



wwPDB EM Validation Summary Report ⓘ

Jul 8, 2024 – 01:25 pm BST

PDB ID : 7OOC
EMDB ID : EMD-11998
Title : Mycoplasma pneumoniae 30S subunit of ribosomes in chloramphenicol-treated cells
Authors : Xue, L.; Lenz, S.; Rappsilber, J.; Mahamid, J.
Deposited on : 2021-05-27
Resolution : 3.70 Å (reported)
Based on initial models : 5MMJ, 3J9W, 4YBB

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:

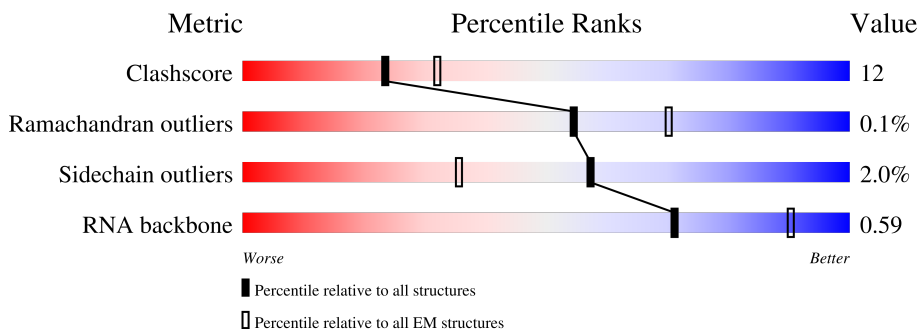
EMDB validation analysis : 0.0.1.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

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 3.70 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
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 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	B	273	79% (Poor fit) 58% (0 outliers), 20% (1 outlier), 21% (2+ outliers)
2	D	219	70% (Poor fit) 51% (0 outliers), 19% (1 outlier), 30% (2+ outliers)
3	F	155	99% (Poor fit) 72% (0 outliers), 28% (1 outlier)
4	A	294	85% (Poor fit) 57% (0 outliers), 26% (1 outlier), 15% (2+ outliers)
5	H	132	97% (Poor fit) 66% (0 outliers), 30% (1 outlier)
6	J	121	94% (Poor fit) 69% (0 outliers), 25% (1 outlier), 6% (2+ outliers)
7	C	205	99% (Poor fit) 76% (0 outliers), 23% (1 outlier)

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Mol	Chain	Length	Quality of chain
8	S	87	<p>89% 67% 21% 11%</p>
9	O	94	<p>93% 55% 34% 7%</p>
10	K	139	<p>98% 68% 29%</p>
11	M	61	<p>98% 62% 34%</p>
12	I	108	<p>94% 51% 41% 6%</p>
13	L	124	<p>95% 73% 21% 5%</p>
14	N	86	<p>97% 77% 20%</p>
15	R	87	<p>97% 59% 36%</p>
16	T	60	<p>88% 60% 25% 12%</p>
17	G	142	<p>99% 68% 32%</p>
18	Q	104	<p>62% 46% 16% 38%</p>
19	E	215	<p>78% 53% 25% 22%</p>
20	P	85	<p>98% 61% 35%</p>
21	5	1520	<p>98% 47% 46% 6%</p>

2 Entry composition [i](#)

There are 22 unique types of molecules in this entry. The entry contains 51225 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 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	B	215	1682	1063	308	306	5	0	0

- Molecule 2 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	D	153	1153	731	222	197	3	0	0

- Molecule 3 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	F	154	1231	777	234	215	5	0	0

- Molecule 4 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	A	249	1917	1224	331	355	7	0	0

- Molecule 5 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	H	128	993	634	184	174	1	0	0

- Molecule 6 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	J	114	828	514	153	155	6	0	0

- Molecule 7 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	C	203	1605	1015	306	280	4	0	0

- Molecule 8 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
8	S	77	629	383	135	111	0	0

- Molecule 9 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	O	87	690	445	128	115	2	0	0

- Molecule 10 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	K	136	1055	667	209	177	2	0	0

- Molecule 11 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	M	60	473	302	96	71	4	0	0

- Molecule 12 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	I	101	803	518	141	143	1	0	0

- Molecule 13 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
13	L	118	922	576	186	160	0	0

- Molecule 14 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	N	83	Total	C	N	O	0	0
			673	428	125	120		

- Molecule 15 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	R	84	Total	C	N	O	S	0	0
			654	419	119	114	2		

- Molecule 16 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	T	53	Total	C	N	O	S	0	0
			439	275	93	70	1		

- Molecule 17 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	G	141	Total	C	N	O	S	0	0
			1103	720	192	189	2		

- Molecule 18 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	65	Total	C	N	O	S	0	0
			535	342	103	86	4		

- Molecule 19 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	E	167	Total	C	N	O	S	0	0
			1211	762	219	229	1		

- Molecule 20 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	P	83	Total	C	N	O	0	0
			675	425	135	115		

- Molecule 21 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
21	5	1493	31952	14279	5792	10388	1493	0	0

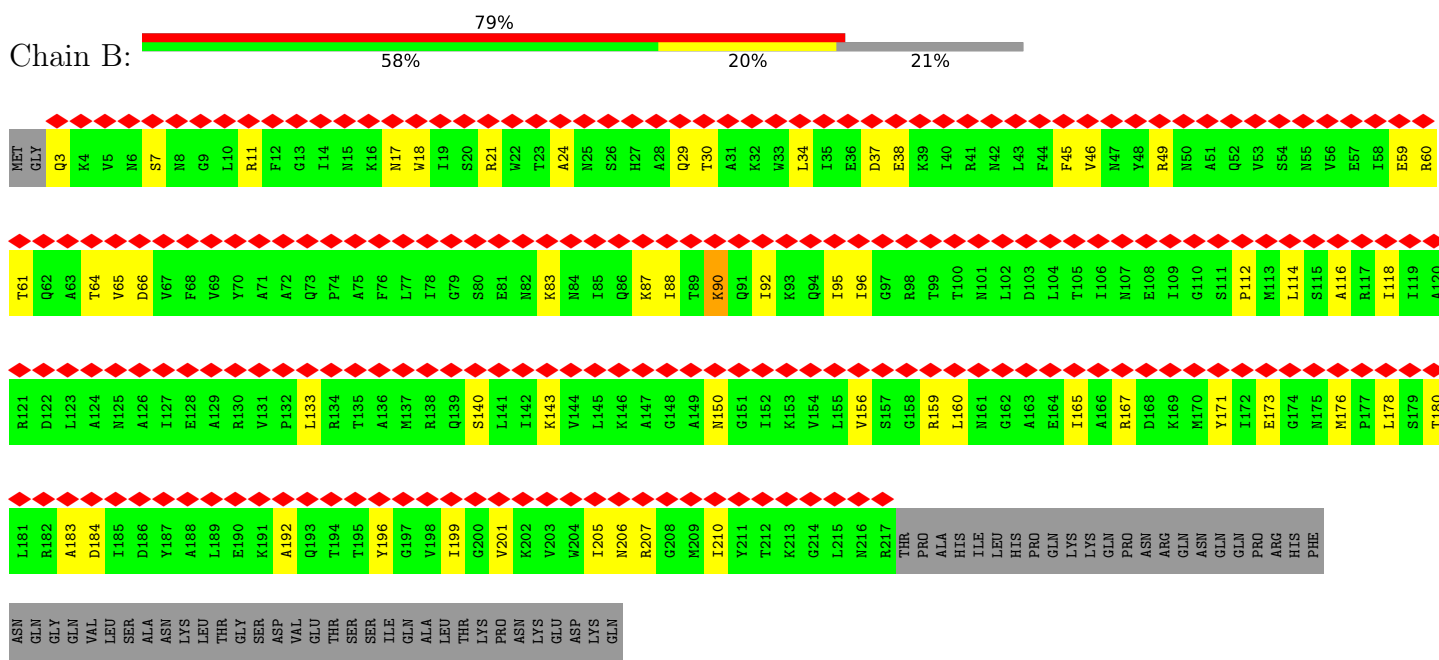
- Molecule 22 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
22	M	1	Total	Zn	0
			1	1	
22	Q	1	Total	Zn	0
			1	1	

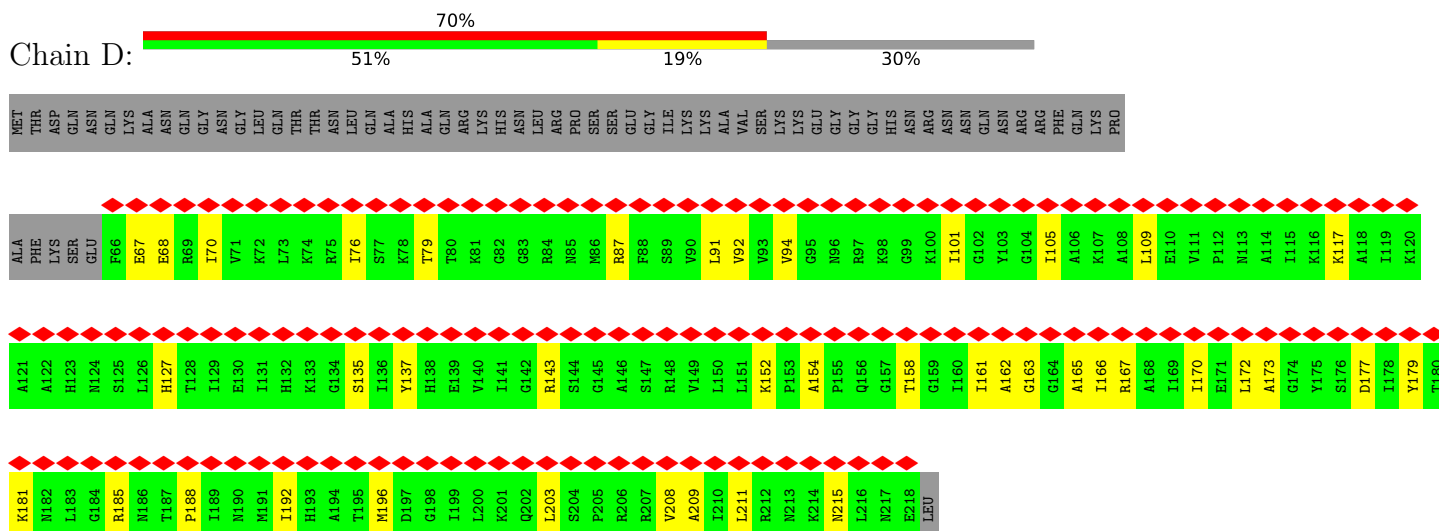
3 Residue-property plots [i](#)

