



Full wwPDB X-ray Structure Validation Report ⓘ

May 7, 2019 – 07:32 AM EDT

PDB ID : 1E6X
Title : MYROSINASE FROM SINAPIS ALBA with a bound transition state analog
ue,D-glucono-1,5-lactone
Authors : Burmeister, W.P.
Deposited on : 2000-08-23
Resolution : 1.60 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.0 (224370), CSD as540be (2019)
Xtriage (Phenix) : 1.13
EDS : rb-20031633
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)
Refmac : 5.8.0158
CCP4 : 7.0 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : rb-20031633

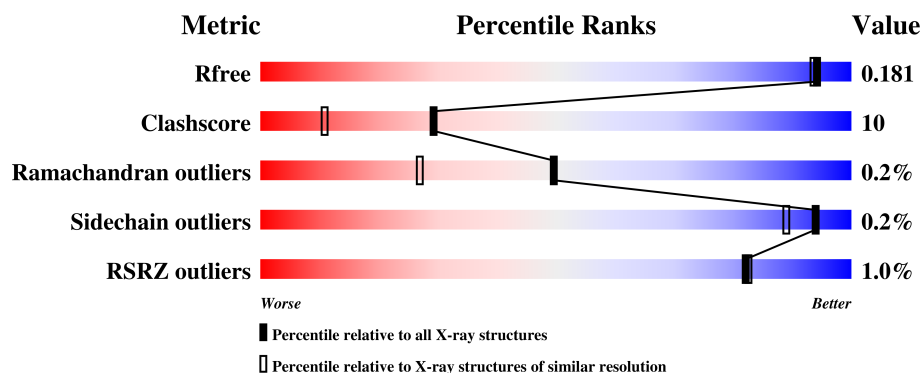
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.60 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}	111664	2957 (1.60-1.60)
Clashscore	122126	3202 (1.60-1.60)
Ramachandran outliers	120053	3117 (1.60-1.60)
Sidechain outliers	120020	3116 (1.60-1.60)
RSRZ outliers	108989	2883 (1.60-1.60)

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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 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	M	501	<div> <div></div> <div>85%</div> <div>13%</div> <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
10	GOL	M	1513	-	X	X	-

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Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	NAG	M	923	X	-	-	-
2	NAG	M	961	-	-	-	X
2	NAG	M	991	X	-	-	X
4	BMA	M	954	X	-	-	-
9	SO4	M	1505	-	-	X	-
9	SO4	M	1510	-	-	X	-

2 Entry composition [i](#)

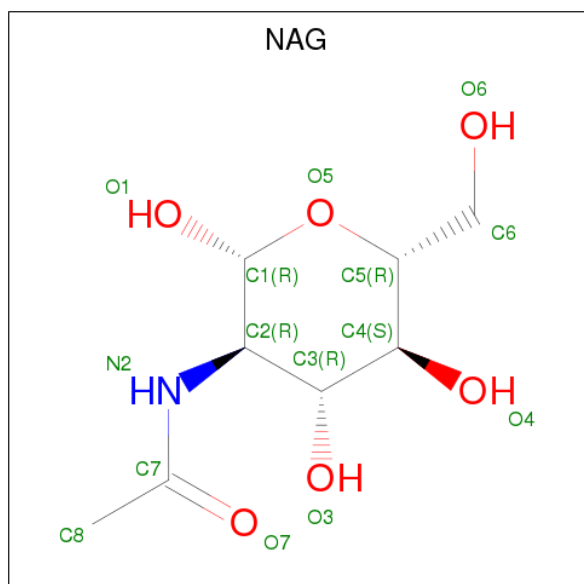
There are 11 unique types of molecules in this entry. The entry contains 5203 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 MYROSINASE MA1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	M	499	Total	C	N	O	S	0	21	0
			4082	2618	660	788	16			

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



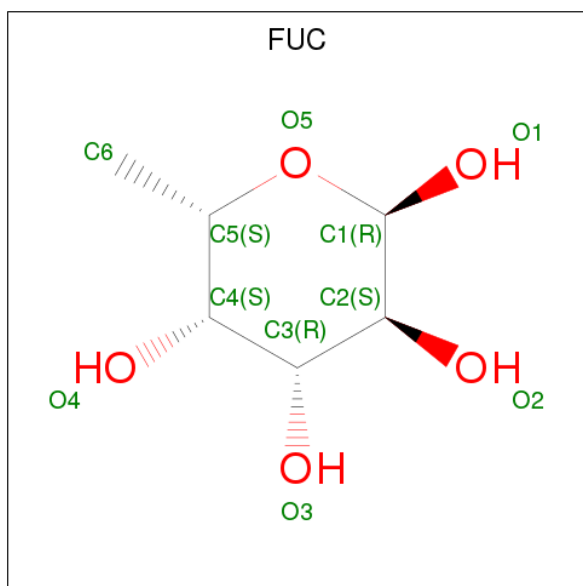
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		

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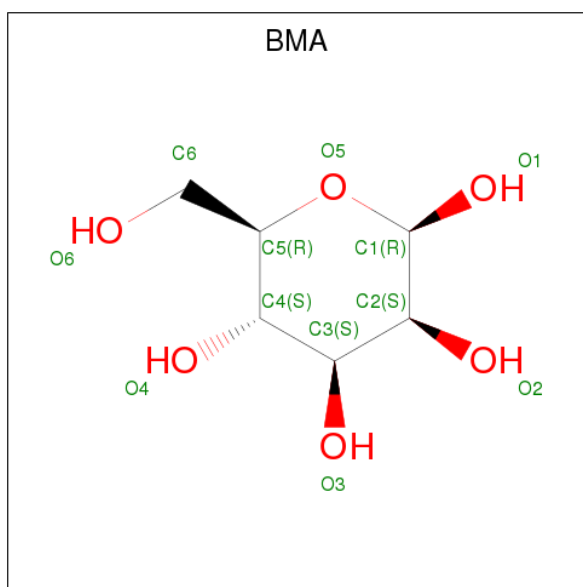
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		
2	M	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 3 is ALPHA-L-FUCOSE (three-letter code: FUC) (formula: C₆H₁₂O₅).



