



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 12, 2026 – 01:46 PM UTC

PDB ID : 4BSH / pdb_00004bsh
Title : H7N3 Avian Influenza Virus Haemagglutinin in Complex with Human Receptor Analogue 6'-SLN
Authors : Xiong, X.; Haire, L.F.; Martin, S.R.; Wharton, S.A.; Daniels, R.S.; Bennett, M.S.; McCauley, J.W.; Collins, P.J.; Walker, P.A.; Skehel, J.J.; Gamblin, S.J.
Deposited on : 2013-06-10
Resolution : 2.25 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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

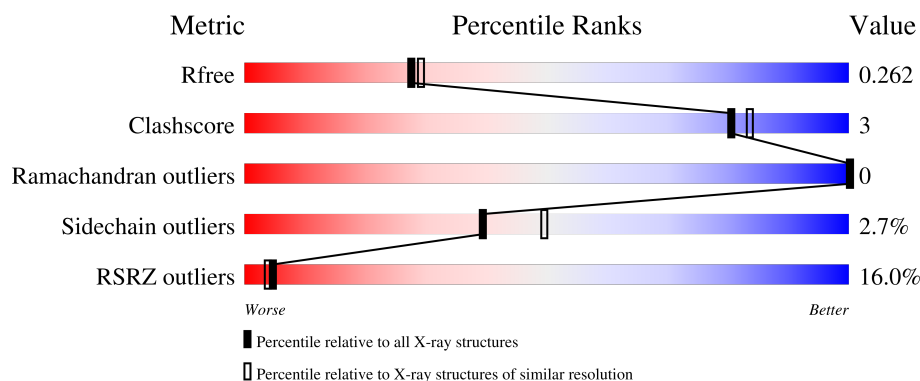
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.25 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}	180053	1898 (2.26-2.26)
Clashscore	190562	2005 (2.26-2.26)
Ramachandran outliers	187476	1965 (2.26-2.26)
Sidechain outliers	187428	1966 (2.26-2.26)
RSRZ outliers	180081	1898 (2.26-2.26)

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	13% 89% 8% ..
2	B	177	20% 90% 6% ..
3	C	2	50% 50%
4	D	2	50% 50%

2 Entry composition [i](#)

There are 7 unique types of molecules in this entry. The entry contains 4087 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.

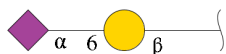
- Molecule 1 is a protein called HEMAGGLUTININ.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	316	Total	C	N	O	S	0	0	0
			2417	1497	435	469	16			

- Molecule 2 is a protein called HEMAGGLUTININ.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	170	Total	C	N	O	S	0	0	0
			1380	850	243	279	8			

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



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

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



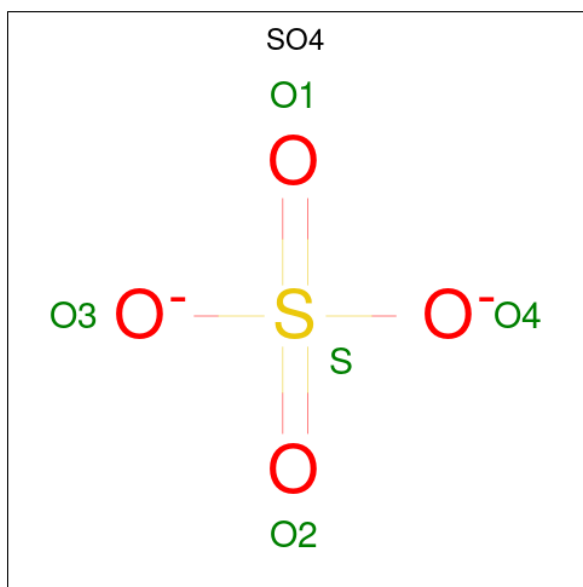
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	D	2	Total	C	N	O	0	0	0
			28	16	2	10			

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



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

- Molecule 6 is SULFATE ION (CCD ID: SO4) (formula: O_4S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	A	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0
6	B	1	Total O S 5 4 1	0	0

