



# wwPDB X-ray Structure Validation Summary Report ⓘ

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PDB ID : 6AHY  
Title : Wnt signaling complex  
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Deposited on : 2018-08-21  
Resolution : 2.80 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

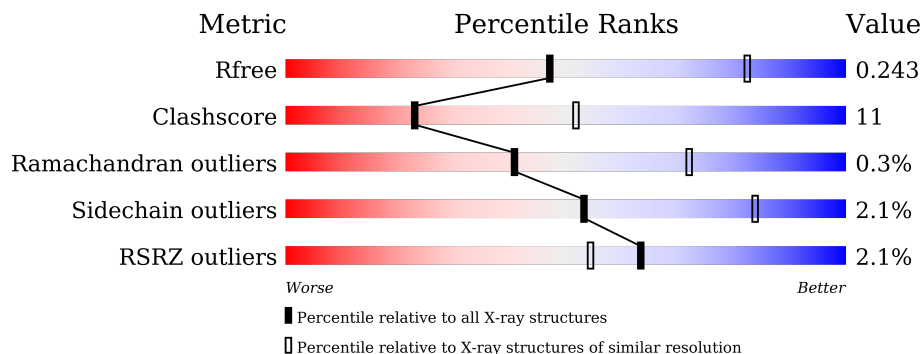
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.80 Å.

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




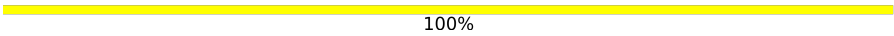
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)
RSRZ outliers	127900	3078 (2.80-2.80)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	141	
1	C	141	
1	E	141	
2	B	319	
2	D	319	
2	F	319	

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Mol	Chain	Length	Quality of chain
3	G	2	 50% 50%
3	H	2	 100%

## 2 Entry composition i

There are 6 unique types of molecules in this entry. The entry contains 9947 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 Frizzled-8.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	120	Total 969	C 616	N 161	O 177	S 15	0	0	0
1	C	122	Total 991	C 631	N 164	O 181	S 15	0	0	0
1	E	112	Total 864	C 553	N 136	O 162	S 13	0	0	0

There are 27 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	160	SER	-	expression tag	UNP Q61091
A	161	ARG	-	expression tag	UNP Q61091
A	162	PRO	-	expression tag	UNP Q61091
A	163	ALA	-	expression tag	UNP Q61091
A	164	PRO	-	expression tag	UNP Q61091
A	165	GLU	-	expression tag	UNP Q61091
A	166	LEU	-	expression tag	UNP Q61091
A	167	LEU	-	expression tag	UNP Q61091
A	168	GLY	-	expression tag	UNP Q61091
C	160	SER	-	expression tag	UNP Q61091
C	161	ARG	-	expression tag	UNP Q61091
C	162	PRO	-	expression tag	UNP Q61091
C	163	ALA	-	expression tag	UNP Q61091
C	164	PRO	-	expression tag	UNP Q61091
C	165	GLU	-	expression tag	UNP Q61091
C	166	LEU	-	expression tag	UNP Q61091
C	167	LEU	-	expression tag	UNP Q61091
C	168	GLY	-	expression tag	UNP Q61091
E	160	SER	-	expression tag	UNP Q61091
E	161	ARG	-	expression tag	UNP Q61091
E	162	PRO	-	expression tag	UNP Q61091
E	163	ALA	-	expression tag	UNP Q61091
E	164	PRO	-	expression tag	UNP Q61091

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Chain	Residue	Modelled	Actual	Comment	Reference
E	165	GLU	-	expression tag	UNP Q61091
E	166	LEU	-	expression tag	UNP Q61091
E	167	LEU	-	expression tag	UNP Q61091
E	168	GLY	-	expression tag	UNP Q61091

- Molecule 2 is a protein called Proto-oncogene Wnt-3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	313	Total	C	N	O	S	0	0	0
			2460	1524	452	456	28			
2	D	309	Total	C	N	O	S	0	0	0
			2431	1502	448	453	28			
2	F	275	Total	C	N	O	S	0	0	0
			2066	1283	369	393	21			

There are 15 discrepancies between the modelled and reference sequences:

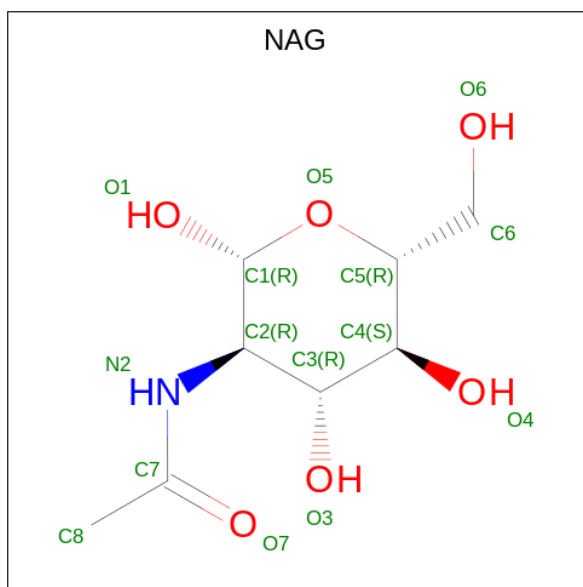
Chain	Residue	Modelled	Actual	Comment	Reference
B	37	GLY	-	expression tag	UNP P56703
B	38	MLY	-	expression tag	UNP P56703
B	39	ASP	-	expression tag	UNP P56703
B	40	GLY	-	expression tag	UNP P56703
B	41	SER	-	expression tag	UNP P56703
D	37	GLY	-	expression tag	UNP P56703
D	38	MLY	-	expression tag	UNP P56703
D	39	ASP	-	expression tag	UNP P56703
D	40	GLY	-	expression tag	UNP P56703
D	41	SER	-	expression tag	UNP P56703
F	37	GLY	-	expression tag	UNP P56703
F	38	MLY	-	expression tag	UNP P56703
F	39	ASP	-	expression tag	UNP P56703
F	40	GLY	-	expression tag	UNP P56703
F	41	SER	-	expression tag	UNP P56703

- Molecule 3 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
3	G	2	Total	C	N	O	0	0	0
			28	16	2	10			
3	H	2	Total	C	N	O	0	0	0
			28	16	2	10			

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ).

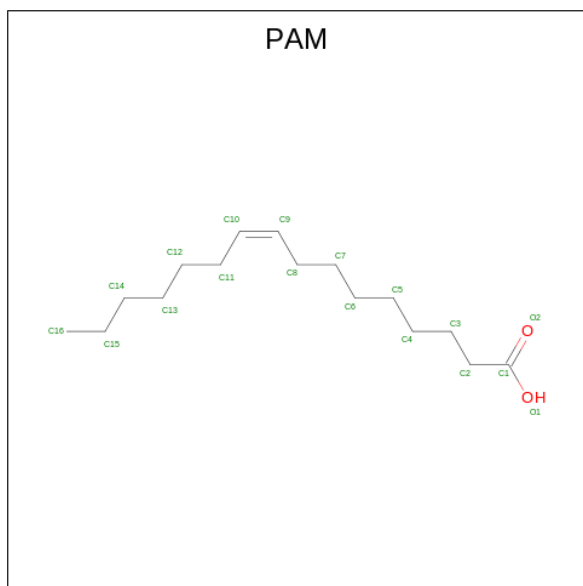


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			14	8	1	5		
4	B	1	Total	C	N	O	0	0
			14	8	1	5		
4	C	1	Total	C	N	O	0	0
			14	8	1	5		
4	D	1	Total	C	N	O	0	0
			14	8	1	5		
4	E	1	Total	C	N	O	0	0
			14	8	1	5		
4	F	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 5 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	1	Total	Cl	0	0
			1	1		

