Full wwPDB X-ray Structure Validation Report ⓘ

Jun 24, 2025 – 02:10 pm BST

PDB ID	:	6IBK / pdb_00006ibk
Title	:	Crystal structure of human alpha-galactosidase A in complex with alpha-galactose configured cyclosulfamidate ME763
Authors	:	Rowland, R.J.; Wu, L.; Davies, G.J.
Deposited on	:	2018-11-30
Resolution	:	1.99 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

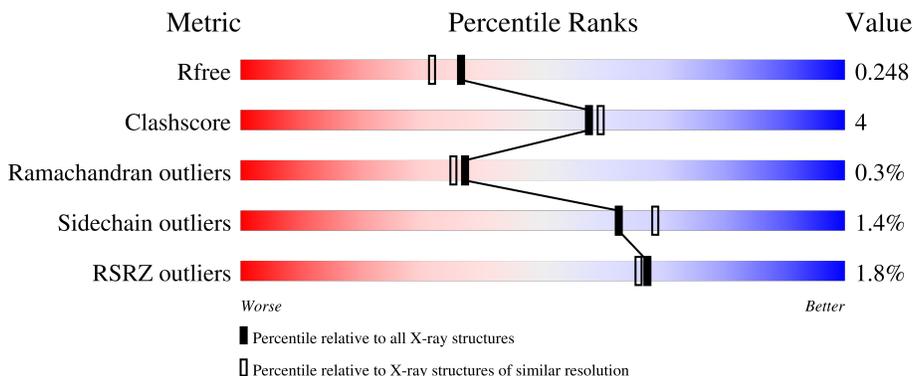|		
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.44

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 1.99 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.
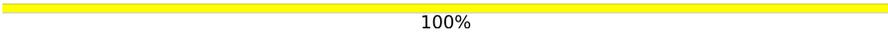
Metric	Percentile Ranks	Value
Rfree		0.248
Clashscore		4
Ramachandran outliers		0.3%
Sidechain outliers		1.4%
RSRZ outliers		1.8%

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	9409 (2.00-2.00)
Clashscore	180529	10737 (2.00-2.00)
Ramachandran outliers	177936	10628 (2.00-2.00)
Sidechain outliers	177891	10627 (2.00-2.00)
RSRZ outliers	164620	9409 (2.00-2.00)

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	398	% 86% 12% ·
1	B	398	3% 88% 10% ·
2	C	4	100%
3	D	3	100%
4	E	2	50% 50%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	F	2	100%
5	G	5	60% 40%

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
10	PEG	A	528	-	-	X	-
6	ACT	A	508	-	-	X	-
6	ACT	B	510	-	-	X	-
7	SO4	A	511	-	-	X	-

2 Entry composition ⓘ

There are 12 unique types of molecules in this entry. The entry contains 6966 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 Alpha-galactosidase A.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	390	Total 3140	C 1998	N 537	O 579	S 26	0	4	0
1	B	392	Total 3150	C 2004	N 541	O 578	S 27	0	1	0

- Molecule 2 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.
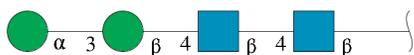
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	4	Total 50	C 28	N 2	O 20	0	0	0

- Molecule 3 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.
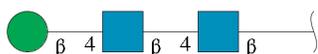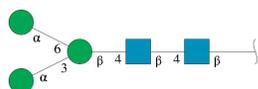

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	D	3	Total 39	C 22	N 2	O 15	0	0	0

- Molecule 4 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.
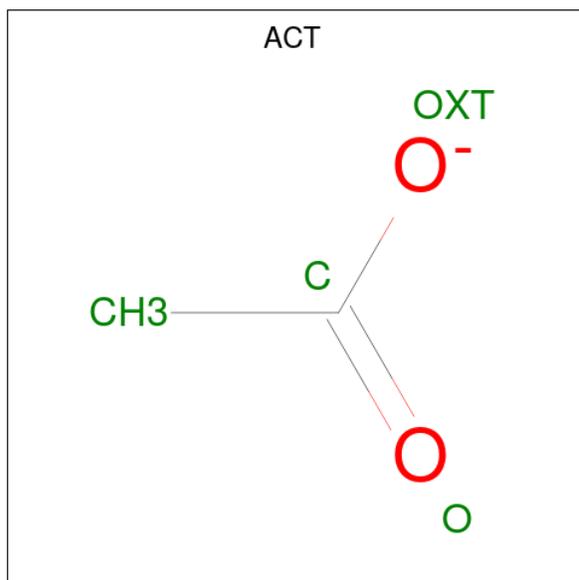
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	E	2	Total 28	C 16	N 2	O 10	0	0	0
4	F	2	Total 28	C 16	N 2	O 10	0	0	0

- Molecule 5 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	G	5	Total 61	C 34	N 2	O 25	0	0	0

- Molecule 6 is ACETATE ION (CCD ID: ACT) (formula: $C_2H_3O_2$).

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total 4	C 2	O 2	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total 4	C 2	O 2	0	0
6	B	1	Total 4	C 2	O 2	0	0

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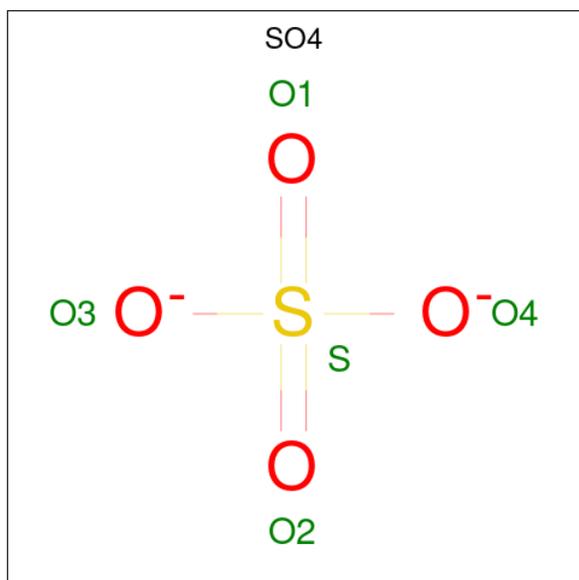
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total 5	O 4	S 1	0	0
7	A	1	Total 5	O 4	S 1	0	0
7	A	1	Total 5	O 4	S 1	0	0
7	A	1	Total 5	O 4	S 1	0	0
7	A	1	Total 5	O 4	S 1	0	0
7	A	1	Total 5	O 4	S 1	0	0
7	B	1	Total 5	O 4	S 1	0	0
7	B	1	Total 5	O 4	S 1	0	0
7	B	1	Total 5	O 4	S 1	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	B	1	Total 5	O 4	S 1	0	0
7	B	1	Total 5	O 4	S 1	0	0

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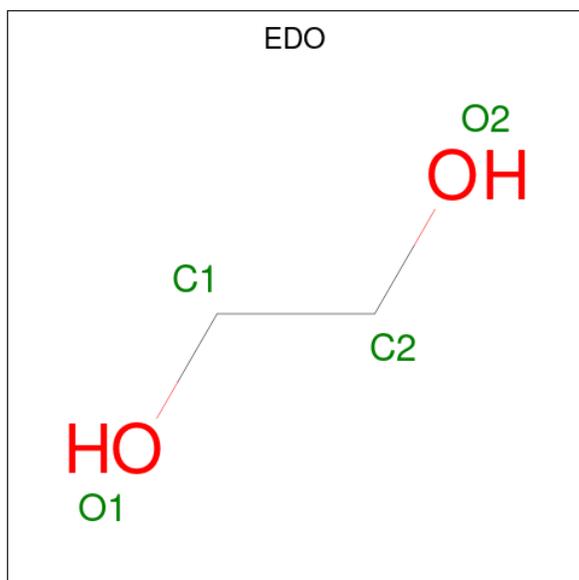
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	A	1	Total 4	C 2	O 2	0	0
8	B	1	Total 4	C 2	O 2	0	0

Continued on next page...

Continued from previous page...

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

- Molecule 9 is (3 {a} {R},4 {S},5 {S},6 {S},7 {R},7 {a} {S})-7-(hydroxymethyl)-2,2-bis (oxidanylidene)-3 {a},4,5,6,7,7 {a}-hexahydro-3 {H}-benzo[d][1,2,3]oxathiazole-4,5,6-triol (CCD ID: YTW) (formula: $C_7H_{13}NO_7S$) (labeled as "Ligand of Interest" by depositor).
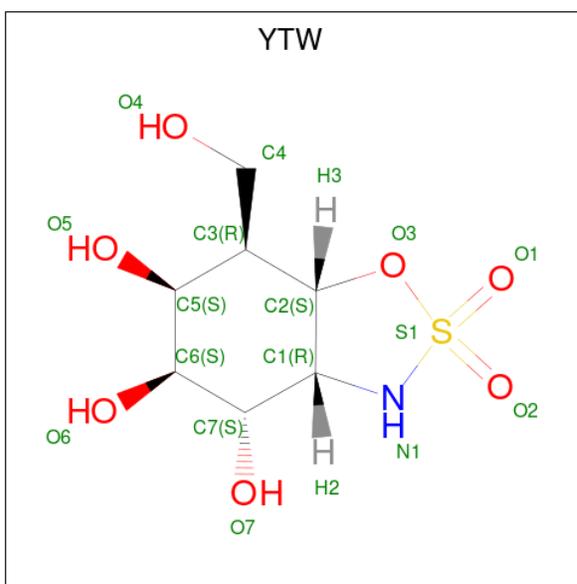
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
9	A	1	Total 16	C 7	N 1	O 7	S 1	0	0
9	B	1	Total 16	C 7	N 1	O 7	S 1	0	0

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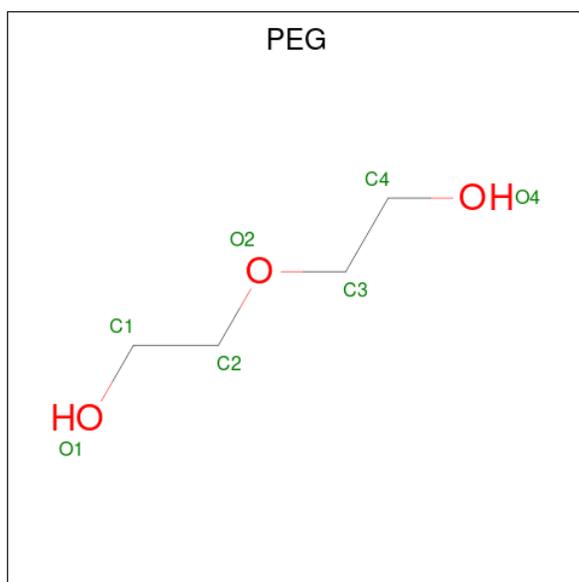
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
10	A	1	Total 7	C 4	O 3	0	0
10	A	1	Total 7	C 4	O 3	0	0
10	A	1	Total 7	C 4	O 3	0	0
10	B	1	Total 7	C 4	O 3	0	0
10	B	1	Total 7	C 4	O 3	0	0

- Molecule 11 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).

