



# Full wwPDB EM Validation Report ⓘ

Sep 6, 2023 – 01:10 PM EDT

PDB ID : 7U0X  
EMDB ID : EMD-26267  
Title : SARS-Cov2 S protein structure in complex with neutralizing monoclonal antibody 002-13  
Authors : Patel, A.; Ortlund, E.  
Deposited on : 2022-02-19  
Resolution : 3.82 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](mailto:validation@mail.wwpdb.org)

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev50  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35

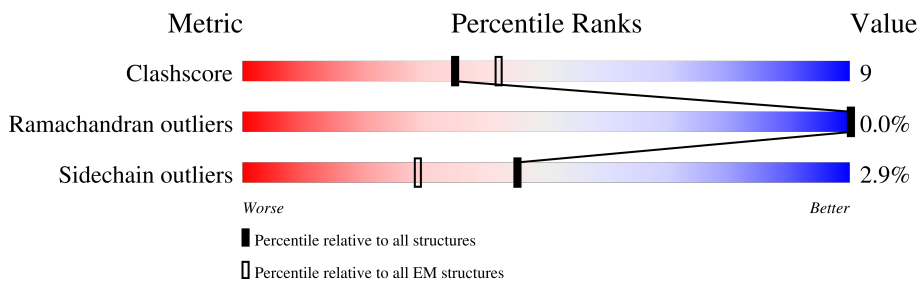
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.82 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	1208	8% (red), 73% (green), 17% (yellow), 10% (grey)
1	B	1208	19% (red), 76% (green), 14% (yellow), 10% (grey)
1	C	1208	14% (red), 72% (green), 18% (yellow), 10% (grey)
2	F	459	45% (red), 33% (green), 17% (yellow), 49% (grey)
2	H	459	39% (red), 35% (green), 15% (yellow), 49% (grey)
3	G	216	89% (red), 63% (green), 36% (yellow)
3	L	216	77% (red), 69% (green), 30% (yellow)
4	D	2	100% (green)

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Mol	Chain	Length	Quality of chain
4	E	2	 100%
4	I	2	 100%
4	J	2	 100%
4	K	2	 100%
4	M	2	 100%
4	N	2	 100%
4	O	2	 100%
4	P	2	 100%
4	Q	2	 100%
4	R	2	 50% 50%
4	S	2	 100%
4	T	2	 100%
4	U	2	 100%
4	V	2	 100%

## 2 Entry composition i

There are 5 unique types of molecules in this entry. The entry contains 33074 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Spike glycoprotein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1085	8494	5423	1418	1615	38	0	0
1	B	1088	8515	5436	1421	1620	38	0	0
1	C	1087	8502	5427	1419	1618	38	0	0

There are 27 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	682	GLY	ARG	conflict	UNP P0DTC2
A	683	SER	ARG	conflict	UNP P0DTC2
A	685	SER	ARG	conflict	UNP P0DTC2
A	817	PRO	PHE	conflict	UNP P0DTC2
A	892	PRO	ALA	conflict	UNP P0DTC2
A	899	PRO	ALA	conflict	UNP P0DTC2
A	942	PRO	ALA	conflict	UNP P0DTC2
A	986	PRO	LYS	conflict	UNP P0DTC2
A	987	PRO	VAL	conflict	UNP P0DTC2
B	682	GLY	ARG	conflict	UNP P0DTC2
B	683	SER	ARG	conflict	UNP P0DTC2
B	685	SER	ARG	conflict	UNP P0DTC2
B	817	PRO	PHE	conflict	UNP P0DTC2
B	892	PRO	ALA	conflict	UNP P0DTC2
B	899	PRO	ALA	conflict	UNP P0DTC2
B	942	PRO	ALA	conflict	UNP P0DTC2
B	986	PRO	LYS	conflict	UNP P0DTC2
B	987	PRO	VAL	conflict	UNP P0DTC2
C	682	GLY	ARG	conflict	UNP P0DTC2
C	683	SER	ARG	conflict	UNP P0DTC2
C	685	SER	ARG	conflict	UNP P0DTC2
C	817	PRO	PHE	conflict	UNP P0DTC2
C	892	PRO	ALA	conflict	UNP P0DTC2
C	899	PRO	ALA	conflict	UNP P0DTC2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	942	PRO	ALA	conflict	UNP P0DTC2
C	986	PRO	LYS	conflict	UNP P0DTC2
C	987	PRO	VAL	conflict	UNP P0DTC2

- Molecule 2 is a protein called mAb 002-13 heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	F	234	Total	C	N	O	S	0	0
			1738	1088	300	341	9		
2	H	234	Total	C	N	O	S	0	0
			1745	1094	300	342	9		

- Molecule 3 is a protein called mAb 002-13 Light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	G	216	Total	C	N	O	S	0	0
			1627	1007	272	342	6		
3	L	216	Total	C	N	O	S	0	0
			1627	1007	272	342	6		

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



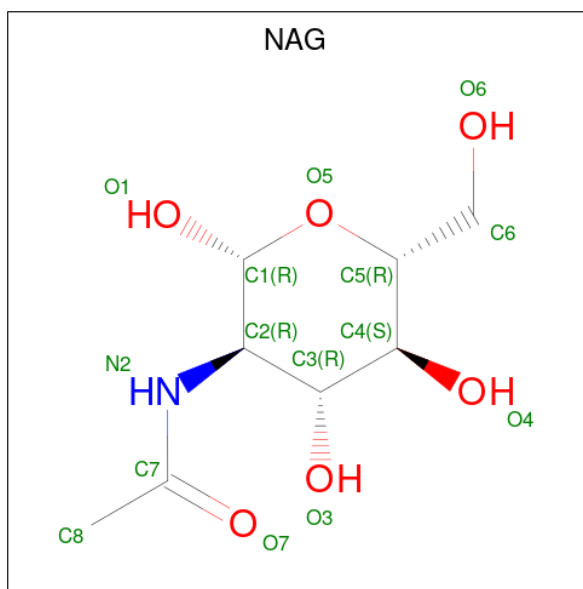
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	D	2	Total	C	N	O	0	0
			28	16	2	10		
4	E	2	Total	C	N	O	0	0
			28	16	2	10		
4	I	2	Total	C	N	O	0	0
			28	16	2	10		
4	J	2	Total	C	N	O	0	0
			28	16	2	10		
4	K	2	Total	C	N	O	0	0
			28	16	2	10		
4	M	2	Total	C	N	O	0	0
			28	16	2	10		
4	N	2	Total	C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

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Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	O	2	Total 28	C 16	N 2	O 10	0	0
4	P	2	Total 28	C 16	N 2	O 10	0	0
4	Q	2	Total 28	C 16	N 2	O 10	0	0
4	R	2	Total 28	C 16	N 2	O 10	0	0
4	S	2	Total 28	C 16	N 2	O 10	0	0
4	T	2	Total 28	C 16	N 2	O 10	0	0
4	U	2	Total 28	C 16	N 2	O 10	0	0
4	V	2	Total 28	C 16	N 2	O 10	0	0

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ) (labeled as "Ligand of Interest" by depositor).



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

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

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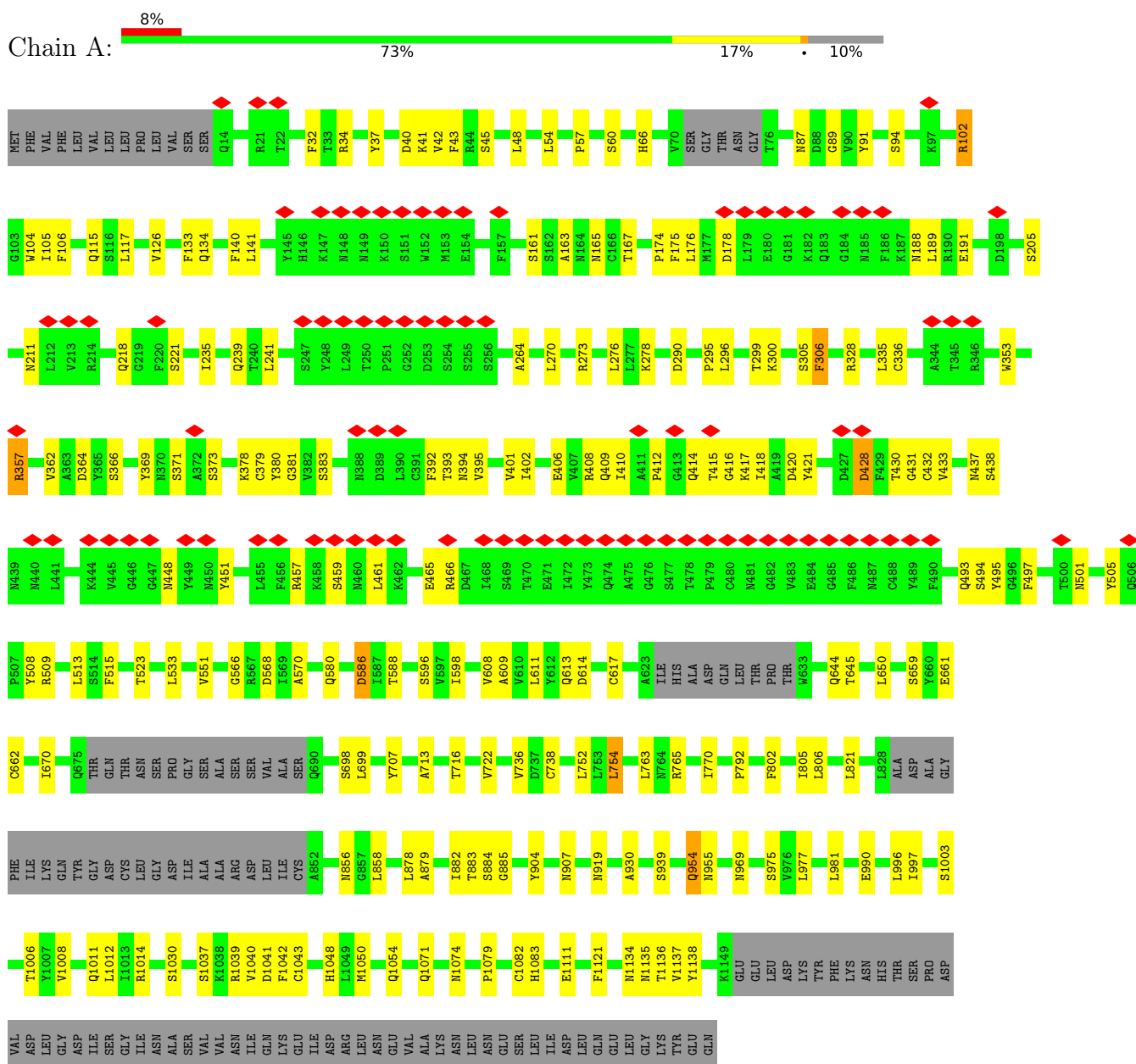
<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>				<b>AltConf</b>
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	
5	C	1	Total	C	N	O	0
			14	8	1	5	



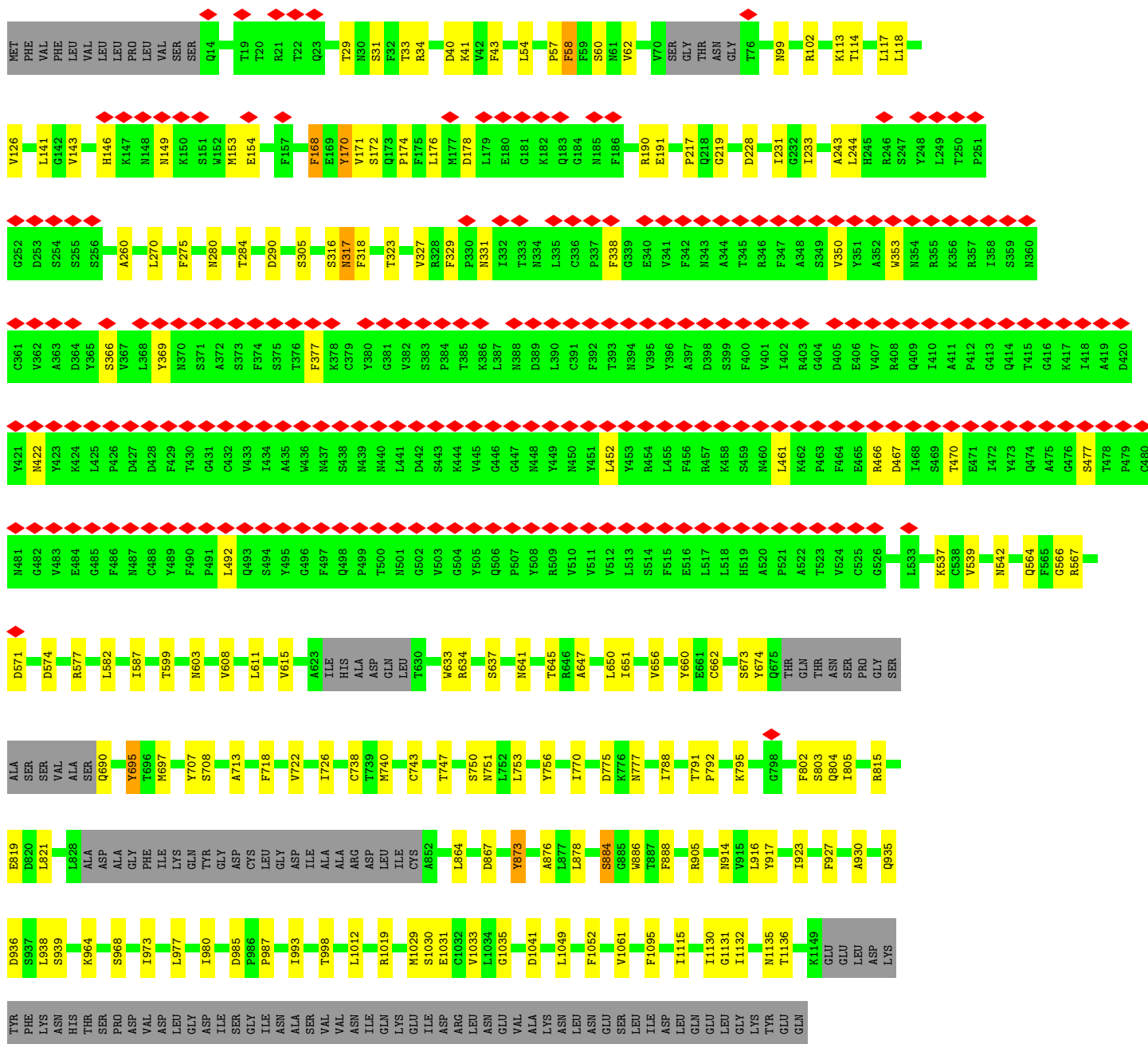
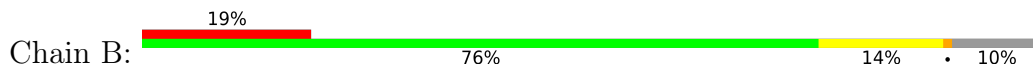
### 3 Residue-property plots

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

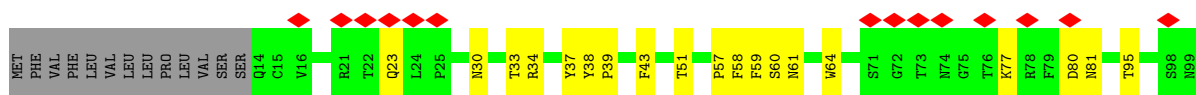
#### • Molecule 1: Spike glycoprotein

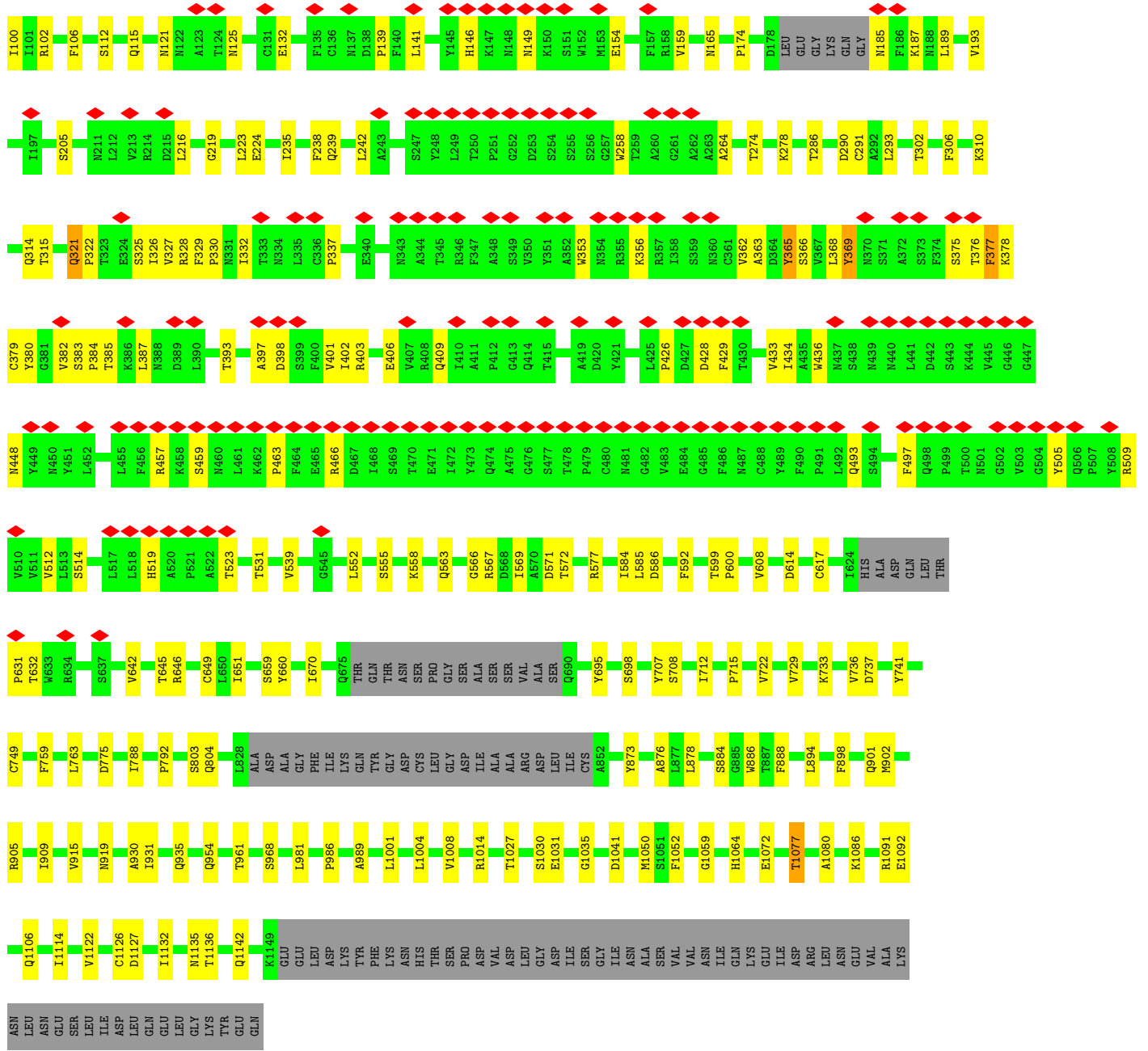


• Molecule 1: Spike glycoprotein

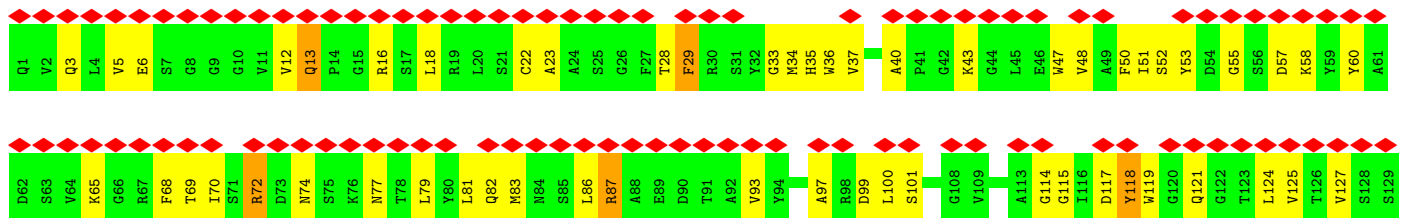
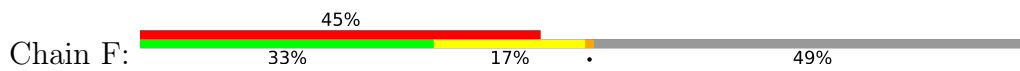


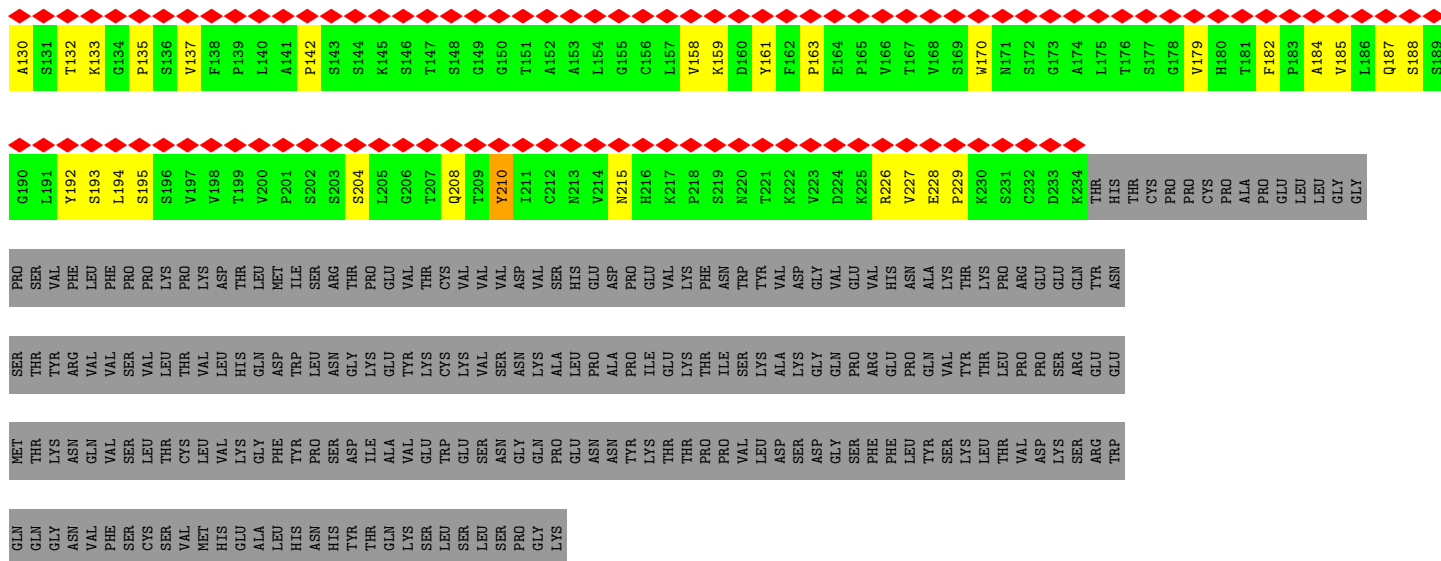
• Molecule 1: Spike glycoprotein



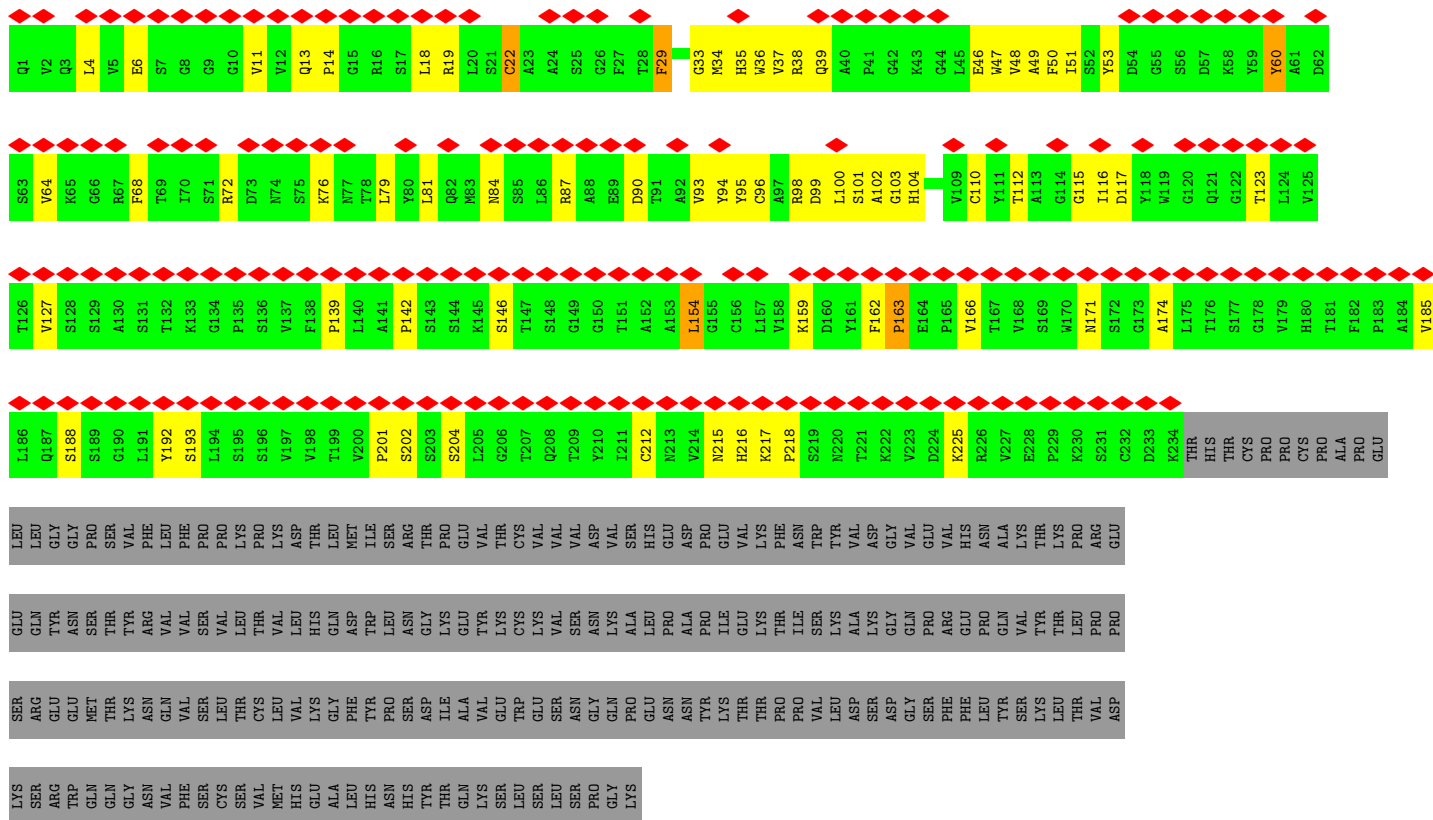
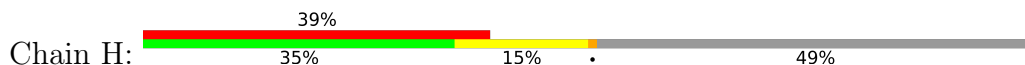


● Molecule 2: mAb 002-13 heavy chain

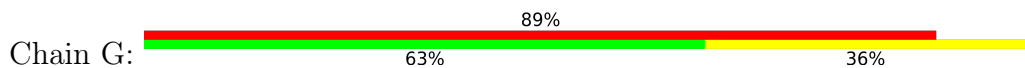


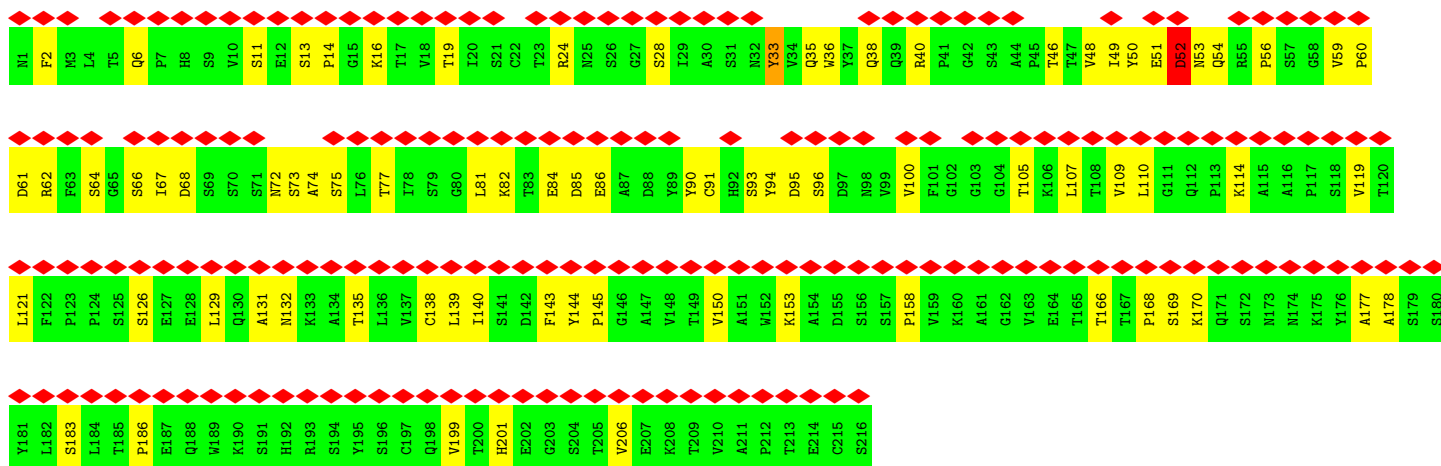


• Molecule 2: mAb 002-13 heavy chain

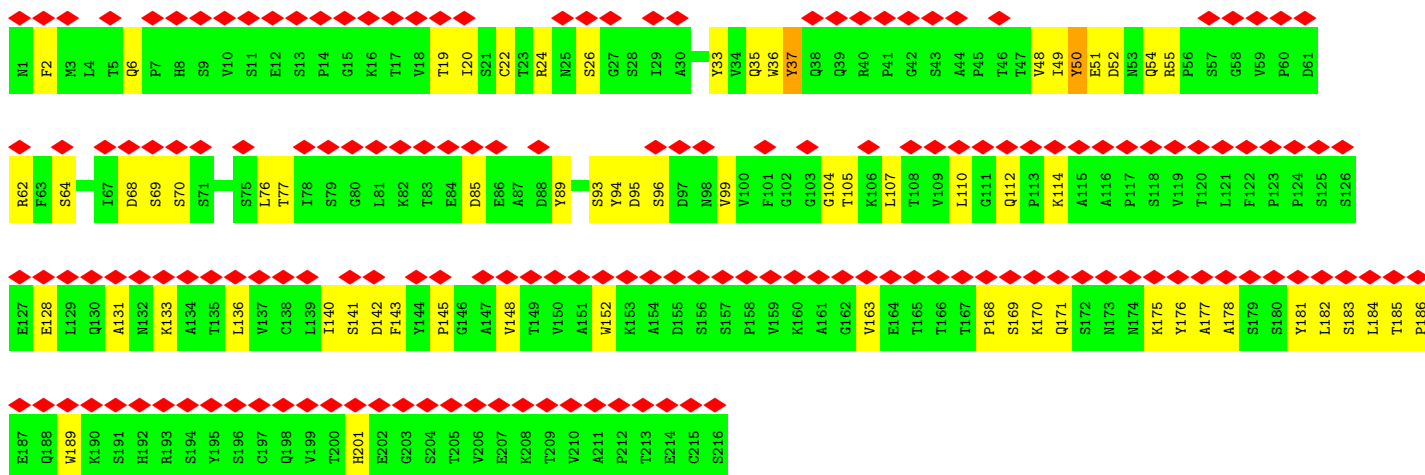
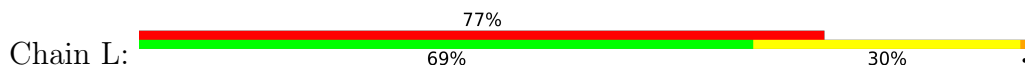


• Molecule 3: mAb 002-13 Light chain





- Molecule 3: mAb 002-13 Light chain



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



MAG1  
MAG2

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



MAG1  
MAG2

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

Chain I:  100%

WAG1  
WAG2

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

Chain J:  100%

WAG1  
WAG2

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

Chain K:  100%

WAG1  
WAG2

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

Chain M:  100%  
 100%

WAG1  
WAG2

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

Chain N:  100%

WAG1  
WAG2

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

Chain O:  100%

WAG1  
WAG2

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

Chain P:  100%

MAG1  
MAG2

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

Chain Q:  100%MAG1  
MAG2

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

Chain R:  50% 50%MAG1  
MAG2

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

Chain S:  100%MAG1  
MAG2

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

Chain T:  100%MAG1  
MAG2

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

Chain U:  100%MAG1  
MAG2

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

Chain V:  100%MAG1  
MAG2

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	181636	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	63.81	Depositor
Minimum defocus (nm)	700	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	3.923	Depositor
Minimum map value	-2.415	Depositor
Average map value	-0.003	Depositor
Map value standard deviation	0.058	Depositor
Recommended contour level	0.32	Depositor
Map size (Å)	444.7456, 444.7456, 444.7456	wwPDB
Map dimensions	416, 416, 416	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0691, 1.0691, 1.0691	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: 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	0.26	0/8697	0.48	0/11842
1	B	0.26	0/8719	0.48	0/11874
1	C	0.26	0/8706	0.48	0/11857
2	F	0.26	0/1778	0.53	0/2417
2	H	0.27	0/1786	0.55	0/2428
3	G	0.25	0/1666	0.49	0/2274
3	L	0.31	0/1666	0.53	1/2274 (0.0%)
All	All	0.26	0/33018	0.49	1/44966 (0.0%)

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
3	L	0	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	L	50	TYR	O-C-N	5.14	130.92	122.70

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	L	51	GLU	Mainchain

## 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	8494	0	8294	143	0
1	B	8515	0	8318	100	0
1	C	8502	0	8301	129	0
2	F	1738	0	1691	67	0
2	H	1745	0	1698	64	0
3	G	1627	0	1550	54	0
3	L	1627	0	1548	51	0
4	D	28	0	25	0	0
4	E	28	0	25	0	0
4	I	28	0	25	0	0
4	J	28	0	25	0	0
4	K	28	0	25	0	0
4	M	28	0	25	0	0
4	N	28	0	25	0	0
4	O	28	0	25	0	0
4	P	28	0	25	0	0
4	Q	28	0	25	0	0
4	R	28	0	25	1	0
4	S	28	0	25	0	0
4	T	28	0	25	0	0
4	U	28	0	25	0	0
4	V	28	0	25	0	0
5	A	140	0	130	0	0
5	B	112	0	104	1	0
5	C	154	0	143	0	0
All	All	33074	0	32152	568	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 9.