- Molecule 6 is PALMITOLEIC ACID (three-letter code: PAM) (formula:  $C_{16}H_{30}O_2$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total	C	O	0	0
			17	16	1		
6	D	1	Total	C	O	0	0
			8	7	1		

### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

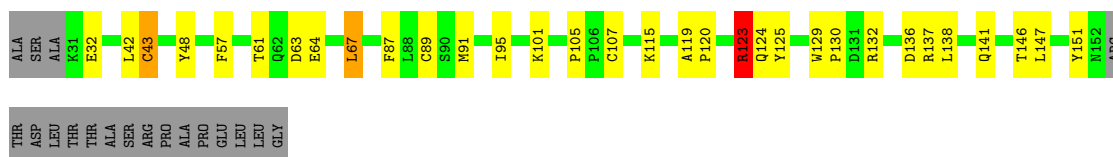
- Molecule 1: Frizzled-8

Chain A: 



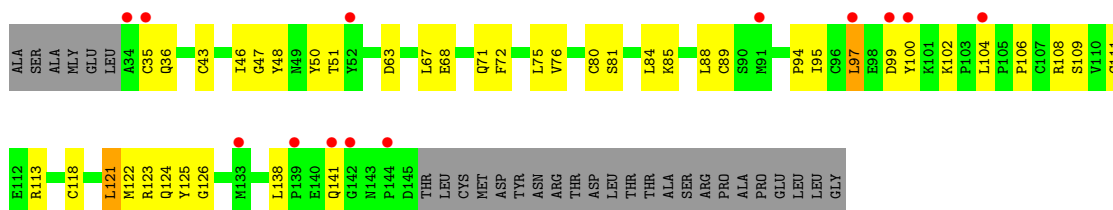
- Molecule 1: Frizzled-8

Chain C: 




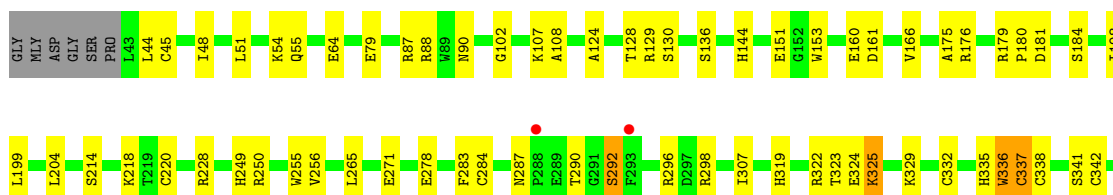
- Molecule 1: Frizzled-8

Chain E: 

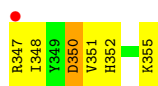


- Molecule 2: Proto-oncogene Wnt-3

Chain B: 



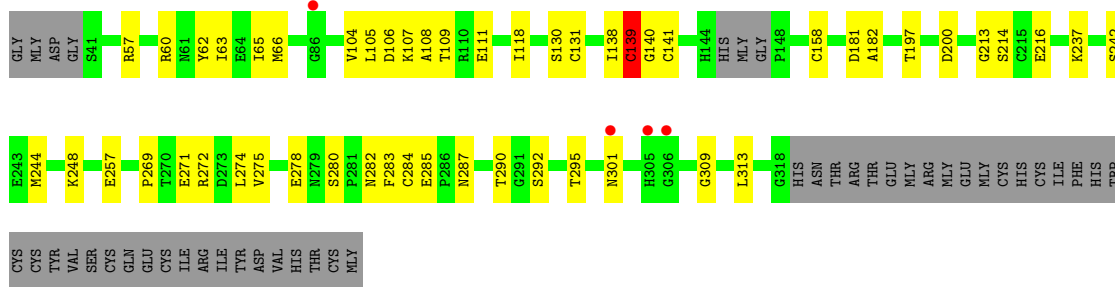




• Molecule 2: Proto-oncogene Wnt-3



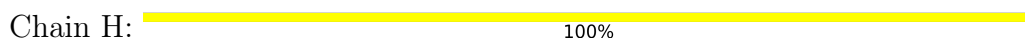
• Molecule 2: Proto-oncogene Wnt-3



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



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



## 4 Data and refinement statistics

Property	Value	Source
Space group	I 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	120.07Å 141.61Å 260.69Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	44.16 – 2.80 44.16 – 2.80	Depositor EDS
% Data completeness (in resolution range)	99.9 (44.16-2.80) 99.9 (44.16-2.80)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.09	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.29 (at 2.81Å)	Xtrriage
Refinement program	PHENIX (1.14_3260: ???)	Depositor
R, $R_{free}$	0.205 , 0.244 0.205 , 0.243	Depositor DCC
$R_{free}$ test set	2717 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	72.9	Xtrriage
Anisotropy	0.352	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.28 , 53.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	9947	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	92.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.49% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: PAM, CL, MLY, NAG

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z  > 5$	RMSZ	# $ Z  > 5$
1	A	0.32	0/951	0.56	0/1299
1	C	0.53	3/961 (0.3%)	0.88	5/1314 (0.4%)
1	E	0.44	0/851	0.78	3/1169 (0.3%)
2	B	0.39	0/2352	0.57	1/3196 (0.0%)
2	D	0.39	0/2324	0.60	0/3155
2	F	0.43	2/1989 (0.1%)	0.55	1/2708 (0.0%)
All	All	0.41	5/9428 (0.1%)	0.63	10/12841 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	1
2	D	0	1
All	All	0	2

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	43	CYS	CB-SG	-7.42	1.69	1.82
2	F	139	CYS	CB-SG	-6.76	1.70	1.82
1	C	123	ARG	CB-CG	-6.10	1.36	1.52
2	F	141	CYS	CB-SG	-6.07	1.72	1.82
1	C	89	CYS	CB-SG	-5.60	1.72	1.81

The worst 5 of 10 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	43	CYS	CA-CB-SG	-12.72	91.11	114.00
1	C	89	CYS	CA-CB-SG	-12.54	91.42	114.00
1	C	123	ARG	CG-CD-NE	-11.84	86.95	111.80
1	E	89	CYS	CA-CB-SG	-11.25	93.75	114.00
1	C	123	ARG	NE-CZ-NH1	-9.01	115.80	120.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	336	TRP	Peptide
2	D	337	CYS	Peptide

## 5.2 Too-close contacts [i](#)

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	969	0	901	15	0
1	C	991	0	930	18	0
1	E	864	0	767	39	2
2	B	2460	0	2279	48	1
2	D	2431	0	2232	65	0
2	F	2066	0	1872	37	0
3	G	28	0	25	1	0
3	H	28	0	25	0	0
4	A	14	0	13	0	0
4	B	14	0	13	0	0
4	C	14	0	13	0	0
4	D	14	0	13	0	0
4	E	14	0	13	0	0
4	F	14	0	13	0	0
5	B	1	0	0	0	0
6	B	17	0	29	3	0
6	D	8	0	10	1	0
All	All	9947	0	9148	217	2

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 11.

