



## wwPDB EM Validation Summary Report ⓘ

Apr 5, 2022 – 01:17 pm BST

PDB ID : 7O7P  
EMDB ID : EMD-12752  
Title : (h-alpha2M)4 activated state  
Authors : Luque, D.; Goulas, T.; Mata, C.P.; Mendes, S.R.; Gomis-Ruth, F.X.; Caston, J.R.  
Deposited on : 2021-04-13  
Resolution : 4.60 Å(reported)

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

EMDB validation analysis : 0.0.0.dev97  
Mogul : 1.8.4, CSD as541be (2020)  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.27

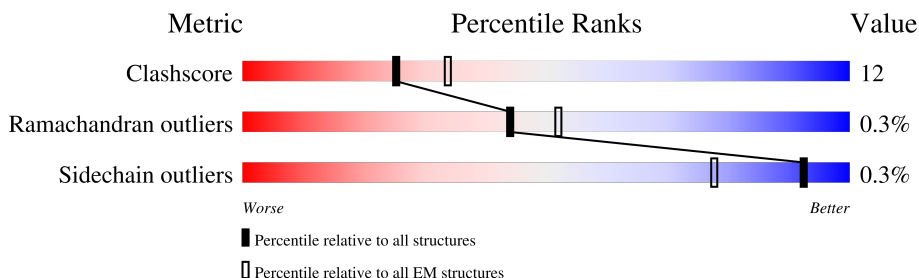
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 4.60 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.





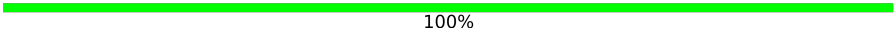

Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1474	
1	B	1474	
1	C	1474	
1	D	1474	
2	E	2	
2	F	2	
2	G	2	
2	H	2	

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Mol	Chain	Length	Quality of chain
2	I	2	 50% 100%
2	J	2	 100%
2	K	2	 100%
2	L	2	 50% 50%

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
2	NAG	L	1	X	-	X	-

## 2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 40295 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Alpha-2-macroglobulin.

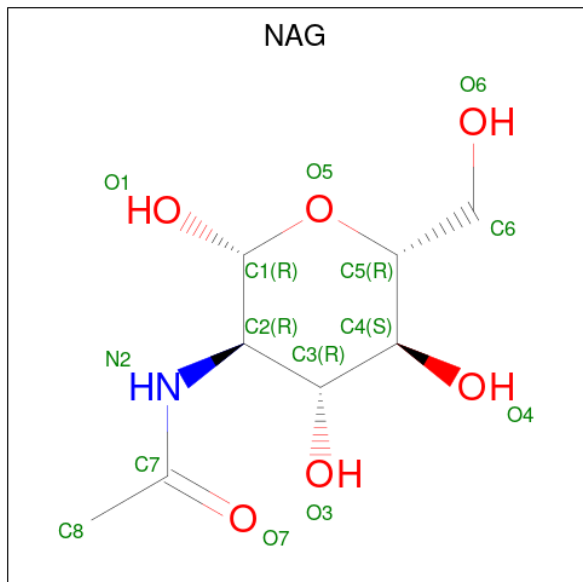
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1277	9967	6336	1673	1915	43	0	0
1	B	1275	9944	6322	1670	1909	43	0	0
1	C	1274	9940	6320	1669	1908	43	0	0
1	D	1274	9940	6320	1669	1908	43	0	0

- 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				AltConf	Trace
			Total	C	N	O		
2	E	2	28	16	2	10	0	0
2	F	2	28	16	2	10	0	0
2	G	2	28	16	2	10	0	0
2	H	2	28	16	2	10	0	0
2	I	2	28	16	2	10	0	0
2	J	2	28	16	2	10	0	0
2	K	2	28	16	2	10	0	0
2	L	2	28	16	2	10	0	0

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
3	A	1	70	40	5	25	0
3	A	1	70	40	5	25	0
3	A	1	70	40	5	25	0
3	A	1	70	40	5	25	0
3	A	1	70	40	5	25	0
3	B	1	70	40	5	25	0
3	B	1	70	40	5	25	0
3	B	1	70	40	5	25	0
3	B	1	70	40	5	25	0
3	B	1	70	40	5	25	0
3	C	1	70	40	5	25	0
3	C	1	70	40	5	25	0

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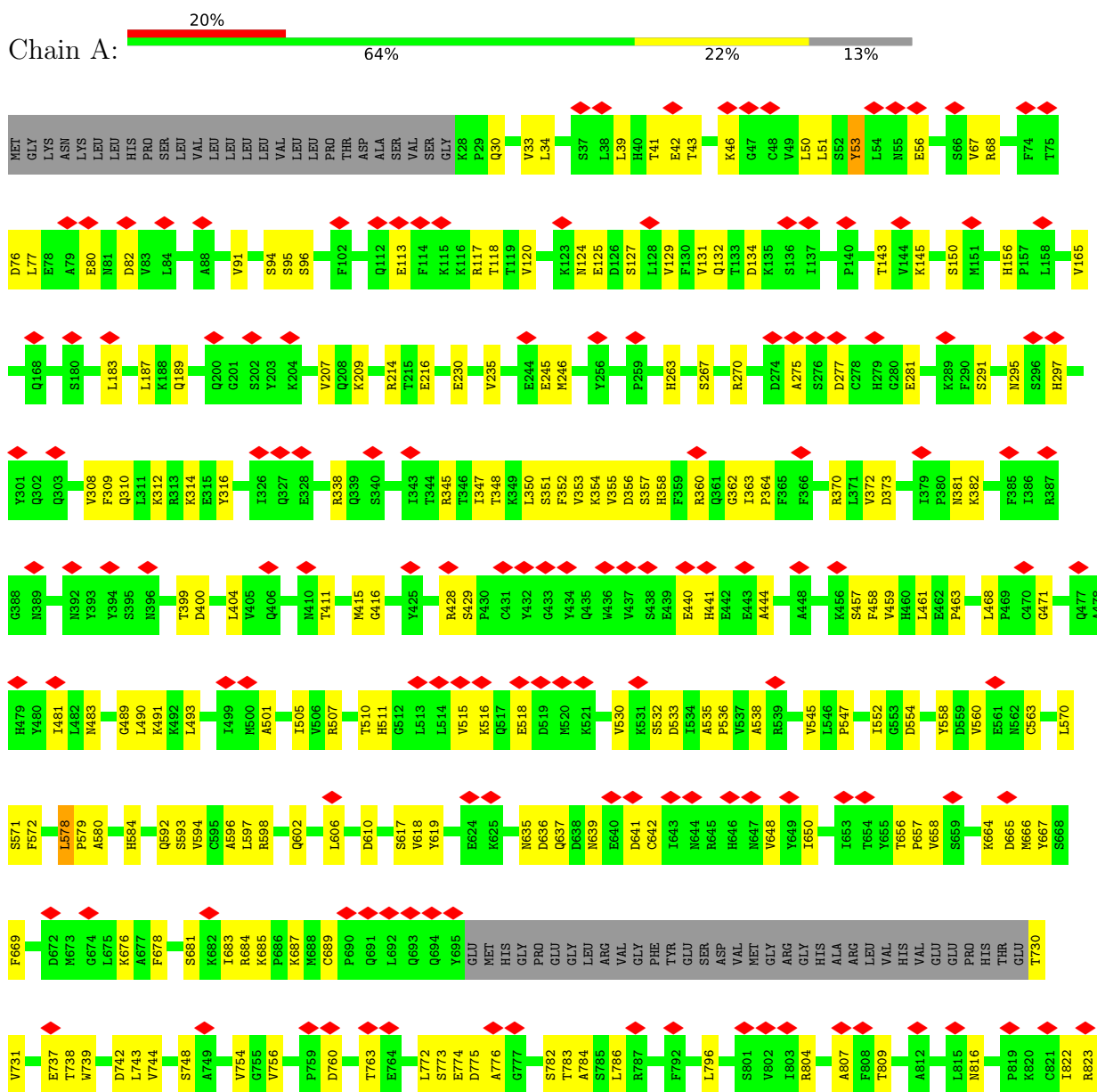
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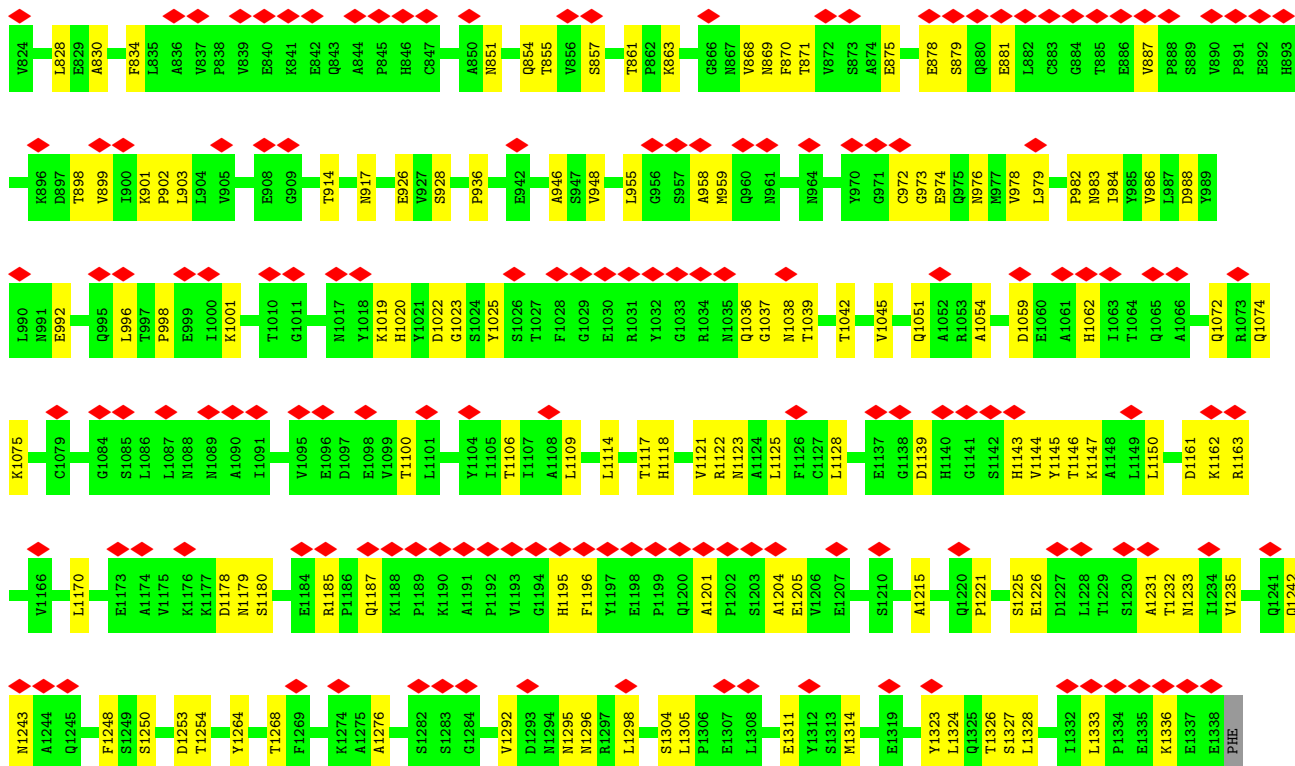
<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>				<b>AltConf</b>
3	C	1	Total 70	C 40	N 5	O 25	0
3	C	1	Total 70	C 40	N 5	O 25	0
3	C	1	Total 70	C 40	N 5	O 25	0
3	D	1	Total 70	C 40	N 5	O 25	0
3	D	1	Total 70	C 40	N 5	O 25	0
3	D	1	Total 70	C 40	N 5	O 25	0
3	D	1	Total 70	C 40	N 5	O 25	0
3	D	1	Total 70	C 40	N 5	O 25	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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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.