All (568) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:408:ARG:CB	3:L:54:GLN:NE2	1.71	1.52
1:A:408:ARG:HB2	3:L:54:GLN:NE2	0.88	1.21

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:54:LEU:O	1:B:270:LEU:HD23	1.60	1.00
2:F:51:ILE:HD11	2:F:55:GLY:HA2	1.53	0.88
2:H:115:GLY:HA2	3:L:35:GLN:HE21	1.40	0.86
1:C:58:PHE:HB2	1:C:293:LEU:HD11	1.58	0.83
1:A:408:ARG:HB3	3:L:54:GLN:NE2	1.91	0.82
3:L:36:TRP:HB2	3:L:49:ILE:HB	1.63	0.80
2:F:135:PRO:HB3	2:F:161:TYR:HB3	1.64	0.80
2:F:210:TYR:HB2	2:F:227:VAL:HB	1.63	0.80
1:C:37:TYR:CE2	1:C:193:VAL:HG11	2.18	0.79
1:C:58:PHE:CB	1:C:293:LEU:HD11	2.12	0.79
1:A:805:ILE:HG12	1:A:878:LEU:HD21	1.67	0.76
2:H:4:LEU:HD21	2:H:96:CYS:HB3	1.67	0.76
2:H:4:LEU:HD11	2:H:22:CYS:HB2	1.67	0.75
1:C:433:VAL:HG22	1:C:512:VAL:HG23	1.69	0.75
1:B:54:LEU:O	1:B:270:LEU:CD2	2.34	0.74
2:F:69:THR:HB	2:F:82:GLN:HB2	1.68	0.74
1:B:599:THR:HB	1:B:608:VAL:HG23	1.68	0.73
1:A:357:ARG:HE	1:A:394:ASN:HD21	1.37	0.73
2:F:33:GLY:HA2	2:F:72:ARG:HH22	1.55	0.72
2:F:34:MET:HB3	2:F:79:LEU:HD22	1.70	0.72
1:B:99:ASN:HB3	1:B:102:ARG:HE	1.53	0.72
3:L:62:ARG:NH2	3:L:85:ASP:OD2	2.23	0.71
1:A:378:LYS:HG2	2:H:104:HIS:NE2	2.06	0.71
1:C:804:GLN:NE2	1:C:935:GLN:OE1	2.24	0.71
3:L:22:CYS:SG	3:L:36:TRP:NE1	2.64	0.70
3:G:140:ILE:HD12	3:G:199:VAL:HG11	1.71	0.70
1:A:40:ASP:OD1	1:A:41:LYS:N	2.25	0.70
3:G:53:ASN:OD1	3:G:54:GLN:NE2	2.25	0.69
1:B:327:VAL:HG12	1:B:542:ASN:HB3	1.75	0.69
3:G:36:TRP:NE1	3:G:91:CYS:SG	2.66	0.68
1:A:802:PHE:HB3	1:A:806:LEU:HD23	1.73	0.68
3:G:67:ILE:HA	3:G:74:ALA:HA	1.75	0.68
1:C:567:ARG:NH1	1:C:571:ASP:OD1	2.27	0.68
1:C:30:ASN:HA	1:C:61:ASN:HA	1.76	0.67
2:F:114:GLY:O	3:G:35:GLN:NE2	2.27	0.67
3:L:64:SER:O	3:L:77:THR:N	2.26	0.66
1:B:280:ASN:HD21	1:B:284:THR:HB	1.61	0.66
1:A:414:GLN:NE2	1:A:415:THR:O	2.28	0.66
1:B:57:PRO:HB2	1:B:60:SER:HB2	1.76	0.66
2:F:210:TYR:O	2:F:226:ARG:NH1	2.28	0.65
1:C:759:PHE:HD2	1:C:1001:LEU:HD21	1.61	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:52:SER:O	2:F:72:ARG:NH2	2.29	0.64
1:B:452:LEU:HD13	1:B:492:LEU:HB3	1.78	0.64
2:F:36:TRP:CE2	2:F:81:LEU:HB2	2.32	0.64
1:C:378:LYS:N	1:C:433:VAL:O	2.29	0.64
1:C:403:ARG:HD3	1:C:505:TYR:HA	1.79	0.64
1:C:310:LYS:HG2	1:C:600:PRO:HA	1.81	0.63
3:L:54:GLN:HA	3:L:54:GLN:OE1	1.97	0.63
2:F:37:VAL:HG22	2:F:47:TRP:HA	1.81	0.63
1:A:34:ARG:NH2	1:A:191:GLU:OE1	2.31	0.62
1:B:722:VAL:HG22	1:B:930:ALA:HB1	1.81	0.62
3:L:68:ASP:OD2	3:L:70:SER:N	2.32	0.62
1:B:168:PHE:HE1	1:B:170:TYR:HB2	1.64	0.62
1:C:37:TYR:HB3	1:C:223:LEU:HB2	1.80	0.62
2:H:142:PRO:HG3	2:H:154:LEU:HD23	1.81	0.62
1:B:34:ARG:NH2	1:B:219:GLY:O	2.31	0.62
1:C:356:LYS:HB3	1:C:397:ALA:HB3	1.82	0.62
3:L:169:SER:O	3:L:171:GLN:NE2	2.31	0.62
1:A:378:LYS:CG	2:H:104:HIS:CD2	2.83	0.61
3:G:114:LYS:HA	3:G:144:TYR:HB3	1.81	0.61
1:A:273:ARG:NH1	1:A:290:ASP:OD2	2.33	0.61
1:B:338:PHE:HB3	5:B:1308:NAG:H81	1.82	0.61
1:A:328:ARG:HE	1:A:580:GLN:HG3	1.64	0.61
3:L:128:GLU:HG3	3:L:133:LYS:HB2	1.82	0.61
3:L:110:LEU:HD22	3:L:114:LYS:HZ1	1.64	0.61
1:C:325:SER:HB2	1:C:539:VAL:HG21	1.83	0.61
1:A:551:VAL:HG12	1:A:588:THR:HB	1.83	0.61
1:A:969:ASN:ND2	1:A:975:SER:OG	2.34	0.61
1:B:178:ASP:OD2	1:B:190:ARG:NH2	2.34	0.61
1:C:402:ILE:HD12	1:C:406:GLU:HB3	1.83	0.60
1:A:792:PRO:HG3	1:C:707:TYR:HB3	1.82	0.60
1:A:378:LYS:HG3	2:H:104:HIS:CD2	2.37	0.59
1:A:406:GLU:HB2	1:A:409:GLN:HG3	1.83	0.59
2:F:210:TYR:HE2	2:F:229:PRO:HD3	1.66	0.59
3:L:64:SER:HB2	3:L:77:THR:HB	1.84	0.59
3:G:24:ARG:HG2	3:G:24:ARG:HH11	1.67	0.59
1:C:729:VAL:HG22	1:C:1059:GLY:HA2	1.84	0.59
2:F:100:LEU:N	2:F:115:GLY:O	2.32	0.59
1:A:380:TYR:N	1:A:431:GLY:O	2.35	0.59
2:F:117:ASP:OD1	2:F:118:TYR:N	2.36	0.59
3:L:35:GLN:HA	3:L:50:TYR:HA	1.85	0.59
1:C:58:PHE:HD2	1:C:290:ASP:HB2	1.66	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:378:LYS:CG	2:H:104:HIS:NE2	2.66	0.59
2:H:38:ARG:HA	2:H:94:TYR:HA	1.84	0.58
1:C:722:VAL:HG22	1:C:930:ALA:HB1	1.85	0.58
2:H:38:ARG:NH1	2:H:94:TYR:OH	2.36	0.58
3:L:95:ASP:OD1	3:L:96:SER:N	2.27	0.58
1:A:417:LYS:O	1:A:421:TYR:HB2	2.04	0.58
1:B:564:GLN:HA	1:B:577:ARG:HH12	1.68	0.58
2:F:51:ILE:HD13	2:F:58:LYS:HE3	1.84	0.58
3:L:136:LEU:HB3	3:L:182:LEU:HB3	1.86	0.58
1:A:659:SER:HB2	1:A:698:SER:HB2	1.85	0.58
2:H:216:HIS:HD2	2:H:218:PRO:HD2	1.69	0.58
1:C:326:ILE:HG22	1:C:327:VAL:H	1.69	0.58
2:F:52:SER:HB3	2:F:57:ASP:HB2	1.83	0.58
2:H:36:TRP:CE2	2:H:81:LEU:HD22	2.39	0.58
1:B:886:TRP:HB2	1:B:1035:GLY:HA2	1.85	0.57
1:A:402:ILE:HD12	1:A:406:GLU:HG2	1.85	0.57
2:F:58:LYS:NZ	2:F:70:ILE:O	2.36	0.57
1:B:113:LYS:HG3	1:B:114:THR:HG23	1.86	0.57
1:B:461:LEU:HD21	1:B:467:ASP:HB2	1.86	0.57
3:G:40:ARG:NH2	3:G:84:GLU:O	2.34	0.57
1:A:879:ALA:O	1:A:883:THR:HG22	2.05	0.57
1:A:770:ILE:HD11	1:A:1012:LEU:HA	1.87	0.57
1:A:134:GLN:HB3	1:A:161:SER:HB2	1.85	0.57
1:B:280:ASN:ND2	1:B:284:THR:O	2.37	0.57
1:C:715:PRO:HA	1:C:1072:GLU:HA	1.85	0.57
1:B:54:LEU:N	1:B:54:LEU:HD12	2.20	0.56
1:B:126:VAL:HG23	1:B:174:PRO:HA	1.86	0.56
2:F:29:PHE:CD2	2:F:77:ASN:HA	2.40	0.56
1:A:821:LEU:HD11	1:A:939:SER:HB2	1.86	0.56
1:C:102:ARG:NH1	1:C:154:GLU:OE1	2.36	0.56
1:C:353:TRP:O	1:C:466:ARG:NH1	2.38	0.56
2:F:93:VAL:HA	2:F:124:LEU:HA	1.86	0.56
1:B:756:TYR:OH	1:B:998:THR:OG1	2.20	0.56
1:C:737:ASP:OD1	1:C:737:ASP:N	2.37	0.56
2:H:201:PRO:O	2:H:204:SER:OG	2.24	0.56
2:H:38:ARG:HD3	2:H:94:TYR:CZ	2.41	0.56
2:F:33:GLY:N	2:F:99:ASP:OD2	2.38	0.56
1:A:106:PHE:HB2	1:A:117:LEU:HB3	1.87	0.56
1:A:353:TRP:O	1:A:466:ARG:NH1	2.39	0.56
1:A:879:ALA:HA	1:A:882:ILE:HG22	1.88	0.56
1:A:378:LYS:HG2	2:H:104:HIS:CD2	2.41	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:126:SER:HA	3:G:129:LEU:HD12	1.87	0.56
1:C:57:PRO:HB2	1:C:60:SER:HB2	1.87	0.56
1:A:428:ASP:OD1	1:A:428:ASP:N	2.34	0.55
1:A:805:ILE:HG13	1:A:1054:GLN:NE2	2.21	0.55
1:C:115:GLN:NE2	1:C:165:ASN:O	2.38	0.55
1:C:954:GLN:OE1	1:C:1014:ARG:NH1	2.39	0.55
3:G:94:TYR:CE2	3:G:96:SER:HA	2.40	0.55
2:H:11:VAL:HG21	2:H:163:PRO:HG3	1.88	0.55
1:A:115:GLN:NE2	1:A:165:ASN:O	2.40	0.55
1:A:1135:ASN:OD1	1:A:1136:THR:N	2.40	0.55
1:B:34:ARG:HH22	1:B:217:PRO:HD2	1.70	0.55
3:L:140:ILE:HG21	3:L:148:VAL:HG21	1.88	0.55
1:A:371:SER:OG	1:A:373:SER:OG	2.24	0.55
1:C:1027:THR:OG1	1:C:1031:GLU:OE2	2.24	0.55
3:L:141:SER:HA	3:L:177:ALA:HA	1.89	0.55
1:A:102:ARG:HG2	1:A:141:LEU:HD22	1.89	0.55
1:B:58:PHE:HD2	1:B:290:ASP:HB2	1.71	0.55
1:B:33:THR:HA	1:B:58:PHE:HD1	1.72	0.55
1:C:64:TRP:HE1	1:C:264:ALA:HB1	1.72	0.55
3:L:114:LYS:HD3	3:L:114:LYS:N	2.22	0.54
1:A:126:VAL:HG23	1:A:174:PRO:HA	1.89	0.54
1:A:614:ASP:OD1	1:A:614:ASP:N	2.40	0.54
2:F:36:TRP:CZ2	2:F:79:LEU:HG	2.42	0.54
2:F:184:ALA:HA	2:F:194:LEU:HB3	1.88	0.54
2:H:29:PHE:HE1	2:H:34:MET:HE1	1.72	0.54
2:F:6:GLU:OE1	2:F:121:GLN:N	2.40	0.54
1:C:274:THR:HG23	1:C:291:CYS:HB2	1.88	0.54
3:L:105:THR:HG23	3:L:105:THR:O	2.06	0.54
1:A:328:ARG:HH12	1:A:533:LEU:HB3	1.73	0.54
1:C:1092:GLU:OE2	1:C:1092:GLU:N	2.41	0.54
3:G:19:THR:OG1	3:G:75:SER:OG	2.25	0.54
1:B:747:THR:O	1:B:751:ASN:ND2	2.41	0.54
3:G:6:GLN:HE21	3:G:105:THR:HG23	1.73	0.54
2:H:90:ASP:HB2	2:H:127:VAL:HG11	1.90	0.54
1:B:886:TRP:HE3	1:B:886:TRP:H	1.55	0.54
1:B:985:ASP:N	1:B:985:ASP:OD1	2.40	0.54
2:F:40:ALA:HB3	2:F:43:LYS:HB2	1.89	0.54
3:G:36:TRP:HE3	3:G:49:ILE:HB	1.72	0.54
2:F:159:LYS:NZ	2:F:187:GLN:OE1	2.41	0.53
2:F:5:VAL:HB	2:F:23:ALA:HB3	1.89	0.53
3:G:66:SER:N	3:G:75:SER:O	2.41	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:143:PHE:HZ	3:G:168:PRO:HB3	1.74	0.53
3:G:199:VAL:HB	3:G:206:VAL:HG13	1.90	0.53
1:A:91:TYR:OH	1:A:191:GLU:OE2	2.23	0.53
1:C:366:SER:HA	1:C:369:TYR:CE1	2.44	0.53
1:C:428:ASP:OD1	1:C:428:ASP:N	2.37	0.53
3:G:168:PRO:HA	3:G:178:ALA:HB2	1.91	0.53
1:A:378:LYS:O	1:A:433:VAL:N	2.38	0.53
1:C:23:GLN:NE2	1:C:80:ASP:OD2	2.38	0.53
1:C:77:LYS:NZ	1:C:258:TRP:O	2.37	0.53
1:C:100:ILE:HG22	1:C:242:LEU:HD12	1.90	0.53
1:A:765:ARG:HH12	1:C:961:THR:HG21	1.74	0.53
1:B:770:ILE:HD11	1:B:1012:LEU:HD23	1.91	0.52
3:L:68:ASP:OD2	3:L:69:SER:N	2.42	0.52
1:A:457:ARG:NH1	1:A:459:SER:O	2.36	0.52
1:B:34:ARG:NH1	1:B:191:GLU:OE2	2.34	0.52
3:G:169:SER:N	3:G:177:ALA:O	2.36	0.52
1:A:115:GLN:NE2	1:A:167:THR:OG1	2.41	0.52
3:G:82:LYS:N	3:G:85:ASP:OD2	2.39	0.52
1:B:821:LEU:HD21	1:B:939:SER:HB2	1.92	0.52
1:C:884:SER:HB2	1:C:888:PHE:HB3	1.90	0.52
3:G:14:PRO:HA	3:G:81:LEU:HB3	1.91	0.52
1:B:611:LEU:HA	1:B:650:LEU:HA	1.90	0.52
2:H:6:GLU:OE1	2:H:123:THR:OG1	2.28	0.52
1:A:295:PRO:O	1:A:299:THR:HG23	2.09	0.52
1:A:432:CYS:HB3	1:A:513:LEU:HB2	1.91	0.52
3:L:64:SER:N	3:L:77:THR:O	2.42	0.52
1:C:321:GLN:OE1	1:C:322:PRO:HD2	2.09	0.52
2:F:34:MET:SD	2:F:34:MET:N	2.82	0.52
3:L:168:PRO:HG3	3:L:178:ALA:HB2	1.92	0.52
2:F:185:VAL:HG13	3:G:166:THR:HG21	1.92	0.52
2:H:60:TYR:HE2	2:H:68:PHE:HB2	1.75	0.52
2:H:35:HIS:CE1	2:H:47:TRP:HE1	2.27	0.52
1:A:432:CYS:N	1:A:513:LEU:O	2.34	0.51
3:L:185:THR:O	3:L:189:TRP:N	2.41	0.51
1:C:302:THR:HG21	1:C:315:THR:HA	1.92	0.51
1:A:884:SER:OG	1:A:885:GLY:N	2.42	0.51
1:A:1043:CYS:HB3	1:A:1048:HIS:CD2	2.45	0.51
3:G:81:LEU:HD23	3:G:109:VAL:HG22	1.92	0.51
1:B:707:TYR:HB3	1:C:792:PRO:HG3	1.92	0.51
2:F:36:TRP:NE1	2:F:81:LEU:HB2	2.24	0.51
1:C:901:GLN:OE1	1:C:905:ARG:NE	2.41	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:20:ILE:HD12	3:L:76:LEU:HD23	1.93	0.51
1:C:185:ASN:HB2	1:C:187:LYS:HG3	1.93	0.51
1:C:584:ILE:HD12	1:C:584:ILE:H	1.76	0.51
1:A:106:PHE:HB3	1:A:235:ILE:HD12	1.93	0.51
1:A:448:ASN:HB3	1:A:497:PHE:HB2	1.93	0.51
1:B:141:LEU:HB3	1:B:243:ALA:HA	1.93	0.51
1:B:1130:ILE:HD12	1:B:1131:GLY:H	1.76	0.51
1:C:645:THR:HB	1:C:670:ILE:HD12	1.93	0.51
2:F:137:VAL:HG22	2:F:158:VAL:HG13	1.93	0.50
3:G:64:SER:N	3:G:77:THR:O	2.44	0.50
1:A:494:SER:OG	1:A:495:TYR:N	2.44	0.50
2:F:35:HIS:CD2	2:F:50:PHE:HE1	2.29	0.50
2:H:72:ARG:HG2	2:H:79:LEU:HD13	1.93	0.50
2:H:103:GLY:HA3	2:H:112:THR:OG1	2.11	0.50
2:H:101:SER:OG	2:H:102:ALA:N	2.44	0.50
3:G:38:GLN:N	3:G:46:THR:O	2.30	0.50
2:F:58:LYS:NZ	2:F:70:ILE:HG23	2.26	0.50
1:A:66:HIS:CD2	1:A:264:ALA:HB2	2.46	0.50
3:L:24:ARG:NE	3:L:95:ASP:OD2	2.44	0.50
1:A:1041:ASP:HB3	1:B:1030:SER:HB3	1.94	0.50
1:B:353:TRP:O	1:B:466:ARG:NH1	2.40	0.50
1:A:380:TYR:CZ	1:A:412:PRO:HD3	2.47	0.49
1:C:366:SER:HA	1:C:369:TYR:HE1	1.77	0.49
2:H:76:LYS:O	2:H:76:LYS:NZ	2.33	0.49
1:C:736:VAL:HG11	1:C:1004:LEU:HD11	1.94	0.49
2:F:185:VAL:HG22	3:G:166:THR:HG21	1.93	0.49
3:L:6:GLN:OE1	3:L:6:GLN:N	2.45	0.49
1:A:66:HIS:HD2	1:A:264:ALA:HB2	1.77	0.49
1:C:33:THR:HB	1:C:219:GLY:HA3	1.93	0.49
1:C:377:PHE:HB2	1:C:434:ILE:HG12	1.95	0.49
3:G:93:SER:OG	3:G:94:TYR:N	2.45	0.49
1:A:381:GLY:HA3	1:A:430:THR:HG23	1.93	0.49
1:A:722:VAL:HG22	1:A:930:ALA:HB1	1.94	0.49
1:B:645:THR:HG22	1:B:647:ALA:H	1.78	0.49
1:C:102:ARG:HG3	1:C:141:LEU:HD22	1.94	0.49
1:A:383:SER:N	2:H:53:TYR:OH	2.39	0.49
1:C:558:LYS:HE3	1:C:558:LYS:HA	1.93	0.49
3:G:16:LYS:HD3	3:G:16:LYS:N	2.28	0.49
1:C:102:ARG:O	1:C:121:ASN:ND2	2.36	0.49
1:C:712:ILE:HB	1:C:1077:THR:HG21	1.94	0.49
2:F:83:MET:HE1	2:F:86:LEU:HD21	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:G:2:PHE:HB2	3:G:100:VAL:HG21	1.95	0.49
1:C:365:TYR:HA	1:C:368:LEU:HD13	1.95	0.49
1:C:1135:ASN:OD1	1:C:1136:THR:N	2.40	0.49
2:F:185:VAL:N	2:F:193:SER:O	2.42	0.49
1:A:617:CYS:SG	1:A:644:GLN:NE2	2.86	0.49
1:B:350:VAL:HG22	1:B:422:ASN:HB3	1.95	0.49
1:B:726:ILE:HG12	1:B:1061:VAL:HG23	1.94	0.49
1:C:428:ASP:HB3	2:F:28:THR:HG21	1.95	0.49
3:G:153:LYS:HG2	3:G:158:PRO:HA	1.94	0.49
2:H:47:TRP:CD2	3:L:99:VAL:HB	2.47	0.49
1:C:382:VAL:HG13	1:C:383:SER:N	2.28	0.48
2:F:12:VAL:HG11	2:F:18:LEU:HD22	1.95	0.48
2:F:13:GLN:H	2:F:13:GLN:CD	2.16	0.48
2:F:132:THR:HG23	2:F:163:PRO:HD3	1.95	0.48
2:H:13:GLN:NE2	2:H:14:PRO:HD2	2.28	0.48
1:A:707:TYR:HB3	1:B:792:PRO:HG3	1.94	0.48
1:B:566:GLY:HA2	1:C:43:PHE:HB3	1.94	0.48
1:A:94:SER:OG	1:A:264:ALA:O	2.28	0.48
1:A:366:SER:HA	1:A:369:TYR:CZ	2.49	0.48
1:C:95:THR:HG22	1:C:189:LEU:HB2	1.95	0.48
1:A:736:VAL:HG22	1:A:858:LEU:HD13	1.96	0.48
1:B:804:GLN:NE2	1:B:935:GLN:OE1	2.32	0.48
1:C:329:PHE:HD1	1:C:330:PRO:HD2	1.77	0.48
2:H:188:SER:H	3:L:183:SER:HB3	1.79	0.48
3:L:112:GLN:OE1	3:L:175:LYS:NZ	2.34	0.48
3:G:48:VAL:O	3:G:56:PRO:HD3	2.14	0.48
3:G:68:ASP:N	3:G:73:SER:O	2.46	0.48
2:H:29:PHE:HD1	2:H:29:PHE:O	1.97	0.48
2:H:6:GLU:OE2	2:H:22:CYS:HB3	2.14	0.48
2:H:35:HIS:CE1	2:H:50:PHE:HB2	2.48	0.48
1:A:379:CYS:HA	1:A:432:CYS:HA	1.95	0.48
1:B:477:SER:HB2	3:G:131:ALA:HA	1.95	0.48
2:F:22:CYS:HB3	2:F:79:LEU:HB3	1.95	0.48
1:A:335:LEU:HD23	1:A:336:CYS:N	2.29	0.48
1:A:408:ARG:HH12	1:A:409:GLN:HA	1.79	0.48
1:B:176:LEU:HD23	1:B:190:ARG:HD2	1.94	0.48
3:L:145:PRO:O	3:L:201:HIS:NE2	2.32	0.48
1:B:674:TYR:HE1	1:B:690:GLN:HE21	1.62	0.47
1:A:105:ILE:HG23	1:A:241:LEU:HD21	1.96	0.47
1:B:637:SER:HB3	1:B:651:ILE:HD13	1.95	0.47
1:C:278:LYS:NZ	1:C:286:THR:OG1	2.39	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:659:SER:HB2	1:C:698:SER:HB2	1.96	0.47
1:C:886:TRP:HB2	1:C:1035:GLY:HA2	1.96	0.47
1:A:335:LEU:HD23	1:A:336:CYS:H	1.78	0.47
1:A:408:ARG:HH22	1:A:409:GLN:HG2	1.79	0.47
1:C:326:ILE:HB	1:C:531:THR:HG21	1.95	0.47
2:H:94:TYR:N	2:H:123:THR:O	2.42	0.47
2:H:166:VAL:HG22	2:H:216:HIS:HB2	1.96	0.47
1:A:1039:ARG:NE	1:B:1031:GLU:OE2	2.38	0.47
1:B:29:THR:O	1:B:62:VAL:HG12	2.14	0.47
1:B:905:ARG:NH1	1:B:1049:LEU:O	2.43	0.47
2:F:130:ALA:HB1	2:F:133:LYS:HE3	1.95	0.47
3:L:131:ALA:HB1	3:L:133:LYS:HE3	1.96	0.47
1:A:977:LEU:O	1:A:981:LEU:HG	2.14	0.47
1:B:33:THR:HA	1:B:58:PHE:CD1	2.49	0.47
1:B:567:ARG:HD3	1:B:571:ASP:HA	1.96	0.47
1:B:977:LEU:HD22	1:B:993:ILE:HD11	1.95	0.47
1:B:1095:PHE:HE1	1:B:1115:ILE:HD13	1.79	0.47
1:C:81:ASN:HD21	1:C:239:GLN:HE21	1.63	0.47
1:C:314:GLN:OE1	1:C:314:GLN:N	2.47	0.47
1:C:375:SER:HB3	1:C:436:TRP:HA	1.95	0.47
2:F:170:TRP:CD1	2:F:179:VAL:HG22	2.50	0.47
3:L:93:SER:OG	3:L:94:TYR:N	2.47	0.47
1:A:408:ARG:HD3	3:L:55:ARG:O	2.15	0.47
1:A:754:LEU:HD12	1:A:754:LEU:H	1.78	0.47
1:C:552:LEU:HD22	1:C:585:LEU:HD23	1.97	0.47
2:H:159:LYS:NZ	2:H:193:SER:OG	2.46	0.47
1:B:231:ILE:HD12	1:B:233:ILE:HD11	1.97	0.47
1:B:802:PHE:HD1	1:B:805:ILE:HD11	1.80	0.47
3:G:150:VAL:HG13	3:G:199:VAL:HG22	1.96	0.47
2:H:98:ARG:O	2:H:116:ILE:HA	2.15	0.47
1:A:34:ARG:HH12	1:A:221:SER:HB3	1.80	0.46
1:A:296:LEU:HG	1:A:300:LYS:HE3	1.97	0.46
1:C:58:PHE:HB3	1:C:293:LEU:HD11	1.96	0.46
2:F:5:VAL:O	2:F:23:ALA:N	2.43	0.46
2:F:170:TRP:HD1	2:F:179:VAL:HG22	1.80	0.46
1:B:777:ASN:HD21	1:B:1019:ARG:HA	1.80	0.46
2:H:162:PHE:HA	2:H:163:PRO:HA	1.65	0.46
1:B:170:TYR:HD1	1:B:171:VAL:N	2.14	0.46
1:C:39:PRO:HG3	1:C:51:THR:HG21	1.98	0.46
3:L:142:ASP:HA	3:L:175:LYS:HB3	1.97	0.46
1:A:42:VAL:HG11	1:C:567:ARG:HE	1.81	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:438:SER:HB2	1:A:509:ARG:HG3	1.98	0.46
1:C:34:ARG:HG3	1:C:216:LEU:HD22	1.97	0.46
3:G:121:LEU:HD23	3:G:138:CYS:HA	1.98	0.46
1:A:328:ARG:HH12	1:A:533:LEU:HD22	1.81	0.46
1:C:139:PRO:HB2	1:C:159:VAL:HG13	1.98	0.46
3:G:81:LEU:HD21	3:G:107:LEU:HD21	1.96	0.46
3:G:86:GLU:OE1	3:G:170:LYS:NZ	2.42	0.46
2:H:116:ILE:HD12	3:L:37:TYR:CE2	2.51	0.46
1:A:328:ARG:NH1	1:A:533:LEU:HB3	2.30	0.46
3:G:11:SER:HB2	3:G:110:LEU:HD21	1.98	0.46
1:C:448:ASN:HB3	1:C:497:PHE:HD2	1.81	0.46
1:C:457:ARG:NH1	1:C:459:SER:O	2.44	0.46
1:C:337:PRO:HD2	1:C:363:ALA:HB2	1.97	0.45
2:F:3:GLN:NE2	2:F:119:TRP:O	2.48	0.45
2:F:83:MET:HE1	2:F:125:VAL:HG21	1.96	0.45
2:F:12:VAL:HG23	2:F:127:VAL:HG22	1.99	0.45
3:G:132:ASN:HA	3:G:186:PRO:HG2	1.98	0.45
2:H:139:PRO:HB3	2:H:225:LYS:HD2	1.98	0.45
1:A:189:LEU:HD11	1:A:191:GLU:HG3	1.98	0.45
1:A:586:ASP:N	1:A:586:ASP:OD1	2.49	0.45
1:A:104:TRP:HZ3	1:A:176:LEU:HD11	1.80	0.45
1:A:296:LEU:HB2	1:A:608:VAL:HG11	1.99	0.45
1:A:336:CYS:N	1:A:362:VAL:O	2.50	0.45
1:A:570:ALA:HA	1:B:964:LYS:HE2	1.98	0.45
1:A:611:LEU:HD12	1:A:650:LEU:HD13	1.98	0.45
1:A:661:GLU:OE2	1:A:661:GLU:N	2.49	0.45
1:B:753:LEU:HD12	1:B:753:LEU:O	2.17	0.45
1:C:59:PHE:HD1	1:C:293:LEU:HD21	1.81	0.45
1:C:327:VAL:HG12	1:C:328:ARG:H	1.80	0.45
1:A:410:ILE:HD12	1:A:410:ILE:H	1.80	0.45
1:A:996:LEU:HD23	1:A:996:LEU:HA	1.82	0.45
1:A:1083:HIS:CG	1:A:1137:VAL:HB	2.51	0.45
2:F:60:TYR:OH	2:F:68:PHE:HB2	2.16	0.45
2:H:34:MET:HA	2:H:98:ARG:HA	1.98	0.45
1:A:418:ILE:H	1:A:418:ILE:HG13	1.60	0.45
2:F:69:THR:O	2:F:82:GLN:N	2.49	0.45
3:L:170:LYS:HG2	3:L:176:TYR:CZ	2.52	0.45
1:A:57:PRO:HB2	1:A:60:SER:OG	2.16	0.45
1:A:105:ILE:HD11	1:A:239:GLN:HB3	1.99	0.45
1:B:815:ARG:HB3	1:B:819:GLU:HB3	1.99	0.45
1:C:375:SER:OG	1:C:376:THR:N	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:660:TYR:HB2	1:C:695:TYR:CZ	2.52	0.45
2:H:99:ASP:OD1	2:H:100:LEU:N	2.43	0.45
2:H:60:TYR:CD2	2:H:64:VAL:HG23	2.52	0.45
1:C:406:GLU:HG2	1:C:409:GLN:HB2	1.97	0.45
2:H:11:VAL:CG2	2:H:163:PRO:HG3	2.46	0.45
2:H:100:LEU:HG	2:H:115:GLY:H	1.82	0.45
2:H:215:ASN:HD21	2:H:217:LYS:HE3	1.82	0.45
1:A:178:ASP:OD1	1:A:188:ASN:ND2	2.50	0.45
1:A:394:ASN:OD1	1:A:395:VAL:N	2.50	0.44
1:C:763:LEU:HD22	1:C:1008:VAL:HG21	1.99	0.44
2:F:13:GLN:OE1	2:F:16:ARG:HG3	2.18	0.44
2:H:162:PHE:HD2	2:H:192:TYR:HE1	1.66	0.44
1:A:37:TYR:OH	1:A:54:LEU:O	2.25	0.44
1:B:713:ALA:HB3	1:C:894:LEU:HB3	1.99	0.44
1:B:743:CYS:SG	1:B:750:SER:HA	2.57	0.44
3:G:51:GLU:O	3:G:52:ASP:HB3	2.18	0.44
2:H:33:GLY:O	2:H:99:ASP:N	2.46	0.44
1:A:380:TYR:OH	1:A:412:PRO:HD3	2.17	0.44
1:B:656:VAL:HG12	1:B:695:TYR:HB3	1.99	0.44
3:G:60:PRO:HG2	3:G:62:ARG:HH21	1.82	0.44
1:A:48:LEU:HB3	1:A:276:LEU:HD11	2.00	0.44
1:A:335:LEU:HD21	1:A:364:ASP:HB3	1.98	0.44
1:A:501:ASN:HB3	1:A:505:TYR:HB2	1.99	0.44
1:C:329:PHE:CD1	1:C:330:PRO:HD2	2.52	0.44
1:C:569:ILE:O	1:C:572:THR:OG1	2.20	0.44
3:G:13:SER:OG	3:G:16:LYS:HE2	2.18	0.44
1:A:1082:CYS:HB2	1:A:1134:ASN:HA	2.00	0.44
1:C:34:ARG:HH11	1:C:219:GLY:HA2	1.82	0.44
1:C:185:ASN:OD1	1:C:185:ASN:N	2.50	0.44
2:F:6:GLU:OE1	2:F:6:GLU:N	2.51	0.44
3:L:50:TYR:CE2	3:L:54:GLN:HG2	2.53	0.44
1:A:43:PHE:H	1:C:566:GLY:HA2	1.82	0.44
1:A:598:ILE:HB	1:A:609:ALA:HB3	1.98	0.44
1:A:752:LEU:HD23	1:A:752:LEU:O	2.17	0.44
1:B:331:ASN:OD1	4:R:1:NAG:N2	2.50	0.44
1:C:290:ASP:OD1	1:C:291:CYS:N	2.49	0.44
1:C:380:TYR:HE1	2:F:101:SER:HA	1.82	0.44
1:C:426:PRO:HD3	1:C:463:PRO:HB3	1.99	0.44
1:C:631:PRO:HB2	1:C:632:THR:H	1.53	0.44
2:F:35:HIS:CG	2:F:97:ALA:HB3	2.52	0.44
2:F:210:TYR:CE2	2:F:229:PRO:HD3	2.51	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:2:PHE:HE1	3:L:26:SER:HB3	1.83	0.44
1:A:437:ASN:HA	1:A:508:TYR:HA	2.00	0.44
1:B:660:TYR:HB2	1:B:695:TYR:CZ	2.52	0.44
1:C:401:VAL:HG23	1:C:509:ARG:HH11	1.83	0.44
2:F:58:LYS:HE2	2:F:58:LYS:HB3	1.74	0.44
1:B:143:VAL:HG12	1:B:154:GLU:HA	1.98	0.44
1:B:366:SER:HA	1:B:369:TYR:CZ	2.52	0.43
1:B:718:PHE:HE2	1:B:923:ILE:HG12	1.82	0.43
1:C:905:ARG:O	1:C:909:ILE:HG23	2.17	0.43
2:F:142:PRO:HD2	2:F:229:PRO:HA	2.00	0.43
1:A:89:GLY:HA3	1:A:270:LEU:HD12	2.00	0.43
1:A:596:SER:N	1:A:611:LEU:O	2.51	0.43
1:A:954:GLN:HG3	1:A:1014:ARG:HD3	2.00	0.43
1:B:318:PHE:CZ	1:B:615:VAL:HG21	2.52	0.43
1:B:1029:MET:O	1:B:1033:VAL:HG12	2.18	0.43
3:G:33:TYR:HD2	3:G:94:TYR:O	2.01	0.43
1:B:40:ASP:OD1	1:B:41:LYS:N	2.39	0.43
1:C:878:LEU:HD13	1:C:1052:PHE:HB3	1.99	0.43
2:F:69:THR:O	2:F:81:LEU:HD12	2.19	0.43
2:H:99:ASP:OD1	2:H:115:GLY:N	2.51	0.43
1:C:555:SER:HB2	1:C:586:ASP:HB2	2.00	0.43
1:C:1114:ILE:H	1:C:1114:ILE:HD12	1.84	0.43
2:F:29:PHE:CZ	2:F:72:ARG:HD3	2.53	0.43
3:L:2:PHE:HB3	3:L:24:ARG:HH11	1.82	0.43
1:A:211:ASN:N	1:A:211:ASN:OD1	2.52	0.43
1:A:408:ARG:O	1:A:408:ARG:HG2	2.18	0.43
1:B:316:SER:OG	1:B:317:ASN:N	2.50	0.43
3:L:89:TYR:O	3:L:104:GLY:HA2	2.19	0.43
1:A:32:PHE:HD2	1:A:218:GLN:HA	1.82	0.43
2:F:204:SER:HB2	2:F:208:GLN:HB2	2.00	0.43
2:H:87:ARG:N	2:H:90:ASP:OD2	2.38	0.43
3:L:37:TYR:HA	3:L:48:VAL:HG23	1.99	0.43
1:A:295:PRO:HG2	1:A:608:VAL:HG21	2.01	0.43
1:A:805:ILE:HG13	1:A:1054:GLN:HE22	1.83	0.43
1:C:365:TYR:CD2	1:C:387:LEU:HD11	2.54	0.43
1:A:392:PHE:CE2	1:A:515:PHE:HB3	2.54	0.43
1:A:763:LEU:HD22	1:A:1008:VAL:HG21	2.00	0.43
1:B:537:LYS:O	1:B:539:VAL:HG13	2.19	0.43
1:C:365:TYR:HD2	1:C:387:LEU:HD11	1.83	0.43
1:C:642:VAL:HG12	1:C:651:ILE:HG12	2.01	0.43
1:C:763:LEU:HD22	1:C:1008:VAL:HG11	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:997:ILE:HD13	1:A:997:ILE:HA	1.84	0.43
2:F:100:LEU:HD11	3:G:50:TYR:CZ	2.54	0.43
1:B:54:LEU:C	1:B:270:LEU:HD23	2.37	0.42
1:C:398:ASP:HB2	1:C:512:VAL:HG12	2.01	0.42
2:F:5:VAL:HA	2:F:121:GLN:HG2	2.00	0.42
2:H:162:PHE:HD2	2:H:192:TYR:CE1	2.37	0.42
1:B:802:PHE:CD1	1:B:805:ILE:HD11	2.54	0.42
1:C:1086:LYS:HD2	1:C:1122:VAL:HG21	2.00	0.42
2:F:60:TYR:CE2	2:F:65:LYS:HA	2.55	0.42
2:H:185:VAL:HG11	3:L:181:TYR:HB2	2.01	0.42
2:H:212:CYS:SG	2:H:225:LYS:HB3	2.59	0.42
3:L:182:LEU:HG	3:L:184:LEU:HG	2.01	0.42
1:A:1040:VAL:C	1:A:1042:PHE:H	2.22	0.42
1:C:741:TYR:CE2	1:C:1004:LEU:HD13	2.54	0.42
1:A:328:ARG:HH22	1:A:533:LEU:HD22	1.85	0.42
1:A:650:LEU:HD12	1:A:650:LEU:HA	1.87	0.42
1:B:884:SER:HB3	1:B:888:PHE:HB3	2.00	0.42
1:C:733:LYS:NZ	1:C:775:ASP:OD2	2.48	0.42
1:B:574:ASP:HA	1:B:587:ILE:HB	2.02	0.42
2:F:182:PHE:N	2:F:195:SER:O	2.42	0.42
2:H:39:GLN:HB3	2:H:93:VAL:HG13	2.01	0.42
1:A:1003:SER:O	1:A:1006:THR:HG22	2.19	0.42
1:B:577:ARG:HH21	1:B:582:LEU:HD22	1.85	0.42
1:C:321:GLN:OE1	1:C:321:GLN:HA	2.18	0.42
1:C:898:PHE:HZ	1:C:1050:MET:HE1	1.84	0.42
2:F:185:VAL:O	2:F:192:TYR:HA	2.19	0.42
1:A:716:THR:HG22	1:A:1071:GLN:O	2.20	0.42
1:B:117:LEU:HD12	1:B:118:LEU:N	2.34	0.42
1:B:323:THR:HG21	1:B:537:LYS:HD3	2.02	0.42
1:B:775:ASP:OD2	1:B:864:LEU:HB2	2.19	0.42
2:F:37:VAL:HA	2:F:48:VAL:HG23	2.01	0.42
3:G:135:THR:HA	3:G:183:SER:HA	2.00	0.42
3:G:144:TYR:CD1	3:G:145:PRO:HA	2.54	0.42
1:A:278:LYS:HB2	1:A:306:PHE:CE2	2.55	0.42
1:B:470:THR:HG22	1:B:492:LEU:HD11	2.02	0.42
1:B:985:ASP:HB2	1:B:987:PRO:HD2	2.00	0.42
3:G:38:GLN:O	3:G:46:THR:N	2.28	0.42
1:A:416:GLY:N	1:A:420:ASP:OD2	2.51	0.42
1:A:566:GLY:HA2	1:B:43:PHE:HB3	2.01	0.42
1:B:927:PHE:HZ	1:B:1052:PHE:HE2	1.66	0.42
1:B:1041:ASP:HB3	1:C:1030:SER:HB3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:186:PRO:HA	3:L:189:TRP:HB3	2.01	0.42
1:C:112:SER:HA	1:C:132:GLU:HB3	2.02	0.42
1:C:599:THR:HB	1:C:608:VAL:HG12	2.02	0.42
2:F:87:ARG:HA	2:F:87:ARG:HD3	1.67	0.42
2:H:18:LEU:HD12	2:H:19:ARG:H	1.84	0.42
2:H:35:HIS:ND1	2:H:49:ALA:O	2.53	0.42
2:H:50:PHE:O	2:H:51:ILE:HD13	2.21	0.41
2:H:146:SER:O	2:H:202:SER:HB3	2.20	0.41
1:A:401:VAL:HG21	1:A:451:TYR:CZ	2.54	0.41
1:A:406:GLU:N	1:A:406:GLU:OE1	2.53	0.41
1:A:699:LEU:HD23	1:B:873:TYR:CZ	2.55	0.41
1:A:1079:PRO:HB3	1:B:917:TYR:CZ	2.55	0.41
2:H:18:LEU:HD12	2:H:19:ARG:N	2.35	0.41
3:L:140:ILE:HG22	3:L:143:PHE:CE1	2.56	0.41
1:B:973:ILE:HB	1:B:980:ILE:HD11	2.01	0.41
1:C:429:PHE:HE1	1:C:514:SER:HB3	1.84	0.41
3:L:19:THR:OG1	3:L:20:ILE:N	2.53	0.41
1:A:378:LYS:HG2	2:H:104:HIS:CE1	2.55	0.41
1:C:393:THR:O	1:C:523:THR:OG1	2.29	0.41
1:C:986:PRO:HA	1:C:989:ALA:HB3	2.02	0.41
3:G:144:TYR:O	3:G:201:HIS:NE2	2.47	0.41
2:H:36:TRP:CD2	2:H:81:LEU:HD22	2.56	0.41
1:A:133:PHE:HA	1:A:163:ALA:HB2	2.02	0.41
1:A:393:THR:HA	1:A:523:THR:H	1.85	0.41
1:C:125:ASN:HA	1:C:174:PRO:HD3	2.02	0.41
1:C:379:CYS:SG	1:C:384:PRO:HB3	2.61	0.41
2:H:171:ASN:HB3	2:H:174:ALA:HB3	2.02	0.41
1:B:29:THR:HG22	1:B:31:SER:H	1.85	0.41
3:G:36:TRP:CD1	3:G:91:CYS:HA	2.56	0.41
1:A:645:THR:HB	1:A:670:ILE:HD12	2.02	0.41
1:C:38:TYR:HE2	1:C:224:GLU:HG3	1.85	0.41
3:G:61:ASP:N	3:G:61:ASP:OD2	2.53	0.41
2:H:37:VAL:O	2:H:95:TYR:N	2.54	0.41
1:A:461:LEU:HD12	1:A:465:GLU:HB2	2.02	0.41
1:B:788:ILE:HG13	1:B:876:ALA:HB2	2.02	0.41
1:C:915:VAL:O	1:C:919:ASN:ND2	2.53	0.41
2:F:188:SER:HG	3:G:183:SER:H	1.62	0.41
3:G:56:PRO:HD2	3:G:59:VAL:HG21	2.03	0.41
1:A:32:PHE:CD2	1:A:218:GLN:HA	2.56	0.41
1:A:392:PHE:CD2	1:A:515:PHE:HB3	2.55	0.41
1:B:916:LEU:HD12	1:B:923:ILE:HD12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:938:LEU:HD12	1:B:938:LEU:HA	1.85	0.41
1:B:1135:ASN:OD1	1:B:1136:THR:N	2.54	0.41
1:C:332:ILE:HG22	1:C:362:VAL:HG11	2.03	0.41
1:C:384:PRO:HG2	1:C:385:THR:HG23	2.01	0.41
1:C:563:GLN:O	1:C:577:ARG:NH2	2.32	0.41
1:C:1106:GLN:H	1:C:1106:GLN:HG2	1.74	0.41
3:G:119:VAL:HG13	3:G:139:LEU:O	2.20	0.41
3:L:152:TRP:HD1	3:L:163:VAL:HG22	1.86	0.41
1:A:126:VAL:HG21	1:A:175:PHE:CE2	2.56	0.41
1:A:393:THR:O	1:A:523:THR:OG1	2.32	0.41
1:A:955:ASN:OD1	1:A:1011:GLN:NE2	2.51	0.41
1:A:1121:PHE:HE2	1:B:914:ASN:HD21	1.67	0.41
1:B:244:LEU:HA	1:B:260:ALA:HB2	2.03	0.41
1:C:722:VAL:HA	1:C:1064:HIS:O	2.21	0.41
1:C:931:ILE:HD13	1:C:931:ILE:HA	1.91	0.41
1:C:58:PHE:HB2	1:C:293:LEU:CD1	2.40	0.40
1:C:1080:ALA:HB3	1:C:1132:ILE:HG22	2.03	0.40
2:H:36:TRP:O	2:H:48:VAL:HB	2.21	0.40
1:B:146:HIS:HB3	1:B:149:ASN:HB2	2.02	0.40
1:B:805:ILE:HG13	1:B:878:LEU:HD21	2.03	0.40
1:B:1132:ILE:HD12	1:B:1132:ILE:HA	1.91	0.40
3:L:85:ASP:O	3:L:107:LEU:HD23	2.21	0.40
3:L:110:LEU:HB3	3:L:114:LYS:HZ1	1.85	0.40
1:B:641:ASN:OD1	1:B:641:ASN:N	2.54	0.40
1:C:146:HIS:HB3	1:C:149:ASN:HB2	2.03	0.40
1:C:902:MET:HE3	1:C:902:MET:HB2	1.89	0.40
3:G:28:SER:HA	3:G:72:ASN:ND2	2.36	0.40
3:G:150:VAL:HG22	3:G:199:VAL:HG22	2.02	0.40
2:H:38:ARG:HG3	2:H:46:GLU:HG3	2.03	0.40
1:C:106:PHE:HB3	1:C:235:ILE:HG21	2.03	0.40
1:A:533:LEU:HD23	1:A:533:LEU:H	1.87	0.40
1:A:713:ALA:HA	1:A:1074:ASN:HA	2.02	0.40
1:C:788:ILE:HG23	1:C:876:ALA:HB2	2.04	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	1075/1208 (89%)	1039 (97%)	36 (3%)	0	100	100
1	B	1078/1208 (89%)	1050 (97%)	28 (3%)	0	100	100
1	C	1077/1208 (89%)	1035 (96%)	42 (4%)	0	100	100
2	F	232/459 (50%)	217 (94%)	15 (6%)	0	100	100
2	H	232/459 (50%)	211 (91%)	20 (9%)	1 (0%)	34	70
3	G	214/216 (99%)	201 (94%)	12 (6%)	1 (0%)	29	66
3	L	214/216 (99%)	201 (94%)	13 (6%)	0	100	100
All	All	4122/4974 (83%)	3954 (96%)	166 (4%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	G	52	ASP
2	H	163	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	951/1056 (90%)	924 (97%)	27 (3%)	43	67
1	B	954/1056 (90%)	925 (97%)	29 (3%)	41	66
1	C	953/1056 (90%)	927 (97%)	26 (3%)	44	68
2	F	192/401 (48%)	182 (95%)	10 (5%)	23	54

