



# Full wwPDB X-ray Structure Validation Report ⓘ

Aug 8, 2020 – 11:17 PM BST

PDB ID : 4GEZ  
Title : Structure of a neuraminidase-like protein from A/bat/Guatemala/164/2009  
Authors : Yang, H.; Carney, P.J.; Donis, R.O.; Stevens, J.  
Deposited on : 2012-08-02  
Resolution : 2.50 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 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

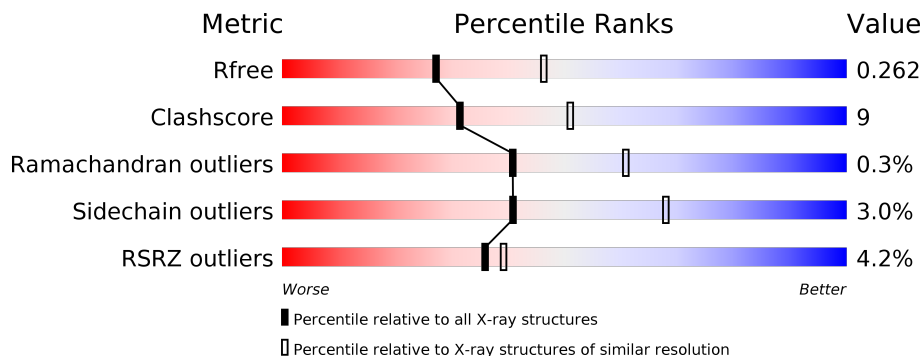
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.50 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

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	378	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 76%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">2%      76%      20%      ..</p>
1	B	378	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 75%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">2%      75%      20%      ..</p>
1	C	378	<div style="display: flex; align-items: center;"> <div style="width: 4%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 79%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">4%      79%      16%      ..</p>
1	D	378	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 72%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">3%      72%      22%      ..</p>
1	E	378	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 78%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">3%      78%      17%      ..</p>
1	F	378	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 79%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center; margin-top: 5px;">%      79%      16%      ..</p>

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Length	Quality of chain
1	G	378	
1	H	378	
1	I	378	
1	J	378	
1	K	378	
1	L	378	
2	M	2	
2	O	2	
2	Q	2	
3	N	3	
3	P	3	

## 2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 35035 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 Neuraminidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	365	2858	1804	487	547	20	0	0	0
1	B	365	2858	1804	487	547	20	0	0	0
1	C	365	2858	1804	487	547	20	0	0	0
1	D	365	2858	1804	487	547	20	0	0	0
1	E	365	2858	1804	487	547	20	0	0	0
1	F	365	2858	1804	487	547	20	0	0	0
1	G	365	2858	1804	487	547	20	0	0	0
1	H	365	2858	1804	487	547	20	0	0	0
1	I	365	2858	1804	487	547	20	0	0	0
1	J	363	2832	1784	484	544	20	0	0	0
1	K	364	2846	1795	486	545	20	0	0	0
1	L	365	2858	1804	487	547	20	0	0	0

There are 108 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	65	GLY	-	expression tag	UNP H6QM85
A	66	SER	-	expression tag	UNP H6QM85
A	67	GLY	-	expression tag	UNP H6QM85
A	68	ASP	-	expression tag	UNP H6QM85
A	69	SER	-	expression tag	UNP H6QM85

*Continued on next page...*

*Continued from previous page...*

Chain	Residue	Modelled	Actual	Comment	Reference
A	70	GLY	-	expression tag	UNP H6QM85
A	71	SER	-	expression tag	UNP H6QM85
A	72	PRO	-	expression tag	UNP H6QM85
A	73	GLY	-	expression tag	UNP H6QM85
B	65	GLY	-	expression tag	UNP H6QM85
B	66	SER	-	expression tag	UNP H6QM85
B	67	GLY	-	expression tag	UNP H6QM85
B	68	ASP	-	expression tag	UNP H6QM85
B	69	SER	-	expression tag	UNP H6QM85
B	70	GLY	-	expression tag	UNP H6QM85
B	71	SER	-	expression tag	UNP H6QM85
B	72	PRO	-	expression tag	UNP H6QM85
B	73	GLY	-	expression tag	UNP H6QM85
C	65	GLY	-	expression tag	UNP H6QM85
C	66	SER	-	expression tag	UNP H6QM85
C	67	GLY	-	expression tag	UNP H6QM85
C	68	ASP	-	expression tag	UNP H6QM85
C	69	SER	-	expression tag	UNP H6QM85
C	70	GLY	-	expression tag	UNP H6QM85
C	71	SER	-	expression tag	UNP H6QM85
C	72	PRO	-	expression tag	UNP H6QM85
C	73	GLY	-	expression tag	UNP H6QM85
D	65	GLY	-	expression tag	UNP H6QM85
D	66	SER	-	expression tag	UNP H6QM85
D	67	GLY	-	expression tag	UNP H6QM85
D	68	ASP	-	expression tag	UNP H6QM85
D	69	SER	-	expression tag	UNP H6QM85
D	70	GLY	-	expression tag	UNP H6QM85
D	71	SER	-	expression tag	UNP H6QM85
D	72	PRO	-	expression tag	UNP H6QM85
D	73	GLY	-	expression tag	UNP H6QM85
E	65	GLY	-	expression tag	UNP H6QM85
E	66	SER	-	expression tag	UNP H6QM85
E	67	GLY	-	expression tag	UNP H6QM85
E	68	ASP	-	expression tag	UNP H6QM85
E	69	SER	-	expression tag	UNP H6QM85
E	70	GLY	-	expression tag	UNP H6QM85
E	71	SER	-	expression tag	UNP H6QM85
E	72	PRO	-	expression tag	UNP H6QM85
E	73	GLY	-	expression tag	UNP H6QM85
F	65	GLY	-	expression tag	UNP H6QM85
F	66	SER	-	expression tag	UNP H6QM85

*Continued on next page...*

*Continued from previous page...*

Chain	Residue	Modelled	Actual	Comment	Reference
F	67	GLY	-	expression tag	UNP H6QM85
F	68	ASP	-	expression tag	UNP H6QM85
F	69	SER	-	expression tag	UNP H6QM85
F	70	GLY	-	expression tag	UNP H6QM85
F	71	SER	-	expression tag	UNP H6QM85
F	72	PRO	-	expression tag	UNP H6QM85
F	73	GLY	-	expression tag	UNP H6QM85
G	65	GLY	-	expression tag	UNP H6QM85
G	66	SER	-	expression tag	UNP H6QM85
G	67	GLY	-	expression tag	UNP H6QM85
G	68	ASP	-	expression tag	UNP H6QM85
G	69	SER	-	expression tag	UNP H6QM85
G	70	GLY	-	expression tag	UNP H6QM85
G	71	SER	-	expression tag	UNP H6QM85
G	72	PRO	-	expression tag	UNP H6QM85
G	73	GLY	-	expression tag	UNP H6QM85
H	65	GLY	-	expression tag	UNP H6QM85
H	66	SER	-	expression tag	UNP H6QM85
H	67	GLY	-	expression tag	UNP H6QM85
H	68	ASP	-	expression tag	UNP H6QM85
H	69	SER	-	expression tag	UNP H6QM85
H	70	GLY	-	expression tag	UNP H6QM85
H	71	SER	-	expression tag	UNP H6QM85
H	72	PRO	-	expression tag	UNP H6QM85
H	73	GLY	-	expression tag	UNP H6QM85
I	65	GLY	-	expression tag	UNP H6QM85
I	66	SER	-	expression tag	UNP H6QM85
I	67	GLY	-	expression tag	UNP H6QM85
I	68	ASP	-	expression tag	UNP H6QM85
I	69	SER	-	expression tag	UNP H6QM85
I	70	GLY	-	expression tag	UNP H6QM85
I	71	SER	-	expression tag	UNP H6QM85
I	72	PRO	-	expression tag	UNP H6QM85
I	73	GLY	-	expression tag	UNP H6QM85
J	65	GLY	-	expression tag	UNP H6QM85
J	66	SER	-	expression tag	UNP H6QM85
J	67	GLY	-	expression tag	UNP H6QM85
J	68	ASP	-	expression tag	UNP H6QM85
J	69	SER	-	expression tag	UNP H6QM85
J	70	GLY	-	expression tag	UNP H6QM85
J	71	SER	-	expression tag	UNP H6QM85
J	72	PRO	-	expression tag	UNP H6QM85

*Continued on next page...*

Continued from previous page...

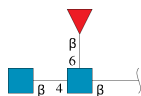
Chain	Residue	Modelled	Actual	Comment	Reference
J	73	GLY	-	expression tag	UNP H6QM85
K	65	GLY	-	expression tag	UNP H6QM85
K	66	SER	-	expression tag	UNP H6QM85
K	67	GLY	-	expression tag	UNP H6QM85
K	68	ASP	-	expression tag	UNP H6QM85
K	69	SER	-	expression tag	UNP H6QM85
K	70	GLY	-	expression tag	UNP H6QM85
K	71	SER	-	expression tag	UNP H6QM85
K	72	PRO	-	expression tag	UNP H6QM85
K	73	GLY	-	expression tag	UNP H6QM85
L	65	GLY	-	expression tag	UNP H6QM85
L	66	SER	-	expression tag	UNP H6QM85
L	67	GLY	-	expression tag	UNP H6QM85
L	68	ASP	-	expression tag	UNP H6QM85
L	69	SER	-	expression tag	UNP H6QM85
L	70	GLY	-	expression tag	UNP H6QM85
L	71	SER	-	expression tag	UNP H6QM85
L	72	PRO	-	expression tag	UNP H6QM85
L	73	GLY	-	expression tag	UNP H6QM85

- Molecule 2 is an oligosaccharide called alpha-L-fucopyranose-(1-6)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	M	2	24	14	1	9	0	0	0
2	O	2	24	14	1	9	0	0	0
2	Q	2	24	14	1	9	0	0	0

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



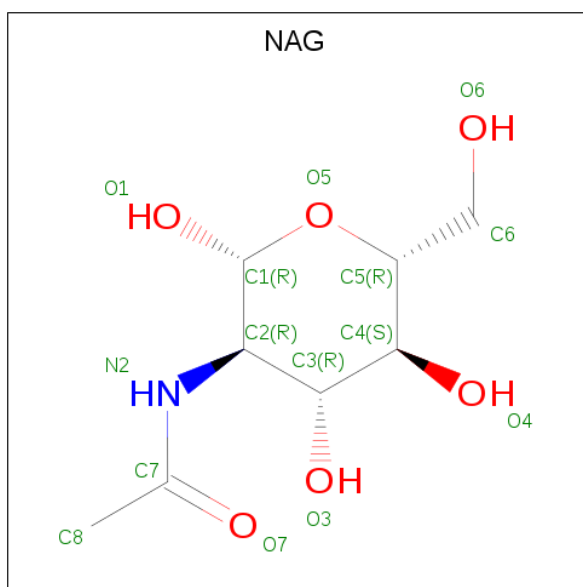
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
3	N	3	Total	C	N	O	0	0	0
			38	22	2	14			
3	P	3	Total	C	N	O	0	0	0
			38	22	2	14			

- Molecule 4 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	G	1	Total	Ca	0	0
			1	1		
4	J	1	Total	Ca	0	0
			1	1		
4	D	1	Total	Ca	0	0
			1	1		
4	K	1	Total	Ca	0	0
			1	1		
4	E	1	Total	Ca	0	0
			1	1		
4	H	1	Total	Ca	0	0
			1	1		
4	B	1	Total	Ca	0	0
			1	1		
4	I	1	Total	Ca	0	0
			1	1		
4	C	1	Total	Ca	0	0
			1	1		
4	A	1	Total	Ca	0	0
			1	1		
4	L	1	Total	Ca	0	0
			1	1		
4	F	1	Total	Ca	0	0
			1	1		

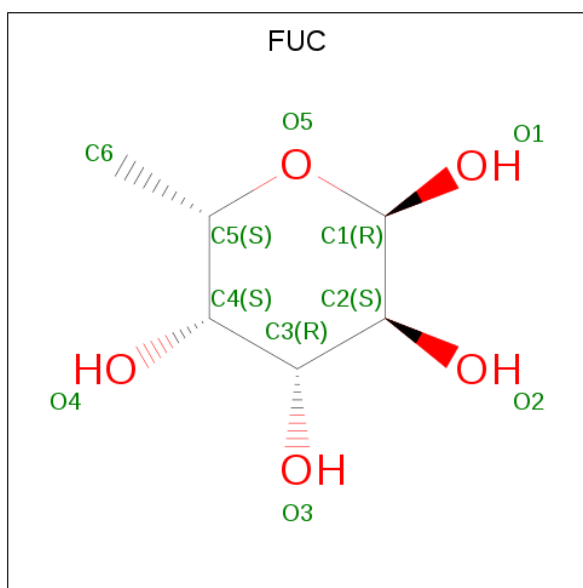
- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).





Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
5	A	1	Total 14	8	1	5	0	0
5	A	1	Total 14	8	1	5	0	0
5	B	1	Total 14	8	1	5	0	0
5	C	1	Total 14	8	1	5	0	0
5	D	1	Total 14	8	1	5	0	0
5	D	1	Total 14	8	1	5	0	0
5	D	1	Total 14	8	1	5	0	0
5	E	1	Total 14	8	1	5	0	0
5	F	1	Total 14	8	1	5	0	0
5	G	1	Total 14	8	1	5	0	0
5	H	1	Total 14	8	1	5	0	0
5	I	1	Total 14	8	1	5	0	0
5	K	1	Total 14	8	1	5	0	0
5	L	1	Total 14	8	1	5	0	0

- Molecule 6 is alpha-L-fucopyranose (three-letter code: FUC) (formula: C<sub>6</sub>H<sub>12</sub>O<sub>5</sub>).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	D	1	Total	C O	0	0
			10	6 4		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	55	Total	O	0	0
			55	55		
7	B	54	Total	O	0	0
			54	54		
7	C	45	Total	O	0	0
			45	45		
7	D	46	Total	O	0	0
			46	46		
7	E	60	Total	O	0	0
			60	60		
7	F	41	Total	O	0	0
			41	41		
7	G	31	Total	O	0	0
			31	31		
7	H	15	Total	O	0	0
			15	15		
7	I	14	Total	O	0	0
			14	14		
7	J	25	Total	O	0	0
			25	25		

*Continued on next page...*

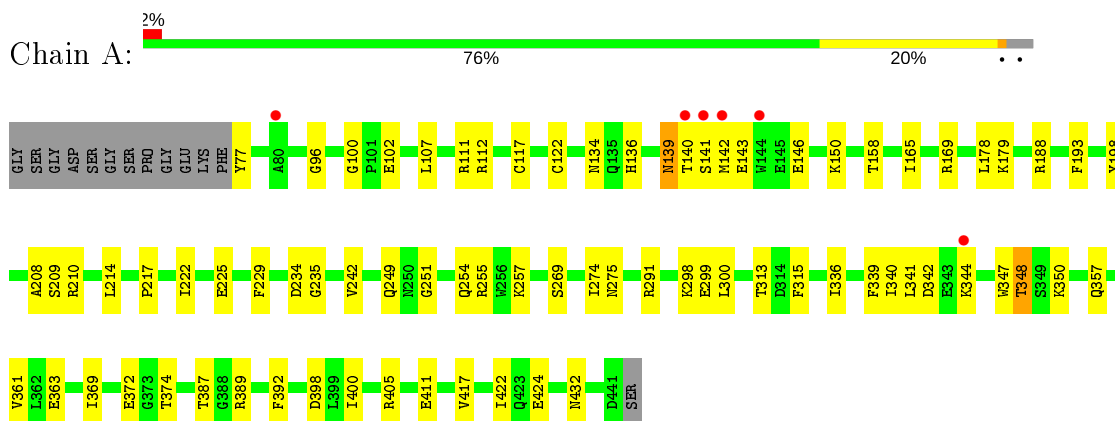
*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>	<b>ZeroOcc</b>	<b>AltConf</b>
7	K	17	Total O 17 17	0	0
7	L	8	Total O 8 8	0	0

