



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 11:27 AM UTC

PDB ID : 4FP8 / pdb_00004fp8
Title : Crystal structure of broadly neutralizing antibody C05 bound to H3 influenza hemagglutinin, HA1 subunit
Authors : Ekiert, D.C.; Wilson, I.A.
Deposited on : 2012-06-21
Resolution : 2.95 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:

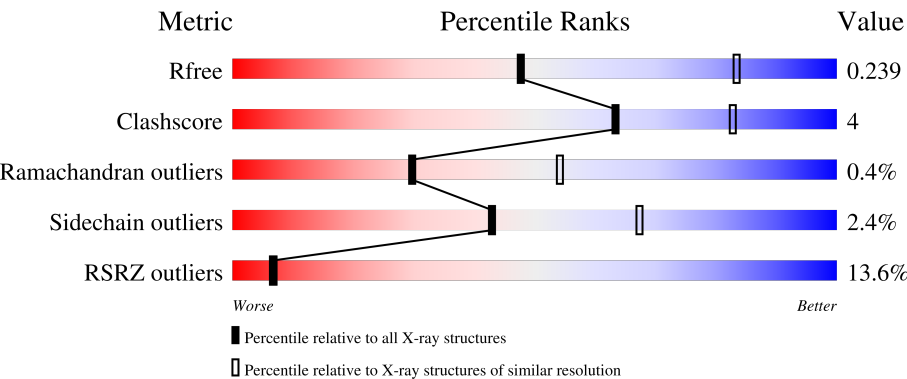
MolProbity : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

1 Overall quality at a glance i

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

The reported resolution of this entry is 2.95 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.



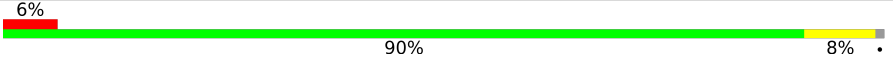
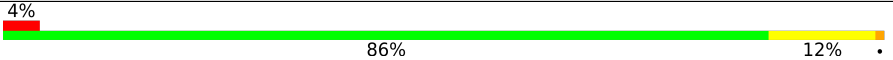
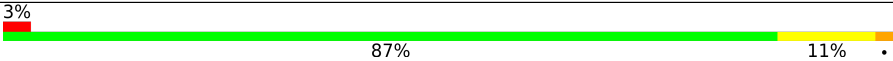
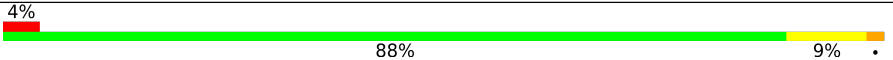
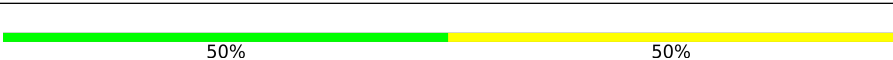
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R _{free}	180053	1159 (2.96-2.92)
Clashscore	190562	1184 (2.96-2.92)
Ramachandran outliers	187476	1131 (2.96-2.92)
Sidechain outliers	187428	1131 (2.96-2.92)
RSRZ outliers	180081	1159 (2.96-2.92)

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	278	4% 88% 8% .
1	B	278	7% 91% 5% .
1	C	278	13% 86% 10% 5%
1	D	278	13% 87% 9% .
2	H	241	6% 88% 9% ..

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Mol	Chain	Length	Quality of chain
2	I	241	
2	J	241	
2	K	241	
3	L	214	
3	M	214	
3	N	214	
3	O	214	
4	E	2	

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 22406 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 HA1 chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	267	Total	C	N	O	S	0	8	0
			2141	1346	375	408	12			
1	B	267	Total	C	N	O	S	0	8	0
			2141	1346	375	408	12			
1	C	265	Total	C	N	O	S	0	7	0
			2116	1330	369	405	12			
1	D	266	Total	C	N	O	S	0	8	0
			2128	1335	374	407	12			

There are 44 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	39	ALA	-	expression tag	UNP Q91MA7
A	40	ASP	-	expression tag	UNP Q91MA7
A	41	PRO	-	expression tag	UNP Q91MA7
A	42	GLY	-	expression tag	UNP Q91MA7
A	310	GLY	-	expression tag	UNP Q91MA7
A	311	HIS	-	expression tag	UNP Q91MA7
A	312	HIS	-	expression tag	UNP Q91MA7
A	313	HIS	-	expression tag	UNP Q91MA7
A	314	HIS	-	expression tag	UNP Q91MA7
A	315	HIS	-	expression tag	UNP Q91MA7
A	316	HIS	-	expression tag	UNP Q91MA7
B	39	ALA	-	expression tag	UNP Q91MA7
B	40	ASP	-	expression tag	UNP Q91MA7
B	41	PRO	-	expression tag	UNP Q91MA7
B	42	GLY	-	expression tag	UNP Q91MA7
B	310	GLY	-	expression tag	UNP Q91MA7
B	311	HIS	-	expression tag	UNP Q91MA7
B	312	HIS	-	expression tag	UNP Q91MA7
B	313	HIS	-	expression tag	UNP Q91MA7
B	314	HIS	-	expression tag	UNP Q91MA7
B	315	HIS	-	expression tag	UNP Q91MA7

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Chain	Residue	Modelled	Actual	Comment	Reference
B	316	HIS	-	expression tag	UNP Q91MA7
C	39	ALA	-	expression tag	UNP Q91MA7
C	40	ASP	-	expression tag	UNP Q91MA7
C	41	PRO	-	expression tag	UNP Q91MA7
C	42	GLY	-	expression tag	UNP Q91MA7
C	310	GLY	-	expression tag	UNP Q91MA7
C	311	HIS	-	expression tag	UNP Q91MA7
C	312	HIS	-	expression tag	UNP Q91MA7
C	313	HIS	-	expression tag	UNP Q91MA7
C	314	HIS	-	expression tag	UNP Q91MA7
C	315	HIS	-	expression tag	UNP Q91MA7
C	316	HIS	-	expression tag	UNP Q91MA7
D	39	ALA	-	expression tag	UNP Q91MA7
D	40	ASP	-	expression tag	UNP Q91MA7
D	41	PRO	-	expression tag	UNP Q91MA7
D	42	GLY	-	expression tag	UNP Q91MA7
D	310	GLY	-	expression tag	UNP Q91MA7
D	311	HIS	-	expression tag	UNP Q91MA7
D	312	HIS	-	expression tag	UNP Q91MA7
D	313	HIS	-	expression tag	UNP Q91MA7
D	314	HIS	-	expression tag	UNP Q91MA7
D	315	HIS	-	expression tag	UNP Q91MA7
D	316	HIS	-	expression tag	UNP Q91MA7

- Molecule 2 is a protein called Antibody C05, heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	H	239	Total	C	N	O	S	0	4	0
			1806	1127	306	365	8			
2	I	239	Total	C	N	O	S	0	4	0
			1806	1127	306	365	8			
2	J	239	Total	C	N	O	S	0	4	0
			1806	1127	306	365	8			
2	K	239	Total	C	N	O	S	0	4	0
			1806	1127	306	365	8			

- Molecule 3 is a protein called Antibody C05, light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	L	213	Total	C	N	O	S	0	1	0
			1648	1033	281	330	4			

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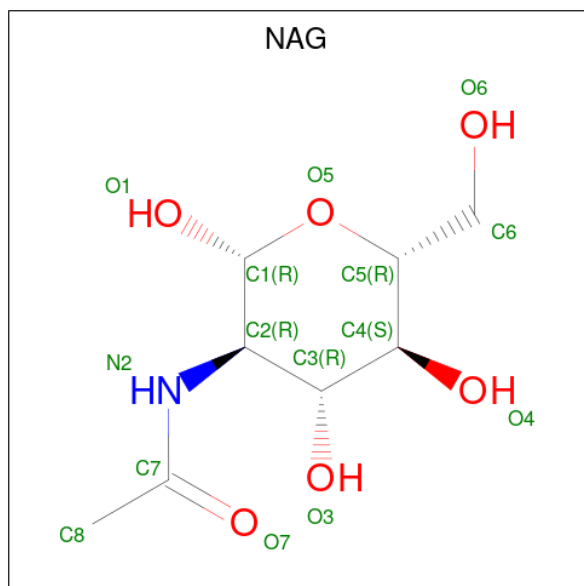
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	M	213	Total	C	N	O	S	0	1	0
			1648	1033	281	330	4			
3	N	213	Total	C	N	O	S	0	1	0
			1648	1033	281	330	4			
3	O	213	Total	C	N	O	S	0	1	0
			1648	1033	281	330	4			