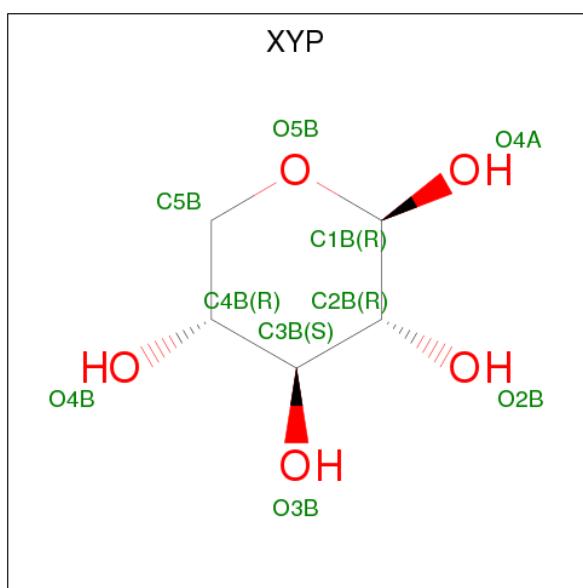
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	M	1	Total	C	O	0	0
			10	6	4		
3	M	1	Total	C	O	0	0
			10	6	4		

- Molecule 4 is BETA-D-MANNOSE (three-letter code: BMA) (formula: C₆H₁₂O₆).



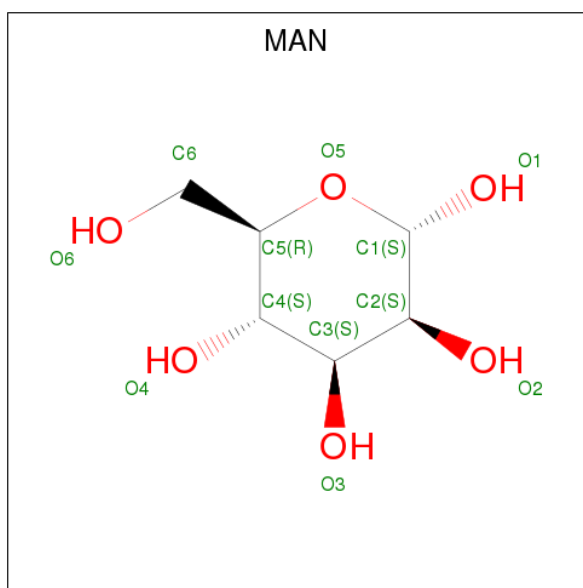
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	M	1	Total	C	O	0	0
			11	6	5		
4	M	1	Total	C	O	0	0
			11	6	5		

- Molecule 5 is BETA-D-XYLOPYRANOSE (three-letter code: XYP) (formula: $C_5H_{10}O_5$).



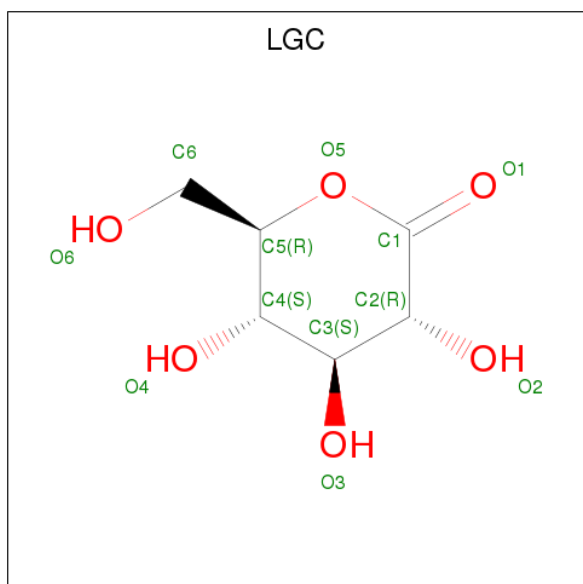
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	M	1	Total	C	O	0	0
			9	5	4		
5	M	1	Total	C	O	0	0
			9	5	4		

- Molecule 6 is ALPHA-D-MANNOSE (three-letter code: MAN) (formula: $C_6H_{12}O_6$).



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

- Molecule 7 is (3S,4R,5R,6S)-3,4,5-TRIHYDROXY-6-(HYDROXYMETHYL)TETRAHYDRO-2H-PYRAN-2-ONE (three-letter code: LGC) (formula: $C_6H_{10}O_6$).

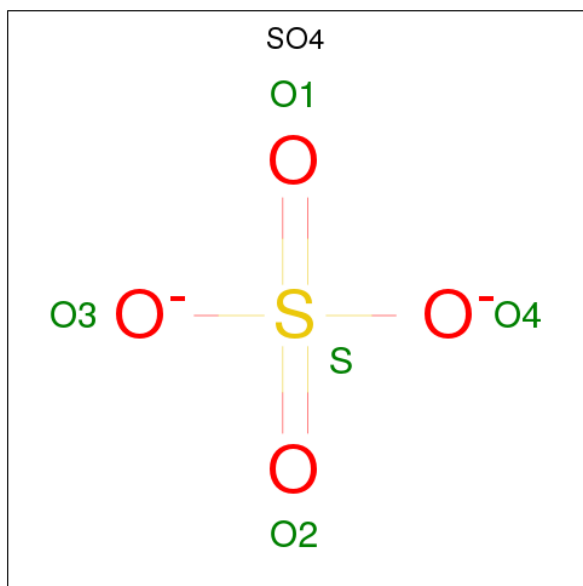


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	M	1	Total	C	O	0	0
			12	6	6		

- Molecule 8 is ZINC ION (three-letter code: ZN) (formula: Zn).