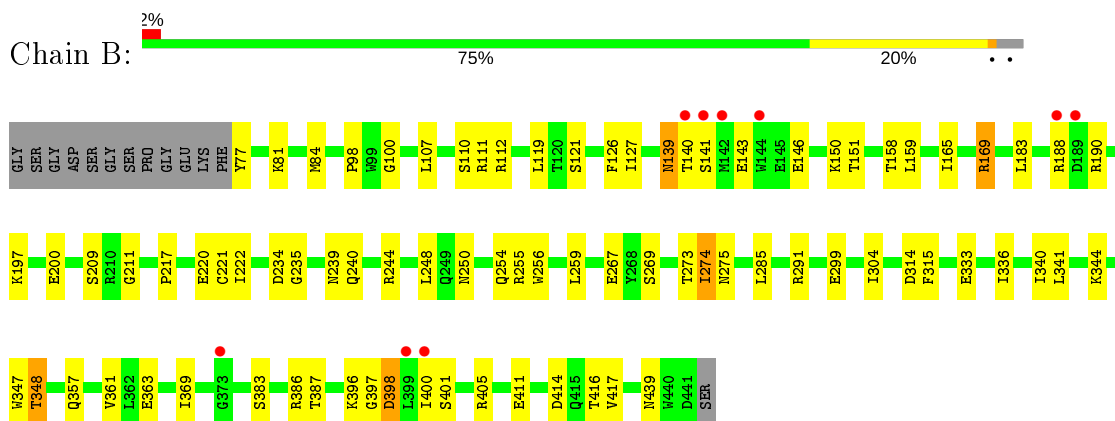
### 3 Residue-property plots

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

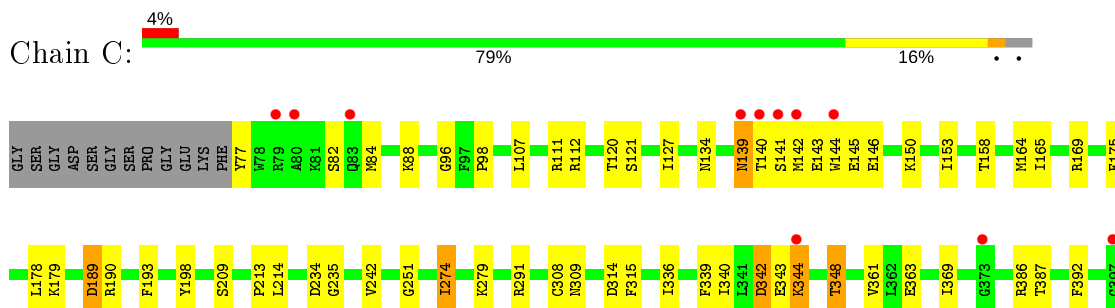
- Molecule 1: Neuraminidase



- Molecule 1: Neuraminidase

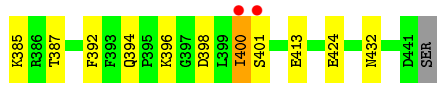
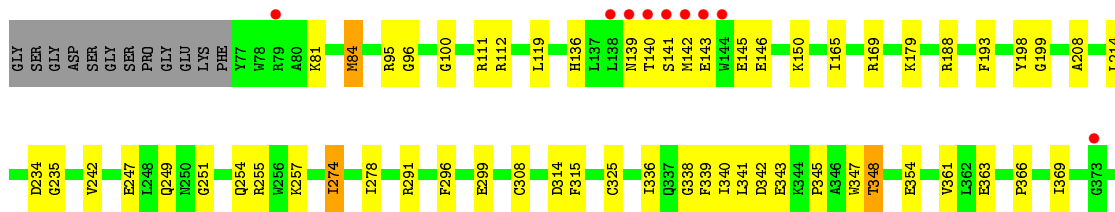
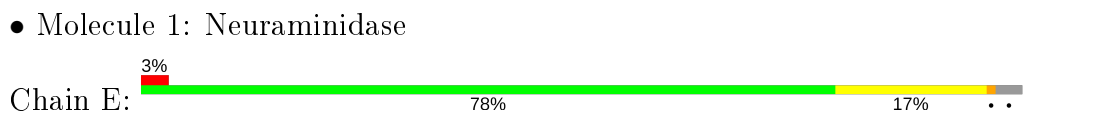
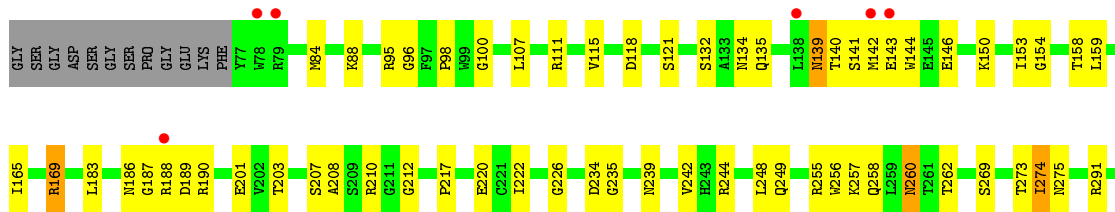


- Molecule 1: Neuraminidase

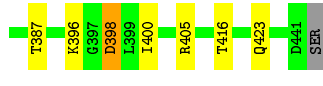
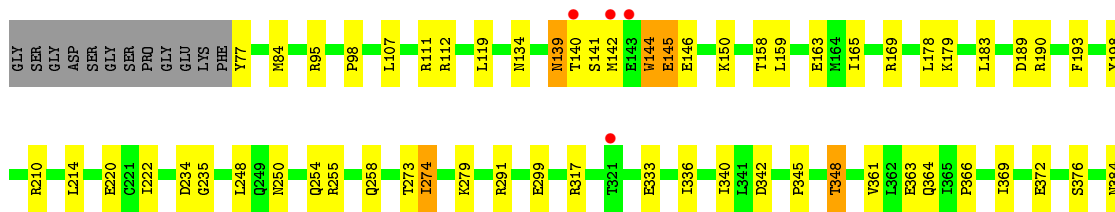
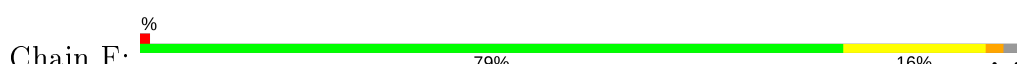




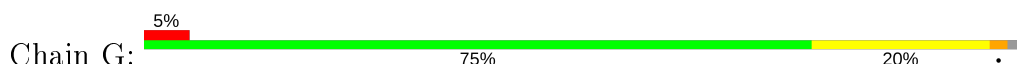
• Molecule 1: Neuraminidase

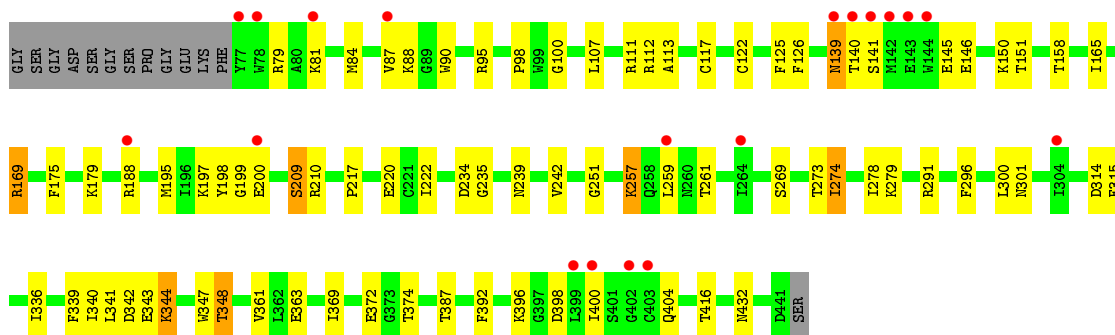


• Molecule 1: Neuraminidase

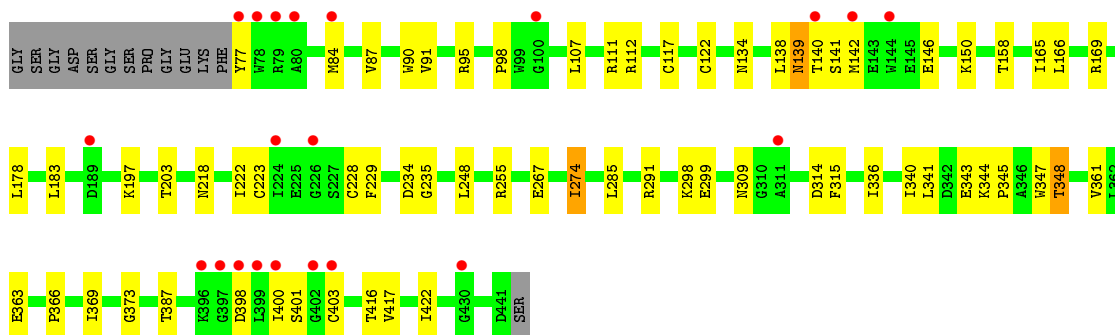
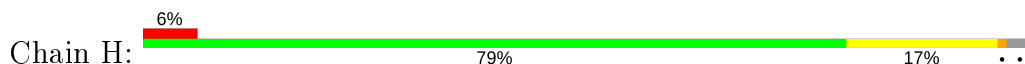


• Molecule 1: Neuraminidase

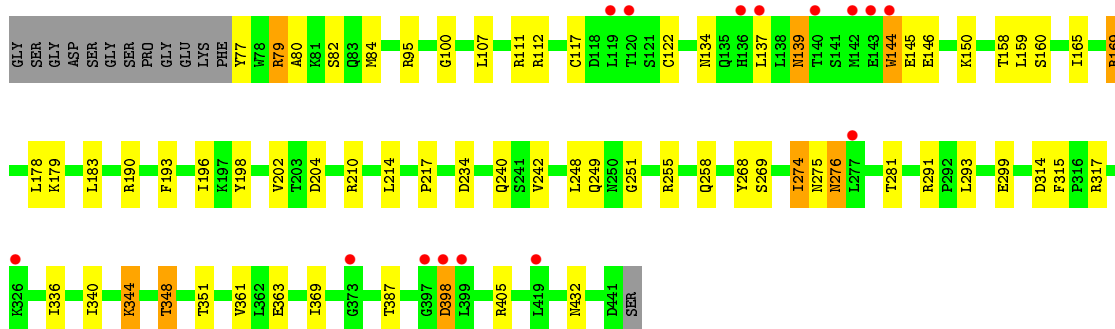




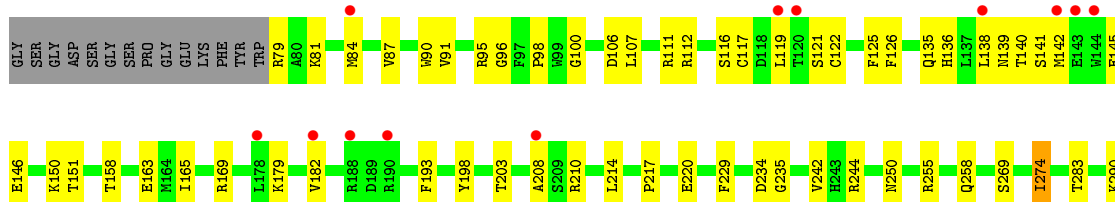
• Molecule 1: Neuraminidase

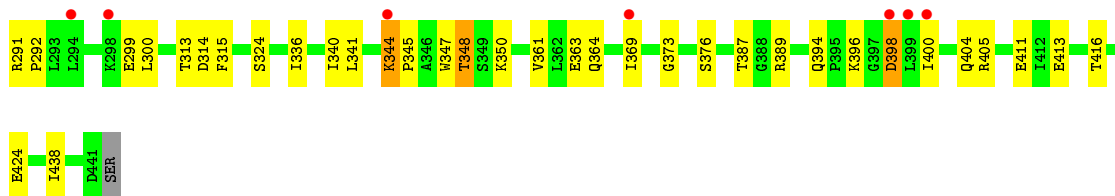


• Molecule 1: Neuraminidase

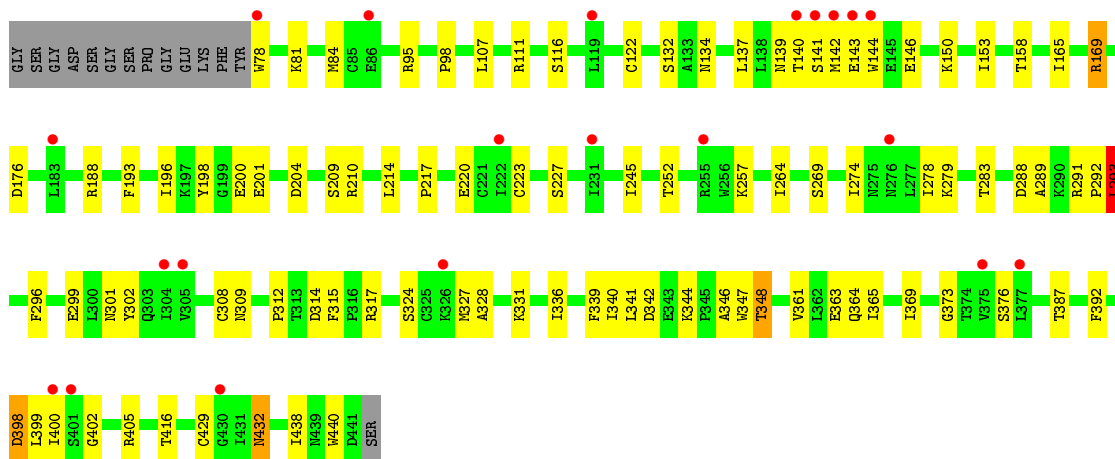


• Molecule 1: Neuraminidase

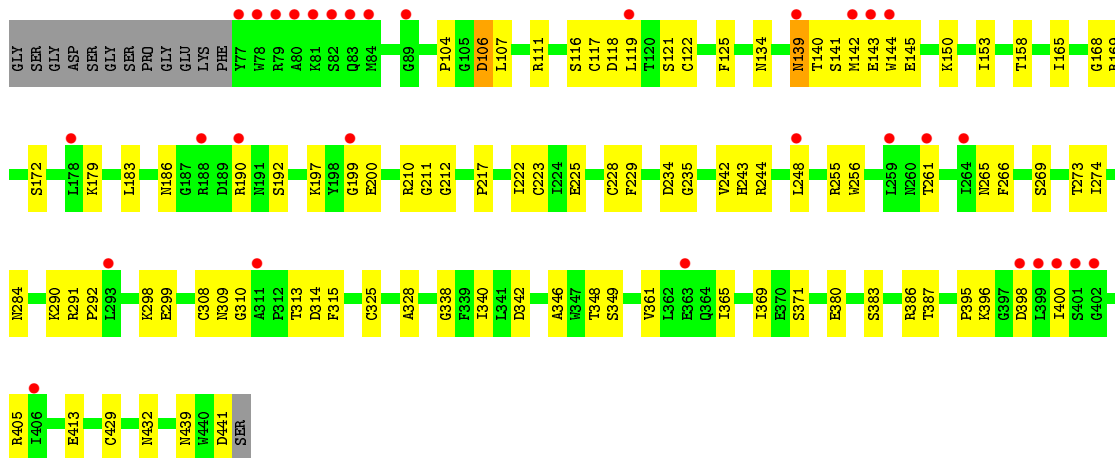




- Molecule 1: Neuraminidase



- Molecule 1: Neuraminidase



- Molecule 2: alpha-L-fucopyranose-(1-6)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 2: alpha-L-fucopyranose-(1-6)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain O:  100%

NA61  
FUC2

- Molecule 2: alpha-L-fucopyranose-(1-6)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Q:  100%

NA61  
FUC2

- Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[beta-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:  33% 67%

NA61  
NA62  
FUC3

- Molecule 3: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[beta-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose

Chain P:  33% 67%

NA61  
NA62  
FUC3



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	113.33Å 113.33Å 114.31Å 81.47° 81.55° 67.72°	Depositor
Resolution (Å)	29.88 – 2.50 29.88 – 2.50	Depositor EDS
% Data completeness (in resolution range)	97.2 (29.88-2.50) 91.6 (29.88-2.50)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.10	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.37 (at 2.51Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.8_1069)	Depositor
R, $R_{free}$	0.218 , 0.262 0.219 , 0.262	Depositor DCC
$R_{free}$ test set	8777 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	47.7	Xtrriage
Anisotropy	0.537	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.28 , 10.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.44$ , $\langle L^2 \rangle = 0.26$	Xtrriage
Estimated twinning fraction	0.369 for -k,-h,-l	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	35035	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	55.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.60% 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: FUC, CA, FUL, 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	0.30	0/2926	0.53	0/3966
1	B	0.29	0/2926	0.51	0/3966
1	C	0.29	0/2926	0.52	0/3966
1	D	0.29	0/2926	0.53	0/3966
1	E	0.29	0/2926	0.52	0/3966
1	F	0.30	0/2926	0.53	0/3966
1	G	0.29	0/2926	0.52	0/3966
1	H	0.28	0/2926	0.54	0/3966
1	I	0.28	0/2926	0.54	0/3966
1	J	0.27	0/2897	0.52	0/3925
1	K	0.27	0/2913	0.53	1/3948 (0.0%)
1	L	0.27	0/2926	0.53	0/3966
All	All	0.29	0/35070	0.53	1/47533 (0.0%)

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	C	0	1
1	G	0	1
1	I	0	1
1	J	0	1
All	All	0	5

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
1	K	293	LEU	CA-CB-CG	5.86	128.77	115.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	344	LYS	Peptide
1	C	344	LYS	Peptide
1	G	344	LYS	Peptide
1	I	344	LYS	Peptide
1	J	344	LYS	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	2858	0	2762	49	2
1	B	2858	0	2764	54	2
1	C	2858	0	2764	51	1
1	D	2858	0	2765	67	0
1	E	2858	0	2763	47	2
1	F	2858	0	2764	43	1
1	G	2858	0	2764	51	1
1	H	2858	0	2764	38	0
1	I	2858	0	2763	51	0
1	J	2832	0	2746	64	0
1	K	2846	0	2755	60	0
1	L	2858	0	2763	60	0
2	M	24	0	22	0	0
2	O	24	0	22	0	1
2	Q	24	0	22	0	0
3	N	38	0	34	2	0
3	P	38	0	34	1	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
4	E	1	0	0	0	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	F	1	0	0	0	0
4	G	1	0	0	0	0
4	H	1	0	0	0	0
4	I	1	0	0	0	0
4	J	1	0	0	0	0
4	K	1	0	0	0	0
4	L	1	0	0	0	0
5	A	28	0	26	2	0
5	B	14	0	13	2	0
5	C	14	0	13	1	0
5	D	42	0	39	2	0
5	E	14	0	13	1	0
5	F	14	0	13	1	0
5	G	14	0	13	0	0
5	H	14	0	13	0	0
5	I	14	0	13	2	0
5	K	14	0	13	0	0
5	L	14	0	12	1	0
6	D	10	0	10	0	0
7	A	55	0	0	9	0
7	B	54	0	0	11	0
7	C	45	0	0	12	0
7	D	46	0	0	16	0
7	E	60	0	0	7	0
7	F	41	0	0	6	0
7	G	31	0	0	7	0
7	H	15	0	0	1	0
7	I	14	0	0	9	0
7	J	25	0	0	14	0
7	K	17	0	0	8	0
7	L	8	0	0	1	0
All	All	35035	0	33462	610	5

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 9.

