WORLDWIDE PDB
PROTEIN DATA BANK

wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 18, 2026 – 10:50 AM EST

PDB ID	:	9PSO / pdb_00009pso
Title	:	Crystal structure of SARS-CoV-2 receptor binding domain in complex with antibodies BoWLB-622 and CC12.3
Authors	:	Feng, Z.; Wilson, I.A.
Deposited on	:	2025-07-25
Resolution	:	2.62 Å(reported)

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

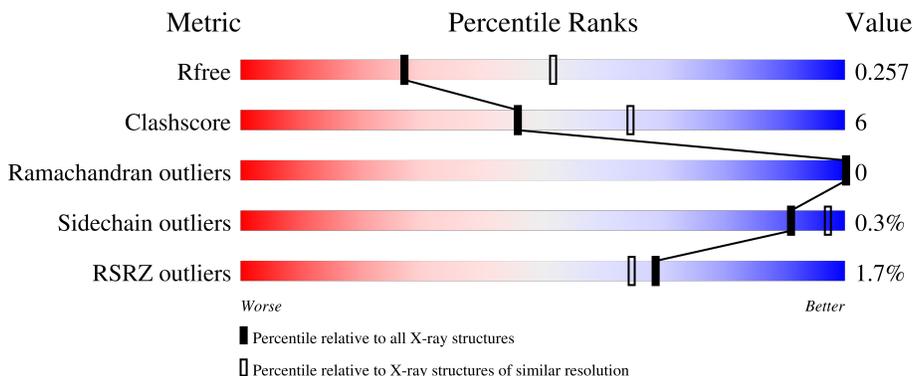|		
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.48

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 2.62 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	Percentile Ranks	Value
Rfree		0.257
Clashscore		6
Ramachandran outliers		0
Sidechain outliers		0.3%
RSRZ outliers		1.7%

Worse   *Better*

▮ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	164625	4623 (2.64-2.60)
Clashscore	180529	5071 (2.64-2.60)
Ramachandran outliers	177936	5006 (2.64-2.60)
Sidechain outliers	177891	5006 (2.64-2.60)
RSRZ outliers	164620	4622 (2.64-2.60)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments 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	E	209	3% 77% 14% 9%
2	F	220	3% 78% 21% •
3	G	215	88% 10% •
4	H	221	89% 10% •
5	L	221	% 85% 14% •

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Mol	Chain	Length	Quality of chain
6	A	2	50% 50%

2 Entry composition ⓘ

There are 12 unique types of molecules in this entry. The entry contains 8465 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 receptor binding domain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	E	191	Total	C	N	O	S	0	0	0
			1517	974	253	282	8			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	534	SER	-	expression tag	UNP P0DTC2
E	535	GLY	-	expression tag	UNP P0DTC2
E	536	HIS	-	expression tag	UNP P0DTC2
E	537	HIS	-	expression tag	UNP P0DTC2
E	538	HIS	-	expression tag	UNP P0DTC2
E	539	HIS	-	expression tag	UNP P0DTC2
E	540	HIS	-	expression tag	UNP P0DTC2
E	541	HIS	-	expression tag	UNP P0DTC2

- Molecule 2 is a protein called CC12.3 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	218	Total	C	N	O	S	4	1	0
			1636	1036	271	323	6			

- Molecule 3 is a protein called CC12.3 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	G	211	Total	C	N	O	S	0	0	0
			1622	1014	277	327	4			

- Molecule 4 is a protein called BoWLB-622 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	H	219	Total	C	N	O	S	0	0	0
			1629	1034	267	322	6			

- Molecule 5 is a protein called BoWLB-622 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	L	217	Total 1686	C 1061	N 284	O 336	S 5	0	0	0

- Molecule 6 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-a cetamido-2-deoxy-beta-D-glucopyranose.