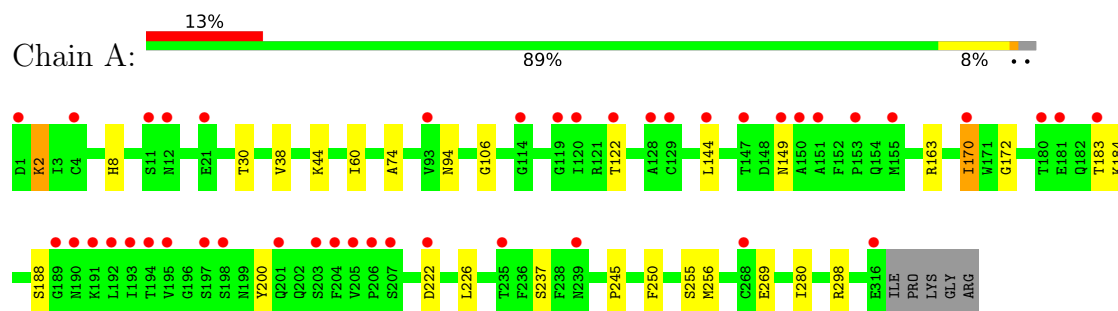
- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	101	Total O 101 101	0	0
7	B	31	Total O 31 31	0	0

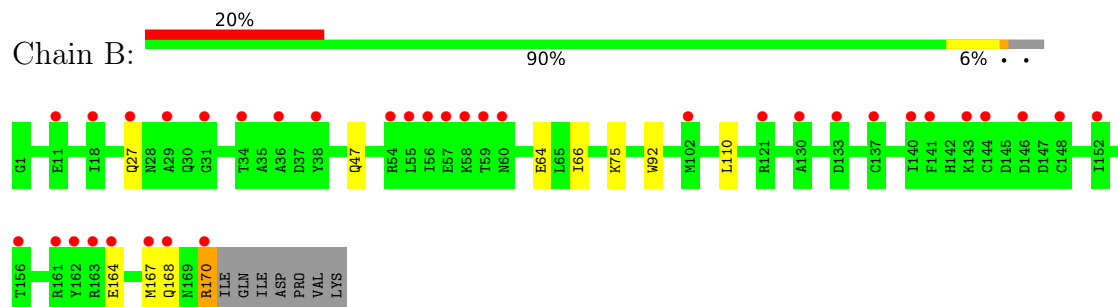
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: HEMAGGLUTININ



• Molecule 2: HEMAGGLUTININ



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



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



4 Data and refinement statistics

Property	Value	Source
Space group	H 3 2	Depositor
Cell constants a, b, c, α , β , γ	115.90Å 115.90Å 297.50Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	59.83 – 2.25 59.83 – 2.25	Depositor EDS
% Data completeness (in resolution range)	98.6 (59.83-2.25) 98.6 (59.83-2.25)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.40 (at 2.25Å)	Xtriage
Refinement program	REFMAC 5.7.0032	Depositor
R, R_{free}	0.229 , 0.258 0.230 , 0.262	Depositor DCC
R_{free} test set	1820 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	48.0	Xtriage
Anisotropy	0.176	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 42.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.008 for $-1/3^*h+1/3^*k+1/3^*l,-k,8/3^*h+4/3^*k+1/3^*l$ 0.025 for $-2/3^*h-1/3^*k-1/3^*l,-1/3^*h-2/3^*k+1/3^*l,-4/3^*h+4/3^*k+1/3^*l$ 0.014 for $-h,1/3^*h-1/3^*k-1/3^*l,-4/3^*h-8/3^*k+1/3^*l$	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	4087	wwPDB-VP
Average B, all atoms (Å ²)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.81% 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: SO4, GAL, SIA, NAG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.50	0/2463	0.71	2/3328 (0.1%)
2	B	0.47	0/1404	0.73	0/1891
All	All	0.49	0/3867	0.72	2/5219 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	74	ALA	N-CA-C	5.28	117.10	108.76
1	A	2	LYS	N-CA-C	5.22	116.77	108.79

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	2417	0	2363	16	0
2	B	1380	0	1281	7	0
3	C	32	0	28	0	0
4	D	28	0	25	1	0
5	A	28	0	26	0	0
6	A	50	0	0	0	0
6	B	20	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	A	101	0	0	1	0
7	B	31	0	0	0	0
All	All	4087	0	3723	20	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 3.

