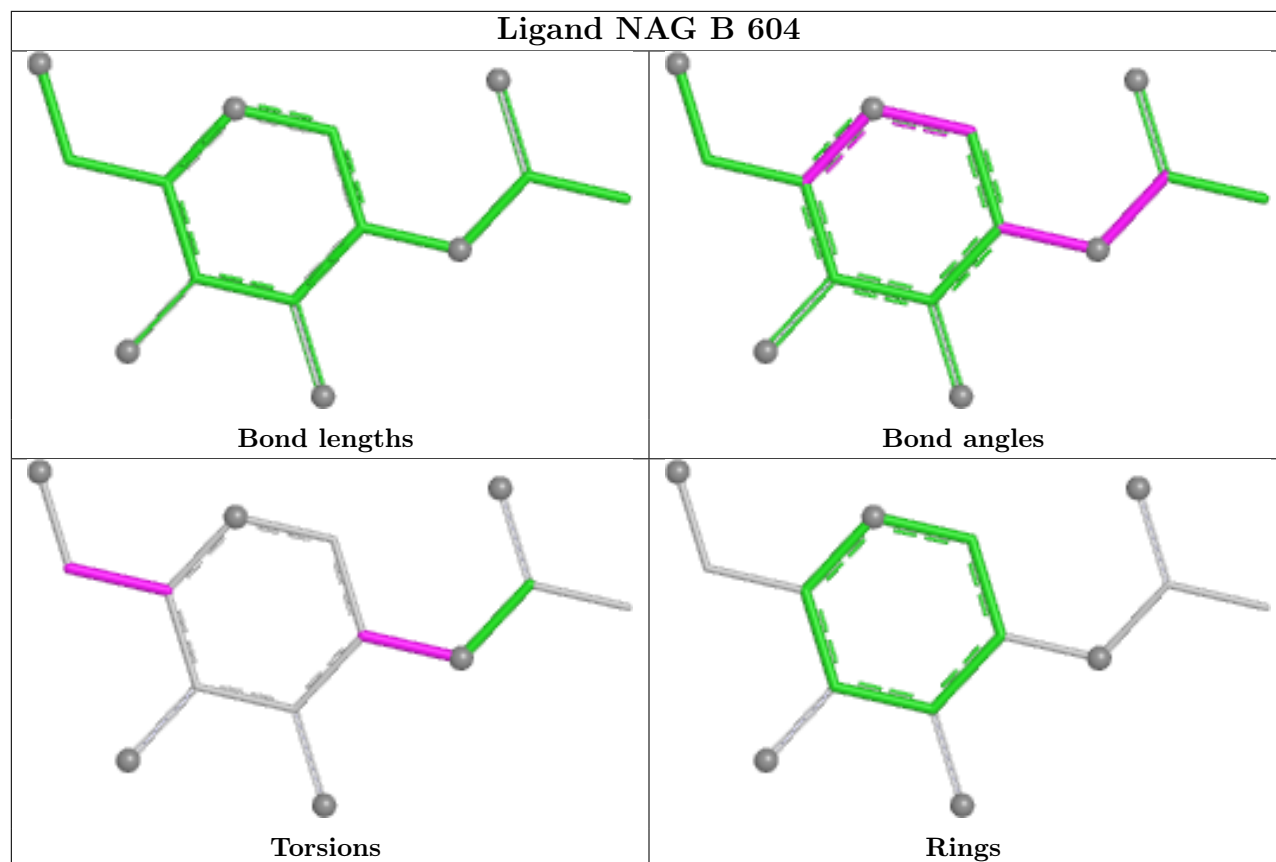
There are no ring outliers.

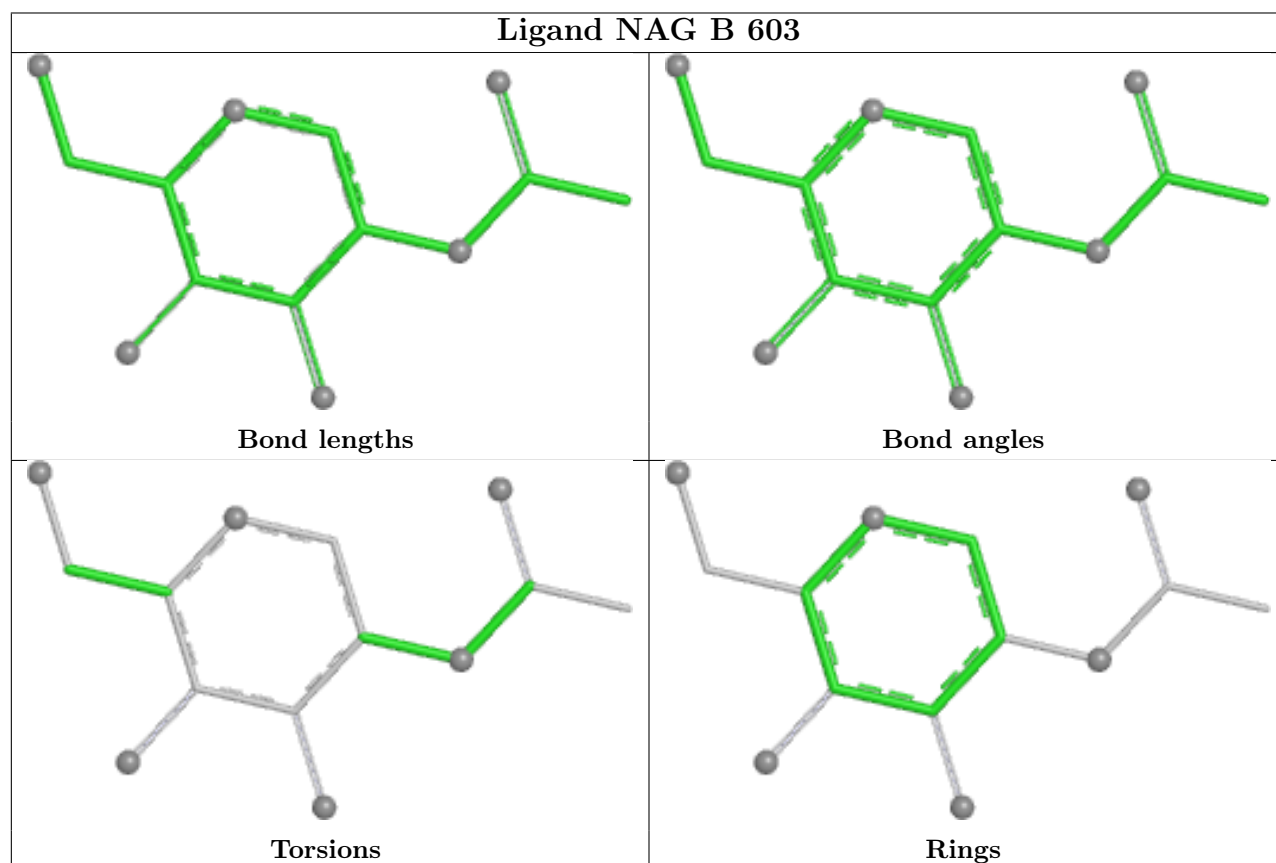
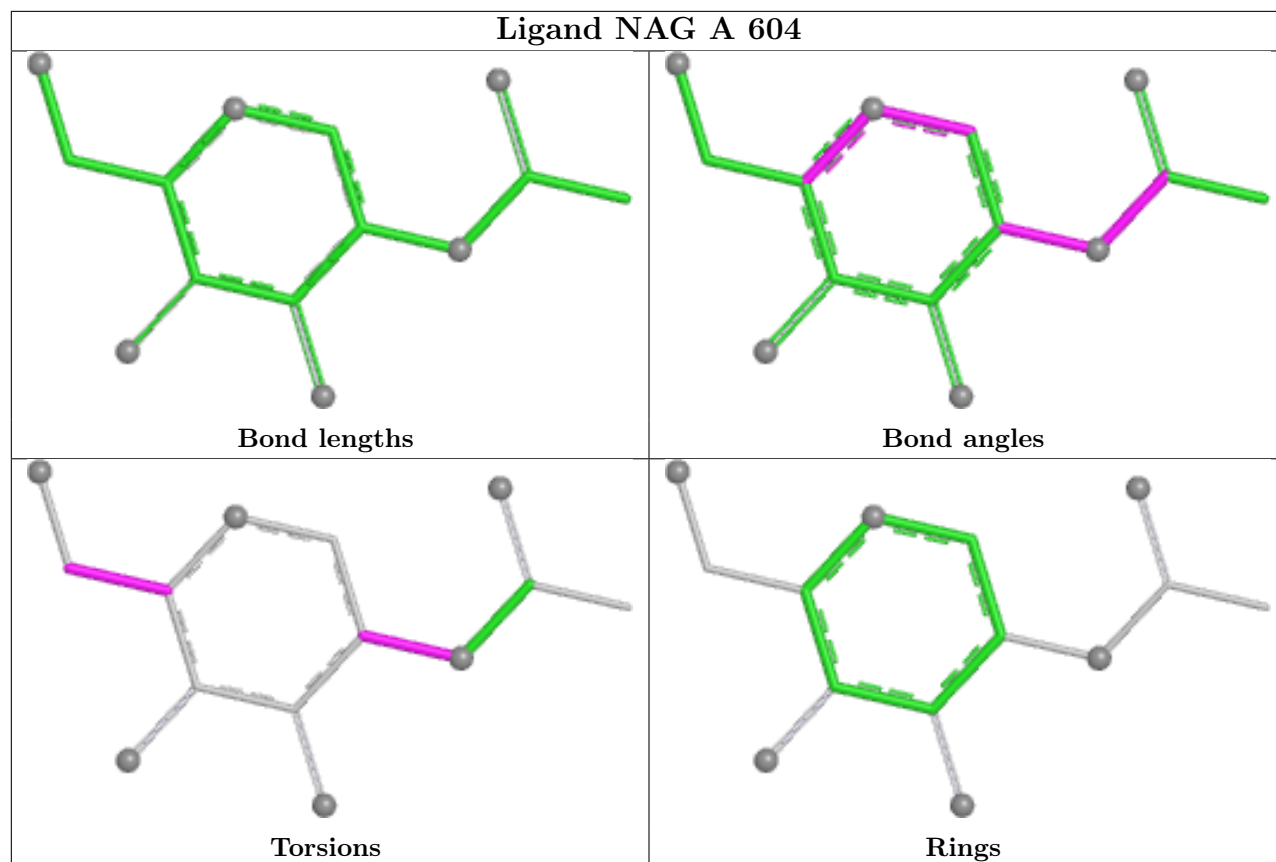
2 monomers are involved in 2 short contacts:

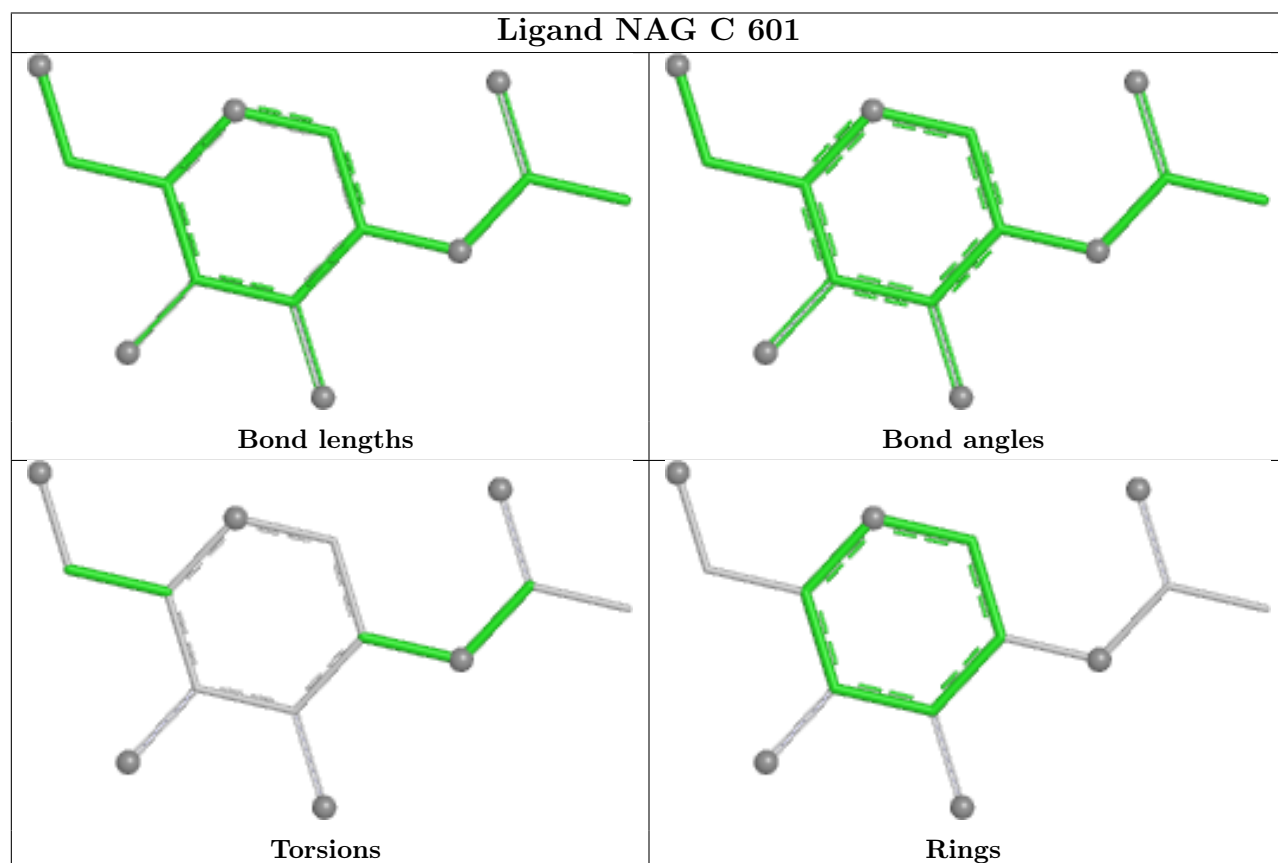
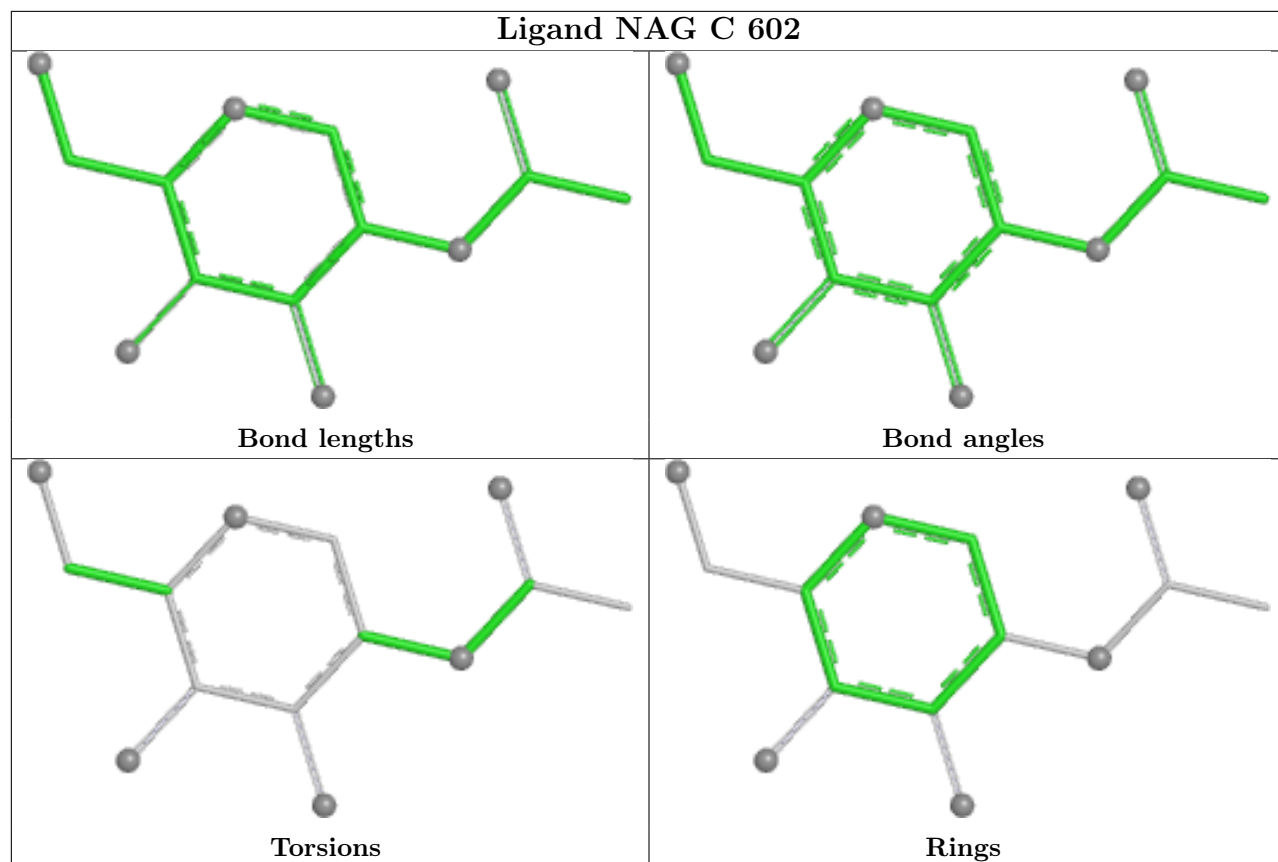
Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	B	604	NAG	1	0
6	C	604	NAG	1	0

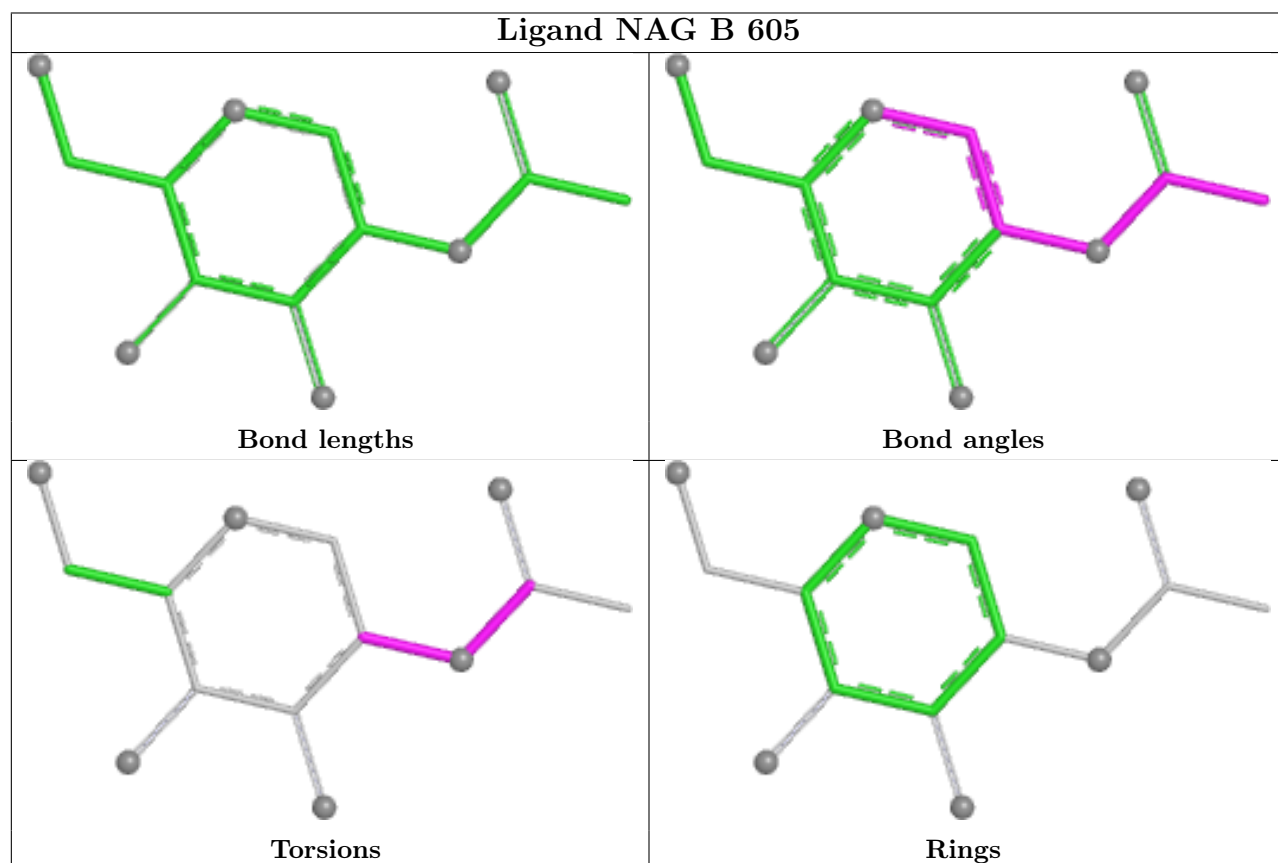
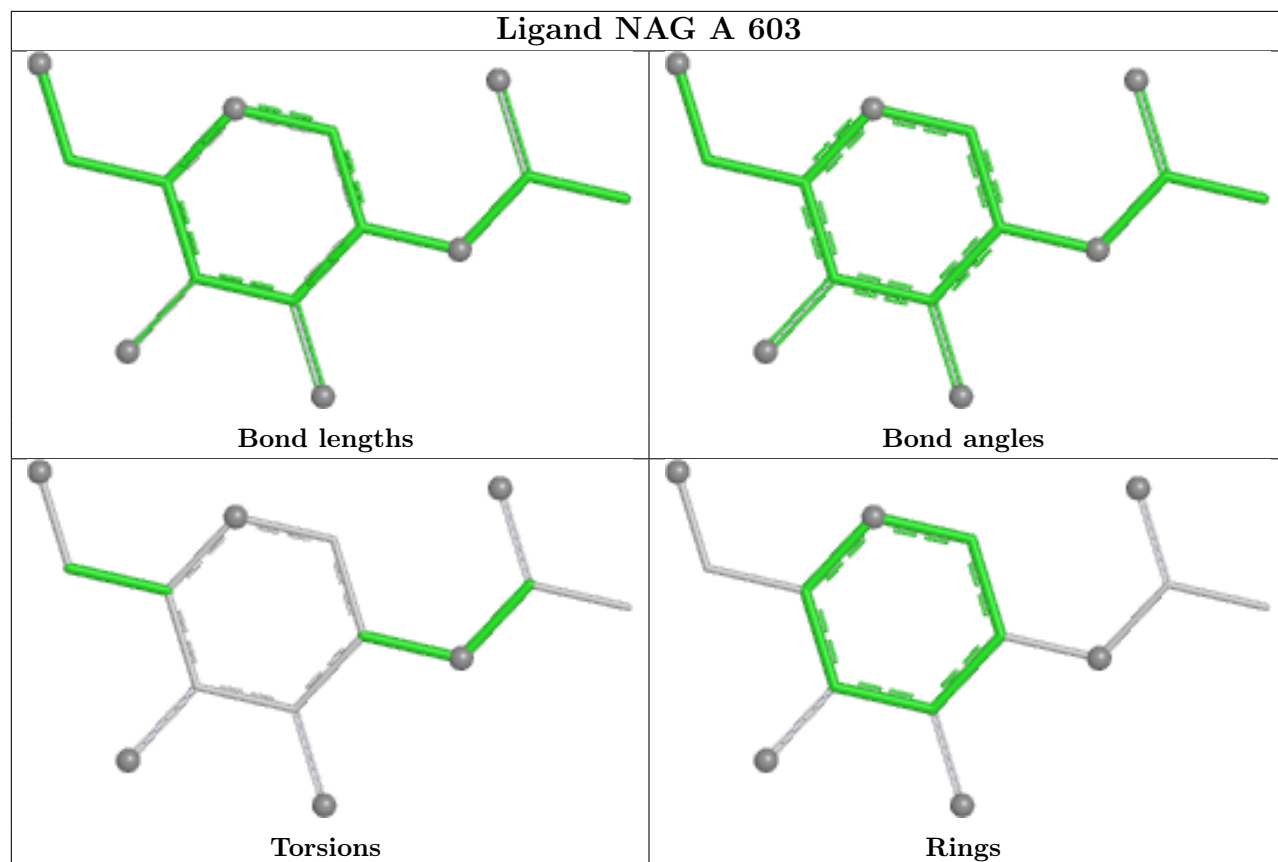
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

