



# Full wwPDB X-ray Structure Validation Report ⓘ

Dec 18, 2023 – 08:48 am GMT

PDB ID : 4AVV  
Title : Structure of CPHPC bound to Serum Amyloid P Component  
Authors : Kolstoe, S.E.; Jenvey, M.C.; Wood, S.P.  
Deposited on : 2012-05-29  
Resolution : 1.60 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 : 4.02b-467  
Mogul : 1.8.4, CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

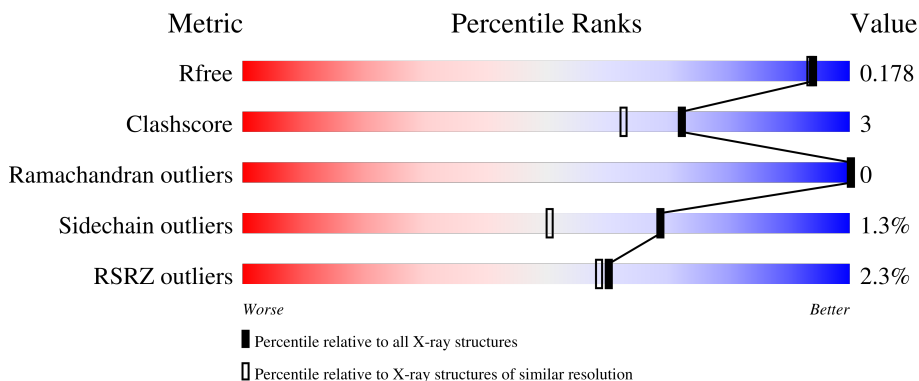
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

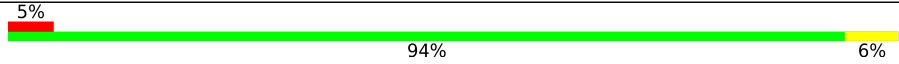
The reported resolution of this entry is 1.60 Å.

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.



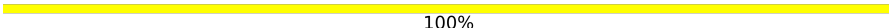
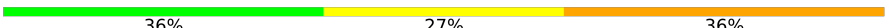
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	3398 (1.60-1.60)
Clashscore	141614	3665 (1.60-1.60)
Ramachandran outliers	138981	3564 (1.60-1.60)
Sidechain outliers	138945	3563 (1.60-1.60)
RSRZ outliers	127900	3321 (1.60-1.60)

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	204	 93% 7%
1	B	204	 94% 6%
1	C	204	 93% 6%
1	D	204	 94% 6% 5%
1	E	204	 94% 6% 4%

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Mol	Chain	Length	Quality of chain
2	F	2	 100%
3	G	11	 36% 27% 36%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	MAN	G	4	-	-	-	X
3	NAG	G	9	-	-	-	X
4	ACT	A	1206	-	-	X	-
4	ACT	A	1208	-	-	X	-
4	ACT	B	1208	-	-	X	-

## 2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 10255 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 SERUM AMYLOID P-COMPONENT.

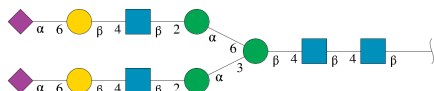
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	204	Total 1710	C 1107	N 283	O 315	S 5	0	8	0
1	B	204	Total 1675	C 1086	N 276	O 308	S 5	0	4	0
1	C	204	Total 1675	C 1086	N 276	O 308	S 5	0	4	0
1	D	204	Total 1691	C 1093	N 279	O 314	S 5	0	6	0
1	E	204	Total 1675	C 1084	N 277	O 309	S 5	0	4	0

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



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	F	2	Total 28	C 16	N 2	O 10	0	0	0

- Molecule 3 is an oligosaccharide called N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



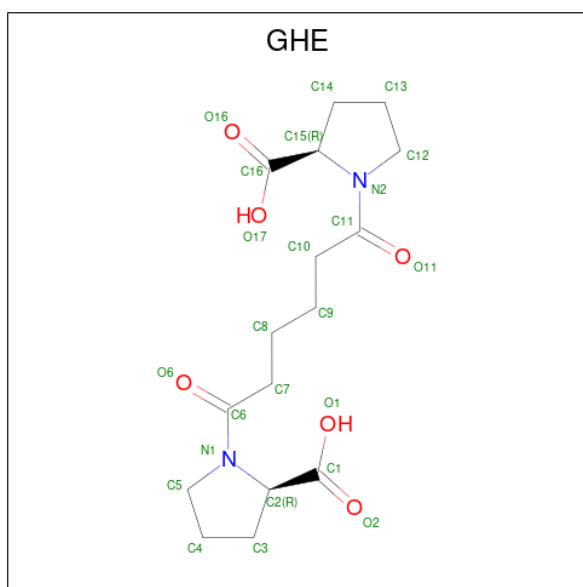
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	G	11	151	84	6	61	0	0	0

- Molecule 4 is ACETATE ION (three-letter code: ACT) (formula: C<sub>2</sub>H<sub>3</sub>O<sub>2</sub>).



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

- Molecule 5 is (2R)-1-[6-[(2R)-2-carboxypyrrolidin-1-yl]-6-oxidanylidene-hexanoyl]pyrrolidin e-2-carboxylic acid (three-letter code: GHE) (formula: C<sub>16</sub>H<sub>24</sub>N<sub>2</sub>O<sub>6</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
5	A	1	24	16	2	6	0	0
5	B	1	24	16	2	6	0	0
5	C	1	24	16	2	6	0	0
5	D	1	24	16	2	6	0	0
5	E	1	24	16	2	6	0	0

- Molecule 6 is CADMIUM ION (three-letter code: CD) (formula: Cd).

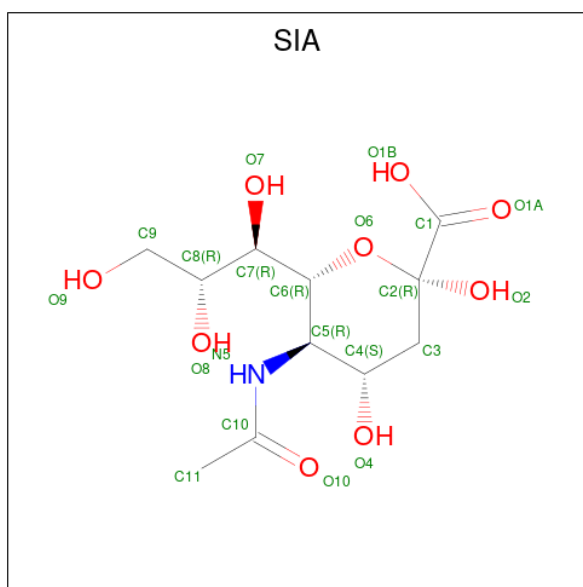
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Cd		
6	A	8	8	8	0	0
6	B	7	7	7	0	0
6	C	6	6	6	0	0
6	D	5	5	5	0	0
6	E	9	9	9	0	0

- Molecule 7 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		
7	A	1	14	8	1	5	0	0
7	C	1	14	8	1	5	0	0
7	E	1	14	8	1	5	0	0

- Molecule 8 is N-acetyl-alpha-neuraminic acid (three-letter code: SIA) (formula:  $C_{11}H_{19}NO_9$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
8	B	1	20	11	1	8	0	0

- Molecule 9 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	327	Total 327	O 327	0	0
9	B	275	Total 275	O 275	0	0
9	C	283	Total 283	O 283	0	0
9	D	277	Total 277	O 277	0	0
9	E	239	Total 239	O 239	0	0



### 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: SERUM AMYLOID P-COMPONENT

Chain A: 



- Molecule 1: SERUM AMYLOID P-COMPONENT

Chain B: 



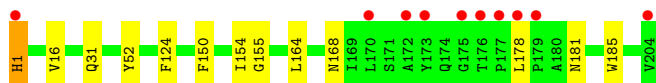
- Molecule 1: SERUM AMYLOID P-COMPONENT

Chain C: 



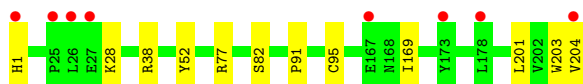
- Molecule 1: SERUM AMYLOID P-COMPONENT

Chain D: 




- Molecule 1: SERUM AMYLOID P-COMPONENT

Chain E: 



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

Chain F:  100%

MAG1  
MAG2

- Molecule 3: N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[N-acetyl-alpha-neuraminic acid-(2-6)-beta-D-galactopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-2)-alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:  36% 27% 36%

MAG1  
MAG2  
EMA3  
MAN4  
MAG5  
GAL6  
SIA7  
MAN8  
MAG9  
GAL10  
SIA11

## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	154.38Å 108.58Å 120.26Å 90.00° 138.53° 90.00°	Depositor
Resolution (Å)	37.87 – 1.60 80.56 – 1.60	Depositor EDS
% Data completeness (in resolution range)	99.1 (37.87-1.60) 99.1 (80.56-1.60)	Depositor EDS
$R_{merge}$	0.07	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.35 (at 1.60Å)	Xtrriage
Refinement program	PHENIX (PHENIX.REFINE: 1.7.3_928)	Depositor
R, $R_{free}$	0.150 , 0.175 0.157 , 0.178	Depositor DCC
$R_{free}$ test set	2005 reflections (1.17%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	13.1	Xtrriage
Anisotropy	0.378	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.38 , 56.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	0.011 for h+2*k,-l,-l	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	10255	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	18.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.97% 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: CD, ACT, NAG, SIA, GHE, MAN, GAL, BMA

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	0.51	0/1757	0.71	0/2389
1	B	0.50	0/1722	0.70	0/2341
1	C	0.50	0/1722	0.70	0/2341
1	D	0.48	0/1738	0.69	0/2362
1	E	0.49	0/1722	0.69	1/2341 (0.0%)
All	All	0.50	0/8661	0.70	1/11774 (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	E	77	ARG	NE-CZ-NH2	-5.17	117.72	120.30

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	1710	0	1679	12	0
1	B	1675	0	1645	11	0
1	C	1675	0	1644	7	0
1	D	1691	0	1651	10	0
1	E	1675	0	1639	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	28	0	25	0	0
3	G	151	0	127	3	0
4	A	16	0	12	4	0
4	B	4	0	3	3	0
4	E	12	0	9	1	0
5	A	24	0	22	0	0
5	B	24	0	22	0	0
5	C	24	0	22	1	0
5	D	24	0	22	0	0
5	E	24	0	22	0	0
6	A	8	0	0	0	0
6	B	7	0	0	0	0
6	C	6	0	0	0	0
6	D	5	0	0	0	0
6	E	9	0	0	0	0
7	A	14	0	13	0	0
7	C	14	0	13	0	0
7	E	14	0	13	1	0
8	B	20	0	18	1	0
9	A	327	0	0	6	0
9	B	275	0	0	4	1
9	C	283	0	0	2	0
9	D	277	0	0	1	1
9	E	239	0	0	1	0
All	All	10255	0	8601	58	1

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 3.

