



Full wwPDB X-ray Structure Validation Report ⓘ

Jul 18, 2022 – 04:17 pm BST

PDB ID : 7NOZ
Title : Structure of the nanobody stablized properdin bound alternative pathway pro-convertase C3b:FB:FP
Authors : Lorenzen, J.; Pedersen, D.V.; Andersen, G.R.
Deposited on : 2021-02-26
Resolution : 3.90 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at <http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtrriage (Phenix) : 1.13
EDS : 2.29
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0267
CCP4 : 7.1.010 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.29

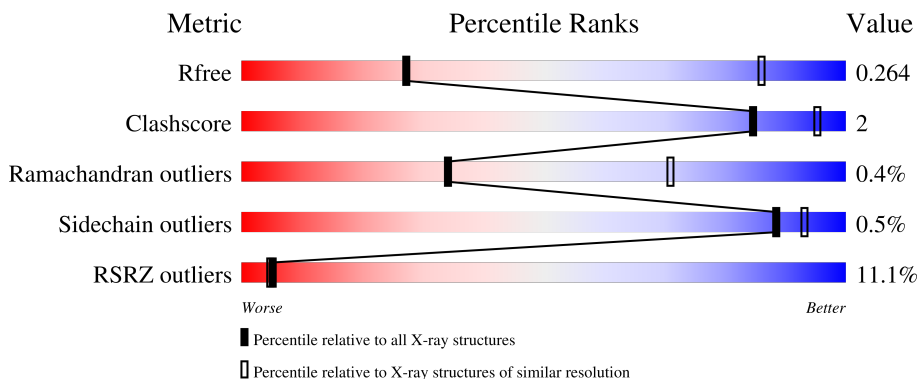
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.90 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1002 (4.14-3.66)
Clashscore	141614	1004 (4.12-3.68)
Ramachandran outliers	138981	1021 (4.14-3.66)
Sidechain outliers	138945	1014 (4.14-3.66)
RSRZ outliers	127900	1275 (4.20-3.60)

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

Mol	Chain	Length	Quality of chain
1	A	645	
2	B	912	
3	C	163	
4	D	207	
5	F	731	

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Mol	Chain	Length	Quality of chain
6	R	124	
7	E	3	
7	G	3	
7	L	3	
8	H	2	
8	I	2	
8	J	2	
9	K	4	
9	M	4	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
10	MAN	C	203	-	-	-	X
8	BGC	H	2	-	-	-	X
8	BGC	I	2	-	-	-	X

2 Entry composition [i](#)

There are 13 unique types of molecules in this entry. The entry contains 21994 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, 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 Complement C3 beta chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	642	5007	3187	848	957	15	0	0	0

- Molecule 2 is a protein called Complement C3 alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	906	7236	4584	1215	1399	38	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	1013	GLU	GLN	conflict	UNP P01024

- Molecule 3 is a protein called Properdin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	163	1228	746	227	234	21	0	0	0

- Molecule 4 is a protein called Properdin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	207	1594	987	303	282	22	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	255	GLY	PRO	conflict	UNP P27918

- Molecule 5 is a protein called Complement factor B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	F	712	5615	3529	978	1075	33	0	0	0

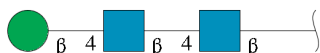
There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	279	GLY	ASP	engineered mutation	UNP P00751
F	765	ALA	-	expression tag	UNP P00751

- Molecule 6 is a protein called hFPNb1 nanobody.

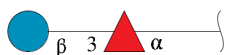
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	R	124	951	588	172	187	4	0	0	0

- Molecule 7 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				ZeroOcc	AltConf	Trace
			Total	C	N	O			
7	E	3	39	22	2	15	0	0	0
7	G	3	39	22	2	15	0	0	0
7	L	3	39	22	2	15	0	0	0

- Molecule 8 is an oligosaccharide called beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose.



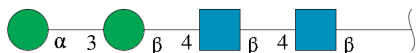
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
			Total	C	O			
8	H	2	21	12	9	0	0	0
8	I	2	21	12	9	0	0	0

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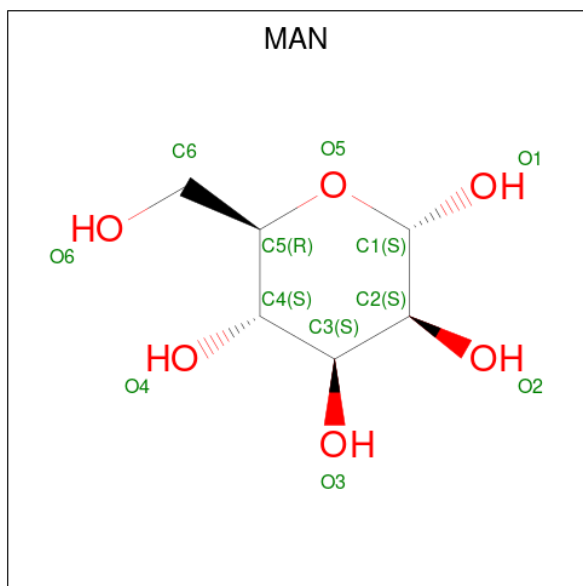
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
			Total	C	O			
8	J	2	21	12	9	0	0	0

- Molecule 9 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-beta-D-mannopyranos e-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
9	K	4	50	28	2	20	0	0	0
9	M	4	50	28	2	20	0	0	0

- Molecule 10 is alpha-D-mannopyranose (three-letter code: MAN) (formula: C₆H₁₂O₆).



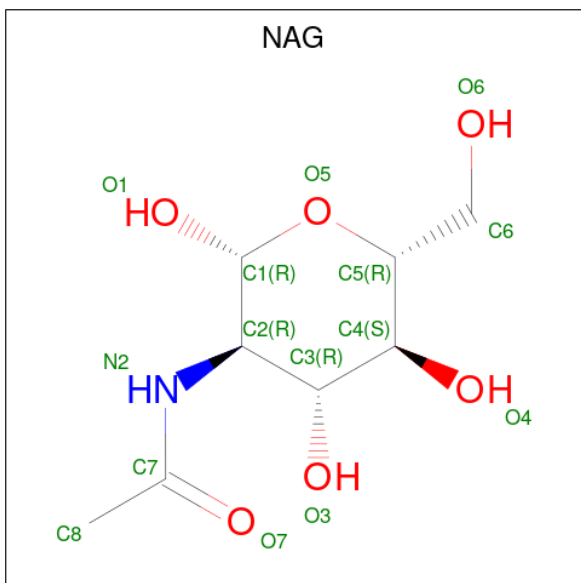
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
10	C	1	11	6	5	0	0
10	C	1	11	6	5	0	0
10	C	1	11	6	5	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	D	1	Total	C	O	0	0
			11	6	5		
10	D	1	Total	C	O	0	0
			11	6	5		
10	D	1	Total	C	O	0	0
			11	6	5		

- Molecule 11 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C₈H₁₅NO₆).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
11	F	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 12 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
12	F	1	Total	Mg	0	0
			1	1		

- Molecule 13 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	B	1	Total	O	0	0
			1	1		

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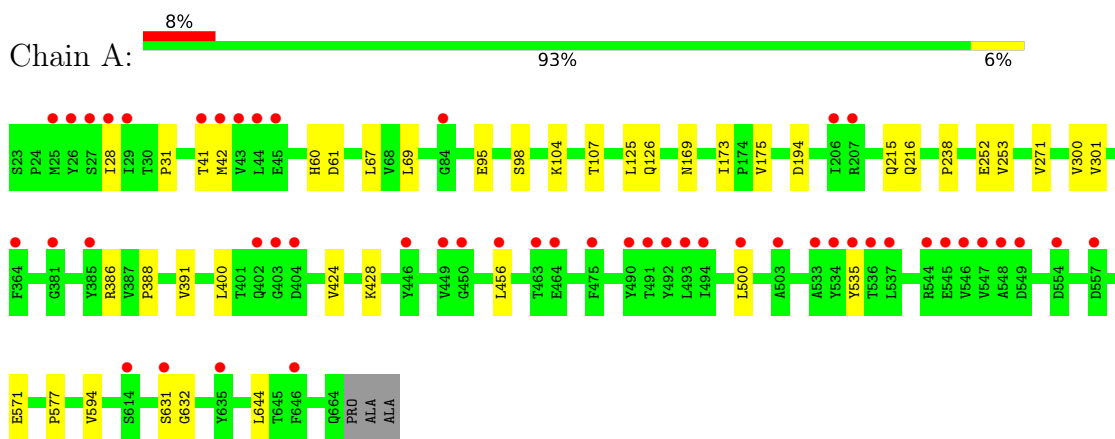
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	F	1	Total	O	0	0
			1	1		

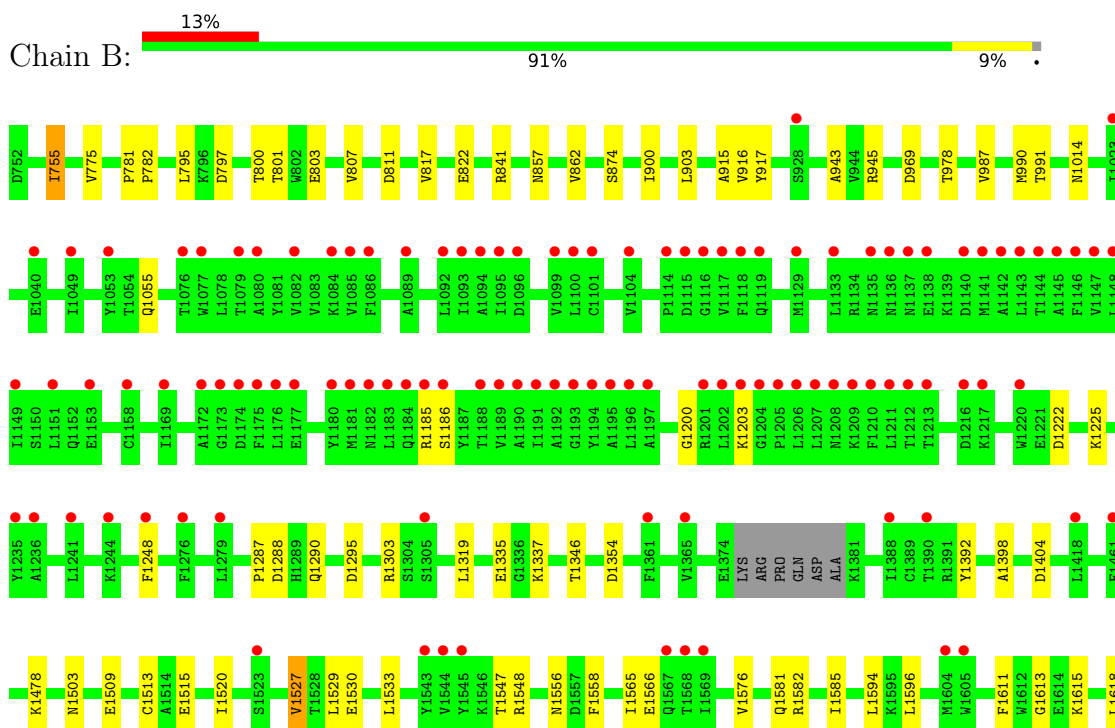
3 Residue-property plots i

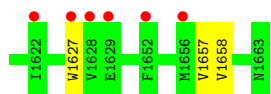
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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: Complement C3 beta chain

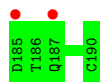
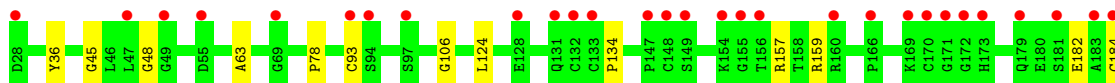
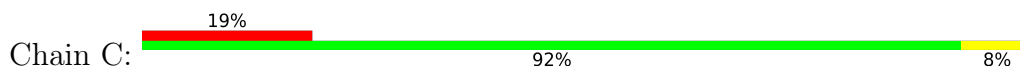


- Molecule 2: Complement C3 alpha chain

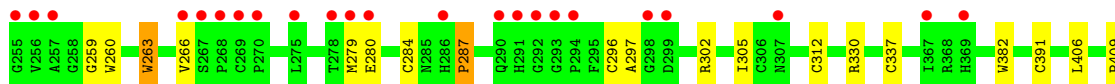
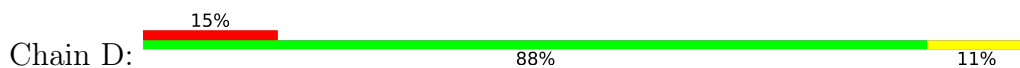