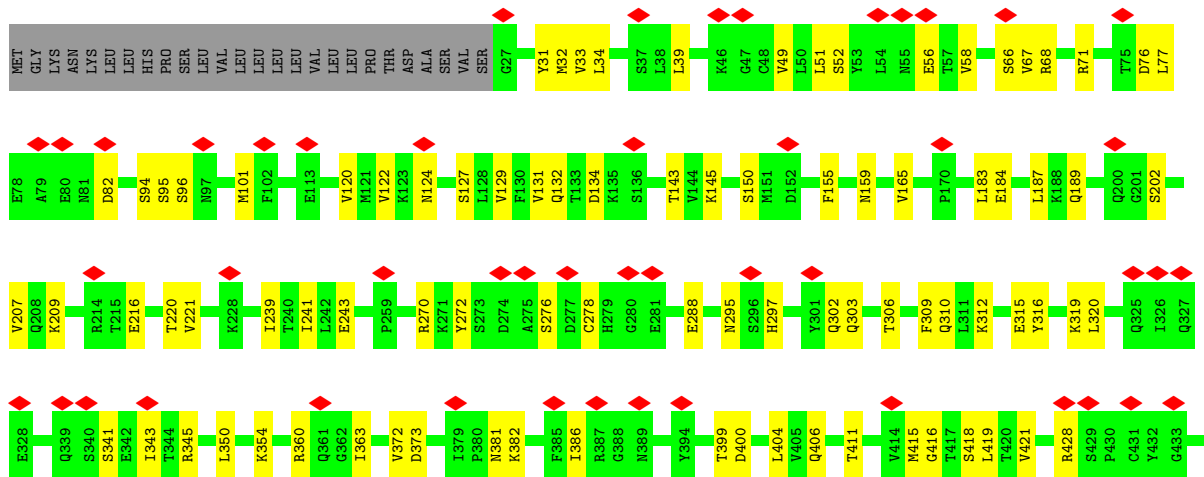
- Molecule 1: Alpha-2-macroglobulin





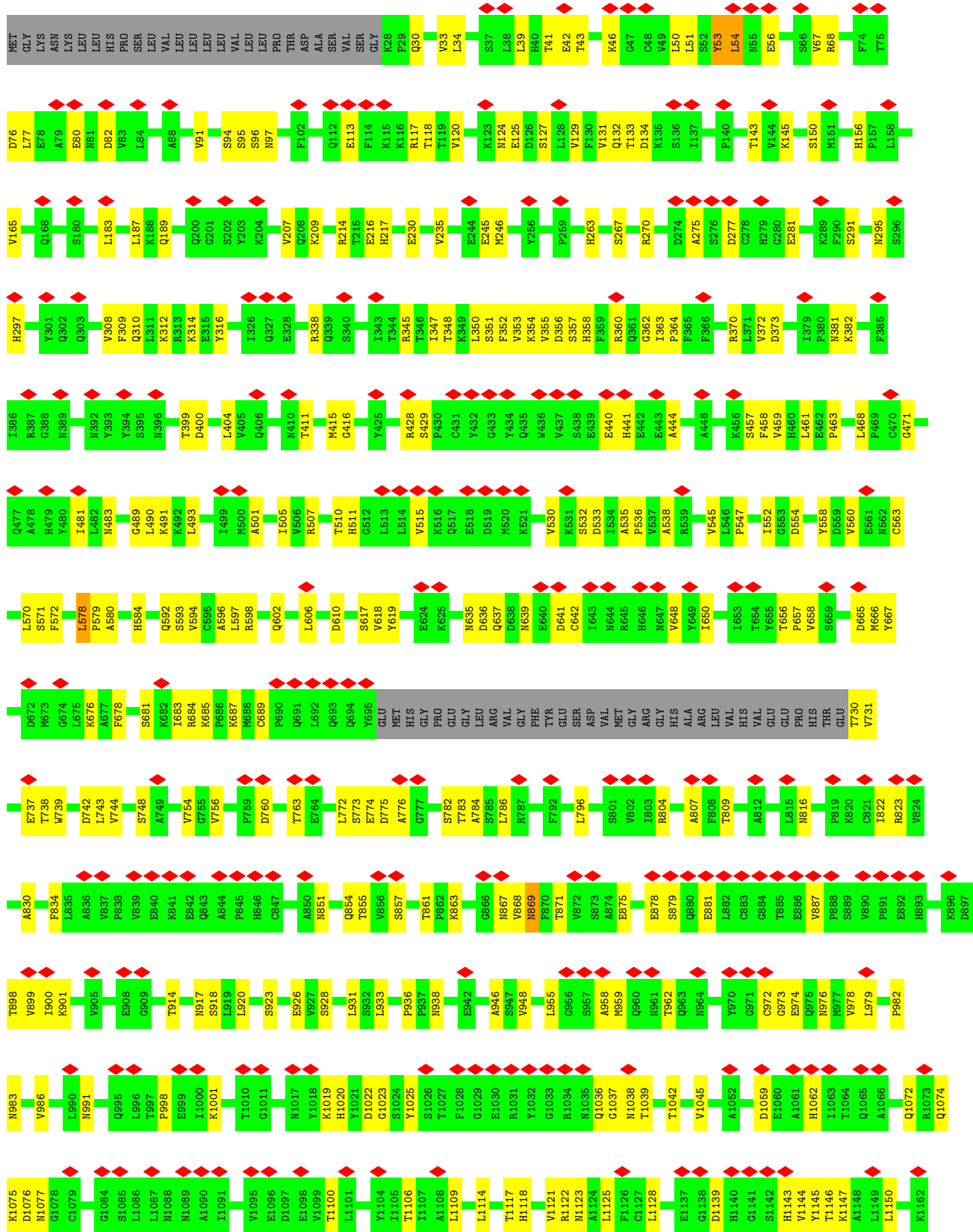
PRO	PHE	ALA	LEU	GLY	VAL	GLN	THR	PRO	GLU	THR	CYS	ASP	PRO	GLU	PRO	LYS	ALA	HIS	THR	THR	PHE	GLN	SER	LEU	SER	VAL	VAL	GLN	ALA	ASN	ASN	MET	ALA	ALA	ILE	VAL	ASP	VAL	VAL	LYS	PRO	LEU	LYS	THR	VAL	THR	VAL	LEU	LEU	LEU	ALA
GLU	ARG	ASN	ASN	HIS	VAL	SER	ARG	THR	GLU	VAL	SER	ASN	HIS	VAL	VAL	LEU	ILE	TYR	LEU	ASP	VAL	VAL	ASN	GLN	THR	SER	GLN	VAL	GLN	ASP	VAL	PRO	VAL	ARG	ARG	ILE	VAL	VAL	VAL	TYR	ASP	TYR	THR	THR	ASP	GLU	THR	VAL	GLU	ALA	
ILE	ALA	TYR	ALA	ALA	PRO	CYS	SER	THR	GLU	ASP	LEU	GLY	ASN	ALA																																					

