Full wwPDB EM Validation Report ⓘ

Mar 9, 2026 – 04:57 PM UTC

PDB ID	:	8FYJ / pdb_00008fyj
EMDB ID	:	EMD-29580
Title	:	Structure of HIV-1 BG505 SOSIP-HT2 in complex with two CD4 molecules (class I)
Authors	:	Fan, C.; Dam, K.A.; Bjorkman, P.J.
Deposited on	:	2023-01-26
Resolution	:	4.00 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:

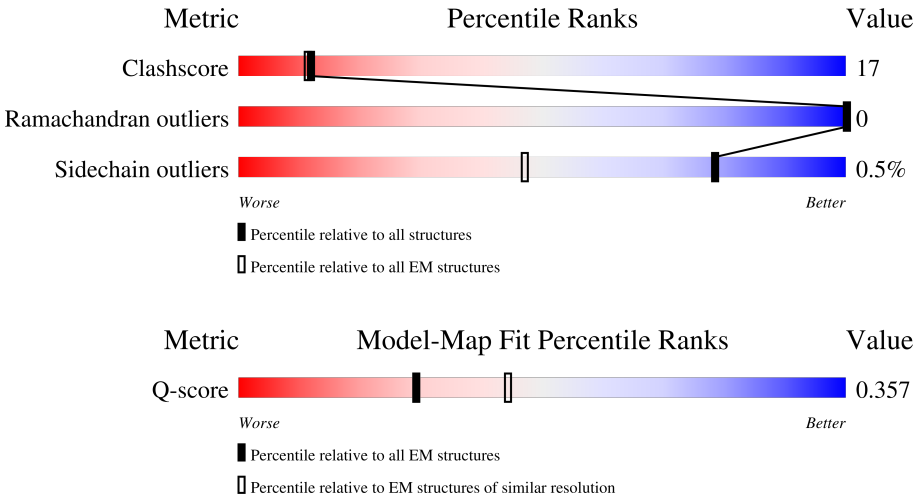
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data 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 4.00 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	7587 (3.50 - 4.50)

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 <=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	474	51% 24% 25%
1	B	474	49% 25% 25%
2	C	474	51% 36% 13%
3	D	153	58% 23% 20%

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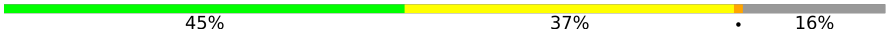
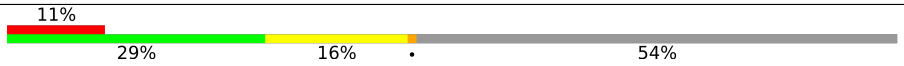
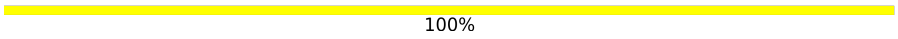
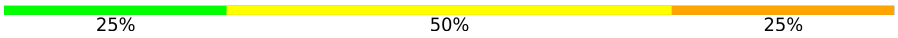
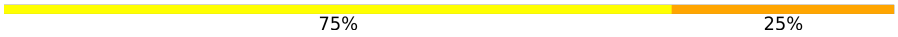
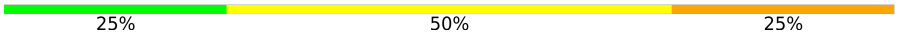
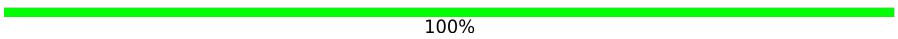
Mol	Chain	Length	Quality of chain
3	E	153	
3	F	153	
4	Y	379	
4	Z	379	
5	G	4	
5	J	4	
5	N	4	
6	H	4	
7	I	2	
7	L	2	
7	M	2	
7	O	2	
8	K	3	

2 Entry composition (i)

There are 9 unique types of molecules in this entry. The entry contains 15027 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 gp160.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	357	Total 2802	C 1774	N 489	O 516	S 23	0	0
1	B	355	Total 2783	C 1765	N 480	O 515	S 23	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	315	TRP	ALA	conflict	UNP Q2N0S5
A	332	ASN	THR	conflict	UNP Q2N0S5
A	501	CYS	ALA	conflict	UNP Q2N0S5
B	315	TRP	ALA	conflict	UNP Q2N0S5
B	332	ASN	THR	conflict	UNP Q2N0S5
B	501	CYS	ALA	conflict	UNP Q2N0S5

- Molecule 2 is a protein called Envelope glycoprotein gp160.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	C	412	Total 3255	C 2054	N 576	O 597	S 28	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	316	TRP	ALA	conflict	UNP Q2N0S5
C	332	ASN	THR	conflict	UNP Q2N0S5
C	368	ARG	ASP	engineered mutation	UNP Q2N0S5
C	501	CYS	ALA	conflict	UNP Q2N0S5

- Molecule 3 is a protein called Envelope glycoprotein gp41.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	123	Total	C	N	O	S	0	0
			989	625	173	185	6		
3	E	123	Total	C	N	O	S	0	0
			989	625	173	185	6		
3	F	128	Total	C	N	O	S	0	0
			1020	645	180	189	6		

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	559	PRO	ILE	conflict	UNP Q2N0S6
D	605	CYS	THR	conflict	UNP Q2N0S6
E	559	PRO	ILE	conflict	UNP Q2N0S6
E	605	CYS	THR	conflict	UNP Q2N0S6
F	559	PRO	ILE	conflict	UNP Q2N0S6
F	605	CYS	THR	conflict	UNP Q2N0S6

- Molecule 4 is a protein called T-cell surface glycoprotein CD4.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	Y	176	Total	C	N	O	S	0	0
			1370	856	240	270	4		
4	Z	176	Total	C	N	O	S	0	0
			1370	856	240	270	4		

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	372	GLY	-	expression tag	UNP P01730
Y	373	SER	-	expression tag	UNP P01730
Y	374	HIS	-	expression tag	UNP P01730
Y	375	HIS	-	expression tag	UNP P01730
Y	376	HIS	-	expression tag	UNP P01730
Y	377	HIS	-	expression tag	UNP P01730
Y	378	HIS	-	expression tag	UNP P01730
Y	379	HIS	-	expression tag	UNP P01730
Z	372	GLY	-	expression tag	UNP P01730
Z	373	SER	-	expression tag	UNP P01730
Z	374	HIS	-	expression tag	UNP P01730
Z	375	HIS	-	expression tag	UNP P01730
Z	376	HIS	-	expression tag	UNP P01730
Z	377	HIS	-	expression tag	UNP P01730
Z	378	HIS	-	expression tag	UNP P01730

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Chain	Residue	Modelled	Actual	Comment	Reference
Z	379	HIS	-	expression tag	UNP P01730

- Molecule 5 is an oligosaccharide called alpha-D-mannopyranose-(1-3)-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	G	4	Total	C	N	O	0	0
			50	28	2	20		
5	J	4	Total	C	N	O	0	0
			50	28	2	20		
5	N	4	Total	C	N	O	0	0
			50	28	2	20		

- Molecule 6 is an oligosaccharide called 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	H	4	Total	C	N	O	0	0
			50	28	2	20		

- Molecule 7 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
7	I	2	Total	C	N	O	0	0
			28	16	2	10		

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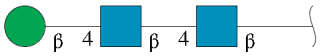
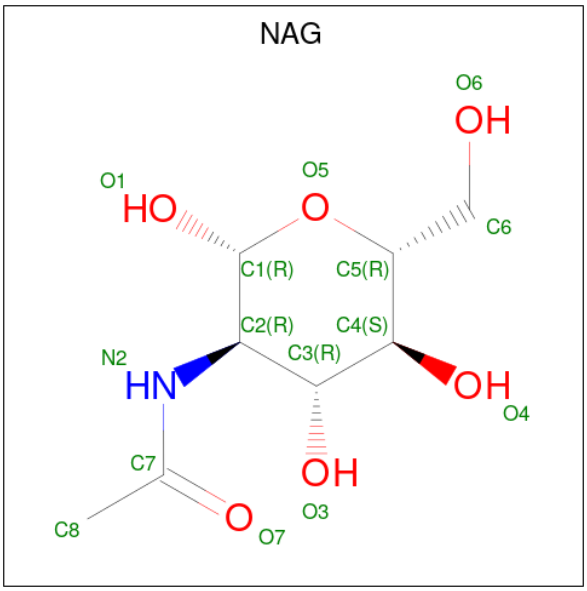
Mol	Chain	Residues	Atoms	AltConf	Trace
7	L	2	Total C N O 28 16 2 10	0	0
7	M	2	Total C N O 28 16 2 10	0	0
7	O	2	Total C N O 28 16 2 10	0	0

- Molecule 8 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
8	K	3	Total C N O 39 22 2 15	0	0

- Molecule 9 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: $C_8H_{15}NO_6$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	AltConf
9	A	1	Total C N O 14 8 1 5	0
9	B	1	Total C N O 14 8 1 5	0

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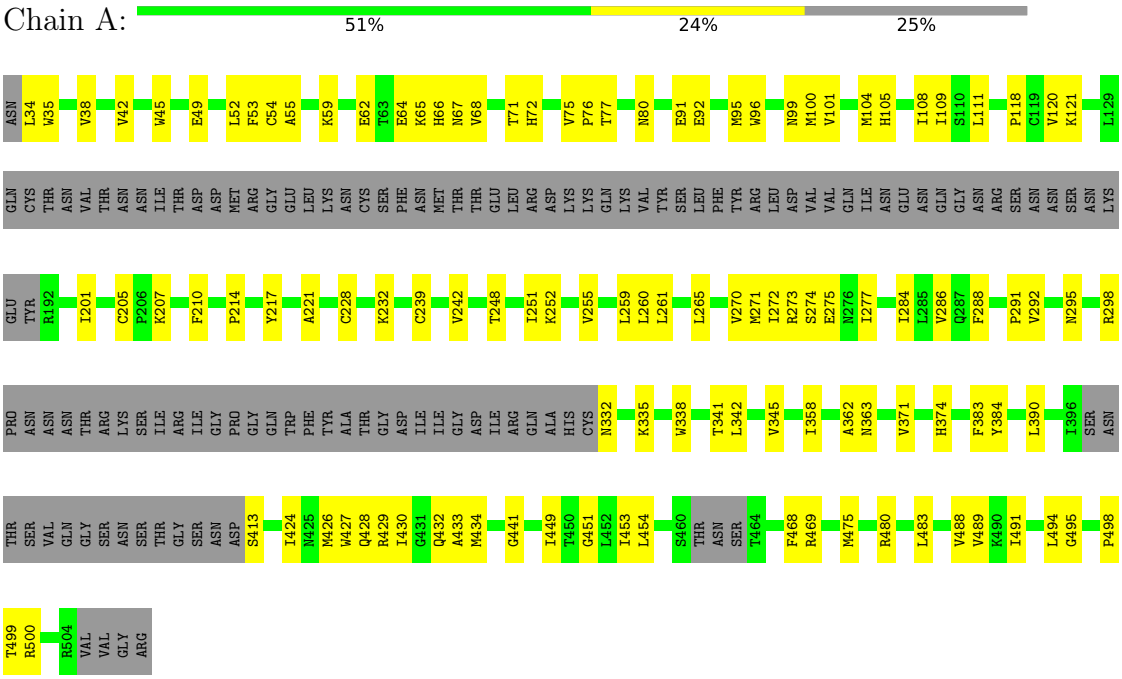
Mol	Chain	Residues	Atoms				AltConf
9	B	1	Total	C	N	O	0
			14	8	1	5	
9	B	1	Total	C	N	O	0
			14	8	1	5	
9	C	1	Total	C	N	O	0
			14	8	1	5	
9	C	1	Total	C	N	O	0
			14	8	1	5	
9	C	1	Total	C	N	O	0
			14	8	1	5	

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.

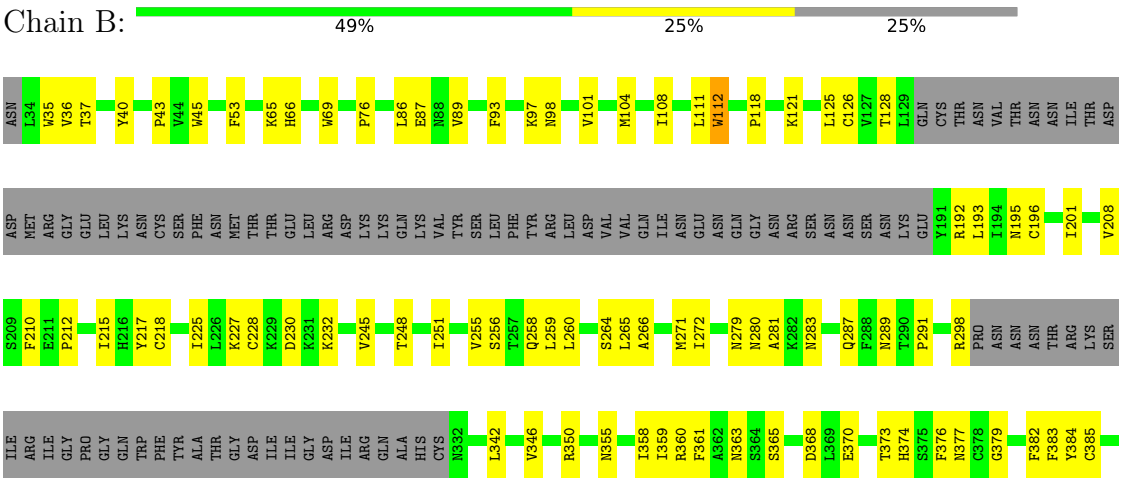
• Molecule 1: Envelope glycoprotein gp160

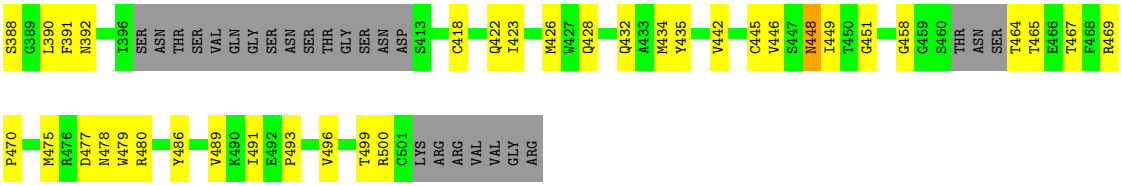
Chain A:



• Molecule 1: Envelope glycoprotein gp160

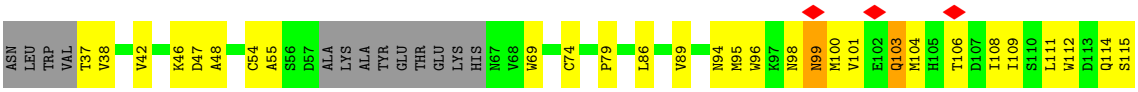
Chain B:

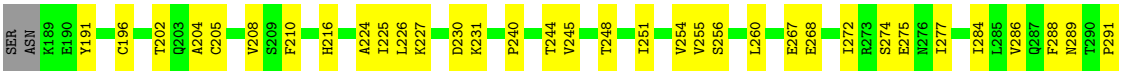


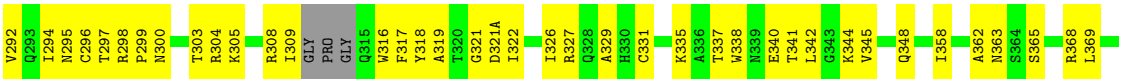


• Molecule 2: Envelope glycoprotein gp160

Chain C:

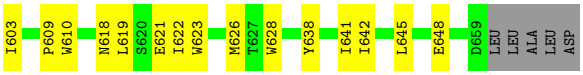






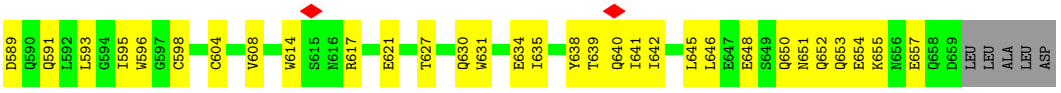
• Molecule 3: Envelope glycoprotein gp41

Chain D:



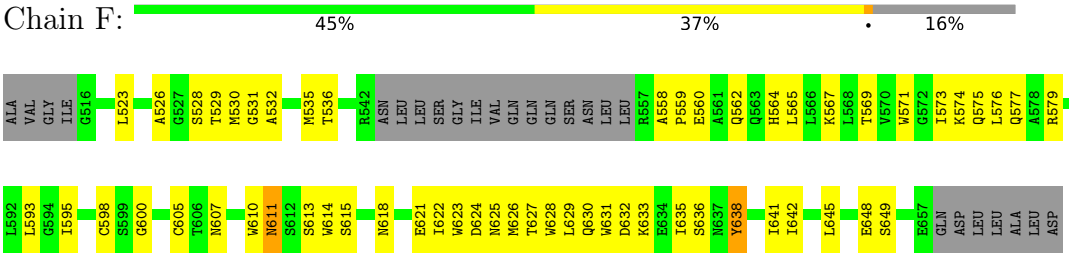
• Molecule 3: Envelope glycoprotein gp41

Chain E:



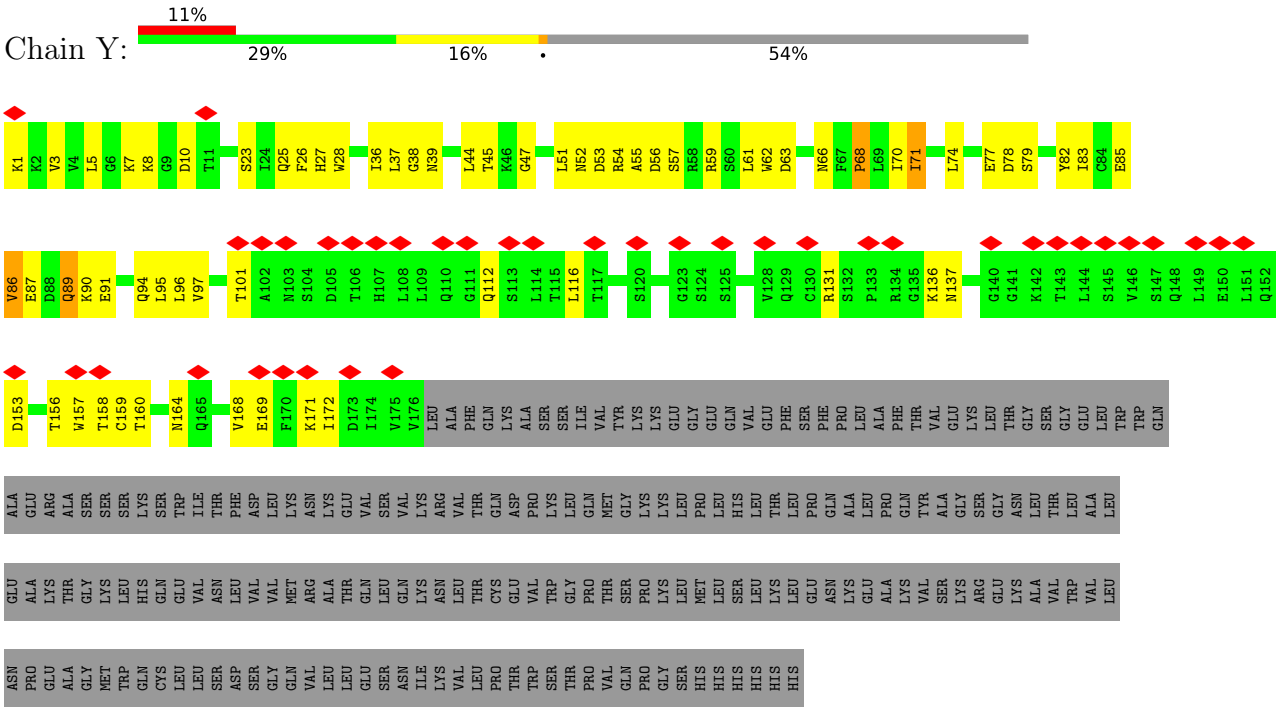
• Molecule 3: Envelope glycoprotein gp41

Chain F:



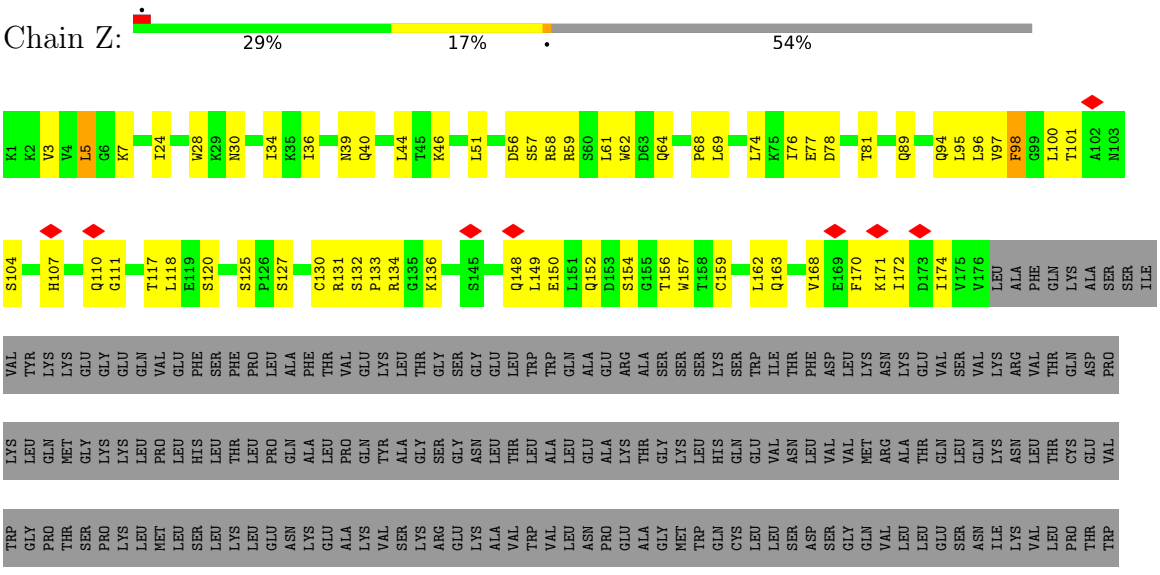
• Molecule 4: T-cell surface glycoprotein CD4

Chain Y:



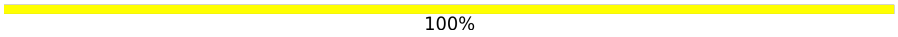
• Molecule 4: T-cell surface glycoprotein CD4

Chain Z:



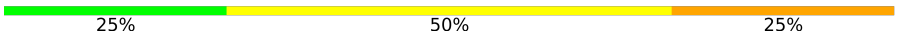
• Molecule 5: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain G:



• Molecule 5: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain J:

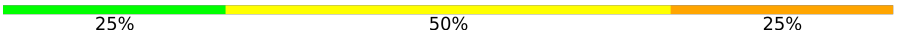


• Molecule 5: alpha-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain N:

• Molecule 6: 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 H:



• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain I:

• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain L:

• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

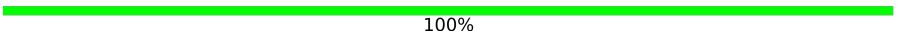
Chain M:

• Molecule 7: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain O:

• Molecule 8: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain K:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	92660	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 ($e^-/Å^2$)	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	105000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.611	Depositor
Minimum map value	-0.417	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.015	Depositor
Recommended contour level	0.06	Depositor
Map size (Å)	299.52002, 299.52002, 299.52002	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.8320001, 0.8320001, 0.8320001	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MAN, NAG, BMA

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	A	0.17	0/2864	0.44	1/3891 (0.0%)
1	B	0.20	0/2846	0.43	0/3870
2	C	0.19	0/3321	0.45	0/4501
3	D	0.14	0/1008	0.39	0/1365
3	E	0.20	0/1008	0.47	0/1365
3	F	0.18	0/1040	0.45	1/1409 (0.1%)
4	Y	0.19	0/1389	0.54	3/1873 (0.2%)
4	Z	0.15	0/1389	0.37	0/1873
All	All	0.18	0/14865	0.44	5/20147 (0.0%)

There are no bond length outliers.