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

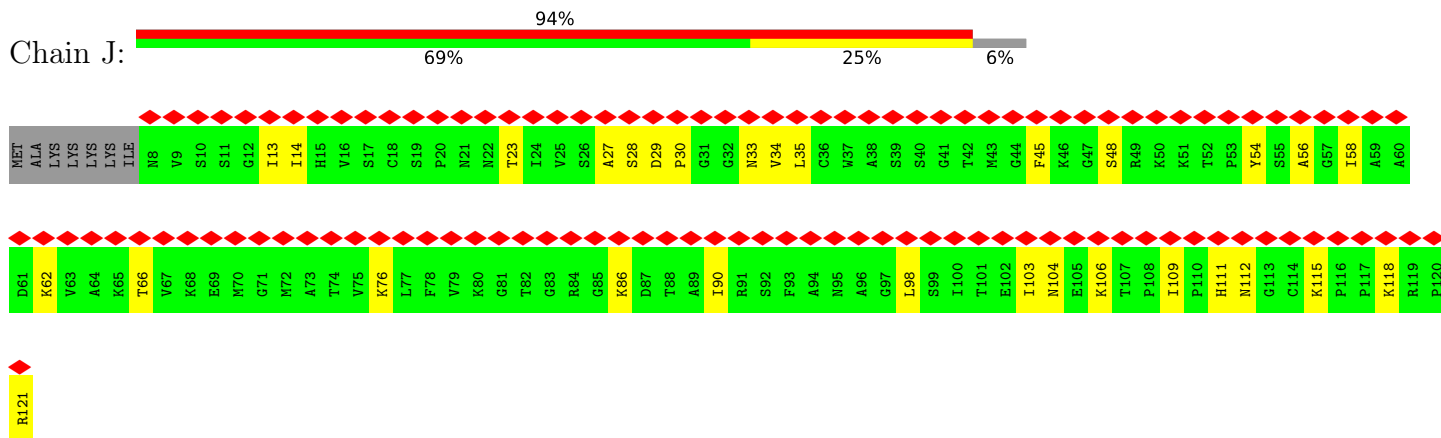
- Molecule 1: 30S ribosomal protein S3



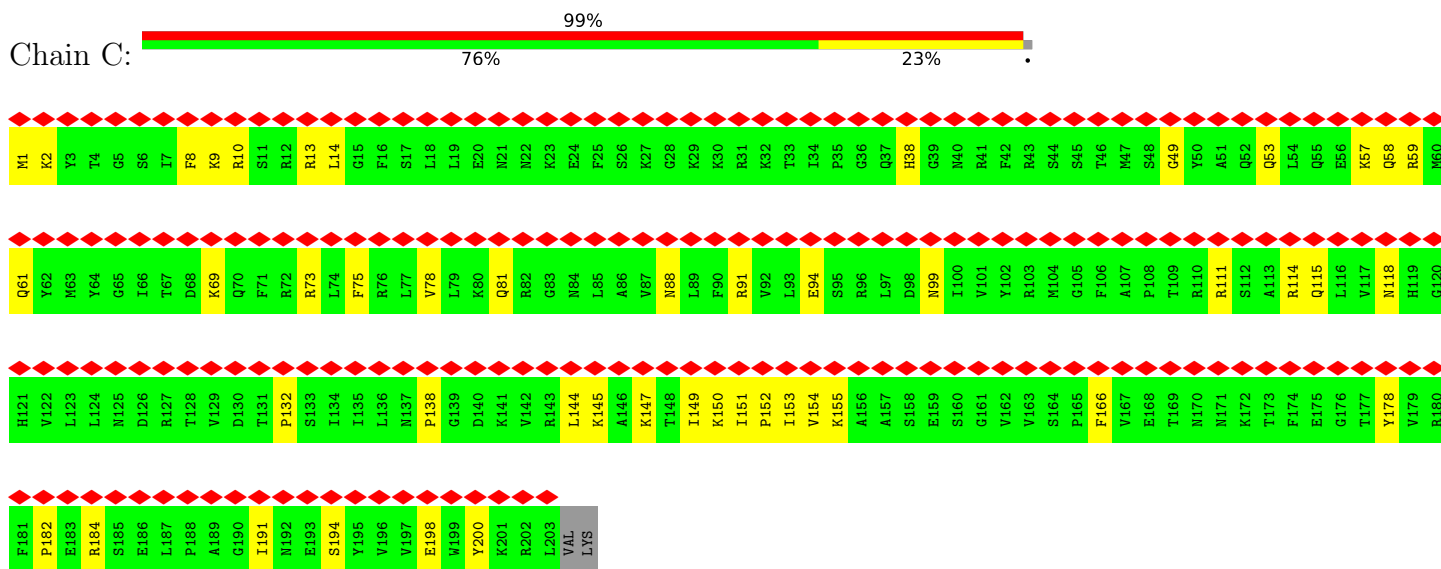
- Molecule 2: 30S ribosomal protein S5



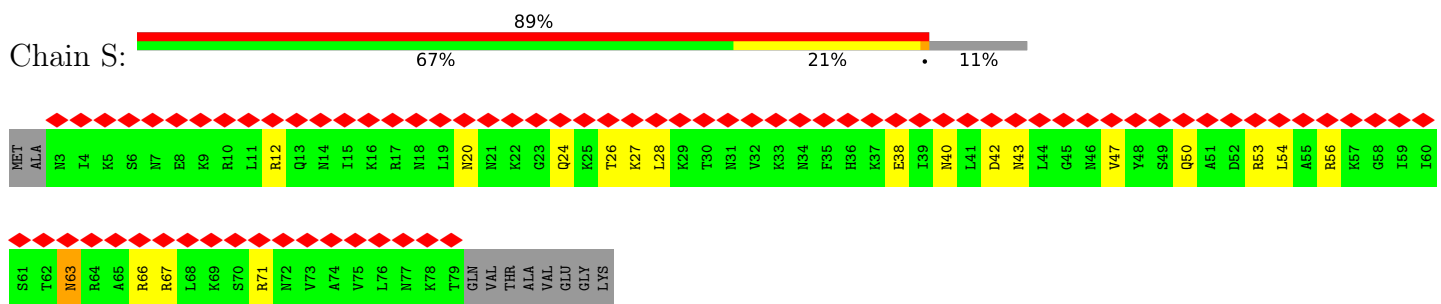
• Molecule 6: 30S ribosomal protein S11



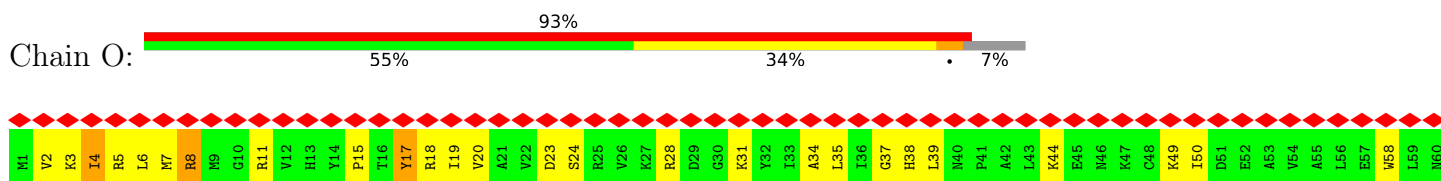
• Molecule 7: 30S ribosomal protein S4

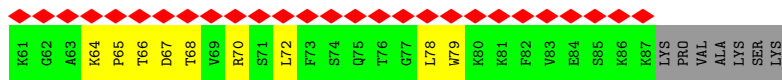


• Molecule 8: 30S ribosomal protein S20

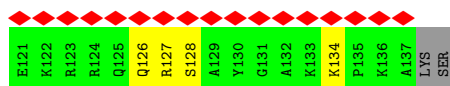
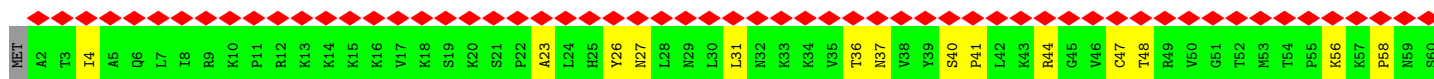


• Molecule 9: 30S ribosomal protein S16





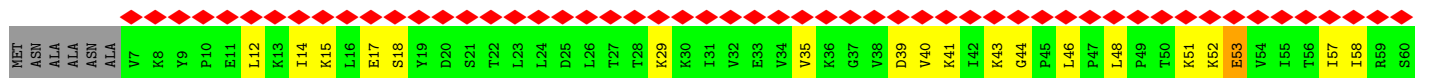
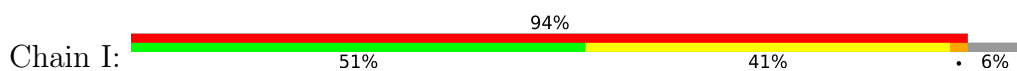
• Molecule 10: 30S ribosomal protein S12



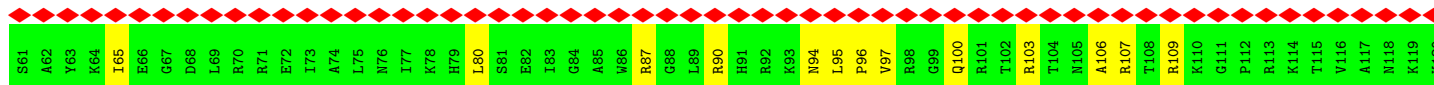
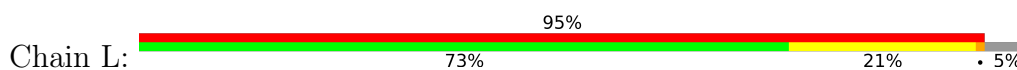
• Molecule 11: 30S ribosomal protein S14 type Z



