



wwPDB EM Validation Summary Report ⓘ

Mar 3, 2024 – 08:56 AM EST

PDB ID : 6BZO
EMDB ID : EMD-7319
Title : Mtb RNAP Holo/RbpA/Fidaxomicin/upstream fork DNA
Authors : Darst, S.A.; Campbell, E.A.; Boyaci Selcuk, H.; Chen, J.
Deposited on : 2017-12-25
Resolution : 3.38 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

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.dev70
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

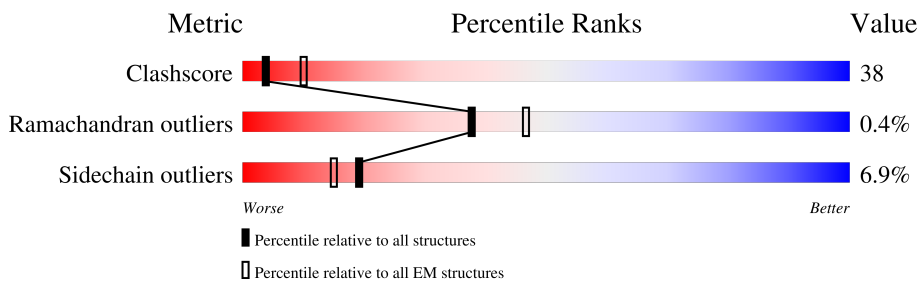
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.38 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.



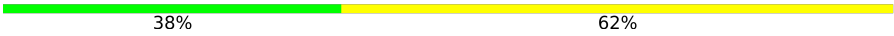
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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 ≥ 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	347	
1	B	347	
2	C	1181	
3	D	1324	
4	E	110	
5	F	531	
6	J	111	
7	O	31	

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Mol	Chain	Length	Quality of chain
8	P	26	 38% 62%

2 Entry composition [i](#)

There are 12 unique types of molecules in this entry. The entry contains 27336 atoms, of which 74 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 subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	226	Total	C	N	O	S	0	0
			1724	1085	297	339	3		
1	B	237	Total	C	N	O	S	0	0
			1775	1120	304	348	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	1111	Total	C	N	O	S	0	0
			8556	5361	1504	1652	39		

There are 9 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	1179	LEU	-	expression tag	UNP V9Z879
C	1180	ALA	-	expression tag	UNP V9Z879
C	1181	ARG	-	expression tag	UNP V9Z879
C	1182	HIS	-	expression tag	UNP V9Z879
C	1183	GLY	-	expression tag	UNP V9Z879
C	1184	GLY	-	expression tag	UNP V9Z879
C	1185	SER	-	expression tag	UNP V9Z879
C	1186	GLY	-	expression tag	UNP V9Z879
C	1187	ALA	-	expression tag	UNP V9Z879

- Molecule 3 is a protein called DNA-directed RNA polymerase subunit beta'.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	1263	Total	C	N	O	S	0	0
			9857	6175	1791	1850	41		

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	1317	HIS	-	expression tag	UNP A0A045J9E2
D	1318	HIS	-	expression tag	UNP A0A045J9E2
D	1319	HIS	-	expression tag	UNP A0A045J9E2
D	1320	HIS	-	expression tag	UNP A0A045J9E2
D	1321	HIS	-	expression tag	UNP A0A045J9E2
D	1322	HIS	-	expression tag	UNP A0A045J9E2
D	1323	HIS	-	expression tag	UNP A0A045J9E2
D	1324	HIS	-	expression tag	UNP A0A045J9E2

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

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	E	83	649	414	108	127	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	1	GLY	-	expression tag	UNP A0A0T9N9K3

- Molecule 5 is a protein called RNA polymerase sigma factor SigA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	F	326	2588	1617	467	495	9	0	0

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	-2	GLY	-	expression tag	UNP A0A045HD00
F	-1	PRO	-	expression tag	UNP A0A045HD00
F	0	HIS	-	expression tag	UNP A0A045HD00

- Molecule 6 is a protein called RNA polymerase-binding protein RbpA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	J	107	872	539	162	168	3	0	0

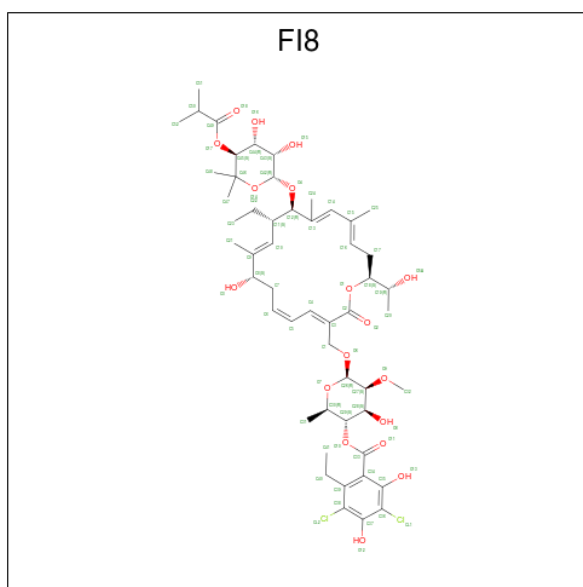
- Molecule 7 is a DNA chain called DNA (32-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
7	O	31	634	305	114	185	30	0	0

- Molecule 8 is a DNA chain called DNA (26-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
8	P	26	526	254	94	153	25	0	0

- Molecule 9 is Fidaxomicin (three-letter code: FI8) (formula: $C_{52}H_{74}Cl_2O_{18}$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf	
			Total	C	Cl	H		O
9	C	1	146	52	2	74	18	0

- Molecule 10 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
10	D	2	2	2	0

- Molecule 11 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
11	D	1	1	1	0

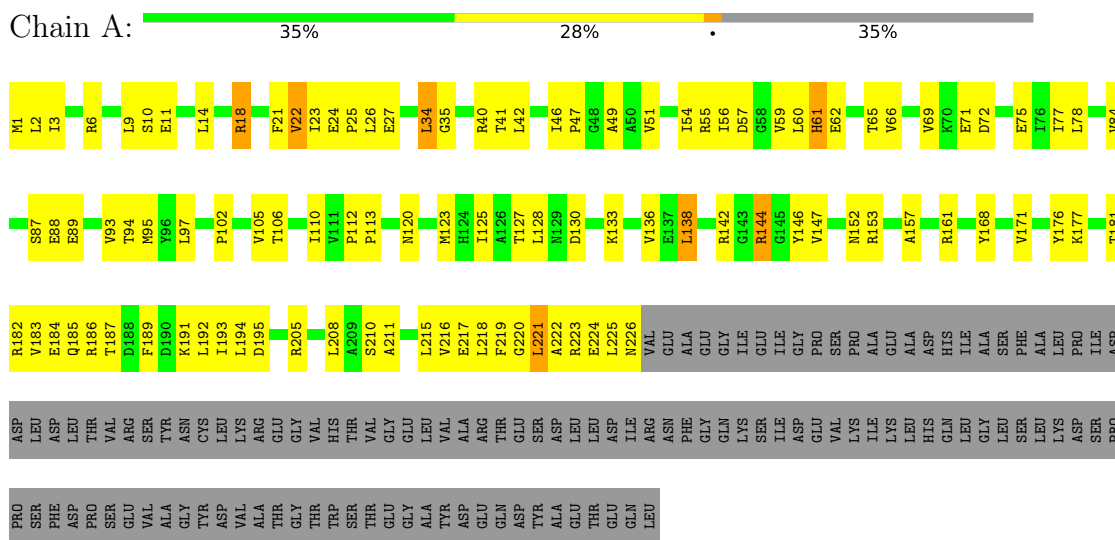
- Molecule 12 is water.

