



wwPDB EM Validation Summary Report ⓘ

Dec 11, 2022 – 10:27 am GMT

PDB ID : 4UER
EMDB ID : EMD-2845
Title : 40S-eIF1-eIF1A-eIF3-eIF3j translation initiation complex from *Lachancea kluyveri*
Authors : Aylett, C.H.S.; Boehringer, D.; Erzberger, J.P.; Schaefer, T.; Ban, N.
Deposited on : 2014-12-18
Resolution : 6.47 Å (reported)
Based on initial model : 3U5B

This is a wwPDB EM Validation Summary Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

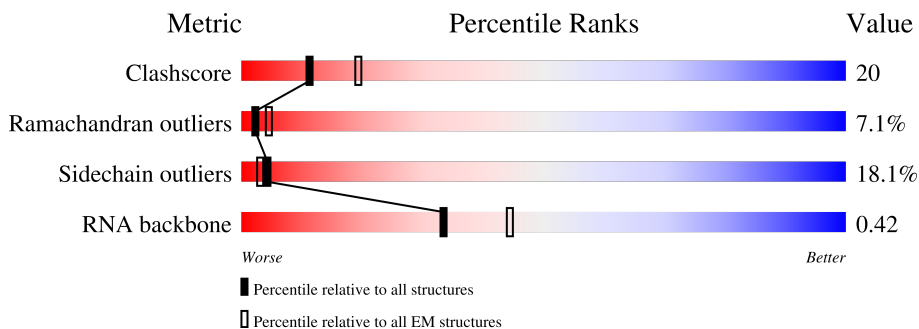
EMDB validation analysis : 0.0.1.dev43
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.9
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.31.3

1 Overall quality at a glance

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

The reported resolution of this entry is 6.47 Å.

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




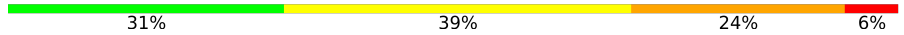

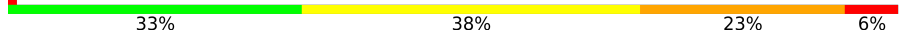
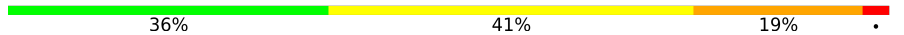



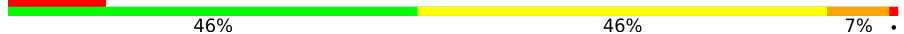

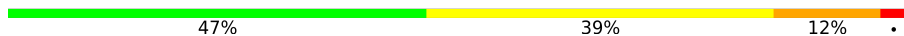
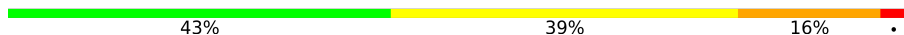
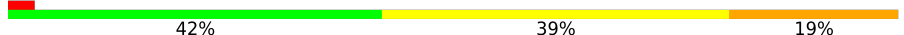












Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion $< 40\%$). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	0	100	
2	1	63	
3	2	188	
4	3	184	
5	4	214	
6	5	97	
7	6	81	






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Mol	Chain	Length	Quality of chain
8	7	96	 42% 39% 18%
9	8	70	 31% 39% 24% 6%
10	9	71	 41% 41% 14%
11	A	1781	 33% 38% 23% 6%
12	B	206	 36% 41% 19%
13	C	223	 53% 33% 13%
14	D	185	 51% 33% 15%
15	E	217	 52% 36% 11%
16	F	83	 11% 46% 46% 7%
17	G	206	 50% 38% 10%
18	H	129	 47% 39% 12%
19	I	141	 43% 39% 16%
20	J	107	 42% 39% 19%
21	K	127	 49% 36% 10% 5%
22	L	144	 49% 38% 10%
23	M	145	 39% 43% 15%
24	N	53	 47% 42% 8%
25	O	150	 53% 33% 12%
26	P	134	 55% 30% 12%
27	Q	155	 52% 38% 8%
28	R	318	 58% 36% 6%
29	S	124	 6% 50% 38% 9%
30	T	143	 39% 45% 15%
31	U	124	 31% 48% 16% 5%
32	V	120	 49% 36% 11%

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Mol	Chain	Length	Quality of chain
33	W	260	 46% 43% 10%
34	X	60	 48% 45% 7%
35	Y	226	 52% 35% 12%
36	Z	87	 49% 28% 21%
37	a	964	 47% 53%
38	b	763	 73% 25%
39	c	812	 5% 65% 33%

2 Entry composition [i](#)

There are 40 unique types of molecules in this entry. The entry contains 89319 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called EIF1A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	0	100	805	495	148	157	5	0	0

- Molecule 2 is a protein called ES28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	1	63	497	306	99	91	1	0	0

- Molecule 3 is a protein called ES8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	2	188	1489	925	298	264	2	0	0

- Molecule 4 is a protein called ES7.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	3	184	1481	951	265	265	0	0

- Molecule 5 is a protein called ES1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	4	214	1709	1084	310	311	4	0	0

- Molecule 6 is a protein called ES26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	5	97	769	475	160	129	5	0	0

- Molecule 7 is a protein called ES27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	6	81	610	382	110	113	5	0	0

- Molecule 8 is a protein called ES10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	7	96	772	499	126	145	2	0	0

- Molecule 9 is a protein called ES25.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
9	8	70	563	360	104	99	0	0

- Molecule 10 is a protein called ES31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	9	71	516	328	93	91	4	0	0

- Molecule 11 is a RNA chain called 18S RRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
11	A	1781	37835	16910	6661	12482	1782	1	0

- Molecule 12 is a protein called US2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	B	206	1577	1014	278	283	2	0	0

- Molecule 13 is a protein called US3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	C	223	1734	1101	313	314	6	0	0

- Molecule 14 is a protein called US4.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	D	185	Total	C	N	O	S	0	0
			1494	943	289	261	1		

- Molecule 15 is a protein called US5.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	E	217	Total	C	N	O	S	0	0
			1635	1047	289	297	2		

- Molecule 16 is a protein called EIF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	F	83	Total	C	N	O	S	0	0
			671	423	124	120	4		

- Molecule 17 is a protein called US7.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	G	206	Total	C	N	O	S	0	0
			1609	1007	300	299	3		

- Molecule 18 is a protein called US8.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	H	129	Total	C	N	O	S	0	0
			1021	650	188	180	3		

- Molecule 19 is a protein called US9.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	I	141	Total	C	N	O	0	0
			1105	708	203	194		

- Molecule 20 is a protein called US10.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	J	107	Total	C	N	O	S	0	0
			855	539	156	159	1		

- Molecule 21 is a protein called US11.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	K	127	Total	C	N	O	S	0	0
			891	545	182	163	1		

- Molecule 22 is a protein called US12.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	L	144	Total	C	N	O	S	0	0
			1121	708	220	191	2		

- Molecule 23 is a protein called US13.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	M	145	Total	C	N	O	S	0	0
			1192	743	237	210	2		

- Molecule 24 is a protein called US14.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	N	53	Total	C	N	O	S	0	0
			442	274	92	72	4		

- Molecule 25 is a protein called US15.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	O	150	Total	C	N	O	S	0	0
			1192	759	224	207	2		

- Molecule 26 is a protein called ES24.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	P	134	Total	C	N	O	0	0
			1073	676	208	189		

- Molecule 27 is a protein called US17.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Q	155	Total	C	N	O	S	0	0
			1213	774	230	206	3		

- Molecule 28 is a protein called RACK1.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	R	318	Total	C	N	O	S	0	0
			2437	1541	418	470	8		

- Molecule 29 is a protein called US19.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	S	124	Total	C	N	O	S	0	0
			977	622	182	166	7		

- Molecule 30 is a protein called ES19.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	T	143	Total	C	N	O	S	0	0
			1112	694	208	208	2		

- Molecule 31 is a protein called ES12.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	U	124	Total	C	N	O	S	0	0
			890	560	156	172	2		

- Molecule 32 is a protein called ES17.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	V	120	Total	C	N	O	S	0	0
			926	577	177	170	2		

- Molecule 33 is a protein called ES4.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	W	260	Total	C	N	O	S	0	0
			2068	1316	389	360	3		

- Molecule 34 is a protein called ES30.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	X	60	Total	C	N	O	S	0	0
			475	299	98	77	1		

- Molecule 35 is a protein called ES6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	Y	226	1799	1129	346	321	3	0	0

- Molecule 36 is a protein called ES21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	Z	87	684	420	125	137	2	0	0

- Molecule 37 is a protein called EIF3A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
37	a	449	3656	2350	616	683	7	0	0

- Molecule 38 is a protein called EIF3B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	b	572	3978	2578	667	720	13	0	92

- Molecule 39 is a protein called EIF3C.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	c	544	4442	2845	736	849	12	0	0

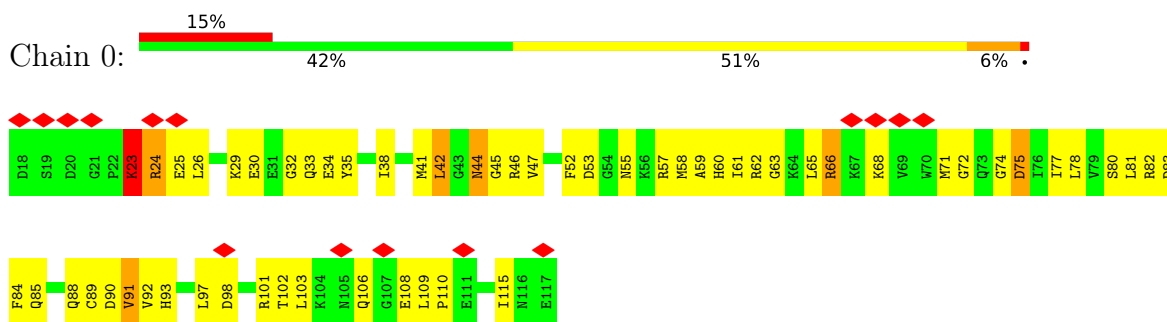
- Molecule 40 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
40	5	1	Total	Zn	0
			1	1	
40	6	1	Total	Zn	0
			1	1	
40	9	1	Total	Zn	0
			1	1	
40	N	1	Total	Zn	0
			1	1	

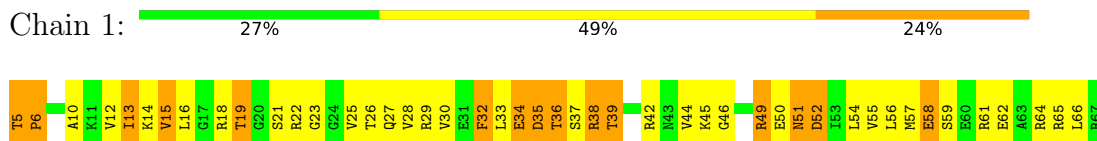
3 Residue-property plots

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.

