Full wwPDB X-ray Structure Validation Report ⓘ

Apr 9, 2026 – 09:46 PM UTC

PDB ID	:	9DSG / pdb_00009dsg
Title	:	Crystal structure of the SARS-CoV-2 RBD in complex with the cow antibody P2
Authors	:	Fan, C.; Bjorkman, P.J.
Deposited on	:	2024-09-27
Resolution	:	2.40 Å(reported)

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

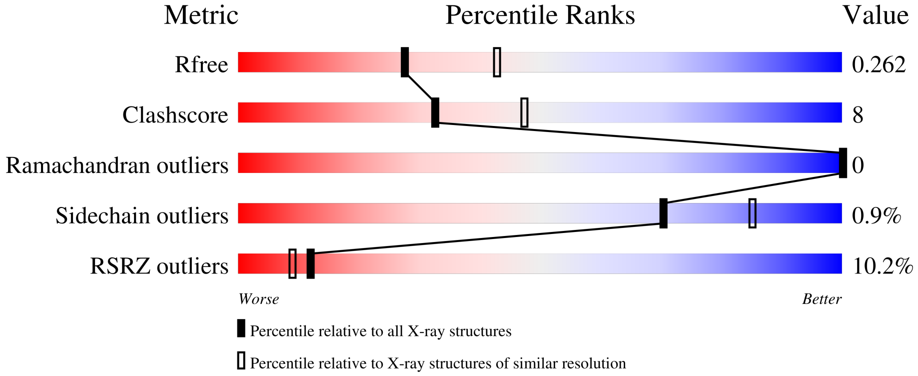
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry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

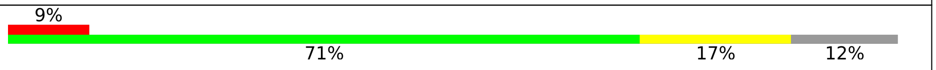
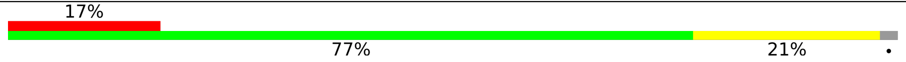
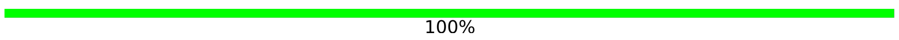
The reported resolution of this entry is 2.40 Å.

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	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

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 <=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	212	
2	H	281	
3	L	216	
4	B	2	

2 Entry composition (i)

There are 6 unique types of molecules in this entry. The entry contains 5062 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 Spike protein S1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	196	1552	995	259	290	8	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	534	HIS	-	expression tag	UNP P0DTC2
A	535	HIS	-	expression tag	UNP P0DTC2
A	536	HIS	-	expression tag	UNP P0DTC2
A	537	HIS	-	expression tag	UNP P0DTC2
A	538	HIS	-	expression tag	UNP P0DTC2
A	539	HIS	-	expression tag	UNP P0DTC2

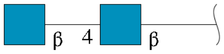
- Molecule 2 is a protein called P2 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	H	248	1857	1162	312	372	11	0	0	0

- Molecule 3 is a protein called P2 Fab light chain.

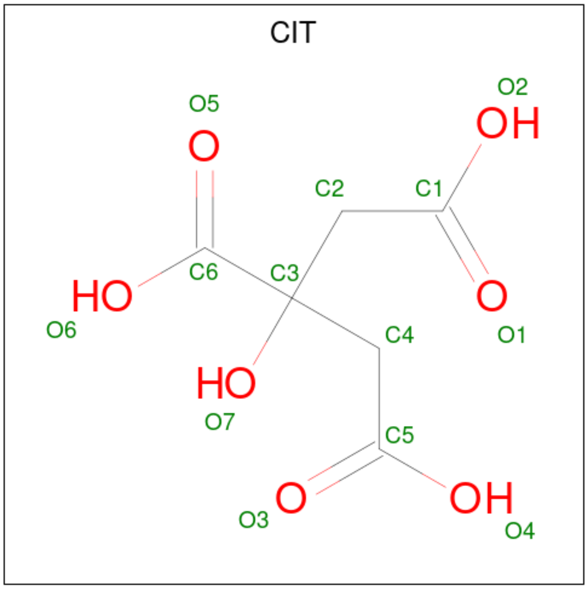
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	L	212	1557	963	261	329	4	0	0	0