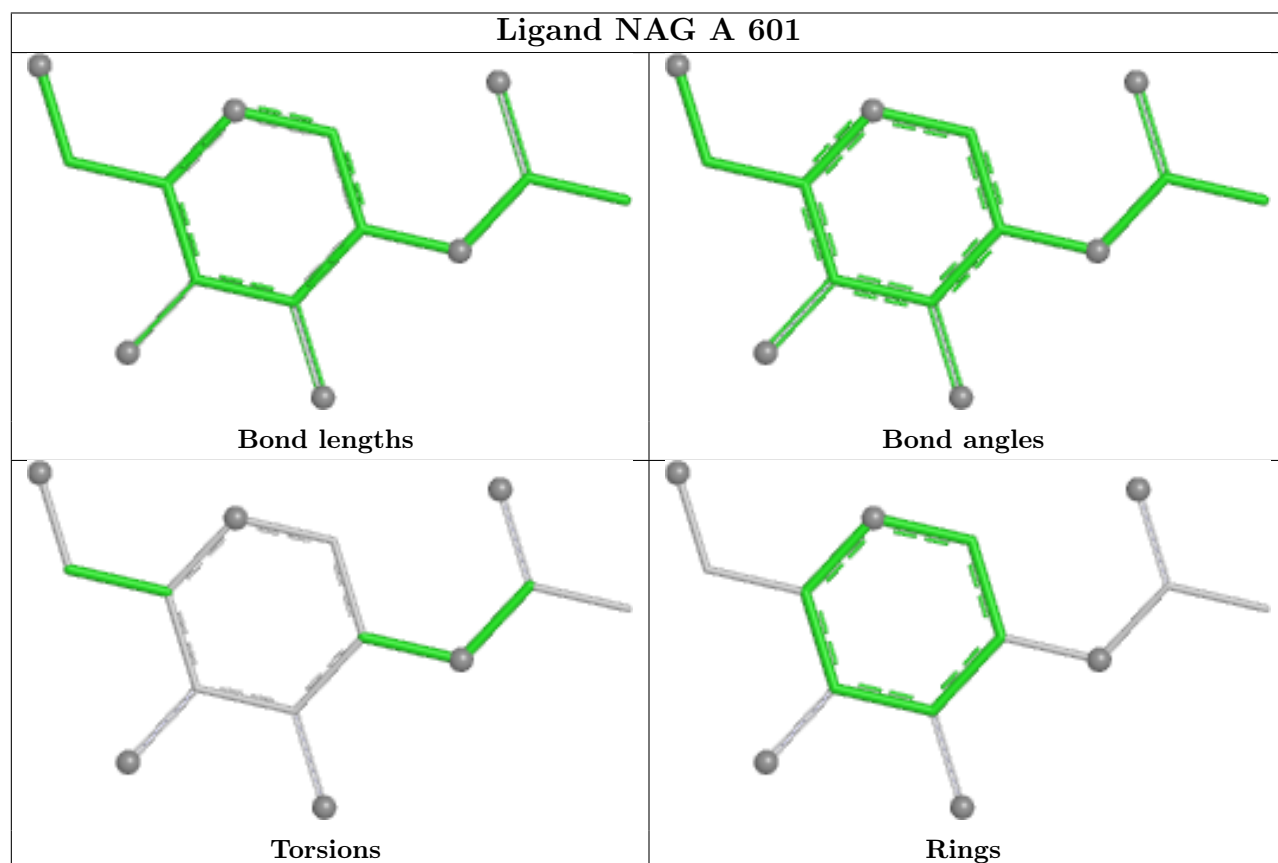
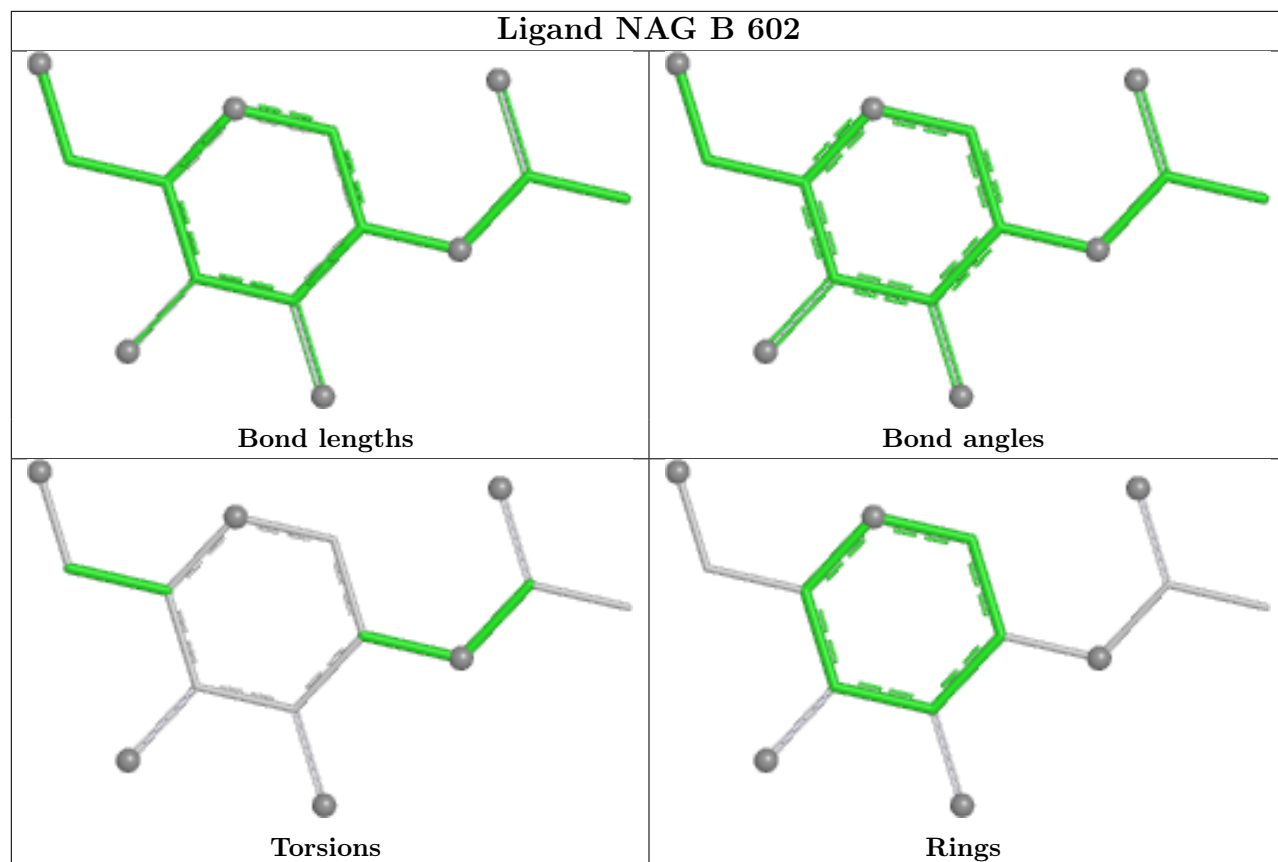


