



Full wwPDB EM Validation Report ⓘ

May 11, 2024 – 07:48 pm BST

PDB ID : 6R9G
EMDB ID : EMD-4770
Title : Structural basis of transcription inhibition by the DNA mimic Ocr protein of bacteriophage T7
Authors : Ye, F.Z.; Zhang, X.D.
Deposited on : 2019-04-03
Resolution : 3.70 Å(reported)

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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.dev92
MolProbity : 4.02b-467
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) : 2.36.2

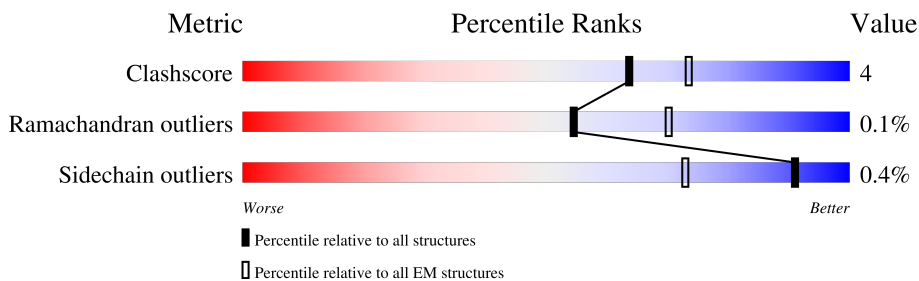
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.70 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	329	
1	B	329	
2	C	1342	
3	D	1407	
4	E	80	
5	F	117	
5	G	117	

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 25944 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called DNA-directed RNA polymerase subunit alpha.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	230	Total	C	N	O	S	0	0
			1765	1100	308	351	6		
1	B	231	Total	C	N	O	S	0	0
			1743	1090	301	346	6		

- 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	1341	Total	C	N	O	S	0	0
			10112	6334	1735	2006	37		

- 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	1334	Total	C	N	O	S	0	0
			10051	6297	1777	1934	43		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	E	75	Total	C	N	O	S	0	0
			572	351	110	109	2		

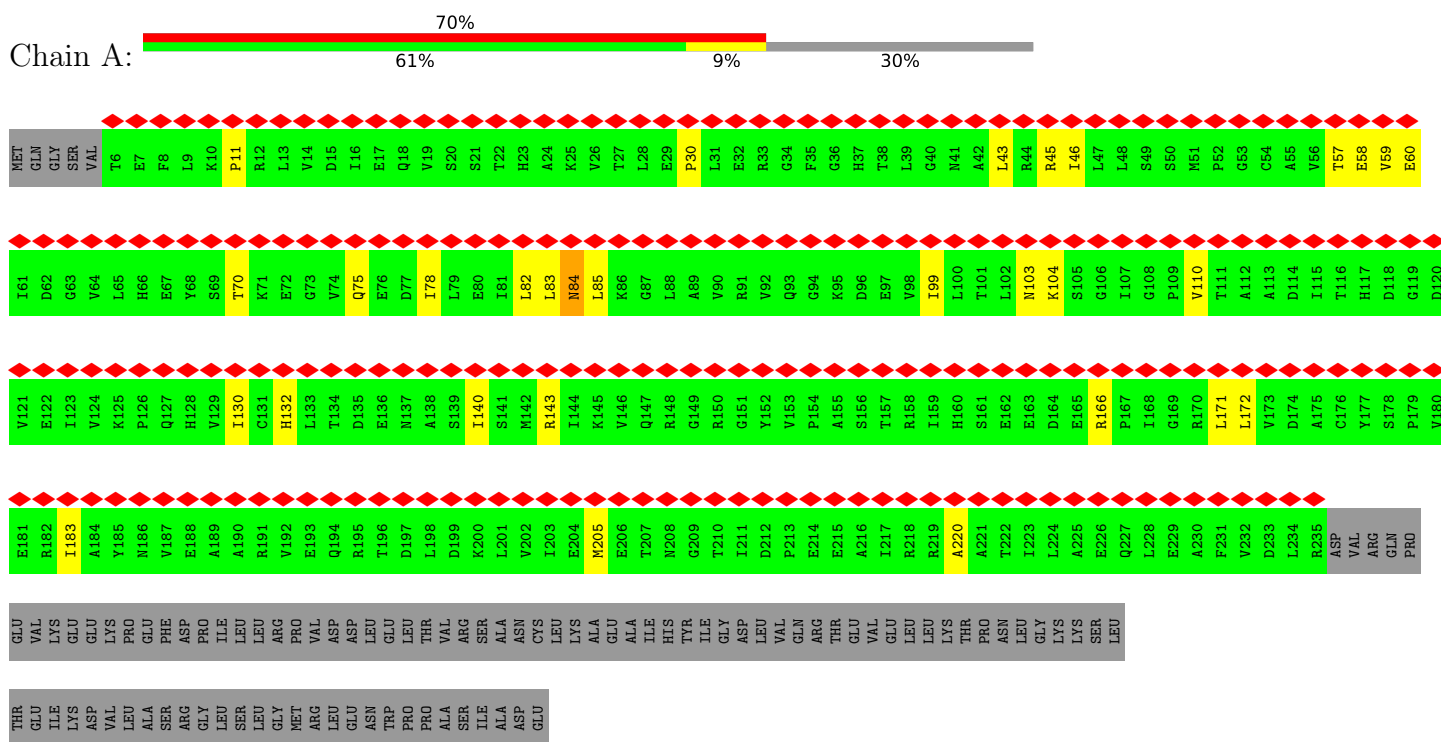
- Molecule 5 is a protein called Overcome classical restriction gp0.3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	G	104	Total	C	N	O	S	0	0
			849	534	131	179	5		
5	F	106	Total	C	N	O	S	0	0
			852	530	136	182	4		