All (58) 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)
4:A:1206:ACT:H3	9:A:7145:HOH:O	1.70	0.90
1:B:120:ARG:HH12	4:B:1208:ACT:H3	1.42	0.84
1:E:95[B]:CYS:SG	1:E:169:ILE:HD12	2.21	0.80
1:B:31:GLN:HG2	1:B:124:PHE:CE2	2.19	0.78
1:B:181:ASN:ND2	9:B:7228:HOH:O	2.20	0.74
9:A:7103:HOH:O	1:E:82:SER:CB	2.35	0.73
1:C:181:ASN:ND2	9:C:7228:HOH:O	2.27	0.68
1:B:82:SER:CB	9:B:7157:HOH:O	2.42	0.67
1:A:181:ASN:OD1	9:A:7289:HOH:O	2.14	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:181:ASN:CG	9:A:7289:HOH:O	2.35	0.64
1:D:181:ASN:ND2	9:D:7226:HOH:O	2.35	0.59
4:A:1205:ACT:OXT	4:A:1206:ACT:OXT	2.21	0.58
8:B:1213:SIA:H6	8:B:1213:SIA:O1B	2.04	0.57
4:A:1208:ACT:O	4:A:1215:ACT:OXT	2.22	0.56
1:B:82:SER:HB3	9:B:7157:HOH:O	2.01	0.56
1:E:201:LEU:HD21	1:E:204:VAL:HB	1.88	0.56
3:G:11:SIA:H6	3:G:11:SIA:O1B	2.07	0.54
1:C:150:PHE:CE2	1:C:154[A]:ILE:HG13	2.43	0.54
1:B:31:GLN:HG2	1:B:124:PHE:CD2	2.44	0.53
3:G:3:BMA:O2	3:G:4:MAN:O5	2.28	0.50
1:D:168:ASN:ND2	1:D:178:LEU:HD21	2.27	0.49
1:B:120:ARG:NH1	4:B:1208:ACT:H3	2.21	0.48
1:D:31:GLN:HG2	1:D:124:PHE:CE1	2.48	0.48
1:D:1:HIS:C	1:D:1:HIS:HD1	2.16	0.48
1:C:91:PRO:HB3	1:C:203:TRP:CE3	2.50	0.47
1:E:91:PRO:HB3	1:E:203:TRP:CE3	2.50	0.47
4:E:1206:ACT:OXT	4:E:1214:ACT:O	2.32	0.46
1:A:96:VAL:HA	1:A:106[B]:GLU:O	2.15	0.46
1:A:78:HIS:HE2	4:A:1208:ACT:C	2.29	0.46
1:A:150:PHE:CE2	1:A:154:ILE:HG13	2.51	0.45
1:E:38:ARG:HD3	1:E:204:VAL:HG21	1.97	0.45
3:G:4:MAN:O3	3:G:5:NAG:C7	2.64	0.45
1:E:95[B]:CYS:HG	1:E:169:ILE:HD12	1.77	0.45
5:C:1207:GHE:H102	9:C:7207:HOH:O	2.16	0.44
1:A:91:PRO:HB3	1:A:203:TRP:CE3	2.53	0.44
1:B:91:PRO:HB3	1:B:203:TRP:CE3	2.52	0.43
1:B:108:TRP:CD1	1:B:169[B]:ILE:HD13	2.53	0.43
1:C:155:GLY:HA2	1:C:185:TRP:CZ2	2.54	0.43
1:D:150:PHE:CE2	1:D:154:ILE:HG13	2.53	0.43
1:D:155:GLY:HA2	1:D:185:TRP:CZ2	2.54	0.42
4:B:1208:ACT:OXT	9:B:7264:HOH:O	2.21	0.42
1:A:108:TRP:CE2	1:A:169[B]:ILE:HD13	2.54	0.42
1:A:147:SER:HB3	9:A:7263:HOH:O	2.18	0.42
1:A:38:ARG:HD3	1:A:204:VAL:CG2	2.50	0.41
1:A:108:TRP:CD1	1:A:169[B]:ILE:HD13	2.55	0.41
1:C:74:TYR:HA	1:C:78:HIS:O	2.20	0.41
1:D:1:HIS:C	1:D:1:HIS:ND1	2.74	0.41
9:A:7103:HOH:O	1:E:82:SER:HB3	2.09	0.41
1:B:31:GLN:CG	1:B:124:PHE:CE2	2.97	0.41
1:D:31:GLN:HG2	1:D:124:PHE:CD1	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1:HIS:ND1	1:D:1:HIS:O	2.52	0.41
1:C:67:ARG:NH1	1:C:70:GLU:OE2	2.53	0.41
1:D:16:VAL:O	1:D:16:VAL:HG22	2.21	0.40
1:A:28:LYS:HE2	1:A:28:LYS:HB2	1.83	0.40
1:C:52:TYR:HB3	1:C:61:LEU:O	2.21	0.40
1:B:167:GLU:CD	1:B:167:GLU:H	2.23	0.40
1:A:108:TRP:NE1	1:A:169[B]:ILE:HD13	2.37	0.40
7:E:1213:NAG:C6	9:E:7151:HOH:O	2.70	0.40

All (1) 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)
9:B:7052:HOH:O	9:D:7209:HOH:O[2_557]	2.12	0.08

## 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	210/204 (103%)	203 (97%)	7 (3%)	0	100	100
1	B	206/204 (101%)	199 (97%)	7 (3%)	0	100	100
1	C	206/204 (101%)	201 (98%)	5 (2%)	0	100	100
1	D	208/204 (102%)	203 (98%)	5 (2%)	0	100	100
1	E	206/204 (101%)	202 (98%)	4 (2%)	0	100	100
All	All	1036/1020 (102%)	1008 (97%)	28 (3%)	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	189/181 (104%)	187 (99%)	2 (1%)	73	57
1	B	185/181 (102%)	183 (99%)	2 (1%)	73	57
1	C	185/181 (102%)	183 (99%)	2 (1%)	73	57
1	D	187/181 (103%)	184 (98%)	3 (2%)	62	41
1	E	185/181 (102%)	182 (98%)	3 (2%)	62	41
All	All	931/905 (103%)	919 (99%)	12 (1%)	69	50

All (12) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	28	LYS
1	A	52	TYR
1	B	52	TYR
1	B	164	LEU
1	C	52	TYR
1	C	178	LEU
1	D	1	HIS
1	D	52	TYR
1	D	164	LEU
1	E	1	HIS
1	E	28	LYS
1	E	52	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

### 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](#)

13 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	F	1	1,2	14,14,15	0.54	0	17,19,21	1.08	1 (5%)
2	NAG	F	2	2	14,14,15	0.40	0	17,19,21	1.16	1 (5%)
3	NAG	G	1	1,3	14,14,15	0.64	0	17,19,21	0.79	0
3	GAL	G	10	3	11,11,12	0.59	0	15,15,17	0.68	0
3	SIA	G	11	3	20,20,21	2.18	7 (35%)	24,28,31	1.20	2 (8%)
3	NAG	G	2	3	14,14,15	0.53	0	17,19,21	0.85	0
3	BMA	G	3	3	11,11,12	1.96	3 (27%)	15,15,17	1.30	1 (6%)
3	MAN	G	4	3	11,11,12	0.99	0	15,15,17	4.66	6 (40%)
3	NAG	G	5	3	14,14,15	0.39	0	17,19,21	1.28	2 (11%)
3	GAL	G	6	3	11,11,12	0.68	0	15,15,17	2.62	5 (33%)
3	SIA	G	7	3	20,20,21	1.93	5 (25%)	24,28,31	1.41	4 (16%)
3	MAN	G	8	3	11,11,12	0.71	0	15,15,17	1.12	2 (13%)
3	NAG	G	9	3	14,14,15	0.30	0	17,19,21	0.62	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	F	1	1,2	-	0/6/23/26	0/1/1/1
2	NAG	F	2	2	-	2/6/23/26	0/1/1/1
3	NAG	G	1	1,3	-	0/6/23/26	0/1/1/1
3	GAL	G	10	3	-	0/2/19/22	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	SIA	G	11	3	-	4/18/34/38	0/1/1/1
3	NAG	G	2	3	-	0/6/23/26	0/1/1/1
3	BMA	G	3	3	-	0/2/19/22	0/1/1/1
3	MAN	G	4	3	-	0/2/19/22	1/1/1/1
3	NAG	G	5	3	-	4/6/23/26	0/1/1/1
3	GAL	G	6	3	-	1/2/19/22	0/1/1/1
3	SIA	G	7	3	-	0/18/34/38	0/1/1/1
3	MAN	G	8	3	-	1/2/19/22	0/1/1/1
3	NAG	G	9	3	-	2/6/23/26	0/1/1/1

