wwPDB EM Validation Summary Report ⓘ

Nov 3, 2025 – 02:23 PM EST

PDB ID	:	9P4I / pdb_00009p4i
EMDB ID	:	EMD-71268
Title	:	YsxC-GTP treated 44.5SYsxC particles. Class 5.
Authors	:	Ortega, J.; Seffouh, A.
Deposited on	:	2025-06-16
Resolution	:	2.80 Å(reported)

The following versions of software and data (see references ⓘ) were used in the production of this report:

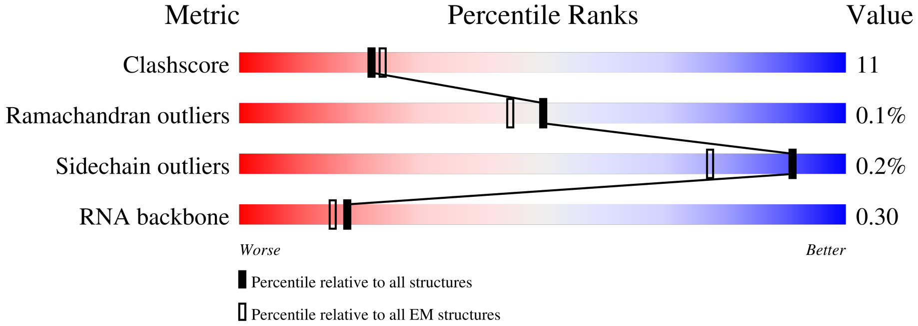
EMDB validation analysis	:	0.0.1.dev129
MolProbity	:	4-5-2 with Phenix2.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

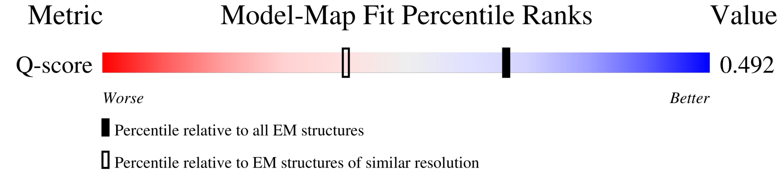
1 Overall quality at a glance

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

The reported resolution of this entry is 2.80 Å.

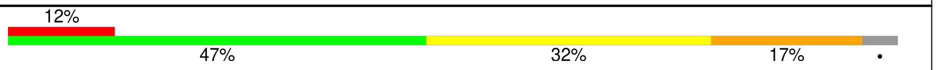
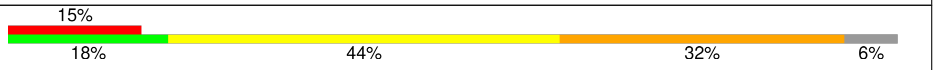
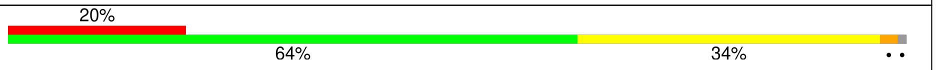
Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.





Metric	**Whole archive (#Entries)**	**EM structures (#Entries)**	**Similar EM resolution (#Entries, resolution range(Å))**
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	11806 (2.30 - 3.30)

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 <=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	2927	
2	B	119	
3	C	277	

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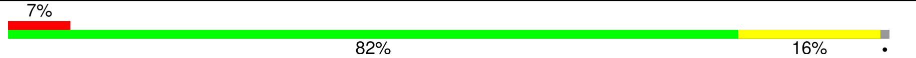
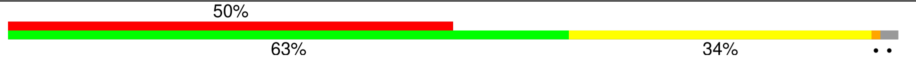
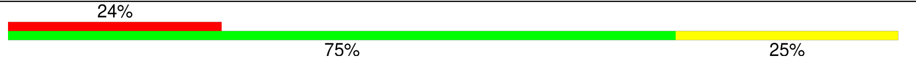
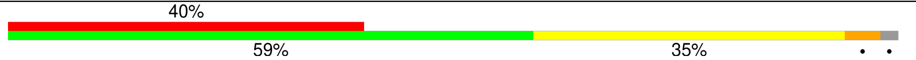
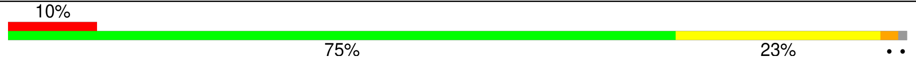
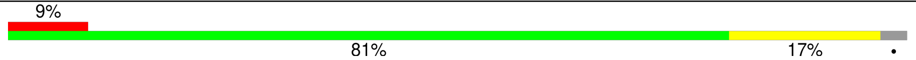
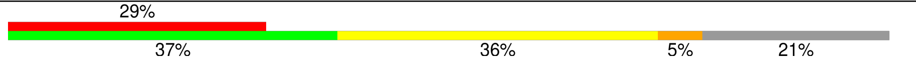
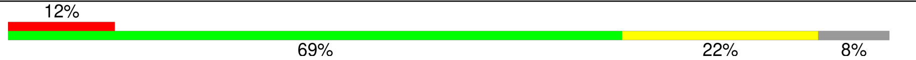
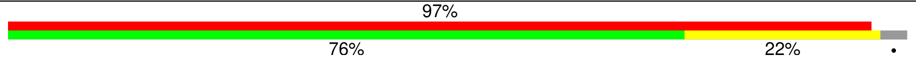
Mol	Chain	Length	Quality of chain
4	D	209	
5	E	207	
6	G	179	
7	J	145	
8	K	122	
9	L	146	
10	N	120	
11	O	120	
12	P	115	
13	Q	118	
14	R	102	
15	S	113	
16	T	95	
17	U	103	
18	V	94	
19	Y	66	
20	Z	59	
21	b	59	
22	d	44	
23	f	37	

2 Entry composition ⓘ

There are 23 unique types of molecules in this entry. The entry contains 82115 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 RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	2818	60508	26994	11168	19528	2818	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	267	C	U	conflict	GB 2210155072
A	1558	C	G	conflict	GB 2210155072

- Molecule 2 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	112	2395	1068	435	780	112	0	0

- Molecule 3 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	275	2111	1312	416	377	6	0	0

- Molecule 4 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	207	1575	988	290	292	5	0	0

- Molecule 5 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	205	1561	980	289	290	2	0	0

- Molecule 6 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	G	175	Total 1342	C 835	N 248	O 257	S 2	0	0

- Molecule 7 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	J	142	Total 1123	C 710	N 206	O 202	S 5	0	0

- Molecule 8 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	K	122	Total 920	C 571	N 173	O 172	S 4	0	0

- Molecule 9 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	L	146	Total 1081	C 671	N 207	O 201	S 2	0	0

- Molecule 10 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	N	119	Total 953	C 583	N 186	O 180	S 4	0	0

- Molecule 11 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	O	118	Total 892	C 549	N 173	O 169	S 1	0	0

- Molecule 12 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms				AltConf	Trace
12	P	114	Total 936	C 595	N 184	O 157	0	0

- Molecule 13 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	Q	117	Total 940	C 591	N 189	O 156	S 4	0	0

- Molecule 14 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	R	101	Total 786	C 501	N 139	O 146	0	0

- Molecule 15 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	S	109	Total 842	C 525	N 164	O 150	S 3	0	0

- Molecule 16 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	T	93	Total 752	C 472	N 137	O 139	S 4	0	0

- Molecule 17 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	U	100	Total 754	C 473	N 141	O 137	S 3	0	0

- Molecule 18 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	V	74	Total 578	C 359	N 113	O 106	0	0

- Molecule 19 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	Y	65	Total 530	C 328	N 102	O 98	S 2	0	0

- Molecule 20 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	Z	58	455	281	89	84	1	0	0

- Molecule 21 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	b	54	426	262	86	71	7	0	0

- Molecule 22 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	d	44	367	222	89	54	2	0	0

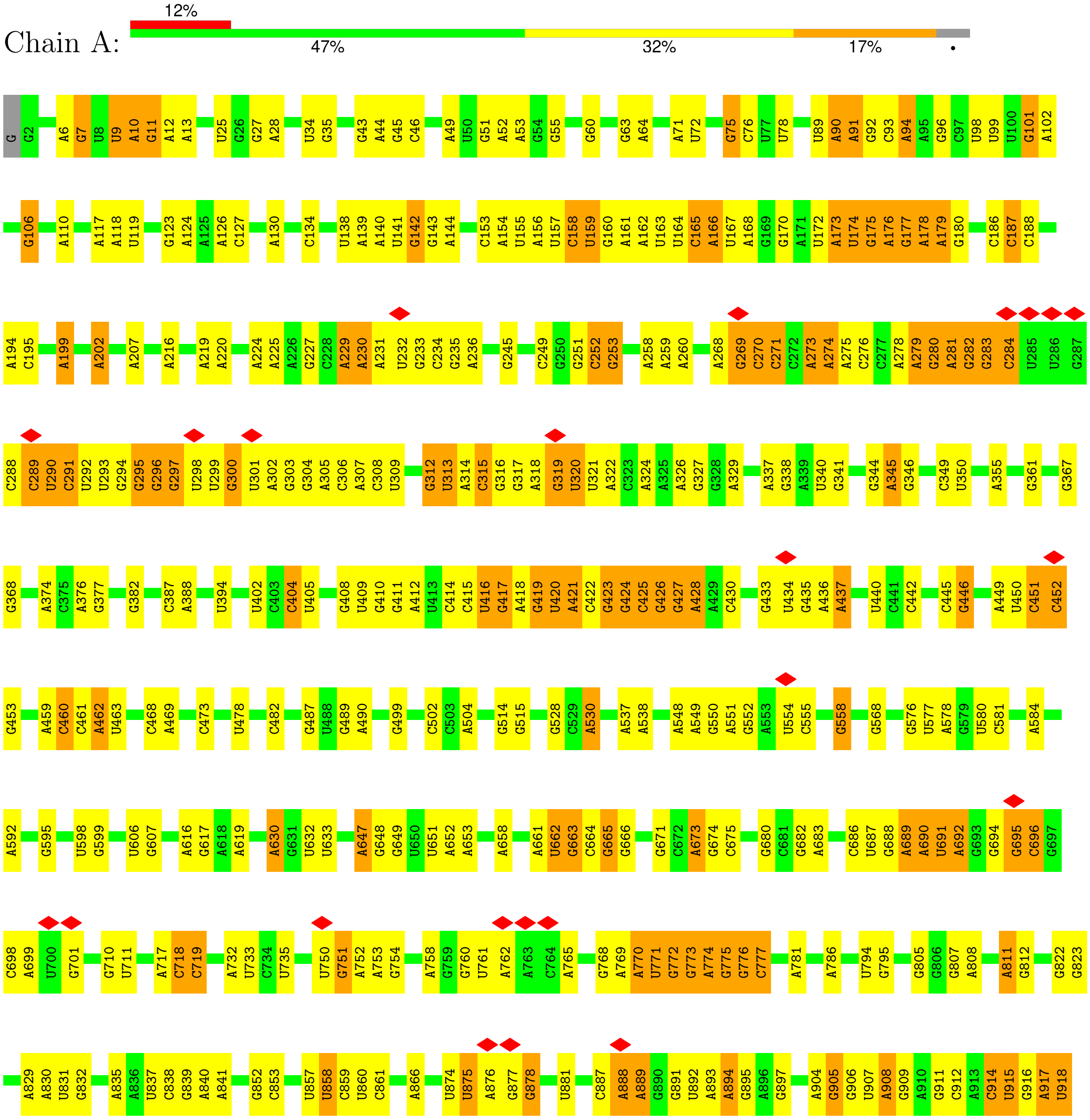
- Molecule 23 is a protein called Large ribosomal subunit protein bL36.

