Full wwPDB EM Validation Report

Oct 13, 2024 – 03:01 pm BST

PDB ID	:	7ASO
EMDB ID	:	EMD-11902
Title	:	Staphylococcus aureus 70S after 30 minutes incubation at 37C
Authors	:	Cimicata, G.; Bashan, A.; Yonath, A.
Deposited on	:	2020-10-27
Resolution	:	3.11 Å(reported)

This is a Full wwPDB EM Validation 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 (i) 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 (i)) were used in the production of this report:

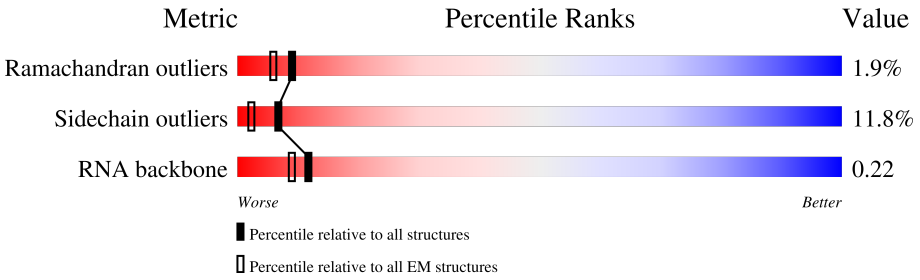
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.11 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)
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	C	114	52% 48%
2	B	202	92% 95% 5%
3	1	198	77% 98%
4	D	156	67% 95% 5%
5	E	95	75% 87% 11%
6	G	155	50% 69% 29%
7	F	130	52% 90% 9%
8	H	127	72% 91% 7%

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Mol	Chain	Length	Quality of chain
9	1	80	91% 86% 11%
10	2	114	93% 95% 5%
11	3	136	89% 95% 5%
12	4	113	64% 89% 11%
13	5	60	87% 83% 17%
14	6	88	56% 97%
15	7	83	48% 75% 24%
16	8	80	50% 100%
17	9	56	66% 75% 23%
18	I	78	82% 96%
19	A	78	71% 97%
20	X	1415	10% 26% 73%
21	e	215	87% 13%
22	J	205	86% 14%
23	K	165	37% 91% 9%
24	L	174	80% 98%
25	M	145	83% 17%
26	N	122	87% 13%
27	O	145	82% 18%
28	P	136	93% 7%
29	Q	119	85% 14%
30	R	113	96%
31	S	116	86% 14%
32	U	102	78% 22%
33	V	112	84% 16%

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Mol	Chain	Length	Quality of chain
34	W	89	81% 18%
35	Z	103	11% 100%
36	a	93	65% 100%
37	b	82	9% 95% 5%
38	c	49	16% 98%
39	d	62	6% 95% 5%
40	f	57	86% 14%
41	g	47	87% 13%
42	T	47	55% 77% 21%
43	i	43	91% 9%
44	j	60	93% 7%
45	k	37	38% 100%
46	h	74	96% 93% 5%
47	Y	2720	65% 35%

2 Entry composition

There are 47 unique types of molecules in this entry. The entry contains 125530 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 5S.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	C	114	2430	1086	436	794	114	0	0

- Molecule 2 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	202	1551	979	293	278	1	0	0

- Molecule 3 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	l	198	1058	634	211	213	0	0

- Molecule 4 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	156	1153	727	211	213	2	0	0

- Molecule 5 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	95	785	496	138	149	2	0	0

- Molecule 6 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	G	155	1164	724	220	217	3	0	0

- Molecule 7 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	F	130	Total	C	N	O	S	0	0
			1007	639	180	184	4		

- Molecule 8 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	127	Total	C	N	O	S	0	0
			975	605	194	175	1		

- Molecule 9 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms				AltConf	Trace
9	1	80	Total	C	N	O	0	0
			626	394	116	116		

- Molecule 10 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	2	114	Total	C	N	O	S	0	0
			826	507	158	159	2		

- Molecule 11 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	3	136	Total	C	N	O	S	0	0
			976	611	190	173	2		

- Molecule 12 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	4	113	Total	C	N	O	S	0	0
			828	510	168	149	1		