All (20) 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:B:47:GLN:OE1	2:B:110:LEU:HD11	1.95	0.66
1:A:298:ARG:HG2	2:B:92:TRP:CD2	2.40	0.56
2:B:75:LYS:HE3	4:D:1:NAG:H81	1.90	0.53
1:A:163:ARG:HD3	1:A:250:PHE:CZ	2.43	0.53
1:A:226:LEU:C	1:A:226:LEU:HD12	2.35	0.51
1:A:44:LYS:HE2	1:A:269:GLU:HB2	1.94	0.50
1:A:38:VAL:HG21	1:A:280:ILE:HD12	1.94	0.49
1:A:170:ILE:O	1:A:245:PRO:HB3	2.13	0.49
1:A:183:THR:HG22	1:A:188:SER:HA	1.94	0.48
1:A:60:ILE:HG21	1:A:170:ILE:CD1	2.44	0.48
2:B:164:GLU:O	2:B:168:GLN:HG2	2.16	0.46
1:A:269:GLU:HG3	7:A:2013:HOH:O	2.18	0.44
1:A:149:ASN:OD1	1:A:184:LYS:HA	2.16	0.44
1:A:172:GLY:HA2	1:A:222:ASP:O	2.19	0.43
2:B:167:MET:O	2:B:170:ARG:HG3	2.19	0.43
1:A:2:LYS:HG3	2:B:27:GLN:HB3	2.01	0.42
1:A:60:ILE:HG21	1:A:170:ILE:HD12	2.02	0.42
1:A:200:TYR:CD1	1:A:200:TYR:C	2.98	0.41
1:A:106:GLY:HA2	1:A:255:SER:HB3	2.01	0.41
1:A:298:ARG:HG2	2:B:92:TRP:CE2	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	314/321 (98%)	304 (97%)	10 (3%)	0	100	100
2	B	168/177 (95%)	164 (98%)	4 (2%)	0	100	100
All	All	482/498 (97%)	468 (97%)	14 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	267/271 (98%)	259 (97%)	8 (3%)	36	45
2	B	145/152 (95%)	142 (98%)	3 (2%)	47	58
All	All	412/423 (97%)	401 (97%)	11 (3%)	39	49

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8	HIS
1	A	30	THR
1	A	94	ASN
1	A	122	THR
1	A	144	LEU
1	A	170	ILE
1	A	237	SER
1	A	256	MET
2	B	64	GLU
2	B	66	ILE
2	B	170	ARG

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

Mol	Chain	Res	Type
1	A	146	ASN
1	A	154	GLN
1	A	182	GLN
1	A	213	GLN
1	A	287	ASN
2	B	61	GLN
2	B	62	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

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	C	1	3	12,12,12	0.44	0	17,17,17	0.58	0
3	SIA	C	2	3	20,20,21	0.63	0	21,28,31	1.25	3 (14%)
4	NAG	D	1	2,4	14,14,15	0.52	0	17,19,21	1.05	1 (5%)
4	NAG	D	2	4	14,14,15	0.57	0	17,19,21	0.82	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
3	GAL	C	1	3	-	2/2/22/22	0/1/1/1
3	SIA	C	2	3	-	1/18/34/38	0/1/1/1
4	NAG	D	1	2,4	-	0/6/23/26	0/1/1/1
4	NAG	D	2	4	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	2	SIA	O6-C2-C1	2.99	113.36	107.72
3	C	2	SIA	O1B-C1-C2	2.56	119.37	112.71
4	D	1	NAG	C1-C2-N2	-2.34	106.75	110.43
3	C	2	SIA	O1A-C1-C2	-2.05	118.42	122.85

There are no chirality outliers.