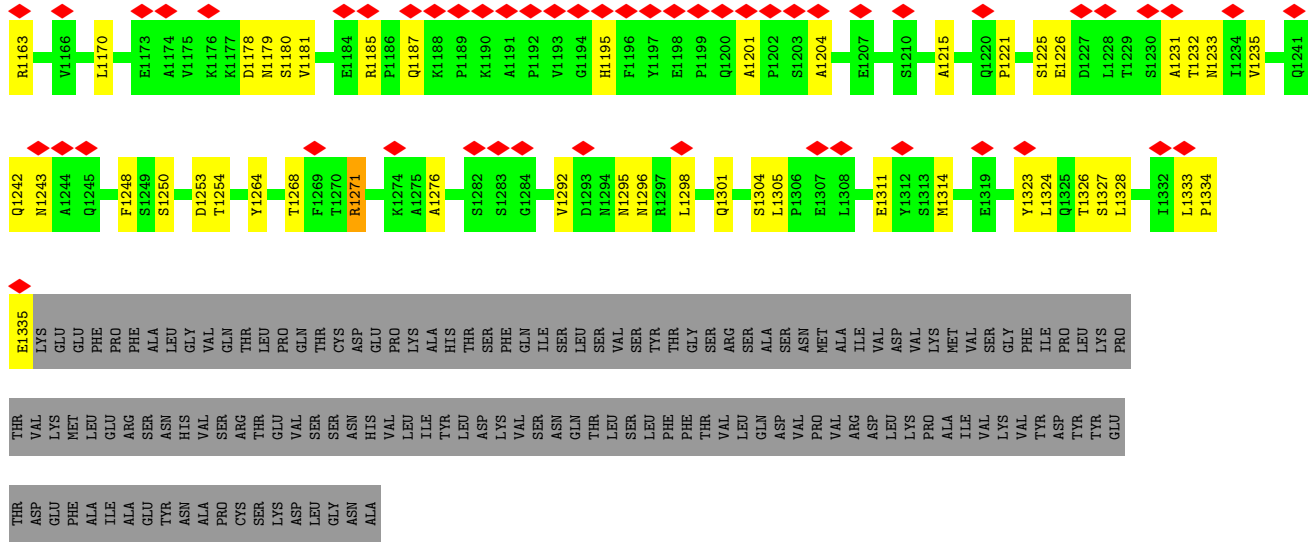
• Molecule 1: Alpha-2-macroglobulin



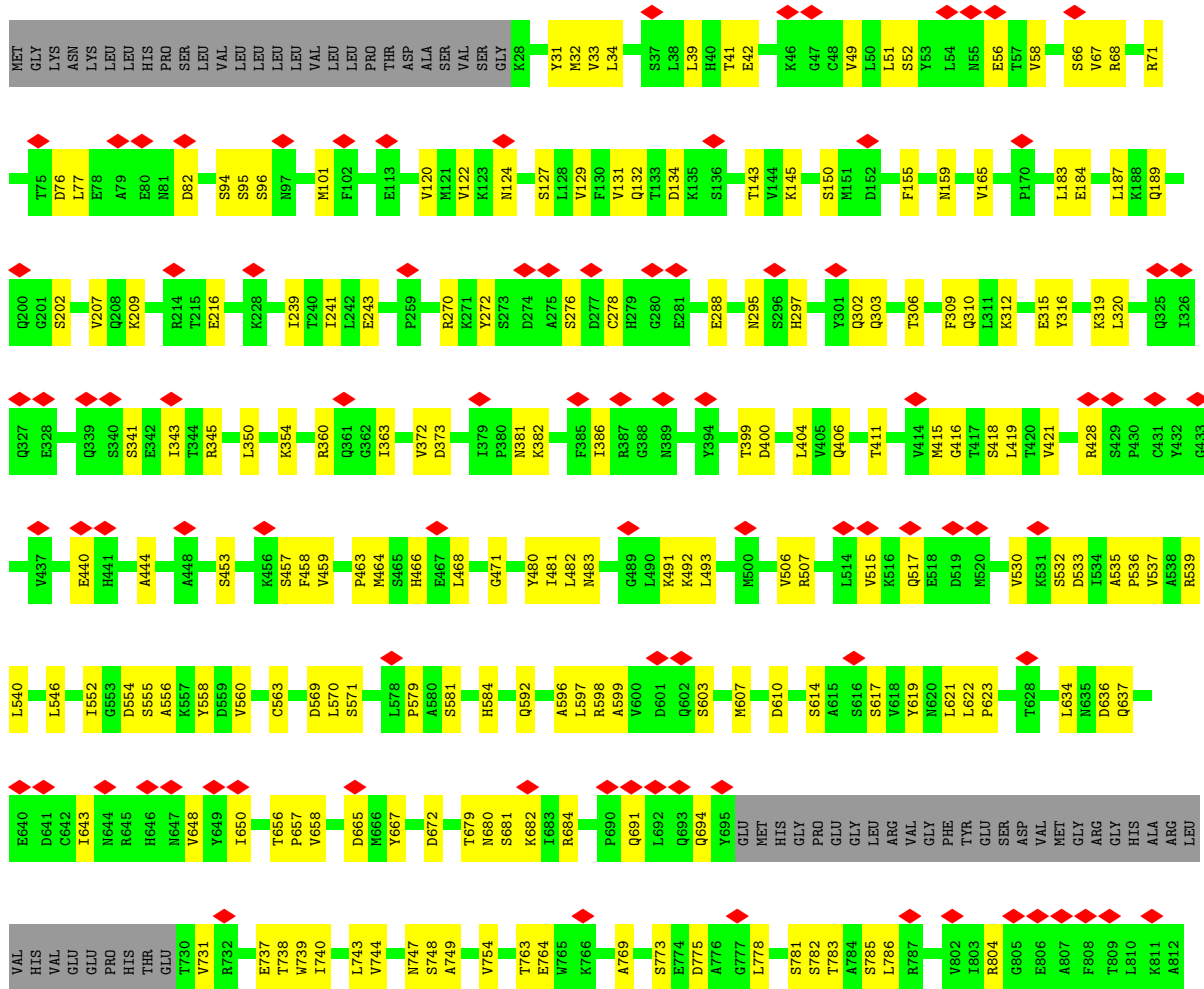


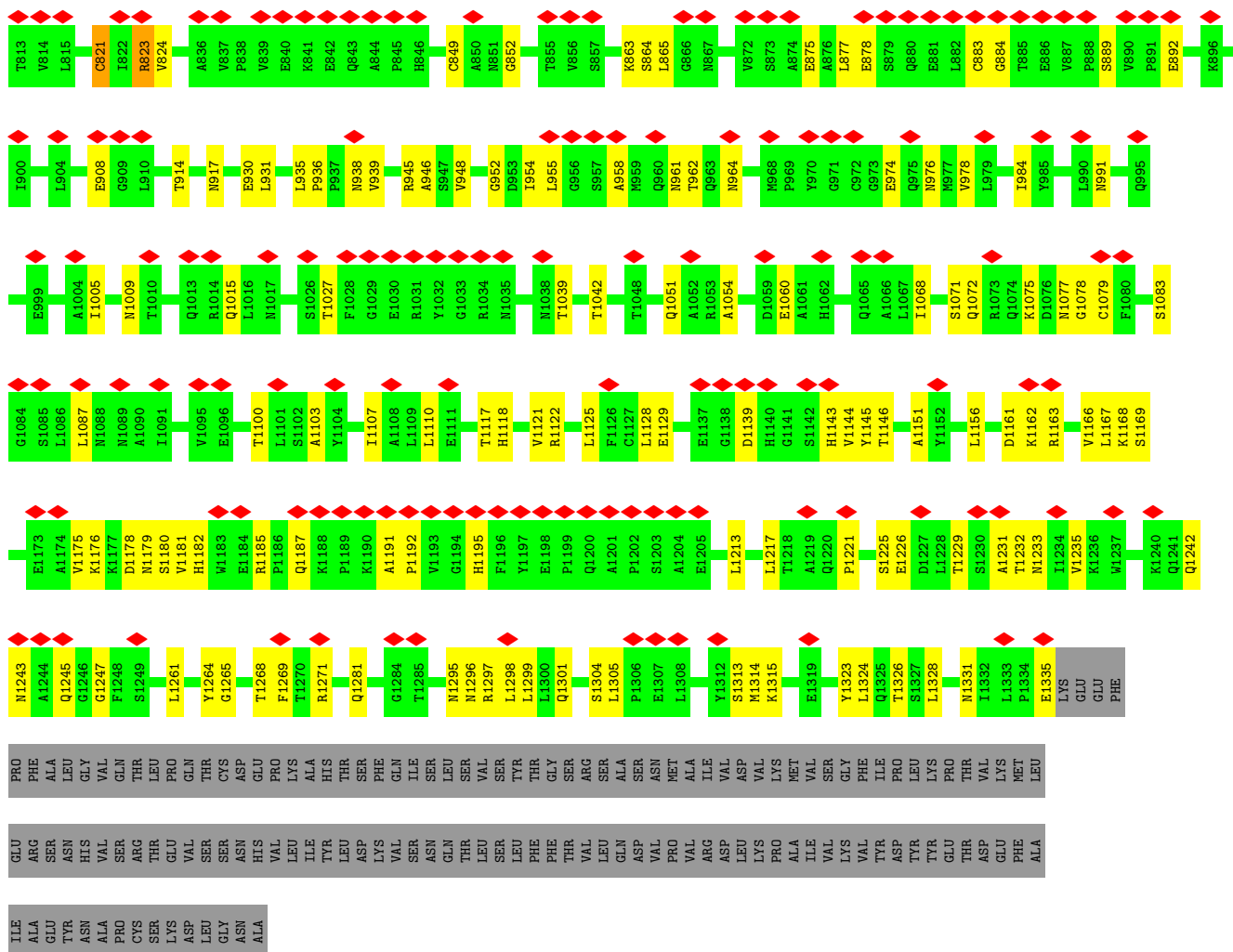






• Molecule 1: Alpha-2-macroglobulin





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



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




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

Chain G:  100%

MAG1  
MAG2

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

Chain H:  50% 50%

MAG1  
MAG2

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

Chain I:  50% 100%

MAG1  
MAG2

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

Chain J:  100%

MAG1  
MAG2

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

Chain K:  100%

MAG1  
MAG2

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

Chain L:  50% 50%

MAG1  
MAG2

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C2	Depositor
Number of particles used	118333	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	39.6	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3250	Depositor
Magnification	47775	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.070	Depositor
Minimum map value	-0.002	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.0135	Depositor
Map size ( $\text{\AA}$ )	335.04, 335.04, 335.04	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.047, 1.047, 1.047	Depositor

## 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: 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	0.44	0/10188	0.66	1/13841 (0.0%)
1	B	0.47	1/10165 (0.0%)	0.67	2/13811 (0.0%)
1	C	0.44	0/10161	0.66	1/13806 (0.0%)
1	D	0.46	1/10161 (0.0%)	0.67	2/13806 (0.0%)
All	All	0.45	2/40675 (0.0%)	0.67	6/55264 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	316	TYR	CG-CD2	-5.12	1.32	1.39
1	D	316	TYR	CG-CD2	-5.12	1.32	1.39

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	821	CYS	CA-CB-SG	9.30	130.74	114.00
1	D	821	CYS	CA-CB-SG	9.30	130.74	114.00
1	A	277	ASP	CB-CG-OD1	5.76	123.48	118.30
1	C	277	ASP	CB-CG-OD1	5.76	123.48	118.30
1	B	272	TYR	CG-CD2-CE2	-5.14	117.19	121.30

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	9967	0	9865	232	0
1	B	9944	0	9843	231	0
1	C	9940	0	9840	231	0
1	D	9940	0	9840	214	0
2	E	28	0	25	1	0
2	F	28	0	25	4	0
2	G	28	0	25	0	0
2	H	28	0	25	8	0
2	I	28	0	25	2	0
2	J	28	0	25	5	0
2	K	28	0	25	0	0
2	L	28	0	25	11	0
3	A	70	0	65	3	0
3	B	70	0	65	1	0
3	C	70	0	65	5	0
3	D	70	0	65	1	0
All	All	40295	0	39848	924	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 12.

The worst 5 of 924 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:730:THR:N	1:C:898:THR:HG1	1.46	1.14
1:A:730:THR:N	1:A:898:THR:HG1	1.45	1.14
1:B:769:ALA:HB3	1:B:781:SER:HB3	1.40	1.03
2:L:2:NAG:H83	2:L:2:NAG:H3	1.42	1.02
1:D:769:ALA:HB3	1:D:781:SER:HB3	1.40	1.01

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.



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	1273/1474 (86%)	1104 (87%)	163 (13%)	6 (0%)	29	68
1	B	1271/1474 (86%)	1109 (87%)	160 (13%)	2 (0%)	47	81
1	C	1270/1474 (86%)	1104 (87%)	159 (12%)	7 (1%)	25	65
1	D	1270/1474 (86%)	1108 (87%)	161 (13%)	1 (0%)	51	85
All	All	5084/5896 (86%)	4425 (87%)	643 (13%)	16 (0%)	44	76

5 of 16 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	53	TYR
1	B	1333	LEU
1	C	53	TYR
1	A	1204	ALA
1	C	1204	ALA

### 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 PDB entries followed by that with respect to all EM entries.

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	1115/1290 (86%)	1115 (100%)	0	100	100
1	B	1112/1290 (86%)	1108 (100%)	4 (0%)	91	94
1	C	1112/1290 (86%)	1107 (100%)	5 (0%)	91	94
1	D	1112/1290 (86%)	1108 (100%)	4 (0%)	91	94
All	All	4451/5160 (86%)	4438 (100%)	13 (0%)	92	95

5 of 13 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	1271	ARG
1	C	1335	GLU
1	D	1315	LYS

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Mol	Chain	Res	Type
1	D	823	ARG
1	D	991	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 32 such sidechains are listed below:

Mol	Chain	Res	Type
1	D	637	GLN
1	D	976	ASN
1	B	637	GLN
1	B	474	GLN
1	D	983	ASN

### 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](#)

16 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	E	1	2,1	14,14,15	0.39	0	17,19,21	1.14	1 (5%)
2	NAG	E	2	2	14,14,15	0.29	0	17,19,21	0.64	0
2	NAG	F	1	2,1	14,14,15	0.30	0	17,19,21	0.50	0
2	NAG	F	2	2	14,14,15	0.29	0	17,19,21	0.51	0
2	NAG	G	1	2,1	14,14,15	0.25	0	17,19,21	0.61	0
2	NAG	G	2	2	14,14,15	0.30	0	17,19,21	0.52	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	NAG	H	1	2,1	14,14,15	0.41	0	17,19,21	1.23	3 (17%)
2	NAG	H	2	2	14,14,15	0.29	0	17,19,21	0.56	0
2	NAG	I	1	2,1	14,14,15	0.32	0	17,19,21	0.78	0
2	NAG	I	2	2	14,14,15	0.30	0	17,19,21	0.54	0
2	NAG	J	1	2,1	14,14,15	0.38	0	17,19,21	1.59	4 (23%)
2	NAG	J	2	2	14,14,15	0.50	0	17,19,21	1.44	3 (17%)
2	NAG	K	1	2,1	14,14,15	0.26	0	17,19,21	0.55	0
2	NAG	K	2	2	14,14,15	0.29	0	17,19,21	0.55	0
2	NAG	L	1	2,1	14,14,15	0.31	0	17,19,21	0.83	1 (5%)
2	NAG	L	2	2	14,14,15	0.32	0	17,19,21	0.60	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	E	1	2,1	-	3/6/23/26	0/1/1/1
2	NAG	E	2	2	-	2/6/23/26	0/1/1/1
2	NAG	F	1	2,1	-	5/6/23/26	0/1/1/1
2	NAG	F	2	2	-	3/6/23/26	0/1/1/1
2	NAG	G	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	G	2	2	-	4/6/23/26	0/1/1/1
2	NAG	H	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	H	2	2	-	5/6/23/26	0/1/1/1
2	NAG	I	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	I	2	2	-	4/6/23/26	0/1/1/1
2	NAG	J	1	2,1	-	5/6/23/26	0/1/1/1
2	NAG	J	2	2	-	3/6/23/26	0/1/1/1
2	NAG	K	1	2,1	-	4/6/23/26	0/1/1/1
2	NAG	K	2	2	-	5/6/23/26	0/1/1/1
2	NAG	L	1	2,1	1/1/5/7	4/6/23/26	0/1/1/1
2	NAG	L	2	2	-	4/6/23/26	0/1/1/1

There are no bond length outliers.

