



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 14, 2023 – 11:01 PM EDT

PDB ID : 7U60  
Title : Integrin  $\alpha$ IIB $\beta$ 3 complex with cRGDfV  
Authors : Zhu, J.; Lin, F.Y.; Zhu, J.; Springer, T.A.  
Deposited on : 2022-03-03  
Resolution : 2.55 Å(reported)

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

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<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>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtrriage (Phenix) : 1.13  
EDS : 2.36  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

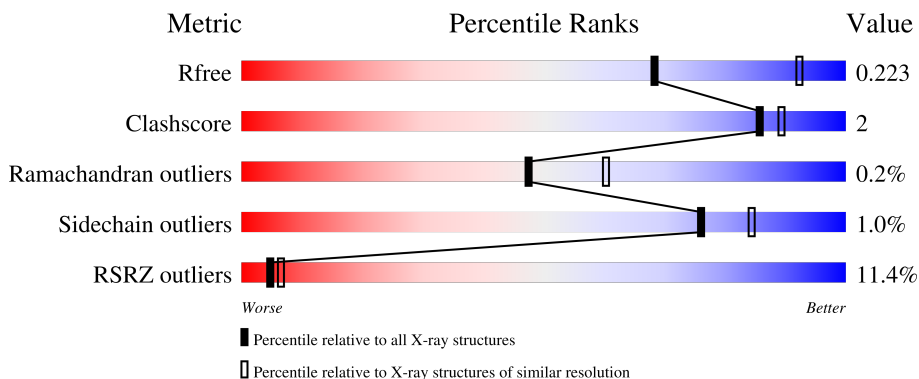
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.55 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	1284 (2.56-2.52)
Clashscore	141614	1332 (2.56-2.52)
Ramachandran outliers	138981	1315 (2.56-2.52)
Sidechain outliers	138945	1315 (2.56-2.52)
RSRZ outliers	127900	1272 (2.56-2.52)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	455	 94% 6%
1	C	455	 92% 7%
2	B	471	 15% 91% 8%
2	D	471	 7% 93% 7%
3	E	216	 34% 94% 6%

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Mol	Chain	Length	Quality of chain
3	H	216	
4	F	214	
4	L	214	
5	M	5	
5	N	5	
6	G	4	
6	J	4	
7	I	2	
7	K	2	

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	SO4	A	515	-	-	-	X
11	MN	B	2001	-	-	-	X
5	DPN	N	4	-	-	-	X
9	GOL	L	301	-	-	-	X

## 2 Entry composition

There are 13 unique types of molecules in this entry. The entry contains 22350 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 Integrin alpha-IIb.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	455	Total	C	N	O	S	0	6	0
			3521	2240	607	666	8			
1	C	453	Total	C	N	O	S	0	3	0
			3492	2219	603	662	8			

- Molecule 2 is a protein called Integrin beta-3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	464	Total	C	N	O	S	4	5	0
			3613	2252	614	714	33			
2	D	469	Total	C	N	O	S	4	2	0
			3626	2260	618	714	34			

- Molecule 3 is a protein called Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	E	216	Total	C	N	O	S	0	0	0
			1642	1041	266	329	6			
3	H	216	Total	C	N	O	S	0	0	0
			1642	1041	266	329	6			

- Molecule 4 is a protein called Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	F	214	Total	C	N	O	S	0	0	0
			1637	1019	268	341	9			
4	L	214	Total	C	N	O	S	0	0	0
			1637	1019	268	341	9			

- Molecule 5 is a protein called ARG-GLY-ASP-DPN-VAL.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	M	5	Total	C	N	O	0	0	0
			41	26	8	7			
5	N	5	Total	C	N	O	0	0	0
			41	26	8	7			

- Molecule 6 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-alpha-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
6	G	4	Total	C	N	O	0	0	0
			50	28	2	20			
6	J	4	Total	C	N	O	0	0	0
			50	28	2	20			

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
7	I	2	Total	C	N	O	0	0	0
			28	16	2	10			
7	K	2	Total	C	N	O	0	0	0
			28	16	2	10			

- Molecule 8 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	4	Total	Ca	0	0
			4	4		
8	C	4	Total	Ca	0	0
			4	4		

- Molecule 9 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	A	1	Total	C	O	0	0
			6	3	3		
9	A	1	Total	C	O	0	0
			6	3	3		
9	A	1	Total	C	O	0	0
			6	3	3		
9	A	1	Total	C	O	0	0
			6	3	3		
9	A	1	Total	C	O	0	0
			6	3	3		
9	A	1	Total	C	O	0	0
			6	3	3		
9	C	1	Total	C	O	0	0
			6	3	3		
9	C	1	Total	C	O	0	0
			6	3	3		
9	D	1	Total	C	O	0	0
			6	3	3		
9	L	1	Total	C	O	0	0
			6	3	3		

- Molecule 10 is SULFATE ION (three-letter code: SO<sub>4</sub>) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
10	A	1	Total O S 5 4 1	0	0
10	A	1	Total O S 5 4 1	0	0
10	A	1	Total O S 5 4 1	0	0
10	A	1	Total O S 5 4 1	0	0
10	B	1	Total O S 5 4 1	0	0
10	C	1	Total O S 5 4 1	0	0
10	C	1	Total O S 5 4 1	0	0
10	L	1	Total O S 5 4 1	0	0

- Molecule 11 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
11	B	3	Total Mn 3 3	0	0
11	D	3	Total Mn 3 3	0	0

- Molecule 12 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).



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

- Molecule 13 is water.

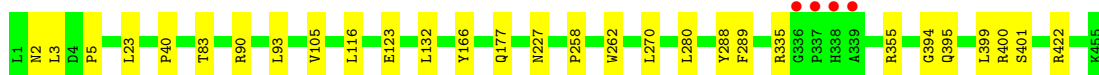
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
13	A	396	Total	O	0	0
			396	396		
13	B	181	Total	O	0	0
			181	181		
13	C	246	Total	O	0	0
			246	246		
13	D	192	Total	O	0	0
			192	192		
13	E	20	Total	O	0	0
			20	20		
13	F	22	Total	O	0	0
			22	22		
13	H	35	Total	O	0	0
			35	35		
13	L	53	Total	O	0	0
			53	53		
13	M	3	Total	O	0	0
			3	3		
13	N	6	Total	O	0	0
			6	6		



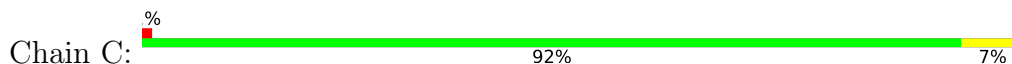
### 3 Residue-property plots [i](#)

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.

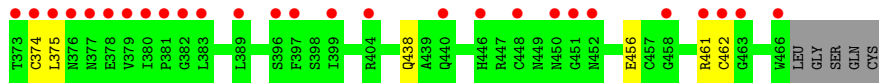
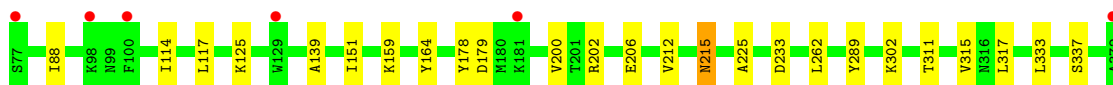
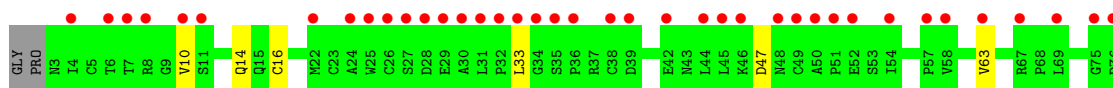
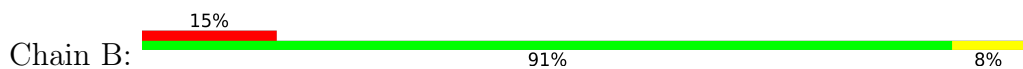
- Molecule 1: Integrin alpha-IIb



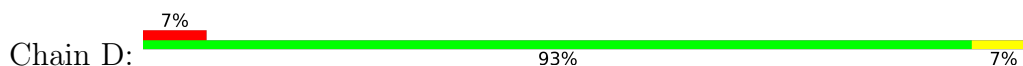
- Molecule 1: Integrin alpha-IIb

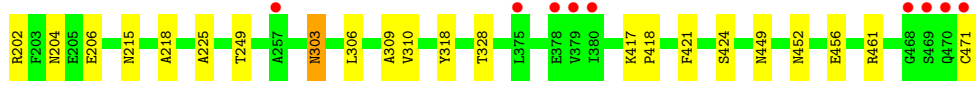
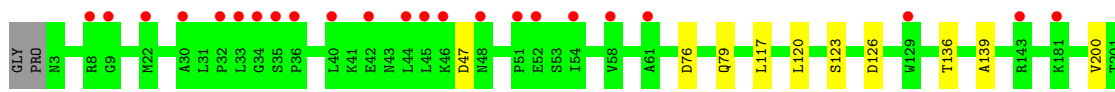