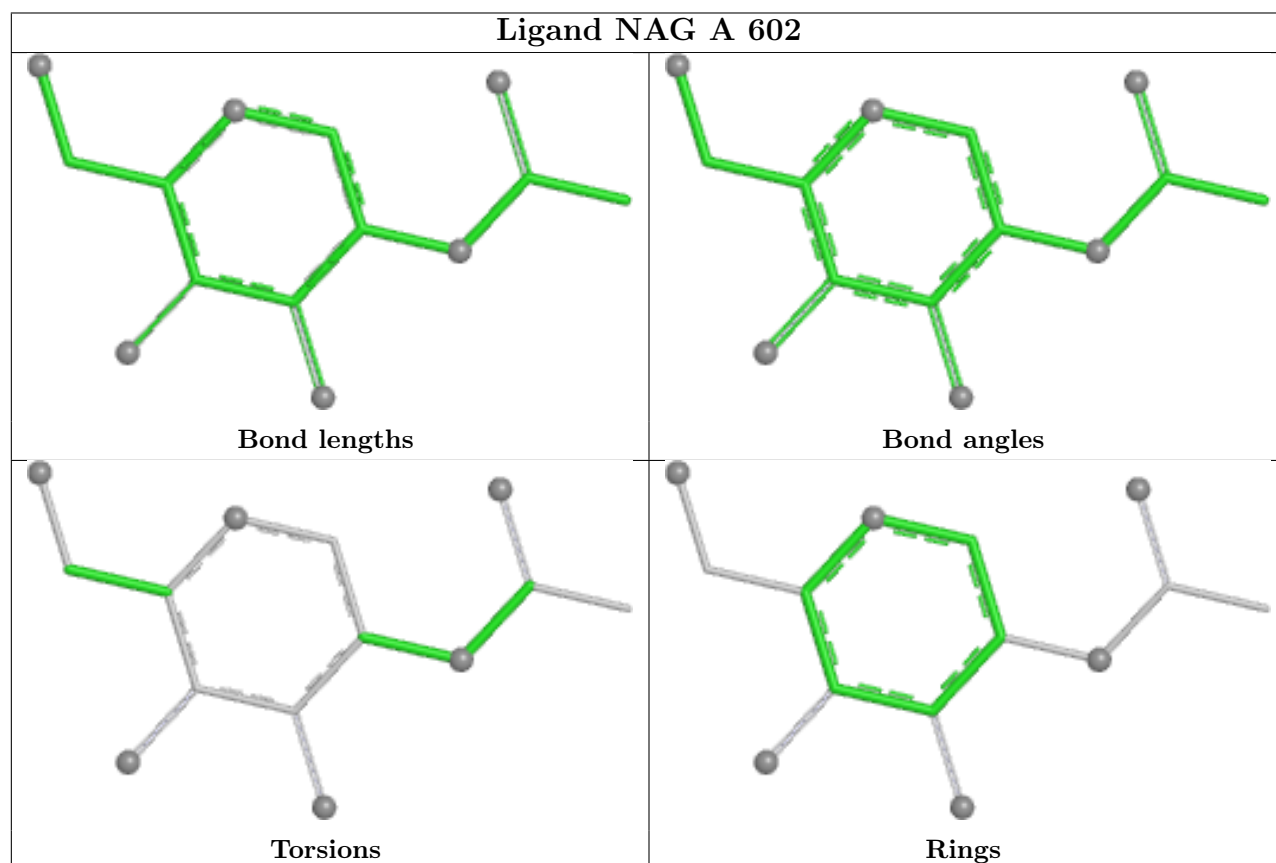
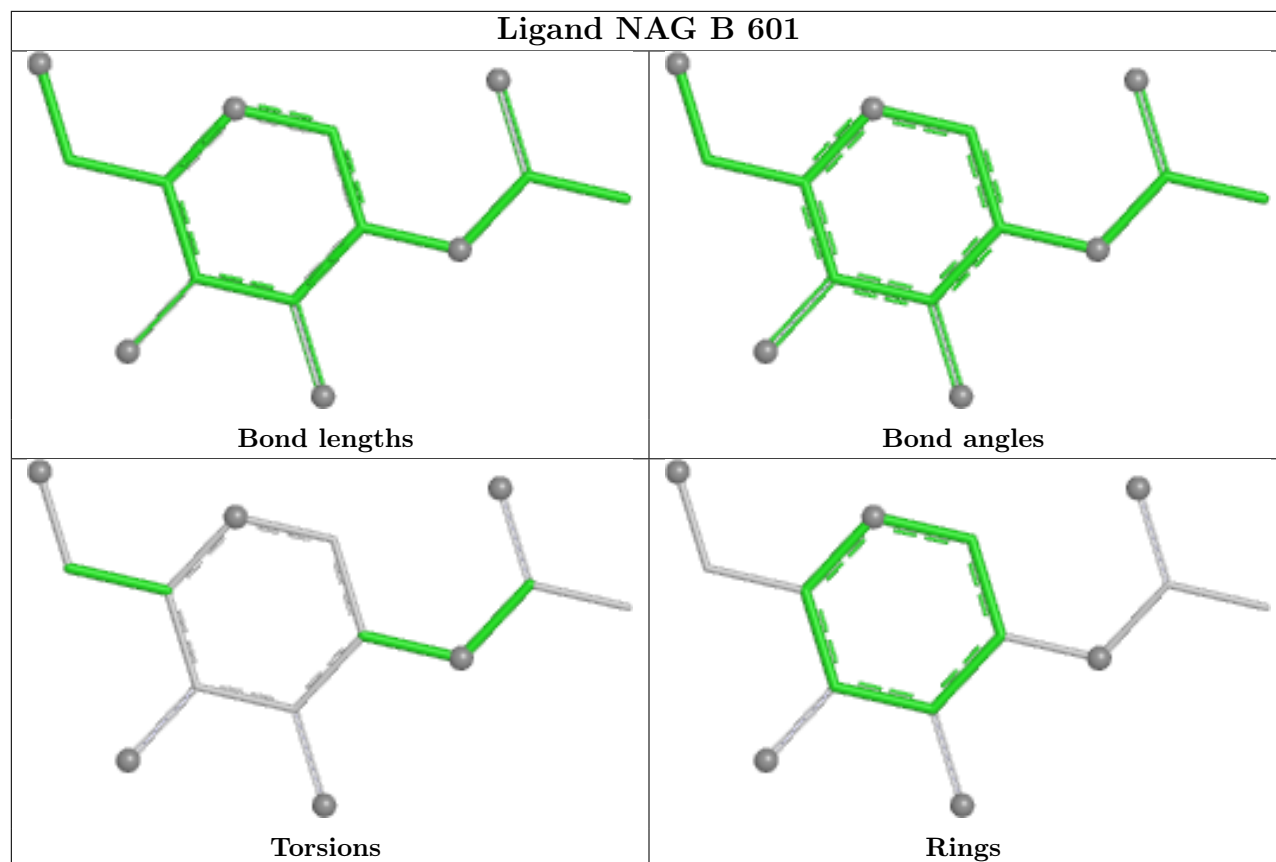


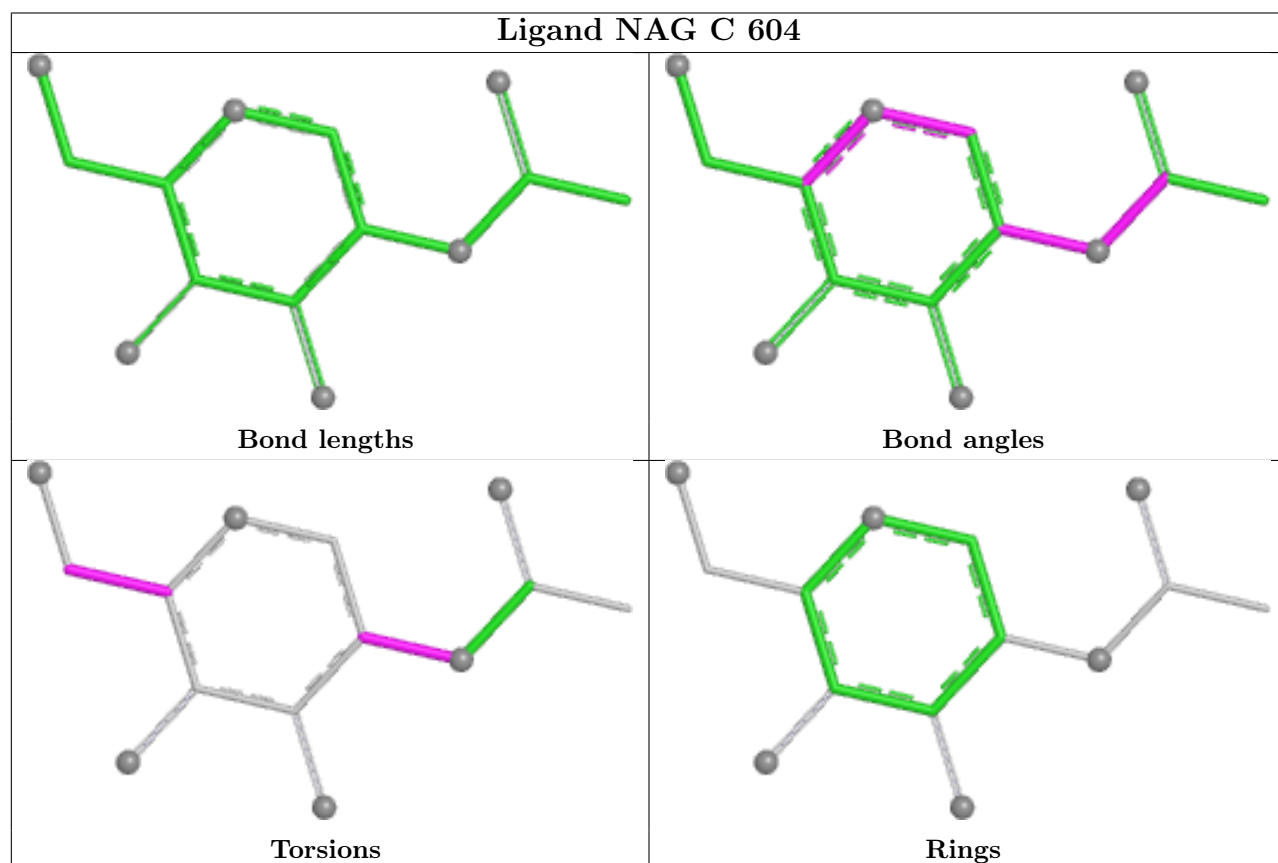
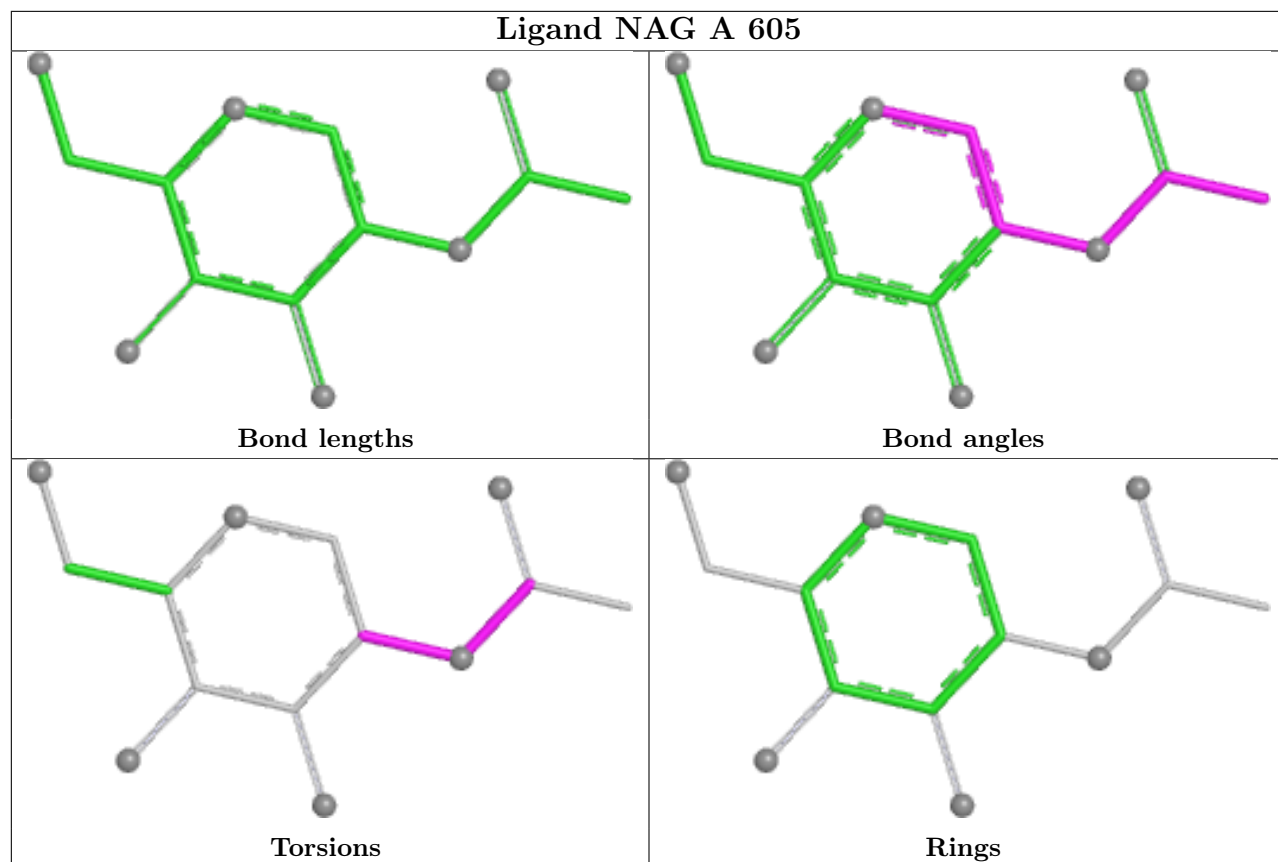












