



# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 8, 2016 – 05:01 AM EST

PDB ID : 5I8R  
Title : aSMase with zinc  
Authors : Zhou, Y.F.; Wei, R.R.  
Deposited on : 2016-02-19  
Resolution : 3.65 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.7.1 (RC1), CSD as537be (2016)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20028320  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : rb-20028320

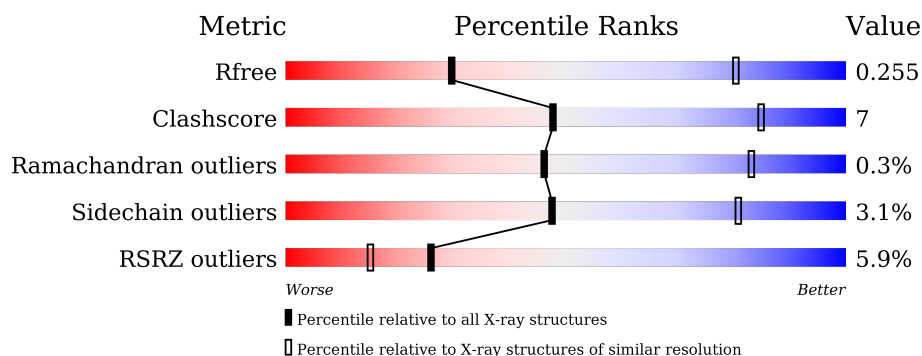
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.65 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))
$R_{free}$	91344	1014 (3.80-3.48)
Clashscore	102246	1130 (3.80-3.48)
Ramachandran outliers	100387	1084 (3.80-3.48)
Sidechain outliers	100360	1083 (3.80-3.48)
RSRZ outliers	91569	1021 (3.80-3.48)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	583	<div> <div>2%</div> <div> <div></div> <div>70%</div> <div>19%</div> <div>•</div> <div>9%</div> </div> </div>
1	B	583	<div> <div>2%</div> <div> <div></div> <div>76%</div> <div>13%</div> <div>•</div> <div>9%</div> </div> </div>
1	C	583	<div> <div>11%</div> <div> <div></div> <div>76%</div> <div>14%</div> <div>•</div> <div>9%</div> </div> </div>

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
2	NAG	A	704	-	-	-	X
5	ZN	A	712	-	-	-	X
5	ZN	C	707	-	-	-	X
5	ZN	C	708	-	-	-	X

## 2 Entry composition [i](#)

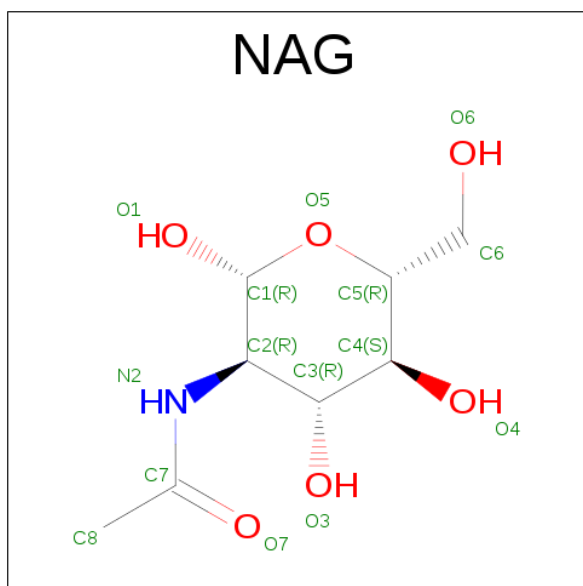
There are 5 unique types of molecules in this entry. The entry contains 12883 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Sphingomyelin phosphodiesterase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	528	Total	C	N	O	S	0	0	0
			4161	2684	717	737	23			
1	B	528	Total	C	N	O	S	0	0	0
			4161	2684	717	737	23			
1	C	528	Total	C	N	O	S	0	0	0
			4161	2684	717	737	23			

- Molecule 2 is N-ACETYL-D-GLUCOSAMINE (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ).



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

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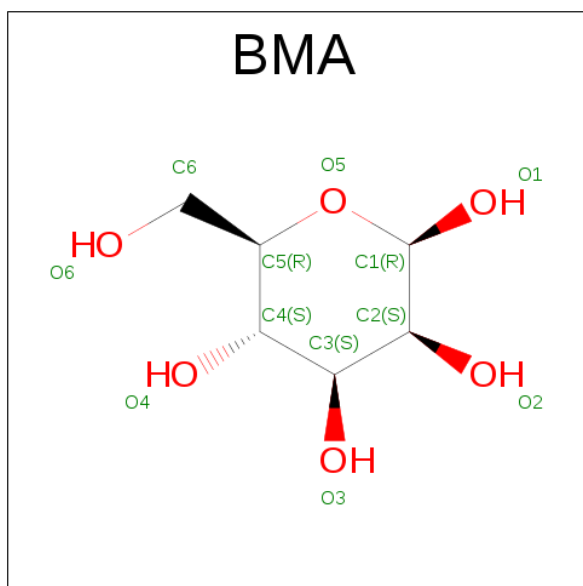
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	B	1	Total	C	N	O	0	0
			14	8	1	5		
2	B	1	Total	C	N	O	0	0
			14	8	1	5		
2	B	1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

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

- Molecule 3 is BETA-D-MANNOSE (three-letter code: BMA) (formula:  $C_6H_{12}O_6$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			11	6	5		
3	B	1	Total	C	O	0	0
			11	6	5		
3	B	1	Total	C	O	0	0
			11	6	5		

- Molecule 4 is ALPHA-D-MANNOSE (three-letter code: MAN) (formula:  $C_6H_{12}O_6$ ).