The worst 5 of 217 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:E:46:ILE:HD12	1:E:47:GLY:N	1.84	0.93
2:F:109:THR:HG22	2:F:111:GLU:H	1.36	0.87
2:B:90:ASN:HD22	3:G:1:NAG:H83	1.42	0.83
2:D:88:ARG:NH1	2:D:284:CYS:SG	2.53	0.82
1:E:75:LEU:HD23	1:E:84:LEU:HD21	1.64	0.80

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:347:ARG:NH2	1:E:123:ARG:O[1_455]	2.05	0.15
1:E:125:TYR:OH	1:E:125:TYR:OH[8_554]	2.13	0.07

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	113/141 (80%)	111 (98%)	2 (2%)	0	100	100
1	C	115/141 (82%)	113 (98%)	1 (1%)	1 (1%)	17	46
1	E	105/141 (74%)	100 (95%)	5 (5%)	0	100	100
2	B	294/319 (92%)	275 (94%)	18 (6%)	1 (0%)	41	72
2	D	288/319 (90%)	277 (96%)	10 (4%)	1 (0%)	41	72
2	F	258/319 (81%)	247 (96%)	11 (4%)	0	100	100
All	All	1173/1380 (85%)	1123 (96%)	47 (4%)	3 (0%)	41	72

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	337	CYS
2	D	338	CYS
1	C	123	ARG

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	103/118 (87%)	103 (100%)	0	100	100
1	C	104/118 (88%)	101 (97%)	3 (3%)	42	76
1	E	89/118 (75%)	86 (97%)	3 (3%)	37	71
2	B	249/252 (99%)	244 (98%)	5 (2%)	55	84
2	D	246/252 (98%)	239 (97%)	7 (3%)	43	77
2	F	199/252 (79%)	196 (98%)	3 (2%)	65	89
All	All	990/1110 (89%)	969 (98%)	21 (2%)	53	84

5 of 21 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	347	ARG
1	E	141	GLN
2	F	139	CYS
2	F	57	ARG
1	E	121	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	152	ASN
2	D	287	ASN
1	E	56	GLN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

65 non-standard protein/DNA/RNA residues 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	MLY	D	262	2	7,8,11	0.43	0	3,8,13	0.30	0
2	MLY	B	327	2	7,8,11	0.48	0	3,8,13	0.61	0
2	MLY	D	355	2	8,9,11	0.81	1 (12%)	9,10,13	1.20	2 (22%)
2	MLY	D	248	2	7,8,11	0.45	0	3,8,13	0.46	0
2	MLY	F	237	2	7,8,11	0.45	0	3,8,13	0.37	0
2	MLY	B	54	2	7,8,11	0.53	0	3,8,13	0.46	0
2	MLY	B	329	2	7,8,11	0.43	0	3,8,13	0.52	0
2	MLY	F	205	2	7,8,11	0.55	0	3,8,13	0.35	0
1	MLY	C	102	1	9,10,11	0.56	0	6,11,13	0.75	0
1	MLY	E	101	1	7,8,11	0.52	0	3,8,13	0.34	0
2	MLY	B	188	2	7,8,11	0.54	0	3,8,13	0.24	0
1	MLY	E	115	1	3,4,11	0.63	0	2,4,13	0.81	0
2	MLY	D	218	2	7,8,11	0.59	0	3,8,13	0.27	0
2	MLY	B	237	2	7,8,11	0.54	0	3,8,13	0.24	0
2	MLY	F	74	2	7,8,11	0.64	0	3,8,13	0.25	0
1	MLY	A	44	1	7,8,11	0.53	0	3,8,13	0.26	0
2	MLY	D	329	2	7,8,11	0.49	0	3,8,13	0.28	0
2	MLY	D	207	2	7,8,11	0.66	0	3,8,13	0.52	0
1	MLY	A	85	1	9,10,11	0.60	0	6,11,13	0.78	0
2	MLY	B	267	2	7,8,11	0.54	0	3,8,13	0.37	0
2	MLY	B	355	2	9,10,11	0.52	0	6,11,13	0.87	0
2	MLY	F	262	2	7,8,11	0.46	0	3,8,13	0.40	0
2	MLY	D	188	2	7,8,11	0.65	0	3,8,13	0.17	0
1	MLY	C	44	1	7,8,11	0.78	0	3,8,13	0.66	0
2	MLY	D	237	2	7,8,11	0.50	0	3,8,13	0.23	0
1	MLY	E	85	1	7,8,11	0.46	0	3,8,13	0.32	0
2	MLY	D	327	2	7,8,11	0.52	0	3,8,13	0.49	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	MLY	F	107	2	7,8,11	0.53	0	3,8,13	0.27	0
2	MLY	F	207	2	7,8,11	0.70	0	3,8,13	0.84	0
2	MLY	B	235	2	7,8,11	0.56	0	3,8,13	0.27	0
1	MLY	C	85	1	9,10,11	0.57	0	6,11,13	0.82	0
2	MLY	D	205	2	7,8,11	0.49	0	3,8,13	0.49	0
2	MLY	F	235	2	7,8,11	0.60	0	3,8,13	0.27	0
2	MLY	F	154	2	9,10,11	0.65	0	6,11,13	0.67	0
1	MLY	C	31	1	7,8,11	0.49	0	3,8,13	0.33	0
2	MLY	F	188	2	9,10,11	0.59	0	6,11,13	0.88	0
2	MLY	F	218	2	7,8,11	0.60	0	3,8,13	0.44	0
2	MLY	D	325	2	7,8,11	0.57	0	3,8,13	0.35	0
2	MLY	F	54	2	9,10,11	0.75	0	6,11,13	0.74	0
2	MLY	B	146	2	7,8,11	0.62	0	3,8,13	0.26	0
2	MLY	D	74	2	9,10,11	0.73	0	6,11,13	0.89	0
2	MLY	B	325	2	7,8,11	0.59	0	3,8,13	1.49	1 (33%)
1	MLY	E	44	1	7,8,11	0.60	0	3,8,13	0.40	0
2	MLY	D	154	2	7,8,11	0.44	0	3,8,13	0.28	0
1	MLY	A	101	1	7,8,11	0.45	0	3,8,13	0.40	0
2	MLY	B	74	2	7,8,11	0.55	0	3,8,13	0.39	0
2	MLY	D	235	2	7,8,11	0.55	0	3,8,13	0.23	0
2	MLY	F	248	2	9,10,11	0.55	0	6,11,13	0.62	0
2	MLY	B	205	2	7,8,11	0.57	0	3,8,13	0.40	0
1	MLY	A	115	1	7,8,11	0.50	0	3,8,13	0.44	0
2	MLY	D	146	2	7,8,11	0.45	0	3,8,13	0.44	0
2	MLY	B	262	2	9,10,11	0.48	0	6,11,13	1.00	0
2	MLY	D	107	2	7,8,11	0.53	0	3,8,13	0.59	0
2	MLY	F	267	2	7,8,11	0.49	0	3,8,13	0.67	0
2	MLY	D	267	2	7,8,11	0.58	0	3,8,13	0.50	0
2	MLY	B	248	2	7,8,11	0.47	0	3,8,13	0.44	0
1	MLY	C	101	1	9,10,11	0.50	0	6,11,13	1.10	0
2	MLY	B	207	2	7,8,11	0.56	0	3,8,13	0.45	0
2	MLY	B	107	2	9,10,11	0.64	0	6,11,13	1.28	1 (16%)
1	MLY	A	102	1	7,8,11	0.52	0	3,8,13	0.49	0
1	MLY	C	115	1	7,8,11	0.57	0	3,8,13	0.38	0
1	MLY	E	102	1	7,8,11	0.45	0	3,8,13	0.44	0
2	MLY	B	154	2	7,8,11	0.53	0	3,8,13	0.30	0
2	MLY	D	54	2	7,8,11	0.45	0	3,8,13	0.29	0
2	MLY	B	218	2	7,8,11	0.37	0	3,8,13	0.81	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.



Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MLY	D	262	2	-	2/6/7/11	-
2	MLY	B	327	2	-	2/6/7/11	-
2	MLY	D	355	2	-	0/9/9/11	-
2	MLY	D	248	2	-	3/6/7/11	-
2	MLY	F	237	2	-	1/6/7/11	-
2	MLY	B	54	2	-	0/6/7/11	-
2	MLY	B	329	2	-	0/6/7/11	-
2	MLY	F	205	2	-	4/6/7/11	-
1	MLY	C	102	1	-	1/8/9/11	-
1	MLY	E	101	1	-	2/6/7/11	-
2	MLY	B	188	2	-	1/6/7/11	-
1	MLY	E	115	1	-	0/0/2/11	-
2	MLY	D	218	2	-	1/6/7/11	-
2	MLY	B	237	2	-	1/6/7/11	-
2	MLY	F	74	2	-	0/6/7/11	-
1	MLY	A	44	1	-	2/6/7/11	-
2	MLY	D	329	2	-	0/6/7/11	-
2	MLY	D	207	2	-	1/6/7/11	-
1	MLY	A	85	1	-	3/8/9/11	-
2	MLY	B	267	2	-	0/6/7/11	-
2	MLY	B	355	2	-	0/8/9/11	-
2	MLY	F	262	2	-	2/6/7/11	-
2	MLY	D	188	2	-	2/6/7/11	-
1	MLY	C	44	1	-	0/6/7/11	-
2	MLY	D	237	2	-	0/6/7/11	-
1	MLY	E	85	1	-	2/6/7/11	-
2	MLY	D	327	2	-	1/6/7/11	-
2	MLY	F	107	2	-	0/6/7/11	-
2	MLY	F	207	2	-	2/6/7/11	-
2	MLY	B	235	2	-	1/6/7/11	-
1	MLY	C	85	1	-	2/8/9/11	-
2	MLY	D	205	2	-	0/6/7/11	-
2	MLY	F	235	2	-	1/6/7/11	-
2	MLY	F	154	2	-	1/8/9/11	-
1	MLY	C	31	1	-	1/6/7/11	-
2	MLY	F	188	2	-	4/8/9/11	-
2	MLY	F	218	2	-	0/6/7/11	-
2	MLY	D	325	2	-	0/6/7/11	-
2	MLY	F	54	2	-	2/8/9/11	-
2	MLY	B	146	2	-	2/6/7/11	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	MLY	D	74	2	-	2/8/9/11	-
2	MLY	B	325	2	-	0/6/7/11	-
1	MLY	E	44	1	-	2/6/7/11	-
2	MLY	D	154	2	-	1/6/7/11	-
1	MLY	A	101	1	-	2/6/7/11	-
2	MLY	B	74	2	-	1/6/7/11	-
2	MLY	D	235	2	-	0/6/7/11	-
2	MLY	F	248	2	-	2/8/9/11	-
2	MLY	B	205	2	-	1/6/7/11	-
1	MLY	A	115	1	-	0/6/7/11	-
2	MLY	D	146	2	-	3/6/7/11	-
2	MLY	B	262	2	-	2/8/9/11	-
2	MLY	D	107	2	-	2/6/7/11	-
2	MLY	F	267	2	-	2/6/7/11	-
2	MLY	D	267	2	-	3/6/7/11	-
2	MLY	B	248	2	-	0/6/7/11	-
1	MLY	C	101	1	-	4/8/9/11	-
2	MLY	B	207	2	-	2/6/7/11	-
2	MLY	B	107	2	-	3/8/9/11	-
1	MLY	A	102	1	-	1/6/7/11	-
1	MLY	C	115	1	-	3/6/7/11	-
1	MLY	E	102	1	-	2/6/7/11	-
2	MLY	B	154	2	-	0/6/7/11	-
2	MLY	D	54	2	-	0/6/7/11	-
2	MLY	B	218	2	-	4/6/7/11	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	355	MLY	OXT-C	-2.06	1.23	1.30

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	355	MLY	OXT-C-O	-2.81	117.71	124.09
2	B	325	MLY	CD-CG-CB	-2.54	104.63	113.62
2	B	107	MLY	CD-CE-NZ	-2.33	107.49	113.79
2	D	355	MLY	OXT-C-CA	2.10	120.53	113.38

There are no chirality outliers.

5 of 89 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	101	MLY	O-C-CA-CB
2	B	74	MLY	C-CA-CB-CG
2	B	107	MLY	O-C-CA-CB
2	B	146	MLY	O-C-CA-CB
2	B	205	MLY	C-CA-CB-CG

There are no ring outliers.

19 monomers are involved in 26 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	248	MLY	1	0
2	F	237	MLY	1	0
2	B	54	MLY	1	0
2	B	329	MLY	1	0
2	B	355	MLY	2	0
2	D	237	MLY	1	0
1	E	85	MLY	2	0
2	F	107	MLY	1	0
2	D	325	MLY	1	0
2	B	325	MLY	1	0
2	F	248	MLY	1	0
2	D	146	MLY	1	0
2	D	107	MLY	3	0
2	D	267	MLY	3	0
1	C	101	MLY	1	0
1	A	102	MLY	2	0
1	C	115	MLY	1	0
1	E	102	MLY	1	0
2	B	218	MLY	1	0

## 5.5 Carbohydrates

4 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
3	NAG	G	1	3,2	14,14,15	0.82	0	17,19,21	1.31	3 (17%)
3	NAG	G	2	3	14,14,15	0.93	0	17,19,21	2.26	4 (23%)
3	NAG	H	1	3,2	14,14,15	0.81	0	17,19,21	1.83	5 (29%)
3	NAG	H	2	3	14,14,15	1.03	1 (7%)	17,19,21	1.11	2 (11%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	G	1	3,2	-	4/6/23/26	0/1/1/1
3	NAG	G	2	3	-	5/6/23/26	0/1/1/1
3	NAG	H	1	3,2	-	2/6/23/26	0/1/1/1
3	NAG	H	2	3	-	2/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	H	2	NAG	C8-C7	2.33	1.55	1.50

The worst 5 of 14 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	G	2	NAG	C2-N2-C7	6.84	132.64	122.90
3	H	1	NAG	C1-C2-N2	4.33	117.89	110.49
3	G	2	NAG	O5-C1-C2	-3.15	106.32	111.29
3	G	2	NAG	C8-C7-N2	3.07	121.30	116.10
3	H	1	NAG	C1-O5-C5	-2.90	108.26	112.19

There are no chirality outliers.

5 of 13 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	G	1	NAG	O5-C5-C6-O6
3	G	1	NAG	C4-C5-C6-O6
3	G	1	NAG	C8-C7-N2-C2
3	G	1	NAG	O7-C7-N2-C2

