



Full wwPDB EM Validation Report ⓘ

Mar 8, 2026 – 12:41 PM UTC

PDB ID : 3J8F / pdb_00003j8f
EMDB ID : EMD-6147
Title : Cryo-EM reconstruction of poliovirus-receptor complex
Authors : Strauss, M.; Filman, D.J.; Belnap, D.M.; Cheng, N.; Noel, R.T.; Hogle, J.M.
Deposited on : 2014-10-20
Resolution : 3.70 Å (reported)
Based on initial models : 1HXS, 4FQP

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

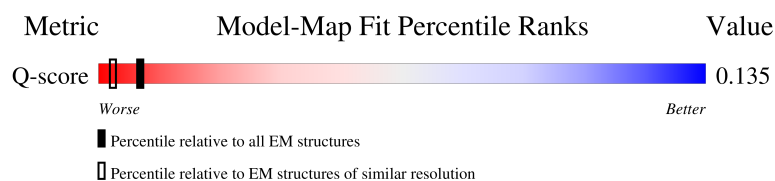
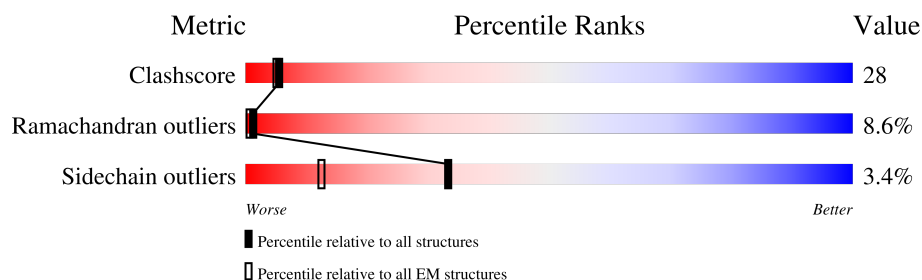
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.70 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 $\leq 5\%$. 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	1	302	
2	2	272	
3	3	238	
4	4	69	

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Mol	Chain	Length	Quality of chain
5	7	423	55% 59% 14% 28%
6	A	3	100% 67% 33%
6	E	3	100% 33% 67%
7	B	5	80% 100%
8	C	2	100%
8	D	2	100%
8	D	2	100% 50% 50%
9	F	4	100%

2 Entry composition

There are 10 unique types of molecules in this entry. The entry contains 9263 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 Capsid protein VP1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	283	Total	C	N	O	S	0	0
			2221	1416	378	422	5		

- Molecule 2 is a protein called Capsid protein VP2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	267	Total	C	N	O	S	0	0
			2075	1312	357	392	14		

- Molecule 3 is a protein called Capsid protein VP3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	235	Total	C	N	O	S	0	0
			1834	1169	299	349	17		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
3	123	SER	PHE	conflict	UNP P03300

- Molecule 4 is a protein called Capsid protein VP4.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	4	69	Total	C	N	O	S	0	0
			534	333	91	109	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
4	1	MYR	-	modified residue	UNP P03300

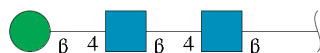
- Molecule 5 is a protein called Poliovirus receptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	7	306	Total	C	N	O	S	0	0
			2342	1478	403	449	12		

There are 6 discrepancies between the modelled and reference sequences:

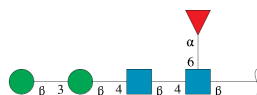
Chain	Residue	Modelled	Actual	Comment	Reference
7	418	HIS	-	expression tag	UNP P15151
7	419	HIS	-	expression tag	UNP P15151
7	420	HIS	-	expression tag	UNP P15151
7	421	HIS	-	expression tag	UNP P15151
7	422	HIS	-	expression tag	UNP P15151
7	423	HIS	-	expression tag	UNP P15151

- Molecule 6 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.



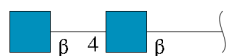
Mol	Chain	Residues	Atoms				AltConf	Trace
6	A	3	Total	C	N	O	0	0
			39	22	2	15		
6	E	3	Total	C	N	O	0	0
			39	22	2	15		

- Molecule 7 is an oligosaccharide called beta-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose.



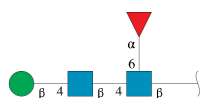
Mol	Chain	Residues	Atoms				AltConf	Trace
7	B	5	Total	C	N	O	0	0
			60	34	2	24		

- Molecule 8 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



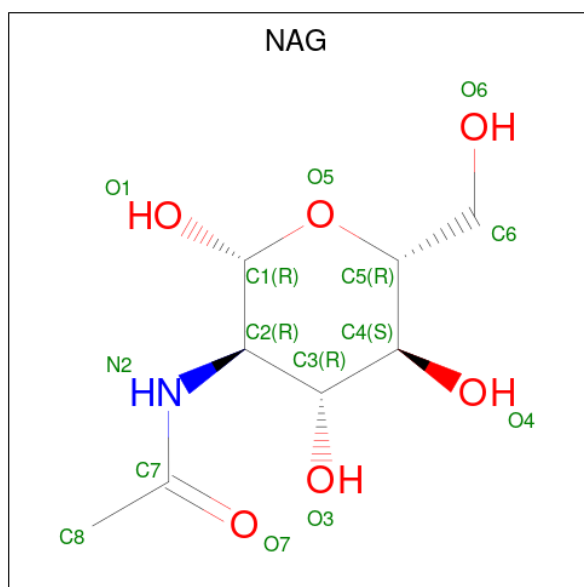
Mol	Chain	Residues	Atoms				AltConf	Trace
8	C	2	Total	C	N	O	0	0
			28	16	2	10		
8	D	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 9 is an oligosaccharide called beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms				AltConf	Trace
9	F	4	Total	C	N	O	0	0
			49	28	2	19		

- Molecule 10 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C₈H₁₅NO₆).

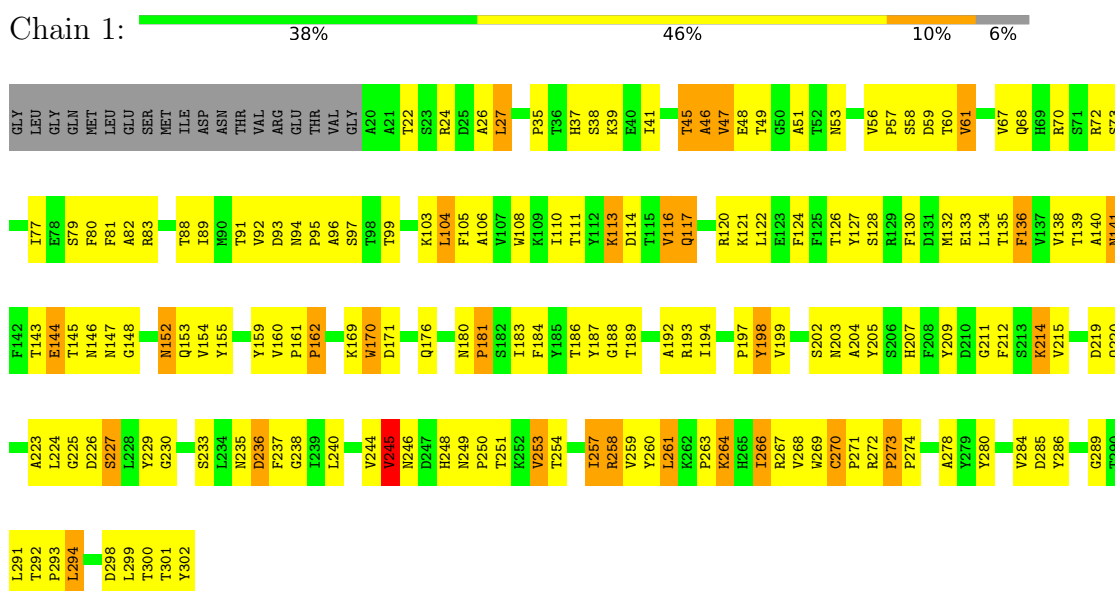


Mol	Chain	Residues	Atoms				AltConf
10	7	1	Total	C	N	O	0
			14	8	1	5	

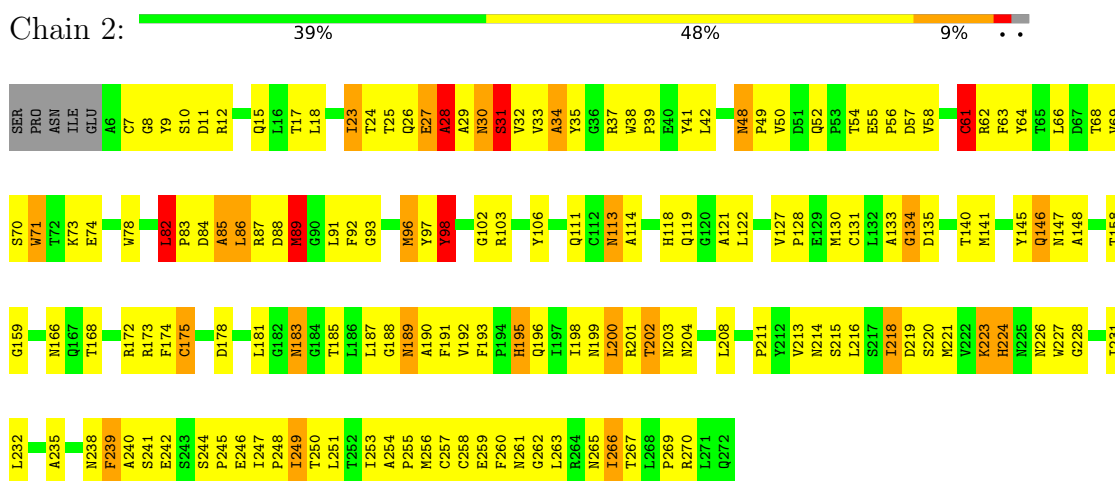
3 Residue-property plots

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Capsid protein VP1



• Molecule 2: Capsid protein VP2



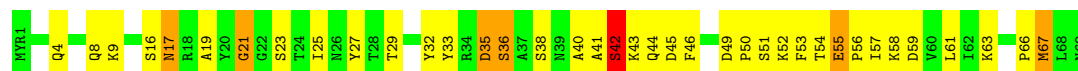
• Molecule 3: Capsid protein VP3

Chain 3:  41% 47% 10% ..



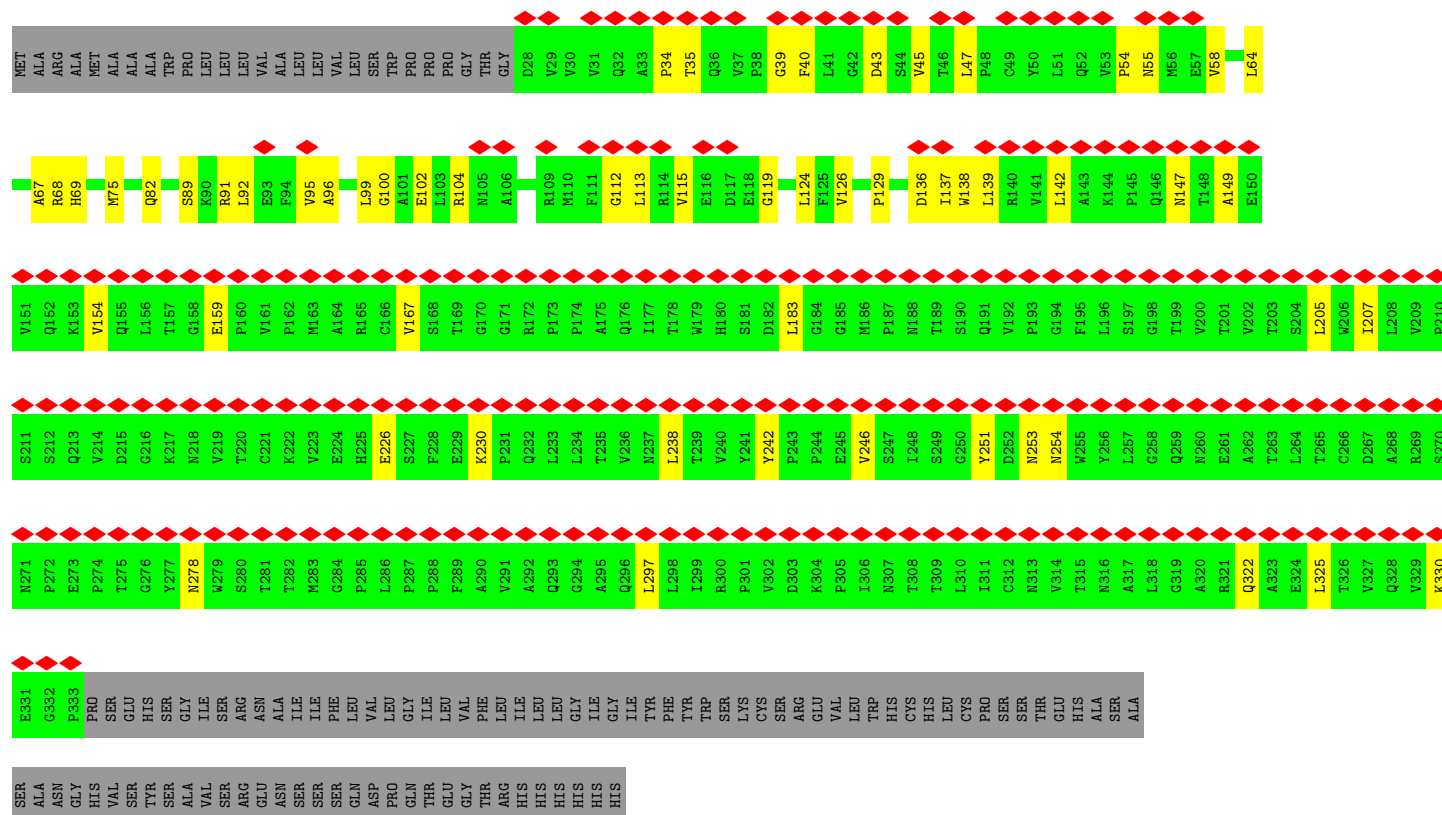
• Molecule 4: Capsid protein VP4

Chain 4:  45% 45% 9% .



