Full wwPDB X-ray Structure Validation Report (i)

Mar 2, 2026 – 12:39 PM EST

PDB ID	:	9NJ1 / pdb_00009nj1
Title	:	GlfT2 from Nocardia brasiliensis Bound to Galf Tetrasaccharide
Authors	:	Carter, A.W.; Dodge, G.J.; Kiessling, L.L.
Deposited on	:	2025-02-26
Resolution	:	3.15 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 (i) 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 (i)) were used in the production of this report:

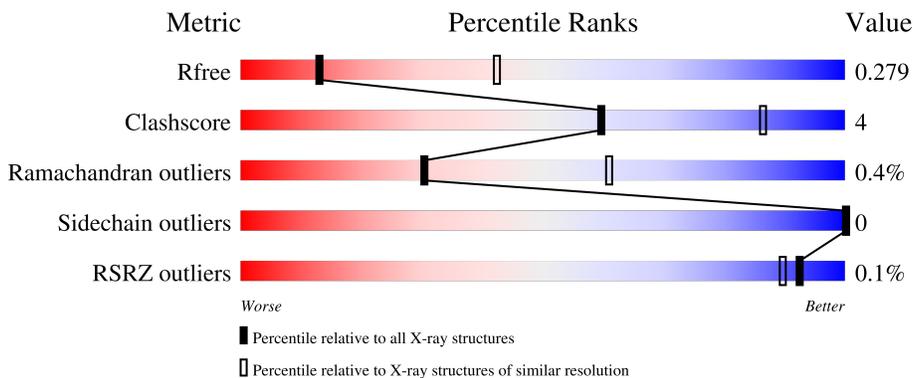|		
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.48.1

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 3.15 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.
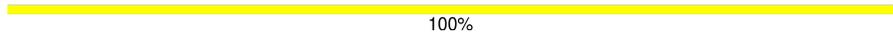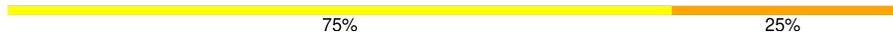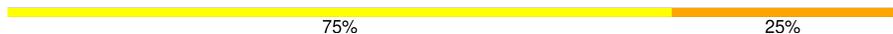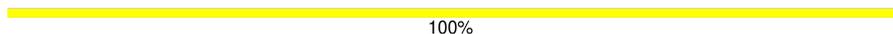
Metric	Percentile Ranks	Value
Rfree		0.279
Clashscore		4
Ramachandran outliers		0.4%
Sidechain outliers		0
RSRZ outliers		0.1%

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	2168 (3.20-3.12)
Clashscore	180529	2333 (3.20-3.12)
Ramachandran outliers	177936	2266 (3.20-3.12)
Sidechain outliers	177891	2265 (3.20-3.12)
RSRZ outliers	164620	2169 (3.20-3.12)

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	666	82% · 12% · 6%
1	B	666	83% · 10% · 6%
1	C	666	81% · 13% · 6%
1	D	666	83% · 11% · 6%
1	E	666	86% · 8% · 6%

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Mol	Chain	Length	Quality of chain
1	F	666	85% 9% 6%
1	G	666	83% 10% 6%
1	H	666	84% 10% 6%
2	I	4	100%
2	J	4	25% 75%
2	K	4	25% 75%
2	L	4	75% 25%
2	M	4	100%
2	N	4	50% 50%
2	O	4	75% 25%
2	P	4	100%

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
2	GZL	K	4	-	-	X	-
2	GZL	M	1	-	-	-	X

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 39638 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 Galactofuranosyltransferase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	625	Total	C	N	O	S	0	0	0
			4881	3102	876	888	15			
1	B	625	Total	C	N	O	S	0	1	0
			4892	3108	880	889	15			
1	C	625	Total	C	N	O	S	0	1	0
			4892	3108	880	889	15			
1	D	624	Total	C	N	O	S	0	1	0
			4888	3106	879	888	15			
1	E	625	Total	C	N	O	S	0	1	0
			4892	3108	880	889	15			
1	F	625	Total	C	N	O	S	0	1	0
			4892	3108	880	889	15			
1	G	624	Total	C	N	O	S	0	0	0
			4877	3100	875	887	15			
1	H	624	Total	C	N	O	S	0	0	0
			4877	3100	875	887	15			

There are 216 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MET	-	expression tag	UNP K0EQQ2
A	-18	GLY	-	expression tag	UNP K0EQQ2
A	-17	SER	-	expression tag	UNP K0EQQ2
A	-16	SER	-	expression tag	UNP K0EQQ2
A	-15	HIS	-	expression tag	UNP K0EQQ2
A	-14	HIS	-	expression tag	UNP K0EQQ2
A	-13	HIS	-	expression tag	UNP K0EQQ2
A	-12	HIS	-	expression tag	UNP K0EQQ2
A	-11	HIS	-	expression tag	UNP K0EQQ2
A	-10	HIS	-	expression tag	UNP K0EQQ2
A	-9	SER	-	expression tag	UNP K0EQQ2
A	-8	SER	-	expression tag	UNP K0EQQ2
A	-7	GLY	-	expression tag	UNP K0EQQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-6	LEU	-	expression tag	UNP K0EQQ2
A	-5	VAL	-	expression tag	UNP K0EQQ2
A	-4	PRO	-	expression tag	UNP K0EQQ2
A	-3	ARG	-	expression tag	UNP K0EQQ2
A	-2	GLY	-	expression tag	UNP K0EQQ2
A	-1	SER	-	expression tag	UNP K0EQQ2
A	0	HIS	-	expression tag	UNP K0EQQ2
A	1	MET	-	expression tag	UNP K0EQQ2
A	2	THR	-	expression tag	UNP K0EQQ2
A	3	SER	-	expression tag	UNP K0EQQ2
A	4	GLN	-	expression tag	UNP K0EQQ2
A	5	SER	-	expression tag	UNP K0EQQ2
A	6	LEU	-	expression tag	UNP K0EQQ2
A	7	LEU	-	expression tag	UNP K0EQQ2
B	-19	MET	-	expression tag	UNP K0EQQ2
B	-18	GLY	-	expression tag	UNP K0EQQ2
B	-17	SER	-	expression tag	UNP K0EQQ2
B	-16	SER	-	expression tag	UNP K0EQQ2
B	-15	HIS	-	expression tag	UNP K0EQQ2
B	-14	HIS	-	expression tag	UNP K0EQQ2
B	-13	HIS	-	expression tag	UNP K0EQQ2
B	-12	HIS	-	expression tag	UNP K0EQQ2
B	-11	HIS	-	expression tag	UNP K0EQQ2
B	-10	HIS	-	expression tag	UNP K0EQQ2
B	-9	SER	-	expression tag	UNP K0EQQ2
B	-8	SER	-	expression tag	UNP K0EQQ2
B	-7	GLY	-	expression tag	UNP K0EQQ2
B	-6	LEU	-	expression tag	UNP K0EQQ2
B	-5	VAL	-	expression tag	UNP K0EQQ2
B	-4	PRO	-	expression tag	UNP K0EQQ2
B	-3	ARG	-	expression tag	UNP K0EQQ2
B	-2	GLY	-	expression tag	UNP K0EQQ2
B	-1	SER	-	expression tag	UNP K0EQQ2
B	0	HIS	-	expression tag	UNP K0EQQ2
B	1	MET	-	expression tag	UNP K0EQQ2
B	2	THR	-	expression tag	UNP K0EQQ2
B	3	SER	-	expression tag	UNP K0EQQ2
B	4	GLN	-	expression tag	UNP K0EQQ2
B	5	SER	-	expression tag	UNP K0EQQ2
B	6	LEU	-	expression tag	UNP K0EQQ2
B	7	LEU	-	expression tag	UNP K0EQQ2
C	-19	MET	-	expression tag	UNP K0EQQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-18	GLY	-	expression tag	UNP K0EQQ2
C	-17	SER	-	expression tag	UNP K0EQQ2
C	-16	SER	-	expression tag	UNP K0EQQ2
C	-15	HIS	-	expression tag	UNP K0EQQ2
C	-14	HIS	-	expression tag	UNP K0EQQ2
C	-13	HIS	-	expression tag	UNP K0EQQ2
C	-12	HIS	-	expression tag	UNP K0EQQ2
C	-11	HIS	-	expression tag	UNP K0EQQ2
C	-10	HIS	-	expression tag	UNP K0EQQ2
C	-9	SER	-	expression tag	UNP K0EQQ2
C	-8	SER	-	expression tag	UNP K0EQQ2
C	-7	GLY	-	expression tag	UNP K0EQQ2
C	-6	LEU	-	expression tag	UNP K0EQQ2
C	-5	VAL	-	expression tag	UNP K0EQQ2
C	-4	PRO	-	expression tag	UNP K0EQQ2
C	-3	ARG	-	expression tag	UNP K0EQQ2
C	-2	GLY	-	expression tag	UNP K0EQQ2
C	-1	SER	-	expression tag	UNP K0EQQ2
C	0	HIS	-	expression tag	UNP K0EQQ2
C	1	MET	-	expression tag	UNP K0EQQ2
C	2	THR	-	expression tag	UNP K0EQQ2
C	3	SER	-	expression tag	UNP K0EQQ2
C	4	GLN	-	expression tag	UNP K0EQQ2
C	5	SER	-	expression tag	UNP K0EQQ2
C	6	LEU	-	expression tag	UNP K0EQQ2
C	7	LEU	-	expression tag	UNP K0EQQ2
D	-19	MET	-	expression tag	UNP K0EQQ2
D	-18	GLY	-	expression tag	UNP K0EQQ2
D	-17	SER	-	expression tag	UNP K0EQQ2
D	-16	SER	-	expression tag	UNP K0EQQ2
D	-15	HIS	-	expression tag	UNP K0EQQ2
D	-14	HIS	-	expression tag	UNP K0EQQ2
D	-13	HIS	-	expression tag	UNP K0EQQ2
D	-12	HIS	-	expression tag	UNP K0EQQ2
D	-11	HIS	-	expression tag	UNP K0EQQ2
D	-10	HIS	-	expression tag	UNP K0EQQ2
D	-9	SER	-	expression tag	UNP K0EQQ2
D	-8	SER	-	expression tag	UNP K0EQQ2
D	-7	GLY	-	expression tag	UNP K0EQQ2
D	-6	LEU	-	expression tag	UNP K0EQQ2
D	-5	VAL	-	expression tag	UNP K0EQQ2
D	-4	PRO	-	expression tag	UNP K0EQQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
D	-3	ARG	-	expression tag	UNP K0EQQ2
D	-2	GLY	-	expression tag	UNP K0EQQ2
D	-1	SER	-	expression tag	UNP K0EQQ2
D	0	HIS	-	expression tag	UNP K0EQQ2
D	1	MET	-	expression tag	UNP K0EQQ2
D	2	THR	-	expression tag	UNP K0EQQ2
D	3	SER	-	expression tag	UNP K0EQQ2
D	4	GLN	-	expression tag	UNP K0EQQ2
D	5	SER	-	expression tag	UNP K0EQQ2
D	6	LEU	-	expression tag	UNP K0EQQ2
D	7	LEU	-	expression tag	UNP K0EQQ2
E	-19	MET	-	expression tag	UNP K0EQQ2
E	-18	GLY	-	expression tag	UNP K0EQQ2
E	-17	SER	-	expression tag	UNP K0EQQ2
E	-16	SER	-	expression tag	UNP K0EQQ2
E	-15	HIS	-	expression tag	UNP K0EQQ2
E	-14	HIS	-	expression tag	UNP K0EQQ2
E	-13	HIS	-	expression tag	UNP K0EQQ2
E	-12	HIS	-	expression tag	UNP K0EQQ2
E	-11	HIS	-	expression tag	UNP K0EQQ2
E	-10	HIS	-	expression tag	UNP K0EQQ2
E	-9	SER	-	expression tag	UNP K0EQQ2
E	-8	SER	-	expression tag	UNP K0EQQ2
E	-7	GLY	-	expression tag	UNP K0EQQ2
E	-6	LEU	-	expression tag	UNP K0EQQ2
E	-5	VAL	-	expression tag	UNP K0EQQ2
E	-4	PRO	-	expression tag	UNP K0EQQ2
E	-3	ARG	-	expression tag	UNP K0EQQ2
E	-2	GLY	-	expression tag	UNP K0EQQ2
E	-1	SER	-	expression tag	UNP K0EQQ2
E	0	HIS	-	expression tag	UNP K0EQQ2
E	1	MET	-	expression tag	UNP K0EQQ2
E	2	THR	-	expression tag	UNP K0EQQ2
E	3	SER	-	expression tag	UNP K0EQQ2
E	4	GLN	-	expression tag	UNP K0EQQ2
E	5	SER	-	expression tag	UNP K0EQQ2
E	6	LEU	-	expression tag	UNP K0EQQ2
E	7	LEU	-	expression tag	UNP K0EQQ2
F	-19	MET	-	expression tag	UNP K0EQQ2
F	-18	GLY	-	expression tag	UNP K0EQQ2
F	-17	SER	-	expression tag	UNP K0EQQ2
F	-16	SER	-	expression tag	UNP K0EQQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
F	-15	HIS	-	expression tag	UNP K0EQQ2
F	-14	HIS	-	expression tag	UNP K0EQQ2
F	-13	HIS	-	expression tag	UNP K0EQQ2
F	-12	HIS	-	expression tag	UNP K0EQQ2
F	-11	HIS	-	expression tag	UNP K0EQQ2
F	-10	HIS	-	expression tag	UNP K0EQQ2
F	-9	SER	-	expression tag	UNP K0EQQ2
F	-8	SER	-	expression tag	UNP K0EQQ2
F	-7	GLY	-	expression tag	UNP K0EQQ2
F	-6	LEU	-	expression tag	UNP K0EQQ2
F	-5	VAL	-	expression tag	UNP K0EQQ2
F	-4	PRO	-	expression tag	UNP K0EQQ2
F	-3	ARG	-	expression tag	UNP K0EQQ2
F	-2	GLY	-	expression tag	UNP K0EQQ2
F	-1	SER	-	expression tag	UNP K0EQQ2
F	0	HIS	-	expression tag	UNP K0EQQ2
F	1	MET	-	expression tag	UNP K0EQQ2
F	2	THR	-	expression tag	UNP K0EQQ2
F	3	SER	-	expression tag	UNP K0EQQ2
F	4	GLN	-	expression tag	UNP K0EQQ2
F	5	SER	-	expression tag	UNP K0EQQ2
F	6	LEU	-	expression tag	UNP K0EQQ2
F	7	LEU	-	expression tag	UNP K0EQQ2
G	-19	MET	-	expression tag	UNP K0EQQ2
G	-18	GLY	-	expression tag	UNP K0EQQ2
G	-17	SER	-	expression tag	UNP K0EQQ2
G	-16	SER	-	expression tag	UNP K0EQQ2
G	-15	HIS	-	expression tag	UNP K0EQQ2
G	-14	HIS	-	expression tag	UNP K0EQQ2
G	-13	HIS	-	expression tag	UNP K0EQQ2
G	-12	HIS	-	expression tag	UNP K0EQQ2
G	-11	HIS	-	expression tag	UNP K0EQQ2
G	-10	HIS	-	expression tag	UNP K0EQQ2
G	-9	SER	-	expression tag	UNP K0EQQ2
G	-8	SER	-	expression tag	UNP K0EQQ2
G	-7	GLY	-	expression tag	UNP K0EQQ2
G	-6	LEU	-	expression tag	UNP K0EQQ2
G	-5	VAL	-	expression tag	UNP K0EQQ2
G	-4	PRO	-	expression tag	UNP K0EQQ2
G	-3	ARG	-	expression tag	UNP K0EQQ2
G	-2	GLY	-	expression tag	UNP K0EQQ2
G	-1	SER	-	expression tag	UNP K0EQQ2

