Full wwPDB EM Validation Report ⓘ

May 21, 2026 – 02:45 PM EDT

PDB ID	:	9Q3S / pdb_00009q3s
EMDB ID	:	EMD-72206
Title	:	Cryo-EM structure of PGT121 Fab and Rhesus macaque Ab4 Fab in complex with HIV-1 Env trimer BG505 SOSIP.664
Authors	:	Chandravanshi, M.; Tolbert, W.D.; Pazgier, M.
Deposited on	:	2025-08-19
Resolution	:	3.01 Å(reported)

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

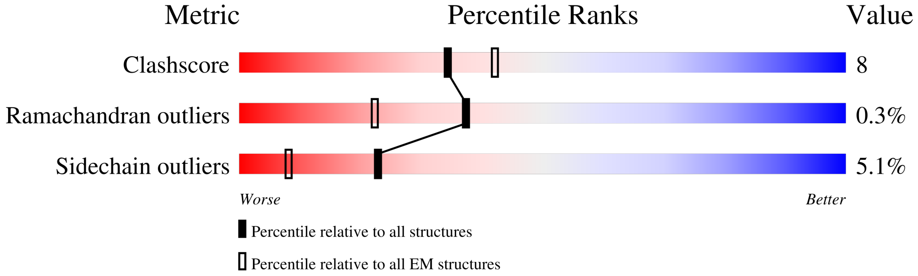
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

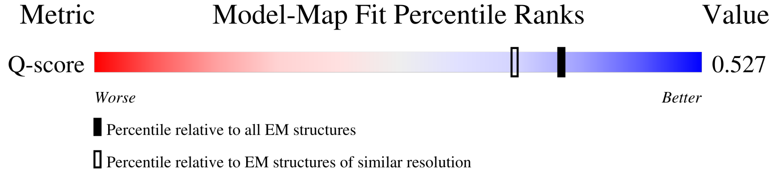
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.01 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.





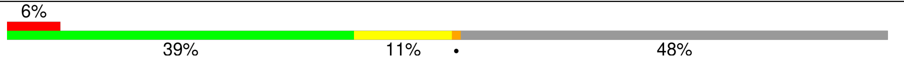
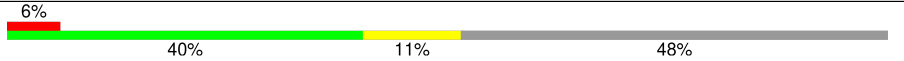
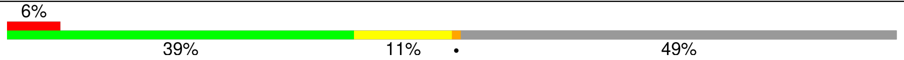
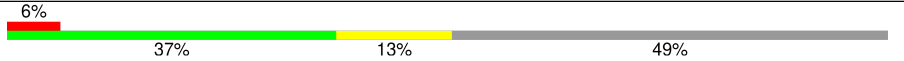
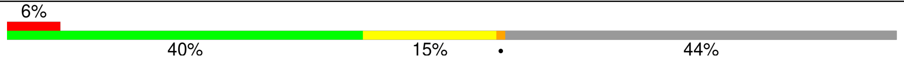
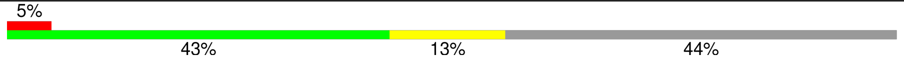
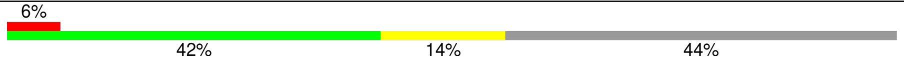
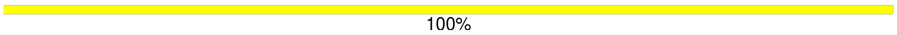
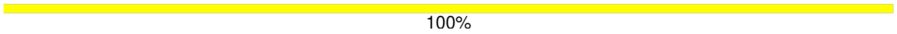
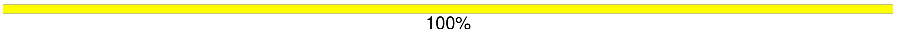
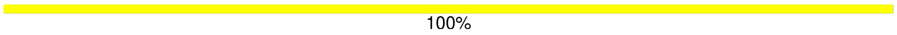
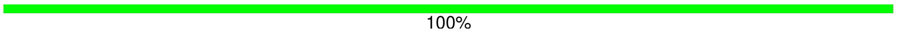
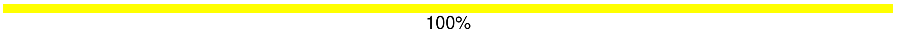
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	13882 (2.51 - 3.51)

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

Mol	Chain	Length	Quality of chain
1	B	153	
1	C	153	
1	J	153	
2	A	481	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
2	G	481	
2	I	481	
3	D	229	
3	H	229	
3	K	229	
4	E	215	
4	L	215	
4	M	215	
5	d	235	
5	h	235	
5	k	235	
6	e	213	
6	l	213	
6	m	213	
7	N	4	
7	b	4	
7	v	4	
8	O	3	
8	c	3	
8	w	3	
9	1	2	
9	2	2	
9	3	2	
9	4	2	
9	5	2	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
9	7	2	🟩 50% 🟨 50%
9	8	2	🟨 100%
9	P	2	🟩 50% 🟨 50%
9	Q	2	🟨 100%
9	R	2	🟩 100%
9	T	2	🟨 100%
9	U	2	🟩 100%
9	V	2	🟨 50% 🟧 50%
9	W	2	🟨 50% 🟧 50%
9	X	2	🟨 100%
9	Z	2	🟩 50% 🟨 50%
9	a	2	🟨 100%
9	f	2	🟩 50% 🟨 50%
9	g	2	🟨 100%
9	i	2	🟩 100%
9	n	2	🟩 50% 🟨 50%
9	o	2	🟩 100%
9	p	2	🟨 50% 🟧 50%
9	q	2	🟨 50% 🟧 50%
9	r	2	🟨 100%
9	t	2	🟩 50% 🟨 50%
9	u	2	🟨 100%
9	x	2	🟩 50% 🟨 50%
9	y	2	🟩 50% 🟨 50%
9	z	2	🟩 100%

Continued on next page...

Continued from previous page...

Mol	**Chain**	**Length**	**Quality of chain**
10	0	6	🟨 100%
10	S	6	🟨 100%
10	j	6	🟨 100%
11	6	9	🟩 44% 🟨 33% 🟧 22%
11	Y	9	🟩 56% 🟨 22% 🟧 22%
11	s	9	🟩 56% 🟨 22% 🟧 22%

2 Entry composition ⓘ

There are 12 unique types of molecules in this entry. The entry contains 26619 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 BG505 SOSIP.664 gp41.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	B	128	Total 1040	C 657	N 179	O 198	S 6	3	0
1	C	128	Total 1040	C 657	N 179	O 198	S 6	3	0
1	J	128	Total 1040	C 657	N 179	O 198	S 6	3	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	559	PRO	ILE	engineered mutation	UNP Q2N0S5
B	605	CYS	THR	engineered mutation	UNP Q2N0S5
C	559	PRO	ILE	engineered mutation	UNP Q2N0S5
C	605	CYS	THR	engineered mutation	UNP Q2N0S5
J	559	PRO	ILE	engineered mutation	UNP Q2N0S5
J	605	CYS	THR	engineered mutation	UNP Q2N0S5

- Molecule 2 is a protein called BG505 SOSIP.664 gp120.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	G	452	Total 3605	C 2260	N 642	O 675	S 28	5	0
2	A	452	Total 3605	C 2260	N 642	O 675	S 28	5	0
2	I	452	Total 3605	C 2260	N 642	O 675	S 28	5	0

There are 18 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	332	ASN	THR	engineered mutation	UNP Q2N0S5
G	501	CYS	ALA	engineered mutation	UNP Q2N0S5
G	509	ARG	GLU	engineered mutation	UNP Q2N0S5

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
G	510	ARG	LYS	engineered mutation	UNP Q2N0S5
G	512	ARG	-	insertion	UNP Q2N0S5
G	513	ARG	-	insertion	UNP Q2N0S5
A	332	ASN	THR	engineered mutation	UNP Q2N0S5
A	501	CYS	ALA	engineered mutation	UNP Q2N0S5
A	509	ARG	GLU	engineered mutation	UNP Q2N0S5
A	510	ARG	LYS	engineered mutation	UNP Q2N0S5
A	512	ARG	-	insertion	UNP Q2N0S5
A	513	ARG	-	insertion	UNP Q2N0S5
I	332	ASN	THR	engineered mutation	UNP Q2N0S5
I	501	CYS	ALA	engineered mutation	UNP Q2N0S5
I	509	ARG	GLU	engineered mutation	UNP Q2N0S5
I	510	ARG	LYS	engineered mutation	UNP Q2N0S5
I	512	ARG	-	insertion	UNP Q2N0S5
I	513	ARG	-	insertion	UNP Q2N0S5

- Molecule 3 is a protein called Ab 4 Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	H	118	Total 919	C 586	N 153	O 177	S 3	0	0
3	D	118	Total 919	C 586	N 153	O 177	S 3	0	0
3	K	118	Total 919	C 586	N 153	O 177	S 3	0	0

- Molecule 4 is a protein called Ab 4 Fab light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	L	109	Total 806	C 510	N 137	O 156	S 3	1	0
4	E	109	Total 806	C 510	N 137	O 156	S 3	1	0
4	M	109	Total 806	C 510	N 137	O 156	S 3	1	0

- Molecule 5 is a protein called PGT121 Fab heavy chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	h	131	Total 1026	C 650	N 175	O 197	S 4	1	0

Continued on next page...

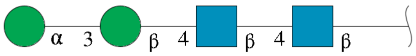
Continued from previous page...

Mol	Chain	Residues	Atoms					AltConf	Trace
5	d	131	Total	C	N	O	S	1	0
			1026	650	175	197	4		
5	k	131	Total	C	N	O	S	1	0
			1026	650	175	197	4		

- Molecule 6 is a protein called PGT121 Fab light chain.

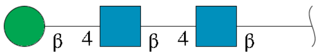
Mol	Chain	Residues	Atoms					AltConf	Trace
6	l	108	Total	C	N	O	S	1	0
			833	522	145	164	2		
6	e	108	Total	C	N	O	S	1	0
			833	522	145	164	2		
6	m	108	Total	C	N	O	S	1	0
			833	522	145	164	2		

- Molecule 7 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
7	N	4	Total	C	N	O	0	0
			50	28	2	20		
7	b	4	Total	C	N	O	0	0
			50	28	2	20		
7	v	4	Total	C	N	O	0	0
			50	28	2	20		

- Molecule 8 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



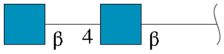
Mol	Chain	Residues	Atoms				AltConf	Trace
8	O	3	Total	C	N	O	0	0
			39	22	2	15		

Continued on next page...

Continued from previous page...

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

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



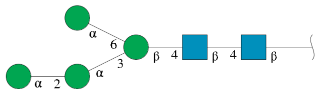
Mol	Chain	Residues	Atoms	AltConf	Trace
9	P	2	Total C N O 28 16 2 10	0	0
9	Q	2	Total C N O 28 16 2 10	0	0
9	R	2	Total C N O 28 16 2 10	0	0
9	T	2	Total C N O 28 16 2 10	0	0
9	U	2	Total C N O 28 16 2 10	0	0
9	V	2	Total C N O 28 16 2 10	0	0
9	W	2	Total C N O 28 16 2 10	0	0
9	X	2	Total C N O 28 16 2 10	0	0
9	Z	2	Total C N O 28 16 2 10	0	0
9	a	2	Total C N O 28 16 2 10	0	0
9	f	2	Total C N O 28 16 2 10	0	0
9	g	2	Total C N O 28 16 2 10	0	0
9	i	2	Total C N O 28 16 2 10	0	0
9	n	2	Total C N O 28 16 2 10	0	0
9	o	2	Total C N O 28 16 2 10	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	AltConf	Trace
9	p	2	Total C N O 28 16 2 10	0	0
9	q	2	Total C N O 28 16 2 10	0	0
9	r	2	Total C N O 28 16 2 10	0	0
9	t	2	Total C N O 28 16 2 10	0	0
9	u	2	Total C N O 28 16 2 10	0	0
9	x	2	Total C N O 28 16 2 10	0	0
9	y	2	Total C N O 28 16 2 10	0	0
9	z	2	Total C N O 28 16 2 10	0	0
9	1	2	Total C N O 28 16 2 10	0	0
9	2	2	Total C N O 28 16 2 10	0	0
9	3	2	Total C N O 28 16 2 10	0	0
9	4	2	Total C N O 28 16 2 10	0	0
9	5	2	Total C N O 28 16 2 10	0	0
9	7	2	Total C N O 28 16 2 10	0	0
9	8	2	Total C N O 28 16 2 10	0	0

- Molecule 10 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



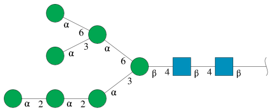
Mol	Chain	Residues	Atoms	AltConf	Trace
10	S	6	Total C N O 72 40 2 30	0	0

Continued on next page...

Continued from previous page...

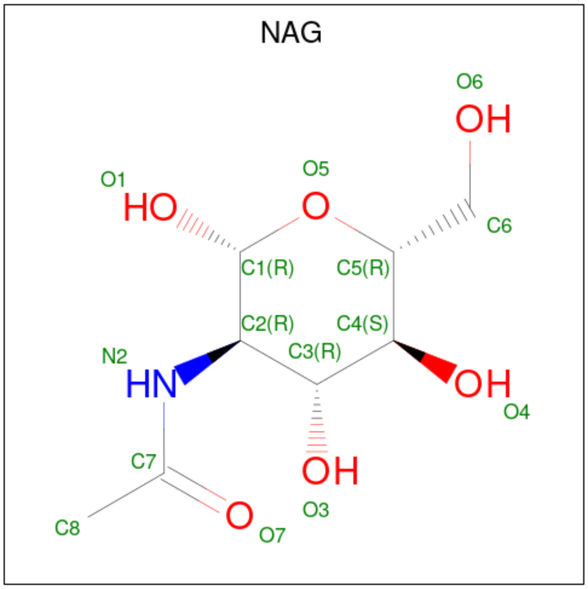
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
10	j	6	72	40	2	30	0	0
10	0	6	72	40	2	30	0	0

- Molecule 11 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
11	Y	9	105	58	2	45	0	0
11	s	9	105	58	2	45	0	0
11	6	9	105	58	2	45	0	0

- Molecule 12 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



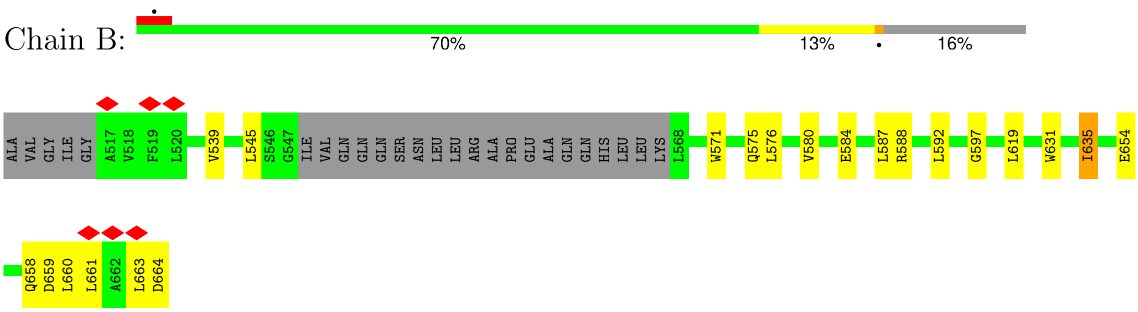
Mol	Chain	Residues	Atoms				AltConf
12	B	1	Total 14	C 8	N 1	O 5	0
12	B	1	Total 14	C 8	N 1	O 5	0
12	G	1	Total 14	C 8	N 1	O 5	0
12	G	1	Total 14	C 8	N 1	O 5	0
12	G	1	Total 14	C 8	N 1	O 5	0
12	G	1	Total 14	C 8	N 1	O 5	0
12	G	1	Total 14	C 8	N 1	O 5	0
12	C	1	Total 14	C 8	N 1	O 5	0
12	C	1	Total 14	C 8	N 1	O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

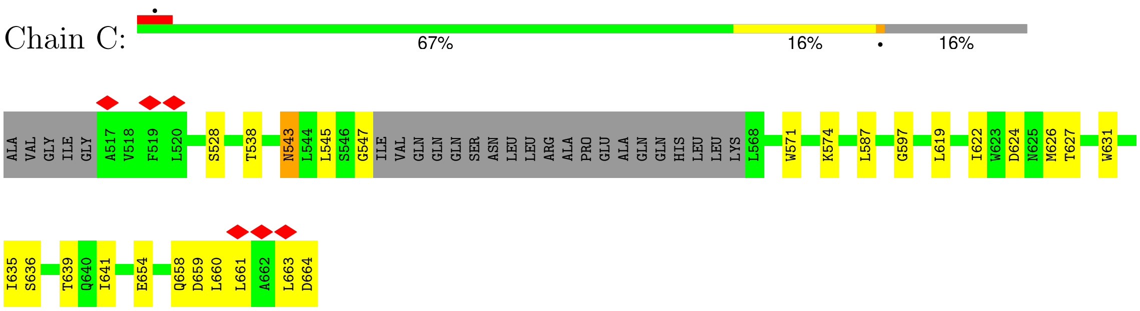
- Molecule 1: BG505 SOSIP.664 gp41

Chain B:



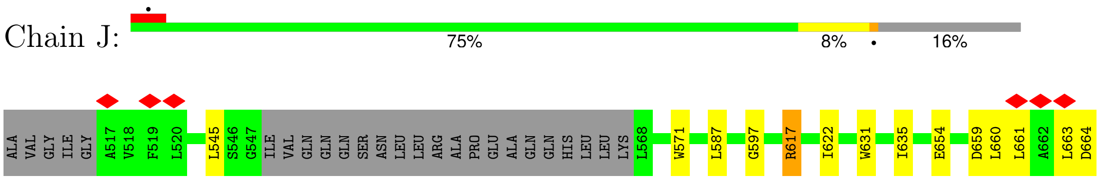
- Molecule 1: BG505 SOSIP.664 gp41

Chain C:



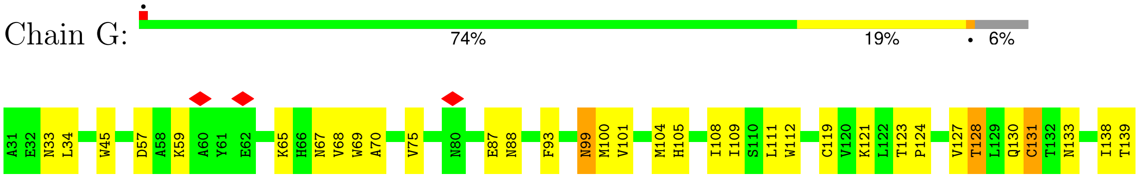
- Molecule 1: BG505 SOSIP.664 gp41

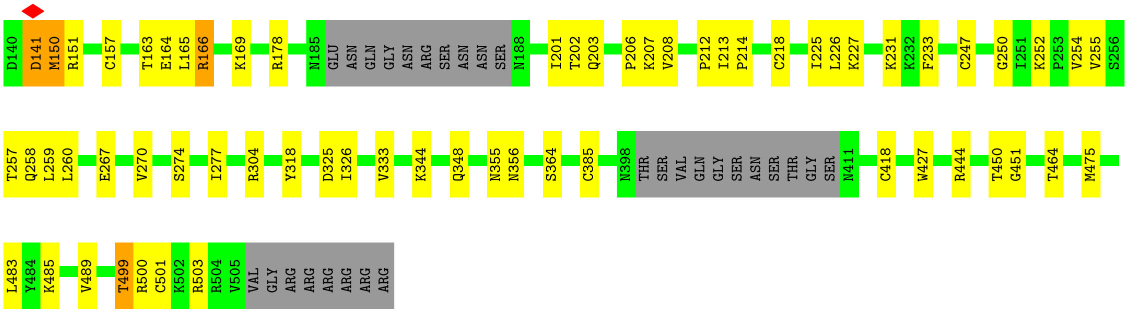
Chain J:



- Molecule 2: BG505 SOSIP.664 gp120

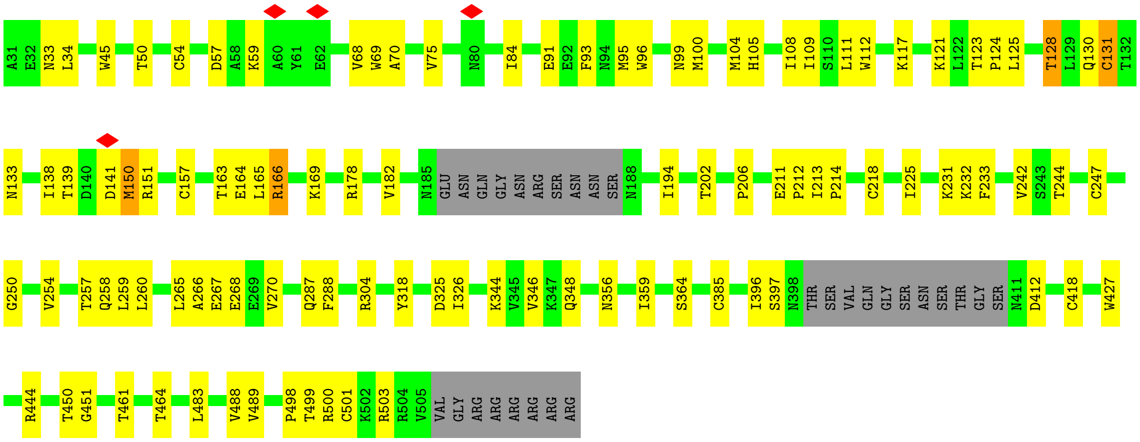
Chain G:





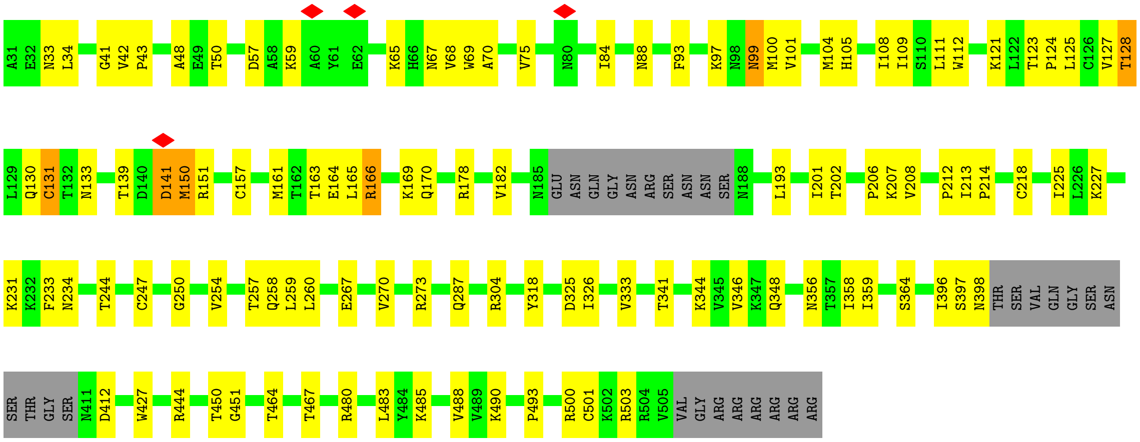
- Molecule 2: BG505 SOSIP.664 gp120

Chain A:



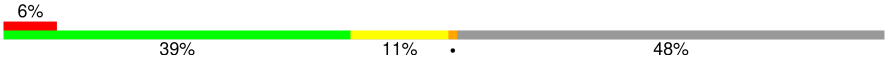
- Molecule 2: BG505 SOSIP.664 gp120

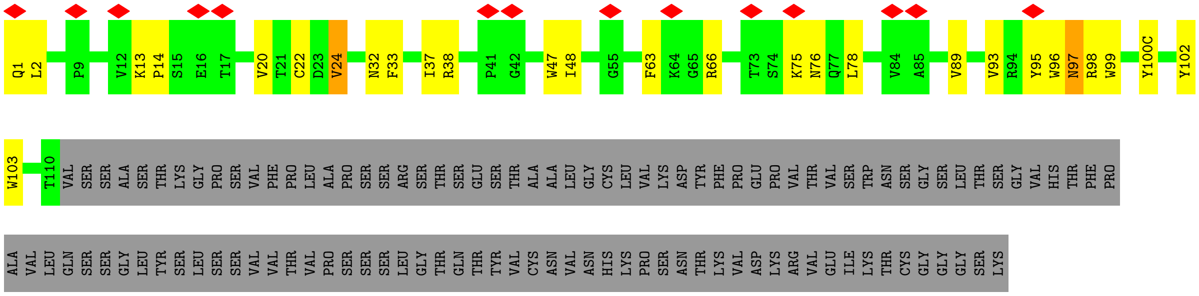
Chain I:



- Molecule 3: Ab 4 Fab heavy chain

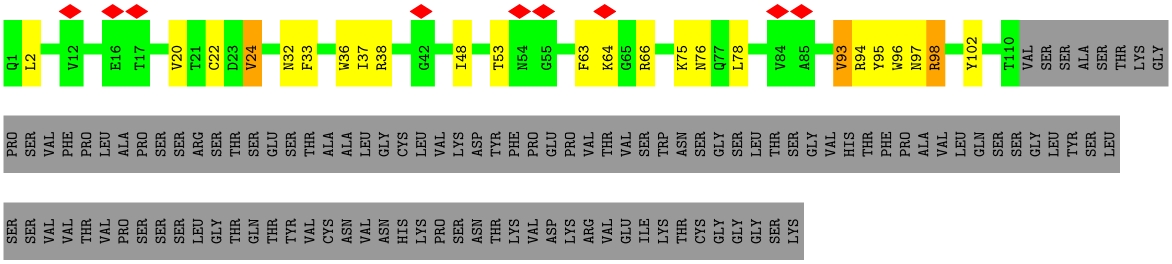
Chain H:





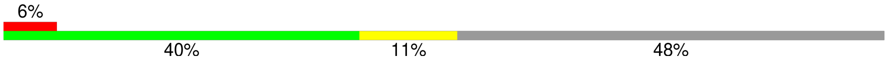
- Molecule 3: Ab 4 Fab heavy chain

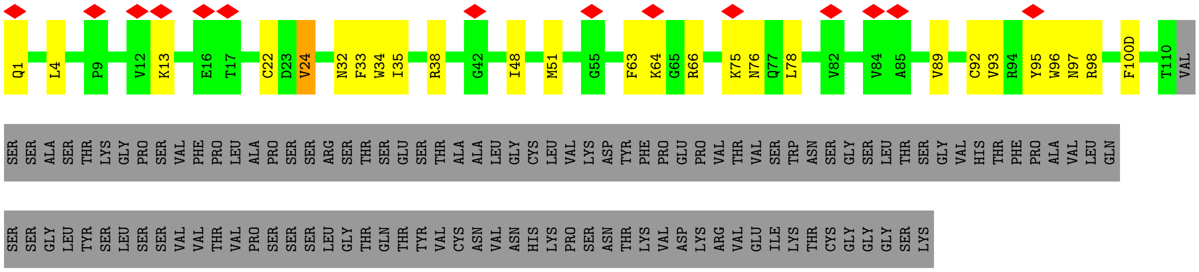
Chain D:



- Molecule 3: Ab 4 Fab heavy chain

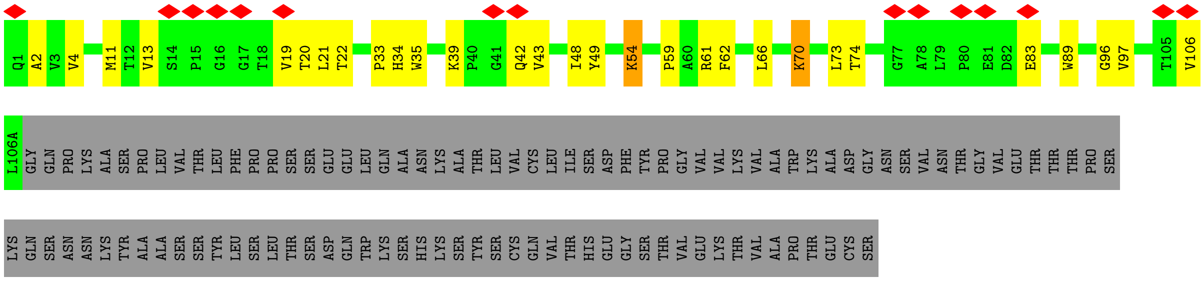
Chain K:



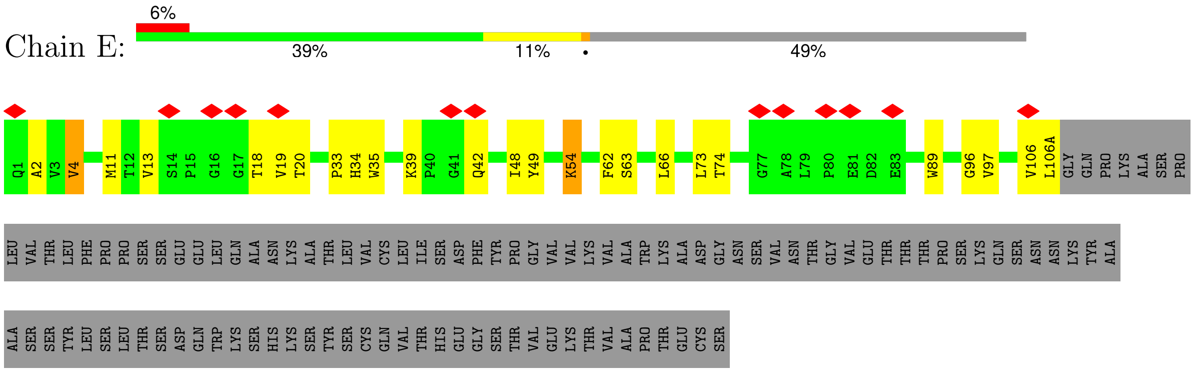


- Molecule 4: Ab 4 Fab light chain

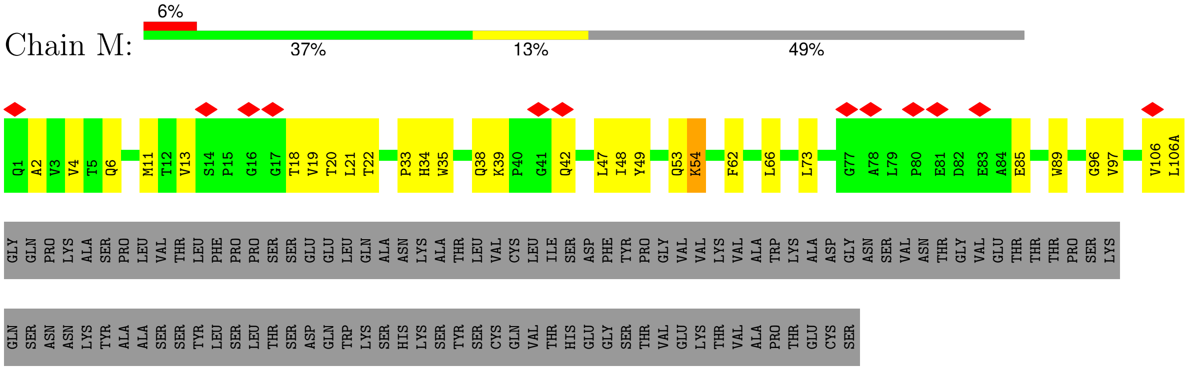
Chain L:



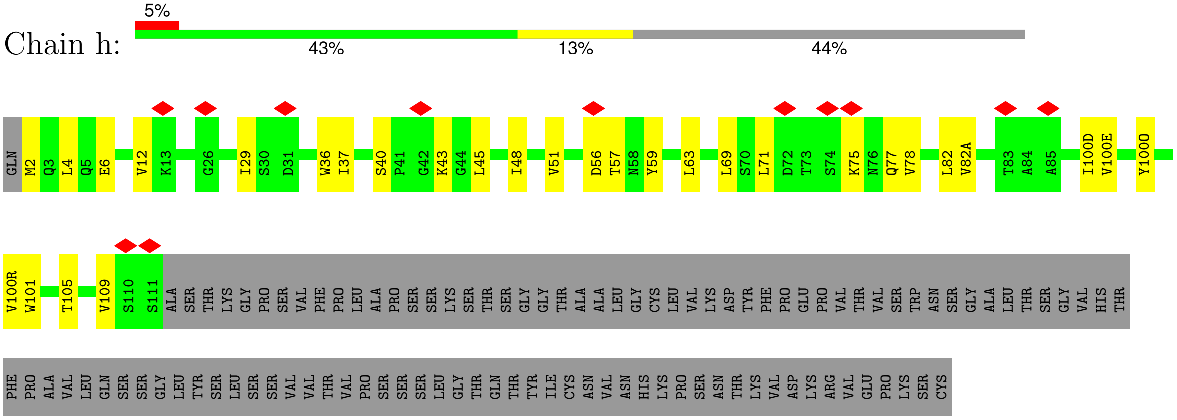
- Molecule 4: Ab 4 Fab light chain



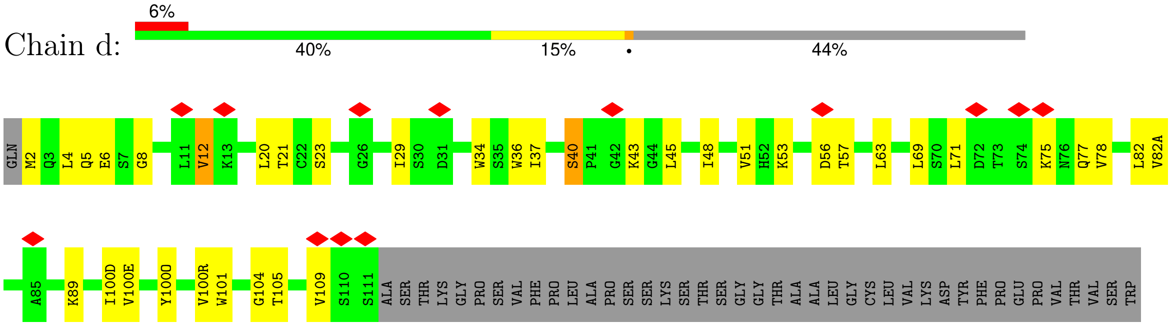
- Molecule 4: Ab 4 Fab light chain

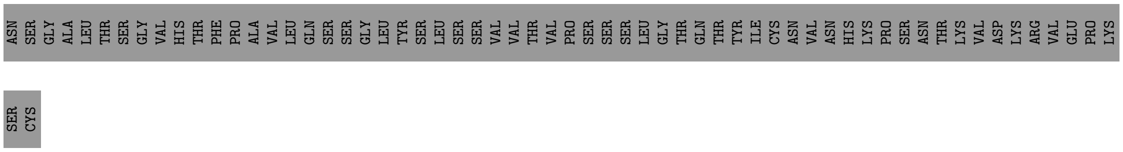


- Molecule 5: PGT121 Fab heavy chain

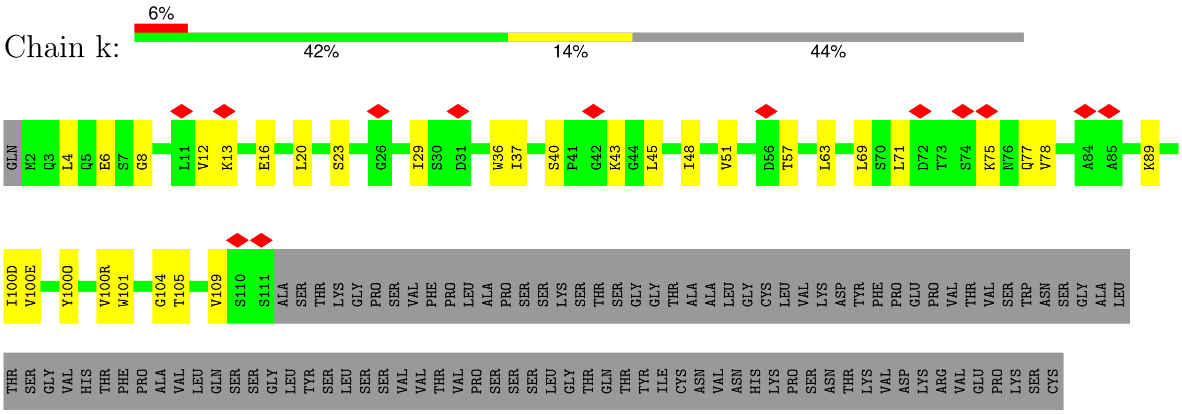


- Molecule 5: PGT121 Fab heavy chain

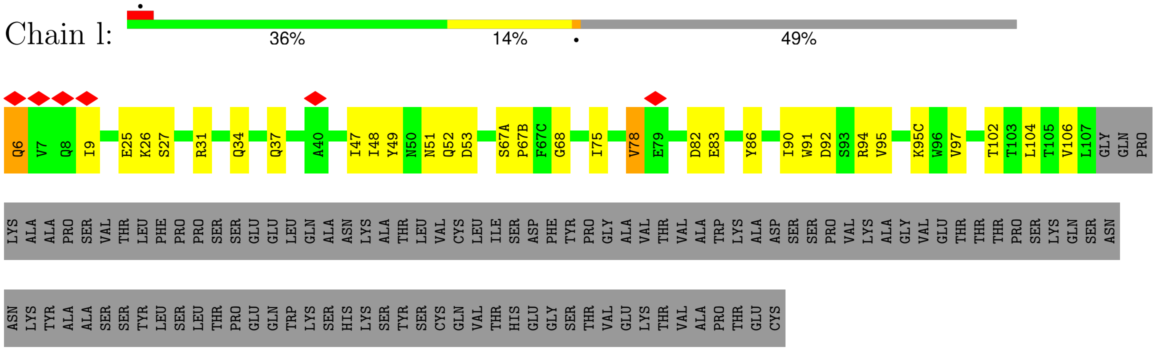




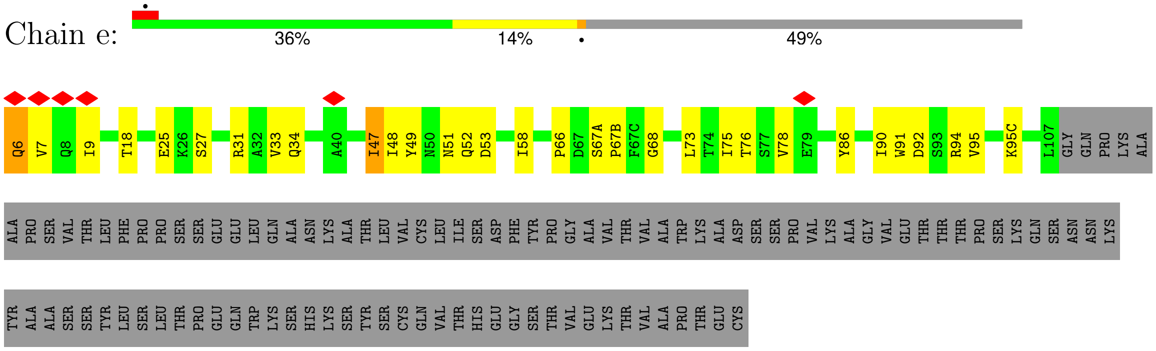
- Molecule 5: PGT121 Fab heavy chain



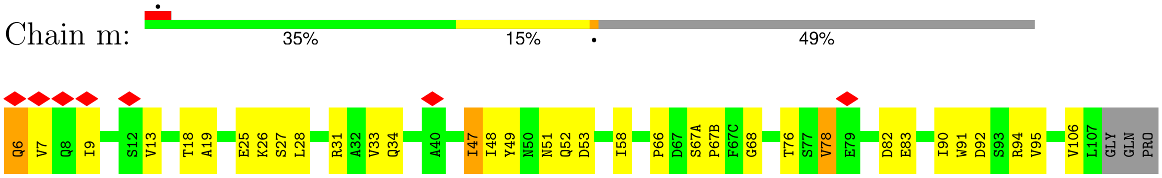
- Molecule 6: PGT121 Fab light chain



- Molecule 6: PGT121 Fab light chain



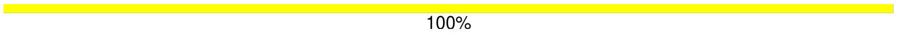
- Molecule 6: PGT121 Fab light chain



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

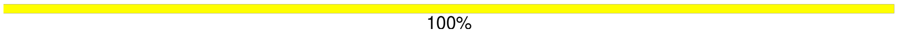
ASN LYS TYR ALA ALA SER SER TYR LEU SER LEU THR PRO GLU GLN TRP LYS SER HIS LYS SER TYR SER CYS GLN VAL THR HIS GLU GLY SER THR VAL GLU LYS THR VAL ALA PRO THR GLU CYS

- Molecule 7: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:


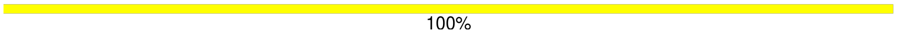
NAG1 NAG2 BMA3 MAN4

- Molecule 7: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain b:


NAG1 NAG2 BMA3 MAN4

- Molecule 7: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain v:


NAG1 NAG2 BMA3 MAN4

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

Chain O:


NAG1 NAG2 BMA3

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

Chain c:


NAG1 NAG2 BMA3

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

Chain w:

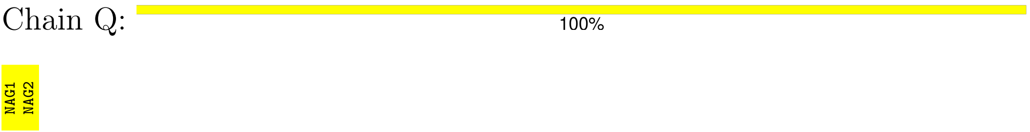

NAG1 NAG2 BMA3

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

Chain P:

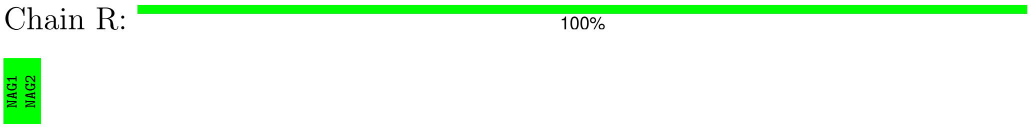
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Q:



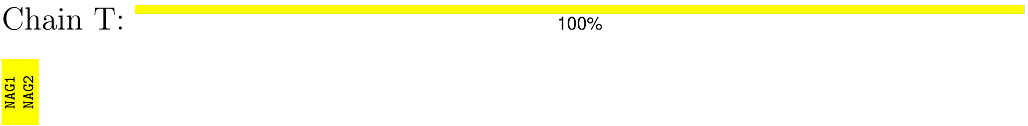
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain R:



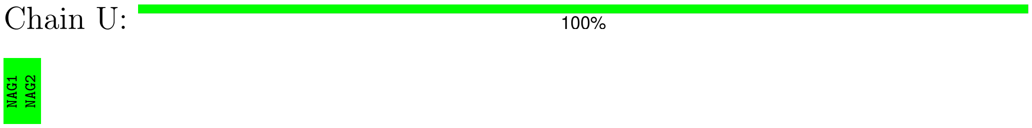
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain T:



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

Chain U:



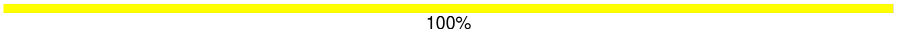
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain V:

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

Chain W:

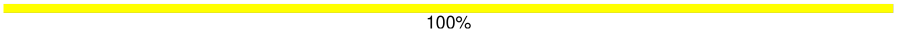
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain X:


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

Chain Z:

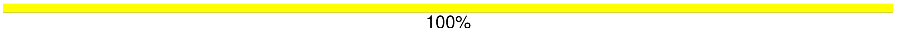

- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain a:


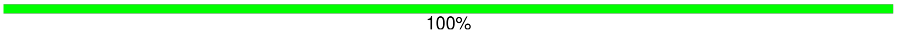
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain f:


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

Chain g:


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

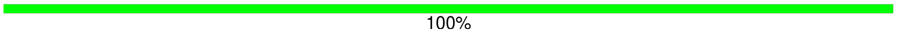
Chain i:


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

Chain n:

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

Chain o:



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

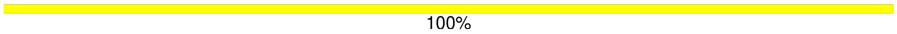
Chain p:

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

Chain q:

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

Chain r:

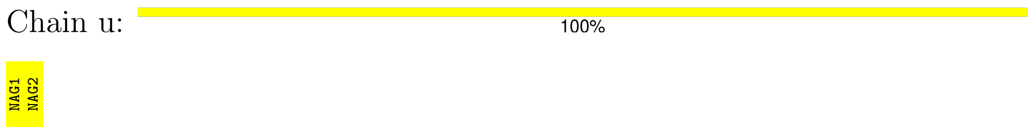


- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain t:

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

Chain u:



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

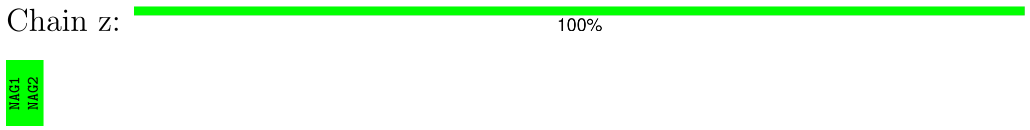
Chain x:

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

Chain y:

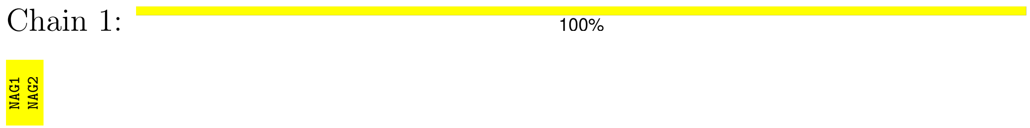
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain z:



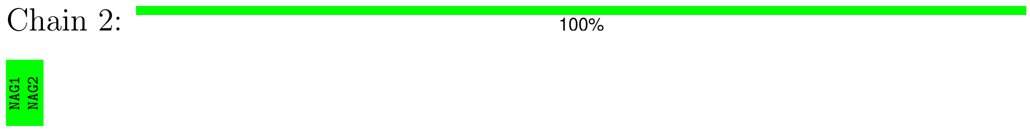
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain 1:



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

Chain 2:

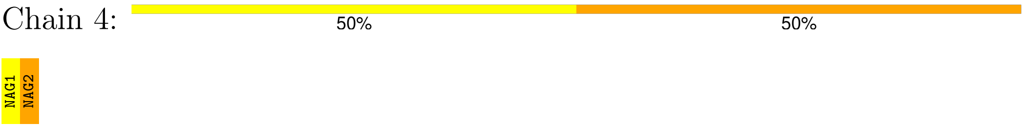


- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain 3:

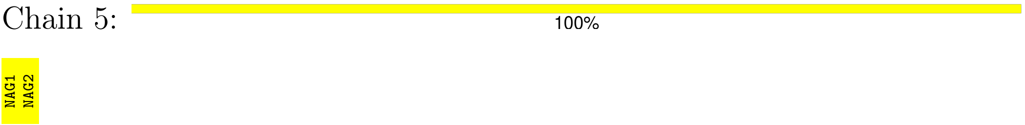
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain 4:



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

Chain 5:

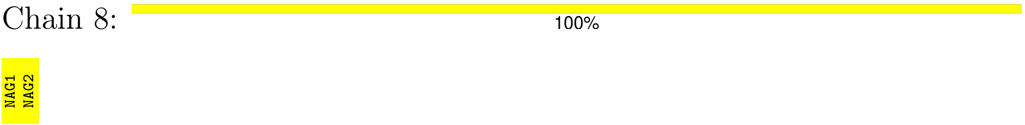


- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain 7:

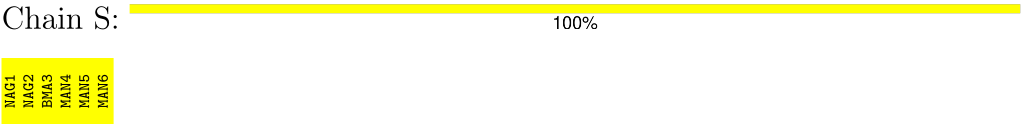
- Molecule 9: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain 8:



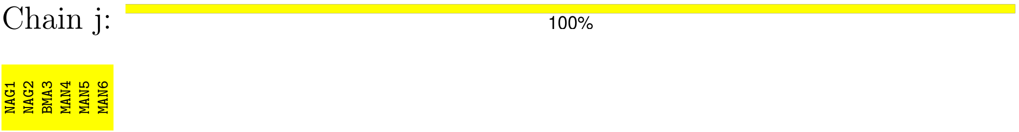
- Molecule 10: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:



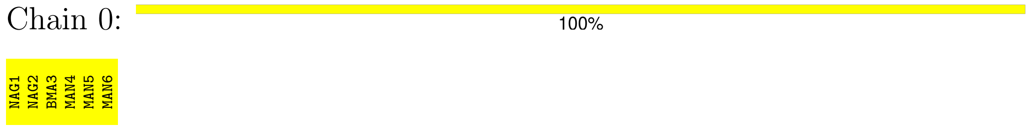
- Molecule 10: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain j:



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

Chain 0:



- Molecule 11: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

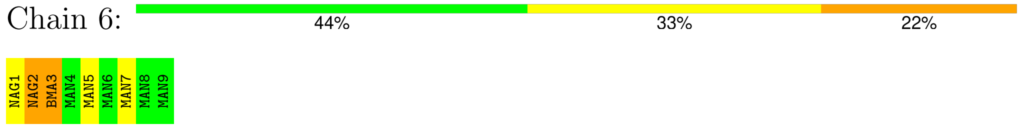
Chain Y:

- Molecule 11: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain s:

- Molecule 11: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain 6:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, POINT	Depositor
Number of particles used	436694, 436694	Depositor
Resolution determination method	FSC 0.143 CUT-OFF, FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	JEOL CRYO ARM 200	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{Å}^2$)	60.00	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.692	Depositor
Minimum map value	-1.949	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.045	Depositor
Recommended contour level	0.155	Depositor
Map size (Å)	368.52, 368.52, 368.52	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.9213, 0.9213, 0.9213	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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	B	0.17	0/1058	0.39	0/1434
1	C	0.15	0/1058	0.37	0/1434
1	J	0.15	0/1058	0.39	0/1434
2	A	0.21	0/3679	0.41	0/4991
2	G	0.20	0/3679	0.41	0/4991
2	I	0.20	0/3679	0.42	0/4991
3	D	0.11	0/944	0.33	0/1289
3	H	0.12	0/944	0.33	0/1289
3	K	0.11	0/944	0.32	0/1289
4	E	0.10	0/827	0.31	0/1127
4	L	0.11	0/827	0.31	0/1127
4	M	0.10	0/827	0.31	0/1127
5	d	0.13	0/1052	0.36	0/1428
5	h	0.14	0/1052	0.35	0/1428
5	k	0.13	0/1052	0.34	0/1428
6	e	0.12	0/854	0.33	0/1165
6	l	0.13	0/854	0.36	0/1165
6	m	0.12	0/854	0.36	0/1165
All	All	0.17	0/25242	0.38	0/34302

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 ⓘ

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	B	1040	0	1014	14	0
1	C	1040	0	1014	16	0
1	J	1040	0	1014	11	0
2	A	3605	0	3541	59	0
2	G	3605	0	3541	58	0
2	I	3605	0	3541	63	0
3	D	919	0	876	19	0
3	H	919	0	876	19	0
3	K	919	0	876	18	0
4	E	806	0	788	11	0
4	L	806	0	788	16	0
4	M	806	0	788	14	0
5	d	1026	0	995	27	0
5	h	1026	0	995	23	0
5	k	1026	0	995	24	0
6	e	833	0	797	21	0
6	l	833	0	797	20	0
6	m	833	0	797	22	0
7	N	50	0	43	1	0
7	b	50	0	43	1	0
7	v	50	0	43	1	0
8	O	39	0	34	0	0
8	c	39	0	34	0	0
8	w	39	0	34	0	0
9	1	28	0	25	0	0
9	2	28	0	25	0	0
9	3	28	0	25	2	0
9	4	28	0	25	1	0
9	5	28	0	25	0	0
9	7	28	0	25	0	0
9	8	28	0	25	0	0
9	P	28	0	25	0	0
9	Q	28	0	25	1	0
9	R	28	0	25	0	0
9	T	28	0	25	0	0
9	U	28	0	25	0	0
9	V	28	0	25	2	0
9	W	28	0	25	1	0
9	X	28	0	25	0	0
9	Z	28	0	25	0	0
9	a	28	0	25	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	f	28	0	25	0	0
9	g	28	0	25	0	0
9	i	28	0	25	0	0
9	n	28	0	25	0	0
9	o	28	0	25	0	0
9	p	28	0	25	2	0
9	q	28	0	25	1	0
9	r	28	0	25	0	0
9	t	28	0	25	0	0
9	u	28	0	25	0	0
9	x	28	0	25	0	0
9	y	28	0	25	0	0
9	z	28	0	25	0	0
10	0	72	0	61	0	0
10	S	72	0	61	0	0
10	j	72	0	61	0	0
11	6	105	0	88	3	0
11	Y	105	0	88	4	0
11	s	105	0	88	3	0
12	A	70	0	65	0	0
12	B	28	0	26	0	0
12	C	28	0	26	0	0
12	G	70	0	65	2	0
12	I	70	0	65	1	0
12	J	28	0	26	0	0
All	All	26619	0	25734	422	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 8.

All (422) 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)
3:D:33:PHE:HB2	3:D:95:TYR:HB3	1.42	1.01
2:I:218:CYS:HA	2:I:247:CYS:HB3	1.57	0.86
3:K:33:PHE:HB2	3:K:95:TYR:HB3	1.57	0.85
2:G:218:CYS:HA	2:G:247:CYS:HB3	1.58	0.85
2:A:218:CYS:HA	2:A:247:CYS:HB3	1.58	0.85
3:H:33:PHE:HB2	3:H:95:TYR:HB3	1.60	0.83
3:K:22:CYS:HB2	3:K:78:LEU:HB2	1.62	0.79
2:G:166[B]:ARG:HD2	2:A:124:PRO:HA	1.65	0.78

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:166[B]:ARG:HD2	2:I:124:PRO:HA	1.67	0.77
6:e:27:SER:HB3	6:e:68:GLY:H	1.52	0.75
4:M:35:TRP:HB2	4:M:48:ILE:HB	1.69	0.75
4:E:35:TRP:HB2	4:E:48:ILE:HB	1.69	0.74
4:L:35:TRP:HB2	4:L:48:ILE:HB	1.69	0.73
6:l:34:GLN:HG3	6:l:49:TYR:HA	1.70	0.73
6:m:27:SER:HB3	6:m:68:GLY:H	1.53	0.73
2:G:124:PRO:HA	2:I:166[B]:ARG:HD2	1.72	0.72
3:D:38:ARG:HB3	3:D:48:ILE:HD11	1.72	0.72
4:E:11:MET:HE1	4:E:20:THR:H	1.54	0.72
6:l:27:SER:HB3	6:l:68:GLY:H	1.56	0.71
3:D:22:CYS:HB2	3:D:78:LEU:HB2	1.73	0.71
5:k:37:ILE:HD13	5:k:101:TRP:HZ3	1.57	0.69
6:m:34:GLN:HG3	6:m:49:TYR:HA	1.75	0.69
6:e:34:GLN:HG3	6:e:49:TYR:HA	1.75	0.69
1:J:597:GLY:HA3	2:I:503:ARG:HH12	1.58	0.68
3:K:38:ARG:HB3	3:K:48:ILE:HD11	1.75	0.68
2:A:68:VAL:HG22	2:A:69:TRP:H	1.59	0.68
1:B:597:GLY:HA3	2:G:503:ARG:HH12	1.59	0.67
1:C:597:GLY:HA3	2:A:503:ARG:HH12	1.59	0.67
3:H:22:CYS:HB2	3:H:78:LEU:HB2	1.75	0.67
3:H:38:ARG:HB3	3:H:48:ILE:HD11	1.76	0.67
4:E:2:ALA:HB1	4:E:97:VAL:HG11	1.75	0.67
2:I:68:VAL:HG22	2:I:69:TRP:H	1.60	0.66
4:L:39:LYS:HB2	4:L:42:GLN:HB2	1.77	0.66
4:E:39:LYS:HB2	4:E:42:GLN:HB2	1.77	0.66
4:M:2:ALA:HB1	4:M:97:VAL:HG11	1.78	0.66
2:G:68:VAL:HG22	2:G:69:TRP:H	1.60	0.66
4:M:39:LYS:HB2	4:M:42:GLN:HB2	1.77	0.66
5:h:37:ILE:HD13	5:h:101:TRP:HZ3	1.60	0.65
3:H:24:VAL:HG13	3:H:76:ASN:HB3	1.80	0.64
1:B:587:LEU:HB3	1:J:545:LEU:HD21	1.80	0.64
3:H:13:LYS:HD3	3:H:14:PRO:HD2	1.80	0.63
1:J:617:ARG:HG3	1:J:622:ILE:HD11	1.80	0.63
3:K:24:VAL:HG13	3:K:76:ASN:HB3	1.80	0.63
5:d:75[A]:LYS:HG3	5:d:77:GLN:HG3	1.82	0.62
5:h:40:SER:HB3	5:h:43:LYS:HB2	1.82	0.62
2:I:396:ILE:HG22	2:I:397:SER:H	1.64	0.62
5:k:75[A]:LYS:HG3	5:k:77:GLN:HG3	1.81	0.61
3:D:24:VAL:HG13	3:D:76:ASN:HB3	1.81	0.61
5:k:40:SER:HB3	5:k:43:LYS:HB2	1.83	0.61

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:L:62:PHE:HD2	4:L:73:LEU:HD11	1.66	0.60
4:M:62:PHE:HD2	4:M:73:LEU:HD11	1.66	0.60
4:M:11:MET:HE1	4:M:20:THR:H	1.66	0.60
2:A:165:LEU:HD13	2:I:128:THR:HG22	1.83	0.60
5:h:75[A]:LYS:HG3	5:h:77:GLN:HG3	1.82	0.60
2:G:68:VAL:HG21	2:G:213:ILE:HD12	1.83	0.59
5:d:5:GLN:HE22	5:d:23:SER:HB3	1.66	0.59
3:H:63:PHE:HB3	3:H:66:ARG:HB3	1.83	0.59
6:l:37:GLN:HB3	6:l:47:ILE:HD11	1.83	0.59
2:I:33:ASN:HB2	2:I:500:ARG:HG2	1.83	0.59
5:d:4:LEU:HD11	5:d:100(R):VAL:HG13	1.84	0.58
4:L:2:ALA:HB1	4:L:97:VAL:HG11	1.84	0.58
2:A:396:ILE:HG22	2:A:397:SER:H	1.66	0.58
5:d:23:SER:HB2	5:d:77:GLN:HE21	1.68	0.58
2:G:231:LYS:HG2	2:G:267:GLU:HG3	1.86	0.58
2:G:464:THR:HG23	3:H:96:TRP:CE2	2.39	0.58
4:E:33:PRO:HG2	4:E:66:LEU:HD21	1.86	0.58
4:L:33:PRO:HG2	4:L:66:LEU:HD21	1.85	0.58
2:G:501:CYS:HB2	1:C:661:LEU:HB3	1.84	0.58
6:l:92:ASP:HB3	6:l:95:VAL:HB	1.86	0.58
4:L:11:MET:HE1	4:L:20:THR:H	1.69	0.57
5:d:37:ILE:HD13	5:d:101:TRP:HZ3	1.69	0.57
6:m:9:ILE:HD12	6:m:9:ILE:H	1.69	0.57
2:G:139:THR:HB	2:G:150:MET:HB2	1.85	0.57
2:A:464:THR:HG23	3:D:96:TRP:CE2	2.39	0.57
1:B:545:LEU:HD21	1:C:587:LEU:HB3	1.86	0.57
2:I:34:LEU:HD23	2:I:500:ARG:HG3	1.87	0.56
5:h:37:ILE:HD12	5:h:45:LEU:HD22	1.88	0.56
1:B:661:LEU:HB3	2:I:501:CYS:HB2	1.88	0.56
1:C:545:LEU:HD21	1:J:587:LEU:HB3	1.86	0.56
1:J:631:TRP:O	1:J:635:ILE:HG12	2.05	0.56
2:I:139:THR:HB	2:I:150:MET:HB2	1.87	0.56
5:k:4:LEU:HD11	5:k:100(R):VAL:HG23	1.87	0.56
5:k:89:LYS:HE2	5:k:104:GLY:HA3	1.85	0.56
6:m:91:TRP:HE3	7:v:1:NAG:H83	1.70	0.56
4:E:62:PHE:HD2	4:E:73:LEU:HD11	1.71	0.56
4:M:33:PRO:HG2	4:M:66:LEU:HD21	1.87	0.56
2:G:257:THR:HG22	2:G:258:GLN:HG3	1.88	0.55
3:D:32:ASN:HB2	3:D:95:TYR:CE2	2.42	0.55
5:k:100(O):TYR:HB3	6:m:34:GLN:HG2	1.88	0.55
6:l:91:TRP:HE3	7:N:1:NAG:H83	1.70	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:h:100(O):TYR:HB3	6:l:34:GLN:HG2	1.89	0.55
6:e:91:TRP:HE3	7:b:1:NAG:H83	1.70	0.55
2:G:227:LYS:HD2	2:G:485:LYS:HE2	1.89	0.55
2:G:165:LEU:HD13	2:A:128:THR:HG22	1.88	0.55
5:d:37:ILE:HD13	5:d:101:TRP:CZ3	2.42	0.54
6:e:92:ASP:HB3	6:e:95:VAL:HB	1.90	0.54
2:I:270:VAL:HB	2:I:348:GLN:HG3	1.88	0.54
2:A:231:LYS:HG2	2:A:267:GLU:HG3	1.90	0.54
2:I:227:LYS:HD2	2:I:485:LYS:HE2	1.90	0.54
2:A:93:PHE:HB2	2:A:233:PHE:HZ	1.72	0.54
3:D:96:TRP:H	3:D:96:TRP:CD1	2.25	0.54
2:I:68:VAL:HG21	2:I:213:ILE:HD12	1.90	0.54
2:G:128:THR:HG22	2:I:165:LEU:HD13	1.90	0.54
5:h:51:VAL:HA	5:h:57:THR:HG23	1.90	0.54
2:A:91:GLU:HB3	2:A:242:VAL:HG21	1.88	0.54
2:I:257:THR:HG22	2:I:258:GLN:HG3	1.89	0.54
6:m:92:ASP:HB3	6:m:95:VAL:HB	1.88	0.54
3:H:95:TYR:CZ	3:H:97:ASN:HA	2.43	0.53
2:A:501:CYS:HB2	1:J:661:LEU:HB3	1.91	0.53
3:H:96:TRP:CD1	3:H:96:TRP:H	2.27	0.53
6:l:31:ARG:HH21	6:l:90:ILE:HG21	1.73	0.53
2:A:68:VAL:HG21	2:A:213:ILE:HD12	1.91	0.53
2:A:257:THR:HG22	2:A:258:GLN:HG3	1.91	0.53
1:B:660:LEU:HB3	1:B:664:ASP:HB3	1.90	0.52
6:e:18:THR:HG22	6:e:76:THR:HA	1.92	0.52
5:h:4:LEU:HD11	5:h:100(R):VAL:HG23	1.91	0.52
2:A:225:ILE:HD12	2:A:247:CYS:HA	1.91	0.52
5:d:40:SER:HB3	5:d:43:LYS:HB2	1.90	0.52
2:G:33:ASN:HB2	2:G:500:ARG:HG2	1.91	0.52
6:m:49:TYR:CE1	6:m:53:ASP:HB3	2.45	0.52
6:l:26:LYS:HG2	6:l:68:GLY:HA2	1.92	0.52
2:I:104:MET:O	2:I:108:ILE:HG12	2.10	0.52
2:G:225:ILE:HD12	2:G:247:CYS:HA	1.92	0.52
6:m:33:VAL:HG13	6:m:90:ILE:HG12	1.92	0.52
5:d:8:GLY:HA3	5:d:20:LEU:HD13	1.92	0.52
2:I:225:ILE:HD12	2:I:247:CYS:HA	1.92	0.52
5:d:37:ILE:HD12	5:d:45:LEU:HD22	1.92	0.51
5:d:100(O):TYR:HB3	6:e:34:GLN:HG2	1.91	0.51
5:h:36:TRP:CD1	5:h:69:LEU:HD11	2.46	0.51
3:D:96:TRP:HZ3	3:D:98:ARG:HG3	1.74	0.51
2:G:260:LEU:HD12	2:G:451:GLY:HA3	1.92	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:270:VAL:HB	2:G:348:GLN:HG3	1.92	0.51
2:A:57:ASP:HB2	2:A:59:LYS:HG2	1.92	0.51
3:D:37:ILE:HD12	3:D:93:VAL:HG21	1.92	0.51
5:d:36:TRP:CD1	5:d:69:LEU:HD11	2.46	0.51
5:d:100(E):VAL:H	11:s:2:NAG:H82	1.75	0.51
5:d:51:VAL:HG11	5:d:71:LEU:HD13	1.93	0.51
2:A:396:ILE:HG22	2:A:397:SER:N	2.26	0.51
2:I:57:ASP:HB2	2:I:59:LYS:HG2	1.93	0.50
2:A:270:VAL:HB	2:A:348:GLN:HG3	1.93	0.50
5:k:37:ILE:HD12	5:k:45:LEU:HD22	1.93	0.50
6:m:31:ARG:HH21	6:m:90:ILE:HG21	1.76	0.50
2:A:100:MET:HE2	2:A:483:LEU:HD22	1.94	0.50
3:D:95:TYR:CZ	3:D:97:ASN:HA	2.45	0.50
2:G:104:MET:O	2:G:108:ILE:HG12	2.12	0.50
4:M:34:HIS:CE1	4:M:49:TYR:HB2	2.47	0.50
1:B:658:GLN:O	1:B:661:LEU:HD23	2.11	0.50
5:k:36:TRP:O	5:k:48:ILE:HG12	2.12	0.49
1:C:631:TRP:O	1:C:635:ILE:HG22	2.11	0.49
2:I:396:ILE:HG22	2:I:397:SER:N	2.25	0.49
2:A:33:ASN:HB2	2:A:500:ARG:HG2	1.93	0.49
2:A:232:LYS:NZ	2:A:268:GLU:HB2	2.28	0.49
2:A:104:MET:O	2:A:108:ILE:HG12	2.13	0.49
5:h:100(E):VAL:H	11:Y:2:NAG:H82	1.77	0.49
3:D:63:PHE:HB3	3:D:66:ARG:HB3	1.95	0.49
2:A:214:PRO:HB3	2:A:250:GLY:HA3	1.94	0.49
2:G:65:LYS:HZ3	2:G:67:ASN:H	1.60	0.49
6:m:26:LYS:HG2	6:m:68:GLY:HA2	1.94	0.49
5:d:36:TRP:O	5:d:48:ILE:HG12	2.13	0.48
6:e:31:ARG:HH21	6:e:90:ILE:HG21	1.78	0.48
4:E:63:SER:HB2	4:E:74:THR:HG22	1.95	0.48
2:I:70:ALA:HB3	2:I:111:LEU:HD22	1.94	0.48
1:B:584:GLU:O	1:B:588:ARG:HG3	2.12	0.48
2:I:464:THR:HG23	3:K:96:TRP:CE2	2.48	0.48
2:A:260:LEU:HD12	2:A:451:GLY:HA3	1.94	0.48
3:K:32:ASN:HB2	3:K:95:TYR:CE2	2.48	0.48
6:l:75:ILE:HD11	6:l:86:TYR:HE2	1.79	0.48
2:A:356:ASN:OD1	2:A:356:ASN:O	2.32	0.48
9:p:2:NAG:H5	9:q:2:NAG:H62	1.95	0.48
6:m:18:THR:HG22	6:m:76:THR:HA	1.96	0.48
2:A:95:MET:HE2	2:A:96:TRP:CZ2	2.49	0.48
2:G:255:VAL:HG13	2:G:475:MET:SD	2.54	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:G:356:ASN:HB3	9:Q:1:NAG:H82	1.96	0.48
6:l:83:GLU:HA	6:l:104:LEU:HB3	1.96	0.48
2:A:163:THR:HG22	2:A:164:GLU:H	1.78	0.47
5:h:29:ILE:HD11	5:h:78:VAL:HG22	1.96	0.47
5:h:36:TRP:O	5:h:48:ILE:HG12	2.15	0.47
2:I:161:MET:HB3	2:I:170:GLN:HG3	1.96	0.47
5:k:51:VAL:HG11	5:k:71:LEU:HD13	1.97	0.47
6:e:47:ILE:HA	6:e:58:ILE:HG13	1.97	0.47
2:I:480:ARG:O	2:I:480:ARG:HG2	2.13	0.47
2:G:99:ASN:C	2:G:101:VAL:H	2.22	0.47
2:G:151:ARG:HD2	2:G:178:ARG:HH12	1.78	0.47
2:G:57:ASP:HB2	2:G:59:LYS:HG2	1.96	0.47
1:C:660:LEU:HB3	1:C:664:ASP:HB3	1.95	0.47
2:A:266:ALA:N	2:A:287:GLN:HE21	2.13	0.47
2:A:346:VAL:HG13	2:A:359:ILE:HG13	1.96	0.47
2:G:34:LEU:HD23	2:G:500:ARG:HG3	1.96	0.47
6:e:33:VAL:HG13	6:e:90:ILE:HG12	1.97	0.47
5:k:100(D):ILE:HA	11:6:2:NAG:H82	1.96	0.47
2:A:34:LEU:HD23	2:A:500:ARG:HG3	1.96	0.47
4:E:13:VAL:HG11	4:E:19:VAL:HG22	1.96	0.47
2:I:206:PRO:HB3	2:I:304:ARG:HH12	1.80	0.47
1:C:528:SER:O	1:C:627:THR:HG23	2.14	0.46
5:k:51:VAL:HA	5:k:57:THR:HG23	1.97	0.46
1:C:622:ILE:HA	1:C:626:MET:HE2	1.96	0.46
6:m:47:ILE:HA	6:m:58:ILE:HG13	1.97	0.46
3:H:37:ILE:HD12	3:H:103:TRP:CH2	2.50	0.46
5:h:75[B]:LYS:HD2	5:h:75[B]:LYS:HA	1.54	0.46
6:e:49:TYR:CE1	6:e:53:ASP:HB3	2.50	0.46
5:k:100(E):VAL:H	11:6:2:NAG:H82	1.80	0.46
2:I:67:ASN:HA	2:I:208:VAL:HA	1.98	0.46
4:L:34:HIS:CE1	4:L:49:TYR:HB2	2.50	0.46
4:L:89:TRP:CZ2	4:L:96:GLY:HA3	2.51	0.46
2:G:67:ASN:HA	2:G:208:VAL:HA	1.97	0.46
4:M:38:GLN:HB3	4:M:85:GLU:HG3	1.98	0.46
2:I:163:THR:HG22	2:I:164:GLU:H	1.80	0.46
2:G:163:THR:HG22	2:G:164:GLU:H	1.81	0.46
6:l:67(A):SER:OG	6:l:67(B):PRO:HD3	2.16	0.46
1:C:543:ASN:ND2	1:C:547:GLY:HA2	2.31	0.46
2:G:206:PRO:HG2	2:G:318:TYR:CE2	2.50	0.46
2:G:355:ASN:HB2	3:H:99:TRP:CD1	2.50	0.46
4:L:21:LEU:HD13	4:L:73:LEU:HD23	1.98	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:l:51:ASN:O	6:l:52:GLN:HG3	2.16	0.46
4:E:34:HIS:CE1	4:E:49:TYR:HB2	2.51	0.46
3:K:96:TRP:CD1	3:K:96:TRP:H	2.33	0.46
5:k:23:SER:HB2	5:k:77:GLN:HE21	1.81	0.46
2:I:398:ASN:HB2	4:M:53:GLN:NE2	2.31	0.45
2:I:123:THR:N	2:I:124:PRO:HD2	2.31	0.45
11:s:3:BMA:H62	11:s:7:MAN:H2	1.40	0.45
1:C:574:LYS:HB3	1:C:574:LYS:HE3	1.66	0.45
5:d:12:VAL:O	5:d:109:VAL:HA	2.17	0.45
5:d:89:LYS:HE2	5:d:104:GLY:HA3	1.98	0.45
1:J:660:LEU:HB3	1:J:664:ASP:HB3	1.97	0.45
2:I:218:CYS:CA	2:I:247:CYS:HB3	2.36	0.45
2:I:356:ASN:OD1	3:K:96:TRP:HB2	2.16	0.45
2:G:206:PRO:HB3	2:G:304:ARG:HH12	1.81	0.45
2:G:364:SER:HB3	9:V:1:NAG:H82	1.98	0.45
2:A:356:ASN:OD1	3:D:96:TRP:HB2	2.16	0.45
2:A:364:SER:HB3	9:p:1:NAG:H82	1.99	0.45
6:e:67(A):SER:OG	6:e:67(B):PRO:HD3	2.17	0.45
5:k:12:VAL:O	5:k:109:VAL:HA	2.17	0.45
2:G:100:MET:HE2	2:G:483:LEU:HD22	1.99	0.45
5:h:43:LYS:HA	6:l:6:GLN:HA	1.99	0.45
2:I:212:PRO:HG3	2:I:254:VAL:HG22	1.99	0.45
2:I:258:GLN:O	2:I:259:LEU:HD12	2.17	0.45
2:G:258:GLN:O	2:G:259:LEU:HD12	2.17	0.45
4:L:83:GLU:HG2	4:L:106:VAL:HG12	1.98	0.45
3:D:36:TRP:HB2	3:D:48:ILE:HB	1.99	0.45
9:3:2:NAG:H5	9:4:2:NAG:H62	1.99	0.45
3:D:95:TYR:HD2	3:D:96:TRP:NE1	2.15	0.44
2:A:123:THR:N	2:A:124:PRO:HD2	2.33	0.44
1:J:659[A]:ASP:C	1:J:661:LEU:H	2.26	0.44
5:k:37:ILE:HD13	5:k:101:TRP:CZ3	2.46	0.44
6:m:67(A):SER:OG	6:m:67(B):PRO:HD3	2.16	0.44
2:G:112:TRP:CG	2:G:427:TRP:HZ3	2.36	0.44
2:G:274:SER:HB3	2:G:277:ILE:HD12	2.00	0.44
2:G:355:ASN:HB2	3:H:99:TRP:HD1	1.82	0.44
6:l:48:ILE:HA	6:l:53:ASP:O	2.18	0.44
2:A:139:THR:HB	2:A:150:MET:HB2	1.98	0.44
3:K:35:ILE:HG21	3:K:100(D):PHE:HE1	1.82	0.44
3:K:95:TYR:HD2	3:K:96:TRP:NE1	2.15	0.44
5:k:43:LYS:HA	6:m:6:GLN:HA	1.98	0.44
2:A:131:CYS:HA	2:A:157:CYS:HA	1.99	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:94:ARG:HG2	3:D:95:TYR:HD1	1.83	0.44
5:d:51:VAL:HA	5:d:57:THR:HG23	2.00	0.44
3:K:95:TYR:CZ	3:K:97:ASN:HA	2.52	0.44
4:L:22:THR:HG23	4:L:70:LYS:HD2	1.98	0.44
5:h:59:TYR:HE1	5:h:69:LEU:HB3	1.82	0.44
4:M:6:GLN:HG3	4:M:22:THR:O	2.18	0.44
4:M:89:TRP:CZ2	4:M:96:GLY:HA3	2.52	0.44
2:G:499:THR:HG21	1:C:658:GLN:NE2	2.32	0.44
3:H:98:ARG:HB3	3:H:99:TRP:CE3	2.52	0.44
2:A:45:TRP:HB2	2:A:489:VAL:HB	2.00	0.44
4:E:89:TRP:CZ2	4:E:96:GLY:HA3	2.51	0.44
1:J:659[B]:ASP:C	1:J:661:LEU:H	2.26	0.44
2:I:151:ARG:HB2	2:I:178:ARG:HH12	1.83	0.44
11:Y:3:BMA:H62	11:Y:7:MAN:H2	1.38	0.44
2:G:212:PRO:HG3	2:G:254:VAL:HG22	2.00	0.44
2:A:112:TRP:CG	2:A:427:TRP:HZ3	2.35	0.44
2:I:206:PRO:HG2	2:I:318:TYR:CE2	2.53	0.44
3:K:63:PHE:HB3	3:K:66:ARG:HB3	2.00	0.44
5:k:36:TRP:CD1	5:k:69:LEU:HD11	2.53	0.44
5:d:2:MET:HE3	5:d:4:LEU:HD21	2.00	0.44
1:J:659[A]:ASP:OD2	1:J:663:LEU:HD12	2.18	0.44
2:I:364:SER:HB3	9:3:1:NAG:H82	2.00	0.44
2:G:87:GLU:HB2	12:G:601:NAG:H61	1.98	0.43
6:e:51:ASN:O	6:e:52:GLN:HG3	2.18	0.43
11:6:3:BMA:H62	11:6:7:MAN:H2	1.41	0.43
1:B:571:TRP:CZ2	2:G:111:LEU:HD11	2.53	0.43
2:A:344:LYS:O	2:A:348:GLN:HG2	2.17	0.43
2:G:214:PRO:HB3	2:G:250:GLY:HA3	2.00	0.43
2:A:206:PRO:HB3	2:A:304:ARG:HH12	1.83	0.43
2:A:206:PRO:HG2	2:A:318:TYR:CE2	2.53	0.43
2:I:50:THR:HG22	2:I:488:VAL:HG11	2.00	0.43
2:I:131:CYS:HA	2:I:157:CYS:HA	2.00	0.43
2:G:123:THR:N	2:G:124:PRO:HD2	2.33	0.43
1:B:659[A]:ASP:OD2	1:B:663:LEU:HD12	2.18	0.43
1:C:659[A]:ASP:C	1:C:661:LEU:H	2.26	0.43
2:I:214:PRO:HB3	2:I:250:GLY:HA3	1.99	0.43
2:I:84:ILE:HB	2:I:244:THR:HG22	2.01	0.43
2:I:99:ASN:C	2:I:101:VAL:H	2.26	0.43
2:I:231:LYS:HG2	2:I:267:GLU:HG3	2.00	0.43
2:G:70:ALA:HB3	2:G:111:LEU:HD22	2.01	0.43
3:H:95:TYR:HD2	3:H:96:TRP:NE1	2.16	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:659[B]:ASP:C	1:C:661:LEU:H	2.26	0.43
2:A:258:GLN:O	2:A:259:LEU:HD12	2.18	0.43
5:d:29:ILE:HD11	5:d:78:VAL:HG22	2.01	0.43
5:d:75[B]:LYS:HD2	5:d:75[B]:LYS:HA	1.55	0.43
5:k:75[B]:LYS:HD2	5:k:75[B]:LYS:HA	1.54	0.43
1:B:631:TRP:CZ2	1:B:635:ILE:HG13	2.53	0.43
2:G:131:CYS:HA	2:G:157:CYS:HA	2.00	0.43
5:d:43:LYS:HA	6:e:6:GLN:HA	2.01	0.43
2:G:326:ILE:HG13	6:l:94:ARG:HD3	2.01	0.43
2:A:50:THR:HG22	2:A:488:VAL:HG11	2.01	0.43
5:d:36:TRP:HD1	5:d:69:LEU:HD11	1.83	0.43
6:m:28:LEU:HD23	6:m:28:LEU:HA	1.92	0.43
2:G:344:LYS:O	2:G:348:GLN:HG2	2.19	0.43
6:l:95(C)[A]:LYS:HE3	6:l:97:VAL:HG12	1.99	0.43
6:e:95(C)[A]:LYS:HD2	6:e:95(C)[A]:LYS:HA	1.84	0.43
2:I:97:LYS:HB2	2:I:97:LYS:HE2	1.85	0.43
2:I:141:ASP:N	2:I:141:ASP:OD1	2.52	0.43
4:M:21:LEU:HD13	4:M:73:LEU:HD23	2.01	0.43
5:h:100(D):ILE:HA	11:Y:2:NAG:H82	2.00	0.42
1:C:659[A]:ASP:OD2	1:C:663:LEU:HD12	2.18	0.42
4:M:54[A]:LYS:HE2	4:M:54[A]:LYS:HB2	1.77	0.42
2:A:105:HIS:O	2:A:109:ILE:HG13	2.19	0.42
2:A:151:ARG:HD2	2:A:178:ARG:HH12	1.84	0.42
6:m:13:VAL:HG11	6:m:19:ALA:HB2	2.00	0.42
5:h:12:VAL:O	5:h:109:VAL:HA	2.18	0.42
2:I:105:HIS:O	2:I:109:ILE:HG13	2.20	0.42
2:G:93:PHE:HB2	2:G:233:PHE:CZ	2.54	0.42
2:G:93:PHE:HB2	2:G:233:PHE:HZ	1.83	0.42
2:A:117:LYS:HB2	2:A:117:LYS:HE2	1.78	0.42
3:D:2:LEU:HB3	3:D:102:TYR:CD2	2.53	0.42
2:I:151:ARG:HG3	2:I:178:ARG:HH22	1.84	0.42
1:B:659[A]:ASP:C	1:B:661:LEU:H	2.28	0.42
2:G:141:ASP:OD1	2:G:141:ASP:N	2.51	0.42
3:D:95:TYR:CE1	3:D:97:ASN:HA	2.54	0.42
2:I:112:TRP:CG	2:I:427:TRP:HZ3	2.37	0.42
6:m:51:ASN:O	6:m:52:GLN:HG3	2.20	0.42
6:e:52:GLN:HE22	6:e:66:PRO:HB3	1.85	0.42
2:G:105:HIS:O	2:G:109:ILE:HG13	2.20	0.42
6:l:78:VAL:HG23	6:l:82:ASP:HB2	2.02	0.42
1:C:571:TRP:CZ2	2:A:111:LEU:HD11	2.55	0.42
2:I:93:PHE:HB2	2:I:233:PHE:CZ	2.55	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:I:260:LEU:HD12	2:I:451:GLY:HA3	2.01	0.42
2:G:88:ASN:HB2	12:G:601:NAG:O5	2.19	0.42
6:e:49:TYR:CZ	6:e:53:ASP:HB3	2.55	0.42
3:K:34:TRP:HB2	3:K:51:MET:HB3	2.02	0.42
2:A:214:PRO:HB3	2:A:250:GLY:CA	2.50	0.42
5:d:34:TRP:HB2	5:d:51:VAL:HG12	2.01	0.42
9:V:2:NAG:H5	9:W:2:NAG:H62	2.02	0.42
3:H:100(C):TYR:HB2	4:L:34:HIS:CE1	2.54	0.42
4:L:59:PRO:HB3	4:L:61:ARG:NH1	2.34	0.42
5:d:6:GLU:HB2	5:d:105:THR:OG1	2.20	0.42
2:I:125:LEU:HD23	2:I:193:LEU:HD11	2.02	0.42
6:m:78:VAL:HG23	6:m:82:ASP:HB2	2.02	0.42
1:B:592:LEU:HD12	1:B:592:LEU:HA	1.90	0.41
3:H:2:LEU:HB3	3:H:102:TYR:CD2	2.54	0.41
6:l:26:LYS:HB2	6:l:26:LYS:HE2	1.85	0.41
6:e:48:ILE:HA	6:e:53:ASP:O	2.20	0.41
6:m:48:ILE:HA	6:m:53:ASP:O	2.20	0.41
2:G:119:CYS:HB3	2:G:203:GLN:O	2.21	0.41
2:G:385:CYS:HA	2:G:418:CYS:HA	2.01	0.41
5:h:6:GLU:HB2	5:h:105:THR:OG1	2.20	0.41
2:A:270:VAL:HG22	2:A:288:PHE:HA	2.02	0.41
6:e:47:ILE:HD12	6:e:73:LEU:HD21	2.02	0.41
1:B:659[B]:ASP:C	1:B:661:LEU:H	2.28	0.41
5:h:71:LEU:HD12	5:h:71:LEU:HA	1.88	0.41
2:I:344:LYS:O	2:I:348:GLN:HG2	2.21	0.41
2:I:358:ILE:HD12	2:I:396:ILE:HG12	2.01	0.41
5:k:29:ILE:HD11	5:k:78:VAL:HG22	2.03	0.41
2:G:226:LEU:HD23	2:G:226:LEU:HA	1.85	0.41
3:H:95:TYR:HD2	3:H:96:TRP:CD1	2.38	0.41
5:h:36:TRP:HD1	5:h:69:LEU:HD11	1.83	0.41
2:A:218:CYS:CA	2:A:247:CYS:HB3	2.37	0.41
5:d:100(D):ILE:HA	11:s:2:NAG:H82	2.01	0.41
2:I:273:ARG:HH12	2:I:287:GLN:NE2	2.18	0.41
3:K:95:TYR:HD2	3:K:96:TRP:CD1	2.39	0.41
6:m:52:GLN:HE22	6:m:66:PRO:HB3	1.85	0.41
2:G:45:TRP:HB2	2:G:489:VAL:HB	2.02	0.41
4:L:13:VAL:HG21	4:L:19:VAL:HG22	2.03	0.41
4:L:54[A]:LYS:HE2	4:L:54[A]:LYS:HB2	1.77	0.41
5:d:43:LYS:HA	5:d:43:LYS:HD2	1.80	0.41
5:k:8:GLY:HA3	5:k:20:LEU:HD13	2.02	0.41
2:G:214:PRO:HB3	2:G:250:GLY:CA	2.51	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:L:48:ILE:HD13	4:L:48:ILE:HA	1.89	0.41
6:l:49:TYR:CE1	6:l:53:ASP:HB3	2.56	0.41
2:A:265:LEU:C	2:A:287:GLN:HE21	2.29	0.41
6:e:6:GLN:HB2	6:e:7:VAL:H	1.68	0.41
1:J:571:TRP:CZ2	2:I:111:LEU:HD11	2.55	0.41
2:I:88:ASN:HB2	12:I:601:NAG:O5	2.21	0.41
3:K:4:LEU:HD22	3:K:92:CYS:SG	2.60	0.41
3:K:13:LYS:HA	3:K:13:LYS:HD3	1.74	0.41
5:k:13:LYS:HG2	5:k:16:GLU:OE2	2.20	0.41
5:h:43:LYS:HA	5:h:43:LYS:HD2	1.91	0.41
2:A:70:ALA:HB3	2:A:111:LEU:HD22	2.02	0.41
2:A:385:CYS:HA	2:A:418:CYS:HA	2.03	0.41
2:I:100:MET:HE2	2:I:483:LEU:HD22	2.02	0.41
2:A:212:PRO:HG3	2:A:254:VAL:HG22	2.03	0.41
2:I:41:GLY:H	2:I:493:PRO:HB2	1.86	0.41
2:I:326:ILE:HG13	6:m:94:ARG:HD3	2.02	0.41
2:I:346:VAL:HG22	2:I:359:ILE:HG21	2.03	0.41
2:I:356:ASN:HD21	3:K:96:TRP:HB2	1.85	0.41
5:k:6:GLU:HB2	5:k:105:THR:OG1	2.21	0.41
5:k:29:ILE:HD12	5:k:29:ILE:HA	1.90	0.41
1:B:576:LEU:O	1:B:580:VAL:HG23	2.21	0.41
6:l:9:ILE:H	6:l:9:ILE:HG13	1.65	0.41
2:A:326:ILE:HG13	6:e:94:ARG:HD3	2.03	0.41
2:A:461:THR:HB	3:D:53:THR:HG21	2.03	0.41
2:I:42:VAL:HA	2:I:43:PRO:HD3	1.95	0.41
3:H:95:TYR:CE1	3:H:97:ASN:HA	2.56	0.40
5:h:29:ILE:HD12	5:h:29:ILE:HA	1.90	0.40
5:h:100(D):ILE:HG23	11:Y:2:NAG:H83	2.03	0.40
2:A:34:LEU:HD13	2:A:498:PRO:HB2	2.03	0.40
2:A:396:ILE:CG2	2:A:397:SER:H	2.34	0.40
3:K:64:LYS:HA	3:K:64:LYS:HD2	1.84	0.40
5:k:13:LYS:O	5:k:16:GLU:HG3	2.20	0.40
4:E:54[A]:LYS:HE2	4:E:54[A]:LYS:HB2	1.77	0.40
2:I:65:LYS:HE2	2:I:65:LYS:HB2	1.92	0.40
2:G:212:PRO:HB2	2:G:252:LYS:HB2	2.04	0.40
1:C:639:THR:C	1:C:641:ILE:H	2.29	0.40
3:D:64:LYS:HD2	3:D:64:LYS:HA	1.84	0.40
5:d:53:LYS:HE2	5:d:53:LYS:HB3	1.93	0.40
2:I:48:ALA:HB2	2:I:490:LYS:HB2	2.04	0.40
4:M:13:VAL:HG11	4:M:19:VAL:HG22	2.04	0.40
3:H:37:ILE:HD12	3:H:103:TRP:HH2	1.87	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:h:2:MET:HE3	5:h:4:LEU:HD21	2.02	0.40
2:A:84:ILE:HB	2:A:244:THR:HG22	2.03	0.40
6:e:75:ILE:HD11	6:e:86:TYR:HE2	1.86	0.40
6:m:6:GLN:HB2	6:m:7:VAL:H	1.69	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	127/153 (83%)	120 (94%)	7 (6%)	0	100	100
1	C	127/153 (83%)	122 (96%)	5 (4%)	0	100	100
1	J	127/153 (83%)	121 (95%)	6 (5%)	0	100	100
2	A	451/481 (94%)	424 (94%)	27 (6%)	0	100	100
2	G	451/481 (94%)	426 (94%)	25 (6%)	0	100	100
2	I	451/481 (94%)	423 (94%)	28 (6%)	0	100	100
3	D	116/229 (51%)	107 (92%)	8 (7%)	1 (1%)	14	46
3	H	116/229 (51%)	107 (92%)	8 (7%)	1 (1%)	14	46
3	K	116/229 (51%)	108 (93%)	7 (6%)	1 (1%)	14	46
4	E	108/215 (50%)	102 (94%)	5 (5%)	1 (1%)	14	46
4	L	108/215 (50%)	102 (94%)	5 (5%)	1 (1%)	14	46
4	M	108/215 (50%)	100 (93%)	7 (6%)	1 (1%)	14	46
5	d	130/235 (55%)	114 (88%)	16 (12%)	0	100	100
5	h	130/235 (55%)	116 (89%)	14 (11%)	0	100	100
5	k	130/235 (55%)	117 (90%)	13 (10%)	0	100	100
6	e	107/213 (50%)	100 (94%)	6 (6%)	1 (1%)	14	46