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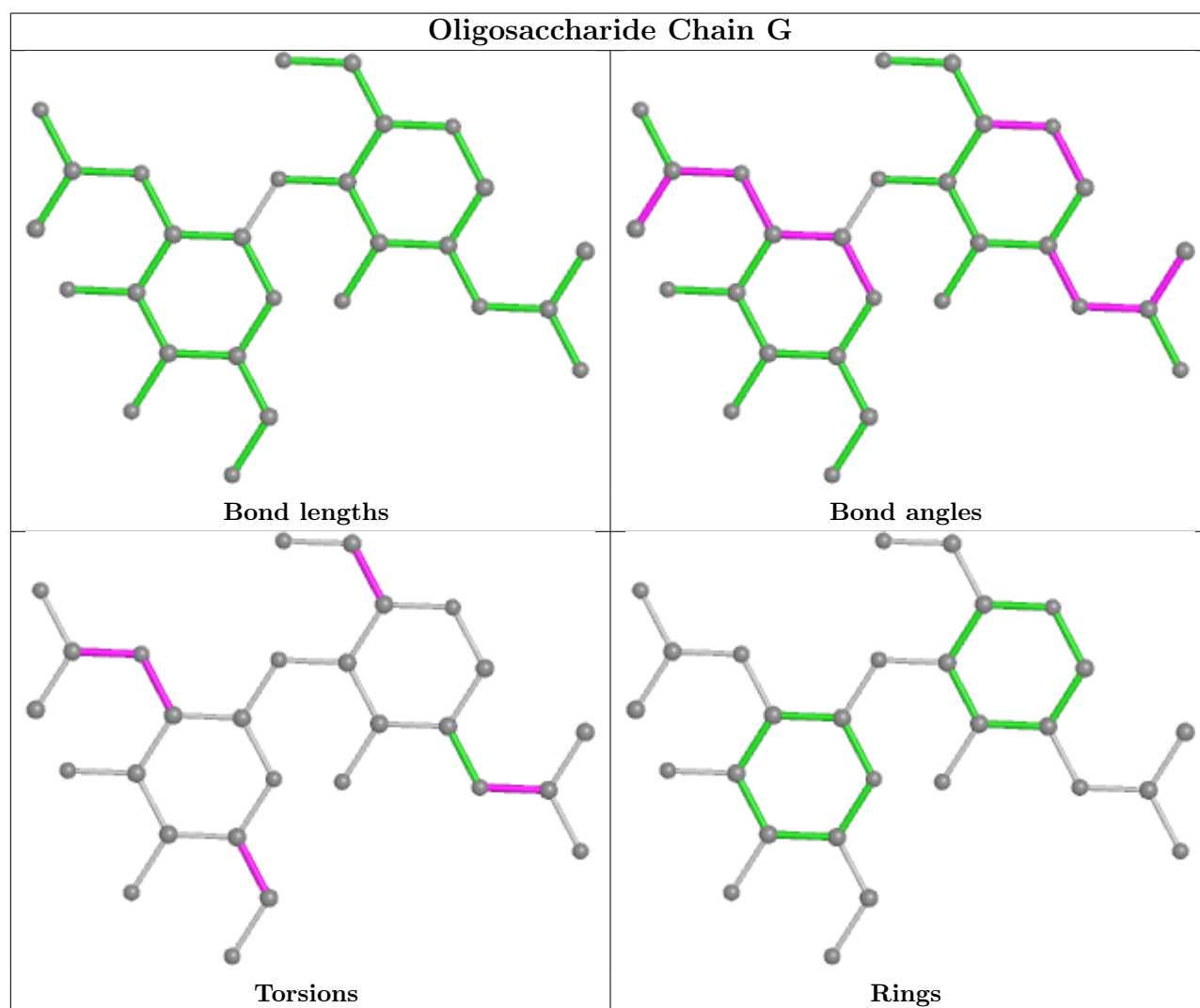
Mol	Chain	Res	Type	Atoms
3	G	2	NAG	C8-C7-N2-C2

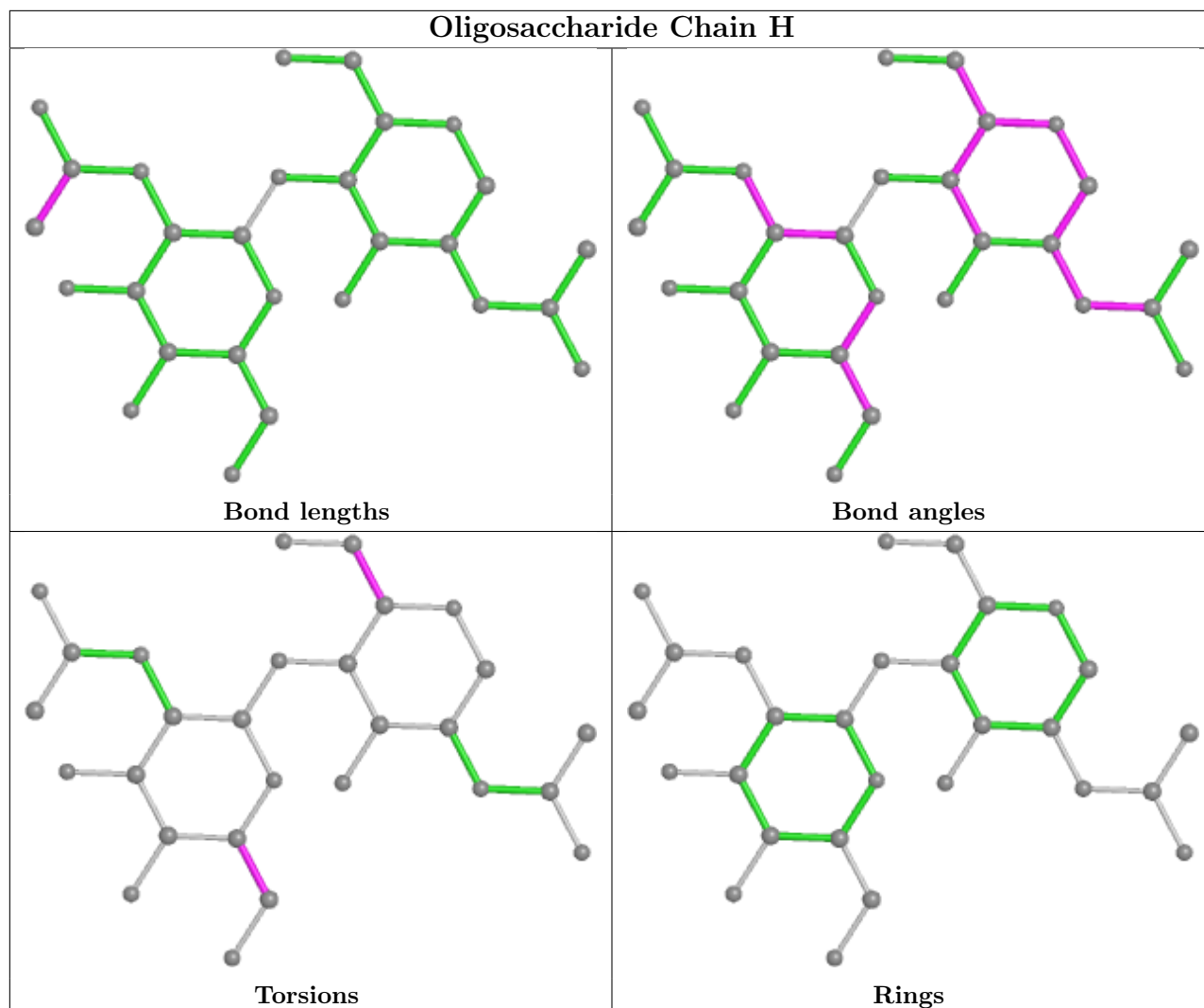
There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	1	NAG	1	0

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





## 5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 1 is monoatomic - leaving 8 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	$\# Z  > 2$
4	NAG	A	500	1	14,14,15	0.82	0	17,19,21	0.92	1 (5%)
4	NAG	B	404	2	14,14,15	0.79	0	17,19,21	0.87	0
6	PAM	D	404	2	7,7,17	0.58	0	6,6,17	0.90	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	NAG	F	500	2	14,14,15	0.84	0	17,19,21	1.38	3 (17%)
4	NAG	E	500	1	14,14,15	0.81	0	17,19,21	0.87	0
4	NAG	D	403	2	14,14,15	0.81	0	17,19,21	0.89	0
4	NAG	C	500	1	14,14,15	0.79	0	17,19,21	0.92	0
6	PAM	B	405	2	16,16,17	0.85	1 (6%)	15,15,17	0.80	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAG	A	500	1	-	2/6/23/26	0/1/1/1
4	NAG	B	404	2	-	0/6/23/26	0/1/1/1
6	PAM	D	404	2	-	2/4/5/15	-
4	NAG	F	500	2	-	2/6/23/26	0/1/1/1
4	NAG	E	500	1	-	0/6/23/26	0/1/1/1
4	NAG	D	403	2	-	2/6/23/26	0/1/1/1
4	NAG	C	500	1	-	0/6/23/26	0/1/1/1
6	PAM	B	405	2	-	8/14/14/15	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	405	PAM	O1-C1	-3.15	1.25	1.42

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	F	500	NAG	C1-O5-C5	3.03	116.30	112.19
4	A	500	NAG	C4-C3-C2	-2.80	106.92	111.02
4	F	500	NAG	O5-C5-C6	-2.46	103.34	107.20
4	F	500	NAG	C6-C5-C4	-2.38	107.42	113.00

There are no chirality outliers.