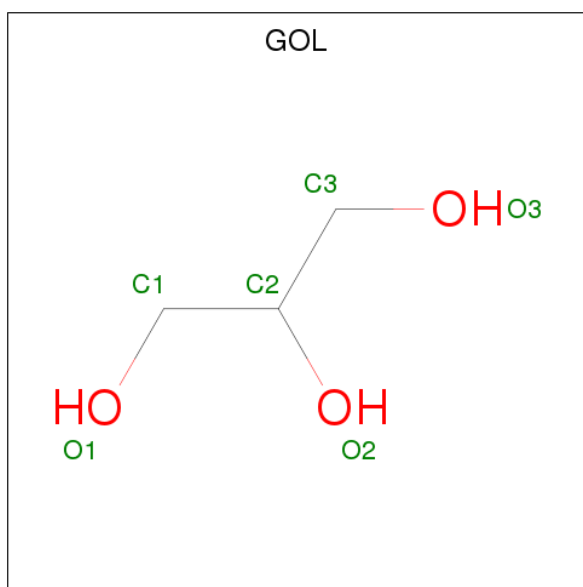
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	M	1	Total	Zn	0	0
			1	1		

- Molecule 9 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	M	1	Total	O	S	0	0
			5	4	1		
9	M	1	Total	O	S	0	0
			5	4	1		
9	M	1	Total	O	S	0	0
			5	4	1		
9	M	1	Total	O	S	0	0
			5	4	1		
9	M	1	Total	O	S	0	0
			5	4	1		
9	M	1	Total	O	S	0	0
			5	4	1		
9	M	1	Total	O	S	0	0
			5	4	1		

- Molecule 10 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	M	1	Total	C	O	0	0
			6	3	3		
10	M	1	Total	C	O	0	1
			7	3	4		
10	M	1	Total	C	O	0	0
			6	3	3		
10	M	1	Total	C	O	0	0
			6	3	3		

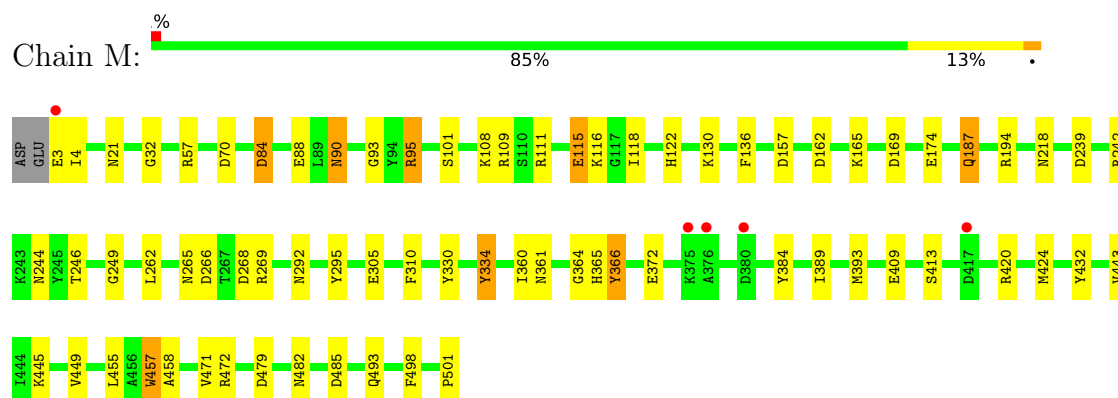
- Molecule 11 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
11	M	804	Total	O	0	0
			804	804		

3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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: MYROSINASE MA1



4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	135.30Å 137.20Å 80.60Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	10.00 – 1.60 9.98 – 1.60	Depositor EDS
% Data completeness (in resolution range)	89.7 (10.00-1.60) 96.0 (9.98-1.60)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	0.09	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.73 (at 1.60Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.138 , 0.178 0.150 , 0.181	Depositor DCC
R_{free} test set	4817 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å ²)	14.2	Xtriage
Anisotropy	0.089	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.49 , 71.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	0.012 for -k,-h,-l	Xtriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	5203	wwPDB-VP
Average B, all atoms (Å ²)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.31% 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: XYP, GOL, ZN, BMA, NAG, LGC, SO4, MAN, FUC

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	M	0.79	1/4290 (0.0%)	1.43	42/5833 (0.7%)

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	M	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	M	501	PRO	N-CD	6.03	1.56	1.47

All (42) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	M	70	ASP	CB-CG-OD2	-18.31	101.82	118.30
1	M	109	ARG	NE-CZ-NH2	-15.30	112.65	120.30
1	M	70	ASP	CB-CG-OD1	13.54	130.49	118.30
1	M	242	ARG	NE-CZ-NH2	-11.88	114.36	120.30
1	M	109	ARG	NH1-CZ-NH2	11.24	131.77	119.40
1	M	109	ARG	NE-CZ-NH1	-9.44	115.58	120.30
1	M	334	TYR	CB-CG-CD2	9.27	126.56	121.00
1	M	115	GLU	OE1-CD-OE2	-8.99	112.52	123.30
1	M	295	TYR	CB-CG-CD1	-8.51	115.89	121.00
1	M	162	ASP	CB-CG-OD1	8.35	125.81	118.30
1	M	90	ASN	CB-CG-OD1	7.59	136.78	121.60
1	M	239	ASP	CB-CG-OD1	7.46	125.01	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	M	95	ARG	NE-CZ-NH2	-7.32	116.64	120.30
1	M	482	ASN	CB-CG-OD1	7.29	136.18	121.60
1	M	162	ASP	CB-CG-OD2	-7.07	111.94	118.30
1	M	295	TYR	CB-CG-CD2	6.98	125.19	121.00
1	M	366[A]	TYR	CB-CG-CD2	-6.89	116.86	121.00
1	M	366[B]	TYR	CB-CG-CD2	-6.89	116.86	121.00
1	M	420	ARG	CD-NE-CZ	6.84	133.18	123.60
1	M	472	ARG	NE-CZ-NH2	-6.75	116.92	120.30
1	M	479	ASP	CB-CG-OD1	6.57	124.21	118.30
1	M	372	GLU	OE1-CD-OE2	-6.41	115.61	123.30
1	M	269	ARG	NE-CZ-NH2	-6.24	117.18	120.30
1	M	457	TRP	O-C-N	-6.17	112.83	122.70
1	M	269	ARG	NE-CZ-NH1	5.95	123.27	120.30
1	M	111	ARG	NE-CZ-NH2	-5.94	117.33	120.30
1	M	361	ASN	CB-CG-OD1	5.92	133.44	121.60
1	M	482	ASN	CA-CB-CG	-5.92	100.38	113.40
1	M	458	ALA	N-CA-CB	5.74	118.13	110.10
1	M	432	TYR	CB-CG-CD1	-5.63	117.62	121.00
1	M	485	ASP	CB-CG-OD1	5.59	123.33	118.30
1	M	384	TYR	CA-CB-CG	5.57	123.98	113.40
1	M	157	ASP	CB-CG-OD2	-5.49	113.36	118.30
1	M	57	ARG	NE-CZ-NH2	-5.48	117.56	120.30
1	M	169[A]	ASP	CB-CG-OD1	5.36	123.13	118.30
1	M	169[B]	ASP	CB-CG-OD1	5.36	123.13	118.30
1	M	84	ASP	CB-CG-OD1	5.32	123.08	118.30
1	M	268	ASP	CB-CG-OD1	5.31	123.08	118.30
1	M	330	TYR	CB-CG-CD1	-5.24	117.85	121.00
1	M	310	PHE	CB-CG-CD1	-5.21	117.15	120.80
1	M	266	ASP	CB-CG-OD1	5.10	122.89	118.30
1	M	334	TYR	CB-CG-CD1	-5.09	117.94	121.00