- 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
			Total	C	N	O			
4	B	2	28	16	2	10	0	0	0

- Molecule 5 is CITRIC ACID (CCD ID: CIT) (formula: $C_6H_8O_7$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
5	H	1	13	6	7	0	0

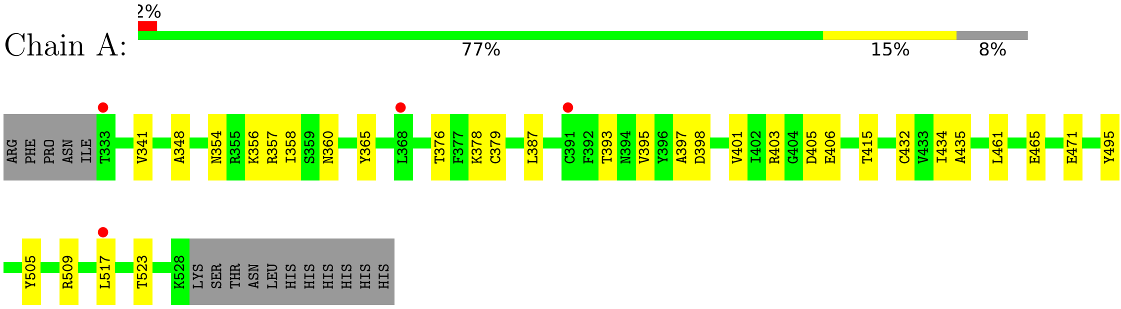
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	O		
6	A	36	36	36	0	0
6	H	19	19	19	0	0

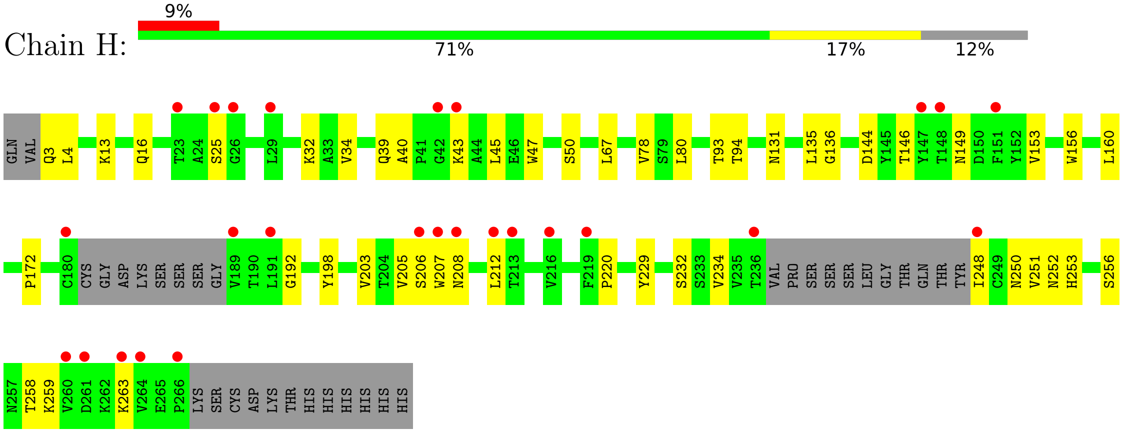
3 Residue-property plots ⓘ

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.

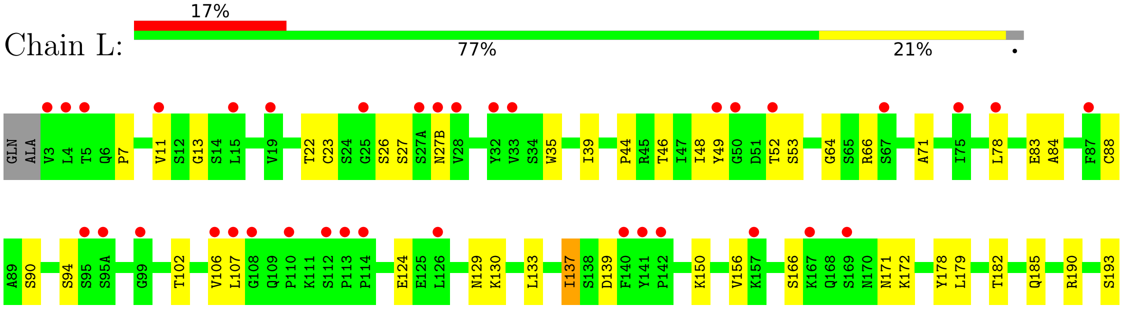
- Molecule 1: Spike protein S1

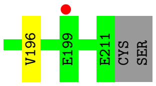


- Molecule 2: P2 Fab heavy chain



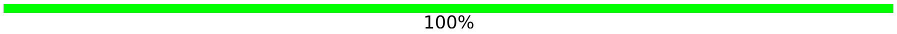
- Molecule 3: P2 Fab light chain





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

Chain B:



4 Data and refinement statistics ⓘ

Property	**Value**	**Source**
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	65.97Å 68.15Å 82.66Å 90.00° 90.73° 90.00°	Depositor
Resolution (Å)	41.32 – 2.40 41.32 – 2.40	Depositor EDS
% Data completeness (in resolution range)	99.4 (41.32-2.40) 99.6 (41.32-2.40)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.47 (at 2.39Å)	Xtriage
Refinement program	PHENIX 1.21.2_5419	Depositor
R, R_{free}	0.222 , 0.263 0.222 , 0.262	Depositor DCC
R_{free} test set	1999 reflections (6.94%)	wwPDB-VP
Wilson B-factor (Å^2)	46.0	Xtriage
Anisotropy	0.228	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 54.8	EDS
L-test for twinning[2]	$< \|L\| > = 0.50$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.008 for -k,-h,-l 0.000 for k,h,-l 0.015 for h,-k,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	5062	wwPDB-VP
Average B, all atoms (Å^2)	65.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.72% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ 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: CIT, 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	0.10	0/1596	0.29	0/2172
2	H	0.11	0/1898	0.31	0/2586
3	L	0.11	0/1592	0.29	0/2176
All	All	0.11	0/5086	0.30	0/6934

There are no bond length outliers.

There are no bond angle outliers.

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	1552	0	1472	20	0
2	H	1857	0	1805	33	0
3	L	1557	0	1495	31	0
4	B	28	0	25	0	0
5	H	13	0	5	0	0
6	A	36	0	0	0	0
6	H	19	0	0	0	0
All	All	5062	0	4802	77	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 (77) 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)
3:L:139:ASP:HA	3:L:172:LYS:HB3	1.68	0.74
1:A:461:LEU:HD22	1:A:465:GLU:HG2	1.72	0.72
3:L:27(B):ASN:O	3:L:90:SER:OG	2.08	0.72
2:H:172:PRO:HB3	2:H:198:TYR:HB3	1.77	0.67
2:H:39:GLN:HB2	2:H:45:LEU:HD23	1.77	0.67
2:H:192:GLY:HA3	2:H:234:VAL:HG12	1.76	0.66
1:A:360:ASN:H	1:A:523:THR:HB	1.62	0.64
2:H:4:LEU:HD11	2:H:94:THR:HG23	1.84	0.60
2:H:248:ILE:HG12	2:H:263:LYS:HA	1.85	0.59
3:L:35:TRP:CZ3	3:L:88:CYS:HB3	2.38	0.58
3:L:39:ILE:HG12	3:L:84:ALA:HB2	1.84	0.58
1:A:403:ARG:HG3	1:A:495:TYR:CE1	2.40	0.56
2:H:3:GLN:N	2:H:25:SER:HG	2.03	0.56
3:L:35:TRP:HB2	3:L:48:ILE:HB	1.88	0.55
1:A:348:ALA:HA	2:H:135:LEU:HB3	1.89	0.55
2:H:144:ASP:OD2	2:H:146:THR:OG1	2.26	0.53
3:L:137:ILE:HG12	3:L:196:VAL:HG21	1.91	0.53
1:A:354:ASN:O	1:A:398:ASP:HA	2.09	0.53
2:H:203:VAL:HG22	2:H:253:HIS:HD2	1.75	0.52
3:L:133:LEU:HB2	3:L:179:LEU:HB3	1.90	0.52
3:L:11:VAL:HG13	3:L:102:THR:HG21	1.92	0.52
2:H:256:SER:OG	2:H:258:THR:OG1	2.27	0.51
2:H:93:THR:HB	2:H:153:VAL:HG13	1.93	0.51
3:L:23:CYS:O	3:L:71:ALA:N	2.40	0.51
1:A:356:LYS:NZ	1:A:357:ARG:H	2.09	0.50
2:H:248:ILE:HD11	2:H:263:LYS:HG2	1.93	0.50
2:H:205:VAL:HG22	2:H:251:VAL:HG22	1.93	0.49
3:L:66:ARG:HA	3:L:71:ALA:HA	1.93	0.49
2:H:131:ASN:HA	2:H:136:GLY:HA2	1.95	0.49
1:A:378:LYS:HB3	1:A:378:LYS:HE2	1.66	0.48
1:A:403:ARG:HD2	1:A:505:TYR:HA	1.95	0.48
3:L:124:GLU:OE1	3:L:124:GLU:N	2.32	0.48
1:A:341:VAL:HG11	1:A:397:ALA:HB1	1.96	0.48
2:H:203:VAL:HG22	2:H:253:HIS:CD2	2.49	0.47
3:L:129:ASN:O	3:L:130:LYS:HD3	2.13	0.47
2:H:212:LEU:HD12	2:H:212:LEU:H	1.80	0.47
2:H:208:ASN:OD1	2:H:212:LEU:HD11	2.15	0.47
3:L:23:CYS:HB2	3:L:35:TRP:CH2	2.49	0.47
1:A:401:VAL:HG22	1:A:509:ARG:HG2	1.96	0.47
2:H:232:SER:OG	3:L:178:TYR:OH	2.17	0.46