- Molecule 2: Integrin beta-3

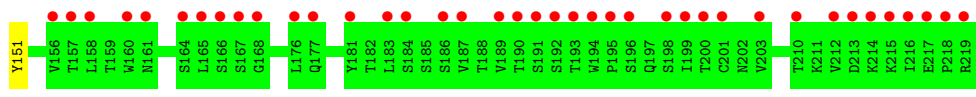
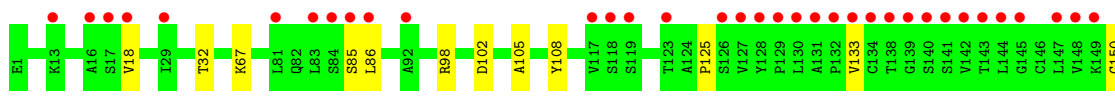
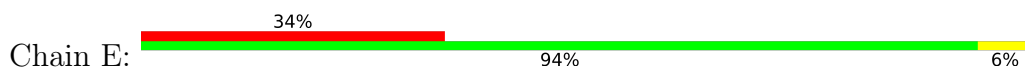


- Molecule 2: Integrin beta-3

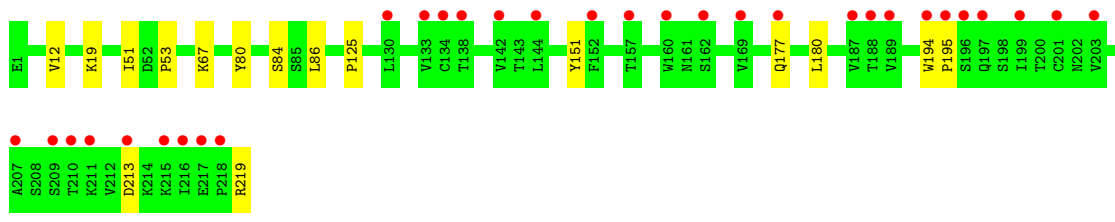




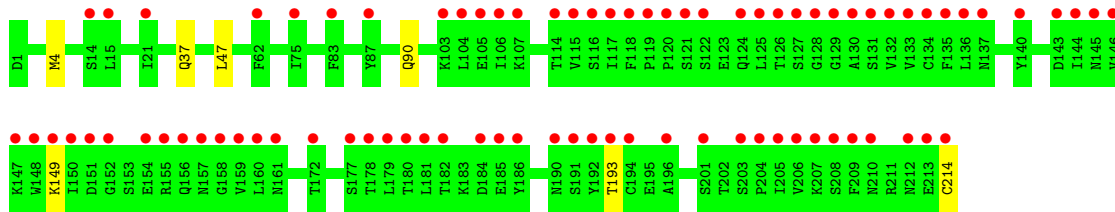
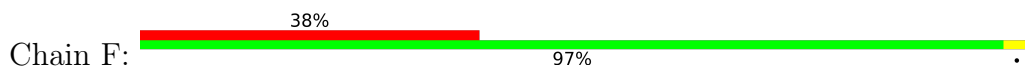
● Molecule 3: Fab heavy chain



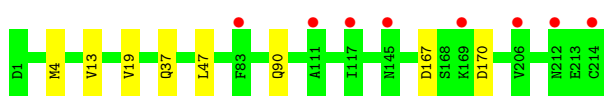
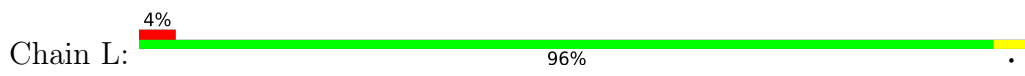
● Molecule 3: Fab heavy chain



● Molecule 4: Fab light chain



● Molecule 4: Fab light chain

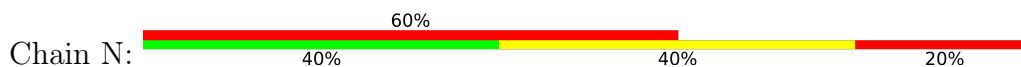


● Molecule 5: ARG-GLY-ASP-DPN-VAL





- Molecule 5: ARG-GLY-ASP-DPN-VAL



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



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



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



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



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	260.89Å 145.77Å 105.16Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.60 – 2.55 48.60 – 2.55	Depositor EDS
% Data completeness (in resolution range)	98.8 (48.60-2.55) 98.8 (48.60-2.55)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.32 (at 2.54Å)	Xtrriage
Refinement program	PHENIX 1.20.1_4487	Depositor
R, $R_{free}$	0.188 , 0.225 0.188 , 0.223	Depositor DCC
$R_{free}$ test set	1023 reflections (0.79%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	37.8	Xtrriage
Anisotropy	0.000	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 60.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	22350	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	61.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.29% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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 [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: GOL, NAG, MN, CA, SO4, DPN, 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	A	0.28	0/3636	0.56	0/4954
1	C	0.27	0/3598	0.55	0/4902
2	B	0.25	0/3692	0.50	0/5006
2	D	0.26	0/3700	0.50	0/5017
3	E	0.24	0/1684	0.48	0/2305
3	H	0.25	0/1684	0.49	0/2305
4	F	0.25	0/1673	0.47	0/2269
4	L	0.25	0/1673	0.50	0/2269
5	M	2.21	2/28 (7.1%)	3.26	2/34 (5.9%)
5	N	2.23	2/28 (7.1%)	3.31	2/34 (5.9%)
All	All	0.28	4/21396 (0.0%)	0.54	4/29095 (0.0%)

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	N	1	ARG	NE-CZ	7.38	1.42	1.33
5	M	1	ARG	NE-CZ	7.09	1.42	1.33
5	N	1	ARG	CZ-NH2	5.91	1.40	1.33
5	M	1	ARG	CZ-NH2	5.59	1.40	1.33

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	N	1	ARG	NE-CZ-NH1	15.43	128.02	120.30
5	M	1	ARG	NE-CZ-NH1	14.99	127.80	120.30
5	N	1	ARG	NE-CZ-NH2	-6.19	117.20	120.30
5	M	1	ARG	NE-CZ-NH2	-5.60	117.50	120.30

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3521	0	3377	16	0
1	C	3492	0	3333	15	0
2	B	3613	0	3528	18	0
2	D	3626	0	3541	18	0
3	E	1642	0	1600	7	0
3	H	1642	0	1600	9	0
4	F	1637	0	1553	3	0
4	L	1637	0	1553	4	0
5	M	41	0	38	1	0
5	N	41	0	37	2	0
6	G	50	0	43	0	0
6	J	50	0	43	0	0
7	I	28	0	25	0	0
7	K	28	0	25	0	0
8	A	4	0	0	0	0
8	C	4	0	0	0	0
9	A	42	0	56	4	0
9	C	12	0	16	0	0
9	D	6	0	8	1	0
9	L	6	0	8	0	0
10	A	20	0	0	0	0
10	B	5	0	0	0	0
10	C	10	0	0	0	0
10	L	5	0	0	0	0
11	B	3	0	0	0	0
11	D	3	0	0	0	0
12	B	14	0	13	0	0
12	D	14	0	13	0	0
13	A	396	0	0	6	1
13	B	181	0	0	0	0
13	C	246	0	0	3	1
13	D	192	0	0	1	0
13	E	20	0	0	0	0
13	F	22	0	0	0	0
13	H	35	0	0	1	0
13	L	53	0	0	0	0
13	M	3	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
13	N	6	0	0	1	0
All	All	22350	0	20410	90	1