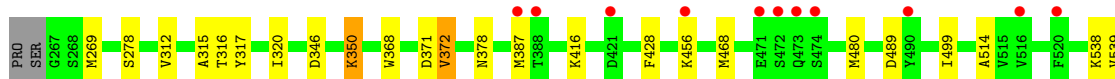
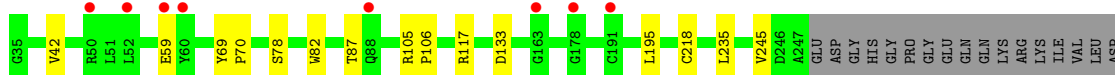
- Molecule 3: Properdin



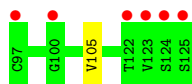
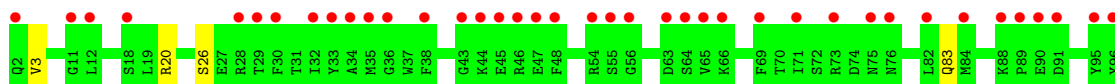
- Molecule 4: Properdin




- Molecule 5: Complement factor B



- Molecule 6: hFPNb1 nanobody

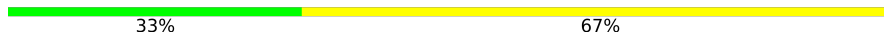


- Molecule 7: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain E:  33% 67%

MAG1
MAG2
BMA3

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

Chain G:  33% 67%

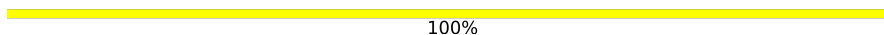
MAG1
MAG2
BMA3

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

Chain L:  33% 67%

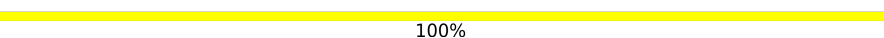
MAG1
MAG2
BMA3

- Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain H:  100%

FUC1
BGC2

- Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain I:  100%

FUC1
BGC2

- Molecule 8: beta-D-glucopyranose-(1-3)-alpha-L-fucopyranose

Chain J:  100%

FUC1
BGC2

- Molecule 9: 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 K:  50% 50%

MAG1
MAG2
BMA3
MAN4

- Molecule 9: 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 M:  25% 75%

MAG1
MAG2
BMA3
MAN4

4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	148.69Å 179.46Å 192.60Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.59 – 3.90 49.26 – 3.90	Depositor EDS
% Data completeness (in resolution range)	99.9 (48.59-3.90) 100.0 (49.26-3.90)	Depositor EDS
R_{merge}	0.19	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.58 (at 3.88Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.249 , 0.265 0.249 , 0.264	Depositor DCC
R_{free} test set	45798 reflections (96.11%)	wwPDB-VP
Wilson B-factor (Å ²)	196.3	Xtriage
Anisotropy	0.323	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	(Not available) , (Not available)	EDS
L-test for twinning ²	$\langle L \rangle = 0.43$, $\langle L^2 \rangle = 0.25$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	21994	wwPDB-VP
Average B, all atoms (Å ²)	288.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.73% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.26	0/5108	0.55	0/6940
2	B	0.27	0/7380	0.55	0/9992
3	C	0.29	0/1261	0.62	0/1710
4	D	0.26	0/1647	0.61	0/2244
5	F	0.26	0/5742	0.54	0/7773
6	R	0.26	0/967	0.54	0/1305
All	All	0.27	0/22105	0.56	0/29964

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

Mol	Chain	#Chirality outliers	#Planarity outliers
3	C	0	1
4	D	0	1
5	F	0	2
All	All	0	4

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	C	159	ARG	Sidechain
4	D	263	TRP	Peptide
5	F	372	VAL	Peptide
5	F	69	TYR	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5007	0	5064	22	0
2	B	7236	0	7153	47	0
3	C	1228	0	1122	5	0
4	D	1594	0	1508	12	0
5	F	5615	0	5468	25	0
6	R	951	0	923	3	0
7	E	39	0	34	0	0
7	G	39	0	34	0	0
7	L	39	0	34	0	0
8	H	21	0	19	0	0
8	I	21	0	19	0	0
8	J	21	0	19	0	0
9	K	50	0	43	0	0
9	M	50	0	43	0	0
10	C	33	0	30	0	0
10	D	33	0	30	0	0
11	F	14	0	13	0	0
12	F	1	0	0	0	0
13	B	1	0	0	0	0
13	F	1	0	0	1	0
All	All	21994	0	21556	102	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 2.

All (102) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:1503:ASN:N	2:B:1515:GLU:OE2	2.17	0.72
2:B:862:VAL:HG22	2:B:916:VAL:HG12	1.81	0.63
1:A:386:ARG:HG3	1:A:400:LEU:HD21	1.83	0.61
1:A:125:LEU:HB2	1:A:215:GLN:HE22	1.69	0.58
2:B:1404:ASP:HB3	2:B:1478:LYS:HB3	1.86	0.58
2:B:755:ILE:HD12	2:B:915:ALA:HB3	1.85	0.57
2:B:755:ILE:HG22	2:B:917:TYR:HA	1.87	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:28:ILE:HD11	1:A:42:MET:HG2	1.87	0.56
5:F:317:TYR:O	5:F:350:LYS:NZ	2.38	0.56
4:D:263:TRP:HB3	4:D:302:ARG:HH12	1.70	0.56
3:C:48:GLY:HA3	4:D:305:ILE:HD11	1.89	0.55
1:A:126:GLN:HG2	1:A:216:GLN:HG3	1.88	0.54
4:D:330:ARG:NH1	5:F:78:SER:OG	2.40	0.54
1:A:238:PRO:HA	1:A:253:VAL:HA	1.89	0.54
5:F:368:TRP:HD1	5:F:371:ASP:H	1.55	0.54
5:F:70:PRO:HG2	5:F:87:THR:HG22	1.91	0.53
2:B:1611:PHE:HD1	2:B:1618:LEU:HD11	1.74	0.53
3:C:157:ARG:NH2	3:C:182:GLU:OE2	2.42	0.52
2:B:807:VAL:HG22	2:B:817:VAL:HG13	1.92	0.52
5:F:514:ALA:HB2	5:F:702:PRO:HG3	1.91	0.52
2:B:1185:ARG:NH2	2:B:1222:ASP:OD2	2.42	0.52
2:B:811:ASP:OD1	2:B:811:ASP:N	2.43	0.52
2:B:1658:VAL:HG13	4:D:420:MET:HG2	1.93	0.51
2:B:1303:ARG:O	5:F:416:LYS:NZ	2.44	0.51
2:B:1565:ILE:HD12	2:B:1576:VAL:HG21	1.92	0.51
2:B:987:VAL:HG21	2:B:1290:GLN:HG2	1.93	0.51
2:B:1520:ILE:HD11	2:B:1627:TRP:HE3	1.76	0.51
5:F:245:VAL:HG11	5:F:269:MET:HB2	1.93	0.51
5:F:480:MET:O	5:F:593:ARG:NH1	2.43	0.51
5:F:499:ILE:HG23	5:F:539:VAL:HG22	1.91	0.51
2:B:800:THR:OG1	2:B:801:THR:N	2.43	0.51
1:A:391:VAL:HG22	1:A:424:VAL:HG22	1.94	0.50
5:F:346:ASP:OD1	5:F:346:ASP:N	2.42	0.50
4:D:260:TRP:NE1	4:D:297:ALA:O	2.39	0.50
5:F:489:ASP:OD2	5:F:640:LEU:N	2.44	0.49
1:A:594:VAL:HG12	2:B:775:VAL:HG22	1.94	0.49
1:A:631:SER:OG	1:A:632:GLY:N	2.45	0.49
2:B:1581:GLN:O	2:B:1582:ARG:NE	2.45	0.49
3:C:124:LEU:HB3	4:D:391:CYS:HB2	1.95	0.49
5:F:624:PRO:HG2	5:F:626:GLN:HG2	1.95	0.48
5:F:538:LYS:HB3	5:F:547:ASP:HB3	1.94	0.48
2:B:1290:GLN:OE1	2:B:1337:LYS:NZ	2.44	0.48
2:B:1613:GLY:HA3	2:B:1618:LEU:HA	1.95	0.48
2:B:775:VAL:HG23	5:F:133:ASP:OD2	2.14	0.48
2:B:1657:VAL:HG13	4:D:422:GLU:HB2	1.95	0.48
2:B:1354:ASP:OD1	2:B:1354:ASP:N	2.42	0.47
2:B:795:LEU:O	5:F:117:ARG:NH2	2.47	0.47
2:B:874:SER:HB3	2:B:900:ILE:HG22	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:456:LEU:HB2	1:A:535:TYR:HE1	1.79	0.47
1:A:60:HIS:HB2	1:A:107:THR:HB	1.96	0.47
5:F:387:MET:HG3	5:F:428:PHE:HB2	1.97	0.47
1:A:252:GLU:HG2	1:A:301:VAL:HG22	1.96	0.47
2:B:1527:VAL:HG12	2:B:1530:GLU:HB2	1.97	0.47
6:R:3:VAL:HG23	6:R:26:SER:HB2	1.97	0.47
2:B:1594:LEU:HB3	2:B:1596:LEU:HG	1.97	0.47
4:D:259:GLY:H	4:D:287:PRO:HB2	1.79	0.46
4:D:409:PRO:HG3	4:D:437:PRO:HB3	1.98	0.46
2:B:803:GLU:HG3	2:B:822:GLU:HG2	1.99	0.45
2:B:943:ALA:HB1	2:B:945:ARG:HD3	1.98	0.45
5:F:235:LEU:HD11	5:F:468:MET:HB2	1.99	0.45
1:A:577:PRO:HB3	2:B:797:ASP:HA	1.98	0.45
2:B:841:ARG:HH12	2:B:1509:GLU:HG3	1.82	0.45
2:B:990:MET:HG3	2:B:1287:PRO:HD2	1.99	0.45
4:D:279:MET:HB3	6:R:105:VAL:HG11	1.99	0.44
1:A:175:VAL:HG22	2:B:1319:LEU:HD21	1.99	0.44
1:A:41:THR:HB	1:A:500:LEU:HB2	1.99	0.44
1:A:31:PRO:HA	1:A:644:LEU:HD23	2.00	0.44
2:B:1200:GLY:O	2:B:1203:LYS:NZ	2.50	0.44
2:B:1288:ASP:OD1	2:B:1288:ASP:N	2.50	0.44
4:D:266:VAL:HG23	4:D:280:GLU:OE2	2.18	0.44
2:B:781:PRO:HA	2:B:782:PRO:HD3	1.77	0.43
1:A:61:ASP:HB3	1:A:69:LEU:HD11	2.01	0.43
2:B:1547:THR:HG22	2:B:1565:ILE:HA	2.00	0.43
1:A:271:VAL:HG11	1:A:300:VAL:HG11	2.01	0.42
2:B:978:THR:HG23	2:B:1346:THR:HG22	1.99	0.42
2:B:1529:LEU:HD22	2:B:1533:LEU:HG	1.99	0.42
1:A:98:SER:OG	1:A:104:LYS:NZ	2.45	0.42
4:D:382:TRP:NE1	4:D:440:GLU:O	2.37	0.42
6:R:20:ARG:NH1	6:R:83:GLN:OE1	2.46	0.42
2:B:969:ASP:OD1	2:B:969:ASP:N	2.50	0.42
5:F:316:THR:HB	5:F:350:LYS:HD3	2.02	0.42
3:C:78:PRO:HA	3:C:106:GLY:HA3	2.02	0.41
5:F:684:GLY:HA2	5:F:691:ASP:HB2	2.01	0.41
2:B:1548:ARG:NH1	2:B:1566:GLU:OE2	2.49	0.41
1:A:67:LEU:HD21	1:A:95:GLU:HG3	2.02	0.41
5:F:278:SER:CB	13:F:901:HOH:O	2.67	0.41
3:C:36:TYR:HB2	3:C:63:ALA:HB2	2.03	0.41
1:A:169:ASN:HD21	1:A:173:ILE:HB	1.85	0.41
5:F:195:LEU:HD23	5:F:218:CYS:HB3	2.01	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:857:ASN:OD1	2:B:857:ASN:N	2.52	0.41
2:B:903:LEU:HD11	2:B:1513:CYS:HB2	2.02	0.41
2:B:1392:TYR:CG	2:B:1398:ALA:HB2	2.56	0.41
2:B:1558:PHE:HB2	2:B:1585:ILE:HG23	2.02	0.41
1:A:388:PRO:HD2	1:A:428:LYS:HG2	2.03	0.41
5:F:42:VAL:HG11	5:F:82:TRP:CD1	2.56	0.41
1:A:215:GLN:HG2	1:A:216:GLN:HG2	2.02	0.40
2:B:1186:SER:HB2	2:B:1222:ASP:OD1	2.21	0.40
5:F:59:GLU:OE2	5:F:456:LYS:HD2	2.22	0.40
5:F:105:ARG:HA	5:F:106:PRO:HD3	1.96	0.40
2:B:1014:ASN:OD1	2:B:1055:GLN:NE2	2.54	0.40
2:B:1295:ASP:HB3	2:B:1335:GLU:HB3	2.04	0.40
5:F:312:VAL:HG22	5:F:320:ILE:HA	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	640/645 (99%)	614 (96%)	25 (4%)	1 (0%)	47	79
2	B	902/912 (99%)	849 (94%)	47 (5%)	6 (1%)	22	60
3	C	161/163 (99%)	147 (91%)	12 (8%)	2 (1%)	13	49
4	D	205/207 (99%)	195 (95%)	9 (4%)	1 (0%)	29	67
5	F	708/731 (97%)	674 (95%)	32 (4%)	2 (0%)	41	75
6	R	122/124 (98%)	118 (97%)	4 (3%)	0	100	100
All	All	2738/2782 (98%)	2597 (95%)	129 (5%)	12 (0%)	34	71

