



Full wwPDB EM Validation Report ⓘ

Mar 7, 2026 – 03:34 AM UTC

PDB ID : 9JA1 / pdb_00009ja1
EMDB ID : EMD-61287
Title : The RNA polymerase II elongation complex from *Saccharomyces cerevisiae*
Authors : Yi, G.; Ma, J.; Zhang, P.
Deposited on : 2024-08-23
Resolution : 2.98 Å (reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

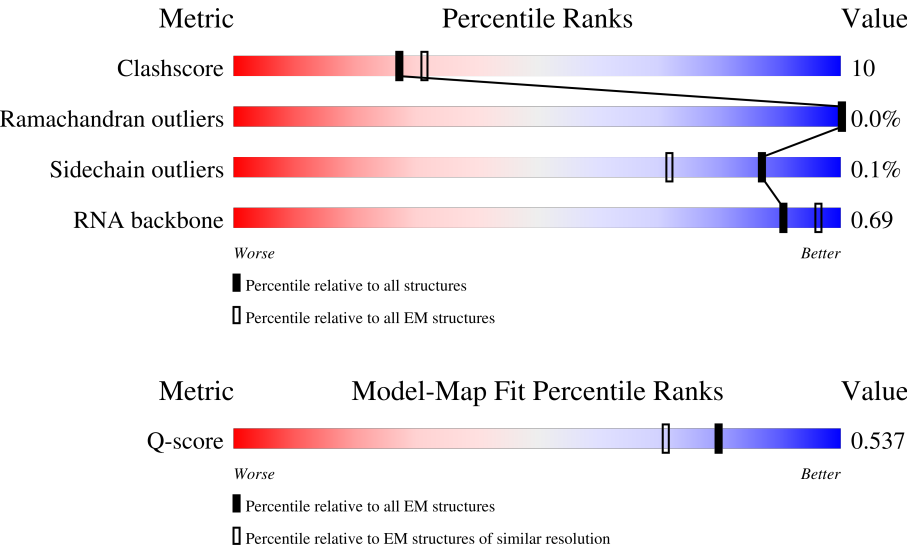
EMDB validation analysis : 0.0.1.dev132
Mogul : 2022.3.0, CSD as543be (2022)
MolProbity : 4-5-2 with Phenix2.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 2.98 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	-
RNA backbone	8273	3508	-
Q-score	-	25397	13236 (2.48 - 3.48)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1733	
2	B	1224	
3	C	318	

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	E	215	
5	F	155	
6	H	146	
7	J	70	
8	K	120	
9	L	70	
10	D	221	
11	G	171	
12	R	9	
13	T	74	
14	N	74	

2 Entry composition

There are 17 unique types of molecules in this entry. The entry contains 27832 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 DNA-directed RNA polymerase II subunit RPB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	1286	Total	C	N	O	S	0	0
			10060	6346	1767	1892	55		

- Molecule 2 is a protein called DNA-directed RNA polymerase II subunit RPB2.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	1100	Total	C	N	O	S	0	0
			8724	5525	1523	1621	55		

- Molecule 3 is a protein called DNA-directed RNA polymerase II subunit RPB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	C	266	Total	C	N	O	S	0	0
			2091	1315	347	416	13		

- Molecule 4 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	E	210	Total	C	N	O	S	0	0
			1726	1097	305	314	10		

- Molecule 5 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	F	83	Total	C	N	O	S	0	0
			670	428	114	125	3		

- Molecule 6 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	H	134	Total	C	N	O	S	0	0
			1076	677	182	213	4		

- Molecule 7 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	J	65	Total	C	N	O	S	0	0
			532	339	93	94	6		

- Molecule 8 is a protein called DNA-directed RNA polymerase II subunit RPB11.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	K	114	Total	C	N	O	S	0	0
			915	588	156	169	2		

- Molecule 9 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	L	43	Total	C	N	O	S	0	0
			343	211	69	59	4		

- Molecule 10 is a protein called DNA-directed RNA polymerase II subunit RPB4.

Mol	Chain	Residues	Atoms				AltConf	Trace
10	D	12	Total	C	N	O	0	0
			95	61	16	18		

- Molecule 11 is a protein called DNA-directed RNA polymerase II subunit RPB7.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	G	79	Total	C	N	O	S	0	0
			638	416	105	114	3		

- Molecule 12 is a RNA chain called RNA (5'-R(P*AP*UP*CP*GP*AP*GP*AP*GP*G)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
12	R	9	Total	C	N	O	P	0	0
			194	88	40	58	8		

- Molecule 13 is a DNA chain called DNA (5'-D(P*GP*CP*TP*CP*CP*TP*TP*CP*TP*C
P*CP*CP*AP*TP*CP*CP*TP*CP*TP*CP*GP*AP*T)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
13	T	23	Total	C	N	O	P	0	0
			455	219	69	144	23		

- Molecule 14 is a DNA chain called DNA (5'-D(P*TP*GP*GP*GP*AP*GP*AP*AP*GP*GP*AP*GP*C)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	13	Total	C	N	O	P	0	0
			274	129	60	73	12		

- Molecule 15 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
15	A	2	Total	Zn	0
			2	2	
15	B	1	Total	Zn	0
			1	1	
15	C	1	Total	Zn	0
			1	1	
15	J	1	Total	Zn	0
			1	1	
15	L	1	Total	Zn	0
			1	1	

- Molecule 16 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
16	A	1	Total	Mg	0
			1	1	
16	R	1	Total	Mg	0
			1	1	

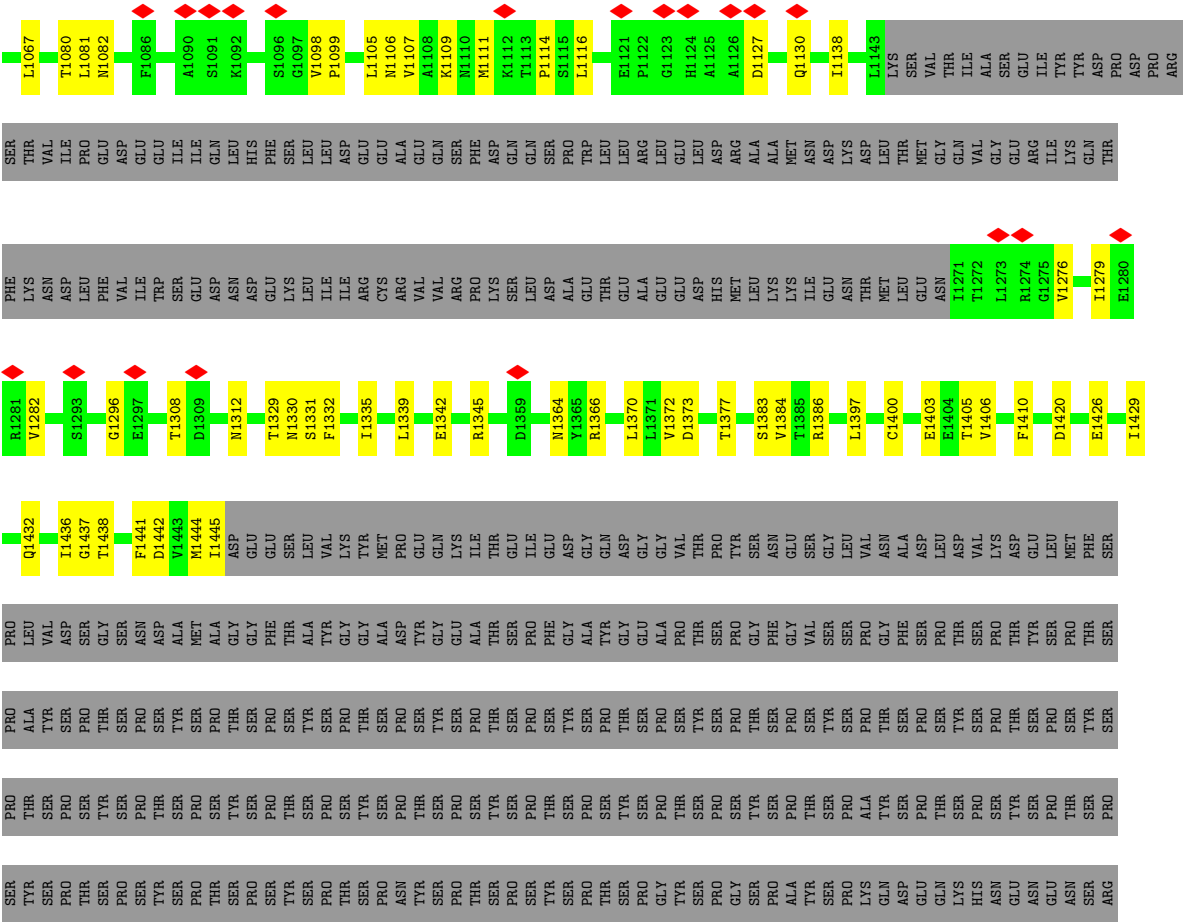
- Molecule 17 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: C₁₀H₁₆N₅O₁₃P₃).

3 Residue-property plots

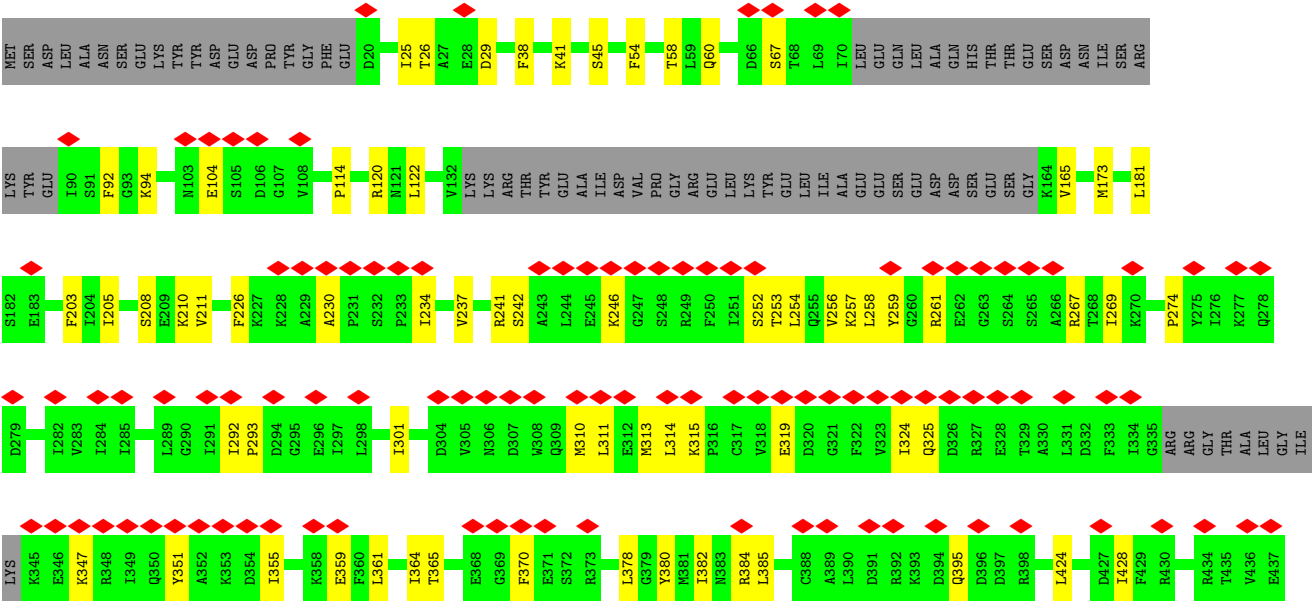
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

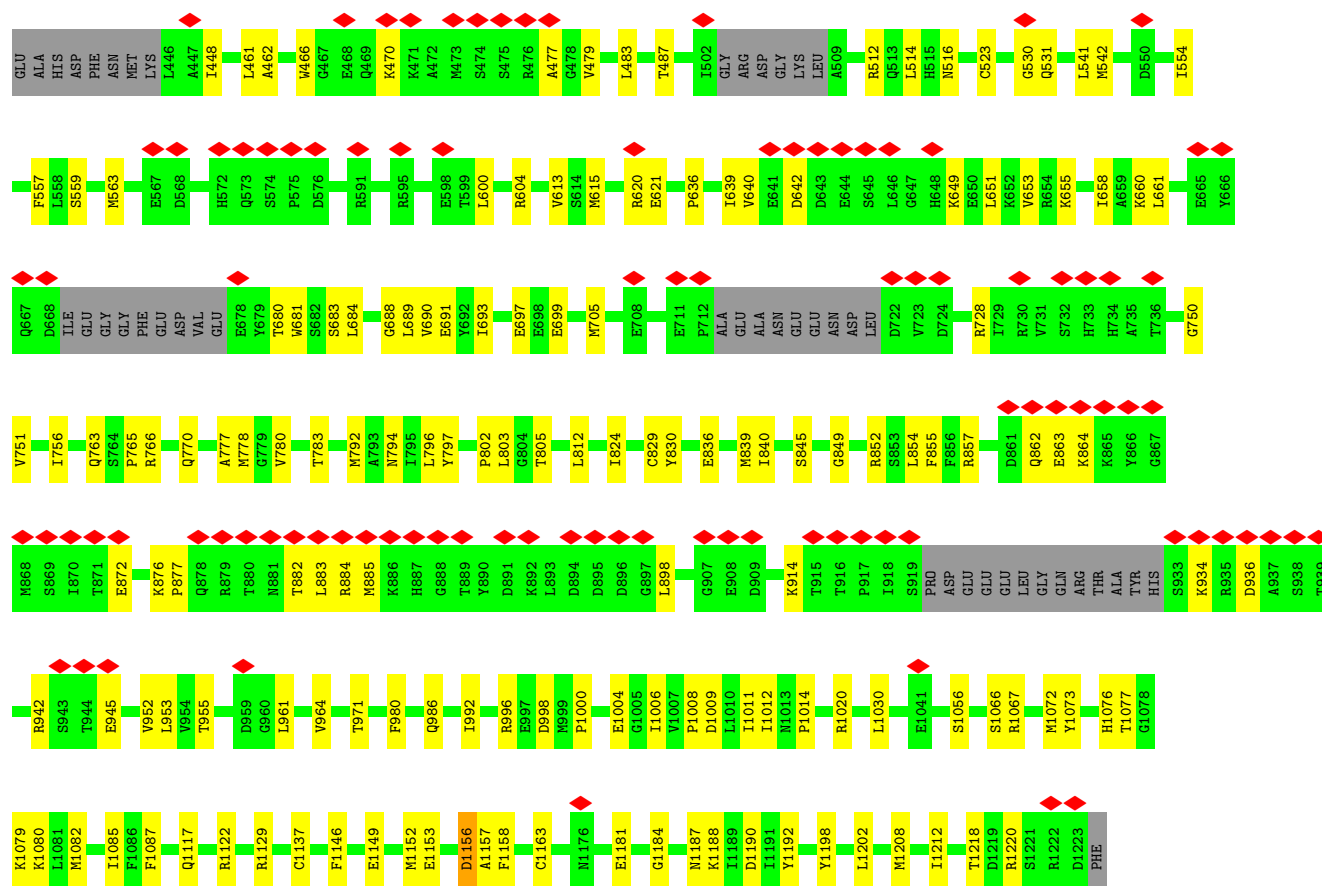
- Molecule 1: DNA-directed RNA polymerase II subunit RPB1