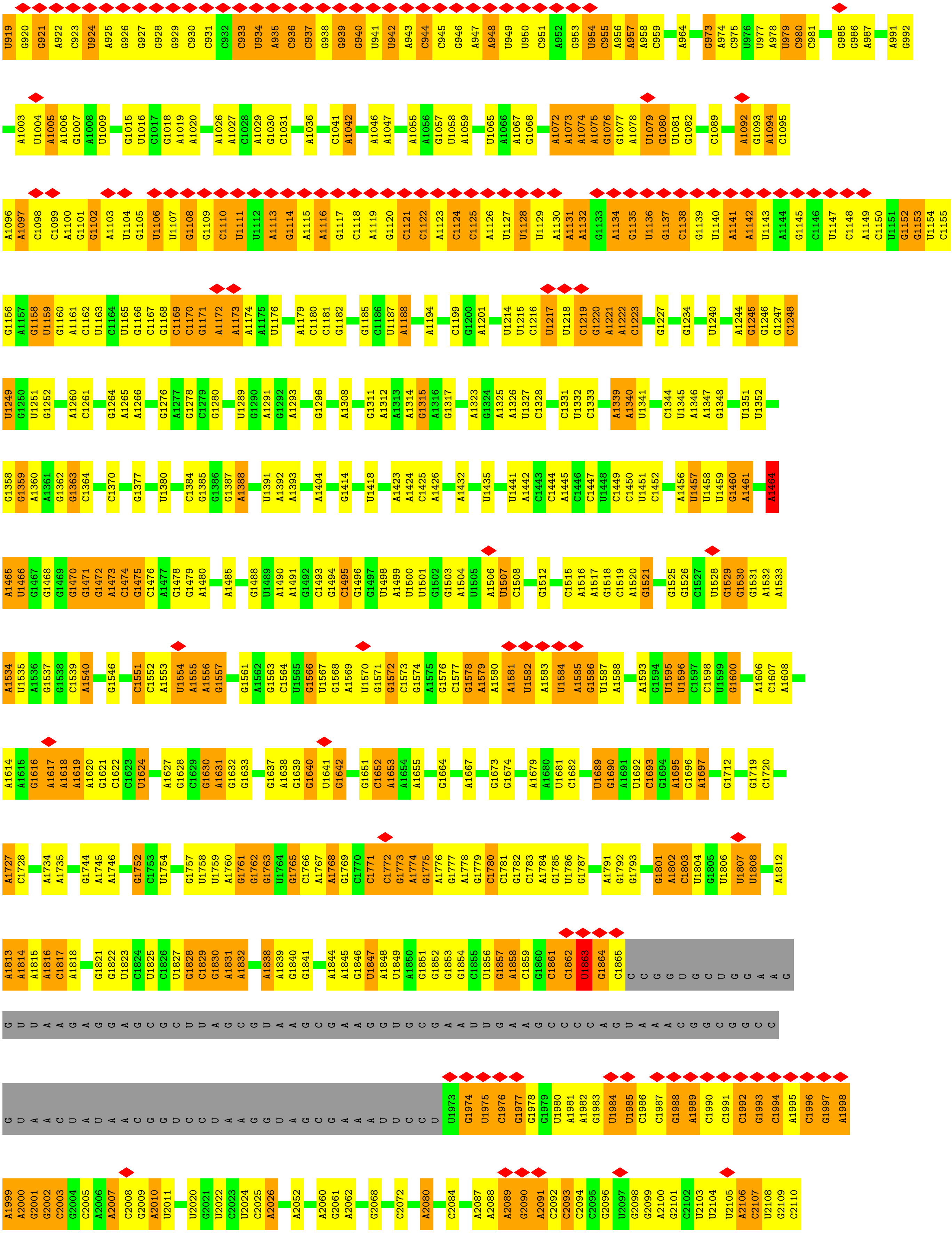
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	f	36	288	181	59	44	4	0	0

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: 23S rRNA

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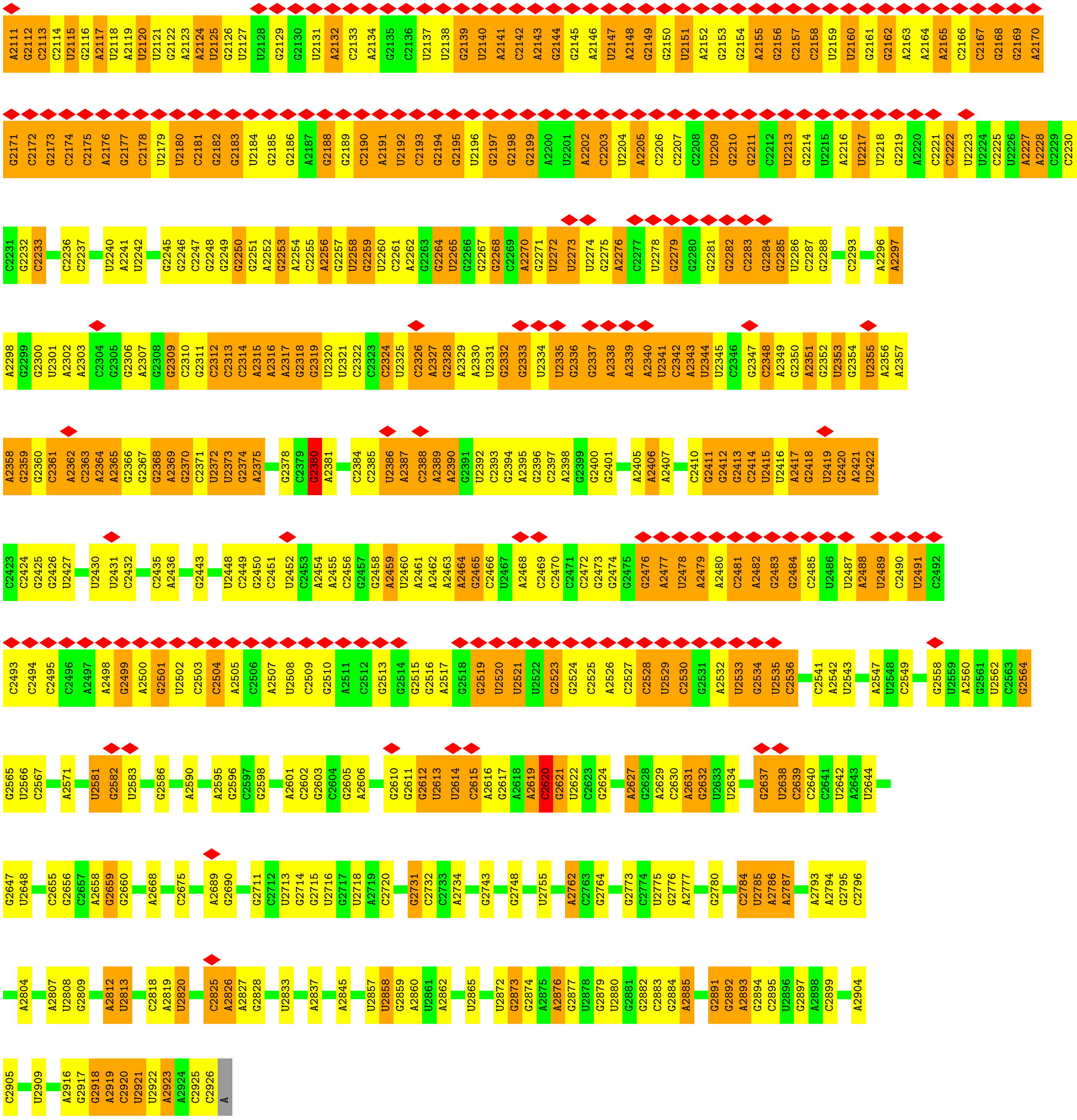
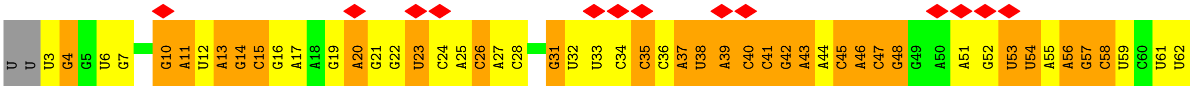
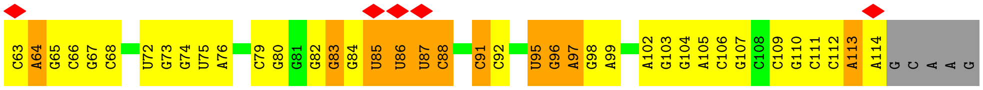
A1003 U1004 A1005 A1006 G1007 A1008 U1009 G1015 U1016 C1017 G1018 A1019 A1020 A1026 A1027 C1028 A1029 G1030 C1031 A1036 C1041 A1042 A1046 A1047 A1055 A1056 G1057 U1058 A1059 U1065 A1066 A1067 G1068 A1072 A1073 A1074 A1075 G1076 G1077 A1078 U1079 G1080 U1081 G1082 C1089 A1092 G1093 A1094 C1095
A1096 A1097 C1098 C1099 A1100 G1101 G1102 A1103 U1104 G1105 U1106 U1107 G1108 G1109 C1110 U1111 U1112 A1113 G1114 A1115 A1116 G1117 C1118 A1119 G1120 C1121 C1122 A1123 C1124 C1125 A1126 U1127 U1128 U1129 A1130 A1131 A1132 G1133 A1134 G1135 U1136 G1137 C1138 G1139 U1140 A1141 A1142 U1143 A1144 G1145 C1146 U1147 C1148 A1149 C1150 U1151 G1152 G1153 U1154 C1155
G1156 A1157 G1158 U1159 G1160 A1161 C1162 U1163 C1164 U1165 G1166 C1167 G1168 C1169 C1170 G1171 A1172 A1173 A1174 A1175 U1176 A1179 C1180 C1181 G1182 G1185 C1186 U1187 A1188 A1194 C1199 G1200 A1201 U1214 U1215 C1216 U1217 U1218 C1219 G1220 A1221 A1222 C1223 G1227 G1234 U1240 A1244 G1245 G1246 G1247 C1248
U1249 G1250 U1251 G1252 A1260 C1261 G1264 A1265 A1266 G1276 A1277 G1278 C1279 G1280 U1289 G1290 A1291 G1292 A1293 G1296 A1308 G1311 U1312 A1313 A1314 G1315 A1316 G1317 A1323 G1324 A1325 A1326 U1327 C1328 C1331 U1332 C1333 A1339 A1340 U1341 C1344 U1345 A1346 A1347 G1348 U1351 U1352
G1358 G1359 A1360 A1361 G1362 G1363 C1364 C1370 G1377 U1380 C1384 G1385 G1386 G1387 A1388 U1391 A1392 A1393 A1404 G1414 U1418 A1423 A1424 C1425 A1426 A1432 U1435 U1441 A1442 C1443 C1444 A1445 C1446 C1447 U1448 C1449 C1450 U1451 C1452 A1456 U1457 U1458 U1459 G1460 A1461 A1464
A1465 U1466 G1467 G1468 G1469 G1470 G1471 G1472 A1473 C1474 G1475 C1476 A1477 G1478 G1479 A1480 A1485 G1488 U1489 A1490 A1491 G1492 C1493 G1494 C1495 G1496 G1497 U1498 A1499 U1500 U1501 G1502 G1503 A1504 U1505 A1506 U1507 C1508 G1512 C1515 A1516 A1517 G1518 C1519 A1520 G1521 G1525 C1526 C1527 U1528 G1529 G1530 G1531 A1532 A1533
A1534 U1535 A1536 G1537 G1538 C1539 A1540 G1546 C1551 C1552 A1553 U1554 A1555 A1556 G1557 G1561 A1562 C1563 C1564 U1565 G1566 U1567 G1568 A1569 U1570 G1571 G1572 C1573 G1574 A1575 C1576 C1577 G1578 A1579 A1580 A1581 U1582 A1583 U1584 A1585 G1586 U1587 A1588 A1593 G1594 U1595 U1596 C1597 C1598 U1599 G1600 A1606 C1607 A1608
A1614 A1615 G1616 A1617 A1618 A1619 A1620 G1621 C1622 C1623 U1624 A1627 G1628 C1629 G1630 A1631 G1632 G1633 G1637 A1638 G1639 G1640 U1641 G1642 G1651 C1652 A1653 A1654 A1655 G1664 A1667 G1673 G1674 A1679 A1680 U1681 C1682 U1689 G1690 A1691 U1692 C1693 G1694 A1695 G1696 A1697 G1712 G1719 C1720
A1727 C1728 A1734 A1735 G1744 A1745 A1746 G1752 C1753 U1754 G1757 U1758 U1759 A1760 G1761 G1762 G1763 U1764 C1765 C1766 A1767 A1768 G1769 C1770 C1771 C1772 G1773 A1774 G1775 A1776 G1777 A1778 G1779 C1780 C1781 G1782 C1783 A1784 G1785 U1786 G1787 A1791 G1792 G1793 G1801 A1802 C1803 U1804 G1805 U1806 U1807 U1808 A1812
A1813 A1814 A1815 A1816 C1817 A1818 G1821 G1822 U1823 C1824 U1825 C1826 U1827 G1828 C1829 G1830 A1831 A1832 A1838 A1839 G1840 G1841 A1844 A1845 G1846 U1847 A1848 U1849 A1850 G1851 G1852 G1853 G1854 C1855 U1856 G1857 A1858 C1859 G1860 C1861 C1862 U1863 G1864 C1865 C C G G U G C U G G A A G
G U U A A G A G G A G C G C U U A G C G U A A G C G A A G G U G C G A A U U G A A G C C C C A G U A A A C G G C G G C C
G U A A C U A U A A C G G U C C U A A G G U A G C G A A A U U C C U U1973 G1974 U1975 C1976 G1977 G1978 G1979 U1980 A1981 A1982 G1983 U1984 U1985 C1986 C1987 G1988 A1989 C1990 C1991 C1992 G1993 C1994 A1995 C1996 G1997 A1998
A1999 A2000 G2001 G2002 C2003 G2004 C2005 A2006 A2007 C2008 G2009 A2010 U2011 U2020 G2021 U2022 C2023 U2024 C2025 A2026 A2052 A2060 G2061 A2062 G2068 C2072 A2080 C2084 A2087 A2088 A2089 G2090 A2091 C2092 C2093 C2094 C2095 G2096 U2097 G2098 G2099 A2100 G2101 C2102 U2103 U2104 U2105 A2106 C2107 U2108 G2109 C2110