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Atom-1	**Atom-2**	**Interatomic distance (Å)**	**Clash overlap (Å)**
2:H:156:TRP:CG	3:L:44:PRO:HB2	2.51	0.46
2:H:156:TRP:HE1	3:L:46:THR:HG22	1.80	0.46
3:L:13:GLY:O	3:L:107:LEU:N	2.39	0.46
3:L:49:TYR:O	3:L:53:SER:HB2	2.15	0.46
2:H:198:TYR:CE1	2:H:229:TYR:HB2	2.51	0.45
3:L:83:GLU:OE1	3:L:171:ASN:ND2	2.49	0.45
3:L:35:TRP:CH2	3:L:88:CYS:HB3	2.51	0.45
2:H:34:VAL:HG21	2:H:78:VAL:HG21	1.99	0.45
1:A:471:GLU:H	1:A:471:GLU:HG2	1.54	0.45
2:H:206:SER:O	2:H:250:ASN:N	2.35	0.45
1:A:393:THR:O	1:A:523:THR:OG1	2.34	0.45
2:H:156:TRP:CD2	3:L:44:PRO:HB2	2.52	0.44
1:A:403:ARG:HG3	1:A:495:TYR:CD1	2.52	0.44
1:A:379:CYS:HA	1:A:432:CYS:HA	2.00	0.44
3:L:150:LYS:HB2	3:L:193:SER:OG	2.17	0.44
3:L:124:GLU:H	3:L:124:GLU:CD	2.16	0.44
2:H:47:TRP:HZ2	2:H:50:SER:HB3	1.83	0.43
2:H:67:LEU:HD22	2:H:80:LEU:HD11	2.00	0.43
3:L:190:ARG:HA	3:L:190:ARG:HD2	1.78	0.43
1:A:405:ASP:OD1	1:A:406:GLU:HG3	2.19	0.43
2:H:220:PRO:HG2	3:L:166:SER:OG	2.19	0.43
3:L:52:THR:OG1	3:L:64:GLY:O	2.34	0.43
1:A:376:THR:HB	1:A:435:ALA:HB3	2.01	0.43
2:H:32:LYS:HB3	2:H:32:LYS:HE3	1.81	0.43
1:A:365:TYR:CD2	1:A:387:LEU:HB3	2.54	0.43
3:L:182:THR:HG22	3:L:185:GLN:HG3	2.01	0.42
2:H:252:ASN:HA	2:H:259:LYS:HA	2.01	0.42
2:H:13:LYS:O	2:H:16:GLN:HB2	2.19	0.41
2:H:40:ALA:CB	2:H:43:LYS:HE2	2.50	0.41
1:A:358:ILE:HB	1:A:395:VAL:HB	2.03	0.41
3:L:78:LEU:HD23	3:L:78:LEU:HA	1.87	0.41
1:A:376:THR:O	1:A:434:ILE:HA	2.20	0.41
3:L:26:SER:OG	3:L:27:SER:N	2.54	0.41
3:L:7:PRO:HD3	3:L:22:THR:O	2.20	0.41
2:H:192:GLY:HA2	2:H:207:TRP:CZ2	2.57	0.40
1:A:517:LEU:HD12	1:A:517:LEU:HA	1.91	0.40
2:H:149:ASN:OD1	3:L:94:SER:HA	2.22	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	194/212 (92%)	191 (98%)	3 (2%)	0	100	100
2	H	242/281 (86%)	241 (100%)	1 (0%)	0	100	100
3	L	210/216 (97%)	205 (98%)	5 (2%)	0	100	100
All	All	646/709 (91%)	637 (99%)	9 (1%)	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	169/185 (91%)	168 (99%)	1 (1%)	78	89
2	H	215/245 (88%)	214 (100%)	1 (0%)	81	91
3	L	180/183 (98%)	177 (98%)	3 (2%)	53	74
All	All	564/613 (92%)	559 (99%)	5 (1%)	70	85