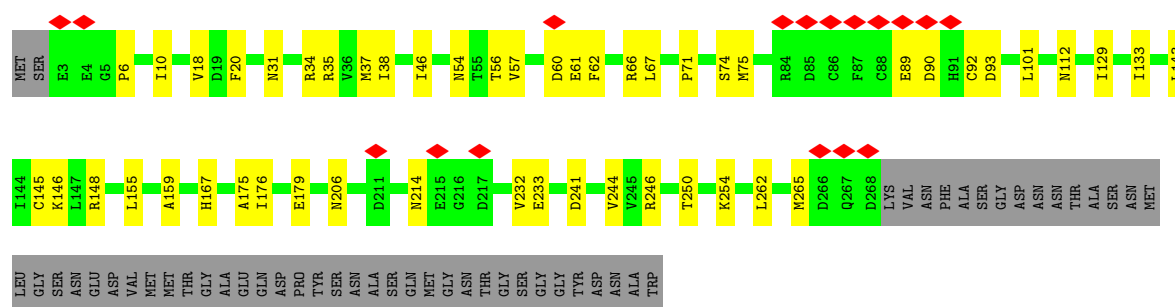


● Molecule 2: DNA-directed RNA polymerase II subunit RPB2

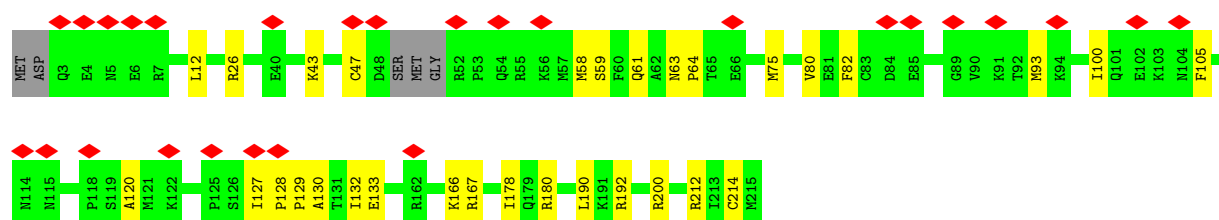
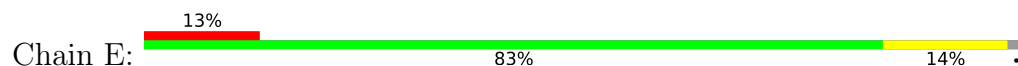




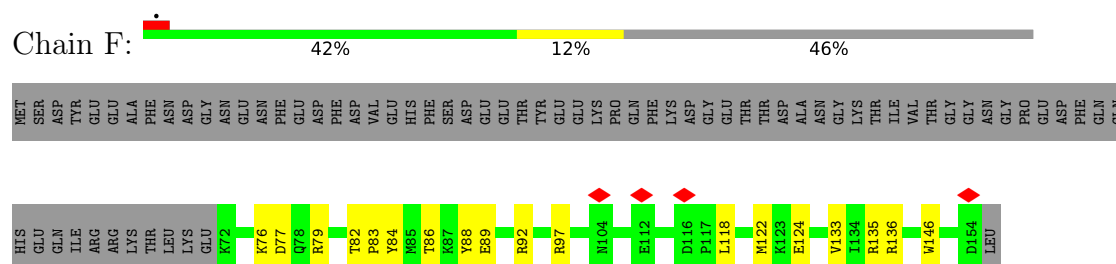
• Molecule 3: DNA-directed RNA polymerase II subunit RPB3



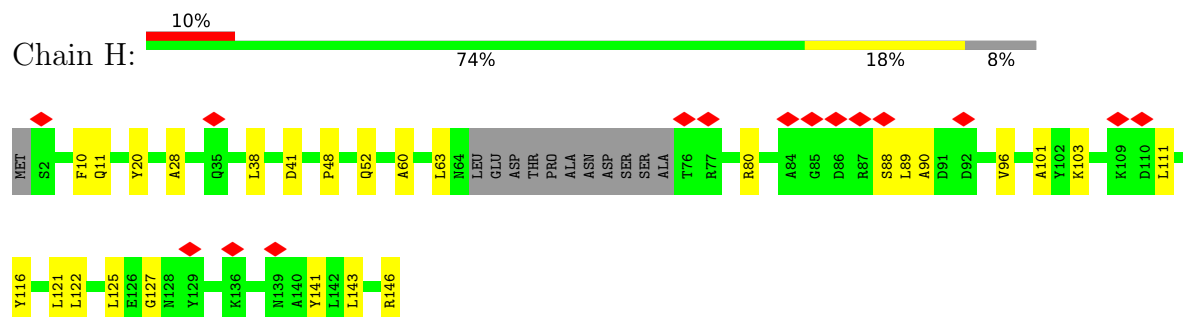
• Molecule 4: DNA-directed RNA polymerases I, II, and III subunit RPABC1



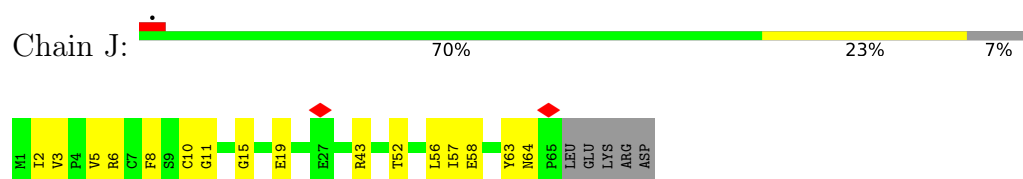
- Molecule 5: DNA-directed RNA polymerases I, II, and III subunit RPABC2



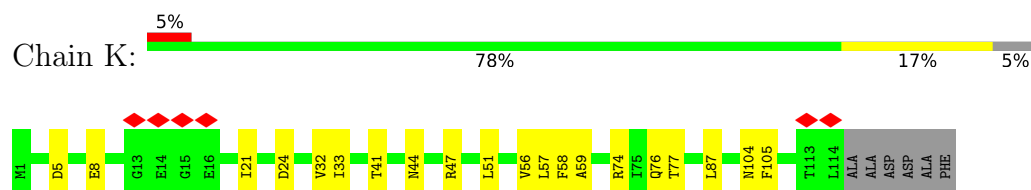
- Molecule 6: DNA-directed RNA polymerases I, II, and III subunit RPABC3



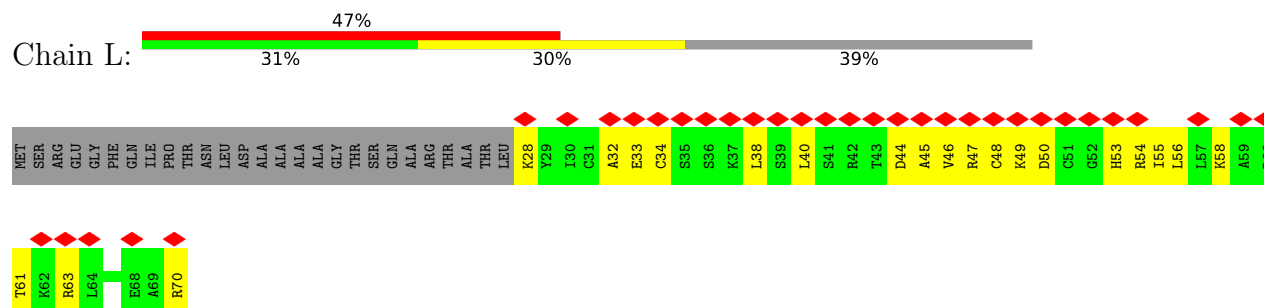
- Molecule 7: DNA-directed RNA polymerases I, II, and III subunit RPABC5



- Molecule 8: DNA-directed RNA polymerase II subunit RPB11

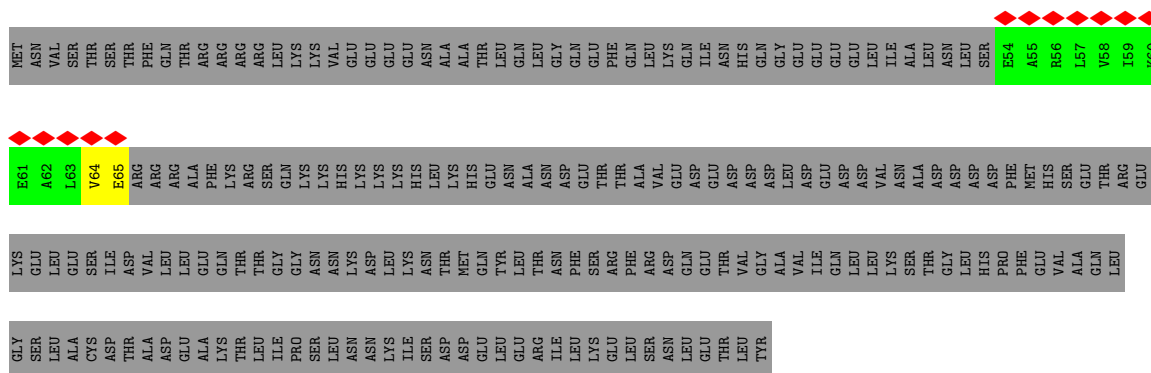


- Molecule 9: DNA-directed RNA polymerases I, II, and III subunit RPABC4

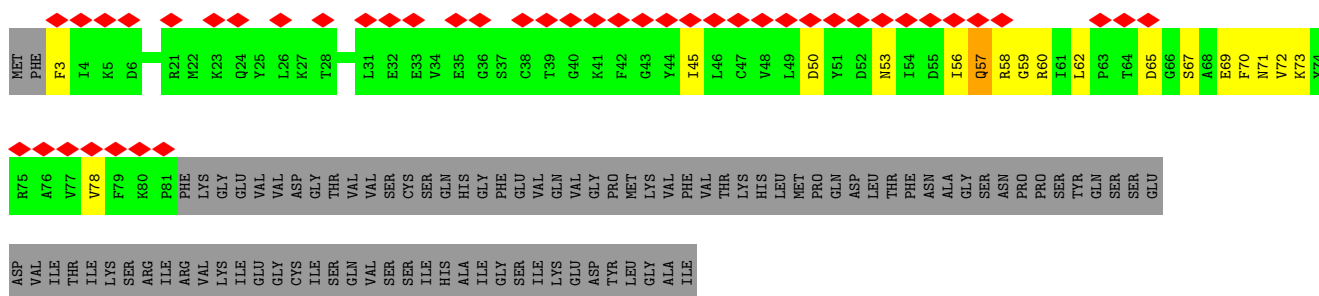
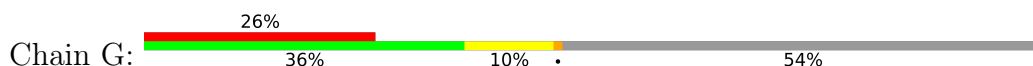


- Molecule 10: DNA-directed RNA polymerase II subunit RPB4

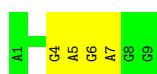




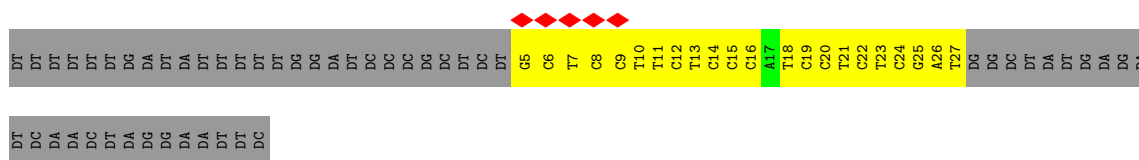
- Molecule 11: DNA-directed RNA polymerase II subunit RPB7



- Molecule 12: RNA (5'-R(P*AP*UP*CP*GP*AP*GP*AP*GP*G)-3')



- Molecule 13: DNA (5'-D(P*GP*CP*TP*CP*CP*TP*TP*CP*TP*CP*CP*CP*AP*TP*CP*CP*TP*TP*CP*TP*CP*GP*AP*T)-3')



- Molecule 14: DNA (5'-D(P*TP*GP*GP*GP*AP*GP*AP*AP*GP*GP*AP*GP*C)-3')





C13	DA
	DC
	DA
	DC
	DC
	DC
	DC
	DC
	DA
	DT
	DC
	DC

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	146186	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2400	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.910	Depositor
Minimum map value	-0.520	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.030	Depositor
Recommended contour level	0.2	Depositor
Map size (Å)	348.18, 348.18, 348.18	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.829, 0.829, 0.829	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: ZN, ATP, 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	0.16	0/10242	0.36	2/13850 (0.0%)
2	B	0.13	0/8894	0.32	1/11999 (0.0%)
3	C	0.17	0/2129	0.33	1/2886 (0.0%)
4	E	0.12	0/1761	0.30	0/2369
5	F	0.13	0/682	0.28	0/922
6	H	0.14	0/1094	0.38	1/1481 (0.1%)
7	J	0.17	0/541	0.37	0/727
8	K	0.12	0/933	0.26	0/1260
9	L	0.23	0/345	0.55	0/457
10	D	0.06	0/94	0.16	0/125
11	G	0.13	0/652	0.38	1/878 (0.1%)
12	R	0.39	0/218	0.57	0/339
13	T	0.34	0/504	0.63	0/772
14	N	0.26	0/310	0.59	0/479
All	All	0.16	0/28399	0.36	6/38544 (0.0%)

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
6	H	88	SER	CB-CA-C	-5.47	110.25	116.54
3	C	214	ASN	CB-CA-C	-5.36	110.38	116.54
2	B	1156	ASP	CB-CA-C	-5.20	110.15	117.23
1	A	637	LYS	CB-CA-C	-5.15	110.62	116.54
11	G	57	GLN	CB-CA-C	-5.07	110.75	116.63
1	A	525	GLN	CB-CA-C	-5.06	109.26	116.34

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	10060	0	10131	226	0
2	B	8724	0	8735	161	0
3	C	2091	0	2046	41	0
4	E	1726	0	1754	18	0
5	F	670	0	690	18	0
6	H	1076	0	1046	20	0
7	J	532	0	542	18	0
8	K	915	0	925	14	0
9	L	343	0	363	19	0
10	D	95	0	104	1	0
11	G	638	0	650	17	0
12	R	194	0	98	6	0
13	T	455	0	262	52	0
14	N	274	0	146	21	0
15	A	2	0	0	0	0
15	B	1	0	0	0	0
15	C	1	0	0	0	0
15	J	1	0	0	0	0
15	L	1	0	0	0	0
16	A	1	0	0	0	0
16	R	1	0	0	0	0
17	T	31	0	12	1	0
All	All	27832	0	27504	541	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 10.

