



## wwPDB EM Validation Summary Report ⓘ

Dec 12, 2022 – 02:32 am GMT

PDB ID : 6TQN  
EMDB ID : EMD-10546  
Title : rrn anti-termination complex without S4  
Authors : Huang, Y.H.; Wahl, M.C.; Loll, B.; Hilal, T.; Said, N.  
Deposited on : 2019-12-17  
Resolution : 3.80 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:

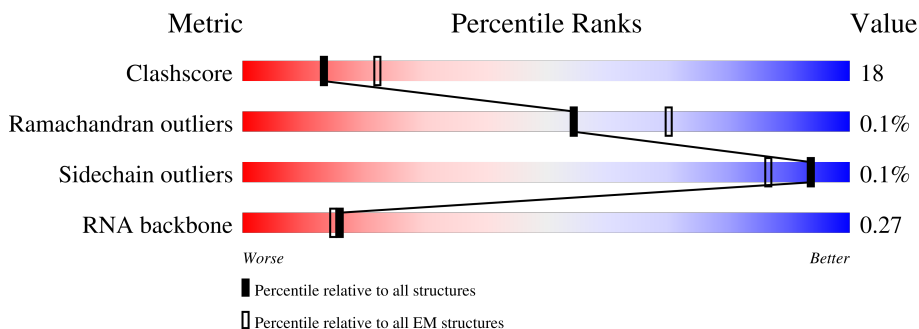
EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP)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

# 1 Overall quality at a glance i

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

The reported resolution of this entry is 3.80 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
RNA backbone	4643	859

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	267	58% 37% .
2	S	271	62% 37% .
3	A	497	22% 61% 38%
4	B	141	44% 51% 5%
5	E	106	10% 49% 43% 8%
6	G	184	58% 39% .
7	U	329	14% 57% 41% .

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Mol	Chain	Length	Quality of chain
7	V	329	
8	W	91	
9	X	1342	
10	Y	1417	
11	R	85	
12	L	35	
13	K	35	

## 2 Entry composition i

There are 15 unique types of molecules in this entry. The entry contains 39371 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 Inositol monophosphatase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	T	255	Total	C	N	O	S	0	0
			1966	1239	349	371	7		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
T	-3	GLY	-	expression tag	UNP A0A5B7PBT3
T	-2	ALA	-	expression tag	UNP A0A5B7PBT3
T	-1	MET	-	expression tag	UNP A0A5B7PBT3
T	0	ALA	-	expression tag	UNP A0A5B7PBT3

- Molecule 2 is a protein called Inositol-1-monophosphatase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	S	267	Total	C	N	O	S	0	0
			2048	1289	364	388	7		

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
S	-3	GLY	-	expression tag	UNP P0ADG4
S	-2	ALA	-	expression tag	UNP P0ADG4
S	-1	MET	-	expression tag	UNP P0ADG4
S	0	ALA	-	expression tag	UNP P0ADG4

- Molecule 3 is a protein called Transcription termination/antitermination protein NusA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	A	495	Total	C	N	O	S	0	0
			3850	2395	669	773	13		

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-1	GLY	-	expression tag	UNP A0A4P8BVH6
A	0	ALA	-	expression tag	UNP A0A4P8BVH6
A	358	ALA	THR	conflict	UNP A0A4P8BVH6

- Molecule 4 is a protein called Transcription antitermination protein NusB.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	B	134	1063	677	183	201	2	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-1	GLY	-	expression tag	UNP A0A4P8C5Y7
B	0	ALA	-	expression tag	UNP A0A4P8C5Y7

- Molecule 5 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	98	783	490	149	143	1	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	-2	LEU	-	expression tag	UNP A0A073G203
E	-1	GLY	-	expression tag	UNP A0A073G203
E	0	SER	-	expression tag	UNP A0A073G203

- Molecule 6 is a protein called Transcription termination/antitermination protein NusG.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	G	178	1421	900	253	261	7	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
G	-2	LEU	-	expression tag	UNP V0ZS55
G	-1	GLY	-	expression tag	UNP V0ZS55
G	0	SER	-	expression tag	UNP V0ZS55

- Molecule 7 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	U	322	Total	C	N	O	S	0	0
			2510	1569	442	491	8		
7	V	222	Total	C	N	O	S	0	0
			1715	1072	303	334	6		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	W	90	Total	C	N	O	S	0	0
			709	430	136	142	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	X	1342	Total	C	N	O	S	0	0
			10585	6641	1843	2057	44		

- Molecule 10 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	Y	1337	Total	C	N	O	S	0	0
			10394	6530	1853	1961	50		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Y	1408	HIS	-	expression tag	UNP S1HM87
Y	1409	HIS	-	expression tag	UNP S1HM87
Y	1410	HIS	-	expression tag	UNP S1HM87
Y	1411	HIS	-	expression tag	UNP S1HM87
Y	1412	HIS	-	expression tag	UNP S1HM87
Y	1413	HIS	-	expression tag	UNP S1HM87
Y	1414	HIS	-	expression tag	UNP S1HM87
Y	1415	HIS	-	expression tag	UNP S1HM87
Y	1416	HIS	-	expression tag	UNP S1HM87
Y	1417	HIS	-	expression tag	UNP S1HM87

- Molecule 11 is a RNA chain called rrnGnut.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
11	R	45	955	426	161	323	45	0	0

- Molecule 12 is a DNA chain called tDNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
12	L	34	689	327	123	205	34	0	0

- Molecule 13 is a DNA chain called ntDNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
13	K	33	678	322	128	195	33	0	0

- Molecule 14 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
14	T	1	1	1	0
14	S	1	1	1	0
14	Y	1	1	1	0