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	M	457	TRP	Mainchain

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	M	4082	0	3835	65	0
2	M	168	0	146	19	0
3	M	20	0	20	0	0
4	M	22	0	15	4	0
5	M	18	0	16	0	0
6	M	11	0	10	1	0
7	M	12	0	10	2	0
8	M	1	0	0	0	0
9	M	40	0	0	7	0
10	M	25	0	30	6	0
11	M	804	0	0	23	0
All	All	5203	0	4082	81	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 10.

All (81) 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:M:265:ASN:HD21	2:M:941:NAG:C1	0.93	1.57
1:M:90:ASN:HD21	2:M:911:NAG:C1	0.96	1.56
1:M:292:ASN:HD21	2:M:951:NAG:C1	0.97	1.55
1:M:21:ASN:HD21	2:M:901:NAG:C1	0.96	1.55
1:M:360[B]:ILE:HD11	1:M:366[B]:TYR:CZ	1.37	1.55
1:M:244:ASN:HD21	2:M:931:NAG:C1	0.95	1.54
1:M:218:ASN:HD21	2:M:921:NAG:C1	0.92	1.53
1:M:360[B]:ILE:CD1	1:M:366[B]:TYR:CZ	2.04	1.39
1:M:360[B]:ILE:HD11	1:M:366[B]:TYR:CE1	1.56	1.38
1:M:360[B]:ILE:HD11	1:M:366[B]:TYR:OH	1.47	1.14
10:M:1513:GOL:C1	11:M:2801:HOH:O	1.95	1.14
1:M:360[B]:ILE:CD1	1:M:366[B]:TYR:CE1	2.23	1.13
1:M:360[B]:ILE:CG1	1:M:366[B]:TYR:CE1	2.32	1.12
10:M:1513:GOL:C2	11:M:2801:HOH:O	1.98	1.05
1:M:246:THR:HG22	11:M:2398:HOH:O	1.64	0.95
1:M:360[B]:ILE:HG12	1:M:366[B]:TYR:CD1	2.03	0.93
1:M:360[B]:ILE:CD1	1:M:366[B]:TYR:OH	2.12	0.89
1:M:360[B]:ILE:HD13	1:M:366[B]:TYR:CZ	2.13	0.83
1:M:360[B]:ILE:HG12	1:M:366[B]:TYR:CE1	2.09	0.83
1:M:360[B]:ILE:CG1	1:M:366[B]:TYR:CD1	2.65	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:M:954:BMA:C5	11:M:2750:HOH:O	2.34	0.75
1:M:165:LYS:NZ	2:M:931:NAG:H82	2.03	0.73
1:M:130:LYS:HG3	11:M:2261:HOH:O	1.91	0.71
4:M:954:BMA:C4	11:M:2750:HOH:O	2.38	0.69
9:M:1505:SO4:O2	9:M:1510:SO4:S	2.54	0.66
1:M:218:ASN:HD21	2:M:921:NAG:C2	1.99	0.66
1:M:360[B]:ILE:HG13	1:M:366[B]:TYR:CE1	2.29	0.66
1:M:130:LYS:HB3	11:M:2273:HOH:O	1.98	0.64
1:M:101[B]:SER:HB2	11:M:2206:HOH:O	1.97	0.64
4:M:954:BMA:C6	11:M:2750:HOH:O	2.46	0.63
10:M:1513:GOL:C3	11:M:2801:HOH:O	2.40	0.62
1:M:424:MET:HE3	11:M:2703:HOH:O	1.99	0.62
1:M:244:ASN:ND2	2:M:931:NAG:O5	2.32	0.62
1:M:116:LYS:HG2	11:M:2241:HOH:O	2.00	0.61
9:M:1505:SO4:S	9:M:1510:SO4:O3	2.59	0.61
9:M:1510:SO4:O1	11:M:2794:HOH:O	2.16	0.59
1:M:265:ASN:HD21	2:M:941:NAG:C2	2.00	0.59
1:M:115:GLU:HG3	11:M:2245:HOH:O	2.03	0.57
1:M:360[B]:ILE:HG12	1:M:366[B]:TYR:CG	2.38	0.57
1:M:108:LYS:HE2	11:M:2324:HOH:O	2.05	0.57
1:M:218:ASN:ND2	2:M:921:NAG:C2	2.64	0.57
1:M:365:HIS:HE1	11:M:2557:HOH:O	1.88	0.56
1:M:265:ASN:ND2	2:M:941:NAG:C2	2.64	0.55
9:M:1505:SO4:O1	9:M:1510:SO4:O3	2.25	0.54
1:M:165:LYS:HZ2	2:M:931:NAG:H82	1.73	0.54
10:M:1511:GOL:C1	11:M:2795:HOH:O	2.56	0.53
1:M:165:LYS:HZ1	2:M:931:NAG:H82	1.74	0.53
1:M:95:ARG:HB2	1:M:455:LEU:HD13	1.90	0.53
1:M:265:ASN:ND2	2:M:941:NAG:O5	2.37	0.53
1:M:365:HIS:HD2	11:M:2264:HOH:O	1.90	0.52
1:M:90:ASN:ND2	2:M:911:NAG:C2	2.68	0.52
1:M:360[B]:ILE:CG1	1:M:366[B]:TYR:CZ	2.72	0.52
1:M:493:GLN:NE2	11:M:2703:HOH:O	2.43	0.51
1:M:194:ARG:HD2	9:M:1510:SO4:O1	2.11	0.51
1:M:187:GLN:OE1	7:M:999:LGC:O1	2.29	0.50
4:M:954:BMA:H61	11:M:2750:HOH:O	2.08	0.50
1:M:249:GLY:HA3	10:M:1513:GOL:H31	1.92	0.50
1:M:122:HIS:HE1	1:M:174:GLU:O	1.94	0.50
1:M:4:ILE:HD11	1:M:445:LYS:HD2	1.94	0.48
1:M:360[A]:ILE:HD11	1:M:364:GLY:HA2	1.97	0.47
1:M:4:ILE:HD11	1:M:445:LYS:CD	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:21:ASN:HA	1:M:498:PHE:CD2	2.50	0.46
1:M:130:LYS:HB3	11:M:2103:HOH:O	2.16	0.46
1:M:118[B]:ILE:HD12	1:M:174:GLU:HG3	1.98	0.45
1:M:32:GLY:HA3	1:M:93:GLY:O	2.17	0.45
1:M:95:ARG:HA	1:M:136:PHE:O	2.16	0.45
1:M:218:ASN:ND2	2:M:921:NAG:O5	2.43	0.45
6:M:956:MAN:H61	11:M:2455:HOH:O	2.17	0.45
1:M:292:ASN:ND2	2:M:951:NAG:O5	2.37	0.45
1:M:262:LEU:O	1:M:334:TYR:HA	2.18	0.43
1:M:360[B]:ILE:HG12	1:M:366[B]:TYR:CZ	2.46	0.43
1:M:84:ASP:O	1:M:88[B]:GLU:HG3	2.18	0.43
1:M:443:VAL:HG13	1:M:449[B]:VAL:HG21	1.99	0.42
1:M:194:ARG:NH1	9:M:1510:SO4:O4	2.51	0.42
10:M:1511:GOL:C1	11:M:2798:HOH:O	2.67	0.42
9:M:1505:SO4:O2	9:M:1510:SO4:O3	2.38	0.42
2:M:923:NAG:O4	2:M:923:NAG:O6	2.35	0.41
1:M:409:GLU:OE1	7:M:999:LGC:C1	2.68	0.41
1:M:389:ILE:O	1:M:393:MET:HG2	2.20	0.41
1:M:413:SER:HB2	1:M:471:VAL:HB	2.03	0.41

