wwPDB EM Validation Summary Report ⓘ

Aug 18, 2025 – 02:09 PM EDT

PDB ID	:	8UZG / pdb_00008uzg
EMDB ID	:	EMD-42840
Title	:	E. coli 70S ribosome with unmodified e*/E-tRNAPro(GGG) bound to slippery P-site CCC-C codon
Authors	:	Kimbrough, E.M.; Dunham, C.M.; Nguyen, H.A.
Deposited on	:	2023-11-15
Resolution	:	3.70 Å(reported)

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

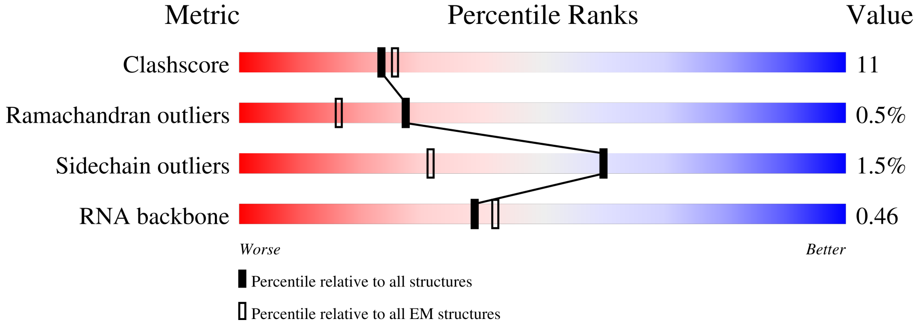
EMDB validation analysis	:	0.0.1.dev126
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.45.1

1 Overall quality at a glance ⓘ

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

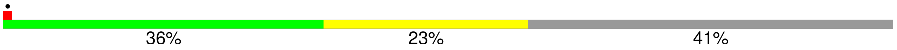
The reported resolution of this entry is 3.70 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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	1	2904	
2	2	1540	
3	3	120	
4	4	18	
5	5	77	
6	A	229	
7	B	273	

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Mol	Chain	Length	Quality of chain
8	C	209	 73% 26% •
9	D	201	 74% 25% •
10	E	179	 63% 35% ••
11	F	177	 • 83% 16% •
12	G	149	 • 81% 19%
13	J	142	 73% 25% •
14	K	123	 54% 41% •••
15	L	144	 • 74% 23% •••
16	M	136	 81% 19%
17	N	127	 57% 35% • 6%
18	O	117	 74% 22% •••
19	P	115	 78% 21% •
20	Q	118	 68% 31% •
21	R	103	 76% 24%
22	S	110	 74% 25% ••
23	T	100	 61% 29% • 7%
24	U	104	 69% 29% •
25	V	94	 69% 30% •
26	W	84	 74% 15% 11%
27	X	78	 77% 22% •
28	Y	63	 87% 13%
29	Z	59	 61% 34% • •
30	b	57	 65% 33% •
31	c	55	 76% 15% 9%
32	d	46	 67% 33%

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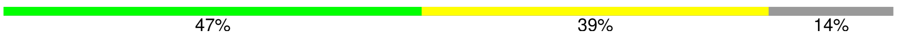
Mol	Chain	Length	Quality of chain
33	e	65	 63% 34%
34	f	38	 71% 26%
35	g	71	 62% 27% 8%
36	h	206	 76% 23%
37	i	206	 68% 31%
38	j	167	 63% 31% 6%
39	k	135	 48% 24% 26%
40	l	179	 55% 29% 16%
41	m	130	 67% 32%
42	n	130	 60% 37%
43	o	103	 60% 32% 5%
44	p	129	 56% 31% 10%
45	q	124	 52% 43%
46	r	118	 64% 30%
47	s	101	 64% 30%
48	t	89	 69% 30%
49	u	82	 73% 26%
50	v	84	 56% 39% 5%
51	w	75	 65% 21% 13%
52	x	92	 47% 39% 14%
53	y	87	 64% 32%

2 Entry composition (i)

There are 55 unique types of molecules in this entry. The entry contains 144183 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 ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	1	2903	62317	27801	11468	20146	2902	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	747	C	U	conflict	GB 1109114233

- Molecule 2 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	2	1539	33012	14725	6052	10697	1538	0	0

- Molecule 3 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
3	3	120	2568	1145	471	833	119	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
3	120	A	U	conflict	GB 1370526515

- Molecule 4 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
4	4	4	80	36	12	28	4	0	0

- Molecule 5 is a RNA chain called tRNA ProL(GGG).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
5	5	76	1628	724	294	534	76	0	0

- Molecule 6 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	A	134	1026	645	186	193	2	0	0

- Molecule 7 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	B	271	2082	1288	423	364	7	0	0

- Molecule 8 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	C	209	1565	979	288	294	4	0	0

- Molecule 9 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	D	201	1552	974	283	290	5	0	0

- Molecule 10 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	E	177	1410	899	249	256	6	0	0

- Molecule 11 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	F	176	1323	832	243	246	2	0	0

- Molecule 12 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	G	149	Total 1111	C 699	N 197	O 214	S 1	0	0

- Molecule 13 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	J	142	Total 1129	C 714	N 212	O 199	S 4	0	0

- Molecule 14 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	K	122	Total 938	C 587	N 180	O 165	S 6	0	0

- Molecule 15 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	L	143	Total 1045	C 649	N 206	O 189	S 1	0	0

- Molecule 16 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	M	136	Total 1074	C 686	N 205	O 177	S 6	0	0

- Molecule 17 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	N	120	Total 960	C 593	N 196	O 166	S 5	0	0

- Molecule 18 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	O	116	Total 892	C 552	N 178	O 162	0	0

- Molecule 19 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	P	114	Total	C	N	O	S	0	0
			917	574	179	163	1		

- Molecule 20 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	Q	117	Total	C	N	O	0	0
			947	604	192	151		

- Molecule 21 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	R	103	Total	C	N	O	S	0	0
			816	516	153	145	2		

- Molecule 22 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	S	110	Total	C	N	O	S	0	0
			857	532	166	156	3		

- Molecule 23 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	T	93	Total	C	N	O	S	0	0
			738	466	139	131	2		

- Molecule 24 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
24	U	102	Total	C	N	O	0	0
			779	492	146	141		

- Molecule 25 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	V	94	Total	C	N	O	S	0	0
			753	479	137	134	3		

- Molecule 26 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	W	75	Total 575	C 356	N 116	O 102	S 1	0	0

- Molecule 27 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	X	77	Total 625	C 388	N 129	O 106	S 2	0	0

- Molecule 28 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Y	63	Total 509	C 313	N 99	O 95	S 2	0	0

- Molecule 29 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Z	58	Total 449	C 281	N 87	O 79	S 2	0	0

- Molecule 30 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	b	56	Total 444	C 269	N 94	O 80	S 1	0	0

- Molecule 31 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
31	c	50	Total 409	C 263	N 75	O 71	0	0

- Molecule 32 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	d	46	Total 377	C 228	N 90	O 57	S 2	0	0

- Molecule 33 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	e	64	504	323	105	74	2	0	0

- Molecule 34 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	f	38	302	185	65	48	4	0	0

- Molecule 35 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	g	65	544	335	117	91	1	0	0

- Molecule 36 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	h	206	1625	1028	305	289	3	0	0

- Molecule 37 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	i	205	1643	1026	315	298	4	0	0

- Molecule 38 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	j	157	1156	719	218	213	6	0	0

- Molecule 39 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	k	100	817	515	148	148	6	0	0

- Molecule 40 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	l	151	Total	C	N	O	S	0	0
			1181	735	227	215	4		

- Molecule 41 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	m	129	Total	C	N	O	S	0	0
			979	616	173	184	6		

- Molecule 42 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	n	127	Total	C	N	O	S	0	0
			1022	634	206	179	3		

- Molecule 43 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	o	98	Total	C	N	O	S	0	0
			786	493	150	142	1		

- Molecule 44 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	p	116	Total	C	N	O	S	0	0
			869	535	173	158	3		

- Molecule 45 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	q	123	Total	C	N	O	S	0	0
			955	590	196	165	4		

- Molecule 46 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	r	114	Total	C	N	O	S	0	0
			883	546	178	156	3		

- Molecule 47 is a protein called 30S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	s	100	Total	C	N	O	S	0	0
			805	499	164	139	3		

- Molecule 48 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	t	88	Total	C	N	O	S	0	0
			714	439	144	130	1		

- Molecule 49 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	u	82	Total	C	N	O	S	0	0
			649	406	128	114	1		

- Molecule 50 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	v	80	Total	C	N	O	S	0	0
			648	411	121	113	3		

- Molecule 51 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	w	65	Total	C	N	O	S	0	0
			535	339	100	95	1		

- Molecule 52 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	x	79	Total	C	N	O	S	0	0
			637	408	120	107	2		

- Molecule 53 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	y	85	Total	C	N	O	S	0	0
			665	411	137	114	3		

- Molecule 54 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	AltConf
54	1	306	Total Mg 306 306	0
54	2	72	Total Mg 72 72	0
54	3	8	Total Mg 8 8	0
54	4	1	Total Mg 1 1	0
54	B	2	Total Mg 2 2	0
54	E	1	Total Mg 1 1	0
54	J	1	Total Mg 1 1	0
54	N	1	Total Mg 1 1	0
54	Q	1	Total Mg 1 1	0
54	S	2	Total Mg 2 2	0
54	b	1	Total Mg 1 1	0
54	m	1	Total Mg 1 1	0
54	r	1	Total Mg 1 1	0

- Molecule 55 is water.

Mol	Chain	Residues	Atoms	AltConf
55	1	478	Total O 478 478	0
55	2	309	Total O 309 309	0
55	3	7	Total O 7 7	0
55	5	3	Total O 3 3	0
55	A	16	Total O 16 16	0
55	B	4	Total O 4 4	0
55	C	2	Total O 2 2	0

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Mol	Chain	Residues	Atoms	AltConf
55	D	2	Total O 2 2	0
55	E	16	Total O 16 16	0
55	F	4	Total O 4 4	0
55	G	5	Total O 5 5	0
55	J	2	Total O 2 2	0
55	K	2	Total O 2 2	0
55	L	2	Total O 2 2	0
55	M	2	Total O 2 2	0
55	N	1	Total O 1 1	0
55	O	2	Total O 2 2	0
55	Q	2	Total O 2 2	0
55	T	2	Total O 2 2	0
55	U	3	Total O 3 3	0
55	V	2	Total O 2 2	0
55	W	3	Total O 3 3	0
55	X	3	Total O 3 3	0
55	Y	1	Total O 1 1	0
55	c	1	Total O 1 1	0
55	f	1	Total O 1 1	0
55	g	4	Total O 4 4	0
55	h	5	Total O 5 5	0

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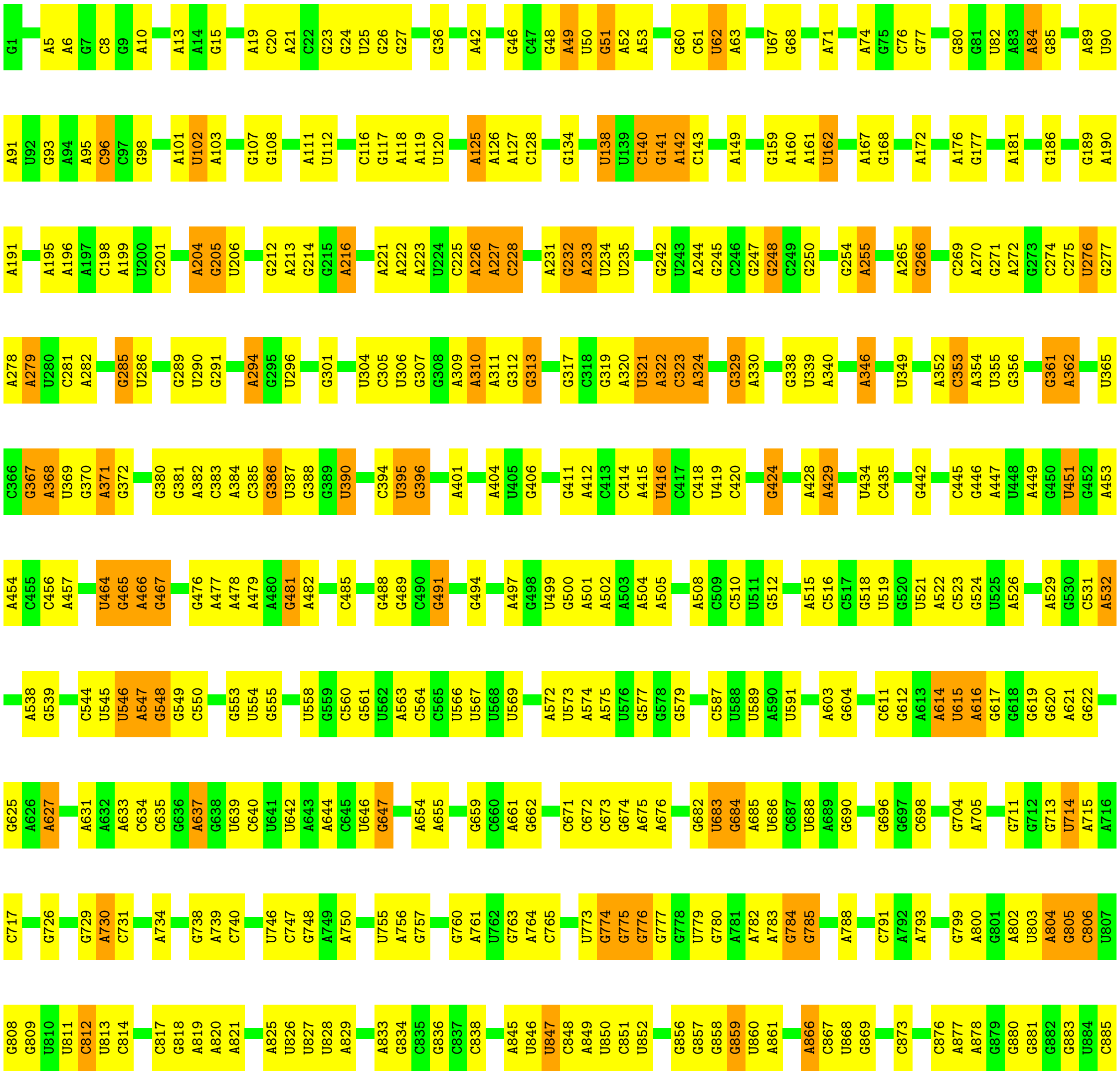
Mol	Chain	Residues	Atoms	AltConf
55	i	10	Total O 10 10	0
55	j	3	Total O 3 3	0
55	k	7	Total O 7 7	0
55	l	11	Total O 11 11	0
55	m	3	Total O 3 3	0
55	n	3	Total O 3 3	0
55	o	4	Total O 4 4	0
55	p	4	Total O 4 4	0
55	q	2	Total O 2 2	0
55	r	6	Total O 6 6	0
55	s	2	Total O 2 2	0
55	t	2	Total O 2 2	0
55	v	4	Total O 4 4	0
55	w	4	Total O 4 4	0
55	x	7	Total O 7 7	0
55	y	3	Total O 3 3	0