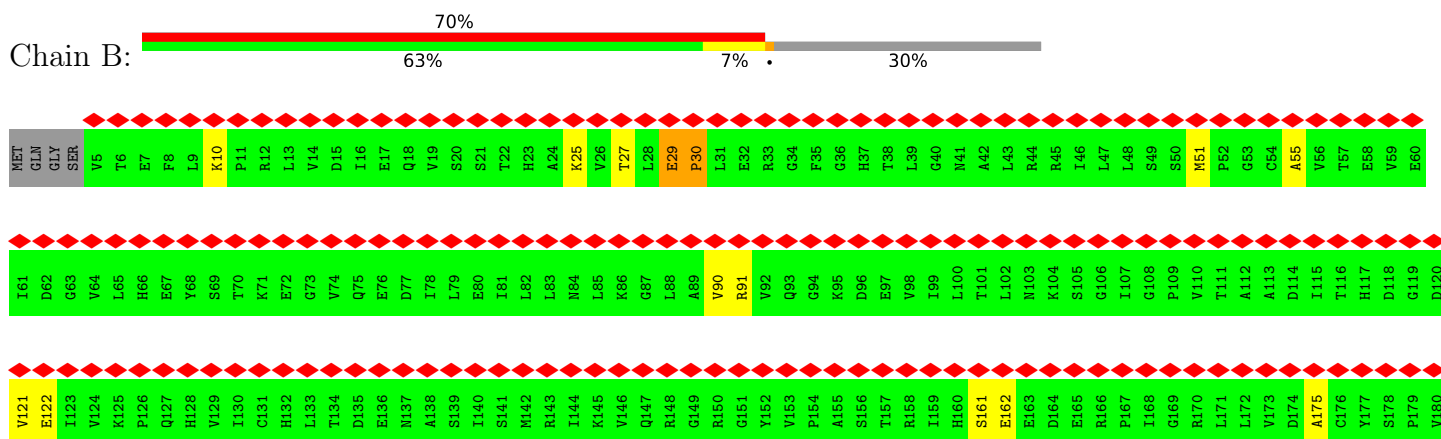
3 Residue-property plots

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

- Molecule 1: DNA-directed RNA polymerase subunit alpha



- Molecule 1: DNA-directed RNA polymerase subunit alpha

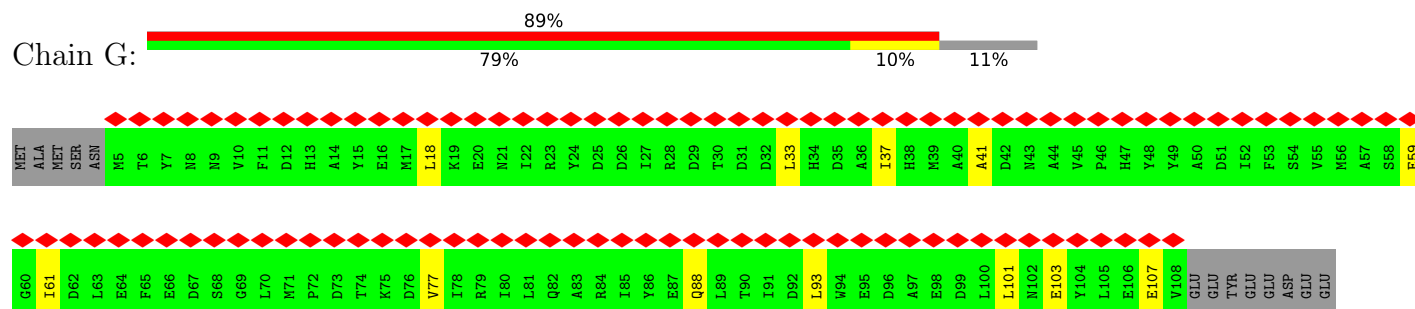


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V1325	I603
L1326	H604
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K1328	L606
E1329	S607
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R1331	I609
S1332	E610
L1333	E611
G1334	G612
I1335	N613
N1336	V614
I1337	V615
E1338	I616
L1339	A617
E1340	Q618
D1341	A619
GLU	N620
	S621
	M622
	L623
	D624
	E625
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	G627
	H628
	F629
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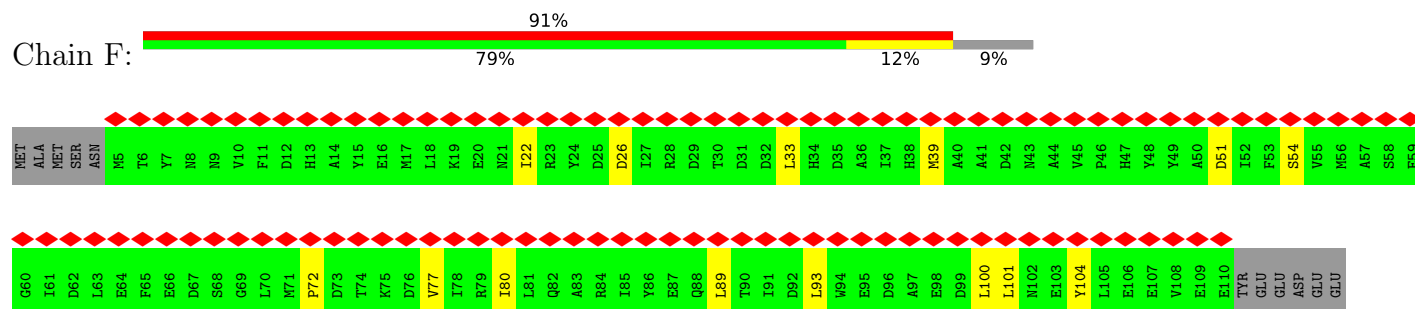


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I61	F62	G63	P64	V65	K66	D67	Y68	E69	C70	L71	C72	G73	K74	Y75	K76	R77	L78	K79	H80	R81	G82	V83	I84	C85	V86	K87	C88	G89	V90	E91	S92	V93	V92	T93	M94	T95	K96	V97	Q98	R99	E100	R101	M102	G103	H104	I105	I106	L107	A108	S109	P110	T111	A112	H113	I114	W115	F116	L117	K118	S119	L120
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E301	A302	V303	D304	A305	L306	L307	D308	R309	G310	R311	R312	G313	A314	A315	I316	T317	G318	S319	N320	K321	R322	P323	L324	K325	S326	L327	A328	D329	K330	I331	K332	G333	K334	Q335	G336	R337	F338	R339	Q340	N341	L342	L343	G344	K345	R346	V347	D348	Y349	R352	S353	V354	L355	T356	V357	G358	P359	Y360	L361			
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S602	K603	M604	L605	M606	T607	C608	Y609	R610	I611	L612	G613	L614	K615	P616	T617	V618	I619	F620	A621	D622	G623	I624	M625	Y626	T627	G628	F629	A630	Y631	A632	A633	V634	S635	G636	A637	S638	V639	G640	M641	F642	D643	M644	P645	K646	G647	L648	P649	K650	H651	E652	I653	M654	Q655	A656	L656	A657	E658	S659	A660	L661	
A662	E663	I664	Q665	E666	Q667	F668	Q669	S670	G671	L672	V673	T674	A675	G676	E677	R678	Y679	M680	K681	V682	L683	D684	I685	W686	M687	A688	A689	M690	D691	R692	V693	S694	K695	A696	M697	M698	I699	N700	L701	Q702	T703	E704	T705	V706	L707	E708	K709	D710	G711	Q712	E713	L714	K715	Q716	V717	S718	A719	N720	S721		
I722	Y723	M724	M725	E726	D727	S728	G729	A730	R731	G732	S733	A734	A735	Q736	I737	R738	Q739	L740	A741	G742	M743	R744	G745	L746	M747	A748	K749	F750	D751	G752	S753	I754	I755	E756	T757	F758	I759	T760	A761	N762	F763	R764	E765	G766	L767	N768	V769	L770	Q771	Y772	F773	I774	S775	T776	H777	G778	A779	R780	K781		

- Molecule 5: Overcome classical restriction gp0.3



- Molecule 5: Overcome classical restriction gp0.3



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	33646	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 ($e^-/\text{\AA}^2$)	49.53	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	0.220	Depositor
Minimum map value	-0.151	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.1	Depositor
Map size (Å)	270.08, 270.08, 270.08	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.055, 1.055, 1.055	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.26	0/1786	0.52	0/2424
1	B	0.26	0/1764	0.57	0/2398
2	C	0.26	0/10263	0.53	0/13922
3	D	0.26	0/10187	0.51	0/13803
4	E	0.25	0/574	0.49	0/775
5	F	0.25	0/866	0.50	1/1177 (0.1%)
5	G	0.24	0/866	0.42	0/1178
All	All	0.26	0/26306	0.52	1/35677 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	F	26	ASP	CB-CG-OD1	5.19	122.97	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1765	0	1775	21	0
1	B	1743	0	1741	13	0
2	C	10112	0	9785	112	0
3	D	10051	0	10034	81	0
4	E	572	0	574	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	F	852	0	772	8	0
5	G	849	0	768	7	0
All	All	25944	0	25449	219	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 4.