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

- Molecule 7 is SULFATE ION (CCD ID: SO4) (formula: O_4S).
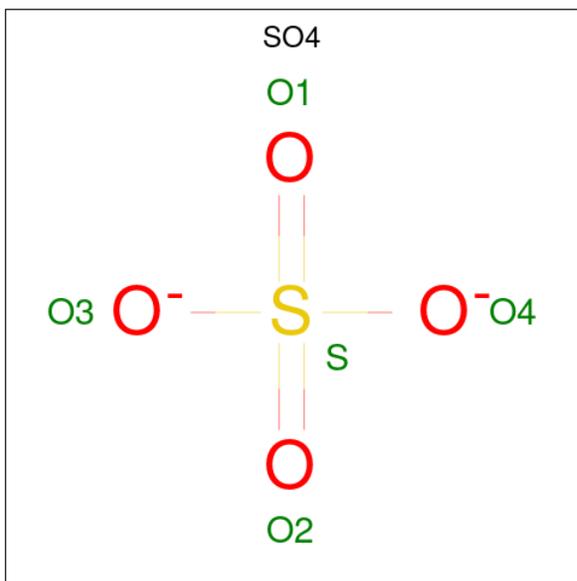
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
7	E	1	Total 5	O 4	S 1		0	0
7	F	1	Total 5	O 4	S 1		0	0
7	G	1	Total 5	O 4	S 1		0	0
7	G	1	Total 5	O 4	S 1		0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	G	1	Total 5	O 4	S 1	0	0
7	G	1	Total 5	O 4	S 1	0	0
7	H	1	Total 5	O 4	S 1	0	0
7	H	1	Total 5	O 4	S 1	0	0
7	L	1	Total 5	O 4	S 1	0	0
7	L	1	Total 5	O 4	S 1	0	0
7	L	1	Total 5	O 4	S 1	0	0

- Molecule 8 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).
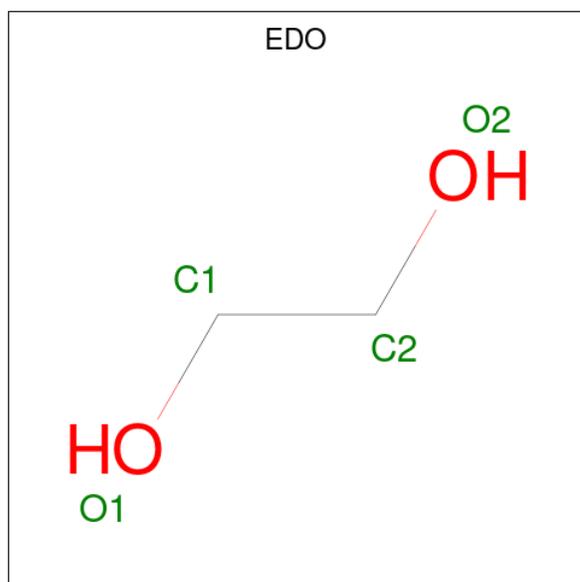
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	E	1	Total 4	C 2	O 2	0	0
8	F	1	Total 4	C 2	O 2	0	0
8	G	1	Total 4	C 2	O 2	0	0
8	H	1	Total 4	C 2	O 2	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	H	1	Total	C	O	0	0
			4	2	2		
8	L	1	Total	C	O	0	0
			4	2	2		
8	L	1	Total	C	O	0	0
			4	2	2		

- Molecule 9 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).
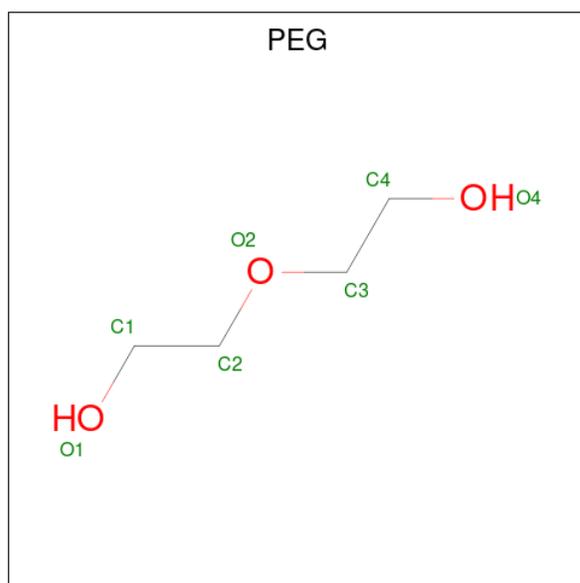
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	F	1	Total	C	O	0	0
			7	4	3		

- Molecule 10 is TRIETHYLENE GLYCOL (CCD ID: PGE) (formula: $C_6H_{14}O_4$).