- Molecule 15 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
15	Y	2	2	2	0

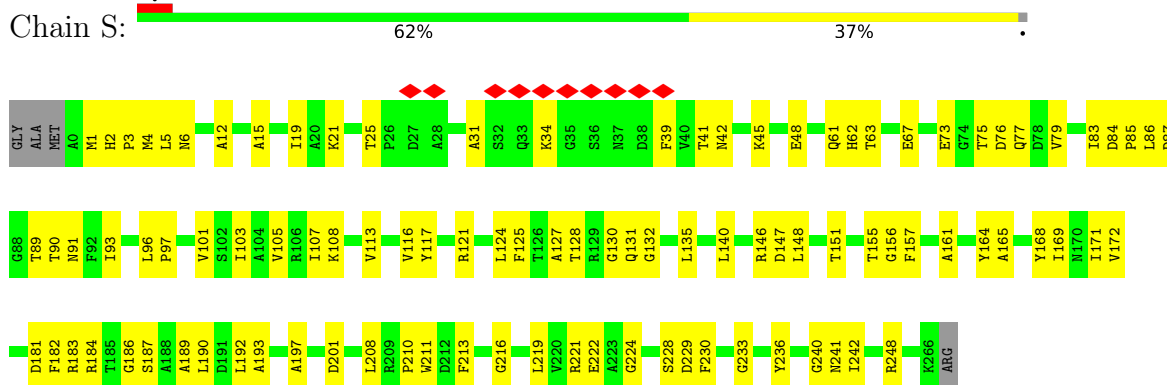
### 3 Residue-property plots

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: Inositol monophosphatase



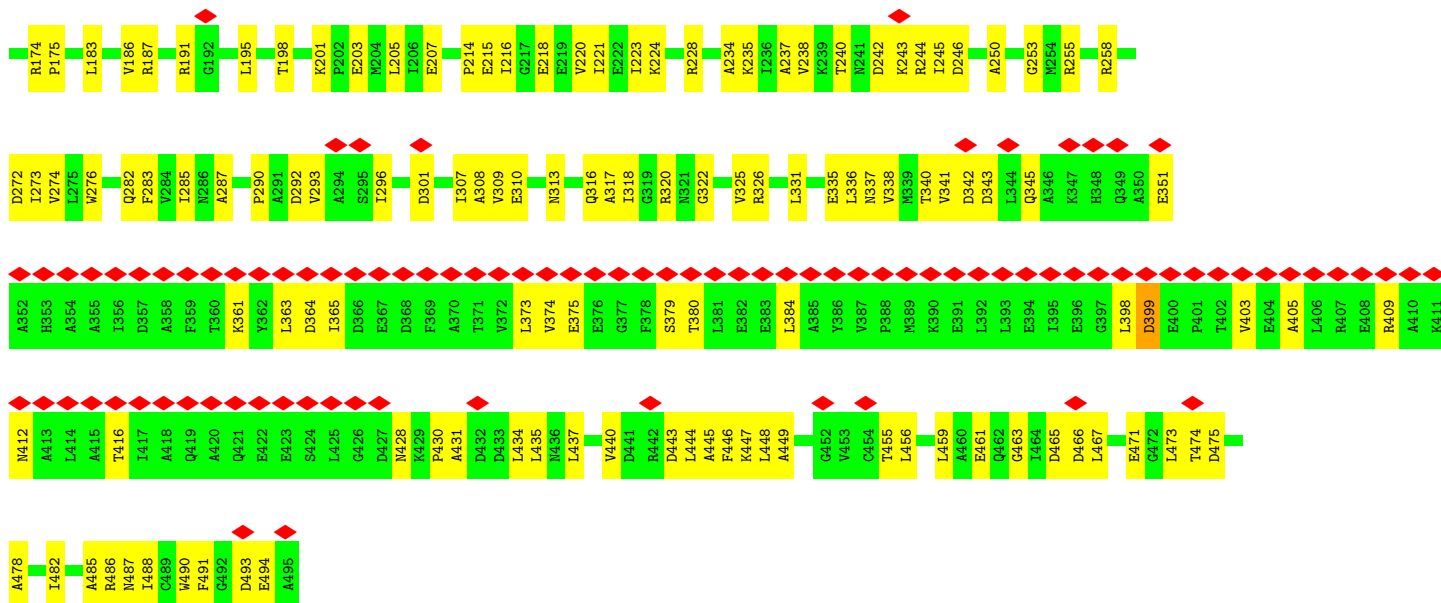
- Molecule 2: Inositol-1-monophosphatase



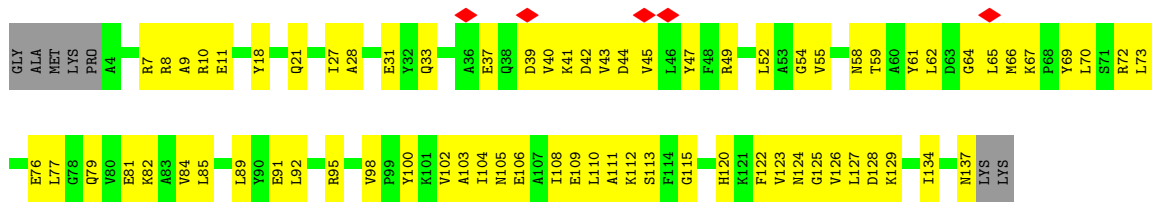
- Molecule 3: Transcription termination/antitermination protein NusA



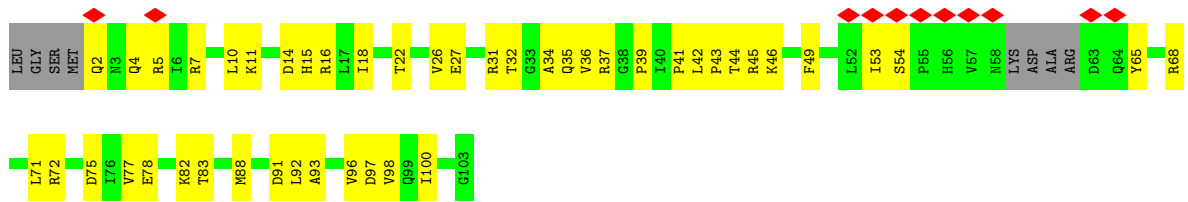




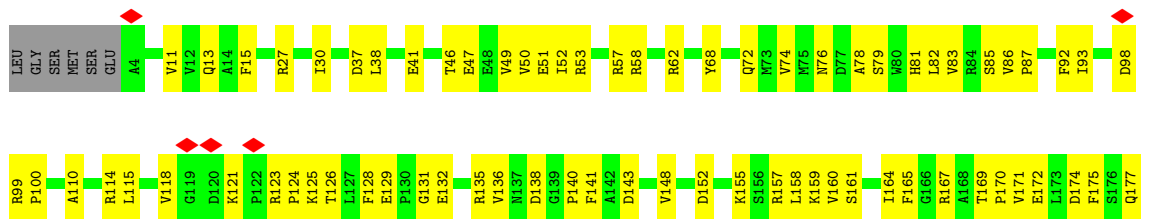
• Molecule 4: Transcription antitermination protein NusB



• Molecule 5: 30S ribosomal protein S10



• Molecule 6: Transcription termination/antitermination protein NusG

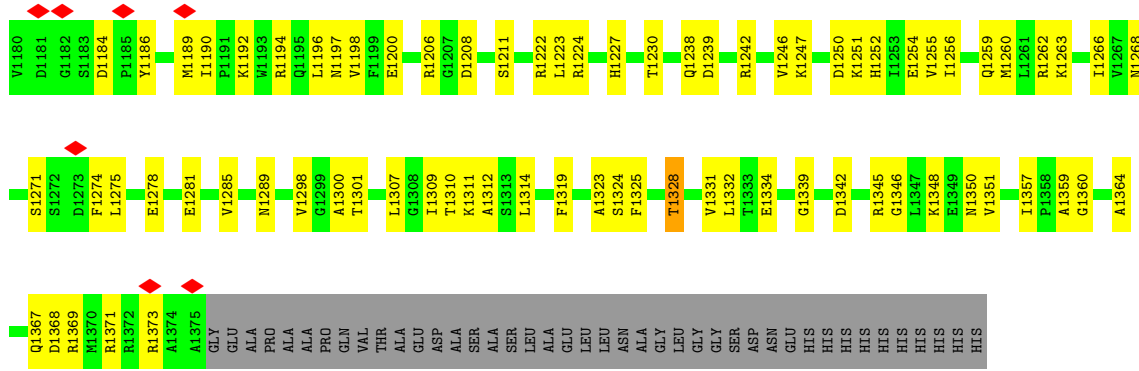




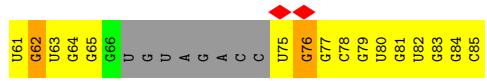
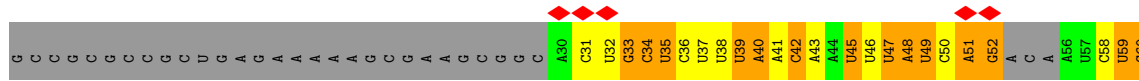
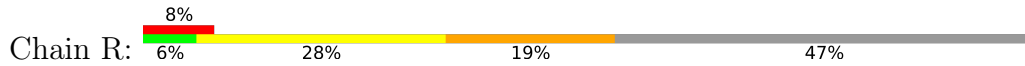