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

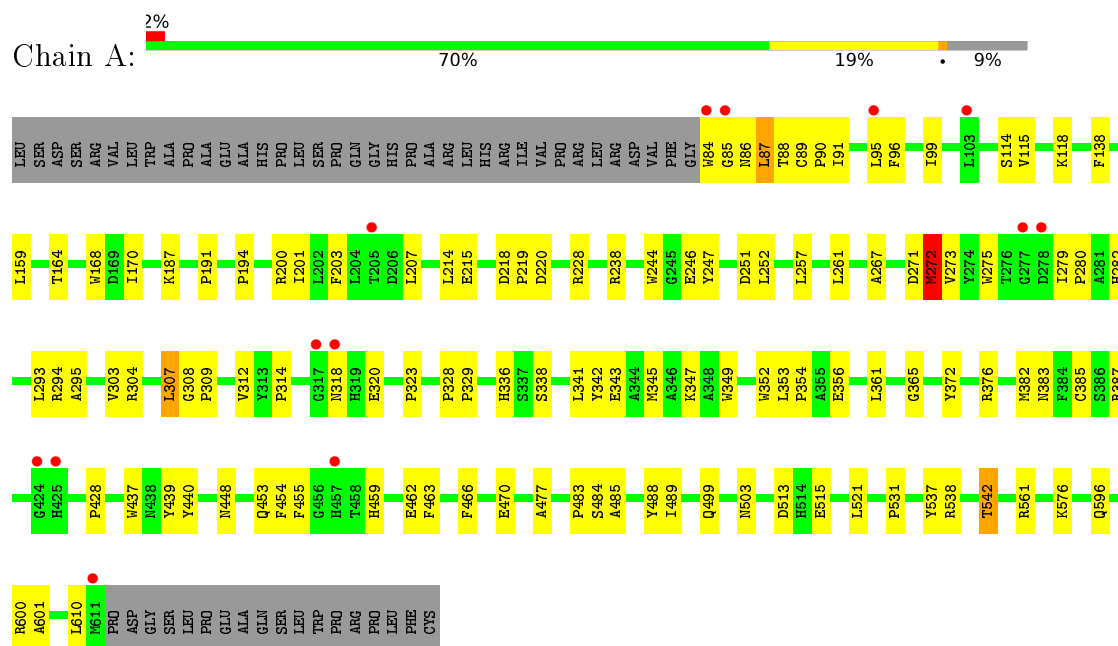
- Molecule 5 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	2	Total	Zn	0	0
			2	2		
5	A	2	Total	Zn	0	0
			2	2		
5	C	2	Total	Zn	0	0
			2	2		

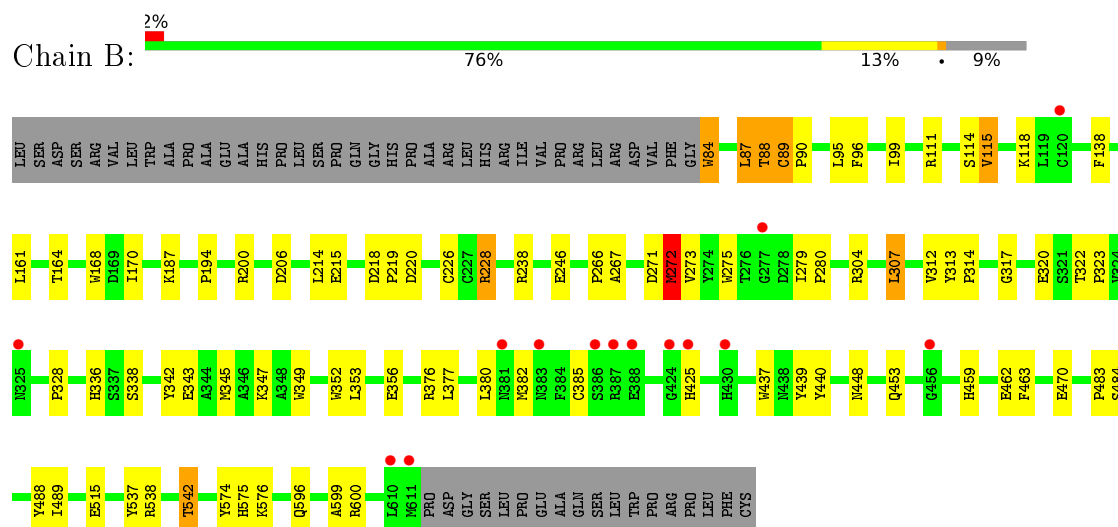
### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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: SpHINGOMYELIN phosphodiesterase