• Molecule 12: 30S ribosomal protein S10

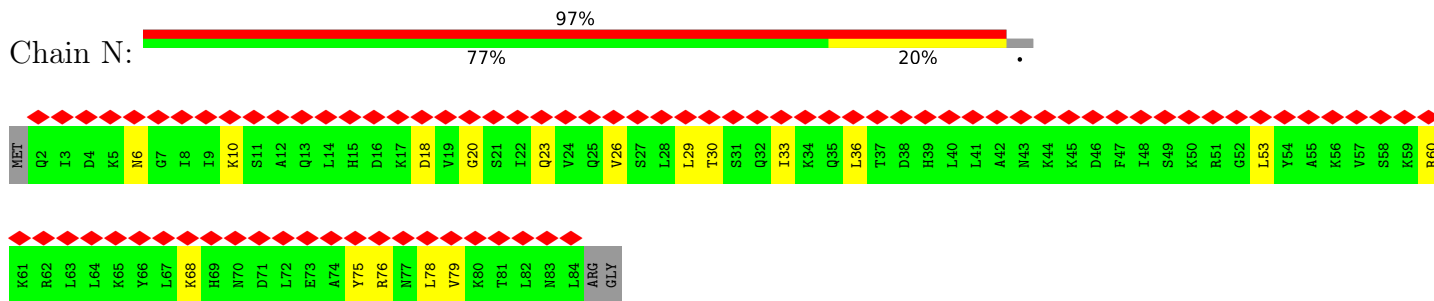


• Molecule 13: 30S ribosomal protein S13

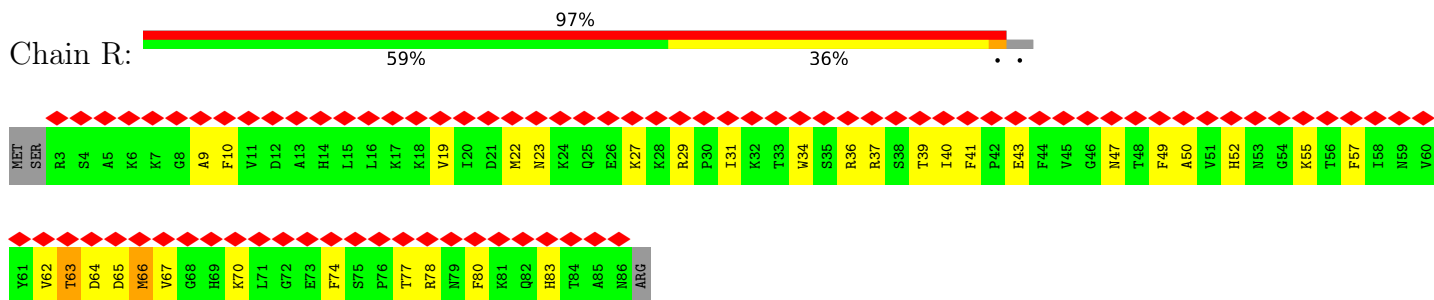




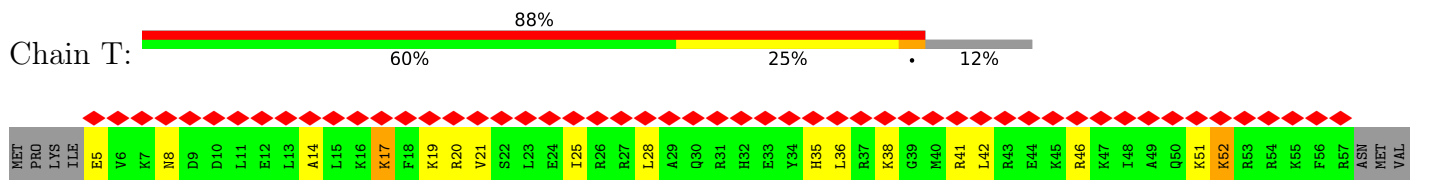
• Molecule 14: 30S ribosomal protein S15



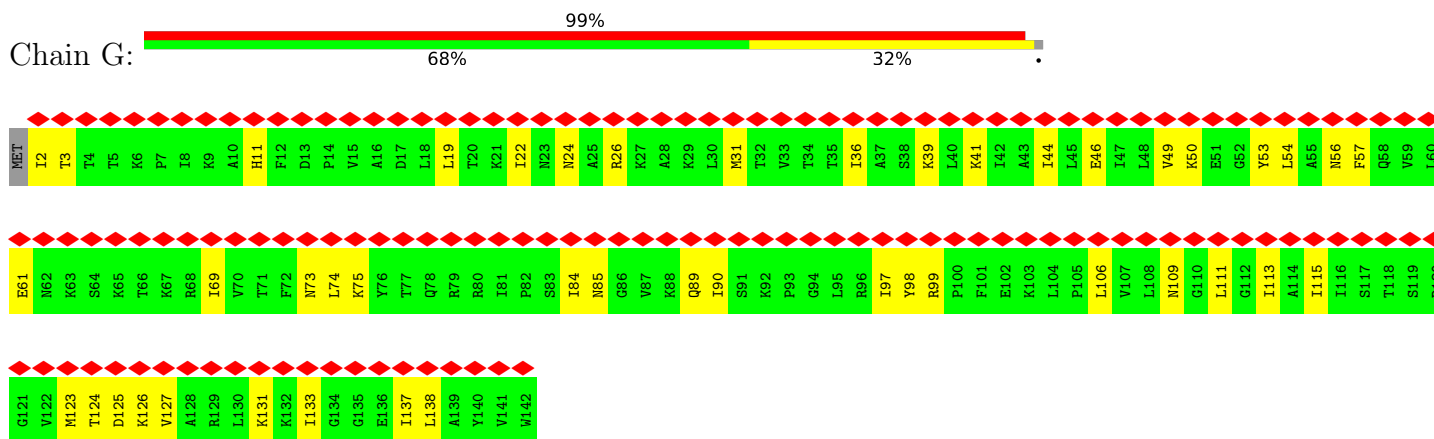
• Molecule 15: 30S ribosomal protein S19



• Molecule 16: 30S ribosomal protein S21

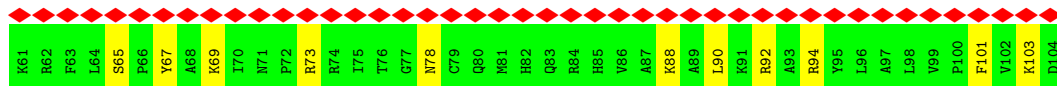
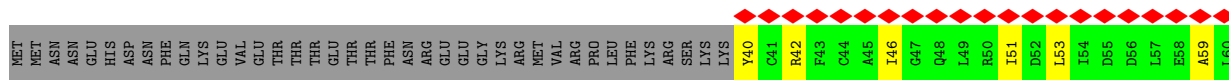


• Molecule 17: 30S ribosomal protein S8

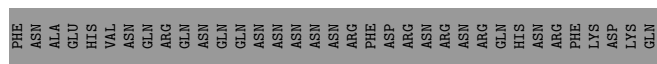
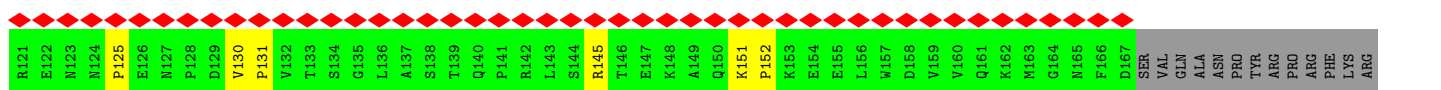
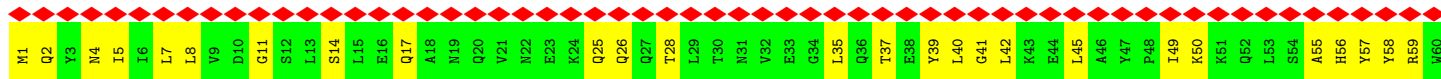
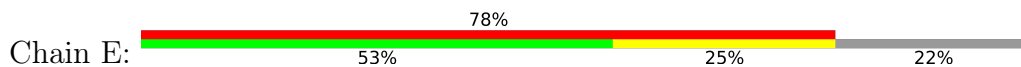


• Molecule 18: 30S ribosomal protein S18

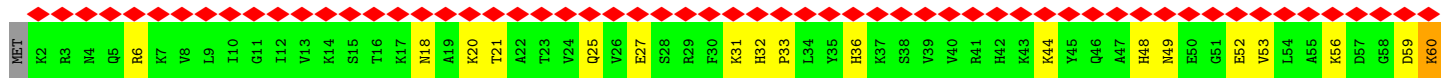




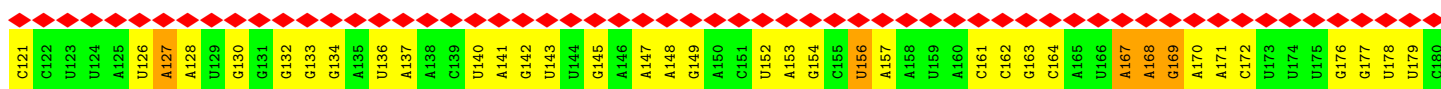
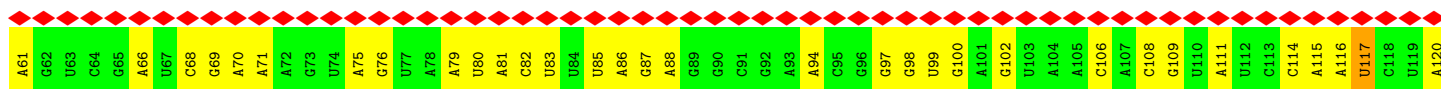
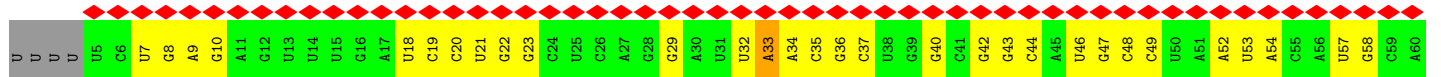
• Molecule 19: 30S ribosomal protein S6



• Molecule 20: 30S ribosomal protein S17



• Molecule 21: 16S rRNA



G	C	A	U	G185	A186	A187	U188	C189	A190	A191	A192	G193	U194	U195	G196	A197	A198	A199	G200	G201	A202	C203	C204	U205	G206	C207	A208	A209	G210	G211	G212	U213	U214	C215	G216	U217	U218	A219	U220	U221	U222	G223	A224	U225	G226	A227	G228	G229	G230	U231	G232	C233	G234	C235	C236	A237	U238	A239	U240	
C241	A242	G243	C244	U245	A246	G247	U248	U249	G250	G251	U252	G253	G254	G255	G256	U257	A258	A259	C260	G261	G262	C263	C264	U265	U266	C267	C268	A269	G270	G271	G272	C273	U274	A275	U276	G277	A278	U279	C280	U281	U282	U283	A284	G285	C286	U287	A288	U289	G290	C291	U292	G293	A294	G295	A296	U297	G298	U299	A300	
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A901	A902	A903	C904	U905	C906	A907	U908	A909	C910	G911	G912	A913	A914	U915	U916	U917	A918	C919	G920	G921	G922	G923	A924	C925	C926	C927	G928	C929	A930	C931	A932	A933	C934	U935	U936	G937	U938	C939	C940	A941	U942	U943	U944	U945	C946	U947	U948	U949	C950	U951	U952	C953	A954	A955	U956	C957	U958	U959	C960	
G961	G962	U963	A964	C965	A966	C967	G968	A969	U970	A971	A972	A973	C974	C975	U976	U977	A978	C979	C980	U981	A982	G983	A984	C985	U986	U987	G988	U989	C990	A991	U992	C993	C994	U995	U996	G997	U998	C999	A1000	A1001	A1002	G1003	U1004	U1005	A1006	U1007	G1008	G1009	U1010	A1011	A1012	C1013	A1014	U1015	A1016	A1017	U1018	G1019	G	