K1	K2	K3	K4	K5	K6	K7	K8	K9	K10	K11	K12	K13	K14	K15	K16	K17	K18	K19	K20	K21	K22	K23	K24	K25	K26	K27	K28	K29	K30	K31	K32	K33	K34	K35	K36	K37	K38	K39	K40	K41	K42	K43	K44	K45	K46	K47	K48	K49	K50	K51	K52	K53	K54	K55	K56	K57	K58	K59	K60	K61	K62	K63	K64	K65	K66	K67	K68	K69	K70	K71	K72	K73	K74	K75	K76	K77	K78	K79	K80	K81	K82	K83	K84	K85	K86	K87	K88	K89	K90	K91	K92	K93	K94	K95	K96	K97	K98	K99	K100	K101	K102	K103	K104	K105	K106	K107	K108	K109	K110	K111	K112	K113	K114	K115	K116	K117	K118	K119	K120	K121	K122	K123	K124	K125	K126	K127	K128	K129	K130	K131	K132	K133	K134	K135	K136	K137	K138	K139	K140	K141	K142	K143	K144	K145	K146	K147	K148	K149	K150	K151	K152	K153	K154	K155	K156	K157	K158	K159	K160	K161	K162	K163	K164	K165	K166	K167	K168	K169	K170	K171	K172	K173	K174	K175	K176	K177	K178	K179	K180	K181	K182	K183	K184	K185	K186	K187	K188	K189	K190	K191	K192	K193	K194	K195	K196	K197	K198	K199	K200	K201	K202	K203	K204	K205	K206	K207	K208	K209	K210	K211	K212	K213	K214	K215	K216	K217	K218	K219	K220	K221	K222	K223	K224	K225	K226	K227	K228	K229	K230	K231	K232	K233	K234	K235	K236	K237	K238	K239	K240	K241	K242	K243	K244	K245	K246	K247	K248	K249	K250	K251	K252	K253	K254	K255	K256	K257	K258	K259	K260	K261	K262	K263	K264	K265	K266	K267	K268	K269	K270	K271	K272	K273	K274	K275	K276	K277	K278	K279	K280	K281	K282	K283	K284	K285	K286	K287	K288	K289	K290	K291	K292	K293	K294	K295	K296	K297	K298	K299	K300	K301	K302	K303	K304	K305	K306	K307	K308	K309	K310	K311	K312	K313	K314	K315	K316	K317	K318	K319	K320	K321	K322	K323	K324	K325	K326	K327	K328	K329	K330	K331	K332	K333	K334	K335	K336	K337	K338	K339	K340	K341	K342	K343	K344	K345	K346	K347	K348	K349	K350	K351	K352	K353	K354	K355	K356	K357	K358	K359	K360	K361	K362	K363	K364	K365	K366	K367	K368	K369	K370	K371	K372	K373	K374	K375	K376	K377	K378	K379	K380	K381	K382	K383	K384	K385	K386	K387	K388	K389	K390	K391	K392	K393	K394	K395	K396	K397	K398	K399	K400	K401	K402	K403	K404	K405	K406	K407	K408	K409	K410	K411	K412	K413	K414	K415	K416	K417	K418	K419	K420	K421	K422	K423	K424	K425	K426	K427	K428	K429	K430	K431	K432	K433	K434	K435	K436	K437	K438	K439	K440	K441	K442	K443	K444	K445	K446	K447	K448	K449	K450	K451	K452	K453	K454	K455	K456	K457	K458	K459	K460	K461	K462	K463	K464	K465	K466	K467	K468	K469	K470	K471	K472	K473	K474	K475	K476	K477	K478	K479	K480	K481	K482	K483	K484	K485	K486	K487	K488	K489	K490	K491	K492	K493	K494	K495	K496	K497	K498	K499	K500	K501	K502	K503	K504	K505	K506	K507	K508	K509	K510	K511	K512	K513	K514	K515	K516	K517	K518	K519	K520	K521	K522	K523	K524	K525	K526	K527	K528	K529	K530	K531	K532	K533	K534	K535	K536	K537	K538	K539	K540	K541	K542	K543	K544	K545	K546	K547	K548	K549	K550	K551	K552	K553	K554	K555	K556	K557	K558	K559	K560	K561	K562	K563	K564	K565	K566	K567	K568	K569	K570	K571	K572	K573	K574	K575	K576	K577	K578	K579	K580	K581	K582	K583	K584	K585	K586	K587	K588	K589	K590	K591	K592	K593	K594	K595	K596	K597	K598	K599	K600	K601	K602	K603	K604	K605	K606	K607	K608	K609	K610	K611	K612	K613	K614	K615	K616	K617	K618	K619	K620	K621	K622	K623	K624	K625	K626	K627	K628	K629	K630	K631	K632	K633	K634	K635	K636	K637	K638	K639	K640	K641	K642	K643	K644	K645	K646	K647	K648	K649	K650	K651	K652	K653	K654	K655	K656	K657	K658	K659	K660	K661	K662	K663	K664	K665	K666	K667	K668	K669	K670	K671	K672	K673	K674	K675	K676	K677	K678	K679	K680	K681	K682	K683	K684	K685	K686	K687	K688	K689	K690	K691	K692	K693	K694	K695	K696	K697	K698	K699	K700	K701	K702	K703	K704	K705	K706	K707	K708	K709	K710	K711	K712	K713	K714	K715	K716	K717	K718	K719	K720	K721	K722	K723	K724	K725	K726	K727	K728	K729	K730	K731	K732	K733	K734	K735	K736	K737	K738	K739	K740	K741	K742	K743	K744	K745	K746	K747	K748	K749	K750	K751	K752	K753	K754	K755	K756	K757	K758	K759	K760	K761	K762	K763	K764	K765	K766	K767	K768	K769	K770	K771	K772	K773	K774	K775	K776	K777	K778	K779	K780	K781	K782	K783	K784	K785	K786	K787	K788	K789	K790	K791	K792	K793	K794	K795	K796	K797	K798	K799	K800	K801	K802	K803	K804	K805	K806	K807	K808	K809	K810	K811	K812	K813	K814	K815	K816	K817	K818	K819	K820	K821	K822	K823	K824	K825	K826	K827	K828	K829	K830	K831	K832	K833	K834	K835	K836	K837	K838	K839	K840	K841	K842	K843	K844	K845	K846	K847	K848	K849	K850	K851	K852	K853	K854	K855	K856	K857	K858	K859	K860	K861	K862	K863	K864	K865	K866	K867	K868	K869	K870	K871	K872	K873	K874	K875	K876	K877	K878	K879	K880	K881	K882	K883	K884	K885	K886	K887	K888	K889	K890	K891	K892	K893	K894	K895	K896	K897	K898	K899	K900	K901	K902	K903	K904	K905	K906	K907	K908	K909	K910	K911	K912	K913	K914	K915	K916	K917	K918	K919	K920	K921	K922	K923	K924	K925	K926	K927	K928	K929	K930	K931	K932	K933	K934	K935	K936	K937	K938	K939	K940	K941	K942	K943	K944	K945	K946	K947	K948	K949	K950	K951	K952	K953	K954	K955	K956	K957	K958	K959	K960	K961	K962	K963	K964	K965	K966	K967	K968	K969	K970	K971	K972	K973	K974	K975	K976	K977	K978	K979	K980	K981	K982	K983	K984	K985	K986	K987	K988	K989	K990	K991	K992	K993	K994	K995	K996	K997	K998	K999	K1000	K1001	K1002	K1003	K1004	K1005	K1006	K1007	K1008	K1009	K1010	K1011	K1012	K1013	K1014	K1015	K1016	K1017	K1018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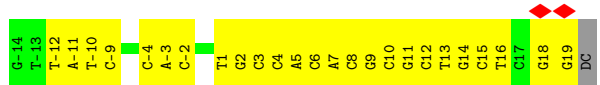




