



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 4, 2026 – 06:07 AM EST

PDB ID : 3VT0 / pdb\_00003vt0  
Title : Crystal structure of Ct1,3Gal43A in complex with lactose  
Authors : Jiang, D.; Fan, J.; Wang, X.; Zhao, Y.; Huang, B.; Zhang, X.C.  
Deposited on : 2012-05-18  
Resolution : 2.91 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](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 : 4-5-2 with Phenix2.0  
Mogul : 2022.3.0, CSD as543be (2022)  
Xtrriage (Phenix) : 2.0  
EDS : 3.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
CCP4 : 9.0.010 (Gargrove)  
Density-Fitness : 1.0.12  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.47

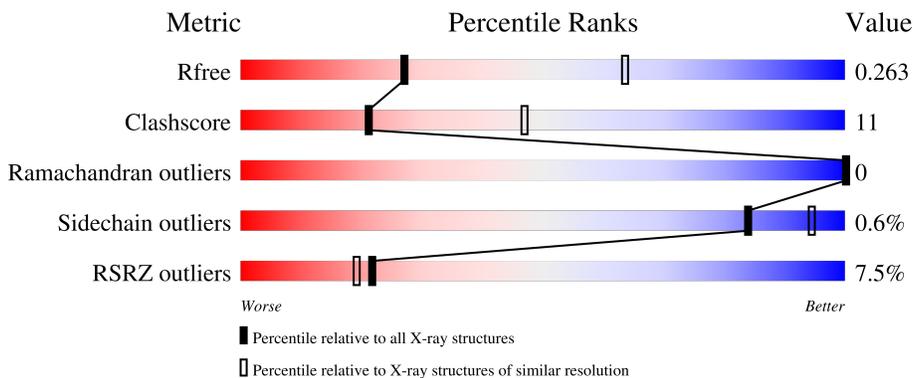
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.91 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.



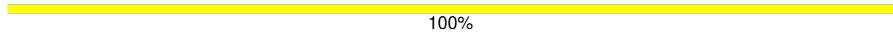
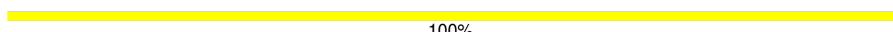
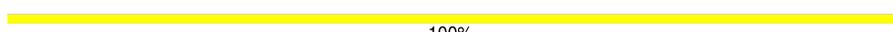
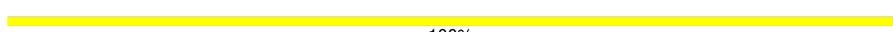
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	164625	2797 (2.94-2.90)
Clashscore	180529	3049 (2.94-2.90)
Ramachandran outliers	177936	2981 (2.94-2.90)
Sidechain outliers	177891	2983 (2.94-2.90)
RSRZ outliers	164620	2799 (2.94-2.90)

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 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	526	 4% 67% 21% 12%
1	B	526	 8% 67% 20% 12%
1	C	526	 2% 74% 18% 8%
1	D	526	 20% 58% 29% 12%
1	E	526	 2% 71% 17% 12%

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Mol	Chain	Length	Quality of chain
1	F	526	
2	G	2	
2	H	2	
2	I	2	
2	J	2	
2	K	2	
2	L	2	

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 22283 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 Ricin B lectin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	461	3664	2323	623	703	15	0	0	0
1	B	461	3664	2323	623	703	15	0	0	0
1	C	482	3807	2406	651	732	18	0	0	0
1	D	461	3664	2323	623	703	15	0	0	0
1	E	461	3664	2323	623	703	15	0	0	0
1	F	461	3664	2323	623	703	15	0	0	0

There are 216 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-35	MET	-	expression tag	UNP A3DD67
A	-34	GLY	-	expression tag	UNP A3DD67
A	-33	SER	-	expression tag	UNP A3DD67
A	-32	SER	-	expression tag	UNP A3DD67
A	-31	HIS	-	expression tag	UNP A3DD67
A	-30	HIS	-	expression tag	UNP A3DD67
A	-29	HIS	-	expression tag	UNP A3DD67
A	-28	HIS	-	expression tag	UNP A3DD67
A	-27	HIS	-	expression tag	UNP A3DD67
A	-26	HIS	-	expression tag	UNP A3DD67
A	-25	SER	-	expression tag	UNP A3DD67
A	-24	SER	-	expression tag	UNP A3DD67
A	-23	GLY	-	expression tag	UNP A3DD67
A	-22	LEU	-	expression tag	UNP A3DD67
A	-21	VAL	-	expression tag	UNP A3DD67
A	-20	PRO	-	expression tag	UNP A3DD67
A	-19	ARG	-	expression tag	UNP A3DD67

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-18	GLY	-	expression tag	UNP A3DD67
A	-17	SER	-	expression tag	UNP A3DD67
A	-16	HIS	-	expression tag	UNP A3DD67
A	-15	MET	-	expression tag	UNP A3DD67
A	-14	ALA	-	expression tag	UNP A3DD67
A	-13	SER	-	expression tag	UNP A3DD67
A	-12	MET	-	expression tag	UNP A3DD67
A	-11	THR	-	expression tag	UNP A3DD67
A	-10	GLY	-	expression tag	UNP A3DD67
A	-9	GLY	-	expression tag	UNP A3DD67
A	-8	GLN	-	expression tag	UNP A3DD67
A	-7	GLN	-	expression tag	UNP A3DD67
A	-6	MET	-	expression tag	UNP A3DD67
A	-5	GLY	-	expression tag	UNP A3DD67
A	-4	ARG	-	expression tag	UNP A3DD67
A	-3	GLY	-	expression tag	UNP A3DD67
A	-2	SER	-	expression tag	UNP A3DD67
A	-1	GLU	-	expression tag	UNP A3DD67
A	0	PHE	-	expression tag	UNP A3DD67
B	-35	MET	-	expression tag	UNP A3DD67
B	-34	GLY	-	expression tag	UNP A3DD67
B	-33	SER	-	expression tag	UNP A3DD67
B	-32	SER	-	expression tag	UNP A3DD67
B	-31	HIS	-	expression tag	UNP A3DD67
B	-30	HIS	-	expression tag	UNP A3DD67
B	-29	HIS	-	expression tag	UNP A3DD67
B	-28	HIS	-	expression tag	UNP A3DD67
B	-27	HIS	-	expression tag	UNP A3DD67
B	-26	HIS	-	expression tag	UNP A3DD67
B	-25	SER	-	expression tag	UNP A3DD67
B	-24	SER	-	expression tag	UNP A3DD67
B	-23	GLY	-	expression tag	UNP A3DD67
B	-22	LEU	-	expression tag	UNP A3DD67
B	-21	VAL	-	expression tag	UNP A3DD67
B	-20	PRO	-	expression tag	UNP A3DD67
B	-19	ARG	-	expression tag	UNP A3DD67
B	-18	GLY	-	expression tag	UNP A3DD67
B	-17	SER	-	expression tag	UNP A3DD67
B	-16	HIS	-	expression tag	UNP A3DD67
B	-15	MET	-	expression tag	UNP A3DD67
B	-14	ALA	-	expression tag	UNP A3DD67
B	-13	SER	-	expression tag	UNP A3DD67

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Chain	Residue	Modelled	Actual	Comment	Reference
B	-12	MET	-	expression tag	UNP A3DD67
B	-11	THR	-	expression tag	UNP A3DD67
B	-10	GLY	-	expression tag	UNP A3DD67
B	-9	GLY	-	expression tag	UNP A3DD67
B	-8	GLN	-	expression tag	UNP A3DD67
B	-7	GLN	-	expression tag	UNP A3DD67
B	-6	MET	-	expression tag	UNP A3DD67
B	-5	GLY	-	expression tag	UNP A3DD67
B	-4	ARG	-	expression tag	UNP A3DD67
B	-3	GLY	-	expression tag	UNP A3DD67
B	-2	SER	-	expression tag	UNP A3DD67
B	-1	GLU	-	expression tag	UNP A3DD67
B	0	PHE	-	expression tag	UNP A3DD67
C	-35	MET	-	expression tag	UNP A3DD67
C	-34	GLY	-	expression tag	UNP A3DD67
C	-33	SER	-	expression tag	UNP A3DD67
C	-32	SER	-	expression tag	UNP A3DD67
C	-31	HIS	-	expression tag	UNP A3DD67
C	-30	HIS	-	expression tag	UNP A3DD67
C	-29	HIS	-	expression tag	UNP A3DD67
C	-28	HIS	-	expression tag	UNP A3DD67
C	-27	HIS	-	expression tag	UNP A3DD67
C	-26	HIS	-	expression tag	UNP A3DD67
C	-25	SER	-	expression tag	UNP A3DD67
C	-24	SER	-	expression tag	UNP A3DD67
C	-23	GLY	-	expression tag	UNP A3DD67
C	-22	LEU	-	expression tag	UNP A3DD67
C	-21	VAL	-	expression tag	UNP A3DD67
C	-20	PRO	-	expression tag	UNP A3DD67
C	-19	ARG	-	expression tag	UNP A3DD67
C	-18	GLY	-	expression tag	UNP A3DD67
C	-17	SER	-	expression tag	UNP A3DD67
C	-16	HIS	-	expression tag	UNP A3DD67
C	-15	MET	-	expression tag	UNP A3DD67
C	-14	ALA	-	expression tag	UNP A3DD67
C	-13	SER	-	expression tag	UNP A3DD67
C	-12	MET	-	expression tag	UNP A3DD67
C	-11	THR	-	expression tag	UNP A3DD67
C	-10	GLY	-	expression tag	UNP A3DD67
C	-9	GLY	-	expression tag	UNP A3DD67
C	-8	GLN	-	expression tag	UNP A3DD67
C	-7	GLN	-	expression tag	UNP A3DD67

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Chain	Residue	Modelled	Actual	Comment	Reference
C	-6	MET	-	expression tag	UNP A3DD67
C	-5	GLY	-	expression tag	UNP A3DD67
C	-4	ARG	-	expression tag	UNP A3DD67
C	-3	GLY	-	expression tag	UNP A3DD67
C	-2	SER	-	expression tag	UNP A3DD67
C	-1	GLU	-	expression tag	UNP A3DD67
C	0	PHE	-	expression tag	UNP A3DD67
D	-35	MET	-	expression tag	UNP A3DD67
D	-34	GLY	-	expression tag	UNP A3DD67
D	-33	SER	-	expression tag	UNP A3DD67
D	-32	SER	-	expression tag	UNP A3DD67
D	-31	HIS	-	expression tag	UNP A3DD67
D	-30	HIS	-	expression tag	UNP A3DD67
D	-29	HIS	-	expression tag	UNP A3DD67
D	-28	HIS	-	expression tag	UNP A3DD67
D	-27	HIS	-	expression tag	UNP A3DD67
D	-26	HIS	-	expression tag	UNP A3DD67
D	-25	SER	-	expression tag	UNP A3DD67
D	-24	SER	-	expression tag	UNP A3DD67
D	-23	GLY	-	expression tag	UNP A3DD67
D	-22	LEU	-	expression tag	UNP A3DD67
D	-21	VAL	-	expression tag	UNP A3DD67
D	-20	PRO	-	expression tag	UNP A3DD67
D	-19	ARG	-	expression tag	UNP A3DD67
D	-18	GLY	-	expression tag	UNP A3DD67
D	-17	SER	-	expression tag	UNP A3DD67
D	-16	HIS	-	expression tag	UNP A3DD67
D	-15	MET	-	expression tag	UNP A3DD67
D	-14	ALA	-	expression tag	UNP A3DD67
D	-13	SER	-	expression tag	UNP A3DD67
D	-12	MET	-	expression tag	UNP A3DD67
D	-11	THR	-	expression tag	UNP A3DD67
D	-10	GLY	-	expression tag	UNP A3DD67
D	-9	GLY	-	expression tag	UNP A3DD67
D	-8	GLN	-	expression tag	UNP A3DD67
D	-7	GLN	-	expression tag	UNP A3DD67
D	-6	MET	-	expression tag	UNP A3DD67
D	-5	GLY	-	expression tag	UNP A3DD67
D	-4	ARG	-	expression tag	UNP A3DD67
D	-3	GLY	-	expression tag	UNP A3DD67
D	-2	SER	-	expression tag	UNP A3DD67
D	-1	GLU	-	expression tag	UNP A3DD67

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Chain	Residue	Modelled	Actual	Comment	Reference
D	0	PHE	-	expression tag	UNP A3DD67
E	-35	MET	-	expression tag	UNP A3DD67
E	-34	GLY	-	expression tag	UNP A3DD67
E	-33	SER	-	expression tag	UNP A3DD67
E	-32	SER	-	expression tag	UNP A3DD67
E	-31	HIS	-	expression tag	UNP A3DD67
E	-30	HIS	-	expression tag	UNP A3DD67
E	-29	HIS	-	expression tag	UNP A3DD67
E	-28	HIS	-	expression tag	UNP A3DD67
E	-27	HIS	-	expression tag	UNP A3DD67
E	-26	HIS	-	expression tag	UNP A3DD67
E	-25	SER	-	expression tag	UNP A3DD67
E	-24	SER	-	expression tag	UNP A3DD67
E	-23	GLY	-	expression tag	UNP A3DD67
E	-22	LEU	-	expression tag	UNP A3DD67
E	-21	VAL	-	expression tag	UNP A3DD67
E	-20	PRO	-	expression tag	UNP A3DD67
E	-19	ARG	-	expression tag	UNP A3DD67
E	-18	GLY	-	expression tag	UNP A3DD67
E	-17	SER	-	expression tag	UNP A3DD67
E	-16	HIS	-	expression tag	UNP A3DD67
E	-15	MET	-	expression tag	UNP A3DD67
E	-14	ALA	-	expression tag	UNP A3DD67
E	-13	SER	-	expression tag	UNP A3DD67
E	-12	MET	-	expression tag	UNP A3DD67
E	-11	THR	-	expression tag	UNP A3DD67
E	-10	GLY	-	expression tag	UNP A3DD67
E	-9	GLY	-	expression tag	UNP A3DD67
E	-8	GLN	-	expression tag	UNP A3DD67
E	-7	GLN	-	expression tag	UNP A3DD67
E	-6	MET	-	expression tag	UNP A3DD67
E	-5	GLY	-	expression tag	UNP A3DD67
E	-4	ARG	-	expression tag	UNP A3DD67
E	-3	GLY	-	expression tag	UNP A3DD67
E	-2	SER	-	expression tag	UNP A3DD67
E	-1	GLU	-	expression tag	UNP A3DD67
E	0	PHE	-	expression tag	UNP A3DD67
F	-35	MET	-	expression tag	UNP A3DD67
F	-34	GLY	-	expression tag	UNP A3DD67
F	-33	SER	-	expression tag	UNP A3DD67
F	-32	SER	-	expression tag	UNP A3DD67
F	-31	HIS	-	expression tag	UNP A3DD67

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Chain	Residue	Modelled	Actual	Comment	Reference
F	-30	HIS	-	expression tag	UNP A3DD67
F	-29	HIS	-	expression tag	UNP A3DD67
F	-28	HIS	-	expression tag	UNP A3DD67
F	-27	HIS	-	expression tag	UNP A3DD67
F	-26	HIS	-	expression tag	UNP A3DD67
F	-25	SER	-	expression tag	UNP A3DD67
F	-24	SER	-	expression tag	UNP A3DD67
F	-23	GLY	-	expression tag	UNP A3DD67
F	-22	LEU	-	expression tag	UNP A3DD67
F	-21	VAL	-	expression tag	UNP A3DD67
F	-20	PRO	-	expression tag	UNP A3DD67
F	-19	ARG	-	expression tag	UNP A3DD67
F	-18	GLY	-	expression tag	UNP A3DD67
F	-17	SER	-	expression tag	UNP A3DD67
F	-16	HIS	-	expression tag	UNP A3DD67
F	-15	MET	-	expression tag	UNP A3DD67
F	-14	ALA	-	expression tag	UNP A3DD67
F	-13	SER	-	expression tag	UNP A3DD67
F	-12	MET	-	expression tag	UNP A3DD67
F	-11	THR	-	expression tag	UNP A3DD67
F	-10	GLY	-	expression tag	UNP A3DD67
F	-9	GLY	-	expression tag	UNP A3DD67
F	-8	GLN	-	expression tag	UNP A3DD67
F	-7	GLN	-	expression tag	UNP A3DD67
F	-6	MET	-	expression tag	UNP A3DD67
F	-5	GLY	-	expression tag	UNP A3DD67
F	-4	ARG	-	expression tag	UNP A3DD67
F	-3	GLY	-	expression tag	UNP A3DD67
F	-2	SER	-	expression tag	UNP A3DD67
F	-1	GLU	-	expression tag	UNP A3DD67
F	0	PHE	-	expression tag	UNP A3DD67

- Molecule 2 is an oligosaccharide called beta-D-galactopyranose-(1-4)-beta-D-glucopyranose.