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Chain	Residue	Modelled	Actual	Comment	Reference
G	0	HIS	-	expression tag	UNP K0EQQ2
G	1	MET	-	expression tag	UNP K0EQQ2
G	2	THR	-	expression tag	UNP K0EQQ2
G	3	SER	-	expression tag	UNP K0EQQ2
G	4	GLN	-	expression tag	UNP K0EQQ2
G	5	SER	-	expression tag	UNP K0EQQ2
G	6	LEU	-	expression tag	UNP K0EQQ2
G	7	LEU	-	expression tag	UNP K0EQQ2
H	-19	MET	-	expression tag	UNP K0EQQ2
H	-18	GLY	-	expression tag	UNP K0EQQ2
H	-17	SER	-	expression tag	UNP K0EQQ2
H	-16	SER	-	expression tag	UNP K0EQQ2
H	-15	HIS	-	expression tag	UNP K0EQQ2
H	-14	HIS	-	expression tag	UNP K0EQQ2
H	-13	HIS	-	expression tag	UNP K0EQQ2
H	-12	HIS	-	expression tag	UNP K0EQQ2
H	-11	HIS	-	expression tag	UNP K0EQQ2
H	-10	HIS	-	expression tag	UNP K0EQQ2
H	-9	SER	-	expression tag	UNP K0EQQ2
H	-8	SER	-	expression tag	UNP K0EQQ2
H	-7	GLY	-	expression tag	UNP K0EQQ2
H	-6	LEU	-	expression tag	UNP K0EQQ2
H	-5	VAL	-	expression tag	UNP K0EQQ2
H	-4	PRO	-	expression tag	UNP K0EQQ2
H	-3	ARG	-	expression tag	UNP K0EQQ2
H	-2	GLY	-	expression tag	UNP K0EQQ2
H	-1	SER	-	expression tag	UNP K0EQQ2
H	0	HIS	-	expression tag	UNP K0EQQ2
H	1	MET	-	expression tag	UNP K0EQQ2
H	2	THR	-	expression tag	UNP K0EQQ2
H	3	SER	-	expression tag	UNP K0EQQ2
H	4	GLN	-	expression tag	UNP K0EQQ2
H	5	SER	-	expression tag	UNP K0EQQ2
H	6	LEU	-	expression tag	UNP K0EQQ2
H	7	LEU	-	expression tag	UNP K0EQQ2

- Molecule 2 is an oligosaccharide called beta-D-galactofuranose-(1-6)-beta-D-galactofuranose -(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose.
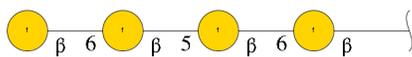
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
2	I	4	Total 44	C 24	O 20	0	0	0
2	J	4	Total 44	C 24	O 20	0	0	0
2	K	4	Total 44	C 24	O 20	0	0	0
2	M	4	Total 44	C 24	O 20	0	0	0
2	N	4	Total 35	C 19	O 16	0	0	1
2	O	4	Total 44	C 24	O 20	0	0	0
2	P	4	Total 44	C 24	O 20	0	0	0
2	L	4	Total 44	C 24	O 20	0	0	0

- Molecule 3 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total 1	Mg 1	0	0
3	B	1	Total 1	Mg 1	0	0
3	C	1	Total 1	Mg 1	0	0
3	D	1	Total 1	Mg 1	0	0
3	E	1	Total 1	Mg 1	0	0
3	F	1	Total 1	Mg 1	0	0
3	G	1	Total 1	Mg 1	0	0
3	H	1	Total 1	Mg 1	0	0

- Molecule 4 is 2-{2-[4-(1,1,3,3-TETRAMETHYLBUTYL)PHENOXY]ETHOXY}ETHANOL (CCD ID: TON) (formula: $C_{18}H_{30}O_3$).

TON
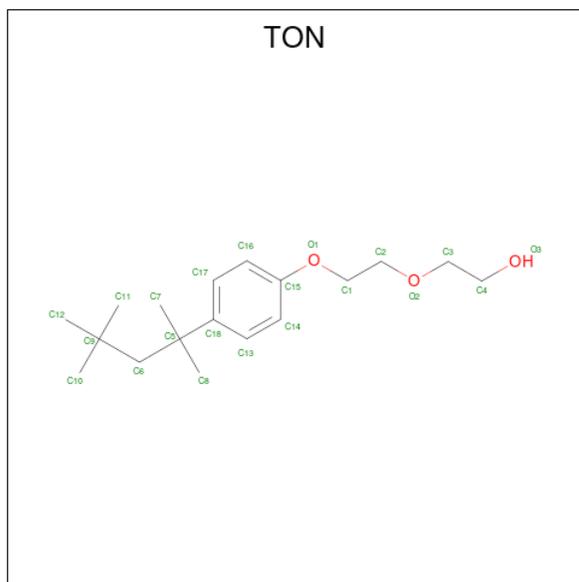
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 21	C 18	O 3	0	0
4	C	1	Total 21	C 18	O 3	0	0
4	E	1	Total 21	C 18	O 3	0	0

- Molecule 5 is (2E)-12-phenoxydodec-2-en-1-ol (CCD ID: A1BYH) (formula: $C_{18}H_{28}O_2$) (labeled as "Ligand of Interest" by depositor).

A1BYH
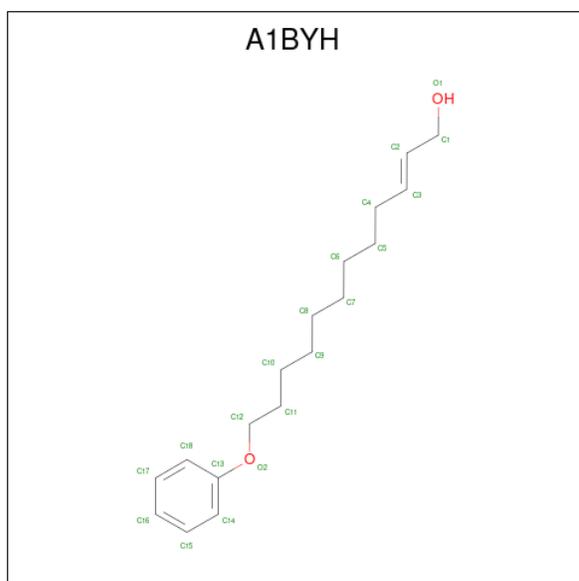
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total 5	C 4	O 1	0	0
5	B	1	Total 11	C 10	O 1	0	0
5	C	1	Total 4	C 3	O 1	0	0
5	D	1	Total 6	C 5	O 1	0	0
5	E	1	Total 4	C 3	O 1	0	0
5	G	1	Total 4	C 3	O 1	0	0
5	H	1	Total 5	C 4	O 1	0	0

- Molecule 6 is FRAGMENT OF TRITON X-100 (CCD ID: TRT) (formula: $C_{21}H_{36}O_4$).
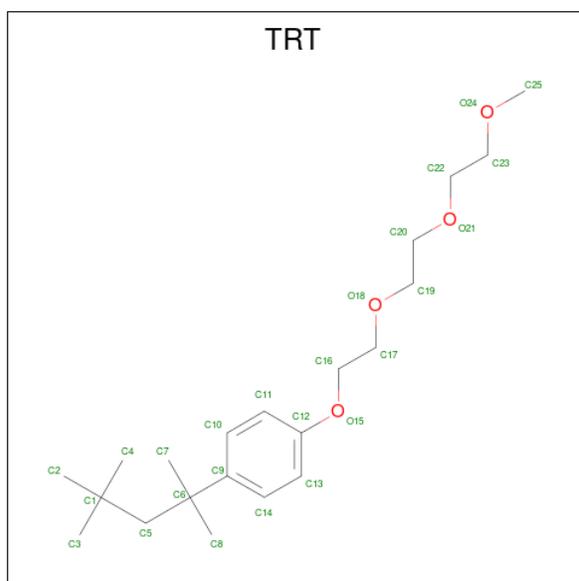
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total 19	C 17	O 2	0	0
6	D	1	Total 18	C 16	O 2	0	0
6	F	1	Total 20	C 18	O 2	0	0
6	G	1	Total 18	C 16	O 2	0	0
6	H	1	Total 19	C 17	O 2	0	0

Full wwPDB X-ray Structure Validation Report

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: Galactofuranosyltransferase

- Molecule 1: Galactofuranosyltransferase

- Molecule 1: Galactofuranosyltransferase

I174 P179 V204 Q212 R233 N241 G247 R250 Y263 D268 I271 E272 A288 M292 L293 Q297 M298 E303 R304 S305 H306 D315 F319 M320 W321 G357 W358 W359 V367 I371 K380 V384 H393 T399 W406 H407

W410 K413 A416 I417 D418 R426 A432 L436 P437 I465 A469 I470 R471 A475 R479 L484 P485 R495 P505 E509 S514 H515 L516 E517 V518 G519 A520 P524 A525 A529 K530 V531 V532 R533 R548 L555 T559 R563

A578 L603 R604 K605 F635 G638 ALA GLN THR LYS GLY GLU LYS SER

• Molecule 1: Galactofuranosyltransferase

Chain D:

83%   11%   6%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET THR SER GLN SER LEU LEU ASP MET ALA THR GLU T14 L25 L57 C68 L74 P75 W82 V88 H97 I112 H113 A120 W146 I174 P179

G195 L201 I208 Q212 D219 N241 G247 R250 E254 Y263 D268 I271 E272 A288 M292 Q297 M298 L299 Q302 E303 R304 S305 H306 L307 D315 F319 M320 W321 T322 S323 Y329 G357 W358 W359 I371 V384 E385 Y386

H393 T399 W406 H407 L425 R426 N427 R428 A469 L484 P485 P505 E509 S514 H515 L516 P524 A525 I528 A529 K530 V531 V532 R548 E551 L555 V573 F635 G636 L637 GLY ALA GLN THR LYS GLY GLU LYS SER

• Molecule 1: Galactofuranosyltransferase

Chain E:

86%   8%   6%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET THR SER GLN SER LEU LEU ASP MET ALA THR GLU T14 L19 L20 Q21 R22 L25 A49 L57 C68 L74 P75 V88 V89 L90 H97 A120 W146

W162 Y163 A164 P179 Q212 N241 G247 D268 I271 R280 A288 M292 Q297 M298 W321 I371 F378 L379 K380 Y386 T399 H407 D414 A421 R426 A432 L436 K453 I465 A469 P505 E509

A520 P524 A529 K530 V531 V532 R533 V557 R563 L566 L594 G638 ALA GLN THR LYS GLY GLU LYS SER

• Molecule 1: Galactofuranosyltransferase

Chain F:

85%   9%   6%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET THR SER GLN SER LEU LEU ASP MET ALA THR GLU T14 S56 C68 L74 W82 V88 V89 L90 H97 A120 W146 L157 W162 I174 P179

I208 Q212 N241 G247 E254 Y263 D268 I271 E272 A288 M292 M298 E303 H306 D315 F319 M320 W321 D330 F378 L379 K380 V384 W406 H407 M408 A409 D418 R426 A432 L436 P437 A469 I470 L484

P485 S514 H515 L516 E517 V518 G519 A520 P524 P527 K530 R533 R548 L555 N556 V557 L566 V573 L603 G638 ALA GLN THR LYS GLY GLU LYS SER

- Molecule 1: Galactofuranosyltransferase

Chain G:

- Molecule 1: Galactofuranosyltransferase
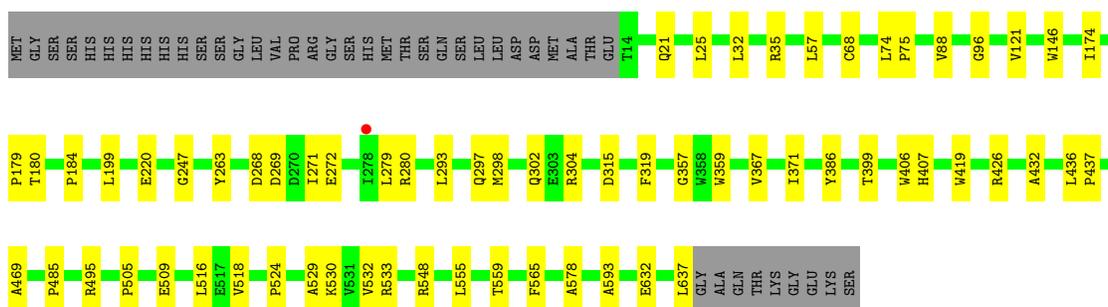
Chain H:

- Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose
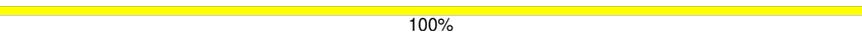
Chain I:

- Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose

Chain J:

- Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose

Chain K:

• Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose

Chain M: 100%

GZL1 GZL2 GZL3 GZL4

• Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose

Chain N: 50%   50%

GZL1 GZL2 GZL3 GZL4

• Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose

Chain O: 75%   25%

GZL1 GZL2 GZL3 GZL4

• Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose

Chain P: 100%
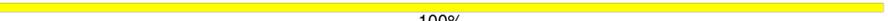
GZL1 GZL2 GZL3 GZL4

• Molecule 2: beta-D-galactofuranose-(1-6)-beta-D-galactofuranose-(1-5)-beta-D-galactofuranose-(1-6)-beta-D-galactofuranose

Chain L: 75%   25%

GZL1 GZL2 GZL3 GZL4

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	106.21Å 203.91Å 292.48Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	34.88 – 3.15 34.88 – 3.15	Depositor EDS
% Data completeness (in resolution range)	97.7 (34.88-3.15) 97.2 (34.88-3.15)	Depositor EDS
R_{merge}	0.36	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	0.98 (at 3.12Å)	Xtriage
Refinement program	PHENIX 1.21.2_5419	Depositor
R, R_{free}	0.238 , 0.278 0.238 , 0.279	Depositor DCC
R_{free} test set	1973 reflections (1.78%)	wwPDB-VP
Wilson B-factor (Å^2)	59.4	Xtriage
Anisotropy	0.185	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 20.2	EDS
L-test for twinning[2]	$< |L| > = 0.45, < L^2 > = 0.27$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	39638	wwPDB-VP
Average B, all atoms (Å^2)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 36.46 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.9805e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

---

[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: TRT, A1BYH, MG, TON, GZL

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	0.09	0/5002	0.24	0/6812
1	B	0.08	0/5013	0.24	0/6826
1	C	0.09	0/5013	0.24	0/6826
1	D	0.09	0/5009	0.24	0/6821
1	E	0.08	0/5013	0.23	0/6826
1	F	0.08	0/5013	0.24	0/6826
1	G	0.09	0/4998	0.24	0/6807
1	H	0.09	0/4998	0.24	0/6807
All	All	0.09	0/40059	0.24	0/54551