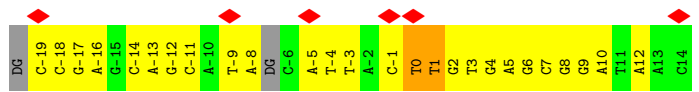
• Molecule 11: rrnGnut



• Molecule 12: tDNA



• Molecule 13: ntDNA



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	33821	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI POLARA 300	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	2500	Depositor
Maximum defocus (nm)	Not provided	
Magnification	31000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	12.567	Depositor
Minimum map value	-4.561	Depositor
Average map value	-0.001	Depositor
Map value standard deviation	0.536	Depositor
Recommended contour level	3.0	Depositor
Map size (Å)	372.0, 372.0, 372.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.24, 1.24, 1.24	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: MG, 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	0.28	0/2001	0.44	0/2711
2	S	0.31	0/2084	0.45	0/2823
3	A	0.26	0/3895	0.45	0/5270
4	B	0.26	0/1080	0.44	0/1462
5	E	0.26	0/792	0.47	0/1071
6	G	0.29	0/1452	0.46	0/1956
7	U	0.29	0/2544	0.47	0/3449
7	V	0.29	0/1735	0.48	0/2351
8	W	0.27	0/711	0.42	0/956
9	X	0.32	0/10754	0.46	0/14509
10	Y	0.31	0/10551	0.46	0/14246
11	R	0.27	0/1063	0.77	0/1649
12	L	0.64	0/770	0.95	0/1184
13	K	0.58	0/760	1.04	3/1168 (0.3%)
All	All	0.32	0/40192	0.50	3/54805 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
13	K	0	DT	OP2-P-O3'	-11.21	80.53	105.20
13	K	0	DT	OP1-P-O3'	-10.79	81.46	105.20
13	K	1	DT	OP1-P-OP2	7.58	130.96	119.60

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	1966	0	1951	73	0
2	S	2048	0	2040	79	0
3	A	3850	0	3833	161	0
4	B	1063	0	1071	65	0
5	E	783	0	817	42	0
6	G	1421	0	1416	60	0
7	U	2510	0	2563	97	0
7	V	1715	0	1750	58	0
8	W	709	0	719	18	0
9	X	10585	0	10603	392	0
10	Y	10394	0	10614	393	0
11	R	955	0	482	50	0
12	L	689	0	382	34	0
13	K	678	0	372	32	0
14	S	1	0	0	0	0
14	T	1	0	0	0	0
14	Y	1	0	0	0	0
15	Y	2	0	0	0	0
All	All	39371	0	38613	1411	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 18.

The worst 5 of 1411 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)
10:Y:1161:GLY:HA3	10:Y:1178:THR:O	1.65	0.96
4:B:33:GLN:O	4:B:37:GLU:HB2	1.71	0.88
9:X:1002:LEU:HD22	9:X:1007:LYS:HG3	1.58	0.85
1:T:84:ASP:OD1	1:T:86:LEU:O	1.96	0.84
9:X:1002:LEU:HD23	9:X:1003:THR:H	1.44	0.82

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	T	251/267 (94%)	231 (92%)	20 (8%)	0	100	100
2	S	265/271 (98%)	256 (97%)	9 (3%)	0	100	100
3	A	493/497 (99%)	432 (88%)	61 (12%)	0	100	100
4	B	132/141 (94%)	113 (86%)	19 (14%)	0	100	100
5	E	94/106 (89%)	79 (84%)	15 (16%)	0	100	100
6	G	176/184 (96%)	149 (85%)	27 (15%)	0	100	100
7	U	320/329 (97%)	286 (89%)	34 (11%)	0	100	100
7	V	218/329 (66%)	194 (89%)	24 (11%)	0	100	100
8	W	88/91 (97%)	82 (93%)	6 (7%)	0	100	100
9	X	1340/1342 (100%)	1203 (90%)	134 (10%)	3 (0%)	47	79
10	Y	1331/1417 (94%)	1219 (92%)	111 (8%)	1 (0%)	51	83
All	All	4708/4974 (95%)	4244 (90%)	460 (10%)	4 (0%)	54	83

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
9	X	399	ALA
9	X	746	ALA
10	Y	1328	THR
9	X	627	GLY

### 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	T	202/209 (97%)	202 (100%)	0	100	100
2	S	210/212 (99%)	209 (100%)	1 (0%)	88	94
3	A	408/408 (100%)	406 (100%)	2 (0%)	88	94
4	B	111/116 (96%)	111 (100%)	0	100	100
5	E	86/92 (94%)	86 (100%)	0	100	100
6	G	155/160 (97%)	154 (99%)	1 (1%)	86	92
7	U	281/286 (98%)	281 (100%)	0	100	100
7	V	190/286 (66%)	190 (100%)	0	100	100
8	W	74/75 (99%)	74 (100%)	0	100	100
9	X	1157/1157 (100%)	1157 (100%)	0	100	100
10	Y	1120/1178 (95%)	1119 (100%)	1 (0%)	93	97
All	All	3994/4179 (96%)	3989 (100%)	5 (0%)	93	97

All (5) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	S	34	LYS
3	A	51	ARG
3	A	399	ASP
6	G	57	ARG
10	Y	454	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 25 such sidechains are listed below:

Mol	Chain	Res	Type
9	X	834	GLN
9	X	1013	GLN
10	Y	1227	HIS
9	X	932	GLN
9	X	1038	GLN

### 5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
11	R	42/85 (49%)	22 (52%)	1 (2%)

5 of 22 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
11	R	31	C
11	R	32	U
11	R	33	G
11	R	34	C
11	R	35	U

All (1) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
11	R	31	C

## 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 5 ligands modelled in this entry, 5 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.

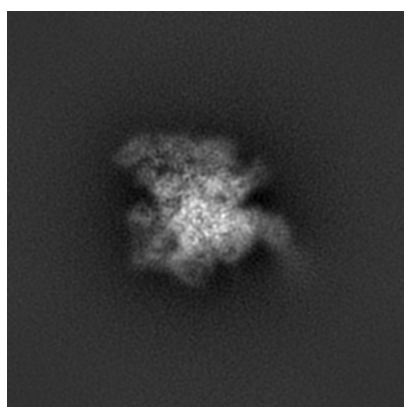
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10546. These allow visual inspection of the internal detail of the map and identification of artifacts.