• Molecule 2: 5S rRNA

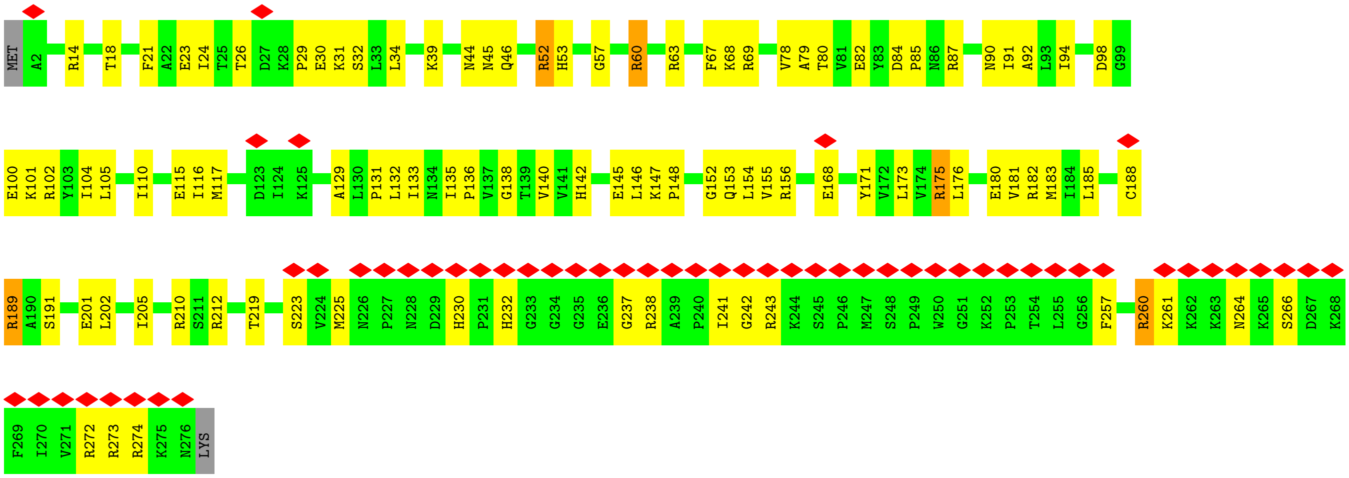
Chain B:





- Molecule 3: 50S ribosomal protein L2

Chain C:

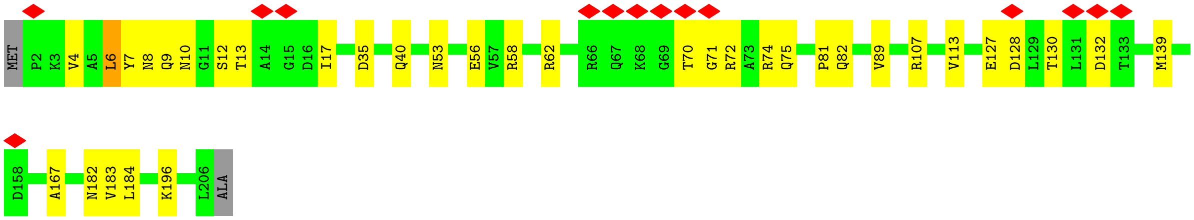


- Molecule 4: 50S ribosomal protein L3

Chain D:

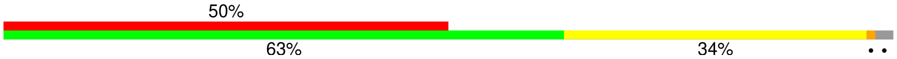
- Molecule 5: 50S ribosomal protein L4

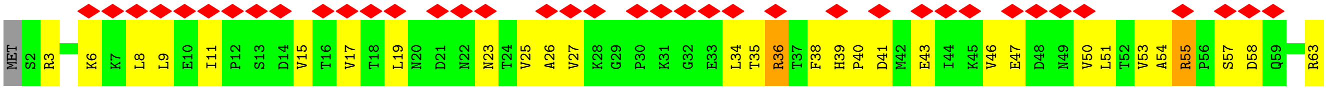
Chain E:

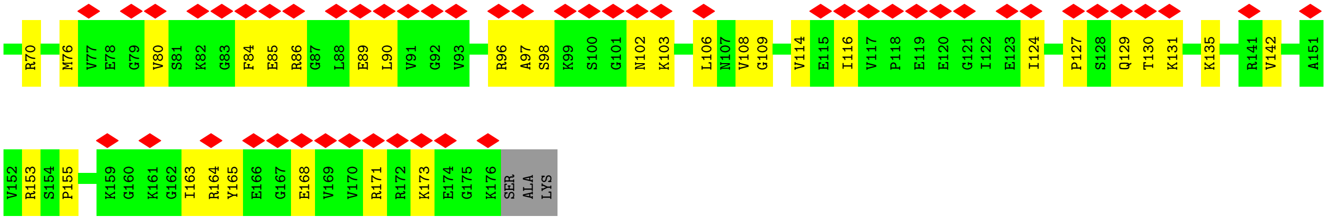


- Molecule 6: 50S ribosomal protein L6

Chain G:

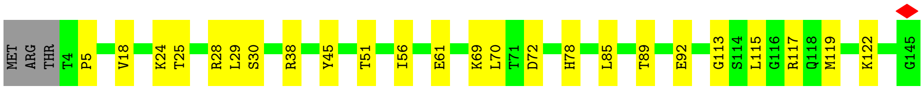






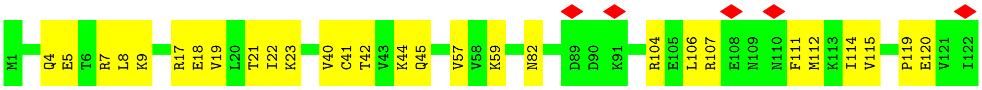
- Molecule 7: 50S ribosomal protein L13

Chain J:



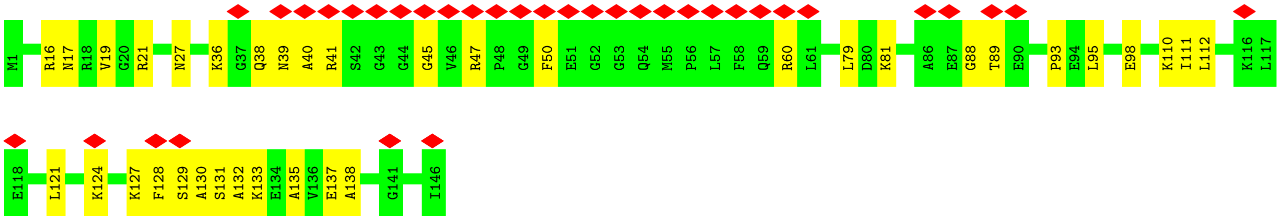
- Molecule 8: 50S ribosomal protein L14

Chain K:



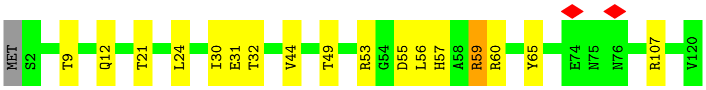
- Molecule 9: 50S ribosomal protein L15

Chain L:



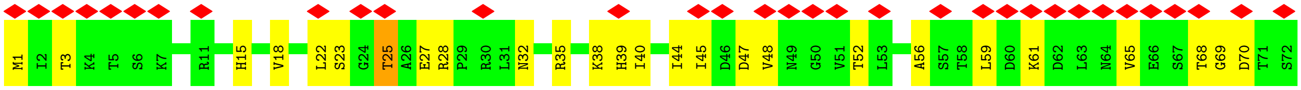
- Molecule 10: 50S ribosomal protein L17

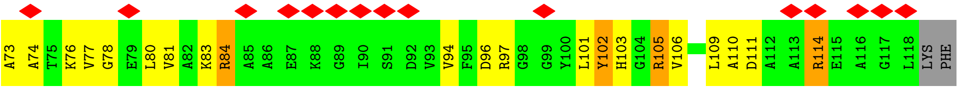
Chain N:



- Molecule 11: 50S ribosomal protein L18

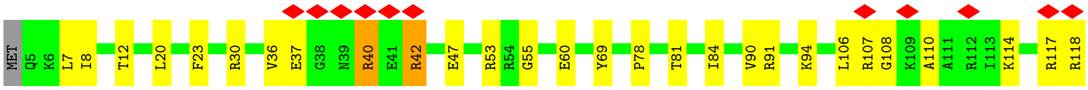
Chain O:





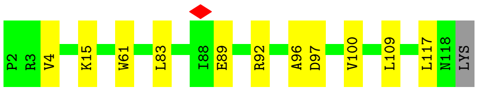
- Molecule 12: 50S ribosomal protein L19

Chain P:



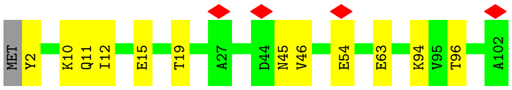
- Molecule 13: 50S ribosomal protein L20

Chain Q:



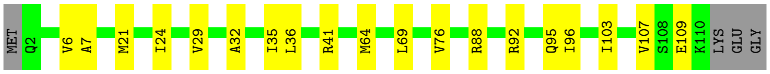
- Molecule 14: 50S ribosomal protein L21

Chain R:



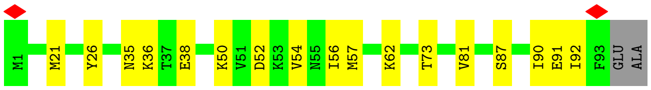
- Molecule 15: 50S ribosomal protein L22

Chain S:



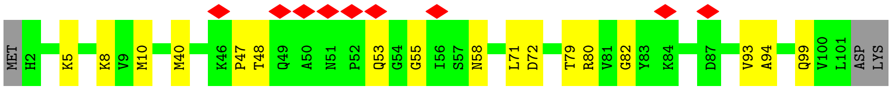
- Molecule 16: 50S ribosomal protein L23

Chain T:



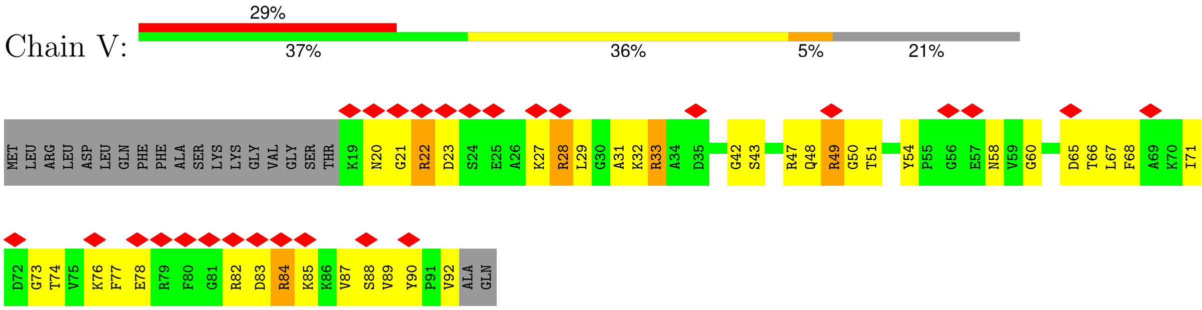
- Molecule 17: 50S ribosomal protein L24

Chain U:



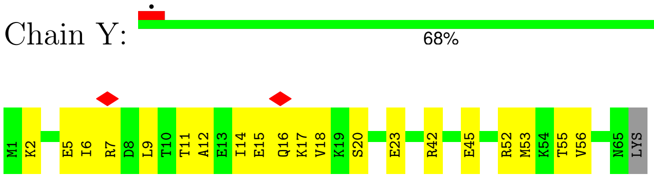
- Molecule 18: 50S ribosomal protein L27

Chain V:



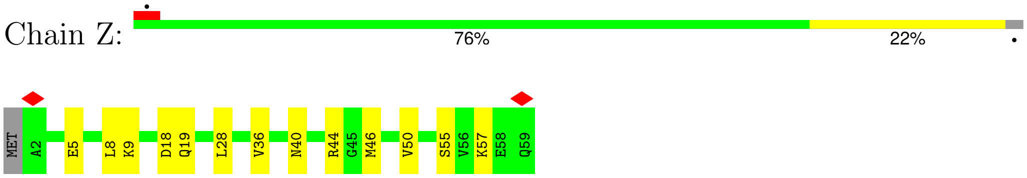
- Molecule 19: 50S ribosomal protein L29

Chain Y:



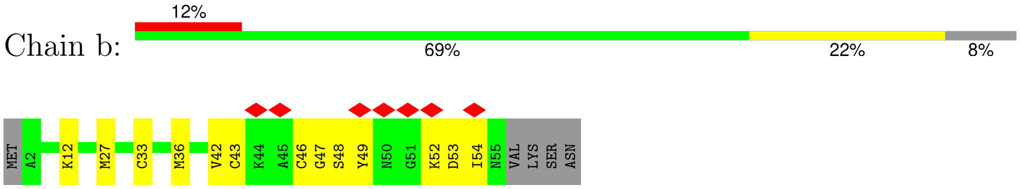
- Molecule 20: 50S ribosomal protein L30

Chain Z:



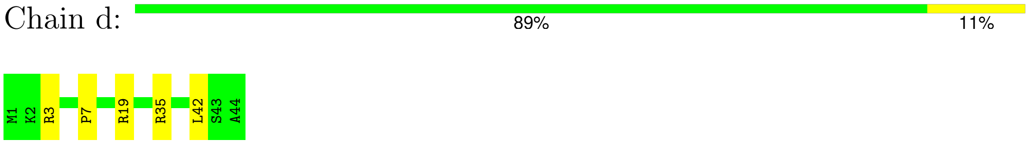
- Molecule 21: 50S ribosomal protein L32

Chain b:



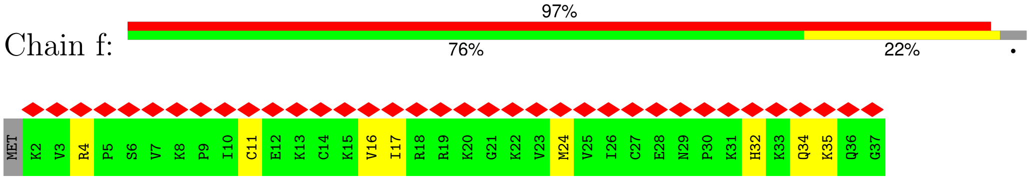
- Molecule 22: 50S ribosomal protein L34

Chain d:



- Molecule 23: Large ribosomal subunit protein bL36

Chain f:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	113285	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	40	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.314	Depositor
Minimum map value	-0.104	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.014	Depositor
Recommended contour level	0.066	Depositor
Map size (Å)	383.04, 383.04, 383.04	wwPDB
Map dimensions	448, 448, 448	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.855, 0.855, 0.855	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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	0.42	0/67774	0.57	6/105732 (0.0%)
2	B	0.72	0/2678	0.93	0/4174
3	C	0.96	0/2148	1.12	0/2881
4	D	0.40	0/1597	0.54	0/2140
5	E	0.52	0/1580	0.65	0/2132
6	G	0.48	0/1360	0.64	0/1832
7	J	0.30	0/1146	0.37	0/1542
8	K	0.39	0/927	0.56	0/1245
9	L	0.32	0/1093	0.60	0/1457
10	N	0.45	0/960	0.61	0/1284
11	O	0.64	0/900	0.91	1/1209 (0.1%)
12	P	0.38	0/949	0.54	0/1269
13	Q	0.34	0/952	0.47	0/1266
14	R	0.42	0/797	0.59	0/1070
15	S	0.35	0/851	0.51	0/1146
16	T	0.44	0/759	0.69	0/1011
17	U	0.31	0/764	0.57	0/1022
18	V	0.70	0/586	0.96	0/779
19	Y	0.39	0/531	0.71	0/707
20	Z	0.23	0/457	0.38	0/613
21	b	0.27	0/433	0.44	0/574
22	d	0.29	0/370	0.32	0/483
23	f	0.15	0/291	0.39	0/383
All	All	0.45	0/89903	0.61	7/135951 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
3	C	0	13
4	D	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
5	E	0	2
6	G	0	2
7	J	0	1
10	N	0	3
11	O	0	3
12	P	0	2
15	S	0	1
18	V	0	7
All	All	0	37

There are no bond length outliers.

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	2380	G	C3'-C2'-C1'	-6.61	94.89	101.50
1	A	2620	C	O3'-P-O5'	6.09	113.14	104.00
1	A	1863	U	C1'-O4'-C4'	-5.85	103.85	109.70
1	A	2348	C	C2'-C3'-O3'	5.36	117.53	109.50
1	A	2621	G	C3'-C2'-C1'	-5.27	96.23	101.50

There are no chirality outliers.

5 of 37 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	C	14	ARG	Sidechain
3	C	52	ARG	Sidechain
3	C	60	ARG	Sidechain
3	C	63	ARG	Sidechain
3	C	87	ARG	Sidechain

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	60508	0	30450	854	0
2	B	2395	0	1212	61	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	C	2111	0	2200	122	0
4	D	1575	0	1642	31	0
5	E	1561	0	1647	42	0
6	G	1342	0	1388	72	0
7	J	1123	0	1162	17	0
8	K	920	0	977	38	0
9	L	1081	0	1132	35	0
10	N	953	0	983	14	0
11	O	892	0	925	93	0
12	P	936	0	1008	32	0
13	Q	940	0	1005	13	0
14	R	786	0	826	9	0
15	S	842	0	899	16	0
16	T	752	0	802	17	0
17	U	754	0	809	19	0
18	V	578	0	586	42	0
19	Y	530	0	568	29	0
20	Z	455	0	491	13	0
21	b	426	0	445	12	0
22	d	367	0	410	5	0
23	f	288	0	327	4	0
All	All	82115	0	51894	1496	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 11.