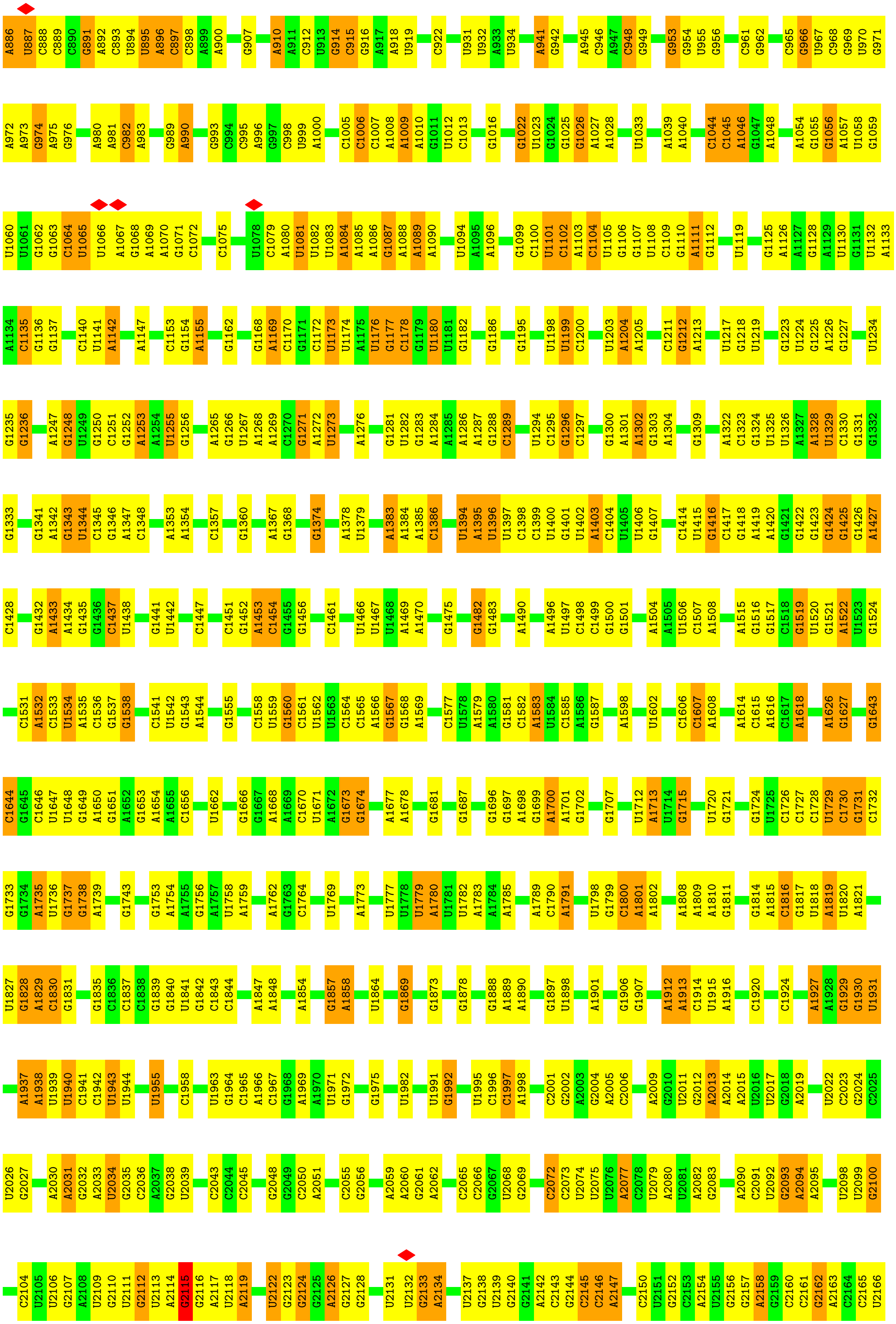
3 Residue-property plots ⓘ

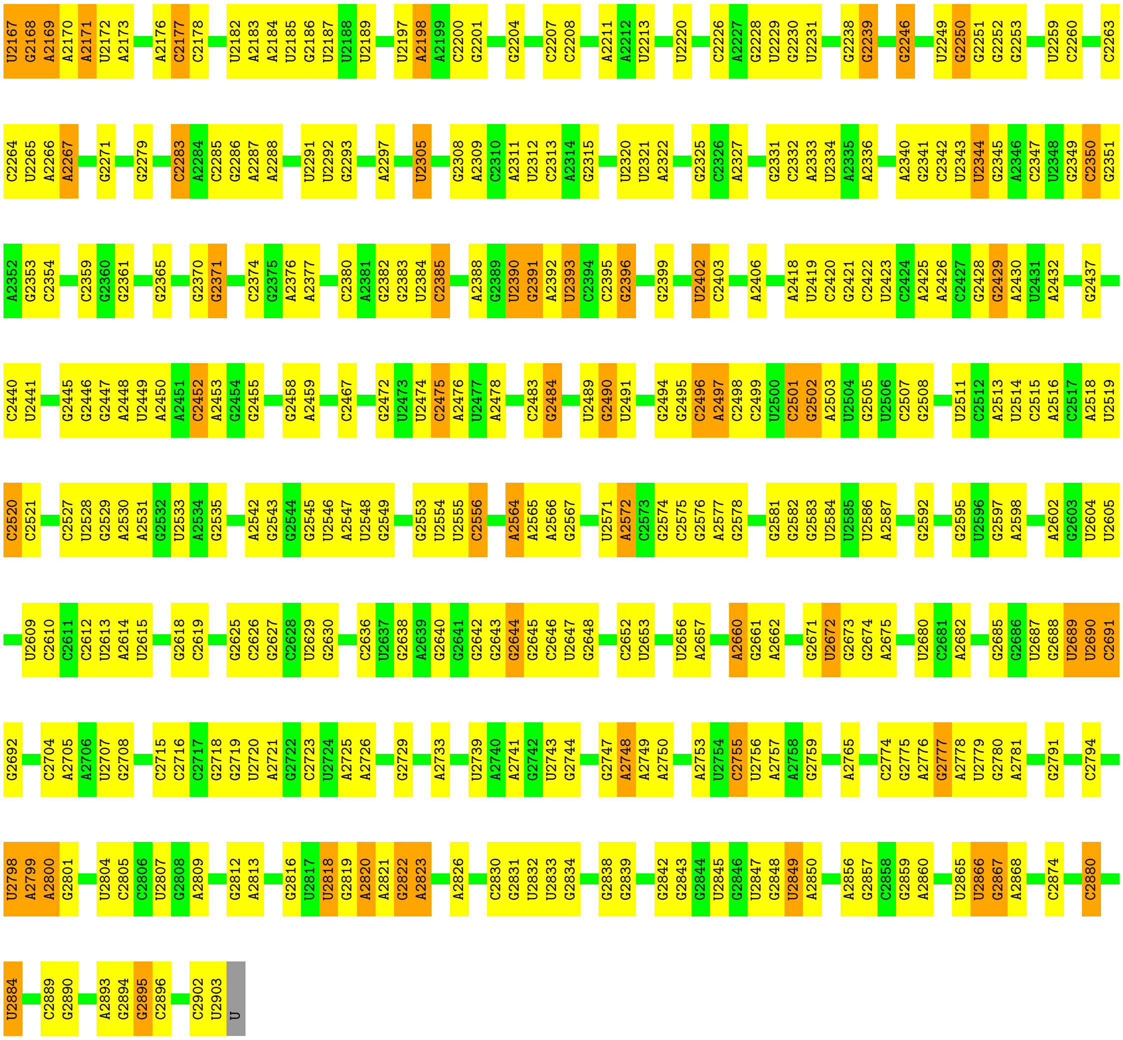
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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

Chain 1:

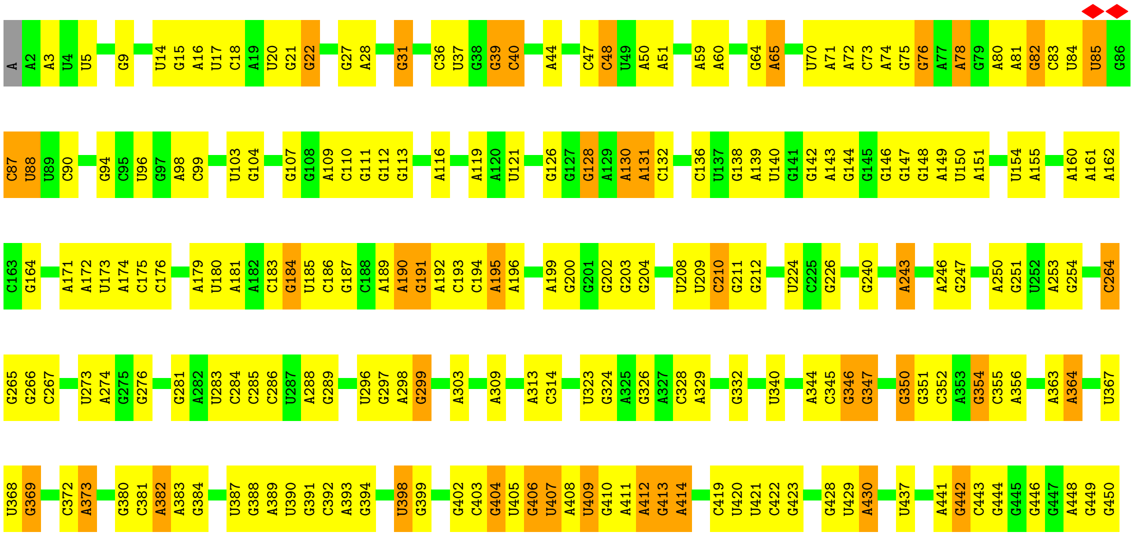


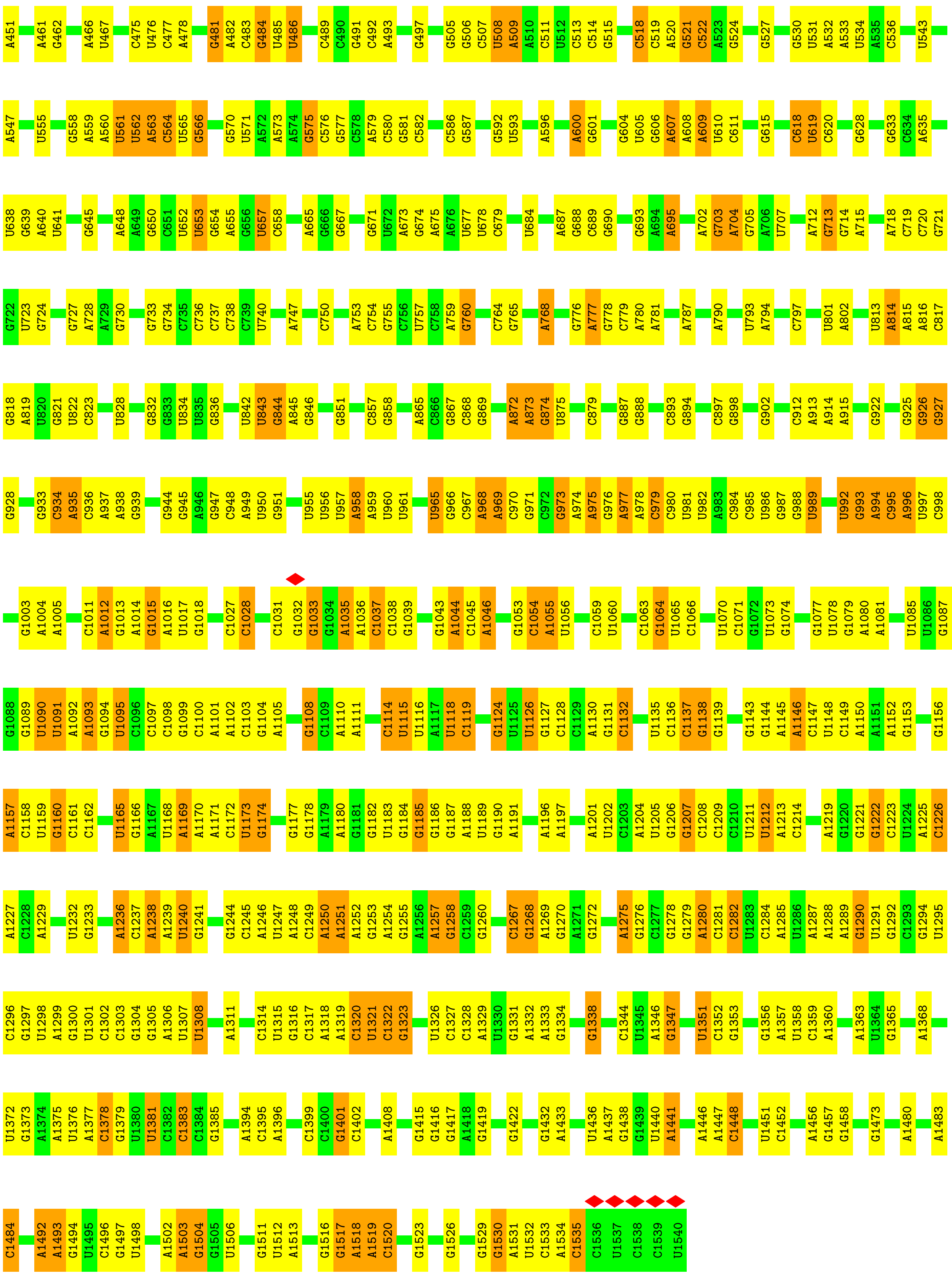

A886 U887 C888 C889 C890 G891 A892 C893 U894 U895 A896 C897 C898 A899 A900 G907 A910 A911 C912 U913 G914 C915 G916 A917 A918 U919 C922 U931 U932 A933 U934 A941 G942 A945 C946 A947 C948 G949 G953 G954 U955 G956 C961 G962 C965 G966 U967 C968 G969 U970 G971
A972 A973 G974 A975 G976 A980 A981 C982 A983 G989 A990 G993 C994 C995 A996 G997 C998 U999 A1000 C1005 C1006 C1007 A1008 A1009 A1010 G1011 U1012 C1013 G1016 G1022 U1023 G1024 G1025 G1026 A1027 A1028 U1033 A1039 A1040 C1044 C1045 A1046 G1047 A1048 A1054 G1055 G1056 A1057 U1058 G1059
U1060 U1061 G1062 G1063 C1064 U1065 U1066 A1067 G1068 A1069 A1070 G1071 C1072 C1075 U1078 C1079 A1080 U1081 U1082 U1083 A1084 A1085 A1086 G1087 A1088 A1089 A1090 U1094 A1095 A1096 G1099 C1100 U1101 C1102 A1103 C1104 U1105 G1106 G1107 U1108 C1109 G1110 A1111 G1112 U1119 G1125 A1126 A1127 G1128 A1129 U1130 G1131 U1132 A1133
A1134 C1135 G1136 G1137 C1140 U1141 A1142 A1147 C1153 G1154 A1155 G1162 G1168 A1169 C1170 G1171 C1172 U1173 U1174 A1175 U1176 G1177 C1178 G1179 U1180 U1181 G1182 G1186 G1195 U1198 U1199 C1200 U1203 A1204 A1205 C1211 G1212 A1213 U1217 G1218 U1219 G1223 U1224 G1225 A1226 G1227 U1234
G1235 G1236 A1247 G1248 U1249 G1250 C1251 G1252 A1253 A1254 U1255 G1256 A1265 G1266 U1267 A1268 A1269 C1270 G1271 A1272 U1273 A1276 G1281 U1282 G1283 A1284 A1285 A1286 A1287 G1288 C1289 U1294 C1295 G1296 C1297 G1300 A1301 A1302 G1303 A1304 G1309 A1322 C1323 G1324 U1325 U1326 A1327 A1328 U1329 C1330 G1331 G1332
G1333 G1341 A1342 G1343 U1344 C1345 G1346 A1347 C1348 A1353 A1354 C1357 G1360 A1367 G1368 G1374 A1378 U1379 A1383 A1384 A1385 C1386 U1394 A1395 U1396 U1397 C1398 C1399 U1400 G1401 U1402 A1403 C1404 U1405 U1406 G1407 C1414 U1415 G1416 C1417 G1418 A1419 A1420 G1421 G1422 G1423 G1424 G1425 G1426 A1427
C1428 G1432 A1433 A1434 G1435 G1436 C1437 U1438 G1441 U1442 C1447 C1451 G1452 A1453 C1454 G1455 G1456 C1461 U1466 U1467 U1468 A1469 A1470 G1475 G1482 G1483 A1490 A1496 U1497 C1498 C1499 G1500 G1501 A1504 A1505 U1506 C1507 A1508 A1515 G1516 G1517 C1518 G1519 U1520 G1521 A1522 U1523 G1524
C1531 A1532 C1533 U1534 A1535 C1536 G1537 G1538 C1541 U1542 G1543 A1544 G1555 C1558 U1559 G1560 C1561 U1562 U1563 C1564 C1565 A1566 G1567 G1568 A1569 C1577 U1578 A1579 A1580 G1581 C1582 A1583 U1584 C1585 A1586 G1587 A1598 U1602 C1606 C1607 A1608 A1614 C1615 A1616 C1617 A1618 A1626 G1627 G1643
C1644 G1645 C1646 U1647 U1648 G1649 A1650 G1651 A1652 G1653 A1654 A1655 C1656 U1662 G1666 G1667 A1668 A1669 C1670 U1671 A1672 G1673 G1674 A1677 A1678 G1681 G1687 G1696 G1697 A1698 G1699 A1700 A1701 G1702 G1707 U1712 A1713 U1714 G1715 U1720 G1721 G1724 U1725 C1726 C1727 C1728 U1729 C1730 G1731 C1732
G1733 G1734 A1735 U1736 G1737 G1738 A1739 G1743 G1753 A1754 A1755 G1756 A1757 U1758 A1759 A1762 G1763 C1764 U1769 A1773 U1777 U1778 U1779 A1780 U1781 U1782 A1783 A1784 A1785 A1789 C1790 A1791 U1798 G1799 C1800 A1801 A1802 A1808 A1809 A1810 G1811 G1814 A1815 C1816 G1817 U1818 A1819 U1820 A1821
U1827 G1828 A1829 C1830 G1831 G1835 C1836 C1837 C1838 G1839 G1840 U1841 G1842 C1843 C1844 A1847 A1848 A1854 G1857 A1858 U1864 G1869 G1873 G1878 G1888 A1889 A1890 G1897 U1898 A1901 G1906 G1907 A1912 A1913 C1914 U1915 A1916 C1920 C1924 A1927 A1928 G1929 G1930 U1931
A1937 A1938 U1939 U1940 C1941 C1942 U1943 U1944 U1955 C1958 U1963 G1964 C1965 A1966 C1967 G1968 A1969 A1970 U1971 G1972 G1975 U1982 U1991 G1992 U1995 C1996 C1997 A1998 C2001 G2002 A2003 G2004 A2005 C2006 A2009 G2010 U2011 G2012 A2013 A2014 A2015 U2016 U2017 G2018 A2019 U2022 C2023 G2024 C2025
U2026 G2027 A2030 A2031 G2032 A2033 U2034 G2035 C2036 A2037 G2038 U2039 C2043 C2044 C2045 G2048 G2049 C2050 A2051 C2055 G2056 A2059 A2060 G2061 A2062 C2065 C2066 G2067 U2068 G2069 C2072 C2073 U2074 U2075 U2076 A2077 C2078 U2079 A2080 U2081 A2082 G2083 A2090 C2091 U2092 G2093 A2094 A2095 U2098 U2099 G2100
C2104 U2105 U2106 G2107 A2108 U2109 G2110 U2111 G2112 U2113 A2114 G2115 G2116 A2117 U2118 A2119 U2122 G2123 G2124 G2125 A2126 G2127 G2128 U2131 U2132 G2133 A2134 U2137 G2138 U2139 G2140 G2141 A2142 C2143 G2144 C2145 C2146 A2147 C2150 U2151 C2152 C2153 A2154 U2155 G2156 G2157 A2158 G2159 C2160 C2161 G2162 A2163 C2164 C2165 U2166



