



Full wwPDB EM Validation Report ⓘ

Mar 6, 2026 – 06:40 PM UTC

PDB ID : 6UM7 / pdb_00006um7
EMDB ID : EMD-20819
Title : Cryo-EM structure of vaccine-elicited HIV-1 neutralizing antibody DH270.mu1
in complex with CH848 10.17DT Env
Authors : Acharya, P.; Henderson, R.C.; Saunders, K.; Haynes, B.F.
Deposited on : 2019-10-09
Resolution : 3.50 Å(reported)

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

We welcome your comments at 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.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

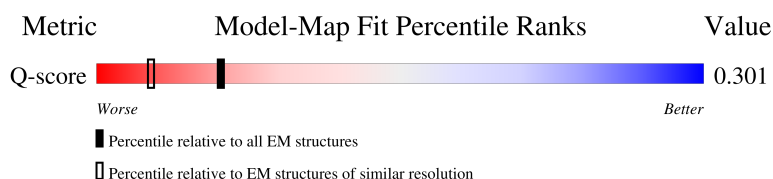
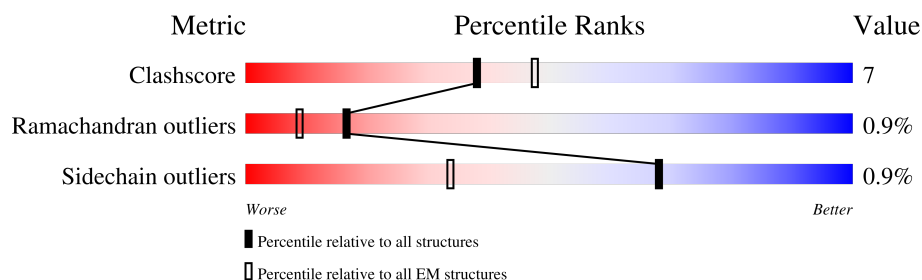
EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 3.50 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)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
Q-score	-	25397	13950 (3.00 - 4.00)

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 ≥ 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	463	21% 78% 18% ..
1	E	463	20% 78% 17% .
1	I	463	22% 78% 18% ..
2	1	161	18% 71% 9% . 18%

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Mol	Chain	Length	Quality of chain
2	D	161	
2	H	161	
3	B	251	
3	F	251	
3	J	251	
4	C	235	
4	G	235	
4	K	235	
5	L	3	
5	M	3	
5	O	3	
5	P	3	
5	Q	3	
5	R	3	
5	T	3	
5	U	3	
5	V	3	
5	W	3	
5	Y	3	
5	Z	3	
6	N	6	
6	S	6	
6	X	6	

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 20334 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 Envelope glycoprotein gp120.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	462	Total	C	N	O	S	0	0
			3613	2261	625	698	29		
1	E	462	Total	C	N	O	S	0	0
			3613	2261	625	698	29		
1	I	462	Total	C	N	O	S	0	0
			3613	2261	625	698	29		

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	31	ALA	-	expression tag	UNP A0A1W6IPB2
A	32	GLU	-	expression tag	UNP A0A1W6IPB2
A	33	ASN	-	expression tag	UNP A0A1W6IPB2
A	133	ASP	ASN	conflict	UNP A0A1W6IPB2
A	138	THR	ASN	conflict	UNP A0A1W6IPB2
A	201	CYS	VAL	conflict	UNP A0A1W6IPB2
A	433	CYS	ALA	conflict	UNP A0A1W6IPB2
A	490	LYS	GLU	conflict	UNP A0A1W6IPB2
A	492	GLU	GLN	conflict	UNP A0A1W6IPB2
A	496	VAL	ILE	conflict	UNP A0A1W6IPB2
A	500	ARG	GLY	conflict	UNP A0A1W6IPB2
A	501	CYS	ALA	conflict	UNP A0A1W6IPB2
E	31	ALA	-	expression tag	UNP A0A1W6IPB2
E	32	GLU	-	expression tag	UNP A0A1W6IPB2
E	33	ASN	-	expression tag	UNP A0A1W6IPB2
E	133	ASP	ASN	conflict	UNP A0A1W6IPB2
E	138	THR	ASN	conflict	UNP A0A1W6IPB2
E	201	CYS	VAL	conflict	UNP A0A1W6IPB2
E	433	CYS	ALA	conflict	UNP A0A1W6IPB2
E	490	LYS	GLU	conflict	UNP A0A1W6IPB2
E	492	GLU	GLN	conflict	UNP A0A1W6IPB2
E	496	VAL	ILE	conflict	UNP A0A1W6IPB2
E	500	ARG	GLY	conflict	UNP A0A1W6IPB2
E	501	CYS	ALA	conflict	UNP A0A1W6IPB2

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Chain	Residue	Modelled	Actual	Comment	Reference
I	31	ALA	-	expression tag	UNP A0A1W6IPB2
I	32	GLU	-	expression tag	UNP A0A1W6IPB2
I	33	ASN	-	expression tag	UNP A0A1W6IPB2
I	133	ASP	ASN	conflict	UNP A0A1W6IPB2
I	138	THR	ASN	conflict	UNP A0A1W6IPB2
I	201	CYS	VAL	conflict	UNP A0A1W6IPB2
I	433	CYS	ALA	conflict	UNP A0A1W6IPB2
I	490	LYS	GLU	conflict	UNP A0A1W6IPB2
I	492	GLU	GLN	conflict	UNP A0A1W6IPB2
I	496	VAL	ILE	conflict	UNP A0A1W6IPB2
I	500	ARG	GLY	conflict	UNP A0A1W6IPB2
I	501	CYS	ALA	conflict	UNP A0A1W6IPB2

- Molecule 2 is a protein called Envelope glycoprotein gp41.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	H	132	Total	C	N	O	S	0	0
			1034	654	178	196	6		
2	D	132	Total	C	N	O	S	0	0
			1034	654	178	196	6		
2	1	132	Total	C	N	O	S	0	0
			1034	654	178	196	6		

There are 27 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
H	504	VAL	-	expression tag	UNP Q2N0S7
H	505	GLY	-	expression tag	UNP Q2N0S7
H	506	ARG	-	expression tag	UNP Q2N0S7
H	507	ARG	-	expression tag	UNP Q2N0S7
H	508	ARG	-	expression tag	UNP Q2N0S7
H	509	ARG	-	expression tag	UNP Q2N0S7
H	510	ARG	-	expression tag	UNP Q2N0S7
H	559	PRO	ILE	conflict	UNP Q2N0S7
H	605	CYS	THR	conflict	UNP Q2N0S7
D	504	VAL	-	expression tag	UNP Q2N0S7
D	505	GLY	-	expression tag	UNP Q2N0S7
D	506	ARG	-	expression tag	UNP Q2N0S7
D	507	ARG	-	expression tag	UNP Q2N0S7
D	508	ARG	-	expression tag	UNP Q2N0S7
D	509	ARG	-	expression tag	UNP Q2N0S7
D	510	ARG	-	expression tag	UNP Q2N0S7

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Chain	Residue	Modelled	Actual	Comment	Reference
D	559	PRO	ILE	conflict	UNP Q2N0S7
D	605	CYS	THR	conflict	UNP Q2N0S7
1	504	VAL	-	expression tag	UNP Q2N0S7
1	505	GLY	-	expression tag	UNP Q2N0S7
1	506	ARG	-	expression tag	UNP Q2N0S7
1	507	ARG	-	expression tag	UNP Q2N0S7
1	508	ARG	-	expression tag	UNP Q2N0S7
1	509	ARG	-	expression tag	UNP Q2N0S7
1	510	ARG	-	expression tag	UNP Q2N0S7
1	559	PRO	ILE	conflict	UNP Q2N0S7
1	605	CYS	THR	conflict	UNP Q2N0S7

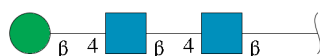
- Molecule 3 is a protein called DH270.mu1 Fab Heavy Chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	J	126	Total	C	N	O	S	0	0
			991	622	172	192	5		
3	F	126	Total	C	N	O	S	0	0
			991	622	172	192	5		
3	B	126	Total	C	N	O	S	0	0
			991	622	172	192	5		

- Molecule 4 is a protein called DH270.mu1 Fab Light chain.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	K	110	Total	C	N	O	S	0	0
			800	500	132	163	5		
4	G	110	Total	C	N	O	S	0	0
			800	500	132	163	5		
4	C	110	Total	C	N	O	S	0	0
			800	500	132	163	5		

- Molecule 5 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



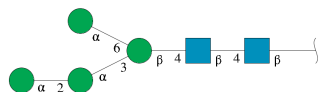
Mol	Chain	Residues	Atoms				AltConf	Trace
5	L	3	Total	C	N	O	0	0
			39	22	2	15		

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Mol	Chain	Residues	Atoms				AltConf	Trace
5	M	3	Total	C	N	O	0	0
			39	22	2	15		
5	O	3	Total	C	N	O	0	0
			39	22	2	15		
5	P	3	Total	C	N	O	0	0
			39	22	2	15		
5	Q	3	Total	C	N	O	0	0
			39	22	2	15		
5	R	3	Total	C	N	O	0	0
			39	22	2	15		
5	T	3	Total	C	N	O	0	0
			39	22	2	15		
5	U	3	Total	C	N	O	0	0
			39	22	2	15		
5	V	3	Total	C	N	O	0	0
			39	22	2	15		
5	W	3	Total	C	N	O	0	0
			39	22	2	15		
5	Y	3	Total	C	N	O	0	0
			39	22	2	15		
5	Z	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 6 is an oligosaccharide called alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[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				AltConf	Trace
6	N	6	Total	C	N	O	0	0
			72	40	2	30		
6	S	6	Total	C	N	O	0	0
			72	40	2	30		
6	X	6	Total	C	N	O	0	0
			72	40	2	30		

- Molecule 7 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				AltConf
7	A	1	Total	C	N	O	0
			14	8	1	5	
7	A	1	Total	C	N	O	0
			14	8	1	5	
7	A	1	Total	C	N	O	0
			14	8	1	5	
7	A	1	Total	C	N	O	0
			14	8	1	5	
7	A	1	Total	C	N	O	0
			14	8	1	5	
7	A	1	Total	C	N	O	0
			14	8	1	5	
7	A	1	Total	C	N	O	0
			14	8	1	5	
7	E	1	Total	C	N	O	0
			14	8	1	5	
7	E	1	Total	C	N	O	0
			14	8	1	5	
7	E	1	Total	C	N	O	0
			14	8	1	5	
7	E	1	Total	C	N	O	0
			14	8	1	5	
7	E	1	Total	C	N	O	0
			14	8	1	5	

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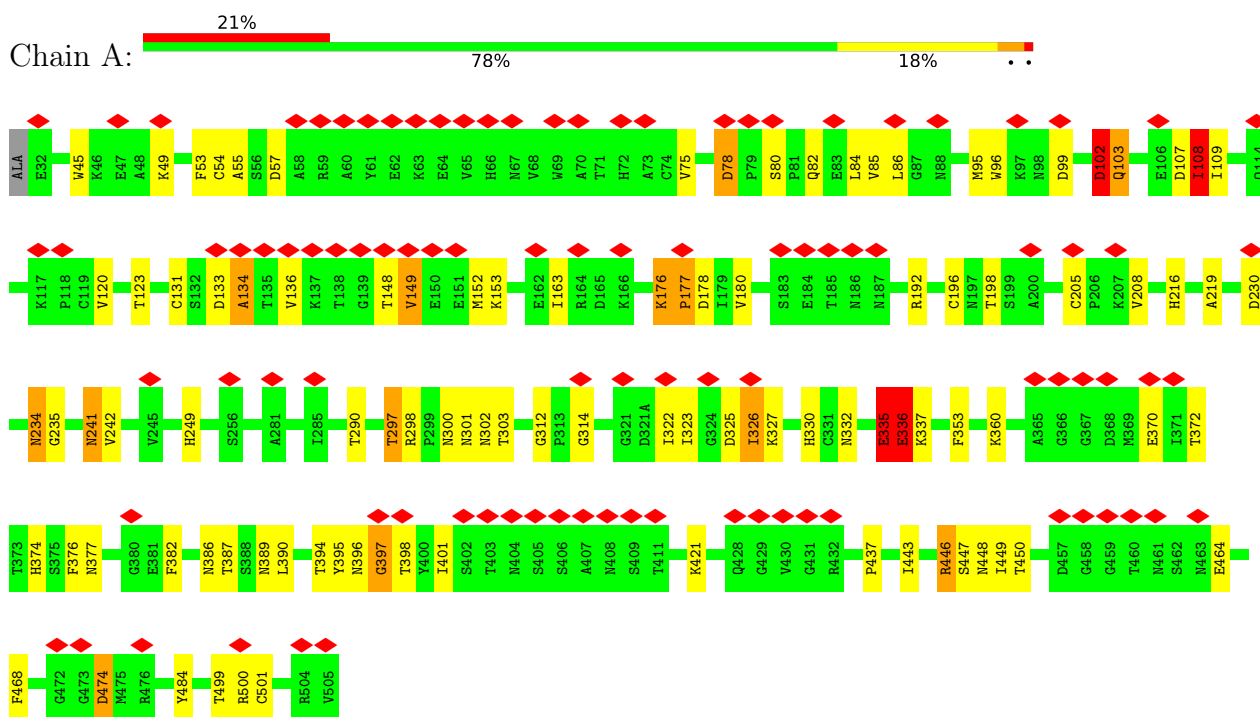
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Mol	Chain	Residues	Atoms				AltConf
7	E	1	Total 14	C 8	N 1	O 5	0
7	E	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0
7	I	1	Total 14	C 8	N 1	O 5	0

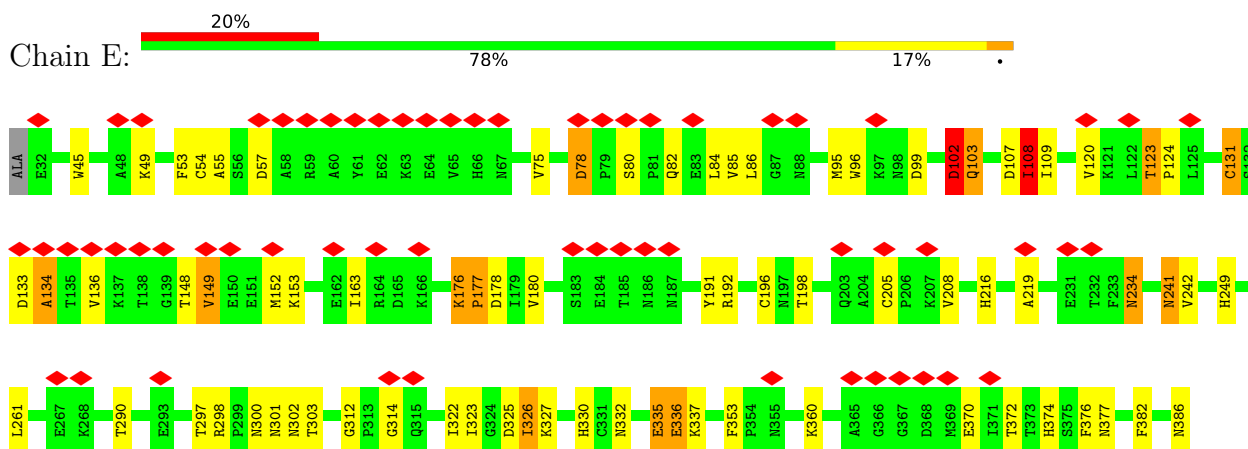
3 Residue-property plots [i](#)

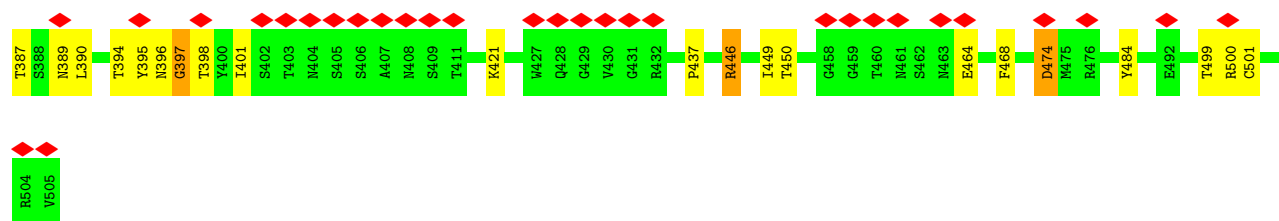
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion 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: Envelope glycoprotein gp120

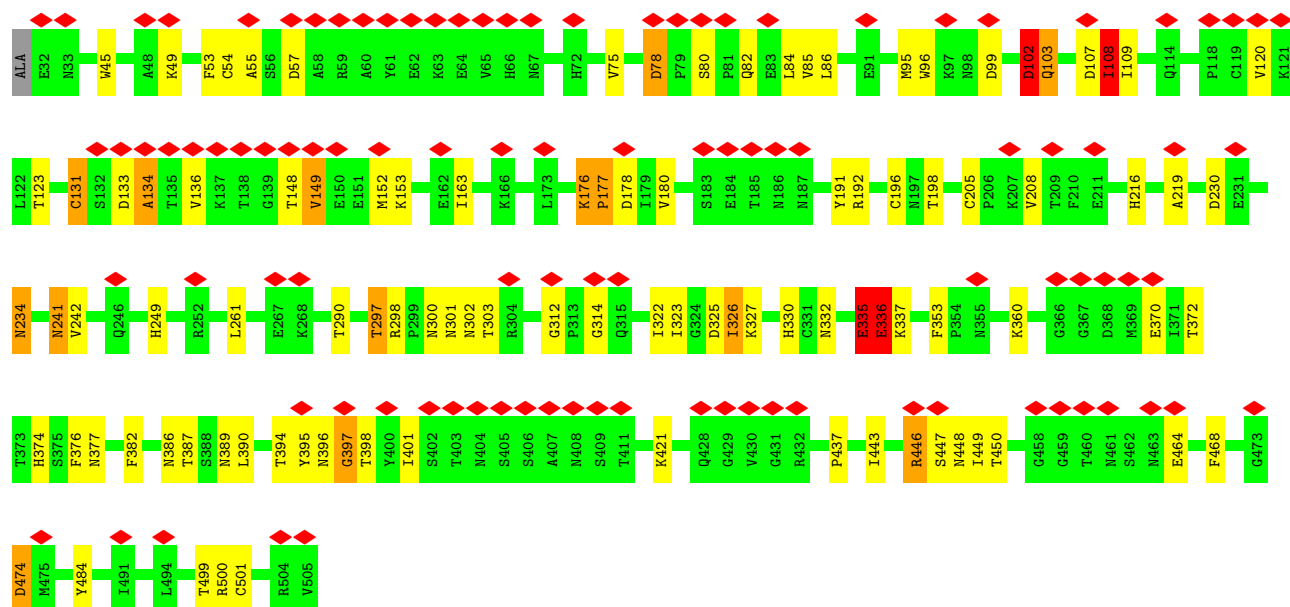
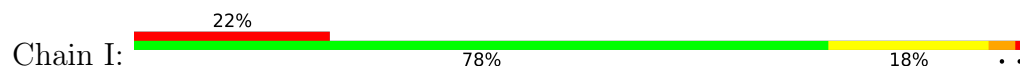


- Molecule 1: Envelope glycoprotein gp120

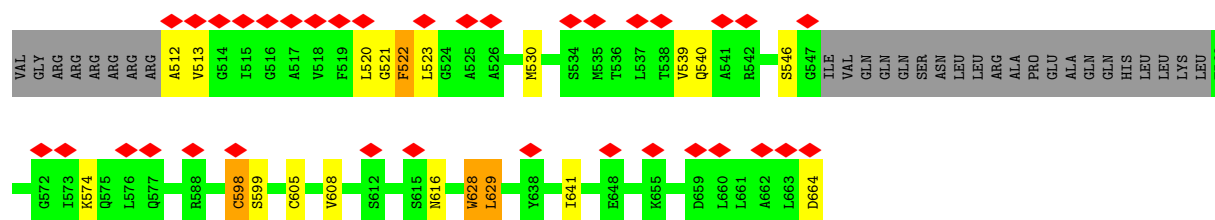




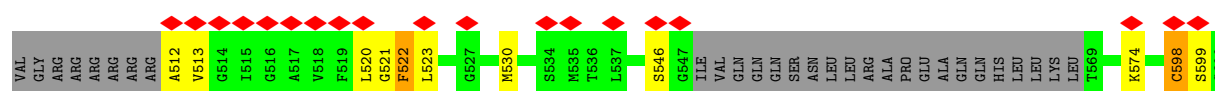
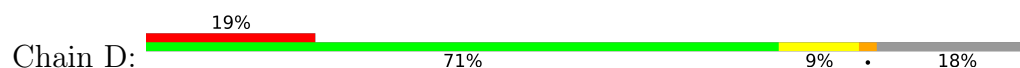
• Molecule 1: Envelope glycoprotein gp120

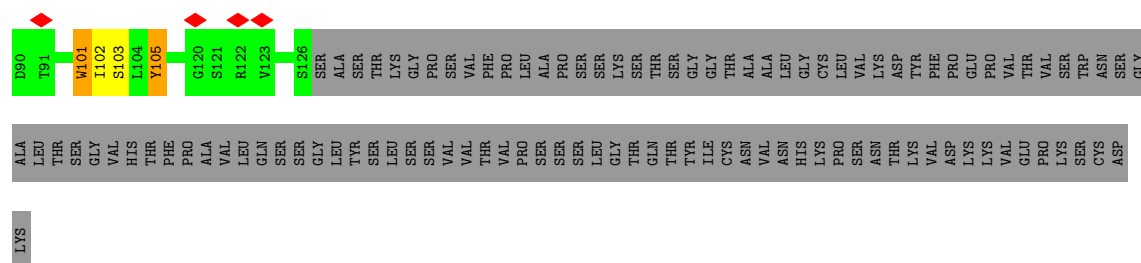


• Molecule 2: Envelope glycoprotein gp41

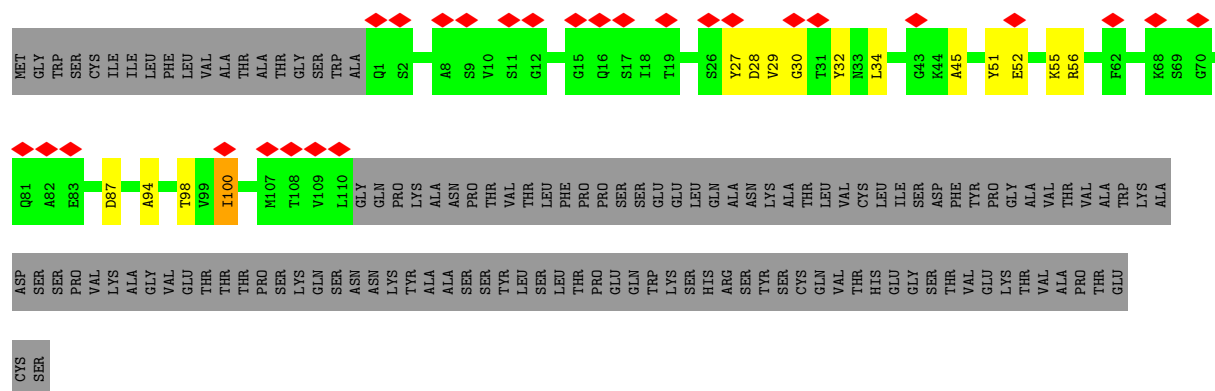
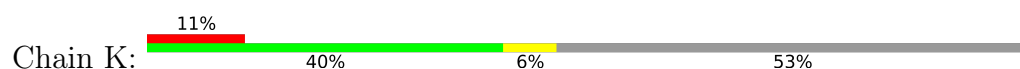