PGE
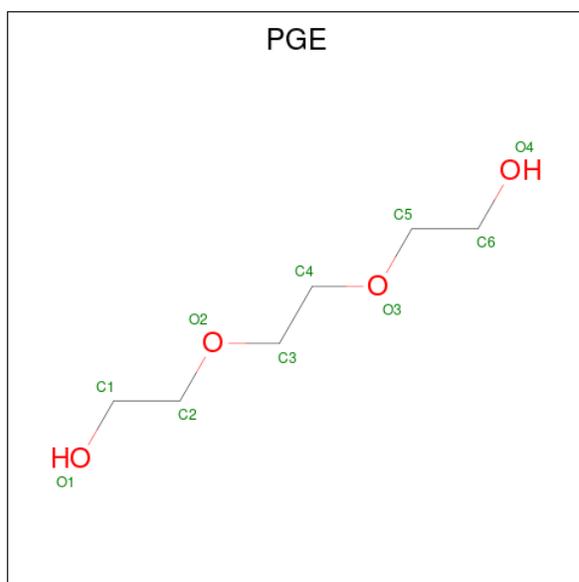
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	H	1	Total 10	C 6	O 4	0	0

- Molecule 11 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).

GOL
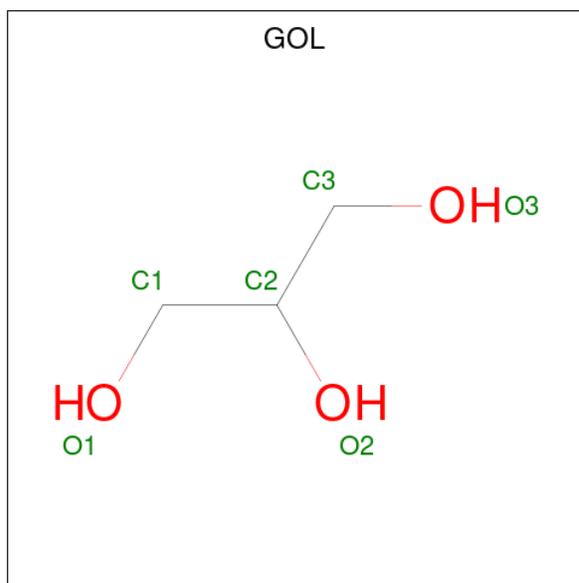
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
11	H	1	Total 6	C 3	O 3	0	0

- Molecule 12 is water.

| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
12	E	49	Total 49	O 49	0	0
12	F	31	Total 31	O 31	0	0
12	G	49	Total 49	O 49	0	0
12	H	65	Total 65	O 65	0	0
12	L	47	Total 47	O 47	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 receptor binding domain
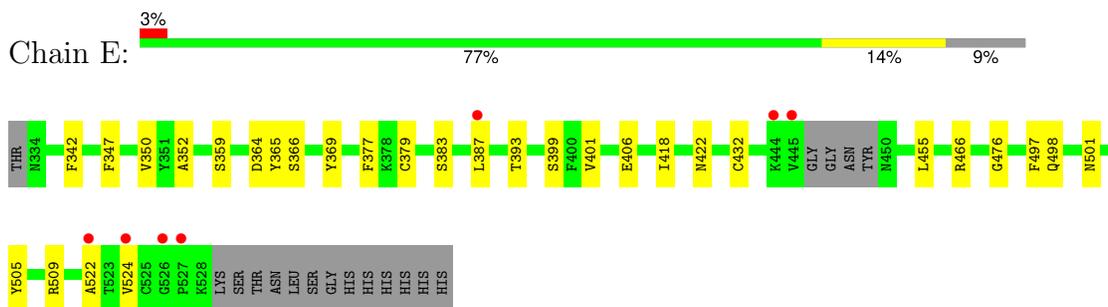
- Molecule 2: CC12.3 Fab heavy chain
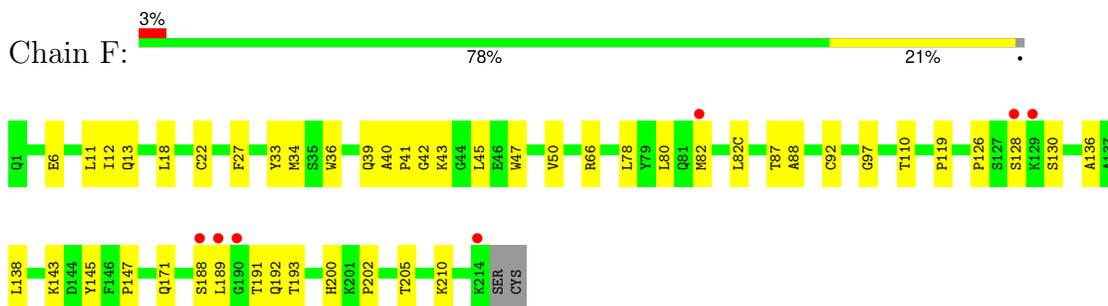
- Molecule 3: CC12.3 Fab light chain
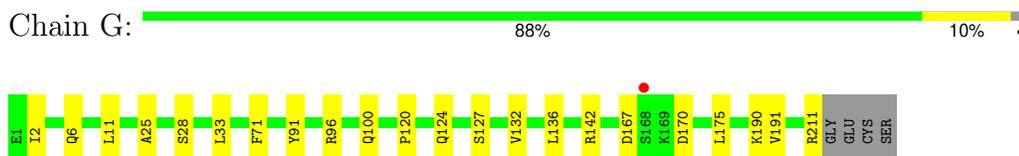
- Molecule 4: BoWLB-622 Fab heavy chain
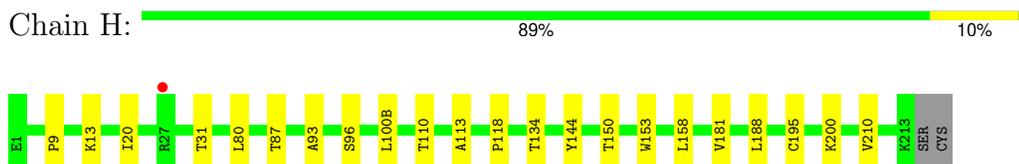
- Molecule 5: BoWLB-622 Fab light chain

Chain L:

85%　　　　14%

D1 L21 K24 S25 S26 Q27 F32 L33 Q37 L47 T51 L83 H92 S93 Y94 P95 T102 R103 L104 P120 E123 G128 V132 Q147 L154 E161 S162 L175 K183 A184 D185 Y186 E187 K188 Y192 R211 GLY GLU CYS SER
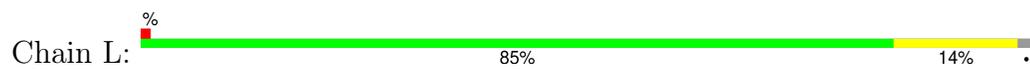
• Molecule 6: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain A:

50%　　　　50%

NAG1 NAG2

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	60.39Å 105.26Å 213.94Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	42.22 – 2.62 42.22 – 2.62	Depositor EDS
% Data completeness (in resolution range)	91.1 (42.22-2.62) 91.6 (42.22-2.62)	Depositor EDS
R_{merge}	0.24	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.93 (at 2.61Å)	Xtriage
Refinement program	PHENIX (1.21.2_5419: ???)	Depositor
R, R_{free}	0.206 , 0.258 0.206 , 0.257	Depositor DCC
R_{free} test set	1969 reflections (4.65%)	wwPDB-VP
Wilson B-factor (Å^2)	43.2	Xtriage
Anisotropy	0.150	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 47.9	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	8465	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.56% 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: GOL, SO4, NAG, PGE, PEG, EDO

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	E	0.08	0/1559	0.25	0/2120
2	F	0.10	0/1676	0.27	0/2281
3	G	0.09	0/1657	0.26	0/2249
4	H	0.09	0/1672	0.26	0/2282
5	L	0.09	0/1723	0.27	0/2338
All	All	0.09	0/8287	0.26	0/11270

