Full wwPDB EM Validation Report

Mar 26, 2025 – 07:02 PM JST

PDB ID	:	9JSZ
EMDB ID	:	EMD-61787
Title	:	active NbaSPARDA complexes
Authors	:	Zhuang, L.
Deposited on	:	2024-10-01
Resolution	:	3.18 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 (i) 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 (i)) were used in the production of this report:

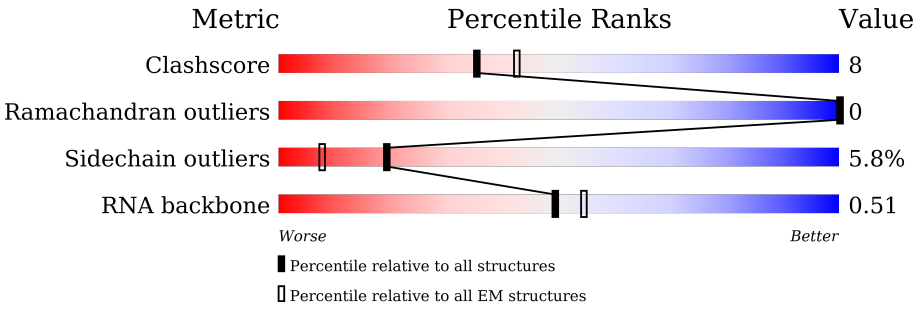
EMDB validation analysis	:	0.0.1.dev117
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.41.2

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 3.18 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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	485	76% 20% •
1	E	485	• 71% 24% • •
1	I	485	81% 14% • •
1	M	485	78% 17% • •
2	B	442	• 72% 18% • 8%
2	F	442	7% 66% 25% • 8%
2	J	442	• 66% 21% • 12%

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Mol	Chain	Length	Quality of chain
2	N	442	66% 20% 12%
3	D	21	43% 43% 14%
3	H	21	62% 24% 14%
3	L	21	62% 24% 14%
3	P	21	76% 10% 14%
4	C	20	25% 55% 15% 5%
4	G	20	50% 30% 15% 5%
4	K	20	50% 35% 5% 10%
4	O	20	45% 35% 15% 5%

2 Entry composition (i)

There are 5 unique types of molecules in this entry. The entry contains 30772 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 Ago.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	469	Total	C	N	O	S	0	0
			3723	2361	656	691	15		
1	M	466	Total	C	N	O	S	0	0
			3704	2349	652	688	15		
1	E	468	Total	C	N	O	S	0	0
			3715	2356	655	690	14		
1	I	466	Total	C	N	O	S	0	0
			3704	2349	652	688	15		

- Molecule 2 is a protein called DREN-APAZ.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	407	Total	C	N	O	S	0	0
			3275	2087	570	609	9		
2	N	389	Total	C	N	O	S	0	0
			3146	2000	551	586	9		
2	F	407	Total	C	N	O	S	0	0
			3275	2087	570	609	9		
2	J	389	Total	C	N	O	S	0	0
			3146	2000	551	586	9		

- Molecule 3 is a DNA chain called DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
3	P	18	Total	C	N	O	P	0	0
			370	176	67	109	18		
3	L	18	Total	C	N	O	P	0	0
			370	176	67	109	18		
3	H	18	Total	C	N	O	P	0	0
			370	176	67	109	18		
3	D	18	Total	C	N	O	P	0	0
			370	176	67	109	18		

- Molecule 4 is a RNA chain called RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP *GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
4	O	19	Total 405	C 181	N 73	O 132	P 19	0	0
4	K	18	Total 385	C 172	N 71	O 124	P 18	0	0
4	G	19	Total 405	C 181	N 73	O 132	P 19	0	0
4	C	19	Total 405	C 181	N 73	O 132	P 19	0	0

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

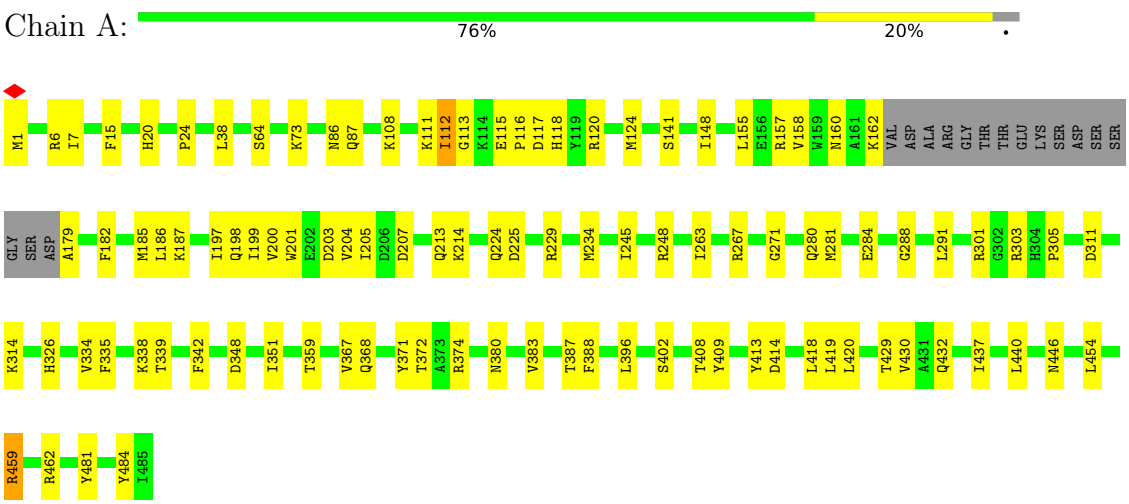
Mol	Chain	Residues	Atoms		AltConf
5	M	1	Total 1	Mg 1	0
5	G	1	Total 1	Mg 1	0
5	I	1	Total 1	Mg 1	0
5	C	1	Total 1	Mg 1	0

3 Residue-property plots (i)

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

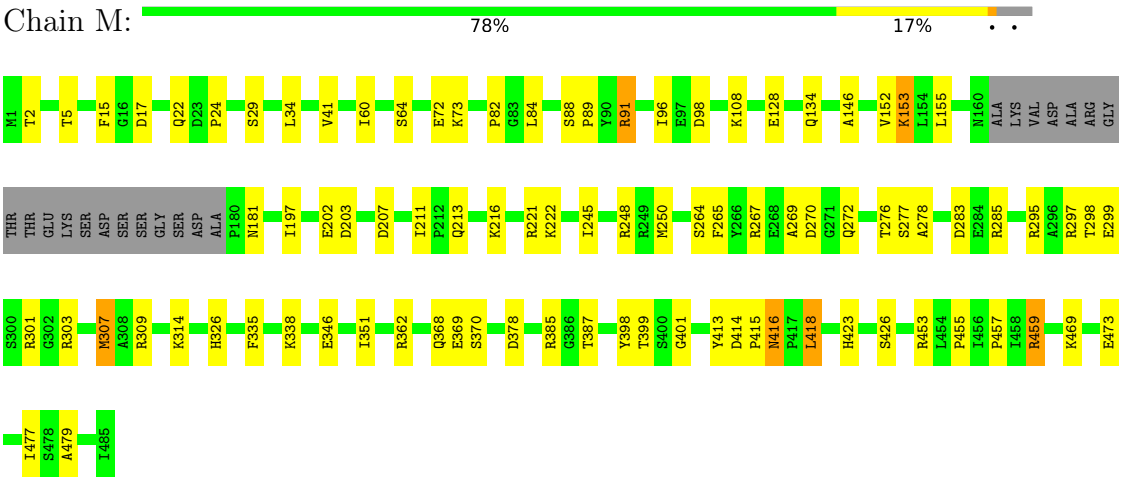
• Molecule 1: Ago

Chain A:



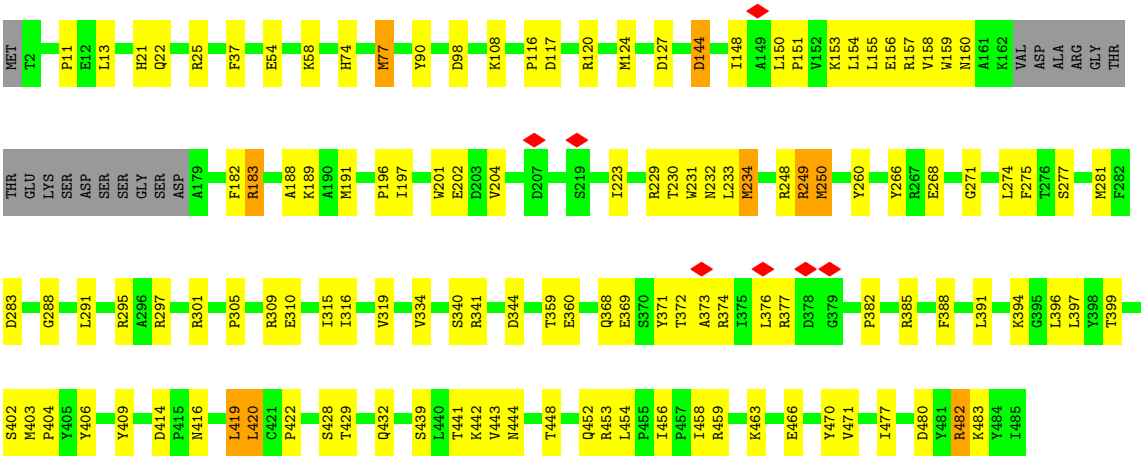
• Molecule 1: Ago

Chain M:



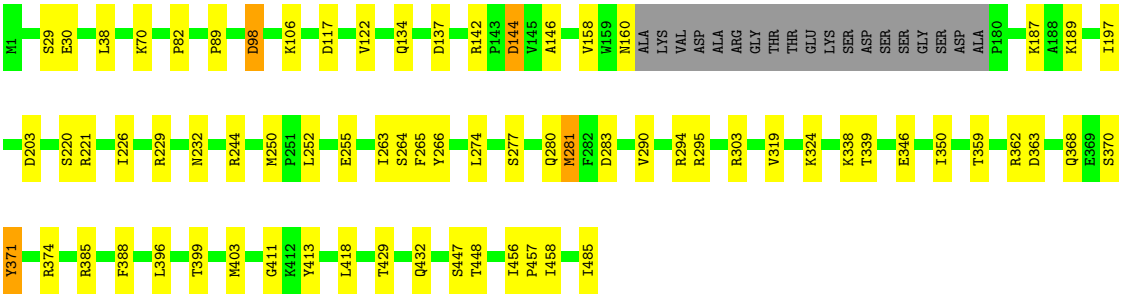
• Molecule 1: Ago

Chain E:



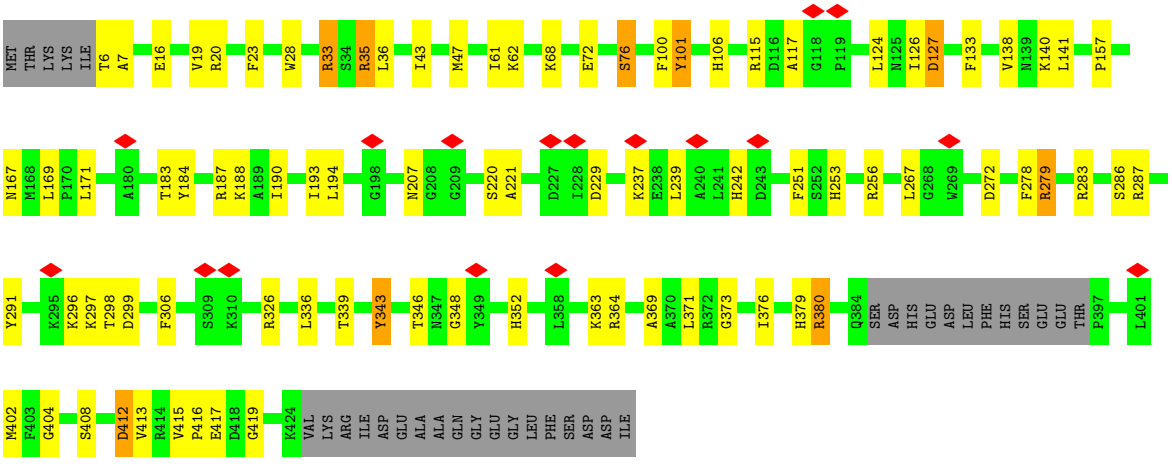
• Molecule 1: Ago

Chain I:



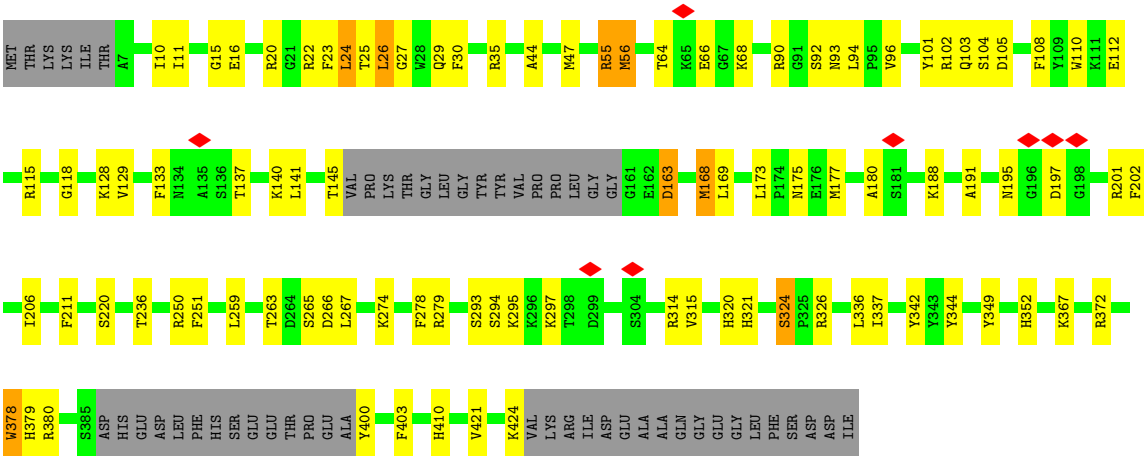
• Molecule 2: DREN-APAZ

Chain B:



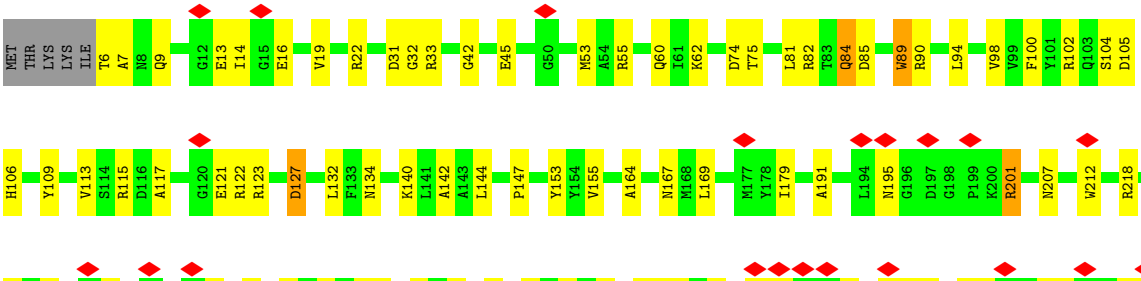
• Molecule 2: DREN-APAZ

Chain N:



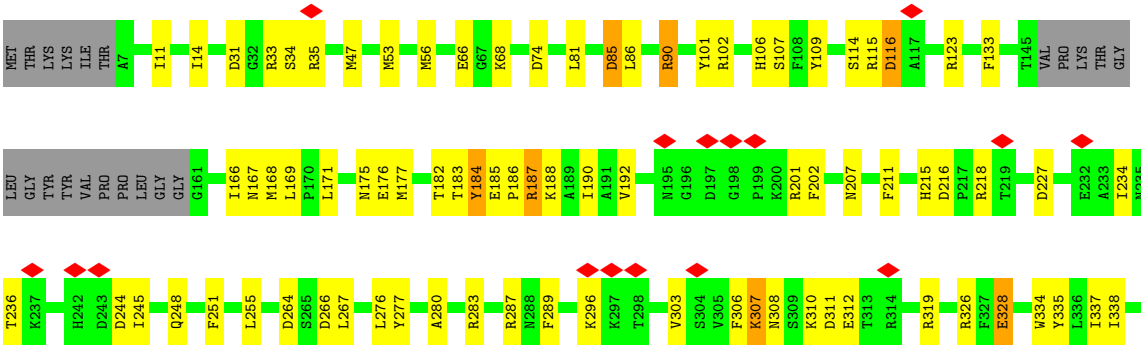
• Molecule 2: DREN-APAZ

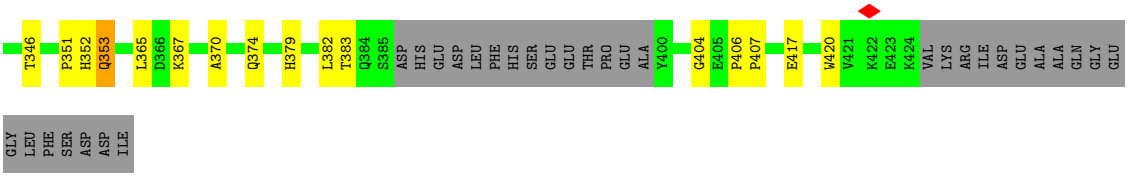
Chain F:



• Molecule 2: DREN-APAZ

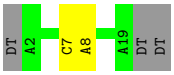
Chain J:





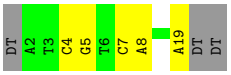
• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

Chain P:



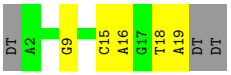
• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

Chain L:



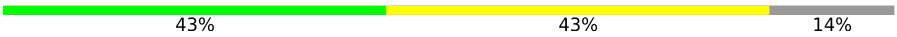
• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

Chain H:



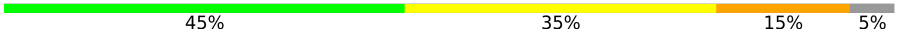
• Molecule 3: DNA (5'-D(*TP*AP*TP*CP*GP*TP*CP*AP*GP*CP*TP*GP*TP*GP*CP*AP*GP*TP*AP*TP*T)-3')

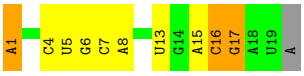
Chain D:



• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

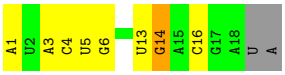
Chain O:





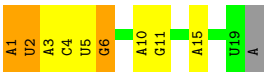
• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

Chain K:



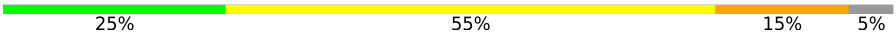
• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

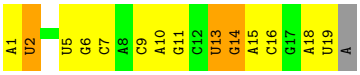
Chain G:



• Molecule 4: RNA (5'-R(P*AP*UP*AP*CP*UP*GP*CP*AP*CP*AP*GP*CP*UP*GP*AP*CP*GP*AP*UP*A)-3')

Chain C:





4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	39659	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	54	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	1.242	Depositor
Minimum map value	-0.580	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.040	Depositor
Recommended contour level	0.18	Depositor
Map size (Å)	435.2, 435.2, 435.2	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.85, 0.85, 0.85	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG

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	0.28	0/3808	0.58	0/5141
1	E	0.29	0/3800	0.59	0/5131
1	I	0.27	0/3789	0.53	0/5115
1	M	0.27	0/3789	0.52	0/5115
2	B	0.27	0/3357	0.56	0/4551
2	F	0.27	0/3357	0.61	0/4551
2	J	0.27	0/3221	0.58	0/4361
2	N	0.26	0/3221	0.58	0/4361
3	D	0.62	0/414	1.01	0/637
3	H	0.57	0/414	0.96	0/637
3	L	0.55	0/414	0.98	0/637
3	P	0.58	0/414	0.98	0/637
4	C	0.59	1/452 (0.2%)	0.94	0/700
4	G	0.56	1/452 (0.2%)	0.92	0/700
4	K	0.59	1/430 (0.2%)	0.81	0/666
4	O	0.59	1/452 (0.2%)	0.86	0/700
All	All	0.32	4/31784 (0.0%)	0.63	0/43640

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	O	1	A	OP3-P	-10.92	1.48	1.61
4	C	1	A	OP3-P	-10.86	1.48	1.61
4	K	1	A	OP3-P	-10.82	1.48	1.61
4	G	1	A	OP3-P	-10.11	1.49	1.61

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3723	0	3707	55	0
1	E	3715	0	3695	80	0
1	I	3704	0	3685	37	0
1	M	3704	0	3685	50	0
2	B	3275	0	3204	53	0
2	F	3275	0	3204	68	0
2	J	3146	0	3071	58	0
2	N	3146	0	3071	62	0
3	D	370	0	204	8	0
3	H	370	0	204	4	0
3	L	370	0	204	5	0
3	P	370	0	204	1	0
4	C	405	0	206	9	0
4	G	405	0	206	9	0
4	K	385	0	196	5	0
4	O	405	0	206	8	0
5	C	1	0	0	0	0
5	G	1	0	0	0	0
5	I	1	0	0	0	0
5	M	1	0	0	0	0
All	All	30772	0	28952	460	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 8.