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

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	J	1	NAG	C4-C3-C2	-3.71	105.59	111.02
2	J	2	NAG	O5-C1-C2	3.67	117.08	111.29
2	H	1	NAG	C4-C3-C2	3.15	115.64	111.02
2	J	2	NAG	C3-C4-C5	-2.77	105.29	110.24
2	J	2	NAG	O5-C5-C6	2.67	111.39	107.20

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
2	L	1	NAG	C1

5 of 63 torsion outliers are listed below:

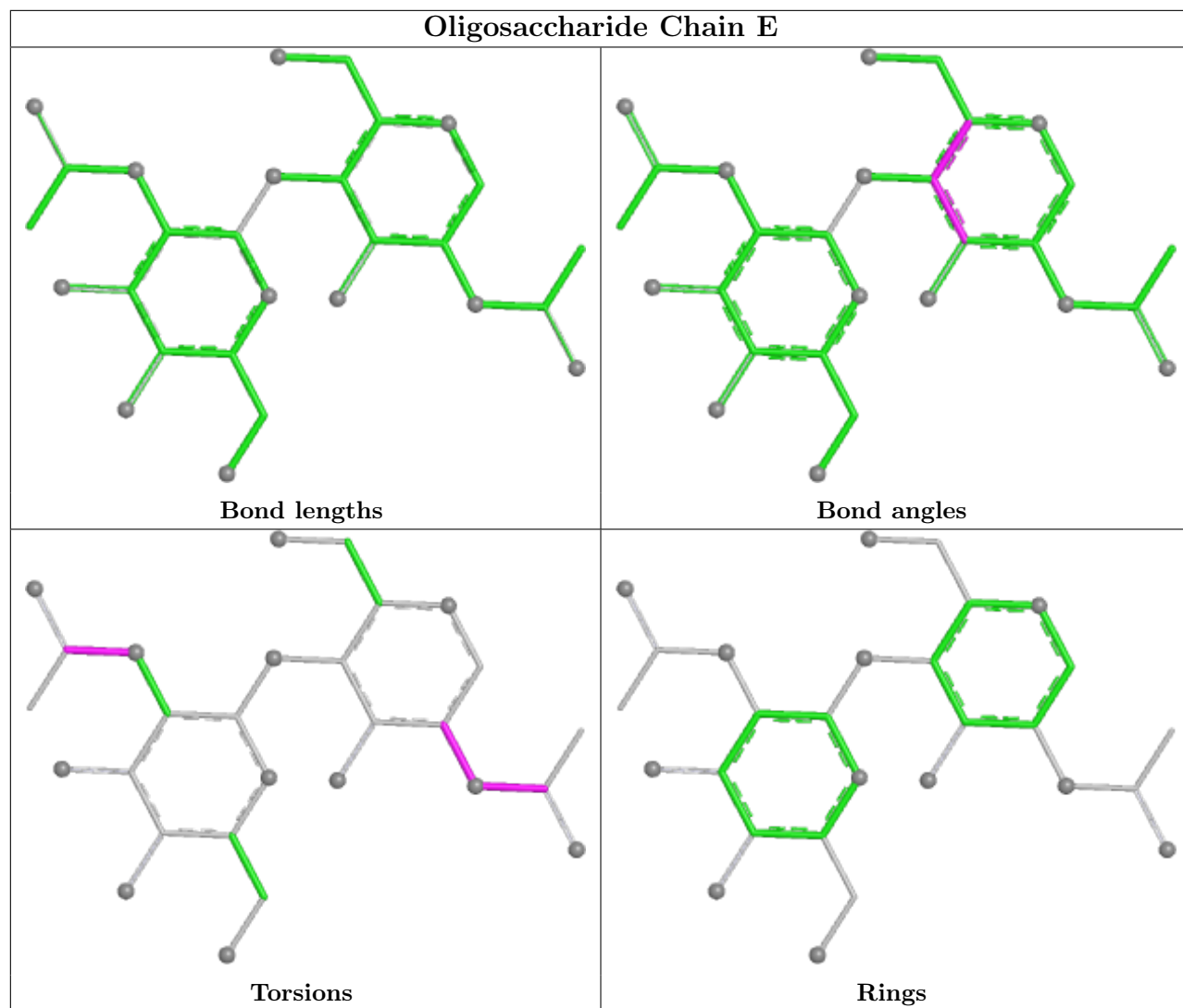
Mol	Chain	Res	Type	Atoms
2	E	2	NAG	C8-C7-N2-C2
2	E	2	NAG	O7-C7-N2-C2
2	F	1	NAG	C8-C7-N2-C2
2	F	1	NAG	O7-C7-N2-C2
2	F	2	NAG	C8-C7-N2-C2

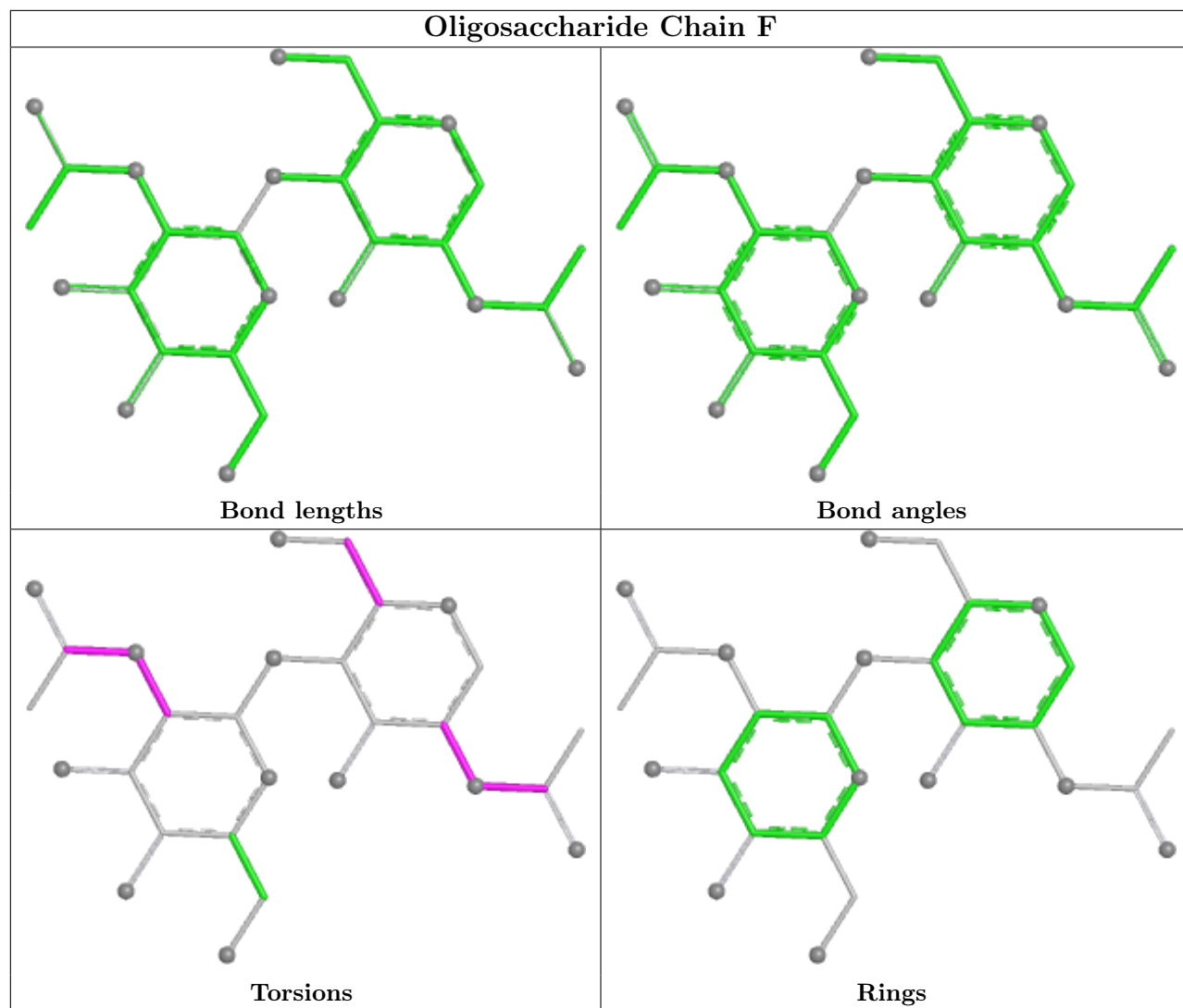
There are no ring outliers.

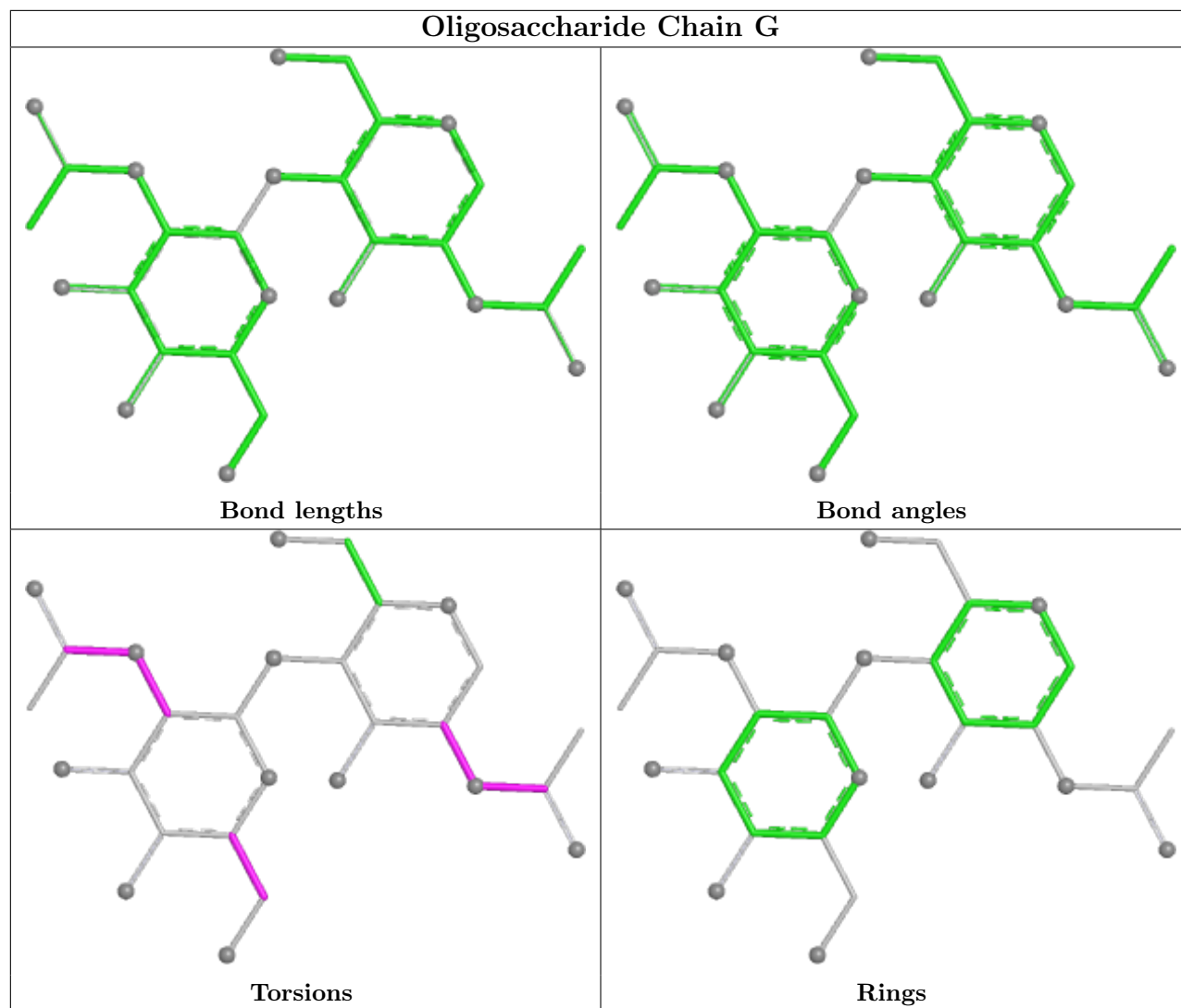
11 monomers are involved in 31 short contacts:

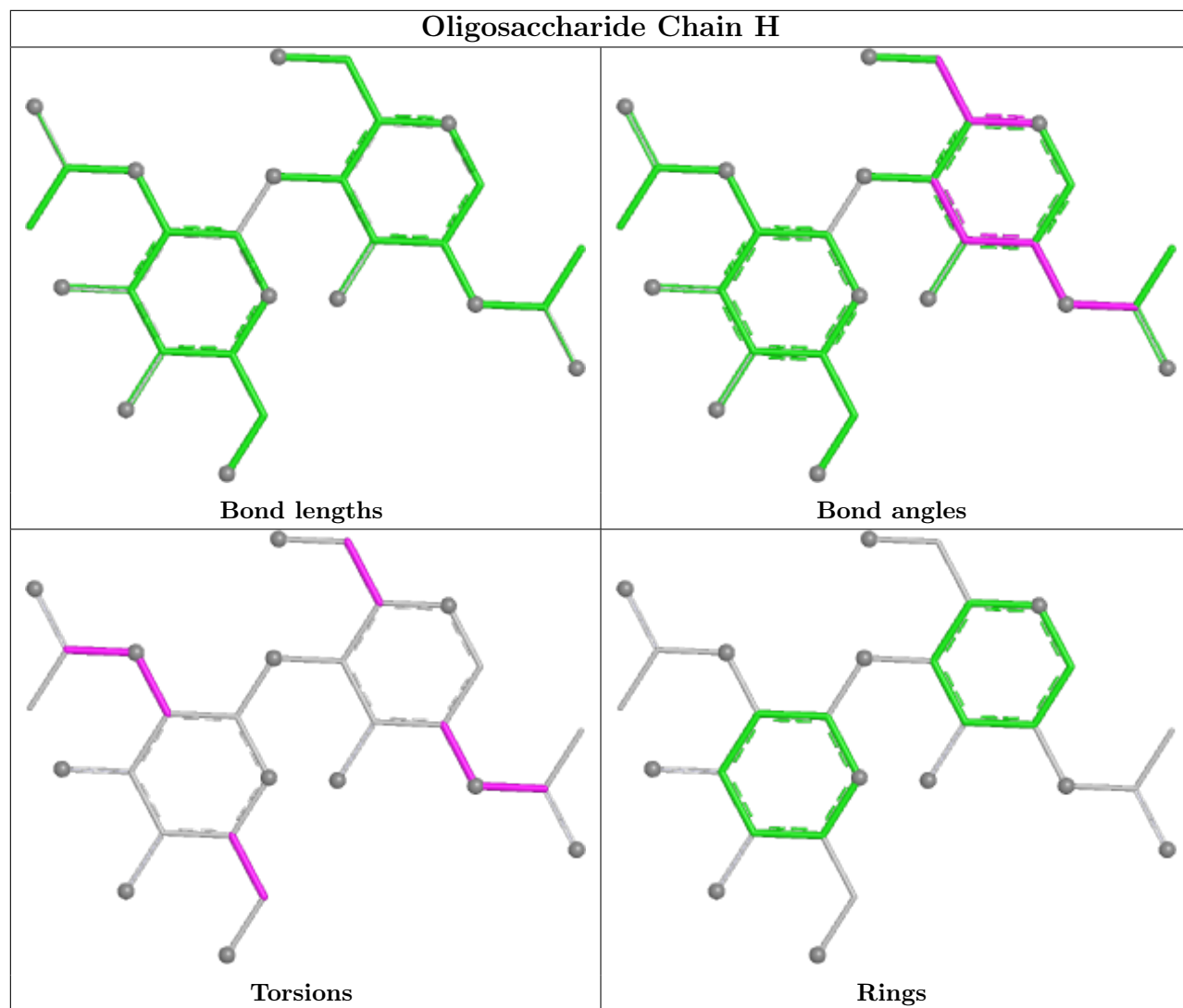
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	2	NAG	4	0
2	I	2	NAG	1	0
2	E	2	NAG	1	0
2	J	1	NAG	4	0
2	H	2	NAG	4	0
2	L	2	NAG	4	0
2	J	2	NAG	5	0
2	H	1	NAG	4	0
2	I	1	NAG	2	0
2	L	1	NAG	8	0
2	E	1	NAG	1	0