- 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	E	2	Total	C	N	O	0	0	0
			28	16	2	10			

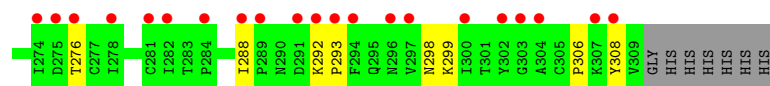
- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



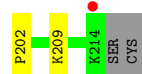
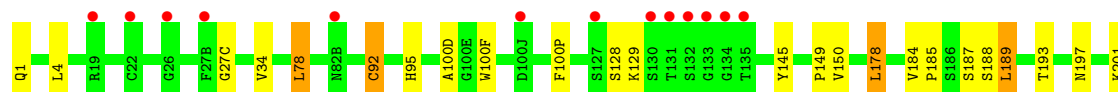
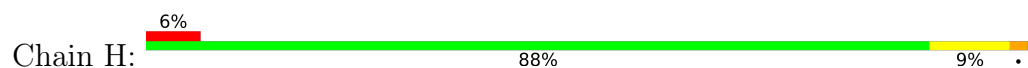
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	N	O	0	0
			14	8	1	5		
5	D	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 6 is ZINC ION (CCD ID: ZN) (formula: Zn).

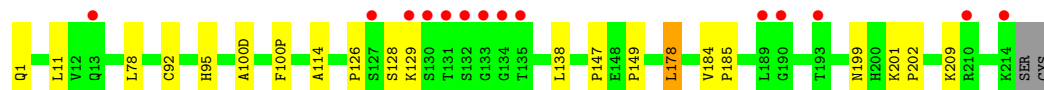
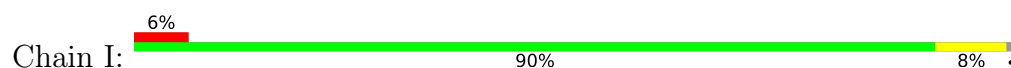
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	H	1	Total 1	Zn 1	0	0
6	L	2	Total 2	Zn 2	0	0
6	M	1	Total 1	Zn 1	0	0
6	J	1	Total 1	Zn 1	0	0
6	N	2	Total 2	Zn 2	0	0
6	O	1	Total 1	Zn 1	0	0



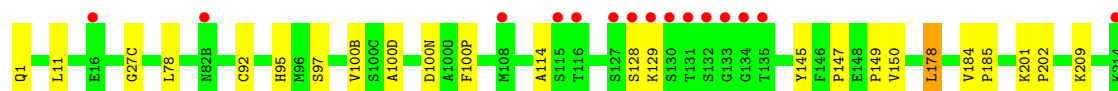
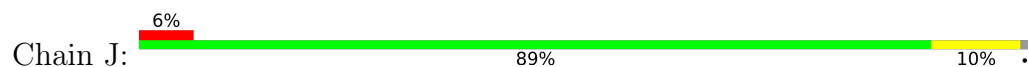
• Molecule 2: Antibody C05, heavy chain



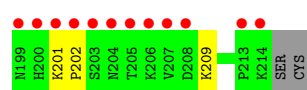
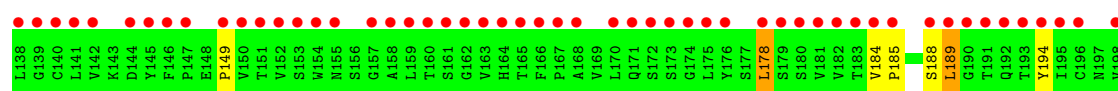
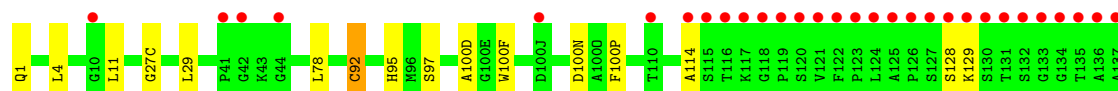
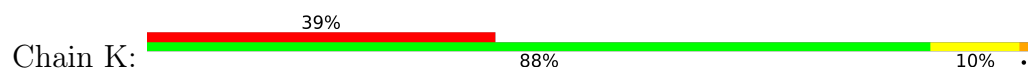
• Molecule 2: Antibody C05, heavy chain



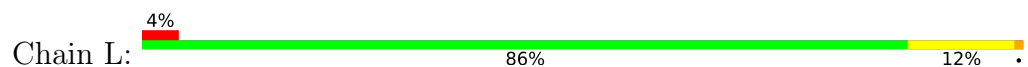
• Molecule 2: Antibody C05, heavy chain

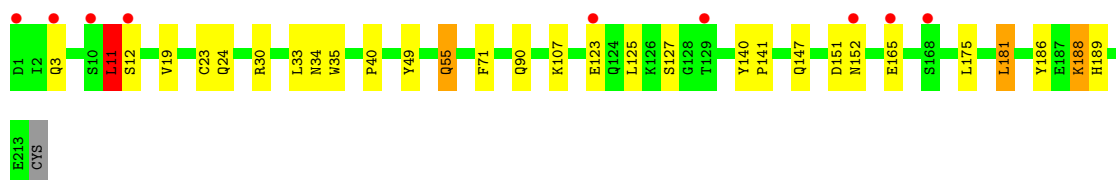


• Molecule 2: Antibody C05, heavy chain

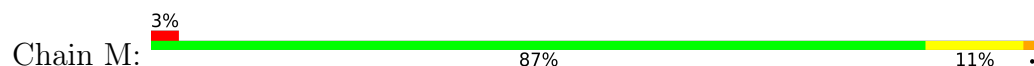


• Molecule 3: Antibody C05, light chain

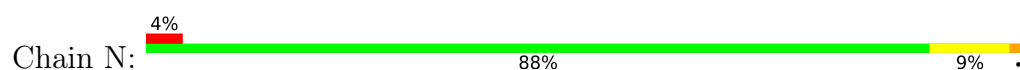




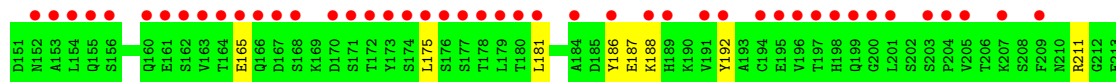
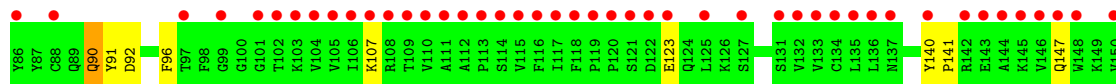
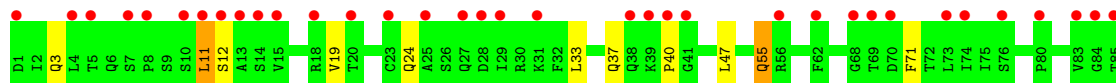
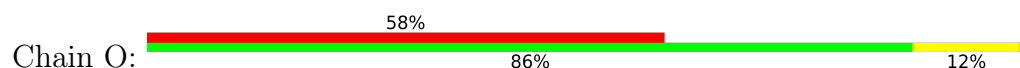
- Molecule 3: Antibody C05, light chain



- Molecule 3: Antibody C05, light chain



- Molecule 3: Antibody C05, light chain



CYS

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



MAG1
MAG2

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	90.79Å 247.72Å 95.38Å 90.00° 91.33° 90.00°	Depositor
Resolution (Å)	44.49 – 2.95 44.49 – 2.95	Depositor EDS
% Data completeness (in resolution range)	95.1 (44.49-2.95) 95.0 (44.49-2.95)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.64 (at 2.96Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7.2_869)	Depositor
R, R_{free}	0.212 , 0.241 0.209 , 0.239	Depositor DCC
R_{free} test set	4192 reflections (4.70%)	wwPDB-VP
Wilson B-factor (Å ²)	56.8	Xtriage
Anisotropy	0.240	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 50.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.008 for l,k,-h 0.028 for h,-k,-l 0.021 for l,-k,h	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	22406	wwPDB-VP
Average B, all atoms (Å ²)	83.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.89% 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, ZN, PCA