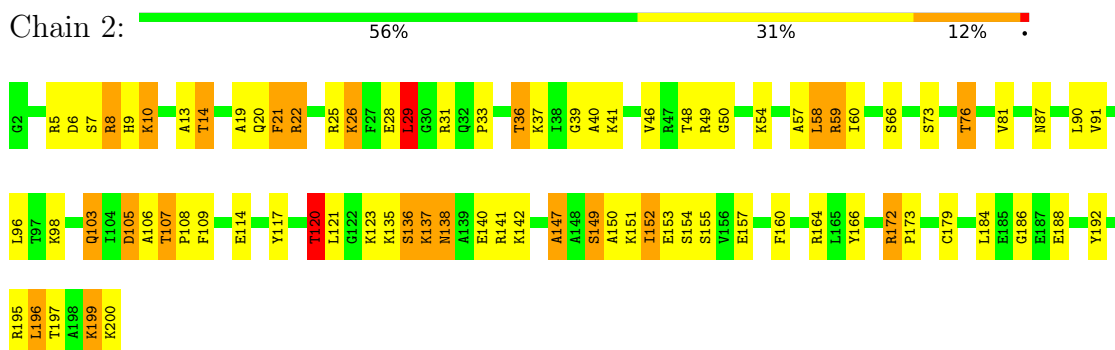
• Molecule 1: EIF1A



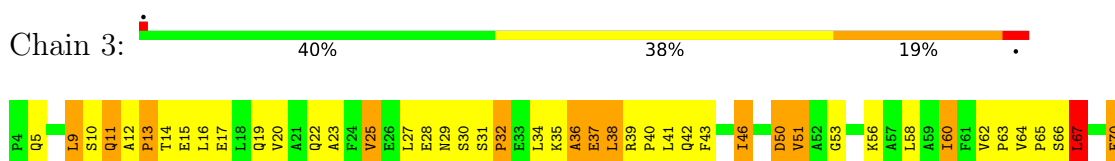
• Molecule 2: ES28

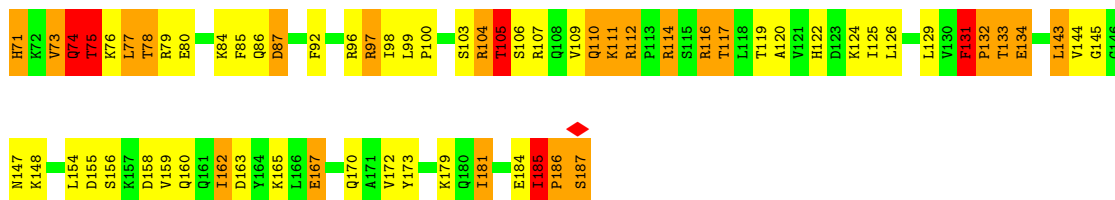


• Molecule 3: ES8

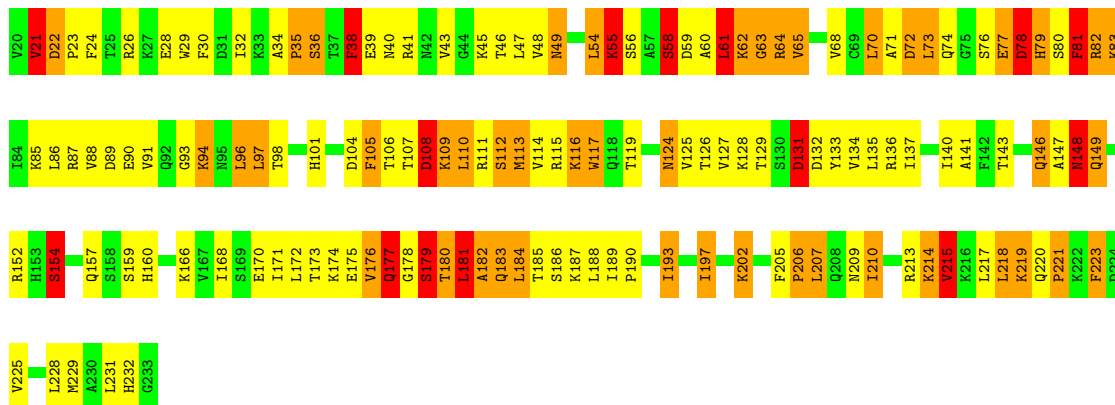


• Molecule 4: ES7

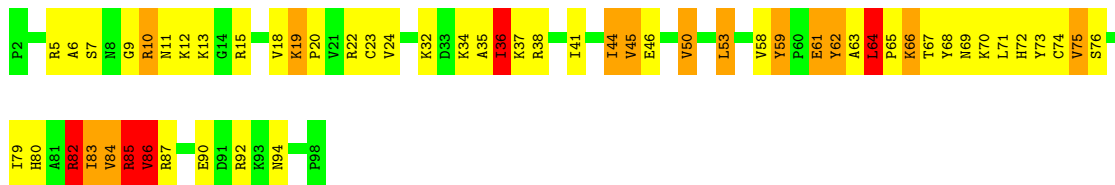




• Molecule 5: ES1



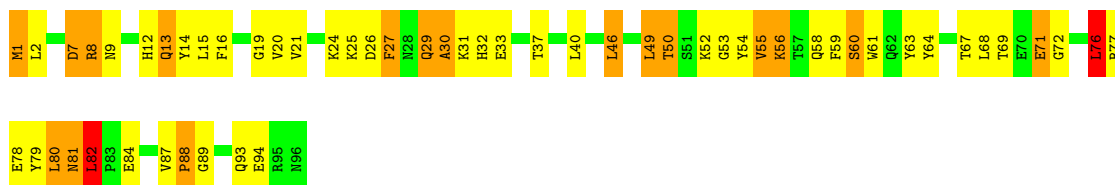
• Molecule 6: ES26



• Molecule 7: ES27



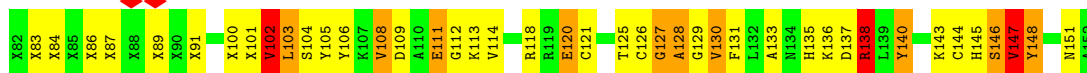
• Molecule 8: ES10



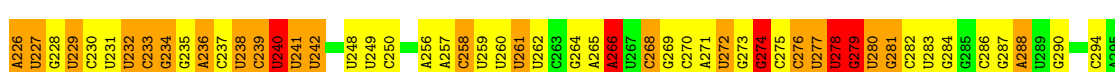
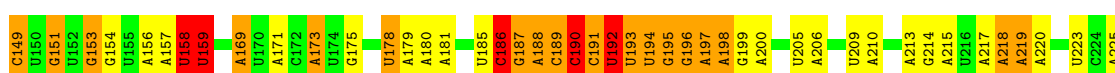
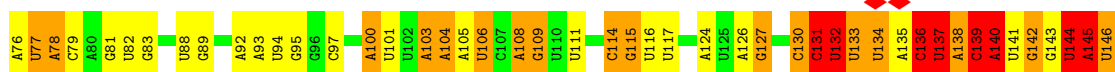
• Molecule 9: ES25



