



# wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 6, 2020 – 02:22 PM BST

PDB ID : 1H4H  
Title : Oligosaccharide-binding to family 11 xylanases: both covalent intermediate and mutant-product complexes display 2,5B conformations at the active-centre  
Authors : Sabini, E.; Wilson, K.S.; Danielsen, S.; Schulein, M.; Davies, G.J.  
Deposited on : 2001-05-11  
Resolution : 1.90 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.

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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 : 2.13.1  
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) : 2.13.1

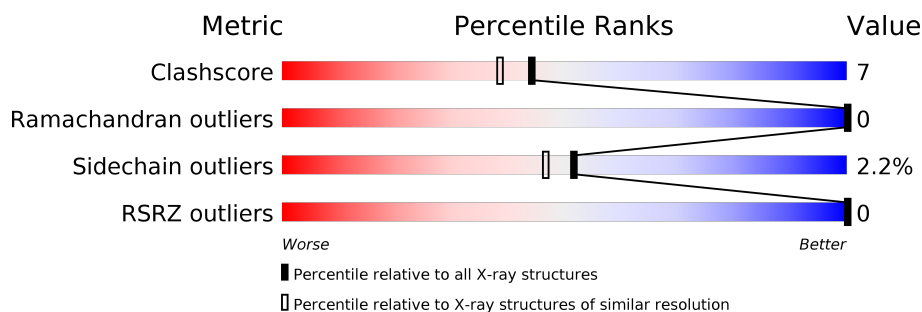
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.90 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.



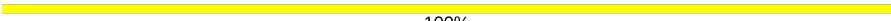
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	6847 (1.90-1.90)
Ramachandran outliers	138981	6760 (1.90-1.90)
Sidechain outliers	138945	6760 (1.90-1.90)
RSRZ outliers	127900	6082 (1.90-1.90)

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 on 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	209	
1	B	209	
1	C	209	
1	D	209	
2	E	3	
2	F	3	
2	G	3	

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Mol	Chain	Length	Quality of chain
2	H	3	 100%

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 7172 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.

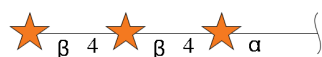
- Molecule 1 is a protein called XYLANASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	207	Total	C	N	O	S	0	2	0
			1640	1032	289	313	6			
1	B	209	Total	C	N	O	S	0	1	0
			1652	1040	290	316	6			
1	C	207	Total	C	N	O	S	0	1	0
			1636	1030	288	312	6			
1	D	208	Total	C	N	O	S	0	1	0
			1643	1034	289	314	6			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	PCA	GLU	modified residue	PDB 1H4H
B	1	PCA	GLU	modified residue	PDB 1H4H
C	1	PCA	GLU	modified residue	PDB 1H4H
D	1	PCA	GLU	modified residue	PDB 1H4H
A	94	ALA	GLU	engineered mutation	PDB 1H4H
B	94	ALA	GLU	engineered mutation	PDB 1H4H
C	94	ALA	GLU	engineered mutation	PDB 1H4H
D	94	ALA	GLU	engineered mutation	PDB 1H4H

- Molecule 2 is an oligosaccharide called beta-D-xylopyranose-(1-4)-beta-D-xylopyranose-(1-4)-alpha-D-xylopyranose.



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
2	E	3	Total	C	O	0	0	0
			28	15	13			

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
2	F	3	Total	C	O	0	0	0
			28	15	13			
2	G	3	Total	C	O	0	0	0
			28	15	13			
2	H	3	Total	C	O	0	0	0
			28	15	13			

- Molecule 3 is water.

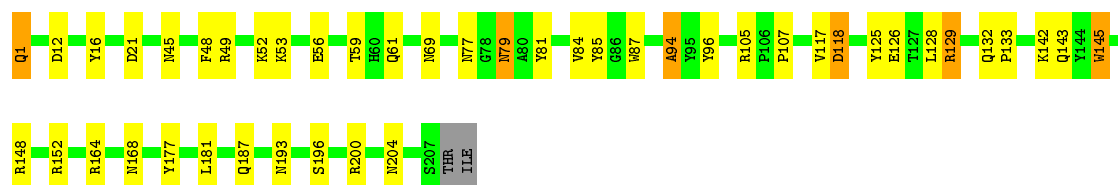
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	131	Total	O	0	0
			131	131		
3	B	142	Total	O	0	0
			142	142		
3	C	106	Total	O	0	0
			106	106		
3	D	110	Total	O	0	0
			110	110		