- Molecule 2: 16S ribosomal RNA

Chain 2:



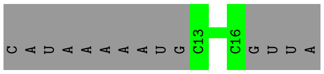


- Molecule 3: 5S ribosomal RNA

Chain 3:

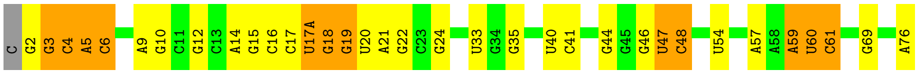
- Molecule 4: mRNA

Chain 4:



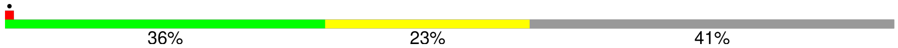
- Molecule 5: tRNA ProL(GGG)

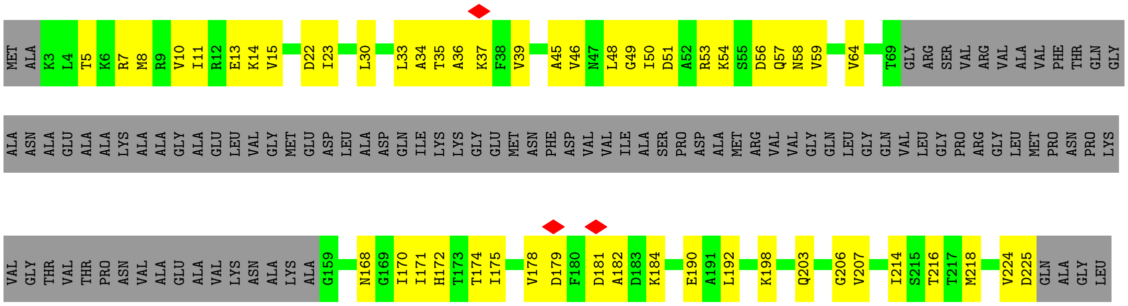
Chain 5:



- Molecule 6: 50S ribosomal protein L1

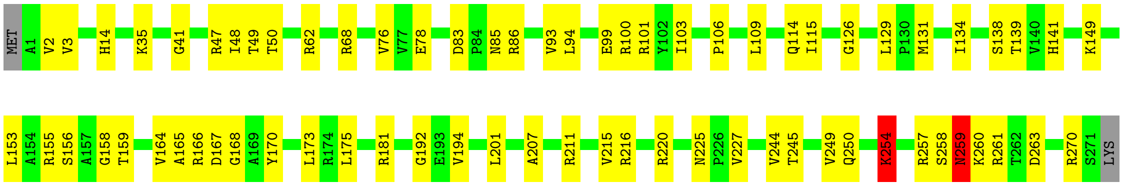
Chain A:





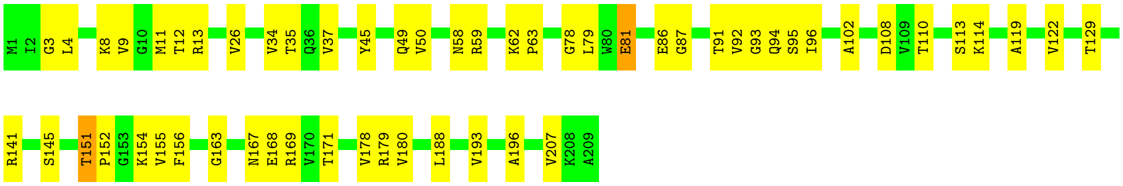
- Molecule 7: 50S ribosomal protein L2

Chain B:

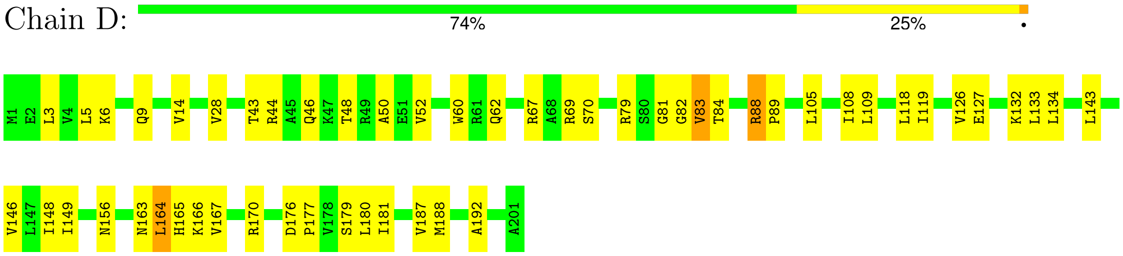


- Molecule 8: 50S ribosomal protein L3

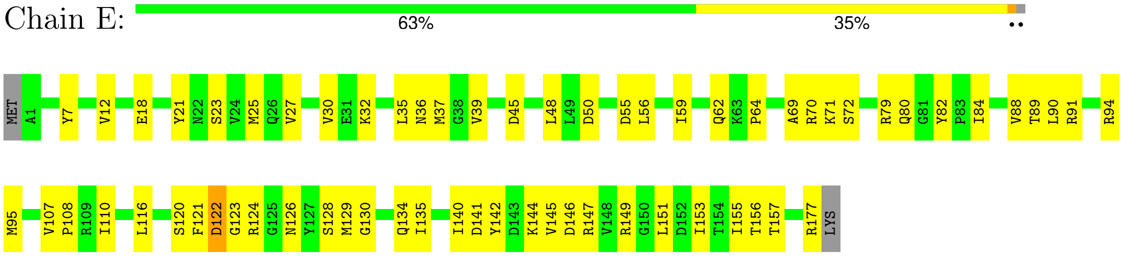
Chain C:



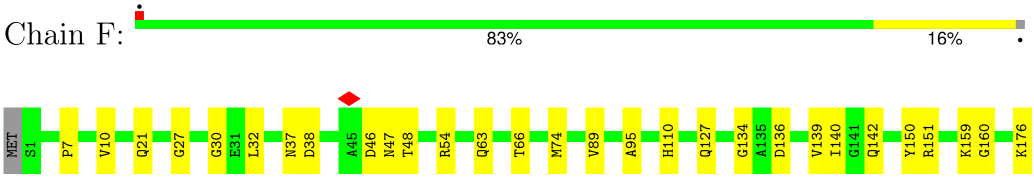
- Molecule 9: 50S ribosomal protein L4



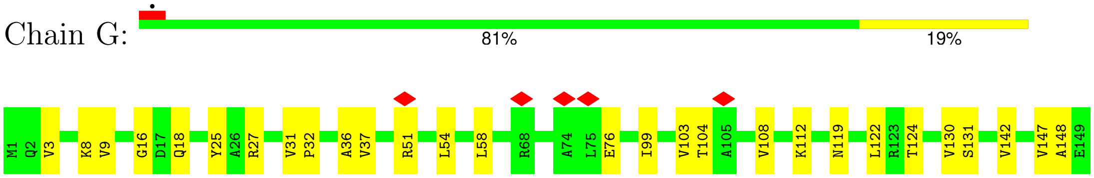
- Molecule 10: 50S ribosomal protein L5



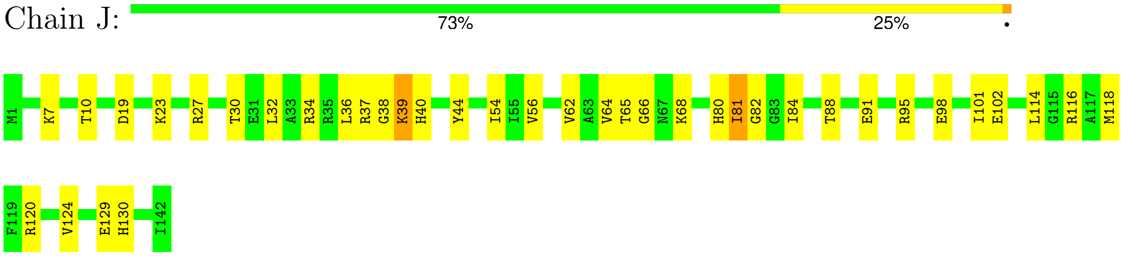
- Molecule 11: 50S ribosomal protein L6



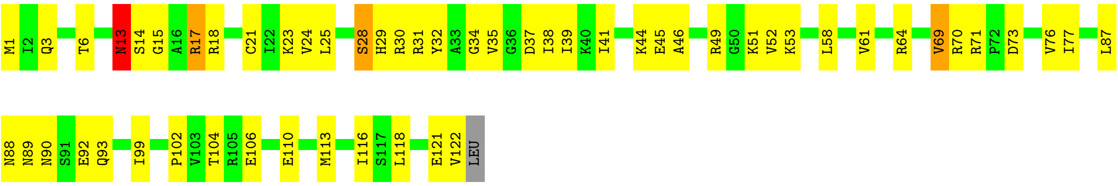
- Molecule 12: 50S ribosomal protein L9



- Molecule 13: 50S ribosomal protein L13

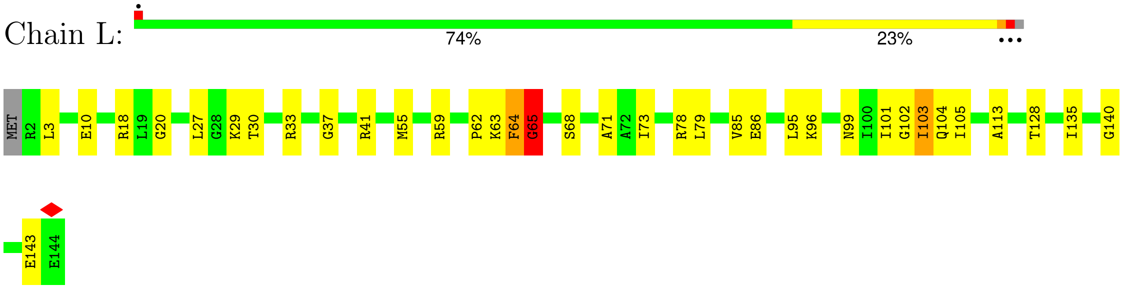


- Molecule 14: 50S ribosomal protein L14



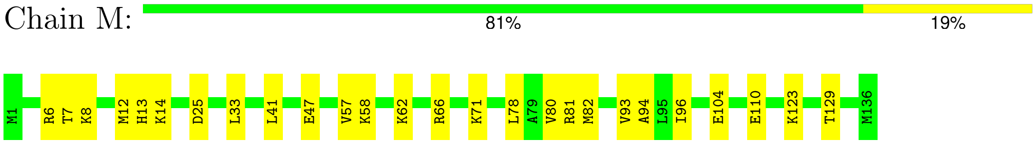
- Molecule 15: 50S ribosomal protein L15

Chain L:



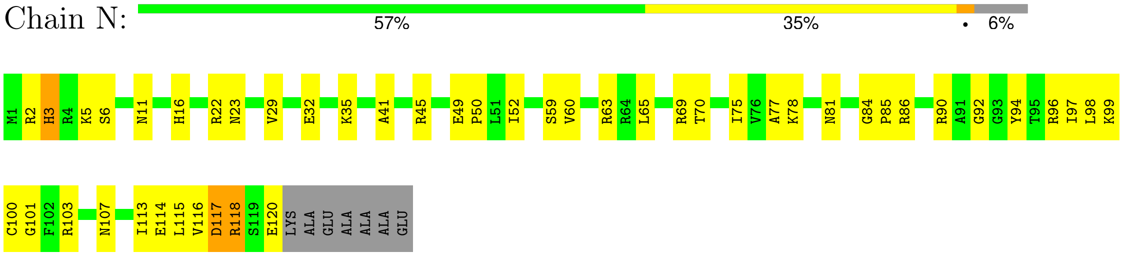
- Molecule 16: 50S ribosomal protein L16

Chain M:



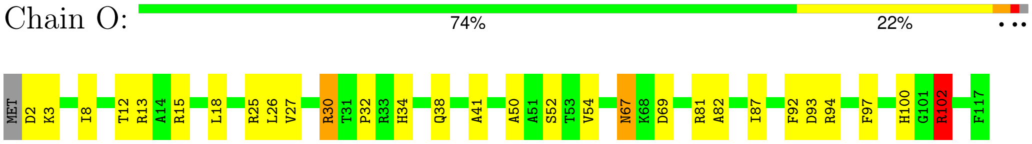
- Molecule 17: 50S ribosomal protein L17

Chain N:



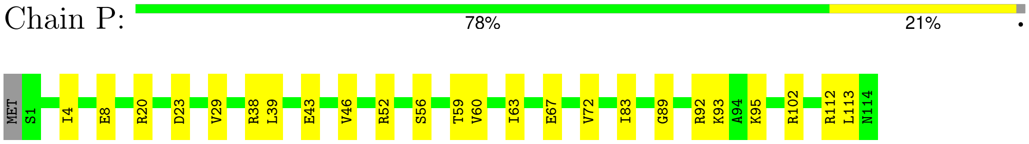
- Molecule 18: 50S ribosomal protein L18

Chain O:



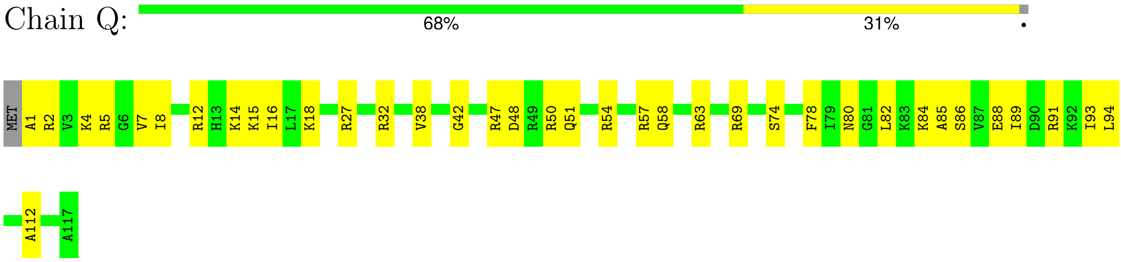
- Molecule 19: 50S ribosomal protein L19

Chain P:



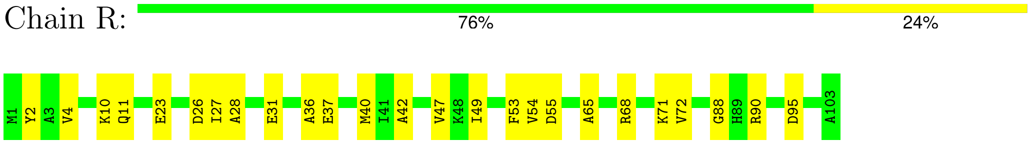
- Molecule 20: 50S ribosomal protein L20