All (460) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:111:LYS:HE3	1:A:112:ILE:HG12	1.67	0.77
1:E:191:MET:HG2	1:E:477:ILE:HA	1.67	0.76
2:B:267:LEU:HB2	2:B:278:PHE:HA	1.74	0.70
1:A:117:ASP:HB3	1:A:120:ARG:HG2	1.74	0.69
1:E:396:LEU:HG	1:E:419:LEU:HB3	1.74	0.69
1:A:368:GLN:HB2	1:A:419:LEU:HB3	1.74	0.69
2:J:102:ARG:O	2:J:106:HIS:HA	1.92	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:441:THR:O	1:E:452:GLN:NE2	2.27	0.68
1:M:203:ASP:HB2	1:M:221:ARG:HH21	1.60	0.66
1:E:394:LYS:HB3	1:E:419:LEU:HD13	1.79	0.64
2:B:239:LEU:O	2:B:242:HIS:NE2	2.31	0.64
2:F:302:VAL:HG12	2:F:303:VAL:HG23	1.80	0.63
2:F:201:ARG:H	2:F:221:ALA:HB2	1.63	0.63
2:N:326:ARG:HB2	2:N:337:ILE:HG12	1.81	0.62
2:B:62:LYS:O	2:B:100:PHE:HA	1.99	0.62
2:J:307:LYS:HD3	2:J:312:GLU:HA	1.82	0.62
1:A:311:ASP:HA	1:A:314:LYS:HE2	1.83	0.61
1:A:113:GLY:HA3	1:A:157:ARG:CZ	2.31	0.61
2:F:22:ARG:NH1	2:F:134:ASN:OD1	2.34	0.60
1:A:204:VAL:HG13	1:A:229:ARG:HD2	1.83	0.60
2:N:22:ARG:HE	2:N:133:PHE:HB3	1.67	0.60
1:E:150:LEU:HD12	1:E:155:LEU:HD22	1.83	0.60
2:F:140:LYS:HG3	2:F:419:GLY:HA2	1.84	0.60
1:I:146:ALA:HB3	1:I:197:ILE:HG22	1.84	0.60
1:E:248:ARG:NH1	1:E:283:ASP:OD1	2.35	0.60
1:A:372:THR:HG21	2:B:326:ARG:HG3	1.83	0.59
2:F:299:ASP:OD1	2:F:380:ARG:NH2	2.35	0.59
1:E:250:MET:SD	1:E:250:MET:N	2.75	0.59
1:A:372:THR:HG1	2:B:339:THR:HG1	1.50	0.59
1:M:297:ARG:HH12	1:M:473:GLU:HA	1.68	0.58
1:A:213:GLN:HE22	3:D:15:DC:H2'	1.69	0.58
4:K:16:C:O2'	2:J:207:ASN:ND2	2.31	0.58
1:E:376:LEU:HD23	2:F:167:ASN:HD22	1.68	0.58
2:N:29:GLN:O	2:N:44:ALA:HA	2.03	0.58
1:E:281:MET:HB3	1:E:291:LEU:HG	1.86	0.58
2:F:6:THR:OG1	2:F:7:ALA:N	2.36	0.58
1:M:276:THR:HG21	1:M:307:MET:HB3	1.85	0.58
1:E:196:PRO:HB3	1:E:483:LYS:HB3	1.86	0.58
2:J:187:ARG:H	2:J:187:ARG:HD2	1.69	0.57
2:N:35:ARG:NH1	2:J:34:SER:OG	2.35	0.57
2:F:179:ILE:HG12	2:F:234:ILE:HD11	1.87	0.57
2:F:274:LYS:HB3	2:F:324:SER:HB2	1.85	0.57
2:F:291:TYR:H	2:F:299:ASP:HB2	1.68	0.57
1:E:420:LEU:O	1:E:422:PRO:HD3	2.04	0.57
2:N:108:PHE:HB2	2:N:133:PHE:HB2	1.86	0.57
2:J:166:ILE:HD12	2:J:168:MET:HE3	1.86	0.57
1:A:408:THR:OG1	1:A:409:TYR:N	2.38	0.57
2:B:279:ARG:NH1	2:B:348:GLY:O	2.37	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:338:LYS:NZ	1:I:346:GLU:OE2	2.38	0.56
2:B:157:PRO:HG3	2:B:416:PRO:HG3	1.87	0.56
2:F:81:LEU:HB2	2:F:123:ARG:HB2	1.86	0.56
1:I:385:ARG:NH1	1:I:399:THR:O	2.37	0.56
2:N:293:SER:HB3	2:N:297:LYS:HD2	1.87	0.56
2:J:266:ASP:HB2	2:J:287:ARG:HH12	1.70	0.56
2:F:287:ARG:HB3	2:F:303:VAL:HB	1.87	0.56
1:E:22:GLN:O	1:E:442:LYS:NZ	2.39	0.56
1:I:359:THR:O	1:I:362:ARG:NH2	2.39	0.56
1:A:6:ARG:HB3	1:A:388:PHE:HB3	1.89	0.55
2:N:22:ARG:O	2:N:22:ARG:NH1	2.33	0.55
2:J:187:ARG:O	2:J:190:ILE:HG12	2.06	0.55
2:N:137:THR:HG21	2:N:140:LYS:HD3	1.88	0.55
1:M:88:SER:O	1:M:91:ARG:NH1	2.40	0.55
1:E:183:ARG:NH2	1:E:466:GLU:OE2	2.40	0.55
1:M:369:GLU:OE2	1:M:453:ARG:NH2	2.40	0.55
1:E:274:LEU:HD22	1:E:305:PRO:HB3	1.88	0.55
1:I:137:ASP:O	1:I:142:ARG:NH1	2.40	0.55
1:A:367:VAL:HG22	1:A:418:LEU:HD21	1.88	0.54
2:F:201:ARG:NH1	2:F:400:TYR:OH	2.40	0.54
2:J:177:MET:HB2	2:J:236:THR:HG22	1.89	0.54
2:B:35:ARG:HH11	2:F:13:GLU:HB3	1.73	0.54
2:B:296:LYS:NZ	2:B:298:THR:OG1	2.40	0.54
1:M:248:ARG:NH1	1:M:283:ASP:OD1	2.40	0.54
1:E:373:ALA:HB3	1:E:396:LEU:HD22	1.89	0.54
1:A:116:PRO:HG2	1:A:120:ARG:NH1	2.23	0.54
2:F:60:GLN:HE21	2:F:98:VAL:HG23	1.73	0.54
1:E:249:ARG:NH2	1:E:260:TYR:OH	2.41	0.54
2:N:326:ARG:H	2:N:337:ILE:HG12	1.73	0.53
2:J:201:ARG:NH1	2:J:264:ASP:OD2	2.41	0.53
1:M:378:ASP:HB2	2:N:372:ARG:HE	1.73	0.53
1:M:134:GLN:OE1	1:I:295:ARG:NH2	2.42	0.53
4:G:2:U:O2	1:E:232:ASN:ND2	2.42	0.53
2:J:187:ARG:HD3	2:J:188:LYS:NZ	2.22	0.53
2:B:169:LEU:HD12	2:B:336:LEU:HD23	1.91	0.53
1:I:368:GLN:NE2	1:I:370:SER:O	2.42	0.53
2:B:364:ARG:NH1	3:D:17:DG:OP1	2.42	0.53
2:N:66:GLU:HG2	2:N:103:GLN:HG3	1.91	0.53
2:N:191:ALA:O	2:N:195:ASN:ND2	2.40	0.53
2:N:314:ARG:NH1	2:N:315:VAL:O	2.42	0.52
2:F:218:ARG:HA	2:F:223:SER:HB2	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:66:GLU:OE2	2:J:68:LYS:NZ	2.42	0.52
1:E:266:TYR:CZ	1:E:275:PHE:HB2	2.44	0.52
2:B:140:LYS:HB2	2:B:419:GLY:HA2	1.91	0.52
2:F:105:ASP:O	2:F:106:HIS:ND1	2.42	0.52
1:E:295:ARG:HA	1:E:477:ILE:HG12	1.92	0.52
2:J:365:LEU:O	2:J:367:LYS:NZ	2.43	0.52
1:A:437:ILE:HA	1:A:440:LEU:HB2	1.91	0.52
2:B:190:ILE:HA	2:B:193:ILE:HG22	1.90	0.52
2:N:24:LEU:HA	2:N:27:GLY:O	2.10	0.52
1:A:15:PHE:HZ	1:A:24:PRO:HA	1.75	0.52
1:A:187:LYS:HG2	1:A:197:ILE:HD11	1.92	0.52
1:A:267:ARG:NH1	1:A:271:GLY:O	2.42	0.51
2:B:187:ARG:NH1	4:C:18:A:N3	2.57	0.51
3:L:8:DA:H5"	2:J:326:ARG:HH22	1.75	0.51
2:B:220:SER:OG	2:B:221:ALA:N	2.43	0.51
2:F:142:ALA:HB1	2:F:155:VAL:HG21	1.92	0.51
1:A:284:GLU:OE2	1:A:326:HIS:ND1	2.41	0.51
2:N:56:MET:HG2	2:N:94:LEU:HD11	1.92	0.51
1:E:301:ARG:NH1	1:E:310:GLU:OE2	2.43	0.51
1:M:29:SER:HA	1:M:89:PRO:HB3	1.93	0.51
2:F:82:ARG:NH2	2:F:84:GLN:OE1	2.44	0.51
2:N:321:HIS:HB3	2:N:342:TYR:HD1	1.75	0.51
1:E:396:LEU:HG	1:E:419:LEU:CB	2.41	0.51
1:I:117:ASP:OD1	1:I:117:ASP:N	2.41	0.51
1:M:264:SER:OG	1:M:265:PHE:N	2.43	0.51
2:N:259:LEU:O	2:N:263:THR:OG1	2.27	0.51
1:M:297:ARG:O	1:M:298:THR:C	2.49	0.51
1:A:224:GLN:OE1	4:C:2:U:N3	2.39	0.50
2:F:256:ARG:HH22	2:F:275:ALA:HA	1.76	0.50
1:M:84:LEU:HA	1:M:88:SER:HB2	1.93	0.50
2:N:294:SER:HB2	2:N:295:LYS:HE2	1.92	0.50
2:F:303:VAL:HG22	2:F:320:HIS:HA	1.93	0.50
4:G:1:A:H61	1:E:182:PHE:HB3	1.77	0.50
2:J:114:SER:OG	2:J:115:ARG:N	2.45	0.50
1:A:388:PHE:HZ	1:A:430:VAL:HG13	1.76	0.50
1:E:155:LEU:HA	1:E:158:VAL:HG12	1.94	0.50
1:E:443:VAL:HB	1:E:456:ILE:HD13	1.93	0.50
2:N:20:ARG:HG2	2:N:24:LEU:HD22	1.94	0.50
2:N:259:LEU:HD21	2:N:403:PHE:HZ	1.76	0.50
1:E:156:GLU:HG3	1:E:157:ARG:HG2	1.94	0.50
2:J:81:LEU:HD23	2:J:86:LEU:HD13	1.94	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:73:LYS:HD2	3:D:19:DA:H2"	1.94	0.50
1:M:272:GLN:HB2	1:M:303:ARG:CZ	2.42	0.50
2:N:92:SER:OG	2:N:93:ASN:N	2.45	0.50
2:N:128:LYS:HE3	2:N:129:VAL:HG13	1.93	0.50
1:E:90:TYR:OH	1:E:234:MET:HB3	2.11	0.50
1:A:303:ARG:NE	4:C:13:U:OP1	2.42	0.49
2:N:55:ARG:HH22	2:N:145:THR:HG1	1.54	0.49
2:N:336:LEU:HD13	2:N:403:PHE:HE2	1.77	0.49
2:N:266:ASP:OD1	2:N:266:ASP:N	2.43	0.49
3:H:19:DA:N3	1:E:74:HIS:ND1	2.52	0.49
1:E:268:GLU:HB3	1:E:271:GLY:H	1.76	0.49
2:B:36:LEU:O	2:N:29:GLN:NE2	2.45	0.49
1:M:82:PRO:HG2	1:M:89:PRO:HD3	1.94	0.49
2:N:378:TRP:HD1	2:N:379:HIS:H	1.61	0.49
2:N:16:GLU:OE2	2:N:20:ARG:NH2	2.46	0.49
1:E:148:ILE:HG13	1:E:197:ILE:HD12	1.95	0.49
1:E:151:PRO:HB2	1:E:154:LEU:HB2	1.95	0.49
1:I:280:GLN:HB2	1:I:319:VAL:HG22	1.95	0.49
2:J:185:GLU:O	2:J:186:PRO:C	2.50	0.49
2:N:112:GLU:HB2	2:N:141:LEU:HD13	1.94	0.49
2:N:326:ARG:HB2	2:N:337:ILE:CD1	2.43	0.49
2:J:216:ASP:N	2:J:216:ASP:OD1	2.41	0.49
2:F:90:ARG:HH11	2:F:117:ALA:H	1.59	0.49
2:B:68:LYS:HG3	2:B:72:GLU:HB3	1.95	0.49
2:B:138:VAL:O	2:B:141:LEU:HB3	2.12	0.49
1:M:385:ARG:NH1	1:M:399:THR:O	2.46	0.49
4:G:4:C:H2'	4:G:5:U:C6	2.47	0.49
1:E:25:ARG:NE	1:E:448:THR:OG1	2.39	0.49
2:F:264:ASP:OD1	2:F:264:ASP:N	2.40	0.49
2:J:184:TYR:OH	2:J:192:VAL:HG21	2.13	0.48
1:A:429:THR:HG23	1:A:432:GLN:H	1.78	0.48
2:F:417:GLU:HA	2:F:420:TRP:HB2	1.95	0.48
1:I:264:SER:OG	1:I:265:PHE:N	2.46	0.48
2:J:267:LEU:HA	2:J:277:TYR:O	2.12	0.48
1:A:454:LEU:H	1:A:459:ARG:HH21	1.61	0.48
1:A:148:ILE:HD11	1:A:186:LEU:HD21	1.95	0.48
1:E:444:ASN:HB3	1:E:456:ILE:HG12	1.95	0.48
2:J:328:GLU:HG2	2:J:337:ILE:HD11	1.96	0.48
1:M:153:LYS:HA	1:M:153:LYS:HD3	1.65	0.48
2:F:338:ILE:HD11	2:F:375:VAL:HG22	1.95	0.48
1:M:267:ARG:O	1:M:469:LYS:NZ	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:22:ARG:O	2:N:25:THR:HB	2.14	0.48
1:I:226:ILE:HA	1:I:229:ARG:HD2	1.95	0.48
1:M:146:ALA:HB3	1:M:197:ILE:HG22	1.95	0.48
1:E:13:LEU:N	1:E:21:HIS:O	2.46	0.48
1:A:281:MET:HB3	1:A:291:LEU:HG	1.95	0.48
1:E:428:SER:OG	1:E:429:THR:N	2.47	0.48
2:F:292:THR:HB	2:F:298:THR:HA	1.96	0.48
1:A:155:LEU:HA	1:A:158:VAL:HG12	1.96	0.48
2:B:169:LEU:HB2	2:B:336:LEU:HB3	1.96	0.47
1:M:368:GLN:NE2	1:M:370:SER:O	2.47	0.47
2:N:175:ASN:OD1	2:N:175:ASN:N	2.41	0.47
1:A:348:ASP:OD1	1:A:348:ASP:N	2.45	0.47
1:E:201:TRP:HD1	1:E:202:GLU:H	1.62	0.47
2:B:272:ASP:OD2	2:B:343:TYR:OH	2.32	0.47
4:C:9:C:H2'	4:C:10:A:C8	2.50	0.47
3:L:4:DC:H2'	3:L:5:DG:C8	2.49	0.47
2:F:45:GLU:HB2	2:J:33:ARG:HH22	1.79	0.47
2:J:346:THR:HG22	2:J:353:GLN:HE21	1.79	0.47
1:A:117:ASP:CB	1:A:120:ARG:HG2	2.43	0.47
1:A:207:ASP:OD1	1:A:207:ASP:N	2.39	0.47
1:A:225:ASP:OD1	1:A:225:ASP:N	2.47	0.47
2:B:207:ASN:N	2:B:207:ASN:OD1	2.47	0.47
2:B:415:VAL:HG12	2:B:417:GLU:H	1.78	0.47
2:N:96:VAL:HG22	2:N:115:ARG:HH22	1.79	0.47
2:N:344:TYR:O	2:N:352:HIS:ND1	2.48	0.47
4:K:13:U:H2'	4:K:14:G:C8	2.50	0.47
1:E:360:GLU:OE2	1:I:324:LYS:NZ	2.48	0.47
1:I:122:VAL:HG22	1:I:158:VAL:HG23	1.97	0.47
1:I:187:LYS:NZ	1:I:485:ILE:O	2.47	0.47
2:J:167:ASN:ND2	2:J:338:ILE:O	2.48	0.47
1:A:383:VAL:HB	1:A:387:THR:HG21	1.96	0.47
1:M:155:LEU:HD13	1:M:211:ILE:HD13	1.95	0.47
1:M:459:ARG:NH1	4:O:4:C:OP1	2.47	0.47
1:E:196:PRO:HG2	1:E:482:ARG:HB2	1.96	0.47
1:A:334:VAL:HG23	1:A:359:THR:HG21	1.97	0.47
2:B:101:TYR:HE2	2:B:106:HIS:HA	1.79	0.47
2:B:326:ARG:HE	3:D:8:DA:H5"	1.79	0.47
1:M:455:PRO:HB2	1:M:457:PRO:HD2	1.96	0.47
2:N:22:ARG:HH12	2:N:26:LEU:HD11	1.80	0.47
1:E:151:PRO:HB2	1:E:154:LEU:HD23	1.96	0.47
2:B:19:VAL:HG11	2:B:61:ILE:HD12	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:M:285:ARG:NH1	1:M:326:HIS:O	2.48	0.47
1:M:416:ASN:HD21	1:M:453:ARG:CZ	2.28	0.47
1:A:305:PRO:HG2	3:D:10:DC:H4'	1.96	0.46
1:M:303:ARG:O	4:O:13:U:H4'	2.15	0.46
2:J:266:ASP:N	2:J:266:ASP:OD1	2.46	0.46
4:G:2:U:H2'	4:G:3:A:O4'	2.15	0.46
2:N:64:THR:HG22	2:N:101:TYR:HB3	1.95	0.46
1:A:372:THR:O	2:B:339:THR:OG1	2.34	0.46
1:E:385:ARG:NH1	1:E:399:THR:O	2.48	0.46
2:F:310:LYS:HA	2:F:310:LYS:HD2	1.76	0.46
1:I:82:PRO:HG2	1:I:89:PRO:HD3	1.97	0.46
1:A:86:ASN:OD1	1:A:87:GLN:NE2	2.42	0.46
2:N:90:ARG:NH2	2:N:118:GLY:O	2.48	0.46
2:N:274:LYS:O	2:N:324:SER:HB3	2.16	0.46
3:L:19:DA:H4'	1:I:411:GLY:H	1.81	0.46
4:G:10:A:H2'	4:G:11:G:C8	2.49	0.46
2:N:180:ALA:HB3	2:N:211:PHE:HB3	1.97	0.46
2:F:33:ARG:NH1	2:J:31:ASP:OD2	2.48	0.46
1:A:118:HIS:CD2	1:A:179:ALA:HA	2.50	0.46
1:A:481:TYR:HA	1:A:484:TYR:HD2	1.81	0.46
1:M:423:HIS:O	1:M:426:SER:OG	2.34	0.46
2:F:102:ARG:O	2:F:106:HIS:HA	2.15	0.46
2:F:223:SER:O	2:F:223:SER:OG	2.27	0.46
2:F:255:LEU:HD23	2:F:259:LEU:HD23	1.98	0.46
2:F:345:THR:HG22	2:F:351:PRO:HA	1.97	0.46
2:B:256:ARG:HG2	3:D:6:DT:H4'	1.98	0.46
1:A:198:GLN:NE2	1:A:199:ILE:O	2.47	0.46
2:B:183:THR:OG1	2:B:184:TYR:N	2.45	0.46
