Full wwPDB X-ray Structure Validation Report ⓘ

Sep 20, 2023 – 09:45 PM EDT

PDB ID	:	5IJB
Title	:	The ligand-free structure of the mouse TLR4/MD-2 complex
Authors	:	Wang, Y.; Su, L.; Morin, M.D.; Jones, B.T.; Whitby, L.R.; Surakattula, M.; Huang, H.; Shi, H.; Choi, J.H.; Wang, K.; Moresco, E.M.; Berger, M.; Zhan, X.; Zhang, H.; Boger, D.L.; Beutler, B.
Deposited on	:	2016-03-01
Resolution	:	2.91 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:

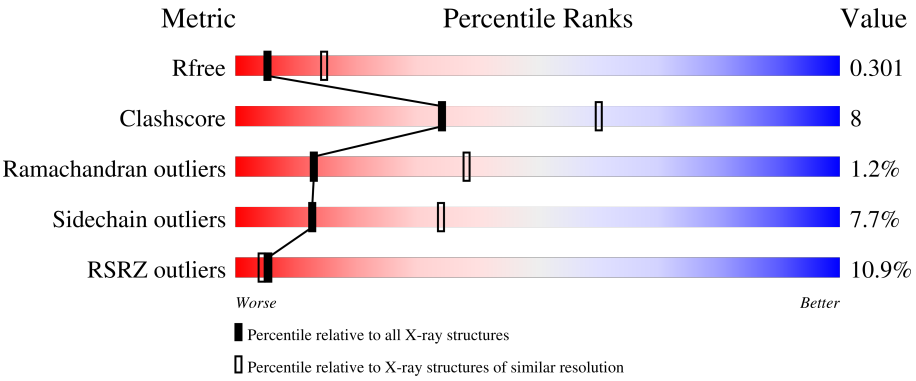
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.91 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	2307 (2.94-2.90)
Clashscore	141614	2531 (2.94-2.90)
Ramachandran outliers	138981	2462 (2.94-2.90)
Sidechain outliers	138945	2464 (2.94-2.90)
RSRZ outliers	127900	2248 (2.94-2.90)

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 <=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	594	5% 75% 22% ·
1	B	594	15% 72% 25% ·
2	C	150	10% 69% 17% 5% 9%
2	D	150	18% 71% 17% · 11%
3	E	2	100%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
3	F	2	100%
3	G	2	100%
3	H	2	100%
3	I	2	100%
3	J	2	50% 50%

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
3	NAG	H	1	X	-	-	-
3	NAG	J	1	X	-	-	-
4	NAG	A	702	X	-	-	-
4	NAG	A	703	X	-	-	-

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 11873 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 Toll-like receptor 4, Variable lymphocyte receptor B chimera.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	593	Total	C	N	O	S	0	0	0
			4720	3018	784	893	25			
1	B	592	Total	C	N	O	S	0	0	0
			4713	3014	783	891	25			

- Molecule 2 is a protein called Lymphocyte antigen 96.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	136	Total	C	N	O	S	0	0	0
			1105	713	188	197	7			
2	D	134	Total	C	N	O	S	0	0	0
			1083	701	180	195	7			

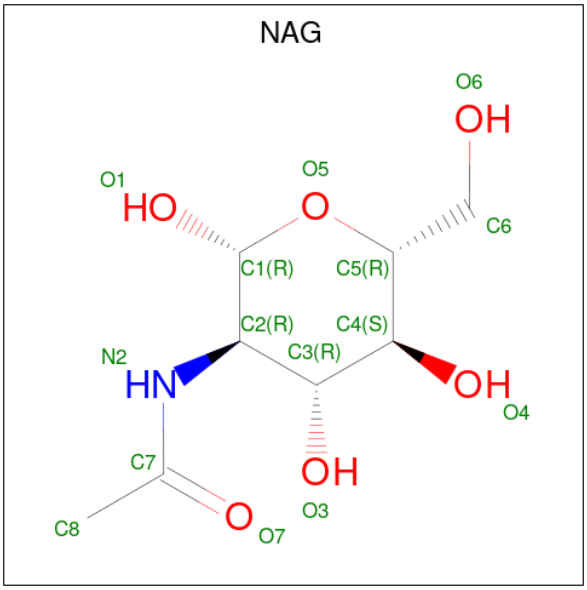
There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	161	LYS	-	cloning artifact	UNP Q9JHF9
C	162	GLY	-	cloning artifact	UNP Q9JHF9
C	163	GLU	-	cloning artifact	UNP Q9JHF9
C	164	ASN	-	cloning artifact	UNP Q9JHF9
C	165	LEU	-	cloning artifact	UNP Q9JHF9
C	166	TYR	-	cloning artifact	UNP Q9JHF9
C	167	PHE	-	cloning artifact	UNP Q9JHF9
C	168	GLN	-	cloning artifact	UNP Q9JHF9
D	161	LYS	-	cloning artifact	UNP Q9JHF9
D	162	GLY	-	cloning artifact	UNP Q9JHF9
D	163	GLU	-	cloning artifact	UNP Q9JHF9
D	164	ASN	-	cloning artifact	UNP Q9JHF9
D	165	LEU	-	cloning artifact	UNP Q9JHF9
D	166	TYR	-	cloning artifact	UNP Q9JHF9
D	167	PHE	-	cloning artifact	UNP Q9JHF9
D	168	GLN	-	cloning artifact	UNP Q9JHF9

- Molecule 3 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
3	E	2	Total C N O 28 16 2 10	0	0	0
3	F	2	Total C N O 28 16 2 10	0	0	0
3	G	2	Total C N O 28 16 2 10	0	0	0
3	H	2	Total C N O 28 16 2 10	0	0	0
3	I	2	Total C N O 28 16 2 10	0	0	0
3	J	2	Total C N O 28 16 2 10	0	0	0

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



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

Continued on next page...

Continued from previous page...

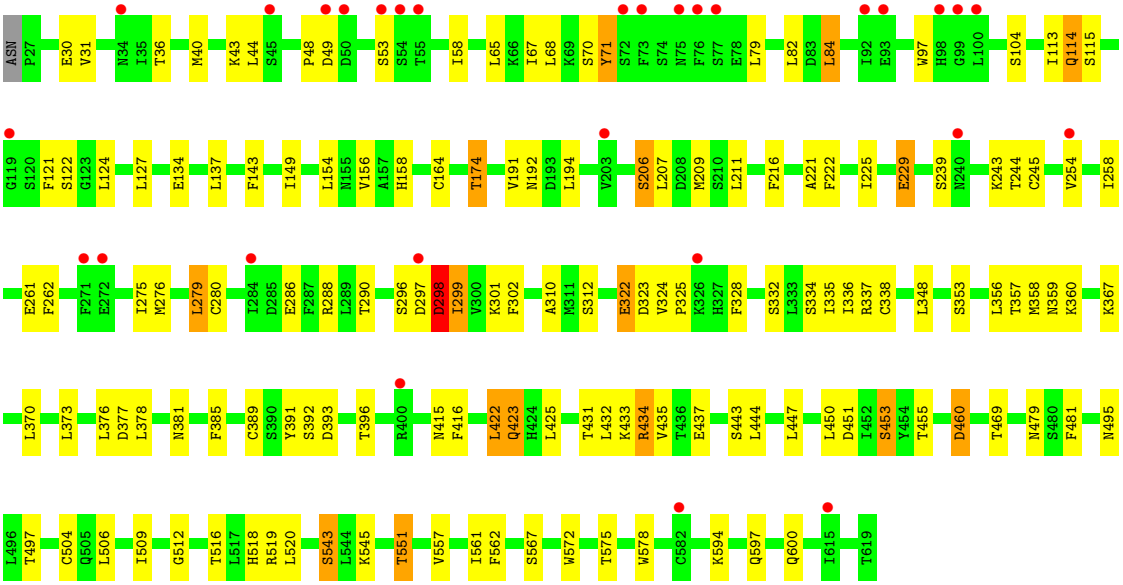
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			14	8	1	5		
4	C	1	Total	C	N	O	0	0
			14	8	1	5		
4	D	1	Total	C	N	O	0	0
			14	8	1	5		
4	D	1	Total	C	N	O	0	0
			14	8	1	5		

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.

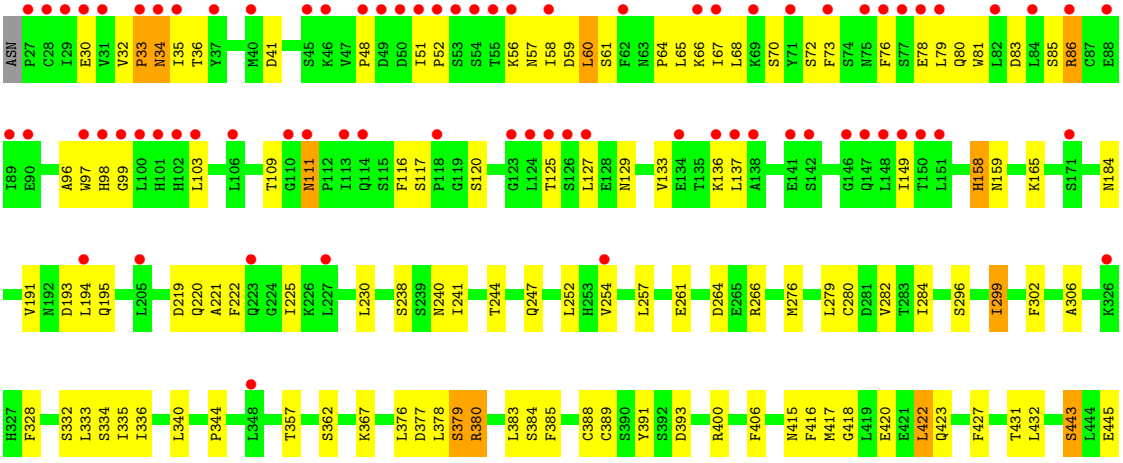
• Molecule 1: Toll-like receptor 4, Variable lymphocyte receptor B chimera

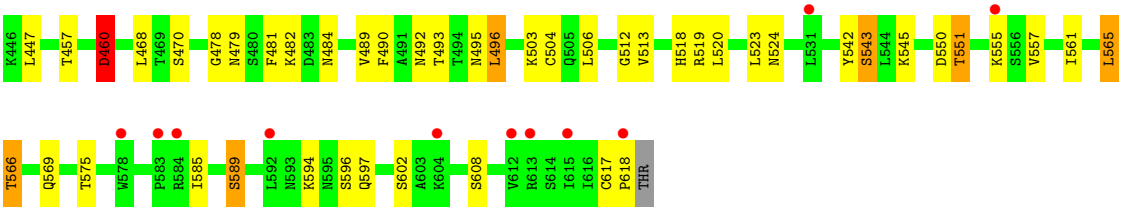
Chain A:



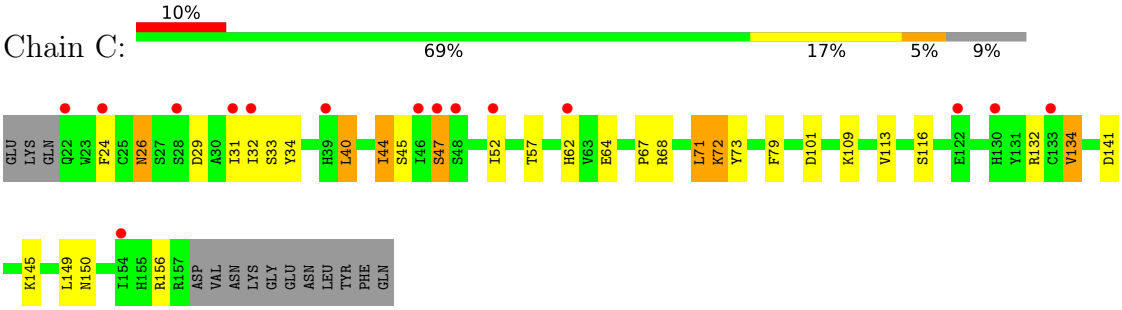
• Molecule 1: Toll-like receptor 4, Variable lymphocyte receptor B chimera

Chain B:

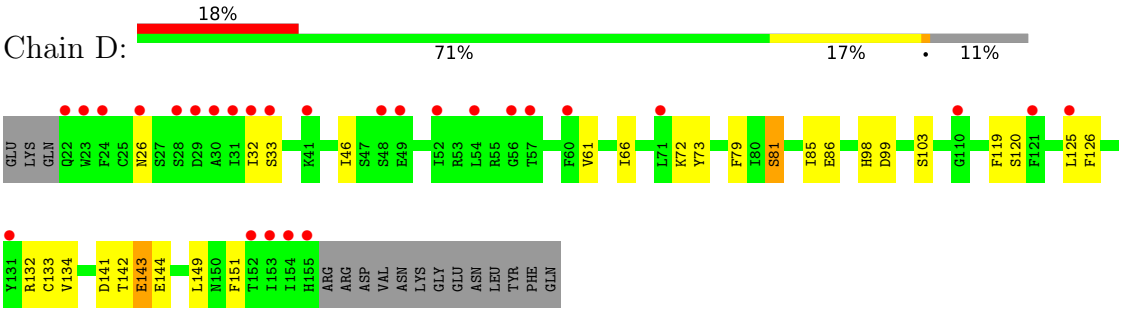




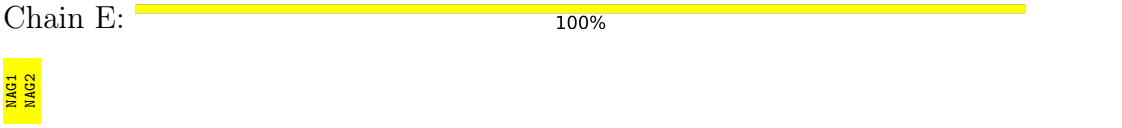
• Molecule 2: Lymphocyte antigen 96



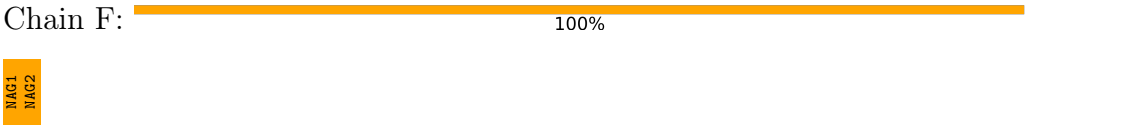
• Molecule 2: Lymphocyte antigen 96



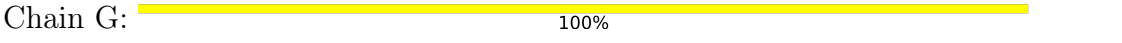
• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain H:

• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I:

• Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 43 21 2	Depositor
Cell constants a, b, c, α, β, γ	128.32Å 128.32Å 277.51Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.81 – 2.91 47.35 – 2.91	Depositor EDS
% Data completeness (in resolution range)	99.5 (48.81-2.91) 99.6 (47.35-2.91)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.43 (at 2.91Å)	Xtriage
Refinement program	REFMAC 5.7.0032	Depositor
R, R_{free}	0.243 , 0.308 0.241 , 0.301	Depositor DCC
R_{free} test set	2639 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å^2)	80.5	Xtriage
Anisotropy	0.327	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 56.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.91	EDS
Total number of atoms	11873	wwPDB-VP
Average B, all atoms (Å^2)	101.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.53% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: 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	0.60	0/4821	0.79	4/6534 (0.1%)
1	B	0.58	1/4814 (0.0%)	0.77	5/6524 (0.1%)
2	C	0.48	0/1136	0.69	0/1535
2	D	0.45	0/1114	0.60	0/1507
All	All	0.57	1/11885 (0.0%)	0.76	9/16100 (0.1%)

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
1	A	0	2
1	B	0	3
All	All	0	5

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	460	ASP	CB-CG	-5.45	1.40	1.51

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	380	ARG	NE-CZ-NH2	-7.03	116.78	120.30
1	A	460	ASP	CB-CA-C	-6.27	97.87	110.40
1	B	460	ASP	CB-CA-C	-6.23	97.94	110.40
1	A	377	ASP	CB-CG-OD1	5.61	123.35	118.30
1	B	422	LEU	CA-CB-CG	5.26	127.41	115.30
1	A	381	ASN	N-CA-C	-5.22	96.89	111.00

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	542	TYR	CA-CB-CG	5.10	123.09	113.40
1	A	338	CYS	CA-CB-SG	-5.05	104.92	114.00
1	B	380	ARG	NE-CZ-NH1	5.04	122.82	120.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	460	ASP	Peptide
1	A	512	GLY	Peptide
1	B	460	ASP	Peptide
1	B	512	GLY	Peptide
1	B	565	LEU	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	4720	0	4701	79	0
1	B	4713	0	4696	81	0
2	C	1105	0	1067	17	0
2	D	1083	0	1041	16	0
3	E	28	0	25	0	0
3	F	28	0	24	4	0
3	G	28	0	25	0	0
3	H	28	0	25	4	0
3	I	28	0	24	2	0
3	J	28	0	25	1	0
4	A	42	0	39	0	0
4	C	14	0	13	0	0
4	D	28	0	26	0	0
All	All	11873	0	11731	198	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 8.

All (198) 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:B:518:HIS:O	1:B:543:SER:HB2	1.70	0.91
1:B:222:PHE:CD2	1:B:225:ILE:HD11	2.07	0.89
1:B:296:SER:O	1:B:299:ILE:HG22	1.76	0.86
1:B:585:ILE:O	1:B:589:SER:OG	1.98	0.80
3:H:1:NAG:H4	3:H:2:NAG:N2	2.03	0.74
1:B:447:LEU:HD23	1:B:468:LEU:HD22	1.68	0.74
1:A:451:ASP:OD1	1:A:453:SER:OG	2.08	0.72
1:A:322:GLU:O	1:A:324:VAL:N	2.24	0.71
1:A:433:LYS:O	1:A:434:ARG:HB2	1.91	0.70
1:A:276:MET:O	1:A:279:LEU:HB2	1.97	0.64
1:B:85:SER:HA	1:B:109:THR:O	2.00	0.61
1:A:557:VAL:HG11	1:A:561:ILE:HG21	1.82	0.60
1:A:557:VAL:CG1	1:A:561:ILE:HG21	2.31	0.60
1:B:557:VAL:HG11	1:B:561:ILE:HG21	1.81	0.60
2:C:32:ILE:HD11	2:C:52:ILE:HB	1.82	0.60
1:B:495:ASN:OD1	1:B:519:ARG:NH1	2.35	0.59
1:A:497:THR:HA	1:A:520:LEU:HA	1.84	0.59
1:A:297:ASP:O	1:A:299:ILE:N	2.35	0.59
1:A:191:VAL:HG12	1:A:221:ALA:HA	1.84	0.59
1:B:457:THR:O	1:B:479:ASN:HB3	2.03	0.58
1:B:479:ASN:O	1:B:504:CYS:HA	2.03	0.58
2:C:32:ILE:CD1	2:C:52:ILE:HB	2.33	0.58
1:B:129:ASN:C	1:B:129:ASN:OD1	2.40	0.58
1:B:445:GLU:O	1:B:470:SER:OG	2.17	0.58
3:H:1:NAG:O3	3:H:1:NAG:H83	2.04	0.58
1:B:86:ARG:HD2	2:D:66:ILE:HG21	1.86	0.57
1:B:427:PHE:CD1	1:B:432:LEU:HD21	2.39	0.57
1:B:34:ASN:HD21	1:B:52:PRO:HB2	1.68	0.57
1:B:32:VAL:HG12	1:B:35:ILE:HD12	1.85	0.57
1:B:376:LEU:HD11	1:B:378:LEU:HD21	1.85	0.57
1:A:518:HIS:O	1:A:543:SER:HB3	2.05	0.57
2:D:134:VAL:HA	2:D:149:LEU:O	2.05	0.57
1:B:194:LEU:HD13	1:B:225:ILE:HD13	1.87	0.57
1:B:415:ASN:O	1:B:443:SER:OG	2.21	0.56
2:D:81:SER:HA	2:D:86:GLU:HA	1.88	0.56
1:A:479:ASN:O	1:A:504:CYS:HA	2.05	0.56
1:B:340:LEU:HD13	1:B:344:PRO:HD3	1.88	0.55
2:C:72:LYS:HG2	2:C:73:TYR:CD2	2.41	0.55
1:A:164:CYS:O	1:A:164:CYS:SG	2.65	0.55
1:A:337:ARG:HA	1:A:358:MET:O	2.06	0.55
1:B:97:TRP:O	1:B:99:GLY:N	2.40	0.54
1:B:282:VAL:HG23	1:B:284:ILE:HG13	1.90	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:82:LEU:HD11	1:A:84:LEU:HD21	1.87	0.54
2:C:44:ILE:HD12	2:C:149:LEU:HD21	1.88	0.54
1:A:298:ASP:N	1:A:298:ASP:OD1	2.41	0.54
1:B:391:TYR:HB2	1:B:418:GLY:HA3	1.89	0.54
2:C:44:ILE:CD1	2:C:149:LEU:HD21	2.38	0.54
1:B:557:VAL:CG1	1:B:561:ILE:HG21	2.38	0.53
3:F:1:NAG:H61	3:F:2:NAG:N2	2.24	0.53
1:B:489:VAL:HG23	1:B:490:PHE:CE1	2.44	0.53
1:A:299:ILE:HD13	1:A:299:ILE:O	2.09	0.52
1:B:264:ASP:OD2	2:D:103:SER:OG	2.20	0.52
1:B:415:ASN:O	1:B:416:PHE:HB2	2.10	0.52
1:B:109:THR:HG23	1:B:133:VAL:HB	1.91	0.52
1:B:524:ASN:HD22	3:I:1:NAG:H83	1.74	0.52
1:B:367:LYS:NZ	1:B:393:ASP:OD1	2.28	0.52
1:B:276:MET:HB2	1:B:302:PHE:CE2	2.44	0.52
1:B:81:TRP:CH2	1:B:83:ASP:HB2	2.46	0.51
1:A:154:LEU:HD11	1:A:156:VAL:CG1	2.41	0.51
1:A:211:LEU:HD21	1:A:262:PHE:CE2	2.46	0.51
1:B:565:LEU:C	1:B:566:THR:O	2.45	0.51
2:C:26:ASN:CB	2:C:31:ILE:HG22	2.41	0.51
1:A:239:SER:O	1:A:243:LYS:N	2.40	0.51
1:A:137:LEU:HD11	1:A:143:PHE:CD1	2.45	0.50
1:B:400:ARG:HD3	1:B:423:GLN:HE21	1.75	0.50
1:B:493:THR:HB	1:B:496:LEU:HD22	1.93	0.50
1:A:367:LYS:HG2	1:A:393:ASP:HA	1.94	0.50
1:A:222:PHE:CD2	1:A:225:ILE:HD11	2.46	0.50
1:B:103:LEU:HD23	1:B:127:LEU:HD13	1.93	0.50
1:A:561:ILE:HG23	1:A:562:PHE:N	2.27	0.49
2:C:67:PRO:HB3	2:C:71:LEU:HD13	1.93	0.49
1:B:481:PHE:O	1:B:482:LYS:C	2.50	0.49
1:A:423:GLN:HA	1:A:447:LEU:HA	1.94	0.49
1:B:252:LEU:HD11	1:B:254:VAL:HG13	1.95	0.49
1:B:80:GLN:HA	1:B:103:LEU:HD12	1.94	0.49
2:D:79:PHE:HB2	2:D:134:VAL:HG22	1.95	0.49
1:A:572:TRP:CD1	1:A:600:GLN:HB2	2.48	0.48
1:B:377:ASP:OD1	1:B:379:SER:HB3	2.13	0.48
1:B:418:GLY:N	1:B:420:GLU:OE2	2.46	0.48
2:D:61:VAL:HG23	2:D:119:PHE:CD1	2.49	0.47
1:A:121:PHE:O	1:A:122:SER:C	2.51	0.47
1:B:65:LEU:O	1:B:67:ILE:N	2.47	0.47
1:B:333:LEU:HD11	1:B:335:ILE:HD11	1.96	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:81:SER:OG	2:D:86:GLU:HB3	2.14	0.47
1:A:276:MET:HB2	1:A:302:PHE:CE2	2.50	0.47
1:A:415:ASN:O	1:A:416:PHE:HB2	2.14	0.47
1:B:159:ASN:HB2	1:B:184:ASN:OD1	2.14	0.47
1:A:336:ILE:HG12	1:A:357:THR:HG22	1.96	0.47
1:A:432:LEU:HD12	1:A:455:THR:HG21	1.96	0.47
1:A:516:THR:O	1:A:516:THR:CG2	2.63	0.47
1:A:551:THR:HA	1:A:575:THR:O	2.15	0.47
2:D:141:ASP:N	2:D:141:ASP:OD1	2.48	0.47
1:A:495:ASN:OD1	1:A:519:ARG:CZ	2.63	0.46
1:A:288:ARG:HG3	1:A:312:SER:HB3	1.96	0.46
1:B:240:ASN:O	1:B:244:THR:HG22	2.16	0.46
1:B:550:ASP:OD1	1:B:551:THR:HG23	2.16	0.46
1:A:58:ILE:HG22	1:A:79:LEU:HD11	1.97	0.46
1:A:70:SER:O	1:A:71:TYR:HB2	2.16	0.46
1:A:325:PRO:HG2	1:A:328:PHE:CE1	2.51	0.46
3:F:1:NAG:C1	3:F:1:NAG:H82	2.45	0.46
1:A:258:ILE:HD12	1:A:258:ILE:N	2.30	0.46
3:J:1:NAG:H82	3:J:1:NAG:O3	2.16	0.46
1:B:380:ARG:HG3	1:B:406:PHE:HB2	1.98	0.46
1:A:67:ILE:CG2	1:A:68:LEU:N	2.79	0.45
1:B:30:GLU:OE2	1:B:34:ASN:N	2.40	0.45
1:A:495:ASN:OD1	1:A:519:ARG:NH1	2.48	0.45
1:A:325:PRO:HG2	1:A:328:PHE:CD1	2.52	0.45
3:H:1:NAG:O3	3:H:2:NAG:C1	2.64	0.45
1:B:336:ILE:HG12	1:B:357:THR:CG2	2.47	0.45
1:A:31:VAL:HG23	1:A:36:THR:HB	1.97	0.45
2:C:64:GLU:HA	2:C:113:VAL:O	2.17	0.45
1:B:51:ILE:HD12	1:B:76:PHE:CZ	2.52	0.45
3:F:1:NAG:C1	3:F:1:NAG:C8	2.95	0.45
1:A:557:VAL:HG23	1:A:578:TRP:CZ3	2.51	0.45
1:A:286:GLU:HG3	1:A:310:ALA:HB3	1.99	0.45
1:A:416:PHE:HB3	1:A:444:LEU:HD21	1.99	0.45
1:B:36:THR:OG1	1:B:57:ASN:HB2	2.17	0.45
2:C:26:ASN:HB2	2:C:31:ILE:HG22	1.98	0.45
1:B:32:VAL:HG13	1:B:33:PRO:HD2	1.99	0.44
2:D:98:HIS:CD2	2:D:99:ASP:H	2.35	0.44
1:A:206:SER:OG	1:A:229:GLU:N	2.39	0.44
1:B:158:HIS:O	1:B:159:ASN:CG	2.55	0.44
1:A:134:GLU:HA	1:A:158:HIS:O	2.17	0.44
2:D:142:THR:O	2:D:143:GLU:HB2	2.17	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:191:VAL:HG12	1:B:221:ALA:HA	1.99	0.44
1:A:334:SER:C	1:A:335:ILE:HD13	2.38	0.44
1:B:306:ALA:HB2	1:B:328:PHE:CE1	2.53	0.44
1:B:585:ILE:O	1:B:585:ILE:HG13	2.17	0.44
1:B:117:SER:O	1:B:120:SER:HB2	2.18	0.44
2:D:32:ILE:HG22	2:D:33:SER:N	2.33	0.44
1:A:211:LEU:N	1:A:211:LEU:HD22	2.32	0.43
1:B:219:ASP:OD1	1:B:220:GLN:N	2.51	0.43
1:A:207:LEU:HB3	1:A:209:MET:HE2	2.00	0.43
1:A:481:PHE:CD2	1:A:506:LEU:HD21	2.54	0.43
2:C:47:SER:O	2:C:62:HIS:N	2.39	0.43
1:B:551:THR:HG22	1:B:575:THR:HB	1.99	0.43
1:A:44:LEU:HD13	1:A:48:PRO:HG3	1.99	0.43
1:B:481:PHE:CD2	1:B:506:LEU:HD21	2.53	0.43
1:B:244:THR:HA	1:B:247:GLN:OE1	2.17	0.43
1:A:97:TRP:HB3	1:A:124:LEU:HD21	2.01	0.43
1:A:422:LEU:HD11	1:A:425:LEU:HD13	2.00	0.43
1:B:481:PHE:O	1:B:484:ASN:N	2.49	0.43
1:B:545:LYS:HD3	1:B:569:GLN:OE1	2.18	0.43
1:A:425:LEU:HD23	1:A:450:LEU:CD1	2.49	0.43
1:B:238:SER:OG	1:B:241:ILE:HD12	2.19	0.43
1:B:70:SER:HA	1:B:96:ALA:HA	2.00	0.43
1:A:104:SER:HA	1:A:127:LEU:HA	2.01	0.43
1:A:332:SER:HB3	1:A:353:SER:HB3	2.00	0.43
1:A:334:SER:O	1:A:335:ILE:HD13	2.19	0.43
1:A:194:LEU:HD23	1:A:225:ILE:CD1	2.49	0.42
1:A:243:LYS:HA	1:A:275:ILE:HG23	2.00	0.42
1:B:58:ILE:HG22	1:B:79:LEU:HD21	2.01	0.42
1:A:206:SER:O	1:A:207:LEU:HD12	2.18	0.42
1:B:48:PRO:CG	1:B:51:ILE:HD11	2.49	0.42
1:B:116:PHE:CE2	1:B:137:LEU:HD23	2.55	0.42
1:B:503:LYS:HE3	3:I:2:NAG:H82	2.01	0.42
2:C:79:PHE:HB2	2:C:134:VAL:HG22	2.02	0.42
2:D:72:LYS:HG2	2:D:73:TYR:CD2	2.54	0.42
2:D:133:CYS:O	2:D:151:PHE:HB2	2.20	0.42
2:C:26:ASN:HB3	2:C:31:ILE:HG22	2.00	0.42
1:A:113:ILE:O	1:A:114:GLN:C	2.58	0.42
1:A:324:VAL:HA	1:A:325:PRO:HD2	1.83	0.42
2:D:72:LYS:HG2	2:D:73:TYR:CE2	2.55	0.42
1:A:276:MET:SD	1:A:299:ILE:HD11	2.60	0.42
1:A:324:VAL:HG12	1:A:348:LEU:HD21	2.02	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:134:VAL:HA	2:C:149:LEU:O	2.20	0.42
1:B:279:LEU:O	1:B:282:VAL:HG22	2.20	0.42
1:A:516:THR:O	1:A:516:THR:HG22	2.18	0.42
1:B:58:ILE:HG22	1:B:79:LEU:HD11	2.02	0.42
1:B:165:LYS:HA	1:B:193:ASP:HA	2.01	0.41
1:A:370:LEU:HD12	1:A:373:LEU:HD22	2.01	0.41
1:A:376:LEU:HD11	1:A:378:LEU:HD21	2.02	0.41
1:A:40:MET:HE1	2:C:109:LYS:HD2	2.02	0.41
1:B:58:ILE:HD11	1:B:60:LEU:HD12	2.01	0.41
1:B:68:LEU:HD11	1:B:73:PHE:CE2	2.56	0.41
1:B:222:PHE:HD2	1:B:225:ILE:HD11	1.76	0.41
1:B:617:CYS:HB3	1:B:618:PRO:CD	2.50	0.41
1:B:254:VAL:HG21	1:B:257:LEU:HB2	2.02	0.41
2:C:40:LEU:HD11	2:C:145:LYS:HB3	2.01	0.41
2:D:149:LEU:HD13	2:D:151:PHE:HE1	1.85	0.41
1:B:520:LEU:HD21	1:B:523:LEU:HB2	2.02	0.41
2:D:125:LEU:O	2:D:126:PHE:C	2.59	0.41
1:A:356:LEU:C	1:A:356:LEU:HD23	2.41	0.41
1:A:391:TYR:O	1:A:392:SER:C	2.59	0.41
1:A:434:ARG:O	1:A:437:GLU:HB2	2.21	0.41
1:A:71:TYR:HD1	1:A:71:TYR:N	2.19	0.41
1:A:207:LEU:HB3	1:A:209:MET:CE	2.51	0.41
1:B:478:GLY:HA2	1:B:503:LYS:O	2.21	0.41
1:B:493:THR:CB	1:B:496:LEU:HD22	2.50	0.41
1:A:244:THR:HG23	1:A:245:CYS:N	2.37	0.40
1:A:30:GLU:O	1:A:31:VAL:C	2.59	0.40
1:A:65:LEU:O	1:A:67:ILE:N	2.54	0.40
1:A:113:ILE:O	1:A:115:SER:N	2.54	0.40
1:A:191:VAL:HG23	1:A:192:ASN:N	2.36	0.40
2:C:24:PHE:HB3	2:C:33:SER:CB	2.51	0.40
1:B:111:ASN:N	1:B:111:ASN:ND2	2.70	0.40
3:H:1:NAG:O3	3:H:1:NAG:C8	2.68	0.40
2:C:150:ASN:ND2	3:F:1:NAG:H82	2.37	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	591/594 (100%)	517 (88%)	70 (12%)	4 (1%)	22	53
1	B	590/594 (99%)	498 (84%)	83 (14%)	9 (2%)	10	32
2	C	134/150 (89%)	125 (93%)	7 (5%)	2 (2%)	10	32
2	D	132/150 (88%)	122 (92%)	8 (6%)	2 (2%)	10	32
All	All	1447/1488 (97%)	1262 (87%)	168 (12%)	17 (1%)	13	38