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	4881	0	4848	43	0
1	B	4892	0	4860	45	0
1	C	4892	0	4860	57	0
1	D	4888	0	4857	43	0
1	E	4892	0	4860	37	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	F	4892	0	4860	29	0
1	G	4877	0	4845	42	0
1	H	4877	0	4845	39	0
2	I	44	0	28	0	0
2	J	44	0	28	8	0
2	K	44	0	27	11	0
2	L	44	0	27	1	0
2	M	44	0	29	10	0
2	N	35	0	21	0	0
2	O	44	0	29	1	0
2	P	44	0	28	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
3	E	1	0	0	0	0
3	F	1	0	0	0	0
3	G	1	0	0	0	0
3	H	1	0	0	0	0
4	A	21	0	30	1	0
4	C	21	0	30	0	0
4	E	21	0	30	1	0
5	A	5	0	0	0	0
5	B	11	0	0	0	0
5	C	4	0	0	3	0
5	D	6	0	0	0	0
5	E	4	0	0	2	0
5	G	4	0	0	0	0
5	H	5	0	0	0	0
6	B	19	0	25	0	0
6	D	18	0	25	1	0
6	F	20	0	27	0	0
6	G	18	0	25	1	0
6	H	19	0	25	1	0
All	All	39638	0	39269	335	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 (335) 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:H:199:LEU:HD22	1:H:279:LEU:CD1	1.98	0.93
1:A:199:LEU:HD22	1:A:279:LEU:HD13	1.52	0.92
1:C:321:TRP:HB2	2:K:4:GZL:O3	1.70	0.92
1:A:199:LEU:HD22	1:A:279:LEU:CD1	2.02	0.89
1:H:199:LEU:HD22	1:H:279:LEU:HD13	1.53	0.89
1:G:199:LEU:HD22	1:G:279:LEU:CD1	2.07	0.85
1:G:199:LEU:HD22	1:G:279:LEU:HD13	1.60	0.83
1:C:321:TRP:CD2	2:K:4:GZL:H41	2.17	0.79
2:M:2:GZL:H31	2:M:2:GZL:O6	1.82	0.79
1:B:321:TRP:NE1	2:J:3:GZL:C6	2.51	0.74
1:D:524:PRO:HG2	1:D:530:LYS:HG2	1.68	0.73
1:C:321:TRP:CE3	2:K:4:GZL:H41	2.24	0.72
1:D:315:ASP:O	1:D:319:PHE:HA	1.89	0.72
1:H:524:PRO:HG2	1:H:530:LYS:HD3	1.70	0.72
1:E:453:LYS:HD2	2:M:1:GZL:O2	1.90	0.70
1:C:524:PRO:HG2	1:C:530:LYS:HG2	1.74	0.69
1:H:315:ASP:O	1:H:319:PHE:HA	1.94	0.67
1:H:199:LEU:HD22	1:H:279:LEU:HD11	1.76	0.66
1:C:321:TRP:CD1	2:K:3:GZL:O6	2.50	0.65
1:F:315:ASP:O	1:F:319:PHE:HA	1.97	0.65
1:G:516:LEU:HD22	1:G:548:ARG:HH22	1.62	0.65
1:D:250:ARG:HH21	1:D:635:PHE:HB3	1.63	0.64
1:D:321:TRP:HE1	2:L:3:GZL:H51	1.62	0.63
1:B:524:PRO:HG2	1:B:530:LYS:HD3	1.82	0.62
1:A:174:ILE:HG22	1:A:263:TYR:HB2	1.81	0.62
1:C:548:ARG:HH21	1:D:551:GLU:HG2	1.65	0.61
1:F:524:PRO:HG2	1:F:530:LYS:HG2	1.83	0.61
1:B:424:HIS:CG	2:J:2:GZL:H61	2.36	0.61
1:D:174:ILE:HG22	1:D:263:TYR:HB2	1.83	0.60
1:B:312:GLU:HG3	2:J:4:GZL:O3	2.02	0.60
1:G:179:PRO:HB3	1:G:247:GLY:HA3	1.82	0.60
1:G:505:PRO:HD2	1:G:509:GLU:HG3	1.84	0.59
1:E:97:HIS:HD2	1:E:120:ALA:HB2	1.67	0.59
1:E:524:PRO:HG2	1:E:530:LYS:HG2	1.83	0.59
1:H:505:PRO:HD2	1:H:509:GLU:HG3	1.83	0.59
1:C:212:GLN:HB3	1:C:241:ASN:HA	1.85	0.59
1:F:272:GLU:HB3	1:F:406:TRP:HB2	1.86	0.58
1:C:298:MET:HE2	1:C:407:HIS:HB3	1.86	0.58
1:A:298:MET:HE2	1:A:407:HIS:HB3	1.85	0.58
1:G:635:PHE:HB2	1:G:637:LEU:HD22	1.85	0.58
1:C:321:TRP:NE1	2:K:3:GZL:C6	2.67	0.57
1:G:272:GLU:HB3	1:G:406:TRP:HB2	1.87	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:199:LEU:HD22	1:A:279:LEU:HD11	1.85	0.57
1:D:426:ARG:HB2	1:D:469:ALA:HB1	1.86	0.57
1:A:516:LEU:HD22	1:A:548:ARG:HH22	1.69	0.56
1:C:321:TRP:CB	2:K:4:GZL:O3	2.51	0.56
1:B:298:MET:HE2	1:B:407:HIS:HB3	1.88	0.55
1:E:453:LYS:HD3	2:M:1:GZL:H51	1.89	0.55
1:E:321:TRP:CD1	2:M:4:GZL:O3	2.60	0.55
1:G:315:ASP:O	1:G:319:PHE:HA	2.07	0.55
1:C:321:TRP:CD2	2:K:4:GZL:C4	2.87	0.54
1:F:174:ILE:HG22	1:F:263:TYR:HB2	1.87	0.54
1:C:315:ASP:O	1:C:319:PHE:HA	2.07	0.54
1:H:529:ALA:HA	1:H:532:VAL:HG22	1.89	0.54
1:A:426:ARG:HB2	1:A:469:ALA:HB1	1.89	0.54
1:B:179:PRO:HB3	1:B:247:GLY:HA3	1.89	0.54
1:D:529:ALA:HA	1:D:532:VAL:HG22	1.88	0.54
1:D:425:LEU:O	1:D:428:ARG:HB3	2.08	0.54
1:E:557:VAL:HG21	1:E:566:LEU:HD21	1.89	0.54
1:C:250:ARG:HH21	1:C:635:PHE:HB3	1.73	0.54
1:A:19:LEU:HD21	1:A:22:ARG:HG3	1.89	0.54
1:B:471:ARG:HE	1:B:603:LEU:HD11	1.73	0.53
1:E:298:MET:HE2	1:E:407:HIS:HB3	1.91	0.53
1:A:315:ASP:O	1:A:319:PHE:HA	2.08	0.53
1:B:321:TRP:HE1	2:J:3:GZL:C6	2.22	0.53
1:B:426:ARG:HB2	1:B:469:ALA:HB1	1.90	0.53
1:G:461:SER:HB2	1:G:495:ARG:HG2	1.91	0.53
1:D:505:PRO:HD2	1:D:509:GLU:HG3	1.91	0.53
1:H:174:ILE:HG22	1:H:263:TYR:HB2	1.91	0.52
1:B:505:PRO:HD2	1:B:509:GLU:HG3	1.91	0.52
1:A:505:PRO:HD2	1:A:509:GLU:HG3	1.92	0.52
1:B:250:ARG:HH21	1:B:635:PHE:HB3	1.74	0.52
1:C:563:ARG:CZ	5:C:703:A1BYH:C3	2.87	0.52
1:E:563:ARG:HH21	5:E:703:A1BYH:C3	2.23	0.52
1:E:453:LYS:NZ	2:M:1:GZL:H31	2.24	0.52
1:C:272:GLU:HB3	1:C:406:TRP:HB2	1.91	0.52
1:B:424:HIS:ND1	2:J:2:GZL:H61	2.25	0.52
1:H:272:GLU:HB3	1:H:406:TRP:HB2	1.91	0.52
1:E:74:LEU:HD12	1:E:75:PRO:HD2	1.92	0.51
1:H:179:PRO:HB3	1:H:247:GLY:HA3	1.92	0.51
1:E:520:ALA:HB1	1:E:533:ARG:HH21	1.75	0.51
1:H:298:MET:HE2	1:H:407:HIS:HB3	1.92	0.51
1:A:212:GLN:HB3	1:A:241:ASN:HA	1.93	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:424:HIS:CG	2:J:2:GZL:C6	2.94	0.51
1:D:635:PHE:HB2	1:D:637:LEU:HD22	1.92	0.51
1:E:426:ARG:HB2	1:E:469:ALA:HB1	1.93	0.51
1:C:179:PRO:HB3	1:C:247:GLY:HA3	1.93	0.51
1:G:594:LEU:HD22	6:G:702:TRT:H161	1.93	0.51
1:D:212:GLN:HB3	1:D:241:ASN:HA	1.92	0.51
1:D:516:LEU:HD22	1:D:548:ARG:HH22	1.76	0.50
1:G:288:ALA:HB1	1:G:292:MET:HE3	1.93	0.50
1:D:272:GLU:HB3	1:D:406:TRP:HB2	1.94	0.50
1:C:268:ASP:HB3	1:C:271:ILE:HG23	1.93	0.50
1:E:505:PRO:HD2	1:E:509:GLU:HG3	1.93	0.50
1:F:557:VAL:HG21	1:F:566:LEU:HD21	1.93	0.50
1:H:516:LEU:HD22	1:H:548:ARG:HH22	1.77	0.50
1:H:74:LEU:HD21	1:H:88:VAL:HG11	1.93	0.50
1:E:49:ALA:HB1	1:E:57:LEU:HD11	1.92	0.49
1:G:524:PRO:HG2	1:G:530:LYS:HG2	1.94	0.49
1:C:426:ARG:HB2	1:C:469:ALA:HB1	1.94	0.49
1:E:529:ALA:HA	1:E:532:VAL:HG22	1.94	0.49
1:F:212:GLN:HB3	1:F:241:ASN:HA	1.94	0.49
1:F:288:ALA:HB1	1:F:292:MET:HE3	1.93	0.49
1:D:179:PRO:HB3	1:D:247:GLY:HA3	1.95	0.49
1:A:496:LYS:HD3	1:A:502:VAL:HG22	1.95	0.49
1:F:298:MET:HE2	1:F:407:HIS:HB3	1.94	0.49
1:B:514:SER:HB2	1:B:516:LEU:HD13	1.95	0.49
1:D:268:ASP:HB3	1:D:271:ILE:HG23	1.94	0.49
1:H:426:ARG:HB2	1:H:469:ALA:HB1	1.94	0.49
1:D:298:MET:HE2	1:D:407:HIS:HB3	1.94	0.49
1:F:56:SER:HA	1:F:157:LEU:O	2.13	0.49
1:C:321:TRP:HE3	1:C:384:VAL:HG21	1.78	0.48
1:A:271:ILE:HG22	1:A:407:HIS:HB2	1.94	0.48
1:A:268:ASP:HB3	1:A:271:ILE:HG23	1.94	0.48
1:F:208:ILE:HD13	1:F:254:GLU:HB2	1.95	0.48
1:A:97:HIS:HD2	1:A:120:ALA:HB2	1.79	0.48
1:E:297:GLN:HG2	1:E:399:THR:HG22	1.94	0.48
1:E:594:LEU:HD22	4:E:702:TON:H12	1.96	0.48
1:C:321:TRP:HE1	2:K:3:GZL:C6	2.26	0.48
1:D:323:SER:HB3	1:D:329:TYR:CE2	2.48	0.48
1:F:555:LEU:H	1:F:573:VAL:HG12	1.78	0.48
1:B:632:GLU:HG2	1:B:637:LEU:HD11	1.95	0.48
1:H:25:LEU:HD22	1:H:57:LEU:HD13	1.96	0.48
1:A:321:TRP:HE3	1:A:384:VAL:HG21	1.79	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:355:PHE:HZ	2:J:4:GZL:H41	1.79	0.48
1:E:179:PRO:HB3	1:E:247:GLY:HA3	1.95	0.48
1:E:371:ILE:HD11	1:E:386:TYR:CZ	2.49	0.48
1:G:527:PRO:HA	1:G:530:LYS:HG3	1.96	0.48
1:C:321:TRP:CE2	2:K:4:GZL:O4	2.67	0.47
1:A:27:ARG:HG3	1:A:54:ARG:NH1	2.30	0.47
1:C:82:TRP:HB3	1:C:292:MET:HE1	1.97	0.47
1:E:321:TRP:CD1	2:M:3:GZL:H51	2.48	0.47
1:D:288:ALA:HB1	1:D:292:MET:HE3	1.95	0.47
1:C:20:LEU:HD11	1:C:164:ALA:HB2	1.96	0.47
1:H:357:GLY:HA3	1:H:359:TRP:CZ3	2.49	0.47
1:B:268:ASP:HB3	1:B:271:ILE:HG23	1.97	0.47
1:C:357:GLY:HA3	1:C:359:TRP:CZ3	2.50	0.47
1:D:357:GLY:HA3	1:D:359:TRP:CZ3	2.50	0.47
1:G:271:ILE:HG22	1:G:407:HIS:HB2	1.97	0.47
1:A:272:GLU:HB3	1:A:406:TRP:HB2	1.95	0.47
1:C:520:ALA:HB1	1:C:533:ARG:HH21	1.79	0.47
1:A:436:LEU:HD12	1:A:437:PRO:HD2	1.97	0.47
1:A:529:ALA:HA	1:A:532:VAL:HG22	1.97	0.47
1:G:426:ARG:HB2	1:G:469:ALA:HB1	1.97	0.47
1:C:271:ILE:HG22	1:C:407:HIS:HB2	1.97	0.47
1:F:268:ASP:HB3	1:F:271:ILE:HG23	1.97	0.47
1:G:199:LEU:HD22	1:G:279:LEU:HD11	1.95	0.47
1:H:371:ILE:HD11	1:H:386:TYR:CZ	2.50	0.47
1:E:74:LEU:HD21	1:E:88:VAL:HG11	1.97	0.47
1:H:293:LEU:HD11	1:H:367:VAL:HG11	1.96	0.47
1:D:25:LEU:HD22	1:D:57:LEU:HD13	1.97	0.46
1:D:97:HIS:HD2	1:D:120:ALA:HB2	1.80	0.46
1:E:268:ASP:HB3	1:E:271:ILE:HG23	1.97	0.46
1:H:297:GLN:HG2	1:H:399:THR:HG22	1.97	0.46
1:B:208:ILE:HD13	1:B:254:GLU:HB2	1.97	0.46
1:F:82:TRP:HB3	1:F:292:MET:HE1	1.97	0.46
1:G:74:LEU:HD21	1:G:88:VAL:HG11	1.98	0.46
1:H:184:PRO:HB2	1:H:220:GLU:HB2	1.98	0.46
1:B:436:LEU:HD12	1:B:437:PRO:HD2	1.98	0.46
1:D:68:CYS:HB2	1:D:146:TRP:CD1	2.50	0.46
1:A:557:VAL:HG21	1:A:566:LEU:HD21	1.98	0.46
1:D:271:ILE:HG22	1:D:407:HIS:HB2	1.97	0.46
1:E:212:GLN:HB3	1:E:241:ASN:HA	1.97	0.46
1:F:516:LEU:HD22	1:F:548:ARG:HH22	1.80	0.46
1:H:518:VAL:HG11	1:H:555:LEU:HD13	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:179:PRO:HB3	1:A:247:GLY:HA3	1.98	0.46
1:B:174:ILE:HG22	1:B:263:TYR:HB2	1.96	0.46
1:B:271:ILE:HG22	1:B:407:HIS:HB2	1.97	0.46
1:F:518:VAL:HG11	1:F:555:LEU:HD13	1.98	0.46
1:C:25:LEU:HD22	1:C:57:LEU:HD13	1.98	0.45
1:A:293:LEU:HD11	1:A:367:VAL:HG11	1.98	0.45
1:C:475:ALA:HB1	1:C:479:ARG:HG3	1.97	0.45
1:C:471:ARG:HE	1:C:603:LEU:HD11	1.82	0.45
1:C:514:SER:HB2	1:C:516:LEU:HD13	1.97	0.45
1:G:174:ILE:HG22	1:G:263:TYR:HB2	1.98	0.45
1:B:518:VAL:HG11	1:B:555:LEU:HD13	1.97	0.45
1:C:320:MET:HE1	2:K:2:GZL:O6	2.17	0.45
1:A:187:LEU:HD21	1:A:209:VAL:HG11	1.98	0.45
1:D:113:HIS:CE1	1:H:304:ARG:HH21	2.34	0.45
1:D:208:ILE:HD13	1:D:254:GLU:HB2	1.98	0.45
1:G:432:ALA:O	1:G:436:LEU:HB3	2.17	0.45
1:B:82:TRP:HB3	1:B:292:MET:HE1	1.98	0.45
1:C:297:GLN:HG2	1:C:399:THR:HG22	1.99	0.45
1:B:25:LEU:HD13	1:B:57:LEU:HB2	1.97	0.45
1:C:505:PRO:HD2	1:C:509:GLU:HG3	1.99	0.45
1:C:529:ALA:HA	1:C:532:VAL:HG22	1.98	0.45
1:E:271:ILE:HG22	1:E:407:HIS:HB2	1.98	0.45
1:B:32:LEU:HD23	1:B:35:ARG:HH11	1.81	0.44
1:D:555:LEU:H	1:D:573:VAL:HG12	1.83	0.44
1:E:19:LEU:HD21	1:E:22:ARG:HG3	1.99	0.44
1:G:25:LEU:HD22	1:G:57:LEU:HD13	1.99	0.44
1:H:271:ILE:HG22	1:H:407:HIS:HB2	1.98	0.44
1:E:321:TRP:CD2	2:M:4:GZL:H41	2.52	0.44
1:A:301:LEU:HD13	1:A:406:TRP:HB3	2.00	0.44
1:G:303:GLU:HB3	1:G:306:HIS:CD2	2.53	0.44
1:H:593:ALA:HB1	6:H:702:TRT:H8C3	2.00	0.44
1:A:74:LEU:HD21	1:A:88:VAL:HG11	1.99	0.44
1:B:97:HIS:HD2	1:B:120:ALA:HB2	1.82	0.44
1:B:112:ILE:HG23	1:D:302:GLN:HB3	1.99	0.44
1:C:30:GLU:HG3	1:C:31:PRO:HD2	2.00	0.44
1:G:199:LEU:HD22	1:G:279:LEU:CD2	2.48	0.44
2:M:3:GZL:H61	2:M:4:GZL:H21	1.41	0.44
1:A:56:SER:HA	1:A:157:LEU:O	2.18	0.44
1:D:371:ILE:HD11	1:D:386:TYR:CZ	2.52	0.44
1:E:288:ALA:HB1	1:E:292:MET:HE3	2.00	0.44
1:G:454:HIS:CE1	2:O:1:GZL:H61	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:204:VAL:HG12	1:A:233:ARG:HD3	2.00	0.44
1:C:563:ARG:NH2	5:C:703:A1BYH:C3	2.81	0.44
1:G:212:GLN:HB3	1:G:241:ASN:HA	1.99	0.44
1:A:288:ALA:HB1	1:A:292:MET:HE3	2.00	0.44
1:C:288:ALA:HB1	1:C:292:MET:HE3	1.99	0.44
1:C:436:LEU:HD12	1:C:437:PRO:HD2	1.99	0.44
1:D:195:GLY:HA2	1:D:201:LEU:HG	2.00	0.44
1:F:74:LEU:HD21	1:F:88:VAL:HG11	1.99	0.44
1:C:27:ARG:NH2	1:C:304[A]:ARG:HH22	2.15	0.43
1:H:268:ASP:HB3	1:H:271:ILE:HG23	1.99	0.43
1:A:471:ARG:HE	1:A:603:LEU:HD11	1.83	0.43
1:B:357:GLY:HA3	1:B:359:TRP:CZ3	2.52	0.43
1:D:321:TRP:HE3	1:D:384:VAL:HG21	1.83	0.43
1:E:21:GLN:HG3	1:E:280:ARG:NE	2.33	0.43
1:E:321:TRP:CG	2:M:4:GZL:O3	2.71	0.43
1:G:433:SER:HB3	1:G:615:GLN:HA	1.99	0.43
1:A:484:LEU:HB3	1:A:485:PRO:HD3	2.01	0.43
1:B:56:SER:HA	1:B:157:LEU:O	2.18	0.43
1:B:272:GLU:HB3	1:B:406:TRP:HB2	2.00	0.43
1:E:25:LEU:HD22	1:E:57:LEU:HD13	1.99	0.43
1:G:529:ALA:HA	1:G:532:VAL:HG22	2.00	0.43
1:B:321:TRP:HE3	1:B:384:VAL:HG21	1.83	0.43
1:F:426:ARG:HB2	1:F:469:ALA:HB1	2.01	0.43
1:H:432:ALA:O	1:H:436:LEU:HB3	2.19	0.43
1:B:484:LEU:HB3	1:B:485:PRO:HD3	1.99	0.43
1:C:174:ILE:HG22	1:C:263:TYR:HB2	1.99	0.43
1:C:293:LEU:HD11	1:C:367:VAL:HG11	2.00	0.43
1:F:436:LEU:HD12	1:F:437:PRO:HD2	2.01	0.43
1:G:465:ILE:HD13	1:G:495:ARG:HD2	2.01	0.43
1:A:371:ILE:HD11	1:A:386:TYR:CZ	2.54	0.43
1:D:112:ILE:HG23	1:H:302:GLN:HB3	2.00	0.43
1:H:632:GLU:HG2	1:H:637:LEU:HD11	2.01	0.43
1:C:416:ALA:HB1	2:K:2:GZL:H41	2.00	0.43
1:B:299:LEU:HD23	1:B:307:LEU:HA	2.01	0.43
1:C:432:ALA:O	1:C:436:LEU:HB3	2.19	0.43
1:B:288:ALA:HB1	1:B:292:MET:HE3	2.00	0.43
1:B:303:GLU:HB3	1:B:306:HIS:ND1	2.34	0.43
1:C:27:ARG:HG3	1:C:54:ARG:NH1	2.34	0.43
1:C:204:VAL:HG12	1:C:233:ARG:HD3	2.00	0.43
1:G:21:GLN:HG3	1:G:280:ARG:NE	2.34	0.43
1:G:268:ASP:HB3	1:G:271:ILE:HG23	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:436:LEU:HD12	1:G:437:PRO:HD2	2.00	0.42
1:E:20:LEU:HD11	1:E:164:ALA:HB2	2.00	0.42
1:B:293:LEU:HD11	1:B:367:VAL:HG11	2.02	0.42
1:F:470:ILE:HG21	1:F:603:LEU:HB3	2.01	0.42
1:H:419:TRP:HA	1:H:495:ARG:HD2	2.01	0.42
1:E:563:ARG:NH2	5:E:703:A1BYH:C3	2.82	0.42
1:H:21:GLN:HG3	1:H:280:ARG:NE	2.35	0.42
2:M:2:GZL:O6	2:M:2:GZL:C3	2.60	0.42
1:C:605:LYS:HA	1:C:605:LYS:HD3	1.82	0.42
1:D:315:ASP:O	1:D:319:PHE:CA	2.65	0.42
1:E:68:CYS:HB2	1:E:146:TRP:CD1	2.55	0.42
1:F:179:PRO:HB3	1:F:247:GLY:HA3	2.01	0.42
1:A:32:LEU:HD23	1:A:35:ARG:HH11	1.85	0.42
1:D:74:LEU:HD21	1:D:88:VAL:HG11	2.02	0.42
1:G:32:LEU:HD23	1:G:35:ARG:HH11	1.85	0.42
1:B:74:LEU:HD21	1:B:88:VAL:HG11	2.00	0.42
1:B:557:VAL:HG21	1:B:566:LEU:HD21	2.02	0.42
1:C:303:GLU:HB3	1:C:306:HIS:ND1	2.34	0.42
1:H:32:LEU:HD23	1:H:35:ARG:HH11	1.85	0.42
1:G:21:GLN:HG3	1:G:280:ARG:CZ	2.50	0.42
1:G:24:ILE:HD12	1:G:274:GLU:OE2	2.20	0.42
1:G:465:ILE:HG21	1:G:495:ARG:HG3	2.02	0.42
1:A:20:LEU:HD11	1:A:164:ALA:HB2	2.00	0.42
1:C:465:ILE:HD13	1:C:495:ARG:HD2	2.02	0.42
1:D:484:LEU:HB3	1:D:485:PRO:HD3	2.02	0.42
1:F:484:LEU:HB3	1:F:485:PRO:HD3	2.01	0.42
1:H:96:GLY:H	1:H:121:VAL:HG23	1.84	0.42
1:H:436:LEU:HD12	1:H:437:PRO:HD2	2.02	0.42
1:D:514:SER:HB2	1:D:516:LEU:HD13	2.01	0.41
1:F:68:CYS:HB2	1:F:146:TRP:CD1	2.55	0.41
1:G:199:LEU:HD23	1:G:199:LEU:O	2.20	0.41
1:A:201:LEU:HD23	1:A:201:LEU:HA	1.91	0.41
1:D:74:LEU:HD12	1:D:75:PRO:HD2	2.03	0.41
1:D:528:ILE:O	1:D:532:VAL:HG13	2.19	0.41
1:E:90:LEU:HB2	1:E:162:TRP:CZ3	2.56	0.41
1:G:184:PRO:HB2	1:G:220:GLU:HB2	2.02	0.41
1:G:484:LEU:HB3	1:G:485:PRO:HD3	2.02	0.41
1:H:68:CYS:HB2	1:H:146:TRP:CD1	2.55	0.41
1:H:74:LEU:HD12	1:H:75:PRO:HD2	2.02	0.41
1:G:323:SER:HB3	1:G:329:TYR:CE2	2.55	0.41
1:H:298:MET:HE3	1:H:359:TRP:CD2	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:21:GLN:HG3	1:A:280:ARG:NE	2.35	0.41
1:B:199:LEU:HD22	1:B:279:LEU:HD13	2.02	0.41
1:F:303:GLU:HB3	1:F:306:HIS:ND1	2.36	0.41
1:B:355:PHE:CZ	2:J:4:GZL:H41	2.55	0.41
1:B:605:LYS:HA	1:B:605:LYS:HD3	1.88	0.41
1:G:166:ILE:HG13	1:G:287:PHE:HE1	1.86	0.41
1:A:323:SER:HB3	1:A:329:TYR:CE2	2.56	0.41
1:C:518:VAL:HG11	1:C:555:LEU:HD13	2.02	0.41
1:D:371:ILE:HG22	1:D:393:HIS:CG	2.56	0.41
1:E:421:ALA:HB3	1:E:465:ILE:HD11	2.02	0.41
1:A:97:HIS:CD2	1:A:120:ALA:HB2	2.56	0.41
1:C:68:CYS:HB2	1:C:146:TRP:CD1	2.56	0.41
1:D:82:TRP:HB3	1:D:292:MET:HE1	2.02	0.41
1:F:97:HIS:HD2	1:F:120:ALA:HB2	1.85	0.41
1:H:533:ARG:NH1	1:H:565:PHE:HB2	2.36	0.41
1:D:303:GLU:HB3	1:D:306:HIS:ND1	2.35	0.41
1:E:97:HIS:CD2	1:E:120:ALA:HB2	2.52	0.41
1:F:321:TRP:HE3	1:F:384:VAL:HG21	1.85	0.41
1:G:355:PHE:CE2	1:G:384:VAL:HG22	2.56	0.41
1:C:32:LEU:HD23	1:C:35:ARG:HH11	1.86	0.41
1:C:484:LEU:HB3	1:C:485:PRO:HD3	2.03	0.41
1:E:432:ALA:O	1:E:436:LEU:HB3	2.20	0.41
1:G:357:GLY:HA3	1:G:359:TRP:CZ3	2.56	0.41
1:H:180:THR:HA	1:H:269:ASP:OD2	2.21	0.41
1:H:559:THR:HG21	1:H:578:ALA:HA	2.03	0.41
1:A:593:ALA:HB1	4:A:702:TON:H83	2.01	0.41
1:B:212:GLN:HB3	1:B:241:ASN:HA	2.03	0.41
1:D:297:GLN:HG2	1:D:399:THR:HG22	2.02	0.41
1:D:299:LEU:HD23	1:D:307:LEU:HA	2.03	0.41
6:D:702:TRT:H14	6:D:702:TRT:H7C3	1.82	0.41
1:F:514:SER:O	1:F:516:LEU:HD12	2.21	0.41
1:B:117:LYS:HB2	1:B:117:LYS:HE3	1.88	0.40
1:C:563:ARG:NE	5:C:703:A1BYH:C3	2.84	0.40
1:A:250:ARG:HH21	1:A:635:PHE:HB3	1.85	0.40
1:A:357:GLY:HA3	1:A:359:TRP:CZ3	2.56	0.40
1:B:297:GLN:HG2	1:B:399:THR:HG22	2.04	0.40
1:C:34:VAL:HG11	1:C:304[A]:ARG:NH1	2.36	0.40
1:C:371:ILE:HG22	1:C:393:HIS:CG	2.56	0.40
1:C:559:THR:HG21	1:C:578:ALA:HA	2.03	0.40
1:G:178:MET:HE2	1:G:267:MET:HB2	2.03	0.40
1:C:410:TRP:HA	1:C:413:LYS:HD3	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:90:LEU:HB2	1:F:162:TRP:CZ3	2.56	0.40
1:F:432:ALA:O	1:F:436:LEU:HB3	2.22	0.40
1:A:303:GLU:HB3	1:A:306:HIS:ND1	2.37	0.40
1:B:97:HIS:CD2	1:B:120:ALA:HB2	2.56	0.40
1:A:539:LEU:O	1:A:543:ARG:HG3	2.22	0.40
1:F:520:ALA:HB1	1:F:533:ARG:HH21	1.86	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	623/666 (94%)	592 (95%)	28 (4%)	3 (0%)	25	57
1	B	624/666 (94%)	594 (95%)	30 (5%)	0	100	100
1	C	624/666 (94%)	588 (94%)	33 (5%)	3 (0%)	25	57
1	D	623/666 (94%)	589 (94%)	33 (5%)	1 (0%)	44	72
1	E	624/666 (94%)	590 (95%)	31 (5%)	3 (0%)	25	57
1	F	624/666 (94%)	593 (95%)	25 (4%)	6 (1%)	13	43
1	G	622/666 (93%)	588 (94%)	32 (5%)	2 (0%)	37	66
1	H	622/666 (93%)	595 (96%)	26 (4%)	1 (0%)	44	72
All	All	4986/5328 (94%)	4729 (95%)	238 (5%)	19 (0%)	30	61