5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

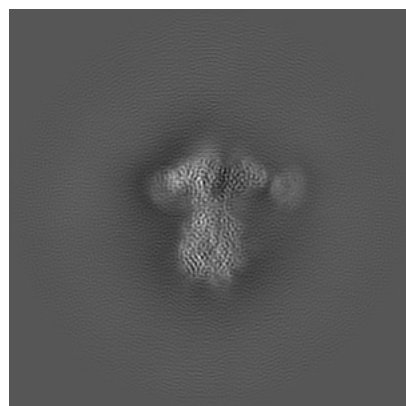
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-47024. These allow visual inspection of the internal detail of the map and identification of artifacts.

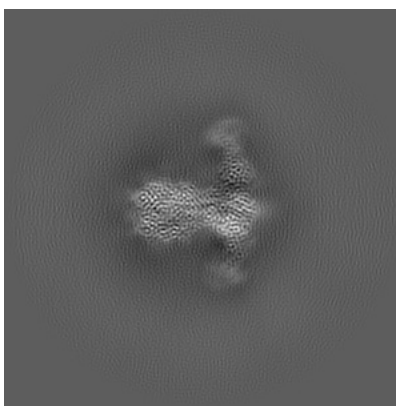
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

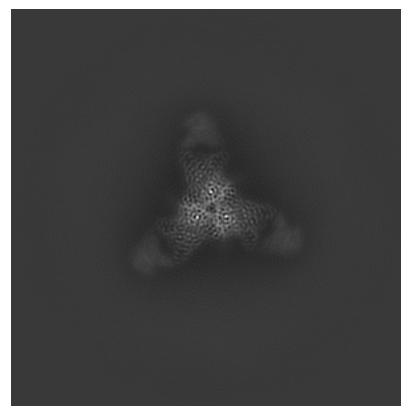
6.1.1 Primary map



X

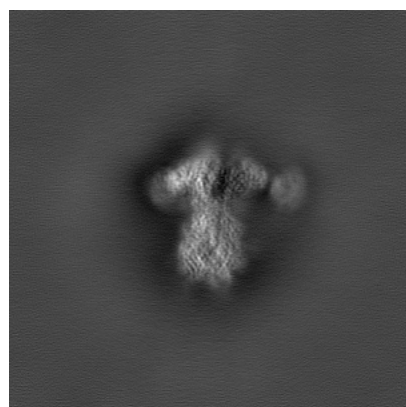


Y

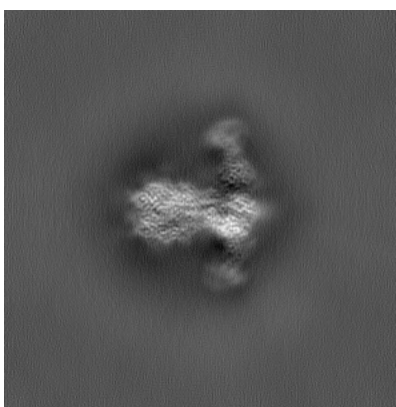


Z

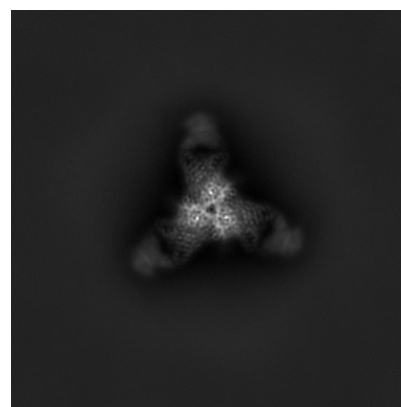
6.1.2 Raw map



X



Y

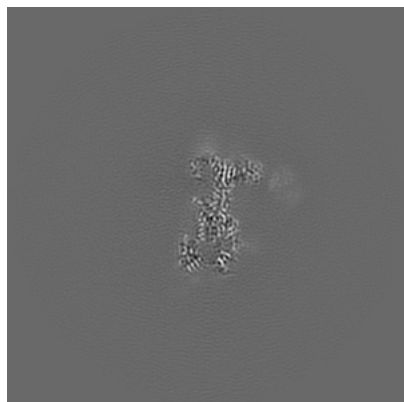


Z

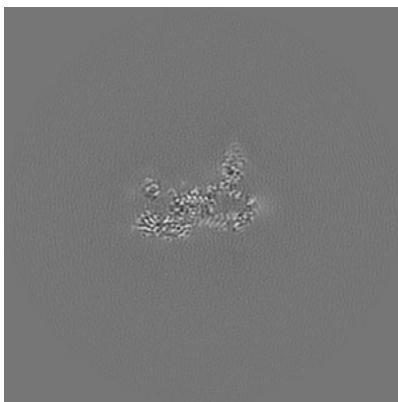
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

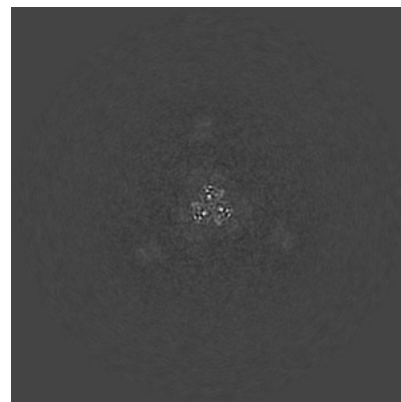
6.2.1 Primary map



X Index: 192

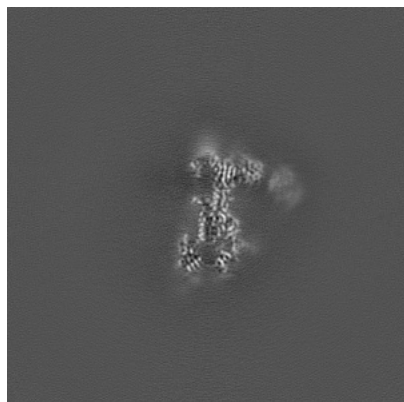


Y Index: 192

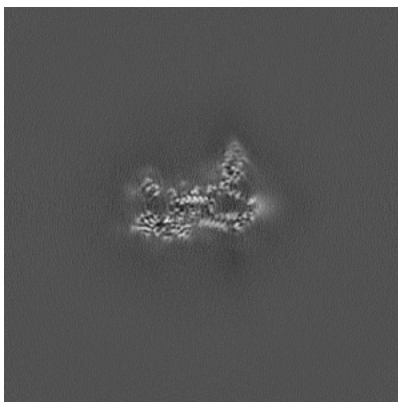


Z Index: 192

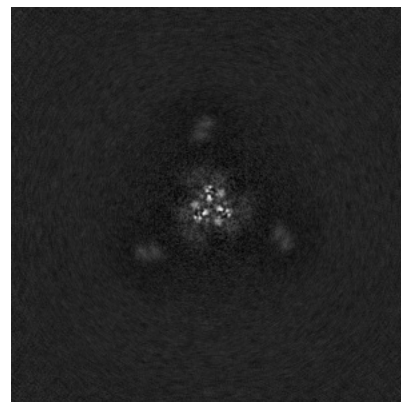
6.2.2 Raw map



X Index: 192



Y Index: 192

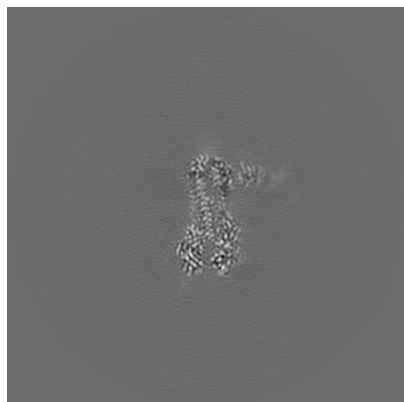


Z Index: 192

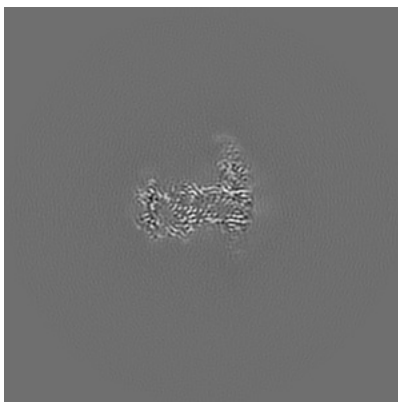
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

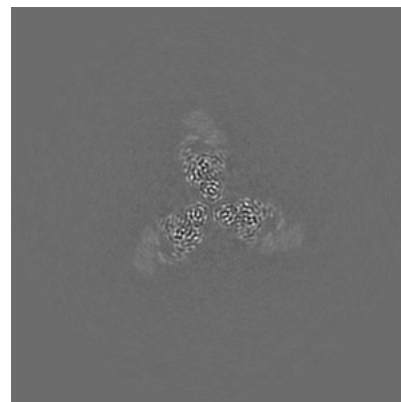
6.3.1 Primary map



X Index: 198

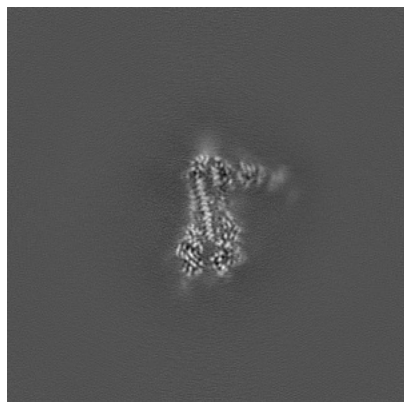


Y Index: 184

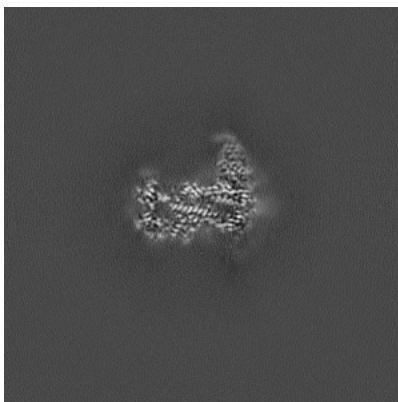


Z Index: 217

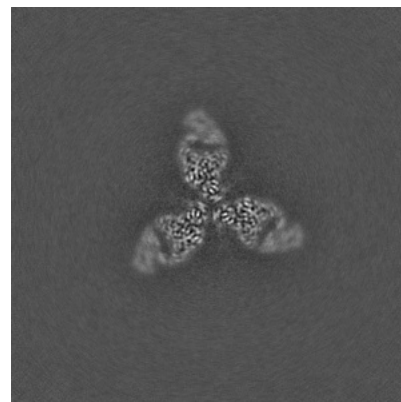
6.3.2 Raw map



X Index: 198



Y Index: 185



Z Index: 218

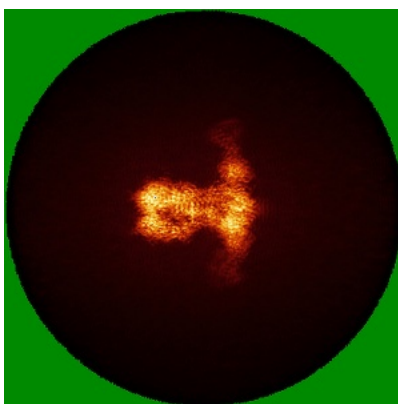
The images above show the largest variance slices of the map in three orthogonal directions.