• Molecule 5: Poliovirus receptor

Chain 7:  55% 59% 14% 28%



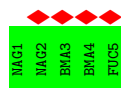
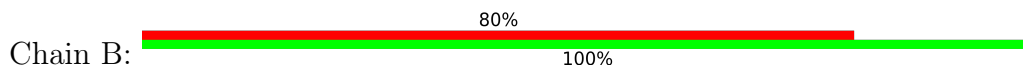
- Molecule 6: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 6: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 7: beta-D-mannopyranose-(1-3)-beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose



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



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



- Molecule 9: beta-D-mannopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-[alpha-L-fucopyranose-(1-6)]2-acetamido-2-deoxy-beta-D-glucopyranose





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, I	Depositor
Number of particles used	9248	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	per micrograph	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	25	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	25355	Depositor
Image detector	GATAN K2 (4k x 4k)	Depositor
Maximum map value	0.042	Depositor
Minimum map value	-0.015	Depositor
Average map value	-0.002	Depositor
Map value standard deviation	0.006	Depositor
Recommended contour level	0.00688	Depositor
Map size ($\text{\AA}$)	631.04, 631.04, 631.04	wwPDB
Map dimensions	640, 640, 640	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.98599994, 0.98599994, 0.98599994	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MYR, FUC, 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	1	0.87	0/2284	1.36	25/3124 (0.8%)
2	2	0.85	0/2132	1.42	29/2916 (1.0%)
3	3	0.81	0/1881	1.38	16/2562 (0.6%)
4	4	0.85	0/528	1.31	6/714 (0.8%)
5	7	1.02	1/2400 (0.0%)	1.56	22/3286 (0.7%)
All	All	0.89	1/9225 (0.0%)	1.43	98/12602 (0.8%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	7	136	ASP	C-N	42.57	1.83	1.33

All (98) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	7	136	ASP	O-C-N	-52.34	57.18	123.13
5	7	136	ASP	CA-C-N	20.82	150.96	121.80
5	7	136	ASP	C-N-CA	20.82	150.96	121.80
2	2	168	THR	N-CA-C	-13.41	96.26	111.82
5	7	330	LYS	CB-CA-C	-10.63	101.11	114.40
5	7	147	ASN	N-CA-C	9.54	123.65	109.24
3	3	91	SER	N-CA-C	8.92	120.93	111.03
2	2	178	ASP	N-CA-C	8.58	120.41	111.14
2	2	198	ILE	N-CA-C	-8.58	95.11	108.23
1	1	104	LEU	N-CA-C	8.56	122.17	109.59
2	2	50	VAL	N-CA-C	8.29	124.35	113.07
5	7	58	VAL	N-CA-C	7.98	121.56	109.20
1	1	266	ILE	N-CA-C	7.94	120.95	108.89
5	7	246	VAL	N-CA-C	7.91	120.92	108.89
5	7	138	TRP	CB-CA-C	-7.82	97.47	110.29

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	3	53	ILE	CB-CA-C	-7.80	103.69	110.94
2	2	195	HIS	N-CA-C	7.65	119.77	108.60
4	4	63	LYS	N-CA-C	7.54	119.50	111.28
3	3	162	SER	N-CA-C	7.54	121.91	112.87
1	1	294	LEU	N-CA-C	7.41	119.89	110.33
5	7	138	TRP	N-CA-C	-7.39	97.94	109.25
5	7	154	VAL	N-CA-C	7.36	118.95	108.42
1	1	116	VAL	N-CA-C	7.31	118.03	110.36
2	2	266	ILE	N-CA-C	7.26	118.38	109.30
5	7	119	GLY	N-CA-C	7.20	120.92	110.63
1	1	170	TRP	N-CA-C	-7.18	102.64	111.40
1	1	144	GLU	N-CA-C	7.10	120.01	110.35
5	7	242	TYR	N-CA-C	7.09	114.61	108.22
1	1	134	LEU	N-CA-C	7.08	120.92	110.30
1	1	273	PRO	CA-C-N	6.89	126.92	119.89
1	1	273	PRO	C-N-CA	6.89	126.92	119.89
5	7	322	GLN	N-CA-C	6.60	118.55	108.52
3	3	133	SER	N-CA-C	6.51	119.33	109.23
1	1	253	VAL	N-CA-C	6.46	116.93	107.37
5	7	45	VAL	N-CA-C	6.44	117.07	110.05
3	3	24	ALA	N-CA-C	6.36	119.03	111.33
5	7	167	VAL	N-CA-C	6.34	117.42	108.17
2	2	224	HIS	N-CA-C	6.32	119.51	110.10
2	2	113	ASN	N-CA-C	6.24	119.57	109.40
4	4	51	SER	N-CA-C	6.21	118.84	111.33
4	4	35	ASP	N-CA-C	6.19	119.26	107.75
3	3	31	THR	CA-C-N	6.18	126.74	120.38
3	3	31	THR	C-N-CA	6.18	126.74	120.38
5	7	254	ASN	N-CA-C	6.15	120.61	112.25
2	2	12	ARG	N-CA-C	6.04	119.75	112.38
2	2	265	ASN	N-CA-C	-6.03	101.54	110.46
3	3	7	THR	N-CA-C	6.02	117.65	110.07
3	3	45	GLU	N-CA-C	-5.98	104.10	111.40
2	2	261	ASN	N-CA-C	5.91	119.18	109.72
2	2	195	HIS	CB-CA-C	-5.91	99.59	111.17
2	2	218	ILE	N-CA-C	-5.89	100.58	108.35
4	4	21	GLY	N-CA-C	-5.85	99.31	113.18
3	3	196	THR	N-CA-C	-5.84	98.35	110.80
2	2	27	GLU	N-CA-C	-5.79	104.92	113.61
1	1	38	SER	N-CA-C	5.77	118.15	110.53
1	1	39	LYS	N-CA-C	-5.76	106.30	113.15
2	2	31	SER	N-CA-C	5.75	123.05	110.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	3	157	ASP	N-CA-C	5.75	117.77	108.34
5	7	251	TYR	N-CA-C	5.75	118.08	108.02
1	1	136	PHE	N-CA-C	5.72	118.04	108.02
2	2	71	TRP	N-CA-C	5.69	119.14	107.69
2	2	98	TYR	N-CA-C	5.67	122.89	110.80
1	1	160	VAL	CA-C-N	5.65	126.20	120.38
1	1	160	VAL	C-N-CA	5.65	126.20	120.38
2	2	62	ARG	N-CA-C	5.63	117.60	110.33
2	2	239	PHE	N-CA-C	5.57	122.66	110.80
1	1	47	VAL	N-CA-C	5.57	119.83	112.76
1	1	45	THR	CB-CA-C	-5.55	108.36	116.53
2	2	166	ASN	CB-CA-C	-5.53	103.00	109.80
1	1	192	ALA	N-CA-C	5.48	117.97	110.24
5	7	159	GLU	N-CA-C	5.47	118.60	110.39
3	3	230	HIS	N-CA-C	5.44	122.39	110.80
5	7	278	ASN	N-CA-C	5.41	117.25	108.26
5	7	159	GLU	CA-C-N	5.40	126.59	119.84
5	7	159	GLU	C-N-CA	5.40	126.59	119.84
4	4	42	SER	N-CA-C	5.38	122.26	110.80
5	7	40	PHE	N-CA-C	5.38	117.81	110.55
4	4	16	SER	N-CA-C	-5.35	106.80	113.38
2	2	189	ASN	N-CA-C	-5.33	106.94	113.50
2	2	175	CYS	N-CA-C	-5.33	97.19	108.39
1	1	80	PHE	N-CA-C	-5.27	105.53	111.28
1	1	245	VAL	N-CA-C	5.27	120.30	109.34
2	2	28	ALA	N-CA-C	5.21	121.91	110.80
1	1	212	PHE	N-CA-C	5.20	118.48	110.42
3	3	55	PHE	N-CA-C	5.19	117.61	111.33
1	1	269	TRP	N-CA-C	5.15	117.82	109.06
3	3	153	HIS	N-CA-C	5.15	117.50	109.52
2	2	106	TYR	N-CA-C	5.13	116.78	109.14
1	1	113	LYS	N-CA-C	5.13	121.73	110.80
3	3	67	MET	N-CA-C	5.12	118.78	112.54
2	2	249	ILE	CB-CA-C	-5.11	103.49	111.26
3	3	53	ILE	N-CA-CB	5.11	115.69	110.23
1	1	59	ASP	N-CA-C	5.10	119.39	112.04
1	1	286	TYR	N-CA-C	5.06	117.64	108.69
2	2	82	LEU	N-CA-C	5.06	120.98	109.81
2	2	26	GLN	N-CA-C	5.05	120.07	112.94
2	2	61	CYS	N-CA-C	5.04	121.53	110.80
2	2	86	LEU	N-CA-C	5.01	117.85	111.69

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	1	2221	0	2173	209	0
2	2	2075	0	1994	165	0
3	3	1834	0	1816	179	0
4	4	534	0	523	32	0
5	7	2342	0	2292	2	0
6	A	39	0	34	0	0
6	E	39	0	34	0	0
7	B	60	0	52	0	0
8	C	28	0	25	0	0
8	D	28	0	25	0	0
9	F	49	0	43	0	0
10	7	14	0	13	0	0
All	All	9263	0	9024	506	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 28.

All (506) 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)
1:1:294:LEU:CD1	3:3:67:MET:HE1	1.52	1.39
1:1:233:SER:HB3	1:1:236:ASP:OD1	1.32	1.21
1:1:294:LEU:HD12	3:3:67:MET:HE1	1.28	1.13
2:2:96:MET:HE3	2:2:96:MET:HA	1.30	1.10
3:3:208:MET:SD	3:3:208:MET:N	2.22	1.08
1:1:60:THR:O	1:1:61:VAL:HG13	1.52	1.08
3:3:156:TRP:CD1	3:3:164:CYS:HB2	1.89	1.07
1:1:128:SER:CB	1:1:207:HIS:HE1	1.69	1.05
2:2:96:MET:HE1	2:2:221:MET:HG3	1.35	1.05
3:3:44:MET:HA	3:3:44:MET:HE2	1.41	1.02
1:1:95:PRO:HB2	1:1:99:THR:HG21	1.42	1.01
3:3:180:ILE:HD13	3:3:181:ASP:N	1.76	1.01