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	755	ILE
2	B	1527	VAL
3	C	134	PRO
2	B	1615	LYS
4	D	287	PRO
2	B	991	THR
2	B	1225	LYS
5	F	315	ALA
5	F	372	VAL
1	A	571	GLU
2	B	1556	ASN
3	C	45	GLY

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	566/567 (100%)	565 (100%)	1 (0%)	93	96
2	B	802/807 (99%)	801 (100%)	1 (0%)	93	97
3	C	134/134 (100%)	132 (98%)	2 (2%)	65	80
4	D	175/176 (99%)	169 (97%)	6 (3%)	37	62
5	F	619/635 (98%)	617 (100%)	2 (0%)	92	95
6	R	100/100 (100%)	100 (100%)	0	100	100
All	All	2396/2419 (99%)	2384 (100%)	12 (0%)	88	93

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	194	ASP
2	B	1248	PHE
3	C	93	CYS
3	C	184	CYS
4	D	284	CYS
4	D	296	CYS
4	D	312	CYS

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Mol	Chain	Res	Type
4	D	337	CYS
4	D	406	LEU
4	D	439	CYS
5	F	350	LYS
5	F	378	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	398	GLN
2	B	989	GLN
5	F	347	HIS
5	F	618	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

23 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
7	NAG	E	1	7,1	14,14,15	0.45	0	17,19,21	0.47	0
7	NAG	E	2	7	14,14,15	0.47	0	17,19,21	1.36	3 (17%)
7	BMA	E	3	7	11,11,12	0.96	1 (9%)	15,15,17	1.39	1 (6%)
7	NAG	G	1	2,7	14,14,15	0.75	1 (7%)	17,19,21	0.82	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
7	NAG	G	2	7	14,14,15	0.39	0	17,19,21	0.73	1 (5%)
7	BMA	G	3	7	11,11,12	0.85	0	15,15,17	0.85	0
8	FUC	H	1	3,8	10,10,11	0.80	0	14,14,16	0.92	1 (7%)
8	BGC	H	2	8	11,11,12	1.76	3 (27%)	15,15,17	0.99	0
8	FUC	I	1	3,8	10,10,11	1.17	1 (10%)	14,14,16	1.02	0
8	BGC	I	2	8	11,11,12	1.69	1 (9%)	15,15,17	2.09	3 (20%)
8	FUC	J	1	4,8	10,10,11	0.94	0	14,14,16	0.97	1 (7%)
8	BGC	J	2	8	11,11,12	1.78	3 (27%)	15,15,17	1.19	1 (6%)
9	NAG	K	1	4,9	14,14,15	0.39	0	17,19,21	0.71	0
9	NAG	K	2	9	14,14,15	1.09	1 (7%)	17,19,21	2.21	3 (17%)
9	BMA	K	3	9	11,11,12	0.92	0	15,15,17	0.74	0
9	MAN	K	4	9	11,11,12	0.86	1 (9%)	15,15,17	1.51	2 (13%)
7	NAG	L	1	5,7	14,14,15	0.42	0	17,19,21	0.51	0
7	NAG	L	2	7	14,14,15	0.74	1 (7%)	17,19,21	0.74	1 (5%)
7	BMA	L	3	7	11,11,12	0.85	0	15,15,17	0.96	1 (6%)
9	NAG	M	1	5,9	14,14,15	0.65	1 (7%)	17,19,21	0.96	1 (5%)
9	NAG	M	2	9	14,14,15	0.35	0	17,19,21	0.51	0
9	BMA	M	3	9	11,11,12	0.85	0	15,15,17	1.04	1 (6%)
9	MAN	M	4	9	11,11,12	0.95	1 (9%)	15,15,17	1.53	2 (13%)

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
7	NAG	E	1	7,1	-	0/6/23/26	0/1/1/1
7	NAG	E	2	7	-	1/6/23/26	0/1/1/1
7	BMA	E	3	7	-	1/2/19/22	0/1/1/1
7	NAG	G	1	2,7	-	2/6/23/26	0/1/1/1
7	NAG	G	2	7	-	2/6/23/26	0/1/1/1
7	BMA	G	3	7	-	1/2/19/22	0/1/1/1
8	FUC	H	1	3,8	-	-	0/1/1/1
8	BGC	H	2	8	-	2/2/19/22	0/1/1/1
8	FUC	I	1	3,8	-	-	0/1/1/1
8	BGC	I	2	8	-	2/2/19/22	0/1/1/1
8	FUC	J	1	4,8	-	-	0/1/1/1
8	BGC	J	2	8	-	2/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	NAG	K	1	4,9	-	0/6/23/26	0/1/1/1
9	NAG	K	2	9	-	3/6/23/26	0/1/1/1
9	BMA	K	3	9	-	0/2/19/22	0/1/1/1
9	MAN	K	4	9	-	2/2/19/22	0/1/1/1
7	NAG	L	1	5,7	-	0/6/23/26	0/1/1/1
7	NAG	L	2	7	-	2/6/23/26	0/1/1/1
7	BMA	L	3	7	-	1/2/19/22	0/1/1/1
9	NAG	M	1	5,9	-	0/6/23/26	0/1/1/1
9	NAG	M	2	9	-	0/6/23/26	0/1/1/1
9	BMA	M	3	9	-	0/2/19/22	0/1/1/1
9	MAN	M	4	9	-	1/2/19/22	0/1/1/1

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	I	2	BGC	O5-C1	4.72	1.51	1.43
8	J	2	BGC	O5-C1	4.71	1.51	1.43
8	H	2	BGC	O5-C1	4.62	1.51	1.43
9	K	2	NAG	C1-C2	3.40	1.57	1.52
8	I	1	FUC	C2-C3	2.53	1.56	1.52
9	K	4	MAN	O5-C5	2.39	1.48	1.43
9	M	4	MAN	O5-C5	2.33	1.48	1.43
8	H	2	BGC	C2-C3	-2.29	1.49	1.52
8	J	2	BGC	C2-C3	-2.21	1.49	1.52
7	L	2	NAG	C1-C2	2.20	1.55	1.52
8	H	2	BGC	O5-C5	2.19	1.47	1.43
8	J	2	BGC	O5-C5	2.17	1.47	1.43
7	G	1	NAG	O5-C1	2.16	1.47	1.43
7	E	3	BMA	C1-C2	2.15	1.57	1.52
9	M	1	NAG	O5-C1	2.10	1.47	1.43

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	K	2	NAG	C2-N2-C7	7.72	133.90	122.90
8	I	2	BGC	C1-C2-C3	5.44	116.35	109.67
9	M	4	MAN	C1-O5-C5	4.93	118.87	112.19
9	K	4	MAN	C1-O5-C5	4.88	118.80	112.19
7	E	3	BMA	C1-O5-C5	4.23	117.92	112.19
8	I	2	BGC	C2-C3-C4	4.15	118.08	110.89
9	K	2	NAG	C1-C2-N2	3.54	116.54	110.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	E	2	NAG	C1-O5-C5	3.21	116.54	112.19
7	E	2	NAG	C2-N2-C7	3.19	127.44	122.90
8	I	2	BGC	C3-C4-C5	2.79	115.22	110.24
9	M	1	NAG	C1-O5-C5	2.71	115.87	112.19
7	G	1	NAG	C1-O5-C5	2.71	115.86	112.19
8	J	2	BGC	C1-C2-C3	2.65	112.92	109.67
7	L	2	NAG	C1-O5-C5	2.34	115.36	112.19
7	G	2	NAG	C1-O5-C5	2.32	115.34	112.19
9	M	3	BMA	C1-O5-C5	2.26	115.25	112.19
9	K	4	MAN	O2-C2-C3	-2.24	105.65	110.14
7	E	2	NAG	C1-C2-N2	2.19	114.23	110.49
7	L	3	BMA	C1-O5-C5	2.15	115.10	112.19
8	H	1	FUC	C1-O5-C5	2.15	117.64	112.78
9	K	2	NAG	C8-C7-N2	2.12	119.69	116.10
8	J	1	FUC	C1-O5-C5	2.11	117.57	112.78
9	M	4	MAN	O2-C2-C3	-2.06	106.02	110.14

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	G	1	NAG	O5-C5-C6-O6
8	H	2	BGC	O5-C5-C6-O6
7	L	2	NAG	O5-C5-C6-O6
7	G	1	NAG	C4-C5-C6-O6
7	L	2	NAG	C4-C5-C6-O6
8	H	2	BGC	C4-C5-C6-O6
8	J	2	BGC	C4-C5-C6-O6
7	G	2	NAG	C8-C7-N2-C2
7	G	2	NAG	O7-C7-N2-C2
9	K	2	NAG	C8-C7-N2-C2
9	K	2	NAG	O7-C7-N2-C2
8	I	2	BGC	C4-C5-C6-O6
9	K	4	MAN	O5-C5-C6-O6
8	J	2	BGC	O5-C5-C6-O6
8	I	2	BGC	O5-C5-C6-O6
7	L	3	BMA	O5-C5-C6-O6
7	E	3	BMA	O5-C5-C6-O6
7	G	3	BMA	C4-C5-C6-O6
7	E	2	NAG	C3-C2-N2-C7
9	M	4	MAN	O5-C5-C6-O6
9	K	4	MAN	C4-C5-C6-O6

