



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 17, 2022 – 12:26 PM EDT

PDB ID : 4K64
Title : Structure of an avian influenza H5 hemagglutinin from the influenza virus complexed with human receptor analog LSTc
Authors : Zhang, W.; Shi, Y.; Lu, X.; Shu, Y.; Qi, J.; Gao, G.F.
Deposited on : 2013-04-15
Resolution : 2.60 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 : 2.29
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) : 2.29

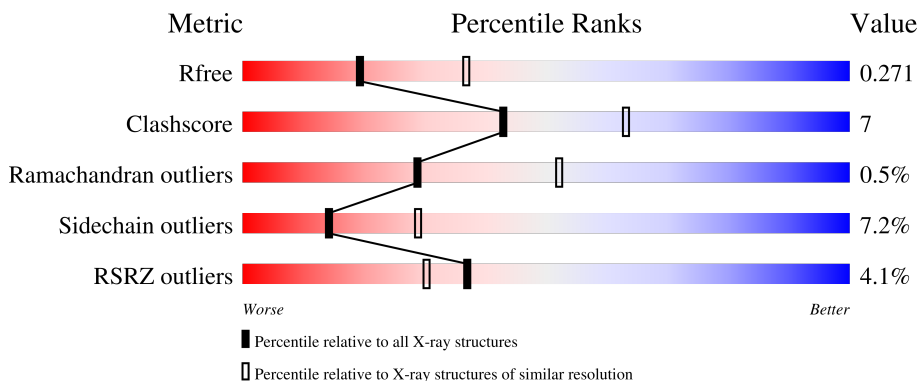
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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

Mol	Chain	Length	Quality of chain
1	A	321	
1	C	321	
1	E	321	
1	G	321	
2	B	164	

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Mol	Chain	Length	Quality of chain
2	D	164	 81% 18%
2	F	164	 16% 73% 25%
2	H	164	 20% 77% 22%
3	I	2	 100%
3	J	2	 100%

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 15829 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 Hemagglutinin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	321	2541	1605	436	485	15	0	0	0
1	C	321	2541	1605	436	485	15	0	0	0
1	E	321	2541	1605	436	485	15	0	0	0
1	G	321	2541	1605	436	485	15	0	0	0

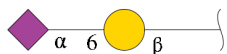
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	4	GLN	-	expression tag	UNP A8HWY8
C	4	GLN	-	expression tag	UNP A8HWY8
E	4	GLN	-	expression tag	UNP A8HWY8
G	4	GLN	-	expression tag	UNP A8HWY8

- Molecule 2 is a protein called Hemagglutinin.

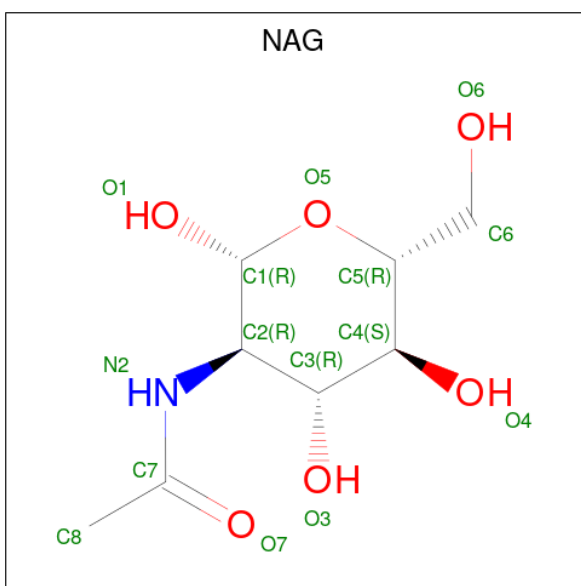
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	164	1328	828	229	263	8	0	0	0
2	D	164	1328	828	229	263	8	0	0	0
2	F	164	1328	828	229	263	8	0	0	0
2	H	164	1328	828	229	263	8	0	0	0

- Molecule 3 is an oligosaccharide called N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	I	2	Total	C	N	O	0	0	0
			32	17	1	14			
3	J	2	Total	C	N	O	0	0	0
			32	17	1	14			

- 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	0	0
			14	8	1	5		
4	C	1	Total	C	N	O	0	0
			14	8	1	5		
4	E	1	Total	C	N	O	0	0
			14	8	1	5		
4	G	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	86	Total	O	0	0
			86	86		

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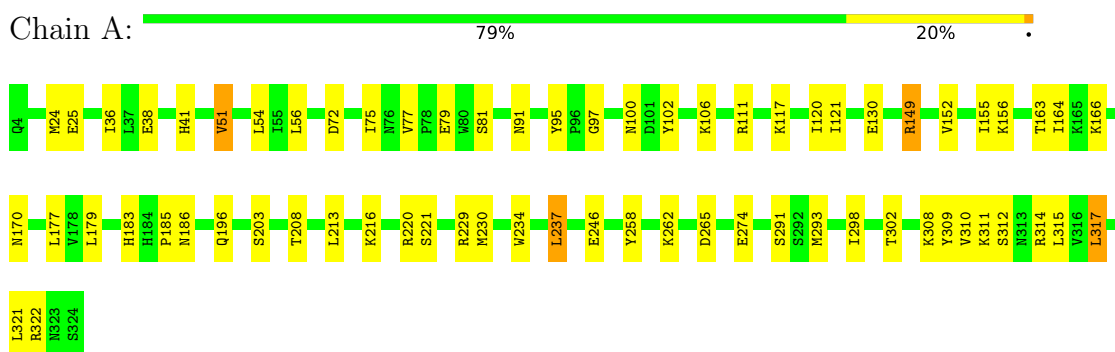
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	25	Total 25	O 25	0	0
5	C	81	Total 81	O 81	0	0
5	D	20	Total 20	O 20	0	0
5	E	8	Total 8	O 8	0	0
5	F	2	Total 2	O 2	0	0
5	G	9	Total 9	O 9	0	0
5	H	2	Total 2	O 2	0	0

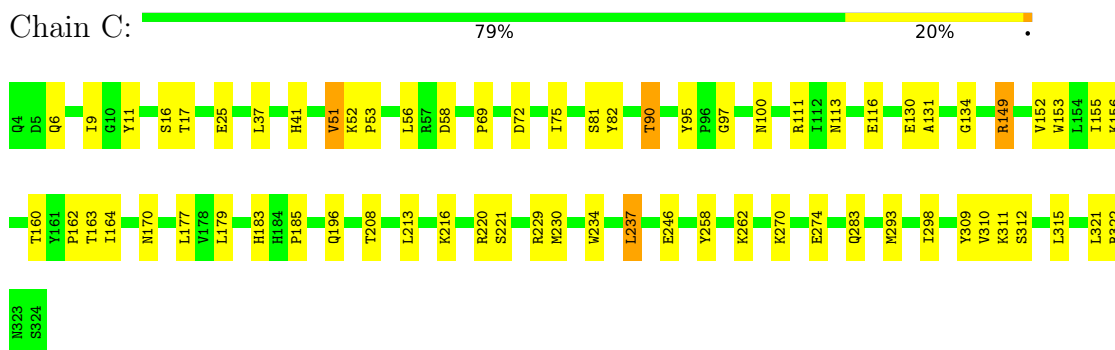
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and 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.