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	G	11	SIA	O6-C6	-4.55	1.36	1.44
3	G	3	BMA	C2-C3	4.47	1.59	1.52
3	G	7	SIA	C4-C5	-3.71	1.49	1.53
3	G	7	SIA	O6-C6	-3.69	1.38	1.44
3	G	3	BMA	O3-C3	3.46	1.51	1.43
3	G	11	SIA	C4-C5	-3.44	1.50	1.53
3	G	11	SIA	C2-C1	-3.37	1.49	1.52
3	G	11	SIA	O6-C2	-3.32	1.39	1.43
3	G	7	SIA	O6-C2	-2.94	1.39	1.43
3	G	11	SIA	C10-N5	2.70	1.43	1.34
3	G	7	SIA	C10-N5	2.68	1.43	1.34
3	G	3	BMA	O5-C1	-2.29	1.40	1.43
3	G	7	SIA	O8-C8	-2.22	1.38	1.43
3	G	11	SIA	O8-C8	-2.21	1.38	1.43
3	G	11	SIA	O7-C7	-2.01	1.38	1.43

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	G	4	MAN	O2-C2-C1	13.86	137.51	109.15
3	G	4	MAN	C1-C2-C3	-9.99	97.39	109.67
3	G	6	GAL	O5-C5-C6	7.95	119.67	107.20
3	G	3	BMA	O3-C3-C2	4.49	118.60	109.99
3	G	6	GAL	C1-C2-C3	3.25	113.67	109.67
2	F	2	NAG	O5-C5-C6	3.25	112.30	107.20
3	G	6	GAL	C3-C4-C5	-3.18	104.57	110.24
3	G	7	SIA	C6-O6-C2	3.10	117.96	111.34
3	G	7	SIA	C8-C7-C6	-2.87	107.59	113.03

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	1	NAG	O5-C1-C2	-2.83	106.83	111.29
3	G	4	MAN	O5-C1-C2	-2.80	106.44	110.77
3	G	6	GAL	O2-C2-C3	-2.61	104.90	110.14
3	G	4	MAN	O2-C2-C3	2.53	115.20	110.14
3	G	4	MAN	C2-C3-C4	-2.48	106.60	110.89
3	G	11	SIA	O6-C2-C3	2.46	113.85	110.46
3	G	7	SIA	C4-C3-C2	2.40	114.12	109.81
3	G	5	NAG	O4-C4-C5	2.32	115.07	109.30
3	G	11	SIA	O1B-C1-C2	2.27	119.52	113.03
3	G	7	SIA	O1B-C1-C2	2.24	119.44	113.03
3	G	8	MAN	C1-C2-C3	-2.24	106.91	109.67
3	G	5	NAG	C1-O5-C5	2.20	115.17	112.19
3	G	6	GAL	O2-C2-C1	2.04	113.32	109.15
3	G	4	MAN	O5-C5-C6	2.01	110.35	107.20
3	G	8	MAN	C2-C3-C4	-2.00	107.43	110.89

There are no chirality outliers.

All (14) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	F	2	NAG	O5-C5-C6-O6
3	G	9	NAG	C4-C5-C6-O6
3	G	9	NAG	O5-C5-C6-O6
2	F	2	NAG	C4-C5-C6-O6
3	G	8	MAN	O5-C5-C6-O6
3	G	5	NAG	O5-C5-C6-O6
3	G	5	NAG	C4-C5-C6-O6
3	G	11	SIA	C6-C7-C8-O8
3	G	11	SIA	O7-C7-C8-C9
3	G	11	SIA	C6-C7-C8-C9
3	G	5	NAG	C8-C7-N2-C2
3	G	11	SIA	O7-C7-C8-O8
3	G	5	NAG	O7-C7-N2-C2
3	G	6	GAL	C4-C5-C6-O6

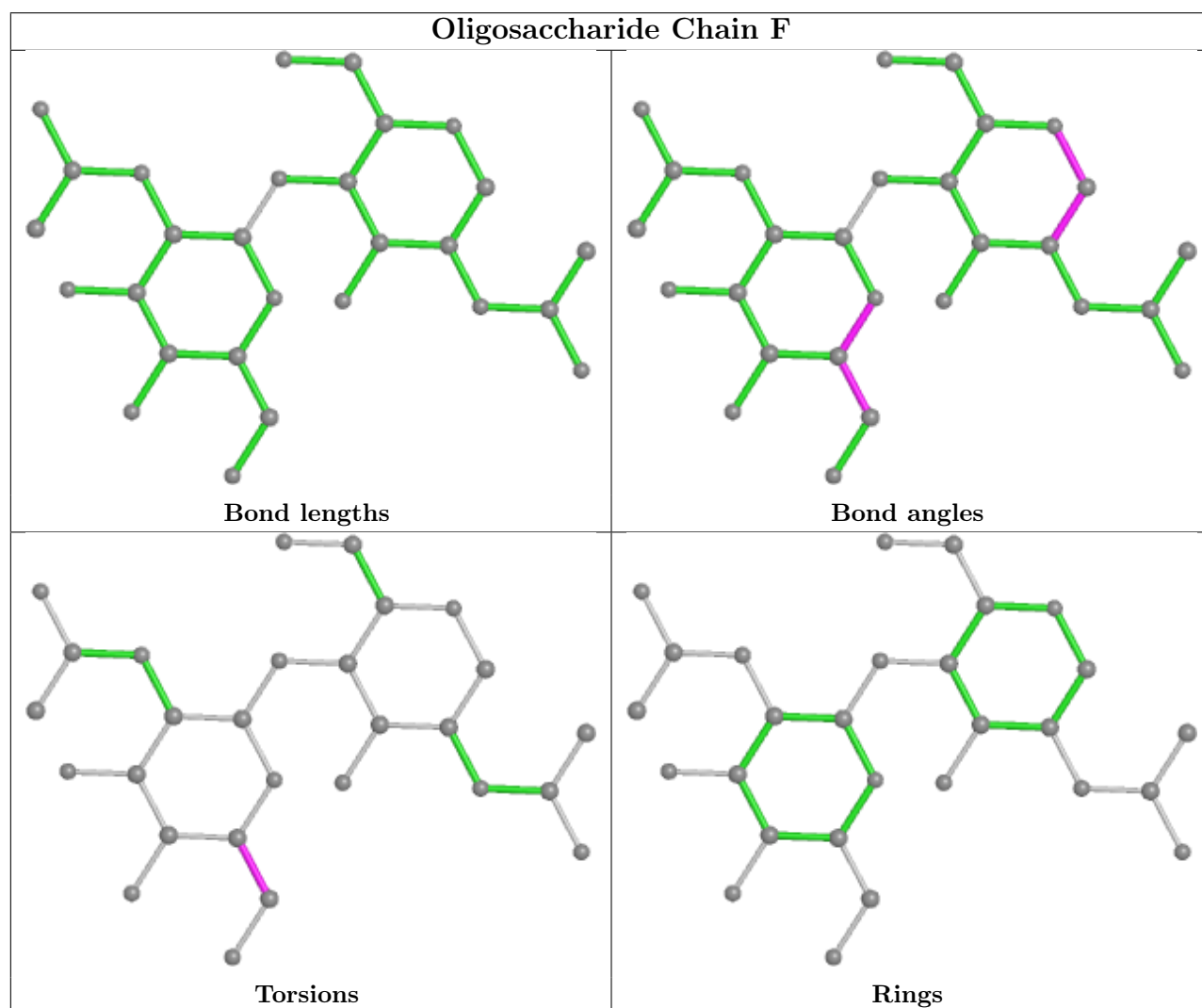
All (1) ring outliers are listed below:

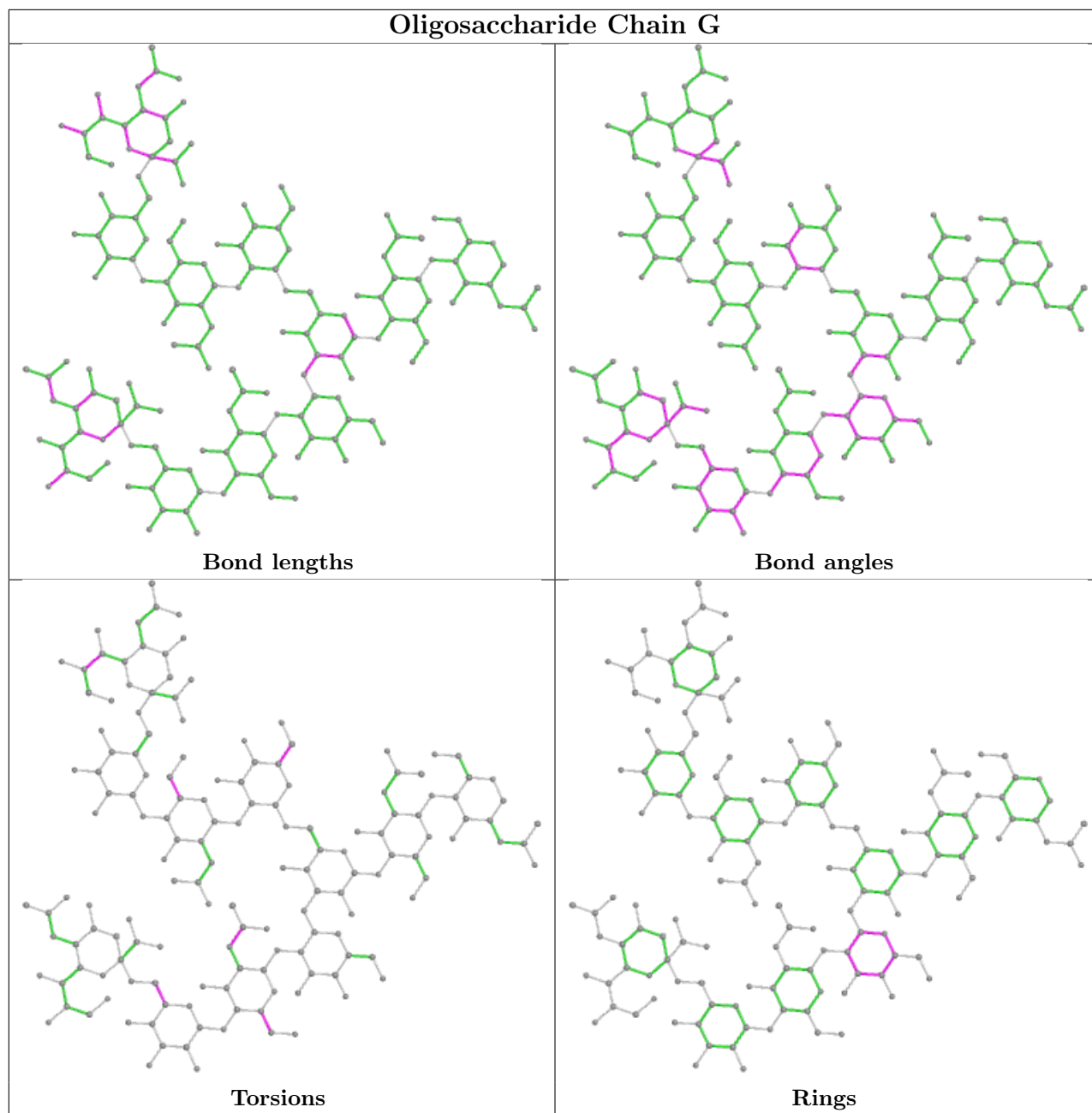
Mol	Chain	Res	Type	Atoms
3	G	4	MAN	C1-C2-C3-C4-C5-O5