All (541) 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)
13:T:8:DC:H1'	13:T:9:DC:H5'	1.17	1.12
13:T:8:DC:C1'	13:T:9:DC:H5'	1.82	1.10
13:T:7:DT:H2''	13:T:8:DC:H5''	1.31	1.09
1:A:832:ALA:HB2	13:T:18:DT:H72	1.41	1.02
2:B:242:SER:O	2:B:252:SER:HB3	1.65	0.97

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:583:PRO:HB2	1:A:637:LYS:HE3	1.46	0.94
13:T:8:DC:H1'	13:T:9:DC:C5'	1.97	0.94
14:N:3:DG:H2''	14:N:4:DG:H5'	1.50	0.93
14:N:3:DG:H2''	14:N:4:DG:C5'	1.99	0.93
7:J:5:VAL:HG12	7:J:6:ARG:HG2	1.52	0.92
1:A:43:GLU:H	1:A:50:ILE:HD11	1.38	0.88
6:H:60:ALA:HB2	6:H:143:LEU:HD11	1.55	0.86
13:T:8:DC:H2''	13:T:9:DC:C6	2.12	0.85
13:T:8:DC:H4'	13:T:9:DC:OP1	1.74	0.84
9:L:40:LEU:HA	9:L:44:ASP:HB3	1.59	0.84
1:A:832:ALA:HB2	13:T:18:DT:C7	2.07	0.83
13:T:7:DT:C2'	13:T:8:DC:H5''	2.08	0.83
1:A:152:VAL:HB	1:A:164:ARG:HD2	1.60	0.81
6:H:63:LEU:HG	6:H:89:LEU:HB3	1.65	0.78
13:T:7:DT:H2''	13:T:8:DC:C5'	2.13	0.78
13:T:13:DT:H3	14:N:5:DA:H62	1.33	0.77
9:L:47:ARG:NH1	9:L:54:ARG:HG3	2.00	0.77
13:T:6:DC:H2''	13:T:7:DT:H5'	1.65	0.77
2:B:839:MET:HE1	2:B:980:PHE:HB2	1.66	0.76
13:T:8:DC:O3'	13:T:9:DC:H3'	1.84	0.76
1:A:1329:THR:HG22	1:A:1331:SER:H	1.50	0.75
2:B:797:TYR:HE1	2:B:854:LEU:HG	1.51	0.75
1:A:1444:MET:HA	11:G:60:ARG:HA	1.69	0.75
1:A:1386:ARG:NH2	13:T:15:DC:H1'	2.01	0.75
13:T:9:DC:H2''	13:T:10:DT:O5'	1.85	0.74
1:A:549:MET:HE1	1:A:656:TRP:HD1	1.52	0.74
1:A:353:ILE:HG22	1:A:468:PHE:HB2	1.70	0.73
3:C:37:MET:HE3	3:C:176:ILE:HD13	1.71	0.72
9:L:49:LYS:HG3	9:L:50:ASP:H	1.54	0.72
5:F:82:THR:HG22	5:F:84:TYR:H	1.55	0.72
1:A:666:ILE:HD13	2:B:1030:LEU:HD22	1.71	0.72
14:N:3:DG:H2''	14:N:4:DG:O5'	1.87	0.71
2:B:639:ILE:HD11	2:B:691:GLU:HB2	1.71	0.71
3:C:35:ARG:NH1	8:K:41:THR:OG1	2.24	0.71
1:A:535:THR:HG21	1:A:617:VAL:HG23	1.72	0.70
2:B:1006:ILE:HD11	7:J:43:ARG:HB3	1.73	0.70
2:B:802:PRO:HG2	2:B:805:THR:HG22	1.73	0.70
2:B:642:ASP:HA	2:B:649:LYS:HG2	1.73	0.69
3:C:6:PRO:O	8:K:104:ASN:ND2	2.25	0.69
9:L:28:LYS:N	9:L:38:LEU:O	2.25	0.69
2:B:604:ARG:NH2	2:B:691:GLU:OE2	2.24	0.69