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
6	l	107/213 (50%)	100 (94%)	6 (6%)	1 (1%)	14	46
6	m	107/213 (50%)	101 (94%)	5 (5%)	1 (1%)	14	46
All	All	3117/4578 (68%)	2910 (93%)	198 (6%)	9 (0%)	37	68

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	D	98	ARG
3	K	98	ARG
4	L	4	VAL
4	E	4	VAL
6	e	25	GLU
3	H	97	ASN
4	M	4	VAL
6	m	25	GLU
6	l	25	GLU

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	B	112/129 (87%)	107 (96%)	5 (4%)	24	57
1	C	112/129 (87%)	106 (95%)	6 (5%)	20	52
1	J	112/129 (87%)	110 (98%)	2 (2%)	51	76
2	A	408/428 (95%)	381 (93%)	27 (7%)	15	44
2	G	408/428 (95%)	383 (94%)	25 (6%)	17	47
2	I	408/428 (95%)	380 (93%)	28 (7%)	14	43
3	D	99/196 (50%)	95 (96%)	4 (4%)	28	60
3	H	99/196 (50%)	91 (92%)	8 (8%)	11	36
3	K	99/196 (50%)	94 (95%)	5 (5%)	21	54
4	E	86/178 (48%)	80 (93%)	6 (7%)	14	42

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	L	86/178 (48%)	81 (94%)	5 (6%)	18	49
4	M	86/178 (48%)	80 (93%)	6 (7%)	14	42
5	d	113/202 (56%)	106 (94%)	7 (6%)	16	47
5	h	113/202 (56%)	109 (96%)	4 (4%)	32	64
5	k	113/202 (56%)	112 (99%)	1 (1%)	70	84
6	e	90/179 (50%)	86 (96%)	4 (4%)	25	58
6	l	90/179 (50%)	86 (96%)	4 (4%)	25	58
6	m	90/179 (50%)	85 (94%)	5 (6%)	19	51
All	All	2724/3936 (69%)	2572 (94%)	152 (6%)	23	51

All (152) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	539	VAL
1	B	575	GLN
1	B	619	LEU
1	B	635	ILE
1	B	654	GLU
2	G	75	VAL
2	G	99	ASN
2	G	121[A]	LYS
2	G	121[B]	LYS
2	G	127	VAL
2	G	128	THR
2	G	130	GLN
2	G	131	CYS
2	G	133	ASN
2	G	138	ILE
2	G	141	ASP
2	G	150	MET
2	G	166[A]	ARG
2	G	166[B]	ARG
2	G	169[A]	LYS
2	G	169[B]	LYS
2	G	201	ILE
2	G	202	THR
2	G	207	LYS
2	G	325	ASP
2	G	333	VAL

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	G	444[A]	ARG
2	G	444[B]	ARG
2	G	450	THR
2	G	499	THR
3	H	1	GLN
3	H	20	VAL
3	H	24	VAL
3	H	32	ASN
3	H	47	TRP
3	H	75	LYS
3	H	89	VAL
3	H	93	VAL
4	L	43	VAL
4	L	54[A]	LYS
4	L	54[B]	LYS
4	L	70	LYS
4	L	74	THR
5	h	56	ASP
5	h	63	LEU
5	h	82	LEU
5	h	82(A)	VAL
6	l	6	GLN
6	l	78	VAL
6	l	102	THR
6	l	106	VAL
1	C	538	THR
1	C	543	ASN
1	C	619	LEU
1	C	624	ASP
1	C	636	SER
1	C	654	GLU
2	A	54	CYS
2	A	75	VAL
2	A	99	ASN
2	A	121[A]	LYS
2	A	121[B]	LYS
2	A	125	LEU
2	A	128	THR
2	A	130	GLN
2	A	131	CYS
2	A	133	ASN
2	A	138	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	A	141	ASP
2	A	150	MET
2	A	166[A]	ARG
2	A	166[B]	ARG
2	A	169[A]	LYS
2	A	169[B]	LYS
2	A	182	VAL
2	A	194	ILE
2	A	202	THR
2	A	211	GLU
2	A	325	ASP
2	A	412	ASP
2	A	444[A]	ARG
2	A	444[B]	ARG
2	A	450	THR
2	A	499	THR
3	D	20	VAL
3	D	24	VAL
3	D	75	LYS
3	D	93	VAL
4	E	4	VAL
4	E	18	THR
4	E	54[A]	LYS
4	E	54[B]	LYS
4	E	106	VAL
4	E	106(A)	LEU
5	d	12	VAL
5	d	21	THR
5	d	40	SER
5	d	56	ASP
5	d	63	LEU
5	d	82	LEU
5	d	82(A)	VAL
6	e	6	GLN
6	e	9	ILE
6	e	47	ILE
6	e	78	VAL
1	J	617	ARG
1	J	654	GLU
2	I	75	VAL
2	I	99	ASN
2	I	121[A]	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
2	I	121[B]	LYS
2	I	127	VAL
2	I	128	THR
2	I	130	GLN
2	I	131	CYS
2	I	133	ASN
2	I	141	ASP
2	I	150	MET
2	I	166[A]	ARG
2	I	166[B]	ARG
2	I	169[A]	LYS
2	I	169[B]	LYS
2	I	182	VAL
2	I	201	ILE
2	I	202	THR
2	I	207	LYS
2	I	234	ASN
2	I	325	ASP
2	I	333	VAL
2	I	341	THR
2	I	412	ASP
2	I	444[A]	ARG
2	I	444[B]	ARG
2	I	450	THR
2	I	467	THR
3	K	1	GLN
3	K	24	VAL
3	K	75	LYS
3	K	89	VAL
3	K	93	VAL
4	M	18	THR
4	M	47	LEU
4	M	54[A]	LYS
4	M	54[B]	LYS
4	M	106	VAL
4	M	106(A)	LEU
5	k	63	LEU
6	m	6	GLN
6	m	47	ILE
6	m	78	VAL
6	m	83	GLU
6	m	106	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (34) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	640	GLN
2	G	287	GLN
2	G	352	HIS
2	G	356	ASN
2	G	377	ASN
6	l	34	GLN
6	l	37	GLN
1	C	616	ASN
1	C	640	GLN
2	A	246	GLN
2	A	280	ASN
2	A	287	GLN
2	A	302	ASN
2	A	352	HIS
2	A	377	ASN
5	d	3	GLN
6	e	8	GLN
6	e	34	GLN
6	e	37	GLN
6	e	50	ASN
1	J	616	ASN
1	J	640	GLN
2	I	67	ASN
2	I	183	GLN
2	I	280	ASN
2	I	287	GLN
2	I	352	HIS
2	I	377	ASN
2	I	432	GLN
3	K	39	GLN
4	M	38	GLN
6	m	34	GLN
6	m	37	GLN
6	m	50	ASN

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 ⓘ

126 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	$\#\|Z\| > 2$
10	NAG	0	1	2,10	14,14,15	0.67	0	17,19,21	2.02	2 (11%)
10	NAG	0	2	10	14,14,15	0.70	0	17,19,21	1.03	1 (5%)
10	BMA	0	3	10	11,11,12	0.83	0	15,15,17	2.36	5 (33%)
10	MAN	0	4	10	11,11,12	0.63	0	15,15,17	1.44	1 (6%)
10	MAN	0	5	10	11,11,12	0.73	0	15,15,17	1.08	1 (6%)
10	MAN	0	6	10	11,11,12	0.69	0	15,15,17	1.13	1 (6%)
9	NAG	1	1	2,9	14,14,15	0.78	0	17,19,21	1.01	1 (5%)
9	NAG	1	2	9	14,14,15	0.71	0	17,19,21	1.20	1 (5%)
9	NAG	2	1	2,9	14,14,15	0.76	0	17,19,21	0.89	0
9	NAG	2	2	9	14,14,15	0.72	0	17,19,21	0.85	0
9	NAG	3	1	2,9	14,14,15	0.73	0	17,19,21	0.98	1 (5%)
9	NAG	3	2	9	14,14,15	0.73	0	17,19,21	0.90	0
9	NAG	4	1	2,9	14,14,15	0.72	0	17,19,21	1.26	2 (11%)
9	NAG	4	2	9	14,14,15	0.86	0	17,19,21	1.25	2 (11%)
9	NAG	5	1	2,9	14,14,15	0.71	0	17,19,21	0.93	1 (5%)
9	NAG	5	2	9	14,14,15	0.69	0	17,19,21	1.20	1 (5%)
11	NAG	6	1	2,11	14,14,15	0.42	0	17,19,21	0.77	1 (5%)
11	NAG	6	2	11	14,14,15	0.46	0	17,19,21	1.34	2 (11%)
11	BMA	6	3	11	11,11,12	0.52	0	15,15,17	1.41	1 (6%)
11	MAN	6	4	11	11,11,12	0.49	0	15,15,17	0.59	0
11	MAN	6	5	11	11,11,12	0.54	0	15,15,17	1.21	1 (6%)
11	MAN	6	6	11	11,11,12	0.36	0	15,15,17	0.59	0
11	MAN	6	7	11	11,11,12	0.33	0	15,15,17	0.55	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
11	MAN	6	8	11	11,11,12	0.34	0	15,15,17	0.52	0
11	MAN	6	9	11	11,11,12	0.26	0	15,15,17	0.55	0
9	NAG	7	1	2,9	14,14,15	0.71	0	17,19,21	1.31	2 (11%)
9	NAG	7	2	9	14,14,15	0.73	0	17,19,21	0.85	0
9	NAG	8	1	2,9	14,14,15	0.81	0	17,19,21	1.26	2 (11%)
9	NAG	8	2	9	14,14,15	0.73	0	17,19,21	0.96	1 (5%)
7	NAG	N	1	2,7	14,14,15	0.75	0	17,19,21	0.97	0
7	NAG	N	2	7	14,14,15	0.73	0	17,19,21	0.88	1 (5%)
7	BMA	N	3	7	11,11,12	0.81	0	15,15,17	2.70	5 (33%)
7	MAN	N	4	7	11,11,12	0.71	0	15,15,17	1.12	1 (6%)
8	NAG	O	1	2,8	14,14,15	0.75	0	17,19,21	0.99	0
8	NAG	O	2	8	14,14,15	0.72	0	17,19,21	0.89	0
8	BMA	O	3	8	11,11,12	0.84	0	15,15,17	2.11	3 (20%)
9	NAG	P	1	2,9	14,14,15	0.77	0	17,19,21	1.19	2 (11%)
9	NAG	P	2	9	14,14,15	0.73	0	17,19,21	0.83	0
9	NAG	Q	1	2,9	14,14,15	0.75	0	17,19,21	0.92	0
9	NAG	Q	2	9	14,14,15	0.77	0	17,19,21	1.12	2 (11%)
9	NAG	R	1	2,9	14,14,15	0.76	0	17,19,21	0.92	0
9	NAG	R	2	9	14,14,15	0.70	0	17,19,21	0.84	0
10	NAG	S	1	2,10	14,14,15	0.67	0	17,19,21	1.98	2 (11%)
10	NAG	S	2	10	14,14,15	0.71	0	17,19,21	1.03	1 (5%)
10	BMA	S	3	10	11,11,12	0.83	0	15,15,17	2.36	5 (33%)
10	MAN	S	4	10	11,11,12	0.62	0	15,15,17	1.45	1 (6%)
10	MAN	S	5	10	11,11,12	0.72	0	15,15,17	1.10	1 (6%)
10	MAN	S	6	10	11,11,12	0.69	0	15,15,17	1.12	1 (6%)
9	NAG	T	1	2,9	14,14,15	0.77	0	17,19,21	0.98	1 (5%)
9	NAG	T	2	9	14,14,15	0.70	0	17,19,21	1.20	1 (5%)
9	NAG	U	1	2,9	14,14,15	0.74	0	17,19,21	0.88	0
9	NAG	U	2	9	14,14,15	0.72	0	17,19,21	0.84	0
9	NAG	V	1	2,9	14,14,15	0.74	0	17,19,21	0.98	1 (5%)
9	NAG	V	2	9	14,14,15	0.73	0	17,19,21	0.90	0
9	NAG	W	1	2,9	14,14,15	0.70	0	17,19,21	1.25	2 (11%)
9	NAG	W	2	9	14,14,15	0.86	1 (7%)	17,19,21	1.26	2 (11%)
9	NAG	X	1	2,9	14,14,15	0.72	0	17,19,21	0.92	1 (5%)
9	NAG	X	2	9	14,14,15	0.69	0	17,19,21	1.20	1 (5%)
11	NAG	Y	1	2,11	14,14,15	0.41	0	17,19,21	0.75	0
11	NAG	Y	2	11	14,14,15	0.47	0	17,19,21	1.21	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
11	BMA	Y	3	11	11,11,12	0.52	0	15,15,17	1.41	1 (6%)
11	MAN	Y	4	11	11,11,12	0.48	0	15,15,17	0.57	0
11	MAN	Y	5	11	11,11,12	0.55	0	15,15,17	1.19	1 (6%)
11	MAN	Y	6	11	11,11,12	0.38	0	15,15,17	0.57	0
11	MAN	Y	7	11	11,11,12	0.34	0	15,15,17	0.55	0
11	MAN	Y	8	11	11,11,12	0.36	0	15,15,17	0.51	0
11	MAN	Y	9	11	11,11,12	0.28	0	15,15,17	0.54	0
9	NAG	Z	1	2,9	14,14,15	0.71	0	17,19,21	1.32	2 (11%)
9	NAG	Z	2	9	14,14,15	0.72	0	17,19,21	0.84	0
9	NAG	a	1	2,9	14,14,15	0.83	0	17,19,21	1.20	1 (5%)
9	NAG	a	2	9	14,14,15	0.71	0	17,19,21	0.95	1 (5%)
7	NAG	b	1	2,7	14,14,15	0.76	0	17,19,21	0.99	0
7	NAG	b	2	7	14,14,15	0.74	0	17,19,21	0.90	1 (5%)
7	BMA	b	3	7	11,11,12	0.81	0	15,15,17	2.71	5 (33%)
7	MAN	b	4	7	11,11,12	0.71	0	15,15,17	1.11	1 (6%)
8	NAG	c	1	2,8	14,14,15	0.75	0	17,19,21	1.02	1 (5%)
8	NAG	c	2	8	14,14,15	0.74	0	17,19,21	0.89	0
8	BMA	c	3	8	11,11,12	0.85	0	15,15,17	2.13	3 (20%)
9	NAG	f	1	2,9	14,14,15	0.78	0	17,19,21	1.19	2 (11%)
9	NAG	f	2	9	14,14,15	0.73	0	17,19,21	0.85	0
9	NAG	g	1	2,9	14,14,15	0.74	0	17,19,21	0.97	1 (5%)
9	NAG	g	2	9	14,14,15	0.77	0	17,19,21	1.15	2 (11%)
9	NAG	i	1	2,9	14,14,15	0.73	0	17,19,21	0.94	0
9	NAG	i	2	9	14,14,15	0.70	0	17,19,21	0.85	0
10	NAG	j	1	2,10	14,14,15	0.68	0	17,19,21	1.99	2 (11%)
10	NAG	j	2	10	14,14,15	0.71	0	17,19,21	1.06	2 (11%)
10	BMA	j	3	10	11,11,12	0.83	0	15,15,17	2.34	5 (33%)
10	MAN	j	4	10	11,11,12	0.63	0	15,15,17	1.43	1 (6%)
10	MAN	j	5	10	11,11,12	0.71	0	15,15,17	1.09	1 (6%)
10	MAN	j	6	10	11,11,12	0.69	0	15,15,17	1.13	1 (6%)
9	NAG	n	1	2,9	14,14,15	0.78	0	17,19,21	0.98	0
9	NAG	n	2	9	14,14,15	0.72	0	17,19,21	1.20	1 (5%)
9	NAG	o	1	2,9	14,14,15	0.76	0	17,19,21	0.87	0
9	NAG	o	2	9	14,14,15	0.71	0	17,19,21	0.85	0
9	NAG	p	1	2,9	14,14,15	0.75	0	17,19,21	0.97	1 (5%)
9	NAG	p	2	9	14,14,15	0.74	0	17,19,21	0.91	0
9	NAG	q	1	2,9	14,14,15	0.72	0	17,19,21	1.24	2 (11%)
9	NAG	q	2	9	14,14,15	0.88	1 (7%)	17,19,21	1.37	3 (17%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
9	NAG	r	1	2,9	14,14,15	0.73	0	17,19,21	0.91	1 (5%)
9	NAG	r	2	9	14,14,15	0.69	0	17,19,21	1.20	1 (5%)
11	NAG	s	1	2,11	14,14,15	0.41	0	17,19,21	0.78	0
11	NAG	s	2	11	14,14,15	0.47	0	17,19,21	1.23	2 (11%)
11	BMA	s	3	11	11,11,12	0.52	0	15,15,17	1.43	1 (6%)
11	MAN	s	4	11	11,11,12	0.48	0	15,15,17	0.59	0
11	MAN	s	5	11	11,11,12	0.56	0	15,15,17	1.19	1 (6%)
11	MAN	s	6	11	11,11,12	0.36	0	15,15,17	0.57	0
11	MAN	s	7	11	11,11,12	0.33	0	15,15,17	0.56	0
11	MAN	s	8	11	11,11,12	0.35	0	15,15,17	0.52	0
11	MAN	s	9	11	11,11,12	0.27	0	15,15,17	0.55	0
9	NAG	t	1	2,9	14,14,15	0.70	0	17,19,21	1.32	2 (11%)
9	NAG	t	2	9	14,14,15	0.73	0	17,19,21	0.85	0
9	NAG	u	1	2,9	14,14,15	0.81	0	17,19,21	1.26	2 (11%)
9	NAG	u	2	9	14,14,15	0.72	0	17,19,21	0.95	1 (5%)
7	NAG	v	1	2,7	14,14,15	0.76	0	17,19,21	0.97	0
7	NAG	v	2	7	14,14,15	0.72	0	17,19,21	0.90	1 (5%)
7	BMA	v	3	7	11,11,12	0.82	0	15,15,17	2.68	5 (33%)
7	MAN	v	4	7	11,11,12	0.71	0	15,15,17	1.11	1 (6%)
8	NAG	w	1	2,8	14,14,15	0.76	0	17,19,21	1.01	1 (5%)
8	NAG	w	2	8	14,14,15	0.72	0	17,19,21	0.89	0
8	BMA	w	3	8	11,11,12	0.84	0	15,15,17	2.11	3 (20%)
9	NAG	x	1	2,9	14,14,15	0.78	0	17,19,21	1.19	2 (11%)
9	NAG	x	2	9	14,14,15	0.73	0	17,19,21	0.83	0
9	NAG	y	1	2,9	14,14,15	0.75	0	17,19,21	0.91	0
9	NAG	y	2	9	14,14,15	0.77	0	17,19,21	1.09	1 (5%)
9	NAG	z	1	2,9	14,14,15	0.75	0	17,19,21	0.96	0
9	NAG	z	2	9	14,14,15	0.70	0	17,19,21	0.85	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
10	NAG	0	1	2,10	-	1/6/23/26	0/1/1/1
10	NAG	0	2	10	-	1/6/23/26	0/1/1/1
10	BMA	0	3	10	-	0/2/19/22	0/1/1/1
10	MAN	0	4	10	-	0/2/19/22	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	MAN	0	5	10	-	2/2/19/22	0/1/1/1
10	MAN	0	6	10	-	2/2/19/22	0/1/1/1
9	NAG	1	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	1	2	9	-	4/6/23/26	0/1/1/1
9	NAG	2	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	2	2	9	-	0/6/23/26	0/1/1/1
9	NAG	3	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	3	2	9	-	0/6/23/26	0/1/1/1
9	NAG	4	1	2,9	-	1/6/23/26	0/1/1/1
9	NAG	4	2	9	-	1/6/23/26	0/1/1/1
9	NAG	5	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	5	2	9	-	2/6/23/26	0/1/1/1
11	NAG	6	1	2,11	-	3/6/23/26	0/1/1/1
11	NAG	6	2	11	-	4/6/23/26	0/1/1/1
11	BMA	6	3	11	-	2/2/19/22	1/1/1/1
11	MAN	6	4	11	-	2/2/19/22	0/1/1/1
11	MAN	6	5	11	-	1/2/19/22	0/1/1/1
11	MAN	6	6	11	-	1/2/19/22	1/1/1/1
11	MAN	6	7	11	-	2/2/19/22	1/1/1/1
11	MAN	6	8	11	-	2/2/19/22	0/1/1/1
11	MAN	6	9	11	-	1/2/19/22	1/1/1/1
9	NAG	7	1	2,9	-	2/6/23/26	0/1/1/1
9	NAG	7	2	9	-	1/6/23/26	0/1/1/1
9	NAG	8	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	8	2	9	-	1/6/23/26	0/1/1/1
7	NAG	N	1	2,7	-	0/6/23/26	0/1/1/1
7	NAG	N	2	7	-	0/6/23/26	0/1/1/1
7	BMA	N	3	7	-	0/2/19/22	0/1/1/1
7	MAN	N	4	7	-	1/2/19/22	1/1/1/1
8	NAG	O	1	2,8	-	0/6/23/26	0/1/1/1
8	NAG	O	2	8	-	0/6/23/26	0/1/1/1
8	BMA	O	3	8	-	0/2/19/22	0/1/1/1
9	NAG	P	1	2,9	-	2/6/23/26	0/1/1/1
9	NAG	P	2	9	-	0/6/23/26	0/1/1/1
9	NAG	Q	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	Q	2	9	-	2/6/23/26	0/1/1/1
9	NAG	R	1	2,9	-	1/6/23/26	0/1/1/1
9	NAG	R	2	9	-	0/6/23/26	0/1/1/1
10	NAG	S	1	2,10	-	1/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
10	NAG	S	2	10	-	1/6/23/26	0/1/1/1
10	BMA	S	3	10	-	0/2/19/22	0/1/1/1
10	MAN	S	4	10	-	0/2/19/22	0/1/1/1
10	MAN	S	5	10	-	2/2/19/22	0/1/1/1
10	MAN	S	6	10	-	2/2/19/22	0/1/1/1
9	NAG	T	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	T	2	9	-	4/6/23/26	0/1/1/1
9	NAG	U	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	U	2	9	-	0/6/23/26	0/1/1/1
9	NAG	V	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	V	2	9	-	0/6/23/26	0/1/1/1
9	NAG	W	1	2,9	-	1/6/23/26	0/1/1/1
9	NAG	W	2	9	-	1/6/23/26	0/1/1/1
9	NAG	X	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	X	2	9	-	2/6/23/26	0/1/1/1
11	NAG	Y	1	2,11	-	2/6/23/26	0/1/1/1
11	NAG	Y	2	11	-	4/6/23/26	0/1/1/1
11	BMA	Y	3	11	-	2/2/19/22	1/1/1/1
11	MAN	Y	4	11	-	2/2/19/22	0/1/1/1
11	MAN	Y	5	11	-	1/2/19/22	0/1/1/1
11	MAN	Y	6	11	-	1/2/19/22	1/1/1/1
11	MAN	Y	7	11	-	2/2/19/22	1/1/1/1
11	MAN	Y	8	11	-	2/2/19/22	0/1/1/1
11	MAN	Y	9	11	-	1/2/19/22	1/1/1/1
9	NAG	Z	1	2,9	-	2/6/23/26	0/1/1/1
9	NAG	Z	2	9	-	1/6/23/26	0/1/1/1
9	NAG	a	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	a	2	9	-	1/6/23/26	0/1/1/1
7	NAG	b	1	2,7	-	0/6/23/26	0/1/1/1
7	NAG	b	2	7	-	0/6/23/26	0/1/1/1
7	BMA	b	3	7	-	0/2/19/22	0/1/1/1
7	MAN	b	4	7	-	1/2/19/22	1/1/1/1
8	NAG	c	1	2,8	-	0/6/23/26	0/1/1/1
8	NAG	c	2	8	-	0/6/23/26	0/1/1/1
8	BMA	c	3	8	-	0/2/19/22	0/1/1/1
9	NAG	f	1	2,9	-	2/6/23/26	0/1/1/1
9	NAG	f	2	9	-	0/6/23/26	0/1/1/1
9	NAG	g	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	g	2	9	-	2/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	i	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	i	2	9	-	0/6/23/26	0/1/1/1
10	NAG	j	1	2,10	-	1/6/23/26	0/1/1/1
10	NAG	j	2	10	-	1/6/23/26	0/1/1/1
10	BMA	j	3	10	-	0/2/19/22	0/1/1/1
10	MAN	j	4	10	-	0/2/19/22	0/1/1/1
10	MAN	j	5	10	-	2/2/19/22	0/1/1/1
10	MAN	j	6	10	-	2/2/19/22	0/1/1/1
9	NAG	n	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	n	2	9	-	4/6/23/26	0/1/1/1
9	NAG	o	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	o	2	9	-	0/6/23/26	0/1/1/1
9	NAG	p	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	p	2	9	-	0/6/23/26	0/1/1/1
9	NAG	q	1	2,9	-	1/6/23/26	0/1/1/1
9	NAG	q	2	9	-	1/6/23/26	0/1/1/1
9	NAG	r	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	r	2	9	-	2/6/23/26	0/1/1/1
11	NAG	s	1	2,11	-	2/6/23/26	0/1/1/1
11	NAG	s	2	11	-	3/6/23/26	0/1/1/1
11	BMA	s	3	11	-	2/2/19/22	1/1/1/1
11	MAN	s	4	11	-	2/2/19/22	0/1/1/1
11	MAN	s	5	11	-	1/2/19/22	0/1/1/1
11	MAN	s	6	11	-	1/2/19/22	1/1/1/1
11	MAN	s	7	11	-	1/2/19/22	1/1/1/1
11	MAN	s	8	11	-	2/2/19/22	0/1/1/1
11	MAN	s	9	11	-	1/2/19/22	1/1/1/1
9	NAG	t	1	2,9	-	2/6/23/26	0/1/1/1
9	NAG	t	2	9	-	1/6/23/26	0/1/1/1
9	NAG	u	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	u	2	9	-	1/6/23/26	0/1/1/1
7	NAG	v	1	2,7	-	0/6/23/26	0/1/1/1
7	NAG	v	2	7	-	0/6/23/26	0/1/1/1
7	BMA	v	3	7	-	0/2/19/22	0/1/1/1
7	MAN	v	4	7	-	1/2/19/22	1/1/1/1
8	NAG	w	1	2,8	-	0/6/23/26	0/1/1/1
8	NAG	w	2	8	-	0/6/23/26	0/1/1/1
8	BMA	w	3	8	-	0/2/19/22	0/1/1/1
9	NAG	x	1	2,9	-	2/6/23/26	0/1/1/1
9	NAG	x	2	9	-	0/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	y	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	y	2	9	-	2/6/23/26	0/1/1/1
9	NAG	z	1	2,9	-	0/6/23/26	0/1/1/1
9	NAG	z	2	9	-	0/6/23/26	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	q	2	NAG	C1-C2	2.07	1.55	1.52
9	W	2	NAG	C1-C2	2.02	1.55	1.52

All (131) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
7	b	3	BMA	C1-O5-C5	8.45	123.52	112.19
7	N	3	BMA	C1-O5-C5	8.44	123.50	112.19
7	v	3	BMA	C1-O5-C5	8.41	123.45	112.19
10	0	1	NAG	C1-O5-C5	7.30	121.97	112.19
10	j	1	NAG	C1-O5-C5	7.17	121.79	112.19
10	S	1	NAG	C1-O5-C5	7.14	121.76	112.19
8	c	3	BMA	C1-O5-C5	6.53	120.93	112.19
8	O	3	BMA	C1-O5-C5	6.43	120.81	112.19
8	w	3	BMA	C1-O5-C5	6.41	120.78	112.19
10	S	3	BMA	C1-O5-C5	6.28	120.60	112.19
10	0	3	BMA	C1-O5-C5	6.28	120.60	112.19
10	j	3	BMA	C1-O5-C5	6.18	120.47	112.19
10	S	4	MAN	C1-O5-C5	4.74	118.55	112.19
10	0	4	MAN	C1-O5-C5	4.67	118.44	112.19
10	j	4	MAN	C1-O5-C5	4.65	118.42	112.19
11	s	3	BMA	C1-O5-C5	4.61	118.36	112.19
11	6	3	BMA	C1-O5-C5	4.59	118.34	112.19
11	Y	3	BMA	C1-O5-C5	4.57	118.31	112.19
10	j	3	BMA	C3-C4-C5	3.87	117.25	110.23
10	0	3	BMA	C3-C4-C5	3.84	117.19	110.23
10	S	3	BMA	C3-C4-C5	3.83	117.18	110.23
11	6	2	NAG	C2-N2-C7	3.80	127.99	122.90
9	t	1	NAG	C2-N2-C7	3.48	127.57	122.90
9	Z	1	NAG	C2-N2-C7	3.42	127.48	122.90
9	7	1	NAG	C2-N2-C7	3.40	127.46	122.90
10	0	6	MAN	C1-O5-C5	3.35	116.68	112.19
9	r	2	NAG	C2-N2-C7	3.35	127.39	122.90
9	X	2	NAG	C2-N2-C7	3.34	127.37	122.90

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	b	3	BMA	C3-C4-C5	3.34	116.28	110.23
9	5	2	NAG	C2-N2-C7	3.33	127.36	122.90
9	T	2	NAG	C2-N2-C7	3.32	127.34	122.90
10	j	6	MAN	C1-O5-C5	3.32	116.63	112.19
9	1	2	NAG	C2-N2-C7	3.30	127.32	122.90
10	S	6	MAN	C1-O5-C5	3.29	116.60	112.19
9	n	2	NAG	C2-N2-C7	3.28	127.30	122.90
11	6	5	MAN	C1-C2-C3	3.26	114.39	109.64
7	N	4	MAN	C1-O5-C5	3.25	116.55	112.19
7	b	4	MAN	C1-O5-C5	3.25	116.54	112.19
7	v	3	BMA	C3-C4-C5	3.25	116.13	110.23
11	s	5	MAN	C1-C2-C3	3.25	114.38	109.64
7	N	3	BMA	C3-C4-C5	3.24	116.11	110.23
11	Y	2	NAG	C2-N2-C7	3.24	127.24	122.90
7	v	4	MAN	C1-O5-C5	3.23	116.52	112.19
11	Y	5	MAN	C1-C2-C3	3.19	114.29	109.64
11	s	2	NAG	C2-N2-C7	3.18	127.16	122.90
10	S	5	MAN	C1-O5-C5	3.18	116.45	112.19
10	j	5	MAN	C1-O5-C5	3.17	116.44	112.19
10	0	5	MAN	C1-O5-C5	3.14	116.40	112.19
9	u	1	NAG	C1-O5-C5	2.84	115.99	112.19
9	a	1	NAG	C1-O5-C5	2.75	115.87	112.19
9	4	1	NAG	C1-O5-C5	2.75	115.87	112.19
9	8	1	NAG	C1-O5-C5	2.74	115.86	112.19
9	f	1	NAG	C1-O5-C5	2.73	115.85	112.19
9	P	1	NAG	C2-N2-C7	2.66	126.47	122.90
9	x	1	NAG	C2-N2-C7	2.66	126.46	122.90
10	S	3	BMA	O4-C4-C3	-2.65	104.12	110.38
10	j	3	BMA	O4-C4-C3	-2.65	104.14	110.38
9	x	1	NAG	C1-O5-C5	2.62	115.69	112.19
10	0	3	BMA	O4-C4-C3	-2.61	104.23	110.38
9	q	1	NAG	C1-O5-C5	2.60	115.68	112.19
9	q	2	NAG	C2-N2-C7	2.58	126.36	122.90
9	W	1	NAG	C1-O5-C5	2.56	115.62	112.19
9	f	1	NAG	C2-N2-C7	2.52	126.28	122.90
9	P	1	NAG	C1-O5-C5	2.50	115.54	112.19
7	N	3	BMA	C2-C3-C4	2.50	115.25	110.86
10	0	3	BMA	C2-C3-C4	2.49	115.24	110.86
10	0	3	BMA	O5-C5-C4	2.49	116.88	110.83
7	b	3	BMA	C2-C3-C4	2.48	115.23	110.86
10	j	3	BMA	C2-C3-C4	2.47	115.21	110.86
10	j	3	BMA	O5-C5-C4	2.47	116.83	110.83

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	S	3	BMA	O5-C5-C4	2.47	116.83	110.83
10	S	1	NAG	C2-N2-C7	2.45	126.19	122.90
10	S	3	BMA	C2-C3-C4	2.44	115.16	110.86
7	v	3	BMA	C2-C3-C4	2.44	115.15	110.86
9	q	1	NAG	O5-C1-C2	-2.43	107.53	111.29
10	0	2	NAG	O5-C1-C2	-2.42	107.55	111.29
10	j	2	NAG	O5-C1-C2	-2.41	107.57	111.29
10	j	1	NAG	C2-N2-C7	2.40	126.11	122.90
7	N	2	NAG	O5-C1-C2	-2.39	107.60	111.29
10	S	2	NAG	O5-C1-C2	-2.36	107.64	111.29
7	b	2	NAG	O5-C1-C2	-2.36	107.65	111.29
9	8	2	NAG	O5-C1-C2	-2.34	107.67	111.29
9	Q	2	NAG	C2-N2-C7	2.34	126.04	122.90
10	0	1	NAG	C2-N2-C7	2.34	126.04	122.90
7	v	2	NAG	O5-C1-C2	-2.34	107.68	111.29
9	3	1	NAG	O5-C1-C2	-2.33	107.69	111.29
9	W	1	NAG	O5-C1-C2	-2.32	107.69	111.29
9	V	1	NAG	O5-C1-C2	-2.32	107.71	111.29
8	O	3	BMA	C3-C4-C5	2.32	114.43	110.23
8	c	3	BMA	C3-C4-C5	2.32	114.43	110.23
9	g	2	NAG	C2-N2-C7	2.31	126.00	122.90
8	w	3	BMA	C3-C4-C5	2.31	114.42	110.23
7	b	3	BMA	O5-C5-C4	2.31	116.44	110.83
9	u	2	NAG	O5-C1-C2	-2.30	107.73	111.29
8	w	3	BMA	C2-C3-C4	2.29	114.89	110.86
9	y	2	NAG	C2-N2-C7	2.29	125.97	122.90
8	O	3	BMA	C2-C3-C4	2.29	114.89	110.86
9	8	1	NAG	O5-C1-C2	-2.29	107.75	111.29
8	c	3	BMA	C2-C3-C4	2.28	114.87	110.86
9	u	1	NAG	O5-C1-C2	-2.27	107.78	111.29
7	N	3	BMA	O5-C5-C4	2.27	116.34	110.83
9	p	1	NAG	O5-C1-C2	-2.26	107.80	111.29
9	q	2	NAG	O5-C5-C4	-2.26	105.34	110.83
9	4	1	NAG	O5-C1-C2	-2.26	107.80	111.29
7	v	3	BMA	O5-C5-C4	2.26	116.31	110.83
9	a	2	NAG	O5-C1-C2	-2.24	107.82	111.29
11	s	2	NAG	O5-C1-C2	-2.23	107.84	111.29
9	7	1	NAG	C1-O5-C5	2.20	115.14	112.19
9	W	2	NAG	C2-N2-C7	2.20	125.84	122.90
7	b	3	BMA	O4-C4-C3	-2.20	105.20	110.38
9	Z	1	NAG	C1-O5-C5	2.20	115.13	112.19
9	g	2	NAG	C1-O5-C5	2.18	115.11	112.19

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	v	3	BMA	O4-C4-C3	-2.18	105.23	110.38
11	6	2	NAG	O5-C1-C2	-2.18	107.92	111.29
9	t	1	NAG	C1-O5-C5	2.16	115.08	112.19
7	N	3	BMA	O4-C4-C3	-2.16	105.29	110.38
9	4	2	NAG	O5-C5-C4	-2.14	105.62	110.83
9	5	1	NAG	O5-C1-C2	-2.12	108.01	111.29
11	6	1	NAG	C2-N2-C7	2.12	125.74	122.90
9	4	2	NAG	C2-N2-C7	2.11	125.73	122.90
9	W	2	NAG	O5-C5-C4	-2.11	105.70	110.83
10	j	2	NAG	C1-O5-C5	2.09	114.99	112.19
9	g	1	NAG	C2-N2-C7	2.05	125.65	122.90
9	q	2	NAG	C4-C3-C2	2.04	114.01	111.02
9	r	1	NAG	O5-C1-C2	-2.03	108.15	111.29
8	c	1	NAG	C1-O5-C5	2.02	114.90	112.19
8	w	1	NAG	C1-O5-C5	2.02	114.89	112.19
9	X	1	NAG	O5-C1-C2	-2.01	108.17	111.29
9	T	1	NAG	C2-N2-C7	2.01	125.60	122.90
9	Q	2	NAG	C1-O5-C5	2.00	114.87	112.19
9	1	1	NAG	C2-N2-C7	2.00	125.58	122.90

There are no chirality outliers.