4 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	G	5	NAG	1	0
3	G	3	BMA	1	0
3	G	4	MAN	2	0
3	G	11	SIA	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 52 ligands modelled in this entry, 35 are monoatomic - leaving 17 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
8	SIA	B	1213	-	20,20,21	1.01	1 (5%)	22,29,31	0.97	1 (4%)
4	ACT	A	1206	6	3,3,3	0.61	0	3,3,3	1.45	0
4	ACT	A	1205	6	3,3,3	0.64	0	3,3,3	0.98	0
5	GHE	A	1207	6	25,25,25	1.79	8 (32%)	34,34,34	1.02	3 (8%)
7	NAG	A	1214	1	14,14,15	0.53	0	17,19,21	1.17	3 (17%)
5	GHE	D	1207	6	25,25,25	1.63	6 (24%)	34,34,34	1.26	5 (14%)
5	GHE	E	1207	6	25,25,25	1.79	7 (28%)	34,34,34	0.90	0
4	ACT	A	1215	6	3,3,3	0.58	0	3,3,3	1.20	0
5	GHE	C	1207	6	25,25,25	1.74	7 (28%)	34,34,34	1.04	2 (5%)
7	NAG	C	1209	1	14,14,15	0.74	0	17,19,21	1.62	3 (17%)
5	GHE	B	1207	6	25,25,25	1.64	6 (24%)	34,34,34	1.32	4 (11%)
4	ACT	A	1208	6	3,3,3	0.98	0	3,3,3	1.61	1 (33%)
4	ACT	E	1214	6	3,3,3	1.08	0	3,3,3	0.26	0
7	NAG	E	1213	1	14,14,15	0.55	0	17,19,21	1.21	3 (17%)
4	ACT	B	1208	6	3,3,3	0.47	0	3,3,3	1.86	1 (33%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
8	SIA	B	1213	-	-	6/19/37/38	0/1/1/1
5	GHE	A	1207	6	-	0/23/43/43	0/2/2/2
7	NAG	A	1214	1	-	0/6/23/26	0/1/1/1
5	GHE	D	1207	6	-	1/23/43/43	0/2/2/2
5	GHE	E	1207	6	-	0/23/43/43	0/2/2/2
7	NAG	C	1209	1	-	2/6/23/26	0/1/1/1
5	GHE	C	1207	6	-	0/23/43/43	0/2/2/2
5	GHE	B	1207	6	-	1/23/43/43	0/2/2/2
7	NAG	E	1213	1	-	0/6/23/26	0/1/1/1

All (35) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	1207	GHE	C3-C2	-3.76	1.44	1.53
5	A	1207	GHE	C3-C2	-3.74	1.44	1.53
5	C	1207	GHE	C3-C2	-3.72	1.44	1.53
5	D	1207	GHE	C3-C2	-3.65	1.45	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	1207	GHE	C3-C2	-3.39	1.45	1.53
5	A	1207	GHE	C6-N1	3.21	1.45	1.35
5	E	1207	GHE	C6-N1	3.09	1.44	1.35
8	B	1213	SIA	O2-C2	3.05	1.43	1.39
5	C	1207	GHE	C12-N2	-2.99	1.41	1.47
5	B	1207	GHE	C12-N2	-2.95	1.41	1.47
5	E	1207	GHE	C15-C16	-2.94	1.47	1.52
5	A	1207	GHE	C15-C16	-2.86	1.47	1.52
5	C	1207	GHE	C6-N1	2.75	1.43	1.35
5	B	1207	GHE	C15-C16	-2.66	1.47	1.52
5	E	1207	GHE	C11-N2	2.65	1.43	1.35
5	D	1207	GHE	C12-N2	-2.63	1.42	1.47
5	B	1207	GHE	C6-N1	2.63	1.43	1.35
5	C	1207	GHE	C5-N1	-2.57	1.42	1.47
5	D	1207	GHE	C6-N1	2.54	1.43	1.35
5	D	1207	GHE	C5-N1	-2.53	1.42	1.47
5	A	1207	GHE	C12-N2	-2.51	1.42	1.47
5	E	1207	GHE	C12-N2	-2.46	1.42	1.47
5	D	1207	GHE	C15-C16	-2.44	1.48	1.52
5	A	1207	GHE	C11-N2	2.42	1.42	1.35
5	C	1207	GHE	C15-C16	-2.41	1.48	1.52
5	E	1207	GHE	C15-N2	-2.27	1.42	1.47
5	B	1207	GHE	O11-C11	2.24	1.28	1.23
5	B	1207	GHE	C5-N1	-2.21	1.43	1.47
5	A	1207	GHE	C2-C1	-2.21	1.48	1.52
5	E	1207	GHE	C5-N1	-2.15	1.43	1.47
5	A	1207	GHE	C5-N1	-2.05	1.43	1.47
5	D	1207	GHE	O11-C11	2.05	1.27	1.23
5	A	1207	GHE	C15-N2	-2.04	1.42	1.47
5	C	1207	GHE	O2-C1	2.02	1.28	1.22
5	C	1207	GHE	C11-N2	2.01	1.41	1.35

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	C	1209	NAG	C3-C4-C5	3.68	116.81	110.24
8	B	1213	SIA	O1A-C1-C2	-3.36	118.50	123.59
5	B	1207	GHE	C3-C2-C1	-3.18	106.14	111.36
7	C	1209	NAG	O5-C1-C2	-3.04	106.49	111.29
5	B	1207	GHE	C1-C2-N1	2.79	117.92	112.26
5	D	1207	GHE	C3-C2-C1	-2.77	106.80	111.36
5	B	1207	GHE	O1-C1-C2	2.62	122.45	113.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	A	1214	NAG	O5-C5-C6	2.61	111.29	107.20
5	C	1207	GHE	O17-C16-O16	-2.59	118.20	124.09
7	E	1213	NAG	O5-C5-C6	2.59	111.26	107.20
4	B	1208	ACT	OXT-C-CH3	2.55	125.72	115.18
5	D	1207	GHE	O17-C16-C15	2.53	122.16	113.38
5	A	1207	GHE	O1-C1-C2	2.47	121.95	113.38
7	E	1213	NAG	C1-O5-C5	-2.38	108.97	112.19
7	E	1213	NAG	O5-C1-C2	-2.38	107.53	111.29
5	C	1207	GHE	O17-C16-C15	2.32	121.41	113.38
7	C	1209	NAG	C4-C3-C2	2.30	114.38	111.02
5	A	1207	GHE	O17-C16-O16	-2.27	118.93	124.09
5	D	1207	GHE	O17-C16-O16	-2.24	119.01	124.09
4	A	1208	ACT	OXT-C-O	-2.23	113.83	122.05
5	A	1207	GHE	C3-C2-N1	2.22	106.32	103.03
5	B	1207	GHE	O1-C1-O2	-2.19	119.12	124.09
5	D	1207	GHE	C16-C15-N2	2.13	116.58	112.26
7	A	1214	NAG	O5-C1-C2	-2.09	107.98	111.29
5	D	1207	GHE	C14-C15-C16	-2.01	108.05	111.36
7	A	1214	NAG	C1-O5-C5	-2.00	109.48	112.19

There are no chirality outliers.

All (10) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	B	1213	SIA	O1B-C1-C2-O6
8	B	1213	SIA	C4-C5-N5-C10
7	C	1209	NAG	C4-C5-C6-O6
7	C	1209	NAG	O5-C5-C6-O6
5	D	1207	GHE	C6-C7-C8-C9
5	B	1207	GHE	C11-C10-C9-C8
8	B	1213	SIA	O1A-C1-C2-O6
8	B	1213	SIA	O1A-C1-C2-O2
8	B	1213	SIA	O1A-C1-C2-C3
8	B	1213	SIA	C6-C5-N5-C10

There are no ring outliers.