All (5) torsion outliers are listed below:

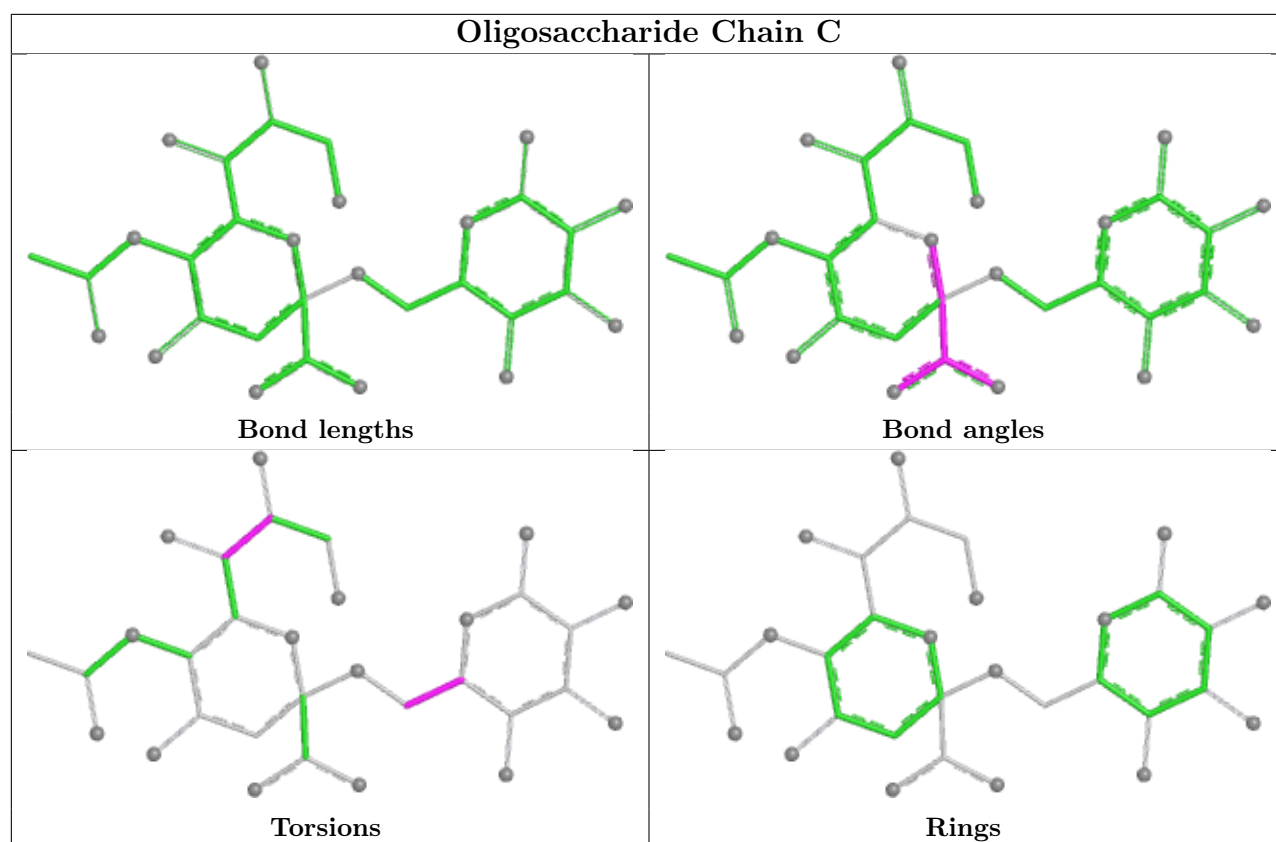
Mol	Chain	Res	Type	Atoms
3	C	1	GAL	O5-C5-C6-O6
3	C	1	GAL	C4-C5-C6-O6
4	D	2	NAG	C4-C5-C6-O6
4	D	2	NAG	O5-C5-C6-O6
3	C	2	SIA	C6-C7-C8-O8