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	298	ASP
1	A	323	ASP
1	B	66	LYS
1	B	98	HIS
1	B	566	THR
1	B	33	PRO
1	B	136	LYS
1	B	362	SER
2	D	143	GLU
2	C	101	ASP
1	B	41	ASP
1	B	158	HIS
1	A	43	LYS
1	A	174	THR
2	D	85	ILE
2	C	132	ARG
1	B	64	PRO

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	550/551 (100%)	510 (93%)	40 (7%)	14 37
1	B	549/551 (100%)	507 (92%)	42 (8%)	13 34
2	C	123/136 (90%)	108 (88%)	15 (12%)	5 14
2	D	121/136 (89%)	115 (95%)	6 (5%)	24 55
All	All	1343/1374 (98%)	1240 (92%)	103 (8%)	13 34

All (103) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	49	ASP
1	A	53	SER
1	A	71	TYR
1	A	84	LEU
1	A	114	GLN
1	A	149	ILE
1	A	174	THR
1	A	206	SER
1	A	216	PHE
1	A	229	GLU
1	A	254	VAL
1	A	261	GLU
1	A	279	LEU
1	A	280	CYS
1	A	290	THR
1	A	296	SER
1	A	298	ASP
1	A	299	ILE
1	A	301	LYS
1	A	322	GLU
1	A	359	ASN
1	A	360	LYS
1	A	385	PHE
1	A	389	CYS
1	A	396	THR
1	A	422	LEU
1	A	423	GLN
1	A	431	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	434	ARG
1	A	435	VAL
1	A	443	SER
1	A	453	SER
1	A	469	THR
1	A	509	ILE
1	A	543	SER
1	A	545	LYS
1	A	551	THR
1	A	567	SER
1	A	594	LYS
1	A	597	GLN
2	C	26	ASN
2	C	29	ASP
2	C	34	TYR
2	C	40	LEU
2	C	44	ILE
2	C	45	SER
2	C	47	SER
2	C	57	THR
2	C	68	ARG
2	C	71	LEU
2	C	72	LYS
2	C	116	SER
2	C	134	VAL
2	C	141	ASP
2	C	156	ARG
1	B	34	ASN
1	B	56	LYS
1	B	59	ASP
1	B	60	LEU
1	B	61	SER
1	B	72	SER
1	B	78	GLU
1	B	86	ARG
1	B	111	ASN
1	B	125	THR
1	B	149	ILE
1	B	195	GLN
1	B	230	LEU
1	B	261	GLU
1	B	266	ARG

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	280	CYS
1	B	299	ILE
1	B	332	SER
1	B	334	SER
1	B	379	SER
1	B	383	LEU
1	B	384	SER
1	B	385	PHE
1	B	388	CYS
1	B	389	CYS
1	B	417	MET
1	B	422	LEU
1	B	431	THR
1	B	443	SER
1	B	460	ASP
1	B	492	ASN
1	B	496	LEU
1	B	513	VAL
1	B	543	SER
1	B	551	THR
1	B	555	LYS
1	B	589	SER
1	B	594	LYS
1	B	596	SER
1	B	597	GLN
1	B	602	SER
1	B	608	SER
2	D	26	ASN
2	D	46	ILE
2	D	81	SER
2	D	120	SER
2	D	132	ARG
2	D	144	GLU

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	200	ASN
1	A	235	ASN
1	A	484	ASN
1	B	34	ASN
1	B	101	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	111	ASN
1	B	423	GLN
1	B	527	HIS
2	D	98	HIS

5.3.3 RNA

There are no RNA molecules in this entry.

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

18 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	$\#\|Z\| > 2$
3	NAG	F	1	2,3	14,14,15	1.23	1 (7%)	17,19,21	3.04	8 (47%)
3	NAG	I	2	3	14,14,15	0.73	0	17,19,21	2.15	3 (17%)
4	NAG	A	703	1	14,14,15	1.14	1 (7%)	17,19,21	2.16	5 (29%)
4	NAG	A	701	1	14,14,15	0.73	0	17,19,21	1.40	4 (23%)
3	NAG	E	2	3	14,14,15	0.73	0	17,19,21	1.84	5 (29%)
3	NAG	I	1	1,3	14,14,15	1.16	1 (7%)	17,19,21	2.85	10 (58%)
4	NAG	A	702	1	14,14,15	0.45	0	17,19,21	2.34	3 (17%)
3	NAG	H	1	1,3	14,14,15	1.28	2 (14%)	17,19,21	3.29	8 (47%)
3	NAG	J	2	3	14,14,15	0.63	0	17,19,21	1.55	3 (17%)
3	NAG	J	1	1,3	14,14,15	0.87	0	17,19,21	1.95	5 (29%)
3	NAG	G	1	1,3	14,14,15	0.50	0	17,19,21	1.80	5 (29%)
3	NAG	G	2	3	14,14,15	0.70	0	17,19,21	1.45	2 (11%)
3	NAG	H	2	3	14,14,15	0.97	1 (7%)	17,19,21	2.15	4 (23%)
4	NAG	D	201	2	14,14,15	0.57	0	17,19,21	1.47	1 (5%)
3	NAG	E	1	1,3	14,14,15	0.76	0	17,19,21	1.42	3 (17%)
4	NAG	D	202	2	14,14,15	0.68	0	17,19,21	1.75	2 (11%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	NAG	C	201	2	14,14,15	0.54	0	17,19,21	1.69	2 (11%)
3	NAG	F	2	3	14,14,15	0.79	1 (7%)	17,19,21	1.86	3 (17%)

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
3	NAG	F	1	2,3	-	3/6/23/26	0/1/1/1
3	NAG	I	2	3	-	0/6/23/26	0/1/1/1
4	NAG	A	703	1	1/1/5/7	4/6/23/26	0/1/1/1
4	NAG	A	701	1	-	2/6/23/26	0/1/1/1
3	NAG	E	2	3	-	2/6/23/26	0/1/1/1
3	NAG	I	1	1,3	-	3/6/23/26	0/1/1/1
4	NAG	A	702	1	1/1/5/7	1/6/23/26	0/1/1/1
3	NAG	H	1	1,3	1/1/5/7	4/6/23/26	0/1/1/1
3	NAG	J	2	3	-	0/6/23/26	0/1/1/1
3	NAG	J	1	1,3	1/1/5/7	2/6/23/26	0/1/1/1
3	NAG	G	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	G	2	3	-	2/6/23/26	0/1/1/1
3	NAG	H	2	3	-	2/6/23/26	0/1/1/1
4	NAG	D	201	2	-	0/6/23/26	0/1/1/1
3	NAG	E	1	1,3	-	4/6/23/26	0/1/1/1
4	NAG	D	202	2	-	2/6/23/26	0/1/1/1
4	NAG	C	201	2	-	2/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1

All (7) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	1	NAG	O4-C4	-3.78	1.34	1.43
3	I	1	NAG	O4-C4	-3.57	1.34	1.43
4	A	703	NAG	C1-C2	3.44	1.57	1.52
3	H	1	NAG	C1-C2	3.04	1.56	1.52
3	H	1	NAG	C2-N2	2.60	1.50	1.46
3	F	2	NAG	C1-C2	2.52	1.56	1.52
3	H	2	NAG	C1-C2	2.38	1.55	1.52