Chain Q:



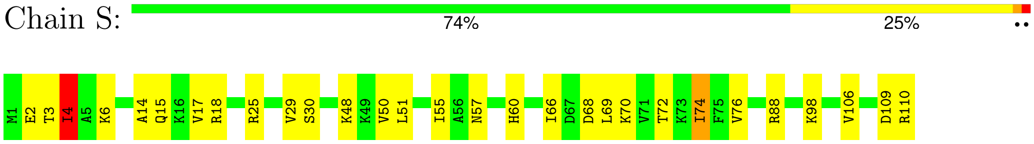
- Molecule 21: 50S ribosomal protein L21

Chain R:



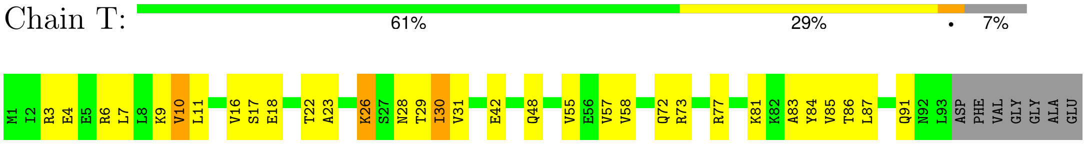
- Molecule 22: 50S ribosomal protein L22

Chain S:



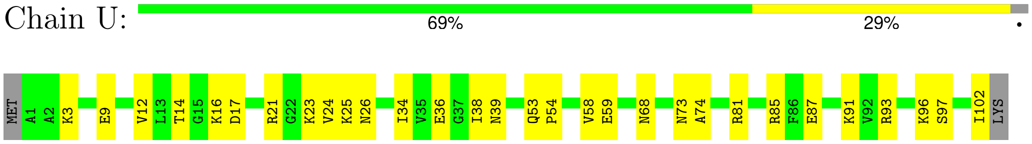
- Molecule 23: 50S ribosomal protein L23

Chain T:



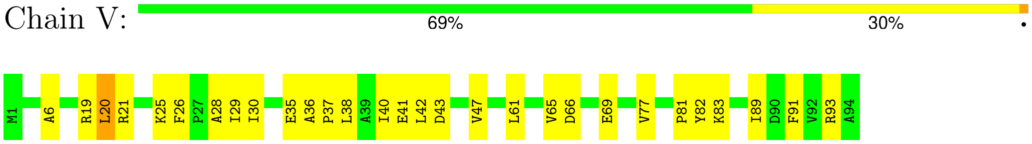
- Molecule 24: 50S ribosomal protein L24

Chain U:



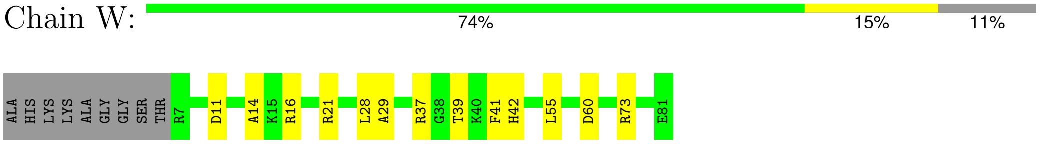
- Molecule 25: 50S ribosomal protein L25

Chain V:

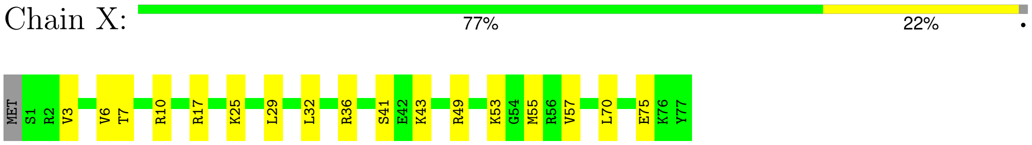


- Molecule 26: 50S ribosomal protein L27

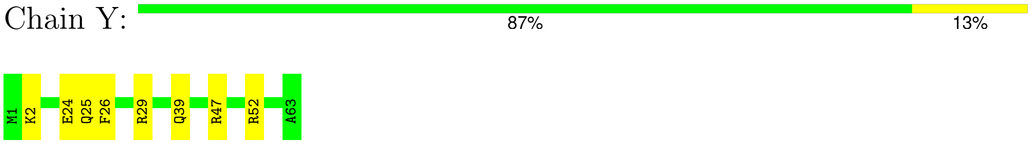
Chain W:



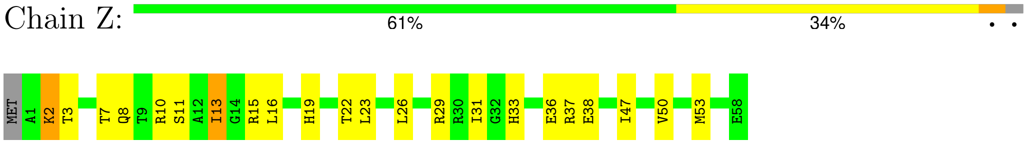
- Molecule 27: 50S ribosomal protein L28



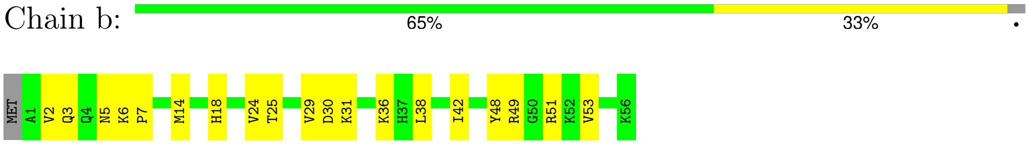
- Molecule 28: 50S ribosomal protein L29



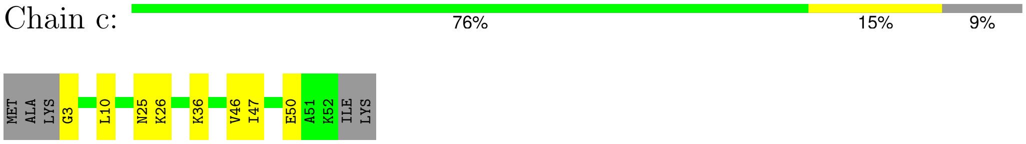
- Molecule 29: 50S ribosomal protein L30



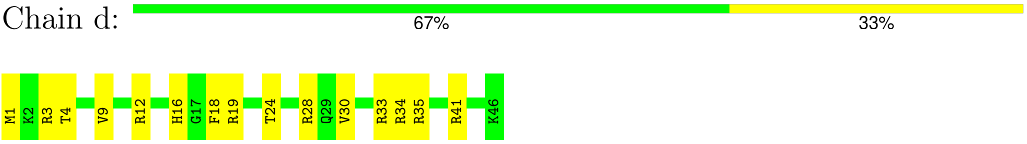
- Molecule 30: 50S ribosomal protein L32



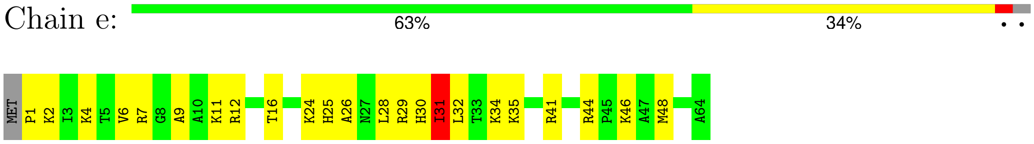
- Molecule 31: 50S ribosomal protein L33



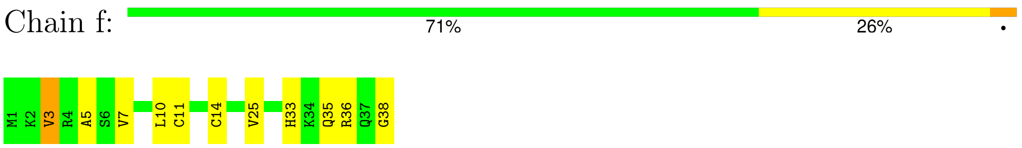
- Molecule 32: 50S ribosomal protein L34



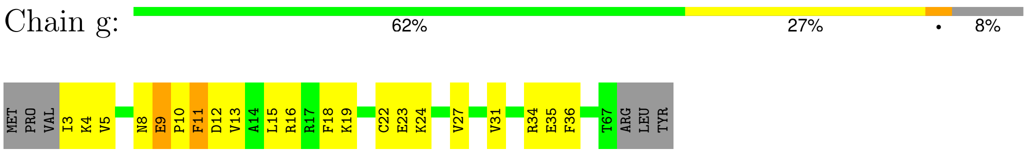
- Molecule 33: 50S ribosomal protein L35



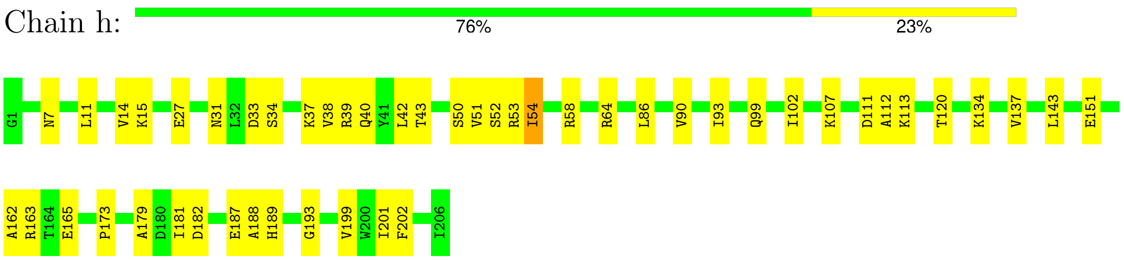
- Molecule 34: 50S ribosomal protein L36