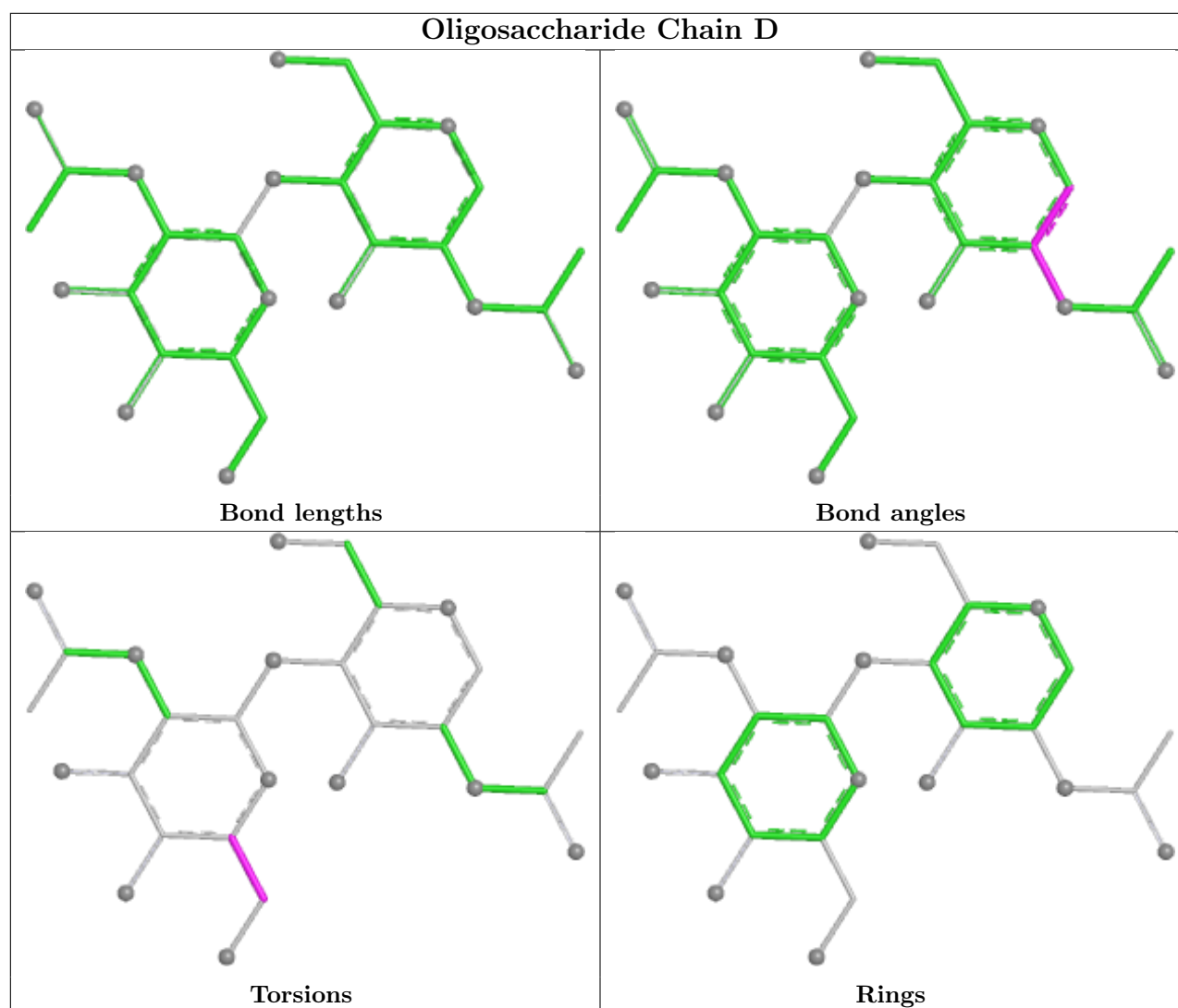
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	D	1	NAG	1	0

