



wwPDB EM Validation Summary Report ⓘ

Dec 17, 2022 – 05:22 pm GMT

PDB ID : 6ZH8
EMDB ID : EMD-11216
Title : Cryo-EM structure of DNA-PKcs:DNA
Authors : Chaplin, A.K.; Hardwick, S.W.; Chirgadze, D.Y.; Blundell, T.L.
Deposited on : 2020-06-21
Resolution : 4.14 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.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

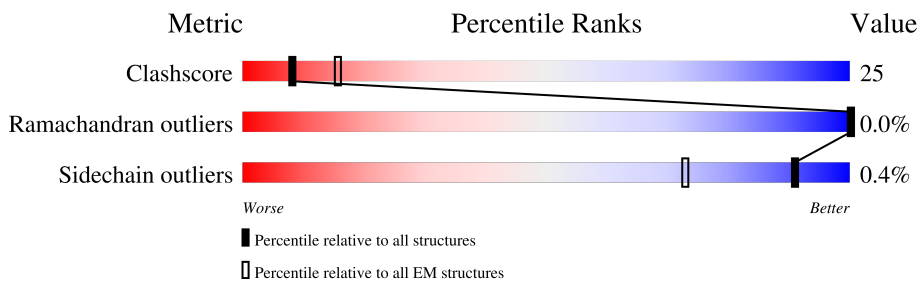
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.14 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	4156	
2	B	11	
3	C	8	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 29506 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-dependent protein kinase catalytic subunit,DNA-PKcs.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	3694	29120	18668	4926	5333	193	0	0

- Molecule 2 is a DNA chain called DNA (5'-D(P*AP*GP*TP*TP*TP*TP*TP*AP*GP*TP*T)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	11	222	106	34	71	11	0	0

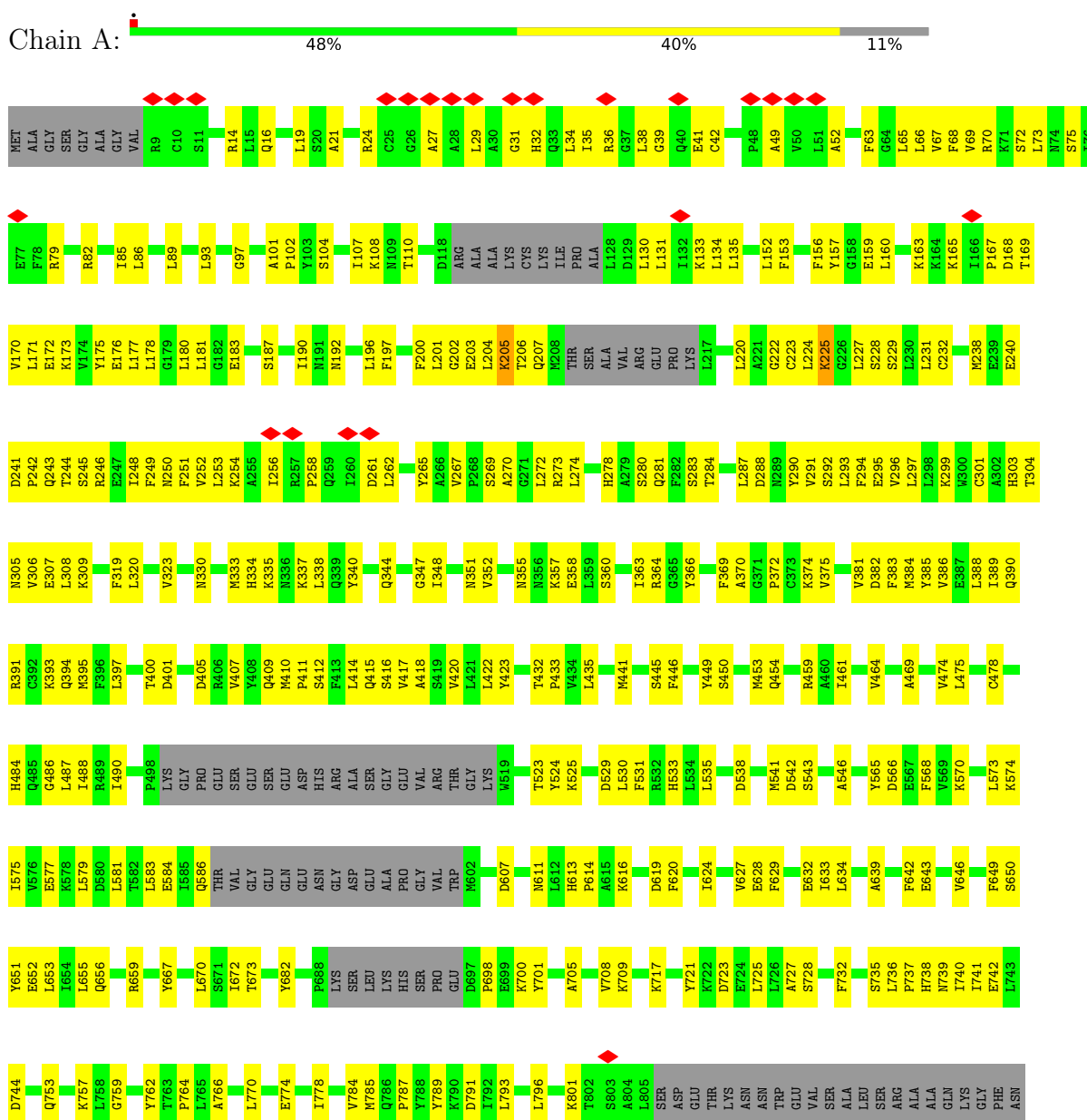
- Molecule 3 is a DNA chain called DNA (5'-D(P*AP*CP*TP*AP*AP*AP*AP*A)-3').

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	C	8	164	78	35	43	8	0	0

3 Residue-property plots

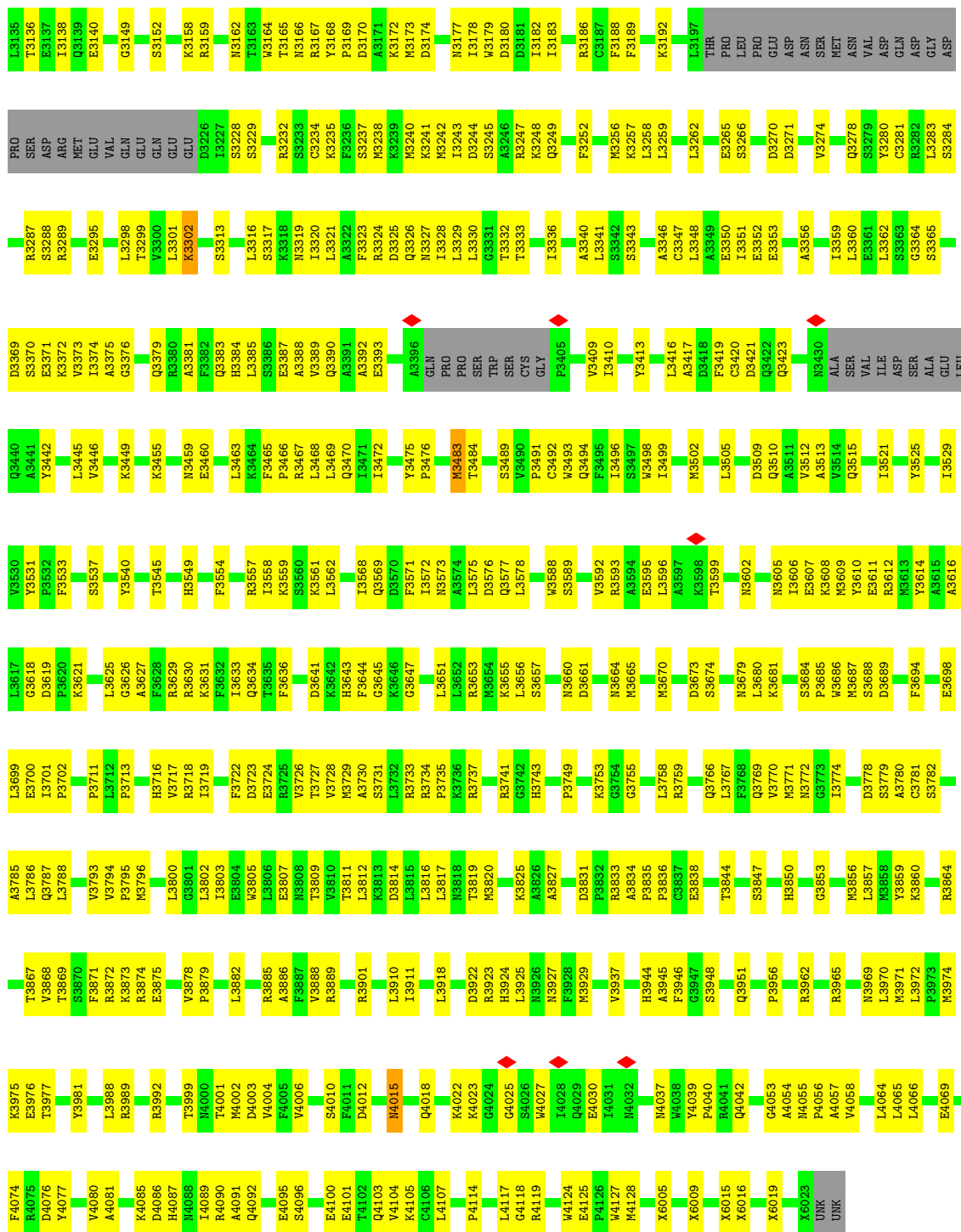
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