5 of 16 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	D	403	NAG	O5-C5-C6-O6
4	D	403	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
6	B	405	PAM	C3-C4-C5-C6
6	D	404	PAM	C3-C4-C5-C6
6	B	405	PAM	C5-C6-C7-C8

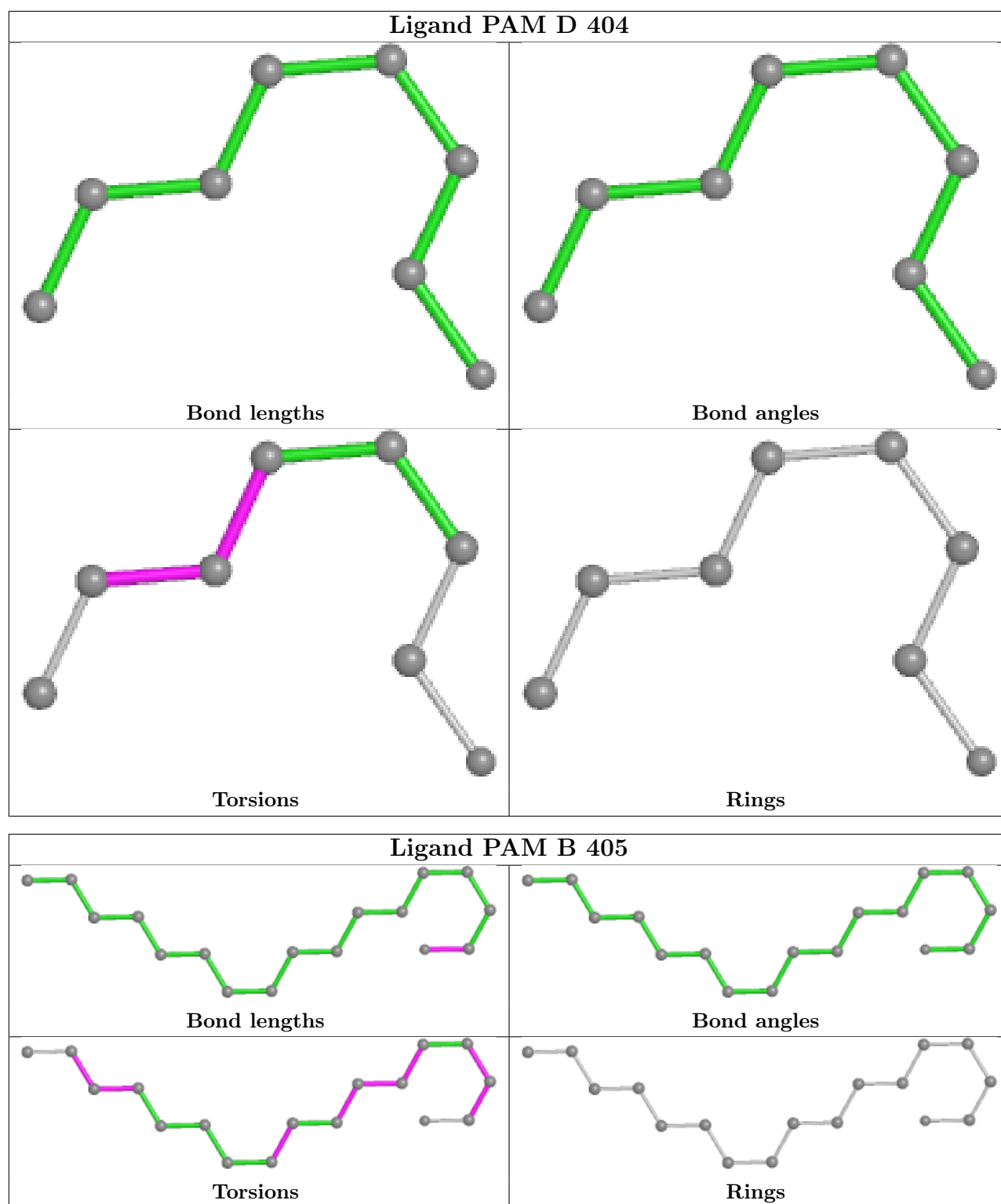
There are no ring outliers.

2 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	D	404	PAM	1	0
6	B	405	PAM	3	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 than 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.





## 5.7 Other polymers [\(i\)](#)

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	115/141 (81%)	-0.33	0 <span style="border: 1px solid blue; padding: 2px;">100</span> <span style="border: 1px solid blue; padding: 2px;">100</span>	53, 76, 113, 131	0
1	C	116/141 (82%)	-0.16	0 <span style="border: 1px solid blue; padding: 2px;">100</span> <span style="border: 1px solid blue; padding: 2px;">100</span>	52, 81, 132, 170	0
1	E	107/141 (75%)	0.56	13 (12%) <span style="border: 1px solid red; padding: 2px;">4</span> <span style="border: 1px solid red; padding: 2px;">2</span>	84, 147, 191, 204	0
2	B	295/319 (92%)	-0.12	3 (1%) <span style="border: 1px solid blue; padding: 2px;">82</span> <span style="border: 1px solid blue; padding: 2px;">77</span>	43, 77, 136, 200	0
2	D	291/319 (91%)	-0.14	5 (1%) <span style="border: 1px solid blue; padding: 2px;">70</span> <span style="border: 1px solid blue; padding: 2px;">63</span>	50, 89, 164, 192	0
2	F	262/319 (82%)	-0.13	4 (1%) <span style="border: 1px solid blue; padding: 2px;">73</span> <span style="border: 1px solid blue; padding: 2px;">68</span>	51, 79, 147, 184	0
All	All	1186/1380 (85%)	-0.09	25 (2%) <span style="border: 1px solid blue; padding: 2px;">63</span> <span style="border: 1px solid blue; padding: 2px;">54</span>	43, 84, 166, 204	0

The worst 5 of 25 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	142	GLY	8.2
1	E	34	ALA	7.2
2	B	288	PRO	4.1
1	E	104	LEU	4.1
1	E	144	PRO	4.0

