



## wwPDB EM Validation Summary Report ⓘ

Dec 11, 2022 – 04:15 am GMT

PDB ID : 6RQT  
EMDB ID : EMD-4985  
Title : RNA Polymerase I-tWH-Rrn3-DNA  
Authors : Mueller, C.W.; Sadian, Y.; Tafur, L.  
Deposited on : 2019-05-16  
Resolution : 4.00 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.3

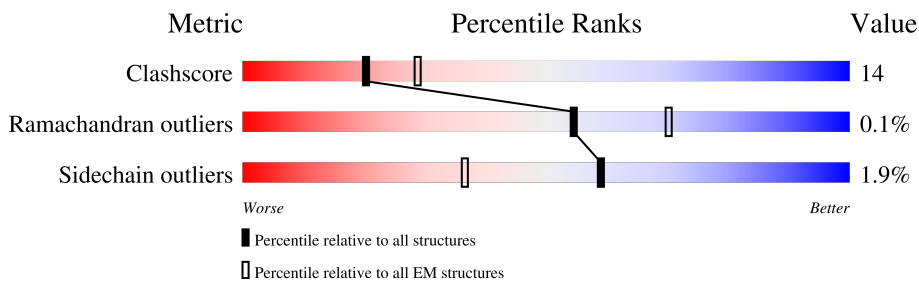
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 4.00 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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  $\geq 3$ , 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	T	70	
2	U	70	
3	A	1664	
4	B	1203	
5	C	335	
6	D	137	
7	E	215	
8	F	155	

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Mol	Chain	Length	Quality of chain
9	G	326	
10	H	146	
11	I	125	
12	J	70	
13	K	142	
14	L	70	
15	M	415	
16	N	233	
17	O	627	

## 2 Entry composition [i](#)

There are 18 unique types of molecules in this entry. The entry contains 39820 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 DNA chain called Template strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	T	18	364	175	59	112	18	0	0

- Molecule 2 is a DNA chain called Nontemplate strand.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	U	14	293	139	59	81	14	0	0

- Molecule 3 is a protein called DNA-directed RNA polymerase I subunit RPA190.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	A	1466	11571	7309	2012	2188	62	0	0

- Molecule 4 is a protein called DNA-directed RNA polymerase I subunit RPA135.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	B	1170	9301	5888	1625	1737	51	0	0

- Molecule 5 is a protein called DNA-directed RNA polymerases I and III subunit RPAC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	C	304	2418	1536	414	460	8	0	0

- Molecule 6 is a protein called DNA-directed RNA polymerase I subunit RPA14.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
6	D	59	467	293	80	94	0	0

- Molecule 7 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	E	214	1751	1111	309	320	11	0	0

- Molecule 8 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	F	100	823	522	144	154	3	0	0

- Molecule 9 is a protein called DNA-directed RNA polymerase I subunit RPA43.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	G	202	1600	1026	276	293	5	0	0

- Molecule 10 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	H	134	1075	677	182	212	4	0	0

- Molecule 11 is a protein called DNA-directed RNA polymerase I subunit RPA12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	I	64	472	295	78	95	4	0	0

- Molecule 12 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	J	69	569	362	101	100	6	0	0

- Molecule 13 is a protein called DNA-directed RNA polymerases I and III subunit RPAC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	K	100	785	491	129	160	5	0	0

- Molecule 14 is a protein called DNA-directed RNA polymerases I, II, and III subunit RPABC4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	L	43	344	211	69	60	4	0	0

- Molecule 15 is a protein called DNA-directed RNA polymerase I subunit RPA49.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	M	392	3100	1978	526	592	4	0	0

- Molecule 16 is a protein called DNA-directed RNA polymerase I subunit RPA34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	N	135	1070	685	175	206	4	0	0

- Molecule 17 is a protein called RNA polymerase I-specific transcription initiation factor RRN3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	O	463	3811	2473	623	694	21	0	0

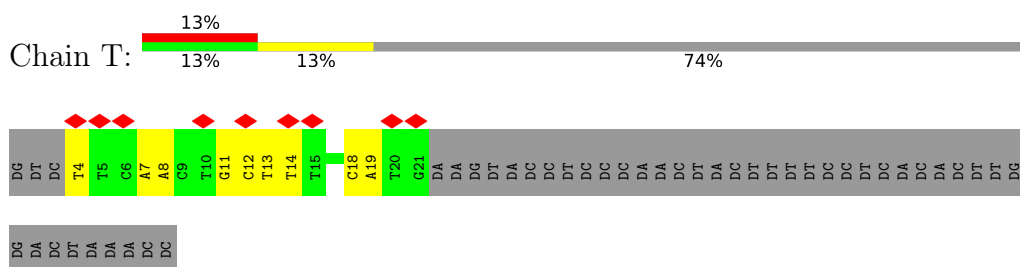
- Molecule 18 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
18	A	2	Total	Zn	0
			2	2	
18	B	1	Total	Zn	0
			1	1	
18	I	1	Total	Zn	0
			1	1	
18	J	1	Total	Zn	0
			1	1	
18	L	1	Total	Zn	0
			1	1	

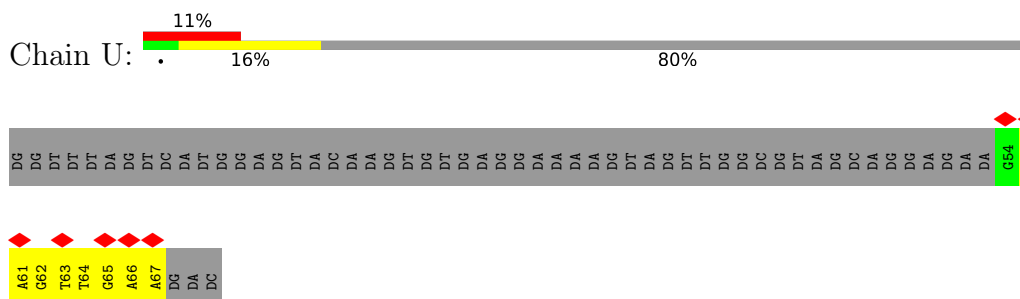
### 3 Residue-property plots [i](#)

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.