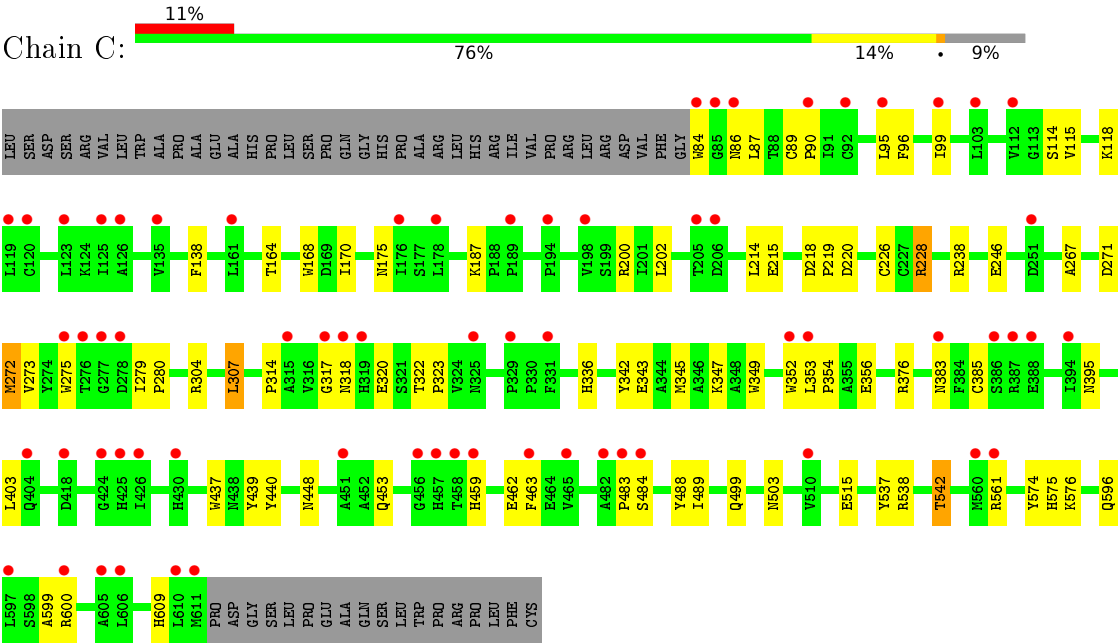


#### • Molecule 1: SpHINGOMYELIN phosphodiesterase



#### • Molecule 1: SpHINGOMYELIN phosphodiesterase





## 4 Data and refinement statistics

Property	Value	Source
Space group	I 2 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	191.02Å 230.87Å 252.32Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	44.13 – 3.65 44.13 – 3.65	Depositor EDS
% Data completeness (in resolution range)	98.6 (44.13-3.65) 98.9 (44.13-3.65)	Depositor EDS
$R_{merge}$	0.23	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.34 (at 3.66Å)	Xtriage
Refinement program	PHENIX (dev_2229: ???)	Depositor
R, $R_{free}$	0.248 , 0.254 0.248 , 0.255	Depositor DCC
$R_{free}$ test set	2000 reflections (3.25%)	DCC
Wilson B-factor (Å <sup>2</sup> )	188.7	Xtriage
Anisotropy	0.283	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 193.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.38$ , $\langle L^2 \rangle = 0.22$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	12883	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	237.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.54% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality [i](#)

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

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z  > 5$	RMSZ	# $ Z  > 5$
1	A	0.30	0/4307	0.55	2/5904 (0.0%)
1	B	0.29	0/4307	0.56	2/5904 (0.0%)
1	C	0.27	0/4307	0.51	0/5904
All	All	0.29	0/12921	0.54	4/17712 (0.0%)

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	84	TRP	N-CA-C	5.70	126.39	111.00
1	B	272	MET	CA-CB-CG	5.64	122.89	113.30
1	A	382	MET	CG-SD-CE	5.07	108.31	100.20
1	A	272	MET	CA-CB-CG	5.06	121.89	113.30

There are no chirality outliers.

There are no planarity outliers.