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	E	1517	0	1443	20	0
2	F	1636	0	1596	31	0
3	G	1622	0	1583	13	0
4	H	1629	0	1600	13	0
5	L	1686	0	1650	19	0
6	A	28	0	25	1	0
7	E	5	0	0	0	0
7	F	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	G	20	0	0	1	0
7	H	10	0	0	0	0
7	L	15	0	0	1	0
8	E	4	0	6	0	0
8	F	4	0	6	0	0
8	G	4	0	6	0	0
8	H	8	0	12	0	0
8	L	8	0	12	0	0
9	F	7	0	10	0	0
10	H	10	0	14	1	0
11	H	6	0	8	1	0
12	E	49	0	0	2	0
12	F	31	0	0	2	0
12	G	49	0	0	2	0
12	H	65	0	0	0	0
12	L	47	0	0	1	0
All	All	8465	0	7971	92	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 6.

The worst 5 of 92 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:126:PRO:HG3	2:F:138:LEU:HB3	1.70	0.73
2:F:188:SER:HB3	2:F:192:GLN:HB3	1.73	0.71
4:H:9:PRO:HG2	4:H:200:LYS:HE3	1.74	0.69
2:F:82:MET:O	12:F:401:HOH:O	2.10	0.69
5:L:120:PRO:HD3	5:L:132:VAL:HG22	1.77	0.66

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	E	187/209 (90%)	182 (97%)	5 (3%)	0	100	100
2	F	217/220 (99%)	207 (95%)	10 (5%)	0	100	100
3	G	209/215 (97%)	204 (98%)	5 (2%)	0	100	100
4	H	217/221 (98%)	215 (99%)	2 (1%)	0	100	100
5	L	215/221 (97%)	211 (98%)	4 (2%)	0	100	100
All	All	1045/1086 (96%)	1019 (98%)	26 (2%)	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	E	166/181 (92%)	166 (100%)	0	100	100
2	F	184/186 (99%)	184 (100%)	0	100	100
3	G	183/186 (98%)	183 (100%)	0	100	100
4	H	185/187 (99%)	182 (98%)	3 (2%)	58	78
5	L	193/196 (98%)	193 (100%)	0	100	100
All	All	911/936 (97%)	908 (100%)	3 (0%)	91	97

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
4	H	134	THR
4	H	188	LEU
4	H	210	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 8 such sidechains are listed below:

Mol	Chain	Res	Type
5	L	138	ASN
5	L	37	GLN
4	H	81	GLN
3	G	42	GLN
5	L	31	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	$\#|Z| > 2$
6	NAG	A	1	1,6	14,14,15	0.71	0	17,19,21	0.90	0
6	NAG	A	2	6	14,14,15	0.70	0	17,19,21	0.81	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
6	NAG	A	1	1,6	-	0/6/23/26	0/1/1/1
6	NAG	A	2	6	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	2	NAG	C4-C5-C6-O6
6	A	2	NAG	O5-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	1	NAG	1	0