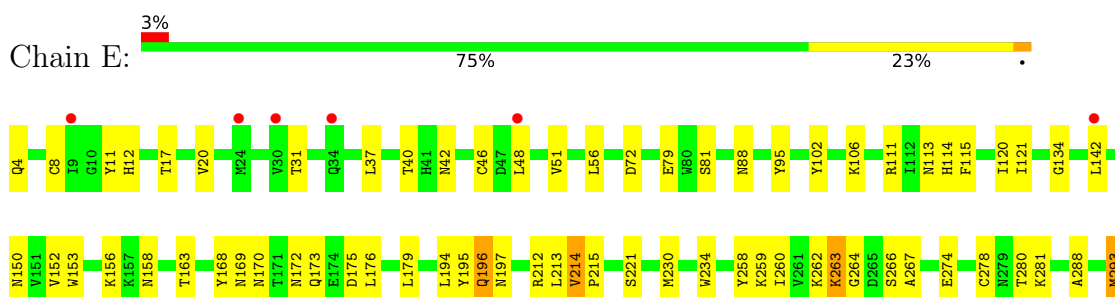
- Molecule 1: Hemagglutinin



- Molecule 1: Hemagglutinin

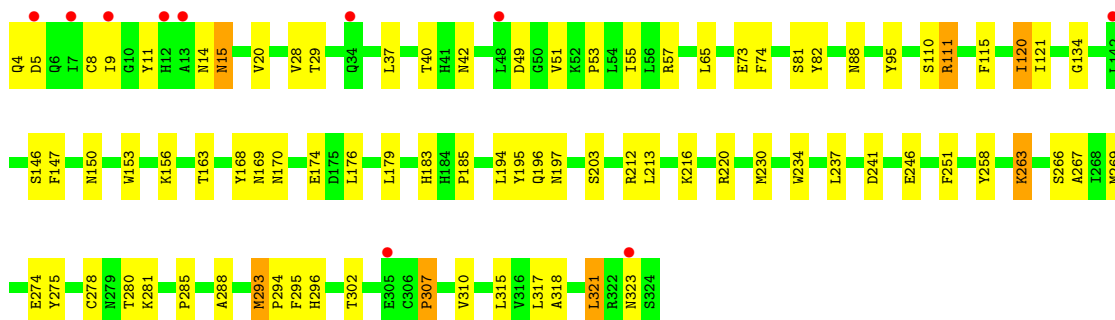
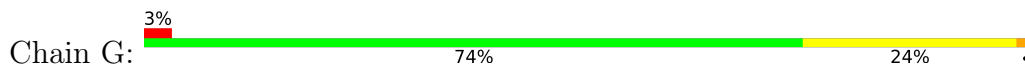


- Molecule 1: Hemagglutinin

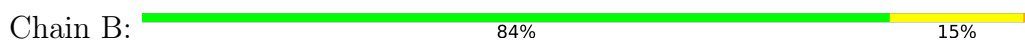




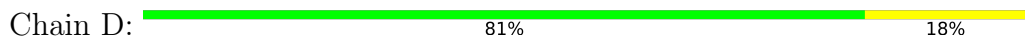
- Molecule 1: Hemagglutinin



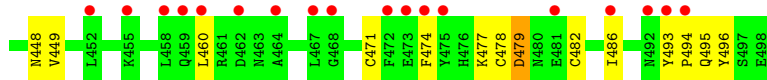
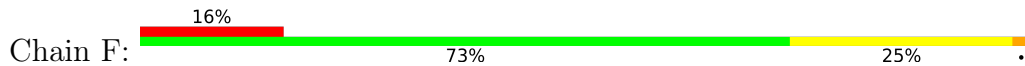
- Molecule 2: Hemagglutinin



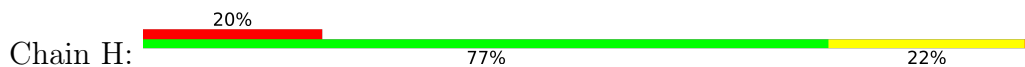
- Molecule 2: Hemagglutinin

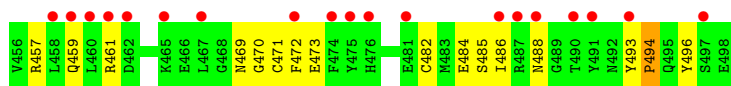


- Molecule 2: Hemagglutinin




- Molecule 2: Hemagglutinin





- Molecule 3: N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose

Chain I:  100%

GAL1
STA2

- Molecule 3: N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose

Chain J:  100%

GAL1
STA2

4 Data and refinement statistics i

Property	Value	Source
Space group	P 3	Depositor
Cell constants a, b, c, α , β , γ	70.34Å 70.34Å 491.79Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	36.04 – 2.60 36.04 – 2.60	Depositor EDS
% Data completeness (in resolution range)	92.5 (36.04-2.60) 92.5 (36.04-2.60)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.37 (at 2.61Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7.3_928)	Depositor
R, R_{free}	0.221 , 0.280 0.214 , 0.271	Depositor DCC
R_{free} test set	3864 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å ²)	49.0	Xtriage
Anisotropy	0.149	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 28.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	0.437 for -h,-k,l 0.093 for h,-h-k,-l 0.087 for -k,-h,-l	Xtriage
Reported twinning fraction	0.391 for -h,-k,l	Depositor
Outliers	0 of 77142 reflections	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	15829	wwPDB-VP
Average B, all atoms (Å ²)	68.0	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.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

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

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	0.25	0/2603	0.44	0/3537
1	C	0.26	0/2603	0.43	0/3537
1	E	0.22	0/2603	0.41	0/3537
1	G	0.24	0/2603	0.46	2/3537 (0.1%)
2	B	0.25	0/1355	0.43	0/1823
2	D	0.24	0/1355	0.41	0/1823
2	F	0.24	0/1355	0.43	1/1823 (0.1%)
2	H	0.22	0/1355	0.39	0/1823
All	All	0.24	0/15832	0.43	3/21440 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	G	212	ARG	NE-CZ-NH1	7.95	124.28	120.30
2	F	460	LEU	CB-CA-C	7.41	124.29	110.20
1	G	212	ARG	NE-CZ-NH2	-5.97	117.32	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2541	0	2478	34	0
1	C	2541	0	2478	38	0
1	E	2541	0	2477	43	0
1	G	2541	0	2478	49	0
2	B	1328	0	1231	13	0
2	D	1328	0	1231	16	0
2	F	1328	0	1231	22	0
2	H	1328	0	1231	25	0
3	I	32	0	27	0	0
3	J	32	0	27	0	0
4	A	14	0	13	0	0
4	C	14	0	13	0	0
4	E	14	0	13	0	0
4	G	14	0	13	0	0
5	A	86	0	0	4	0
5	B	25	0	0	1	0
5	C	81	0	0	6	0
5	D	20	0	0	2	0
5	E	8	0	0	0	0
5	F	2	0	0	0	0
5	G	9	0	0	3	0
5	H	2	0	0	0	0
All	All	15829	0	14941	208	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 7.