All (76) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	H	1	NAG	C2-N2-C7	9.49	136.42	122.90
4	A	702	NAG	C1-O5-C5	7.95	122.97	112.19
3	I	1	NAG	O5-C1-C2	-6.86	100.46	111.29
3	F	1	NAG	C1-O5-C5	6.82	121.44	112.19
3	H	2	NAG	C1-C2-N2	6.39	121.41	110.49
3	I	2	NAG	O5-C1-C2	-6.32	101.31	111.29
4	A	703	NAG	C4-C3-C2	5.66	119.31	111.02
3	F	2	NAG	C1-O5-C5	5.48	119.61	112.19
4	C	201	NAG	C1-O5-C5	5.01	118.99	112.19
4	D	202	NAG	C4-C3-C2	4.83	118.10	111.02
3	H	1	NAG	C8-C7-N2	4.82	124.27	116.10
4	D	201	NAG	C1-O5-C5	4.66	118.51	112.19
3	I	2	NAG	C4-C3-C2	4.59	117.75	111.02
3	I	1	NAG	C1-O5-C5	4.44	118.21	112.19
3	H	1	NAG	O5-C5-C4	-4.38	100.17	110.83
3	I	1	NAG	C4-C3-C2	4.29	117.31	111.02
3	F	1	NAG	C2-N2-C7	4.20	128.88	122.90
3	F	1	NAG	O5-C1-C2	-4.15	104.73	111.29
3	J	1	NAG	C4-C3-C2	4.10	117.02	111.02
3	F	1	NAG	O5-C5-C4	4.09	120.78	110.83
3	E	2	NAG	O5-C1-C2	-3.89	105.14	111.29
4	A	703	NAG	O5-C1-C2	-3.87	105.17	111.29
3	F	1	NAG	O5-C5-C6	-3.85	101.17	107.20
3	G	1	NAG	C1-O5-C5	3.79	117.33	112.19
3	H	1	NAG	C1-C2-N2	3.74	116.88	110.49
3	F	2	NAG	O5-C1-C2	3.64	117.03	111.29
3	G	1	NAG	C8-C7-N2	3.60	122.20	116.10
3	J	2	NAG	C4-C3-C2	3.53	116.20	111.02
3	H	1	NAG	O7-C7-C8	-3.51	115.53	122.06
3	G	2	NAG	C1-O5-C5	3.47	116.90	112.19
3	J	1	NAG	C8-C7-N2	3.47	121.97	116.10
3	F	1	NAG	O4-C4-C3	-3.42	102.45	110.35
3	E	2	NAG	O4-C4-C5	3.39	117.71	109.30
3	F	1	NAG	C8-C7-N2	3.33	121.73	116.10
3	H	2	NAG	O7-C7-C8	-3.15	116.20	122.06
3	E	1	NAG	O4-C4-C3	-3.07	103.24	110.35
3	H	1	NAG	O4-C4-C3	3.05	117.40	110.35
3	F	1	NAG	C1-C2-N2	3.04	115.69	110.49
4	A	702	NAG	C4-C3-C2	-3.03	106.58	111.02
3	G	1	NAG	O5-C1-C2	-3.01	106.53	111.29
3	H	2	NAG	C3-C4-C5	3.01	115.61	110.24
3	J	1	NAG	O5-C5-C4	-2.87	103.85	110.83

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	I	2	NAG	C1-O5-C5	2.82	116.02	112.19
3	H	1	NAG	C4-C3-C2	-2.82	106.89	111.02
3	I	1	NAG	O5-C5-C4	2.82	117.68	110.83
4	C	201	NAG	C1-C2-N2	2.81	115.29	110.49
3	I	1	NAG	O3-C3-C2	-2.80	103.68	109.47
3	G	1	NAG	C4-C3-C2	-2.77	106.96	111.02
3	J	1	NAG	C2-N2-C7	2.75	126.82	122.90
3	J	2	NAG	C1-O5-C5	2.67	115.82	112.19
3	I	1	NAG	C3-C4-C5	-2.63	105.56	110.24
3	E	2	NAG	O5-C5-C4	-2.61	104.47	110.83
3	I	1	NAG	C8-C7-N2	2.58	120.47	116.10
3	J	2	NAG	O5-C1-C2	2.56	115.34	111.29
4	A	703	NAG	O7-C7-C8	-2.51	117.40	122.06
4	A	701	NAG	C4-C3-C2	2.49	114.67	111.02
3	F	2	NAG	C1-C2-N2	2.48	114.72	110.49
4	A	701	NAG	O5-C5-C6	2.47	111.07	107.20
4	A	702	NAG	O5-C5-C4	2.43	116.73	110.83
3	I	1	NAG	O6-C6-C5	-2.42	102.99	111.29
3	I	1	NAG	O7-C7-N2	-2.38	117.57	121.95
3	H	2	NAG	C8-C7-N2	2.35	120.07	116.10
3	E	2	NAG	O3-C3-C4	-2.35	104.92	110.35
3	G	2	NAG	O3-C3-C2	2.32	114.26	109.47
4	A	701	NAG	C1-C2-N2	-2.27	106.60	110.49
4	D	202	NAG	O5-C5-C6	2.23	110.69	107.20
3	H	1	NAG	O5-C5-C6	2.21	110.67	107.20
3	E	1	NAG	C8-C7-N2	2.21	119.84	116.10
4	A	703	NAG	C1-O5-C5	2.21	115.18	112.19
3	I	1	NAG	O4-C4-C3	-2.13	105.42	110.35
3	E	2	NAG	C2-N2-C7	-2.13	119.87	122.90
4	A	703	NAG	C1-C2-N2	2.12	114.12	110.49
3	J	1	NAG	O7-C7-C8	-2.12	118.12	122.06
3	E	1	NAG	C3-C4-C5	-2.11	106.47	110.24
3	G	1	NAG	O7-C7-C8	-2.05	118.24	122.06
4	A	701	NAG	C3-C4-C5	-2.03	106.61	110.24

All (4) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	A	702	NAG	C1
4	A	703	NAG	C1
3	H	1	NAG	C1
3	J	1	NAG	C1

All (35) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	H	1	NAG	C3-C2-N2-C7
4	A	703	NAG	C4-C5-C6-O6
3	E	2	NAG	O5-C5-C6-O6
4	A	703	NAG	O5-C5-C6-O6
4	D	202	NAG	O5-C5-C6-O6
3	H	2	NAG	O5-C5-C6-O6
4	A	703	NAG	C1-C2-N2-C7
4	A	702	NAG	O5-C5-C6-O6
3	E	1	NAG	O5-C5-C6-O6
3	E	1	NAG	C8-C7-N2-C2
3	E	1	NAG	O7-C7-N2-C2
3	F	1	NAG	C8-C7-N2-C2
3	F	1	NAG	O7-C7-N2-C2
3	G	1	NAG	C8-C7-N2-C2
3	G	1	NAG	O7-C7-N2-C2
3	H	1	NAG	C8-C7-N2-C2
3	H	1	NAG	O7-C7-N2-C2
3	I	1	NAG	C8-C7-N2-C2
3	I	1	NAG	O7-C7-N2-C2
3	J	1	NAG	C8-C7-N2-C2
3	J	1	NAG	O7-C7-N2-C2
3	H	2	NAG	C4-C5-C6-O6
4	D	202	NAG	C4-C5-C6-O6
3	E	2	NAG	C4-C5-C6-O6
3	F	1	NAG	C1-C2-N2-C7
4	A	701	NAG	O5-C5-C6-O6
3	E	1	NAG	C4-C5-C6-O6
4	C	201	NAG	O5-C5-C6-O6
4	A	701	NAG	C4-C5-C6-O6
3	H	1	NAG	O5-C5-C6-O6
4	A	703	NAG	C3-C2-N2-C7
3	G	2	NAG	O5-C5-C6-O6
3	I	1	NAG	O5-C5-C6-O6
3	G	2	NAG	C4-C5-C6-O6
4	C	201	NAG	C4-C5-C6-O6

There are no ring outliers.

7 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	1	NAG	4	0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	I	2	NAG	1	0
3	I	1	NAG	1	0
3	H	1	NAG	4	0
3	J	1	NAG	1	0
3	H	2	NAG	2	0
3	F	2	NAG	1	0

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	$\#\|Z\| > 2$
3	NAG	E	1	1,3	14,14,15	0.76	0	17,19,21	1.42	3 (17%)
3	NAG	E	2	3	14,14,15	0.73	0	17,19,21	1.84	5 (29%)
3	NAG	F	1	2,3	14,14,15	1.23	1 (7%)	17,19,21	3.04	8 (47%)
3	NAG	F	2	3	14,14,15	0.79	1 (7%)	17,19,21	1.86	3 (17%)
3	NAG	G	1	1,3	14,14,15	0.50	0	17,19,21	1.80	5 (29%)
3	NAG	G	2	3	14,14,15	0.70	0	17,19,21	1.45	2 (11%)
3	NAG	H	1	1,3	14,14,15	1.28	2 (14%)	17,19,21	3.29	8 (47%)
3	NAG	H	2	3	14,14,15	0.97	1 (7%)	17,19,21	2.15	4 (23%)
3	NAG	I	1	1,3	14,14,15	1.16	1 (7%)	17,19,21	2.85	10 (58%)
3	NAG	I	2	3	14,14,15	0.73	0	17,19,21	2.15	3 (17%)
3	NAG	J	1	1,3	14,14,15	0.87	0	17,19,21	1.95	5 (29%)
3	NAG	J	2	3	14,14,15	0.63	0	17,19,21	1.55	3 (17%)

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
3	NAG	E	1	1,3	-	4/6/23/26	0/1/1/1
3	NAG	E	2	3	-	2/6/23/26	0/1/1/1
3	NAG	F	1	2,3	-	3/6/23/26	0/1/1/1
3	NAG	F	2	3	-	0/6/23/26	0/1/1/1
3	NAG	G	1	1,3	-	2/6/23/26	0/1/1/1
3	NAG	G	2	3	-	2/6/23/26	0/1/1/1
3	NAG	H	1	1,3	1/1/5/7	4/6/23/26	0/1/1/1
3	NAG	H	2	3	-	2/6/23/26	0/1/1/1
3	NAG	I	1	1,3	-	3/6/23/26	0/1/1/1
3	NAG	I	2	3	-	0/6/23/26	0/1/1/1
3	NAG	J	1	1,3	1/1/5/7	2/6/23/26	0/1/1/1
3	NAG	J	2	3	-	0/6/23/26	0/1/1/1

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	F	1	NAG	O4-C4	-3.78	1.34	1.43
3	I	1	NAG	O4-C4	-3.57	1.34	1.43
3	H	1	NAG	C1-C2	3.04	1.56	1.52
3	H	1	NAG	C2-N2	2.60	1.50	1.46
3	F	2	NAG	C1-C2	2.52	1.56	1.52
3	H	2	NAG	C1-C2	2.38	1.55	1.52

All (59) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	H	1	NAG	C2-N2-C7	9.49	136.42	122.90
3	I	1	NAG	O5-C1-C2	-6.86	100.46	111.29
3	F	1	NAG	C1-O5-C5	6.82	121.44	112.19
3	H	2	NAG	C1-C2-N2	6.39	121.41	110.49
3	I	2	NAG	O5-C1-C2	-6.32	101.31	111.29
3	F	2	NAG	C1-O5-C5	5.48	119.61	112.19
3	H	1	NAG	C8-C7-N2	4.82	124.27	116.10
3	I	2	NAG	C4-C3-C2	4.59	117.75	111.02
3	I	1	NAG	C1-O5-C5	4.44	118.21	112.19
3	H	1	NAG	O5-C5-C4	-4.38	100.17	110.83
3	I	1	NAG	C4-C3-C2	4.29	117.31	111.02
3	F	1	NAG	C2-N2-C7	4.20	128.88	122.90
3	F	1	NAG	O5-C1-C2	-4.15	104.73	111.29
3	J	1	NAG	C4-C3-C2	4.10	117.02	111.02
3	F	1	NAG	O5-C5-C4	4.09	120.78	110.83

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	E	2	NAG	O5-C1-C2	-3.89	105.14	111.29
3	F	1	NAG	O5-C5-C6	-3.85	101.17	107.20
3	G	1	NAG	C1-O5-C5	3.79	117.33	112.19
3	H	1	NAG	C1-C2-N2	3.74	116.88	110.49
3	F	2	NAG	O5-C1-C2	3.64	117.03	111.29
3	G	1	NAG	C8-C7-N2	3.60	122.20	116.10
3	J	2	NAG	C4-C3-C2	3.53	116.20	111.02
3	H	1	NAG	O7-C7-C8	-3.51	115.53	122.06
3	G	2	NAG	C1-O5-C5	3.47	116.90	112.19
3	J	1	NAG	C8-C7-N2	3.47	121.97	116.10
3	F	1	NAG	O4-C4-C3	-3.42	102.45	110.35
3	E	2	NAG	O4-C4-C5	3.39	117.71	109.30
3	F	1	NAG	C8-C7-N2	3.33	121.73	116.10
3	H	2	NAG	O7-C7-C8	-3.15	116.20	122.06
3	E	1	NAG	O4-C4-C3	-3.07	103.24	110.35
3	H	1	NAG	O4-C4-C3	3.05	117.40	110.35
3	F	1	NAG	C1-C2-N2	3.04	115.69	110.49
3	G	1	NAG	O5-C1-C2	-3.01	106.53	111.29
3	H	2	NAG	C3-C4-C5	3.01	115.61	110.24
3	J	1	NAG	O5-C5-C4	-2.87	103.85	110.83
3	I	2	NAG	C1-O5-C5	2.82	116.02	112.19
3	H	1	NAG	C4-C3-C2	-2.82	106.89	111.02
3	I	1	NAG	O5-C5-C4	2.82	117.68	110.83
3	I	1	NAG	O3-C3-C2	-2.80	103.68	109.47
3	G	1	NAG	C4-C3-C2	-2.77	106.96	111.02
3	J	1	NAG	C2-N2-C7	2.75	126.82	122.90
3	J	2	NAG	C1-O5-C5	2.67	115.82	112.19
3	I	1	NAG	C3-C4-C5	-2.63	105.56	110.24
3	E	2	NAG	O5-C5-C4	-2.61	104.47	110.83
3	I	1	NAG	C8-C7-N2	2.58	120.47	116.10
3	J	2	NAG	O5-C1-C2	2.56	115.34	111.29
3	F	2	NAG	C1-C2-N2	2.48	114.72	110.49
3	I	1	NAG	O6-C6-C5	-2.42	102.99	111.29
3	I	1	NAG	O7-C7-N2	-2.38	117.57	121.95
3	H	2	NAG	C8-C7-N2	2.35	120.07	116.10
3	E	2	NAG	O3-C3-C4	-2.35	104.92	110.35
3	G	2	NAG	O3-C3-C2	2.32	114.26	109.47
3	H	1	NAG	O5-C5-C6	2.21	110.67	107.20
3	E	1	NAG	C8-C7-N2	2.21	119.84	116.10
3	I	1	NAG	O4-C4-C3	-2.13	105.42	110.35
3	E	2	NAG	C2-N2-C7	-2.13	119.87	122.90
3	J	1	NAG	O7-C7-C8	-2.12	118.12	122.06

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	E	1	NAG	C3-C4-C5	-2.11	106.47	110.24
3	G	1	NAG	O7-C7-C8	-2.05	118.24	122.06

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
3	H	1	NAG	C1
3	J	1	NAG	C1

All (24) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	H	1	NAG	C3-C2-N2-C7
3	E	2	NAG	O5-C5-C6-O6
3	H	2	NAG	O5-C5-C6-O6
3	E	1	NAG	O5-C5-C6-O6
3	E	1	NAG	C8-C7-N2-C2
3	E	1	NAG	O7-C7-N2-C2
3	F	1	NAG	C8-C7-N2-C2
3	F	1	NAG	O7-C7-N2-C2
3	G	1	NAG	C8-C7-N2-C2
3	G	1	NAG	O7-C7-N2-C2
3	H	1	NAG	C8-C7-N2-C2
3	H	1	NAG	O7-C7-N2-C2
3	I	1	NAG	C8-C7-N2-C2
3	I	1	NAG	O7-C7-N2-C2
3	J	1	NAG	C8-C7-N2-C2
3	J	1	NAG	O7-C7-N2-C2
3	H	2	NAG	C4-C5-C6-O6
3	E	2	NAG	C4-C5-C6-O6
3	F	1	NAG	C1-C2-N2-C7
3	E	1	NAG	C4-C5-C6-O6
3	H	1	NAG	O5-C5-C6-O6
3	G	2	NAG	O5-C5-C6-O6
3	I	1	NAG	O5-C5-C6-O6
3	G	2	NAG	C4-C5-C6-O6

There are no ring outliers.