1:E:403:MET:HA	1:E:404:PRO:HD3	1.80	0.46
2:F:113:VAL:HG21	2:F:144:LEU:HD22	1.98	0.46
1:M:72:GLU:OE2	1:M:72:GLU:N	2.48	0.45
2:N:326:ARG:H	2:N:337:ILE:CG1	2.29	0.45
4:C:13:U:H2'	4:C:14:G:C8	2.51	0.45
2:B:346:THR:HG23	2:B:352:HIS:HA	1.99	0.45
2:F:307:LYS:HE3	2:F:312:GLU:HA	1.97	0.45
2:J:85:ASP:OD1	2:J:85:ASP:N	2.49	0.45
2:B:6:THR:OG1	2:B:7:ALA:N	2.48	0.45
2:N:15:GLY:HA2	2:N:102:ARG:HE	1.81	0.45
1:E:230:THR:O	1:E:234:MET:HB2	2.16	0.45
2:F:32:GLY:HA2	2:F:42:GLY:HA3	1.98	0.45
2:F:269:TRP:HA	2:F:276:LEU:HA	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:J:101:TYR:HA	2:J:107:SER:O	2.16	0.45
2:B:379:HIS:NE2	2:B:404:GLY:O	2.36	0.45
4:G:1:A:N6	1:E:182:PHE:HB3	2.31	0.45
2:J:168:MET:HG3	2:J:335:TYR:HB3	1.98	0.45
1:A:420:LEU:HD11	1:A:437:ILE:HD11	1.99	0.45
2:N:35:ARG:HG3	2:J:35:ARG:HB2	1.98	0.45
2:B:33:ARG:HH21	2:B:43:ILE:HD11	1.82	0.45
3:H:18:DT:N3	1:E:223:ILE:O	2.50	0.45
1:E:248:ARG:NH1	1:E:288:GLY:O	2.45	0.45
1:I:98:ASP:N	1:I:98:ASP:OD1	2.49	0.45
1:A:7:ILE:HG13	2:B:413:VAL:HG22	1.99	0.45
2:F:74:ASP:OD2	2:F:75:THR:OG1	2.34	0.45
2:F:269:TRP:CE2	2:F:276:LEU:HB3	2.51	0.45
2:J:417:GLU:HA	2:J:420:TRP:HB2	1.98	0.45
2:B:291:TYR:HD1	2:B:380:ARG:HG2	1.81	0.45
2:N:206:ILE:HG22	2:N:211:PHE:HA	1.99	0.45
2:J:171:LEU:HD11	2:J:334:TRP:HB2	1.99	0.45
2:J:351:PRO:O	2:J:352:HIS:ND1	2.50	0.45
4:C:7:C:H42	3:D:14:DG:H22	1.65	0.45
2:B:287:ARG:HE	2:B:299:ASP:HB3	1.83	0.44
2:B:380:ARG:HA	2:B:380:ARG:HD3	1.80	0.44
1:M:297:ARG:NH1	1:M:473:GLU:HA	2.32	0.44
1:M:387:THR:HB	1:M:398:TYR:HB2	1.99	0.44
1:E:454:LEU:HB3	1:E:458:ILE:HD11	2.00	0.44
2:F:283:ARG:H	2:F:283:ARG:HG2	1.52	0.44
2:B:115:ARG:HH21	2:B:117:ALA:HB2	1.83	0.44
2:B:184:TYR:HA	2:B:188:LYS:HE3	1.97	0.44
1:M:60:ILE:HG21	1:M:96:ILE:HD11	1.99	0.44
2:F:169:LEU:HB3	2:F:336:LEU:HG	1.98	0.44
1:I:339:THR:HG23	1:I:458:ILE:HD12	1.98	0.44
2:N:104:SER:OG	2:N:105:ASP:N	2.49	0.44
2:N:250:ARG:NH2	4:O:16:C:O2	2.40	0.44
2:N:380:ARG:O	2:N:380:ARG:NH1	2.50	0.44
3:L:7:DC:H2'	3:L:8:DA:C8	2.52	0.44
2:F:62:LYS:HA	2:F:62:LYS:HD2	1.78	0.44
2:F:267:LEU:HD22	2:F:278:PHE:HA	1.99	0.44
2:F:422:LYS:HB3	2:F:422:LYS:HE3	1.80	0.44
1:I:429:THR:OG1	1:I:432:GLN:OE1	2.35	0.44
2:J:187:ARG:H	2:J:187:ARG:CD	2.29	0.44
1:M:5:THR:OG1	2:N:410:HIS:O	2.31	0.44
1:M:108:LYS:HD2	1:M:108:LYS:HA	1.74	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:L:8:DA:OP1	2:J:326:ARG:NH1	2.50	0.44
1:E:480:ASP:N	1:E:480:ASP:OD1	2.50	0.44
2:N:177:MET:HG3	2:N:236:THR:HG22	2.00	0.44
1:E:376:LEU:HD13	2:F:372:ARG:HG3	1.99	0.44
2:B:194:LEU:HD23	2:B:194:LEU:HA	1.88	0.44
3:H:15:DC:N3	3:H:16:DA:N6	2.65	0.44
2:B:267:LEU:HD23	2:B:279:ARG:H	1.82	0.44
2:F:127:ASP:HB2	2:F:132:LEU:HD21	2.00	0.44
1:A:160:ASN:HB3	1:A:214:LYS:HG2	1.98	0.44
1:A:248:ARG:NH1	1:A:288:GLY:O	2.51	0.44
2:B:62:LYS:HD3	2:B:62:LYS:HA	1.79	0.44
3:H:9:DG:H3'	1:E:368:GLN:HG3	1.98	0.44
1:I:266:TYR:HE1	1:I:277:SER:HB3	1.82	0.44
2:J:379:HIS:NE2	2:J:404:GLY:O	2.51	0.44
4:C:5:U:H2'	4:C:6:G:C8	2.53	0.44
2:N:35:ARG:HH11	2:J:34:SER:HG	1.62	0.43
3:P:7:DC:H2'	3:P:8:DA:C8	2.53	0.43
1:E:117:ASP:HB3	1:E:120:ARG:HG2	1.99	0.43
1:I:281:MET:HA	1:I:290:VAL:O	2.18	0.43
2:B:124:LEU:HD12	2:B:124:LEU:HA	1.86	0.43
1:E:11:PRO:HG3	1:E:439:SER:HA	2.00	0.43
1:E:157:ARG:NH2	1:E:160:ASN:O	2.51	0.43
2:F:102:ARG:HG2	2:F:104:SER:H	1.82	0.43
1:I:388:PHE:HA	1:I:396:LEU:O	2.17	0.43
1:E:54:GLU:O	1:E:58:LYS:HD2	2.17	0.43
2:F:147:PRO:HD2	2:F:153:TYR:HE1	1.84	0.43
3:D:12:DG:H2'	3:D:13:DT:H71	2.00	0.43
4:G:5:U:OP1	1:E:459:ARG:NH2	2.49	0.43
2:J:11:ILE:HA	2:J:14:ILE:HG22	2.01	0.43
1:M:338:LYS:NZ	1:M:346:GLU:OE1	2.42	0.43
1:M:369:GLU:HG2	1:M:453:ARG:HH12	1.83	0.43
2:N:163:ASP:OD1	2:N:163:ASP:N	2.51	0.43
2:F:100:PHE:HB2	2:F:109:TYR:HB2	1.99	0.43
2:N:201:ARG:HH21	2:N:220:SER:HB2	1.83	0.43
1:E:372:THR:HB	1:E:396:LEU:HD21	2.00	0.43
2:J:266:ASP:OD2	2:J:287:ARG:NH2	2.37	0.43
1:M:401:GLY:HA2	1:M:415:PRO:HG3	1.99	0.43
4:O:7:C:H2'	4:O:8:A:H8	1.84	0.43
1:E:153:LYS:HA	1:E:156:GLU:HG2	2.00	0.43
2:F:94:LEU:HD21	2:J:56:MET:HG2	2.01	0.43
1:E:403:MET:HE3	1:E:406:TYR:H	1.83	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:447:SER:OG	1:I:448:THR:N	2.51	0.43
2:J:34:SER:OG	2:J:35:ARG:N	2.52	0.43
2:J:169:LEU:HD23	2:J:338:ILE:HD11	1.99	0.43
1:E:297:ARG:HD2	1:E:297:ARG:HA	1.76	0.43
2:J:255:LEU:HD12	2:J:255:LEU:HA	1.86	0.43
1:M:297:ARG:HE	1:M:477:ILE:HD11	1.84	0.43
1:E:25:ARG:NH1	1:E:77:MET:O	2.52	0.43
1:E:108:LYS:H	1:E:108:LYS:HG2	1.63	0.43
2:F:121:GLU:HB3	2:F:122:ARG:H	1.65	0.43
2:J:308:ASN:ND2	2:J:311:ASP:O	2.52	0.43
2:J:382:LEU:HG	2:J:383:THR:HG23	2.01	0.43
1:M:73:LYS:HE3	2:N:421:VAL:HG21	2.01	0.42
1:M:152:VAL:HG23	1:M:202:GLU:HG2	2.01	0.42
1:I:220:SER:OG	1:I:221:ARG:N	2.51	0.42
1:A:380:ASN:HA	2:B:369:ALA:HB2	2.00	0.42
4:O:7:C:H2'	4:O:8:A:C8	2.55	0.42
4:G:3:A:H2'	4:G:4:C:C6	2.54	0.42
1:I:252:LEU:N	1:I:255:GLU:OE2	2.52	0.42
1:I:385:ARG:HD3	1:I:403:MET:HG2	2.01	0.42
2:J:370:ALA:O	2:J:374:GLN:HG2	2.19	0.42
2:B:237:LYS:HA	2:B:237:LYS:HD3	1.81	0.42
1:I:371:TYR:O	1:I:374:ARG:NH1	2.52	0.42
2:F:14:ILE:HD12	2:F:14:ILE:HA	1.90	0.42
1:A:38:LEU:HD23	1:A:38:LEU:HA	1.90	0.42
1:A:203:ASP:N	1:A:203:ASP:OD1	2.52	0.42
1:A:413:TYR:CZ	2:B:363:LYS:HE3	2.55	0.42
1:M:351:ILE:HD13	1:M:351:ILE:HA	1.92	0.42
1:I:30:GLU:OE2	2:J:123:ARG:NH2	2.52	0.42
1:M:269:ALA:HB2	1:M:469:LYS:HD3	2.02	0.42
2:F:16:GLU:HA	2:F:19:VAL:HG12	2.01	0.42
2:F:132:LEU:HD23	2:F:132:LEU:HA	1.93	0.42
1:A:371:TYR:HB3	1:A:374:ARG:HH12	1.84	0.42
1:M:41:VAL:HG11	1:I:38:LEU:HG	2.00	0.42
2:F:85:ASP:O	2:F:89:TRP:N	2.51	0.42
1:I:232:ASN:OD1	1:I:448:THR:OG1	2.37	0.42
2:J:406:PRO:HA	2:J:407:PRO:HD3	1.90	0.42
2:B:124:LEU:HD23	2:B:126:ILE:HD11	2.02	0.42
2:N:265:SER:O	2:N:279:ARG:NH2	2.52	0.42
4:G:6:G:OP1	1:E:453:ARG:NE	2.52	0.42
1:E:260:TYR:HB2	1:E:281:MET:HG2	2.01	0.42
1:E:316:ILE:HD13	1:E:316:ILE:HA	1.95	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:55:ARG:NH2	2:F:142:ALA:O	2.53	0.42
2:F:169:LEU:HD23	2:F:336:LEU:HD21	2.02	0.42
1:M:299:GLU:CD	1:M:299:GLU:H	2.22	0.42
1:E:188:ALA:HB1	1:E:471:VAL:HB	2.02	0.42
1:I:456:ILE:HG23	1:I:457:PRO:HD3	2.01	0.42
2:J:182:THR:OG1	2:J:183:THR:N	2.53	0.42
4:C:14:G:H2'	4:C:15:A:H8	1.84	0.42
2:N:169:LEU:HD21	2:N:379:HIS:HB3	2.01	0.42
4:K:13:U:H5'	1:I:303:ARG:HD2	2.02	0.42
2:B:36:LEU:HD11	2:F:9:GLN:HB2	2.02	0.41
1:E:229:ARG:HH22	1:E:233:LEU:HB2	1.85	0.41
2:J:107:SER:HB3	2:J:109:TYR:HE2	1.85	0.41
2:J:188:LYS:H	2:J:188:LYS:HG2	1.62	0.41
1:M:15:PHE:HZ	1:M:24:PRO:HA	1.85	0.41
1:M:207:ASP:OD1	1:M:207:ASP:N	2.44	0.41
2:F:90:ARG:HH12	2:F:115:ARG:HB2	1.85	0.41
1:A:200:VAL:HG11	1:A:205:ILE:HG23	2.01	0.41
1:A:245:ILE:HD11	1:A:288:GLY:HA2	2.03	0.41
4:K:5:U:H2'	4:K:6:G:C8	2.55	0.41
2:F:212:TRP:HE1	2:F:251:PHE:HA	1.85	0.41
1:I:144:ASP:OD1	1:I:144:ASP:N	2.53	0.41
2:F:409:ILE:HD13	2:F:411:LEU:HD21	2.02	0.41
2:B:412:ASP:OD1	2:B:412:ASP:N	2.53	0.41
1:M:2:THR:O	1:M:2:THR:OG1	2.31	0.41
2:N:11:ILE:HD12	2:N:11:ILE:HA	1.90	0.41
1:E:374:ARG:HD3	1:E:374:ARG:HA	1.93	0.41
1:I:346:GLU:O	1:I:350:ILE:HG12	2.21	0.41
2:J:245:ILE:HA	2:J:248:GLN:HG2	2.02	0.41
1:A:351:ILE:HD13	1:A:351:ILE:HA	1.89	0.41
2:B:76:SER:HA	2:B:127:ASP:HA	2.03	0.41
4:K:3:A:H2'	4:K:4:C:C6	2.56	0.41
1:E:116:PRO:HD2	1:E:120:ARG:HH21	1.86	0.41
1:E:204:VAL:HG21	1:E:229:ARG:HE	1.86	0.41
1:E:382:PRO:HG2	1:E:409:TYR:CZ	2.56	0.41
1:I:160:ASN:N	1:I:160:ASN:OD1	2.54	0.41
1:A:112:ILE:HA	1:A:124:MET:HE2	2.02	0.41
1:A:339:THR:HG21	1:A:462:ARG:HH12	1.85	0.41
2:B:23:PHE:HD1	2:B:28:TRP:HB3	1.86	0.41
2:N:168:MET:SD	2:N:337:ILE:HG22	2.61	0.41
1:E:334:VAL:HG23	1:E:359:THR:HG21	2.02	0.41
1:E:341:ARG:H	1:E:341:ARG:HG2	1.74	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:429:THR:HG23	1:E:432:GLN:H	1.86	0.41
2:J:310:LYS:H	2:J:310:LYS:HG3	1.70	0.41
1:A:108:LYS:HD3	1:A:108:LYS:HA	1.93	0.41
2:B:373:GLY:HA2	2:B:376:ILE:HG12	2.02	0.41
1:M:277:SER:OG	1:M:278:ALA:N	2.54	0.41
2:N:250:ARG:HA	2:N:250:ARG:HD3	1.86	0.41
4:O:5:U:H2'	4:O:6:G:C8	2.56	0.41
4:O:16:C:H2'	4:O:17:G:C8	2.56	0.41
1:E:98:ASP:N	1:E:98:ASP:OD1	2.54	0.41
1:E:315:ILE:O	1:E:319:VAL:HG12	2.21	0.41
1:E:377:ARG:HA	2:F:164:ALA:HB1	2.03	0.41
2:F:271:LYS:HA	2:F:271:LYS:HD2	1.80	0.41
2:F:323:PHE:CE2	2:F:325:PRO:HG3	2.56	0.41
1:I:29:SER:HA	1:I:89:PRO:HB3	2.03	0.41
2:N:267:LEU:HA	2:N:278:PHE:HA	2.01	0.41
2:N:326:ARG:HB2	2:N:337:ILE:CG1	2.47	0.41
1:E:144:ASP:OD1	1:E:144:ASP:N	2.53	0.41
1:E:154:LEU:HD13	1:E:154:LEU:HA	1.81	0.41
2:J:175:ASN:OD1	2:J:175:ASN:N	2.49	0.41
2:J:303:VAL:HG21	2:J:319:ARG:HH12	1.86	0.41
2:B:16:GLU:HA	2:B:61:ILE:HG21	2.03	0.40
1:M:181:ASN:OD1	4:O:1:A:N6	2.54	0.40
1:M:418:LEU:H	1:M:418:LEU:HG	1.75	0.40
2:F:255:LEU:HB3	2:F:327:PHE:HE1	1.86	0.40
2:J:280:ALA:O	2:J:283:ARG:NE	2.55	0.40
2:N:367:LYS:NZ	2:N:424:LYS:O	2.41	0.40
2:F:191:ALA:O	2:F:195:ASN:ND2	2.43	0.40
1:I:263:ILE:HB	1:I:338:LYS:HG3	2.03	0.40
2:J:90:ARG:NH2	2:J:116:ASP:O	2.54	0.40
1:A:263:ILE:HB	1:A:338:LYS:HG3	2.03	0.40
1:E:120:ARG:O	1:E:124:MET:HG3	2.21	0.40
1:E:189:LYS:HE2	1:E:189:LYS:HB3	1.98	0.40
2:F:290:ALA:HA	2:F:299:ASP:HB2	2.03	0.40
2:F:312:GLU:H	2:F:312:GLU:HG2	1.73	0.40
4:C:10:A:H2'	4:C:11:G:C8	2.57	0.40
2:B:287:ARG:HA	2:B:287:ARG:HD2	1.86	0.40
2:N:173:LEU:HD23	2:N:173:LEU:HA	1.94	0.40
1:E:372:THR:HG22	1:E:391:LEU:HD12	2.04	0.40
2:J:177:MET:HB3	2:J:234:ILE:HG22	2.02	0.40
1:M:34:LEU:HD23	1:M:245:ILE:HD11	2.04	0.40
1:M:295:ARG:NE	1:M:479:ALA:H	2.19	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:10:ILE:HD12	2:N:10:ILE:HA	1.94	0.40
1:E:369:GLU:HB3	1:E:419:LEU:HD21	2.03	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	465/485 (96%)	435 (94%)	30 (6%)	0	100	100
1	E	464/485 (96%)	397 (86%)	67 (14%)	0	100	100
1	I	462/485 (95%)	436 (94%)	26 (6%)	0	100	100
1	M	462/485 (95%)	428 (93%)	34 (7%)	0	100	100
2	B	403/442 (91%)	352 (87%)	51 (13%)	0	100	100
2	F	403/442 (91%)	339 (84%)	64 (16%)	0	100	100
2	J	383/442 (87%)	347 (91%)	36 (9%)	0	100	100
2	N	383/442 (87%)	337 (88%)	46 (12%)	0	100	100
All	All	3425/3708 (92%)	3071 (90%)	354 (10%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	395/408 (97%)	375 (95%)	20 (5%)	20	49
1	E	394/408 (97%)	369 (94%)	25 (6%)	15	43
1	I	394/408 (97%)	377 (96%)	17 (4%)	25	54
1	M	394/408 (97%)	371 (94%)	23 (6%)	17	45
2	B	348/380 (92%)	324 (93%)	24 (7%)	13	39
2	F	348/380 (92%)	330 (95%)	18 (5%)	19	49
2	J	335/380 (88%)	310 (92%)	25 (8%)	11	37
2	N	335/380 (88%)	315 (94%)	20 (6%)	16	44
All	All	2943/3152 (93%)	2771 (94%)	172 (6%)	19	45