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	0.38	0/2195	0.78	0/2990
1	B	0.38	0/2195	0.78	0/2990
1	C	0.38	0/2170	0.81	1/2956 (0.0%)
1	D	0.39	0/2181	0.81	3/2971 (0.1%)
2	H	0.41	0/1837	0.78	0/2500
2	I	0.37	0/1837	0.76	0/2500
2	J	0.36	0/1837	0.75	1/2500 (0.0%)
2	K	0.34	0/1837	0.73	0/2500
3	L	0.44	0/1682	0.80	1/2280 (0.0%)
3	M	0.42	0/1682	0.79	0/2280
3	N	0.38	0/1682	0.77	0/2280
3	O	0.33	0/1682	0.73	0/2280
All	All	0.38	0/22817	0.78	6/31027 (0.0%)

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	292	LYS	CA-C-N	7.62	127.33	119.64
1	D	292	LYS	C-N-CA	7.62	127.33	119.64
1	C	208	ARG	N-CA-C	6.21	121.70	112.94
1	D	214	ILE	N-CA-C	-6.01	100.88	107.73
2	J	100(B)	VAL	N-CA-C	5.63	116.36	110.62
3	L	11	LEU	N-CA-C	5.33	118.13	108.69

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	2141	0	2074	13	0
1	B	2141	0	2075	13	0
1	C	2116	0	2044	22	0
1	D	2128	0	2058	19	0
2	H	1806	0	1749	16	0
2	I	1806	0	1749	13	0
2	J	1806	0	1749	15	0
2	K	1806	0	1749	20	0
3	L	1648	0	1614	21	0
3	M	1648	0	1614	19	0
3	N	1648	0	1614	14	0
3	O	1648	0	1614	15	0
4	E	28	0	25	0	0
5	A	14	0	13	0	0
5	D	14	0	13	0	0
6	H	1	0	0	0	0
6	J	1	0	0	0	0
6	L	2	0	0	0	0
6	M	1	0	0	0	0
6	N	2	0	0	0	0
6	O	1	0	0	0	0
All	All	22406	0	21754	177	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 4.