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	193/401 (48%)	186 (96%)	7 (4%)	35	63
3	G	188/188 (100%)	184 (98%)	4 (2%)	53	73
3	L	188/188 (100%)	185 (98%)	3 (2%)	62	79
All	All	3619/4346 (83%)	3513 (97%)	106 (3%)	45	66

All (106) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	45	SER
1	A	87	ASN
1	A	102	ARG
1	A	140	PHE
1	A	205	SER
1	A	305	SER
1	A	306	PHE
1	A	357	ARG
1	A	428	ASP
1	A	493	GLN
1	A	568	ASP
1	A	586	ASP
1	A	613	GLN
1	A	662	CYS
1	A	738	CYS
1	A	754	LEU
1	A	856	ASN
1	A	904	TYR
1	A	907	ASN
1	A	919	ASN
1	A	954	GLN
1	A	990	GLU
1	A	1030	SER
1	A	1037	SER
1	A	1050	MET
1	A	1111	GLU
1	A	1138	TYR
1	B	58	PHE
1	B	153	MET
1	B	168	PHE
1	B	170	TYR
1	B	172	SER
1	B	228	ASP

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	B	275	PHE
1	B	305	SER
1	B	317	ASN
1	B	329	PHE
1	B	377	PHE
1	B	603	ASN
1	B	633	TRP
1	B	634	ARG
1	B	662	CYS
1	B	673	SER
1	B	695	TYR
1	B	697	MET
1	B	708	SER
1	B	738	CYS
1	B	740	MET
1	B	791	THR
1	B	795	LYS
1	B	803	SER
1	B	867	ASP
1	B	873	TYR
1	B	884	SER
1	B	936	ASP
1	B	968	SER
1	C	205	SER
1	C	238	PHE
1	C	306	PHE
1	C	321	GLN
1	C	365	TYR
1	C	369	TYR
1	C	377	PHE
1	C	493	GLN
1	C	519	HIS
1	C	592	PHE
1	C	614	ASP
1	C	617	CYS
1	C	646	ARG
1	C	649	CYS
1	C	708	SER
1	C	749	CYS
1	C	803	SER
1	C	873	TYR
1	C	968	SER

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Mol	Chain	Res	Type
1	C	981	LEU
1	C	1041	ASP
1	C	1077	THR
1	C	1091	ARG
1	C	1126	CYS
1	C	1127	ASP
1	C	1142	GLN
2	F	13	GLN
2	F	29	PHE
2	F	53	TYR
2	F	72	ARG
2	F	74	ASN
2	F	87	ARG
2	F	118	TYR
2	F	210	TYR
2	F	215	ASN
2	F	228	GLU
3	G	33	TYR
3	G	52	ASP
3	G	90	TYR
3	G	95	ASP
2	H	22	CYS
2	H	29	PHE
2	H	60	TYR
2	H	84	ASN
2	H	110	CYS
2	H	117	ASP
2	H	154	LEU
3	L	33	TYR
3	L	37	TYR
3	L	52	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (5) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	414	GLN
1	A	644	GLN
1	C	81	ASN
2	H	13	GLN
2	H	35	HIS

### 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](#)

30 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	0.26	0	17,19,21	0.37	0
4	NAG	D	2	4	14,14,15	0.27	0	17,19,21	0.55	0
4	NAG	E	1	4,1	14,14,15	0.24	0	17,19,21	0.48	0
4	NAG	E	2	4	14,14,15	0.24	0	17,19,21	0.42	0
4	NAG	I	1	4,1	14,14,15	0.20	0	17,19,21	0.46	0
4	NAG	I	2	4	14,14,15	0.25	0	17,19,21	0.40	0
4	NAG	J	1	4,1	14,14,15	0.21	0	17,19,21	0.46	0
4	NAG	J	2	4	14,14,15	0.21	0	17,19,21	0.41	0
4	NAG	K	1	4,1	14,14,15	0.17	0	17,19,21	0.40	0
4	NAG	K	2	4	14,14,15	0.24	0	17,19,21	0.43	0
4	NAG	M	1	4,1	14,14,15	0.18	0	17,19,21	0.39	0
4	NAG	M	2	4	14,14,15	0.26	0	17,19,21	0.55	0
4	NAG	N	1	4,1	14,14,15	0.23	0	17,19,21	0.51	0
4	NAG	N	2	4	14,14,15	0.26	0	17,19,21	0.52	0
4	NAG	O	1	4,1	14,14,15	0.43	0	17,19,21	0.58	0
4	NAG	O	2	4	14,14,15	0.29	0	17,19,21	0.47	0
4	NAG	P	1	4,1	14,14,15	0.21	0	17,19,21	0.44	0
4	NAG	P	2	4	14,14,15	0.21	0	17,19,21	0.42	0
4	NAG	Q	1	4,1	14,14,15	0.24	0	17,19,21	0.54	0
4	NAG	Q	2	4	14,14,15	0.25	0	17,19,21	0.50	0
4	NAG	R	1	4,1	14,14,15	0.32	0	17,19,21	0.45	0
4	NAG	R	2	4	14,14,15	0.25	0	17,19,21	0.42	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	NAG	S	1	4,1	14,14,15	0.19	0	17,19,21	0.39	0
4	NAG	S	2	4	14,14,15	0.22	0	17,19,21	0.41	0
4	NAG	T	1	4,1	14,14,15	0.23	0	17,19,21	0.41	0
4	NAG	T	2	4	14,14,15	0.25	0	17,19,21	0.51	0
4	NAG	U	1	4,1	14,14,15	0.21	0	17,19,21	0.47	0
4	NAG	U	2	4	14,14,15	0.23	0	17,19,21	0.41	0
4	NAG	V	1	4,1	14,14,15	0.25	0	17,19,21	0.43	0
4	NAG	V	2	4	14,14,15	0.27	0	17,19,21	0.49	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. '2' 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	-	2/6/23/26	0/1/1/1
4	NAG	E	2	4	-	2/6/23/26	0/1/1/1
4	NAG	I	1	4,1	-	1/6/23/26	0/1/1/1
4	NAG	I	2	4	-	2/6/23/26	0/1/1/1
4	NAG	J	1	4,1	-	1/6/23/26	0/1/1/1
4	NAG	J	2	4	-	2/6/23/26	0/1/1/1
4	NAG	K	1	4,1	-	1/6/23/26	0/1/1/1
4	NAG	K	2	4	-	0/6/23/26	0/1/1/1
4	NAG	M	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	M	2	4	-	3/6/23/26	0/1/1/1
4	NAG	N	1	4,1	-	3/6/23/26	0/1/1/1
4	NAG	N	2	4	-	2/6/23/26	0/1/1/1
4	NAG	O	1	4,1	-	1/6/23/26	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	-	2/6/23/26	0/1/1/1
4	NAG	Q	1	4,1	-	3/6/23/26	0/1/1/1
4	NAG	Q	2	4	-	3/6/23/26	0/1/1/1
4	NAG	R	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	R	2	4	-	2/6/23/26	0/1/1/1
4	NAG	S	1	4,1	-	2/6/23/26	0/1/1/1
4	NAG	S	2	4	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	T	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	T	2	4	-	3/6/23/26	0/1/1/1
4	NAG	U	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	U	2	4	-	2/6/23/26	0/1/1/1
4	NAG	V	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	V	2	4	-	3/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (50) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	R	1	NAG	C4-C5-C6-O6
4	N	1	NAG	O5-C5-C6-O6
4	Q	1	NAG	O5-C5-C6-O6
4	V	2	NAG	O5-C5-C6-O6
4	O	2	NAG	O5-C5-C6-O6
4	T	2	NAG	O5-C5-C6-O6
4	J	2	NAG	O5-C5-C6-O6
4	M	2	NAG	O5-C5-C6-O6
4	E	2	NAG	O5-C5-C6-O6
4	Q	2	NAG	O5-C5-C6-O6
4	R	1	NAG	O5-C5-C6-O6
4	Q	1	NAG	C4-C5-C6-O6
4	V	2	NAG	C4-C5-C6-O6
4	M	2	NAG	C4-C5-C6-O6
4	T	2	NAG	C4-C5-C6-O6
4	E	1	NAG	O5-C5-C6-O6
4	N	1	NAG	C4-C5-C6-O6
4	O	2	NAG	C4-C5-C6-O6
4	P	2	NAG	O5-C5-C6-O6
4	U	2	NAG	C4-C5-C6-O6
4	E	1	NAG	C4-C5-C6-O6
4	J	2	NAG	C4-C5-C6-O6
4	I	2	NAG	O5-C5-C6-O6
4	P	2	NAG	C4-C5-C6-O6
4	D	1	NAG	O5-C5-C6-O6
4	D	1	NAG	C4-C5-C6-O6
4	R	2	NAG	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
4	N	2	NAG	O5-C5-C6-O6
4	Q	2	NAG	C4-C5-C6-O6
4	U	2	NAG	O5-C5-C6-O6
4	E	2	NAG	C4-C5-C6-O6
4	I	1	NAG	O5-C5-C6-O6
4	O	1	NAG	O5-C5-C6-O6
4	D	2	NAG	O5-C5-C6-O6
4	M	1	NAG	C4-C5-C6-O6
4	S	1	NAG	C4-C5-C6-O6
4	D	2	NAG	C3-C2-N2-C7
4	M	2	NAG	C3-C2-N2-C7
4	N	2	NAG	C3-C2-N2-C7
4	Q	1	NAG	C3-C2-N2-C7
4	Q	2	NAG	C3-C2-N2-C7
4	T	2	NAG	C3-C2-N2-C7
4	V	2	NAG	C3-C2-N2-C7
4	S	1	NAG	O5-C5-C6-O6
4	M	1	NAG	O5-C5-C6-O6
4	R	2	NAG	C4-C5-C6-O6
4	J	1	NAG	O5-C5-C6-O6
4	K	1	NAG	C4-C5-C6-O6
4	N	1	NAG	C3-C2-N2-C7
4	I	2	NAG	C4-C5-C6-O6

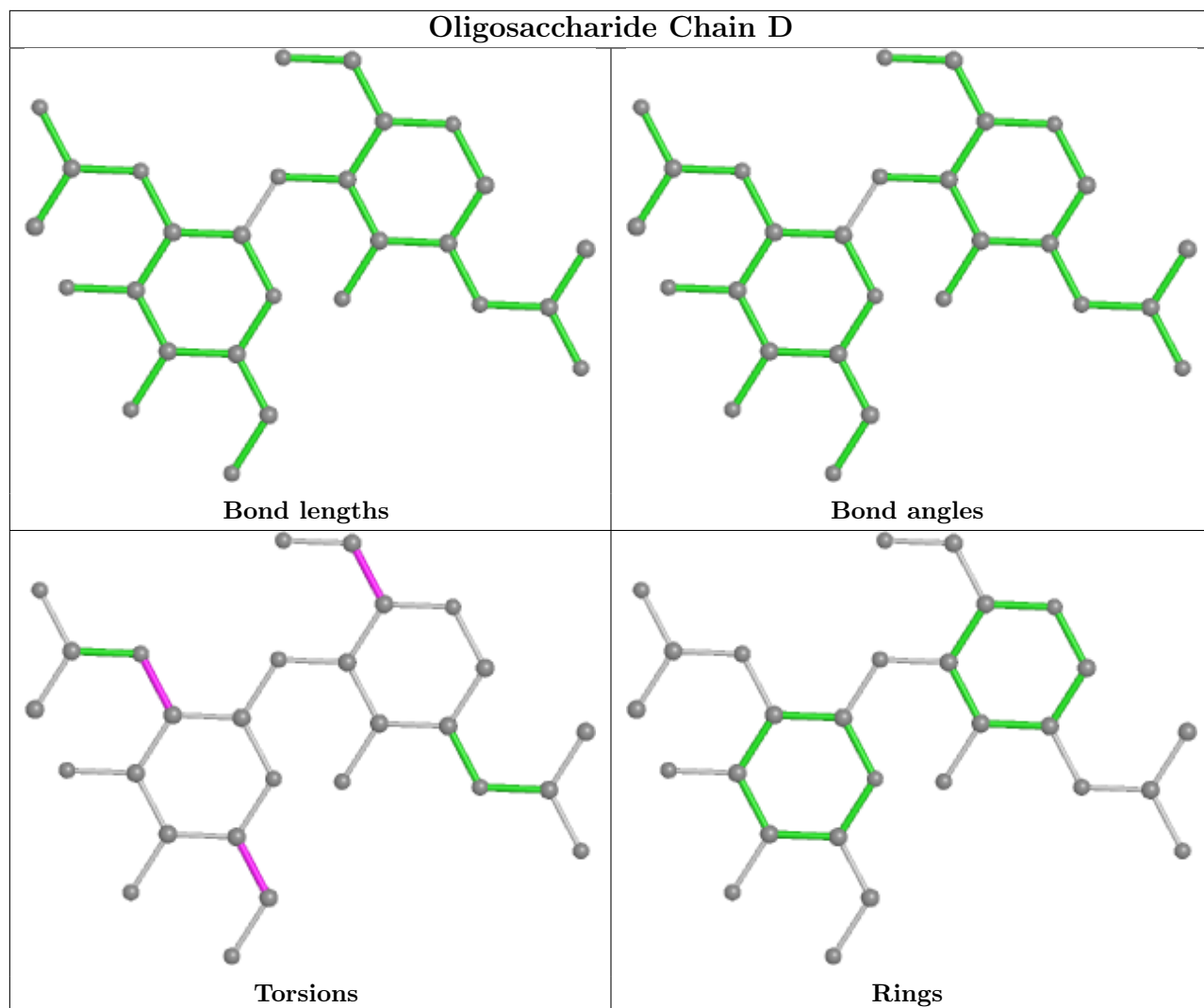
There are no ring outliers.

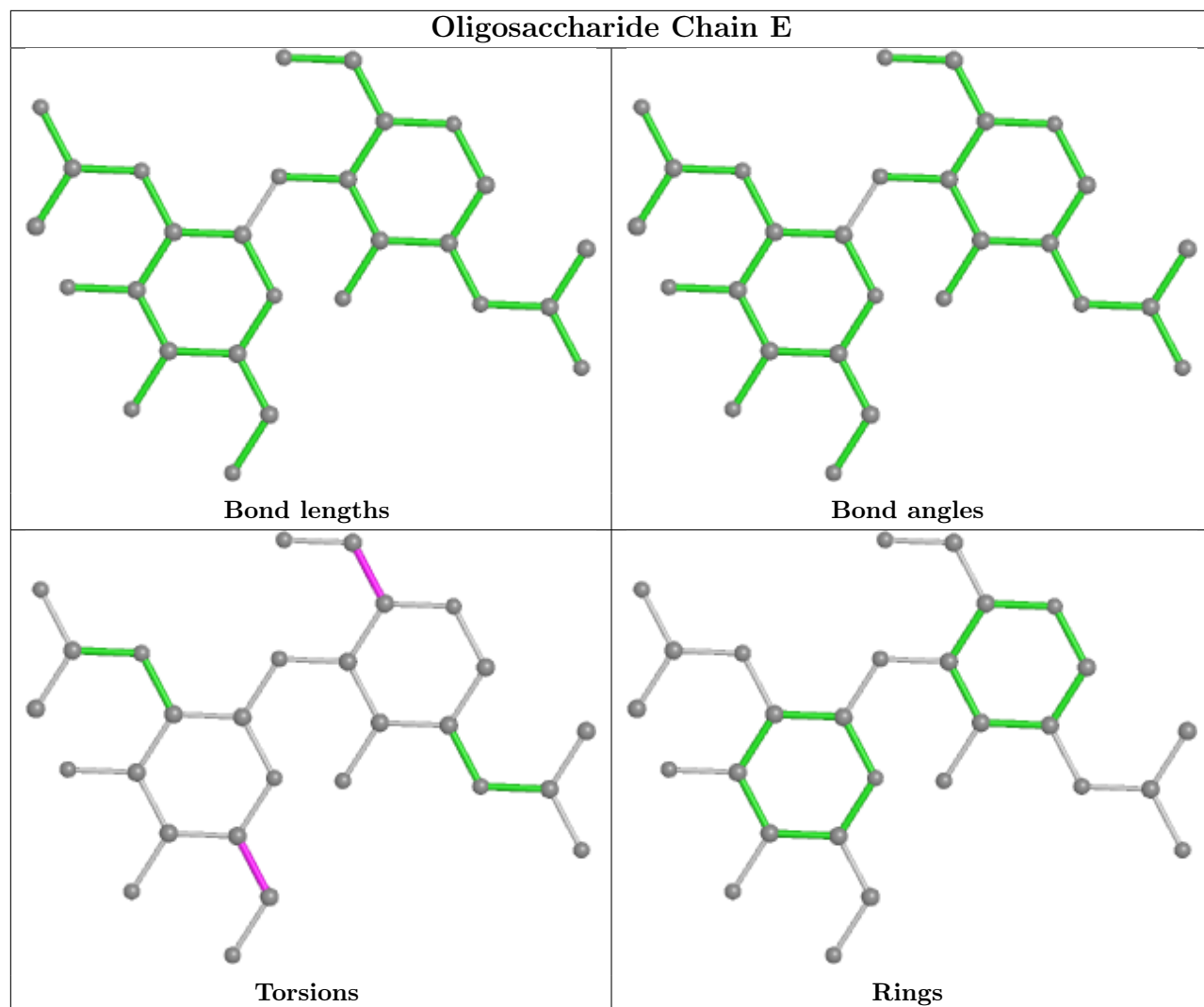
1 monomer is involved in 1 short contact:

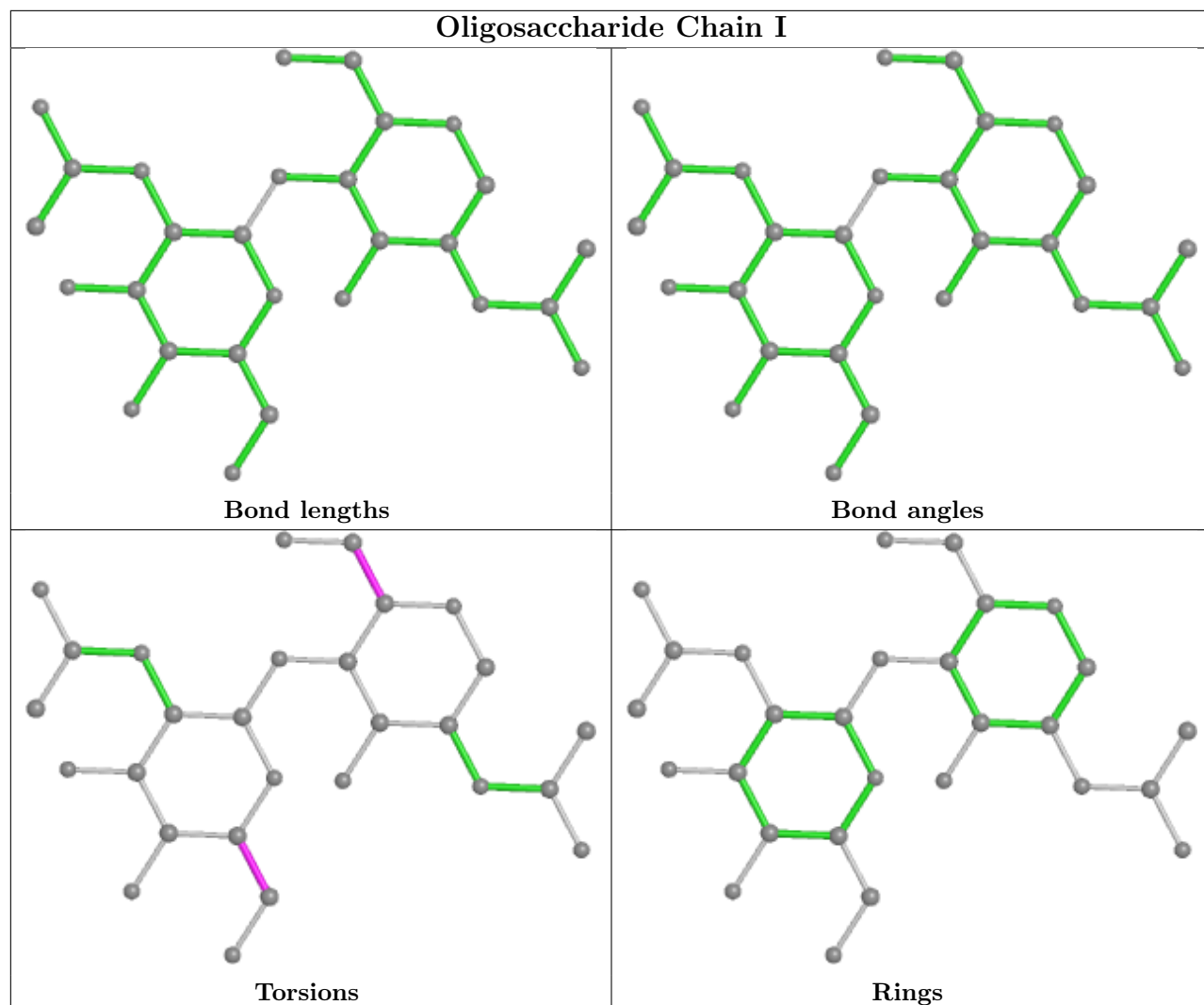
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	R	1	NAG	1	0

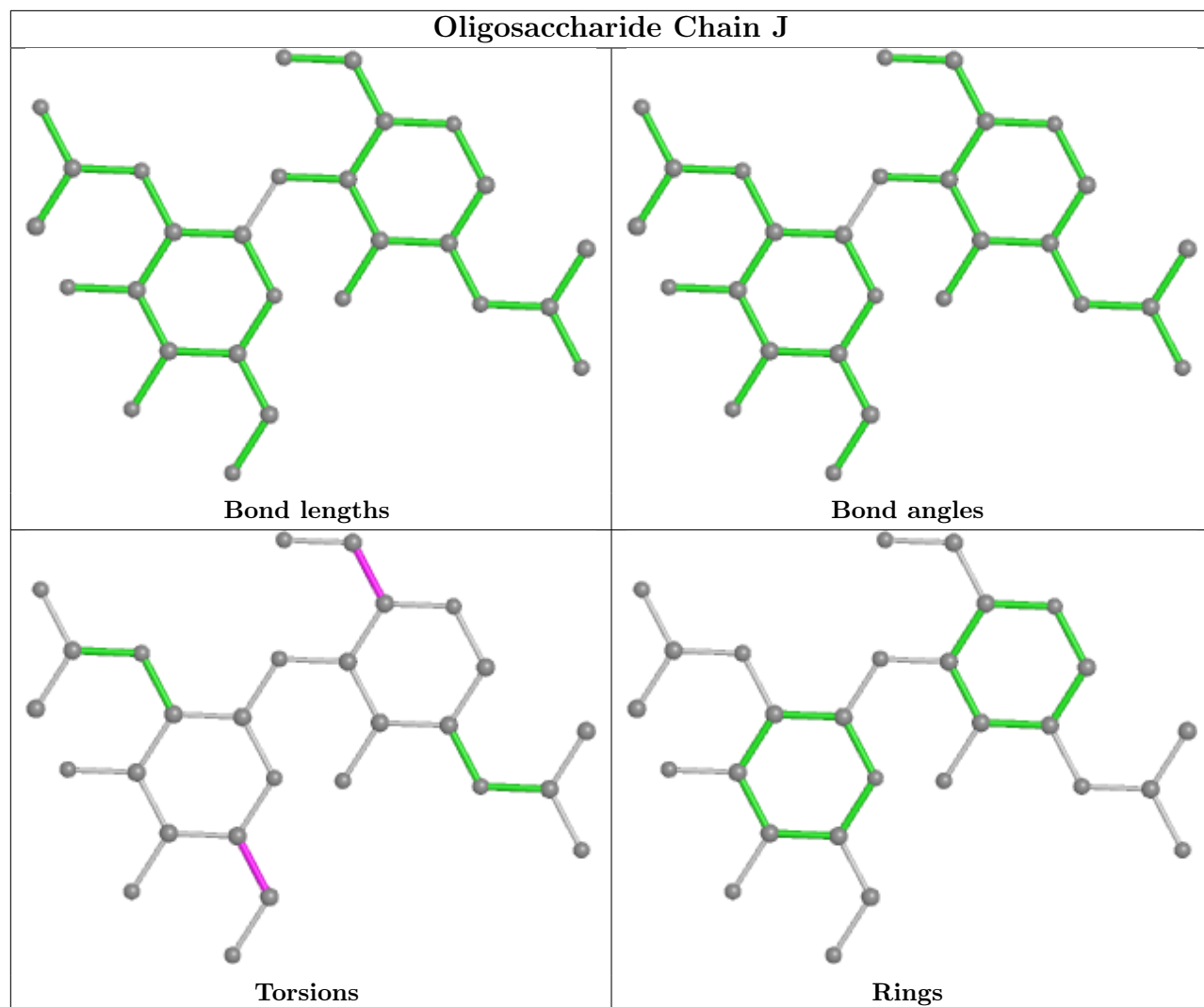
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