NAG
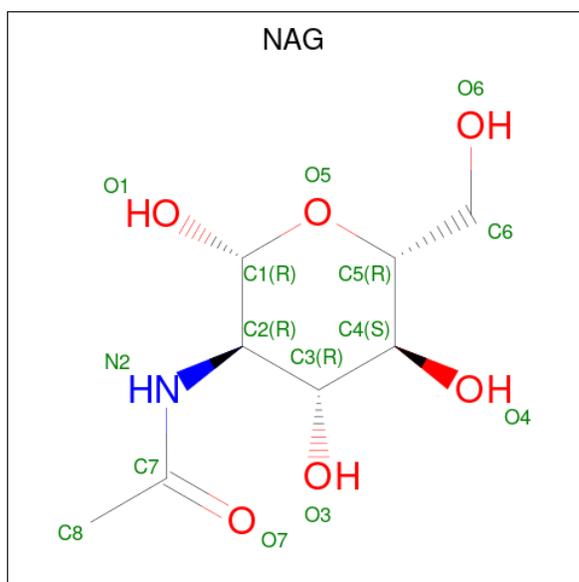
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
11	B	1	Total 14	C 8	N 1	O 5	0	0

- Molecule 12 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
12	A	154	Total 154	O 154	0	0
12	B	120	Total 120	O 120	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.

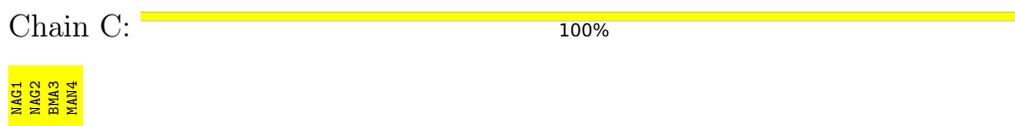• Molecule 1: Alpha-galactosidase A

Chain A:

• Molecule 1: Alpha-galactosidase A

Chain B:
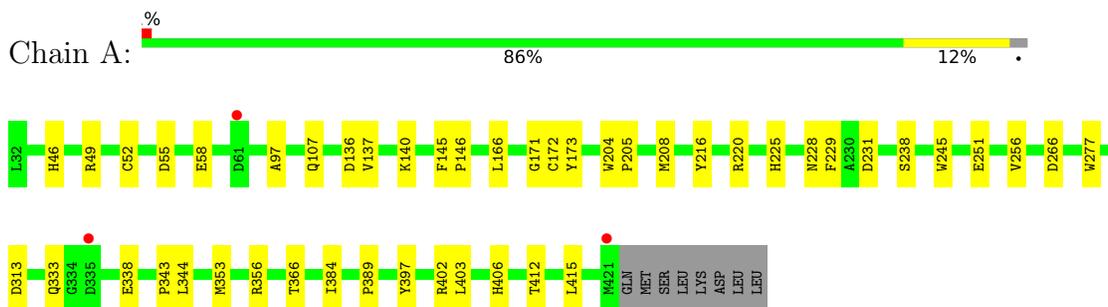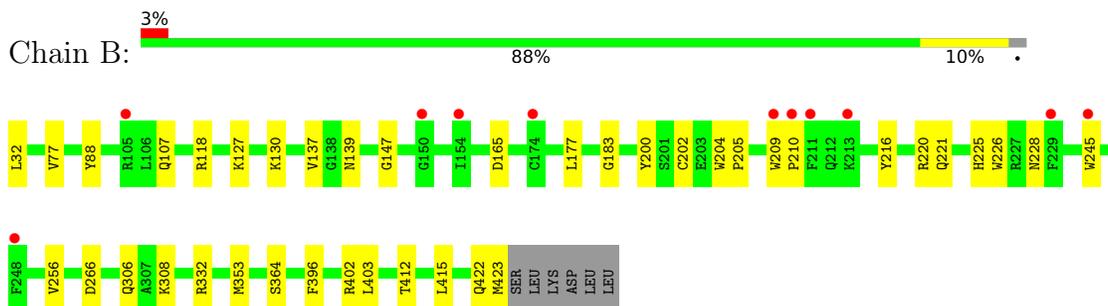
• Molecule 2: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain C:

• Molecule 3: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose
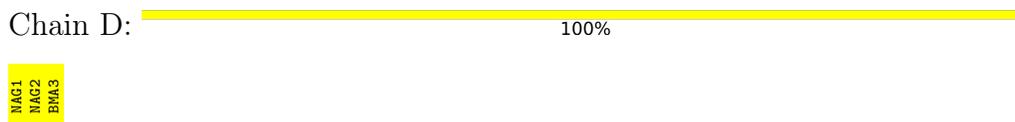
Chain D:

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

Chain E:

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

Chain F:

• Molecule 5: alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose
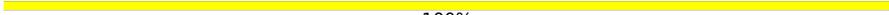
Chain G:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 32 2 1	Depositor
Cell constants a, b, c, α, β, γ	90.57Å 90.57Å 216.46Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	63.59 – 1.99 63.59 – 1.99	Depositor EDS
% Data completeness (in resolution range)	99.9 (63.59-1.99) 100.0 (63.59-1.99)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.57 (at 1.98Å)	Xtriage
Refinement program	REFMAC 5.8.0238	Depositor
R, R_{free}	0.185 , 0.244 0.195 , 0.248	Depositor DCC
R_{free} test set	3502 reflections (4.90%)	wwPDB-VP
Wilson B-factor (Å^2)	38.7	Xtriage
Anisotropy	0.543	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.35 , 54.7	EDS
L-test for twinning[2]	$< |L| > = 0.51, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.021 for -h,-k,l	Xtriage
F_o,F_c correlation	0.97	EDS
Total number of atoms	6966	wwPDB-VP
Average B, all atoms (Å^2)	62.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.68% of the height of the origin peak. No significant pseudotranslation is detected.*

---

[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: PEG, SO4, EDO, ACT, MAN, BMA, YTW, NAG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$ >5	RMSZ	#$|Z|$ >5
1	A	1.01	0/3227	1.28	7/4385 (0.2%)
1	B	1.03	0/3237	1.32	0/4394
All	All	1.02	0/6464	1.30	7/8779 (0.1%)

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	220	ARG	CG-CD-NE	-7.06	96.47	112.00
1	A	313	ASP	CA-C-N	5.97	128.60	120.54
1	A	313	ASP	C-N-CA	5.97	128.60	120.54
1	A	229	PHE	CA-C-N	5.50	128.65	120.90
1	A	229	PHE	C-N-CA	5.50	128.65	120.90
1	A	208	MET	CA-C-N	5.29	127.56	120.58
1	A	208	MET	C-N-CA	5.29	127.56	120.58