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
4	Y	68	PRO	CA-N-CD	-11.45	95.98	112.00
1	A	205	CYS	CA-CB-SG	6.84	130.14	114.40
4	Y	86	VAL	CA-C-N	-5.88	115.44	122.44
4	Y	86	VAL	C-N-CA	-5.88	115.44	122.44
3	F	611	ASN	CB-CA-C	-5.21	110.55	116.54

There are no chirality outliers.

There are no planarity outliers.

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	2802	0	2775	87	0
1	B	2783	0	2744	94	0
2	C	3255	0	3220	139	0
3	D	989	0	965	30	0
3	E	989	0	966	46	0
3	F	1020	0	1001	59	0
4	Y	1370	0	1398	53	0
4	Z	1370	0	1398	44	0
5	G	50	0	43	1	0
5	J	50	0	43	2	0
5	N	50	0	43	1	0
6	H	50	0	43	1	0
7	I	28	0	25	2	0
7	L	28	0	25	1	0
7	M	28	0	25	1	0
7	O	28	0	25	1	0
8	K	39	0	34	0	0
9	A	14	0	13	0	0
9	B	42	0	39	1	0
9	C	42	0	39	0	0
All	All	15027	0	14864	519	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 17.

All (519) 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)
2:C:98:ASN:HD21	2:C:100:MET:HB3	1.27	0.98
3:F:529:THR:HG22	3:F:531:GLY:H	1.41	0.86
1:B:258:GLN:HG2	1:B:470:PRO:HB2	1.57	0.85
2:C:129:LEU:HD12	2:C:157:CYS:HB3	1.58	0.84
1:A:498:PRO:HG3	3:D:623:TRP:HE1	1.44	0.83
1:B:65:LYS:HG2	1:B:208:VAL:HG21	1.61	0.83
3:E:608:VAL:HB	3:E:652:GLN:HG3	1.61	0.81
3:D:531:GLY:O	3:D:534:SER:HB3	1.82	0.79
2:C:387:THR:HG21	2:C:416:LEU:HB2	1.67	0.77
3:F:626:MET:HE1	3:F:630:GLN:HB2	1.66	0.75
2:C:226:LEU:HB2	2:C:487:LYS:HG2	1.69	0.75
2:C:131:CYS:HB2	2:C:191:TYR:HD2	1.51	0.75
3:F:529:THR:HA	3:F:624:ASP:HA	1.69	0.75
3:F:523:LEU:HD21	3:F:629:LEU:HD11	1.69	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:299:PRO:HA	2:C:442:VAL:HG23	1.70	0.74
4:Z:110:GLN:HA	4:Z:149:LEU:HB3	1.70	0.74
3:E:645:LEU:HA	3:E:648:GLU:HB3	1.69	0.74
1:B:266:ALA:HB2	1:B:287:GLN:HG2	1.70	0.73
4:Z:30:ASN:HD21	4:Z:34:ILE:HB	1.54	0.73
2:C:55:ALA:HB3	2:C:216:HIS:HB2	1.70	0.72
1:A:109:ILE:HG23	1:A:428:GLN:HB3	1.71	0.71
2:C:231:LYS:HB3	2:C:267:GLU:HG2	1.73	0.70
1:A:265:LEU:HD21	1:A:291:PRO:HD3	1.73	0.70
4:Z:101:THR:HG1	4:Z:117:THR:HG1	1.40	0.70
1:A:118:PRO:HB2	1:A:121:LYS:HB2	1.71	0.70
3:D:619:LEU:HA	3:D:622:ILE:HD12	1.74	0.69
1:B:359:ILE:HD12	1:B:359:ILE:H	1.57	0.69
3:F:614:TRP:HB2	3:F:638:TYR:CE2	2.28	0.69
4:Y:85:GLU:OE2	4:Y:85:GLU:N	2.25	0.69
4:Y:56:ASP:OD1	4:Y:57:SER:N	2.25	0.69
1:A:49:GLU:HG3	1:A:99:ASN:HD21	1.57	0.68
2:C:98:ASN:ND2	2:C:100:MET:HB3	2.06	0.68
2:C:363:ASN:HB2	2:C:388:SER:HB2	1.77	0.67
1:A:101:VAL:HG21	1:A:480:ARG:HG3	1.75	0.67
2:C:114:GLN:HA	2:C:117:LYS:HE2	1.77	0.67
2:C:304:ARG:NH2	2:C:318:TYR:HD1	1.92	0.66
1:A:91:GLU:HB3	1:A:242:VAL:HG21	1.77	0.66
2:C:161:MET:SD	2:C:308:ARG:NH2	2.69	0.66
3:F:593:LEU:HG	3:F:598:CYS:HB2	1.79	0.65
1:B:283:ASN:ND2	1:B:477:ASP:OD1	2.28	0.65
3:E:528:SER:O	3:E:627:THR:OG1	2.11	0.65
1:B:86:LEU:HB3	1:B:89:VAL:HG11	1.79	0.65
1:B:365:SER:OG	4:Z:46:LYS:O	2.11	0.65
2:C:161:MET:HE3	2:C:172:VAL:HG21	1.78	0.65
1:B:259:LEU:HD13	1:B:449:ILE:HD13	1.78	0.65
2:C:251:ILE:HD12	2:C:482:GLU:HG3	1.78	0.65
1:B:360:ARG:HB3	1:B:467:THR:HG22	1.79	0.64
2:C:503:ARG:HE	2:C:504:ARG:H	1.43	0.64
3:F:618:ASN:HB3	3:F:621:GLU:HG2	1.79	0.64
1:B:491:ILE:HG22	1:B:493:PRO:HD3	1.79	0.64
4:Y:77:GLU:OE1	4:Y:77:GLU:N	2.30	0.64
1:B:36:VAL:HG23	1:B:496:VAL:HG13	1.80	0.64
4:Y:23:SER:HB3	4:Y:63:ASP:HA	1.79	0.64
1:A:499:THR:HG22	3:D:610:TRP:CD1	2.33	0.64
1:A:272:ILE:HG12	1:A:286:VAL:HG22	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:104:MET:HG3	2:C:483:LEU:HD21	1.80	0.63
2:C:96:TRP:CD1	2:C:275:GLU:HA	2.33	0.63
2:C:202:THR:O	2:C:435:TYR:N	2.30	0.63
4:Z:56:ASP:OD1	4:Z:57:SER:N	2.32	0.63
1:A:104:MET:HG3	1:A:217:TYR:CZ	2.34	0.62
1:A:491:ILE:HD12	3:D:522:PHE:HB2	1.79	0.62
3:F:622:ILE:HA	3:F:626:MET:HB2	1.81	0.62
1:B:279:ASN:OD1	1:B:281:ALA:N	2.32	0.62
3:F:560:GLU:H	3:F:564:HIS:HB2	1.63	0.62
1:B:265:LEU:HD21	1:B:291:PRO:HD3	1.82	0.62
1:A:120:VAL:HB	1:A:434:MET:HB2	1.81	0.62
1:B:271:MET:HE3	1:B:272:ILE:H	1.64	0.62
1:B:66:HIS:CE1	1:B:212:PRO:HA	2.35	0.62
1:B:266:ALA:HB3	1:B:289:ASN:HA	1.81	0.62
4:Z:7:LYS:HZ1	4:Z:170:PHE:HA	1.63	0.62
2:C:317:PHE:CZ	2:C:319:ALA:HB2	2.35	0.61
4:Y:37:LEU:HD12	4:Y:38:GLY:H	1.65	0.61
4:Y:27:HIS:ND1	4:Y:38:GLY:HA3	2.14	0.61
4:Z:134:ARG:NH2	4:Z:154:SER:O	2.34	0.61
4:Y:156:THR:HG21	4:Y:171:LYS:HD2	1.82	0.61
1:B:128:THR:HA	1:B:193:LEU:HD11	1.81	0.61
1:B:125:LEU:O	4:Z:64:GLN:NE2	2.31	0.61
2:C:503:ARG:NH1	3:F:605:CYS:O	2.33	0.61
3:F:590:GLN:HE22	3:F:600:GLY:HA2	1.66	0.61
4:Y:86:VAL:HG23	4:Y:87:GLU:OE1	2.00	0.61
1:A:270:VAL:HG13	1:A:288:PHE:HA	1.82	0.61
1:B:101:VAL:HG21	1:B:480:ARG:HG3	1.83	0.61
1:B:342:LEU:O	1:B:346:VAL:HG13	2.00	0.61
2:C:382:PHE:CE2	2:C:424:ILE:HD11	2.36	0.61
4:Y:156:THR:HG23	4:Y:172:ILE:HD12	1.81	0.61
3:F:526:ALA:HB1	3:F:627:THR:HG23	1.83	0.60
1:A:34:LEU:HA	1:A:499:THR:HB	1.83	0.60
3:E:621:GLU:N	3:E:621:GLU:OE1	2.33	0.60
4:Y:131:ARG:HG2	4:Y:137:ASN:HA	1.83	0.60
1:A:500:ARG:HH21	3:D:623:TRP:CD1	2.18	0.60
6:H:2:NAG:H4	6:H:3:BMA:O2	2.01	0.60
4:Y:158:THR:HA	4:Y:169:GLU:HG2	1.84	0.60
1:A:45:TRP:HB3	1:A:489:VAL:HG21	1.83	0.60
2:C:210:PHE:HB2	2:C:380:GLY:HA2	1.84	0.60
4:Y:7:LYS:HB2	4:Y:10:ASP:HB3	1.83	0.60
1:A:295:ASN:O	1:A:332:ASN:N	2.34	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:298:ARG:NH2	1:A:441:GLY:O	2.34	0.60
2:C:305:LYS:HG3	2:C:321:GLY:HA2	1.83	0.60
4:Y:26:PHE:N	4:Y:39:ASN:OD1	2.34	0.59
2:C:322:ILE:HG21	2:C:326:ILE:HD11	1.82	0.59
1:A:251:ILE:HD12	1:A:483:LEU:HD13	1.84	0.59
2:C:303:THR:OG1	2:C:321(A):ASP:O	2.20	0.59
1:B:377:ASN:HB3	1:B:382:PHE:HB3	1.84	0.59
2:C:274:SER:HB2	2:C:277:ILE:HD13	1.85	0.59
4:Z:111:GLY:HA2	4:Z:148:GLN:HA	1.84	0.59
1:B:192:ARG:NH2	1:B:195:ASN:O	2.36	0.59
2:C:288:PHE:CE2	2:C:449:ILE:HG22	2.38	0.59
2:C:424:ILE:HB	2:C:434:MET:O	2.03	0.59
2:C:291:PRO:HB2	2:C:448:ASN:HB3	1.84	0.59
1:B:192:ARG:HD3	4:Z:58:ARG:HD3	1.84	0.58
1:B:255:VAL:HB	1:B:475:MET:HE3	1.83	0.58
3:D:535:MET:SD	3:D:535:MET:N	2.76	0.58
1:A:105:HIS:O	1:A:109:ILE:HG13	2.03	0.58
2:C:69:TRP:CE3	2:C:115:SER:HB3	2.38	0.58
2:C:69:TRP:HE1	2:C:210:PHE:HE2	1.50	0.58
2:C:288:PHE:HE2	2:C:449:ILE:HG22	1.68	0.58
3:F:567:LYS:HB3	3:F:571:TRP:CH2	2.39	0.58
4:Y:52:ASN:OD1	4:Y:53:ASP:N	2.35	0.58
4:Z:134:ARG:HH12	4:Z:157:TRP:HE1	1.51	0.58
3:E:638:TYR:O	3:E:642:ILE:N	2.24	0.58
2:C:297:THR:O	2:C:329:ALA:HA	2.04	0.58
3:E:617:ARG:NH2	3:E:634:GLU:OE2	2.37	0.58
3:E:586:TYR:OH	3:F:591:GLN:NE2	2.36	0.58
3:F:607:ASN:OD1	3:F:649:SER:OG	2.22	0.58
1:B:426:MET:HE2	1:B:428:GLN:HE21	1.67	0.58
2:C:294:ILE:HB	2:C:449:ILE:HD11	1.85	0.58
2:C:342:LEU:HA	2:C:345:VAL:HB	1.85	0.58
4:Y:25:GLN:HA	4:Y:39:ASN:HD21	1.68	0.57
3:F:575:GLN:O	3:F:579:ARG:HG3	2.04	0.57
1:B:370:GLU:OE1	1:B:370:GLU:N	2.32	0.57
4:Y:37:LEU:HD12	4:Y:38:GLY:N	2.20	0.57
1:A:260:LEU:HD12	1:A:451:GLY:HA3	1.86	0.57
1:A:335:LYS:H	1:A:413:SER:HA	1.69	0.57
3:F:629:LEU:O	3:F:633:LYS:HG3	2.05	0.57
2:C:491:ILE:HG22	2:C:493:PRO:HD3	1.86	0.57
4:Y:55:ALA:HA	4:Y:71:ILE:HA	1.87	0.57
1:A:95:MET:HE1	1:A:480:ARG:HB3	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:100:MET:HB2	2:C:487:LYS:HA	1.86	0.57
1:B:93:PHE:CE2	1:B:228:CYS:HB2	2.40	0.57
2:C:365:SER:HB2	2:C:469:ARG:HE	1.69	0.57
2:C:426:MET:HG3	2:C:427:TRP:CD2	2.40	0.57
3:F:565:LEU:O	3:F:569:THR:HG23	2.05	0.57
1:A:426:MET:SD	1:A:426:MET:N	2.74	0.57
3:D:638:TYR:O	3:D:642:ILE:HG22	2.05	0.57
7:M:2:NAG:H3	7:M:2:NAG:H83	1.86	0.56
1:A:232:LYS:HA	1:A:271:MET:HE1	1.86	0.56
4:Y:83:ILE:HG21	4:Y:90:LYS:HD2	1.86	0.56
1:B:118:PRO:HG2	1:B:121:LYS:HD2	1.86	0.56
1:A:72:HIS:ND1	3:F:559:PRO:O	2.38	0.56
9:B:602:NAG:H83	9:B:602:NAG:H3	1.87	0.56
2:C:500:ARG:HH11	3:F:610:TRP:HE1	1.54	0.56
1:B:104:MET:HE3	1:B:217:TYR:CE2	2.41	0.56
1:B:43:PRO:HB2	3:E:526:ALA:HB2	1.86	0.56
2:C:47:ASP:HB3	2:C:99:ASN:HD21	1.70	0.56
4:Z:36:ILE:HD11	4:Z:51:LEU:HB2	1.87	0.56
4:Z:132:SER:OG	4:Z:136:LYS:O	2.24	0.56
1:A:261:LEU:HD21	1:A:374:HIS:HE1	1.70	0.55
4:Y:85:GLU:HA	4:Y:89:GLN:O	2.07	0.55
4:Y:51:LEU:HD22	4:Y:54:ARG:HE	1.72	0.55
2:C:304:ARG:NH1	2:C:437:PRO:HB2	2.22	0.55
2:C:86:LEU:HD11	2:C:244:THR:HG23	1.89	0.55
2:C:158:SER:HB2	2:C:173:TYR:CE1	2.42	0.55
4:Y:112:GLN:N	4:Y:112:GLN:OE1	2.39	0.55
1:B:361:PHE:HB3	1:B:391:PHE:HB3	1.87	0.55
3:E:627:THR:HG22	3:E:630:GLN:NE2	2.21	0.55
3:E:631:TRP:CH2	3:E:635:ILE:HD11	2.42	0.54
4:Z:3:VAL:HG22	4:Z:94:GLN:HB3	1.88	0.54
3:F:629:LEU:HD12	3:F:629:LEU:H	1.72	0.54
1:A:217:TYR:H	1:A:248:THR:HG22	1.73	0.54
1:A:261:LEU:HD21	1:A:374:HIS:CE1	2.42	0.54
2:C:158:SER:HA	2:C:172:VAL:O	2.08	0.54
7:I:1:NAG:H5	7:I:2:NAG:N2	2.23	0.54
1:B:66:HIS:NE2	1:B:111:LEU:HD21	2.22	0.54
1:A:430:ILE:HG23	4:Y:59:ARG:HD3	1.90	0.54
4:Y:136:LYS:HB2	4:Y:153:ASP:HA	1.88	0.54
1:A:371:VAL:HG11	4:Y:45:THR:HG22	1.91	0.53
2:C:79:PRO:HD3	3:F:571:TRP:CD2	2.42	0.53
3:E:627:THR:HG22	3:E:630:GLN:HE22	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:264:SER:O	1:B:287:GLN:NE2	2.41	0.53
3:E:596:TRP:CD1	3:E:650:GLN:HB3	2.43	0.53
1:B:37:THR:HB	3:E:604:CYS:O	2.08	0.52
2:C:101:VAL:O	2:C:104:MET:HE3	2.09	0.52
1:A:64:GLU:OE2	1:A:67:ASN:N	2.42	0.52
1:A:95:MET:SD	1:A:96:TRP:CD1	3.02	0.52
2:C:295:ASN:HA	2:C:445:CYS:O	2.10	0.52
3:F:633:LYS:HA	3:F:636:SER:OG	2.09	0.52
2:C:151:ARG:HG3	2:C:153:GLU:HG3	1.92	0.52
3:E:627:THR:H	3:E:630:GLN:NE2	2.07	0.52
1:A:55:ALA:HB1	1:A:77:THR:HA	1.90	0.52
1:B:368:ASP:OD1	4:Z:44:LEU:N	2.42	0.52
1:B:291:PRO:HB2	1:B:448:ASN:HB2	1.91	0.52
1:A:67:ASN:O	1:A:71:THR:HG23	2.10	0.52
1:A:292:VAL:HB	1:A:449:ILE:HB	1.91	0.51
1:B:98:ASN:ND2	1:B:486:TYR:O	2.42	0.51
2:C:177:TYR:HB2	2:C:180:ASP:OD1	2.10	0.51
4:Y:68:PRO:HD2	4:Y:68:PRO:O	2.09	0.51
2:C:119:CYS:SG	2:C:205:CYS:N	2.83	0.51
2:C:256:SER:H	2:C:475:MET:HE1	1.75	0.51
4:Z:7:LYS:NZ	4:Z:171:LYS:H	2.07	0.51
1:A:65:LYS:HA	1:A:68:VAL:HG12	1.92	0.51
1:B:104:MET:HB2	1:B:217:TYR:HE2	1.74	0.51
1:B:422:GLN:NE2	1:B:435:TYR:O	2.42	0.51
3:F:560:GLU:HA	3:F:564:HIS:H	1.76	0.51
1:B:256:SER:O	1:B:478:ASN:ND2	2.41	0.51
1:A:111:LEU:HD21	1:A:210:PHE:HZ	1.75	0.51
2:C:255:VAL:HA	2:C:475:MET:HE2	1.93	0.51
4:Y:53:ASP:N	4:Y:53:ASP:OD1	2.40	0.51
7:I:1:NAG:H3	7:I:2:NAG:H2	1.93	0.51
1:B:350:ARG:NH1	1:B:355:ASN:O	2.44	0.51
2:C:286:VAL:HG21	2:C:345:VAL:HG22	1.92	0.51
3:D:530:MET:SD	3:D:531:GLY:N	2.84	0.51
1:B:298:ARG:HH21	1:B:442:VAL:HG22	1.76	0.51
2:C:99:ASN:OD1	2:C:99:ASN:N	2.43	0.51
3:E:596:TRP:HD1	3:E:650:GLN:HB3	1.75	0.51
7:O:1:NAG:H4	7:O:2:NAG:N2	2.25	0.51
3:F:631:TRP:CZ2	3:F:635:ILE:HD11	2.46	0.50
4:Y:36:ILE:HD11	4:Y:51:LEU:HD12	1.93	0.50
1:A:100:MET:SD	1:A:488:VAL:HG23	2.52	0.50
1:B:225:ILE:HG21	1:B:248:THR:HG22	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:368:ARG:O	2:C:372:THR:HG23	2.11	0.50
2:C:452:LEU:HD21	2:C:454:LEU:HD21	1.93	0.50
3:E:573:ILE:HG12	3:F:573:ILE:HD11	1.94	0.50
1:B:464:THR:OG1	1:B:465:THR:N	2.43	0.50
3:E:654:GLU:HA	3:E:657:GLU:HG3	1.94	0.50
2:C:227:LYS:HB2	2:C:486:TYR:CE1	2.47	0.50
3:E:585:ARG:HH11	3:E:588:ARG:HD2	1.76	0.50
1:A:35:TRP:HE3	3:D:609:PRO:HA	1.77	0.50
1:B:368:ASP:OD2	4:Z:59:ARG:NH2	2.45	0.50
1:B:259:LEU:HD12	1:B:374:HIS:ND1	2.27	0.50
1:B:376:PHE:CZ	1:B:383:PHE:HE1	2.30	0.50
3:D:641:ILE:O	3:D:645:LEU:HG	2.12	0.50
4:Z:44:LEU:HB2	4:Z:62:TRP:HH2	1.76	0.50
2:C:341:THR:HA	2:C:344:LYS:HE3	1.94	0.50
3:F:528:SER:OG	3:F:529:THR:N	2.43	0.50
1:A:341:THR:O	1:A:345:VAL:HG13	2.12	0.49
1:A:362:ALA:HB3	1:A:469:ARG:HE	1.77	0.49
2:C:205:CYS:HB2	2:C:208:VAL:HG22	1.94	0.49
2:C:255:VAL:HA	2:C:475:MET:CE	2.42	0.49
3:E:642:ILE:HG23	3:E:646:LEU:HD13	1.94	0.49
3:F:530:MET:HB2	3:F:623:TRP:CD1	2.47	0.49
4:Y:82:TYR:HE2	4:Y:95:LEU:HD23	1.76	0.49
2:C:94:ASN:O	2:C:98:ASN:N	2.39	0.49
2:C:227:LYS:HB2	2:C:486:TYR:HE1	1.77	0.49
4:Z:30:ASN:ND2	4:Z:34:ILE:HB	2.26	0.49
1:B:66:HIS:CD2	1:B:111:LEU:HD21	2.47	0.49
2:C:304:ARG:HG2	2:C:304:ARG:HH11	1.76	0.49
3:E:568:LEU:HD11	3:F:574:LYS:HZ3	1.76	0.49
3:E:650:GLN:O	3:E:653:GLN:HG3	2.12	0.49
1:A:80:ASN:OD1	1:A:80:ASN:N	2.44	0.49
1:A:100:MET:SD	1:A:100:MET:N	2.83	0.49
1:B:423:ILE:HD13	1:B:434:MET:HB2	1.94	0.49
2:C:125:LEU:HD21	2:C:309:ILE:HG23	1.93	0.49
4:Z:156:THR:HG23	4:Z:172:ILE:O	2.12	0.49
1:B:112:TRP:CZ2	1:B:255:VAL:HG21	2.48	0.49
4:Z:81:THR:HG22	4:Z:94:GLN:HG3	1.94	0.49