Mol	Chain	Residues	Atoms	AltConf
12	C	2	Total O 2 2	0
12	D	4	Total O 4 4	0

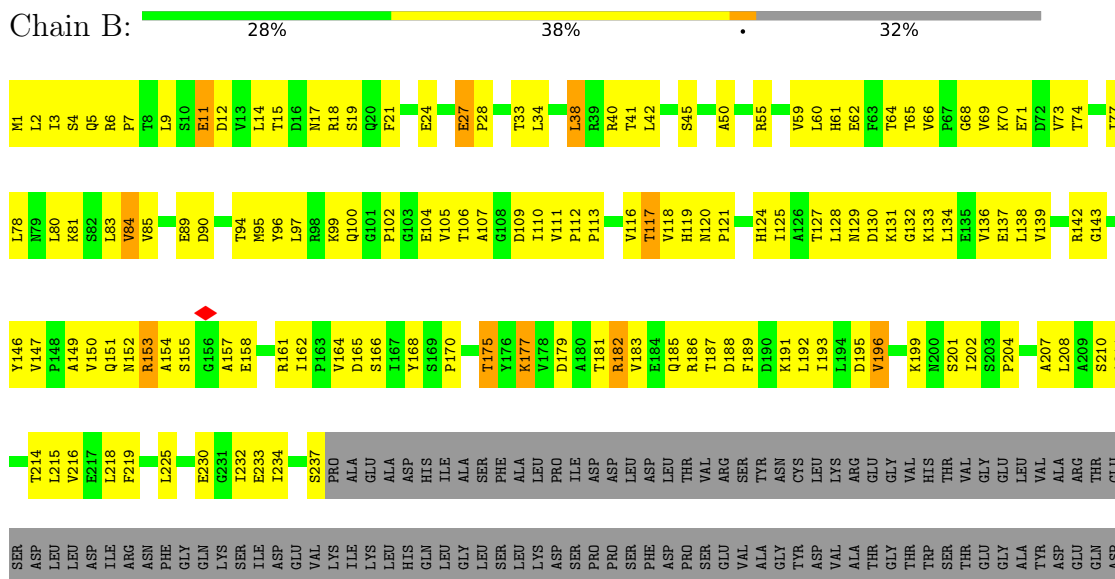
3 Residue-property plots [i](#)

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

- Molecule 1: DNA-directed RNA polymerase subunit alpha



- Molecule 1: DNA-directed RNA polymerase subunit alpha

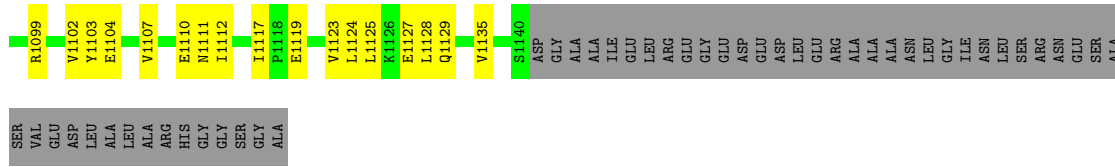


TYR
ALA
GLU
THR
GLU
GLN
LEU

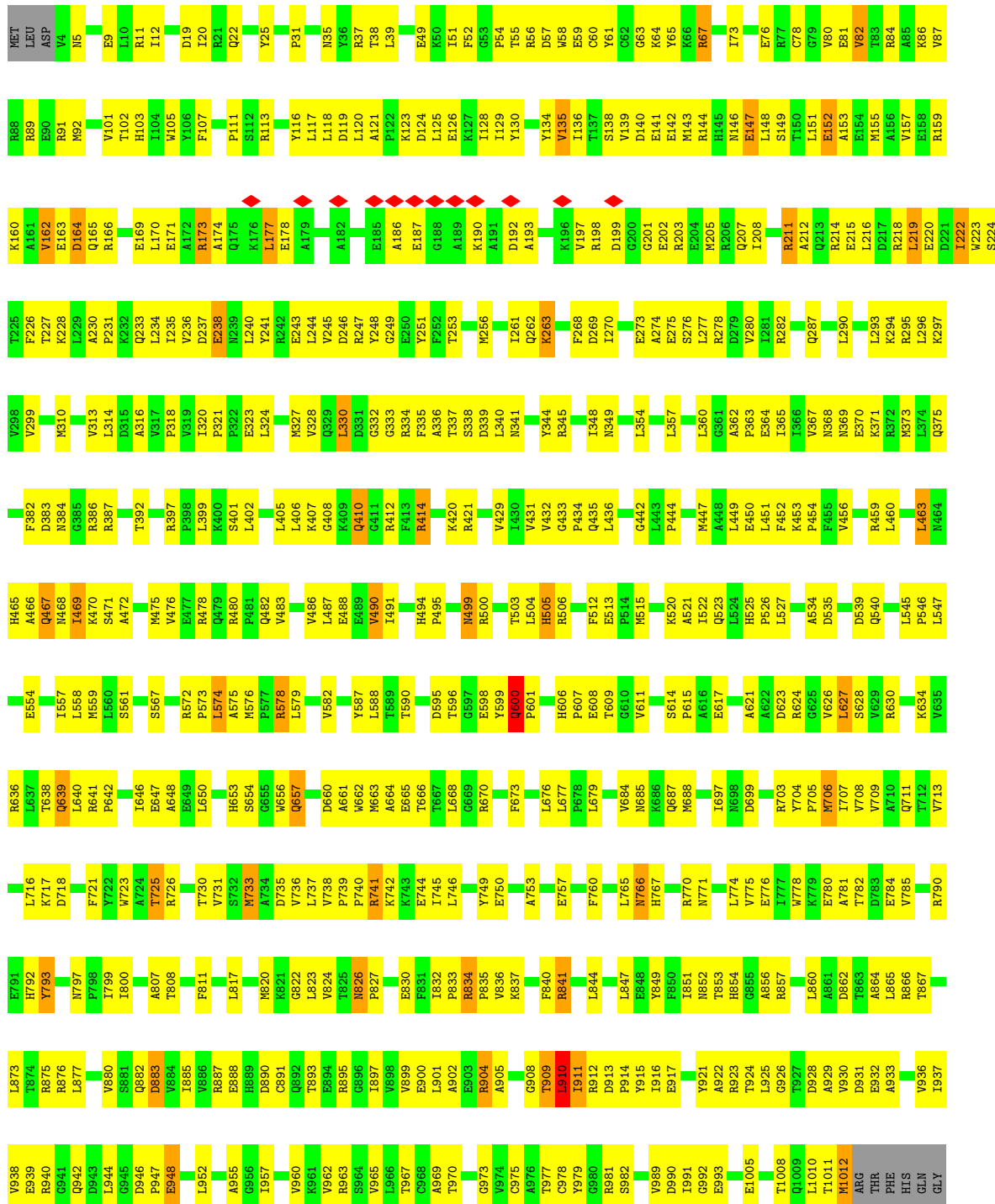
• Molecule 2: DNA-directed RNA polymerase subunit beta