All (120) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	T	2	NAG	C1-C2-N2-C7
9	n	2	NAG	C1-C2-N2-C7
9	1	2	NAG	C1-C2-N2-C7
11	Y	2	NAG	C8-C7-N2-C2
11	Y	2	NAG	O7-C7-N2-C2
11	s	2	NAG	C8-C7-N2-C2
11	s	2	NAG	O7-C7-N2-C2
11	6	2	NAG	C8-C7-N2-C2
11	6	2	NAG	O7-C7-N2-C2
11	Y	8	MAN	O5-C5-C6-O6
11	6	8	MAN	O5-C5-C6-O6
9	T	2	NAG	O5-C5-C6-O6
9	T	2	NAG	C4-C5-C6-O6
11	Y	4	MAN	O5-C5-C6-O6
11	s	3	BMA	C4-C5-C6-O6
11	6	3	BMA	C4-C5-C6-O6
11	6	8	MAN	C4-C5-C6-O6
11	s	8	MAN	O5-C5-C6-O6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
11	6	4	MAN	O5-C5-C6-O6
11	6	7	MAN	O5-C5-C6-O6
11	Y	3	BMA	C4-C5-C6-O6
9	n	2	NAG	O5-C5-C6-O6
11	6	1	NAG	C8-C7-N2-C2
11	Y	8	MAN	C4-C5-C6-O6
11	Y	3	BMA	O5-C5-C6-O6
11	6	3	BMA	O5-C5-C6-O6
11	Y	7	MAN	O5-C5-C6-O6
11	s	8	MAN	C4-C5-C6-O6
11	6	4	MAN	C4-C5-C6-O6
11	Y	4	MAN	C4-C5-C6-O6
11	s	1	NAG	C8-C7-N2-C2
11	6	1	NAG	O7-C7-N2-C2
9	1	2	NAG	O5-C5-C6-O6
9	n	2	NAG	C4-C5-C6-O6
11	s	3	BMA	O5-C5-C6-O6
11	s	4	MAN	O5-C5-C6-O6
10	S	6	MAN	C4-C5-C6-O6
9	P	1	NAG	C8-C7-N2-C2
9	P	1	NAG	O7-C7-N2-C2
9	Q	2	NAG	C8-C7-N2-C2
9	Q	2	NAG	O7-C7-N2-C2
9	f	1	NAG	C8-C7-N2-C2
9	f	1	NAG	O7-C7-N2-C2
9	g	2	NAG	C8-C7-N2-C2
9	g	2	NAG	O7-C7-N2-C2
9	x	1	NAG	C8-C7-N2-C2
9	x	1	NAG	O7-C7-N2-C2
9	y	2	NAG	C8-C7-N2-C2
9	y	2	NAG	O7-C7-N2-C2
11	Y	1	NAG	C8-C7-N2-C2
11	s	1	NAG	O7-C7-N2-C2
11	s	7	MAN	O5-C5-C6-O6
10	0	5	MAN	O5-C5-C6-O6
10	j	6	MAN	C4-C5-C6-O6
10	j	5	MAN	O5-C5-C6-O6
11	s	4	MAN	C4-C5-C6-O6
11	Y	1	NAG	O7-C7-N2-C2
11	6	2	NAG	O5-C5-C6-O6
10	j	5	MAN	C4-C5-C6-O6
10	0	5	MAN	C4-C5-C6-O6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
10	S	6	MAN	O5-C5-C6-O6
10	S	5	MAN	O5-C5-C6-O6
10	S	5	MAN	C4-C5-C6-O6
10	0	6	MAN	C4-C5-C6-O6
10	j	6	MAN	O5-C5-C6-O6
11	6	5	MAN	O5-C5-C6-O6
9	Z	2	NAG	O5-C5-C6-O6
9	t	2	NAG	O5-C5-C6-O6
9	7	2	NAG	O5-C5-C6-O6
11	Y	5	MAN	O5-C5-C6-O6
11	s	5	MAN	O5-C5-C6-O6
10	j	2	NAG	O5-C5-C6-O6
11	Y	2	NAG	O5-C5-C6-O6
7	v	4	MAN	O5-C5-C6-O6
9	q	2	NAG	O5-C5-C6-O6
10	S	1	NAG	O5-C5-C6-O6
10	0	1	NAG	O5-C5-C6-O6
10	0	2	NAG	O5-C5-C6-O6
9	W	1	NAG	O5-C5-C6-O6
9	q	1	NAG	O5-C5-C6-O6
10	S	2	NAG	O5-C5-C6-O6
10	0	6	MAN	O5-C5-C6-O6
9	W	2	NAG	O5-C5-C6-O6
9	4	1	NAG	O5-C5-C6-O6
9	4	2	NAG	O5-C5-C6-O6
10	j	1	NAG	O5-C5-C6-O6
7	b	4	MAN	O5-C5-C6-O6
7	N	4	MAN	O5-C5-C6-O6
9	u	2	NAG	O5-C5-C6-O6
9	a	2	NAG	O5-C5-C6-O6
9	8	2	NAG	O5-C5-C6-O6
9	1	2	NAG	C4-C5-C6-O6
11	6	2	NAG	C4-C5-C6-O6
11	6	6	MAN	O5-C5-C6-O6
11	Y	9	MAN	O5-C5-C6-O6
11	s	2	NAG	O5-C5-C6-O6
11	6	7	MAN	C4-C5-C6-O6
9	X	2	NAG	C1-C2-N2-C7
9	Z	1	NAG	C1-C2-N2-C7
9	r	2	NAG	C1-C2-N2-C7
9	t	1	NAG	C1-C2-N2-C7
9	5	2	NAG	C1-C2-N2-C7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
9	7	1	NAG	C1-C2-N2-C7
11	s	6	MAN	O5-C5-C6-O6
9	Z	1	NAG	C3-C2-N2-C7
9	t	1	NAG	C3-C2-N2-C7
9	7	1	NAG	C3-C2-N2-C7
11	Y	6	MAN	O5-C5-C6-O6
11	Y	7	MAN	C4-C5-C6-O6
11	6	9	MAN	O5-C5-C6-O6
11	6	1	NAG	C1-C2-N2-C7
11	s	9	MAN	O5-C5-C6-O6
9	T	2	NAG	C3-C2-N2-C7
9	X	2	NAG	C3-C2-N2-C7
9	n	2	NAG	C3-C2-N2-C7
9	r	2	NAG	C3-C2-N2-C7
9	1	2	NAG	C3-C2-N2-C7
9	5	2	NAG	C3-C2-N2-C7
11	Y	2	NAG	C4-C5-C6-O6
9	R	1	NAG	C4-C5-C6-O6

All (15) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	s	7	MAN	C1-C2-C3-C4-C5-O5
11	6	7	MAN	C1-C2-C3-C4-C5-O5
11	Y	7	MAN	C1-C2-C3-C4-C5-O5
11	s	3	BMA	C1-C2-C3-C4-C5-O5
11	Y	3	BMA	C1-C2-C3-C4-C5-O5
11	6	3	BMA	C1-C2-C3-C4-C5-O5
7	b	4	MAN	C1-C2-C3-C4-C5-O5
7	v	4	MAN	C1-C2-C3-C4-C5-O5
11	6	9	MAN	C1-C2-C3-C4-C5-O5
7	N	4	MAN	C1-C2-C3-C4-C5-O5
11	Y	9	MAN	C1-C2-C3-C4-C5-O5
11	Y	6	MAN	C1-C2-C3-C4-C5-O5
11	s	9	MAN	C1-C2-C3-C4-C5-O5
11	6	6	MAN	C1-C2-C3-C4-C5-O5
11	s	6	MAN	C1-C2-C3-C4-C5-O5

22 monomers are involved in 20 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	6	7	MAN	1	0

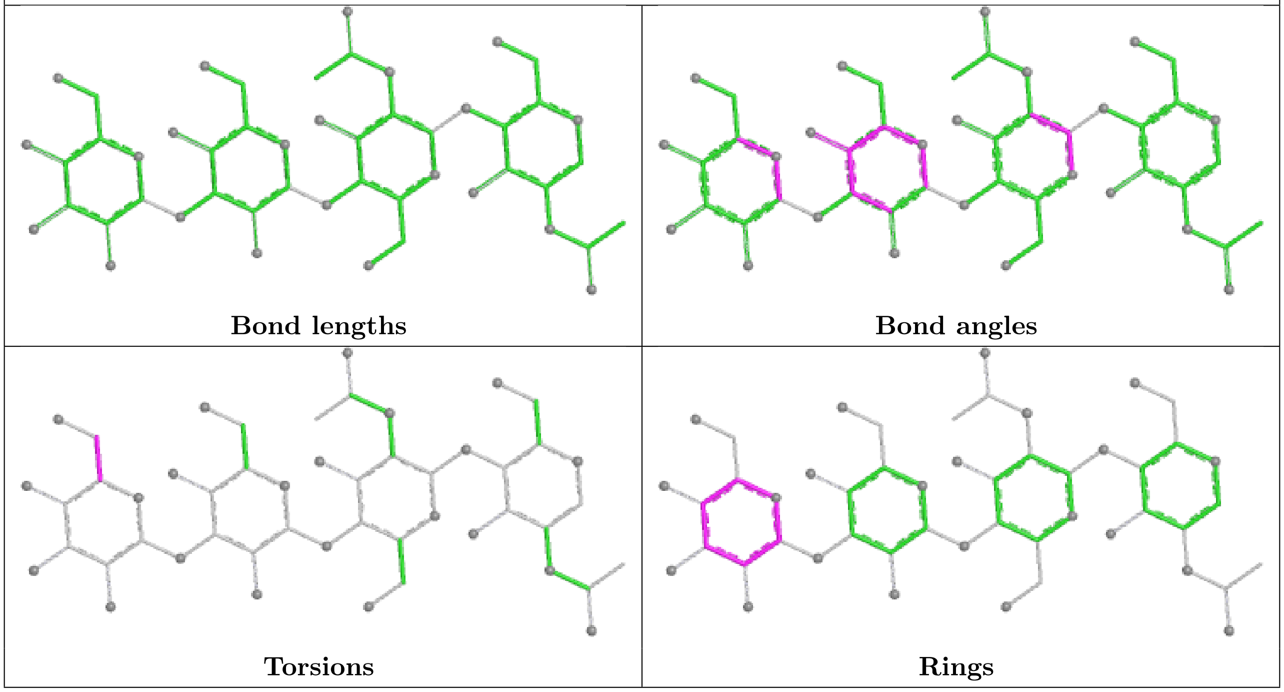
Continued on next page...

Continued from previous page...

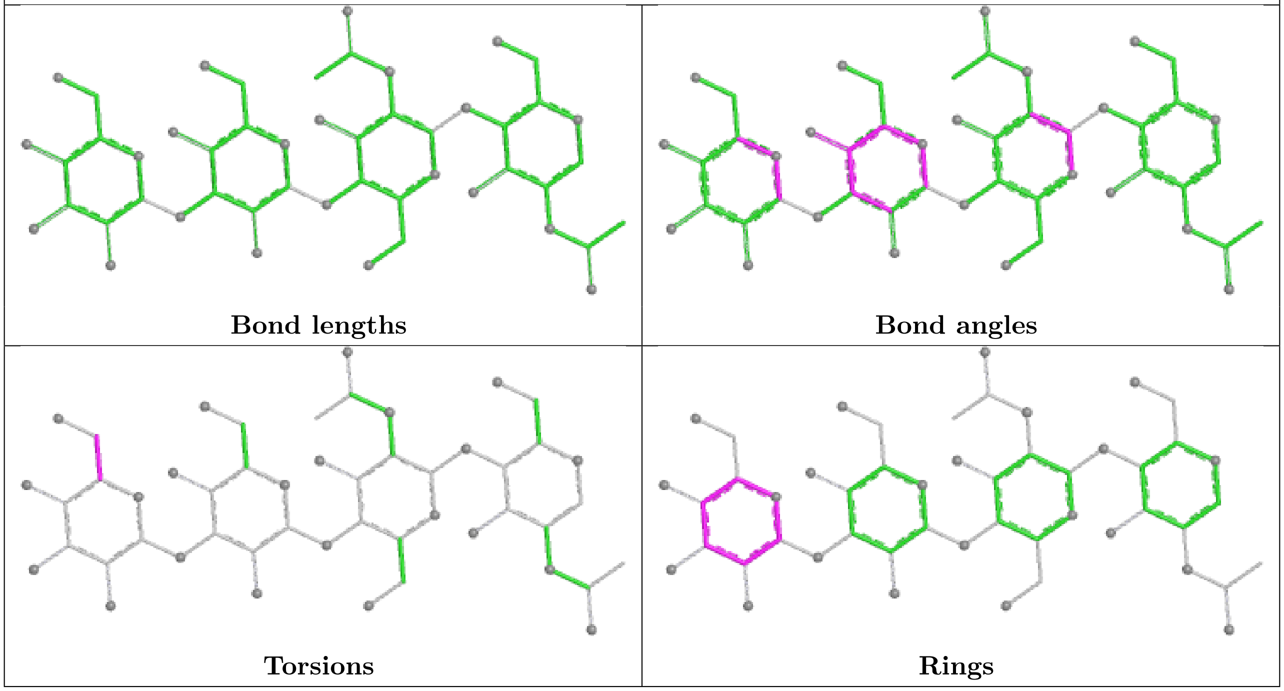
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	N	1	NAG	1	0
11	s	3	BMA	1	0
9	3	2	NAG	1	0
9	4	2	NAG	1	0
11	6	2	NAG	2	0
9	p	1	NAG	1	0
9	p	2	NAG	1	0
7	b	1	NAG	1	0
7	v	1	NAG	1	0
11	s	2	NAG	2	0
11	Y	7	MAN	1	0
11	Y	3	BMA	1	0
9	3	1	NAG	1	0
9	Q	1	NAG	1	0
9	V	1	NAG	1	0
11	s	7	MAN	1	0
9	W	2	NAG	1	0
9	q	2	NAG	1	0
11	6	3	BMA	1	0
11	Y	2	NAG	3	0
9	V	2	NAG	1	0

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

Oligosaccharide Chain N



Oligosaccharide Chain b



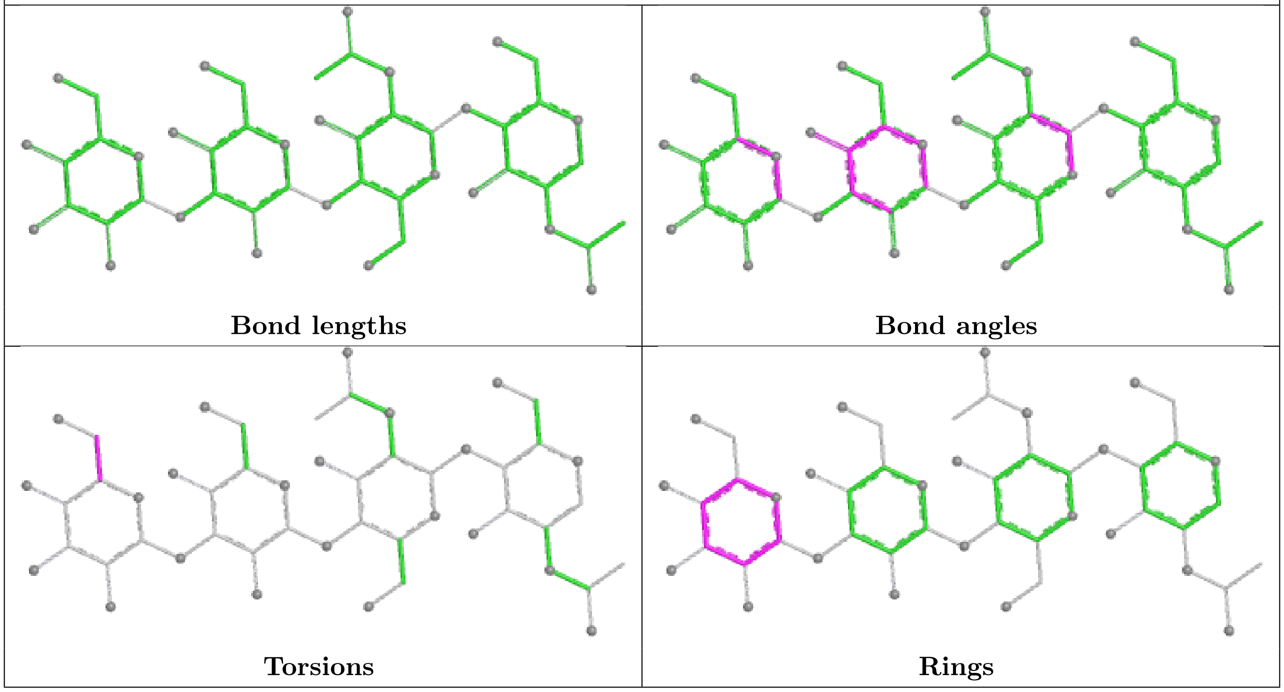
Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain v