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	3140	0	2966	34	0
1	B	3150	0	3010	23	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	C	50	0	43	0	0
3	D	39	0	34	0	0
4	E	28	0	25	0	0
4	F	28	0	25	0	0
5	G	61	0	52	0	0
6	A	4	0	3	2	0
6	B	8	0	6	2	0
7	A	30	0	0	2	0
7	B	25	0	0	1	0
8	A	32	0	48	3	0
8	B	16	0	24	0	0
9	A	16	0	0	1	0
9	B	16	0	0	0	0
10	A	21	0	30	5	0
10	B	14	0	20	3	0
11	B	14	0	13	0	0
12	A	154	0	0	0	0
12	B	120	0	0	1	0
All	All	6966	0	6299	57	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 (57) 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:A:403:LEU:HD21	1:A:415:LEU:CD1	2.20	0.71
1:A:52:CYS:HB3	10:A:528:PEG:C4	2.28	0.64
1:A:277:TRP:H	10:B:521:PEG:H32	1.61	0.63
1:A:52:CYS:HB3	10:A:528:PEG:H41	1.79	0.63
1:A:402:ARG:NH2	7:A:511:SO4:O2	2.33	0.61
1:B:403:LEU:HD21	1:B:415:LEU:CD1	2.30	0.60
1:B:88:TYR:CZ	1:B:130:LYS:HD2	2.36	0.60
1:A:228:ASN:HB3	1:A:245:TRP:CH2	2.37	0.60
1:A:204:TRP:HB3	1:A:205:PRO:HD3	1.85	0.58
1:A:406:HIS:ND1	8:A:524:EDO:H12	2.19	0.58
1:B:118:ARG:HH12	6:B:510:ACT:H1	1.69	0.58
1:B:118:ARG:NH1	6:B:510:ACT:H1	2.20	0.56
1:A:402:ARG:NH2	7:A:511:SO4:S	2.79	0.56
1:A:403:LEU:HD21	1:A:415:LEU:HD11	1.91	0.52
1:A:97:ALA:HB3	1:A:107:GLN:HG3	1.92	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:140:LYS:HB2	1:A:173:TYR:CD2	2.46	0.51
1:A:52:CYS:CB	10:A:528:PEG:H42	2.41	0.50
1:A:338:GLU:OE2	1:A:356:ARG:NH1	2.43	0.50
1:B:353:MET:O	1:B:412:THR:HA	2.11	0.50
1:A:49[A]:ARG:HD2	1:A:49[A]:ARG:O	2.12	0.50
1:A:384:ILE:HD12	1:A:397:TYR:CD1	2.46	0.49
1:A:406:HIS:ND1	8:A:524:EDO:C1	2.76	0.48
1:A:166:LEU:C	1:A:166:LEU:HD23	2.39	0.48
1:A:344:LEU:O	6:A:508:ACT:H2	2.14	0.47
1:B:306:GLN:HB3	12:B:680:HOH:O	2.15	0.47
1:B:402:ARG:NH2	7:B:511:SO4:O4	2.48	0.46
1:B:403:LEU:HD21	1:B:415:LEU:HD13	1.97	0.46
1:B:118:ARG:HA	1:B:118:ARG:HD2	1.81	0.46
1:B:137:VAL:CG2	1:B:183:GLY:HA3	2.46	0.46
1:A:366:THR:HA	1:A:403:LEU:O	2.16	0.45
1:A:277:TRP:H	10:B:521:PEG:C3	2.28	0.45
1:A:251:GLU:H	1:A:251:GLU:CD	2.24	0.45
1:A:238:SER:OG	8:A:521:EDO:H21	2.16	0.45
1:A:343:PRO:HB2	6:A:508:ACT:H3	1.97	0.45
1:B:216:TYR:HB3	1:B:256:VAL:HG11	1.99	0.44
1:A:389:PRO:HG3	10:A:527:PEG:H12	1.99	0.44
1:A:137:VAL:HG12	1:A:171:GLY:HA2	2.00	0.44
1:A:231:ASP:OD2	9:A:525:YTW:N1	2.51	0.44
1:A:277:TRP:N	10:B:521:PEG:H32	2.32	0.44
1:B:202:CYS:O	1:B:226:TRP:HA	2.18	0.43
1:B:228:ASN:HB3	1:B:245:TRP:CH2	2.54	0.43
1:B:396:PHE:CG	1:B:423:MET:HG3	2.52	0.43
1:B:139:ASN:C	1:B:147:GLY:HA3	2.43	0.43
1:B:209:TRP:N	1:B:210:PRO:CD	2.81	0.43
1:A:52:CYS:HB3	10:A:528:PEG:H42	1.99	0.42
1:A:136:ASP:OD1	1:A:172:CYS:O	2.37	0.42
1:B:130:LYS:HB3	1:B:165:ASP:HB2	2.02	0.42
1:B:200:TYR:CE2	1:B:202:CYS:SG	3.13	0.42
1:A:216:TYR:HB3	1:A:256:VAL:HG11	2.02	0.42
1:B:77:VAL:HG21	1:B:127:LYS:HB3	2.02	0.41
1:A:353:MET:O	1:A:412:THR:HA	2.20	0.41
1:B:177:LEU:H	1:B:177:LEU:HD12	1.85	0.41
1:B:32:LEU:N	1:B:220:ARG:O	2.54	0.41
1:B:204:TRP:HB3	1:B:205:PRO:HD3	2.03	0.41
1:A:145:PHE:HB3	1:A:146:PRO:HD2	2.04	0.40
1:A:55:ASP:OD2	1:A:58:GLU:HB2	2.22	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:422:GLN:C	1:B:423:MET:HG2	2.46	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	392/398 (98%)	378 (96%)	13 (3%)	1 (0%)	37	35
1	B	391/398 (98%)	374 (96%)	16 (4%)	1 (0%)	37	35
All	All	783/796 (98%)	752 (96%)	29 (4%)	2 (0%)	37	35

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	266	ASP
1	B	266	ASP

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	328/339 (97%)	325 (99%)	3 (1%)	75	81
1	B	334/339 (98%)	328 (98%)	6 (2%)	54	59
All	All	662/678 (98%)	653 (99%)	9 (1%)	62	68

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	46	HIS
1	A	225	HIS
1	A	333	GLN
1	B	107	GLN
1	B	221	GLN
1	B	225	HIS
1	B	308	LYS
1	B	332	ARG
1	B	364	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	212	GLN
1	A	278	ASN
1	A	333	GLN
1	A	357	GLN
1	A	386	GLN
1	A	408	ASN
1	B	107	GLN
1	B	111	GLN
1	B	179	ASN
1	B	221	GLN
1	B	379	ASN
1	B	406	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 ⓘ

16 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	NAG	C	1	1,2	14,14,15	0.87	1 (7%)	17,19,21	1.24	2 (11%)
2	NAG	C	2	2	14,14,15	0.44	0	17,19,21	1.34	2 (11%)
2	BMA	C	3	2	11,11,12	0.80	0	15,15,17	2.24	4 (26%)
2	MAN	C	4	2	11,11,12	0.38	0	15,15,17	1.26	3 (20%)
3	NAG	D	1	1,3	14,14,15	0.59	0	17,19,21	1.47	2 (11%)
3	NAG	D	2	3	14,14,15	0.49	0	17,19,21	1.09	1 (5%)
3	BMA	D	3	3	11,11,12	0.47	0	15,15,17	1.22	2 (13%)
4	NAG	E	1	1,4	14,14,15	0.31	0	17,19,21	1.06	0
4	NAG	E	2	4	14,14,15	0.36	0	17,19,21	1.30	3 (17%)
4	NAG	F	1	1,4	14,14,15	0.66	0	17,19,21	2.42	7 (41%)
4	NAG	F	2	4	14,14,15	0.31	0	17,19,21	0.92	1 (5%)
5	NAG	G	1	1,5	14,14,15	0.40	0	17,19,21	0.87	0
5	NAG	G	2	5	14,14,15	0.50	0	17,19,21	1.16	0
5	BMA	G	3	5	11,11,12	0.37	0	15,15,17	0.96	0
5	MAN	G	4	5	11,11,12	0.65	0	15,15,17	1.72	4 (26%)
5	MAN	G	5	5	11,11,12	0.57	0	15,15,17	1.25	2 (13%)

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	NAG	C	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	C	2	2	-	2/6/23/26	0/1/1/1
2	BMA	C	3	2	-	2/2/19/22	0/1/1/1
2	MAN	C	4	2	-	0/2/19/22	0/1/1/1
3	NAG	D	1	1,3	-	0/6/23/26	0/1/1/1
3	NAG	D	2	3	-	0/6/23/26	0/1/1/1
3	BMA	D	3	3	-	0/2/19/22	0/1/1/1
4	NAG	E	1	1,4	-	2/6/23/26	0/1/1/1

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	E	2	4	-	0/6/23/26	0/1/1/1
4	NAG	F	1	1,4	-	5/6/23/26	0/1/1/1
4	NAG	F	2	4	-	1/6/23/26	0/1/1/1
5	NAG	G	1	1,5	-	2/6/23/26	0/1/1/1
5	NAG	G	2	5	-	0/6/23/26	0/1/1/1
5	BMA	G	3	5	-	0/2/19/22	0/1/1/1
5	MAN	G	4	5	-	0/2/19/22	0/1/1/1
5	MAN	G	5	5	-	2/2/19/22	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	1	NAG	C2-N2	-2.58	1.41	1.46

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	3	BMA	O5-C5-C6	6.35	117.16	107.20
4	F	1	NAG	O5-C1-C2	-4.52	104.15	111.29
4	F	1	NAG	C8-C7-N2	4.48	123.68	116.10
3	D	1	NAG	C1-O5-C5	3.93	117.52	112.19
4	F	1	NAG	C1-C2-N2	3.93	117.20	110.49
5	G	4	MAN	O5-C1-C2	-3.77	104.94	110.77
4	F	1	NAG	C2-N2-C7	3.58	128.00	122.90
2	C	3	BMA	O3-C3-C4	3.47	118.36	110.35
3	D	3	BMA	C1-O5-C5	3.31	116.68	112.19
2	C	2	NAG	O4-C4-C5	3.13	117.08	109.30
3	D	1	NAG	O5-C5-C6	2.96	111.85	107.20
2	C	3	BMA	O3-C3-C2	-2.96	104.33	109.99
5	G	4	MAN	O3-C3-C2	-2.91	104.42	109.99
3	D	2	NAG	C1-C2-N2	-2.89	105.55	110.49
4	F	1	NAG	O7-C7-N2	-2.87	116.67	121.95
4	F	1	NAG	C4-C3-C2	-2.75	106.99	111.02
4	F	2	NAG	O5-C1-C2	-2.73	106.98	111.29
4	E	2	NAG	C4-C3-C2	2.72	115.00	111.02
5	G	5	MAN	O5-C5-C6	2.65	111.36	107.20
5	G	4	MAN	C2-C3-C4	2.58	115.35	110.89
2	C	3	BMA	C1-O5-C5	-2.45	108.88	112.19
2	C	1	NAG	C4-C3-C2	-2.41	107.49	111.02
5	G	4	MAN	C1-C2-C3	-2.35	106.78	109.67
4	E	2	NAG	C3-C4-C5	2.32	114.38	110.24

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	F	1	NAG	O5-C5-C6	2.28	110.77	107.20
3	D	3	BMA	O5-C1-C2	2.17	114.13	110.77
4	E	2	NAG	C2-N2-C7	-2.16	119.83	122.90
2	C	1	NAG	C1-O5-C5	-2.09	109.36	112.19
2	C	4	MAN	C2-C3-C4	-2.07	107.31	110.89
2	C	4	MAN	O3-C3-C4	2.05	115.09	110.35
5	G	5	MAN	C1-C2-C3	2.05	112.18	109.67
2	C	2	NAG	C3-C4-C5	-2.02	106.63	110.24
2	C	4	MAN	O5-C5-C6	2.02	110.37	107.20

There are no chirality outliers.