All (219) 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:D:121:PRO:HD2	5:G:59:GLU:HG3	1.66	0.75
5:F:100:LEU:O	5:F:104:TYR:HB2	1.87	0.74
3:D:189:LEU:HD21	3:D:234:PRO:HB2	1.76	0.67
3:D:707:ILE:H	3:D:716:GLN:HG2	1.60	0.65
2:C:205:PRO:HG2	2:C:208:ILE:HG12	1.79	0.65
2:C:1209:GLN:HB3	2:C:1224:PRO:HB2	1.79	0.64
2:C:340:ASP:HB3	2:C:437:ASN:HD21	1.66	0.60
2:C:153:PRO:HD2	2:C:452:ARG:HH12	1.66	0.60
3:D:288:PRO:HD2	3:D:291:ILE:HD12	1.82	0.60
3:D:422:LEU:HB2	3:D:469:HIS:HB2	1.83	0.60
2:C:803:ALA:HB3	2:C:1097:VAL:HG22	1.84	0.60
3:D:124:ILE:HD12	3:D:1334:GLU:HG2	1.84	0.59
2:C:1269:ARG:NH2	5:F:39:MET:SD	2.75	0.59
3:D:1237:VAL:HG11	3:D:1253:ILE:HG12	1.84	0.59
2:C:29:SER:O	2:C:33:ASP:HB2	2.03	0.58
2:C:673:HIS:HB3	2:C:1109:ILE:HB	1.86	0.58
2:C:528:ARG:NH1	2:C:576:SER:O	2.36	0.58
3:D:21:LYS:HE2	3:D:23:ALA:HB2	1.85	0.58
3:D:749:LYS:HE3	3:D:751:ASP:HB2	1.85	0.57
3:D:491:LEU:HA	3:D:498:PRO:HA	1.86	0.57
3:D:799:ARG:NH1	3:D:1146:GLU:OE2	2.35	0.57
2:C:1254:VAL:HG22	2:C:1255:THR:HG23	1.86	0.57
1:B:91:ARG:HD2	1:B:122:GLU:HB3	1.87	0.56
3:D:1288:ALA:O	3:D:1292:LEU:HB2	2.04	0.56
1:A:11:PRO:HA	1:A:30:PRO:HG2	1.88	0.56
2:C:782:VAL:HG21	2:C:792:GLY:HA3	1.86	0.56
2:C:622:ASN:HD21	2:C:631:GLU:HB2	1.69	0.56
3:D:226:ALA:O	3:D:230:SER:HB3	2.06	0.56
2:C:9:LYS:NZ	2:C:770:CYS:SG	2.78	0.56
3:D:806:ASP:OD1	3:D:1259:GLN:NE2	2.38	0.56
3:D:702:GLN:NE2	3:D:714:GLU:O	2.38	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:806:ASP:HA	3:D:1346:GLY:HA2	1.87	0.56
2:C:519:ASN:HB2	2:C:796:LEU:HD22	1.88	0.55
3:D:647:PRO:HB2	3:D:650:LYS:HB2	1.88	0.55
2:C:811:ASN:HA	2:C:815:SER:HB2	1.86	0.55
2:C:1287:LEU:HD23	3:D:1357:ILE:HG12	1.87	0.55
2:C:104:ILE:HB	2:C:115:LYS:HB2	1.89	0.55
3:D:17:PHE:O	3:D:1355:ARG:NH1	2.39	0.55
2:C:854:ILE:HD11	2:C:887:VAL:HG22	1.88	0.55
2:C:68:LEU:HD11	2:C:100:LEU:HD23	1.88	0.54
1:A:83:LEU:HD13	2:C:694:ARG:HE	1.71	0.54
2:C:179:TYR:HB3	2:C:396:ASP:HB3	1.89	0.54
2:C:519:ASN:ND2	2:C:686:GLN:O	2.40	0.54
2:C:877:VAL:HG13	2:C:881:ASP:HB2	1.89	0.54
2:C:1269:ARG:HH11	3:D:426:ALA:HB1	1.71	0.54
3:D:517:CYS:SG	3:D:716:GLN:NE2	2.80	0.54
1:A:82:LEU:HD11	1:A:171:LEU:HD13	1.90	0.54
1:A:58:GLU:HG2	1:A:172:LEU:HG	1.89	0.54
2:C:41:GLN:NE2	2:C:73:TYR:O	2.41	0.54
1:A:60:GLU:OE1	1:A:143:ARG:NH2	2.41	0.54
2:C:636:CYS:SG	2:C:637:ARG:N	2.81	0.54
2:C:1108:ASN:ND2	2:C:1111:GLN:OE1	2.40	0.54
2:C:471:VAL:HG22	2:C:493:ILE:HG21	1.90	0.53
3:D:528:THR:OG1	3:D:551:ARG:NH1	2.42	0.53
2:C:1295:SER:O	2:C:1301:ARG:NH1	2.41	0.53
3:D:1368:ASP:OD1	3:D:1371:ARG:NH2	2.40	0.53
2:C:560:PRO:O	3:D:780:ARG:NH1	2.41	0.53
2:C:314:ASN:ND2	2:C:348:SER:O	2.42	0.53
2:C:798:GLN:HB3	2:C:827:ARG:HH21	1.74	0.53
3:D:976:THR:HG22	3:D:1026:PRO:HB2	1.91	0.53
2:C:138:ILE:HD13	2:C:143:ARG:HD2	1.91	0.52
2:C:560:PRO:HB2	3:D:776:THR:HG21	1.90	0.52
2:C:932:GLN:HB2	2:C:1051:LYS:HB2	1.90	0.52
2:C:836:LEU:HB3	2:C:1052:VAL:HB	1.92	0.52
2:C:694:ARG:HB2	2:C:798:GLN:HE22	1.75	0.52
1:A:45:ARG:HH12	2:C:1084:ASP:HB3	1.74	0.52
2:C:849:GLU:HG3	2:C:941:LYS:HE2	1.92	0.52
5:G:103:GLU:O	5:G:107:GLU:HB2	2.10	0.52
1:A:43:LEU:HA	1:A:46:ILE:HG22	1.92	0.51
3:D:576:ARG:NH1	3:D:593:ASN:OD1	2.43	0.51
1:B:191:ARG:NH1	3:D:413:ASP:OD2	2.43	0.51
2:C:1101:LEU:HD21	3:D:508:LEU:HD22	1.91	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:1065:LYS:HG3	2:C:1235:LEU:HD12	1.91	0.51
3:D:354:VAL:HG13	3:D:463:GLY:HA2	1.92	0.51
1:B:27:THR:HG22	1:B:202:VAL:HG22	1.93	0.51
1:A:70:THR:HG22	1:A:78:ILE:HG12	1.93	0.51
2:C:903:ARG:HA	2:C:907:GLY:HA2	1.93	0.51
2:C:59:ILE:HD12	2:C:59:ILE:O	2.11	0.51
3:D:810:THR:HG23	3:D:811:GLU:HG2	1.93	0.51
3:D:422:LEU:HD13	3:D:434:ILE:HD11	1.93	0.51
3:D:742:GLY:H	3:D:762:ASN:HD22	1.58	0.51
1:B:29:GLU:HB3	1:B:30:PRO:HD3	1.92	0.50
1:A:103:ASN:ND2	1:A:140:ILE:O	2.43	0.50
2:C:1223:ARG:NH1	3:D:719:PHE:O	2.43	0.50
2:C:1297:ASP:O	2:C:1301:ARG:NH2	2.44	0.50
2:C:411:ARG:NH2	2:C:427:ASP:OD2	2.44	0.50
3:D:1000:GLY:HA3	3:D:1026:PRO:HG3	1.92	0.50
3:D:341:ASN:HD22	3:D:1351:VAL:HG13	1.76	0.50
1:B:51:MET:SD	1:B:219:ARG:NH1	2.79	0.50
2:C:734:ILE:HD11	2:C:783:LEU:HD11	1.94	0.50
4:E:10:VAL:HG21	4:E:16:ARG:HE	1.77	0.49
1:A:183:ILE:HG12	1:A:205:MET:HG3	1.95	0.49
2:C:187:GLU:HB2	2:C:195:PHE:HB2	1.95	0.49
3:D:1152:GLU:HB3	3:D:1214:PRO:HD2	1.94	0.49
2:C:148:GLN:NE2	2:C:533:LEU:O	2.46	0.49
3:D:1134:ILE:O	3:D:1140:ARG:NE	2.44	0.49
2:C:148:GLN:OE1	2:C:531:SER:OG	2.31	0.49
2:C:204:LEU:HG	2:C:369:MET:HG2	1.95	0.49
2:C:719:LYS:HA	2:C:779:ARG:HG3	1.94	0.49
2:C:838:CYS:HB3	2:C:1050:VAL:HB	1.93	0.49
3:D:510:LEU:HD11	3:D:624:ILE:HG23	1.95	0.48
2:C:530:ILE:HD11	2:C:575:LEU:HD12	1.95	0.48
2:C:731:ARG:NH1	2:C:958:LYS:O	2.47	0.48
2:C:933:VAL:HG22	2:C:1050:VAL:HG22	1.96	0.48
3:D:122:SER:HB3	3:D:132:LEU:HD22	1.94	0.48
2:C:592:ARG:NH2	2:C:601:ASP:OD1	2.47	0.48
3:D:732:GLY:HA2	3:D:736:GLN:HE21	1.79	0.47
2:C:563:THR:HG21	3:D:780:ARG:HH22	1.79	0.47
1:A:75:GLN:HB3	1:A:132:HIS:HB3	1.97	0.47
2:C:801:ARG:HD2	2:C:1094:VAL:HA	1.95	0.47
5:G:61:ILE:HG13	5:G:88:GLN:HG3	1.97	0.47
1:A:46:ILE:HG23	1:A:220:ALA:HB1	1.97	0.47
2:C:699:LEU:HD13	2:C:799:ASN:HD21	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:F:33:LEU:HD13	5:F:101:LEU:HD11	1.95	0.47