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:128:SER:HB2	1:1:207:HIS:HE1	1.26	1.00
1:1:83:ARG:HD3	3:3:16:ALA:HB2	1.41	0.99
1:1:45:THR:HG22	1:1:46:ALA:H	1.27	0.98
1:1:110:ILE:HD11	1:1:240:LEU:HG	1.45	0.97
2:2:7:CYS:HB2	2:2:9:TYR:CE2	1.99	0.96
1:1:258:ARG:HG3	1:1:258:ARG:HH11	1.31	0.95
2:2:146:GLN:H	2:2:146:GLN:NE2	1.63	0.95
3:3:234:LYS:HE3	3:3:234:LYS:HA	1.48	0.95
2:2:41:TYR:C	2:2:103:ARG:HH22	1.75	0.94
1:1:292:THR:OG1	3:3:63:ASN:ND2	2.02	0.92
1:1:183:ILE:HD11	1:1:194:ILE:CG2	2.00	0.91
2:2:32:VAL:HG23	2:2:196:GLN:HE21	1.34	0.91
2:2:86:LEU:O	2:2:88:ASP:N	2.03	0.90
3:3:180:ILE:HD13	3:3:181:ASP:H	1.32	0.89
1:1:128:SER:CB	1:1:207:HIS:CE1	2.55	0.88
1:1:294:LEU:HD13	3:3:67:MET:HE1	1.53	0.88
2:2:61:CYS:HA	2:2:255:PRO:O	1.73	0.88
1:1:46:ALA:HB3	4:4:67:MET:HG2	1.53	0.88
1:1:128:SER:HB3	1:1:207:HIS:CE1	2.09	0.87
1:1:258:ARG:HH11	1:1:258:ARG:CG	1.86	0.87
1:1:183:ILE:HD11	1:1:194:ILE:HG21	1.57	0.86
1:1:120:ARG:HH21	3:3:228:THR:HG21	1.41	0.85
2:2:240:ALA:O	2:2:242:GLU:N	2.09	0.83
1:1:83:ARG:CD	3:3:16:ALA:HB2	2.07	0.83
1:1:72:ARG:HB3	3:3:42:ASN:HD21	1.44	0.82
3:3:54:PRO:HB3	3:3:67:MET:HE2	1.61	0.82
4:4:55:GLU:OE2	4:4:61:LEU:HB3	1.81	0.81
2:2:192:VAL:HG21	3:3:99:MET:HE3	1.63	0.80
1:1:45:THR:HG22	1:1:46:ALA:N	1.97	0.79
1:1:146:ASN:HD22	1:1:147:ASN:N	1.81	0.79
3:3:87:LEU:O	3:3:187:GLY:HA3	1.83	0.78
1:1:48:GLU:N	1:1:48:GLU:OE1	2.15	0.78
1:1:162:PRO:HA	1:1:235:ASN:ND2	2.00	0.77
2:2:146:GLN:H	2:2:146:GLN:HE21	1.33	0.77
1:1:92:VAL:HG12	1:1:106:ALA:H	1.50	0.76
2:2:148:ALA:HA	2:2:174:PHE:HE2	1.51	0.76
2:2:135:ASP:HB3	2:2:175:CYS:HB2	1.67	0.76
1:1:120:ARG:NH2	3:3:228:THR:HG21	2.00	0.76
3:3:50:ASP:HB3	3:3:213:PHE:HB3	1.66	0.76
2:2:7:CYS:HB2	2:2:9:TYR:HE2	1.51	0.76
1:1:146:ASN:HD22	1:1:147:ASN:H	1.33	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:45:THR:CG2	1:1:46:ALA:H	1.94	0.75
2:2:96:MET:HA	2:2:96:MET:CE	2.13	0.75
1:1:97:SER:N	1:1:248:HIS:HB3	2.02	0.75
3:3:84:CYS:O	3:3:85:LEU:HB2	1.86	0.74
1:1:128:SER:HB2	1:1:207:HIS:CE1	2.17	0.74
1:1:294:LEU:HD12	3:3:67:MET:CE	2.13	0.74
1:1:89:ILE:HD12	1:1:258:ARG:HG2	1.69	0.73
1:1:110:ILE:O	1:1:111:THR:HG23	1.88	0.73
2:2:30:ASN:HD21	4:4:59:ASP:HB2	1.53	0.73
1:1:202:SER:OG	2:2:216:LEU:HD21	1.89	0.73
2:2:42:LEU:N	2:2:103:ARG:HH22	1.86	0.73
3:3:50:ASP:OD1	3:3:215:SER:OG	2.04	0.73
3:3:20:GLN:NE2	4:4:32:TYR:HD2	1.86	0.73
1:1:294:LEU:CD1	3:3:67:MET:CE	2.49	0.73
1:1:273:PRO:HD2	2:2:193:PHE:CZ	2.24	0.73
1:1:83:ARG:HD3	3:3:16:ALA:CB	2.19	0.72
2:2:113:ASN:HB3	2:2:204:ASN:HB2	1.69	0.72
2:2:15:GLN:O	2:2:15:GLN:HG2	1.89	0.72
1:1:226:ASP:O	1:1:227:SER:HB2	1.89	0.72
2:2:114:ALA:HB2	2:2:247:ILE:HD13	1.69	0.72
2:2:17:THR:O	2:2:17:THR:HG22	1.89	0.72
1:1:68:GLN:OE1	1:1:70:ARG:HB2	1.90	0.71
1:1:133:GLU:OE1	1:1:264:LYS:HD3	1.90	0.71
2:2:146:GLN:HE21	2:2:146:GLN:N	1.87	0.71
3:3:20:GLN:HE22	4:4:32:TYR:H	1.38	0.71
2:2:71:TRP:CD1	2:2:78:TRP:HH2	2.07	0.71
3:3:91:SER:OG	3:3:181:ASP:HB2	1.90	0.71
3:3:130:LEU:HD12	3:3:156:TRP:HZ3	1.56	0.70
1:1:47:VAL:CG2	3:3:119:LEU:HD22	2.21	0.70
1:1:60:THR:O	1:1:61:VAL:CG1	2.36	0.70
3:3:217:CYS:O	3:3:219:ASP:N	2.24	0.70
2:2:148:ALA:HA	2:2:174:PHE:CE2	2.26	0.70
3:3:82:ILE:HG21	3:3:194:TYR:CE2	2.27	0.70
1:1:183:ILE:HD11	1:1:194:ILE:HG23	1.74	0.70
2:2:256:MET:O	2:2:258:CYS:N	2.24	0.70
1:1:46:ALA:HB3	4:4:67:MET:CG	2.22	0.69
1:1:144:GLU:HG3	1:1:146:ASN:H	1.56	0.69
1:1:152:ASN:ND2	1:1:187:TYR:HB3	2.08	0.69
3:3:232:GLU:N	3:3:232:GLU:OE1	2.25	0.69
2:2:82:LEU:CD2	2:2:253:ILE:HD13	2.22	0.69
2:2:34:ALA:CB	2:2:211:PRO:HD2	2.23	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:134:GLY:HA2	2:2:174:PHE:HA	1.74	0.68
3:3:87:LEU:HD11	3:3:114:LEU:HD12	1.75	0.68
1:1:244:VAL:HG12	1:1:244:VAL:O	1.93	0.68
2:2:96:MET:HE3	2:2:96:MET:CA	2.16	0.68
2:2:96:MET:HE1	2:2:221:MET:CG	2.17	0.68
2:2:15:GLN:HG3	2:2:24:THR:HG22	1.75	0.68
2:2:63:PHE:CD2	2:2:254:ALA:HB2	2.29	0.68
2:2:71:TRP:CZ2	2:2:122:LEU:HD21	2.29	0.68
3:3:51:THR:HG21	3:3:99:MET:CB	2.24	0.68
1:1:203:ASN:OD1	3:3:34:ILE:HG23	1.93	0.67
3:3:88:SER:C	3:3:90:ALA:H	2.02	0.67
4:4:54:THR:C	4:4:56:PRO:HD3	2.19	0.67
3:3:44:MET:HA	3:3:44:MET:CE	2.22	0.67
2:2:89:MET:HA	2:2:89:MET:HE2	1.77	0.67
3:3:50:ASP:OD1	3:3:215:SER:CB	2.43	0.67
3:3:7:THR:HG23	3:3:8:PRO:HD2	1.78	0.66
2:2:96:MET:CE	2:2:221:MET:HG3	2.21	0.66
3:3:74:ASP:OD2	3:3:206:ARG:CZ	2.43	0.66
2:2:42:LEU:N	2:2:103:ARG:NH2	2.43	0.66
2:2:64:TYR:CD1	2:2:89:MET:HB3	2.31	0.66
1:1:294:LEU:HB2	3:3:63:ASN:OD1	1.95	0.65
2:2:188:GLY:HA3	3:3:68:TYR:CE1	2.31	0.65
2:2:25:THR:HG23	2:2:28:ALA:HB2	1.77	0.65
3:3:88:SER:O	3:3:90:ALA:N	2.28	0.65
2:2:183:ASN:ND2	2:2:185:THR:HG22	2.13	0.64
3:3:61:LYS:HE3	3:3:66:GLU:HB3	1.79	0.63
3:3:111:ALA:HA	3:3:170:TRP:CZ3	2.33	0.63
3:3:14:LEU:O	3:3:16:ALA:N	2.30	0.63
1:1:93:ASP:OD1	1:1:104:LEU:HB3	1.99	0.62
3:3:198:ILE:HG21	3:3:208:MET:HE3	1.82	0.62
1:1:146:ASN:ND2	1:1:147:ASN:N	2.47	0.62
2:2:267:THR:HG22	2:2:269:PRO:HD3	1.81	0.62
1:1:209:TYR:CE1	2:2:224:HIS:HD2	2.16	0.62
2:2:66:LEU:HD21	2:2:86:LEU:HD23	1.81	0.62
3:3:64:THR:O	3:3:67:MET:HG2	2.00	0.62
2:2:103:ARG:HB2	2:2:218:ILE:HG13	1.82	0.62
2:2:147:ASN:OD1	2:2:173:ARG:HB3	2.00	0.61
1:1:294:LEU:HD11	3:3:67:MET:HE1	1.72	0.61
3:3:20:GLN:NE2	4:4:32:TYR:CD2	2.67	0.61
1:1:285:ASP:HA	2:2:133:ALA:HB1	1.83	0.61
2:2:128:PRO:HD2	2:2:193:PHE:CD1	2.36	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:39:GLU:HG2	3:3:40:VAL:N	2.15	0.61
1:1:271:PRO:HB3	3:3:46:LEU:HD21	1.82	0.60
1:1:132:MET:HG3	1:1:261:LEU:HG	1.83	0.60
2:2:41:TYR:HA	2:2:103:ARG:NH2	2.16	0.60
3:3:183:SER:HB2	5:7:82:GLN:CD	2.26	0.60
1:1:258:ARG:HH11	1:1:258:ARG:CB	2.13	0.60
3:3:50:ASP:OD1	3:3:215:SER:HB3	2.01	0.60
3:3:51:THR:HG21	3:3:99:MET:HB2	1.81	0.60
3:3:190:ILE:N	3:3:190:ILE:HD12	2.17	0.60
3:3:156:TRP:CD1	3:3:164:CYS:CB	2.76	0.60
3:3:232:GLU:H	3:3:232:GLU:CD	2.09	0.60
1:1:89:ILE:CD1	1:1:258:ARG:HG2	2.32	0.60
1:1:97:SER:HA	1:1:248:HIS:CB	2.32	0.59
2:2:64:TYR:CG	2:2:89:MET:HB3	2.37	0.59
3:3:55:PHE:HE2	3:3:212:GLY:HA3	1.67	0.59
4:4:49:ASP:OD1	4:4:50:PRO:HD2	2.02	0.59
2:2:34:ALA:HB3	2:2:211:PRO:CD	2.32	0.59
2:2:71:TRP:CE2	2:2:122:LEU:HD21	2.36	0.59
2:2:146:GLN:NE2	2:2:146:GLN:N	2.40	0.59
3:3:104:LEU:HD21	3:3:220:PHE:HZ	1.67	0.59
3:3:234:LYS:HE3	3:3:234:LYS:CA	2.28	0.59
2:2:183:ASN:HD22	2:2:183:ASN:H	1.50	0.59
3:3:108:THR:O	3:3:108:THR:HG22	2.02	0.59
3:3:234:LYS:HE2	3:3:235:ALA:N	2.18	0.59
3:3:22:PRO:HD3	4:4:33:TYR:OH	2.03	0.59
2:2:31:SER:HA	2:2:196:GLN:HE22	1.67	0.59
1:1:45:THR:HG23	1:1:53:ASN:OD1	2.03	0.58
1:1:108:TRP:NE1	1:1:114:ASP:OD2	2.28	0.58
1:1:271:PRO:HB3	3:3:46:LEU:CD2	2.34	0.58
3:3:180:ILE:CD1	3:3:181:ASP:N	2.61	0.58
1:1:203:ASN:CB	3:3:34:ILE:HD12	2.34	0.58
1:1:257:ILE:N	1:1:257:ILE:HD12	2.19	0.58
2:2:29:ALA:O	2:2:30:ASN:C	2.46	0.58
1:1:97:SER:CA	1:1:248:HIS:HB3	2.33	0.58
2:2:38:TRP:CG	2:2:39:PRO:HD2	2.38	0.58
2:2:93:GLY:O	2:2:96:MET:HB3	2.03	0.58
2:2:118:HIS:CD2	2:2:239:PHE:CD1	2.92	0.58
3:3:14:LEU:HB2	3:3:17:ASP:HB3	1.86	0.58
1:1:183:ILE:CD1	1:1:194:ILE:CG2	2.80	0.57
2:2:83:PRO:CG	2:2:226:ASN:H	2.17	0.57
3:3:156:TRP:NE1	3:3:164:CYS:HB2	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:258:ARG:CG	1:1:258:ARG:NH1	2.56	0.57
1:1:47:VAL:HG23	3:3:119:LEU:HD22	1.86	0.57
1:1:209:TYR:O	1:1:230:GLY:HA2	2.05	0.57
1:1:244:VAL:O	1:1:246:ASN:N	2.32	0.57
1:1:110:ILE:CG2	1:1:237:PHE:HB3	2.34	0.57
1:1:258:ARG:HG3	1:1:258:ARG:NH1	2.08	0.57
2:2:42:LEU:HB3	2:2:259:GLU:OE2	2.04	0.57
1:1:209:TYR:CE1	2:2:224:HIS:CD2	2.93	0.57
1:1:226:ASP:O	1:1:227:SER:CB	2.52	0.57
1:1:126:THR:HB	1:1:270:CYS:HB2	1.87	0.56
1:1:292:THR:HG23	1:1:292:THR:O	2.04	0.56
2:2:82:LEU:O	2:2:83:PRO:C	2.48	0.56
2:2:240:ALA:HB3	2:2:242:GLU:HG2	1.87	0.56
2:2:32:VAL:HG23	2:2:196:GLN:NE2	2.13	0.56
3:3:87:LEU:HB2	3:3:190:ILE:HD11	1.88	0.56
3:3:132:VAL:HG22	3:3:192:VAL:HG22	1.88	0.56
1:1:22:THR:HA	4:4:46:PHE:HA	1.88	0.56
2:2:119:GLN:HB3	3:3:123:SER:H	1.71	0.56
1:1:116:VAL:HG11	3:3:231:ILE:HG13	1.88	0.56
1:1:183:ILE:CD1	1:1:194:ILE:HG23	2.36	0.56
3:3:54:PRO:HD2	3:3:94:ARG:O	2.06	0.56
1:1:203:ASN:HB2	3:3:34:ILE:HD12	1.87	0.56
2:2:82:LEU:HD12	2:2:227:TRP:HB2	1.88	0.56
1:1:202:SER:C	1:1:203:ASN:HD22	2.13	0.55
1:1:144:GLU:CD	1:1:145:THR:H	2.14	0.55
2:2:57:ASP:CG	2:2:58:VAL:H	2.14	0.55
3:3:26:PRO:HA	4:4:35:ASP:OD2	2.06	0.55
3:3:234:LYS:CE	3:3:235:ALA:H	2.19	0.55
2:2:41:TYR:CA	2:2:103:ARG:HH22	2.18	0.55
3:3:158:ILE:CD1	3:3:198:ILE:HD12	2.36	0.55
1:1:24:ARG:NH1	4:4:9:LYS:HB2	2.22	0.55
1:1:27:LEU:HD23	1:1:70:ARG:O	2.06	0.55
2:2:146:GLN:HG3	2:2:270:ARG:O	2.06	0.55
4:4:42:SER:O	4:4:44:GLN:N	2.40	0.55
2:2:135:ASP:HB3	2:2:175:CYS:CB	2.35	0.55
2:2:214:ASN:OD1	2:2:215:SER:N	2.40	0.55
1:1:77:ILE:HG21	1:1:268:VAL:HG22	1.88	0.55
2:2:17:THR:O	2:2:17:THR:CG2	2.55	0.55
2:2:35:TYR:C	2:2:37:ARG:H	2.14	0.55
2:2:219:ASP:CG	2:2:220:SER:H	2.15	0.55
1:1:97:SER:HA	1:1:248:HIS:HB3	1.89	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:110:ILE:O	1:1:111:THR:CG2	2.55	0.55
1:1:56:VAL:HG23	1:1:58:SER:HB3	1.87	0.55
1:1:95:PRO:HD3	1:1:103:LYS:HG3	1.89	0.54
1:1:45:THR:HG23	4:4:67:MET:HE3	1.88	0.54
3:3:56:ASP:OD2	3:3:61:LYS:HD3	2.08	0.54
1:1:135:THR:HG21	3:3:13:TYR:CZ	2.42	0.54
1:1:152:ASN:HD21	1:1:187:TYR:HB3	1.71	0.54
1:1:278:ALA:HA	3:3:231:ILE:HD11	1.89	0.54
2:2:130:MET:HE2	2:2:228:GLY:HA3	1.89	0.54
2:2:202:THR:HG23	2:2:203:ASN:H	1.71	0.54
4:4:36:SER:C	4:4:38:SER:H	2.15	0.54
2:2:7:CYS:HB2	2:2:9:TYR:CD2	2.41	0.54
1:1:136:PHE:CD1	1:1:259:VAL:HG22	2.43	0.54
3:3:121:CYS:HB2	3:3:209:ASP:O	2.08	0.54
1:1:135:THR:CG2	1:1:260:TYR:HB2	2.38	0.54
2:2:119:GLN:HB2	3:3:122:GLY:HA2	1.88	0.54
3:3:98:THR:O	3:3:99:MET:C	2.51	0.54
3:3:124:MET:O	3:3:124:MET:SD	2.66	0.54
1:1:97:SER:HA	1:1:248:HIS:CG	2.43	0.54
2:2:96:MET:CE	2:2:96:MET:CA	2.84	0.54
2:2:211:PRO:O	2:2:213:VAL:HG23	2.08	0.54
1:1:130:PHE:HB3	1:1:266:ILE:HG13	1.90	0.53
3:3:51:THR:HG21	3:3:99:MET:HB3	1.89	0.53
1:1:110:ILE:HD11	1:1:240:LEU:CG	2.30	0.53
1:1:138:VAL:HG22	1:1:257:ILE:HG13	1.90	0.53
2:2:128:PRO:HD2	2:2:193:PHE:HD1	1.73	0.53
1:1:153:GLN:HE22	1:1:253:VAL:HB	1.73	0.53
2:2:8:GLY:C	2:2:10:SER:H	2.16	0.53
2:2:199:ASN:HD22	3:3:119:LEU:HD11	1.73	0.53
1:1:258:ARG:NH1	1:1:258:ARG:HB2	2.24	0.52
2:2:35:TYR:O	2:2:37:ARG:N	2.40	0.52
1:1:202:SER:CB	2:2:216:LEU:HD21	2.38	0.52
2:2:181:LEU:HG	2:2:181:LEU:O	2.09	0.52
3:3:53:ILE:HD11	3:3:214:VAL:HB	1.91	0.52
1:1:89:ILE:HD12	1:1:258:ARG:CG	2.39	0.52
3:3:110:TRP:HD1	3:3:179:THR:HG22	1.75	0.52
1:1:233:SER:CB	1:1:236:ASP:OD1	2.28	0.52
1:1:266:ILE:HG12	1:1:267:ARG:N	2.25	0.52
3:3:183:SER:HB2	5:7:82:GLN:OE1	2.09	0.52
4:4:45:ASP:OD1	4:4:46:PHE:N	2.43	0.52
1:1:81:PHE:HB3	1:1:263:PRO:HG2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:92:PHE:O	2:2:96:MET:HB2	2.10	0.51
3:3:98:THR:O	3:3:102:GLU:N	2.41	0.51
1:1:94:ASN:HB2	1:1:244:VAL:HG11	1.91	0.51
3:3:71:ARG:HD3	3:3:207:GLU:HB3	1.92	0.51