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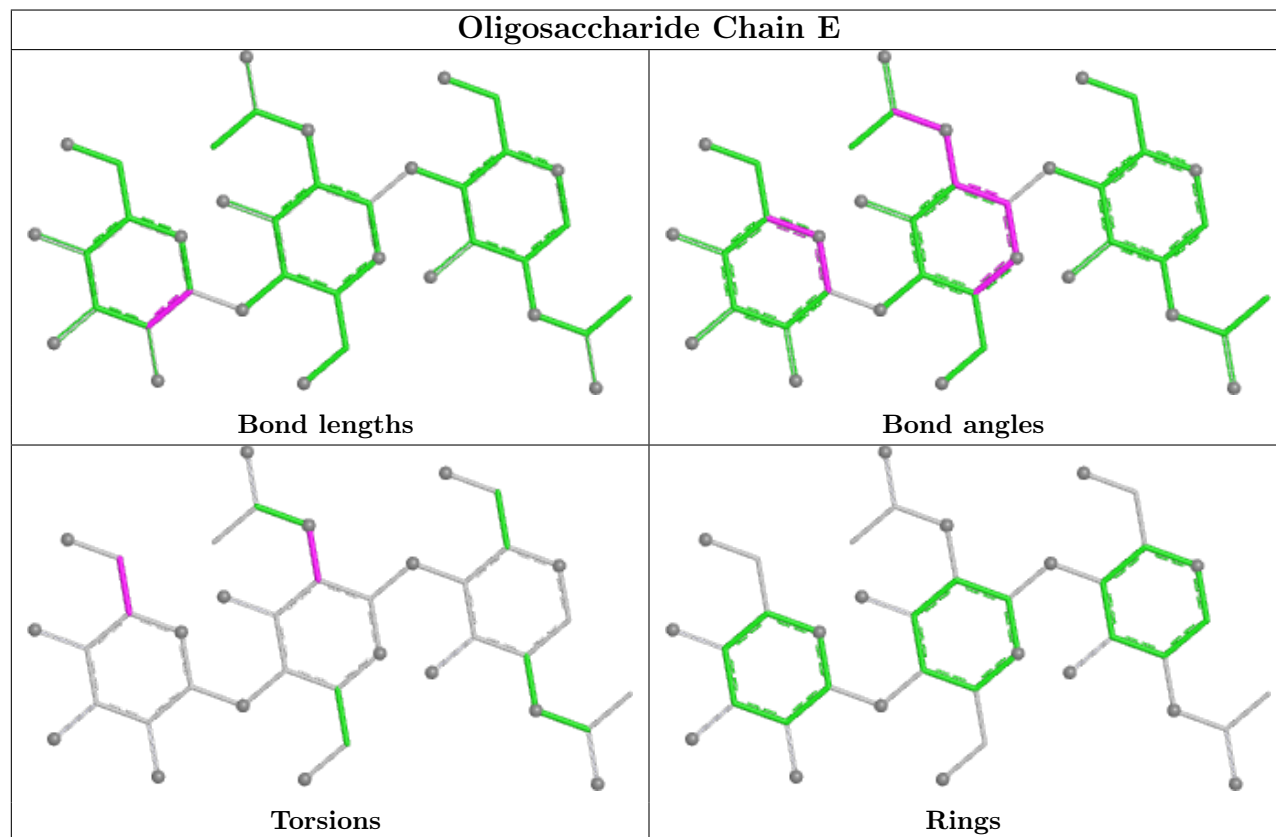
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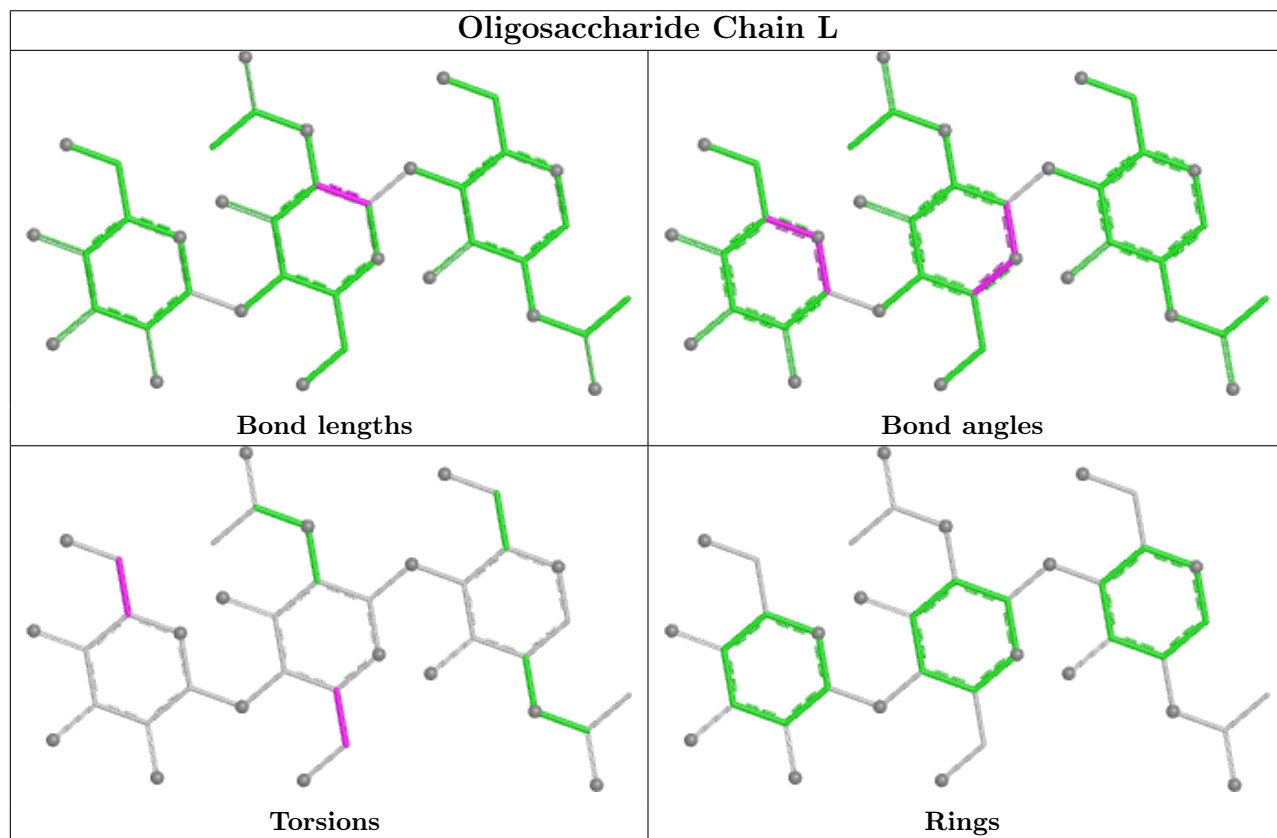
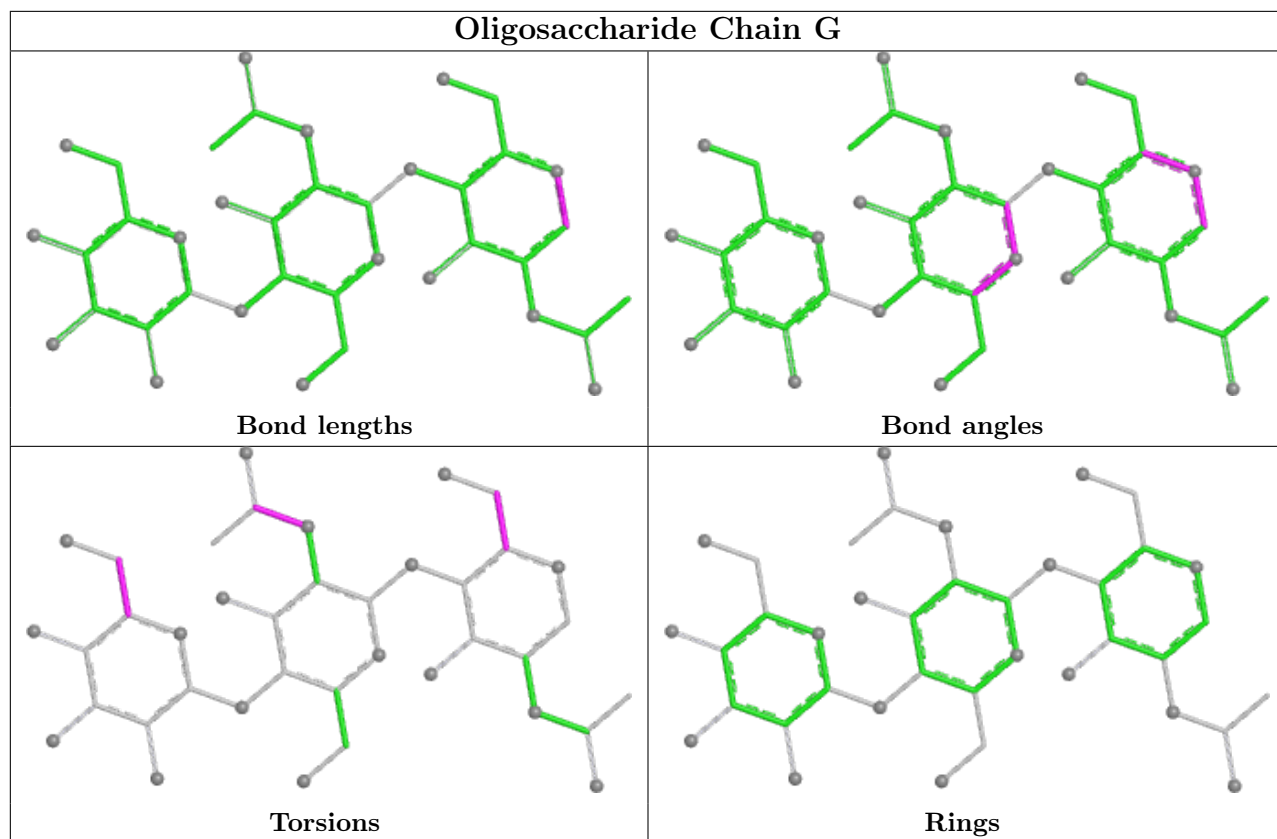
Mol	Chain	Res	Type	Atoms
9	K	2	NAG	C3-C2-N2-C7

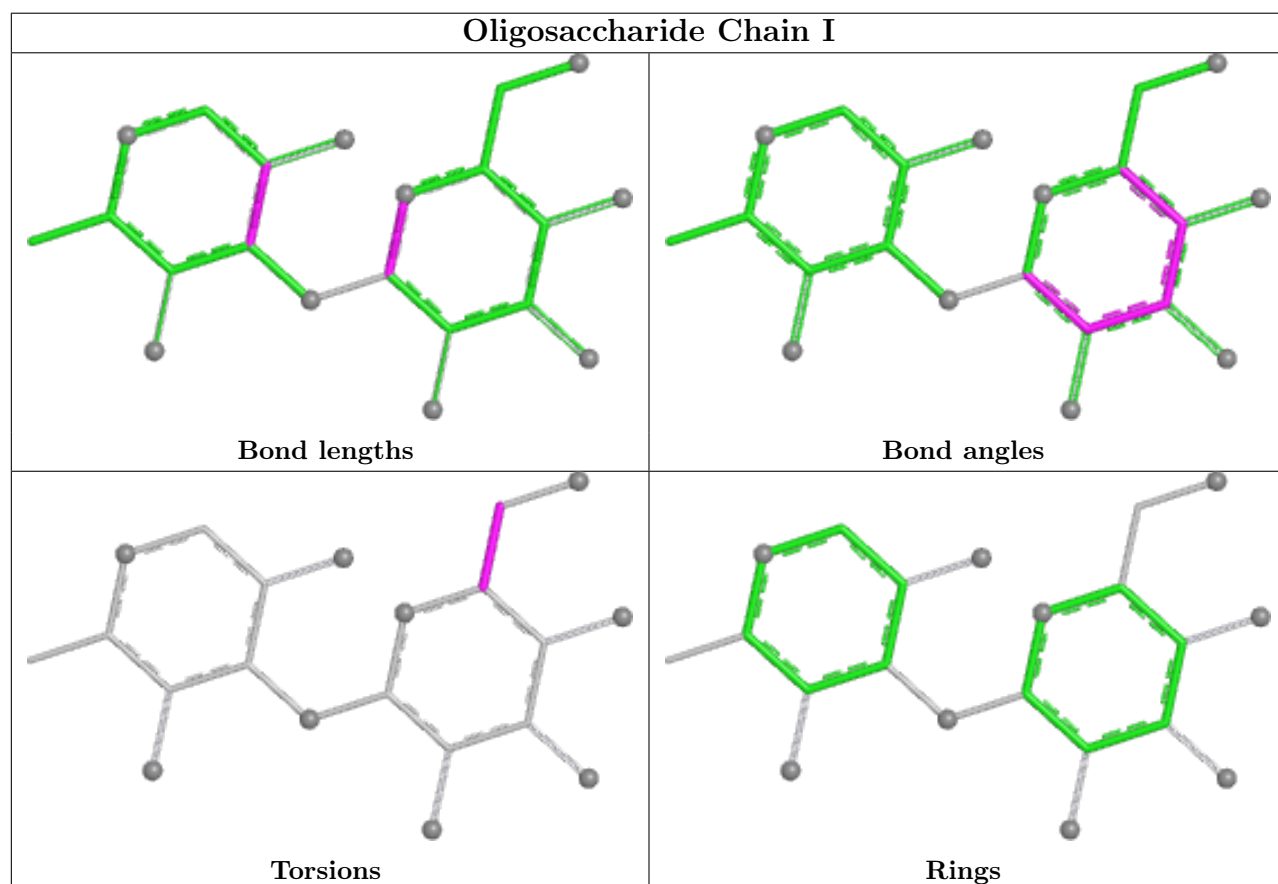
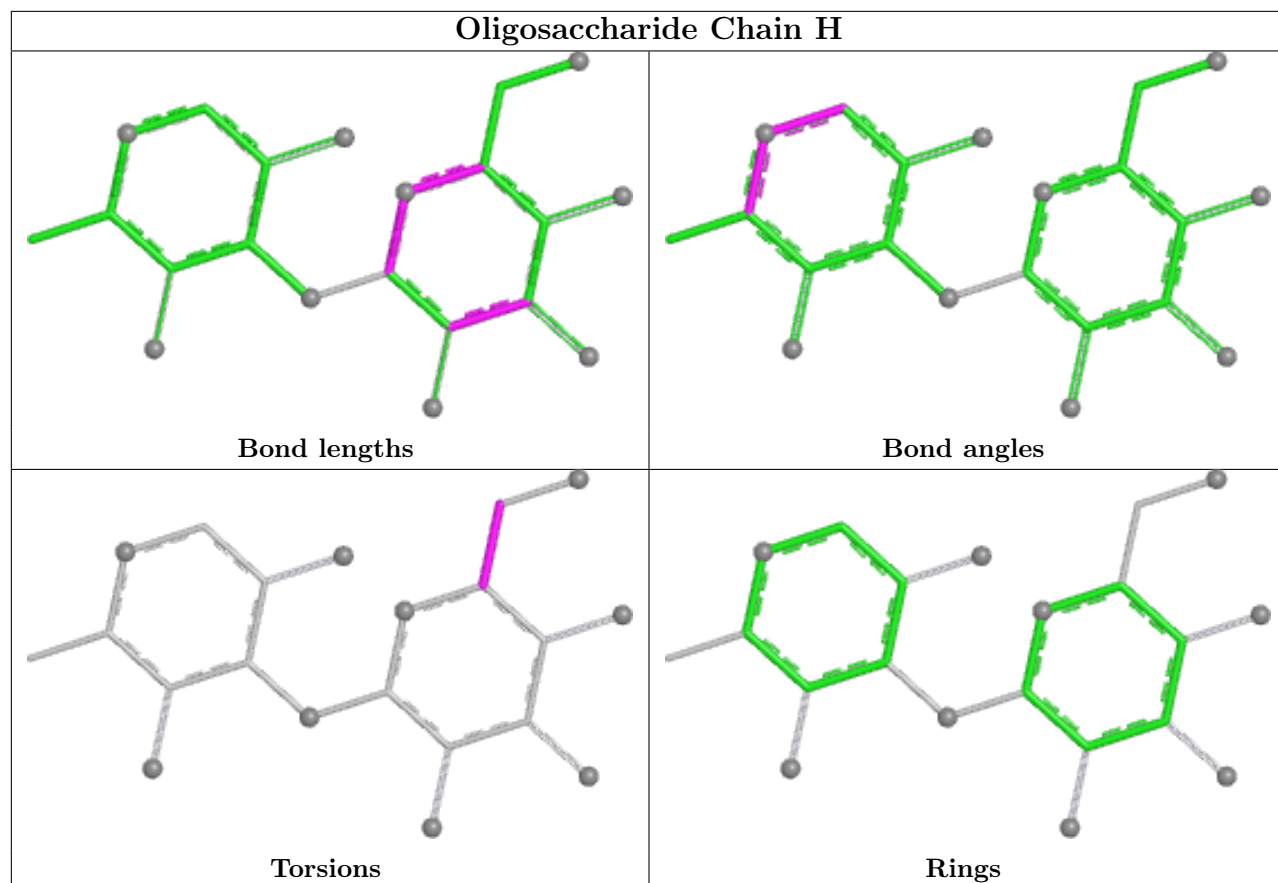
There are no ring outliers.