### 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.

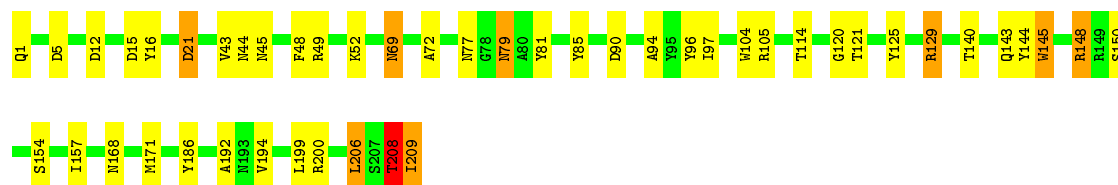
#### • Molecule 1: XYLANASE

Chain A: 



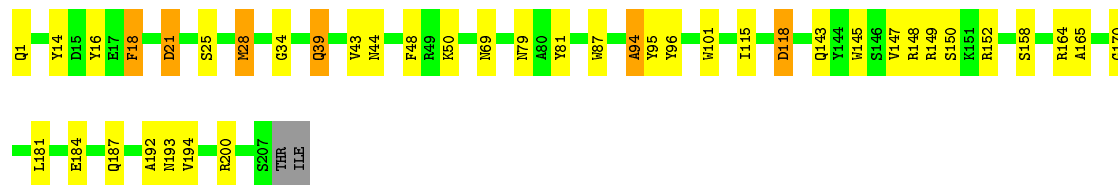
#### • Molecule 1: XYLANASE

Chain B: 




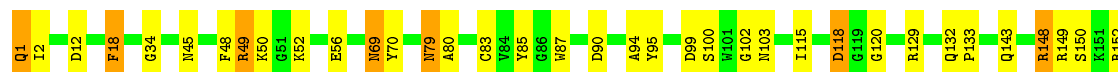
#### • Molecule 1: XYLANASE

Chain C: 



#### • Molecule 1: XYLANASE

Chain D: 





- Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose-(1-4)-alpha-D-xylopyranose

Chain E: 67% 33%



- Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose-(1-4)-alpha-D-xylopyranose

Chain F: 100%



- Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose-(1-4)-alpha-D-xylopyranose

Chain G: 100%



- Molecule 2: beta-D-xylopyranose-(1-4)-beta-D-xylopyranose-(1-4)-alpha-D-xylopyranose

Chain H: 100%



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	74.34Å 78.89Å 76.27Å 90.00° 91.93° 90.00°	Depositor
Resolution (Å)	20.00 – 1.90 11.96 – 1.90	Depositor EDS
% Data completeness (in resolution range)	77.5 (20.00-1.90) 77.5 (11.96-1.90)	Depositor EDS
$R_{merge}$	0.05	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	3.88 (at 1.90Å)	Xtriage
Refinement program	REFMAC	Depositor
R, $R_{free}$	0.184 , 0.241 0.187 , (Not available)	Depositor DCC
$R_{free}$ test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	18.0	Xtriage
Anisotropy	0.586	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.38 , 41.4	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.006 for l,k,-h 0.179 for h,-k,-l 0.018 for l,-k,h	Xtriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	7172	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	23.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.74% 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

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: XYP, PCA, XYS

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	0.99	3/1687 (0.2%)	1.96	37/2294 (1.6%)
1	B	1.43	4/1694 (0.2%)	1.95	35/2303 (1.5%)
1	C	0.97	2/1678 (0.1%)	1.78	32/2282 (1.4%)
1	D	0.96	3/1685 (0.2%)	1.72	26/2292 (1.1%)
All	All	1.11	12/6744 (0.2%)	1.86	130/9171 (1.4%)

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
1	A	0	1
1	B	0	2
1	D	0	2
All	All	0	5

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	148[A]	ARG	NE-CZ	30.61	1.72	1.33
1	B	148[B]	ARG	NE-CZ	30.61	1.72	1.33
1	A	87	TRP	NE1-CE2	8.76	1.49	1.37
1	D	87	TRP	NE1-CE2	8.73	1.49	1.37
1	C	87	TRP	NE1-CE2	8.71	1.48	1.37

The worst 5 of 130 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	148[A]	ARG	CD-NE-CZ	20.96	152.95	123.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	148[B]	ARG	CD-NE-CZ	20.96	152.95	123.60
1	A	148[A]	ARG	NE-CZ-NH1	20.02	130.31	120.30
1	A	148[B]	ARG	NE-CZ-NH1	20.02	130.31	120.30
1	B	148[A]	ARG	NE-CZ-NH2	-19.79	110.41	120.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1	PCA	Mainchain
1	B	208	THR	Peptide
1	B	97	ILE	Mainchain
1	D	1	PCA	Mainchain
1	D	120	GLY	Mainchain

## 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	1640	0	1552	19	0
1	B	1652	0	1566	32	0
1	C	1636	0	1548	19	0
1	D	1643	0	1555	17	0
2	E	28	0	9	2	0
2	F	28	0	9	0	0
2	G	28	0	9	0	0
2	H	28	0	9	0	0
3	A	131	0	0	5	0
3	B	142	0	0	8	0
3	C	106	0	0	8	0
3	D	110	0	0	6	0
All	All	7172	0	6257	86	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 7.