3:E:614:TRP:HB2	3:E:638:TYR:OH	2.12	0.49
3:F:611:ASN:ND2	3:F:615:SER:O	2.45	0.49
4:Z:61:LEU:HD12	4:Z:68:PRO:HG3	1.95	0.49
2:C:100:MET:CB	2:C:487:LYS:HA	2.43	0.49
1:A:214:PRO:HD3	1:A:252:LYS:HE2	1.95	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:295:ASN:HB3	2:C:446:VAL:HG23	1.94	0.48
2:C:477:ASP:HA	2:C:480:ARG:HB3	1.96	0.48
1:A:45:TRP:HB3	1:A:489:VAL:CG2	2.42	0.48
2:C:37:THR:HG21	3:F:605:CYS:HA	1.94	0.48
3:F:626:MET:HE3	3:F:627:THR:N	2.29	0.48
1:B:445:CYS:SG	5:J:2:NAG:O6	2.71	0.48
1:B:259:LEU:HD12	1:B:374:HIS:CG	2.47	0.48
3:F:630:GLN:HA	3:F:633:LYS:HD2	1.95	0.48
2:C:308:ARG:HB2	2:C:316:TRP:CZ3	2.48	0.48
4:Z:5:LEU:HB3	4:Z:168:VAL:HG11	1.96	0.48
4:Z:78:ASP:OD2	4:Z:78:ASP:N	2.47	0.48
2:C:374:HIS:CE1	2:C:376:PHE:HB3	2.49	0.48
2:C:48:ALA:O	2:C:99:ASN:ND2	2.47	0.48
4:Z:74:LEU:HD22	4:Z:97:VAL:HG11	1.96	0.48
2:C:95:MET:HA	2:C:98:ASN:HB3	1.96	0.47
2:C:225:ILE:HB	2:C:245:VAL:O	2.13	0.47
4:Y:70:ILE:N	4:Y:70:ILE:HD12	2.29	0.47
1:B:227:LYS:HE3	1:B:245:VAL:HG11	1.96	0.47
3:E:542:ARG:HD3	3:E:542:ARG:C	2.39	0.47
3:E:591:GLN:O	3:E:595:ILE:HG13	2.12	0.47
4:Z:74:LEU:HD11	4:Z:95:LEU:HD21	1.96	0.47
1:A:271:MET:HG2	1:A:273:ARG:HE	1.77	0.47
4:Z:98:PHE:HB3	4:Z:120:SER:HA	1.95	0.47
1:B:35:TRP:HD1	1:B:500:ARG:HA	1.79	0.47
1:B:87:GLU:N	1:B:87:GLU:OE1	2.47	0.47
1:A:424:ILE:HG12	1:A:433:ALA:HB3	1.96	0.47
2:C:38:VAL:HG12	2:C:496:VAL:HG22	1.95	0.47
2:C:47:ASP:HB3	2:C:99:ASN:ND2	2.28	0.47
1:A:274:SER:HB3	1:A:284:ILE:HD13	1.95	0.47
1:B:230:ASP:OD1	1:B:232:LYS:N	2.41	0.47
1:B:390:LEU:HD23	1:B:390:LEU:HA	1.78	0.47
3:F:631:TRP:O	3:F:635:ILE:HG12	2.14	0.47
4:Y:5:LEU:HD23	4:Y:168:VAL:HG21	1.96	0.47
4:Z:39:ASN:OD1	4:Z:40:GLN:N	2.48	0.47
1:B:43:PRO:HB3	3:E:523:LEU:HA	1.97	0.47
2:C:126:CYS:HB2	2:C:196:CYS:HB2	1.71	0.47
1:A:207:LYS:HD2	1:A:207:LYS:HA	1.66	0.47
1:B:280:ASN:ND2	1:B:458:GLY:HA2	2.29	0.47
2:C:296:CYS:HA	2:C:331:CYS:HA	1.97	0.47
3:D:581:LEU:HD13	3:F:579:ARG:HH22	1.80	0.47
1:A:228:CYS:HB2	1:A:239:CYS:HB3	1.65	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:89:VAL:HG22	3:F:523:LEU:HD23	1.97	0.47
4:Z:77:GLU:HG2	4:Z:78:ASP:OD2	2.15	0.47
4:Y:78:ASP:HB2	4:Y:97:VAL:HG11	1.97	0.46
3:D:618:ASN:O	3:D:621:GLU:HG3	2.15	0.46
2:C:254:VAL:O	2:C:478:ASN:ND2	2.48	0.46
1:A:42:VAL:HG11	3:D:628:TRP:CZ2	2.50	0.46
1:B:193:LEU:H	1:B:193:LEU:HD23	1.80	0.46
2:C:69:TRP:NE1	2:C:210:PHE:HE2	2.13	0.46
2:C:327:ARG:NH1	2:C:327:ARG:HA	2.31	0.46
3:D:626:MET:HA	3:D:626:MET:HE2	1.97	0.46
2:C:177:TYR:CZ	2:C:420:ILE:HD11	2.51	0.46
2:C:338:TRP:CE3	2:C:342:LEU:HD13	2.51	0.46
3:E:614:TRP:H	3:E:614:TRP:CD1	2.33	0.46
4:Y:159:CYS:SG	4:Y:172:ILE:HD11	2.56	0.46
1:A:221:ALA:HB1	3:D:578:ALA:HA	1.98	0.46
4:Y:95:LEU:HD11	4:Y:97:VAL:HB	1.98	0.46
1:A:104:MET:O	1:A:108:ILE:HG12	2.16	0.46
1:B:37:THR:HG21	1:B:499:THR:OG1	2.15	0.46
4:Y:79:SER:HB2	4:Y:97:VAL:H	1.80	0.46
1:A:54:CYS:O	1:A:75:VAL:HG22	2.15	0.46
1:B:259:LEU:HD22	1:B:449:ILE:HG21	1.97	0.46
1:B:271:MET:HE3	1:B:271:MET:HA	1.97	0.46
2:C:327:ARG:HA	2:C:327:ARG:HH11	1.81	0.46
3:D:592:LEU:HA	3:D:595:ILE:HG22	1.97	0.46
2:C:426:MET:HG3	2:C:427:TRP:CE2	2.51	0.46
3:D:519:PHE:HD2	3:E:588:ARG:HH21	1.62	0.46
1:A:390:LEU:H	1:A:390:LEU:HD12	1.80	0.45
1:B:373:THR:OG1	1:B:384:TYR:HB3	2.16	0.45
3:F:638:TYR:O	3:F:641:ILE:HG12	2.17	0.45
2:C:210:PHE:HD1	2:C:377:ASN:ND2	2.13	0.45
4:Z:131:ARG:HH12	4:Z:133:PRO:HA	1.81	0.45
1:B:108:ILE:HG21	1:B:479:TRP:CZ2	2.51	0.45
1:B:260:LEU:HD12	1:B:451:GLY:HA3	1.98	0.45
2:C:230:ASP:HB2	2:C:240:PRO:HD2	1.99	0.45
2:C:362:ALA:HB3	2:C:469:ARG:HG2	1.98	0.45
3:E:585:ARG:NH1	3:E:589:ASP:OD1	2.50	0.45
3:E:648:GLU:O	3:E:652:GLN:HG2	2.17	0.45
4:Z:24:ILE:HD13	4:Z:24:ILE:HA	1.81	0.45
1:A:338:TRP:HE1	1:A:342:LEU:HD11	1.82	0.45
2:C:300:ASN:OD1	2:C:326:ILE:HG13	2.16	0.45
4:Y:3:VAL:HA	4:Y:94:GLN:O	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Z:130:CYS:HA	4:Z:159:CYS:HA	1.98	0.45
1:B:259:LEU:HD12	1:B:374:HIS:CE1	2.52	0.45
2:C:384:TYR:CZ	2:C:421:LYS:HE2	2.51	0.45
3:D:531:GLY:HA3	3:D:623:TRP:CZ3	2.52	0.45
1:A:259:LEU:HD12	1:A:374:HIS:CG	2.52	0.45
2:C:150:MET:HE2	2:C:327:ARG:HH11	1.82	0.45
2:C:260:LEU:HD13	2:C:451:GLY:C	2.42	0.45
4:Y:157:TRP:CG	4:Y:158:THR:H	2.35	0.45
3:E:519:PHE:HA	3:E:522:PHE:HE2	1.82	0.44
1:B:346:VAL:HB	1:B:359:ILE:HD13	1.99	0.44
3:D:580:VAL:O	3:D:584:GLU:HG3	2.17	0.44
3:F:532:ALA:O	3:F:536:THR:HG23	2.17	0.44
1:A:500:ARG:HE	3:D:623:TRP:NE1	2.14	0.44
1:B:76:PRO:HD3	3:E:571:TRP:CD2	2.53	0.44
2:C:335:LYS:HD2	2:C:335:LYS:HA	1.76	0.44
3:E:596:TRP:CZ2	3:E:646:LEU:HG	2.52	0.44
4:Y:160:THR:O	4:Y:160:THR:OG1	2.35	0.44
2:C:358:ILE:HG23	2:C:397:SER:H	1.83	0.44
3:F:641:ILE:O	3:F:645:LEU:HD23	2.18	0.44
1:B:428:GLN:H	1:B:428:GLN:HG2	1.54	0.44
2:C:103:GLN:O	2:C:106:THR:OG1	2.28	0.44
2:C:422:GLN:OE1	2:C:438:PRO:HD3	2.18	0.44
3:E:593:LEU:HD22	3:E:598:CYS:O	2.17	0.44
3:E:641:ILE:HG22	3:E:645:LEU:HD23	2.00	0.44
4:Z:172:ILE:O	4:Z:174:ILE:HD12	2.17	0.44
5:G:1:NAG:H62	5:G:2:NAG:C7	2.48	0.44
1:B:385:CYS:HA	1:B:418:CYS:HA	2.00	0.44
2:C:292:VAL:O	2:C:449:ILE:HD12	2.18	0.44
2:C:304:ARG:HD2	2:C:438:PRO:O	2.17	0.44
3:E:531:GLY:O	3:E:535:MET:HG2	2.18	0.44
1:A:95:MET:HG3	1:A:96:TRP:CD1	2.53	0.44
3:D:622:ILE:O	3:D:626:MET:HB3	2.17	0.44
4:Y:1:LYS:HD2	4:Y:1:LYS:HA	1.80	0.44
4:Z:100:LEU:HD23	4:Z:100:LEU:HA	1.79	0.44
1:B:210:PHE:H	1:B:379:GLY:HA2	1.83	0.43
3:F:648:GLU:OE1	3:F:648:GLU:HA	2.18	0.43
3:F:530:MET:HB2	3:F:623:TRP:NE1	2.33	0.43
1:B:279:ASN:OD1	1:B:279:ASN:C	2.60	0.43
2:C:248:THR:HB	2:C:486:TYR:CE2	2.54	0.43
1:A:76:PRO:O	3:D:571:TRP:NE1	2.34	0.43
1:A:92:GLU:OE2	1:A:92:GLU:N	2.50	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:299:PRO:HD2	2:C:327:ARG:HB2	2.01	0.43
3:D:602:LEU:C	3:D:603:ILE:HD13	2.44	0.43
3:E:639:THR:HA	3:E:642:ILE:HB	2.00	0.43
4:Z:150:GLU:OE1	4:Z:152:GLN:NE2	2.52	0.43
1:A:255:VAL:HG13	1:A:475:MET:HE2	2.00	0.43
1:A:494:LEU:HD23	1:A:495:GLY:N	2.34	0.43
1:B:53:PHE:CZ	1:B:218:CYS:HB2	2.54	0.43
2:C:116:LEU:HD22	2:C:427:TRP:CZ3	2.54	0.43
2:C:202:THR:HB	2:C:434:MET:HA	2.01	0.43
4:Y:44:LEU:HB2	4:Y:62:TRP:HH2	1.83	0.43
1:A:284:ILE:O	1:A:453:ILE:HA	2.18	0.43
2:C:38:VAL:HG21	3:F:593:LEU:HD11	1.99	0.43
2:C:224:ALA:HB3	2:C:489:VAL:HG23	2.01	0.43
2:C:477:ASP:OD2	2:C:478:ASN:N	2.52	0.43
3:E:565:LEU:O	3:E:569:THR:HG22	2.19	0.43
3:F:611:ASN:C	3:F:613:SER:H	2.27	0.43
4:Y:26:PHE:HE2	4:Y:28:TRP:HE1	1.67	0.43
4:Y:156:THR:HG21	4:Y:171:LYS:HA	2.00	0.43
1:A:432:GLN:N	1:A:432:GLN:OE1	2.51	0.43
2:C:131:CYS:SG	2:C:191:TYR:HB2	2.59	0.43
2:C:494:LEU:HD12	2:C:494:LEU:HA	1.87	0.43
3:F:526:ALA:HB1	3:F:628:TRP:H	1.84	0.43
4:Z:104:SER:OG	4:Z:107:HIS:O	2.35	0.43
4:Z:127:SER:OG	4:Z:162:LEU:O	2.32	0.43
3:D:645:LEU:HA	3:D:648:GLU:OE1	2.19	0.42
4:Y:27:HIS:HB2	4:Y:85:GLU:OE1	2.18	0.42
4:Z:89:GLN:OE1	4:Z:89:GLN:N	2.49	0.42
1:A:454:LEU:HD22	1:A:468:PHE:HB3	2.00	0.42
3:D:586:TYR:C	3:D:586:TYR:CD2	2.97	0.42
1:A:427:TRP:CE2	1:A:428:GLN:HG3	2.55	0.42
1:B:69:TRP:CE3	1:B:111:LEU:HD22	2.53	0.42
1:B:215:ILE:HG22	1:B:251:ILE:O	2.20	0.42
1:B:342:LEU:HD23	1:B:342:LEU:HA	1.87	0.42
2:C:268:GLU:HA	2:C:289:ASN:HB2	2.00	0.42
3:D:523:LEU:HD23	3:D:524:GLY:N	2.35	0.42
3:E:576:LEU:HD11	3:F:577:GLN:HG3	2.01	0.42
3:F:618:ASN:O	3:F:622:ILE:HG12	2.19	0.42
1:A:59:LYS:HB2	1:A:62:GLU:OE1	2.19	0.42
1:B:363:ASN:O	1:B:469:ARG:NH1	2.52	0.42
1:B:432:GLN:OE1	1:B:432:GLN:N	2.52	0.42
2:C:112:TRP:CE3	2:C:112:TRP:HA	2.54	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:Y:55:ALA:HB2	4:Y:71:ILE:HG23	2.01	0.42
4:Y:61:LEU:HD22	4:Y:66:ASN:ND2	2.34	0.42
2:C:109:ILE:HD13	2:C:109:ILE:HA	1.89	0.42
2:C:117:LYS:N	2:C:118:PRO:HD2	2.34	0.42
2:C:422:GLN:HB3	2:C:435:TYR:HE1	1.84	0.42
3:E:587:LEU:HD23	3:E:587:LEU:HA	1.79	0.42
3:F:642:ILE:HD13	3:F:642:ILE:HA	1.85	0.42
1:A:96:TRP:CD2	1:A:275:GLU:HB2	2.54	0.42
2:C:108:ILE:HD13	2:C:111:LEU:HD21	2.01	0.42
2:C:294:ILE:HB	2:C:449:ILE:CD1	2.49	0.42
4:Y:8:LYS:HA	4:Y:74:LEU:HB2	2.01	0.42
4:Y:66:ASN:OD1	4:Y:66:ASN:C	2.63	0.42
4:Y:87:GLU:OE1	4:Y:87:GLU:N	2.53	0.42
1:A:217:TYR:H	1:A:248:THR:CG2	2.31	0.42
1:B:192:ARG:HA	1:B:192:ARG:HD2	1.80	0.42
1:B:391:PHE:CD2	1:B:470:PRO:HG3	2.55	0.42
4:Z:5:LEU:HA	4:Z:96:LEU:O	2.20	0.42
1:A:38:VAL:HG21	3:D:596:TRP:HZ3	1.84	0.42
1:A:96:TRP:CD1	1:A:96:TRP:N	2.87	0.42
1:B:350:ARG:HH22	1:B:358:ILE:HG22	1.85	0.42
2:C:272:ILE:HD11	2:C:348:GLN:CB	2.50	0.42
4:Y:26:PHE:HE2	4:Y:28:TRP:NE1	2.16	0.42
2:C:46:LYS:NZ	3:F:632:ASP:OD2	2.42	0.42
1:A:66:HIS:CD2	1:A:66:HIS:C	2.98	0.42
1:A:426:MET:HE1	1:A:432:GLN:C	2.45	0.42
2:C:69:TRP:HE3	2:C:115:SER:HB3	1.81	0.42
2:C:500:ARG:NH1	3:F:610:TRP:HE1	2.17	0.42
3:E:568:LEU:HD11	3:F:574:LYS:NZ	2.35	0.42
4:Z:76:ILE:HA	4:Z:97:VAL:HG13	2.02	0.42
1:A:52:LEU:CD1	1:A:100:MET:HG3	2.50	0.41
2:C:116:LEU:HD13	2:C:427:TRP:HH2	1.86	0.41
2:C:284:ILE:HD11	2:C:454:LEU:HB2	2.01	0.41
4:Z:36:ILE:CD1	4:Z:51:LEU:HB2	2.49	0.41
2:C:274:SER:OG	2:C:284:ILE:HG22	2.20	0.41
3:D:577:GLN:HG3	3:F:576:LEU:HD12	2.01	0.41
4:Y:164:ASN:OD1	4:Y:164:ASN:N	2.53	0.41
4:Z:98:PHE:HB2	4:Z:118:LEU:HD11	2.02	0.41
1:B:45:TRP:HB2	1:B:489:VAL:HG22	2.02	0.41
7:L:1:NAG:H4	7:L:2:NAG:H2	1.84	0.41
1:A:383:PHE:C	1:A:384:TYR:HD1	2.28	0.41
1:B:388:SER:O	1:B:392:ASN:HB2	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:204:ALA:HB3	2:C:437:PRO:HD2	2.03	0.41
4:Y:101:THR:O	4:Y:116:LEU:HG	2.21	0.41
4:Z:28:TRP:NE1	4:Z:69:LEU:HB2	2.36	0.41
1:A:342:LEU:HA	1:A:345:VAL:HG22	2.02	0.41
1:A:426:MET:HG2	1:A:429:ARG:O	2.21	0.41
1:B:201:ILE:HD12	1:B:201:ILE:H	1.85	0.41
5:N:3:BMA:O6	5:N:3:BMA:O4	2.26	0.41
1:B:126:CYS:HB2	1:B:196:CYS:HB3	1.67	0.41
3:F:595:ILE:HD13	3:F:595:ILE:HA	1.83	0.41
1:A:121:LYS:HB3	1:A:201:ILE:HG23	2.03	0.41
2:C:125:LEU:HD13	2:C:125:LEU:HA	1.90	0.41
3:E:580:VAL:HA	3:E:583:VAL:HG12	2.03	0.41
3:E:640:GLN:CD	3:E:640:GLN:H	2.28	0.41
3:F:532:ALA:HA	3:F:535:MET:HG3	2.03	0.41
1:A:277:ILE:HD13	1:A:284:ILE:HD11	2.02	0.41
1:B:40:TYR:HB2	3:E:593:LEU:HD11	2.02	0.41
2:C:298:ARG:HH11	2:C:420:ILE:HD13	1.86	0.41
2:C:42:VAL:HG11	3:F:628:TRP:CE3	2.55	0.41
2:C:79:PRO:HD3	3:F:571:TRP:CE3	2.56	0.41
2:C:123:THR:OG1	2:C:124:PRO:HD3	2.21	0.41
2:C:183:GLN:HA	2:C:191:TYR:CD1	2.56	0.41
2:C:337:THR:O	2:C:340:GLU:HG2	2.20	0.41
2:C:491:ILE:HD12	2:C:491:ILE:N	2.36	0.41
3:F:621:GLU:HA	3:F:625:ASN:OD1	2.21	0.41
1:A:284:ILE:HD13	1:A:284:ILE:HA	1.86	0.41
1:B:65:LYS:HD3	1:B:65:LYS:HA	1.89	0.41
1:B:346:VAL:O	1:B:350:ARG:HG3	2.21	0.41
1:A:475:MET:SD	1:A:475:MET:N	2.94	0.40
1:B:475:MET:HB3	1:B:479:TRP:CZ3	2.56	0.40
2:C:304:ARG:HH21	2:C:318:TYR:HD1	1.67	0.40
2:C:369:LEU:O	2:C:373:THR:HG22	2.21	0.40
4:Y:89:GLN:HB2	4:Y:91:GLU:CD	2.46	0.40
2:C:255:VAL:HG11	2:C:426:MET:HE1	2.02	0.40
2:C:421:LYS:HE3	2:C:423:ILE:O	2.22	0.40
3:E:638:TYR:O	3:E:641:ILE:N	2.54	0.40
3:E:651:ASN:O	3:E:654:GLU:HG3	2.21	0.40
1:A:53:PHE:CE2	3:D:574:LYS:HE3	2.57	0.40
1:B:112:TRP:HZ2	1:B:377:ASN:HD21	1.69	0.40
1:B:265:LEU:HD12	1:B:265:LEU:HA	1.89	0.40
2:C:54:CYS:HB3	2:C:74:CYS:HB3	1.43	0.40
2:C:108:ILE:O	2:C:111:LEU:HG	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:E:652:GLN:HA	3:E:655:LYS:HG2	2.02	0.40
3:F:529:THR:HA	3:F:623:TRP:O	2.21	0.40
1:A:358:ILE:H	1:A:358:ILE:HG12	1.69	0.40
1:A:363:ASN:O	1:A:469:ARG:HG3	2.22	0.40
1:B:97:LYS:HE2	1:B:97:LYS:HB2	1.94	0.40
2:C:358:ILE:HB	2:C:464:THR:O	2.21	0.40
3:F:562:GLN:HB2	3:F:564:HIS:HE2	1.86	0.40
1:A:454:LEU:HB3	1:A:468:PHE:HB3	2.03	0.40
1:B:446:VAL:O	5:J:1:NAG:H5	2.22	0.40
3:F:558:ALA:HB1	3:F:565:LEU:HA	2.04	0.40
4:Y:36:ILE:C	4:Y:47:GLY:H	2.29	0.40
4:Y:79:SER:OG	4:Y:96:LEU:HA	2.22	0.40
4:Z:125:SER:H	4:Z:163:GLN:NE2	2.20	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	347/474 (73%)	330 (95%)	17 (5%)	0	100	100
1	B	345/474 (73%)	327 (95%)	18 (5%)	0	100	100
2	C	396/474 (84%)	379 (96%)	17 (4%)	0	100	100
3	D	119/153 (78%)	115 (97%)	4 (3%)	0	100	100
3	E	119/153 (78%)	113 (95%)	6 (5%)	0	100	100
3	F	124/153 (81%)	116 (94%)	8 (6%)	0	100	100
4	Y	174/379 (46%)	156 (90%)	18 (10%)	0	100	100
4	Z	174/379 (46%)	163 (94%)	11 (6%)	0	100	100
All	All	1798/2639 (68%)	1699 (94%)	99 (6%)	0	100	100