The worst 5 of 1496 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)
6:G:46:VAL:CA	6:G:51:LEU:HD22	1.08	1.55
6:G:46:VAL:C	6:G:51:LEU:CD2	1.90	1.43
6:G:46:VAL:C	6:G:51:LEU:HD22	1.42	1.40
6:G:46:VAL:CA	6:G:51:LEU:CD2	2.00	1.36
6:G:47:GLU:N	6:G:51:LEU:CD2	1.89	1.35

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	
3	C	273/277 (99%)	227 (83%)	45 (16%)	1 (0%)	30	61
4	D	205/209 (98%)	191 (93%)	14 (7%)	0	100	100
5	E	203/207 (98%)	179 (88%)	24 (12%)	0	100	100
6	G	173/179 (97%)	155 (90%)	18 (10%)	0	100	100
7	J	140/145 (97%)	128 (91%)	12 (9%)	0	100	100
8	K	120/122 (98%)	105 (88%)	15 (12%)	0	100	100
9	L	144/146 (99%)	119 (83%)	25 (17%)	0	100	100
10	N	117/120 (98%)	107 (92%)	10 (8%)	0	100	100
11	O	116/120 (97%)	92 (79%)	24 (21%)	0	100	100
12	P	112/115 (97%)	101 (90%)	11 (10%)	0	100	100
13	Q	115/118 (98%)	107 (93%)	8 (7%)	0	100	100
14	R	99/102 (97%)	86 (87%)	13 (13%)	0	100	100
15	S	107/113 (95%)	97 (91%)	10 (9%)	0	100	100
16	T	91/95 (96%)	87 (96%)	4 (4%)	0	100	100
17	U	98/103 (95%)	83 (85%)	15 (15%)	0	100	100
18	V	72/94 (77%)	54 (75%)	17 (24%)	1 (1%)	9	30
19	Y	63/66 (96%)	59 (94%)	4 (6%)	0	100	100
20	Z	56/59 (95%)	56 (100%)	0	0	100	100
21	b	52/59 (88%)	47 (90%)	5 (10%)	0	100	100
22	d	42/44 (96%)	39 (93%)	3 (7%)	0	100	100
23	f	34/37 (92%)	27 (79%)	7 (21%)	0	100	100
All	All	2432/2530 (96%)	2146 (88%)	284 (12%)	2 (0%)	50	77

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
18	V	31	ALA
3	C	155	VAL

5.3.2 Protein sidechains ⓘ

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	
3	C	223/225 (99%)	222 (100%)	1 (0%)	89	96
4	D	168/170 (99%)	168 (100%)	0	100	100
5	E	169/170 (99%)	168 (99%)	1 (1%)	84	95
6	G	148/151 (98%)	147 (99%)	1 (1%)	81	94
7	J	120/123 (98%)	120 (100%)	0	100	100
8	K	101/101 (100%)	101 (100%)	0	100	100
9	L	110/110 (100%)	110 (100%)	0	100	100
10	N	99/100 (99%)	98 (99%)	1 (1%)	73	91
11	O	91/93 (98%)	90 (99%)	1 (1%)	70	90
12	P	99/100 (99%)	99 (100%)	0	100	100
13	Q	96/97 (99%)	96 (100%)	0	100	100
14	R	83/84 (99%)	83 (100%)	0	100	100
15	S	90/93 (97%)	90 (100%)	0	100	100
16	T	84/85 (99%)	84 (100%)	0	100	100
17	U	84/87 (97%)	84 (100%)	0	100	100
18	V	58/74 (78%)	58 (100%)	0	100	100
19	Y	56/57 (98%)	56 (100%)	0	100	100
20	Z	52/53 (98%)	52 (100%)	0	100	100
21	b	48/53 (91%)	48 (100%)	0	100	100
22	d	39/39 (100%)	39 (100%)	0	100	100
23	f	34/35 (97%)	34 (100%)	0	100	100
All	All	2052/2100 (98%)	2047 (100%)	5 (0%)	91	97

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

Mol	Chain	Res	Type
3	C	18	THR
5	E	6	LEU
6	G	84	PHE
10	N	57	HIS
11	O	102	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 24 such sidechains are listed below:

Mol	Chain	Res	Type
11	O	32	ASN
12	P	15	GLN
11	O	43	GLN
15	S	95	GLN
4	D	140	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	2816/2927 (96%)	1077 (38%)	82 (2%)
2	B	111/119 (93%)	64 (57%)	8 (7%)
All	All	2927/3046 (96%)	1141 (38%)	90 (3%)

5 of 1141 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	7	G
1	A	9	U
1	A	10	A
1	A	11	G
1	A	13	A

5 of 90 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A	2116	G
1	A	2435	C
1	A	2143	A
1	A	2348	C
1	A	2581	U

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

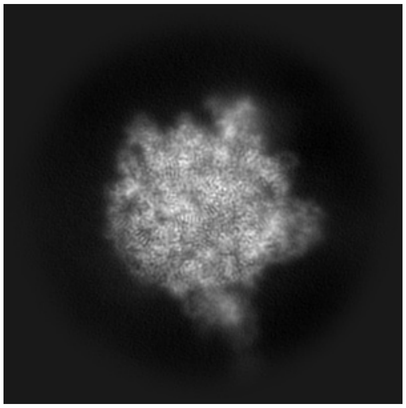
6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-71268. These allow visual inspection of the internal detail of the map and identification of artifacts.

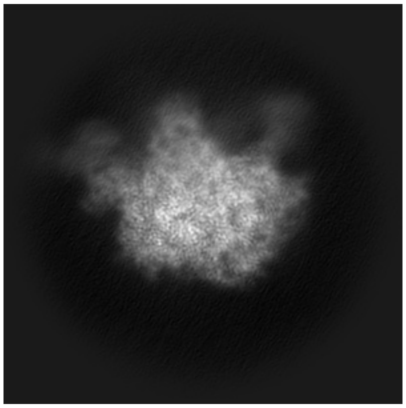
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections ⓘ

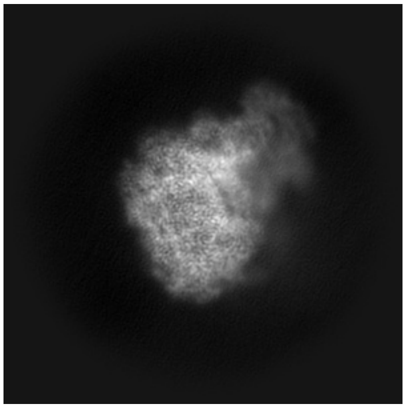
6.1.1 Primary map



X

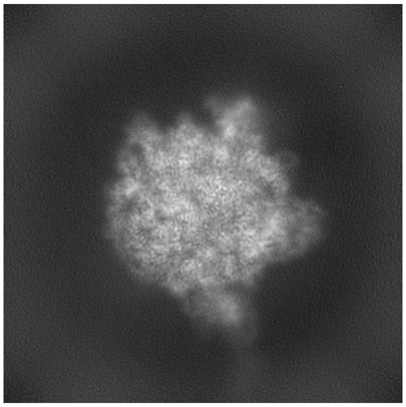


Y

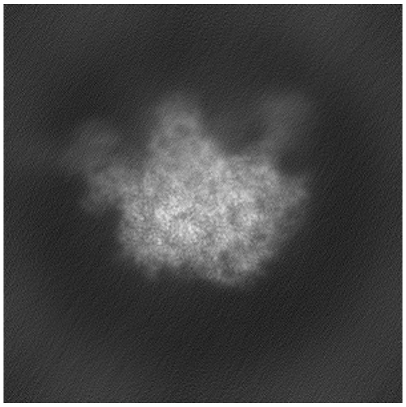


Z

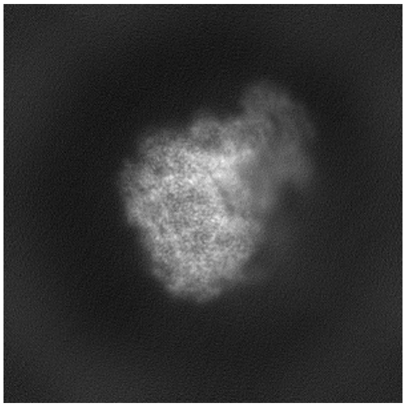
6.1.2 Raw map



X



Y

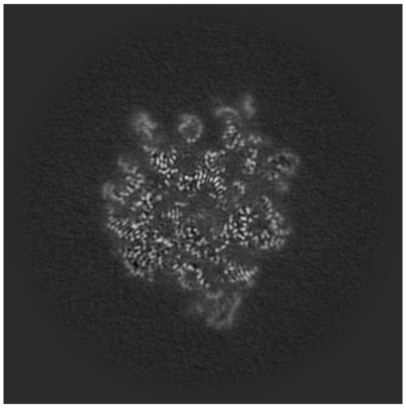


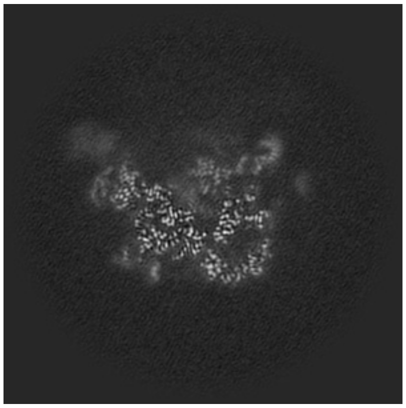
Z

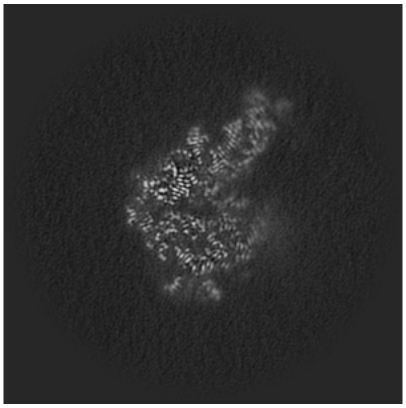
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

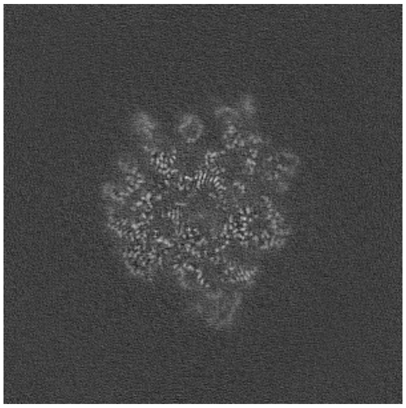
6.2.1 Primary map

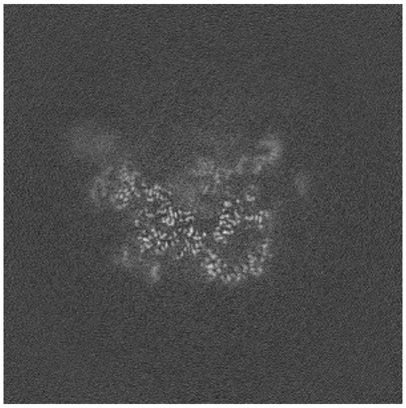

X Index: 224

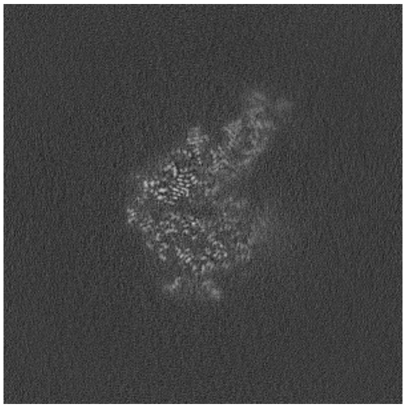

Y Index: 224


Z Index: 224

6.2.2 Raw map


X Index: 224

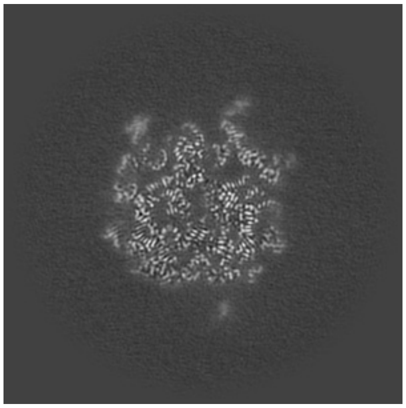

Y Index: 224


Z Index: 224

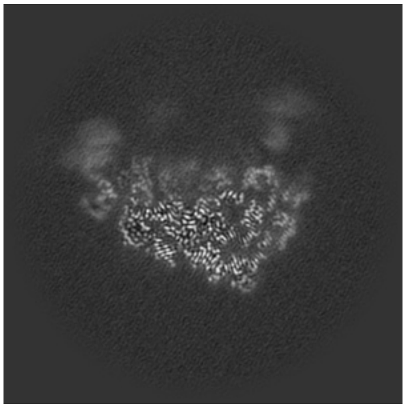
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices ⓘ