The worst 5 of 86 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:B:148[A]:ARG:CZ	1:B:148[A]:ARG:NE	1.72	1.52
1:B:81:TYR:OH	3:B:2065:HOH:O	1.84	0.94
1:B:12:ASP:OD1	1:B:209:ILE:HA	1.72	0.89
1:A:181:LEU:HD21	3:A:2052:HOH:O	1.79	0.83
1:B:148[A]:ARG:HD3	1:B:150:SER:O	1.79	0.81

There are no symmetry-related clashes.

## 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	207/209 (99%)	200 (97%)	7 (3%)	0	100	100
1	B	208/209 (100%)	199 (96%)	9 (4%)	0	100	100
1	C	206/209 (99%)	198 (96%)	8 (4%)	0	100	100
1	D	207/209 (99%)	197 (95%)	10 (5%)	0	100	100
All	All	828/836 (99%)	794 (96%)	34 (4%)	0	100	100

There are no Ramachandran outliers to report.

### 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	175/175 (100%)	170 (97%)	5 (3%)	42	35
1	B	176/175 (101%)	171 (97%)	5 (3%)	43	36

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	C	174/175 (99%)	173 (99%)	1 (1%)	86	87
1	D	175/175 (100%)	171 (98%)	4 (2%)	50	45
All	All	700/700 (100%)	685 (98%)	15 (2%)	52	48

5 of 15 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	69	ASN
1	B	79	ASN
1	D	69	ASN
1	B	45	ASN
1	D	45	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 20 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	187	GLN
1	B	193	ASN
1	D	31	ASN
1	B	79	ASN
1	B	168	ASN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

4 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
1	PCA	A	1	1	7,8,9	1.45	2 (28%)	9,10,12	2.46	3 (33%)
1	PCA	B	1	1	7,8,9	1.28	1 (14%)	9,10,12	1.70	1 (11%)
1	PCA	C	1	1	7,8,9	1.97	2 (28%)	9,10,12	3.67	7 (77%)
1	PCA	D	1	1	7,8,9	1.54	2 (28%)	9,10,12	2.17	3 (33%)

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
1	PCA	A	1	1	-	0/0/11/13	0/1/1/1
1	PCA	B	1	1	-	0/0/11/13	0/1/1/1
1	PCA	C	1	1	-	0/0/11/13	0/1/1/1
1	PCA	D	1	1	-	0/0/11/13	0/1/1/1

The worst 5 of 7 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	1	PCA	CG-CD	3.36	1.59	1.50
1	D	1	PCA	O-C	2.89	1.31	1.19
1	C	1	PCA	O-C	2.73	1.30	1.19
1	B	1	PCA	CG-CD	2.59	1.57	1.50
1	A	1	PCA	CG-CD	2.22	1.56	1.50

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	1	PCA	OE-CD-CG	-7.14	114.30	126.76
1	A	1	PCA	CB-CA-C	-5.62	104.97	112.70
1	C	1	PCA	CB-CA-C	-5.43	105.24	112.70
1	D	1	PCA	OE-CD-CG	-4.62	118.70	126.76
1	C	1	PCA	O-C-CA	3.88	134.94	124.78

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.5 Carbohydrates ⓘ

12 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	XYS	E	1	2	10,10,10	1.31	1 (10%)	14,14,14	3.80	9 (64%)
2	XYP	E	2	2	9,9,10	1.09	0	10,12,14	2.10	3 (30%)
2	XYP	E	3	2	9,9,10	1.23	1 (11%)	10,12,14	2.81	5 (50%)
2	XYS	F	1	2	10,10,10	1.20	1 (10%)	14,14,14	4.36	10 (71%)
2	XYP	F	2	2	9,9,10	1.49	2 (22%)	10,12,14	2.09	3 (30%)
2	XYP	F	3	2	9,9,10	1.51	1 (11%)	10,12,14	2.16	5 (50%)
2	XYS	G	1	2	10,10,10	1.40	3 (30%)	14,14,14	3.60	10 (71%)
2	XYP	G	2	2	9,9,10	1.07	0	10,12,14	2.09	5 (50%)
2	XYP	G	3	2	9,9,10	1.39	0	10,12,14	2.49	3 (30%)
2	XYS	H	1	2	10,10,10	1.26	1 (10%)	14,14,14	2.98	10 (71%)
2	XYP	H	2	2	9,9,10	1.12	0	10,12,14	2.01	3 (30%)
2	XYP	H	3	2	9,9,10	1.31	0	10,12,14	2.51	5 (50%)