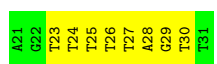


T1865	Q1866	L1797	M1643	M1568	P1493	L1415	I1341	I1235	R1151	K1074	L991	K902
L1867	L1798	L1649	L1643	T1569	E1570	E1416	E1342	L1236	R1152	R1075	W994	P903
T1868	F1722	A1650	A1650	E1571	E1496	T1417	E1343	L1237	L1153	F1082	F995	V904
K1869	P1723	K1651	K1651	L1571	K1497	H1418	F1344	F1238	P1154	M083	T996	L907
M1870	I1652	I1652	I1652	L1575	Q1498	H1419	T1345	P1239	G1156	N084	N997	D908
M1871	L1653	L1653	L1653	L1579	C1499	K1422	L1348	Y1243	S1160	I085	N998	V909
G1872	Q1654	Q1654	Q1654	V1579	L1500	K1423	L1348	Y1243	A1161	Y1086	K999	F910
L1874	L1655	L1655	L1655	L1580	D1504	I1424	T1351	P1247	S1162	R1087	P912	L911
K1875	S1660	S1660	S1660	E1581	L1505	T1425	T1352	F1248	L1163	R1090	V1007	P912
L1876	F1661	F1661	F1661	L1582	S1506	Q1426	P1352	F1249	C1164	E1091	A1008	T915
L1877	Q1662	Q1662	Q1662	Q1584	C1507	I1427	E1354	S1249	L1165	E1092	L1009	T915
T1815	T1663	T1663	T1663	S1585	K1508	I1428	G1355	Q1251	L1166	E1093	A918	A918
Q1816	M1664	M1664	M1664	Q1509	Q1509	E4229	L1358	A1252	D1167	S1094	E1011	D923
R1817	H1665	H1665	H1665	L1510	A1511	N1435	L1358	T1253	L1168	L1095	A1012	R923
R1818	G1666	G1666	G1666	A1511	N1435	N1435	K1361	L1254	V1169	F1099	I1013	R924
F1819	S1667	S1667	S1667	L1514	Y1437	L1436	D1362	L1254	K1170	F1099	L1014	Q925
V1820	F1668	F1668	F1668	L1515	G1438	G1438	D1362	W1256	W1171	V1100	D1015	Q925
D1821	P1669	P1669	P1669	E1516	P1439	D1444	M1365	L1257	L1172	F1101	G1016	T926
R1822	E1670	E1670	E1670	F1519	D1440	R1445	T1366	L1258	H1175	E1102	I1017	K927
S1823	Y1675	Y1675	Y1675	A1595	A1520	A1441	H1367	L1259	R1178	A1103	V1018	L848
L1824	I1676	I1676	I1676	V1596	Q1442	A1442	L1368	L1264	R1179	L1104	D1019	E849
L1825	S1677	S1677	S1677	F1521	V1443	V1443	L1368	L1264	P1179	E1105	P1020	E850
L1826	L1678	L1678	L1678	G1522	D1444	D1444	M1369	Y1276	Q1180	I1106	V1021	I851
L1827	L1679	L1679	L1679	E1527	R1446	R1446	L1372	F1270	T1181	A1112	S1023	R852
L1828	M1680	M1680	M1680	L1531	R1447	R1447	V1373	F1270	H1184	H1115	T1024	Q857
L1829	D1681	D1681	D1681	L1531	R1447	R1447	V1373	F1270	H1185	H1115	L1025	M948
C1830	L1684	L1684	L1684	M1534	V1452	V1452	C1377	R1274	R1185	G1122	R1026	G860
S1832	D1685	D1685	D1685	Q1603	S1453	S1453	E1378	T1275	K1186	E1117	C1029	S861
E1833	L1686	L1686	L1686	R1606	A1454	A1454	A1380	V1276	E1189	K1119	W1039	G864
D1834	L1686	L1686	L1686	V1537	L1458	L1458	S1381	L1290	L1190	L1121	W1039	G864
L1836	K1689	K1689	K1689	S1539	L1458	L1458	I1382	L1291	F1191	L1121	S1120	N867
R1837	G1690	G1690	G1690	A1541	G1462	G1462	F1384	F1297	Y1192	G1122	G954	K868
F1838	Y1693	Y1693	Y1693	SER	L1463	L1463	M1385	L1298	F1194	T1123	M958	N869
F1839	T1694	T1694	T1694	LEU	I1467	I1467	I1386	I1301	V1195	Q1126	L961	L870
F1840	L1696	L1696	L1696	GLY	P1469	P1469	G1387	A1302	R1202	Q1127	Y962	L871
H1772	L1696	L1696	L1696	SER	S1470	S1470	D1388	A1309	P1204	D1132	Q1047	T872
M1774	T1621	T1621	T1621	GLN	T1473	T1473	Q1390	A1309	N1205	I1131	Q1049	V873
E1775	I1622	I1622	I1622	GLY	D1474	D1474	M1392	C1312	M1206	H1133	T1056	F966
E1776	L1623	L1623	L1623	S1549	L1475	L1475	V1391	PHE	L1208	C1135	L1055	L969
E1777	H1624	H1624	H1624	F1552	H1476	H1476	A1393	GLY	L1209	R1136	L1059	L972
L1778	Q1625	Q1625	Q1625	H1552	R1476	R1476	P1396	T1315	D1210	I1137	F1060	D975
Q1779	H1627	H1627	H1627	F1553	V1479	V1479	D1397	G1316	K1209	I1138	K1061	V976
S1781	S1554	S1554	S1554	S1554	Y1479	Y1479	V1398	G1316	E1215	E1139	R1062	D977
H1784	W1632	W1632	W1632	Y1558	E1482	E1482	C1399	M1320	E1215	H1142	L1063	T980
L1785	W1633	W1633	W1633	F1559	L1483	L1483	C1399	M1320	G1216	H1142	Y1064	R887
A1786	A1634	A1634	A1634	F1559	L1484	L1484	N1401	E1328	G1216	V1143	A1067	R888
R1787	L1710	L1710	L1710	L1484	L1484	L1484	L1402	E1328	V1217	S1144	A1067	Q982
R1788	R1711	R1711	R1711	S1485	S1485	S1485	M1403	M1331	F1219	L1145	L1068	L982
G1789	R1712	R1712	R1712	L1488	L1488	L1488	K1404	Y1332	L1220	W1146	H1069	L984
S1790	L1713	L1713	L1713	V1487	V1487	V1487	K1404	Y1332	L1221	K1147	P1070	A895
R1784	L1714	L1714	L1714	Y1488	Y1488	Y1488	K1407	K1334	M1222	K1149	A1071	V988
L1785	L1717	L1717	L1717	T1566	T1566	T1566	K1407	K1334	M1222	K1149	A1071	M989
L1785	L1718	L1718	L1718	I1567	I1567	I1567	K1412	V1338	E1225	K1150	F1073	Q990