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:400:ARG:HE	9:A:506:GOL:H12	1.60	0.65
3:H:219:ARG:NH2	13:H:301:HOH:O	2.28	0.65
3:E:67:LYS:NZ	3:E:85:SER:O	2.33	0.61
3:H:125:PRO:HB3	3:H:151:TYR:HB3	1.84	0.60
2:D:471:CYS:SG	13:D:2227:HOH:O	2.57	0.59
2:D:76:ASP:HB3	2:D:79:GLN:HG2	1.85	0.59
1:A:422:ARG:NH2	13:A:608:HOH:O	2.35	0.58
1:A:355:ARG:NH1	13:A:601:HOH:O	2.27	0.58
2:B:233:ASP:OD2	2:B:302:LYS:NZ	2.26	0.56
1:C:68:LEU:O	13:C:601:HOH:O	2.18	0.56
2:B:202:ARG:NH2	2:B:206:GLU:OE2	2.39	0.56
1:A:177:GLN:NE2	13:A:610:HOH:O	2.39	0.55
2:D:202:ARG:NH2	2:D:206:GLU:OE2	2.39	0.55
2:D:126:ASP:OD1	2:D:126:ASP:N	2.40	0.54
4:F:4:MET:HE2	4:F:90:GLN:HB3	1.89	0.54
1:A:90[B]:ARG:NH1	13:A:606:HOH:O	2.41	0.53
4:F:37:GLN:HB2	4:F:47:LEU:HD11	1.90	0.53
2:D:306:LEU:HB3	2:D:328:THR:HG22	1.90	0.52
4:L:4:MET:HE2	4:L:90:GLN:HB3	1.91	0.51
13:A:609:HOH:O	5:M:1:ARG:NH2	2.43	0.51
3:H:213:ASP:OD1	3:H:213:ASP:N	2.41	0.51
1:A:262:TRP:HB3	2:B:317:LEU:HD13	1.94	0.50
4:L:37:GLN:HB2	4:L:47:LEU:HD11	1.93	0.50
2:D:303:ASN:HA	9:D:2005:GOL:H12	1.93	0.49
1:C:9:THR:HB	1:C:447:VAL:HB	1.94	0.49
3:E:98:ARG:HG3	3:E:108:TYR:HB2	1.95	0.49
2:B:456:GLU:OE2	2:B:461:ARG:NH1	2.45	0.49
2:D:249:THR:HG22	2:D:309:ALA:HB3	1.94	0.48
2:D:117:LEU:HD11	2:D:225:ALA:HB1	1.96	0.48
2:B:14:GLN:HB2	2:B:438:GLN:HE22	1.77	0.48
1:A:105:VAL:HG22	1:A:132:LEU:HG	1.96	0.48
2:D:449:ASN:HB2	2:D:452:ASN:HB2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:317:ARG:HB2	1:C:321:LYS:HB2	1.96	0.48
3:H:177:GLN:N	3:H:180:LEU:O	2.39	0.48
4:F:149:LYS:HB2	4:F:193:THR:HB	1.96	0.47
1:C:294:ALA:HB3	1:C:307:LEU:HB2	1.96	0.47
2:B:117:LEU:HD11	2:B:225:ALA:HB1	1.97	0.47
2:B:333:LEU:HD11	2:B:337:SER:HA	1.96	0.47
1:C:83:THR:HB	1:C:116:LEU:HB2	1.97	0.47
2:B:10:VAL:HG21	2:B:16:CYS:HB2	1.96	0.47
2:B:125:LYS:HA	2:B:212:VAL:HG11	1.96	0.47
2:D:218:ALA:HB2	5:N:2:GLY:HA2	1.95	0.47
3:H:19:LYS:HE2	3:H:80:TYR:CD2	2.50	0.47
2:B:63:VAL:HA	2:B:88:ILE:HG22	1.97	0.46
2:B:178[B]:TYR:CG	2:B:179:ASP:N	2.82	0.46
3:H:194:TRP:CG	3:H:195:PRO:HA	2.49	0.46
1:C:413:THR:O	13:C:602:HOH:O	2.20	0.45
2:D:139:ALA:HB2	2:D:200:VAL:HG11	1.98	0.45
2:D:249:THR:HA	2:D:309:ALA:O	2.15	0.45
1:A:335:ARG:NE	13:A:623:HOH:O	2.47	0.45
2:B:114:ILE:HB	2:B:151:ILE:HG22	1.99	0.45
2:B:159:LYS:HE2	2:B:289:TYR:CE1	2.52	0.45
2:D:136:THR:OG1	2:D:204:ASN:ND2	2.47	0.45
1:C:278[A]:HIS:CD2	1:C:339:ALA:HB1	2.52	0.44
2:D:456:GLU:OE2	2:D:461:ARG:NH1	2.51	0.44
1:A:394:GLY:HA2	1:A:399:LEU:HD23	1.99	0.44
3:E:125:PRO:HB3	3:E:151:TYR:HB3	2.00	0.44
2:B:164:TYR:O	2:B:215:ASN:HB2	2.18	0.44
2:B:178[B]:TYR:CZ	2:B:179:ASP:HB3	2.52	0.44
3:H:67:LYS:HE2	3:H:84:SER:O	2.17	0.43
1:C:107:CYS:HA	1:C:130:CYS:HA	2.00	0.43
3:E:18:VAL:HG23	3:E:86:LEU:HD11	2.01	0.43
1:C:377:ALA:HB2	1:C:421:LEU:HD11	2.00	0.43
1:C:390:LEU:HD23	1:C:403:PRO:HG3	2.00	0.43
2:D:310:VAL:HG11	2:D:318:TYR:CD1	2.52	0.43
1:C:303:ARG:CZ	1:C:335:ARG:HG2	2.49	0.42
2:D:418:PRO:HB2	2:D:421:PHE:CD1	2.53	0.42
1:A:401:SER:H	9:A:506:GOL:H2	1.83	0.42
3:H:51:ILE:O	3:H:53:PRO:HD3	2.19	0.42
2:B:311:THR:HA	2:B:333:LEU:O	2.19	0.42
2:B:139:ALA:HB2	2:B:200:VAL:HG11	2.01	0.41
1:C:215:HIS:CE1	3:E:32:THR:HG22	2.55	0.41
3:E:67:LYS:HE2	3:E:67:LYS:HB2	1.90	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:L:167:ASP:HB3	4:L:170:ASP:OD1	2.20	0.41
1:A:258:PRO:HA	1:A:289:PHE:O	2.20	0.41
1:C:280:LEU:HD11	1:C:306:LEU:HD23	2.01	0.41
4:L:13:VAL:HG11	4:L:19:VAL:HG11	2.02	0.41
1:A:3:LEU:O	1:A:5:PRO:HD3	2.21	0.41
1:C:355:ARG:NH1	13:C:606:HOH:O	2.37	0.41
3:H:12:VAL:HG21	3:H:86:LEU:HD13	2.03	0.41
2:D:417:LYS:HG3	2:D:424:SER:HB3	2.02	0.41
2:D:120:LEU:HA	2:D:120:LEU:HD23	1.77	0.41
3:E:102:ASP:HB3	3:E:105:ALA:HB2	2.03	0.40
1:A:83:THR:HB	1:A:116:LEU:HB2	2.02	0.40
1:A:227:ASN:HD22	9:A:510:GOL:H31	1.87	0.40
5:N:1:ARG:NH2	13:N:102:HOH:O	2.54	0.40
1:A:40:PRO:HA	1:A:93:LEU:O	2.22	0.40
1:A:2:ASN:HA	9:A:511:GOL:H32	2.03	0.40
1:C:432:TYR:CZ	1:C:452:PRO:HA	2.56	0.40
2:B:311:THR:O	2:B:315:VAL:HG23	2.21	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
13:A:831:HOH:O	13:C:814:HOH:O[1_554]	2.10	0.10

## 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	459/455 (101%)	444 (97%)	14 (3%)	1 (0%)	47 60
1	C	454/455 (100%)	439 (97%)	14 (3%)	1 (0%)	47 60
2	B	467/471 (99%)	447 (96%)	18 (4%)	2 (0%)	34 46

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	D	469/471 (100%)	451 (96%)	18 (4%)	0	100	100
3	E	212/216 (98%)	201 (95%)	9 (4%)	2 (1%)	17	24
3	H	212/216 (98%)	203 (96%)	9 (4%)	0	100	100
4	F	212/214 (99%)	204 (96%)	8 (4%)	0	100	100
4	L	212/214 (99%)	206 (97%)	6 (3%)	0	100	100
5	M	2/5 (40%)	2 (100%)	0	0	100	100
5	N	2/5 (40%)	2 (100%)	0	0	100	100
All	All	2701/2722 (99%)	2599 (96%)	96 (4%)	6 (0%)	47	60

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	E	133	VAL
2	B	33	LEU
2	B	375	LEU
1	A	123	GLU
1	C	123	GLU
3	E	150	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	369/363 (102%)	363 (98%)	6 (2%)	62	77
1	C	364/363 (100%)	358 (98%)	6 (2%)	62	77
2	B	416/416 (100%)	411 (99%)	5 (1%)	71	81
2	D	417/416 (100%)	412 (99%)	5 (1%)	71	81
3	E	187/187 (100%)	187 (100%)	0	100	100
3	H	187/187 (100%)	187 (100%)	0	100	100
4	F	188/188 (100%)	187 (100%)	1 (0%)	88	93
4	L	188/188 (100%)	188 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
5	M	3/3 (100%)	3 (100%)	0	100	100
5	N	3/3 (100%)	2 (67%)	1 (33%)	0	0
All	All	2322/2314 (100%)	2298 (99%)	24 (1%)	76	84