1:A:59:VAL:HG21	1:A:85:LEU:HD13	1.96	0.47
1:A:99:ILE:HD11	1:A:143:ARG:HB3	1.96	0.47
3:D:502:PRO:HB3	3:D:506:VAL:HB	1.95	0.47
3:D:755:ILE:HD13	3:D:774:ILE:HD13	1.97	0.47
3:D:755:ILE:HG21	3:D:774:ILE:HD13	1.96	0.47
1:A:57:THR:HG22	1:A:58:GLU:HG3	1.97	0.47
3:D:57:PHE:H	3:D:61:ILE:HD12	1.80	0.47
3:D:555:TYR:HB2	3:D:586:GLY:HA3	1.96	0.47
2:C:800:MET:O	2:C:1229:TYR:HA	2.15	0.47
3:D:1302:TYR:HE2	3:D:1304:ARG:HE	1.63	0.47
1:A:75:GLN:HE21	2:C:769:PRO:HB2	1.79	0.46
2:C:145:ILE:HG23	2:C:511:LEU:HB3	1.98	0.46
2:C:578:TYR:HE2	2:C:656:SER:HB2	1.80	0.46
2:C:1117:LEU:HD12	2:C:1195:ILE:HG12	1.98	0.46
1:B:188:GLU:HB2	1:B:200:LYS:HB2	1.97	0.46
2:C:256:GLU:HA	2:C:261:VAL:HA	1.98	0.46
2:C:1101:LEU:HD13	3:D:504:GLN:HG3	1.97	0.46
1:B:55:ALA:HB3	1:B:175:ALA:HB1	1.98	0.46
2:C:521:LEU:HD11	2:C:664:GLY:HA2	1.98	0.46
2:C:1073:LYS:HD2	3:D:462:ASP:HB3	1.97	0.46
2:C:1246:ARG:HB2	2:C:1261:GLY:H	1.81	0.46
1:A:166:ARG:NH1	2:C:876:GLU:OE1	2.41	0.45
2:C:421:SER:OG	2:C:423:ASP:OD1	2.34	0.45
3:D:371:LYS:NZ	3:D:404:GLU:OE2	2.49	0.45
1:B:188:GLU:O	1:B:199:ASP:HA	2.17	0.45
2:C:706:ARG:NH2	2:C:793:GLU:OE2	2.46	0.45
3:D:755:ILE:HD13	3:D:774:ILE:HG21	1.99	0.45
2:C:725:GLN:HB2	2:C:733:VAL:HG23	1.97	0.45
1:B:25:LYS:HA	1:B:203:ILE:O	2.16	0.45
2:C:123:TYR:OH	2:C:126:GLU:OE2	2.33	0.44
4:E:9:ALA:HB1	4:E:54:ILE:HG22	2.00	0.44
5:G:77:VAL:HG13	5:F:77:VAL:HB	2.00	0.44
5:F:22:ILE:HD12	5:F:100:LEU:HD11	1.99	0.44
2:C:701:GLY:O	2:C:1184:THR:N	2.45	0.44
1:A:104:LYS:HD3	1:A:110:VAL:HG22	1.99	0.44
1:B:193:GLU:HB3	3:D:406:ALA:HB1	1.98	0.44
2:C:346:TYR:OH	2:C:436:ARG:NH2	2.50	0.44
3:D:535:ARG:HH21	3:D:541:LEU:HD13	1.83	0.44
2:C:732:ILE:HB	2:C:751:TYR:HB2	1.99	0.44
2:C:756:TYR:HD1	2:C:764:CYS:HB2	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:14:ASP:N	2:C:1157:GLN:OE1	2.46	0.44
2:C:876:GLU:HA	2:C:927:THR:HA	1.99	0.44
2:C:802:VAL:HA	2:C:1096:ILE:O	2.18	0.44
2:C:1244:HIS:CD2	2:C:1245:ALA:H	2.36	0.44
3:D:826:ILE:HA	3:D:1242:ARG:HH22	1.82	0.44
3:D:841:GLY:HA2	3:D:901:ARG:HB2	2.00	0.44
3:D:1146:GLU:OE1	3:D:1148:ARG:NE	2.41	0.44
5:G:33:LEU:HD11	5:G:101:LEU:HD11	2.00	0.44
2:C:1274:GLU:HG2	3:D:424:ASN:HD21	1.83	0.44
2:C:1279:GLU:HB3	3:D:1347:LEU:HD21	1.98	0.44
3:D:242:LEU:HD12	3:D:243:PRO:HD2	1.99	0.44
1:A:45:ARG:NH1	2:C:1215:GLY:O	2.47	0.43
1:A:60:GLU:HB3	1:A:143:ARG:HB2	1.99	0.43
2:C:633:LEU:HB3	2:C:644:LEU:HD11	2.00	0.43
2:C:617:ALA:HB2	2:C:650:VAL:HG21	2.00	0.43
2:C:945:ALA:HB1	2:C:948:ILE:HD11	2.01	0.43
1:B:161:SER:OG	1:B:162:GLU:N	2.51	0.43
2:C:459:MET:HB3	2:C:505:PHE:HZ	1.82	0.43
2:C:522:SER:HA	2:C:525:THR:HG22	2.00	0.43
2:C:691:PRO:HG3	2:C:787:PRO:HB3	1.99	0.43
3:D:885:VAL:O	3:D:887:SER:N	2.51	0.43
3:D:615:LYS:NZ	4:E:8:ASP:OD2	2.51	0.43
5:F:89:LEU:O	5:F:93:LEU:HB2	2.18	0.43
3:D:1350:ASN:HD22	3:D:1358:PRO:HD3	1.82	0.43
3:D:959:LYS:HB2	3:D:983:LYS:HB2	2.01	0.43
3:D:507:VAL:HG11	3:D:730:ALA:HB2	1.99	0.42
5:G:18:LEU:HD22	5:G:93:LEU:HD22	2.00	0.42
2:C:1065:LYS:HG2	2:C:1237:HIS:HB2	2.01	0.42
2:C:519:ASN:HB3	2:C:689:ALA:HB3	2.01	0.42
2:C:805:MET:HB2	3:D:636:GLY:HA2	2.01	0.42
3:D:647:PRO:HA	3:D:700:ASN:HD22	1.84	0.42
5:F:51:ASP:HA	5:F:54:SER:HB3	2.01	0.42
2:C:12:ARG:NH2	2:C:793:GLU:OE1	2.51	0.42
2:C:582:ASN:ND2	2:C:588:GLU:OE2	2.52	0.42
1:A:84:ASN:HB3	1:A:130:ILE:HG23	2.01	0.42
3:D:491:LEU:HB2	3:D:904:ALA:HA	2.01	0.42
2:C:715:THR:HG22	2:C:786:GLY:H	1.84	0.42
2:C:732:ILE:HG21	2:C:783:LEU:HD13	2.01	0.42
1:B:207:THR:HG22	1:B:209:GLY:H	1.84	0.42
2:C:518:ASN:HB3	2:C:689:ALA:H	1.85	0.42
2:C:1281:TYR:HE2	3:D:434:ILE:HG23	1.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:90:VAL:HG13	1:B:121:VAL:HG13	2.00	0.41
2:C:18:ARG:HH12	2:C:622:ASN:HA	1.85	0.41
2:C:1275:VAL:HG21	3:D:341:ASN:HB3	2.01	0.41
2:C:13:LYS:HE3	2:C:15:PHE:HE1	1.84	0.41
2:C:339:ASN:HD22	2:C:340:ASP:H	1.69	0.41
2:C:803:ALA:HB2	2:C:1094:VAL:HG11	2.01	0.41
2:C:1062:PRO:HA	2:C:1076:ILE:HB	2.02	0.41
3:D:838:ARG:NH2	3:D:1250:ASP:OD2	2.53	0.41
3:D:954:ASN:HB2	3:D:984:LEU:HD21	2.02	0.41
2:C:979:LEU:HD21	2:C:989:LEU:HD11	2.03	0.41
3:D:535:ARG:HE	3:D:541:LEU:HD22	1.86	0.41
3:D:1135:THR:HA	3:D:1140:ARG:HE	1.85	0.41
2:C:196:VAL:HB	2:C:204:LEU:HB2	2.02	0.41
2:C:608:ALA:HA	2:C:611:GLU:HG2	2.03	0.41
3:D:1060:VAL:HA	3:D:1107:VAL:HB	2.03	0.41
3:D:694:SER:HB2	3:D:738:ARG:HE	1.86	0.40
3:D:826:ILE:HD11	3:D:993:GLU:HA	2.01	0.40
3:D:973:LEU:HD12	3:D:1007:ASP:H	1.86	0.40
3:D:226:ALA:O	3:D:230:SER:CB	2.69	0.40
2:C:803:ALA:HA	2:C:1227:VAL:HG12	2.02	0.40
5:G:37:ILE:O	5:G:41:ALA:N	2.54	0.40
2:C:1269:ARG:H	3:D:344:GLY:HA3	1.87	0.40
3:D:1136:GLY:H	3:D:1240:VAL:HG22	1.85	0.40
5:F:72:PRO:HG2	5:F:80:ILE:HG12	2.03	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	228/329 (69%)	220 (96%)	8 (4%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	229/329 (70%)	214 (93%)	13 (6%)	2 (1%)	17	54
2	C	1339/1342 (100%)	1226 (92%)	113 (8%)	0	100	100
3	D	1324/1407 (94%)	1198 (90%)	124 (9%)	2 (0%)	47	78
4	E	73/80 (91%)	66 (90%)	7 (10%)	0	100	100
5	F	104/117 (89%)	100 (96%)	4 (4%)	0	100	100
5	G	102/117 (87%)	100 (98%)	2 (2%)	0	100	100
All	All	3399/3721 (91%)	3124 (92%)	271 (8%)	4 (0%)	54	83