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	XYS	E	1	2	-	-	1/1/1/1
2	XYP	E	2	2	-	-	0/1/1/1
2	XYP	E	3	2	-	-	0/1/1/1
2	XYS	F	1	2	-	-	1/1/1/1
2	XYP	F	2	2	-	-	0/1/1/1
2	XYP	F	3	2	-	-	0/1/1/1
2	XYS	G	1	2	-	-	0/1/1/1
2	XYP	G	2	2	-	-	0/1/1/1
2	XYP	G	3	2	-	-	0/1/1/1
2	XYS	H	1	2	-	-	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	XYP	H	2	2	-	-	0/1/1/1
2	XYP	H	3	2	-	-	0/1/1/1

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	2	XYP	C5-C4	2.63	1.58	1.52
2	G	1	XYS	O4-C4	-2.54	1.38	1.43
2	H	1	XYS	O4-C4	-2.51	1.38	1.43
2	E	1	XYS	C5-C4	2.28	1.57	1.52
2	F	1	XYS	C5-C4	2.26	1.57	1.52

The worst 5 of 71 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	1	XYS	O5-C1-C2	-8.50	96.81	109.43
2	E	1	XYS	O5-C1-C2	-7.26	98.64	109.43
2	F	1	XYS	O3-C3-C2	-6.67	94.92	110.35
2	E	3	XYP	C5-O5-C1	6.46	121.45	111.52
2	F	1	XYS	C5-C4-C3	-6.38	101.83	109.67

There are no chirality outliers.

There are no torsion outliers.

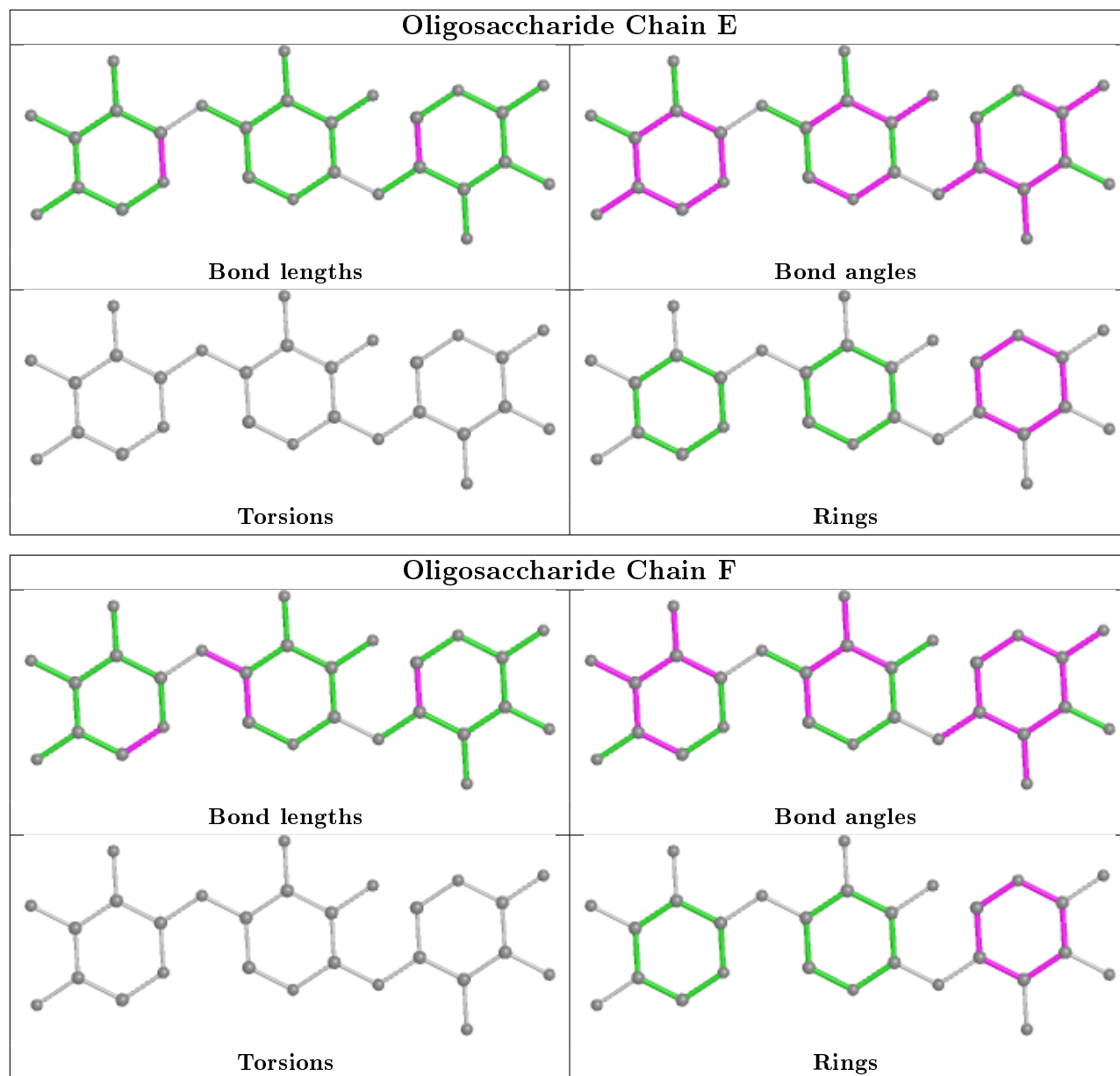
All (2) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	F	1	XYS	C1-C2-C3-C4-C5-O5
2	E	1	XYS	C1-C2-C3-C4-C5-O5