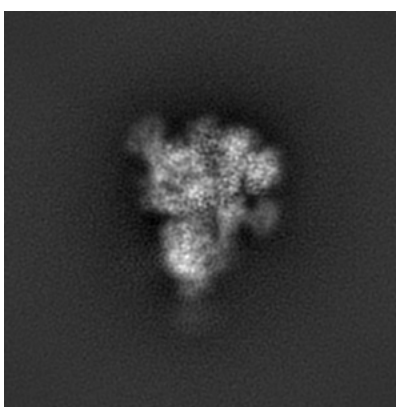
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

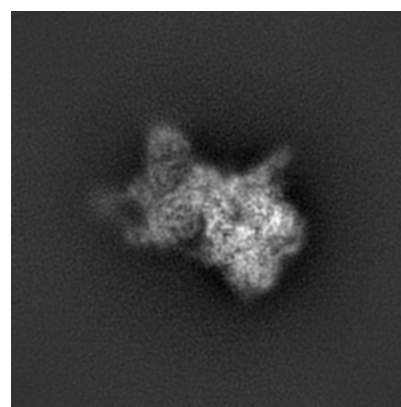
#### 6.1.1 Primary map



X



Y

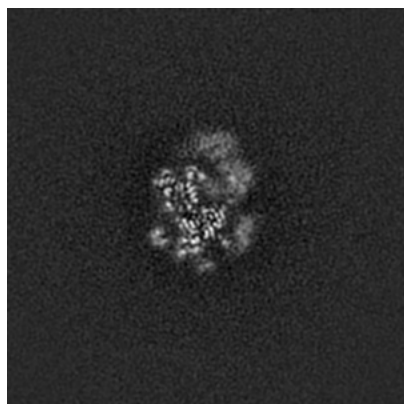


Z

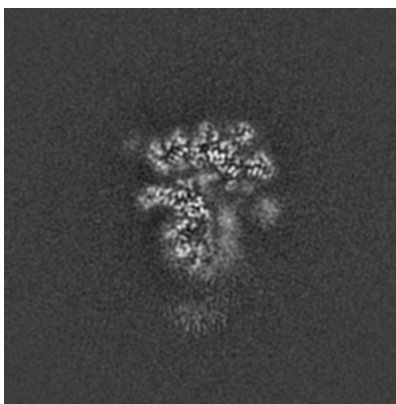
The images above show the map projected in three orthogonal directions.

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

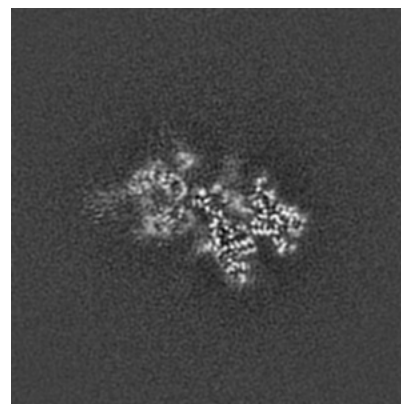
#### 6.2.1 Primary map



X Index: 150



Y Index: 150

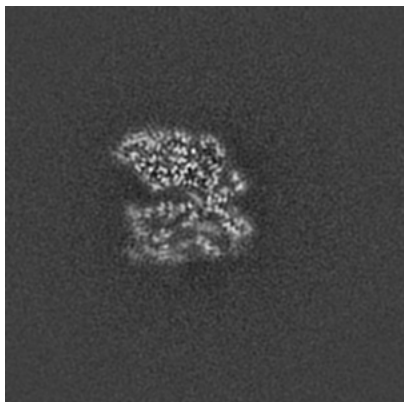


Z Index: 150

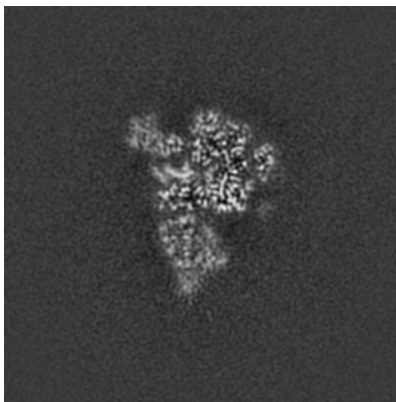
The images above show central slices of the map in three orthogonal directions.

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

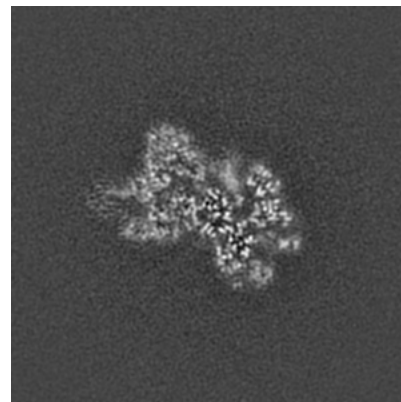
### 6.3.1 Primary map



X Index: 181



Y Index: 137

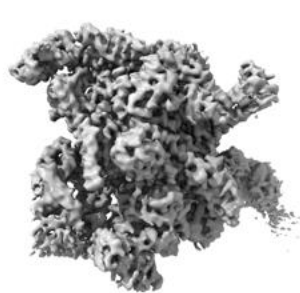


Z Index: 141

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 3.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