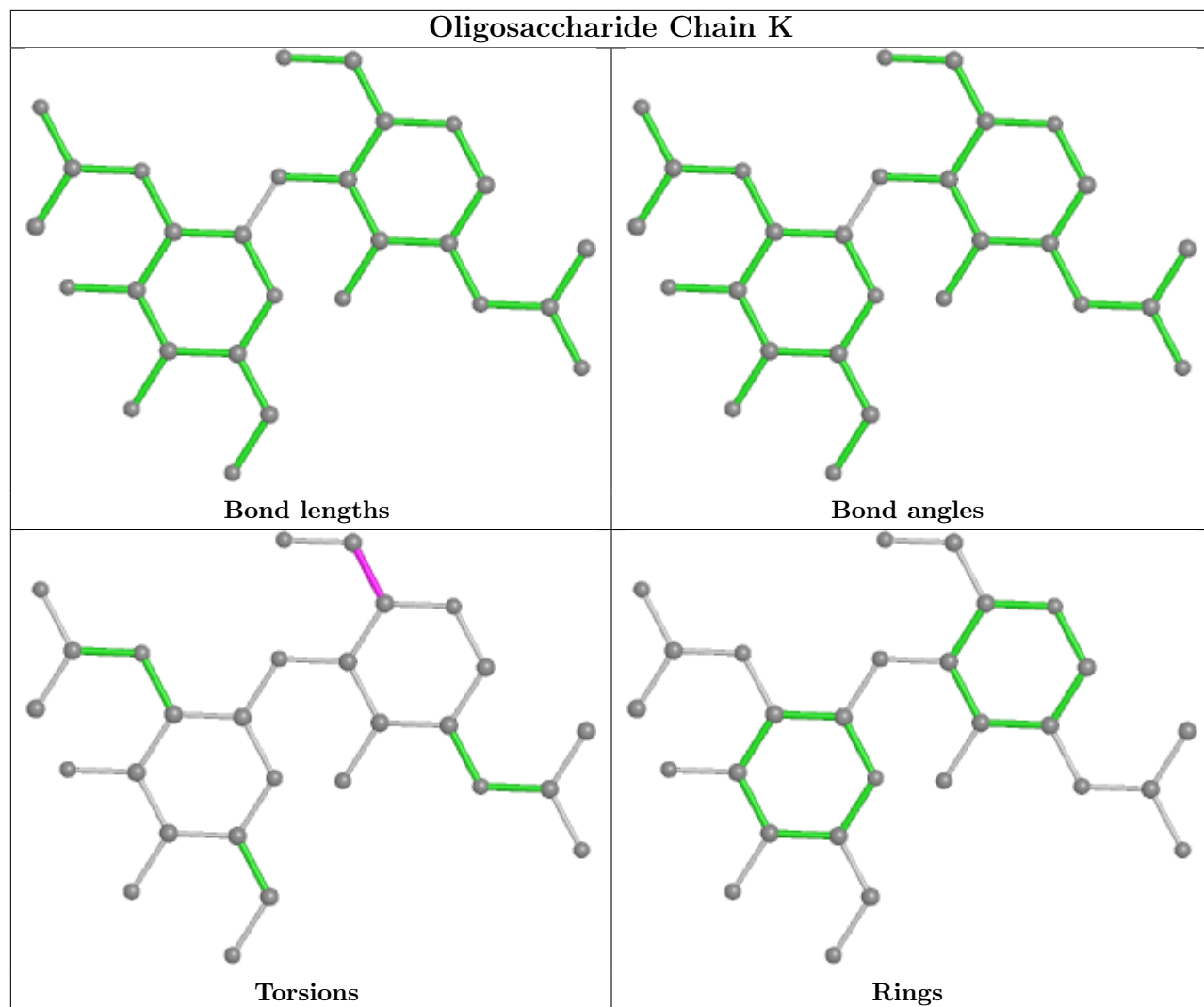


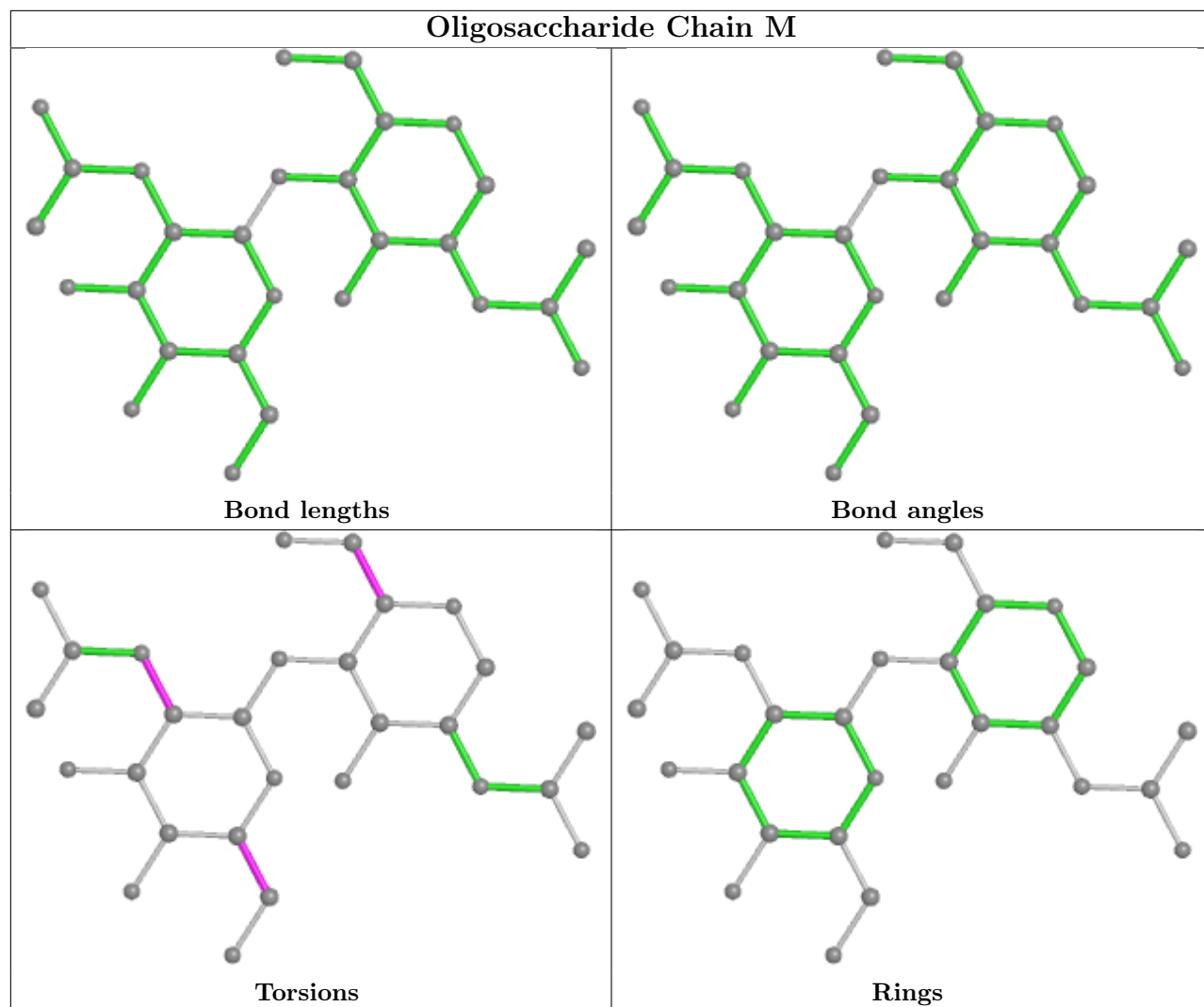


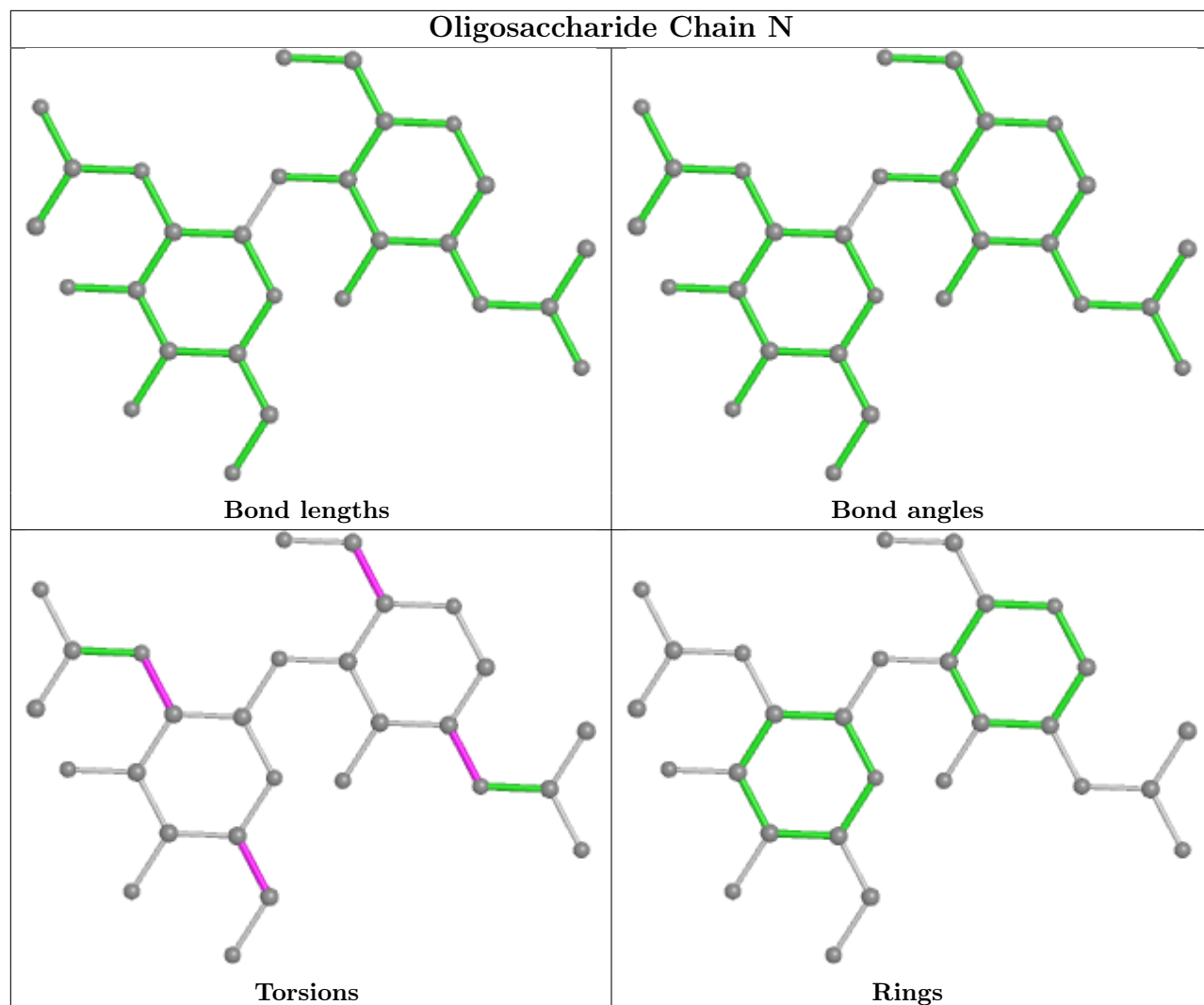


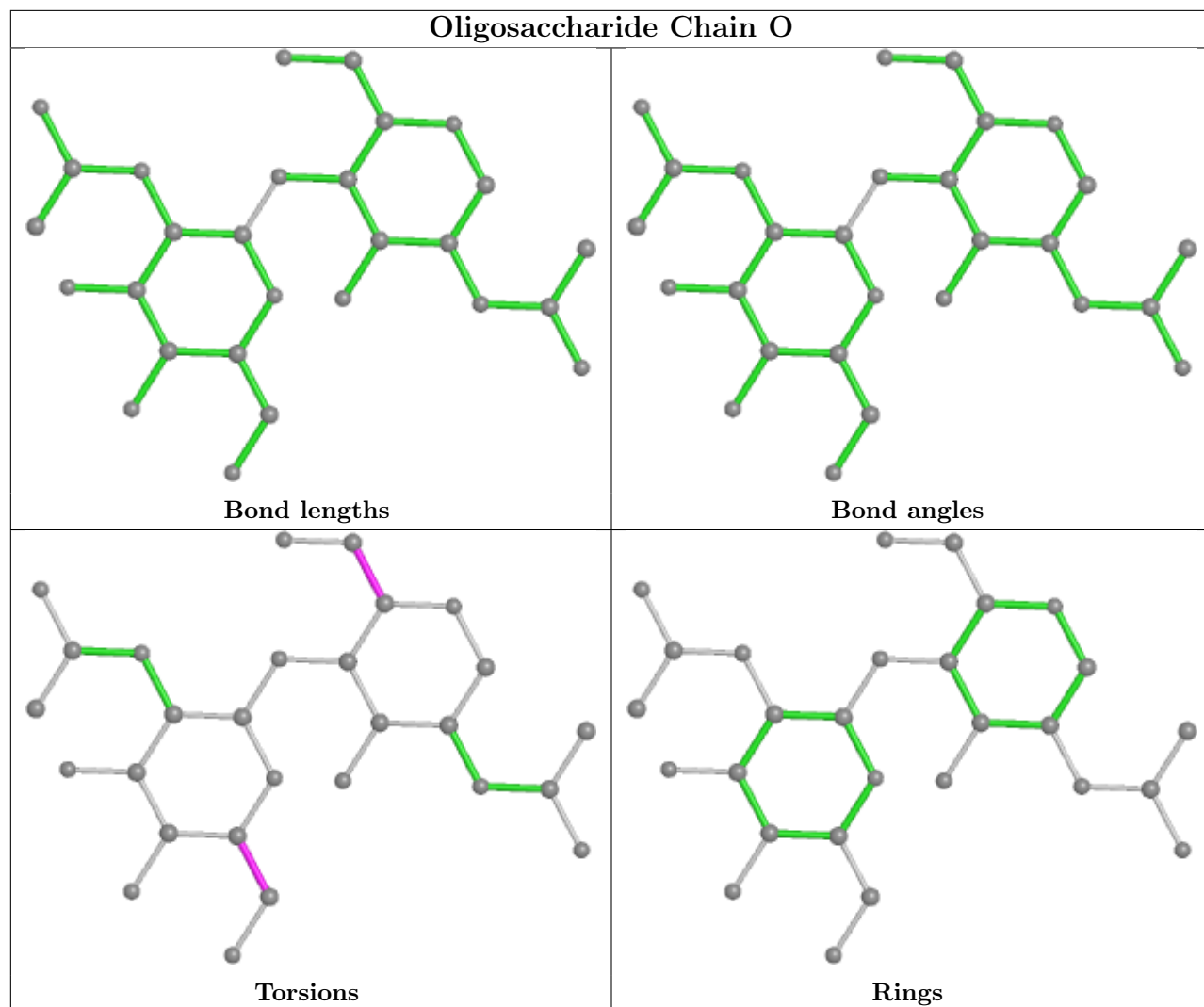




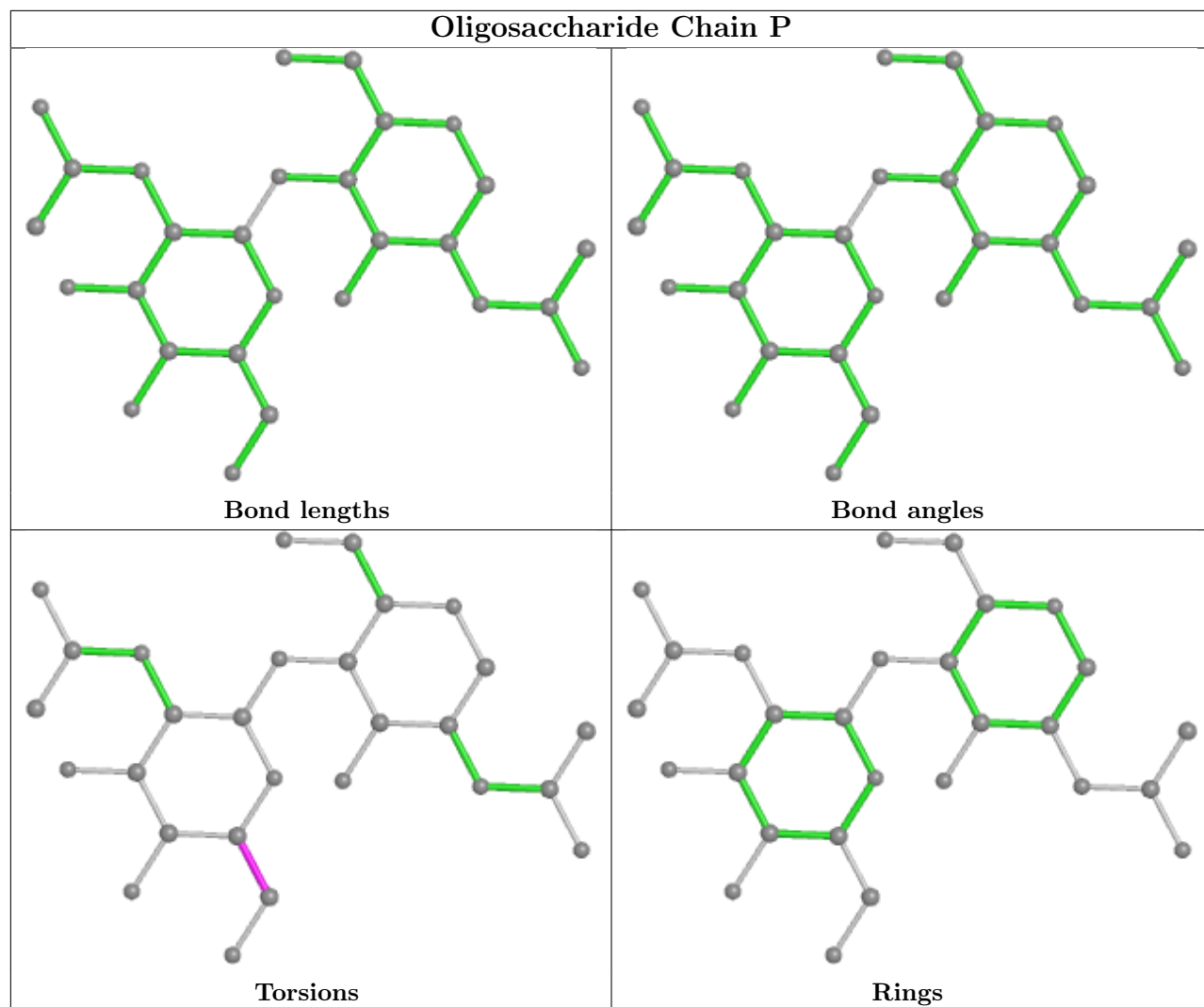


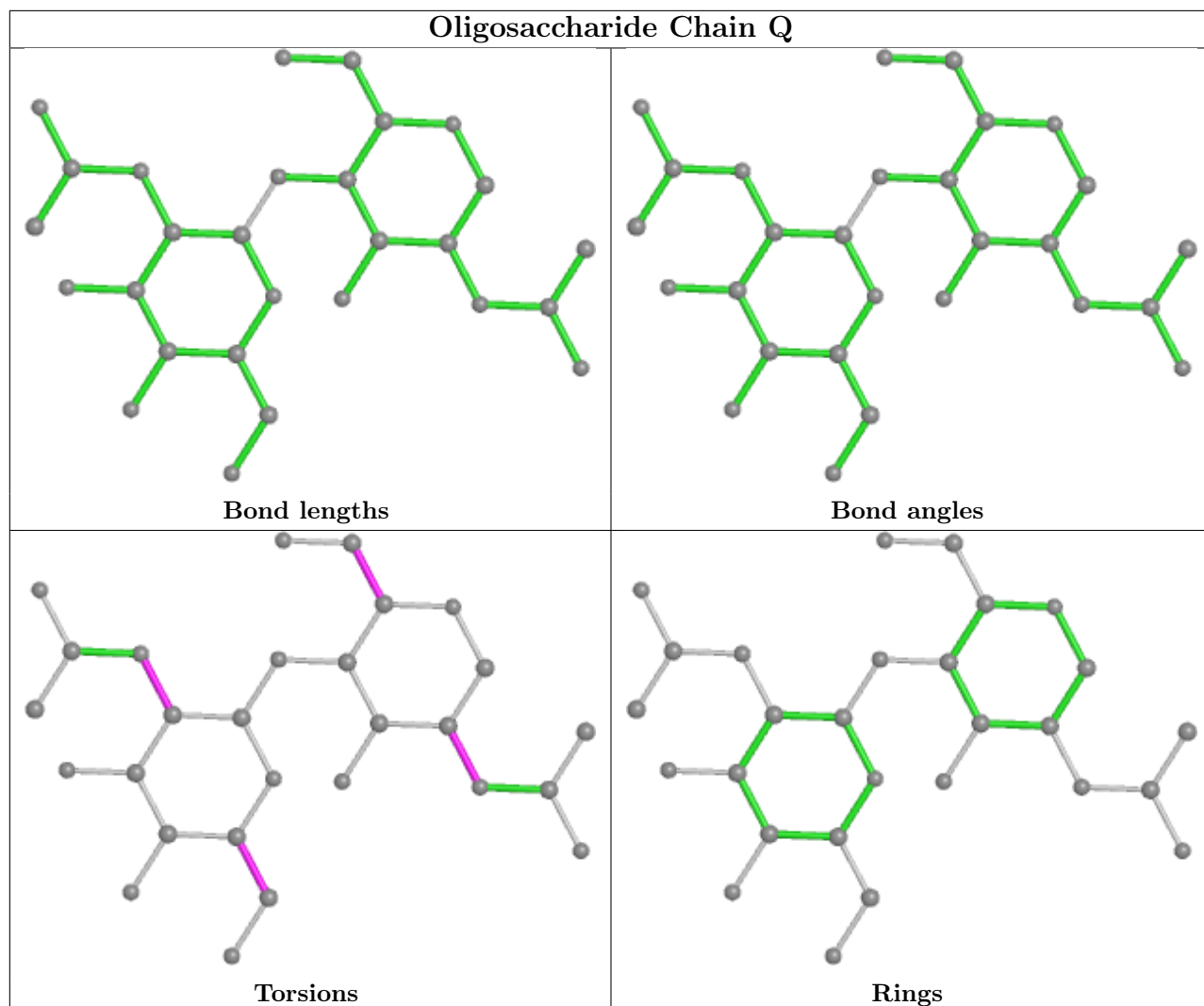


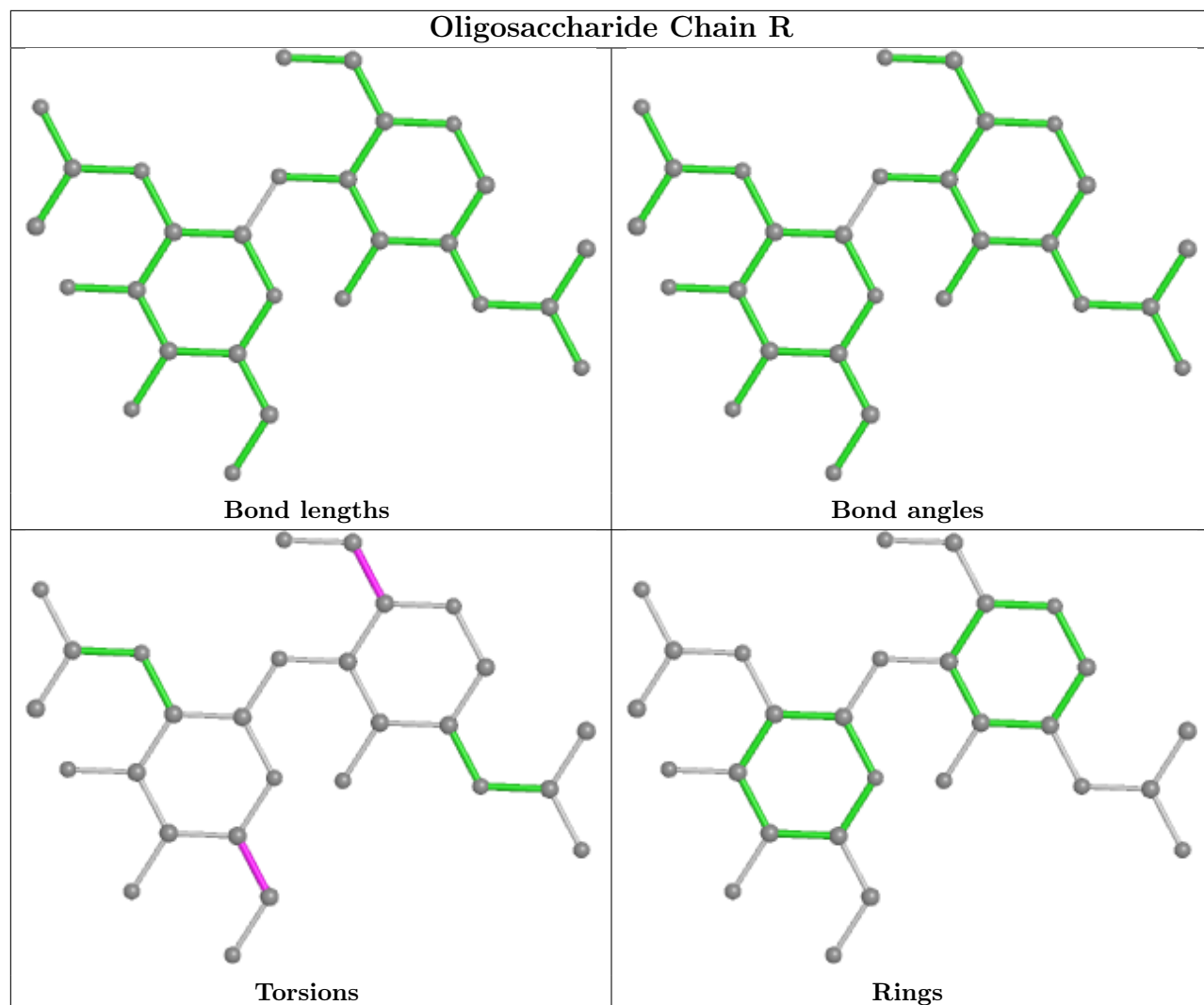


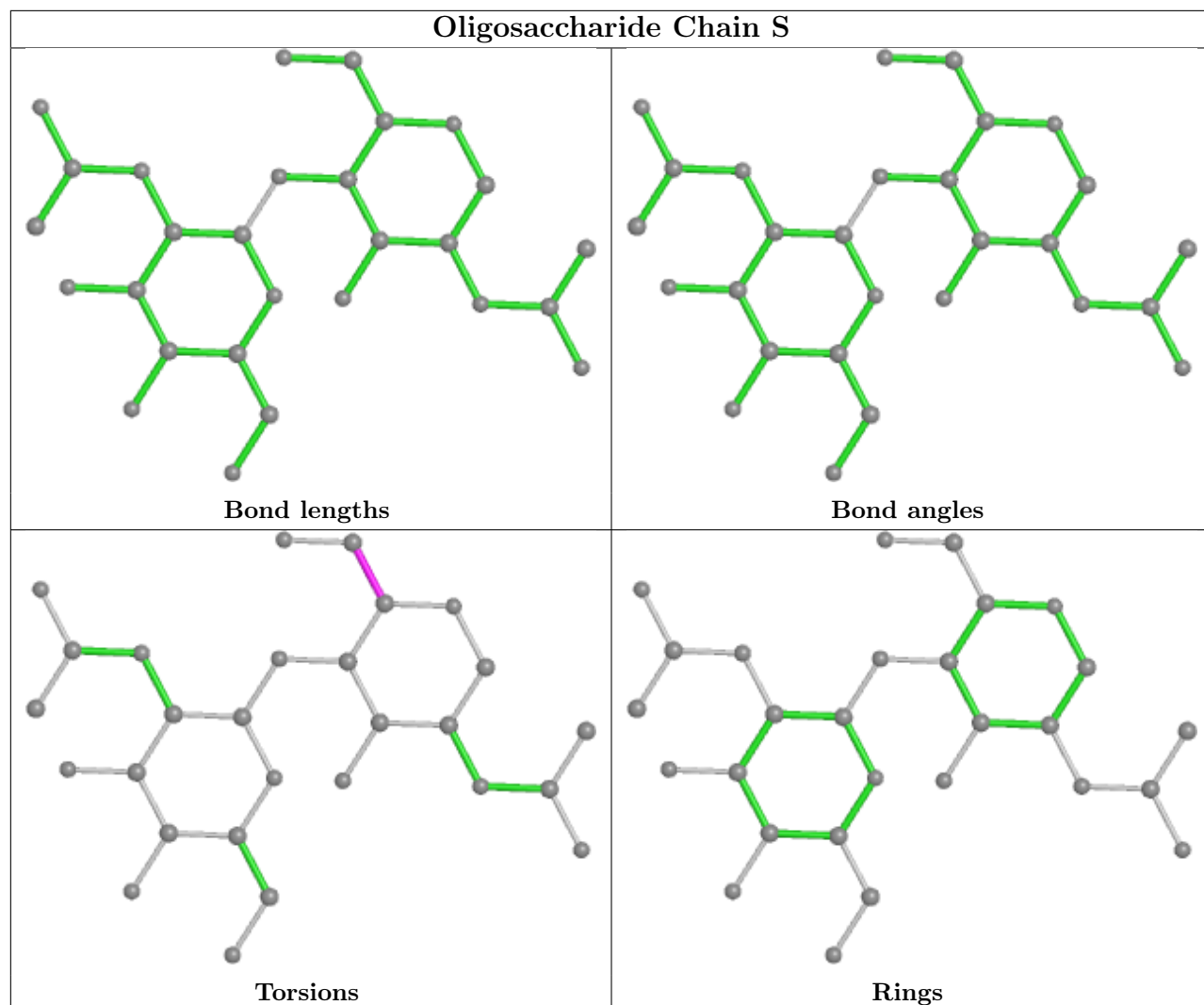


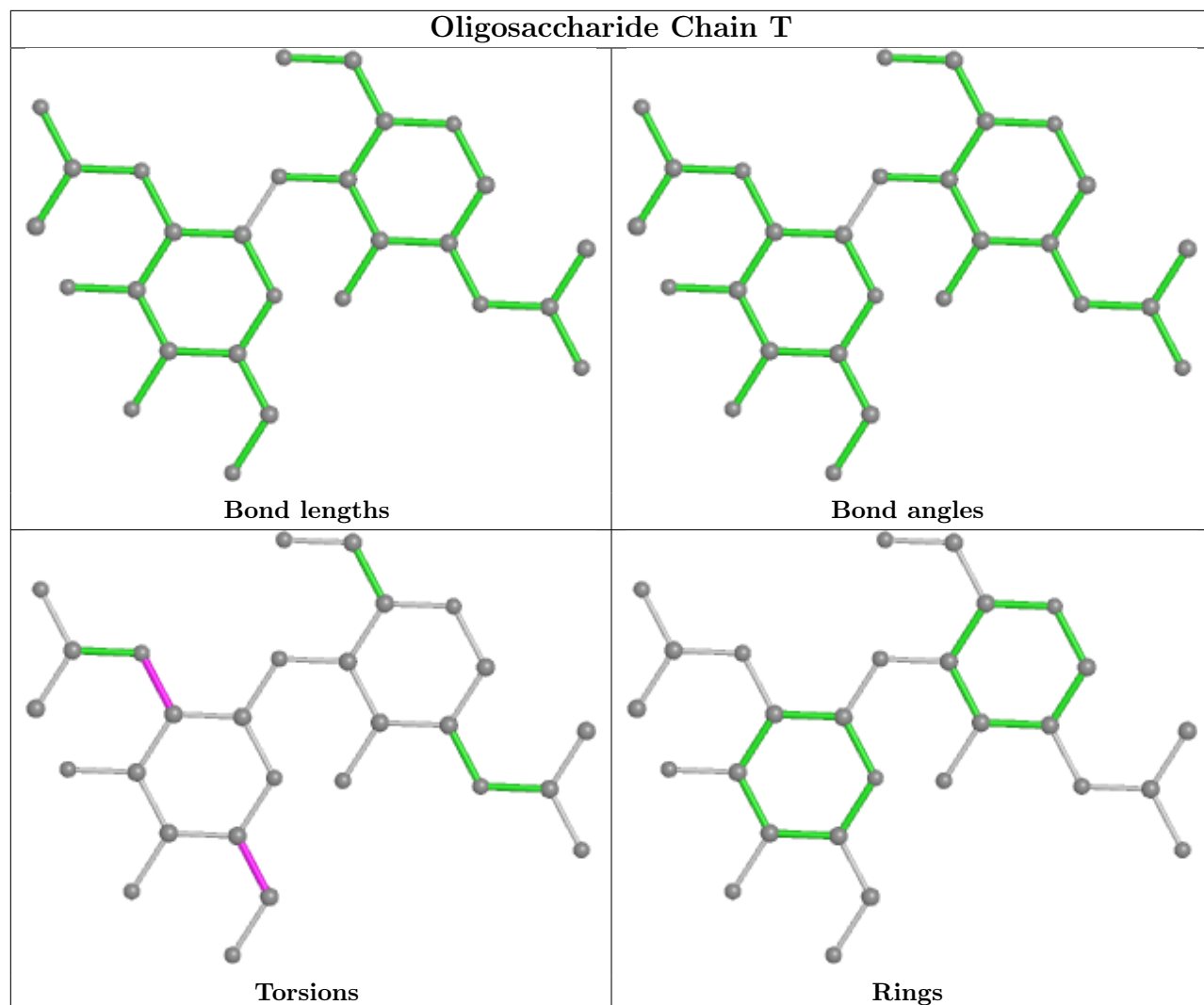


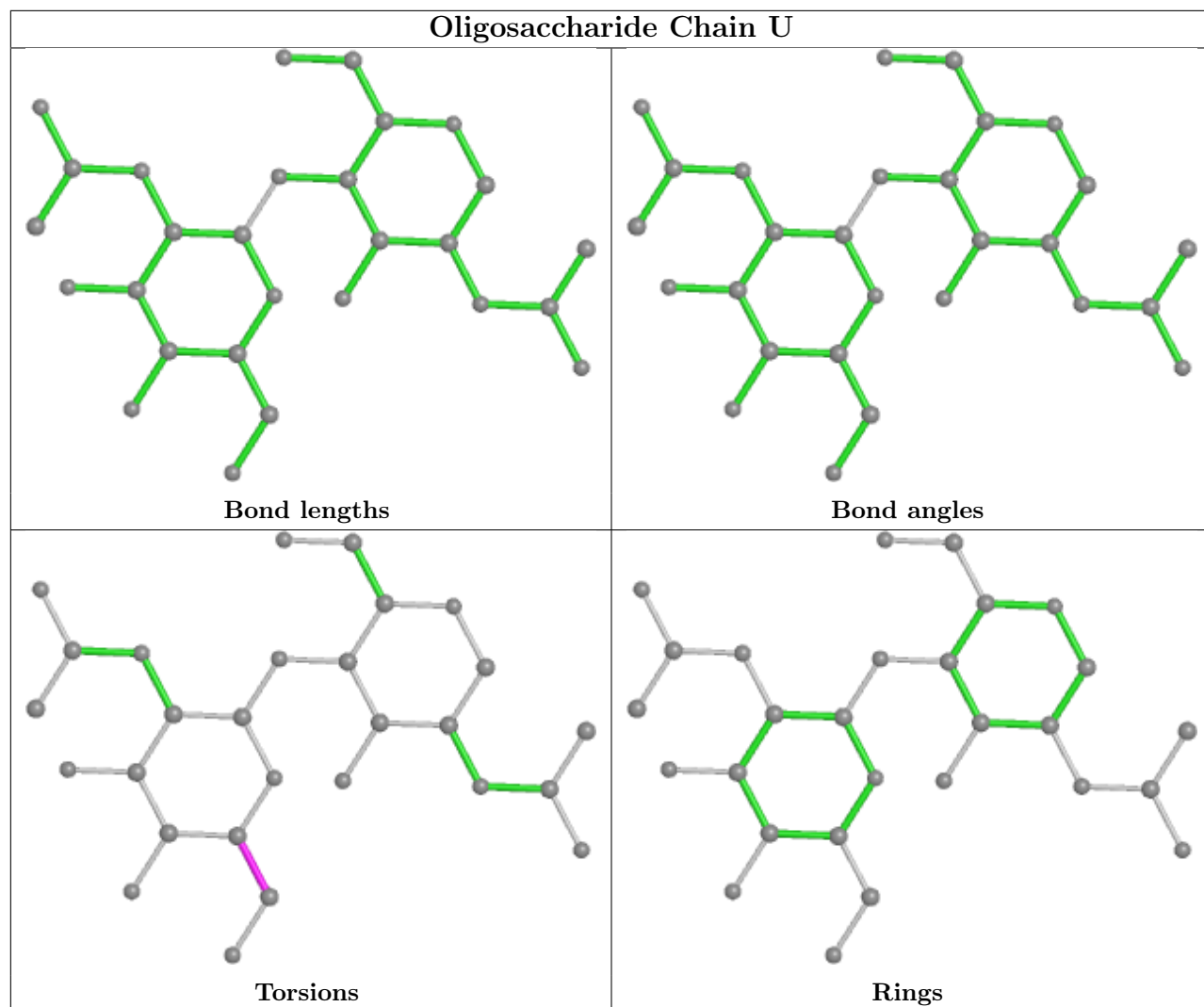


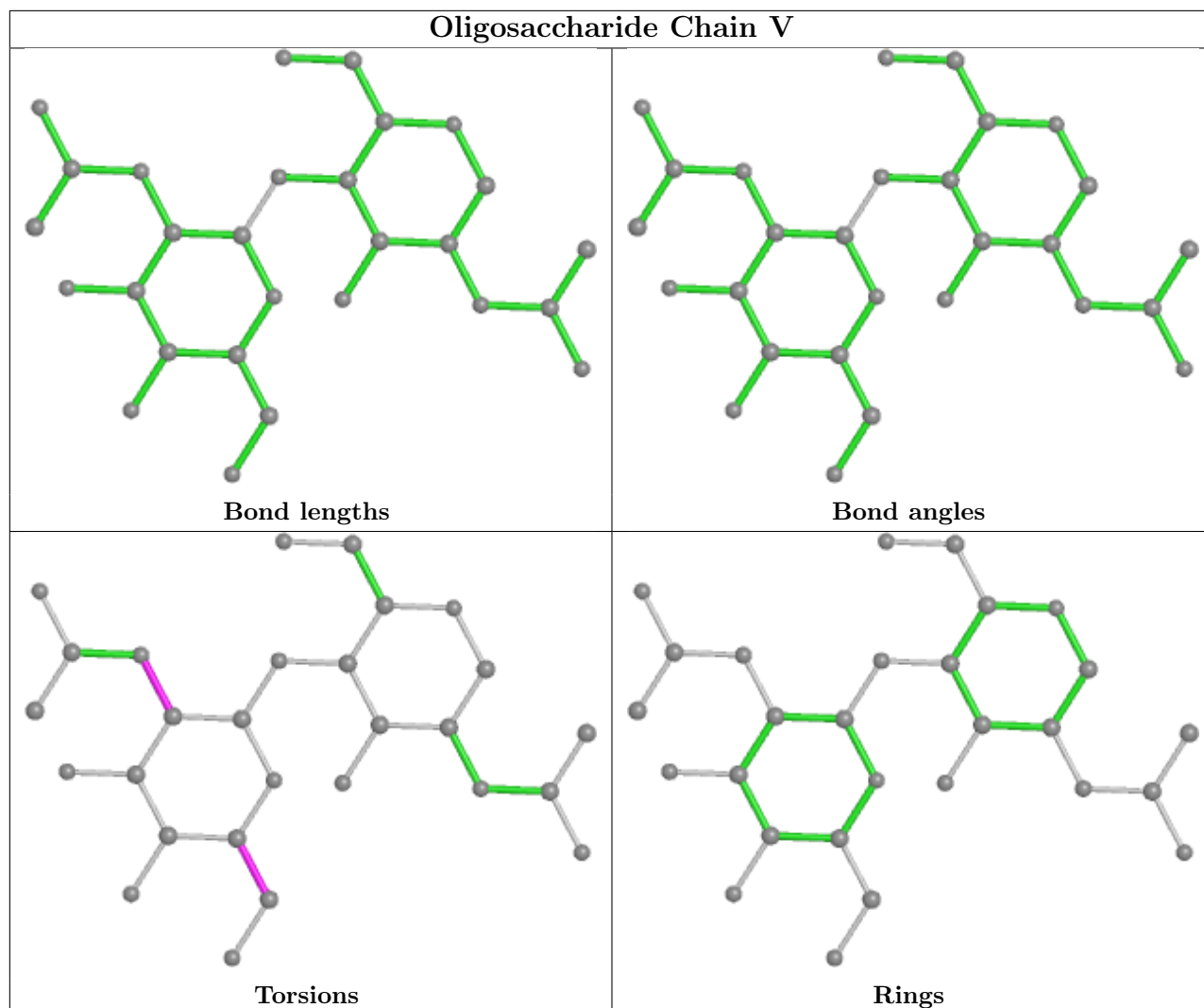












## 5.6 Ligand geometry [i](#)

29 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
5	NAG	C	1303	1	14,14,15	0.22	0	17,19,21	0.42	0
5	NAG	A	1303	1	14,14,15	0.25	0	17,19,21	0.45	0
5	NAG	B	1307	1	14,14,15	0.42	0	17,19,21	0.47	0
5	NAG	C	1311	1	14,14,15	0.26	0	17,19,21	0.46	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	NAG	C	1305	1	14,14,15	0.27	0	17,19,21	0.51	0
5	NAG	A	1302	1	14,14,15	0.23	0	17,19,21	0.38	0
5	NAG	C	1309	1	14,14,15	0.19	0	17,19,21	0.41	0
5	NAG	C	1301	1	14,14,15	0.21	0	17,19,21	0.41	0
5	NAG	C	1307	1	14,14,15	0.29	0	17,19,21	0.54	0
5	NAG	A	1305	1	14,14,15	0.28	0	17,19,21	0.47	0
5	NAG	A	1310	1	14,14,15	0.21	0	17,19,21	0.44	0
5	NAG	B	1306	1	14,14,15	0.28	0	17,19,21	0.45	0
5	NAG	A	1307	1	14,14,15	0.24	0	17,19,21	0.43	0
5	NAG	C	1304	1	14,14,15	0.23	0	17,19,21	0.38	0
5	NAG	A	1309	1	14,14,15	0.24	0	17,19,21	0.39	0
5	NAG	B	1305	1	14,14,15	0.22	0	17,19,21	0.35	0
5	NAG	A	1308	1	14,14,15	0.28	0	17,19,21	0.40	0
5	NAG	A	1304	1	14,14,15	0.21	0	17,19,21	0.40	0
5	NAG	B	1301	1	14,14,15	0.20	0	17,19,21	0.41	0
5	NAG	C	1310	1	14,14,15	0.27	0	17,19,21	0.52	0
5	NAG	C	1302	1	14,14,15	0.25	0	17,19,21	0.49	0
5	NAG	A	1306	1	14,14,15	0.23	0	17,19,21	0.51	0
5	NAG	B	1303	1	14,14,15	0.22	0	17,19,21	0.42	0
5	NAG	C	1308	1	14,14,15	0.29	0	17,19,21	0.47	0
5	NAG	B	1308	1	14,14,15	0.21	0	17,19,21	0.42	0
5	NAG	B	1302	1	14,14,15	0.22	0	17,19,21	0.52	0
5	NAG	B	1304	1	14,14,15	0.20	0	17,19,21	0.40	0
5	NAG	A	1301	1	14,14,15	0.21	0	17,19,21	0.44	0
5	NAG	C	1306	1	14,14,15	0.19	0	17,19,21	0.38	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. <sup>1,2</sup> means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	C	1303	1	-	1/6/23/26	0/1/1/1
5	NAG	A	1303	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1307	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1311	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1305	1	-	3/6/23/26	0/1/1/1
5	NAG	A	1302	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1309	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1301	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1307	1	-	1/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	A	1305	1	-	0/6/23/26	0/1/1/1
5	NAG	A	1310	1	-	0/6/23/26	0/1/1/1
5	NAG	B	1306	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1307	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1304	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1309	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1305	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1308	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1304	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1301	1	-	0/6/23/26	0/1/1/1
5	NAG	C	1310	1	-	3/6/23/26	0/1/1/1
5	NAG	C	1302	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1306	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1303	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1308	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1308	1	-	2/6/23/26	0/1/1/1
5	NAG	B	1302	1	-	3/6/23/26	0/1/1/1
5	NAG	B	1304	1	-	2/6/23/26	0/1/1/1
5	NAG	A	1301	1	-	2/6/23/26	0/1/1/1
5	NAG	C	1306	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (50) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	1302	NAG	O5-C5-C6-O6
5	C	1309	NAG	C4-C5-C6-O6
5	C	1304	NAG	O5-C5-C6-O6
5	C	1306	NAG	C4-C5-C6-O6
5	A	1306	NAG	O5-C5-C6-O6
5	C	1301	NAG	O5-C5-C6-O6
5	B	1302	NAG	C4-C5-C6-O6
5	A	1301	NAG	O5-C5-C6-O6
5	A	1307	NAG	O5-C5-C6-O6
5	B	1303	NAG	O5-C5-C6-O6