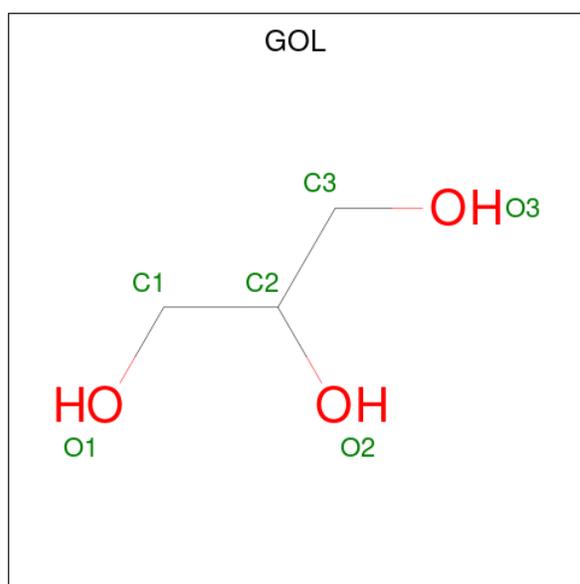
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf	Trace
			Total	C O			
2	G	2	23	12 11	0	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf	Trace
2	H	2	Total	C	O	0	0	0
			23	12	11			
2	I	2	Total	C	O	0	0	0
			23	12	11			
2	J	2	Total	C	O	0	0	0
			23	12	11			
2	K	2	Total	C	O	0	0	0
			23	12	11			
2	L	2	Total	C	O	0	0	0
			23	12	11			

- Molecule 3 is GLYCEROL (CCD ID: GOL) (formula:  $C_3H_8O_3$ ).

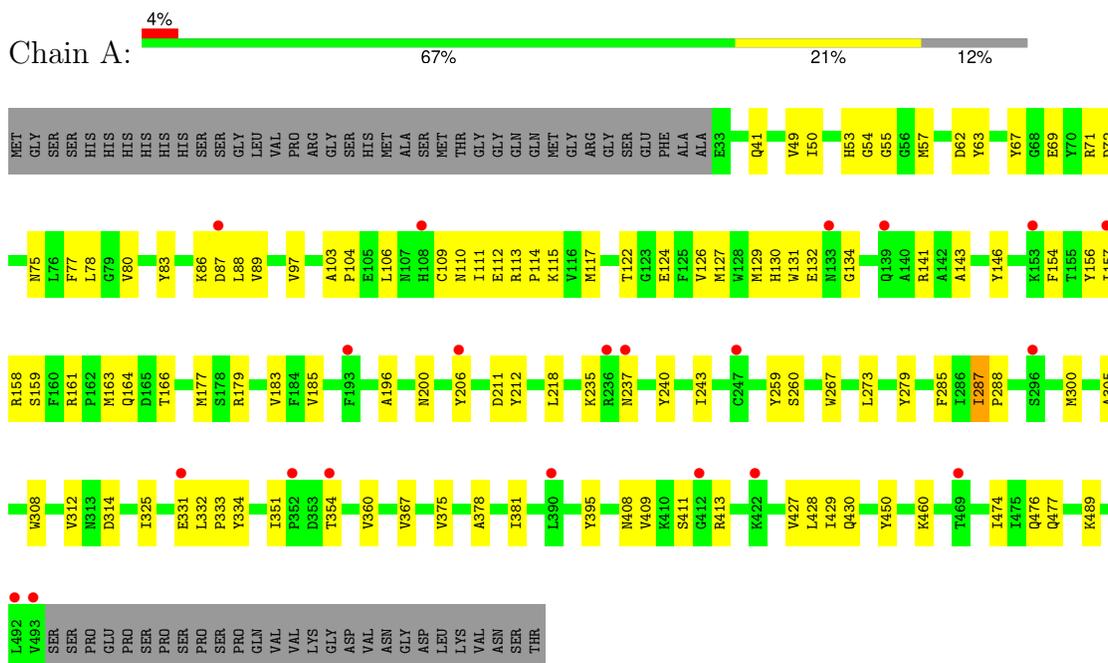


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			6	3	3		
3	C	1	Total	C	O	0	0
			6	3	3		
3	F	1	Total	C	O	0	0
			6	3	3		

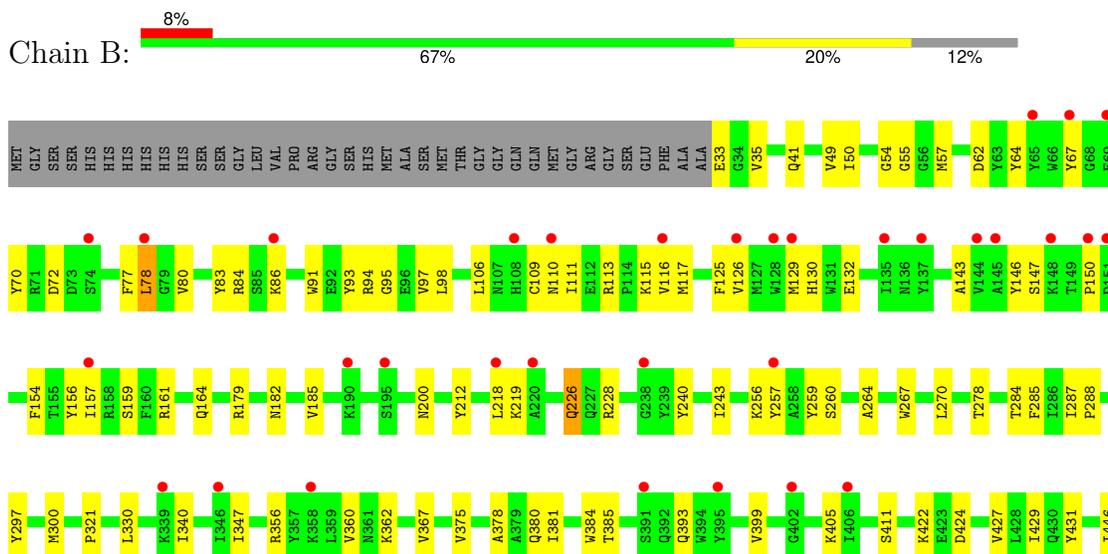
### 3 Residue-property plots i

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: Ricin B lectin



- Molecule 1: Ricin B lectin







BGC1  
GAL2

- Molecule 2: beta-D-galactopyranose-(1-4)-beta-D-glucopyranose

Chain J:  100%BGC1  
GAL2

- Molecule 2: beta-D-galactopyranose-(1-4)-beta-D-glucopyranose

Chain K:  100%BGC1  
GAL2

- Molecule 2: beta-D-galactopyranose-(1-4)-beta-D-glucopyranose

Chain L:  100%BGC1  
GAL2

## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	107.69Å 122.38Å 404.66Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.29 – 2.91 49.29 – 2.91	Depositor EDS
% Data completeness (in resolution range)	99.6 (49.29-2.91) 99.5 (49.29-2.91)	Depositor EDS
$R_{merge}$	0.14	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.67 (at 2.91Å)	Xtrriage
Refinement program	PHENIX 1.7_650	Depositor
R, $R_{free}$	0.253 , 0.269 0.245 , 0.263	Depositor DCC
$R_{free}$ test set	2116 reflections (1.81%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	63.0	Xtrriage
Anisotropy	0.490	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.35 , 45.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.46$ , $\langle L^2 \rangle = 0.29$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.91	EDS
Total number of atoms	22283	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	76.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.95% 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: BGC, GOL, GAL

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	0.23	0/3762	0.66	0/5104
1	B	0.24	0/3762	0.64	0/5104
1	C	0.24	0/3907	0.65	0/5295
1	D	0.24	0/3762	0.67	1/5104 (0.0%)
1	E	0.23	0/3762	0.66	0/5104
1	F	0.24	0/3762	0.65	0/5104
All	All	0.24	0/22717	0.65	1/30815 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	461	LEU	N-CA-C	6.96	120.00	109.41

There are no chirality outliers.

There are no planarity outliers.

### 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	3664	0	3480	78	0
1	B	3664	0	3480	79	0
1	C	3807	0	3613	62	0
1	D	3664	0	3480	124	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	3664	0	3480	58	0
1	F	3664	0	3480	71	0
2	G	23	0	20	0	0
2	H	23	0	20	1	0
2	I	23	0	20	1	0
2	J	23	0	20	0	0
2	K	23	0	21	6	0
2	L	23	0	21	1	0
3	A	6	0	8	0	0
3	C	6	0	8	0	0
3	F	6	0	8	2	0
All	All	22283	0	21159	470	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 11.