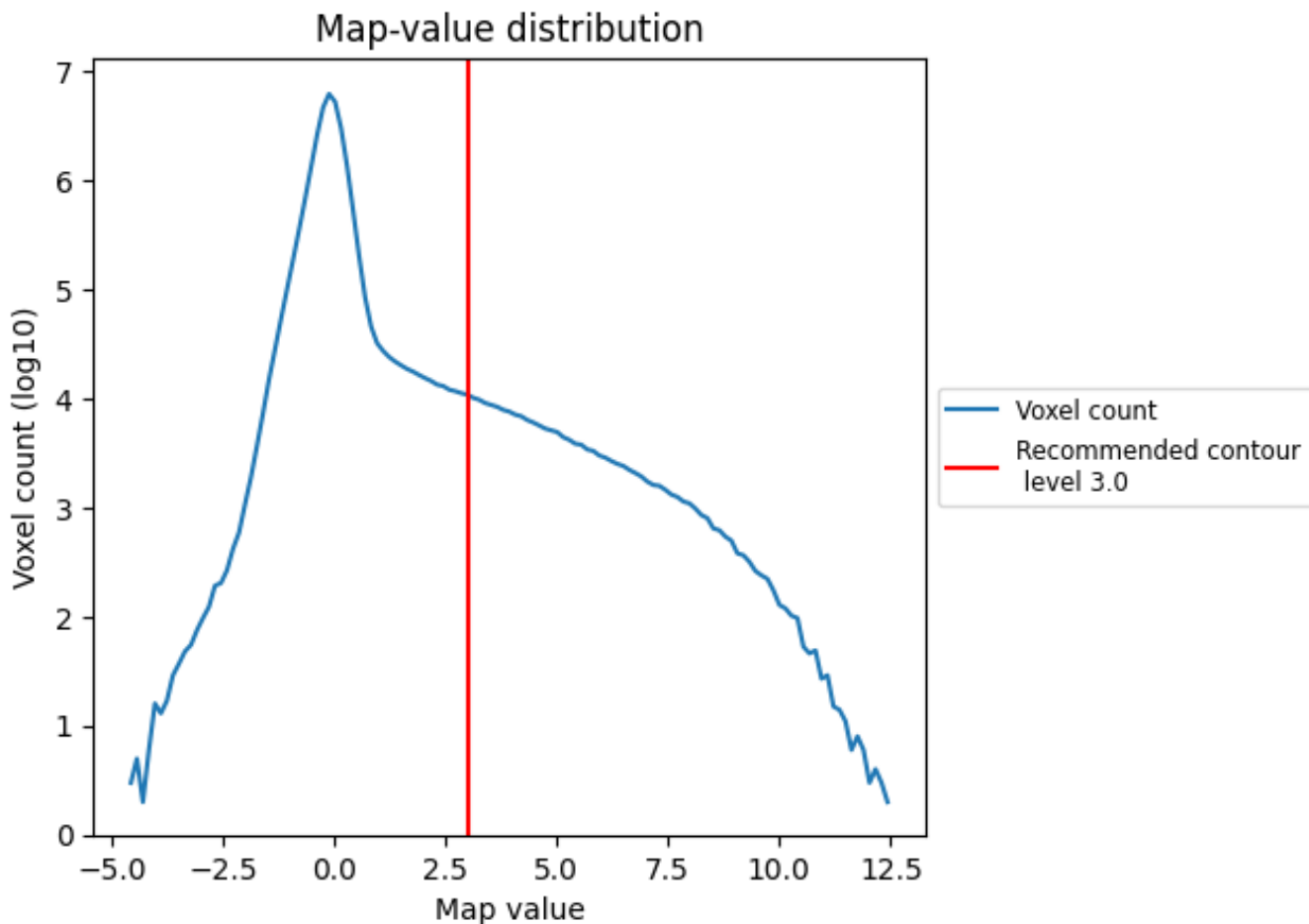
## 6.5 Mask visualisation

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

## 7 Map analysis [i](#)

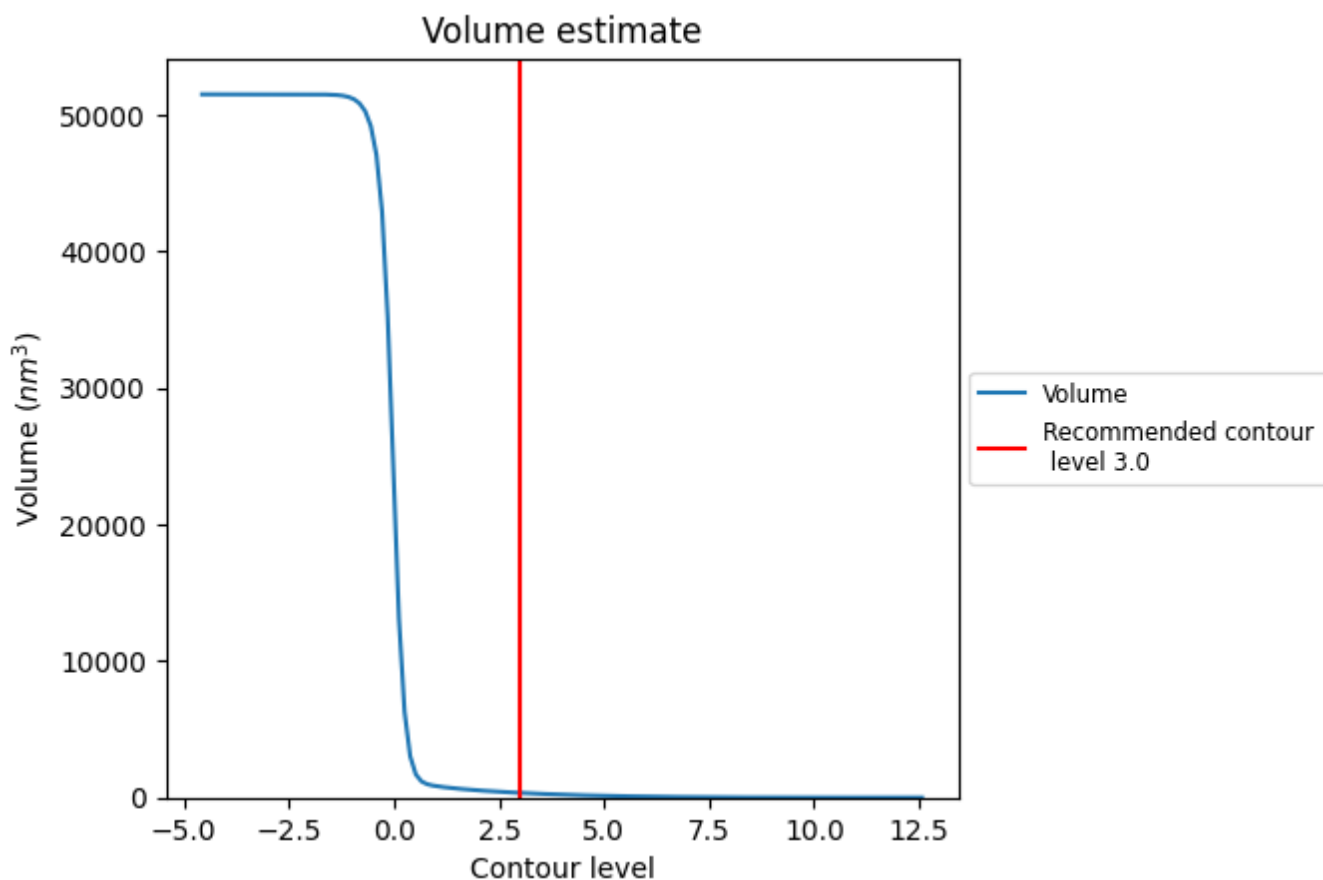
This section contains the results of statistical analysis of the map.

### 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](#)

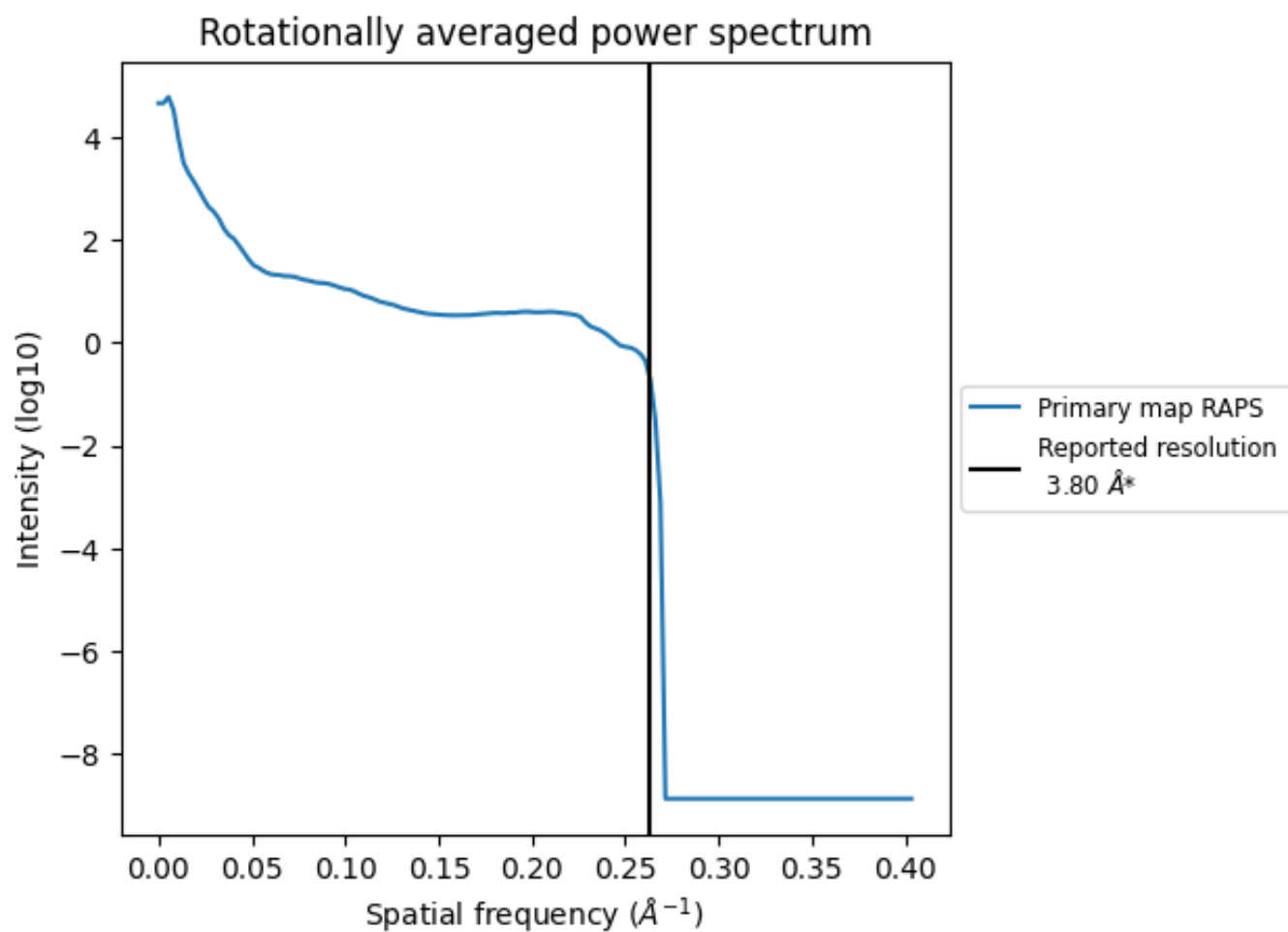


The volume at the recommended contour level is 343 nm<sup>3</sup>; this corresponds to an approximate mass of 310 kDa.