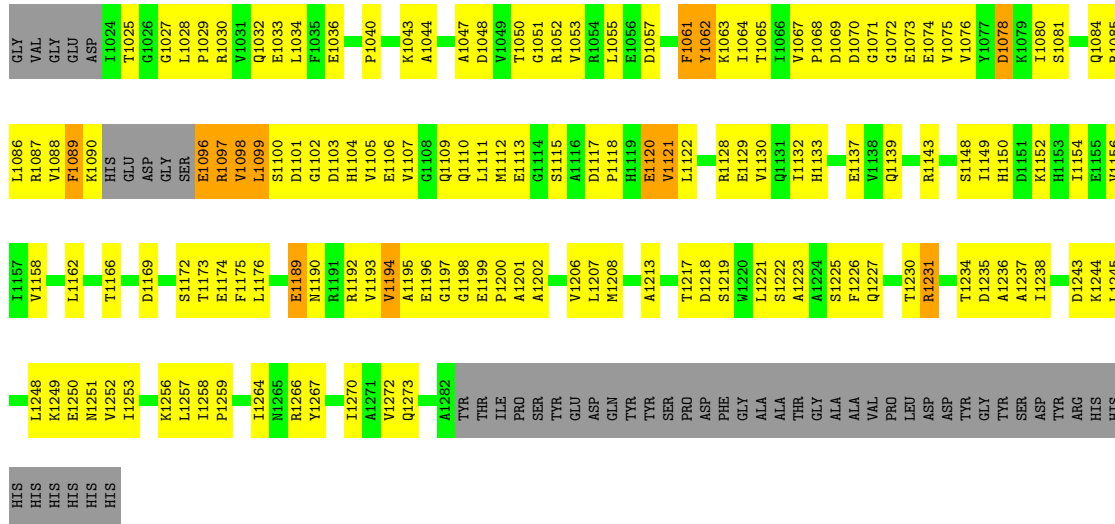
Chain C: 43% 46% 6%

MET	ALA	ASP	SER	ARG	GLN	SER	LYS	THR	ALA	ALA	SER	PRO	PRO	PRO	ASN	N30	S31	V32	P33	R38	V39	S40	F41	A42	K43	L44	L48	G52	L53	L54	D55	T58	D59	S60	F61	E62	W63	L64	I65	P68	M69	W70	T71	F162	K163	G164	T165	F166							
R77	G78	D79	V80	N81	P82	G85	V89	L90	Y91	E92	L93	I96	E97	K101	S102	M103	L105	F112	D113	A117	C122	P132	L133	F134	E138	E139	I140	N141	M142	G145	G146	I147	V152	F153	G155	D156	F157	P158	M159	M160	T161	T162	K163	L238	L241										
I167	I168	R173	S177	V180	V185	Y186	F187	D188	E189	D192	K193	K264	S194	T195	D196	L199	H200	S201	A273	L274	L275	V204	I205	Y278	K280	L281	R282	T214	P283	D215	V216	D217	K218	R219	D220	T221	V222	G223	V224	R225	I226	D227	N298	K302	Y306	D307	L308	V234	T235	V236	L237	V316	N317	T165	F166
G242	W243	I248	F252	G253	F254	S255	M258	R259	S260	T261	L262	E263	K264	D265	N266	T267	D271	E272	A273	L274	L275	D276	Y278	K280	L281	R282	T214	P283	D215	V216	D217	K218	R219	D220	T221	V222	G223	V224	R225	I226	D227	N298	K302	Y306	D307	L308	V234	T235	V236	L237	V316	N317	T165	F166	
K319	L322	H323	V324	G325	E326	F327	I328	S330	L333	T334	E335	V336	V338	V339	A340	T341	I342	E343	Y344	L345	V346	R347	L348	H349	G351	Q352	L353	S354	M355	T356	V357	P358	V363	P364	V365	D368	D369	I370	F373	G374	L378	R379	T380	V381	G386	H387	Q388	I389	R390						
V391	R395	M396	E397	R398	V399	R400	E402	R403	M404	T406	V409	E410	T413	Q415	M416	L417	I418	N419	I420	R421	P422	V423	Q435	L436	S437	Q438	F439	Q442	N443	N444	P445	L446	T450	R453	R454	L455	P460	R465	E471	V475	H476	P477	S478	S479	H479										
Y480	G481	R482	M483	P485	I486	E487	T488	N489	L500	S501	A504	R505	V506	M507	F511	Y516	R517	K518	V519	G522	V523	V524	E527	L528	L531	T532	A533	D534	E535	H539	V540	V541	A542	Q543	P547	I548	D549	G552	R553	F554	V555	E556	P557	R558	V559										
L560	V561	R562	K564	V568	E569	T570	T571	N576	D577	Y578	M579	D580	S582	P583	R584	O585	V587	S588	A590	T591	F592	M593	F594	P595	F596	L597	E598	H599	D600	D601	A602	M606	N610	M611	O612	R613	V619	R620	S621	E622	A623	P624	L625	V626	G627	T628	A714	L715							
L632	R633	D637	A638	D640	V641	F642	V643	A644	E645	E646	S647	G648	T650	V653	I658	T659	V660	M661	H662	R667	R668	T669	M672	R677	S678	Q686	G687	D688	P689	D691	D694	R695	E696	E697	A698	G699	Q700	V701	I702	A703	D704	G705	L708	D709	A714	L715									
G716	K717	L719	L720	W721	A722	I723	E727	N730	Y731	E732	D733	A734	I736	L737	R740	L741	V742	D745	V746	H751	E754	H755	E756	L757	D758	R760	D761	T762	K763	L764	G765	A766	E767	R771	D772	T773	P774	N775	I776	V780	L781	L784	D785	E786	R787	G788	I789								
V790	R791	I792	R797	D798	G799	D800	L801	R802	V803	K804	G805	R806	T807	P808	R809	G810	L814	E817	L820	R822	A823	L824	F825	A829	R830	E831	V832	T835	S836	L837	R838	V839	P840	H841	G842	E843	S844	G845	I848	S854	R855	D859	G860	L861	P862	A863	G864	V865							
L868	V869	R870	W871	W872	W873	A874	R877	K878	L879	S880	D881	G882	D883	R884	L885	R888	N891	K892	L893	L894	R895	G896	K897	L898	D903	N904	P905	P915	L916	L917	H841	G842	E843	S844	G845	I848	S854	R855	D859	G860	L861	P862	A863	G864	V865										
G943	W944	K945	P1018	F1019	P1020	I1021	K950	G951	V952	P953	H954	H955	A956	A957	R958	L959	D961	E962	L963	L964	E965	A966	G967	P968	N969	I971	V972	S973	P905	P915	V976	E982	A983	E984	G987	C991	T992	L993	P994	N995	R996	D997	G998	D999	V1000	L1001	V1002	G1006	L1007	A1008	M1009	L1010	F1011		
D1012	E1017	P1018	F1019	P1020	I1021	K950	G951	V952	P953	H954	H955	A956	A957	R958	L959	D961	E962	L963	L964	E965	A966	G967	P968	N969	I971	V972	S973	P905	P915	V976	E982	A983	E984	G987	C991	T992	L993	P994	N995	R996	D997	G998	D999	V1000	L1001	V1002	G1006	L1007	A1008	M1009	L1010	F1011			
D1012	E1017	P1018	F1019	P1020	I1021	K950	G951	V952	P953	H954	H955	A956	A957	R958	L959	D961	E962	L963	L964	E965	A966	G967	P968	N969	I971	V972	S973	P905	P915	V976	E982	A983	E984	G987	C991	T992	L993	P994	N995	R996	D997	G998	D999	V1000	L1001	V1002	G1006	L1007	A1008	M1009	L1010	F1011			

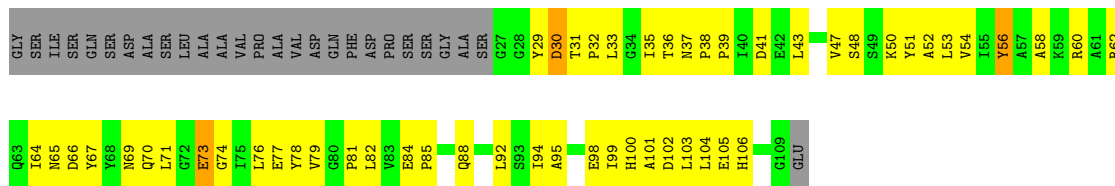


● Molecule 3: DNA-directed RNA polymerase subunit beta'

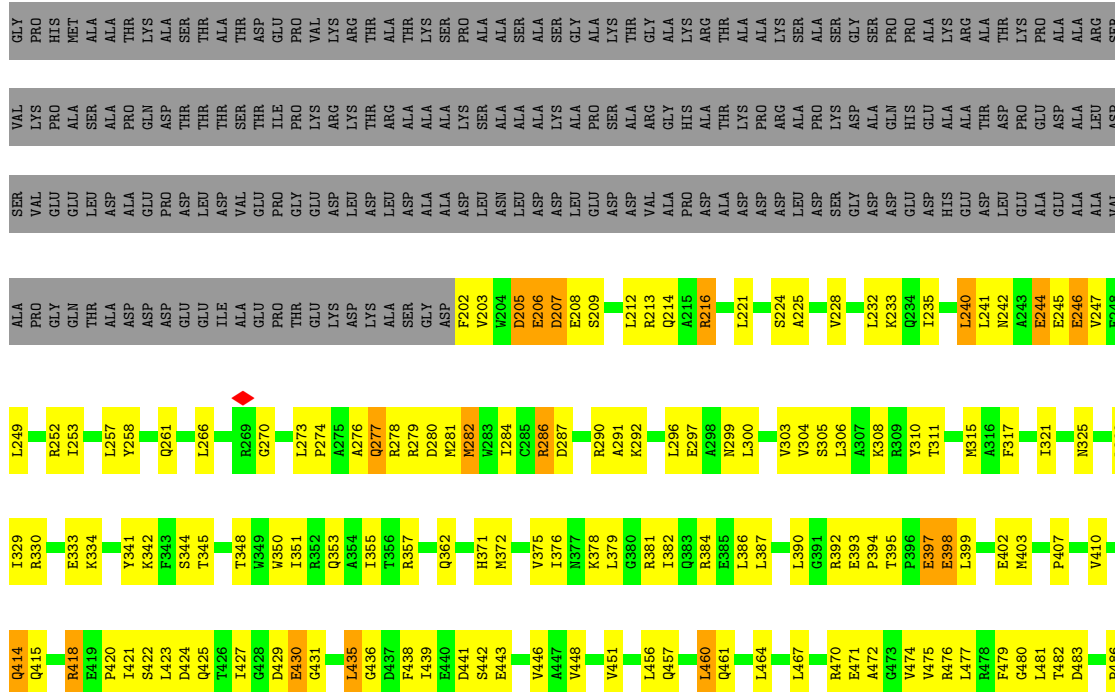
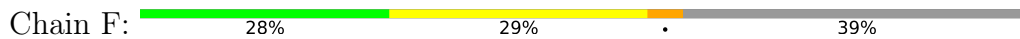