All (470) 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:C:57:MET:HE2	1:C:287:ILE:HG21	1.52	0.91
1:C:34:GLY:HA2	1:C:89:VAL:HG21	1.53	0.89
1:F:57:MET:HE2	1:F:287:ILE:HG21	1.54	0.89
1:B:84:ARG:HE	1:B:94:ARG:HE	1.22	0.88
1:D:321:PRO:HB3	1:D:347:ILE:HD13	1.58	0.85
1:D:422:LYS:HG3	1:D:458:CYS:HB3	1.58	0.84
1:E:422:LYS:HD3	1:E:458:CYS:HB3	1.59	0.84
1:C:-12:MET:HG3	1:E:155:THR:HG22	1.61	0.83
1:D:465:ARG:HG2	1:D:466:LYS:HG2	1.61	0.82
1:D:254:GLN:HG2	1:D:276:SER:HA	1.61	0.81
1:D:340:ILE:HG22	1:D:347:ILE:HG22	1.61	0.81
1:B:360:VAL:HG22	1:B:367:VAL:HG12	1.68	0.75
1:F:461:LEU:HD11	1:F:486:GLN:HB3	1.68	0.75
1:C:465:ARG:HH21	1:C:474:ILE:HG21	1.53	0.74
1:C:360:VAL:HG22	1:C:367:VAL:HG12	1.69	0.74
1:E:416:ASP:HB3	1:E:439:GLN:HG2	1.69	0.73
1:D:163:MET:HE3	1:D:166:THR:HG21	1.69	0.73
1:F:360:VAL:HG22	1:F:367:VAL:HG12	1.71	0.72
1:C:260:SER:HB2	1:C:267:TRP:HA	1.72	0.72
1:A:285:PHE:CE2	1:A:287:ILE:HG23	2.25	0.71
1:E:80:VAL:HG21	1:E:127:MET:HE1	1.73	0.71
1:A:110:ASN:HB2	1:A:132:GLU:HB2	1.73	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:285:PHE:HE2	1:A:287:ILE:HG23	1.57	0.70
1:D:380:GLN:HA	1:D:429:ILE:HG22	1.73	0.70
1:B:219:LYS:HE3	1:B:264:ALA:HB2	1.72	0.70
1:E:54:GLY:O	1:E:113:ARG:HA	1.92	0.70
1:A:72:ASP:HB3	1:A:78:LEU:HD12	1.75	0.69
1:A:360:VAL:HG22	1:A:367:VAL:HG12	1.73	0.69
1:D:110:ASN:HB2	1:D:132:GLU:HB2	1.74	0.69
1:D:387:ASN:H	1:D:392:GLN:HE22	1.40	0.69
1:D:455:SER:N	1:D:461:LEU:HD11	2.08	0.69
1:E:360:VAL:HG22	1:E:367:VAL:HG12	1.76	0.68
1:D:453:ILE:O	1:D:461:LEU:HG	1.94	0.67
1:D:454:SER:HA	1:D:461:LEU:HD21	1.77	0.67
1:B:356:ARG:HD3	1:B:393:GLN:NE2	2.10	0.67
1:D:484:THR:HA	1:D:487:HIS:CD2	2.30	0.66
1:A:287:ILE:HD11	1:A:300:MET:HE3	1.78	0.66
1:A:157:ILE:HG22	1:A:158:ARG:HG2	1.78	0.66
1:D:377:ASN:HD21	1:D:432:THR:HG23	1.61	0.66
1:F:428:LEU:HD12	1:F:475:ILE:HG22	1.78	0.65
1:C:129:MET:HG2	1:C:143:ALA:HB3	1.79	0.65
1:B:179:ARG:HG3	1:B:200:ASN:OD1	1.97	0.65
1:A:260:SER:HB2	1:A:267:TRP:HA	1.78	0.65
1:D:450:TYR:CE2	1:D:489:LYS:HE3	2.32	0.65
1:F:260:SER:HB2	1:F:267:TRP:HA	1.79	0.65
1:C:98:LEU:HD22	1:C:127:MET:HE1	1.78	0.65
1:C:-18:GLY:HA3	1:C:-15:MET:HE2	1.78	0.64
1:D:381:ILE:HG12	1:D:429:ILE:HA	1.79	0.64
1:D:69:GLU:OE1	1:D:112:GLU:HA	1.98	0.64
1:D:420:GLU:HG2	1:D:438:ASN:ND2	2.12	0.64
1:E:77:PHE:CD1	1:E:111:ILE:HB	2.33	0.64
1:C:54:GLY:O	1:C:113:ARG:HA	1.98	0.64
1:A:331:GLU:HG2	1:A:333:PRO:HD3	1.79	0.63
1:E:416:ASP:CB	1:E:439:GLN:HG2	2.29	0.63
1:E:420:GLU:HB3	1:E:457:HIS:CE1	2.34	0.63
1:D:42:PHE:HB2	1:D:50:ILE:HD11	1.80	0.62
1:E:53:HIS:O	1:E:69:GLU:HG2	2.00	0.62
1:F:77:PHE:CD1	1:F:111:ILE:HB	2.34	0.62
1:D:35:VAL:HG22	1:D:339:LYS:HA	1.80	0.62
1:D:53:HIS:O	1:D:69:GLU:HG2	1.99	0.62
1:F:98:LEU:HD23	1:F:129:MET:HE1	1.81	0.61
1:F:54:GLY:O	1:F:113:ARG:HA	1.99	0.61
1:F:250:TRP:CZ3	2:K:2:GAL:H61	2.36	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:260:SER:HB2	1:D:267:TRP:HA	1.83	0.61
1:B:54:GLY:O	1:B:113:ARG:HA	2.01	0.60
1:D:360:VAL:HA	1:D:367:VAL:HA	1.82	0.60
1:A:77:PHE:CE2	1:A:111:ILE:HD12	2.37	0.60
1:E:171:HIS:CE1	1:E:199:GLU:HB2	2.36	0.60
1:A:97:VAL:HB	1:A:154:PHE:CD2	2.37	0.60
1:D:347:ILE:HD12	1:D:347:ILE:O	2.01	0.60
1:E:111:ILE:HD11	1:E:131:TRP:HD1	1.67	0.59
1:E:260:SER:HB2	1:E:267:TRP:HA	1.84	0.59
1:D:380:GLN:NE2	1:D:474:ILE:HG13	2.17	0.59
1:B:84:ARG:NE	1:B:94:ARG:HE	1.95	0.59
1:B:161:ARG:O	1:B:164:GLN:HG3	2.02	0.59
1:C:450:TYR:CE1	1:C:489:LYS:HB2	2.38	0.59
1:E:252:PRO:HB2	1:E:277:THR:HG23	1.85	0.59
1:D:450:TYR:CD1	1:D:489:LYS:HG3	2.37	0.59
1:B:340:ILE:HG22	1:B:347:ILE:HG23	1.83	0.59
1:D:106:LEU:HD22	1:D:111:ILE:HD11	1.84	0.59
1:B:70:TYR:CZ	1:B:78:LEU:HD11	2.38	0.59
1:D:442:LYS:HB3	1:D:454:SER:OG	2.03	0.58
1:D:360:VAL:HG12	1:D:489:LYS:HB2	1.85	0.58
1:E:110:ASN:HB2	1:E:132:GLU:HB2	1.85	0.58
1:F:111:ILE:HG12	1:F:129:MET:HE2	1.85	0.58
1:D:361:ASN:HB3	1:D:364:SER:OG	2.03	0.58
1:E:129:MET:HG2	1:E:143:ALA:HB3	1.86	0.58
1:F:168:VAL:HG11	1:F:176:TYR:CE1	2.39	0.58
1:B:117:MET:HE3	1:B:185:VAL:HG22	1.87	0.57
1:D:360:VAL:CG1	1:D:489:LYS:HB2	2.34	0.57
1:F:285:PHE:HB3	1:F:300:MET:HE3	1.85	0.57
1:C:84:ARG:HH21	1:C:94:ARG:NH1	2.02	0.57
1:B:72:ASP:HB3	1:B:78:LEU:HB3	1.85	0.57
1:B:97:VAL:HB	1:B:154:PHE:CD2	2.40	0.57
1:E:97:VAL:HB	1:E:154:PHE:CD2	2.40	0.56
1:E:422:LYS:HE2	1:E:457:HIS:CD2	2.40	0.56
1:B:106:LEU:HD22	1:B:111:ILE:HD11	1.87	0.56
1:D:454:SER:C	1:D:461:LEU:HD11	2.30	0.56
1:D:97:VAL:HB	1:D:154:PHE:CD2	2.40	0.56
1:D:420:GLU:HB3	1:D:457:HIS:CE1	2.41	0.56
1:B:431:TYR:CE1	2:H:2:GAL:H62	2.40	0.56
1:B:110:ASN:HB2	1:B:132:GLU:HB2	1.88	0.56
1:F:71:ARG:HD3	1:F:312:VAL:HG11	1.87	0.56
1:F:223:PHE:HE2	1:F:242:LEU:HD23	1.70	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:223:PHE:HB3	1:F:226:GLN:HG3	1.88	0.55
1:A:103:ALA:HB3	1:A:106:LEU:HG	1.88	0.55
1:A:279:TYR:CD2	1:A:334:TYR:HB2	2.41	0.55
1:D:80:VAL:HG21	1:D:127:MET:HE1	1.89	0.55
1:F:249:GLY:H	2:K:1:BGC:C6	2.20	0.55
1:F:478:TRP:CZ3	3:F:601:GOL:H31	2.42	0.55
1:C:97:VAL:HB	1:C:154:PHE:CD2	2.41	0.55
1:B:41:GLN:HB3	1:B:49:VAL:HG23	1.88	0.55
1:A:54:GLY:O	1:A:113:ARG:HA	2.05	0.55
1:D:380:GLN:HE22	1:D:474:ILE:HG13	1.71	0.55
1:B:129:MET:HG2	1:B:143:ALA:HB3	1.89	0.55
1:F:366:LYS:HE3	1:F:385:THR:HG22	1.89	0.55
1:B:156:TYR:OH	1:B:159:SER:HB3	2.07	0.55
1:D:424:ASP:OD2	1:D:460:LYS:HD3	2.06	0.55
1:A:69:GLU:HG2	1:A:112:GLU:HA	1.88	0.54
1:F:227:GLN:HG2	1:F:247:CYS:SG	2.47	0.54
1:A:117:MET:HE3	1:A:185:VAL:HG22	1.89	0.54
1:D:256:LYS:HD3	1:D:270:LEU:HB3	1.89	0.54
1:C:163:MET:HE3	1:C:166:THR:HG21	1.89	0.54
1:D:441:TRP:HA	1:D:454:SER:O	2.07	0.54
1:B:55:GLY:HA3	1:B:67:TYR:O	2.08	0.54
1:D:453:ILE:HG23	1:D:461:LEU:HD12	1.89	0.54
1:A:63:TYR:CE1	1:A:86:LYS:HE3	2.43	0.54
1:E:163:MET:HE3	1:E:166:THR:HG21	1.89	0.53
1:F:398:ASP:HA	1:F:404:LYS:HG2	1.91	0.53
1:A:114:PRO:HB2	1:A:127:MET:HE3	1.91	0.53
1:B:77:PHE:CE1	1:B:80:VAL:HG23	2.43	0.53
1:B:126:VAL:HG21	1:B:212:TYR:HB2	1.90	0.53
1:E:80:VAL:HG21	1:E:127:MET:CE	2.38	0.53
1:F:250:TRP:CH2	2:K:2:GAL:H61	2.44	0.53
1:F:465:ARG:HH21	1:F:474:ILE:HG21	1.74	0.53
1:B:378:ALA:HA	1:B:429:ILE:HD12	1.91	0.53
1:C:77:PHE:CD1	1:C:111:ILE:HB	2.44	0.53
1:C:63:TYR:CE1	1:C:86:LYS:HE3	2.44	0.53
1:A:325:ILE:HD11	1:A:331:GLU:OE2	2.10	0.52
1:B:57:MET:HE3	1:B:287:ILE:HG21	1.91	0.52
1:D:41:GLN:HB3	1:D:49:VAL:HG13	1.90	0.52
1:B:78:LEU:C	1:B:78:LEU:HD12	2.35	0.52
1:B:446:ILE:HD13	1:B:452:LYS:HG3	1.90	0.52
1:C:84:ARG:HE	1:C:94:ARG:NE	2.06	0.52
1:E:179:ARG:HG3	1:E:200:ASN:OD1	2.10	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:93:TYR:CZ	1:F:95:GLY:HA2	2.44	0.52
1:A:63:TYR:CZ	1:A:86:LYS:HE3	2.44	0.52
1:B:226:GLN:HB3	1:B:228:ARG:HG2	1.90	0.52
1:D:54:GLY:O	1:D:113:ARG:HA	2.09	0.52
1:E:168:VAL:HG11	1:E:176:TYR:CE1	2.44	0.52
1:D:376:ASP:C	1:D:413:ARG:HH12	2.17	0.52
1:F:450:TYR:CE1	1:F:489:LYS:HB2	2.45	0.52
1:B:97:VAL:HB	1:B:154:PHE:HD2	1.74	0.52
1:B:362:LYS:HE2	1:B:450:TYR:CZ	2.45	0.52
1:D:476:GLN:HG2	1:D:477:GLN:H	1.75	0.52
1:B:260:SER:HB2	1:B:267:TRP:HA	1.92	0.52
1:E:223:PHE:HE2	1:E:242:LEU:HD23	1.74	0.51
1:D:157:ILE:HG22	1:D:158:ARG:HG2	1.91	0.51
1:A:129:MET:HG2	1:A:143:ALA:HB3	1.91	0.51
1:C:-13:SER:HA	1:C:492:LEU:HD11	1.92	0.51
1:B:422:LYS:HE3	1:B:457:HIS:NE2	2.26	0.51
1:C:223:PHE:HE2	1:C:242:LEU:HD23	1.76	0.51
1:A:378:ALA:HA	1:A:429:ILE:HD12	1.93	0.51
1:D:299:TYR:HB3	1:D:320:LEU:O	2.11	0.51
1:A:237:ASN:OD1	1:F:448:ASP:HA	2.10	0.51
1:B:72:ASP:HA	1:B:78:LEU:HD23	1.92	0.51
1:C:179:ARG:HG3	1:C:200:ASN:OD1	2.11	0.51
1:A:106:LEU:HD11	1:A:156:TYR:CD2	2.45	0.50
1:C:55:GLY:HA3	1:C:67:TYR:O	2.12	0.50
1:E:157:ILE:HD11	1:E:213:LYS:HD2	1.93	0.50
1:F:478:TRP:CD2	3:F:601:GOL:H11	2.47	0.50
1:A:126:VAL:HG21	1:A:212:TYR:HB2	1.92	0.50
1:B:288:PRO:HG3	1:B:297:TYR:CE1	2.45	0.50
1:F:249:GLY:H	2:K:1:BGC:H6C2	1.76	0.50
1:D:84:ARG:HG2	1:D:94:ARG:HD3	1.93	0.50
1:E:277:THR:HG22	1:E:277:THR:O	2.12	0.50
1:D:55:GLY:HA3	1:D:67:TYR:O	2.11	0.50
1:D:245:SER:HB3	1:D:283:PRO:HD2	1.93	0.50
1:F:59:LYS:HD3	1:F:64:TYR:CE1	2.47	0.50
1:F:135:ILE:HG22	1:F:136:ASN:HD22	1.76	0.50
1:D:382:VAL:HG21	1:D:384:TRP:HE1	1.77	0.50
1:E:420:GLU:HB3	1:E:457:HIS:HE1	1.77	0.50
1:B:77:PHE:HE1	1:B:80:VAL:HG23	1.76	0.49
1:C:442:LYS:HG3	1:F:100:ARG:NH1	2.27	0.49
1:B:67:TYR:CE2	1:B:116:VAL:HG21	2.47	0.49
1:B:380:GLN:HE22	1:B:427:VAL:HG13	1.77	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:55:GLY:HA3	1:E:67:TYR:O	2.12	0.49
1:E:381:ILE:HG12	1:E:429:ILE:HA	1.93	0.49
1:D:285:PHE:HB3	1:D:300:MET:HE3	1.94	0.49
1:D:381:ILE:HG22	1:D:475:ILE:HG13	1.94	0.49
1:B:218:LEU:O	1:B:218:LEU:HD12	2.12	0.49
1:D:358:LYS:HG2	1:D:392:GLN:O	2.12	0.49
1:F:325:ILE:HD11	1:F:331:GLU:OE1	2.11	0.49
1:D:377:ASN:ND2	1:D:432:THR:HG23	2.28	0.49
1:D:450:TYR:HA	1:D:489:LYS:HA	1.95	0.49
1:D:460:LYS:O	1:D:461:LEU:HD13	2.13	0.49
1:C:106:LEU:HD22	1:C:111:ILE:HD11	1.95	0.49
1:D:236:ARG:HA	1:D:297:TYR:OH	2.13	0.49
1:D:382:VAL:HA	1:D:475:ILE:HG12	1.95	0.49
1:F:135:ILE:HD12	1:F:135:ILE:N	2.28	0.49
1:C:98:LEU:HD22	1:C:127:MET:CE	2.42	0.48
1:C:362:LYS:HE3	1:C:484:THR:HG22	1.94	0.48
1:E:70:TYR:HB3	1:E:79:GLY:O	2.12	0.48
1:D:462:ILE:HA	1:D:476:GLN:O	2.13	0.48
1:F:325:ILE:H	1:F:325:ILE:HD12	1.79	0.48
1:D:77:PHE:CD1	1:D:111:ILE:HB	2.48	0.48
1:D:425:GLY:HA2	1:D:476:GLN:CD	2.39	0.48
1:E:383:GLN:O	1:E:383:GLN:HG3	2.12	0.48
1:A:146:TYR:CD2	1:A:157:ILE:HD11	2.49	0.48
1:F:305:ALA:HA	1:F:308:TRP:CZ2	2.48	0.48
1:A:50:ILE:HG23	1:A:83:TYR:CE1	2.49	0.48
1:B:321:PRO:HB3	1:B:347:ILE:HG22	1.95	0.48
1:E:93:TYR:CZ	1:E:95:GLY:HA2	2.49	0.48
1:A:57:MET:CB	1:A:300:MET:HE1	2.45	0.47
1:B:50:ILE:HG23	1:B:83:TYR:CE1	2.50	0.47
1:F:430:GLN:O	1:F:430:GLN:HG3	2.14	0.47
1:A:395:TYR:CE2	1:A:409:VAL:HG22	2.49	0.47
1:D:126:VAL:HG21	1:D:212:TYR:HB2	1.95	0.47
1:E:126:VAL:HG21	1:E:212:TYR:HB2	1.94	0.47
1:D:398:ASP:HA	1:D:404:LYS:HG2	1.94	0.47
1:F:231:PRO:HA	1:F:244:THR:HG22	1.95	0.47
1:A:161:ARG:O	1:A:164:GLN:HG3	2.14	0.47
1:B:109:CYS:HB2	1:B:132:GLU:O	2.15	0.47
1:C:285:PHE:HE2	1:C:287:ILE:HB	1.80	0.47
1:C:378:ALA:HA	1:C:429:ILE:HD12	1.97	0.47
1:D:454:SER:CA	1:D:461:LEU:HD11	2.45	0.47
1:E:252:PRO:HB2	1:E:277:THR:CG2	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:70:TYR:HB3	1:F:79:GLY:O	2.15	0.47
1:B:356:ARG:HD3	1:B:393:GLN:HE22	1.79	0.47
1:D:474:ILE:HD12	1:D:474:ILE:N	2.30	0.47
1:E:284:THR:HG22	1:E:300:MET:O	2.14	0.47
1:E:383:GLN:HB3	1:E:475:ILE:HD11	1.97	0.47
1:D:395:TYR:CE2	1:D:409:VAL:HG22	2.49	0.47