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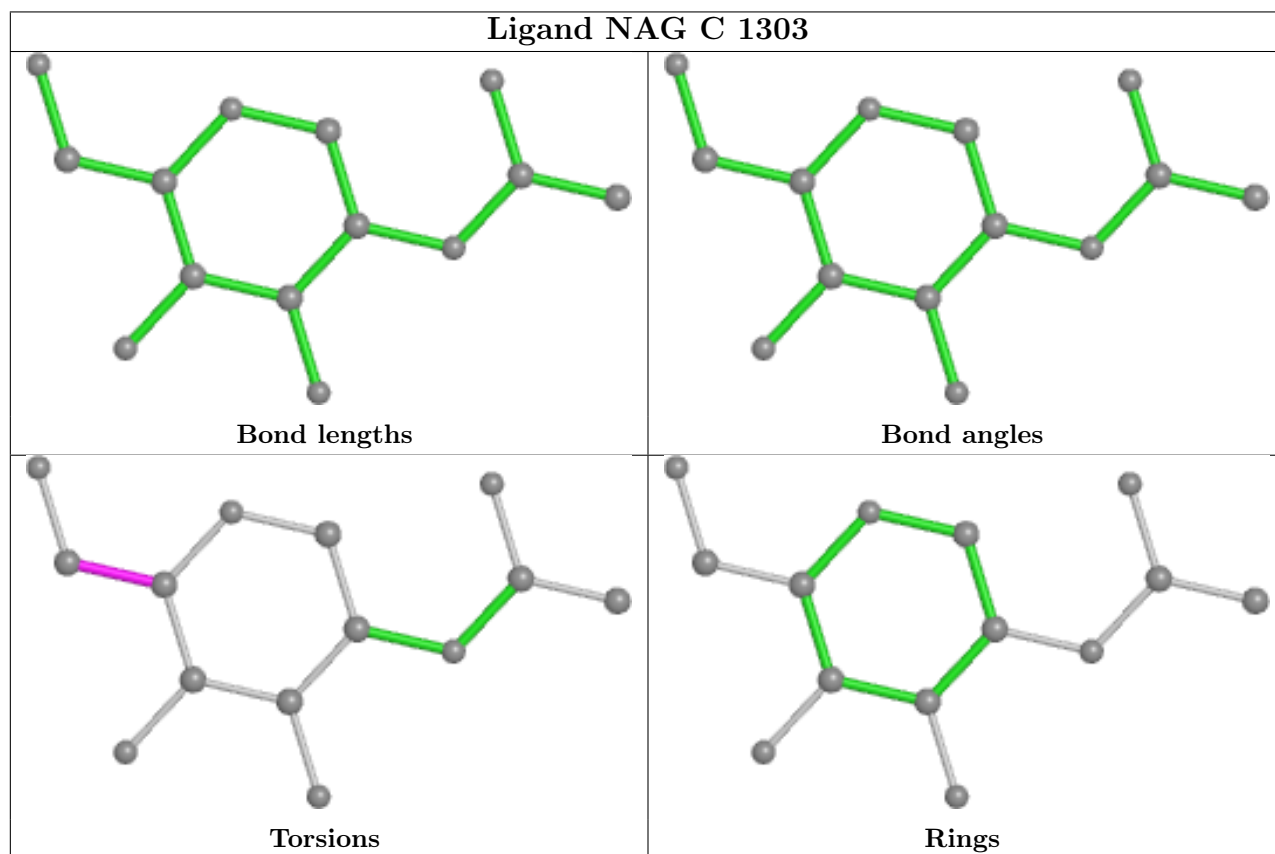
Mol	Chain	Res	Type	Atoms
5	C	1305	NAG	O5-C5-C6-O6
5	C	1308	NAG	O5-C5-C6-O6
5	C	1309	NAG	O5-C5-C6-O6
5	A	1303	NAG	C4-C5-C6-O6
5	A	1306	NAG	C4-C5-C6-O6
5	C	1304	NAG	C4-C5-C6-O6
5	A	1303	NAG	O5-C5-C6-O6
5	A	1304	NAG	O5-C5-C6-O6
5	A	1308	NAG	C4-C5-C6-O6
5	C	1301	NAG	C4-C5-C6-O6
5	C	1308	NAG	C4-C5-C6-O6
5	A	1308	NAG	O5-C5-C6-O6
5	A	1309	NAG	O5-C5-C6-O6
5	B	1306	NAG	O5-C5-C6-O6
5	C	1306	NAG	O5-C5-C6-O6
5	C	1305	NAG	C4-C5-C6-O6
5	B	1306	NAG	C4-C5-C6-O6
5	A	1309	NAG	C4-C5-C6-O6
5	B	1304	NAG	O5-C5-C6-O6
5	A	1301	NAG	C4-C5-C6-O6
5	A	1307	NAG	C4-C5-C6-O6
5	B	1303	NAG	C4-C5-C6-O6
5	C	1302	NAG	O5-C5-C6-O6
5	C	1303	NAG	O5-C5-C6-O6
5	C	1310	NAG	C4-C5-C6-O6
5	B	1305	NAG	C4-C5-C6-O6
5	B	1307	NAG	C4-C5-C6-O6
5	B	1308	NAG	C4-C5-C6-O6
5	C	1310	NAG	O5-C5-C6-O6
5	A	1304	NAG	C4-C5-C6-O6
5	B	1307	NAG	O5-C5-C6-O6
5	B	1305	NAG	O5-C5-C6-O6
5	B	1308	NAG	O5-C5-C6-O6
5	A	1306	NAG	C3-C2-N2-C7
5	B	1302	NAG	C3-C2-N2-C7
5	C	1302	NAG	C3-C2-N2-C7
5	C	1305	NAG	C3-C2-N2-C7
5	C	1307	NAG	C3-C2-N2-C7
5	C	1310	NAG	C3-C2-N2-C7
5	B	1304	NAG	C4-C5-C6-O6

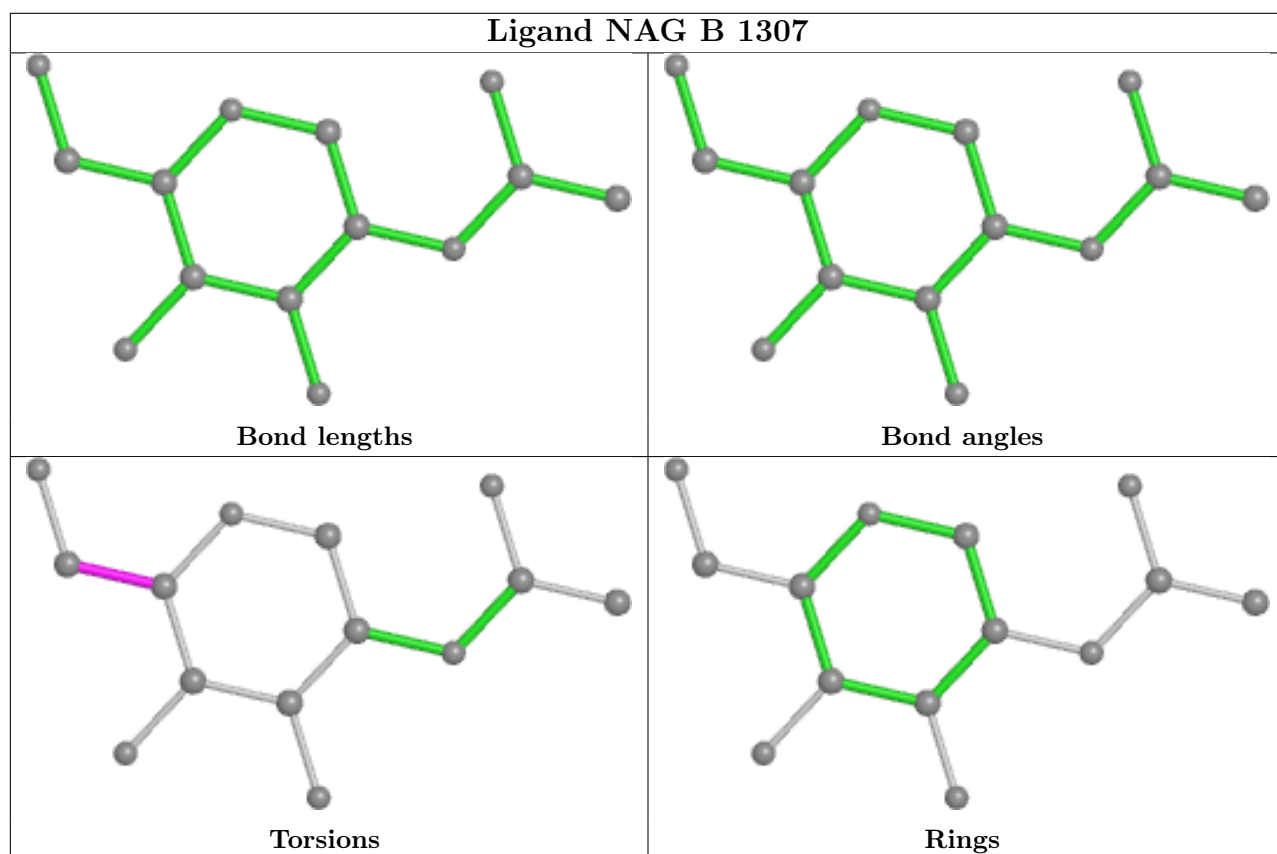
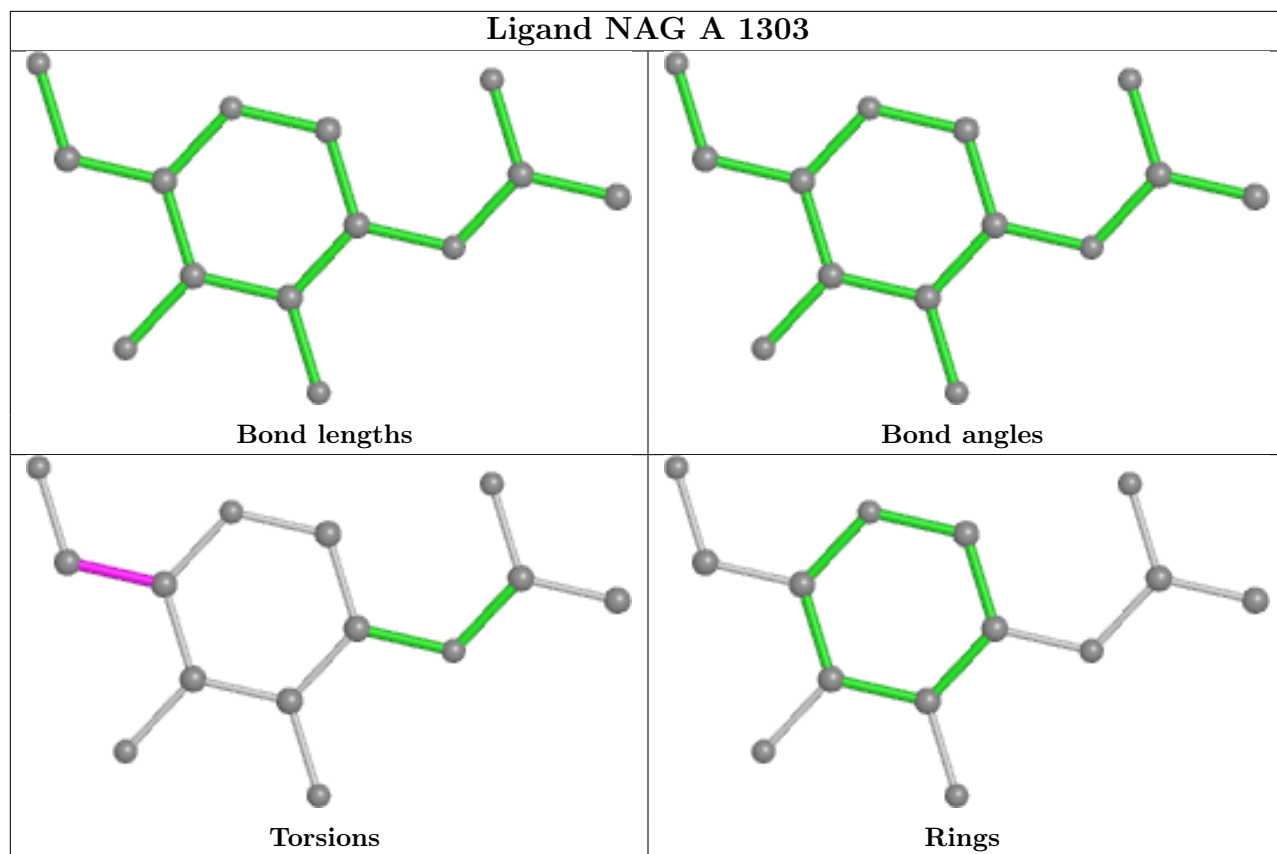
There are no ring outliers.

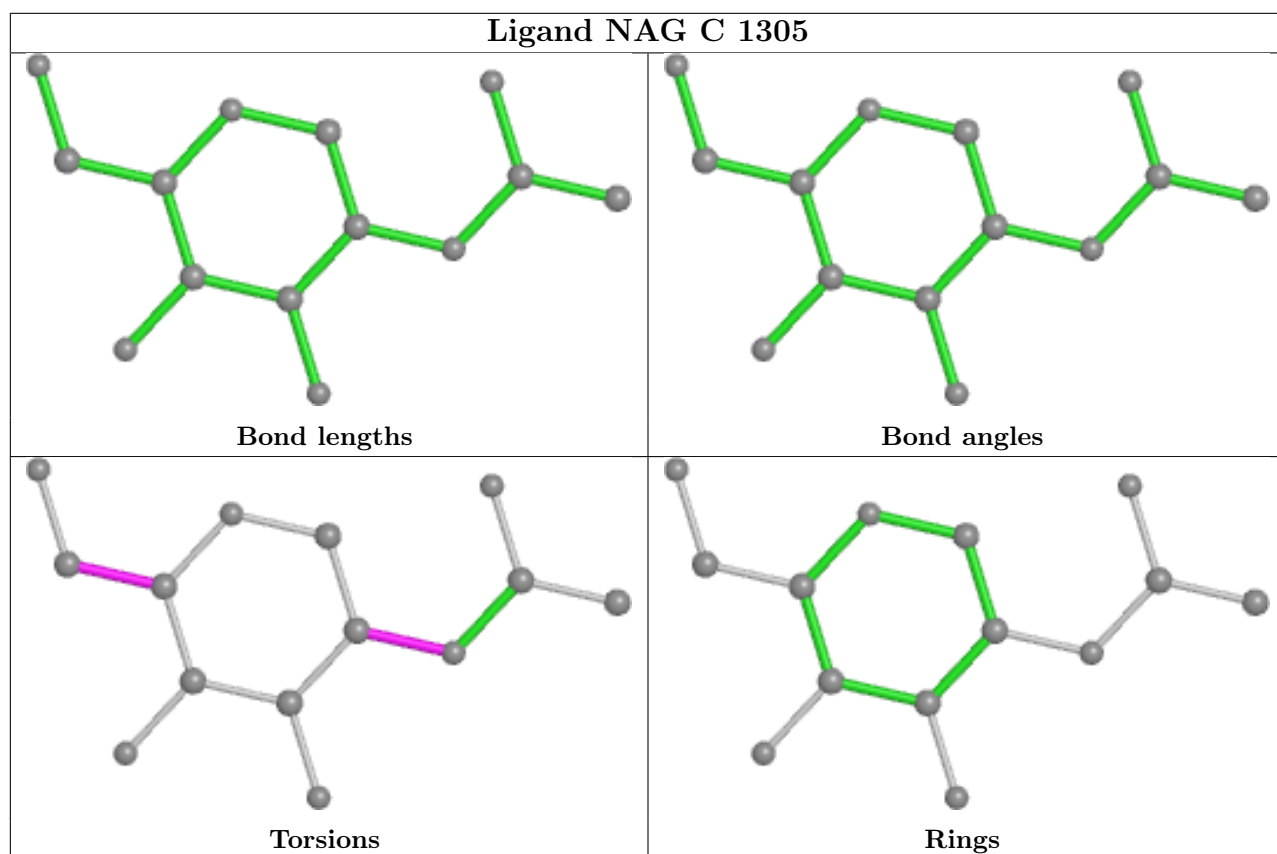
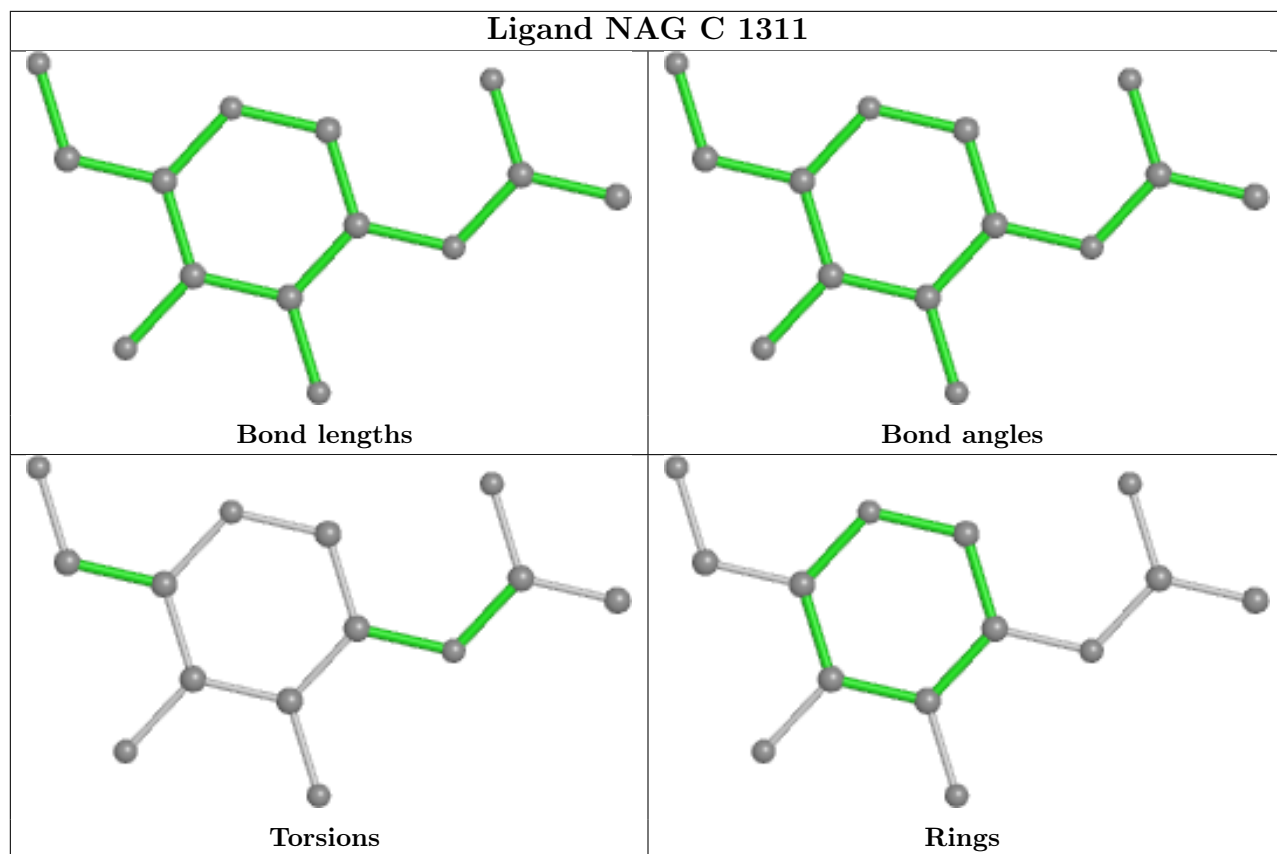
1 monomer is involved in 1 short contact:

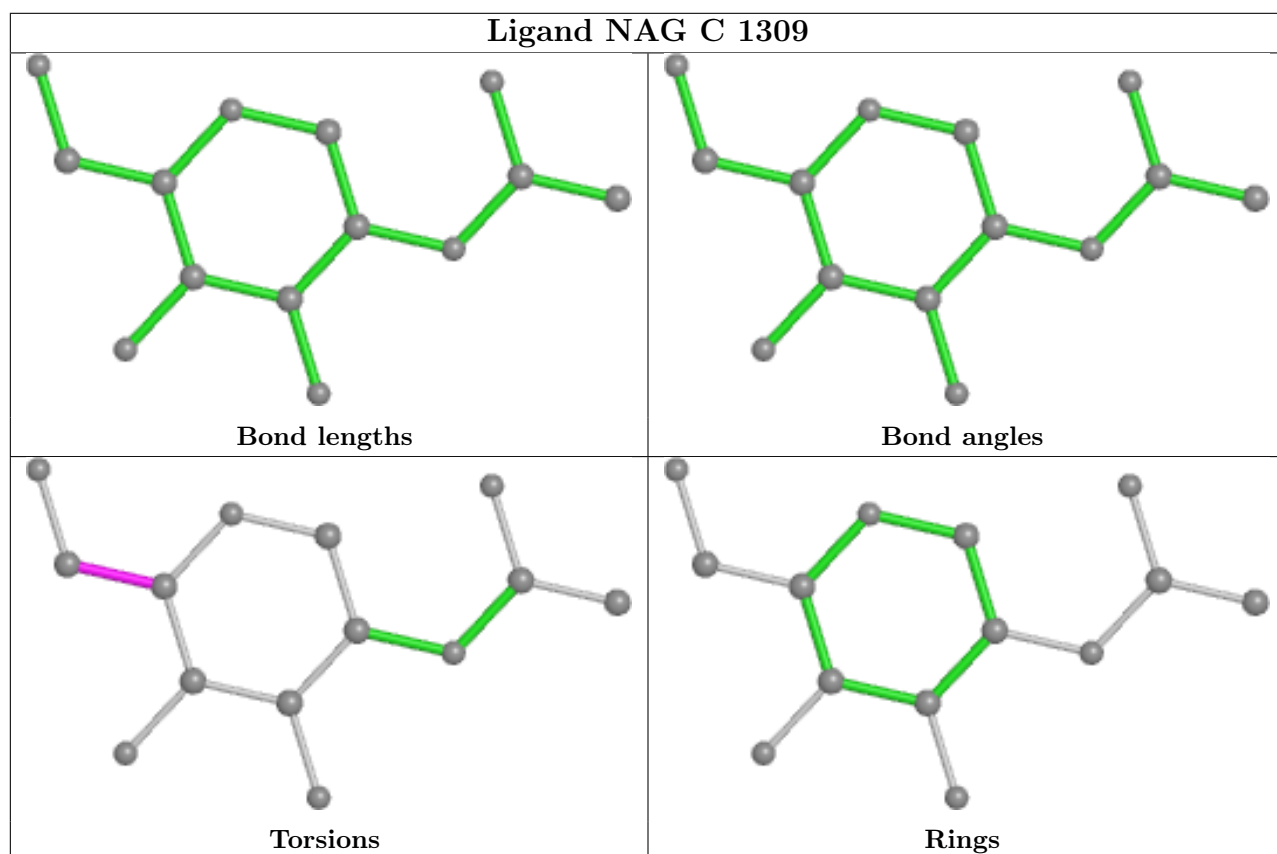
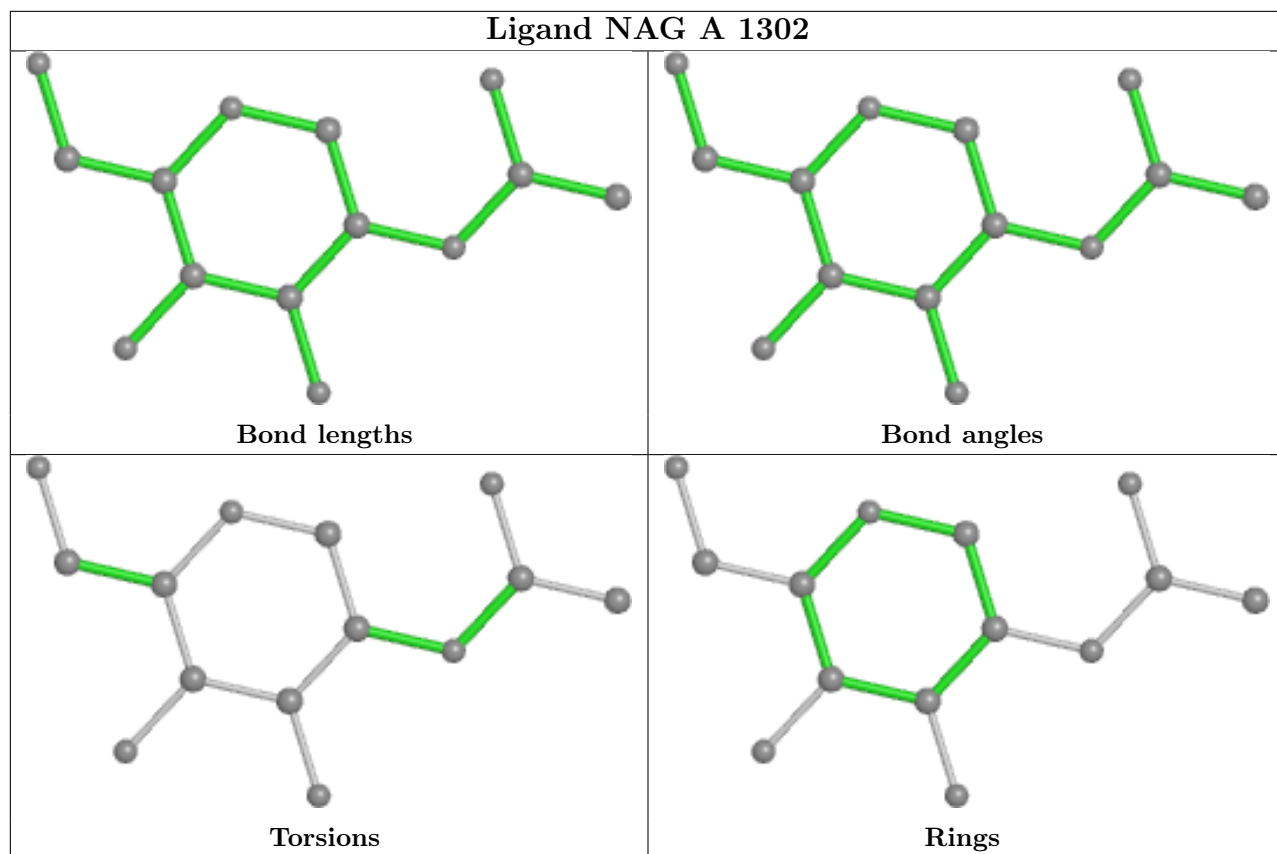
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	1308	NAG	1	0

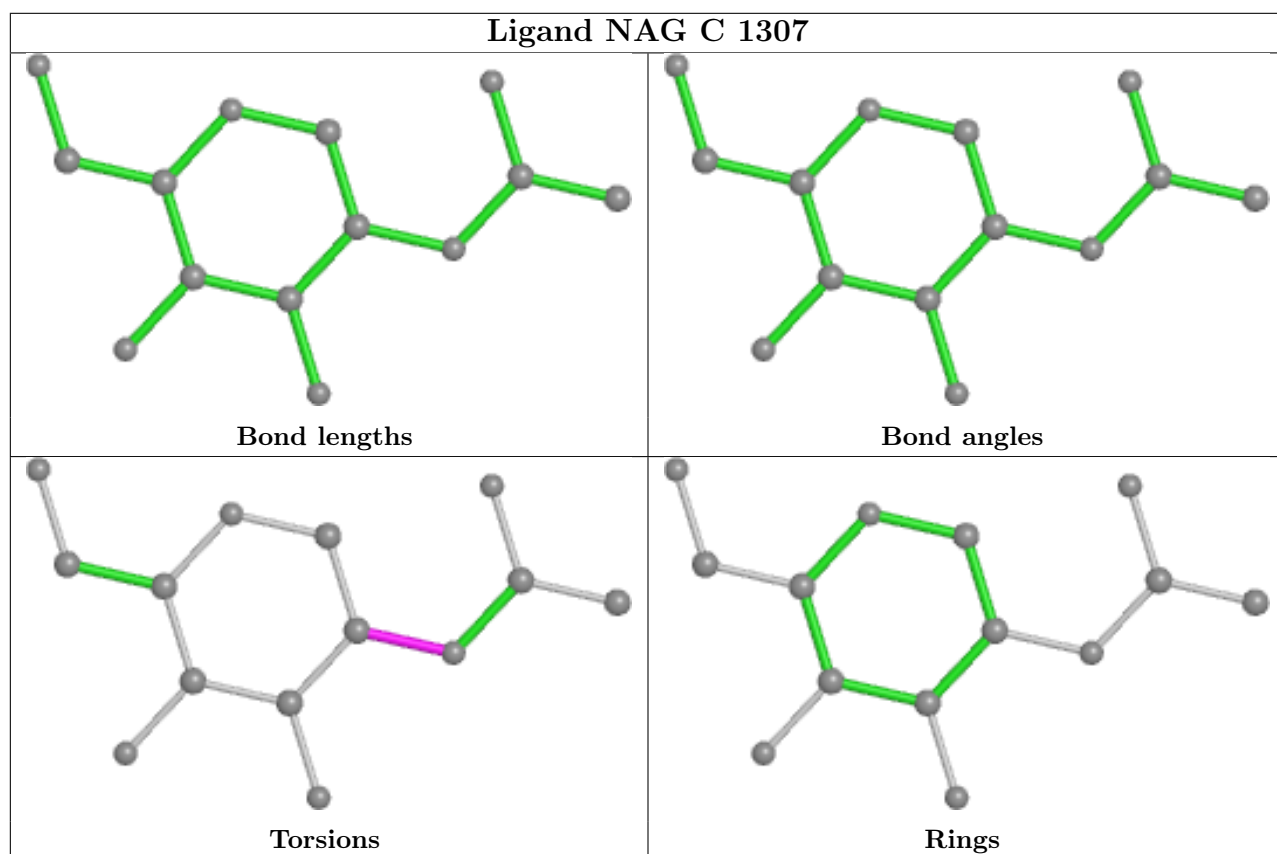
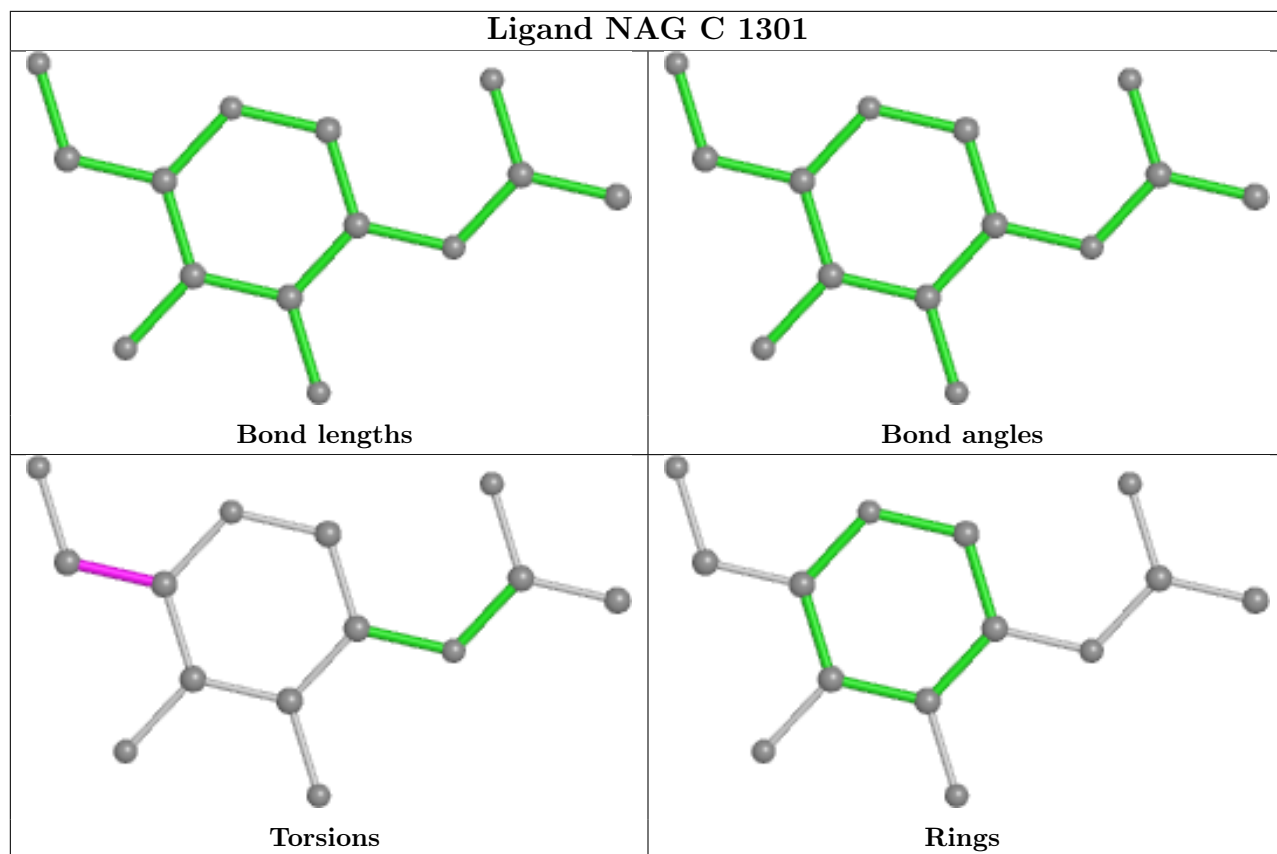
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