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	30	PRO
3	D	886	VAL
3	D	1183	SER
1	B	29	GLU

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	194/286 (68%)	193 (100%)	1 (0%)	88	94
1	B	189/286 (66%)	188 (100%)	1 (0%)	88	94
2	C	1057/1157 (91%)	1053 (100%)	4 (0%)	91	95
3	D	1048/1168 (90%)	1043 (100%)	5 (0%)	88	94
4	E	58/68 (85%)	58 (100%)	0	100	100
5	F	91/105 (87%)	91 (100%)	0	100	100
5	G	91/105 (87%)	91 (100%)	0	100	100
All	All	2728/3175 (86%)	2717 (100%)	11 (0%)	91	95

All (11) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	84	ASN
1	B	10	LYS
2	C	339	ASN
2	C	569	ILE
2	C	1175	ASN
2	C	1176	LEU
3	D	119	SER
3	D	128	LEU
3	D	314	ARG
3	D	320	ASN
3	D	1268	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	84	ASN
2	C	339	ASN
2	C	437	ASN
2	C	1136	GLN
2	C	1244	HIS
2	C	1268	GLN
2	C	1288	GLN
3	D	320	ASN
3	D	341	ASN
3	D	504	GLN
3	D	716	GLN
3	D	736	GLN
3	D	792	ASN
3	D	817	HIS
3	D	1023	HIS
3	D	1252	HIS
3	D	1268	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 [i](#)

There are no ligands in this entry.

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.

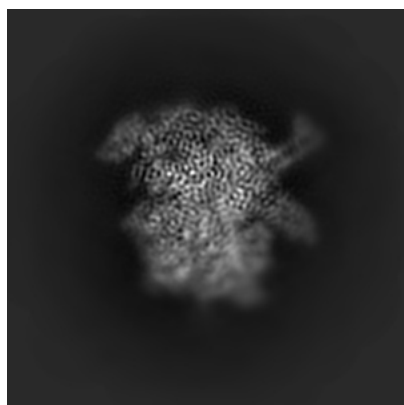
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-4770. These allow visual inspection of the internal detail of the map and identification of artifacts.

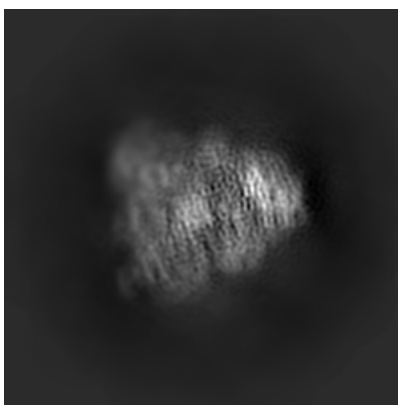
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

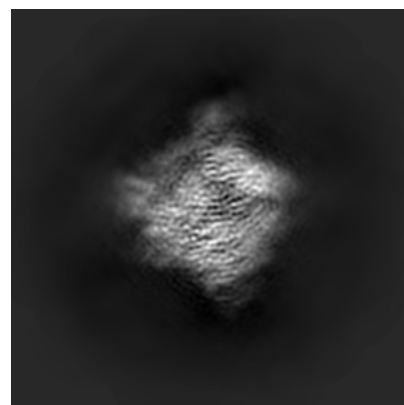
6.1.1 Primary map



X



Y

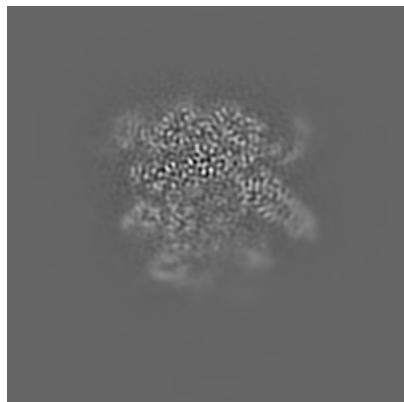


Z

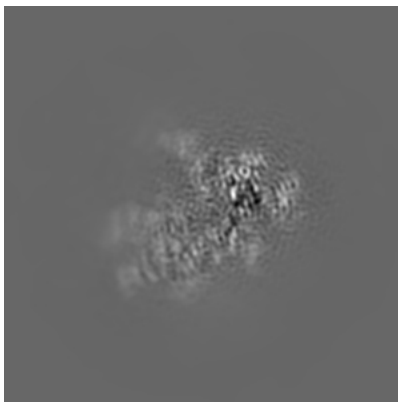
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

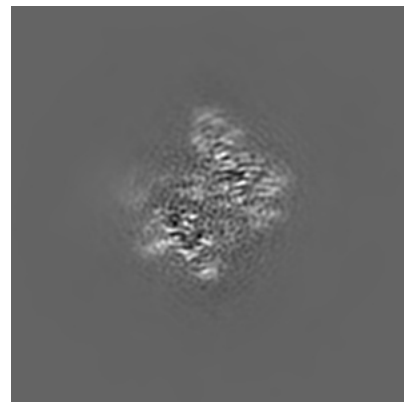
6.2.1 Primary map



X Index: 128



Y Index: 128

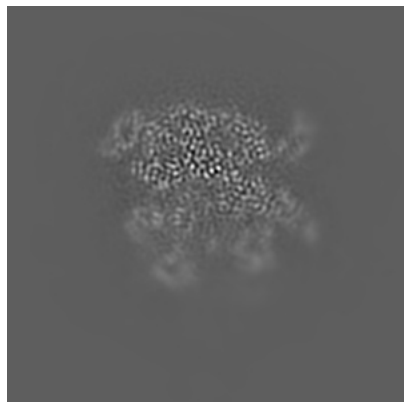


Z Index: 128

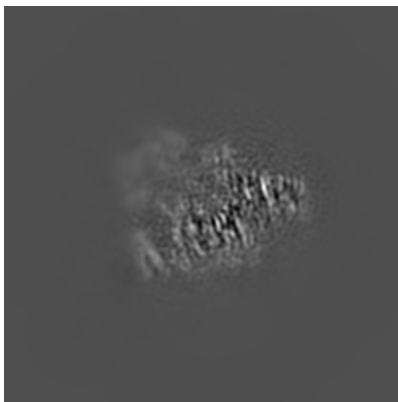
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

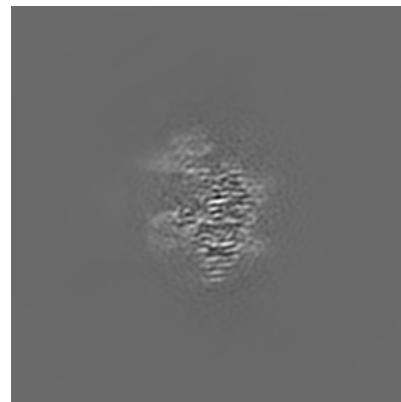
6.3.1 Primary map



X Index: 133



Y Index: 115

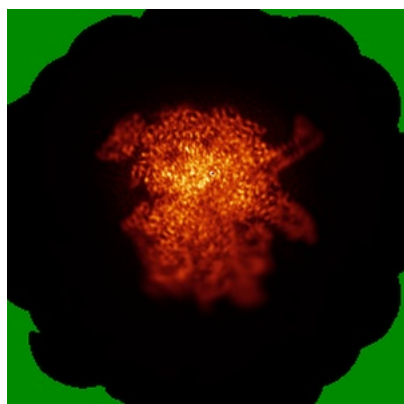


Z Index: 150

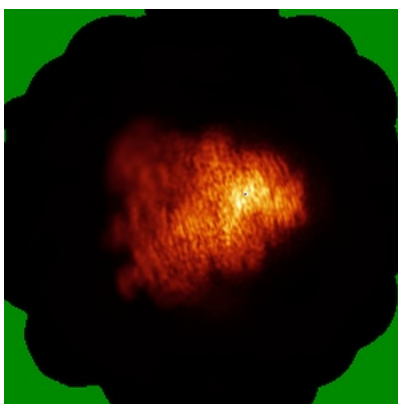
The images above show the largest variance slices of the map in three orthogonal directions.