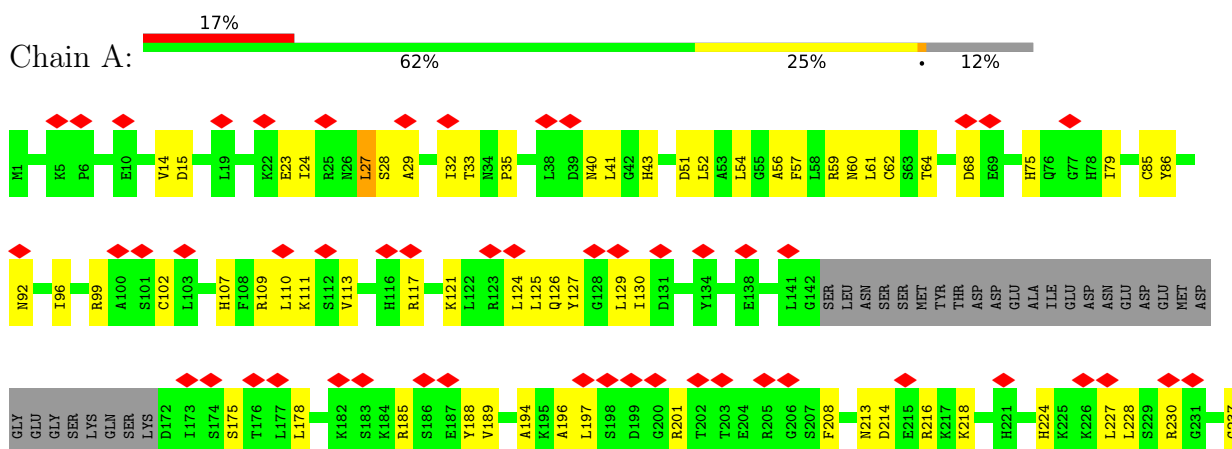
- Molecule 1: Template strand



- Molecule 2: Nontemplate strand

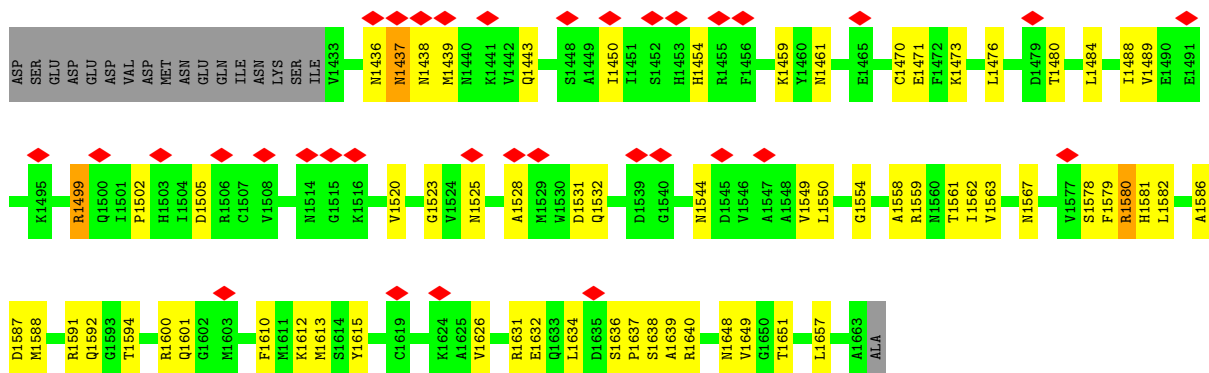


- Molecule 3: DNA-directed RNA polymerase I subunit RPA190

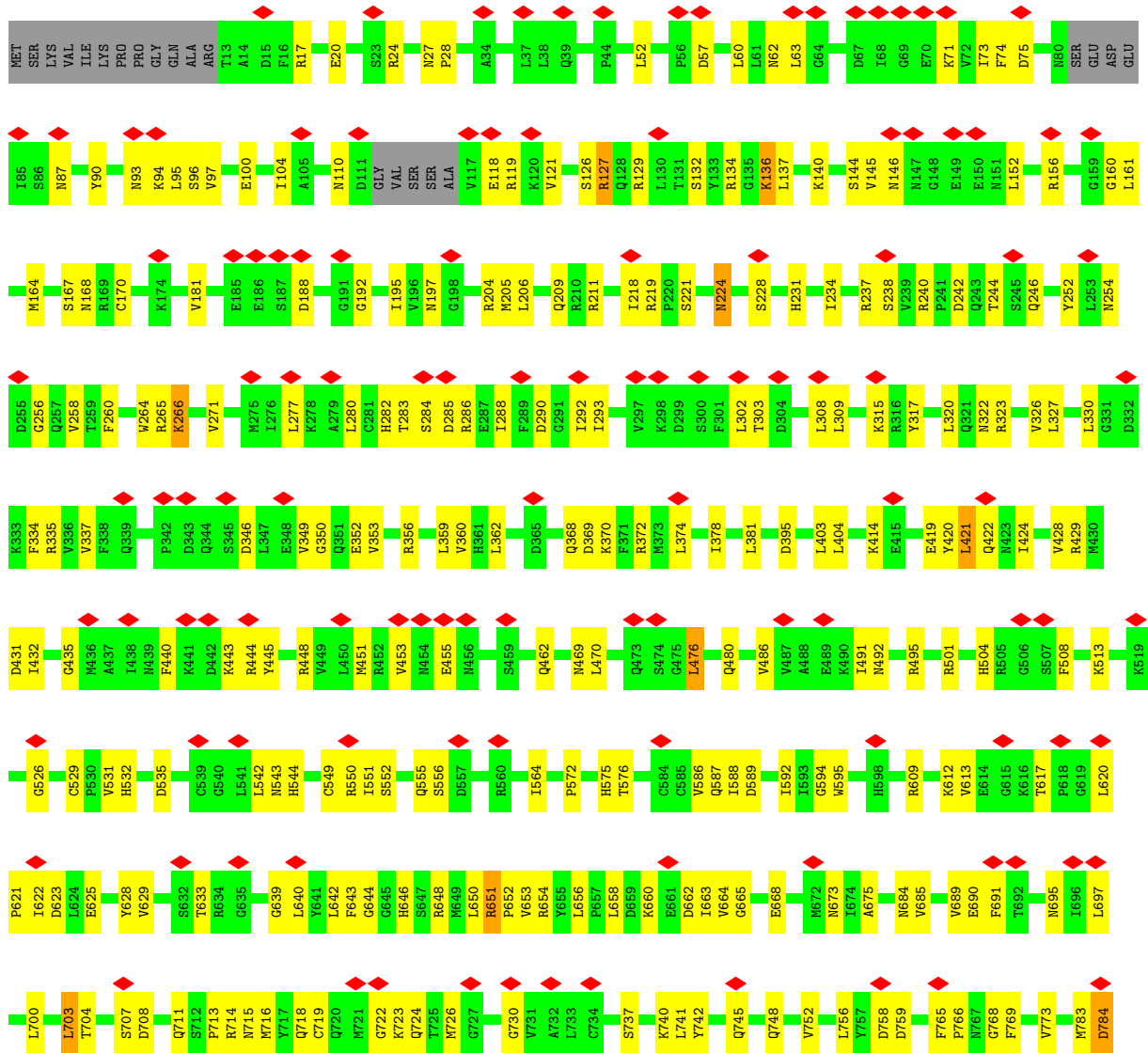


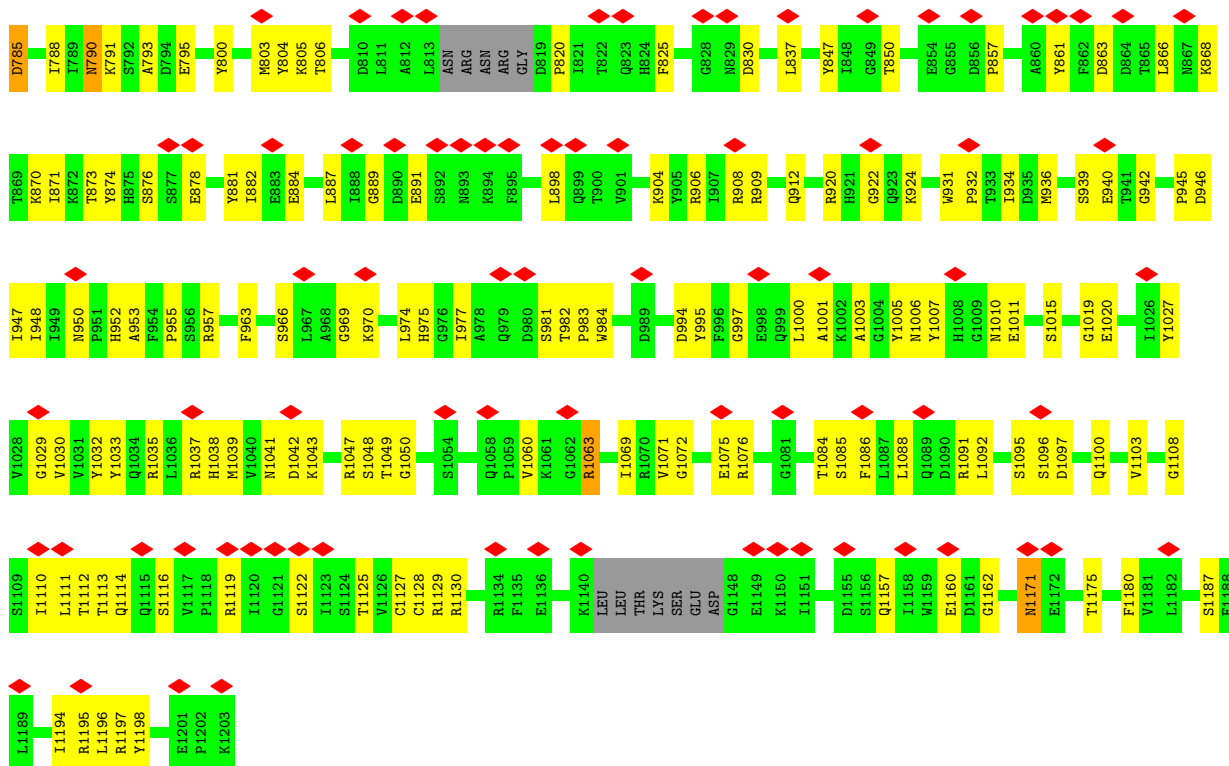
M238	K242	F243	R244	K245	D246	T249	K250	T251	I251	F252	E253	T254	A255	L256	M257	E258	K259	M263	M264	R265	V266	K267	G268	F269	I270	ARG	GLN	ASP	MET	ILE	LYS	LYS	GLN	LYS	GLN	ALA	LYS	LYS	LEU	ASP	GLY	SER	ASN	GLU	ALA	ALA	SER	ALA	ASN	ASP	ASP	ASP	GLU	GLU	GLU	GLU	VAL	GLY	ARG				
ASN	PRO	THR	THR	ARG	PRO	LYS	THR	GLY	S312	T313	Y314	I315	L316	S317	T318	N322	D325	R329	K330	E331	Q332	C333	V334	L335	V338	F339	H340	P343	R347	V350	K351	A352	D353	S354	F355	F356	M357	D358	V359	L360	R368	L369	P370	S371	K372	L373	G374	E375	E376	V377	H378												
E379	N380	S381	Q382	N383	Q384	L385	L386	S387	L394	L395	I396	R397	D398	L399	M400	D401	D402	L403	S404	K405	L406	GLN	LYS	ASP	LYS	VAL	SER	LEU	GLU	ASP	ARG	R417	V418	I419	F420	S421	R422	L423	M424	M425	A426	F427	Q431	M432	D433	V434	M435	A436	F437	Y514	L438	D439	S440	T441	E442	A443	Q444	G445					
R446	T447	S448	G449	K450	V451	P452	I453	V456	K457	Q458	A459	L460	E461	K462	K463	E464	G465	L466	F467	R468	K469	H470	M471	K474	A480	R481	S482	V483	D487	P488	M489	I490	E491	E494	I495	G496	P499	A502	T506	T512	A513	Y514	N515	I516	S517	E518	L519	R520	W530														
P531	G532	I536	Q537	N538	E539	D540	G541	S542	L543	V551	R554	K555	N559	Q560	L561	L562	T563	P564	S565	S566	N567	V568	V569	T570	H571	T572	K575	K576	V577	H580	N583	R584	D585	V586	V587	L588	Q592	M600	M601	G602	V605	R606	V607	L608	T613	L614	R615																
Y618	A626	D629	G630	M634	M635	Q639	N642	E646	A647	L648	N649	L650	A651	N652	T653	D654	S655	Q656	R667	G668	L669	I670	G671	D672	H673	T681	S682	K683	F686	F687	Y692	R701	P702	E703	T708	R709	S710	L715	F720	K721	P722	L723	P724	L725	W726																		
G728	K729	Q730	I732	L736	T740	D743	M744	P745	N748	L749	N757	E758	Y759	K762	D763	S764	L765	F766	M767	F771	K772	D773	G774	L777	L781	D782	K783	Y786	G787	A788	S789	K790	Y791	G792	I793	H794	H795	W809	L810	S811	V812	L813	G814	R815	L816	F817																	
T818	N819	W820	I821	T827	C828	G829	H830	D831	D832	L833	R834	T836	A837	E838	C839	N840	K841	W842	R843	T844	D845	E856	T862	N863	L864	D865	K866	D867	T868	D871	P873	E874	L875	L876	K877	R878	L879	E881	W882	L883	R884	D885	R888	S889	G890	L891	L892	D893	A894	W895	T896												
S897	S898	A902	V908	C911	V912	P913	D914	G915	D919	K919	N923	Q926	L930	S931	Q932	A933	K934	G935	N937	N939	V940	S941	Q942	I943	L946	L947	Q948	Q949	Q950	G954	M960	Y972	D975	Y981	R985	F986	Y987	I990	Y995	A1004	G1005																						
L1006	I1007	A1010	V1011	K1012	T1013	S1014	R1015	Y1018	L1019	L835	R1021	T1024	K1025	Q1026	E1028	G1029	V1030	H1031	L1032	I1038	R1039	D1040	A1041	D1042	G1043	T1044	L1045	V1046	Q1047	Y1050	D1053	A1054	I1055	D1056	I1057	T1058	S1061	H1062	M1063	F1068	C1069	M1072	Y1073	Y1074	A1075	L1076	Y1080																
L1085	I1086	E1087	H1088	L1089	D1090	V1091	A1094	Y1097	S1098	K1099	K1100	K1103	Y1104	R1105	K1106	L1108	K1110	H1113	Y1114	K1115	Q1116	K1119	Y1120	D1121	A1125	K1126	Y1127	M1128	P1129	A1130	K1131	Y1132	L1133	S1137	E1138	K1143	L1148	D1149	K1150	K1153	LEU	PHE	LYS	SER	SER	ASP	GLI	G1160	Q1171														
L1172	K1173	Y1174	M1175	L1176	S1177	L1178	L1179	M1180	P1181	G1182	G1186	A1188	V1193	S1197	T1198	Q1199	T1200	T1201	M1203	L1202	M1204	F1205	HIS	PHE	ALA	GLY	HIS	GLY	ALA	ALA	R1221	L1222	R1223	E1224	T1228	A1231	A1232	I1233	P1236	Q1237	Q1250	A1251	D1252	T1253	F1254	C1255	K1256	K1260															
V1261	L1262	D1268	K1269	V1270	E1274	T1275	L1276	G1277	THR	SER	ASN	ASP	GLU	GLU	ALA	GLY	SER	HIS	LYS	ALA	A1287	R1288	M1294	D1298	E1301	E1304	E1305	Y1306	D1307	E1311	E1332	I1333	K1334	K1335	Q1336	K1337	R1338	THR	THR	GLY	GLU	PRO	GLY	ASP	ASP	VAL	ASP	ALA	VAL	VAL	PRO	SER	ASP	LEU	GLN	THR	ASP	VAL					
ALA	ASN	SER	SER	SER	SER	SER	ARG	LEU	GLU	GLU	ASP	ASN	ASP	GLU	GLN	SER	HIS	LYS	ALA	LYS	THR	THR	ALA	VAL	SER	TYR	ASP	GLU	PRO	ASP	GLU	GLU	GLY	ASP	GLY	ILE	ASP	THR	THR	THR	THR	THR	THR	GLY	GLU	GLU	GLU	GLU	GLY	ILE	ASP	ASP	ASP	VAL	VAL	LYS	VAL	GLU	PRO	SER	ASP	SER	SER