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

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
2	MLY	D	267	9/12	0.70	0.32	151,155,162,162	0
2	MLY	D	248	9/12	0.76	0.19	139,148,154,155	0
1	MLY	E	85	9/12	0.76	0.35	111,125,135,135	0
2	MLY	B	146	9/12	0.81	0.26	126,132,139,140	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	MLY	D	146	9/12	0.84	0.23	80,105,122,123	0
1	MLY	C	31	9/12	0.84	0.34	130,137,140,149	0
1	MLY	E	102	9/12	0.85	0.29	148,150,161,171	0
2	MLY	D	355	10/12	0.86	0.20	98,105,128,131	0
2	MLY	D	54	9/12	0.88	0.26	108,117,137,138	0
2	MLY	B	327	9/12	0.90	0.27	110,116,124,126	0
2	MLY	D	262	9/12	0.90	0.19	107,110,131,133	0
2	MLY	D	107	9/12	0.91	0.16	133,146,161,165	0
2	MLY	B	325	9/12	0.91	0.36	130,139,157,158	0
2	MLY	F	218	9/12	0.91	0.22	88,98,113,114	0
2	MLY	D	237	9/12	0.92	0.20	70,77,90,93	0
1	MLY	A	102	9/12	0.92	0.13	79,85,91,91	0
2	MLY	B	267	9/12	0.93	0.18	74,83,111,114	0
1	MLY	E	101	9/12	0.93	0.33	123,132,146,168	0
2	MLY	B	329	9/12	0.93	0.24	93,101,104,105	0
2	MLY	B	355	11/12	0.93	0.25	98,102,107,108	0
2	MLY	D	325	9/12	0.94	0.14	60,66,82,84	0
2	MLY	B	207	9/12	0.94	0.13	52,54,85,86	0
2	MLY	F	154	11/12	0.94	0.19	93,98,108,109	0
1	MLY	A	44	9/12	0.94	0.22	63,81,99,100	0
2	MLY	F	248	11/12	0.94	0.20	52,59,98,106	0
1	MLY	C	102	11/12	0.95	0.22	91,98,108,110	0
2	MLY	D	188	9/12	0.95	0.18	69,80,85,90	0
1	MLY	A	85	11/12	0.95	0.19	46,62,75,79	0
2	MLY	F	54	11/12	0.95	0.22	61,76,111,117	0
2	MLY	F	107	9/12	0.95	0.19	64,78,86,100	0
2	MLY	D	329	9/12	0.95	0.12	74,77,91,95	0
2	MLY	F	205	9/12	0.95	0.18	66,84,97,104	0
2	MLY	F	207	9/12	0.95	0.19	68,76,92,105	0
2	MLY	B	218	9/12	0.95	0.14	59,67,73,76	0
1	MLY	E	44	9/12	0.95	0.17	93,100,111,122	0
2	MLY	F	267	9/12	0.95	0.16	71,82,85,87	0
2	MLY	B	54	9/12	0.96	0.22	60,72,84,89	0
2	MLY	D	327	9/12	0.96	0.22	78,85,101,101	0
1	MLY	C	115	9/12	0.96	0.19	70,85,92,98	0
2	MLY	B	248	9/12	0.96	0.21	90,103,117,118	0
2	MLY	D	74	11/12	0.96	0.29	52,73,106,106	0
2	MLY	B	262	11/12	0.96	0.12	73,79,102,105	0
2	MLY	B	107	11/12	0.96	0.24	65,83,108,120	0
2	MLY	D	154	9/12	0.96	0.18	64,73,98,100	0
1	MLY	E	115	5/12	0.96	0.11	152,157,163,165	0
1	MLY	A	101	9/12	0.96	0.14	68,80,100,101	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	MLY	D	205	9/12	0.96	0.18	45,72,90,95	0
2	MLY	D	207	9/12	0.96	0.15	51,61,72,74	0
2	MLY	F	188	11/12	0.96	0.25	54,62,91,96	0
2	MLY	D	218	9/12	0.96	0.17	65,70,76,77	0
2	MLY	B	154	9/12	0.96	0.21	65,73,95,99	0
2	MLY	B	188	9/12	0.96	0.21	56,69,96,98	0
2	MLY	B	205	9/12	0.96	0.14	47,52,77,79	0
2	MLY	F	262	9/12	0.96	0.13	62,67,74,80	0
1	MLY	A	115	9/12	0.96	0.16	55,62,69,78	0
2	MLY	B	237	9/12	0.97	0.18	53,56,67,70	0
2	MLY	B	74	9/12	0.97	0.17	44,61,94,101	0
2	MLY	B	235	9/12	0.97	0.20	56,63,71,82	0
1	MLY	C	44	9/12	0.97	0.15	59,74,85,87	0
1	MLY	C	85	11/12	0.97	0.18	56,65,82,85	0
2	MLY	F	235	9/12	0.97	0.17	70,79,92,95	0
2	MLY	D	235	9/12	0.97	0.15	65,77,89,93	0
2	MLY	F	74	9/12	0.97	0.15	60,64,84,92	0
1	MLY	C	101	11/12	0.97	0.11	73,82,94,97	0
2	MLY	F	237	9/12	0.98	0.18	64,67,85,88	0

### 6.3 Carbohydrates [i](#)

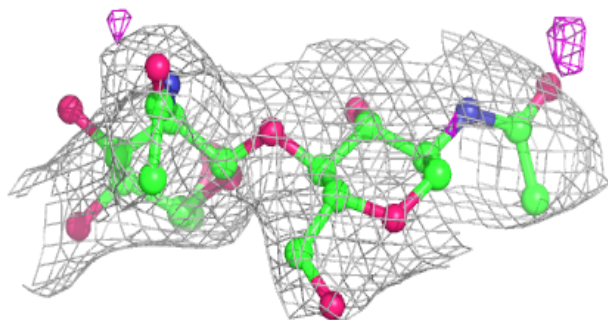
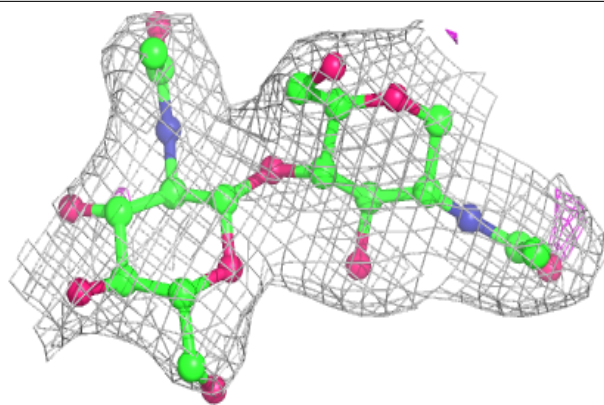
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
3	NAG	G	2	14/15	0.82	0.30	119,125,128,129	0
3	NAG	H	2	14/15	0.86	0.29	102,108,112,113	14
3	NAG	H	1	14/15	0.94	0.16	53,71,99,102	0
3	NAG	G	1	14/15	0.95	0.15	59,69,94,97	0

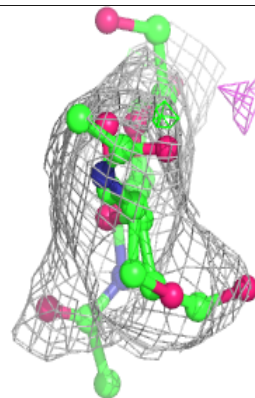
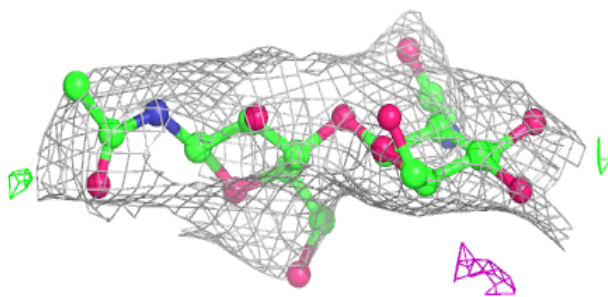
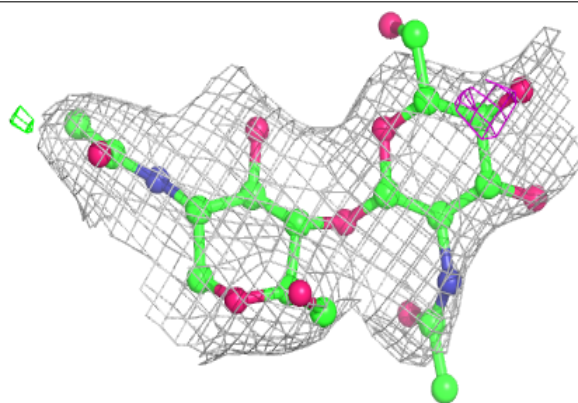
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around Chain G:**