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:H:60:ALA:HB3	6:H:141:TYR:HB2	1.75	0.69
7:J:2:ILE:HG23	7:J:3:VAL:H	1.58	0.69
13:T:10:DT:H2'	13:T:11:DT:H71	1.74	0.69
3:C:179:GLU:OE1	3:C:206:ASN:ND2	2.27	0.68
1:A:1081:LEU:HD21	17:T:101:ATP:H2'	1.75	0.68
2:B:365:THR:HG21	2:B:370:PHE:HB2	1.75	0.68
2:B:845:SER:HB2	7:J:8:PHE:HB3	1.75	0.67
2:B:530:GLY:O	2:B:531:GLN:HG2	1.94	0.67
4:E:190:LEU:HD23	4:E:214:CYS:HB2	1.76	0.67
6:H:48:PRO:O	6:H:146:ARG:NH2	2.28	0.67
2:B:986:GLN:OE1	2:B:1020:ARG:NH1	2.28	0.66
1:A:4:GLN:HE22	2:B:1158:PHE:HD1	1.42	0.66
2:B:241:ARG:HG3	2:B:253:THR:HG22	1.78	0.66
6:H:90:ALA:HB1	6:H:96:VAL:HG21	1.77	0.66
1:A:1001:ARG:HH12	5:F:83:PRO:HD2	1.61	0.65
14:N:11:DA:H2'	14:N:12:DG:C8	2.32	0.65
2:B:778:MET:HE3	2:B:794:ASN:HB3	1.76	0.65
2:B:1156:ASP:HB3	2:B:1198:TYR:H	1.61	0.65
13:T:6:DC:C2'	13:T:7:DT:H5'	2.26	0.65
12:R:6:G:O2'	12:R:7:A:H5'	1.96	0.65
5:F:76:LYS:HG3	5:F:79:ARG:HH21	1.61	0.64
2:B:259:TYR:O	2:B:267:ARG:HA	1.97	0.64
1:A:243:PRO:HB2	1:A:245:PRO:HD2	1.78	0.64
4:E:26:ARG:NH2	4:E:133:GLU:OE1	2.31	0.64
13:T:19:DC:H2'	13:T:20:DC:C6	2.32	0.64
1:A:326:ARG:HG2	1:A:1406:VAL:HG21	1.79	0.63
2:B:849:GLY:HA2	2:B:852:ARG:HD2	1.81	0.63
14:N:12:DG:H2'	14:N:13:DC:C6	2.34	0.63
1:A:868:TYR:HD2	1:A:1058:VAL:HG11	1.64	0.63
13:T:10:DT:C2'	13:T:11:DT:H71	2.29	0.62
8:K:24:ASP:OD2	8:K:74:ARG:NH1	2.32	0.62
1:A:884:ASP:OD2	1:A:1030:ARG:NH2	2.28	0.62
2:B:998:ASP:OD1	3:C:35:ARG:NH2	2.32	0.62
13:T:6:DC:H1'	13:T:7:DT:H5'	1.82	0.61
1:A:149:GLU:O	1:A:164:ARG:NH1	2.33	0.61
1:A:1064:VAL:HG12	1:A:1370:LEU:HD22	1.81	0.61
9:L:46:VAL:HG13	9:L:56:LEU:HD12	1.81	0.61
8:K:21:ILE:HG12	8:K:33:ILE:HG23	1.82	0.61
1:A:43:GLU:N	1:A:50:ILE:HD11	2.12	0.61
1:A:43:GLU:H	1:A:50:ILE:CD1	2.13	0.60
1:A:873:MET:HB2	1:A:1366:ARG:HH21	1.66	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1004:ASN:HD22	4:E:167:ARG:HD2	1.65	0.60
1:A:1127:ASP:OD2	1:A:1130:GLN:NE2	2.29	0.60
11:G:57:GLN:HE22	11:G:71:ASN:HD22	1.48	0.60
1:A:451:HIS:HD2	1:A:453:MET:HE2	1.67	0.60
2:B:120:ARG:HG2	2:B:955:THR:HG21	1.84	0.60
1:A:29:ALA:HB1	2:B:1184:GLY:HA2	1.84	0.59
2:B:477:ALA:CB	12:R:4:G:H4'	2.33	0.59
11:G:57:GLN:NE2	11:G:73:LYS:HE3	2.17	0.59
1:A:1403:GLU:OE1	13:T:16:DC:OP1	2.21	0.59
9:L:32:ALA:HB2	9:L:55:ILE:HD11	1.85	0.59
1:A:1342:GLU:OE2	4:E:200:ARG:NH2	2.36	0.59
2:B:211:VAL:HG21	2:B:483:LEU:HD13	1.83	0.59
3:C:54:ASN:ND2	3:C:60:ASP:OD1	2.30	0.59
3:C:143:LEU:HD21	3:C:146:LYS:HE3	1.84	0.58
13:T:5:DG:H2'	13:T:6:DC:C6	2.38	0.58
1:A:691:LEU:O	1:A:694:THR:HG22	2.04	0.58
1:A:939:ASP:OD2	1:A:1023:ARG:NH1	2.37	0.58
1:A:998:LEU:HB3	1:A:1001:ARG:HE	1.68	0.58
2:B:67:SER:HB2	2:B:92:PHE:HD2	1.68	0.58
2:B:655:LYS:HA	2:B:658:ILE:HD12	1.84	0.58
8:K:44:ASN:OD1	8:K:47:ARG:NH1	2.35	0.58
9:L:46:VAL:HG13	9:L:56:LEU:CD1	2.34	0.58
1:A:882:SER:O	1:A:1025:ARG:NH2	2.36	0.58
1:A:398:GLU:HG2	1:A:400:PRO:HD2	1.86	0.58
1:A:131:SER:HB2	1:A:223:GLY:HA2	1.86	0.58
9:L:53:HIS:CE1	9:L:55:ILE:HG12	2.39	0.58
14:N:5:DA:H2'	14:N:6:DG:C8	2.39	0.58
2:B:1072:MET:HB2	2:B:1085:ILE:HD13	1.85	0.57
9:L:49:LYS:HG3	9:L:50:ASP:N	2.19	0.57
14:N:11:DA:H2''	14:N:12:DG:O4'	2.04	0.57
2:B:208:SER:OG	2:B:210:LYS:NZ	2.38	0.57
13:T:26:DA:H2''	13:T:27:DT:H5''	1.87	0.57
1:A:868:TYR:CD2	1:A:1058:VAL:HG11	2.40	0.57
3:C:92:CYS:SG	3:C:93:ASP:N	2.76	0.57
1:A:545:GLN:HG2	1:A:549:MET:HE3	1.86	0.57
13:T:6:DC:H42	14:N:11:DA:H61	1.52	0.57
1:A:913:LEU:HD23	1:A:915:SER:H	1.69	0.57
1:A:1080:THR:C	1:A:1082:ASN:H	2.12	0.57
2:B:38:PHE:HZ	2:B:541:LEU:HB3	1.70	0.57
2:B:310:MET:HA	2:B:313:MET:HE2	1.87	0.57
1:A:885:THR:HG22	1:A:940:ARG:HB2	1.87	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:862:GLN:O	2:B:914:LYS:NZ	2.34	0.56
9:L:40:LEU:HA	9:L:44:ASP:CB	2.34	0.56
2:B:661:LEU:HD11	2:B:684:LEU:HD11	1.87	0.56
1:A:451:HIS:CD2	1:A:453:MET:HB2	2.39	0.56
4:E:61:GLN:NE2	4:E:63:ASN:OD1	2.39	0.56
1:A:361:LEU:HA	1:A:471:ASN:HD22	1.70	0.56
1:A:887:GLY:O	1:A:940:ARG:NH2	2.38	0.56
1:A:535:THR:HG23	1:A:575:LYS:HG2	1.87	0.56
11:G:58:ARG:O	11:G:70:PHE:HA	2.06	0.56
1:A:1445:ILE:HG22	11:G:59:GLY:O	2.05	0.56
2:B:29:ASP:OD2	2:B:655:LYS:NZ	2.39	0.56
1:A:354:SER:O	1:A:469:ARG:HA	2.06	0.56
2:B:680:THR:O	2:B:683:SER:OG	2.21	0.56
2:B:378:LEU:O	2:B:382:ILE:HG12	2.06	0.55
13:T:8:DC:C2'	13:T:9:DC:C6	2.88	0.55
1:A:445:ASN:ND2	1:A:454:SER:O	2.37	0.55
8:K:32:VAL:HG22	8:K:74:ARG:HG3	1.89	0.55
13:T:7:DT:H2''	13:T:8:DC:O4'	2.06	0.55
1:A:660:ASN:OD1	2:B:1082:MET:HB2	2.07	0.55
1:A:968:GLN:HA	1:A:973:ILE:HD12	1.88	0.55
2:B:165:VAL:HG11	2:B:448:ILE:HG13	1.89	0.55
13:T:7:DT:OP2	13:T:7:DT:H2'	2.06	0.55
1:A:668:ASP:HB3	1:A:743:VAL:HG23	1.88	0.55
13:T:12:DC:H2''	13:T:13:DT:O5'	2.07	0.55
2:B:952:VAL:HB	9:L:58:LYS:HG2	1.89	0.54
1:A:726:ARG:HD3	1:A:766:GLY:HA3	1.89	0.54
2:B:301:ILE:HG21	2:B:314:LEU:HD21	1.88	0.54
2:B:1149:GLU:HG3	2:B:1153:GLU:HB2	1.89	0.54
2:B:996:ARG:HH22	3:C:175:ALA:HA	1.71	0.54
7:J:10:CYS:SG	7:J:11:GLY:N	2.81	0.54
3:C:56:THR:HG21	3:C:145:CYS:SG	2.48	0.54
2:B:60:GLN:HE22	2:B:94:LYS:HD2	1.72	0.54
5:F:118:LEU:HG	5:F:122:MET:HE3	1.89	0.54
9:L:61:THR:HG22	9:L:63:ARG:H	1.71	0.54
14:N:4:DG:H4'	14:N:5:DA:OP1	2.08	0.54
3:C:262:LEU:HD22	8:K:87:LEU:HD23	1.89	0.54
2:B:1004:GLU:O	7:J:43:ARG:NH1	2.40	0.54
2:B:487:THR:OG1	2:B:777:ALA:O	2.23	0.54
3:C:66:ARG:NH2	7:J:5:VAL:HG23	2.23	0.54
2:B:267:ARG:HH22	2:B:313:MET:HG2	1.72	0.54
2:B:173:MET:HB2	2:B:203:PHE:HE1	1.73	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:883:LEU:HG	2:B:934:LYS:O	2.07	0.53
2:B:1004:GLU:HG3	2:B:1006:ILE:HG12	1.91	0.53
1:A:41:MET:O	1:A:46:THR:HA	2.09	0.53
1:A:679:ILE:HD11	1:A:733:ALA:HB2	1.91	0.53
3:C:71:PRO:HB2	3:C:133:ILE:HD12	1.90	0.53
12:R:4:G:O2'	12:R:5:A:H5'	2.08	0.53
14:N:11:DA:H2''	14:N:12:DG:C5'	2.38	0.53
1:A:1111:MET:HE1	1:A:1330:ASN:O	2.09	0.52
13:T:8:DC:H2''	13:T:9:DC:H6	1.70	0.52
1:A:725:ALA:HA	1:A:728:LYS:HE2	1.91	0.52
13:T:7:DT:O2	14:N:11:DA:C2	2.63	0.52
1:A:693:VAL:HG12	1:A:714:PHE:CE1	2.44	0.52
1:A:829:VAL:HG22	2:B:512:ARG:HH11	1.74	0.52
2:B:1073:TYR:CE1	2:B:1080:LYS:HG2	2.44	0.52
1:A:956:LEU:HD21	1:A:1017:LEU:HD22	1.92	0.52
11:G:59:GLY:HA2	11:G:69:GLU:O	2.10	0.52
2:B:953:LEU:HD11	9:L:55:ILE:HB	1.92	0.52
7:J:2:ILE:HD12	7:J:57:ILE:HG21	1.90	0.52
1:A:406:ILE:HB	1:A:431:LYS:HB2	1.91	0.51
1:A:714:PHE:HA	1:A:717:ASN:ND2	2.25	0.51
2:B:864:LYS:HA	2:B:961:LEU:HD13	1.90	0.51
1:A:125:ALA:O	1:A:128:ILE:HG22	2.11	0.51
1:A:232:GLU:HG3	1:A:233:TRP:CD1	2.46	0.51
1:A:667:GLY:HA2	1:A:670:ILE:HD12	1.92	0.51
1:A:1276:VAL:HB	1:A:1279:ILE:HD12	1.92	0.51
1:A:130:ASP:OD2	1:A:133:LYS:HG2	2.10	0.51
1:A:715:GLU:HG3	1:A:774:ARG:HD2	1.92	0.51
2:B:1117:GLN:HG2	2:B:1156:ASP:OD1	2.11	0.51
3:C:89:GLU:HG2	3:C:90:ASP:H	1.76	0.51
9:L:40:LEU:HD23	9:L:44:ASP:CG	2.34	0.51
1:A:22:PHE:HE2	2:B:1208:MET:HA	1.76	0.51
1:A:451:HIS:HD2	1:A:453:MET:HB2	1.76	0.51
1:A:993:LEU:HD23	1:A:1022:LEU:HD21	1.93	0.51
3:C:75:MET:O	3:C:246:ARG:NH2	2.40	0.51
14:N:11:DA:C2'	14:N:12:DG:C8	2.93	0.51
1:A:597:LEU:HD13	6:H:103:LYS:HG2	1.92	0.51
2:B:1163:CYS:SG	2:B:1187:ASN:ND2	2.70	0.50
4:E:178:ILE:HB	4:E:212:ARG:HD3	1.93	0.50
1:A:50:ILE:HG22	1:A:51:GLY:N	2.26	0.50
2:B:653:VAL:HB	2:B:689:LEU:HB3	1.92	0.50
3:C:101:LEU:HD23	3:C:155:LEU:HD12	1.92	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
12:R:6:G:C2'	12:R:7:A:H5'	2.41	0.50
13:T:8:DC:C2	13:T:9:DC:C2	3.00	0.50
1:A:598:LEU:O	6:H:122:LEU:HD12	2.11	0.50
2:B:104:GLU:OE2	2:B:120:ARG:NH1	2.39	0.50
2:B:824:ILE:H	2:B:1009:ASP:HB2	1.76	0.50
2:B:226:PHE:HA	2:B:395:GLN:HE21	1.76	0.50
2:B:274:PRO:HG2	2:B:359:GLU:HB3	1.93	0.50
2:B:863:GLU:HB2	2:B:872:GLU:HB2	1.94	0.50
1:A:265:LYS:O	1:A:269:ILE:HG12	2.11	0.50
1:A:342:GLY:O	2:B:1129:ARG:NH1	2.44	0.50
1:A:853:ASP:OD1	1:A:855:THR:HG22	2.11	0.50
2:B:876:LYS:HD2	2:B:877:PRO:HD2	1.93	0.50
1:A:1373:ASP:O	1:A:1377:THR:HG23	2.12	0.49
2:B:477:ALA:HB1	12:R:4:G:O2'	2.12	0.49
2:B:898:LEU:HD22	2:B:964:VAL:HG11	1.94	0.49
6:H:41:ASP:HB2	6:H:121:LEU:HB3	1.93	0.49
1:A:446:ARG:HB2	1:A:487:MET:HE2	1.93	0.49
2:B:971:THR:OG1	3:C:61:GLU:OE2	2.26	0.49
2:B:1008:PRO:HB3	2:B:1087:PHE:HE1	1.76	0.49
1:A:96:ILE:HG22	1:A:176:LYS:HE3	1.95	0.49
5:F:92:ARG:HH22	11:G:60:ARG:HH22	1.58	0.49
6:H:89:LEU:HG	6:H:90:ALA:H	1.77	0.49
1:A:43:GLU:HB2	1:A:48:ALA:H	1.77	0.49
1:A:340:LEU:HD13	1:A:1429:ILE:HG23	1.93	0.49
13:T:13:DT:H3	14:N:5:DA:N6	2.07	0.49
3:C:244:VAL:HG21	8:K:105:PHE:CZ	2.47	0.49
1:A:42:ASP:O	1:A:43:GLU:C	2.55	0.49
1:A:592:ASP:N	1:A:595:THR:OG1	2.43	0.49
1:A:1420:ASP:OD1	2:B:1220:ARG:NH1	2.45	0.49
13:T:6:DC:C1'	13:T:7:DT:H5'	2.41	0.49
1:A:697:ALA:HB2	1:A:714:PHE:CE1	2.48	0.49
2:B:120:ARG:HB2	2:B:122:LEU:HG	1.94	0.49
3:C:18:VAL:HG12	3:C:20:PHE:HD1	1.78	0.49
10:D:64:VAL:HG23	10:D:65:GLU:HG2	1.94	0.49
11:G:57:GLN:HE22	11:G:71:ASN:ND2	2.10	0.49
2:B:884:ARG:HB2	2:B:936:ASP:HB3	1.95	0.48
1:A:738:LYS:HB3	1:A:740:LEU:HD23	1.95	0.48
1:A:881:GLN:HE22	1:A:958:VAL:C	2.21	0.48
1:A:1397:LEU:HB2	1:A:1426:GLU:HG2	1.95	0.48
2:B:763:GLN:HG2	2:B:765:PRO:HD2	1.94	0.48
4:E:127:ILE:HD12	4:E:130:ALA:HB3	1.95	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:688:LYS:O	1:A:691:LEU:HB3	2.12	0.48
2:B:466:TRP:HB2	2:B:479:VAL:HG21	1.95	0.48
13:T:13:DT:H2''	13:T:14:DC:OP2	2.13	0.48
1:A:778:GLY:HA3	2:B:516:ASN:HB2	1.96	0.48
1:A:1444:MET:HE2	5:F:133:VAL:HG13	1.96	0.48
2:B:25:ILE:HD11	2:B:653:VAL:HG13	1.96	0.48
2:B:855:PHE:HZ	2:B:857:ARG:HH11	1.62	0.48
2:B:1187:ASN:HD21	2:B:1190:ASP:HB2	1.78	0.48
11:G:50:ASP:HB3	11:G:53:ASN:HB2	1.95	0.48
1:A:779:PHE:HD2	2:B:699:GLU:HG2	1.78	0.48
2:B:203:PHE:CD2	2:B:461:LEU:HD21	2.49	0.48
11:G:56:ILE:HA	11:G:72:VAL:HG13	1.95	0.48
1:A:399:HIS:NE2	1:A:462:VAL:HG21	2.28	0.48
2:B:796:LEU:HD12	2:B:852:ARG:O	2.14	0.48
4:E:59:SER:HA	4:E:80:VAL:O	2.13	0.48
11:G:3:PHE:N	11:G:78:VAL:O	2.47	0.48
1:A:1335:ILE:HG23	1:A:1339:LEU:HD12	1.96	0.48
3:C:46:ILE:HD13	3:C:159:ALA:HB2	1.96	0.48
3:C:67:LEU:HD11	3:C:155:LEU:HD13	1.95	0.48
14:N:4:DG:H2''	14:N:5:DA:O5'	2.13	0.48
1:A:871:ASP:OD2	1:A:1366:ARG:NH2	2.47	0.48
4:E:100:ILE:HG23	4:E:105:PHE:HB2	1.96	0.48
8:K:5:ASP:HB2	8:K:8:GLU:HG3	1.95	0.48
9:L:48:CYS:SG	9:L:49:LYS:N	2.86	0.48
13:T:8:DC:C4'	13:T:9:DC:OP1	2.56	0.48
13:T:25:DG:H2'	13:T:26:DA:C8	2.48	0.48
1:A:598:LEU:O	1:A:599:SER:C	2.56	0.47
1:A:847:ASP:HB2	1:A:859:SER:HB3	1.96	0.47
2:B:942:ARG:HB2	2:B:945:GLU:HB2	1.96	0.47
13:T:18:DT:H2'	13:T:19:DC:C6	2.49	0.47
1:A:407:ARG:HH21	1:A:411:ASP:HB3	1.79	0.47
1:A:590:ARG:HG2	1:A:604:GLY:HA2	1.96	0.47
1:A:1438:THR:HG23	5:F:92:ARG:HB2	1.95	0.47
1:A:70:CYS:SG	1:A:80:HIS:CE1	3.06	0.47
1:A:827:THR:HG23	1:A:1081:LEU:HD12	1.95	0.47
1:A:944:ARG:NH2	1:A:1296:GLY:O	2.47	0.47
2:B:256:VAL:HG12	2:B:385:LEU:HD13	1.95	0.47
2:B:477:ALA:HB1	12:R:4:G:H4'	1.96	0.47
11:G:62:LEU:HG	11:G:67:SER:O	2.15	0.47
1:A:1001:ARG:NH1	5:F:82:THR:HA	2.28	0.47
1:A:1410:PHE:CD1	2:B:1212:ILE:HD11	2.49	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1438:THR:H	5:F:88:TYR:HB3	1.79	0.47
8:K:56:VAL:HG22	8:K:77:THR:HG22	1.95	0.47
1:A:694:THR:HA	1:A:714:PHE:CE1	2.50	0.47
4:E:64:PRO:HB3	4:E:75:MET:HG2	1.96	0.47
11:G:45:ILE:HA	11:G:78:VAL:HG12	1.96	0.47
13:T:16:DC:N4	14:N:2:DG:H1	2.12	0.47
1:A:22:PHE:HZ	2:B:1208:MET:HG2	1.79	0.47
1:A:497:THR:OG1	2:B:1149:GLU:OE1	2.31	0.47
1:A:597:LEU:CD1	6:H:103:LYS:HG2	2.45	0.47
1:A:982:THR:HG22	1:A:984:LYS:H	1.80	0.47
2:B:25:ILE:HD13	2:B:658:ILE:HD11	1.97	0.47
2:B:54:PHE:HA	2:B:58:THR:HB	1.97	0.47
2:B:830:TYR:CZ	2:B:1000:PRO:HD3	2.50	0.47
2:B:839:MET:HG2	2:B:1012:ILE:HG22	1.97	0.47
2:B:996:ARG:NH2	3:C:175:ALA:HA	2.30	0.47