All (177) 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:C:205:SER:HB3	1:C:210:GLN:HG3	1.64	0.80
1:A:77:ASP:OD2	1:A:141:ARG:NH1	2.16	0.78
3:M:11:LEU:HD12	3:M:11:LEU:C	2.09	0.77
1:D:299:LYS:HA	1:D:308:TYR:CG	2.28	0.69
3:O:11:LEU:C	3:O:11:LEU:HD12	2.18	0.68
1:D:210:GLN:HB3	3:M:12:SER:HB2	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:11:LEU:HD21	2:J:114:ALA:O	1.96	0.65
1:C:77:ASP:OD2	1:C:141:ARG:NH1	2.22	0.64
1:D:205:SER:HB3	1:D:210:GLN:HG3	1.80	0.62
3:L:11:LEU:C	3:L:11:LEU:HD12	2.25	0.62
1:C:293:PRO:HG2	1:C:294:PHE:CD2	2.35	0.61
2:J:11:LEU:HB2	2:J:147:PRO:HG3	1.82	0.61
1:B:190:GLU:HG3	2:I:100(D):ALA:HB2	1.81	0.60
1:A:189:GLN:HG3	2:H:27(C):GLY:O	2.01	0.60
1:C:190:GLU:HG3	2:J:100(D):ALA:HB2	1.84	0.60
2:I:178:LEU:C	2:I:178:LEU:HD23	2.27	0.60
2:J:178:LEU:C	2:J:178:LEU:HD23	2.27	0.60
1:D:190:GLU:HG3	2:K:100(D):ALA:HB2	1.84	0.60
2:K:178:LEU:C	2:K:178:LEU:HD23	2.27	0.59
2:H:178:LEU:C	2:H:178:LEU:HD23	2.27	0.59
3:N:11:LEU:C	3:N:11:LEU:HD12	2.27	0.59
3:N:33:LEU:HD22	3:N:71:PHE:CG	2.38	0.58
3:N:11:LEU:HD21	3:N:19:VAL:HG13	1.85	0.57
3:N:83:VAL:HG12	3:N:106:ILE:HG12	1.87	0.56
2:J:95:HIS:CE1	2:J:100(P):PHE:CE2	2.92	0.56
3:M:33:LEU:HD22	3:M:71:PHE:CG	2.40	0.56
3:M:91:TYR:HB2	3:M:96:PHE:CE1	2.40	0.56
3:O:90:GLN:OE1	3:O:92:ASP:N	2.39	0.56
3:L:11:LEU:HD21	3:L:19:VAL:HG13	1.88	0.56
3:N:83:VAL:CG1	3:N:106:ILE:HG12	2.37	0.55
2:K:11:LEU:HD21	2:K:114:ALA:O	2.07	0.55
3:L:151:ASP:OD1	3:L:189:HIS:HB3	2.06	0.55
1:D:276:THR:O	1:D:276:THR:HG23	2.07	0.55
2:H:128:SER:O	2:H:129:LYS:HB3	2.05	0.55
1:A:207[B]:ARG:NH1	1:A:240:GLY:O	2.38	0.55
1:D:77:ASP:OD2	1:D:141:ARG:NH1	2.37	0.55
2:I:128:SER:O	2:I:129:LYS:HB3	2.07	0.55
1:C:294:PHE:N	1:C:306:PRO:HB3	2.22	0.55
3:L:33:LEU:HD22	3:L:71:PHE:CG	2.42	0.54
3:N:50:ASP:OD1	3:N:91:TYR:OH	2.19	0.54
2:I:11:LEU:HD21	2:I:114:ALA:O	2.08	0.54
1:B:190:GLU:CG	2:I:100(D):ALA:HB2	2.37	0.54
1:D:44:GLN:HG2	1:D:288:ILE:HB	1.88	0.54
3:M:151:ASP:OD2	3:M:189:HIS:HB3	2.08	0.54
3:O:33:LEU:HD22	3:O:71:PHE:CG	2.42	0.54
1:B:77:ASP:OD2	1:B:141:ARG:NH1	2.32	0.54
1:C:276:THR:O	1:C:276:THR:HG23	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:4:LEU:HD13	2:H:92:CYS:SG	2.47	0.54
1:C:189:GLN:HG3	2:J:27(C):GLY:O	2.08	0.54
2:J:128:SER:O	2:J:129:LYS:HB3	2.07	0.54
1:B:276:THR:HG23	1:B:276:THR:O	2.07	0.53
1:A:276:THR:HG23	1:A:276:THR:O	2.08	0.53
3:L:12:SER:HB3	3:L:107:LYS:HE3	1.90	0.53
2:I:11:LEU:HB2	2:I:147:PRO:HG3	1.90	0.53
2:K:128:SER:O	2:K:129:LYS:HB3	2.09	0.53
3:L:30:ARG:N	3:L:30:ARG:HD2	2.23	0.52
3:O:11:LEU:HD21	3:O:19:VAL:HG13	1.91	0.52
3:O:90:GLN:CD	3:O:90:GLN:C	2.78	0.52
2:K:184:VAL:HG11	2:K:194:TYR:CE1	2.45	0.52
2:J:97:SER:OG	2:J:100(N):ASP:OD2	2.25	0.52
3:N:188:LYS:HB3	3:N:189:HIS:CD2	2.45	0.51
1:C:50:LYS:HD3	1:C:275[B]:ASP:OD2	2.11	0.51
3:M:40:PRO:CB	3:M:165:GLU:HG3	2.40	0.51
2:K:184:VAL:HG11	2:K:194:TYR:CZ	2.46	0.51
3:N:23:CYS:HB2	3:N:35:TRP:CH2	2.45	0.51
1:C:293:PRO:C	1:C:306:PRO:HB3	2.36	0.51
3:O:37:GLN:HB2	3:O:47:LEU:HD11	1.94	0.51
1:D:189:GLN:HG3	2:K:27(C):GLY:O	2.10	0.50
3:L:140:TYR:CG	3:L:141:PRO:HA	2.47	0.50
3:M:11:LEU:HD21	3:M:19:VAL:HG13	1.94	0.50
3:M:188:LYS:HB3	3:M:189:HIS:CD2	2.47	0.49
2:K:188:SER:O	2:K:189:LEU:C	2.55	0.49
1:A:190:GLU:HG3	2:H:100(D):ALA:HB2	1.95	0.49
1:A:108:LEU:HB2	1:A:234[A]:TRP:CZ3	2.47	0.49
2:K:95:HIS:CE1	2:K:100(P):PHE:CE2	3.01	0.49
2:K:201:LYS:N	2:K:202:PRO:CD	2.75	0.49
1:B:184:HIS:HE1	3:L:152:ASN:HD22	1.59	0.49
2:H:34:VAL:HG11	2:H:78:LEU:HD22	1.95	0.48
2:H:201:LYS:N	2:H:202:PRO:CD	2.76	0.48
1:C:294:PHE:HD1	1:C:307:LYS:HB2	1.78	0.48
1:D:108:LEU:HB2	1:D:234[A]:TRP:CZ3	2.49	0.48
2:K:184:VAL:O	2:K:185:PRO:C	2.57	0.48
1:B:184:HIS:HE1	3:L:152:ASN:ND2	2.12	0.47
1:C:190:GLU:CG	2:J:100(D):ALA:HB2	2.44	0.47
1:C:294:PHE:CD1	1:C:307:LYS:HB2	2.48	0.47
3:O:40:PRO:CB	3:O:165:GLU:HG3	2.44	0.47
1:D:299:LYS:HA	1:D:308:TYR:CB	2.45	0.47
3:M:151:ASP:CG	3:M:189:HIS:HB3	2.39	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:190:GLU:CG	2:K:100(D):ALA:HB2	2.43	0.47
2:K:4:LEU:HD13	2:K:92:CYS:SG	2.55	0.47
3:M:11:LEU:HD21	3:M:19:VAL:CG1	2.45	0.47
2:J:145:TYR:CE2	2:J:150:VAL:HG13	2.49	0.47
2:I:184:VAL:O	2:I:185:PRO:C	2.58	0.47
3:N:91:TYR:HB2	3:N:96:PHE:CE1	2.50	0.47
3:O:55:GLN:HE21	3:O:55:GLN:HA	1.80	0.47
3:L:40:PRO:CB	3:L:165:GLU:HG3	2.45	0.47
1:D:153:TRP:CH2	2:K:100(F):TRP:HB2	2.50	0.46
1:D:298:ASN:C	1:D:308:TYR:CD1	2.93	0.46
2:H:128:SER:O	2:H:129:LYS:CB	2.64	0.46
2:H:188:SER:O	2:H:189:LEU:C	2.59	0.46
1:B:105:TYR:CD1	1:B:105:TYR:C	2.94	0.46
1:B:190:GLU:CD	2:I:100(D):ALA:HB2	2.41	0.46
2:H:184:VAL:O	2:H:185:PRO:C	2.59	0.46
3:O:175:LEU:C	3:O:175:LEU:HD23	2.41	0.45
1:D:190:GLU:CD	2:K:100(D):ALA:HB2	2.41	0.45
3:M:12:SER:HB3	3:M:107:LYS:HE3	1.97	0.45
3:M:80:PRO:HA	3:M:106:ILE:HG13	1.98	0.45
2:I:201:LYS:HB2	2:I:202:PRO:HD3	1.98	0.45
3:N:175:LEU:HD23	3:N:175:LEU:C	2.41	0.45
2:H:129:LYS:O	2:H:129:LYS:HG2	2.17	0.45
3:L:40:PRO:HB3	3:L:165:GLU:HG3	1.98	0.45
3:L:181:LEU:CD1	3:L:186:TYR:HB2	2.47	0.45
1:B:92:LYS:HB2	1:C:222:TRP:CE3	2.52	0.44
3:N:90:GLN:CD	3:N:90:GLN:C	2.86	0.44
3:O:12:SER:HB3	3:O:107:LYS:HE3	1.99	0.44
3:M:40:PRO:HB3	3:M:165:GLU:HG3	1.98	0.44
3:M:55:GLN:HE21	3:M:55:GLN:HA	1.81	0.44
3:O:11:LEU:HD21	3:O:19:VAL:CG1	2.48	0.44
2:H:34:VAL:HB	2:H:78:LEU:HD21	2.00	0.44
2:H:145:TYR:CE2	2:H:150:VAL:HG13	2.52	0.44
3:M:90:GLN:CD	3:M:90:GLN:C	2.85	0.44
3:M:125:LEU:C	3:M:127:SER:N	2.74	0.44
2:I:128:SER:O	2:I:129:LYS:CB	2.65	0.44
1:B:108:LEU:HB2	1:B:234[A]:TRP:CZ3	2.53	0.44
1:A:190:GLU:CG	2:H:100(D):ALA:HB2	2.47	0.44
1:C:102:VAL:HG22	1:C:232:ILE:HB	1.98	0.44
1:C:44:GLN:HB2	1:C:292:LYS:HD2	1.98	0.44
3:M:140:TYR:CG	3:M:141:PRO:HA	2.53	0.43
3:O:140:TYR:CG	3:O:141:PRO:HA	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:238:LYS:HB3	1:A:239:PRO:HD2	2.00	0.43
1:D:189:GLN:NE2	2:K:27(C):GLY:O	2.46	0.43
2:J:128:SER:O	2:J:129:LYS:CB	2.66	0.43
1:C:207:ARG:NH1	1:C:240:GLY:O	2.52	0.43
1:C:294:PHE:CA	1:C:306:PRO:HB3	2.48	0.43
3:L:188:LYS:HB3	3:L:189:HIS:CD2	2.54	0.43
3:O:187:GLU:O	3:O:211:ARG:NH2	2.51	0.43
1:B:184:HIS:CE1	3:L:152:ASN:HD22	2.36	0.43
1:D:164:LEU:O	1:D:246:ASN:HA	2.19	0.43
3:N:55:GLN:HE21	3:N:55:GLN:HA	1.83	0.43
2:H:95:HIS:CE1	2:H:100(P):PHE:CE2	3.06	0.43
3:L:23:CYS:HB2	3:L:35:TRP:CH2	2.54	0.43
1:A:205:SER:HB3	1:A:210:GLN:HG3	2.01	0.42
1:B:184:HIS:CE1	3:L:152:ASN:ND2	2.87	0.42
2:J:129:LYS:HG2	2:J:129:LYS:O	2.20	0.42
1:B:120:PHE:C	1:B:121:ILE:HD12	2.44	0.42
1:D:207[B]:ARG:NH1	1:D:240:GLY:O	2.52	0.42
2:J:184:VAL:O	2:J:185:PRO:C	2.61	0.42
1:A:164:LEU:O	1:A:246:ASN:HA	2.20	0.42
2:K:129:LYS:HG2	2:K:129:LYS:O	2.20	0.42
2:J:201:LYS:HB2	2:J:202:PRO:HD3	2.02	0.42
1:C:50:LYS:CD	1:C:275[B]:ASP:OD2	2.68	0.42
3:L:175:LEU:C	3:L:175:LEU:HD23	2.44	0.42
3:N:154:LEU:C	3:N:154:LEU:HD23	2.44	0.42
2:K:4:LEU:HD21	2:K:29:LEU:HD13	2.02	0.42
1:C:190:GLU:CD	2:J:100(D):ALA:HB2	2.45	0.42
3:L:34:ASN:OD1	3:L:49:TYR:HA	2.19	0.42
2:I:95:HIS:CE1	2:I:100(P):PHE:CE2	3.08	0.42
2:I:129:LYS:O	2:I:129:LYS:HG2	2.19	0.42
2:K:128:SER:O	2:K:129:LYS:CB	2.67	0.42
1:C:108:LEU:HB2	1:C:234[A]:TRP:CZ3	2.54	0.41
3:L:55:GLN:HE21	3:L:55:GLN:HA	1.85	0.41
3:M:125:LEU:C	3:M:127:SER:H	2.28	0.41
1:D:293:PRO:C	1:D:306:PRO:HB3	2.45	0.41
3:N:66:GLY:HA3	3:N:70:ASP:O	2.20	0.41
1:D:299:LYS:HB3	1:D:308:TYR:CD2	2.56	0.41
3:L:11:LEU:HD21	3:L:19:VAL:CG1	2.51	0.41
2:K:97:SER:OG	2:K:100(N):ASP:OD2	2.25	0.41
1:C:164:LEU:O	1:C:246:ASN:HA	2.21	0.41
3:M:175:LEU:C	3:M:175:LEU:HD23	2.46	0.41
1:A:102:VAL:HG22	1:A:232:ILE:HB	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:293:PRO:HB2	1:C:294:PHE:CE2	2.56	0.41
1:A:84:TRP:CE2	1:A:116:GLY:HA2	2.56	0.41
3:L:125:LEU:C	3:L:127:SER:N	2.79	0.41
3:O:186:TYR:HA	3:O:192:TYR:OH	2.21	0.41
1:A:153:TRP:CH2	2:H:100(F):TRP:HB2	2.56	0.40
2:I:126:PRO:HD3	2:I:138:LEU:HB3	2.04	0.40
3:O:91:TYR:HB2	3:O:96:PHE:CE1	2.57	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	273/278 (98%)	266 (97%)	6 (2%)	1 (0%)	30	54
1	B	273/278 (98%)	266 (97%)	6 (2%)	1 (0%)	30	54
1	C	270/278 (97%)	264 (98%)	5 (2%)	1 (0%)	30	54
1	D	272/278 (98%)	265 (97%)	6 (2%)	1 (0%)	30	54
2	H	241/241 (100%)	234 (97%)	5 (2%)	2 (1%)	16	36
2	I	241/241 (100%)	234 (97%)	6 (2%)	1 (0%)	30	54
2	J	241/241 (100%)	235 (98%)	5 (2%)	1 (0%)	30	54
2	K	241/241 (100%)	233 (97%)	6 (2%)	2 (1%)	16	36
3	L	212/214 (99%)	208 (98%)	4 (2%)	0	100	100
3	M	212/214 (99%)	208 (98%)	4 (2%)	0	100	100
3	N	212/214 (99%)	207 (98%)	5 (2%)	0	100	100
3	O	212/214 (99%)	207 (98%)	5 (2%)	0	100	100
All	All	2900/2932 (99%)	2827 (98%)	63 (2%)	10 (0%)	30	59