1:1:302:TYR:OH	3:3:142:PRO:O	2.27	0.51
2:2:190:ALA:C	2:2:192:VAL:H	2.18	0.51
1:1:273:PRO:CD	2:2:193:PHE:CZ	2.94	0.51
1:1:280:TYR:CE2	2:2:140:THR:CG2	2.93	0.51
2:2:140:THR:O	2:2:141:MET:HB2	2.11	0.51
2:2:246:GLU:C	2:2:246:GLU:OE1	2.53	0.51
2:2:73:LYS:HG3	2:2:245:PRO:HD2	1.91	0.51
3:3:164:CYS:SG	3:3:165:THR:N	2.83	0.51
3:3:104:LEU:HD21	3:3:220:PHE:CZ	2.44	0.51
3:3:160:LEU:C	3:3:160:LEU:HD13	2.35	0.51
1:1:67:VAL:HG12	1:1:67:VAL:O	2.10	0.51
3:3:158:ILE:HD12	3:3:198:ILE:HD12	1.92	0.51
1:1:45:THR:CG2	1:1:46:ALA:N	2.63	0.51
1:1:72:ARG:HD3	3:3:44:MET:HB2	1.93	0.50
1:1:121:LYS:O	1:1:124:PHE:HD1	1.94	0.50
2:2:23:ILE:HD12	2:2:23:ILE:N	2.26	0.50
2:2:122:LEU:HD13	2:2:249:ILE:CD1	2.41	0.50
3:3:20:GLN:NE2	4:4:32:TYR:H	2.06	0.50
1:1:108:TRP:CZ3	1:1:110:ILE:HD13	2.47	0.50
2:2:246:GLU:OE1	2:2:246:GLU:O	2.29	0.50
3:3:234:LYS:CE	3:3:235:ALA:N	2.74	0.50
1:1:298:ASP:C	1:1:300:THR:H	2.20	0.50
2:2:34:ALA:CB	2:2:211:PRO:CD	2.88	0.50
3:3:88:SER:HB3	3:3:91:SER:HB3	1.93	0.50
1:1:135:THR:CB	1:1:193:ARG:HG2	2.42	0.50
1:1:147:ASN:N	1:1:147:ASN:HD22	2.10	0.49
2:2:187:LEU:HD13	2:2:232:LEU:HD22	1.94	0.49
3:3:178:GLN:HB3	3:3:180:ILE:HG22	1.92	0.49
3:3:54:PRO:CB	3:3:67:MET:HE2	2.39	0.49
1:1:117:GLN:HA	1:1:117:GLN:NE2	2.26	0.49
1:1:194:ILE:HG13	1:1:194:ILE:O	2.12	0.49
3:3:149:MET:HE1	3:3:150:LEU:HD23	1.93	0.49
1:1:258:ARG:CB	1:1:258:ARG:NH1	2.75	0.49
1:1:280:TYR:CE2	2:2:140:THR:HG22	2.47	0.49
1:1:91:THR:O	1:1:106:ALA:HB2	2.13	0.49
1:1:194:ILE:HB	3:3:24:ALA:HB2	1.95	0.49
2:2:119:GLN:HE21	2:2:238:ASN:HB2	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:3:59:ALA:HA	3:3:62:LYS:HE2	1.93	0.49
3:3:109:HIS:HB3	3:3:176:TYR:HB3	1.94	0.49
1:1:95:PRO:HB2	1:1:99:THR:CG2	2.29	0.48
1:1:136:PHE:CE1	1:1:259:VAL:HG22	2.48	0.48
1:1:139:THR:O	1:1:140:ALA:HB2	2.14	0.48
3:3:39:GLU:CG	3:3:40:VAL:N	2.76	0.48
1:1:186:THR:O	1:1:189:THR:HG22	2.13	0.48
3:3:55:PHE:CE2	3:3:212:GLY:HA3	2.46	0.48
3:3:234:LYS:HA	3:3:234:LYS:CE	2.33	0.48
1:1:95:PRO:CD	1:1:103:LYS:HG3	2.44	0.48
3:3:58:SER:O	3:3:59:ALA:C	2.55	0.48
1:1:289:GLY:C	1:1:291:LEU:H	2.21	0.48
2:2:122:LEU:HD13	2:2:249:ILE:HD13	1.96	0.48
3:3:20:GLN:HE22	4:4:32:TYR:N	2.07	0.48
1:1:89:ILE:HD12	1:1:258:ARG:CD	2.44	0.48
1:1:96:ALA:O	1:1:99:THR:HG23	2.14	0.48
1:1:49:THR:C	1:1:51:ALA:H	2.21	0.48
3:3:100:LEU:HD21	3:3:114:LEU:HD22	1.95	0.48
3:3:131:LEU:HD23	3:3:131:LEU:C	2.39	0.48
1:1:97:SER:CA	1:1:248:HIS:CB	2.92	0.48
1:1:214:LYS:HD3	1:1:225:GLY:HA2	1.95	0.48
2:2:114:ALA:HB1	2:2:118:HIS:ND1	2.29	0.47
1:1:127:TYR:OH	2:2:214:ASN:HA	2.14	0.47
2:2:183:ASN:ND2	2:2:183:ASN:H	2.11	0.47
2:2:219:ASP:OD1	2:2:220:SER:N	2.40	0.47
1:1:88:THR:HG21	1:1:108:TRP:CD2	2.49	0.47
2:2:83:PRO:HG3	2:2:226:ASN:H	1.79	0.47
2:2:183:ASN:HD22	2:2:183:ASN:N	2.10	0.47
3:3:97:HIS:CE1	3:3:230:HIS:ND1	2.82	0.47
2:2:111:GLN:HB2	2:2:250:THR:O	2.14	0.47
3:3:14:LEU:O	3:3:15:THR:C	2.57	0.47
4:4:17:ASN:HB3	4:4:25:ILE:HG12	1.97	0.47
1:1:110:ILE:CD1	1:1:240:LEU:HG	2.30	0.47
1:1:159:TYR:O	1:1:161:PRO:HD3	2.15	0.47
1:1:235:ASN:OD1	1:1:238:GLY:HA2	2.15	0.47
4:4:8:GLN:HE21	4:4:27:TYR:HB3	1.78	0.47
1:1:122:LEU:HB3	1:1:207:HIS:CD2	2.50	0.47
2:2:68:THR:HG23	2:2:250:THR:OG1	2.14	0.47
2:2:91:LEU:C	2:2:93:GLY:N	2.73	0.47
2:2:41:TYR:C	2:2:103:ARG:NH2	2.58	0.46
3:3:7:THR:CG2	3:3:8:PRO:HD2	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:189:ASN:OD1	3:3:99:MET:HB2	2.15	0.46
3:3:92:ASP:HA	3:3:93:PRO:HD2	1.81	0.46
3:3:105:ASN:OD1	3:3:230:HIS:NE2	2.47	0.46
1:1:27:LEU:H	1:1:27:LEU:HD22	1.81	0.46
1:1:214:LYS:CD	1:1:225:GLY:HA2	2.45	0.46
2:2:145:TYR:O	2:2:148:ALA:N	2.49	0.46
1:1:27:LEU:HD11	1:1:72:ARG:NE	2.31	0.46
1:1:176:GLN:HE21	1:1:176:GLN:HA	1.81	0.46
2:2:35:TYR:C	2:2:37:ARG:N	2.71	0.46
3:3:84:CYS:O	3:3:85:LEU:CB	2.57	0.46
3:3:198:ILE:CG2	3:3:208:MET:HE3	2.44	0.46
1:1:215:VAL:HG23	2:2:223:LYS:HG2	1.97	0.46
2:2:98:TYR:CE1	2:2:266:ILE:HD13	2.50	0.46
1:1:180:ASN:O	1:1:181:PRO:C	2.59	0.46
2:2:147:ASN:C	2:2:147:ASN:HD22	2.19	0.46
3:3:17:ASP:HB2	3:3:19:PHE:CE2	2.50	0.46
3:3:126:ALA:HB2	3:3:200:VAL:HG12	1.97	0.46
3:3:234:LYS:HE2	3:3:235:ALA:H	1.78	0.46
1:1:79:SER:HA	1:1:82:ALA:HB2	1.98	0.46
1:1:183:ILE:HD11	1:1:194:ILE:HD13	1.98	0.46
2:2:192:VAL:HG21	3:3:99:MET:CE	2.38	0.46
3:3:64:THR:O	3:3:65:MET:C	2.58	0.46
3:3:145:ARG:HD2	3:3:195:GLN:OE1	2.16	0.46
1:1:138:VAL:HG22	1:1:257:ILE:HG23	1.98	0.45
2:2:34:ALA:HB3	2:2:211:PRO:HD3	1.97	0.45
2:2:54:THR:HG22	2:2:260:PHE:O	2.16	0.45
3:3:72:LEU:HD11	3:3:130:LEU:HD11	1.98	0.45
1:1:93:ASP:HB3	1:1:254:THR:HA	1.97	0.45
2:2:127:VAL:HG13	2:2:193:PHE:CE1	2.51	0.45
2:2:251:LEU:HD23	2:2:251:LEU:H	1.80	0.45
3:3:172:SER:HB2	3:3:177:ARG:NH2	2.30	0.45
1:1:68:GLN:OE1	1:1:70:ARG:CZ	2.64	0.45
1:1:135:THR:HB	1:1:193:ARG:HG2	1.98	0.45
1:1:226:ASP:CG	1:1:227:SER:H	2.25	0.45
1:1:271:PRO:CB	3:3:46:LEU:CD2	2.95	0.45
4:4:4:GLN:HB3	4:4:29:THR:HB	1.97	0.45
1:1:198:TYR:CD1	1:1:205:TYR:CE2	3.03	0.45
3:3:34:ILE:HD13	3:3:34:ILE:H	1.81	0.45
3:3:111:ALA:O	3:3:220:PHE:HA	2.17	0.45
1:1:244:VAL:O	1:1:244:VAL:CG1	2.64	0.45
2:2:195:HIS:HA	2:2:208:LEU:HD21	1.97	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:55:GLU:HG2	2:2:259:GLU:HB3	1.99	0.45
2:2:84:ASP:O	2:2:86:LEU:N	2.50	0.45
1:1:229:TYR:OH	2:2:131:CYS:HA	2.16	0.45
1:1:289:GLY:C	1:1:291:LEU:N	2.74	0.45
1:1:153:GLN:HA	1:1:246:ASN:HD21	1.81	0.45
2:2:48:ASN:HB3	2:2:49:PRO:CD	2.46	0.45
2:2:63:PHE:CG	2:2:254:ALA:HB2	2.52	0.45
3:3:51:THR:OG1	3:3:98:THR:HB	2.17	0.45
3:3:218:ASN:N	3:3:218:ASN:HD22	2.15	0.45
1:1:135:THR:HG21	3:3:13:TYR:CE1	2.52	0.44
2:2:68:THR:HG22	2:2:69:VAL:N	2.32	0.44
3:3:44:MET:HE2	3:3:44:MET:CA	2.30	0.44
4:4:40:ALA:O	4:4:42:SER:N	2.50	0.44
1:1:57:PRO:HA	3:3:167:VAL:HG11	1.99	0.44
1:1:120:ARG:NH1	1:1:274:PRO:HB2	2.33	0.44
1:1:249:ASN:OD1	1:1:250:PRO:HD2	2.17	0.44
1:1:117:GLN:HA	1:1:117:GLN:HE21	1.82	0.44
2:2:71:TRP:HD1	2:2:78:TRP:HH2	1.62	0.44
3:3:87:LEU:HD11	3:3:114:LEU:CD1	2.47	0.44
2:2:74:GLU:O	2:2:74:GLU:HG3	2.18	0.44
1:1:180:ASN:HA	1:1:181:PRO:HD2	1.81	0.44
1:1:155:TYR:O	1:1:184:PHE:HA	2.16	0.44
1:1:298:ASP:HB3	1:1:301:THR:OG1	2.17	0.44
2:2:96:MET:CE	2:2:221:MET:CB	2.96	0.44
1:1:274:PRO:CG	3:3:102:GLU:HG2	2.48	0.44
3:3:55:PHE:HB2	3:3:70:VAL:CG2	2.48	0.44
2:2:84:ASP:O	2:2:85:ALA:C	2.61	0.44
2:2:17:THR:O	2:2:18:LEU:C	2.60	0.44
2:2:41:TYR:CA	2:2:103:ARG:NH2	2.77	0.44
3:3:55:PHE:HB2	3:3:70:VAL:HG22	2.00	0.44
3:3:88:SER:C	3:3:90:ALA:N	2.68	0.44
3:3:140:ASP:O	3:3:141:PRO:C	2.60	0.44
3:3:234:LYS:HE3	3:3:235:ALA:H	1.83	0.44
1:1:72:ARG:CB	3:3:42:ASN:HD21	2.21	0.43
1:1:197:PRO:O	1:1:199:VAL:HG13	2.17	0.43
1:1:298:ASP:C	1:1:300:THR:N	2.76	0.43
2:2:199:ASN:O	2:2:200:LEU:C	2.60	0.43
1:1:274:PRO:HG3	3:3:102:GLU:HG2	2.00	0.43
3:3:89:PRO:HB2	3:3:104:LEU:HD12	2.00	0.43
1:1:144:GLU:CD	1:1:145:THR:N	2.76	0.43
1:1:214:LYS:NZ	1:1:214:LYS:HB2	2.33	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:2:97:TYR:HB2	2:2:266:ILE:HD11	2.00	0.43
3:3:27:GLU:O	3:3:28:PHE:C	2.60	0.43
1:1:77:ILE:HG12	3:3:41:LYS:C	2.44	0.43
3:3:53:ILE:HB	3:3:55:PHE:CE2	2.54	0.43
1:1:105:PHE:CG	1:1:105:PHE:O	2.71	0.43
2:2:31:SER:OG	4:4:58:LYS:HD3	2.19	0.43
2:2:119:GLN:HB3	3:3:123:SER:N	2.33	0.43
3:3:87:LEU:HB2	3:3:190:ILE:CD1	2.48	0.43
2:2:33:VAL:O	2:2:34:ALA:C	2.61	0.43
1:1:47:VAL:HG22	3:3:119:LEU:HD13	2.00	0.43
1:1:110:ILE:HG22	1:1:237:PHE:HB3	2.00	0.43
2:2:188:GLY:HA2	3:3:52:MET:HE2	1.99	0.43
1:1:93:ASP:CB	1:1:254:THR:HA	2.49	0.43
2:2:121:ALA:N	2:2:235:ALA:HB3	2.33	0.43
3:3:70:VAL:HG11	3:3:83:LEU:HD23	2.00	0.43
1:1:45:THR:OG1	1:1:53:ASN:ND2	2.52	0.42
1:1:105:PHE:O	1:1:105:PHE:CD2	2.72	0.42
2:2:91:LEU:C	2:2:93:GLY:H	2.25	0.42
2:2:102:GLY:O	2:2:221:MET:SD	2.77	0.42
1:1:47:VAL:HG21	3:3:119:LEU:HD22	2.00	0.42
1:1:209:TYR:CE2	1:1:211:GLY:O	2.73	0.42
1:1:285:ASP:OD2	2:2:141:MET:N	2.40	0.42
1:1:96:ALA:C	1:1:248:HIS:HB3	2.44	0.42
1:1:108:TRP:CZ3	1:1:110:ILE:HA	2.54	0.42
3:3:7:THR:O	3:3:8:PRO:C	2.63	0.42
3:3:108:THR:O	3:3:108:THR:CG2	2.67	0.42
4:4:49:ASP:OD1	4:4:50:PRO:CD	2.67	0.42
1:1:197:PRO:O	1:1:199:VAL:N	2.53	0.42
1:1:148:GLY:HA3	1:1:251:THR:OG1	2.19	0.42
2:2:27:GLU:HB2	2:2:204:ASN:OD1	2.19	0.42
2:2:52:GLN:HE21	2:2:52:GLN:HA	1.85	0.42
2:2:244:SER:HA	2:2:245:PRO:HD3	1.84	0.42
2:2:37:ARG:HH22	3:3:35:ASP:CG	2.27	0.42
2:2:231:ILE:C	2:2:232:LEU:HD12	2.45	0.42
3:3:104:LEU:HA	3:3:104:LEU:HD23	1.78	0.42
3:3:234:LYS:CA	3:3:234:LYS:CE	2.96	0.42
4:4:52:LYS:HG3	4:4:53:PHE:CE2	2.55	0.42
1:1:273:PRO:HD2	2:2:193:PHE:HZ	1.81	0.42
3:3:130:LEU:HD12	3:3:156:TRP:CZ3	2.46	0.42
3:3:155:ILE:HG22	3:3:155:ILE:O	2.19	0.42
1:1:141:ASN:H	1:1:141:ASN:HD22	1.66	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:170:TRP:CG	1:1:171:ASP:N	2.88	0.41
2:2:33:VAL:O	2:2:35:TYR:N	2.53	0.41
2:2:199:ASN:O	2:2:201:ARG:N	2.53	0.41
1:1:41:ILE:O	1:1:41:ILE:HG13	2.20	0.41
1:1:124:PHE:O	1:1:272:ARG:N	2.52	0.41
3:3:34:ILE:HD11	3:3:36:ILE:CG1	2.51	0.41
4:4:52:LYS:HG3	4:4:53:PHE:CD2	2.55	0.41
1:1:56:VAL:HG12	3:3:218:ASN:HD21	1.85	0.41
3:3:65:MET:HE3	3:3:65:MET:HB3	1.94	0.41
3:3:82:ILE:HG21	3:3:194:TYR:HE2	1.77	0.41
4:4:55:GLU:O	4:4:55:GLU:HG3	2.21	0.41
1:1:266:ILE:CG1	1:1:267:ARG:N	2.83	0.41
2:2:92:PHE:O	2:2:92:PHE:CD2	2.74	0.41
2:2:70:SER:OG	2:2:246:GLU:OE2	2.35	0.41
2:2:82:LEU:HB2	2:2:83:PRO:CD	2.51	0.41
2:2:118:HIS:O	3:3:123:SER:HA	2.21	0.41
2:2:158:THR:OG1	2:2:159:GLY:N	2.53	0.41
3:3:180:ILE:O	3:3:182:ASP:N	2.54	0.41
4:4:44:GLN:HG3	4:4:44:GLN:O	2.21	0.41
1:1:41:ILE:HD11	4:4:66:PRO:HA	2.03	0.41
1:1:124:PHE:CE2	1:1:274:PRO:HB3	2.56	0.41
1:1:154:VAL:O	1:1:245:VAL:HB	2.21	0.41
1:1:223:ALA:O	1:1:225:GLY:N	2.54	0.41
3:3:105:ASN:N	3:3:105:ASN:HD22	2.17	0.41
3:3:110:TRP:CD1	3:3:179:THR:HG22	2.56	0.41
3:3:190:ILE:N	3:3:190:ILE:CD1	2.84	0.41
1:1:24:ARG:HB3	1:1:73:SER:HB3	2.03	0.41
2:2:113:ASN:CB	2:2:204:ASN:HB2	2.47	0.41
1:1:110:ILE:C	1:1:111:THR:HG23	2.45	0.40
2:2:55:GLU:HA	2:2:56:PRO:HD2	1.90	0.40
3:3:31:THR:HA	3:3:32:PRO:HD2	1.80	0.40
3:3:216:ALA:HB1	3:3:220:PHE:CB	2.51	0.40
2:2:98:TYR:HB3	2:2:263:LEU:CD1	2.51	0.40
4:4:36:SER:C	4:4:38:SER:N	2.80	0.40
1:1:110:ILE:O	1:1:237:PHE:HB2	2.21	0.40
1:1:120:ARG:HE	3:3:231:ILE:HG22	1.86	0.40
1:1:219:ASP:O	1:1:220:GLN:HG3	2.21	0.40
2:2:190:ALA:O	2:2:192:VAL:N	2.55	0.40
3:3:149:MET:C	3:3:149:MET:SD	3.05	0.40
4:4:57:ILE:C	4:4:59:ASP:H	2.28	0.40
1:1:27:LEU:HD11	1:1:72:ARG:HE	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:1:271:PRO:CB	3:3:46:LEU:HD22	2.52	0.40
2:2:83:PRO:HG2	2:2:226:ASN:H	1.86	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	1	281/302 (93%)	206 (73%)	52 (18%)	23 (8%)	0	9
2	2	265/272 (97%)	192 (72%)	51 (19%)	22 (8%)	0	9
3	3	233/238 (98%)	180 (77%)	37 (16%)	16 (7%)	1	13
4	4	66/69 (96%)	42 (64%)	14 (21%)	10 (15%)	0	2
5	7	304/423 (72%)	235 (77%)	41 (14%)	28 (9%)	0	8
All	All	1149/1304 (88%)	855 (74%)	195 (17%)	99 (9%)	1	8