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	415	THR
2	H	160	LEU
3	L	106	VAL
3	L	137	ILE
3	L	156	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
2	H	257	ASN
3	L	27(B)	ASN
3	L	69	ASN
3	L	109	GLN
3	L	129	ASN
3	L	171	ASN

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 ⓘ

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	B	1	1,4	14,14,15	0.74	0	17,19,21	0.87	0
4	NAG	B	2	4	14,14,15	0.73	0	17,19,21	0.90	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	B	1	1,4	-	0/6/23/26	0/1/1/1
4	NAG	B	2	4	-	0/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

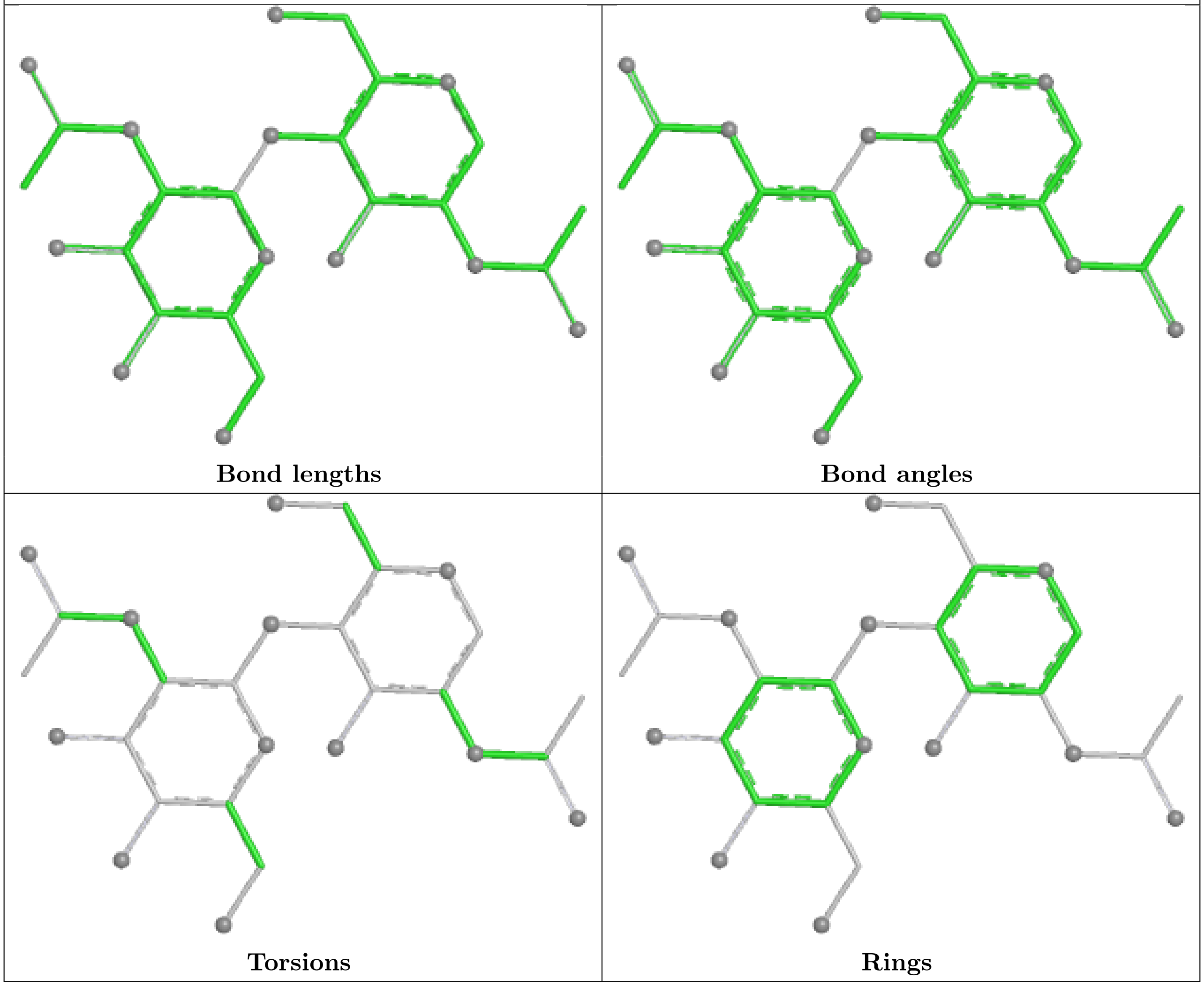
There are no torsion outliers.