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

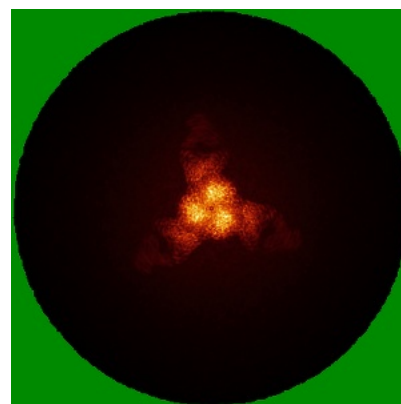
6.4.1 Primary map



X

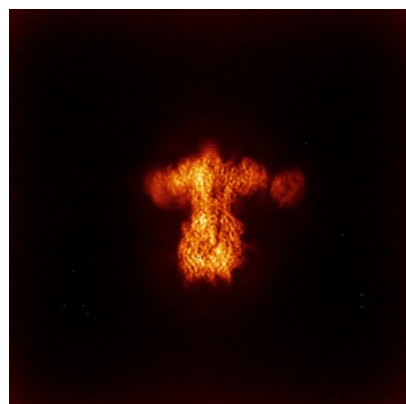


Y

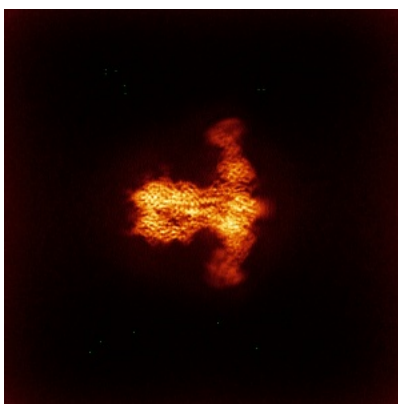


Z

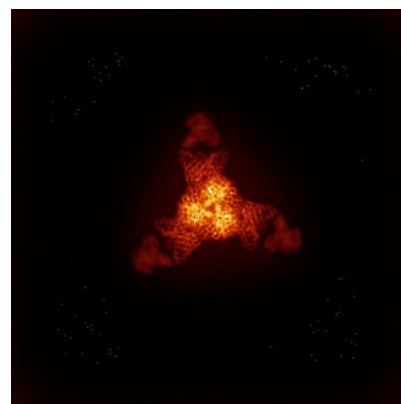
6.4.2 Raw map



X



Y

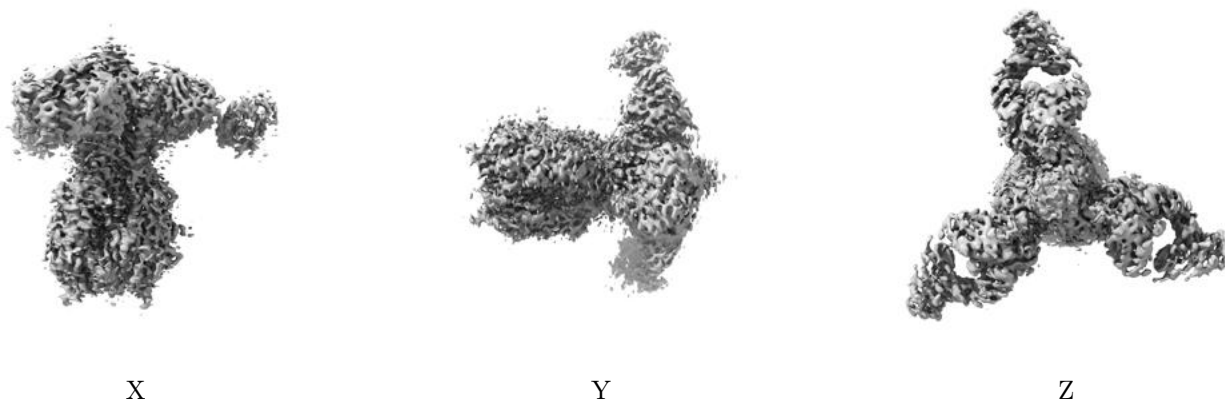


Z

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

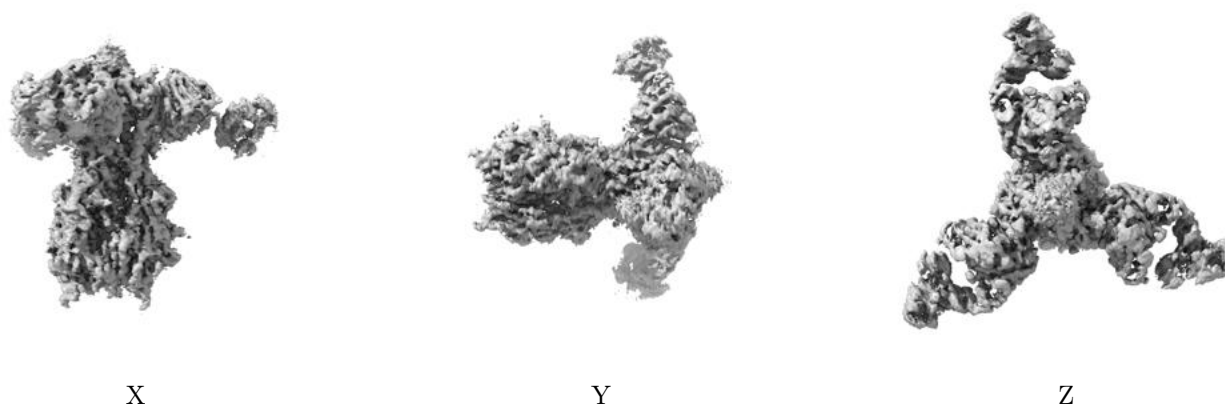
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.15. 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.

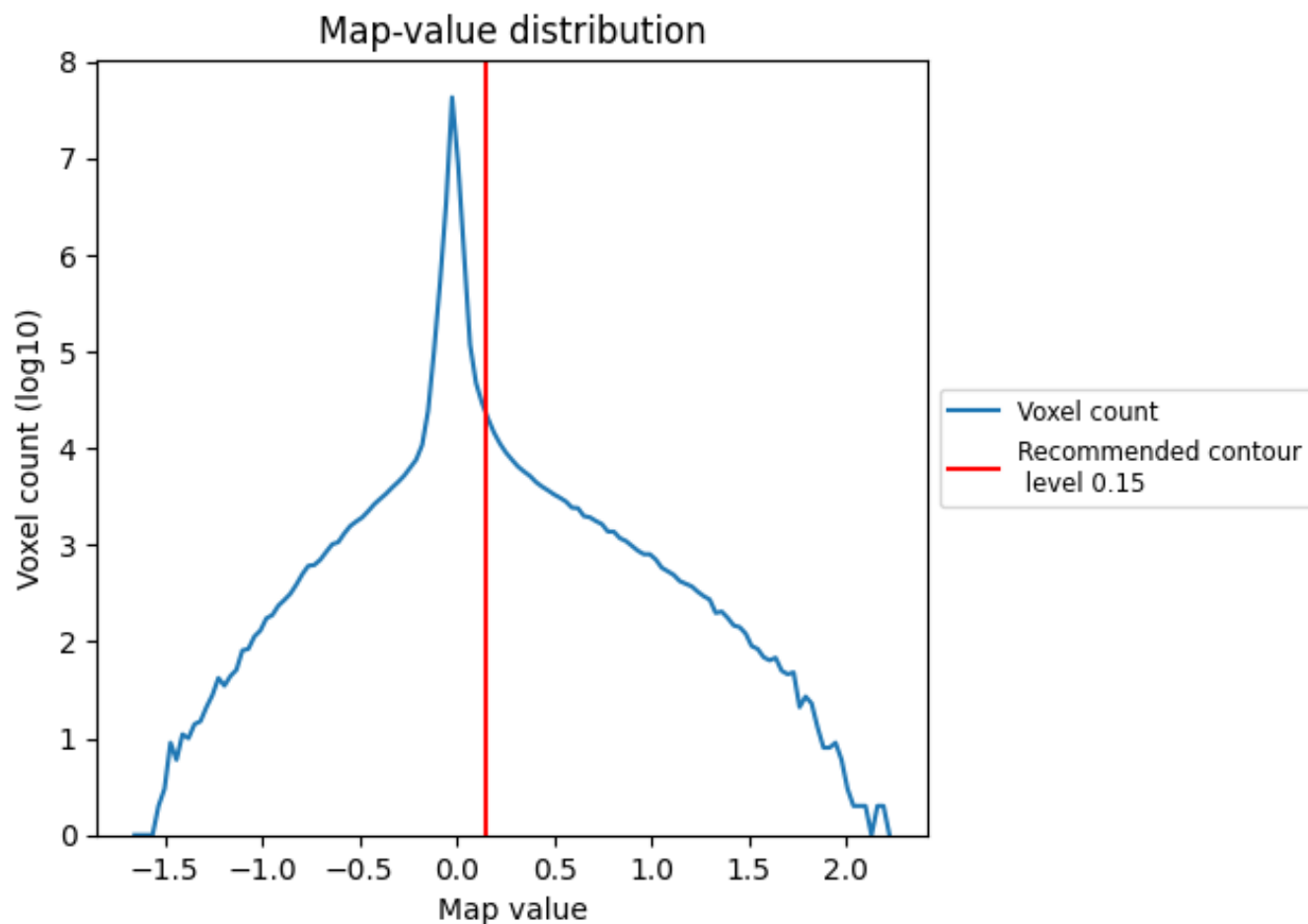
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