• Molecule 2: Envelope glycoprotein gp41

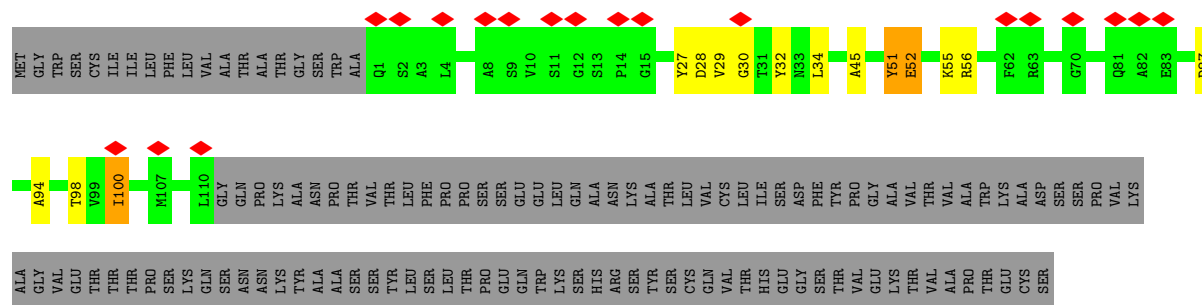
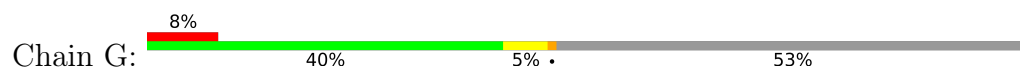




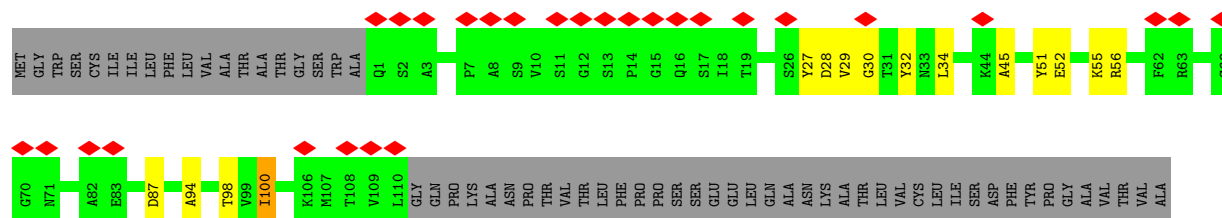
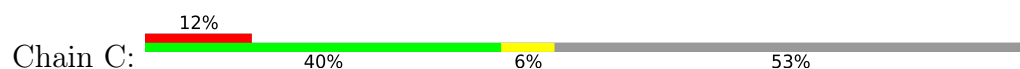
• Molecule 4: DH270.mu1 Fab Light chain



• Molecule 4: DH270.mu1 Fab Light chain



• Molecule 4: DH270.mu1 Fab Light chain



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

PRO
THR
GLU
CYS
SER

- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



NAG1
NAG2
BMA3

- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



NAG1
NAG2
BMA3

- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



NAG1
NAG2
BMA3

- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



NAG1
NAG2
BMA3

- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



NAG1
NAG2
BMA3

- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



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- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 5: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain Z:  67% 100%



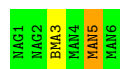
- Molecule 6: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:  67% 33%



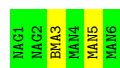
- Molecule 6: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[alpha-D-mannopyranose-(1-6)]beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:  67% 17% 17%



- Molecule 6: alpha-D-mannopyranose-(1-2)-alpha-D-mannopyranose-(1-3)-[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 X:  67% 33%



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	168065	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	3.720	Depositor
Minimum map value	-0.516	Depositor
Average map value	0.009	Depositor
Map value standard deviation	0.141	Depositor
Recommended contour level	1.18	Depositor
Map size ($\text{\AA}$)	342.40002, 342.40002, 342.40002	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	1.07, 1.07, 1.07	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: BMA, MAN, 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	1.09	2/3690 (0.1%)	1.49	61/5021 (1.2%)
1	E	1.09	2/3690 (0.1%)	1.49	60/5021 (1.2%)
1	I	1.09	2/3690 (0.1%)	1.49	61/5021 (1.2%)
2	1	1.06	0/1052	1.50	16/1427 (1.1%)
2	D	1.06	0/1052	1.50	16/1427 (1.1%)
2	H	1.06	0/1052	1.50	16/1427 (1.1%)
3	B	1.00	0/1017	1.56	10/1382 (0.7%)
3	F	1.00	0/1017	1.56	10/1382 (0.7%)
3	J	1.00	0/1017	1.56	10/1382 (0.7%)
4	C	0.97	0/817	1.46	12/1108 (1.1%)
4	G	0.97	0/817	1.46	12/1108 (1.1%)
4	K	0.97	0/817	1.46	12/1108 (1.1%)
All	All	1.06	6/19728 (0.0%)	1.50	296/26814 (1.1%)

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	6
1	E	0	6
1	I	0	6
2	1	0	2
2	D	0	2
2	H	0	2
3	B	0	1
3	F	0	1
3	J	0	1
All	All	0	27

All (6) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	I	177	PRO	N-CD	15.43	1.69	1.47
1	A	177	PRO	N-CD	15.42	1.69	1.47
1	E	177	PRO	N-CD	15.42	1.69	1.47
1	A	374	HIS	CB-CG	-8.06	1.38	1.50
1	E	374	HIS	CB-CG	-7.93	1.39	1.50
1	I	374	HIS	CB-CG	-7.92	1.39	1.50

All (296) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	F	84	SER	CA-C-N	20.45	152.73	122.68
3	F	84	SER	C-N-CA	20.45	152.73	122.68
3	B	84	SER	CA-C-N	20.37	152.62	122.68
3	B	84	SER	C-N-CA	20.37	152.62	122.68
3	J	84	SER	CA-C-N	20.36	152.62	122.68
3	J	84	SER	C-N-CA	20.36	152.62	122.68
2	1	546	SER	CA-C-N	18.58	155.14	121.70
2	1	546	SER	C-N-CA	18.58	155.14	121.70
2	D	546	SER	CA-C-N	18.54	155.07	121.70
2	D	546	SER	C-N-CA	18.54	155.07	121.70
2	H	546	SER	CA-C-N	18.50	155.00	121.70
2	H	546	SER	C-N-CA	18.50	155.00	121.70
1	E	134	ALA	CA-C-N	15.41	151.07	121.63
1	E	134	ALA	C-N-CA	15.41	151.07	121.63
1	I	134	ALA	CA-C-N	15.37	150.89	121.54
1	I	134	ALA	C-N-CA	15.37	150.89	121.54
1	A	134	ALA	CA-C-N	15.32	150.90	121.63
1	A	134	ALA	C-N-CA	15.32	150.90	121.63
2	D	512	ALA	CA-C-N	9.14	138.15	121.70
2	D	512	ALA	C-N-CA	9.14	138.15	121.70
2	1	512	ALA	CA-C-N	9.09	138.06	121.70
2	1	512	ALA	C-N-CA	9.09	138.06	121.70
2	H	512	ALA	CA-C-N	9.06	138.01	121.70
2	H	512	ALA	C-N-CA	9.06	138.01	121.70
2	H	520	LEU	N-CA-C	-8.76	101.81	111.36
2	1	520	LEU	N-CA-C	-8.75	101.82	111.36
2	D	520	LEU	N-CA-C	-8.72	101.86	111.36
1	I	446	ARG	CA-C-O	-8.46	111.99	121.89
1	A	446	ARG	CA-C-O	-8.46	112.00	121.89
1	E	446	ARG	CA-C-O	-8.43	112.03	121.89
4	C	28	ASP	CA-C-N	-8.40	114.51	122.66
4	C	28	ASP	C-N-CA	-8.40	114.51	122.66

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	K	28	ASP	CA-C-N	-8.39	114.52	122.66
4	K	28	ASP	C-N-CA	-8.39	114.52	122.66
4	G	28	ASP	CA-C-N	-8.38	114.53	122.66
4	G	28	ASP	C-N-CA	-8.38	114.53	122.66
1	E	103	GLN	N-CA-C	-8.25	101.55	111.69
2	H	521	GLY	N-CA-C	-8.24	100.05	112.41
1	I	103	GLN	N-CA-C	-8.24	101.55	111.69
1	A	103	GLN	N-CA-C	-8.20	101.61	111.69
1	A	80	SER	CA-C-N	8.18	128.20	119.78
1	A	80	SER	C-N-CA	8.18	128.20	119.78
2	1	521	GLY	N-CA-C	-8.17	100.15	112.41
2	D	521	GLY	N-CA-C	-8.14	100.20	112.41
1	I	80	SER	CA-C-N	8.14	128.16	119.78
1	I	80	SER	C-N-CA	8.14	128.16	119.78
1	E	80	SER	CA-C-N	8.13	128.15	119.78
1	E	80	SER	C-N-CA	8.13	128.15	119.78
2	D	629	LEU	N-CA-C	-8.10	101.72	111.69
2	H	629	LEU	N-CA-C	-8.02	101.83	111.69
2	1	629	LEU	N-CA-C	-8.01	101.83	111.69
1	A	54	CYS	CA-C-N	7.63	135.44	121.70
1	A	54	CYS	C-N-CA	7.63	135.44	121.70
1	I	54	CYS	CA-C-N	7.60	135.37	121.70
1	I	54	CYS	C-N-CA	7.60	135.37	121.70
1	E	54	CYS	CA-C-N	7.57	135.33	121.70
1	E	54	CYS	C-N-CA	7.57	135.33	121.70
4	K	56	ARG	CA-C-N	7.57	127.49	119.85
4	K	56	ARG	C-N-CA	7.57	127.49	119.85
4	C	56	ARG	CA-C-N	7.55	127.47	119.85
4	C	56	ARG	C-N-CA	7.55	127.47	119.85
4	G	56	ARG	CA-C-N	7.54	127.46	119.85
4	G	56	ARG	C-N-CA	7.54	127.46	119.85
1	A	353	PHE	CA-C-N	7.23	127.15	119.85
1	A	353	PHE	C-N-CA	7.23	127.15	119.85
1	I	353	PHE	CA-C-N	7.18	127.11	119.85
1	I	353	PHE	C-N-CA	7.18	127.11	119.85
1	E	353	PHE	CA-C-N	7.16	127.08	119.85
1	E	353	PHE	C-N-CA	7.16	127.08	119.85
1	E	312	GLY	CA-C-N	7.08	127.25	120.31
1	E	312	GLY	C-N-CA	7.08	127.25	120.31
1	I	177	PRO	N-CA-C	7.03	124.01	113.81
1	A	177	PRO	N-CA-C	7.02	123.99	113.81
1	A	312	GLY	CA-C-N	7.02	127.19	120.31

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	312	GLY	C-N-CA	7.02	127.19	120.31
1	E	177	PRO	N-CA-C	7.01	123.97	113.81
1	I	312	GLY	CA-C-N	7.01	127.18	120.31
1	I	312	GLY	C-N-CA	7.01	127.18	120.31
1	I	108	ILE	CA-C-O	-6.93	113.75	120.95
1	E	108	ILE	CA-C-O	-6.92	113.76	120.95
1	A	108	ILE	CA-C-O	-6.91	113.77	120.95
3	B	105	TYR	CB-CA-C	-6.91	95.53	109.55
3	F	105	TYR	CB-CA-C	-6.90	95.55	109.55
1	A	386	ASN	CA-C-N	6.89	129.52	120.28
1	A	386	ASN	C-N-CA	6.89	129.52	120.28
1	I	386	ASN	CA-C-N	6.86	129.47	120.28
1	I	386	ASN	C-N-CA	6.86	129.47	120.28
3	J	105	TYR	CB-CA-C	-6.86	95.63	109.55
1	E	386	ASN	CA-C-N	6.84	129.44	120.28
1	E	386	ASN	C-N-CA	6.84	129.44	120.28
1	A	205	CYS	CA-C-N	6.79	126.48	119.56
1	A	205	CYS	C-N-CA	6.79	126.48	119.56
3	B	49	GLY	CA-C-N	6.78	130.50	120.87
3	B	49	GLY	C-N-CA	6.78	130.50	120.87
1	E	219	ALA	CA-C-N	6.75	126.71	120.03
1	E	219	ALA	C-N-CA	6.75	126.71	120.03
1	A	219	ALA	CA-C-N	6.73	126.69	120.03
1	A	219	ALA	C-N-CA	6.73	126.69	120.03
1	I	205	CYS	CA-C-N	6.72	126.41	119.56
1	I	205	CYS	C-N-CA	6.72	126.41	119.56
1	I	219	ALA	CA-C-N	6.71	126.67	120.03
1	I	219	ALA	C-N-CA	6.71	126.67	120.03
3	F	49	GLY	CA-C-N	6.71	130.39	120.87
3	F	49	GLY	C-N-CA	6.71	130.39	120.87
1	E	205	CYS	CA-C-N	6.69	126.38	119.56
1	E	205	CYS	C-N-CA	6.69	126.38	119.56
3	J	49	GLY	CA-C-N	6.65	130.31	120.87
3	J	49	GLY	C-N-CA	6.65	130.31	120.87
1	E	298	ARG	CA-C-N	6.50	126.08	119.19
1	E	298	ARG	C-N-CA	6.50	126.08	119.19
1	A	75	VAL	CA-C-N	6.49	126.25	119.76
1	A	75	VAL	C-N-CA	6.49	126.25	119.76
1	I	75	VAL	CA-C-N	6.47	126.23	119.76
1	I	75	VAL	C-N-CA	6.47	126.23	119.76
1	A	298	ARG	CA-C-N	6.45	126.03	119.19
1	A	298	ARG	C-N-CA	6.45	126.03	119.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	75	VAL	CA-C-N	6.45	126.21	119.76
1	E	75	VAL	C-N-CA	6.45	126.21	119.76
1	A	108	ILE	CA-C-N	-6.43	112.33	120.56
1	A	108	ILE	C-N-CA	-6.43	112.33	120.56
1	I	108	ILE	CA-C-N	-6.41	112.35	120.56
1	I	108	ILE	C-N-CA	-6.41	112.35	120.56
1	E	108	ILE	CA-C-N	-6.41	112.36	120.56
1	E	108	ILE	C-N-CA	-6.41	112.36	120.56
4	C	87	ASP	CA-CB-CG	6.38	118.98	112.60
1	I	298	ARG	CA-C-N	6.37	125.94	119.19
1	I	298	ARG	C-N-CA	6.37	125.94	119.19
4	G	87	ASP	CA-CB-CG	6.31	118.91	112.60
1	E	120	VAL	N-CA-C	6.23	122.31	109.34
4	K	87	ASP	CA-CB-CG	6.23	118.83	112.60
1	I	120	VAL	N-CA-C	6.22	122.28	109.34
4	K	30	GLY	N-CA-C	-6.21	105.28	112.73
4	C	30	GLY	N-CA-C	-6.20	105.29	112.73
4	G	30	GLY	N-CA-C	-6.19	105.30	112.73
1	I	446	ARG	N-CA-C	-6.18	101.63	110.59
1	A	120	VAL	N-CA-C	6.18	122.19	109.34
1	E	336	GLU	CA-C-O	-6.18	113.96	120.63
1	I	336	GLU	CA-C-O	-6.17	113.97	120.63
1	A	336	GLU	CA-C-O	-6.15	113.98	120.63
1	A	446	ARG	N-CA-C	-6.12	101.72	110.59
1	I	464	GLU	N-CA-C	-6.09	105.38	114.64
1	A	446	ARG	O-C-N	-6.09	115.56	122.68
1	E	464	GLU	N-CA-C	-6.09	105.38	114.64
1	E	446	ARG	N-CA-C	-6.08	101.77	110.59
1	A	464	GLU	N-CA-C	-6.07	105.42	114.64
1	I	446	ARG	O-C-N	-6.06	115.59	122.68
2	D	641	ILE	N-CA-C	-5.99	104.90	110.53
2	H	641	ILE	N-CA-C	-5.98	104.91	110.53
1	E	446	ARG	O-C-N	-5.96	115.70	122.68
1	A	131	CYS	N-CA-C	5.91	117.76	108.96
1	E	149	VAL	N-CA-C	-5.90	107.06	112.96
1	I	131	CYS	N-CA-C	5.89	117.73	108.96
2	1	641	ILE	N-CA-C	-5.88	105.00	110.53
1	E	131	CYS	N-CA-C	5.85	117.67	108.96
1	A	149	VAL	N-CA-C	-5.84	107.12	112.96
1	I	149	VAL	N-CA-C	-5.82	107.14	112.96
2	D	598	CYS	CA-C-N	5.79	132.12	121.70
2	D	598	CYS	C-N-CA	5.79	132.12	121.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	521	GLY	CA-C-N	-5.79	113.59	122.62
2	H	521	GLY	C-N-CA	-5.79	113.59	122.62
1	E	78	ASP	CA-C-N	5.78	125.69	119.85
1	E	78	ASP	C-N-CA	5.78	125.69	119.85
2	D	521	GLY	CA-C-N	-5.77	113.62	122.62
2	D	521	GLY	C-N-CA	-5.77	113.62	122.62
1	E	241	ASN	CB-CA-C	5.77	120.40	110.77
2	H	598	CYS	CA-C-N	5.76	132.07	121.70
2	H	598	CYS	C-N-CA	5.76	132.07	121.70
1	I	241	ASN	CB-CA-C	5.76	120.38	110.77
1	I	468	PHE	CA-CB-CG	-5.74	108.06	113.80
2	1	521	GLY	CA-C-N	-5.73	113.68	122.62
2	1	521	GLY	C-N-CA	-5.73	113.68	122.62
2	1	598	CYS	CA-C-N	5.73	132.02	121.70
2	1	598	CYS	C-N-CA	5.73	132.02	121.70
1	E	234	ASN	CB-CA-C	5.72	121.33	109.95
1	E	297	THR	N-CA-C	5.72	117.54	108.79
1	I	180	VAL	N-CA-CB	-5.71	106.32	112.37
1	A	78	ASP	CA-C-N	5.70	125.61	119.85
1	A	78	ASP	C-N-CA	5.70	125.61	119.85
1	A	241	ASN	CB-CA-C	5.70	120.30	110.77
1	I	234	ASN	CB-CA-C	5.70	121.29	109.95
1	A	53	PHE	N-CA-C	5.70	117.73	109.07
1	A	234	ASN	CB-CA-C	5.69	121.27	109.95
1	I	437	PRO	N-CA-C	-5.68	103.77	110.70
1	E	53	PHE	N-CA-C	5.67	117.68	109.07
1	I	53	PHE	N-CA-C	5.65	117.66	109.07
1	A	297	THR	N-CA-C	5.65	117.44	108.79
1	E	84	LEU	CA-C-N	5.65	131.87	121.70
1	E	84	LEU	C-N-CA	5.65	131.87	121.70
1	E	437	PRO	N-CA-C	-5.65	103.81	110.70
4	G	32	TYR	N-CA-C	5.64	118.42	109.50
1	A	437	PRO	N-CA-C	-5.64	103.82	110.70
1	E	337	LYS	N-CA-C	-5.63	105.14	112.23
1	E	468	PHE	CA-CB-CG	-5.62	108.18	113.80
1	A	382	PHE	CA-CB-CG	-5.61	108.19	113.80
1	I	78	ASP	CA-C-N	5.60	125.51	119.85
1	I	78	ASP	C-N-CA	5.60	125.51	119.85
4	G	51	TYR	CA-CB-CG	5.60	123.98	113.90
1	I	297	THR	N-CA-C	5.60	117.36	108.79
1	A	180	VAL	N-CA-CB	-5.60	106.43	112.37
4	K	32	TYR	N-CA-C	5.60	118.34	109.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	468	PHE	CA-CB-CG	-5.59	108.21	113.80
4	K	51	TYR	CA-CB-CG	5.59	123.97	113.90
1	A	84	LEU	CA-C-N	5.58	131.75	121.70
1	A	84	LEU	C-N-CA	5.58	131.75	121.70
4	C	32	TYR	N-CA-C	5.58	118.32	109.50
1	A	337	LYS	N-CA-C	-5.58	105.20	112.23
3	B	105	TYR	CA-C-N	-5.58	113.70	122.73
3	B	105	TYR	C-N-CA	-5.58	113.70	122.73
4	C	51	TYR	CA-CB-CG	5.58	123.94	113.90
1	I	337	LYS	N-CA-C	-5.56	105.22	112.23
1	I	84	LEU	CA-C-N	5.56	131.70	121.70
1	I	84	LEU	C-N-CA	5.56	131.70	121.70
1	E	382	PHE	CA-CB-CG	-5.54	108.26	113.80
3	F	105	TYR	CA-C-N	-5.54	113.76	122.73
3	F	105	TYR	C-N-CA	-5.54	113.76	122.73
1	E	180	VAL	N-CA-CB	-5.52	106.52	112.37
1	I	382	PHE	CA-CB-CG	-5.48	108.32	113.80
3	J	105	TYR	CA-C-N	-5.47	113.87	122.73
3	J	105	TYR	C-N-CA	-5.47	113.87	122.73
1	I	335	GLU	CA-C-O	-5.44	114.66	120.42
1	E	249	HIS	N-CA-C	-5.43	102.24	110.28
4	C	29	VAL	N-CA-C	5.43	116.30	111.90
1	A	249	HIS	N-CA-C	-5.42	102.25	110.28
4	K	100	ILE	CB-CA-C	-5.40	104.13	111.15
4	K	29	VAL	N-CA-C	5.40	116.27	111.90
1	E	335	GLU	CA-C-O	-5.39	114.71	120.42
1	I	249	HIS	N-CA-C	-5.39	102.31	110.28
2	D	522	PHE	CA-C-O	-5.38	114.81	121.11
3	F	62	GLN	CA-C-N	5.37	131.80	121.54
3	F	62	GLN	C-N-CA	5.37	131.80	121.54
2	H	522	PHE	CA-C-O	-5.37	114.83	121.11
1	A	335	GLU	CA-C-O	-5.37	114.73	120.42
2	D	608	VAL	CA-C-N	5.36	125.57	120.31
2	D	608	VAL	C-N-CA	5.36	125.57	120.31
3	B	62	GLN	CA-C-N	5.35	131.75	121.54
3	B	62	GLN	C-N-CA	5.35	131.75	121.54
4	K	45	ALA	CA-C-N	5.33	125.23	119.85
4	K	45	ALA	C-N-CA	5.33	125.23	119.85
2	I	522	PHE	CA-C-O	-5.33	114.88	121.11
3	J	62	GLN	CA-C-N	5.33	131.71	121.54
3	J	62	GLN	C-N-CA	5.33	131.71	121.54
4	G	29	VAL	N-CA-C	5.33	116.21	111.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	374	HIS	CA-CB-CG	-5.32	108.48	113.80
4	G	100	ILE	CB-CA-C	-5.31	104.25	111.15
1	A	123	THR	CA-C-N	5.31	124.97	119.56
1	A	123	THR	C-N-CA	5.31	124.97	119.56
4	C	100	ILE	CB-CA-C	-5.29	104.27	111.15
2	H	608	VAL	CA-C-N	5.29	125.49	120.31
2	H	608	VAL	C-N-CA	5.29	125.49	120.31
1	E	102	ASP	CA-C-O	-5.29	112.75	119.31
2	1	608	VAL	CA-C-N	5.28	125.49	120.31
2	1	608	VAL	C-N-CA	5.28	125.49	120.31
4	C	45	ALA	CA-C-N	5.28	125.19	119.85
4	C	45	ALA	C-N-CA	5.28	125.19	119.85
4	G	45	ALA	CA-C-N	5.28	125.18	119.85
4	G	45	ALA	C-N-CA	5.28	125.18	119.85
1	E	376	PHE	CA-CB-CG	5.28	119.08	113.80
1	I	102	ASP	CA-C-O	-5.27	112.77	119.31
1	I	374	HIS	CA-CB-CG	-5.27	108.53	113.80
1	E	123	THR	CA-C-N	5.25	124.92	119.56
1	E	123	THR	C-N-CA	5.25	124.92	119.56
1	I	123	THR	CA-C-N	5.23	124.90	119.56
1	I	123	THR	C-N-CA	5.23	124.90	119.56
1	A	374	HIS	CA-CB-CG	-5.23	108.57	113.80
1	A	102	ASP	CA-C-O	-5.21	112.84	119.31
1	A	235	GLY	N-CA-C	-5.21	108.28	114.48
1	E	372	THR	N-CA-C	5.18	119.88	113.50
1	I	376	PHE	CA-CB-CG	5.18	118.98	113.80
1	A	376	PHE	CA-CB-CG	5.18	118.98	113.80
1	I	57	ASP	N-CA-C	5.17	119.45	113.20
1	E	290	THR	CA-C-N	5.17	125.37	120.31
1	E	290	THR	C-N-CA	5.17	125.37	120.31
1	A	57	ASP	N-CA-C	5.14	119.42	113.20
1	E	57	ASP	N-CA-C	5.12	119.40	113.20
2	D	530	MET	N-CA-C	5.11	117.58	111.71
1	E	208	VAL	N-CA-C	5.11	115.93	108.58
1	I	208	VAL	N-CA-C	5.10	115.93	108.58
1	A	372	THR	N-CA-C	5.09	119.76	113.50
2	H	530	MET	N-CA-C	5.08	117.56	111.71
1	A	208	VAL	N-CA-C	5.08	115.89	108.58
1	I	474	ASP	CA-CB-CG	-5.07	107.53	112.60
1	I	290	THR	CA-C-N	5.07	125.28	120.31
1	I	290	THR	C-N-CA	5.07	125.28	120.31
1	A	230	ASP	N-CA-C	5.07	118.21	110.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	290	THR	CA-C-N	5.06	125.27	120.31
1	A	290	THR	C-N-CA	5.06	125.27	120.31
1	I	372	THR	N-CA-C	5.06	119.72	113.50
3	J	56	GLY	O-C-N	5.05	128.72	122.41
3	F	56	GLY	O-C-N	5.05	128.72	122.41
3	B	56	GLY	O-C-N	5.05	128.72	122.41
1	I	230	ASP	N-CA-C	5.04	118.16	110.20
2	1	530	MET	N-CA-C	5.03	117.50	111.71
1	A	474	ASP	CA-CB-CG	-5.02	107.58	112.60
1	I	205	CYS	N-CA-C	-5.01	100.37	109.44
1	E	205	CYS	N-CA-C	-5.01	100.38	109.44
1	E	474	ASP	CA-CB-CG	-5.00	107.60	112.60