All (99) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	1	37	HIS
1	1	46	ALA
1	1	61	VAL
1	1	113	LYS
1	1	224	LEU
1	1	227	SER
1	1	245	VAL
2	2	61	CYS
2	2	82	LEU
2	2	87	ARG
2	2	172	ARG
2	2	200	LEU

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Mol	Chain	Res	Type
2	2	241	SER
2	2	257	CYS
3	3	15	THR
3	3	83	LEU
3	3	85	LEU
3	3	96	SER
3	3	218	ASN
4	4	23	SER
4	4	42	SER
4	4	43	LYS
5	7	35	THR
5	7	47	LEU
5	7	55	ASN
5	7	69	HIS
5	7	89	SER
5	7	99	LEU
5	7	100	GLY
5	7	102	GLU
5	7	115	VAL
5	7	126	VAL
5	7	253	ASN
1	1	35	PRO
1	1	117	GLN
1	1	198	TYR
2	2	34	ALA
2	2	85	ALA
2	2	89	MET
2	2	134	GLY
3	3	66	GLU
3	3	137	PRO
3	3	170	TRP
4	4	17	ASN
4	4	36	SER
4	4	41	ALA
4	4	67	MET
5	7	67	ALA
5	7	68	ARG
5	7	95	VAL
5	7	112	GLY
5	7	238	LEU
1	1	26	ALA
1	1	143	THR

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Mol	Chain	Res	Type
1	1	152	ASN
1	1	181	PRO
1	1	293	PRO
1	1	299	LEU
2	2	11	ASP
2	2	30	ASN
2	2	48	ASN
2	2	98	TYR
2	2	191	PHE
2	2	202	THR
3	3	2	LEU
3	3	65	MET
3	3	123	SER
4	4	21	GLY
5	7	75	MET
5	7	149	ALA
5	7	325	LEU
1	1	204	ALA
1	1	236	ASP
1	1	270	CYS
3	3	59	ALA
3	3	89	PRO
3	3	155	ILE
4	4	19	ALA
5	7	91	ARG
5	7	129	PRO
1	1	264	LYS
2	2	31	SER
2	2	223	LYS
3	3	77	HIS
3	3	87	LEU
4	4	55	GLU
5	7	34	PRO
5	7	54	PRO
5	7	96	ALA
5	7	226	GLU
1	1	284	VAL
2	2	28	ALA
5	7	43	ASP
5	7	104	ARG
1	1	188	GLY
2	2	248	PRO

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Mol	Chain	Res	Type
5	7	39	GLY
2	2	262	GLY
1	1	162	PRO

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	1	245/261 (94%)	238 (97%)	7 (3%)	37	57
2	2	227/232 (98%)	222 (98%)	5 (2%)	45	63
3	3	210/212 (99%)	200 (95%)	10 (5%)	23	48
4	4	57/57 (100%)	57 (100%)	0	100	100
5	7	263/361 (73%)	251 (95%)	12 (5%)	24	49
All	All	1002/1123 (89%)	968 (97%)	34 (3%)	33	55

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	1	27	LEU
1	1	141	ASN
1	1	169	LYS
1	1	214	LYS
1	1	257	ILE
1	1	258	ARG
1	1	261	LEU
2	2	23	ILE
2	2	89	MET
2	2	96	MET
2	2	146	GLN
2	2	183	ASN
3	3	34	ILE
3	3	44	MET
3	3	53	ILE
3	3	85	LEU

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Mol	Chain	Res	Type
3	3	131	LEU
3	3	180	ILE
3	3	190	ILE
3	3	208	MET
3	3	218	ASN
3	3	234	LYS
5	7	64	LEU
5	7	92	LEU
5	7	113	LEU
5	7	124	LEU
5	7	137	ILE
5	7	139	LEU
5	7	142	LEU
5	7	183	LEU
5	7	205	LEU
5	7	207	ILE
5	7	230	LYS
5	7	297	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (40) such sidechains are listed below:

Mol	Chain	Res	Type
1	1	37	HIS
1	1	62	GLN
1	1	117	GLN
1	1	141	ASN
1	1	146	ASN
1	1	147	ASN
1	1	152	ASN
1	1	153	GLN
1	1	176	GLN
1	1	207	HIS
1	1	220	GLN
2	2	30	ASN
2	2	52	GLN
2	2	95	ASN
2	2	99	HIS
2	2	137	ASN
2	2	146	GLN
2	2	165	ASN
2	2	167	GLN
2	2	183	ASN

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Mol	Chain	Res	Type
2	2	196	GLN
2	2	199	ASN
2	2	224	HIS
3	3	6	ASN
3	3	20	GLN
3	3	63	ASN
3	3	97	HIS
3	3	153	HIS
3	3	218	ASN
3	3	233	GLN
4	4	8	GLN
4	4	17	ASN
4	4	69	ASN
5	7	32	GLN
5	7	52	GLN
5	7	55	ASN
5	7	147	ASN
5	7	180	HIS
5	7	232	GLN
5	7	293	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](#)

19 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
6	NAG	A	1	5,6	14,14,15	0.58	0	17,19,21	0.90	1 (5%)
6	NAG	A	2	6	14,14,15	0.53	0	17,19,21	0.89	0
6	BMA	A	3	6	11,11,12	0.23	0	15,15,17	0.59	0
7	NAG	B	1	5,7	14,14,15	0.56	0	17,19,21	0.80	0
7	NAG	B	2	7	14,14,15	0.55	0	17,19,21	0.72	0
7	BMA	B	3	7	11,11,12	0.32	0	15,15,17	0.80	0
7	BMA	B	4	7	11,11,12	0.64	0	15,15,17	0.64	0
7	FUC	B	5	7	10,10,11	0.71	0	14,14,16	0.59	0
8	NAG	C	1	5,8	14,14,15	0.66	0	17,19,21	0.69	0
8	NAG	C	2	8	14,14,15	0.58	0	17,19,21	0.57	0
8	NAG	D	1	5,8	14,14,15	0.55	0	17,19,21	0.85	1 (5%)
8	NAG	D	2	8	14,14,15	0.55	0	17,19,21	0.64	0
6	NAG	E	1	5,6	14,14,15	0.59	0	17,19,21	0.82	1 (5%)
6	NAG	E	2	6	14,14,15	0.57	0	17,19,21	0.98	1 (5%)
6	BMA	E	3	6	11,11,12	0.32	0	15,15,17	0.56	0
9	NAG	F	1	9,5	14,14,15	0.60	0	17,19,21	0.61	0
9	NAG	F	2	9	14,14,15	0.53	0	17,19,21	0.59	0
9	BMA	F	3	9	11,11,12	0.26	0	15,15,17	0.49	0
9	FUC	F	4	9	10,10,11	0.67	0	14,14,16	0.52	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
6	NAG	A	1	5,6	-	2/6/23/26	0/1/1/1
6	NAG	A	2	6	-	0/6/23/26	0/1/1/1
6	BMA	A	3	6	-	2/2/19/22	1/1/1/1
7	NAG	B	1	5,7	-	0/6/23/26	0/1/1/1
7	NAG	B	2	7	-	2/6/23/26	0/1/1/1
7	BMA	B	3	7	-	2/2/19/22	0/1/1/1
7	BMA	B	4	7	-	1/2/19/22	0/1/1/1
7	FUC	B	5	7	-	-	0/1/1/1
8	NAG	C	1	5,8	-	2/6/23/26	0/1/1/1
8	NAG	C	2	8	-	1/6/23/26	0/1/1/1
8	NAG	D	1	5,8	-	0/6/23/26	0/1/1/1
8	NAG	D	2	8	-	2/6/23/26	0/1/1/1
6	NAG	E	1	5,6	-	2/6/23/26	0/1/1/1
6	NAG	E	2	6	-	2/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	BMA	E	3	6	-	2/2/19/22	0/1/1/1
9	NAG	F	1	9,5	-	3/6/23/26	0/1/1/1
9	NAG	F	2	9	-	2/6/23/26	0/1/1/1
9	BMA	F	3	9	-	1/2/19/22	0/1/1/1
9	FUC	F	4	9	-	-	0/1/1/1

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	A	1	NAG	O5-C1-C2	-2.37	107.63	111.29
8	D	1	NAG	C1-O5-C5	2.33	115.31	112.19
6	E	2	NAG	O5-C1-C2	-2.32	107.70	111.29
6	E	1	NAG	O5-C1-C2	-2.22	107.85	111.29

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	B	3	BMA	O5-C5-C6-O6
6	A	1	NAG	O5-C5-C6-O6
9	F	2	NAG	O5-C5-C6-O6
6	A	3	BMA	O5-C5-C6-O6
6	E	1	NAG	O5-C5-C6-O6
6	E	2	NAG	O5-C5-C6-O6
9	F	2	NAG	C4-C5-C6-O6
6	E	3	BMA	C4-C5-C6-O6
7	B	3	BMA	C4-C5-C6-O6
6	E	3	BMA	O5-C5-C6-O6
8	D	2	NAG	O5-C5-C6-O6
6	E	1	NAG	C4-C5-C6-O6
6	A	1	NAG	C4-C5-C6-O6
6	A	3	BMA	C4-C5-C6-O6
6	E	2	NAG	C4-C5-C6-O6
8	D	2	NAG	C4-C5-C6-O6
8	C	1	NAG	O5-C5-C6-O6
9	F	1	NAG	O5-C5-C6-O6
7	B	4	BMA	O5-C5-C6-O6
8	C	1	NAG	C4-C5-C6-O6
7	B	2	NAG	O5-C5-C6-O6

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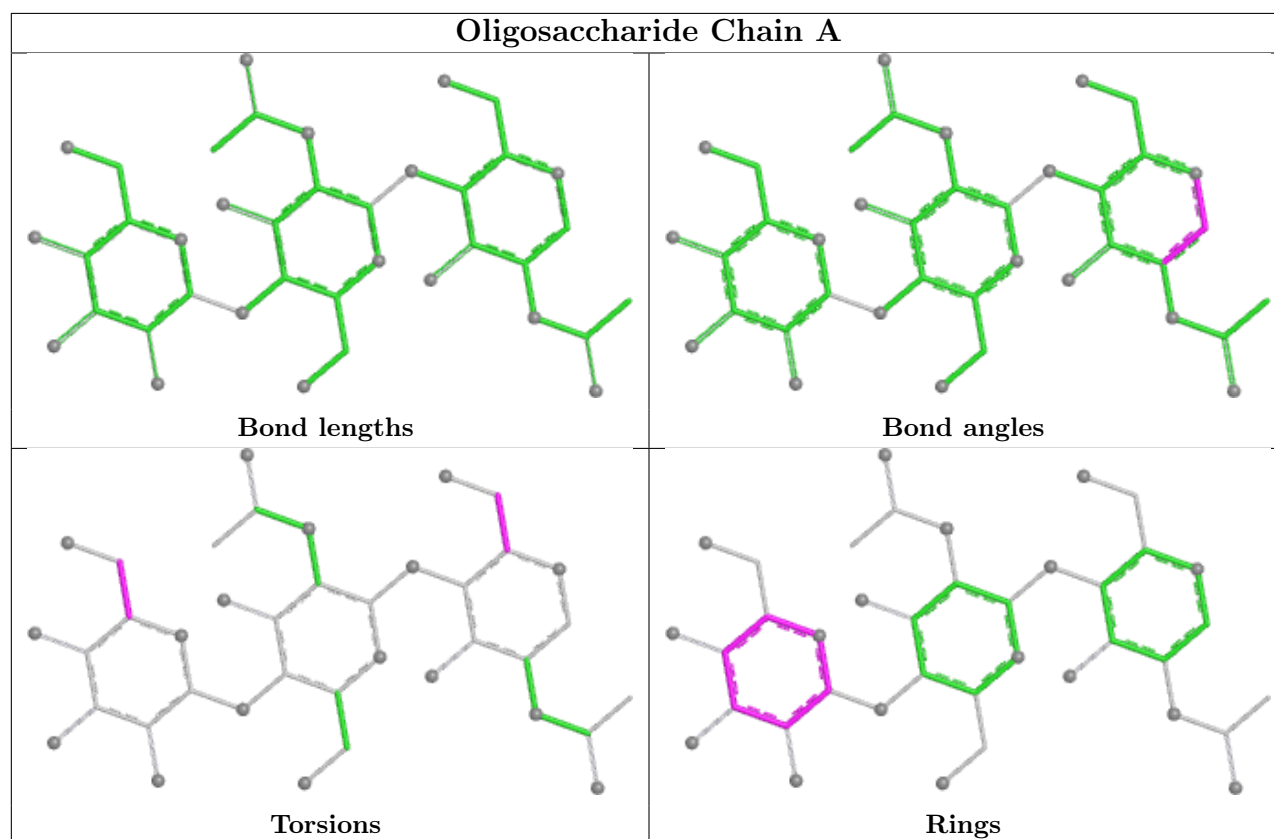
Mol	Chain	Res	Type	Atoms
9	F	3	BMA	O5-C5-C6-O6
7	B	2	NAG	C4-C5-C6-O6
9	F	1	NAG	C4-C5-C6-O6
9	F	1	NAG	C3-C2-N2-C7
8	C	2	NAG	O5-C5-C6-O6