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

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4161	0	4027	73	0
1	B	4161	0	4024	53	0
1	C	4161	0	4032	53	0
2	A	126	0	113	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	140	0	125	5	0
2	C	84	0	77	10	0
3	A	11	0	10	2	0
3	B	22	0	20	5	0
4	A	11	0	10	0	0
5	A	2	0	0	0	0
5	B	2	0	0	0	0
5	C	2	0	0	0	0
All	All	12883	0	12438	187	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 (187) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:86:ASN:HD21	2:A:701:NAG:C1	1.07	1.64
1:C:86:ASN:HD21	2:C:701:NAG:C1	1.24	1.47
1:C:395:ASN:HD21	2:C:703:NAG:C1	1.27	1.45
2:A:709:NAG:O4	2:A:710:NAG:C1	1.63	1.45
1:A:86:ASN:ND2	2:A:701:NAG:C1	1.88	1.33
2:A:706:NAG:O4	3:A:707:BMA:C1	1.81	1.29
1:C:175:ASN:ND2	2:C:702:NAG:C1	1.99	1.25
1:C:503:ASN:HD21	2:C:704:NAG:C1	1.51	1.23
2:B:708:NAG:O4	3:B:709:BMA:C1	1.91	1.19
1:C:86:ASN:ND2	2:C:701:NAG:C1	2.09	1.14
1:C:395:ASN:ND2	2:C:703:NAG:C1	2.10	1.13
1:A:86:ASN:ND2	2:A:701:NAG:O5	1.82	1.10
2:B:711:NAG:O3	3:B:712:BMA:H2	1.54	1.05
1:C:175:ASN:HD21	2:C:702:NAG:C1	1.64	1.02
1:C:503:ASN:ND2	2:C:704:NAG:C1	2.22	1.01
2:A:709:NAG:C4	2:A:710:NAG:C1	2.45	0.95
1:C:175:ASN:HD22	2:C:702:NAG:C1	1.82	0.87
2:A:709:NAG:O4	2:A:710:NAG:C2	2.25	0.84
2:B:708:NAG:HO4	3:B:709:BMA:C1	1.88	0.83
2:B:711:NAG:H4	3:B:712:BMA:O2	1.81	0.79
2:B:711:NAG:O3	3:B:712:BMA:C2	2.27	0.79
1:C:218:ASP:OD1	1:C:238:ARG:NH2	2.21	0.74
1:C:515:GLU:HG2	1:C:538:ARG:HG2	1.71	0.73
1:C:462:GLU:HB2	1:C:596:GLN:HE22	1.52	0.73
1:C:537:TYR:HB2	1:C:542:THR:HG21	1.69	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:87:LEU:O	1:B:88:THR:OG1	2.09	0.71
1:B:515:GLU:HG2	1:B:538:ARG:HG2	1.73	0.71
1:C:86:ASN:ND2	2:C:701:NAG:O5	2.21	0.70
1:A:86:ASN:CG	2:A:701:NAG:C1	2.60	0.70
1:C:187:LYS:H	1:C:448:ASN:HD21	1.39	0.70
1:B:200:ARG:NH1	1:B:267:ALA:O	2.24	0.68
1:B:273:VAL:HG21	1:B:307:LEU:HD22	1.75	0.68
1:B:342:TYR:HA	1:B:345:MET:HE2	1.73	0.68
1:A:342:TYR:HA	1:A:345:MET:HE2	1.76	0.67
1:B:462:GLU:HB2	1:B:596:GLN:HE22	1.60	0.67
1:C:342:TYR:HA	1:C:345:MET:HE2	1.77	0.66
1:C:95:LEU:O	1:C:99:ILE:HG12	1.95	0.66
1:A:463:PHE:H	1:A:596:GLN:HE22	1.42	0.66
1:B:537:TYR:HB2	1:B:542:THR:HG21	1.79	0.64
1:A:187:LYS:H	1:A:448:ASN:HD21	1.44	0.63
1:A:515:GLU:HG2	1:A:538:ARG:HG2	1.80	0.63
1:B:89:CYS:HB3	1:B:90:PRO:HD3	1.81	0.63
1:B:439:TYR:OH	1:B:453:GLN:NE2	2.33	0.62
1:A:537:TYR:HB2	1:A:542:THR:HG21	1.81	0.62
1:A:138:PHE:CE1	1:A:323:PRO:HB3	2.34	0.61
1:A:218:ASP:OD1	1:A:238:ARG:NH2	2.30	0.61
2:A:709:NAG:H4	2:A:710:NAG:C1	2.28	0.61
1:C:273:VAL:HG21	1:C:307:LEU:HD22	1.82	0.61
1:B:440:TYR:HE1	1:B:599:ALA:HB3	1.65	0.60
1:A:273:VAL:HG21	1:A:307:LEU:HD22	1.85	0.59
1:B:95:LEU:O	1:B:99:ILE:HG12	2.02	0.59
1:C:114:SER:O	1:C:118:LYS:HG2	2.01	0.59
1:A:538:ARG:O	1:A:542:THR:HG23	2.02	0.59
1:A:95:LEU:O	1:A:99:ILE:HG12	2.03	0.58
1:C:318:ASN:HA	1:C:383:ASN:HD21	1.68	0.58
1:A:114:SER:O	1:A:118:LYS:HG2	2.03	0.58
1:A:207:LEU:HA	1:A:485:ALA:HB3	1.85	0.58
1:B:304:ARG:HG3	1:B:352:TRP:CZ2	2.39	0.58
1:C:499:GLN:NE2	1:C:515:GLU:OE2	2.35	0.58
1:A:200:ARG:NH1	1:A:267:ALA:O	2.36	0.57
1:B:463:PHE:H	1:B:596:GLN:HE22	1.52	0.57
1:C:463:PHE:H	1:C:596:GLN:HE22	1.51	0.57
1:C:138:PHE:CE1	1:C:323:PRO:HB3	2.40	0.56
1:A:271:ASP:HB3	1:A:272:MET:HE3	1.87	0.56
1:B:114:SER:O	1:B:118:LYS:HG2	2.05	0.56
1:B:538:ARG:O	1:B:542:THR:HG23	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:706:NAG:C4	3:A:707:BMA:C1	2.83	0.55
1:B:218:ASP:OD1	1:B:238:ARG:NH2	2.35	0.55
1:C:202:LEU:HB3	1:C:273:VAL:HG22	1.88	0.55
1:B:138:PHE:CE1	1:B:323:PRO:HB3	2.42	0.54
1:A:462:GLU:HB2	1:A:596:GLN:HE22	1.72	0.54
1:A:252:LEU:HD11	1:A:485:ALA:O	2.07	0.54
1:C:538:ARG:O	1:C:542:THR:HG23	2.07	0.54
1:B:187:LYS:H	1:B:448:ASN:HD21	1.56	0.54
1:C:168:TRP:CH2	1:C:170:ILE:HD12	2.43	0.53
1:A:279:ILE:HB	1:A:280:PRO:HD3	1.90	0.53
1:A:440:TYR:CD1	1:A:600:ARG:HB2	2.43	0.53
1:C:271:ASP:HB3	1:C:272:MET:HE3	1.91	0.53
1:C:343:GLU:O	1:C:347:LYS:HD3	2.09	0.53
1:C:561:ARG:NH1	1:C:609:HIS:O	2.42	0.53
1:A:220:ASP:HB3	1:A:238:ARG:NH2	2.24	0.52
1:B:88:THR:O	1:B:161:LEU:HD13	2.09	0.52
1:B:343:GLU:O	1:B:347:LYS:HD3	2.10	0.52
1:B:96:PHE:HA	1:B:99:ILE:HB	1.92	0.52
1:C:440:TYR:HE1	1:C:599:ALA:HB3	1.75	0.52
1:C:219:PRO:HB3	1:C:246:GLU:HG2	1.92	0.52
1:A:96:PHE:HA	1:A:99:ILE:HB	1.92	0.51
1:B:220:ASP:HB3	1:B:238:ARG:NH2	2.25	0.51