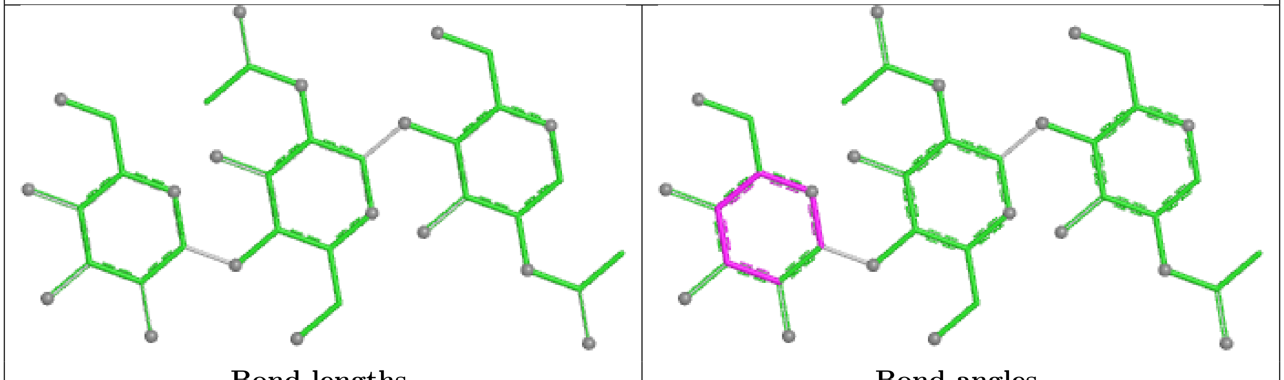
Bond lengths

Bond angles

Torsions

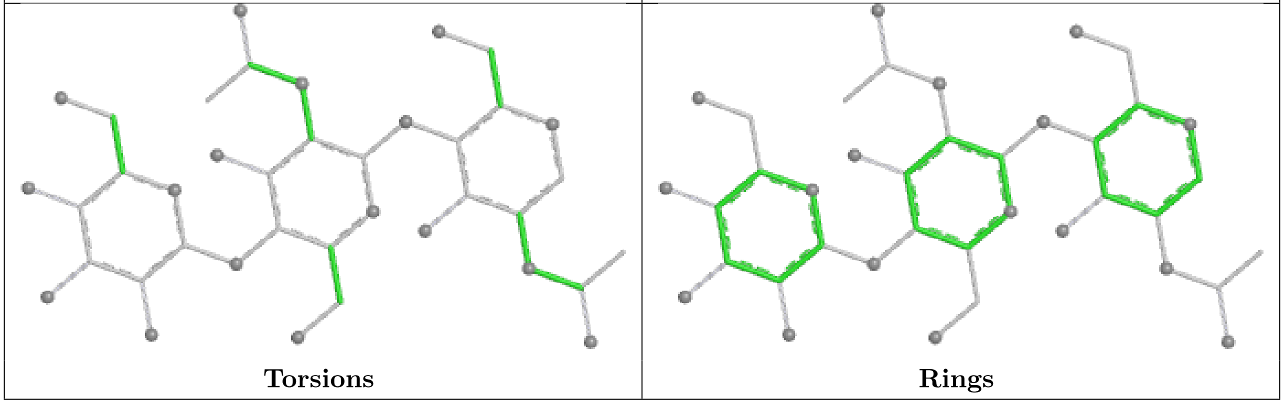
Rings

Oligosaccharide Chain O



Bond lengths

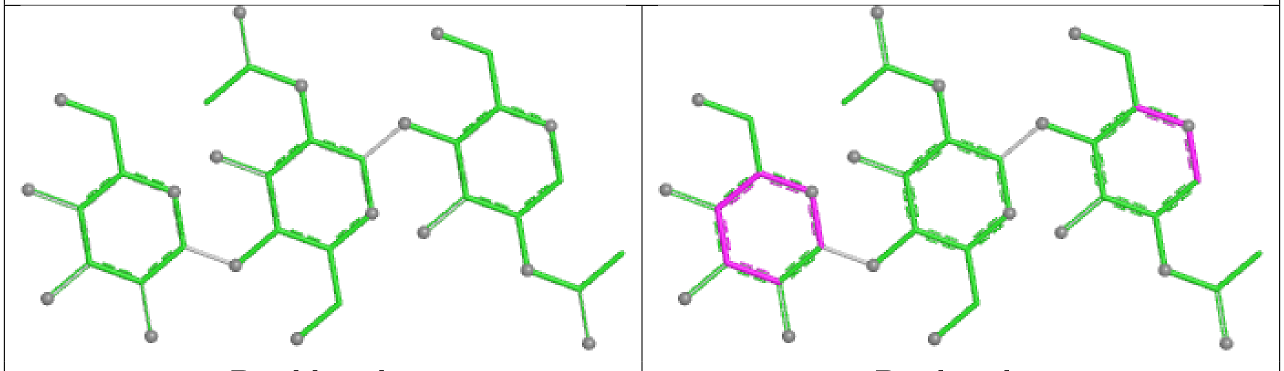
Bond angles



Torsions

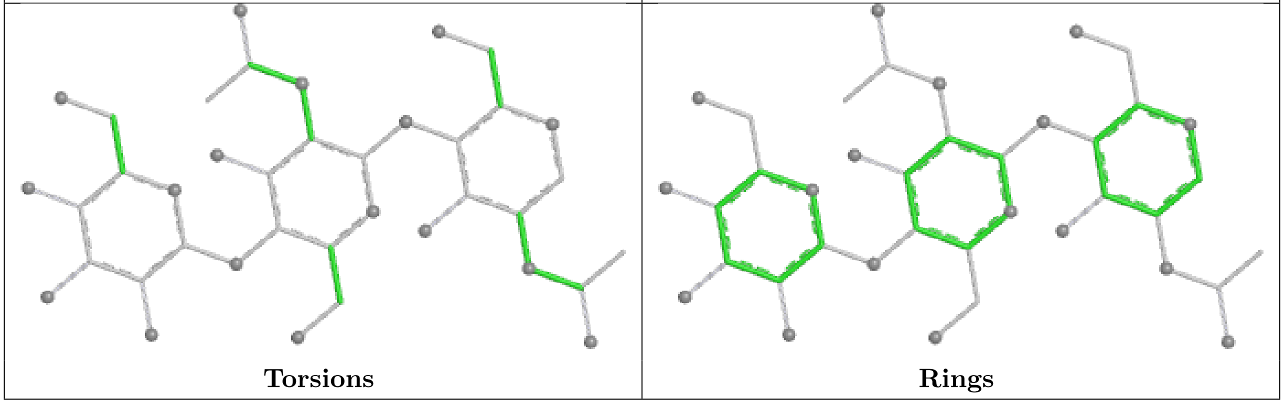
Rings

Oligosaccharide Chain c



Bond lengths

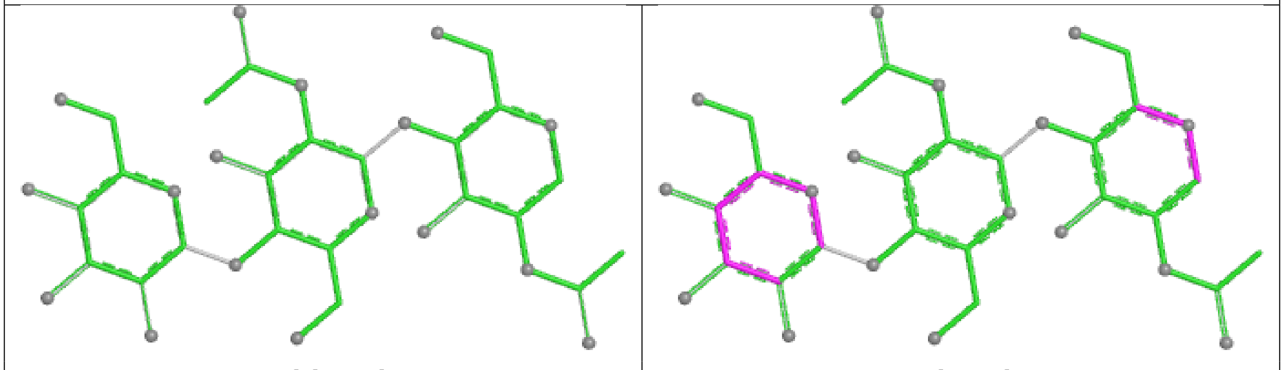
Bond angles



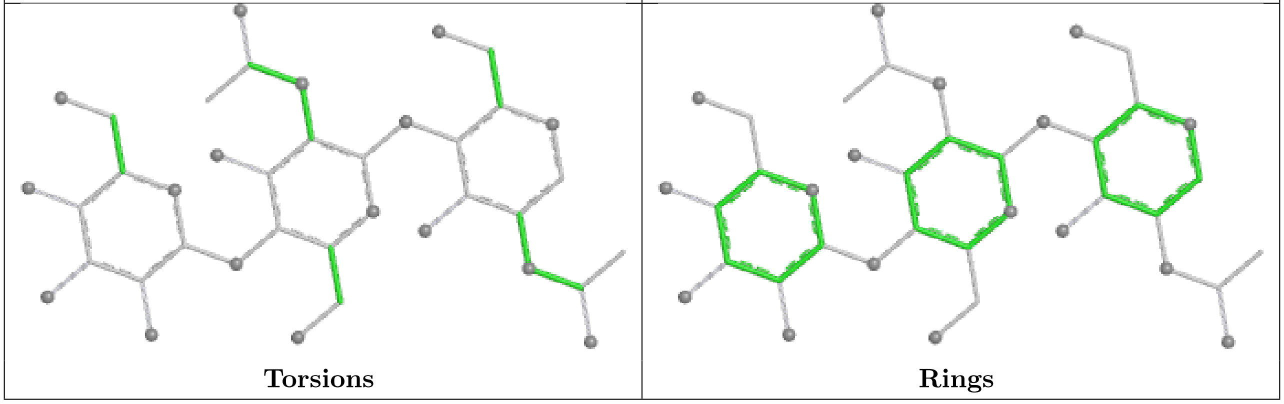
Torsions

Rings

Oligosaccharide Chain w

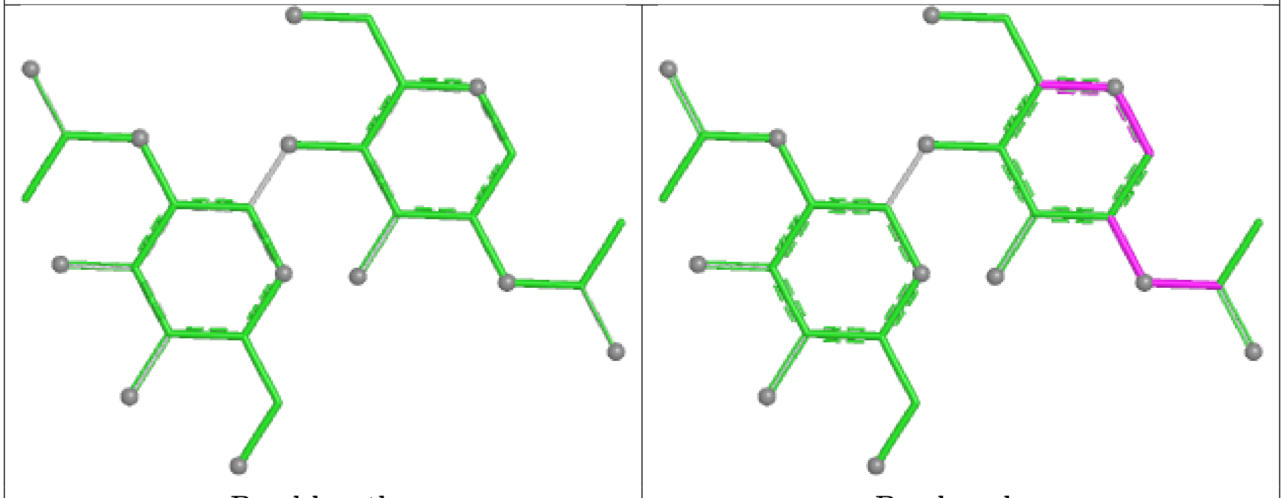


Bond lengths **Bond angles**



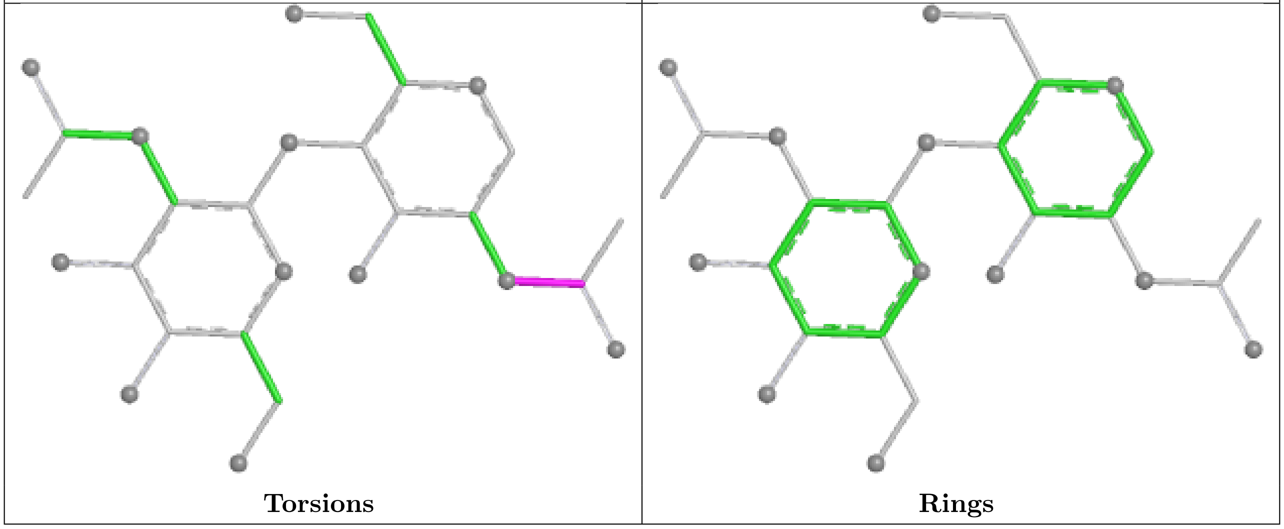
Torsions **Rings**

Oligosaccharide Chain P



Bond lengths

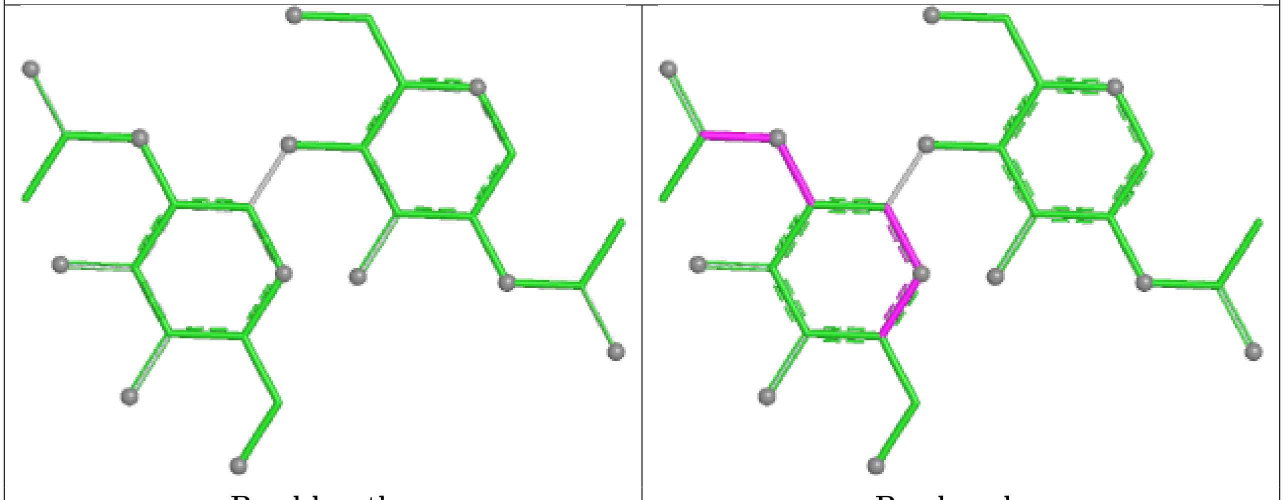
Bond angles



Torsions

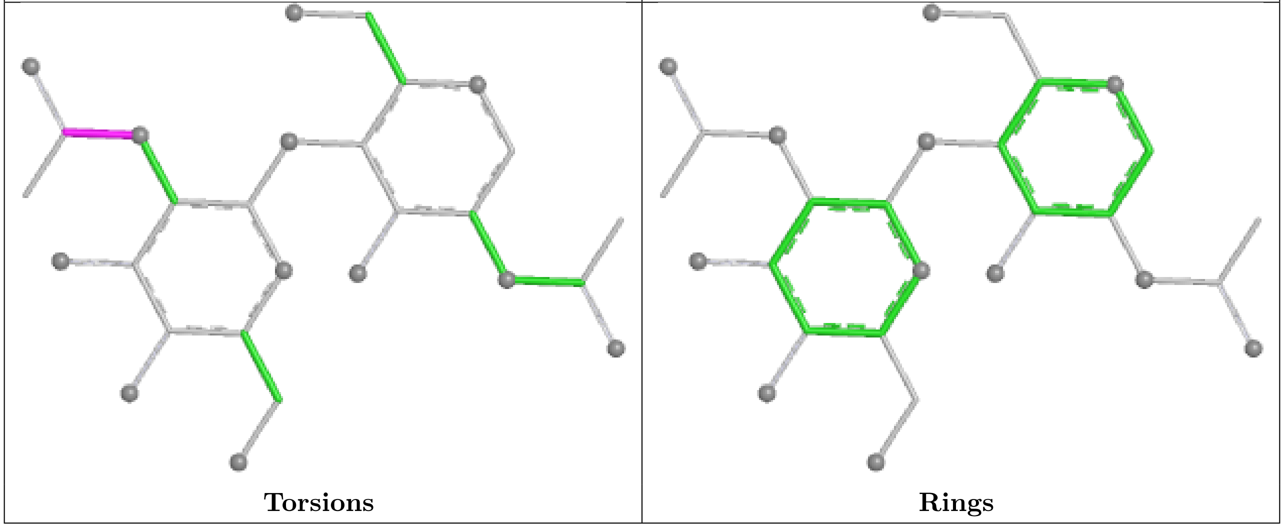
Rings

Oligosaccharide Chain Q



Bond lengths

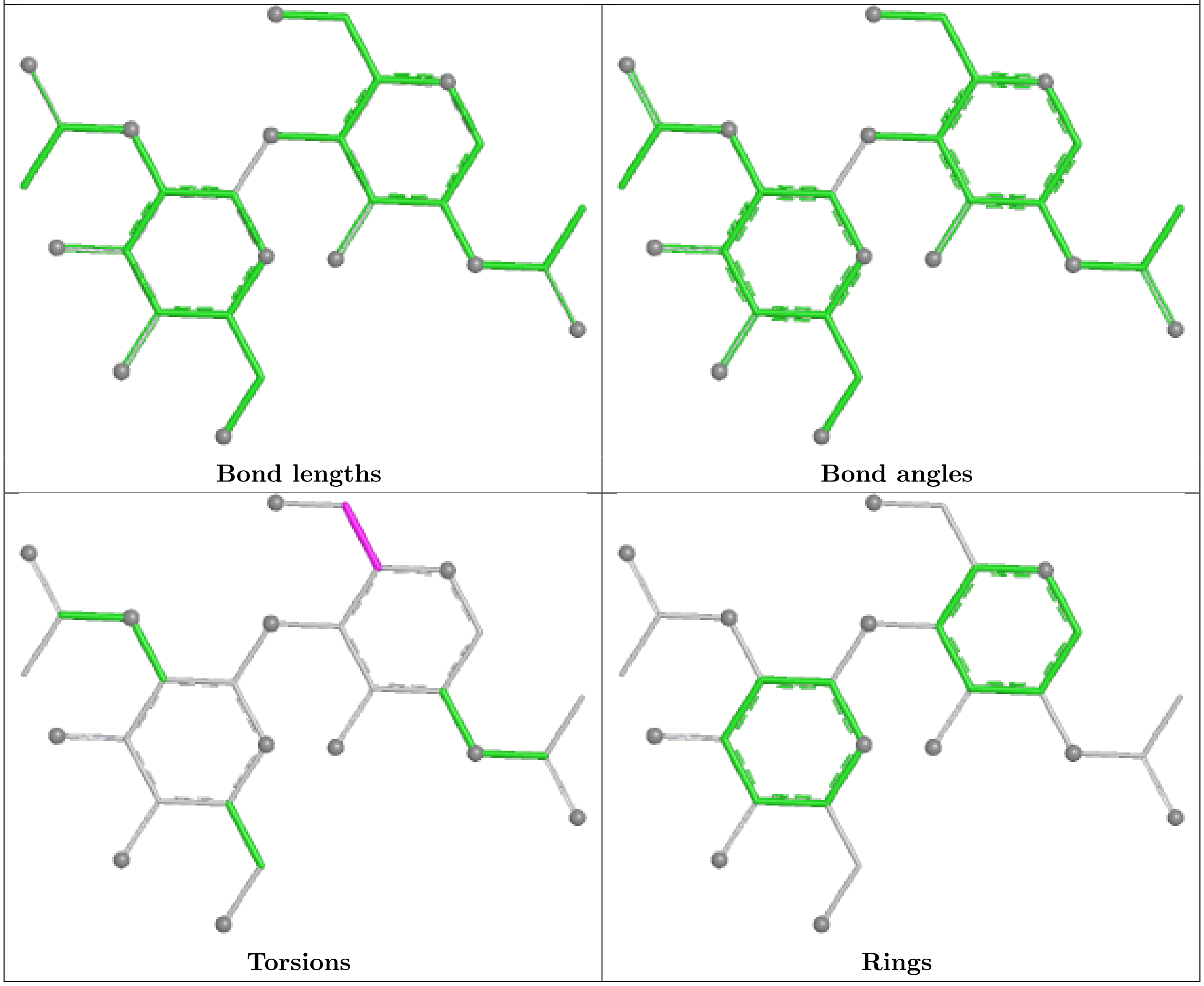
Bond angles



Torsions

Rings

Oligosaccharide Chain R



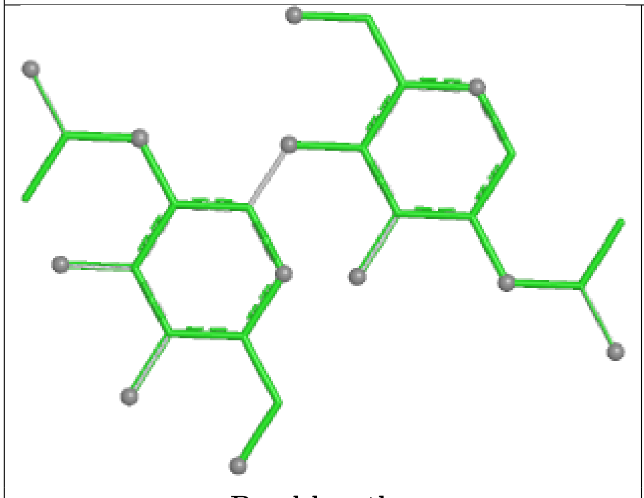
Bond lengths

Bond angles

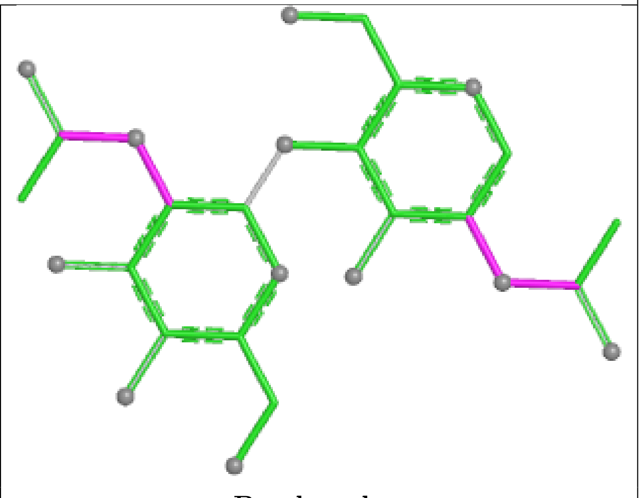
Torsions

Rings

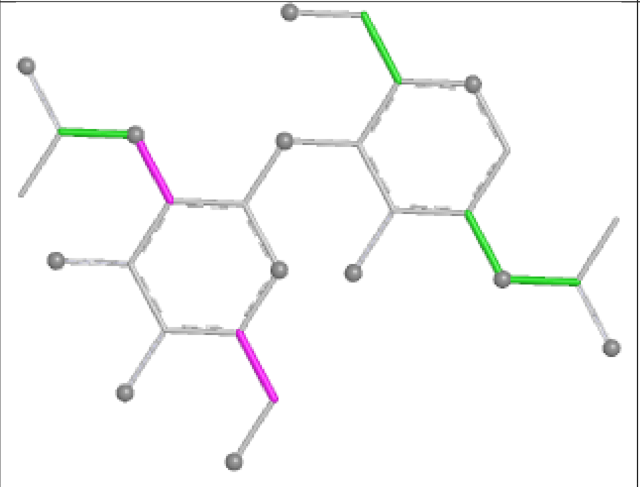
Oligosaccharide Chain T



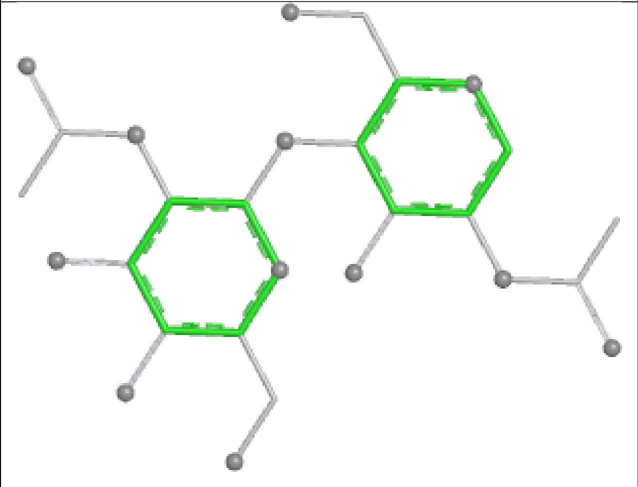
Bond lengths



Bond angles

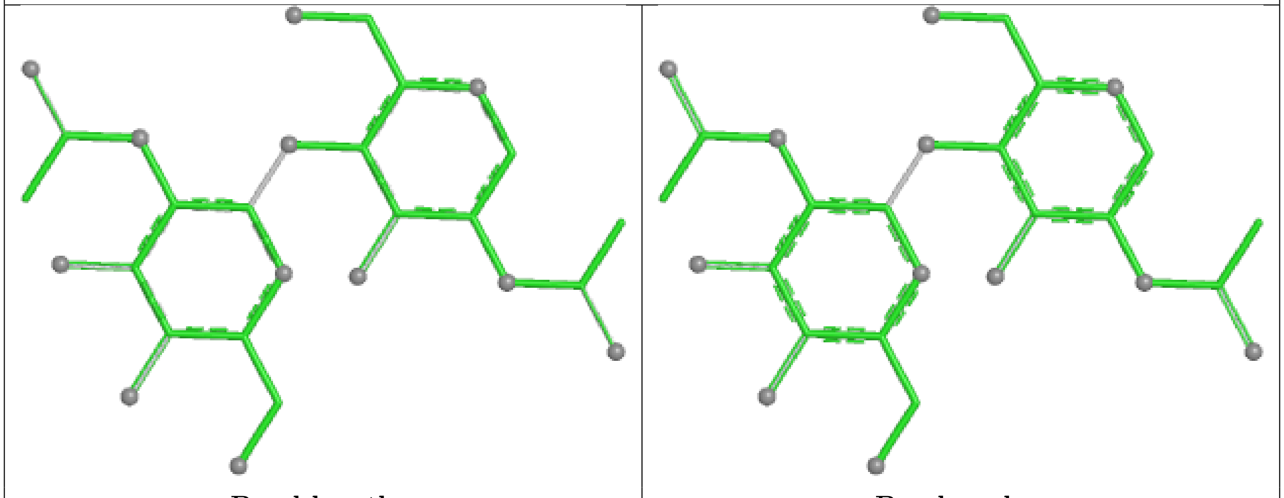


Torsions

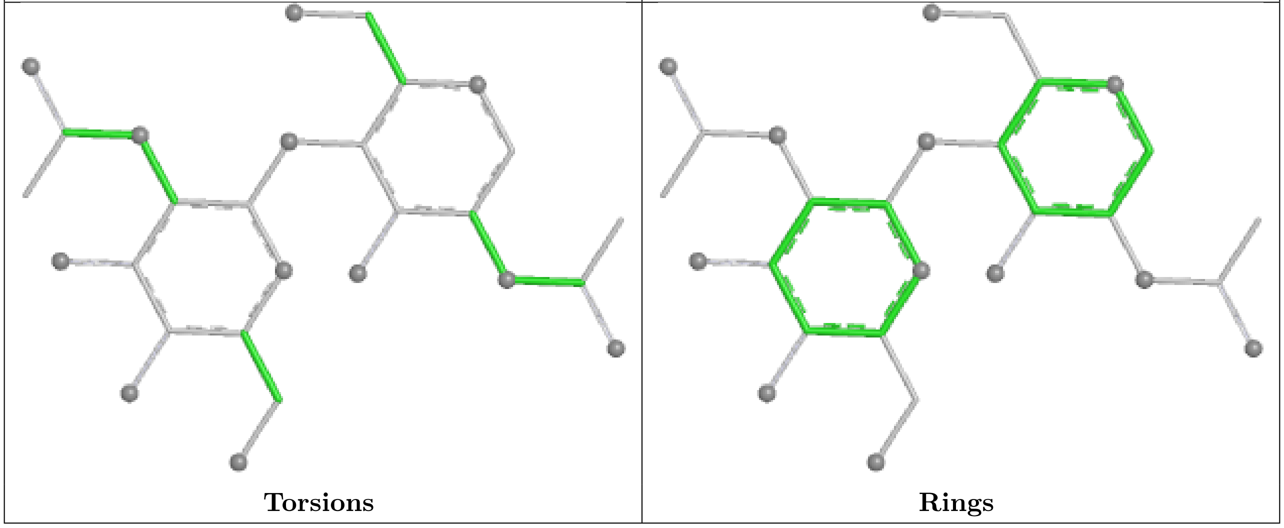


Rings

Oligosaccharide Chain U

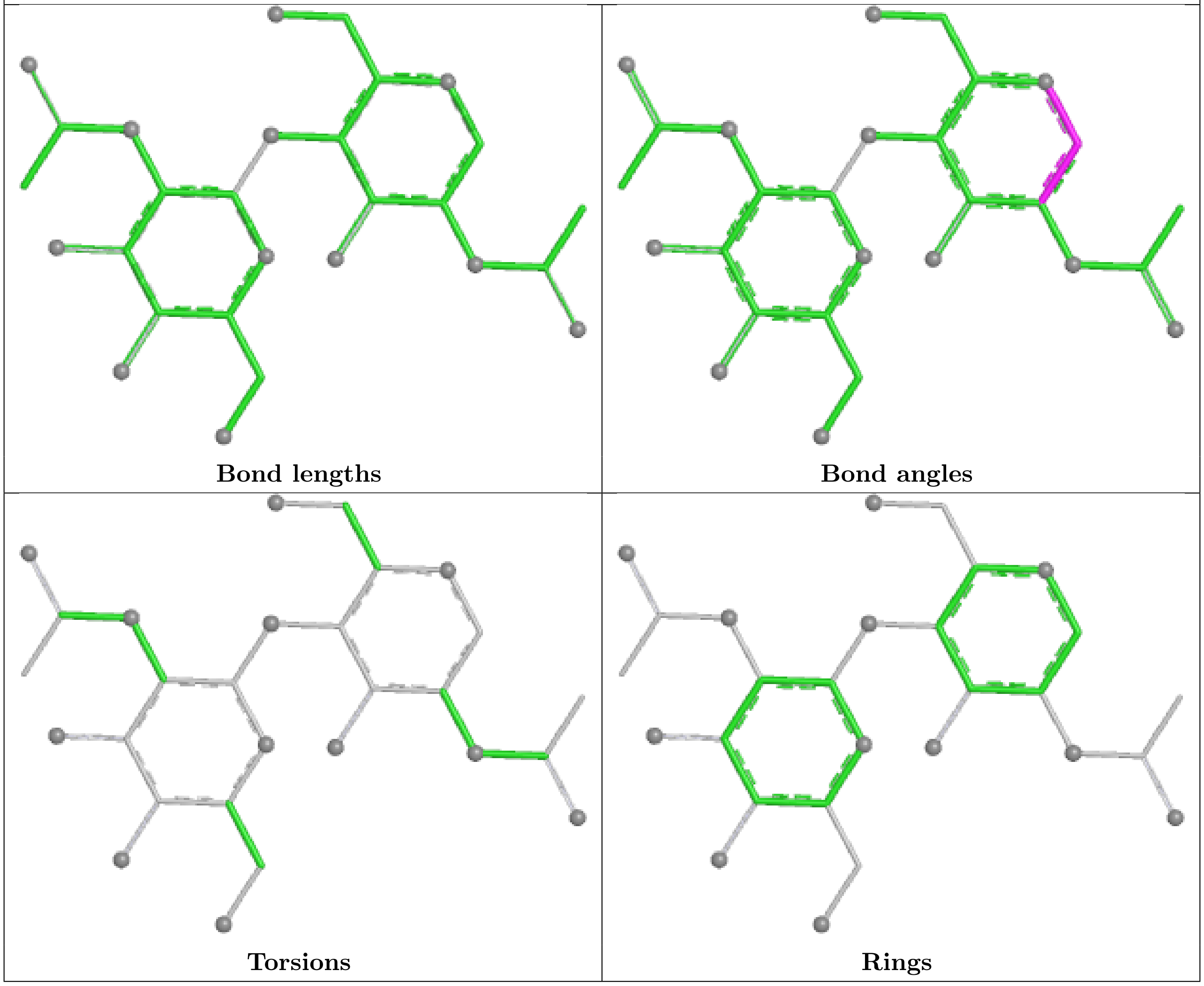


Bond lengths Bond angles



Torsions Rings

Oligosaccharide Chain V



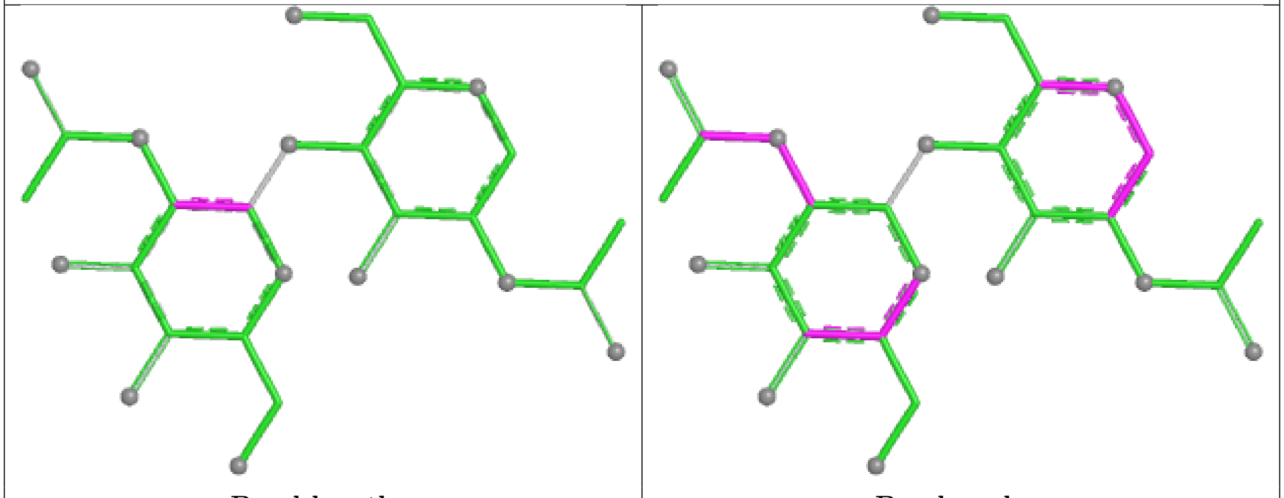
Bond lengths

Bond angles

Torsions

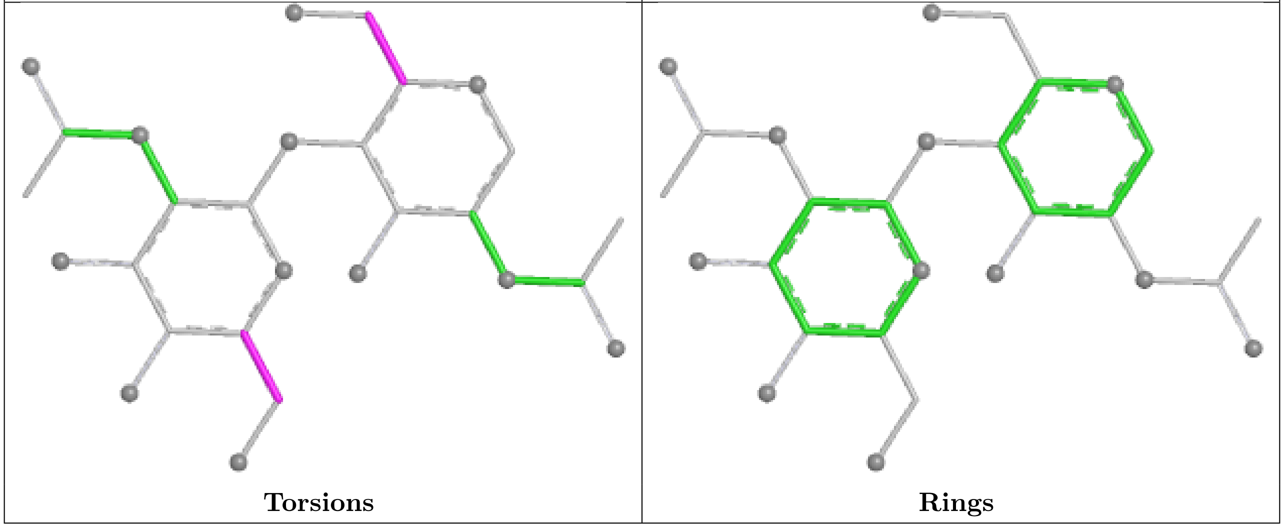
Rings

Oligosaccharide Chain W



Bond lengths

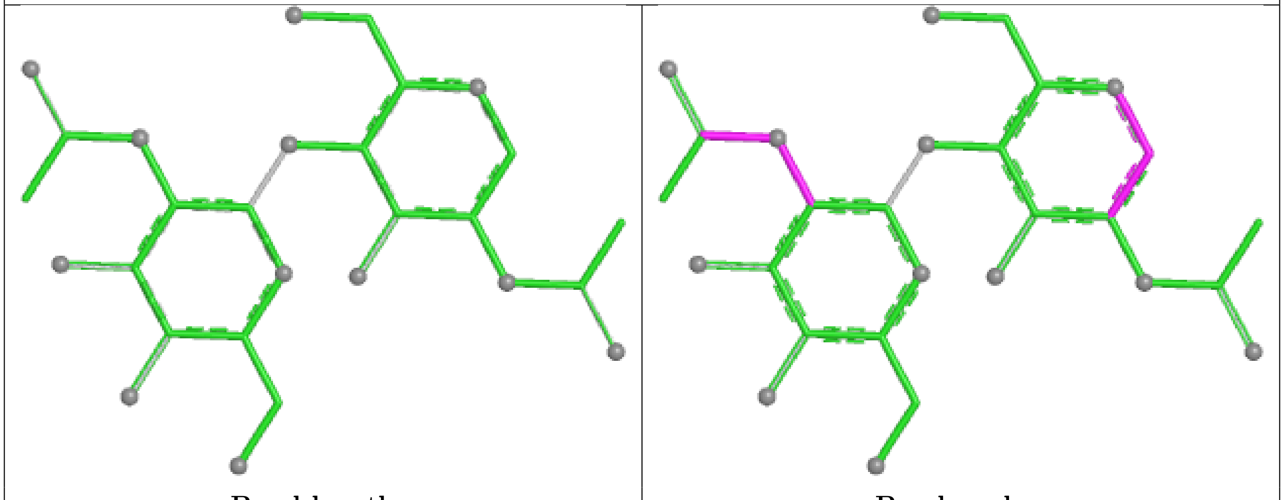
Bond angles



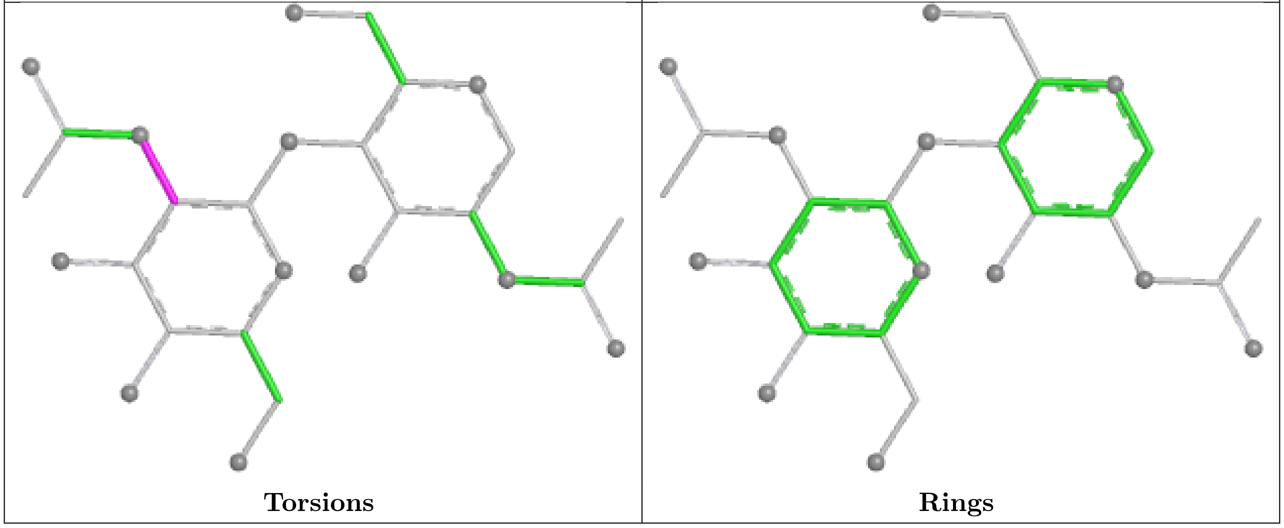
Torsions

Rings

Oligosaccharide Chain X

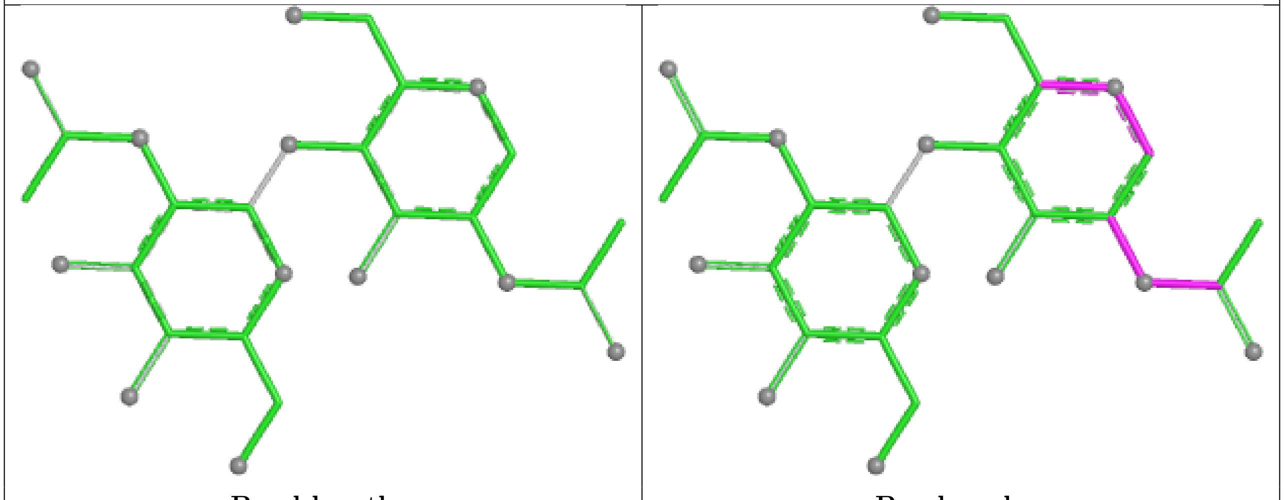


Bond lengths **Bond angles**

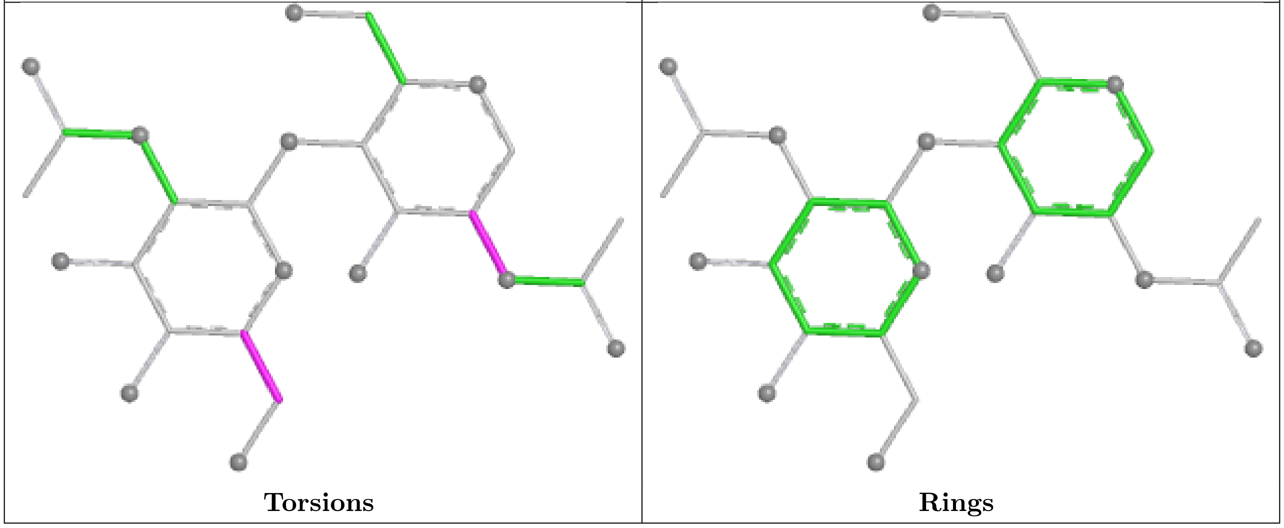


Torsions **Rings**

Oligosaccharide Chain Z

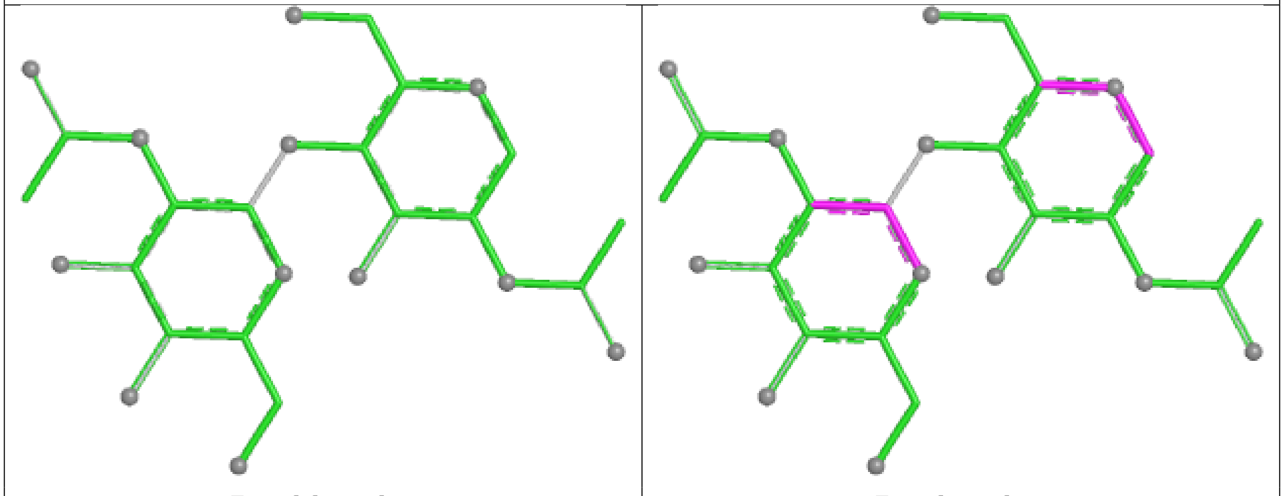


Bond lengths **Bond angles**



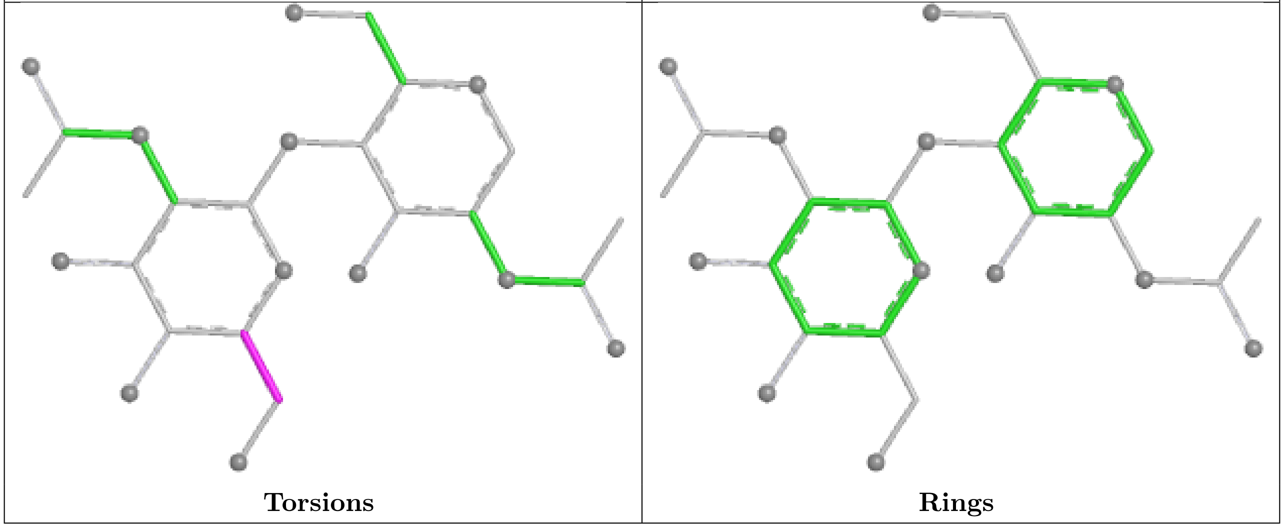
Torsions **Rings**

Oligosaccharide Chain a



Bond lengths