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	23	LEU
1	A	166	TYR
1	A	270	LEU
1	A	280	LEU
1	A	288	TYR
1	A	395	GLN
2	B	47	ASP
2	B	215	ASN
2	B	262	LEU
2	B	374	CYS
2	B	462	CYS
1	C	15	ASN
1	C	23	LEU
1	C	166	TYR
1	C	197	GLN
1	C	270	LEU
1	C	288	TYR
2	D	47	ASP
2	D	123[A]	SER
2	D	123[B]	SER
2	D	215	ASN
2	D	303	ASN
4	F	214	CYS
5	N	1	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	333	GLN
2	B	79	GLN
2	B	301	GLN
2	B	428	GLN
2	B	438	GLN

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Mol	Chain	Res	Type
1	C	197	GLN
2	D	82	GLN
2	D	204	ASN
2	D	438	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](#)

2 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	DPN	M	4	5	10,11,12	0.61	0	10,13,15	0.83	1 (10%)
5	DPN	N	4	5	10,11,12	0.79	0	10,13,15	1.25	1 (10%)

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
5	DPN	M	4	5	-	1/5/6/8	0/1/1/1
5	DPN	N	4	5	-	2/5/6/8	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	N	4	DPN	CG-CB-CA	3.43	121.03	114.10
5	M	4	DPN	CG-CB-CA	2.06	118.27	114.10

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	M	4	DPN	O-C-CA-CB
5	N	4	DPN	C-CA-CB-CG
5	N	4	DPN	N-CA-CB-CG

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates i

12 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
6	NAG	G	1	6,2	14,14,15	0.29	0	17,19,21	0.66	1 (5%)
6	NAG	G	2	6	14,14,15	0.19	0	17,19,21	0.50	0
6	MAN	G	3	6	11,11,12	0.78	0	15,15,17	1.05	2 (13%)
6	MAN	G	4	6	11,11,12	0.68	0	15,15,17	1.13	2 (13%)
7	NAG	I	1	7,2	14,14,15	0.32	0	17,19,21	0.34	0
7	NAG	I	2	7	14,14,15	0.21	0	17,19,21	0.34	0
6	NAG	J	1	6,2	14,14,15	0.42	0	17,19,21	0.48	0
6	NAG	J	2	6	14,14,15	0.26	0	17,19,21	0.53	0
6	MAN	J	3	6	11,11,12	0.88	0	15,15,17	0.88	1 (6%)
6	MAN	J	4	6	11,11,12	0.90	0	15,15,17	0.94	1 (6%)
7	NAG	K	1	7,2	14,14,15	0.35	0	17,19,21	0.41	0
7	NAG	K	2	7	14,14,15	0.25	0	17,19,21	0.45	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
6	NAG	G	1	6,2	-	0/6/23/26	0/1/1/1
6	NAG	G	2	6	-	0/6/23/26	0/1/1/1
6	MAN	G	3	6	-	0/2/19/22	1/1/1/1
6	MAN	G	4	6	-	0/2/19/22	0/1/1/1
7	NAG	I	1	7,2	-	0/6/23/26	0/1/1/1
7	NAG	I	2	7	-	1/6/23/26	0/1/1/1
6	NAG	J	1	6,2	-	0/6/23/26	0/1/1/1
6	NAG	J	2	6	-	0/6/23/26	0/1/1/1
6	MAN	J	3	6	-	2/2/19/22	1/1/1/1
6	MAN	J	4	6	-	0/2/19/22	0/1/1/1
7	NAG	K	1	7,2	-	0/6/23/26	0/1/1/1
7	NAG	K	2	7	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	G	4	MAN	C1-O5-C5	3.08	116.36	112.19
6	G	3	MAN	C1-O5-C5	2.72	115.88	112.19
6	G	4	MAN	O2-C2-C3	-2.34	105.46	110.14
6	G	3	MAN	O2-C2-C3	-2.31	105.52	110.14
6	J	4	MAN	O2-C2-C3	-2.14	105.85	110.14
6	G	1	NAG	C1-O5-C5	2.11	115.05	112.19
6	J	3	MAN	C1-O5-C5	2.00	114.90	112.19

There are no chirality outliers.

All (3) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	J	3	MAN	O5-C5-C6-O6
6	J	3	MAN	C4-C5-C6-O6
7	I	2	NAG	O5-C5-C6-O6

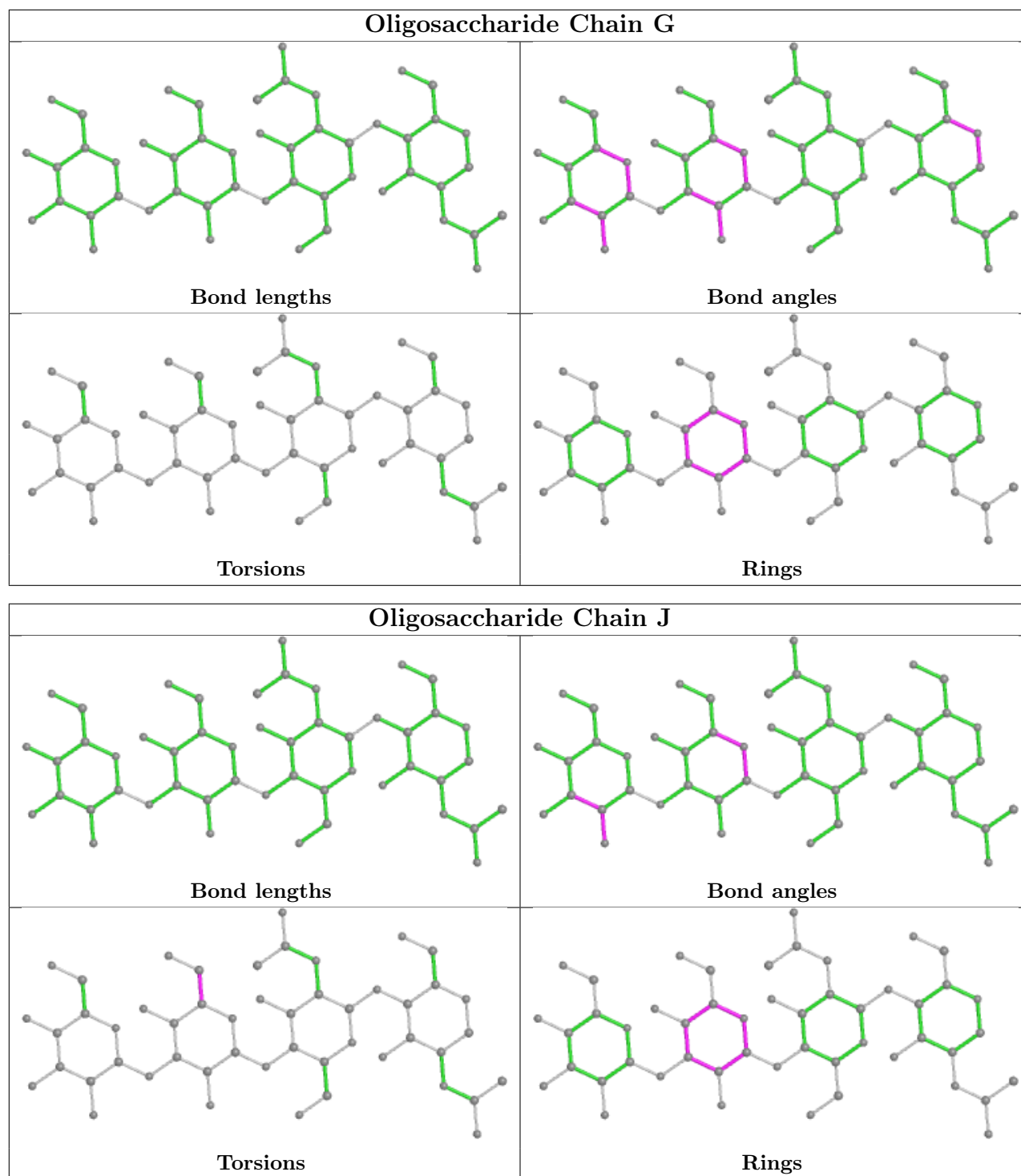
All (2) ring outliers are listed below:

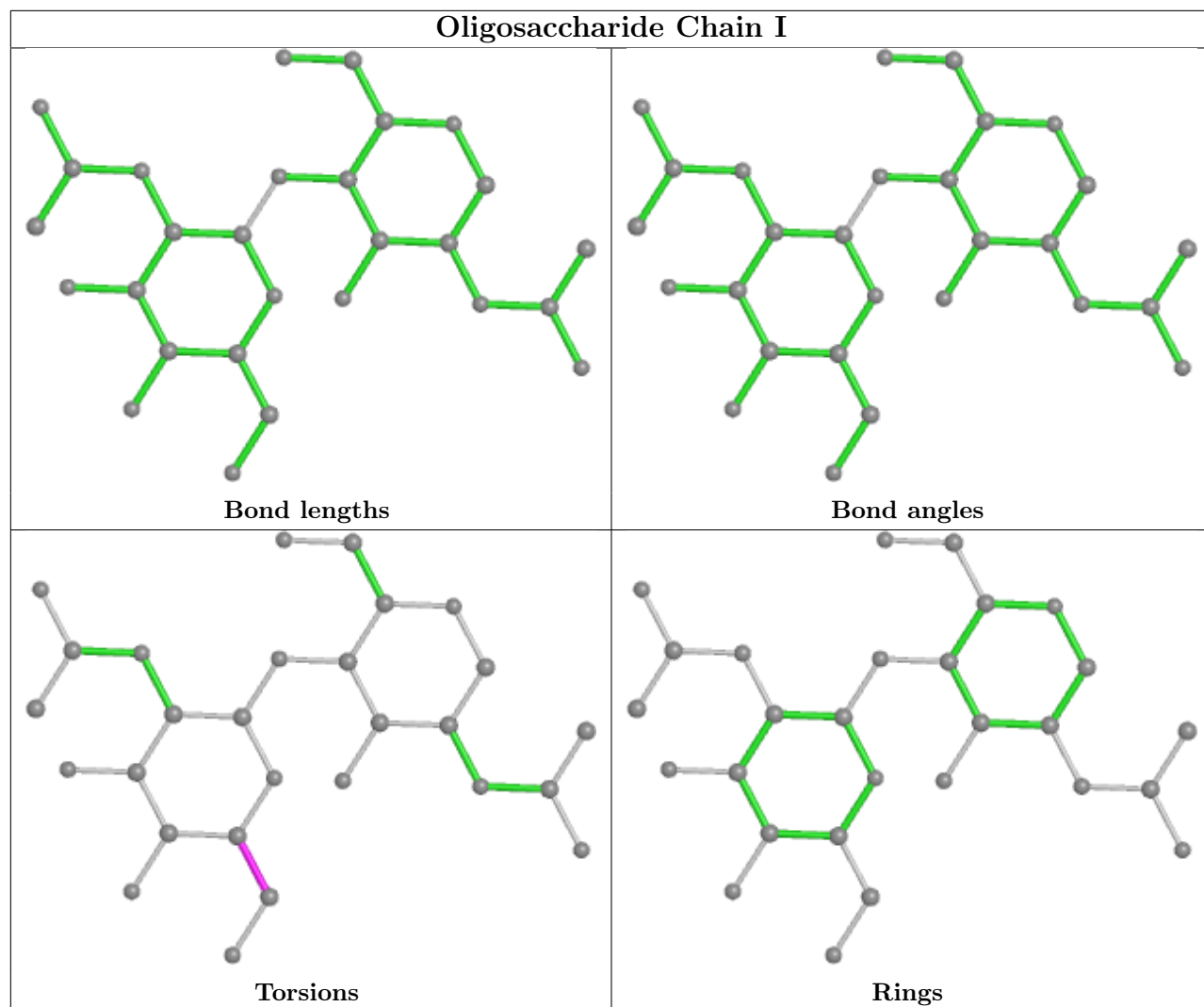
Mol	Chain	Res	Type	Atoms
6	G	3	MAN	C1-C2-C3-C4-C5-O5
6	J	3	MAN	C1-C2-C3-C4-C5-O5

No monomer is involved in short contacts.

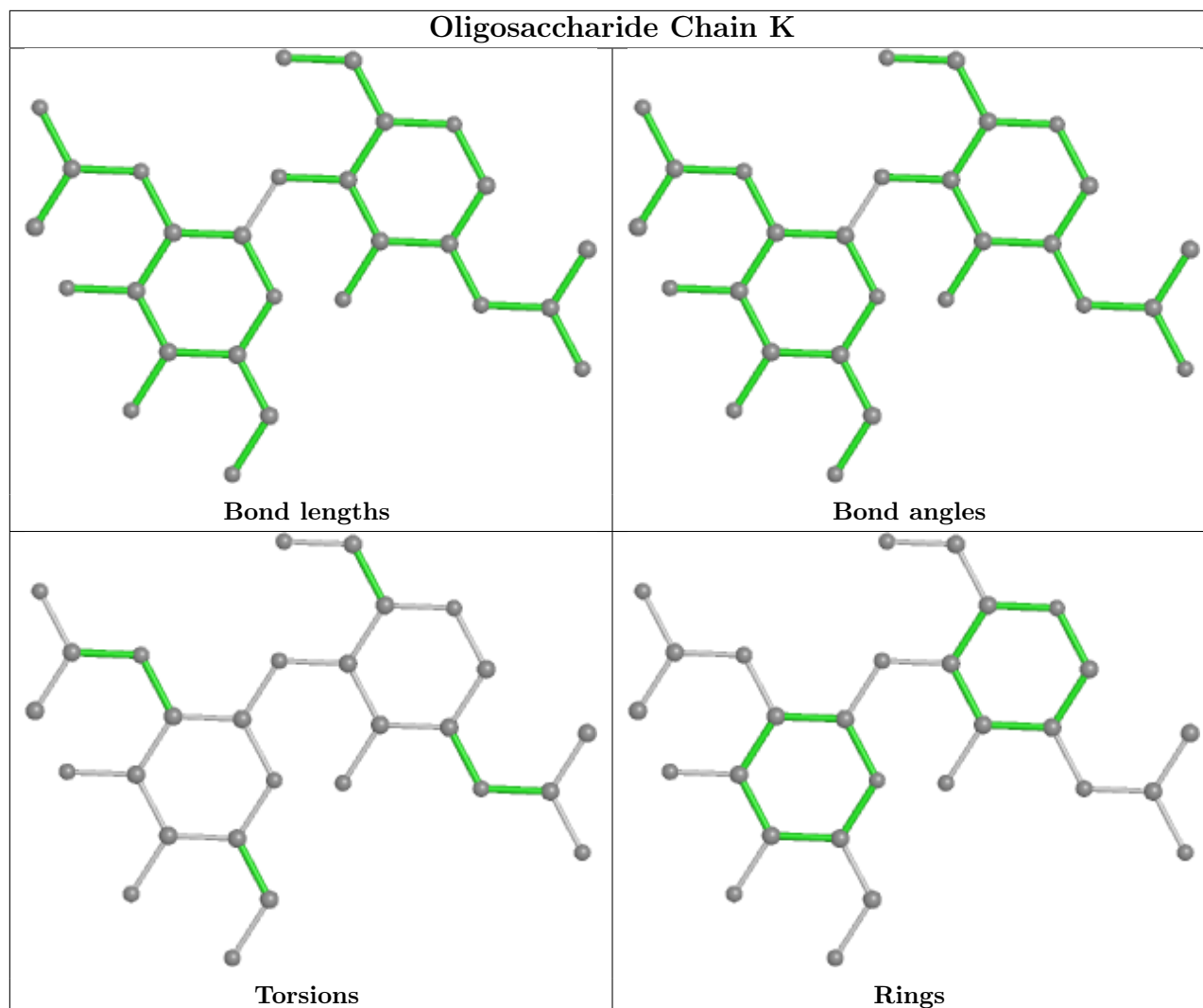
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths,

bond angles, torsion angles, and ring geometry for oligosaccharide.