There are no chirality outliers.

All (27) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	1	522	PHE	Mainchain
2	1	628	TRP	Mainchain
1	A	102	ASP	Mainchain
1	A	108	ILE	Mainchain
1	A	335	GLU	Mainchain
1	A	336	GLU	Mainchain
1	A	446	ARG	Mainchain,Peptide
3	B	49	GLY	Mainchain
2	D	522	PHE	Mainchain
2	D	628	TRP	Mainchain
1	E	102	ASP	Mainchain
1	E	108	ILE	Mainchain
1	E	335	GLU	Mainchain
1	E	336	GLU	Mainchain
1	E	446	ARG	Mainchain,Peptide
3	F	49	GLY	Mainchain
2	H	522	PHE	Mainchain
2	H	628	TRP	Mainchain
1	I	102	ASP	Mainchain
1	I	108	ILE	Mainchain
1	I	335	GLU	Mainchain
1	I	336	GLU	Mainchain
1	I	446	ARG	Mainchain,Peptide
3	J	49	GLY	Mainchain

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3613	0	3525	77	0
1	E	3613	0	3525	76	0
1	I	3613	0	3525	76	0
2	1	1034	0	1014	8	0
2	D	1034	0	1015	8	0
2	H	1034	0	1015	9	0
3	B	991	0	939	21	0
3	F	991	0	939	21	0
3	J	991	0	939	21	0
4	C	800	0	776	4	0
4	G	800	0	776	6	0
4	K	800	0	776	4	0
5	L	39	0	34	0	0
5	M	39	0	34	2	0
5	O	39	0	34	0	0
5	P	39	0	34	0	0
5	Q	39	0	34	1	0
5	R	39	0	34	1	0
5	T	39	0	34	0	0
5	U	39	0	34	0	0
5	V	39	0	34	0	0
5	W	39	0	34	1	0
5	Y	39	0	34	0	0
5	Z	39	0	34	0	0
6	N	72	0	61	0	0
6	S	72	0	61	1	0
6	X	72	0	61	0	0
7	A	112	0	104	4	0
7	E	112	0	104	4	0
7	I	112	0	104	4	0
All	All	20334	0	19667	295	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (295) 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:A:177:PRO:N	1:A:177:PRO:CD	1.69	1.45
1:I:177:PRO:CD	1:I:177:PRO:N	1.69	1.33
1:E:177:PRO:N	1:E:177:PRO:CD	1.69	1.28
3:B:101:TRP:HE1	3:B:103:SER:HB3	1.05	1.13
1:E:360:LYS:HA	1:E:394:THR:OG1	1.50	1.11
3:J:101:TRP:HE1	3:J:103:SER:HB3	1.05	1.10
3:F:101:TRP:HE1	3:F:103:SER:HB3	1.05	1.09
1:A:360:LYS:HA	1:A:394:THR:OG1	1.50	1.09
1:I:360:LYS:HA	1:I:394:THR:OG1	1.50	1.09
1:I:152:MET:HE3	1:I:322:ILE:CD1	1.92	1.00
1:A:152:MET:HE3	1:A:322:ILE:CD1	1.92	0.99
1:E:152:MET:HE3	1:E:322:ILE:CD1	1.92	0.99
1:E:152:MET:HE3	1:E:322:ILE:HD11	1.48	0.95
1:A:330:HIS:HD1	3:J:105:TYR:HD2	1.09	0.95
1:A:152:MET:HE3	1:A:322:ILE:HD11	1.48	0.94
3:B:105:TYR:HD2	1:I:330:HIS:HD1	1.09	0.93
1:I:152:MET:HE3	1:I:322:ILE:HD11	1.48	0.92
1:E:330:HIS:HD1	3:F:105:TYR:HD2	1.09	0.90
1:I:398:THR:HG22	1:I:401:ILE:HG13	1.55	0.87
1:E:398:THR:HG22	1:E:401:ILE:HG13	1.56	0.87
1:A:398:THR:HG22	1:A:401:ILE:HG13	1.56	0.86
3:B:105:TYR:HB3	1:I:330:HIS:CE1	2.12	0.85
3:B:101:TRP:NE1	3:B:103:SER:HB3	1.91	0.85
1:E:330:HIS:CE1	3:F:105:TYR:HB3	2.12	0.85
1:A:360:LYS:CA	1:A:394:THR:OG1	2.25	0.85
1:A:330:HIS:CE1	3:J:105:TYR:HB3	2.12	0.84
1:I:360:LYS:CA	1:I:394:THR:OG1	2.25	0.84
1:E:360:LYS:CA	1:E:394:THR:OG1	2.25	0.83
1:I:302:ASN:OD1	1:I:322:ILE:HG23	1.78	0.83
1:E:302:ASN:OD1	1:E:322:ILE:HG23	1.78	0.83
1:A:302:ASN:OD1	1:A:322:ILE:HG23	1.78	0.83
3:J:101:TRP:NE1	3:J:103:SER:HB3	1.91	0.81
3:F:101:TRP:NE1	3:F:103:SER:HB3	1.91	0.80
1:I:152:MET:CE	1:I:322:ILE:HD11	2.12	0.80
1:E:152:MET:CE	1:E:322:ILE:HD11	2.12	0.80
1:A:152:MET:CE	1:A:322:ILE:HD11	2.12	0.79
3:J:101:TRP:HE1	3:J:103:SER:CB	1.93	0.78
1:A:360:LYS:HA	1:A:394:THR:CB	2.14	0.78
1:I:360:LYS:HA	1:I:394:THR:CB	2.14	0.77
1:A:330:HIS:ND1	3:J:105:TYR:CD2	2.53	0.77
3:F:101:TRP:HE1	3:F:103:SER:CB	1.93	0.77
3:B:105:TYR:CD2	1:I:330:HIS:ND1	2.52	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:360:LYS:HA	1:E:394:THR:CB	2.14	0.77
1:E:330:HIS:ND1	3:F:105:TYR:CD2	2.52	0.75
3:B:101:TRP:HE1	3:B:103:SER:CB	1.93	0.74
1:A:398:THR:HG22	1:A:401:ILE:CG1	2.21	0.71
1:A:314:GLY:N	1:I:198:THR:O	2.24	0.70
1:E:398:THR:HG22	1:E:401:ILE:CG1	2.21	0.70
1:I:499:THR:O	1:I:500:ARG:CB	2.40	0.70
1:I:398:THR:HG22	1:I:401:ILE:CG1	2.21	0.69
1:A:198:THR:O	1:E:314:GLY:N	2.24	0.69
1:E:499:THR:O	1:E:500:ARG:CB	2.40	0.69
1:A:499:THR:O	1:A:500:ARG:CB	2.40	0.68
1:E:198:THR:O	1:I:314:GLY:N	2.26	0.68
1:I:398:THR:HG21	1:I:401:ILE:HD11	1.76	0.67
1:E:398:THR:HG21	1:E:401:ILE:HD11	1.76	0.66
1:I:133:ASP:OD1	1:I:153:LYS:NZ	2.28	0.66
1:E:133:ASP:OD1	1:E:153:LYS:NZ	2.28	0.66
1:A:398:THR:HG21	1:A:401:ILE:HD11	1.76	0.66
1:A:133:ASP:OD1	1:A:153:LYS:NZ	2.28	0.64
1:A:176:LYS:CB	1:A:177:PRO:CD	2.76	0.64
1:E:176:LYS:CB	1:E:177:PRO:CD	2.76	0.63
1:I:176:LYS:CB	1:I:177:PRO:CD	2.76	0.63
3:B:101:TRP:CD1	3:B:101:TRP:C	2.78	0.62
3:F:101:TRP:CD1	3:F:101:TRP:C	2.78	0.61
1:I:326:ILE:O	1:I:326:ILE:HG22	2.01	0.61
1:A:326:ILE:O	1:A:326:ILE:HG22	2.00	0.60
3:J:101:TRP:CD1	3:J:101:TRP:C	2.78	0.60
1:E:330:HIS:ND1	3:F:105:TYR:HD2	1.90	0.60
1:E:326:ILE:HG22	1:E:326:ILE:O	2.00	0.59
1:A:176:LYS:C	1:A:177:PRO:CD	2.68	0.58
1:I:323:ILE:HG13	1:I:323:ILE:O	2.03	0.57
1:E:176:LYS:C	1:E:177:PRO:CD	2.68	0.57
7:E:625:NAG:O7	7:E:625:NAG:H3	2.04	0.57
1:E:300:ASN:HB2	1:E:322:ILE:CG2	2.36	0.56
1:I:300:ASN:HB2	1:I:322:ILE:CG2	2.36	0.56
7:A:625:NAG:O7	7:A:625:NAG:H3	2.04	0.56
1:I:297:THR:OG1	1:I:443:ILE:O	2.13	0.56
3:B:105:TYR:HD2	1:I:330:HIS:ND1	1.90	0.56
7:I:625:NAG:O7	7:I:625:NAG:H3	2.04	0.56
1:A:300:ASN:HB2	1:A:322:ILE:CG2	2.36	0.55
1:E:330:HIS:ND1	3:F:105:TYR:HB3	2.22	0.55
1:I:148:THR:O	1:I:326:ILE:HG21	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:389:ASN:O	1:E:390:LEU:C	2.50	0.55
1:A:330:HIS:ND1	3:J:105:TYR:HD2	1.90	0.54
1:A:49:LYS:NZ	1:A:99:ASP:OD2	2.41	0.54
1:A:389:ASN:O	1:A:390:LEU:C	2.50	0.54
1:E:398:THR:CG2	1:E:401:ILE:HD11	2.37	0.54
1:A:370:GLU:OE2	1:A:421:LYS:NZ	2.40	0.54
1:A:398:THR:CG2	1:A:401:ILE:HD11	2.37	0.54
3:B:105:TYR:HB3	1:I:330:HIS:ND1	2.22	0.54
1:A:148:THR:O	1:A:326:ILE:HG21	2.07	0.54
1:A:330:HIS:ND1	3:J:105:TYR:HB3	2.22	0.54
1:E:148:THR:O	1:E:326:ILE:HG21	2.07	0.54
1:I:49:LYS:NZ	1:I:99:ASP:OD2	2.40	0.54
1:I:398:THR:CG2	1:I:401:ILE:HD11	2.37	0.54
1:I:176:LYS:HB3	1:I:177:PRO:CD	2.39	0.53
1:I:389:ASN:O	1:I:390:LEU:C	2.50	0.53
1:A:149:VAL:HG23	1:A:326:ILE:HD12	1.91	0.53
1:E:49:LYS:NZ	1:E:99:ASP:OD2	2.41	0.53
1:A:78:ASP:OD1	1:A:78:ASP:N	2.42	0.53
1:A:301:ASN:HB3	1:A:323:ILE:HG23	1.91	0.52
1:A:387:THR:O	1:A:390:LEU:N	2.41	0.52
3:J:47:TRP:CZ2	3:J:49:GLY:HA2	2.45	0.52
1:E:176:LYS:HB3	1:E:177:PRO:CD	2.38	0.52
1:E:394:THR:HG23	1:E:394:THR:O	2.10	0.52
1:I:176:LYS:C	1:I:177:PRO:CD	2.68	0.52
3:F:47:TRP:CZ2	3:F:49:GLY:HA2	2.45	0.52
1:A:176:LYS:HB3	1:A:177:PRO:CD	2.39	0.52
1:E:78:ASP:OD1	1:E:78:ASP:N	2.41	0.52
1:E:301:ASN:HB3	1:E:323:ILE:HG23	1.91	0.52
3:B:47:TRP:CZ2	3:B:49:GLY:HA2	2.44	0.52
1:E:387:THR:O	1:E:390:LEU:N	2.41	0.51
1:A:108:ILE:O	1:A:109:ILE:C	2.52	0.51
1:E:149:VAL:HG23	1:E:326:ILE:HD12	1.90	0.51
1:E:395:TYR:HB2	7:E:626:NAG:H61	1.93	0.51
1:A:394:THR:HG23	1:A:394:THR:O	2.09	0.51
3:J:101:TRP:CE2	3:J:102:ILE:O	2.64	0.51
1:I:370:GLU:OE2	1:I:421:LYS:NZ	2.40	0.51
1:I:394:THR:HG23	1:I:394:THR:O	2.09	0.51
3:B:101:TRP:CE2	3:B:102:ILE:O	2.64	0.51
1:A:297:THR:OG1	1:A:443:ILE:O	2.13	0.51
1:I:149:VAL:HG23	1:I:326:ILE:HD12	1.91	0.51
1:A:395:TYR:HB2	7:A:626:NAG:H61	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:F:101:TRP:CE2	3:F:102:ILE:O	2.64	0.50
1:I:387:THR:O	1:I:390:LEU:N	2.41	0.50
1:A:398:THR:CG2	1:A:401:ILE:HG13	2.36	0.50
1:E:178:ASP:OD1	1:E:178:ASP:N	2.45	0.50
1:I:395:TYR:HB2	7:I:626:NAG:H61	1.92	0.50
1:E:499:THR:O	1:E:500:ARG:HB2	2.11	0.50
3:J:101:TRP:NE1	3:J:102:ILE:C	2.70	0.50
1:A:178:ASP:N	1:A:178:ASP:OD1	2.45	0.50
1:I:78:ASP:OD1	1:I:78:ASP:N	2.42	0.50
1:A:499:THR:O	1:A:500:ARG:HB2	2.11	0.49
1:A:501:CYS:SG	2:H:605:CYS:SG	3.10	0.49
3:F:101:TRP:NE1	3:F:102:ILE:C	2.70	0.49
1:I:499:THR:O	1:I:500:ARG:HB2	2.11	0.49
1:I:178:ASP:OD1	1:I:178:ASP:N	2.45	0.49
2:D:605:CYS:SG	1:E:501:CYS:SG	3.10	0.49
1:E:108:ILE:O	1:E:109:ILE:C	2.52	0.49
3:B:101:TRP:NE1	3:B:102:ILE:C	2.70	0.49
1:I:325:ASP:OD2	1:I:327:LYS:HE2	2.12	0.49
1:I:398:THR:CG2	1:I:401:ILE:HG13	2.36	0.49
3:J:101:TRP:CG	3:J:102:ILE:N	2.81	0.49
3:F:57:ARG:O	3:F:58:THR:HG22	2.13	0.49
3:F:101:TRP:CG	3:F:102:ILE:N	2.81	0.48
1:I:108:ILE:O	1:I:109:ILE:C	2.52	0.48
1:I:377:ASN:OD1	1:I:377:ASN:N	2.42	0.48
2:1:616:ASN:OD1	2:1:616:ASN:N	2.45	0.48
1:A:325:ASP:OD2	1:A:327:LYS:HE2	2.12	0.48
1:E:325:ASP:OD2	1:E:327:LYS:HE2	2.12	0.48
2:1:605:CYS:SG	1:I:501:CYS:SG	3.10	0.48
3:B:57:ARG:O	3:B:58:THR:HG22	2.13	0.48
3:J:57:ARG:O	3:J:58:THR:HG22	2.13	0.48
1:E:370:GLU:OE2	1:E:421:LYS:NZ	2.40	0.48
3:B:50:TRP:H	3:B:50:TRP:CD1	2.31	0.48
2:H:616:ASN:N	2:H:616:ASN:OD1	2.45	0.48
3:J:50:TRP:CD1	3:J:50:TRP:H	2.31	0.48
3:B:101:TRP:CG	3:B:102:ILE:N	2.81	0.48
1:A:398:THR:HG21	1:A:401:ILE:CD1	2.43	0.47
1:E:398:THR:HG21	1:E:401:ILE:CD1	2.43	0.47
1:E:474:ASP:OD1	1:E:474:ASP:C	2.55	0.47
1:I:398:THR:HG21	1:I:401:ILE:CD1	2.43	0.47
1:E:394:THR:N	7:E:626:NAG:H62	2.30	0.47
1:I:394:THR:N	7:I:626:NAG:H62	2.30	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:398:THR:CG2	1:E:401:ILE:HG13	2.36	0.47
1:A:394:THR:N	7:A:626:NAG:H62	2.30	0.47
3:F:50:TRP:CD1	3:F:50:TRP:H	2.31	0.47
2:D:574:LYS:NZ	1:E:107:ASP:OD1	2.49	0.46
1:E:499:THR:O	1:E:500:ARG:HB3	2.15	0.46
1:I:396:ASN:OD1	1:I:397:GLY:N	2.49	0.46
1:A:396:ASN:OD1	1:A:397:GLY:N	2.48	0.46
1:A:107:ASP:OD1	2:H:574:LYS:NZ	2.48	0.46
1:E:396:ASN:OD1	1:E:397:GLY:N	2.48	0.46
2:1:598:CYS:N	2:1:599:SER:HA	2.30	0.46
3:J:53:PRO:O	3:J:72:ARG:NE	2.43	0.46
2:D:616:ASN:OD1	2:D:616:ASN:N	2.45	0.46
2:1:574:LYS:NZ	1:I:107:ASP:OD1	2.49	0.46
1:I:303:THR:HG23	1:I:323:ILE:HB	1.96	0.46
3:F:53:PRO:O	3:F:72:ARG:NE	2.43	0.46
1:A:176:LYS:HB2	1:A:177:PRO:CD	2.46	0.46
1:E:86:LEU:HD23	1:E:242:VAL:O	2.16	0.46
4:G:52:GLU:HB2	4:G:55:LYS:HD2	1.98	0.46
2:D:523:LEU:HD13	1:E:45:TRP:CE3	2.51	0.45
1:A:45:TRP:CE3	2:H:523:LEU:HD13	2.51	0.45
2:H:598:CYS:N	2:H:599:SER:HA	2.30	0.45
2:D:598:CYS:N	2:D:599:SER:HA	2.31	0.45
1:I:474:ASP:C	1:I:474:ASP:OD1	2.55	0.45
1:I:499:THR:O	1:I:500:ARG:HB3	2.15	0.45
1:A:377:ASN:OD1	1:A:377:ASN:N	2.42	0.45
1:I:301:ASN:HB3	1:I:323:ILE:CG2	2.47	0.45
1:A:176:LYS:HB3	1:A:177:PRO:HD3	1.99	0.45
1:A:474:ASP:OD1	1:A:474:ASP:C	2.55	0.45
4:K:94:ALA:HB2	4:K:100:ILE:HG13	1.98	0.45
1:A:499:THR:O	1:A:500:ARG:HB3	2.15	0.45
1:E:176:LYS:HB2	1:E:177:PRO:CD	2.46	0.45
2:1:523:LEU:HD13	1:I:45:TRP:CE3	2.52	0.45
4:C:94:ALA:HB2	4:C:100:ILE:HG13	1.99	0.45
1:I:86:LEU:HD23	1:I:242:VAL:O	2.16	0.45
1:A:102:ASP:O	1:A:103:GLN:C	2.58	0.45
4:G:94:ALA:HB2	4:G:100:ILE:HG13	1.99	0.45
1:I:102:ASP:O	1:I:103:GLN:C	2.58	0.45
2:H:664:ASP:C	2:H:664:ASP:OD1	2.60	0.45
1:E:176:LYS:HB3	1:E:177:PRO:HD3	1.99	0.45
1:E:394:THR:H	7:E:626:NAG:H62	1.82	0.45
1:E:102:ASP:O	1:E:103:GLN:C	2.58	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:176:LYS:HB3	1:I:177:PRO:HD3	1.99	0.44
1:A:330:HIS:HE1	3:J:105:TYR:HB3	1.74	0.44
1:A:394:THR:H	7:A:626:NAG:H62	1.82	0.44
1:I:152:MET:SD	1:I:322:ILE:HD11	2.58	0.44
1:A:86:LEU:HD23	1:A:242:VAL:O	2.16	0.44
1:E:330:HIS:HE1	3:F:105:TYR:HB3	1.74	0.44
1:I:398:THR:CG2	1:I:401:ILE:CD1	2.96	0.44
1:I:447:SER:OG	1:I:448:ASN:N	2.47	0.44
1:E:303:THR:HG23	1:E:323:ILE:HB	2.00	0.44
1:E:398:THR:CG2	1:E:401:ILE:CD1	2.96	0.44
1:A:152:MET:SD	1:A:322:ILE:HD11	2.58	0.44
1:E:377:ASN:OD1	1:E:377:ASN:N	2.42	0.44
5:Q:1:NAG:O3	5:Q:2:NAG:O5	2.33	0.44
1:E:152:MET:SD	1:E:322:ILE:HD11	2.58	0.44
3:B:101:TRP:NE1	3:B:102:ILE:O	2.51	0.43
1:I:394:THR:H	7:I:626:NAG:H62	1.82	0.43
2:D:664:ASP:OD1	2:D:664:ASP:C	2.60	0.43
1:I:484:TYR:CD1	1:I:484:TYR:C	2.95	0.43
3:F:101:TRP:NE1	3:F:102:ILE:O	2.51	0.43
1:I:176:LYS:HB2	1:I:177:PRO:CD	2.46	0.43
2:D:523:LEU:O	1:E:86:LEU:HD12	2.19	0.43
1:E:323:ILE:O	1:E:323:ILE:CG1	2.66	0.43
1:A:301:ASN:HB3	1:A:323:ILE:CG2	2.48	0.43
3:J:101:TRP:CD1	3:J:102:ILE:C	2.97	0.43
1:E:131:CYS:SG	1:E:191:TYR:CD1	3.11	0.43
1:E:484:TYR:CD1	1:E:484:TYR:C	2.95	0.43
3:F:101:TRP:CD1	3:F:102:ILE:C	2.97	0.43
2:1:664:ASP:OD1	2:1:664:ASP:C	2.60	0.43
1:A:86:LEU:HD12	2:H:523:LEU:O	2.19	0.43
1:A:192:ARG:HB2	1:E:163:ILE:HD11	2.01	0.43
1:A:398:THR:CG2	1:A:401:ILE:CD1	2.96	0.43
3:J:101:TRP:NE1	3:J:102:ILE:O	2.51	0.43
3:B:105:TYR:HB3	1:I:330:HIS:HE1	1.74	0.43
2:1:523:LEU:O	1:I:86:LEU:HD12	2.19	0.42
3:B:101:TRP:CD1	3:B:102:ILE:C	2.97	0.42
1:I:301:ASN:HB3	1:I:323:ILE:HG23	2.01	0.42
1:A:163:ILE:HD11	1:I:192:ARG:HB2	2.01	0.42
1:E:192:ARG:HD2	1:E:196:CYS:SG	2.59	0.42
1:E:301:ASN:HB3	1:E:323:ILE:CG2	2.49	0.42
4:G:52:GLU:OE2	4:G:52:GLU:HA	2.19	0.42
1:I:192:ARG:HD2	1:I:196:CYS:SG	2.59	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:303:THR:HG23	1:A:323:ILE:HB	2.00	0.42
3:B:53:PRO:O	3:B:72:ARG:NE	2.43	0.42
1:A:82:GLN:N	1:A:82:GLN:CD	2.78	0.42
1:I:131:CYS:SG	1:I:191:TYR:CD1	3.12	0.42
1:A:323:ILE:O	1:A:323:ILE:CG1	2.67	0.42
1:E:82:GLN:CD	1:E:82:GLN:N	2.78	0.42
2:H:628:TRP:O	2:H:629:LEU:C	2.63	0.42
4:K:27:TYR:CD2	5:M:3:BMA:H4	2.55	0.42
1:I:95:MET:HE2	1:I:96:TRP:CZ2	2.55	0.42
1:A:95:MET:HE2	1:A:96:TRP:CZ2	2.55	0.41
1:A:192:ARG:HD2	1:A:196:CYS:SG	2.59	0.41
4:C:27:TYR:CD2	5:W:3:BMA:H4	2.55	0.41
1:A:323:ILE:O	1:A:323:ILE:HG12	2.19	0.41
2:1:628:TRP:O	2:1:629:LEU:C	2.63	0.41
3:B:101:TRP:CD1	3:B:102:ILE:N	2.89	0.41
1:A:447:SER:OG	1:A:448:ASN:N	2.47	0.41
2:H:539:VAL:O	2:H:540:GLN:C	2.63	0.41
1:E:323:ILE:O	1:E:323:ILE:HG12	2.19	0.41
1:I:449:ILE:HB	1:I:450:THR:HB	2.03	0.41
1:A:484:TYR:CD1	1:A:484:TYR:C	2.95	0.41
1:A:192:ARG:CB	1:E:163:ILE:HD11	2.51	0.41
1:A:449:ILE:HB	1:A:450:THR:HB	2.03	0.41
4:K:52:GLU:HB2	4:K:55:LYS:HD2	2.02	0.41
1:E:95:MET:HE2	1:E:96:TRP:CZ2	2.55	0.41
1:E:55:ALA:HB1	1:E:216:HIS:O	2.21	0.41
1:I:82:GLN:N	1:I:82:GLN:CD	2.78	0.41
4:C:52:GLU:HB2	4:C:55:LYS:HD2	2.03	0.41
1:A:335:GLU:O	1:A:336:GLU:C	2.64	0.41
4:G:51:TYR:HH	6:S:5:MAN:HO4	1.66	0.41
5:M:3:BMA:O6	5:M:3:BMA:O4	2.31	0.41
1:E:449:ILE:HB	1:E:450:THR:HB	2.03	0.41
3:F:47:TRP:CH2	4:G:98:THR:HA	2.56	0.41
3:J:101:TRP:CD1	3:J:102:ILE:N	2.89	0.40
1:I:55:ALA:HB1	1:I:216:HIS:O	2.21	0.40
1:I:335:GLU:O	1:I:336:GLU:C	2.64	0.40
1:E:261:LEU:C	1:E:261:LEU:HD12	2.47	0.40
1:I:261:LEU:C	1:I:261:LEU:HD12	2.47	0.40
1:A:163:ILE:HD11	1:I:192:ARG:CB	2.52	0.40
4:G:27:TYR:CD2	5:R:3:BMA:H4	2.55	0.40
1:A:55:ALA:HB1	1:A:216:HIS:O	2.21	0.40
1:A:149:VAL:HA	1:A:326:ILE:HD12	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:628:TRP:O	2:D:629:LEU:C	2.63	0.40
1:E:192:ARG:HB2	1:I:163:ILE:HD11	2.03	0.40
3:J:47:TRP:CH2	4:K:98:THR:HA	2.57	0.40
1:E:123:THR:N	1:E:124:PRO:CD	2.85	0.40
1:E:396:ASN:O	1:E:398:THR:N	2.50	0.40
3:F:101:TRP:CD1	3:F:102:ILE:N	2.89	0.40
3:B:47:TRP:CH2	4:C:98:THR:HA	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	460/463 (99%)	427 (93%)	28 (6%)	5 (1%)	11	43
1	E	460/463 (99%)	428 (93%)	27 (6%)	5 (1%)	11	43
1	I	460/463 (99%)	428 (93%)	27 (6%)	5 (1%)	11	43
2	1	128/161 (80%)	121 (94%)	6 (5%)	1 (1%)	16	49
2	D	128/161 (80%)	121 (94%)	6 (5%)	1 (1%)	16	49
2	H	128/161 (80%)	121 (94%)	6 (5%)	1 (1%)	16	49
3	B	124/251 (49%)	119 (96%)	4 (3%)	1 (1%)	16	49
3	F	124/251 (49%)	119 (96%)	4 (3%)	1 (1%)	16	49
3	J	124/251 (49%)	119 (96%)	4 (3%)	1 (1%)	16	49
4	C	108/235 (46%)	105 (97%)	3 (3%)	0	100	100
4	G	108/235 (46%)	105 (97%)	3 (3%)	0	100	100
4	K	108/235 (46%)	104 (96%)	4 (4%)	0	100	100
All	All	2460/3330 (74%)	2317 (94%)	122 (5%)	21 (1%)	16	47