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





5.6 Ligand geometry [i](#)

16 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	$\# Z > 2$
6	SO4	A	1327	-	4,4,4	0.43	0	6,6,6	0.11	0
6	SO4	A	1319	-	4,4,4	0.46	0	6,6,6	0.10	0
6	SO4	B	1171	-	4,4,4	0.44	0	6,6,6	0.08	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	SO4	A	1323	-	4,4,4	0.51	0	6,6,6	0.18	0
6	SO4	A	1326	-	4,4,4	0.50	0	6,6,6	0.09	0
6	SO4	A	1320	-	4,4,4	0.47	0	6,6,6	0.08	0
6	SO4	B	1173	-	4,4,4	0.49	0	6,6,6	0.16	0
6	SO4	A	1321	-	4,4,4	0.45	0	6,6,6	0.11	0
6	SO4	A	1324	-	4,4,4	0.47	0	6,6,6	0.19	0
5	NAG	A	403	1	14,14,15	0.49	0	17,19,21	1.15	1 (5%)
6	SO4	B	1172	-	4,4,4	0.49	0	6,6,6	0.14	0
6	SO4	B	1174	-	4,4,4	0.48	0	6,6,6	0.12	0
6	SO4	A	1325	-	4,4,4	0.49	0	6,6,6	0.22	0
6	SO4	A	1322	-	4,4,4	0.44	0	6,6,6	0.12	0
6	SO4	A	1328	-	4,4,4	0.46	0	6,6,6	0.07	0
5	NAG	A	402	1	14,14,15	0.43	0	17,19,21	0.98	2 (11%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	A	402	1	-	2/6/23/26	0/1/1/1
5	NAG	A	403	1	-	2/6/23/26	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(°)
5	A	403	NAG	C1-O5-C5	2.60	115.67	112.19
5	A	402	NAG	C1-O5-C5	2.05	114.93	112.19
5	A	402	NAG	C3-C4-C5	2.03	113.91	110.23

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	403	NAG	C4-C5-C6-O6
5	A	403	NAG	O5-C5-C6-O6
5	A	402	NAG	C4-C5-C6-O6
5	A	402	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

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	316/321 (98%)	0.81	43 (13%) 7 6	32, 51, 85, 115	0
2	B	170/177 (96%)	1.14	35 (20%) 2 2	29, 74, 116, 130	0
All	All	486/498 (97%)	0.93	78 (16%) 5 4	29, 56, 106, 130	0

All (78) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	58	LYS	4.2
1	A	192	LEU	4.0
2	B	59	THR	3.9
1	A	205	VAL	3.8
2	B	29	ALA	3.8
2	B	141	PHE	3.8
1	A	203	SER	3.6
2	B	161	ARG	3.6
2	B	34	THR	3.5
1	A	144	LEU	3.5
1	A	129	CYS	3.4
2	B	168	GLN	3.4
2	B	148	CYS	3.4
2	B	56	ILE	3.3
1	A	201	GLN	3.3
1	A	114	GLY	3.3
1	A	149	ASN	3.3
2	B	144	CYS	3.2
1	A	189	GLY	3.2
1	A	151	ALA	3.2
2	B	170	ARG	3.1
1	A	1	ASP	3.1
1	A	119	GLY	3.1
1	A	222	ASP	3.0

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Mol	Chain	Res	Type	RSRZ
2	B	60	ASN	3.0
1	A	239	ASN	3.0
1	A	155	MET	2.9
1	A	190	ASN	2.9
1	A	204	PHE	2.8
1	A	11	SER	2.8
2	B	36	ALA	2.8
1	A	194	THR	2.8
2	B	31	GLY	2.8
2	B	137	CYS	2.7
2	B	140	ILE	2.7
1	A	191	LYS	2.7
2	B	164	GLU	2.7
2	B	143	LYS	2.7
2	B	55	LEU	2.7
1	A	170	ILE	2.6
1	A	206	PRO	2.6
2	B	121	ARG	2.6
1	A	198	SER	2.6
2	B	38	TYR	2.6
2	B	167	MET	2.5
1	A	150	ALA	2.5
1	A	207	SER	2.5
2	B	130	ALA	2.5
1	A	120	ILE	2.4
1	A	195	VAL	2.4
1	A	122	THR	2.4
2	B	102	MET	2.4
1	A	181	GLU	2.4
2	B	133	ASP	2.4
1	A	147	THR	2.4
1	A	4	CYS	2.4
1	A	180	THR	2.3
1	A	193	ILE	2.3
1	A	12	ASN	2.3
1	A	268	CYS	2.3
2	B	11	GLU	2.3
1	A	153	PRO	2.3
2	B	54	ARG	2.3
2	B	163	ARG	2.3
1	A	21	GLU	2.3
1	A	316	GLU	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	128	ALA	2.2
1	A	197	SER	2.2
2	B	18	ILE	2.1
1	A	93	VAL	2.1
1	A	183	THR	2.1
2	B	156	THR	2.1
2	B	57	GLU	2.1
2	B	162	TYR	2.1
1	A	235	THR	2.0
2	B	27	GLN	2.0
2	B	146	ASP	2.0
2	B	152	ILE	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](#)