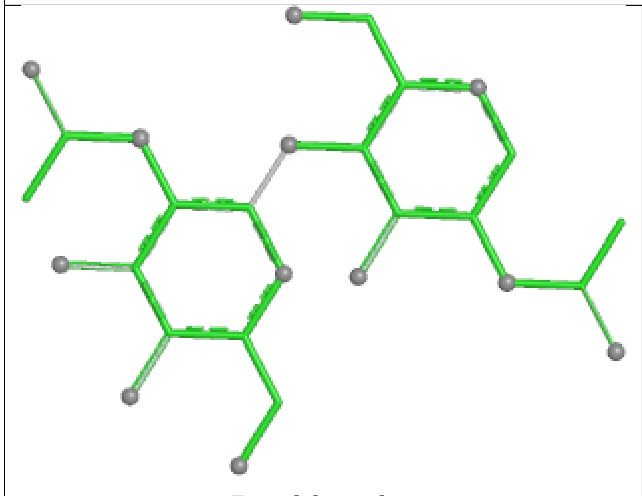
Bond angles



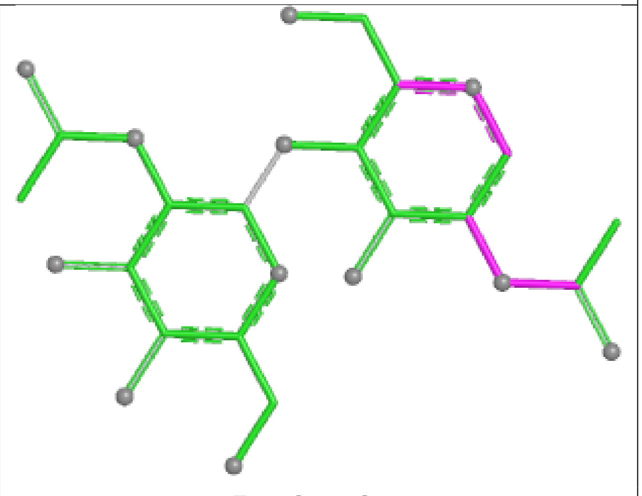
Torsions

Rings

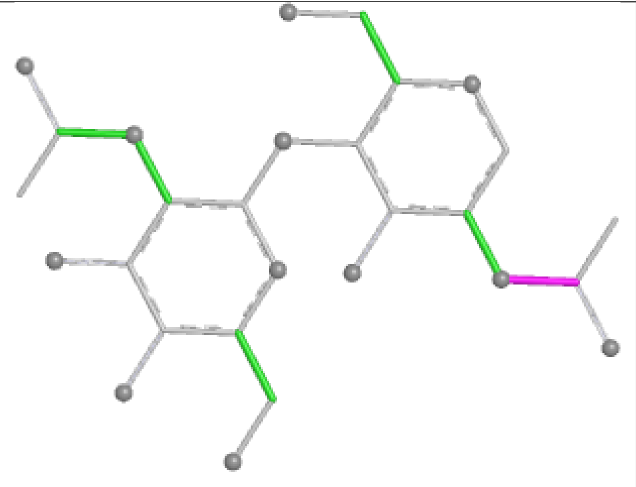
Oligosaccharide Chain f



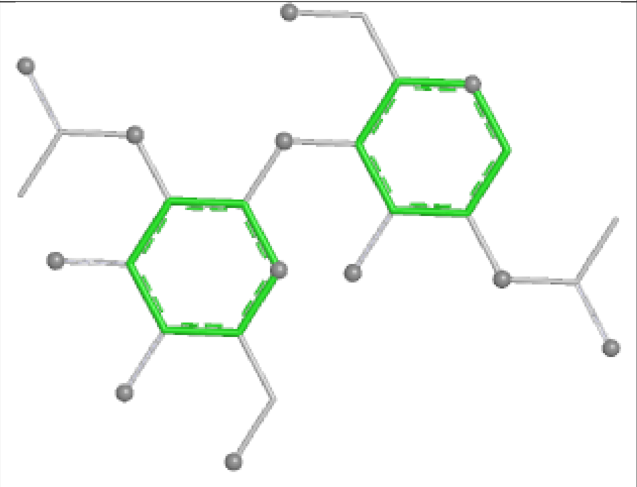
Bond lengths



Bond angles

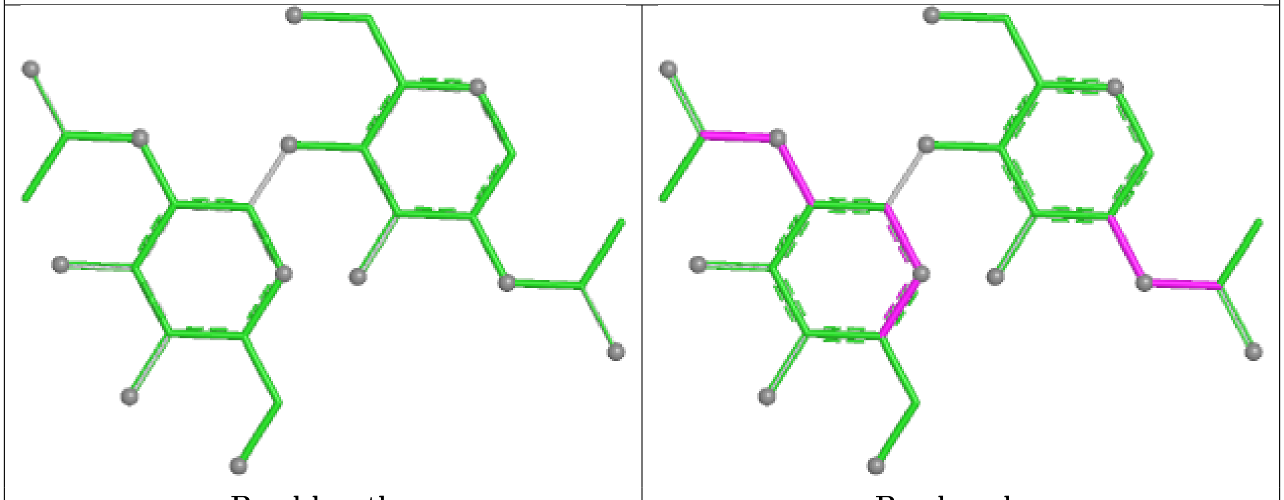


Torsions



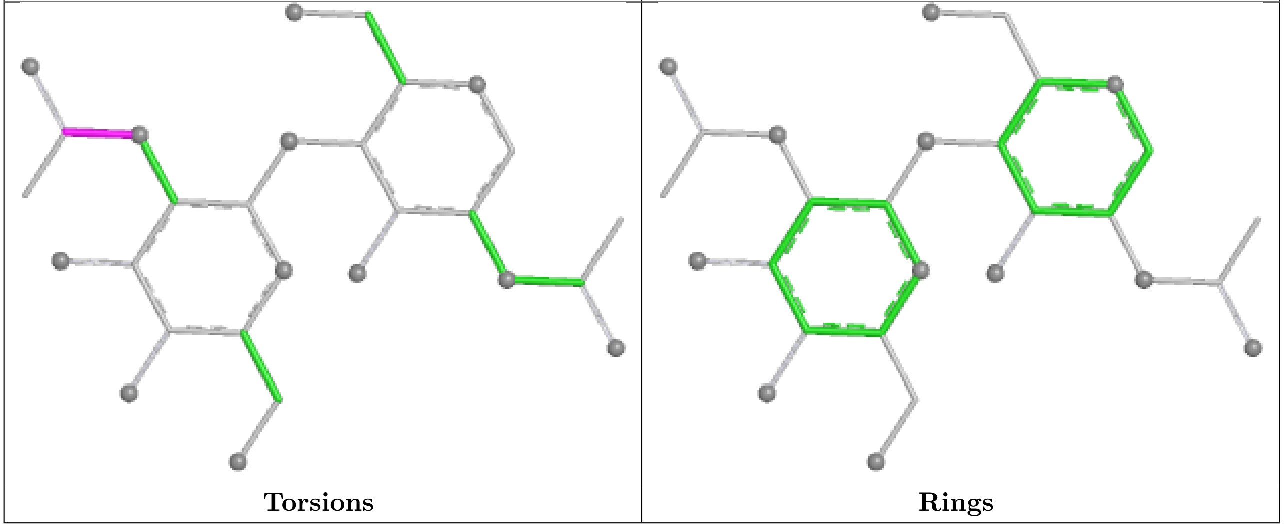
Rings

Oligosaccharide Chain g



Bond lengths

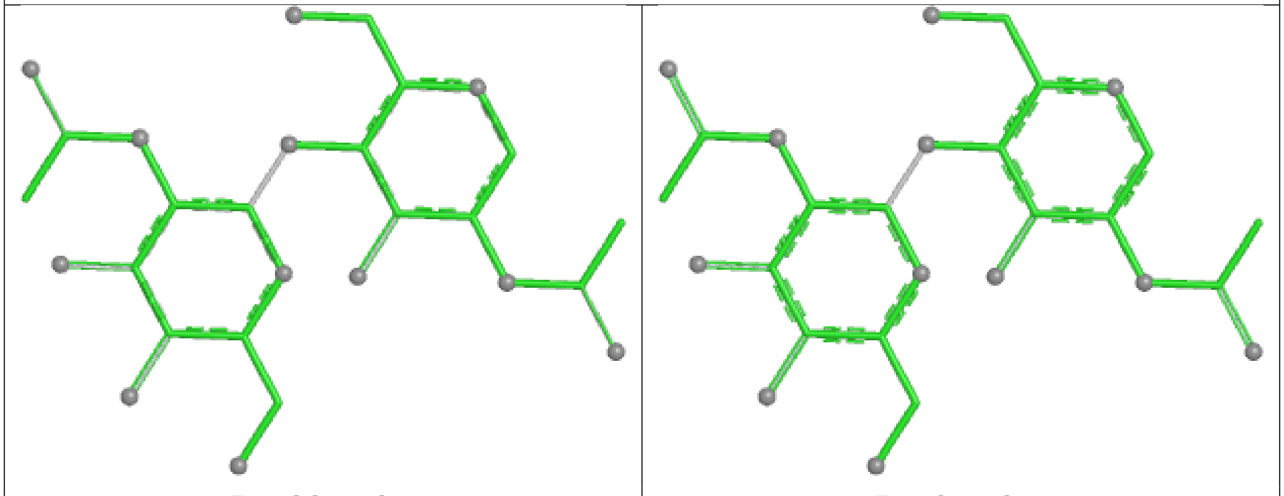
Bond angles



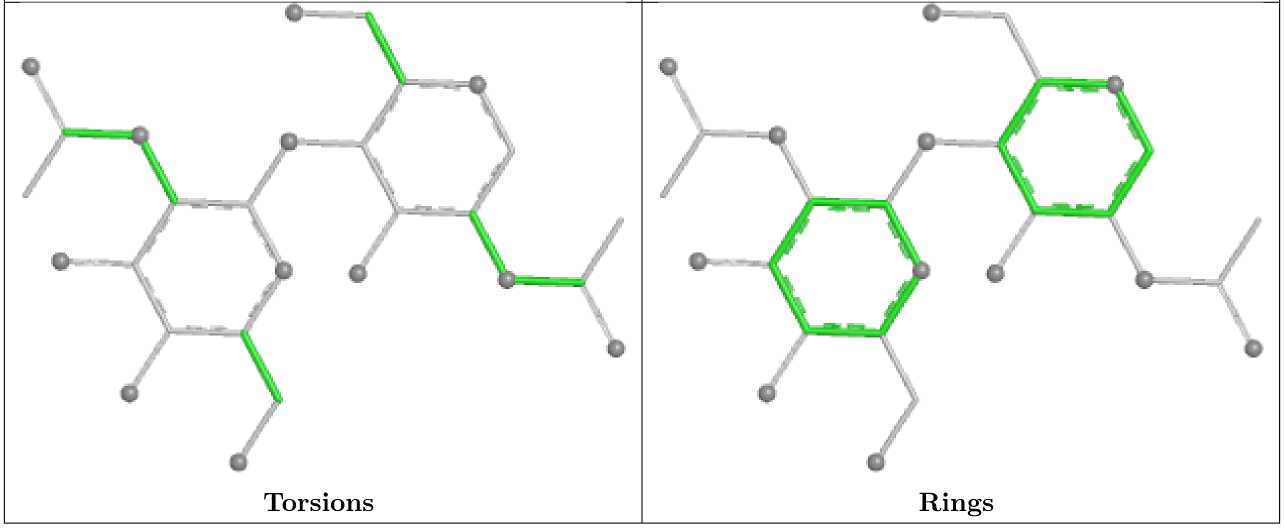
Torsions

Rings

Oligosaccharide Chain i

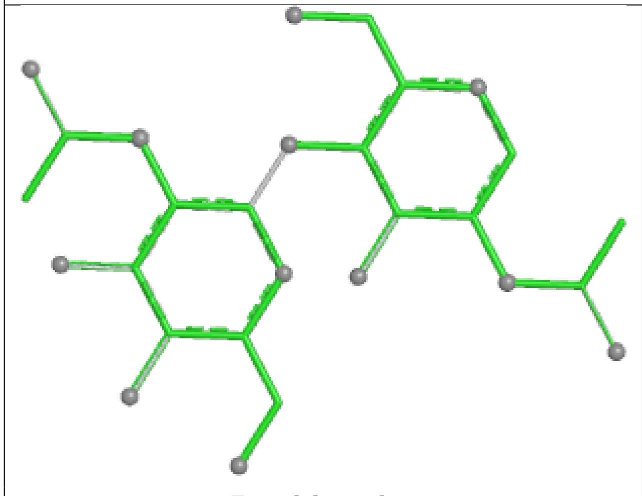


Bond lengths **Bond angles**

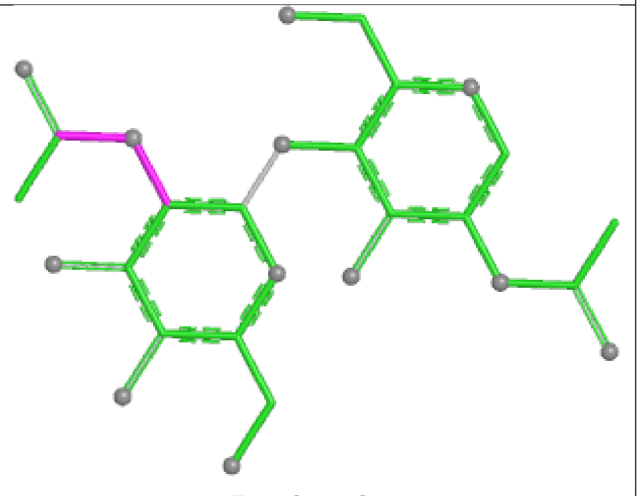


Torsions **Rings**

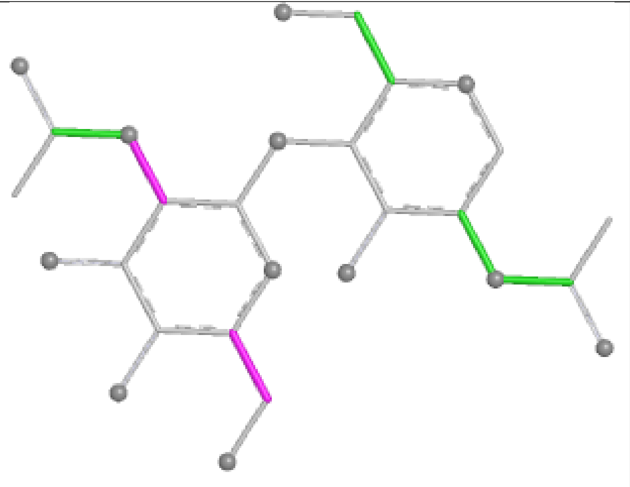
Oligosaccharide Chain n



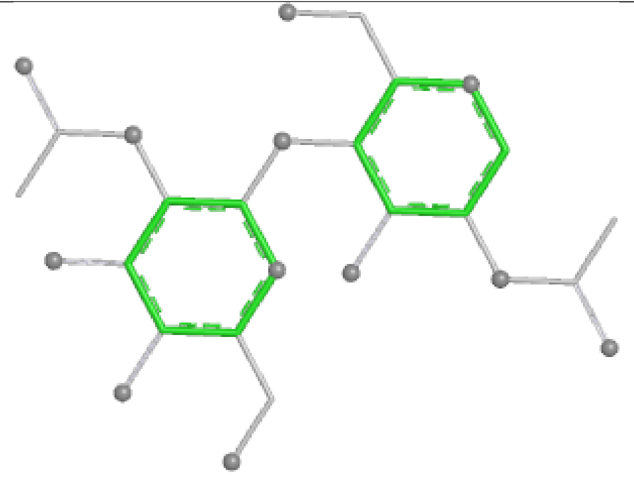
Bond lengths



Bond angles

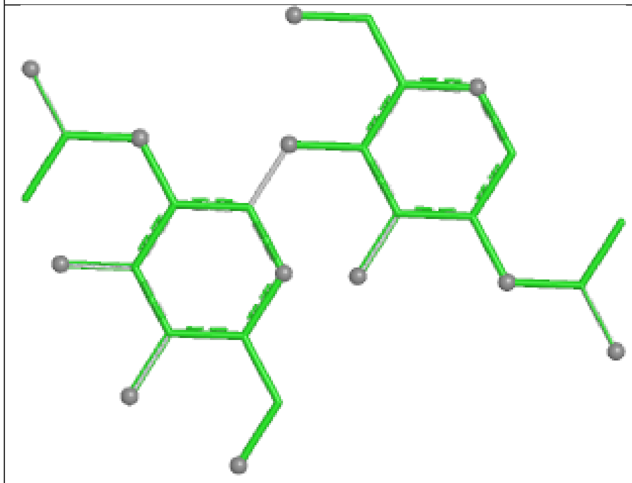


Torsions

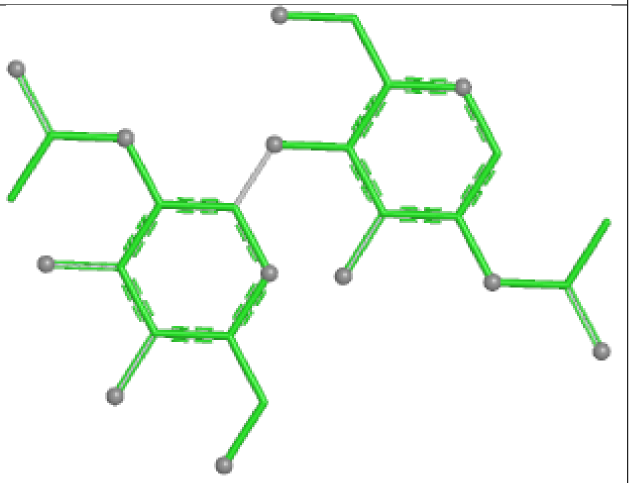


Rings

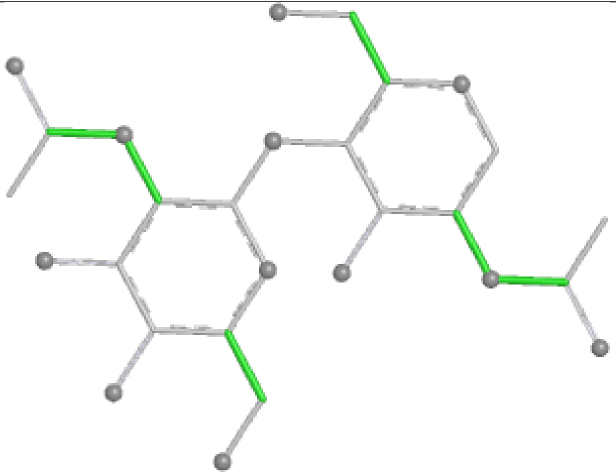
Oligosaccharide Chain o



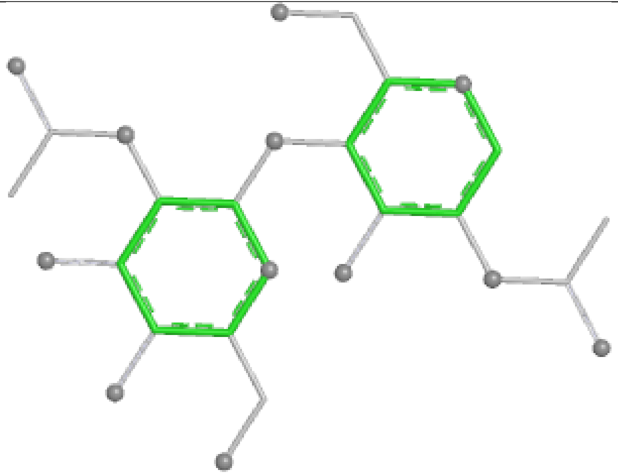
Bond lengths



Bond angles

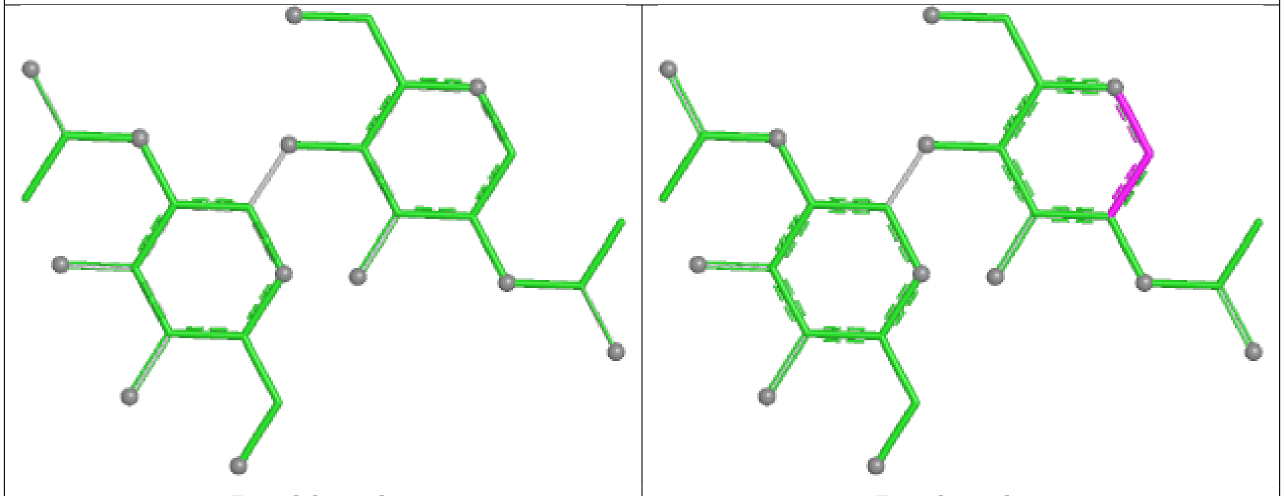


Torsions

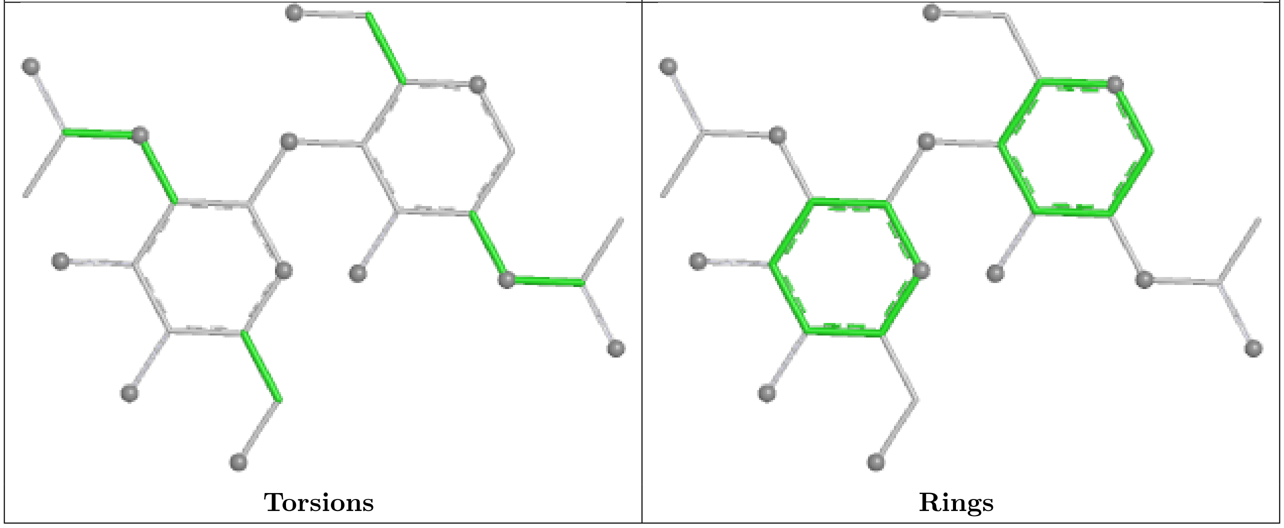


Rings

Oligosaccharide Chain p

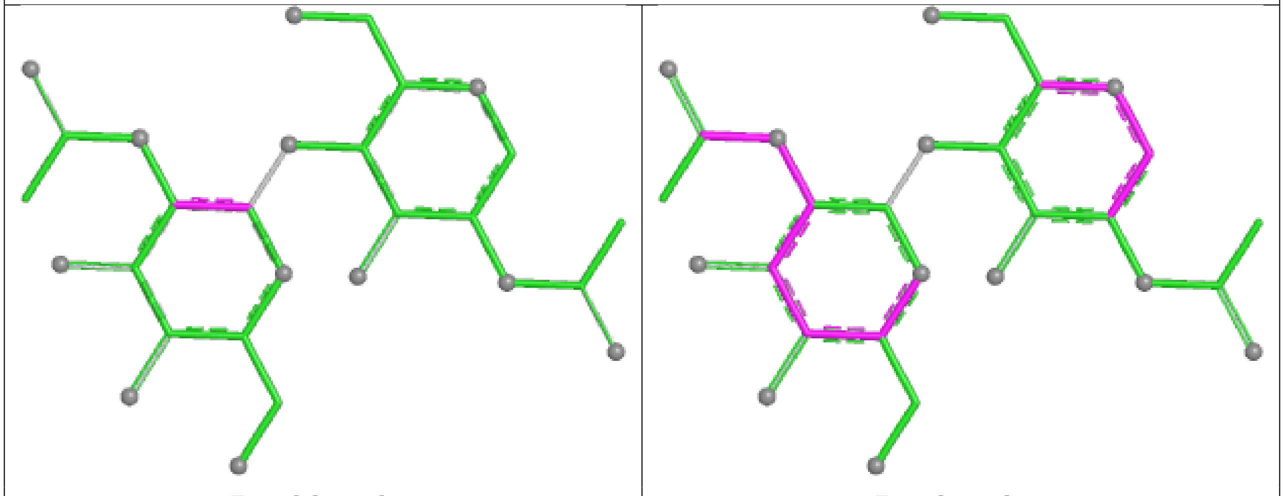


Bond lengths **Bond angles**

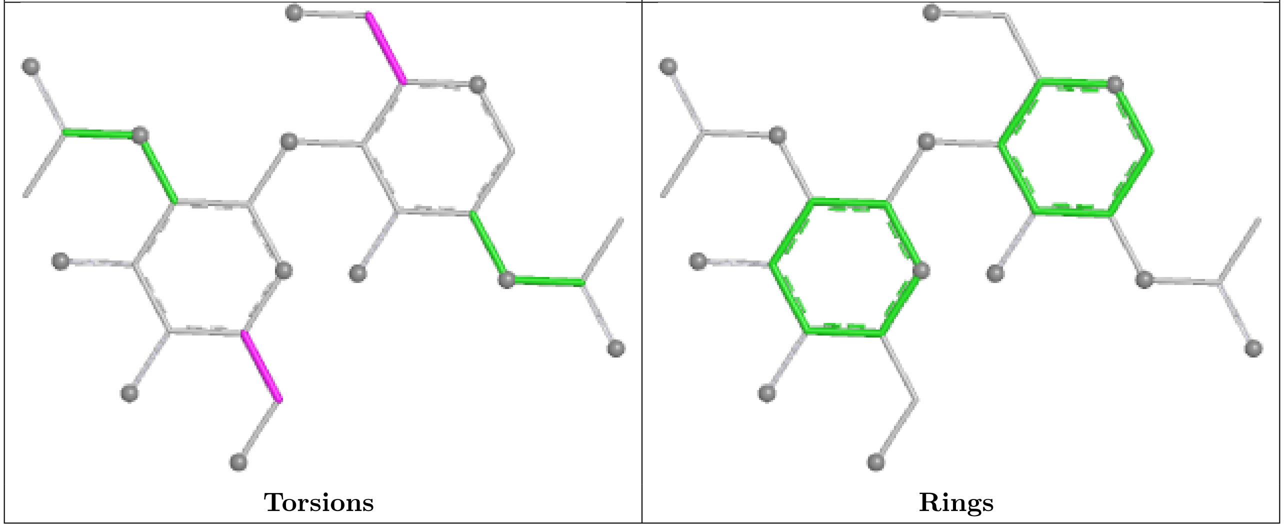


Torsions **Rings**

Oligosaccharide Chain q

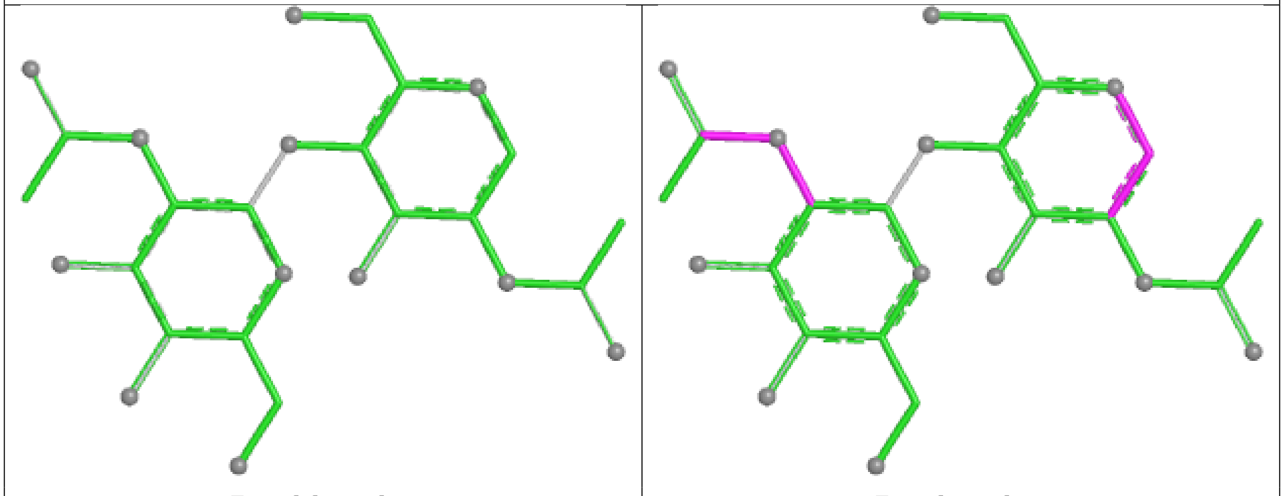


Bond lengths **Bond angles**

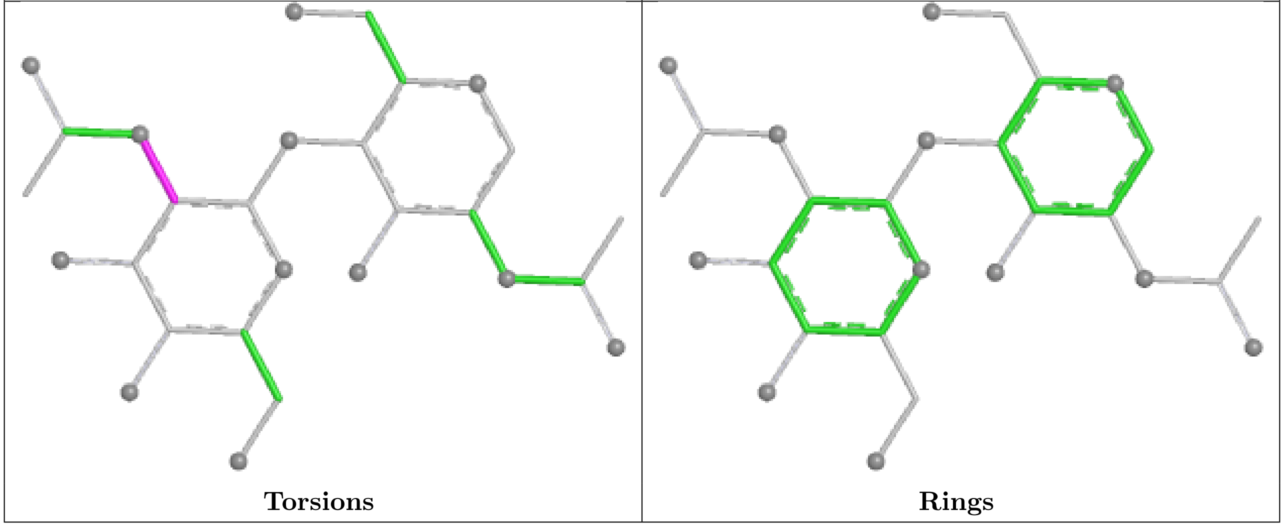


Torsions **Rings**

Oligosaccharide Chain r

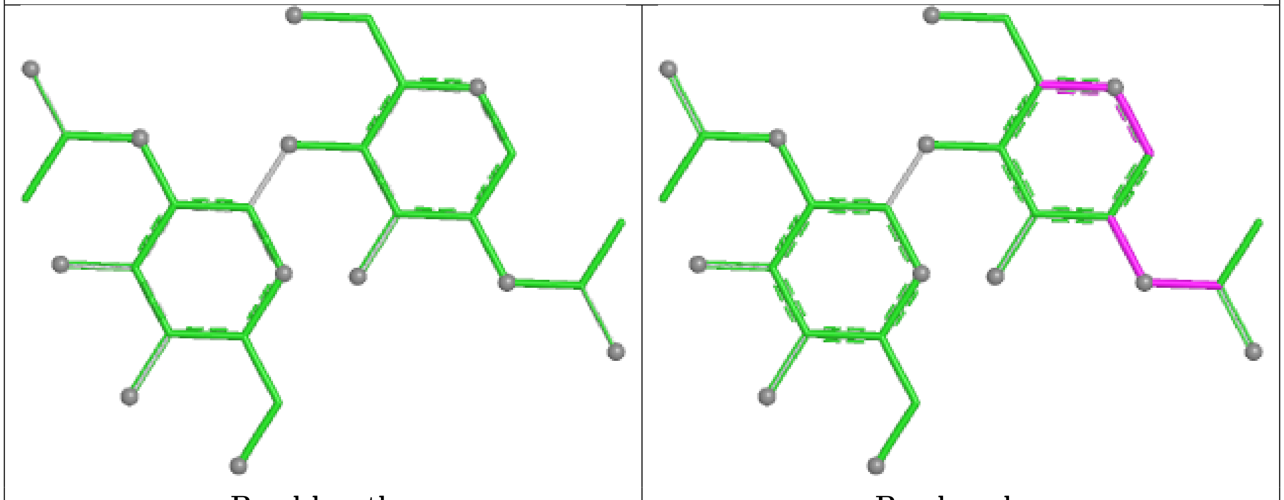


Bond lengths **Bond angles**



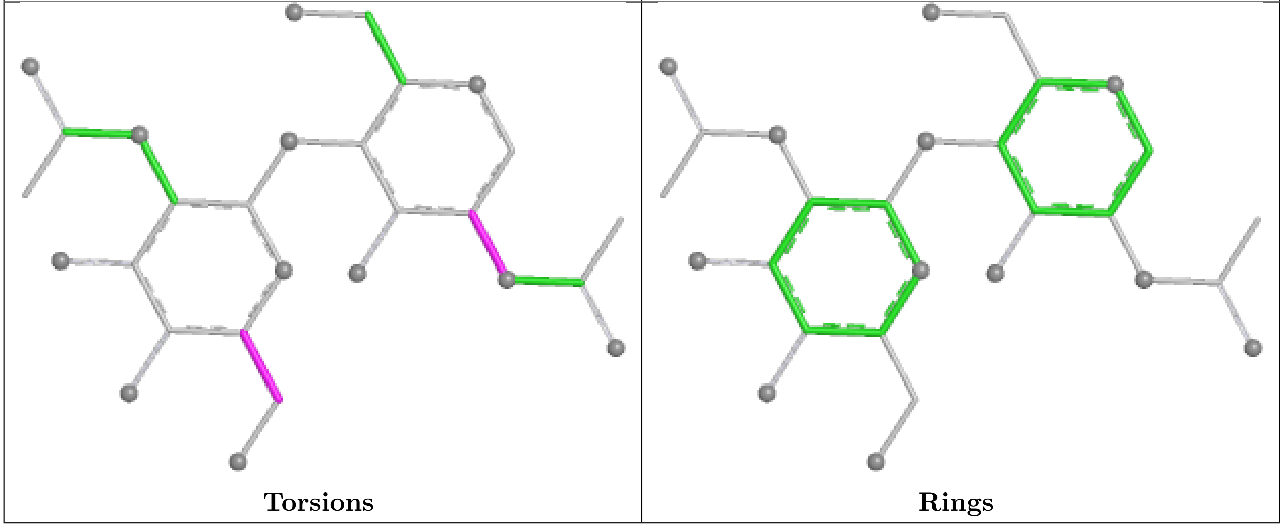
Torsions **Rings**

Oligosaccharide Chain t



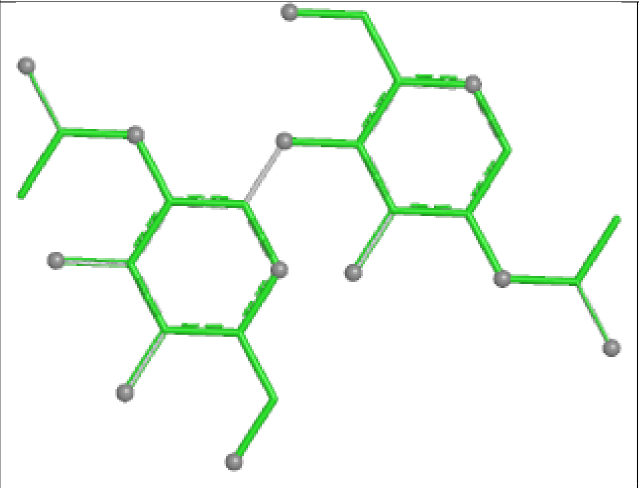
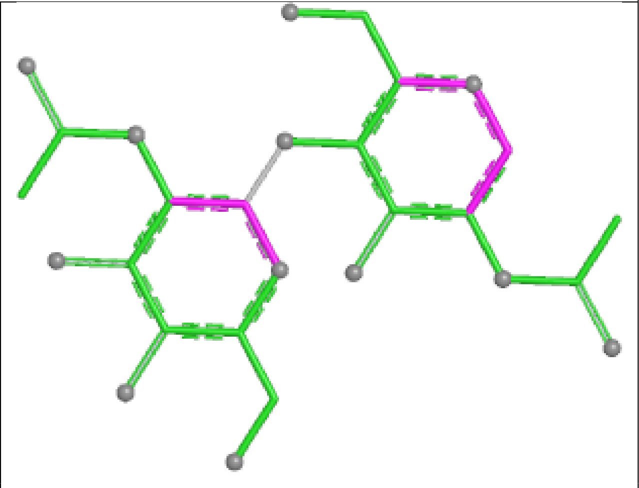
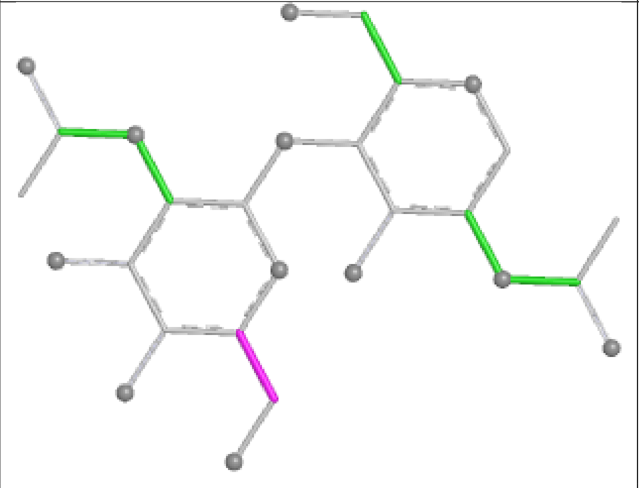
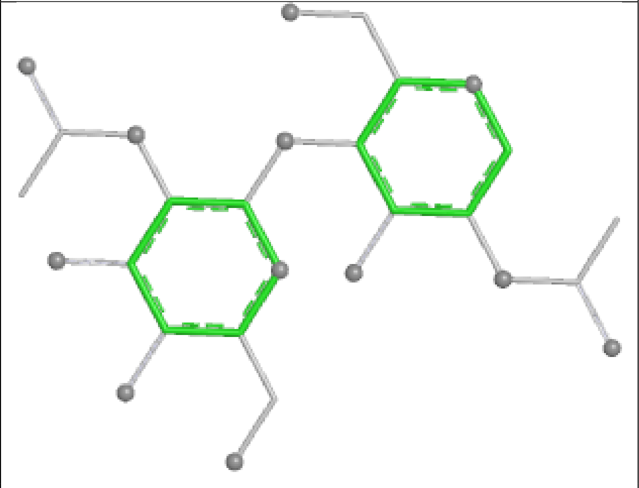
Bond lengths

Bond angles

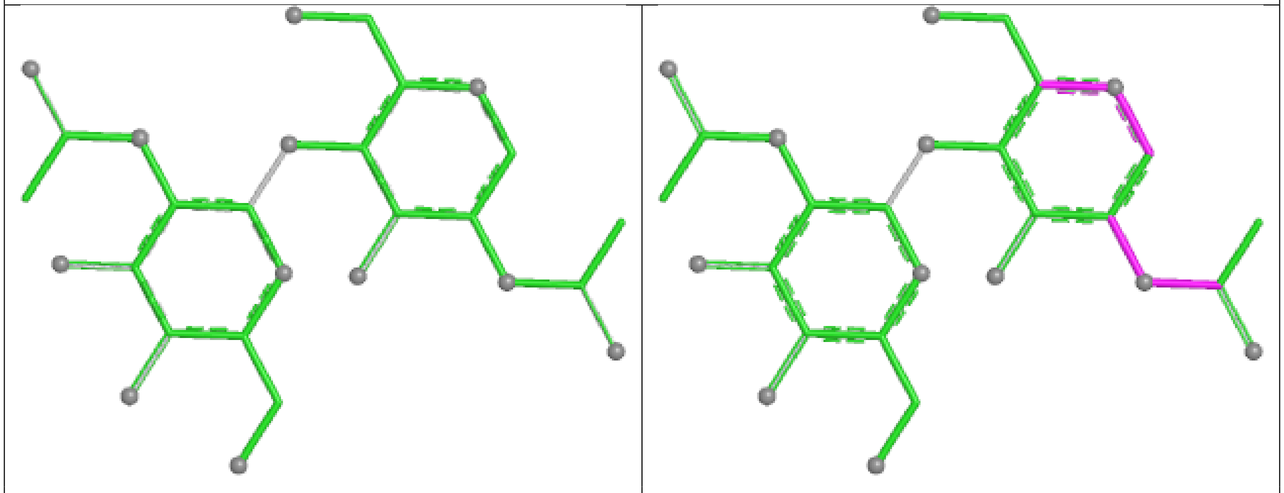


Torsions

Rings

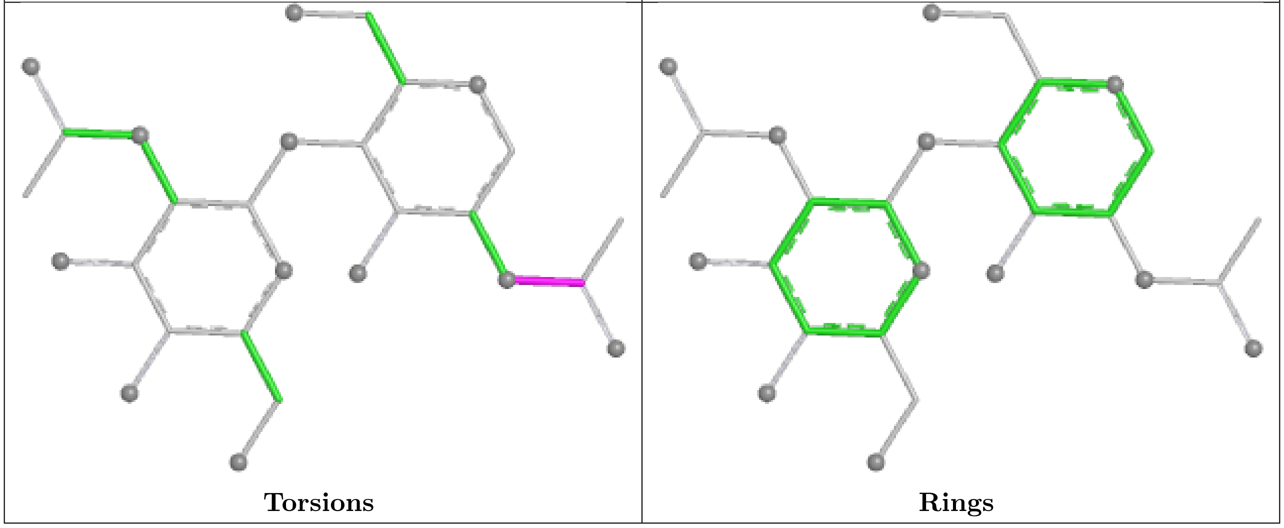
Oligosaccharide Chain u	
 **Bond lengths**	 **Bond angles**
 **Torsions**	 **Rings**