All (21) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	176	LYS
1	E	176	LYS
1	I	176	LYS
1	A	136	VAL
2	H	513	VAL
2	D	513	VAL
1	E	136	VAL
2	1	513	VAL
1	I	136	VAL
1	A	134	ALA
1	E	134	ALA
1	I	134	ALA
1	A	85	VAL
1	E	85	VAL
1	I	85	VAL
1	A	397	GLY
1	E	397	GLY
1	I	397	GLY
3	J	42	GLY
3	F	42	GLY
3	B	42	GLY

5.3.2 Protein sidechains ⓘ

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	411/411 (100%)	407 (99%)	4 (1%)	68	75
1	E	411/411 (100%)	407 (99%)	4 (1%)	68	75
1	I	411/411 (100%)	407 (99%)	4 (1%)	68	75
2	1	110/136 (81%)	110 (100%)	0	100	100
2	D	110/136 (81%)	110 (100%)	0	100	100
2	H	110/136 (81%)	110 (100%)	0	100	100
3	B	106/213 (50%)	105 (99%)	1 (1%)	70	76
3	F	106/213 (50%)	105 (99%)	1 (1%)	70	76

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	J	106/213 (50%)	105 (99%)	1 (1%)	70	76
4	C	88/194 (45%)	87 (99%)	1 (1%)	65	74
4	G	88/194 (45%)	86 (98%)	2 (2%)	44	64
4	K	88/194 (45%)	87 (99%)	1 (1%)	65	74
All	All	2145/2862 (75%)	2126 (99%)	19 (1%)	68	76

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	234	ASN
1	A	241	ASN
1	A	326	ILE
1	A	332	ASN
3	J	101	TRP
4	K	34	LEU
1	E	234	ASN
1	E	241	ASN
1	E	326	ILE
1	E	332	ASN
3	F	101	TRP
4	G	34	LEU
4	G	52	GLU
3	B	101	TRP
4	C	34	LEU
1	I	234	ASN
1	I	241	ASN
1	I	326	ILE
1	I	332	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	287	HIS
1	A	363	GLN
3	J	39	GLN
3	J	65	GLN
3	J	113	ASN
4	K	40	GLN
1	E	287	HIS
1	E	363	GLN

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Mol	Chain	Res	Type
3	F	39	GLN
3	F	65	GLN
3	F	113	ASN
4	G	40	GLN
2	1	540	GLN
3	B	39	GLN
3	B	65	GLN
3	B	113	ASN
4	C	40	GLN
1	I	287	HIS
1	I	363	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](#)

54 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	$\# Z > 2$
5	NAG	L	1	5,1	14,14,15	0.45	0	17,19,21	1.18	2 (11%)
5	NAG	L	2	5	14,14,15	0.32	0	17,19,21	0.63	0
5	BMA	L	3	5	11,11,12	0.40	0	15,15,17	1.21	2 (13%)
5	NAG	M	1	5,1	14,14,15	0.41	0	17,19,21	0.55	0
5	NAG	M	2	5	14,14,15	0.37	0	17,19,21	0.77	0
5	BMA	M	3	5	11,11,12	0.27	0	15,15,17	0.76	0
6	NAG	N	1	6,1	14,14,15	0.48	0	17,19,21	0.77	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
6	NAG	N	2	6	14,14,15	0.42	0	17,19,21	0.96	0
6	BMA	N	3	6	11,11,12	0.40	0	15,15,17	1.38	2 (13%)
6	MAN	N	4	6	11,11,12	0.33	0	15,15,17	0.72	0
6	MAN	N	5	6	11,11,12	0.41	0	15,15,17	1.13	2 (13%)
6	MAN	N	6	6	11,11,12	0.30	0	15,15,17	0.83	0
5	NAG	O	1	5,1	14,14,15	0.42	0	17,19,21	0.56	0
5	NAG	O	2	5	14,14,15	0.32	0	17,19,21	0.57	0
5	BMA	O	3	5	11,11,12	0.28	0	15,15,17	0.71	0
5	NAG	P	1	5,1	14,14,15	0.34	0	17,19,21	0.63	0
5	NAG	P	2	5	14,14,15	0.29	0	17,19,21	0.65	0
5	BMA	P	3	5	11,11,12	0.22	0	15,15,17	0.74	0
5	NAG	Q	1	5,1	14,14,15	0.45	0	17,19,21	1.18	2 (11%)
5	NAG	Q	2	5	14,14,15	0.34	0	17,19,21	0.63	0
5	BMA	Q	3	5	11,11,12	0.39	0	15,15,17	1.21	2 (13%)
5	NAG	R	1	5,1	14,14,15	0.41	0	17,19,21	0.54	0
5	NAG	R	2	5	14,14,15	0.35	0	17,19,21	0.78	0
5	BMA	R	3	5	11,11,12	0.23	0	15,15,17	0.75	0
6	NAG	S	1	6,1	14,14,15	0.49	0	17,19,21	0.76	0
6	NAG	S	2	6	14,14,15	0.43	0	17,19,21	0.97	0
6	BMA	S	3	6	11,11,12	0.35	0	15,15,17	1.39	2 (13%)
6	MAN	S	4	6	11,11,12	0.35	0	15,15,17	0.72	0
6	MAN	S	5	6	11,11,12	0.38	0	15,15,17	1.13	2 (13%)
6	MAN	S	6	6	11,11,12	0.32	0	15,15,17	0.83	0
5	NAG	T	1	5,1	14,14,15	0.40	0	17,19,21	0.57	0
5	NAG	T	2	5	14,14,15	0.34	0	17,19,21	0.58	0
5	BMA	T	3	5	11,11,12	0.30	0	15,15,17	0.72	0
5	NAG	U	1	5,1	14,14,15	0.33	0	17,19,21	0.63	0
5	NAG	U	2	5	14,14,15	0.29	0	17,19,21	0.65	0
5	BMA	U	3	5	11,11,12	0.23	0	15,15,17	0.75	0
5	NAG	V	1	5,1	14,14,15	0.43	0	17,19,21	1.17	2 (11%)
5	NAG	V	2	5	14,14,15	0.32	0	17,19,21	0.64	0
5	BMA	V	3	5	11,11,12	0.41	0	15,15,17	1.22	2 (13%)
5	NAG	W	1	5,1	14,14,15	0.40	0	17,19,21	0.54	0
5	NAG	W	2	5	14,14,15	0.36	0	17,19,21	0.76	0
5	BMA	W	3	5	11,11,12	0.23	0	15,15,17	0.75	0
6	NAG	X	1	6,1	14,14,15	0.51	0	17,19,21	0.75	0
6	NAG	X	2	6	14,14,15	0.43	0	17,19,21	0.97	0
6	BMA	X	3	6	11,11,12	0.39	0	15,15,17	1.38	2 (13%)
6	MAN	X	4	6	11,11,12	0.36	0	15,15,17	0.72	0
6	MAN	X	5	6	11,11,12	0.36	0	15,15,17	1.14	2 (13%)
6	MAN	X	6	6	11,11,12	0.31	0	15,15,17	0.84	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	NAG	Y	1	5,1	14,14,15	0.42	0	17,19,21	0.57	0
5	NAG	Y	2	5	14,14,15	0.33	0	17,19,21	0.58	0
5	BMA	Y	3	5	11,11,12	0.26	0	15,15,17	0.71	0
5	NAG	Z	1	5,1	14,14,15	0.34	0	17,19,21	0.63	0
5	NAG	Z	2	5	14,14,15	0.29	0	17,19,21	0.67	0
5	BMA	Z	3	5	11,11,12	0.23	0	15,15,17	0.74	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
5	NAG	L	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	L	2	5	-	2/6/23/26	0/1/1/1
5	BMA	L	3	5	-	0/2/19/22	0/1/1/1
5	NAG	M	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	M	2	5	-	3/6/23/26	0/1/1/1
5	BMA	M	3	5	-	2/2/19/22	0/1/1/1
6	NAG	N	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	N	2	6	-	3/6/23/26	0/1/1/1
6	BMA	N	3	6	-	2/2/19/22	0/1/1/1
6	MAN	N	4	6	-	1/2/19/22	0/1/1/1
6	MAN	N	5	6	-	2/2/19/22	0/1/1/1
6	MAN	N	6	6	-	1/2/19/22	0/1/1/1
5	NAG	O	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	O	2	5	-	2/6/23/26	0/1/1/1
5	BMA	O	3	5	-	0/2/19/22	0/1/1/1
5	NAG	P	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	P	2	5	-	2/6/23/26	0/1/1/1
5	BMA	P	3	5	-	0/2/19/22	0/1/1/1
5	NAG	Q	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	Q	2	5	-	2/6/23/26	0/1/1/1
5	BMA	Q	3	5	-	0/2/19/22	0/1/1/1
5	NAG	R	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	R	2	5	-	3/6/23/26	0/1/1/1
5	BMA	R	3	5	-	2/2/19/22	0/1/1/1
6	NAG	S	1	6,1	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	NAG	S	2	6	-	3/6/23/26	0/1/1/1
6	BMA	S	3	6	-	2/2/19/22	0/1/1/1
6	MAN	S	4	6	-	1/2/19/22	0/1/1/1
6	MAN	S	5	6	-	2/2/19/22	0/1/1/1
6	MAN	S	6	6	-	1/2/19/22	0/1/1/1
5	NAG	T	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	T	2	5	-	2/6/23/26	0/1/1/1
5	BMA	T	3	5	-	0/2/19/22	0/1/1/1
5	NAG	U	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	U	2	5	-	2/6/23/26	0/1/1/1
5	BMA	U	3	5	-	0/2/19/22	0/1/1/1
5	NAG	V	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	V	2	5	-	2/6/23/26	0/1/1/1
5	BMA	V	3	5	-	0/2/19/22	0/1/1/1
5	NAG	W	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	W	2	5	-	3/6/23/26	0/1/1/1
5	BMA	W	3	5	-	2/2/19/22	0/1/1/1
6	NAG	X	1	6,1	-	2/6/23/26	0/1/1/1
6	NAG	X	2	6	-	3/6/23/26	0/1/1/1
6	BMA	X	3	6	-	2/2/19/22	0/1/1/1
6	MAN	X	4	6	-	1/2/19/22	0/1/1/1
6	MAN	X	5	6	-	2/2/19/22	0/1/1/1
6	MAN	X	6	6	-	1/2/19/22	0/1/1/1
5	NAG	Y	1	5,1	-	0/6/23/26	0/1/1/1
5	NAG	Y	2	5	-	2/6/23/26	0/1/1/1
5	BMA	Y	3	5	-	0/2/19/22	0/1/1/1
5	NAG	Z	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	Z	2	5	-	2/6/23/26	0/1/1/1
5	BMA	Z	3	5	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	S	3	BMA	C2-C3-C4	-2.84	105.87	110.86
6	X	3	BMA	C2-C3-C4	-2.83	105.88	110.86
6	N	3	BMA	C2-C3-C4	-2.79	105.95	110.86
6	X	3	BMA	O3-C3-C2	-2.78	104.38	110.05

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	N	3	BMA	O3-C3-C2	-2.77	104.41	110.05
6	S	3	BMA	O3-C3-C2	-2.76	104.42	110.05
5	Q	1	NAG	C2-N2-C7	-2.73	119.24	122.90
5	L	1	NAG	C2-N2-C7	-2.69	119.30	122.90
5	V	1	NAG	C2-N2-C7	-2.66	119.33	122.90
6	X	5	MAN	O4-C4-C3	-2.52	104.43	110.38
6	N	5	MAN	O4-C4-C3	-2.50	104.48	110.38
6	S	5	MAN	O4-C4-C3	-2.50	104.49	110.38
6	N	5	MAN	C2-C3-C4	-2.28	106.85	110.86
6	S	5	MAN	C2-C3-C4	-2.28	106.86	110.86
6	X	5	MAN	C2-C3-C4	-2.27	106.87	110.86
5	L	3	BMA	O3-C3-C4	2.24	115.67	110.38
5	V	3	BMA	O3-C3-C4	2.24	115.67	110.38
5	Q	3	BMA	O3-C3-C4	2.21	115.59	110.38
5	V	3	BMA	C3-C4-C5	-2.20	106.24	110.23
5	Q	3	BMA	C3-C4-C5	-2.20	106.24	110.23
5	L	3	BMA	C3-C4-C5	-2.18	106.28	110.23
5	L	1	NAG	C4-C3-C2	-2.02	108.05	111.02
5	V	1	NAG	C4-C3-C2	-2.01	108.07	111.02
5	Q	1	NAG	C4-C3-C2	-2.01	108.07	111.02

There are no chirality outliers.