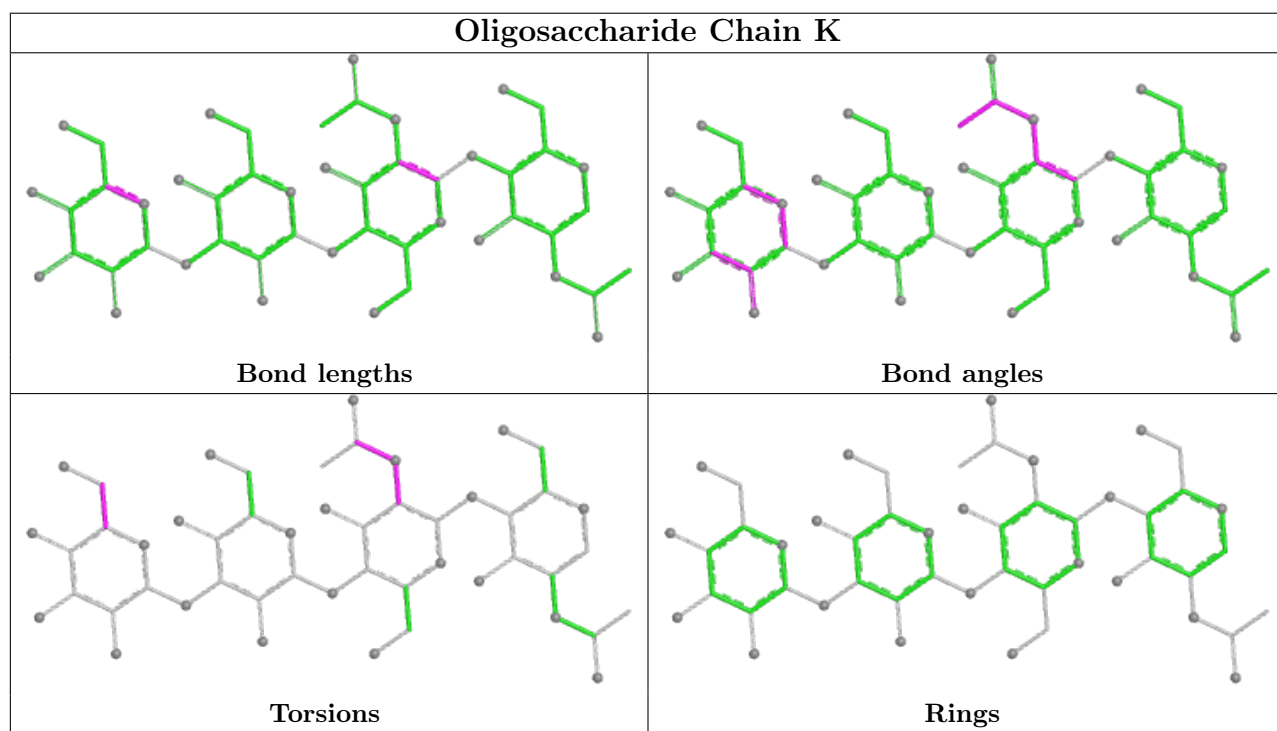
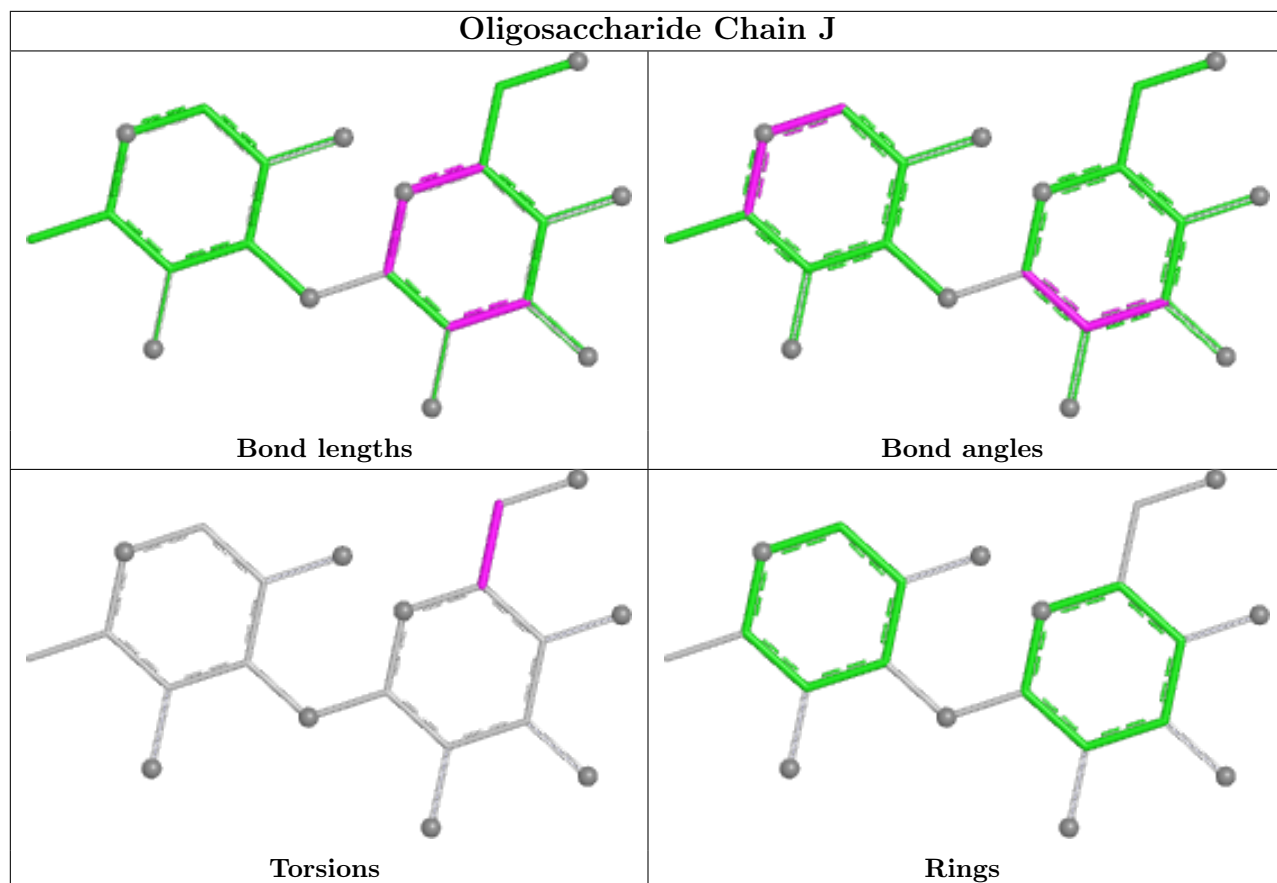
No monomer is involved in short contacts.

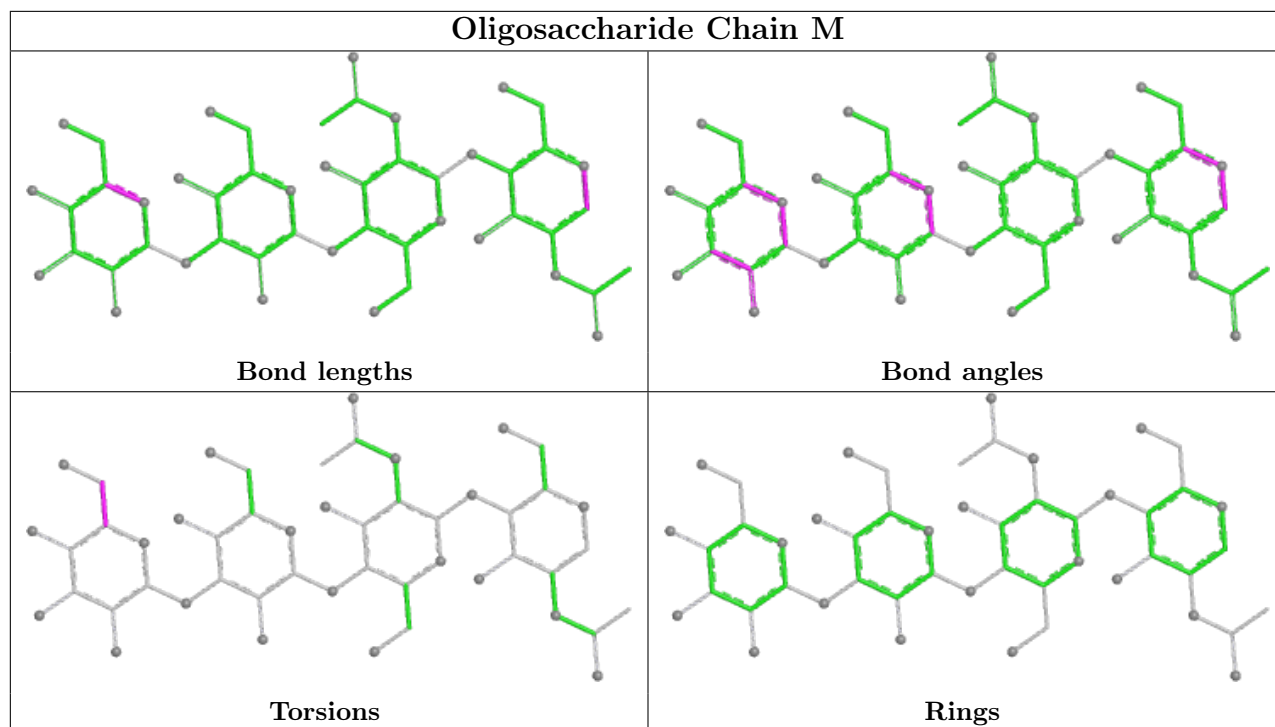
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.