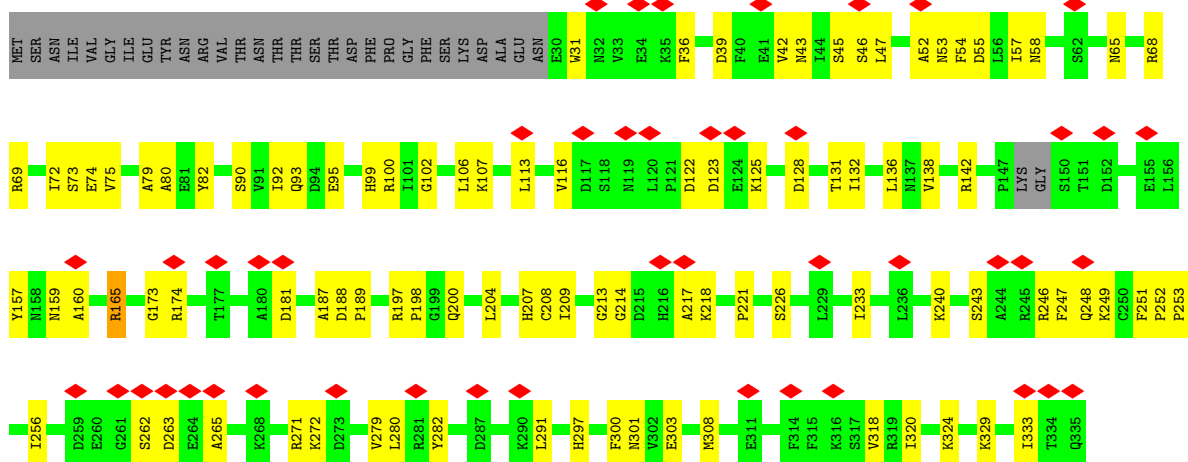


● Molecule 4: DNA-directed RNA polymerase I subunit RPA135

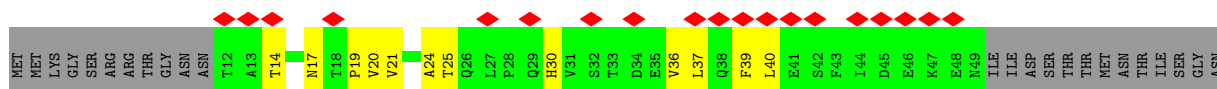


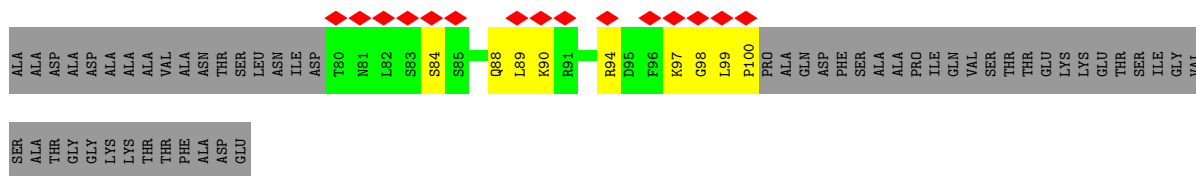


• Molecule 5: DNA-directed RNA polymerases I and III subunit RPAC1

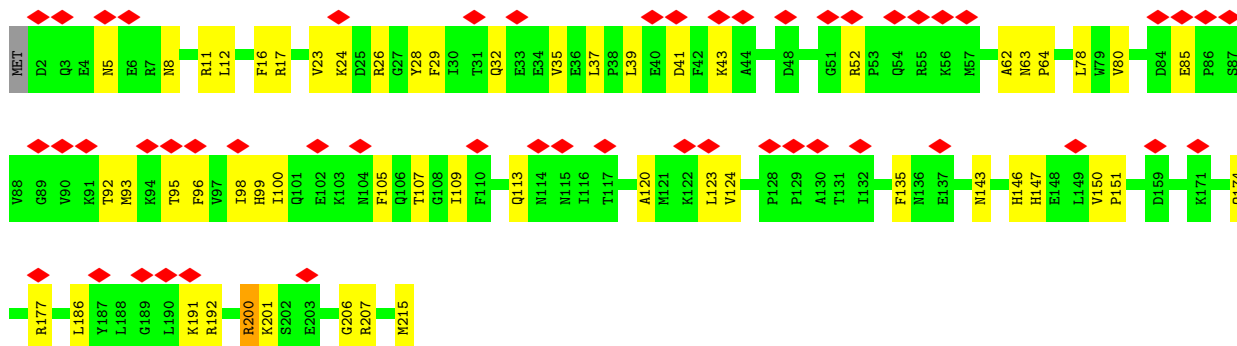
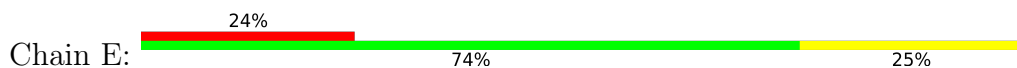


