



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 15, 2024 – 08:06 PM EDT

PDB ID : 4R6N
Title : Jacalin-carbohydrate interactions. Distortion of the ligand as a determinant of affinity
Authors : Abhinav, K.V.; Sharma, K.; Swaminathan, C.P.; Surolia, A.; Vijayan, M.
Deposited on : 2014-08-26
Resolution : 1.67 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.37.1
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

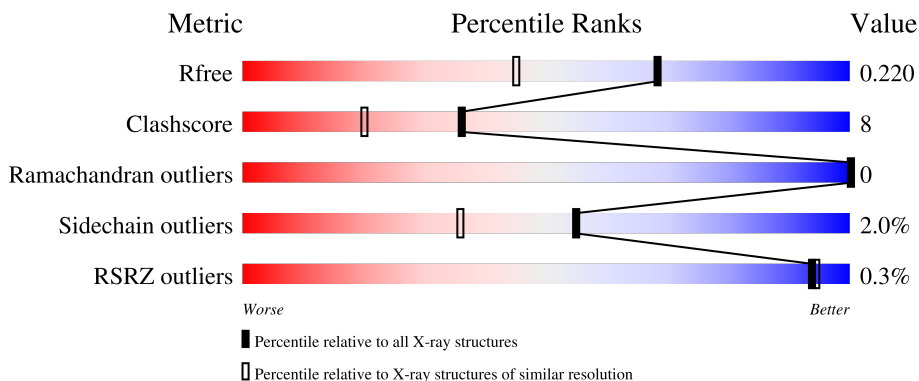
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.67 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



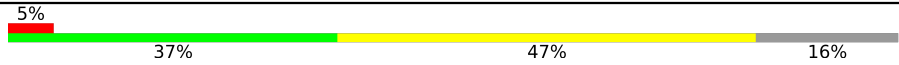


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	6780 (1.70-1.66)
Clashscore	141614	7310 (1.70-1.66)
Ramachandran outliers	138981	7173 (1.70-1.66)
Sidechain outliers	138945	7172 (1.70-1.66)
RSRZ outliers	127900	6661 (1.70-1.66)

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	133	86% 13% .
1	C	133	88% 12%
1	E	133	90% 10%
1	G	133	89% 10% .
2	B	19	53% 32% 16%

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Mol	Chain	Length	Quality of chain
2	D	19	
2	F	19	
2	H	19	

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
4	IPA	A	205	-	-	X	-
4	IPA	G	203	-	-	X	-

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 5367 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.

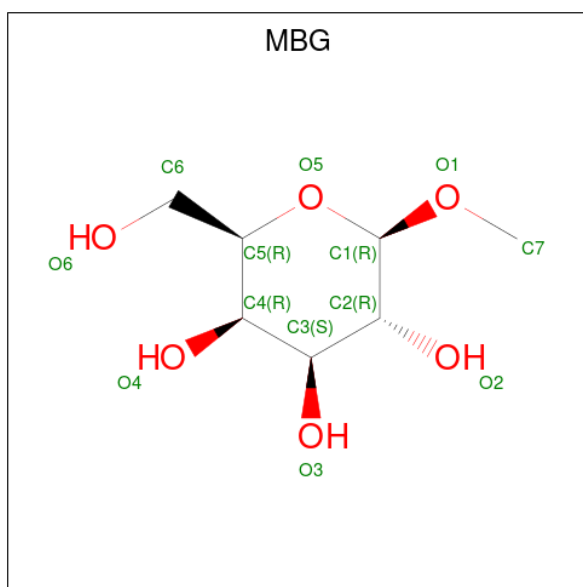
- Molecule 1 is a protein called Agglutinin alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	133	1036	677	159	198	2	0	0	0
1	C	133	1040	679	160	199	2	0	0	0
1	E	133	1040	679	160	199	2	0	0	0
1	G	133	1037	678	159	198	2	0	0	0

- Molecule 2 is a protein called Agglutinin beta-3 chain.