All (84) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	M	2	NAG	C1-C2-N2-C7
5	M	2	NAG	C8-C7-N2-C2
5	M	2	NAG	O7-C7-N2-C2
5	O	2	NAG	C8-C7-N2-C2
5	O	2	NAG	O7-C7-N2-C2
5	P	2	NAG	C1-C2-N2-C7
5	R	2	NAG	C1-C2-N2-C7
5	R	2	NAG	C8-C7-N2-C2
5	R	2	NAG	O7-C7-N2-C2
5	T	2	NAG	C8-C7-N2-C2
5	T	2	NAG	O7-C7-N2-C2
5	U	2	NAG	C1-C2-N2-C7
5	W	2	NAG	C1-C2-N2-C7
5	W	2	NAG	C8-C7-N2-C2
5	W	2	NAG	O7-C7-N2-C2
5	Y	2	NAG	C8-C7-N2-C2
5	Y	2	NAG	O7-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
5	Z	2	NAG	C1-C2-N2-C7
6	N	1	NAG	C8-C7-N2-C2
6	N	1	NAG	O7-C7-N2-C2
6	S	1	NAG	C8-C7-N2-C2
6	S	1	NAG	O7-C7-N2-C2
6	X	1	NAG	C8-C7-N2-C2
6	X	1	NAG	O7-C7-N2-C2
6	N	3	BMA	C4-C5-C6-O6
6	S	3	BMA	C4-C5-C6-O6
6	X	3	BMA	C4-C5-C6-O6
5	L	2	NAG	O5-C5-C6-O6
5	Q	2	NAG	O5-C5-C6-O6
5	V	2	NAG	O5-C5-C6-O6
6	N	2	NAG	C8-C7-N2-C2
6	S	2	NAG	C8-C7-N2-C2
6	X	2	NAG	C8-C7-N2-C2
6	N	3	BMA	O5-C5-C6-O6
6	S	3	BMA	O5-C5-C6-O6
6	X	3	BMA	O5-C5-C6-O6
5	M	1	NAG	O5-C5-C6-O6
5	R	1	NAG	O5-C5-C6-O6
5	W	1	NAG	O5-C5-C6-O6
5	P	1	NAG	C8-C7-N2-C2
5	U	1	NAG	C8-C7-N2-C2
5	Z	1	NAG	C8-C7-N2-C2
6	S	5	MAN	O5-C5-C6-O6
6	X	5	MAN	O5-C5-C6-O6
6	N	5	MAN	O5-C5-C6-O6
5	M	1	NAG	C4-C5-C6-O6
5	R	1	NAG	C4-C5-C6-O6
5	W	1	NAG	C4-C5-C6-O6
5	R	3	BMA	O5-C5-C6-O6
5	W	3	BMA	O5-C5-C6-O6
5	M	3	BMA	O5-C5-C6-O6
5	P	1	NAG	O7-C7-N2-C2
5	U	1	NAG	O7-C7-N2-C2
5	Z	1	NAG	O7-C7-N2-C2
6	N	2	NAG	O7-C7-N2-C2
6	S	2	NAG	O7-C7-N2-C2
6	X	2	NAG	O7-C7-N2-C2
5	L	2	NAG	C4-C5-C6-O6
5	Q	2	NAG	C4-C5-C6-O6

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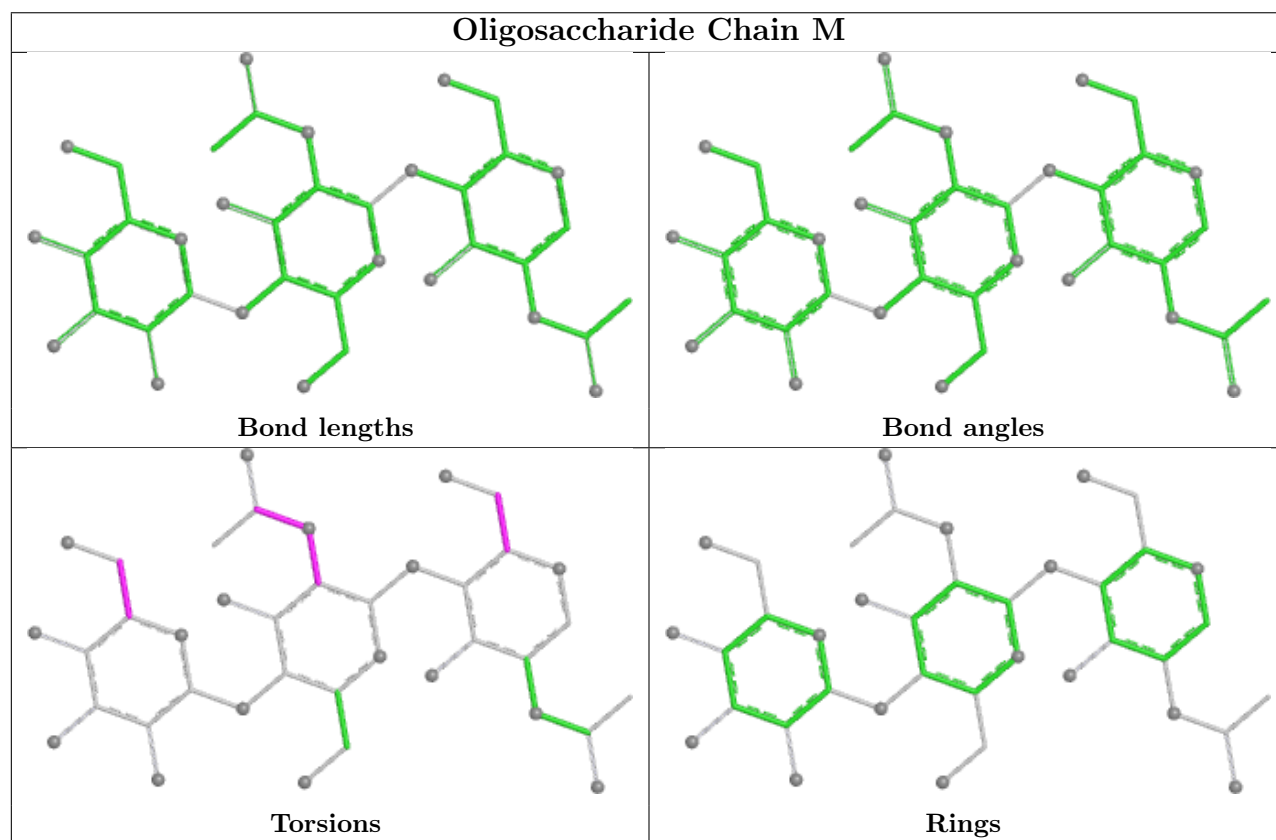
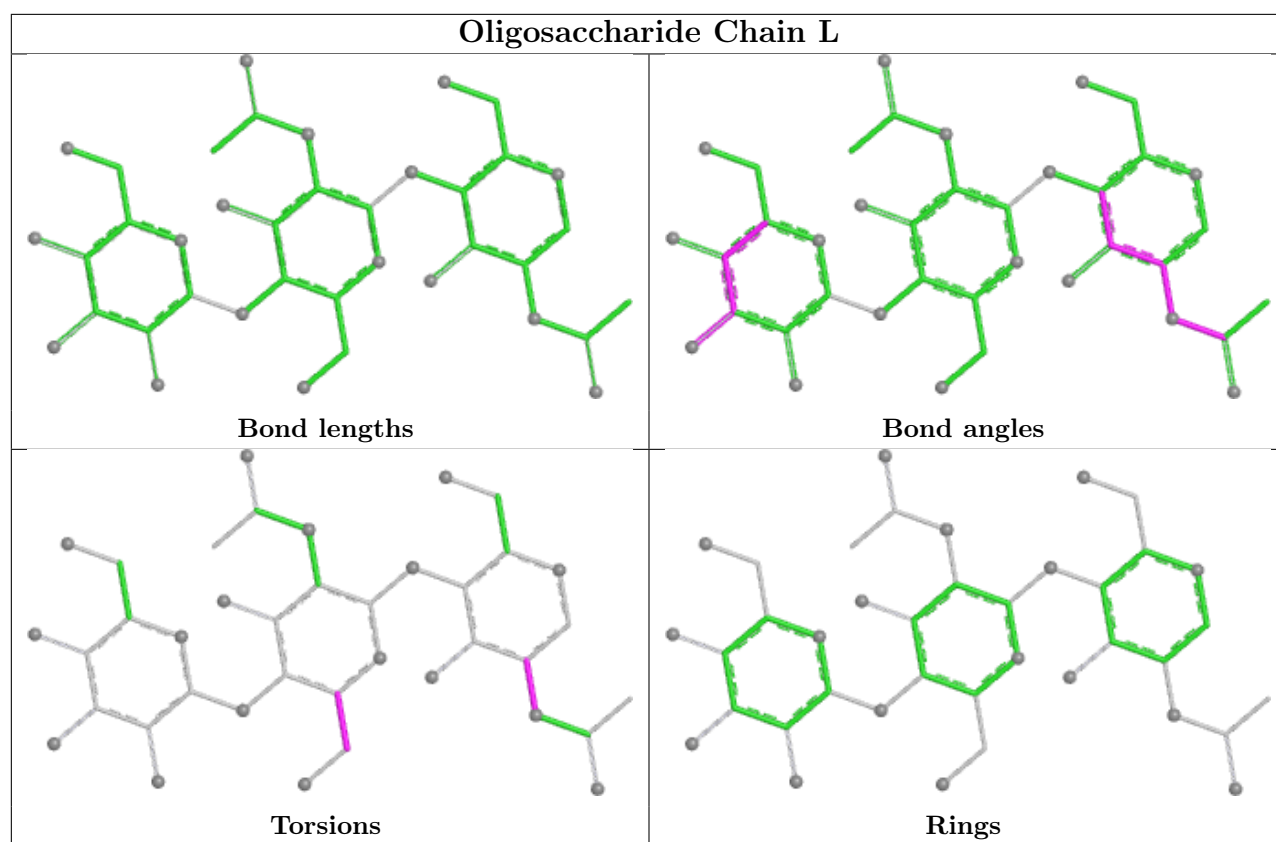
Mol	Chain	Res	Type	Atoms
5	V	2	NAG	C4-C5-C6-O6
6	N	2	NAG	O5-C5-C6-O6
6	S	2	NAG	O5-C5-C6-O6
6	X	2	NAG	O5-C5-C6-O6
6	X	5	MAN	C4-C5-C6-O6
6	S	5	MAN	C4-C5-C6-O6
6	N	5	MAN	C4-C5-C6-O6
6	X	4	MAN	O5-C5-C6-O6
6	N	4	MAN	O5-C5-C6-O6
6	S	4	MAN	O5-C5-C6-O6
5	L	1	NAG	C3-C2-N2-C7
5	Q	1	NAG	C3-C2-N2-C7
5	V	1	NAG	C3-C2-N2-C7
5	R	3	BMA	C4-C5-C6-O6
5	W	3	BMA	C4-C5-C6-O6
5	M	3	BMA	C4-C5-C6-O6
6	N	6	MAN	O5-C5-C6-O6
6	X	6	MAN	O5-C5-C6-O6
6	S	6	MAN	O5-C5-C6-O6
5	L	1	NAG	C1-C2-N2-C7
5	Q	1	NAG	C1-C2-N2-C7
5	V	1	NAG	C1-C2-N2-C7
5	P	2	NAG	C3-C2-N2-C7
5	U	2	NAG	C3-C2-N2-C7
5	Z	2	NAG	C3-C2-N2-C7

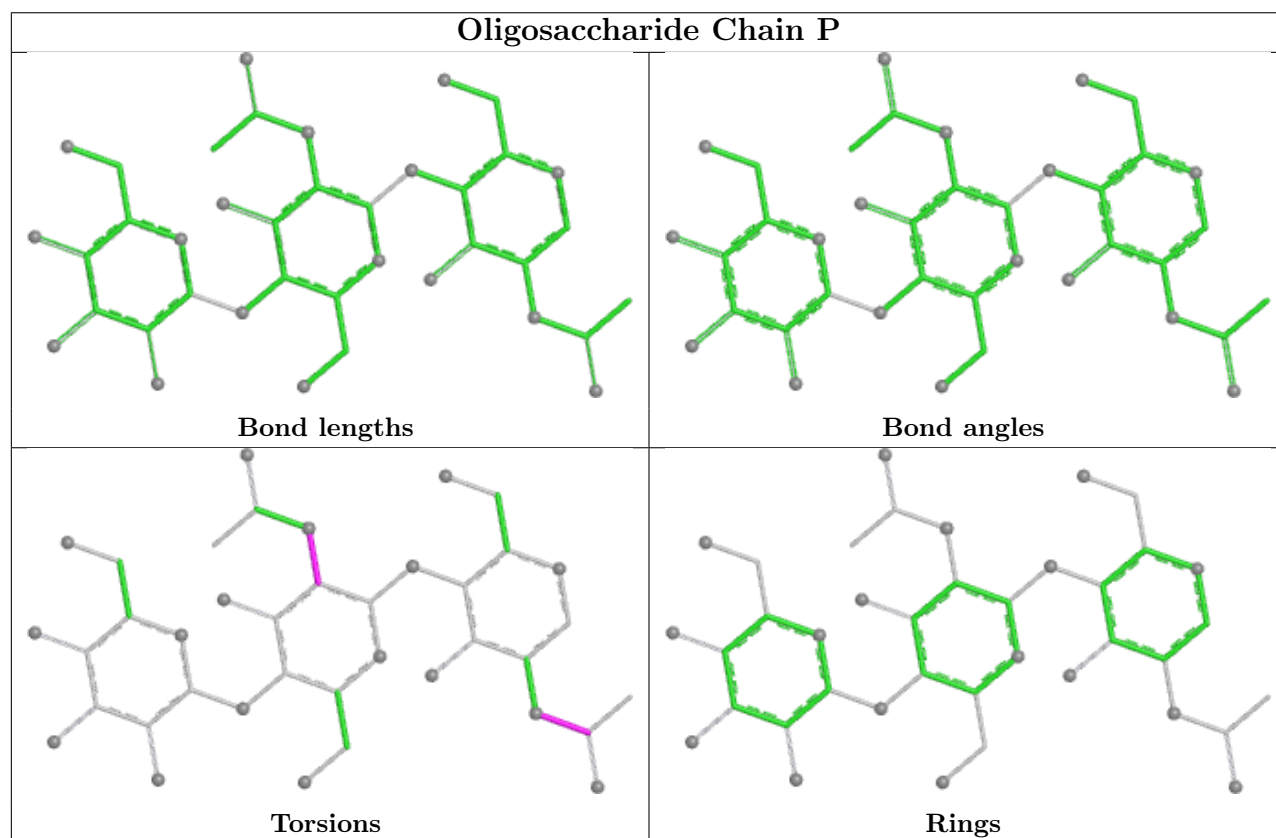
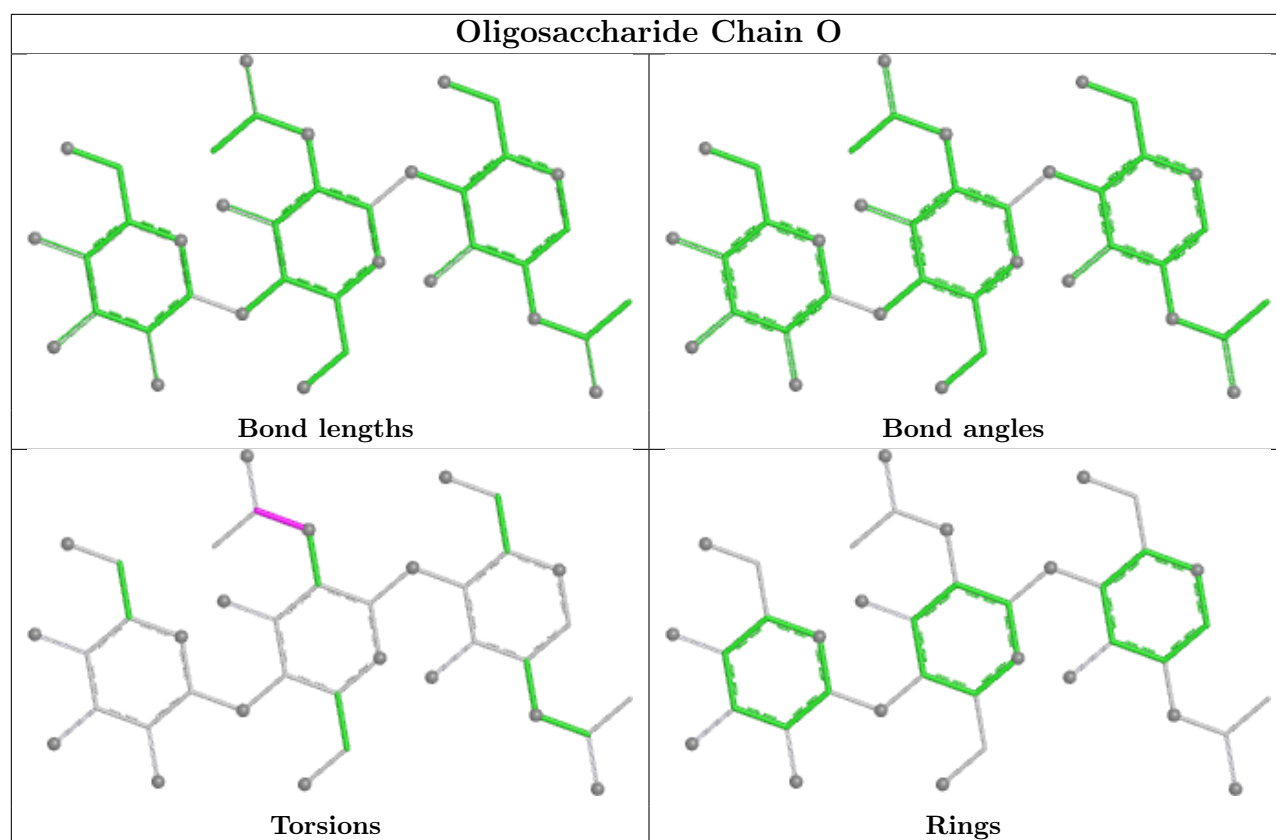
There are no ring outliers.

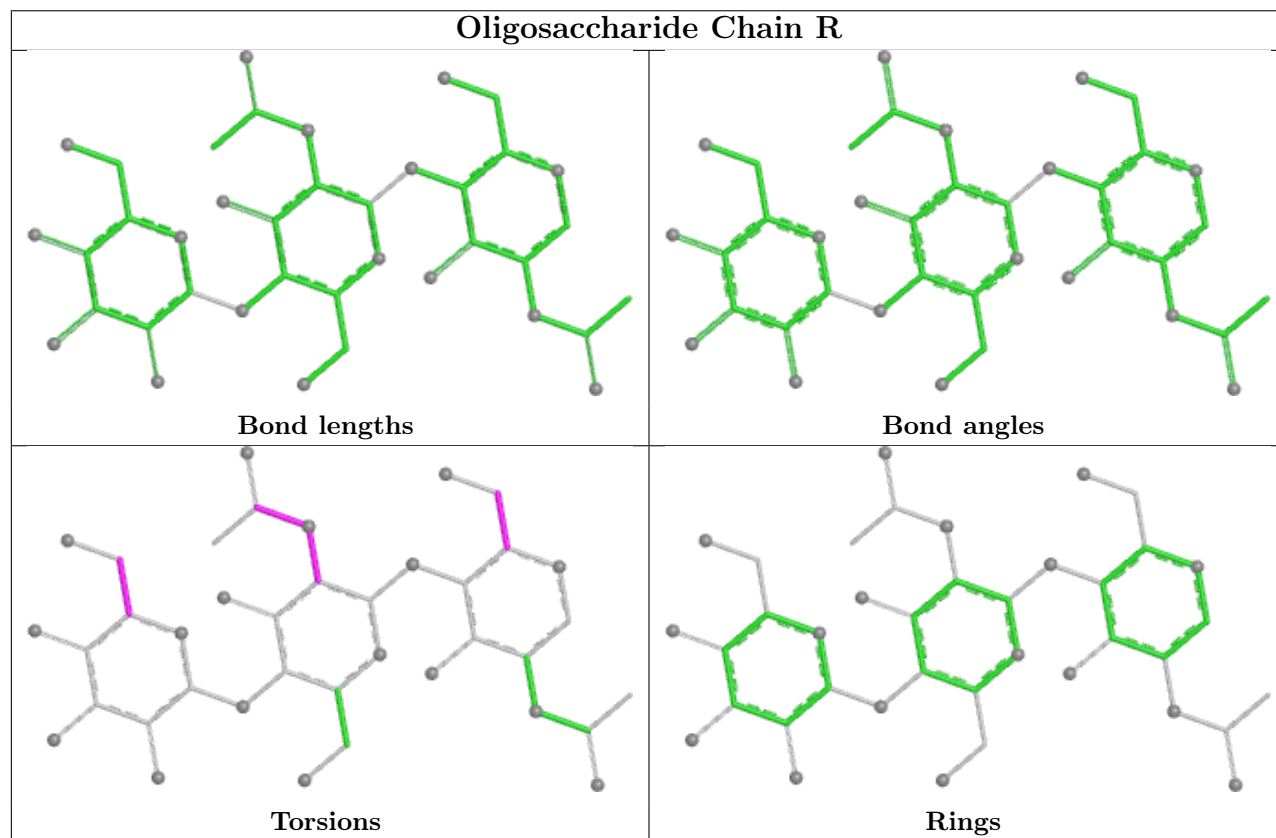
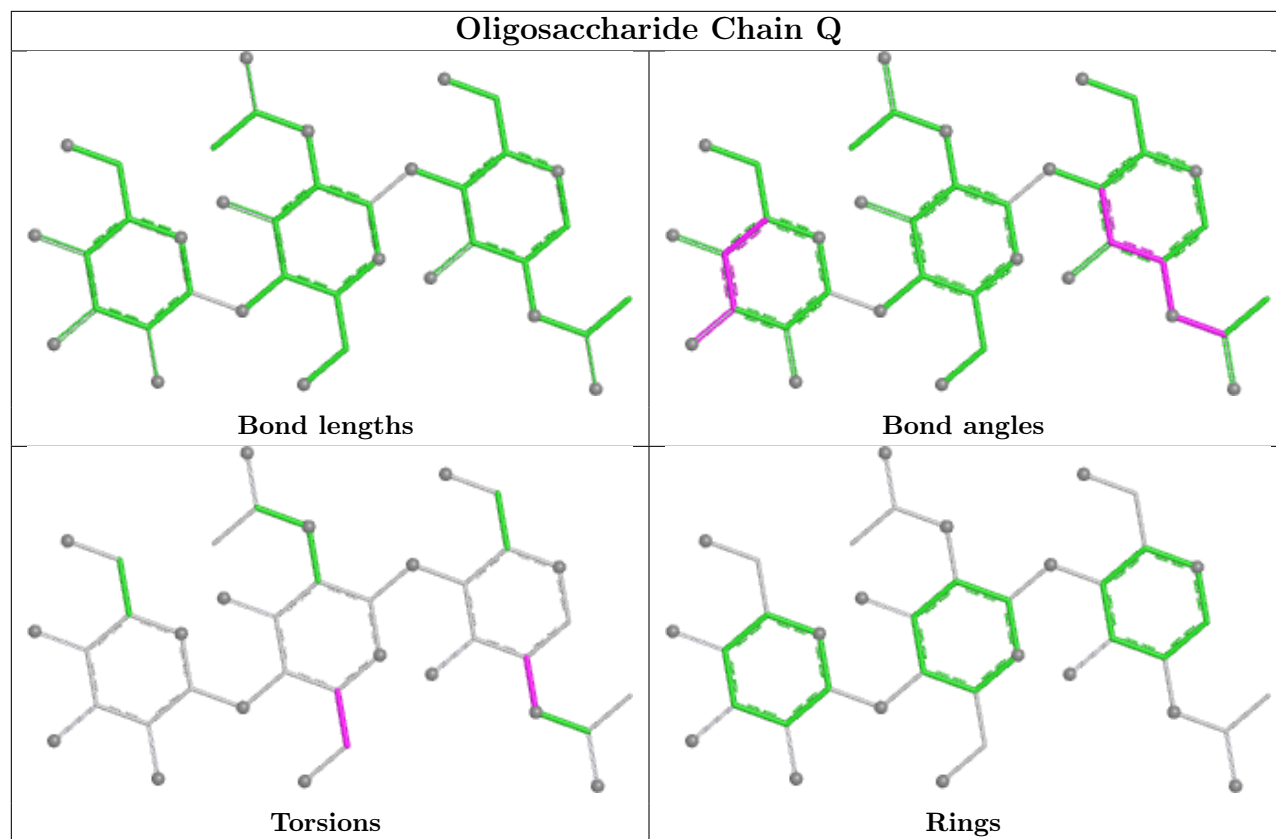
6 monomers are involved in 6 short contacts:

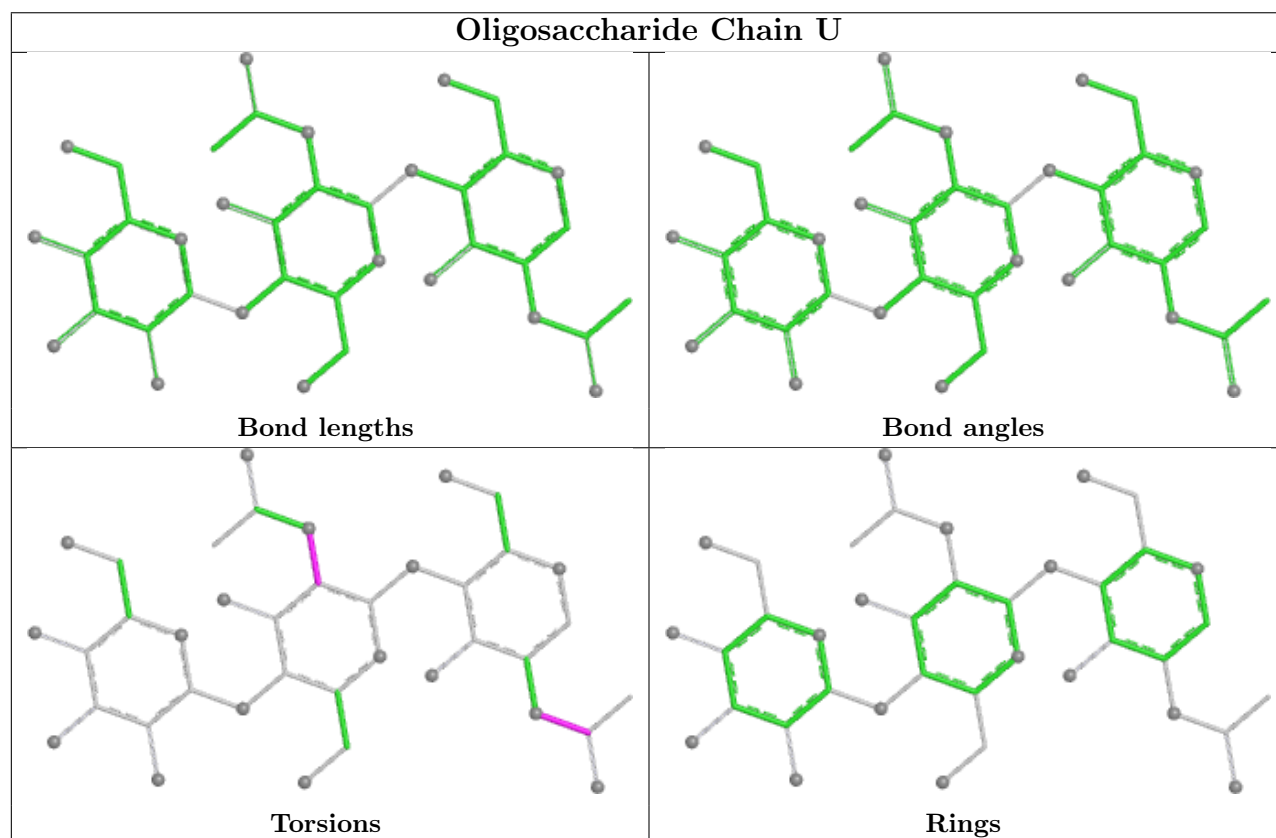
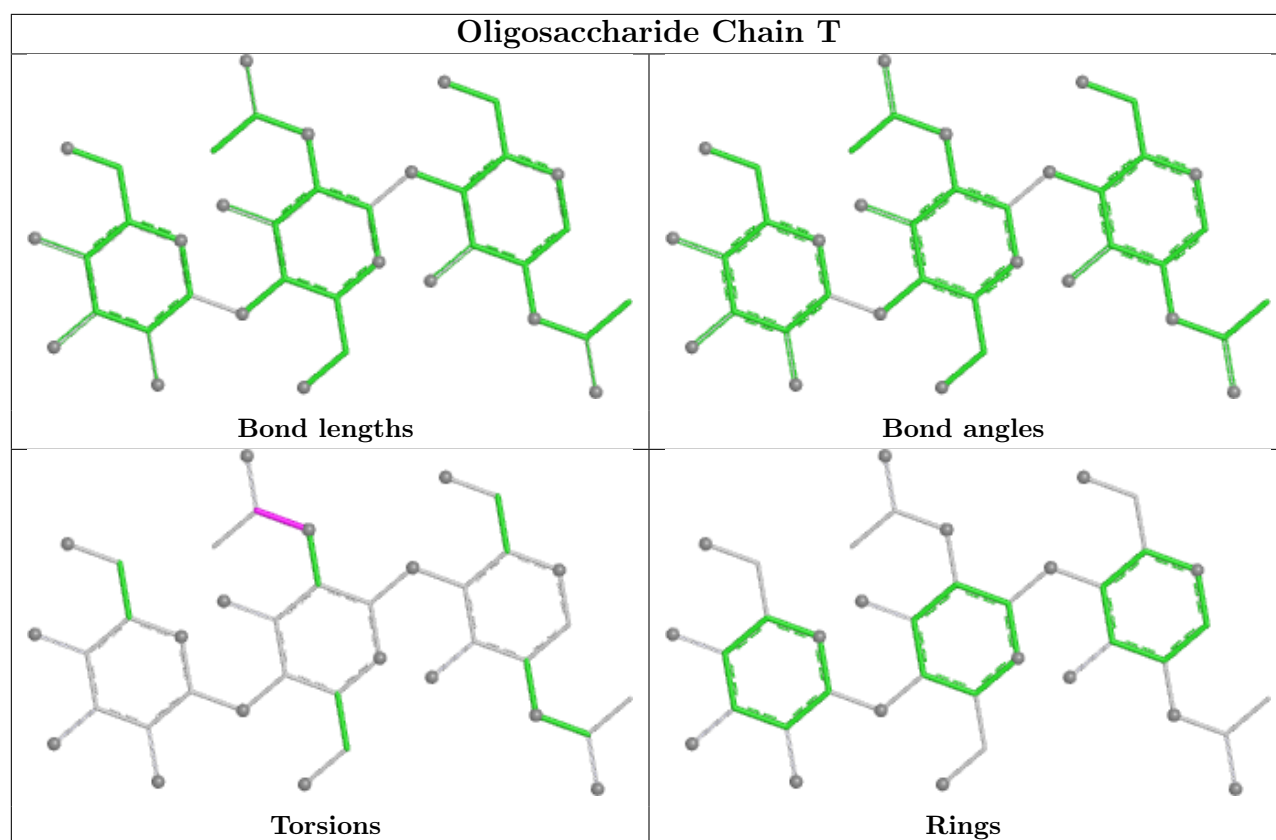
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	M	3	BMA	2	0
5	Q	1	NAG	1	0
5	Q	2	NAG	1	0
6	S	5	MAN	1	0
5	R	3	BMA	1	0
5	W	3	BMA	1	0

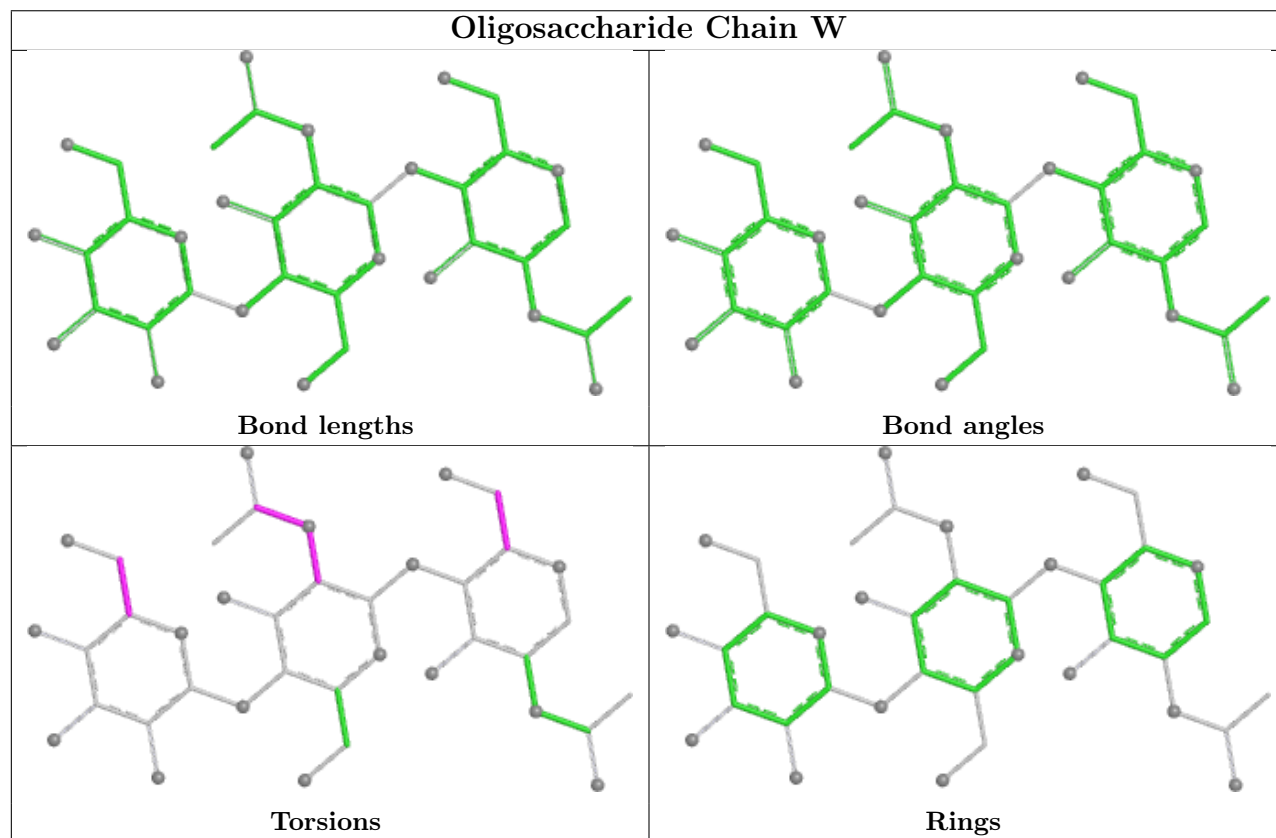
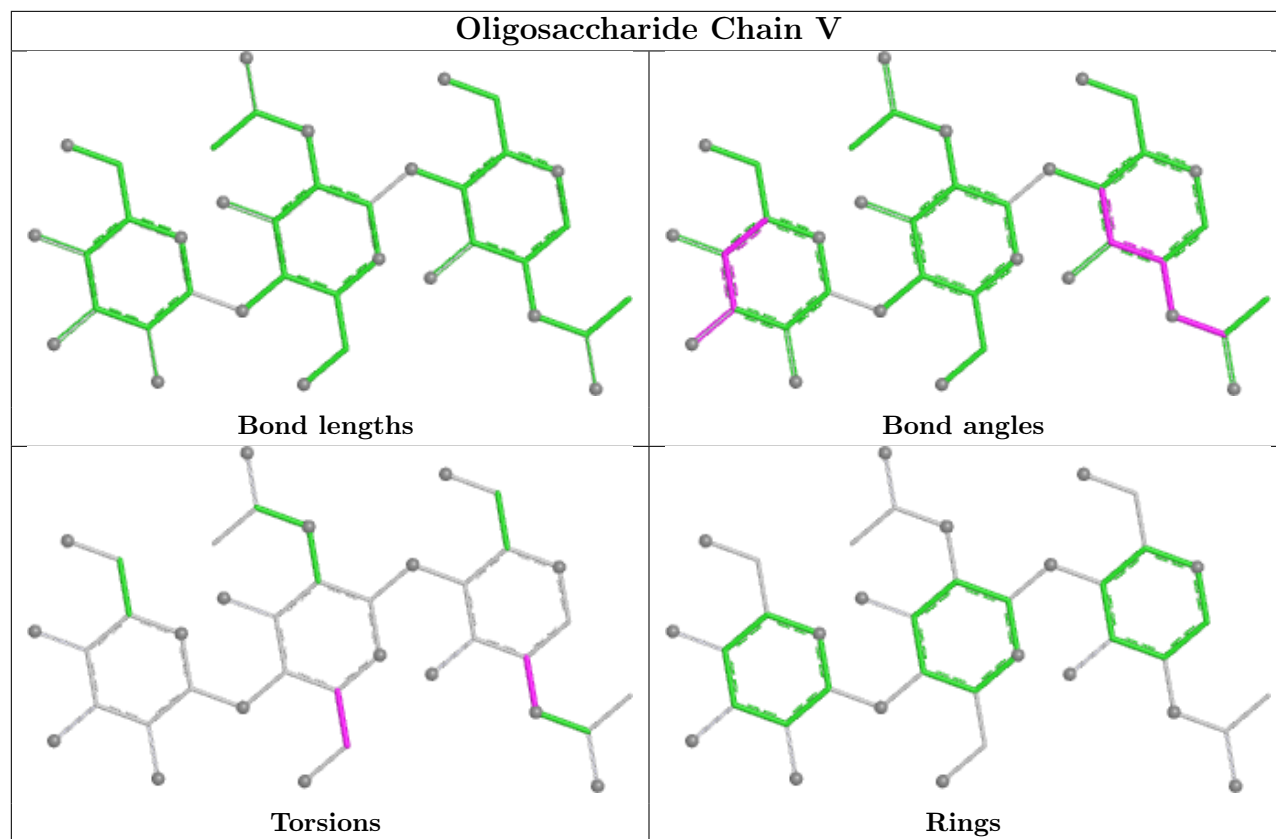
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

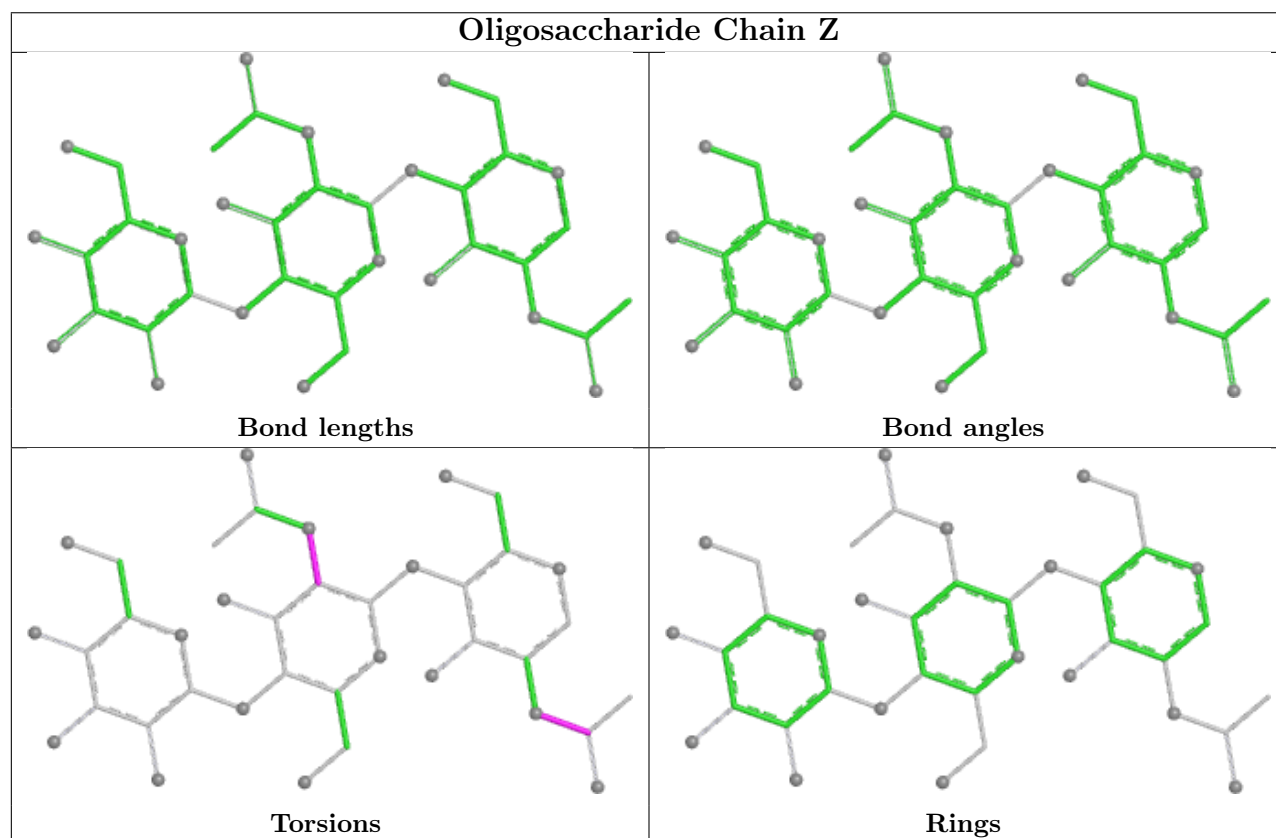
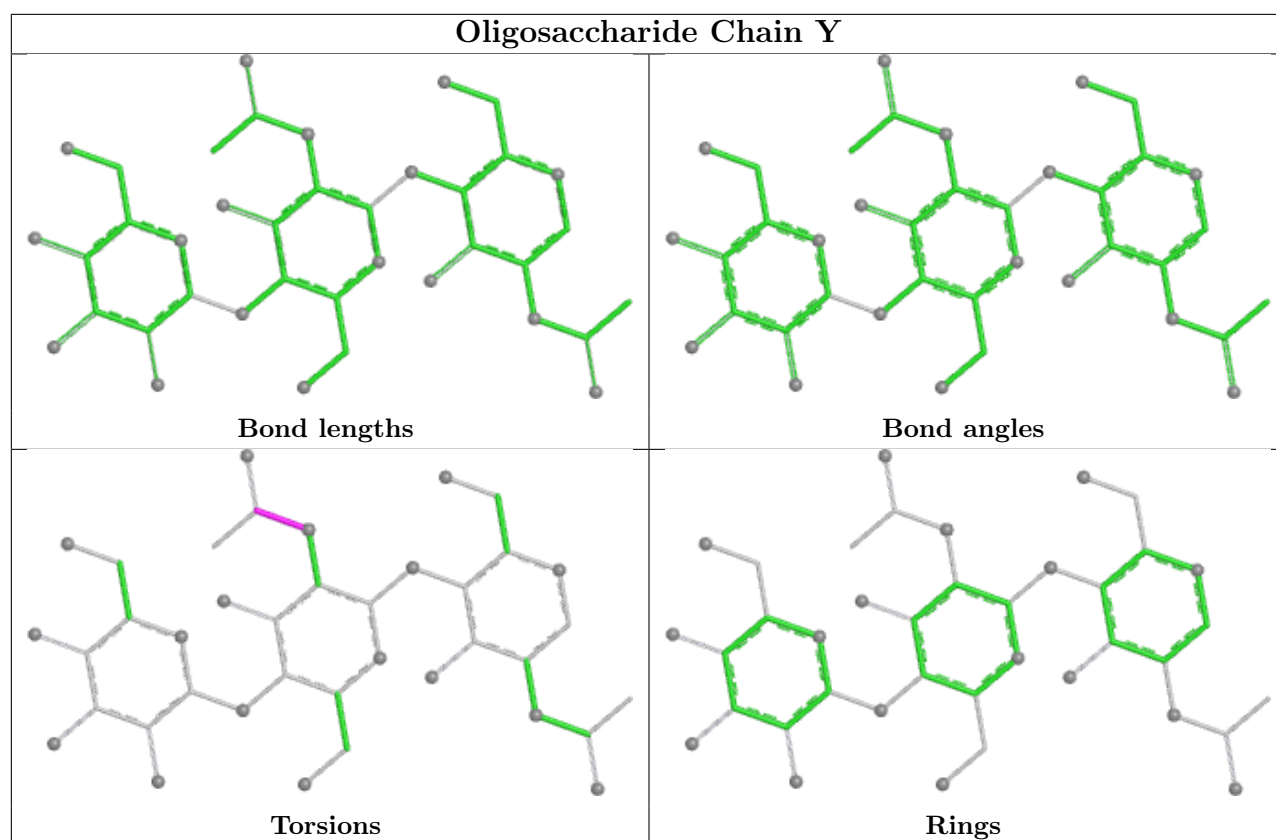