F1978	GLU	L2100	N2177	R2254	Q2348	L2415	L2517	E2568	ARG	ASP	C2863	E2946	P3042
F1979	GLU	V2101	G2181	L2255	L2349	F2420	Q2518	Y2569	SER	ASN	Q2864	K2950	Y3043
N1980	MET	K2102	H2182	I2256	K2350	R2425	L2519	R2596	SER	LYS	L2868	K2951	K3044
L1981	SER	H2103	G2181	F2257	Q2351	R2425	L2520	PHE	PHE	VAL	L2871	T2952	S3047
I1982	GLN	M2104	H2183	E2258	H2352	R2425	R2522	ARG	TRP	GLY	D2872	K2953	K3048
D1983	PHE	H2105	Y2184	K2259	Q2353	D2429	R2523	SER	LEU	ALA	P2873	L2954	L3049
	ASP	R2106	M2185	F2260	Q2353	E2430	R2524	THR	LEU	ALA	A2874	L2958	K3050
	PHE	R2107	M2186	S2261	E2357	E2430	R2525	THR	THR	GLY	T2792	L2959	L3051
	SER	L2108	V2187	P2265	D2358	R2431	R2526	VAL	GLY	VAL	P2793	A2969	L3062
	THR	GLY	E2188	P2265	D2358	R2431	R2527	VAL	GLY	VAL	T2794	A2970	T3063
	THR	PRO	I2189	P2265	K2359	Q2432	R2528	THR	SER	THR	A2796	E2969	F3064
	VAL	VAL	I2189	P2265	F2360	K2433	R2529	THR	SER	THR	V2797	E2970	I3065
	GLN	GLN	V2190	P2265	F2360	K2433	E2528	THR	THR	THR	V2797	A2969	D3066
	SER	GLY	I2193	P2265	V2362	V2434	E2529	MET	PRO	ALA	A2798	R2962	K3067
	THR	GLY	L2194	P2265	C2363	L2436	T2529	PHE	PRO	SER	Q2799	R2962	A3068
	GLN	GLY	L2194	P2265	V2272	D2437	R2530	THR	LEU	THR	R2800	S2963	H3070
	SER	GLY	I2199	P2265	V2272	L2438	R2531	THR	LEU	THR	D2801	A2969	Q3074
	THR	ASP	L2199	P2265	Q2273	I2438	R2532	THR	VAL	THR	P2802	K2970	K3075
	SER	ASP	W2196	P2265	K2366	I2439	P2532	THR	VAL	THR	P2802	E2970	L3078
	VAL	VAL	A2200	P2265	V2367	Y2440	M2534	THR	HIS	GLN	G2889	Q2971	E3079
	SER	VAL	A2200	P2265	Q2275	Y2440	M2534	THR	SER	THR	A2806	D2972	Y3082
	GLN	VAL	R2201	P2265	L2276	Y2440	T2535	THR	SER	PHE	R2806	E2974	S3083
	GLN	VAL	P2202	P2265	L2277	M2443	T2536	THR	PRO	MET	Q2807	Q2979	L3091
	ASP	ASP	P2202	P2265	L2279	P2448	L2537	THR	PRO	GLN	L2816	T2987	D3097
	PRO	PRO	V2205	P2265	I2279	P2448	R2537	THR	SER	GLY	M2820	T2987	K3100
	ARG	ARG	K2206	P2265	A2282	L2451	R2538	THR	SER	ASP	D2821	E2988	Y3101
	ALA	ALA	K2207	P2265	P2287	R2452	L2539	THR	LEU	ASP	F2823	E2990	S3102
	THR	THR	D2208	P2265	E2287	E2453	L2540	THR	LEU	THR	K2824	K2991	I3103
	GLY	GLY	E2209	P2265	E2298	L2454	A2541	THR	LEU	ARG	L2825	W2994	Y3113
	LEU	LEU	V2210	P2265	E2298	L2455	L2542	THR	LEU	ARG	L2826	L2999	N3114
	ARG	ARG	L2129	P2265	F2300	N2456	L2544	THR	ALA	SER	S2827	D3000	Y3114
	ARG	ARG	H2130	P2265	Q2301	P2457	L2545	THR	HIS	GLY	E2828	Y3002	T3016
	ARG	ARG	L2140	P2265	R2302	P2457	L2546	THR	LYS	VAL	N2830	Y3002	S3116
	GLN	GLN	M2142	P2265	M2303	F2461	I2550	THR	ARG	VAL	R2831	A3006	I3117
	ALA	ALA	R2143	P2265	L2307	V2462	E2551	THR	GLU	ALA	L2832	E3007	D3118
	ASP	ASP	L2144	P2265	M2307	T2467	E2552	THR	LEU	ALA	L2833	W3008	N3119
	PRO	PRO	K2148	P2265	V2310	T2467	A2558	THR	PRO	ALA	L2916	K3009	L3120
	THR	THR	L2151	P2265	R2311	T2468	F2561	THR	ALA	VAL	D2919	S3010	H3122
	VAL	VAL	K2227	P2265	Y2312	M2473	L2562	THR	PRO	GLY	Q2834	Y3011	R3125
	HIS	HIS	E2230	P2265	Y2316	L2476	L2563	THR	PRO	GLY	Q2838	S3012	L3126
	ASP	ASP	F2231	P2265	V2322	L2477	E2564	THR	LYS	LYS	R2842	E3012	A3134
	VAL	VAL	R2232	P2265	V2322	M2478	M2565	THR	VAL	VAL	T2846	Y3013	
	LEU	LEU	H2233	P2265	V2322	M2479	M2566	THR	VAL	VAL	T2847	S3014	
	GLU	GLU	M2234	P2265	L2326	I2480	S2569	THR	PRO	THR	F2847	C3014	
	LEU	LEU	L2235	P2265	L2327	H2481	P2570	THR	ASP	ASP	T2847	S3015	
	LEU	LEU	E2236	P2265	L2327	D2482	P2571	THR	PHE	PHE	F2848	T3016	
	M2085	M2085	I2237	P2265	V2330	R2485	Y2572	THR	GLY	GLY	S2849	A3017	
	M2089	M2089	L2238	P2265	V2330	R2485	P2575	THR	LYS	LYS	F2850	L3027	
	H2091	H2091	K2239	P2265	L2337	M2493	P2575	THR	ASP	ASP	F2851	N3028	
	C2092	C2092	V2242	P2265	E2338	D2494	E2578	THR	PHE	PHE	F2854	K3028	
	M2094	M2094	L2168	P2265	E2339	S2495	H2579	THR	LEU	LEU	F2854	I2932	
	A2095	A2095	C2244	P2265	E2340	S2495	P2580	THR	GLY	GLY	C2857	I3030	
	P2096	P2096	W2245	P2265	G2407	L2341	P2580	THR	LEU	LEU	C2857	G2994	
	T2097	T2097	Q2170	P2265	M2408	E2497	L2581	THR	PRO	PRO	Q2768	E2935	
	L2098	L2098	L2171	P2265	L2411	T2488	S2882	THR	GLY	GLY	Q2768	Q2859	
	A2099	A2099	E2175	P2265	Y2412	F2499	E2883	THR	ALA	ALA	H2777	D2860	
			N2176	P2265	K2347	N2514	Q2587	THR	VAL	VAL	P2781	S2862	



• Molecule 2: DNA (5'-D(P*AP*GP*TP*TP*TP*TP*TP*AP*GP*TP*T)-3')



• Molecule 3: DNA (5'-D(P*AP*CP*TP*AP*AP*AP*AP*A)-3')

Chain C:  25% 75%

A26
C27
T28
A29
A30
A31
A32
A33

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	31881	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 ($e^-/\text{\AA}^2$)	52.97	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	0.445	Depositor
Minimum map value	-0.076	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.022	Depositor
Recommended contour level	0.125	Depositor
Map size (Å)	356.99997, 356.99997, 356.99997	wwPDB
Map dimensions	340, 340, 340	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.05, 1.05, 1.05	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	0.32	0/29582	0.47	0/40029
2	B	0.60	0/247	1.15	0/378
3	C	0.64	0/185	0.87	0/282
All	All	0.33	0/30014	0.49	0/40689

There are no bond length outliers.