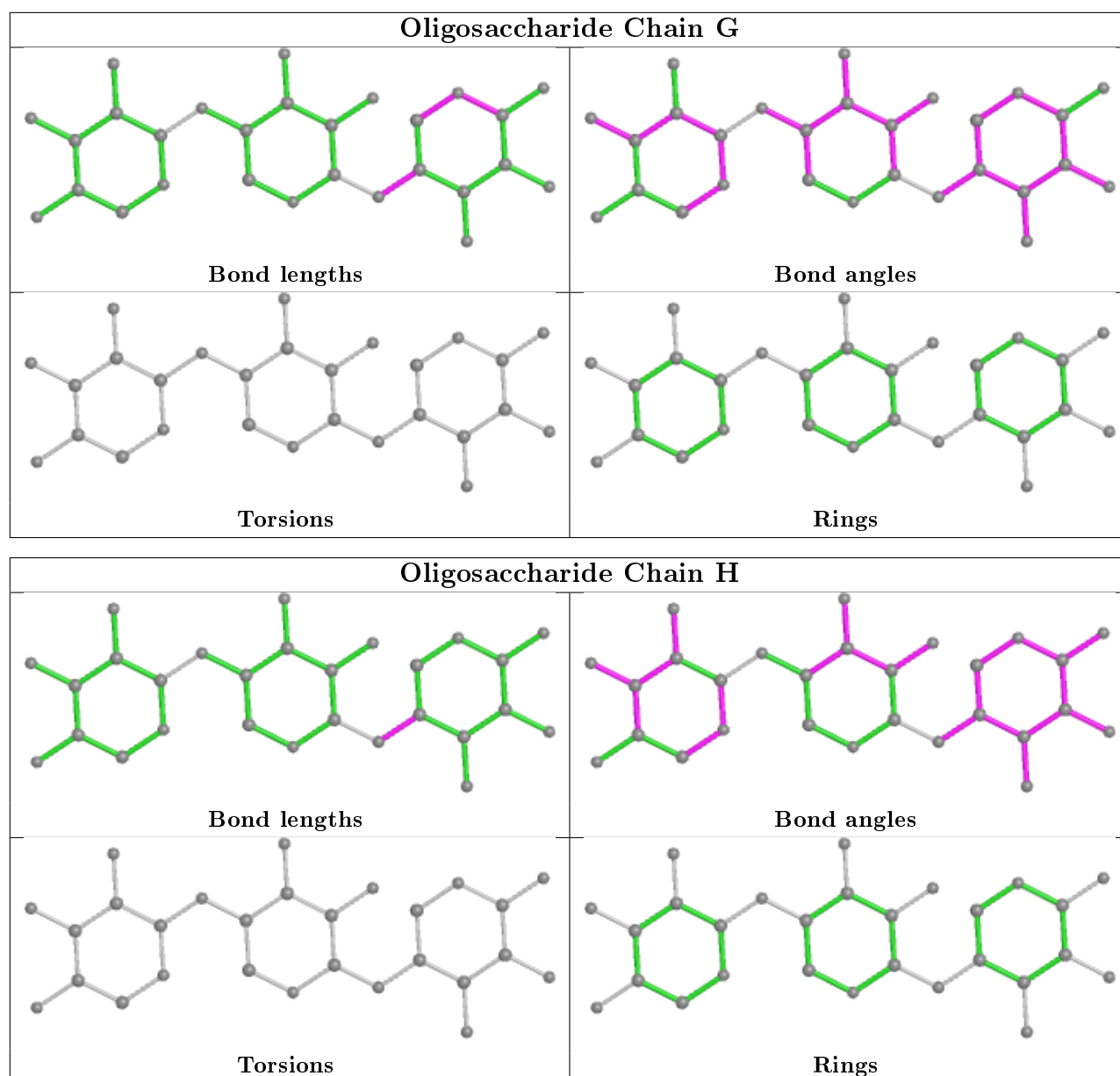
1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	1	XYS	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.