All (208) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:479:ASP:OD2	5:D:513:HOH:O	1.93	0.87
1:E:172:ASN:HD22	1:E:259:LYS:HD3	1.45	0.82
1:C:116:GLU:OE2	5:C:755:HOH:O	1.98	0.81
1:A:166:LYS:NZ	5:A:737:HOH:O	2.11	0.81
1:A:149:ARG:NH2	5:A:714:HOH:O	2.15	0.79
1:G:241:ASP:OD1	5:G:704:HOH:O	1.98	0.79
1:C:311:LYS:HE3	2:D:423:LEU:HD23	1.68	0.75
1:G:156:LYS:HD2	1:G:196:GLN:HG2	1.69	0.75
1:A:156:LYS:HD2	1:A:196:GLN:HG2	1.68	0.74
1:E:4:GLN:NE2	2:F:474:PHE:O	2.21	0.73
2:H:469:ASN:ND2	2:H:471:CYS:SG	2.64	0.71
1:C:131:ALA:O	5:C:706:HOH:O	2.09	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:20:VAL:HG21	1:G:318:ALA:HB2	1.73	0.69
1:A:309:TYR:HE2	2:B:423:LEU:HD21	1.57	0.69
2:H:455:LYS:O	2:H:459:GLN:NE2	2.26	0.69
1:C:69:PRO:O	5:C:728:HOH:O	2.11	0.69
1:C:156:LYS:HD2	1:C:196:GLN:HG2	1.75	0.68
1:E:51:VAL:HG23	1:E:81:SER:HB3	1.75	0.68
1:A:91:ASN:ND2	5:A:750:HOH:O	2.28	0.67
1:G:321:LEU:HB3	2:H:445:HIS:HD2	1.60	0.67
1:E:120:ILE:HG13	1:E:121:ILE:HG13	1.77	0.67
1:A:310:VAL:HG12	1:A:312:SER:H	1.60	0.67
1:G:51:VAL:HG13	1:G:81:SER:HB3	1.77	0.66
1:C:309:TYR:HE2	2:D:423:LEU:HD21	1.60	0.66
1:G:197:ASN:ND2	5:G:708:HOH:O	2.19	0.65
1:G:317:LEU:HD23	2:H:386:VAL:HG22	1.78	0.65
1:G:150:ASN:ND2	1:G:258:TYR:OH	2.30	0.64
1:C:149:ARG:NH2	5:C:710:HOH:O	2.32	0.63
1:C:310:VAL:HG12	1:C:312:SER:H	1.64	0.63
1:A:311:LYS:HE3	2:B:423:LEU:HD23	1.81	0.62
1:C:52:LYS:HG2	1:C:53:PRO:HD2	1.81	0.62
1:G:296:HIS:HD2	1:G:307:PRO:HB2	1.65	0.61
2:F:493:TYR:O	2:F:495:GLN:N	2.34	0.61
1:E:134:GLY:HA3	1:E:153:TRP:HB3	1.83	0.60
1:C:270:LYS:NZ	5:C:723:HOH:O	2.23	0.60
1:G:134:GLY:HA3	1:G:153:TRP:HB3	1.86	0.58
1:C:9:ILE:HD13	2:D:453:TYR:HA	1.85	0.58
1:C:41:HIS:HB3	1:C:298:ILE:HD13	1.85	0.58
2:D:396:GLN:HG3	2:D:426:TRP:CD2	2.39	0.58
1:G:55:ILE:HD12	1:G:275:TYR:HB2	1.86	0.57
1:E:120:ILE:HB	1:E:168:TYR:CZ	2.38	0.57
1:G:111:ARG:O	1:G:263:LYS:NZ	2.36	0.57
1:E:111:ARG:O	1:E:263:LYS:NZ	2.37	0.57
1:C:310:VAL:HG13	2:D:427:THR:HA	1.87	0.57
2:D:380:ASP:O	2:D:384:ASN:ND2	2.37	0.57
1:G:169:ASN:OD1	1:G:170:ASN:N	2.38	0.57
1:A:41:HIS:HB3	1:A:298:ILE:HD13	1.87	0.57
1:E:296:HIS:HD2	1:E:307:PRO:HB2	1.70	0.57
1:G:15:ASN:OD1	1:G:15:ASN:N	2.37	0.57
1:A:95:TYR:CD2	1:A:230:MET:HG2	2.40	0.56
1:E:317:LEU:HD23	2:F:386:VAL:HG22	1.88	0.56
1:C:25:GLU:OE2	1:C:322:ARG:NH2	2.39	0.56
2:F:444:PHE:O	2:F:448:ASN:ND2	2.32	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:396:GLN:HG3	2:F:426:TRP:CD2	2.41	0.55
1:E:169:ASN:OD1	1:E:170:ASN:N	2.38	0.55
1:E:266:SER:OG	1:E:267:ALA:N	2.40	0.55
1:G:321:LEU:HB3	2:H:445:HIS:CD2	2.41	0.55
1:A:120:ILE:HG13	1:A:121:ILE:HG13	1.89	0.55
2:F:479:ASP:OD2	2:F:479:ASP:N	2.36	0.55
1:A:164:ILE:O	1:A:246:GLU:HA	2.07	0.54
1:E:195:TYR:O	1:E:197:ASN:N	2.39	0.54
1:A:309:TYR:HD2	2:B:423:LEU:HD11	1.71	0.54
2:F:402:ARG:NH1	2:F:415:ASN:OD1	2.40	0.54
1:G:280:THR:OG1	1:G:281:LYS:N	2.40	0.54
1:C:309:TYR:HD2	2:D:423:LEU:HD11	1.73	0.54
1:G:174:GLU:N	1:G:174:GLU:OE1	2.40	0.53
1:A:54:LEU:HD22	1:A:77:VAL:HG11	1.90	0.53
2:D:493:TYR:O	2:D:495:GLN:N	2.42	0.53
2:F:361:SER:HA	2:F:366:SER:HA	1.91	0.53
2:B:444:PHE:O	2:B:448:ASN:ND2	2.42	0.52
1:C:58:ASP:HB3	1:C:90:THR:HG23	1.91	0.52
1:E:150:ASN:ND2	1:E:258:TYR:OH	2.42	0.52
2:B:498:GLU:OE1	5:B:508:HOH:O	2.19	0.52
1:G:37:LEU:HB2	1:G:315:LEU:HB2	1.90	0.52
1:E:156:LYS:HD2	1:E:196:GLN:HG2	1.92	0.52
1:C:309:TYR:CD2	2:D:423:LEU:HD11	2.45	0.52
1:E:280:THR:OG1	1:E:281:LYS:N	2.43	0.52
2:H:340:ILE:N	2:H:446:ASP:OD2	2.37	0.52
1:E:321:LEU:HB3	2:F:445:HIS:CD2	2.45	0.51
1:E:293:MET:HG3	1:E:294:PRO:HD2	1.92	0.51
1:C:164:ILE:O	1:C:246:GLU:HA	2.09	0.51
1:C:134:GLY:HA3	1:C:153:TRP:HB3	1.91	0.51
1:E:12:HIS:N	2:F:355:TRP:O	2.43	0.51
1:C:113:ASN:HB2	1:C:262:LYS:HG2	1.92	0.51
1:A:177:LEU:HB3	1:A:258:TYR:HB2	1.93	0.50
2:D:402:ARG:NH1	2:D:415:ASN:OD1	2.44	0.50
1:G:14:ASN:OD1	1:G:323:ASN:ND2	2.44	0.50
2:B:418:MET:HG3	2:B:419:GLU:N	2.25	0.50
1:C:179:LEU:HD23	1:C:234:TRP:HB3	1.92	0.50
1:C:315:LEU:HD22	2:D:434:VAL:HG21	1.93	0.50
1:G:179:LEU:HD23	1:G:234:TRP:HB3	1.93	0.50
1:G:14:ASN:O	1:G:323:ASN:ND2	2.41	0.50
1:G:120:ILE:HG12	1:G:121:ILE:HG13	1.94	0.50
1:A:102:TYR:CE2	1:A:106:LYS:HD2	2.48	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:177:LEU:HB3	1:C:258:TYR:HB2	1.95	0.49
1:C:95:TYR:CD2	1:C:230:MET:HG2	2.48	0.49
1:G:317:LEU:HD21	2:H:389:ILE:HD12	1.94	0.49
2:H:402:ARG:NH1	2:H:415:ASN:OD1	2.46	0.49
1:G:280:THR:HG21	1:G:288:ALA:HB1	1.94	0.49
1:C:37:LEU:HB2	1:C:315:LEU:HB2	1.94	0.48
1:E:179:LEU:HD23	1:E:234:TRP:HB3	1.95	0.48
1:A:51:VAL:HG22	1:A:81:SER:HB3	1.96	0.48
2:B:493:TYR:O	2:B:495:GLN:N	2.47	0.48
1:C:216:LYS:O	1:C:220:ARG:NH2	2.46	0.48
1:C:160:THR:HG22	1:C:162:PRO:HD3	1.95	0.48
1:C:170:ASN:HB2	1:C:237:LEU:HD13	1.96	0.48
2:H:396:GLN:HG3	2:H:426:TRP:CD2	2.49	0.48
1:A:309:TYR:CD2	2:B:423:LEU:HD11	2.48	0.48