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

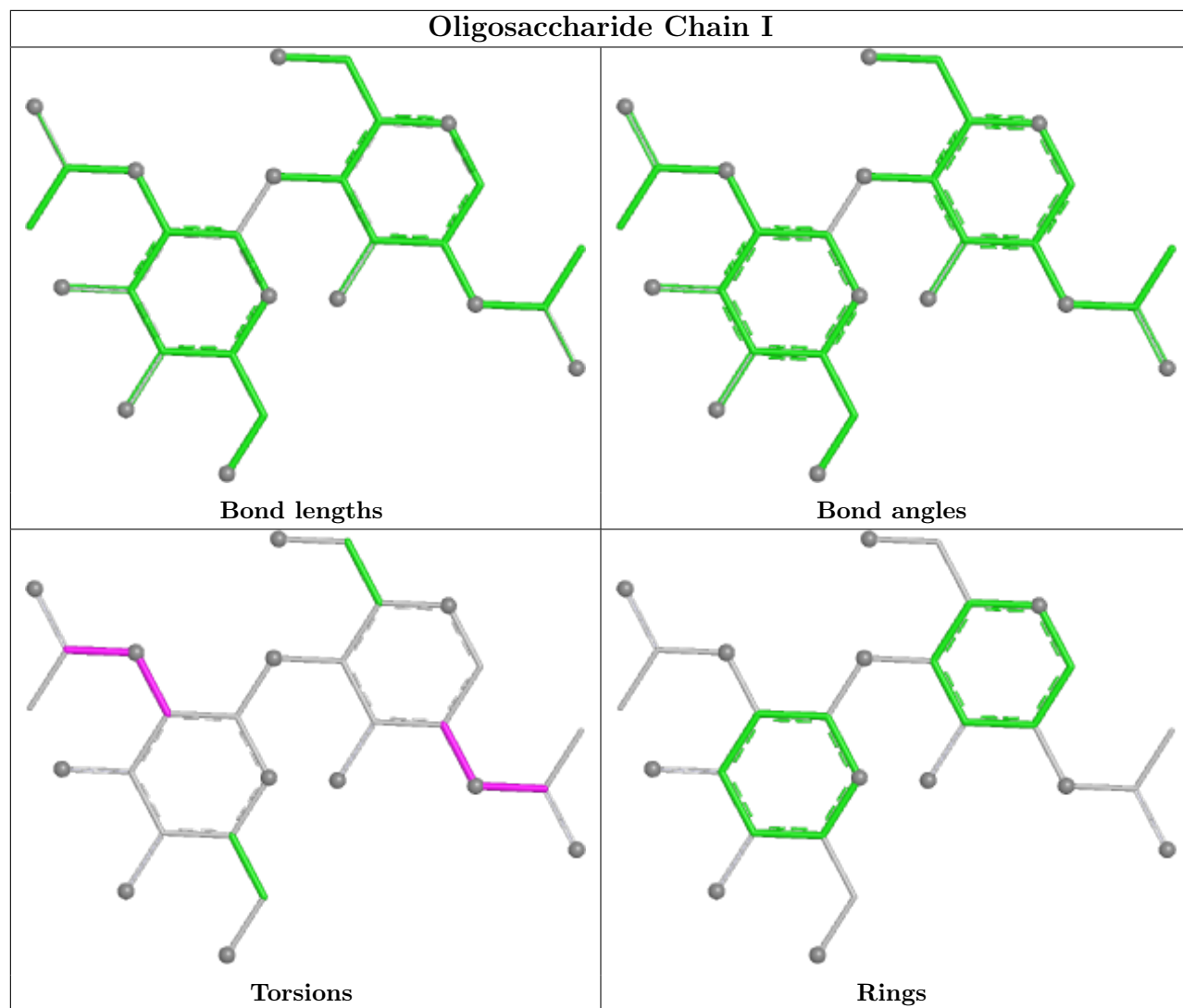


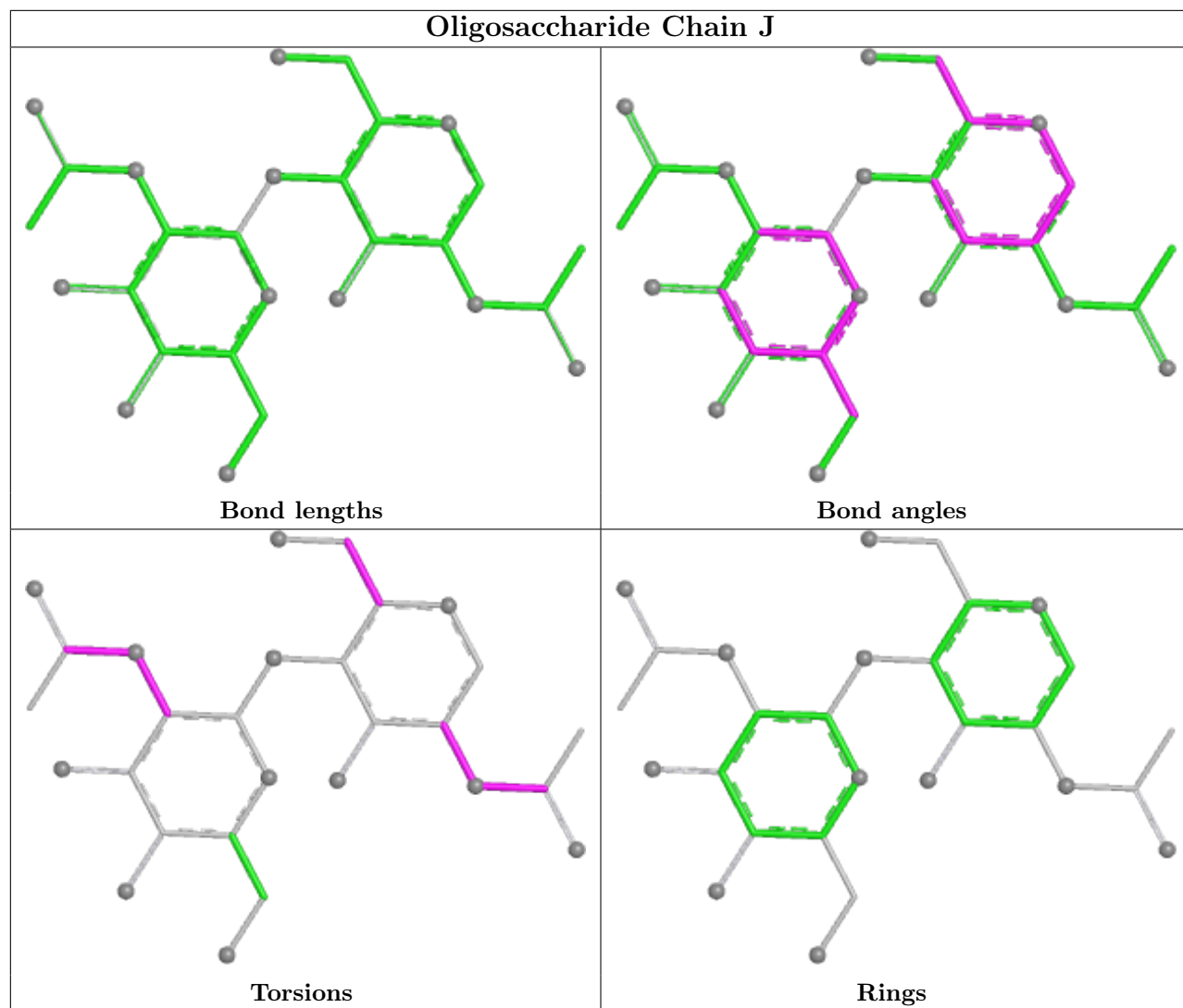


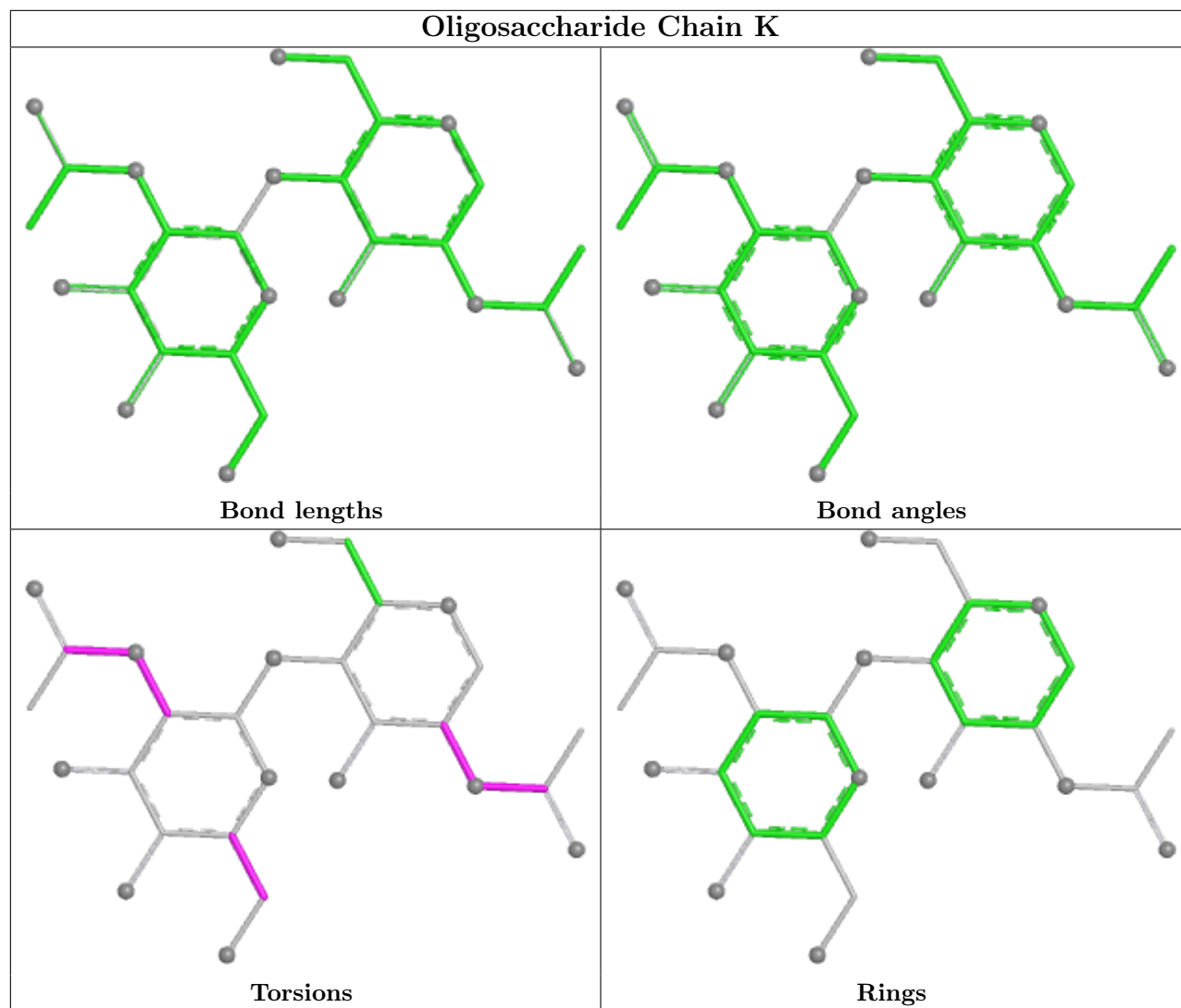


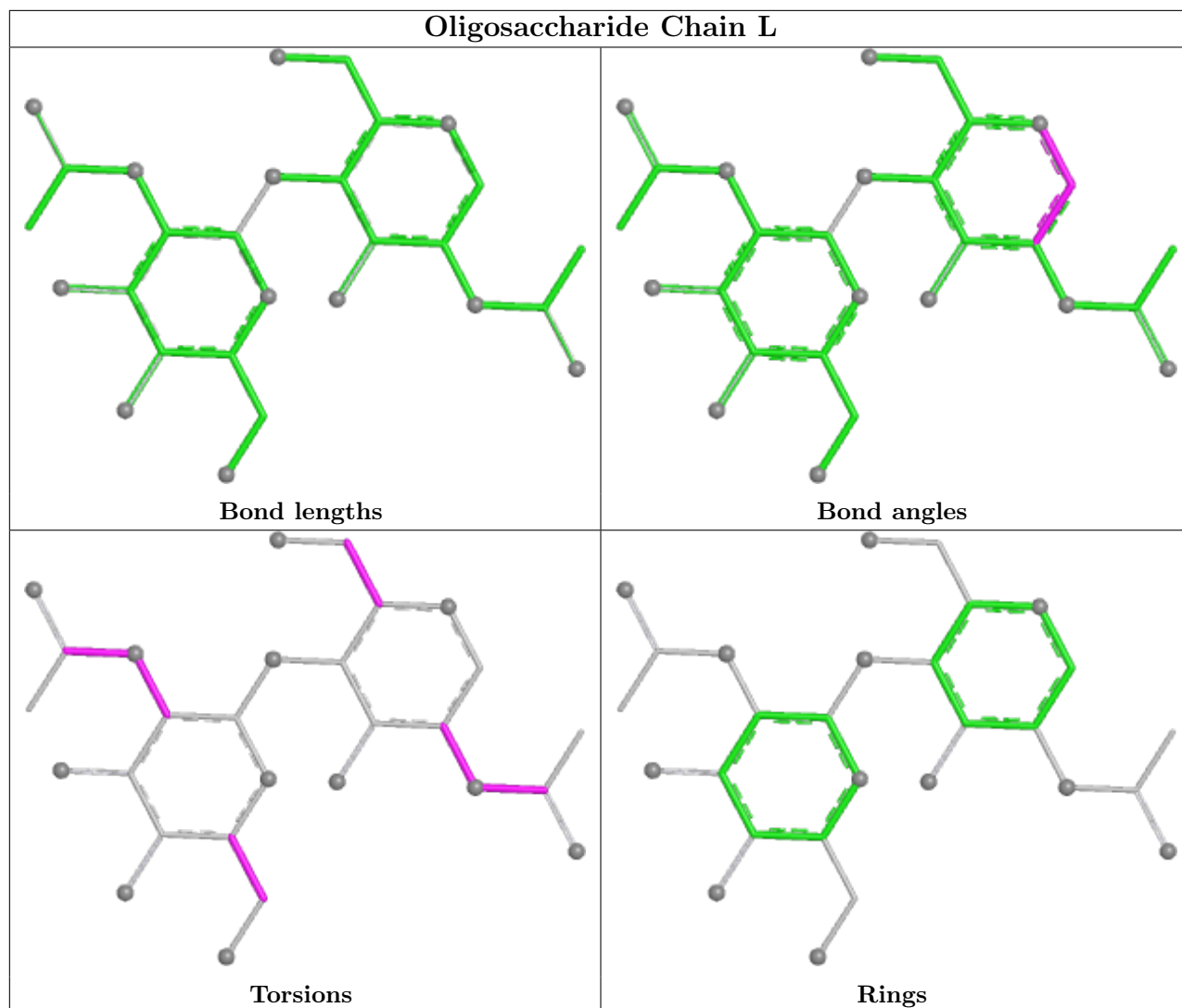












## 5.6 Ligand geometry [i](#)

20 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	NAG	A	2001	1	14,14,15	1.87	3 (21%)	17,19,21	1.12	2 (11%)
3	NAG	B	2005	1	14,14,15	1.91	5 (35%)	17,19,21	1.48	2 (11%)
3	NAG	D	2002	1	14,14,15	1.93	3 (21%)	17,19,21	1.07	1 (5%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	NAG	C	2004	1	14,14,15	1.85	3 (21%)	17,19,21	1.52	3 (17%)
3	NAG	A	2004	1	14,14,15	1.85	3 (21%)	17,19,21	1.52	3 (17%)
3	NAG	C	2005	1	14,14,15	1.75	2 (14%)	17,19,21	1.54	4 (23%)
3	NAG	D	2004	1	14,14,15	1.78	3 (21%)	17,19,21	1.34	1 (5%)
3	NAG	C	2003	1	14,14,15	1.93	4 (28%)	17,19,21	1.97	4 (23%)
3	NAG	C	2002	1	14,14,15	1.96	4 (28%)	17,19,21	1.15	2 (11%)
3	NAG	B	2003	1	14,14,15	1.82	3 (21%)	17,19,21	1.12	1 (5%)
3	NAG	A	2002	1	14,14,15	1.96	4 (28%)	17,19,21	1.15	2 (11%)
3	NAG	A	2005	1	14,14,15	1.75	2 (14%)	17,19,21	1.54	4 (23%)
3	NAG	D	2001	1	14,14,15	2.09	4 (28%)	17,19,21	2.01	5 (29%)
3	NAG	D	2005	1	14,14,15	1.91	5 (35%)	17,19,21	1.48	2 (11%)
3	NAG	A	2003	1	14,14,15	1.93	4 (28%)	17,19,21	1.97	4 (23%)
3	NAG	D	2003	1	14,14,15	1.82	3 (21%)	17,19,21	1.12	1 (5%)
3	NAG	B	2002	1	14,14,15	1.93	3 (21%)	17,19,21	1.07	1 (5%)
3	NAG	B	2001	1	14,14,15	2.09	4 (28%)	17,19,21	2.01	5 (29%)
3	NAG	B	2004	1	14,14,15	1.78	3 (21%)	17,19,21	1.34	1 (5%)
3	NAG	C	2001	1	14,14,15	0.37	0	17,19,21	0.69	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	A	2001	1	-	3/6/23/26	0/1/1/1
3	NAG	B	2005	1	-	3/6/23/26	0/1/1/1
3	NAG	D	2002	1	-	2/6/23/26	0/1/1/1
3	NAG	C	2004	1	-	2/6/23/26	0/1/1/1
3	NAG	A	2004	1	-	2/6/23/26	0/1/1/1
3	NAG	C	2005	1	-	3/6/23/26	0/1/1/1
3	NAG	D	2004	1	-	2/6/23/26	0/1/1/1
3	NAG	C	2003	1	-	4/6/23/26	0/1/1/1
3	NAG	C	2002	1	-	2/6/23/26	0/1/1/1
3	NAG	B	2003	1	-	1/6/23/26	0/1/1/1
3	NAG	A	2002	1	-	2/6/23/26	0/1/1/1
3	NAG	A	2005	1	-	3/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	NAG	D	2001	1	-	3/6/23/26	0/1/1/1
3	NAG	D	2005	1	-	3/6/23/26	0/1/1/1
3	NAG	A	2003	1	-	4/6/23/26	0/1/1/1
3	NAG	D	2003	1	-	1/6/23/26	0/1/1/1
3	NAG	B	2002	1	-	2/6/23/26	0/1/1/1
3	NAG	B	2001	1	-	3/6/23/26	0/1/1/1
3	NAG	B	2004	1	-	2/6/23/26	0/1/1/1
3	NAG	C	2001	1	-	5/6/23/26	0/1/1/1

The worst 5 of 65 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	2001	NAG	O5-C1	4.61	1.51	1.43
3	D	2001	NAG	O5-C1	4.61	1.51	1.43
3	A	2002	NAG	O5-C1	4.61	1.51	1.43
3	C	2002	NAG	O5-C1	4.61	1.51	1.43
3	B	2002	NAG	O5-C1	4.41	1.50	1.43

The worst 5 of 48 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	2003	NAG	C8-C7-N2	5.61	125.60	116.10
3	B	2001	NAG	C8-C7-N2	5.61	125.60	116.10
3	C	2003	NAG	C8-C7-N2	5.61	125.60	116.10
3	D	2001	NAG	C8-C7-N2	5.61	125.60	116.10
3	B	2005	NAG	C8-C7-N2	3.75	122.45	116.10

There are no chirality outliers.

5 of 52 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2001	NAG	C4-C5-C6-O6
3	A	2001	NAG	O5-C5-C6-O6
3	A	2004	NAG	C1-C2-N2-C7
3	A	2005	NAG	C1-C2-N2-C7
3	C	2004	NAG	C1-C2-N2-C7

There are no ring outliers.