## 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	43:VAL	C	44:ASN	N	1.20

## 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, 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	206/209 (98%)	-0.57	0 100 100	14, 21, 32, 52	0
1	B	208/209 (99%)	-0.55	0 100 100	14, 21, 31, 44	0
1	C	206/209 (98%)	-0.66	0 100 100	16, 23, 32, 51	0
1	D	207/209 (99%)	-0.63	0 100 100	16, 23, 33, 60	0
All	All	827/836 (98%)	-0.60	0 100 100	14, 22, 33, 60	0

There are no RSRZ outliers to report.

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

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.

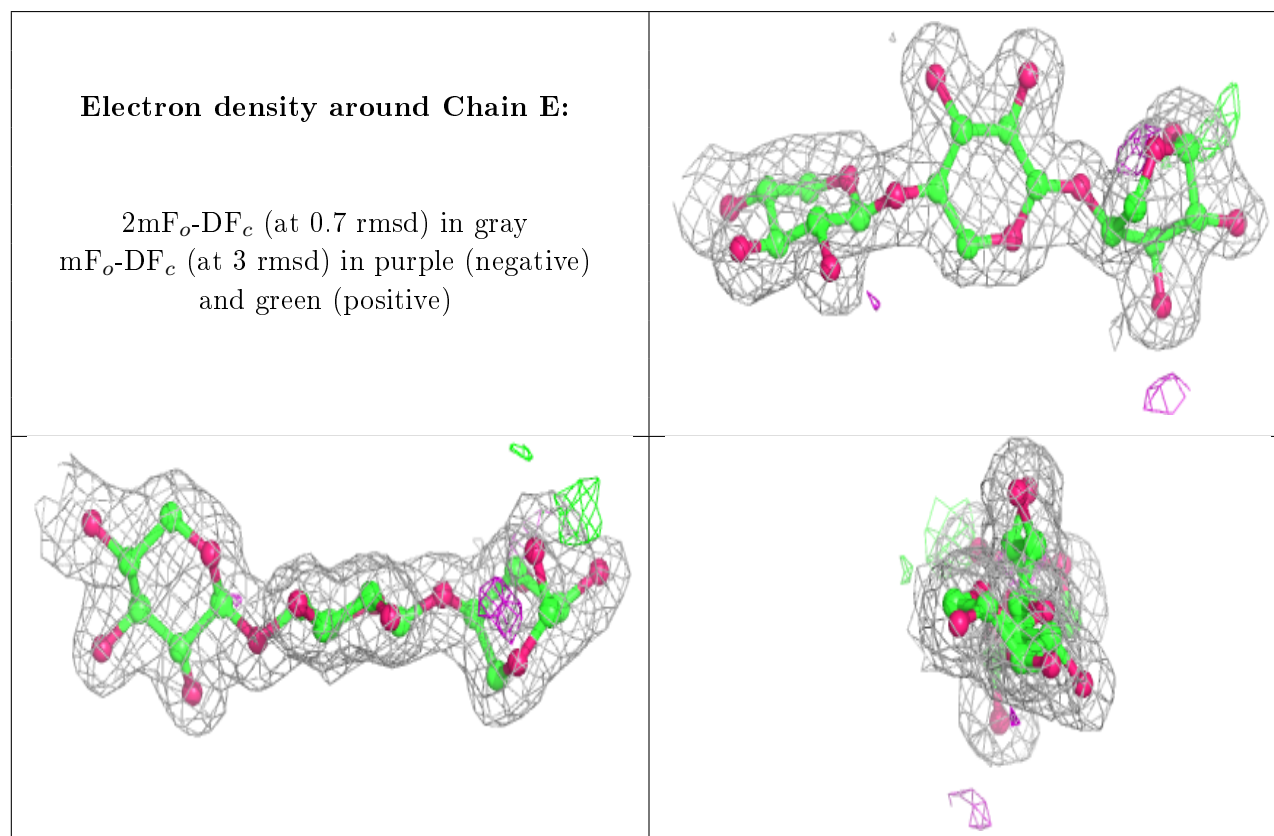
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
1	PCA	C	1	8/9	0.96	0.09	24,26,27,29	0
1	PCA	D	1	8/9	0.96	0.06	26,27,29,30	0
1	PCA	B	1	8/9	0.97	0.06	18,19,21,22	0
1	PCA	A	1	8/9	0.98	0.07	19,21,22,23	0