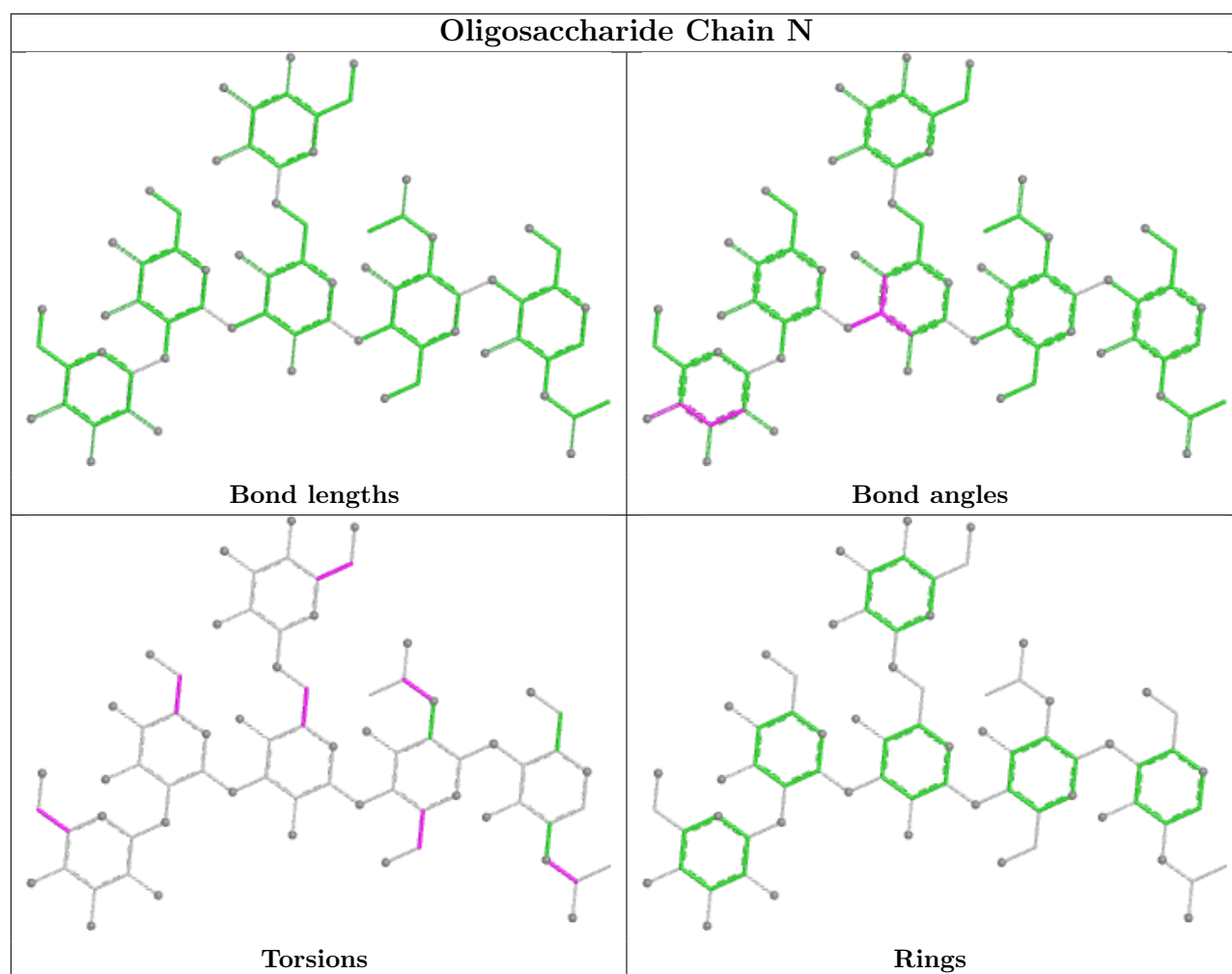


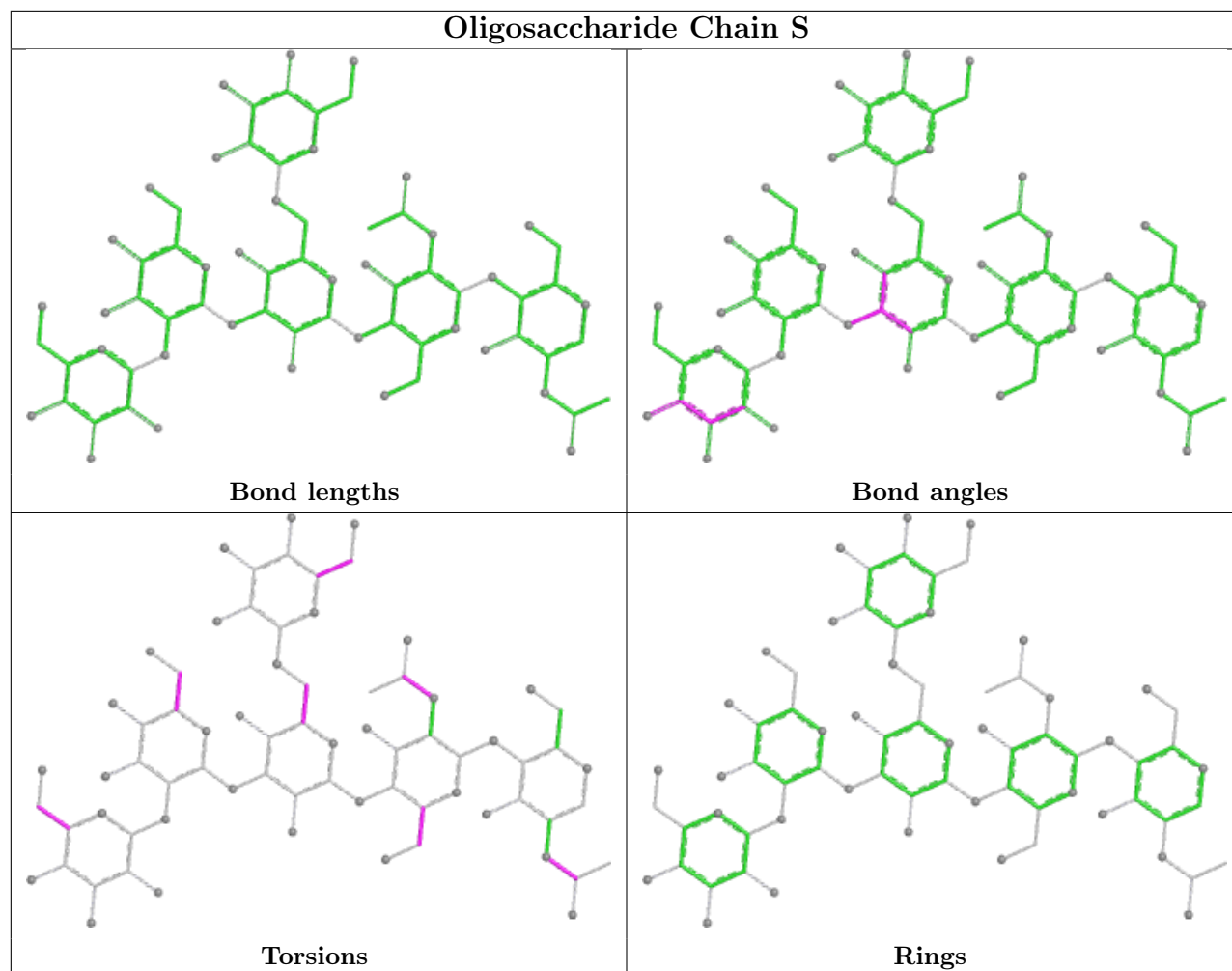


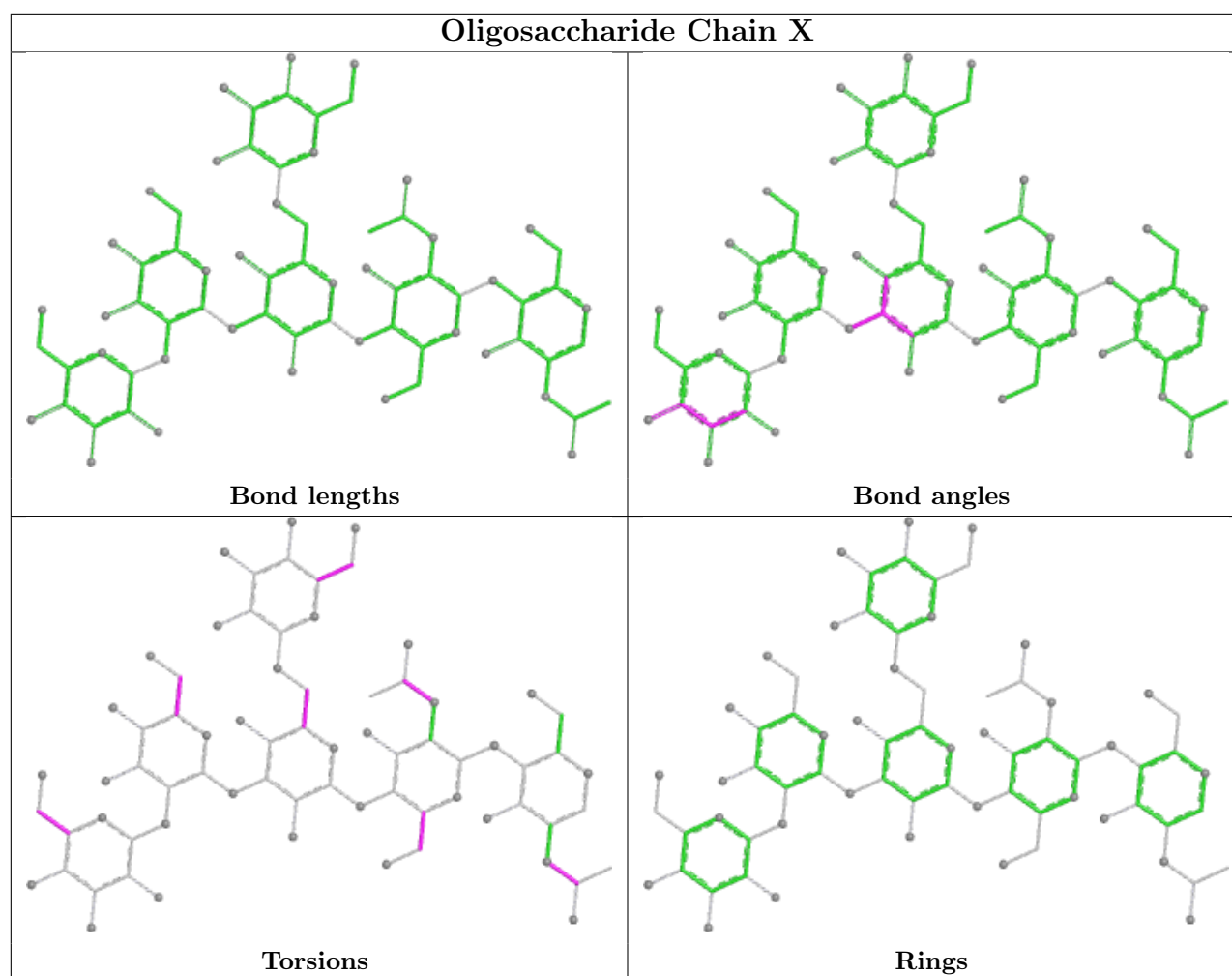












5.6 Ligand geometry [i](#)

24 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	$\# Z > 2$
7	NAG	I	624	1	14,14,15	0.28	0	17,19,21	0.60	0
7	NAG	A	626	1	14,14,15	0.27	0	17,19,21	0.67	0
7	NAG	I	619	1	14,14,15	0.29	0	17,19,21	0.76	0
7	NAG	A	624	1	14,14,15	0.29	0	17,19,21	0.62	0
7	NAG	A	619	1	14,14,15	0.30	0	17,19,21	0.76	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
7	NAG	I	625	1	14,14,15	0.33	0	17,19,21	1.17	2 (11%)
7	NAG	E	624	1	14,14,15	0.27	0	17,19,21	0.62	0
7	NAG	E	619	1	14,14,15	0.29	0	17,19,21	0.77	0
7	NAG	A	623	1	14,14,15	0.31	0	17,19,21	0.62	0
7	NAG	I	623	1	14,14,15	0.30	0	17,19,21	0.61	0
7	NAG	E	621	1	14,14,15	0.31	0	17,19,21	0.97	1 (5%)
7	NAG	A	622	1	14,14,15	0.34	0	17,19,21	0.60	0
7	NAG	A	625	1	14,14,15	0.33	0	17,19,21	1.18	2 (11%)
7	NAG	E	626	1	14,14,15	0.29	0	17,19,21	0.66	0
7	NAG	I	622	1	14,14,15	0.31	0	17,19,21	0.59	0
7	NAG	I	620	1	14,14,15	0.29	0	17,19,21	0.64	0
7	NAG	I	621	1	14,14,15	0.31	0	17,19,21	0.99	1 (5%)
7	NAG	E	623	1	14,14,15	0.28	0	17,19,21	0.62	0
7	NAG	E	622	1	14,14,15	0.32	0	17,19,21	0.61	0
7	NAG	E	620	1	14,14,15	0.28	0	17,19,21	0.63	0
7	NAG	I	626	1	14,14,15	0.28	0	17,19,21	0.67	0
7	NAG	E	625	1	14,14,15	0.34	0	17,19,21	1.16	2 (11%)
7	NAG	A	620	1	14,14,15	0.28	0	17,19,21	0.63	0
7	NAG	A	621	1	14,14,15	0.33	0	17,19,21	0.96	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
7	NAG	I	624	1	-	2/6/23/26	0/1/1/1
7	NAG	A	626	1	-	2/6/23/26	0/1/1/1
7	NAG	I	619	1	-	2/6/23/26	0/1/1/1
7	NAG	A	624	1	-	2/6/23/26	0/1/1/1
7	NAG	A	619	1	-	2/6/23/26	0/1/1/1
7	NAG	I	625	1	-	4/6/23/26	0/1/1/1
7	NAG	E	624	1	-	2/6/23/26	0/1/1/1
7	NAG	E	619	1	-	2/6/23/26	0/1/1/1
7	NAG	A	623	1	-	4/6/23/26	0/1/1/1
7	NAG	I	623	1	-	4/6/23/26	0/1/1/1
7	NAG	E	621	1	-	2/6/23/26	0/1/1/1
7	NAG	A	622	1	-	2/6/23/26	0/1/1/1
7	NAG	A	625	1	-	4/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	NAG	E	626	1	-	2/6/23/26	0/1/1/1
7	NAG	I	622	1	-	2/6/23/26	0/1/1/1
7	NAG	I	620	1	-	2/6/23/26	0/1/1/1
7	NAG	I	621	1	-	2/6/23/26	0/1/1/1
7	NAG	E	623	1	-	4/6/23/26	0/1/1/1
7	NAG	E	622	1	-	2/6/23/26	0/1/1/1
7	NAG	E	620	1	-	2/6/23/26	0/1/1/1
7	NAG	I	626	1	-	2/6/23/26	0/1/1/1
7	NAG	E	625	1	-	4/6/23/26	0/1/1/1
7	NAG	A	620	1	-	2/6/23/26	0/1/1/1
7	NAG	A	621	1	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	A	625	NAG	O5-C1-C2	-2.87	106.85	111.29
7	I	625	NAG	O5-C1-C2	-2.87	106.86	111.29
7	E	625	NAG	O5-C1-C2	-2.82	106.93	111.29
7	A	625	NAG	C1-O5-C5	2.55	115.60	112.19
7	E	625	NAG	C1-O5-C5	2.51	115.56	112.19
7	I	625	NAG	C1-O5-C5	2.51	115.56	112.19
7	I	621	NAG	C2-N2-C7	-2.12	120.06	122.90
7	E	621	NAG	C2-N2-C7	-2.07	120.13	122.90

There are no chirality outliers.

All (60) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	A	620	NAG	C8-C7-N2-C2
7	A	620	NAG	O7-C7-N2-C2
7	A	623	NAG	C1-C2-N2-C7
7	A	623	NAG	C8-C7-N2-C2
7	A	623	NAG	O7-C7-N2-C2
7	A	625	NAG	C3-C2-N2-C7
7	A	625	NAG	C8-C7-N2-C2
7	A	625	NAG	O7-C7-N2-C2
7	A	626	NAG	O7-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
7	E	620	NAG	C8-C7-N2-C2
7	E	620	NAG	O7-C7-N2-C2
7	E	623	NAG	C1-C2-N2-C7
7	E	623	NAG	C8-C7-N2-C2
7	E	623	NAG	O7-C7-N2-C2
7	E	625	NAG	C3-C2-N2-C7
7	E	625	NAG	C8-C7-N2-C2
7	E	625	NAG	O7-C7-N2-C2
7	E	626	NAG	O7-C7-N2-C2
7	I	620	NAG	C8-C7-N2-C2
7	I	620	NAG	O7-C7-N2-C2
7	I	623	NAG	C1-C2-N2-C7
7	I	623	NAG	C8-C7-N2-C2
7	I	623	NAG	O7-C7-N2-C2
7	I	625	NAG	C3-C2-N2-C7
7	I	625	NAG	C8-C7-N2-C2
7	I	625	NAG	O7-C7-N2-C2
7	I	626	NAG	O7-C7-N2-C2
7	A	619	NAG	C8-C7-N2-C2
7	A	619	NAG	O7-C7-N2-C2
7	A	626	NAG	C8-C7-N2-C2
7	E	619	NAG	C8-C7-N2-C2
7	E	619	NAG	O7-C7-N2-C2
7	E	626	NAG	C8-C7-N2-C2
7	I	619	NAG	C8-C7-N2-C2
7	I	619	NAG	O7-C7-N2-C2
7	I	626	NAG	C8-C7-N2-C2
7	A	624	NAG	C8-C7-N2-C2
7	E	624	NAG	C8-C7-N2-C2
7	I	624	NAG	C8-C7-N2-C2
7	A	624	NAG	O7-C7-N2-C2
7	E	624	NAG	O7-C7-N2-C2
7	I	624	NAG	O7-C7-N2-C2
7	A	622	NAG	C4-C5-C6-O6
7	E	622	NAG	C4-C5-C6-O6
7	I	622	NAG	C4-C5-C6-O6
7	A	625	NAG	O5-C5-C6-O6
7	E	625	NAG	O5-C5-C6-O6
7	I	625	NAG	O5-C5-C6-O6
7	A	622	NAG	O5-C5-C6-O6
7	E	622	NAG	O5-C5-C6-O6
7	I	622	NAG	O5-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
7	I	621	NAG	C8-C7-N2-C2
7	A	621	NAG	C8-C7-N2-C2
7	E	621	NAG	C8-C7-N2-C2
7	A	623	NAG	C3-C2-N2-C7
7	E	623	NAG	C3-C2-N2-C7
7	I	623	NAG	C3-C2-N2-C7
7	I	621	NAG	O7-C7-N2-C2
7	A	621	NAG	O7-C7-N2-C2
7	E	621	NAG	O7-C7-N2-C2

There are no ring outliers.

6 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	A	626	NAG	3	0
7	I	625	NAG	1	0
7	A	625	NAG	1	0
7	E	626	NAG	3	0
7	I	626	NAG	3	0
7	E	625	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-20819. These allow visual inspection of the internal detail of the map and identification of artifacts.

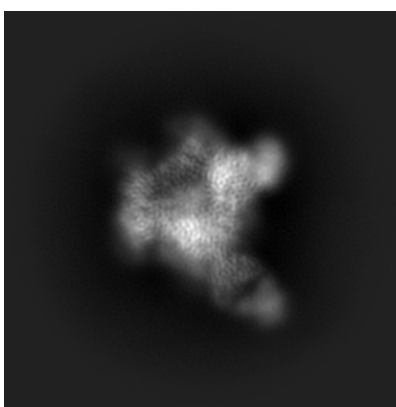
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

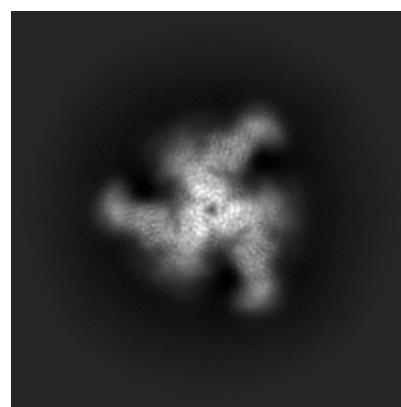
6.1.1 Primary map



X



Y

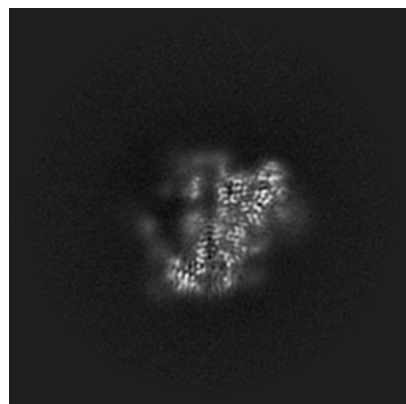


Z

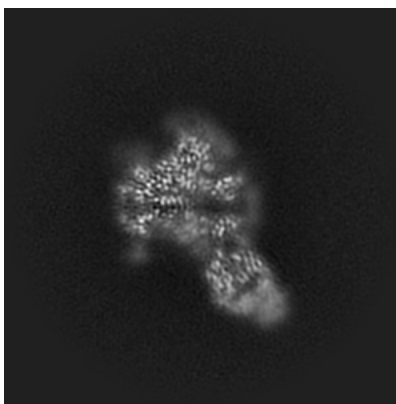
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

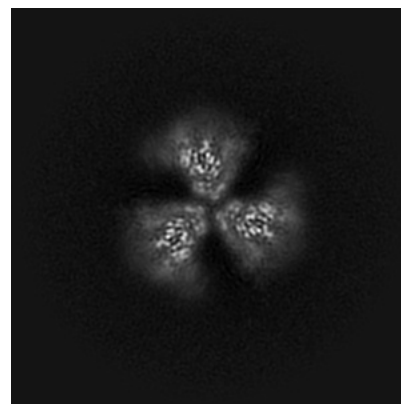
6.2.1 Primary map



X Index: 160



Y Index: 160

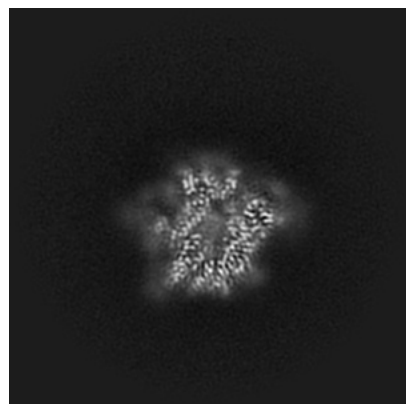


Z Index: 160

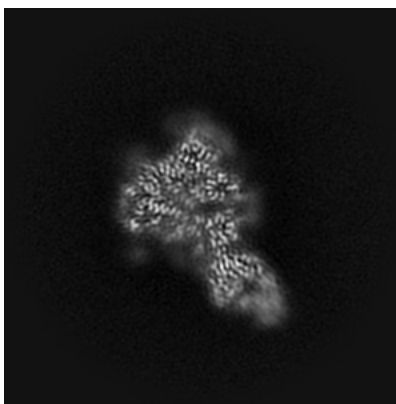
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

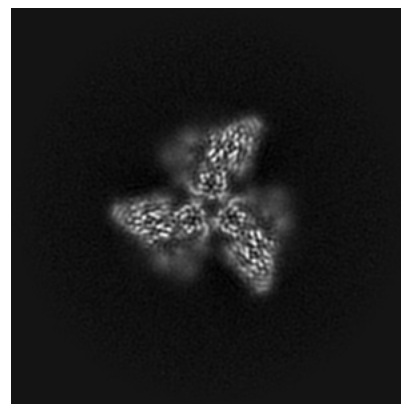
6.3.1 Primary map



X Index: 149



Y Index: 154



Z Index: 173

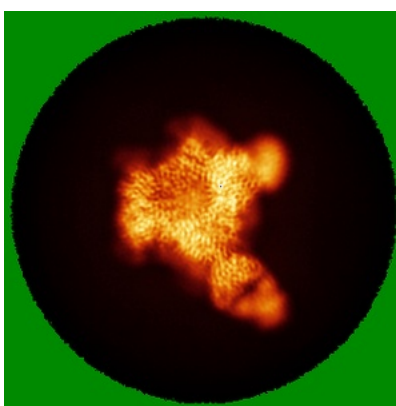
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