1:A:25:GLU:OE2	1:A:322:ARG:NH2	2.46	0.48
1:E:294:PRO:HB3	2:F:390:ILE:HG23	1.96	0.48
1:G:110:SER:HB2	1:G:111:ARG:HE	1.78	0.48
2:H:484:GLU:OE1	2:H:488:ASN:ND2	2.47	0.48
1:E:46:CYS:HB2	1:E:280:THR:HG22	1.95	0.47
1:E:309:TYR:HE2	2:F:423:LEU:HD21	1.79	0.47
1:C:6:GLN:NE2	5:C:746:HOH:O	2.39	0.47
1:G:14:ASN:H	1:G:323:ASN:HD21	1.62	0.47
1:E:317:LEU:HD21	2:F:389:ILE:HD12	1.97	0.47
1:A:183:HIS:O	1:A:185:PRO:HD3	2.14	0.47
1:E:175:ASP:HB2	1:E:260:ILE:HD12	1.96	0.47
1:G:11:TYR:CZ	2:H:340:ILE:HG23	2.50	0.47
1:E:95:TYR:CD2	1:E:230:MET:HG2	2.50	0.47
1:G:4:GLN:HG2	1:G:5:ASP:H	1.80	0.46
1:A:117:LYS:NZ	5:A:735:HOH:O	2.23	0.46
1:G:120:ILE:HB	1:G:168:TYR:CZ	2.50	0.46
1:C:51:VAL:HG22	1:C:81:SER:HB3	1.97	0.46
1:E:113:ASN:ND2	1:E:264:GLY:HA3	2.31	0.46
2:H:482:CYS:HA	2:H:485:SER:HB3	1.98	0.46
1:G:203:SER:OG	1:G:246:GLU:HB3	2.15	0.46
1:E:102:TYR:CE2	1:E:106:LYS:HD2	2.50	0.46
1:G:146:SER:OG	1:G:147:PHE:N	2.48	0.46
2:B:396:GLN:HB3	2:B:397:PHE:H	1.58	0.46
1:G:293:MET:HG3	1:G:294:PRO:HD2	1.98	0.46
1:A:97:GLY:HA3	1:A:230:MET:O	2.16	0.45
1:A:179:LEU:HD23	1:A:234:TRP:HB3	1.97	0.45
2:B:419:GLU:O	2:B:423:LEU:HB2	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:42:ASN:HD21	1:E:288:ALA:HB3	1.81	0.45
1:E:296:HIS:CD2	1:E:307:PRO:HB2	2.49	0.45
1:A:216:LYS:O	1:A:220:ARG:NH2	2.49	0.45
2:D:409:ARG:NH1	2:D:412:GLU:OE2	2.50	0.45
2:F:385:LYS:HD3	2:F:437:GLU:HB3	1.97	0.45
2:H:482:CYS:O	2:H:486:ILE:HG13	2.17	0.45
1:A:72:ASP:HA	1:A:75:ILE:HG13	1.98	0.45
1:G:195:TYR:O	1:G:197:ASN:N	2.45	0.45
1:E:48:LEU:O	1:E:51:VAL:HG22	2.17	0.45
1:G:57:ARG:NH1	1:G:73:GLU:OE2	2.50	0.45
2:H:417:LYS:HE2	2:H:417:LYS:HB3	1.58	0.45
2:B:469:ASN:N	2:B:469:ASN:OD1	2.50	0.45
1:G:294:PRO:HG2	1:G:295:PHE:HD2	1.81	0.45
1:A:79:GLU:OE2	1:A:262:LYS:NZ	2.50	0.44
1:E:11:TYR:CZ	2:F:340:ILE:HG23	2.52	0.44
1:A:97:GLY:HA2	1:A:229:ARG:HD2	2.00	0.44
2:F:445:HIS:O	2:F:449:VAL:HG23	2.17	0.44
1:A:203:SER:OG	1:A:246:GLU:HB3	2.17	0.44
2:D:482:CYS:O	2:D:485:SER:OG	2.27	0.44
1:E:31:THR:OG1	1:E:321:LEU:N	2.46	0.43
2:H:461:ARG:HG3	2:H:493:TYR:CE2	2.52	0.43
1:G:65:LEU:O	1:G:150:ASN:ND2	2.39	0.43
1:E:79:GLU:HG3	1:E:114:HIS:HB2	1.99	0.43
1:E:313:ASN:OD1	1:E:313:ASN:N	2.50	0.43
1:G:95:TYR:CD2	1:G:230:MET:HG2	2.53	0.43
1:G:216:LYS:O	1:G:220:ARG:NH2	2.51	0.43
1:A:36:ILE:HD13	1:A:317:LEU:HD22	1.99	0.43
1:A:308:LYS:HA	1:A:308:LYS:HD3	1.85	0.43
2:D:335:GLY:HA3	5:D:502:HOH:O	2.18	0.43
1:E:37:LEU:HB2	1:E:315:LEU:HB2	1.99	0.43
1:E:321:LEU:HB3	2:F:445:HIS:HD2	1.83	0.43
1:A:315:LEU:HD22	2:B:434:VAL:HG21	2.01	0.43
1:C:183:HIS:O	1:C:185:PRO:HD3	2.18	0.43
1:G:42:ASN:HD21	1:G:288:ALA:HB3	1.83	0.43
1:C:97:GLY:HA3	1:C:230:MET:O	2.19	0.43
1:G:183:HIS:O	1:G:185:PRO:HD3	2.19	0.43
1:G:295:PHE:HE1	2:H:393:MET:HE2	1.83	0.43
1:G:251:PHE:N	5:G:701:HOH:O	2.52	0.42
1:C:97:GLY:HA2	1:C:229:ARG:HD2	2.00	0.42
1:C:82:TYR:CZ	1:C:283:GLN:HG2	2.54	0.42
1:C:11:TYR:CZ	2:D:340:ILE:HG23	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:72:ASP:HA	1:C:75:ILE:HG13	2.01	0.42
1:G:317:LEU:HD12	2:H:438:ASN:OD1	2.20	0.42
2:H:457:ARG:HA	2:H:472:PHE:HE2	1.85	0.42
1:A:121:ILE:HG23	1:A:166:LYS:HE2	2.02	0.42
1:A:130:GLU:HB2	1:A:155:ILE:HG13	2.02	0.42
1:E:172:ASN:ND2	1:E:259:LYS:HD3	2.25	0.42
1:A:38:GLU:OE1	1:A:291:SER:OG	2.31	0.42
1:A:170:ASN:HB2	1:A:237:LEU:HD13	2.02	0.42
2:F:482:CYS:O	2:F:486:ILE:HG13	2.20	0.42
2:B:402:ARG:NH1	2:B:415:ASN:OD1	2.53	0.42
1:E:280:THR:HG21	1:E:288:ALA:HB1	2.01	0.42
1:G:8:CYS:HA	2:H:471:CYS:HA	2.01	0.42
1:G:269:MET:HE2	1:G:285:PRO:HD3	2.01	0.42
2:H:445:HIS:O	2:H:449:VAL:HG23	2.20	0.42
1:C:315:LEU:HD23	1:C:315:LEU:HA	1.91	0.41
1:C:130:GLU:HB2	1:C:155:ILE:HG13	2.02	0.41
1:G:9:ILE:N	2:H:470:GLY:O	2.51	0.41
2:H:457:ARG:HA	2:H:472:PHE:CE2	2.55	0.41
1:E:20:VAL:HG21	1:E:318:ALA:HB2	2.02	0.41
1:E:8:CYS:HA	2:F:471:CYS:HA	2.01	0.41
2:H:493:TYR:HB3	2:H:494:PRO:HD3	2.01	0.41
2:H:381:GLY:O	2:H:385:LYS:N	2.49	0.41
2:F:477:LYS:HD3	2:F:477:LYS:HA	1.85	0.41
1:G:53:PRO:HG3	1:G:82:TYR:CZ	2.56	0.41
2:H:421:GLY:O	2:H:425:VAL:HG13	2.20	0.41
1:E:114:HIS:HB3	1:E:262:LYS:HB3	2.03	0.40
1:E:173:GLN:H	1:E:173:GLN:HG2	1.77	0.40
2:F:362:ASN:ND2	2:F:478:CYS:O	2.54	0.40
1:G:266:SER:OG	1:G:267:ALA:N	2.54	0.40
1:G:57:ARG:H	1:G:74:PHE:HZ	1.68	0.40
1:E:214:VAL:HA	1:E:215:PRO:HD3	1.89	0.40
2:F:431:GLU:O	2:F:435:LEU:HG	2.22	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	319/321 (99%)	307 (96%)	12 (4%)	0	100	100
1	C	319/321 (99%)	308 (97%)	11 (3%)	0	100	100
1	E	319/321 (99%)	291 (91%)	26 (8%)	2 (1%)	25	47
1	G	319/321 (99%)	298 (93%)	20 (6%)	1 (0%)	41	64
2	B	162/164 (99%)	151 (93%)	10 (6%)	1 (1%)	25	47
2	D	162/164 (99%)	152 (94%)	8 (5%)	2 (1%)	13	27
2	F	162/164 (99%)	145 (90%)	15 (9%)	2 (1%)	13	27
2	H	162/164 (99%)	142 (88%)	18 (11%)	2 (1%)	13	27
All	All	1924/1940 (99%)	1794 (93%)	120 (6%)	10 (0%)	29	52