All (19) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	525	ALA
1	E	378	PHE
1	F	409	ALA
1	G	525	ALA

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Mol	Chain	Res	Type
1	C	525	ALA
1	F	330	ASP
1	F	378	PHE
1	A	378	PHE
1	A	380	LYS
1	A	418	ASP
1	C	380	LYS
1	C	418	ASP
1	F	418	ASP
1	E	380	LYS
1	F	380	LYS
1	G	418	ASP
1	E	179	PRO
1	H	485	PRO
1	F	485	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	508/543 (94%)	508 (100%)	0	100	100
1	B	509/543 (94%)	509 (100%)	0	100	100
1	C	509/543 (94%)	509 (100%)	0	100	100
1	D	509/543 (94%)	509 (100%)	0	100	100
1	E	509/543 (94%)	509 (100%)	0	100	100
1	F	509/543 (94%)	509 (100%)	0	100	100
1	G	508/543 (94%)	508 (100%)	0	100	100
1	H	508/543 (94%)	508 (100%)	0	100	100
All	All	4069/4344 (94%)	4069 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	326	ASN
1	A	466	GLN
1	B	239	GLN
1	B	343	ASN
1	C	212	GLN
1	C	239	GLN
1	C	343	ASN
1	C	466	GLN
1	D	343	ASN
1	D	370	GLN
1	D	515	HIS
1	E	343	ASN
1	E	435	HIS
1	E	515	HIS
1	E	550	HIS
1	F	239	GLN
1	F	343	ASN
1	G	50	HIS
1	G	343	ASN
1	G	435	HIS
1	G	466	GLN
1	H	300	ASN
1	H	343	ASN
1	H	435	HIS