9 monomers are involved in 10 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	2004	NAG	1	0
3	A	2004	NAG	1	0
3	C	2005	NAG	1	0
3	D	2004	NAG	1	0
3	C	2002	NAG	2	0
3	A	2002	NAG	1	0
3	A	2005	NAG	1	0
3	B	2004	NAG	1	0
3	C	2001	NAG	1	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

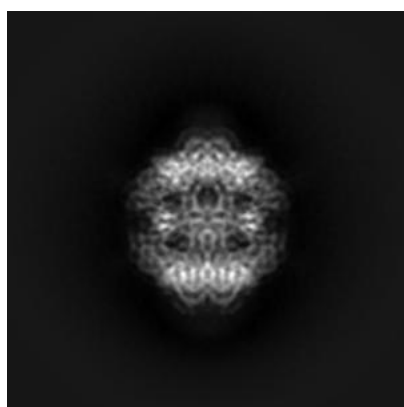
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-12752. These allow visual inspection of the internal detail of the map and identification of artifacts.

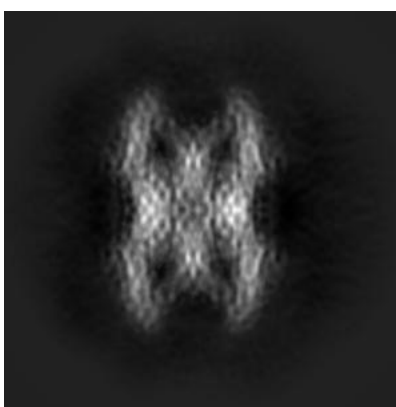
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

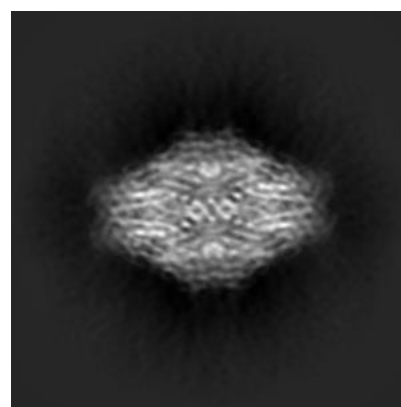
#### 6.1.1 Primary map



X



Y



Z

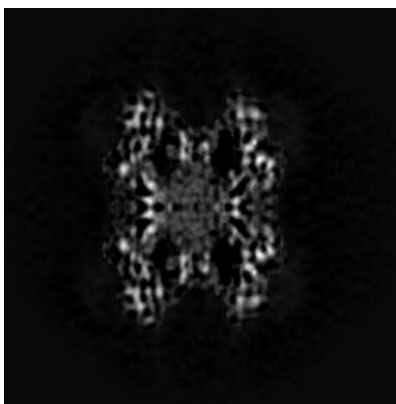
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

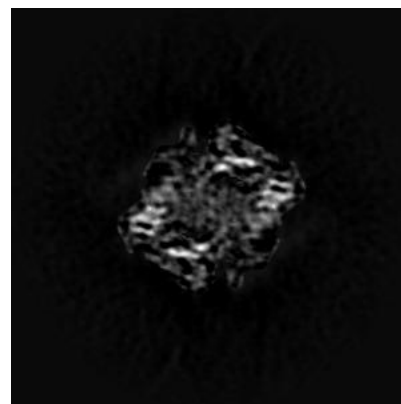
#### 6.2.1 Primary map



X Index: 160



Y Index: 160



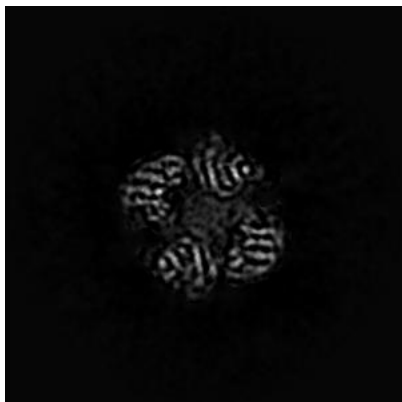
Z Index: 160



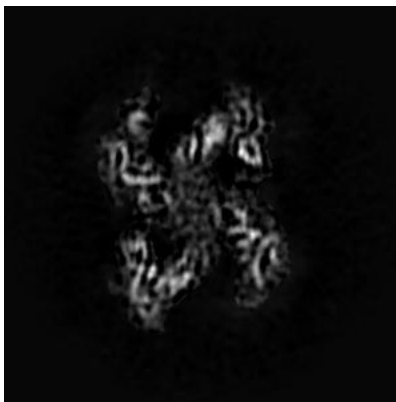
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

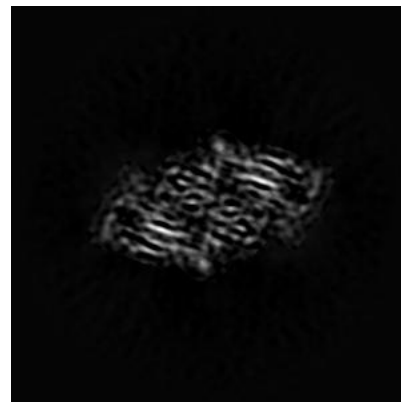
### 6.3.1 Primary map



X Index: 148



Y Index: 171

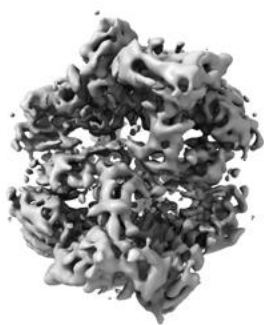


Z Index: 192

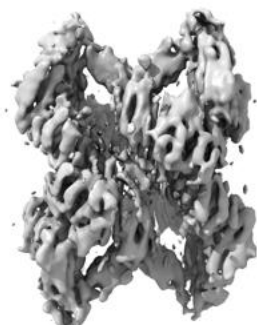
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

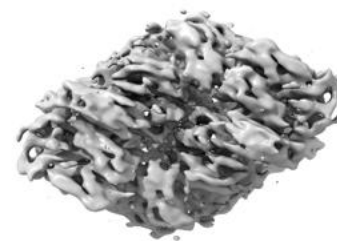
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0135. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

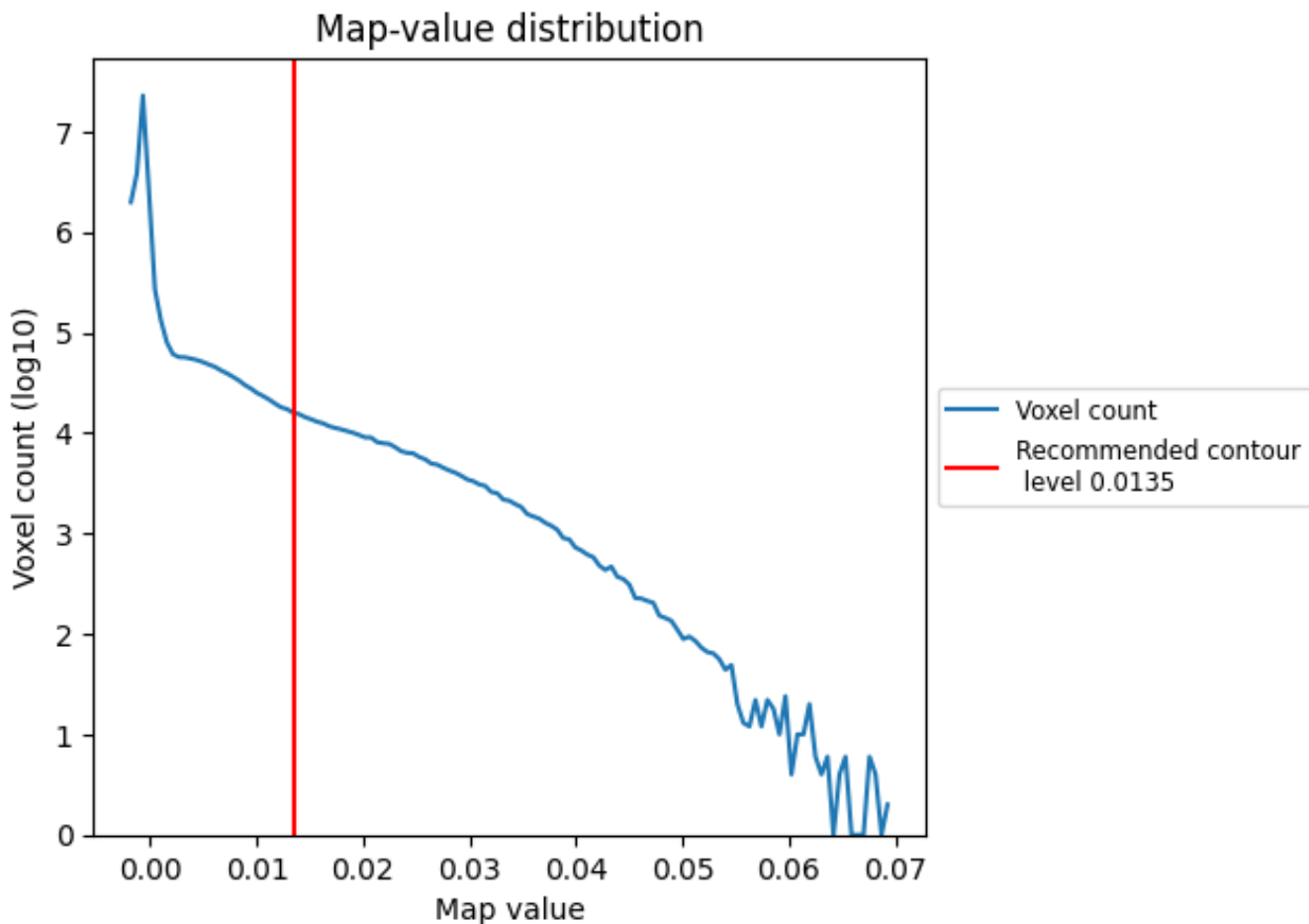
## 6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

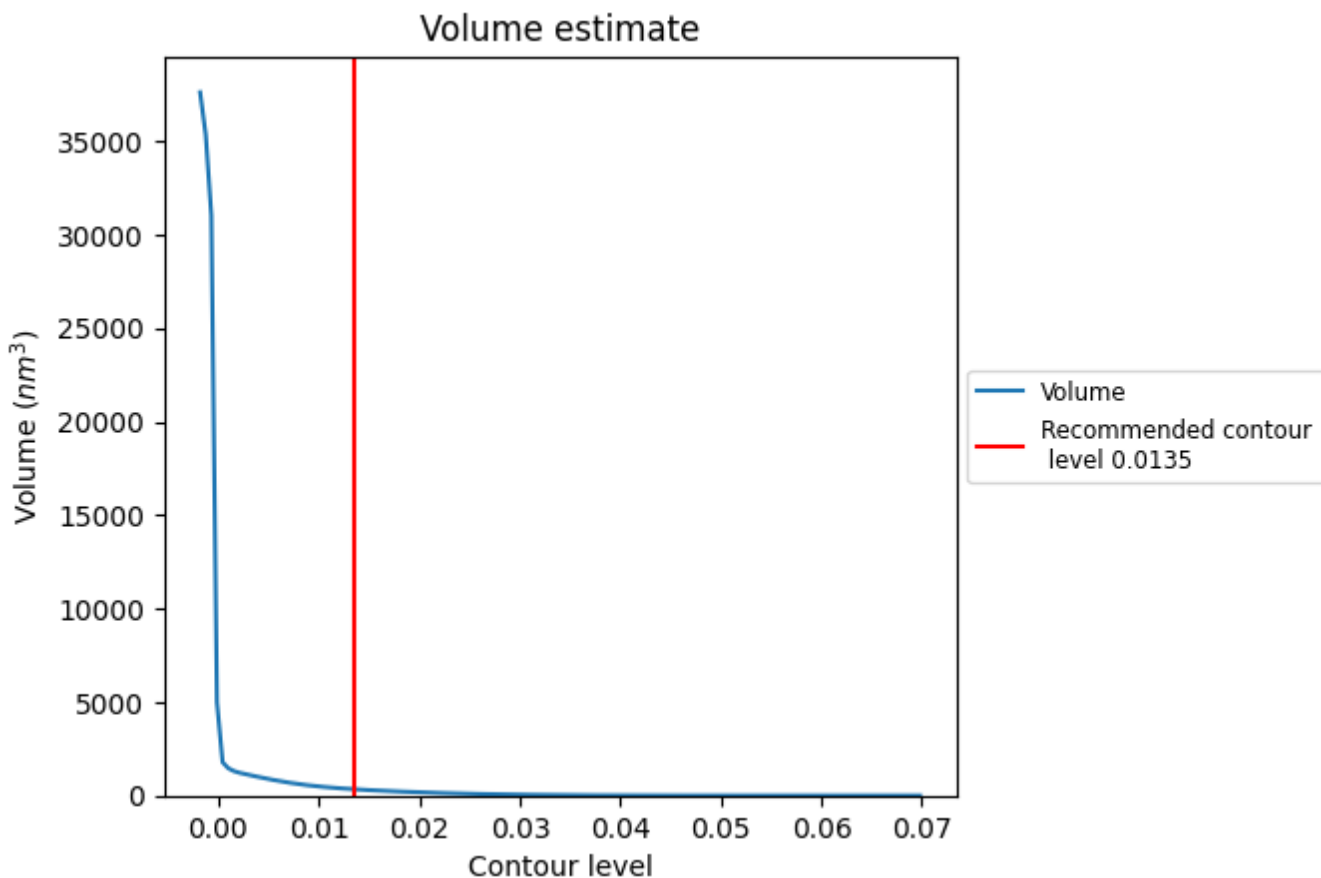
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