All (610) 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:D:187:GLY:O	7:D:612:HOH:O	1.83	0.96
1:C:309:ASN:OD1	7:C:645:HOH:O	1.85	0.95

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:226:GLY:O	7:D:626:HOH:O	1.84	0.93
1:B:314:ASP:OD2	7:B:645:HOH:O	1.87	0.93
1:I:291:ARG:NH2	1:I:336:ILE:O	2.02	0.92
1:K:78:TRP:N	7:K:612:HOH:O	2.00	0.92
1:C:82:SER:OG	7:C:616:HOH:O	1.87	0.92
1:D:358:ASN:O	7:D:644:HOH:O	1.88	0.92
1:B:398:ASP:OD2	7:B:617:HOH:O	1.87	0.91
1:I:160:SER:O	7:I:603:HOH:O	1.88	0.91
1:J:220:GLU:OE2	7:J:601:HOH:O	1.89	0.89
1:E:394:GLN:O	7:E:645:HOH:O	1.91	0.88
1:H:291:ARG:NH2	1:H:336:ILE:O	2.07	0.88
1:A:102:GLU:OE2	7:A:612:HOH:O	1.91	0.88
1:G:239:ASN:ND2	7:G:626:HOH:O	1.89	0.87
1:I:340:ILE:HG21	1:I:369:ILE:HD12	1.55	0.87
1:D:345:PRO:HB3	1:D:366:PRO:HA	1.56	0.86
1:I:179:LYS:O	7:I:604:HOH:O	1.91	0.86
1:I:84:MET:HG2	1:I:274:ILE:HG13	1.59	0.85
1:A:291:ARG:NH2	1:A:336:ILE:O	2.10	0.85
1:G:291:ARG:NH2	1:G:336:ILE:O	2.09	0.85
1:J:140:THR:OG1	7:J:622:HOH:O	1.94	0.84
1:B:291:ARG:NH2	1:B:336:ILE:O	2.09	0.84
1:F:291:ARG:NH2	1:F:336:ILE:O	2.11	0.83
1:A:411:GLU:OE2	7:A:646:HOH:O	1.95	0.83
1:D:220:GLU:OE2	7:D:617:HOH:O	1.95	0.83
1:J:106:ASP:OD2	7:J:612:HOH:O	1.95	0.82
1:F:139:ASN:OD1	7:F:625:HOH:O	1.95	0.82
1:E:343:GLU:O	7:E:605:HOH:O	1.97	0.82
1:J:84:MET:HG2	1:J:274:ILE:HG13	1.61	0.82
1:A:340:ILE:HG21	1:A:369:ILE:HD12	1.60	0.82
1:E:340:ILE:HG21	1:E:369:ILE:HD12	1.63	0.81
1:K:220:GLU:OE1	7:K:613:HOH:O	1.97	0.81
1:C:308:CYS:SG	7:C:626:HOH:O	2.38	0.81
1:H:340:ILE:HG21	1:H:369:ILE:HD12	1.62	0.81
1:B:411:GLU:OE2	7:B:608:HOH:O	1.98	0.80
1:F:340:ILE:HG21	1:F:369:ILE:HD12	1.64	0.79
1:H:84:MET:HG2	1:H:274:ILE:HG13	1.64	0.79
1:C:340:ILE:HG21	1:C:369:ILE:HD12	1.61	0.79
1:C:291:ARG:NH2	1:C:336:ILE:O	2.15	0.79
1:E:291:ARG:NH2	1:E:336:ILE:O	2.14	0.78
1:B:259:LEU:O	7:B:640:HOH:O	2.02	0.78
1:D:340:ILE:HG21	1:D:369:ILE:HD12	1.65	0.78

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:84:MET:HG2	1:B:274:ILE:HG13	1.65	0.77
1:D:115:VAL:O	7:D:604:HOH:O	2.02	0.77
1:F:255:ARG:NH2	1:F:299:GLU:OE1	2.18	0.77
1:B:414:ASP:OD2	7:B:626:HOH:O	2.03	0.77
1:B:417:VAL:O	7:B:634:HOH:O	2.02	0.77
1:C:111:ARG:NH1	1:C:146:GLU:OE1	2.18	0.76
1:K:399:LEU:O	7:K:617:HOH:O	2.03	0.76
1:F:345:PRO:HB3	1:F:366:PRO:HA	1.68	0.76
1:G:340:ILE:HG21	1:G:369:ILE:HD12	1.68	0.76
1:C:363:GLU:OE1	7:C:628:HOH:O	2.03	0.76
1:J:117:CYS:O	7:J:604:HOH:O	2.04	0.74
1:A:249:GLN:NE2	5:A:503:NAG:O7	2.21	0.73
1:E:249:GLN:NE2	5:E:502:NAG:O7	2.20	0.73
1:B:111:ARG:NH1	1:B:146:GLU:OE1	2.21	0.73
1:K:291:ARG:NH2	1:K:336:ILE:O	2.17	0.73
1:J:121:SER:HB2	7:J:620:HOH:O	1.87	0.72
1:C:121:SER:OG	7:C:640:HOH:O	2.05	0.72
1:J:340:ILE:HG21	1:J:369:ILE:HD12	1.70	0.72
1:G:372:GLU:O	7:G:610:HOH:O	2.08	0.72
1:K:432:ASN:OD1	1:K:432:ASN:N	2.23	0.72
1:E:81:LYS:NZ	1:E:401:SER:O	2.23	0.71
1:C:84:MET:HG2	1:C:274:ILE:HG13	1.72	0.71
1:I:178:LEU:O	7:I:605:HOH:O	2.08	0.70
1:E:255:ARG:HH22	1:E:299:GLU:HA	1.57	0.70
1:C:150:LYS:HB3	1:C:165:ILE:HD11	1.73	0.70
1:G:432:ASN:ND2	7:G:624:HOH:O	1.83	0.69
1:G:150:LYS:HB3	1:G:165:ILE:HD11	1.73	0.69
1:I:77:TYR:OH	7:I:614:HOH:O	2.11	0.69
1:K:150:LYS:HB3	1:K:165:ILE:HD11	1.73	0.69
1:D:255:ARG:HH22	1:D:299:GLU:HA	1.58	0.69
1:K:143:GLU:OE2	1:K:188:ARG:NH1	2.25	0.68
1:D:291:ARG:NH2	1:D:336:ILE:O	2.26	0.68
1:B:340:ILE:HG21	1:B:369:ILE:HD12	1.76	0.68
1:H:111:ARG:HH22	1:H:142:MET:H	1.42	0.68
1:G:112:ARG:O	7:G:602:HOH:O	2.11	0.68
1:D:365:ILE:HG22	7:D:636:HOH:O	1.94	0.67
1:D:153:ILE:O	7:D:622:HOH:O	2.12	0.67
1:E:354:GLU:OE1	7:E:639:HOH:O	2.13	0.67
1:I:111:ARG:NH1	1:I:146:GLU:OE1	2.22	0.67
1:G:81:LYS:HB2	1:G:404:GLN:HB2	1.76	0.67
1:I:281:THR:O	7:I:611:HOH:O	2.12	0.67

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:176:ASP:OD2	1:K:198:TYR:OH	2.07	0.67
1:E:396:LYS:NZ	7:E:651:HOH:O	2.28	0.66
1:C:153:ILE:O	7:C:634:HOH:O	2.13	0.66
5:I:502:NAG:O4	7:I:614:HOH:O	2.12	0.66
1:A:350:LYS:NZ	7:A:629:HOH:O	2.27	0.66
1:B:398:ASP:OD1	1:B:405:ARG:NH1	2.29	0.66
1:L:291:ARG:NH1	7:L:606:HOH:O	2.01	0.66
1:A:400:ILE:HG21	1:D:203:THR:HG22	1.78	0.65
1:D:368:GLY:N	7:D:636:HOH:O	2.27	0.65
1:F:144:TRP:O	1:F:169:ARG:NH2	2.24	0.65
1:J:413:GLU:OE2	7:J:615:HOH:O	2.15	0.65
1:A:143:GLU:OE2	1:A:188:ARG:NH1	2.28	0.65
1:G:84:MET:HG2	1:G:274:ILE:HG13	1.78	0.65
1:I:107:LEU:HD23	1:I:158:THR:HG22	1.78	0.65
1:D:234:ASP:OD1	7:D:646:HOH:O	2.14	0.65
1:E:413:GLU:OE2	7:E:659:HOH:O	2.14	0.65
1:I:255:ARG:NH2	1:I:299:GLU:OE1	2.28	0.65
1:J:283:THR:OG1	7:J:617:HOH:O	2.13	0.65
1:K:340:ILE:HG21	1:K:369:ILE:HD12	1.78	0.64
1:F:220:GLU:OE2	7:F:618:HOH:O	2.14	0.64
1:D:220:GLU:HB2	7:D:604:HOH:O	1.96	0.64
1:D:84:MET:HG2	1:D:274:ILE:HG13	1.79	0.63
1:G:145:GLU:OE2	1:H:95:ARG:NH2	2.26	0.63
1:E:179:LYS:HD3	1:E:199:GLY:HA3	1.79	0.63
1:F:398:ASP:OD2	1:F:405:ARG:NH1	2.29	0.62
1:B:77:TYR:N	7:B:648:HOH:O	2.32	0.62
1:K:346:ALA:HB3	1:K:365:ILE:HB	1.81	0.62
5:A:503:NAG:O4	5:A:503:NAG:N2	2.32	0.62
1:D:398:ASP:OD1	1:D:405:ARG:NH1	2.31	0.62
1:L:405:ARG:NH2	1:L:429:CYS:SG	2.73	0.62
1:H:345:PRO:HB3	1:H:366:PRO:HA	1.81	0.62
1:L:340:ILE:HG21	1:L:369:ILE:HD12	1.81	0.62
1:F:84:MET:HG2	1:F:274:ILE:HG13	1.81	0.61
1:J:341:LEU:HB3	1:J:347:TRP:HB2	1.82	0.61
1:B:143:GLU:OE2	1:B:188:ARG:NH1	2.33	0.61
1:C:279:LYS:HD3	1:C:342:ASP:OD1	2.01	0.61
1:B:112:ARG:NH1	1:B:169:ARG:O	2.34	0.61
1:H:150:LYS:NZ	7:H:612:HOH:O	2.07	0.61
1:K:283:THR:OG1	1:K:291:ARG:NH2	2.31	0.61
1:K:312:PRO:HB2	1:K:317:ARG:HD2	1.83	0.61
1:A:269:SER:OG	7:A:614:HOH:O	1.98	0.61

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:179:LYS:HD3	1:L:199:GLY:HA3	1.83	0.60
1:I:112:ARG:NH1	1:I:169:ARG:O	2.35	0.60
1:C:84:MET:HE1	1:C:406:ILE:HB	1.83	0.60
1:F:150:LYS:HB3	1:F:165:ILE:HD11	1.84	0.60
1:G:112:ARG:NH1	1:G:169:ARG:O	2.35	0.59
1:B:250:ASN:ND2	5:B:505:NAG:O7	2.36	0.59
1:G:209:SER:O	1:G:210:ARG:NH1	2.36	0.59
1:I:183:LEU:HD21	1:I:248:LEU:HD11	1.84	0.59
1:C:213:PRO:O	7:C:613:HOH:O	2.16	0.59
1:J:255:ARG:NH2	1:J:299:GLU:OE1	2.33	0.59
1:L:106:ASP:N	1:L:106:ASP:OD1	2.36	0.59
1:A:405:ARG:NE	7:A:654:HOH:O	2.19	0.59
1:I:249:GLN:NE2	5:I:502:NAG:O7	2.36	0.59
1:E:143:GLU:OE2	1:E:188:ARG:NH1	2.26	0.58
1:H:223:CYS:HA	1:H:228:CYS:HA	1.85	0.58
1:F:111:ARG:NH1	1:F:142:MET:O	2.37	0.58
1:B:255:ARG:NH2	1:B:299:GLU:OE1	2.36	0.58
1:D:111:ARG:NH1	1:D:146:GLU:OE1	2.37	0.58
1:H:348:THR:HG22	1:H:363:GLU:HB2	1.86	0.58
1:K:289:ALA:N	1:K:328:ALA:O	2.35	0.58
1:D:210:ARG:HG3	1:D:242:VAL:HG21	1.85	0.58
1:G:210:ARG:HG3	1:G:242:VAL:HG21	1.86	0.58
1:E:95:ARG:HH22	1:E:385:LYS:HE3	1.68	0.58
1:G:279:LYS:NZ	1:G:343:GLU:OE2	2.31	0.58
1:D:348:THR:HG22	1:D:363:GLU:HB2	1.86	0.57
1:D:139:ASN:HB2	1:D:142:MET:HG3	1.86	0.57
1:I:268:TYR:O	7:I:611:HOH:O	2.17	0.57
1:C:111:ARG:NH2	1:C:141:SER:HB3	2.20	0.57
1:D:118:ASP:OD2	7:D:629:HOH:O	2.17	0.57
1:I:398:ASP:OD1	1:I:405:ARG:NH1	2.38	0.57
1:K:107:LEU:HD23	1:K:158:THR:HG22	1.85	0.57
1:D:208:ALA:HB1	7:D:646:HOH:O	2.03	0.57
1:H:98:PRO:HB3	1:H:416:THR:HG21	1.86	0.57
1:J:81:LYS:HB2	1:J:404:GLN:HB2	1.87	0.57
1:E:143:GLU:HG2	1:E:188:ARG:HH22	1.70	0.56
1:H:255:ARG:HH22	1:H:299:GLU:HA	1.71	0.56
1:L:168:GLY:HA2	1:L:186:ASN:ND2	2.20	0.56
1:F:250:ASN:ND2	5:F:505:NAG:O5	2.38	0.56
1:D:190:ARG:HH22	1:I:144:TRP:HZ3	1.54	0.56
1:A:315:PHE:O	7:A:608:HOH:O	2.18	0.56
1:K:348:THR:HG22	1:K:363:GLU:HB2	1.88	0.56

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:107:LEU:HD23	1:C:158:THR:HG22	1.87	0.56
1:J:179:LYS:HD2	1:J:198:TYR:CE2	2.41	0.56
1:J:258:GLN:NE2	7:J:611:HOH:O	2.38	0.56
1:E:150:LYS:HB3	1:E:165:ILE:HD11	1.86	0.56
1:G:107:LEU:HD23	1:G:158:THR:HG22	1.87	0.56
1:A:208:ALA:HB1	7:A:649:HOH:O	2.05	0.55
1:B:357:GLN:OE1	1:B:386:ARG:NH2	2.38	0.55
1:D:150:LYS:HB3	1:D:165:ILE:HD11	1.88	0.55
1:E:111:ARG:NH2	1:E:141:SER:HB3	2.21	0.55
1:A:179:LYS:HD2	1:A:198:TYR:CE2	2.42	0.55
1:A:348:THR:HG22	1:A:363:GLU:HB2	1.87	0.55
1:B:111:ARG:NH2	1:B:141:SER:HB3	2.21	0.55
1:B:126:PHE:HE1	1:B:151:THR:HG1	1.54	0.55
1:A:255:ARG:HH22	1:A:299:GLU:HA	1.71	0.55
1:J:394:GLN:HG2	7:J:619:HOH:O	2.06	0.55
1:L:172:SER:HB2	1:L:217:PRO:HD2	1.88	0.55
1:L:107:LEU:HD23	1:L:158:THR:HG22	1.89	0.55
1:H:84:MET:HG3	1:H:343:GLU:HG3	1.88	0.55
1:J:193:PHE:HA	1:J:214:LEU:HD12	1.88	0.55
1:L:222:ILE:HG21	1:L:273:THR:HB	1.88	0.55
1:K:193:PHE:HA	1:K:214:LEU:HD12	1.88	0.54
1:L:266:PHE:HE1	1:L:269:SER:HG	1.54	0.54
1:D:107:LEU:HD23	1:D:158:THR:HG22	1.89	0.54
1:B:250:ASN:HD21	5:B:505:NAG:C1	2.21	0.54
1:B:81:LYS:NZ	1:B:401:SER:O	2.33	0.54
1:F:210:ARG:HH21	1:F:258:GLN:HE22	1.55	0.54
1:B:348:THR:HG22	1:B:363:GLU:HB2	1.88	0.54
5:C:502:NAG:O4	7:C:629:HOH:O	2.19	0.54
1:J:150:LYS:HB3	1:J:165:ILE:HD11	1.89	0.54
1:J:208:ALA:HB1	7:J:610:HOH:O	2.06	0.54
1:B:220:GLU:OE2	7:B:625:HOH:O	2.17	0.54
1:A:112:ARG:NH1	1:A:169:ARG:O	2.41	0.54
1:E:234:ASP:OD1	7:E:631:HOH:O	2.19	0.54
1:L:291:ARG:CZ	1:L:338:GLY:HA3	2.38	0.54
1:G:279:LYS:HD3	1:G:342:ASP:OD1	2.07	0.53
1:I:95:ARG:NH2	1:L:145:GLU:OE2	2.38	0.53
1:L:255:ARG:NH2	1:L:299:GLU:OE1	2.42	0.53
1:I:234:ASP:HB3	1:I:242:VAL:HG22	1.90	0.53
1:A:357:GLN:HB2	7:A:610:HOH:O	2.07	0.53
1:K:299:GLU:HB2	7:K:614:HOH:O	2.08	0.53
1:I:179:LYS:HD2	1:I:198:TYR:CE2	2.44	0.53