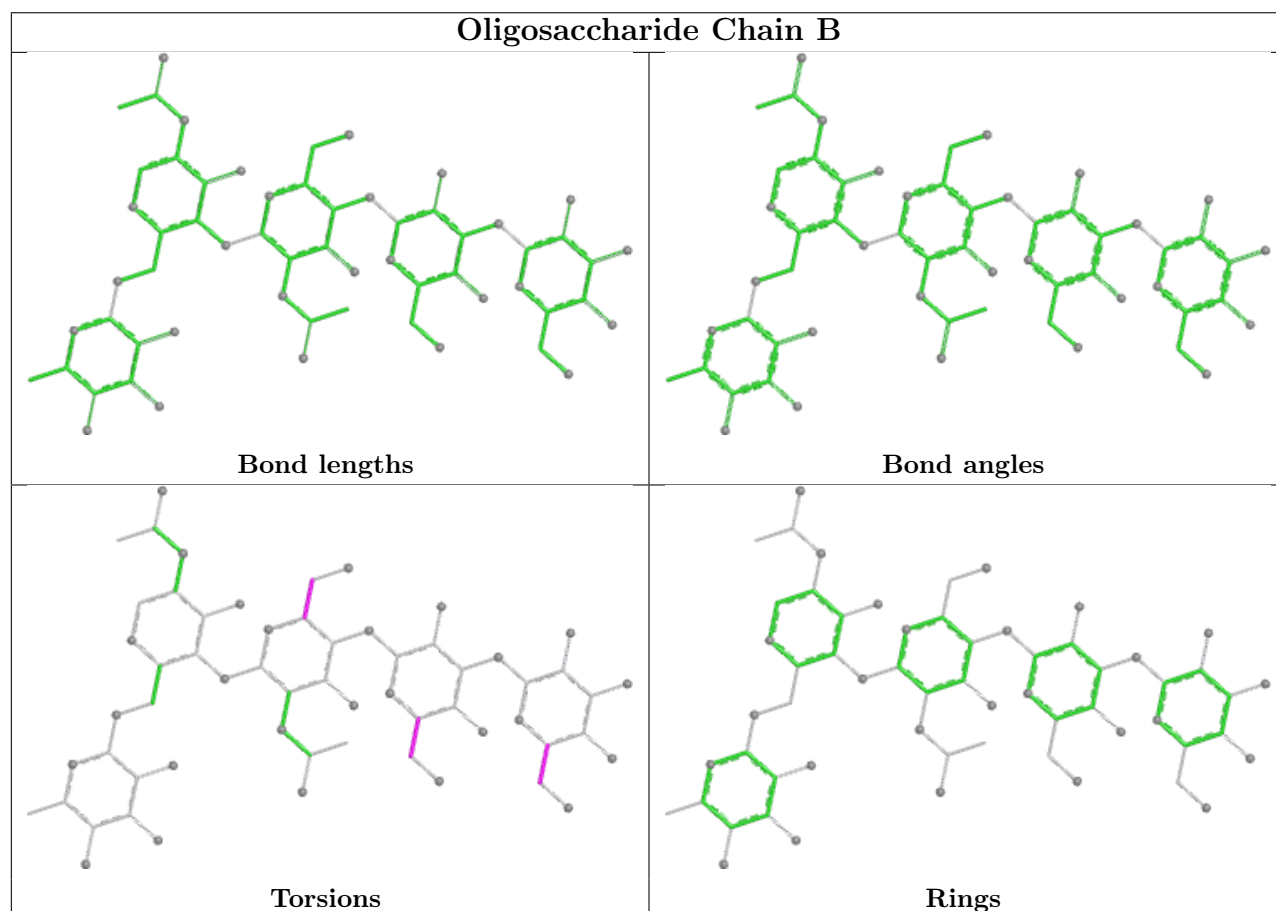
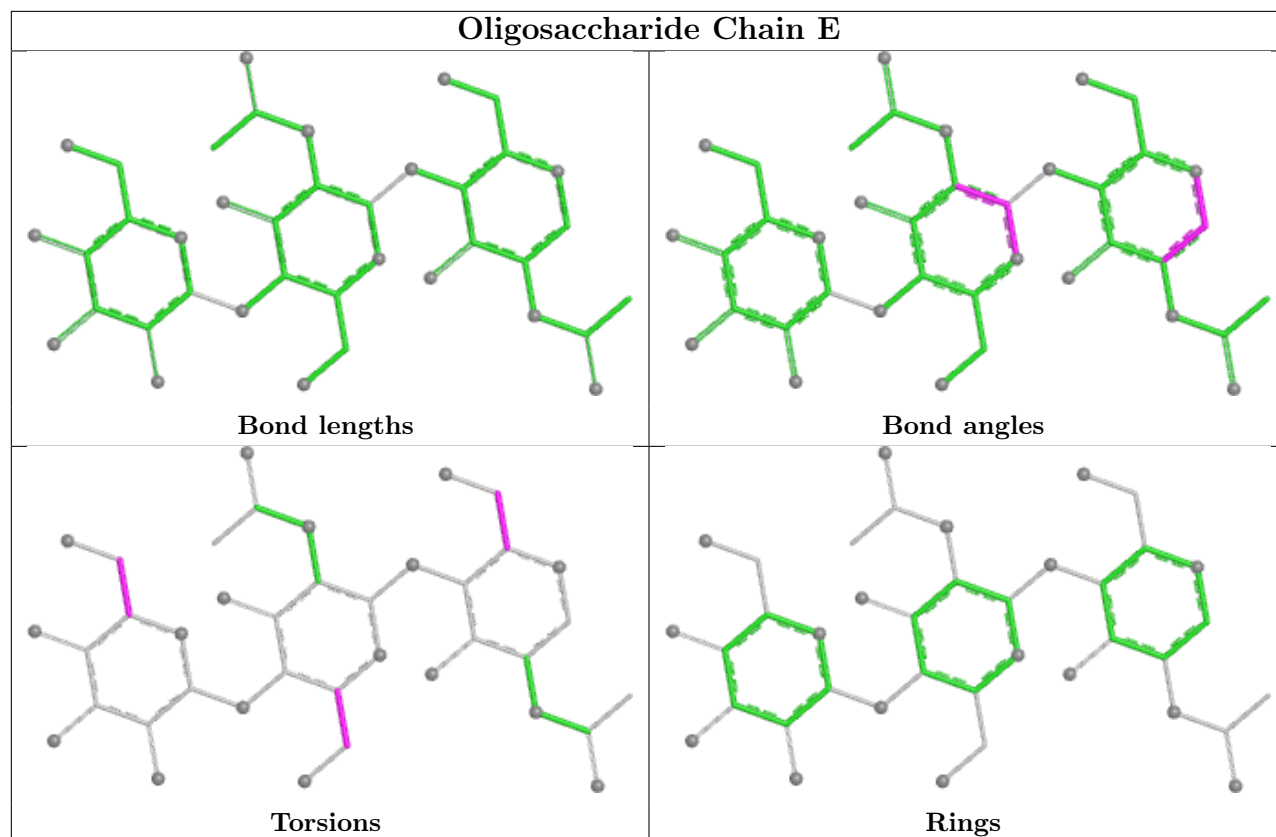
All (1) ring outliers are listed below:

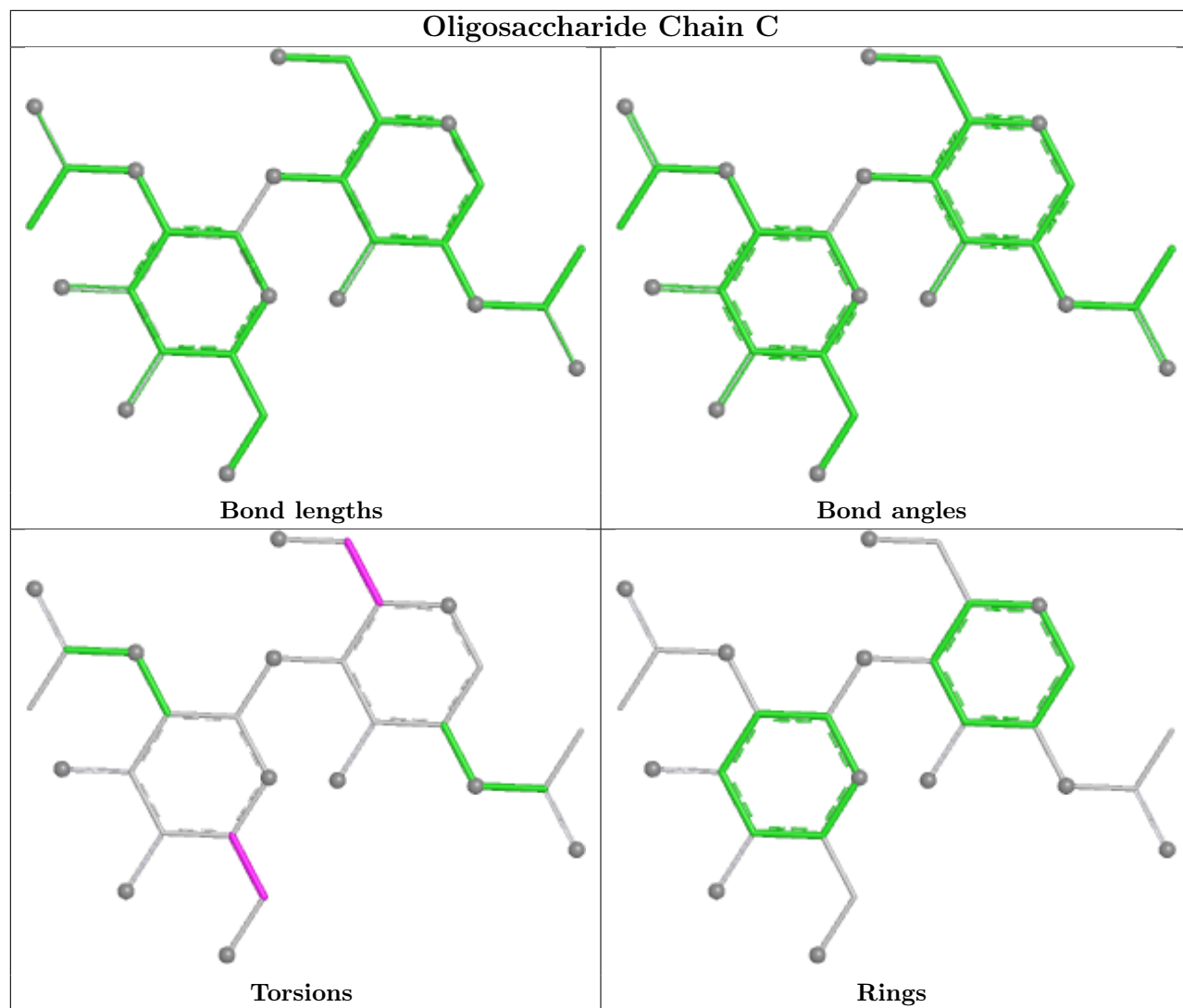
Mol	Chain	Res	Type	Atoms
6	A	3	BMA	C1-C2-C3-C4-C5-O5

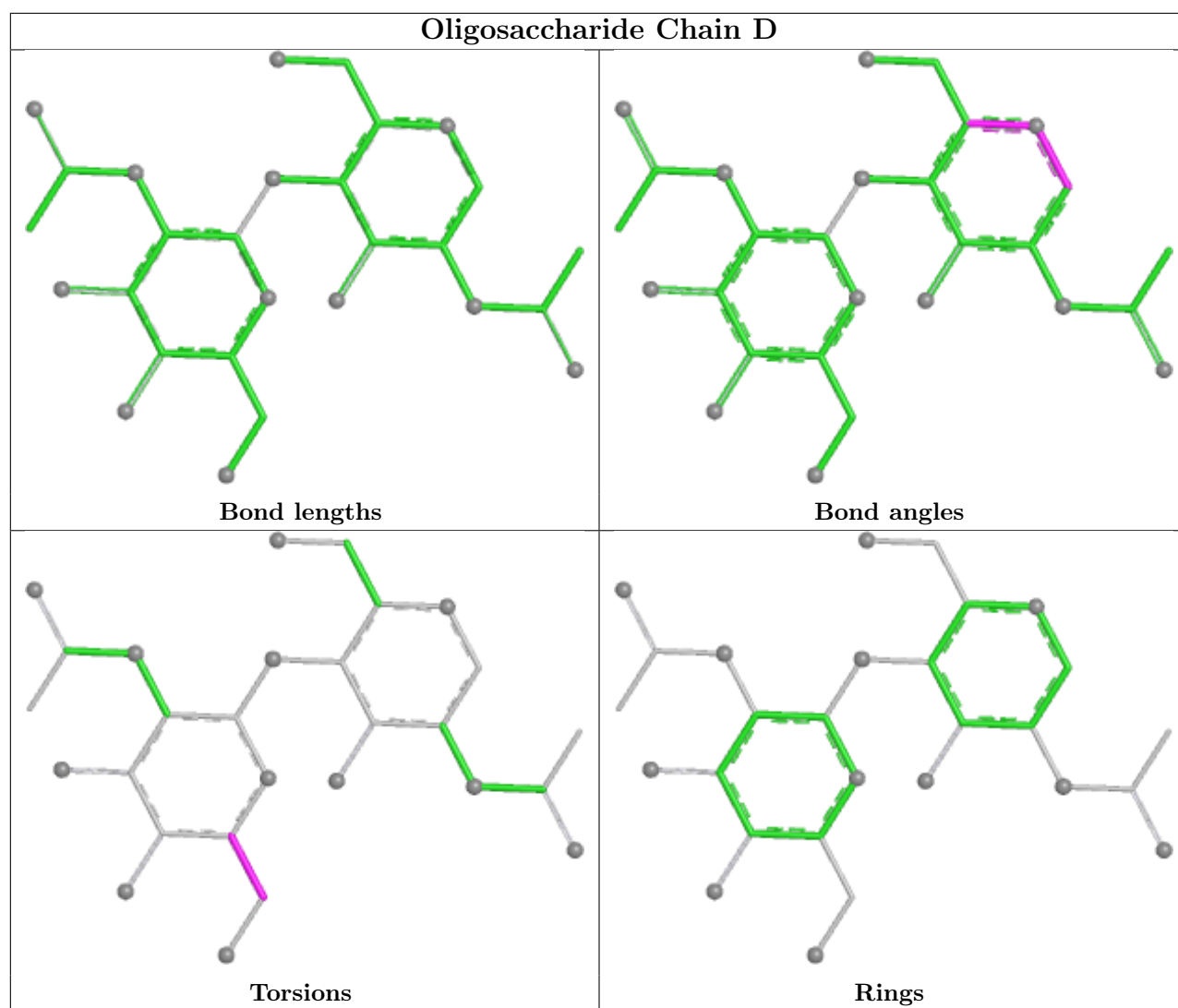
No monomer is involved in short contacts.