Oligosaccharide Chain x



Bond lengths

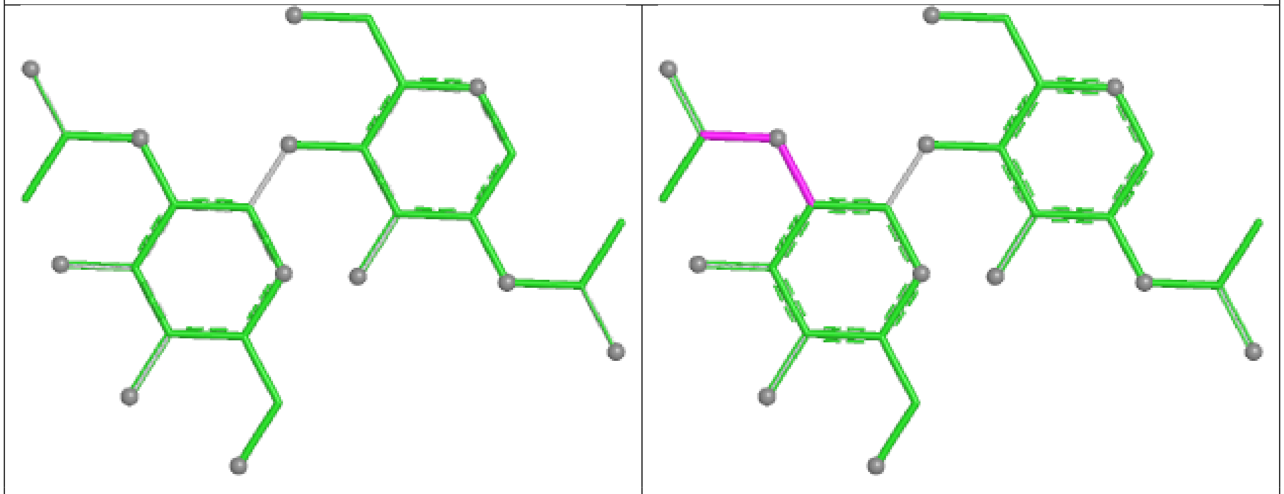
Bond angles



Torsions

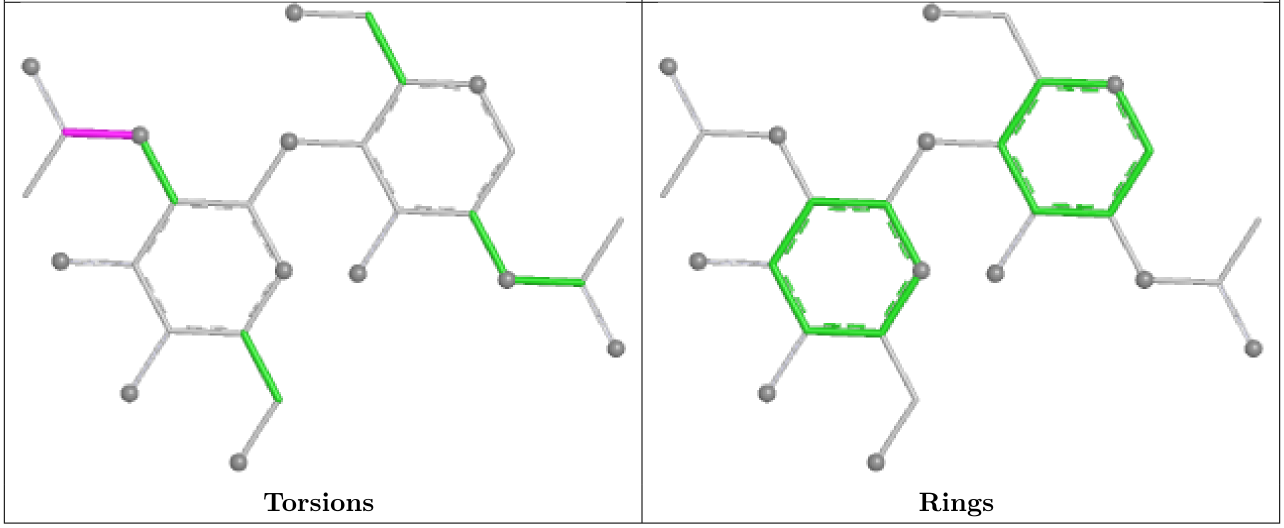
Rings

Oligosaccharide Chain y



Bond lengths

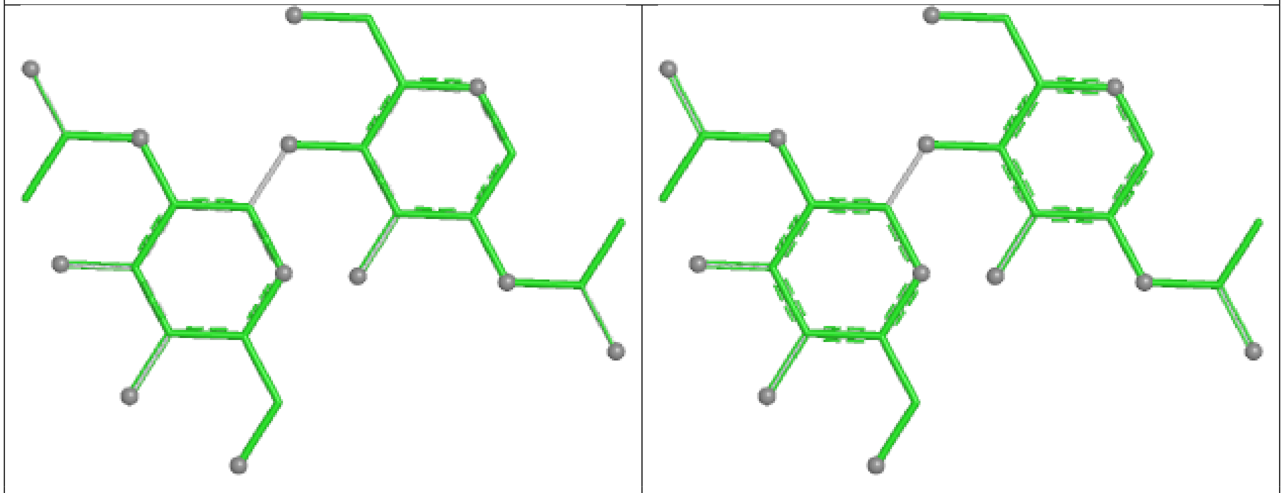
Bond angles



Torsions

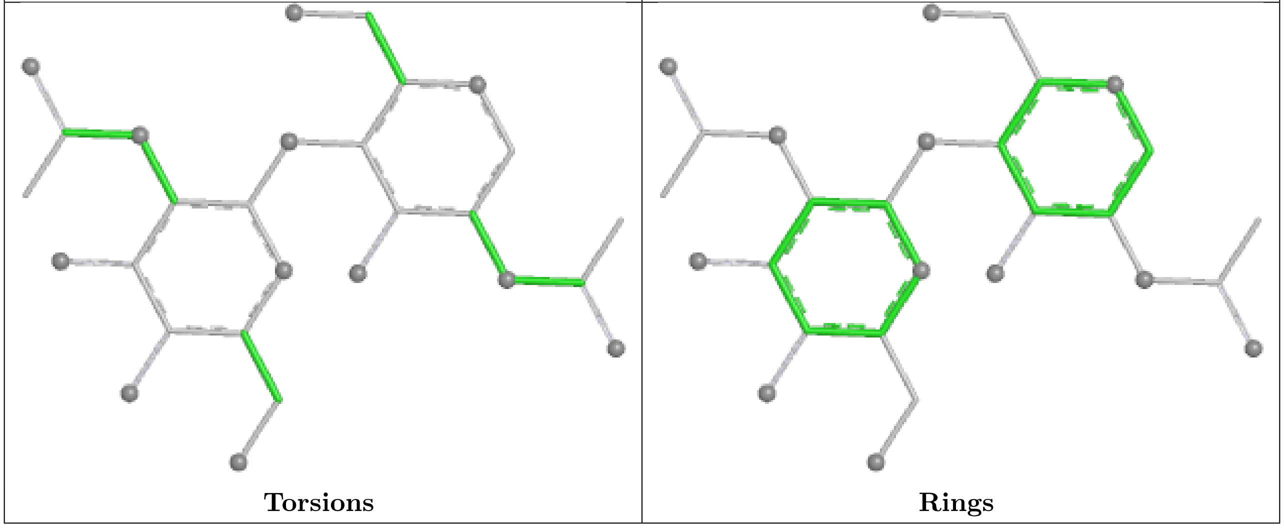
Rings

Oligosaccharide Chain z



Bond lengths

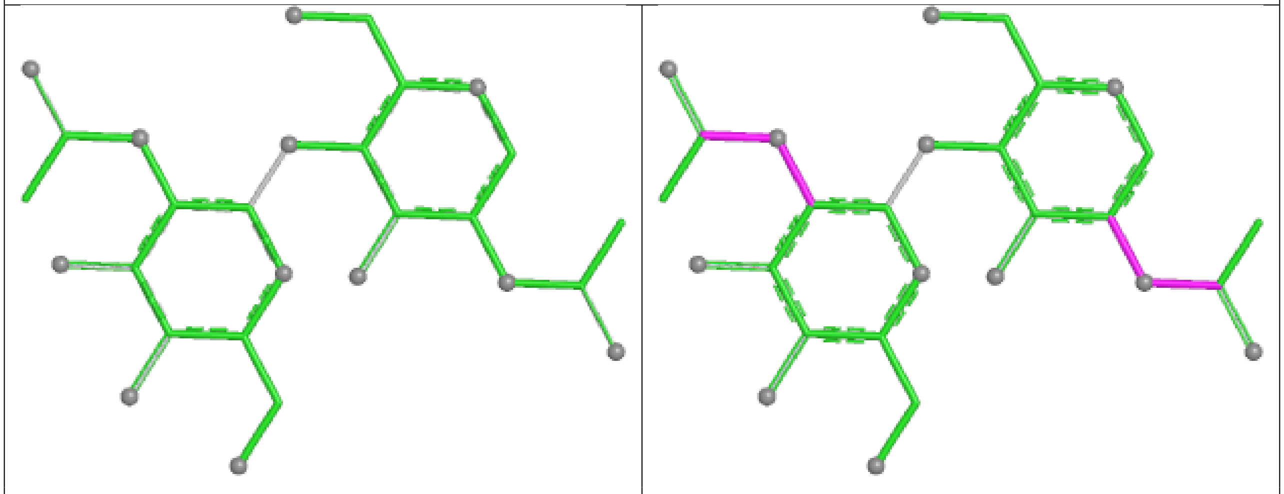
Bond angles



Torsions

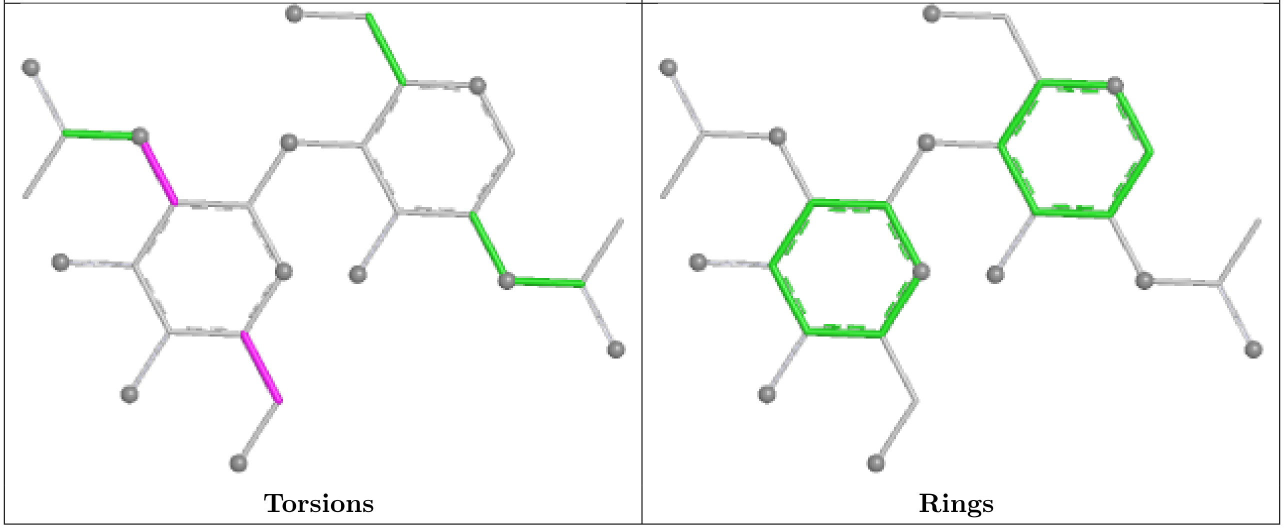
Rings

Oligosaccharide Chain 1



Bond lengths

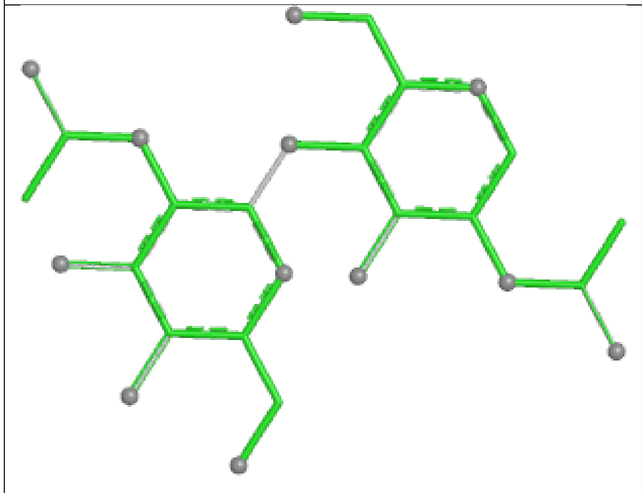
Bond angles



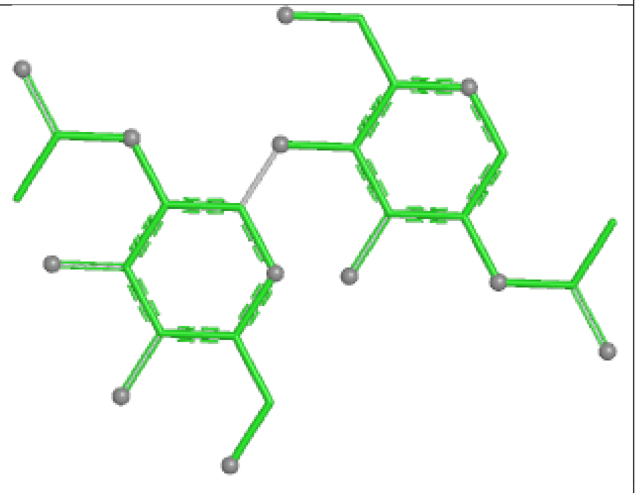
Torsions

Rings

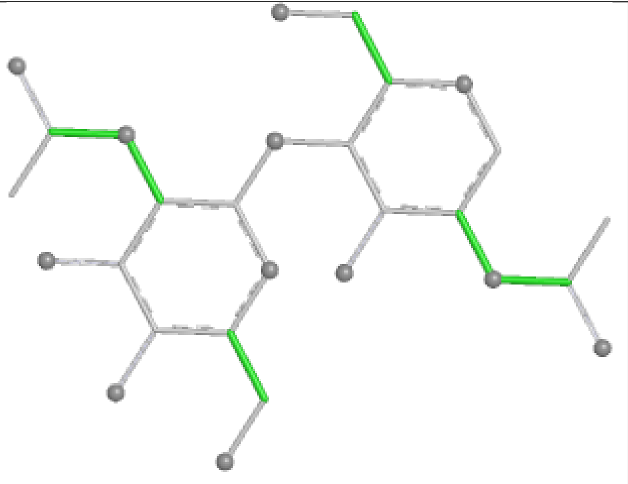
Oligosaccharide Chain 2



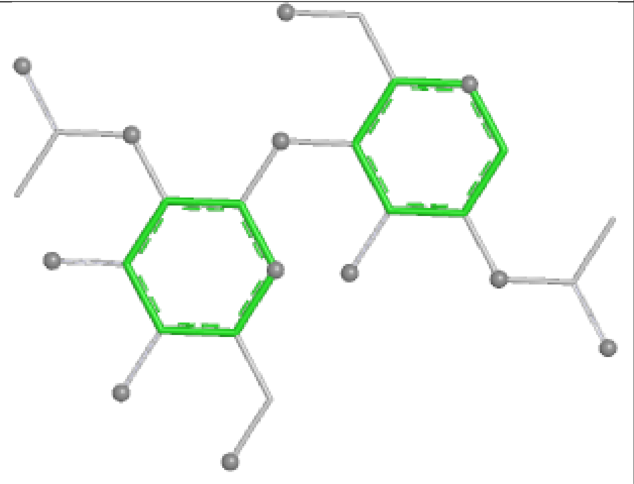
Bond lengths



Bond angles

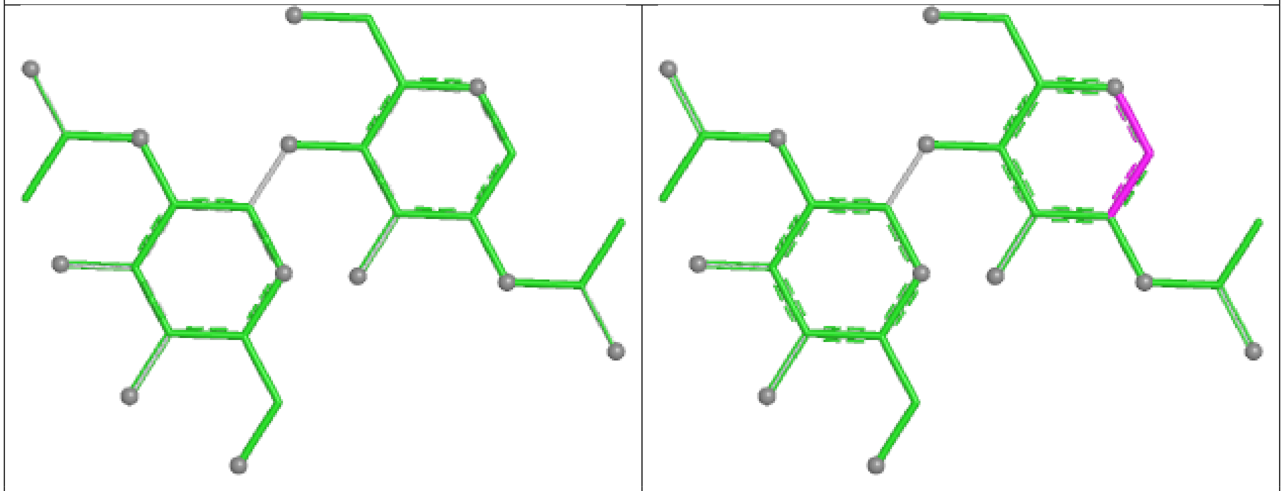


Torsions



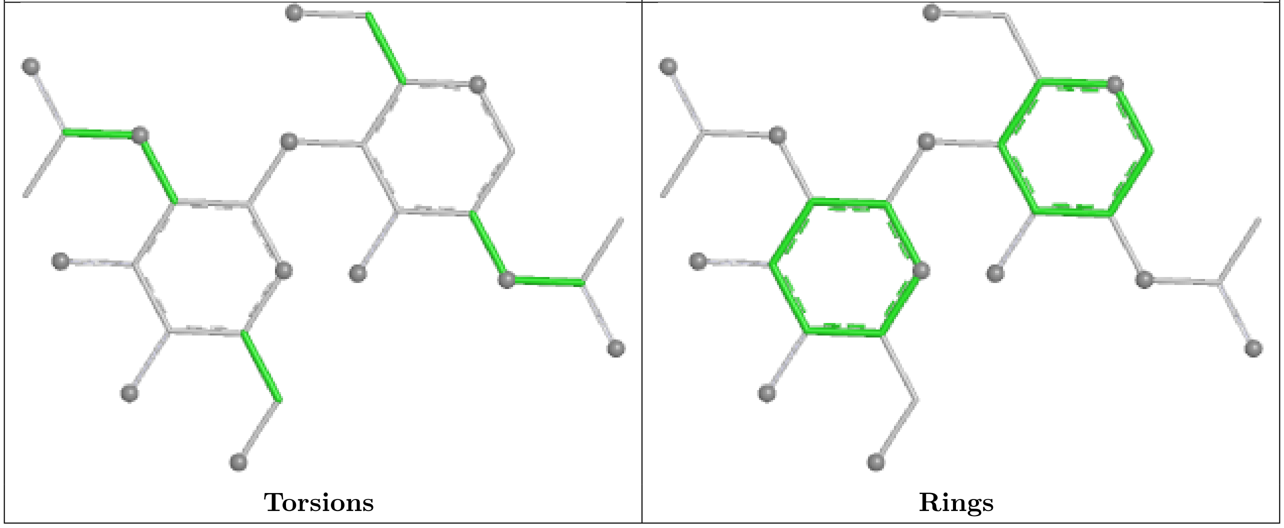
Rings

Oligosaccharide Chain 3



Bond lengths

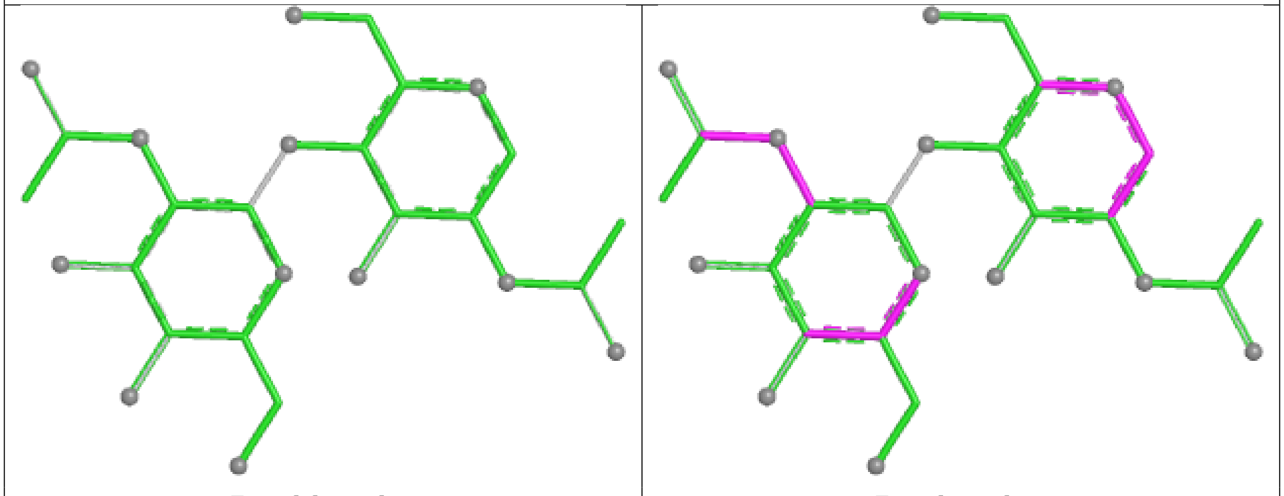
Bond angles



Torsions

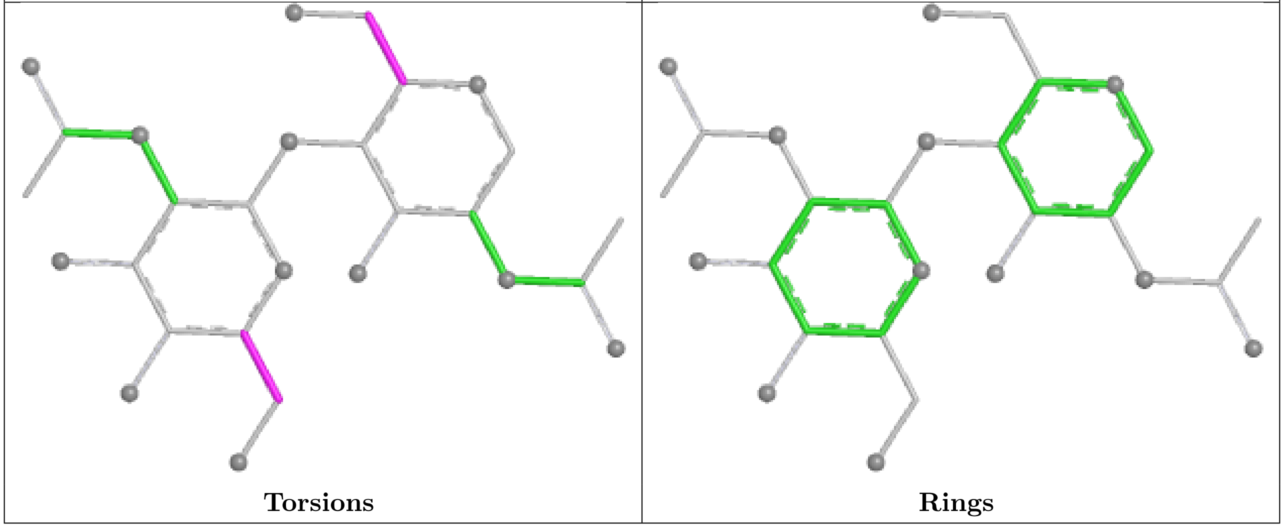
Rings

Oligosaccharide Chain 4



Bond lengths

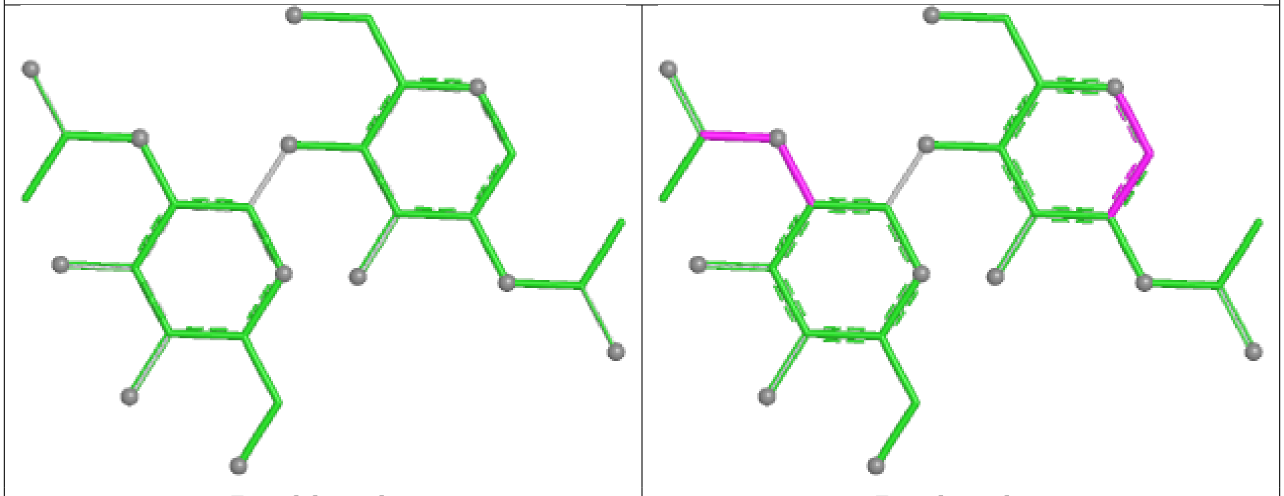
Bond angles



Torsions

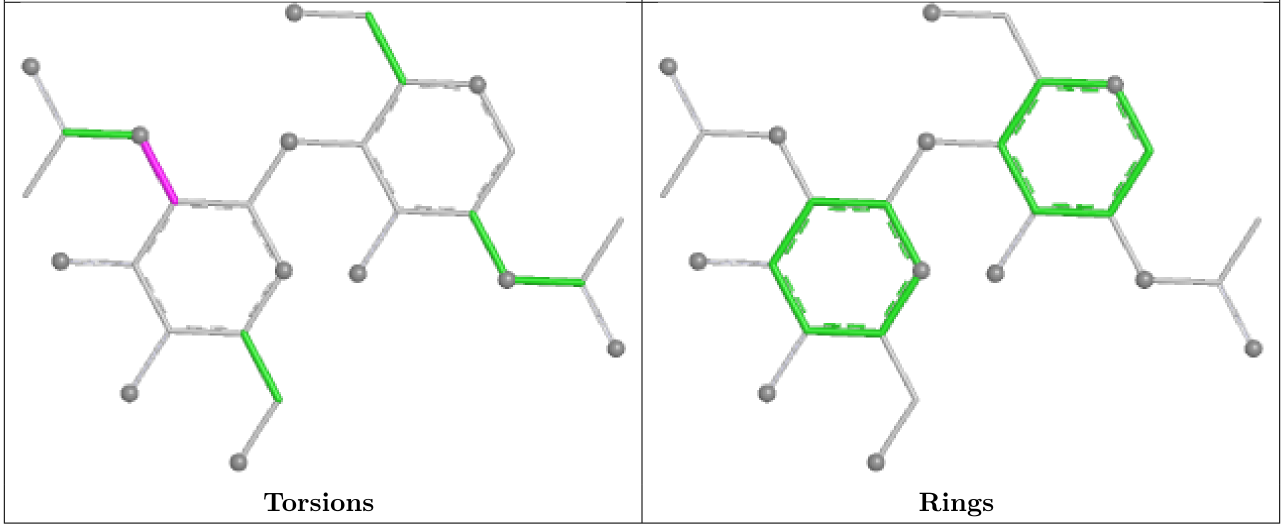
Rings

Oligosaccharide Chain 5



Bond lengths

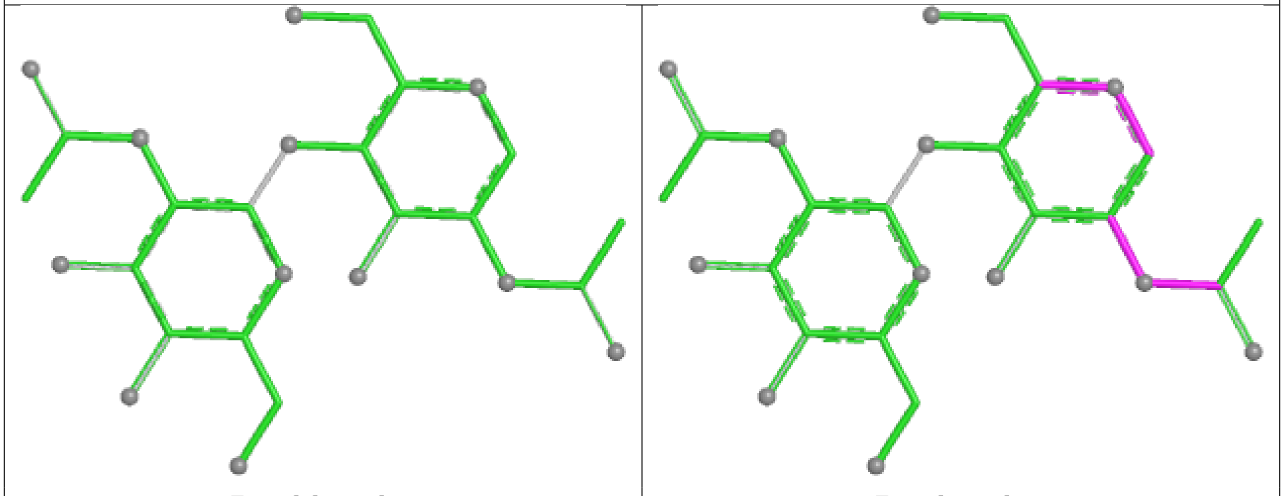
Bond angles



Torsions

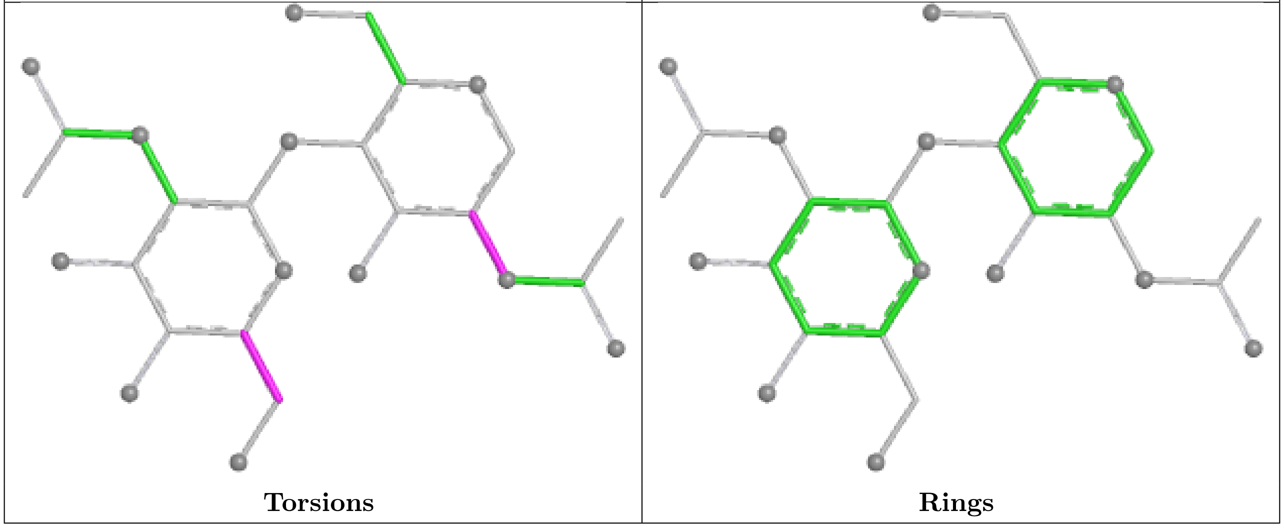
Rings

Oligosaccharide Chain 7



Bond lengths

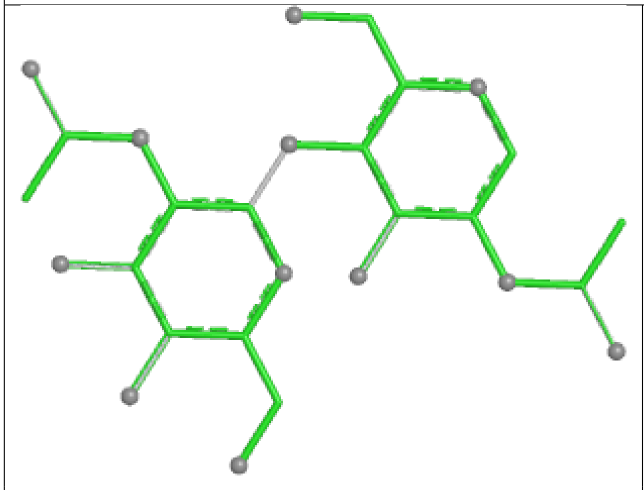
Bond angles



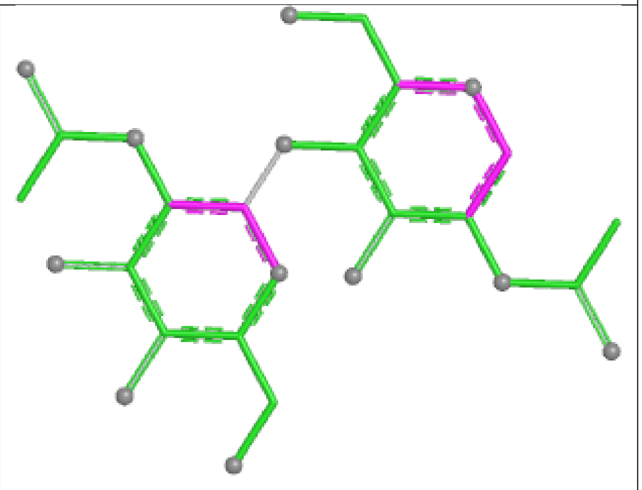
Torsions

Rings

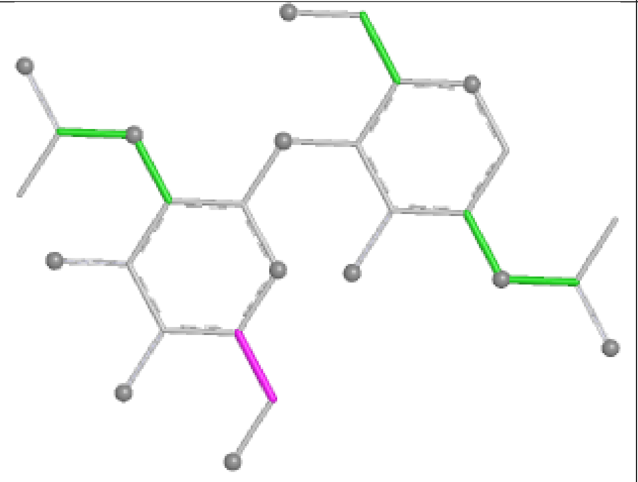
Oligosaccharide Chain 8



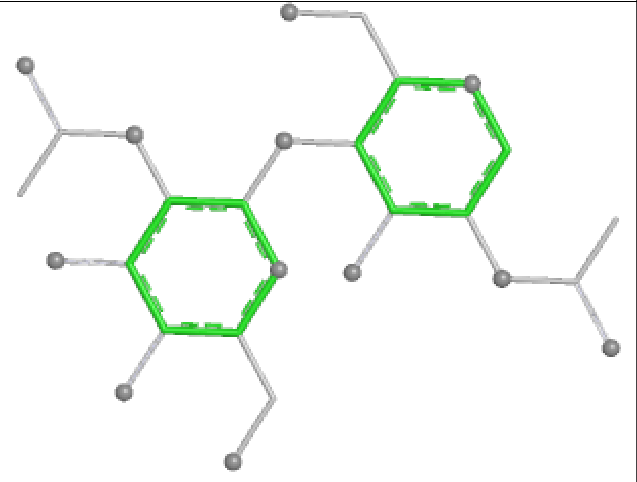
Bond lengths



Bond angles

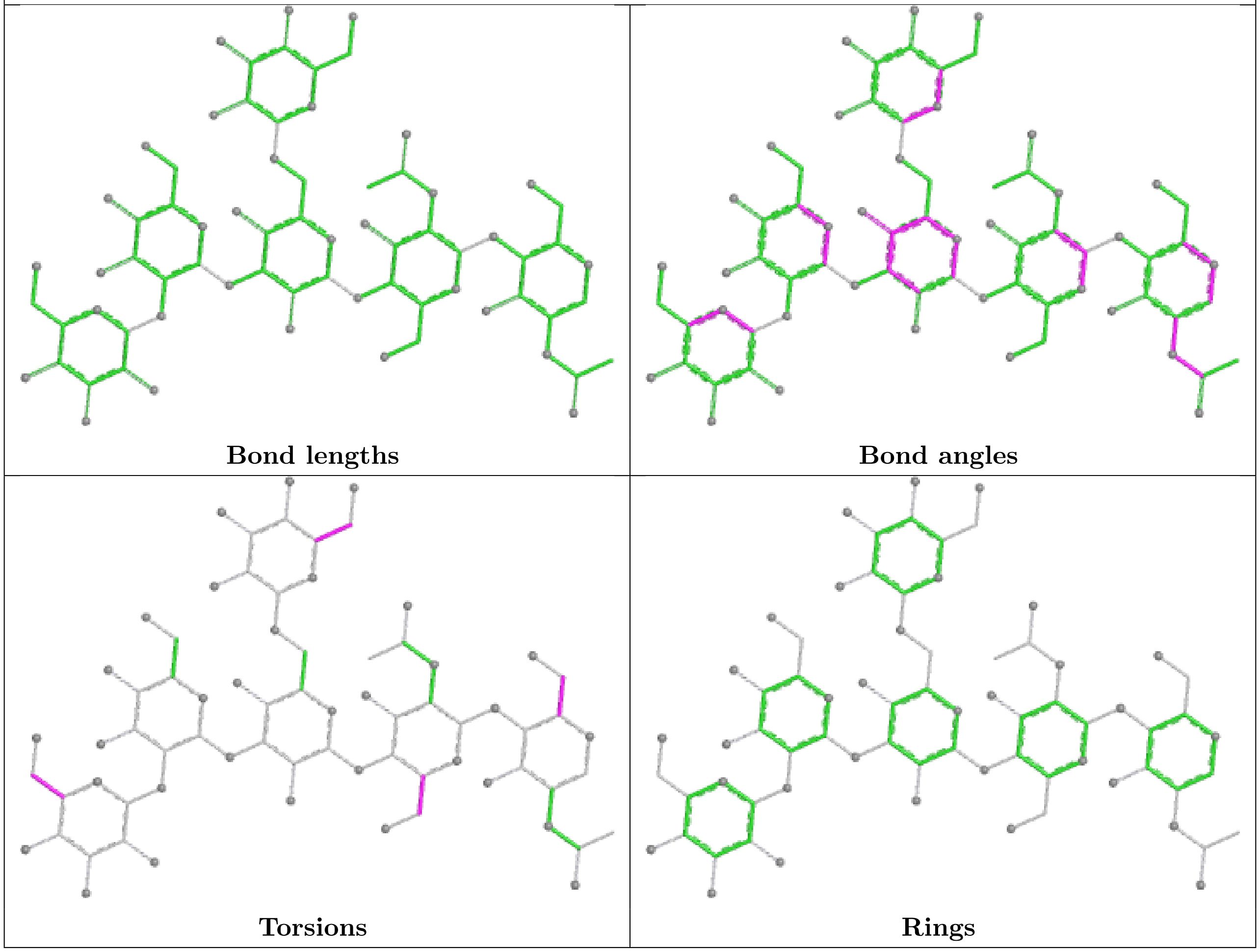


Torsions



Rings

Oligosaccharide Chain S



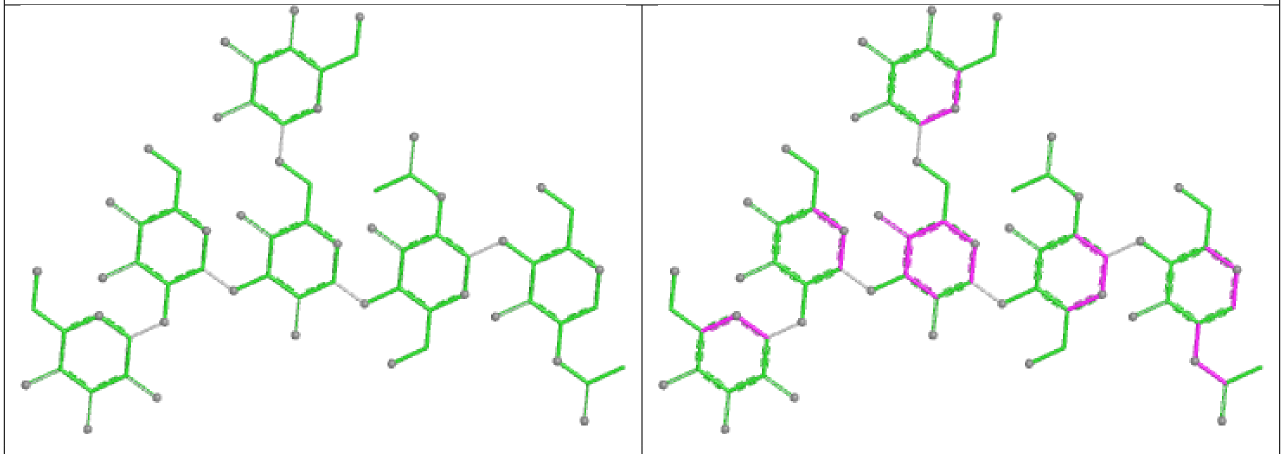
Bond lengths

Bond angles

Torsions

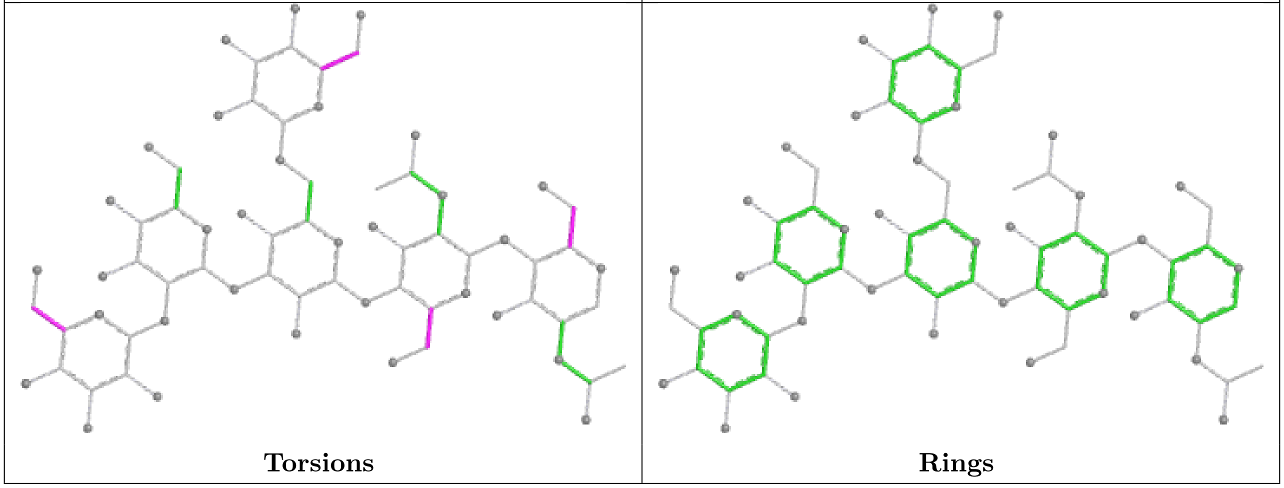
Rings

Oligosaccharide Chain j



Bond lengths

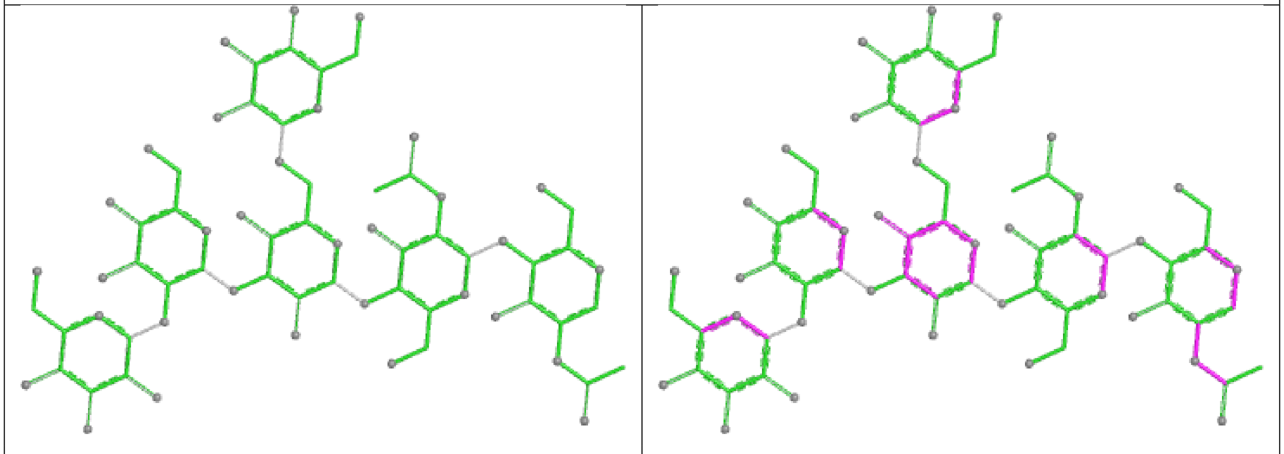
Bond angles



Torsions

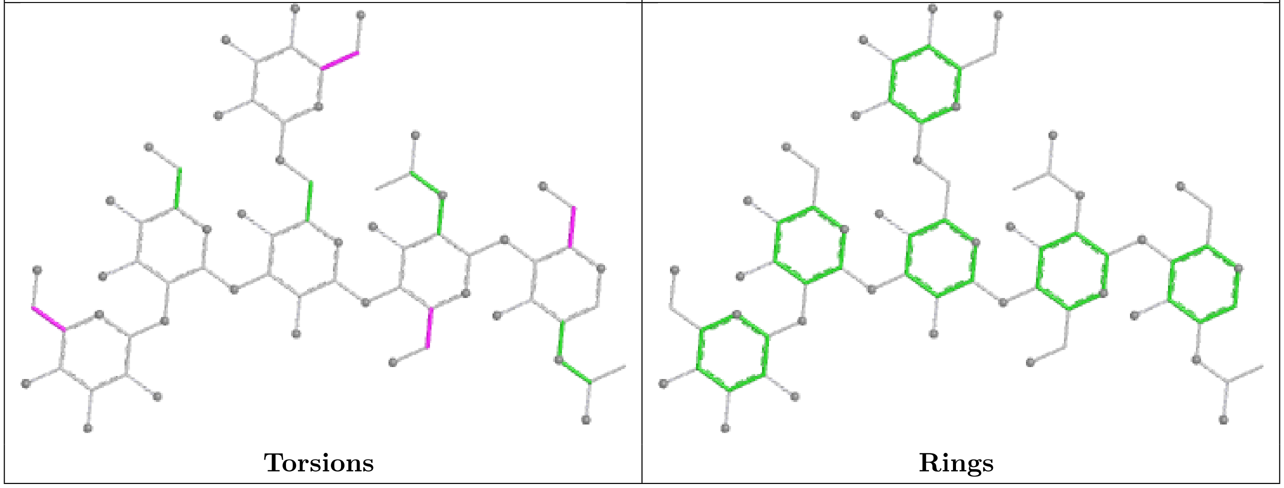
Rings

Oligosaccharide Chain 0



Bond lengths

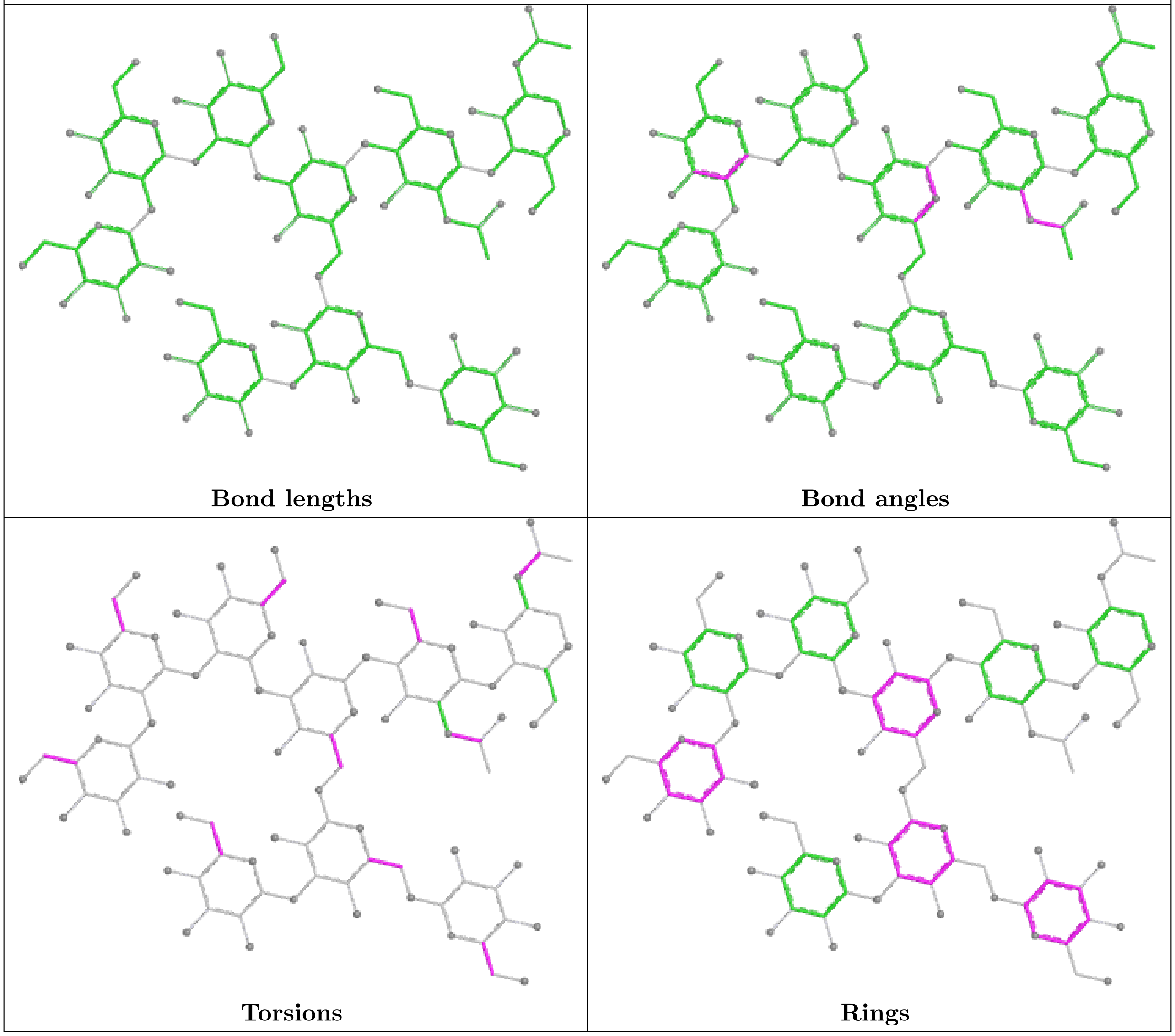
Bond angles



Torsions

Rings

Oligosaccharide Chain Y



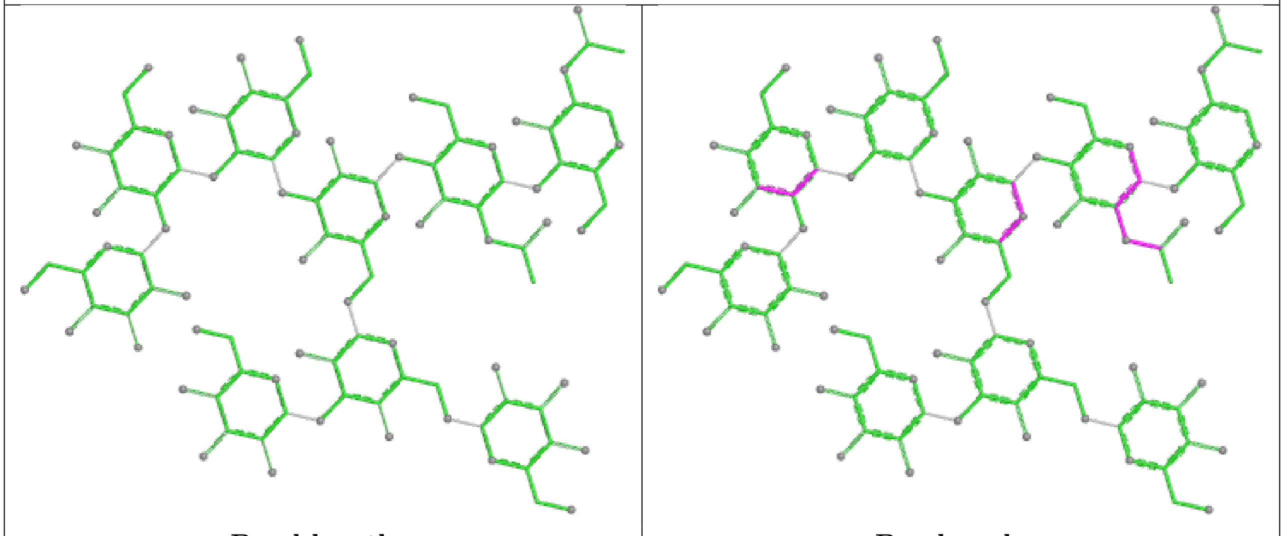
Bond lengths

Bond angles

Torsions

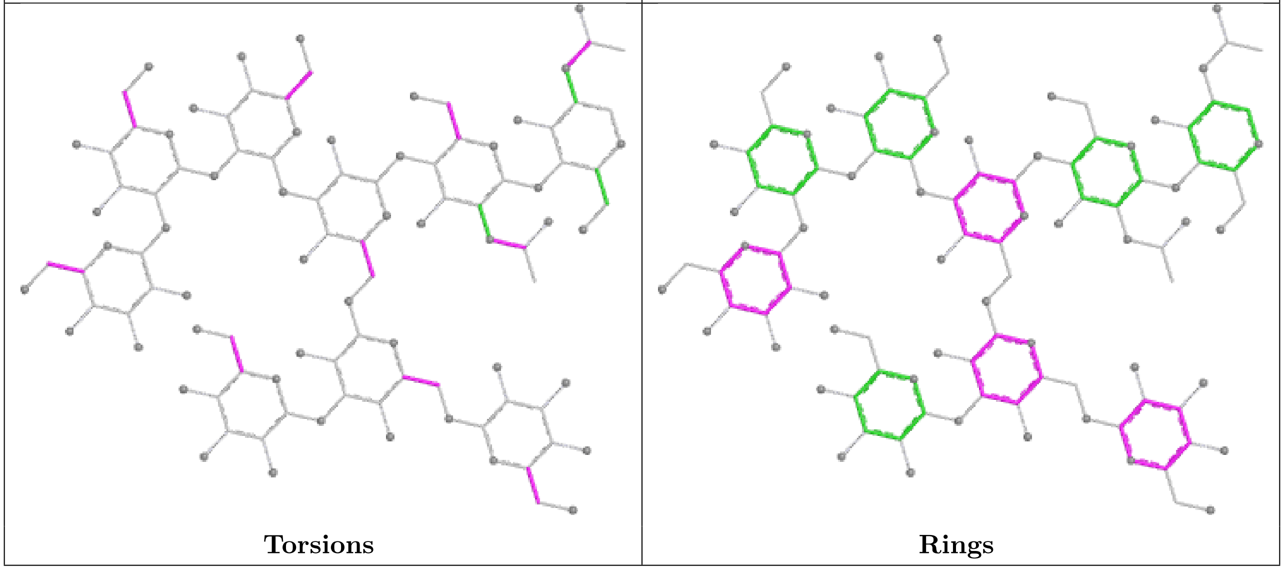
Rings

Oligosaccharide Chain s



Bond lengths

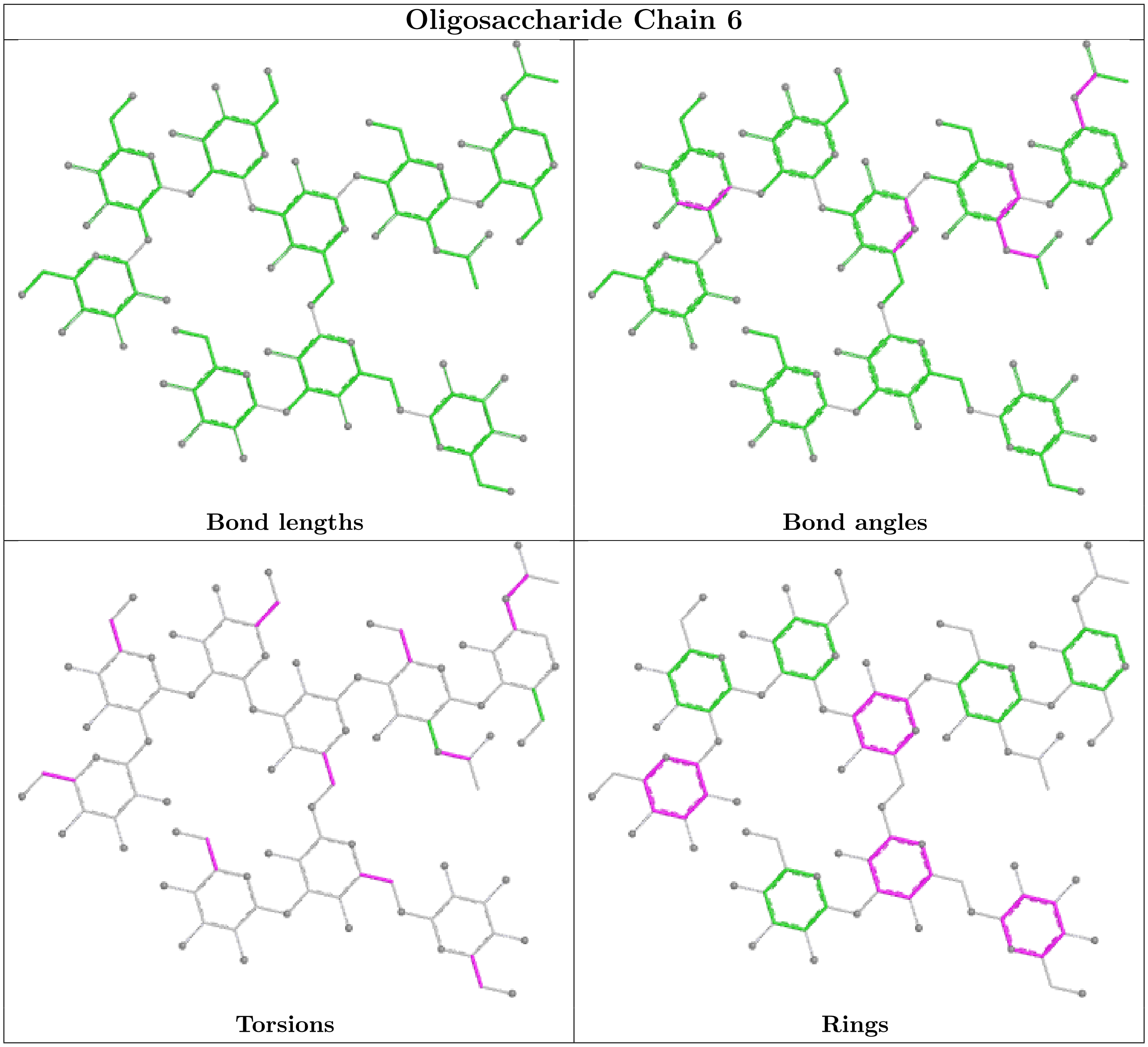
Bond angles



Torsions

Rings

Oligosaccharide Chain 6



Bond lengths

Bond angles

Torsions

Rings

5.6 Ligand geometry ⓘ

21 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
12	NAG	I	601	2	14,14,15	0.73	0	17,19,21	0.94	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
12	NAG	C	702	1	14,14,15	0.69	0	17,19,21	0.87	0
12	NAG	I	602	2	14,14,15	0.69	0	17,19,21	1.98	2 (11%)
12	NAG	J	702	1	14,14,15	0.70	0	17,19,21	0.86	0
12	NAG	I	605	2	14,14,15	0.77	0	17,19,21	0.85	0
12	NAG	G	602	2	14,14,15	0.70	0	17,19,21	2.00	2 (11%)
12	NAG	G	603	2	14,14,15	0.72	0	17,19,21	0.90	0
12	NAG	G	604	2	14,14,15	0.72	0	17,19,21	0.89	0
12	NAG	J	701	1	14,14,15	0.86	1 (7%)	17,19,21	1.42	3 (17%)
12	NAG	A	603	2	14,14,15	0.74	0	17,19,21	0.90	1 (5%)
12	NAG	C	701	1	14,14,15	0.86	1 (7%)	17,19,21	1.42	3 (17%)
12	NAG	I	603	2	14,14,15	0.73	0	17,19,21	0.90	0
12	NAG	A	602	2	14,14,15	0.70	0	17,19,21	2.04	2 (11%)
12	NAG	G	605	2	14,14,15	0.77	0	17,19,21	0.84	0
12	NAG	A	605	2	14,14,15	0.77	0	17,19,21	0.86	0
12	NAG	G	601	2	14,14,15	0.73	0	17,19,21	0.94	1 (5%)
12	NAG	B	702	1	14,14,15	0.69	0	17,19,21	0.87	0
12	NAG	I	604	2	14,14,15	0.72	0	17,19,21	0.92	1 (5%)
12	NAG	B	701	1	14,14,15	0.87	1 (7%)	17,19,21	1.43	3 (17%)
12	NAG	A	604	2	14,14,15	0.77	0	17,19,21	1.93	3 (17%)
12	NAG	A	601	2	14,14,15	0.73	0	17,19,21	0.93	1 (5%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
12	NAG	I	601	2	-	2/6/23/26	0/1/1/1
12	NAG	C	702	1	-	3/6/23/26	0/1/1/1
12	NAG	I	602	2	-	1/6/23/26	0/1/1/1
12	NAG	J	702	1	-	3/6/23/26	0/1/1/1
12	NAG	I	605	2	-	0/6/23/26	0/1/1/1
12	NAG	G	602	2	-	1/6/23/26	0/1/1/1
12	NAG	G	603	2	-	0/6/23/26	0/1/1/1
12	NAG	G	604	2	-	2/6/23/26	0/1/1/1
12	NAG	J	701	1	-	2/6/23/26	0/1/1/1
12	NAG	A	603	2	-	0/6/23/26	0/1/1/1
12	NAG	C	701	1	-	2/6/23/26	0/1/1/1
12	NAG	I	603	2	-	0/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
12	NAG	A	602	2	-	1/6/23/26	0/1/1/1
12	NAG	G	605	2	-	0/6/23/26	0/1/1/1
12	NAG	A	605	2	-	0/6/23/26	0/1/1/1
12	NAG	G	601	2	-	1/6/23/26	0/1/1/1
12	NAG	B	702	1	-	3/6/23/26	0/1/1/1
12	NAG	I	604	2	-	2/6/23/26	0/1/1/1
12	NAG	B	701	1	-	2/6/23/26	0/1/1/1
12	NAG	A	604	2	-	2/6/23/26	0/1/1/1
12	NAG	A	601	2	-	2/6/23/26	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
12	B	701	NAG	C1-C2	2.20	1.55	1.52
12	C	701	NAG	C1-C2	2.14	1.55	1.52
12	J	701	NAG	C1-C2	2.14	1.55	1.52

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
12	A	602	NAG	C1-O5-C5	6.87	121.39	112.19
12	G	602	NAG	C1-O5-C5	6.73	121.21	112.19
12	I	602	NAG	C1-O5-C5	6.64	121.08	112.19
12	A	604	NAG	C1-O5-C5	6.60	121.03	112.19
12	B	701	NAG	C2-N2-C7	3.43	127.50	122.90
12	C	701	NAG	C2-N2-C7	3.39	127.44	122.90
12	A	602	NAG	C4-C3-C2	-3.36	106.10	111.02
12	J	701	NAG	C2-N2-C7	3.34	127.38	122.90
12	I	602	NAG	C4-C3-C2	-3.30	106.18	111.02
12	G	602	NAG	C4-C3-C2	-3.29	106.19	111.02
12	A	604	NAG	C2-N2-C7	2.92	126.82	122.90
12	J	701	NAG	C1-O5-C5	2.86	116.02	112.19
12	B	701	NAG	C1-O5-C5	2.80	115.94	112.19
12	C	701	NAG	C1-O5-C5	2.80	115.94	112.19
12	I	604	NAG	O5-C1-C2	-2.25	107.81	111.29
12	I	601	NAG	O5-C1-C2	-2.16	107.95	111.29
12	A	604	NAG	C3-C4-C5	-2.13	106.37	110.23
12	G	601	NAG	O5-C1-C2	-2.11	108.02	111.29
12	A	601	NAG	O5-C1-C2	-2.10	108.05	111.29
12	B	701	NAG	C3-C4-C5	-2.08	106.47	110.23
12	J	701	NAG	C3-C4-C5	-2.04	106.54	110.23

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
12	C	701	NAG	C3-C4-C5	-2.03	106.56	110.23
12	A	603	NAG	O5-C1-C2	-2.01	108.19	111.29

There are no chirality outliers.