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

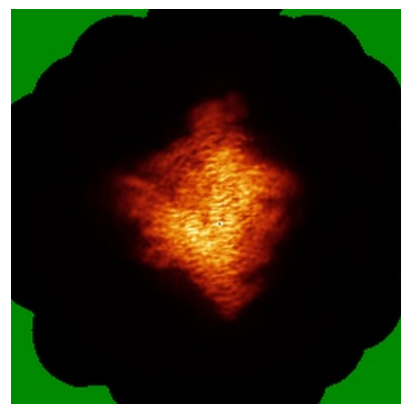
6.4.1 Primary map



X



Y

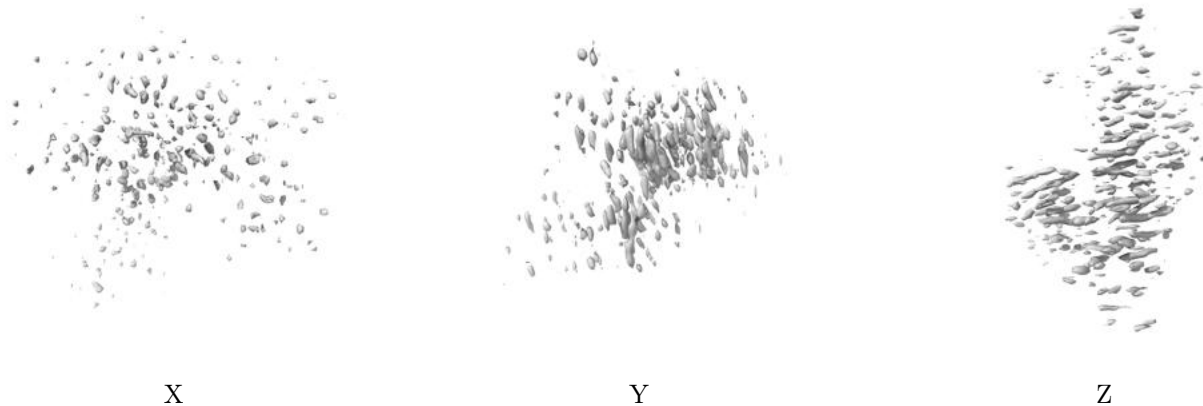


Z

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

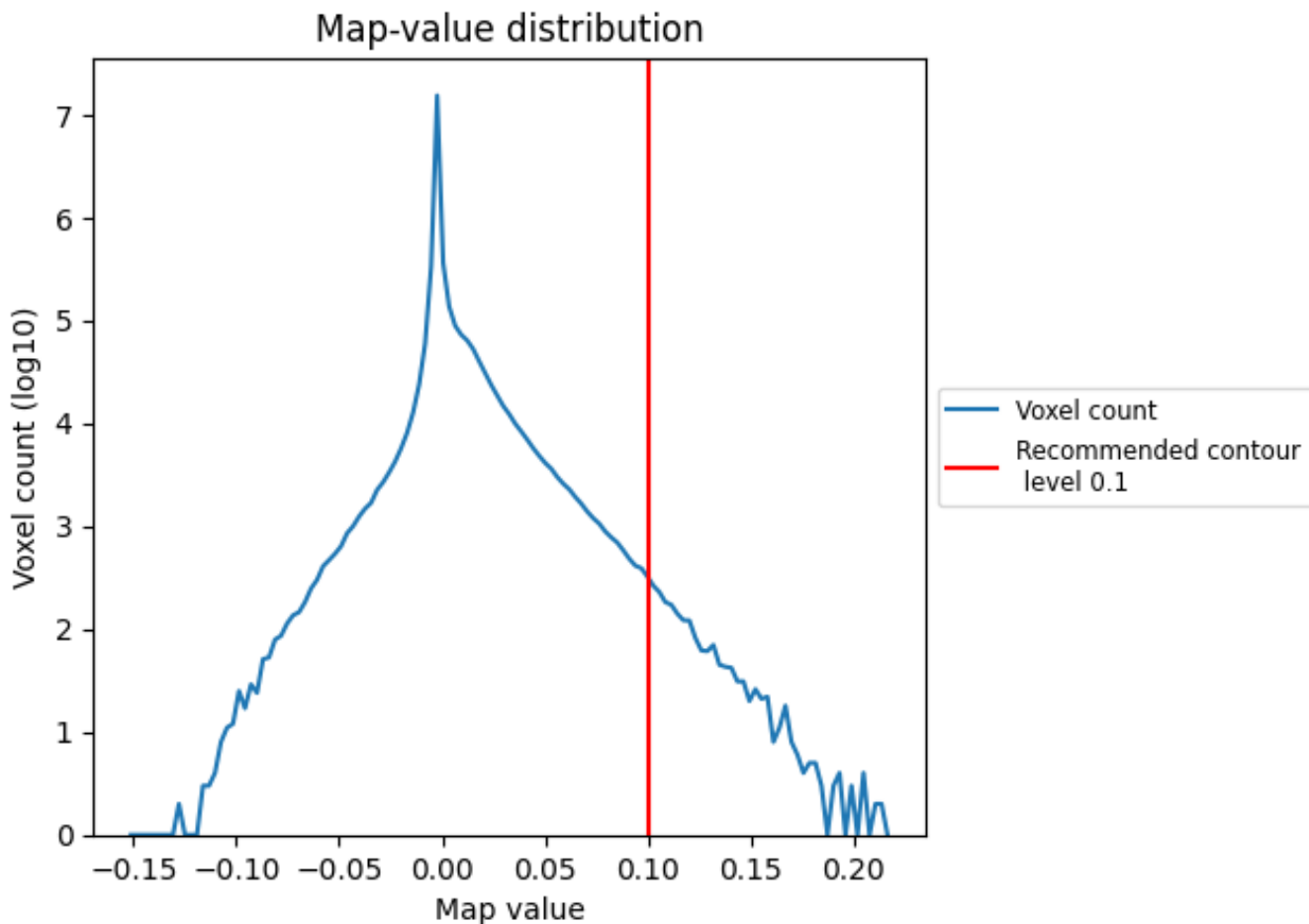
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