A	U1081	U1141	C1201	A1261	G1321	U1381	C1441	G1501
G	U1082	G1142	A1202	A1262	U1322	C1382	A1442	G1502
G	A1083	C1143	A1203	A1263	A1323	A1383	A1443	U1503
U	A1084	A1144	A1204	G1264	A1324	A1384	G1444	G1504
U	U1085	A1145	C1205	U1265	U1325	A1385	G1445	G1505
A	G1086	A1146	G1206	U1266	C1326	C1386	A1446	A1506
A	U1087	U1147	U1207	G1267	G1327	U1387	U1447	U1507
C1028	C1088	U1148	G1208	G1268	C1328	A1388	A1448	C1508
C1029	C1089	G1149	C1209	G1269	G1329	U1389	G1449	C
G1030	G1090	U1150	U1210	U1270	A1330	U1390	C1450	C
A1031	C1091	A1151	A1211	U1271	A1331	A1391	A1451	U
G1032	A1092	G1152	C1212	C1272	U1332	A1392	C1452	U
U1033	A1093	G1153	A1213	A1273	C1333	A1393	C1453	C
G1034	C1094	A1154	A1214	G1274	A1334	G1394	G1454	C
A1035	G1095	A1155	U1215	U1275	G1335	C1395	G1455	U
C1036	A1096	G1156	G1216	U1276	C1336	U1396	U1456	U
A1037	G1097	G1157	G1217	C1277	U1337	G1397	G1457	C
G1038	C1098	A1158	C1218	G1278	A1338	U1398	A1458	U
G1039	U1040	A1159	C1219	G1279	U1339	U1399	U1459	A
U1041	C1100	G1160	A1220	A1280	G1340	A1400	U1460	
G1042	A1101	G1161	A1221	U1281	U1341	A1401	G1461	
U1043	A1102	G1162	U1222	U1282	U1342	U1402	G1462	
G1044	C1103	A1163	A1223	G1283	G1343	A1403	A1463	
C1045	C1104	U1164	G1224	A1284	C1344	U1404	G1464	
A1046	C1105	G1165	A1225	G1285	U1345	U1405	U1465	
U1047	U1106	A1166	A1226	G1286	G1346	U1406	U1466	
G1048	U1107	C1167	A1227	G1287	U1347	A1407	A1467	
G1049	A1108	G1168	C1228	C1288	G1348	A1408	A1468	
U1050	U1109	U1169	A1229	U1289	A1349	A1409	G1469	
U1051	C1110	C1170	G1230	G1290	A1350	A1410	U1470	
G1052	G1111	A1171	U1231	C1291	U1351	A1411	C1471	
U1053	U1112	A1172	A1232	A1292	A1352	C1412	G1472	
C1054	U1113	A1173	G1233	A1293	G1353	G1413	U1473	
G1055	A1114	U1174	C1234	U1294	C1354	U1414	A1474	
U1056	G1115	C1175	C1235	U1295	U1355	G1415	A1475	
C1057	U1116	A1176	A1236	C1296	U1356	U1416	G1476	
A1058	U1117	U1177	G1237	G1297	C1357	U1417	A1477	
G1059	A1118	C1178	C1238	U1298	U1358	G1418	A1478	
C1060	C1119	A1179	U1239	C1299	C1359	C1419	G1479	
U1061	A1120	U1180	U1240	U1300	G1360	C1420	G1480	
C1062	U1121	G1181	G1241	U1301	G1361	A1421	U1481	
G1063	U1122	C1182	U1242	C1302	G1362	A1422	A1482	
U1064	G1123	C1183	A1243	A1303	U1363	C1423	C1483	
G1065	U1124	C1184	A1244	U1304	C1364	C1424	C1484	
U1066	C1125	C1185	A1245	G1305	U1365	A1425	C1485	
C1067	U1126	U1186	A1246	A1306	U1366	U1426	C1486	
G1068	A1127	U1187	G1247	A1307	G1367	U1427	U1487	
U1069	G1128	A1188	U1248	G1308	U1368	A1428	A1488	
G1070	C1129	U1189	G1249	U1309	A1369	G1429	C1489	
A1071	U1130	G1190	A1250	C1310	C1370	G1430	G1490	
G1072	A1131	U1191	G1251	G1311	A1371	A1431	A1491	
A1073	G1132	C1192	C1252	G1312	C1372	A1432	G1492	
U1074	A1133	U1193	A1253	A1313	A1373	G1433	A1493	
G1075	C1134	A1194	A1254	A1314	C1374	C1434	A1494	
U1076	U1135	G1195	A1255	U1315	C1375	G1435	C1495	
U1077	G1136	G1196	U1256	C1316	G1376	C1436	G1496	
G1078	C1137	G1197	C1257	A1317	C1377	A1437	U1497	
G1079	U1138	C1198	U1258	C1318	C1378	U1438	G1498	
G1080	A1139	U1199	G1259	U1319	C1379	G1439	G1499	
	A1140	G1200	U1260	A1320	U1380	U1440	G1500	

4 Experimental information

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	17890	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 ($e^-/\text{\AA}^2$)	3.2	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3750	Depositor
Magnification	81000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.021	Depositor
Minimum map value	-0.011	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.001	Depositor
Recommended contour level	0.0023	Depositor
Map size (Å)	323.095, 323.095, 323.095	wwPDB
Map dimensions	380, 380, 380	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.85025, 0.85025, 0.85025	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section:
ZN

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	B	0.25	0/1705	0.48	0/2304
2	D	0.25	0/1168	0.50	0/1568
3	F	0.25	0/1250	0.48	0/1682
4	A	0.31	0/1951	0.59	2/2652 (0.1%)
5	H	0.26	0/1009	0.53	0/1354
6	J	0.25	0/843	0.46	0/1136
7	C	0.25	0/1635	0.48	0/2202
8	S	0.24	0/631	0.46	0/838
9	O	0.32	0/703	0.64	0/945
10	K	0.27	0/1073	0.56	1/1445 (0.1%)
11	M	0.39	0/482	0.67	0/643
12	I	0.27	0/814	0.59	0/1096
13	L	0.30	0/933	0.53	0/1254
14	N	0.25	0/679	0.43	0/907
15	R	0.34	0/670	0.59	0/904
16	T	0.36	0/442	0.60	0/582
17	G	0.25	0/1119	0.53	0/1508
18	Q	0.27	0/545	0.50	0/730
19	E	0.25	0/1229	0.51	0/1670
20	P	0.24	0/684	0.50	0/913
21	5	0.21	0/35777	0.76	6/55776 (0.0%)
All	All	0.23	0/55342	0.69	9/82109 (0.0%)

There are no bond length outliers.

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	259	PRO	N-CA-C	-10.87	83.84	112.10
21	5	189	C	N3-C2-O2	-7.88	116.39	121.90
10	K	31	LEU	CA-CB-CG	7.05	131.52	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
21	5	843	C	N3-C2-O2	-6.92	117.06	121.90
21	5	843	C	C6-N1-C2	-6.05	117.88	120.30

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	B	1682	0	1733	37	0
2	D	1153	0	1231	32	0
3	F	1231	0	1285	34	0
4	A	1917	0	1894	66	0
5	H	993	0	1023	32	0
6	J	828	0	855	23	0
7	C	1605	0	1603	43	0
8	S	629	0	681	21	0
9	O	690	0	726	37	0
10	K	1055	0	1124	28	0
11	M	473	0	505	16	0
12	I	803	0	876	33	0
13	L	922	0	957	20	0
14	N	673	0	730	12	0
15	R	654	0	629	27	0
16	T	439	0	467	11	0
17	G	1103	0	1218	33	0
18	Q	535	0	559	16	0
19	E	1211	0	1108	43	0
20	P	675	0	728	20	0
21	5	31952	0	16055	597	0
22	M	1	0	0	0	0
22	Q	1	0	0	0	0
All	All	51225	0	35987	1052	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 12.

The worst 5 of 1052 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)
21:5:1013:C:N4	21:5:1014:A:N6	2.06	1.03
21:5:1331:A:H61	21:5:1340:G:H1	1.02	0.96
21:5:242:A:H62	21:5:277:G:H21	1.13	0.94
21:5:1013:C:N4	21:5:1014:A:H62	1.65	0.94
21:5:242:A:H62	21:5:277:G:N2	1.64	0.94

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	B	213/273 (78%)	202 (95%)	11 (5%)	0	100	100
2	D	151/219 (69%)	141 (93%)	10 (7%)	0	100	100
3	F	152/155 (98%)	135 (89%)	17 (11%)	0	100	100
4	A	247/294 (84%)	227 (92%)	18 (7%)	2 (1%)	19	56
5	H	126/132 (96%)	109 (86%)	17 (14%)	0	100	100
6	J	112/121 (93%)	106 (95%)	6 (5%)	0	100	100
7	C	201/205 (98%)	186 (92%)	15 (8%)	0	100	100
8	S	75/87 (86%)	72 (96%)	3 (4%)	0	100	100
9	O	85/94 (90%)	75 (88%)	10 (12%)	0	100	100
10	K	134/139 (96%)	117 (87%)	17 (13%)	0	100	100
11	M	58/61 (95%)	55 (95%)	3 (5%)	0	100	100
12	I	99/108 (92%)	87 (88%)	12 (12%)	0	100	100
13	L	116/124 (94%)	107 (92%)	9 (8%)	0	100	100
14	N	81/86 (94%)	78 (96%)	3 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
15	R	82/87 (94%)	75 (92%)	7 (8%)	0	100	100
16	T	51/60 (85%)	45 (88%)	6 (12%)	0	100	100
17	G	139/142 (98%)	126 (91%)	13 (9%)	0	100	100
18	Q	63/104 (61%)	57 (90%)	6 (10%)	0	100	100
19	E	165/215 (77%)	146 (88%)	19 (12%)	0	100	100
20	P	81/85 (95%)	72 (89%)	9 (11%)	0	100	100
All	All	2431/2791 (87%)	2218 (91%)	211 (9%)	2 (0%)	54	83

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	A	250	PRO
4	A	254	ILE

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	B	176/232 (76%)	174 (99%)	2 (1%)	73	85
2	D	117/178 (66%)	117 (100%)	0	100	100
3	F	128/132 (97%)	128 (100%)	0	100	100
4	A	200/262 (76%)	194 (97%)	6 (3%)	41	66
5	H	101/115 (88%)	99 (98%)	2 (2%)	55	74
6	J	91/97 (94%)	91 (100%)	0	100	100
7	C	164/183 (90%)	163 (99%)	1 (1%)	86	93
8	S	70/77 (91%)	69 (99%)	1 (1%)	67	82
9	O	71/82 (87%)	63 (89%)	8 (11%)	6	28
10	K	111/120 (92%)	111 (100%)	0	100	100
11	M	47/48 (98%)	45 (96%)	2 (4%)	29	58
12	I	93/99 (94%)	90 (97%)	3 (3%)	39	65

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	L	92/105 (88%)	89 (97%)	3 (3%)	38	64
14	N	76/78 (97%)	76 (100%)	0	100	100
15	R	66/77 (86%)	60 (91%)	6 (9%)	9	36
16	T	43/56 (77%)	38 (88%)	5 (12%)	5	27
17	G	121/124 (98%)	121 (100%)	0	100	100
18	Q	56/94 (60%)	56 (100%)	0	100	100
19	E	107/196 (55%)	106 (99%)	1 (1%)	78	88
20	P	73/75 (97%)	72 (99%)	1 (1%)	67	82
All	All	2003/2430 (82%)	1962 (98%)	41 (2%)	57	74

5 of 41 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
15	R	63	THR
16	T	19	LYS
15	R	64	ASP
15	R	77	THR
16	T	51	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 12 such sidechains are listed below:

Mol	Chain	Res	Type
17	G	23	ASN
17	G	56	ASN
20	P	62	GLN
19	E	2	GLN
7	C	38	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
21	5	1490/1520 (98%)	231 (15%)	5 (0%)

5 of 231 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
21	5	7	U

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Mol	Chain	Res	Type
21	5	10	G
21	5	32	U
21	5	33	A
21	5	40	G

All (5) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
21	5	168	A
21	5	419	A
21	5	481	U
21	5	838	A
21	5	1338	A

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

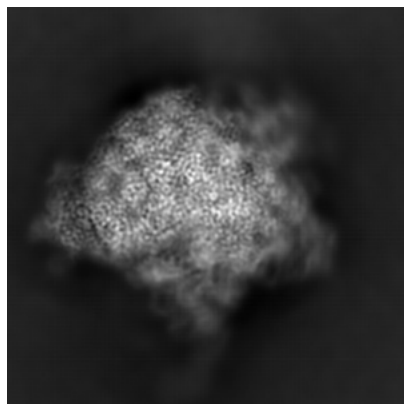
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11998. These allow visual inspection of the internal detail of the map and identification of artifacts.