1:F:331:GLU:HG2	1:F:333:PRO:HD3	1.97	0.47
1:C:362:LYS:HB2	1:C:450:TYR:CE1	2.49	0.47
1:D:364:SER:HA	1:D:469:THR:OG1	2.14	0.47
1:D:338:VAL:HG12	1:D:340:ILE:HG23	1.96	0.47
1:D:376:ASP:O	1:D:379:ALA:HB2	2.14	0.46
1:F:285:PHE:HE2	1:F:287:ILE:HB	1.79	0.46
1:F:363:ASN:HB2	1:F:484:THR:OG1	2.15	0.46
1:A:235:LYS:HD2	1:A:240:TYR:CE2	2.50	0.46
1:C:321:PRO:HB3	1:C:347:ILE:HG22	1.95	0.46
1:E:71:ARG:HH11	1:E:75:ASN:ND2	2.13	0.46
1:A:62:ASP:O	1:A:86:LYS:HG2	2.16	0.46
1:C:235:LYS:HD2	1:C:240:TYR:CE2	2.51	0.46
1:D:291:GLY:HA3	1:D:345:GLY:HA3	1.96	0.46
1:D:384:TRP:CZ3	1:D:471:ASP:HB3	2.50	0.46
1:D:444:THR:OG1	1:D:452:LYS:HB2	2.16	0.46
1:E:305:ALA:HA	1:E:308:TRP:CZ2	2.51	0.46
1:B:147:SER:HB2	1:B:154:PHE:HA	1.97	0.46
1:D:296:SER:HB2	1:D:347:ILE:HD11	1.97	0.46
1:A:57:MET:HE3	1:A:300:MET:HE1	1.98	0.46
1:F:55:GLY:HA3	1:F:67:TYR:O	2.16	0.46
1:D:35:VAL:HG11	1:D:337:SER:HB3	1.98	0.46
1:D:129:MET:CG	1:D:143:ALA:HB3	2.46	0.46
1:D:448:ASP:O	1:D:489:LYS:HE2	2.15	0.46
1:F:282:GLN:HE22	2:K:2:GAL:H3	1.81	0.46
1:B:83:TYR:HB3	1:B:91:TRP:HB3	1.98	0.46
1:F:286:ILE:HD13	1:F:322:LEU:HD22	1.97	0.46
1:A:375:VAL:HG12	1:A:411:SER:HB3	1.97	0.45
1:C:58:LEU:HD22	1:C:116:VAL:HG12	1.97	0.45
1:A:41:GLN:HB3	1:A:49:VAL:HG23	1.98	0.45
1:A:122:THR:OG1	1:A:124:GLU:HG2	2.16	0.45
1:A:129:MET:CG	1:A:143:ALA:HB3	2.46	0.45
1:B:130:HIS:CE1	1:B:179:ARG:HD3	2.51	0.45
1:E:362:LYS:HD3	1:E:450:TYR:CZ	2.51	0.45
1:A:57:MET:HB2	1:A:300:MET:HE1	1.97	0.45
1:A:97:VAL:HB	1:A:154:PHE:HD2	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:351:ILE:HD12	1:A:351:ILE:N	2.32	0.45
1:D:147:SER:HB2	1:D:154:PHE:HA	1.98	0.45
1:D:357:TYR:O	1:D:393:GLN:HA	2.17	0.45
1:D:377:ASN:HD21	1:D:432:THR:H	1.65	0.45
1:F:223:PHE:CE2	1:F:242:LEU:HD23	2.51	0.45
1:A:87:ASP:OD1	1:A:89:VAL:HB	2.17	0.45
1:C:77:PHE:CZ	1:C:111:ILE:HD12	2.51	0.45
1:C:366:LYS:HE3	1:C:385:THR:HG22	1.99	0.45
1:D:243:ILE:N	1:D:243:ILE:HD12	2.31	0.45
1:D:360:VAL:O	1:D:488:TRP:HA	2.16	0.45
2:L:1:BGC:O3	2:L:2:GAL:O5	2.34	0.45
1:B:93:TYR:CZ	1:B:95:GLY:HA2	2.52	0.45
1:D:234:ILE:HD11	1:D:241:TYR:HB2	1.98	0.45
1:F:284:THR:HG22	1:F:300:MET:O	2.17	0.45
1:A:55:GLY:HA3	1:A:67:TYR:O	2.16	0.45
1:C:59:LYS:HD3	1:C:64:TYR:CE1	2.52	0.45
1:C:350:TYR:O	1:C:352:PRO:HD3	2.17	0.45
1:D:114:PRO:HB2	1:D:127:MET:HE3	1.98	0.45
1:F:287:ILE:HA	1:F:288:PRO:HD3	1.86	0.45
1:A:474:ILE:HD12	1:A:474:ILE:N	2.32	0.45
1:C:64:TYR:O	1:C:84:ARG:HA	2.17	0.45
1:C:287:ILE:HA	1:C:288:PRO:HD3	1.85	0.45
1:E:351:ILE:N	1:E:351:ILE:HD12	2.31	0.45
1:A:206:TYR:CE1	1:A:218:LEU:HD23	2.53	0.44
1:B:465:ARG:HG2	1:B:466:LYS:HG2	1.99	0.44
1:C:381:ILE:HG12	1:C:429:ILE:HA	1.98	0.44
1:F:395:TYR:CE2	1:F:409:VAL:HG22	2.53	0.44
1:F:351:ILE:HD12	1:F:351:ILE:N	2.32	0.44
1:C:399:VAL:HG21	1:C:440:HIS:NE2	2.33	0.44
1:D:42:PHE:HB2	1:D:50:ILE:CD1	2.47	0.44
1:D:284:THR:HG22	1:D:300:MET:O	2.17	0.44
1:D:454:SER:HA	1:D:461:LEU:CD2	2.45	0.44
1:D:87:ASP:O	1:D:88:LEU:HB2	2.18	0.44
1:A:243:ILE:N	1:A:243:ILE:HD12	2.33	0.44
1:A:381:ILE:HG12	1:A:429:ILE:HA	1.98	0.44
1:D:467:TRP:HH2	1:D:484:THR:OG1	2.00	0.44
1:E:202:ASP:OD1	1:E:224:VAL:HG23	2.16	0.44
1:E:465:ARG:HG2	1:E:466:LYS:HG2	1.99	0.44
1:A:156:TYR:OH	1:A:159:SER:HB3	2.18	0.44
1:C:50:ILE:HG23	1:C:83:TYR:CE1	2.52	0.44
1:B:106:LEU:HD11	1:B:156:TYR:CD2	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:385:THR:HG23	1:C:471:ASP:OD1	2.17	0.44
1:E:106:LEU:HD11	1:E:156:TYR:CD2	2.52	0.44
1:C:270:LEU:HD12	1:C:270:LEU:N	2.32	0.44
1:D:85:SER:HB3	1:D:91:TRP:HA	1.98	0.44
1:F:325:ILE:HD12	1:F:325:ILE:N	2.32	0.44
1:A:474:ILE:HD12	1:A:474:ILE:H	1.82	0.44
1:F:64:TYR:CG	1:F:88:LEU:HD21	2.53	0.44
1:D:461:LEU:HD13	1:D:461:LEU:HA	1.55	0.43
1:A:279:TYR:CE2	1:A:334:TYR:HB2	2.53	0.43
1:B:146:TYR:CD2	1:B:157:ILE:HD11	2.53	0.43
1:B:287:ILE:HA	1:B:288:PRO:HD3	1.90	0.43
1:B:381:ILE:HG12	1:B:429:ILE:HA	2.00	0.43
1:D:106:LEU:HD11	1:D:156:TYR:CD2	2.53	0.43
1:D:168:VAL:HG21	1:D:176:TYR:CE1	2.52	0.43
1:D:387:ASN:H	1:D:392:GLN:NE2	2.12	0.43
1:E:492:LEU:HD12	1:E:492:LEU:N	2.33	0.43
1:B:399:VAL:HG11	1:B:405:LYS:HG3	2.01	0.43
1:C:57:MET:HE3	1:C:64:TYR:CD1	2.54	0.43
1:C:354:THR:HG22	1:C:354:THR:O	2.17	0.43
1:D:110:ASN:OD1	1:D:134:GLY:HA2	2.19	0.43
1:D:453:ILE:C	1:D:461:LEU:HG	2.44	0.43
1:A:103:ALA:HB1	1:A:104:PRO:HD2	1.99	0.43
1:A:131:TRP:CE3	1:A:141:ARG:HD2	2.52	0.43
1:B:385:THR:HG23	1:B:471:ASP:OD1	2.18	0.43
1:B:424:ASP:HB3	1:B:478:TRP:CE3	2.53	0.43
1:B:450:TYR:HA	1:B:488:TRP:O	2.18	0.43
1:C:284:THR:HG22	1:C:300:MET:O	2.18	0.43
1:D:135:ILE:HG13	1:D:136:ASN:ND2	2.34	0.43
1:F:363:ASN:ND2	1:F:467:TRP:HE3	2.16	0.43
1:B:240:TYR:O	1:B:259:TYR:HA	2.18	0.43
1:C:305:ALA:HA	1:C:308:TRP:CZ2	2.53	0.43
1:F:57:MET:HB2	1:F:300:MET:HE1	2.01	0.43
1:F:209:THR:HB	1:F:210:PRO:HD2	2.01	0.43
1:F:492:LEU:N	1:F:492:LEU:HD12	2.33	0.43
1:C:243:ILE:N	1:C:243:ILE:HD12	2.34	0.43
1:C:425:GLY:HA2	1:C:476:GLN:CD	2.44	0.43
1:E:375:VAL:HG12	1:E:411:SER:HB3	2.01	0.43
1:A:110:ASN:OD1	1:A:134:GLY:HA2	2.18	0.43
1:A:305:ALA:HA	1:A:308:TRP:CZ2	2.53	0.43
1:D:357:TYR:CE2	1:D:492:LEU:HG	2.54	0.43
1:D:381:ILE:HD11	1:D:430:GLN:HB3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:257:TYR:CE2	1:B:330:LEU:HD13	2.53	0.43
1:C:63:TYR:CE1	1:C:84:ARG:NH1	2.87	0.43
1:D:117:MET:HE2	1:D:183:VAL:HB	2.00	0.43
1:D:305:ALA:HB3	1:D:311:LYS:O	2.18	0.43
1:E:256:LYS:HD2	1:E:270:LEU:HD23	2.00	0.43
1:A:115:LYS:HB3	1:A:183:VAL:HG22	2.01	0.43
1:C:52:ALA:HB1	1:C:68:GLY:HA3	2.00	0.43
1:D:278:THR:HG22	1:D:278:THR:O	2.18	0.43
1:E:130:HIS:CE1	1:E:179:ARG:HA	2.54	0.43
1:F:384:TRP:CE3	1:F:471:ASP:HB3	2.53	0.43
1:B:33:GLU:HG2	1:B:35:VAL:HG12	1.99	0.43
1:B:126:VAL:HG11	1:B:212:TYR:O	2.18	0.43
1:C:130:HIS:CE1	1:C:179:ARG:HD3	2.54	0.43
1:D:351:ILE:N	1:D:351:ILE:HD12	2.34	0.43
1:D:460:LYS:C	1:D:461:LEU:HD22	2.43	0.43
1:E:122:THR:OG1	1:E:124:GLU:HG2	2.18	0.43
1:E:399:VAL:HG11	1:E:405:LYS:HG3	2.01	0.43
1:F:229:GLU:CD	2:K:2:GAL:O2	2.62	0.43
1:F:364:SER:OG	1:F:366:LYS:HG2	2.19	0.43
1:D:234:ILE:C	1:D:234:ILE:HD12	2.44	0.42
1:F:243:ILE:N	1:F:243:ILE:HD12	2.33	0.42
1:A:161:ARG:HH22	1:A:177:MET:HG2	1.83	0.42
1:B:285:PHE:HB3	1:B:300:MET:HE3	2.00	0.42
1:A:87:ASP:O	1:A:88:LEU:HB2	2.18	0.42
1:A:460:LYS:HB2	1:A:477:GLN:HG2	2.01	0.42
1:B:450:TYR:CE1	1:B:489:LYS:HB2	2.54	0.42
1:E:130:HIS:CE1	1:E:179:ARG:HD3	2.54	0.42
1:B:64:TYR:O	1:B:84:ARG:HA	2.20	0.42
1:B:125:PHE:CZ	1:B:150:PRO:HG3	2.54	0.42
1:C:420:GLU:CD	2:I:1:BGC:H6C1	2.45	0.42
1:D:59:LYS:HD3	1:D:64:TYR:CD1	2.54	0.42
1:D:454:SER:HA	1:D:461:LEU:HD11	2.00	0.42
1:E:57:MET:HE3	1:E:287:ILE:HG21	2.01	0.42
1:E:197:ALA:HB3	1:E:204:HIS:CE1	2.55	0.42
1:F:57:MET:HE3	1:F:64:TYR:CD1	2.54	0.42
1:B:243:ILE:HD12	1:B:243:ILE:N	2.35	0.42
1:F:97:VAL:HB	1:F:154:PHE:CD2	2.55	0.42
1:B:321:PRO:HB3	1:B:347:ILE:CG2	2.49	0.42
1:E:331:GLU:HG2	1:E:333:PRO:HD3	2.02	0.42
1:E:450:TYR:CE1	1:E:489:LYS:HB2	2.55	0.42
1:D:397:VAL:HB	1:D:405:LYS:HG3	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:114:PRO:HB2	1:E:127:MET:HE3	2.02	0.42
1:E:413:ARG:NH1	1:E:432:THR:HG22	2.35	0.42
1:D:64:TYR:CG	1:D:88:LEU:HD21	2.55	0.42
1:D:394:TRP:CE3	1:D:406:ILE:HG22	2.55	0.42
1:A:240:TYR:O	1:A:259:TYR:HA	2.19	0.42
1:A:287:ILE:HA	1:A:288:PRO:HD3	1.89	0.42
1:D:354:THR:HG22	1:D:354:THR:O	2.20	0.42
1:D:36:ILE:HD12	1:D:42:PHE:CZ	2.55	0.41
1:F:70:TYR:O	1:F:78:LEU:HB2	2.19	0.41
1:F:130:HIS:CD2	1:F:179:ARG:HA	2.54	0.41
1:F:180:ASP:O	1:F:195:SER:HA	2.19	0.41
1:A:450:TYR:CE2	1:A:489:LYS:HE3	2.55	0.41
1:D:454:SER:HA	1:D:461:LEU:CG	2.50	0.41
1:E:243:ILE:HD12	1:E:243:ILE:N	2.35	0.41
1:F:382:VAL:HA	1:F:475:ILE:HG12	2.02	0.41
1:A:80:VAL:HG21	1:A:127:MET:HE1	2.02	0.41
1:A:411:SER:C	1:A:413:ARG:H	2.28	0.41
1:C:129:MET:CG	1:C:143:ALA:HB3	2.47	0.41
1:C:356:ARG:HB2	1:C:493:VAL:HG21	2.01	0.41
1:B:72:ASP:CA	1:B:78:LEU:HD23	2.50	0.41
1:A:354:THR:HG22	1:A:354:THR:O	2.20	0.41
1:B:384:TRP:CZ3	1:B:471:ASP:HB3	2.54	0.41
1:B:466:LYS:HE2	1:B:466:LYS:HA	2.01	0.41
1:E:251:ASN:HA	1:E:252:PRO:HD3	1.94	0.41
1:F:385:THR:HG23	1:F:471:ASP:OD1	2.20	0.41
1:A:430:GLN:O	1:A:430:GLN:HG3	2.19	0.41
1:B:284:THR:HG22	1:B:300:MET:O	2.20	0.41
1:F:354:THR:HG22	1:F:354:THR:O	2.21	0.41
1:A:161:ARG:NH2	1:A:177:MET:HG2	2.36	0.41
1:B:62:ASP:O	1:B:86:LYS:HG2	2.21	0.41
1:C:104:PRO:HA	1:C:107:ASN:OD1	2.20	0.41
1:D:357:TYR:HE1	1:D:396:LEU:HD12	1.86	0.41
1:E:71:ARG:HH11	1:E:75:ASN:HD21	1.67	0.41
1:A:53:HIS:HD2	1:A:312:VAL:HG12	1.85	0.41
1:A:71:ARG:NH1	1:A:312:VAL:HG11	2.36	0.41
1:C:206:TYR:HB3	1:C:215:ILE:HG23	2.03	0.41
1:C:230:ALA:HB1	1:C:283:PRO:O	2.20	0.41
1:A:71:ARG:HB3	1:A:75:ASN:HA	2.01	0.41
1:A:80:VAL:HG11	1:A:127:MET:HE1	2.03	0.41
1:A:163:MET:HE3	1:A:166:THR:HG21	2.02	0.41
1:A:408:ASN:HB3	1:A:411:SER:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:428:LEU:HD13	1:A:476:GLN:C	2.46	0.41
1:B:80:VAL:HB	1:B:98:LEU:HB3	2.03	0.41
1:C:42:PHE:CE2	1:C:317:TYR:HB2	2.56	0.41
1:C:84:ARG:HE	1:C:94:ARG:CZ	2.34	0.41
1:C:128:TRP:HB3	1:C:193:PHE:CE1	2.56	0.41
1:D:66:TRP:CD1	1:D:66:TRP:C	2.99	0.41
1:D:234:ILE:CD1	1:D:241:TYR:HB2	2.51	0.41
1:D:467:TRP:HH2	1:D:484:THR:HG1	1.69	0.41
1:F:72:ASP:HB3	1:F:78:LEU:HD11	2.02	0.41
1:F:129:MET:CG	1:F:143:ALA:HB3	2.51	0.41
1:F:461:LEU:CD1	1:F:486:GLN:HB3	2.43	0.41
1:A:109:CYS:HB2	1:A:132:GLU:O	2.21	0.41
1:B:384:TRP:CE3	1:B:471:ASP:HB3	2.55	0.41
1:B:492:LEU:HD12	1:B:492:LEU:N	2.36	0.41
1:D:369:ASP:OD1	1:D:391:SER:HB2	2.21	0.41
1:B:111:ILE:HA	1:B:130:HIS:O	2.21	0.40
1:D:296:SER:OG	1:D:347:ILE:HG13	2.21	0.40
1:F:446:ILE:HG12	1:F:450:TYR:O	2.21	0.40
1:B:70:TYR:OH	1:B:78:LEU:HD11	2.22	0.40
1:A:273:LEU:HD11	1:A:332:LEU:HB2	2.02	0.40
1:B:256:LYS:HD3	1:B:270:LEU:HB3	2.04	0.40
1:B:278:THR:HG22	1:B:278:THR:O	2.22	0.40
1:B:375:VAL:HG12	1:B:411:SER:HB3	2.03	0.40
1:C:446:ILE:HG21	1:C:452:LYS:HG3	2.04	0.40
1:D:345:GLY:O	1:D:346:ILE:HD12	2.22	0.40
1:D:403:TYR:HB3	1:D:440:HIS:HB3	2.03	0.40
1:F:413:ARG:NH1	1:F:432:THR:HG22	2.36	0.40
1:A:41:GLN:HE22	1:A:314:ASP:HA	1.86	0.40
1:A:130:HIS:NE2	1:A:179:ARG:HA	2.37	0.40
1:A:196:ALA:HB1	1:A:200:ASN:HA	2.03	0.40
1:B:449:GLY:O	1:B:489:LYS:HA	2.22	0.40
1:A:211:ASP:O	1:A:212:TYR:HB2	2.20	0.40
1:B:115:LYS:HG3	1:B:182:ASN:HA	2.03	0.40
1:C:64:TYR:CG	1:C:88:LEU:HD21	2.56	0.40
1:D:35:VAL:CG2	1:D:339:LYS:HE3	2.51	0.40
1:D:119:ASN:HB3	1:D:122:THR:OG1	2.22	0.40
1:D:129:MET:HG2	1:D:143:ALA:HB3	2.03	0.40
1:D:130:HIS:CE1	1:D:179:ARG:HA	2.57	0.40