All (16) torsion outliers are listed below:

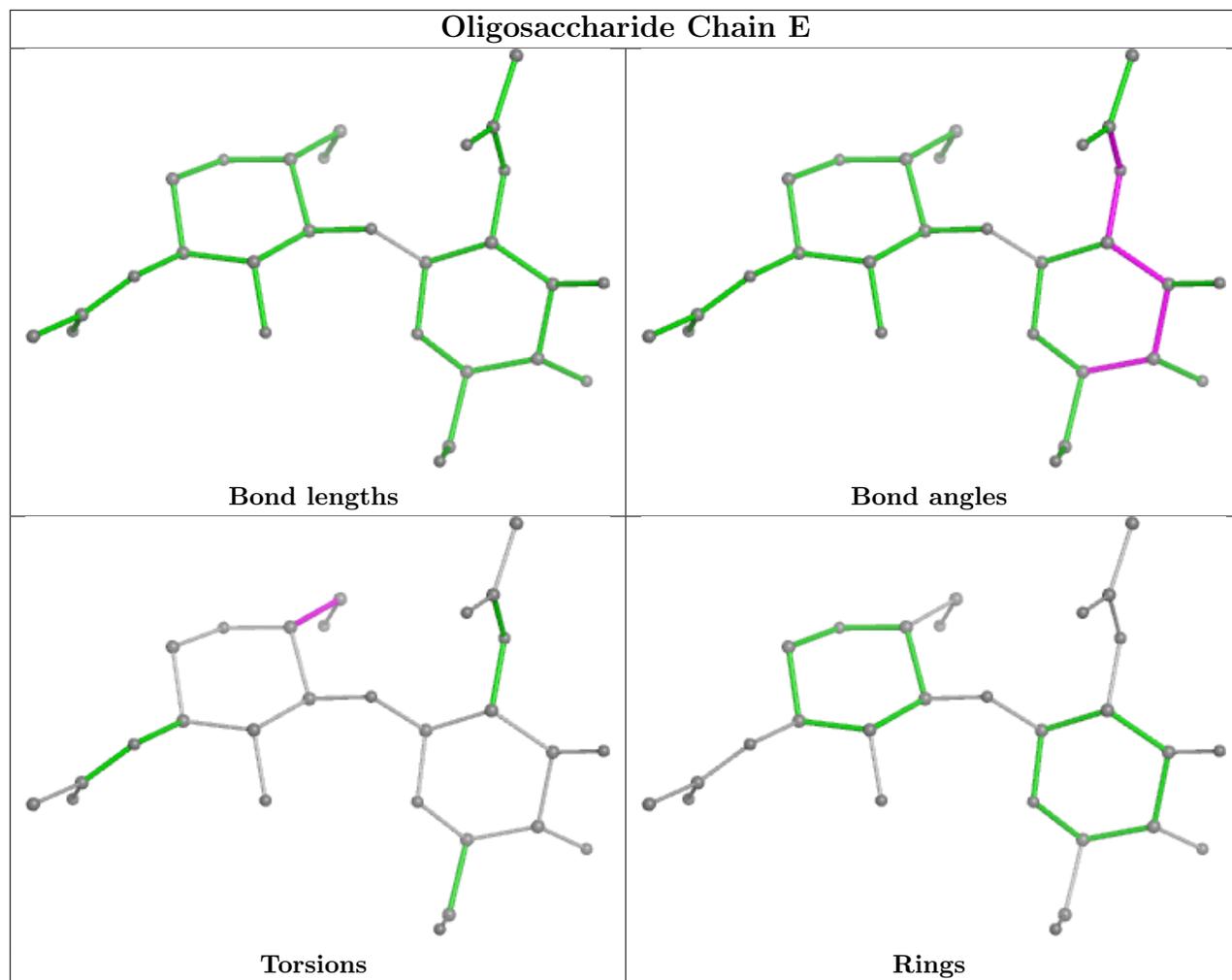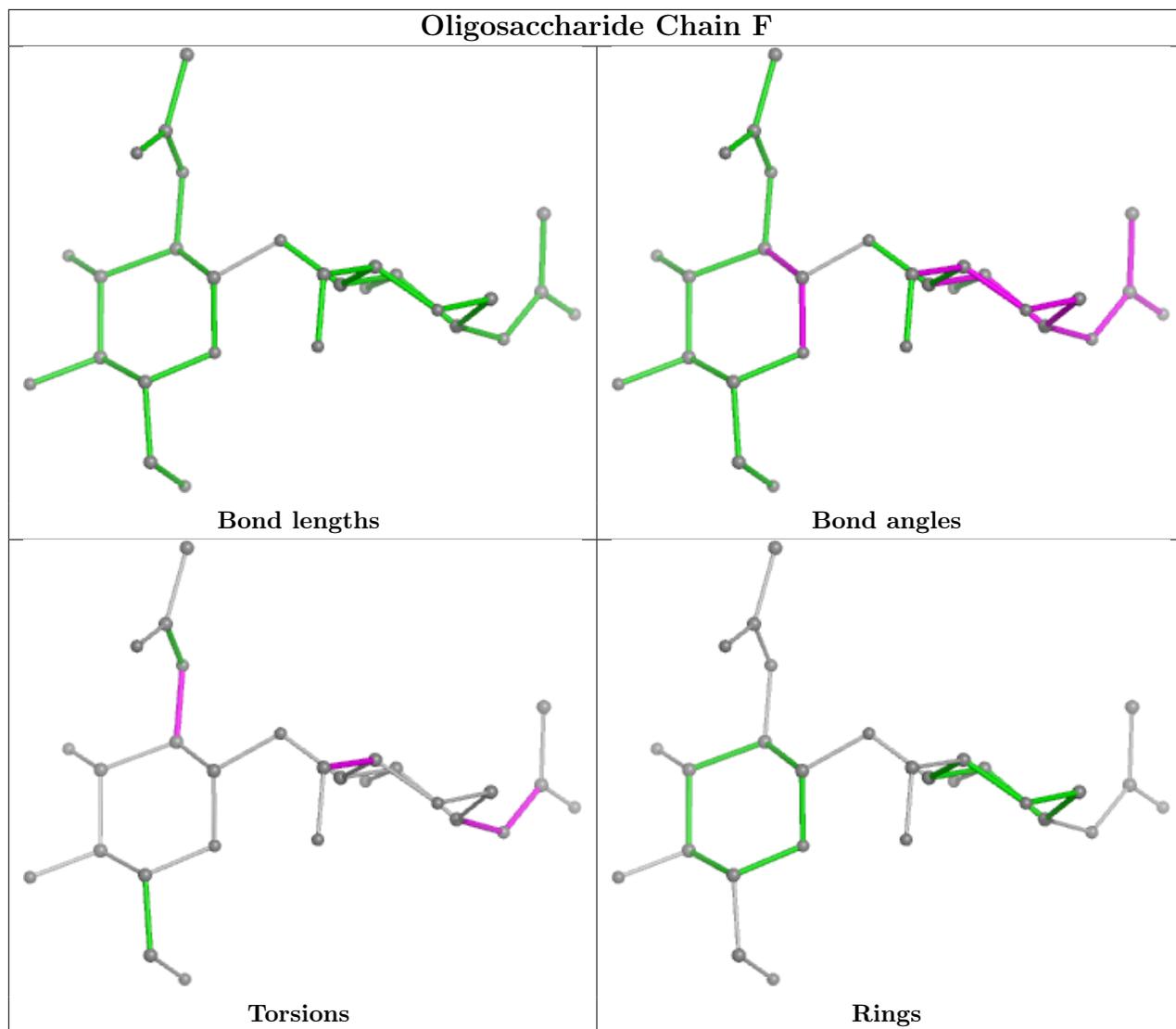| Mol	Chain	Res	Type	Atoms
2	C	3	BMA	O5-C5-C6-O6
5	G	5	MAN	O5-C5-C6-O6
5	G	1	NAG	C4-C5-C6-O6
5	G	1	NAG	O5-C5-C6-O6
2	C	3	BMA	C4-C5-C6-O6
5	G	5	MAN	C4-C5-C6-O6
4	F	1	NAG	C8-C7-N2-C2
4	F	1	NAG	O7-C7-N2-C2
2	C	2	NAG	C4-C5-C6-O6
4	F	1	NAG	C4-C5-C6-O6
4	F	2	NAG	C1-C2-N2-C7
2	C	2	NAG	O5-C5-C6-O6
4	E	1	NAG	C4-C5-C6-O6
4	E	1	NAG	O5-C5-C6-O6
4	F	1	NAG	O5-C5-C6-O6
4	F	1	NAG	C3-C2-N2-C7

There are no ring outliers.