1:A:168:TRP:CH2	1:A:170:ILE:HD12	2.46	0.51
1:A:318:ASN:HA	1:A:383:ASN:HD21	1.75	0.51
1:A:483:PRO:HB2	1:A:576:LYS:HD3	1.93	0.51
1:B:275:TRP:O	1:B:314:PRO:HA	2.11	0.51
1:C:483:PRO:HB2	1:C:576:LYS:HD3	1.93	0.50
1:A:463:PHE:H	1:A:596:GLN:NE2	2.09	0.50
1:A:89:CYS:HB3	1:A:90:PRO:HD3	1.93	0.50
1:A:372:TYR:CE1	1:A:503:ASN:HB2	2.46	0.50
1:B:312:VAL:HB	1:B:352:TRP:CD2	2.46	0.49
1:B:437:TRP:CD2	1:B:600:ARG:HD2	2.47	0.49
1:A:314:PRO:HG2	1:A:349:TRP:CD2	2.48	0.49
1:A:343:GLU:O	1:A:347:LYS:HD3	2.13	0.49
1:C:314:PRO:HG2	1:C:349:TRP:CD2	2.48	0.49
1:A:159:LEU:HB2	1:A:168:TRP:CE3	2.47	0.49
1:C:275:TRP:O	1:C:314:PRO:HA	2.13	0.48
1:A:304:ARG:HG3	1:A:352:TRP:CZ2	2.49	0.48
1:B:194:PRO:HG3	1:C:538:ARG:HD3	1.95	0.47
1:C:304:ARG:HG3	1:C:352:TRP:CZ2	2.49	0.47
1:C:463:PHE:H	1:C:596:GLN:NE2	2.11	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:96:PHE:HA	1:C:99:ILE:HB	1.95	0.47
1:A:275:TRP:O	1:A:314:PRO:HA	2.14	0.47
1:A:459:HIS:HA	1:A:484:SER:HB3	1.96	0.47
1:A:219:PRO:HB3	1:A:246:GLU:HG2	1.95	0.47
1:C:220:ASP:HB3	1:C:238:ARG:NH2	2.30	0.47
1:A:439:TYR:OH	1:A:453:GLN:NE2	2.48	0.47
1:B:314:PRO:HG2	1:B:349:TRP:CD2	2.49	0.47
1:A:387:ARG:HH22	1:A:601:ALA:HB1	1.80	0.47
1:A:428:PRO:HD3	1:A:455:PHE:CZ	2.50	0.47
1:C:488:TYR:HA	1:C:489:ILE:HA	1.61	0.47
1:B:271:ASP:HB3	1:B:272:MET:HE3	1.97	0.47
1:B:515:GLU:CG	1:B:538:ARG:HG2	2.44	0.47
1:A:194:PRO:HG3	1:B:538:ARG:HD3	1.96	0.46
1:C:439:TYR:OH	1:C:453:GLN:NE2	2.47	0.46
1:C:200:ARG:NH1	1:C:267:ALA:O	2.40	0.46
1:C:89:CYS:HB3	1:C:90:PRO:HD3	1.96	0.46
1:B:219:PRO:HB3	1:B:246:GLU:HG2	1.98	0.46
1:C:279:ILE:HB	1:C:280:PRO:HD3	1.97	0.46
1:A:437:TRP:CD2	1:A:600:ARG:HD2	2.51	0.46
1:C:214:LEU:HA	1:C:214:LEU:HD23	1.78	0.46
1:B:272:MET:HG2	1:B:313:TYR:CE2	2.50	0.46
1:A:214:LEU:HD23	1:A:214:LEU:HA	1.67	0.45
1:B:214:LEU:HD23	1:B:214:LEU:HA	1.83	0.45
1:A:312:VAL:HB	1:A:352:TRP:CD2	2.52	0.45
1:A:86:ASN:OD1	2:A:701:NAG:C1	2.65	0.45
1:A:561:ARG:HD3	1:A:610:LEU:HD23	1.97	0.45
1:B:483:PRO:HB2	1:B:576:LYS:HD3	1.98	0.45
1:B:380:LEU:HB3	1:B:382:MET:HE1	1.99	0.45
1:B:380:LEU:HB3	1:B:382:MET:CE	2.47	0.45
1:A:261:LEU:HD11	1:A:303:VAL:HG12	1.98	0.44
1:A:466:PHE:HB2	1:A:477:ALA:HB3	1.99	0.44
1:A:308:GLY:HA3	1:A:309:PRO:HD3	1.78	0.44
1:A:428:PRO:HD3	1:A:455:PHE:CE2	2.51	0.44
1:A:244:TRP:CZ2	1:A:531:PRO:HG3	2.53	0.44
1:A:191:PRO:HD3	1:B:266:PRO:HB3	1.98	0.44
1:B:488:TYR:HA	1:B:489:ILE:HA	1.63	0.44
1:A:201:ILE:HD12	1:A:272:MET:HB2	1.99	0.44
1:A:85:GLY:O	1:A:88:THR:HG23	2.18	0.44
1:B:322:THR:HA	1:B:323:PRO:C	2.38	0.43
1:B:463:PHE:H	1:B:596:GLN:NE2	2.14	0.43
1:C:459:HIS:HA	1:C:484:SER:HB3	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:488:TYR:HA	1:A:489:ILE:HA	1.60	0.43
1:B:313:TYR:HD2	1:B:377:LEU:HD13	1.84	0.43
1:B:440:TYR:CD1	1:B:600:ARG:HB2	2.53	0.43
1:A:87:LEU:HB3	1:A:91:ILE:HD12	2.01	0.43
1:B:574:TYR:HD1	1:B:575:HIS:CE1	2.36	0.43
1:A:207:LEU:HB3	1:A:257:LEU:HD11	2.01	0.43
1:A:244:TRP:CE2	1:A:531:PRO:HG3	2.54	0.43
1:A:361:LEU:HD12	1:A:365:GLY:HA2	2.02	0.42
1:A:387:ARG:NH2	1:A:601:ALA:HB1	2.34	0.42
1:B:317:GLY:O	1:B:320:GLU:HG2	2.20	0.42
1:A:318:ASN:CA	1:A:383:ASN:HD21	2.33	0.42
1:C:574:TYR:HD1	1:C:575:HIS:CE1	2.37	0.42
1:A:328:PRO:HD2	1:A:338:SER:OG	2.20	0.42
1:B:470:GLU:OE1	1:B:470:GLU:N	2.46	0.42
1:A:294:ARG:HG3	1:A:295:ALA:N	2.34	0.42
1:A:320:GLU:HB2	1:A:341:LEU:HD21	2.01	0.42
1:A:328:PRO:HA	1:A:329:PRO:HD3	1.91	0.42
1:B:206:ASP:OD1	1:B:425:HIS:HE1	2.03	0.42
1:C:403:LEU:HD23	1:C:403:LEU:HA	1.94	0.42
1:B:459:HIS:HA	1:B:484:SER:HB3	2.02	0.42
1:B:168:TRP:CH2	1:B:170:ILE:HD12	2.55	0.41
1:A:203:PHE:CE1	1:A:454:PHE:HB3	2.55	0.41
1:B:279:ILE:HB	1:B:280:PRO:HD3	2.03	0.41
1:C:226:CYS:O	1:C:228:ARG:HG2	2.20	0.41
1:A:247:TYR:CZ	1:A:521:LEU:HB2	2.54	0.41
1:C:440:TYR:CD1	1:C:600:ARG:HB2	2.56	0.41
1:A:470:GLU:N	1:A:470:GLU:OE1	2.45	0.41
1:B:226:CYS:O	1:B:228:ARG:HG2	2.20	0.41
1:A:96:PHE:HA	1:A:99:ILE:CG1	2.50	0.41
1:B:328:PRO:HD2	1:B:338:SER:OG	2.21	0.41
1:A:437:TRP:CG	1:A:600:ARG:HD2	2.56	0.41
1:C:317:GLY:O	1:C:320:GLU:HG2	2.21	0.41
1:C:322:THR:HA	1:C:323:PRO:C	2.40	0.41
1:C:437:TRP:CG	1:C:600:ARG:HD2	2.56	0.41
1:A:251:ASP:OD2	1:A:282:HIS:HD2	2.05	0.40
1:A:499:GLN:HE21	1:A:513:ASP:HB3	1.86	0.40
1:B:111:ARG:O	1:B:115:VAL:HG12	2.21	0.40
1:A:293:LEU:HA	1:A:293:LEU:HD23	1.88	0.40
1:B:437:TRP:CG	1:B:600:ARG:HD2	2.56	0.40