• Molecule 6: DNA-directed RNA polymerase I subunit RPA14

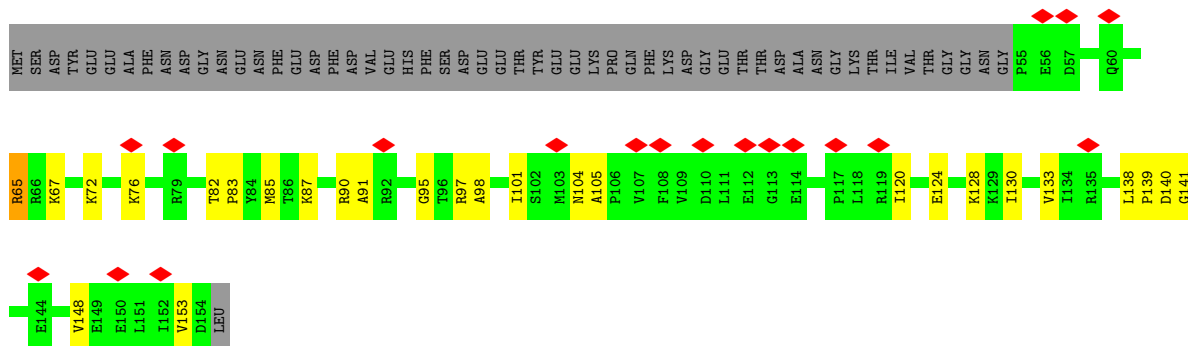




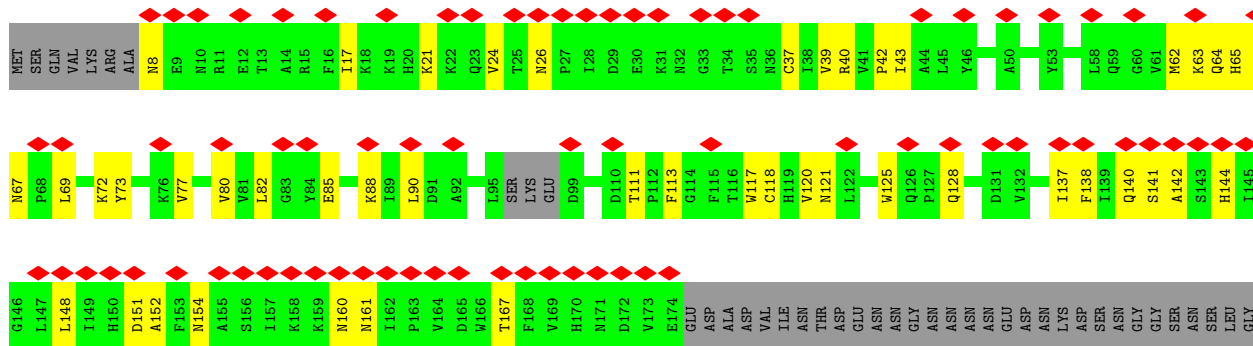
• Molecule 7: DNA-directed RNA polymerases I, II, and III subunit RPABC1



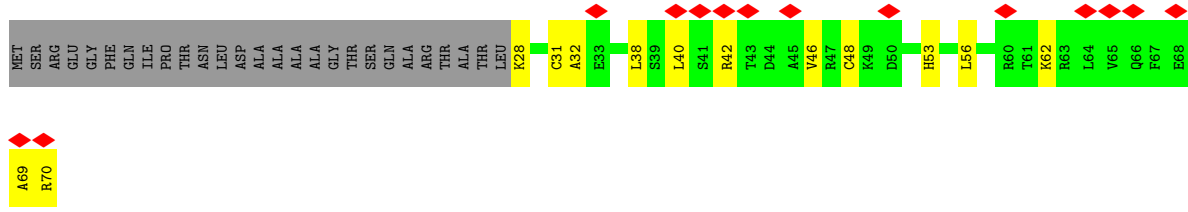
• Molecule 8: DNA-directed RNA polymerases I, II, and III subunit RPABC2



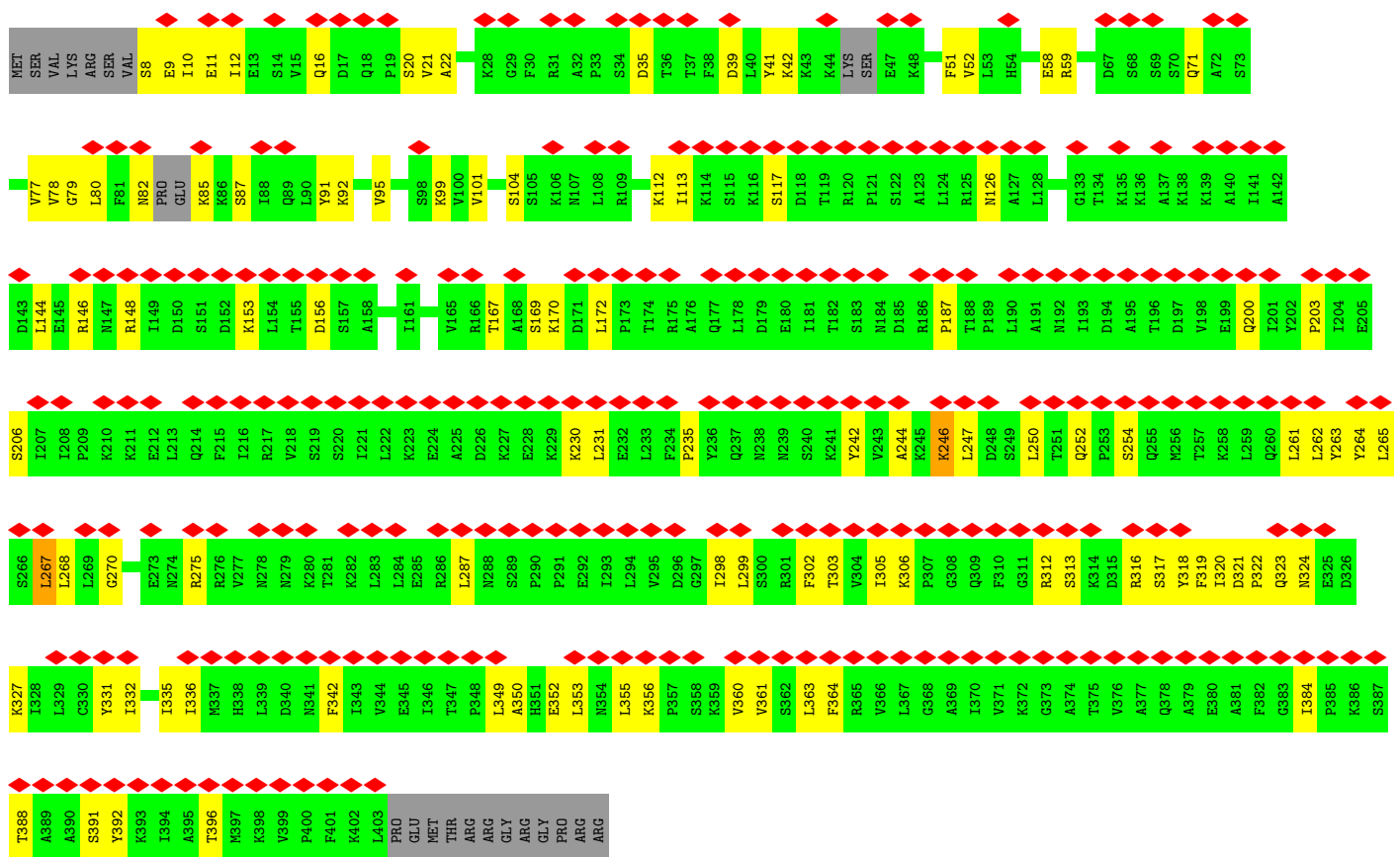
• Molecule 9: DNA-directed RNA polymerase I subunit RPA43



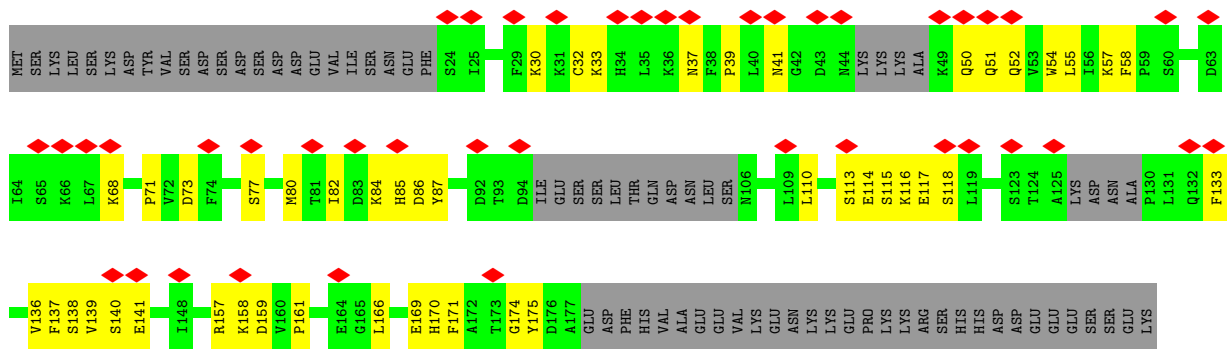




• Molecule 15: DNA-directed RNA polymerase I subunit RPA49

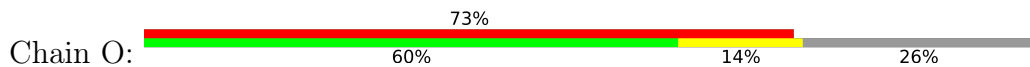


• Molecule 16: DNA-directed RNA polymerase I subunit RPA34



LYS  
LYS  
LYS  
LYS  
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GLU  
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ARG  
GLU  
LYS  
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ARG  
GLU  
GLU  
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ASP  
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LYS  
LYS  
ASP  
ASP  
LYS  
LYS  
LYS  
HIS  
LYS  
ARG  
ASP