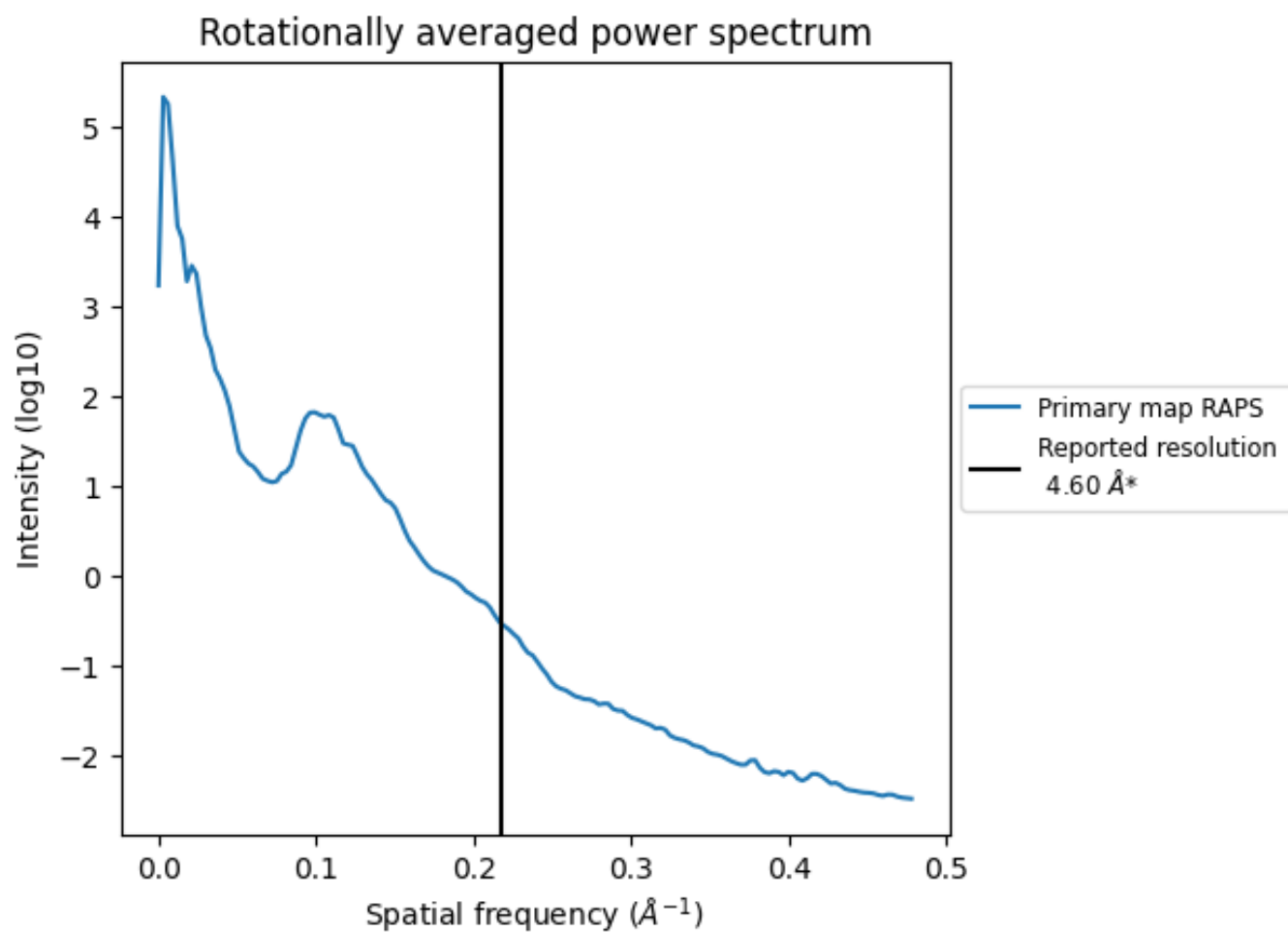
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 339  $\text{nm}^3$ ; this corresponds to an approximate mass of 306 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum [\(i\)](#)



\*Reported resolution corresponds to spatial frequency of  $0.217 \text{\AA}^{-1}$

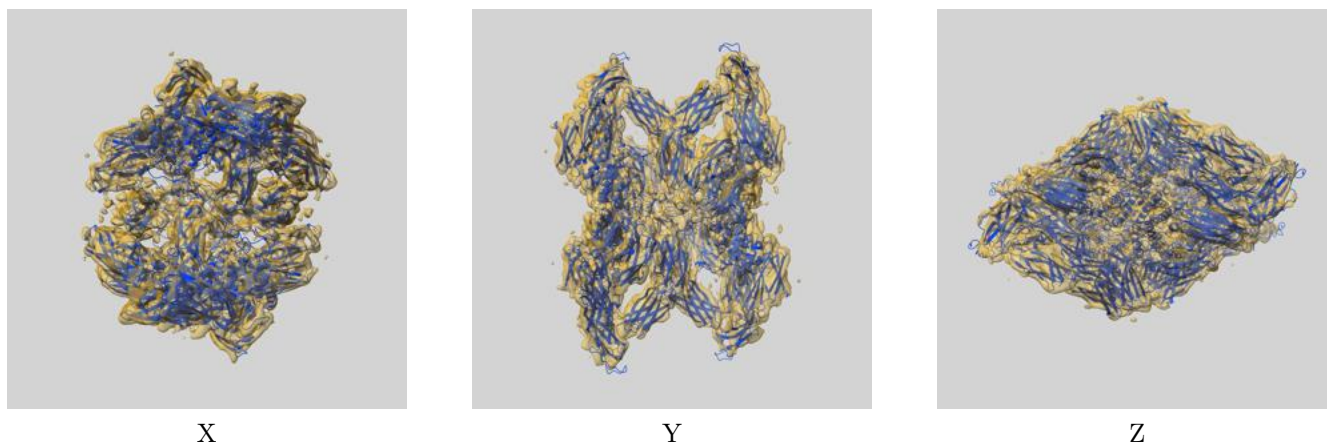
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

## 9 Map-model fit [i](#)

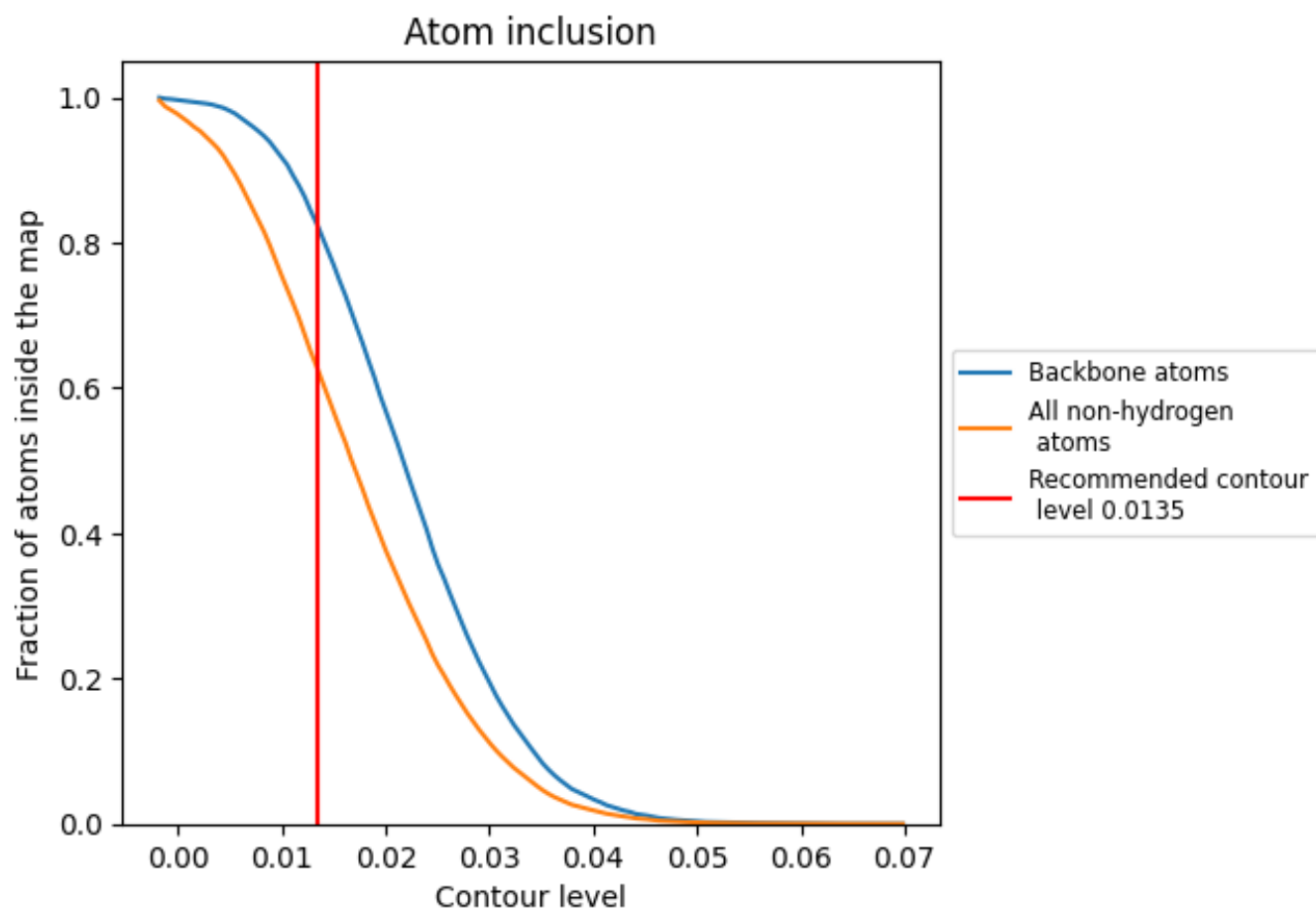
This section contains information regarding the fit between EMDB map EMD-12752 and PDB model 7O7P. Per-residue inclusion information can be found in section 3 on page 7.

### 9.1 Map-model overlay [i](#)



The images above show the 3D surface view of the map at the recommended contour level 0.0135 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Atom inclusion [i](#)



At the recommended contour level, 82% of all backbone atoms, 62% of all non-hydrogen atoms, are inside the map.