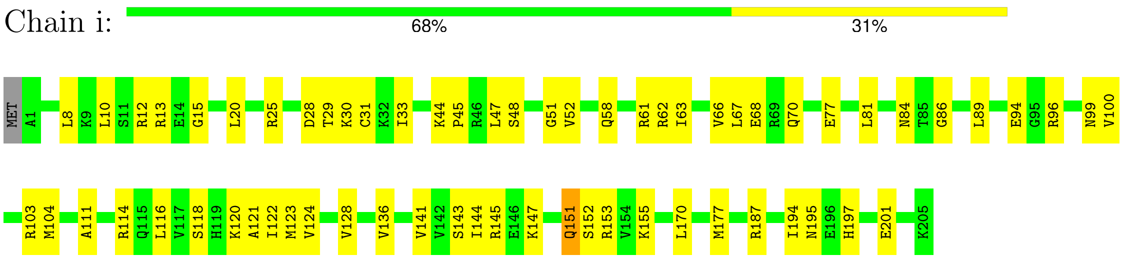
- Molecule 35: 30S ribosomal protein S2



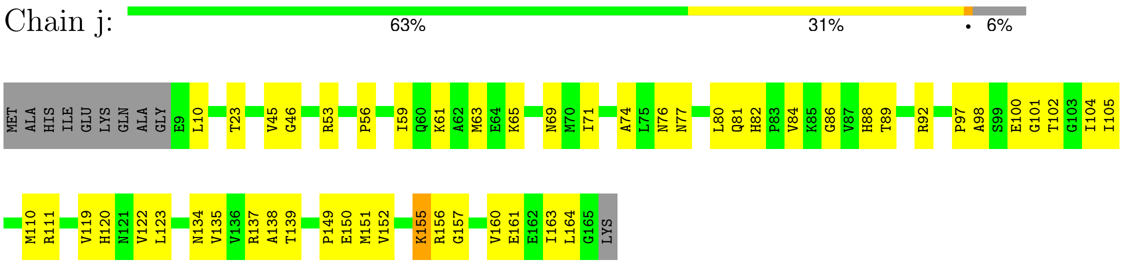
- Molecule 36: 30S ribosomal protein S3



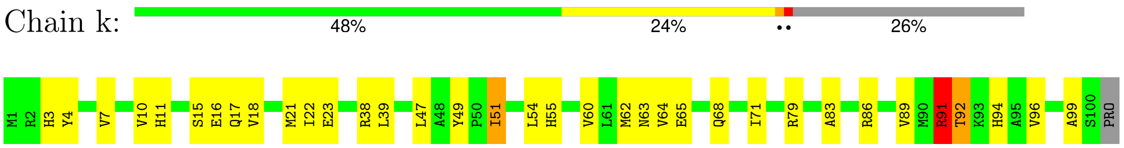
- Molecule 37: 30S ribosomal protein S4



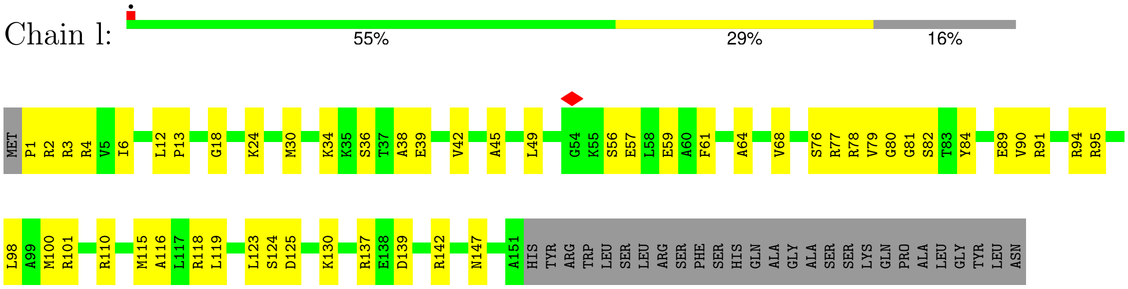
- Molecule 38: 30S ribosomal protein S5



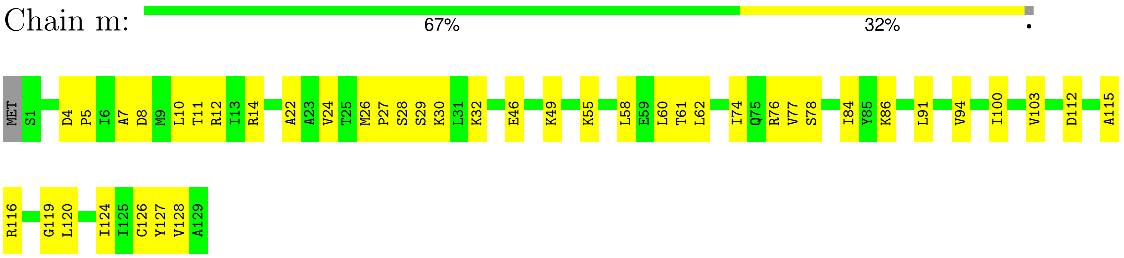
- Molecule 39: 30S ribosomal protein S6



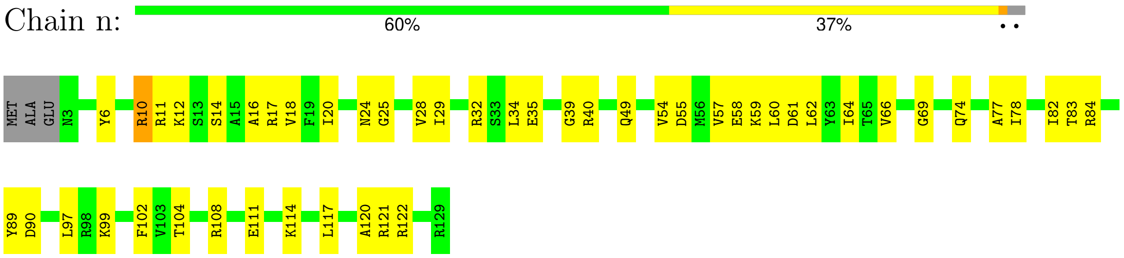
- Molecule 40: 30S ribosomal protein S7



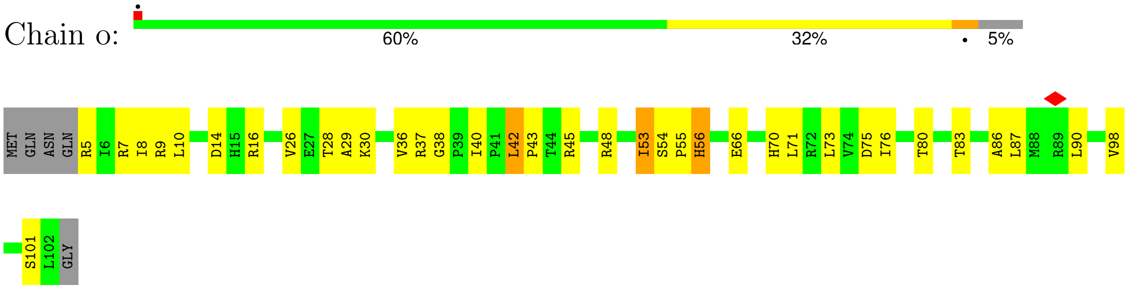
- Molecule 41: 30S ribosomal protein S8



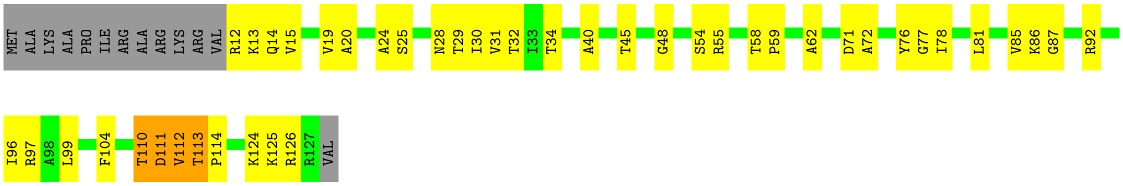
- Molecule 42: 30S ribosomal protein S9



- Molecule 43: 30S ribosomal protein S10

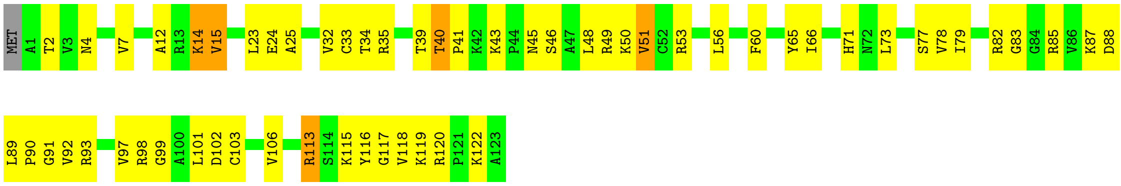


- Molecule 44: 30S ribosomal protein S11



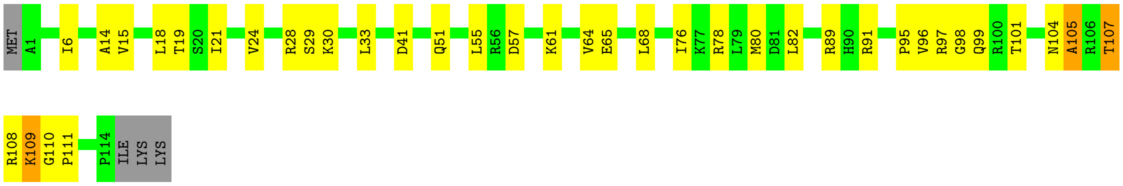
- Molecule 45: 30S ribosomal protein S12

Chain q:



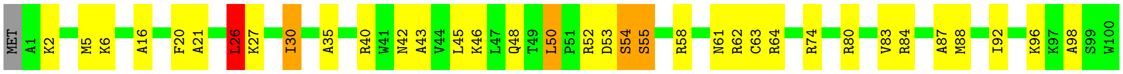
- Molecule 46: 30S ribosomal protein S13

Chain r:



- Molecule 47: 30S ribosomal protein S14

Chain s:

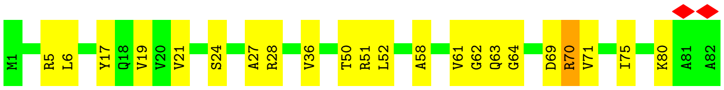


- Molecule 48: 30S ribosomal protein S15

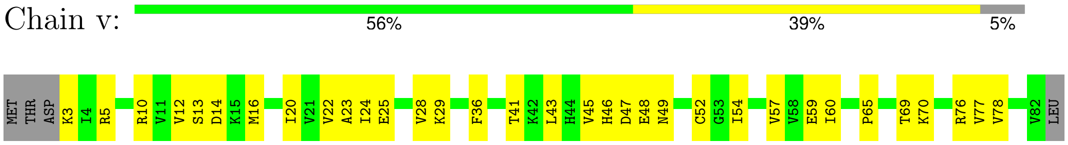
Chain t:

- Molecule 49: 30S ribosomal protein S16

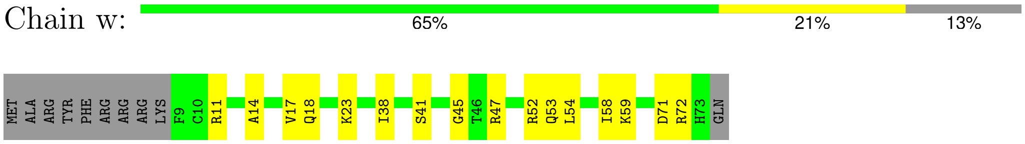
Chain u:



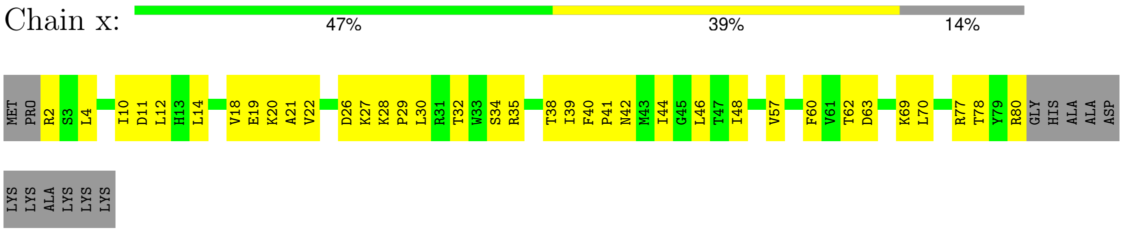
- Molecule 50: 30S ribosomal protein S17



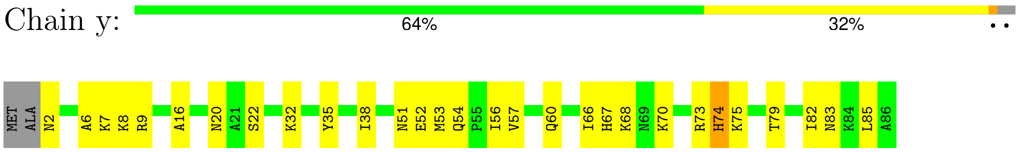
- Molecule 51: 30S ribosomal protein S18



- Molecule 52: 30S ribosomal protein S19



- Molecule 53: 30S ribosomal protein S20



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	71502	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{Å}^2$)	56.07	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	0.109	Depositor
Minimum map value	-0.021	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.0198	Depositor
Map size (Å)	547.3792, 547.3792, 547.3792	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0691, 1.0691, 1.0691	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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	1	0.18	0/69796	0.33	11/108888 (0.0%)
2	2	0.20	0/36963	0.36	4/57662 (0.0%)
3	3	0.16	0/2872	0.26	0/4479
4	4	0.09	0/87	0.16	0/132
5	5	0.11	0/1819	0.24	0/2836
6	A	0.15	0/1033	0.39	0/1387
7	B	0.43	1/2121 (0.0%)	0.56	2/2852 (0.1%)
8	C	0.45	0/1586	0.61	1/2134 (0.0%)
9	D	0.65	1/1571 (0.1%)	0.82	9/2113 (0.4%)
10	E	0.23	0/1434	0.50	1/1926 (0.1%)
11	F	0.18	0/1343	0.39	0/1816
12	G	0.14	0/1122	0.35	0/1515
13	J	0.36	0/1152	0.43	0/1551
14	K	0.57	1/947 (0.1%)	0.71	2/1268 (0.2%)
15	L	0.51	0/1054	0.70	2/1403 (0.1%)
16	M	0.18	0/1093	0.38	0/1460
17	N	0.50	0/973	0.71	5/1301 (0.4%)
18	O	0.54	0/902	0.73	2/1209 (0.2%)
19	P	0.18	0/929	0.39	0/1242
20	Q	0.42	0/960	0.48	1/1278 (0.1%)
21	R	0.35	0/829	0.46	0/1107
22	S	0.62	0/864	0.75	5/1156 (0.4%)
23	T	0.61	0/744	0.77	5/994 (0.5%)
24	U	0.18	0/787	0.39	0/1051
25	V	0.47	0/766	0.52	0/1025
26	W	0.26	0/582	0.48	0/769
27	X	0.36	0/635	0.51	0/848
28	Y	0.19	0/510	0.43	0/677
29	Z	0.52	1/453 (0.2%)	0.81	3/605 (0.5%)
30	b	0.33	0/450	0.54	0/599
31	c	0.45	1/416 (0.2%)	0.62	1/554 (0.2%)
32	d	0.20	0/380	0.47	0/498

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	e	0.28	0/513	0.61	1/676 (0.1%)
34	f	0.54	0/303	0.65	1/397 (0.3%)
35	g	0.55	1/550 (0.2%)	0.89	3/728 (0.4%)
36	h	0.29	0/1652	0.57	4/2225 (0.2%)
37	i	0.39	0/1665	0.55	1/2227 (0.0%)
38	j	0.38	0/1169	0.58	4/1573 (0.3%)
39	k	0.43	0/835	0.84	4/1128 (0.4%)
40	l	0.21	0/1195	0.48	0/1602
41	m	0.25	0/989	0.44	0/1326
42	n	0.24	0/1034	0.53	2/1375 (0.1%)
43	o	0.35	0/796	0.68	2/1077 (0.2%)
44	p	0.30	0/885	0.53	0/1195
45	q	0.59	0/969	0.98	9/1300 (0.7%)
46	r	0.37	1/892 (0.1%)	0.68	5/1193 (0.4%)
47	s	0.57	0/817	0.95	7/1088 (0.6%)
48	t	0.18	0/722	0.36	0/964
49	u	0.49	0/659	0.67	3/884 (0.3%)
50	v	0.19	0/657	0.50	0/881
51	w	0.17	0/544	0.35	0/731
52	x	0.16	0/652	0.45	0/877
53	y	0.49	0/671	0.64	3/888 (0.3%)
All	All	0.26	7/155342 (0.0%)	0.42	103/232670 (0.0%)

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

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
46	r	105	ALA	CA-C	-6.76	1.45	1.53
9	D	133	LEU	CA-C	-6.49	1.44	1.52
7	B	259	ASN	CA-C	-5.46	1.45	1.52
35	g	11	PHE	CA-C	-5.44	1.47	1.52
31	c	25	ASN	CA-C	-5.38	1.46	1.53

The worst 5 of 103 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
9	D	82	GLY	N-CA-C	14.01	146.38	113.18
39	k	92	THR	N-CA-C	13.81	130.32	111.54
22	S	2	GLU	N-CA-C	11.46	123.85	111.36
47	s	30	ILE	N-CA-C	11.12	120.98	110.53
39	k	91	ARG	N-CA-C	9.56	125.32	109.06

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	1	62317	0	31343	865	0
2	2	33012	0	16617	498	0
3	3	2568	0	1303	33	0
4	4	80	0	45	0	0
5	5	1628	0	823	16	0
6	A	1026	0	1092	50	0
7	B	2082	0	2157	58	0
8	C	1565	0	1616	39	0
9	D	1552	0	1619	37	0
10	E	1410	0	1447	56	0
11	F	1323	0	1374	23	0
12	G	1111	0	1148	20	0
13	J	1129	0	1162	33	0
14	K	938	0	1012	39	0
15	L	1045	0	1117	33	0
16	M	1074	0	1157	22	0
17	N	960	0	1000	34	0
18	O	892	0	923	25	0
19	P	917	0	965	21	0
20	Q	947	0	1022	36	0
21	R	816	0	839	18	0
22	S	857	0	922	24	0
23	T	738	0	807	20	0
24	U	779	0	834	19	0
25	V	753	0	780	26	0
26	W	575	0	592	10	0
27	X	625	0	655	20	0
28	Y	509	0	543	8	0
29	Z	449	0	491	13	0
30	b	444	0	461	14	0
31	c	409	0	440	6	0
32	d	377	0	418	12	0
33	e	504	0	574	26	0
34	f	302	0	343	11	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
35	g	544	0	579	19	0
36	h	1625	0	1699	27	0
37	i	1643	0	1710	53	0
38	j	1156	0	1199	43	0
39	k	817	0	808	27	0
40	l	1181	0	1240	47	0
41	m	979	0	1034	34	0
42	n	1022	0	1070	52	0
43	o	786	0	828	28	0
44	p	869	0	878	44	0
45	q	955	0	1019	46	0
46	r	883	0	944	50	0
47	s	805	0	847	36	0
48	t	714	0	737	22	0
49	u	649	0	666	13	0
50	v	648	0	691	28	0
51	w	535	0	552	19	0
52	x	637	0	665	34	0
53	y	665	0	714	20	0
54	1	306	0	0	0	0
54	2	72	0	0	0	0
54	3	8	0	0	0	0
54	4	1	0	0	0	0
54	B	2	0	0	0	0
54	E	1	0	0	0	0
54	J	1	0	0	0	0
54	N	1	0	0	0	0
54	Q	1	0	0	0	0
54	S	2	0	0	0	0
54	b	1	0	0	0	0
54	m	1	0	0	0	0
54	r	1	0	0	0	0
55	1	478	0	0	59	0
55	2	309	0	0	39	0
55	3	7	0	0	0	0
55	5	3	0	0	0	0
55	A	16	0	0	11	0
55	B	4	0	0	1	0
55	C	2	0	0	2	0
55	D	2	0	0	0	0
55	E	16	0	0	13	0
55	F	4	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
55	G	5	0	0	1	0
55	J	2	0	0	1	0
55	K	2	0	0	0	0
55	L	2	0	0	0	0
55	M	2	0	0	3	0
55	N	1	0	0	1	0
55	O	2	0	0	5	0
55	Q	2	0	0	2	0
55	T	2	0	0	1	0
55	U	3	0	0	0	0
55	V	2	0	0	0	0
55	W	3	0	0	0	0
55	X	3	0	0	3	0
55	Y	1	0	0	0	0
55	c	1	0	0	0	0
55	f	1	0	0	0	0
55	g	4	0	0	1	0
55	h	5	0	0	3	0
55	i	10	0	0	4	0
55	j	3	0	0	4	0
55	k	7	0	0	5	0
55	l	11	0	0	11	0
55	m	3	0	0	1	0
55	n	3	0	0	4	0
55	o	4	0	0	3	0
55	p	4	0	0	4	0
55	q	2	0	0	2	0
55	r	6	0	0	7	0
55	s	2	0	0	2	0
55	t	2	0	0	1	0
55	v	4	0	0	3	0
55	w	4	0	0	8	0
55	x	7	0	0	4	0
55	y	3	0	0	2	0
All	All	144183	0	95521	2467	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 2467 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)
27:X:75:GLU:HG3	55:X:101:HOH:O	1.39	1.19
55:2:1752:HOH:O	41:m:27:PRO:HB3	1.42	1.18
2:2:84:U:H4’	55:2:1882:HOH:O	1.47	1.12
1:1:2104:C:H1’	55:1:3577:HOH:O	1.51	1.11
42:n:49:GLN:HG3	55:n:202:HOH:O	1.47	1.10