There are no bond angle outliers.

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	29120	0	29078	1353	0
2	B	222	0	117	10	0
3	C	164	0	87	6	0
All	All	29506	0	29282	1369	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 25.

The worst 5 of 1369 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)
1:A:3472:ILE:HG21	1:A:3483:MET:CE	1.65	1.25

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3472:ILE:HG21	1:A:3483:MET:HE1	1.25	1.11
1:A:3472:ILE:CG2	1:A:3483:MET:CE	2.32	1.06
1:A:3472:ILE:CG2	1:A:3483:MET:HE1	1.91	0.98
1:A:1351:THR:HG22	1:A:1353:PRO:HD2	1.48	0.95

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	3634/4156 (87%)	3246 (89%)	387 (11%)	1 (0%)	100 100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1895	LYS

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	3172/3671 (86%)	3158 (100%)	14 (0%)	91 94

5 of 14 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3075	LYS
1	A	3166	ASN
1	A	4015	ASN
1	A	3483	MET
1	A	3653	ARG

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

Mol	Chain	Res	Type
1	A	2352	HIS
1	A	2951	GLN
1	A	3772	ASN
1	A	2807	GLN
1	A	3379	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

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](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	A	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	4128:MET	C	5011:UNK	N	92.87
1	A	5016:UNK	C	6004:UNK	N	47.75

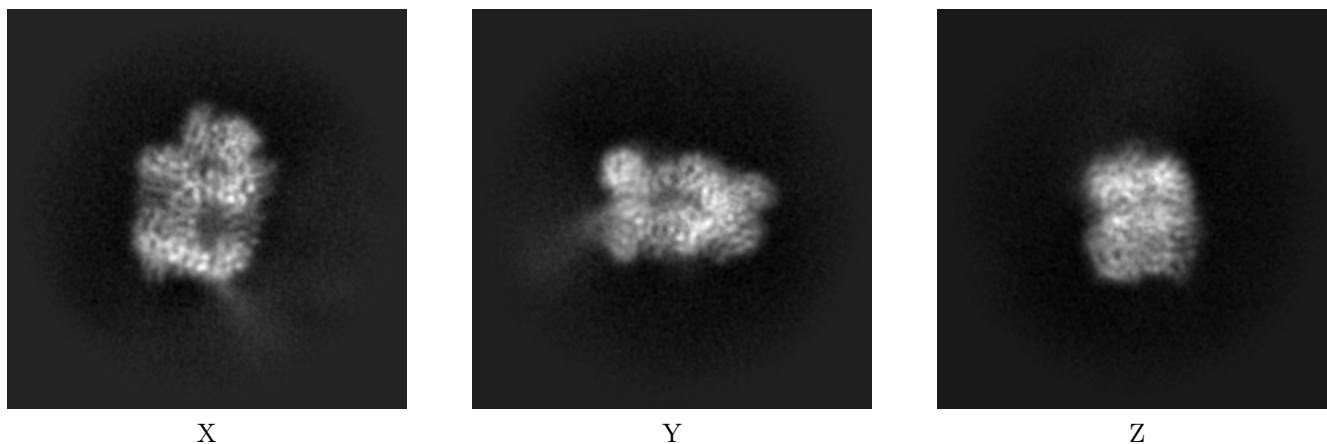
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11216. These allow visual inspection of the internal detail of the map and identification of artifacts.

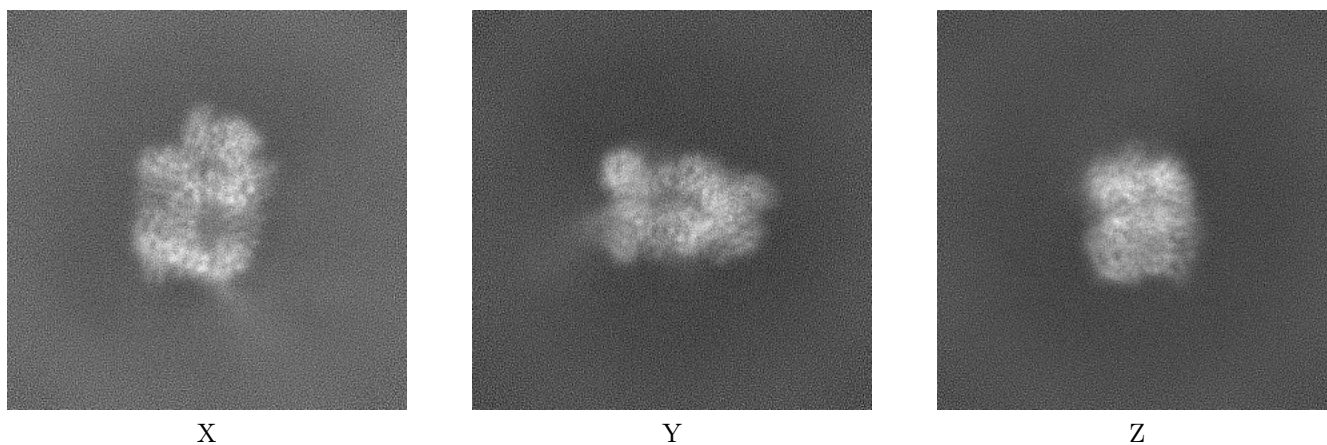
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

6.1.1 Primary map



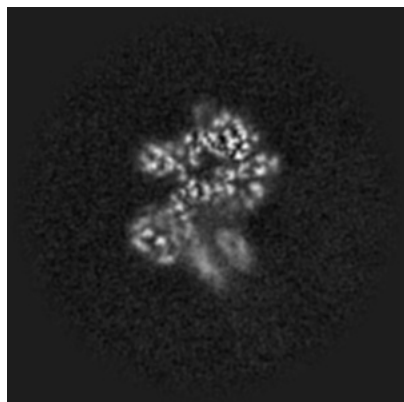
6.1.2 Raw map



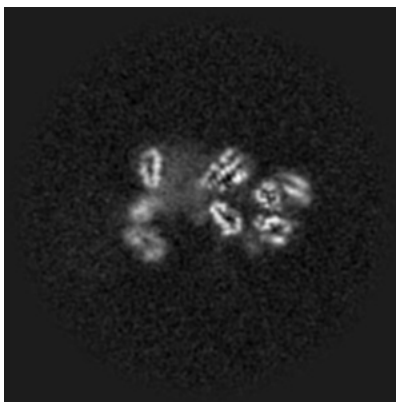
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