9 monomers are involved in 11 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	B	1213	SIA	1	0
4	A	1206	ACT	2	0

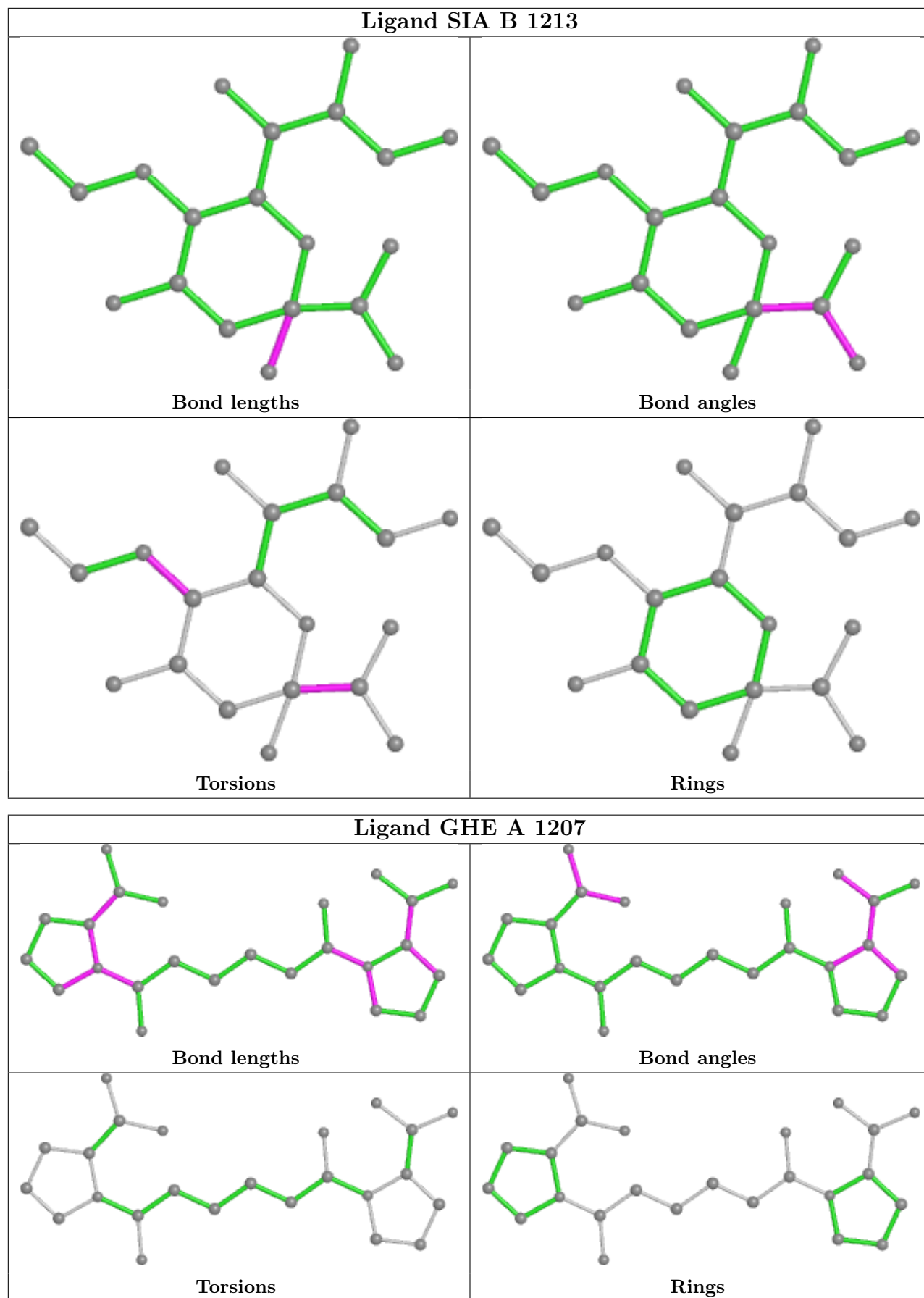
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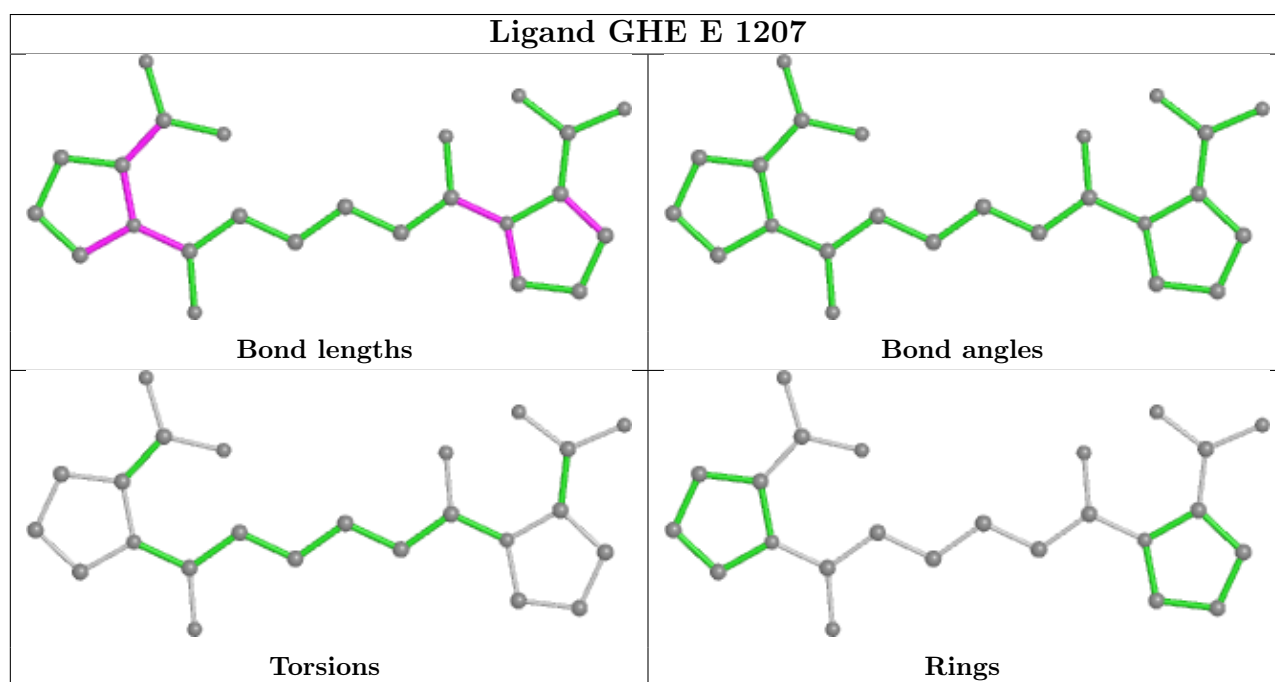
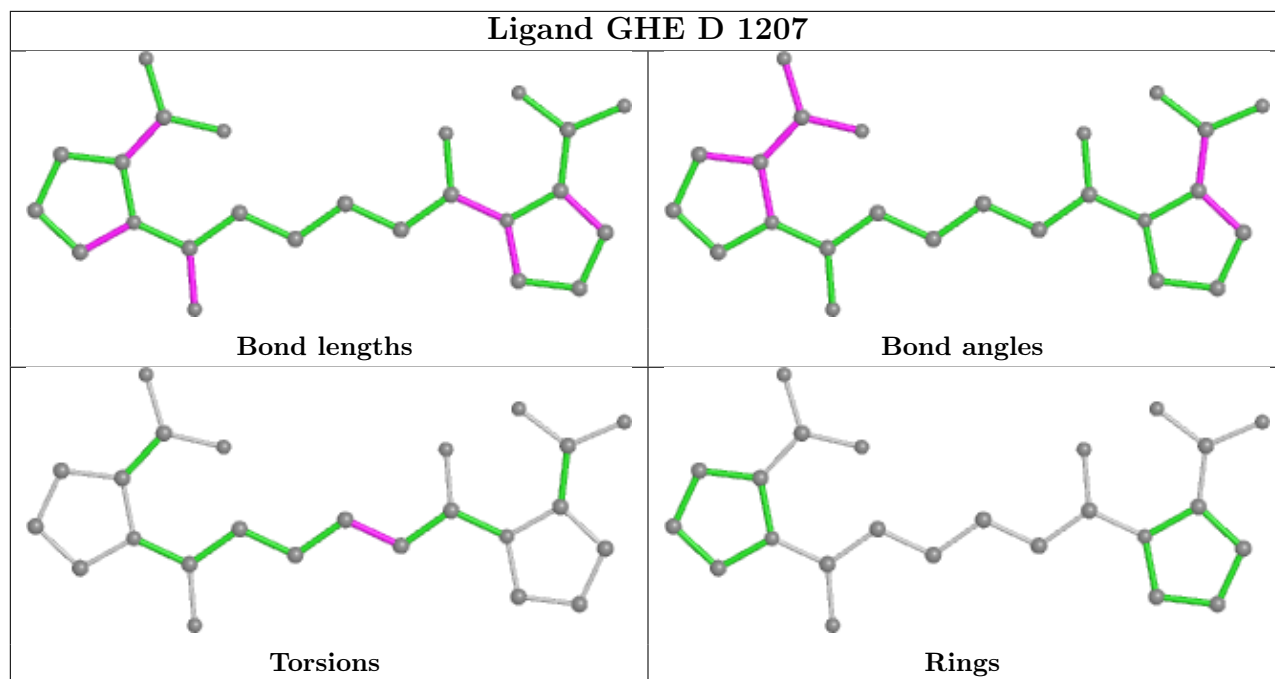