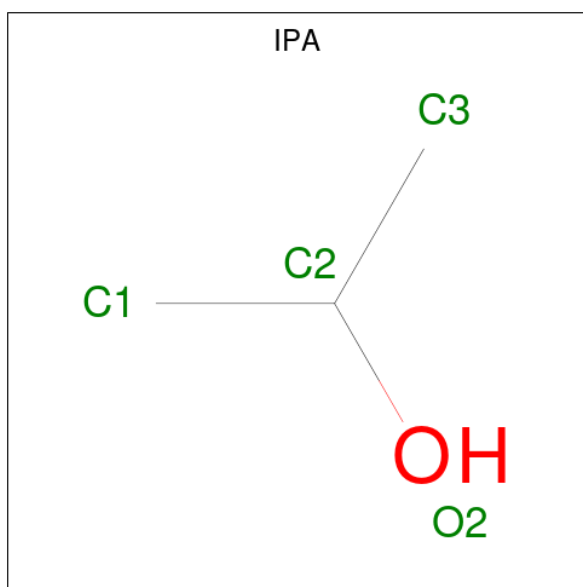
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	B	16	114	73	20	21	0	0	0
2	D	16	117	75	20	22	0	1	0
2	F	16	119	77	21	21	0	1	0
2	H	15	105	68	18	19	0	0	0

- Molecule 3 is methyl beta-D-galactopyranoside (three-letter code: MBG) (formula: $C_7H_{14}O_6$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 13 7 6	0	0
3	E	1	Total C O 13 7 6	0	0
3	G	1	Total C O 13 7 6	0	0

- Molecule 4 is ISOPROPYL ALCOHOL (three-letter code: IPA) (formula: C₃H₈O).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 4 3 1	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			4	3	1		
4	A	1	Total	C	O	0	0
			4	3	1		
4	A	1	Total	C	O	0	0
			4	3	1		
4	C	1	Total	C	O	0	0
			4	3	1		
4	C	1	Total	C	O	0	0
			4	3	1		
4	C	1	Total	C	O	0	0
			4	3	1		
4	D	1	Total	C	O	0	0
			4	3	1		
4	D	1	Total	C	O	0	0
			4	3	1		
4	E	1	Total	C	O	0	0
			4	3	1		
4	E	1	Total	C	O	0	0
			4	3	1		
4	E	1	Total	C	O	0	0
			4	3	1		
4	E	1	Total	C	O	0	0
			4	3	1		
4	G	1	Total	C	O	0	0
			4	3	1		
4	G	1	Total	C	O	0	0
			4	3	1		
4	H	1	Total	C	O	0	0
			4	3	1		
4	H	1	Total	C	O	0	0
			4	3	1		

- Molecule 5 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total C O 4 2 2	0	0
5	C	1	Total C O 4 2 2	0	0
5	D	1	Total C O 4 2 2	0	0
5	E	1	Total C O 4 2 2	0	0
5	E	1	Total C O 4 2 2	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	163	Total O 163 163	0	0
6	B	14	Total O 14 14	0	0
6	C	138	Total O 138 138	0	0
6	D	12	Total O 12 12	0	0
6	E	139	Total O 139 139	0	0
6	F	15	Total O 15 15	0	0
6	G	130	Total O 130 130	0	0

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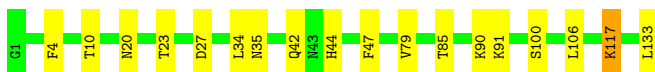
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	H	17	Total	O	0	0
			17	17		