There are no symmetry-related clashes.



## 5.3 Torsion angles

### 5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	526/583 (90%)	503 (96%)	22 (4%)	1 (0%)	52	87
1	B	526/583 (90%)	502 (95%)	22 (4%)	2 (0%)	39	80
1	C	526/583 (90%)	503 (96%)	22 (4%)	1 (0%)	52	87
All	All	1578/1749 (90%)	1508 (96%)	66 (4%)	4 (0%)	46	83

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	88	THR
1	B	89	CYS
1	A	354	PRO
1	C	354	PRO

### 5.3.2 Protein sidechains

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	448/495 (90%)	434 (97%)	14 (3%)	47	81
1	B	448/495 (90%)	434 (97%)	14 (3%)	47	81
1	C	448/495 (90%)	434 (97%)	14 (3%)	47	81
All	All	1344/1485 (90%)	1302 (97%)	42 (3%)	47	81

All (42) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	84	TRP
1	A	87	LEU
1	A	115	VAL
1	A	164	THR
1	A	215	GLU
1	A	228	ARG
1	A	272	MET
1	A	307	LEU
1	A	336	HIS
1	A	353	LEU
1	A	356	GLU
1	A	376	ARG
1	A	385	CYS
1	A	542	THR
1	B	84	TRP
1	B	87	LEU
1	B	115	VAL
1	B	164	THR
1	B	215	GLU
1	B	228	ARG
1	B	272	MET
1	B	307	LEU
1	B	336	HIS
1	B	353	LEU
1	B	356	GLU
1	B	376	ARG
1	B	385	CYS
1	B	542	THR
1	C	84	TRP
1	C	87	LEU
1	C	115	VAL
1	C	164	THR
1	C	215	GLU
1	C	228	ARG
1	C	272	MET
1	C	307	LEU
1	C	336	HIS
1	C	353	LEU
1	C	356	GLU
1	C	376	ARG
1	C	385	CYS
1	C	542	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such

sidechains are listed below:

Mol	Chain	Res	Type
1	A	86	ASN
1	A	208	HIS
1	A	282	HIS
1	A	287	GLN
1	A	336	HIS
1	A	383	ASN
1	A	430	HIS
1	A	448	ASN
1	A	453	GLN
1	A	499	GLN
1	A	514	HIS
1	A	568	GLN
1	A	596	GLN
1	B	287	GLN
1	B	336	HIS
1	B	383	ASN
1	B	430	HIS
1	B	448	ASN
1	B	453	GLN
1	B	514	HIS
1	B	568	GLN
1	B	596	GLN
1	C	86	ASN
1	C	175	ASN
1	C	208	HIS
1	C	287	GLN
1	C	336	HIS
1	C	383	ASN
1	C	395	ASN
1	C	448	ASN
1	C	453	GLN
1	C	503	ASN
1	C	514	HIS
1	C	568	GLN
1	C	575	HIS
1	C	596	GLN