1:A:962:ARG:O	1:A:966:ASN:ND2	2.48	0.47
1:A:1012:ARG:O	1:A:1016:THR:OG1	2.32	0.47
13:T:12:DC:H2'	13:T:13:DT:H71	1.96	0.47
1:A:869:GLY:HA3	1:A:1366:ARG:HG2	1.97	0.47
1:A:962:ARG:HG2	1:A:966:ASN:HD21	1.80	0.46
2:B:780:VAL:HG21	7:J:56:LEU:HD13	1.97	0.46
6:H:80:ARG:HG2	8:K:57:LEU:HD22	1.97	0.46
1:A:284:ALA:O	1:A:285:PRO:C	2.58	0.46
1:A:332:LYS:HD2	13:T:19:DC:OP1	2.15	0.46
1:A:1109:LYS:HZ2	14:N:5:DA:H5'	1.81	0.46
13:T:12:DC:H2'	13:T:13:DT:C7	2.45	0.46
1:A:385:ILE:HD11	1:A:428:TYR:HE1	1.80	0.46
2:B:205:ILE:HG21	2:B:462:ALA:HB2	1.97	0.46
3:C:241:ASP:N	3:C:241:ASP:OD1	2.46	0.46
8:K:51:LEU:HD12	8:K:59:ALA:HB3	1.96	0.46
5:F:97:ARG:NE	5:F:124:GLU:OE1	2.47	0.46
13:T:26:DA:C2'	13:T:27:DT:H5''	2.46	0.46
1:A:679:ILE:HG13	1:A:732:LEU:HD22	1.97	0.46
2:B:114:PRO:HG3	2:B:181:LEU:HD11	1.96	0.46
2:B:600:LEU:HB3	2:B:615:MET:SD	2.56	0.46
1:A:152:VAL:HB	1:A:164:ARG:CD	2.39	0.46
1:A:1386:ARG:CZ	13:T:15:DC:H1'	2.46	0.46
2:B:840:ILE:HG12	2:B:992:ILE:HG22	1.97	0.46
2:B:1056:SER:HB3	2:B:1066:SER:HB2	1.98	0.46
1:A:393:ARG:O	1:A:420:ARG:NH1	2.44	0.46
1:A:1444:MET:HE1	5:F:135:ARG:HB2	1.98	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:855:PHE:HZ	2:B:857:ARG:NH1	2.13	0.46
1:A:523:ILE:HG23	1:A:527:THR:HB	1.99	0.45
1:A:981:LEU:HD11	1:A:1042:PHE:HB2	1.98	0.45
1:A:1279:ILE:HG23	1:A:1308:THR:HB	1.99	0.45
11:G:62:LEU:HB2	11:G:65:ASP:O	2.16	0.45
3:C:167:HIS:CD2	9:L:70:ARG:HB2	2.52	0.45
1:A:666:ILE:HD11	2:B:1067:ARG:HA	1.99	0.45
1:A:712:GLU:HB3	1:A:713:SER:H	1.60	0.45
2:B:364:ILE:HG22	2:B:365:THR:HG22	1.98	0.45
1:A:711:ARG:O	1:A:712:GLU:C	2.59	0.45
1:A:770:VAL:HG22	1:A:771:GLU:HG3	1.97	0.45
1:A:840:ARG:HB3	1:A:1384:VAL:HG12	1.99	0.45
1:A:1109:LYS:NZ	14:N:5:DA:H5'	2.31	0.45
1:A:1282:VAL:HG13	1:A:1308:THR:HG22	1.97	0.45
2:B:681:TRP:CH2	2:B:690:VAL:HG11	2.51	0.45
1:A:802:ASN:ND2	2:B:728:ARG:HB2	2.32	0.45
1:A:1438:THR:N	5:F:88:TYR:HB3	2.32	0.45
2:B:311:LEU:O	2:B:315:LYS:HG3	2.16	0.45
2:B:347:LYS:O	2:B:351:TYR:N	2.40	0.45
2:B:620:ARG:HG3	2:B:621:GLU:OE1	2.16	0.45
2:B:1077:THR:HG23	2:B:1079:LYS:H	1.81	0.45
1:A:388:LEU:HD12	1:A:432:VAL:HB	1.99	0.45
1:A:534:LEU:O	1:A:574:GLY:HA3	2.17	0.45
1:A:855:THR:HG21	1:A:857:ARG:HE	1.82	0.45
2:B:559:SER:HA	2:B:563:MET:HG2	1.98	0.45
4:E:58:MET:HB3	4:E:82:PHE:CD1	2.52	0.45
1:A:477:PRO:HG3	1:A:521:MET:HE2	1.99	0.45
3:C:250:THR:O	3:C:254:LYS:HG3	2.16	0.45
6:H:89:LEU:HG	6:H:90:ALA:N	2.31	0.45
1:A:12:ARG:HD2	2:B:1218:THR:HG21	1.99	0.45
2:B:766:ARG:HA	2:B:766:ARG:HD3	1.86	0.45
2:B:604:ARG:NH1	2:B:613:VAL:O	2.39	0.44
2:B:1122:ARG:HB2	13:T:22:DC:OP1	2.17	0.44
8:K:58:PHE:HB3	8:K:76:GLN:HB3	1.98	0.44
6:H:101:ALA:HB2	6:H:116:TYR:CE2	2.53	0.44
14:N:11:DA:H2'	14:N:12:DG:H8	1.80	0.44
1:A:89:PRO:O	1:A:204:THR:HG21	2.17	0.44
1:A:1410:PHE:HD1	2:B:1212:ILE:HD11	1.82	0.44
2:B:756:ILE:HG12	2:B:770:GLN:HG2	2.00	0.44
6:H:63:LEU:HA	6:H:89:LEU:HB3	1.99	0.44
7:J:2:ILE:O	7:J:3:VAL:HG23	2.17	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:151:ASP:HA	1:A:163:SER:N	2.32	0.44
1:A:152:VAL:H	1:A:164:ARG:HG2	1.83	0.44
1:A:239:LEU:HD12	1:A:240:PRO:HD2	1.99	0.44
1:A:595:THR:OG1	1:A:603:ASN:HB3	2.18	0.44
2:B:301:ILE:HD13	2:B:382:ILE:HG21	2.00	0.44
2:B:523:CYS:SG	2:B:750:GLY:N	2.90	0.44
2:B:639:ILE:HD12	2:B:688:GLY:O	2.17	0.44
7:J:3:VAL:CG1	7:J:15:GLY:HA2	2.47	0.44
13:T:7:DT:C3'	13:T:8:DC:H5''	2.47	0.44
1:A:302:THR:HG21	1:A:314:ALA:HB3	2.00	0.44
1:A:527:THR:HG23	1:A:653:VAL:HB	2.00	0.44
1:A:666:ILE:HG13	1:A:667:GLY:N	2.33	0.44
1:A:993:LEU:HD22	1:A:1046:LEU:HD22	1.98	0.44
2:B:246:LYS:HA	2:B:246:LYS:HD2	1.85	0.44
1:A:43:GLU:HG2	1:A:47:ARG:CB	2.48	0.44
1:A:605:MET:HE1	1:A:617:VAL:HG22	2.00	0.44
1:A:712:GLU:C	1:A:714:PHE:N	2.72	0.44
2:B:829:CYS:SG	2:B:1014:PRO:HD2	2.58	0.44
3:C:176:ILE:HG23	3:C:232:VAL:HG22	1.99	0.44
6:H:38:LEU:HD13	6:H:125:LEU:HD13	1.99	0.44
1:A:855:THR:HG23	1:A:857:ARG:HG3	2.00	0.43
2:B:554:ILE:O	2:B:557:PHE:HB2	2.18	0.43
3:C:37:MET:SD	3:C:244:VAL:HG12	2.58	0.43
6:H:60:ALA:HB2	6:H:143:LEU:CD1	2.39	0.43
13:T:7:DT:H1'	13:T:8:DC:O4'	2.18	0.43
1:A:443:LEU:HD22	2:B:1146:PHE:CE2	2.53	0.43
1:A:482:PHE:CD2	2:B:836:GLU:HB3	2.53	0.43
1:A:740:LEU:HD23	1:A:740:LEU:H	1.84	0.43
1:A:765:VAL:HG11	1:A:816:HIS:HD2	1.84	0.43
2:B:1076:HIS:O	3:C:31:ASN:ND2	2.51	0.43
1:A:524:VAL:HG12	1:A:525:GLN:N	2.33	0.43
1:A:602:ASP:HB3	1:A:616:VAL:HG23	2.01	0.43
1:A:406:ILE:N	1:A:431:LYS:O	2.49	0.43
2:B:1181:GLU:HG2	2:B:1188:LYS:HG2	2.00	0.43
1:A:335:ARG:HE	2:B:1202:LEU:HD22	1.82	0.43
2:B:1073:TYR:HE2	3:C:179:GLU:HA	1.83	0.43
3:C:31:ASN:OD1	3:C:34:ARG:NH1	2.47	0.43
3:C:233:GLU:CD	7:J:43:ARG:HH21	2.26	0.43
4:E:93:MET:HG3	4:E:120:ALA:HB1	2.00	0.43
6:H:11:GLN:NE2	6:H:52:GLN:OE1	2.52	0.43
1:A:216:VAL:HA	1:A:219:PHE:CE2	2.53	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:894:GLU:OE2	1:A:906:HIS:NE2	2.52	0.43
4:E:128:PRO:N	4:E:129:PRO:HD2	2.33	0.43
1:A:514:PRO:HG2	1:A:1067:LEU:HD11	2.01	0.43
1:A:810:PRO:HB2	2:B:705:MET:HE2	2.01	0.43
1:A:926:GLN:HE21	1:A:930:ASP:HB3	1.84	0.43
2:B:315:LYS:O	2:B:319:GLU:HG2	2.18	0.43
9:L:40:LEU:HD22	9:L:45:ALA:O	2.19	0.43
1:A:366:VAL:O	1:A:463:ILE:HG12	2.19	0.43
1:A:1106:ASN:HA	1:A:1383:SER:HB2	2.01	0.43
1:A:1106:ASN:O	1:A:1107:VAL:C	2.62	0.43
2:B:29:ASP:HB3	2:B:658:ILE:HD13	2.01	0.43
2:B:883:LEU:N	2:B:934:LYS:O	2.48	0.43
5:F:92:ARG:NH2	11:G:60:ARG:HH22	2.17	0.43
1:A:90:VAL:O	1:A:236:LEU:N	2.49	0.42
1:A:663:SER:HB3	2:B:1085:ILE:HA	2.00	0.42
1:A:959:ASN:O	1:A:963:ILE:HG13	2.18	0.42
2:B:25:ILE:HG22	2:B:26:THR:O	2.19	0.42
2:B:351:TYR:O	2:B:355:ILE:HG12	2.19	0.42
14:N:3:DG:C6	14:N:4:DG:C6	3.06	0.42
1:A:64:ASN:OD1	1:A:65:LEU:N	2.53	0.42
1:A:330:LYS:HE2	1:A:330:LYS:HB3	1.81	0.42
1:A:386:ASP:OD1	1:A:386:ASP:N	2.50	0.42
1:A:602:ASP:OD2	6:H:20:TYR:OH	2.31	0.42
1:A:1116:LEU:HB3	1:A:1308:THR:OG1	2.19	0.42
3:C:38:ILE:HG13	3:C:176:ILE:HD12	2.01	0.42
9:L:33:GLU:N	9:L:33:GLU:OE1	2.51	0.42
1:A:915:SER:O	1:A:919:ILE:HG12	2.18	0.42
3:C:74:SER:HA	3:C:129:ILE:HG13	1.99	0.42
4:E:127:ILE:HD11	4:E:132:ILE:HD11	2.01	0.42
1:A:35:ILE:HD12	1:A:52:GLY:O	2.19	0.42
1:A:549:MET:HE1	1:A:656:TRP:CD1	2.41	0.42
5:F:133:VAL:HG11	11:G:58:ARG:HH12	1.85	0.42
1:A:64:ASN:OD1	1:A:65:LEU:HG	2.20	0.42
1:A:583:PRO:HD3	1:A:645:LEU:HD13	2.02	0.42
2:B:25:ILE:CD1	2:B:653:VAL:HG13	2.50	0.42
4:E:12:LEU:HD21	4:E:58:MET:HE1	2.02	0.42
1:A:362:ASP:HB3	1:A:508:PRO:HD3	2.02	0.42
1:A:1107:VAL:HG13	1:A:1332:PHE:CE2	2.54	0.42
1:A:1441:PHE:CZ	5:F:89:GLU:HA	2.55	0.42
2:B:424:LEU:O	2:B:428:ILE:HG12	2.19	0.42
3:C:146:LYS:NZ	7:J:58:GLU:OE2	2.46	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:148:ARG:NH1	7:J:64:ASN:HA	2.34	0.42
1:A:58:LEU:HB3	1:A:244:PRO:HD3	2.02	0.42
1:A:840:ARG:NH2	1:A:1106:ASN:OD1	2.53	0.42
2:B:640:VAL:HG22	2:B:651:LEU:HD23	2.02	0.42
2:B:660:LYS:HE2	2:B:660:LYS:HB3	1.92	0.42
1:A:219:PHE:HD1	1:A:224:PHE:HB2	1.85	0.42
1:A:590:ARG:HB3	1:A:605:MET:HB3	2.01	0.42
1:A:851:HIS:CD2	1:A:857:ARG:HB2	2.55	0.42
2:B:292:ILE:HB	2:B:293:PRO:HD3	2.02	0.42
6:H:10:PHE:HB3	6:H:28:ALA:HB1	2.01	0.42
1:A:744:LYS:HG2	1:A:748:MET:HE3	2.02	0.42
1:A:1345:ARG:HG2	1:A:1372:VAL:HG12	2.01	0.42
3:C:66:ARG:NH2	7:J:3:VAL:O	2.44	0.42
3:C:112:ASN:ND2	7:J:19:GLU:OE2	2.53	0.42
4:E:43:LYS:O	4:E:47:CYS:HB3	2.20	0.42
13:T:15:DC:C2'	13:T:16:DC:O5'	2.67	0.42
2:B:258:LEU:HD13	2:B:269:ILE:HG12	2.01	0.41
2:B:693:ILE:HG23	2:B:697:GLU:HB3	2.01	0.41
2:B:803:LEU:HG	7:J:52:THR:HG21	2.02	0.41
13:T:23:DT:H2''	13:T:24:DC:C5'	2.50	0.41
1:A:10:PRO:HG2	2:B:1192:TYR:HD1	1.85	0.41
1:A:836:TYR:OH	1:A:1403:GLU:OE2	2.34	0.41
1:A:837:ILE:HD12	1:A:1105:LEU:HD22	2.02	0.41
5:F:77:ASP:N	5:F:77:ASP:OD1	2.53	0.41
1:A:14:VAL:HB	1:A:1432:GLN:HE22	1.84	0.41
1:A:366:VAL:C	1:A:463:ILE:HG12	2.45	0.41
1:A:821:ARG:HE	2:B:514:LEU:HB2	1.85	0.41
1:A:875:ALA:HB1	1:A:1364:ASN:HD22	1.84	0.41
2:B:230:ALA:O	2:B:261:ARG:NH2	2.54	0.41
2:B:234:ILE:HD13	2:B:257:LYS:HD2	2.03	0.41
1:A:91:PHE:HZ	1:A:207:ILE:HD12	1.85	0.41
1:A:447:GLN:OE1	1:A:488:ASN:ND2	2.54	0.41
1:A:1004:ASN:OD1	1:A:1007:ILE:HB	2.20	0.41
2:B:542:MET:HE2	2:B:636:PRO:HG2	2.02	0.41
2:B:792:MET:HE3	2:B:857:ARG:HH22	1.85	0.41
2:B:1152:MET:O	2:B:1157:ALA:HB2	2.21	0.41
9:L:32:ALA:CB	9:L:55:ILE:HD11	2.50	0.41
1:A:717:ASN:OD1	1:A:718:VAL:N	2.53	0.41
1:A:1442:ASP:HA	11:G:60:ARG:HH21	1.86	0.41
2:B:94:LYS:HE2	2:B:94:LYS:HB3	1.93	0.41
2:B:237:VAL:HG22	2:B:257:LYS:HG2	2.01	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
14:N:4:DG:H1'	14:N:5:DA:O4'	2.20	0.41
2:B:380:TYR:O	2:B:384:ARG:HG2	2.20	0.41
1:A:380:VAL:HG22	1:A:430:TRP:O	2.20	0.41
1:A:519:PRO:HD3	1:A:631:HIS:ND1	2.35	0.41
1:A:582:ILE:HD12	1:A:629:LEU:HD21	2.03	0.41
1:A:637:LYS:HD3	1:A:641:VAL:HG11	2.02	0.41
1:A:829:VAL:HG22	2:B:512:ARG:NH1	2.36	0.41
1:A:1059:HIS:HB3	5:F:86:THR:HB	2.02	0.41
1:A:1276:VAL:HG12	1:A:1312:ASN:HD22	1.85	0.41
4:E:180:ARG:HE	4:E:192:ARG:HH21	1.68	0.41
1:A:254:GLU:OE1	1:A:255:SER:OG	2.28	0.41
1:A:1098:VAL:N	1:A:1099:PRO:HD2	2.36	0.41
2:B:384:ARG:HA	2:B:384:ARG:HD2	1.92	0.41
3:C:265:MET:HE1	8:K:21:ILE:HG13	2.03	0.41
6:H:111:LEU:HA	6:H:127:GLY:O	2.20	0.41
1:A:385:ILE:HD11	1:A:428:TYR:CE1	2.55	0.41
1:A:449:SER:HB3	2:B:1137:CYS:SG	2.60	0.41
1:A:636:GLU:O	1:A:637:LYS:C	2.64	0.41
1:A:1111:MET:HB3	1:A:1114:PRO:HG3	2.02	0.41
1:A:1138:ILE:HA	1:A:1276:VAL:HG23	2.03	0.41
1:A:1400:CYS:O	1:A:1405:THR:OG1	2.30	0.41
2:B:41:LYS:O	2:B:45:SER:HB3	2.21	0.41
2:B:840:ILE:HB	2:B:1011:ILE:HB	2.03	0.41
2:B:882:THR:HG21	2:B:885:MET:SD	2.61	0.41
5:F:136:ARG:HD2	5:F:146:TRP:CD1	2.56	0.41
13:T:20:DC:H2''	13:T:21:DT:H5'	2.02	0.41
13:T:23:DT:H2'	13:T:24:DC:C6	2.56	0.41
1:A:328:ARG:HH21	1:A:335:ARG:HH21	1.68	0.41
1:A:1436:ILE:HG22	1:A:1437:GLY:N	2.36	0.41
2:B:783:THR:HG22	7:J:63:TYR:HE2	1.85	0.41
3:C:10:ILE:HD13	3:C:20:PHE:HB3	2.03	0.41
1:A:1127:ASP:OD1	1:A:1127:ASP:N	2.55	0.40
3:C:62:PHE:CE2	3:C:66:ARG:HD2	2.56	0.40
13:T:7:DT:H2''	13:T:8:DC:C4'	2.50	0.40
13:T:14:DC:H2'	13:T:15:DC:C2	2.57	0.40
1:A:50:ILE:HG22	1:A:51:GLY:H	1.85	0.40
2:B:751:VAL:HG22	2:B:812:LEU:HD11	2.03	0.40
2:B:254:LEU:HD22	2:B:361:LEU:HD11	2.04	0.40
2:B:470:LYS:HE2	2:B:470:LYS:HB2	1.84	0.40
2:B:642:ASP:OD1	2:B:642:ASP:N	2.52	0.40
3:C:56:THR:HG22	3:C:57:VAL:N	2.37	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:524:VAL:HG12	1:A:525:GLN:HG2	2.03	0.40
2:B:324:ILE:O	2:B:325:GLN:NE2	2.54	0.40
4:E:166:LYS:HE2	4:E:166:LYS:HB3	1.78	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	1276/1733 (74%)	1227 (96%)	48 (4%)	1 (0%)	48	78
2	B	1082/1224 (88%)	1033 (96%)	49 (4%)	0	100	100
3	C	264/318 (83%)	249 (94%)	15 (6%)	0	100	100
4	E	206/215 (96%)	199 (97%)	7 (3%)	0	100	100
5	F	81/155 (52%)	79 (98%)	2 (2%)	0	100	100
6	H	130/146 (89%)	117 (90%)	13 (10%)	0	100	100
7	J	63/70 (90%)	58 (92%)	5 (8%)	0	100	100
8	K	112/120 (93%)	112 (100%)	0	0	100	100
9	L	41/70 (59%)	32 (78%)	9 (22%)	0	100	100
10	D	10/221 (4%)	10 (100%)	0	0	100	100
11	G	77/171 (45%)	74 (96%)	3 (4%)	0	100	100
All	All	3342/4443 (75%)	3190 (96%)	151 (4%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	464	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	A	1111/1520 (73%)	1110 (100%)	1 (0%)	88	94
2	B	952/1061 (90%)	952 (100%)	0	100	100
3	C	233/274 (85%)	233 (100%)	0	100	100
4	E	193/197 (98%)	193 (100%)	0	100	100
5	F	73/137 (53%)	73 (100%)	0	100	100
6	H	118/128 (92%)	118 (100%)	0	100	100
7	J	60/65 (92%)	60 (100%)	0	100	100
8	K	98/102 (96%)	98 (100%)	0	100	100
9	L	38/57 (67%)	37 (97%)	1 (3%)	40	70
10	D	10/200 (5%)	10 (100%)	0	100	100
11	G	71/152 (47%)	71 (100%)	0	100	100
All	All	2957/3893 (76%)	2955 (100%)	2 (0%)	87	94