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: Agglutinin alpha chain

Chain A:  86% 13%




- Molecule 1: Agglutinin alpha chain

Chain C:  88% 12%




- Molecule 1: Agglutinin alpha chain

Chain E:  90% 10%



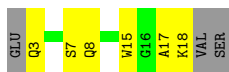
- Molecule 1: Agglutinin alpha chain

Chain G:  89% 10%



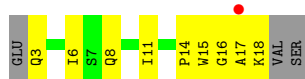
- Molecule 2: Agglutinin beta-3 chain

Chain B:  53% 32% 16%



- Molecule 2: Agglutinin beta-3 chain

Chain D:  5% 37% 47% 16%



- Molecule 2: Agglutinin beta-3 chain



- Molecule 2: Agglutinin beta-3 chain



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	58.53Å 80.90Å 63.21Å 90.00° 108.08° 90.00°	Depositor
Resolution (Å)	60.09 – 1.67 41.99 – 1.67	Depositor EDS
% Data completeness (in resolution range)	96.3 (60.09-1.67) 96.3 (41.99-1.67)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.14	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.86 (at 1.67Å)	Xtrriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.170 , 0.221 0.170 , 0.220	Depositor DCC
R_{free} test set	3158 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å ²)	12.0	Xtrriage
Anisotropy	0.248	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.39 , 61.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.41$, $\langle L^2 \rangle = 0.23$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	5367	wwPDB-VP
Average B, all atoms (Å ²)	14.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.83% 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: MBG, EDO, IPA

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	1.04	0/1065	0.99	3/1444 (0.2%)
1	C	1.01	0/1069	0.94	1/1449 (0.1%)
1	E	1.05	0/1069	0.99	1/1449 (0.1%)
1	G	1.02	0/1066	0.97	1/1445 (0.1%)
2	B	1.04	0/116	0.91	0/157
2	D	1.17	1/122 (0.8%)	0.99	0/165
2	F	1.13	1/120 (0.8%)	0.98	0/160
2	H	1.13	1/107 (0.9%)	0.96	0/145
All	All	1.04	3/4734 (0.1%)	0.97	6/6414 (0.1%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	15	TRP	CD2-CE2	6.25	1.48	1.41
2	D	15	TRP	CD2-CE2	5.67	1.48	1.41
2	H	15	TRP	CD2-CE2	5.36	1.47	1.41

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	27	ASP	CB-CG-OD1	6.94	124.55	118.30
1	E	13	ARG	NE-CZ-NH1	-6.62	116.99	120.30
1	G	10	THR	CB-CA-C	-6.00	95.39	111.60
1	A	106	LEU	CA-CB-CG	-5.70	102.19	115.30
1	A	100	SER	CB-CA-C	-5.48	99.68	110.10
1	C	13	ARG	NE-CZ-NH1	-5.21	117.69	120.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1036	0	1003	17	0
1	C	1040	0	1009	14	0
1	E	1040	0	1009	12	0
1	G	1037	0	1005	14	0
2	B	114	0	116	5	0
2	D	117	0	121	12	0
2	F	119	0	123	3	0
2	H	105	0	108	1	0
3	A	13	0	14	0	0
3	E	13	0	14	0	0
3	G	13	0	14	0	0
4	A	16	0	32	10	0
4	C	16	0	32	4	0
4	D	8	0	16	5	0
4	E	16	0	32	7	0
4	G	8	0	16	6	0
4	H	8	0	16	1	0
5	A	4	0	6	0	0
5	C	4	0	6	0	0
5	D	4	0	6	3	0
5	E	8	0	12	0	0
6	A	163	0	0	5	0
6	B	14	0	0	0	0
6	C	138	0	0	9	0
6	D	12	0	0	1	0
6	E	139	0	0	3	0
6	F	15	0	0	0	0
6	G	130	0	0	1	0
6	H	17	0	0	0	0
All	All	5367	0	4710	76	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 8.