• Molecule 4: DNA-directed RNA polymerase subunit omega

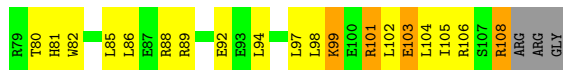


• Molecule 5: RNA polymerase sigma factor SigA

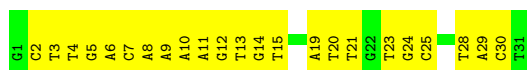




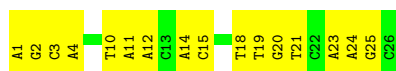
- Molecule 6: RNA polymerase-binding protein RbpA



- Molecule 7: DNA (32-MER)



- Molecule 8: DNA (26-MER)



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	173509	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 ($e^-/\text{\AA}^2$)	6.7	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	1800	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	3.278	Depositor
Minimum map value	-1.545	Depositor
Average map value	0.011	Depositor
Map value standard deviation	0.105	Depositor
Recommended contour level	0.347	Depositor
Map size (\AA)	330.0, 330.0, 330.0	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.1, 1.1, 1.1	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, FI8, 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	A	0.24	0/1750	0.44	0/2380
1	B	0.24	0/1802	0.43	0/2454
2	C	0.24	0/8714	0.42	0/11824
3	D	0.25	0/10021	0.41	0/13549
4	E	0.24	0/662	0.39	0/901
5	F	0.23	0/2622	0.37	0/3538
6	J	0.35	0/888	0.45	0/1199
7	O	0.49	0/710	0.95	0/1095
8	P	0.54	0/589	0.93	0/906
All	All	0.27	0/27758	0.46	0/37846

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
2	C	0	3
3	D	0	2
All	All	0	5

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	C	61	PHE	Peptide
2	C	958	ARG	Peptide

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Mol	Chain	Res	Type	Group
2	C	960	PRO	Peptide
3	D	1194	VAL	Peptide
3	D	600	GLN	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1724	0	1768	120	0
1	B	1775	0	1809	174	0
2	C	8556	0	8459	741	0
3	D	9857	0	9920	774	0
4	E	649	0	645	54	0
5	F	2588	0	2602	222	0
6	J	872	0	852	60	0
7	O	634	0	350	42	0
8	P	526	0	296	37	0
9	C	72	74	0	3	0
10	D	2	0	0	0	0
11	D	1	0	0	0	0
12	C	2	0	0	0	0
12	D	4	0	0	3	0
All	All	27262	74	26701	2045	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 38.

The worst 5 of 2045 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)
2:C:948:ALA:HB2	2:C:953:PRO:HD3	1.27	1.16
2:C:658:ILE:HD11	2:C:688:PRO:HB3	1.33	1.08
2:C:633:ARG:NH1	2:C:637:ASP:OD2	1.87	1.07
2:C:225:ARG:HB2	2:C:231:ARG:HA	1.34	1.06
2:C:960:PRO:HG2	2:C:963:LEU:HD12	1.35	1.04

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	224/347 (65%)	206 (92%)	18 (8%)	0	100	100
1	B	235/347 (68%)	200 (85%)	35 (15%)	0	100	100
2	C	1109/1181 (94%)	961 (87%)	141 (13%)	7 (1%)	25	59
3	D	1257/1324 (95%)	1148 (91%)	105 (8%)	4 (0%)	41	73
4	E	81/110 (74%)	75 (93%)	6 (7%)	0	100	100
5	F	324/531 (61%)	306 (94%)	18 (6%)	0	100	100
6	J	105/111 (95%)	89 (85%)	15 (14%)	1 (1%)	15	48
All	All	3335/3951 (84%)	2985 (90%)	338 (10%)	12 (0%)	38	68

5 of 12 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	C	62	GLU
2	C	323	HIS
3	D	909	THR
3	D	910	LEU
3	D	904	ARG

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	195/297 (66%)	185 (95%)	10 (5%)	24	55
1	B	197/297 (66%)	186 (94%)	11 (6%)	21	52
2	C	924/997 (93%)	872 (94%)	52 (6%)	21	52
3	D	1041/1103 (94%)	969 (93%)	72 (7%)	15	46
4	E	69/89 (78%)	62 (90%)	7 (10%)	7	28
5	F	272/429 (63%)	246 (90%)	26 (10%)	8	30
6	J	93/97 (96%)	79 (85%)	14 (15%)	3	12
All	All	2791/3309 (84%)	2599 (93%)	192 (7%)	19	46

5 of 192 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	D	725	THR
3	D	1231	ARG
3	D	793	TYR
3	D	1057	ASP
4	E	78	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 55 such sidechains are listed below:

Mol	Chain	Res	Type
3	D	467	GLN
3	D	766	ASN
6	J	36	ASN
5	F	353	GLN
3	D	468	ASN

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

Of 4 ligands modelled in this entry, 3 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$
9	FI8	C	1201	-	74,75,75	1.86	19 (25%)	88,109,109	1.62	17 (19%)

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
9	FI8	C	1201	-	-	20/75/118/118	0/3/4/4

The worst 5 of 19 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	C	1201	FI8	C1-C3	5.17	1.57	1.50
9	C	1201	FI8	C14-C15	4.31	1.54	1.45
9	C	1201	FI8	O1-C18	-4.14	1.39	1.46
9	C	1201	FI8	O1-C2	3.82	1.43	1.34
9	C	1201	FI8	O17-C49	3.76	1.43	1.34

The worst 5 of 17 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	C	1201	FI8	C18-C17-C16	-5.23	104.00	113.02
9	C	1201	FI8	O14-C46-C45	4.60	115.06	107.67
9	C	1201	FI8	C31-C30-C29	-4.25	106.94	113.41
9	C	1201	FI8	O1-C2-C3	3.73	117.40	112.14
9	C	1201	FI8	C7-C6-C5	-3.66	120.69	125.41

There are no chirality outliers.

5 of 20 torsion outliers are listed below:

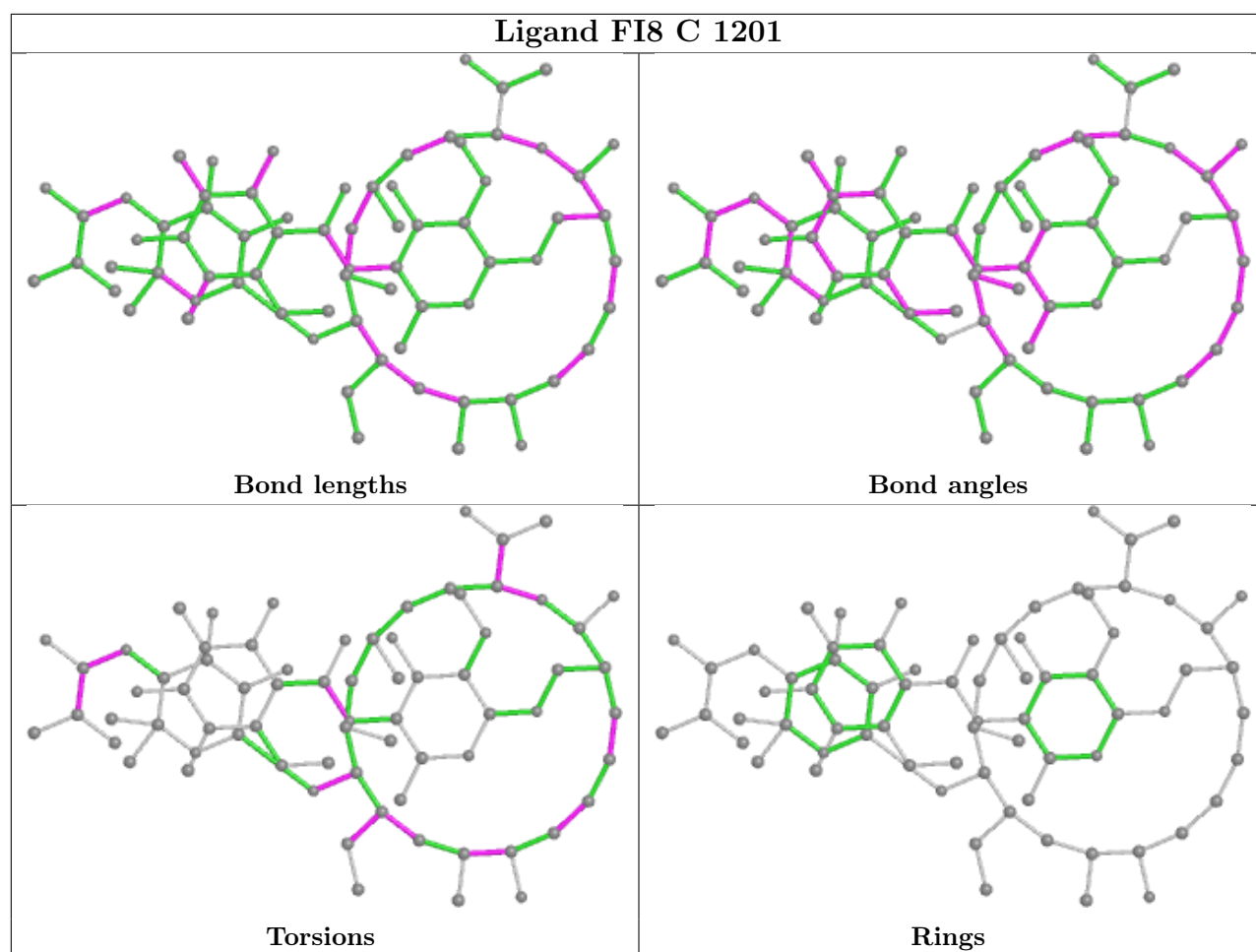
Mol	Chain	Res	Type	Atoms
9	C	1201	FI8	C9-C10-C11-C12
9	C	1201	FI8	C9-C10-C11-C22
9	C	1201	FI8	C10-C11-C22-C23
9	C	1201	FI8	C17-C18-C19-O5A
9	C	1201	FI8	O1-C18-C19-O5A

There are no ring outliers.

1 monomer is involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
9	C	1201	FI8	3	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 [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

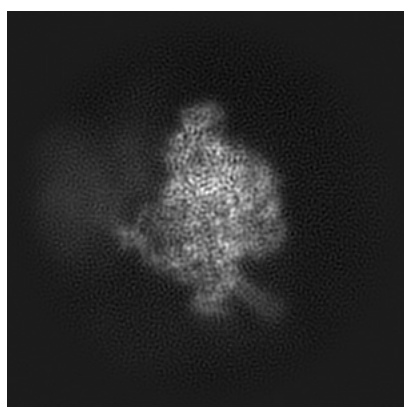
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-7319. These allow visual inspection of the internal detail of the map and identification of artifacts.

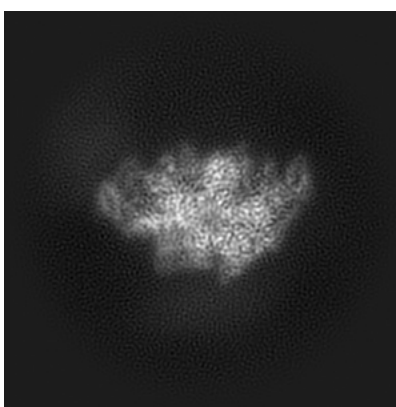
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

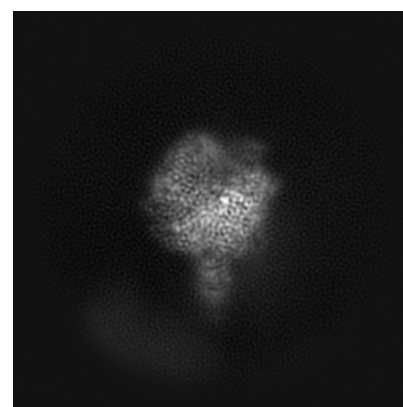
6.1.1 Primary map



X



Y

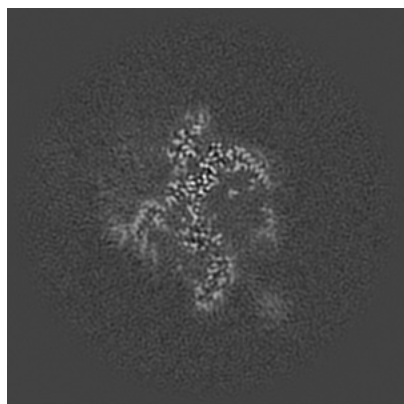


Z

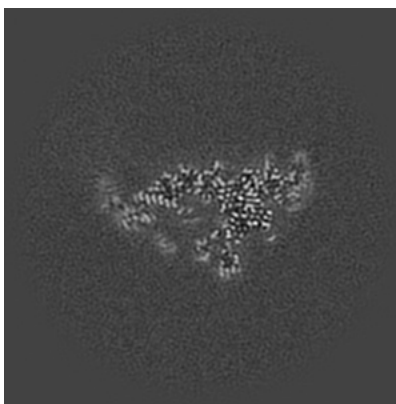
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

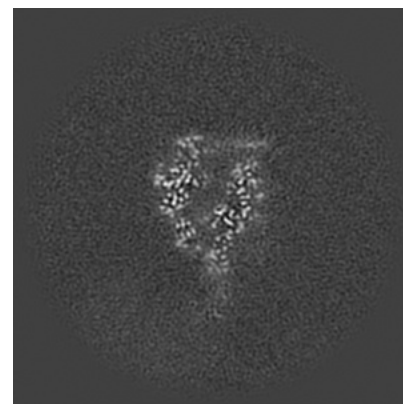
6.2.1 Primary map



X Index: 150



Y Index: 150

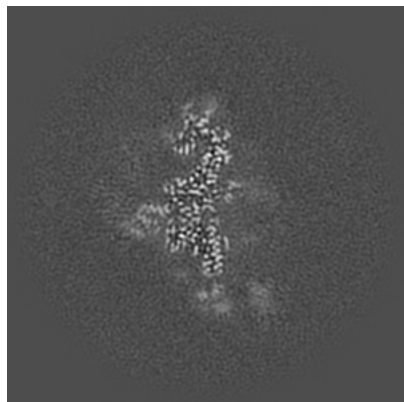


Z Index: 150

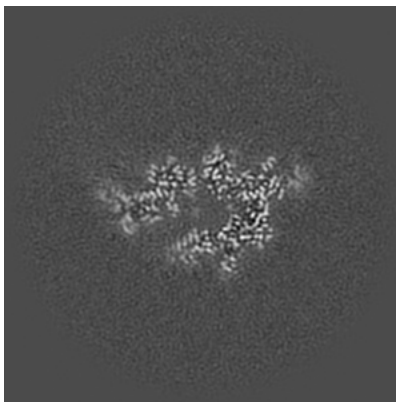
The images above show central slices of the map in three orthogonal directions.