7 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	1	NAG	4	0

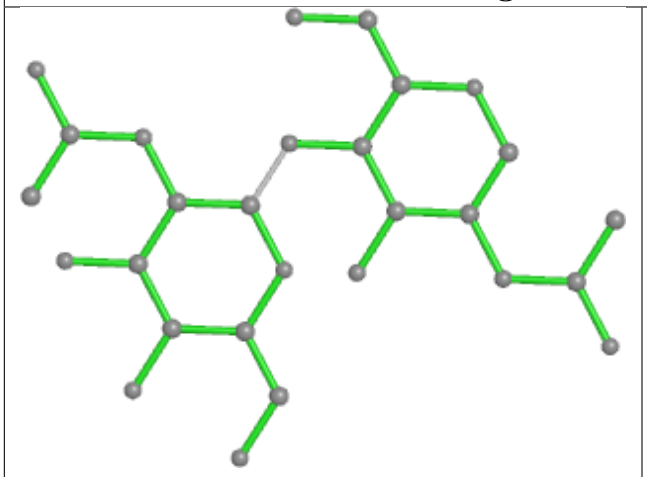
Continued on next page...

Continued from previous page...

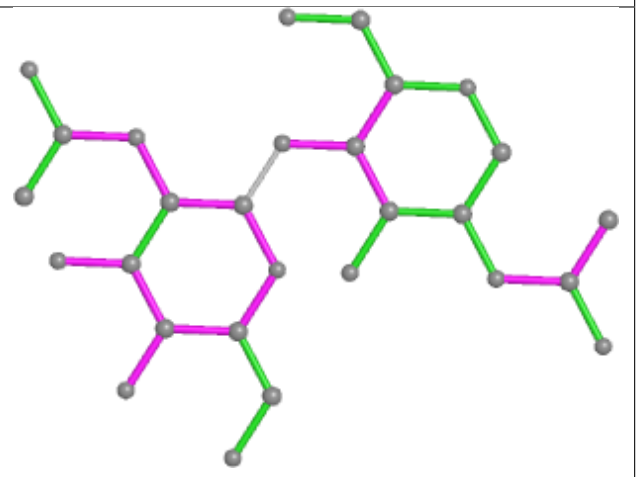
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	I	2	NAG	1	0
3	I	1	NAG	1	0
3	H	1	NAG	4	0
3	J	1	NAG	1	0
3	H	2	NAG	2	0
3	F	2	NAG	1	0