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	M	518/501 (103%)	503 (97%)	14 (3%)	1 (0%)	49 27

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	M	187	GLN

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	M	456/437 (104%)	455 (100%)	1 (0%)	94	89

All (1) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	M	3	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	M	90	ASN
1	M	122	HIS
1	M	218	ASN
1	M	244	ASN
1	M	265	ASN
1	M	292	ASN
1	M	365	HIS

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](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry

Of 34 ligands modelled in this entry, 1 is monoatomic - leaving 33 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	$\# Z > 2$
9	SO4	M	1503	-	4,4,4	0.83	0	6,6,6	0.98	0
9	SO4	M	1504	-	4,4,4	0.67	0	6,6,6	0.42	0
9	SO4	M	1505	9	4,4,4	0.74	0	6,6,6	0.81	0
9	SO4	M	1506	-	4,4,4	0.52	0	6,6,6	0.47	0
9	SO4	M	1507	-	4,4,4	0.91	0	6,6,6	1.09	0
9	SO4	M	1508	-	4,4,4	0.94	0	6,6,6	0.77	0
9	SO4	M	1509	-	4,4,4	0.76	0	6,6,6	0.12	0
9	SO4	M	1510	9	4,4,4	0.62	0	6,6,6	0.93	0
10	GOL	M	1511	-	5,5,5	0.42	0	5,5,5	1.03	0
10	GOL	M	1512[A]	-	5,5,5	0.74	0	5,5,5	1.47	1 (20%)
10	GOL	M	1512[B]	-	5,5,5	0.70	0	5,5,5	2.01	2 (40%)
10	GOL	M	1513	-	5,5,5	3.08	3 (60%)	5,5,5	3.26	4 (80%)
10	GOL	M	1514	-	5,5,5	0.31	0	5,5,5	1.08	0
2	NAG	M	901	1	14,14,15	1.43	3 (21%)	17,19,21	2.35	4 (23%)
2	NAG	M	911	1	14,14,15	1.17	1 (7%)	17,19,21	1.76	4 (23%)
2	NAG	M	921	1,2	14,14,15	2.17	5 (35%)	17,19,21	2.81	4 (23%)
2	NAG	M	923	2	14,14,15	1.47	4 (28%)	17,19,21	3.65	8 (47%)
2	NAG	M	931	1	14,14,15	1.54	2 (14%)	17,19,21	5.82	9 (52%)
2	NAG	M	941	1,3,2	14,14,15	1.17	1 (7%)	17,19,21	3.15	9 (52%)
3	FUC	M	942	2	9,10,11	1.26	1 (11%)	13,14,16	1.45	2 (15%)
2	NAG	M	943	2,4	14,14,15	1.13	1 (7%)	17,19,21	1.02	1 (5%)
4	BMA	M	944	2,5	11,11,12	2.03	3 (27%)	15,15,17	2.04	3 (20%)
5	XYP	M	945	4	9,9,10	1.00	0	10,12,14	2.06	4 (40%)
2	NAG	M	951	1,3,2	14,14,15	1.28	1 (7%)	17,19,21	2.83	6 (35%)
3	FUC	M	952	2	9,10,11	2.16	4 (44%)	13,14,16	2.97	8 (61%)
2	NAG	M	953	2,4	14,14,15	1.37	2 (14%)	17,19,21	2.48	6 (35%)
4	BMA	M	954	2,5,6	11,11,12	1.77	2 (18%)	15,15,17	6.46	11 (73%)
5	XYP	M	955	4	9,9,10	1.24	1 (11%)	10,12,14	2.37	5 (50%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	MAN	M	956	4	11,11,12	1.18	1 (9%)	15,15,17	2.02	6 (40%)
2	NAG	M	961	1	14,14,15	1.32	2 (14%)	17,19,21	2.07	4 (23%)
2	NAG	M	971	1	14,14,15	1.28	1 (7%)	17,19,21	1.96	4 (23%)
2	NAG	M	991	1	14,14,15	1.30	1 (7%)	17,19,21	2.14	3 (17%)
7	LGC	M	999	-	12,12,12	2.28	3 (25%)	15,17,17	3.34	7 (46%)