All (2) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	712	GLU
9	L	34	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	GLN
1	A	281	HIS
1	A	339	ASN
1	A	445	ASN
1	A	451	HIS
1	A	479	ASN
1	A	525	GLN
1	A	587	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	881	GLN
1	A	966	ASN
2	B	221	ASN
2	B	325	GLN
2	B	881	ASN
3	C	112	ASN
3	C	231	ASN
4	E	54	GLN
6	H	11	GLN
8	K	76	GLN
11	G	10	ASN
11	G	57	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
12	R	7/9 (77%)	0	0

There are no RNA backbone outliers to report.

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 9 ligands modelled in this entry, 8 are monoatomic - leaving 1 for Mogul analysis.

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
17	ATP	T	101	-	32,33,33	1.39	4 (12%)	48,52,52	1.76	10 (20%)

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
17	ATP	T	101	-	-	3/22/38/38	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	T	101	ATP	C5-C4	4.66	1.47	1.39
17	T	101	ATP	C5-C6	2.68	1.48	1.41
17	T	101	ATP	C8-N7	2.29	1.36	1.31
17	T	101	ATP	C5-N7	-2.27	1.34	1.39

All (10) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
17	T	101	ATP	C5-C4-N3	-5.80	118.74	126.72
17	T	101	ATP	N3-C4-N9	4.58	134.96	127.17
17	T	101	ATP	C2-N3-C4	3.66	120.78	111.83
17	T	101	ATP	C4-C5-N7	-3.49	106.59	110.58
17	T	101	ATP	N3-C2-N1	-3.20	123.75	128.58
17	T	101	ATP	C4-N9-C8	2.70	108.58	105.74
17	T	101	ATP	C5-N7-C8	2.55	107.45	103.45
17	T	101	ATP	C3'-C2'-C1'	2.46	106.12	101.46
17	T	101	ATP	C6-C5-N7	2.08	136.11	132.09
17	T	101	ATP	N9-C8-N7	-2.01	111.08	113.94

There are no chirality outliers.

All (3) torsion outliers are listed below:

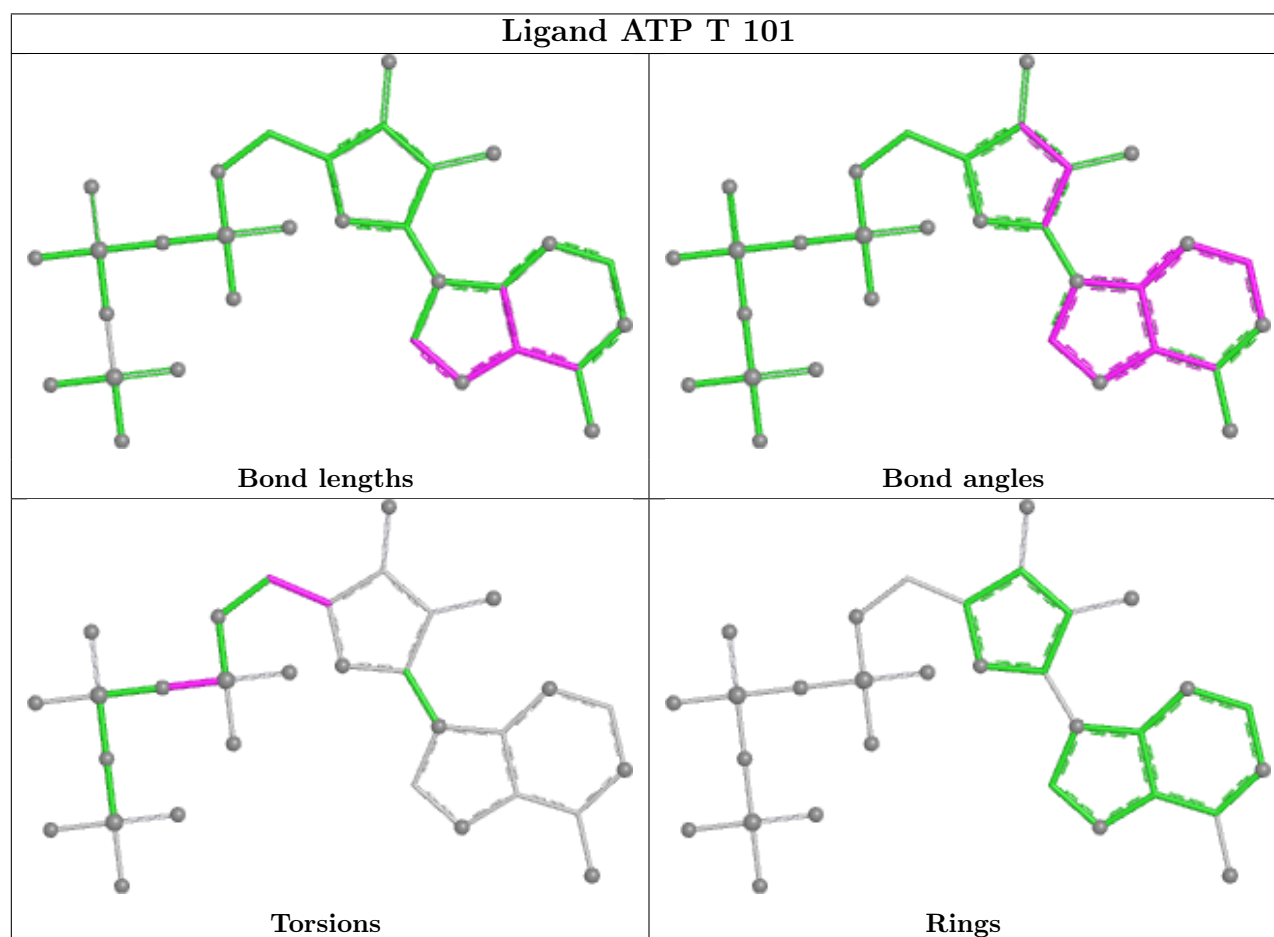
Mol	Chain	Res	Type	Atoms
17	T	101	ATP	PB-O3A-PA-O5'
17	T	101	ATP	C3'-C4'-C5'-O5'
17	T	101	ATP	O4'-C4'-C5'-O5'

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
17	T	101	ATP	1	0

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



5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

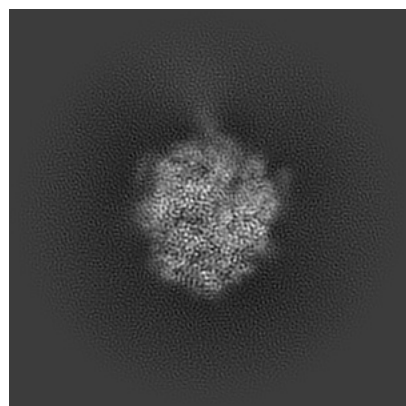
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-61287. These allow visual inspection of the internal detail of the map and identification of artifacts.

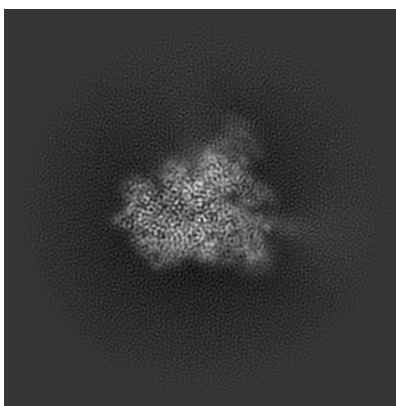
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

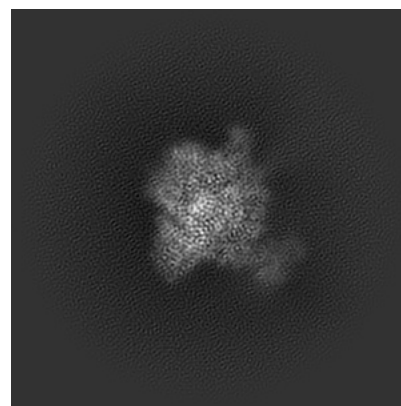
6.1.1 Primary map



X

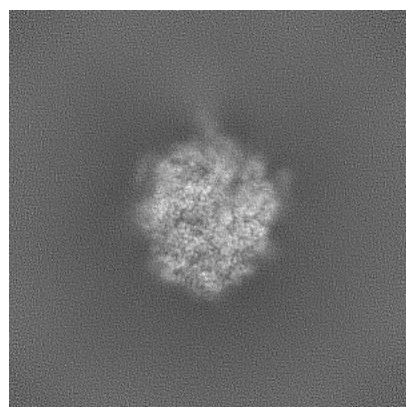


Y

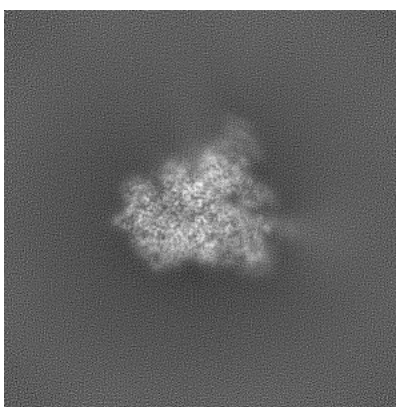


Z

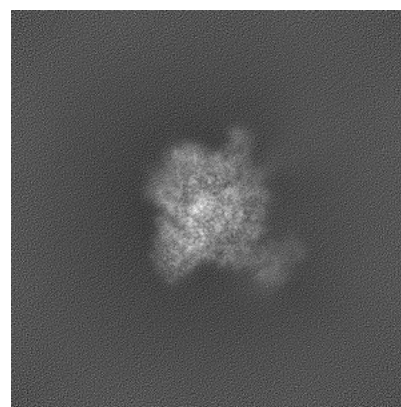
6.1.2 Raw map



X



Y

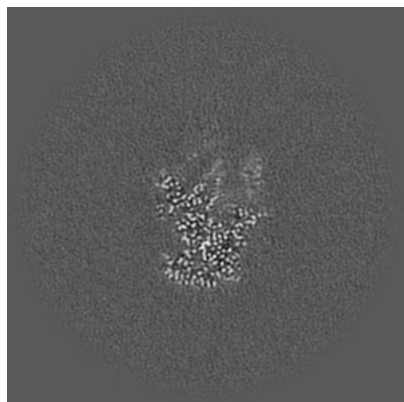


Z

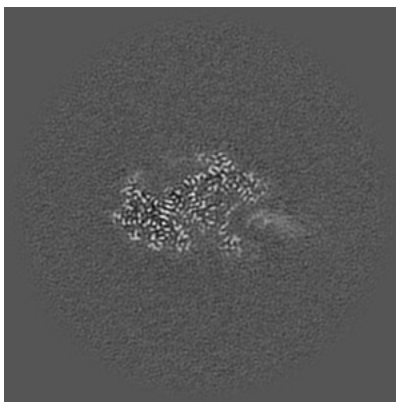
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

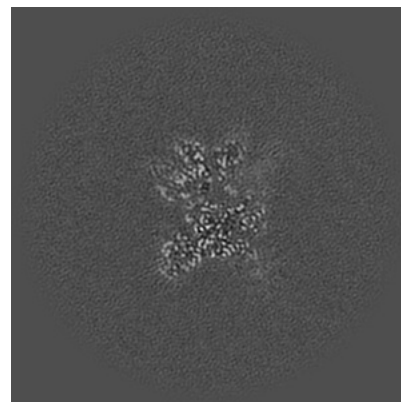
6.2.1 Primary map



X Index: 210

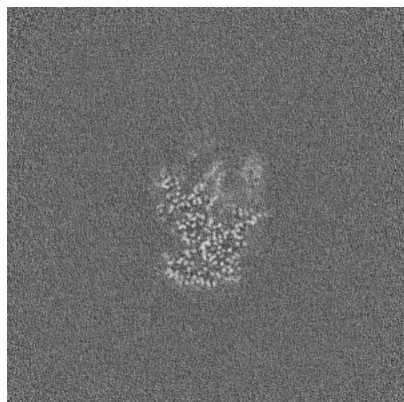


Y Index: 210

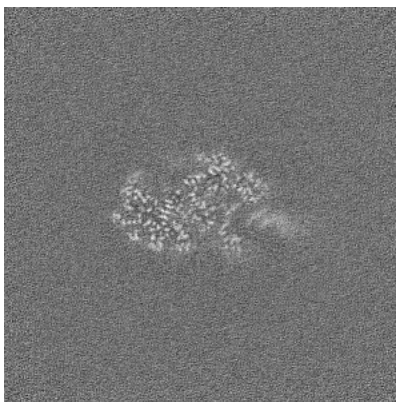


Z Index: 210

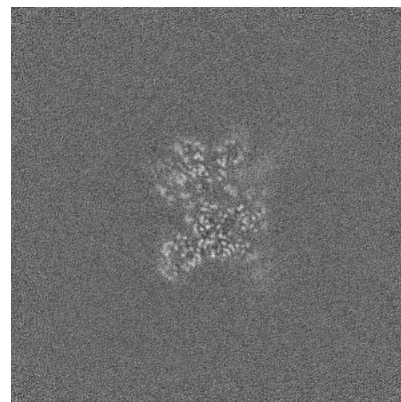
6.2.2 Raw map



X Index: 210



Y Index: 210

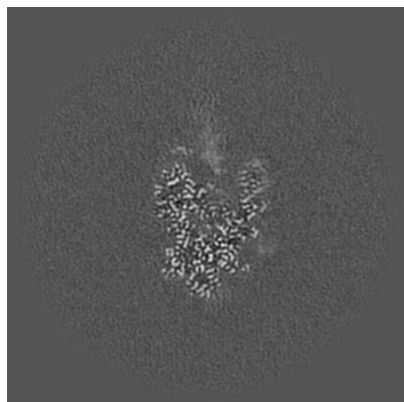


Z Index: 210

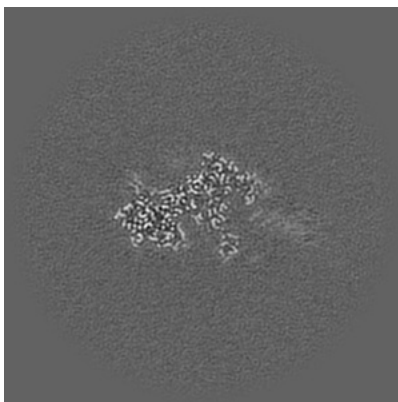
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