All (172) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	MET
1	A	20	HIS
1	A	64	SER
1	A	112	ILE
1	A	115	GLU
1	A	141	SER
1	A	162	LYS
1	A	182	PHE
1	A	185	MET
1	A	201	TRP
1	A	234	MET
1	A	280	GLN
1	A	301	ARG
1	A	335	PHE
1	A	342	PHE
1	A	396	LEU
1	A	402	SER
1	A	414	ASP
1	A	446	ASN
1	A	459	ARG
2	B	20	ARG
2	B	33	ARG
2	B	35	ARG
2	B	47	MET
2	B	76	SER
2	B	101	TYR
2	B	127	ASP

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Mol	Chain	Res	Type
2	B	133	PHE
2	B	167	ASN
2	B	171	LEU
2	B	229	ASP
2	B	251	PHE
2	B	253	HIS
2	B	279	ARG
2	B	283	ARG
2	B	286	SER
2	B	297	LYS
2	B	306	PHE
2	B	343	TYR
2	B	371	LEU
2	B	380	ARG
2	B	402	MET
2	B	408	SER
2	B	412	ASP
1	M	17	ASP
1	M	22	GLN
1	M	64	SER
1	M	91	ARG
1	M	98	ASP
1	M	128	GLU
1	M	153	LYS
1	M	213	GLN
1	M	216	LYS
1	M	222	LYS
1	M	250	MET
1	M	270	ASP
1	M	301	ARG
1	M	307	MET
1	M	309	ARG
1	M	314	LYS
1	M	335	PHE
1	M	362	ARG
1	M	413	TYR
1	M	414	ASP
1	M	416	ASN
1	M	418	LEU
1	M	459	ARG
2	N	23	PHE
2	N	24	LEU

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Mol	Chain	Res	Type
2	N	26	LEU
2	N	30	PHE
2	N	47	MET
2	N	55	ARG
2	N	56	MET
2	N	68	LYS
2	N	110	TRP
2	N	163	ASP
2	N	168	MET
2	N	188	LYS
2	N	197	ASP
2	N	202	PHE
2	N	251	PHE
2	N	320	HIS
2	N	324	SER
2	N	349	TYR
2	N	378	TRP
2	N	400	TYR
1	E	37	PHE
1	E	77	MET
1	E	127	ASP
1	E	144	ASP
1	E	159	TRP
1	E	183	ARG
1	E	231	TRP
1	E	234	MET
1	E	249	ARG
1	E	250	MET
1	E	277	SER
1	E	309	ARG
1	E	340	SER
1	E	344	ASP
1	E	371	TYR
1	E	388	PHE
1	E	397	LEU
1	E	402	SER
1	E	414	ASP
1	E	416	ASN
1	E	419	LEU
1	E	420	LEU
1	E	463	LYS
1	E	470	TYR

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Mol	Chain	Res	Type
1	E	482	ARG
2	F	31	ASP
2	F	53	MET
2	F	84	GLN
2	F	89	TRP
2	F	127	ASP
2	F	201	ARG
2	F	207	ASN
2	F	242	HIS
2	F	246	ASP
2	F	253	HIS
2	F	261	TYR
2	F	284	GLU
2	F	306	PHE
2	F	326	ARG
2	F	364	ARG
2	F	367	LYS
2	F	372	ARG
2	F	412	ASP
1	I	70	LYS
1	I	98	ASP
1	I	106	LYS
1	I	134	GLN
1	I	144	ASP
1	I	189	LYS
1	I	203	ASP
1	I	244	ARG
1	I	250	MET
1	I	274	LEU
1	I	281	MET
1	I	283	ASP
1	I	294	ARG
1	I	363	ASP
1	I	371	TYR
1	I	413	TYR
1	I	418	LEU
2	J	47	MET
2	J	53	MET
2	J	74	ASP
2	J	85	ASP
2	J	90	ARG
2	J	116	ASP

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Mol	Chain	Res	Type
2	J	133	PHE
2	J	176	GLU
2	J	184	TYR
2	J	187	ARG
2	J	202	PHE
2	J	211	PHE
2	J	215	HIS
2	J	218	ARG
2	J	227	ASP
2	J	244	ASP
2	J	251	PHE
2	J	276	LEU
2	J	289	PHE
2	J	296	LYS
2	J	306	PHE
2	J	307	LYS
2	J	328	GLU
2	J	343	TYR
2	J	353	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	M	416	ASN
1	E	20	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
4	C	18/20 (90%)	5 (27%)	0
4	G	18/20 (90%)	3 (16%)	0
4	K	17/20 (85%)	1 (5%)	0
4	O	18/20 (90%)	3 (16%)	0
All	All	71/80 (88%)	12 (16%)	0

All (12) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
4	O	15	A
4	O	16	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
4	O	17	G
4	K	14	G
4	G	2	U
4	G	6	G
4	G	15	A
4	C	2	U
4	C	13	U
4	C	14	G
4	C	16	C
4	C	19	U

There are no RNA pucker outliers to report.

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)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

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)

There are no chain breaks in this entry.