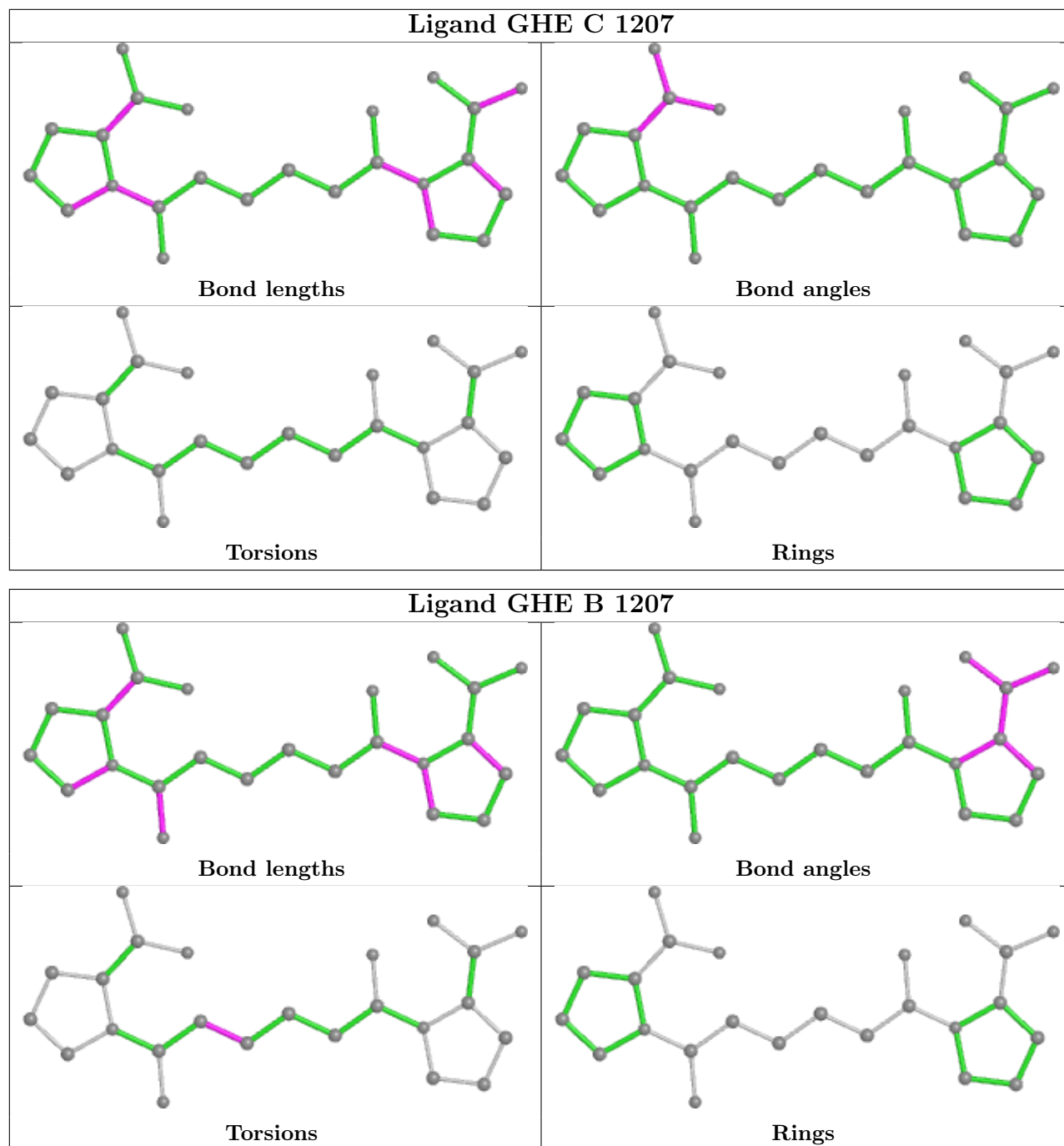
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	1205	ACT	1	0
4	A	1215	ACT	1	0
5	C	1207	GHE	1	0
4	A	1208	ACT	2	0
4	E	1214	ACT	1	0
7	E	1213	NAG	1	0
4	B	1208	ACT	3	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.







## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [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	204/204 (100%)	-0.45	1 (0%) 91 90	10, 14, 24, 39	0
1	B	204/204 (100%)	-0.37	3 (1%) 73 73	10, 15, 30, 42	0
1	C	204/204 (100%)	-0.43	1 (0%) 91 90	10, 14, 26, 38	0
1	D	204/204 (100%)	-0.29	10 (4%) 29 27	10, 15, 34, 44	0
1	E	204/204 (100%)	-0.29	8 (3%) 39 36	10, 15, 32, 41	0
All	All	1020/1020 (100%)	-0.37	23 (2%) 60 59	10, 15, 31, 44	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	204	VAL	7.2
1	B	204	VAL	6.2
1	D	170	LEU	5.5
1	A	204	VAL	5.2
1	C	204	VAL	4.9
1	D	173	TYR	4.4
1	E	178	LEU	4.2
1	E	204	VAL	3.9
1	D	178	LEU	3.6
1	E	26	LEU	3.6
1	D	1	HIS	3.5
1	E	25	PRO	3.2
1	D	179	PRO	3.2
1	B	25	PRO	3.0
1	E	1	HIS	3.0
1	E	167	GLU	2.9
1	D	172	ALA	2.8
1	D	176	THR	2.7
1	E	173	TYR	2.4
1	D	177	PRO	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	27	GLU	2.1
1	B	178	LEU	2.1
1	D	175	GLY	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](#)

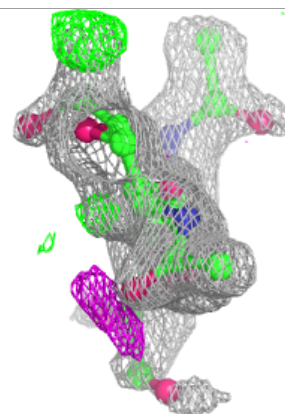
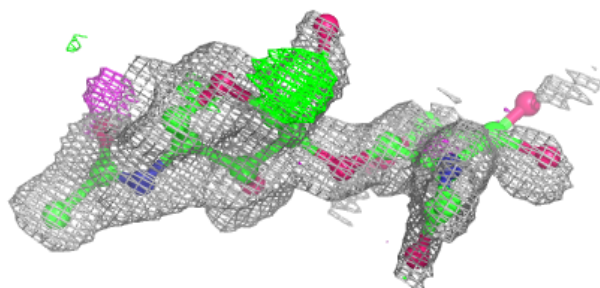
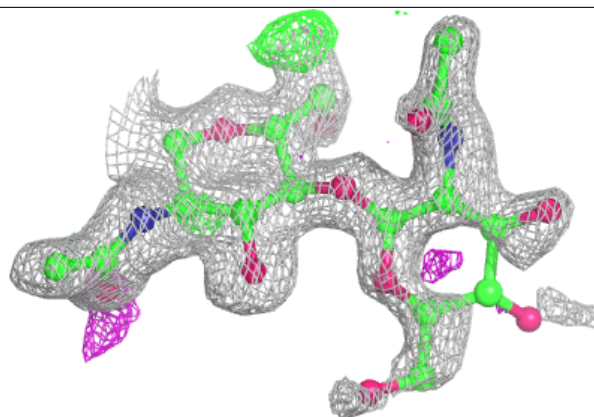
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 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	G	9	14/15	0.02	0.77	25,28,33,36	14
3	MAN	G	4	11/12	0.41	0.41	41,46,48,48	11
3	GAL	G	10	11/12	0.65	0.28	25,35,40,40	11
3	NAG	G	5	14/15	0.67	0.24	25,31,38,44	13
2	NAG	F	2	14/15	0.69	0.28	36,44,52,58	0
3	BMA	G	3	11/12	0.70	0.19	34,39,42,44	11
3	MAN	G	8	11/12	0.77	0.28	35,38,43,49	11
3	GAL	G	6	11/12	0.78	0.19	24,31,36,37	11
3	SIA	G	11	20/21	0.78	0.18	16,24,31,33	20
3	NAG	G	1	14/15	0.81	0.11	21,27,30,30	14
3	NAG	G	2	14/15	0.81	0.14	26,34,39,42	14
2	NAG	F	1	14/15	0.84	0.16	23,31,38,42	0
3	SIA	G	7	20/21	0.92	0.10	14,20,28,32	20

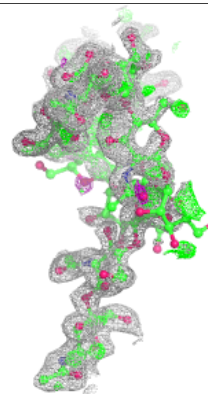
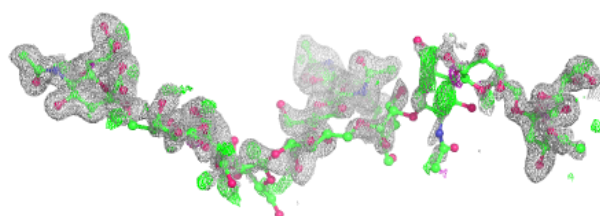
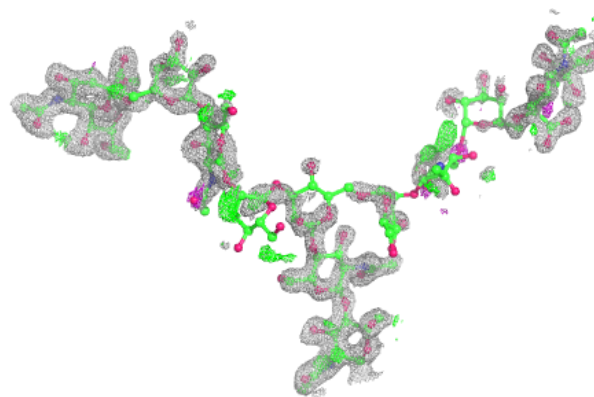
The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