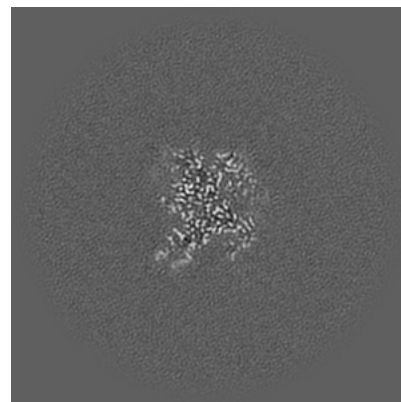
6.3.1 Primary map



X Index: 200

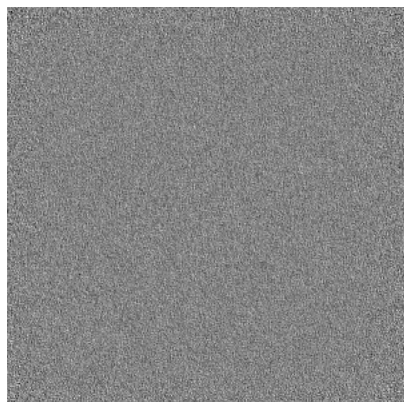


Y Index: 205

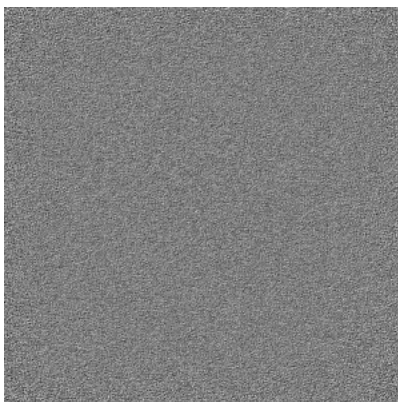


Z Index: 182

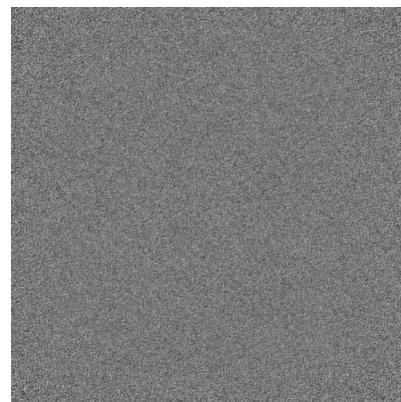
6.3.2 Raw map



X Index: 0



Y Index: 0

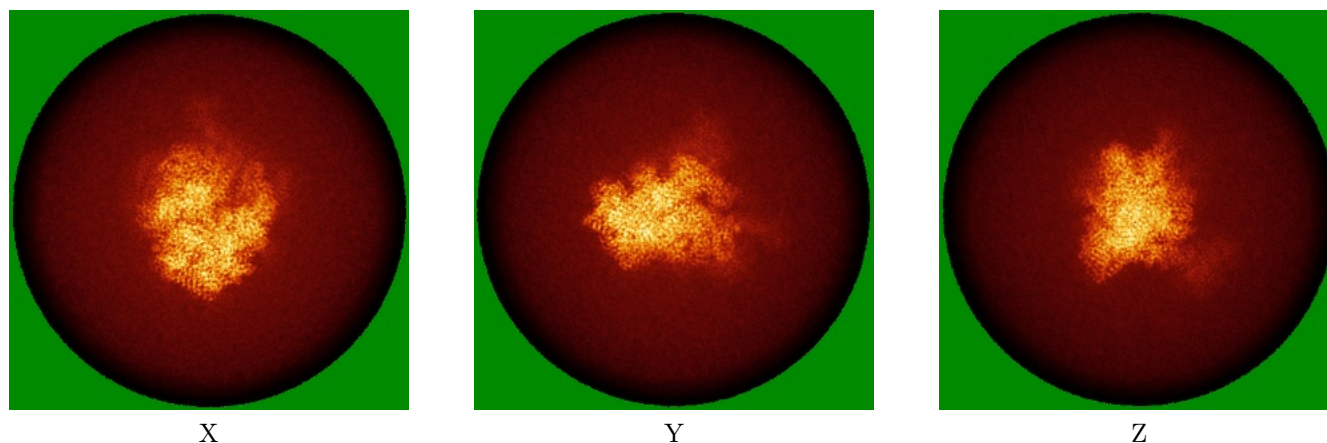


Z Index: 419

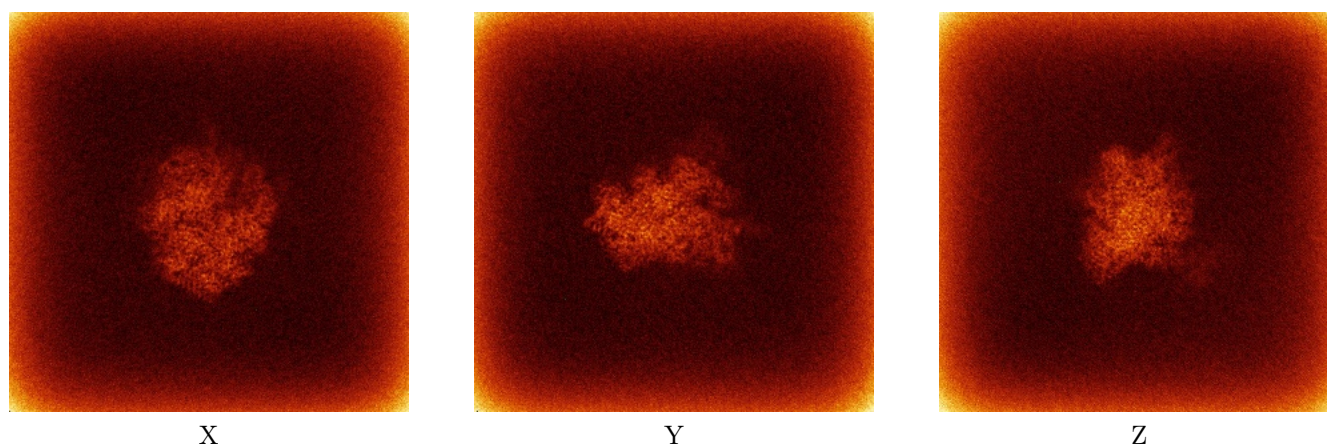
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map



6.4.2 Raw map



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

6.5 Orthogonal surface views [i](#)

This section was not generated.

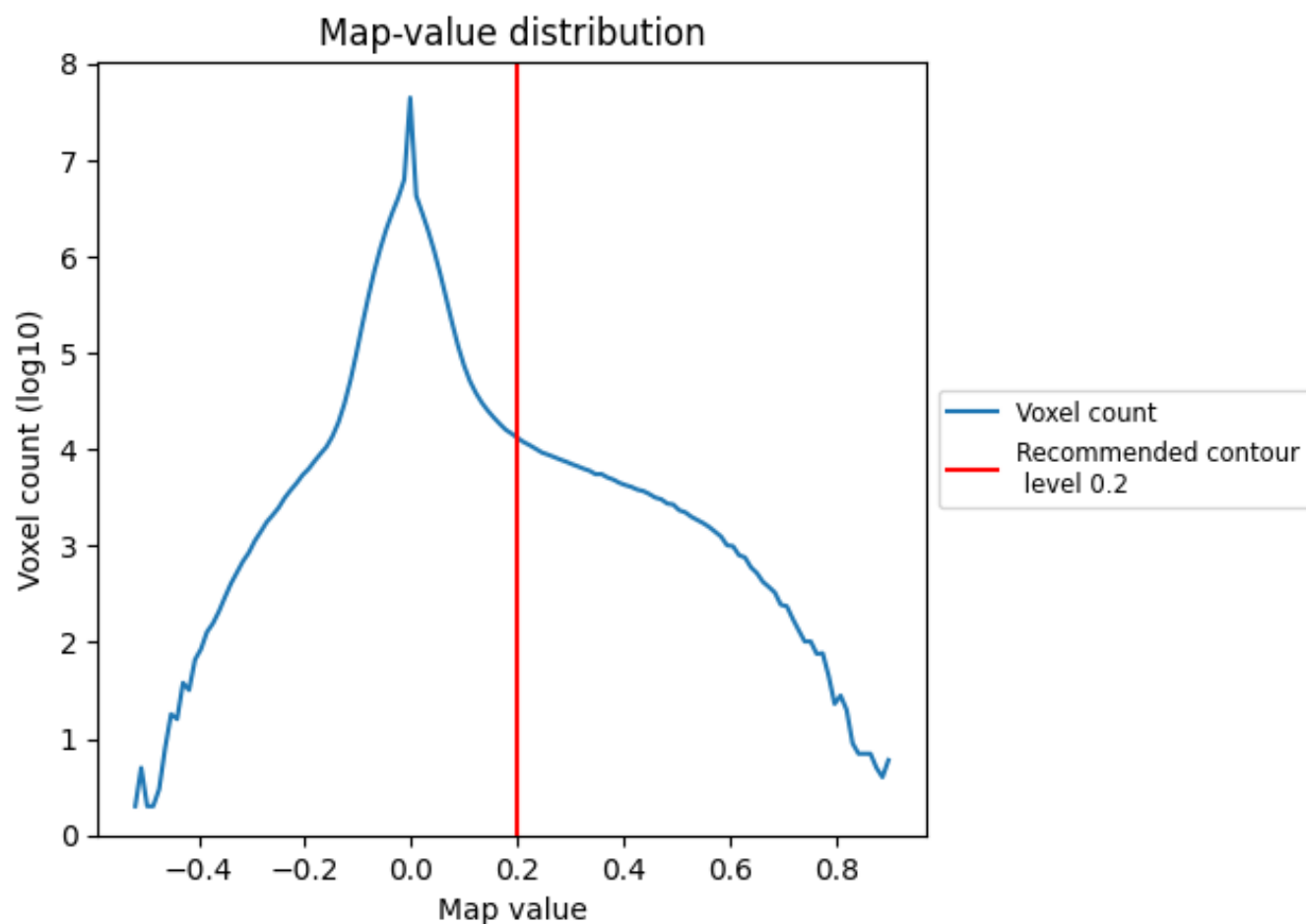
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

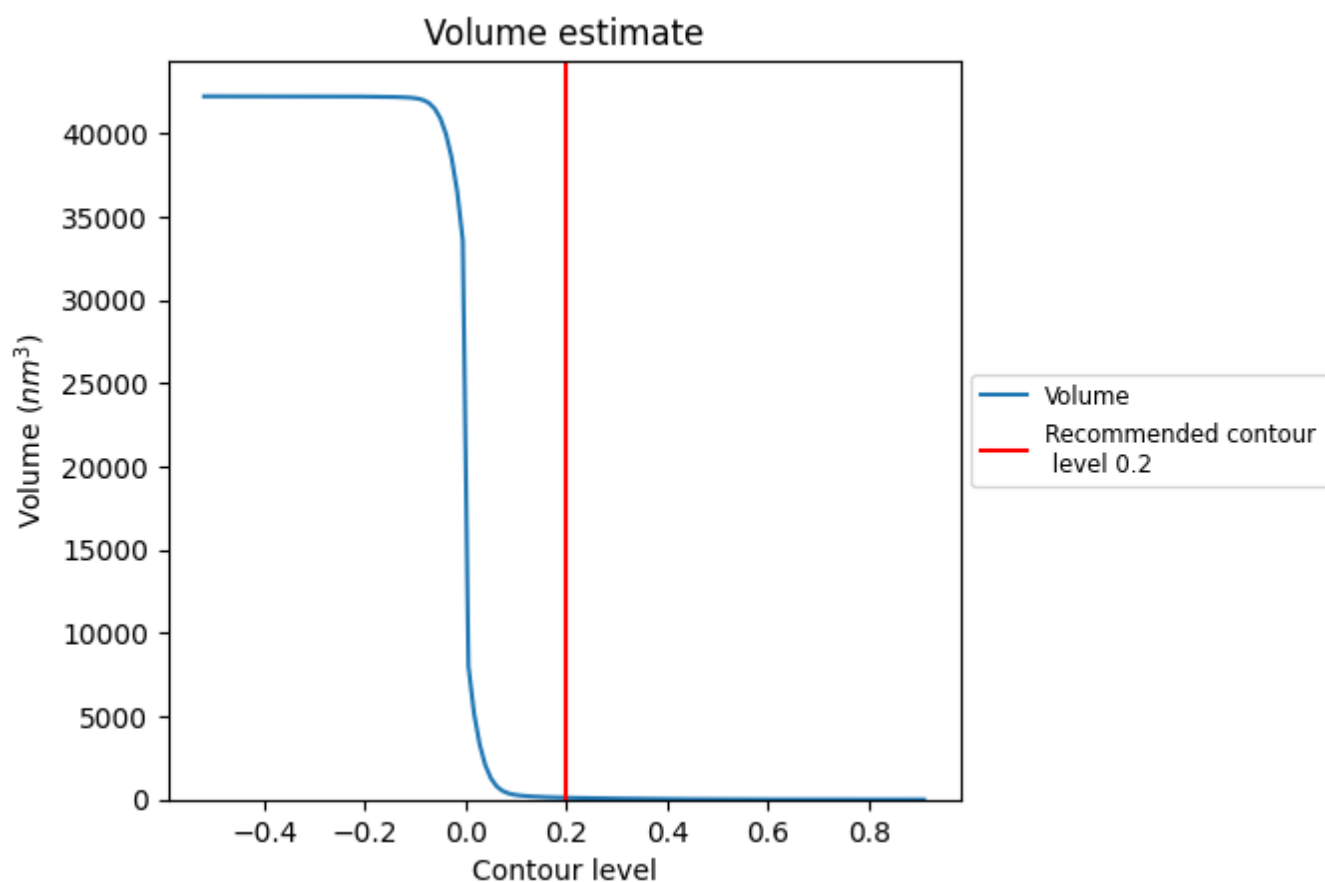
This section contains the results of statistical analysis of the map.

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.

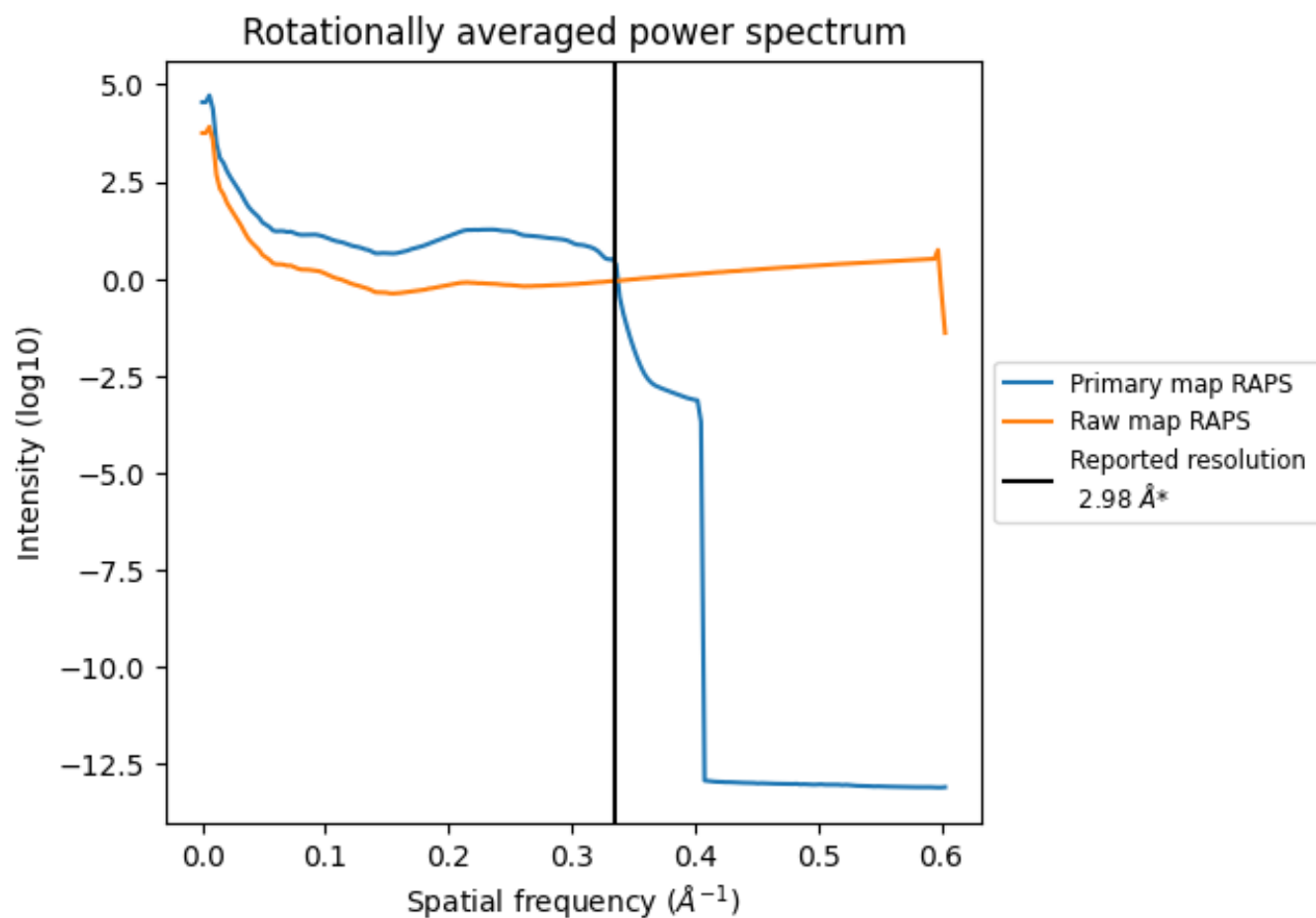
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 110 nm³; this corresponds to an approximate mass of 100 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 ⓘ