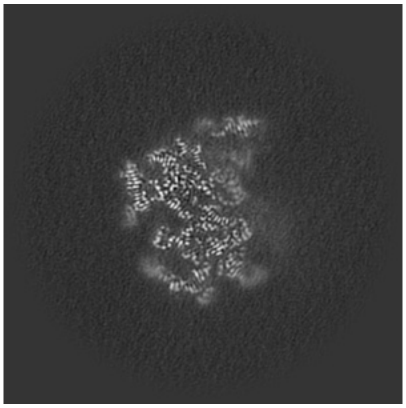
6.3.1 Primary map



X Index: 212

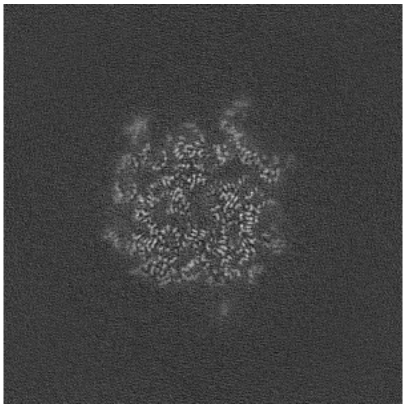


Y Index: 248

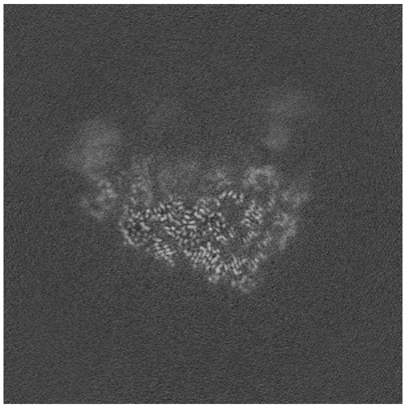


Z Index: 241

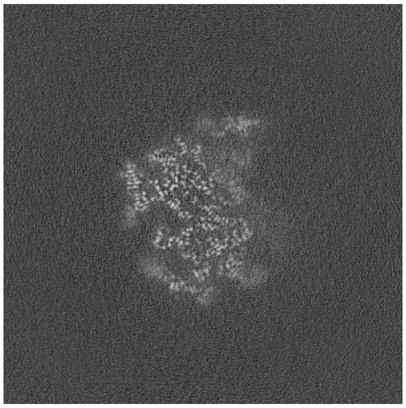
6.3.2 Raw map



X Index: 211



Y Index: 248

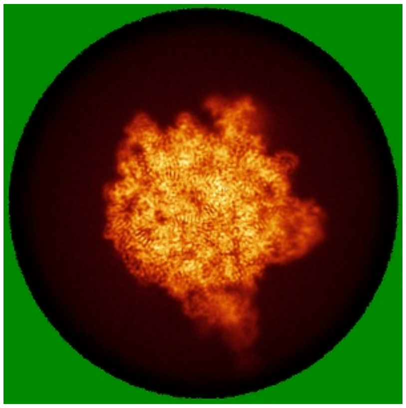


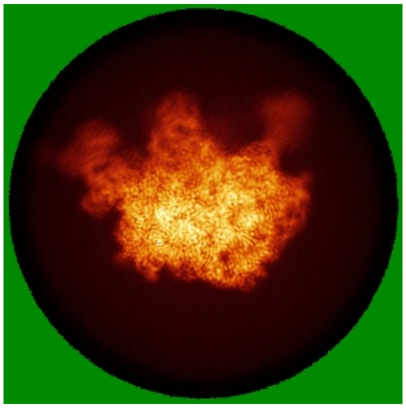
Z Index: 241

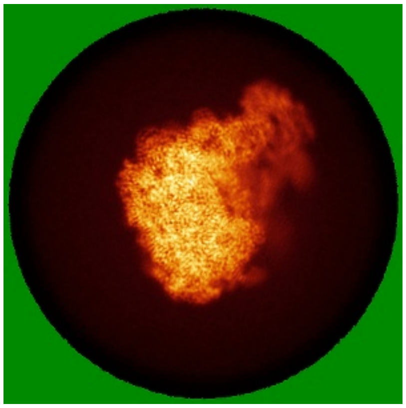
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color)

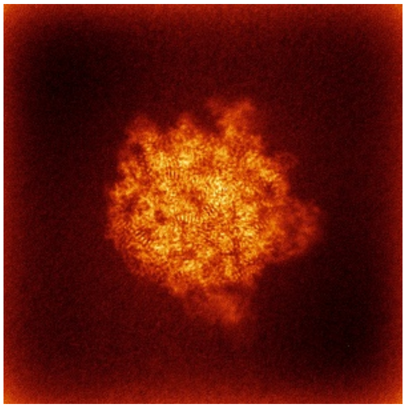
6.4.1 Primary map

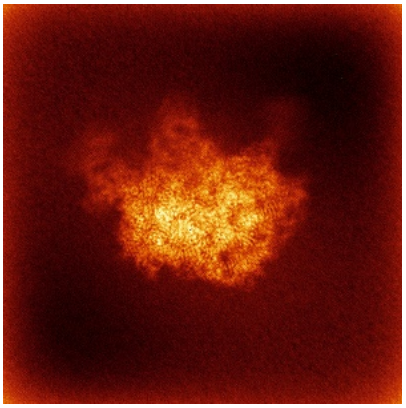

X

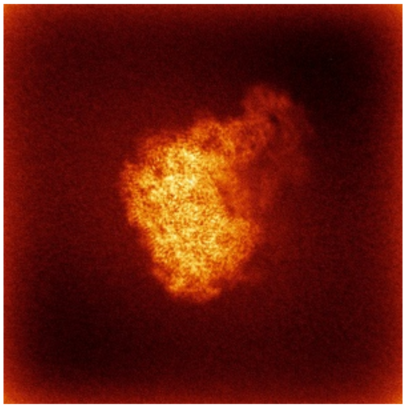

Y


Z

6.4.2 Raw map


X

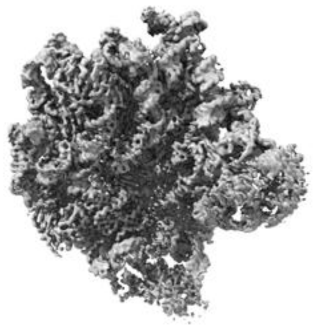

Y


Z

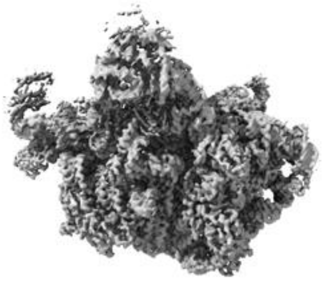
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

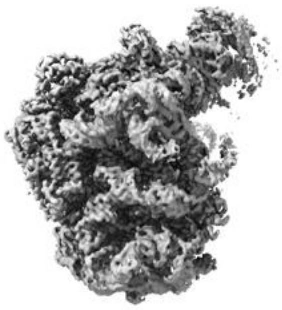
6.5.1 Primary map



X



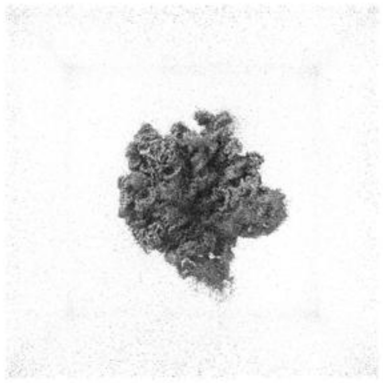
Y



Z

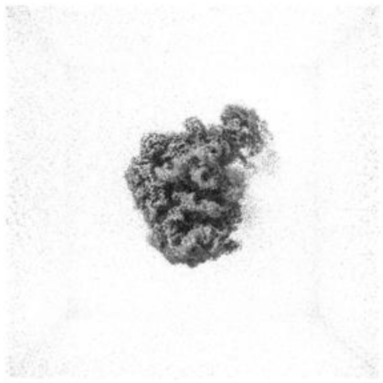
The images above show the 3D surface view of the map at the recommended contour level 0.066. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



X

Y



Z

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.