● Molecule 17: RNA polymerase I-specific transcription initiation factor RRN3



MET	MET	ALA	PHE	GLU	ASN	THR	SER	LYS	ARG	GLU	LYS	ARG	PRO	PRO	GLN	ASP	ASP	PHE	VAL	ALA	PRO	PRO	ILE	ASP	GLN	LYS	LYS	ARG	LYS	VAL	GLN	PHE	S48	A49	A50	M51	Y52	S53	S54	R54	F55	V56	K57	S58	A59	L60													
D61	D62	L63	D64	K65	M66	D67	S68	T69	Q70	I71	G72	I73	I74	A75	M76	Q77	V78	A79	L80	P81	S82	K83	M84	P85	E86	R87	I88	M89	D90	K91	N92	L93	N94	I95	L96	L97	D98	I99	L100	S101	F102	M103	I104	M105	R106	I107	E108	S109	S110	R111	G112	T113	F114	L115	I116	Q117	S118	I119	I120
M121	F122	K124	W125	W126	E127	L128	P129	P130	H131	T132	L133	S134	K135	Y136	I137	Y138	F139	I140	K141	I142	L143	C144	S145	S146	I147	K148	K149	W150	W151	Q152	D153	V154	S155	M156	I157	L158	V159	S160	C161	F162	I163	L164	P165	I166	K167	Q168	T169	V170	C171	H172	H173	D174	M175	L176	K177	F178	F179	L180	
R181	M182	I183	P184	S185	S186	M187	G188	F189	I190	D191	T192	Y193	L194	A195	K196	F197	F198	P199	M200	K201	M202	D203	T204	R205	R206	K207	L208	V209	M210	Y211	T212	S213	M214	L215	L216	K217	R219	G220	Y221	C222	S223	E224	L225	G226	F227	Q228	T229	W230	S231	L232	I234	E235	K236	I237	S238	I239	I240		
D241	V242	E243	L244	Q245	N246	E247	L248	ASP	GLU	LEU	ASP	ASP	VAL	ASP	ASP	LEU	GLU	GLU	VAL	ASP	LEU	ASP	ASP	GLU	LEU	ASP	ASP	GLY	GLY	ASP	ASP	ASP	ASP	ASN	CYS	GLY	ASN	ASN	ASN	ASN	GLU	GLU	LEU	ARG	SER	GLY	ALA	ALA	ASP	GLY	SER	SER	GLN	SER					
ASP	SER	GLU	ASP	MET	ILE	ILE	GLY	MET	ASP	GLY	THR	GLU	TYR	ASN	VAL	GLU	THR	G324	I325	K326	E327	L328	S329	T330	K331	L332	D333	S334	Q335	L336	T337	L338	V339	S340	M339	H342	V343	E344	E345	Q346	V347	T348	P349	E350	S351	L352	E353	S354	G355	E356	V357	V358	G359	V360					
F361	N362	T363	L364	T365	T366	L367	F368	K369	T370	H371	L373	P374	T375	Y376	Y377	T378	R379	S380	I381	Q382	Y383	I384	M385	F386	H387	V388	S389	Q390	Q391	Q392	L393	E394	L395	M396	D397	S398	F399	L400	Y401	T402	L403	I404	D405	I406	S407	F408	A409	V410	N411	E412	A413	A414	E415	K416	K417	I418	K419	S420	
L421	Q422	Y423	L424	G425	S426	Y427	I428	A429	R430	A431	K432	L433	S435	R436	T437	Q438	I439	I440	F441	V442	A443	S444	Y445	L446	T447	S448	W449	L450	N451	R452	Y453	V454	I455	E456	R457	E458	E459	E460	V461	D462	Q463	R464	G465	G466	M467	R469	F470	K471	H472	F473	Y474	A475	A476	F477	Q478	A479	L480		
C481	Y482	I483	F484	C485	F486	R487	H488	N489	I490	F491	R492	D493	T494	D495	G496	N497	W498	E499	C500	E501	L502	D503	K504	F505	F506	Q507	R508	M509	V510	I511	S512	K513	F514	N515	P516	L517	K518	F519	C520	N521	E522	M523	V524	M525	L526	M527	F528	A529	R530	I531	A532	Q533	Q534	E535	S536	V537	Y538	C540	
F541	S542	I543	I544	E545	N546	N547	N548	N549	E550	R551	ARG	GLY	ILE	ILE	GLY	LYS	ALA	SER	ASP	ASP	LYS	GLU	GLM	ALA	ALA	ASN	THR	SER	SER	TRP	SER	LEU	ALA	T581	R582	Q583	Q584	F585	I586	D587	L588	Q589	S590	Y591	F592	P593	Y594	D595	F596	L597	F598	L599	K600						
M601	K603	I604	L605	M606	K607	E608	Y609	Y610	I611	E612	S613	S614	GLU	ALA	SER	GLY	GLU	TYR	GLU	SER	ASP	ASP	GLY	ASP	ASP	ASN	THR	SER	SER	TRP	SER	LEU	ALA	T581	R582	Q583	Q584	F585	I586	D587	L588	Q589	S590	Y591	F592	P593	Y594	D595	F596	L597	F598	L599	K600						

## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	9789	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 ( $e^-/\text{\AA}^2$ )	1.57175	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.286	Depositor
Minimum map value	-0.181	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.014	Depositor
Recommended contour level	0.05	Depositor
Map size ( $\text{\AA}$ )	233.5168, 233.5168, 233.5168	wwPDB
Map dimensions	176, 176, 176	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.3268, 1.3268, 1.3268	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

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	T	0.54	0/405	0.93	1/622 (0.2%)
2	U	0.46	0/330	0.71	0/508
3	A	0.40	0/11782	0.67	0/15913
4	B	0.44	1/9506 (0.0%)	0.69	0/12847
5	C	0.39	0/2469	0.66	0/3347
6	D	0.31	0/473	0.62	0/641
7	E	0.40	0/1787	0.63	0/2406
8	F	0.38	0/838	0.64	0/1129
9	G	0.34	0/1637	0.62	0/2226
10	H	0.41	0/1093	0.66	0/1480
11	I	0.36	0/478	0.72	0/647
12	J	0.48	0/578	0.76	0/775
13	K	0.38	0/795	0.63	0/1072
14	L	0.33	0/346	0.67	0/457
15	M	0.33	0/3150	0.65	0/4247
16	N	0.38	0/1090	0.71	0/1466
17	O	0.28	0/3897	0.55	0/5268
All	All	0.39	1/40654 (0.0%)	0.66	1/55051 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	121	VAL	C-N	-5.01	1.22	1.34

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	T	11	DG	P-O3'-C3'	5.31	126.07	119.70

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	T	364	0	206	17	0
2	U	293	0	158	15	0
3	A	11571	0	11653	369	0
4	B	9301	0	9193	343	0
5	C	2418	0	2401	74	0
6	D	467	0	468	16	0
7	E	1751	0	1776	36	0
8	F	823	0	841	16	0
9	G	1600	0	1600	38	0
10	H	1075	0	1046	24	0
11	I	472	0	474	7	0
12	J	569	0	587	23	0
13	K	785	0	782	23	0
14	L	344	0	365	8	0
15	M	3100	0	3210	109	0
16	N	1070	0	1085	61	0
17	O	3811	0	3804	53	0
18	A	2	0	0	0	0
18	B	1	0	0	0	0
18	I	1	0	0	0	0
18	J	1	0	0	0	0
18	L	1	0	0	0	0
All	All	39820	0	39649	1077	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 14.

The worst 5 of 1077 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)
3:A:912:VAL:HG22	3:A:913:PRO:CD	1.52	1.37
4:B:1005:TYR:HE1	16:N:171:PHE:CZ	1.54	1.26

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:618:TYR:CD1	4:B:783:MET:HE1	1.70	1.25
3:A:41:LEU:HD12	3:A:43:HIS:ND1	1.53	1.21
4:B:1005:TYR:OH	16:N:169:GLU:HG3	1.39	1.21

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	
3	A	1450/1664 (87%)	1234 (85%)	212 (15%)	4 (0%)	41	75
4	B	1160/1203 (96%)	980 (84%)	177 (15%)	3 (0%)	41	75
5	C	300/335 (90%)	269 (90%)	31 (10%)	0	100	100
6	D	55/137 (40%)	50 (91%)	5 (9%)	0	100	100
7	E	212/215 (99%)	192 (91%)	20 (9%)	0	100	100
8	F	98/155 (63%)	87 (89%)	11 (11%)	0	100	100
9	G	196/326 (60%)	168 (86%)	28 (14%)	0	100	100
10	H	130/146 (89%)	112 (86%)	18 (14%)	0	100	100
11	I	62/125 (50%)	49 (79%)	13 (21%)	0	100	100
12	J	67/70 (96%)	59 (88%)	8 (12%)	0	100	100
13	K	98/142 (69%)	87 (89%)	11 (11%)	0	100	100
14	L	41/70 (59%)	36 (88%)	5 (12%)	0	100	100
15	M	386/415 (93%)	303 (78%)	83 (22%)	0	100	100
16	N	127/233 (54%)	96 (76%)	31 (24%)	0	100	100
17	O	457/627 (73%)	392 (86%)	65 (14%)	0	100	100
All	All	4839/5863 (82%)	4114 (85%)	718 (15%)	7 (0%)	54	84

5 of 7 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	A	913	PRO
3	A	757	ASN
4	B	784	ASP
4	B	684	ASN
3	A	530	TRP

### 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	
3	A	1293/1465 (88%)	1263 (98%)	30 (2%)	50	70
4	B	1025/1053 (97%)	1008 (98%)	17 (2%)	60	78
5	C	269/296 (91%)	265 (98%)	4 (2%)	65	80
6	D	56/116 (48%)	55 (98%)	1 (2%)	59	77
7	E	196/197 (100%)	190 (97%)	6 (3%)	40	63
8	F	90/137 (66%)	86 (96%)	4 (4%)	28	55
9	G	180/291 (62%)	177 (98%)	3 (2%)	60	78
10	H	117/128 (91%)	114 (97%)	3 (3%)	46	67
11	I	56/110 (51%)	53 (95%)	3 (5%)	22	50
12	J	64/65 (98%)	63 (98%)	1 (2%)	62	79
13	K	90/130 (69%)	88 (98%)	2 (2%)	52	71
14	L	38/57 (67%)	35 (92%)	3 (8%)	12	39
15	M	350/371 (94%)	344 (98%)	6 (2%)	60	78
16	N	125/220 (57%)	123 (98%)	2 (2%)	62	79
17	O	427/576 (74%)	427 (100%)	0	100	100
All	All	4376/5212 (84%)	4291 (98%)	85 (2%)	59	75

5 of 85 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
7	E	215	MET
12	J	48	ARG

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Mol	Chain	Res	Type
8	F	67	LYS
10	H	43	ASN
14	L	42	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 81 such sidechains are listed below:

Mol	Chain	Res	Type
7	E	153	HIS
15	M	351	HIS
9	G	8	ASN
10	H	43	ASN
16	N	52	GLN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

### 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

Of 6 ligands modelled in this entry, 6 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.