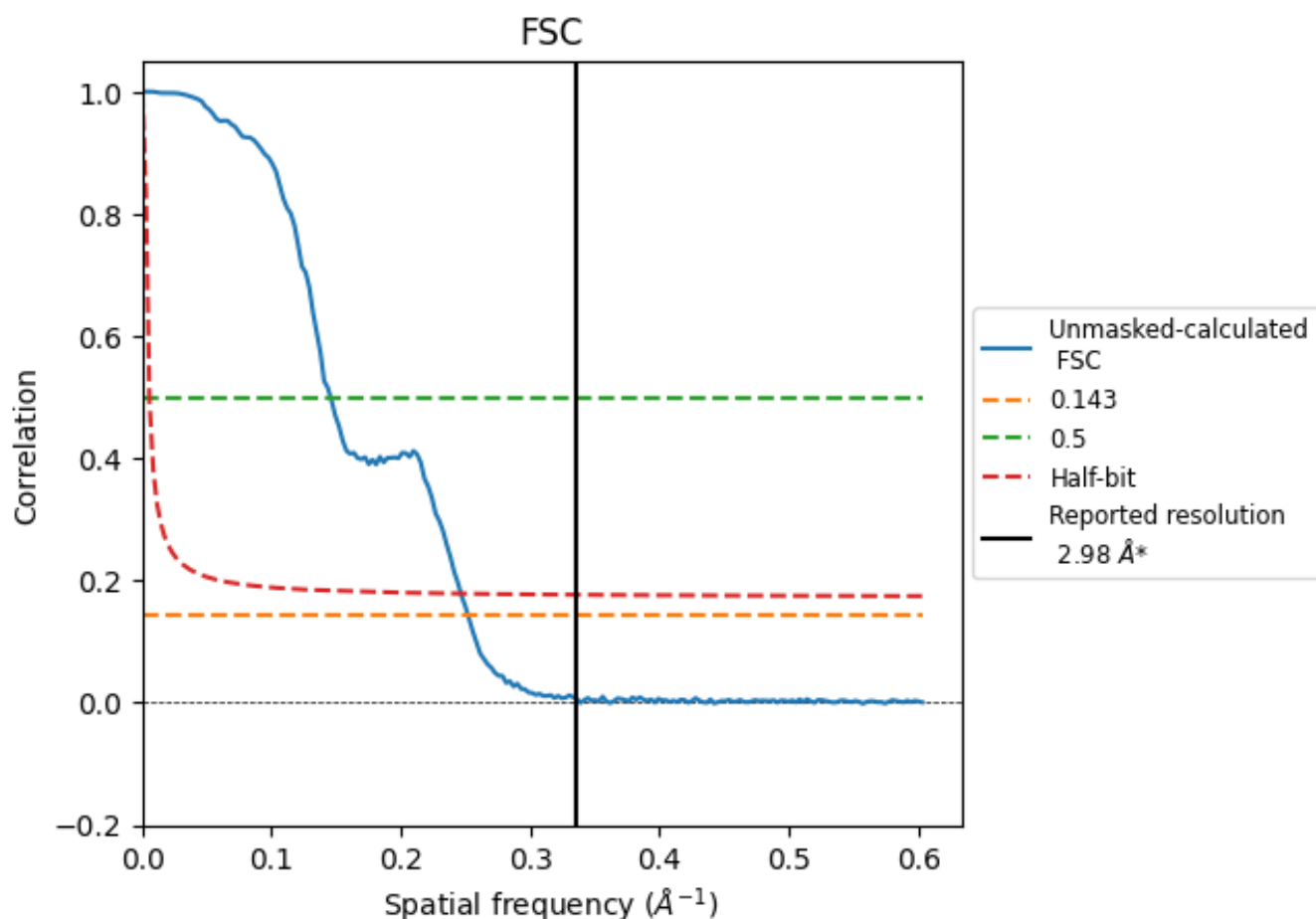


*Reported resolution corresponds to spatial frequency of 0.336 Å⁻¹

8 Fourier-Shell correlation [i](#)

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 [i](#)



*Reported resolution corresponds to spatial frequency of 0.336 $\text{\AA}^{-1}$

8.2 Resolution estimates [i](#)

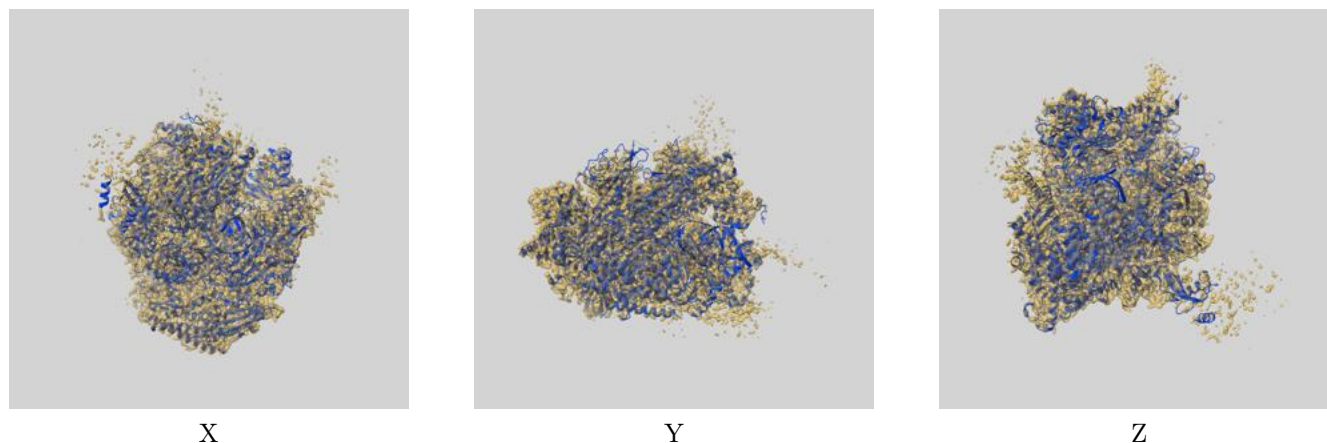
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.98	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	3.97	6.87	4.06

*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 3.97 differs from the reported value 2.98 by more than 10 %

9 Map-model fit [i](#)

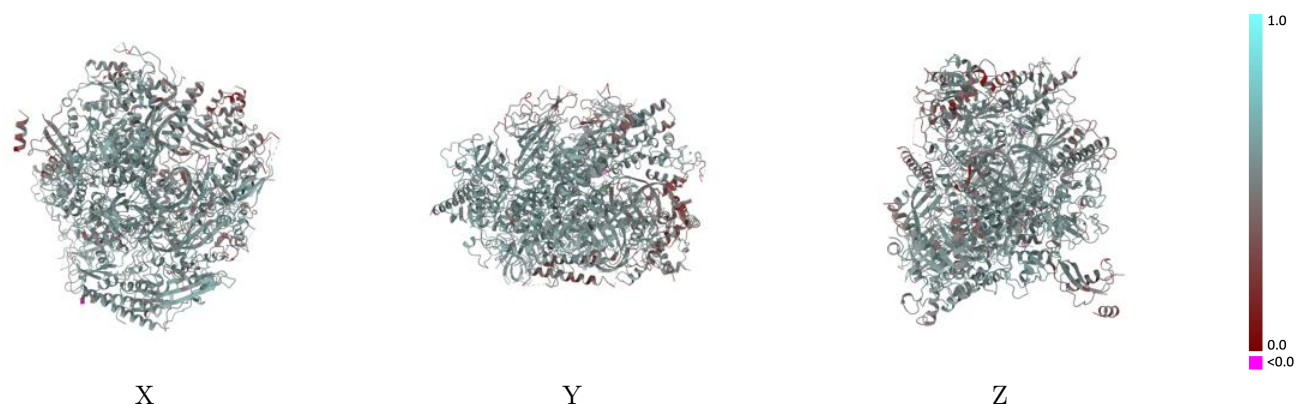
This section contains information regarding the fit between EMDB map EMD-61287 and PDB model 9JA1. Per-residue inclusion information can be found in section [3](#) on page [8](#).

9.1 Map-model overlay [i](#)



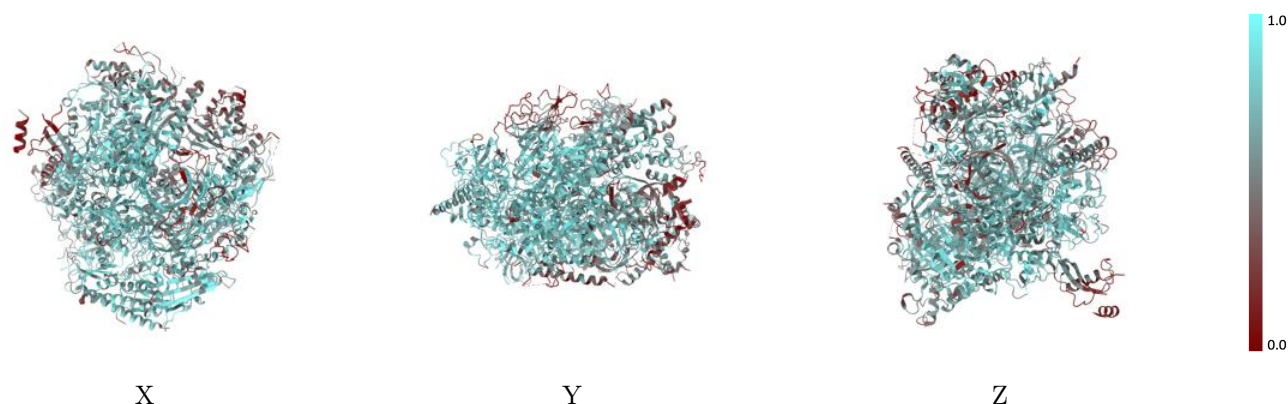
The images above show the 3D surface view of the map at the recommended contour level 0.2 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



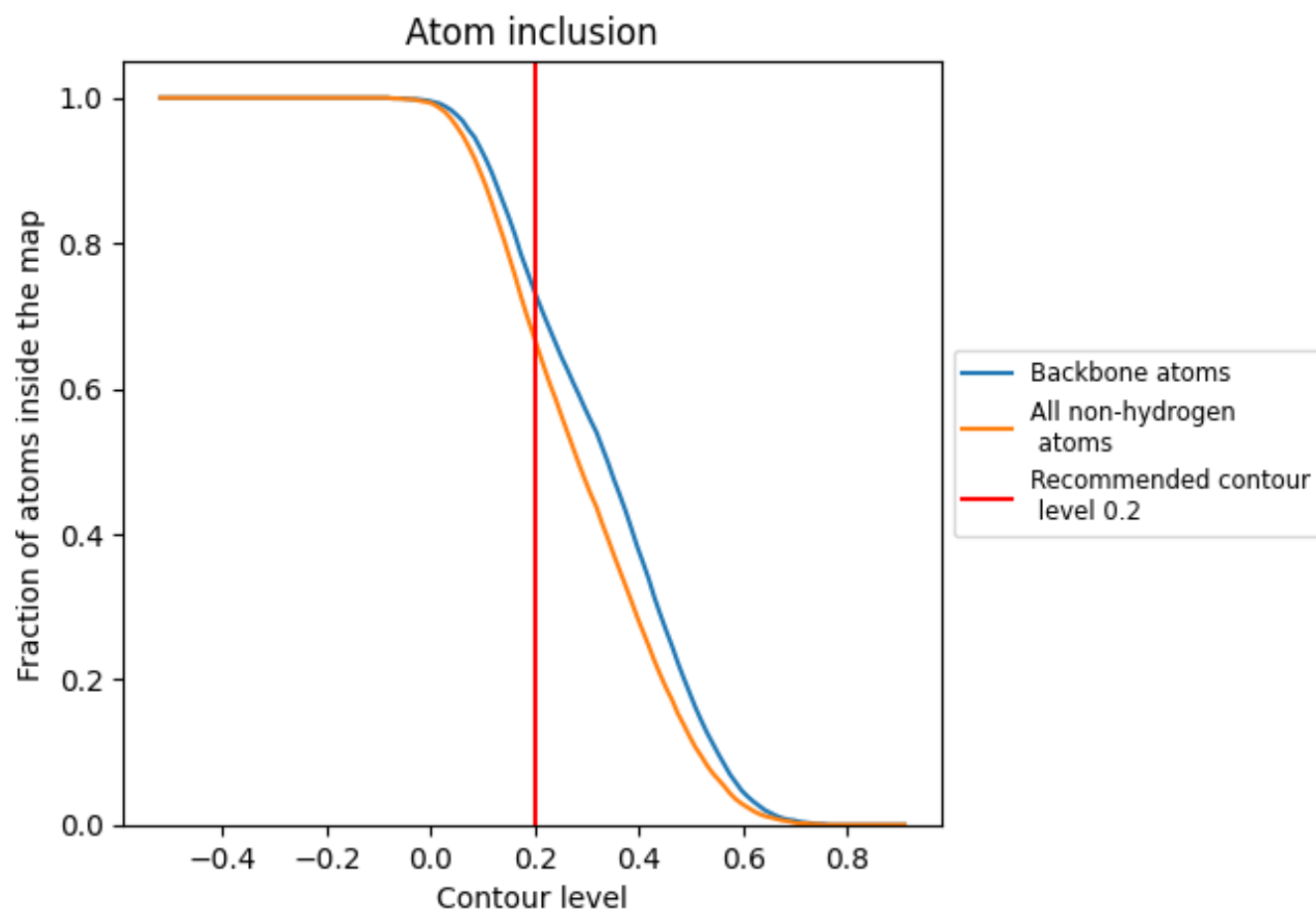
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.2).

9.4 Atom inclusion [i](#)



At the recommended contour level, 73% of all backbone atoms, 67% 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 (0.2) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6670	 0.5370
A	 0.6910	 0.5440
B	 0.6510	 0.5340
C	 0.7360	 0.5580
D	 0.1290	 0.3500
E	 0.6710	 0.5320
F	 0.7210	 0.5640
G	 0.3500	 0.4380
H	 0.6810	 0.5360
J	 0.7740	 0.5560
K	 0.7510	 0.5720
L	 0.2600	 0.4320
N	 0.4020	 0.4690
R	 0.8210	 0.5830
T	 0.6340	 0.5120