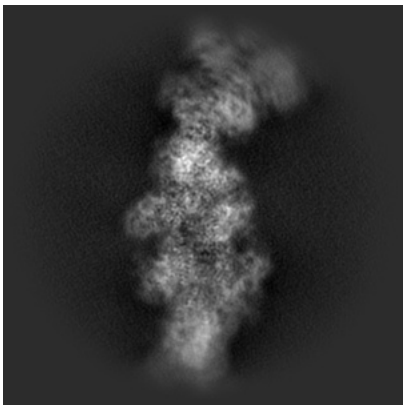
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-61787. These allow visual inspection of the internal detail of the map and identification of artifacts.

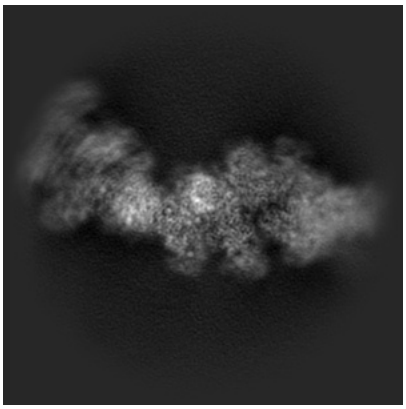
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

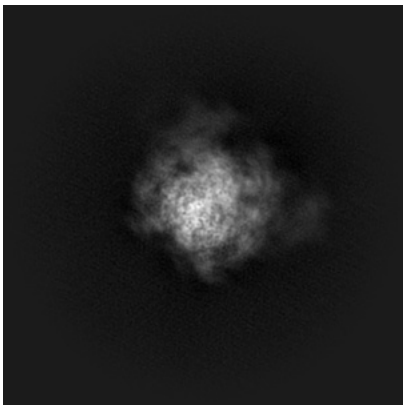
6.1.1 Primary map



X

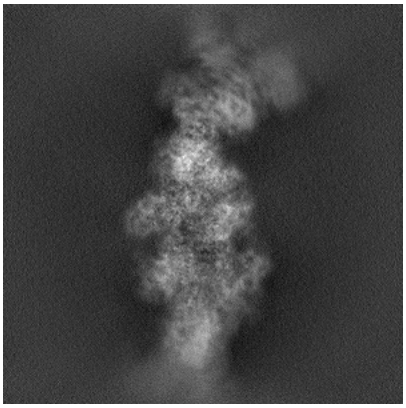


Y

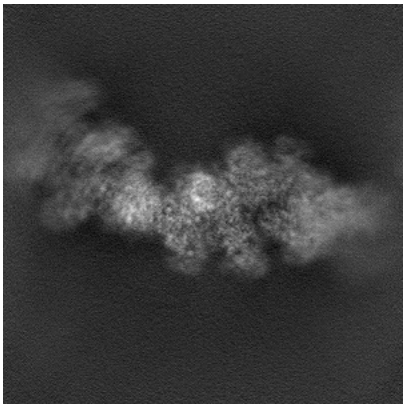


Z

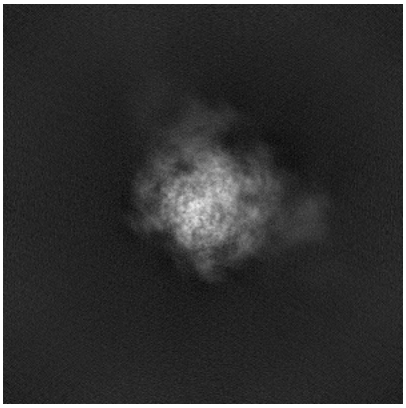
6.1.2 Raw map



X



Y

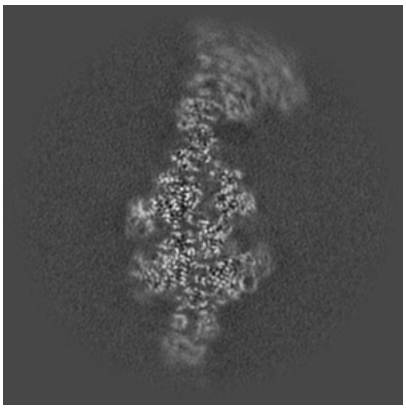


Z

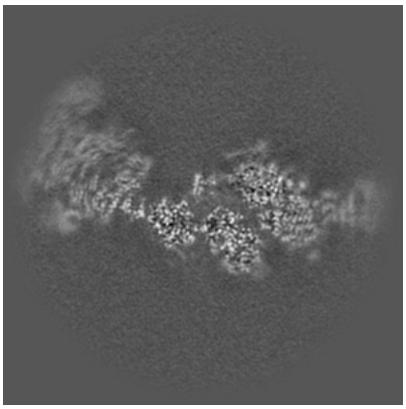
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

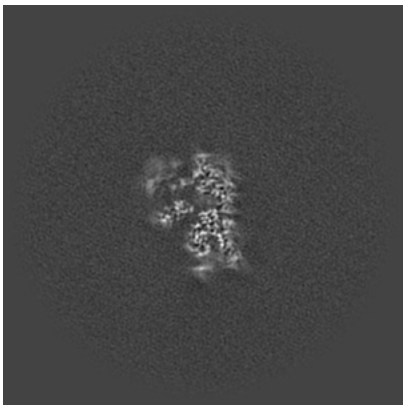
6.2.1 Primary map



X Index: 256

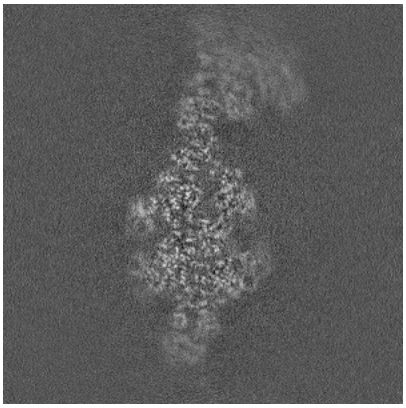


Y Index: 256

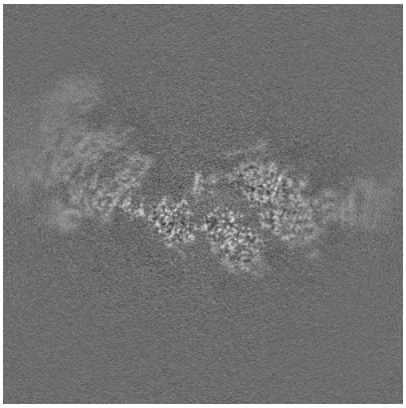


Z Index: 256

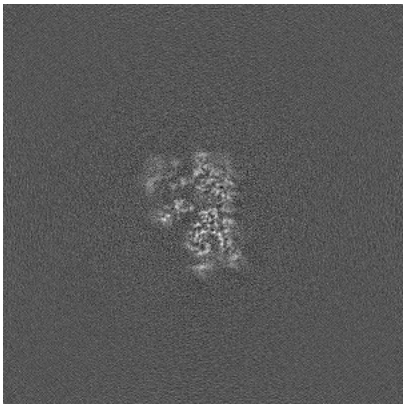
6.2.2 Raw map



X Index: 256



Y Index: 256

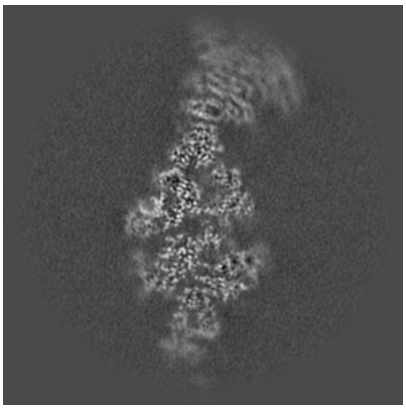


Z Index: 256

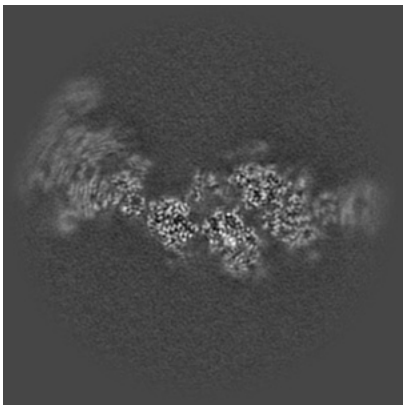
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

6.3.1 Primary map



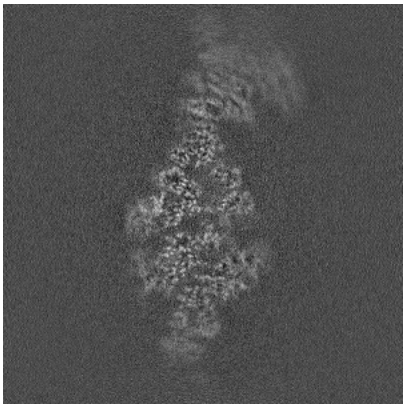
X Index: 262



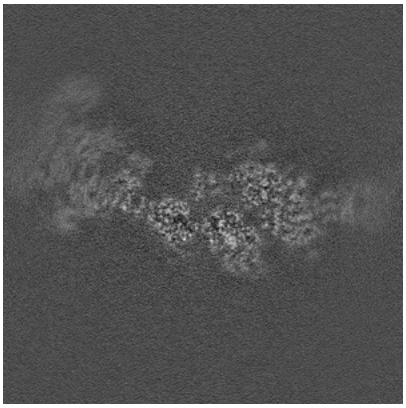
Y Index: 259

Z Index: 249

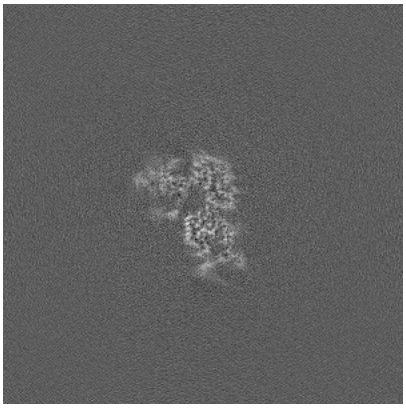
6.3.2 Raw map



X Index: 261



Y Index: 258

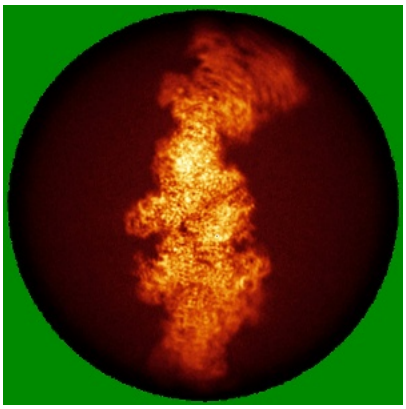


Z Index: 250

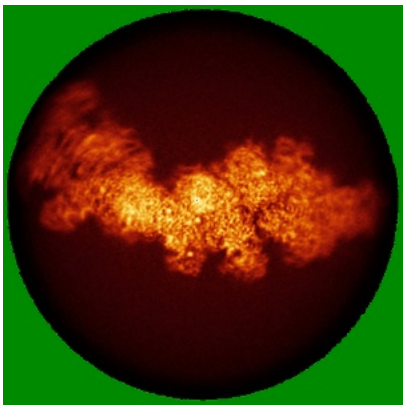
The images above show the largest variance slices of the map in three orthogonal directions.

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

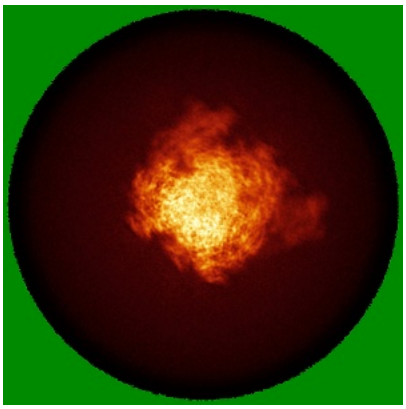
6.4.1 Primary map



X

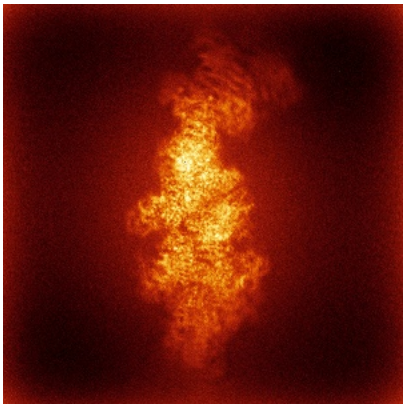


Y

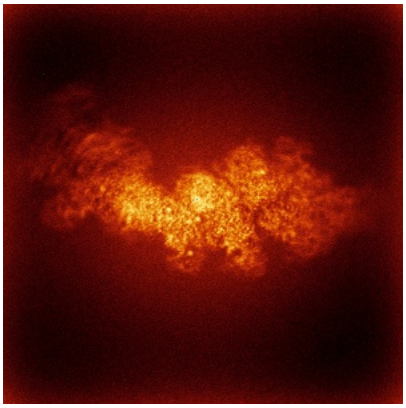


Z

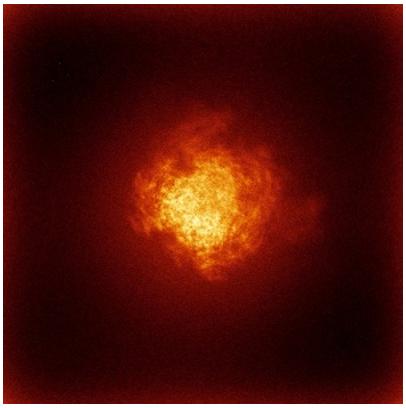
6.4.2 Raw map



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.