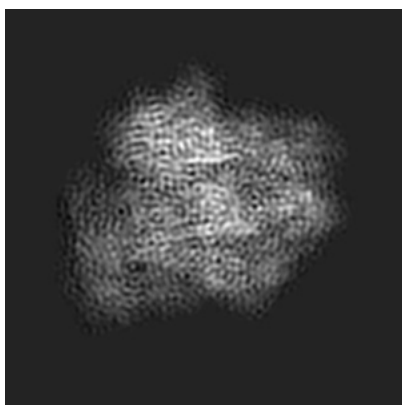
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4985. These allow visual inspection of the internal detail of the map and identification of artifacts.

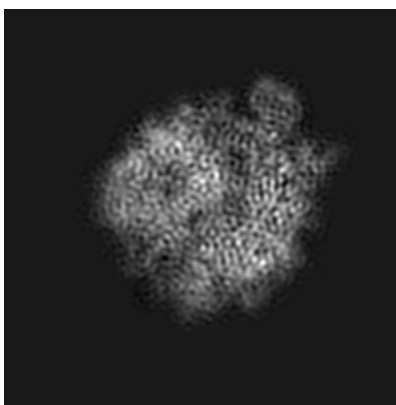
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

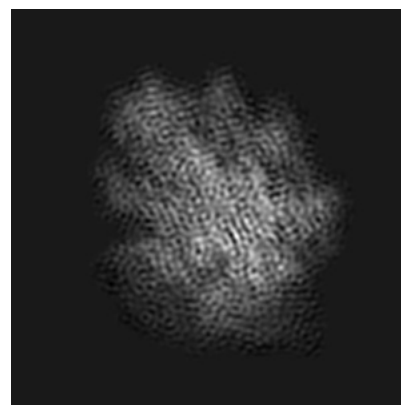
#### 6.1.1 Primary map



X



Y

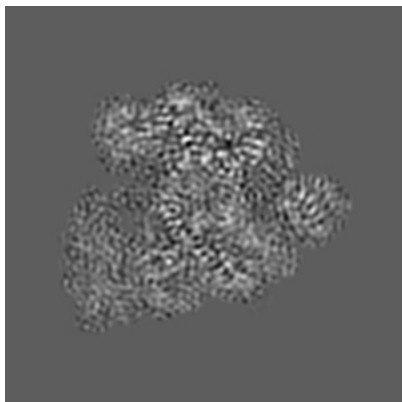


Z

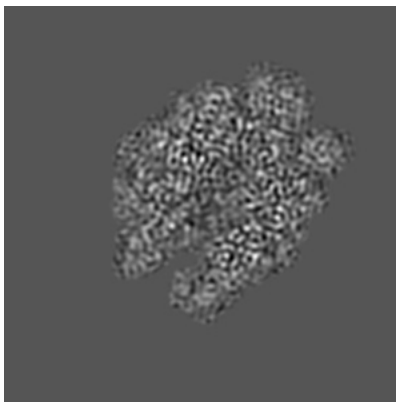
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

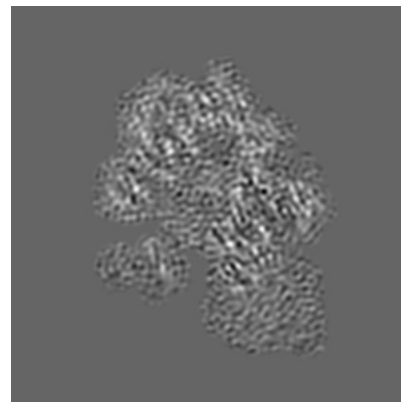
#### 6.2.1 Primary map



X Index: 88



Y Index: 88

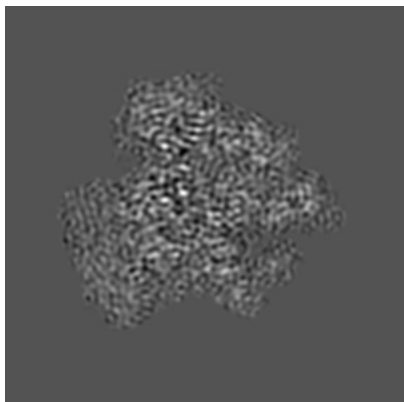


Z Index: 88

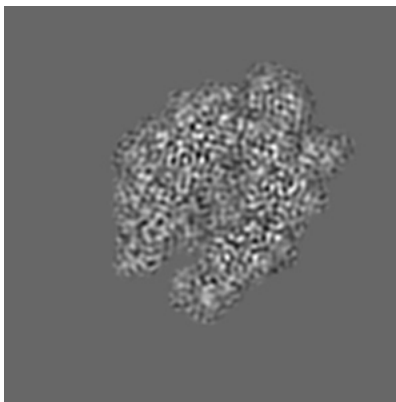
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

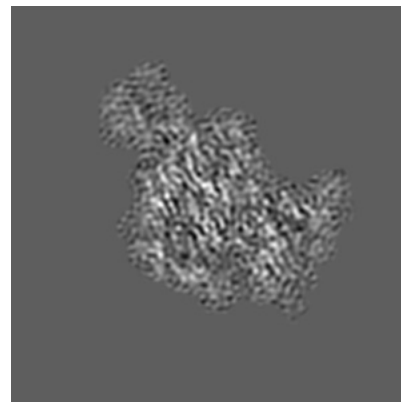
### 6.3.1 Primary map



X Index: 101



Y Index: 89



Z Index: 110

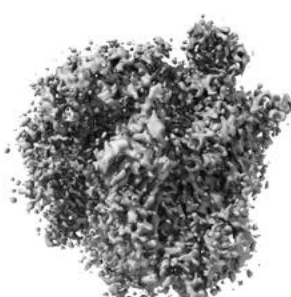
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

## 6.5 Mask visualisation

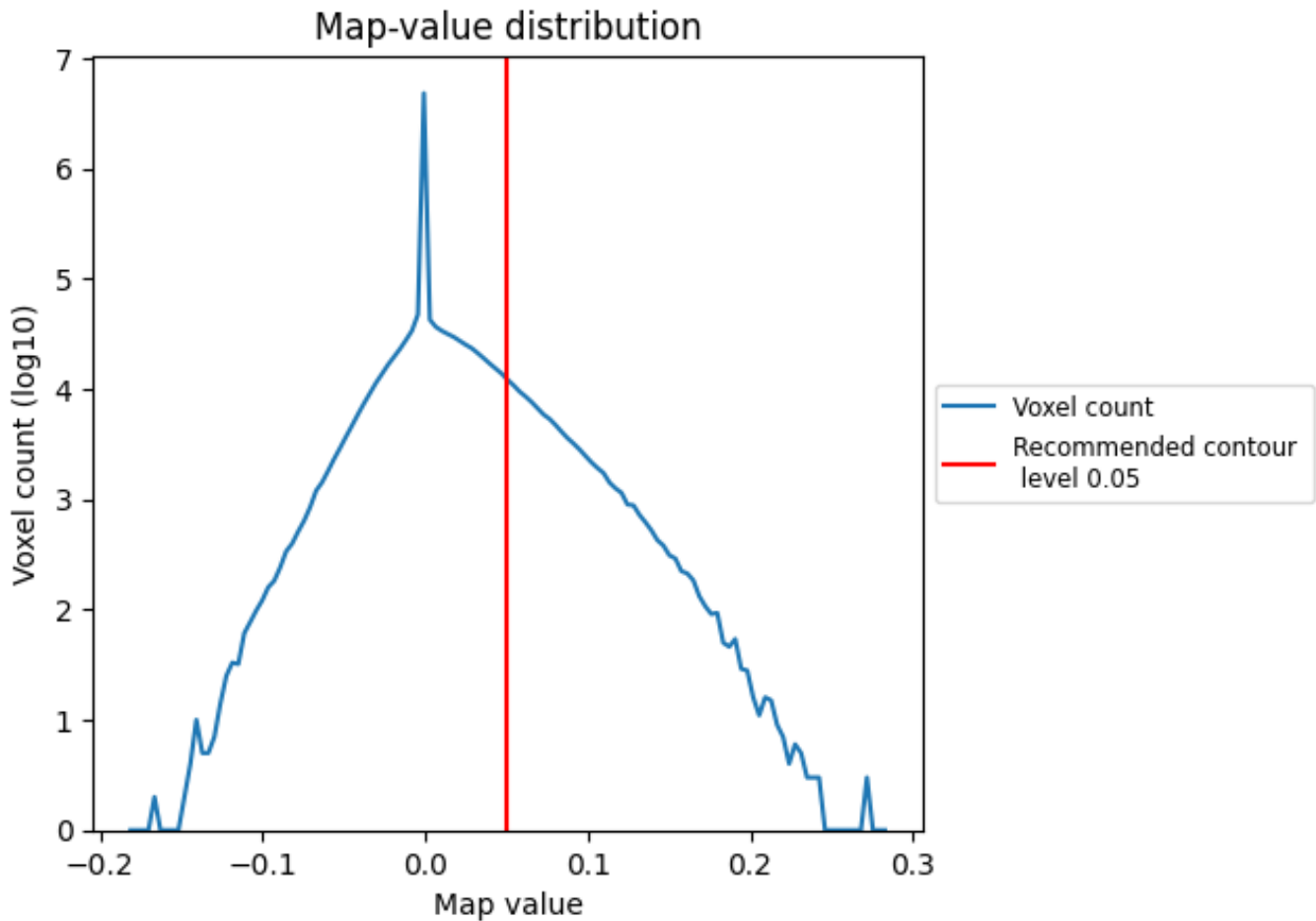
This section was not generated. No masks/segmentation were deposited.