• Molecule 10: ES31



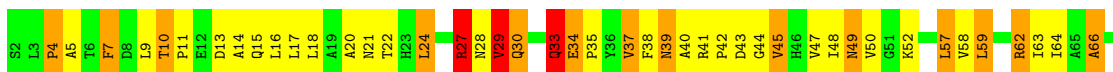
• Molecule 11: 18S RRNA



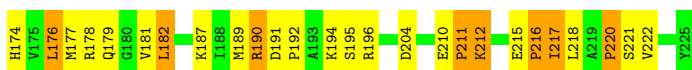
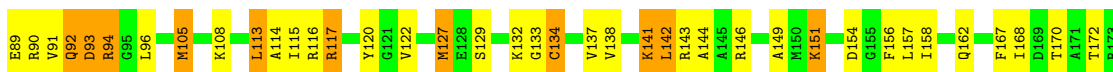
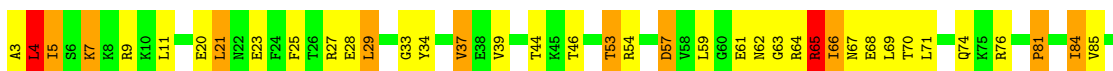
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C1729	U1657	A1587	U1519	C1451	U1378	U1315	G1165	A1091	G1014	U932	U861	U794	G729	
A1730	G1658	C1588	U1520	G1452	U1379	C1236	A1166	A1092	U1015	A933	U862	U795	C730	
A1731	U1659	G1589	G1521	G1453	U1380	C1237	A1167	A1093	C1016	C934	A863	A796	G731	
U1734	G1662	C1590	U1522	C1454	U1381	C1238	U1168	A1094	U1017	U935	U864	A797	A732	
U1735	G1663	G1591	G1523	C1455	A1382	U1319	U1169	C1096	U1018	G936	A865	A733	G732	
G1736	U1664	A1592	A1524	C1456	G1383	A1319	G1170	U1097	A1019	G937	G866	U800	A734	
G1737	U1665	A1593	A1525	C1457	G1384	U1320	A1171	A1098	A1020	G938	G867	C735	C735	
U1666	U1666	G1594	U1526	C1458	G1385	A1321	G1172	U1099	C1021	G939	G868	G802	C736	
U1738	G1667	U1595	A1527	A1460	U1386	A1322	A1173	U1099	U1024	G942	G871	U805	A737	
C1739	U1668	C1596	C1529	A1461	A1387	C1323	C1174	G1100	A1025	C943	G872	A806	G738	
A1740	U1669	A1597	U1532	G1462	C1389	G1324	C1175	G1101	U1026	A944	U873	G739	G738	
U1741	G1670	U1598	U1533	C1463	U1390	A1325	G1176	G1102	A1027	A951	C874	A740	A740	
G1745	G1671	A1600	C1533	C1464	C1391	A1329	G1177	U1103	C1028	A952	C875	C741	C741	
A1746	U1672	G1534	U1534	A1471	C1392	U1330	U1178	U1104	U1029	A953	G876	U810	U742	
A1747	G1673	U1535	U1535	A1472	G1393	U1331	U1179	U1105	C1029	A954	G877	A812	U743	
G1748	U1674	G1536	G1536	C1473	U1394	A1332	U1180	U1106	U1030	U959	G878	U813	U744	
A1749	A1675	C1537	U1473	U1473	G1395	U1333	U1181	G1111	U1031	U960	G879	A814	U745	
A1750	G1676	U1538	G1474	G1474	U1396	C1333	U1182	G1112	G1032	U961	G880	G815	U746	
G1679	U1677	U1539	A1475	A1475	U1397	U1334	U1183	G1113	U1033	U962	C881	U816	C747	
G1680	G1678	G1540	C1476	C1476	U1398	U1335	U1184	A1116	C1034	U963	A881	A817	U748	
C1751	U1679	A1540	U1477	U1477	C1399	U1336	U1185	G1114	A1039	U964	A882	C818	U749	
A1681	A1681	G1541	A1478	G1478	A1400	A1336	U1186	G1115	U1040	U965	U883	G819	U750	
C1682	U1682	U1542	G1479	G1479	A1401	A1337	U1187	U1120	G1041	U966	C884	U820	U751	
A1754	C1683	G1542	A1480	A1480	A1402	A1338	U1188	A1131	U1042	U967	A884	U821	A753	
A1755	U1684	C1403	C1481	C1481	C1403	C1339	U1189	G1132	G1043	C969	U886	U822	A754	
G1685	G1548	U1547	G1482	G1482	U1403	U1340	U1191	G1127	A1043	C970	A887	U823	A755	
C1686	C1549	A1548	A1482	A1482	A1410	U1341	U1192	C1128	G1046	A971	U888	G824	A756	
C1687	U1550	A1483	A1483	A1483	A1411	C1342	A1193	C1129	U1067	A972	U889	G825	A757	
U1688	A1551	G1484	G1484	G1484	U1412	U1343	U1194	U1130	U1068	U980	A898	U832	U764	
A1689	U1552	U1485	U1485	U1485	U1413	A1344	U1195	G1131	U1049	A973	A900	C827	U765	
C1619	G1553	G1486	U1414	U1414	U1414	A1345	A1196	A1132	U1050	A974	U894	U828	U766	
G1622	U1554	U1415	U1415	U1415	U1414	A1346	U1197	A1133	G1051	C975	U895	A829	U767	
C1623	A1555	G1416	U1416	U1416	U1415	U1347	U1198	C1134	U1052	U830	U896	U831	A760	
A1694	U1556	A1417	A1417	A1417	U1416	U1348	U1199	A1137	G1053	A978	A978	G837	G763	
C1624	U1557	G1418	G1418	G1418	A1417	A1349	U1200	A1138	U1067	U989	U898	U838	U764	
C1625	U1558	U1419	U1419	U1419	U1418	U1350	G1201	A1139	U1068	U990	A900	U839	U765	
U1626	A1559	A1491	C1420	C1420	G1419	U1351	U1202	A1140	U1058	U981	G901	U840	U766	
U1627	U1560	A1492	A1421	A1421	U1420	G1352	U1203	A1141	U1059	U982	G902	U841	U767	
U1628	U1561	C1494	A1422	A1422	U1421	U1353	U1204	A1142	U1060	G987	U899	U842	U768	
G1629	A1562	C1495	A1423	A1423	U1422	G1354	U1205	A1143	A1061	U988	U899	U843	U769	
U1630	C1563	G1498	G1428	G1428	A1427	C1355	A1206	A1144	A1062	U989	U899	U844	A771	
A1631	U1564	U1499	U1429	U1429	G1428	U1356	A1207	A1145	A1062	A988	U899	U845	G772	
C1632	C1565	G1499	U1430	U1430	U1428	A1357	G1209	U1146	U1063	U989	A900	U846	C773	
C1633	C1566	C1500	U1431	U1431	U1429	U1358	G1210	G1147	G1064	C990	U911	U847	C773	
C1634	C1567	G1501	U1432	U1432	U1430	C1359	U1214	C1148	G1065	G991	G913	A844	A774	
A1635	A1569	G1502	U1433	U1433	U1432	U1360	U1215	G1149	U1066	A992	G914	A844	G775	
C1636	C1570	A1503	U1434	U1434	U1432	A1361	C1216	G1150	U1071	A993	G914	G845	G778	
C1637	C1571	G1504	U1435	U1435	G1434	U1362	A1217	A1151	C1072	C994	A915	A847	U779	
C1639	G1572	A1505	G1436	G1436	U1434	U1363	G1218	A1152	G1073	U996	U916	C848	A780	
U1642	U1573	G1506	U1437	U1437	U1436	G1364	A1219	G1153	G1074	G997	U918	C849	U781	
G1642	C1574	C1509	U1437	U1437	U1436	U1365	G1220	G1154	C1075	C1000	A919	A850	U782	
U1643	G1575	U1510	U1442	U1442	U1442	U1366	A1221	G1155	U1079	A1001	U920	U851	G783	
C1644	U1576	U1511	U1443	U1443	U1442	U1367	U1225	C1156	U1080	G1002	U921	C852	C784	
G1645	U1577	U1512	G1444	G1444	U1443	U1370	A1226	A1157	A1003	G1003	A924	G853	U785	
C1646	G1578	C1445	A1446	A1446	U1444	A1371	G1228	C1158	C1081	U1004	C927	U854	C786	
U1647	U1582	U1514	C1446	C1446	U1444	U1372	G1229	A1159	G1082	A1005	U928	A855	G787	
A1648	A1583	A1515	C1447	C1447	U1446	A1375	G1230	C1161	G1083	A1006	U929	A856	A788	
G1649	U1584	A1516	U1448	U1448	U1447	U1376	A1230	C1162	G1084	C1006	U930	U857	A789	
A1651	U1585	U1517	U1449	U1449	U1448	C1376	U1231	A1163	A1086	U1012	A930	G858	U790	
U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710	U1710
C1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711	U1711
A1712	G1712	U1712	U1712	U1712	U1712	U1712	U1712	U1712	U1712	U1712	U1712	U1712	U1712	U1712
G1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713	U1713
A1714	G1714	U1714	U1714	U1714	U1714	U1714	U1714	U1714	U1714	U1714	U1714	U1714	U1714	U1714
G1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715	U1715
C1716	G1716	U1716	U1716	U1716	U1716	U1716	U1716	U1716	U1716	U1716	U1716	U1716	U1716	U1716
U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717	U1717
G1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720	U1720
A1721	G1721	U1721	U1721	U1721	U1721	U1721	U1721	U1721	U1721	U1721	U1721	U1721	U1721	U1721
A1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722	U1722
G1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727	U1727

U1795
C1796
A1797
U1798

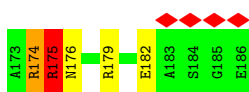
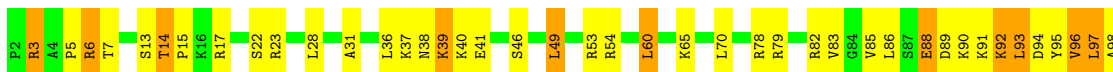
• Molecule 12: US2