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 ⓘ

32 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	$\#|Z| > 2$
2	GZL	I	1	5,2	11,11,12	0.40	0	13,15,17	1.35	2 (15%)
2	GZL	I	2	2	11,11,12	0.53	0	13,15,17	1.02	1 (7%)
2	GZL	I	3	2	11,11,12	0.43	0	13,15,17	1.18	2 (15%)
2	GZL	I	4	2	11,11,12	0.45	0	13,15,17	1.48	3 (23%)
2	GZL	J	1	5,2	11,11,12	0.43	0	13,15,17	1.24	2 (15%)
2	GZL	J	2	2	11,11,12	0.53	0	13,15,17	0.99	1 (7%)
2	GZL	J	3	2	11,11,12	0.58	0	13,15,17	1.22	2 (15%)
2	GZL	J	4	2	11,11,12	0.44	0	13,15,17	1.07	1 (7%)
2	GZL	K	1	5,2	11,11,12	0.46	0	13,15,17	1.26	2 (15%)
2	GZL	K	2	2	11,11,12	0.50	0	13,15,17	0.90	1 (7%)
2	GZL	K	3	2	11,11,12	0.52	0	13,15,17	1.21	2 (15%)
2	GZL	K	4	2	11,11,12	0.56	0	13,15,17	1.44	2 (15%)
2	GZL	L	1	5,2	11,11,12	0.43	0	13,15,17	1.22	2 (15%)
2	GZL	L	2	2	11,11,12	0.50	0	13,15,17	1.28	2 (15%)
2	GZL	L	3	2	11,11,12	0.45	0	13,15,17	1.07	2 (15%)
2	GZL	L	4	2	11,11,12	0.38	0	13,15,17	1.22	1 (7%)
2	GZL	M	1	5,2	11,11,12	0.43	0	13,15,17	1.37	2 (15%)
2	GZL	M	2	2	11,11,12	0.51	0	13,15,17	1.07	2 (15%)
2	GZL	M	3	2	11,11,12	0.55	0	13,15,17	1.44	2 (15%)
2	GZL	M	4	2	11,11,12	0.50	0	13,15,17	1.16	2 (15%)
2	GZL	N	1	2	1,1,12	0.28	0	-		
2	GZL	N	2	2	11,11,12	0.57	0	13,15,17	1.11	0
2	GZL	N	3	2	11,11,12	0.38	0	13,15,17	1.23	1 (7%)
2	GZL	N	4	2	11,11,12	0.40	0	13,15,17	1.44	1 (7%)
2	GZL	O	1	5,2	11,11,12	0.41	0	13,15,17	1.51	3 (23%)
2	GZL	O	2	2	11,11,12	0.53	0	13,15,17	1.22	1 (7%)
2	GZL	O	3	2	11,11,12	0.42	0	13,15,17	1.29	2 (15%)
2	GZL	O	4	2	11,11,12	0.41	0	13,15,17	1.20	1 (7%)
2	GZL	P	1	5,2	11,11,12	0.45	0	13,15,17	1.76	4 (30%)
2	GZL	P	2	2	11,11,12	0.51	0	13,15,17	0.93	1 (7%)
2	GZL	P	3	2	11,11,12	0.37	0	13,15,17	1.22	2 (15%)
2	GZL	P	4	2	11,11,12	0.39	0	13,15,17	1.43	2 (15%)

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	GZL	I	1	5,2	-	6/6/19/22	0/1/1/1
2	GZL	I	2	2	-	5/6/19/22	0/1/1/1
2	GZL	I	3	2	-	0/6/19/22	0/1/1/1
2	GZL	I	4	2	-	0/6/19/22	0/1/1/1
2	GZL	J	1	5,2	-	4/6/19/22	0/1/1/1
2	GZL	J	2	2	-	4/6/19/22	0/1/1/1
2	GZL	J	3	2	-	6/6/19/22	0/1/1/1
2	GZL	J	4	2	-	6/6/19/22	0/1/1/1
2	GZL	K	1	5,2	-	5/6/19/22	0/1/1/1
2	GZL	K	2	2	-	6/6/19/22	0/1/1/1
2	GZL	K	3	2	-	4/6/19/22	0/1/1/1
2	GZL	K	4	2	-	0/6/19/22	0/1/1/1
2	GZL	L	1	5,2	-	6/6/19/22	0/1/1/1
2	GZL	L	2	2	-	6/6/19/22	0/1/1/1
2	GZL	L	3	2	-	4/6/19/22	0/1/1/1
2	GZL	L	4	2	-	0/6/19/22	0/1/1/1
2	GZL	M	1	5,2	-	2/6/19/22	0/1/1/1
2	GZL	M	2	2	-	4/6/19/22	0/1/1/1
2	GZL	M	3	2	-	6/6/19/22	0/1/1/1
2	GZL	M	4	2	-	4/6/19/22	0/1/1/1
2	GZL	N	2	2	-	6/6/19/22	0/1/1/1
2	GZL	N	3	2	-	0/6/19/22	0/1/1/1
2	GZL	N	4	2	-	0/6/19/22	0/1/1/1
2	GZL	O	1	5,2	-	6/6/19/22	0/1/1/1
2	GZL	O	2	2	-	6/6/19/22	0/1/1/1
2	GZL	O	3	2	-	0/6/19/22	0/1/1/1
2	GZL	O	4	2	-	0/6/19/22	0/1/1/1
2	GZL	P	1	5,2	-	6/6/19/22	0/1/1/1
2	GZL	P	2	2	-	6/6/19/22	0/1/1/1
2	GZL	P	3	2	-	4/6/19/22	0/1/1/1
2	GZL	P	4	2	-	0/6/19/22	0/1/1/1

There are no bond length outliers.

All (54) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	P	1	GZL	O6-C6-C5	3.68	118.89	111.16
2	N	4	GZL	C5-C4-C3	-3.62	110.76	115.95
2	K	4	GZL	C5-C4-C3	-3.57	110.82	115.95
2	P	4	GZL	C5-C4-C3	-3.46	110.99	115.95
2	M	1	GZL	C5-C4-C3	-3.39	111.08	115.95
2	L	4	GZL	C5-C4-C3	-3.31	111.19	115.95
2	K	3	GZL	C5-C4-C3	-3.26	111.27	115.95
2	M	3	GZL	C5-C4-C3	-3.20	111.35	115.95
2	M	3	GZL	C1-C2-C3	3.12	106.62	101.63
2	N	3	GZL	C5-C4-C3	-3.02	111.62	115.95
2	M	4	GZL	C5-C4-C3	-3.01	111.63	115.95
2	K	1	GZL	C5-C4-C3	-2.98	111.67	115.95
2	P	1	GZL	C1-C2-C3	2.95	106.35	101.63
2	I	1	GZL	C1-C2-C3	2.90	106.27	101.63
2	I	4	GZL	C5-C4-C3	-2.84	111.88	115.95
2	J	1	GZL	C1-C2-C3	2.78	106.08	101.63
2	M	1	GZL	C1-C2-C3	2.74	106.00	101.63
2	O	1	GZL	O6-C6-C5	2.73	116.88	111.16
2	P	1	GZL	O5-C5-C6	2.72	115.21	109.03
2	M	2	GZL	C1-C2-C3	2.71	105.96	101.63
2	O	3	GZL	C5-C4-C3	-2.71	112.06	115.95
2	J	3	GZL	C1-C2-C3	2.69	105.93	101.63
2	J	4	GZL	C5-C4-C3	-2.69	112.09	115.95
2	O	1	GZL	C1-C2-C3	2.67	105.90	101.63
2	L	1	GZL	C5-C4-C3	-2.62	112.19	115.95
2	I	4	GZL	C1-C2-C3	2.59	105.78	101.63
2	P	3	GZL	C5-C4-C3	-2.58	112.24	115.95
2	K	1	GZL	C1-C2-C3	2.56	105.72	101.63
2	J	2	GZL	C1-C2-C3	2.54	105.70	101.63
2	I	1	GZL	C5-C4-C3	-2.52	112.34	115.95
2	L	1	GZL	C1-C2-C3	2.48	105.59	101.63
2	J	3	GZL	C5-C4-C3	-2.46	112.42	115.95
2	L	2	GZL	C5-C4-C3	-2.44	112.45	115.95
2	O	2	GZL	C1-C2-C3	2.42	105.50	101.63
2	J	1	GZL	C5-C4-C3	-2.41	112.50	115.95
2	I	4	GZL	C1-O4-C4	2.39	112.62	107.84
2	K	3	GZL	C1-C2-C3	2.38	105.43	101.63
2	L	3	GZL	C1-C2-C3	2.38	105.43	101.63
2	K	4	GZL	C1-C2-C3	2.37	105.42	101.63
2	P	4	GZL	C1-C2-C3	2.36	105.41	101.63
2	L	2	GZL	C1-C2-C3	2.31	105.32	101.63
2	K	2	GZL	C1-C2-C3	2.28	105.27	101.63
2	O	1	GZL	C5-C4-C3	-2.24	112.74	115.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	I	3	GZL	C1-C2-C3	2.19	105.13	101.63
2	O	4	GZL	C5-C4-C3	-2.17	112.83	115.95
2	O	3	GZL	C1-C2-C3	2.14	105.05	101.63
2	I	3	GZL	C5-C4-C3	-2.13	112.89	115.95
2	I	2	GZL	C1-C2-C3	2.12	105.02	101.63
2	L	3	GZL	C5-C4-C3	-2.12	112.91	115.95
2	P	1	GZL	C1-O4-C4	2.11	112.06	107.84
2	M	2	GZL	C5-C4-C3	-2.10	112.94	115.95
2	M	4	GZL	C1-C2-C3	2.09	104.97	101.63
2	P	3	GZL	C1-C2-C3	2.03	104.87	101.63
2	P	2	GZL	C1-C2-C3	2.00	104.83	101.63

There are no chirality outliers.

All (112) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	I	1	GZL	C3-C4-C5-C6
2	I	1	GZL	O4-C4-C5-O5
2	I	2	GZL	C3-C4-C5-C6
2	I	2	GZL	O4-C4-C5-C6
2	I	2	GZL	C3-C4-C5-O5
2	I	2	GZL	O4-C4-C5-O5
2	J	1	GZL	C3-C4-C5-C6
2	J	1	GZL	O4-C4-C5-O5
2	J	2	GZL	C4-C5-C6-O6
2	J	2	GZL	O5-C5-C6-O6
2	J	3	GZL	O4-C4-C5-C6
2	J	3	GZL	C3-C4-C5-O5
2	J	3	GZL	O4-C4-C5-O5
2	J	4	GZL	O5-C5-C6-O6
2	J	4	GZL	C3-C4-C5-C6
2	J	4	GZL	O4-C4-C5-C6
2	J	4	GZL	C3-C4-C5-O5
2	J	4	GZL	O4-C4-C5-O5
2	K	1	GZL	C3-C4-C5-C6
2	K	1	GZL	O4-C4-C5-C6
2	K	1	GZL	C3-C4-C5-O5
2	K	1	GZL	O4-C4-C5-O5
2	K	2	GZL	C3-C4-C5-C6
2	K	2	GZL	O4-C4-C5-C6
2	K	2	GZL	C3-C4-C5-O5
2	K	2	GZL	O4-C4-C5-O5

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Mol	Chain	Res	Type	Atoms
2	K	3	GZL	C3-C4-C5-C6
2	K	3	GZL	O4-C4-C5-C6
2	K	3	GZL	C3-C4-C5-O5
2	M	2	GZL	C3-C4-C5-C6
2	M	2	GZL	O4-C4-C5-C6
2	M	2	GZL	C3-C4-C5-O5
2	M	2	GZL	O4-C4-C5-O5
2	M	3	GZL	C3-C4-C5-C6
2	M	3	GZL	O4-C4-C5-C6
2	M	3	GZL	C3-C4-C5-O5
2	M	3	GZL	O4-C4-C5-O5
2	M	4	GZL	C4-C5-C6-O6
2	M	4	GZL	O5-C5-C6-O6
2	N	2	GZL	C4-C5-C6-O6
2	N	2	GZL	O5-C5-C6-O6
2	N	2	GZL	C3-C4-C5-C6
2	N	2	GZL	O4-C4-C5-C6
2	N	2	GZL	C3-C4-C5-O5
2	N	2	GZL	O4-C4-C5-O5
2	O	1	GZL	O5-C5-C6-O6
2	O	1	GZL	C3-C4-C5-C6
2	O	1	GZL	O4-C4-C5-C6
2	O	1	GZL	C3-C4-C5-O5
2	O	1	GZL	O4-C4-C5-O5
2	O	2	GZL	C3-C4-C5-C6
2	O	2	GZL	O4-C4-C5-O5
2	P	1	GZL	C3-C4-C5-C6
2	P	1	GZL	O4-C4-C5-C6
2	P	1	GZL	C3-C4-C5-O5
2	P	1	GZL	O4-C4-C5-O5
2	P	2	GZL	C3-C4-C5-C6
2	P	2	GZL	O4-C4-C5-C6
2	P	2	GZL	C3-C4-C5-O5
2	P	2	GZL	O4-C4-C5-O5
2	L	1	GZL	O5-C5-C6-O6
2	L	1	GZL	C3-C4-C5-C6
2	L	1	GZL	O4-C4-C5-O5
2	L	2	GZL	C4-C5-C6-O6
2	L	2	GZL	O5-C5-C6-O6
2	L	2	GZL	C3-C4-C5-C6
2	L	2	GZL	O4-C4-C5-C6
2	L	2	GZL	C3-C4-C5-O5

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Mol	Chain	Res	Type	Atoms
2	L	2	GZL	O4-C4-C5-O5
2	L	3	GZL	C3-C4-C5-C6
2	L	3	GZL	O4-C4-C5-O5
2	P	1	GZL	O5-C5-C6-O6
2	J	4	GZL	C4-C5-C6-O6
2	O	2	GZL	C4-C5-C6-O6
2	L	1	GZL	C4-C5-C6-O6
2	O	2	GZL	O5-C5-C6-O6
2	O	1	GZL	C4-C5-C6-O6
2	I	1	GZL	O5-C5-C6-O6
2	K	2	GZL	O5-C5-C6-O6
2	M	1	GZL	C4-C5-C6-O6
2	P	3	GZL	O5-C5-C6-O6
2	I	1	GZL	C3-C4-C5-O5
2	J	1	GZL	C3-C4-C5-O5
2	O	2	GZL	C3-C4-C5-O5
2	L	1	GZL	C3-C4-C5-O5
2	L	3	GZL	C3-C4-C5-O5
2	K	3	GZL	O4-C4-C5-O5
2	J	2	GZL	C3-C4-C5-C6
2	J	3	GZL	C3-C4-C5-C6
2	P	3	GZL	C3-C4-C5-C6
2	I	1	GZL	O4-C4-C5-C6
2	J	1	GZL	O4-C4-C5-C6
2	O	2	GZL	O4-C4-C5-C6
2	L	1	GZL	O4-C4-C5-C6
2	L	3	GZL	O4-C4-C5-C6
2	P	3	GZL	C4-C5-C6-O6
2	M	4	GZL	O4-C4-C5-O5
2	K	2	GZL	C4-C5-C6-O6
2	P	2	GZL	O5-C5-C6-O6
2	M	3	GZL	O5-C5-C6-O6
2	P	1	GZL	C4-C5-C6-O6
2	I	1	GZL	C4-C5-C6-O6
2	P	2	GZL	C4-C5-C6-O6
2	M	1	GZL	O5-C5-C6-O6
2	I	2	GZL	O5-C5-C6-O6
2	M	4	GZL	C3-C4-C5-O5
2	J	3	GZL	C4-C5-C6-O6
2	J	2	GZL	O4-C4-C5-C6
2	M	3	GZL	C4-C5-C6-O6
2	K	1	GZL	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
2	J	3	GZL	O5-C5-C6-O6
2	P	3	GZL	O4-C4-C5-C6

There are no ring outliers.

12 monomers are involved in 31 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	L	3	GZL	1	0
2	M	4	GZL	4	0
2	K	4	GZL	6	0
2	K	3	GZL	3	0
2	O	1	GZL	1	0
2	J	4	GZL	3	0
2	M	3	GZL	2	0
2	M	1	GZL	3	0
2	J	2	GZL	3	0
2	J	3	GZL	2	0
2	K	2	GZL	2	0
2	M	2	GZL	2	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 I

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain J

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain K

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain M

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain N

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain O

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain P

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain L

Bond lengths

Bond angles

Torsions

Rings

5.6 Ligand geometry ⓘ

Of 23 ligands modelled in this entry, 8 are monoatomic - leaving 15 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	A1BYH	B	703	2	10,10,20	0.22	0	8,9,21	0.44	0
5	A1BYH	D	703	2	5,5,20	0.41	0	3,4,21	0.57	0
6	TRT	B	702	-	19,19,25	0.44	0	27,27,33	0.95	1 (3%)
5	A1BYH	H	703	2	4,4,20	0.27	0	2,3,21	0.79	0
5	A1BYH	A	703	2	4,4,20	0.27	0	2,3,21	0.68	0
6	TRT	G	702	-	18,18,25	0.45	0	26,26,33	0.96	1 (3%)
4	TON	A	702	-	21,21,21	0.44	0	29,29,29	0.92	1 (3%)
6	TRT	F	702	-	20,20,25	0.44	0	28,28,33	0.93	0
5	A1BYH	G	703	2	3,3,20	0.37	0	2,2,21	0.43	0
5	A1BYH	C	703	2	3,3,20	0.34	0	2,2,21	0.44	0
5	A1BYH	E	703	2	3,3,20	0.35	0	2,2,21	0.43	0
4	TON	E	702	-	21,21,21	0.44	0	29,29,29	0.90	0
6	TRT	D	702	-	18,18,25	0.48	0	26,26,33	0.96	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
6	TRT	H	702	-	19,19,25	0.44	0	27,27,33	0.93	0
4	TON	C	702	-	21,21,21	0.43	0	29,29,29	0.93	1 (3%)

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	A1BYH	B	703	2	-	5/8/8/14	-
5	A1BYH	D	703	2	-	1/3/3/14	-
6	TRT	B	702	-	-	8/17/17/23	0/1/1/1
5	A1BYH	H	703	2	-	1/2/2/14	-
5	A1BYH	A	703	2	-	1/2/2/14	-
6	TRT	G	702	-	-	3/16/16/23	0/1/1/1
4	TON	A	702	-	-	7/19/19/19	0/1/1/1
6	TRT	F	702	-	-	3/18/18/23	0/1/1/1
5	A1BYH	G	703	2	-	0/0/1/14	-
5	A1BYH	C	703	2	-	0/0/1/14	-
5	A1BYH	E	703	2	-	0/0/1/14	-
4	TON	E	702	-	-	9/19/19/19	0/1/1/1
6	TRT	D	702	-	-	13/16/16/23	0/1/1/1
6	TRT	H	702	-	-	3/17/17/23	0/1/1/1
4	TON	C	702	-	-	5/19/19/19	0/1/1/1

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	A	702	TON	C7-C5-C18	-2.16	104.73	110.18
6	G	702	TRT	C7-C6-C9	-2.11	104.85	110.18
4	C	702	TON	C7-C5-C18	-2.07	104.95	110.18
6	B	702	TRT	C7-C6-C9	-2.01	105.11	110.18

There are no chirality outliers.