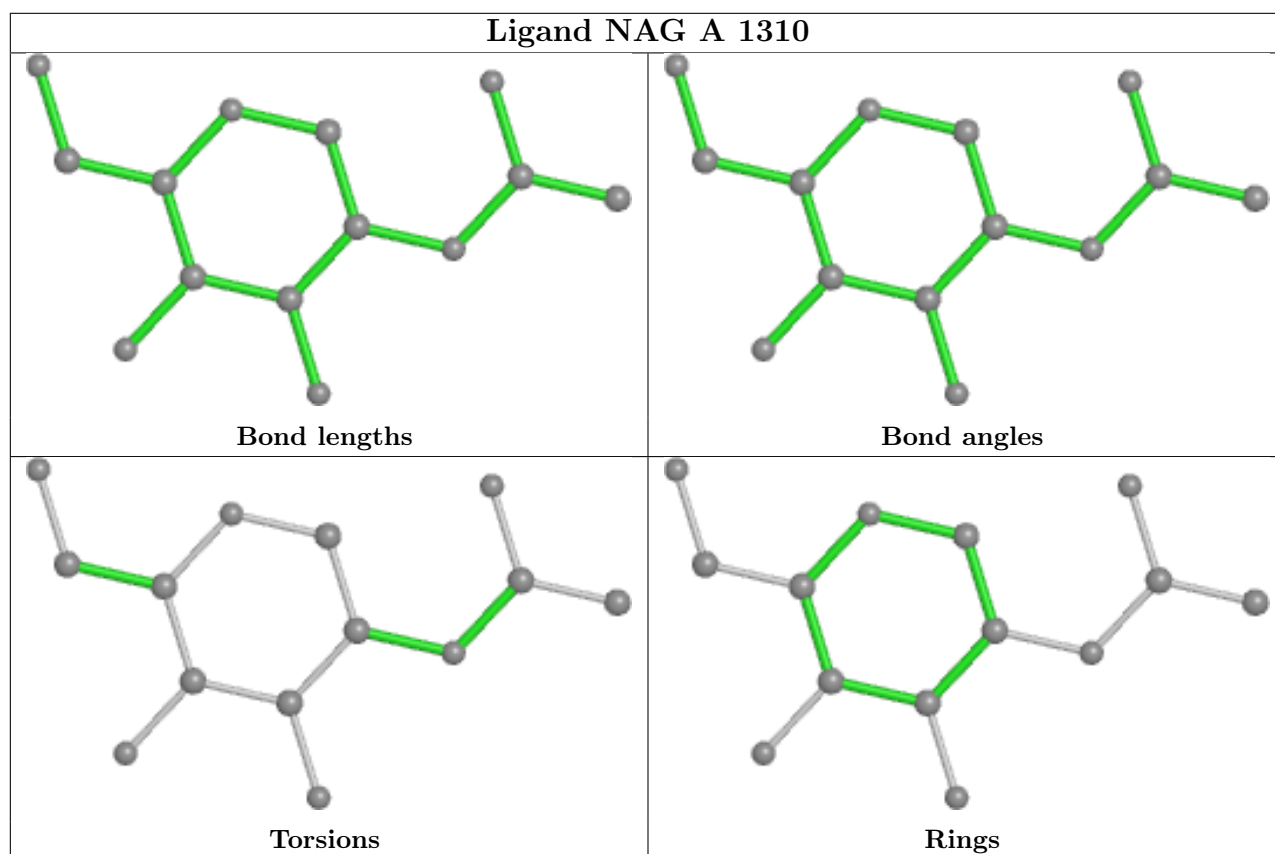
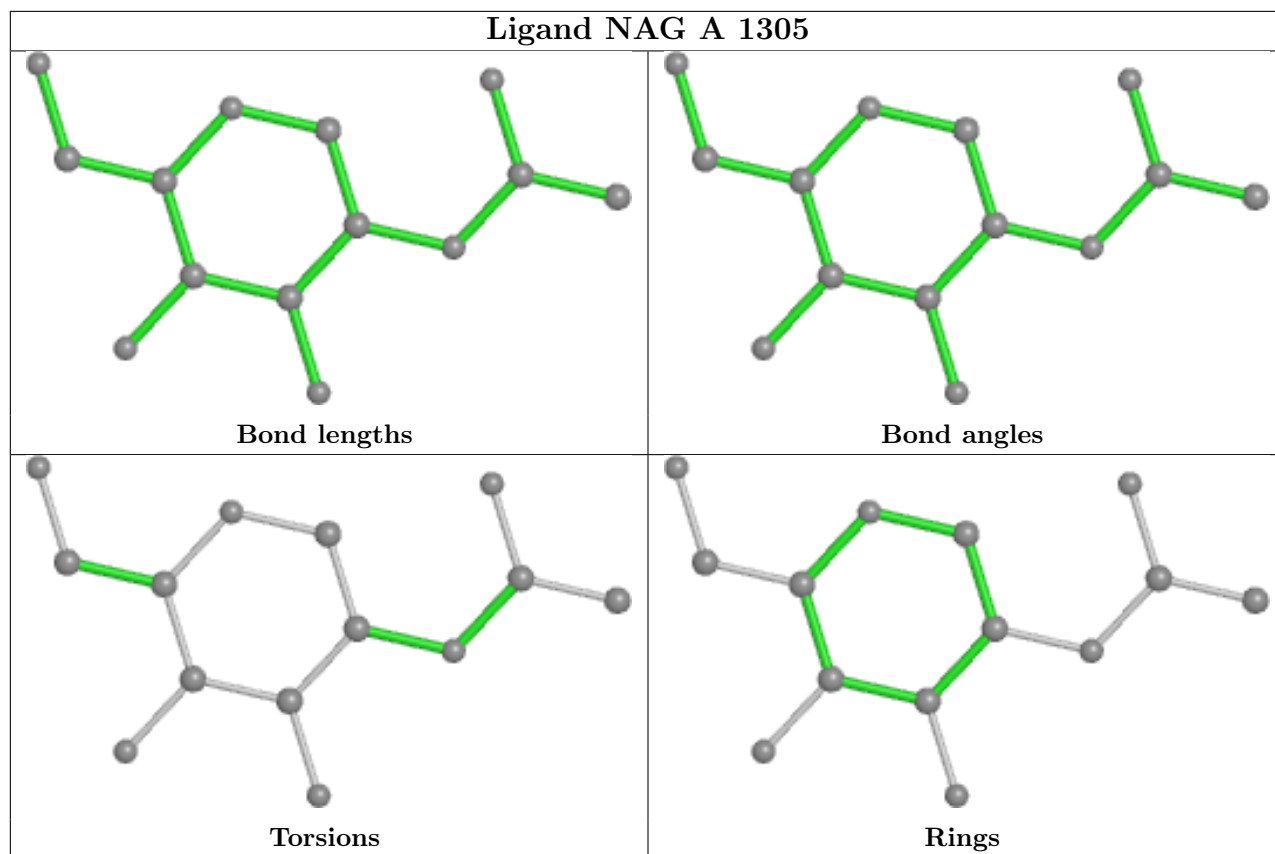




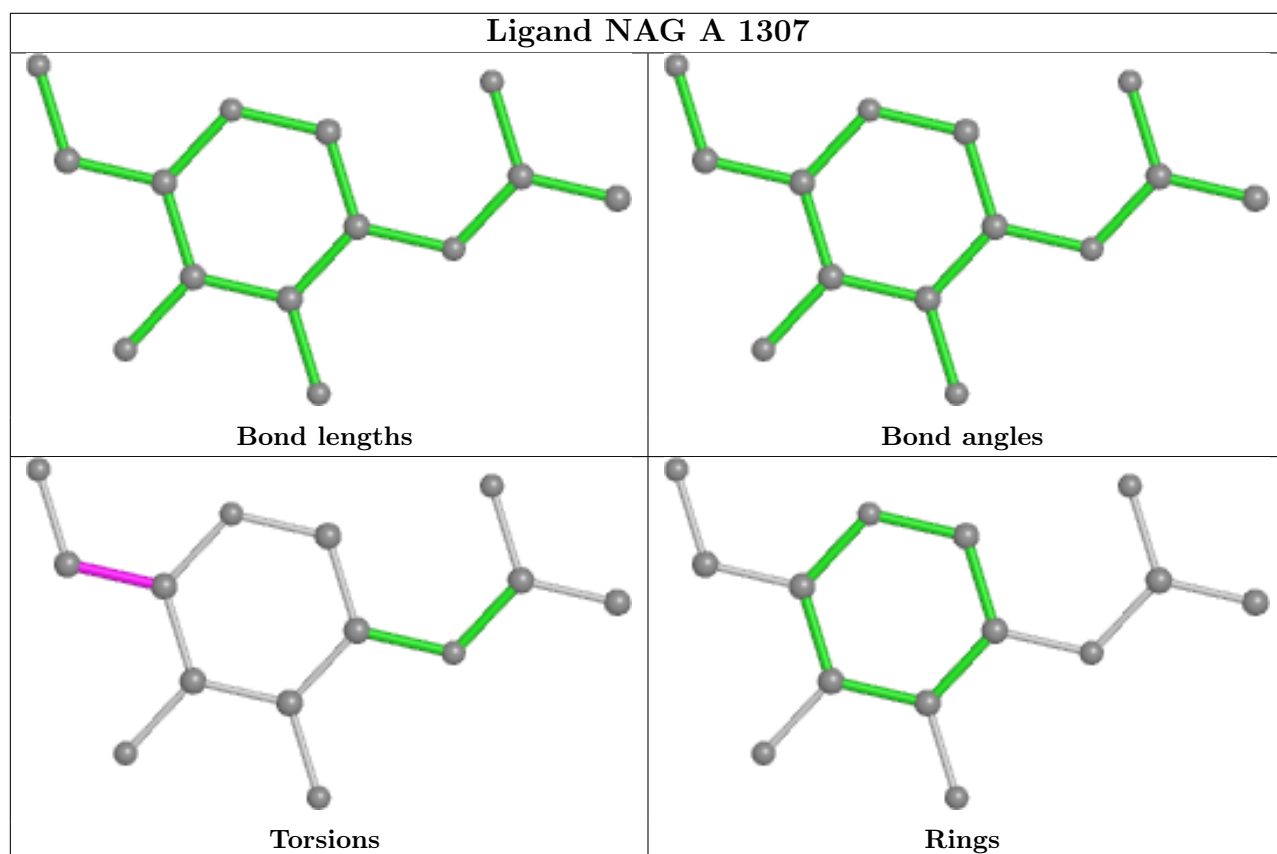
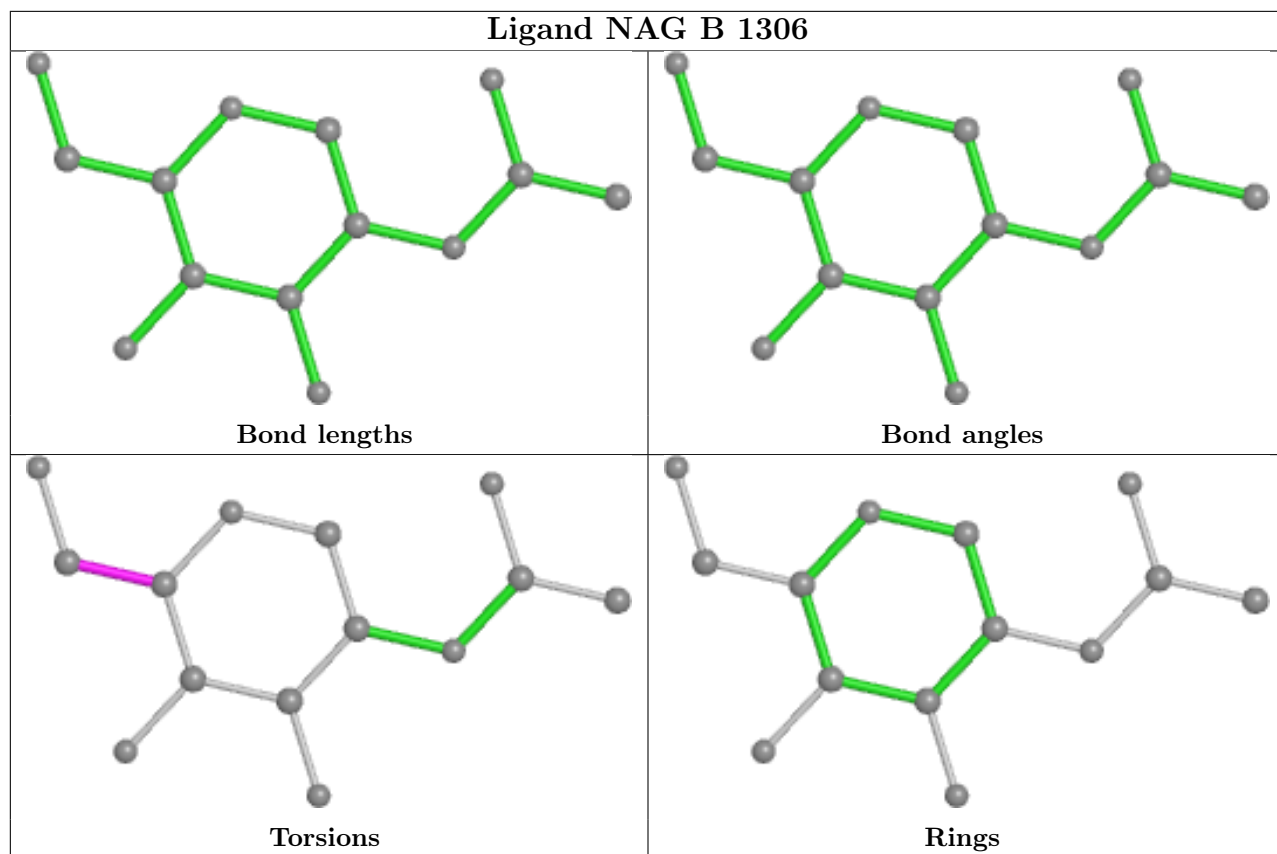


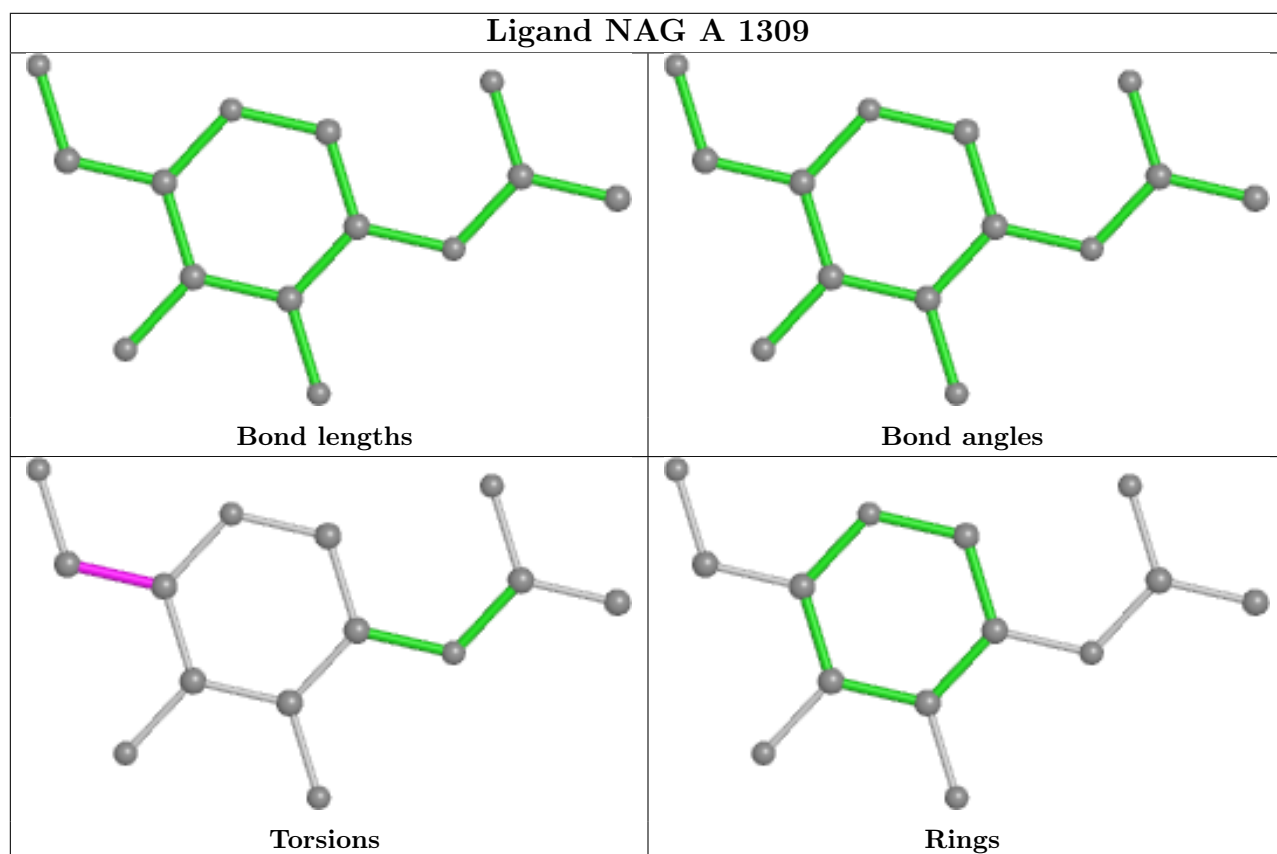
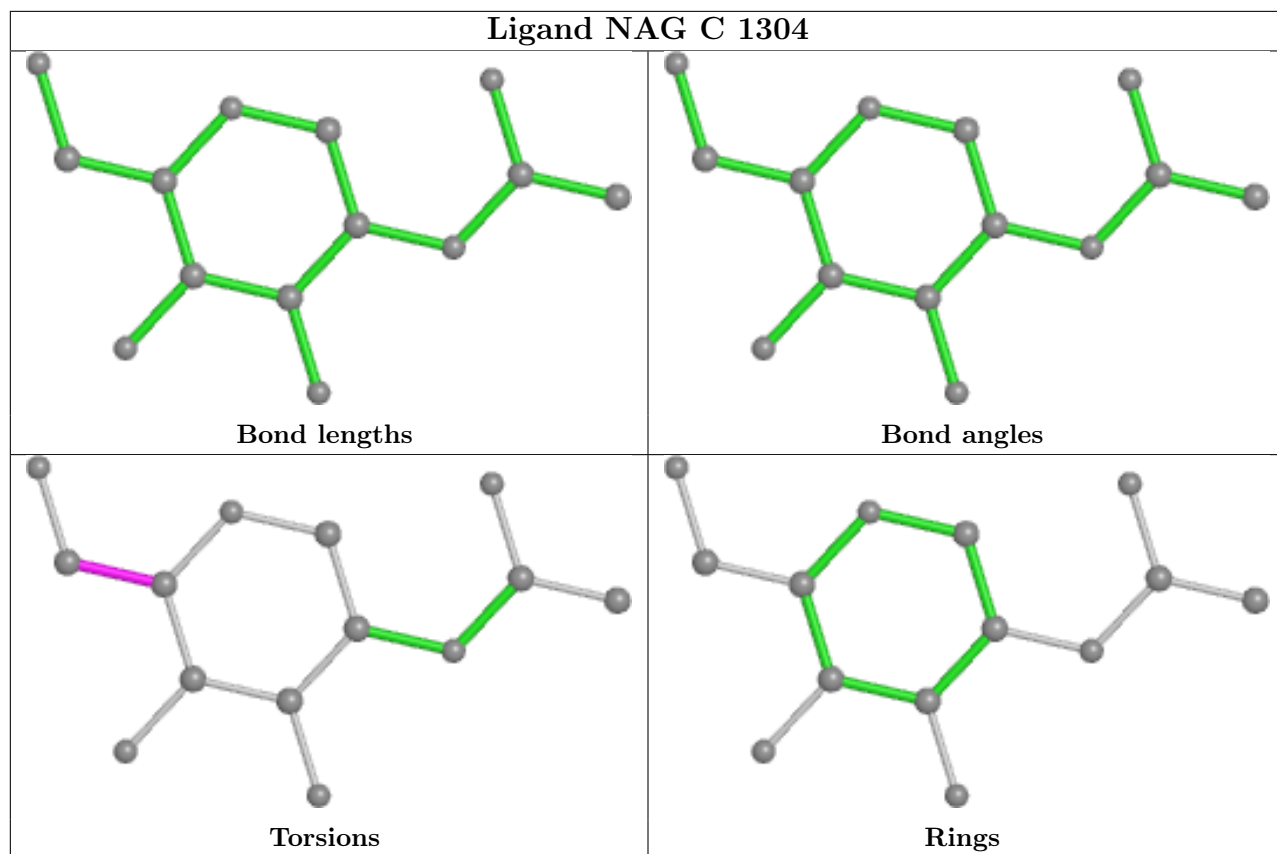


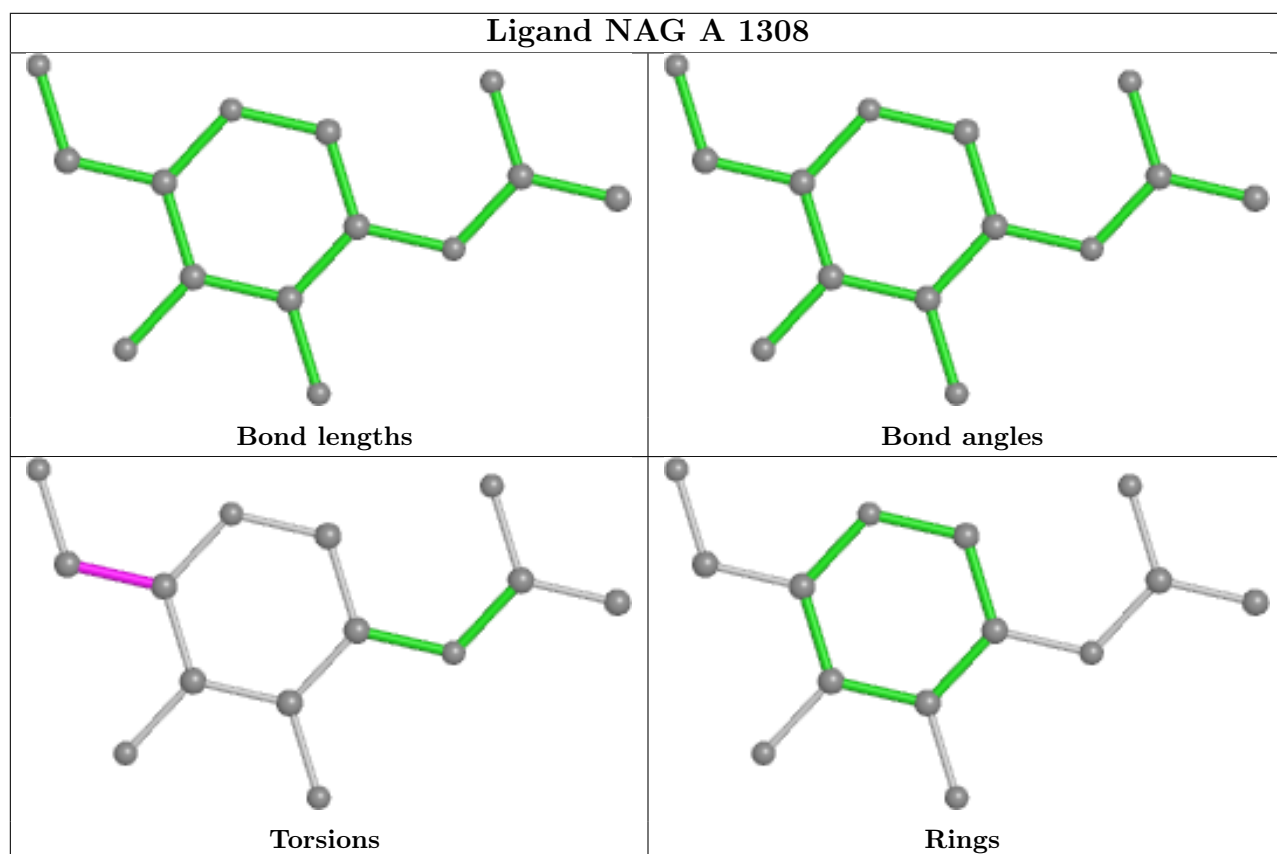
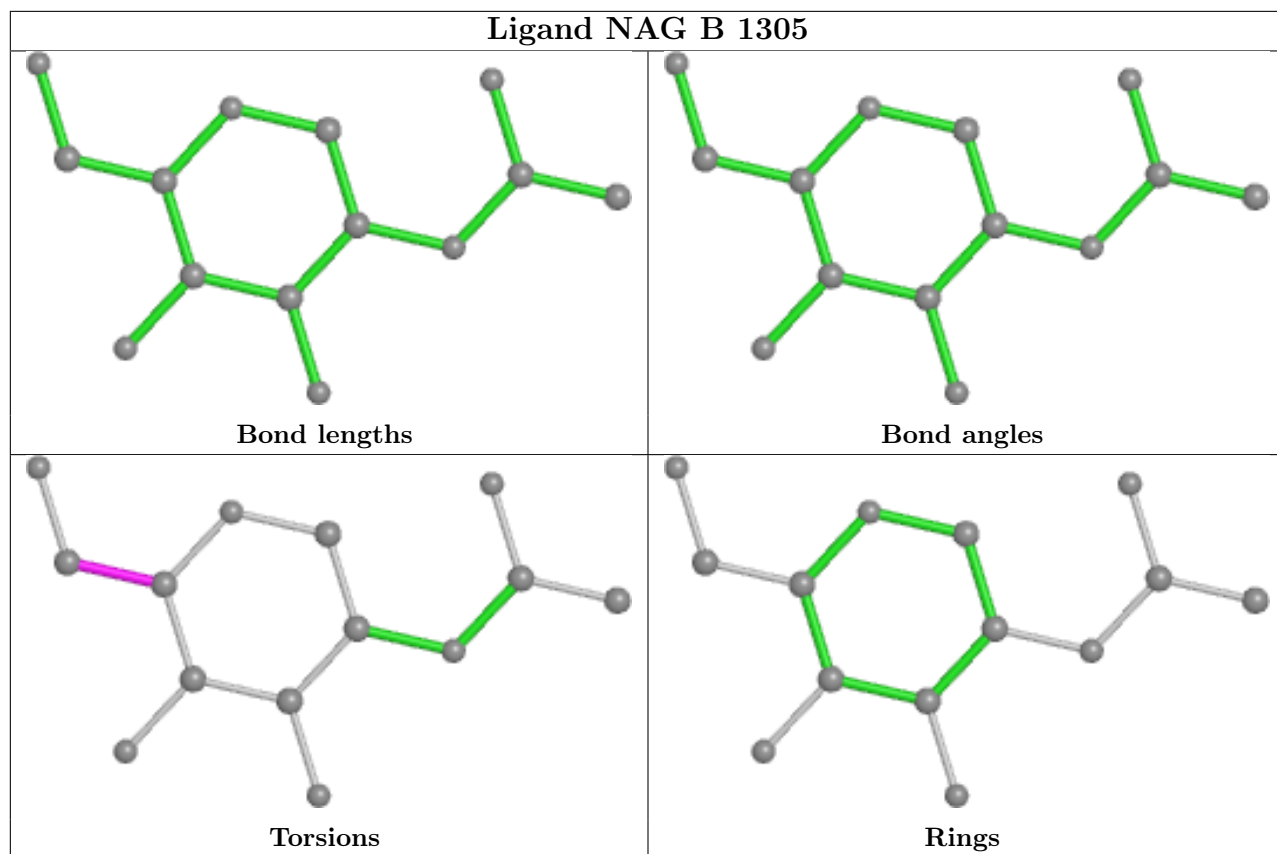


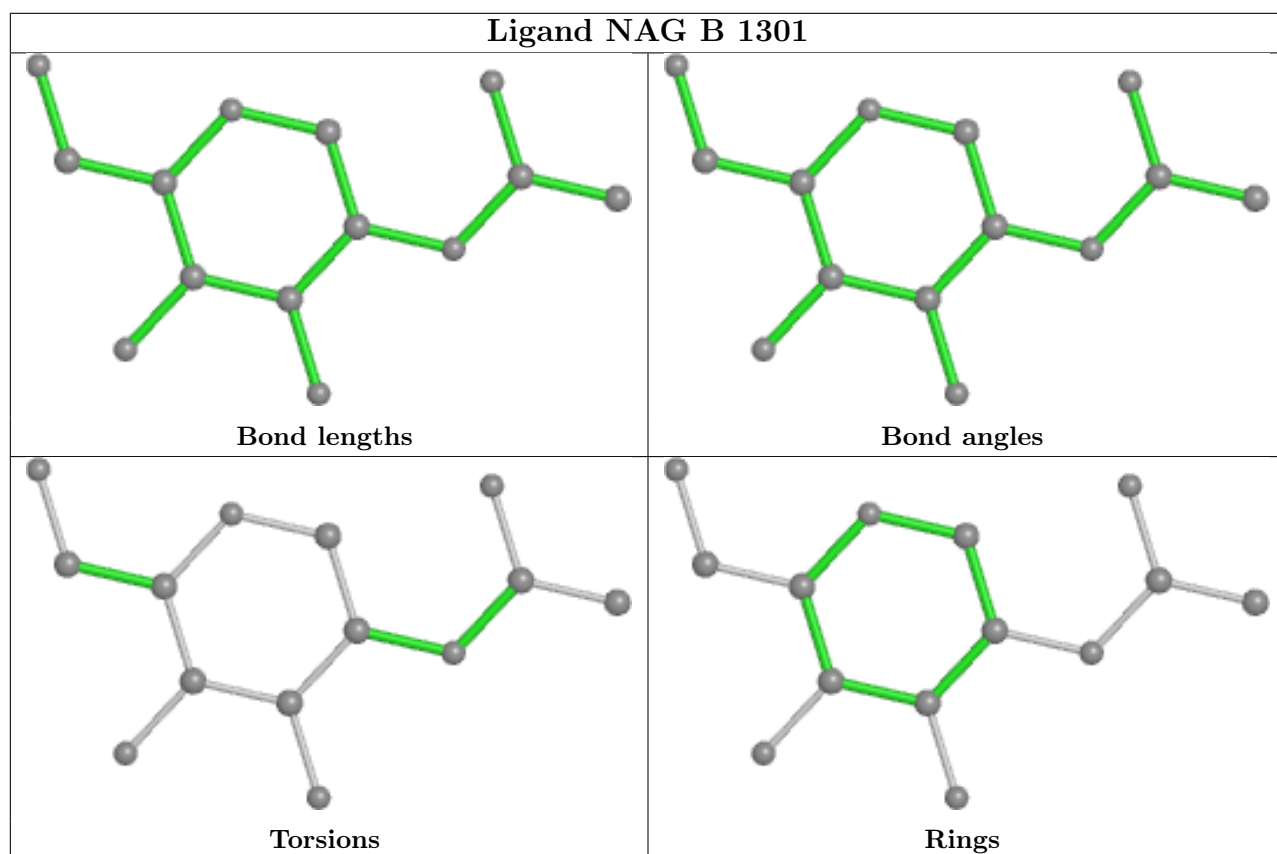
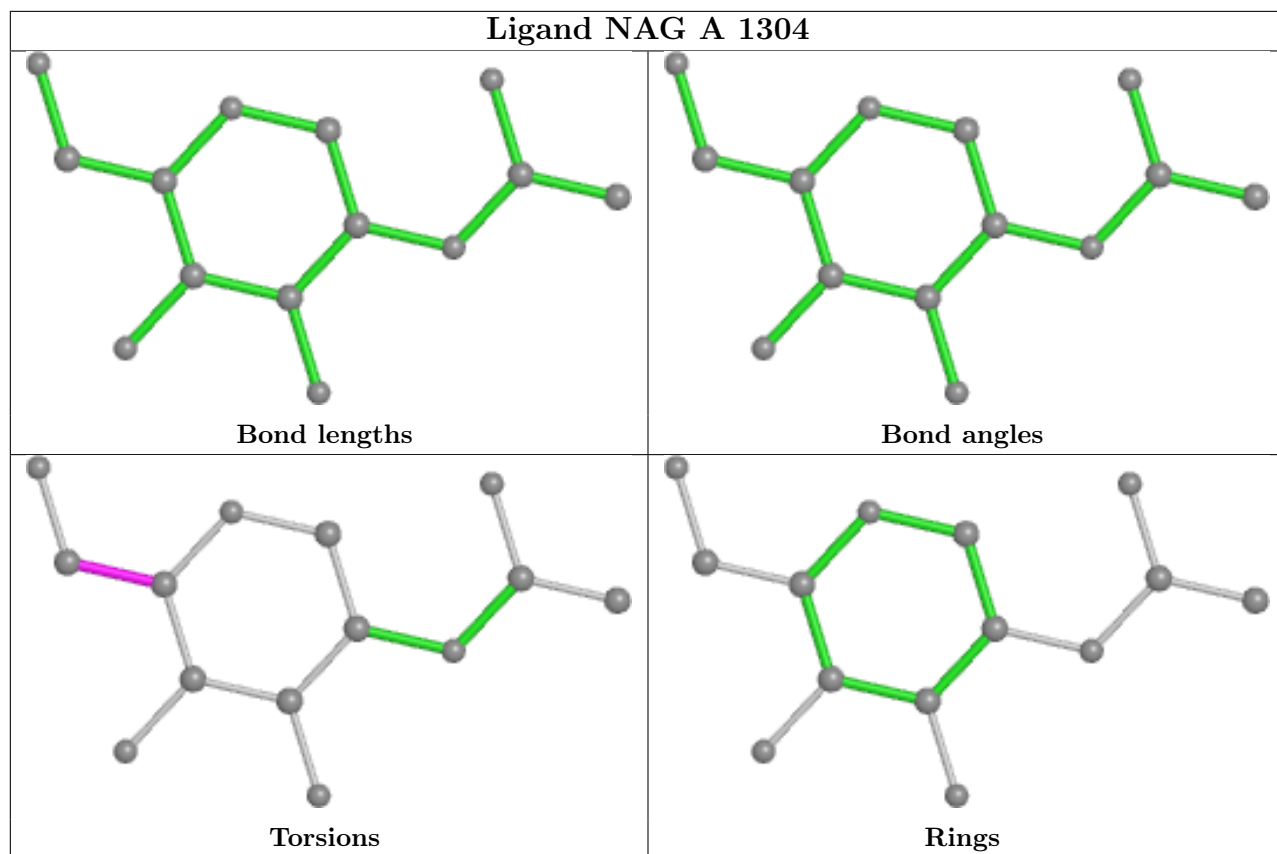


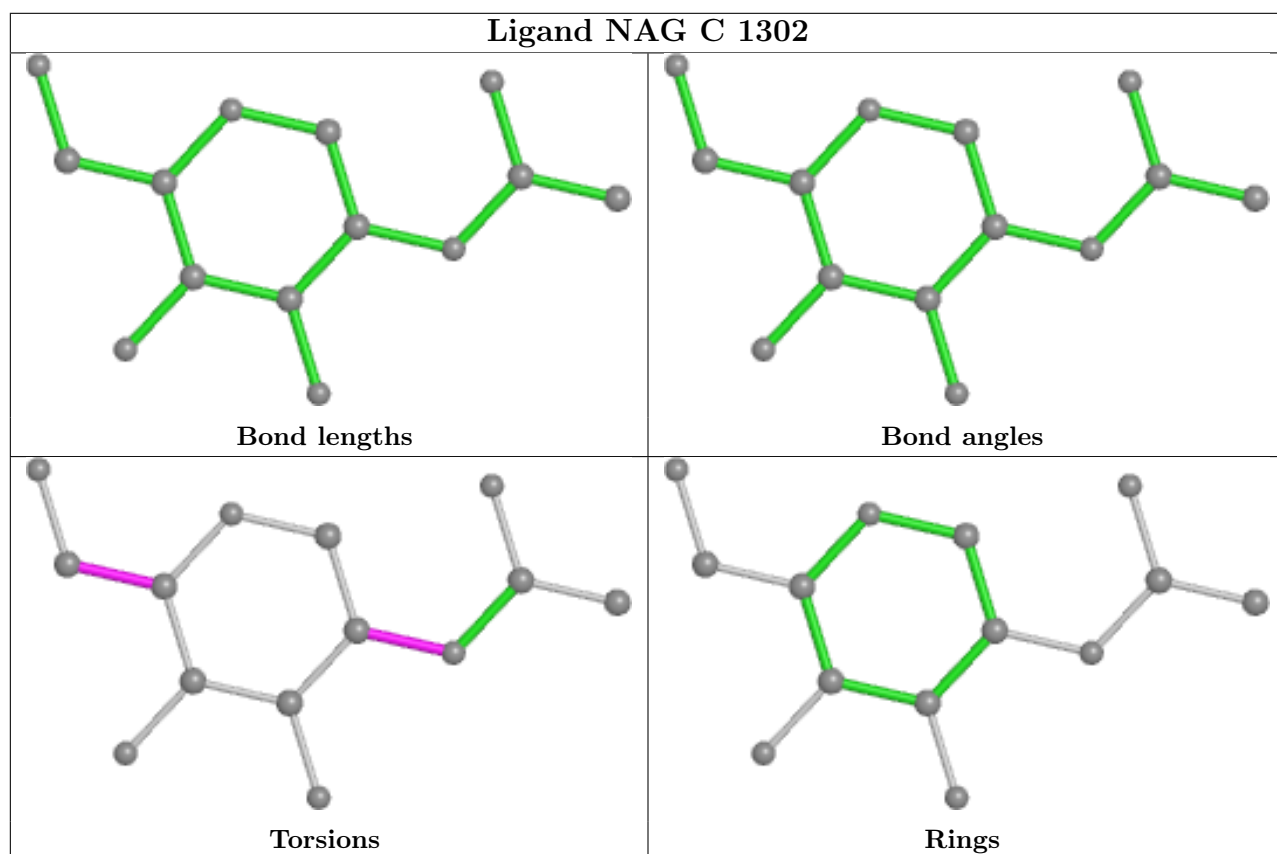
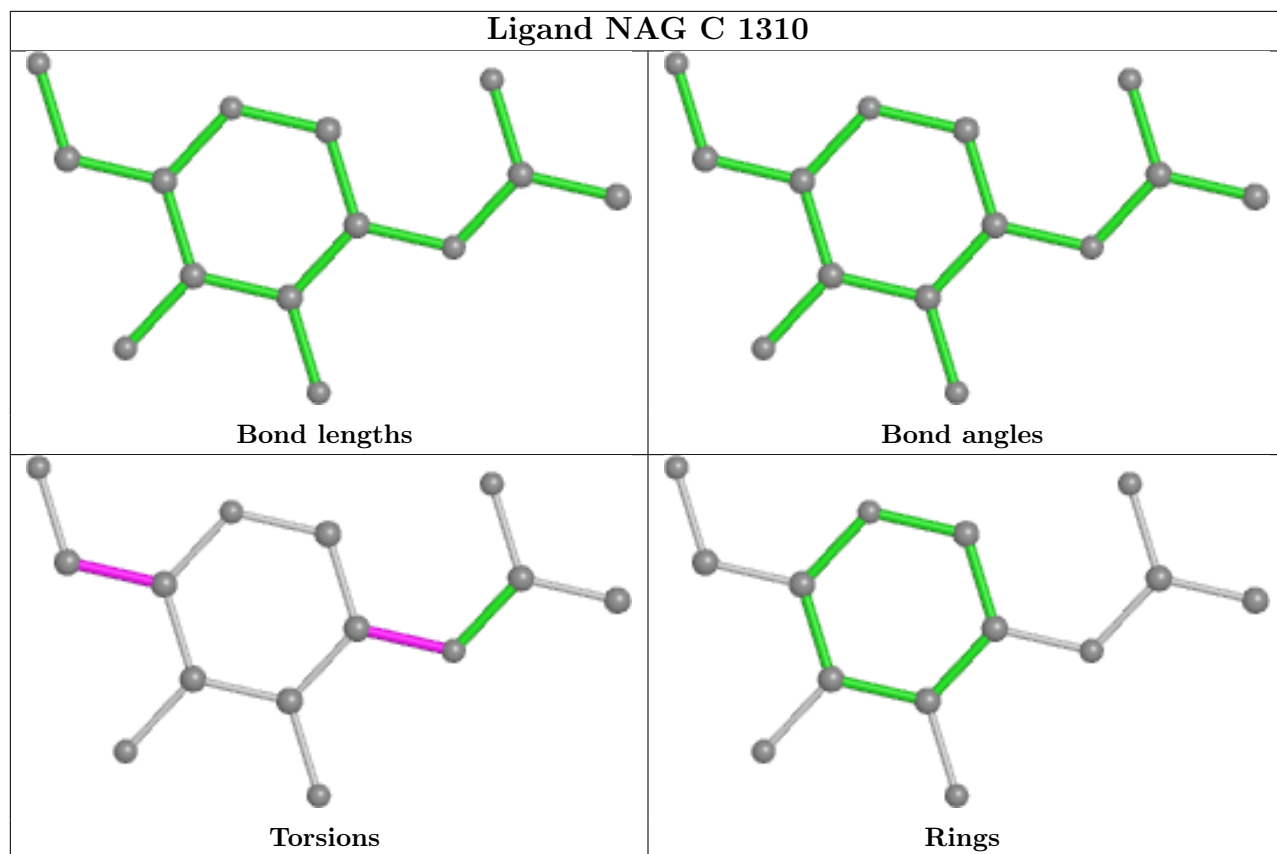