## 5.6 Ligand geometry [i](#)

Of 35 ligands modelled in this entry, 14 are monoatomic - leaving 21 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
12	NAG	B	2004	2	14,14,15	0.36	0	17,19,21	0.55	0
10	SO4	A	513	-	4,4,4	0.14	0	6,6,6	0.05	0
9	GOL	D	2005	-	5,5,5	0.96	0	5,5,5	0.87	0
9	GOL	A	506	-	5,5,5	0.95	0	5,5,5	0.99	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
9	GOL	A	508	-	5,5,5	0.89	0	5,5,5	0.98	0
9	GOL	A	507	-	5,5,5	0.86	0	5,5,5	1.05	0
9	GOL	A	509	-	5,5,5	0.89	0	5,5,5	1.04	0
9	GOL	A	511	-	5,5,5	0.91	0	5,5,5	0.97	0
10	SO4	C	508	-	4,4,4	0.14	0	6,6,6	0.05	0
10	SO4	C	507	-	4,4,4	0.14	0	6,6,6	0.05	0
9	GOL	A	505	-	5,5,5	0.86	0	5,5,5	1.01	0
10	SO4	A	512	-	4,4,4	0.14	0	6,6,6	0.04	0
9	GOL	L	301	-	5,5,5	0.90	0	5,5,5	0.99	0
9	GOL	C	505	-	5,5,5	0.92	0	5,5,5	0.97	0
9	GOL	C	506	-	5,5,5	0.88	0	5,5,5	1.01	0
10	SO4	B	2005	-	4,4,4	0.14	0	6,6,6	0.05	0
10	SO4	A	514	-	4,4,4	0.14	0	6,6,6	0.06	0
10	SO4	A	515	-	4,4,4	0.14	0	6,6,6	0.05	0
12	NAG	D	2004	2	14,14,15	0.38	0	17,19,21	0.50	0
9	GOL	A	510	-	5,5,5	0.87	0	5,5,5	1.02	0
10	SO4	L	302	-	4,4,4	0.14	0	6,6,6	0.06	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
12	NAG	D	2004	2	-	0/6/23/26	0/1/1/1
9	GOL	C	505	-	-	3/4/4/4	-
12	NAG	B	2004	2	-	0/6/23/26	0/1/1/1
9	GOL	C	506	-	-	2/4/4/4	-
9	GOL	A	505	-	-	2/4/4/4	-
9	GOL	D	2005	-	-	2/4/4/4	-
9	GOL	A	506	-	-	0/4/4/4	-
9	GOL	A	508	-	-	0/4/4/4	-
9	GOL	A	507	-	-	3/4/4/4	-
9	GOL	A	510	-	-	3/4/4/4	-
9	GOL	L	301	-	-	2/4/4/4	-
9	GOL	A	509	-	-	2/4/4/4	-
9	GOL	A	511	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	A	505	GOL	O1-C1-C2-O2
9	A	505	GOL	O1-C1-C2-C3
9	A	507	GOL	O1-C1-C2-C3
9	A	509	GOL	O1-C1-C2-C3
9	A	510	GOL	O1-C1-C2-C3
9	C	506	GOL	O1-C1-C2-C3
9	D	2005	GOL	O1-C1-C2-C3
9	L	301	GOL	O1-C1-C2-O2
9	L	301	GOL	O1-C1-C2-C3
9	A	511	GOL	O1-C1-C2-C3
9	C	505	GOL	O1-C1-C2-C3
9	C	505	GOL	C1-C2-C3-O3
9	A	507	GOL	O1-C1-C2-O2
9	A	509	GOL	O1-C1-C2-O2
9	A	510	GOL	O1-C1-C2-O2
9	C	505	GOL	O1-C1-C2-O2
9	C	506	GOL	O1-C1-C2-O2
9	D	2005	GOL	O1-C1-C2-O2
9	A	511	GOL	O1-C1-C2-O2
9	A	510	GOL	C1-C2-C3-O3
9	A	507	GOL	O2-C2-C3-O3

There are no ring outliers.

4 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	D	2005	GOL	1	0
9	A	506	GOL	2	0
9	A	511	GOL	1	0
9	A	510	GOL	1	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
3	E	1
3	H	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	E	134:CYS	C	138:THR	N	8.32
1	H	134:CYS	C	138:THR	N	6.44

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	455/455 (100%)	0.11	4 (0%) 84 88	17, 27, 50, 110	0
1	C	453/455 (99%)	0.09	3 (0%) 87 90	22, 42, 70, 111	0
2	B	464/471 (98%)	0.78	72 (15%) 2 2	18, 57, 133, 175	2 (0%)
2	D	469/471 (99%)	0.37	32 (6%) 17 20	23, 52, 107, 139	2 (0%)
3	E	216/216 (100%)	1.85	74 (34%) 0 0	50, 105, 166, 186	0
3	H	216/216 (100%)	0.56	31 (14%) 2 3	31, 77, 128, 146	0
4	F	214/214 (100%)	1.77	82 (38%) 0 0	53, 100, 163, 226	0
4	L	214/214 (100%)	0.33	8 (3%) 41 48	36, 64, 90, 143	0
5	M	4/5 (80%)	0.33	0 100 100	48, 49, 57, 79	0
5	N	4/5 (80%)	4.38	3 (75%) 0 0	90, 95, 97, 104	0
All	All	2709/2722 (99%)	0.60	309 (11%) 5 6	17, 53, 135, 226	4 (0%)

All (309) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	F	214	CYS	12.2
3	E	199	ILE	9.8
2	B	33	LEU	9.5
2	B	77	SER	9.2
5	N	5	VAL	9.2
2	D	469	SER	9.0
4	F	181	LEU	8.8
3	E	144	LEU	8.5
3	E	216	ILE	8.3
3	E	142	VAL	8.1
2	B	36	PRO	8.0
3	E	133	VAL	7.9
3	E	196	SER	7.6

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
3	E	194	TRP	7.3
3	E	219	ARG	7.3
3	E	201	CYS	7.2
4	F	212	ASN	7.0
4	F	130	ALA	7.0
3	E	165	LEU	6.9
3	E	132	PRO	6.6
2	B	10	VAL	6.4
4	F	115	VAL	6.4
3	E	131	ALA	6.4
3	E	130	LEU	6.3
4	F	126	THR	6.3
2	B	34	GLY	6.3
2	B	375	LEU	6.3
3	E	195	PRO	6.3
3	E	134	CYS	6.2
3	E	200	THR	5.9
3	E	139	GLY	5.8
3	E	217	GLU	5.7
3	E	215	LYS	5.6
4	F	205	ILE	5.6
2	B	44	LEU	5.5
3	E	160	TRP	5.5
3	E	128	TYR	5.5
2	B	32	PRO	5.4
4	F	120	PRO	5.4
4	L	214	CYS	5.3
3	E	86	LEU	5.1
4	F	206	VAL	5.1
4	F	125	LEU	5.0
3	E	189	VAL	5.0
3	E	140	SER	4.9
4	F	117	ILE	4.9
4	F	208	SER	4.9
4	F	133	VAL	4.8
2	B	4	ILE	4.7
3	E	183	LEU	4.7
3	H	134	CYS	4.7
3	E	203	VAL	4.7
4	F	134	CYS	4.6
3	E	218	PRO	4.6
4	F	159	VAL	4.6

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
3	E	198	SER	4.6
4	F	116	SER	4.6
1	A	337	PRO	4.6
2	D	33	LEU	4.6
3	H	217	GLU	4.5
3	E	176	LEU	4.5
2	D	35	SER	4.5
4	F	213	GLU	4.5
2	B	379	VAL	4.4
4	F	193	THR	4.4
4	F	129	GLY	4.4
2	B	48	ASN	4.4
3	E	117	VAL	4.4
2	B	26	CYS	4.4
4	F	118	PHE	4.3
4	L	212	ASN	4.3
2	B	38	CYS	4.3
4	F	135	PHE	4.3
2	B	27	SER	4.3
3	E	212	VAL	4.3
2	B	28	ASP	4.3
3	E	16	ALA	4.3
2	B	381	PRO	4.2
4	F	209	PHE	4.2
2	D	44	LEU	4.2
2	B	31	LEU	4.2
4	F	179	LEU	4.1
4	F	119	PRO	4.1
4	F	186	TYR	4.0
4	F	182	THR	4.0
2	B	75	GLY	3.9
3	H	160	TRP	3.9
2	B	8	ARG	3.9
4	F	157	ASN	3.9
4	F	122	SER	3.9
4	F	148	TRP	3.9
2	D	51	PRO	3.8
4	F	158	GLY	3.8
4	F	192	TYR	3.8
3	E	18	VAL	3.8
4	F	132	VAL	3.8
2	D	471	CYS	3.8

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
3	E	129	PRO	3.8
2	B	462	CYS	3.8
5	N	3	ASP	3.8
3	E	187	VAL	3.7
3	E	147	LEU	3.7
2	B	51	PRO	3.7
2	B	76	ASP	3.7
2	D	30	ALA	3.7
2	B	378	GLU	3.6
2	B	67	ARG	3.6
2	B	466	TRP	3.6
2	D	8	ARG	3.6
2	B	383	LEU	3.6
2	B	461	ARG	3.5
2	B	39	ASP	3.5
4	F	136	LEU	3.4
4	F	156	GLN	3.4
4	F	83	PHE	3.4
2	B	7	THR	3.4
4	F	210	ASN	3.4
3	H	216	ILE	3.4
2	B	6	THR	3.4
4	F	147	LYS	3.4
3	E	210	THR	3.4
3	H	195	PRO	3.4
3	E	156	VAL	3.4
3	E	177	GLN	3.3
2	D	36	PRO	3.3
4	F	180	THR	3.3
3	E	191	SER	3.3
2	D	40	LEU	3.3
4	F	144	ILE	3.3
4	F	127	SER	3.3
2	B	11	SER	3.3
3	E	145	GLY	3.3
2	B	35	SER	3.3
2	B	45	LEU	3.2
2	D	380	ILE	3.2
2	D	9	GLY	3.2
4	F	131	SER	3.2
4	F	21	ILE	3.2
2	B	52	GLU	3.2