### 5.3.3 RNA ⓘ

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](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 35 ligands modelled in this entry, 6 are monoatomic - leaving 29 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
2	NAG	A	701	-	14,14,15	0.62	1 (7%)	15,19,21	0.43	0
2	NAG	A	702	1	14,14,15	0.25	0	15,19,21	0.47	0
2	NAG	A	703	1,2	14,14,15	0.18	0	15,19,21	0.30	0
2	NAG	A	704	2	14,14,15	0.29	0	15,19,21	0.51	0
2	NAG	A	705	1,2	14,14,15	0.15	0	15,19,21	0.40	0
2	NAG	A	706	2	14,14,15	0.41	0	15,19,21	0.57	0
3	BMA	A	707	-	11,11,12	1.17	2 (18%)	15,15,17	1.52	4 (26%)
2	NAG	A	708	-	14,14,15	0.37	0	15,19,21	0.46	0
2	NAG	A	709	1	14,14,15	0.23	0	15,19,21	0.46	0
2	NAG	A	710	-	14,14,15	0.35	0	15,19,21	0.33	0
4	MAN	A	711	-	11,11,12	0.86	0	15,15,17	0.96	1 (6%)
2	NAG	B	701	1	14,14,15	0.20	0	15,19,21	0.40	0
2	NAG	B	702	-	14,14,15	0.24	0	15,19,21	0.47	0
2	NAG	B	703	1,2	14,14,15	0.20	0	15,19,21	0.32	0
2	NAG	B	704	2	14,14,15	0.20	0	15,19,21	0.43	0
2	NAG	B	705	1,2	14,14,15	0.16	0	15,19,21	0.33	0
2	NAG	B	706	2	14,14,15	0.20	0	15,19,21	0.32	0
2	NAG	B	707	1	14,14,15	0.24	0	15,19,21	0.36	0
2	NAG	B	708	-	14,14,15	0.40	0	15,19,21	0.43	0
3	BMA	B	709	-	11,11,12	1.12	2 (18%)	15,15,17	1.49	3 (20%)
2	NAG	B	710	1,2	14,14,15	0.29	0	15,19,21	0.36	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	NAG	B	711	3,2	14,14,15	0.56	0	15,19,21	1.03	1 (6%)
3	BMA	B	712	2	11,11,12	0.26	0	15,15,17	0.58	0
2	NAG	C	701	-	14,14,15	0.89	1 (7%)	15,19,21	0.57	0
2	NAG	C	702	-	14,14,15	0.30	0	15,19,21	0.59	0
2	NAG	C	703	-	14,14,15	0.68	1 (7%)	15,19,21	0.59	1 (6%)
2	NAG	C	704	-	14,14,15	0.73	1 (7%)	15,19,21	0.53	0
2	NAG	C	705	1,2	14,14,15	0.25	0	15,19,21	0.26	0
2	NAG	C	706	2	14,14,15	0.29	0	15,19,21	0.27	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	A	701	-	-	0/6/23/26	0/1/1/1
2	NAG	A	702	1	-	0/6/23/26	0/1/1/1
2	NAG	A	703	1,2	-	0/6/23/26	0/1/1/1
2	NAG	A	704	2	-	0/6/23/26	0/1/1/1
2	NAG	A	705	1,2	-	0/6/23/26	0/1/1/1
2	NAG	A	706	2	-	0/6/23/26	0/1/1/1
3	BMA	A	707	-	-	0/2/19/22	0/1/1/1
2	NAG	A	708	-	-	0/6/23/26	0/1/1/1
2	NAG	A	709	1	-	0/6/23/26	0/1/1/1
2	NAG	A	710	-	-	0/6/23/26	0/1/1/1
4	MAN	A	711	-	-	0/2/19/22	0/1/1/1
2	NAG	B	701	1	-	0/6/23/26	0/1/1/1
2	NAG	B	702	-	-	0/6/23/26	0/1/1/1
2	NAG	B	703	1,2	-	0/6/23/26	0/1/1/1
2	NAG	B	704	2	-	0/6/23/26	0/1/1/1
2	NAG	B	705	1,2	-	0/6/23/26	0/1/1/1
2	NAG	B	706	2	-	0/6/23/26	0/1/1/1
2	NAG	B	707	1	-	0/6/23/26	0/1/1/1
2	NAG	B	708	-	-	0/6/23/26	0/1/1/1
3	BMA	B	709	-	-	0/2/19/22	0/1/1/1
2	NAG	B	710	1,2	-	0/6/23/26	0/1/1/1
2	NAG	B	711	3,2	-	0/6/23/26	0/1/1/1
3	BMA	B	712	2	-	0/2/19/22	0/1/1/1
2	NAG	C	701	-	-	0/6/23/26	0/1/1/1
2	NAG	C	702	-	-	0/6/23/26	0/1/1/1
2	NAG	C	703	-	-	0/6/23/26	0/1/1/1
2	NAG	C	704	-	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	C	705	1,2	-	0/6/23/26	0/1/1/1
2	NAG	C	706	2	-	0/6/23/26	0/1/1/1

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	709	BMA	C2-C3	2.04	1.55	1.52
2	A	701	NAG	C1-C2	2.16	1.55	1.52
2	C	703	NAG	O5-C1	2.18	1.47	1.43
2	C	704	NAG	C1-C2	2.23	1.55	1.52
3	A	707	BMA	C1-C2	2.29	1.57	1.52
3	B	709	BMA	C1-C2	2.43	1.58	1.52
3	A	707	BMA	C2-C3	2.71	1.56	1.52
2	C	701	NAG	C1-C2	2.95	1.56	1.52

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	709	BMA	O2-C2-C3	-2.59	104.97	110.19
2	B	711	NAG	C2-N2-C7	-2.31	120.10	123.11
3	A	707	BMA	O2-C2-C3	-2.21	105.73	110.19
3	A	707	BMA	O5-C1-C2	2.00	114.09	110.89
2	C	703	NAG	C1-O5-C5	2.07	115.18	112.14
4	A	711	MAN	C1-O5-C5	2.11	115.25	112.14
3	A	707	BMA	C1-O5-C5	2.74	116.16	112.14
3	B	709	BMA	C1-C2-C3	3.12	113.33	109.55
3	B	709	BMA	C1-O5-C5	3.22	116.88	112.14
3	A	707	BMA	C1-C2-C3	3.63	113.94	109.55

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

13 monomers are involved in 26 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	701	NAG	5	0
2	A	706	NAG	2	0
3	A	707	BMA	2	0
2	A	709	NAG	4	0
2	A	710	NAG	4	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	708	NAG	2	0
3	B	709	BMA	2	0
2	B	711	NAG	3	0
3	B	712	BMA	3	0
2	C	701	NAG	3	0
2	C	702	NAG	3	0
2	C	703	NAG	2	0
2	C	704	NAG	2	0

## 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<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q < 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	528/583 (90%)	-0.02	13 (2%) 61 43	147, 194, 235, 267	0
1	B	528/583 (90%)	0.12	14 (2%) 58 41	167, 211, 266, 321	0
1	C	528/583 (90%)	0.75	67 (12%) 5 4	215, 302, 350, 413	0
All	All	1584/1749 (90%)	0.28	94 (5%) 26 15	147, 221, 335, 413	0

All (94) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	277	GLY	6.2
1	C	451	ALA	5.5
1	C	424	GLY	5.1
1	C	482	ALA	4.8
1	C	325	ASN	4.8
1	C	425	HIS	4.8
1	C	456	GLY	4.6
1	C	329	PRO	4.5
1	B	611	MET	4.5
1	C	458	THR	4.5
1	C	353	LEU	4.5
1	C	319	HIS	4.4
1	C	85	GLY	4.3
1	C	125	ILE	4.3
1	C	318	ASN	4.2
1	C	331	PHE	4.0
1	C	123	LEU	3.9
1	C	205	THR	3.9
1	C	317	GLY	3.8
1	C	387	ARG	3.8
1	A	277	GLY	3.7
1	C	465	VAL	3.7
1	C	610	LEU	3.7