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	459/526 (87%)	436 (95%)	23 (5%)	0	100	100
1	B	459/526 (87%)	434 (95%)	25 (5%)	0	100	100
1	C	480/526 (91%)	460 (96%)	20 (4%)	0	100	100
1	D	459/526 (87%)	429 (94%)	30 (6%)	0	100	100
1	E	459/526 (87%)	439 (96%)	20 (4%)	0	100	100
1	F	459/526 (87%)	440 (96%)	19 (4%)	0	100	100
All	All	2775/3156 (88%)	2638 (95%)	137 (5%)	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	389/442 (88%)	387 (100%)	2 (0%)	86	95
1	B	389/442 (88%)	387 (100%)	2 (0%)	86	95
1	C	402/442 (91%)	401 (100%)	1 (0%)	92	98
1	D	389/442 (88%)	383 (98%)	6 (2%)	60	84
1	E	389/442 (88%)	388 (100%)	1 (0%)	91	97
1	F	389/442 (88%)	387 (100%)	2 (0%)	86	95
All	All	2347/2652 (88%)	2333 (99%)	14 (1%)	84	94

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	287	ILE
1	A	427	VAL
1	B	78	LEU
1	B	226	GLN
1	C	427	VAL
1	D	339	LYS
1	D	346	ILE
1	D	347	ILE
1	D	446	ILE
1	D	461	LEU
1	D	470	GLU
1	E	270	LEU
1	F	270	LEU
1	F	427	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (22) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	60	HIS
1	A	101	ASN
1	A	476	GLN
1	A	487	HIS
1	B	48	ASN
1	B	75	ASN
1	B	130	HIS
1	C	-8	GLN
1	C	60	HIS
1	C	75	ASN
1	D	254	GLN
1	D	392	GLN
1	D	430	GLN
1	D	457	HIS
1	D	477	GLN
1	D	487	HIS
1	E	171	HIS
1	E	457	HIS
1	F	60	HIS
1	F	107	ASN
1	F	171	HIS
1	F	457	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

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	BGC	G	1	2	12,12,12	1.62	3 (25%)	17,17,17	0.95	0
2	GAL	G	2	2	11,11,12	2.16	4 (36%)	15,15,17	0.81	0
2	BGC	H	1	2	12,12,12	1.64	3 (25%)	17,17,17	1.10	0
2	GAL	H	2	2	11,11,12	2.14	4 (36%)	15,15,17	0.74	0
2	BGC	I	1	2	12,12,12	1.62	3 (25%)	17,17,17	0.99	0
2	GAL	I	2	2	11,11,12	2.11	5 (45%)	15,15,17	1.01	1 (6%)
2	BGC	J	1	2	12,12,12	1.61	3 (25%)	17,17,17	1.33	2 (11%)
2	GAL	J	2	2	11,11,12	2.12	4 (36%)	15,15,17	1.00	2 (13%)
2	BGC	K	1	2	12,12,12	0.46	0	17,17,17	0.52	0
2	GAL	K	2	2	11,11,12	0.27	0	15,15,17	0.52	0
2	BGC	L	1	2	12,12,12	0.45	0	17,17,17	0.52	0
2	GAL	L	2	2	11,11,12	0.25	0	15,15,17	0.53	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	BGC	G	1	2	-	2/2/22/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GAL	G	2	2	-	0/2/19/22	0/1/1/1
2	BGC	H	1	2	-	1/2/22/22	0/1/1/1
2	GAL	H	2	2	-	0/2/19/22	0/1/1/1
2	BGC	I	1	2	-	2/2/22/22	0/1/1/1
2	GAL	I	2	2	-	0/2/19/22	0/1/1/1
2	BGC	J	1	2	-	2/2/22/22	0/1/1/1
2	GAL	J	2	2	-	2/2/19/22	0/1/1/1
2	BGC	K	1	2	-	2/2/22/22	0/1/1/1
2	GAL	K	2	2	-	0/2/19/22	0/1/1/1
2	BGC	L	1	2	-	1/2/22/22	0/1/1/1
2	GAL	L	2	2	-	2/2/19/22	0/1/1/1

All (29) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	J	2	GAL	C4-C3	-3.89	1.42	1.52
2	G	2	GAL	C4-C3	-3.89	1.42	1.52
2	H	2	GAL	C2-C3	-3.83	1.46	1.52
2	H	2	GAL	C4-C3	-3.82	1.42	1.52
2	G	2	GAL	C2-C3	-3.77	1.46	1.52
2	I	2	GAL	C4-C3	-3.75	1.42	1.52
2	I	1	BGC	O5-C1	3.74	1.52	1.42
2	G	1	BGC	O5-C1	3.73	1.52	1.42
2	H	1	BGC	O5-C1	3.71	1.51	1.42
2	I	2	GAL	C2-C3	-3.70	1.46	1.52
2	J	1	BGC	O5-C1	3.68	1.51	1.42
2	J	2	GAL	C2-C3	-3.67	1.46	1.52
2	G	2	GAL	O5-C1	-2.58	1.39	1.43
2	H	2	GAL	O5-C1	-2.56	1.39	1.43
2	I	2	GAL	O5-C1	-2.47	1.39	1.43
2	J	2	GAL	O5-C5	2.37	1.48	1.43
2	H	1	BGC	C1-C2	-2.36	1.46	1.52
2	J	1	BGC	C3-C2	-2.28	1.46	1.52
2	H	1	BGC	C3-C2	-2.27	1.46	1.52
2	J	2	GAL	O5-C1	-2.26	1.39	1.43
2	J	1	BGC	C1-C2	-2.25	1.47	1.52
2	I	1	BGC	C3-C2	-2.22	1.46	1.52
2	G	1	BGC	C3-C2	-2.20	1.46	1.52
2	G	1	BGC	C1-C2	-2.17	1.47	1.52
2	I	2	GAL	O5-C5	2.15	1.47	1.43
2	G	2	GAL	O5-C5	2.15	1.47	1.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	H	2	GAL	O5-C5	2.11	1.47	1.43
2	I	1	BGC	C1-C2	-2.08	1.47	1.52
2	I	2	GAL	O3-C3	2.00	1.47	1.43

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	J	1	BGC	C4-C3-C2	2.86	115.86	110.83
2	I	2	GAL	C1-C2-C3	2.43	113.19	109.64
2	J	1	BGC	C3-C4-C5	2.35	114.50	110.23
2	J	2	GAL	C1-C2-C3	2.09	112.69	109.64
2	J	2	GAL	O6-C6-C5	2.03	118.25	111.33

There are no chirality outliers.

All (14) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	G	1	BGC	O5-C5-C6-O6
2	L	2	GAL	C4-C5-C6-O6
2	G	1	BGC	C4-C5-C6-O6
2	L	2	GAL	O5-C5-C6-O6
2	J	1	BGC	O5-C5-C6-O6
2	K	1	BGC	C4-C5-C6-O6
2	J	2	GAL	C4-C5-C6-O6
2	K	1	BGC	O5-C5-C6-O6
2	I	1	BGC	C4-C5-C6-O6
2	H	1	BGC	O5-C5-C6-O6
2	I	1	BGC	O5-C5-C6-O6
2	J	2	GAL	O5-C5-C6-O6
2	J	1	BGC	C4-C5-C6-O6
2	L	1	BGC	C4-C5-C6-O6

There are no ring outliers.

6 monomers are involved in 9 short contacts:

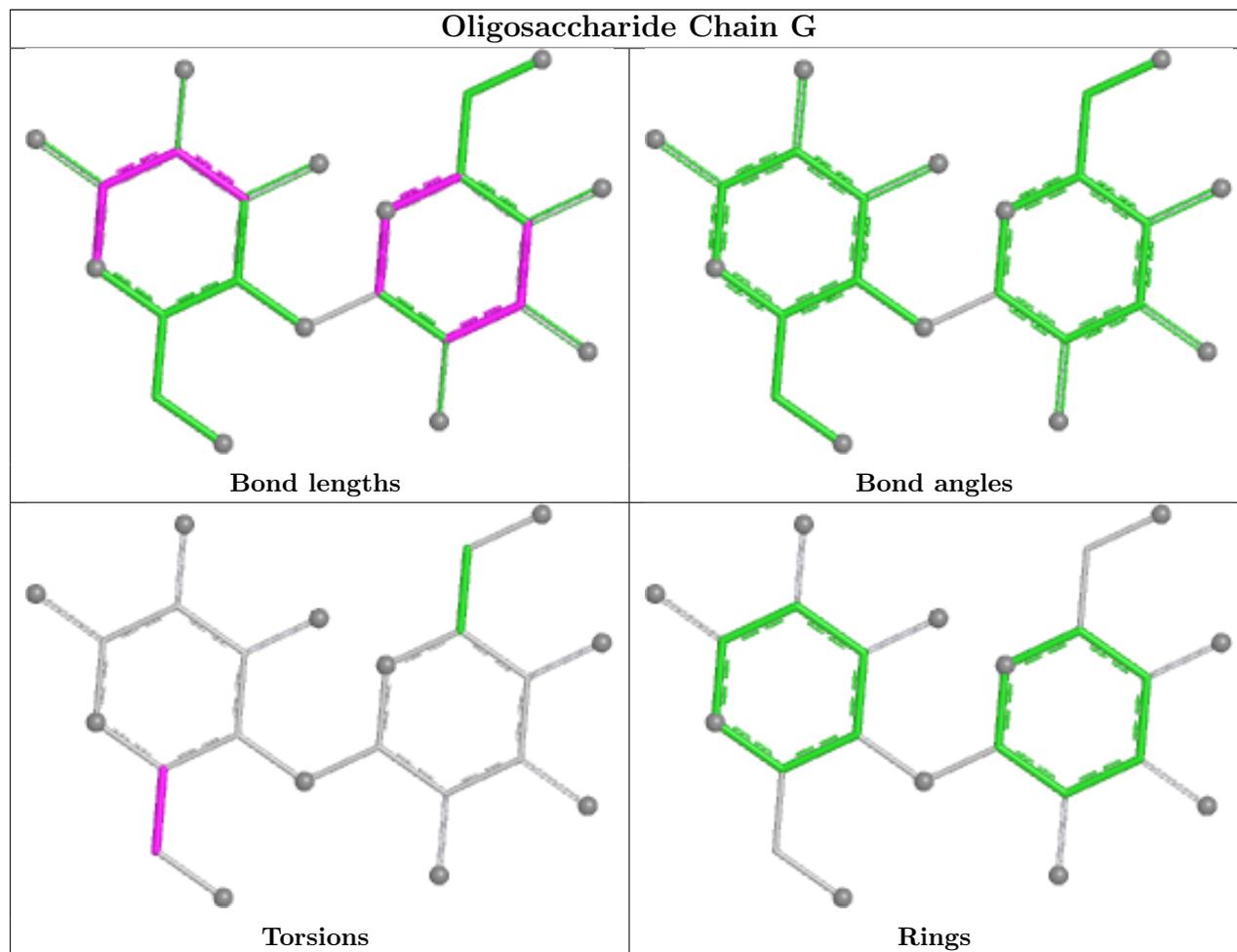
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	L	1	BGC	1	0
2	I	1	BGC	1	0
2	K	1	BGC	2	0
2	K	2	GAL	4	0
2	L	2	GAL	1	0