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](#)

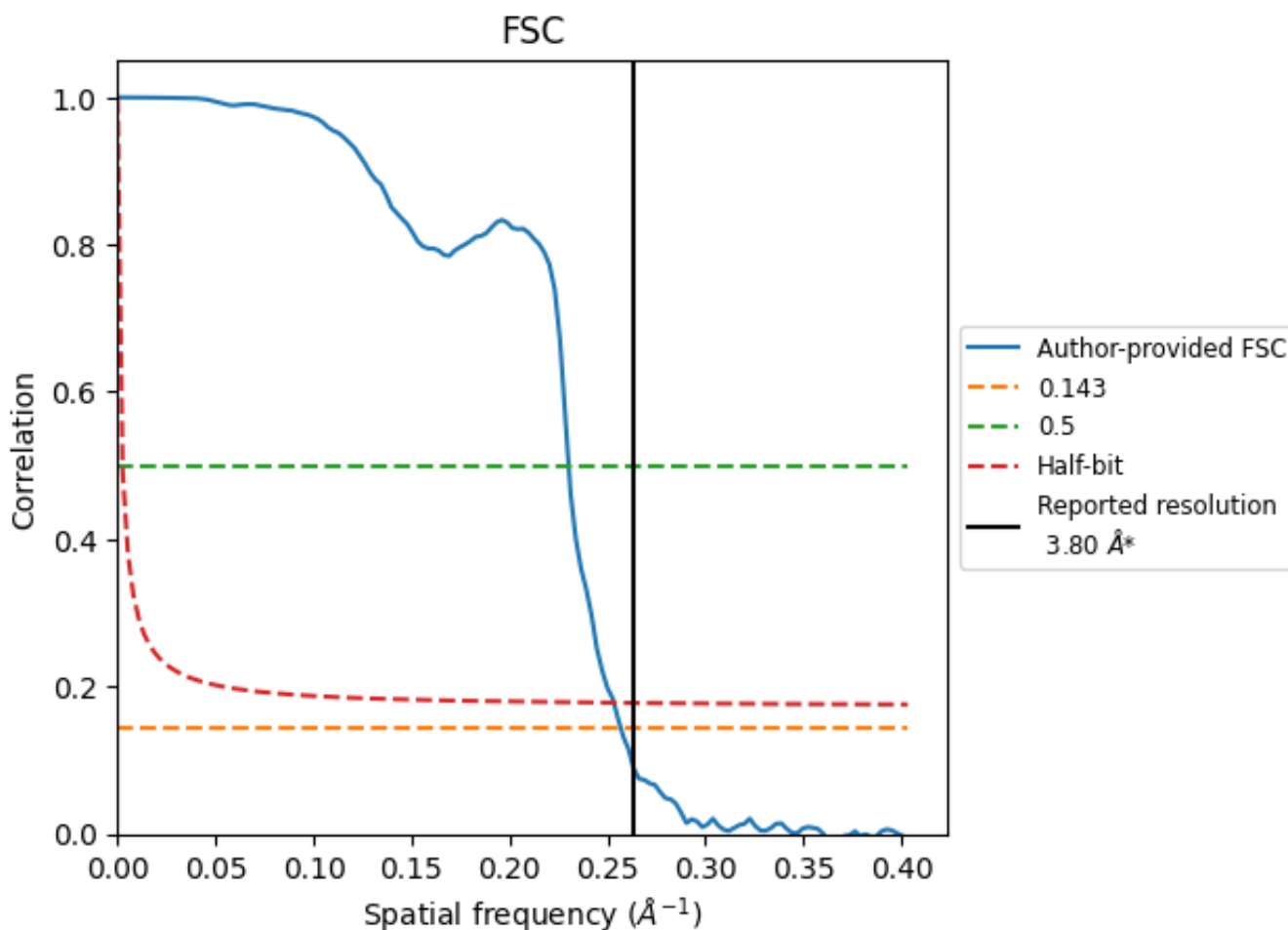


\*Reported resolution corresponds to spatial frequency of 0.263 Å<sup>-1</sup>

## 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 0.263 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

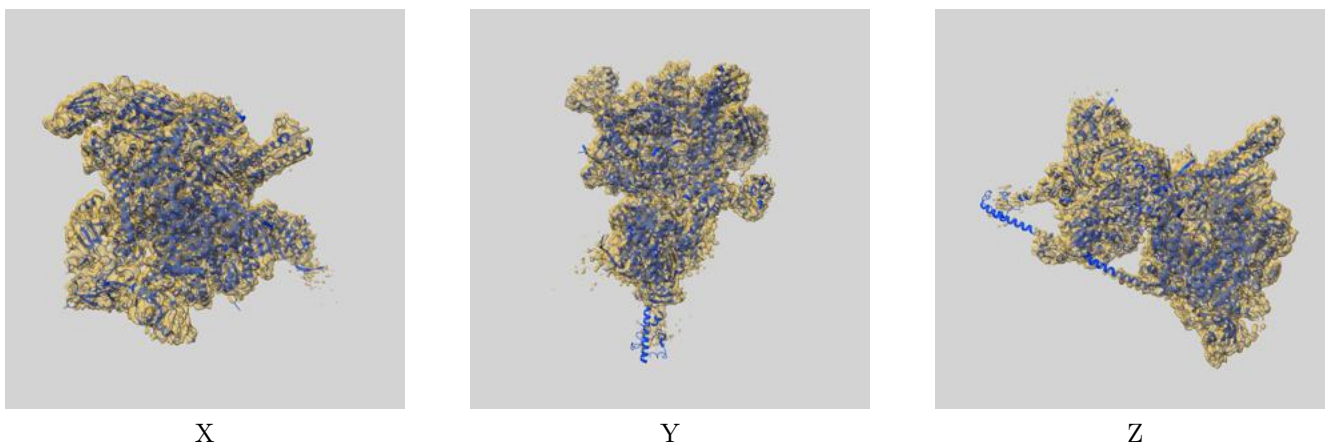
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.80	-	-
Author-provided FSC curve	3.89	4.34	3.95
Unmasked-calculated*	-	-	-