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:196:ILE:HD12	1:I:204:ASP:HB3	1.90	0.53
1:I:117:CYS:HA	1:I:122:CYS:HA	1.91	0.52
1:J:138:LEU:O	7:J:622:HOH:O	2.19	0.52
1:J:341:LEU:HD23	1:J:347:TRP:HD1	1.74	0.52
1:G:175:PHE:N	7:G:615:HOH:O	2.12	0.52
1:G:314:ASP:OD1	1:G:315:PHE:N	2.41	0.52
1:F:189:ASP:OD1	1:F:190:ARG:N	2.42	0.52
1:I:348:THR:HG22	1:I:363:GLU:HB2	1.91	0.52
1:K:196:ILE:HD12	1:K:204:ASP:HB3	1.91	0.52
1:C:348:THR:HG22	1:C:363:GLU:HB2	1.91	0.52
1:D:88:LYS:HD3	1:D:434:PRO:HG3	1.89	0.52
1:H:111:ARG:NH1	1:H:146:GLU:OE1	2.39	0.52
1:F:372:GLU:H	1:F:372:GLU:CD	2.13	0.52
1:J:145:GLU:OE2	1:K:95:ARG:NH2	2.39	0.52
1:L:119:LEU:HA	1:L:396:LYS:O	2.09	0.52
1:C:279:LYS:NZ	1:C:343:GLU:OE2	2.28	0.52
1:F:396:LYS:NZ	7:F:604:HOH:O	2.32	0.52
1:H:166:LEU:HD11	1:H:197:LYS:HB2	1.92	0.52
1:A:225:GLU:OE2	1:A:298:LYS:NZ	2.31	0.52
1:D:226:GLY:O	1:D:249:GLN:HG3	2.09	0.52
1:G:111:ARG:NH2	1:G:141:SER:HB3	2.25	0.52
1:L:168:GLY:HA2	1:L:186:ASN:HD21	1.75	0.52
1:B:183:LEU:HD21	1:B:248:LEU:HD11	1.92	0.52
1:G:98:PRO:HB3	1:G:416:THR:HG21	1.92	0.52
1:J:112:ARG:NH1	1:J:169:ARG:O	2.43	0.52
1:L:223:CYS:HA	1:L:228:CYS:HA	1.90	0.52
1:D:432:ASN:N	1:D:432:ASN:OD1	2.43	0.51
1:F:111:ARG:HH22	1:F:142:MET:H	1.58	0.51
1:G:179:LYS:HD2	1:G:198:TYR:CE2	2.45	0.51
1:H:341:LEU:HB3	1:H:347:TRP:HB2	1.92	0.51
1:J:165:ILE:HG21	1:J:182:VAL:HG11	1.91	0.51
1:C:143:GLU:HG2	1:C:169:ARG:HH11	1.75	0.51
1:G:217:PRO:HB2	1:G:269:SER:O	2.11	0.51
1:J:107:LEU:HD23	1:J:158:THR:HG22	1.91	0.51
1:B:197:LYS:HE2	1:B:200:GLU:HA	1.92	0.51
1:G:341:LEU:HD23	1:G:347:TRP:HD1	1.74	0.51
1:C:198:TYR:HB2	1:C:251:GLY:HA3	1.92	0.51
1:H:77:TYR:CE1	1:H:178:LEU:HD13	2.46	0.51
1:J:135:GLN:HG2	1:J:136:HIS:ND1	2.26	0.51
1:L:183:LEU:HD21	1:L:248:LEU:HD11	1.93	0.51
1:B:222:ILE:HG21	1:B:273:THR:HB	1.93	0.51

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:292:PRO:HG3	7:J:606:HOH:O	2.11	0.51
1:K:98:PRO:HB3	1:K:416:THR:HG21	1.92	0.51
1:A:139:ASN:OD1	1:A:139:ASN:N	2.44	0.50
1:D:364:GLN:OE1	1:D:376:SER:OG	2.26	0.50
1:E:345:PRO:HB3	1:E:366:PRO:HA	1.92	0.50
1:J:348:THR:HG22	1:J:363:GLU:HB2	1.93	0.50
1:K:146:GLU:OE2	1:K:169:ARG:NH1	2.45	0.50
1:C:193:PHE:HA	1:C:214:LEU:HD12	1.94	0.50
1:F:139:ASN:O	1:F:142:MET:HG3	2.11	0.50
1:E:208:ALA:HB1	7:E:631:HOH:O	2.11	0.50
1:G:111:ARG:NH1	1:G:146:GLU:OE1	2.44	0.50
1:K:314:ASP:OD1	1:K:315:PHE:N	2.43	0.50
1:H:255:ARG:NH2	1:H:298:LYS:O	2.44	0.50
1:A:107:LEU:HD23	1:A:158:THR:HG22	1.94	0.50
1:A:193:PHE:HA	1:A:214:LEU:HD12	1.94	0.50
1:B:150:LYS:HB3	1:B:165:ILE:HD11	1.93	0.50
1:G:179:LYS:HD3	1:G:199:GLY:HA3	1.94	0.50
1:J:234:ASP:HB3	1:J:242:VAL:HG22	1.94	0.50
1:L:380:GLU:OE1	1:L:383:SER:OG	2.15	0.50
1:D:207:SER:O	7:D:632:HOH:O	2.20	0.50
1:J:234:ASP:OD1	1:J:235:GLY:N	2.42	0.50
1:K:217:PRO:HB2	1:K:269:SER:O	2.12	0.50
5:L:502:NAG:O4	5:L:502:NAG:O6	2.30	0.50
1:H:107:LEU:HD23	1:H:158:THR:HG22	1.94	0.49
1:J:373:GLY:N	7:J:625:HOH:O	1.90	0.49
1:L:234:ASP:OD1	1:L:235:GLY:N	2.43	0.49
1:D:186:ASN:ND2	7:D:641:HOH:O	2.25	0.49
1:E:100:GLY:HA3	1:H:134:ASN:ND2	2.27	0.49
5:D:503:NAG:H61	5:D:504:NAG:H82	1.94	0.49
1:F:364:GLN:OE1	1:F:376:SER:OG	2.27	0.49
1:G:257:LYS:HB2	1:G:300:LEU:HD13	1.95	0.49
1:I:193:PHE:HA	1:I:214:LEU:HD12	1.93	0.49
1:J:291:ARG:NH2	1:J:336:ILE:O	2.45	0.49
1:J:364:GLN:OE1	1:J:376:SER:OG	2.30	0.49
1:J:126:PHE:HE1	1:J:151:THR:HG1	1.58	0.49
1:J:87:VAL:HG11	1:J:90:TRP:CZ2	2.48	0.49
1:B:98:PRO:HB3	1:B:416:THR:HG21	1.94	0.49
1:D:357:GLN:OE1	1:D:386:ARG:NH2	2.45	0.49
1:H:134:ASN:O	1:H:138:LEU:HG	2.13	0.49
1:B:111:ARG:HH21	1:B:141:SER:HB3	1.77	0.49
1:B:119:LEU:HA	1:B:396:LYS:O	2.12	0.49

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:210:ARG:NH2	1:F:258:GLN:HE22	2.10	0.49
1:I:276:ASN:OD1	1:I:276:ASN:N	2.46	0.49
1:C:112:ARG:NH1	1:C:169:ARG:O	2.46	0.49
1:J:314:ASP:OD1	1:J:315:PHE:N	2.44	0.49
1:L:439:ASN:OD1	1:L:441:ASP:HB2	2.13	0.49
1:G:396:LYS:NZ	7:G:615:HOH:O	2.45	0.48
1:I:139:ASN:OD1	7:I:609:HOH:O	2.20	0.48
1:K:209:SER:HB3	1:K:210:ARG:NH2	2.28	0.48
1:E:234:ASP:OD1	1:E:235:GLY:N	2.45	0.48
1:J:341:LEU:HD23	1:J:347:TRP:CD1	2.48	0.48
1:L:234:ASP:HB3	1:L:242:VAL:HG22	1.95	0.48
1:A:411:GLU:OE1	7:A:632:HOH:O	2.20	0.48
1:H:111:ARG:NH2	1:H:142:MET:H	2.09	0.48
1:B:140:THR:HA	1:B:141:SER:HA	1.58	0.48
1:C:111:ARG:HH22	1:C:142:MET:H	1.62	0.48
1:F:112:ARG:NH1	1:F:169:ARG:O	2.47	0.48
1:J:140:THR:HA	1:J:141:SER:HA	1.61	0.48
1:L:222:ILE:O	1:L:229:PHE:N	2.42	0.48
1:L:210:ARG:HG3	1:L:242:VAL:HG21	1.95	0.48
1:H:234:ASP:OD1	1:H:235:GLY:N	2.45	0.48
1:J:98:PRO:HB3	1:J:416:THR:HG21	1.96	0.48
1:D:258:GLN:H	1:I:240:GLN:NE2	2.12	0.48
1:B:190:ARG:HG3	1:B:211:GLY:HA2	1.95	0.48
1:H:140:THR:HA	1:H:141:SER:HA	1.60	0.48
1:F:183:LEU:HD21	1:F:248:LEU:HD11	1.96	0.48
1:K:144:TRP:O	1:K:169:ARG:NH2	2.42	0.48
1:K:122:CYS:HB2	1:K:153:ILE:HG21	1.96	0.48
1:L:118:ASP:OD1	1:L:121:SER:N	2.28	0.48
1:E:119:LEU:HA	1:E:396:LYS:O	2.14	0.47
1:J:116:SER:HB3	1:J:125:PHE:CE1	2.49	0.47
1:L:243:HIS:CD2	1:L:261:THR:HG21	2.49	0.47
1:E:341:LEU:HB3	1:E:347:TRP:HB2	1.96	0.47
1:F:107:LEU:HD23	1:F:158:THR:HG22	1.94	0.47
1:F:348:THR:HG22	1:F:363:GLU:HB2	1.95	0.47
1:H:150:LYS:HB3	1:H:165:ILE:HD11	1.96	0.47
1:K:279:LYS:HD3	1:K:342:ASP:OD1	2.14	0.47
1:B:217:PRO:HB2	1:B:269:SER:O	2.14	0.47
1:C:98:PRO:HB3	1:C:416:THR:HG21	1.95	0.47
1:F:384:ASN:ND2	7:F:615:HOH:O	2.47	0.47
1:I:202:VAL:HG11	1:J:91:VAL:HG21	1.95	0.47
1:D:234:ASP:OD1	1:D:235:GLY:N	2.45	0.47

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:95:ARG:NH2	1:E:385:LYS:HE3	2.29	0.47
1:F:145:GLU:OE2	1:G:95:ARG:NH2	2.38	0.47
1:J:290:LYS:NZ	1:J:324:SER:O	2.48	0.47
1:J:79:ARG:N	7:J:618:HOH:O	2.47	0.47
1:D:96:GLY:N	1:D:424:GLU:OE2	2.34	0.47
1:E:193:PHE:HA	1:E:214:LEU:HD12	1.96	0.47
1:K:257:LYS:HZ1	1:K:302:TYR:HE1	1.63	0.47
1:K:369:ILE:HG22	7:K:611:HOH:O	2.13	0.47
7:B:637:HOH:O	3:N:2:NAG:N2	2.35	0.47
1:C:144:TRP:O	1:C:169:ARG:NH2	2.33	0.47
1:C:164:MET:HB3	1:D:154:GLY:HA2	1.96	0.47
1:C:140:THR:HA	1:C:141:SER:HA	1.52	0.47
1:D:260:ASN:ND2	1:D:262:THR:OG1	2.44	0.47
3:P:1:NAG:H61	3:P:3:FUL:O2	2.15	0.47
1:A:111:ARG:HH22	1:A:142:MET:H	1.62	0.47
1:A:417:VAL:HG11	1:A:422:ILE:HG12	1.96	0.47
1:C:146:GLU:OE2	1:C:169:ARG:HG3	2.15	0.47
1:D:244:ARG:HD3	1:D:256:TRP:CE3	2.49	0.47
1:E:348:THR:HG22	1:E:363:GLU:HB2	1.95	0.47
1:B:234:ASP:OD1	1:B:235:GLY:N	2.44	0.47
1:F:317:ARG:NH1	7:F:606:HOH:O	2.44	0.47
1:K:140:THR:HA	1:K:141:SER:HA	1.55	0.47
1:K:111:ARG:NH1	1:K:142:MET:O	2.44	0.47
1:K:341:LEU:HD23	1:K:347:TRP:CD1	2.50	0.47
1:K:364:GLN:OE1	1:K:376:SER:OG	2.32	0.47
1:D:118:ASP:OD1	1:D:121:SER:N	2.34	0.47
1:H:417:VAL:HG11	1:H:422:ILE:HG12	1.97	0.47
1:K:293:LEU:HD21	1:K:369:ILE:HG21	1.97	0.47
1:H:139:ASN:OD1	1:H:139:ASN:N	2.48	0.47
1:I:82:SER:O	1:I:275:ASN:HB2	2.15	0.47
1:K:288:ASP:OD1	1:K:328:ALA:N	2.47	0.47
1:L:314:ASP:OD1	1:L:315:PHE:N	2.48	0.47
1:E:145:GLU:OE2	1:F:95:ARG:NH2	2.26	0.46
1:E:234:ASP:HB3	1:E:242:VAL:HG22	1.96	0.46
1:I:145:GLU:OE2	1:J:95:ARG:NH2	2.32	0.46
1:L:143:GLU:HG2	1:L:169:ARG:NH1	2.30	0.46
1:I:150:LYS:HB3	1:I:165:ILE:HD11	1.97	0.46
1:L:210:ARG:CZ	1:L:244:ARG:HH21	2.27	0.46
1:J:117:CYS:HA	1:J:122:CYS:HA	1.97	0.46
1:L:117:CYS:HA	1:L:122:CYS:HA	1.97	0.46
1:K:341:LEU:HD23	1:K:347:TRP:HD1	1.80	0.46

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:398:ASP:OD2	1:K:405:ARG:NH1	2.48	0.46
1:B:81:LYS:NZ	1:B:398:ASP:O	2.47	0.46
1:D:239:ASN:HD21	5:D:502:NAG:C1	2.29	0.46
1:E:339:PHE:HB2	1:E:392:PHE:CE2	2.50	0.46
1:E:432:ASN:N	1:E:432:ASN:OD1	2.49	0.46
1:G:341:LEU:HB3	1:G:347:TRP:HB2	1.97	0.46
1:H:183:LEU:HD21	1:H:248:LEU:HD11	1.96	0.46
1:J:398:ASP:OD2	1:J:405:ARG:HD3	2.16	0.46
1:K:438:ILE:HD13	1:K:440:TRP:CZ2	2.51	0.46
1:L:142:MET:HB3	1:L:144:TRP:CD1	2.51	0.46
1:A:210:ARG:HG3	1:A:242:VAL:HG21	1.98	0.46
1:D:275:ASN:O	1:D:275:ASN:ND2	2.49	0.46
1:K:309:ASN:OD1	1:K:373:GLY:HA3	2.15	0.46
1:L:308:CYS:HB2	1:L:371:SER:O	2.16	0.46
1:E:84:MET:HG2	1:E:274:ILE:HG13	1.97	0.46
1:D:132:SER:O	1:D:135:GLN:HB2	2.16	0.46
1:K:317:ARG:O	1:K:331:LYS:HD2	2.16	0.46
1:K:405:ARG:HH21	1:K:429:CYS:HB3	1.81	0.46
1:D:217:PRO:HB2	1:D:269:SER:O	2.15	0.46
1:F:222:ILE:HG21	1:F:273:THR:HB	1.97	0.46
1:I:134:ASN:HA	1:I:137:LEU:HD12	1.97	0.46
1:B:110:SER:HB2	1:B:126:PHE:HB2	1.97	0.45
1:J:119:LEU:HA	1:J:396:LYS:O	2.16	0.45
1:L:190:ARG:HG3	1:L:211:GLY:O	2.16	0.45
1:C:139:ASN:O	1:C:142:MET:HG3	2.15	0.45
1:D:139:ASN:OD1	1:D:139:ASN:N	2.49	0.45
1:G:234:ASP:OD1	1:G:235:GLY:N	2.48	0.45
1:B:244:ARG:HD3	1:B:256:TRP:CD1	2.51	0.45
1:D:210:ARG:NH2	1:D:258:GLN:HE22	2.15	0.45
1:A:400:ILE:HG22	1:D:201:GLU:OE1	2.16	0.45
1:A:432:ASN:N	1:A:432:ASN:OD1	2.47	0.45
1:C:175:PHE:N	7:C:601:HOH:O	2.36	0.45
1:A:136:HIS:CD2	1:E:136:HIS:CD2	3.05	0.45
1:C:189:ASP:OD1	1:C:190:ARG:N	2.50	0.45
1:D:367:ASN:N	7:D:636:HOH:O	2.50	0.45
1:D:98:PRO:HB3	1:D:416:THR:HG21	1.99	0.45
1:F:119:LEU:HA	1:F:396:LYS:O	2.17	0.45
1:G:126:PHE:HE1	1:G:151:THR:HG1	1.63	0.45
1:J:145:GLU:OE1	1:K:98:PRO:HG3	2.17	0.45
1:L:111:ARG:NH2	1:L:141:SER:OG	2.49	0.45
1:A:234:ASP:OD1	1:A:235:GLY:N	2.46	0.45