There are no Ramachandran outliers to report.

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	317/423 (75%)	317 (100%)	0	100	100
1	B	315/423 (74%)	313 (99%)	2 (1%)	78	81
2	C	369/423 (87%)	367 (100%)	2 (0%)	81	82
3	D	106/129 (82%)	106 (100%)	0	100	100
3	E	106/129 (82%)	106 (100%)	0	100	100
3	F	108/129 (84%)	107 (99%)	1 (1%)	70	76
4	Y	160/339 (47%)	158 (99%)	2 (1%)	61	72
4	Z	160/339 (47%)	158 (99%)	2 (1%)	61	72
All	All	1641/2334 (70%)	1632 (100%)	9 (0%)	78	82

All (9) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	112	TRP
1	B	448	ASN
2	C	99	ASN
2	C	103	GLN
3	F	638	TYR
4	Y	71	ILE
4	Y	89	GLN
4	Z	5	LEU
4	Z	98	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (24) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	99	ASN
1	A	249	HIS

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Mol	Chain	Res	Type
1	A	258	GLN
1	A	356	ASN
1	A	374	HIS
1	A	448	ASN
1	B	94	ASN
1	B	374	HIS
1	B	428	GLN
2	C	80	ASN
2	C	448	ASN
3	D	616	ASN
3	D	656	ASN
3	D	658	GLN
3	E	630	GLN
3	F	591	GLN
3	F	650	GLN
3	F	656	ASN
4	Y	110	GLN
4	Y	139	GLN
4	Z	25	GLN
4	Z	112	GLN
4	Z	152	GLN
4	Z	163	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)

27 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	G	1	5,1	14,14,15	0.24	0	17,19,21	0.61	0
5	NAG	G	2	5	14,14,15	0.19	0	17,19,21	0.51	0
5	BMA	G	3	5	11,11,12	0.94	0	15,15,17	1.04	1 (6%)
5	MAN	G	4	5	11,11,12	0.88	1 (9%)	15,15,17	1.14	2 (13%)
6	NAG	H	1	6,1	14,14,15	0.55	0	17,19,21	0.67	0
6	NAG	H	2	6	14,14,15	0.43	0	17,19,21	0.55	0
6	BMA	H	3	6	11,11,12	1.16	1 (9%)	15,15,17	1.27	1 (6%)
6	MAN	H	4	6	11,11,12	1.39	3 (27%)	15,15,17	2.32	3 (20%)
7	NAG	I	1	1,7	14,14,15	0.24	0	17,19,21	0.67	0
7	NAG	I	2	7	14,14,15	0.90	1 (7%)	17,19,21	0.62	0
5	NAG	J	1	5,1	14,14,15	0.32	0	17,19,21	0.58	0
5	NAG	J	2	5	14,14,15	0.40	0	17,19,21	1.30	2 (11%)
5	BMA	J	3	5	11,11,12	0.84	0	15,15,17	0.80	0
5	MAN	J	4	5	11,11,12	0.79	0	15,15,17	1.28	2 (13%)
8	NAG	K	1	1,8	14,14,15	0.24	0	17,19,21	0.44	0
8	NAG	K	2	8	14,14,15	0.20	0	17,19,21	0.40	0
8	BMA	K	3	8	11,11,12	0.57	0	15,15,17	0.66	0
7	NAG	L	1	1,7	14,14,15	0.18	0	17,19,21	0.56	0
7	NAG	L	2	7	14,14,15	0.65	1 (7%)	17,19,21	0.55	0
7	NAG	M	1	7	14,14,15	0.48	0	17,19,21	0.69	0
7	NAG	M	2	7	14,14,15	0.49	0	17,19,21	1.35	2 (11%)
5	NAG	N	1	5,2	14,14,15	0.67	0	17,19,21	0.91	2 (11%)
5	NAG	N	2	5	14,14,15	0.27	0	17,19,21	0.66	1 (5%)
5	BMA	N	3	5	11,11,12	1.09	2 (18%)	15,15,17	1.48	2 (13%)
5	MAN	N	4	5	11,11,12	0.58	0	15,15,17	1.07	2 (13%)
7	NAG	O	1	2,7	14,14,15	0.22	0	17,19,21	0.46	0
7	NAG	O	2	7	14,14,15	0.64	1 (7%)	17,19,21	0.53	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	G	1	5,1	-	2/6/23/26	0/1/1/1
5	NAG	G	2	5	-	2/6/23/26	0/1/1/1
5	BMA	G	3	5	-	0/2/19/22	0/1/1/1
5	MAN	G	4	5	-	2/2/19/22	1/1/1/1
6	NAG	H	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	H	2	6	-	2/6/23/26	0/1/1/1
6	BMA	H	3	6	-	1/2/19/22	0/1/1/1
6	MAN	H	4	6	-	0/2/19/22	0/1/1/1
7	NAG	I	1	1,7	-	3/6/23/26	0/1/1/1
7	NAG	I	2	7	-	4/6/23/26	0/1/1/1
5	NAG	J	1	5,1	-	3/6/23/26	0/1/1/1
5	NAG	J	2	5	-	2/6/23/26	0/1/1/1
5	BMA	J	3	5	-	0/2/19/22	0/1/1/1
5	MAN	J	4	5	-	1/2/19/22	1/1/1/1
8	NAG	K	1	1,8	-	2/6/23/26	0/1/1/1
8	NAG	K	2	8	-	4/6/23/26	0/1/1/1
8	BMA	K	3	8	-	0/2/19/22	0/1/1/1
7	NAG	L	1	1,7	-	4/6/23/26	0/1/1/1
7	NAG	L	2	7	-	3/6/23/26	0/1/1/1
7	NAG	M	1	7	-	4/6/23/26	0/1/1/1
7	NAG	M	2	7	-	4/6/23/26	0/1/1/1
5	NAG	N	1	5,2	-	0/6/23/26	0/1/1/1
5	NAG	N	2	5	-	0/6/23/26	0/1/1/1
5	BMA	N	3	5	-	1/2/19/22	0/1/1/1
5	MAN	N	4	5	-	2/2/19/22	0/1/1/1
7	NAG	O	1	2,7	-	4/6/23/26	0/1/1/1
7	NAG	O	2	7	-	2/6/23/26	0/1/1/1

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	H	3	BMA	C1-C2	3.08	1.59	1.52
6	H	4	MAN	C1-C2	2.87	1.59	1.52
7	I	2	NAG	C1-C2	2.86	1.56	1.52
6	H	4	MAN	O5-C5	2.44	1.48	1.43
6	H	4	MAN	O5-C1	2.31	1.47	1.43
7	O	2	NAG	C1-C2	2.19	1.55	1.52
5	N	3	BMA	C1-C2	2.19	1.57	1.52
7	L	2	NAG	C1-C2	2.16	1.55	1.52
5	N	3	BMA	C2-C3	2.14	1.55	1.52
5	G	4	MAN	O5-C5	2.02	1.47	1.43

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	H	4	MAN	C1-O5-C5	7.74	122.56	112.19
7	M	2	NAG	C2-N2-C7	4.55	129.00	122.90
5	J	4	MAN	C1-O5-C5	3.77	117.24	112.19
5	N	3	BMA	C1-C2-C3	3.69	115.02	109.64
6	H	3	BMA	O2-C2-C3	-3.44	103.02	110.15
5	G	4	MAN	C1-O5-C5	3.30	116.61	112.19
5	J	2	NAG	C1-O5-C5	3.21	116.49	112.19
5	J	2	NAG	O4-C4-C3	3.08	117.63	110.38
5	N	4	MAN	C1-O5-C5	2.99	116.19	112.19
5	G	3	BMA	C1-C2-C3	2.62	113.47	109.64
6	H	4	MAN	O5-C1-C2	2.47	116.69	110.79
5	N	1	NAG	O4-C4-C5	2.46	115.38	109.32
5	J	4	MAN	O2-C2-C3	-2.30	105.38	110.15
5	N	3	BMA	C1-O5-C5	2.29	115.26	112.19
6	H	4	MAN	O2-C2-C3	-2.23	105.53	110.15
5	N	2	NAG	C1-O5-C5	2.22	115.17	112.19
5	G	4	MAN	O2-C2-C3	-2.12	105.76	110.15
5	N	4	MAN	O2-C2-C3	-2.12	105.77	110.15
7	M	2	NAG	C1-C2-N2	2.11	113.76	110.43
5	N	1	NAG	C1-O5-C5	2.02	114.90	112.19

There are no chirality outliers.

All (54) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	O	2	NAG	O5-C5-C6-O6
7	I	2	NAG	O5-C5-C6-O6
7	M	1	NAG	O5-C5-C6-O6
5	N	4	MAN	O5-C5-C6-O6
7	O	2	NAG	C4-C5-C6-O6
6	H	1	NAG	O5-C5-C6-O6
8	K	2	NAG	O5-C5-C6-O6
6	H	2	NAG	O5-C5-C6-O6
7	M	1	NAG	C4-C5-C6-O6
6	H	1	NAG	C4-C5-C6-O6
7	I	2	NAG	C4-C5-C6-O6
6	H	2	NAG	C4-C5-C6-O6
5	N	3	BMA	O5-C5-C6-O6
5	G	2	NAG	C8-C7-N2-C2
5	G	2	NAG	O7-C7-N2-C2
7	I	1	NAG	C8-C7-N2-C2
7	I	1	NAG	O7-C7-N2-C2
7	L	1	NAG	C8-C7-N2-C2

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Mol	Chain	Res	Type	Atoms
7	L	1	NAG	O7-C7-N2-C2
7	M	2	NAG	C8-C7-N2-C2
7	M	2	NAG	O7-C7-N2-C2
7	O	1	NAG	C8-C7-N2-C2
7	O	1	NAG	O7-C7-N2-C2
8	K	2	NAG	C8-C7-N2-C2
8	K	2	NAG	O7-C7-N2-C2
7	O	1	NAG	O5-C5-C6-O6
5	G	4	MAN	C4-C5-C6-O6
8	K	1	NAG	C4-C5-C6-O6
8	K	2	NAG	C4-C5-C6-O6
5	N	4	MAN	C4-C5-C6-O6
6	H	3	BMA	O5-C5-C6-O6
8	K	1	NAG	O5-C5-C6-O6
5	J	1	NAG	O5-C5-C6-O6
5	J	4	MAN	O5-C5-C6-O6
7	I	1	NAG	O5-C5-C6-O6
7	L	2	NAG	O5-C5-C6-O6
5	G	4	MAN	O5-C5-C6-O6
5	J	1	NAG	C1-C2-N2-C7
5	J	2	NAG	C1-C2-N2-C7
7	O	1	NAG	C4-C5-C6-O6
5	G	1	NAG	C3-C2-N2-C7
7	I	2	NAG	C3-C2-N2-C7
7	L	2	NAG	C3-C2-N2-C7
7	M	1	NAG	C3-C2-N2-C7
5	G	1	NAG	C1-C2-N2-C7
7	I	2	NAG	C1-C2-N2-C7
7	L	2	NAG	C1-C2-N2-C7
7	M	1	NAG	C1-C2-N2-C7
7	M	2	NAG	C1-C2-N2-C7
7	L	1	NAG	C4-C5-C6-O6
5	J	1	NAG	C3-C2-N2-C7
5	J	2	NAG	C3-C2-N2-C7
7	M	2	NAG	C3-C2-N2-C7
7	L	1	NAG	O5-C5-C6-O6

All (2) ring outliers are listed below:

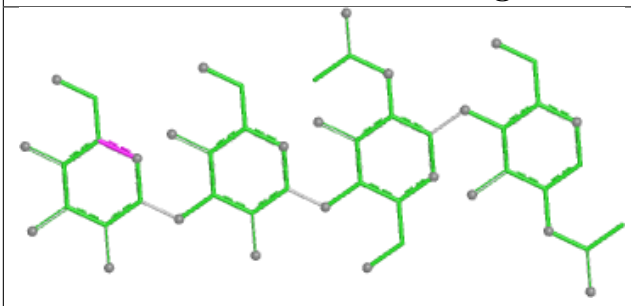
Mol	Chain	Res	Type	Atoms
5	J	4	MAN	C1-C2-C3-C4-C5-O5
5	G	4	MAN	C1-C2-C3-C4-C5-O5

14 monomers are involved in 10 short contacts:

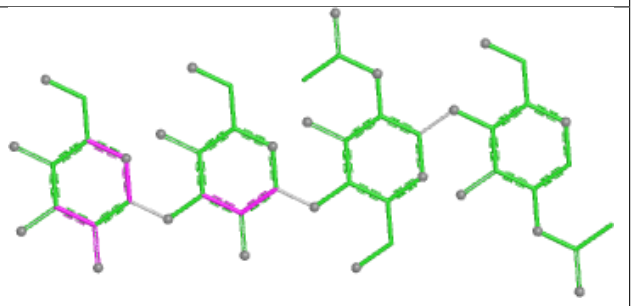
Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	N	3	BMA	1	0
6	H	2	NAG	1	0
7	M	2	NAG	1	0
7	I	1	NAG	2	0
7	I	2	NAG	2	0
7	L	1	NAG	1	0
5	J	1	NAG	1	0
7	O	1	NAG	1	0
5	J	2	NAG	1	0
6	H	3	BMA	1	0
5	G	1	NAG	1	0
7	O	2	NAG	1	0
7	L	2	NAG	1	0
5	G	2	NAG	1	0

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

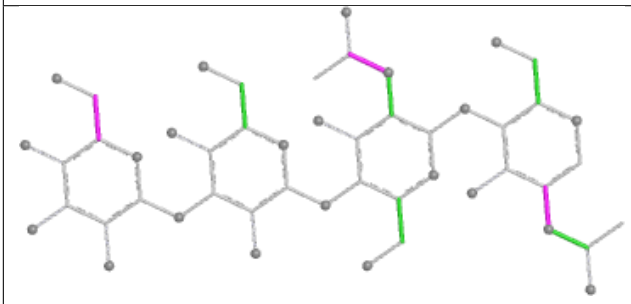
Oligosaccharide Chain G



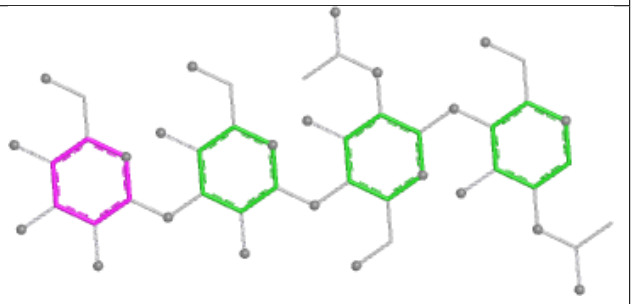
Bond lengths



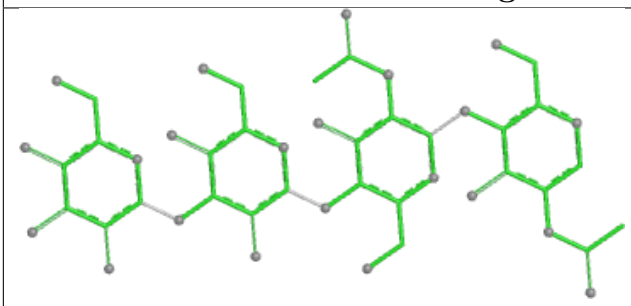
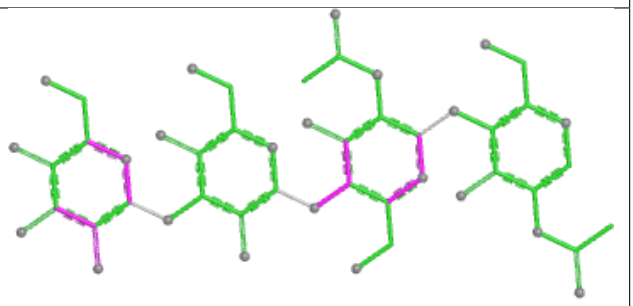
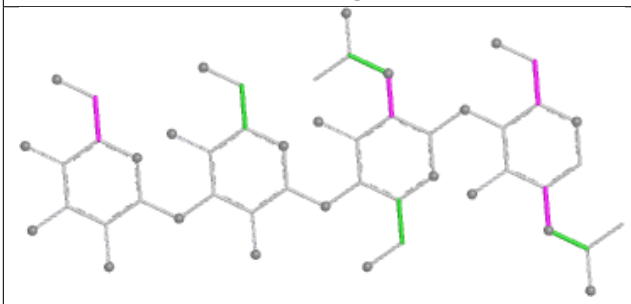
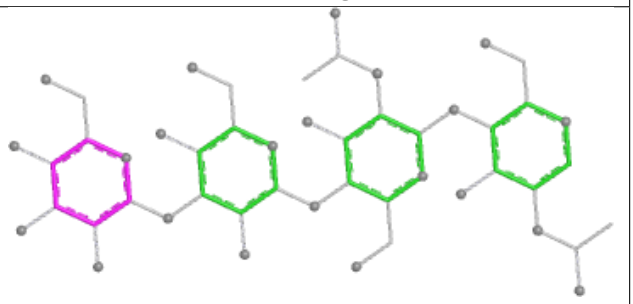
Bond angles

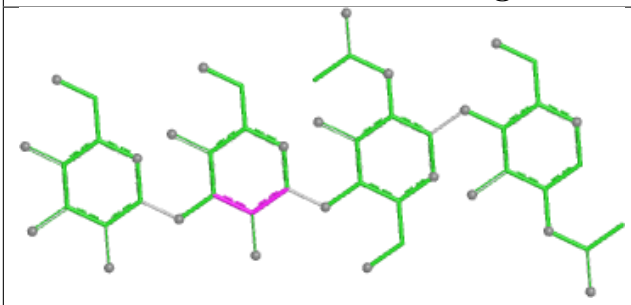
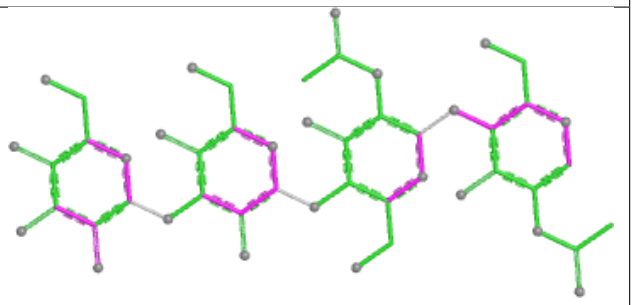
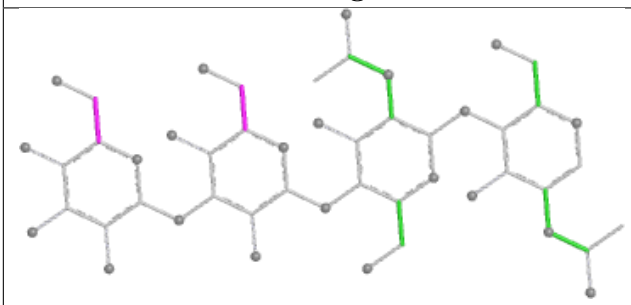
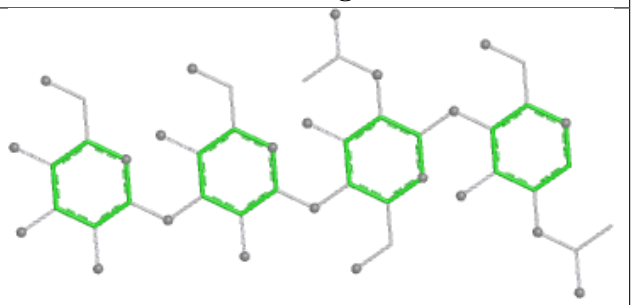