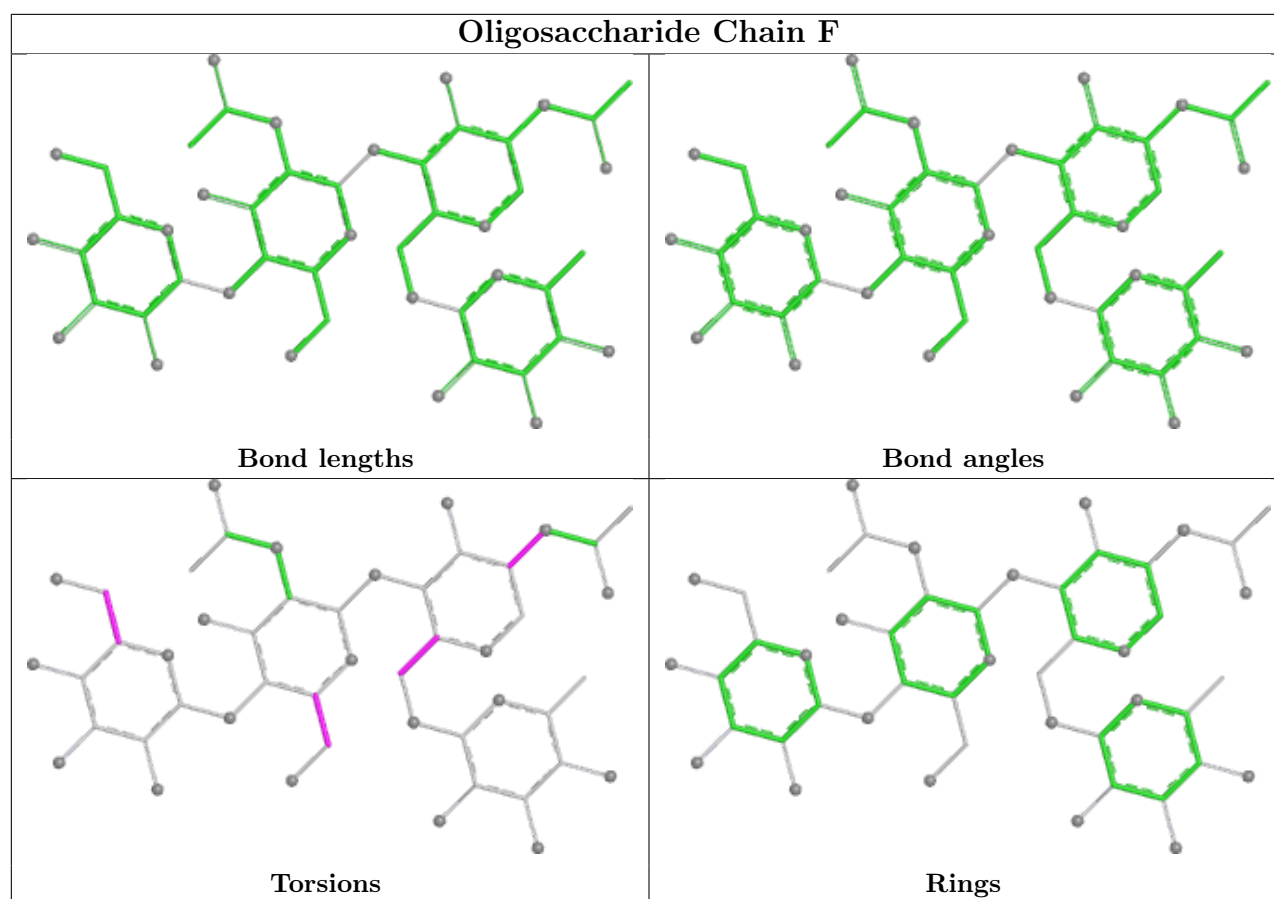
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.











5.6 Ligand geometry [i](#)

1 ligand is 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	$\# Z > 2$
10	NAG	7	520	5	14,14,15	0.55	0	17,19,21	0.64	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
10	NAG	7	520	5	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
10	7	520	NAG	C4-C5-C6-O6
10	7	520	NAG	O5-C5-C6-O6

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
5	7	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	7	136:ASP	C	137:ILE	N	1.83

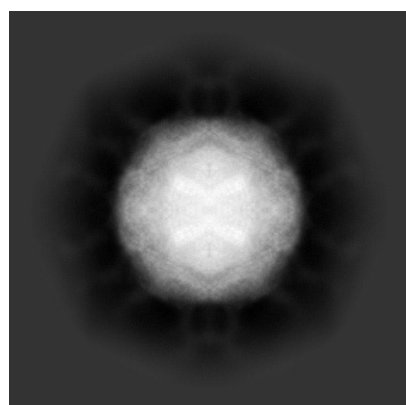
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-6147. These allow visual inspection of the internal detail of the map and identification of artifacts.

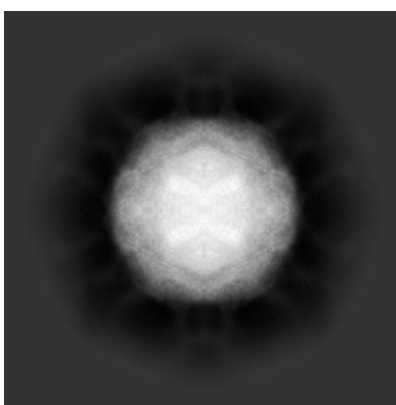
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

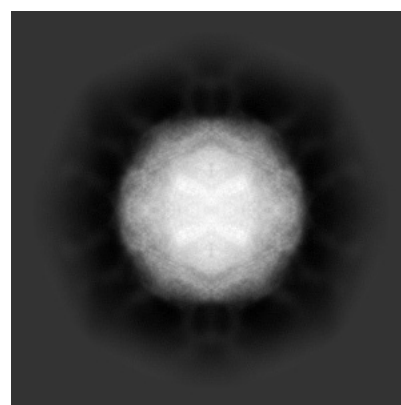
6.1.1 Primary map



X



Y

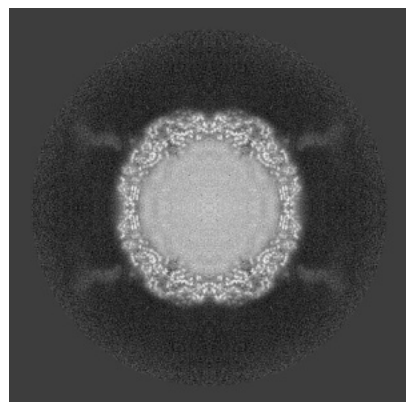


Z

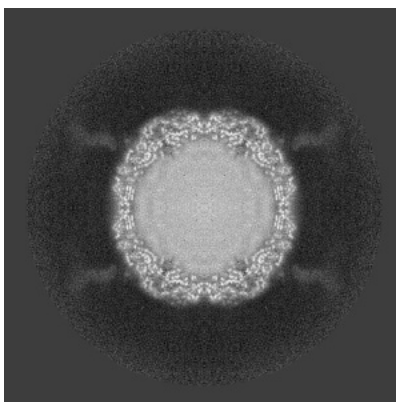
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

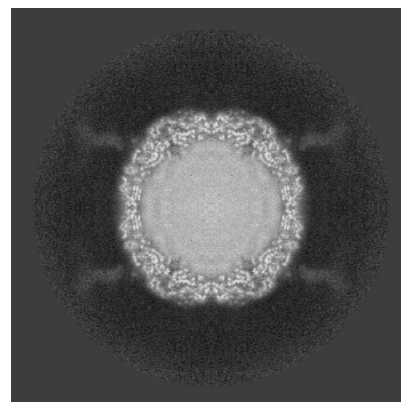
6.2.1 Primary map



X Index: 320



Y Index: 320

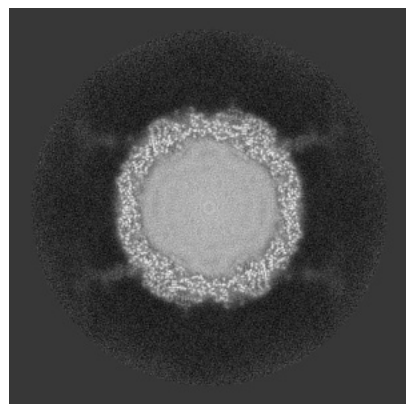


Z Index: 320

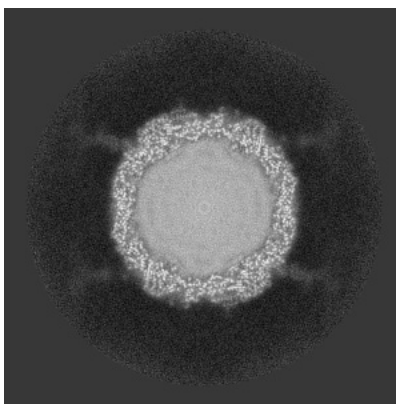
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

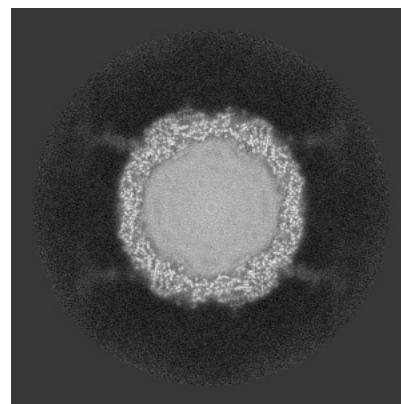
6.3.1 Primary map



X Index: 327



Y Index: 313

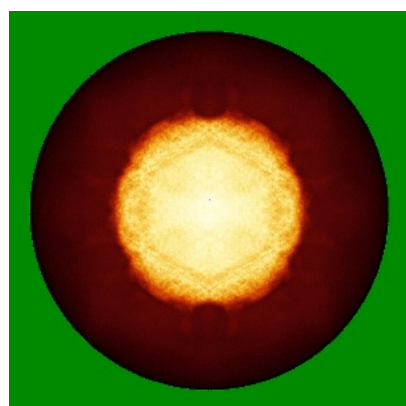


Z Index: 313

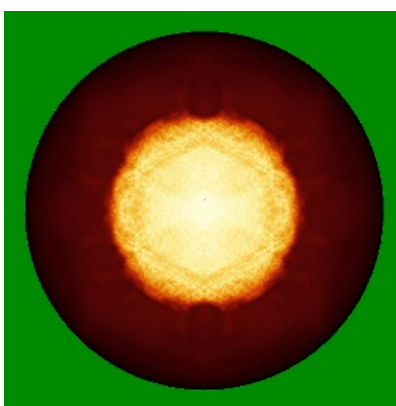
The images above show the largest variance slices of the map in three orthogonal directions.

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

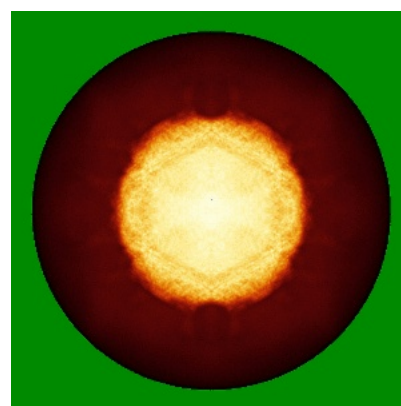
6.4.1 Primary map



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



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.00688. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

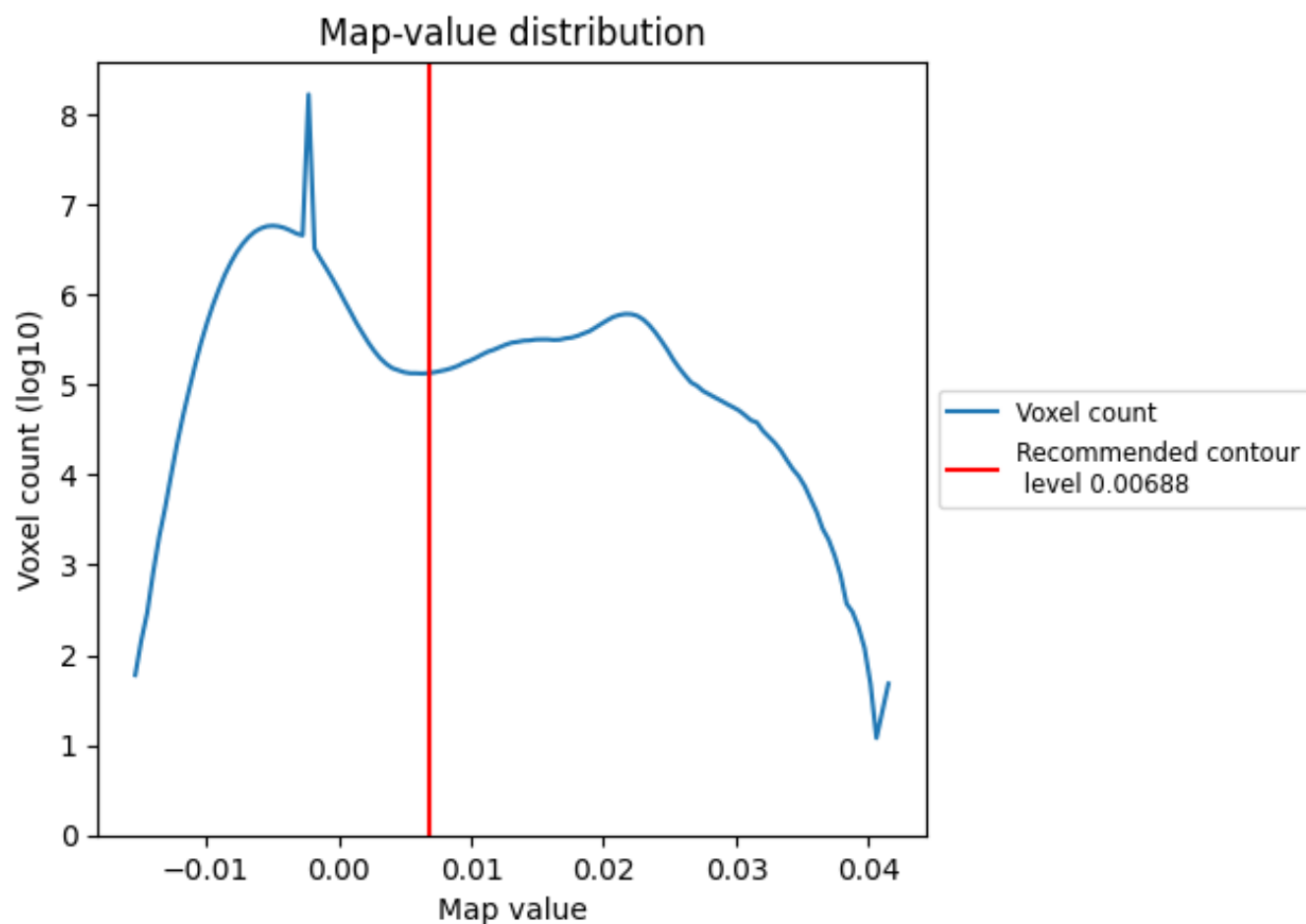
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