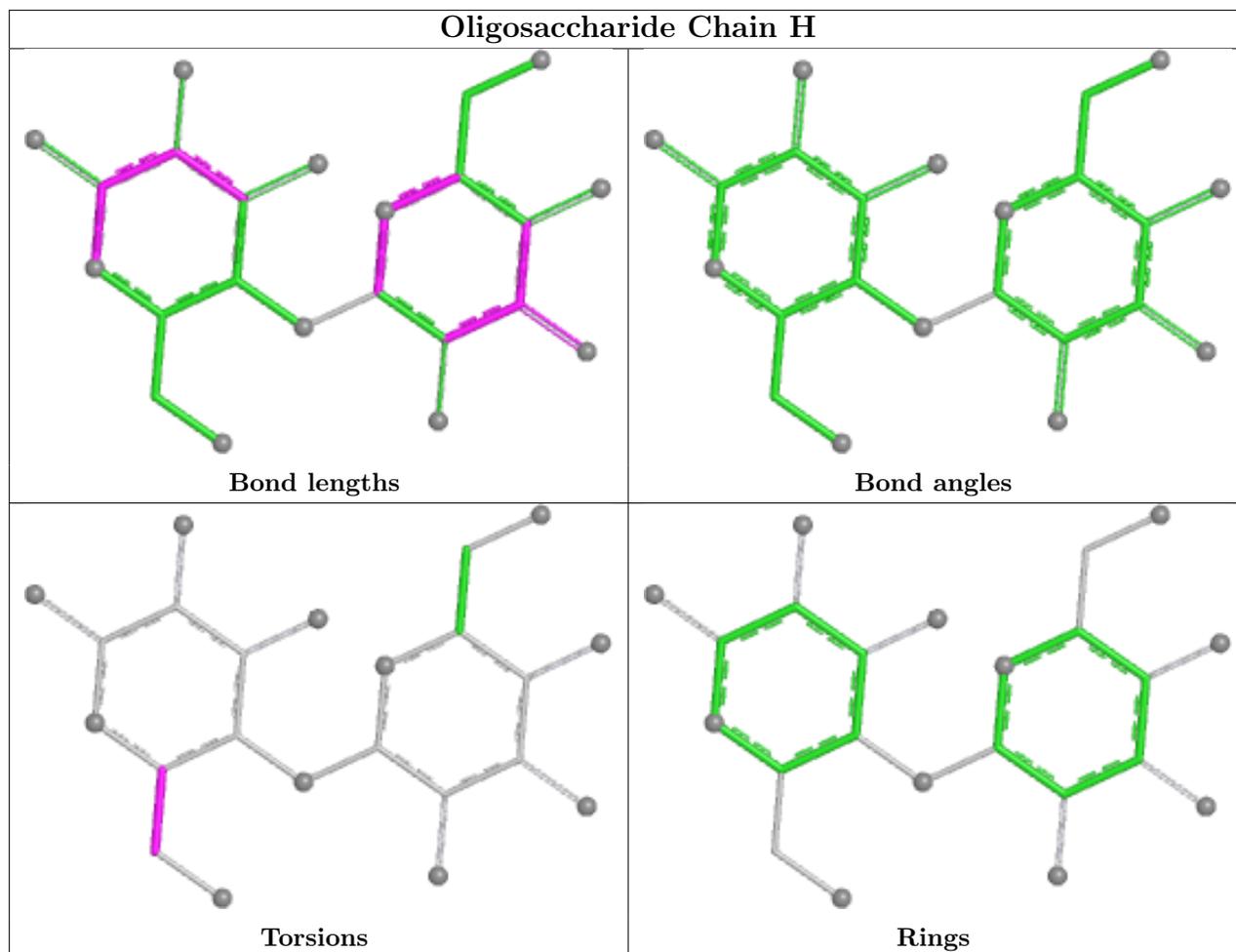
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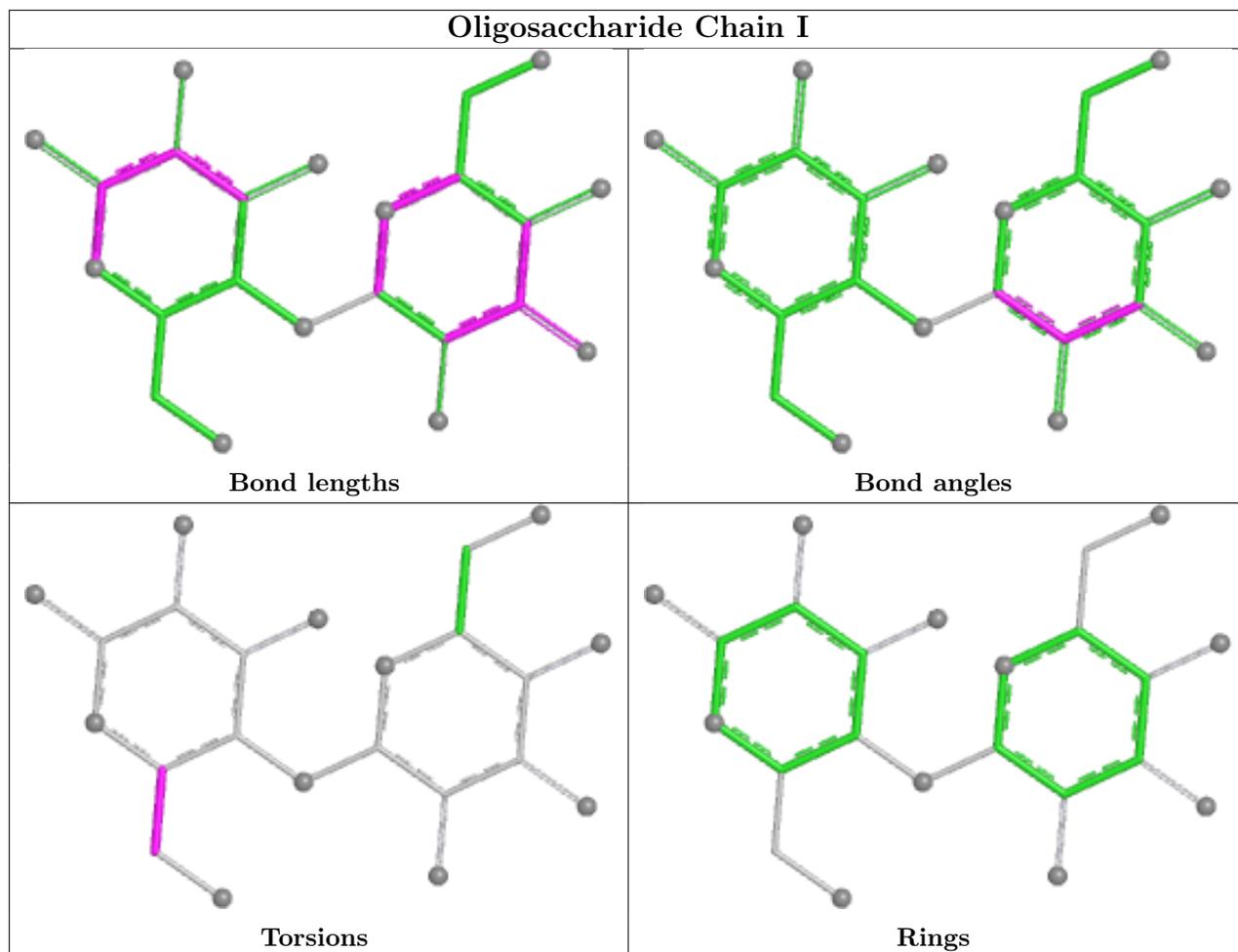
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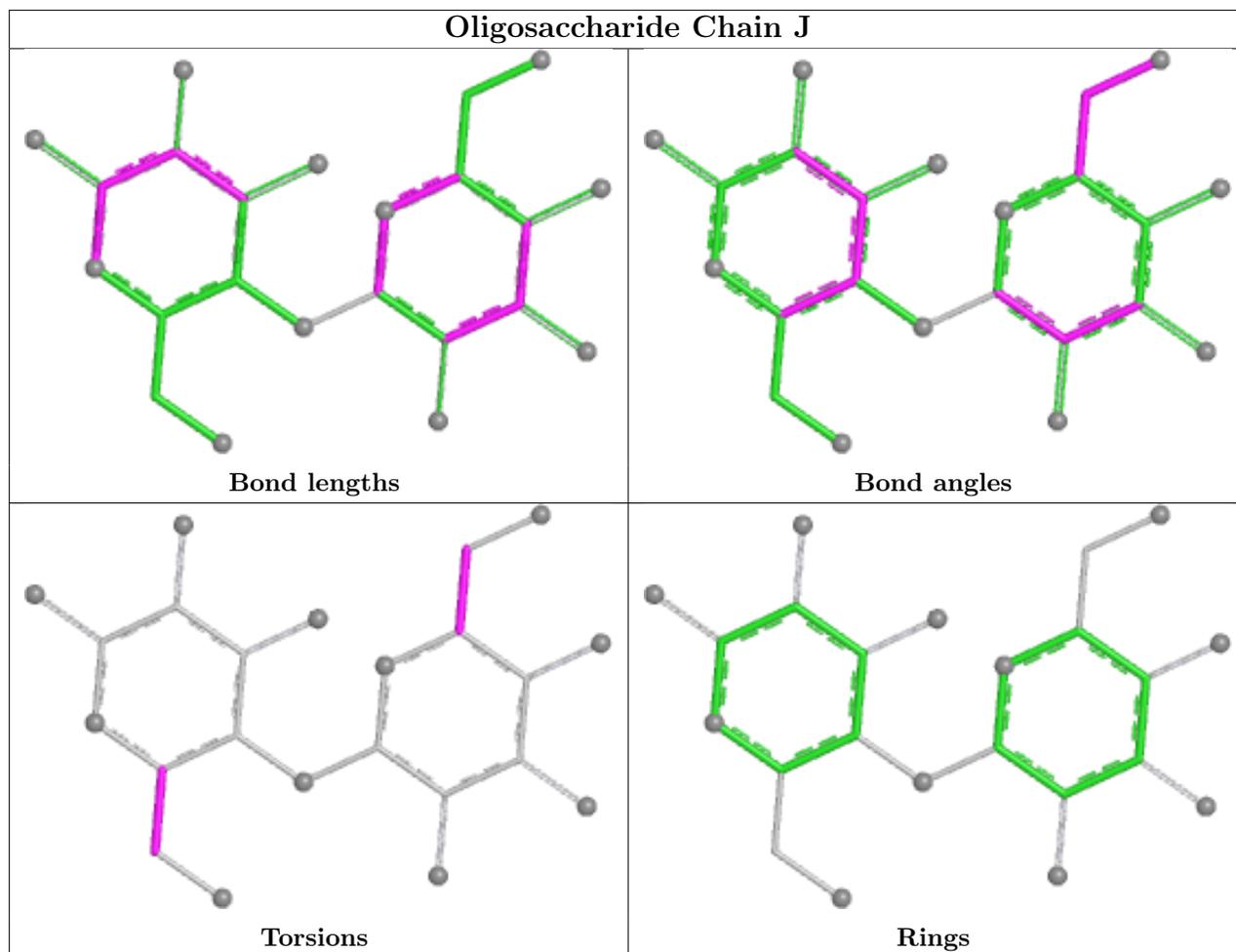
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	H	2	GAL	1	0

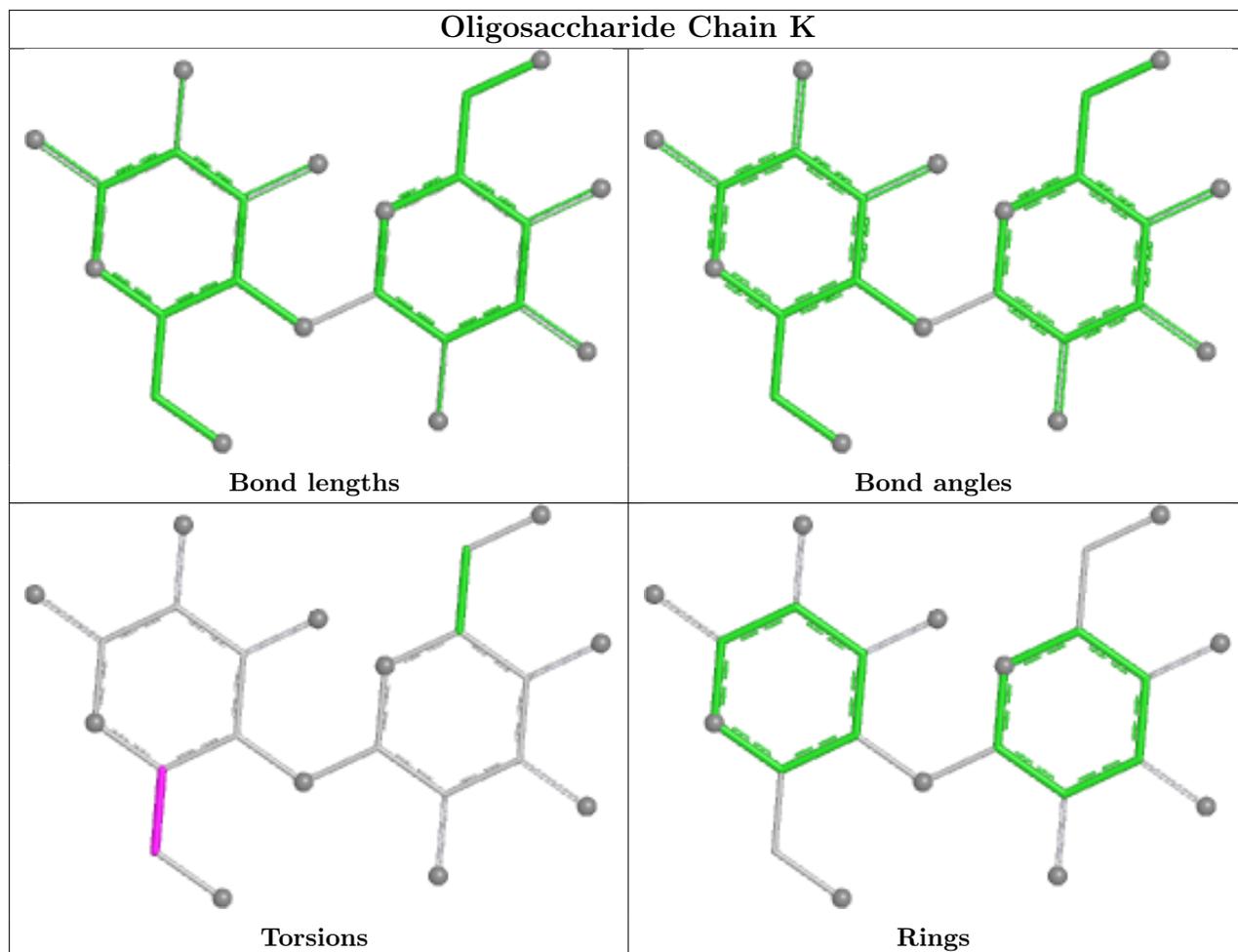
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