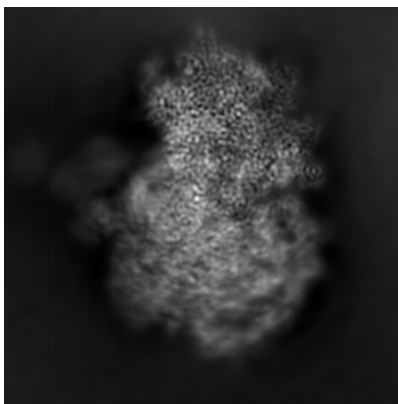
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

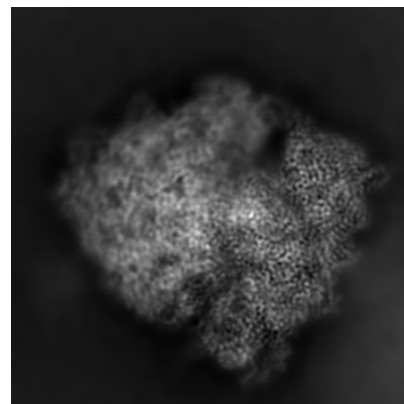
6.1.1 Primary map



X

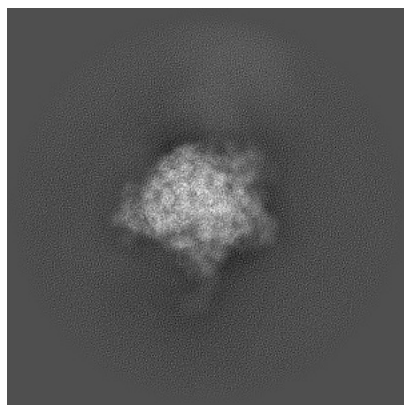


Y

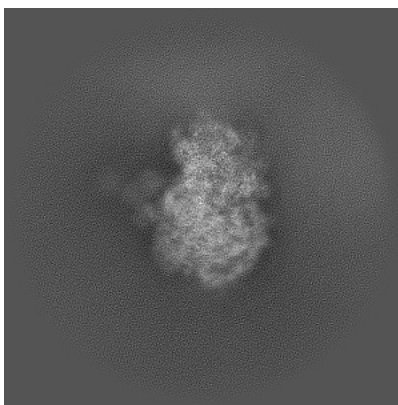


Z

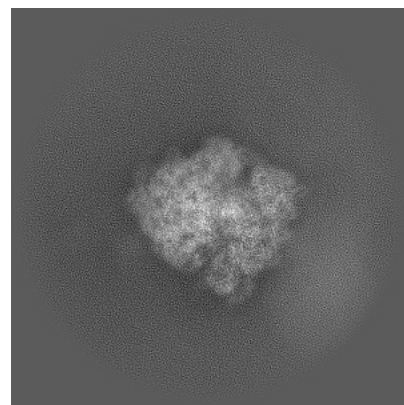
6.1.2 Raw map



X



Y

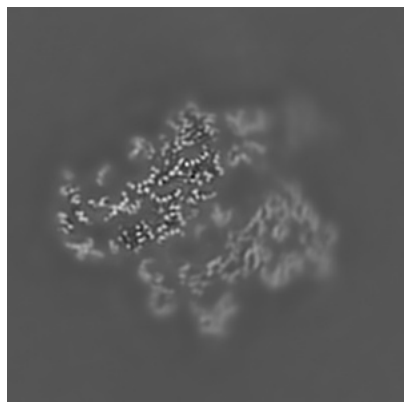


Z

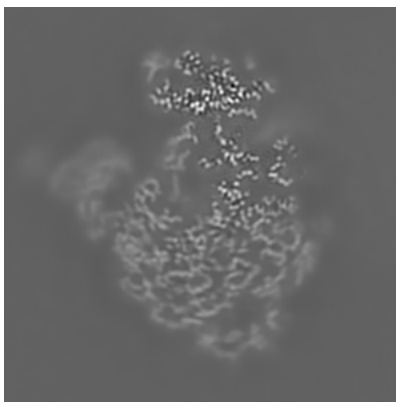
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

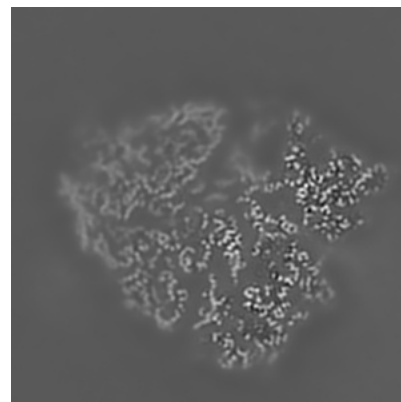
6.2.1 Primary map



X Index: 190

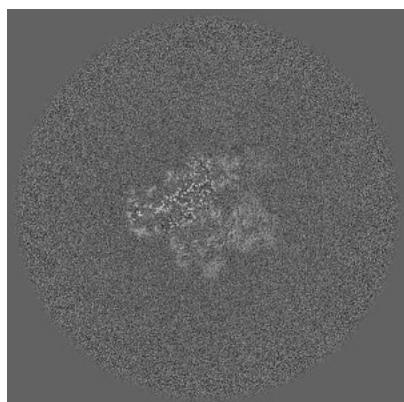


Y Index: 190

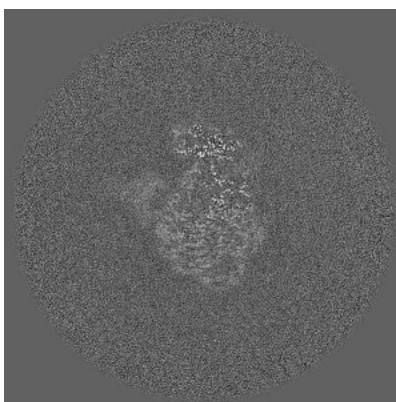


Z Index: 190

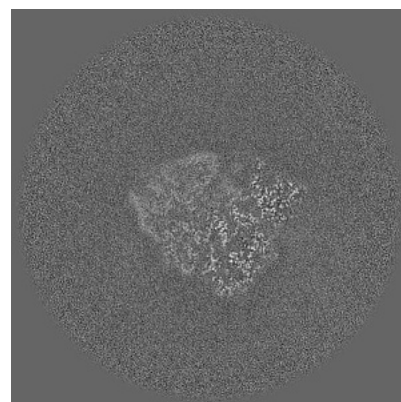
6.2.2 Raw map



X Index: 176



Y Index: 176

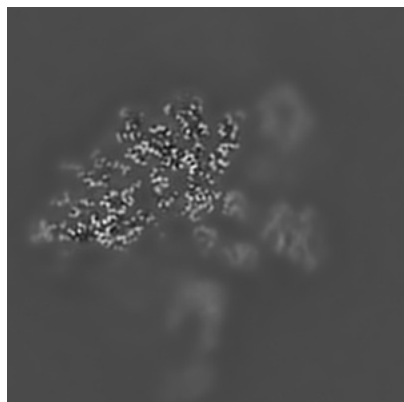


Z Index: 176

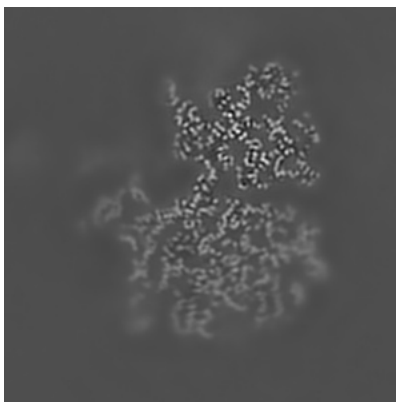
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

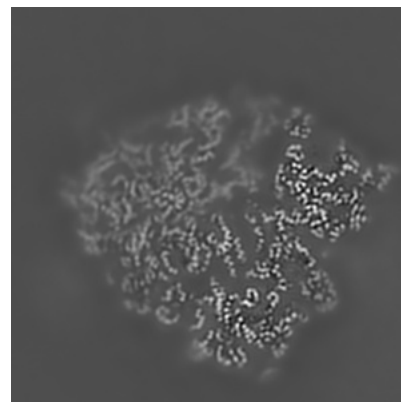
6.3.1 Primary map



X Index: 231

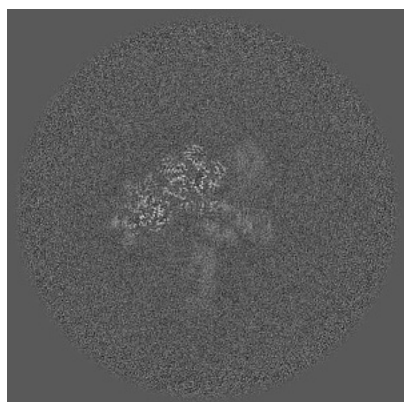


Y Index: 152

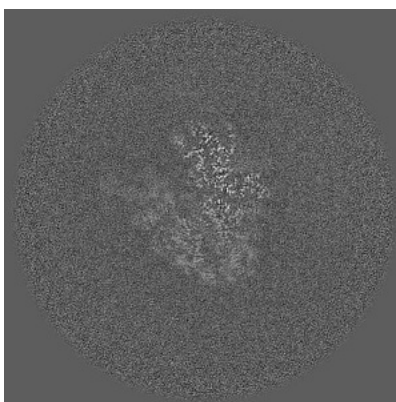


Z Index: 184

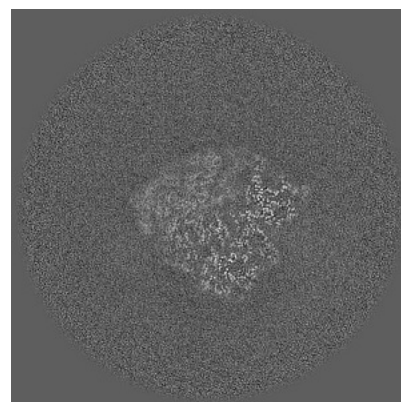
6.3.2 Raw map



X Index: 194



Y Index: 169

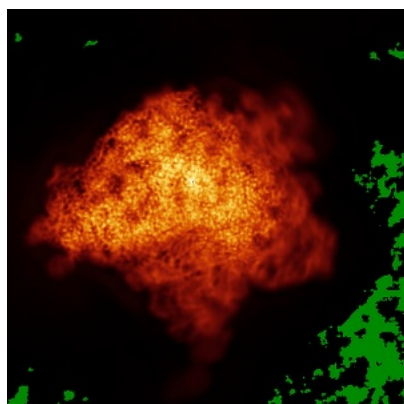


Z Index: 173

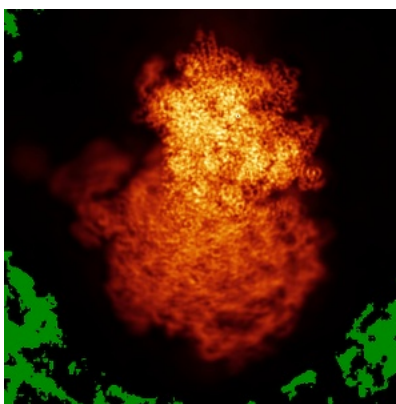
The images above show the largest variance slices of the map in three orthogonal directions.