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

Oligosaccharide Chain A

Bond lengths   Bond angles

Torsions   Rings
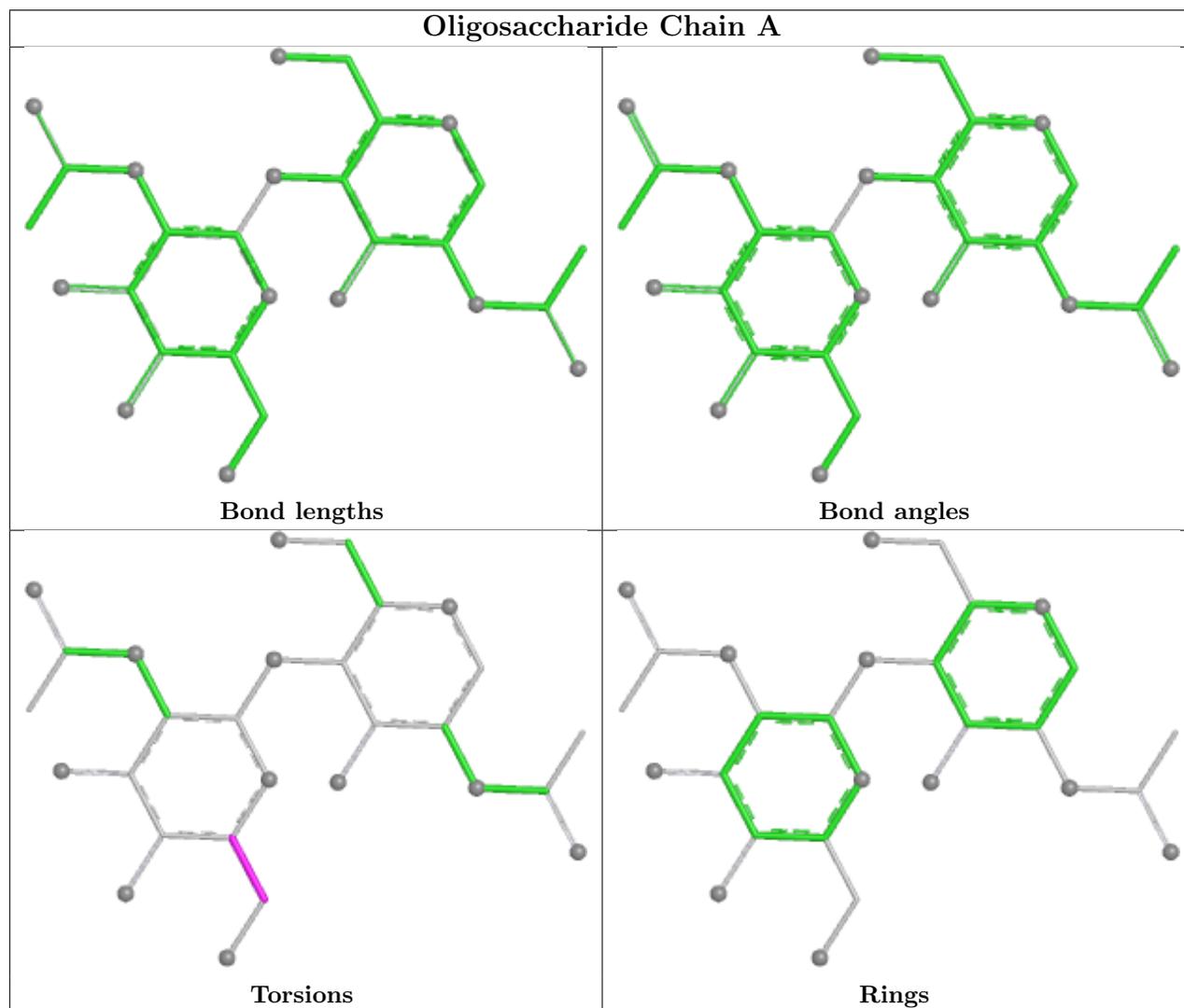
5.6 Ligand geometry ⓘ

21 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	$\#|Z| > 2$
7	SO4	E	601	-	4,4,4	0.67	0	6,6,6	0.08	0
8	EDO	F	303	-	3,3,3	0.25	0	2,2,2	0.33	0
7	SO4	F	301	-	4,4,4	0.67	0	6,6,6	0.07	0
7	SO4	L	301	-	4,4,4	0.68	0	6,6,6	0.08	0
7	SO4	H	301	-	4,4,4	0.66	0	6,6,6	0.07	0
8	EDO	H	306	-	3,3,3	0.25	0	2,2,2	0.37	0
8	EDO	L	304	-	3,3,3	0.25	0	2,2,2	0.35	0
8	EDO	L	305	-	3,3,3	0.25	0	2,2,2	0.34	0
7	SO4	H	302	-	4,4,4	0.68	0	6,6,6	0.06	0
8	EDO	H	304	-	3,3,3	0.24	0	2,2,2	0.33	0
7	SO4	G	302	-	4,4,4	0.67	0	6,6,6	0.08	0
7	SO4	L	303	-	4,4,4	0.67	0	6,6,6	0.08	0
7	SO4	G	301	-	4,4,4	0.67	0	6,6,6	0.07	0
8	EDO	E	602	-	3,3,3	0.25	0	2,2,2	0.34	0
8	EDO	G	305	-	3,3,3	0.24	0	2,2,2	0.36	0
7	SO4	G	303	-	4,4,4	0.67	0	6,6,6	0.07	0
7	SO4	G	304	-	4,4,4	0.67	0	6,6,6	0.12	0
9	PEG	F	302	-	6,6,6	0.25	0	5,5,5	0.25	0
7	SO4	L	302	-	4,4,4	0.67	0	6,6,6	0.08	0
10	PGE	H	303	-	9,9,9	0.33	0	8,8,8	0.50	0
11	GOL	H	305	-	5,5,5	0.32	0	5,5,5	0.41	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
8	EDO	E	602	-	-	0/1/1/1	-
8	EDO	G	305	-	-	1/1/1/1	-
8	EDO	H	304	-	-	0/1/1/1	-