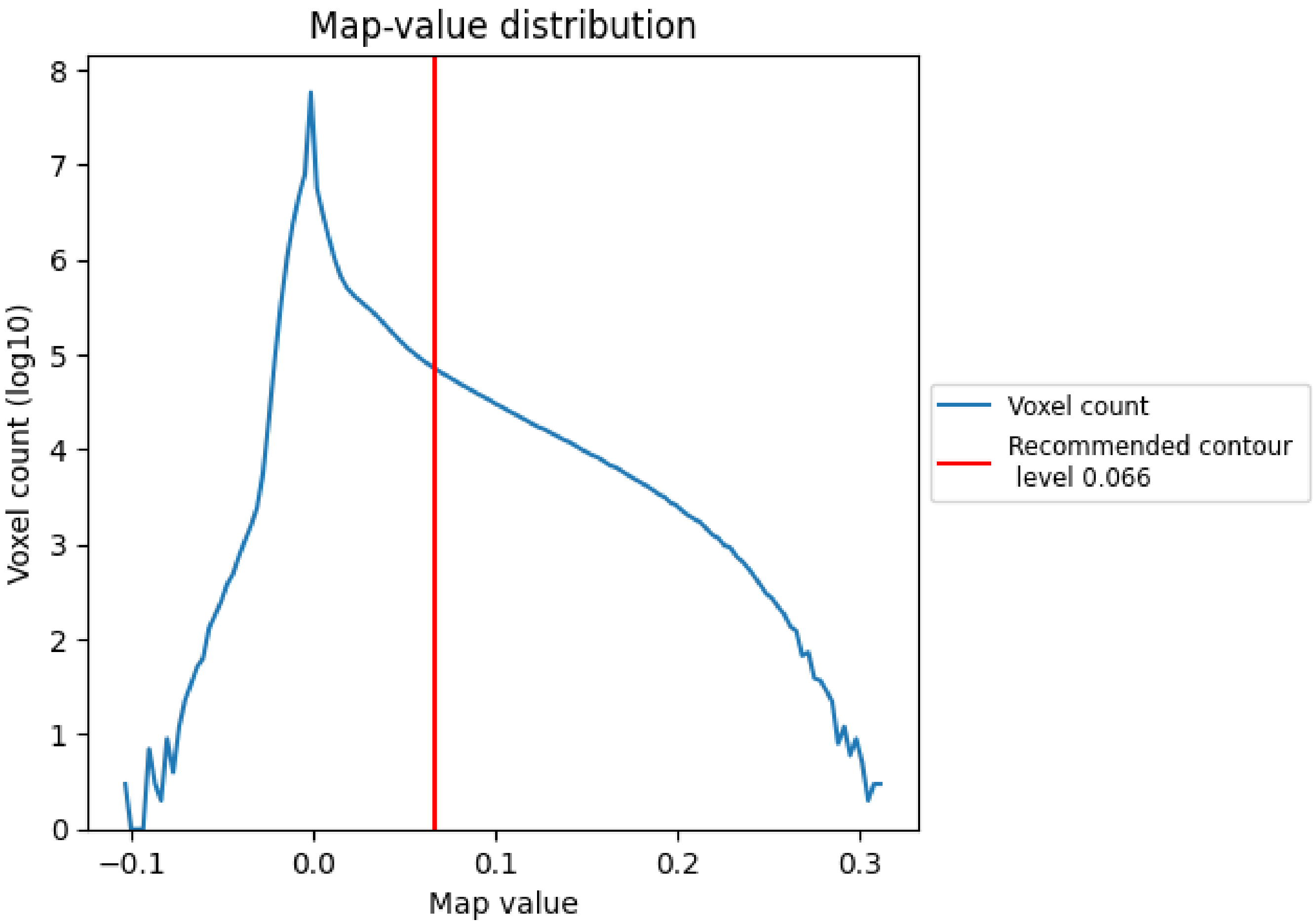
6.6 Mask visualisation ⓘ

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

7 Map analysis (i)

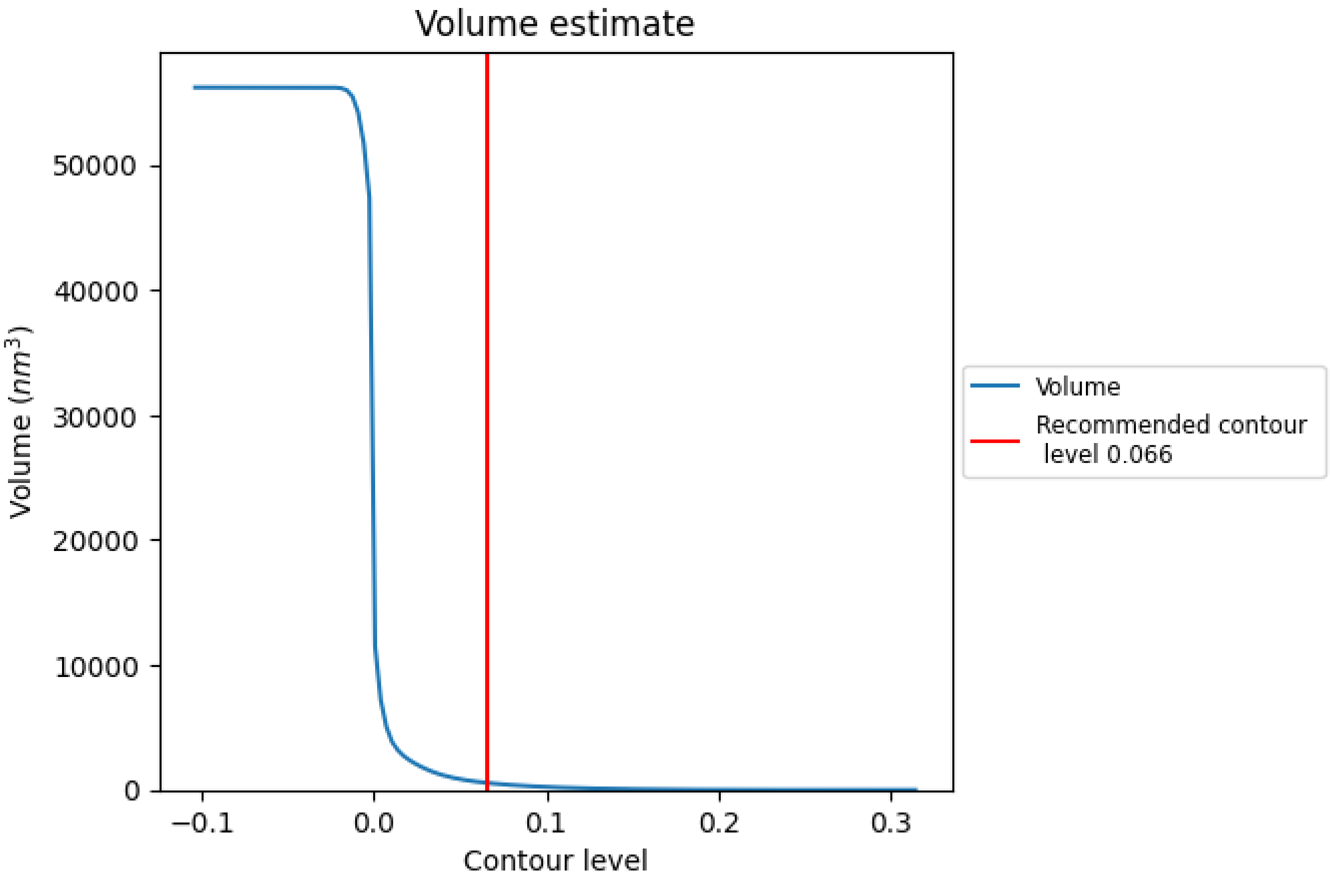
This section contains the results of statistical analysis of the map.

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.

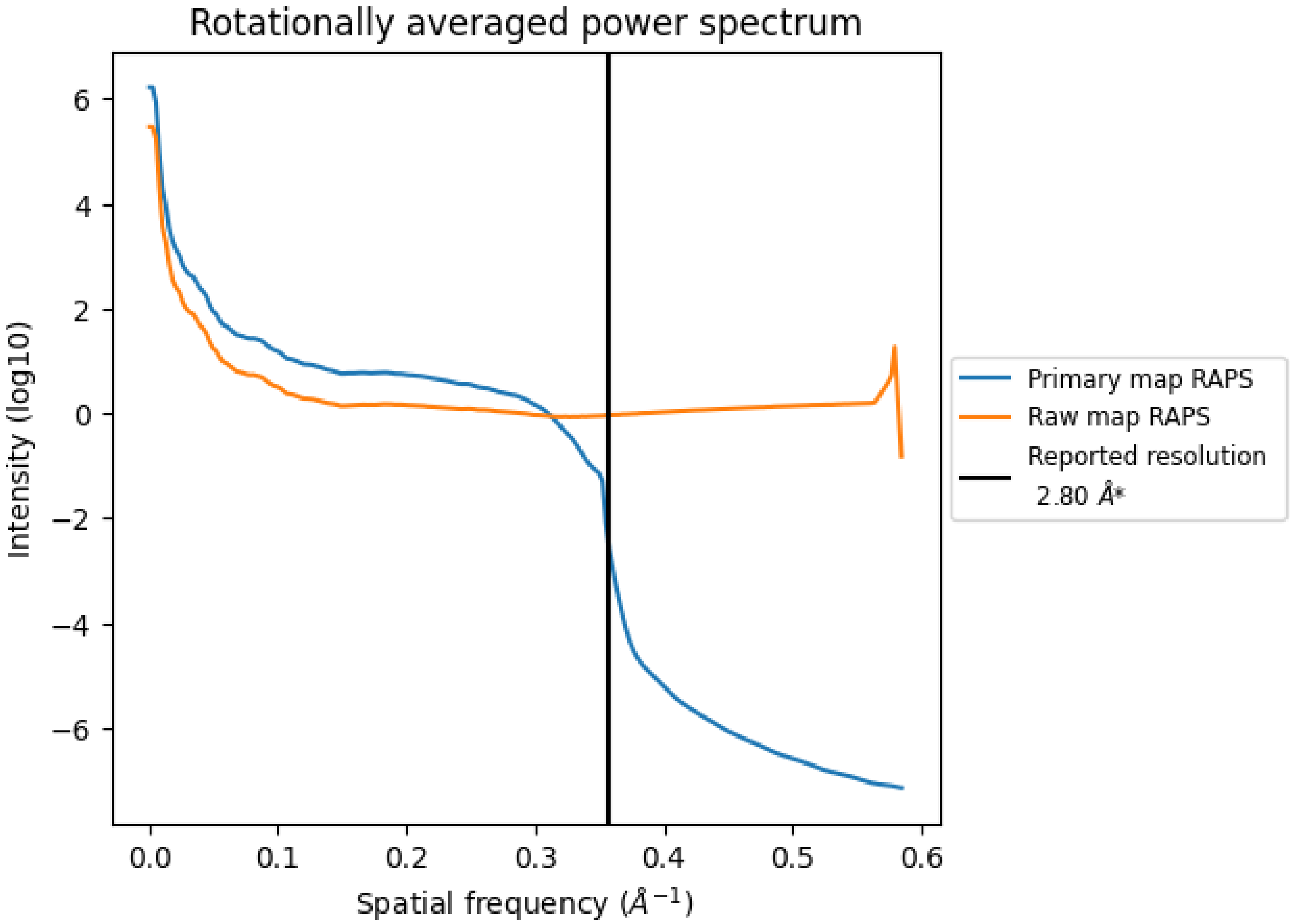
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 558 nm^3; this corresponds to an approximate mass of 504 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 ⓘ