All (76) 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)
4:D:102:IPA:H12	1:G:35:ASN:OD1	1.74	0.86
2:D:16:GLY:H	5:D:103:EDO:H11	1.48	0.79
1:C:126:TYR:HD1	6:C:432:HOH:O	1.65	0.79
4:G:202:IPA:H11	6:G:341:HOH:O	1.85	0.76
1:G:82:ARG:HH11	4:G:203:IPA:H13	1.56	0.70
4:A:205:IPA:H11	6:E:340:HOH:O	1.92	0.68
1:A:34:LEU:HD23	4:A:205:IPA:H33	1.77	0.67
1:E:94:GLY:H	4:E:203:IPA:C1	2.08	0.66
1:C:127:PHE:N	6:C:432:HOH:O	2.30	0.64
6:A:455:HOH:O	2:D:18:LYS:HD3	2.00	0.62
1:A:35:ASN:HB2	4:A:205:IPA:H13	1.82	0.61
1:G:73:GLY:HA3	4:G:203:IPA:H11	1.84	0.60
2:D:8:GLN:HB2	4:D:101:IPA:O2	2.01	0.60
2:B:15:TRP:HZ2	6:C:389:HOH:O	1.85	0.59
1:E:110:ASN:ND2	4:H:101:IPA:H31	2.18	0.58
1:A:91:LYS:HE3	6:A:424:HOH:O	2.04	0.58
1:E:94:GLY:H	4:E:203:IPA:H13	1.69	0.57
1:C:14:GLU:OE2	1:C:55:LYS:NZ	2.38	0.57
1:A:90:LYS:NZ	6:A:399:HOH:O	2.39	0.56
1:E:16:ASN:HB3	4:E:205:IPA:H12	1.87	0.55
1:C:72:THR:HG21	2:D:16:GLY:HA2	1.89	0.54
6:C:432:HOH:O	2:D:14:PRO:HB3	2.07	0.54
1:C:14:GLU:CD	1:C:55:LYS:HZ2	2.10	0.54
2:B:3:GLN:HB3	6:E:416:HOH:O	2.07	0.54
4:A:203:IPA:C3	1:E:10:THR:HG23	2.39	0.53
2:D:16:GLY:H	5:D:103:EDO:C1	2.20	0.53
4:E:205:IPA:H33	6:E:401:HOH:O	2.08	0.52
1:A:91:LYS:CE	6:A:424:HOH:O	2.58	0.51
1:G:82:ARG:HH11	4:G:203:IPA:C1	2.22	0.51
1:E:94:GLY:H	4:E:203:IPA:H11	1.74	0.51
1:A:42:GLN:CB	6:A:453:HOH:O	2.59	0.50
1:C:20:ASN:HB3	1:C:23:THR:OG1	2.11	0.50
1:C:17:LEU:HG	1:C:54:VAL:CG2	2.41	0.50
2:D:11:ILE:HD11	4:D:101:IPA:H33	1.93	0.50
1:C:51:PHE:O	4:C:201:IPA:H31	2.12	0.49
4:C:203:IPA:H33	1:G:8:ALA:O	2.12	0.49
1:A:117:LYS:HE3	1:C:109:GLU:OE2	2.12	0.48
1:G:12:ILE:HD11	1:G:113:ILE:HG22	1.95	0.48
1:C:126:TYR:CD1	6:C:432:HOH:O	2.51	0.48
1:E:40:VAL:H	4:E:202:IPA:H11	1.77	0.48
1:G:10:THR:HG22	1:G:10:THR:O	2.13	0.48
1:E:17:LEU:HD12	1:E:17:LEU:C	2.34	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:10:THR:HG23	4:C:203:IPA:H32	1.96	0.48
1:G:82:ARG:HD2	4:G:203:IPA:H13	1.97	0.47
1:A:34:LEU:O	4:A:205:IPA:H32	2.14	0.47