All (59) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	703	A1BYH	O1-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
5	B	703	A1BYH	C1-C2-C3-C4
5	D	703	A1BYH	C2-C3-C4-C5
4	A	702	TON	O1-C1-C2-O2
4	C	702	TON	O1-C1-C2-O2
6	B	702	TRT	O15-C16-C17-O18
4	E	702	TON	C16-C15-O1-C1
6	H	702	TRT	C2-C1-C5-C6
4	E	702	TON	C14-C15-O1-C1
4	A	702	TON	C16-C15-O1-C1
4	A	702	TON	C14-C15-O1-C1
6	D	702	TRT	C1-C5-C6-C7
6	D	702	TRT	O15-C16-C17-O18
4	A	702	TON	C5-C6-C9-C12
6	D	702	TRT	C1-C5-C6-C9
4	C	702	TON	C5-C6-C9-C12
6	B	702	TRT	C2-C1-C5-C6
6	F	702	TRT	C2-C1-C5-C6
6	G	702	TRT	C2-C1-C5-C6
6	B	702	TRT	C17-C16-O15-C12
6	F	702	TRT	C17-C16-O15-C12
4	C	702	TON	C2-C1-O1-C15
6	D	702	TRT	C17-C16-O15-C12
5	B	703	A1BYH	C6-C7-C8-C9
6	D	702	TRT	C1-C5-C6-C8
6	B	702	TRT	C11-C12-O15-C16
4	A	702	TON	C2-C1-O1-C15
6	H	702	TRT	C3-C1-C5-C6
5	A	703	A1BYH	C1-C2-C3-C4
5	H	703	A1BYH	C1-C2-C3-C4
6	H	702	TRT	C4-C1-C5-C6
6	B	702	TRT	C13-C12-O15-C16
5	B	703	A1BYH	C2-C3-C4-C5
6	D	702	TRT	C11-C12-O15-C16
4	E	702	TON	C2-C1-O1-C15
6	D	702	TRT	C13-C12-O15-C16
5	B	703	A1BYH	C7-C8-C9-C10
4	A	702	TON	C5-C6-C9-C10
6	D	702	TRT	C8-C6-C9-C14
4	A	702	TON	C5-C6-C9-C11
6	D	702	TRT	C7-C6-C9-C10
4	E	702	TON	C17-C18-C5-C8
6	B	702	TRT	C4-C1-C5-C6

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Mol	Chain	Res	Type	Atoms
4	E	702	TON	C4-C3-O2-C2
4	E	702	TON	C13-C18-C5-C6
4	E	702	TON	C13-C18-C5-C8
6	B	702	TRT	C3-C1-C5-C6
6	B	702	TRT	C16-C17-O18-C19
6	D	702	TRT	C5-C6-C9-C10
6	G	702	TRT	C17-C16-O15-C12
6	D	702	TRT	C8-C6-C9-C10
4	E	702	TON	C17-C18-C5-C6
6	F	702	TRT	C11-C12-O15-C16
4	C	702	TON	C5-C6-C9-C11
4	C	702	TON	C5-C6-C9-C10
6	D	702	TRT	C5-C6-C9-C14
6	D	702	TRT	C7-C6-C9-C14
4	E	702	TON	C17-C18-C5-C7
6	G	702	TRT	C4-C1-C5-C6

There are no ring outliers.

7 monomers are involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	G	702	TRT	1	0
4	A	702	TON	1	0
5	C	703	A1BYH	3	0
5	E	703	A1BYH	2	0
4	E	702	TON	1	0
6	D	702	TRT	1	0
6	H	702	TRT	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 all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand A1BYH B 703

Bond lengths

Bond angles

Torsions

Rings

Ligand A1BYH D 703

Bond lengths

Bond angles

Torsions

Rings

Ligand TRT B 702

Bond lengths

Bond angles

Torsions

Rings

Ligand A1BYH H 703

Bond lengths

Bond angles

Torsions

Rings

Ligand A1BYH A 703

Bond lengths

Bond angles

Torsions

Rings

Ligand TRT G 702

Bond lengths

Bond angles

Torsions

Rings

Ligand TON A 702

Bond lengths

Bond angles

Torsions

Rings

Ligand TRT F 702

Bond lengths

Bond angles

Torsions

Rings

Ligand A1BYH G 703

Bond lengths

Bond angles

Torsions

Rings

Ligand A1BYH C 703

Bond lengths

Bond angles

Torsions

Rings

Ligand A1BYH E 703

Bond lengths

Bond angles

Torsions

Rings

Ligand TON E 702

Bond lengths

Bond angles

Torsions

Rings

Ligand TRT D 702

Bond lengths

Bond angles

Torsions

Rings

Ligand TRT H 702

Bond lengths

Bond angles

Torsions

Rings

Ligand TON C 702

Bond lengths

Bond angles

Torsions

Rings

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	A	625/666 (93%)	-0.15	1 (0%)	92	87	30, 46, 70, 102	0
1	B	625/666 (93%)	-0.16	1 (0%)	92	87	21, 46, 68, 88	1 (0%)
1	C	625/666 (93%)	-0.13	0	100	100	22, 46, 68, 92	1 (0%)
1	D	624/666 (93%)	0.02	2 (0%)	90	83	25, 56, 77, 91	1 (0%)
1	E	625/666 (93%)	0.07	1 (0%)	92	87	23, 58, 76, 93	1 (0%)
1	F	625/666 (93%)	-0.02	1 (0%)	92	87	28, 57, 80, 92	1 (0%)
1	G	624/666 (93%)	-0.02	0	100	100	32, 57, 78, 107	0
1	H	624/666 (93%)	0.01	1 (0%)	92	87	36, 58, 78, 99	0
All	All	4997/5328 (93%)	-0.05	7 (0%)	92	90	21, 52, 76, 107	5 (0%)

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	304[A]	ARG	2.6
1	A	410	TRP	2.4
1	H	278	ILE	2.3
1	F	527	PRO	2.2
1	D	219	ASP	2.2
1	B	304[A]	ARG	2.1
1	E	414	ASP	2.1

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 (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
2	GZL	M	1	11/12	0.38	0.44	84,94,106,109	0
2	GZL	I	4	11/12	0.45	0.27	60,83,100,102	0
2	GZL	K	3	11/12	0.47	0.19	68,77,88,94	0
2	GZL	L	3	11/12	0.50	0.18	72,78,92,104	0
2	GZL	L	4	11/12	0.50	0.27	69,90,107,118	0
2	GZL	M	2	11/12	0.51	0.16	63,71,82,86	0
2	GZL	P	4	11/12	0.53	0.25	72,89,104,108	0
2	GZL	O	4	11/12	0.54	0.25	73,99,113,120	0
2	GZL	N	3	11/12	0.54	0.18	73,86,103,111	0
2	GZL	K	4	11/12	0.56	0.22	63,78,96,101	0
2	GZL	N	4	11/12	0.56	0.21	81,87,110,118	0
2	GZL	I	3	11/12	0.58	0.18	61,72,99,102	0
2	GZL	P	3	11/12	0.59	0.18	81,86,101,105	0
2	GZL	J	4	11/12	0.59	0.18	54,70,99,100	0
2	GZL	M	4	11/12	0.60	0.32	67,91,104,107	0
2	GZL	O	3	11/12	0.61	0.20	85,93,110,115	0
2	GZL	J	1	11/12	0.68	0.17	56,69,85,88	0
2	GZL	J	3	11/12	0.68	0.17	60,71,91,96	0
2	GZL	K	2	11/12	0.69	0.19	61,69,74,75	0
2	GZL	K	1	11/12	0.69	0.15	64,80,89,91	0
2	GZL	N	2	11/12	0.70	0.14	70,76,84,91	0
2	GZL	P	1	11/12	0.70	0.16	70,77,89,94	0
2	GZL	L	1	11/12	0.71	0.18	75,82,95,98	0
2	GZL	P	2	11/12	0.72	0.17	69,72,76,78	0
2	GZL	M	3	11/12	0.72	0.13	86,89,106,107	0
2	GZL	L	2	11/12	0.76	0.15	54,69,77,79	0
2	GZL	J	2	11/12	0.77	0.15	50,58,61,79	0
2	GZL	I	1	11/12	0.77	0.14	59,71,78,79	0
2	GZL	I	2	11/12	0.78	0.17	59,62,66,75	0
2	GZL	O	1	11/12	0.78	0.12	83,85,98,100	0
2	GZL	N	1	2/12	0.84	0.12	78,78,78,81	0
2	GZL	O	2	11/12	0.87	0.11	75,84,91,95	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.
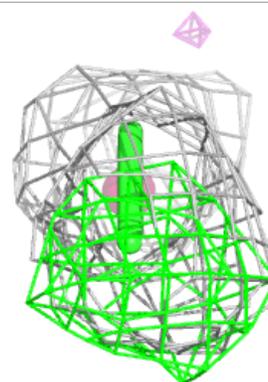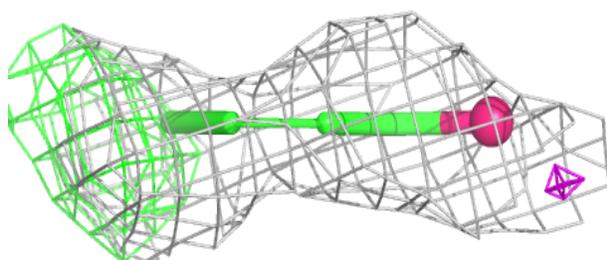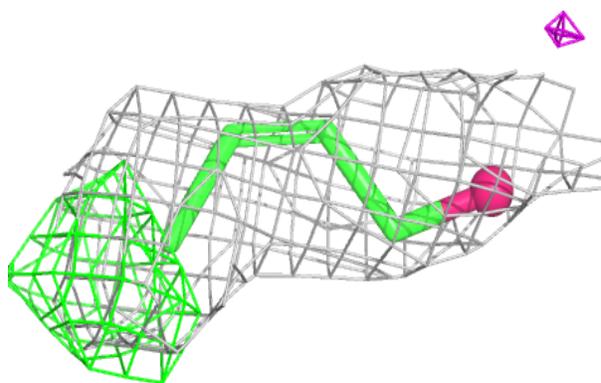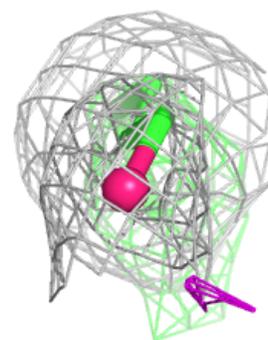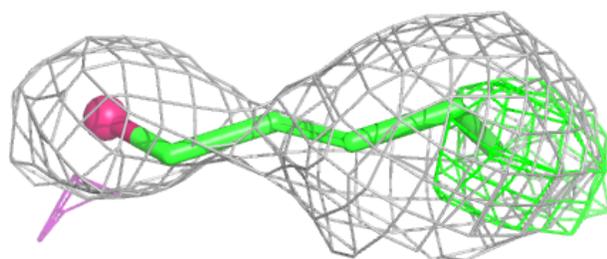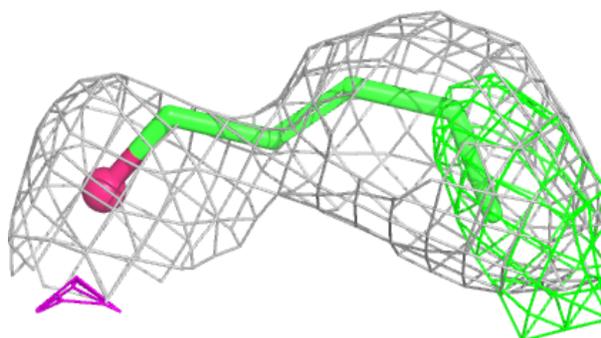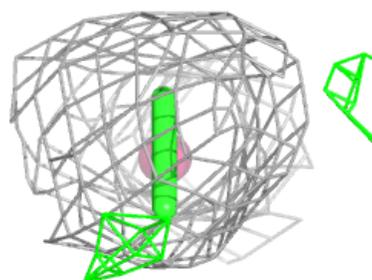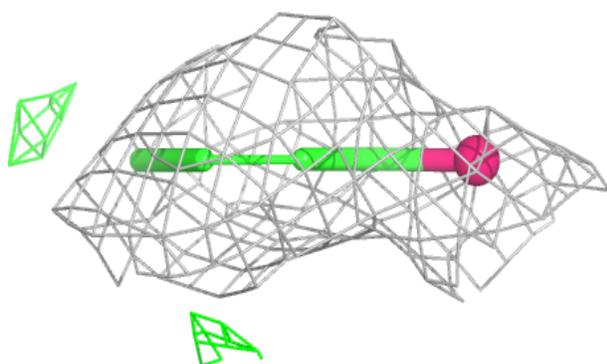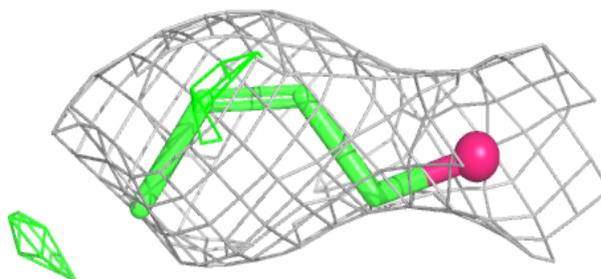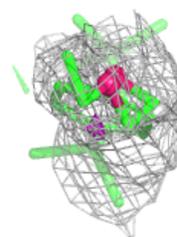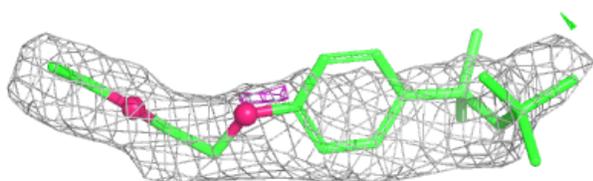
Electron density around Chain I:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
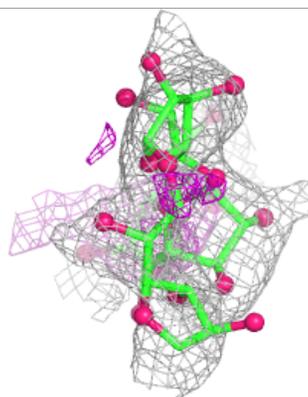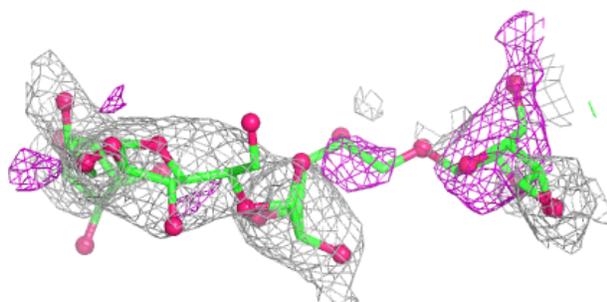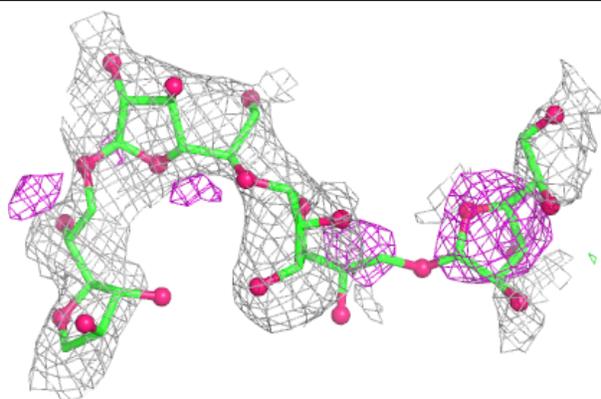
Electron density around Chain J:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
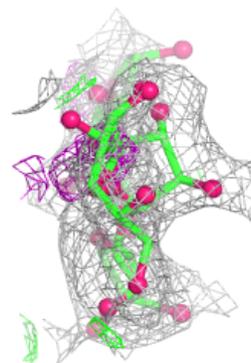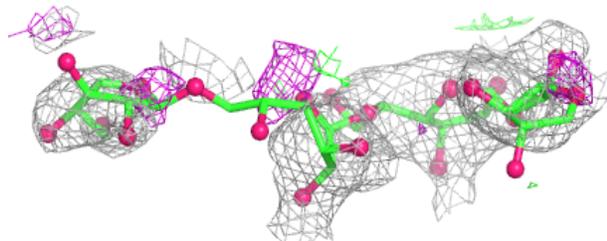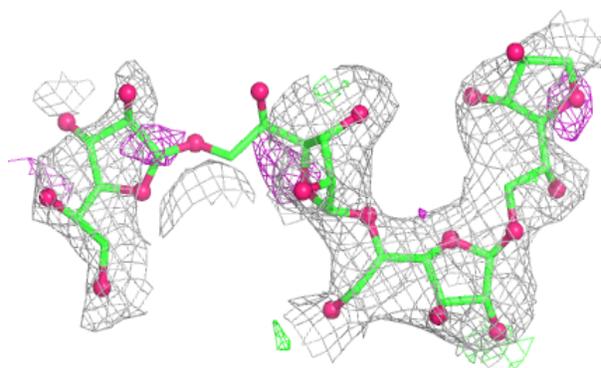
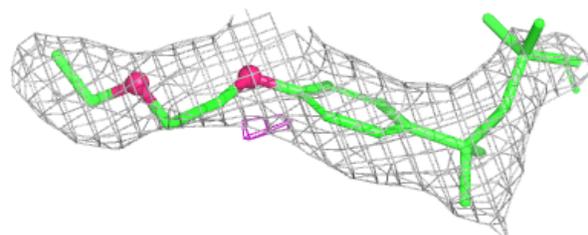**Electron density around Chain K:**