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Mol	Chain	Res	Type	RSRZ
1	C	388	GLU	3.7
1	C	426	ILE	3.7
1	B	424	GLY	3.6
1	C	206	ASP	3.6
1	C	103	LEU	3.6
1	C	278	ASP	3.6
1	C	457	HIS	3.4
1	C	92	CYS	3.3
1	C	315	ALA	3.3
1	C	561	ARG	3.3
1	C	510	VAL	3.2
1	C	176	ILE	3.2
1	A	425	HIS	3.1
1	B	610	LEU	3.0
1	C	119	LEU	3.0
1	C	560	MET	3.0
1	A	611	MET	3.0
1	C	194	PRO	3.0
1	B	383	ASN	3.0
1	C	430	HIS	3.0
1	C	99	ILE	2.9
1	C	597	LEU	2.9
1	C	90	PRO	2.8
1	C	605	ALA	2.8
1	C	84	TRP	2.8
1	C	484	SER	2.8
1	B	386	SER	2.8
1	C	611	MET	2.8
1	A	278	ASP	2.7
1	B	277	GLY	2.7
1	B	325	ASN	2.7
1	C	276	THR	2.7
1	C	86	ASN	2.7
1	C	112	VAL	2.7
1	B	425	HIS	2.7
1	A	424	GLY	2.7
1	B	387	ARG	2.6
1	C	459	HIS	2.6
1	C	189	PRO	2.6
1	B	388	GLU	2.6
1	C	383	ASN	2.6
1	C	178	LEU	2.5

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Mol	Chain	Res	Type	RSRZ
1	C	352	TRP	2.5
1	B	456	GLY	2.4
1	C	135	VAL	2.4
1	C	404	GLN	2.4
1	C	463	PHE	2.4
1	C	386	SER	2.4
1	C	120	CYS	2.4
1	A	84	TRP	2.4
1	A	457	HIS	2.4
1	C	600	ARG	2.4
1	A	317	GLY	2.4
1	C	95	LEU	2.3
1	A	95	LEU	2.3
1	B	381	ASN	2.2
1	C	126	ALA	2.2
1	C	394	ILE	2.2
1	A	318	ASN	2.2
1	C	606	LEU	2.2
1	C	483	PRO	2.2
1	C	198	VAL	2.2
1	C	275	TRP	2.2
1	B	120	CYS	2.2
1	A	85	GLY	2.1
1	C	418	ASP	2.1
1	C	251	ASP	2.1
1	A	205	THR	2.1
1	B	430	HIS	2.1
1	A	103	LEU	2.0
1	C	161	LEU	2.0

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

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

## 6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
2	NAG	A	704	14/15	0.85	0.46	1.77	220,236,251,260	0
5	ZN	C	708	1/1	0.82	0.59	-0.29	290,290,290,290	0
5	ZN	B	713	1/1	0.97	0.37	-0.51	202,202,202,202	0
2	NAG	B	710	14/15	0.92	0.22	-0.60	177,189,203,205	0
5	ZN	B	714	1/1	0.89	0.30	-0.65	189,189,189,189	0
2	NAG	C	705	14/15	0.86	0.26	-0.66	206,218,232,235	0
5	ZN	A	713	1/1	0.89	0.35	-0.73	176,176,176,176	0
2	NAG	A	705	14/15	0.83	0.18	-0.78	219,236,241,244	0
5	ZN	A	712	1/1	0.93	0.42	-1.09	175,175,175,175	0
2	NAG	A	709	14/15	0.94	0.14	-1.50	179,192,206,208	0
5	ZN	C	707	1/1	0.81	0.49	-2.75	297,297,297,297	0
2	NAG	B	701	14/15	0.76	0.46	-	294,295,297,298	0
2	NAG	A	703	14/15	0.88	0.20	-	213,229,242,258	0
2	NAG	B	706	14/15	0.84	0.22	-	266,286,292,293	0
3	BMA	B	712	11/12	0.48	0.22	-	265,265,265,265	0
2	NAG	B	704	14/15	0.61	0.38	-	252,267,282,291	0
2	NAG	C	706	14/15	0.89	0.19	-	229,247,256,257	0
3	BMA	A	707	11/12	0.68	0.25	-	292,292,292,292	0
2	NAG	B	705	14/15	0.84	0.20	-	248,266,271,274	0
2	NAG	C	703	14/15	0.69	0.20	-	314,332,337,340	0
2	NAG	B	703	14/15	0.82	0.40	-	250,267,280,295	0
2	NAG	A	701	14/15	0.56	0.48	-	286,288,290,291	0
2	NAG	B	707	14/15	0.93	0.21	-	267,277,288,290	0
2	NAG	B	708	14/15	0.92	0.29	-	301,301,301,301	0
3	BMA	B	709	11/12	0.85	0.20	-	309,309,309,309	0
2	NAG	A	708	14/15	0.86	0.18	-	215,226,236,239	0
2	NAG	A	702	14/15	0.74	0.29	-	250,276,284,284	0
2	NAG	B	711	14/15	0.82	0.19	-	222,240,249,250	0
2	NAG	B	702	14/15	0.78	0.26	-	266,292,300,301	0
2	NAG	C	704	14/15	0.82	0.16	-	313,323,334,336	0
2	NAG	C	701	14/15	0.46	0.57	-	337,339,341,341	0
4	MAN	A	711	11/12	0.75	0.27	-	279,279,279,279	0
2	NAG	A	710	14/15	0.91	0.14	-	234,252,261,262	0
2	NAG	C	702	14/15	0.70	0.26	-	303,329,337,337	0
2	NAG	A	706	14/15	0.88	0.25	-	250,270,275,276	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.