1:G:82:ARG:CD	4:G:203:IPA:H13	2.45	0.46
6:C:432:HOH:O	2:D:14:PRO:CB	2.63	0.46
4:D:101:IPA:H2	6:D:207:HOH:O	2.16	0.46
1:A:133:LEU:HD13	2:D:8:GLN:HG3	1.98	0.45
1:A:47:PHE:HE2	4:A:204:IPA:O2	1.99	0.45
2:F:18[B]:LYS:O	2:F:18[B]:LYS:HG2	2.13	0.45
1:C:127:PHE:CA	6:C:432:HOH:O	2.64	0.45
1:E:40:VAL:H	4:E:202:IPA:C1	2.29	0.45
1:E:79:VAL:O	2:F:17:ALA:HB2	2.16	0.45
1:A:20:ASN:HB3	1:A:23:THR:OG1	2.17	0.44
1:A:79:VAL:O	2:B:17:ALA:HB2	2.16	0.44
2:B:8:GLN:NE2	2:H:8:GLN:HE22	2.15	0.44
2:F:17:ALA:O	2:F:18[A]:LYS:HB3	2.16	0.44
1:E:83:SER:HA	1:E:96:TYR:O	2.18	0.43
1:C:21:LYS:CE	6:C:333:HOH:O	2.65	0.43
2:D:16:GLY:N	5:D:103:EDO:H11	2.23	0.43
1:G:43:ASN:ND2	1:G:45:LYS:HD3	2.33	0.43
4:C:202:IPA:H32	6:C:404:HOH:O	2.18	0.43
1:A:35:ASN:HB2	4:A:205:IPA:C1	2.49	0.43
1:A:47:PHE:HE2	4:A:204:IPA:HO2	1.65	0.43
1:A:34:LEU:HD23	4:A:205:IPA:C3	2.45	0.42
2:D:6:ILE:HG23	1:G:10:THR:CG2	2.49	0.42
1:G:71:TYR:CE1	1:G:99:THR:HB	2.54	0.42
4:D:102:IPA:C1	1:G:35:ASN:OD1	2.58	0.42
1:A:85:THR:OG1	4:A:202:IPA:H32	2.19	0.42
2:B:18:LYS:HD3	2:B:18:LYS:HA	1.79	0.42
2:D:16:GLY:O	2:D:17:ALA:C	2.56	0.41
1:A:4:PHE:HB2	1:A:44:HIS:CE1	2.55	0.41
1:E:58:LEU:HD22	1:E:88:THR:HG21	2.03	0.41
1:C:18:SER:HB2	1:C:51:PHE:HB3	2.02	0.40
1:G:4:PHE:HB2	1:G:44:HIS:CE1	2.56	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	131/133 (98%)	127 (97%)	4 (3%)	0	100	100
1	C	131/133 (98%)	125 (95%)	6 (5%)	0	100	100
1	E	131/133 (98%)	128 (98%)	3 (2%)	0	100	100
1	G	131/133 (98%)	126 (96%)	5 (4%)	0	100	100
2	B	14/19 (74%)	14 (100%)	0	0	100	100
2	D	15/19 (79%)	13 (87%)	2 (13%)	0	100	100
2	F	14/19 (74%)	14 (100%)	0	0	100	100
2	H	13/19 (68%)	13 (100%)	0	0	100	100
All	All	580/608 (95%)	560 (97%)	20 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	112/113 (99%)	110 (98%)	2 (2%)	59	40
1	C	113/113 (100%)	112 (99%)	1 (1%)	78	69
1	E	113/113 (100%)	112 (99%)	1 (1%)	78	69
1	G	112/113 (99%)	110 (98%)	2 (2%)	59	40
2	B	12/15 (80%)	11 (92%)	1 (8%)	11	2
2	D	13/15 (87%)	12 (92%)	1 (8%)	13	2