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
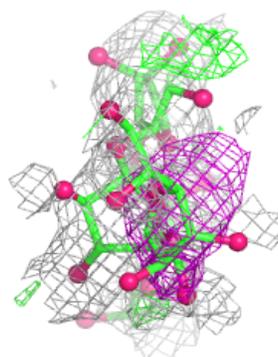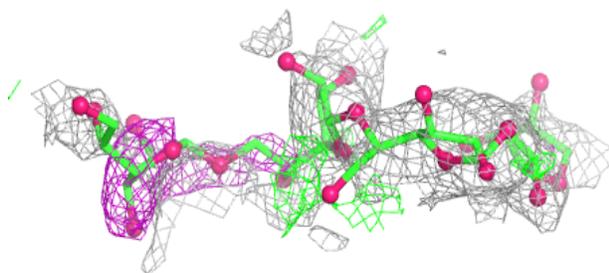
Electron density around Chain M:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
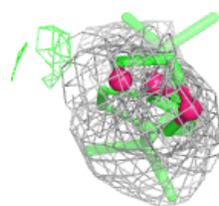and green (positive)
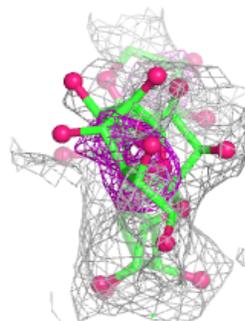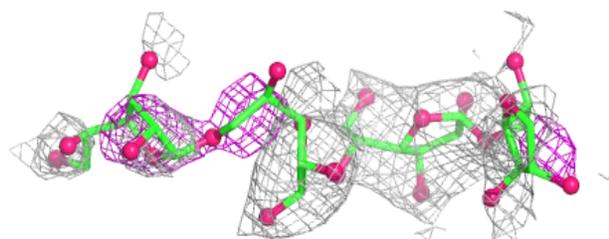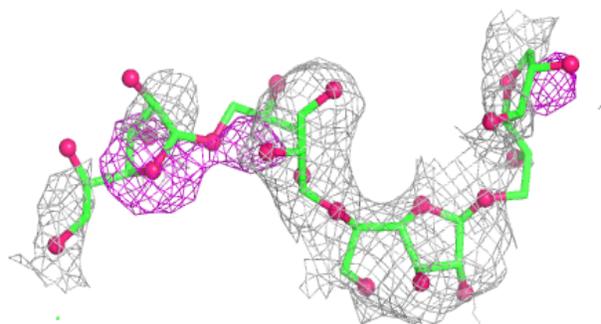
Electron density around Chain N:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
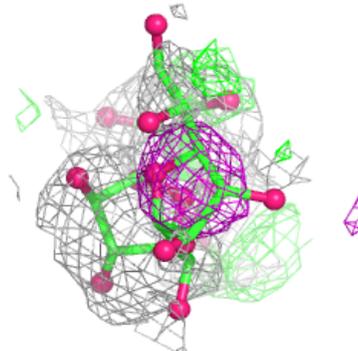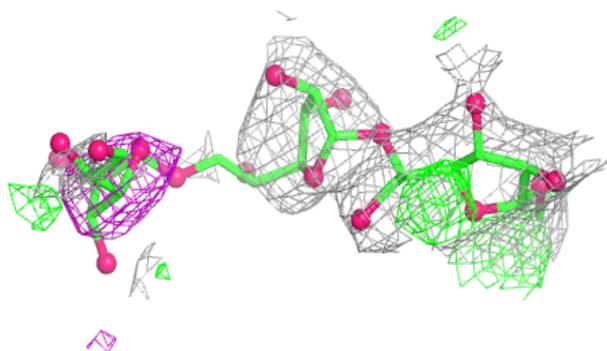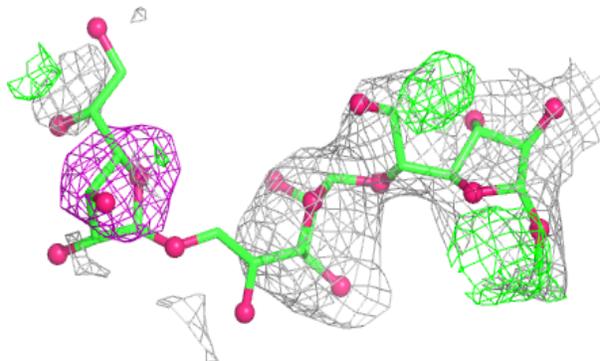
Electron density around Chain O:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
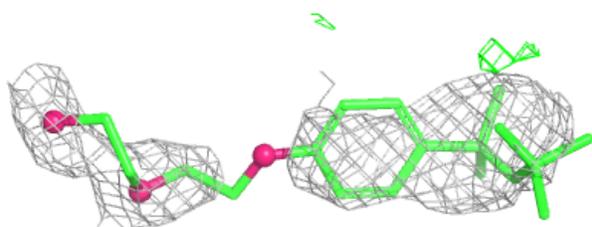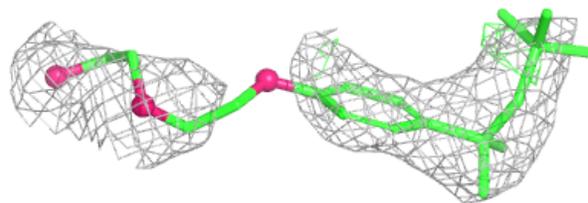and green (positive)
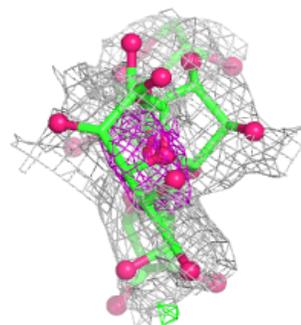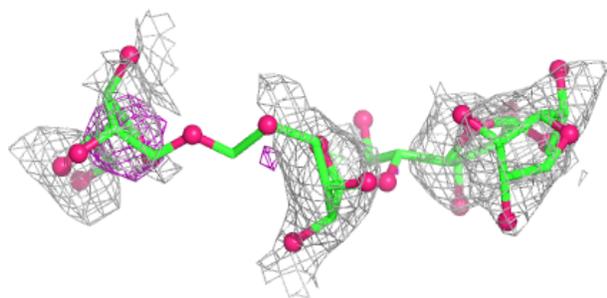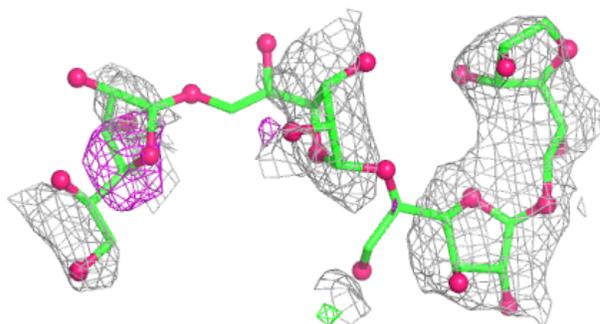
Electron density around Chain P:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
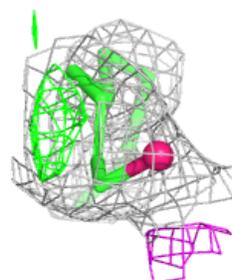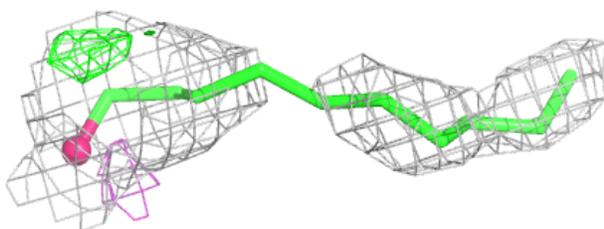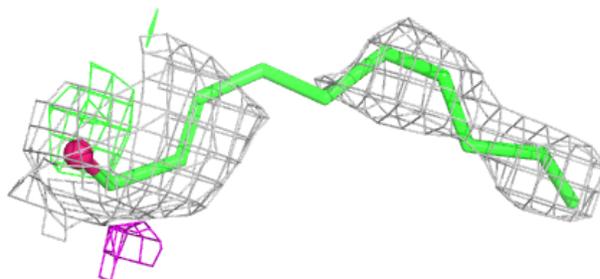and green (positive)
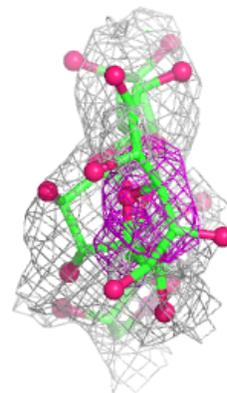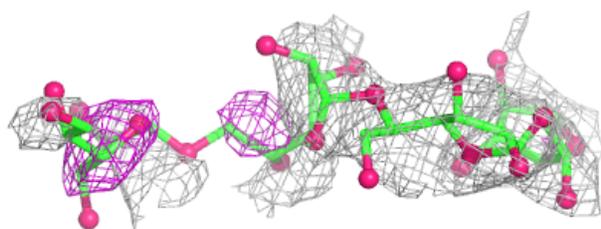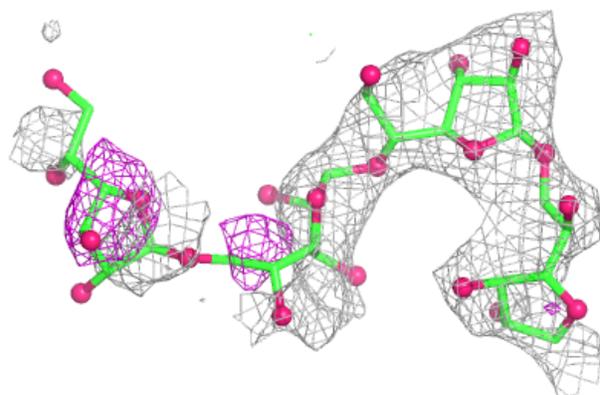
Electron density around Chain L:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
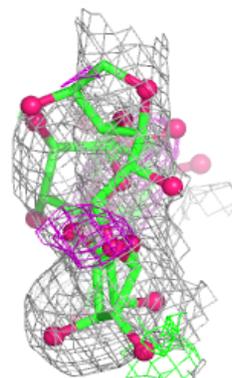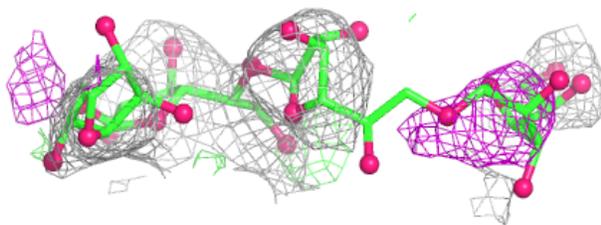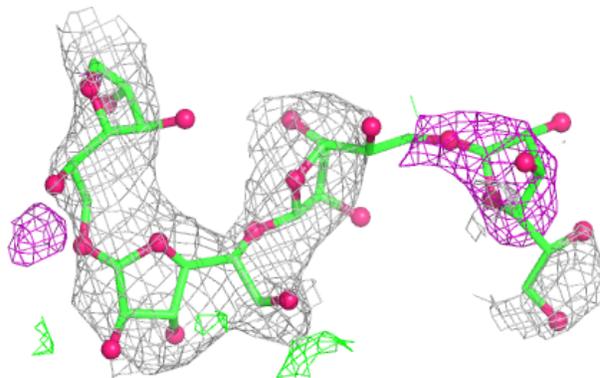
6.4 Ligands ⓘ