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	H	189	LEU
2	K	189	LEU
1	A	62	ILE
1	B	62	ILE
1	C	62	ILE
1	D	62	ILE
2	J	149	PRO
2	I	149	PRO
2	K	149	PRO
2	H	149	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	244/244 (100%)	243 (100%)	1 (0%)	84	92
1	B	244/244 (100%)	243 (100%)	1 (0%)	84	92
1	C	241/244 (99%)	240 (100%)	1 (0%)	84	92
1	D	242/244 (99%)	241 (100%)	1 (0%)	84	92
2	H	202/200 (101%)	195 (96%)	7 (4%)	32	56
2	I	202/200 (101%)	197 (98%)	5 (2%)	42	66
2	J	202/200 (101%)	198 (98%)	4 (2%)	48	70
2	K	202/200 (101%)	198 (98%)	4 (2%)	48	70
3	L	187/187 (100%)	178 (95%)	9 (5%)	23	47
3	M	187/187 (100%)	178 (95%)	9 (5%)	23	47
3	N	187/187 (100%)	178 (95%)	9 (5%)	23	47
3	O	187/187 (100%)	178 (95%)	9 (5%)	23	47
All	All	2527/2524 (100%)	2467 (98%)	60 (2%)	43	67

All (60) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	53	ASN

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Mol	Chain	Res	Type
1	B	53	ASN
1	C	53	ASN
1	D	53	ASN
2	H	78	LEU
2	H	92	CYS
2	H	178	LEU
2	H	187	SER
2	H	193	THR
2	H	197	ASN
2	H	209	LYS
3	L	3	GLN
3	L	11	LEU
3	L	24	GLN
3	L	55	GLN
3	L	90	GLN
3	L	123	GLU
3	L	147	GLN
3	L	181	LEU
3	L	188	LYS
2	I	78	LEU
2	I	92	CYS
2	I	178	LEU
2	I	199	ASN
2	I	209	LYS
3	M	3	GLN
3	M	11	LEU
3	M	24	GLN
3	M	55	GLN
3	M	90	GLN
3	M	123	GLU
3	M	147	GLN
3	M	181	LEU
3	M	188	LYS
2	J	78	LEU
2	J	92	CYS
2	J	178	LEU
2	J	209	LYS
3	N	3	GLN
3	N	11	LEU
3	N	24	GLN
3	N	55	GLN
3	N	90	GLN

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Mol	Chain	Res	Type
3	N	123	GLU
3	N	147	GLN
3	N	181	LEU
3	N	188	LYS
2	K	78	LEU
2	K	92	CYS
2	K	178	LEU
2	K	209	LYS
3	O	3	GLN
3	O	11	LEU
3	O	24	GLN
3	O	55	GLN
3	O	90	GLN
3	O	123	GLU
3	O	147	GLN
3	O	181	LEU
3	O	188	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (51) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	53	ASN
1	A	54	ASN
1	A	75	HIS
1	A	81	ASN
1	A	171	ASN
1	A	188	ASN
1	B	44	GLN
1	B	53	ASN
1	B	75	HIS
1	B	81	ASN
1	B	171	ASN
1	C	53	ASN
1	C	81	ASN
1	C	171	ASN
1	C	210	GLN
1	D	53	ASN
1	D	54	ASN
1	D	171	ASN
1	D	188	ASN
1	D	210	GLN
1	D	211	GLN

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Mol	Chain	Res	Type
2	H	164	HIS
2	H	192	GLN
3	L	55	GLN
3	L	138	ASN
3	L	152	ASN
3	L	189	HIS
3	L	199	GLN
2	I	39	GLN
2	I	164	HIS
2	I	192	GLN
3	M	38	GLN
3	M	55	GLN
3	M	137	ASN
3	M	138	ASN
3	M	160	GLN
3	M	199	GLN
2	J	39	GLN
2	J	81	GLN
2	J	164	HIS
3	N	38	GLN
3	N	55	GLN
3	N	137	ASN
3	N	138	ASN
3	N	189	HIS
3	N	199	GLN
2	K	192	GLN
3	O	55	GLN
3	O	189	HIS
3	O	199	GLN
3	O	210	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

4 non-standard protein/DNA/RNA residues are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The

Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	PCA	J	1	2	7,8,9	2.28	2 (28%)	9,10,12	2.25	5 (55%)
2	PCA	H	1	2	7,8,9	2.26	2 (28%)	9,10,12	2.23	5 (55%)
2	PCA	I	1	2	7,8,9	2.27	2 (28%)	9,10,12	2.26	5 (55%)
2	PCA	K	1	2	7,8,9	2.29	2 (28%)	9,10,12	2.24	5 (55%)

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	PCA	J	1	2	-	0/0/11/13	0/1/1/1
2	PCA	H	1	2	-	0/0/11/13	0/1/1/1
2	PCA	I	1	2	-	0/0/11/13	0/1/1/1
2	PCA	K	1	2	-	0/0/11/13	0/1/1/1

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	K	1	PCA	CD-N	4.98	1.46	1.34
2	J	1	PCA	CD-N	4.97	1.46	1.34
2	I	1	PCA	CD-N	4.95	1.46	1.34
2	H	1	PCA	CD-N	4.85	1.46	1.34
2	H	1	PCA	CA-N	3.32	1.50	1.46
2	K	1	PCA	CA-N	3.29	1.50	1.46
2	J	1	PCA	CA-N	3.23	1.50	1.46
2	I	1	PCA	CA-N	3.19	1.50	1.46

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	I	1	PCA	CA-N-CD	-3.26	102.43	113.58
2	I	1	PCA	CB-CA-N	3.21	112.07	103.24
2	J	1	PCA	CA-N-CD	-3.16	102.75	113.58
2	H	1	PCA	CA-N-CD	-3.16	102.77	113.58
2	H	1	PCA	CB-CA-N	3.09	111.74	103.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	K	1	PCA	CA-N-CD	-3.06	103.09	113.58
2	J	1	PCA	CB-CA-N	3.05	111.62	103.24
2	J	1	PCA	OE-CD-CG	-3.01	121.35	126.72
2	K	1	PCA	OE-CD-CG	-3.01	121.36	126.72
2	I	1	PCA	OE-CD-CG	-2.97	121.41	126.72
2	H	1	PCA	OE-CD-CG	-2.91	121.53	126.72
2	K	1	PCA	CB-CA-N	2.90	111.23	103.24
2	K	1	PCA	CB-CA-C	-2.86	108.73	112.66
2	J	1	PCA	CG-CD-N	2.74	115.10	108.39
2	I	1	PCA	CG-CD-N	2.74	115.10	108.39
2	H	1	PCA	CG-CD-N	2.71	115.01	108.39
2	K	1	PCA	CG-CD-N	2.65	114.87	108.39
2	J	1	PCA	CB-CA-C	-2.50	109.23	112.66
2	H	1	PCA	CB-CA-C	-2.34	109.45	112.66
2	I	1	PCA	CB-CA-C	-2.26	109.56	112.66

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates

2 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	$\# Z > 2$
4	NAG	E	1	4,1	14,14,15	0.55	0	17,19,21	0.90	1 (5%)
4	NAG	E	2	4	14,14,15	0.53	0	17,19,21	0.63	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
4	NAG	E	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	E	2	4	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	E	1	NAG	O5-C1-C2	-3.00	106.65	111.29

There are no chirality outliers.