8	EDO	F	303	-	-	0/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
9	PEG	F	302	-	-	0/4/4/4	-
10	PGE	H	303	-	-	3/7/7/7	-
8	EDO	H	306	-	-	0/1/1/1	-
8	EDO	L	304	-	-	0/1/1/1	-
8	EDO	L	305	-	-	0/1/1/1	-
11	GOL	H	305	-	-	0/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	H	303	PGE	O2-C3-C4-O3
10	H	303	PGE	C3-C4-O3-C5
8	G	305	EDO	O1-C1-C2-O2
10	H	303	PGE	O1-C1-C2-O2

There are no ring outliers.

4 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	G	302	SO4	1	0
7	L	303	SO4	1	0
10	H	303	PGE	1	0
11	H	305	GOL	1	0

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(Å²)	Q<0.9
1	E	191/209 (91%)	0.16	7 (3%)	45	40	28, 45, 72, 97	0
2	F	217/220 (98%)	0.21	7 (3%)	50	45	29, 47, 78, 92	0
3	G	211/215 (98%)	-0.06	1 (0%)	87	85	27, 45, 62, 78	0
4	H	219/221 (99%)	-0.27	1 (0%)	87	85	20, 36, 55, 85	0
5	L	217/221 (98%)	-0.26	2 (0%)	81	77	23, 38, 58, 68	0
All	All	1055/1086 (97%)	-0.05	18 (1%)	69	65	20, 42, 66, 97	0

The worst 5 of 18 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	445	VAL	5.2
2	F	189	LEU	3.6
2	F	129	LYS	3.4
5	L	154	LEU	3.2
2	F	128	SER	3.1

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

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

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.