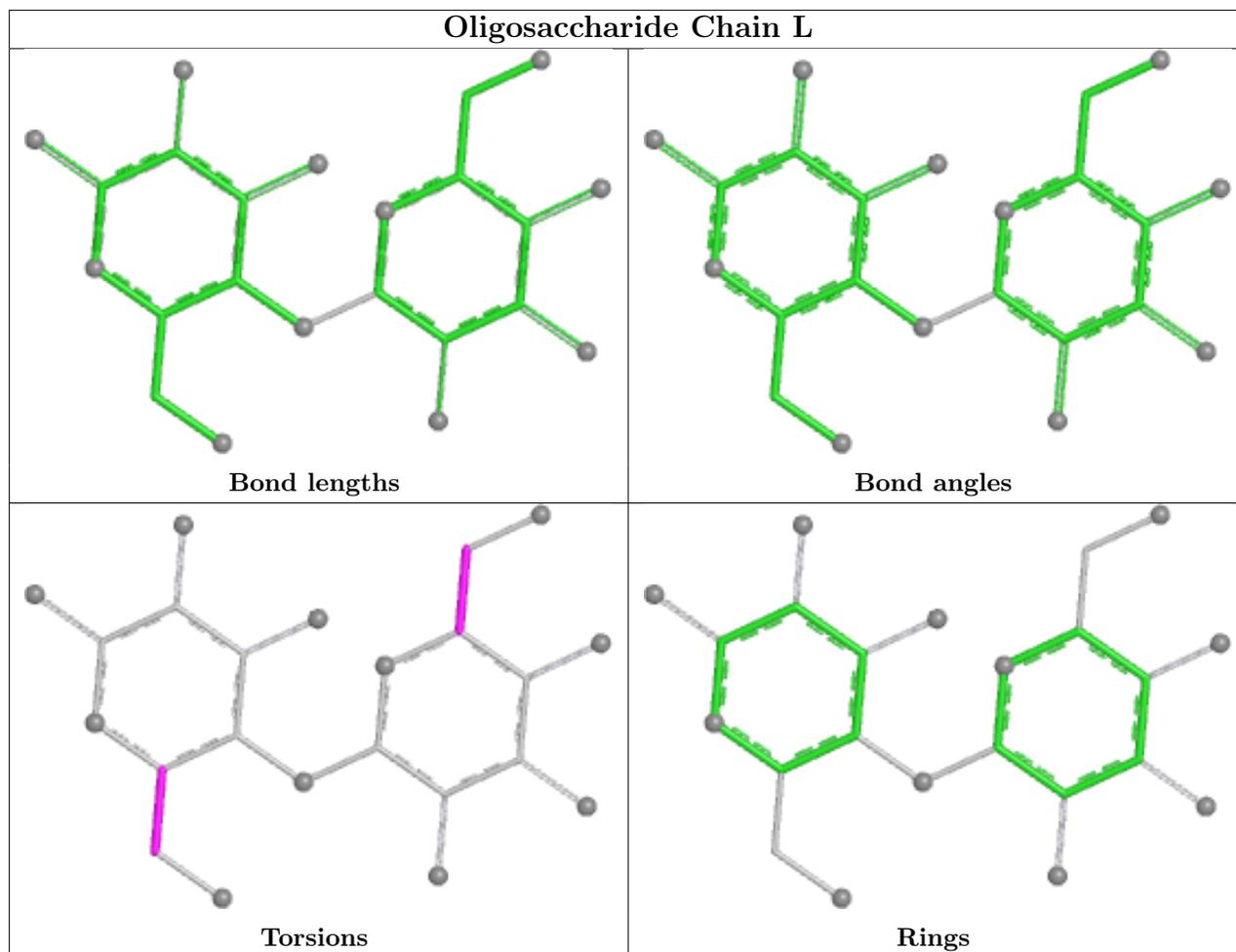












## 5.6 Ligand geometry [i](#)

3 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	$\# Z  > 2$
3	GOL	A	601	-	5,5,5	0.37	0	5,5,5	0.30	0
3	GOL	C	601	-	5,5,5	0.35	0	5,5,5	0.26	0
3	GOL	F	601	-	5,5,5	0.39	0	5,5,5	0.29	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
3	GOL	A	601	-	-	2/4/4/4	-
3	GOL	C	601	-	-	2/4/4/4	-
3	GOL	F	601	-	-	2/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	601	GOL	O1-C1-C2-C3
3	A	601	GOL	O1-C1-C2-C3
3	F	601	GOL	O1-C1-C2-C3
3	C	601	GOL	O1-C1-C2-O2
3	A	601	GOL	O1-C1-C2-O2
3	F	601	GOL	O1-C1-C2-O2

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	601	GOL	2	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	461/526 (87%)	0.82	21 (4%) 38 32	57, 82, 97, 108	0
1	B	461/526 (87%)	0.98	40 (8%) 17 15	68, 91, 110, 114	0
1	C	482/526 (91%)	0.25	10 (2%) 63 57	48, 59, 74, 102	0
1	D	461/526 (87%)	1.35	106 (22%) 2 3	55, 86, 148, 153	0
1	E	461/526 (87%)	0.45	12 (2%) 57 51	54, 69, 85, 97	0
1	F	461/526 (87%)	0.45	19 (4%) 42 35	47, 65, 83, 101	0
All	All	2787/3156 (88%)	0.71	208 (7%) 22 19	47, 74, 114, 153	0

All (208) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	390	LEU	6.4
1	D	375	VAL	5.9
1	D	427	VAL	5.9
1	D	493	VAL	5.8
1	D	380	GLN	5.6
1	D	492	LEU	5.4
1	D	453	ILE	5.3
1	D	384	TRP	5.1
1	D	110	ASN	5.1
1	D	443	PHE	4.8
1	F	493	VAL	4.7
1	D	472	GLY	4.7
1	A	493	VAL	4.7
1	B	493	VAL	4.5
1	C	69	GLU	4.3
1	D	464	VAL	4.2
1	D	473	GLY	4.2
1	C	-6	MET	4.2
1	D	374	SER	4.2

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	D	482	GLY	4.0
1	D	491	VAL	3.9
1	D	396	LEU	3.9
1	D	478	TRP	3.8
1	E	110	ASN	3.8
1	D	475	ILE	3.8
1	D	368	LEU	3.7
1	D	383	GLN	3.7
1	D	455	SER	3.6
1	D	452	LYS	3.6
1	D	415	LEU	3.6
1	C	-4	ARG	3.6
1	D	474	ILE	3.6
1	D	486	GLN	3.6
1	A	492	LEU	3.6
1	D	442	LYS	3.5
1	D	444	THR	3.5
1	D	490	LEU	3.4
1	E	358	LYS	3.4
1	D	373	GLY	3.3
1	B	469	THR	3.3
1	D	389	SER	3.3
1	D	484	THR	3.3
1	D	347	ILE	3.3
1	D	450	TYR	3.3
1	D	371	LEU	3.2
1	D	422	LYS	3.2
1	D	457	HIS	3.2
1	B	492	LEU	3.2
1	C	42	PHE	3.2
1	D	410	LYS	3.1
1	D	393	GLN	3.1
1	D	441	TRP	3.1
1	F	388	GLY	3.0
1	D	462	ILE	3.0
1	D	401	GLY	3.0
1	A	133	ASN	3.0
1	D	357	TYR	2.9
1	C	-18	GLY	2.9
1	D	352	PRO	2.9
1	D	353	ASP	2.8
1	D	439	GLN	2.8

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	D	354	THR	2.8
1	D	382	VAL	2.8
1	D	358	LYS	2.8
1	D	426	GLY	2.8
1	D	391	SER	2.8
1	D	370	VAL	2.8
1	D	407	VAL	2.8
1	A	331	GLU	2.8
1	F	492	LEU	2.8
1	B	135	ILE	2.8
1	D	481	ALA	2.8
1	E	493	VAL	2.7
1	B	150	PRO	2.7
1	D	400	GLY	2.7
1	C	-13	SER	2.7
1	D	421	SER	2.7
1	D	295	THR	2.7
1	F	449	GLY	2.7
1	A	237	ASN	2.7
1	B	358	LYS	2.7
1	B	157	ILE	2.7
1	C	110	ASN	2.7
1	D	477	GLN	2.7
1	D	57	MET	2.7
1	D	395	TYR	2.7
1	D	355	THR	2.6
1	D	431	TYR	2.6
1	A	139	GLN	2.6
1	D	95	GLY	2.6
1	E	412	GLY	2.6
1	A	206	TYR	2.6
1	B	220	ALA	2.6
1	F	247	CYS	2.6
1	D	402	GLY	2.6
1	D	63	TYR	2.5
1	B	453	ILE	2.5
1	D	408	ASN	2.5
1	D	436	GLY	2.5
1	C	70	TYR	2.5
1	D	378	ALA	2.5
1	A	193	PHE	2.5
1	D	480	ASP	2.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	A	469	THR	2.5
1	F	328	THR	2.5
1	B	65	TYR	2.5
1	D	351	ILE	2.5
1	B	148	LYS	2.5
1	E	492	LEU	2.5
1	B	116	VAL	2.5
1	A	157	ILE	2.5
1	A	352	PRO	2.4
1	D	367	VAL	2.4
1	D	363	ASN	2.4
1	E	466	LYS	2.4
1	B	137	TYR	2.4
1	D	463	ASP	2.4
1	D	468	SER	2.4
1	D	471	ASP	2.4
1	E	276	SER	2.4
1	F	180	ASP	2.4
1	D	470	GLU	2.4
1	A	236	ARG	2.4
1	D	454	SER	2.4
1	B	126	VAL	2.4
1	B	144	VAL	2.4
1	D	399	VAL	2.4
1	E	264	ALA	2.4
1	B	78	LEU	2.4
1	B	74	SER	2.4
1	D	85	SER	2.4
1	D	394	TRP	2.4
1	F	364	SER	2.4
1	B	406	ILE	2.4
1	D	429	ILE	2.4
1	D	446	ILE	2.4
1	B	110	ASN	2.4
1	A	247	CYS	2.3
1	D	385	THR	2.3
1	D	428	LEU	2.3
1	B	339	LYS	2.3
1	D	397	VAL	2.3
1	D	406	ILE	2.3
1	F	33	GLU	2.3
1	D	387	ASN	2.3

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	395	TYR	2.3
1	F	452	LYS	2.3
1	A	108	HIS	2.3
1	E	331	GLU	2.3
1	D	405	LYS	2.3
1	A	412	GLY	2.3
1	D	346	ILE	2.3
1	A	296	SER	2.3
1	B	151	ASP	2.3
1	D	338	VAL	2.2
1	B	488	TRP	2.2
1	F	359	LEU	2.2
1	A	422	LYS	2.2
1	D	288	PRO	2.2
1	B	238	GLY	2.2
1	B	402	GLY	2.2
1	E	137	TYR	2.2
1	B	69	GLU	2.2
1	D	488	TRP	2.2
1	B	67	TYR	2.2
1	D	264	ALA	2.2
1	D	124	GLU	2.2
1	D	386	ASP	2.2
1	F	134	GLY	2.2
1	D	350	TYR	2.2
1	A	153	LYS	2.2
1	D	418	LYS	2.2
1	B	346	ILE	2.2
1	D	276	SER	2.2
1	D	325	ILE	2.2
1	D	35	VAL	2.2
1	F	172	GLY	2.1
1	B	129	MET	2.1
1	F	137	TYR	2.1
1	B	190	LYS	2.1
1	E	490	LEU	2.1
1	B	128	TRP	2.1
1	D	36	ILE	2.1
1	B	482	GLY	2.1
1	C	-11	THR	2.1
1	F	432	THR	2.1
1	D	437	TYR	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	423	GLU	2.1
1	F	229	GLU	2.1
1	A	87	ASP	2.1
1	B	86	LYS	2.1
1	B	218	LEU	2.1
1	D	359	LEU	2.1
1	F	396	LEU	2.1
1	F	135	ILE	2.1
1	A	354	THR	2.0
1	C	-7	GLN	2.0
1	B	195	SER	2.0
1	B	257	TYR	2.0
1	B	108	HIS	2.0
1	F	490	LEU	2.0
1	B	145	ALA	2.0
1	D	379	ALA	2.0
1	D	430	GLN	2.0
1	B	391	SER	2.0
1	B	491	VAL	2.0
1	D	467	TRP	2.0
1	A	390	LEU	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, 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.