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
2	D	46	LYS	3.2
4	F	107	LYS	3.2
3	E	84	SER	3.1
4	F	149	LYS	3.1
2	B	98	LYS	3.1
2	D	45	LEU	3.1
4	F	152	GLY	3.1
2	D	32	PRO	3.1
3	H	201	CYS	3.1
2	B	376	ASN	3.1
2	B	458	GLY	3.1
2	B	54	ILE	3.1
2	D	34	GLY	3.1
2	D	48	ASN	3.1
2	B	129	TRP	3.1
3	E	13	LYS	3.1
2	B	448	CYS	3.0
4	F	150	ILE	3.0
1	A	338	HIS	3.0
3	H	218	PRO	3.0
4	F	114	THR	3.0
3	E	127	VAL	3.0
2	B	30	ALA	3.0
2	D	468	GLY	3.0
2	B	380	ILE	3.0
3	E	141	SER	2.9
2	B	373	THR	2.9
2	B	452	ASN	2.9
3	E	138	THR	2.9
3	E	192	SER	2.9
3	E	190	THR	2.9
2	D	22	MET	2.9
4	F	146	VAL	2.9
2	D	181	LYS	2.9
3	E	143	THR	2.9
5	N	1	ARG	2.9
3	E	164	SER	2.9
4	F	104	LEU	2.9
2	B	46	LYS	2.8
3	E	158	LEU	2.8
4	F	15	LEU	2.8
4	F	184	ASP	2.8

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
4	F	160	LEU	2.8
4	F	178	THR	2.8
2	B	404	ARG	2.8
3	E	17	SER	2.8
3	H	213	ASP	2.8
4	F	194	CYS	2.8
2	D	54	ILE	2.8
3	E	29	ILE	2.8
3	H	142	VAL	2.8
4	F	191	SER	2.7
2	B	49	CYS	2.7
4	F	154	GLU	2.7
4	F	190	ASN	2.7
3	E	148	VAL	2.7
3	H	189	VAL	2.7
2	B	389	LEU	2.7
3	H	130	LEU	2.7
4	F	196	ALA	2.7
2	B	446	HIS	2.7
4	F	137	ASN	2.7
2	D	143	ARG	2.6
2	B	100	PHE	2.6
4	F	185	GLU	2.6
2	D	61	ALA	2.6
3	E	81	LEU	2.6
3	E	168	GLY	2.6
4	F	106	ILE	2.6
4	F	128	GLY	2.6
2	B	22	MET	2.6
4	F	145	ASN	2.6
4	L	111	ALA	2.6
2	D	375	LEU	2.6
3	H	196	SER	2.6
4	F	124	GLN	2.6
3	E	126	SER	2.6
3	E	92	ALA	2.6
3	H	138	THR	2.6
2	B	57	PRO	2.6
3	H	211	LYS	2.6
3	H	177	GLN	2.6
3	H	133	VAL	2.5
3	E	149	LYS	2.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
2	D	470	GLN	2.5
2	D	52	GLU	2.5
4	F	177	SER	2.5
1	A	339	ALA	2.5
1	C	320	ARG	2.5
4	F	121	SER	2.5
2	B	450	ASN	2.5
4	F	14	SER	2.5
2	B	372	ALA	2.5
3	E	83	LEU	2.4
3	E	214	LYS	2.4
3	H	187	VAL	2.4
3	H	194	TRP	2.4
3	H	203	VAL	2.4
4	L	169	LYS	2.4
4	F	161	ASN	2.4
3	H	215	LYS	2.4
3	E	85	SER	2.4
3	H	209	SER	2.4
4	F	105	GLU	2.4
3	H	144	LEU	2.4
2	D	42	GLU	2.4
2	D	378	GLU	2.4
2	B	397	PHE	2.4
3	E	157	THR	2.4
3	H	157	THR	2.4
2	B	25	TRP	2.4
2	B	382	GLY	2.3
1	C	335	ARG	2.3
4	F	151	ASP	2.3
3	E	193	THR	2.3
4	F	143	ASP	2.3
1	C	337	PRO	2.3
2	B	50	ALA	2.3
2	B	396	SER	2.3
3	H	210	THR	2.3
4	F	75	ILE	2.3
4	F	103	LYS	2.3
4	F	201	SER	2.3
3	E	213	ASP	2.3
4	L	206	VAL	2.3
2	B	451	GLY	2.3

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Mol	Chain	Res	Type	RSRZ
2	B	374	CYS	2.3
2	B	181	LYS	2.2
1	A	336	GLY	2.2
2	B	63	VAL	2.2
4	L	117	ILE	2.2
2	D	129[A]	TRP	2.2
4	F	87	TYR	2.2
2	B	377	ASN	2.2
4	L	83	PHE	2.2
4	F	204	PRO	2.2
3	H	169	VAL	2.2
2	B	440	GLN	2.2
4	F	155	ARG	2.2
4	F	207	LYS	2.2
3	E	166	SER	2.2
3	E	186	SER	2.2
4	F	172	THR	2.2
3	E	161	ASN	2.2
3	H	152	PHE	2.2
4	F	203	SER	2.2
3	E	123	THR	2.1
4	L	145	ASN	2.1
2	B	29	GLU	2.1
3	H	199	ILE	2.1
2	B	69	LEU	2.1
2	B	58	VAL	2.1
2	D	58	VAL	2.1
2	B	399	ILE	2.1
2	B	463	GLY	2.1
3	E	167	SER	2.1
2	B	42	GLU	2.1
2	B	24	ALA	2.1
4	F	140	TYR	2.1
3	H	162	SER	2.1
2	D	257	ALA	2.0
3	H	188	THR	2.0
3	E	184	SER	2.0
2	D	379	VAL	2.0
3	E	119	SER	2.0
3	H	197	GLN	2.0
3	E	181	TYR	2.0
3	H	207	ALA	2.0

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Mol	Chain	Res	Type	RSRZ
3	E	118	SER	2.0
4	F	62	PHE	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains [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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
5	DPN	N	4	11/12	0.67	0.60	105,108,112,112	0
5	DPN	M	4	11/12	0.82	0.23	61,65,71,77	0

## 6.3 Carbohydrates [i](#)

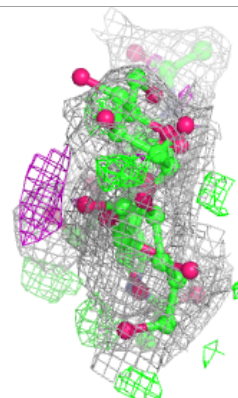
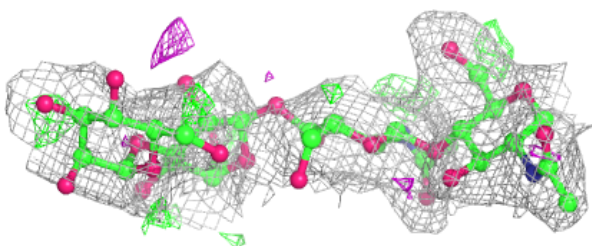
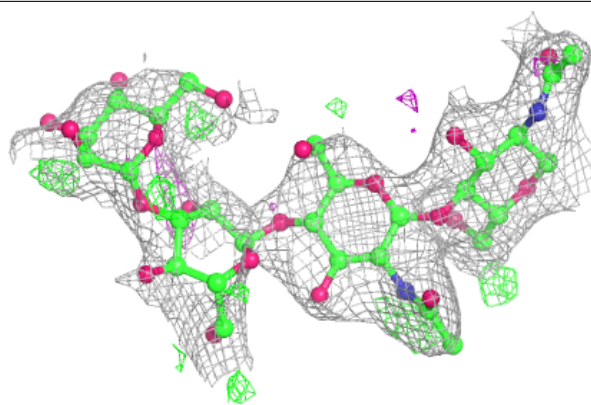
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
6	MAN	J	3	11/12	0.67	0.21	103,113,124,125	0
6	MAN	G	3	11/12	0.75	0.27	96,103,108,109	0
7	NAG	K	2	14/15	0.76	0.37	111,116,122,124	0
7	NAG	I	1	14/15	0.77	0.33	74,84,93,99	0
6	MAN	G	4	11/12	0.79	0.32	109,111,113,114	0
7	NAG	K	1	14/15	0.80	0.29	67,80,94,104	0
7	NAG	I	2	14/15	0.83	0.38	106,112,115,118	0
6	NAG	J	2	14/15	0.86	0.25	76,82,93,98	0
6	MAN	J	4	11/12	0.87	0.19	124,128,131,132	0
6	NAG	G	2	14/15	0.90	0.19	65,71,94,99	0
6	NAG	J	1	14/15	0.96	0.14	28,46,56,70	0
6	NAG	G	1	14/15	0.96	0.12	25,38,41,57	0