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

**Electron density around Chain H:**

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

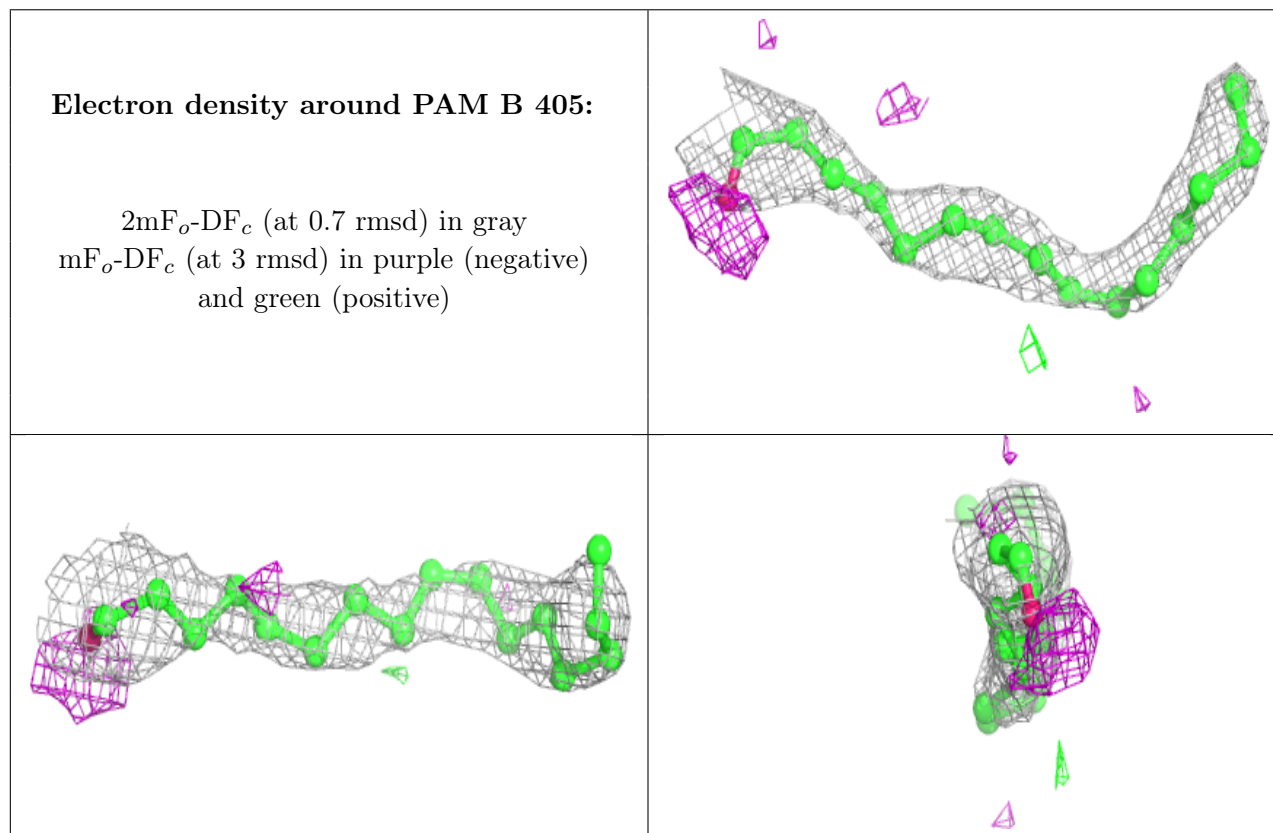


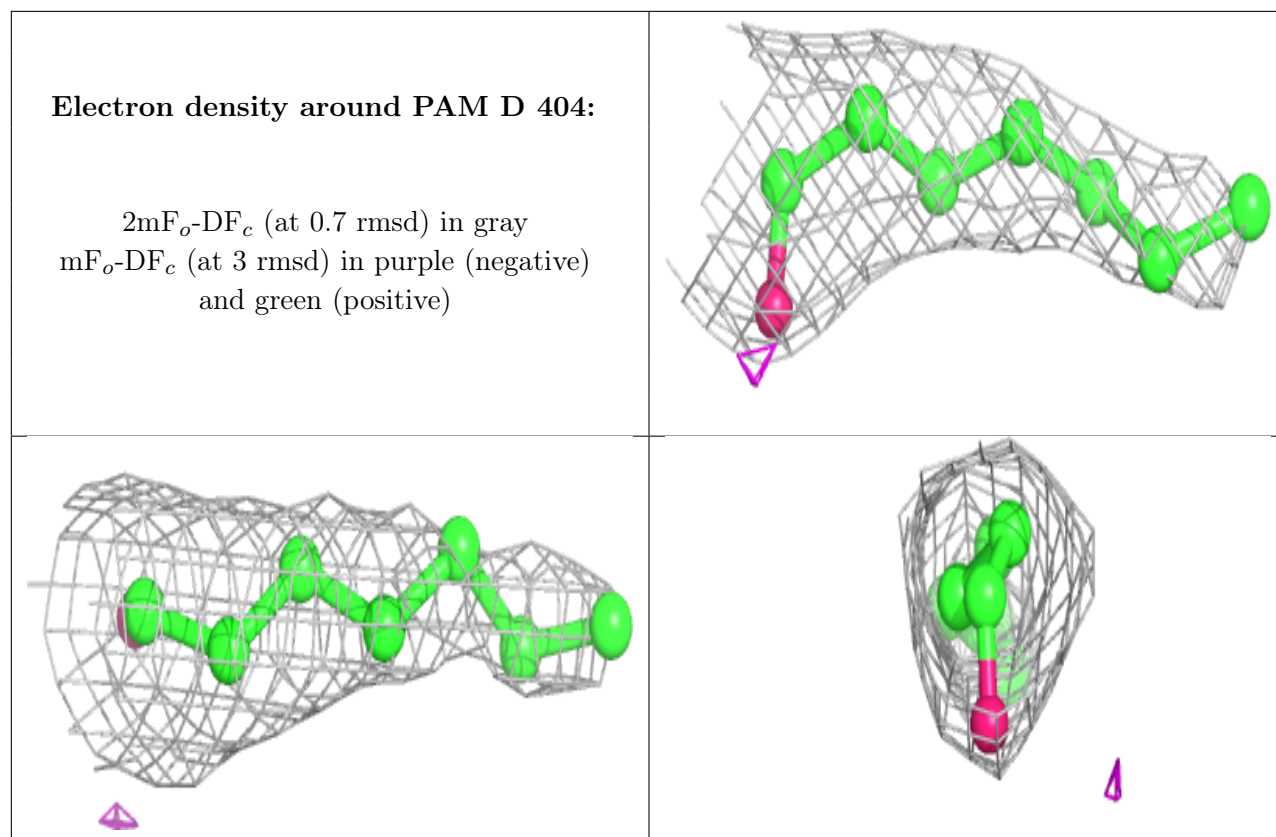
## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
4	NAG	E	500	14/15	0.76	0.39	88,114,119,120	14
4	NAG	C	500	14/15	0.83	0.19	81,110,119,121	14
4	NAG	B	404	14/15	0.90	0.17	93,100,104,105	0
4	NAG	D	403	14/15	0.92	0.21	78,113,123,123	0
4	NAG	F	500	14/15	0.92	0.16	72,95,106,108	0
6	PAM	B	405	17/18	0.92	0.38	54,82,105,113	0
4	NAG	A	500	14/15	0.93	0.15	106,126,139,140	0
6	PAM	D	404	8/18	0.96	0.24	60,68,78,79	0
5	CL	B	401	1/1	0.98	0.22	31,31,31,31	1

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.





## 6.5 Other polymers [i](#)

There are no such residues in this entry.