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:222:ILE:HG21	1:D:273:THR:HB	1.98	0.45
1:F:98:PRO:HB3	1:F:416:THR:HG21	1.97	0.45
1:C:314:ASP:OD1	1:C:315:PHE:N	2.49	0.45
1:D:212:GLY:O	7:D:646:HOH:O	2.21	0.45
1:F:134:ASN:ND2	1:G:100:GLY:HA3	2.32	0.45
1:G:146:GLU:OE2	1:G:169:ARG:HG3	2.17	0.45
1:J:138:LEU:HD13	1:J:142:MET:SD	2.57	0.45
1:J:146:GLU:OE2	1:J:169:ARG:HG3	2.16	0.45
1:J:234:ASP:HB3	1:J:242:VAL:CG2	2.47	0.45
1:J:96:GLY:N	1:J:424:GLU:OE2	2.39	0.45
1:I:100:GLY:HA3	1:L:134:ASN:ND2	2.32	0.45
1:A:100:GLY:HA3	1:D:134:ASN:ND2	2.32	0.45
1:I:314:ASP:OD1	1:I:315:PHE:N	2.50	0.45
1:J:111:ARG:NH1	1:J:142:MET:O	2.44	0.45
1:L:290:LYS:HE3	1:L:328:ALA:HB2	1.97	0.45
1:L:150:LYS:HB3	1:L:165:ILE:HD11	1.99	0.45
1:A:389:ARG:NH1	1:A:411:GLU:OE1	2.44	0.45
1:G:432:ASN:N	1:G:432:ASN:OD1	2.46	0.45
1:I:198:TYR:HB2	1:I:251:GLY:HA3	1.98	0.45
1:I:317:ARG:NH2	1:I:351:THR:OG1	2.47	0.45
1:I:432:ASN:N	1:I:432:ASN:OD1	2.48	0.45
1:K:279:LYS:NZ	1:K:342:ASP:O	2.44	0.45
1:L:122:CYS:HB2	1:L:153:ILE:HG21	1.98	0.45
1:K:252:THR:OG1	7:K:604:HOH:O	2.21	0.44
1:L:346:ALA:HB3	1:L:365:ILE:HB	1.99	0.44
1:A:198:TYR:HB2	1:A:251:GLY:HA3	1.98	0.44
1:G:341:LEU:HD23	1:G:347:TRP:CD1	2.52	0.44
1:C:386:ARG:NH1	7:C:638:HOH:O	2.51	0.44
1:F:234:ASP:OD1	1:F:235:GLY:N	2.44	0.44
1:C:234:ASP:OD1	1:C:235:GLY:N	2.45	0.44
1:G:117:CYS:HA	1:G:122:CYS:HA	1.99	0.44
1:C:432:ASN:OD1	1:C:432:ASN:N	2.46	0.44
1:G:222:ILE:HG21	1:G:273:THR:HB	2.00	0.44
1:J:313:THR:HG22	1:J:350:LYS:HD3	2.00	0.44
1:E:278:ILE:HD13	1:E:296:PHE:CE2	2.53	0.44
1:J:217:PRO:HB2	1:J:269:SER:O	2.17	0.44
1:A:111:ARG:NH1	1:A:146:GLU:OE1	2.46	0.44
1:K:341:LEU:HB3	1:K:347:TRP:HB2	2.00	0.44
1:D:143:GLU:O	1:D:188:ARG:NH2	2.51	0.44
1:J:198:TYR:HB3	1:J:203:THR:HG21	2.00	0.44
1:L:197:LYS:HE2	1:L:200:GLU:HA	1.98	0.44

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:304:ILE:O	3:N:3:FUL:H62	2.18	0.44
1:C:190:ARG:HG3	1:C:190:ARG:H	1.33	0.43
1:D:144:TRP:O	1:D:169:ARG:NH2	2.44	0.43
1:J:229:PHE:CE2	1:J:300:LEU:HD21	2.53	0.43
1:L:140:THR:HA	1:L:141:SER:HA	1.40	0.43
1:L:212:GLY:HA3	1:L:235:GLY:C	2.38	0.43
1:A:150:LYS:HB3	1:A:165:ILE:HD11	2.00	0.43
1:A:96:GLY:N	1:A:424:GLU:OE2	2.43	0.43
1:D:183:LEU:HD21	1:D:248:LEU:HD11	2.00	0.43
1:B:220:GLU:HG2	1:B:221:CYS:O	2.18	0.43
1:I:144:TRP:HA	1:I:144:TRP:CE3	2.52	0.43
1:A:140:THR:HA	1:A:141:SER:HA	1.54	0.43
1:E:140:THR:HA	1:E:141:SER:HA	1.46	0.43
1:B:159:LEU:HD13	1:C:107:LEU:HD21	2.00	0.43
1:G:197:LYS:HE2	1:G:200:GLU:HA	2.00	0.43
1:H:117:CYS:HA	1:H:122:CYS:HA	2.01	0.43
1:K:146:GLU:OE2	1:K:169:ARG:HG3	2.18	0.43
1:K:291:ARG:HA	1:K:292:PRO:HD2	1.88	0.43
1:L:265:ASN:HB3	1:L:284:ASN:OD1	2.19	0.43
1:E:84:MET:HB3	1:E:84:MET:HE3	1.93	0.43
1:K:278:ILE:HD13	1:K:296:PHE:CE2	2.54	0.43
1:L:243:HIS:HD2	1:L:261:THR:HG21	1.82	0.43
1:C:145:GLU:OE2	1:D:95:ARG:NH2	2.32	0.43
1:K:116:SER:OG	1:K:220:GLU:HG3	2.18	0.43
1:L:432:ASN:N	1:L:432:ASN:OD1	2.46	0.43
1:A:117:CYS:HA	1:A:122:CYS:HA	2.00	0.43
1:C:143:GLU:HG2	1:C:169:ARG:NH1	2.34	0.43
1:H:112:ARG:HD3	1:H:218:ASN:ND2	2.34	0.43
1:F:146:GLU:OE2	1:F:169:ARG:HG3	2.19	0.43
1:F:423:GLN:OE1	7:F:621:HOH:O	2.21	0.43
1:G:198:TYR:HB2	1:G:251:GLY:HA3	2.01	0.43
1:L:186:ASN:O	1:L:192:SER:HA	2.18	0.43
1:E:111:ARG:HH22	1:E:142:MET:H	1.67	0.43
1:J:274:ILE:HA	1:J:274:ILE:HD13	1.92	0.43
1:K:134:ASN:HA	1:K:137:LEU:HD12	2.00	0.43
1:L:244:ARG:HD3	1:L:256:TRP:CE3	2.53	0.43
1:A:134:ASN:ND2	1:B:100:GLY:HA3	2.34	0.42
1:D:291:ARG:CZ	1:D:338:GLY:HA3	2.48	0.42
1:L:119:LEU:HD23	1:L:396:LYS:O	2.19	0.42
1:C:120:THR:OG1	7:C:640:HOH:O	2.20	0.42
1:G:348:THR:HG22	1:G:363:GLU:HB2	2.00	0.42

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:274:ILE:HD13	1:I:274:ILE:HA	1.93	0.42
1:A:257:LYS:HB2	1:A:300:LEU:HD13	2.00	0.42
1:C:77:TYR:CE1	1:C:178:LEU:HD13	2.54	0.42
1:A:107:LEU:HD21	1:D:159:LEU:HD13	2.02	0.42
1:E:314:ASP:OD1	1:E:315:PHE:N	2.52	0.42
1:G:139:ASN:N	1:G:139:ASN:OD1	2.51	0.42
1:G:220:GLU:O	7:G:623:HOH:O	2.22	0.42
1:D:146:GLU:OE2	1:D:169:ARG:HG3	2.20	0.42
1:L:143:GLU:HG2	1:L:169:ARG:HH12	1.84	0.42
1:C:339:PHE:HB2	1:C:392:PHE:CE2	2.55	0.42
1:I:144:TRP:HE3	1:I:144:TRP:HA	1.84	0.42
1:I:193:PHE:HE1	1:J:438:ILE:HG21	1.85	0.42
1:D:190:ARG:HG3	1:D:190:ARG:H	1.57	0.42
1:I:255:ARG:HH22	1:I:299:GLU:HA	1.84	0.42
1:K:107:LEU:HB2	1:K:132:SER:HB3	2.02	0.42
1:L:309:ASN:OD1	1:L:310:GLY:N	2.49	0.42
1:B:107:LEU:HD23	1:B:158:THR:HG22	2.02	0.42
1:C:179:LYS:HD2	1:C:198:TYR:CE2	2.55	0.42
1:C:77:TYR:CD1	1:C:178:LEU:HD13	2.55	0.42
1:E:341:LEU:HD23	1:E:347:TRP:CD1	2.54	0.42
1:E:96:GLY:N	1:E:424:GLU:OE2	2.49	0.42
1:F:77:TYR:CE1	1:F:178:LEU:HD13	2.55	0.42
1:G:259:LEU:HB2	1:G:261:THR:HG23	2.01	0.42
1:H:314:ASP:OD1	1:H:315:PHE:N	2.53	0.42
1:K:81:LYS:HD2	1:K:402:GLY:O	2.19	0.42
1:G:278:ILE:HD13	1:G:296:PHE:CE2	2.55	0.42
1:F:193:PHE:HA	1:F:214:LEU:HD12	2.01	0.42
1:L:308:CYS:HA	1:L:325:CYS:HA	2.01	0.42
1:D:337:GLN:OE1	1:D:389:ARG:NH2	2.53	0.42
1:G:87:VAL:HG11	1:G:90:TRP:CZ2	2.55	0.42
1:K:200:GLU:N	7:K:602:HOH:O	2.37	0.42
1:L:139:ASN:OD1	1:L:139:ASN:N	2.52	0.42
1:L:225:GLU:OE2	1:L:298:LYS:NZ	2.32	0.42
1:B:127:ILE:CG2	1:B:146:GLU:HB3	2.50	0.41
1:B:239:ASN:OD1	1:B:240:GLN:HG2	2.20	0.41
1:B:383:SER:OG	1:B:439:ASN:ND2	2.53	0.41
1:F:179:LYS:HD2	1:F:198:TYR:CE2	2.55	0.41
1:I:210:ARG:HG3	1:I:242:VAL:HG21	2.02	0.41
1:I:134:ASN:ND2	1:J:100:GLY:HA3	2.34	0.41
1:L:313:THR:HB	1:L:349:SER:O	2.20	0.41
1:I:293:LEU:HD21	1:I:369:ILE:HG21	2.02	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:301:ASN:ND2	7:K:614:HOH:O	2.49	0.41
1:C:96:GLY:N	1:C:424:GLU:OE2	2.52	0.41
1:D:84:MET:CG	1:D:274:ILE:HG13	2.49	0.41
1:E:247:GLU:OE1	1:E:255:ARG:NE	2.45	0.41
1:E:341:LEU:HD23	1:E:347:TRP:HD1	1.85	0.41
1:E:400:ILE:HG21	1:H:203:THR:HG22	2.02	0.41
1:F:145:GLU:HG2	1:G:98:PRO:HD3	2.02	0.41
1:H:417:VAL:HG21	1:H:422:ILE:HG13	2.01	0.41
1:I:79:ARG:HG3	1:I:80:ALA:O	2.20	0.41
1:A:222:ILE:O	1:A:229:PHE:N	2.47	0.41
1:C:111:ARG:HH21	1:C:141:SER:HB3	1.86	0.41
1:E:198:TYR:HB2	1:E:251:GLY:HA3	2.00	0.41
1:E:291:ARG:CZ	1:E:338:GLY:HA3	2.50	0.41
1:G:113:ALA:HA	1:G:125:PHE:O	2.20	0.41
1:I:217:PRO:HB2	1:I:269:SER:O	2.21	0.41
1:I:159:LEU:HD13	1:J:107:LEU:HD21	2.02	0.41
1:K:201:GLU:OE2	1:L:400:ILE:HG22	2.20	0.41
1:L:386:ARG:HD3	1:L:413:GLU:OE1	2.20	0.41
1:A:217:PRO:HB2	1:A:269:SER:O	2.21	0.41
1:B:274:ILE:HD13	1:B:274:ILE:HA	1.91	0.41
1:C:291:ARG:N	7:C:602:HOH:O	2.34	0.41
1:D:398:ASP:CG	1:D:405:ARG:HH11	2.23	0.41
1:F:140:THR:HA	1:F:141:SER:HA	1.43	0.41
1:A:339:PHE:HB2	1:A:392:PHE:CE2	2.56	0.41
1:B:291:ARG:NH1	7:B:636:HOH:O	2.54	0.41
1:I:240:GLN:OE1	7:I:607:HOH:O	2.22	0.41
1:K:264:ILE:HG22	1:K:327:MET:SD	2.61	0.41
1:L:104:PRO:HG2	1:L:107:LEU:HG	2.03	0.41
1:B:77:TYR:HA	1:B:77:TYR:HD1	1.72	0.41
1:C:139:ASN:OD1	1:C:139:ASN:N	2.53	0.41
1:E:112:ARG:NH1	1:E:169:ARG:O	2.54	0.41
1:G:140:THR:HA	1:G:141:SER:HA	1.42	0.41
1:G:339:PHE:HB2	1:G:392:PHE:CE2	2.56	0.41
1:H:267:GLU:HG3	1:H:285:LEU:HD12	2.03	0.41
1:H:309:ASN:OD1	1:H:373:GLY:HA3	2.19	0.41
1:I:210:ARG:NH2	1:I:258:GLN:HE22	2.19	0.41
1:C:127:ILE:CG2	1:C:146:GLU:HB3	2.51	0.41
1:D:140:THR:HA	1:D:141:SER:HA	1.49	0.41
1:G:195:MET:SD	1:H:91:VAL:HB	2.60	0.41
1:H:222:ILE:O	1:H:229:PHE:N	2.43	0.41
1:H:401:SER:HB2	1:H:403:CYS:SG	2.61	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:L:116:SER:HB3	1:L:125:PHE:CE1	2.56	0.41
1:J:210:ARG:HE	1:J:244:ARG:NH2	2.19	0.41
1:E:146:GLU:OE2	1:E:169:ARG:HG3	2.21	0.41
1:K:339:PHE:HB2	1:K:392:PHE:CE2	2.56	0.41
1:B:121:SER:HB2	7:B:650:HOH:O	2.20	0.41
1:B:139:ASN:N	1:B:139:ASN:OD1	2.53	0.41
1:D:244:ARG:HG2	1:D:258:GLN:HA	2.03	0.41
1:F:84:MET:CG	1:F:274:ILE:HG13	2.49	0.41
1:K:245:ILE:HB	1:K:257:LYS:HB3	2.02	0.41
1:L:291:ARG:NH2	1:L:338:GLY:HA3	2.35	0.41
1:A:77:TYR:CE1	1:A:178:LEU:HD13	2.55	0.40
1:A:372:GLU:HG2	1:A:374:THR:HG23	2.03	0.40
1:E:308:CYS:HA	1:E:325:CYS:HA	2.03	0.40
1:J:198:TYR:CZ	1:J:250:ASN:HA	2.55	0.40
1:A:111:ARG:NH1	1:A:142:MET:O	2.48	0.40
1:A:234:ASP:HB3	1:A:242:VAL:HG22	2.02	0.40
1:F:279:LYS:HD3	1:F:342:ASP:OD1	2.21	0.40
1:F:159:LEU:HD13	1:G:107:LEU:HD21	2.03	0.40
1:L:291:ARG:HA	1:L:292:PRO:HD2	1.87	0.40
1:B:267:GLU:HG3	1:B:285:LEU:HD12	2.03	0.40
1:B:314:ASP:OD1	1:B:315:PHE:N	2.55	0.40
1:C:134:ASN:ND2	1:D:100:GLY:HA3	2.36	0.40
1:J:210:ARG:HG3	1:J:242:VAL:HG21	2.03	0.40
1:J:389:ARG:HD3	1:J:411:GLU:OE1	2.20	0.40
1:K:308:CYS:HA	1:K:324:SER:O	2.21	0.40
1:L:395:PRO:HG2	1:L:405:ARG:NH1	2.37	0.40
1:A:313:THR:HG21	1:A:348:THR:OG1	2.21	0.40
1:A:341:LEU:HD23	1:A:347:TRP:HD1	1.86	0.40
1:B:341:LEU:HB3	1:B:347:TRP:HB2	2.04	0.40
1:D:190:ARG:NH2	1:I:144:TRP:HZ3	2.17	0.40
1:K:223:CYS:HA	1:K:227:SER:O	2.22	0.40
1:B:344:LYS:HB3	1:B:344:LYS:HE3	1.88	0.40
1:C:234:ASP:HB3	1:C:242:VAL:HG22	2.03	0.40
1:H:87:VAL:HG11	1:H:90:TRP:CZ2	2.56	0.40

All (5) 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)
1:A:254:GLN:OE1	1:G:88:LYS:NZ[1_455]	2.12	0.08

*Continued on next page...*

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:257:LYS:NZ	1:F:254:GLN:O[1_455]	2.15	0.05
1:B:299:GLU:OE2	2:O:2:FUC:O3[1_545]	2.15	0.05
1:C:88:LYS:NZ	1:E:254:GLN:OE1[1_545]	2.17	0.03
1:B:254:GLN:O	1:E:257:LYS:NZ[1_545]	2.19	0.01

## 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	363/378 (96%)	340 (94%)	22 (6%)	1 (0%)	41	61
1	B	363/378 (96%)	339 (93%)	22 (6%)	2 (1%)	25	43
1	C	363/378 (96%)	342 (94%)	20 (6%)	1 (0%)	41	61
1	D	363/378 (96%)	344 (95%)	18 (5%)	1 (0%)	41	61
1	E	363/378 (96%)	343 (94%)	19 (5%)	1 (0%)	41	61
1	F	363/378 (96%)	342 (94%)	20 (6%)	1 (0%)	41	61
1	G	363/378 (96%)	340 (94%)	22 (6%)	1 (0%)	41	61
1	H	363/378 (96%)	341 (94%)	21 (6%)	1 (0%)	41	61
1	I	363/378 (96%)	338 (93%)	24 (7%)	1 (0%)	41	61
1	J	361/378 (96%)	338 (94%)	21 (6%)	2 (1%)	25	43
1	K	362/378 (96%)	339 (94%)	22 (6%)	1 (0%)	41	61
1	L	363/378 (96%)	344 (95%)	18 (5%)	1 (0%)	41	61
All	All	4353/4536 (96%)	4090 (94%)	249 (6%)	14 (0%)	41	61

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	398	ASP
1	E	398	ASP
1	F	398	ASP

Continued on next page...