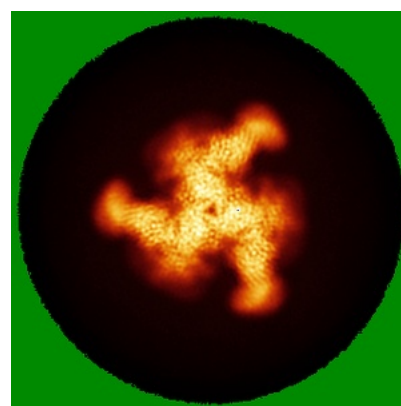
6.4.1 Primary map



X



Y



Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 1.18. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

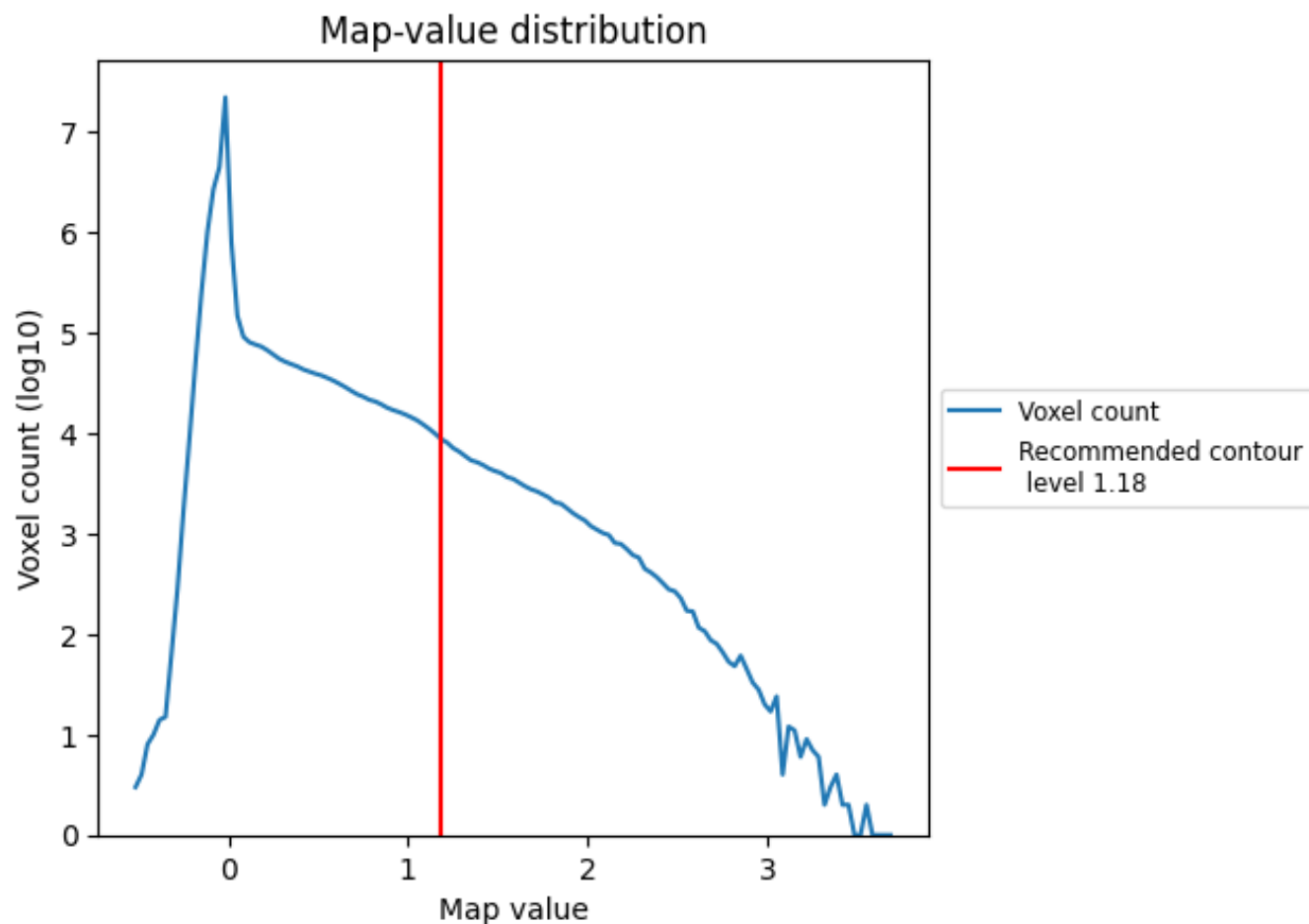
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

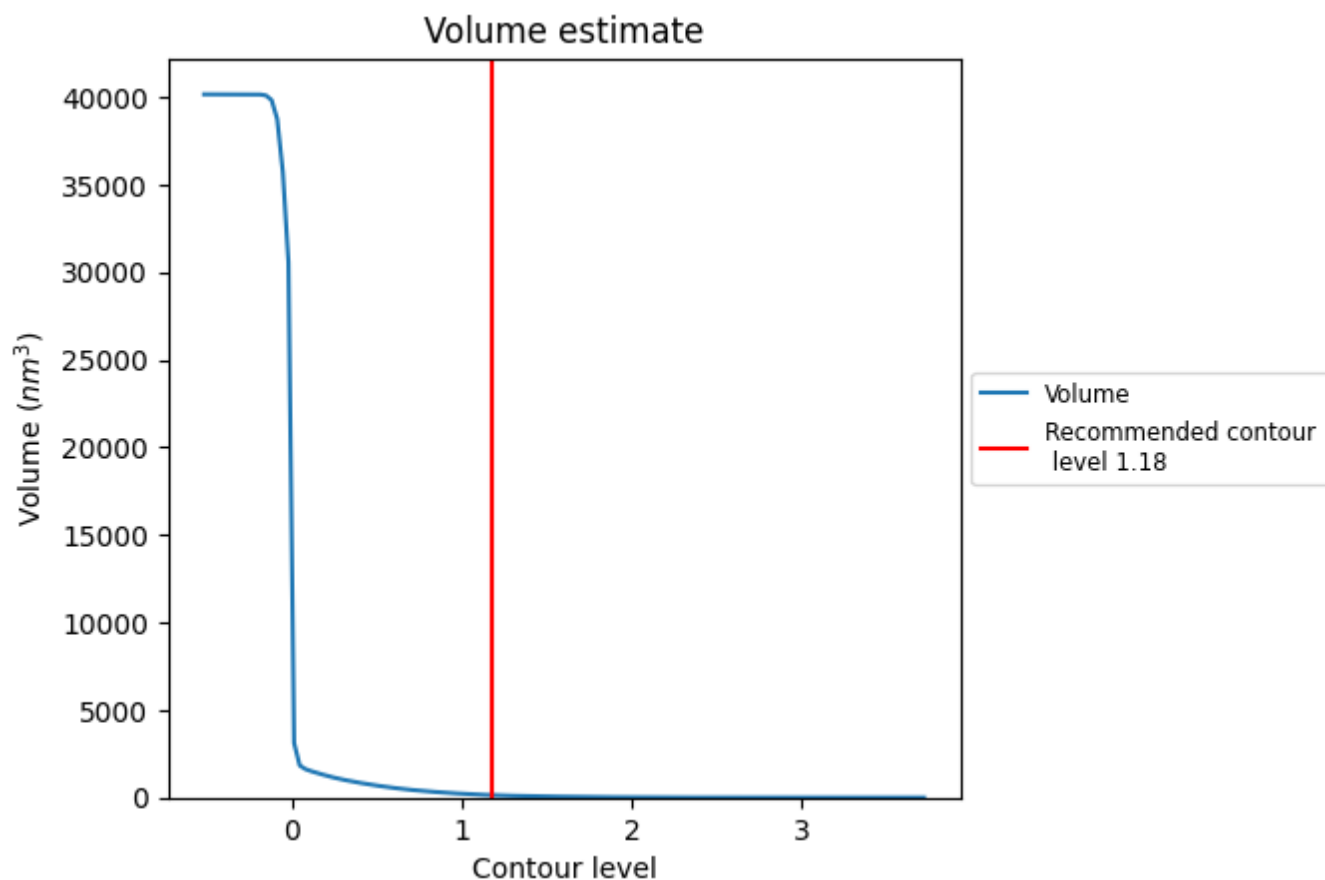
This section contains the results of statistical analysis of the map.

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.

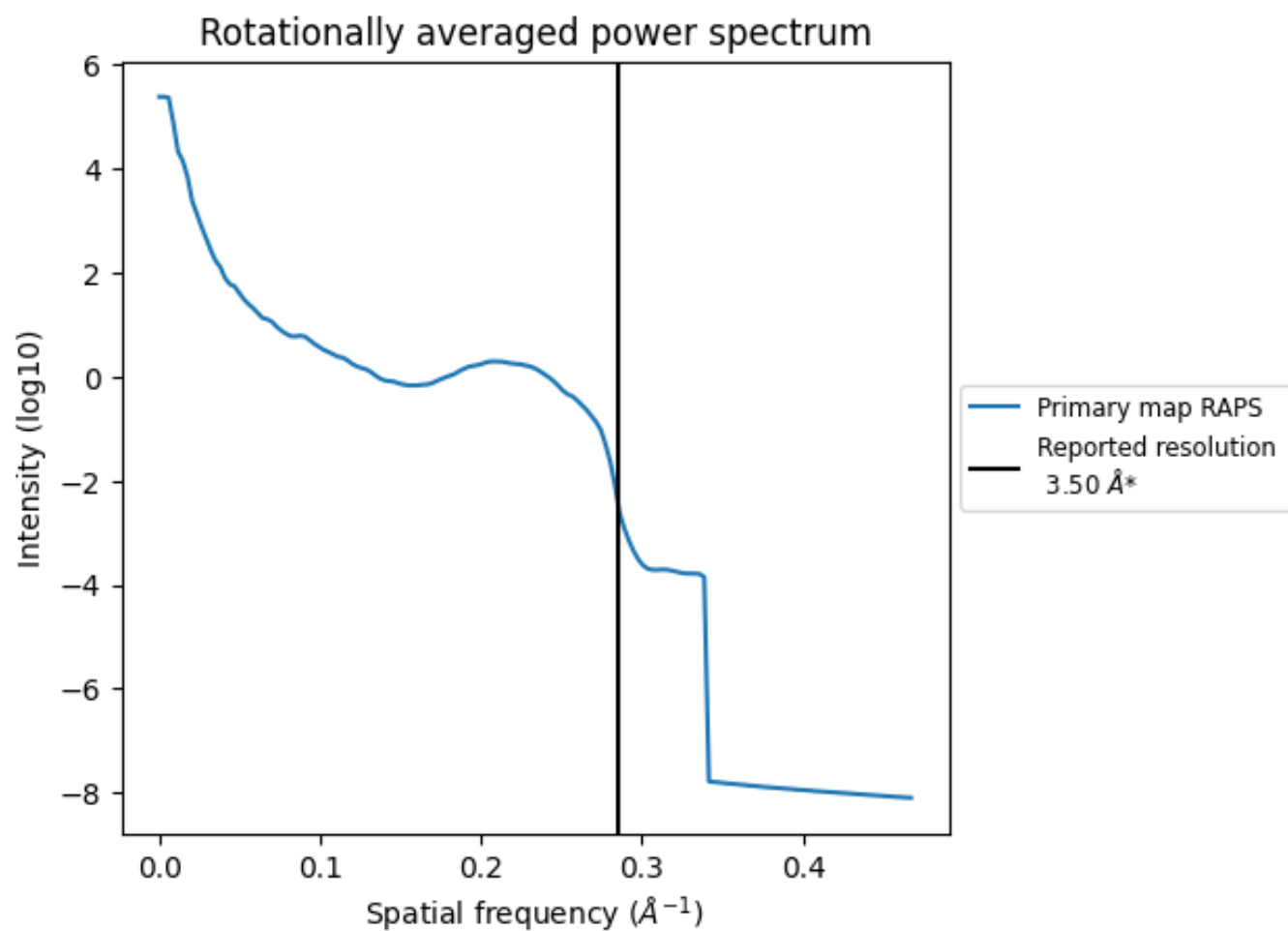
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 136 nm³; this corresponds to an approximate mass of 123 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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.286 Å⁻¹

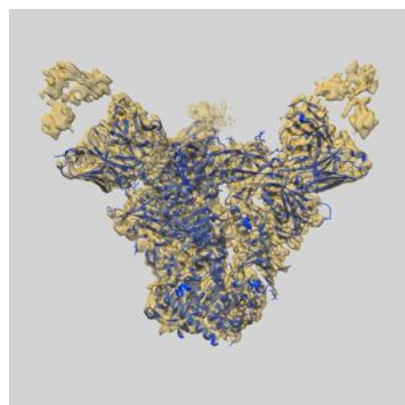
8 Fourier-Shell correlation

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

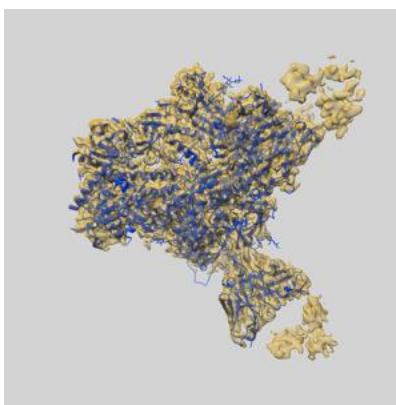
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-20819 and PDB model 6UM7. Per-residue inclusion information can be found in section 3 on page 10.

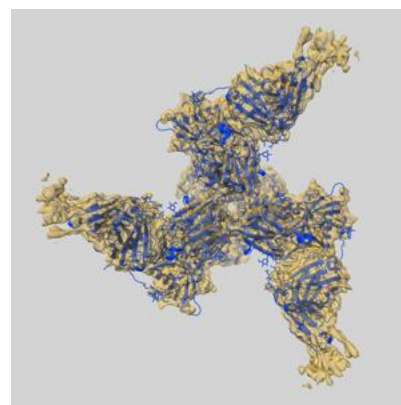
9.1 Map-model overlay [i](#)



X



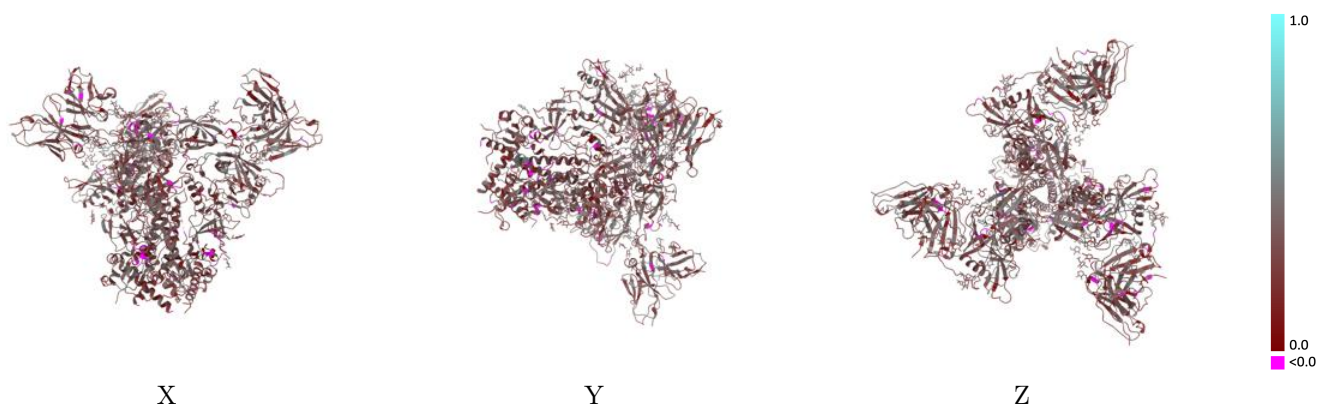
Y



Z

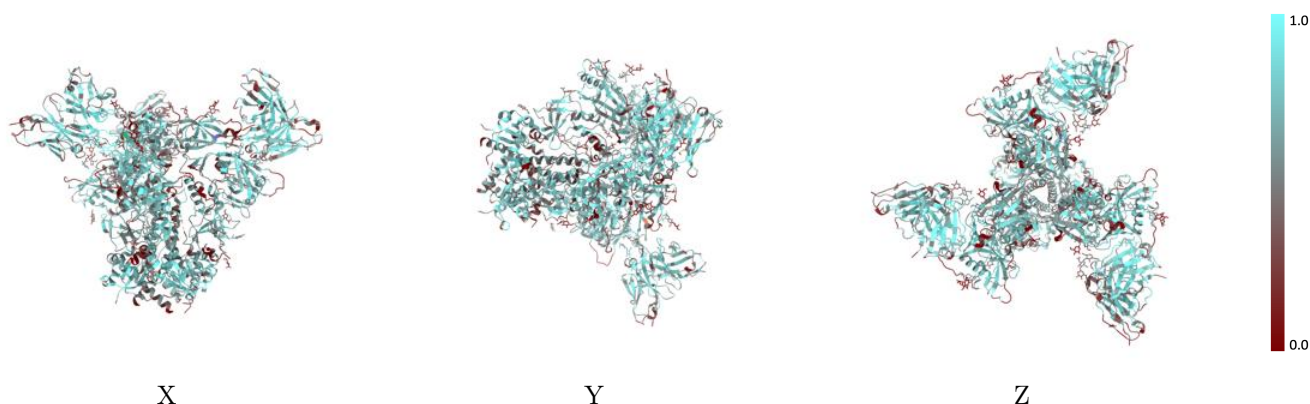
The images above show the 3D surface view of the map at the recommended contour level 1.18 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model [i](#)



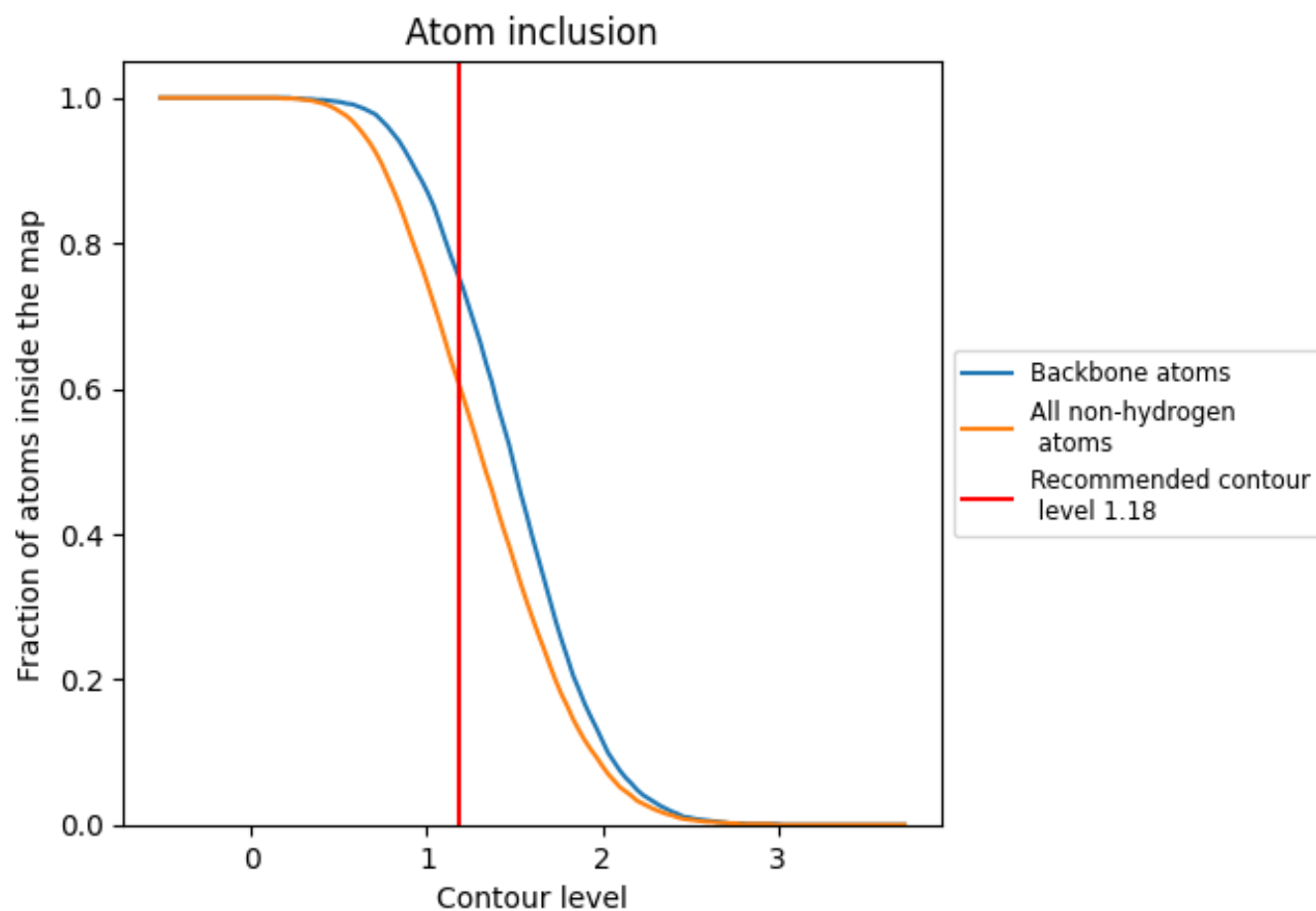
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (1.18).

9.4 Atom inclusion [i](#)



At the recommended contour level, 76% of all backbone atoms, 61% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (1.18) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6080	 0.3010
1	 0.5960	 0.2520
A	 0.5890	 0.2940
B	 0.6980	 0.3160
C	 0.5860	 0.2730
D	 0.6090	 0.2900
E	 0.6000	 0.3090
F	 0.7110	 0.3230
G	 0.6210	 0.3070
H	 0.5830	 0.2550
I	 0.5860	 0.2990
J	 0.7060	 0.3420
K	 0.6190	 0.3200
L	 0.5640	 0.3570
M	 0.3330	 0.2610
N	 0.7500	 0.3900
O	 0.3330	 0.3860
P	 0.2050	 0.3480
Q	 0.6410	 0.4450
R	 0.4870	 0.2640
S	 0.7640	 0.3100
T	 0.4100	 0.3930
U	 0.1540	 0.3360
V	 0.5130	 0.3330
W	 0.3590	 0.2630
X	 0.7920	 0.4320
Y	 0.3850	 0.3980
Z	 0.2050	 0.3800