Torsions

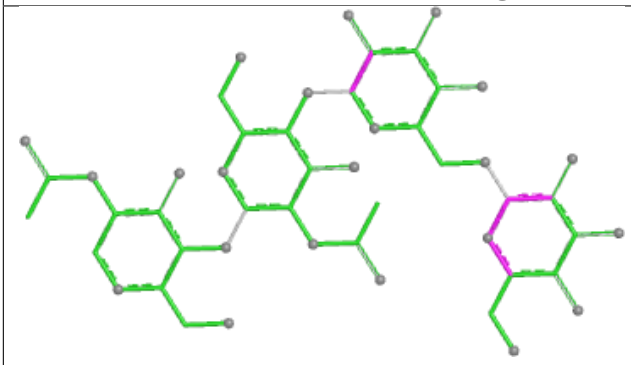


Rings

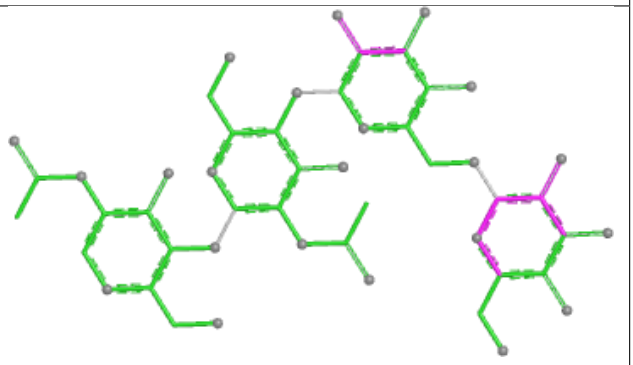
Oligosaccharide Chain J	
 Bond lengths	 Bond angles
 Torsions	 Rings