• Molecule 13: US3



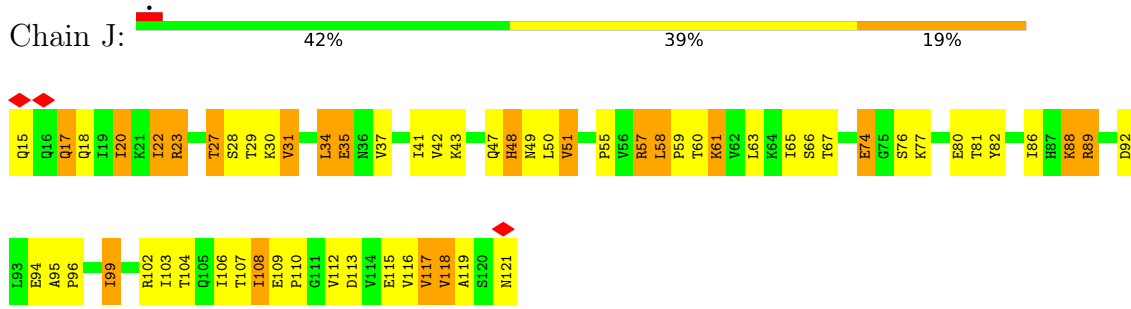
• Molecule 14: US4



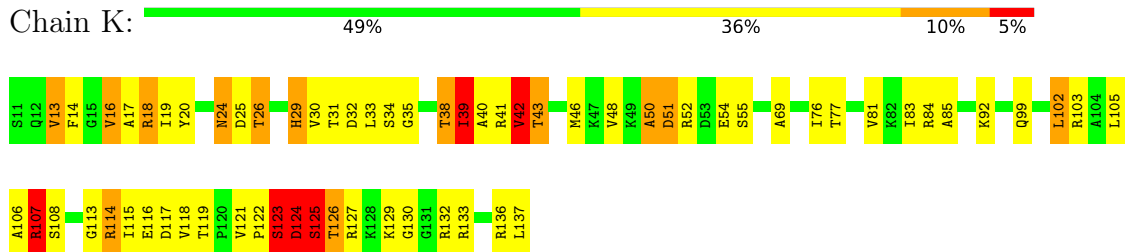
• Molecule 15: US5



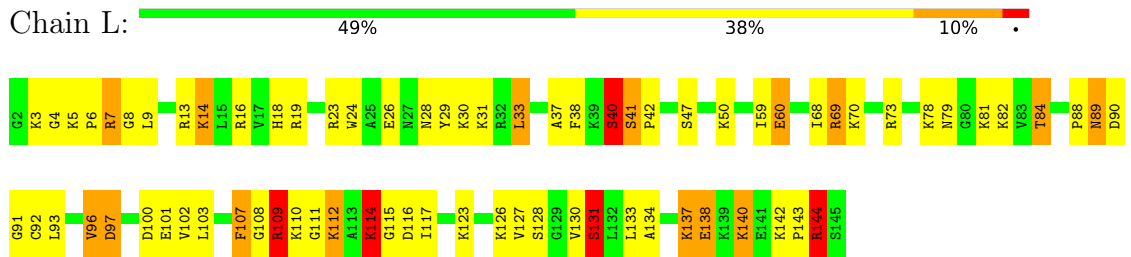
• Molecule 20: US10



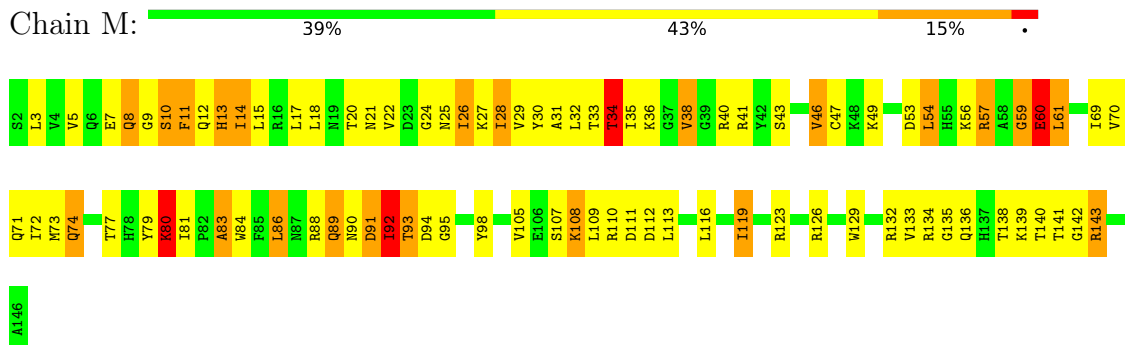
• Molecule 21: US11



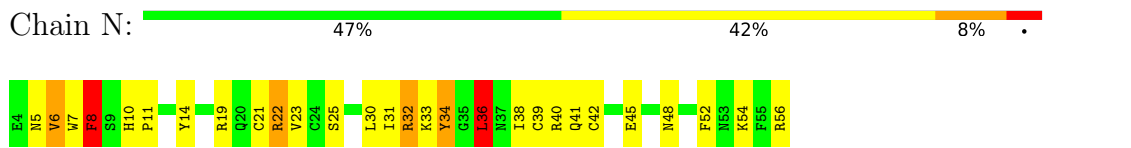
• Molecule 22: US12



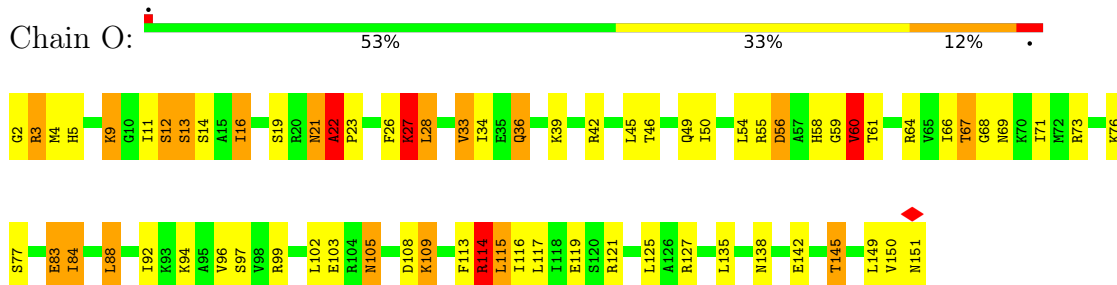
• Molecule 23: US13



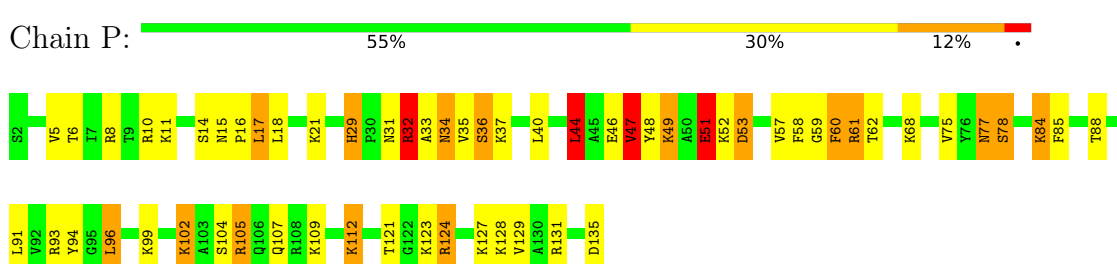
• Molecule 24: US14



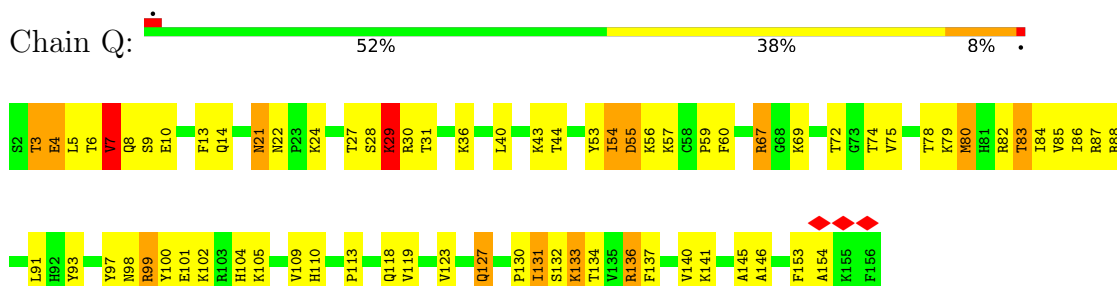
• Molecule 25: US15



• Molecule 26: ES24



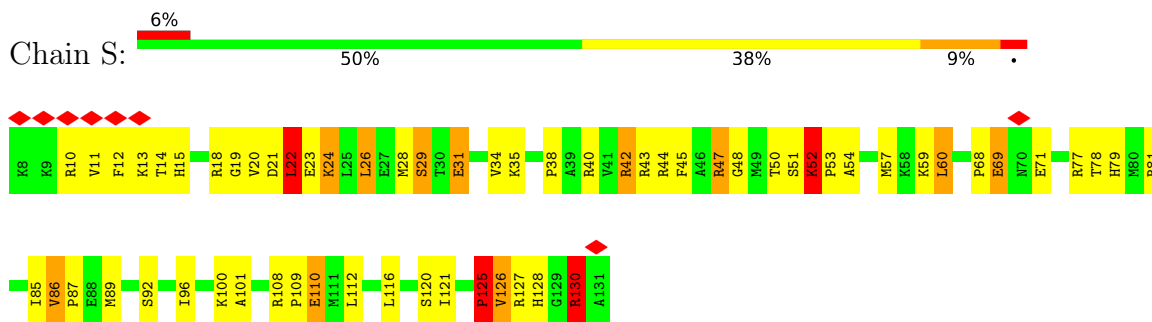
• Molecule 27: US17



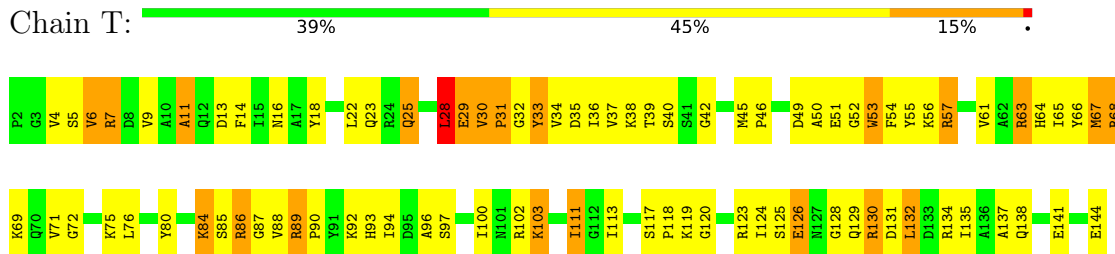
• Molecule 28: RACK1



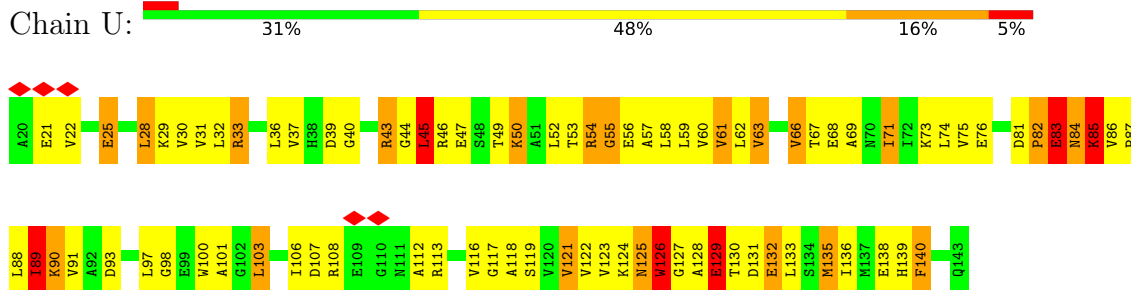
• Molecule 29: US19



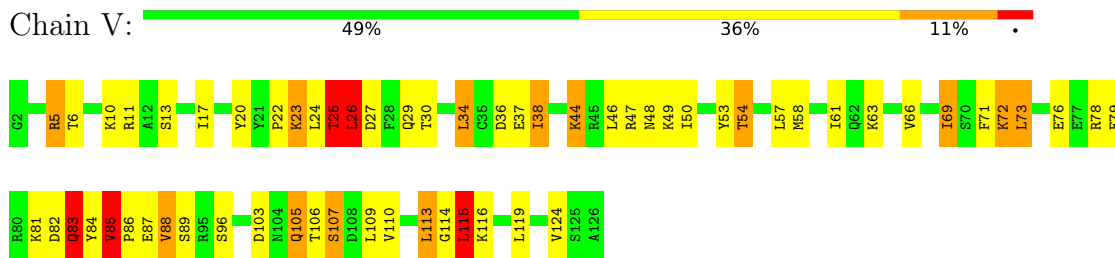
• Molecule 30: ES19



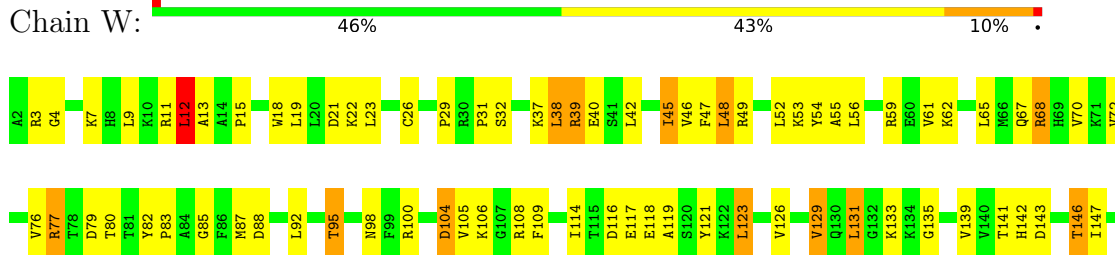
• Molecule 31: ES12

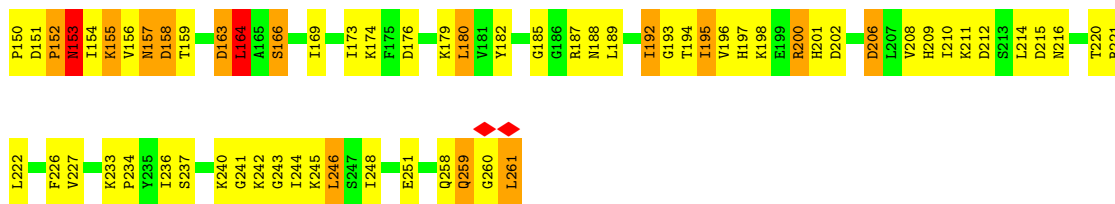


• Molecule 32: ES17

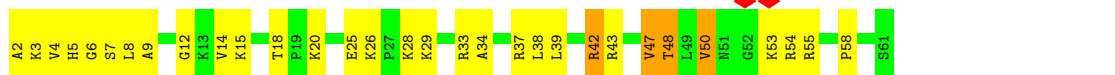


• Molecule 33: ES4

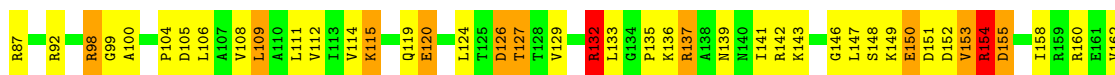
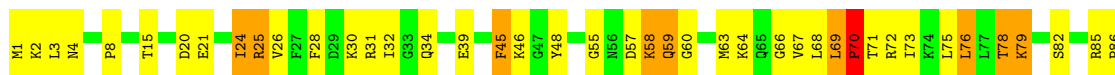