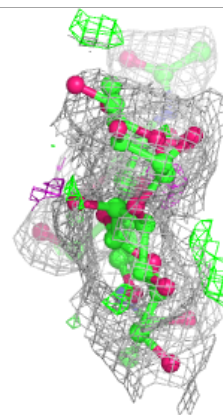
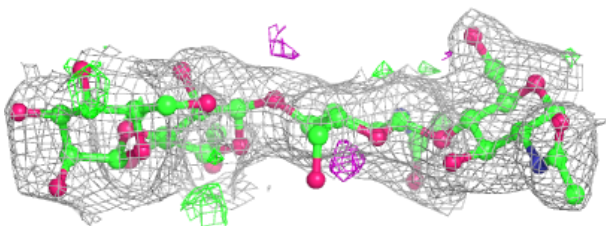
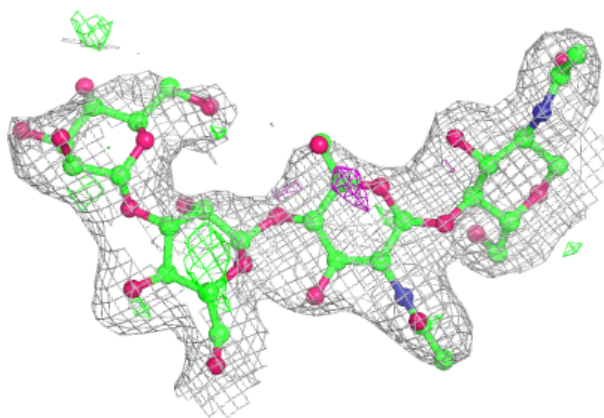
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around Chain G:**

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

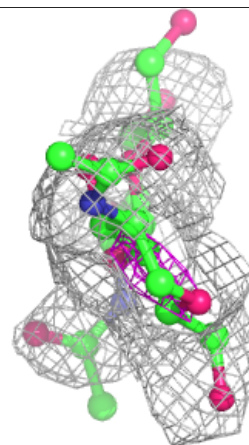
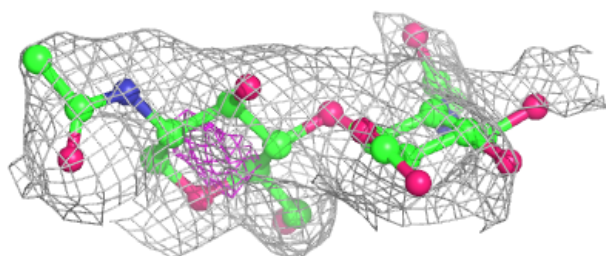
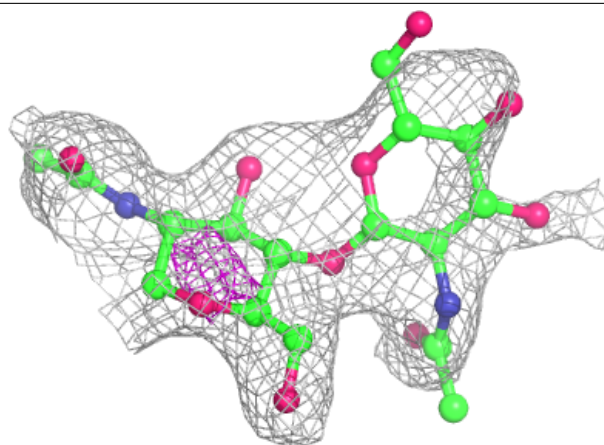
**Electron density around Chain J:**

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

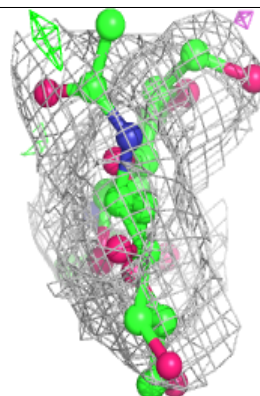
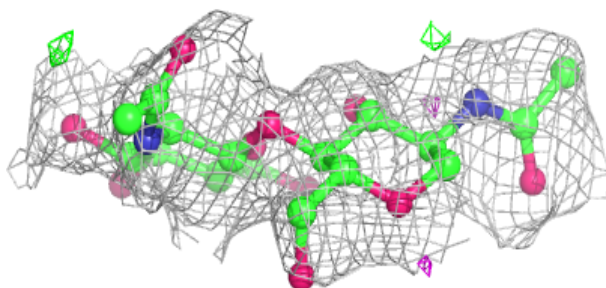
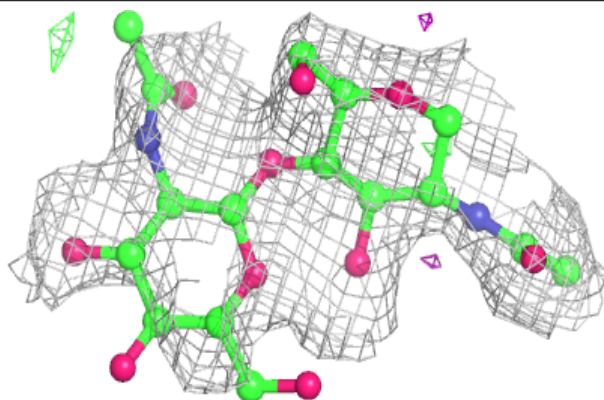


**Electron density around Chain I:**

$2mF_o-DF_c$  (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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
11	MN	D	2002	1/1	0.40	0.15	94,94,94,94	0
11	MN	B	2001	1/1	0.49	0.45	87,87,87,87	0
9	GOL	C	506	6/6	0.73	0.32	99,100,104,107	0
11	MN	B	2002	1/1	0.74	0.14	159,159,159,159	0
10	SO4	B	2005	5/5	0.74	0.33	149,150,151,151	0
8	CA	C	501	1/1	0.75	0.06	63,63,63,63	0
9	GOL	L	301	6/6	0.76	0.42	111,112,113,113	0
10	SO4	A	515	5/5	0.77	0.45	172,172,174,174	0
12	NAG	B	2004	14/15	0.77	0.40	80,92,102,104	0
10	SO4	A	512	5/5	0.82	0.25	133,135,136,138	0
9	GOL	C	505	6/6	0.83	0.29	73,79,84,85	0
11	MN	D	2001	1/1	0.84	0.14	46,46,46,46	0
9	GOL	D	2005	6/6	0.85	0.31	78,90,97,99	0
9	GOL	A	511	6/6	0.85	0.24	70,73,76,82	0
12	NAG	D	2004	14/15	0.85	0.34	73,82,87,88	0
9	GOL	A	508	6/6	0.86	0.27	41,51,60,64	0
8	CA	C	504	1/1	0.86	0.09	48,48,48,48	0
9	GOL	A	506	6/6	0.86	0.18	52,56,65,69	0
9	GOL	A	510	6/6	0.87	0.19	44,63,70,75	0
10	SO4	L	302	5/5	0.88	0.20	115,115,115,118	0
10	SO4	C	507	5/5	0.90	0.23	117,121,122,125	0
10	SO4	C	508	5/5	0.90	0.23	115,117,117,122	0
9	GOL	A	509	6/6	0.90	0.26	57,73,76,77	0
10	SO4	A	513	5/5	0.91	0.22	90,101,105,108	0
9	GOL	A	507	6/6	0.92	0.19	45,54,79,86	0
8	CA	A	501	1/1	0.92	0.10	32,32,32,32	0
10	SO4	A	514	5/5	0.93	0.19	104,105,106,106	0
11	MN	D	2003	1/1	0.93	0.12	43,43,43,43	0
8	CA	C	502	1/1	0.94	0.08	46,46,46,46	0
8	CA	A	502	1/1	0.95	0.08	26,26,26,26	0
9	GOL	A	505	6/6	0.96	0.18	29,34,49,60	0
8	CA	C	503	1/1	0.96	0.08	40,40,40,40	0
11	MN	B	2003	1/1	0.97	0.06	26,26,26,26	0
8	CA	A	504	1/1	0.99	0.07	20,20,20,20	0
8	CA	A	503	1/1	0.99	0.16	22,22,22,22	0



## 6.5 Other polymers [i](#)

There are no such residues in this entry.