Oligosaccharide Chain N	
 Bond lengths	 Bond angles
 Torsions	 Rings

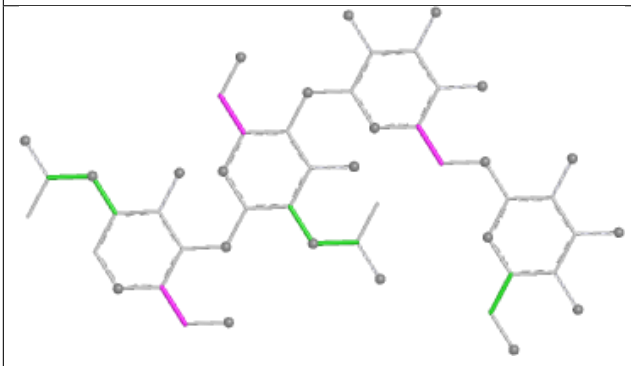
Oligosaccharide Chain H



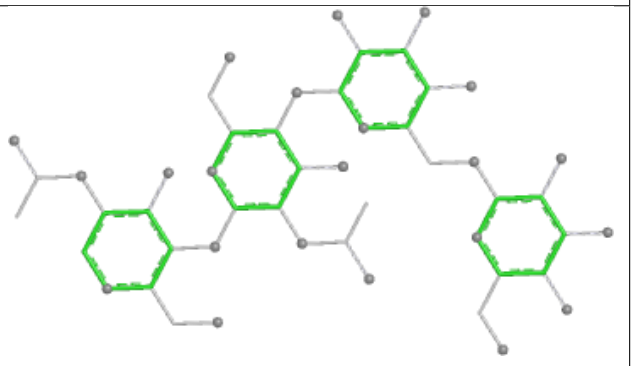
Bond lengths



Bond angles

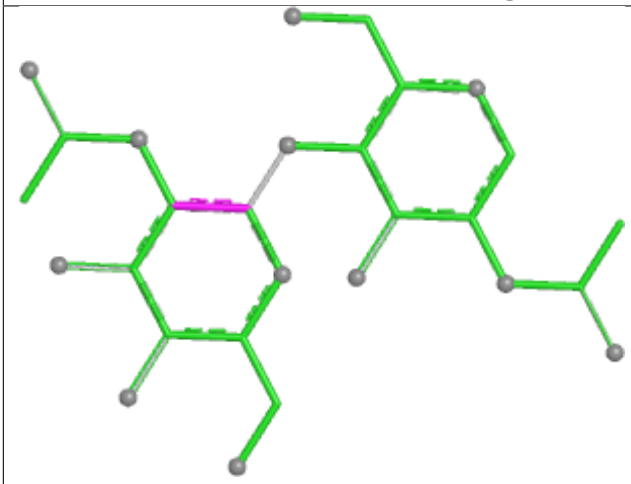


Torsions

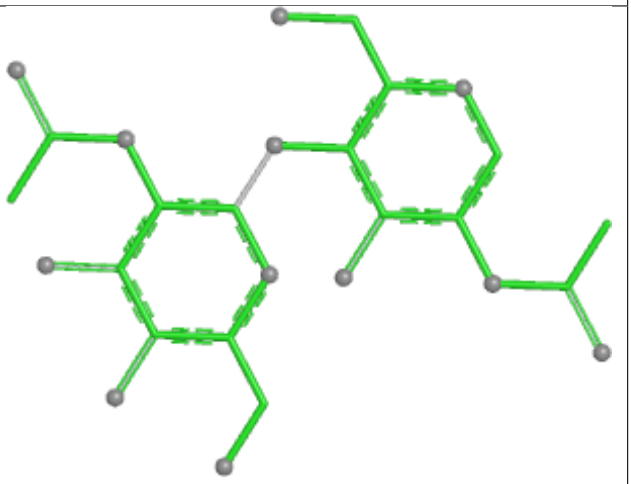


Rings

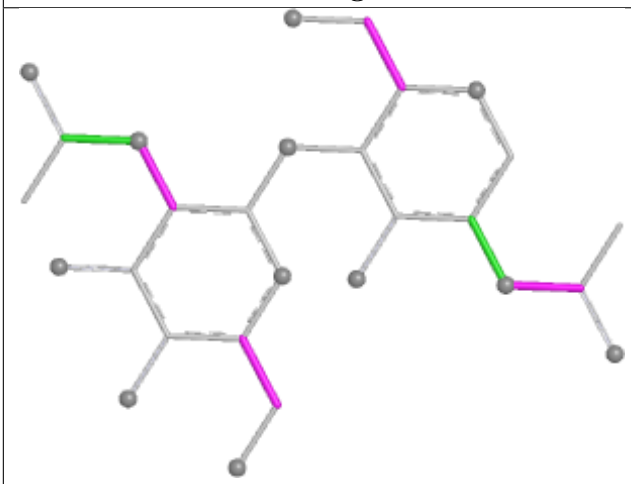
Oligosaccharide Chain I



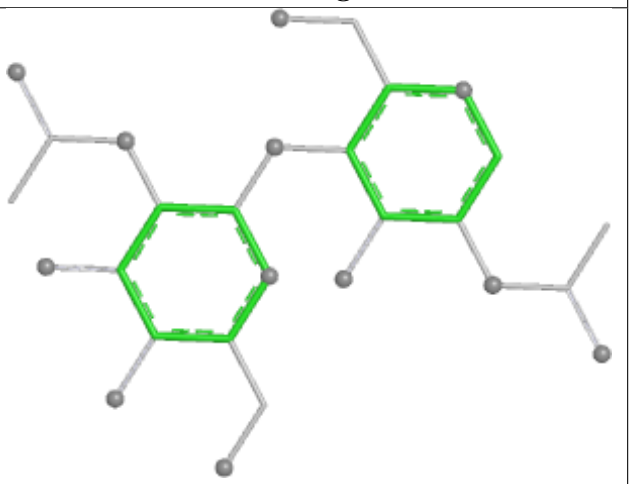
Bond lengths



Bond angles

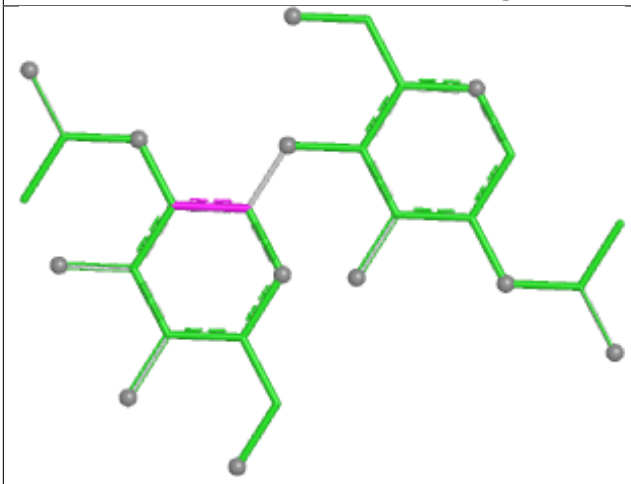


Torsions

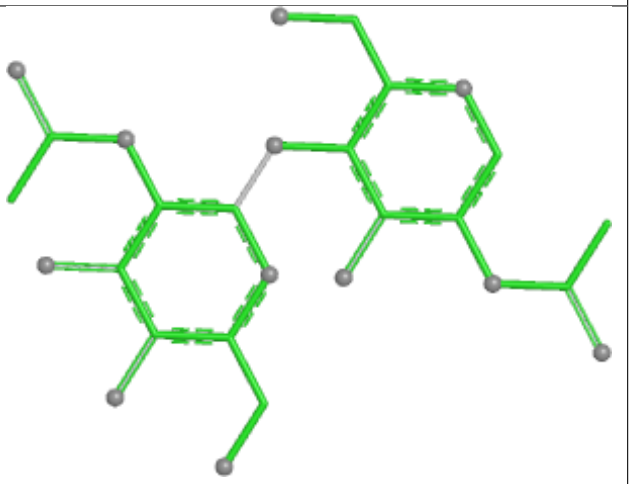


Rings

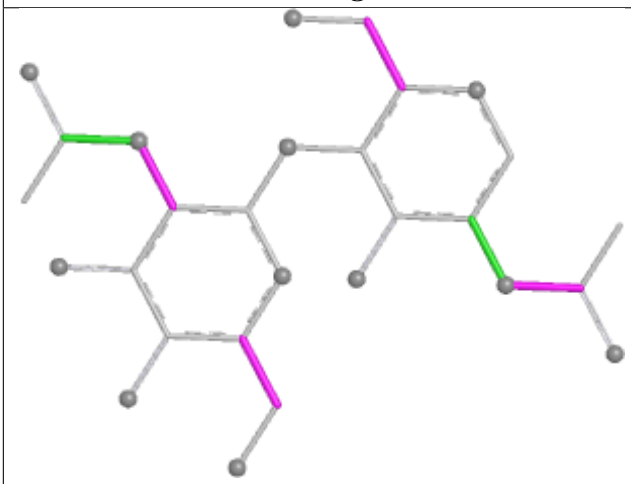
Oligosaccharide Chain L



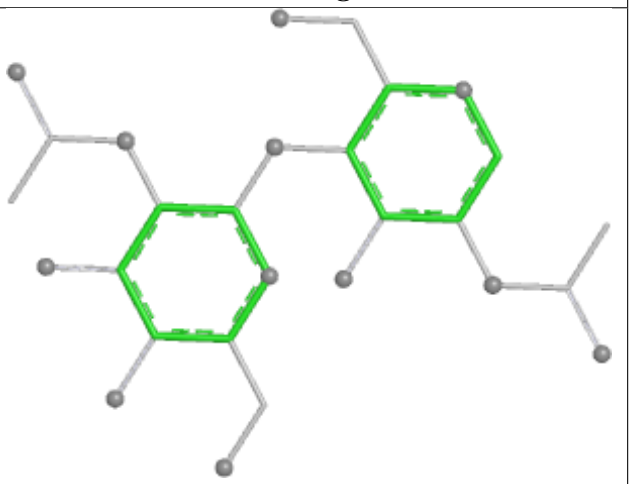
Bond lengths



Bond angles

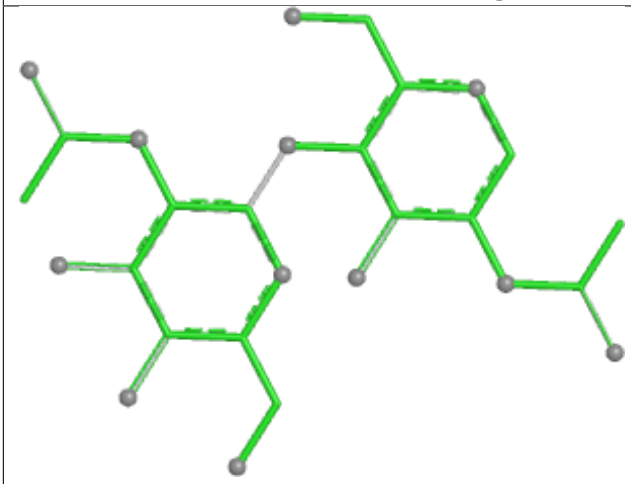


Torsions

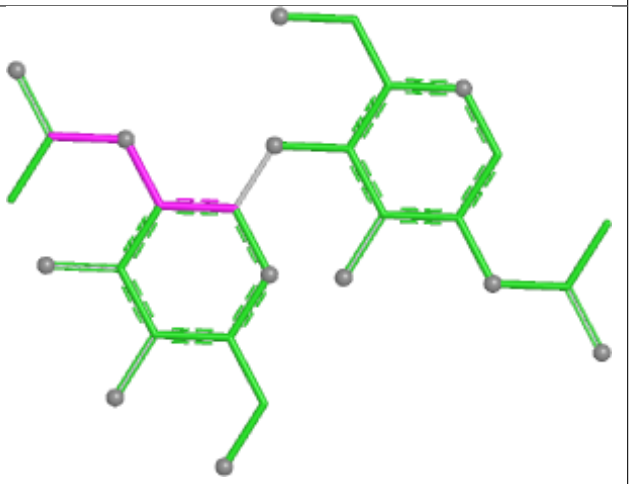


Rings

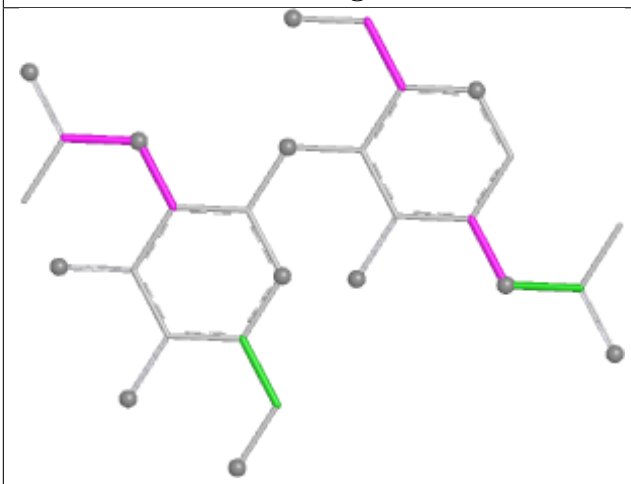
Oligosaccharide Chain M



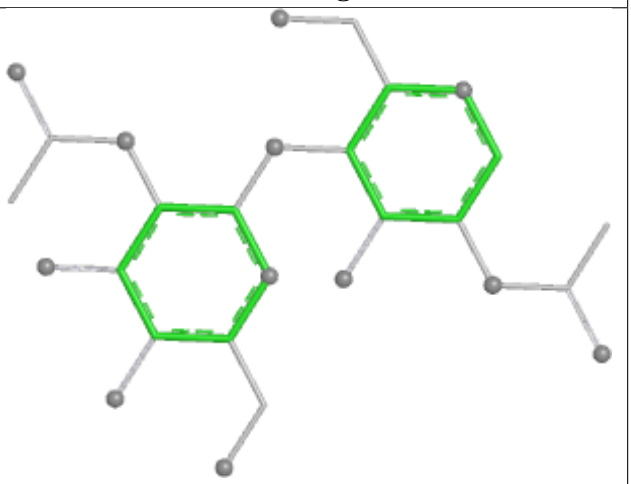
Bond lengths



Bond angles

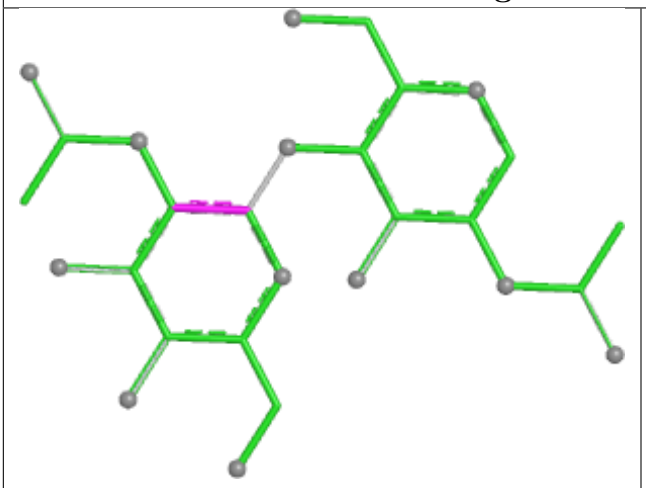


Torsions

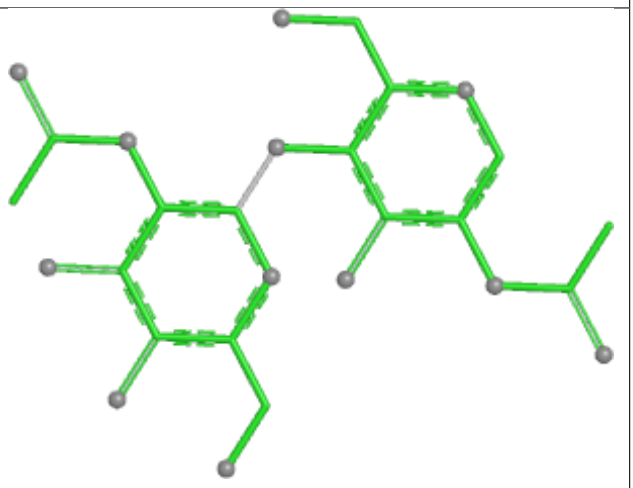


Rings

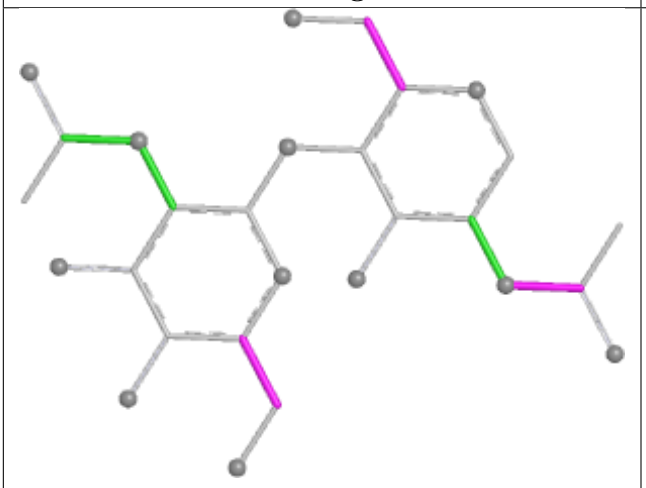
Oligosaccharide Chain O



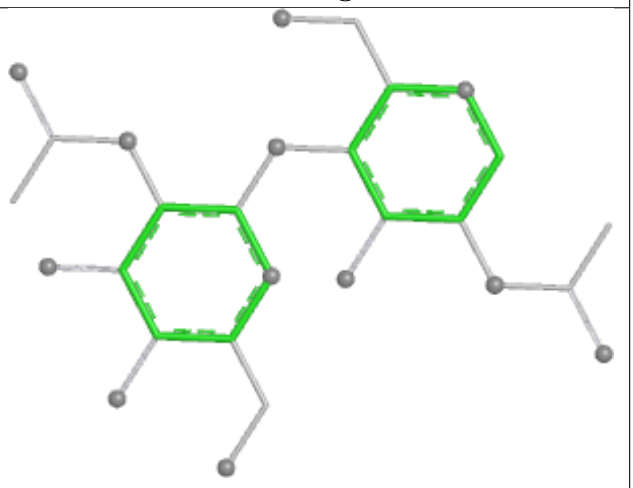
Bond lengths



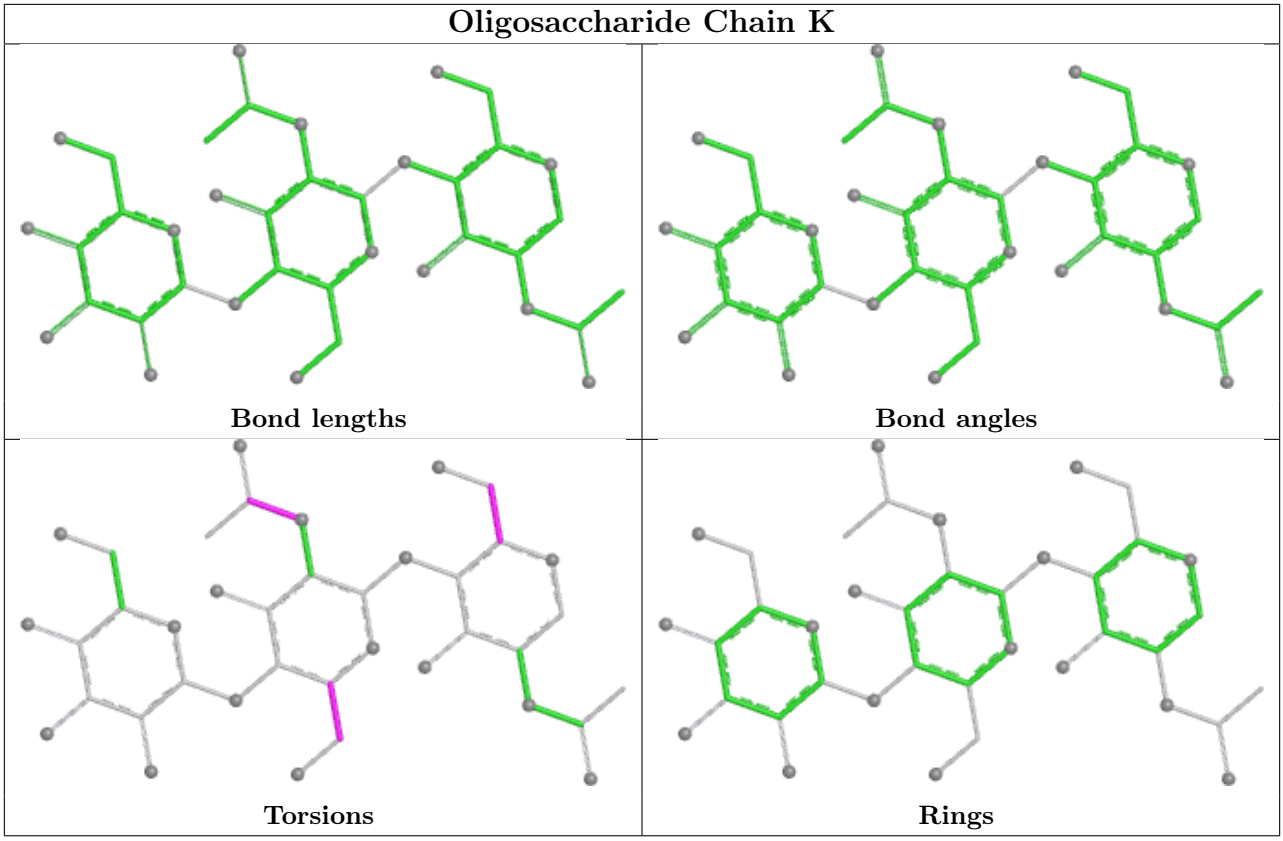
Bond angles



Torsions



Rings



5.6 Ligand geometry (i)

7 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	$\#\|Z\| > 2$
9	NAG	C	603	2	14,14,15	0.19	0	17,19,21	0.54	0
9	NAG	B	601	1	14,14,15	0.17	0	17,19,21	0.45	0
9	NAG	C	601	2	14,14,15	0.23	0	17,19,21	0.44	0
9	NAG	B	602	1	14,14,15	0.34	0	17,19,21	1.34	2 (11%)
9	NAG	A	601	1	14,14,15	0.19	0	17,19,21	0.43	0
9	NAG	C	602	2	14,14,15	0.24	0	17,19,21	0.46	0
9	NAG	B	603	1	14,14,15	0.24	0	17,19,21	0.57	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
9	NAG	C	603	2	-	4/6/23/26	0/1/1/1
9	NAG	B	601	1	-	4/6/23/26	0/1/1/1
9	NAG	C	601	2	-	2/6/23/26	0/1/1/1
9	NAG	B	602	1	-	6/6/23/26	0/1/1/1
9	NAG	A	601	1	-	2/6/23/26	0/1/1/1
9	NAG	C	602	2	-	0/6/23/26	0/1/1/1
9	NAG	B	603	1	-	4/6/23/26	0/1/1/1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	B	602	NAG	C2-N2-C7	4.63	129.10	122.90
9	B	602	NAG	C1-C2-N2	2.28	114.03	110.43

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	B	601	NAG	C4-C5-C6-O6
9	A	601	NAG	O5-C5-C6-O6
9	C	603	NAG	O5-C5-C6-O6
9	C	601	NAG	O5-C5-C6-O6
9	B	601	NAG	O5-C5-C6-O6
9	B	602	NAG	O5-C5-C6-O6
9	C	603	NAG	C4-C5-C6-O6
9	B	602	NAG	C4-C5-C6-O6
9	B	601	NAG	C8-C7-N2-C2
9	B	601	NAG	O7-C7-N2-C2
9	B	602	NAG	C8-C7-N2-C2
9	B	602	NAG	O7-C7-N2-C2
9	C	603	NAG	C8-C7-N2-C2
9	C	603	NAG	O7-C7-N2-C2
9	C	601	NAG	C4-C5-C6-O6
9	B	603	NAG	C4-C5-C6-O6
9	B	603	NAG	O5-C5-C6-O6
9	A	601	NAG	C4-C5-C6-O6

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Mol	Chain	Res	Type	Atoms
9	B	603	NAG	C3-C2-N2-C7
9	B	602	NAG	C1-C2-N2-C7
9	B	603	NAG	C1-C2-N2-C7
9	B	602	NAG	C3-C2-N2-C7

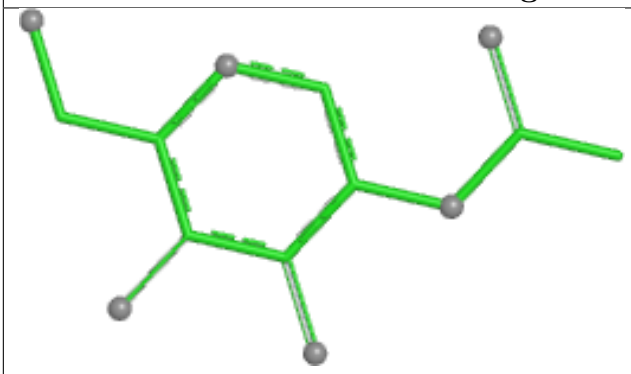
There are no ring outliers.

1 monomer is involved in 1 short contact:

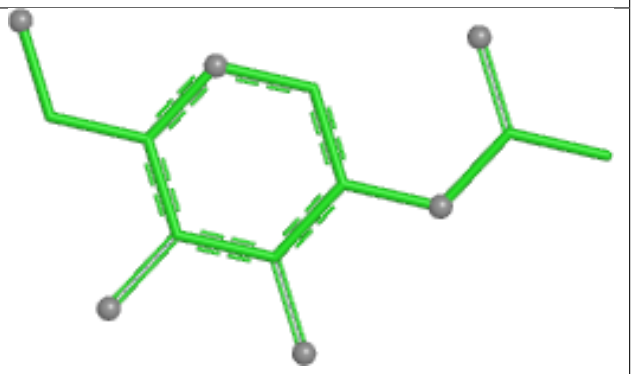
Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	B	602	NAG	1	0