### 6.3 Carbohydrates ⓘ

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

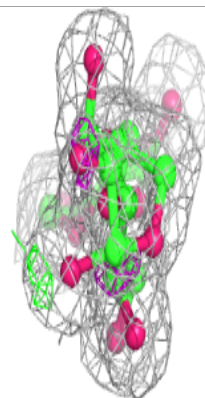
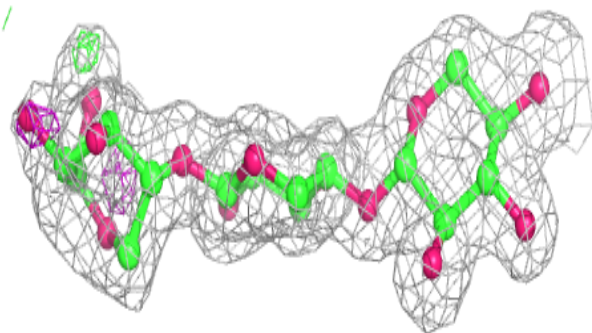
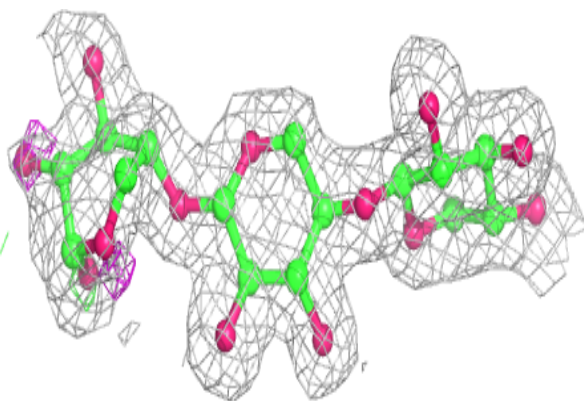
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	XYS	G	1	10/10	0.89	0.16	26,36,41,42	0
2	XYS	F	1	10/10	0.89	0.12	21,29,34,39	0
2	XYS	E	1	10/10	0.91	0.10	24,26,33,38	0
2	XYS	H	1	10/10	0.91	0.14	23,33,38,38	0
2	XYP	E	3	9/10	0.92	0.08	27,31,37,40	0
2	XYP	G	3	9/10	0.94	0.07	25,28,29,31	0
2	XYP	H	3	9/10	0.96	0.07	27,30,33,34	0
2	XYP	F	3	9/10	0.96	0.06	21,28,32,33	0
2	XYP	E	2	9/10	0.97	0.06	17,20,23,23	0
2	XYP	H	2	9/10	0.98	0.07	18,21,23,23	0
2	XYP	F	2	9/10	0.98	0.06	16,19,21,22	0
2	XYP	G	2	9/10	0.99	0.06	20,22,23,24	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.

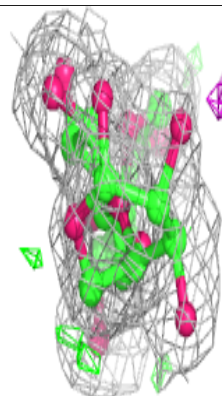
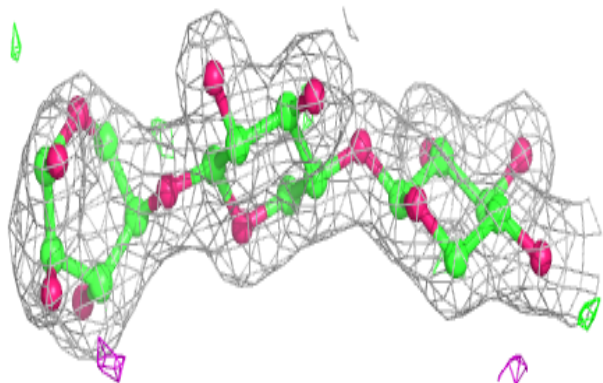
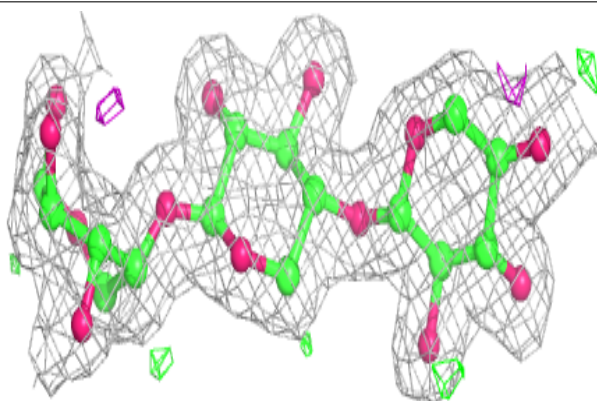