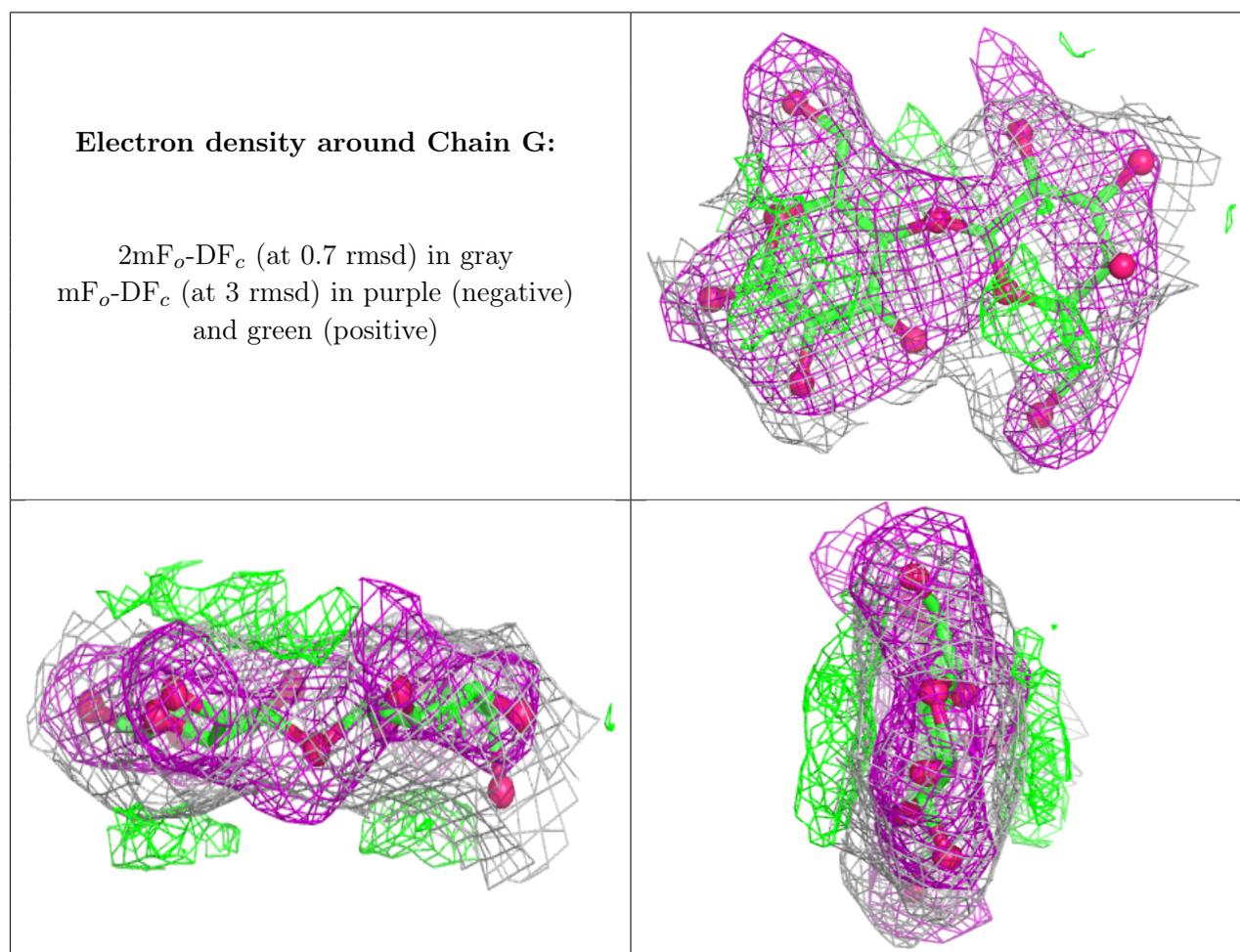
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	GAL	K	2	11/12	0.65	0.18	19,19,19,19	0
2	BGC	K	1	12/12	0.71	0.16	19,19,19,19	0
2	BGC	H	1	12/12	0.73	0.13	19,19,19,19	0
2	BGC	G	1	12/12	0.81	0.13	19,19,19,19	0
2	BGC	J	1	12/12	0.82	0.12	19,19,19,19	0
2	BGC	I	1	12/12	0.83	0.13	19,19,19,19	0
2	GAL	H	2	11/12	0.86	0.11	19,19,19,19	0

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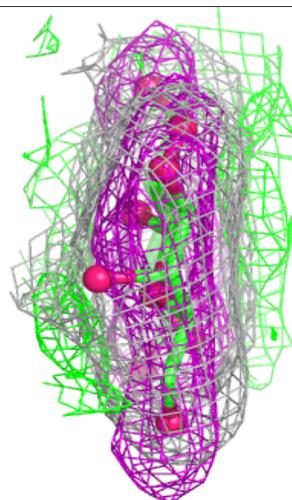
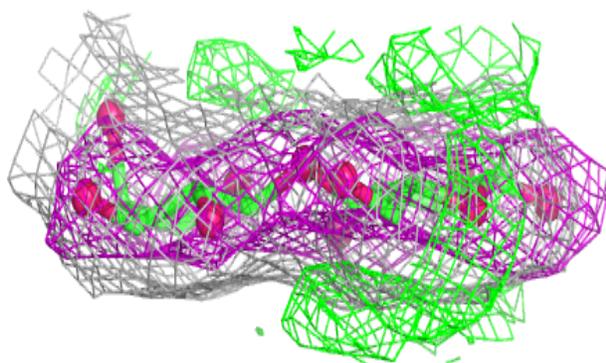
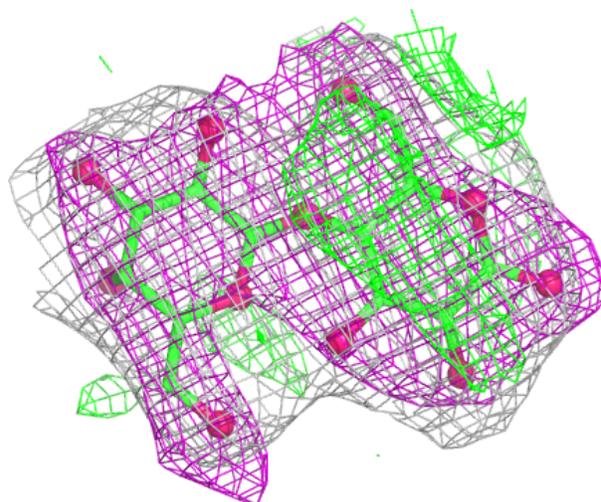
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	BGC	L	1	12/12	0.86	0.12	19,19,19,19	0
2	GAL	J	2	11/12	0.87	0.11	19,19,19,19	0
2	GAL	G	2	11/12	0.87	0.10	19,19,19,19	0
2	GAL	I	2	11/12	0.88	0.10	19,19,19,19	0
2	GAL	L	2	11/12	0.88	0.11	19,19,19,19	0

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.



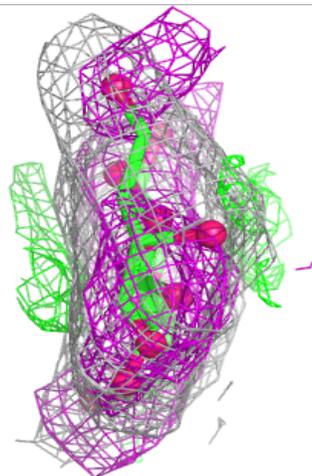
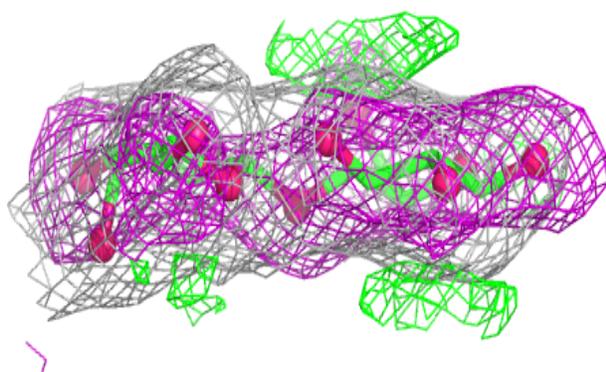
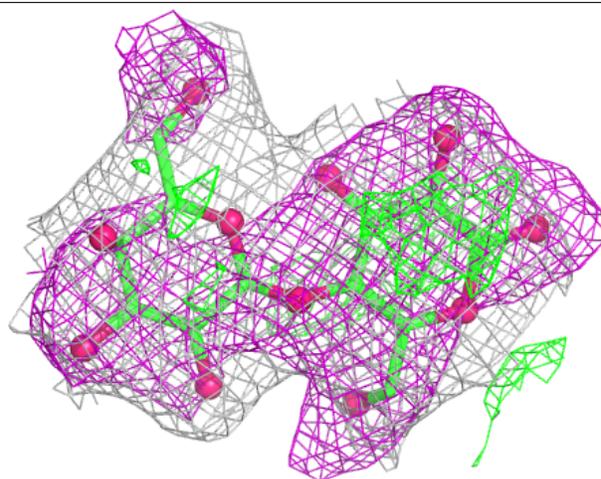
**Electron density around Chain H:**

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



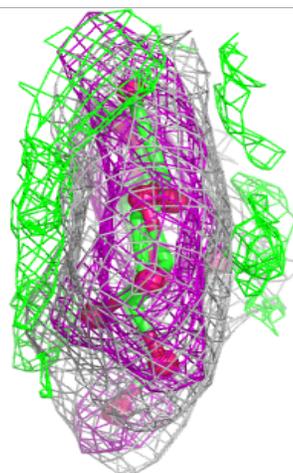
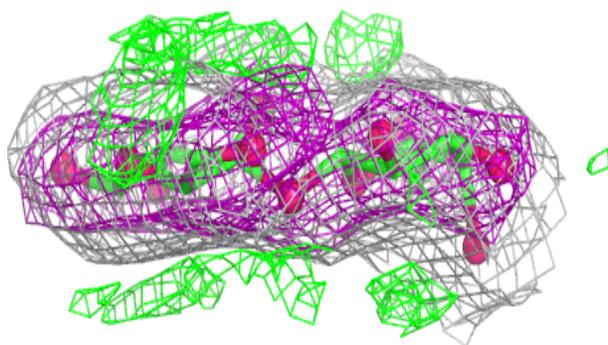
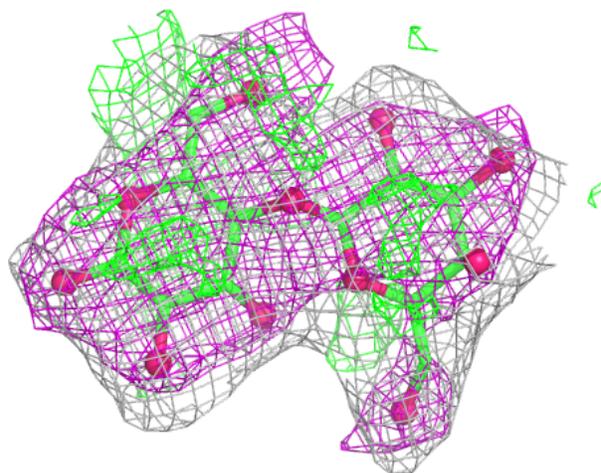
**Electron density around Chain I:**

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



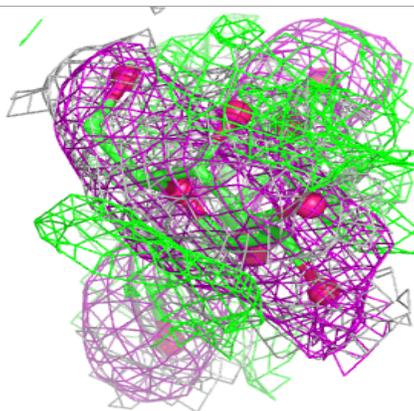
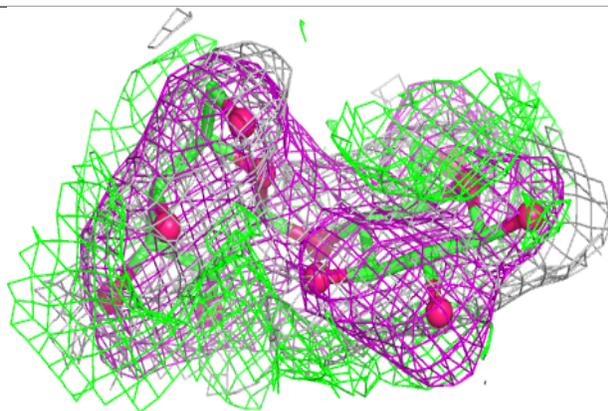
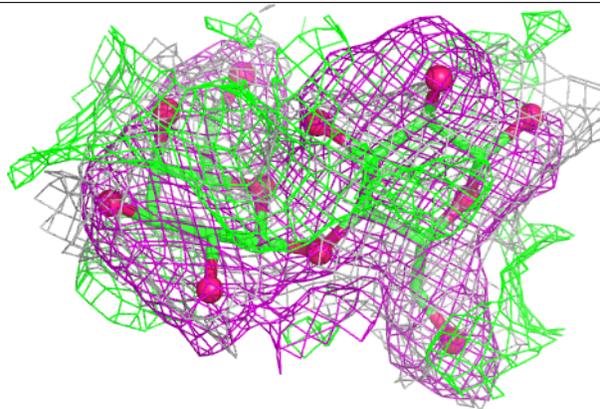
**Electron density around Chain J:**

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

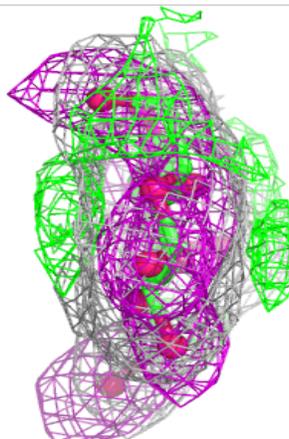
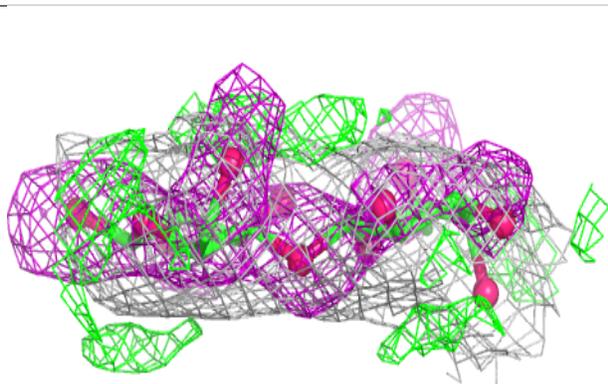
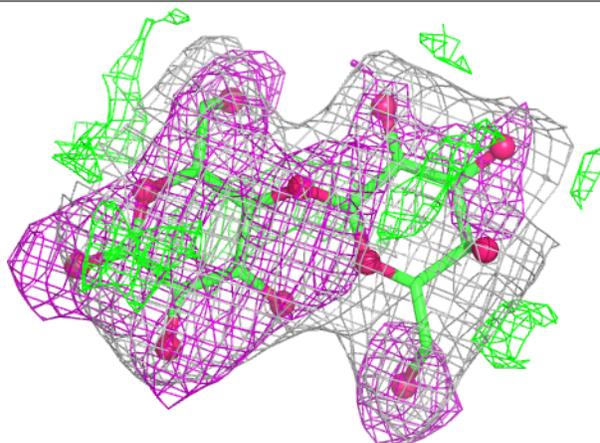


**Electron density around Chain K:**

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

**Electron density around Chain L:**

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



## 6.4 Ligands [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
3	GOL	F	601	6/6	0.89	0.28	19,19,19,19	0
3	GOL	C	601	6/6	0.94	0.18	19,19,19,19	0
3	GOL	A	601	6/6	0.96	0.18	19,19,19,19	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.