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

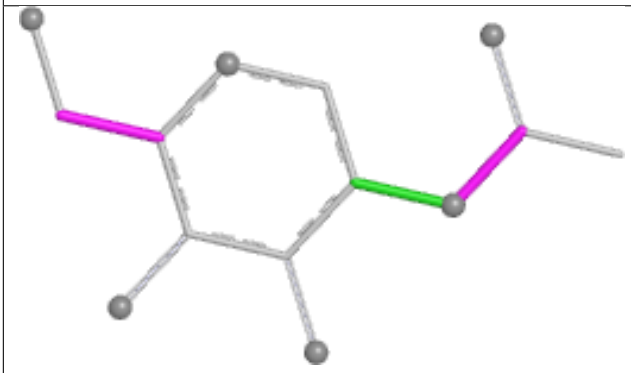
Ligand NAG C 603



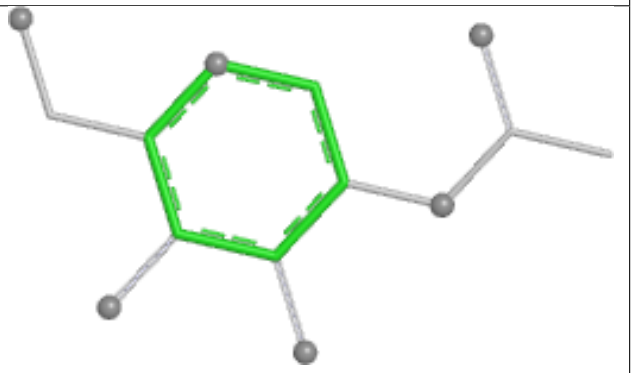
Bond lengths



Bond angles

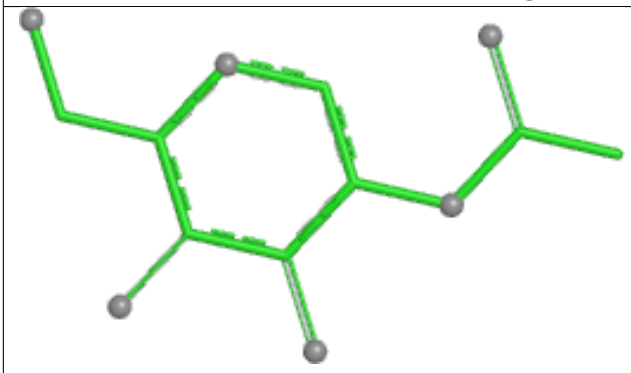


Torsions

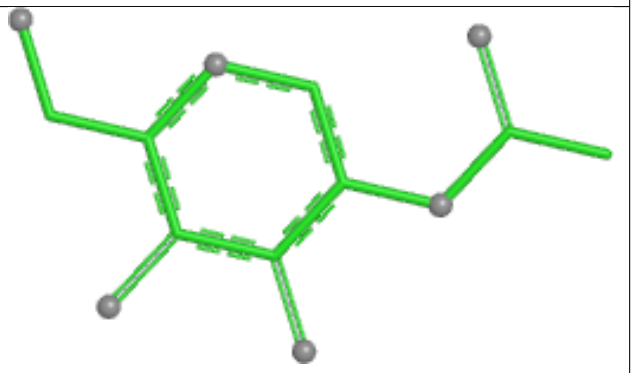


Rings

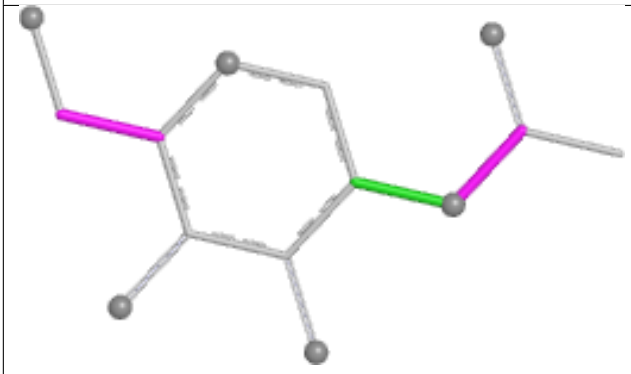
Ligand NAG B 601



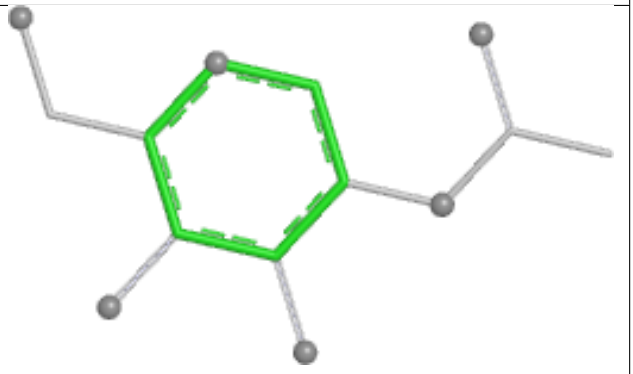
Bond lengths



Bond angles

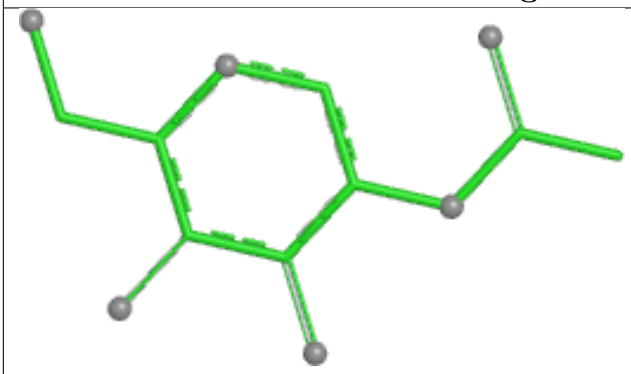


Torsions

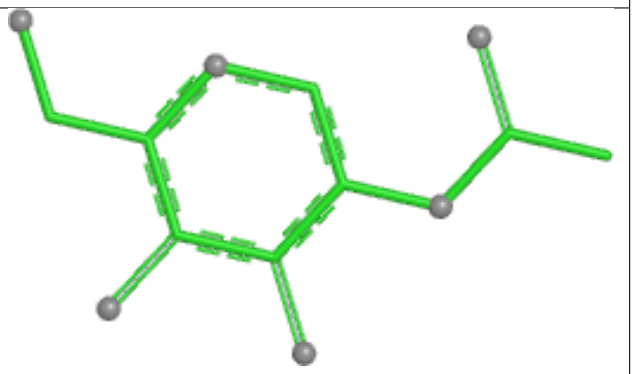


Rings

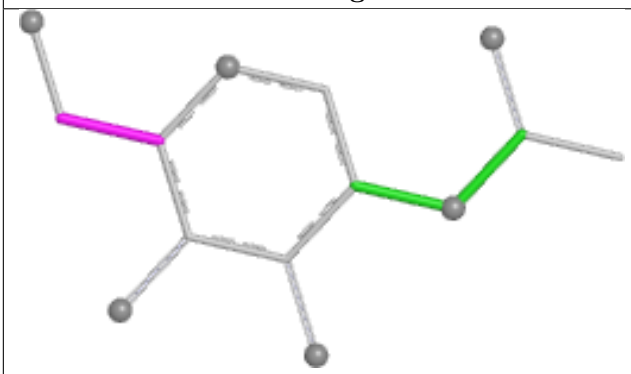
Ligand NAG C 601



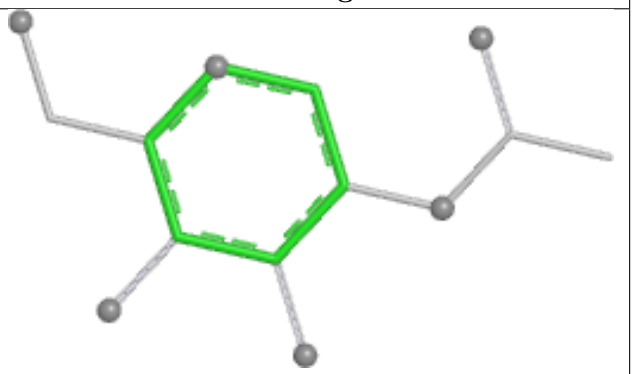
Bond lengths



Bond angles

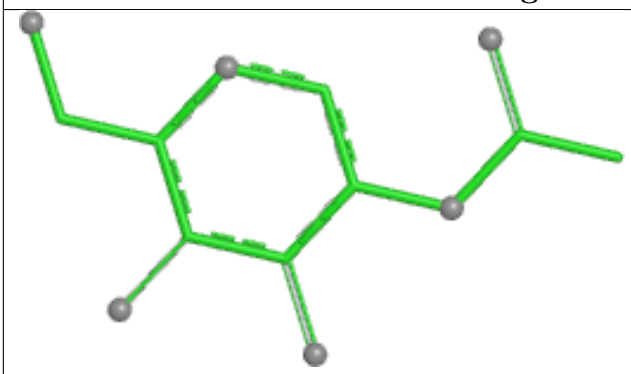


Torsions

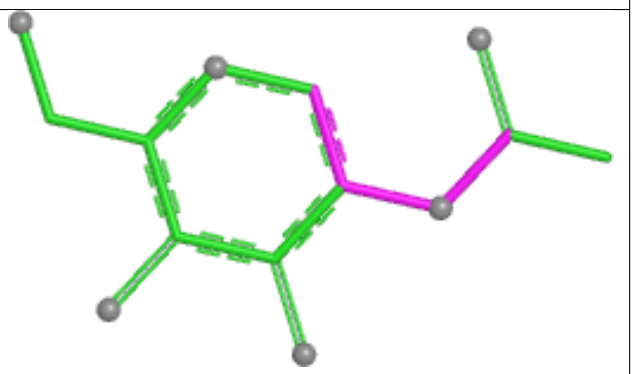


Rings

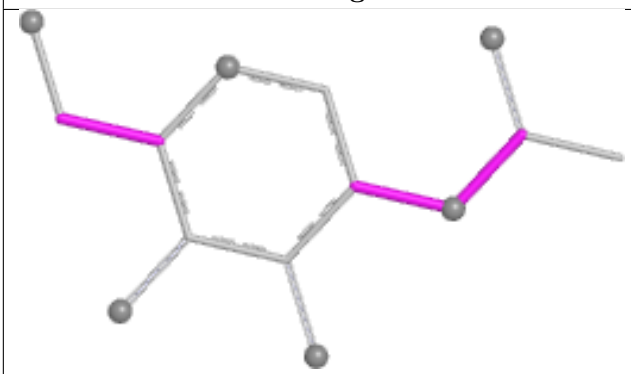
Ligand NAG B 602



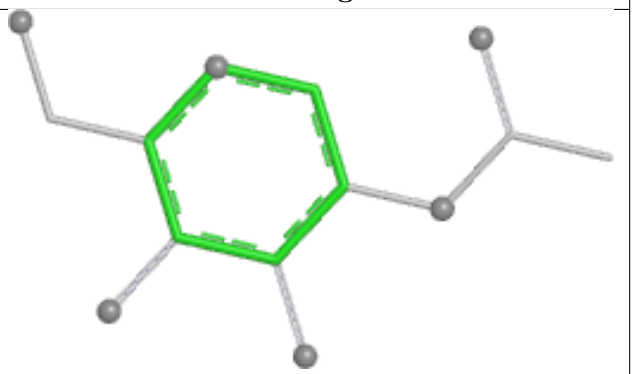
Bond lengths



Bond angles

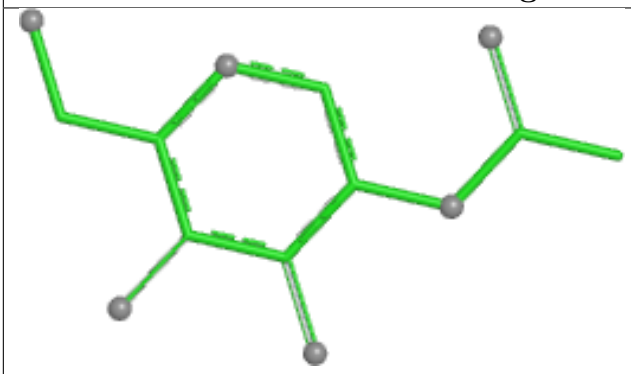


Torsions

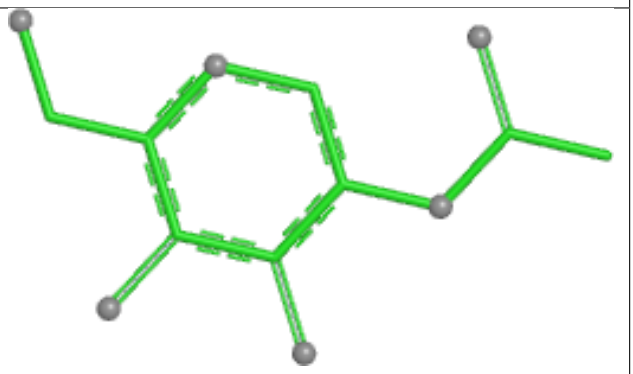


Rings

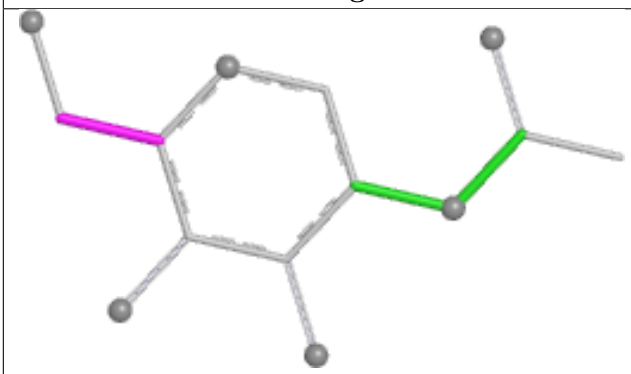
Ligand NAG A 601



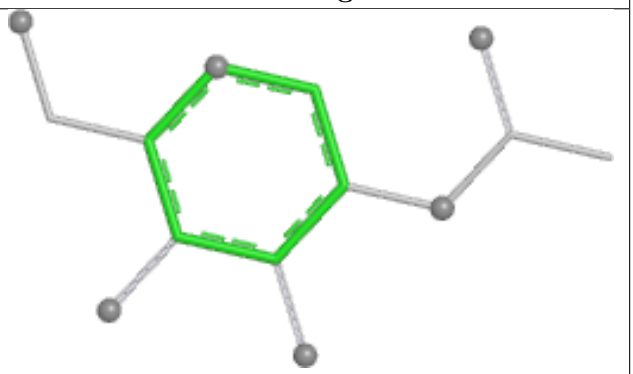
Bond lengths



Bond angles

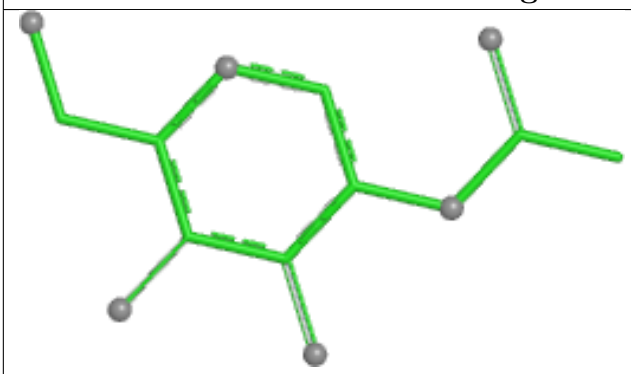


Torsions

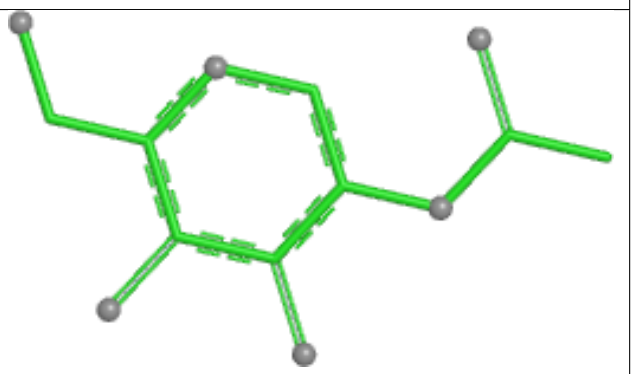


Rings

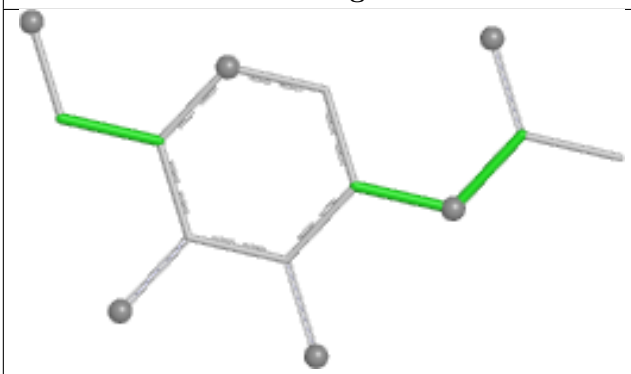
Ligand NAG C 602



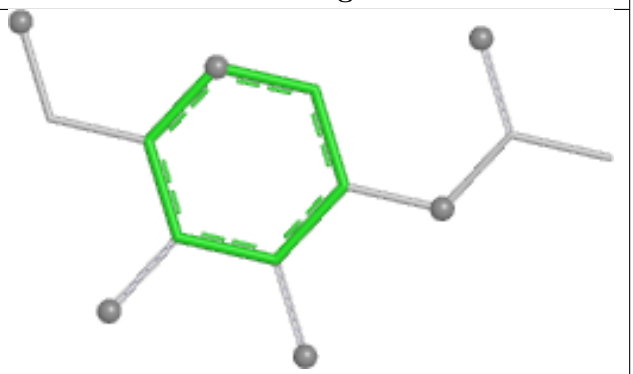
Bond lengths



Bond angles

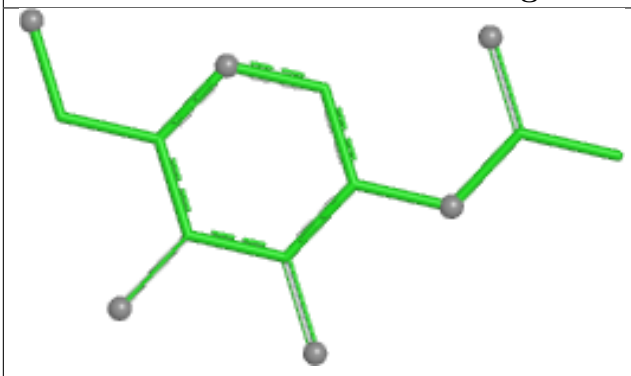


Torsions

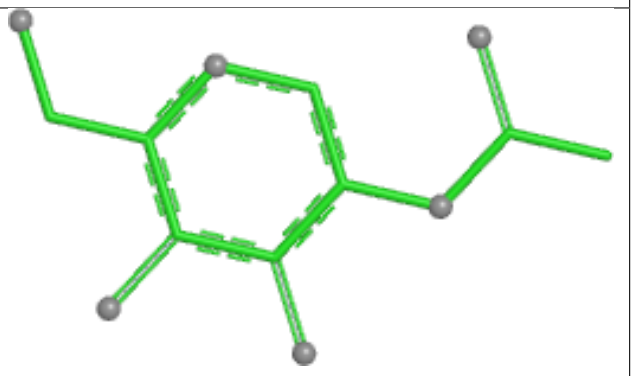


Rings

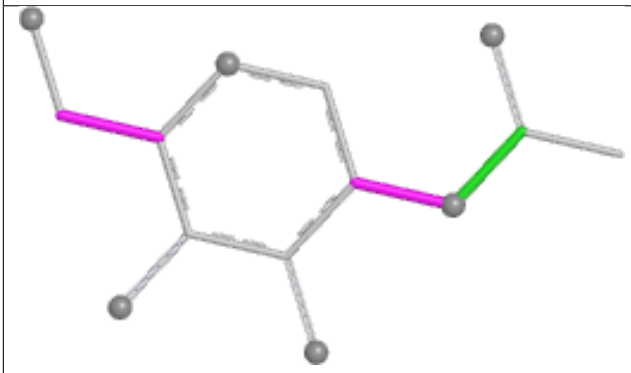
Ligand NAG B 603



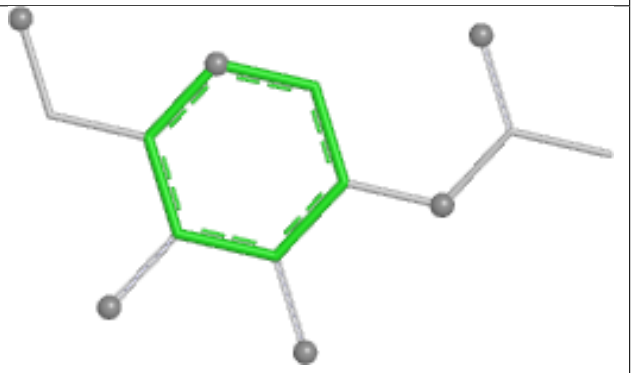
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

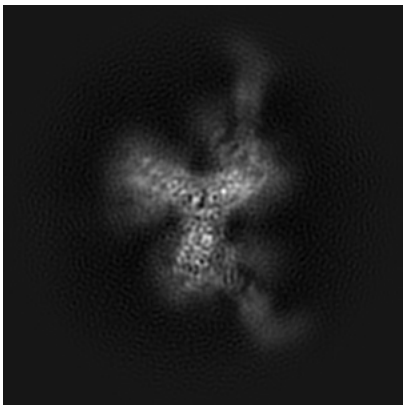
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-29580. These allow visual inspection of the internal detail of the map and identification of artifacts.

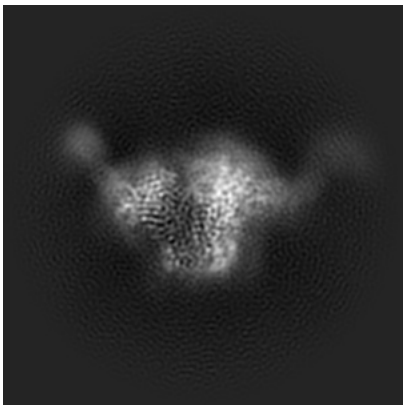
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

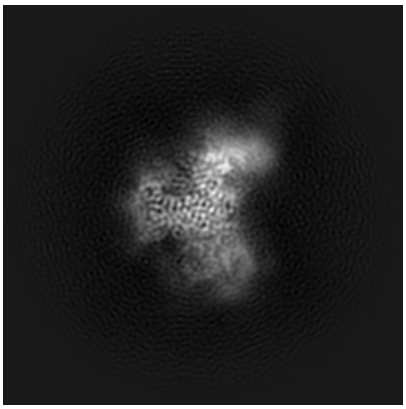
6.1.1 Primary map



X

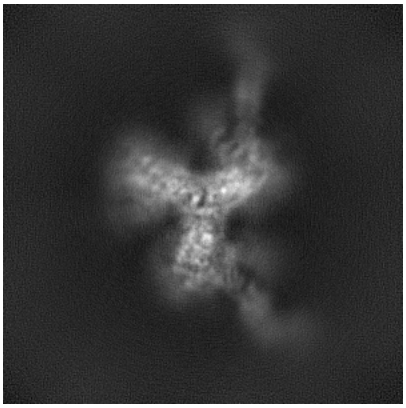


Y

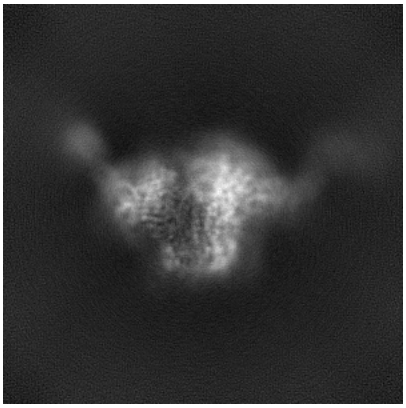


Z

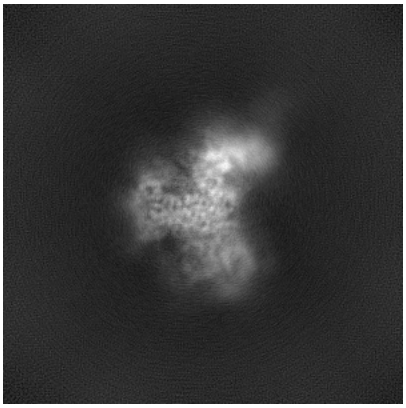
6.1.2 Raw map



X



Y

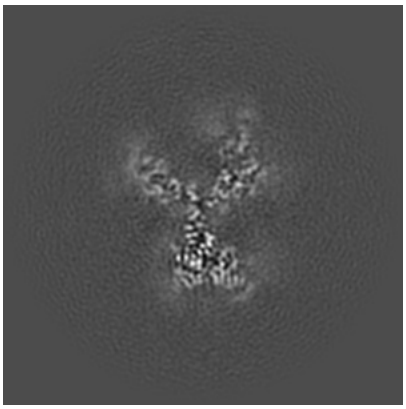


Z

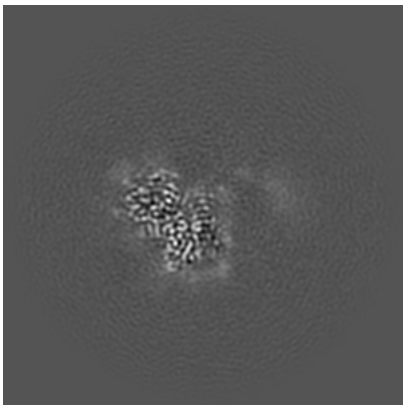
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

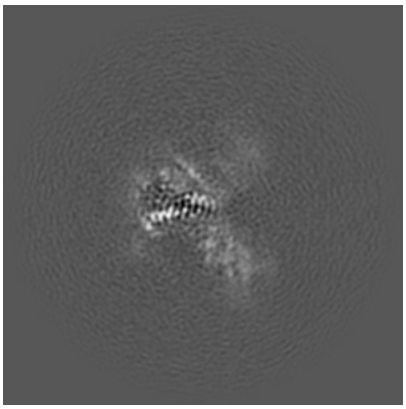
6.2.1 Primary map



X Index: 180

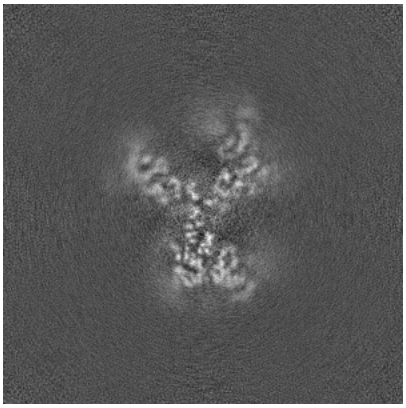


Y Index: 180

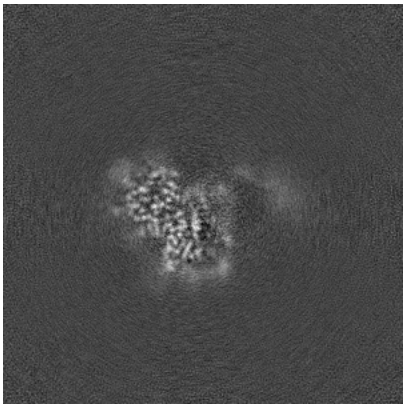


Z Index: 180

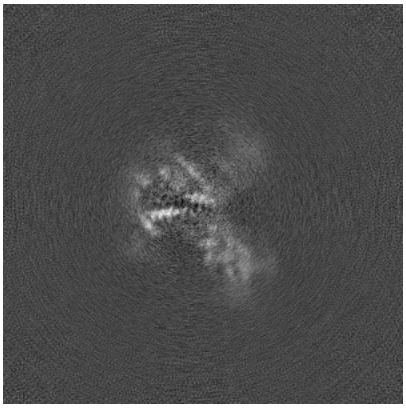
6.2.2 Raw map



X Index: 180



Y Index: 180

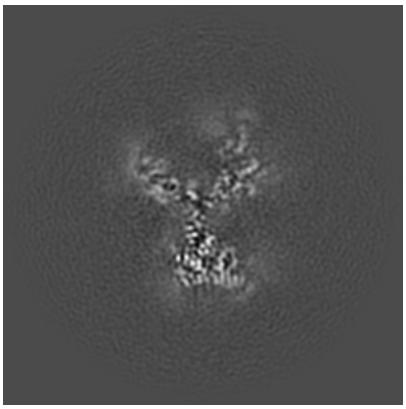


Z Index: 180

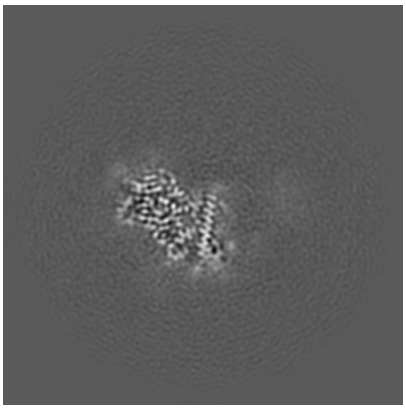
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

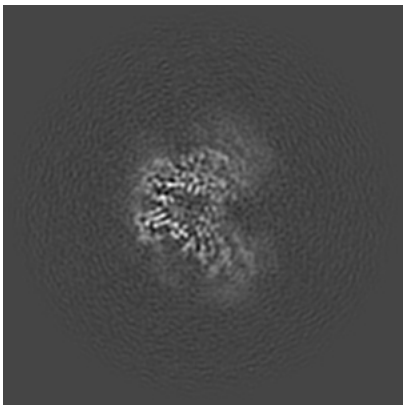
6.3.1 Primary map



X Index: 179

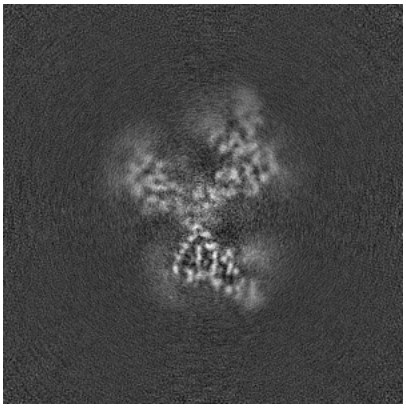


Y Index: 172

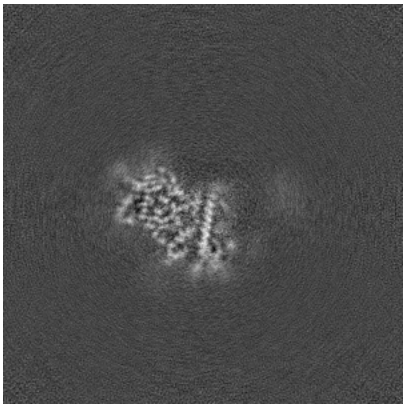


Z Index: 192

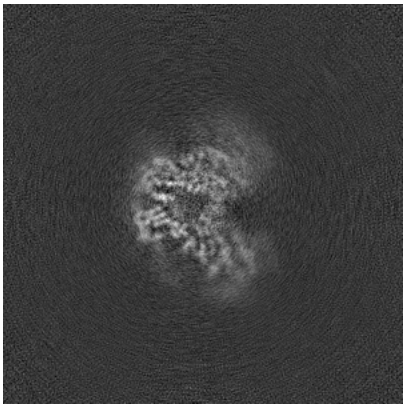
6.3.2 Raw map



X Index: 188



Y Index: 172

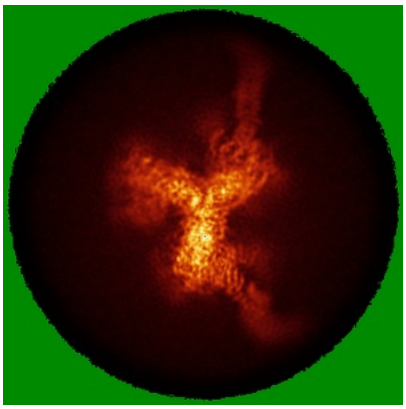


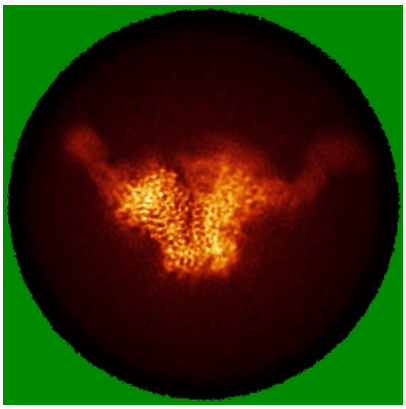
Z Index: 192

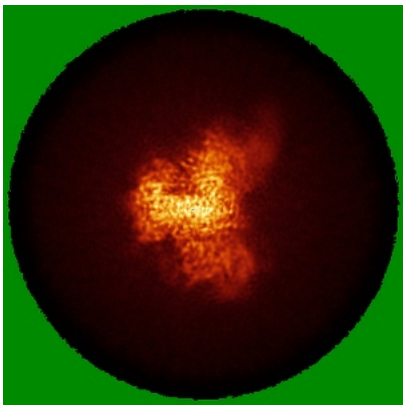
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

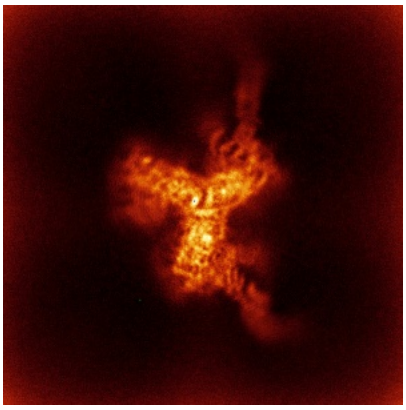
6.4.1 Primary map

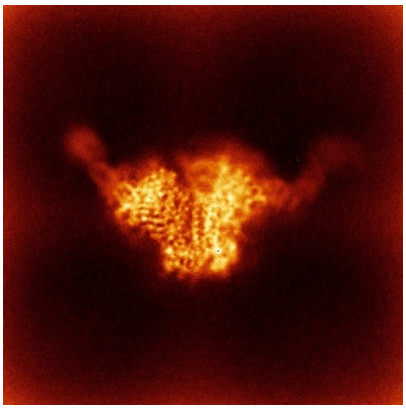

X

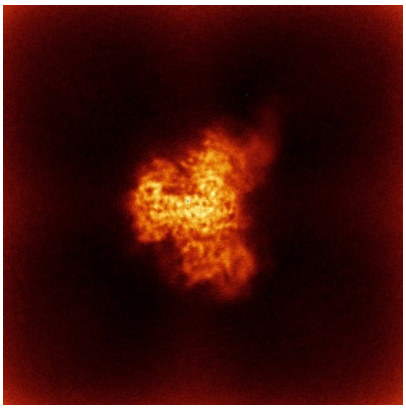

Y


Z

6.4.2 Raw 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)

This section was not generated.