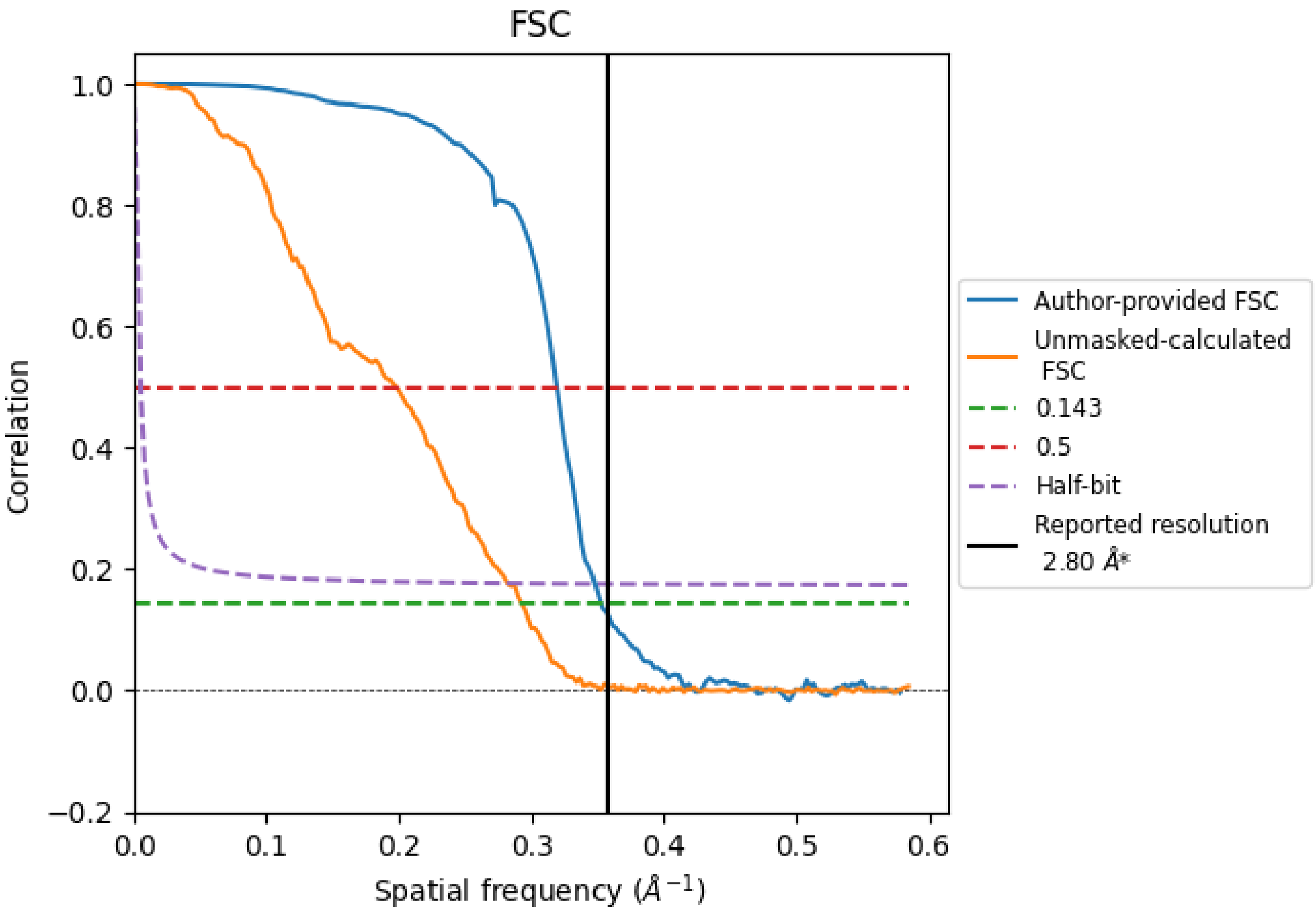


*Reported resolution corresponds to spatial frequency of 0.357 $Å^{-1}$

8 Fourier-Shell correlation ⓘ

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 ⓘ



*Reported resolution corresponds to spatial frequency of 0.357 $Å^{-1}$

8.2 Resolution estimates ⓘ

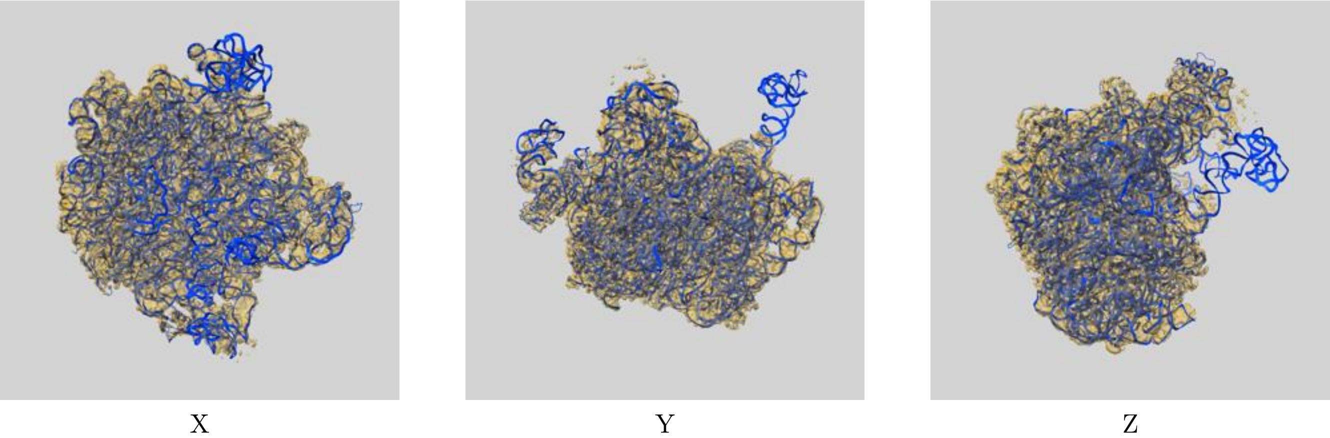
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	2.84	3.13	2.87
Unmasked-calculated*	3.42	5.04	3.54

*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 3.42 differs from the reported value 2.8 by more than 10 %

9 Map-model fit ⓘ

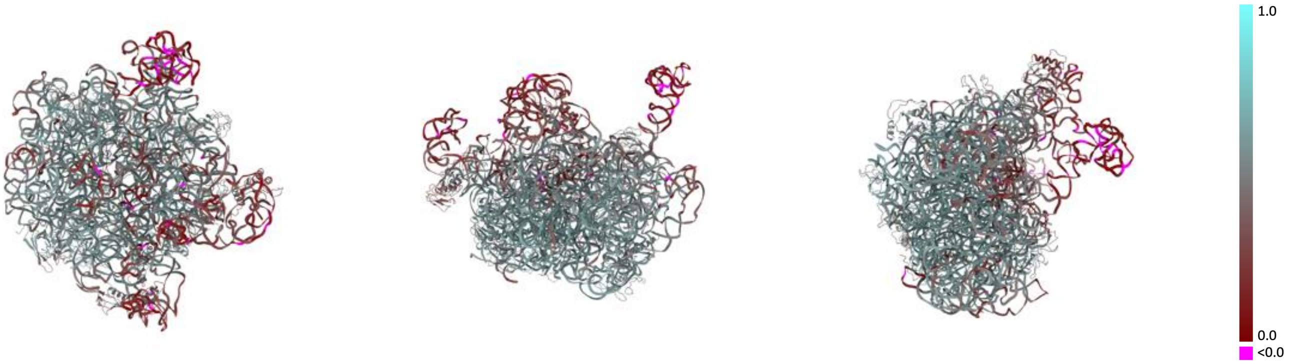
This section contains information regarding the fit between EMDB map EMD-71268 and PDB model 9P4I. Per-residue inclusion information can be found in section 3 on page 8.

9.1 Map-model overlay ⓘ



The images above show the 3D surface view of the map at the recommended contour level 0.066 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.

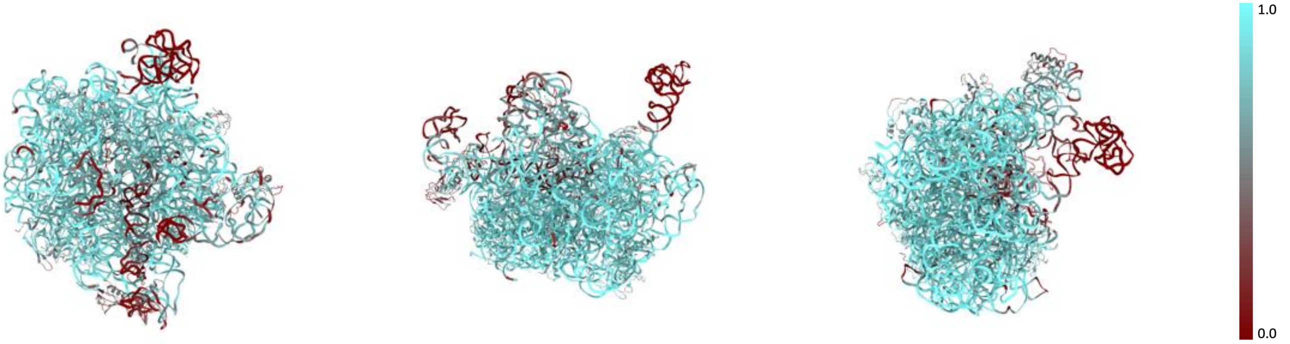
9.2 Q-score mapped to coordinate model ⓘ



X Y Z

The images above show the model with each residue coloured according 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.

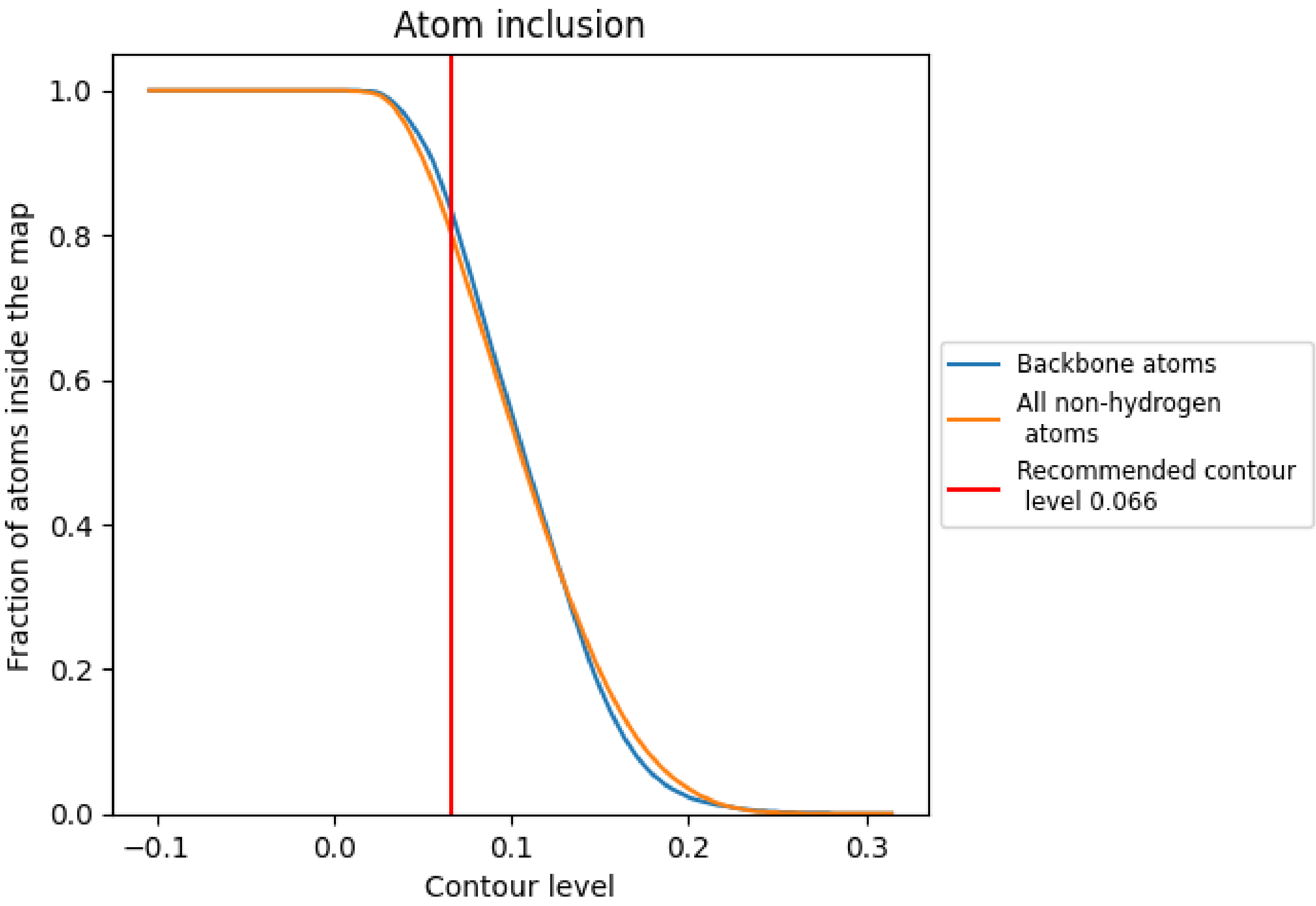
9.3 Atom inclusion mapped to coordinate model ⓘ



X Y Z

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 (0.066).

9.4 Atom inclusion ⓘ



At the recommended contour level, 84% of all backbone atoms, 80% 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 (0.066) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8030	0.4920
A	0.8320	0.4920
B	0.6550	0.2850
C	0.6520	0.4910
D	0.8600	0.5710
E	0.7890	0.5330
G	0.3900	0.3820
J	0.8990	0.5770
K	0.7450	0.5270
L	0.6200	0.4730
N	0.8750	0.5670
O	0.4290	0.3540
P	0.7460	0.5300
Q	0.8970	0.5720
R	0.8470	0.5710
S	0.9020	0.5880
T	0.8450	0.5640
U	0.7540	0.5310
V	0.4540	0.4620
Y	0.7840	0.5110
Z	0.8290	0.5570
b	0.7940	0.5180
d	0.9330	0.6170
f	0.0960	0.4660