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

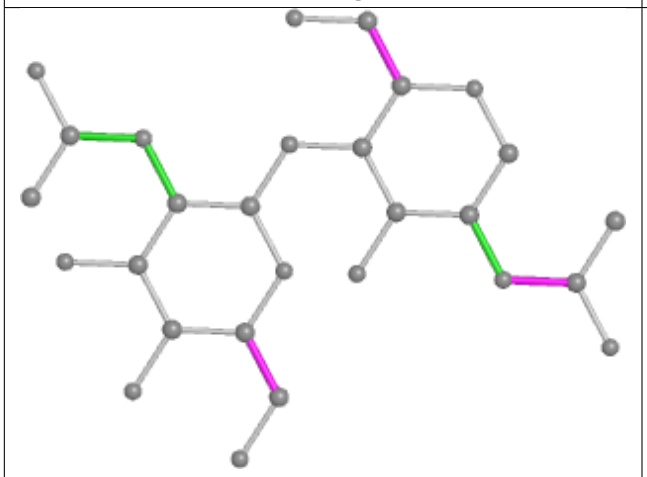
Oligosaccharide Chain E



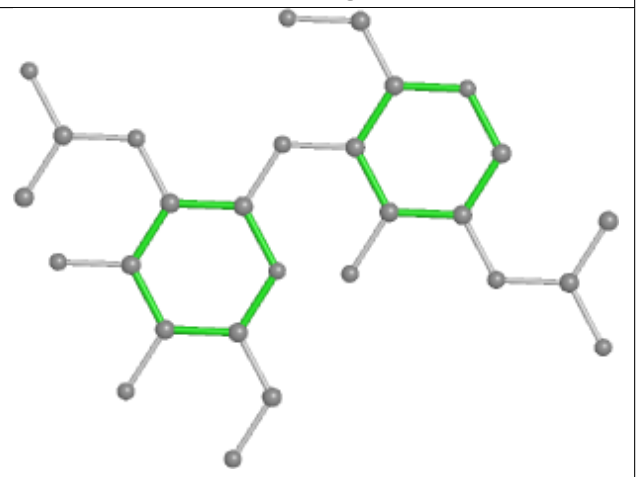
Bond lengths



Bond angles

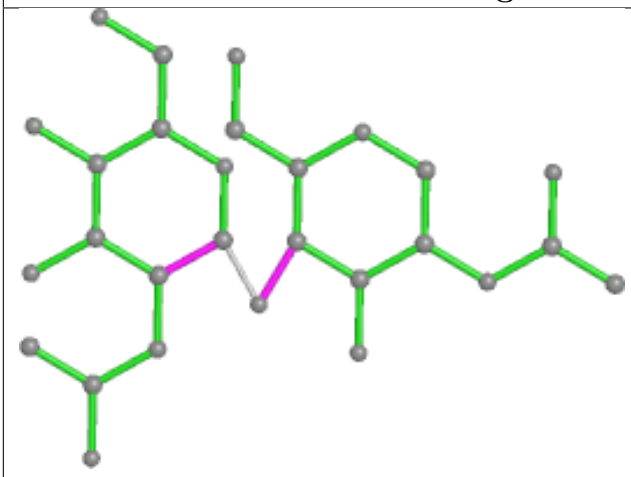


Torsions

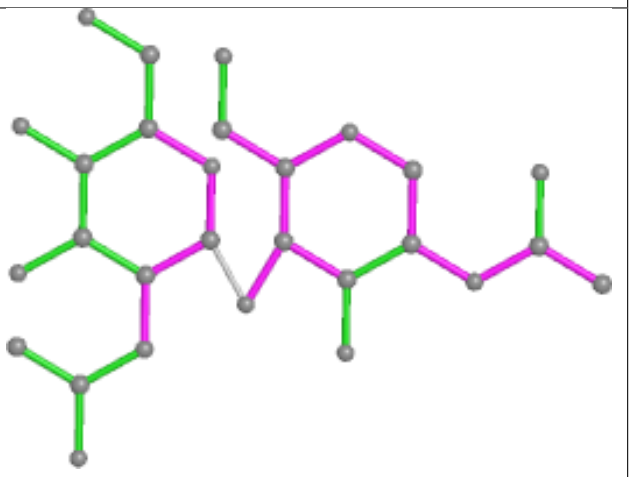


Rings

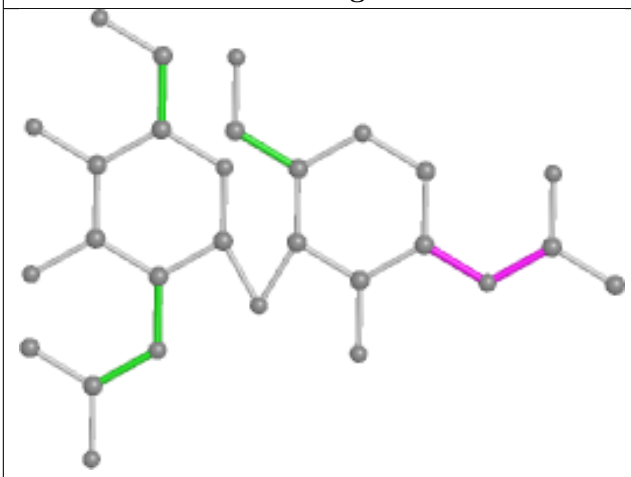
Oligosaccharide Chain F



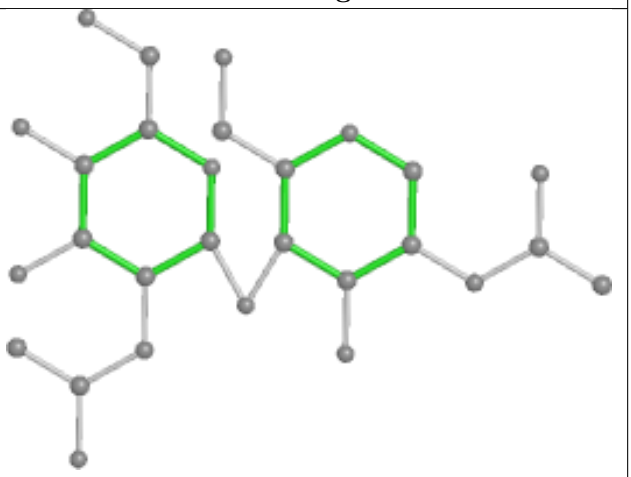
Bond lengths



Bond angles

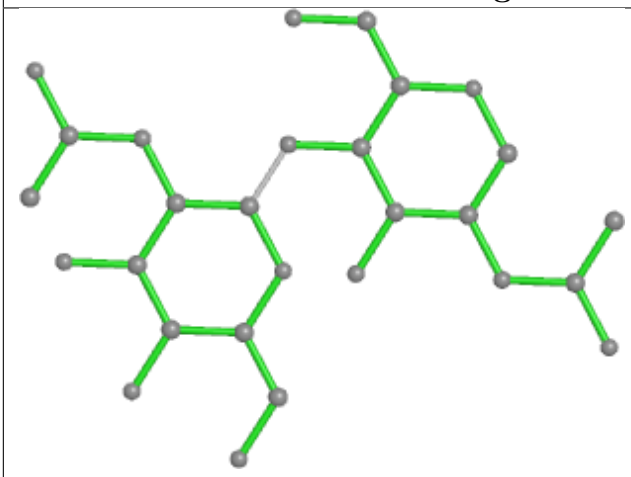


Torsions

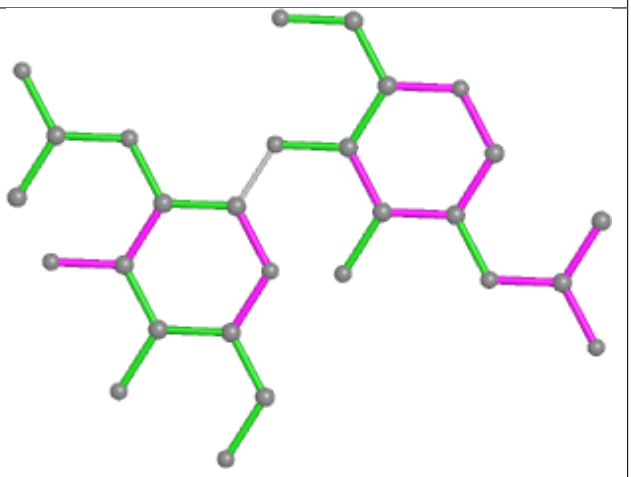


Rings

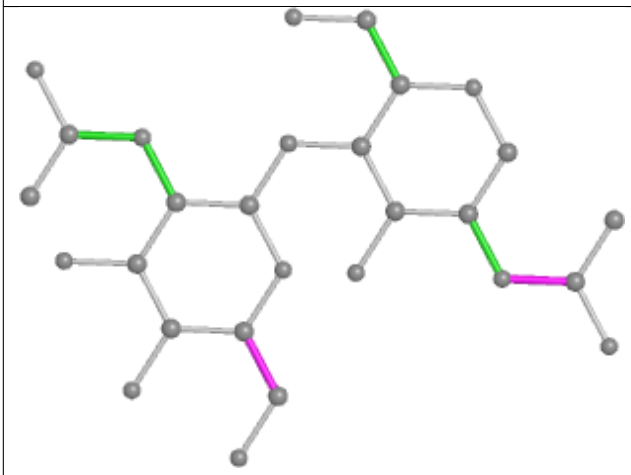
Oligosaccharide Chain G



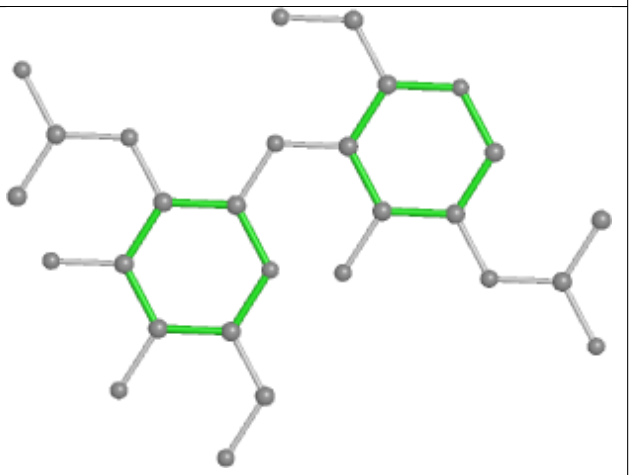
Bond lengths



Bond angles

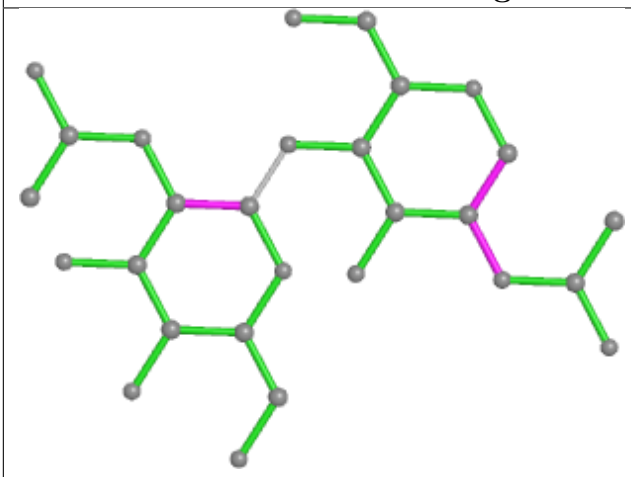


Torsions

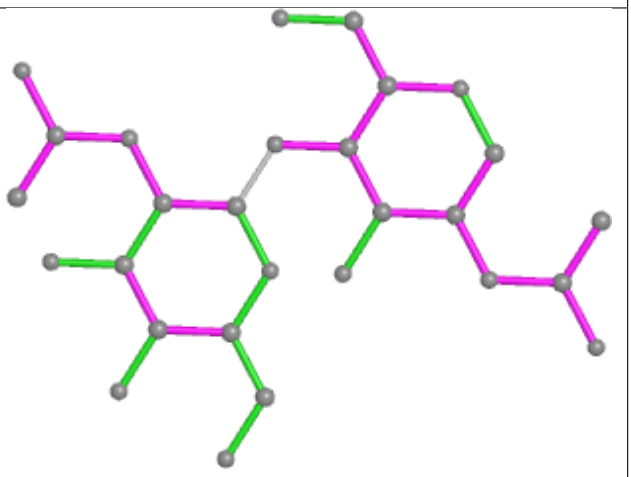


Rings

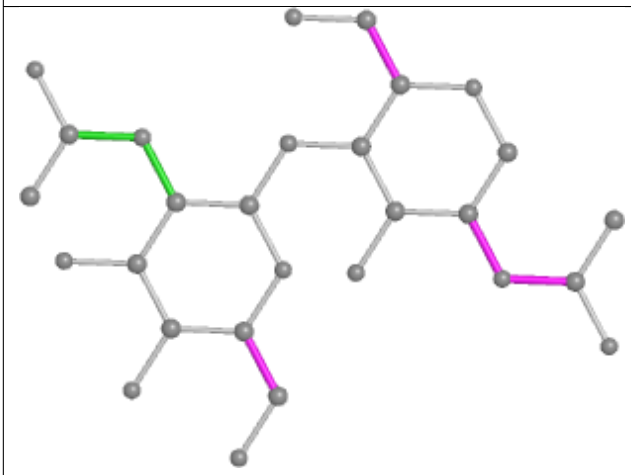
Oligosaccharide Chain H



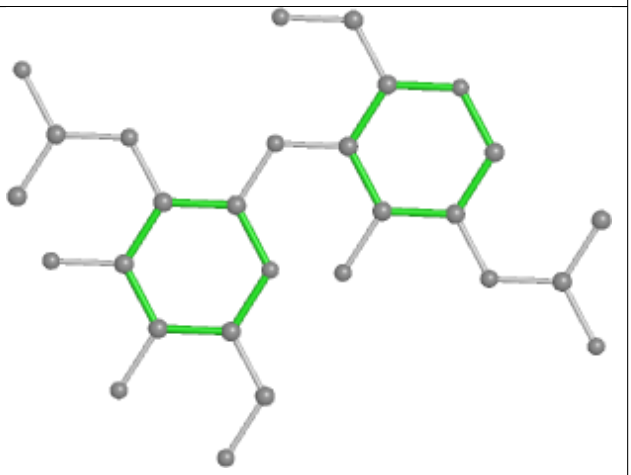
Bond lengths



Bond angles

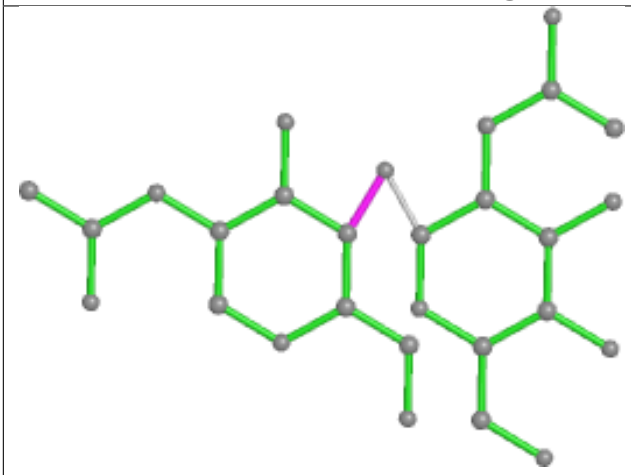


Torsions

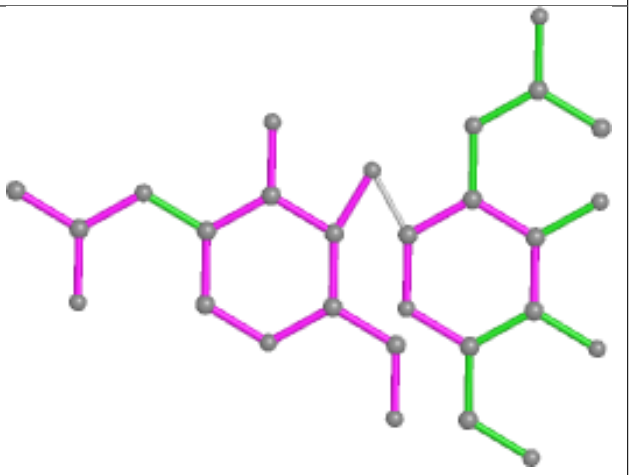


Rings

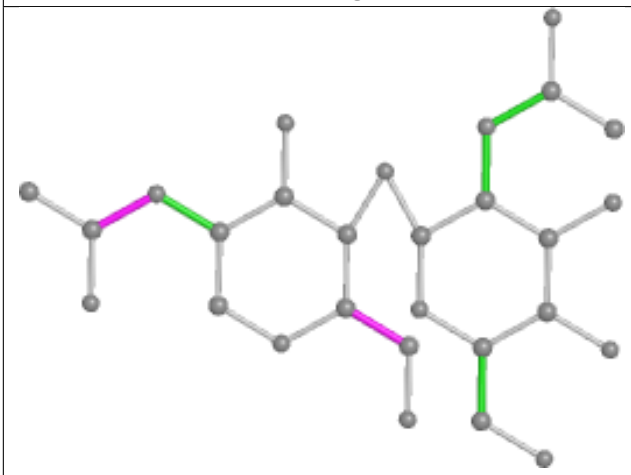
Oligosaccharide Chain I



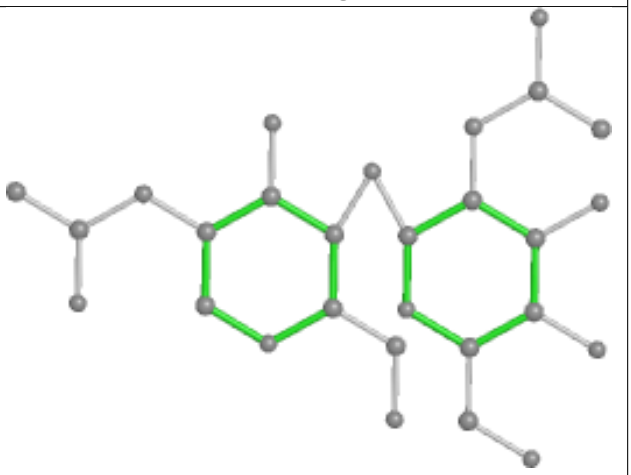
Bond lengths



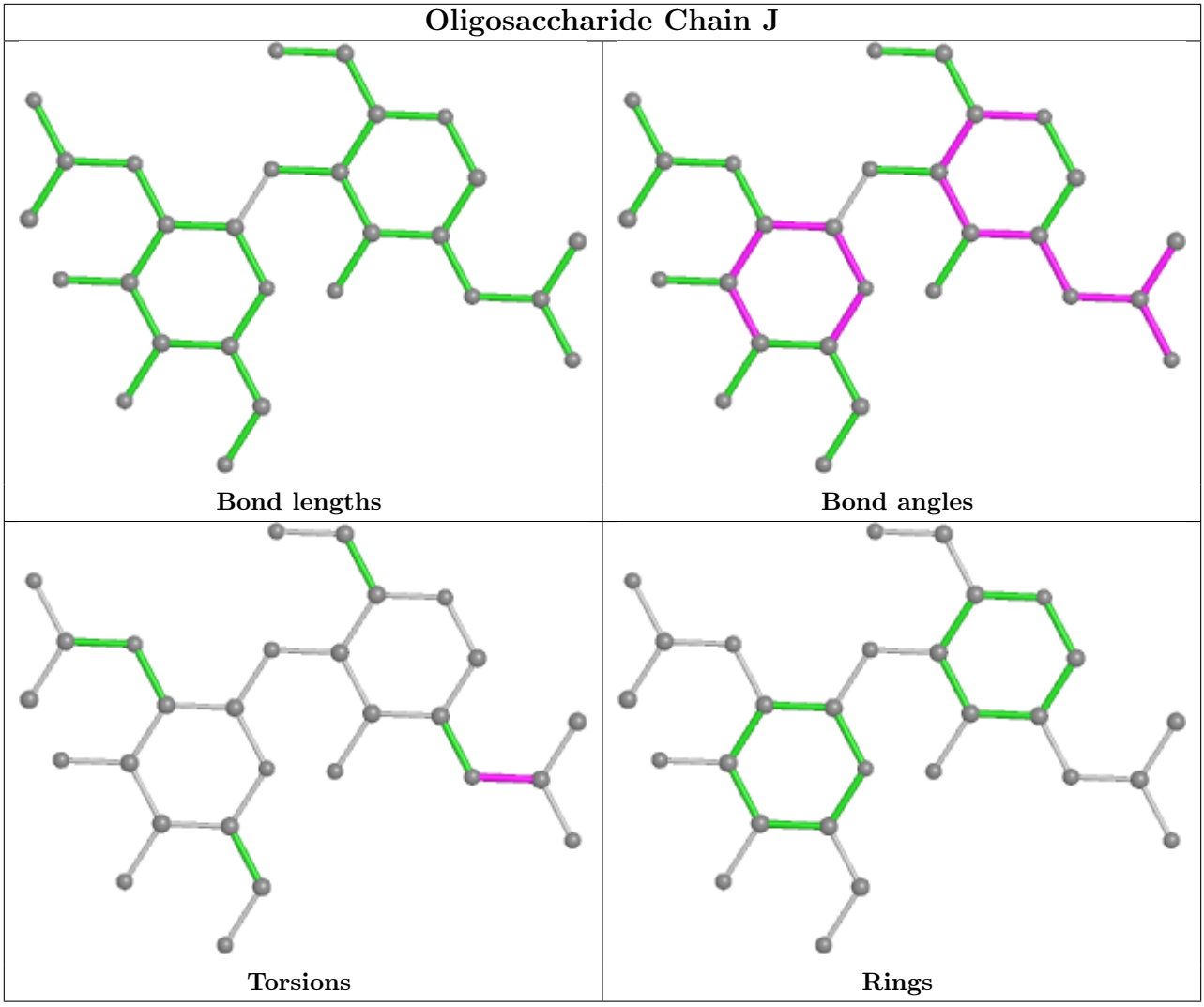
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

6 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	NAG	A	703	1	14,14,15	1.14	1 (7%)	17,19,21	2.16	5 (29%)
4	NAG	A	701	1	14,14,15	0.73	0	17,19,21	1.40	4 (23%)
4	NAG	A	702	1	14,14,15	0.45	0	17,19,21	2.34	3 (17%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
4	NAG	D	201	2	14,14,15	0.57	0	17,19,21	1.47	1 (5%)
4	NAG	D	202	2	14,14,15	0.68	0	17,19,21	1.75	2 (11%)
4	NAG	C	201	2	14,14,15	0.54	0	17,19,21	1.69	2 (11%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	A	703	1	1/1/5/7	4/6/23/26	0/1/1/1
4	NAG	A	701	1	-	2/6/23/26	0/1/1/1
4	NAG	A	702	1	1/1/5/7	1/6/23/26	0/1/1/1
4	NAG	D	201	2	-	0/6/23/26	0/1/1/1
4	NAG	D	202	2	-	2/6/23/26	0/1/1/1
4	NAG	C	201	2	-	2/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	703	NAG	C1-C2	3.44	1.57	1.52

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	702	NAG	C1-O5-C5	7.95	122.97	112.19
4	A	703	NAG	C4-C3-C2	5.66	119.31	111.02
4	C	201	NAG	C1-O5-C5	5.01	118.99	112.19
4	D	202	NAG	C4-C3-C2	4.83	118.10	111.02
4	D	201	NAG	C1-O5-C5	4.66	118.51	112.19
4	A	703	NAG	O5-C1-C2	-3.87	105.17	111.29
4	A	702	NAG	C4-C3-C2	-3.03	106.58	111.02
4	C	201	NAG	C1-C2-N2	2.81	115.29	110.49
4	A	703	NAG	O7-C7-C8	-2.51	117.40	122.06
4	A	701	NAG	C4-C3-C2	2.49	114.67	111.02
4	A	701	NAG	O5-C5-C6	2.47	111.07	107.20
4	A	702	NAG	O5-C5-C4	2.43	116.73	110.83
4	A	701	NAG	C1-C2-N2	-2.27	106.60	110.49
4	D	202	NAG	O5-C5-C6	2.23	110.69	107.20
4	A	703	NAG	C1-O5-C5	2.21	115.18	112.19