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	
6	A	130/229 (57%)	121 (93%)	9 (7%)	0	100	100
7	B	269/273 (98%)	232 (86%)	34 (13%)	3 (1%)	12	43
8	C	207/209 (99%)	179 (86%)	26 (13%)	2 (1%)	13	44
9	D	199/201 (99%)	178 (89%)	20 (10%)	1 (0%)	25	57
10	E	175/179 (98%)	154 (88%)	20 (11%)	1 (1%)	22	54
11	F	174/177 (98%)	161 (92%)	13 (8%)	0	100	100
12	G	147/149 (99%)	142 (97%)	5 (3%)	0	100	100
13	J	140/142 (99%)	130 (93%)	8 (6%)	2 (1%)	9	39
14	K	120/123 (98%)	101 (84%)	17 (14%)	2 (2%)	7	36
15	L	141/144 (98%)	111 (79%)	27 (19%)	3 (2%)	5	33
16	M	134/136 (98%)	118 (88%)	16 (12%)	0	100	100
17	N	118/127 (93%)	97 (82%)	19 (16%)	2 (2%)	7	36
18	O	114/117 (97%)	101 (89%)	13 (11%)	0	100	100
19	P	112/115 (97%)	105 (94%)	7 (6%)	0	100	100
20	Q	115/118 (98%)	109 (95%)	6 (5%)	0	100	100
21	R	101/103 (98%)	88 (87%)	13 (13%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
22	S	108/110 (98%)	99 (92%)	9 (8%)	0	100	100
23	T	91/100 (91%)	81 (89%)	9 (10%)	1 (1%)	12	43
24	U	100/104 (96%)	91 (91%)	9 (9%)	0	100	100
25	V	92/94 (98%)	85 (92%)	7 (8%)	0	100	100
26	W	73/84 (87%)	66 (90%)	7 (10%)	0	100	100
27	X	75/78 (96%)	72 (96%)	3 (4%)	0	100	100
28	Y	61/63 (97%)	59 (97%)	2 (3%)	0	100	100
29	Z	56/59 (95%)	54 (96%)	2 (4%)	0	100	100
30	b	54/57 (95%)	50 (93%)	4 (7%)	0	100	100
31	c	48/55 (87%)	45 (94%)	3 (6%)	0	100	100
32	d	44/46 (96%)	42 (96%)	2 (4%)	0	100	100
33	e	62/65 (95%)	55 (89%)	6 (10%)	1 (2%)	8	37
34	f	36/38 (95%)	29 (81%)	7 (19%)	0	100	100
35	g	63/71 (89%)	48 (76%)	14 (22%)	1 (2%)	8	37
36	h	204/206 (99%)	192 (94%)	12 (6%)	0	100	100
37	i	203/206 (98%)	182 (90%)	21 (10%)	0	100	100
38	j	155/167 (93%)	141 (91%)	14 (9%)	0	100	100
39	k	98/135 (73%)	89 (91%)	9 (9%)	0	100	100
40	l	149/179 (83%)	140 (94%)	9 (6%)	0	100	100
41	m	127/130 (98%)	115 (91%)	12 (9%)	0	100	100
42	n	125/130 (96%)	114 (91%)	11 (9%)	0	100	100
43	o	96/103 (93%)	80 (83%)	13 (14%)	3 (3%)	3	27
44	p	114/129 (88%)	101 (89%)	12 (10%)	1 (1%)	14	47
45	q	121/124 (98%)	92 (76%)	28 (23%)	1 (1%)	16	49
46	r	112/118 (95%)	99 (88%)	13 (12%)	0	100	100
47	s	98/101 (97%)	85 (87%)	12 (12%)	1 (1%)	13	44
48	t	86/89 (97%)	79 (92%)	7 (8%)	0	100	100
49	u	80/82 (98%)	72 (90%)	8 (10%)	0	100	100
50	v	78/84 (93%)	61 (78%)	17 (22%)	0	100	100
51	w	63/75 (84%)	59 (94%)	4 (6%)	0	100	100
52	x	77/92 (84%)	65 (84%)	11 (14%)	1 (1%)	10	40

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
53	y	83/87 (95%)	83 (100%)	0	0	100	100
All	All	5428/5803 (94%)	4852 (89%)	550 (10%)	26 (0%)	27	57

5 of 26 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
7	B	260	LYS
14	K	28	SER
17	N	3	HIS
35	g	10	PRO
7	B	259	ASN

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	
6	A	110/177 (62%)	110 (100%)	0	100	100
7	B	216/218 (99%)	212 (98%)	4 (2%)	52	70
8	C	164/164 (100%)	160 (98%)	4 (2%)	44	63
9	D	165/165 (100%)	161 (98%)	4 (2%)	44	63
10	E	148/150 (99%)	147 (99%)	1 (1%)	81	88
11	F	137/138 (99%)	137 (100%)	0	100	100
12	G	114/114 (100%)	114 (100%)	0	100	100
13	J	116/116 (100%)	114 (98%)	2 (2%)	56	73
14	K	103/104 (99%)	100 (97%)	3 (3%)	37	59
15	L	102/103 (99%)	101 (99%)	1 (1%)	73	82
16	M	109/109 (100%)	109 (100%)	0	100	100
17	N	100/103 (97%)	98 (98%)	2 (2%)	50	68
18	O	86/87 (99%)	82 (95%)	4 (5%)	22	48
19	P	99/100 (99%)	99 (100%)	0	100	100
20	Q	89/90 (99%)	88 (99%)	1 (1%)	70	80

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
21	R	84/84 (100%)	84 (100%)	0	100	100
22	S	93/93 (100%)	89 (96%)	4 (4%)	25	50
23	T	80/84 (95%)	78 (98%)	2 (2%)	42	62
24	U	83/85 (98%)	83 (100%)	0	100	100
25	V	78/78 (100%)	76 (97%)	2 (3%)	41	61
26	W	57/62 (92%)	57 (100%)	0	100	100
27	X	67/68 (98%)	67 (100%)	0	100	100
28	Y	55/55 (100%)	55 (100%)	0	100	100
29	Z	48/49 (98%)	45 (94%)	3 (6%)	15	42
30	b	47/48 (98%)	47 (100%)	0	100	100
31	c	45/49 (92%)	45 (100%)	0	100	100
32	d	38/38 (100%)	38 (100%)	0	100	100
33	e	51/52 (98%)	49 (96%)	2 (4%)	27	53
34	f	34/34 (100%)	34 (100%)	0	100	100
35	g	55/61 (90%)	53 (96%)	2 (4%)	30	55
36	h	170/170 (100%)	167 (98%)	3 (2%)	54	71
37	i	172/173 (99%)	172 (100%)	0	100	100
38	j	119/126 (94%)	119 (100%)	0	100	100
39	k	87/116 (75%)	82 (94%)	5 (6%)	17	45
40	l	124/147 (84%)	122 (98%)	2 (2%)	58	74
41	m	104/105 (99%)	104 (100%)	0	100	100
42	n	105/107 (98%)	105 (100%)	0	100	100
43	o	86/90 (96%)	84 (98%)	2 (2%)	45	64
44	p	89/99 (90%)	85 (96%)	4 (4%)	23	50
45	q	103/104 (99%)	96 (93%)	7 (7%)	13	40
46	r	92/96 (96%)	92 (100%)	0	100	100
47	s	83/84 (99%)	80 (96%)	3 (4%)	30	55
48	t	76/77 (99%)	76 (100%)	0	100	100
49	u	65/65 (100%)	63 (97%)	2 (3%)	35	57
50	v	74/78 (95%)	74 (100%)	0	100	100
51	w	56/65 (86%)	56 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
52	x	70/79 (89%)	70 (100%)	0	100	100
53	y	65/66 (98%)	65 (100%)	0	100	100
All	All	4513/4725 (96%)	4444 (98%)	69 (2%)	60	75

5 of 69 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
45	q	2	THR
45	q	40	THR
47	s	50	LEU
18	O	102	ARG
18	O	69	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 60 such sidechains are listed below:

Mol	Chain	Res	Type
26	W	42	HIS
52	x	13	HIS
36	h	18	ASN
51	w	53	GLN
53	y	74	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	2902/2904 (99%)	637 (21%)	39 (1%)
2	2	1538/1540 (99%)	379 (24%)	10 (0%)
3	3	119/120 (99%)	20 (16%)	1 (0%)
4	4	3/18 (16%)	0	0
5	5	76/77 (98%)	25 (32%)	3 (3%)
All	All	4638/4659 (99%)	1061 (22%)	53 (1%)

5 of 1061 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	8	C
1	1	10	A
1	1	36	G
1	1	42	A

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Mol	Chain	Res	Type
1	1	46	G

5 of 53 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	1829	A
1	1	2168	G
3	3	14	U
1	1	1857	G
1	1	2109	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 ⓘ

Of 398 ligands modelled in this entry, 398 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 ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

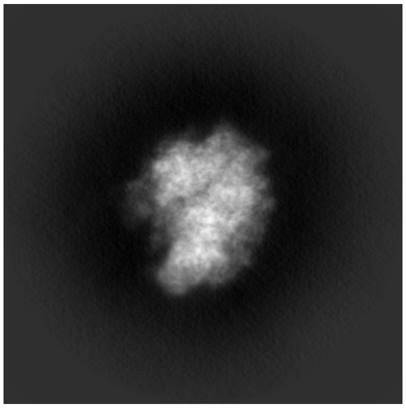
6 Map visualisation

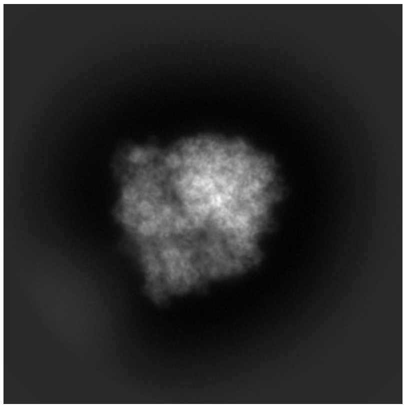
This section contains visualisations of the EMDB entry EMD-42840. These allow visual inspection of the internal detail of the map and identification of artifacts.

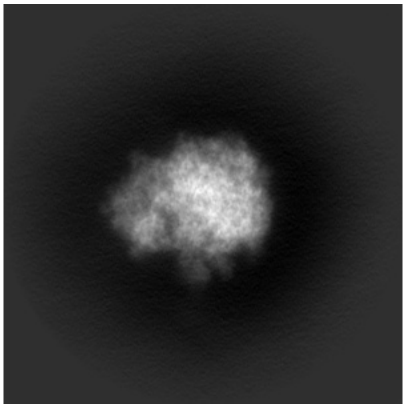
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

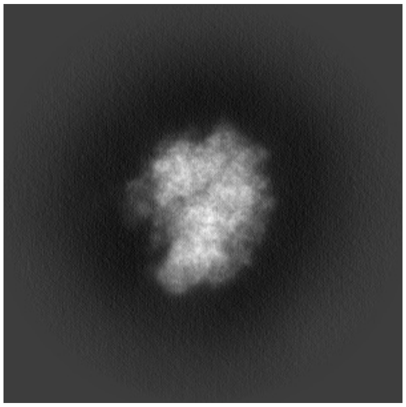
6.1.1 Primary map

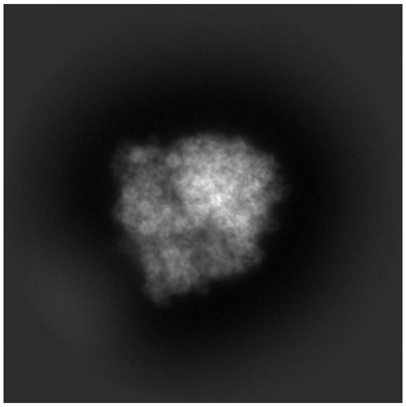

X

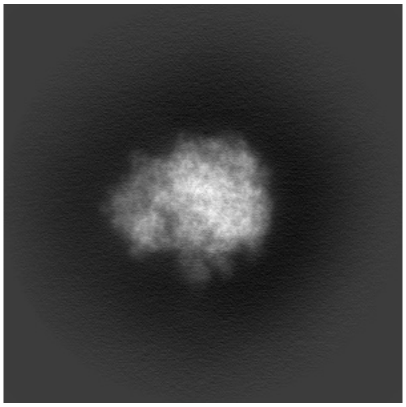

Y


Z

6.1.2 Raw map


X

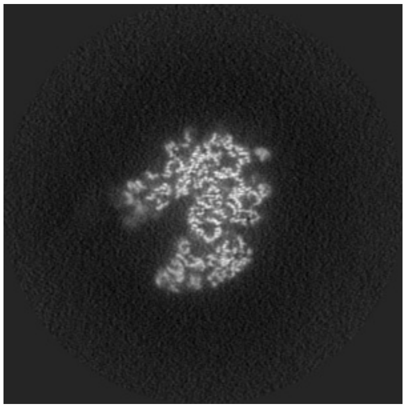

Y


Z

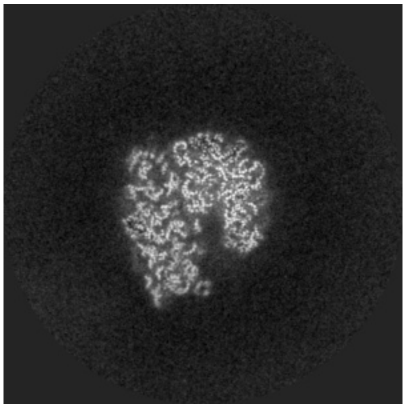
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

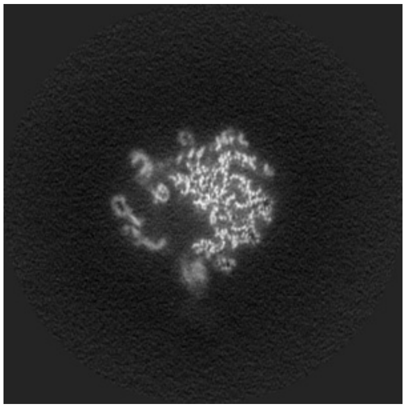
6.2.1 Primary map



X Index: 256

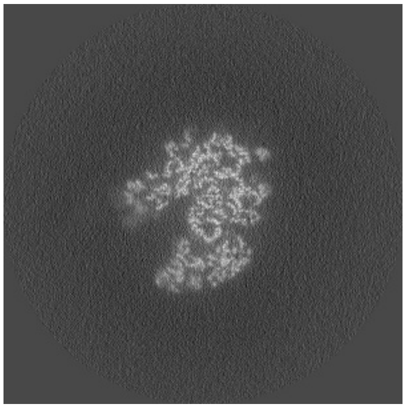


Y Index: 256

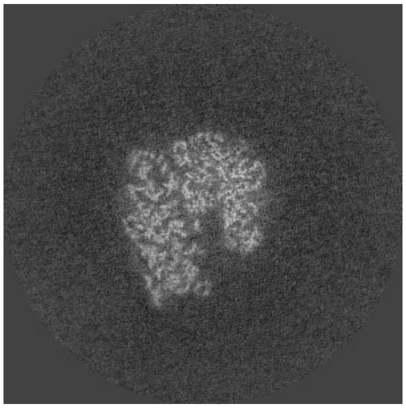


Z Index: 256

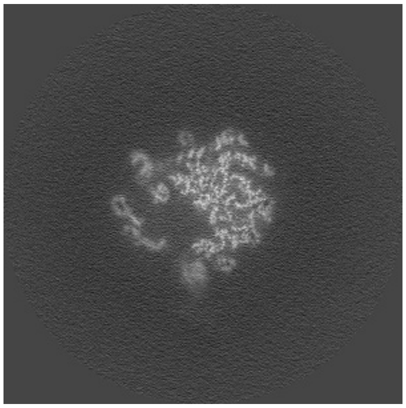
6.2.2 Raw map



X Index: 256



Y Index: 256

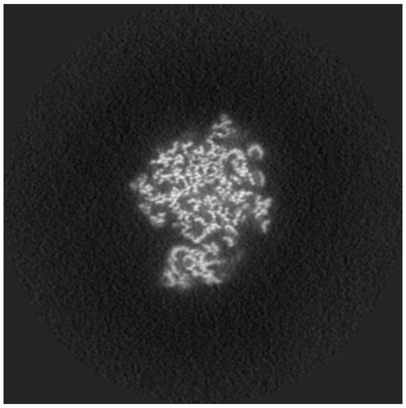


Z Index: 256

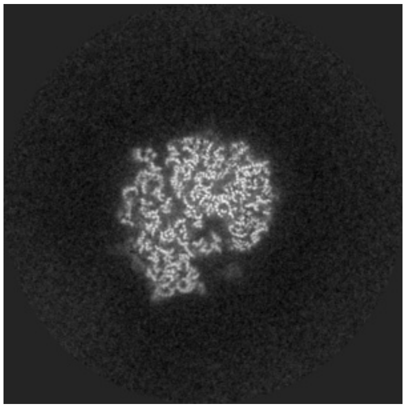
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