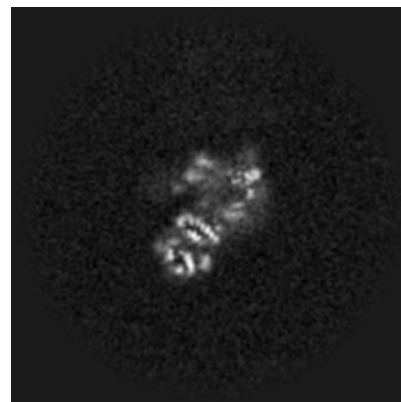
6.2.1 Primary map



X Index: 170

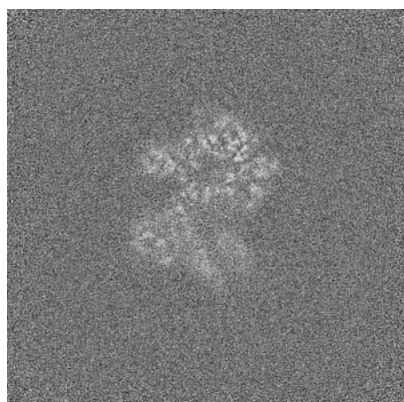


Y Index: 170

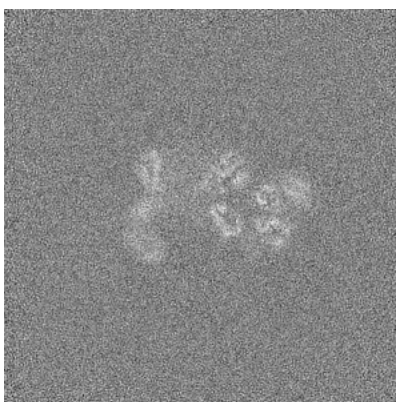


Z Index: 170

6.2.2 Raw map



X Index: 170



Y Index: 170

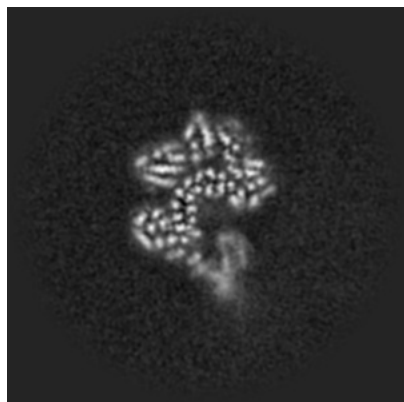


Z Index: 170

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

6.3 Largest variance slices [i](#)

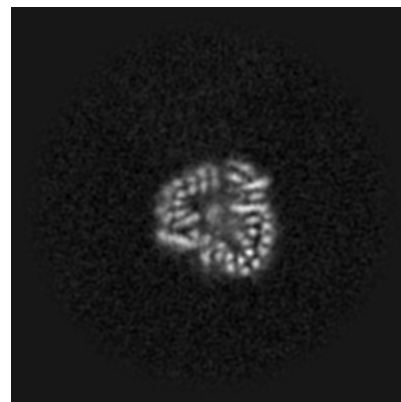
6.3.1 Primary map



X Index: 158

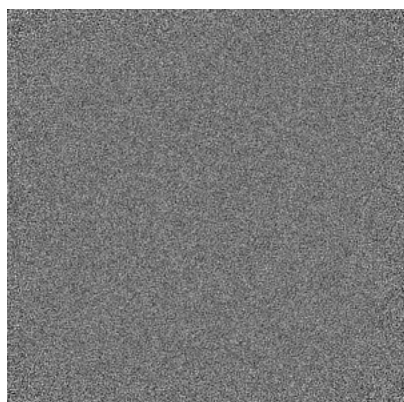


Y Index: 190

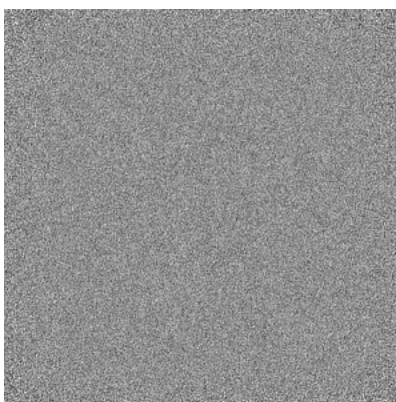


Z Index: 129

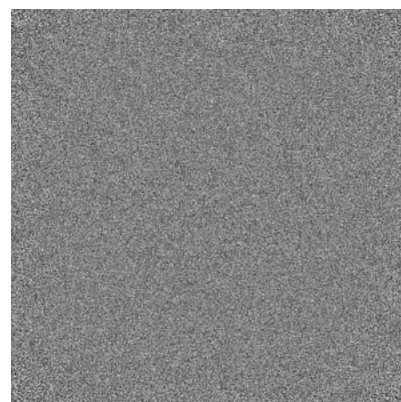
6.3.2 Raw map



X Index: 0



Y Index: 0

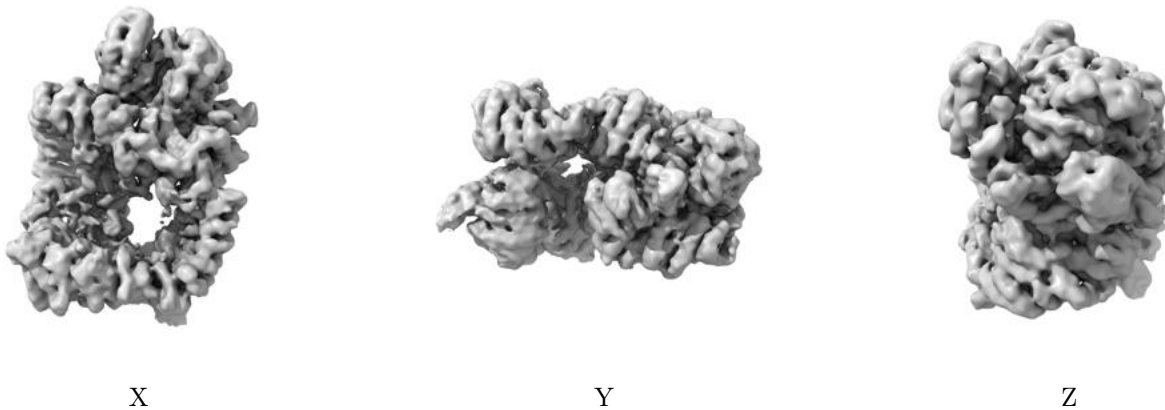


Z Index: 0

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

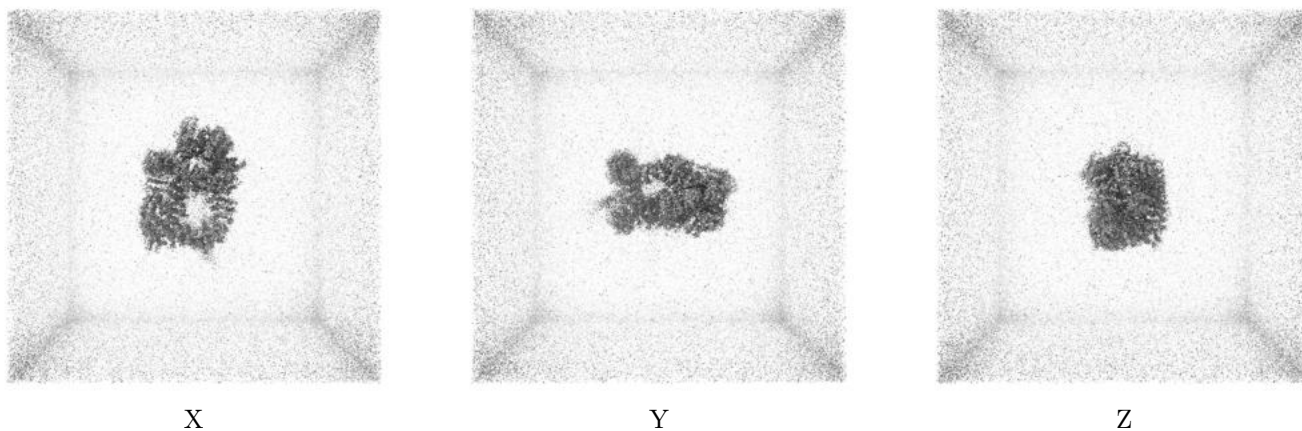
6.4 Orthogonal surface views [i](#)

6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.125. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.4.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