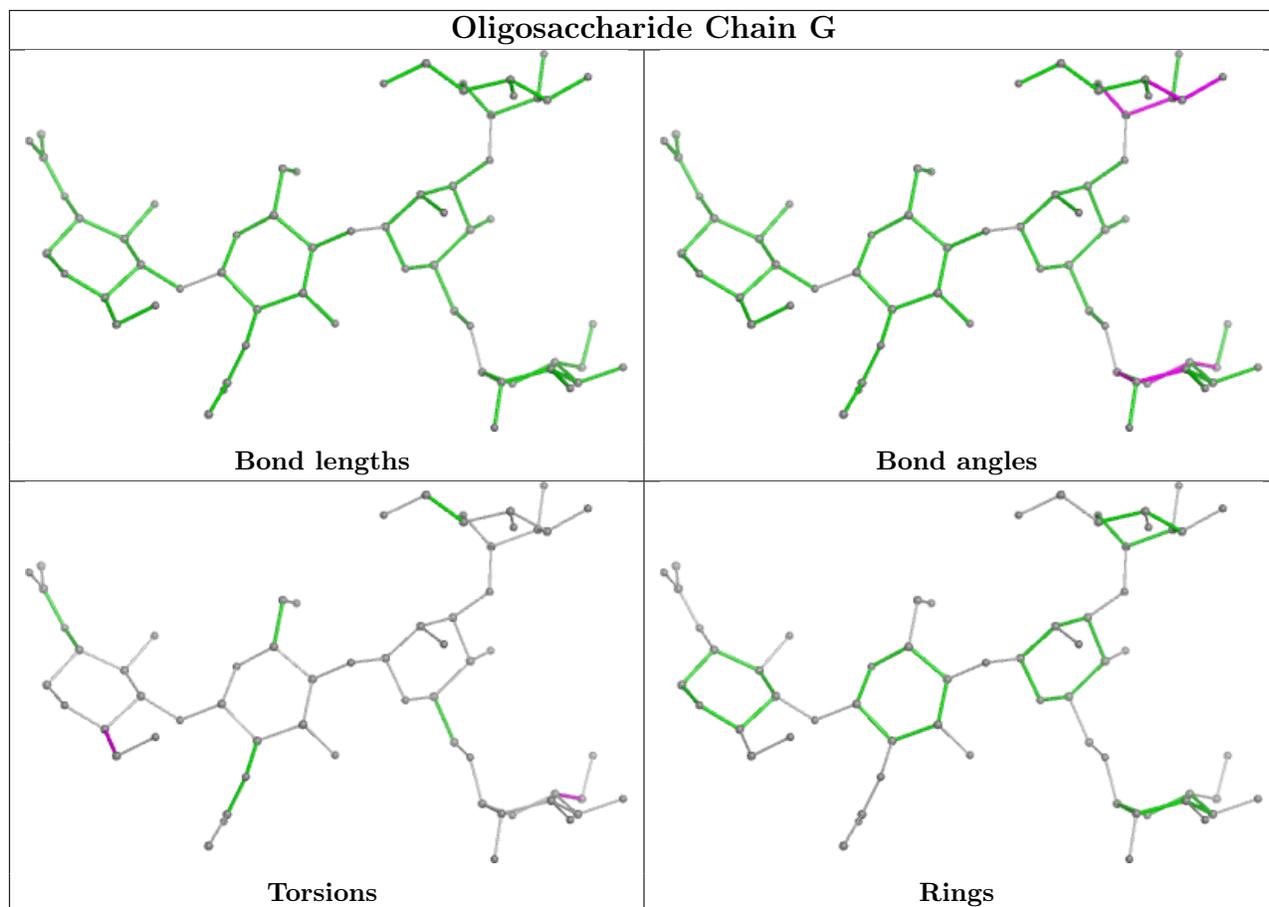No monomer is involved in short contacts.

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

Oligosaccharide Chain C

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain D

Bond lengths

Bond angles

Torsions

Rings

Full wwPDB X-ray Structure Validation Report

Oligosaccharide Chain E

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain F

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain G

Bond lengths

Bond angles

Torsions

Rings

5.6 Ligand geometry ⓘ

34 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	$\#|Z|>2$
8	EDO	A	520	-	3,3,3	0.26	0	2,2,2	0.38	0
7	SO4	B	515	-	4,4,4	0.34	0	6,6,6	0.04	0
8	EDO	A	522	-	3,3,3	0.19	0	2,2,2	0.05	0
7	SO4	A	516	-	4,4,4	0.33	0	6,6,6	0.08	0
8	EDO	A	521	-	3,3,3	0.12	0	2,2,2	0.24	0
8	EDO	A	524	-	3,3,3	0.05	0	2,2,2	0.25	0
8	EDO	A	519	-	3,3,3	0.17	0	2,2,2	0.36	0
8	EDO	B	516	-	3,3,3	0.23	0	2,2,2	0.08	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
8	EDO	A	517	-	3,3,3	0.11	0	2,2,2	0.19	0
8	EDO	A	518	-	3,3,3	0.15	0	2,2,2	0.44	0
7	SO4	A	511	-	4,4,4	0.44	0	6,6,6	0.13	0
7	SO4	B	511	-	4,4,4	0.48	0	6,6,6	0.13	0
8	EDO	B	517	-	3,3,3	0.02	0	2,2,2	0.05	0
7	SO4	B	513	-	4,4,4	0.40	0	6,6,6	0.14	0
7	SO4	A	512	-	4,4,4	0.31	0	6,6,6	0.27	0
7	SO4	A	514	-	4,4,4	0.31	0	6,6,6	0.09	0
6	ACT	A	508	-	3,3,3	0.89	0	3,3,3	0.89	0
8	EDO	B	519	-	3,3,3	0.15	0	2,2,2	0.06	0
7	SO4	B	512	-	4,4,4	0.34	0	6,6,6	0.19	0
8	EDO	B	518	-	3,3,3	0.29	0	2,2,2	0.40	0
10	PEG	B	521	-	6,6,6	0.58	0	5,5,5	0.42	0
10	PEG	A	527	-	6,6,6	0.28	0	5,5,5	0.30	0
7	SO4	A	515	-	4,4,4	0.35	0	6,6,6	0.04	0
6	ACT	B	510	-	3,3,3	0.99	0	3,3,3	0.81	0
9	YTW	B	520	-	14,17,17	0.31	0	18,27,27	1.05	`1 (5%)`
8	EDO	A	523	-	3,3,3	0.14	0	2,2,2	0.21	0
10	PEG	A	528	-	6,6,6	0.20	0	5,5,5	0.33	0
11	NAG	B	508	1	14,14,15	0.59	0	17,19,21	1.20	`1 (5%)`
9	YTW	A	525	-	14,17,17	0.51	0	18,27,27	0.93	`1 (5%)`
7	SO4	B	514	-	4,4,4	0.33	0	6,6,6	0.09	0
10	PEG	B	522	-	6,6,6	0.39	0	5,5,5	0.23	0
10	PEG	A	526	-	6,6,6	0.25	0	5,5,5	0.21	0
6	ACT	B	509	-	3,3,3	0.92	0	3,3,3	0.94	0
7	SO4	A	513	-	4,4,4	0.42	0	6,6,6	0.06	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	A	520	-	-	0/1/1/1	-
8	EDO	A	522	-	-	0/1/1/1	-
8	EDO	A	521	-	-	1/1/1/1	-
8	EDO	A	524	-	-	0/1/1/1	-
8	EDO	A	519	-	-	1/1/1/1	-
8	EDO	B	516	-	-	1/1/1/1	-
8	EDO	A	517	-	-	1/1/1/1	-
8	EDO	A	518	-	-	1/1/1/1	-
8	EDO	B	517	-	-	1/1/1/1	-

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	EDO	B	519	-	-	1/1/1/1	-
8	EDO	B	518	-	-	1/1/1/1	-
10	PEG	B	521	-	-	0/4/4/4	-
10	PEG	A	527	-	-	2/4/4/4	-
9	YTW	B	520	-	-	0/2/36/36	0/2/2/2
8	EDO	A	523	-	-	1/1/1/1	-
10	PEG	A	528	-	-	3/4/4/4	-
11	NAG	B	508	1	-	0/6/23/26	0/1/1/1
9	YTW	A	525	-	-	0/2/36/36	0/2/2/2
10	PEG	B	522	-	-	4/4/4/4	-
10	PEG	A	526	-	-	3/4/4/4	-

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	B	520	YTW	O3-S1-O2	2.79	112.64	108.32
11	B	508	NAG	O7-C7-N2	2.68	126.89	121.95
9	A	525	YTW	C2-C1-N1	2.50	103.73	100.15

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	A	528	PEG	C1-C2-O2-C3
10	A	526	PEG	O2-C3-C4-O4
10	B	522	PEG	O2-C3-C4-O4
10	A	526	PEG	O1-C1-C2-O2
8	A	518	EDO	O1-C1-C2-O2
8	B	518	EDO	O1-C1-C2-O2
8	B	519	EDO	O1-C1-C2-O2
10	A	528	PEG	C4-C3-O2-C2
10	B	522	PEG	O1-C1-C2-O2
8	A	517	EDO	O1-C1-C2-O2
10	A	527	PEG	O2-C3-C4-O4
10	A	528	PEG	O1-C1-C2-O2
10	B	522	PEG	C1-C2-O2-C3
10	A	527	PEG	C1-C2-O2-C3
10	B	522	PEG	C4-C3-O2-C2
8	B	516	EDO	O1-C1-C2-O2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms
8	A	521	EDO	O1-C1-C2-O2
8	B	517	EDO	O1-C1-C2-O2
10	A	526	PEG	C1-C2-O2-C3
8	A	523	EDO	O1-C1-C2-O2
8	A	519	EDO	O1-C1-C2-O2

There are no ring outliers.