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
9	SO4	M	1503	-	-	0/0/0/0	0/0/0/0
9	SO4	M	1504	-	-	0/0/0/0	0/0/0/0
9	SO4	M	1505	9	-	0/0/0/0	0/0/0/0
9	SO4	M	1506	-	-	0/0/0/0	0/0/0/0
9	SO4	M	1507	-	-	0/0/0/0	0/0/0/0
9	SO4	M	1508	-	-	0/0/0/0	0/0/0/0
9	SO4	M	1509	-	-	0/0/0/0	0/0/0/0
9	SO4	M	1510	9	-	0/0/0/0	0/0/0/0
10	GOL	M	1511	-	-	0/4/4/4	0/0/0/0
10	GOL	M	1512[A]	-	-	0/4/4/4	0/0/0/0
10	GOL	M	1512[B]	-	-	0/4/4/4	0/0/0/0
10	GOL	M	1513	-	-	0/4/4/4	0/0/0/0
10	GOL	M	1514	-	-	0/4/4/4	0/0/0/0
2	NAG	M	901	1	-	0/6/23/26	0/1/1/1
2	NAG	M	911	1	-	0/6/23/26	0/1/1/1
2	NAG	M	921	1,2	-	0/6/23/26	0/1/1/1
2	NAG	M	923	2	1/1/5/7	0/6/23/26	0/1/1/1
2	NAG	M	931	1	-	0/6/23/26	0/1/1/1
2	NAG	M	941	1,3,2	-	0/6/23/26	0/1/1/1
3	FUC	M	942	2	-	0/0/17/20	0/1/1/1
2	NAG	M	943	2,4	-	0/6/23/26	0/1/1/1
4	BMA	M	944	2,5	-	0/2/19/22	0/1/1/1
5	XYP	M	945	4	-	0/0/14/17	0/1/1/1
2	NAG	M	951	1,3,2	-	0/6/23/26	0/1/1/1
3	FUC	M	952	2	-	0/0/17/20	0/1/1/1
2	NAG	M	953	2,4	-	0/6/23/26	0/1/1/1
4	BMA	M	954	2,5,6	1/1/4/5	0/2/19/22	0/1/1/1
5	XYP	M	955	4	-	0/0/14/17	0/1/1/1
6	MAN	M	956	4	-	0/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	NAG	M	961	1	-	0/6/23/26	0/1/1/1
2	NAG	M	971	1	-	0/6/23/26	0/1/1/1
2	NAG	M	991	1	1/1/5/7	0/6/23/26	0/1/1/1
7	LGC	M	999	-	-	0/2/22/22	0/1/1/1

All (42) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	M	999	LGC	C2-C1	-5.51	1.40	1.52
4	M	944	BMA	C2-C3	-4.99	1.45	1.52
4	M	954	BMA	C2-C3	-4.70	1.45	1.52
2	M	931	NAG	O7-C7	-4.28	1.13	1.23
2	M	971	NAG	O7-C7	-3.94	1.14	1.23
2	M	991	NAG	O7-C7	-3.56	1.15	1.23
2	M	911	NAG	O7-C7	-3.50	1.15	1.23
2	M	961	NAG	O7-C7	-3.49	1.15	1.23
3	M	952	FUC	O5-C1	-3.20	1.38	1.43
2	M	901	NAG	O7-C7	-3.03	1.16	1.23
2	M	923	NAG	C4-C5	-2.61	1.47	1.53
2	M	901	NAG	O5-C1	-2.57	1.39	1.43
2	M	953	NAG	C3-C2	-2.51	1.47	1.52
2	M	901	NAG	C1-C2	-2.25	1.48	1.52
2	M	923	NAG	C6-C5	-2.23	1.44	1.51
2	M	923	NAG	C3-C2	-2.19	1.47	1.52
2	M	931	NAG	C2-N2	-2.01	1.42	1.46
6	M	956	MAN	C4-C3	2.08	1.57	1.52
4	M	954	BMA	O3-C3	2.08	1.47	1.43
2	M	951	NAG	O5-C5	2.09	1.47	1.43
2	M	921	NAG	C3-C2	2.10	1.57	1.52
5	M	955	XYP	O5B-C5B	2.13	1.47	1.42
2	M	961	NAG	C2-N2	2.13	1.50	1.46
4	M	944	BMA	O5-C1	2.17	1.47	1.43
2	M	941	NAG	C3-C2	2.23	1.57	1.52
2	M	943	NAG	C1-C2	2.25	1.55	1.52
2	M	923	NAG	O5-C5	2.30	1.48	1.43
7	M	999	LGC	O1-C1	2.45	1.27	1.21
10	M	1513	GOL	C1-C2	2.51	1.62	1.51
2	M	921	NAG	O4-C4	2.54	1.49	1.43
3	M	952	FUC	C1-C2	2.56	1.58	1.52
3	M	942	FUC	C2-C3	2.67	1.56	1.52
3	M	952	FUC	C6-C5	2.81	1.58	1.51
3	M	952	FUC	C2-C3	3.03	1.57	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	M	944	BMA	C4-C5	3.04	1.59	1.53
2	M	921	NAG	O5-C5	3.26	1.50	1.43
2	M	953	NAG	C1-C2	3.32	1.57	1.52
2	M	921	NAG	O7-C7	3.62	1.31	1.23
10	M	1513	GOL	O2-C2	3.79	1.54	1.43
7	M	999	LGC	O5-C1	3.87	1.40	1.34
2	M	921	NAG	C4-C5	4.73	1.63	1.53
10	M	1513	GOL	O1-C1	4.87	1.62	1.42