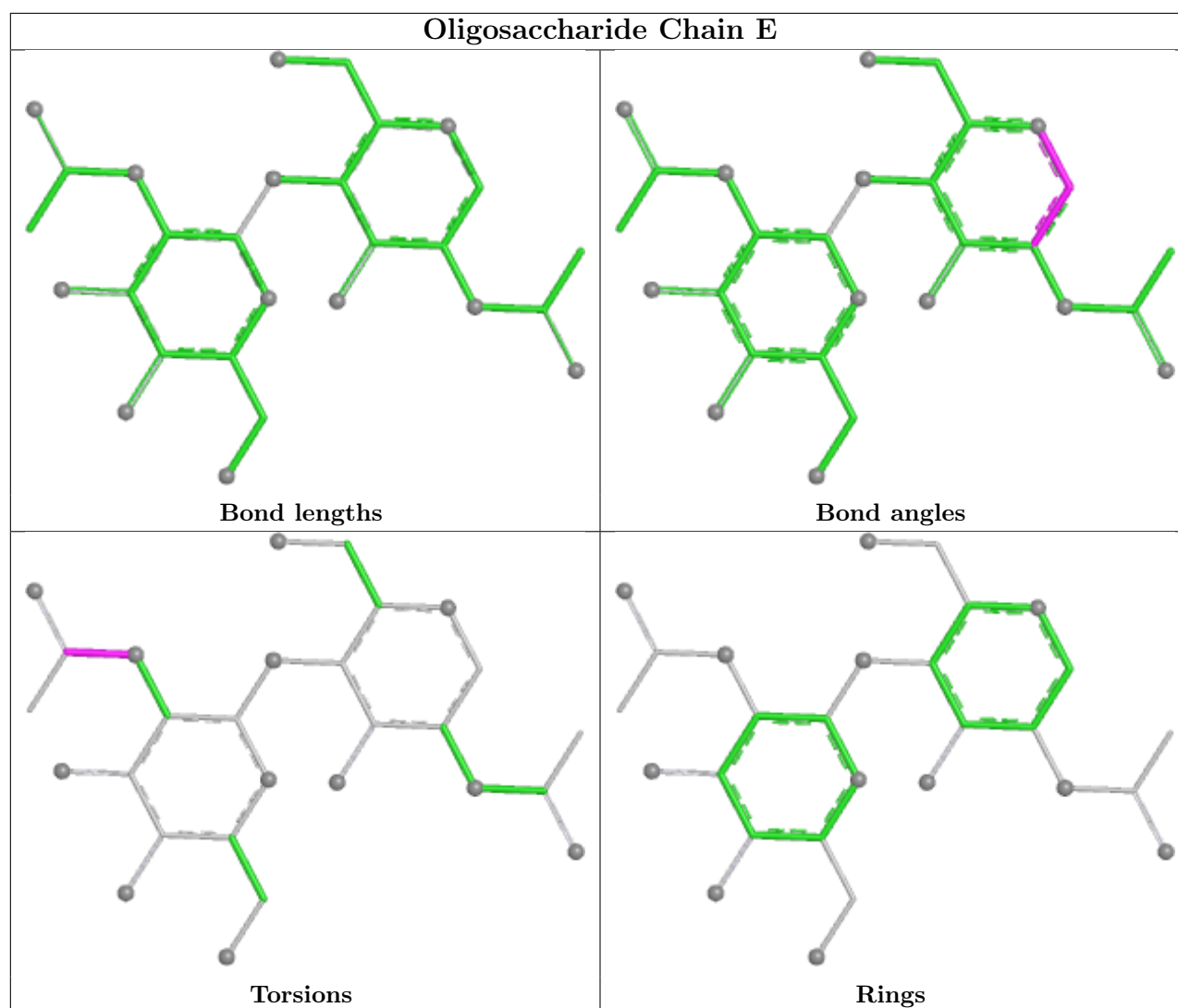
All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	E	2	NAG	C8-C7-N2-C2
4	E	2	NAG	O7-C7-N2-C2

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](#)

Of 10 ligands modelled in this entry, 8 are monoatomic - leaving 2 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	$\# Z > 2$
5	NAG	A	701	1	14,14,15	0.58	0	17,19,21	0.92	1 (5%)
5	NAG	D	701	1	14,14,15	0.56	0	17,19,21	0.88	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
5	NAG	A	701	1	-	0/6/23/26	0/1/1/1
5	NAG	D	701	1	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	701	NAG	O5-C1-C2	-3.18	106.37	111.29
5	D	701	NAG	O5-C1-C2	-3.10	106.50	111.29

There are no chirality outliers.

There are no torsion outliers.

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	267/278 (96%)	0.25	11 (4%) 41 33	20, 53, 125, 181	8 (2%)
1	B	267/278 (96%)	0.47	20 (7%) 20 17	19, 58, 146, 202	8 (2%)
1	C	265/278 (95%)	0.51	35 (13%) 7 7	19, 58, 237, 285	7 (2%)
1	D	266/278 (95%)	0.62	37 (13%) 6 6	18, 62, 274, 438	8 (3%)
2	H	238/241 (98%)	0.17	14 (5%) 28 23	28, 49, 97, 265	4 (1%)
2	I	238/241 (98%)	0.35	14 (5%) 28 23	30, 62, 133, 250	4 (1%)
2	J	238/241 (98%)	0.48	15 (6%) 26 22	29, 67, 131, 246	4 (1%)
2	K	238/241 (98%)	1.86	95 (39%) 1 0	33, 100, 312, 488	4 (1%)
3	L	213/214 (99%)	0.04	9 (4%) 40 32	30, 46, 75, 106	1 (0%)
3	M	213/214 (99%)	0.07	6 (2%) 55 46	22, 46, 86, 147	1 (0%)
3	N	213/214 (99%)	0.34	8 (3%) 44 36	43, 69, 113, 140	1 (0%)
3	O	213/214 (99%)	2.51	125 (58%) 0 0	84, 178, 276, 356	1 (0%)
All	All	2869/2932 (97%)	0.63	389 (13%) 7 7	18, 62, 228, 488	51 (1%)

All (389) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	K	182	VAL	11.6
2	K	181	VAL	9.1
3	O	174	SER	8.3
3	O	135	LEU	8.2
2	K	198	VAL	8.1
3	O	133	VAL	7.6
2	I	130	SER	6.9
3	O	144	ALA	6.9
2	K	116	THR	6.7
2	K	140	CYS	6.6
2	K	180	SER	6.5

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Mol	Chain	Res	Type	RSRZ
2	K	139	GLY	6.3
2	K	193	THR	6.2
2	K	152	VAL	6.2
3	O	196	VAL	6.2
3	O	136	LEU	6.0
3	O	175	LEU	5.9
2	K	127	SER	5.7
2	K	151	THR	5.7
2	H	134	GLY	5.7
2	K	142	VAL	5.6
2	K	121	VAL	5.5
3	O	111	ALA	5.4
2	K	138	LEU	5.4
3	O	176	SER	5.3
2	K	207	VAL	5.2
3	O	134	CYS	5.1
2	K	141	LEU	5.1
2	K	164	HIS	5.1
1	D	302	TYR	5.1
2	J	130	SER	5.1
2	K	150	VAL	5.0
2	K	183	THR	5.0
2	K	195	ILE	5.0
3	O	195	GLU	5.0
2	H	131	THR	5.0
3	O	172	THR	5.0
1	D	289	PRO	5.0
2	J	132	SER	4.9
2	K	202	PRO	4.9
3	O	194	CYS	4.9
2	H	127	SER	4.8
3	O	110	VAL	4.7
3	O	170	ASP	4.7
2	K	179	SER	4.7
3	O	109	THR	4.6
3	O	200	GLY	4.6
2	K	159	LEU	4.6
1	C	304	ALA	4.6
3	O	119	PRO	4.6
3	O	20	THR	4.5
2	K	194	TYR	4.5
3	O	199	GLN	4.5