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	396	GLN
2	F	494	PRO
2	H	396	GLN
1	E	307	PRO
2	F	396	GLN
2	B	494	PRO
2	D	494	PRO
1	G	307	PRO
1	E	196	GLN
2	H	494	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	288/288 (100%)	268 (93%)	20 (7%)	15	31

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	288/288 (100%)	271 (94%)	17 (6%)	19	39
1	E	288/288 (100%)	265 (92%)	23 (8%)	12	24
1	G	288/288 (100%)	267 (93%)	21 (7%)	14	28
2	B	140/140 (100%)	128 (91%)	12 (9%)	10	20
2	D	140/140 (100%)	129 (92%)	11 (8%)	12	24
2	F	140/140 (100%)	126 (90%)	14 (10%)	7	14
2	H	140/140 (100%)	134 (96%)	6 (4%)	29	54
All	All	1712/1712 (100%)	1588 (93%)	124 (7%)	14	29

All (124) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	24	MET
1	A	51	VAL
1	A	56	LEU
1	A	100	ASN
1	A	111	ARG
1	A	149	ARG
1	A	152	VAL
1	A	163	THR
1	A	186	ASN
1	A	208	THR
1	A	213	LEU
1	A	221	SER
1	A	237	LEU
1	A	265	ASP
1	A	274	GLU
1	A	293	MET
1	A	302	THR
1	A	314	ARG
1	A	317	LEU
1	A	321	LEU
2	B	356	TYR
2	B	360	HIS
2	B	364	GLN
2	B	394	ASN
2	B	395	THR
2	B	418	MET
2	B	425	VAL
2	B	432	LEU

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Mol	Chain	Res	Type
2	B	458	LEU
2	B	461	ARG
2	B	467	LEU
2	B	496	TYR
1	C	16	SER
1	C	17	THR
1	C	51	VAL
1	C	56	LEU
1	C	90	THR
1	C	100	ASN
1	C	111	ARG
1	C	149	ARG
1	C	152	VAL
1	C	163	THR
1	C	208	THR
1	C	213	LEU
1	C	221	SER
1	C	237	LEU
1	C	274	GLU
1	C	293	MET
1	C	321	LEU
2	D	351	MET
2	D	356	TYR
2	D	360	HIS
2	D	395	THR
2	D	398	GLU
2	D	418	MET
2	D	425	VAL
2	D	432	LEU
2	D	458	LEU
2	D	467	LEU
2	D	496	TYR
1	E	17	THR
1	E	40	THR
1	E	56	LEU
1	E	72	ASP
1	E	88	ASN
1	E	115	PHE
1	E	142	LEU
1	E	152	VAL
1	E	158	ASN
1	E	163	THR

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Mol	Chain	Res	Type
1	E	176	LEU
1	E	194	LEU
1	E	212	ARG
1	E	213	LEU
1	E	214	VAL
1	E	221	SER
1	E	263	LYS
1	E	274	GLU
1	E	278	CYS
1	E	293	MET
1	E	302	THR
1	E	314	ARG
1	E	321	LEU
2	F	344	ILE
2	F	356	TYR
2	F	360	HIS
2	F	362	ASN
2	F	372	LYS
2	F	373	GLU
2	F	394	ASN
2	F	418	MET
2	F	420	ASP
2	F	425	VAL
2	F	427	THR
2	F	432	LEU
2	F	479	ASP
2	F	496	TYR
1	G	15	ASN
1	G	28	VAL
1	G	29	THR
1	G	40	THR
1	G	49	ASP
1	G	88	ASN
1	G	111	ARG
1	G	115	PHE
1	G	120	ILE
1	G	163	THR
1	G	176	LEU
1	G	194	LEU
1	G	213	LEU
1	G	237	LEU
1	G	263	LYS

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Mol	Chain	Res	Type
1	G	274	GLU
1	G	278	CYS
1	G	293	MET
1	G	302	THR
1	G	310	VAL
1	G	321	LEU
2	H	356	TYR
2	H	360	HIS
2	H	395	THR
2	H	418	MET
2	H	473	GLU
2	H	496	TYR

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

Mol	Chain	Res	Type
1	E	150	ASN
1	E	172	ASN
1	E	296	HIS
1	G	119	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

4 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	GAL	I	1	3	12,12,12	0.56	0	17,17,17	0.91	2 (11%)
3	SIA	I	2	3	20,20,21	3.74	9 (45%)	24,28,31	3.39	9 (37%)
3	GAL	J	1	3	12,12,12	0.58	0	17,17,17	1.46	4 (23%)
3	SIA	J	2	3	20,20,21	3.78	8 (40%)	24,28,31	3.60	9 (37%)

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	GAL	I	1	3	-	2/2/22/22	0/1/1/1
3	SIA	I	2	3	-	4/18/34/38	0/1/1/1
3	GAL	J	1	3	-	2/2/22/22	0/1/1/1
3	SIA	J	2	3	-	6/18/34/38	0/1/1/1

All (17) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	J	2	SIA	C4-C5	-12.38	1.42	1.53
3	I	2	SIA	C4-C5	-12.11	1.42	1.53
3	I	2	SIA	C7-C6	-7.30	1.43	1.53
3	J	2	SIA	C7-C6	-7.03	1.44	1.53
3	J	2	SIA	O6-C6	4.90	1.51	1.44
3	I	2	SIA	C10-N5	4.43	1.49	1.34
3	J	2	SIA	C10-N5	4.36	1.49	1.34
3	I	2	SIA	O6-C6	4.09	1.50	1.44
3	J	2	SIA	C2-C1	-3.54	1.49	1.52
3	I	2	SIA	C2-C1	-3.45	1.49	1.52
3	I	2	SIA	O6-C2	-2.98	1.39	1.43
3	J	2	SIA	O6-C2	-2.50	1.40	1.43
3	J	2	SIA	O7-C7	-2.46	1.37	1.43
3	I	2	SIA	O7-C7	-2.46	1.37	1.43
3	I	2	SIA	O8-C8	-2.10	1.38	1.43
3	I	2	SIA	C5-N5	2.06	1.49	1.45
3	J	2	SIA	C3-C2	2.00	1.55	1.52