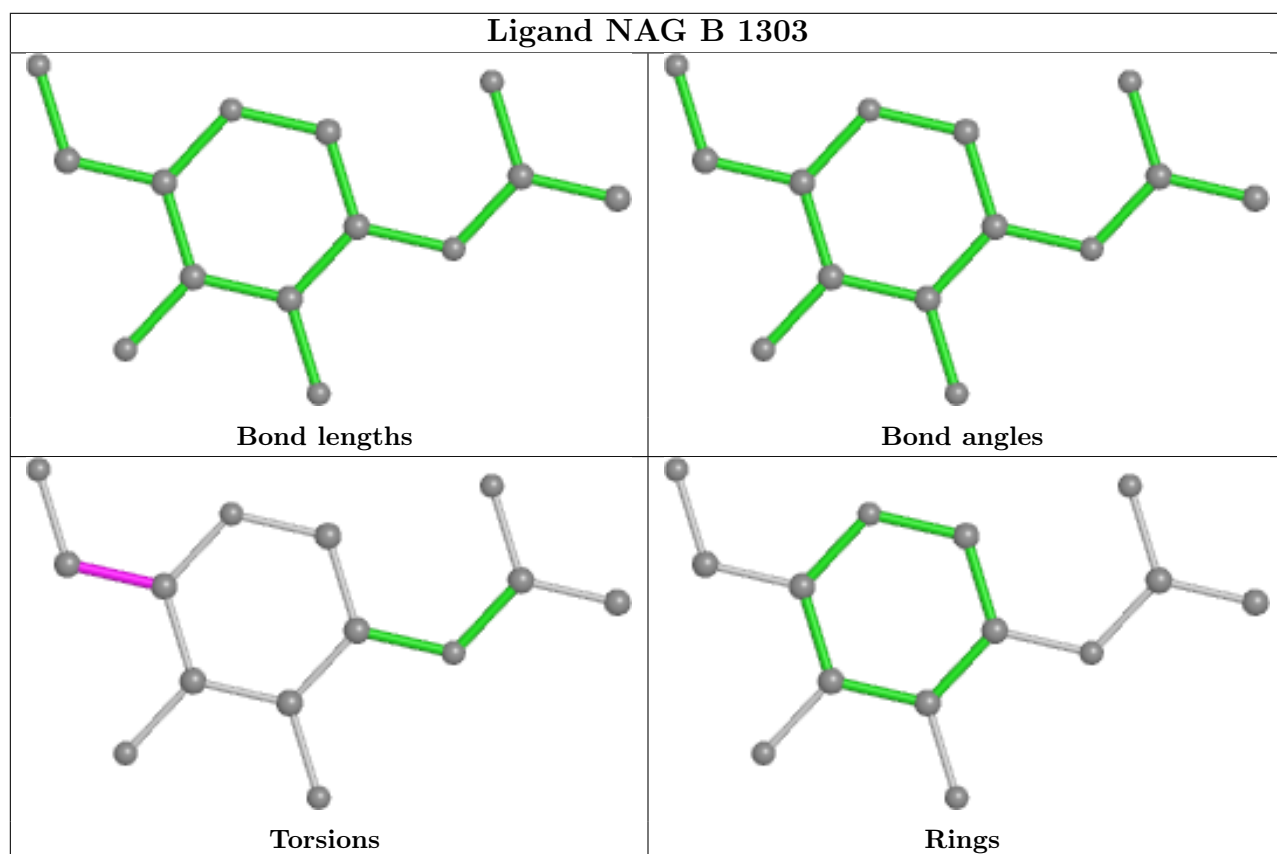
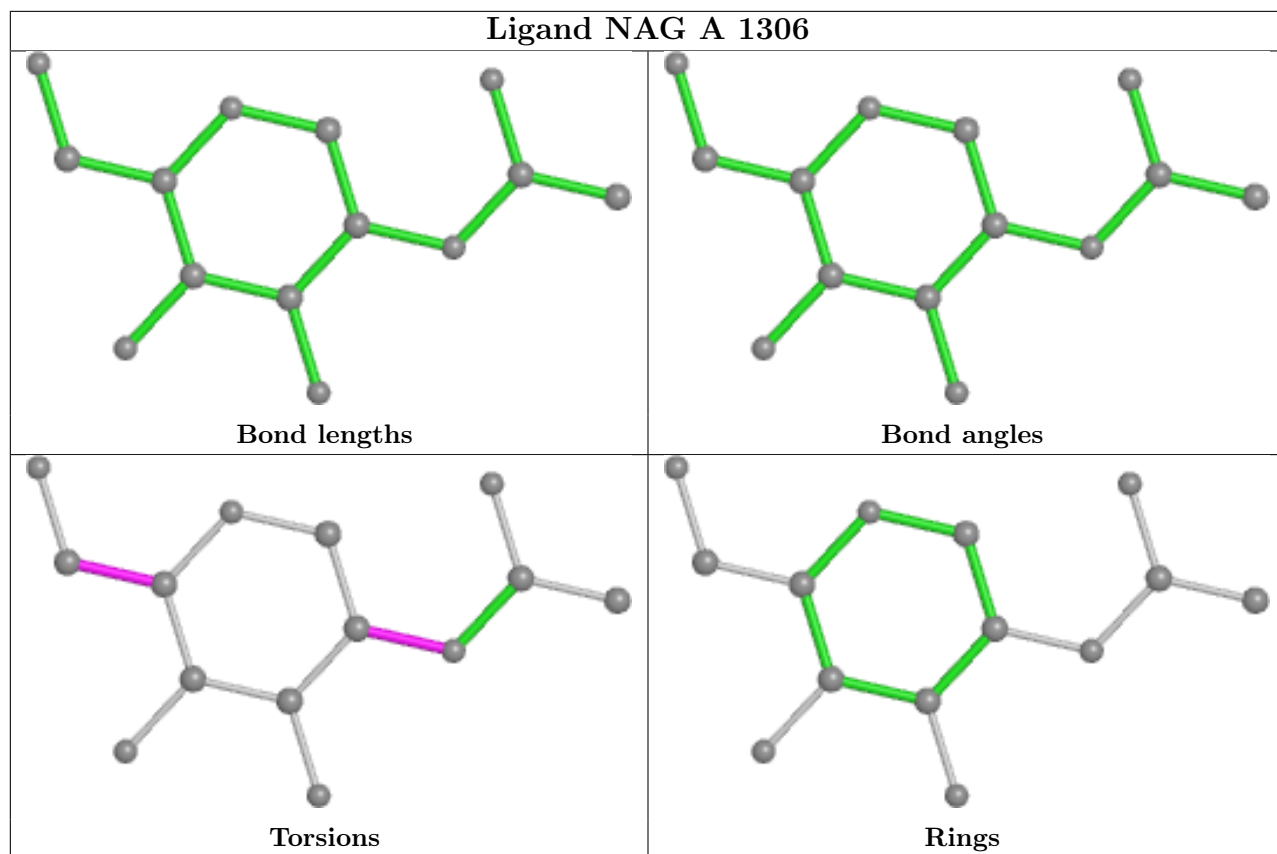


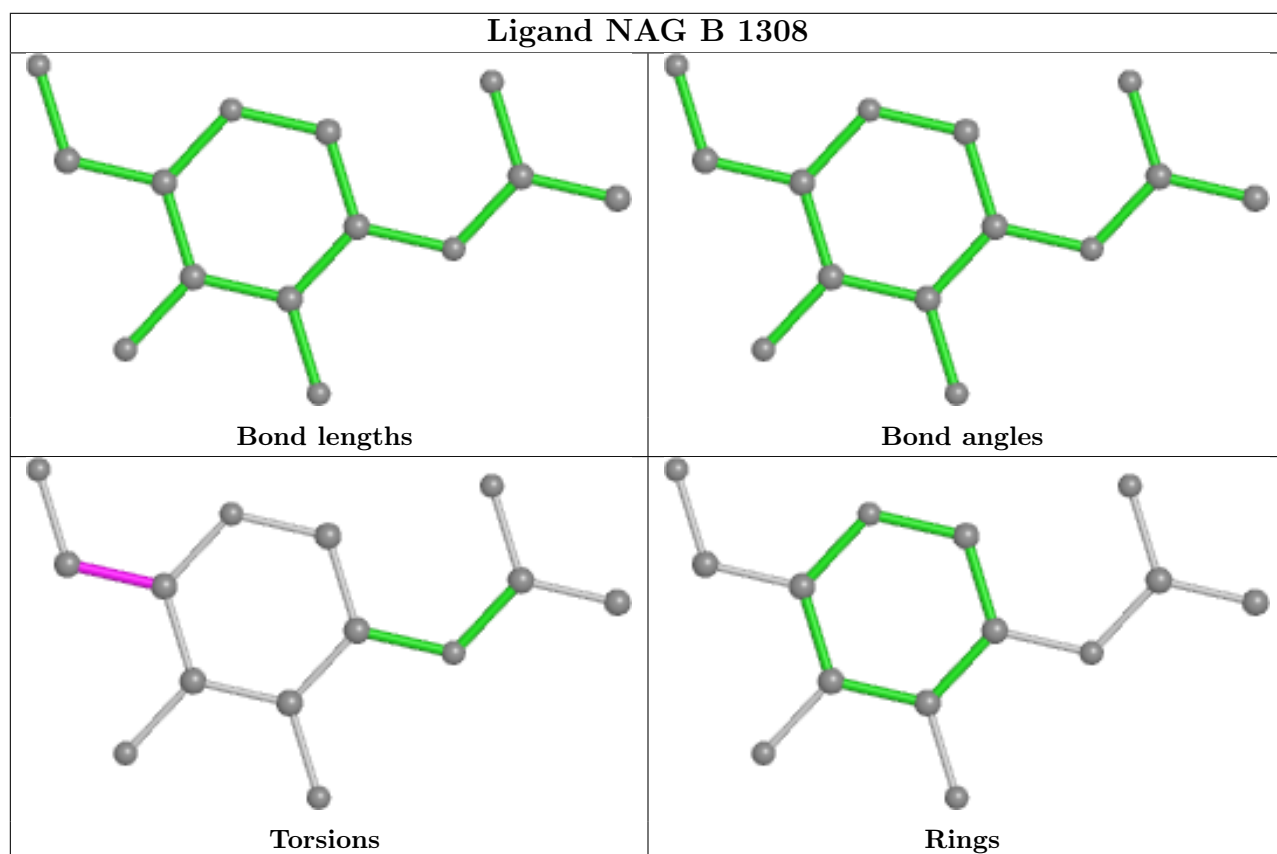
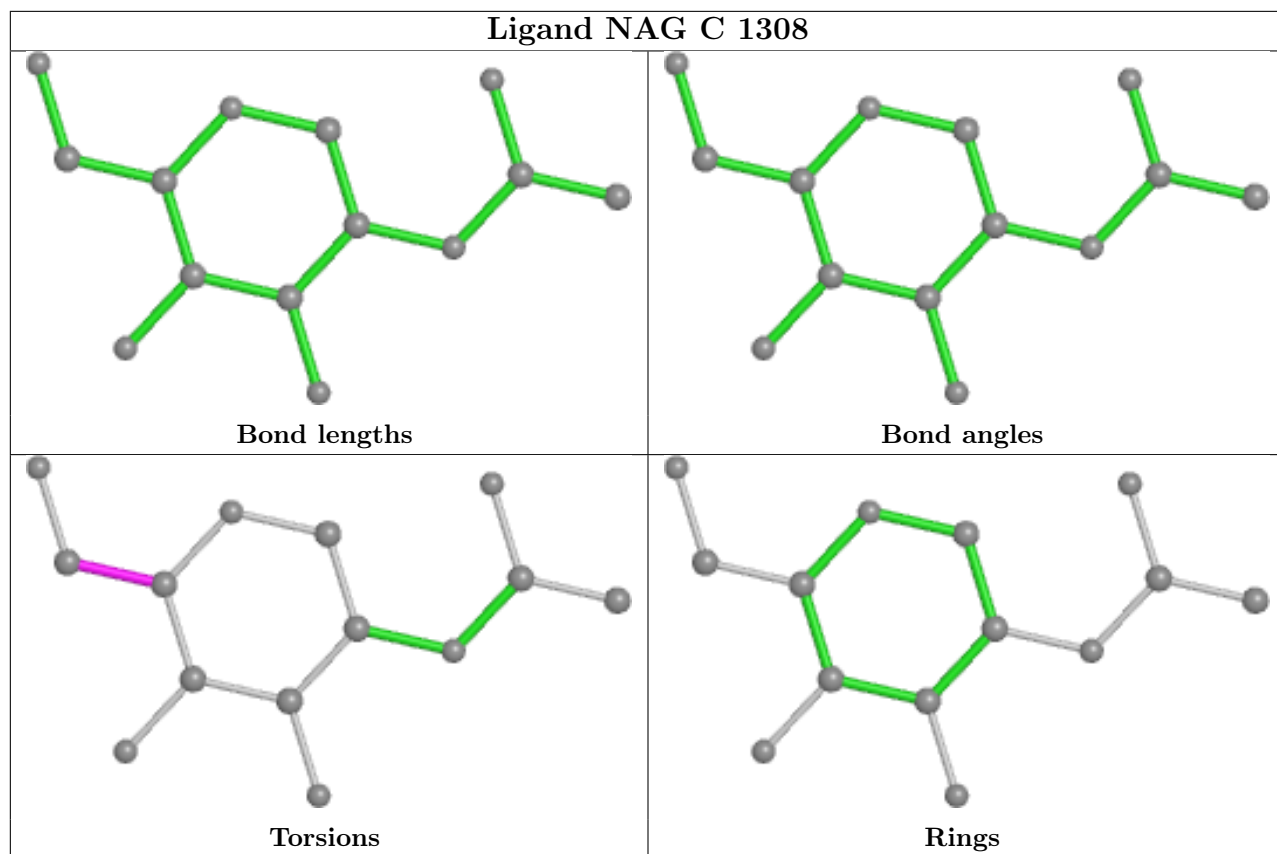


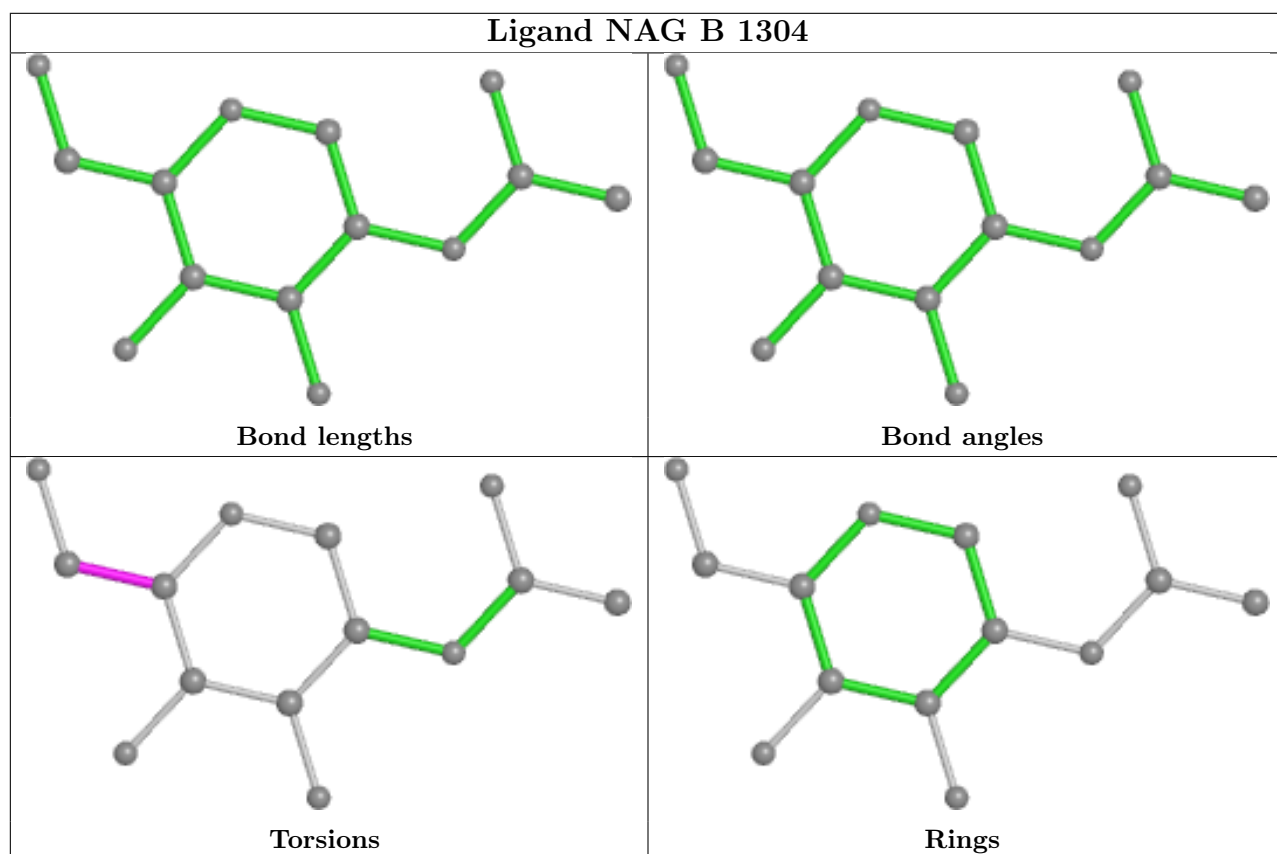
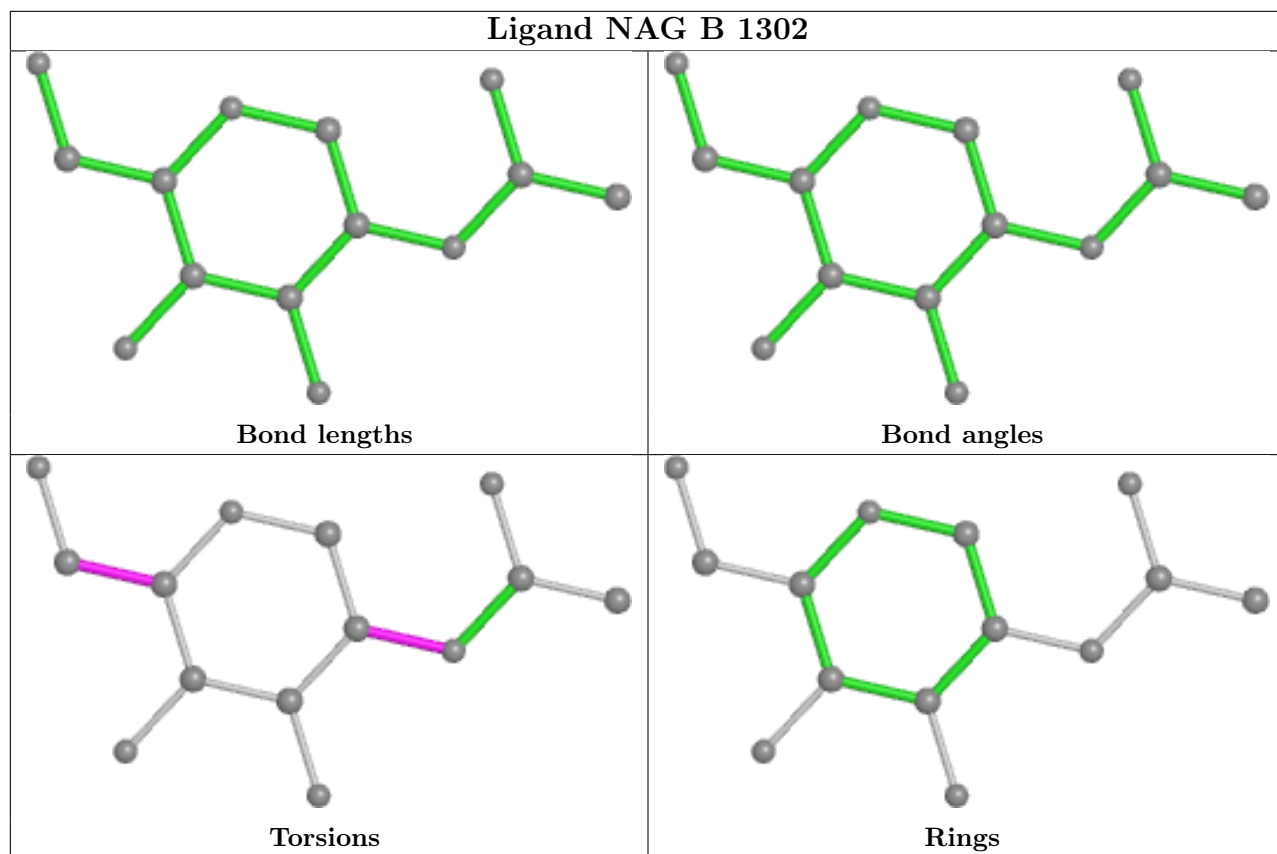




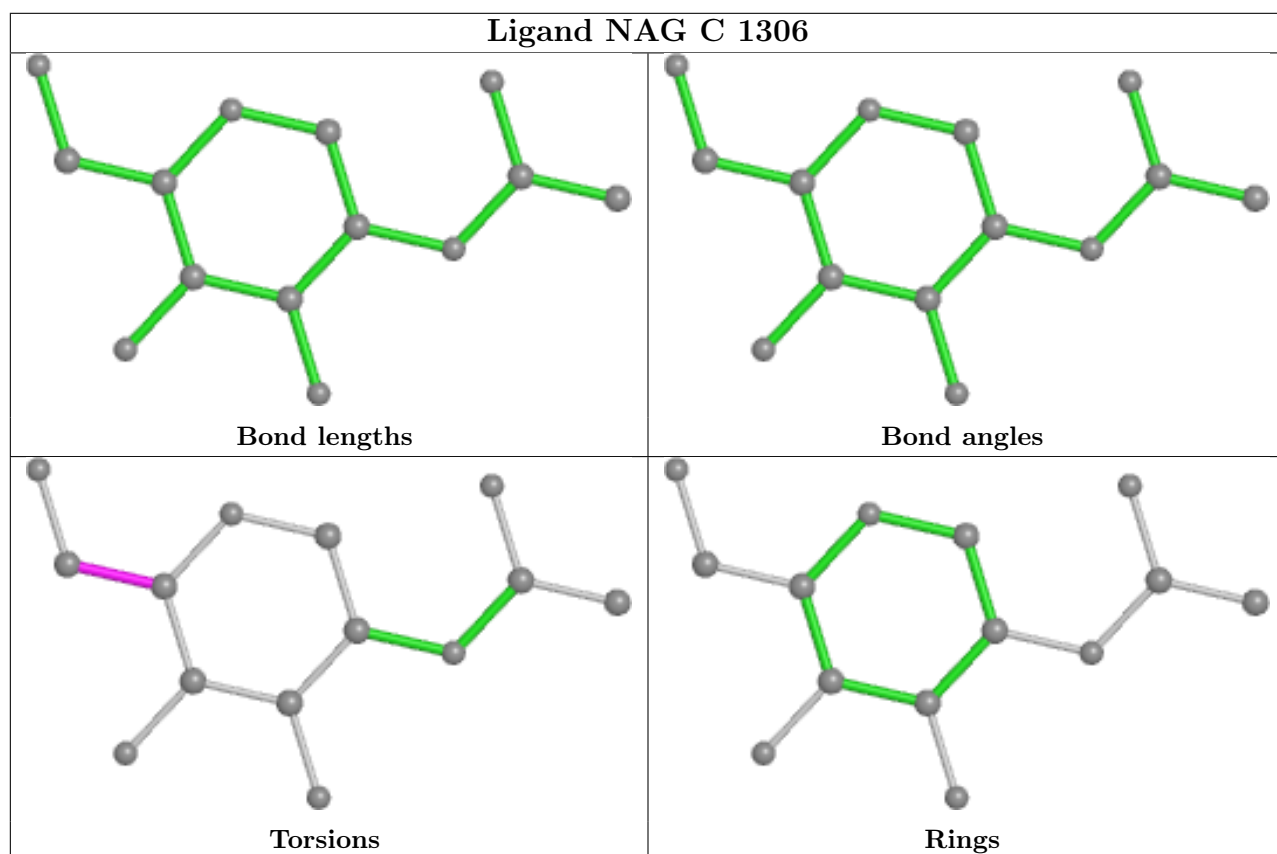
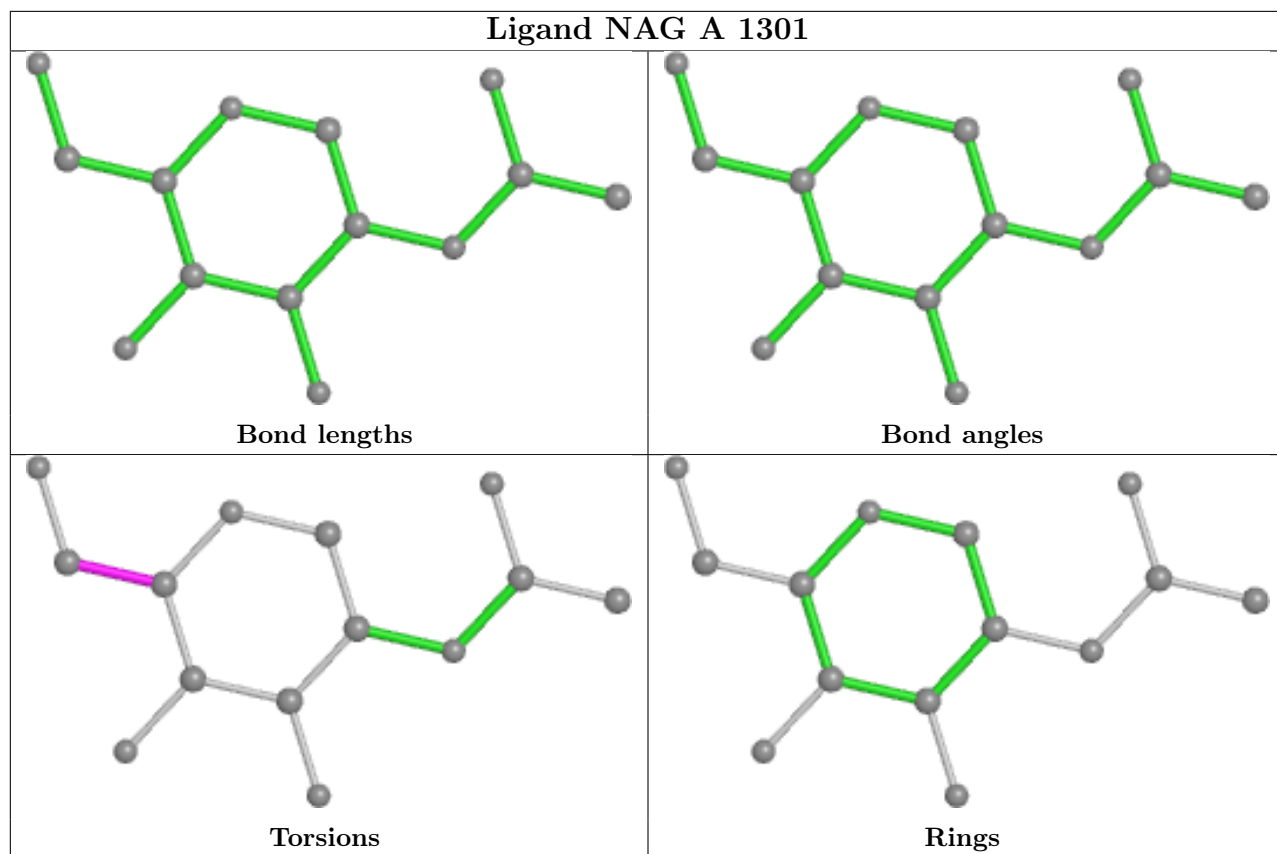












## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

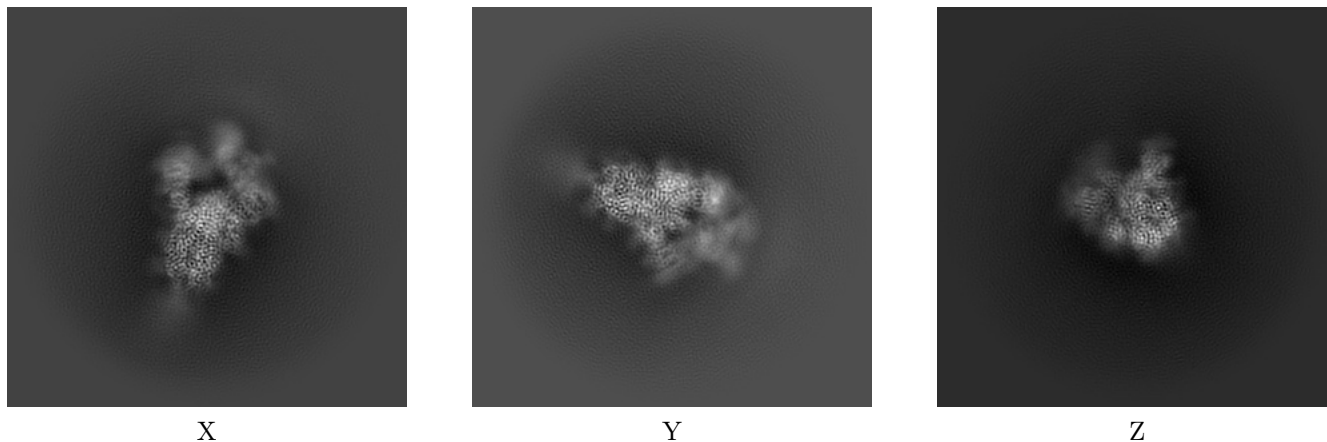
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-26267. These allow visual inspection of the internal detail of the map and identification of artifacts.

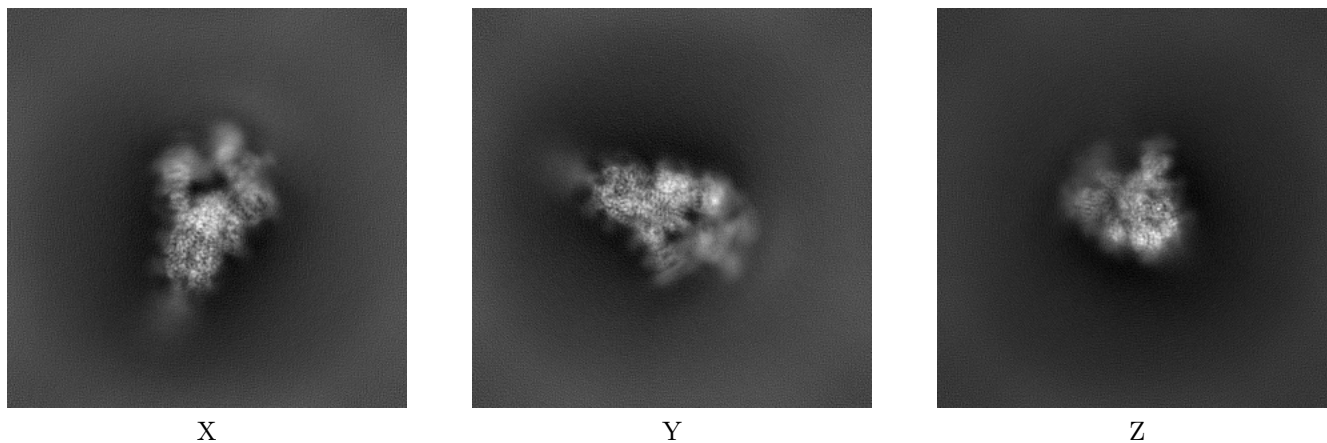
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

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

#### 6.1.1 Primary map



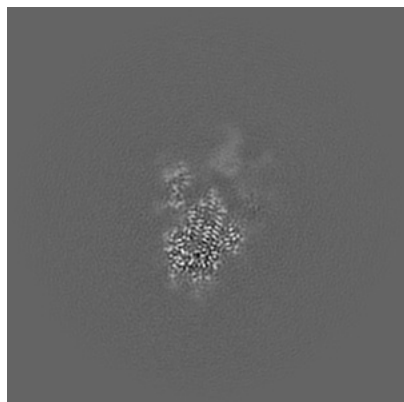
#### 6.1.2 Raw map



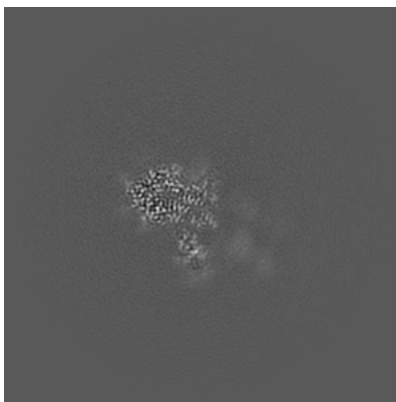
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

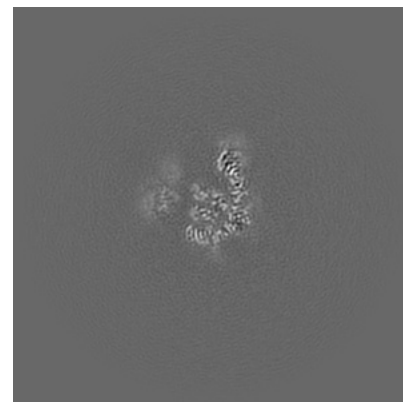
### 6.2.1 Primary map



X Index: 208

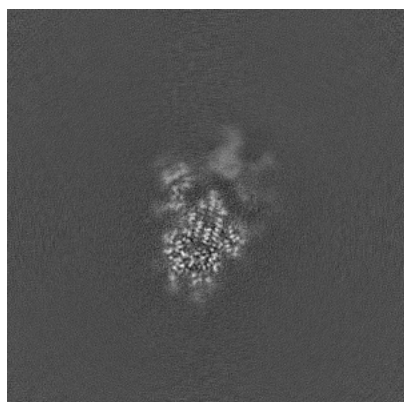


Y Index: 208

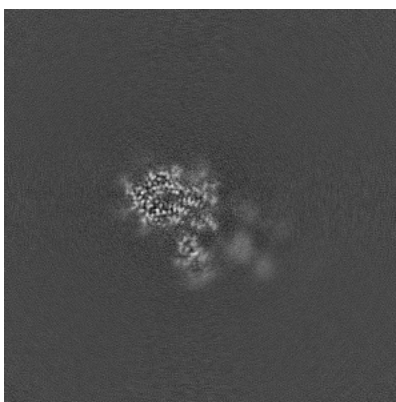


Z Index: 208

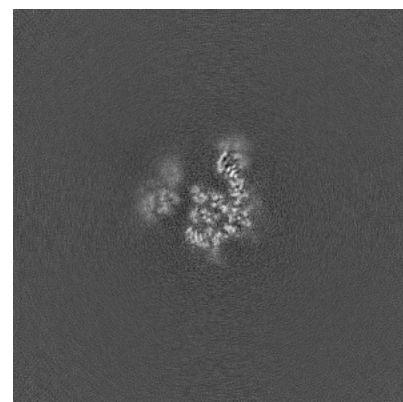
### 6.2.2 Raw map



X Index: 208



Y Index: 208

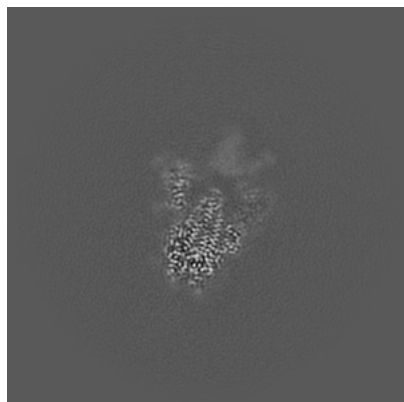


Z Index: 208

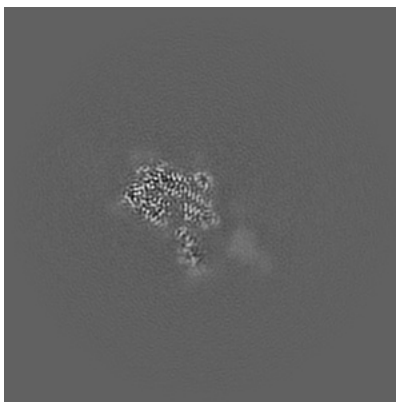
The images above show central slices of the map in three orthogonal directions.