*Continued from previous page...*

Mol	Chain	Res	Type
1	B	398	ASP
1	C	398	ASP
1	G	398	ASP
1	H	398	ASP
1	J	398	ASP
1	K	398	ASP
1	D	398	ASP
1	I	398	ASP
1	L	398	ASP
1	J	345	PRO
1	B	397	GLY

### 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	318/327 (97%)	310 (98%)	8 (2%)	47	73
1	B	318/327 (97%)	308 (97%)	10 (3%)	40	67
1	C	318/327 (97%)	309 (97%)	9 (3%)	43	70
1	D	318/327 (97%)	307 (96%)	11 (4%)	36	62
1	E	318/327 (97%)	310 (98%)	8 (2%)	47	73
1	F	318/327 (97%)	308 (97%)	10 (3%)	40	67
1	G	318/327 (97%)	304 (96%)	14 (4%)	28	52
1	H	318/327 (97%)	310 (98%)	8 (2%)	47	73
1	I	318/327 (97%)	307 (96%)	11 (4%)	36	62
1	J	316/327 (97%)	308 (98%)	8 (2%)	47	73
1	K	317/327 (97%)	306 (96%)	11 (4%)	36	62
1	L	318/327 (97%)	311 (98%)	7 (2%)	52	77
All	All	3813/3924 (97%)	3698 (97%)	115 (3%)	41	68

All (115) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	139	ASN
1	A	209	SER
1	A	274	ILE
1	A	275	ASN
1	A	342	ASP
1	A	348	THR
1	A	361	VAL
1	A	387	THR
1	B	139	ASN
1	B	169	ARG
1	B	209	SER
1	B	274	ILE
1	B	275	ASN
1	B	333	GLU
1	B	348	THR
1	B	361	VAL
1	B	387	THR
1	B	400	ILE
1	C	139	ASN
1	C	189	ASP
1	C	209	SER
1	C	274	ILE
1	C	342	ASP
1	C	344	LYS
1	C	348	THR
1	C	361	VAL
1	C	387	THR
1	D	139	ASN
1	D	169	ARG
1	D	189	ASP
1	D	257	LYS
1	D	260	ASN
1	D	274	ILE
1	D	329	GLN
1	D	342	ASP
1	D	348	THR
1	D	361	VAL
1	D	387	THR
1	E	84	MET
1	E	139	ASN
1	E	274	ILE
1	E	342	ASP
1	E	348	THR

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	E	361	VAL
1	E	387	THR
1	E	400	ILE
1	F	139	ASN
1	F	144	TRP
1	F	145	GLU
1	F	163	GLU
1	F	274	ILE
1	F	333	GLU
1	F	348	THR
1	F	361	VAL
1	F	387	THR
1	F	400	ILE
1	G	79	ARG
1	G	139	ASN
1	G	169	ARG
1	G	188	ARG
1	G	209	SER
1	G	257	LYS
1	G	274	ILE
1	G	301	ASN
1	G	344	LYS
1	G	348	THR
1	G	361	VAL
1	G	374	THR
1	G	387	THR
1	G	400	ILE
1	H	139	ASN
1	H	169	ARG
1	H	274	ILE
1	H	344	LYS
1	H	348	THR
1	H	361	VAL
1	H	387	THR
1	H	400	ILE
1	I	79	ARG
1	I	139	ASN
1	I	144	TRP
1	I	169	ARG
1	I	190	ARG
1	I	274	ILE
1	I	276	ASN

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
1	I	344	LYS
1	I	348	THR
1	I	361	VAL
1	I	387	THR
1	J	139	ASN
1	J	163	GLU
1	J	274	ILE
1	J	344	LYS
1	J	348	THR
1	J	361	VAL
1	J	387	THR
1	J	400	ILE
1	K	84	MET
1	K	139	ASN
1	K	169	ARG
1	K	274	ILE
1	K	293	LEU
1	K	344	LYS
1	K	348	THR
1	K	361	VAL
1	K	387	THR
1	K	400	ILE
1	K	432	ASN
1	L	106	ASP
1	L	139	ASN
1	L	274	ILE
1	L	342	ASP
1	L	348	THR
1	L	361	VAL
1	L	387	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	136	HIS
1	A	258	GLN
1	B	250	ASN
1	C	136	HIS
1	D	260	ASN
1	D	275	ASN
1	E	136	HIS
1	F	250	ASN

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type
1	G	136	HIS
1	I	240	GLN

### 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	NAG	M	1	1,2	14,14,15	0.50	0	17,19,21	1.00	1 (5%)
2	FUC	M	2	2	10,10,11	0.76	0	14,14,16	0.86	0
3	NAG	N	1	1,3	14,14,15	0.52	0	17,19,21	1.41	2 (11%)
3	NAG	N	2	3	14,14,15	0.45	0	17,19,21	1.72	5 (29%)
3	FUL	N	3	3	10,10,11	1.54	3 (30%)	14,14,16	1.62	3 (21%)
2	NAG	O	1	1,2	14,14,15	0.71	0	17,19,21	1.53	2 (11%)
2	FUC	O	2	2	10,10,11	0.93	0	14,14,16	0.84	0
3	NAG	P	1	1,3	14,14,15	0.49	0	17,19,21	1.51	2 (11%)
3	NAG	P	2	3	14,14,15	0.52	0	17,19,21	1.55	3 (17%)
3	FUL	P	3	3	10,10,11	1.46	2 (20%)	14,14,16	1.86	4 (28%)
2	NAG	Q	1	1,2	14,14,15	0.51	0	17,19,21	1.90	3 (17%)
2	FUC	Q	2	2	10,10,11	1.14	1 (10%)	14,14,16	0.67	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	NAG	M	1	1,2	-	2/6/23/26	0/1/1/1
2	FUC	M	2	2	-	-	0/1/1/1
3	NAG	N	1	1,3	-	4/6/23/26	0/1/1/1
3	NAG	N	2	3	-	3/6/23/26	0/1/1/1
3	FUL	N	3	3	-	-	0/1/1/1
2	NAG	O	1	1,2	-	1/6/23/26	0/1/1/1
2	FUC	O	2	2	-	-	0/1/1/1
3	NAG	P	1	1,3	-	4/6/23/26	0/1/1/1
3	NAG	P	2	3	-	5/6/23/26	0/1/1/1
3	FUL	P	3	3	-	-	0/1/1/1
2	NAG	Q	1	1,2	-	0/6/23/26	0/1/1/1
2	FUC	Q	2	2	-	-	0/1/1/1

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	N	3	FUL	C4-C5	2.72	1.58	1.52
2	Q	2	FUC	O5-C1	-2.58	1.39	1.43
3	P	3	FUL	C4-C5	2.44	1.58	1.52
3	N	3	FUL	O5-C5	2.21	1.48	1.43
3	N	3	FUL	C4-C3	2.17	1.57	1.52
3	P	3	FUL	C4-C3	2.08	1.57	1.52

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	Q	1	NAG	C1-O5-C5	5.93	120.23	112.19
3	P	1	NAG	O5-C5-C6	4.64	114.48	107.20
3	N	2	NAG	C1-O5-C5	4.16	117.83	112.19
3	N	1	NAG	O5-C5-C6	4.06	113.57	107.20
3	P	3	FUL	O5-C5-C4	3.92	116.56	109.52
2	O	1	NAG	C4-C3-C2	3.57	116.25	111.02
3	P	3	FUL	C3-C4-C5	3.42	115.10	109.77
3	P	2	NAG	C3-C4-C5	3.37	116.26	110.24
3	P	3	FUL	O2-C2-C1	3.35	116.02	109.15
3	N	3	FUL	O5-C5-C4	3.35	115.53	109.52
2	M	1	NAG	C1-O5-C5	3.29	116.65	112.19
2	Q	1	NAG	O5-C1-C2	3.20	116.34	111.29

*Continued on next page...*

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	N	3	FUL	O2-C2-C1	3.05	115.39	109.15
3	P	2	NAG	C4-C3-C2	2.95	115.34	111.02
3	P	2	NAG	C1-O5-C5	2.79	115.97	112.19
3	P	1	NAG	C1-O5-C5	2.61	115.73	112.19
3	N	3	FUL	C3-C4-C5	2.60	113.83	109.77
3	N	2	NAG	C3-C4-C5	2.56	114.81	110.24
3	N	1	NAG	C1-O5-C5	2.55	115.65	112.19
3	N	2	NAG	O5-C5-C6	2.50	111.13	107.20
2	O	1	NAG	C3-C4-C5	2.50	114.70	110.24
2	Q	1	NAG	C6-C5-C4	-2.40	107.39	113.00
3	P	3	FUL	C1-O5-C5	2.35	118.10	112.78
3	N	2	NAG	C2-N2-C7	2.33	126.23	122.90
3	N	2	NAG	O5-C5-C4	2.09	115.92	110.83

There are no chirality outliers.

All (19) torsion outliers are listed below:

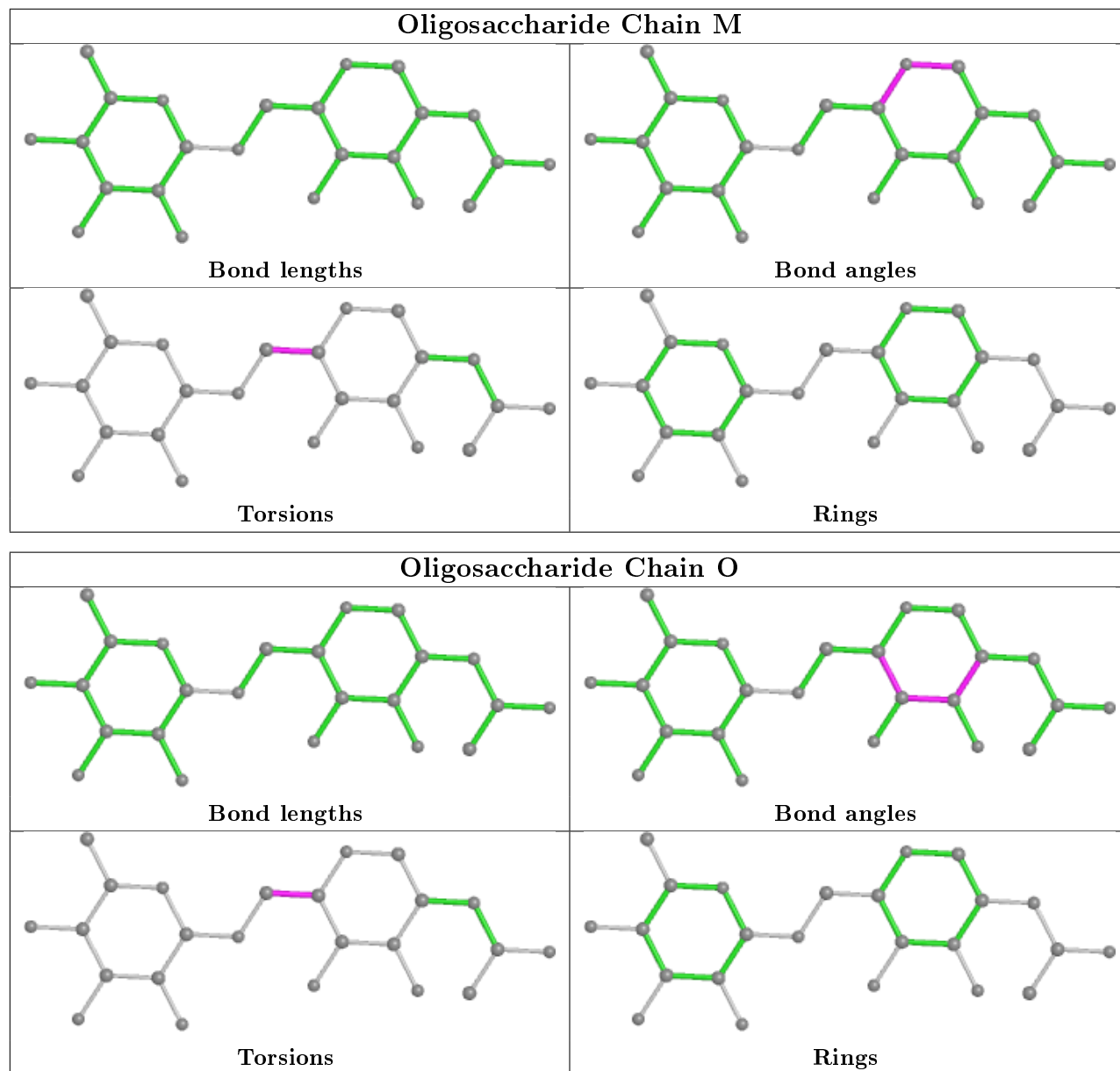
Mol	Chain	Res	Type	Atoms
3	P	2	NAG	C8-C7-N2-C2
3	P	2	NAG	O7-C7-N2-C2
3	N	1	NAG	C8-C7-N2-C2
3	N	1	NAG	O7-C7-N2-C2
3	P	1	NAG	O5-C5-C6-O6
3	N	2	NAG	C1-C2-N2-C7
3	N	1	NAG	O5-C5-C6-O6
3	P	1	NAG	C4-C5-C6-O6
3	N	1	NAG	C4-C5-C6-O6
3	P	1	NAG	C8-C7-N2-C2
2	M	1	NAG	O5-C5-C6-O6
2	M	1	NAG	C4-C5-C6-O6
3	N	2	NAG	O5-C5-C6-O6
3	P	1	NAG	O7-C7-N2-C2
3	P	2	NAG	C1-C2-N2-C7
3	P	2	NAG	O5-C5-C6-O6
2	O	1	NAG	O5-C5-C6-O6
3	N	2	NAG	C3-C2-N2-C7
3	P	2	NAG	C3-C2-N2-C7

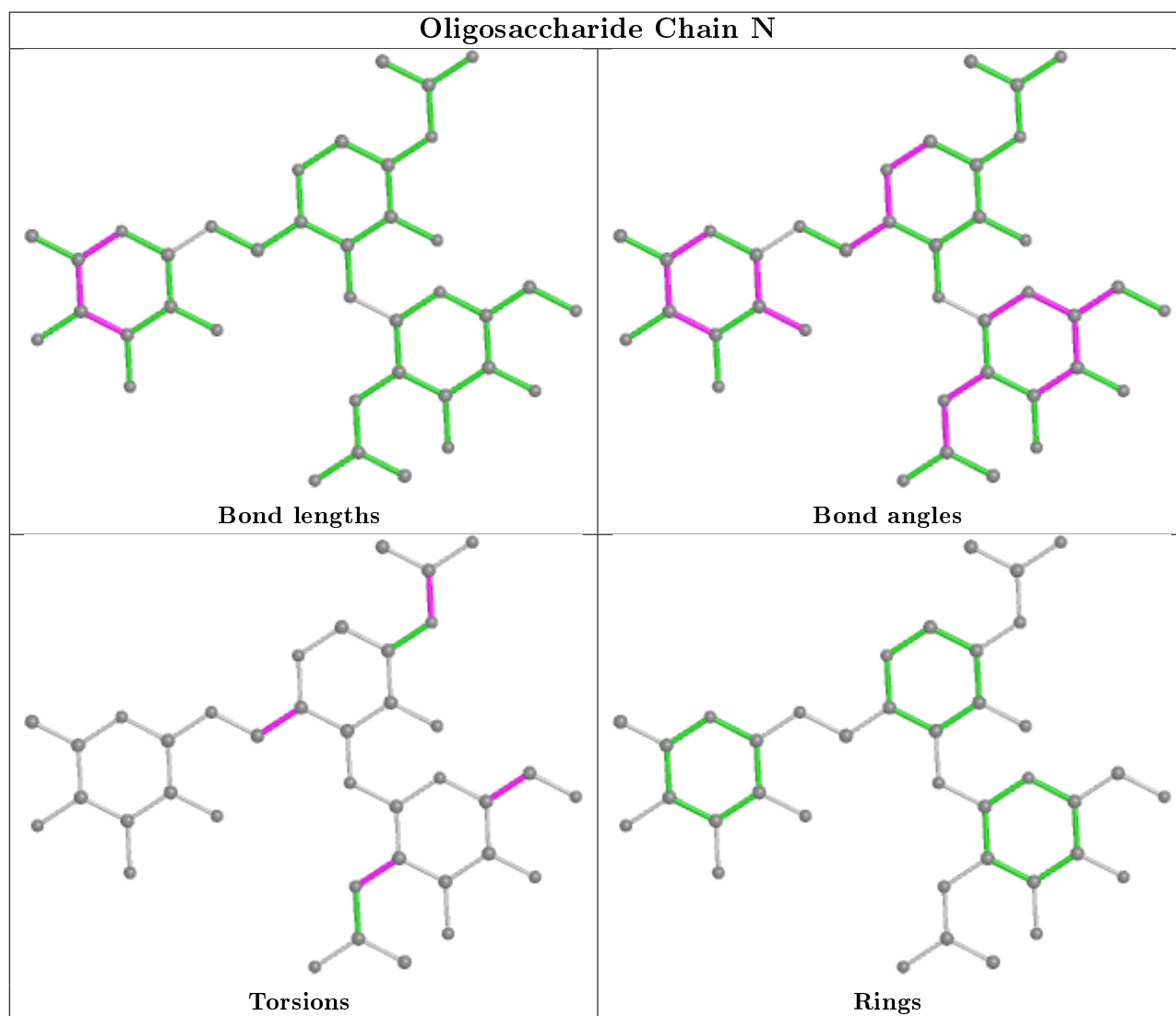
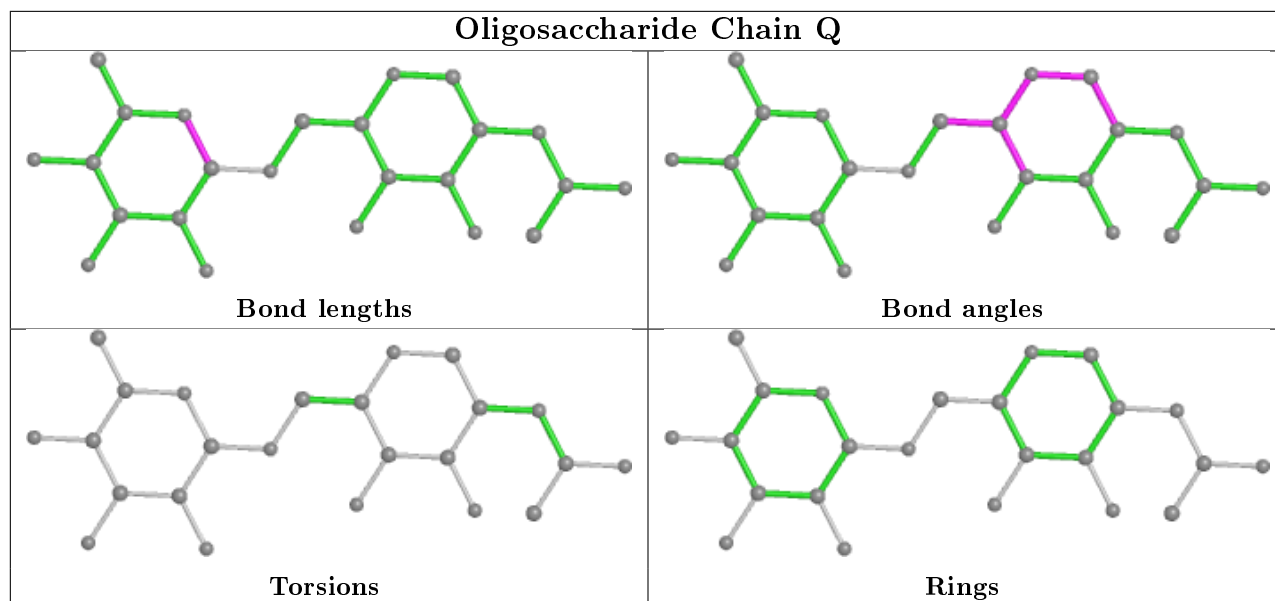
There are no ring outliers.