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

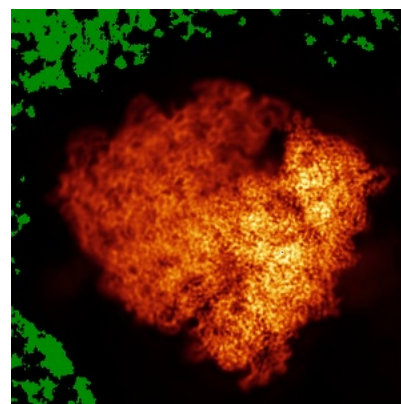
6.4.1 Primary map



X

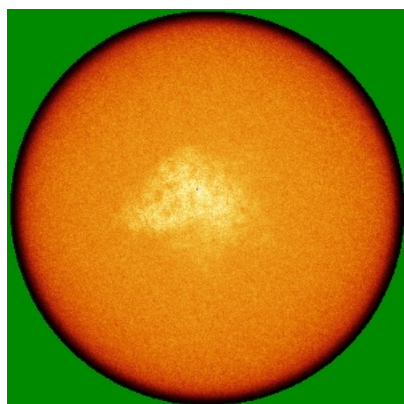


Y

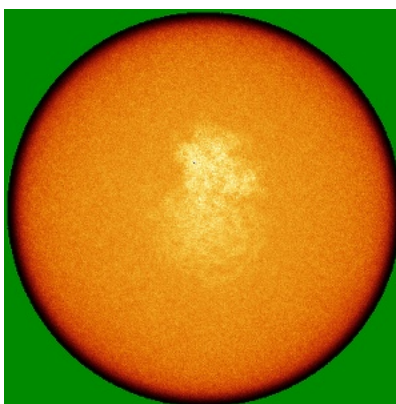


Z

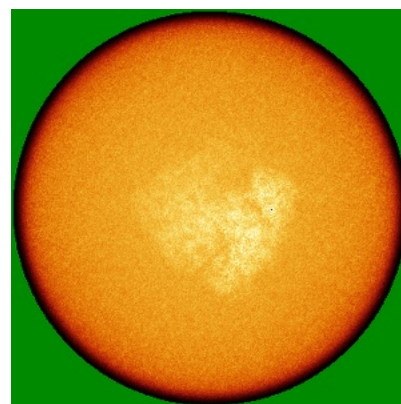
6.4.2 Raw map



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.

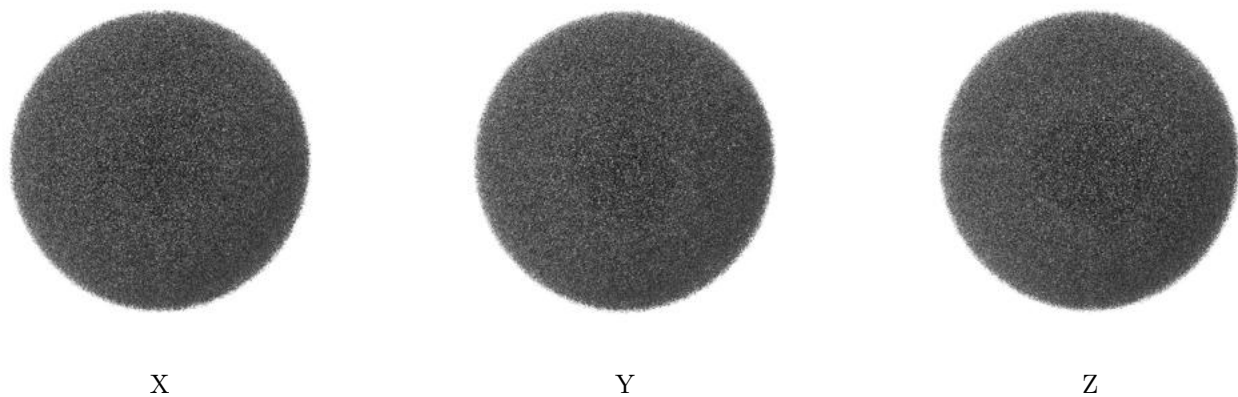
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.0023. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 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.

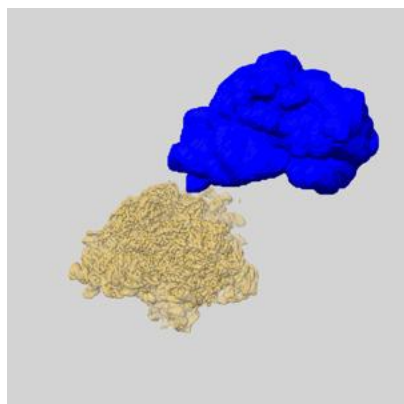
6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

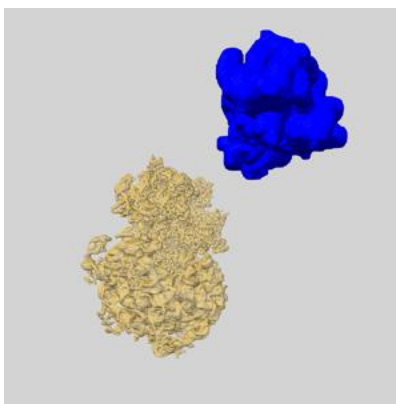
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

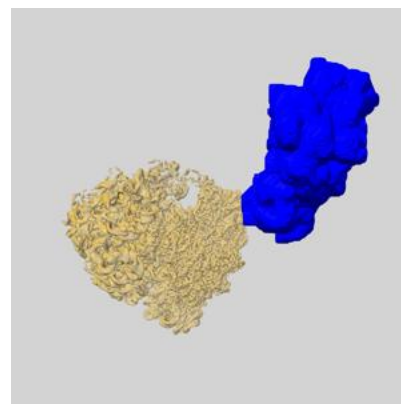
6.6.1 emd_11998_msk_1.map [i](#)