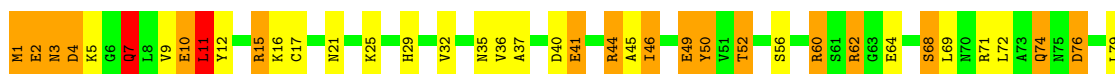
• Molecule 34: ES30



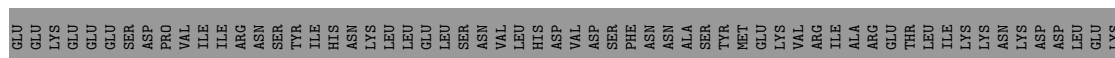
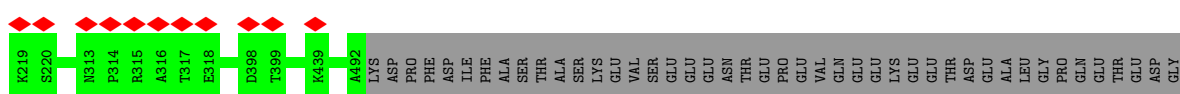
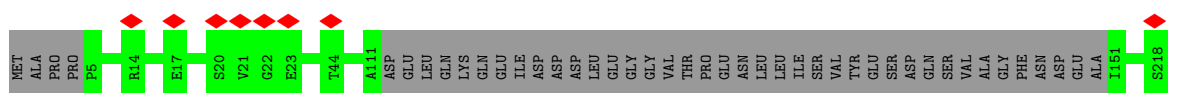
• Molecule 35: ES6

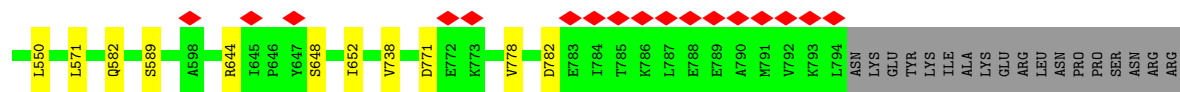


• Molecule 36: ES21



• Molecule 37: EIF3A





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	27354	Depositor
Resolution determination method	Not provided	
CTF correction method	BY IMAGE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	25	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	100719	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.115	Depositor
Minimum map value	-0.019	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.012	Depositor
Recommended contour level	0.015	Depositor
Map size (\AA)	355.84, 355.84, 355.84	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.39, 1.39, 1.39	Depositor

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	0	0.64	0/815	1.14	3/1087 (0.3%)
2	1	0.44	0/499	0.72	0/670
3	2	0.68	0/1514	0.88	2/2021 (0.1%)
4	3	0.52	0/1506	0.77	0/2028
5	4	0.45	0/1735	0.81	0/2335
6	5	0.54	0/782	0.77	0/1047
7	6	0.53	0/620	0.82	1/838 (0.1%)
8	7	0.56	0/789	0.83	3/1067 (0.3%)
9	8	0.50	0/571	0.86	1/768 (0.1%)
10	9	0.53	0/404	0.99	1/542 (0.2%)
11	A	0.96	38/42127 (0.1%)	1.50	830/65638 (1.3%)
12	B	0.54	0/1617	0.80	0/2215
13	C	0.59	0/1759	0.74	0/2368
14	D	0.60	0/1519	0.82	1/2035 (0.0%)
15	E	0.60	0/1665	0.78	0/2263
16	F	0.64	0/678	1.18	6/903 (0.7%)
17	G	0.49	0/1629	0.72	0/2202
18	H	0.66	0/1038	0.86	3/1395 (0.2%)
19	I	0.57	0/1125	0.85	3/1510 (0.2%)
20	J	0.55	0/865	0.76	0/1169
21	K	0.49	0/901	0.82	1/1217 (0.1%)
22	L	0.72	0/1139	0.91	2/1518 (0.1%)
23	M	0.59	0/1211	0.80	0/1628
24	N	0.71	0/452	0.94	1/600 (0.2%)
25	O	0.61	0/1215	0.83	3/1638 (0.2%)
26	P	0.56	0/1087	0.77	1/1449 (0.1%)
27	Q	0.70	0/1239	0.81	0/1673
28	R	0.49	0/2490	0.70	0/3389
29	S	0.60	0/998	0.86	2/1341 (0.1%)
30	T	0.57	0/1130	0.81	0/1517
31	U	0.49	0/898	0.76	0/1220
32	V	0.54	0/935	0.81	0/1254

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	W	0.58	0/2109	0.86	1/2839 (0.0%)
34	X	0.50	0/483	0.72	0/643
35	Y	0.55	0/1823	0.75	0/2439
36	Z	0.53	0/693	0.75	0/935
37	a	0.32	0/3729	0.51	0/5041
38	b	0.42	1/3999 (0.0%)	0.57	2/5440 (0.0%)
39	c	0.33	0/4525	0.53	0/6120
All	All	0.75	39/94313 (0.0%)	1.18	867/136002 (0.6%)

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
1	0	0	1
4	3	0	1
5	4	0	1
7	6	0	1
9	8	0	3
10	9	0	2
16	F	0	1
21	K	0	1
27	Q	0	1
32	V	0	2
39	c	0	1
All	All	0	15

The worst 5 of 39 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
11	A	1626	U	O3'-P	48.27	2.19	1.61
11	A	553	G	C6-N1	8.08	1.45	1.39
11	A	377	G	N9-C4	-7.20	1.32	1.38
11	A	1456	C	N3-C4	-7.04	1.29	1.33
11	A	1455	G	C6-O6	6.88	1.30	1.24

The worst 5 of 867 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	A	1626	U	O3'-P-O5'	27.80	156.82	104.00
11	A	1626	U	OP1-P-O3'	-21.44	58.04	105.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
11	A	1626	U	P-O3'-C3'	-19.41	96.41	119.70
11	A	553	G	N1-C6-O6	18.48	130.99	119.90
11	A	1200	G	N1-C6-O6	17.91	130.65	119.90

There are no chirality outliers.

5 of 15 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	0	23	LYS	Peptide
4	3	131	PHE	Peptide
5	4	131	ASP	Peptide
7	6	42	ASN	Peptide
9	8	54	VAL	Peptide

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	0	805	0	790	147	0
2	1	497	0	535	36	0
3	2	1489	0	1525	59	0
4	3	1481	0	1572	80	0
5	4	1709	0	1784	125	0
6	5	769	0	814	51	0
7	6	610	0	630	24	0
8	7	772	0	727	42	0
9	8	563	0	603	45	0
10	9	516	0	517	42	0
11	A	37835	0	19056	1169	0
12	B	1577	0	1566	221	0
13	C	1734	0	1817	80	0
14	D	1494	0	1573	81	0
15	E	1635	0	1715	88	0
16	F	671	0	707	80	0
17	G	1609	0	1675	70	0
18	H	1021	0	1060	54	0
19	I	1105	0	1166	70	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
20	J	855	0	917	41	0
21	K	891	0	883	63	0
22	L	1121	0	1196	61	0
23	M	1192	0	1222	63	0
24	N	442	0	428	24	0
25	O	1192	0	1255	45	0
26	P	1073	0	1132	41	0
27	Q	1213	0	1257	50	0
28	R	2437	0	2386	77	0
29	S	977	0	1002	41	0
30	T	1112	0	1124	69	0
31	U	890	0	887	43	0
32	V	926	0	930	76	0
33	W	2068	0	2154	71	0
34	X	475	0	523	86	0
35	Y	1799	0	1879	88	0
36	Z	684	0	672	39	0
37	a	3656	0	3708	0	0
38	b	3978	0	3768	0	0
39	c	4442	0	4474	0	0
40	5	1	0	0	0	0
40	6	1	0	0	0	0
40	9	1	0	0	0	0
40	N	1	0	0	0	0
All	All	89319	0	71629	2908	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 20.

The worst 5 of 2908 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)
11:A:1151:A:C2'	11:A:1152:A:H5'	1.10	1.57
11:A:1151:A:C6	11:A:1152:A:C8	1.93	1.57
11:A:1293:U:H1'	12:B:111:ILE:CB	1.21	1.57
11:A:1293:U:H1'	12:B:111:ILE:CG1	1.27	1.56
1:0:46:ARG:CD	34:X:3:LYS:HE3	1.39	1.53

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	0	98/100 (98%)	89 (91%)	6 (6%)	3 (3%)	4	27
2	1	61/63 (97%)	47 (77%)	9 (15%)	5 (8%)	1	12
3	2	184/188 (98%)	155 (84%)	14 (8%)	15 (8%)	1	12
4	3	182/184 (99%)	128 (70%)	27 (15%)	27 (15%)	0	3
5	4	212/214 (99%)	132 (62%)	42 (20%)	38 (18%)	0	2
6	5	95/97 (98%)	58 (61%)	20 (21%)	17 (18%)	0	2
7	6	79/81 (98%)	62 (78%)	13 (16%)	4 (5%)	2	19
8	7	94/96 (98%)	66 (70%)	18 (19%)	10 (11%)	0	8
9	8	68/70 (97%)	46 (68%)	11 (16%)	11 (16%)	0	3
10	9	50/71 (70%)	30 (60%)	9 (18%)	11 (22%)	0	1
12	B	204/206 (99%)	143 (70%)	35 (17%)	26 (13%)	0	5
13	C	221/223 (99%)	180 (81%)	28 (13%)	13 (6%)	1	17
14	D	183/185 (99%)	153 (84%)	18 (10%)	12 (7%)	1	15
15	E	215/217 (99%)	187 (87%)	16 (7%)	12 (6%)	2	18
16	F	81/83 (98%)	75 (93%)	5 (6%)	1 (1%)	13	50
17	G	204/206 (99%)	154 (76%)	31 (15%)	19 (9%)	0	10
18	H	127/129 (98%)	114 (90%)	10 (8%)	3 (2%)	6	33
19	I	139/141 (99%)	114 (82%)	14 (10%)	11 (8%)	1	13
20	J	105/107 (98%)	87 (83%)	13 (12%)	5 (5%)	2	21
21	K	125/127 (98%)	94 (75%)	16 (13%)	15 (12%)	0	6
22	L	142/144 (99%)	111 (78%)	13 (9%)	18 (13%)	0	5
23	M	143/145 (99%)	110 (77%)	19 (13%)	14 (10%)	0	9
24	N	51/53 (96%)	42 (82%)	7 (14%)	2 (4%)	3	23
25	O	148/150 (99%)	125 (84%)	15 (10%)	8 (5%)	2	19
26	P	132/134 (98%)	106 (80%)	13 (10%)	13 (10%)	0	9

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
27	Q	153/155 (99%)	125 (82%)	19 (12%)	9 (6%)	1	17
28	R	316/318 (99%)	273 (86%)	30 (10%)	13 (4%)	3	23
29	S	122/124 (98%)	92 (75%)	15 (12%)	15 (12%)	0	5
30	T	141/143 (99%)	111 (79%)	18 (13%)	12 (8%)	1	11
31	U	122/124 (98%)	66 (54%)	23 (19%)	33 (27%)	0	0
32	V	116/120 (97%)	87 (75%)	17 (15%)	12 (10%)	0	8
33	W	258/260 (99%)	202 (78%)	36 (14%)	20 (8%)	1	13
34	X	58/60 (97%)	49 (84%)	7 (12%)	2 (3%)	3	26
35	Y	224/226 (99%)	190 (85%)	22 (10%)	12 (5%)	2	19
36	Z	85/87 (98%)	64 (75%)	11 (13%)	10 (12%)	0	6
37	a	445/964 (46%)	438 (98%)	7 (2%)	0	100	100
38	b	478/763 (63%)	452 (95%)	24 (5%)	2 (0%)	34	72
39	c	542/812 (67%)	507 (94%)	35 (6%)	0	100	100
All	All	6403/7570 (85%)	5264 (82%)	686 (11%)	453 (7%)	2	14