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	J	2	SIA	O6-C2-C3	-13.05	92.50	110.46
3	I	2	SIA	O6-C2-C3	-11.50	94.64	110.46
3	I	2	SIA	O6-C2-C1	7.71	122.82	107.70
3	J	2	SIA	O6-C2-C1	7.69	122.79	107.70
3	J	2	SIA	C4-C3-C2	5.16	119.06	109.81
3	I	2	SIA	C4-C3-C2	4.88	118.56	109.81
3	I	2	SIA	C6-O6-C2	3.66	119.18	111.34
3	J	2	SIA	C6-O6-C2	3.34	118.49	111.34
3	I	2	SIA	O1B-C1-C2	3.02	121.66	113.03
3	J	1	GAL	C4-C3-C2	2.98	116.03	110.82
3	I	2	SIA	O9-C9-C8	2.97	117.54	111.07
3	J	2	SIA	O9-C9-C8	2.97	117.53	111.07
3	J	1	GAL	O5-C5-C4	2.94	115.03	109.69
3	J	1	GAL	O5-C1-C2	-2.62	105.61	110.28
3	J	2	SIA	C11-C10-N5	2.58	120.46	116.10
3	I	2	SIA	C3-C4-C5	2.45	114.42	111.46
3	J	2	SIA	O1B-C1-C2	2.38	119.83	113.03
3	J	2	SIA	O1B-C1-O1A	-2.29	118.89	124.09
3	I	2	SIA	C11-C10-N5	2.21	119.84	116.10
3	J	2	SIA	C8-C7-C6	-2.20	108.87	113.03
3	I	2	SIA	O1B-C1-O1A	-2.15	119.22	124.09
3	J	1	GAL	C3-C4-C5	2.14	114.06	110.24
3	I	1	GAL	C3-C4-C5	2.08	113.95	110.24
3	I	1	GAL	O5-C1-C2	-2.06	106.61	110.28

There are no chirality outliers.

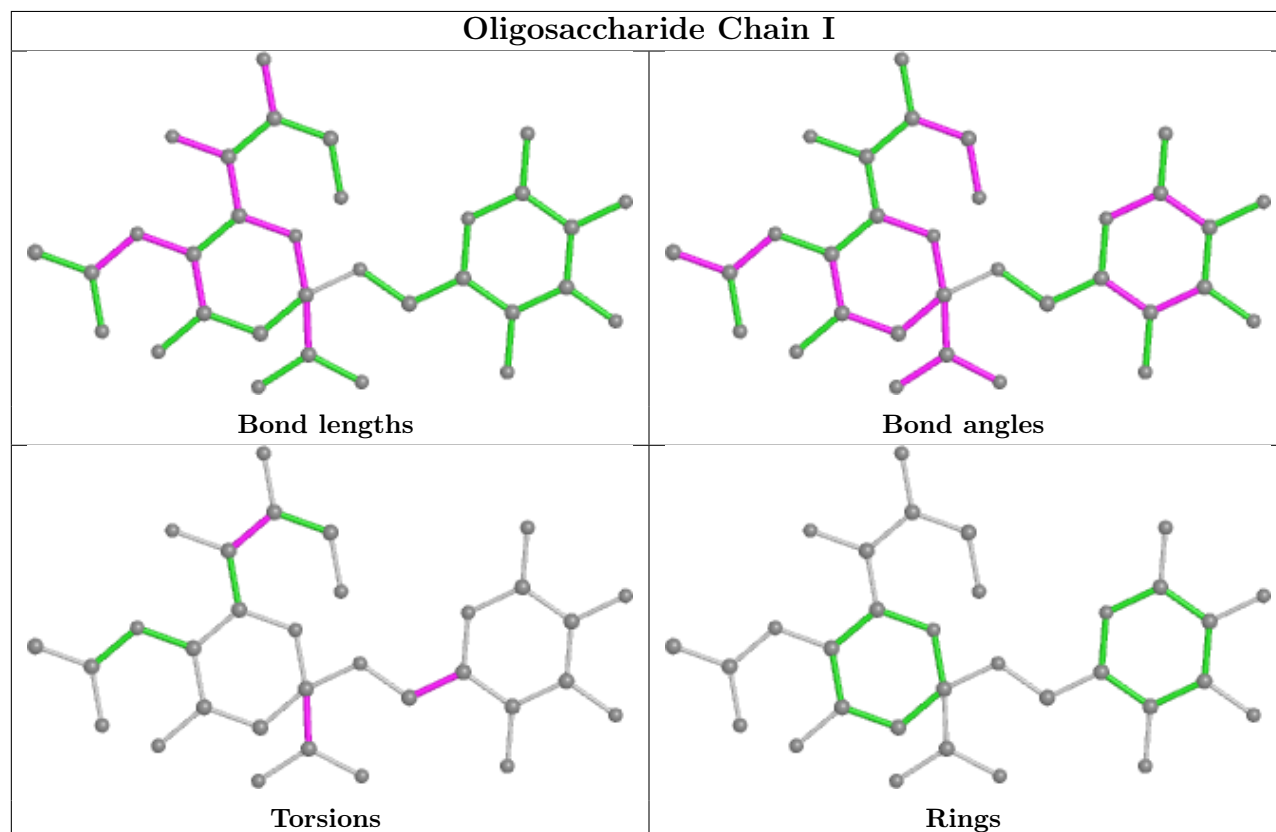
All (14) torsion outliers are listed below:

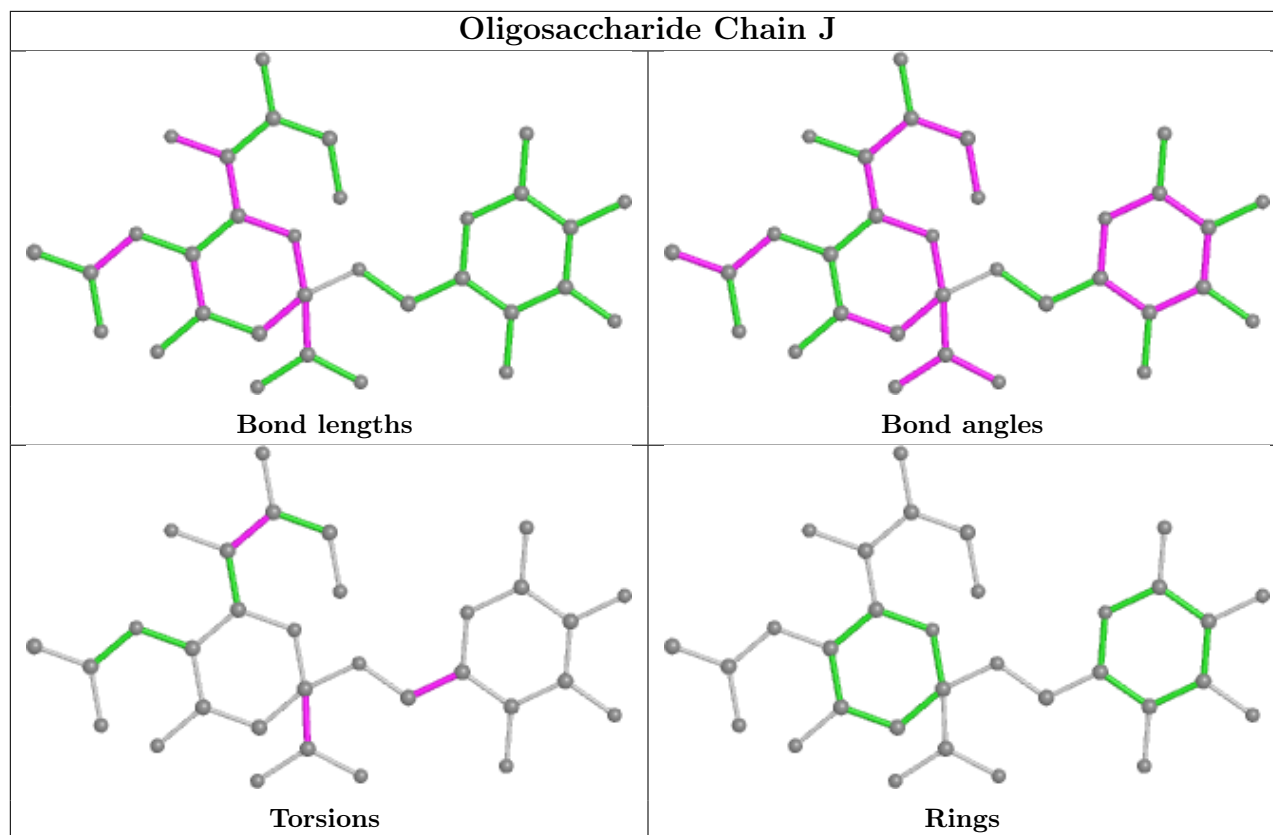
Mol	Chain	Res	Type	Atoms
3	I	1	GAL	O5-C5-C6-O6
3	J	1	GAL	O5-C5-C6-O6
3	I	1	GAL	C4-C5-C6-O6
3	J	1	GAL	C4-C5-C6-O6
3	J	2	SIA	O7-C7-C8-O8
3	J	2	SIA	O7-C7-C8-C9
3	J	2	SIA	C6-C7-C8-O8
3	I	2	SIA	O1A-C1-C2-O6
3	J	2	SIA	O1A-C1-C2-O6
3	J	2	SIA	C6-C7-C8-C9
3	I	2	SIA	O7-C7-C8-O8
3	I	2	SIA	O7-C7-C8-C9
3	I	2	SIA	C6-C7-C8-O8
3	J	2	SIA	O1A-C1-C2-C3

There are no ring outliers.

No monomer is involved in short contacts.

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





5.6 Ligand geometry [i](#)

4 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	C	601	1	14,14,15	0.48	0	17,19,21	0.94	1 (5%)
4	NAG	G	601	1	14,14,15	0.53	0	17,19,21	0.67	0
4	NAG	A	601	1	14,14,15	0.51	0	17,19,21	0.97	1 (5%)
4	NAG	E	601	1	14,14,15	0.48	0	17,19,21	1.04	1 (5%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	C	601	1	-	0/6/23/26	0/1/1/1
4	NAG	G	601	1	-	2/6/23/26	0/1/1/1
4	NAG	A	601	1	-	1/6/23/26	0/1/1/1
4	NAG	E	601	1	-	4/6/23/26	0/1/1/1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	C	601	NAG	C1-O5-C5	2.81	116.00	112.19
4	E	601	NAG	C1-O5-C5	2.45	115.51	112.19
4	A	601	NAG	C1-O5-C5	2.25	115.24	112.19

There are no chirality outliers.

All (7) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	E	601	NAG	C8-C7-N2-C2
4	E	601	NAG	O7-C7-N2-C2
4	E	601	NAG	O5-C5-C6-O6
4	E	601	NAG	C4-C5-C6-O6
4	G	601	NAG	C8-C7-N2-C2
4	A	601	NAG	O5-C5-C6-O6
4	G	601	NAG	O7-C7-N2-C2

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	321/321 (100%)	-0.52	0 100 100	16, 37, 59, 83	0
1	C	321/321 (100%)	-0.53	0 100 100	14, 37, 58, 86	0
1	E	321/321 (100%)	-0.02	10 (3%) 49 42	33, 72, 130, 180	0
1	G	321/321 (100%)	0.05	10 (3%) 49 42	29, 74, 131, 228	0
2	B	164/164 (100%)	-0.39	0 100 100	21, 51, 82, 114	0
2	D	164/164 (100%)	-0.44	0 100 100	18, 52, 84, 118	0
2	F	164/164 (100%)	0.82	26 (15%) 1 1	41, 123, 172, 198	0
2	H	164/164 (100%)	0.90	33 (20%) 1 0	40, 122, 175, 234	0
All	All	1940/1940 (100%)	-0.09	79 (4%) 37 30	14, 56, 146, 234	0

All (79) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	H	458	LEU	11.5
2	H	462	ASP	9.6
2	F	458	LEU	8.3
1	G	9	ILE	7.2
2	H	357	GLY	7.1
1	E	9	ILE	6.6
2	H	474	PHE	5.9
1	G	48	LEU	5.5
2	F	472	PHE	4.8
2	H	343	PHE	4.7
2	F	459	GLN	4.7
2	F	492	ASN	4.5
2	F	493	TYR	4.1
2	F	357	GLY	3.9
2	H	367	GLY	3.9
2	F	486	ILE	3.8

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Mol	Chain	Res	Type	RSRZ
2	F	474	PHE	3.7
2	H	472	PHE	3.6
2	H	475	TYR	3.6
2	H	497	SER	3.4
2	H	459	GLN	3.4
1	G	5	ASP	3.3
2	F	494	PRO	3.2
2	H	353	ASP	3.2
2	F	468	GLY	3.1
1	G	305	GLU	3.1
2	F	374	SER	3.1
2	H	465	LYS	3.0
2	F	475	TYR	3.0
2	H	493	TYR	3.0
2	H	363	GLU	3.0
2	H	486	ILE	2.9
2	F	481	GLU	2.9
1	E	34	GLN	2.9
2	F	338	GLY	2.9
2	F	349	GLN	2.8
2	F	473	GLU	2.8
1	E	317	LEU	2.8
2	H	467	LEU	2.8
1	E	304	GLY	2.7
1	G	34	GLN	2.6
2	H	460	LEU	2.6
2	F	462	ASP	2.5
2	H	444	PHE	2.5
1	G	323	ASN	2.4
1	G	13	ALA	2.4
2	H	461	ARG	2.4
2	F	452	LEU	2.3
2	H	488	ASN	2.3
1	G	7	ILE	2.3
2	F	350	GLY	2.3
2	F	460	LEU	2.3
2	H	491	TYR	2.3
1	E	298	ILE	2.3
2	F	444	PHE	2.3
2	H	374	SER	2.3
1	E	24	MET	2.3
2	H	481	GLU	2.3

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Mol	Chain	Res	Type	RSRZ
1	G	142	LEU	2.2
2	F	467	LEU	2.2
2	H	490	THR	2.2
1	E	48	LEU	2.2
1	E	142	LEU	2.2
2	F	455	LYS	2.2
2	F	343	PHE	2.2
2	H	476	HIS	2.2
2	H	350	GLY	2.2
2	H	423	LEU	2.2
2	H	452	LEU	2.2
2	H	487	ARG	2.2
2	H	360	HIS	2.1
2	H	418	MET	2.1
2	H	451	ASN	2.1
1	E	30	VAL	2.1
2	F	367	GLY	2.1
2	H	358	TYR	2.0
2	F	464	ALA	2.0
1	E	316	VAL	2.0
1	G	12	HIS	2.0