**Electron density around Chain F:**

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

**Electron density around Chain G:**

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



## 6.4 Ligands

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
7	NAG	E	1213	14/15	0.67	0.22	31,38,49,51	14
8	SIA	B	1213	20/21	0.76	0.18	15,21,30,31	20
7	NAG	A	1214	14/15	0.77	0.16	25,30,39,40	14
7	NAG	C	1209	14/15	0.77	0.20	26,34,42,47	14
4	ACT	A	1205	4/4	0.81	0.15	16,17,19,26	4
4	ACT	A	1215	4/4	0.84	0.15	12,14,16,31	4
4	ACT	B	1208	4/4	0.86	0.15	17,22,23,24	4
4	ACT	E	1215	4/4	0.86	0.11	14,16,22,24	4
4	ACT	A	1208	4/4	0.86	0.19	15,19,21,29	4
4	ACT	E	1214	4/4	0.88	0.15	8,18,22,33	0
4	ACT	A	1206	4/4	0.89	0.12	10,19,23,25	4
6	CD	A	1219	1/1	0.93	0.10	21,21,21,21	1
5	GHE	D	1207	24/24	0.94	0.12	11,14,21,22	24
5	GHE	B	1207	24/24	0.94	0.12	11,14,21,22	24
5	GHE	C	1207	24/24	0.94	0.11	10,13,23,24	24
6	CD	B	1216	1/1	0.95	0.08	49,49,49,49	1
5	GHE	A	1207	24/24	0.96	0.10	9,14,20,21	24
4	ACT	E	1206	4/4	0.96	0.09	16,17,18,22	4
5	GHE	E	1207	24/24	0.96	0.11	9,14,20,21	24
6	CD	C	1210	1/1	0.98	0.12	15,15,15,15	1
6	CD	D	6043	1/1	0.98	0.11	16,16,16,16	1
6	CD	E	1212	1/1	0.98	0.12	16,16,16,16	1
6	CD	E	1218	1/1	0.98	0.10	16,16,16,16	1
6	CD	A	1211	1/1	0.98	0.11	15,15,15,15	1
6	CD	B	1211	1/1	0.98	0.12	18,18,18,18	1
6	CD	B	1214	1/1	0.98	0.10	16,16,16,16	1
6	CD	A	1216	1/1	0.98	0.06	23,23,23,23	1
6	CD	B	1215	1/1	0.99	0.07	22,22,22,22	1
6	CD	D	6044	1/1	0.99	0.07	15,15,15,15	1
6	CD	E	1211	1/1	0.99	0.11	11,11,11,11	1
6	CD	A	1218	1/1	0.99	0.06	16,16,16,16	1
6	CD	E	1216	1/1	0.99	0.09	17,17,17,17	1
6	CD	E	1217	1/1	0.99	0.12	13,13,13,13	1
6	CD	C	1208	1/1	0.99	0.11	13,13,13,13	1
6	CD	E	1219	1/1	0.99	0.04	19,19,19,19	1
6	CD	A	1212	1/1	0.99	0.11	11,11,11,11	1
6	CD	C	1211	1/1	0.99	0.08	16,16,16,16	1

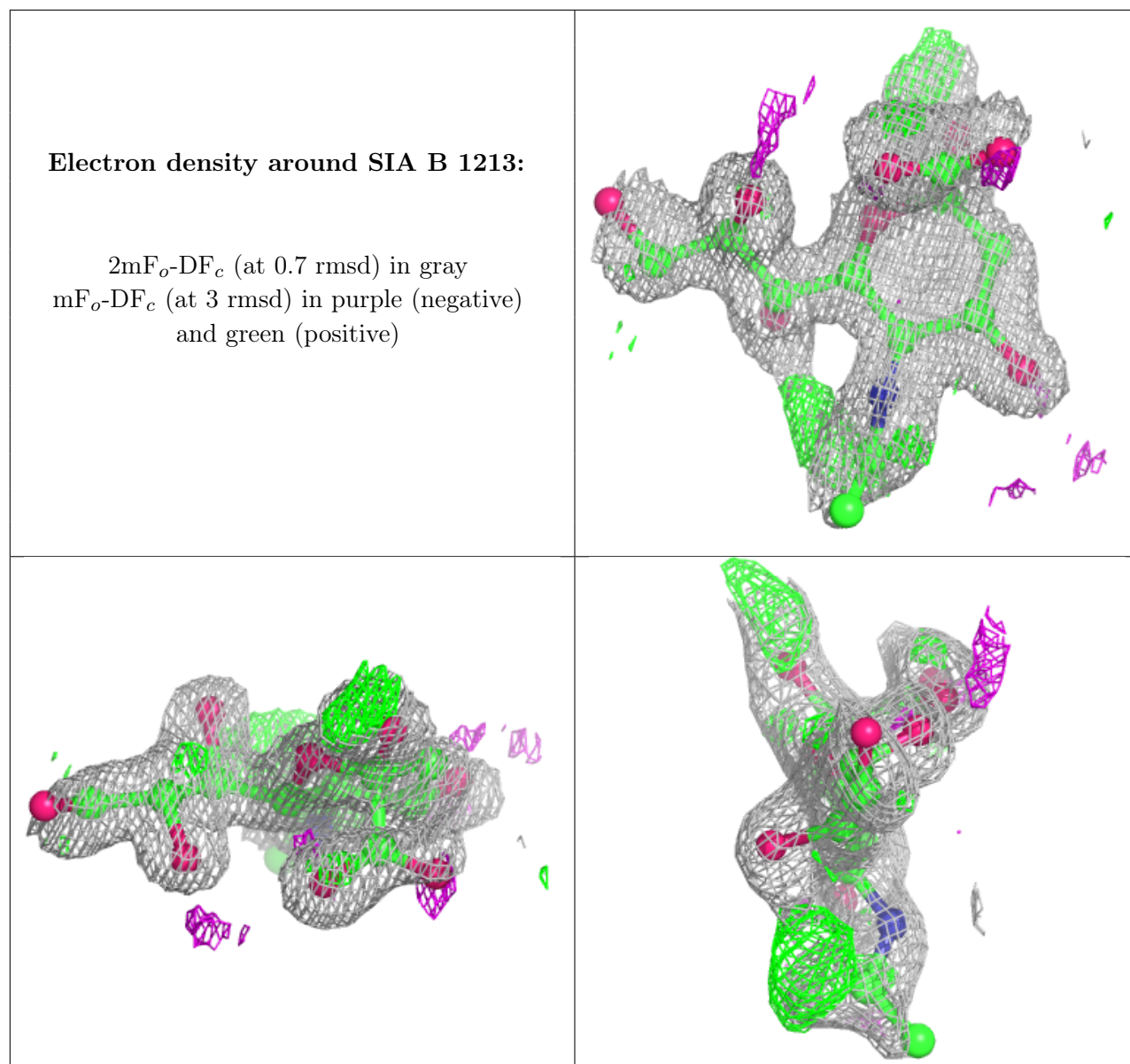
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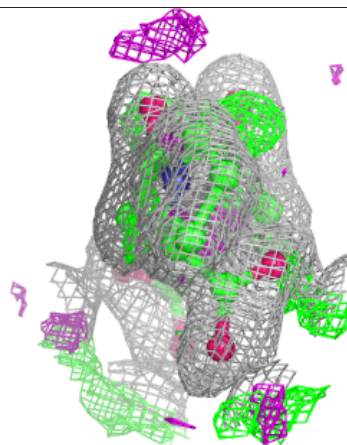
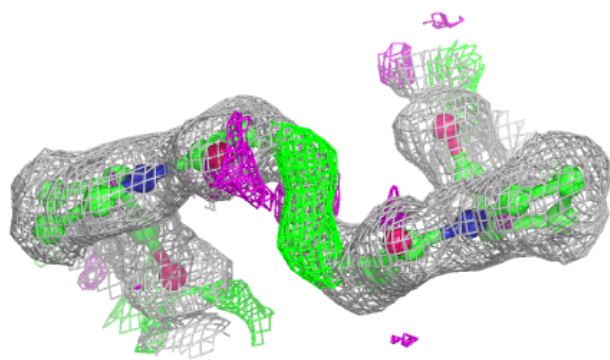
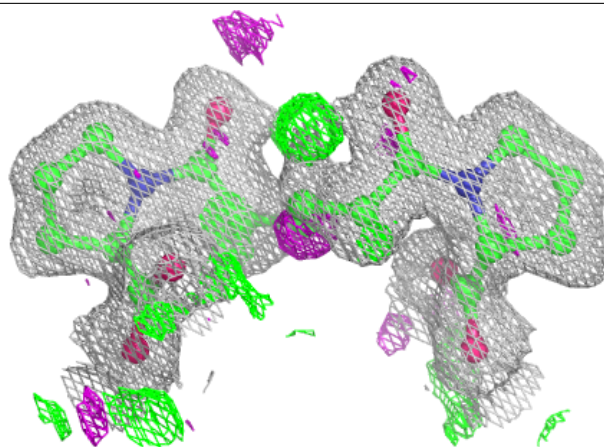
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
6	CD	C	1212	1/1	0.99	0.06	23,23,23,23	1
6	CD	D	6042	1/1	0.99	0.11	12,12,12,12	1
6	CD	E	1208	1/1	1.00	0.08	11,11,11,11	0
6	CD	E	1209	1/1	1.00	0.07	12,12,12,12	0
6	CD	E	1210	1/1	1.00	0.11	8,8,8,8	1
6	CD	C	1206	1/1	1.00	0.07	13,13,13,13	0
6	CD	B	1210	1/1	1.00	0.07	13,13,13,13	0
6	CD	A	1209	1/1	1.00	0.07	12,12,12,12	0
6	CD	B	1212	1/1	1.00	0.12	11,11,11,11	1
6	CD	A	1210	1/1	1.00	0.07	12,12,12,12	0
6	CD	D	6040	1/1	1.00	0.07	12,12,12,12	0
6	CD	D	6041	1/1	1.00	0.07	11,11,11,11	0
6	CD	A	1213	1/1	1.00	0.11	11,11,11,11	1
6	CD	B	1209	1/1	1.00	0.07	12,12,12,12	0
6	CD	C	1205	1/1	1.00	0.07	13,13,13,13	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.