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($\mathring{A}^2$)	Q<0.9
5	A1BYH	G	703	4/20	-0.02	0.37	65,73,87,99	0
5	A1BYH	E	703	4/20	0.03	0.34	75,84,90,92	0
5	A1BYH	C	703	4/20	0.22	0.24	64,70,80,86	0
5	A1BYH	H	703	5/20	0.31	0.26	60,71,78,90	0
5	A1BYH	D	703	6/20	0.41	0.24	56,68,89,93	0
5	A1BYH	A	703	5/20	0.55	0.26	56,57,68,70	0
6	TRT	F	702	20/25	0.74	0.21	64,76,87,89	0
4	TON	C	702	21/21	0.77	0.19	62,78,87,92	0
5	A1BYH	B	703	11/20	0.77	0.18	40,53,69,77	0
6	TRT	D	702	18/25	0.79	0.17	62,72,80,82	0
6	TRT	G	702	18/25	0.81	0.19	59,78,86,88	0
3	MG	C	701	1/1	0.83	0.17	54,54,54,54	0
4	TON	E	702	21/21	0.83	0.15	61,71,81,82	0
3	MG	F	701	1/1	0.84	0.18	54,54,54,54	0
3	MG	G	701	1/1	0.84	0.25	55,55,55,55	0
6	TRT	B	702	19/25	0.85	0.19	60,66,76,77	0
6	TRT	H	702	19/25	0.85	0.17	62,72,80,81	0
4	TON	A	702	21/21	0.86	0.18	56,69,78,80	0
3	MG	E	701	1/1	0.87	0.16	55,55,55,55	0
3	MG	H	701	1/1	0.91	0.13	53,53,53,53	0
3	MG	D	701	1/1	0.92	0.11	52,52,52,52	0
3	MG	B	701	1/1	0.92	0.07	53,53,53,53	0
3	MG	A	701	1/1	0.95	0.08	46,46,46,46	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.
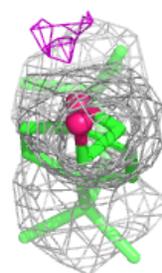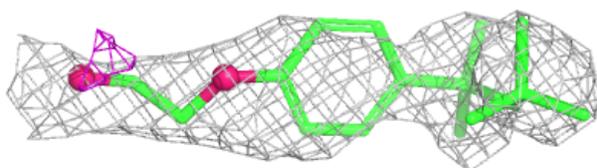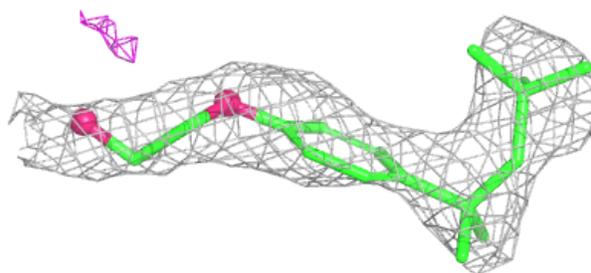
Electron density around A1BYH G 703:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
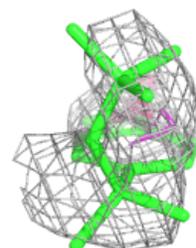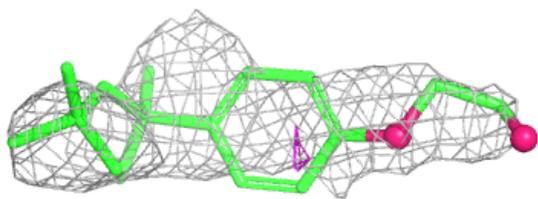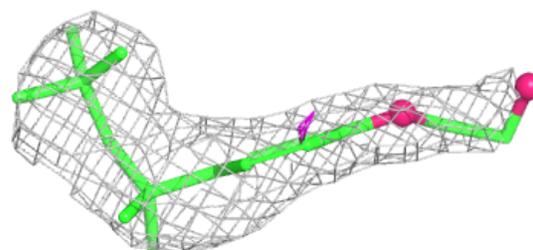mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
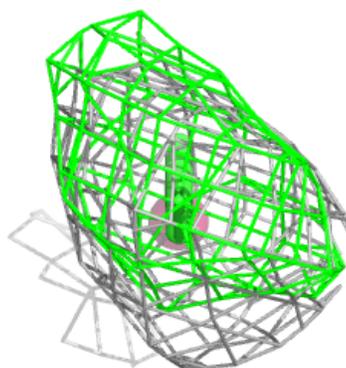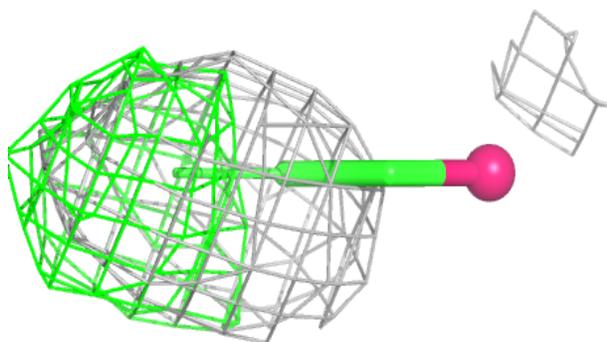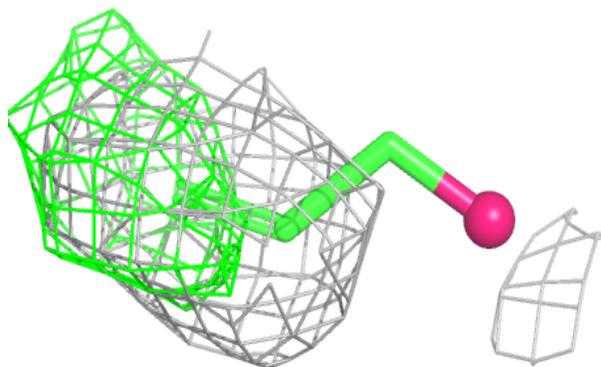
Electron density around A1BYH E 703:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
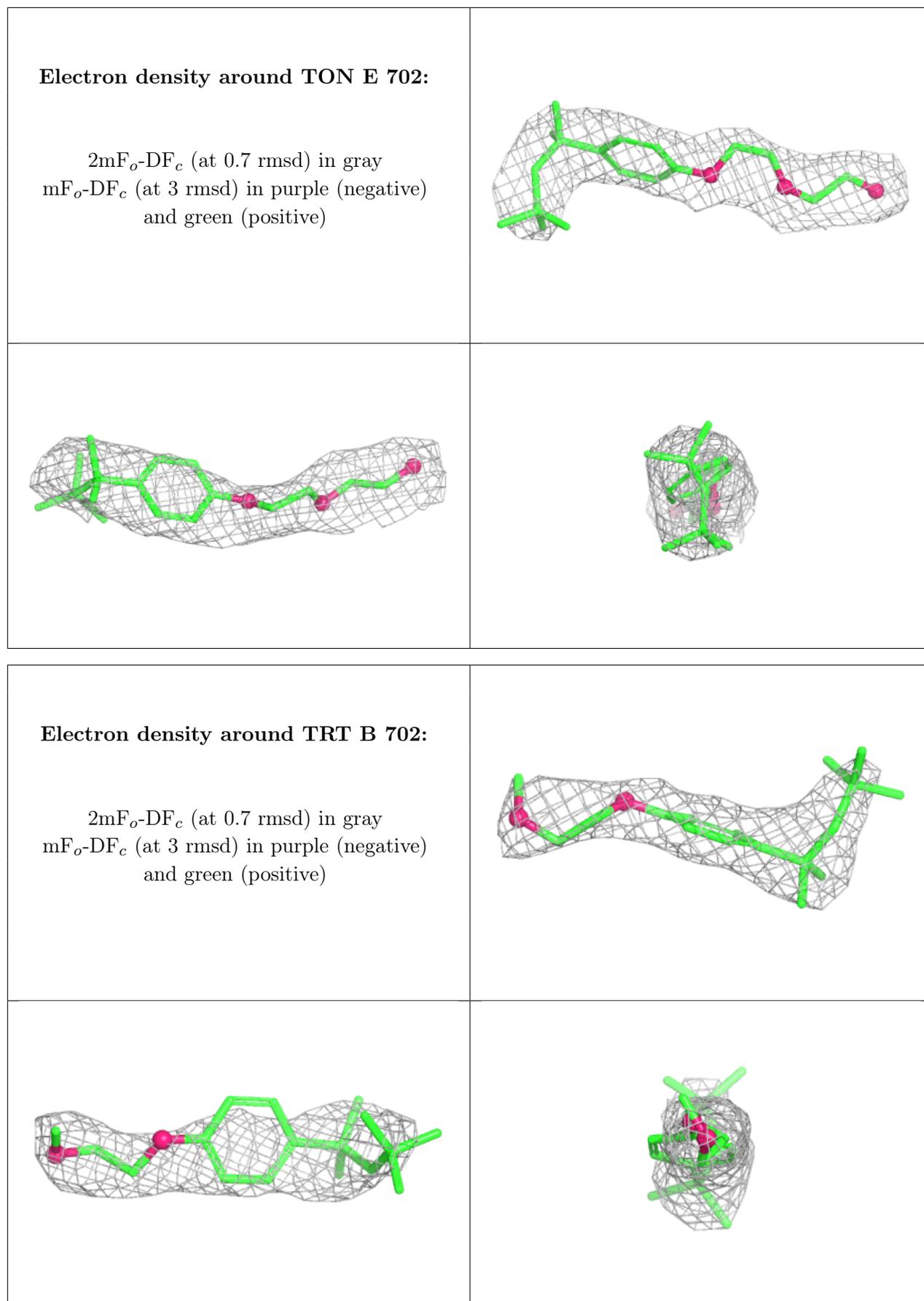and green (positive)

Electron density around A1BYH C 703:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
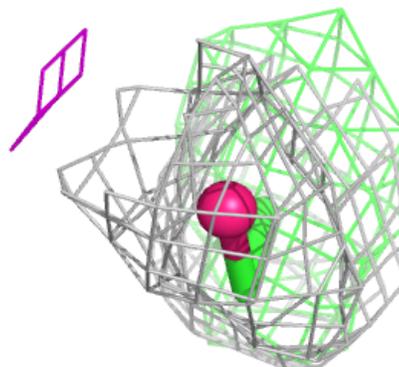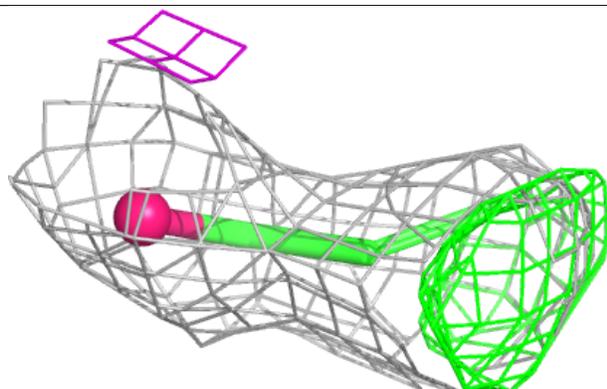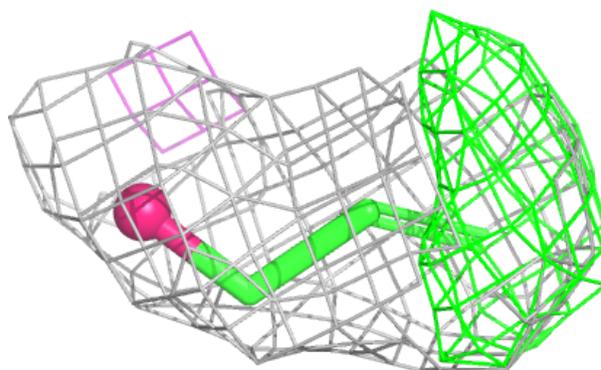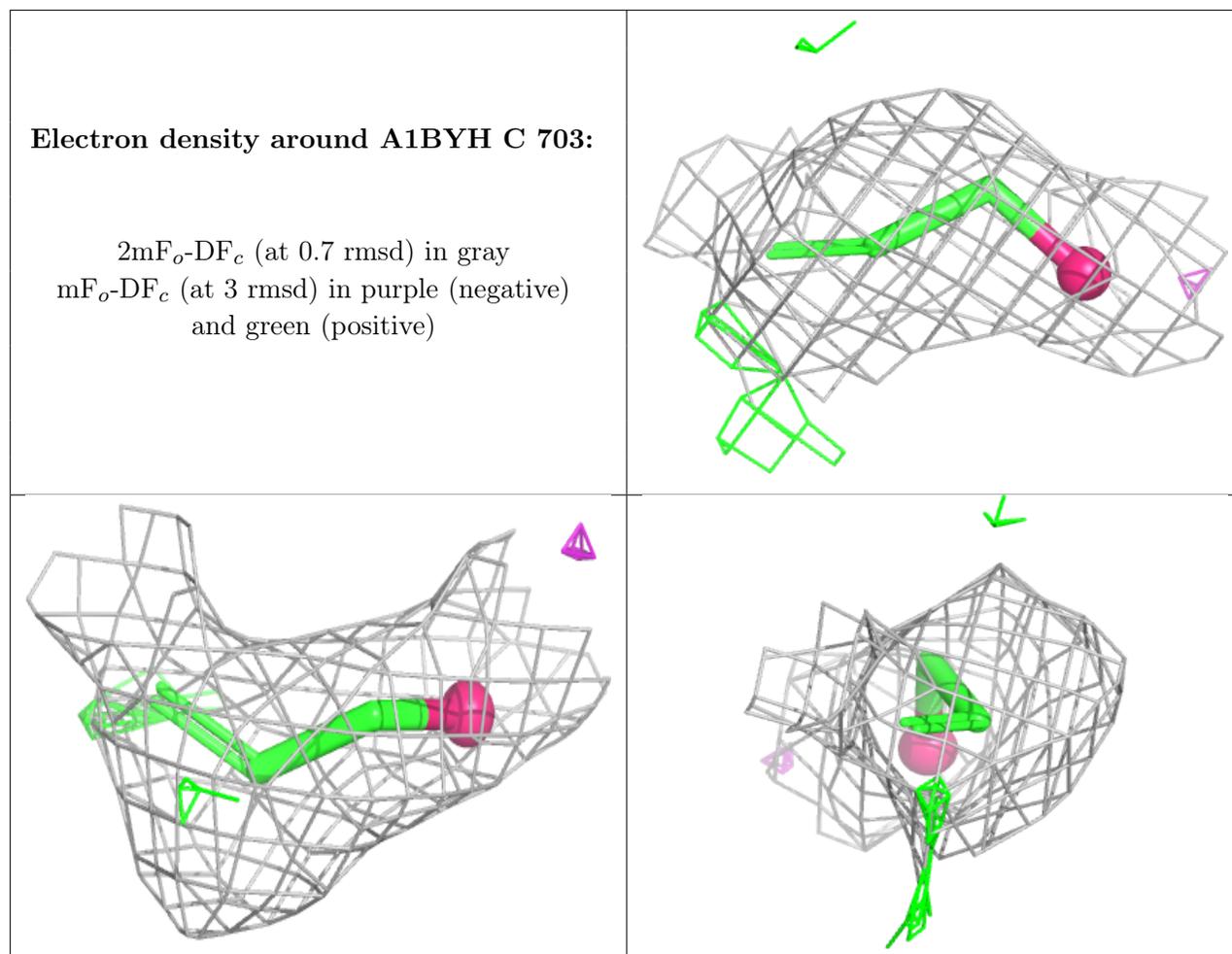
Electron density around A1BYH H 703:

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

Electron density around A1BYH D 703:

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

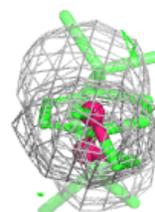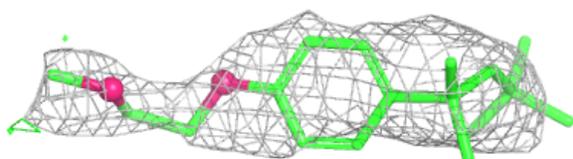**Electron density around A1BYH A 703:**

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

Electron density around TRT F 702:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
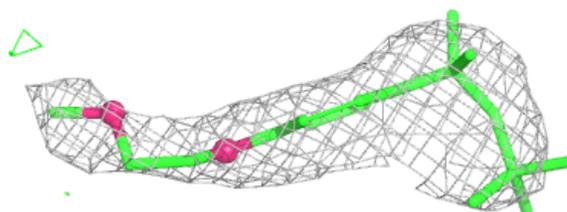
Electron density around TON C 702:

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

Electron density around A1BYH B 703:

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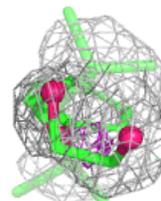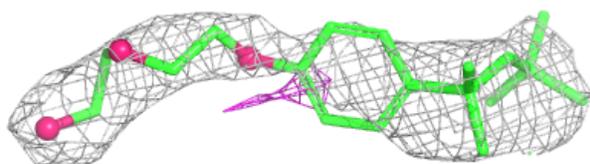and green (positive)

Electron density around TRT D 702:

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

Electron density around TRT G 702:

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

Electron density around TON E 702:

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

Electron density around TRT B 702:

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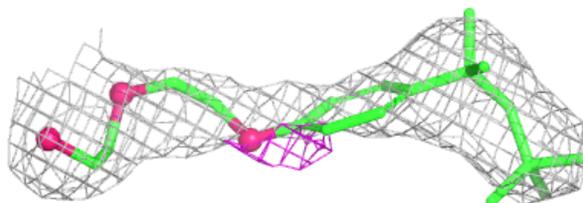and green (positive)

Electron density around TRT H 702:

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

Electron density around TON A 702:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.