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Mol	Chain	Res	Type	RSRZ
1	B	77	ASP	4.5
1	B	294	PHE	4.5
2	K	175	LEU	4.5
2	K	178	LEU	4.4
1	C	284	PRO	4.4
3	O	7	SER	4.4
2	J	131	THR	4.3
3	O	162	SER	4.3
3	O	204	PRO	4.3
3	L	12	SER	4.2
1	A	143	PRO	4.2
2	J	16	GLU	4.2
3	O	171	SER	4.2
3	O	163	VAL	4.2
3	O	148	TRP	4.2
3	O	205	VAL	4.2
2	J	127	SER	4.2
2	I	214	LYS	4.1
2	H	130	SER	4.1
2	K	214	LYS	4.1
2	K	136	ALA	4.1
3	O	120	PRO	4.1
3	O	197	THR	4.1
3	O	117	ILE	4.1
2	K	155	ASN	4.0
2	K	165	THR	4.0
3	O	1	ASP	4.0
2	K	125	ALA	4.0
2	I	13	GLN	4.0
2	K	204	ASN	3.9
3	O	114	SER	3.9
1	D	300	ILE	3.9
3	O	140	TYR	3.9
3	O	83	VAL	3.9
1	B	304	ALA	3.9
2	I	135	THR	3.9
2	J	135	THR	3.9
2	K	137	ALA	3.9
2	K	126	PRO	3.8
1	C	300	ILE	3.8
2	K	206	LYS	3.8
3	O	105	VAL	3.8

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Mol	Chain	Res	Type	RSRZ
3	O	115	VAL	3.8
1	A	294	PHE	3.8
2	K	185	PRO	3.8
3	O	154	LEU	3.8
3	O	84	GLY	3.8
3	O	155	GLN	3.7
2	K	130	SER	3.7
3	O	8	PRO	3.7
2	K	122	PHE	3.7
1	D	276	THR	3.7
3	O	164	THR	3.7
1	B	43	VAL	3.7
2	K	201	LYS	3.7
1	D	307	LYS	3.7
2	J	214	LYS	3.7
2	K	131	THR	3.7
1	C	45	SER	3.7
2	K	153	SER	3.7
1	C	288	ILE	3.6
3	O	11	LEU	3.6
3	O	178	THR	3.6
3	O	203	SER	3.6
3	O	161	GLU	3.6
1	C	48	THR	3.6
3	O	142	ARG	3.5
1	D	297	VAL	3.5
2	K	184	VAL	3.5
1	A	104	ASP	3.5
1	A	77	ASP	3.5
2	K	200	HIS	3.5
2	K	199	ASN	3.5
3	O	106	ILE	3.4
3	O	116	PHE	3.4
2	I	134	GLY	3.4
2	K	163	VAL	3.4
1	D	275[A]	ASP	3.4
2	K	166	PHE	3.4
3	O	4	LEU	3.4
3	O	132	VAL	3.4
1	C	208	ARG	3.4
2	K	205	THR	3.4
2	K	134	GLY	3.4

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Mol	Chain	Res	Type	RSRZ
2	K	189	LEU	3.4
3	M	152	ASN	3.4
3	O	104	VAL	3.3
3	O	137	ASN	3.3
1	C	278	ILE	3.3
2	I	132	SER	3.3
3	O	121	SER	3.3
3	O	122	ASP	3.3
2	K	123	PRO	3.3
3	O	5	THR	3.3
2	K	117	LYS	3.3
3	O	112	ALA	3.3
2	K	144	ASP	3.3
3	O	207	LYS	3.3
2	K	167	PRO	3.3
3	O	118	PHE	3.3
3	O	23	CYS	3.3
1	B	119	GLU	3.2
3	O	13	ALA	3.2
1	D	264	LYS	3.2
1	D	271	ASP	3.2
1	D	207[A]	ARG	3.2
3	O	146	VAL	3.2
2	H	135	THR	3.2
1	C	289	PRO	3.2
1	D	293	PRO	3.2
2	K	173	SER	3.2
2	K	203	SER	3.2
3	O	40	PRO	3.2
1	B	303	GLY	3.2
3	O	165	GLU	3.2
3	O	73	LEU	3.2
1	D	284	PRO	3.2
1	B	291	ASP	3.1
3	O	147	GLN	3.1
2	I	133	GLY	3.1
2	K	154	TRP	3.1
1	C	52	CYS	3.1
2	K	115	SER	3.1
2	K	100(J)	ASP	3.1
2	K	145	TYR	3.1
3	O	186	TYR	3.1

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Mol	Chain	Res	Type	RSRZ
2	I	127	SER	3.1
1	C	189	GLN	3.1
2	K	157	GLY	3.1
3	O	191	VAL	3.1
1	D	45	SER	3.1
2	J	82(B)[A]	ASN	3.1
2	K	114	ALA	3.0
2	K	168	ALA	3.0
1	D	53	ASN	3.0
2	K	149	PRO	3.0
3	O	173	TYR	3.0
3	O	192	TYR	3.0
3	O	28	ASP	3.0
1	D	292	LYS	3.0
3	O	153	ALA	3.0
1	D	270	SER	3.0
1	D	56	HIS	3.0
3	O	150	VAL	3.0
3	O	101	GLY	3.0
1	C	101	ASP	3.0
2	K	161[A]	SER	3.0
3	O	198	HIS	3.0
2	H	133	GLY	2.9
2	K	147	PRO	2.9
1	C	294	PHE	2.9
2	K	213	PRO	2.9
2	K	196	CYS	2.9
3	O	145	LYS	2.9
1	D	274[A]	ILE	2.9
2	K	132	SER	2.9
3	N	26	SER	2.9
1	C	190	GLU	2.9
2	I	189	LEU	2.9
2	K	124	LEU	2.9
2	K	170	LEU	2.9
1	D	48	THR	2.8
2	I	131	THR	2.8
1	C	143	PRO	2.8
3	O	143	GLU	2.8
3	O	201	LEU	2.8
3	O	102	THR	2.8
1	C	263	GLY	2.8

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Mol	Chain	Res	Type	RSRZ
2	I	190	GLY	2.8
2	K	41	PRO	2.8
1	A	309	VAL	2.8
1	D	296	ASN	2.8
3	N	4	LEU	2.8
2	K	171	GLN	2.8
3	O	160	GLN	2.8
1	C	282	ILE	2.8
1	D	304	ALA	2.7
2	K	160	THR	2.7
3	O	167	ASP	2.7
2	K	192	GLN	2.7
3	O	69	THR	2.7
2	K	128	SER	2.7
1	C	290	ASN	2.7
3	L	168	SER	2.7
3	N	88	CYS	2.6
1	A	260[A]	MET	2.6
3	O	12	SER	2.6
2	K	44	GLY	2.6
3	N	40	PRO	2.6
3	O	27	GLN	2.6
1	B	104	ASP	2.6
1	D	101	ASP	2.6
2	K	158	ALA	2.6
3	O	25	ALA	2.6
3	O	184	ALA	2.6
2	J	115	SER	2.6
3	M	127	SER	2.6
1	C	308	TYR	2.6
1	C	51	ILE	2.6
3	O	15	VAL	2.6
1	C	53	ASN	2.6
2	K	146	PHE	2.6
1	C	56	HIS	2.6
3	N	23	CYS	2.6
3	O	76	SER	2.5
3	O	103	LYS	2.5
2	J	108	MET	2.5
1	D	82	GLU	2.5
3	N	129	THR	2.5
1	D	281	CYS	2.5

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Mol	Chain	Res	Type	RSRZ
2	H	27(B)	PHE	2.5
1	C	175	ASP	2.5
3	O	70	ASP	2.5
3	O	131	SER	2.5
2	K	162	GLY	2.5
3	O	38	GLN	2.5
2	K	208	ASP	2.5
2	H	132	SER	2.5
3	O	127	SER	2.5
3	O	113	PRO	2.5
1	D	288	ILE	2.5
1	D	308	TYR	2.5
1	D	294	PHE	2.5
1	D	64	CYS	2.5
2	I	129	LYS	2.5
3	O	39	LYS	2.5
1	D	260[A]	MET	2.5
3	O	179	LEU	2.5
3	O	10	SER	2.5
1	A	43	VAL	2.5
3	N	24	GLN	2.5
2	K	135	THR	2.5
2	K	129	LYS	2.5
1	B	309	VAL	2.4
3	O	177	SER	2.4
2	H	100(J)	ASP	2.4
2	J	129	LYS	2.4
2	K	176	TYR	2.4
3	M	3	GLN	2.4
1	A	277	CYS	2.4
2	K	119	PRO	2.4
1	C	303	GLY	2.4
1	C	307	LYS	2.4
3	O	80	PRO	2.4
2	K	133	GLY	2.4
1	C	119	GLU	2.4
3	L	10	SER	2.4
2	K	174	GLY	2.3
1	B	268	MET	2.3
1	C	46	SER	2.3
2	H	82(B)[A]	ASN	2.3
2	K	10	GLY	2.3