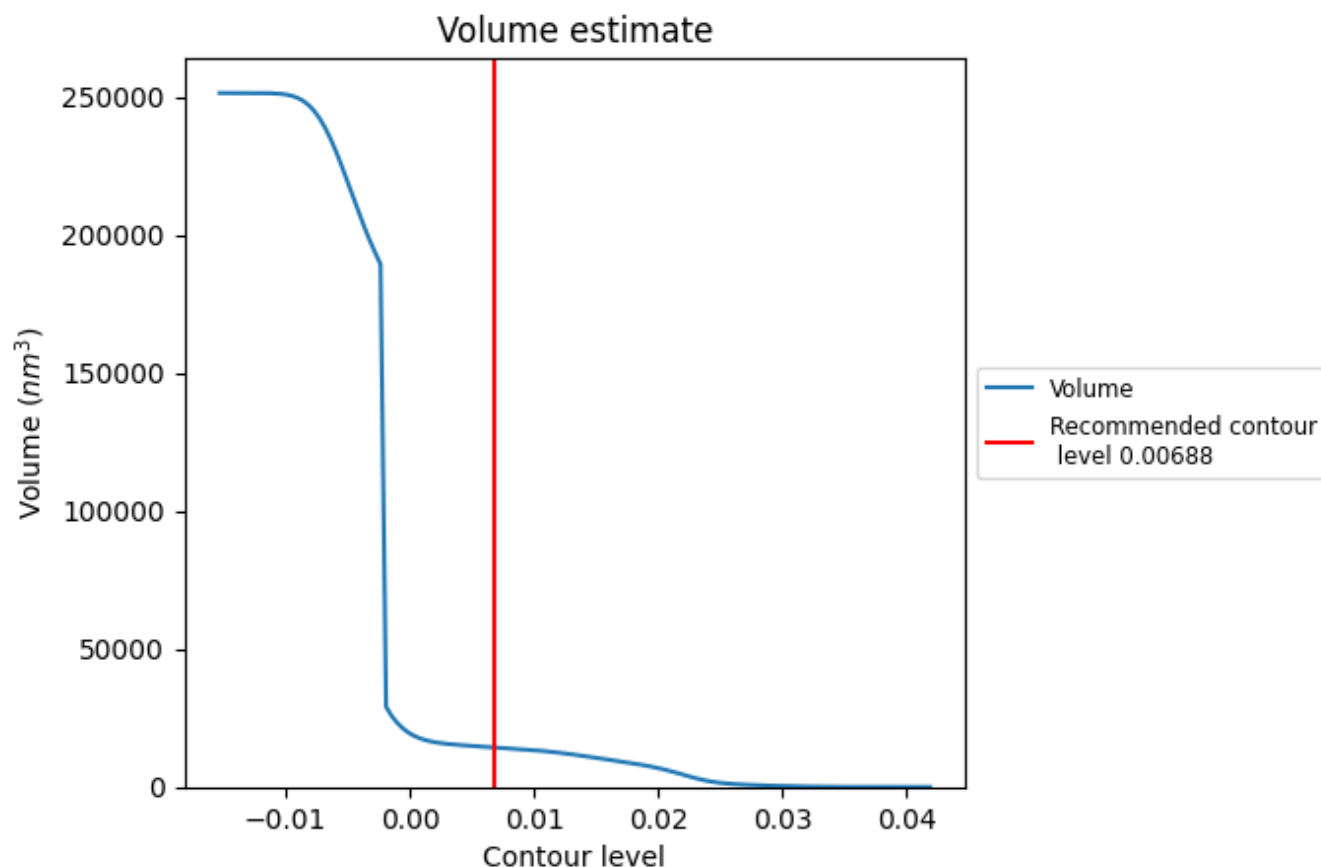
This section contains the results of statistical analysis of the map.

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.

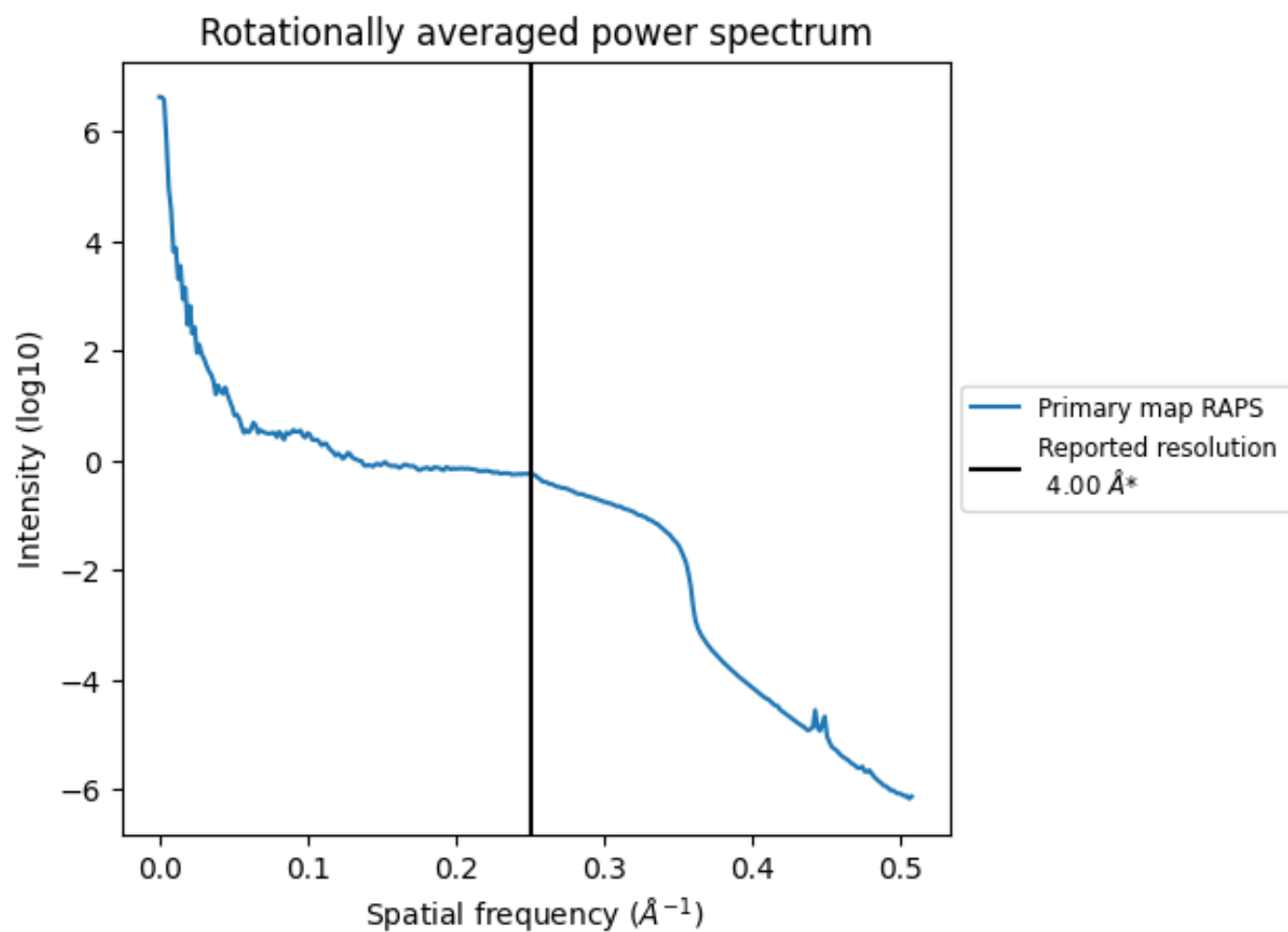
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 14336 nm^3 ; this corresponds to an approximate mass of 12950 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 0.250 Å⁻¹

8 Fourier-Shell correlation

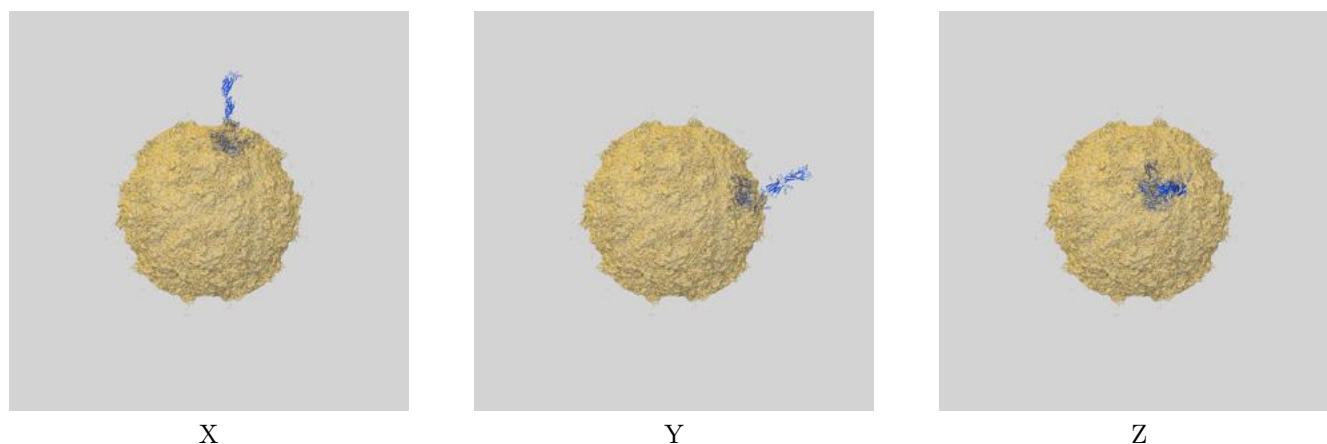
This section was not generated. No FSC curve or half-maps provided.

9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-6147 and PDB model 3J8F. Per-residue inclusion information can be found in section 3 on page 7.

9.1 Map-model overlays

9.1.1 Map-model overlay [i](#)



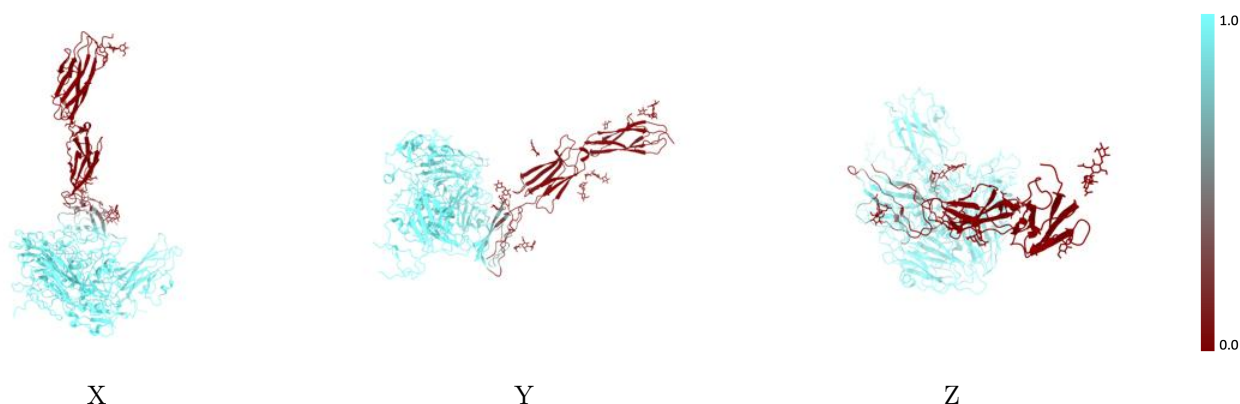
The images above show the 3D surface view of the map at the recommended contour level 0.00688 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



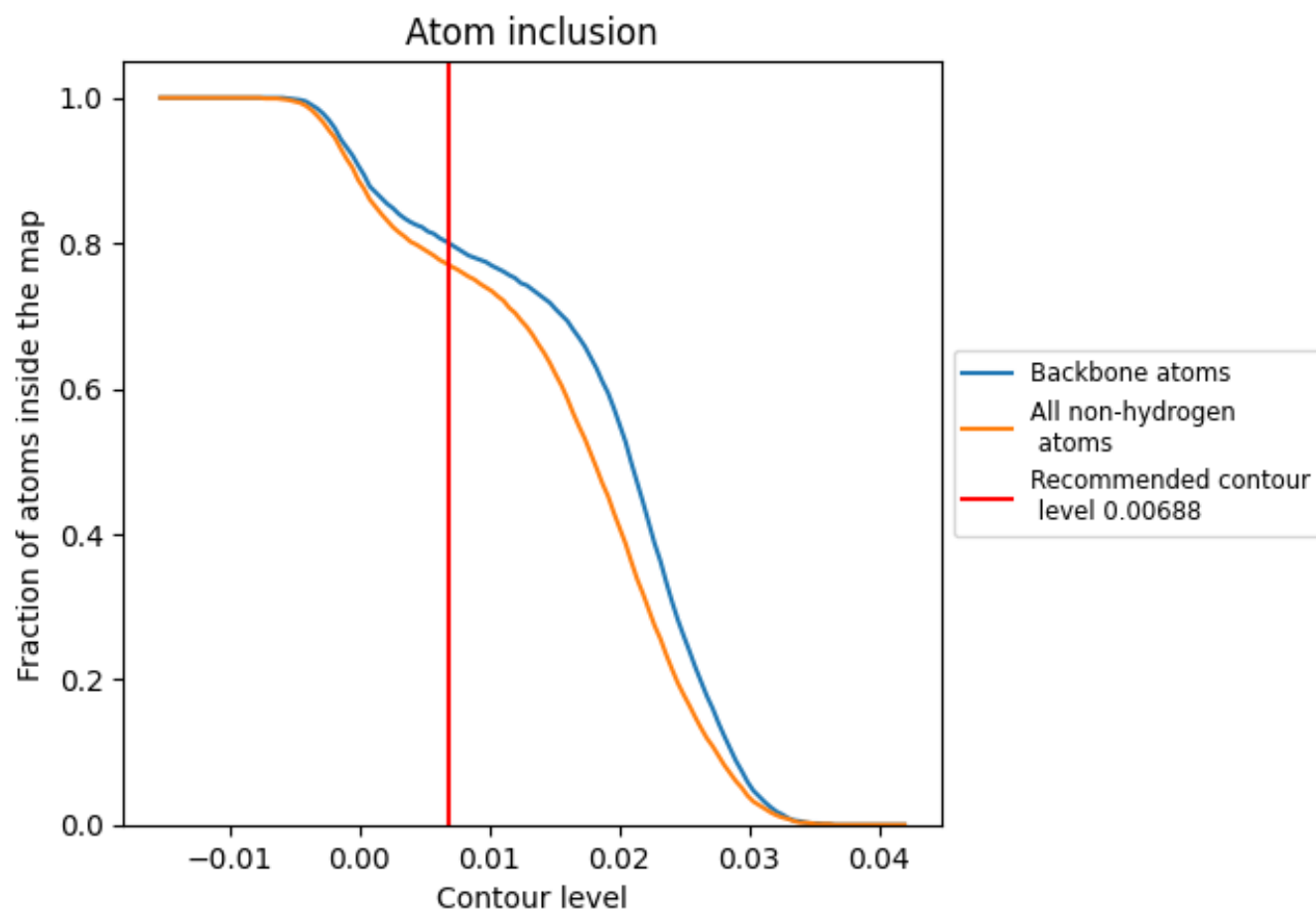
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.00688).

9.4 Atom inclusion ⓘ



At the recommended contour level, 80% of all backbone atoms, 77% 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 (0.00688) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7700	 0.1350
1	 0.9960	 0.1760
2	 0.9930	 0.1550
3	 0.9990	 0.1620
4	 1.0000	 0.1540
7	 0.2100	 0.0630
A	 0.0260	 0.0820
B	 0.1170	 0.2220
C	 0.0000	 0.0450
D	 0.0000	 -0.0510
E	 0.0000	 0.0030
F	 0.0000	 -0.0290