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

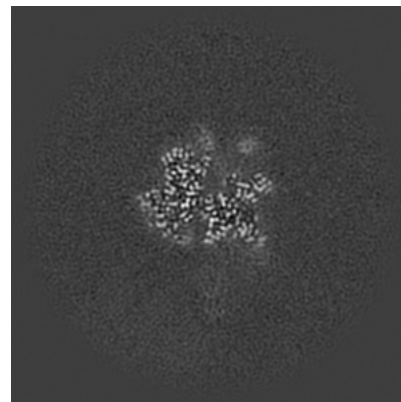
6.3.1 Primary map



X Index: 159



Y Index: 158

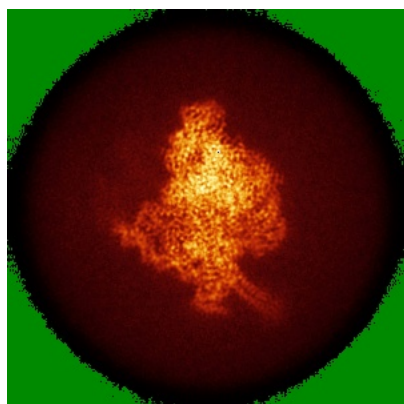


Z Index: 168

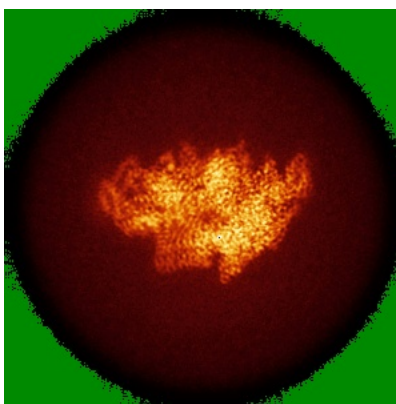
The images above show the largest variance slices of the map in three orthogonal directions.

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

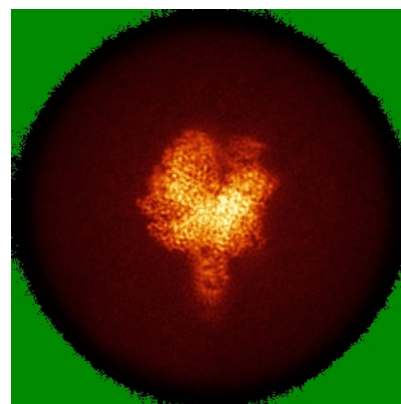
6.4.1 Primary map



X



Y

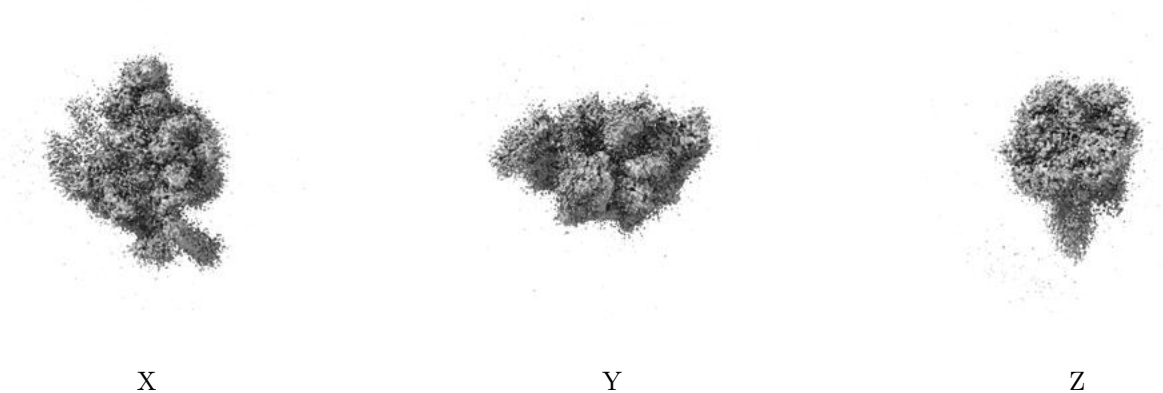


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.347. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

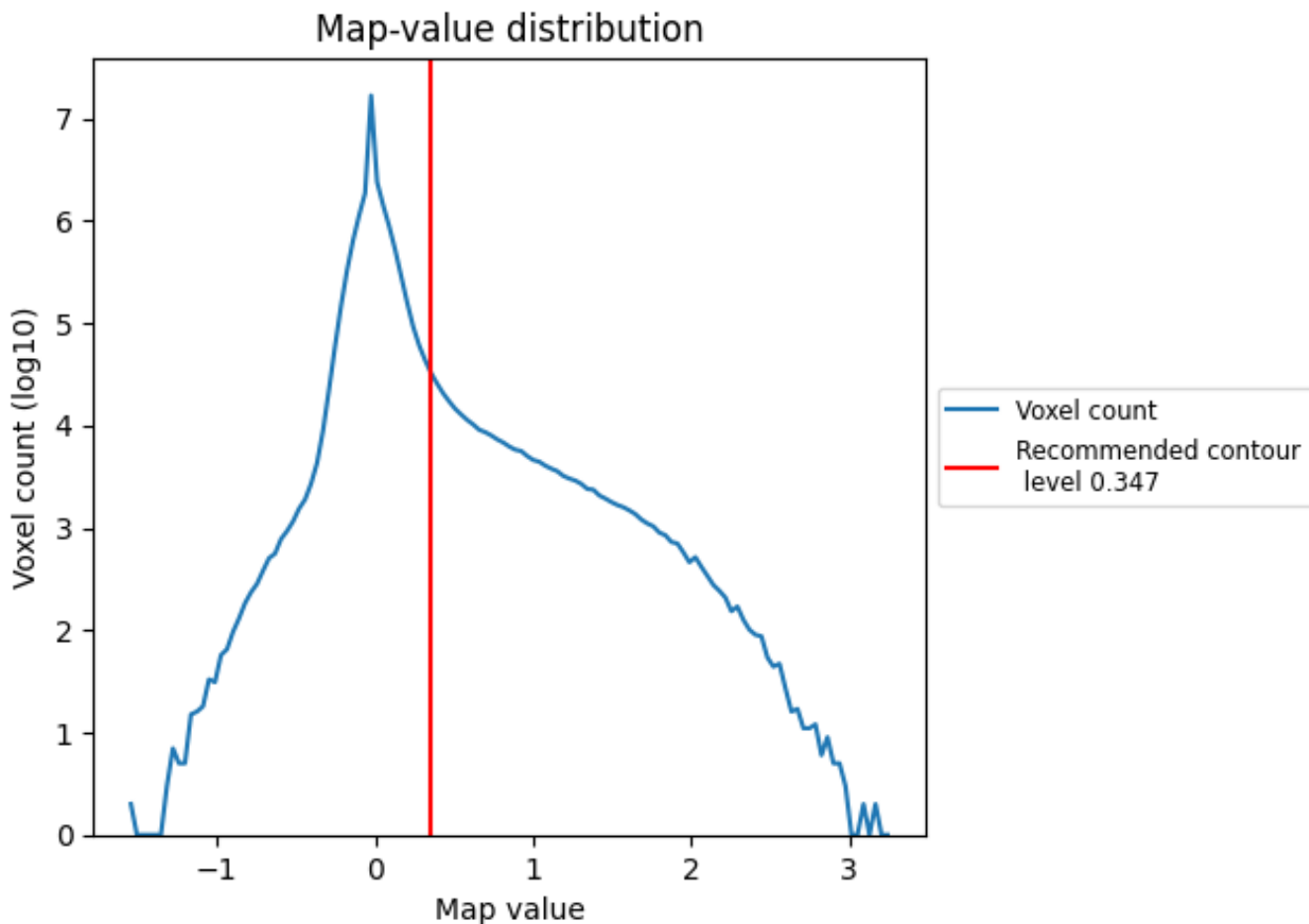
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