## 7 Map analysis [i](#)

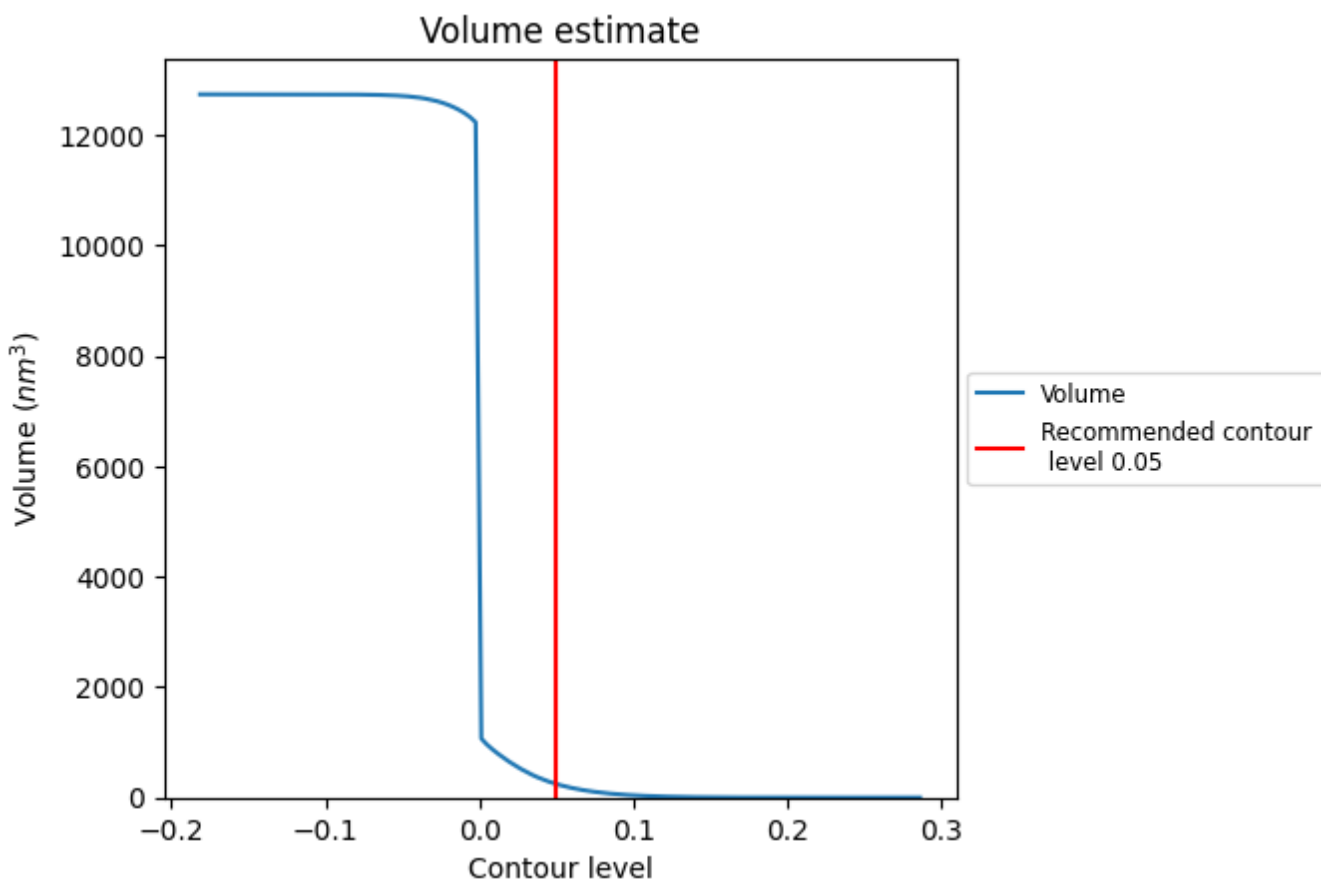
This section contains the results of statistical analysis of the map.

### 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.

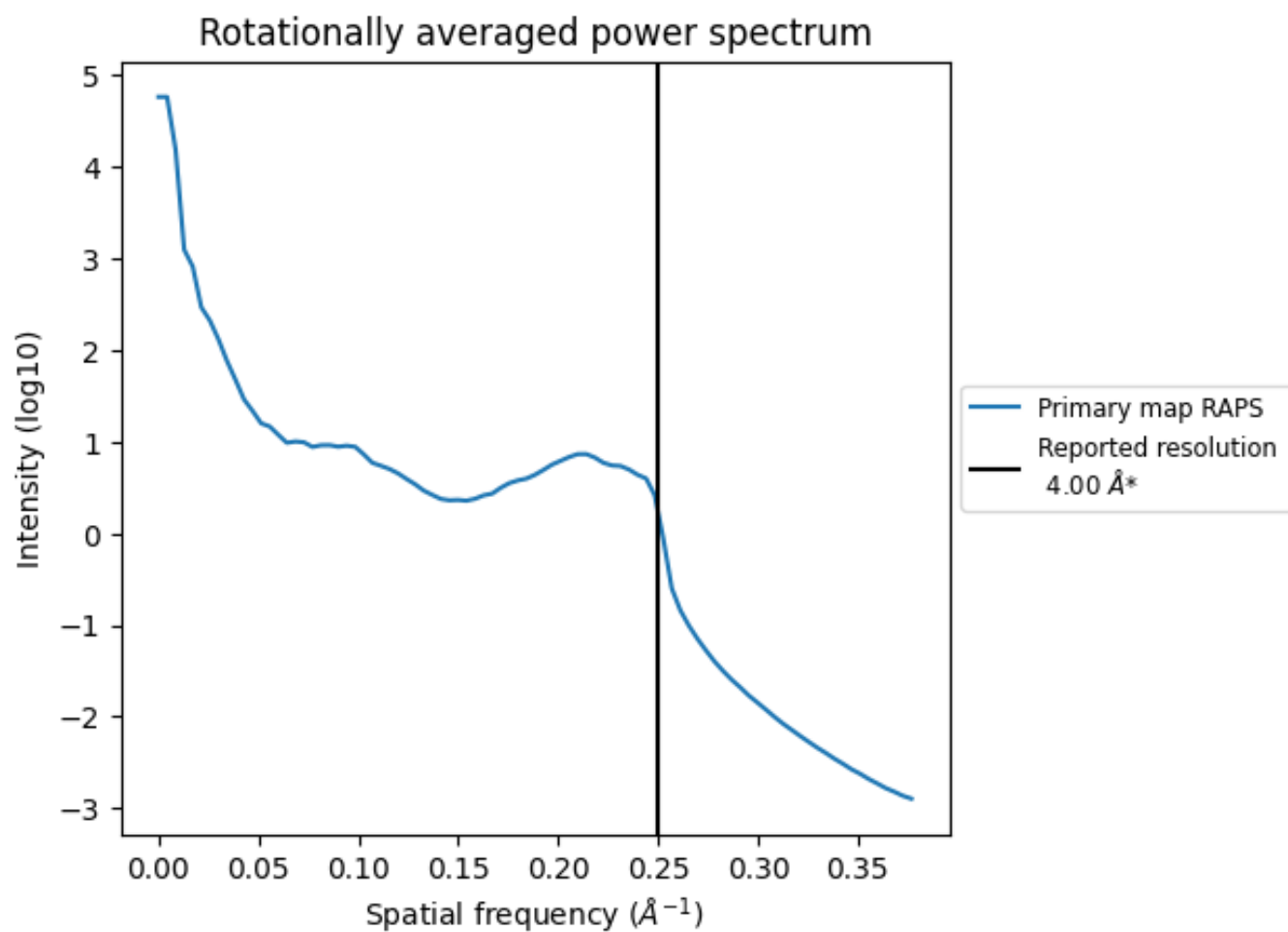
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 247 nm<sup>3</sup>; this corresponds to an approximate mass of 223 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum [i](#)



\*Reported resolution corresponds to spatial frequency of  $0.250 \text{\AA}^{-1}$