All (29) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
12	B	701	NAG	C8-C7-N2-C2
12	B	701	NAG	O7-C7-N2-C2
12	G	604	NAG	C8-C7-N2-C2
12	G	604	NAG	O7-C7-N2-C2
12	C	701	NAG	C8-C7-N2-C2
12	C	701	NAG	O7-C7-N2-C2
12	A	604	NAG	C8-C7-N2-C2
12	A	604	NAG	O7-C7-N2-C2
12	J	701	NAG	C8-C7-N2-C2
12	J	701	NAG	O7-C7-N2-C2
12	I	604	NAG	C8-C7-N2-C2
12	I	604	NAG	O7-C7-N2-C2
12	J	702	NAG	C4-C5-C6-O6
12	A	601	NAG	O5-C5-C6-O6
12	I	601	NAG	O5-C5-C6-O6
12	G	601	NAG	O5-C5-C6-O6
12	C	702	NAG	C4-C5-C6-O6
12	J	702	NAG	O5-C5-C6-O6
12	B	702	NAG	C4-C5-C6-O6
12	G	602	NAG	O5-C5-C6-O6
12	I	602	NAG	O5-C5-C6-O6
12	A	602	NAG	O5-C5-C6-O6
12	C	702	NAG	O5-C5-C6-O6
12	B	702	NAG	O5-C5-C6-O6
12	B	702	NAG	C1-C2-N2-C7
12	C	702	NAG	C1-C2-N2-C7
12	J	702	NAG	C1-C2-N2-C7
12	A	601	NAG	C4-C5-C6-O6
12	I	601	NAG	C4-C5-C6-O6

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
12	I	601	NAG	1	0
12	G	601	NAG	2	0

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

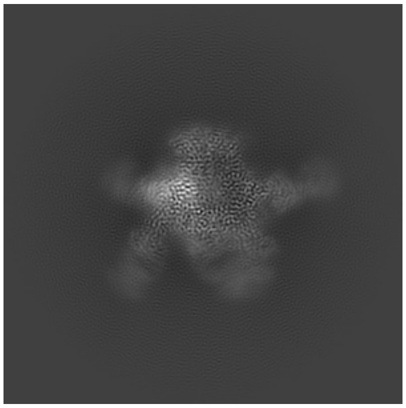
6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-72206. These allow visual inspection of the internal detail of the map and identification of artifacts.

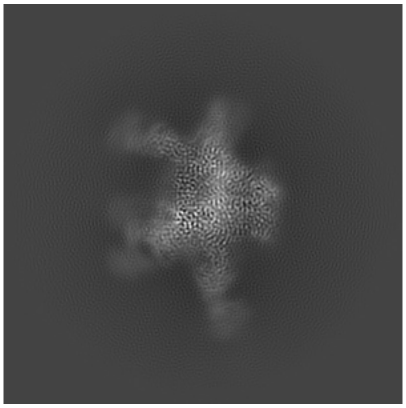
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections ⓘ

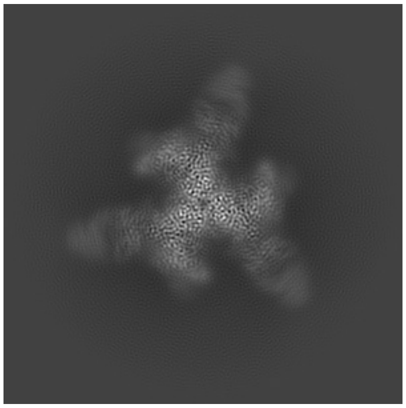
6.1.1 Primary map



X

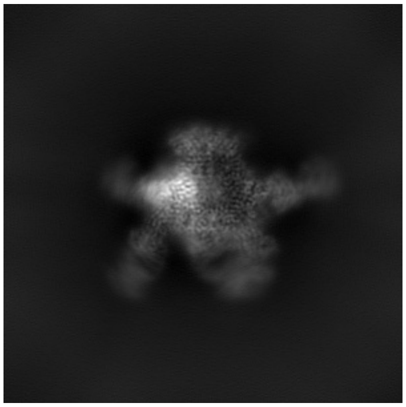


Y

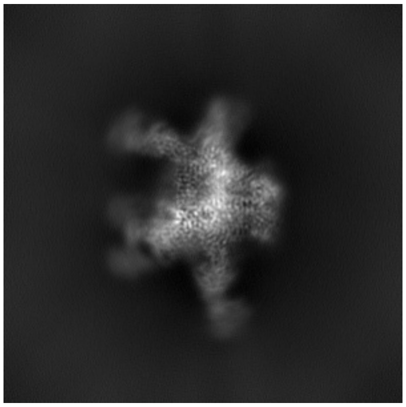


Z

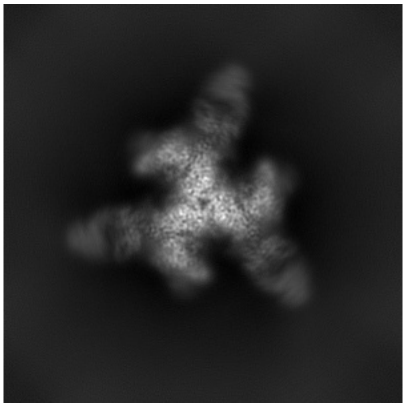
6.1.2 Raw map



X



Y

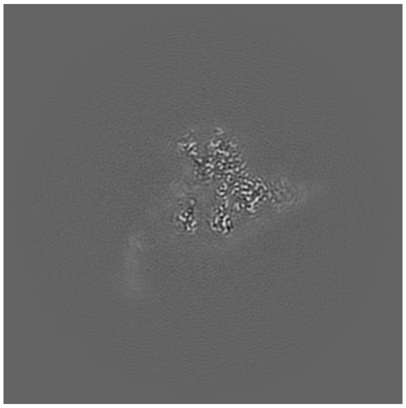


Z

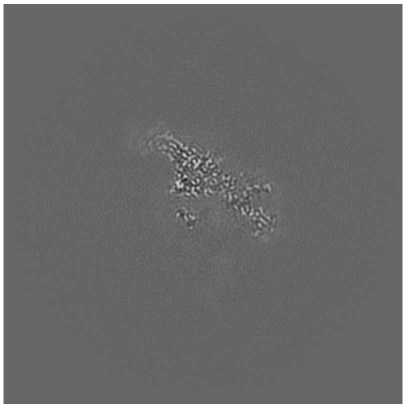
The images above show the map projected in three orthogonal directions.

6.2 Central slices

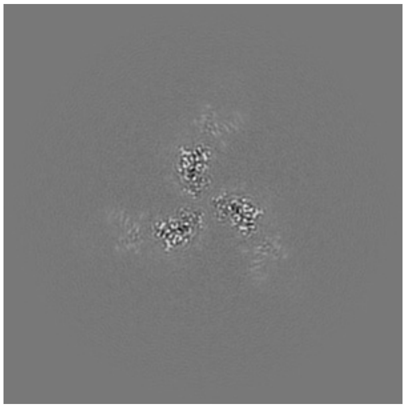
6.2.1 Primary map



X Index: 200

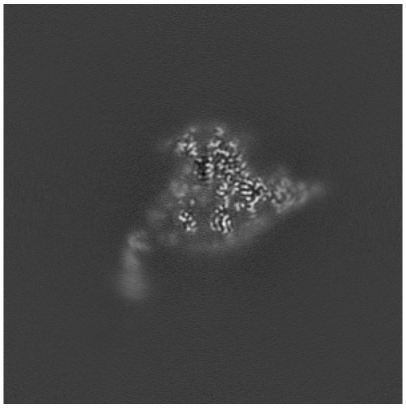


Y Index: 200

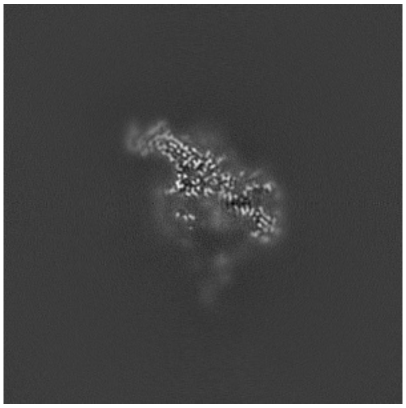


Z Index: 200

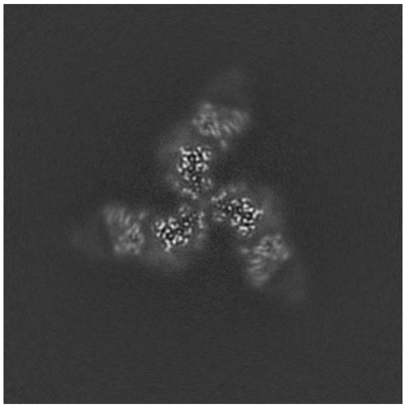
6.2.2 Raw map



X Index: 200



Y Index: 200

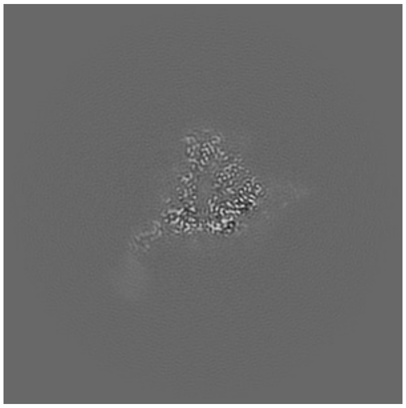


Z Index: 200

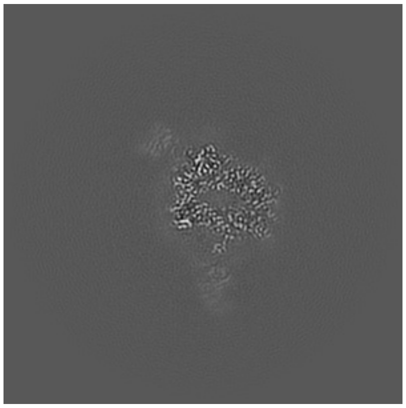
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices ⓘ

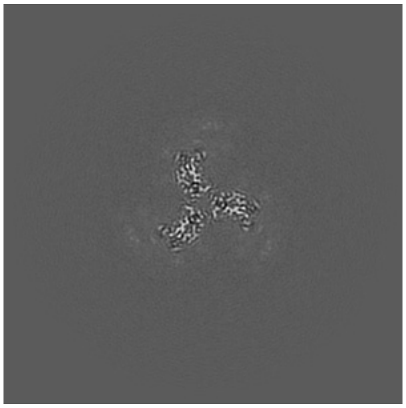
6.3.1 Primary map



X Index: 191

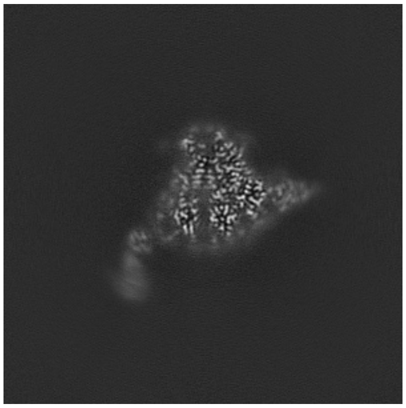


Y Index: 189

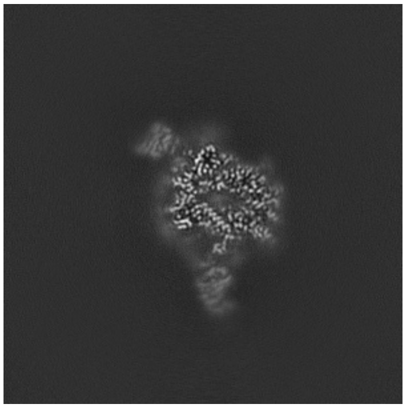


Z Index: 192

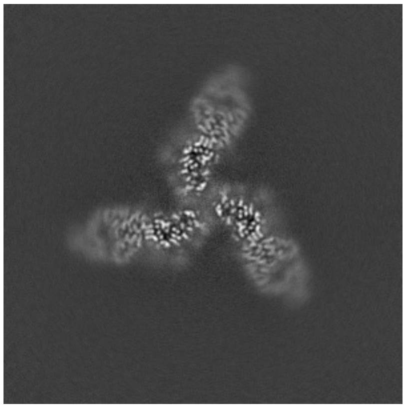
6.3.2 Raw map



X Index: 196



Y Index: 189

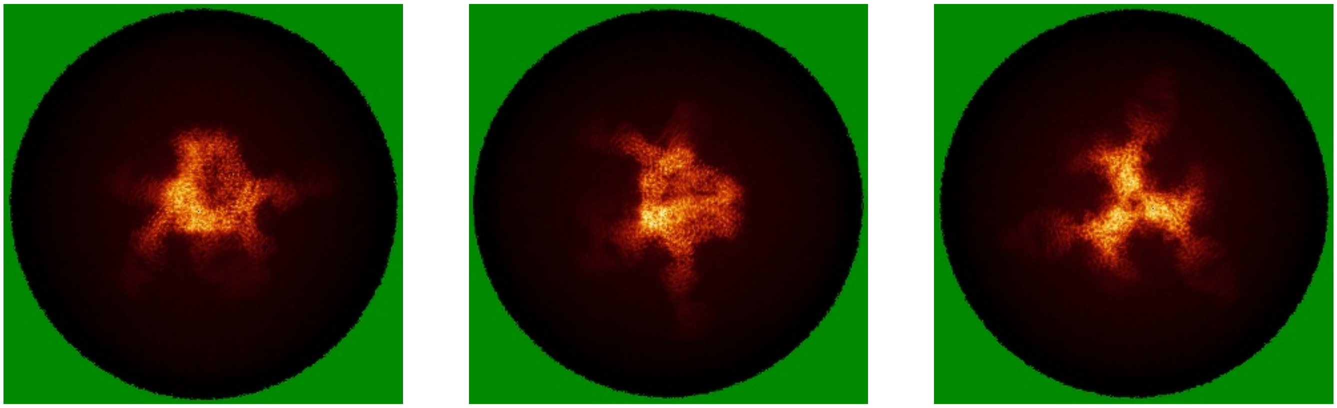


Z Index: 210

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

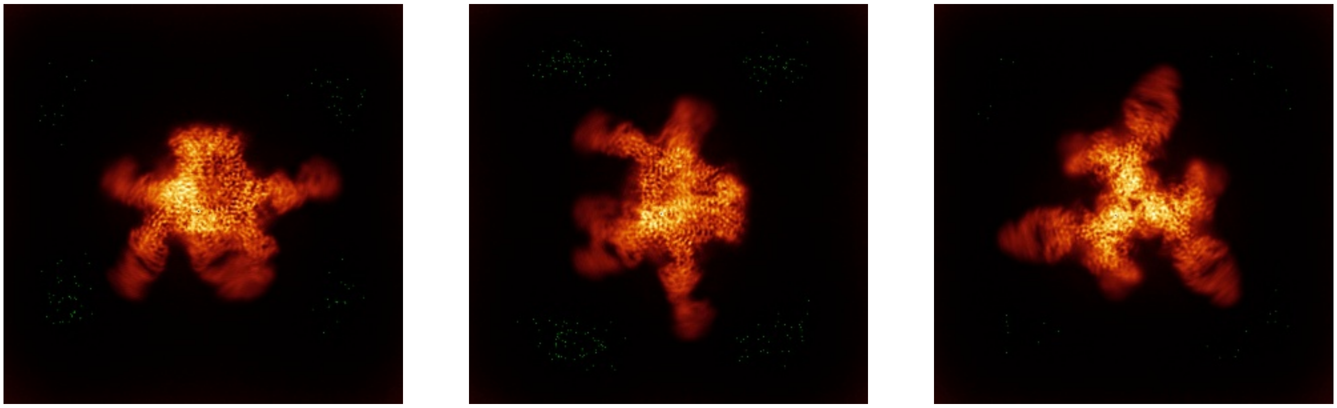
6.4 Orthogonal standard-deviation projections (False-color) ⓘ

6.4.1 Primary map



X Y Z

6.4.2 Raw map



X Y Z

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

6.5 Orthogonal surface views

6.5.1 Primary map


X


Y


Z

The images above show the 3D surface view of the map at the recommended contour level 0.155. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map


X


Y


Z

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

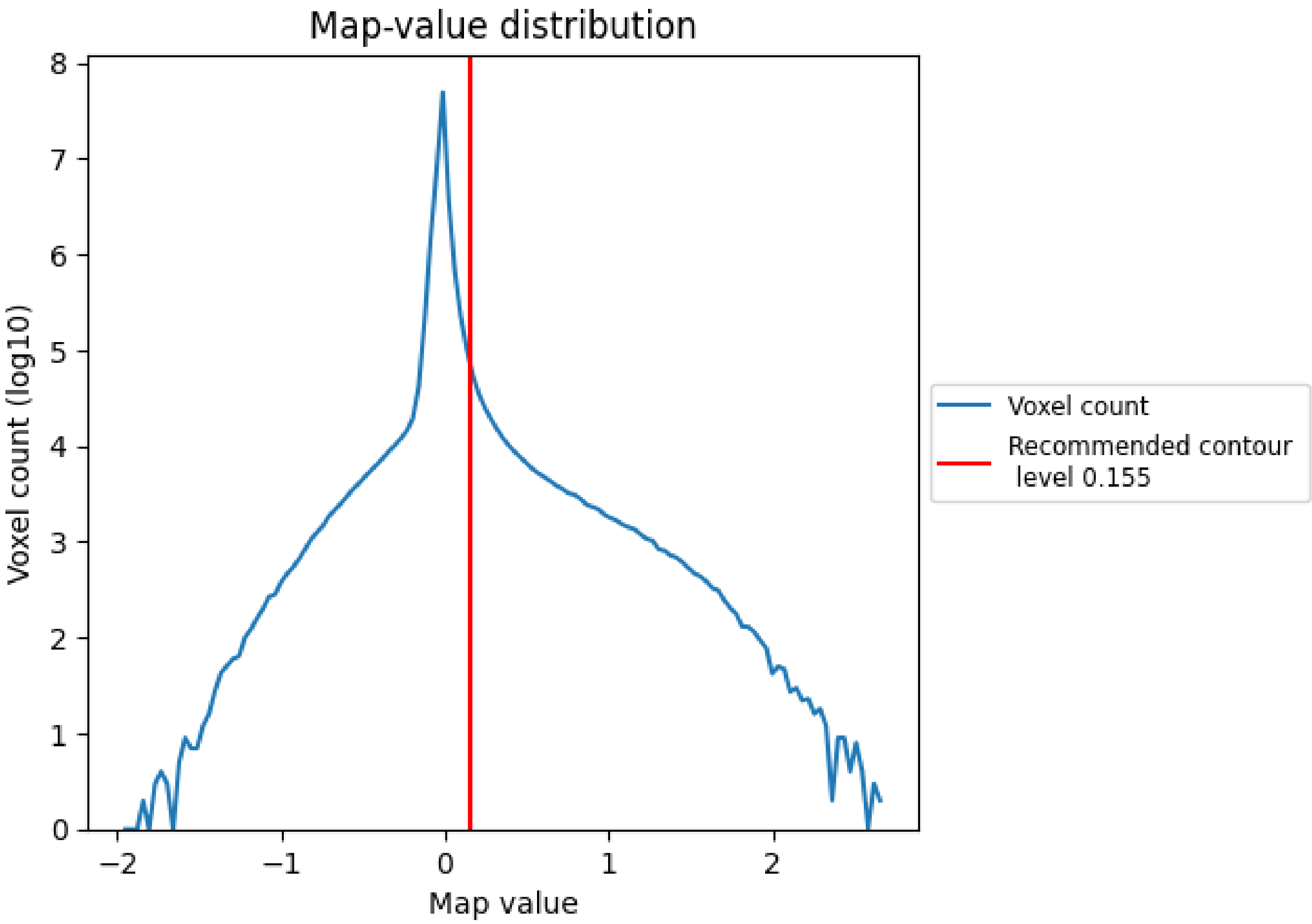
6.6 Mask visualisation

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

7 Map analysis ⓘ

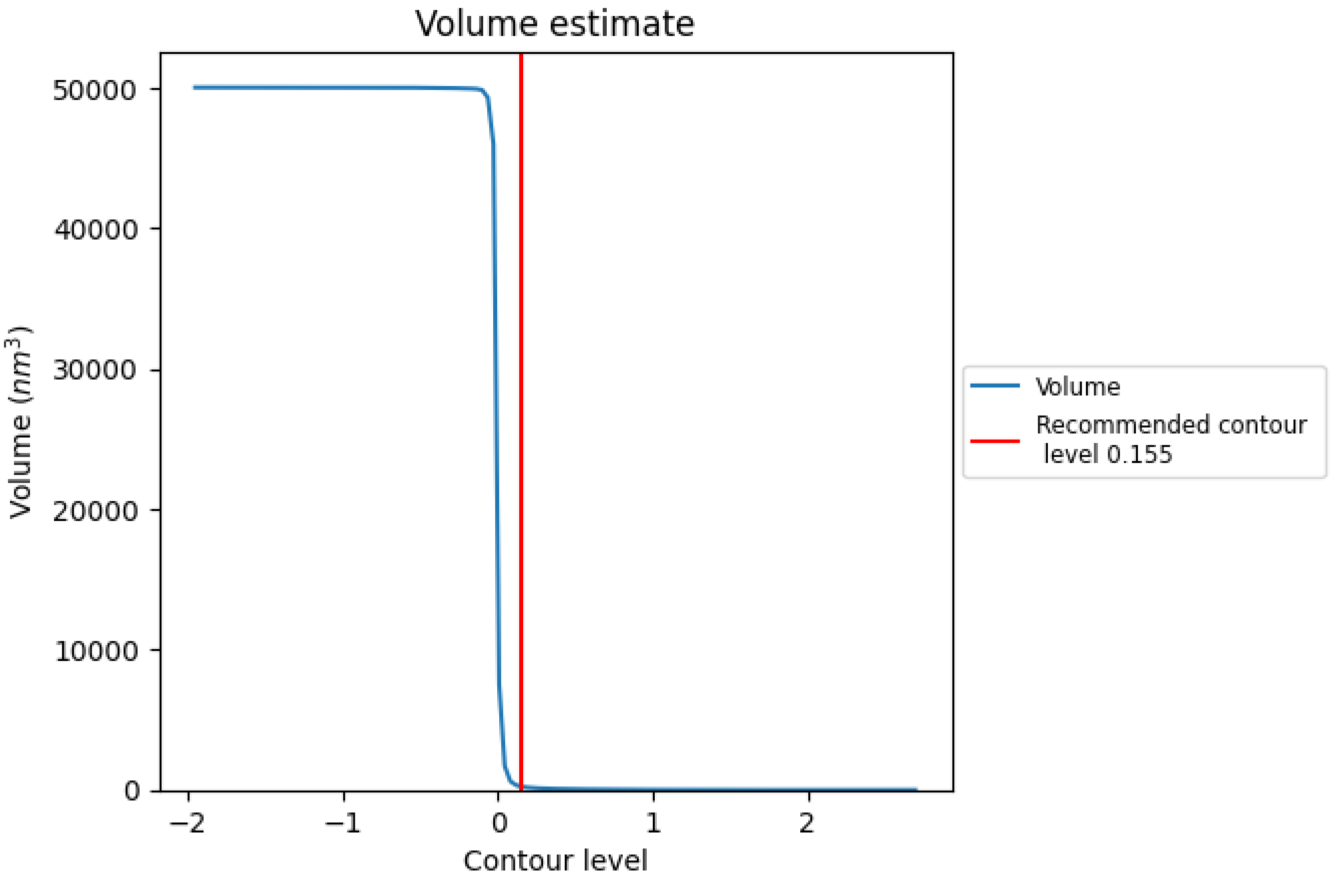
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

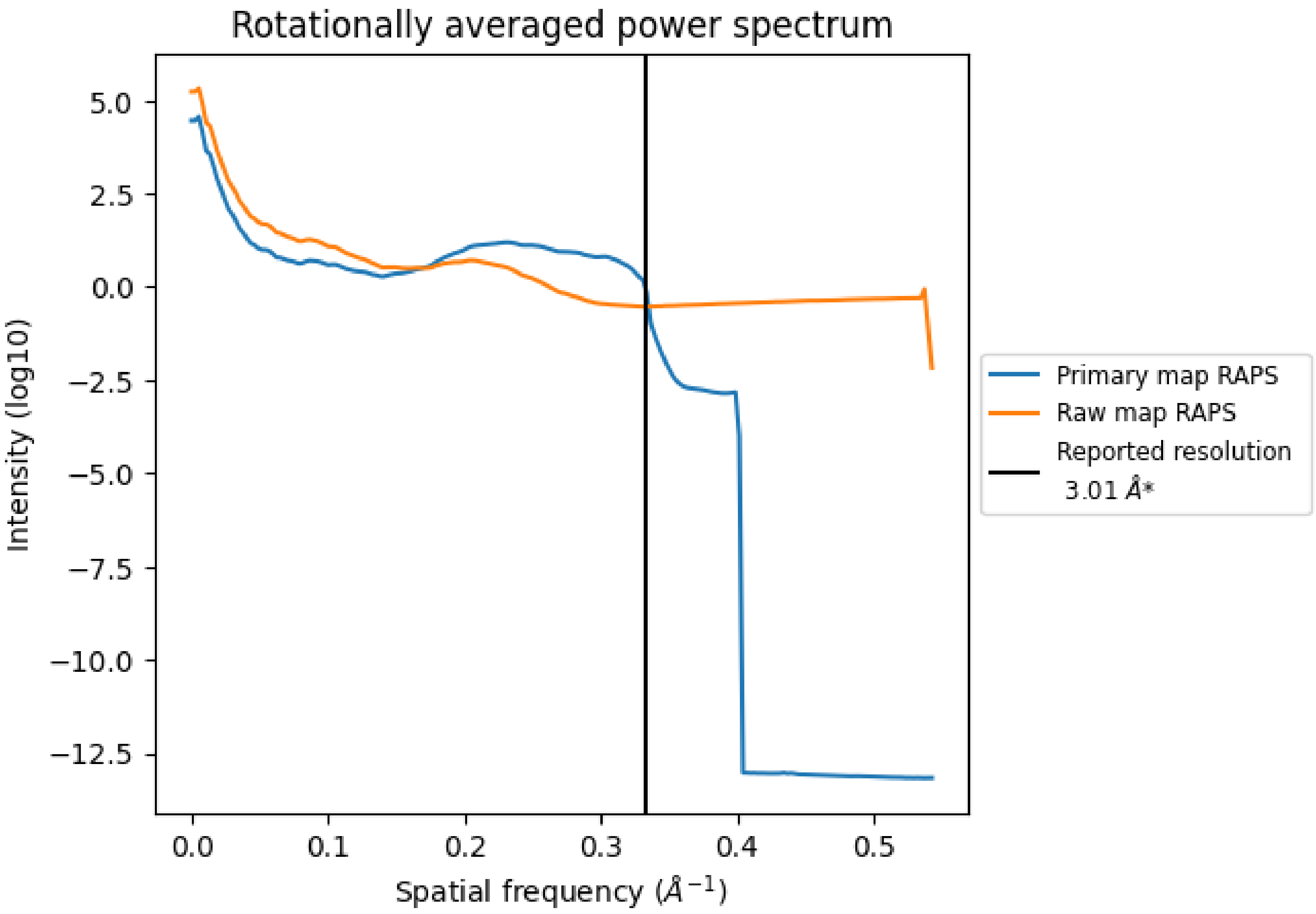
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 231 nm^3; this corresponds to an approximate mass of 209 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 ⓘ

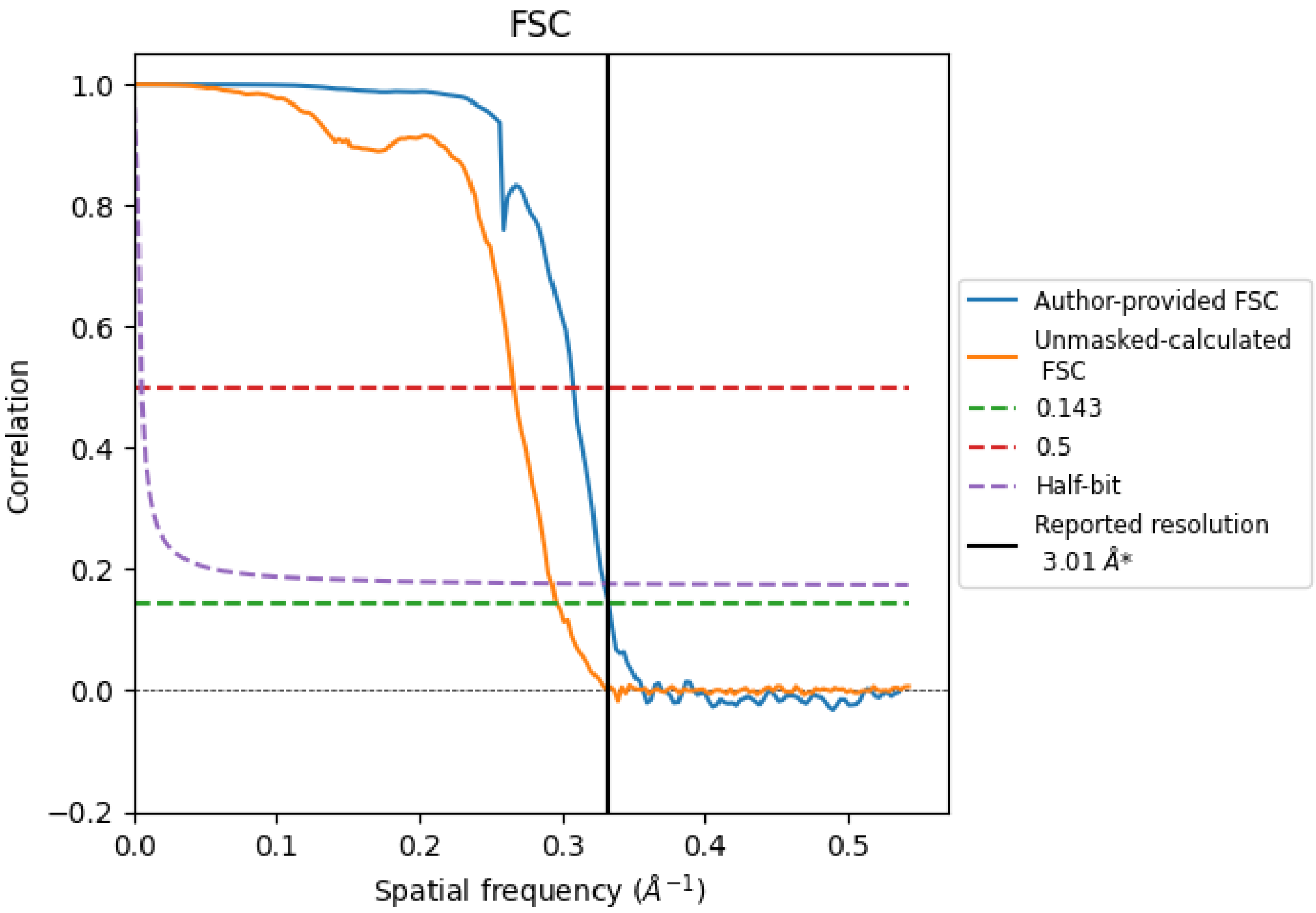


*Reported resolution corresponds to spatial frequency of 0.332 Å^{-1}

8 Fourier-Shell correlation ⓘ

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

8.1 FSC ⓘ



*Reported resolution corresponds to spatial frequency of 0.332 Å^{-1}

8.2 Resolution estimates

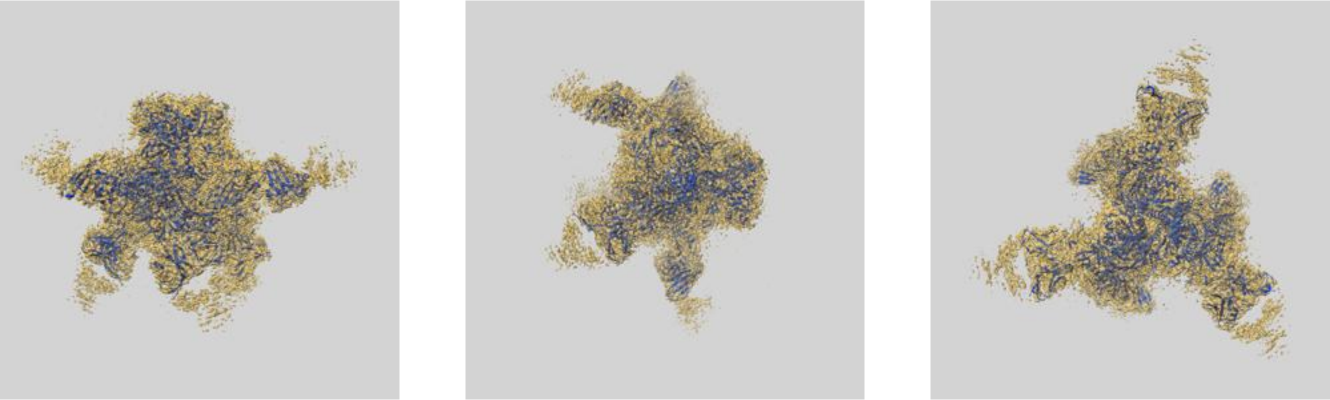
Resolution estimate (Å)	**Estimation criterion (FSC cut-off)**		
	0.143	0.5	Half-bit
Reported by author	-	-	-
Author-provided FSC curve	3.01	3.25	3.04
Unmasked-calculated*	3.38	3.76	3.42

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-72206 and PDB model 9Q3S. Per-residue inclusion information can be found in section 3 on page 13.

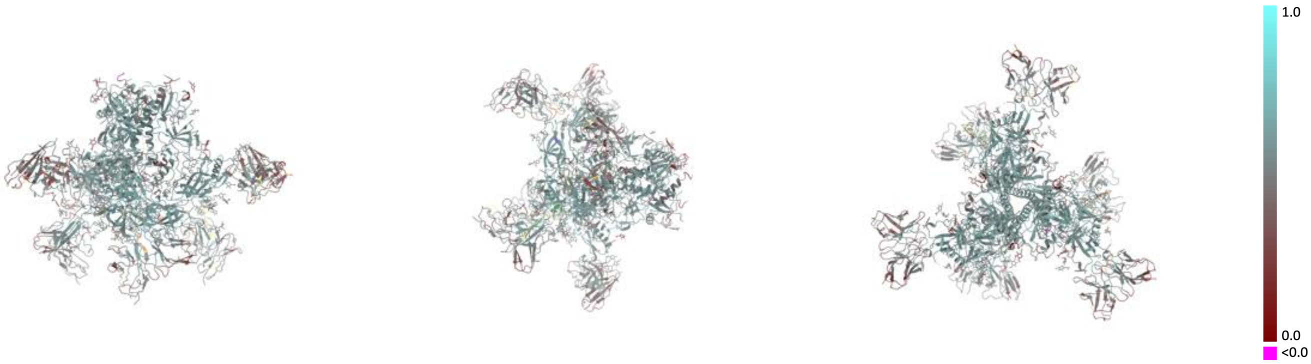
9.1 Map-model overlay ⓘ



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.155 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

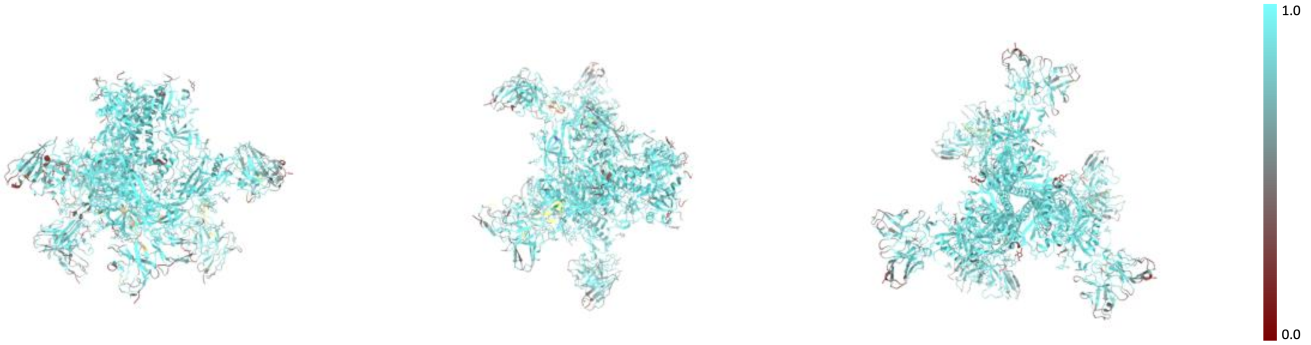
9.2 Q-score mapped to coordinate model ⓘ



X Y Z

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

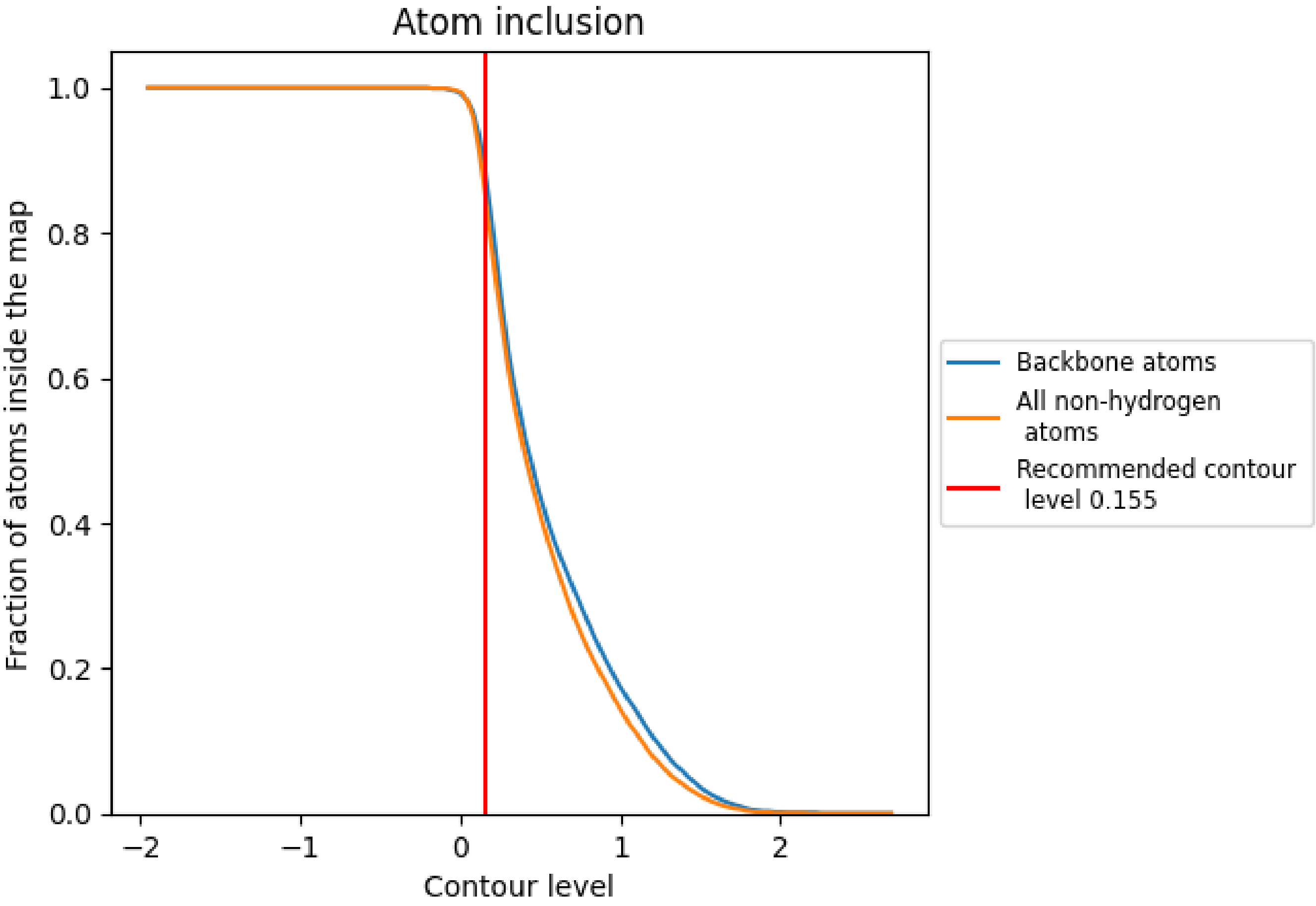
9.3 Atom inclusion mapped to coordinate model ⓘ



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.155).

9.4 Atom inclusion ⓘ



At the recommended contour level, 89% of all backbone atoms, 86% 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 (0.155) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8550	0.5270
0	0.8190	0.5020
1	0.7860	0.4640
2	0.8210	0.5200
3	0.8570	0.4870
4	0.8930	0.4990
5	0.7140	0.4710
6	0.9140	0.5420
7	0.8570	0.4730
8	0.7860	0.4540
A	0.9430	0.5820
B	0.8810	0.5340
C	0.8820	0.5320
D	0.7340	0.4420
E	0.7150	0.4430
G	0.9430	0.5820
H	0.7310	0.4410
I	0.9450	0.5820
J	0.8800	0.5320
K	0.7160	0.4420
L	0.7260	0.4470
M	0.7250	0.4430
N	0.8000	0.5110
O	0.8970	0.5850
P	0.7860	0.5480
Q	0.7500	0.4720
R	0.8210	0.5360
S	0.8060	0.5060
T	0.7860	0.4720
U	0.8210	0.5190
V	0.8210	0.4820
W	0.9290	0.5050
X	0.7500	0.4700
Y	0.9140	0.5410
Z	0.8930	0.4770

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
a	0.7860	0.4370
b	0.7600	0.5220
c	0.8720	0.5810
d	0.7830	0.4960
e	0.8000	0.5030
f	0.8210	0.5400
g	0.8210	0.4760
h	0.7770	0.4930
i	0.8210	0.5180
j	0.8190	0.4920
k	0.7840	0.4960
l	0.8050	0.5040
m	0.7990	0.5050
n	0.7860	0.4550
o	0.8210	0.5150
p	0.8210	0.4880
q	0.9290	0.4970
r	0.7500	0.4760
s	0.9050	0.5480
t	0.8570	0.4710
u	0.7860	0.4340
v	0.7800	0.5190
w	0.8970	0.5720
x	0.8210	0.5450
y	0.7500	0.4700
z	0.8210	0.5360