10 monomers are involved in 19 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	A	521	EDO	1	0
8	A	524	EDO	2	0
7	A	511	SO4	2	0
7	B	511	SO4	1	0
6	A	508	ACT	2	0
10	B	521	PEG	3	0
10	A	527	PEG	1	0
6	B	510	ACT	2	0
10	A	528	PEG	4	0
9	A	525	YTW	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 YTW B 520

Bond lengths

Bond angles

Torsions

Rings

Ligand YTW A 525

Bond lengths

Bond angles

Torsions

Rings
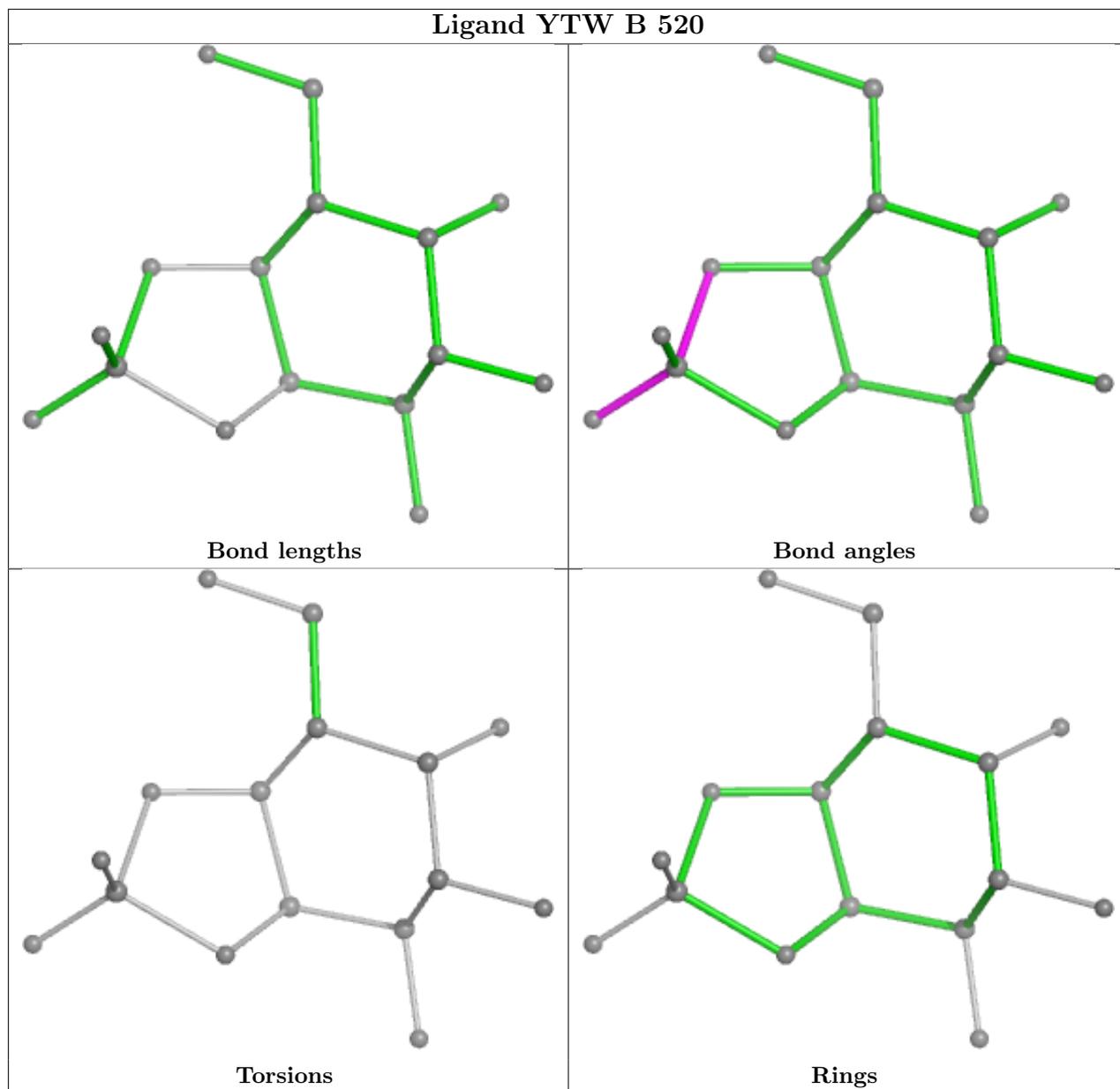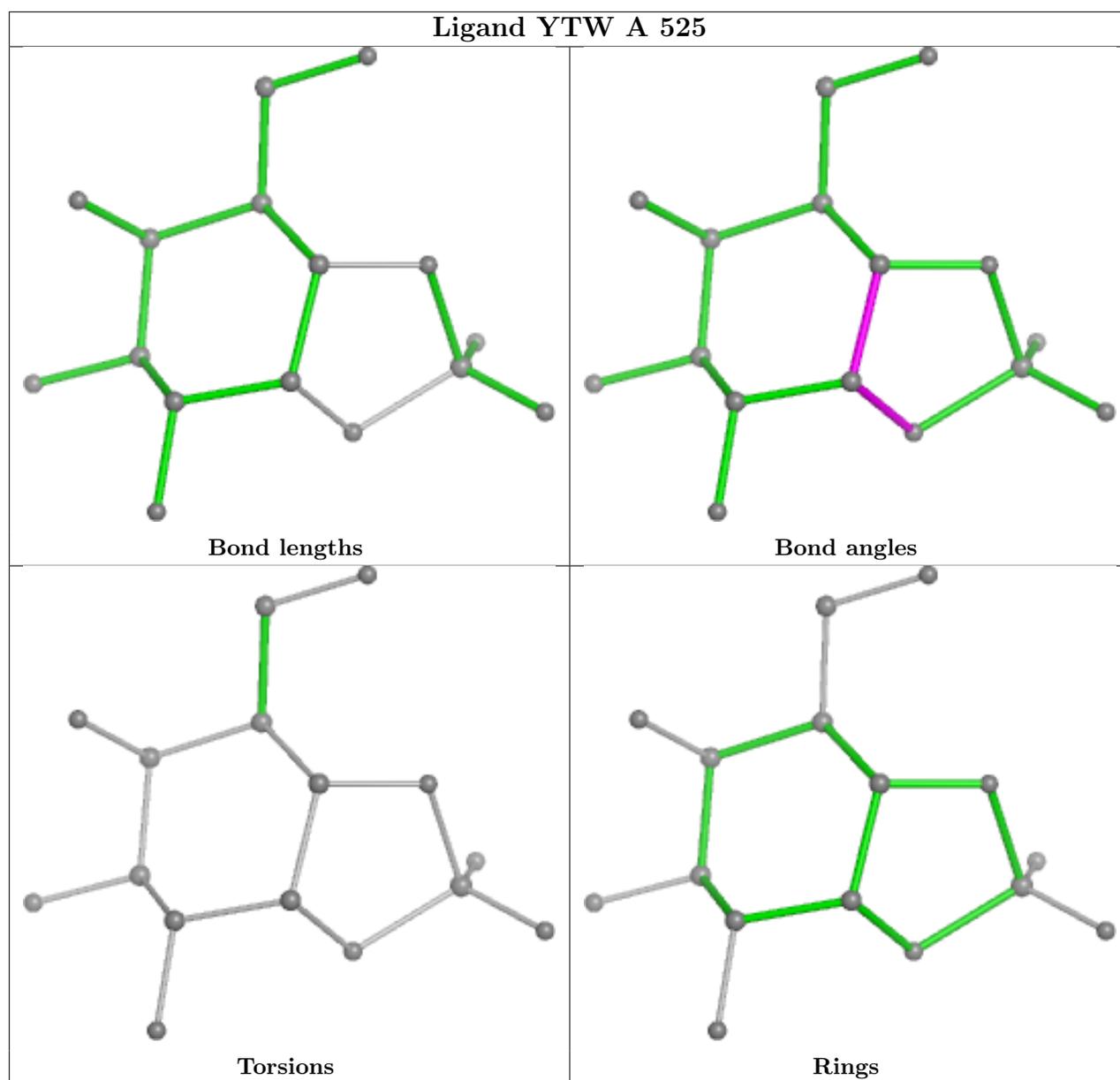
5.7 Other polymers ⓘ

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 (i)

6.1 Protein, DNA and RNA chains (i)

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	390/398 (97%)	0.18	3 (0%)	82	82	22, 55, 74, 107	8 (2%)
1	B	392/398 (98%)	0.40	11 (2%)	55	53	33, 61, 84, 109	7 (1%)
All	All	782/796 (98%)	0.29	14 (1%)	67	66	22, 58, 81, 109	15 (1%)

All (14) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	213	LYS	3.4
1	B	229	PHE	3.3
1	B	210	PRO	3.3
1	B	245	TRP	2.9
1	B	248	PHE	2.8
1	A	61[A]	ASP	2.8
1	B	211	PHE	2.6
1	A	335	ASP	2.4
1	B	209	TRP	2.3
1	A	421	MET	2.2
1	B	150	GLY	2.2
1	B	105[A]	ARG	2.1
1	B	174	CYS	2.0
1	B	154	ILE	2.0

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

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

6.3 Carbohydrates (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum,

median, 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	MAN	C	4	11/12	0.45	0.12	110,127,143,145	0
5	MAN	G	5	11/12	0.49	0.10	105,123,135,140	0
2	BMA	C	3	11/12	0.53	0.13	112,119,129,131	0
3	BMA	D	3	11/12	0.59	0.10	113,123,129,133	0
3	NAG	D	2	14/15	0.66	0.12	84,105,120,128	0
4	NAG	E	2	14/15	0.71	0.12	102,113,123,128	0
4	NAG	F	1	14/15	0.74	0.14	89,109,119,120	0
4	NAG	F	2	14/15	0.79	0.12	92,103,110,112	14
5	BMA	G	3	11/12	0.80	0.08	82,97,111,113	0
5	MAN	G	4	11/12	0.82	0.09	81,88,91,91	0
3	NAG	D	1	14/15	0.84	0.10	74,87,92,93	0
4	NAG	E	1	14/15	0.86	0.10	74,80,100,110	0
5	NAG	G	2	14/15	0.89	0.08	83,89,92,94	0
5	NAG	G	1	14/15	0.90	0.09	67,77,82,83	0
2	NAG	C	2	14/15	0.93	0.09	72,84,95,101	0
2	NAG	C	1	14/15	0.95	0.08	57,67,71,71	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 C:

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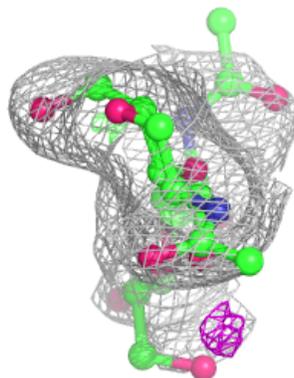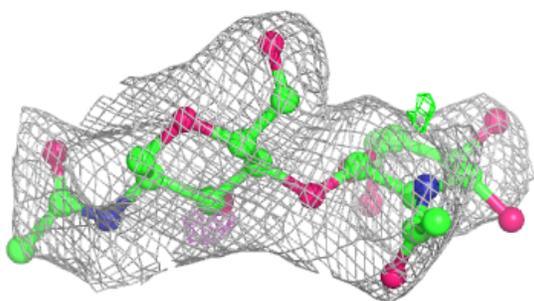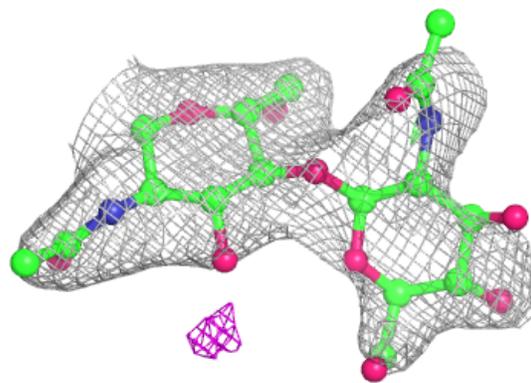and green (positive)
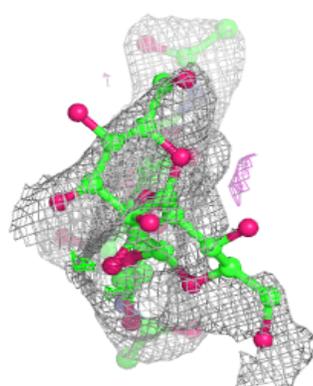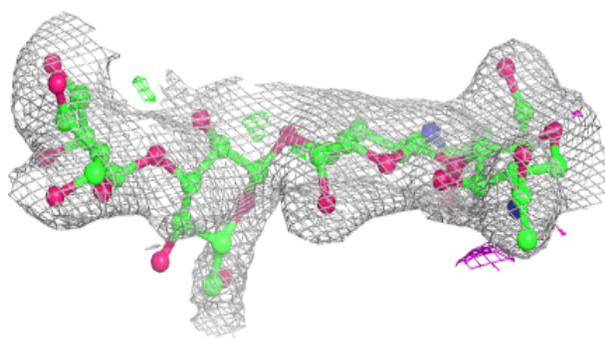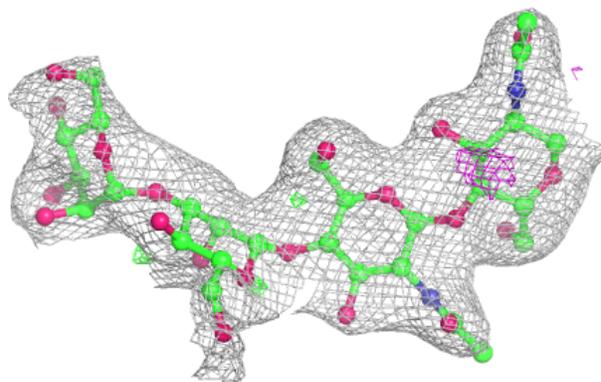
Electron density around Chain D:

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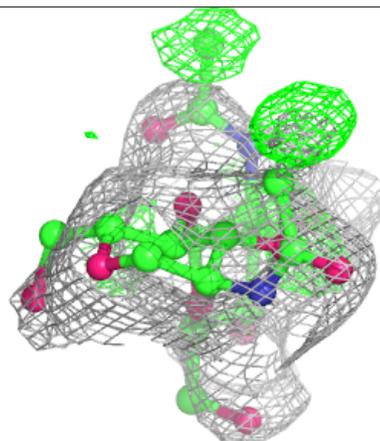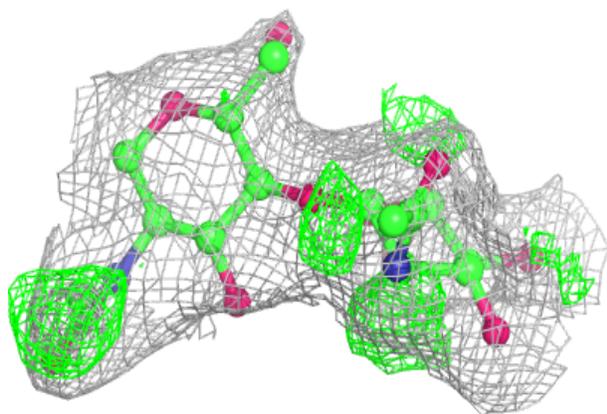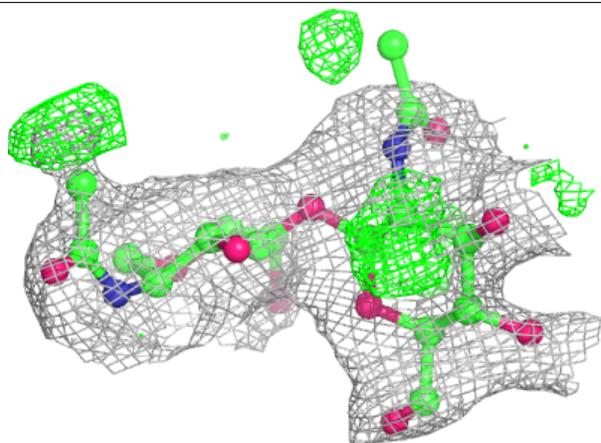mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
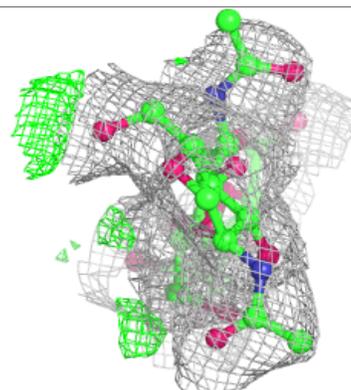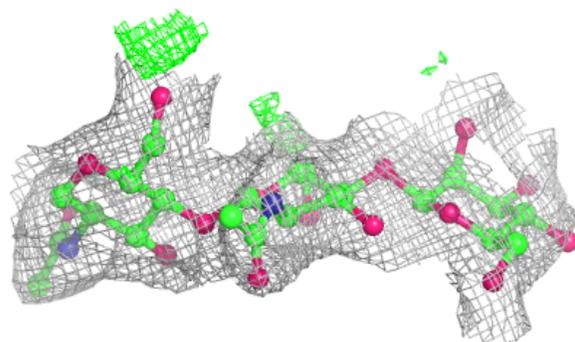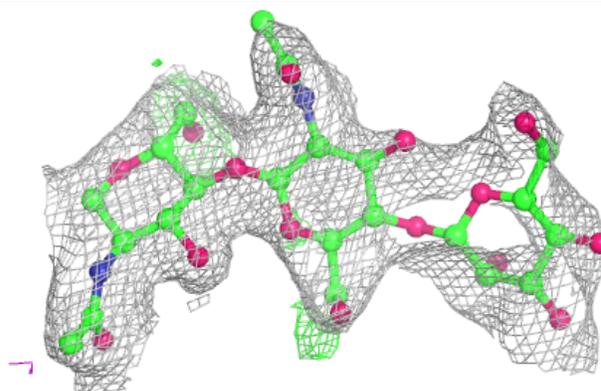
Electron density around Chain E:

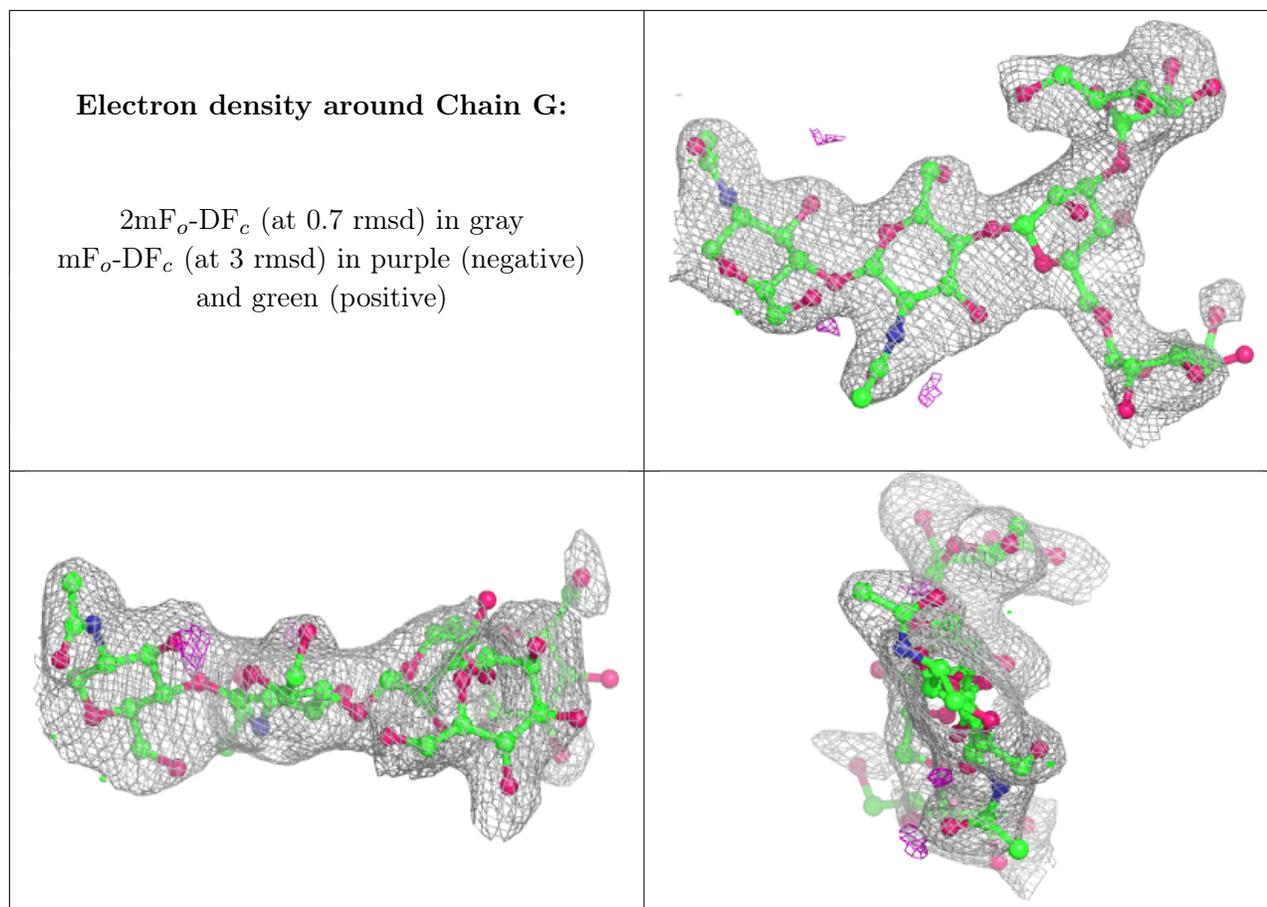$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around Chain F:

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 G:

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

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.

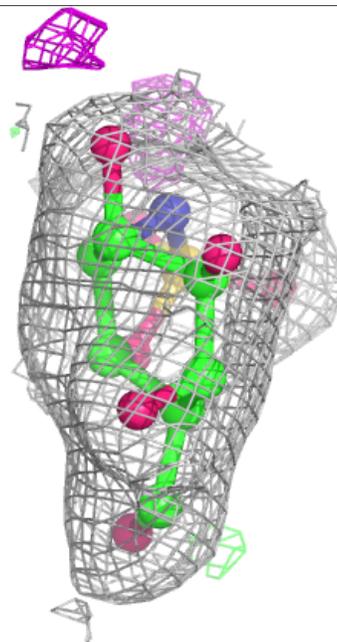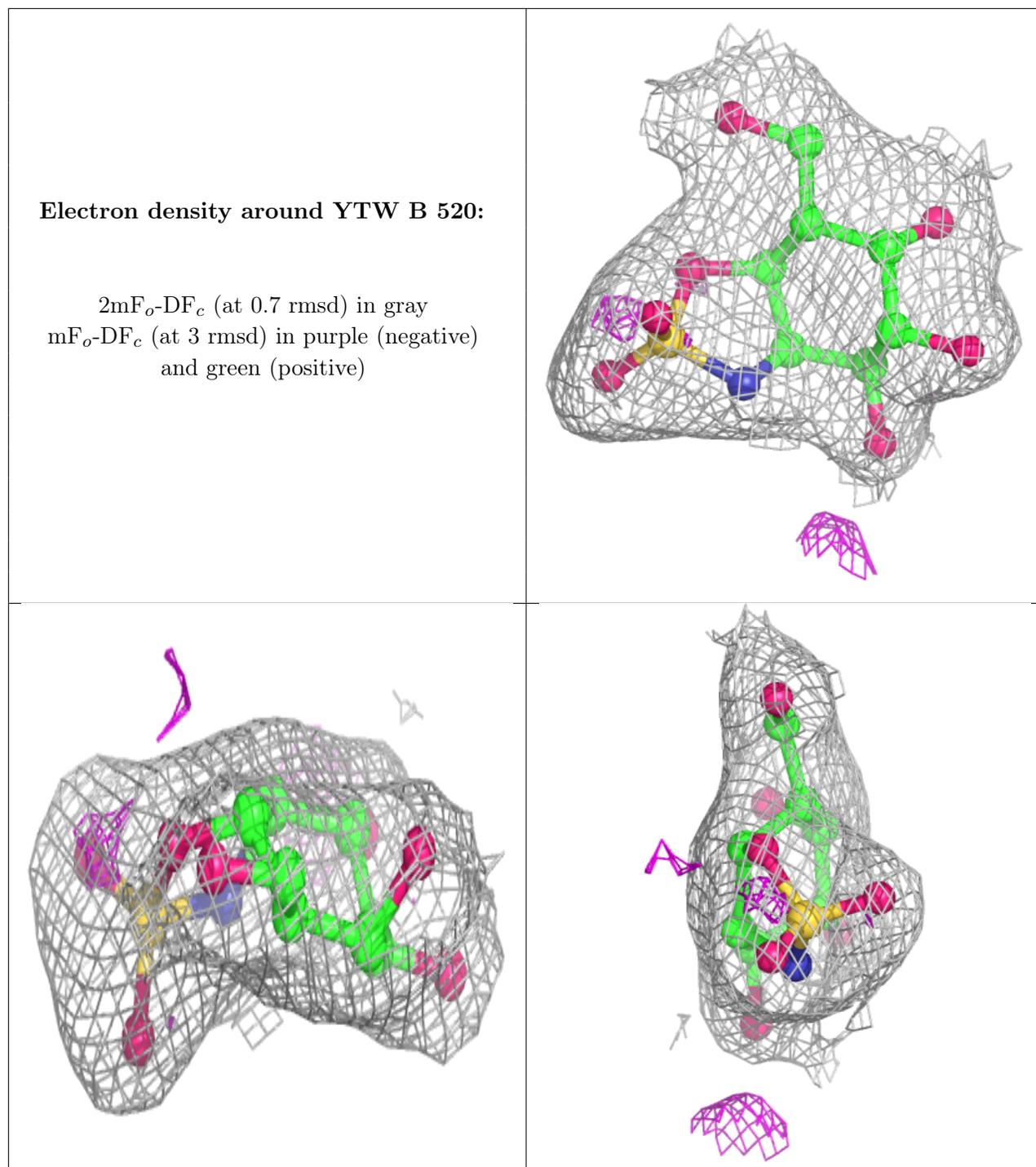| Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($Å^2$)	Q<0.9
7	SO4	A	516	5/5	0.60	0.09	111,129,134,141	0
7	SO4	A	514	5/5	0.65	0.09	123,133,145,147	0
7	SO4	B	515	5/5	0.67	0.10	106,117,122,125	0
6	ACT	B	510	4/4	0.71	0.15	83,85,86,86	0
11	NAG	B	508	14/15	0.72	0.12	72,94,99,103	0
6	ACT	B	509	4/4	0.81	0.18	74,77,86,88	0
8	EDO	A	523	4/4	0.81	0.14	81,81,82,83	0
8	EDO	B	517	4/4	0.81	0.14	85,94,95,99	0
7	SO4	B	514	5/5	0.81	0.11	61,65,72,73	5
7	SO4	A	515	5/5	0.82	0.07	116,125,134,136	0
10	PEG	A	527	7/7	0.83	0.28	36,42,57,58	7
10	PEG	A	526	7/7	0.83	0.21	79,88,97,105	0

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
7	SO4	B	512	5/5	0.84	0.08	86,92,96,114	0
10	PEG	B	521	7/7	0.84	0.21	65,72,94,97	0
8	EDO	B	516	4/4	0.84	0.13	71,76,79,84	0
8	EDO	A	524	4/4	0.85	0.15	90,90,94,96	0
8	EDO	A	520	4/4	0.86	0.21	77,89,90,97	0
7	SO4	B	513	5/5	0.87	0.12	66,70,74,80	5
10	PEG	B	522	7/7	0.87	0.16	74,84,90,98	0
10	PEG	A	528	7/7	0.87	0.20	50,55,58,60	7
8	EDO	A	517	4/4	0.89	0.15	87,90,90,92	0
8	EDO	A	521	4/4	0.90	0.15	75,77,79,81	0
8	EDO	A	519	4/4	0.91	0.10	70,72,74,84	0
8	EDO	B	519	4/4	0.91	0.14	68,72,76,82	0
7	SO4	A	512	5/5	0.91	0.09	77,78,84,90	0
8	EDO	A	518	4/4	0.91	0.11	63,66,68,73	0
7	SO4	A	513	5/5	0.92	0.07	66,66,71,74	5
8	EDO	B	518	4/4	0.92	0.13	74,75,79,81	0
6	ACT	A	508	4/4	0.92	0.14	69,79,79,94	0
8	EDO	A	522	4/4	0.93	0.12	73,78,84,92	0
9	YTW	A	525	16/16	0.95	0.07	51,56,61,62	0
9	YTW	B	520	16/16	0.95	0.07	50,55,60,61	0
7	SO4	A	511	5/5	0.96	0.06	70,72,86,86	0
7	SO4	B	511	5/5	0.97	0.05	70,73,79,89	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 YTW A 525:

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 YTW B 520:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.