5 of 453 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	0	24	ARG
2	1	36	THR
2	1	51	ASN
3	2	13	ALA
3	2	22	ARG

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	0	86/86 (100%)	84 (98%)	2 (2%)	50	70
2	1	56/56 (100%)	38 (68%)	18 (32%)	0	2
3	2	150/150 (100%)	118 (79%)	32 (21%)	1	6

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	3	165/165 (100%)	124 (75%)	41 (25%)	0	3
5	4	191/191 (100%)	137 (72%)	54 (28%)	0	2
6	5	83/83 (100%)	65 (78%)	18 (22%)	1	6
7	6	70/70 (100%)	62 (89%)	8 (11%)	5	21
8	7	77/89 (86%)	58 (75%)	19 (25%)	0	3
9	8	61/61 (100%)	43 (70%)	18 (30%)	0	2
10	9	43/43 (100%)	32 (74%)	11 (26%)	0	3
12	B	164/173 (95%)	122 (74%)	42 (26%)	0	3
13	C	182/182 (100%)	137 (75%)	45 (25%)	0	3
14	D	158/158 (100%)	117 (74%)	41 (26%)	0	3
15	E	176/176 (100%)	130 (74%)	46 (26%)	0	3
16	F	74/74 (100%)	73 (99%)	1 (1%)	67	80
17	G	173/173 (100%)	137 (79%)	36 (21%)	1	7
18	H	110/110 (100%)	84 (76%)	26 (24%)	1	4
19	I	117/117 (100%)	84 (72%)	33 (28%)	0	2
20	J	100/100 (100%)	71 (71%)	29 (29%)	0	2
21	K	81/96 (84%)	57 (70%)	24 (30%)	0	2
22	L	119/119 (100%)	96 (81%)	23 (19%)	1	8
23	M	128/128 (100%)	87 (68%)	41 (32%)	0	2
24	N	47/47 (100%)	38 (81%)	9 (19%)	1	8
25	O	127/127 (100%)	91 (72%)	36 (28%)	0	2
26	P	112/112 (100%)	84 (75%)	28 (25%)	0	3
27	Q	129/136 (95%)	105 (81%)	24 (19%)	1	9
28	R	259/261 (99%)	222 (86%)	37 (14%)	3	16
29	S	101/104 (97%)	82 (81%)	19 (19%)	1	9
30	T	115/115 (100%)	84 (73%)	31 (27%)	0	3
31	U	88/100 (88%)	55 (62%)	33 (38%)	0	0
32	V	94/109 (86%)	70 (74%)	24 (26%)	0	3
33	W	221/221 (100%)	166 (75%)	55 (25%)	0	3
34	X	51/51 (100%)	43 (84%)	8 (16%)	2	14
35	Y	188/193 (97%)	149 (79%)	39 (21%)	1	7

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
36	Z	74/74 (100%)	56 (76%)	18 (24%)	0	4
37	a	404/846 (48%)	404 (100%)	0	100	100
38	b	430/693 (62%)	421 (98%)	9 (2%)	53	72
39	c	506/749 (68%)	487 (96%)	19 (4%)	33	57
All	All	5510/6538 (84%)	4513 (82%)	997 (18%)	4	10

5 of 997 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
19	I	28	LEU
33	W	192	ILE
23	M	14	ILE
33	W	153	ASN
35	Y	179	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 45 such sidechains are listed below:

Mol	Chain	Res	Type
23	M	19	ASN
32	V	105	GLN
23	M	89	GLN
27	Q	110	HIS
35	Y	22	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
11	A	1763/1781 (98%)	544 (30%)	86 (4%)

5 of 544 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
11	A	2	A
11	A	4	C
11	A	8	U
11	A	16	G
11	A	20	G

5 of 86 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
11	A	913	G
11	A	1339	C
11	A	1058	U
11	A	1196	A
11	A	1481	C

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 4 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
11	A	3
3	2	1

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Mol	Chain	Number of breaks
32	V	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	2	123:LYS	C	135:LYS	N	19.74
1	A	658:C	O3'	676:G	P	17.56
1	V	89:SER	C	95:ARG	N	3.95
1	A	1151:A	O3'	1152:A	P	3.15
1	A	1626:U	O3'	1627:U	P	2.19

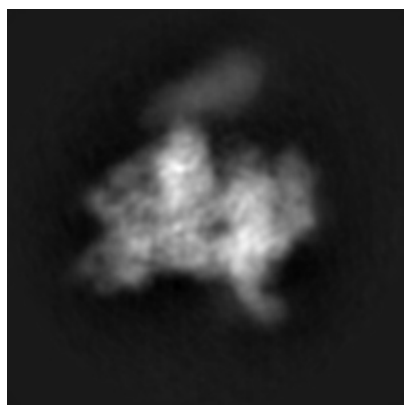
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-2845. These allow visual inspection of the internal detail of the map and identification of artifacts.

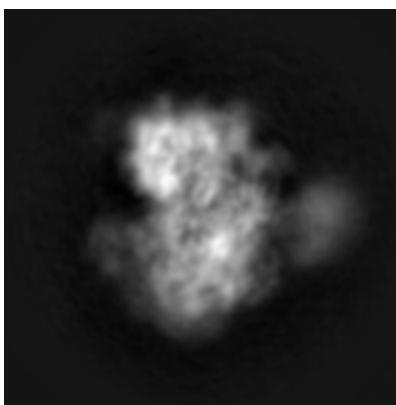
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

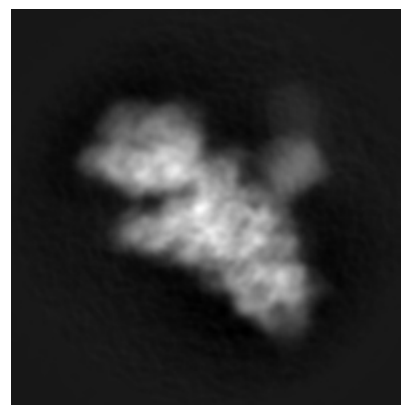
6.1.1 Primary map



X



Y

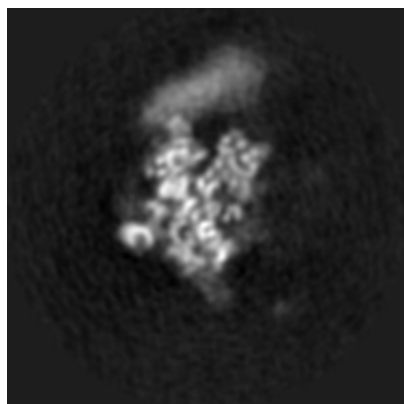


Z

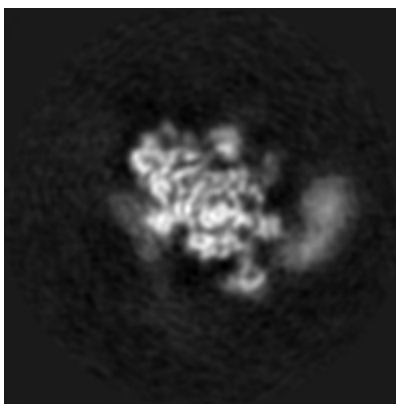
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

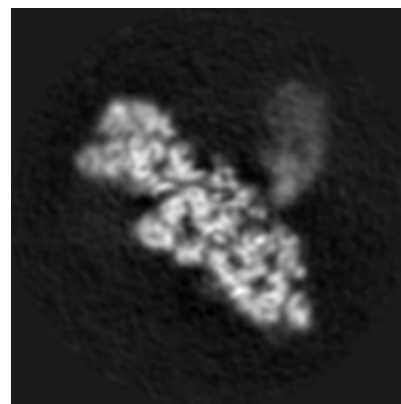
6.2.1 Primary map



X Index: 128



Y Index: 128

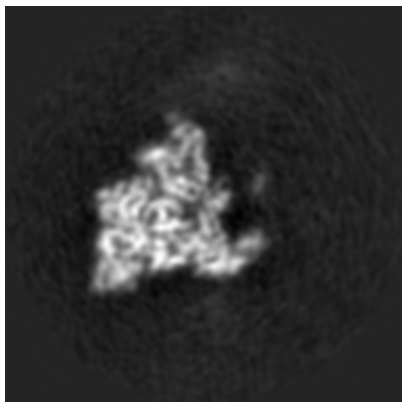


Z Index: 128

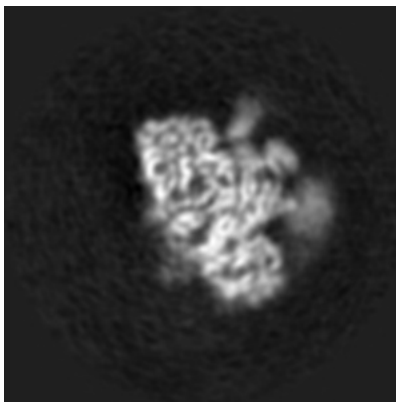
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

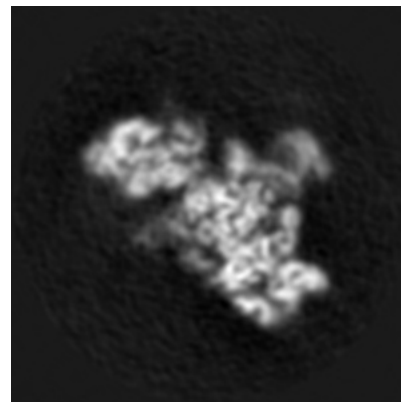
6.3.1 Primary map



X Index: 150



Y Index: 108

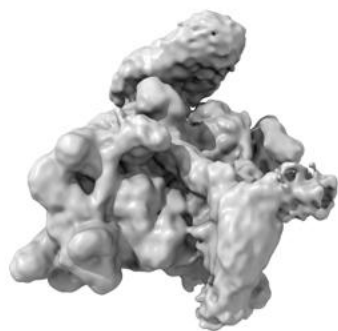


Z Index: 103

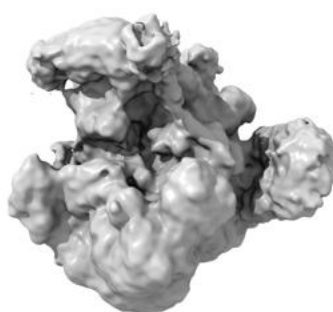
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal surface views [i](#)

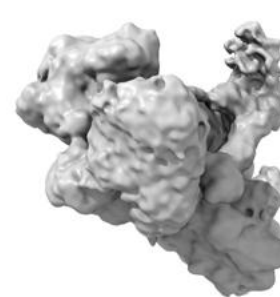
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.015. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