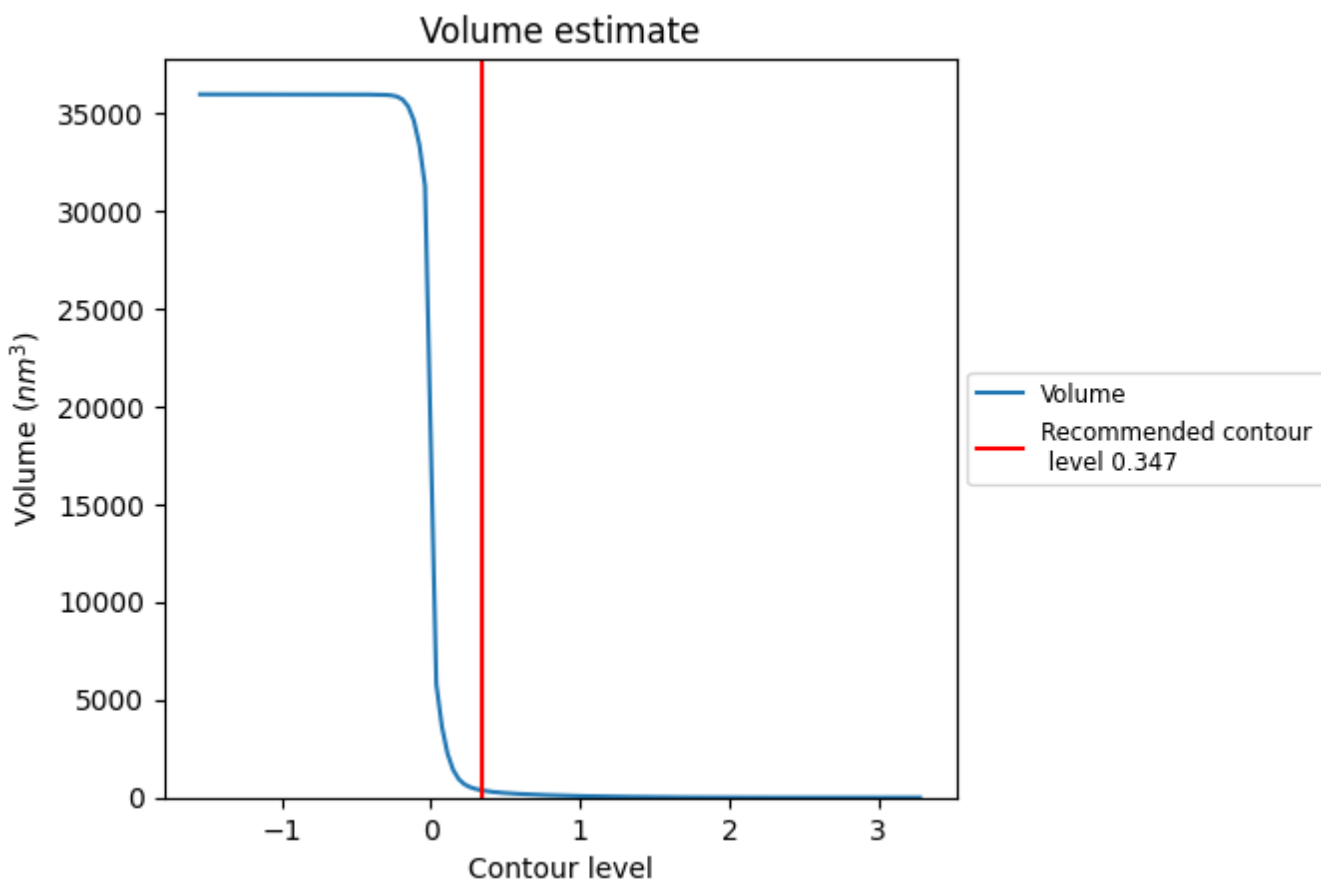
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

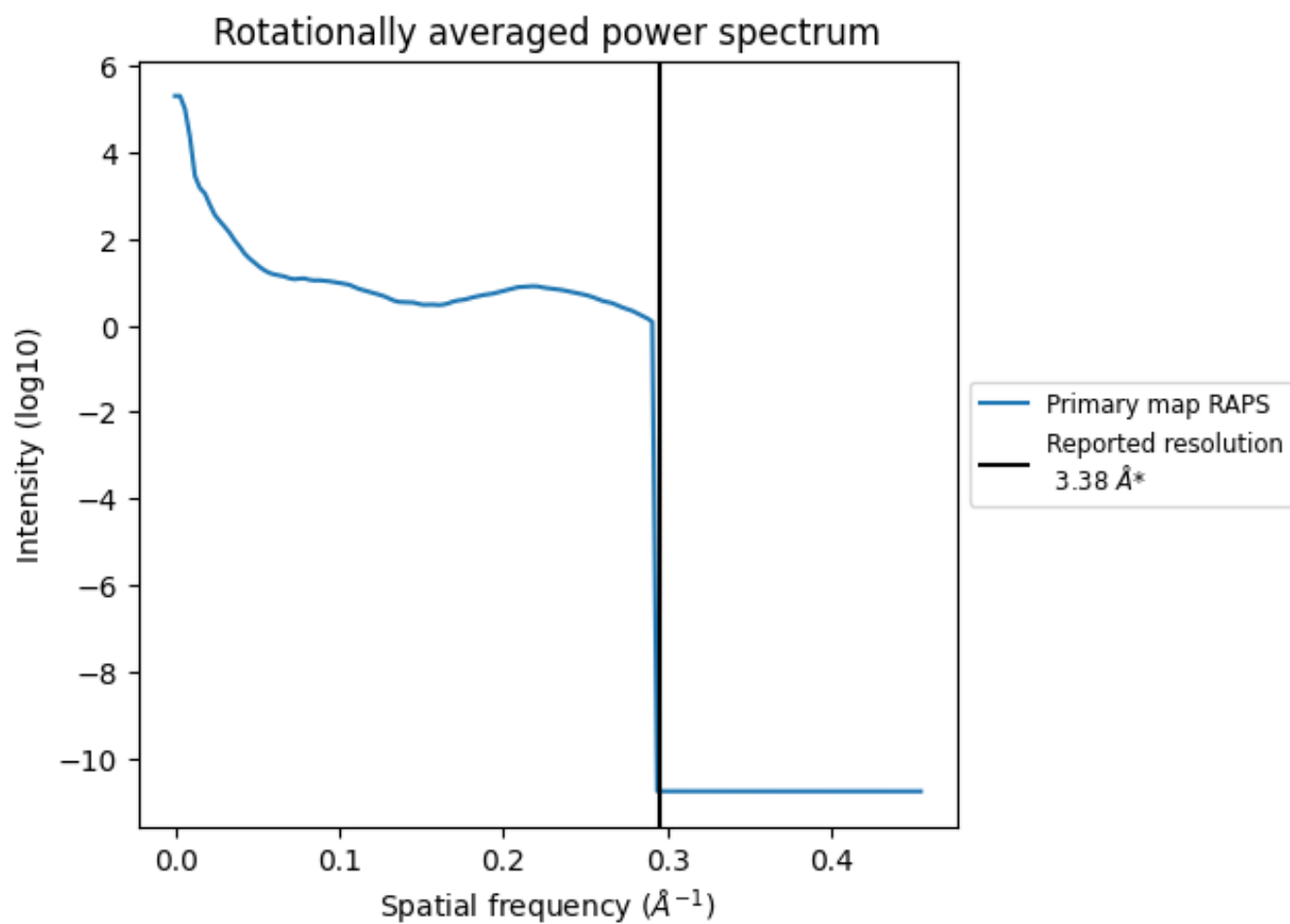
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 365 nm³; this corresponds to an approximate mass of 329 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 0.296 Å⁻¹

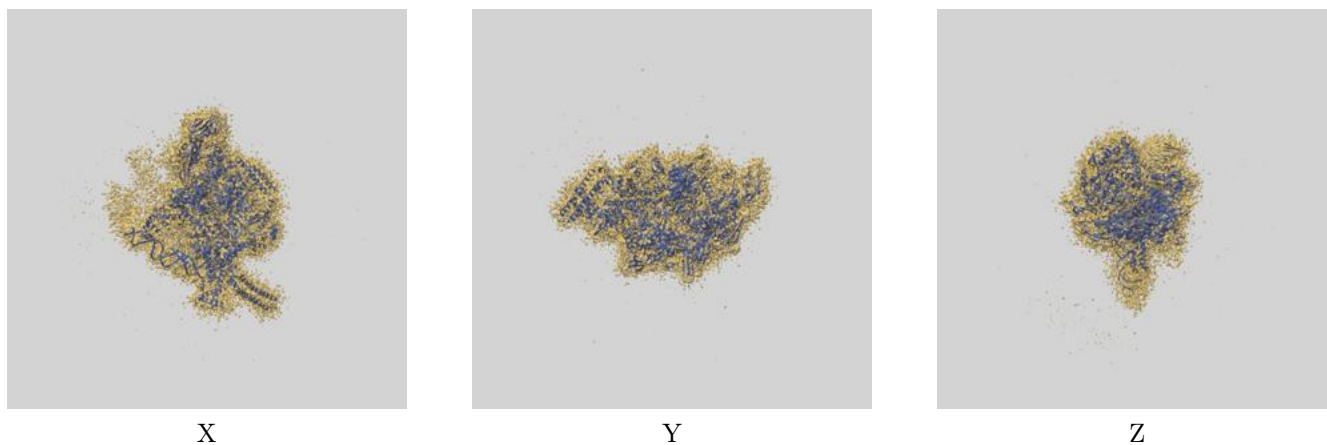
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