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

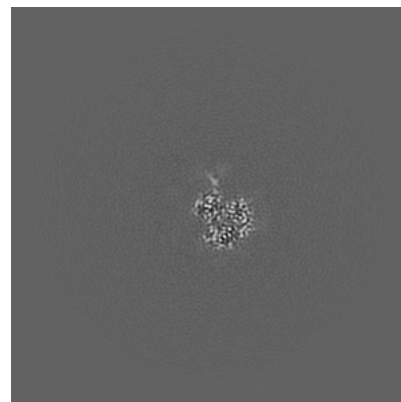
### 6.3.1 Primary map



X Index: 211



Y Index: 201

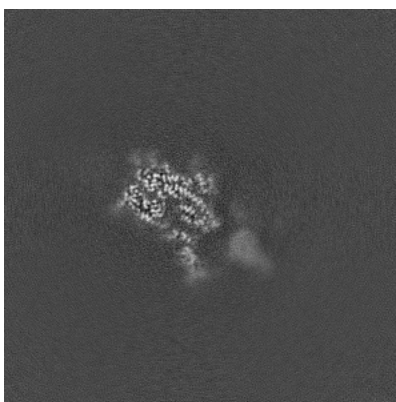


Z Index: 160

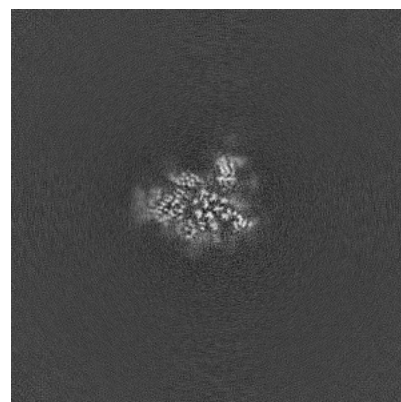
### 6.3.2 Raw map



X Index: 215



Y Index: 199

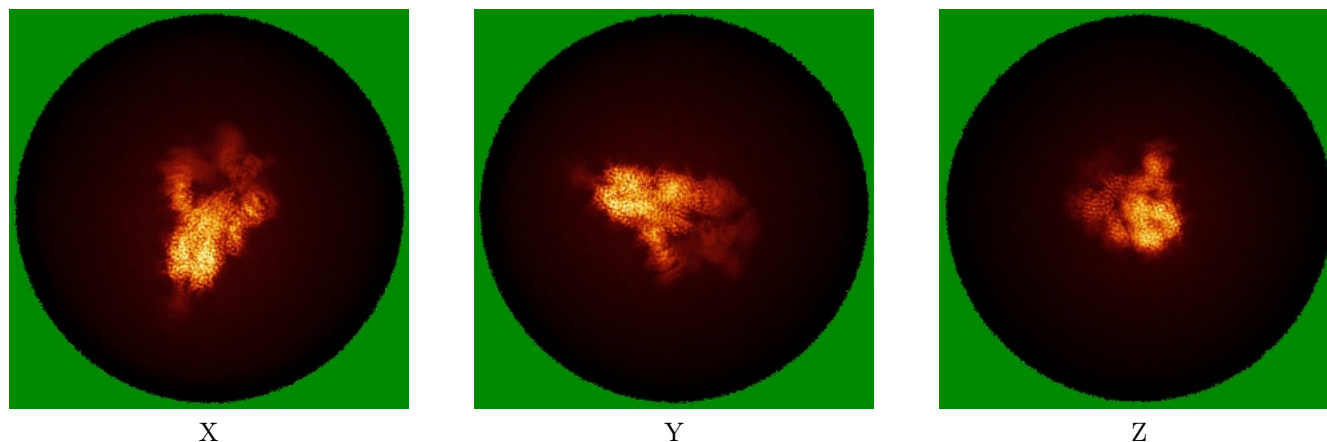


Z Index: 193

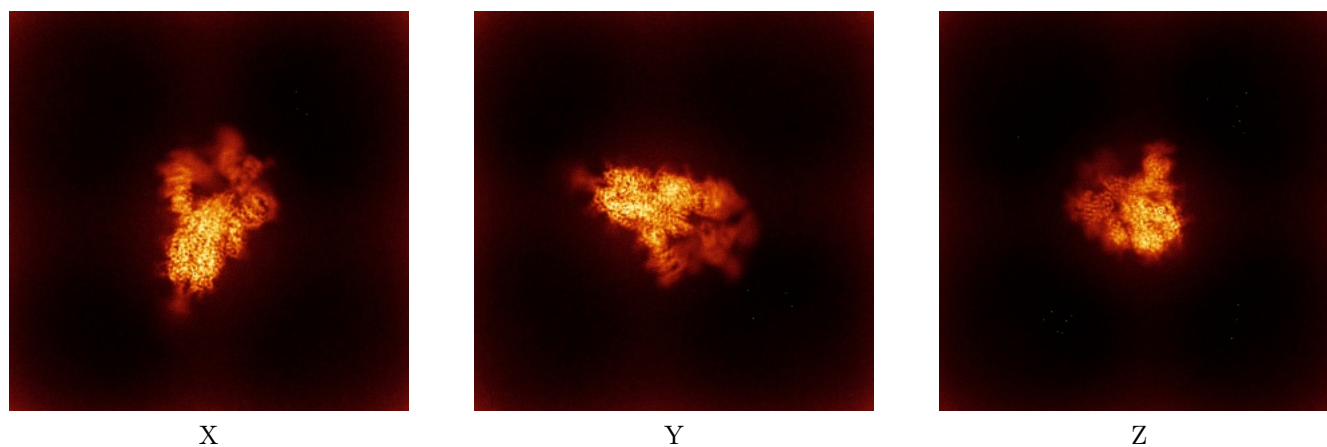
The images above show the largest variance slices of the map in three orthogonal directions.

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

### 6.4.1 Primary map



### 6.4.2 Raw map

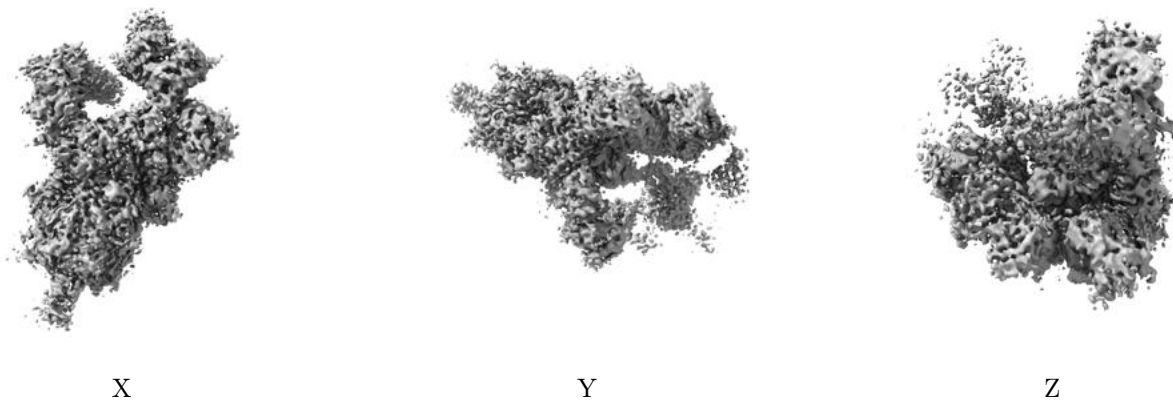


The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.



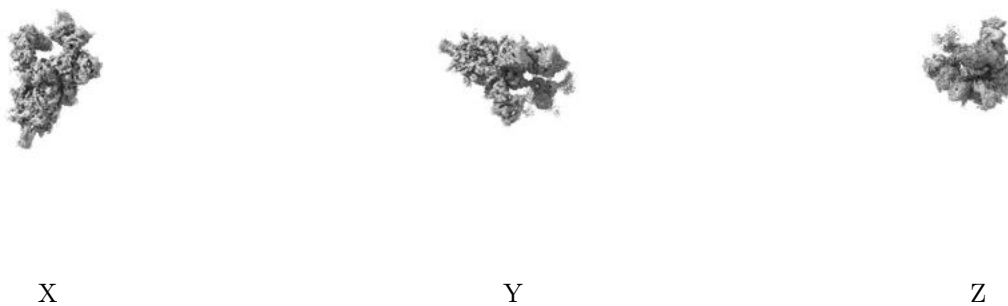
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.32. 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.

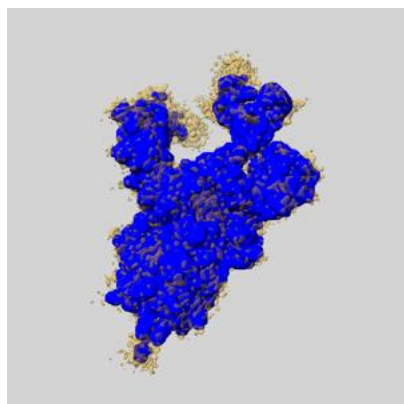
## 6.6 Mask visualisation [i](#)

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

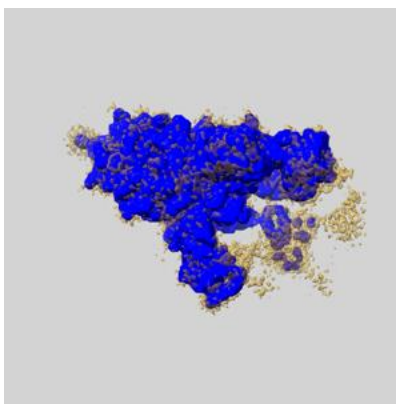
A mask typically either:

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

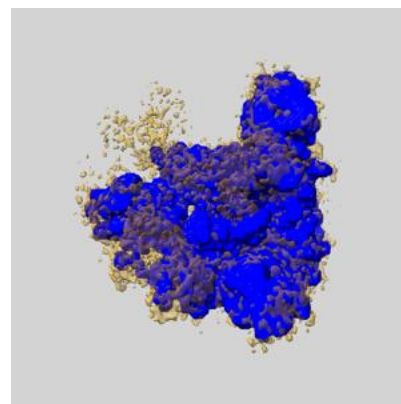
### 6.6.1 emd\_26267\_msk\_1.map [i](#)



X



Y



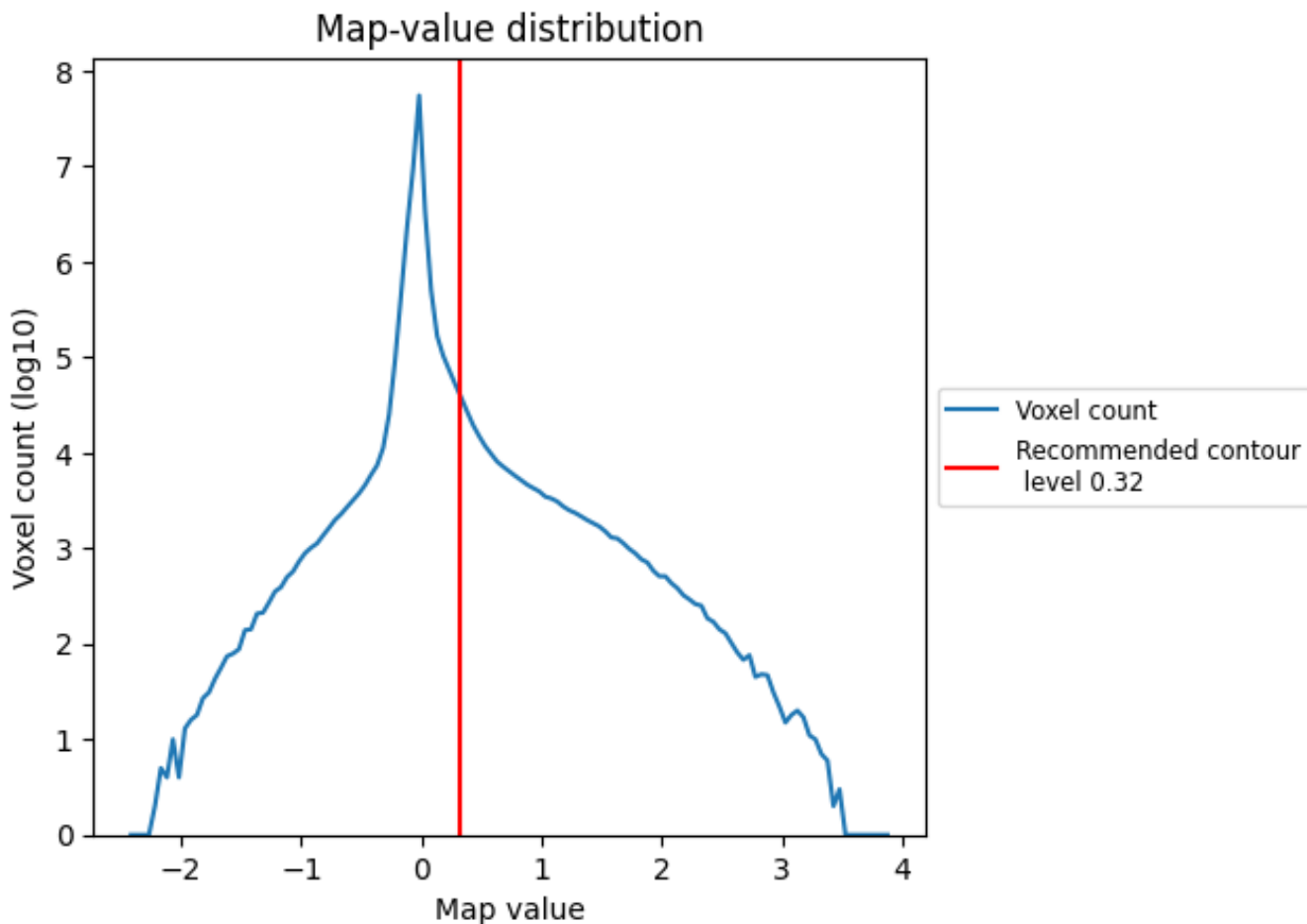
Z



## 7 Map analysis [i](#)

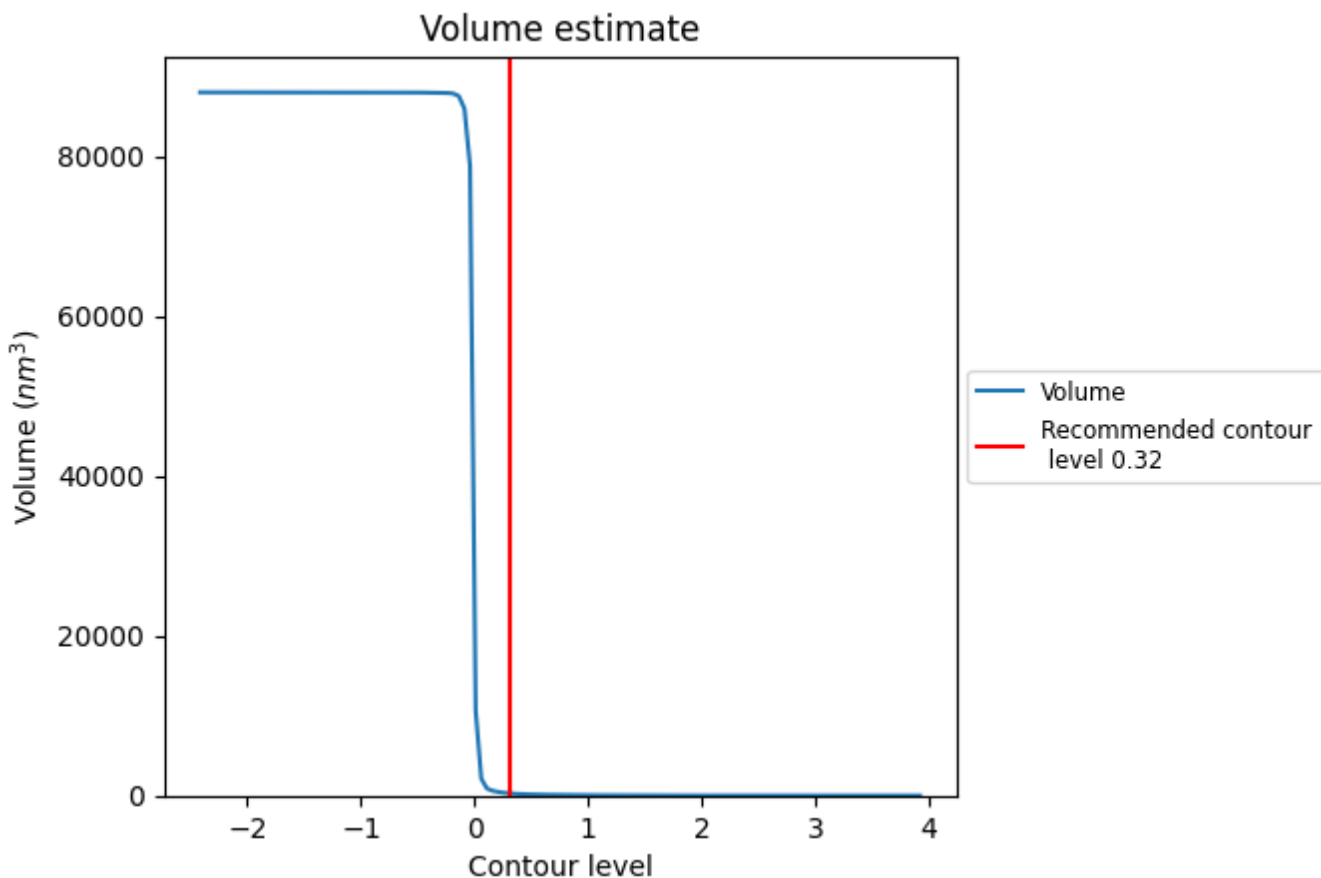
This section contains the results of statistical analysis of the map.

### 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.

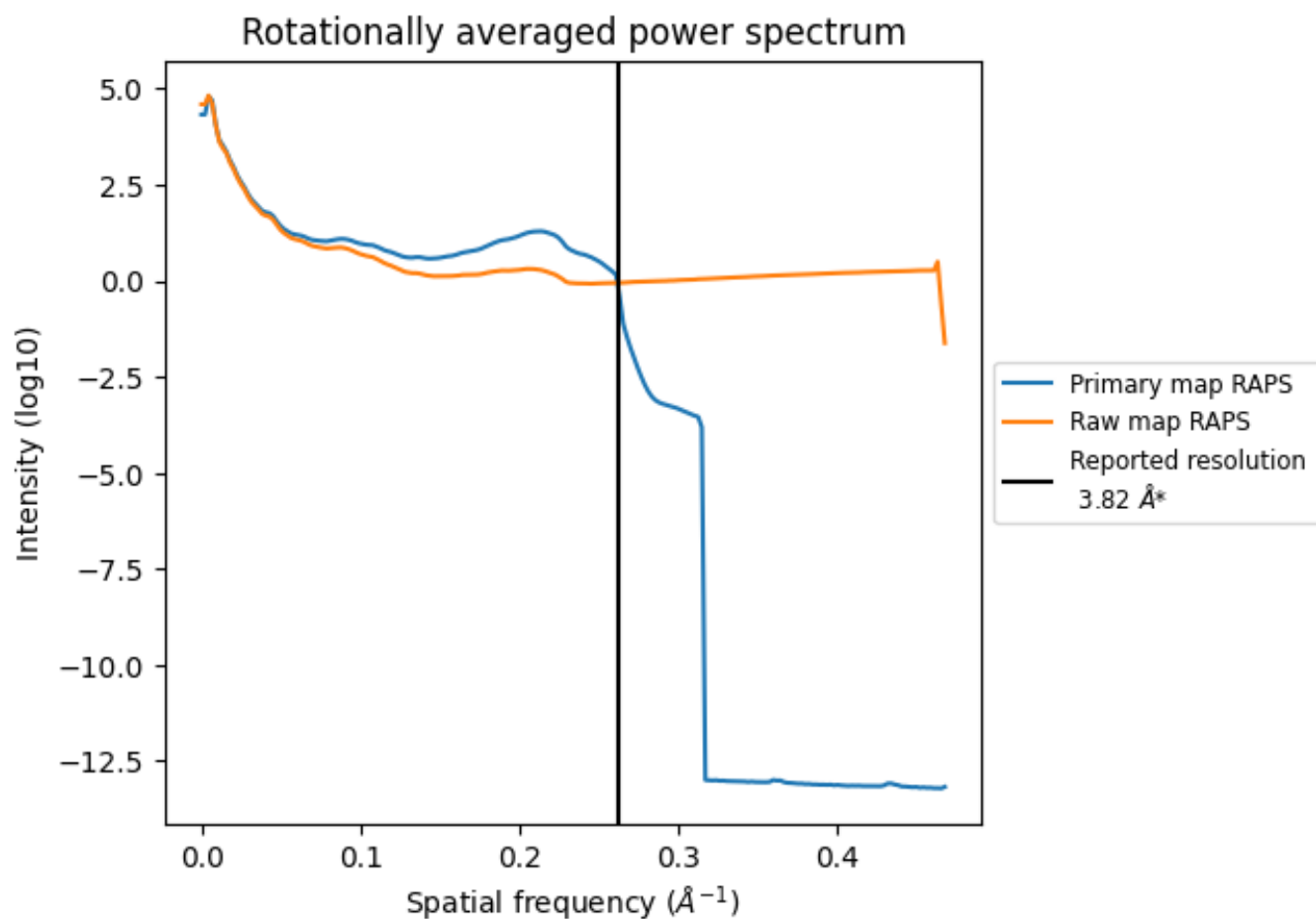
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 263 nm<sup>3</sup>; this corresponds to an approximate mass of 237 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](#)

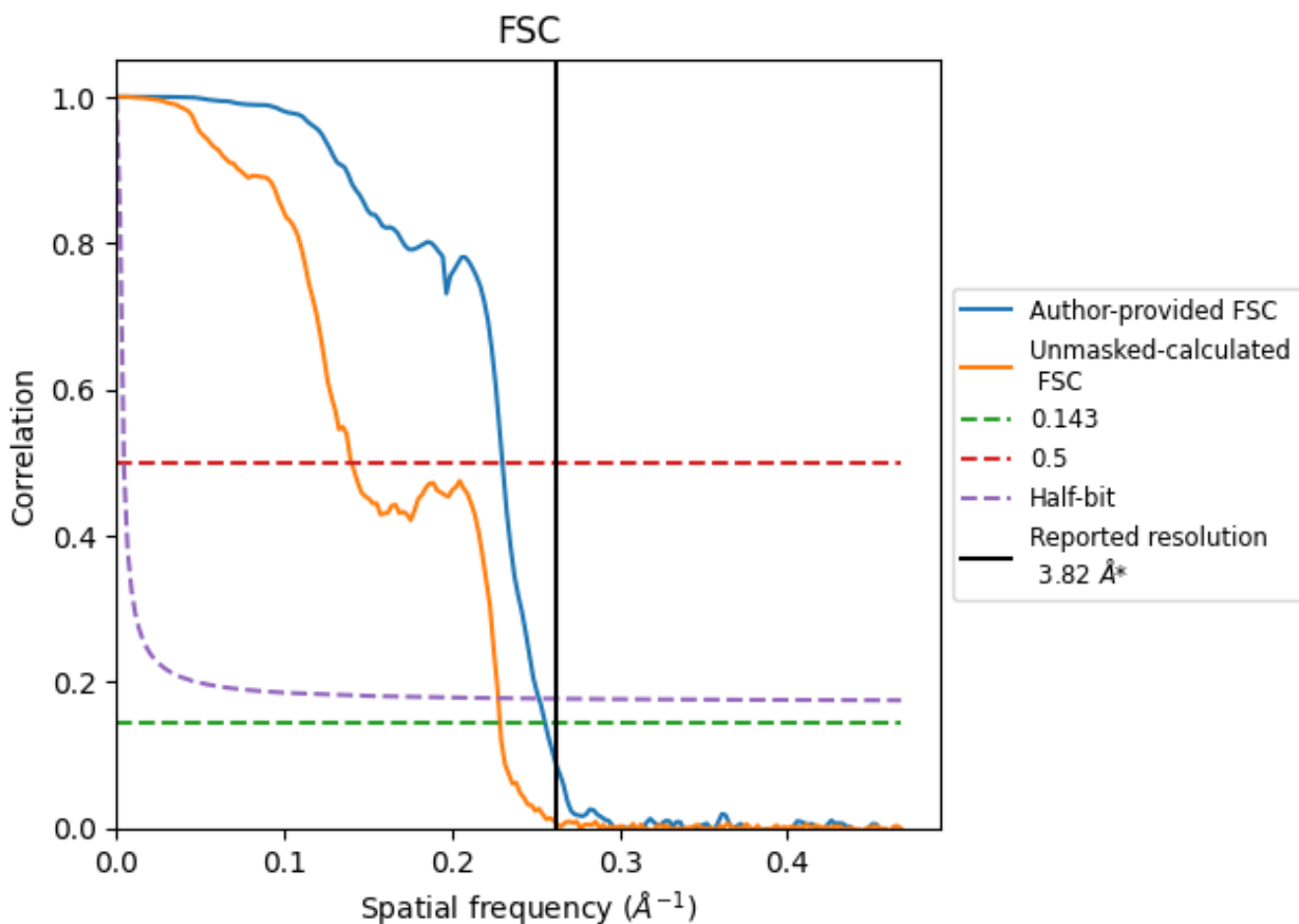


\*Reported resolution corresponds to spatial frequency of 0.262 Å<sup>-1</sup>

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

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

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.262 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

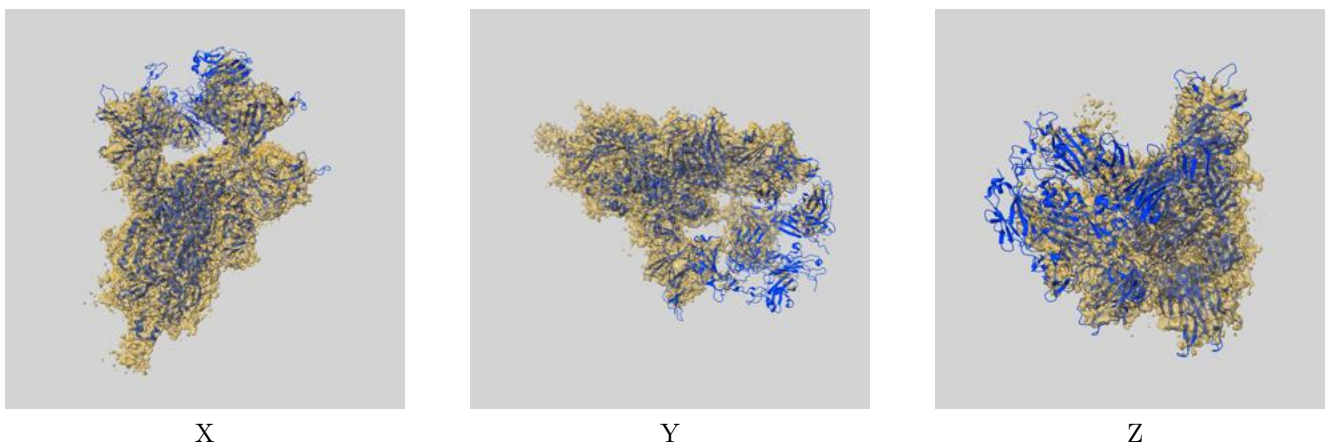
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.82	-	-
Author-provided FSC curve	3.91	4.35	3.97
Unmasked-calculated*	4.37	7.14	4.40

\*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 4.37 differs from the reported value 3.82 by more than 10 %

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

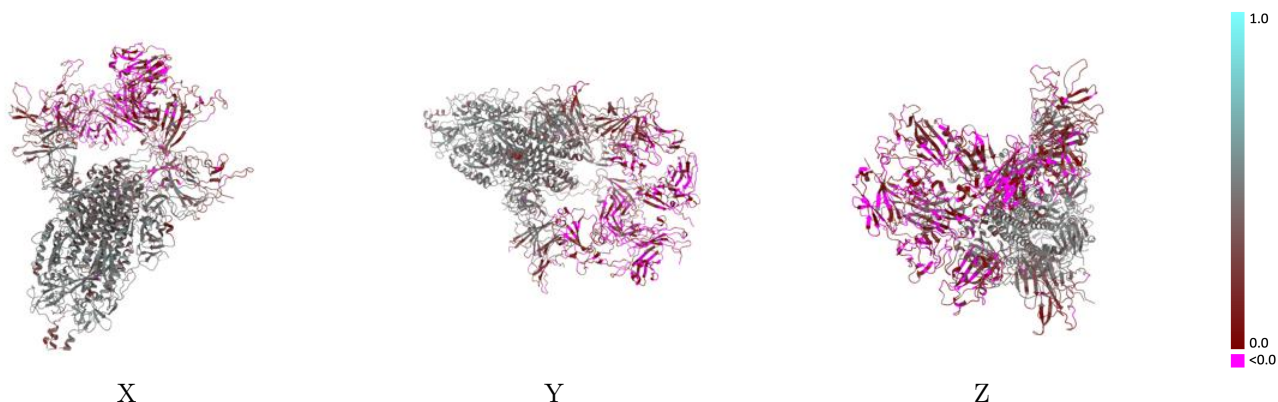
This section contains information regarding the fit between EMDB map EMD-26267 and PDB model 7U0X. Per-residue inclusion information can be found in section 3 on page 9.

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



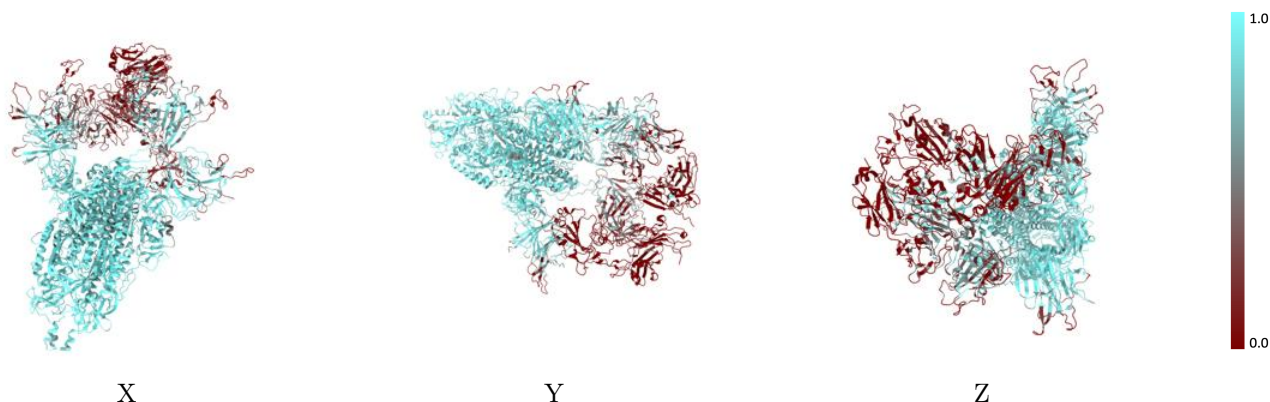
The images above show the 3D surface view of the map at the recommended contour level 0.32 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



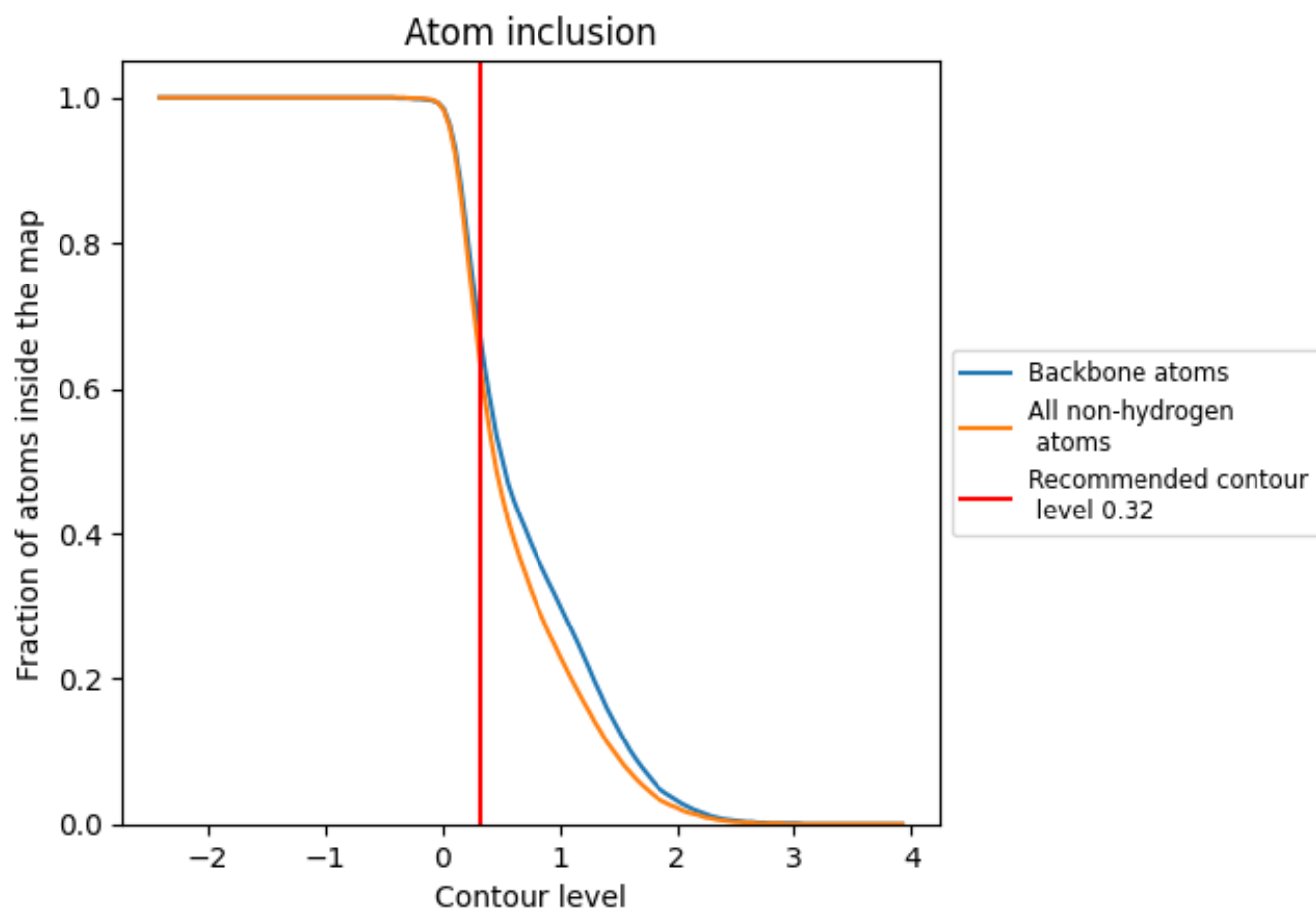
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.32).

## 9.4 Atom inclusion [i](#)

















































At the recommended contour level, 67% of all backbone atoms, 63% 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 (0.32) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6340	 0.3040
A	 0.8060	 0.3840
B	 0.7100	 0.3680
C	 0.7450	 0.3610
D	 0.9290	 0.4700
E	 0.8210	 0.4210
F	 0.1210	 0.0220
G	 0.1020	 0.0190
H	 0.2120	 0.0750
I	 0.8930	 0.4220
J	 0.9290	 0.4610
K	 0.6430	 0.3420
L	 0.2120	 0.0520
M	 0.0710	 0.2600
N	 0.8570	 0.3850
O	 0.8570	 0.4460
P	 0.9290	 0.4350
Q	 0.8210	 0.3560
R	 0.6070	 0.3620
S	 0.7500	 0.4000
T	 0.8570	 0.3700
U	 0.8930	 0.4600
V	 0.7860	 0.3900