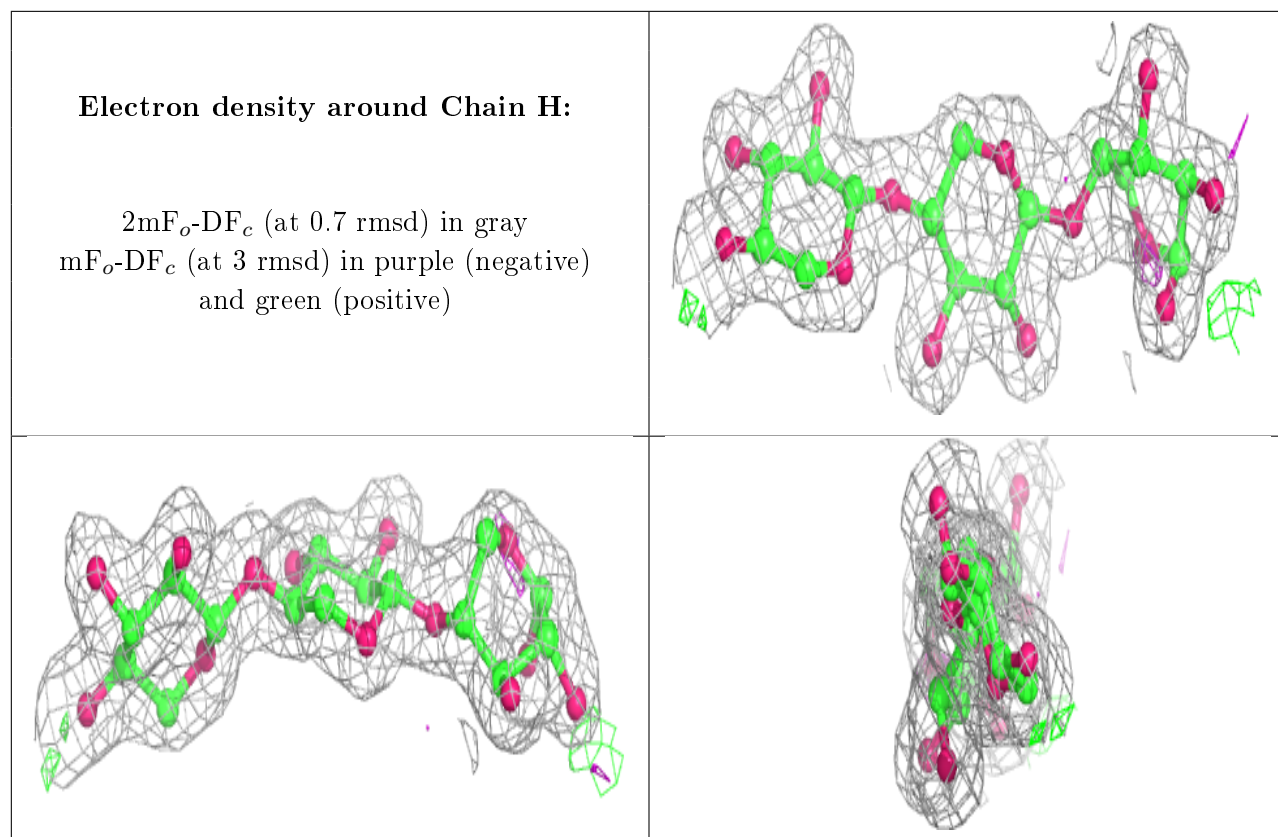
**Electron density around Chain F:**

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

**Electron density around Chain G:**

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





## 6.4 Ligands [i](#)

There are no ligands in this entry.

## 6.5 Other polymers [i](#)

There are no such residues in this entry.