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.

Oligosaccharide Chain B



Bond lengths

Bond angles

Torsions

Rings

5.6 Ligand geometry

1 ligand is 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	$\#\|Z\| > 2$
5	CIT	H	301	-	12,12,12	1.36	1 (8%)	17,17,17	1.19	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	CIT	H	301	-	-	0/16/16/16	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	H	301	CIT	C3-C6	3.11	1.56	1.53

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
5	H	301	CIT	O7-C3-C6	2.38	112.34	108.96
5	H	301	CIT	O1-C1-C2	-2.05	117.14	122.95

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 ⓘ

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	196/212 (92%)	0.32	4 (2%)	65	60	24, 43, 80, 121	0
2	H	248/281 (88%)	0.80	26 (10%)	11	8	28, 62, 110, 130	0
3	L	212/216 (98%)	1.19	37 (17%)	4	3	39, 84, 115, 132	0
All	All	656/709 (92%)	0.78	67 (10%)	12	9	24, 63, 112, 132	0

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	H	151	PHE	4.2
2	H	180	CYS	3.2
2	H	248	ILE	3.2
2	H	264	VAL	3.1
2	H	260	VAL	3.1
2	H	266	PRO	3.0
3	L	110	PRO	3.0
3	L	32	TYR	2.9
3	L	11	VAL	2.9
3	L	52	THR	2.9
2	H	148	THR	2.8
3	L	33	VAL	2.8
3	L	126	LEU	2.8
3	L	50	GLY	2.8
3	L	75	ILE	2.7
2	H	191	LEU	2.7
3	L	107	LEU	2.6
3	L	3	VAL	2.6
2	H	263	LYS	2.6
2	H	236	THR	2.6
3	L	141	TYR	2.5
2	H	29	LEU	2.5
2	H	213	THR	2.5

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Mol	Chain	Res	Type	RSRZ
2	H	261	ASP	2.4
3	L	140	PHE	2.4
3	L	106	VAL	2.4
2	H	25	SER	2.4
2	H	26	GLY	2.4
3	L	4	LEU	2.4
3	L	78	LEU	2.4
2	H	208	ASN	2.4
3	L	142	PRO	2.3
3	L	67	SER	2.3
2	H	207	TRP	2.3
2	H	42	GLY	2.3
2	H	206	SER	2.3
3	L	95	SER	2.3
2	H	147	TYR	2.3
1	A	333	THR	2.3
2	H	212	LEU	2.3
3	L	167	LYS	2.3
3	L	49	TYR	2.3
3	L	112	SER	2.2
3	L	87	PHE	2.2
2	H	23	THR	2.2
3	L	95(A)	SER	2.2
3	L	113	PRO	2.2
2	H	189	VAL	2.2
3	L	19	VAL	2.1
1	A	368	LEU	2.1
3	L	15	LEU	2.1
3	L	25	GLY	2.1
3	L	99	GLY	2.1
1	A	391	CYS	2.1
3	L	27(B)	ASN	2.1
3	L	27(A)	SER	2.1
2	H	43	LYS	2.1
2	H	219	PHE	2.1
3	L	169	SER	2.1
3	L	114	PRO	2.1
1	A	517	LEU	2.1
3	L	108	GLY	2.1
2	H	216	VAL	2.0
3	L	28	VAL	2.0
3	L	157	LYS	2.0