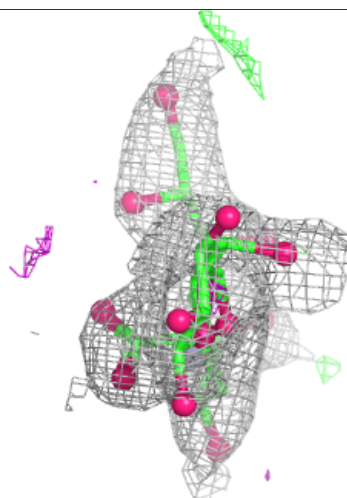
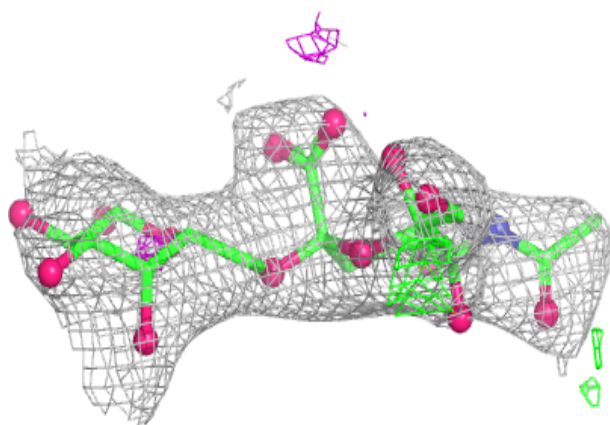
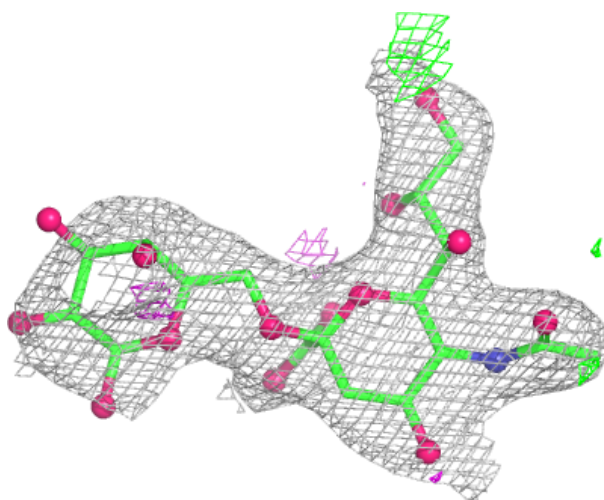
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