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Mol	Chain	Res	Type	RSRZ
2	K	120	SER	2.3
3	O	31	LYS	2.3
3	L	152	ASN	2.3
3	L	165	GLU	2.3
1	B	76	CYS	2.3
3	O	181	LEU	2.3
3	O	209	PHE	2.3
1	B	80	GLN	2.3
1	D	291	ASP	2.3
2	I	210	ARG	2.3
2	J	133	GLY	2.3
3	O	123	GLU	2.2
3	L	3	GLN	2.2
1	C	77	ASP	2.2
3	O	29	ILE	2.2
3	O	74	ILE	2.2
3	O	18[A]	ARG	2.2
3	O	97	THR	2.2
2	K	190	GLY	2.2
3	O	99	GLY	2.2
1	D	268	MET	2.2
1	D	278	ILE	2.2
2	I	193	THR	2.2
2	K	110	THR	2.2
3	O	88	CYS	2.2
3	O	125	LEU	2.2
1	D	51	ILE	2.2
3	O	189	HIS	2.2
1	B	293	PRO	2.2
3	O	41	GLY	2.2
1	B	297	VAL	2.2
1	C	76	CYS	2.2
3	O	86	TYR	2.2
2	J	128	SER	2.2
3	L	123	GLU	2.2
3	O	152	ASN	2.1
1	B	175	ASP	2.1
3	L	1	ASP	2.1
1	C	283	THR	2.1
3	O	188	LYS	2.1
1	C	302	TYR	2.1
1	B	52	CYS	2.1

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Mol	Chain	Res	Type	RSRZ
1	C	287	SER	2.1
2	K	188	SER	2.1
3	O	156	SER	2.1
2	H	19[A]	ARG	2.1
3	O	108	ARG	2.1
3	M	24	GLN	2.1
3	O	166	GLN	2.1
2	H	214	LYS	2.1
3	O	107	LYS	2.1
1	B	263	GLY	2.1
2	J	116	THR	2.1
2	K	191	THR	2.1
3	M	12	SER	2.1
3	M	81	GLU	2.1
3	O	168	SER	2.1
1	B	290	ASN	2.1
1	C	292	LYS	2.1
1	D	77	ASP	2.1
1	A	207[A]	ARG	2.1
2	H	22	CYS	2.1
1	D	303	GLY	2.1
3	O	62	PHE	2.1
3	O	68	GLY	2.1
3	L	129	THR	2.1
3	O	56	ARG	2.1
1	C	274[A]	ILE	2.1
1	A	307	LYS	2.0
1	B	64	CYS	2.0
1	B	264	LYS	2.0
1	D	50	LYS	2.0
2	K	172	SER	2.0
2	H	26	GLY	2.0
2	J	134	GLY	2.0
2	K	42	GLY	2.0
3	N	22	THR	2.0
1	C	291	ASP	2.0
3	O	14	SER	2.0
2	K	118	GLY	2.0
1	D	282	ILE	2.0
3	O	85	THR	2.0
3	O	180	THR	2.0
1	A	101	ASP	2.0

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

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.

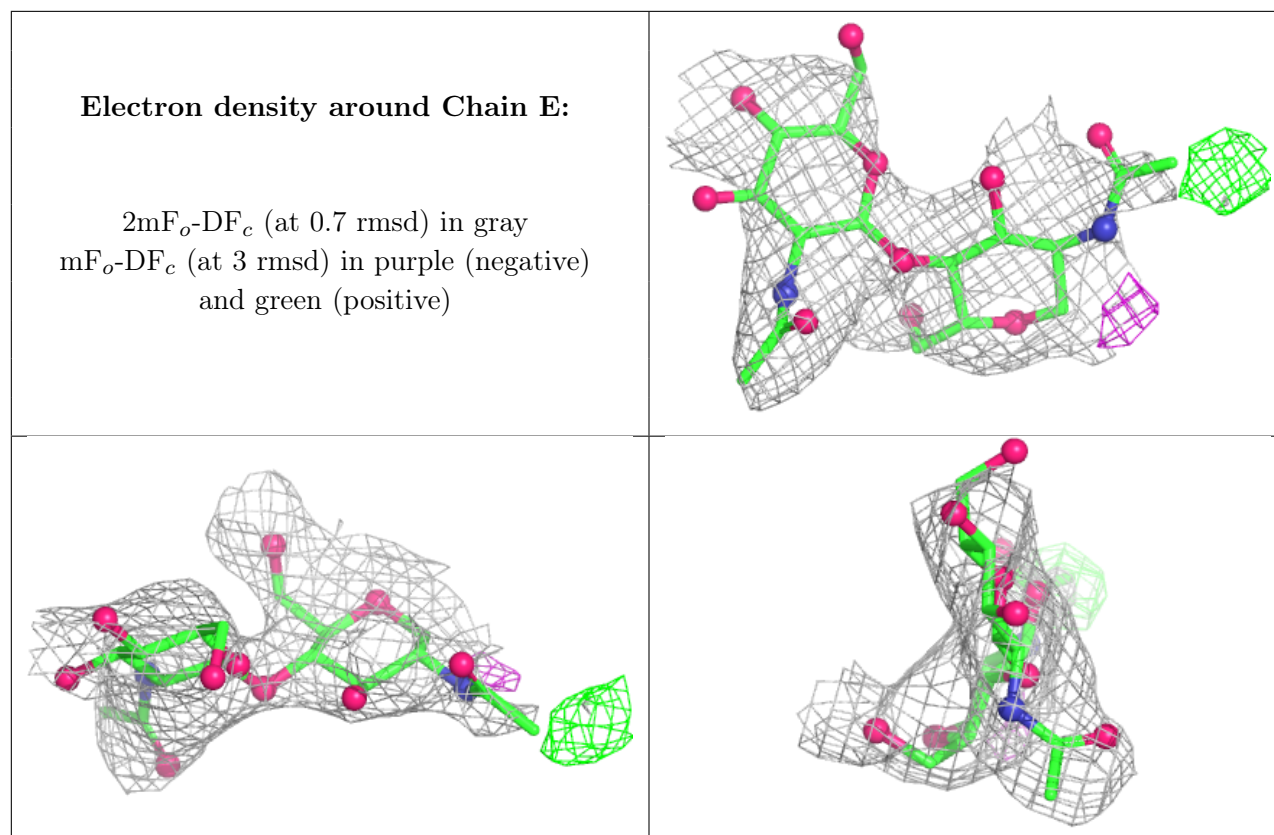
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
2	PCA	K	1	8/9	0.58	0.21	122,139,147,148	0
2	PCA	J	1	8/9	0.68	0.17	86,98,103,106	0
2	PCA	H	1	8/9	0.82	0.14	79,96,104,105	0
2	PCA	I	1	8/9	0.83	0.13	61,81,87,88	0

6.3 Carbohydrates ⓘ

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	E	1	14/15	-	-	109,120,130,136	0
4	NAG	E	2	14/15	-	-	120,125,127,128	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
5	NAG	D	701	14/15	0.62	0.16	100,115,129,135	0
5	NAG	A	701	14/15	0.71	0.18	122,134,148,154	0
6	ZN	H	301	1/1	0.84	0.08	134,134,134,134	0
6	ZN	J	301	1/1	0.88	0.08	143,143,143,143	0
6	ZN	L	301	1/1	0.92	0.10	106,106,106,106	0
6	ZN	O	301	1/1	0.93	0.11	133,133,133,133	0
6	ZN	N	301	1/1	0.94	0.10	102,102,102,102	0
6	ZN	L	302	1/1	0.95	0.07	72,72,72,72	0
6	ZN	N	302	1/1	0.96	0.06	104,104,104,104	0
6	ZN	M	301	1/1	0.97	0.06	94,94,94,94	0

6.5 Other polymers [i](#)

There are no such residues in this entry.