X



Y

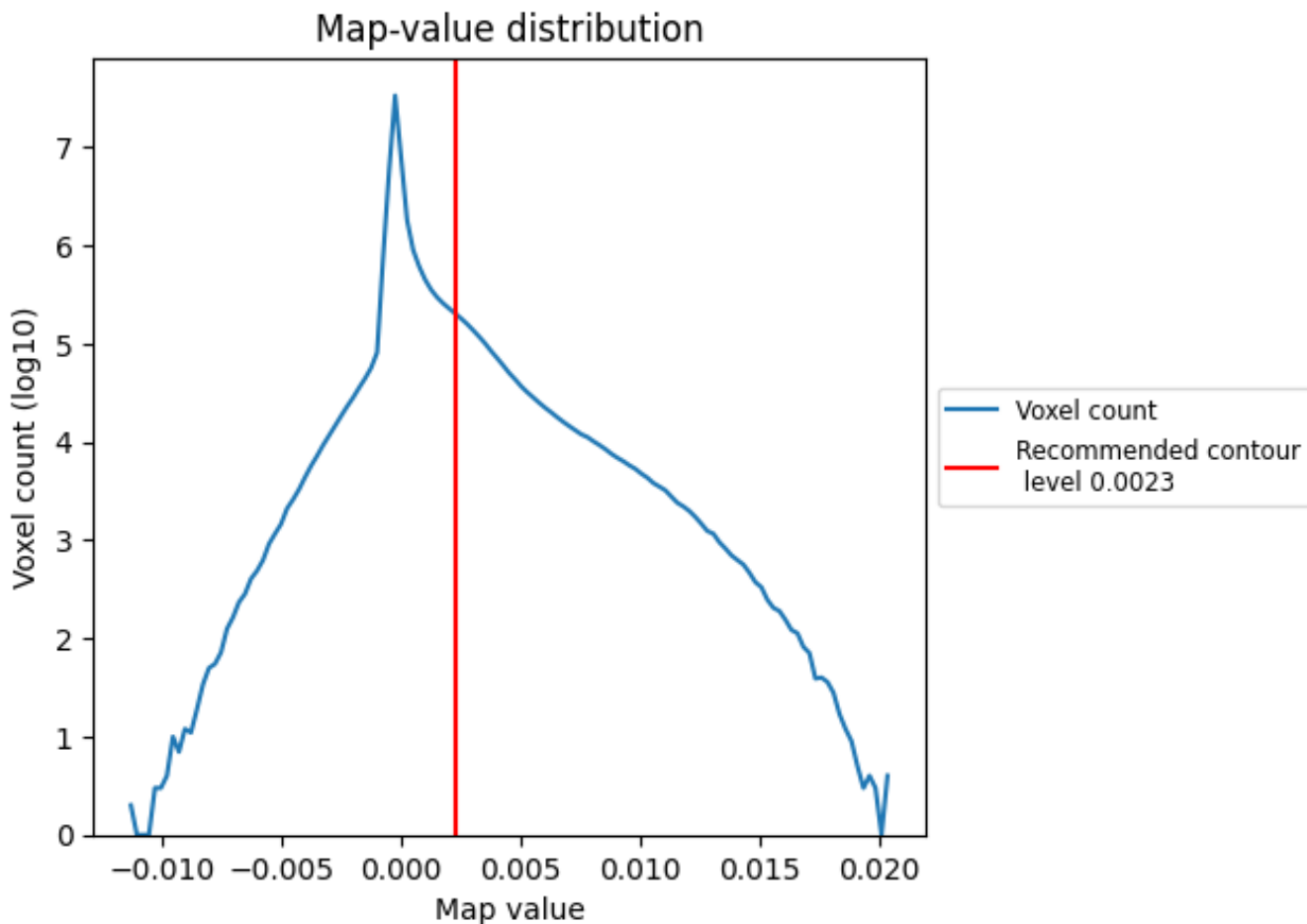


Z

7 Map analysis [i](#)

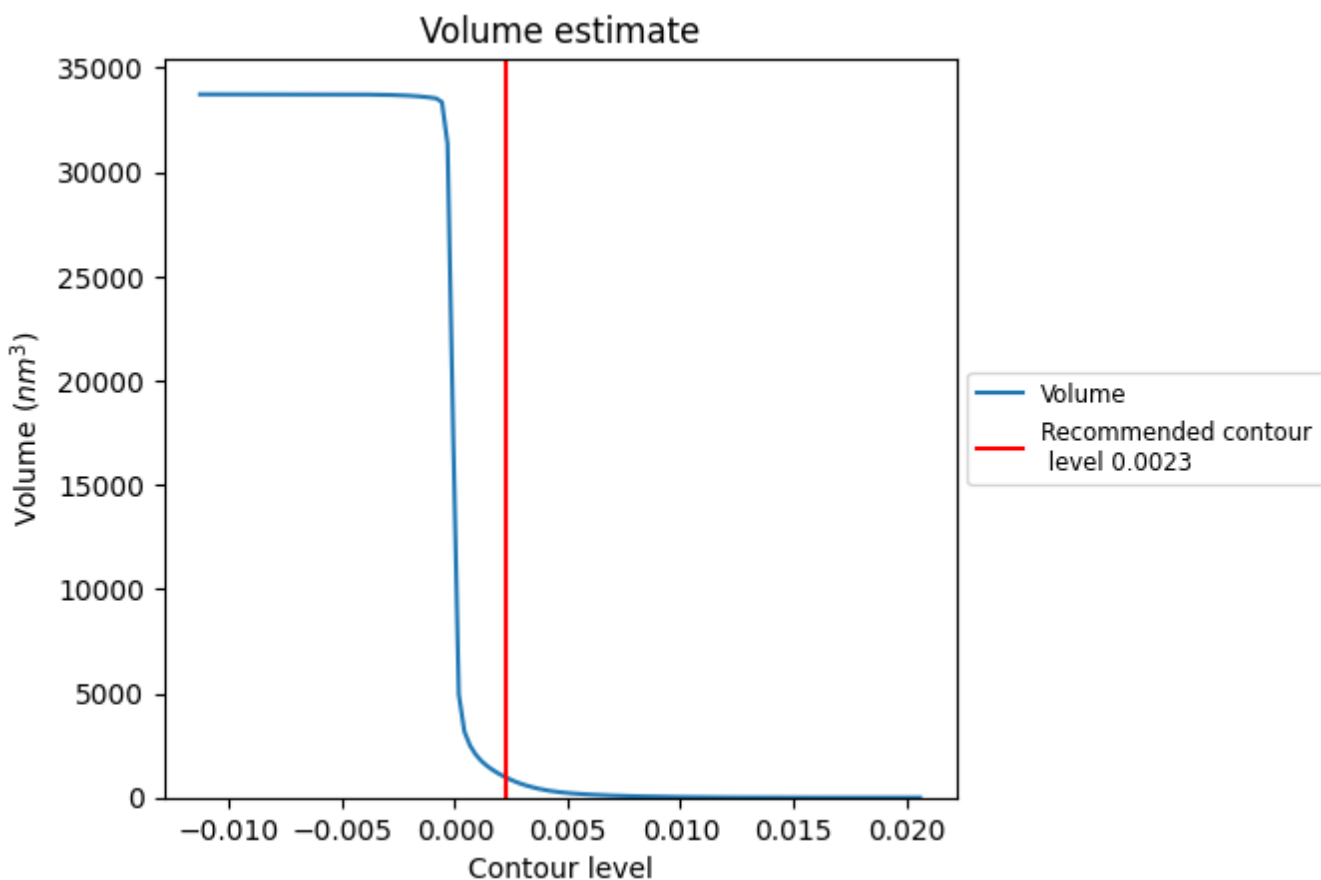
This section contains the results of statistical analysis of the map.

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.

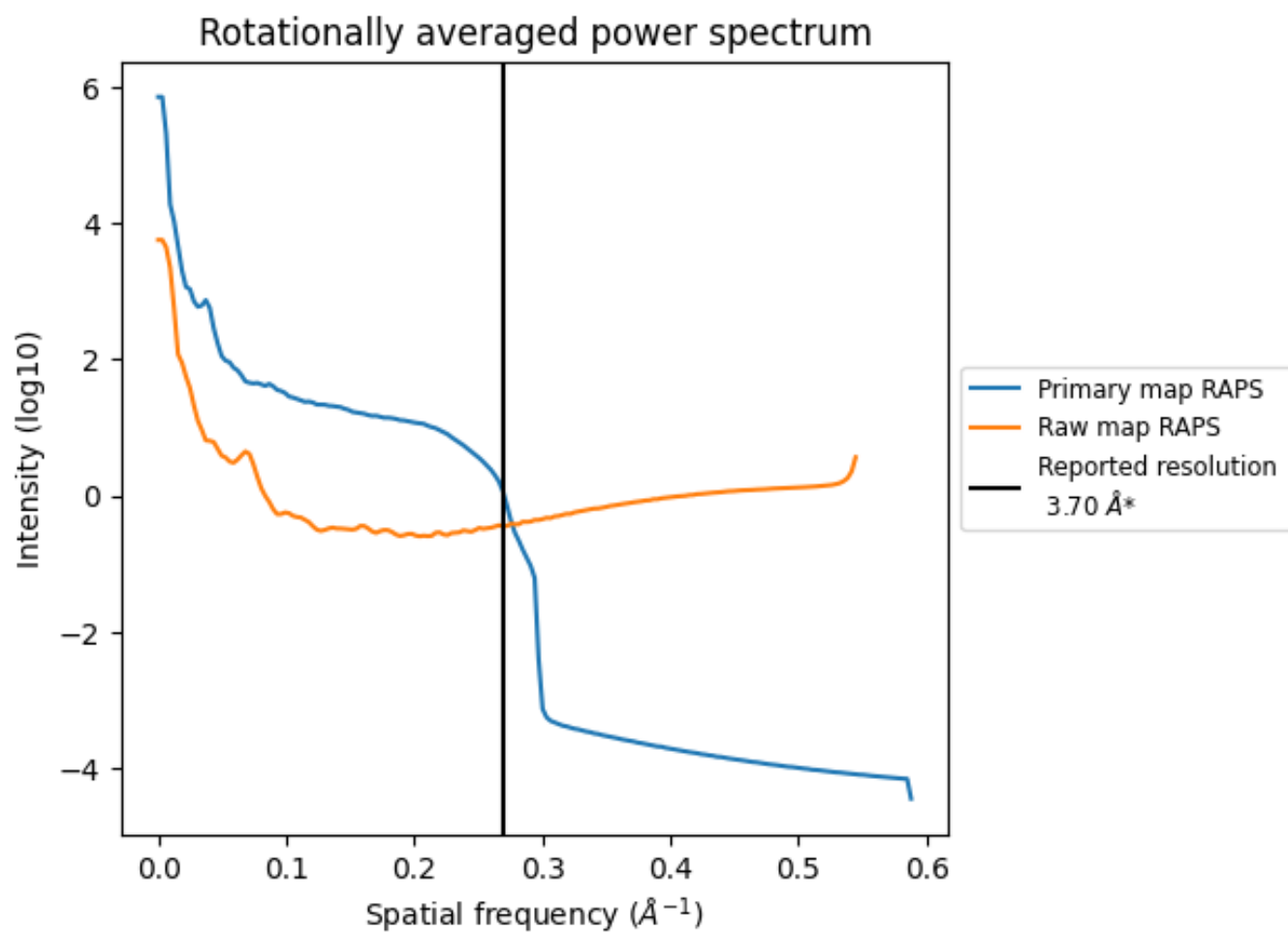
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 952 nm³; this corresponds to an approximate mass of 860 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