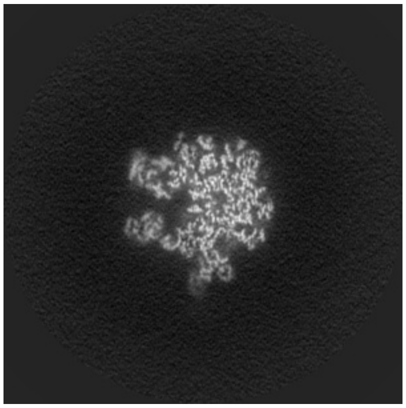
6.3.1 Primary map



X Index: 275

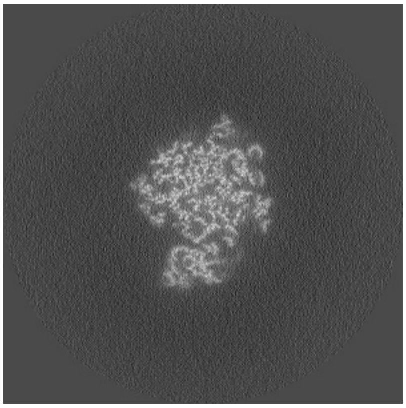


Y Index: 265

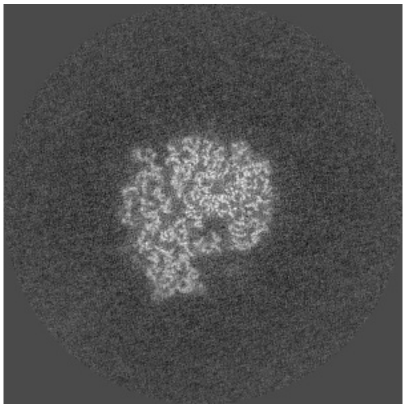


Z Index: 275

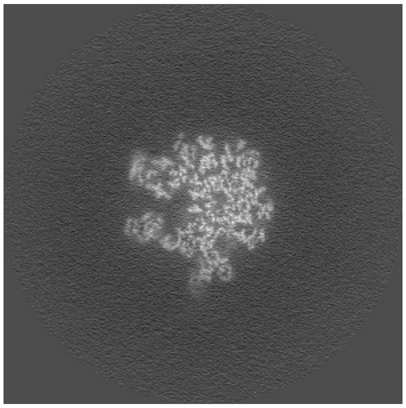
6.3.2 Raw map



X Index: 275



Y Index: 265

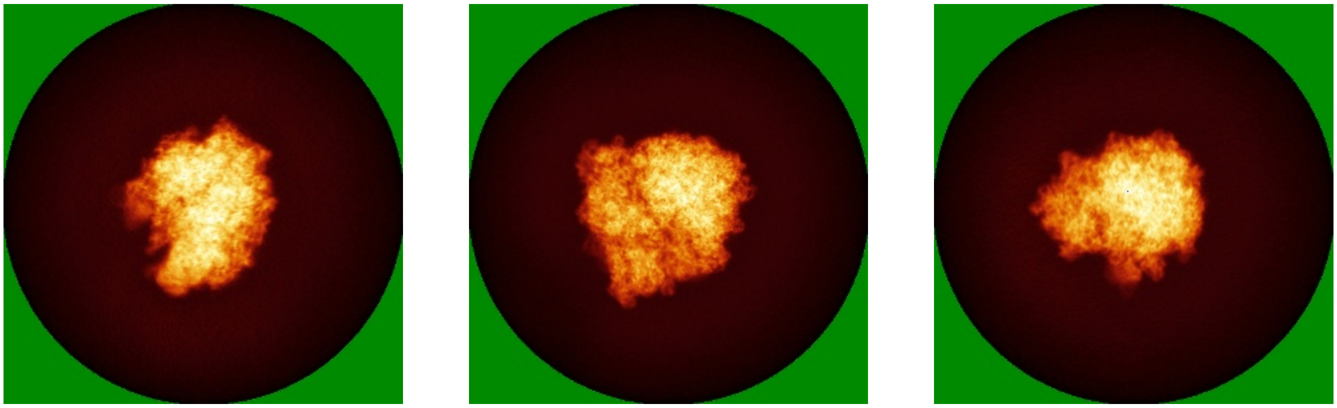


Z Index: 275

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

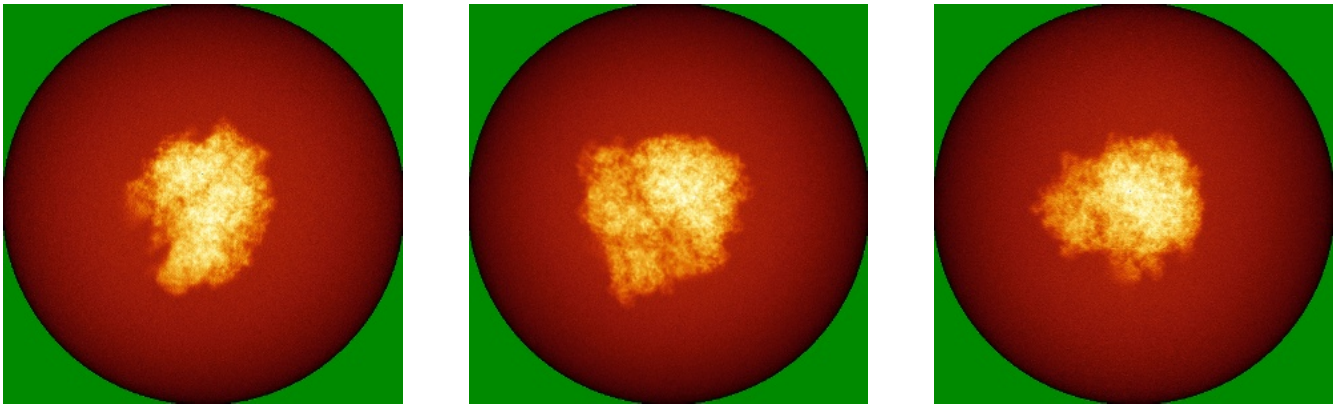
6.4 Orthogonal standard-deviation projections (False-color)

6.4.1 Primary map



X Y Z

6.4.2 Raw map



X Y Z

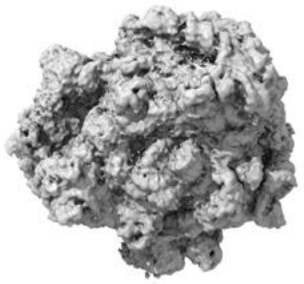
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X

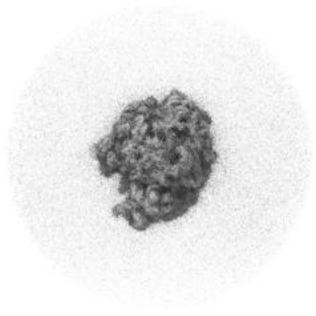
Y



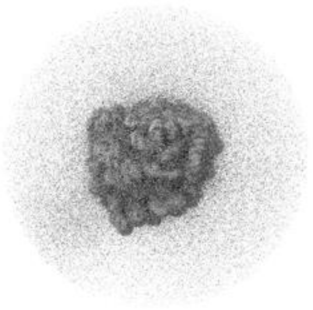
Z

The images above show the 3D surface view of the map at the recommended contour level 0.0198. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

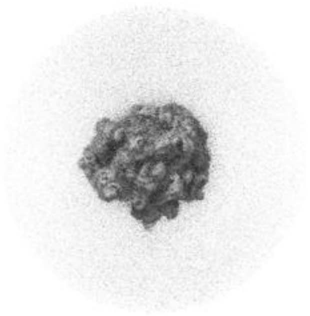
6.5.2 Raw map



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.

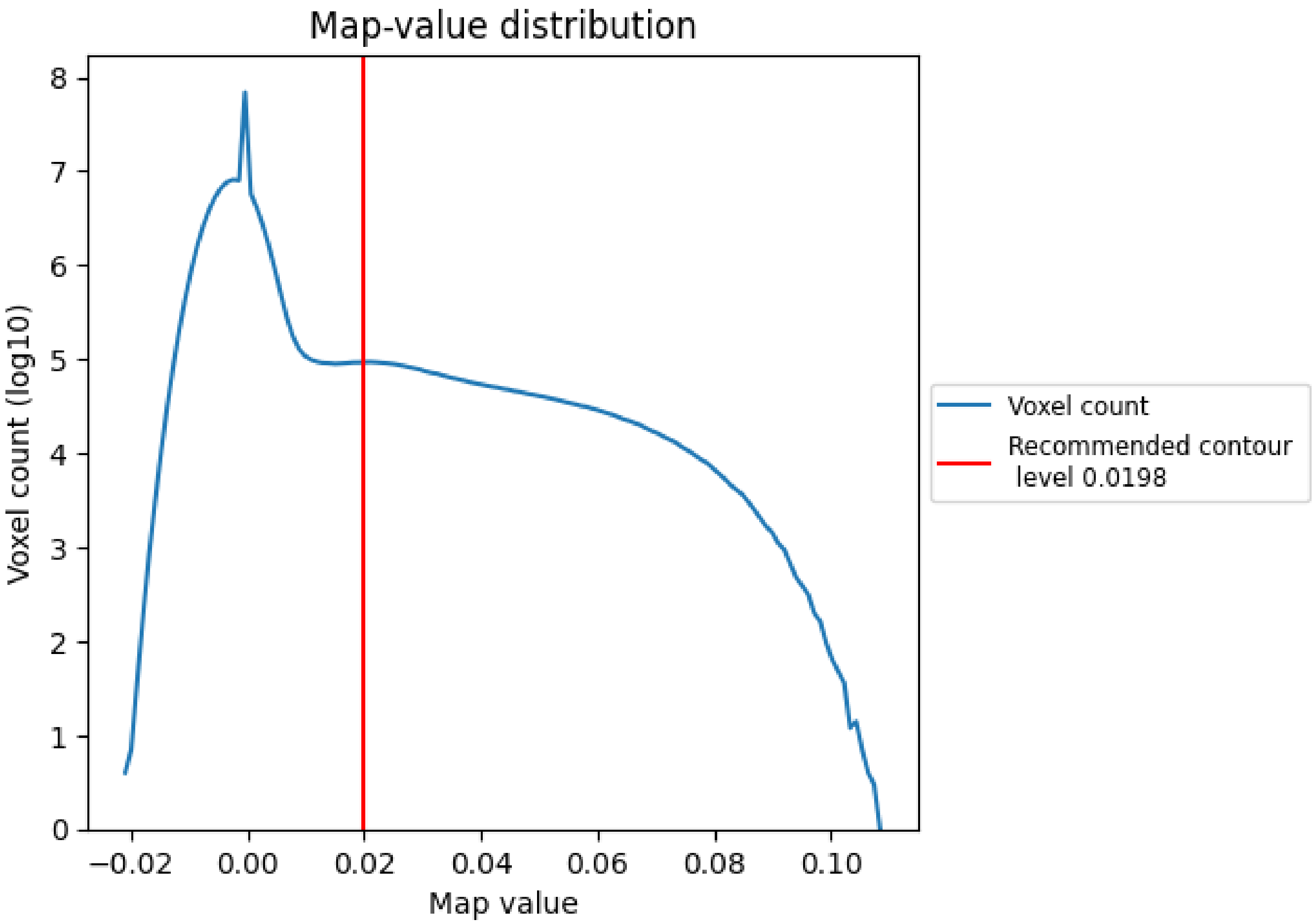
6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

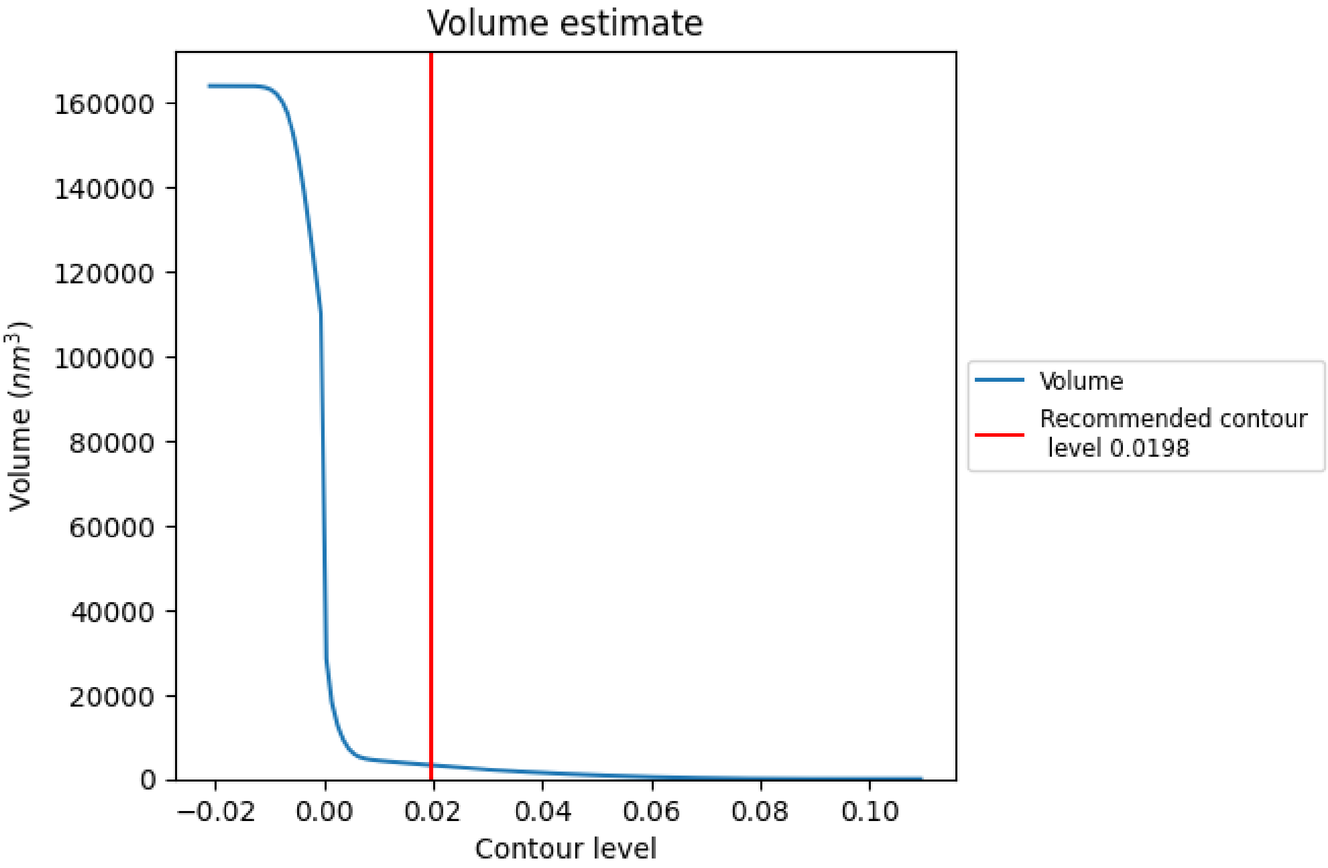
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ



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.