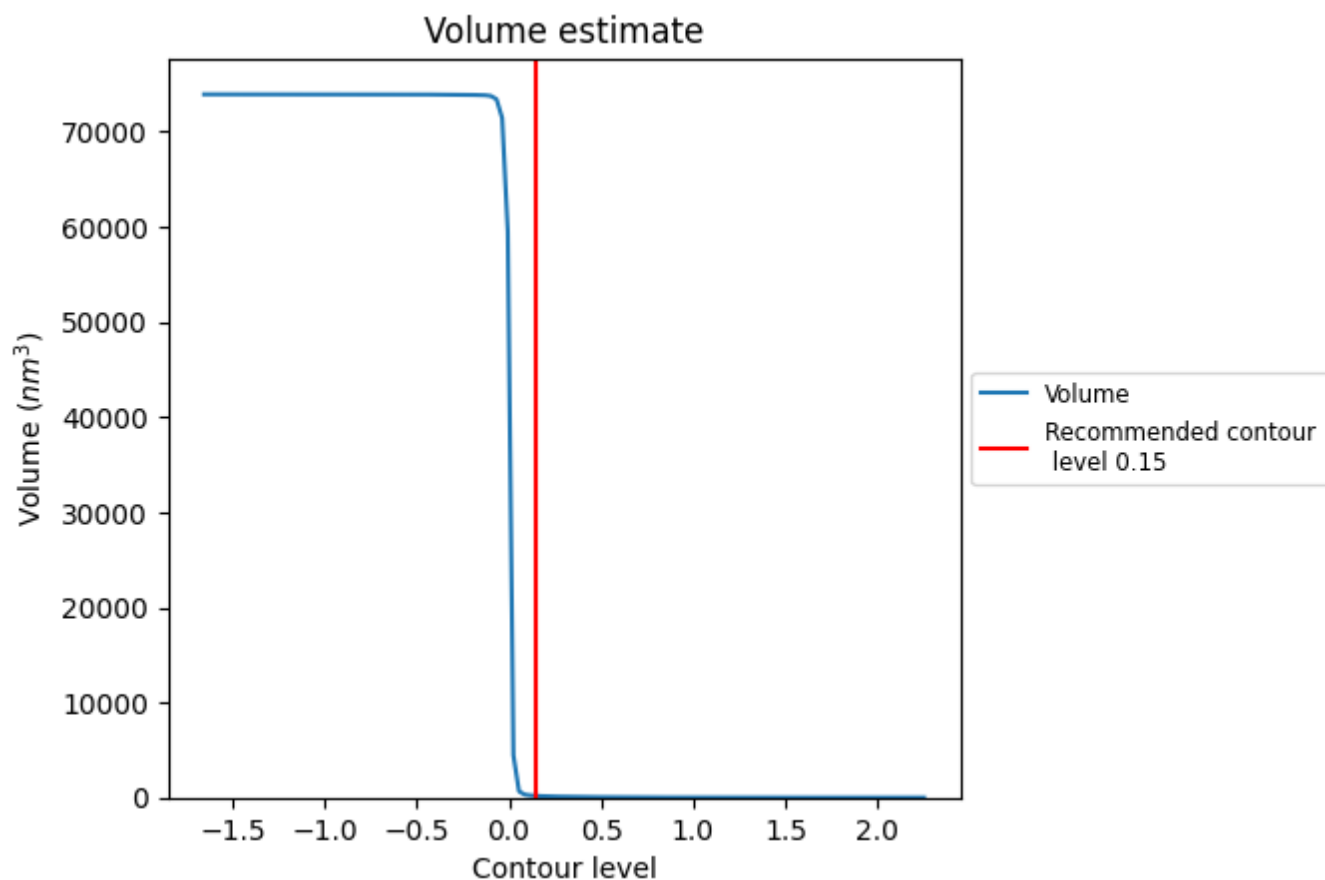
This section contains the results of statistical analysis of the map.

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.

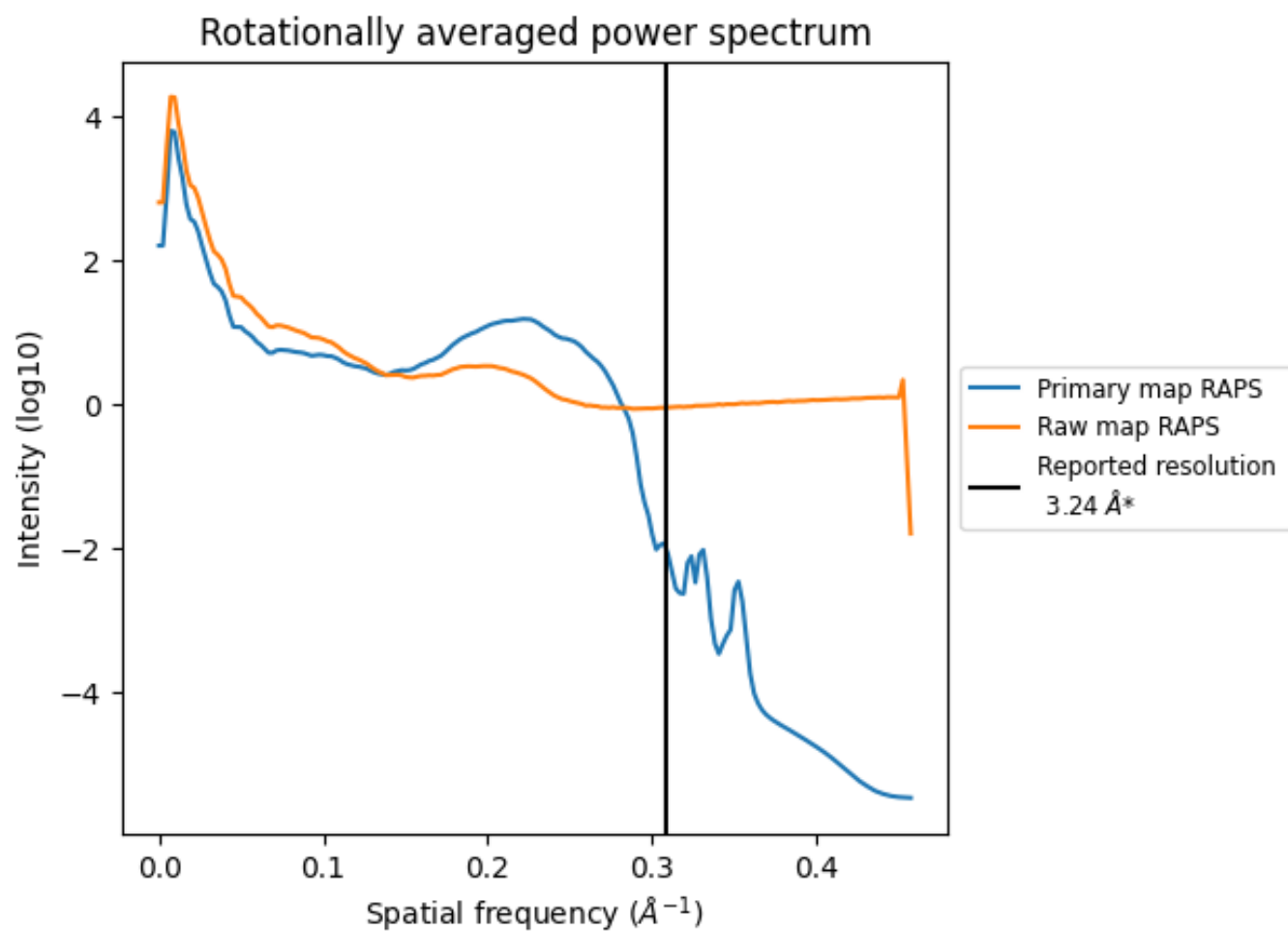
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 179 nm³; this corresponds to an approximate mass of 161 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ

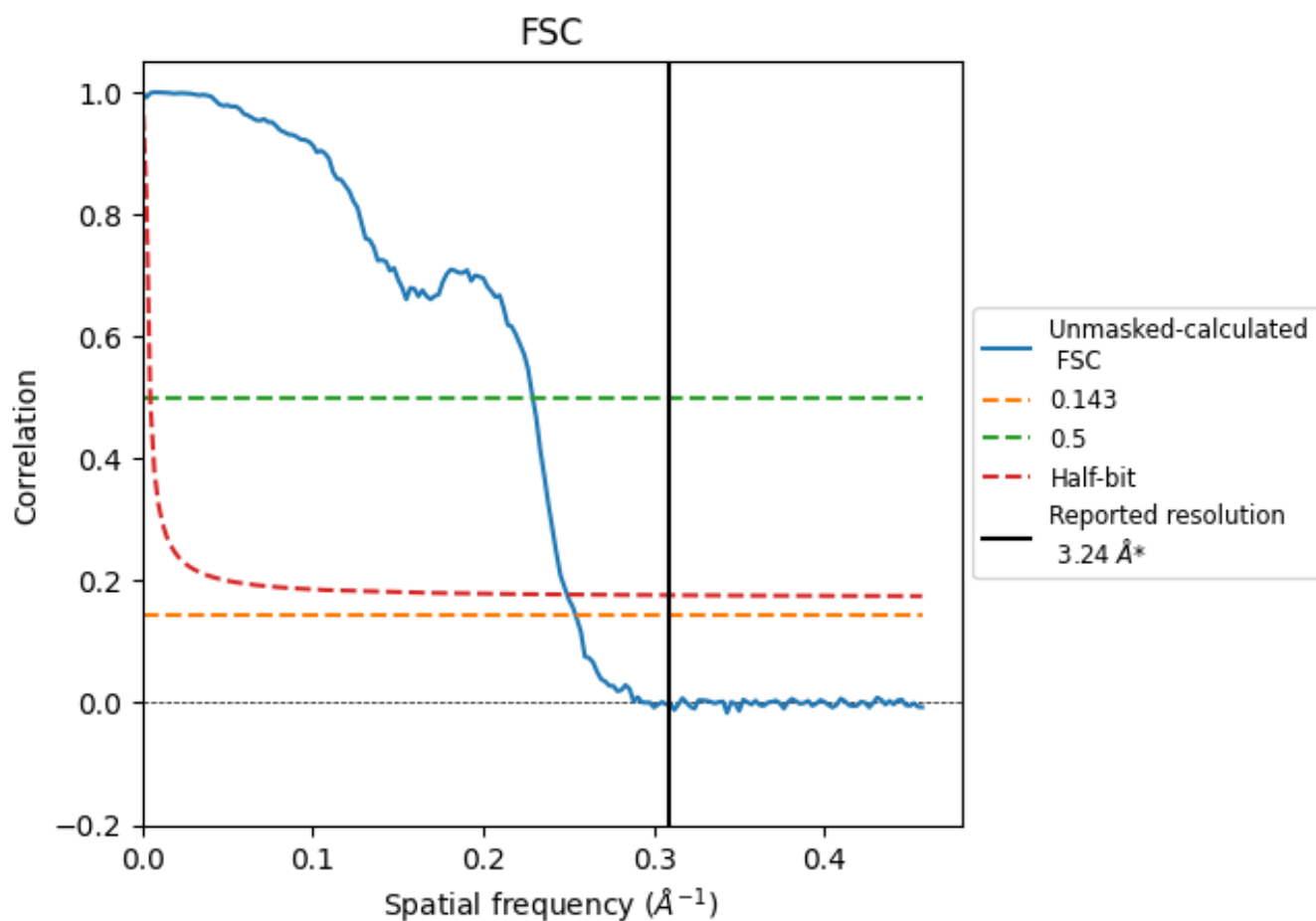


*Reported resolution corresponds to spatial frequency of 0.309 Å⁻¹

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 0.309 \AA^{-1}

8.2 Resolution estimates [i](#)

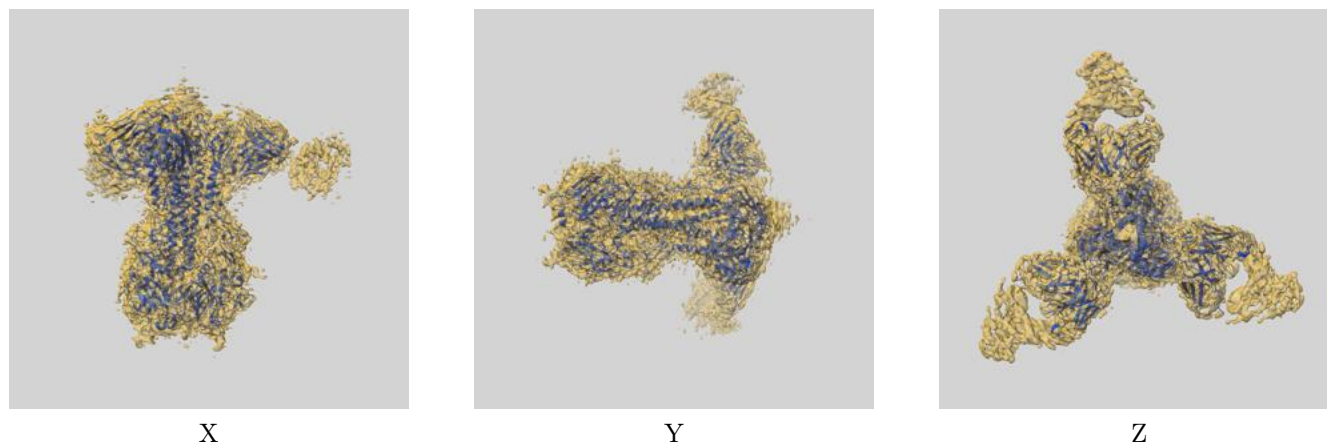
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.24	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.93	4.36	4.01

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.93 differs from the reported value 3.24 by more than 10 %

9 Map-model fit [i](#)

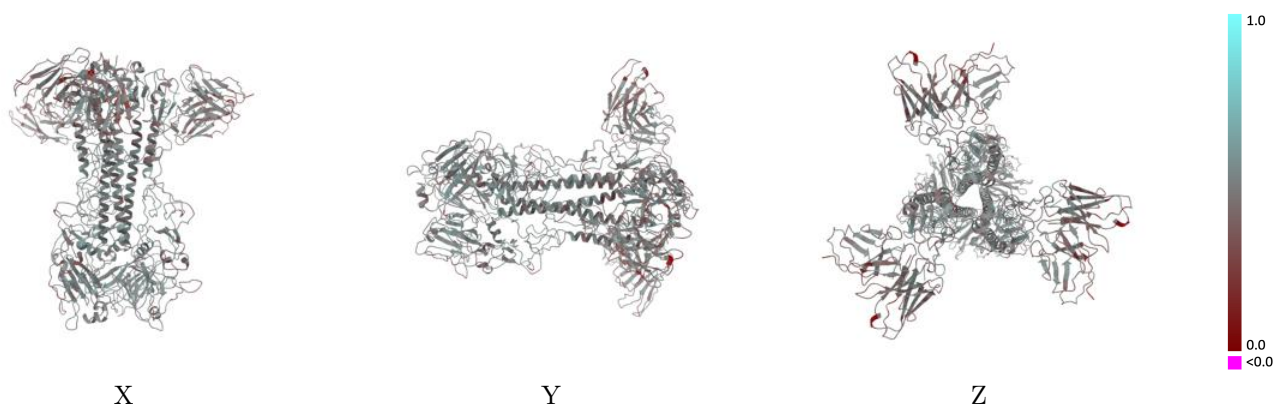
This section contains information regarding the fit between EMDB map EMD-47024 and PDB model 9DN2. Per-residue inclusion information can be found in [section 3](#) on [page 12](#).

9.1 Map-model overlay [i](#)



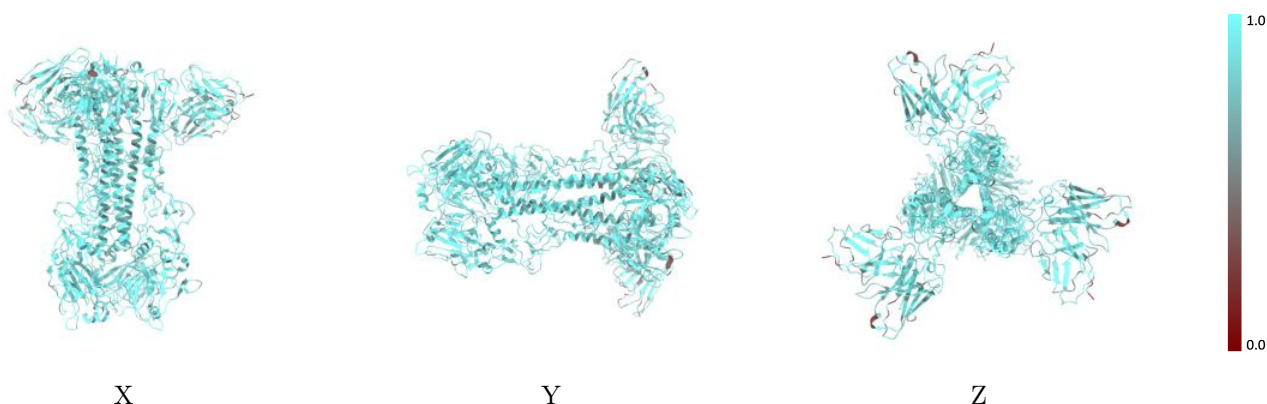
The images above show the 3D surface view of the map at the recommended contour level 0.15 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



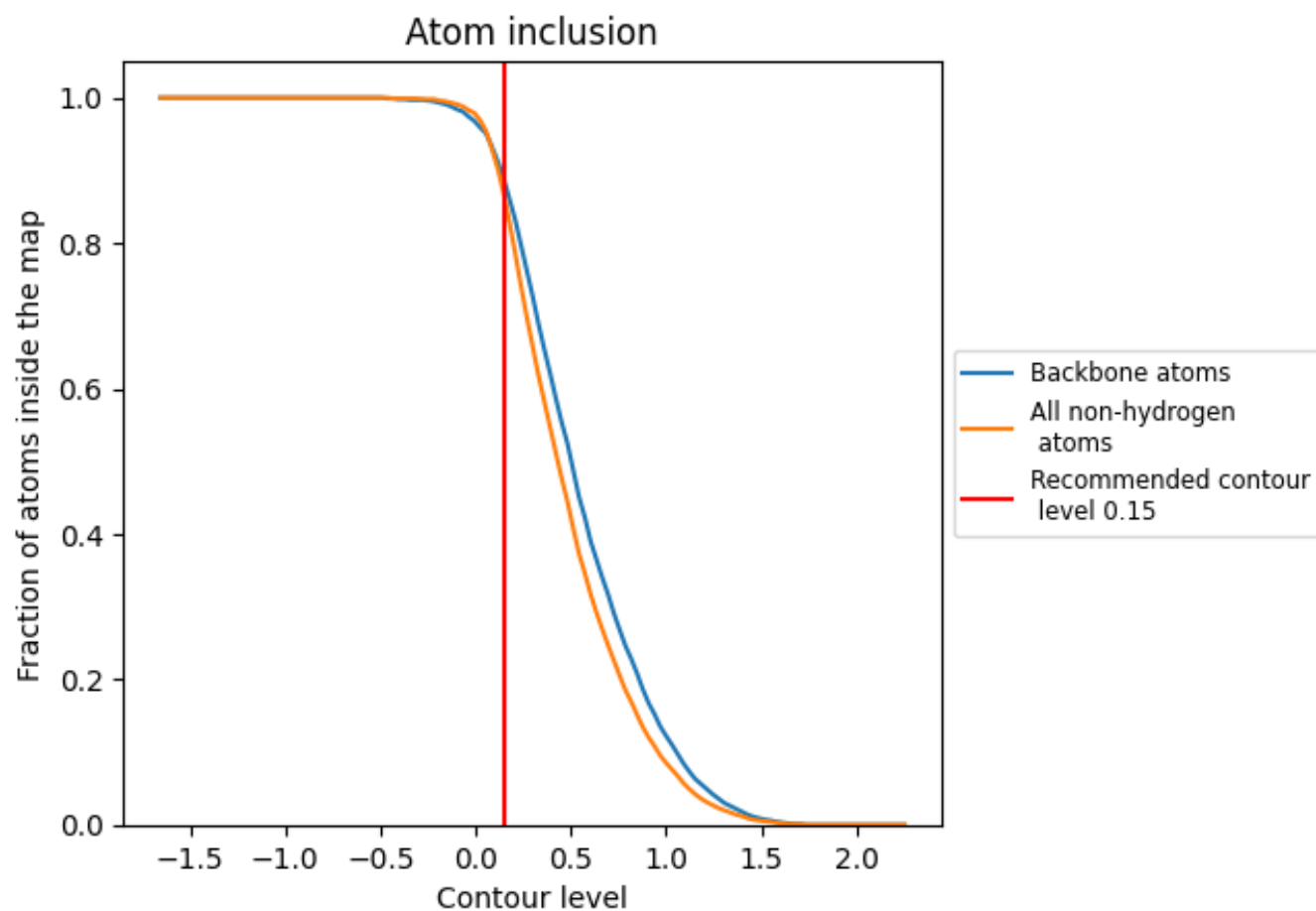
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.15).



















































9.4 Atom inclusion [i](#)



At the recommended contour level, 89% of all backbone atoms, 87% 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 (0.15) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8660	 0.4660
A	 0.8900	 0.4860
B	 0.8910	 0.4850
C	 0.8920	 0.4850
D	 0.7500	 0.4390
E	 0.7500	 0.3500
F	 0.5360	 0.3260
G	 0.8460	 0.4230
H	 0.8190	 0.4240
I	 0.8180	 0.4230
J	 0.8200	 0.4190
K	 0.6790	 0.3350
L	 0.8160	 0.4250
M	 0.8130	 0.4300
N	 0.8200	 0.4270
O	 0.7140	 0.4510
P	 0.7860	 0.3630
Q	 0.5710	 0.3370
R	 0.8460	 0.4380
S	 0.6430	 0.3370
T	 0.7140	 0.4360
U	 0.7860	 0.3590
V	 0.5360	 0.3420
W	 0.8460	 0.4270
X	 0.6430	 0.3310