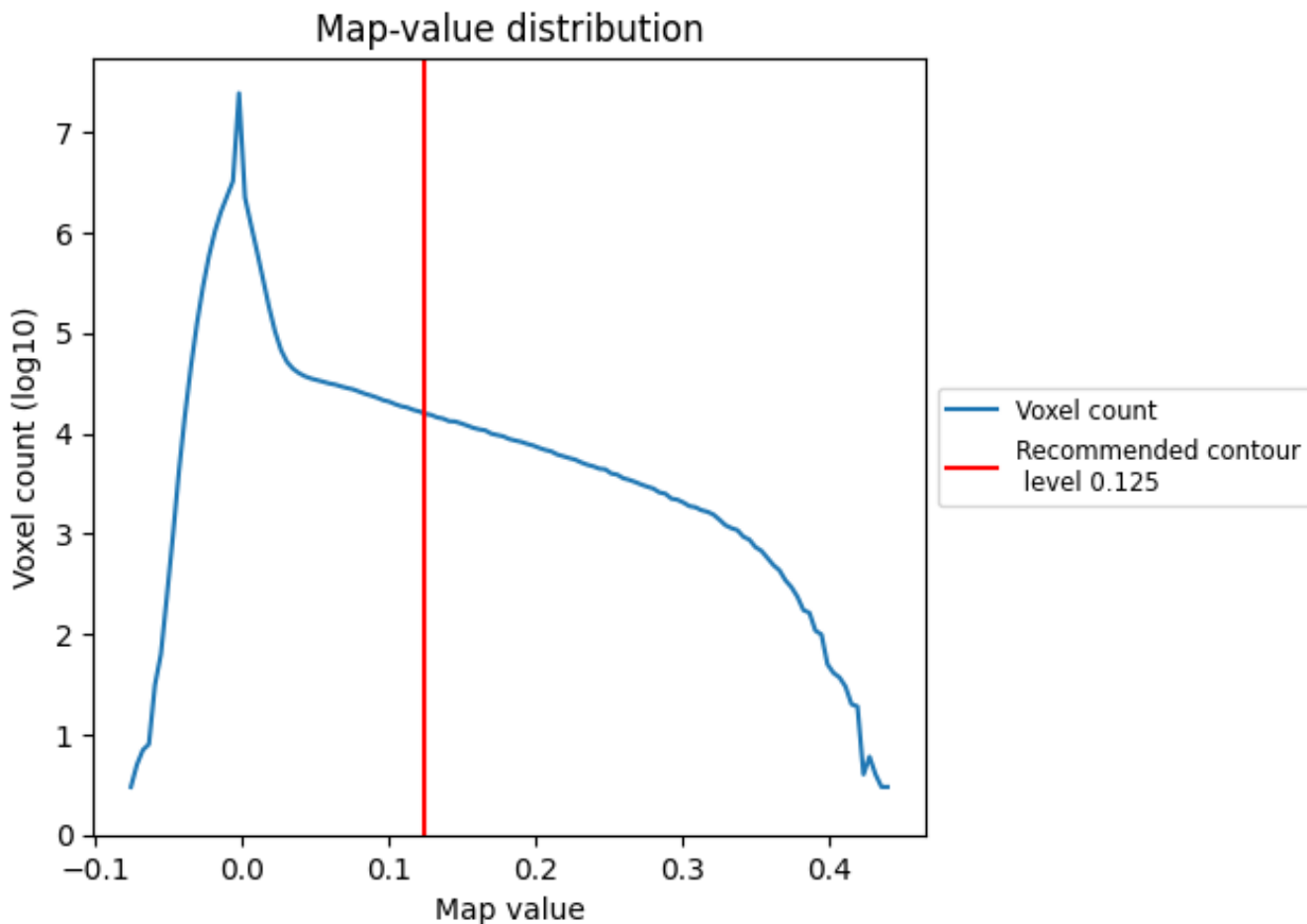
6.5 Mask visualisation [i](#)

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

7 Map analysis [i](#)

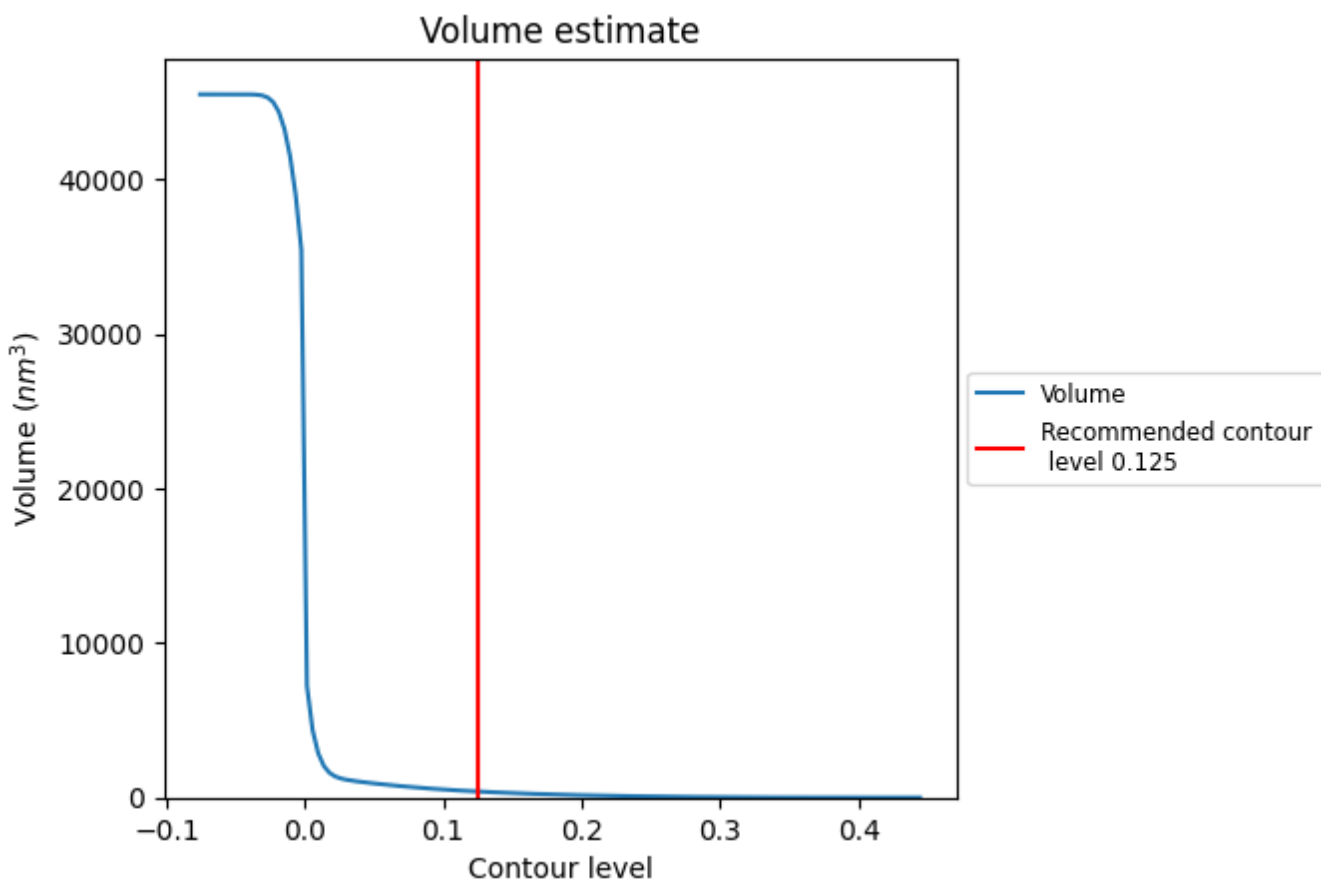
This section contains the results of statistical analysis of the map.

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.