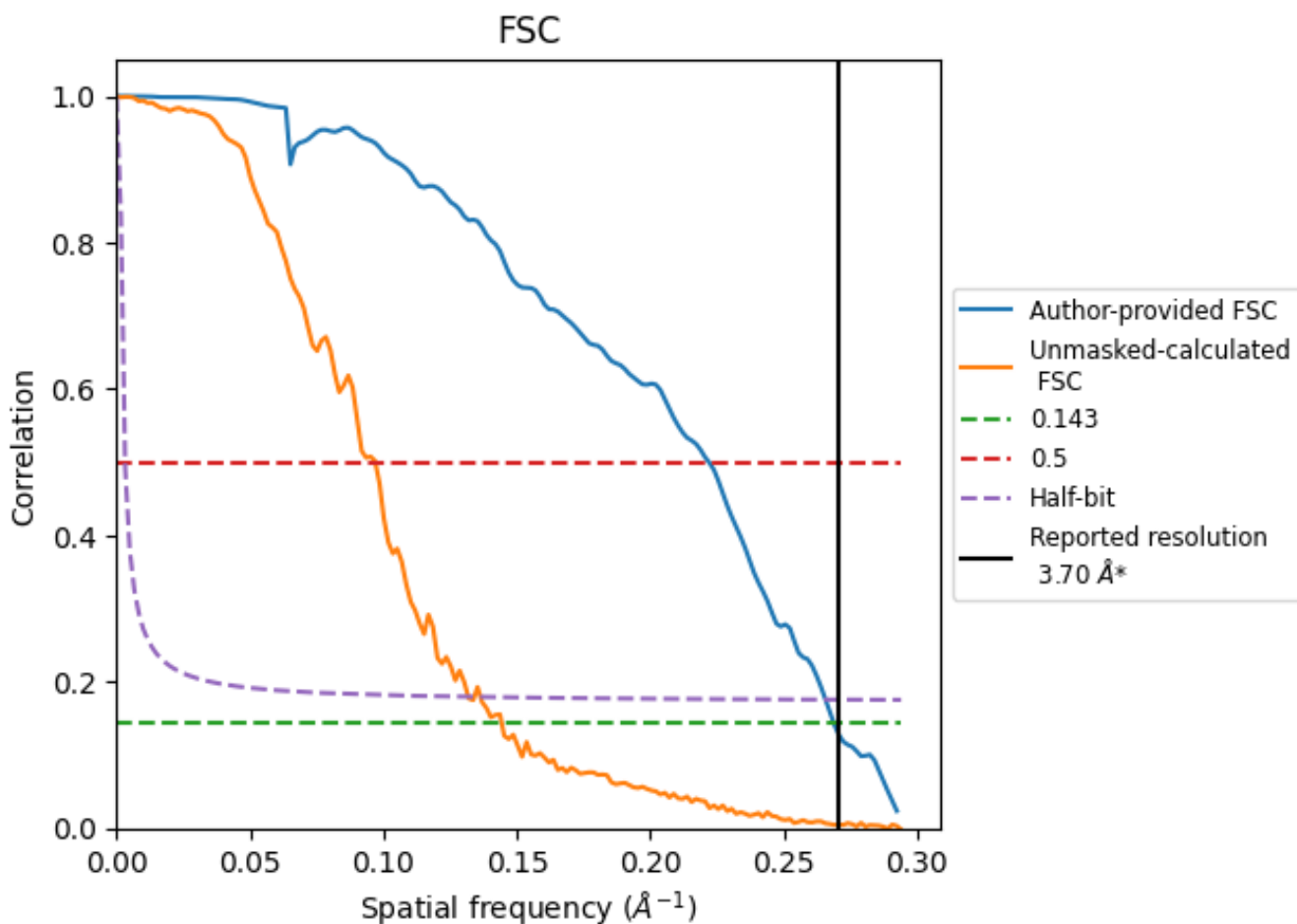


*Reported resolution corresponds to spatial frequency of 0.270 Å⁻¹

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 0.270 Å⁻¹

8.2 Resolution estimates [i](#)

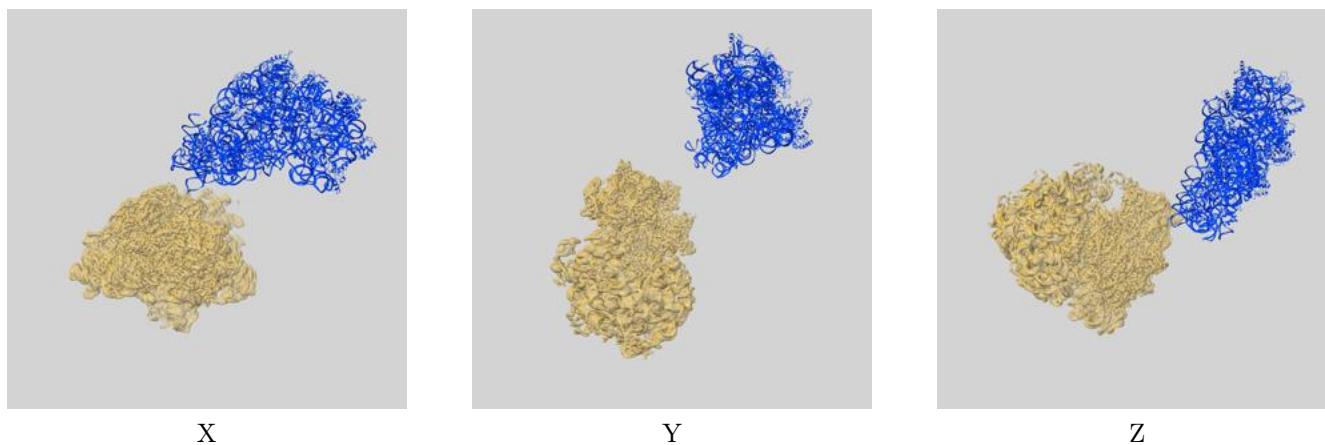
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	3.72	4.51	3.76
Unmasked-calculated*	6.93	10.31	7.59

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 6.93 differs from the reported value 3.7 by more than 10 %

9 Map-model fit [i](#)

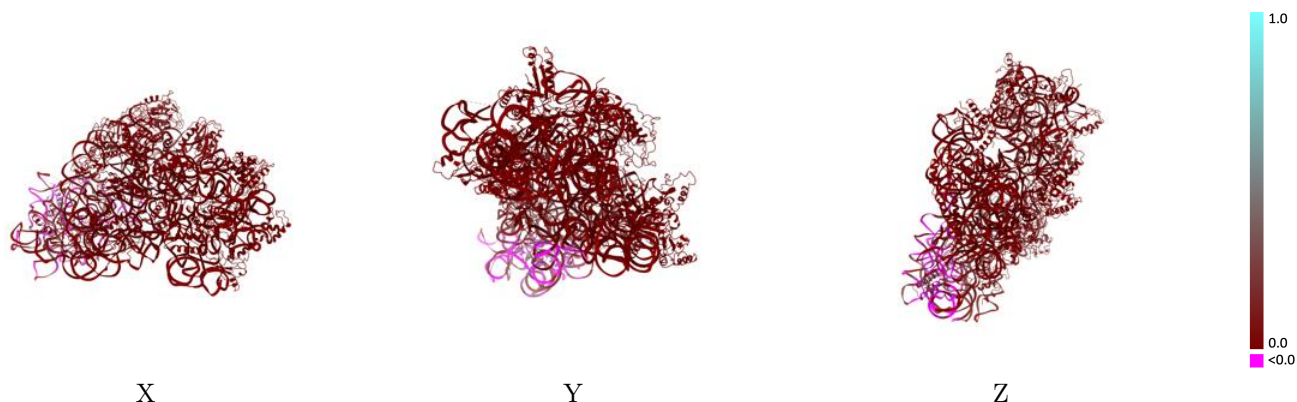
This section contains information regarding the fit between EMDB map EMD-11998 and PDB model 7OOC. Per-residue inclusion information can be found in section [3](#) on page [8](#).

9.1 Map-model overlay [i](#)



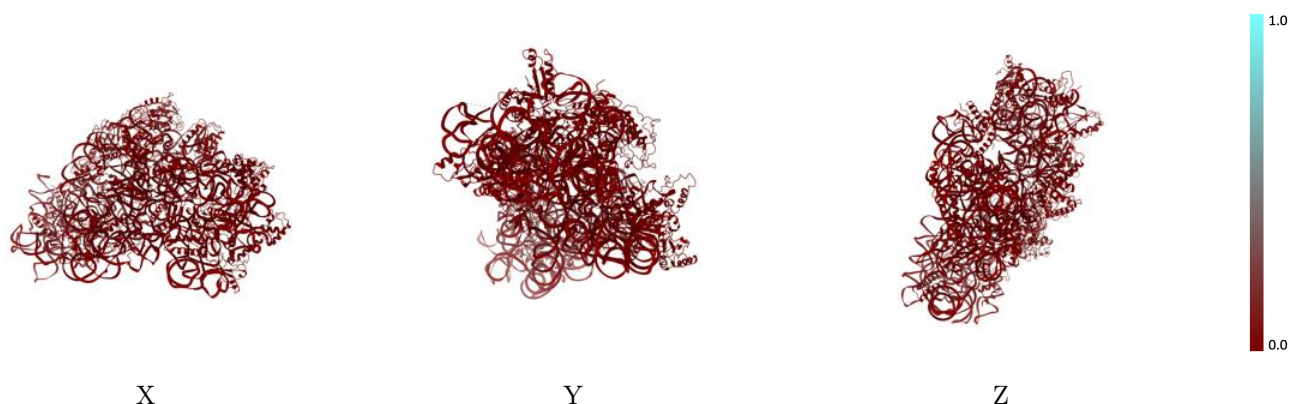
The images above show the 3D surface view of the map at the recommended contour level 0.0023 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



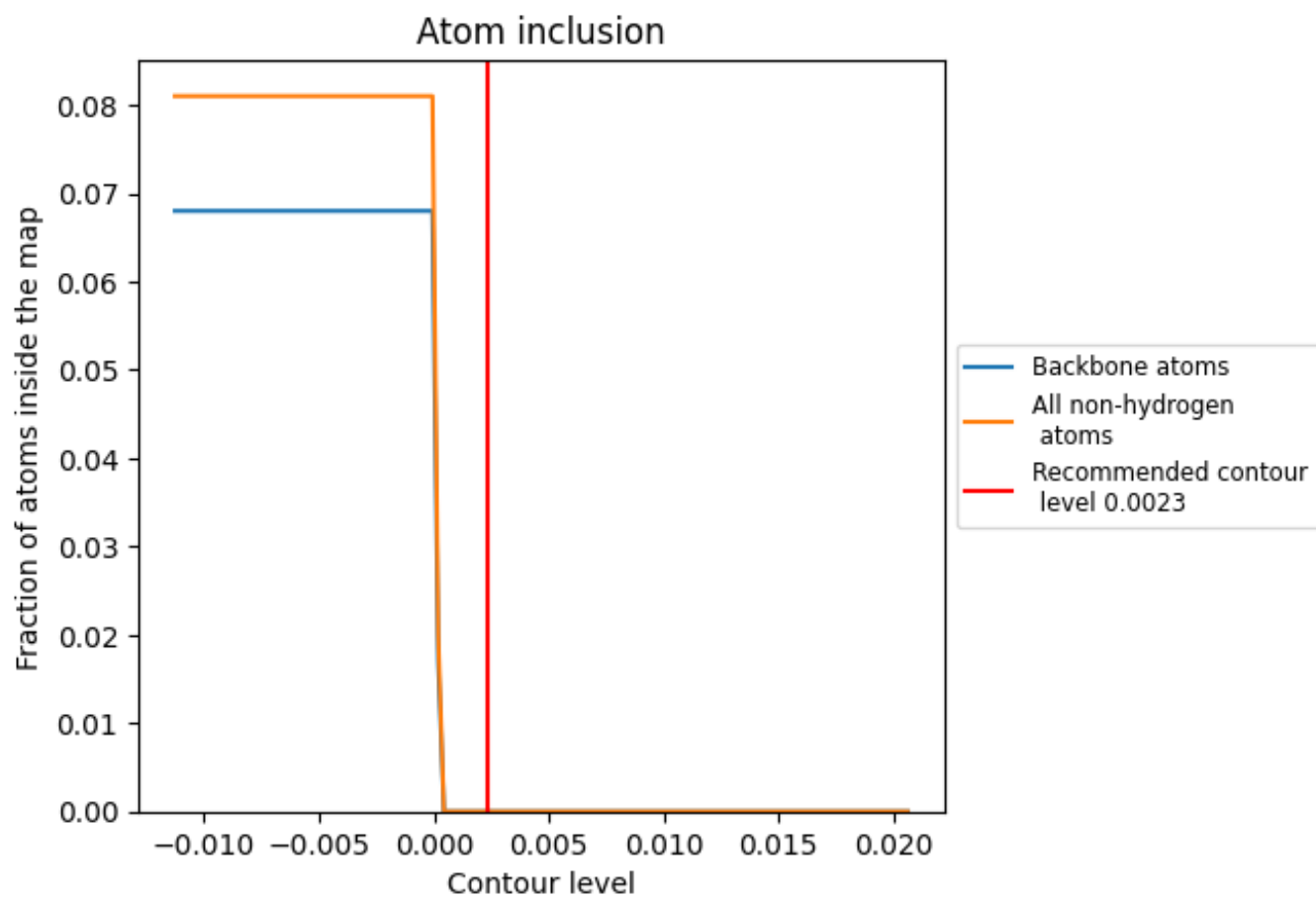
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0023).













































9.4 Atom inclusion [i](#)



At the recommended contour level, 0% of all backbone atoms, 0% 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 (0.0023) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.0000	 -0.0000
5	 0.0000	 -0.0010
A	 0.0000	 0.0000
B	 0.0000	 0.0000
C	 0.0000	 0.0000
D	 0.0000	 0.0000
E	 0.0000	 0.0000
F	 0.0000	 0.0000
G	 0.0000	 0.0000
H	 0.0000	 0.0000
I	 0.0000	 0.0000
J	 0.0000	 0.0000
K	 0.0000	 0.0000
L	 0.0000	 0.0000
M	 0.0000	 0.0000
N	 0.0000	 0.0000
O	 0.0000	 0.0000
P	 0.0000	 -0.0030
Q	 0.0000	 0.0000
R	 0.0000	 0.0000
S	 0.0000	 0.0250
T	 0.0000	 0.0000