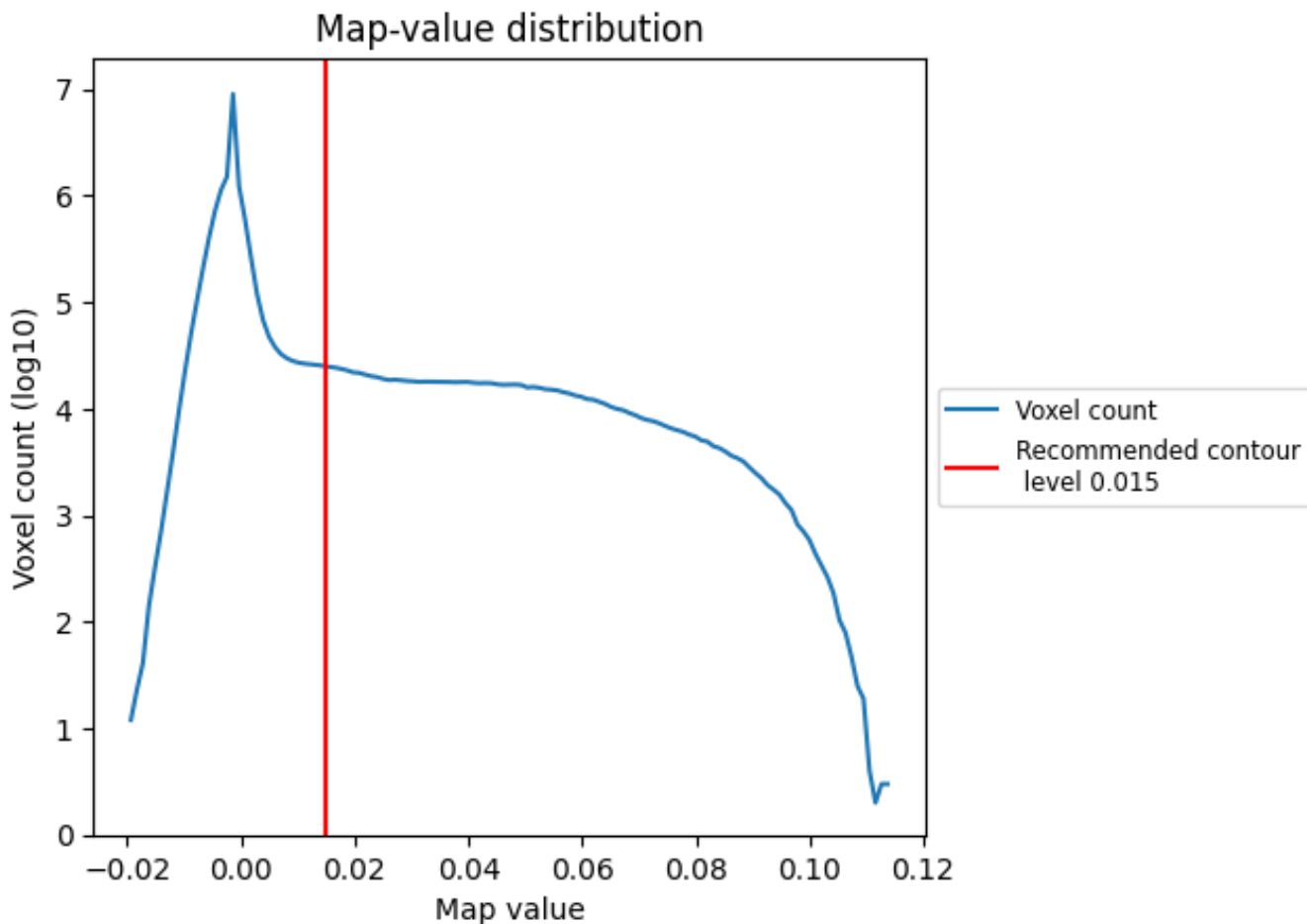
6.5 Mask visualisation

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

7 Map analysis [i](#)

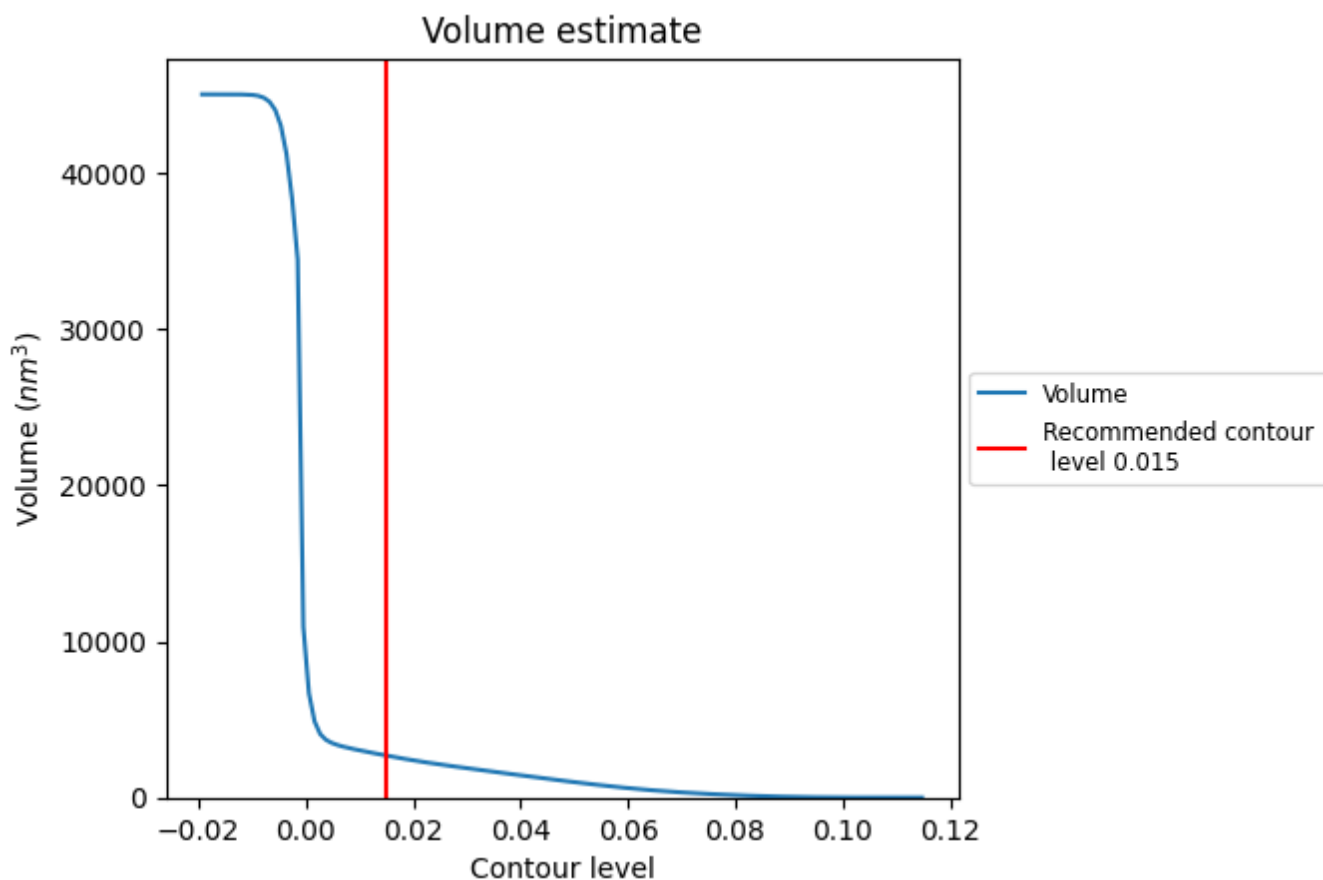
This section contains the results of statistical analysis of the map.

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.

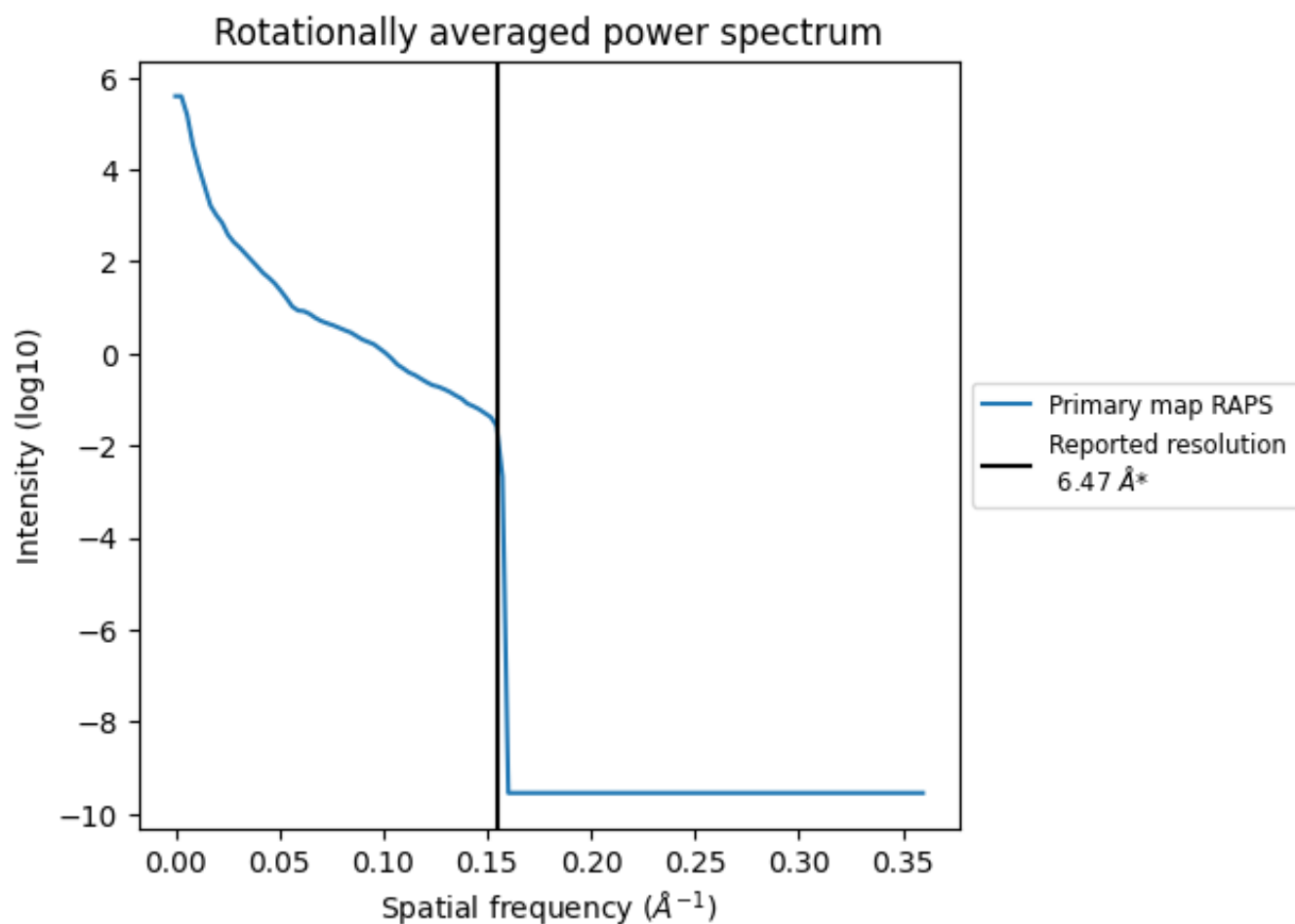
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 2691 nm^3 ; this corresponds to an approximate mass of 2431 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3 Rotationally averaged power spectrum [\(i\)](#)