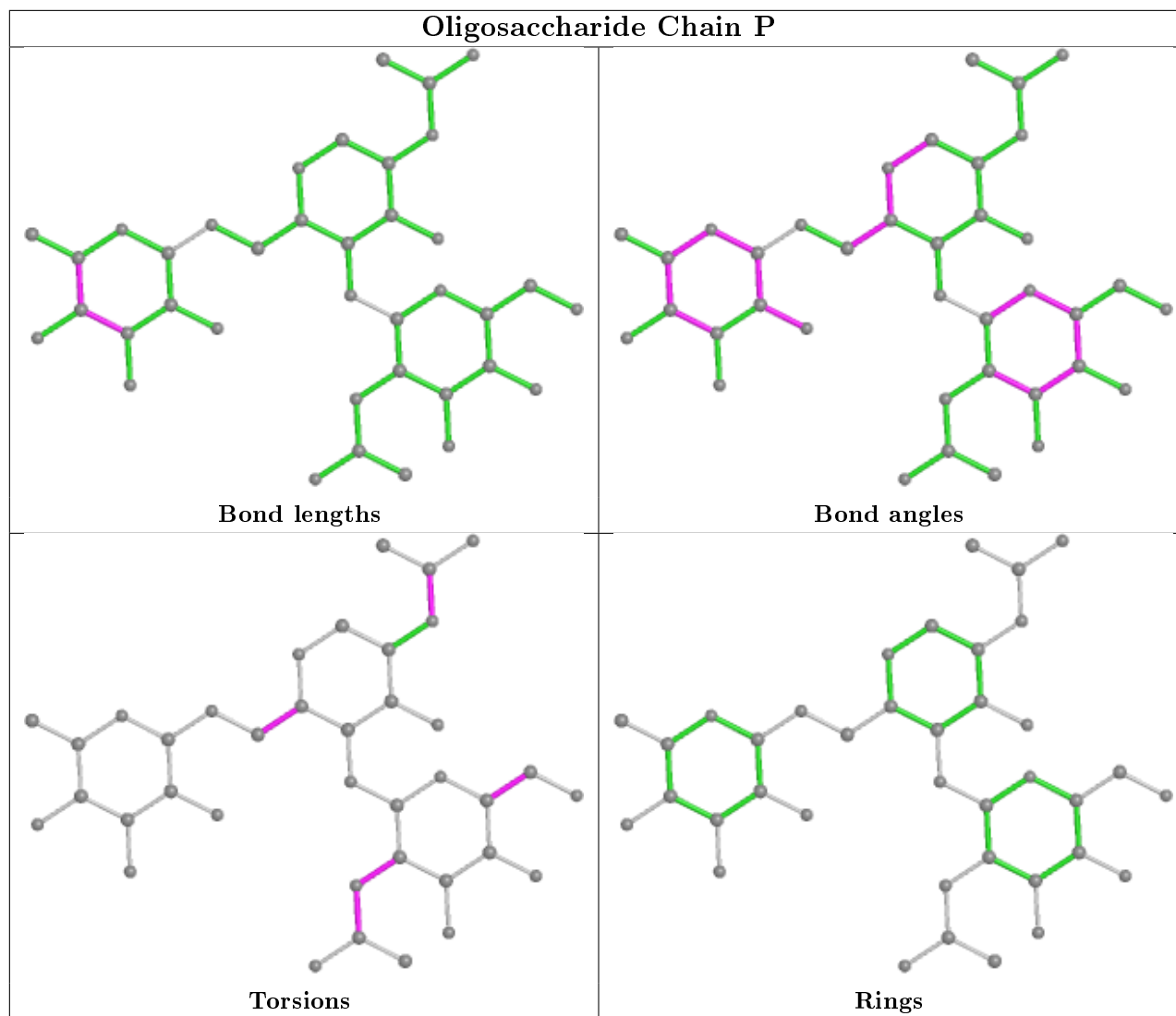
5 monomers are involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	N	2	NAG	1	0
3	P	1	NAG	1	0
3	N	3	FUL	1	0
2	O	2	FUC	0	1
3	P	3	FUL	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 27 ligands modelled in this entry, 12 are monoatomic - leaving 15 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	NAG	C	502	1	14,14,15	0.60	0	17,19,21	1.04	1 (5%)
5	NAG	I	502	1	14,14,15	0.53	0	17,19,21	1.39	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	NAG	G	502	1	14,14,15	0.52	0	17,19,21	0.90	1 (5%)
5	NAG	B	505	-	14,14,15	0.56	0	17,19,21	1.05	1 (5%)
5	NAG	H	502	1	14,14,15	0.53	0	17,19,21	0.94	1 (5%)
5	NAG	A	502	1	14,14,15	0.47	0	17,19,21	1.03	1 (5%)
5	NAG	L	502	1	14,14,15	0.52	0	17,19,21	1.20	2 (11%)
5	NAG	F	505	-	14,14,15	0.52	0	17,19,21	0.67	0
5	NAG	D	502	-	14,14,15	0.51	0	17,19,21	1.24	1 (5%)
5	NAG	D	503	-	14,14,15	0.63	0	17,19,21	1.56	2 (11%)
5	NAG	A	503	1	14,14,15	0.45	0	17,19,21	1.61	3 (17%)
5	NAG	K	502	1	14,14,15	0.56	0	17,19,21	1.24	2 (11%)
5	NAG	E	502	1	14,14,15	0.45	0	17,19,21	0.84	1 (5%)
5	NAG	D	504	-	14,14,15	0.42	0	17,19,21	4.51	5 (29%)
6	FUC	D	505	-	10,10,11	2.04	2 (20%)	14,14,16	4.76	2 (14%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	C	502	1	-	2/6/23/26	0/1/1/1
5	NAG	I	502	1	-	3/6/23/26	0/1/1/1
6	FUC	D	505	-	-	-	0/1/1/1
5	NAG	G	502	1	-	3/6/23/26	0/1/1/1
5	NAG	B	505	-	-	1/6/23/26	0/1/1/1
5	NAG	H	502	1	-	2/6/23/26	0/1/1/1
5	NAG	A	502	1	-	3/6/23/26	0/1/1/1
5	NAG	L	502	1	-	2/6/23/26	0/1/1/1
5	NAG	F	505	-	-	2/6/23/26	0/1/1/1
5	NAG	D	502	-	-	2/6/23/26	0/1/1/1
5	NAG	D	503	-	-	0/6/23/26	0/1/1/1
5	NAG	A	503	1	-	1/6/23/26	0/1/1/1
5	NAG	K	502	1	-	5/6/23/26	0/1/1/1
5	NAG	D	504	-	-	2/6/23/26	0/1/1/1
5	NAG	E	502	1	-	2/6/23/26	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	D	505	FUC	C2-C3	4.51	1.59	1.52
6	D	505	FUC	C1-C2	4.10	1.61	1.52

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	D	505	FUC	O5-C1-C2	-16.75	84.91	110.77
5	D	504	NAG	C1-O5-C5	12.64	129.32	112.19
5	D	504	NAG	O5-C1-C2	-11.94	92.44	111.29
5	D	504	NAG	O5-C5-C6	5.00	115.04	107.20
6	D	505	FUC	C1-C2-C3	4.82	115.59	109.67
5	I	502	NAG	C1-O5-C5	4.21	117.90	112.19
5	D	503	NAG	O5-C1-C2	4.11	117.78	111.29
5	A	503	NAG	C1-O5-C5	3.87	117.44	112.19
5	A	503	NAG	C2-N2-C7	3.66	128.12	122.90
5	L	502	NAG	C1-O5-C5	3.64	117.13	112.19
5	D	502	NAG	C1-O5-C5	3.21	116.55	112.19
5	D	503	NAG	C1-O5-C5	3.16	116.47	112.19
5	H	502	NAG	C1-O5-C5	3.12	116.42	112.19
5	K	502	NAG	C1-O5-C5	3.06	116.34	112.19
5	A	502	NAG	C1-O5-C5	2.84	116.04	112.19
5	G	502	NAG	C1-O5-C5	2.78	115.96	112.19
5	K	502	NAG	O5-C1-C2	2.68	115.52	111.29
5	A	503	NAG	C4-C3-C2	-2.59	107.22	111.02
5	E	502	NAG	O5-C5-C6	2.46	111.05	107.20
5	C	502	NAG	C1-O5-C5	2.40	115.45	112.19
5	B	505	NAG	O5-C1-C2	-2.36	107.57	111.29
5	D	504	NAG	C3-C4-C5	-2.32	106.10	110.24
5	L	502	NAG	O5-C1-C2	2.19	114.75	111.29
5	D	504	NAG	C4-C3-C2	-2.15	107.87	111.02

There are no chirality outliers.

All (30) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	I	502	NAG	C1-C2-N2-C7
5	I	502	NAG	C8-C7-N2-C2
5	I	502	NAG	O7-C7-N2-C2
5	E	502	NAG	C8-C7-N2-C2
5	E	502	NAG	O7-C7-N2-C2
5	A	502	NAG	C3-C2-N2-C7
5	A	502	NAG	C8-C7-N2-C2

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type	Atoms
5	A	502	NAG	O7-C7-N2-C2
5	H	502	NAG	C8-C7-N2-C2
5	H	502	NAG	O7-C7-N2-C2
5	K	502	NAG	C3-C2-N2-C7
5	K	502	NAG	C8-C7-N2-C2
5	K	502	NAG	O7-C7-N2-C2
5	G	502	NAG	O5-C5-C6-O6
5	D	504	NAG	O5-C5-C6-O6
5	K	502	NAG	O5-C5-C6-O6
5	F	505	NAG	C8-C7-N2-C2
5	L	502	NAG	O5-C5-C6-O6
5	D	504	NAG	C4-C5-C6-O6
5	K	502	NAG	C4-C5-C6-O6
5	G	502	NAG	C4-C5-C6-O6
5	F	505	NAG	O7-C7-N2-C2
5	C	502	NAG	O5-C5-C6-O6
5	D	502	NAG	C8-C7-N2-C2
5	C	502	NAG	C4-C5-C6-O6
5	L	502	NAG	C4-C5-C6-O6
5	D	502	NAG	O7-C7-N2-C2
5	B	505	NAG	O5-C5-C6-O6
5	A	503	NAG	C3-C2-N2-C7
5	G	502	NAG	C8-C7-N2-C2

There are no ring outliers.

10 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	C	502	NAG	1	0
5	I	502	NAG	2	0
5	B	505	NAG	2	0
5	L	502	NAG	1	0
5	F	505	NAG	1	0
5	D	502	NAG	1	0
5	D	503	NAG	1	0
5	A	503	NAG	2	0
5	E	502	NAG	1	0
5	D	504	NAG	1	0

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	365/378 (96%)	-0.12	6 (1%) 72 74	10, 33, 79, 133	0
1	B	365/378 (96%)	-0.15	9 (2%) 57 61	11, 34, 71, 137	0
1	C	365/378 (96%)	-0.16	15 (4%) 37 40	12, 39, 81, 141	0
1	D	365/378 (96%)	0.00	11 (3%) 50 53	11, 38, 88, 148	0
1	E	365/378 (96%)	-0.12	11 (3%) 50 53	11, 34, 82, 133	0
1	F	365/378 (96%)	-0.19	4 (1%) 80 82	12, 34, 69, 140	0
1	G	365/378 (96%)	0.08	19 (5%) 27 29	14, 46, 93, 135	0
1	H	365/378 (96%)	0.15	21 (5%) 23 24	13, 45, 96, 139	0
1	I	365/378 (96%)	0.20	15 (4%) 37 40	39, 65, 106, 137	0
1	J	363/378 (96%)	0.35	19 (5%) 27 29	47, 75, 104, 146	0
1	K	364/378 (96%)	0.44	21 (5%) 23 24	45, 87, 112, 149	0
1	L	365/378 (96%)	0.53	31 (8%) 10 10	45, 84, 116, 145	0
All	All	4377/4536 (96%)	0.09	182 (4%) 36 39	10, 51, 104, 149	0

All (182) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	L	399	LEU	15.1
1	J	399	LEU	11.9
1	A	140	THR	10.7
1	G	140	THR	10.5
1	K	141	SER	9.9
1	H	77	TYR	9.2
1	D	400	ILE	8.8
1	H	78	TRP	8.8
1	K	142	MET	8.4
1	D	142	MET	8.1
1	H	399	LEU	8.0

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	L	400	ILE	8.0
1	H	140	THR	7.9
1	G	142	MET	7.9
1	B	140	THR	7.5
1	K	140	THR	7.5
1	C	399	LEU	7.3
1	D	401	SER	7.2
1	E	140	THR	6.6
1	H	84	MET	6.4
1	E	143	GLU	6.4
1	C	141	SER	5.8
1	G	78	TRP	5.6
1	B	142	MET	5.5
1	K	305	VAL	5.5
1	H	80	ALA	5.5
1	I	419	LEU	5.4
1	I	144	TRP	5.3
1	I	143	GLU	5.2
1	K	377	LEU	5.1
1	I	397	GLY	5.1
1	C	140	THR	4.9
1	J	142	MET	4.9
1	D	399	LEU	4.8
1	G	400	ILE	4.8
1	H	403	CYS	4.8
1	F	142	MET	4.7
1	J	188	ARG	4.6
1	I	399	LEU	4.5
1	H	226	GLY	4.4
1	C	401	SER	4.4
1	B	399	LEU	4.4
1	J	144	TRP	4.3
1	L	144	TRP	4.3
1	J	119	LEU	4.3
1	A	141	SER	4.2
1	L	142	MET	4.2
1	G	141	SER	4.2
1	E	144	TRP	4.1
1	K	375	VAL	4.1
1	G	402	GLY	4.1
1	C	398	ASP	4.1
1	I	137	LEU	4.1

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	L	178	LEU	4.1
1	B	400	ILE	4.0
1	A	144	TRP	4.0
1	L	119	LEU	3.9
1	K	144	TRP	3.9
1	L	80	ALA	3.9
1	K	78	TRP	3.9
1	J	400	ILE	3.9
1	G	139	ASN	3.8
1	L	83	GLN	3.8
1	L	401	SER	3.7
1	B	144	TRP	3.7
1	H	79	ARG	3.7
1	L	143	GLU	3.7
1	G	143	GLU	3.6
1	K	86	GLU	3.6
1	G	399	LEU	3.6
1	H	402	GLY	3.5
1	G	200	GLU	3.5
1	J	143	GLU	3.5
1	J	178	LEU	3.5
1	E	79	ARG	3.5
1	H	142	MET	3.4
1	C	402	GLY	3.4
1	E	139	ASN	3.4
1	H	400	ILE	3.3
1	J	120	THR	3.3
1	E	141	SER	3.3
1	E	401	SER	3.3
1	B	373	GLY	3.3
1	J	344	LYS	3.3
1	L	77	TYR	3.2
1	C	144	TRP	3.2
1	D	78	TRP	3.2
1	I	326	LYS	3.2
1	D	402	GLY	3.2
1	G	77	TYR	3.2
1	D	143	GLU	3.1
1	H	398	ASP	3.1
1	J	208	ALA	3.1
1	L	363	GLU	3.0
1	L	89	GLY	3.0