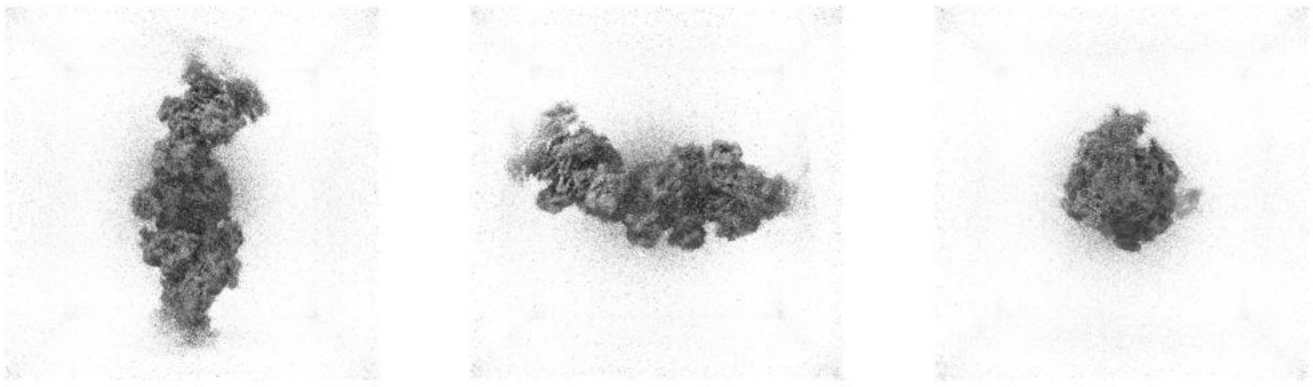
6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.18. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X Y Z

These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

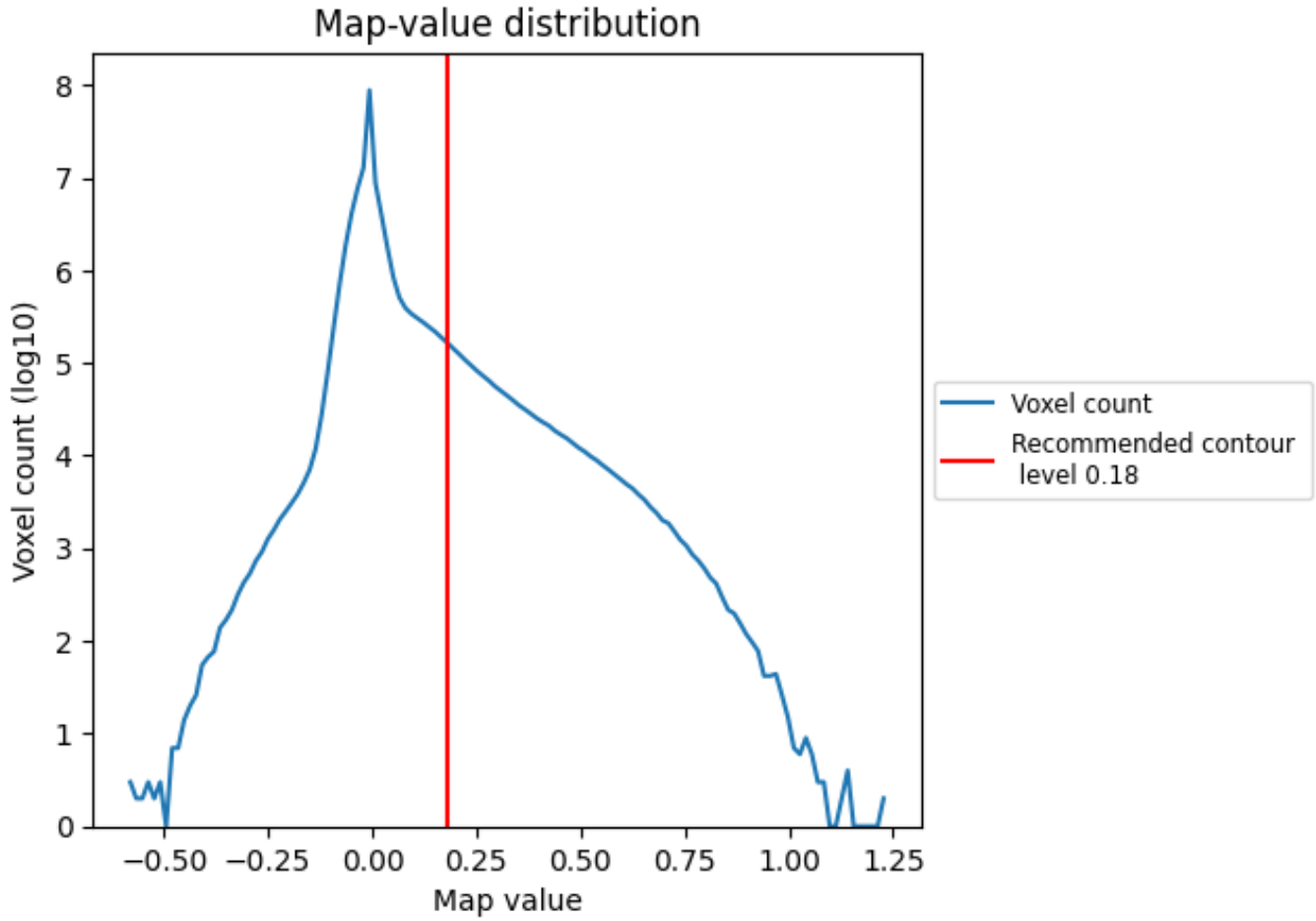
6.6 Mask visualisation (i)

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

7 Map analysis

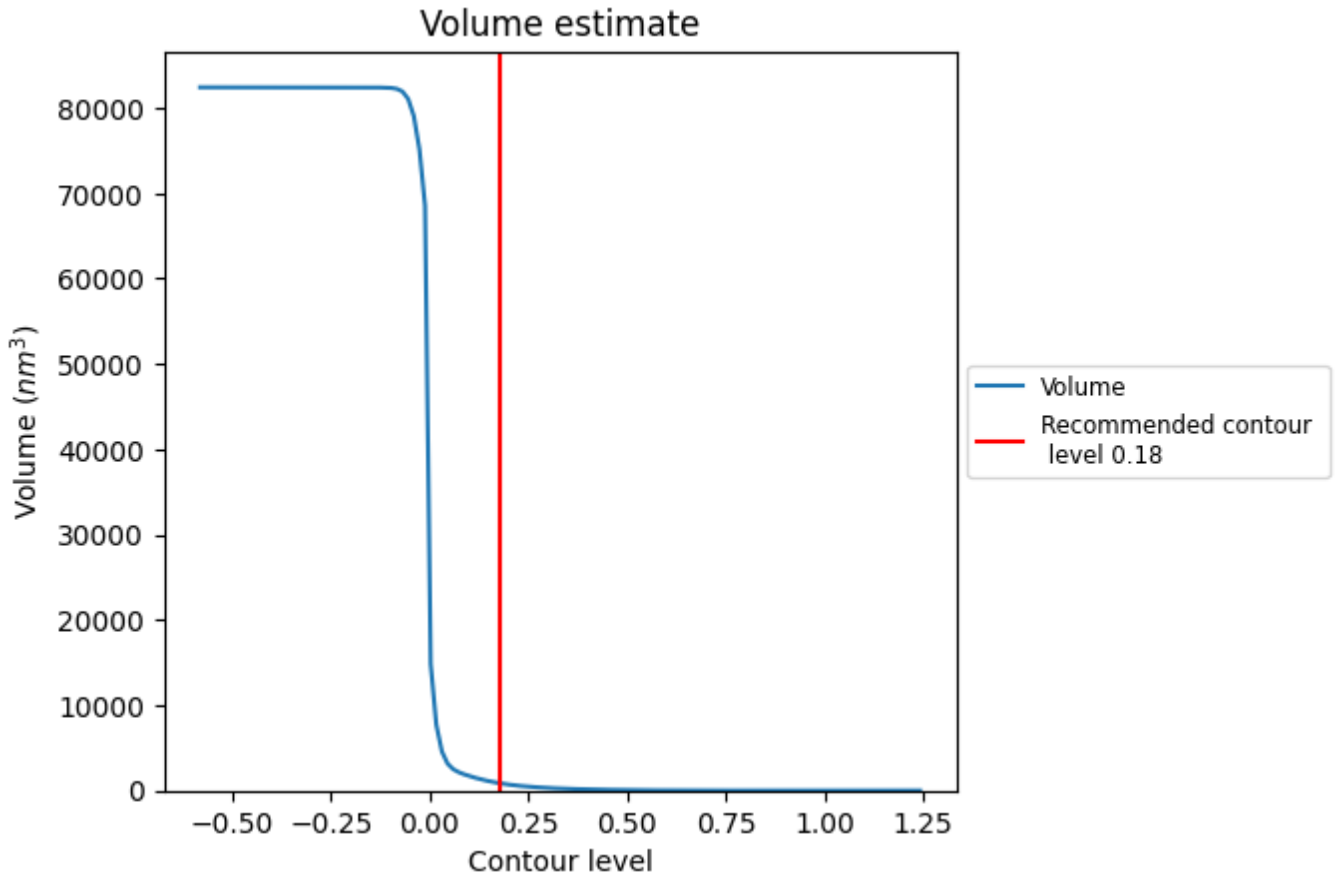
This section contains the results of statistical analysis of the map.

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.

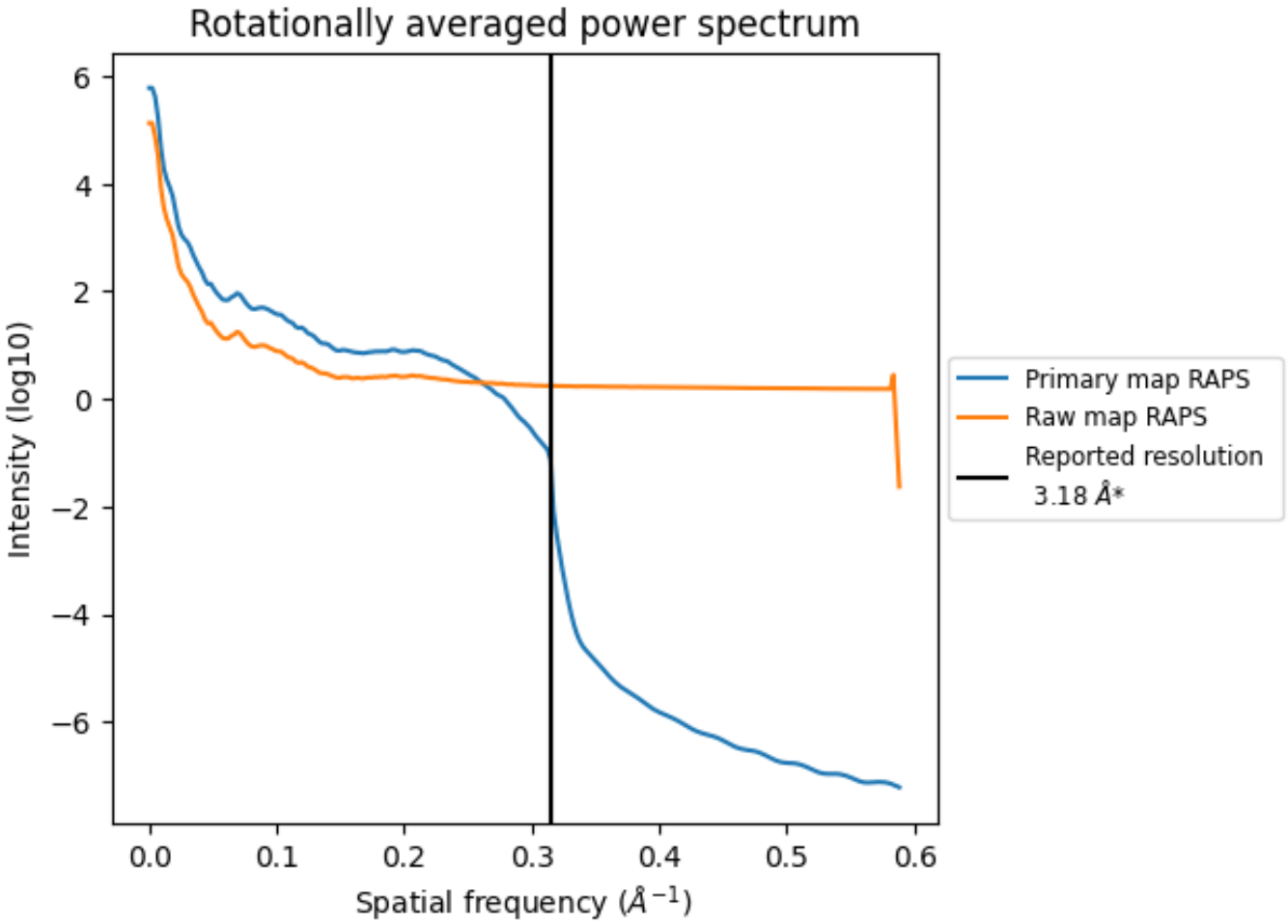
7.2 Volume estimate



The volume at the recommended contour level is 847 nm^3; this corresponds to an approximate mass of 765 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)