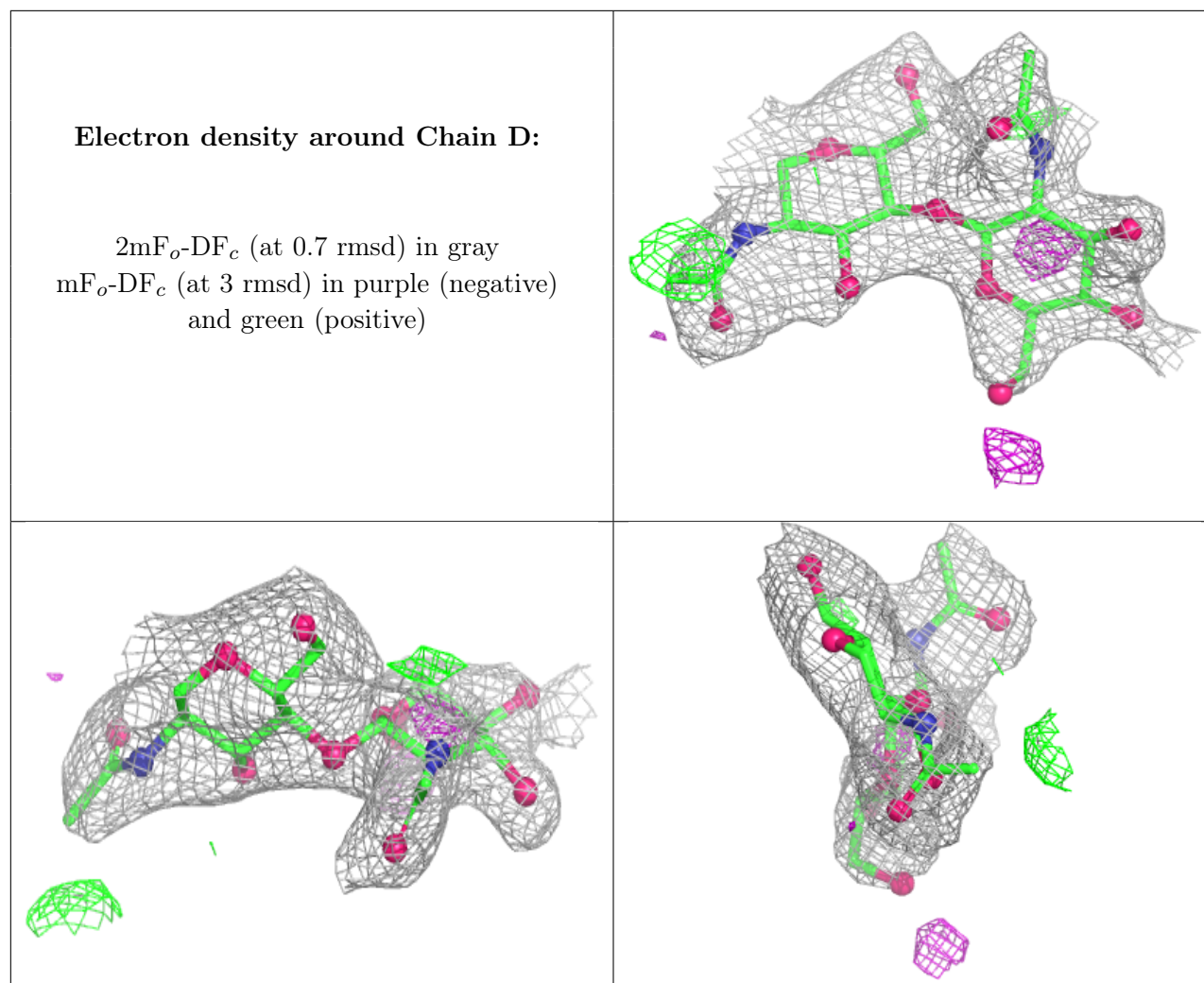
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	GAL	C	1	12/12	0.62	0.16	73,91,93,93	0
4	NAG	D	2	14/15	0.73	0.17	79,82,83,86	0
4	NAG	D	1	14/15	0.85	0.13	50,60,67,72	0
3	SIA	C	2	20/21	0.89	0.12	59,64,72,72	0

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

Electron density around Chain C:

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





6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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($\text{\AA}^2$)	Q<0.9
6	SO4	A	1328	5/5	0.49	0.15	114,117,119,123	0
5	NAG	A	403	14/15	0.56	0.19	66,79,85,86	0
6	SO4	A	1319	5/5	0.61	0.11	111,113,116,116	0
6	SO4	B	1172	5/5	0.62	0.16	87,92,94,96	0
6	SO4	A	1322	5/5	0.65	0.15	114,120,124,126	0
5	NAG	A	402	14/15	0.65	0.18	69,80,83,83	0
6	SO4	A	1320	5/5	0.65	0.17	102,104,106,106	0
6	SO4	B	1173	5/5	0.67	0.24	98,102,103,108	0
6	SO4	A	1327	5/5	0.71	0.14	109,110,111,113	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
6	SO4	A	1321	5/5	0.74	0.12	95,96,98,99	0
6	SO4	A	1325	5/5	0.76	0.13	81,86,91,91	0
6	SO4	B	1174	5/5	0.78	0.13	76,78,82,101	3
6	SO4	A	1324	5/5	0.79	0.12	88,91,95,97	0
6	SO4	A	1323	5/5	0.79	0.14	70,70,74,78	0
6	SO4	B	1171	5/5	0.79	0.11	87,91,91,92	0
6	SO4	A	1326	5/5	0.80	0.13	83,87,90,90	0

6.5 Other polymers [i](#)

There are no such residues in this entry.