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Mol	Chain	Res	Type	RSRZ
3	L	199	GLU	2.0
3	L	5	THR	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)

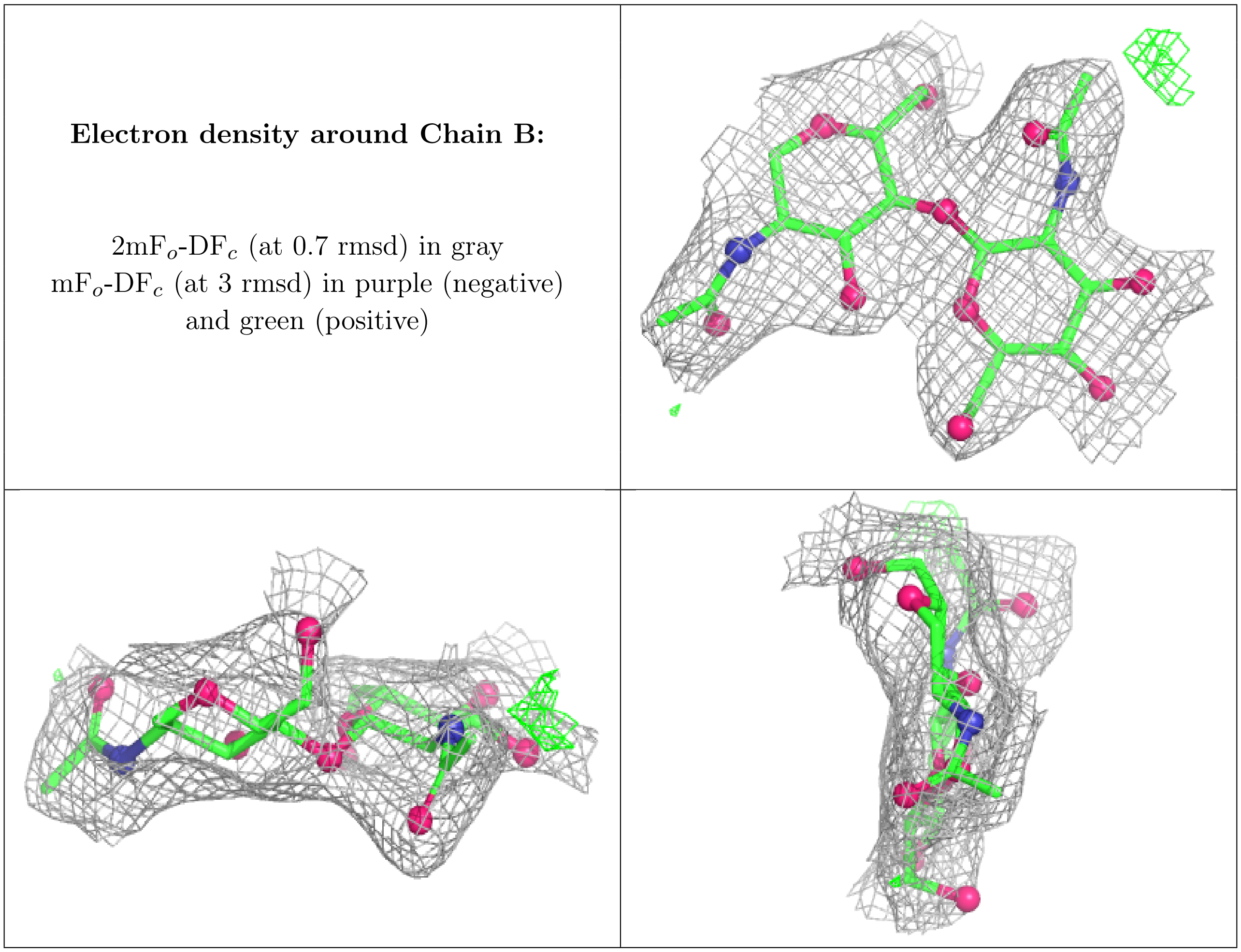
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q$<$ 0.9' 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	B	1	14/15	-	-	46,69,81,89	0
4	NAG	B	2	14/15	-	-	71,89,94,94	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 B:

$2mF_o$-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(Å^2)	Q<0.9
5	CIT	H	301	13/13	0.89	0.10	51,57,65,70	0

6.5 Other polymers ⓘ

There are no such residues in this entry.