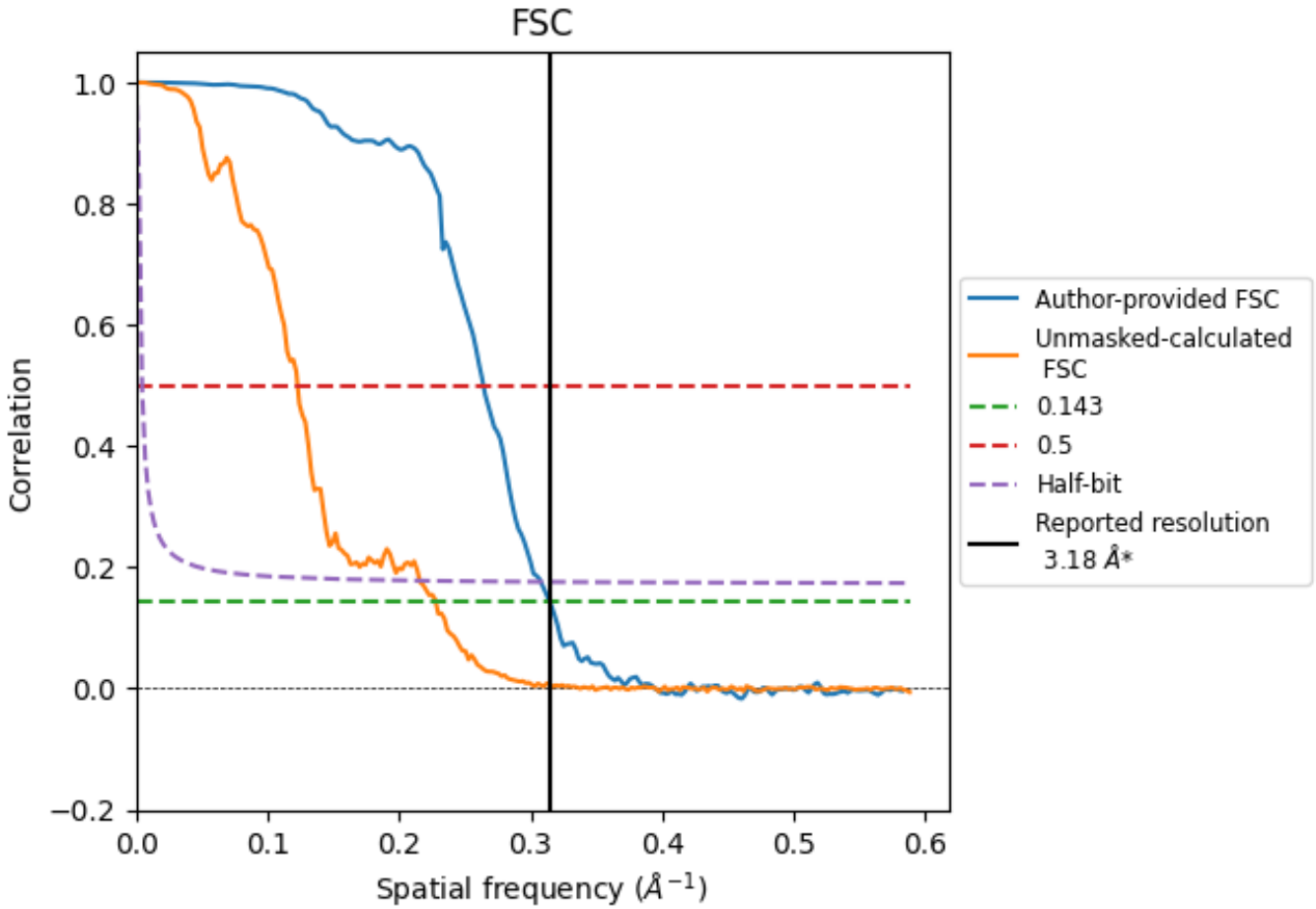


*Reported resolution corresponds to spatial frequency of 0.314 Å^{-1}

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 0.314 Å^{-1}

8.2 Resolution estimates (i)

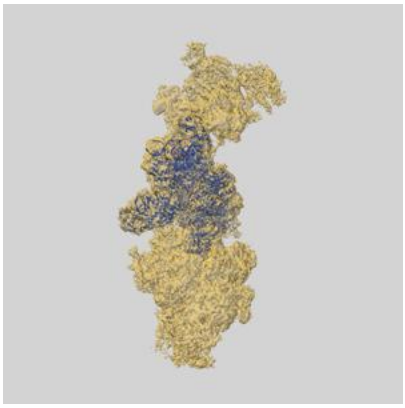
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.18	-	-
Author-provided FSC curve	3.18	3.79	3.25
Unmasked-calculated*	4.39	8.14	4.64

*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 4.39 differs from the reported value 3.18 by more than 10 %

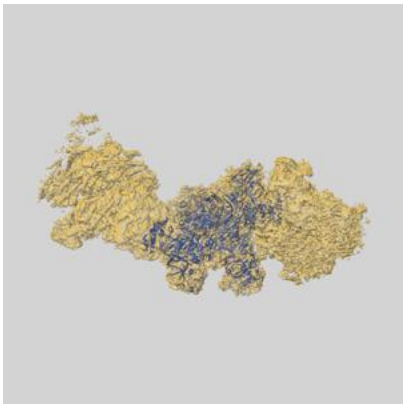
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-61787 and PDB model 9JSZ. Per-residue inclusion information can be found in section 3 on page 6.

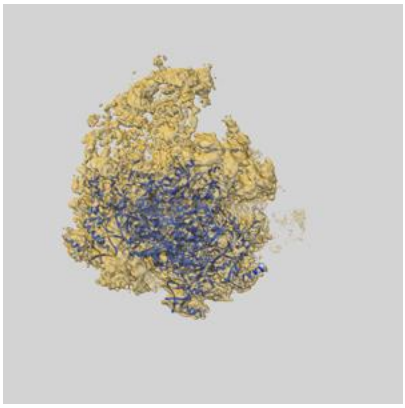
9.1 Map-model overlay



X



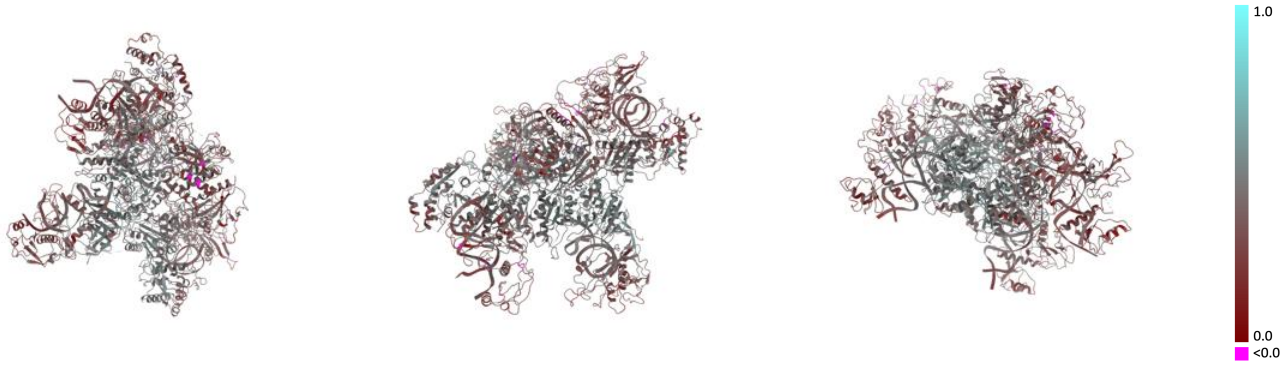
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.18 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

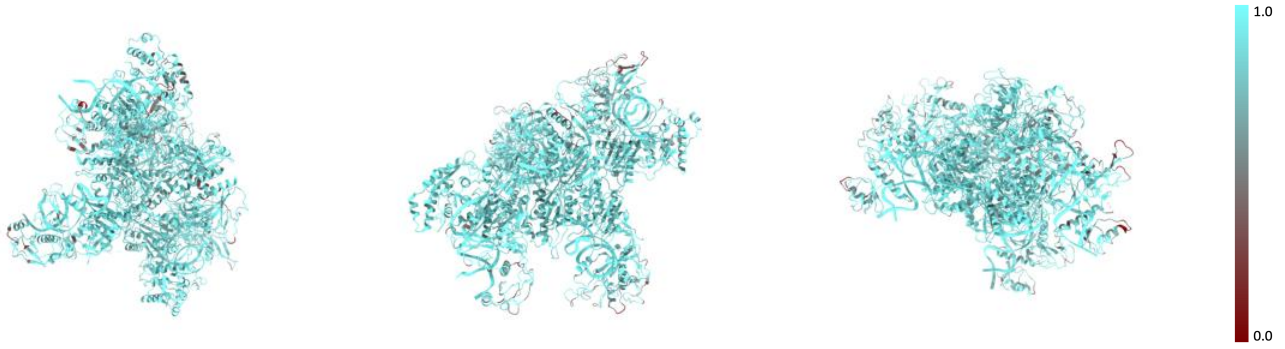
9.2 Q-score mapped to coordinate model (i)



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.

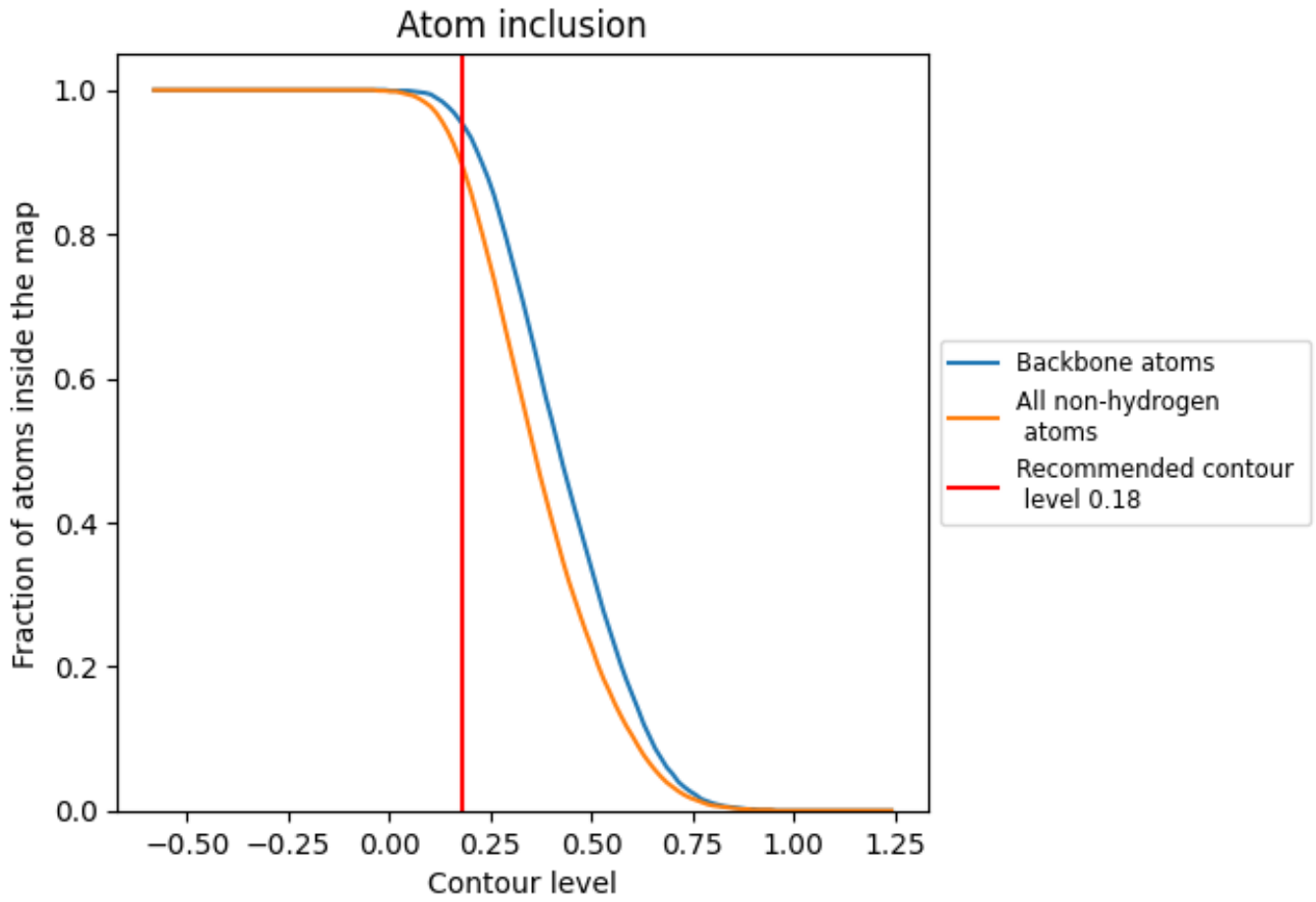
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.18).

9.4 Atom inclusion (i)



At the recommended contour level, 95% of all backbone atoms, 90% 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 (0.18) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8970	0.4050
A	0.9280	0.4510
B	0.8660	0.3460
C	0.9660	0.3600
D	0.9540	0.3480
E	0.8810	0.4020
F	0.8230	0.3240
G	0.9700	0.3350
H	0.9300	0.3200
I	0.9320	0.4950
J	0.8510	0.3740
K	0.9790	0.4130
L	0.9920	0.4200
M	0.9380	0.4830
N	0.8720	0.3670
O	0.9680	0.3860
P	0.9780	0.3940