All (115) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	M	921	NAG	C1-O5-C5	-9.03	99.93	112.20
4	M	954	BMA	C1-O5-C5	-8.24	101.01	112.20
4	M	954	BMA	O5-C5-C6	-8.22	94.13	107.15
7	M	999	LGC	O5-C1-O1	-7.52	107.45	118.49
2	M	931	NAG	C1-O5-C5	-6.94	102.77	112.20
3	M	952	FUC	C1-C2-C3	-6.90	101.17	109.66
2	M	941	NAG	C1-O5-C5	-6.84	102.91	112.20
2	M	923	NAG	C1-O5-C5	-6.60	103.23	112.20
2	M	951	NAG	C1-O5-C5	-6.29	103.65	112.20
4	M	954	BMA	O4-C4-C3	-5.82	96.84	110.34
2	M	953	NAG	C2-N2-C7	-5.63	114.85	122.92
4	M	954	BMA	C2-C3-C4	-5.61	101.17	110.89
5	M	955	XYP	C4B-C3B-C2B	-5.38	104.39	110.90
2	M	971	NAG	O5-C1-C2	-4.89	103.68	111.36
2	M	941	NAG	C8-C7-N2	-4.85	107.74	116.10
4	M	954	BMA	C1-C2-C3	-4.76	103.79	109.66
2	M	961	NAG	C1-C2-N2	-4.69	102.47	110.49
2	M	931	NAG	O7-C7-N2	-4.64	113.31	121.95
2	M	941	NAG	C2-N2-C7	-4.58	116.37	122.92
2	M	953	NAG	O4-C4-C5	-4.49	98.06	109.29
2	M	921	NAG	C1-C2-N2	-4.31	103.13	110.49
2	M	941	NAG	O3-C3-C2	-4.17	100.58	109.38
2	M	953	NAG	O4-C4-C3	-4.16	100.69	110.34
2	M	971	NAG	O5-C5-C6	-4.15	100.58	107.15
2	M	911	NAG	C1-O5-C5	-4.05	106.70	112.20
2	M	991	NAG	C4-C3-C2	-3.72	105.57	111.02
2	M	921	NAG	O4-C4-C5	-3.70	100.03	109.29
7	M	999	LGC	O5-C5-C4	-3.63	103.28	109.73
4	M	954	BMA	O3-C3-C2	-3.58	103.38	110.02
7	M	999	LGC	C4-C3-C2	-3.57	104.94	110.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	M	941	NAG	C4-C3-C2	-3.47	105.94	111.02
2	M	923	NAG	O5-C5-C6	-3.31	101.91	107.15
3	M	952	FUC	O2-C2-C1	-3.26	102.53	109.17
4	M	954	BMA	O2-C2-C3	-3.23	103.84	110.16
2	M	951	NAG	C8-C7-N2	-3.22	110.54	116.10
2	M	951	NAG	C1-C2-N2	-3.20	105.03	110.49
2	M	953	NAG	C8-C7-N2	-3.14	110.68	116.10
3	M	942	FUC	O3-C3-C2	-3.10	104.27	110.02
2	M	911	NAG	C4-C3-C2	-3.08	106.50	111.02
3	M	952	FUC	C6-C5-C4	-2.88	108.12	113.08
6	M	956	MAN	C2-C3-C4	-2.88	105.91	110.89
3	M	942	FUC	O2-C2-C3	-2.81	104.66	110.16
2	M	911	NAG	O5-C5-C4	-2.77	104.09	110.83
2	M	971	NAG	O5-C5-C4	-2.76	104.12	110.83
2	M	911	NAG	O3-C3-C2	-2.75	103.58	109.38
2	M	941	NAG	O5-C5-C4	-2.74	104.16	110.83
5	M	945	XYP	O2B-C2B-C3B	-2.74	104.81	110.16
6	M	956	MAN	O2-C2-C3	-2.72	104.85	110.16
2	M	941	NAG	C1-C2-N2	-2.68	105.92	110.49
2	M	923	NAG	O6-C6-C5	-2.54	102.48	111.29
2	M	951	NAG	O5-C5-C6	-2.51	103.17	107.15
3	M	952	FUC	O5-C5-C4	-2.51	105.57	109.61
5	M	945	XYP	C5B-C4B-C3B	-2.48	106.60	109.66
2	M	901	NAG	O5-C5-C4	-2.47	104.81	110.83
2	M	901	NAG	C1-O5-C5	-2.43	108.90	112.20
2	M	931	NAG	C4-C3-C2	-2.42	107.47	111.02
2	M	901	NAG	O3-C3-C2	-2.42	104.28	109.38
2	M	923	NAG	O5-C5-C4	-2.41	104.95	110.83
3	M	952	FUC	O4-C4-C3	-2.40	104.78	110.34
7	M	999	LGC	O4-C4-C5	-2.35	103.41	109.29
2	M	941	NAG	O4-C4-C5	-2.32	103.50	109.29
4	M	944	BMA	O5-C5-C4	-2.30	105.23	110.83
6	M	956	MAN	O3-C3-C4	-2.29	105.03	110.34
10	M	1513	GOL	O2-C2-C1	-2.27	99.09	109.12
6	M	956	MAN	C3-C4-C5	-2.27	106.14	110.23
7	M	999	LGC	C3-C4-C5	-2.27	106.15	110.23
2	M	961	NAG	O4-C4-C5	-2.24	103.69	109.29
3	M	952	FUC	O3-C3-C2	-2.17	105.99	110.02
5	M	955	XYP	C5B-C4B-C3B	-2.16	107.00	109.66
2	M	943	NAG	C2-N2-C7	-2.15	119.84	122.92
5	M	955	XYP	O2B-C2B-C3B	-2.14	105.99	110.16
2	M	931	NAG	O5-C5-C4	-2.13	105.65	110.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	M	921	NAG	C2-N2-C7	-2.09	119.94	122.92
6	M	956	MAN	O6-C6-C5	-2.06	104.15	111.29
2	M	991	NAG	O5-C5-C4	-2.04	105.86	110.83
5	M	945	XYP	C4B-C3B-C2B	-2.03	108.44	110.90
10	M	1513	GOL	O1-C1-C2	2.23	120.86	110.12
4	M	954	BMA	O2-C2-C1	2.23	113.71	109.17
2	M	971	NAG	C1-O5-C5	2.24	115.24	112.20
2	M	931	NAG	O7-C7-C8	2.29	126.14	122.07
2	M	961	NAG	C3-C4-C5	2.30	114.36	110.23
4	M	944	BMA	C2-C3-C4	2.35	114.97	110.89
2	M	953	NAG	O7-C7-C8	2.46	126.44	122.07
2	M	931	NAG	C8-C7-N2	2.58	120.55	116.10
5	M	955	XYP	C1B-C2B-C3B	2.59	112.85	109.66
2	M	923	NAG	C4-C3-C2	2.67	114.93	111.02
3	M	952	FUC	C2-C3-C4	2.76	115.68	110.89
2	M	953	NAG	O5-C5-C6	2.90	111.74	107.15
5	M	955	XYP	O3B-C3B-C4B	2.90	115.41	110.02
2	M	951	NAG	O7-C7-C8	2.99	127.39	122.07
10	M	1513	GOL	O3-C3-C2	3.07	124.95	110.12
10	M	1512[B]	GOL	O1-C1-C2	3.12	125.17	110.12
7	M	999	LGC	C6-C5-C4	3.20	120.52	113.00
10	M	1512[A]	GOL	O2-C2-C1	3.23	123.37	109.12
10	M	1512[B]	GOL	O2-C2-C1	3.23	123.37	109.12
2	M	941	NAG	O7-C7-N2	3.35	128.19	121.95
2	M	931	NAG	C3-C4-C5	3.47	116.46	110.23
2	M	923	NAG	O3-C3-C4	4.11	119.88	110.34
3	M	952	FUC	C1-O5-C5	4.28	122.82	112.85
5	M	945	XYP	C1B-C2B-C3B	4.40	115.07	109.66
2	M	923	NAG	O5-C1-C2	4.51	118.44	111.36
6	M	956	MAN	C1-C2-C3	4.71	115.45	109.66
2	M	961	NAG	C1-O5-C5	5.36	119.49	112.20
10	M	1513	GOL	C3-C2-C1	5.63	133.68	111.75
2	M	931	NAG	C1-C2-N2	5.91	120.59	110.49
4	M	944	BMA	O3-C3-C2	6.13	121.41	110.02
2	M	991	NAG	O5-C1-C2	6.36	121.35	111.36
2	M	951	NAG	O5-C1-C2	7.03	122.40	111.36
7	M	999	LGC	O5-C1-C2	7.53	130.45	119.20
2	M	901	NAG	O5-C1-C2	8.16	124.18	111.36
4	M	954	BMA	C3-C4-C5	9.28	126.90	110.23
2	M	923	NAG	C3-C4-C5	10.46	129.03	110.23
4	M	954	BMA	O4-C4-C5	10.56	135.68	109.29
4	M	954	BMA	C6-C5-C4	13.11	143.80	113.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	M	931	NAG	C2-N2-C7	20.61	152.45	122.92