*Reported resolution corresponds to spatial frequency of 0.155 Å⁻¹

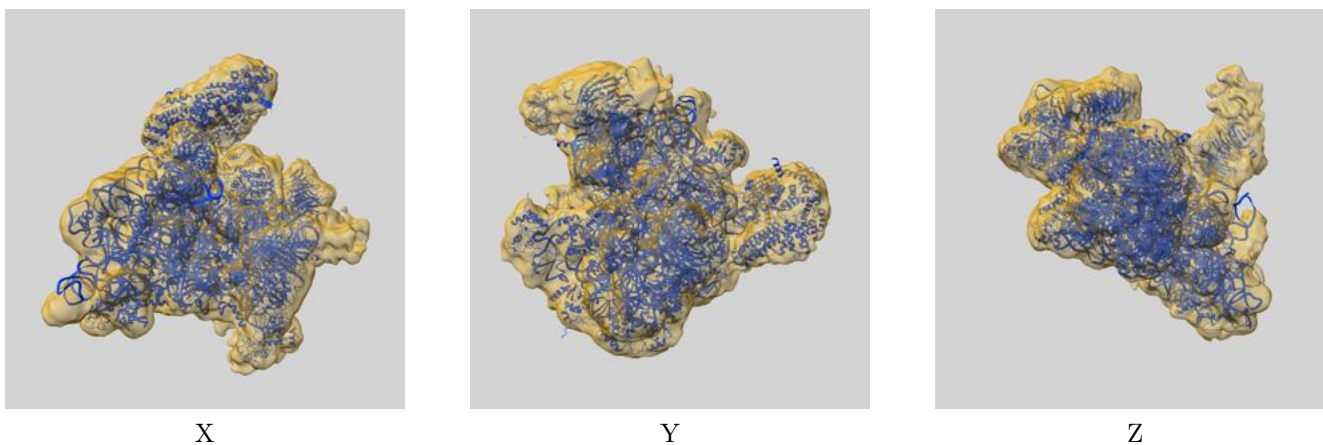
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

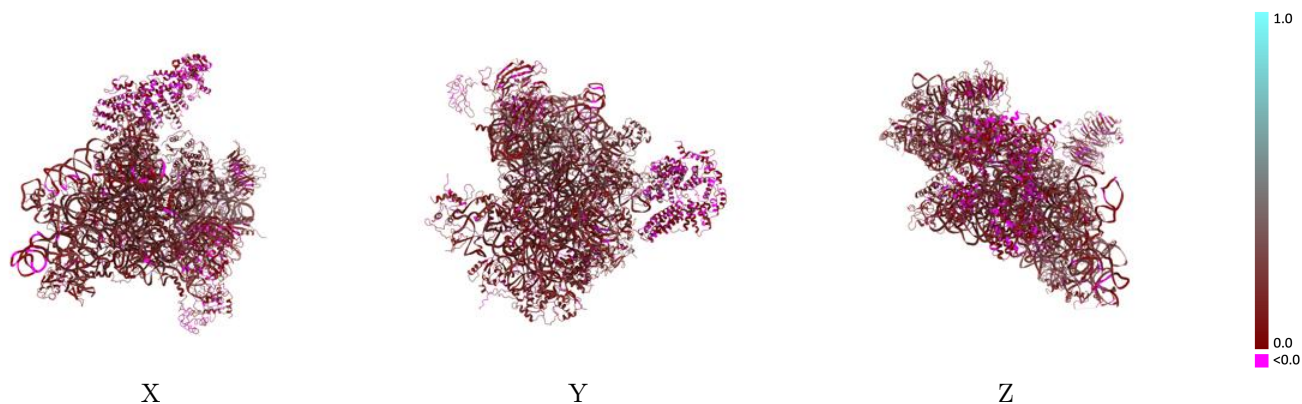
This section contains information regarding the fit between EMDB map EMD-2845 and PDB model 4UER. Per-residue inclusion information can be found in section 3 on page 11.

9.1 Map-model overlay [i](#)



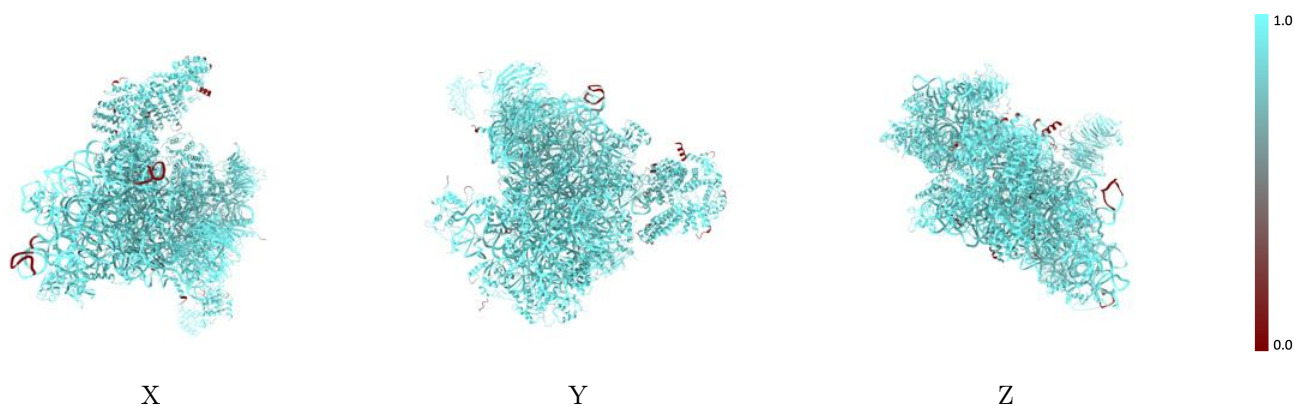
The images above show the 3D surface view of the map at the recommended contour level 0.015 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



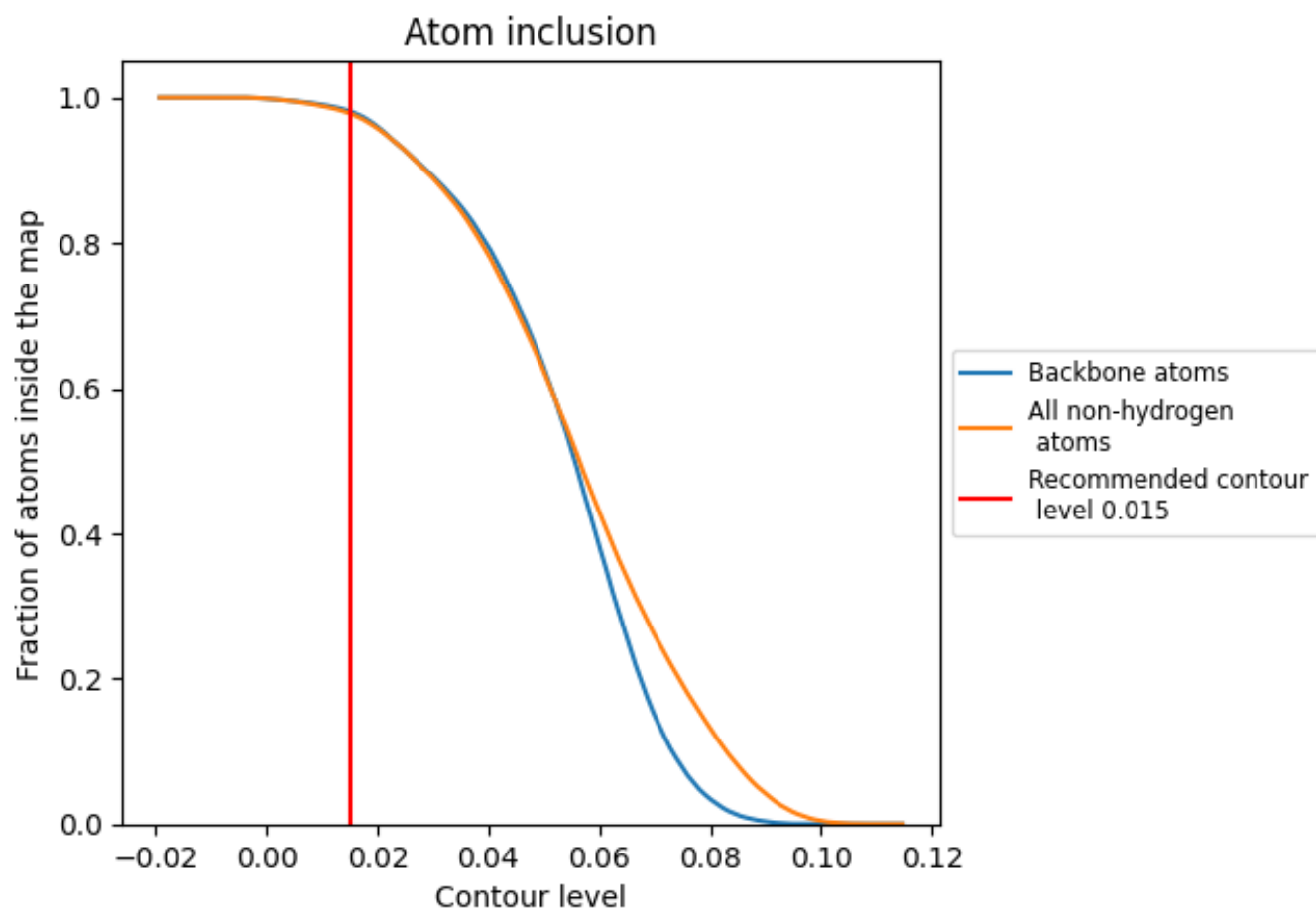
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.015).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 98% of all backbone atoms, 98% 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 (0.015) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.9784	 0.1350
0	 0.8018	 0.0540
1	 0.9623	 0.1270
2	 1.0000	 0.1290
3	 0.9835	 0.1470
4	 0.9958	 0.1490
5	 0.9892	 0.1260
6	 0.9917	 0.1280
7	 0.9960	 0.1280
8	 0.9835	 0.1230
9	 0.9704	 0.0710
A	 0.9864	 0.1700
B	 0.9961	 0.1640
C	 0.9870	 0.1340
D	 0.9709	 0.1340
E	 0.9944	 0.1390
F	 0.8665	 0.0800
G	 0.9911	 0.1300
H	 0.9980	 0.1310
I	 1.0000	 0.1110
J	 0.9679	 0.1150
K	 1.0000	 0.1160
L	 0.9945	 0.1310
M	 0.9957	 0.0980
N	 1.0000	 0.0830
O	 0.9887	 0.1440
P	 0.9952	 0.1390
Q	 0.9814	 0.1280
R	 0.9912	 0.1140
S	 0.9368	 0.0960
T	 1.0000	 0.1060
U	 0.9500	 0.0950
V	 0.9822	 0.1350
W	 0.9930	 0.1350
X	 0.9673	 0.0830



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Chain	Atom inclusion	Q-score
Y	 0.9943	 0.1210
Z	 0.9895	 0.1390
a	 0.9475	 0.0430
b	 0.9751	 0.0910
c	 0.9070	 0.0430