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

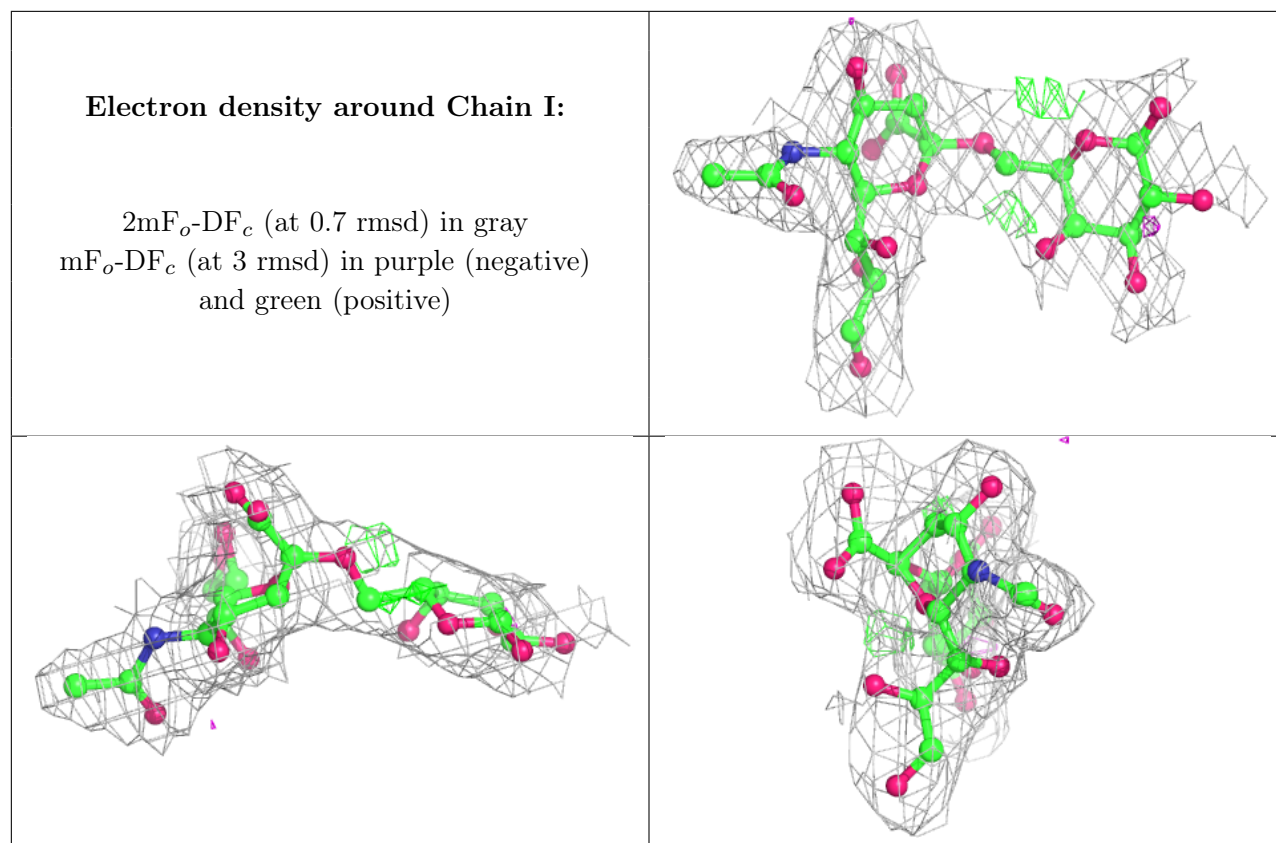
There are no non-standard protein/DNA/RNA residues in this entry.

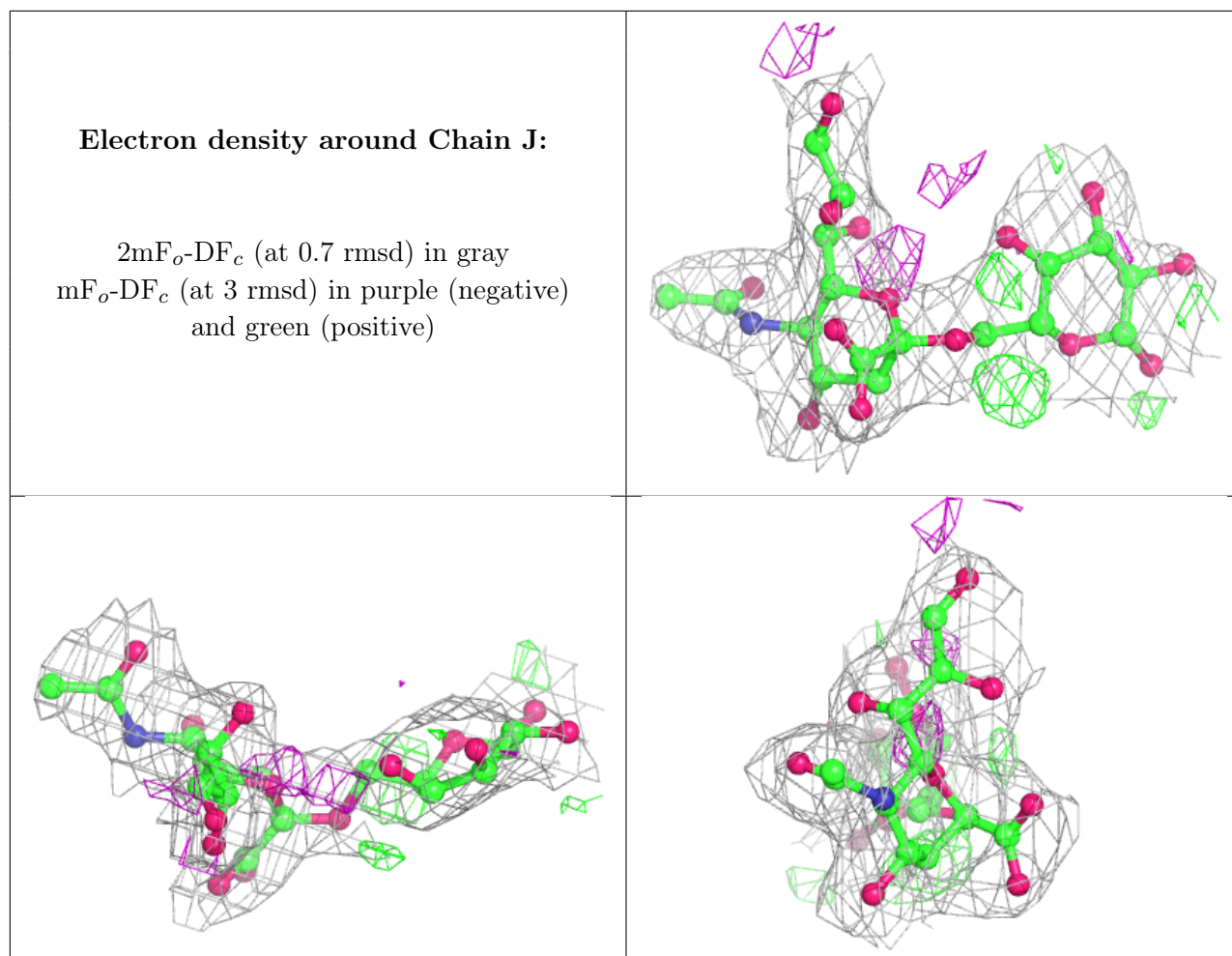
6.3 Carbohydrates [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	GAL	I	1	12/12	0.86	0.17	52,71,84,95	0
3	GAL	J	1	12/12	0.86	0.18	52,69,82,83	0
3	SIA	J	2	20/21	0.95	0.13	28,40,47,48	0
3	SIA	I	2	20/21	0.96	0.12	26,39,46,50	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.





6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q < 0.9
4	NAG	G	601	14/15	0.82	0.26	90,110,118,125	0
4	NAG	E	601	14/15	0.84	0.25	97,116,124,129	0
4	NAG	C	601	14/15	0.93	0.17	35,56,71,83	0
4	NAG	A	601	14/15	0.94	0.12	34,62,74,76	0

6.5 Other polymers [i](#)

There are no such residues in this entry.