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	C	344	LYS	3.0
1	F	143	GLU	3.0
1	K	304	ILE	3.0
1	J	398	ASP	3.0
1	E	142	MET	2.9
1	H	189	ASP	2.9
1	L	398	ASP	2.9
1	E	373	GLY	2.9
1	L	402	GLY	2.9
1	L	79	ARG	2.8
1	I	142	MET	2.8
1	I	119	LEU	2.8
1	L	248	LEU	2.8
1	A	80	ALA	2.8
1	I	373	GLY	2.8
1	L	81	LYS	2.8
1	F	140	THR	2.8
1	H	224	ILE	2.7
1	L	259	LEU	2.7
1	G	144	TRP	2.7
1	K	231	ILE	2.6
1	C	83	GLN	2.6
1	H	144	TRP	2.6
1	C	142	MET	2.6
1	E	400	ILE	2.6
1	L	190	ARG	2.6
1	G	81	LYS	2.6
1	L	78	TRP	2.6
1	L	406	ILE	2.5
1	C	79	ARG	2.5
1	H	397	GLY	2.5
1	L	199	GLY	2.5
1	L	84	MET	2.5
1	L	139	ASN	2.5
1	J	182	VAL	2.4
1	K	255	ARG	2.4
1	G	304	ILE	2.4
1	I	136	HIS	2.4
1	G	259	LEU	2.4
1	D	188	ARG	2.4
1	I	277	LEU	2.4
1	B	189	ASP	2.3

*Continued on next page...*

*Continued from previous page...*

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	F	321	THR	2.3
1	J	294	LEU	2.3
1	K	143	GLU	2.3
1	H	311	ALA	2.3
1	G	403	CYS	2.3
1	C	397	GLY	2.3
1	G	188	ARG	2.3
1	L	82	SER	2.3
1	C	80	ALA	2.3
1	J	369	ILE	2.2
1	J	138	LEU	2.2
1	K	183	LEU	2.2
1	L	293	LEU	2.2
1	K	430	GLY	2.2
1	D	398	ASP	2.2
1	K	222	ILE	2.2
1	C	139	ASN	2.2
1	E	138	LEU	2.2
1	J	84	MET	2.2
1	C	373	GLY	2.2
1	D	79	ARG	2.2
1	K	119	LEU	2.1
1	H	396	LYS	2.1
1	J	298	LYS	2.1
1	D	138	LEU	2.1
1	B	188	ARG	2.1
1	L	311	ALA	2.1
1	L	261	THR	2.1
1	H	430	GLY	2.1
1	L	264	ILE	2.1
1	K	401	SER	2.1
1	I	120	THR	2.1
1	L	188	ARG	2.1
1	I	140	THR	2.1
1	H	100	GLY	2.1
1	A	344	LYS	2.1
1	A	142	MET	2.0
1	G	87	VAL	2.0
1	K	276	ASN	2.0
1	J	190	ARG	2.0
1	B	141	SER	2.0
1	G	264	ILE	2.0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
1	K	400	ILE	2.0
1	I	398	ASP	2.0
1	K	326	LYS	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.

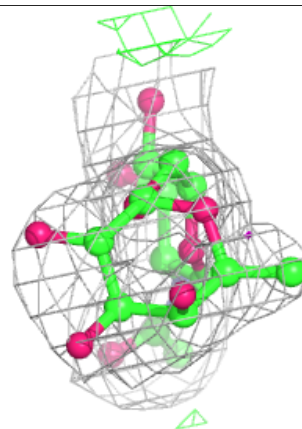
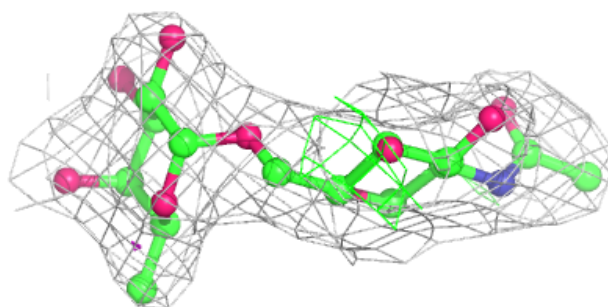
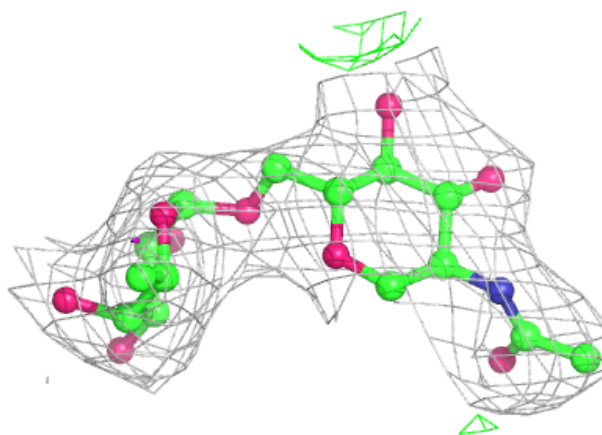
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
3	NAG	P	2	14/15	0.77	0.25	89,95,101,102	0
3	NAG	N	2	14/15	0.87	0.14	86,92,96,96	0
2	NAG	Q	1	14/15	0.90	0.13	35,55,67,68	0
3	FUL	N	3	10/11	0.92	0.15	68,80,83,84	0
3	NAG	P	1	14/15	0.93	0.13	55,67,75,82	0
2	FUC	Q	2	10/11	0.93	0.15	74,79,86,87	0
2	FUC	O	2	10/11	0.93	0.20	54,57,61,63	0
3	FUL	P	3	10/11	0.93	0.11	54,61,69,70	0
3	NAG	N	1	14/15	0.93	0.10	60,69,80,83	0
2	FUC	M	2	10/11	0.94	0.17	26,46,53,63	0
2	NAG	O	1	14/15	0.94	0.12	45,48,54,55	0
2	NAG	M	1	14/15	0.96	0.09	38,48,52,52	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.

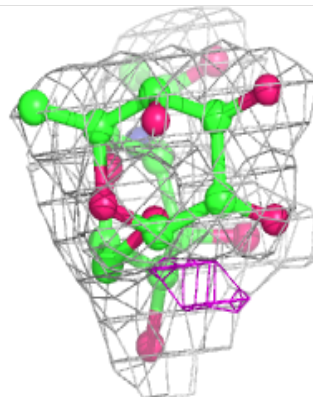
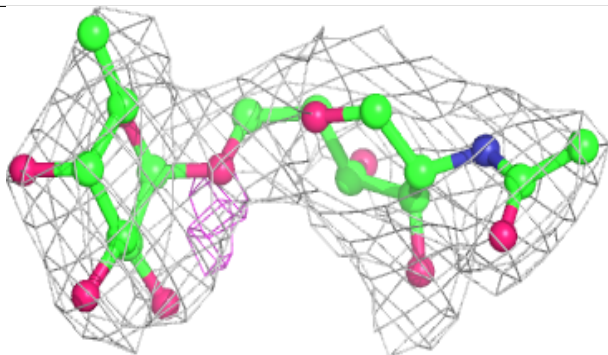
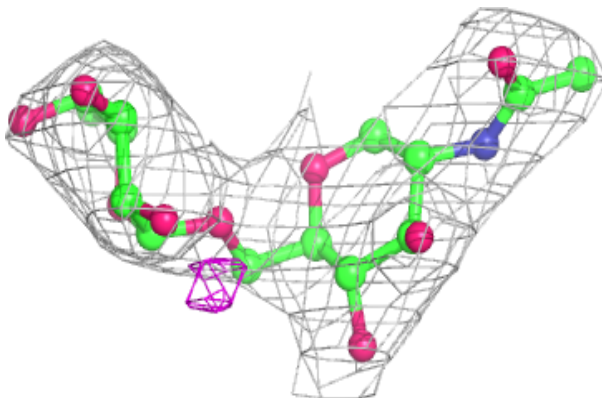


**Electron density around Chain M:**

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

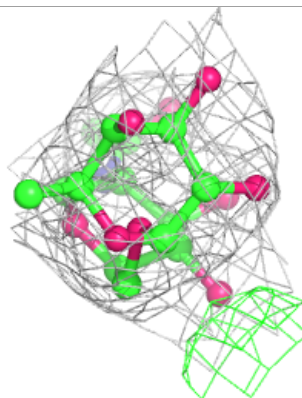
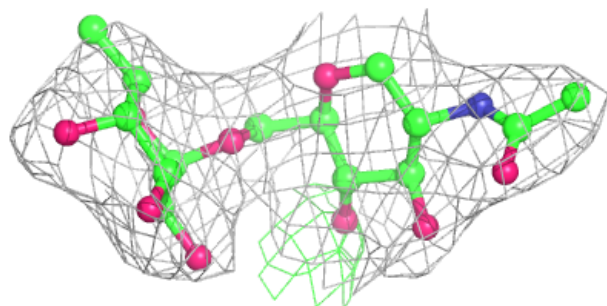
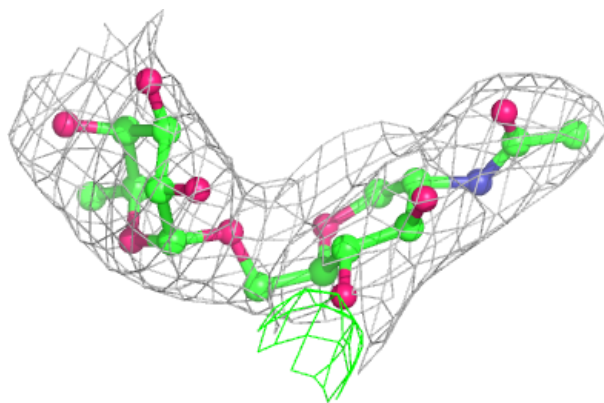
**Electron density around Chain O:**

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



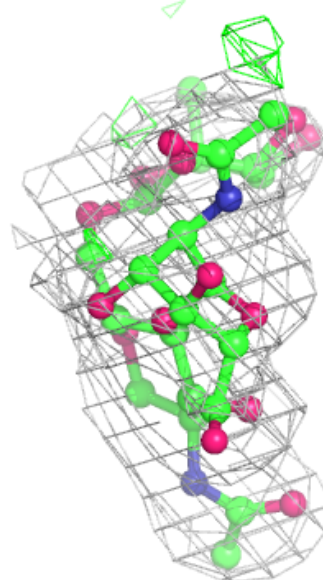
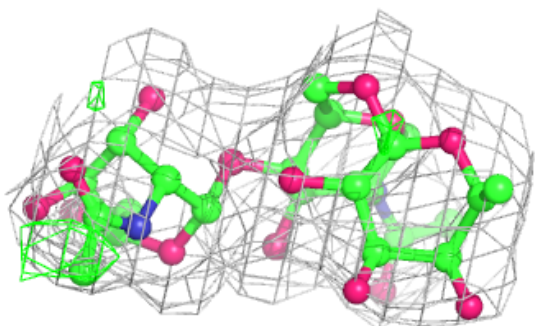
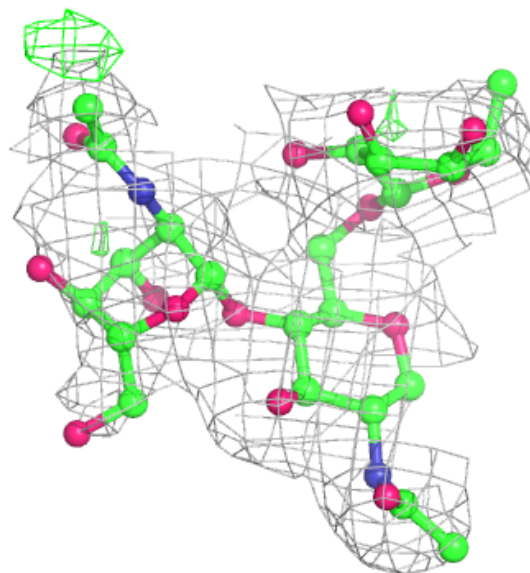
**Electron density around Chain Q:**

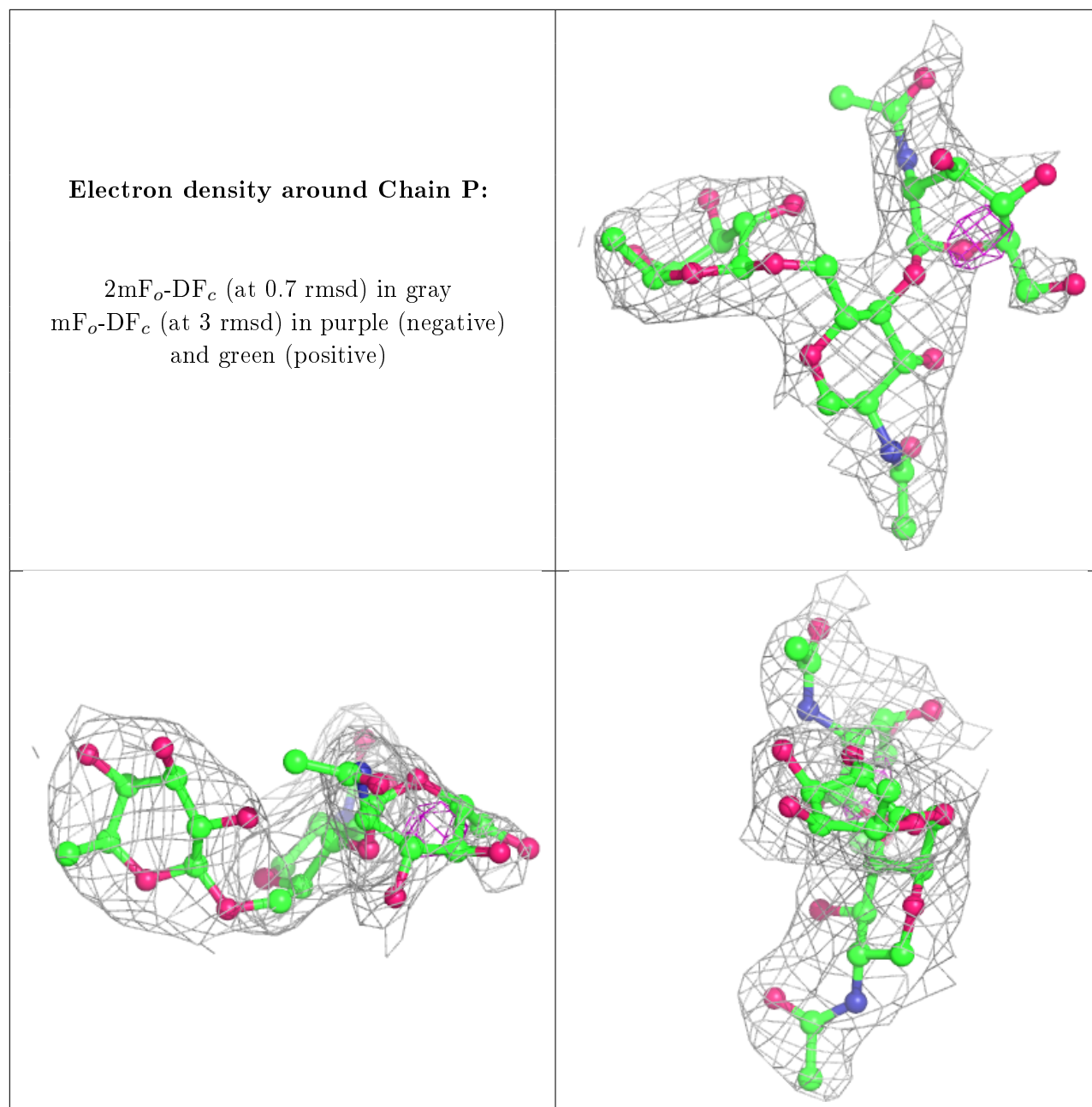
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)



**Electron density around Chain N:**

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





## 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
5	NAG	A	502	14/15	0.72	0.19	82,102,105,105	0
5	NAG	B	505	14/15	0.73	0.22	64,76,81,83	0
5	NAG	L	502	14/15	0.77	0.16	75,86,94,96	0

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
5	NAG	D	502	14/15	0.80	0.17	75,87,90,91	0
5	NAG	D	504	14/15	0.82	0.18	30,81,85,85	0
5	NAG	I	502	14/15	0.82	0.28	79,85,89,91	0
5	NAG	A	503	14/15	0.83	0.31	83,99,103,104	0
5	NAG	G	502	14/15	0.84	0.16	64,72,75,75	0
5	NAG	F	505	14/15	0.86	0.23	63,81,85,86	0
5	NAG	K	502	14/15	0.86	0.28	73,86,92,93	0
5	NAG	E	502	14/15	0.87	0.19	83,97,100,101	0
4	CA	L	501	1/1	0.88	0.13	84,84,84,84	0
5	NAG	H	502	14/15	0.88	0.15	54,67,82,84	0
5	NAG	D	503	14/15	0.89	0.16	49,73,79,83	0
5	NAG	C	502	14/15	0.91	0.10	44,53,61,64	0
4	CA	B	501	1/1	0.91	0.14	42,42,42,42	0
6	FUC	D	505	10/11	0.93	0.18	46,59,84,86	0
4	CA	F	501	1/1	0.94	0.13	45,45,45,45	0
4	CA	J	501	1/1	0.96	0.13	65,65,65,65	0
4	CA	K	501	1/1	0.96	0.08	51,51,51,51	0
4	CA	I	501	1/1	0.97	0.15	51,51,51,51	0
4	CA	H	501	1/1	0.98	0.17	37,37,37,37	0
4	CA	D	501	1/1	0.98	0.14	33,33,33,33	0
4	CA	E	501	1/1	0.99	0.17	41,41,41,41	0
4	CA	C	501	1/1	0.99	0.14	37,37,37,37	0
4	CA	A	501	1/1	0.99	0.17	34,34,34,34	0
4	CA	G	501	1/1	0.99	0.07	28,28,28,28	0

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

There are no such residues in this entry.