5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 1 is monoatomic - leaving 7 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
10	MAN	C	201	3	11,11,12	1.14	0	15,15,17	1.31	2 (13%)
10	MAN	C	203	3	11,11,12	1.04	0	15,15,17	1.55	2 (13%)
10	MAN	D	502	4	11,11,12	1.03	0	15,15,17	1.51	2 (13%)
10	MAN	D	501	4	11,11,12	1.07	0	15,15,17	1.55	2 (13%)
10	MAN	C	202	3	11,11,12	1.15	0	15,15,17	1.32	2 (13%)
10	MAN	D	503	4	11,11,12	1.28	2 (18%)	15,15,17	1.73	3 (20%)
11	NAG	F	801	5	14,14,15	0.50	0	17,19,21	0.99	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
10	MAN	C	201	3	-	2/2/19/22	0/1/1/1
10	MAN	C	203	3	-	0/2/19/22	0/1/1/1
10	MAN	D	502	4	-	1/2/19/22	0/1/1/1
10	MAN	D	501	4	-	0/2/19/22	0/1/1/1
10	MAN	C	202	3	-	0/2/19/22	0/1/1/1
10	MAN	D	503	4	-	2/2/19/22	0/1/1/1
11	NAG	F	801	5	-	3/6/23/26	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
10	D	503	MAN	C4-C5	2.58	1.58	1.53
10	D	503	MAN	O5-C5	2.33	1.48	1.43

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	D	503	MAN	C1-O5-C5	4.76	118.64	112.19
10	D	502	MAN	C1-O5-C5	4.07	117.71	112.19
10	D	501	MAN	C1-O5-C5	3.96	117.56	112.19
10	C	203	MAN	C1-O5-C5	3.79	117.33	112.19
11	F	801	NAG	C2-N2-C7	3.02	127.20	122.90
10	C	202	MAN	C1-O5-C5	3.02	116.28	112.19
10	C	201	MAN	C1-O5-C5	2.93	116.16	112.19
10	D	503	MAN	C3-C4-C5	2.47	114.65	110.24
10	D	503	MAN	O2-C2-C3	-2.40	105.33	110.14
10	D	502	MAN	O2-C2-C3	-2.36	105.41	110.14
10	C	203	MAN	O2-C2-C3	-2.33	105.47	110.14
10	C	201	MAN	O2-C2-C3	-2.26	105.61	110.14
10	D	501	MAN	O2-C2-C3	-2.23	105.67	110.14
10	C	202	MAN	O2-C2-C3	-2.21	105.71	110.14

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
11	F	801	NAG	C4-C5-C6-O6
11	F	801	NAG	O5-C5-C6-O6
10	C	201	MAN	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
10	D	503	MAN	C4-C5-C6-O6
10	C	201	MAN	O5-C5-C6-O6
10	D	502	MAN	C4-C5-C6-O6
10	D	503	MAN	O5-C5-C6-O6
11	F	801	NAG	C3-C2-N2-C7

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	642/645 (99%)	0.25	50 (7%) 13 10	164, 224, 308, 343	0
2	B	906/912 (99%)	0.59	117 (12%) 3 3	161, 255, 453, 489	0
3	C	163/163 (100%)	0.70	31 (19%) 1 1	347, 395, 626, 674	0
4	D	207/207 (100%)	0.46	32 (15%) 2 2	279, 352, 493, 532	0
5	F	712/731 (97%)	0.15	31 (4%) 34 28	190, 233, 342, 367	0
6	R	124/124 (100%)	1.76	45 (36%) 0 0	383, 465, 510, 524	0
All	All	2754/2782 (98%)	0.45	306 (11%) 5 5	161, 256, 475, 674	0

All (306) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	1205	PRO	16.9
2	B	1206	LEU	16.5
2	B	1183	LEU	15.2
2	B	1095	ILE	14.6
2	B	1144	THR	14.0
2	B	1180	TYR	14.0
4	D	279	MET	12.2
2	B	1210	PHE	12.2
6	R	29	THR	11.8
2	B	1176	LEU	11.3
2	B	1202	LEU	10.7
2	B	1209	LYS	10.6
2	B	1192	ALA	9.8
2	B	1184	GLN	9.7
2	B	1208	ASN	9.5
6	R	125	SER	9.4
2	B	1145	ALA	9.4
1	A	547	VAL	9.3
2	B	1114	PRO	9.2

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Mol	Chain	Res	Type	RSRZ
2	B	1204	GLY	9.1
1	A	548	ALA	8.9
2	B	1115	ASP	8.7
2	B	1182	ASN	8.3
2	B	1193	GLY	8.2
2	B	1175	PHE	7.8
2	B	1212	THR	7.7
2	B	1136	ASN	7.7
2	B	1141	MET	7.6
2	B	1189	VAL	7.6
2	B	1100	LEU	7.5
4	D	268	PRO	7.4
2	B	1148	LEU	7.4
2	B	1211	LEU	7.3
6	R	75	ASN	7.2
4	D	278	THR	7.2
1	A	534	TYR	7.1
3	C	149	SER	6.9
4	D	275	LEU	6.9
2	B	1147	VAL	6.8
4	D	255	GLY	6.7
2	B	1173	GLY	6.7
2	B	1213	THR	6.6
2	B	1207	LEU	6.6
3	C	156	THR	6.5
1	A	535	TYR	6.5
6	R	44	LYS	6.2
1	A	491	THR	6.1
1	A	549	ASP	5.8
2	B	1177	GLU	5.8
2	B	1276	PHE	5.8
4	D	256	VAL	5.7
2	B	1191	ILE	5.6
2	B	1094	ALA	5.6
5	F	472	SER	5.6
4	D	280	GLU	5.6
2	B	1135	ASN	5.6
1	A	546	VAL	5.5
2	B	1181	MET	5.5
2	B	1201	ARG	5.5
1	A	536	THR	5.4
6	R	43	GLY	5.4

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Mol	Chain	Res	Type	RSRZ
2	B	1188	THR	5.4
1	A	403	GLY	5.3
6	R	89	PRO	5.3
2	B	1185	ARG	5.3
1	A	490	TYR	5.2
1	A	41	THR	5.2
2	B	1174	ASP	5.1
4	D	269	CYS	5.1
2	B	1220	TRP	5.0
2	B	1248	PHE	5.0
3	C	181	SER	4.9
2	B	1096	ASP	4.9
3	C	171	GLY	4.9
2	B	1196	LEU	4.8
5	F	760	ASP	4.8
2	B	1086	PHE	4.8
1	A	464	GLU	4.8
2	B	1244	LYS	4.7
2	B	1140	ASP	4.7
1	A	42	MET	4.7
2	B	1190	ALA	4.7
3	C	155	GLY	4.7
1	A	26	TYR	4.5
2	B	1169	ILE	4.5
6	R	124	SER	4.5
6	R	28	ARG	4.5
3	C	47	LEU	4.4
3	C	148	CYS	4.4
2	B	1604	MET	4.4
6	R	33	TYR	4.4
6	R	30	PHE	4.3
3	C	131	GLN	4.3
2	B	1217	LYS	4.3
2	B	1118	PHE	4.2
3	C	170	CYS	4.2
2	B	1101	CYS	4.2
6	R	35	MET	4.2
2	B	1133	LEU	4.2
2	B	1151	LEU	4.1
6	R	32	ILE	4.1
1	A	545	GLU	4.0
2	B	1158	CYS	4.0

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Mol	Chain	Res	Type	RSRZ
2	B	1461	PHE	4.0
5	F	713	GLN	3.9
2	B	1236	ALA	3.9
3	C	132	CYS	3.9
4	D	369	HIS	3.9
2	B	1194	TYR	3.8
1	A	533	ALA	3.8
6	R	12	LEU	3.8
2	B	1605	TRP	3.8
5	F	474	SER	3.8
3	C	160	ARG	3.8
6	R	90	GLU	3.7
1	A	449	VAL	3.7
1	A	557	ASP	3.7
2	B	1053	TYR	3.7
4	D	435	PRO	3.7
6	R	64	SER	3.7
2	B	1235	TYR	3.6
6	R	65	VAL	3.6
3	C	184	CYS	3.6
3	C	133	CYS	3.5
3	C	183	ALA	3.5
2	B	1084	LYS	3.4
4	D	367	ILE	3.4
6	R	56	GLY	3.4
6	R	122	THR	3.4
4	D	293	GLY	3.4
6	R	71	ILE	3.4
4	D	267	SER	3.4
4	D	257	ALA	3.4
2	B	928	SER	3.4
2	B	1279	LEU	3.4
2	B	1172	ALA	3.3
1	A	27	SER	3.3
4	D	292	GLY	3.3
2	B	1365	VAL	3.3
3	C	28	ASP	3.3
2	B	1076	THR	3.3
6	R	73	ARG	3.3
3	C	187	GLN	3.2
6	R	55	SER	3.2
1	A	614	SER	3.2

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Mol	Chain	Res	Type	RSRZ
4	D	266	VAL	3.1
2	B	1049	ILE	3.1
2	B	1153	GLU	3.1
1	A	25	MET	3.1
3	C	185	ASP	3.1
2	B	1629	GLU	3.1
6	R	54	ARG	3.1
2	B	1117	VAL	3.1
1	A	44	LEU	3.1
1	A	554	ASP	3.0
3	C	94	SER	3.0
4	D	457	HIS	3.0
5	F	59	GLU	3.0
1	A	503	ALA	3.0
1	A	544	ARG	3.0
2	B	1092	LEU	2.9
1	A	28	ILE	2.9
1	A	45	GLU	2.9
2	B	1116	GLY	2.9
5	F	720	GLY	2.9
4	D	286	HIS	2.9
2	B	1652	PHE	2.9
2	B	1093	ILE	2.9
2	B	1545	TYR	2.9
3	C	55	ASP	2.9
1	A	404	ASP	2.8
2	B	1628	VAL	2.8
6	R	34	ALA	2.8
4	D	291	HIS	2.8
2	B	1104	VAL	2.8
1	A	493	LEU	2.8
5	F	490	TYR	2.8
6	R	45	GLU	2.8
6	R	97	CYS	2.8
2	B	1080	ALA	2.8
6	R	82	LEU	2.8
1	A	537	LEU	2.8
6	R	46	ARG	2.7
5	F	473	GLN	2.7
1	A	646	PHE	2.7
2	B	1082	VAL	2.7
6	R	47	GLU	2.7

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Mol	Chain	Res	Type	RSRZ
5	F	88	GLN	2.7
4	D	431	PHE	2.7
6	R	69	PHE	2.7
3	C	69	GLY	2.6
3	C	179	GLN	2.6
2	B	1023	ILE	2.6
3	C	154	LYS	2.6
1	A	29	ILE	2.6
5	F	595	ILE	2.6
1	A	446	TYR	2.6
2	B	1040	GLU	2.6
2	B	1388	ILE	2.6
4	D	298	GLY	2.6
5	F	421	ASP	2.6
6	R	100	GLY	2.6
2	B	1186	SER	2.6
5	F	714	VAL	2.6
5	F	740	ASP	2.6
2	B	1149	ILE	2.6
2	B	1099	VAL	2.5
5	F	60	TYR	2.5
5	F	718	SER	2.5
2	B	1077	TRP	2.5
6	R	11	GLY	2.5
1	A	494	ILE	2.5
4	D	307	ASN	2.5
2	B	1143	LEU	2.5
5	F	471	GLU	2.5
6	R	18	SER	2.5
1	A	207	ARG	2.5
5	F	178	GLY	2.5
2	B	1523	SER	2.5
2	B	1195	ALA	2.5
3	C	97	SER	2.5
2	B	1119	GLN	2.5
1	A	206	ILE	2.5
3	C	147	PRO	2.4
5	F	765	ALA	2.4
2	B	1544	VAL	2.4
2	B	1568	THR	2.4
2	B	1129	MET	2.4
2	B	1197	ALA	2.4

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Mol	Chain	Res	Type	RSRZ
5	F	598	PRO	2.4
2	B	1203	LYS	2.4
6	R	76	ASN	2.4
2	B	1085	VAL	2.4
6	R	123	VAL	2.4
6	R	2	GLN	2.4
4	D	454	PRO	2.4
2	B	1146	PHE	2.4
3	C	128	GLU	2.3
6	R	84	MET	2.3
5	F	588	TYR	2.3
1	A	500	LEU	2.3
1	A	463	THR	2.3
2	B	1079	THR	2.3
2	B	1142	ALA	2.3
5	F	388	THR	2.3
4	D	294	PRO	2.3
5	F	50	ARG	2.3
2	B	1656	MET	2.3
3	C	49	GLY	2.3
3	C	169	LYS	2.3
3	C	172	GLY	2.3
2	B	1390	THR	2.3
1	A	635	TYR	2.3
6	R	91	ASP	2.3
1	A	385	TYR	2.3
5	F	387	MET	2.3
3	C	166	PRO	2.2
5	F	516	VAL	2.2
1	A	364	PHE	2.2
5	F	758	ASP	2.2
6	R	95	TYR	2.2
4	D	270	PRO	2.2
2	B	1089	ALA	2.2
4	D	448	VAL	2.2
5	F	625	ALA	2.2
1	A	450	GLY	2.2
4	D	459	PRO	2.2
2	B	1567	GLN	2.2
1	A	492	TYR	2.2
5	F	456	LYS	2.2
1	A	402	GLN	2.2