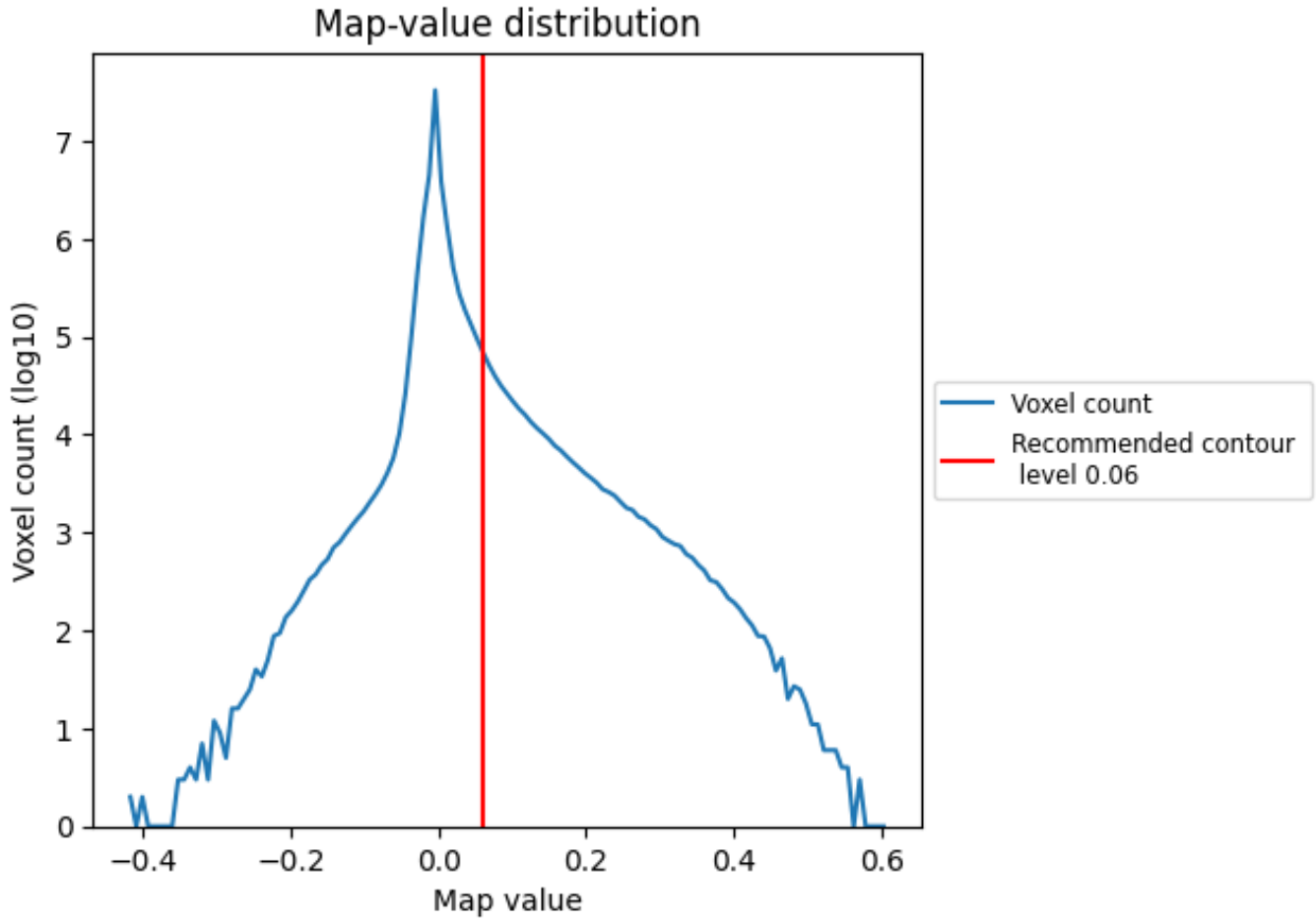
6.6 Mask visualisation (i)

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

7 Map analysis

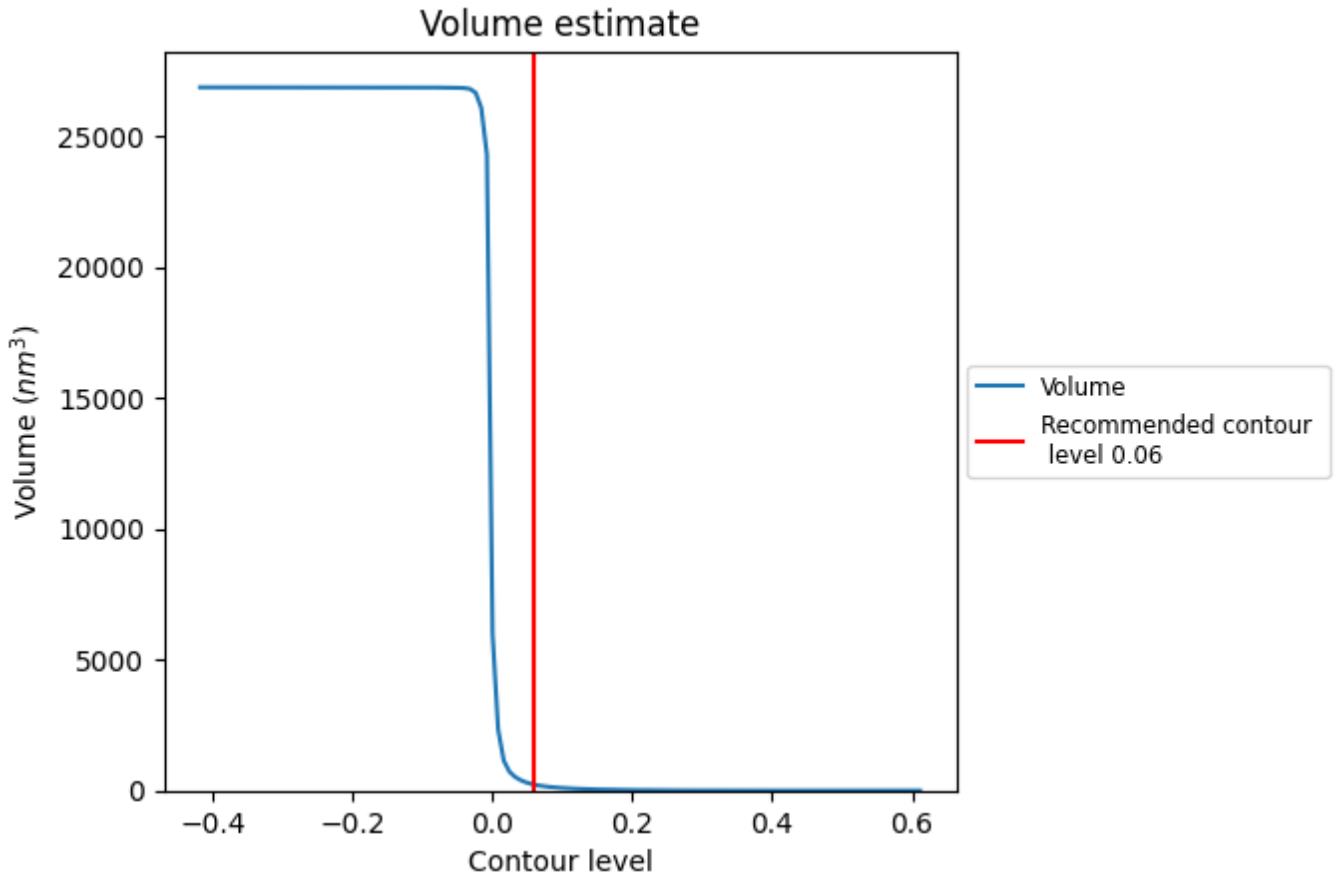
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

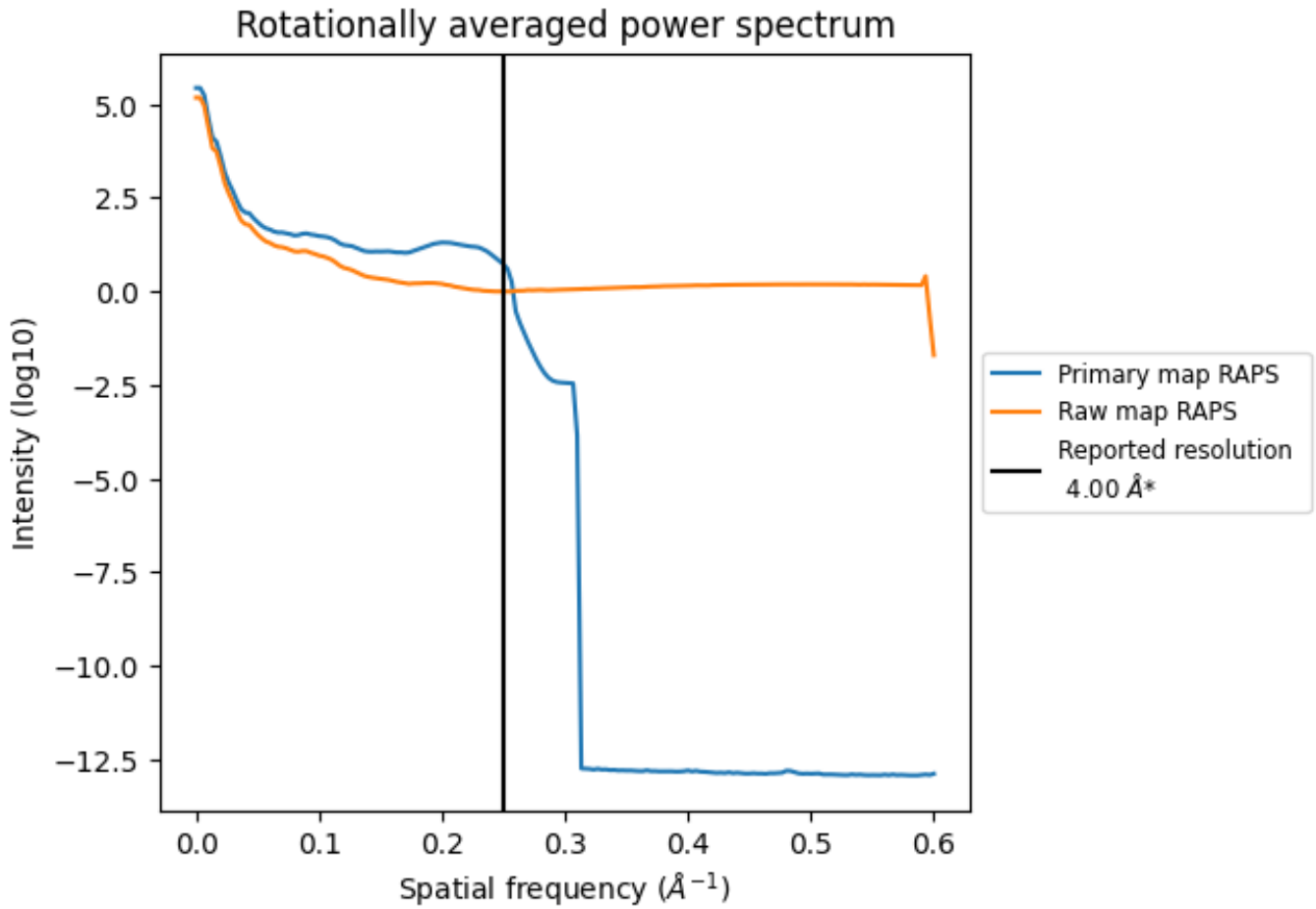
7.2 Volume estimate



The volume at the recommended contour level is 228 nm^3; this corresponds to an approximate mass of 206 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)

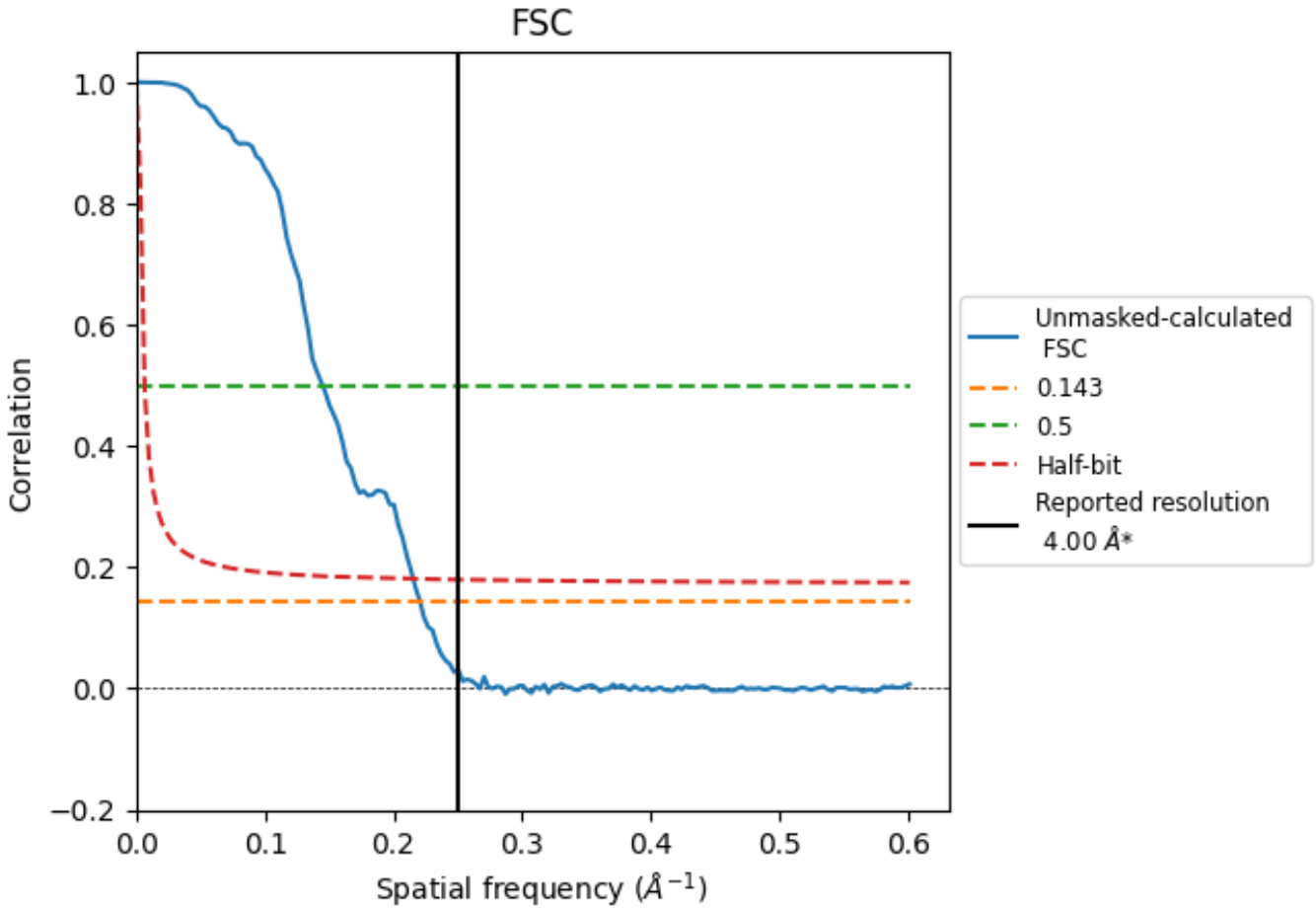


*Reported resolution corresponds to spatial frequency of 0.250 Å^{-1}

8 Fourier-Shell correlation

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC



*Reported resolution corresponds to spatial frequency of 0.250 Å^{-1}

8.2 Resolution estimates (i)

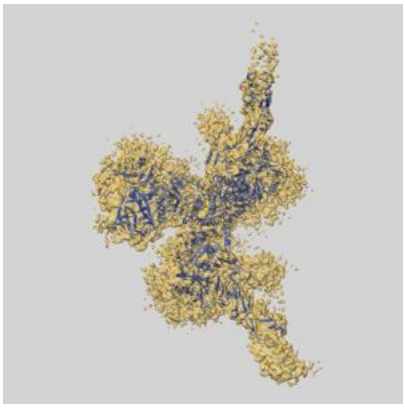
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.00	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.53	6.91	4.64

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 4.53 differs from the reported value 4.0 by more than 10 %

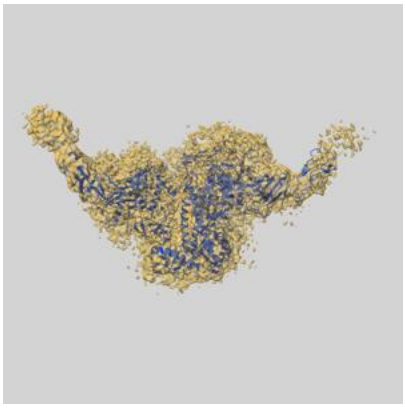
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-29580 and PDB model 8FYJ. Per-residue inclusion information can be found in section 3 on page 9.

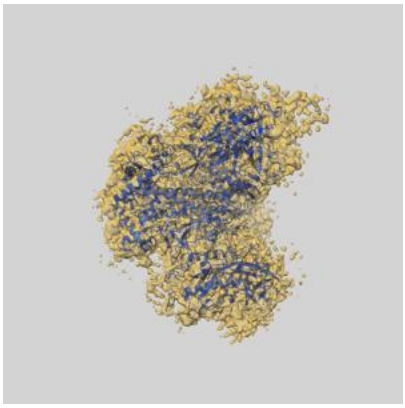
9.1 Map-model overlay



X



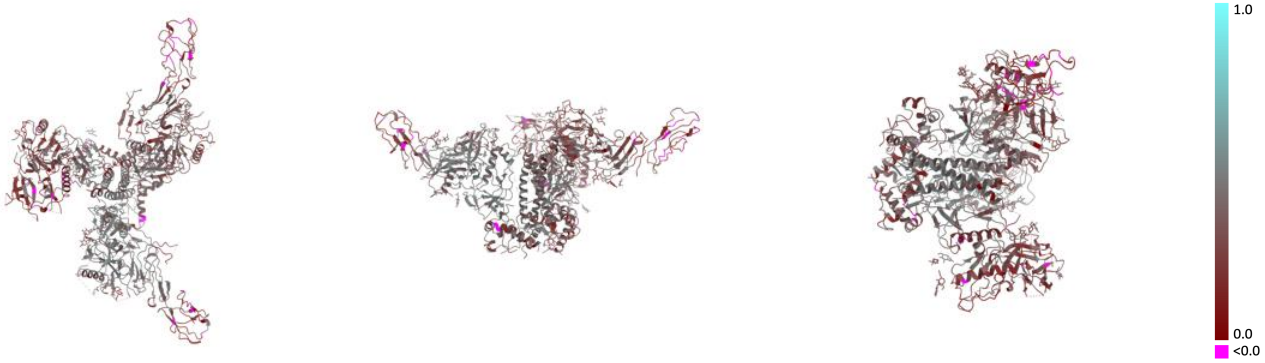
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.06 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.

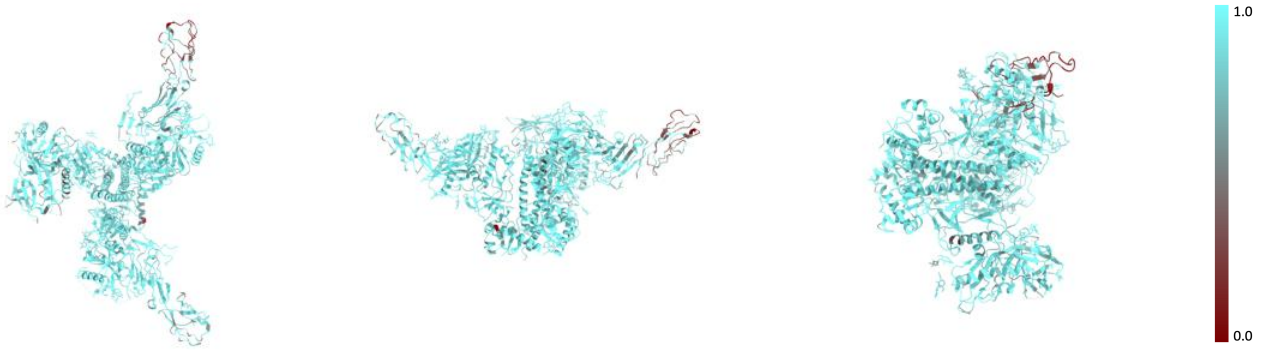
9.2 Q-score mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according 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.

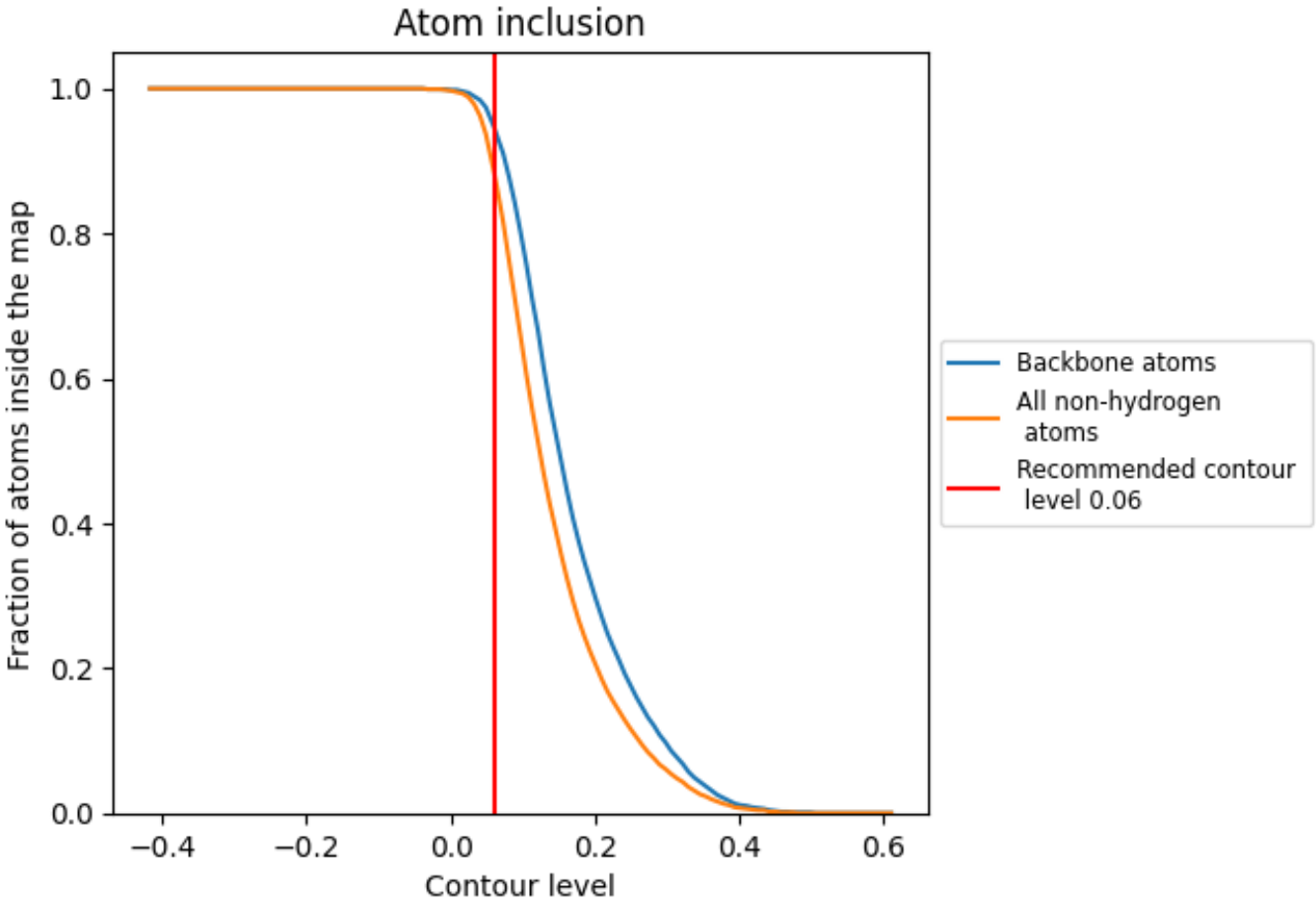
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.06).

9.4 Atom inclusion (i)



At the recommended contour level, 95% of all backbone atoms, 88% 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 (0.06) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8850	0.3570
A	0.9160	0.3630
B	0.9400	0.4460
C	0.8790	0.3100
D	0.9520	0.3820
E	0.9140	0.3860
F	0.9240	0.3490
G	0.9600	0.3820
H	0.8200	0.2870
I	0.9640	0.3460
J	0.8600	0.3530
K	0.9490	0.3580
L	0.8210	0.2580
M	0.7860	0.3640
N	0.9800	0.3300
O	0.8210	0.3280
Y	0.6590	0.2600
Z	0.8530	0.3450