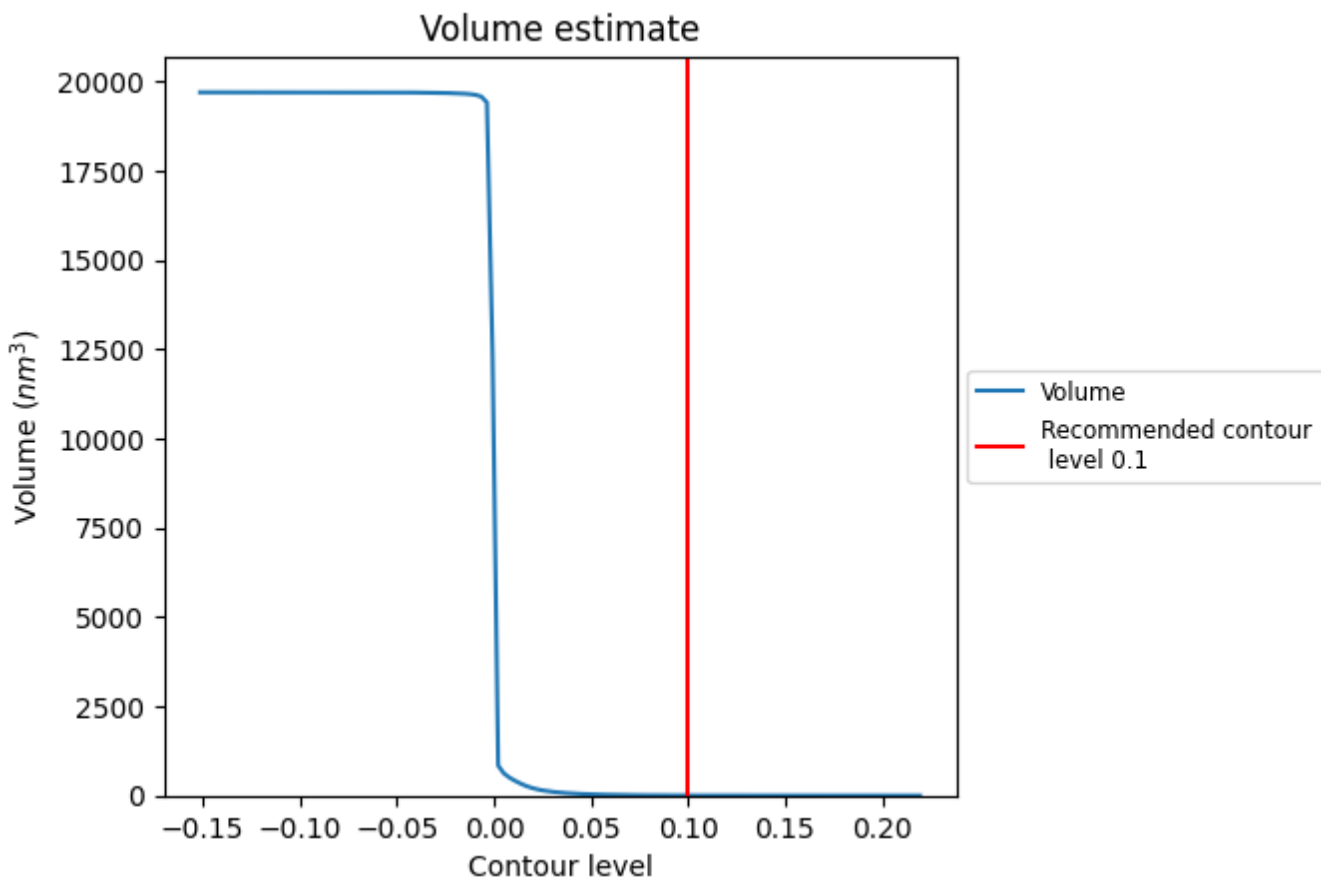
This section contains the results of statistical analysis of the map.

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.

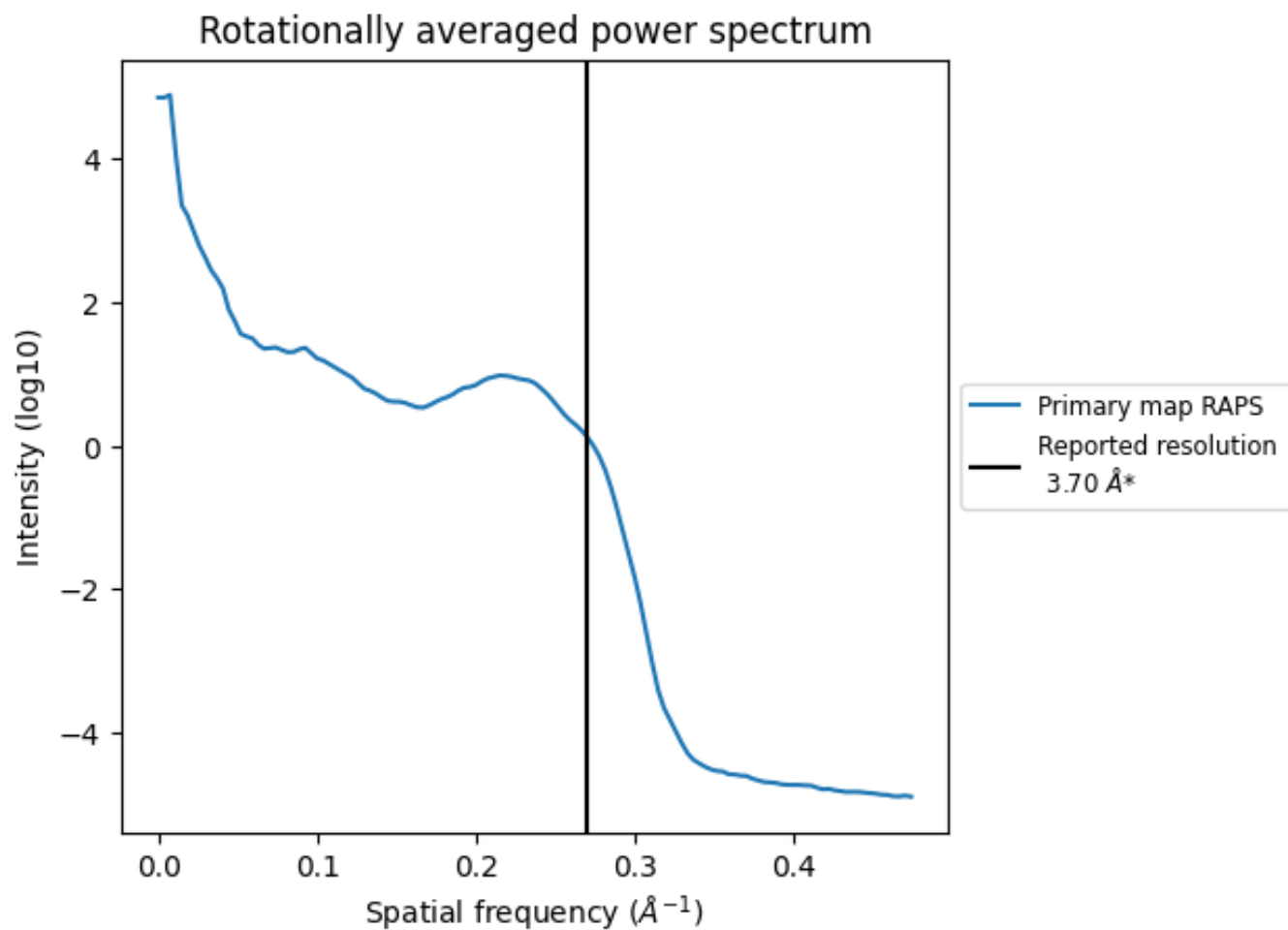
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 3 nm³; this corresponds to an approximate mass of 2 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 0.270\AA^{-1}

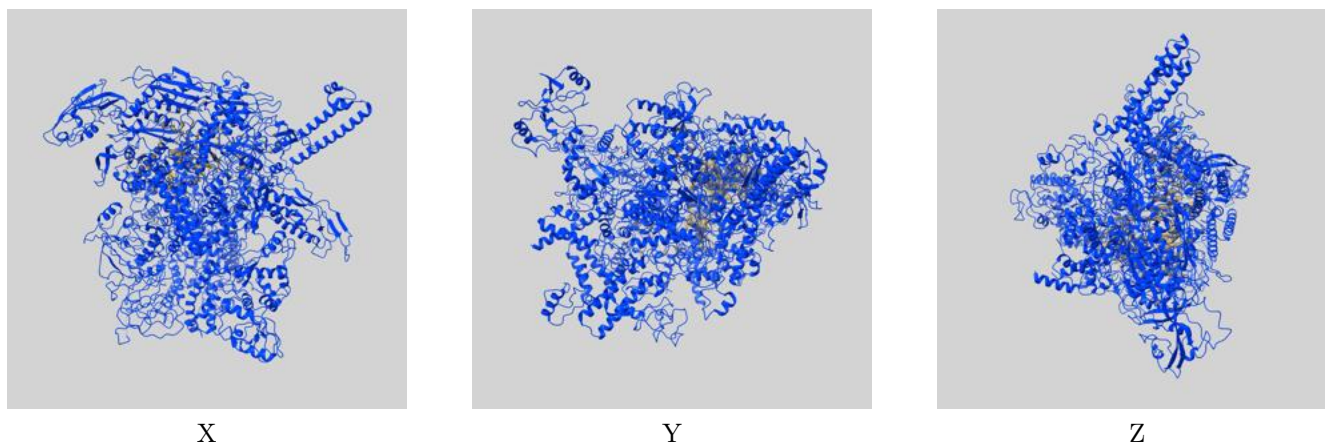
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