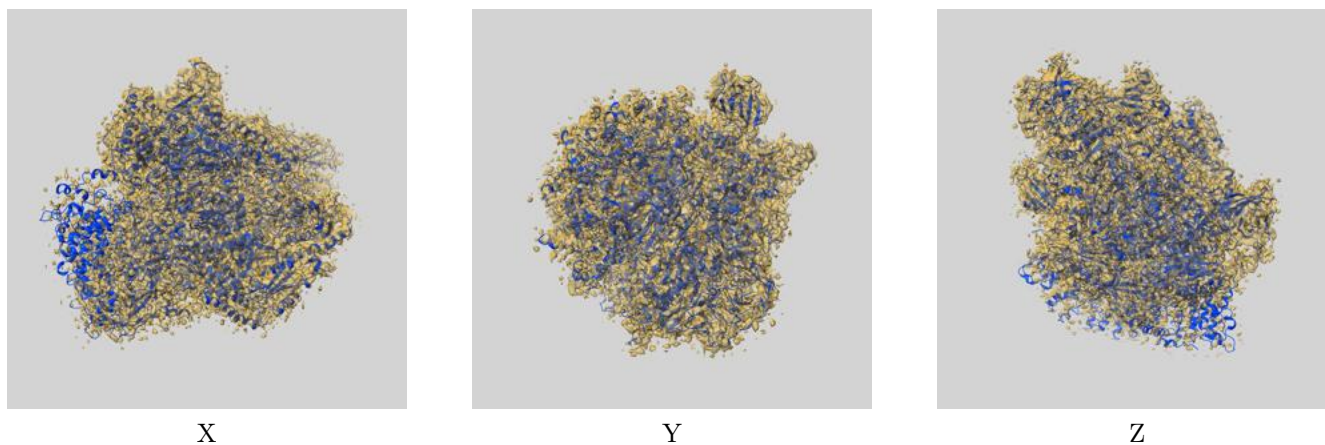
## 8 Fourier-Shell correlation

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

## 9 Map-model fit [i](#)

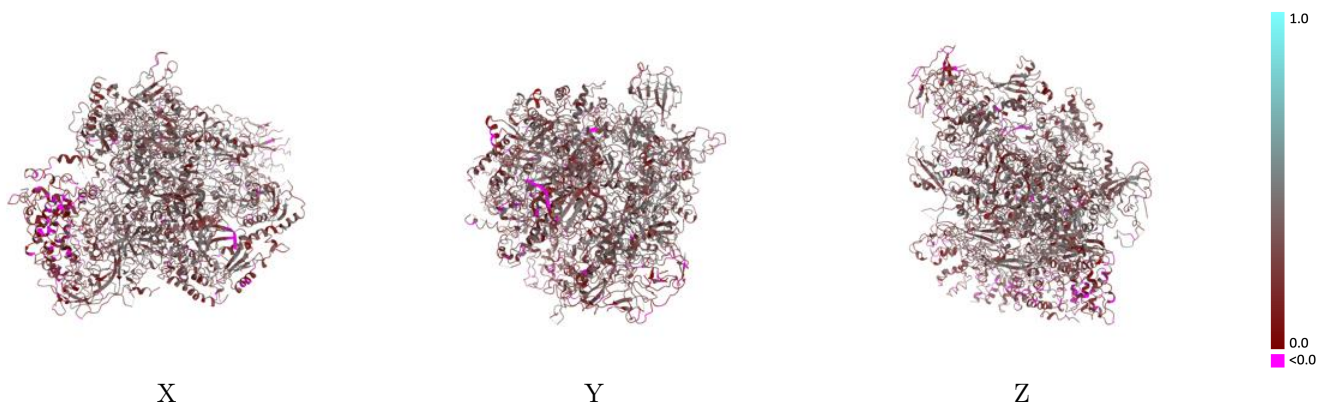
This section contains information regarding the fit between EMDB map EMD-4985 and PDB model 6RQT. Per-residue inclusion information can be found in section 3 on page 7.

### 9.1 Map-model overlay [i](#)



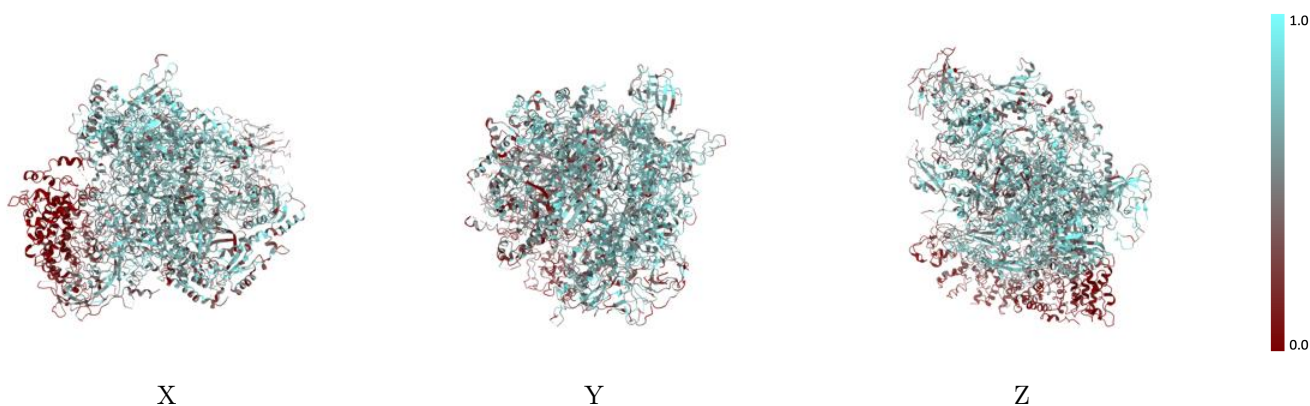
The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



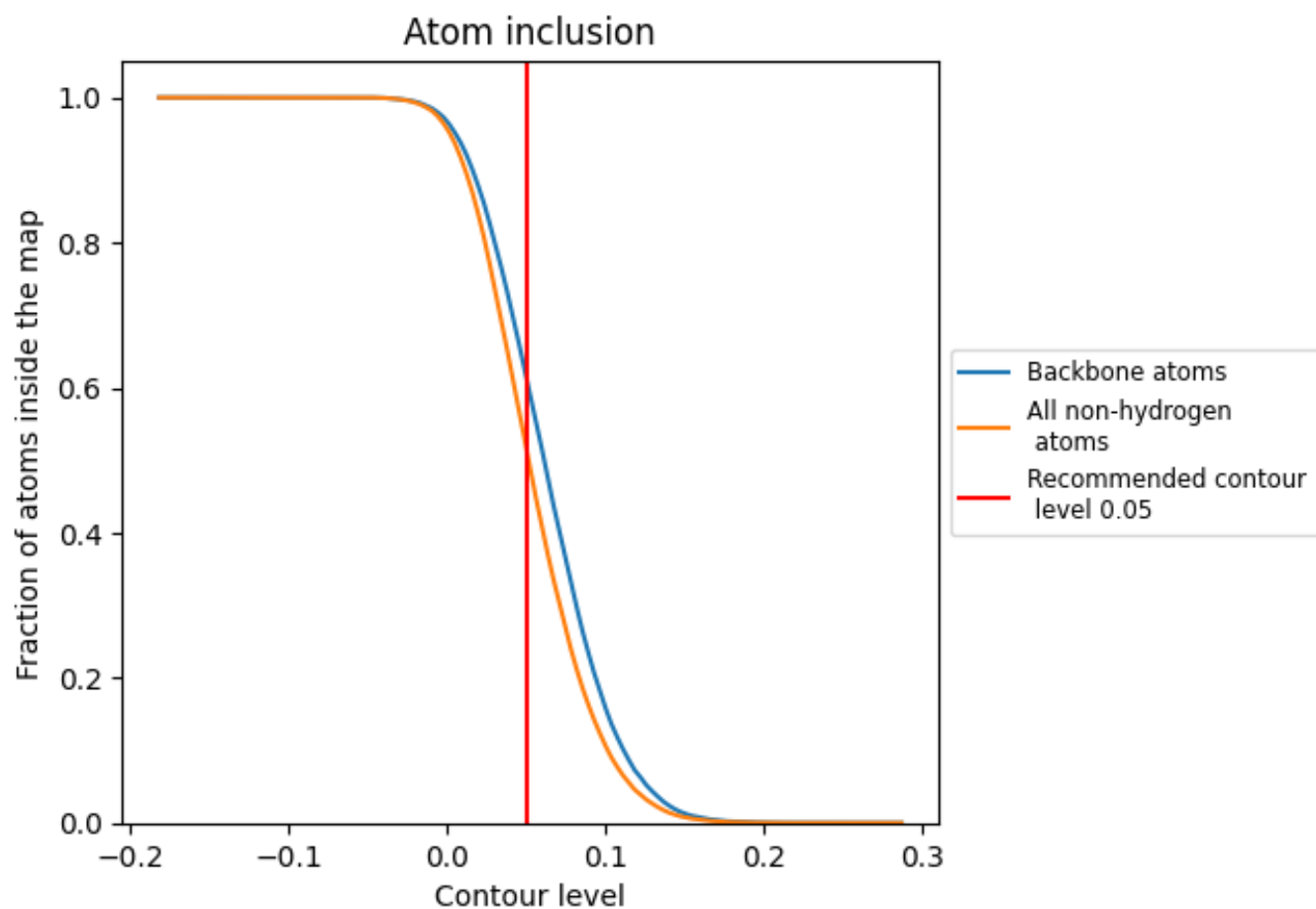
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.05).





































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 61% of all backbone atoms, 52% 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 (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5159	 0.2950
A	 0.6031	 0.3270
B	 0.6298	 0.3340
C	 0.6382	 0.3400
D	 0.4039	 0.2660
E	 0.5855	 0.3040
F	 0.6117	 0.3580
G	 0.4049	 0.2720
H	 0.6294	 0.3260
I	 0.5128	 0.3020
J	 0.6739	 0.3220
K	 0.6134	 0.3220
L	 0.5271	 0.2890
M	 0.2761	 0.2050
N	 0.4868	 0.2550
O	 0.0588	 0.1670
T	 0.3819	 0.1360
U	 0.3481	 0.1270