All (3) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	M	923	NAG	C4
4	M	954	BMA	C4
2	M	991	NAG	C1

There are no torsion outliers.

There are no ring outliers.

14 monomers are involved in 39 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	M	1505	SO4	4	0
9	M	1510	SO4	7	0
10	M	1511	GOL	2	0
10	M	1513	GOL	4	0
2	M	901	NAG	1	0
2	M	911	NAG	2	0
2	M	921	NAG	4	0
2	M	923	NAG	1	0
2	M	931	NAG	5	0
2	M	941	NAG	4	0
2	M	951	NAG	2	0
4	M	954	BMA	4	0
6	M	956	MAN	1	0
7	M	999	LGC	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 [i](#)

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

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	M	499/501 (99%)	-0.59	5 (1%) 82 82	11, 16, 29, 54	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	M	376	ALA	6.9
1	M	3	GLU	3.6
1	M	380	ASP	3.4
1	M	375	LYS	3.3
1	M	417	ASP	3.2

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](#)

There are no carbohydrates in this entry.

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
6	MAN	M	956	11/12	0.41	0.37	32,45,48,48	0
5	XYP	M	955	9/10	0.42	0.32	42,45,47,48	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	NAG	M	923	14/15	0.46	0.35	41,45,51,53	0
2	NAG	M	961	14/15	0.52	0.40	43,47,55,56	0
9	SO4	M	1508	5/5	0.53	0.25	31,35,36,37	5
2	NAG	M	931	14/15	0.56	0.31	40,46,49,52	0
2	NAG	M	971	14/15	0.58	0.39	58,64,66,67	0
2	NAG	M	991	14/15	0.59	0.43	43,45,51,51	0
10	GOL	M	1514	6/6	0.64	0.26	42,43,44,45	6
5	XYP	M	945	9/10	0.64	0.29	44,45,46,48	0
4	BMA	M	944	11/12	0.67	0.29	39,41,44,46	0
10	GOL	M	1511	6/6	0.74	0.26	42,43,44,44	6
2	NAG	M	901	14/15	0.75	0.16	33,38,39,42	0
10	GOL	M	1513	6/6	0.76	0.29	16,24,26,28	6
4	BMA	M	954	11/12	0.79	0.16	28,32,38,42	0
3	FUC	M	952	10/11	0.83	0.16	27,28,31,33	0
9	SO4	M	1509	5/5	0.86	0.24	42,42,42,43	5
2	NAG	M	911	14/15	0.87	0.21	26,29,32,33	0
2	NAG	M	953	14/15	0.88	0.12	24,27,32,35	0
3	FUC	M	942	10/11	0.88	0.17	29,33,36,38	0
9	SO4	M	1507	5/5	0.88	0.20	34,35,36,37	5
2	NAG	M	941	14/15	0.90	0.09	20,22,25,26	0
2	NAG	M	951	14/15	0.90	0.09	22,23,26,27	0
2	NAG	M	921	14/15	0.91	0.09	21,26,30,34	0
9	SO4	M	1505	5/5	0.93	0.14	27,28,30,31	5
9	SO4	M	1510	5/5	0.93	0.28	45,46,47,48	1
7	LGC	M	999	12/12	0.93	0.09	14,18,20,24	0
2	NAG	M	943	14/15	0.93	0.08	26,30,34,35	0
10	GOL	M	1512[A]	6/6	0.95	0.11	6,15,16,18	2
9	SO4	M	1504	5/5	0.95	0.13	23,29,31,32	5
10	GOL	M	1512[B]	6/6	0.95	0.11	14,15,18,19	2
9	SO4	M	1503	5/5	0.97	0.14	26,26,29,29	5
9	SO4	M	1506	5/5	0.99	0.04	19,21,25,27	0
8	ZN	M	1502	1/1	1.00	0.02	13,13,13,13	1

6.5 Other polymers ⓘ

There are no such residues in this entry.