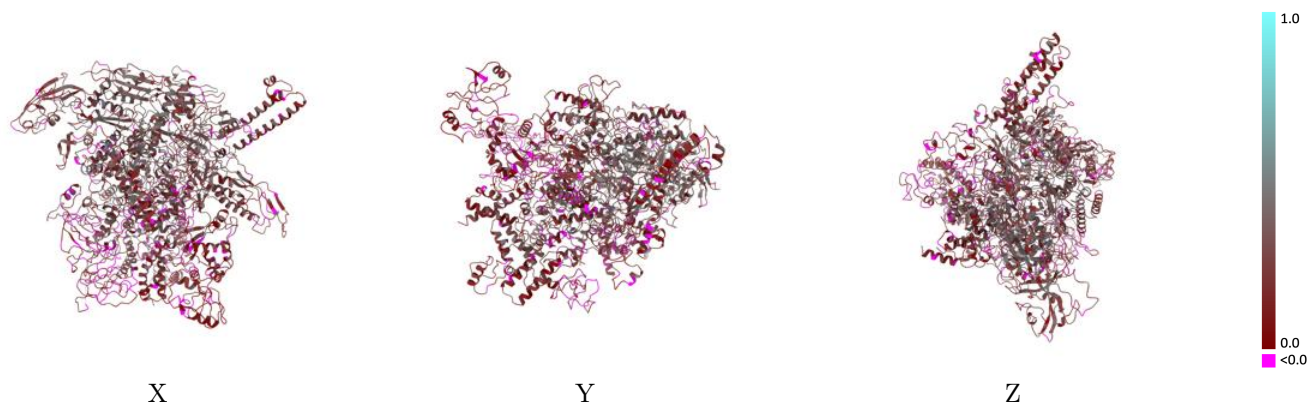
This section contains information regarding the fit between EMDB map EMD-4770 and PDB model 6R9G. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



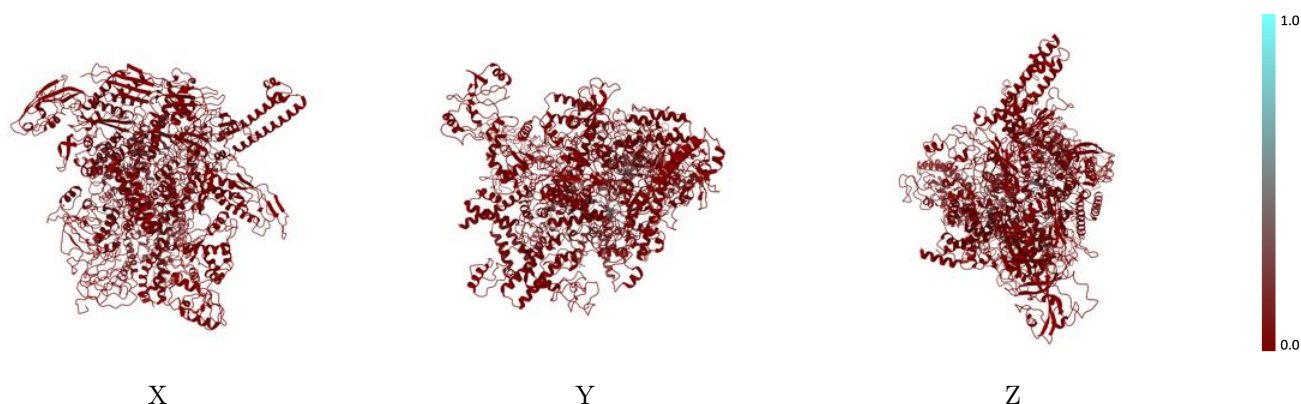
The images above show the 3D surface view of the map at the recommended contour level 0.1 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



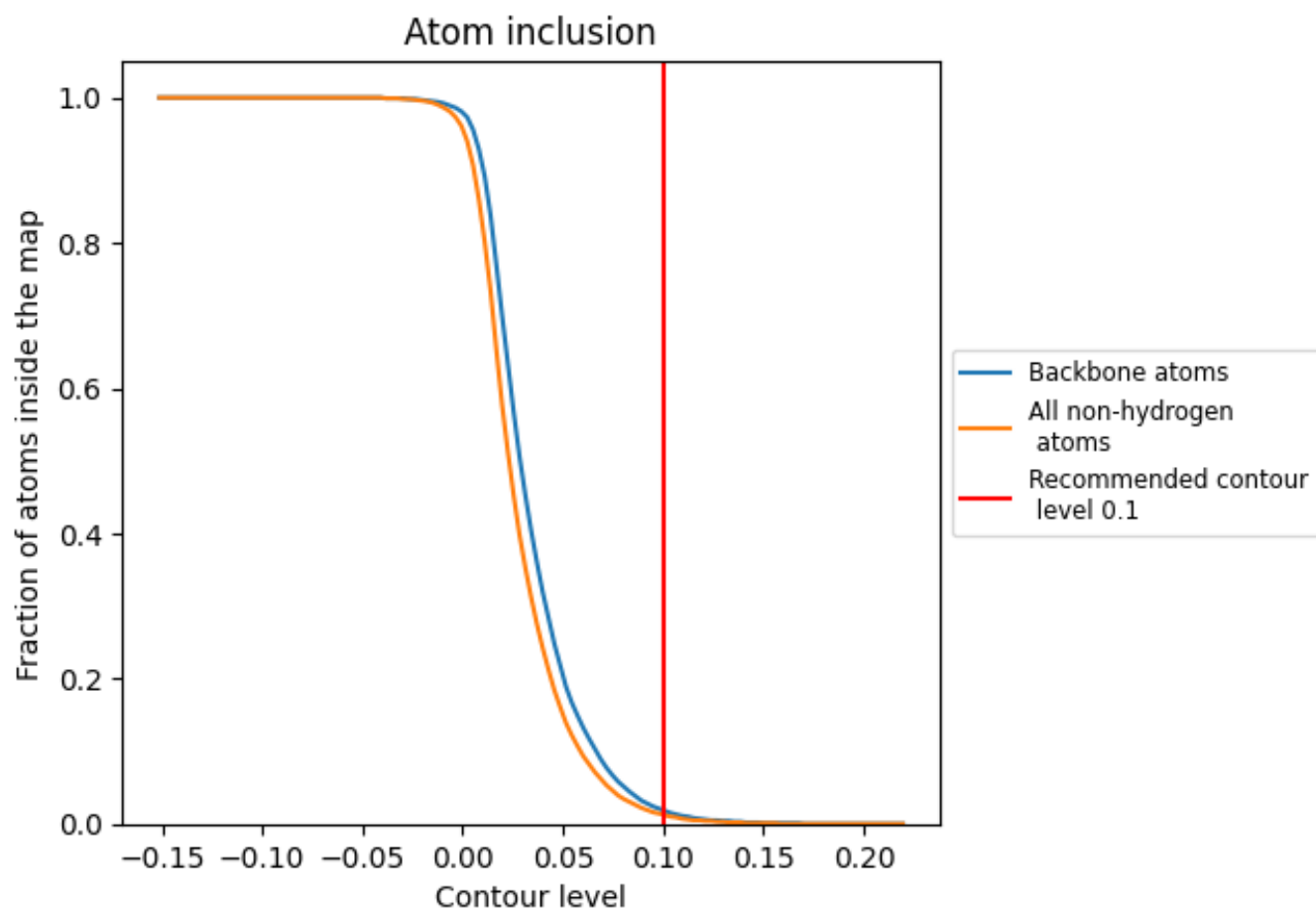
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.1).

















9.4 Atom inclusion [i](#)



At the recommended contour level, 2% of all backbone atoms, 1% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary [i](#)

The table lists the average atom inclusion at the recommended contour level (0.1) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.0130	 0.2250
A	 0.0060	 0.3070
B	 0.0030	 0.2760
C	 0.0170	 0.2340
D	 0.0140	 0.2030
E	 0.0000	 0.1290
F	 0.0000	 0.2230
G	 0.0000	 0.1720