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

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

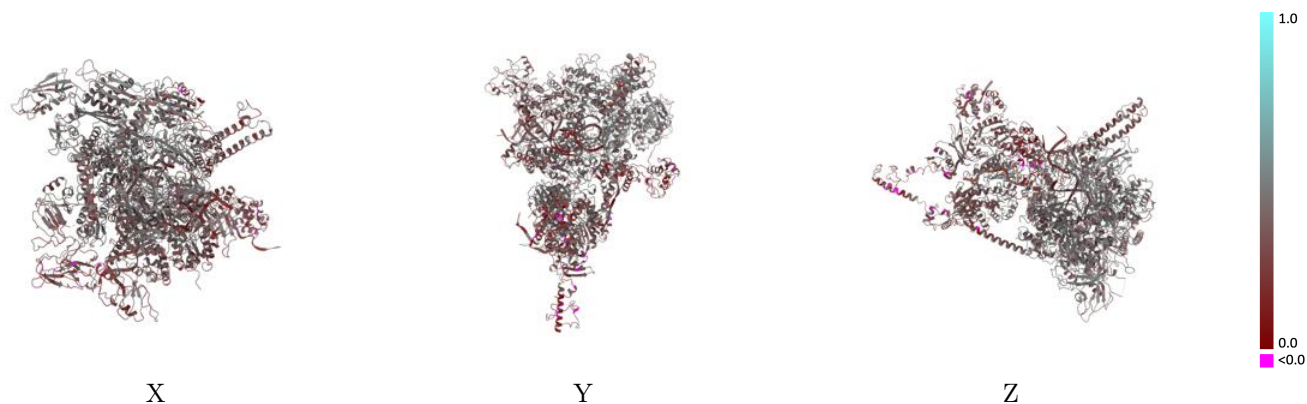
This section contains information regarding the fit between EMDB map EMD-10546 and PDB model 6TQN. Per-residue inclusion information can be found in section [3](#) on page [8](#).

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



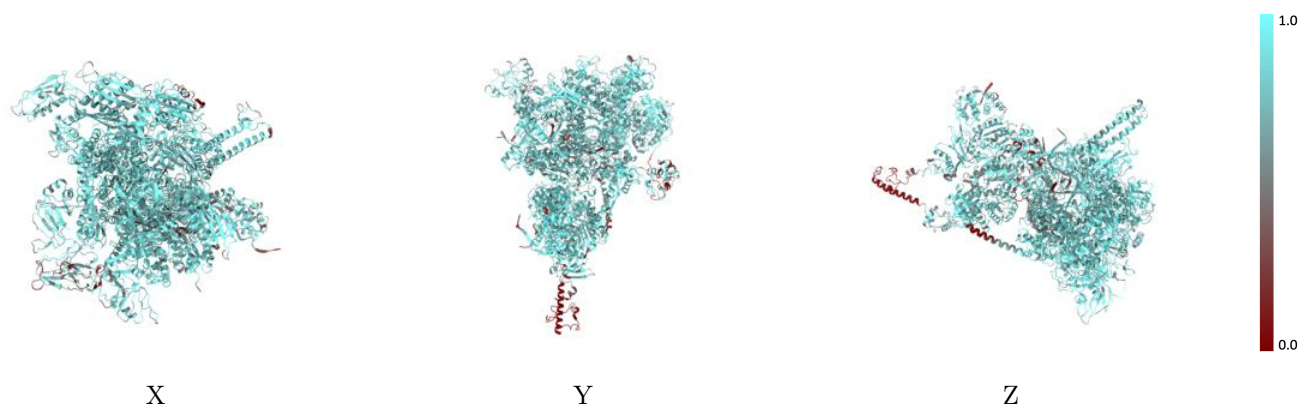
The images above show the 3D surface view of the map at the recommended contour level 3.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



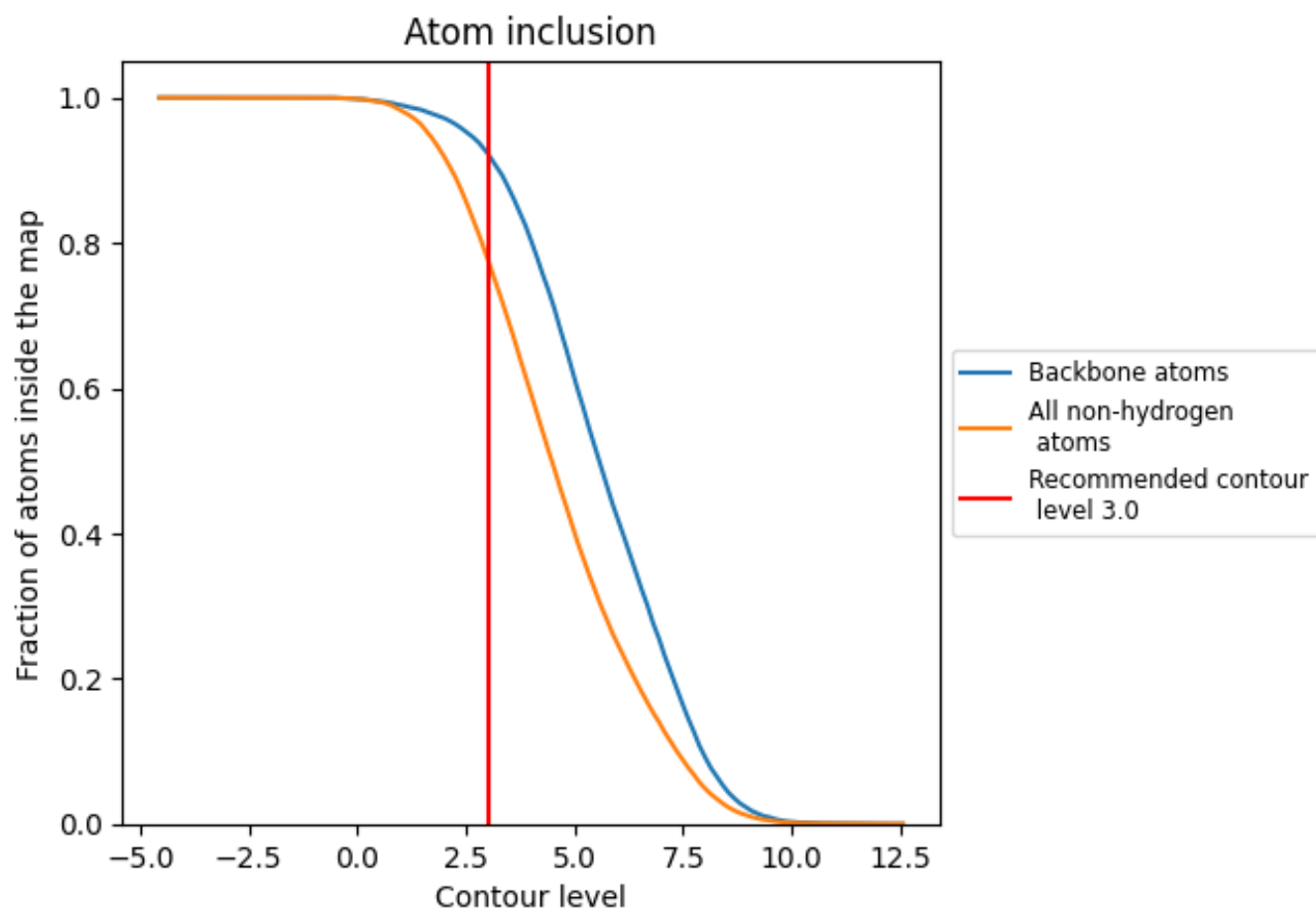
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (3.0).































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 78% 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 (3.0) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7784	 0.3830
A	 0.6505	 0.3110
B	 0.8091	 0.2750
E	 0.7224	 0.3560
G	 0.8153	 0.3640
K	 0.6962	 0.2700
L	 0.8403	 0.2890
R	 0.7141	 0.2740
S	 0.8203	 0.4120
T	 0.8329	 0.3570
U	 0.7152	 0.3910
V	 0.8084	 0.4300
W	 0.6909	 0.3860
X	 0.8115	 0.4130
Y	 0.7934	 0.4060