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Mol	Chain	Res	Type	RSRZ
4	D	290	GLN	2.2
6	R	38	PHE	2.2
2	B	1305	SER	2.2
6	R	36	GLY	2.1
2	B	1622	ILE	2.1
4	D	299	ASP	2.1
2	B	1241	LEU	2.1
2	B	1216	ASP	2.1
6	R	66	LYS	2.1
1	A	456	LEU	2.1
4	D	411	LEU	2.1
2	B	1569	ILE	2.1
1	A	475	PHE	2.1
2	B	1543	TYR	2.1
2	B	1627	TRP	2.1
1	A	631	SER	2.1
1	A	381	GLY	2.1
1	A	43	VAL	2.1
5	F	52	LEU	2.1
6	R	88	LYS	2.1
4	D	422	GLU	2.1
5	F	520	PHE	2.1
5	F	163	GLY	2.1
6	R	48	PHE	2.1
5	F	191	CYS	2.0
2	B	1361	PHE	2.0
6	R	96	TYR	2.0
3	C	93	CYS	2.0
2	B	1137	ASN	2.0
2	B	1418	LEU	2.0
3	C	173	HIS	2.0
1	A	84	GLY	2.0
6	R	63	ASP	2.0
4	D	460	ALA	2.0
2	B	1138	GLU	2.0

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates [i](#)

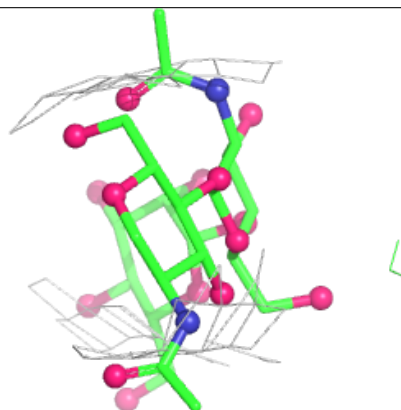
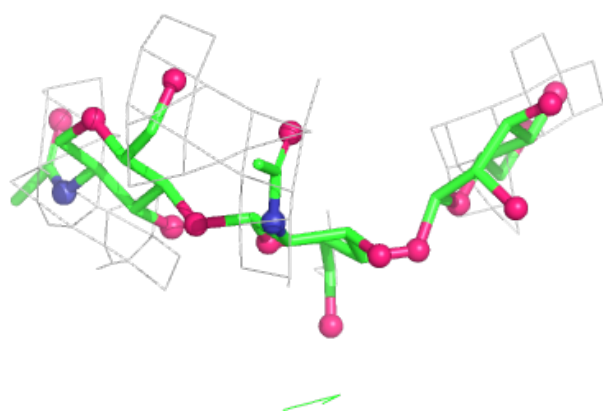
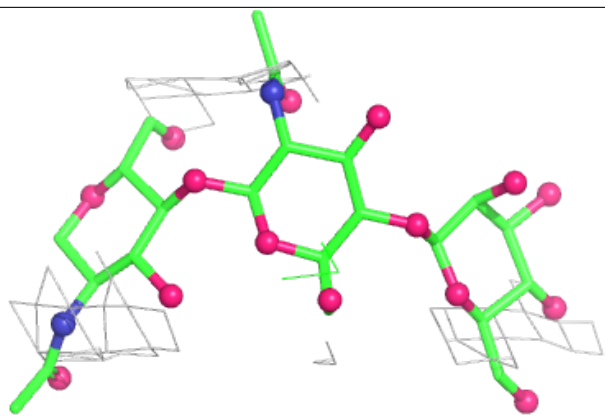
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
8	BGC	H	2	11/12	0.04	0.82	726,765,818,828	0
8	BGC	I	2	11/12	0.65	0.40	445,466,477,478	0
9	MAN	K	4	11/12	0.68	0.13	326,339,345,350	0
7	NAG	E	2	14/15	0.70	0.22	267,269,271,271	0
9	BMA	M	3	11/12	0.72	0.24	296,296,296,296	0
9	NAG	M	2	14/15	0.73	0.23	296,296,296,296	0
7	BMA	L	3	11/12	0.74	0.15	344,349,373,383	0
8	FUC	H	1	10/11	0.76	0.36	635,694,745,767	0
8	FUC	I	1	10/11	0.77	0.39	466,472,482,491	0
7	BMA	E	3	11/12	0.78	0.25	270,271,272,273	0
7	NAG	L	2	14/15	0.78	0.19	313,322,336,345	0
9	MAN	M	4	11/12	0.79	0.23	296,296,296,296	0
9	BMA	K	3	11/12	0.80	0.15	326,332,339,340	0
9	NAG	K	2	14/15	0.83	0.14	301,312,321,322	0
7	NAG	G	1	14/15	0.84	0.16	247,265,283,287	0
7	BMA	G	3	11/12	0.84	0.17	334,351,381,382	0
9	NAG	K	1	14/15	0.84	0.22	292,296,303,305	0
7	NAG	E	1	14/15	0.85	0.24	265,266,268,268	0
8	BGC	J	2	11/12	0.85	0.31	302,319,344,348	0
7	NAG	G	2	14/15	0.85	0.16	293,317,341,341	0
9	NAG	M	1	14/15	0.86	0.09	296,296,296,296	0
8	FUC	J	1	10/11	0.92	0.12	310,320,332,340	0
7	NAG	L	1	14/15	0.92	0.13	277,287,300,302	0

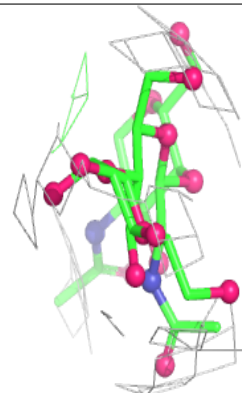
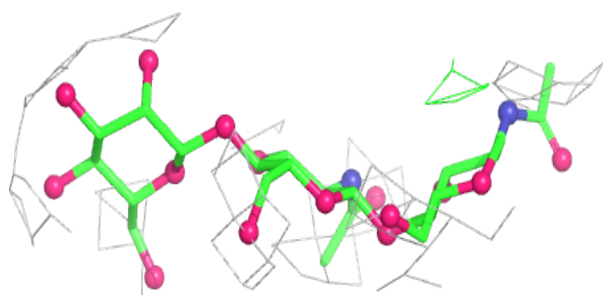
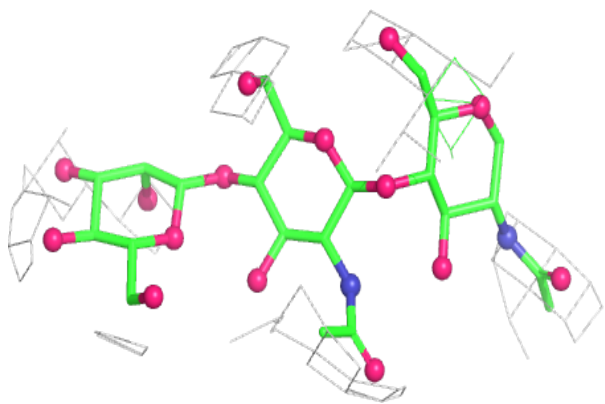
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

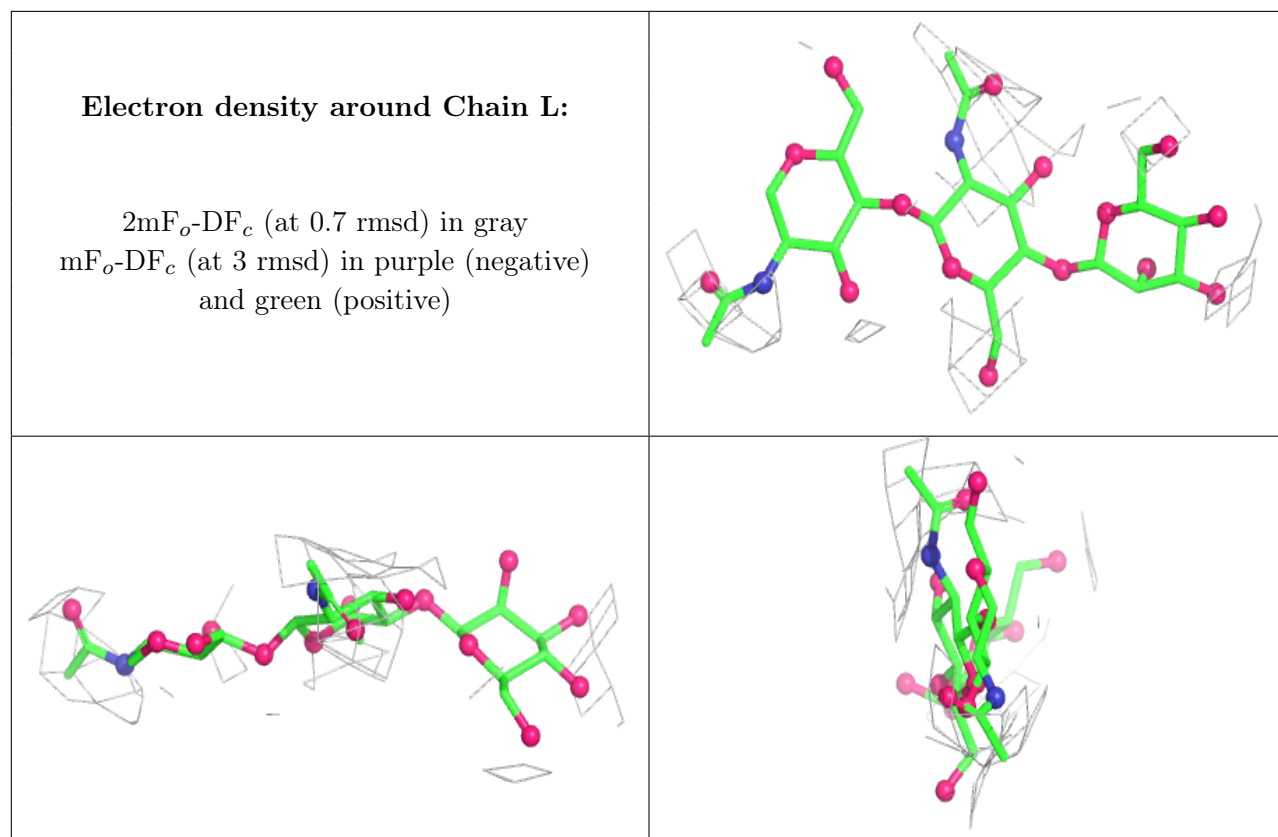
Electron density around Chain E:

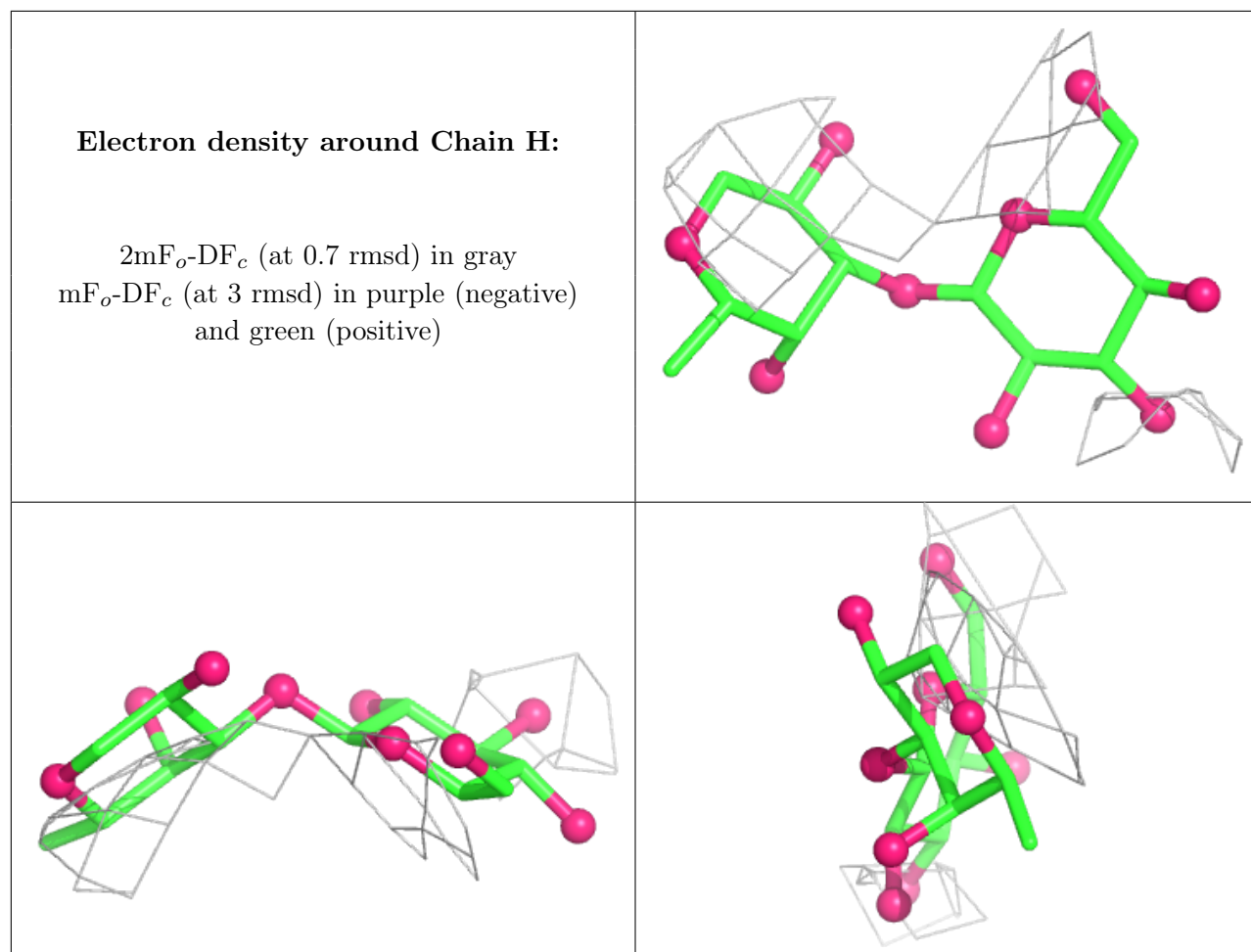
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