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	F	12/15 (80%)	9 (75%)	3 (25%)	0	0
2	H	11/15 (73%)	11 (100%)	0	100	100
All	All	498/512 (97%)	487 (98%)	11 (2%)	55	32

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

Mol	Chain	Res	Type
1	A	10	THR
1	A	117	LYS
2	B	7	SER
1	C	100	SER
2	D	3	GLN
1	E	100	SER
2	F	4	SER
2	F	18[A]	LYS
2	F	18[B]	LYS
1	G	10	THR
1	G	98	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	8	GLN
1	C	110	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry

26 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	IPA	H	101	-	3,3,3	0.52	0	3,3,3	0.34	0
5	EDO	A	206	-	3,3,3	0.71	0	2,2,2	0.52	0
4	IPA	C	204	-	3,3,3	0.48	0	3,3,3	0.63	0
3	MBG	E	201	-	13,13,13	1.22	1 (7%)	18,18,18	2.30	3 (16%)
4	IPA	E	204	-	3,3,3	0.64	0	3,3,3	0.35	0
4	IPA	E	202	-	3,3,3	0.65	0	3,3,3	0.91	0
5	EDO	C	205	-	3,3,3	0.89	0	2,2,2	0.59	0
4	IPA	A	204	-	3,3,3	0.55	0	3,3,3	0.32	0
4	IPA	E	203	-	3,3,3	0.49	0	3,3,3	0.95	0
5	EDO	E	207	-	3,3,3	0.62	0	2,2,2	0.25	0
4	IPA	C	201	-	3,3,3	0.52	0	3,3,3	1.04	0
4	IPA	A	205	-	3,3,3	0.64	0	3,3,3	0.64	0
4	IPA	A	202	-	3,3,3	1.15	0	3,3,3	1.43	0
4	IPA	C	202	-	3,3,3	0.69	0	3,3,3	0.26	0
3	MBG	G	201	-	13,13,13	1.00	1 (7%)	18,18,18	3.00	8 (44%)
4	IPA	D	101	-	3,3,3	0.44	0	3,3,3	0.17	0
4	IPA	C	203	-	3,3,3	0.41	0	3,3,3	0.35	0
4	IPA	G	203	-	3,3,3	0.54	0	3,3,3	0.29	0
5	EDO	E	206	-	3,3,3	0.59	0	2,2,2	0.14	0
4	IPA	G	202	-	3,3,3	0.59	0	3,3,3	0.95	0
4	IPA	H	102	-	3,3,3	0.64	0	3,3,3	0.14	0
4	IPA	E	205	-	3,3,3	1.13	0	3,3,3	1.94	1 (33%)
3	MBG	A	201	-	13,13,13	1.06	1 (7%)	18,18,18	3.10	8 (44%)
4	IPA	A	203	-	3,3,3	0.37	0	3,3,3	0.43	0
5	EDO	D	103	-	3,3,3	0.32	0	2,2,2	1.28	0
4	IPA	D	102	-	3,3,3	0.50	0	3,3,3	0.64	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	MBG	G	201	-	-	0/4/24/24	0/1/1/1
5	EDO	C	205	-	-	0/1/1/1	-
5	EDO	A	206	-	-	0/1/1/1	-
3	MBG	A	201	-	-	0/4/24/24	0/1/1/1
5	EDO	E	206	-	-	0/1/1/1	-
5	EDO	E	207	-	-	1/1/1/1	-
5	EDO	D	103	-	-	1/1/1/1	-
3	MBG	E	201	-	-	0/4/24/24	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	E	201	MBG	C4-C5	2.75	1.58	1.53
3	A	201	MBG	C4-C5	2.65	1.58	1.53
3	G	201	MBG	O1-C1	-2.29	1.36	1.40

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	201	MBG	O1-C1-C2	7.25	116.65	108.15
3	G	201	MBG	C1-O5-C5	-6.75	100.43	113.69
3	A	201	MBG	C1-C2-C3	-6.39	96.69	110.00
3	G	201	MBG	O1-C1-C2	6.09	115.29	108.15
3	A	201	MBG	C1-O5-C5	-6.02	101.87	113.69
3	G	201	MBG	C1-C2-C3	-5.74	98.04	110.00
3	A	201	MBG	O1-C1-C2	5.13	114.17	108.15
3	A	201	MBG	O5-C1-O1	4.67	121.81	110.97
3	E	201	MBG	C1-O5-C5	-4.08	105.68	113.69
3	G	201	MBG	C6-C5-C4	4.06	122.51	113.00
3	A	201	MBG	C6-C5-C4	3.46	121.10	113.00
4	E	205	IPA	O2-C2-C1	-3.13	89.42	110.36
3	A	201	MBG	O5-C5-C6	3.13	114.22	106.44
3	E	201	MBG	C1-C2-C3	-2.97	103.81	110.00
3	G	201	MBG	C7-O1-C1	-2.69	109.11	113.27
3	A	201	MBG	C7-O1-C1	-2.55	109.34	113.27
3	G	201	MBG	O4-C4-C3	-2.52	104.53	110.35
3	G	201	MBG	O4-C4-C5	2.23	114.83	109.30
3	G	201	MBG	O2-C2-C3	-2.13	105.42	110.35
3	A	201	MBG	O3-C3-C2	-2.06	105.59	110.35

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	E	207	EDO	O1-C1-C2-O2
5	D	103	EDO	O1-C1-C2-O2

There are no ring outliers.