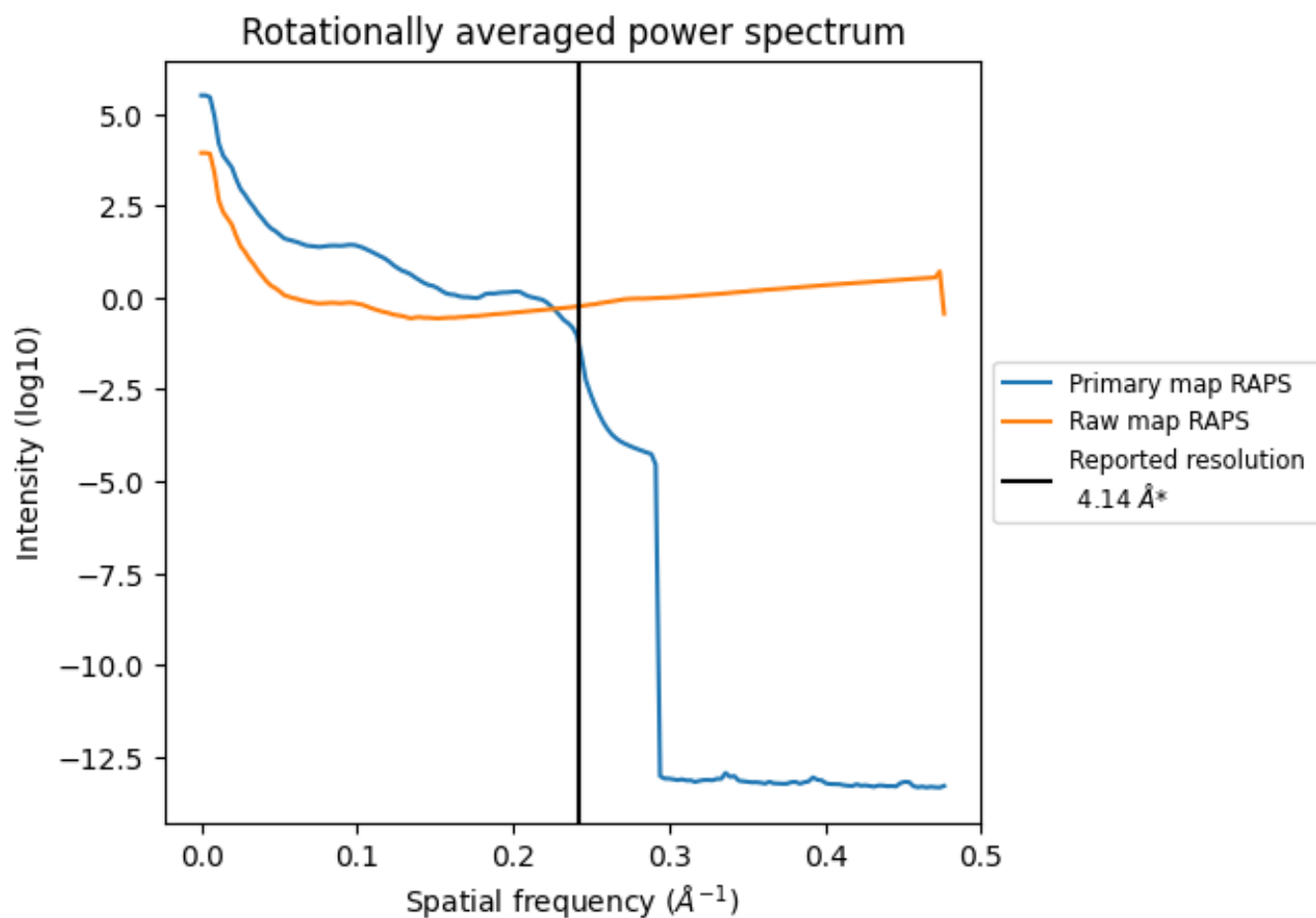
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 392 nm³; this corresponds to an approximate mass of 354 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](#)

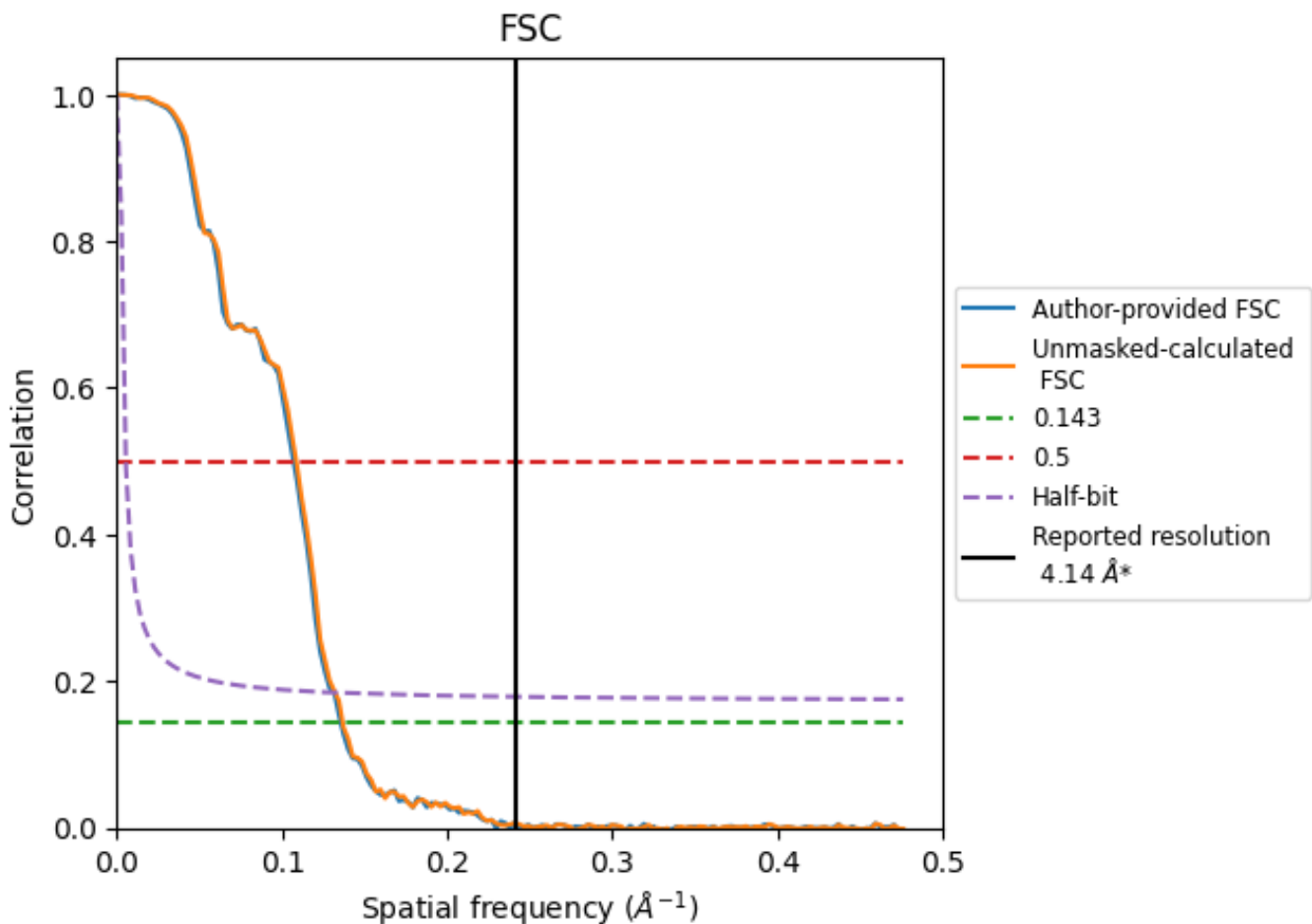


*Reported resolution corresponds to spatial frequency of 0.242 Å⁻¹

8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.242 Å⁻¹

8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	4.14	-	-
Author-provided FSC curve	7.37	9.34	7.59
Unmasked-calculated*	7.31	9.20	7.56

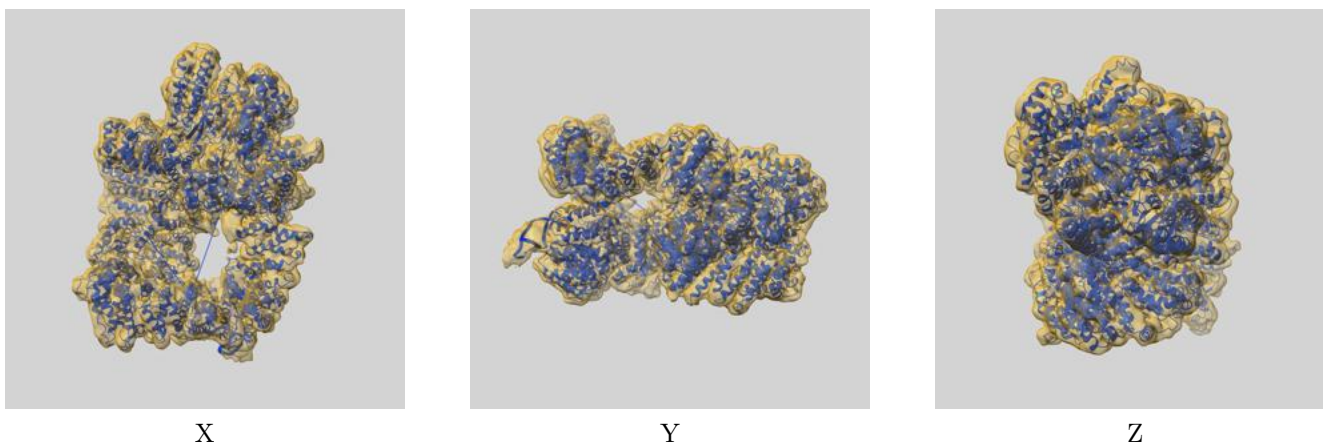
*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 7.37 differs from the reported value 4.14 by more than 10 %