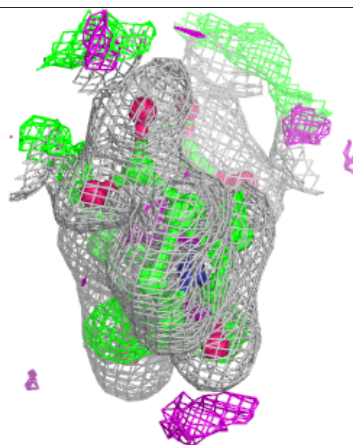
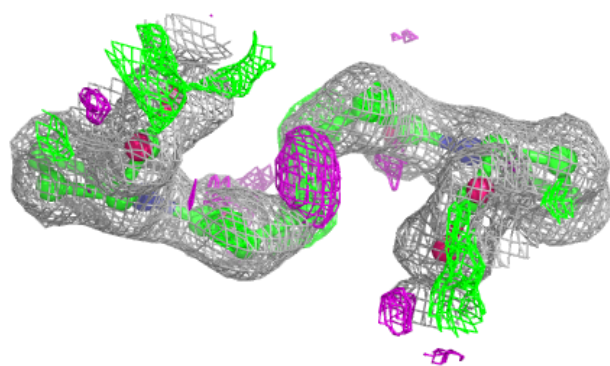
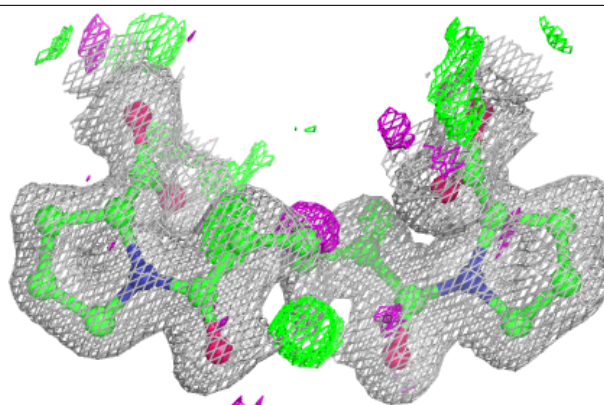
**Electron density around GHE D 1207:**

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



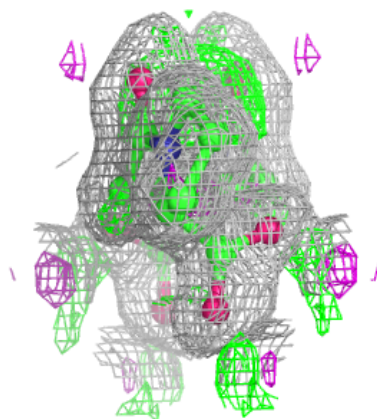
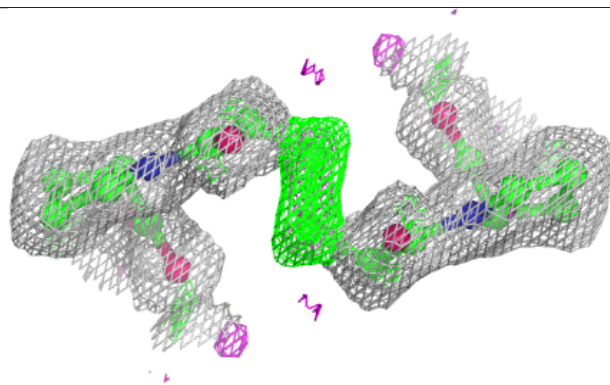
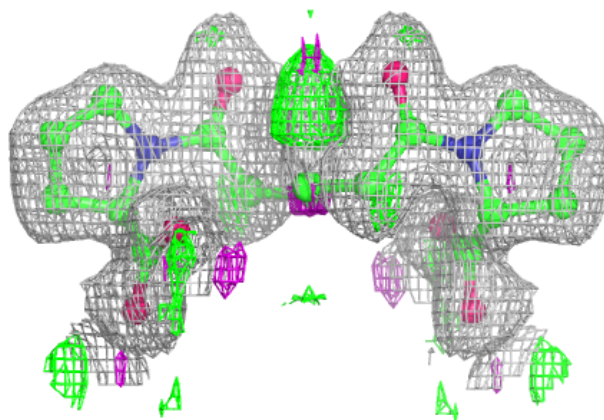
**Electron density around GHE B 1207:**

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



**Electron density around GHE C 1207:**

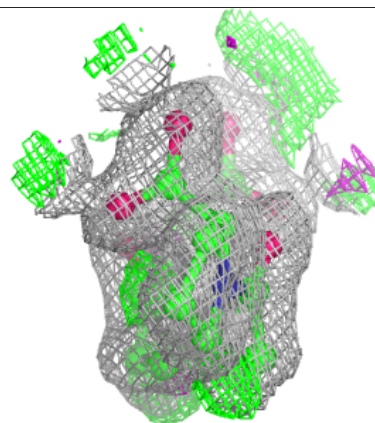
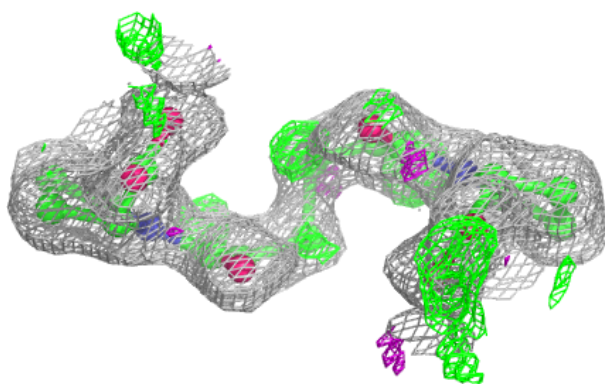
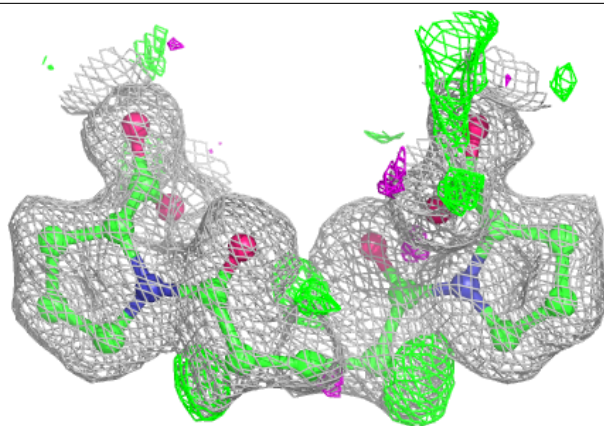
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

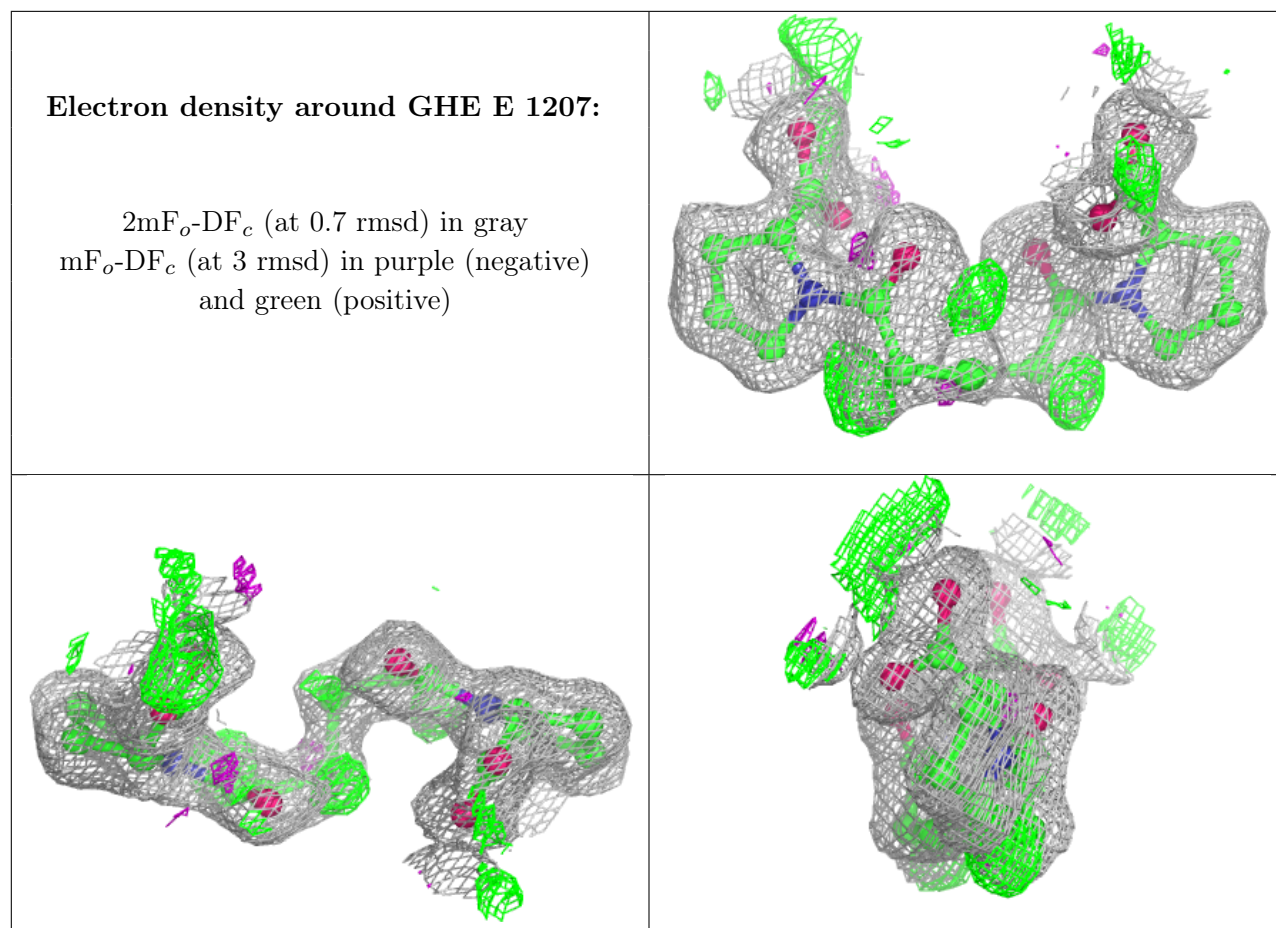




**Electron density around GHE A 1207:**

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





## 6.5 Other polymers [i](#)

There are no such residues in this entry.