16 monomers are involved in 36 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	H	101	IPA	1	0
4	E	202	IPA	2	0
4	A	204	IPA	2	0
4	E	203	IPA	3	0
4	C	201	IPA	1	0
4	A	205	IPA	6	0
4	A	202	IPA	1	0
4	C	202	IPA	1	0
4	D	101	IPA	3	0
4	C	203	IPA	2	0
4	G	203	IPA	5	0
4	G	202	IPA	1	0
4	E	205	IPA	2	0
4	A	203	IPA	1	0
5	D	103	EDO	3	0
4	D	102	IPA	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	A	133/133 (100%)	-0.73	0 100 100	6, 10, 15, 22	0
1	C	133/133 (100%)	-0.55	0 100 100	6, 12, 22, 36	0
1	E	133/133 (100%)	-0.75	0 100 100	6, 10, 18, 29	0
1	G	133/133 (100%)	-0.68	0 100 100	6, 11, 19, 24	0
2	B	16/19 (84%)	-0.37	0 100 100	7, 13, 31, 35	0
2	D	16/19 (84%)	-0.07	1 (6%) 20 20	8, 12, 43, 43	0
2	F	16/19 (84%)	-0.39	1 (6%) 20 20	6, 12, 23, 37	0
2	H	15/19 (78%)	-0.47	0 100 100	7, 12, 25, 48	0
All	All	595/608 (97%)	-0.64	2 (0%) 94 94	6, 11, 21, 48	0

All (2) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	17	ALA	5.2
2	F	3	GLN	2.5

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 monosaccharides 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
4	IPA	D	102	4/4	0.67	0.21	21,24,27,33	0
4	IPA	G	202	4/4	0.67	0.20	22,29,31,32	0
4	IPA	E	203	4/4	0.70	0.24	13,17,19,29	0
4	IPA	C	202	4/4	0.70	0.21	31,33,41,43	0
4	IPA	A	205	4/4	0.75	0.24	19,28,28,32	0
4	IPA	C	201	4/4	0.78	0.17	22,29,32,37	0
4	IPA	G	203	4/4	0.84	0.11	22,32,32,34	0
4	IPA	H	102	4/4	0.84	0.11	39,40,43,47	0
4	IPA	A	202	4/4	0.85	0.16	14,17,18,20	0
4	IPA	E	202	4/4	0.85	0.11	13,16,17,18	0
4	IPA	A	203	4/4	0.87	0.15	30,31,34,41	0
4	IPA	E	205	4/4	0.89	0.13	10,10,11,11	0
4	IPA	D	101	4/4	0.91	0.17	29,32,32,33	0
4	IPA	E	204	4/4	0.91	0.08	24,27,28,32	0
5	EDO	E	207	4/4	0.91	0.09	21,24,26,35	0
5	EDO	A	206	4/4	0.92	0.07	22,24,24,25	0
5	EDO	E	206	4/4	0.92	0.14	29,32,37,44	0
4	IPA	H	101	4/4	0.92	0.10	33,33,33,34	0
3	MBG	E	201	13/13	0.94	0.09	10,16,22,28	0
4	IPA	A	204	4/4	0.94	0.12	34,35,36,37	0
5	EDO	D	103	4/4	0.94	0.16	32,34,36,38	0
4	IPA	C	203	4/4	0.94	0.11	23,23,23,28	0
3	MBG	A	201	13/13	0.94	0.08	9,16,24,28	0
5	EDO	C	205	4/4	0.95	0.07	13,13,14,16	0
4	IPA	C	204	4/4	0.96	0.13	25,27,28,29	0
3	MBG	G	201	13/13	0.96	0.07	11,13,18,19	0

6.5 Other polymers [i](#)

There are no such residues in this entry.