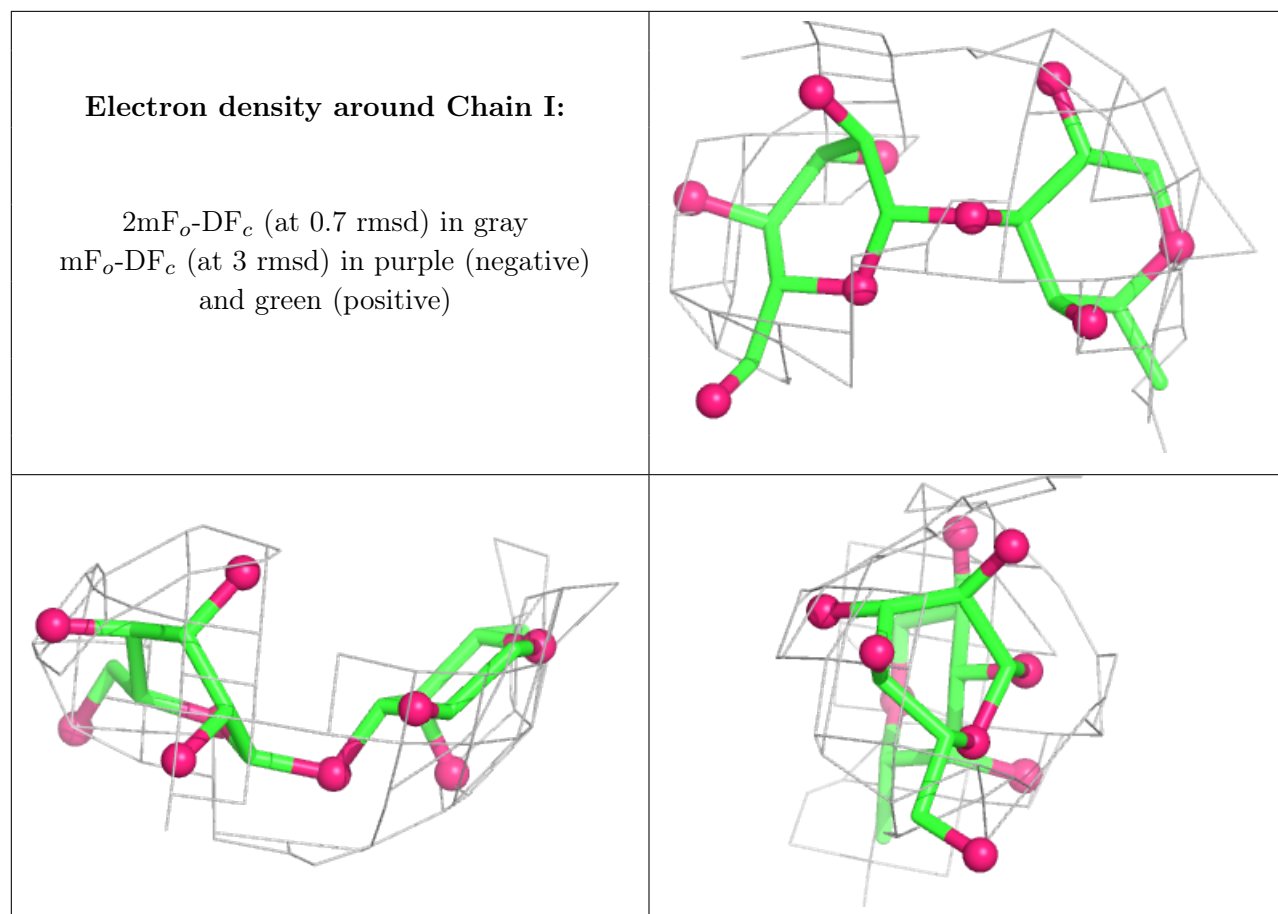
**Electron density around Chain G:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



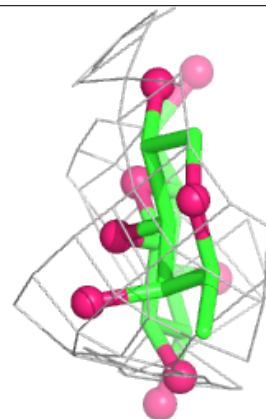
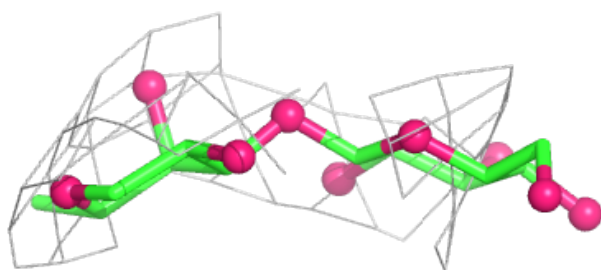
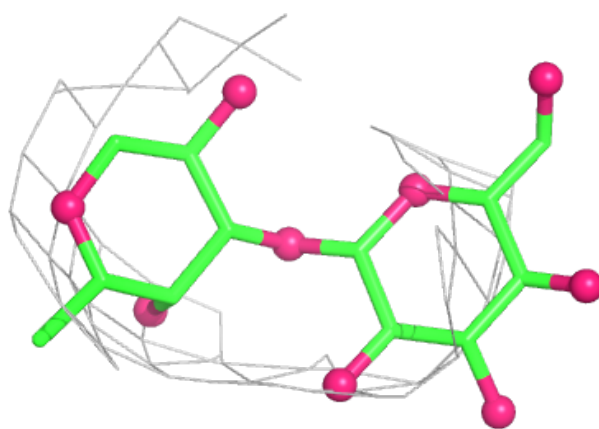




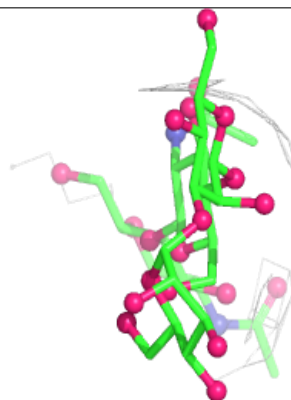
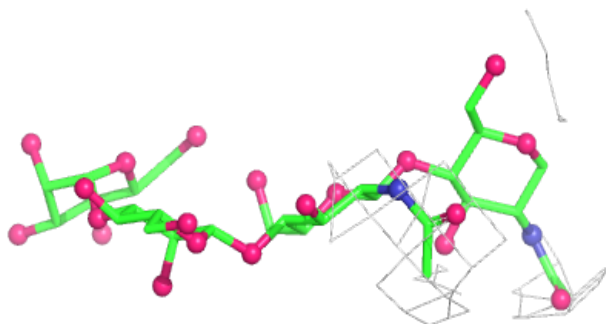
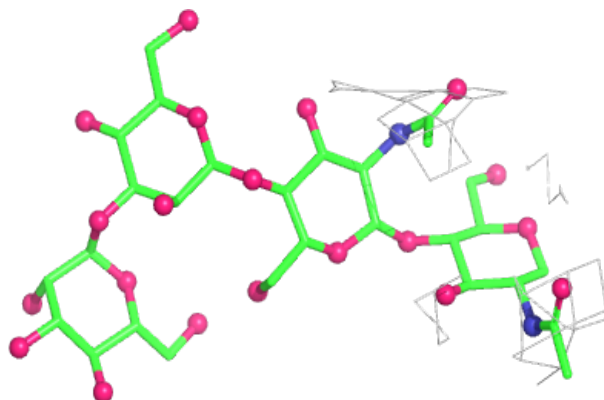


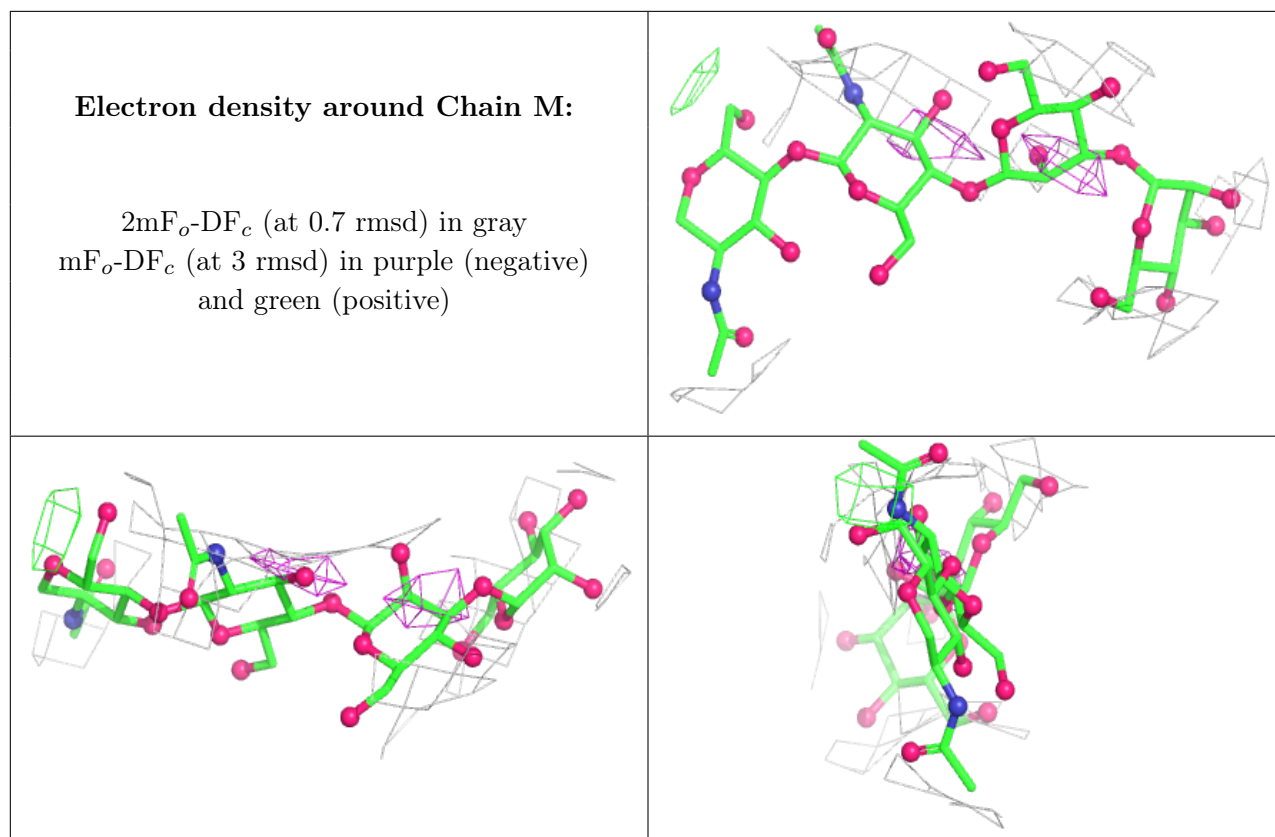
Electron density around Chain J:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around Chain K:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
10	MAN	C	203	11/12	0.68	0.50	435,439,457,459	0
12	MG	F	802	1/1	0.80	0.18	226,226,226,226	0
11	NAG	F	801	14/15	0.85	0.21	266,286,294,301	0
10	MAN	D	503	11/12	0.85	0.11	309,315,322,324	0
10	MAN	C	201	11/12	0.86	0.19	296,304,319,322	0
10	MAN	C	202	11/12	0.91	0.38	367,378,392,392	0
10	MAN	D	502	11/12	0.97	0.24	242,250,255,257	0
10	MAN	D	501	11/12	0.97	0.11	243,253,260,262	0

6.5 Other polymers [i](#)

There are no such residues in this entry.