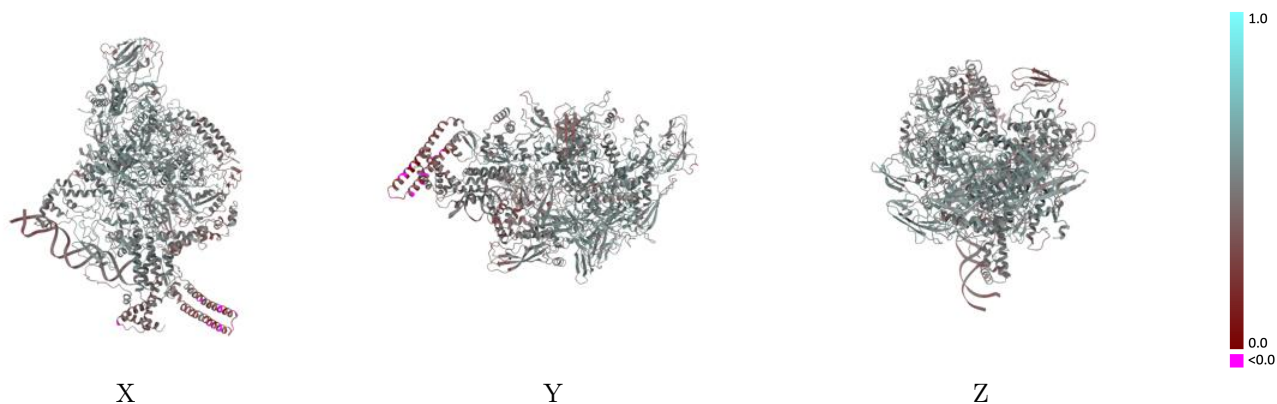
This section contains information regarding the fit between EMDB map EMD-7319 and PDB model 6BZO. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay [i](#)



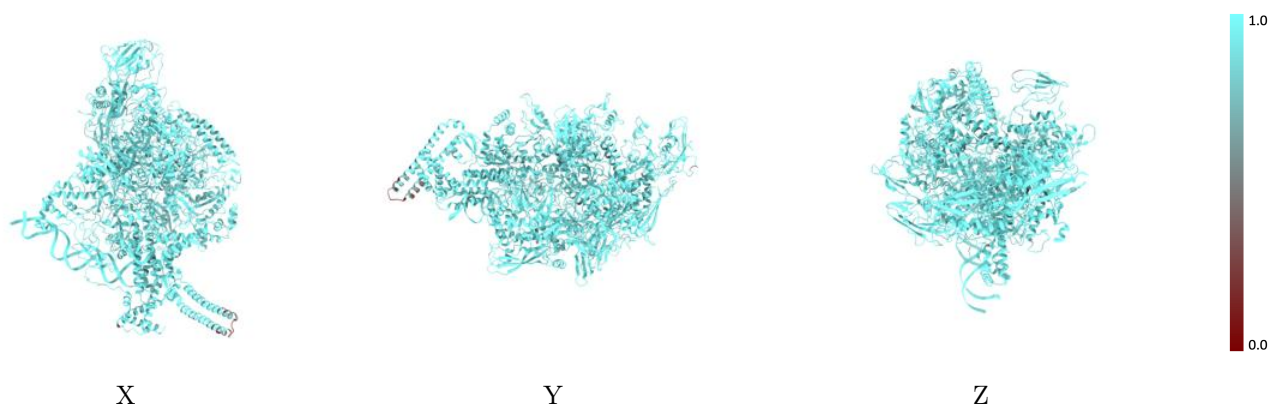
The images above show the 3D surface view of the map at the recommended contour level 0.347 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



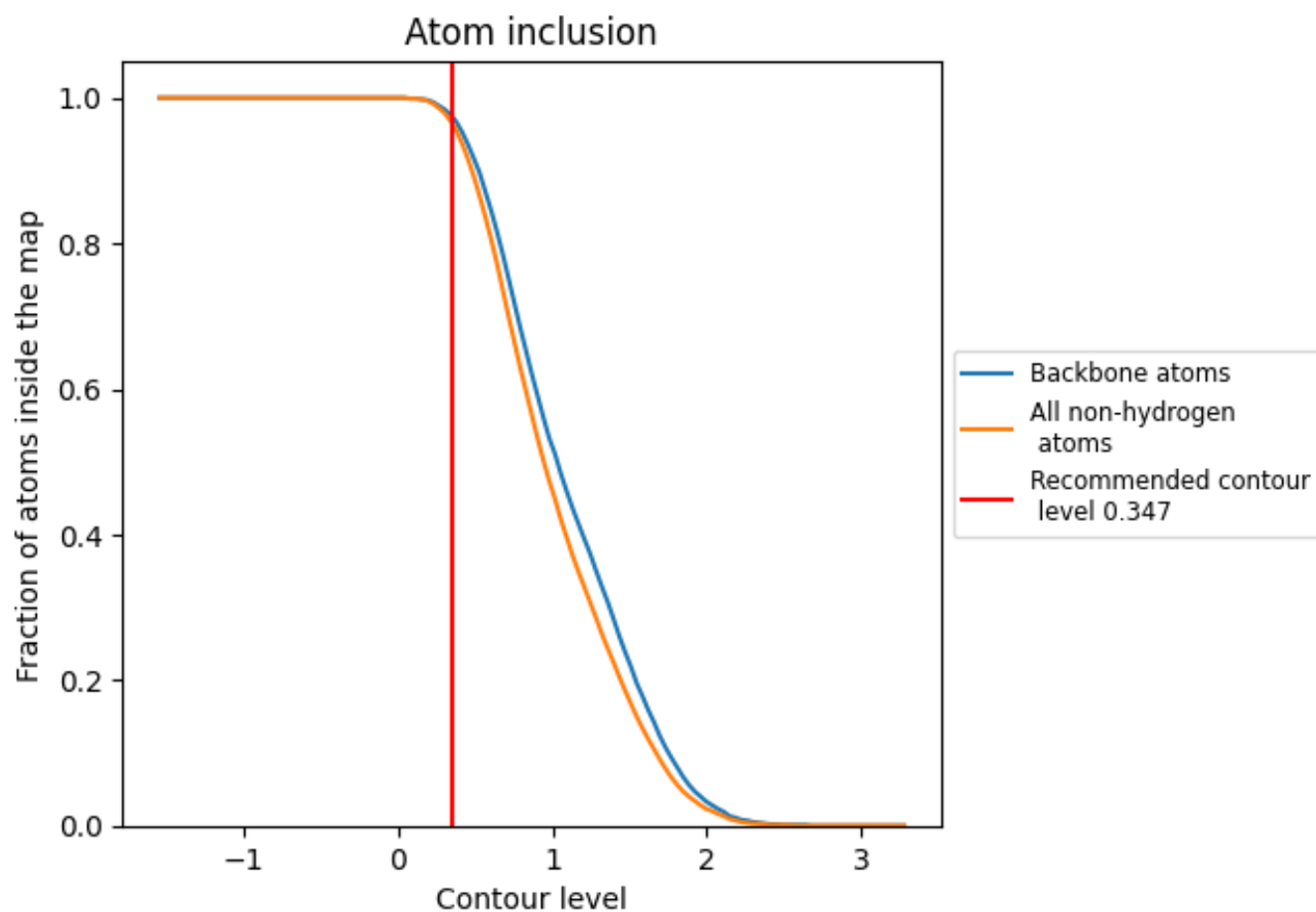
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.347).





















9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 97% 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 (0.347) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9660	 0.4890
A	 0.9750	 0.5130
B	 0.9680	 0.4960
C	 0.9710	 0.5050
D	 0.9640	 0.4910
E	 0.9610	 0.5010
F	 0.9600	 0.4520
J	 0.9510	 0.4750
O	 0.9970	 0.4080
P	 0.9910	 0.3890