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	703	NAG	C1-C2-N2	2.12	114.12	110.49
4	A	701	NAG	C3-C4-C5	-2.03	106.61	110.24

All (2) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
4	A	702	NAG	C1
4	A	703	NAG	C1

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	A	703	NAG	C4-C5-C6-O6
4	A	703	NAG	O5-C5-C6-O6
4	D	202	NAG	O5-C5-C6-O6
4	A	703	NAG	C1-C2-N2-C7
4	A	702	NAG	O5-C5-C6-O6
4	D	202	NAG	C4-C5-C6-O6
4	A	701	NAG	O5-C5-C6-O6
4	C	201	NAG	O5-C5-C6-O6
4	A	701	NAG	C4-C5-C6-O6
4	A	703	NAG	C3-C2-N2-C7
4	C	201	NAG	C4-C5-C6-O6

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, 95^{th} 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	593/594 (99%)	0.41	29 (4%) 29 26	47, 90, 140, 171	0
1	B	592/594 (99%)	0.90	88 (14%) 2 1	47, 97, 182, 240	0
2	C	136/150 (90%)	0.54	15 (11%) 5 4	74, 107, 166, 191	2 (1%)
2	D	134/150 (89%)	1.09	27 (20%) 1 0	80, 117, 158, 179	2 (1%)
All	All	1455/1488 (97%)	0.69	159 (10%) 5 4	47, 97, 165, 240	4 (0%)

All (159) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	100	LEU	13.6
1	A	76	PHE	10.2
1	B	73	PHE	8.9
2	D	22	GLN	8.3
1	B	124	LEU	8.3
1	B	76	PHE	8.1
2	D	23	TRP	8.0
1	B	101	HIS	7.9
1	B	79	LEU	7.7
1	B	55	THR	7.7
1	B	147	GLN	7.3
1	B	66	LYS	7.2
1	B	77	SER	7.1
1	B	110	GLY	7.1
1	B	103	LEU	7.0
1	B	75	ASN	6.8
1	B	37	TYR	6.8
1	B	98	HIS	6.8
1	B	148	LEU	6.6
1	B	134	GLU	6.5
1	B	27	PRO	6.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	99	GLY	6.1
1	B	86	ARG	6.1
1	B	53	SER	6.0
2	D	155	HIS	5.5
1	B	82	LEU	5.5
1	B	52	PRO	5.4
1	B	62	PHE	5.4
1	B	88	GLU	5.2
1	B	45	SER	5.1
2	D	29	ASP	5.0
1	B	34	ASN	5.0
1	A	254	VAL	5.0
1	B	127	LEU	4.9
2	D	56	GLY	4.9
1	B	136	LYS	4.7
2	D	31	ILE	4.7
1	B	583	PRO	4.7
1	B	31	VAL	4.6
1	B	28	CYS	4.6
1	B	50	ASP	4.5
1	B	149	ILE	4.5
1	B	90	GLU	4.5
2	D	110	GLY	4.5
2	D	125	LEU	4.5
1	A	54	SER	4.4
1	B	58	ILE	4.4
1	A	77	SER	4.3
2	D	57	THR	4.3
1	B	49	ASP	4.2
1	B	227	LEU	4.2
2	C	32	ILE	4.1
1	B	123	GLY	3.9
1	A	53	SER	3.9
1	B	141	GLU	3.9
1	B	71	TYR	3.8
2	D	24	PHE	3.8
1	B	67	ILE	3.8
2	D	32	ILE	3.8
2	C	47	SER	3.8
2	D	28	SER	3.7
1	B	254	VAL	3.7
1	A	100	LEU	3.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	A	271	PHE	3.6
1	B	89	ILE	3.6
1	B	146	GLY	3.5
1	A	75	ASN	3.5
1	B	125	THR	3.4
1	A	272	GLU	3.4
1	B	33	PRO	3.4
2	D	131	TYR	3.4
2	D	154	ILE	3.4
2	C	154	ILE	3.4
1	B	48	PRO	3.3
1	A	98	HIS	3.3
1	B	54	SER	3.3
1	B	106	LEU	3.3
2	C	48	SER	3.3
1	A	615	ILE	3.3
1	B	35	ILE	3.2
2	D	153	ILE	3.2
1	B	46	LYS	3.2
1	B	30	GLU	3.0
2	D	41	LYS	3.0
2	C	22	GLN	3.0
1	B	584	ARG	3.0
1	B	97	TRP	3.0
2	D	54	LEU	3.0
2	D	33	SER	3.0
2	C	62	HIS	3.0
2	D	152	THR	2.9
1	A	49	ASP	2.9
1	B	113	ILE	2.9
1	B	118	PRO	2.8
2	C	46	ILE	2.8
1	A	50	ASP	2.7
2	D	30	ALA	2.7
1	B	194	LEU	2.7
1	B	223	GLN	2.7
1	A	240	ASN	2.6
2	D	49	GLU	2.6
1	A	203	VAL	2.6
2	C	122	GLU	2.6
1	B	205	LEU	2.6
1	B	78	GLU	2.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	138	ALA	2.6
1	B	326	LYS	2.5
1	B	531	LEU	2.5
1	A	119	GLY	2.5
2	C	52	ILE	2.4
1	B	142	SER	2.4
1	B	29	ILE	2.4
2	C	130	HIS	2.4
1	A	297	ASP	2.4
1	B	114	GLN	2.4
1	B	150	THR	2.4
1	A	93	GLU	2.4
1	B	111	ASN	2.4
2	D	48	SER	2.4
1	B	56	LYS	2.4
1	A	45	SER	2.3
1	B	348	LEU	2.3
1	B	615	ILE	2.3
1	A	34	ASN	2.3
1	A	73	PHE	2.3
1	B	137	LEU	2.3
2	D	52	ILE	2.3
1	B	578	TRP	2.3
1	B	40	MET	2.3
1	B	151	LEU	2.3
1	B	69	LYS	2.2
1	A	92	ILE	2.2
2	D	60	PHE	2.2
2	C	39	HIS	2.2
1	B	51	ILE	2.2
2	C	133	CYS	2.2
1	A	72	SER	2.2
1	B	84	LEU	2.2
1	B	126	SER	2.2
1	B	613	ARG	2.2
2	C	24	PHE	2.2
1	B	555	LYS	2.2
1	A	326	LYS	2.1
1	B	618	PRO	2.1
1	A	400	ARG	2.1
1	B	612	VAL	2.1
1	A	284	ILE	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
2	C	31	ILE	2.1
2	D	26	ASN	2.1
1	B	592	LEU	2.1
1	A	55	THR	2.1
2	C	28	SER	2.0
2	D	121	PHE	2.0
1	A	582	CYS	2.0
2	D	71	LEU	2.0
1	B	102	HIS	2.0
1	B	171	SER	2.0
1	B	604	LYS	2.0
1	A	99	GLY	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^{th} 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
3	NAG	H	2	14/15	0.63	0.31	107,131,137,139	0
3	NAG	H	1	14/15	0.73	0.21	98,120,136,138	0
4	NAG	A	703	14/15	0.76	0.25	96,105,115,117	0
3	NAG	F	2	14/15	0.76	0.33	123,142,156,158	0
4	NAG	D	201	14/15	0.77	0.31	115,120,122,127	0
4	NAG	D	202	14/15	0.80	0.20	134,143,146,149	0
3	NAG	J	2	14/15	0.82	0.22	155,164,170,171	0
3	NAG	G	2	14/15	0.83	0.22	105,119,127,129	0
4	NAG	A	701	14/15	0.83	0.21	99,111,132,134	0
4	NAG	C	201	14/15	0.86	0.13	138,147,150,156	0
3	NAG	I	2	14/15	0.87	0.22	90,100,104,107	0
3	NAG	J	1	14/15	0.88	0.13	119,134,139,149	0
3	NAG	I	1	14/15	0.88	0.17	65,78,88,97	0
3	NAG	G	1	14/15	0.89	0.19	117,124,127,127	0
3	NAG	E	2	14/15	0.89	0.21	70,81,91,95	0
4	NAG	A	702	14/15	0.90	0.24	126,130,133,134	0
3	NAG	F	1	14/15	0.91	0.11	116,122,129,138	0
3	NAG	E	1	14/15	0.93	0.18	66,71,76,76	0

6.3 Carbohydrates (i)

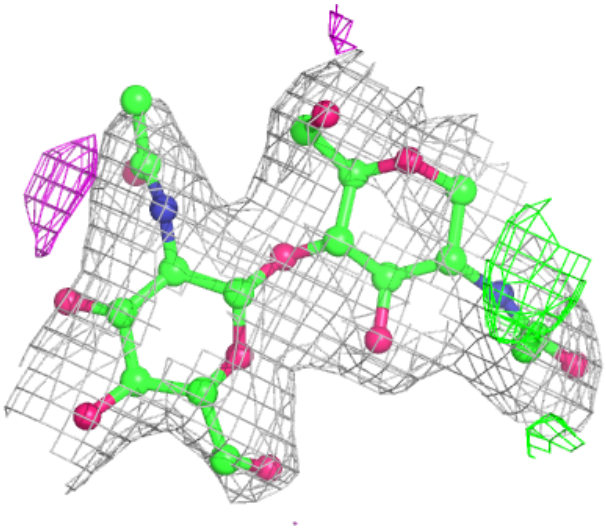
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

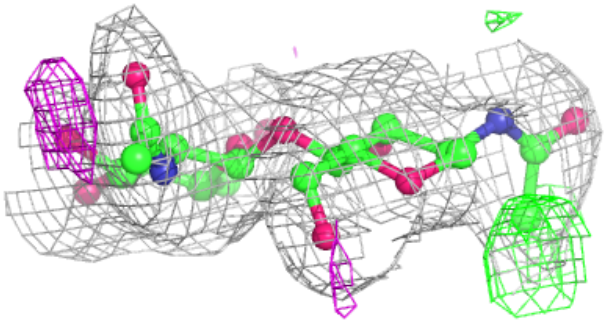
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAG	H	2	14/15	0.63	0.31	107,131,137,139	0
3	NAG	H	1	14/15	0.73	0.21	98,120,136,138	0
3	NAG	F	2	14/15	0.76	0.33	123,142,156,158	0
3	NAG	J	2	14/15	0.82	0.22	155,164,170,171	0
3	NAG	G	2	14/15	0.83	0.22	105,119,127,129	0
3	NAG	I	2	14/15	0.87	0.22	90,100,104,107	0
3	NAG	J	1	14/15	0.88	0.13	119,134,139,149	0
3	NAG	I	1	14/15	0.88	0.17	65,78,88,97	0
3	NAG	G	1	14/15	0.89	0.19	117,124,127,127	0
3	NAG	E	2	14/15	0.89	0.21	70,81,91,95	0
3	NAG	F	1	14/15	0.91	0.11	116,122,129,138	0
3	NAG	E	1	14/15	0.93	0.18	66,71,76,76	0

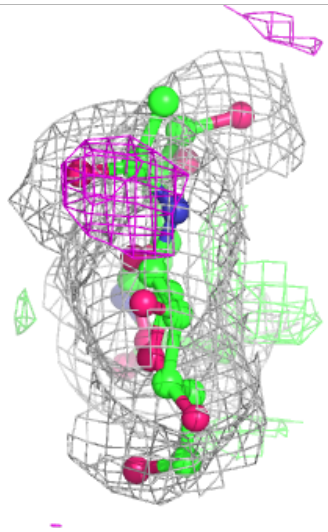
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

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)

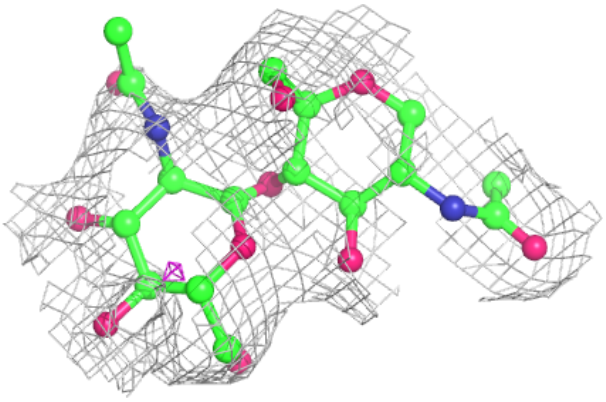


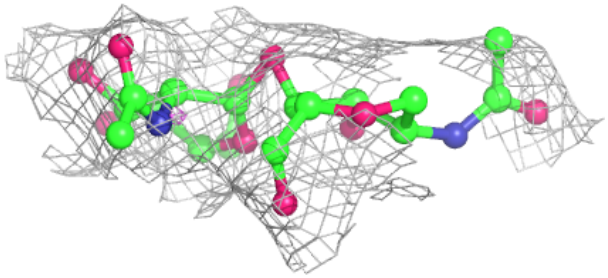


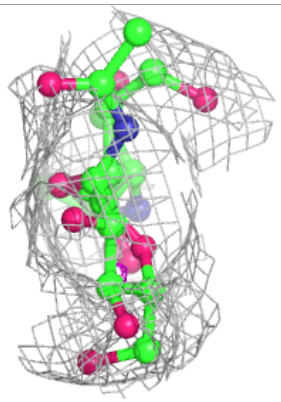


Electron density around Chain F:

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

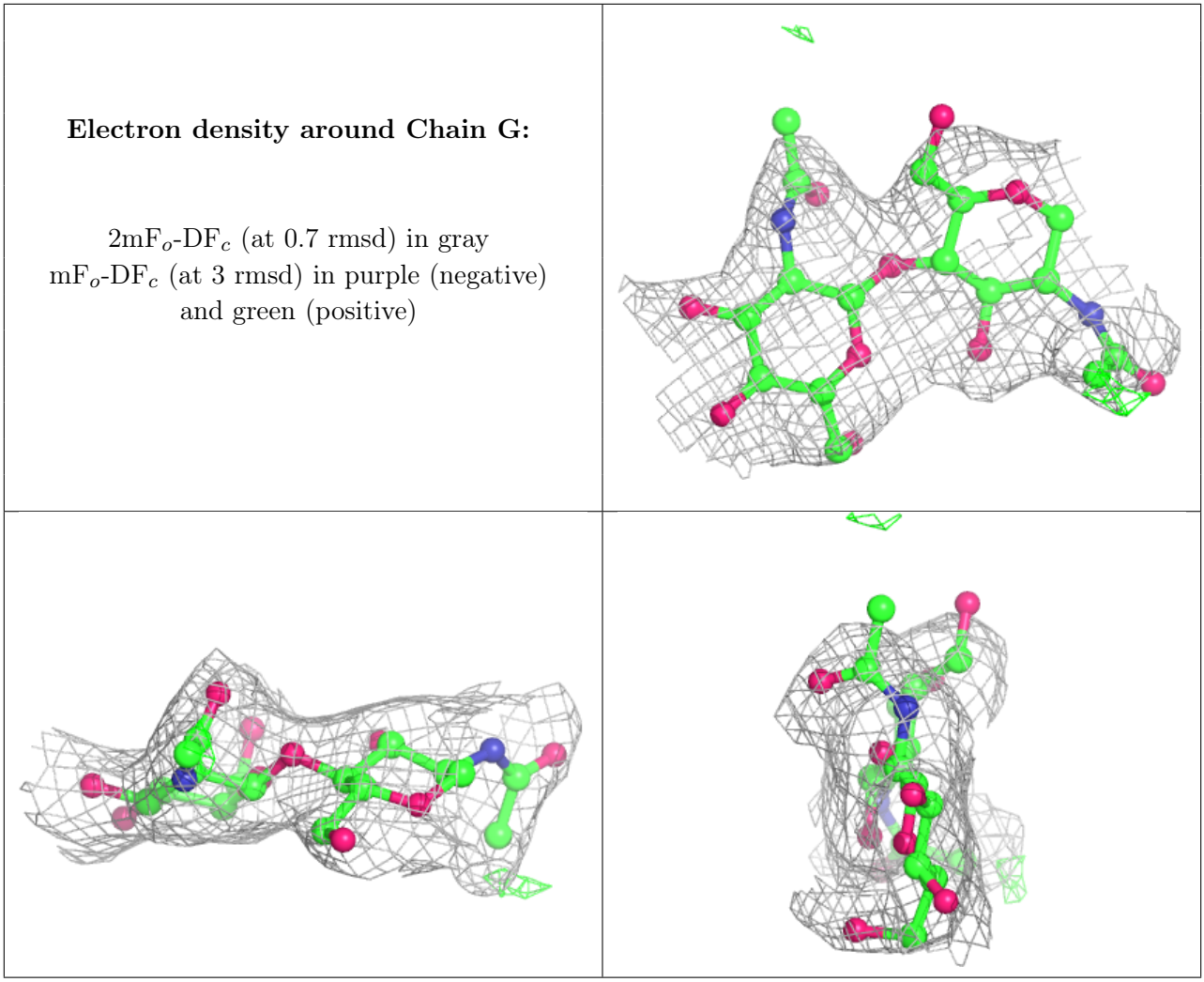






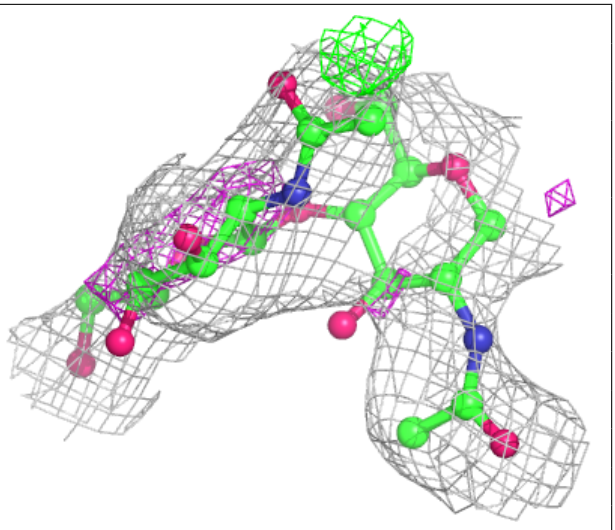
Electron density around Chain G:

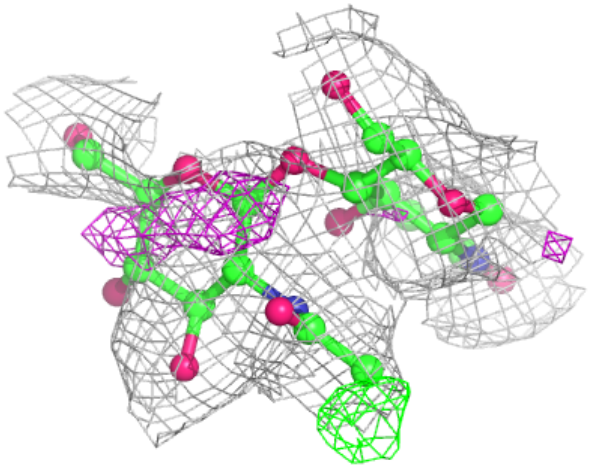
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

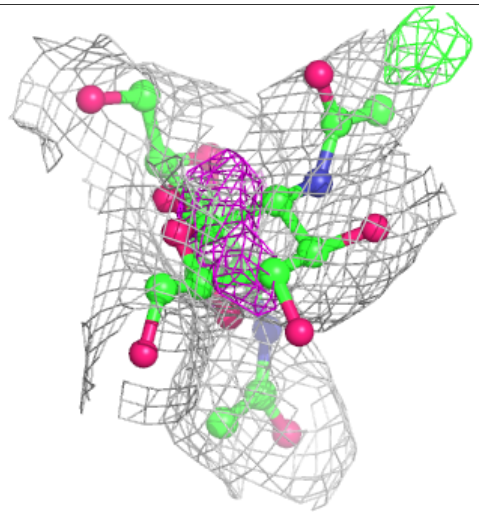


Electron density around Chain H:

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

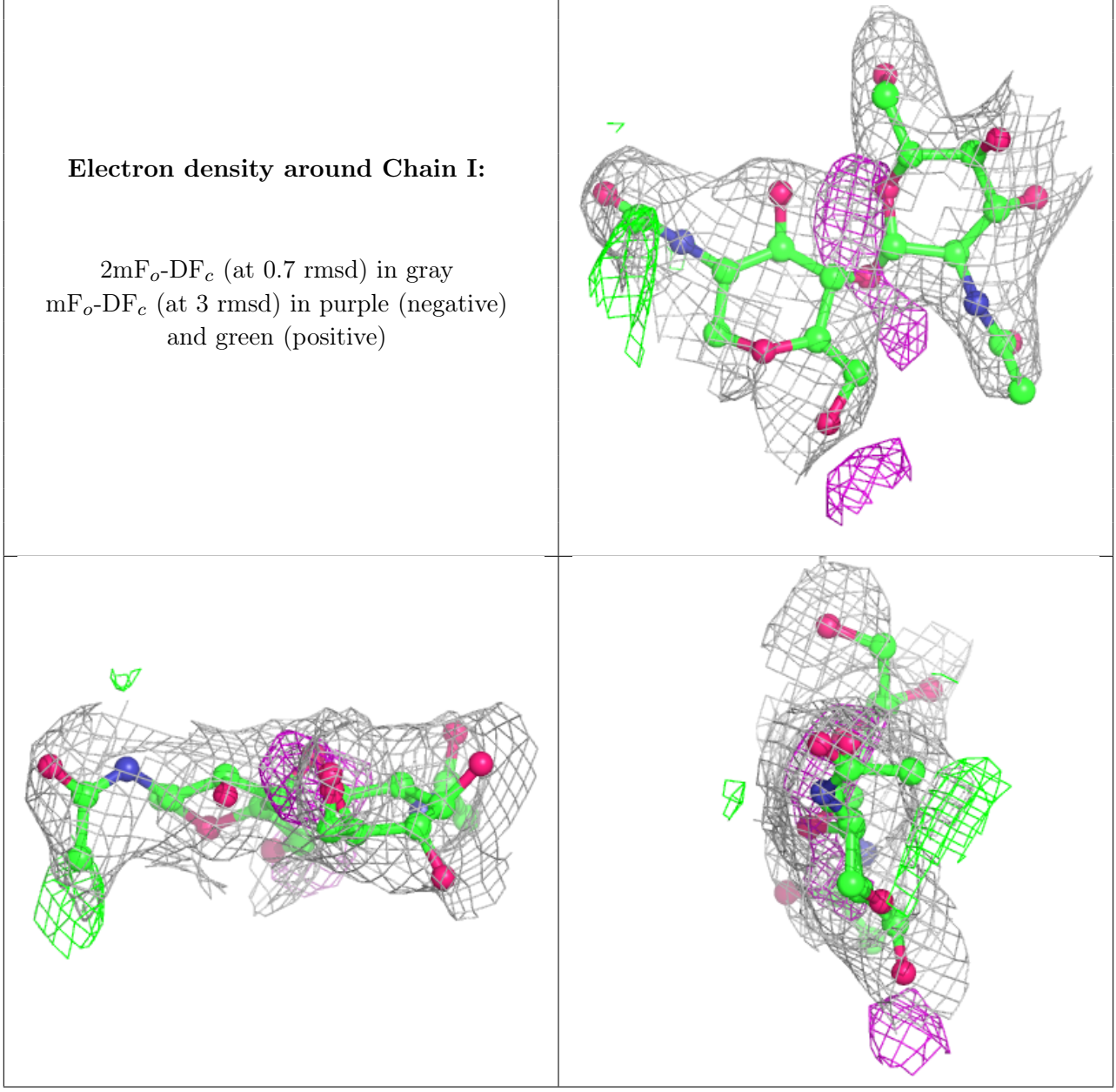






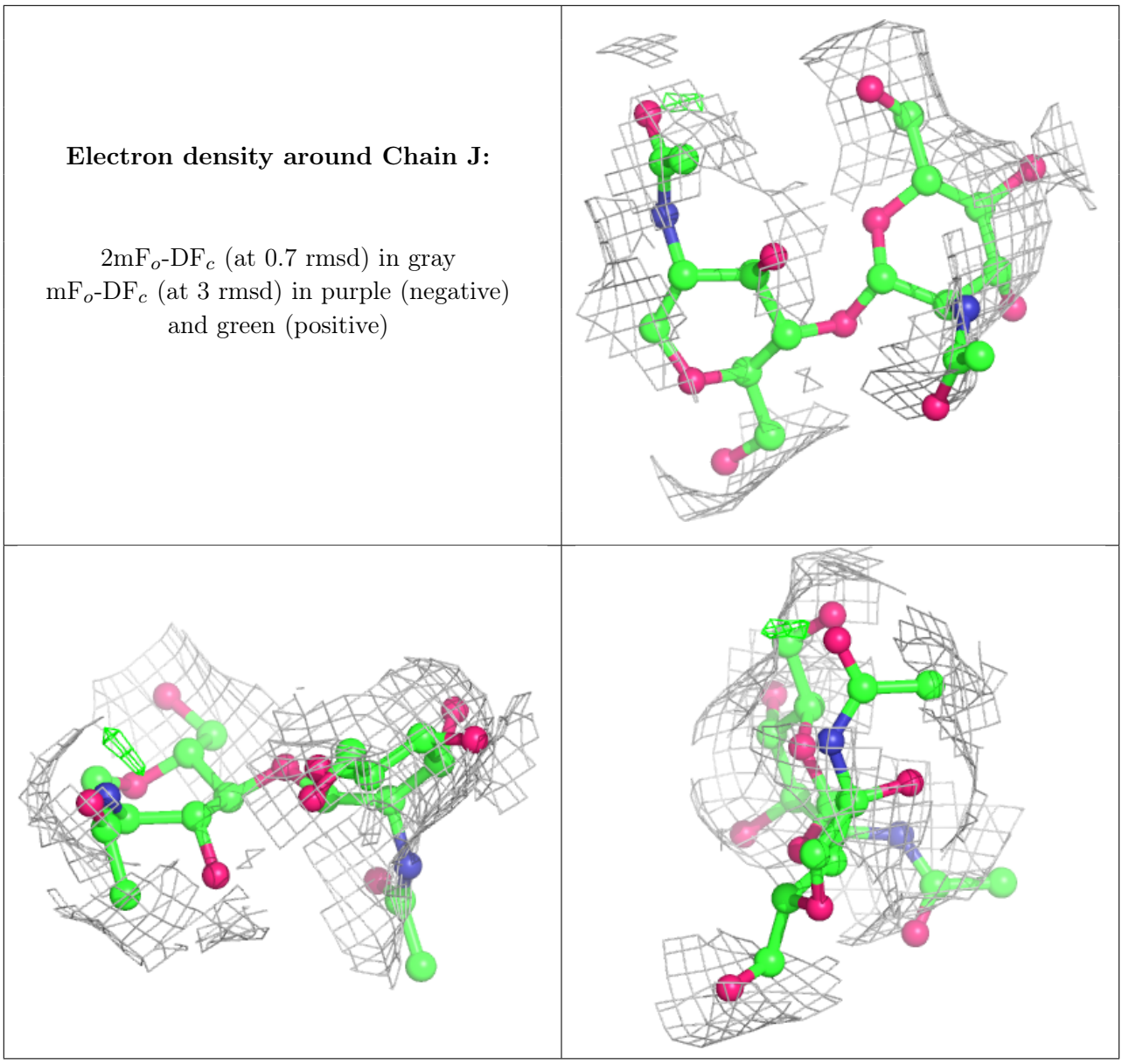
Electron density around Chain I:

$2mF_o$-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 J:

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



6.4 Ligands

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^{th} 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
4	NAG	A	703	14/15	0.76	0.25	96,105,115,117	0
4	NAG	D	201	14/15	0.77	0.31	115,120,122,127	0
4	NAG	D	202	14/15	0.80	0.20	134,143,146,149	0
4	NAG	A	701	14/15	0.83	0.21	99,111,132,134	0
4	NAG	C	201	14/15	0.86	0.13	138,147,150,156	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	NAG	A	702	14/15	0.90	0.24	126,130,133,134	0

6.5 Other polymers (i)

There are no such residues in this entry.