The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.31 differs from the reported value 4.14 by more than 10 %

9 Map-model fit [i](#)

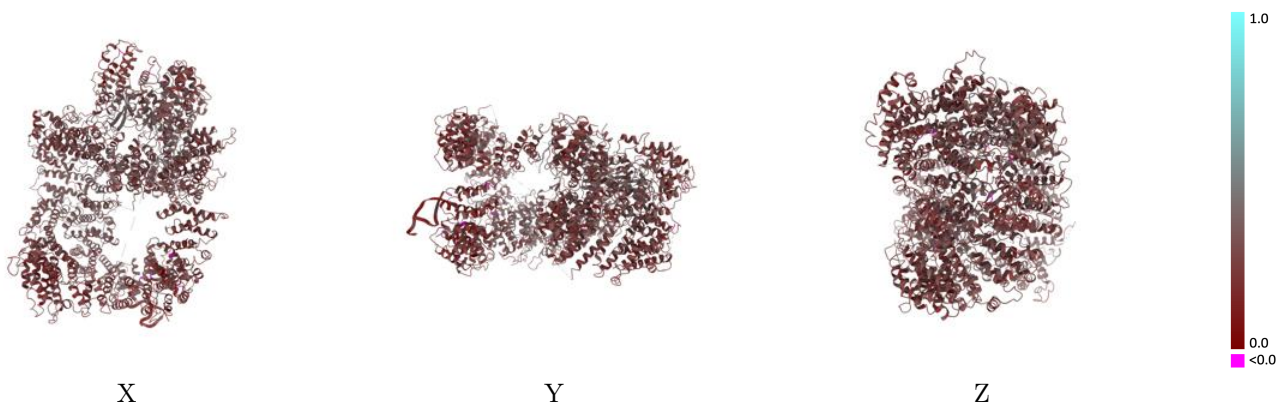
This section contains information regarding the fit between EMDB map EMD-11216 and PDB model 6ZH8. Per-residue inclusion information can be found in section 3 on page 4.

9.1 Map-model overlay [i](#)



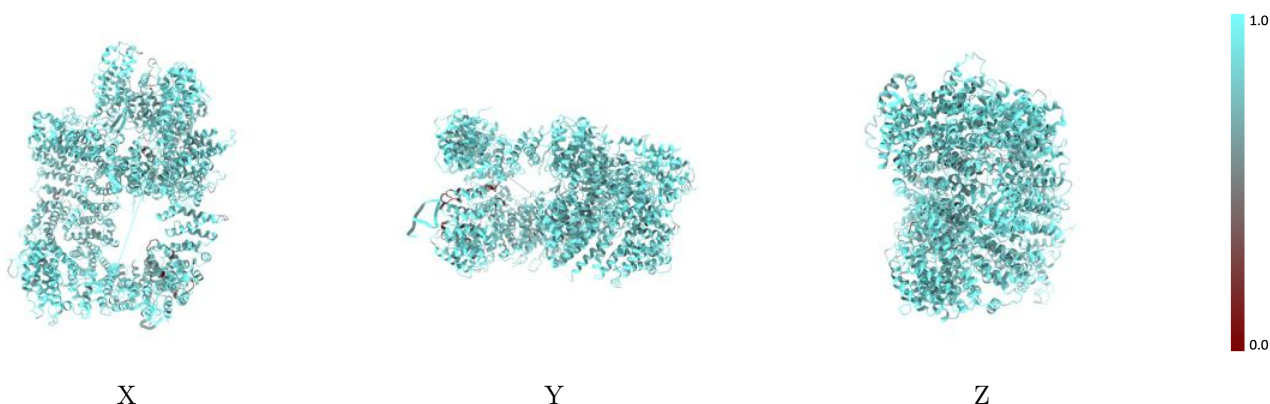
The images above show the 3D surface view of the map at the recommended contour level 0.125 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



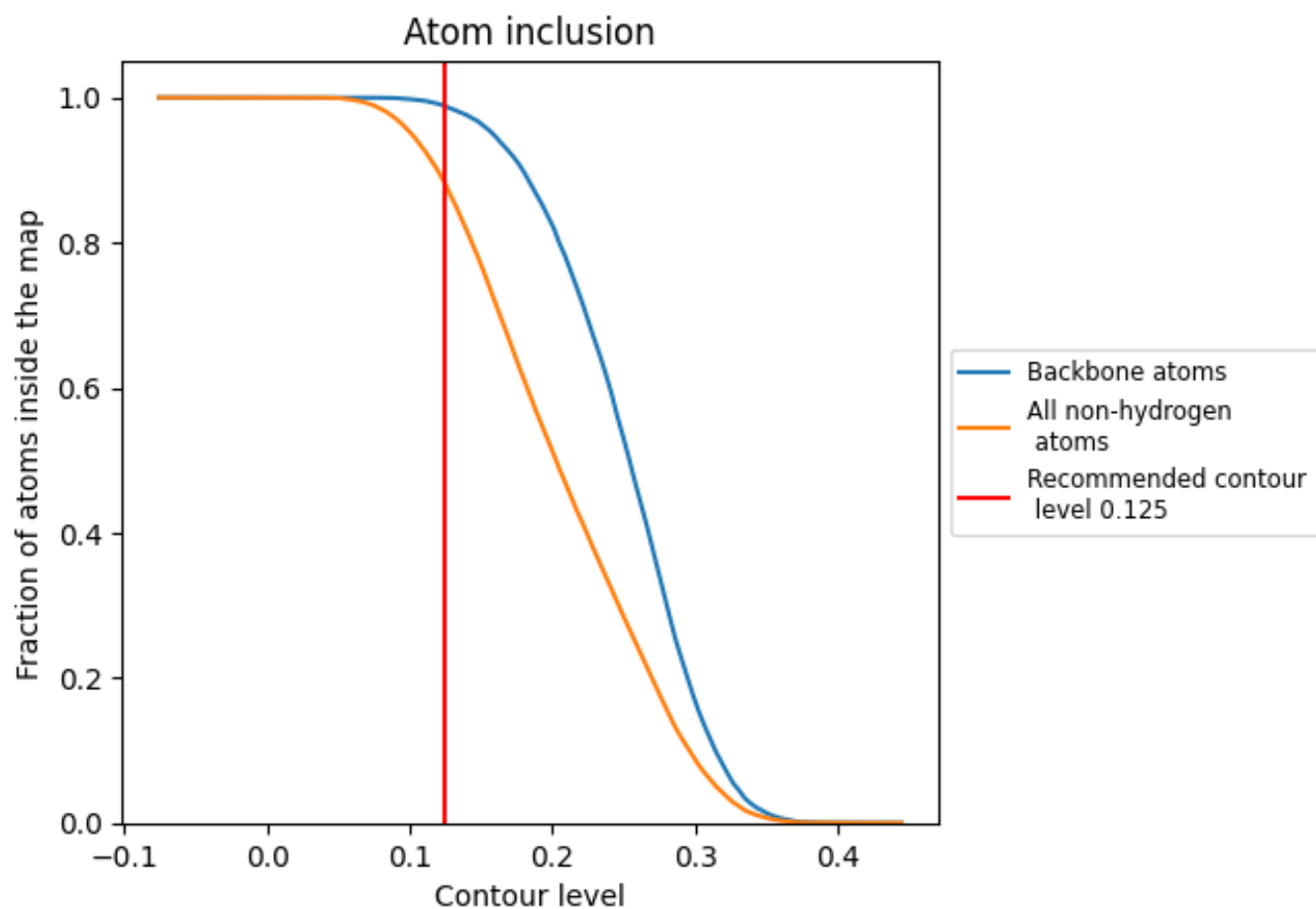
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.125).

9.4 Atom inclusion [i](#)



At the recommended contour level, 99% of all backbone atoms, 88% 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 (0.125) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8802	 0.2770
A	 0.8801	 0.2780
B	 0.8288	 0.2110
C	 0.9756	 0.2030