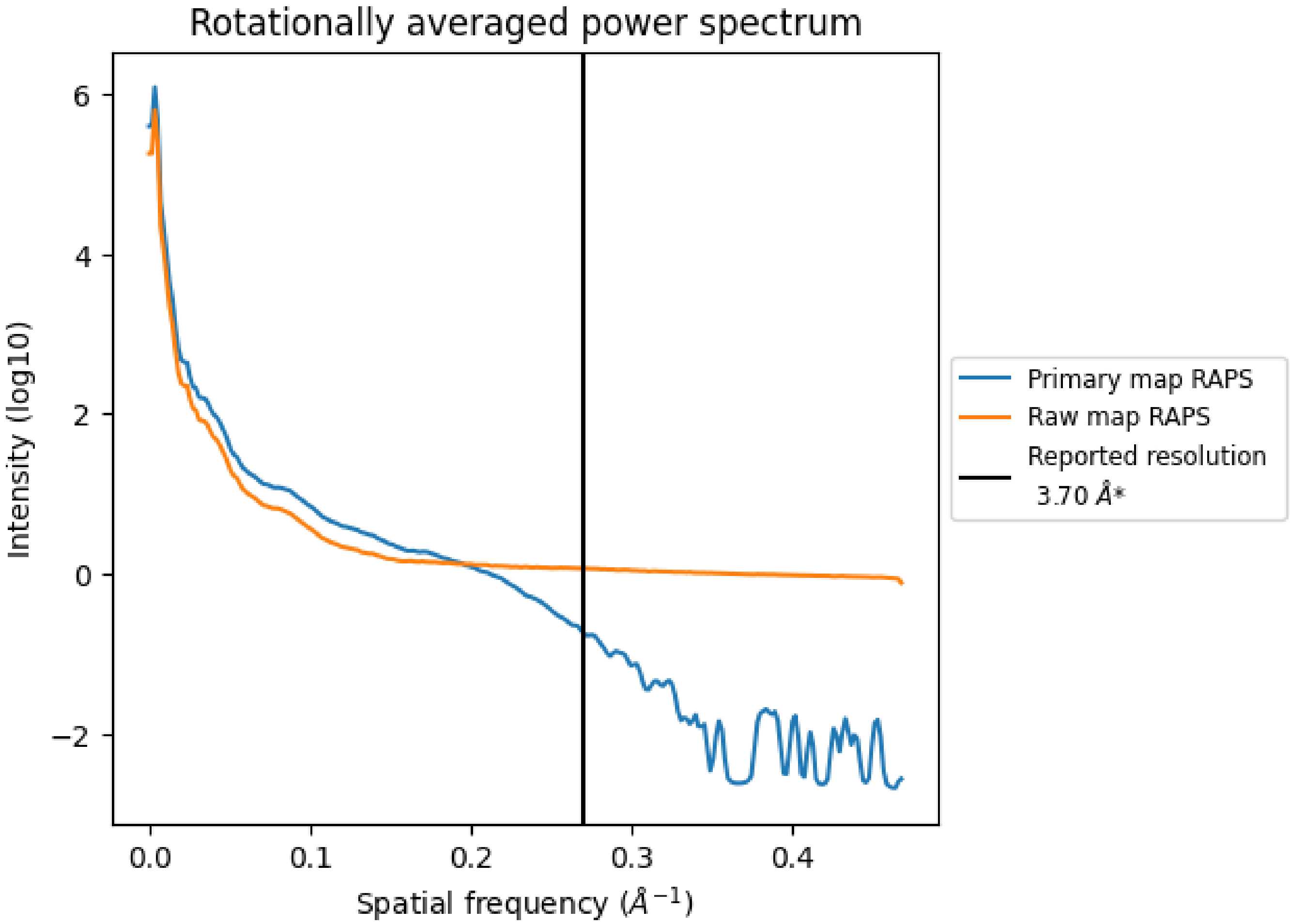
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 3313 nm^3; this corresponds to an approximate mass of 2992 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 ⓘ

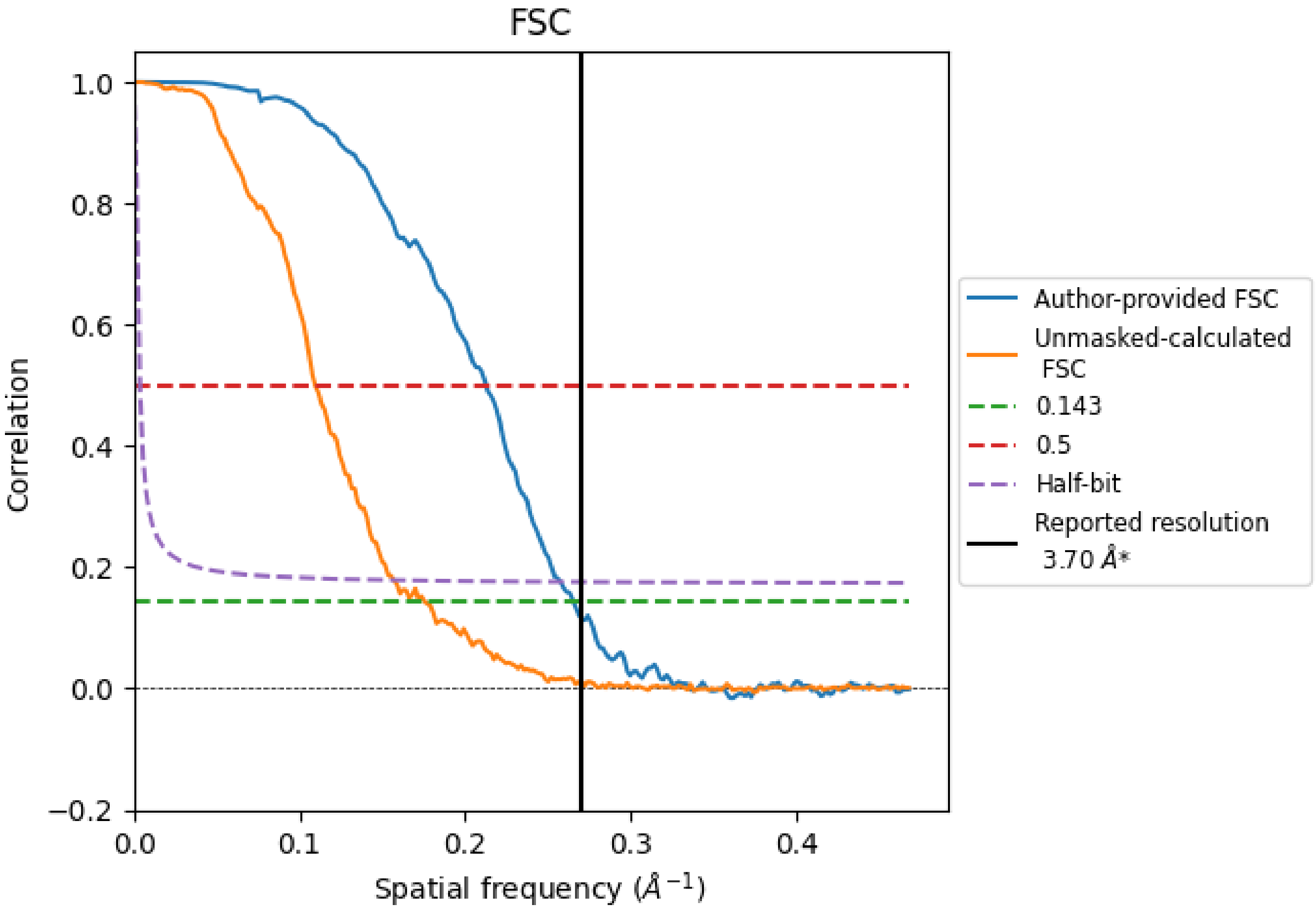


*Reported resolution corresponds to spatial frequency of 0.270 $Å^{-1}$

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 0.270 $Å^{-1}$

8.2 Resolution estimates ⓘ

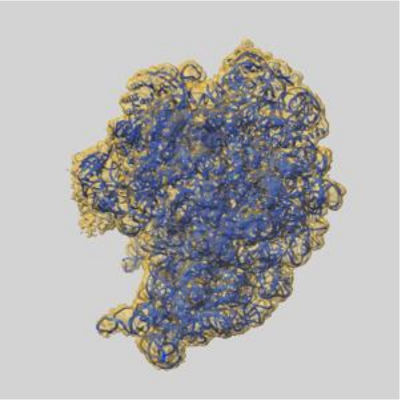
Resolution estimate (Å)	**Estimation criterion (FSC cut-off)**		
	0.143	0.5	Half-bit
Reported by author	3.70	-	-
Author-provided FSC curve	3.77	4.70	3.88
Unmasked-calculated*	5.69	9.13	6.37

*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 5.69 differs from the reported value 3.7 by more than 10 %

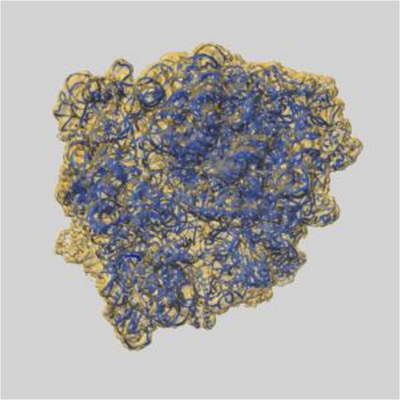
9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-42840 and PDB model 8UZG. Per-residue inclusion information can be found in section 3 on page 16.

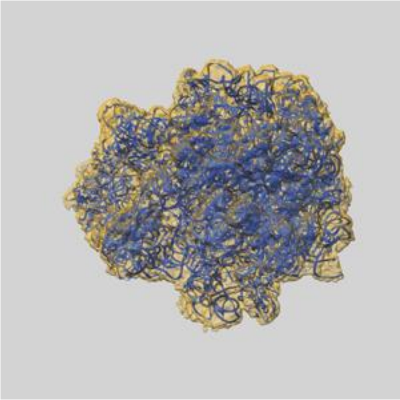
9.1 Map-model overlay ⓘ



X



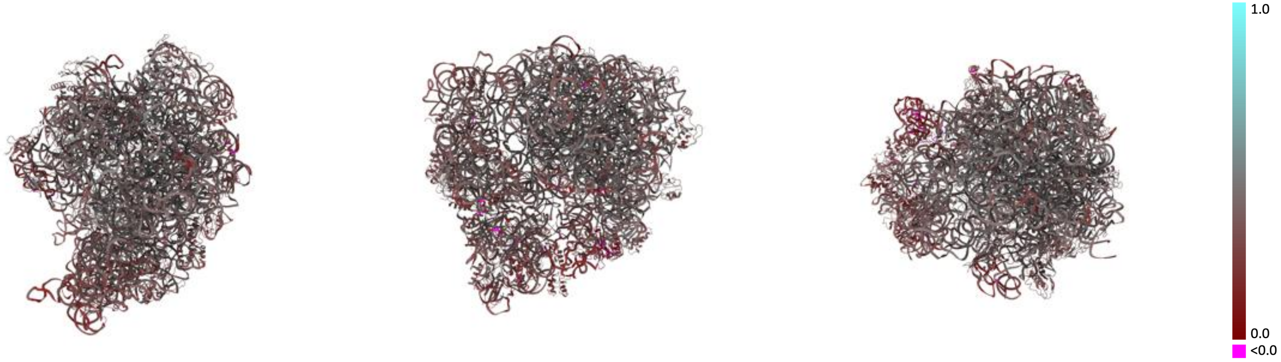
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0198 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.

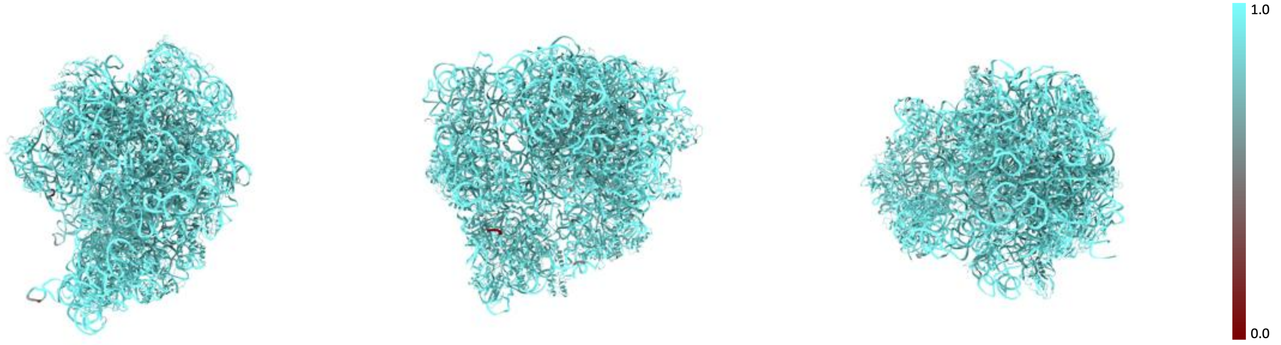
9.2 Q-score mapped to coordinate model ⓘ



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.

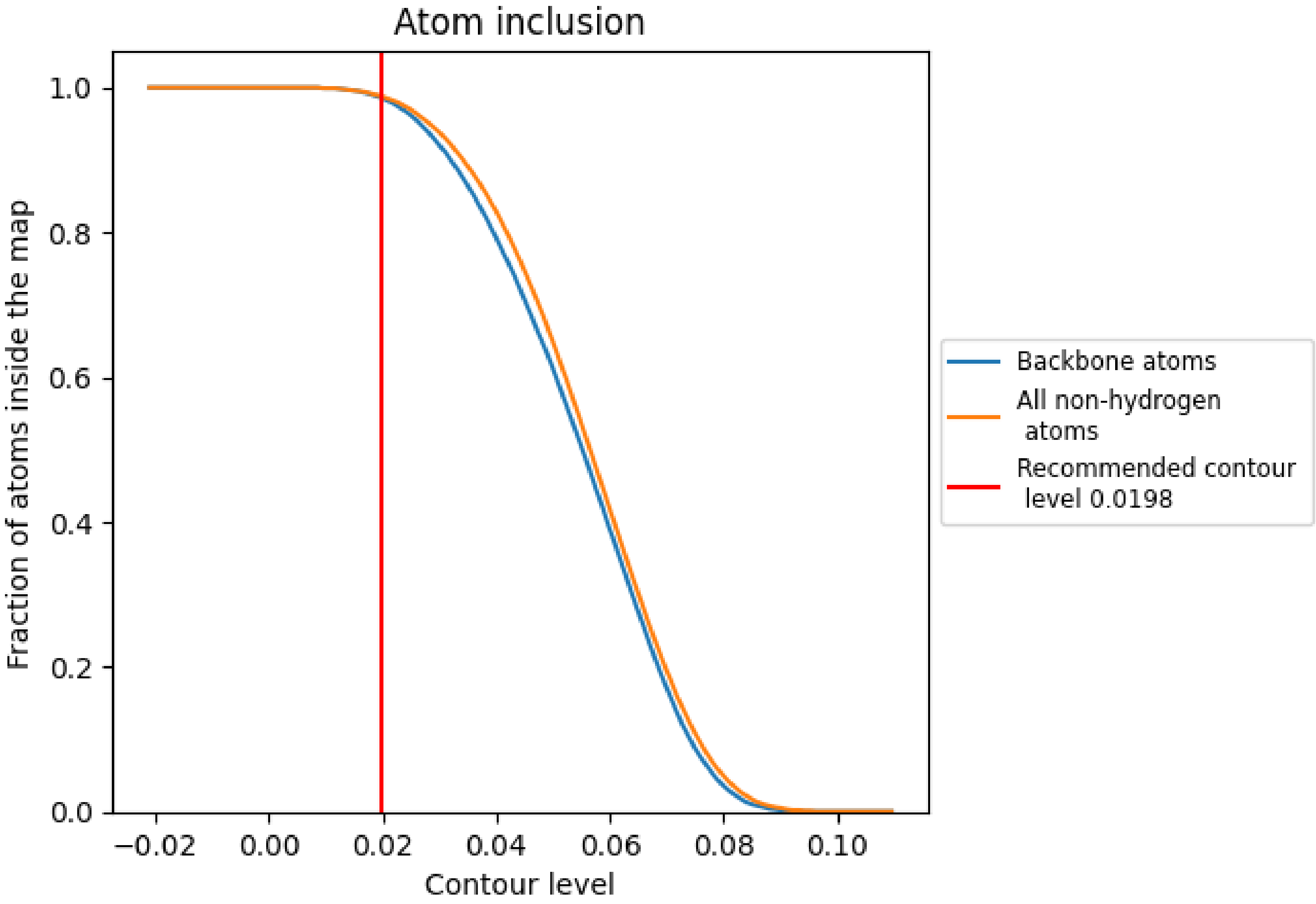
9.3 Atom inclusion mapped to coordinate model ⓘ



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 (0.0198).

9.4 Atom inclusion ⓘ



At the recommended contour level, 99% of all backbone atoms, 99% 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 (0.0198) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9880	0.3730
1	0.9970	0.4010
2	0.9920	0.3610
3	0.9990	0.3930
4	1.0000	0.3290
5	1.0000	0.3650
A	0.9300	0.1680
B	0.9990	0.4270
C	0.9820	0.4070
D	0.9670	0.3850
E	0.9590	0.2750
F	0.9570	0.3450
G	0.8340	0.2760
J	0.9950	0.3980
K	0.9960	0.4020
L	0.9750	0.4120
M	0.9930	0.3930
N	0.9990	0.4000
O	0.9680	0.3540
P	0.9910	0.3970
Q	0.9900	0.3830
R	0.9700	0.4100
S	0.9880	0.3890
T	0.9820	0.3850
U	0.9830	0.3660
V	0.9660	0.3690
W	0.9950	0.4140
X	0.9950	0.3780
Y	0.9620	0.3120
Z	0.9730	0.3980
b	0.9950	0.4130
c	0.9930	0.3960
d	1.0000	0.3970
e	1.0000	0.4100
f	1.0000	0.3710

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Chain	Atom inclusion	Q-score
g	🟦 0.9560	🟫 0.2560
h	🟦 0.9640	🟫 0.2970
i	🟦 0.9550	🟫 0.2650
j	🟦 0.9890	🟫 0.3570
k	🟦 0.9700	🟫 0.3160
l	🟦 0.9520	🟫 0.2210
m	🟦 0.9770	🟫 0.3630
n	🟦 0.9650	🟫 0.2880
o	🟦 0.9590	🟫 0.2850
p	🟦 0.9850	🟫 0.3350
q	🟦 0.9900	🟫 0.2940
r	🟦 0.9390	🟫 0.2290
s	🟦 0.9850	🟫 0.2710
t	🟦 0.9870	🟫 0.3260
u	🟦 0.9710	🟫 0.3240
v	🟦 0.9840	🟫 0.3100
w	🟦 0.9860	🟫 0.3010
x	🟦 0.9780	🟫 0.2700
y	🟦 0.9820	🟫 0.2840