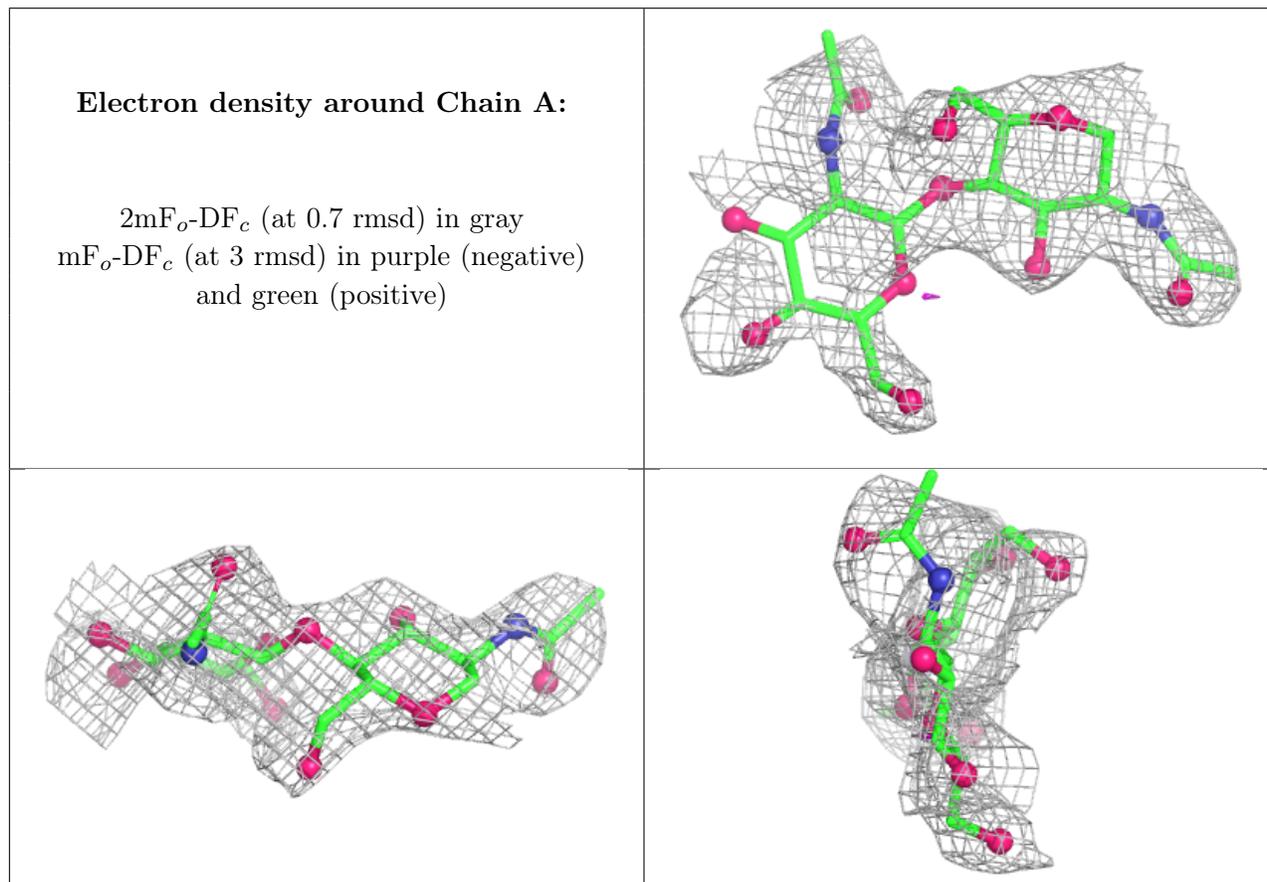| Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å²)	Q<0.9
6	NAG	A	1	14/15	-	-	55,75,89,90	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
6	NAG	A	2	14/15	-	-	66,88,101,102	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 A:

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
8	EDO	H	306	4/4	0.58	0.24	47,51,58,58	0
8	EDO	E	602	4/4	0.70	0.18	52,54,57,60	0
7	SO4	G	304	5/5	0.74	0.09	77,97,114,125	0
7	SO4	G	302	5/5	0.75	0.09	80,92,110,115	0
8	EDO	H	304	4/4	0.79	0.22	32,34,40,41	0
7	SO4	F	301	5/5	0.81	0.12	76,83,100,125	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
7	SO4	H	302	5/5	0.81	0.14	65,77,99,117	0
7	SO4	L	303	5/5	0.81	0.19	47,68,90,96	0
7	SO4	G	303	5/5	0.82	0.17	75,77,92,98	0
7	SO4	L	302	5/5	0.83	0.24	71,87,94,110	0
8	EDO	F	303	4/4	0.87	0.18	39,42,56,57	0
8	EDO	L	305	4/4	0.87	0.12	39,47,50,55	0
7	SO4	L	301	5/5	0.88	0.18	63,65,86,115	0
10	PGE	H	303	10/10	0.88	0.14	25,36,47,49	0
7	SO4	E	601	5/5	0.89	0.15	75,78,89,93	0
9	PEG	F	302	7/7	0.90	0.13	40,47,57,58	0
8	EDO	L	304	4/4	0.90	0.14	41,60,61,63	0
7	SO4	G	301	5/5	0.91	0.13	50,60,83,95	0
8	EDO	G	305	4/4	0.92	0.11	36,44,45,47	0
7	SO4	H	301	5/5	0.94	0.10	52,53,61,81	0
11	GOL	H	305	6/6	0.94	0.13	27,34,36,59	0

6.5　Other polymers ⓘ

There are no such residues in this entry.