- Molecule 13 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	5	60	Total	C	N	O	S	0	0
			497	314	99	79	5		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
14	6	88	Total	C	N	O	S	0	0
			713	441	148	123	1		

- Molecule 15 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	7	83	Total	C	N	O	S	0	0
			537	335	105	96	1		

- Molecule 16 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	8	80	Total	C	N	O	0	0
			520	327	97	96		

- Molecule 17 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	9	56	Total	C	N	O	S	0	0
			458	292	88	76	2		

- Molecule 18 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	I	78	Total	C	N	O	S	0	0
			541	340	104	96	1		

- Molecule 19 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	A	78	Total	C	N	O	S	0	0
			503	303	100	99	1		

- Molecule 20 is a RNA chain called 16S.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	X	1415	Total	C	N	O	P	0	0
			30328	13542	5559	9814	1413		

- Molecule 21 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	e	215	Total	C	N	O	S	0	0
			1570	987	295	283	5		

- Molecule 22 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	J	205	Total	C	N	O	S	0	0
			1514	953	282	277	2		

- Molecule 23 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	K	165	Total	C	N	O	S	0	0
			1021	632	184	203	2		

- Molecule 24 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	L	174	Total	C	N	O	S	0	0
			1062	660	205	195	2		

- Molecule 25 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	M	145	Total	C	N	O	S	0	0
			1124	703	205	213	3		

- Molecule 26 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	N	122	Total	C	N	O	S	0	0
			918	572	174	168	4		

- Molecule 27 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	O	145	Total	C	N	O	0	0
			1020	631	207	182		

- Molecule 28 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	P	136	Total	C	N	O	S	0	0
			1043	672	202	165	4		

- Molecule 29 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Q	119	Total	C	N	O	S	0	0
			898	551	176	170	1		

- Molecule 30 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
30	R	113	Total	C	N	O	0	0
			765	474	145	146		

- Molecule 31 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	S	116	Total	C	N	O	S	0	0
			942	593	189	156	4		

- Molecule 32 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	U	102	Total	C	N	O	S	0	0
			749	474	140	134	1		

- Molecule 33 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	V	112	Total	C	N	O	S	0	0
			837	526	163	146	2		

- Molecule 34 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	W	89	Total	C	N	O	S	0	0
			694	436	126	128	4		

- Molecule 35 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
35	Z	103	Total 734	C 462	N 137	O 135	0	0

- Molecule 36 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	a	93	Total 648	C 411	N 115	O 122	0	0

- Molecule 37 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms				AltConf	Trace
37	b	82	Total 615	C 382	N 122	O 111	0	0

- Molecule 38 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms				AltConf	Trace
38	c	49	Total 377	C 233	N 82	O 62	0	0

- Molecule 39 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	d	62	Total 493	C 304	N 93	O 96	0	0

- Molecule 40 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
40	f	57	Total 436	C 272	N 83	O 81	0	0

- Molecule 41 is a protein called 50S ribosomalprotein L32p.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	g	47	Total 356	C 218	N 77	O 59	S 2	0	0

- Molecule 42 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	T	47	Total	C	N	O	S	0	0
			380	233	75	68	4		

- Molecule 43 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	i	43	Total	C	N	O	S	0	0
			367	225	89	52	1		

- Molecule 44 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	j	60	Total	C	N	O	S	0	0
			446	277	92	75	2		

- Molecule 45 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	k	37	Total	C	N	O	S	0	0
			272	170	57	40	5		

- Molecule 46 is a protein called 50S ribosomal protein L31 type B.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	h	74	Total	C	N	O	S	0	0
			447	269	86	91	1		

- Molecule 47 is a RNA chain called 23S.

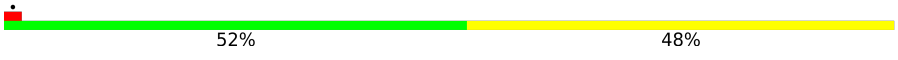
Mol	Chain	Residues	Atoms					AltConf	Trace
47	Y	2720	Total	C	N	O	P	0	0
			58326	26039	10694	18873	2720		

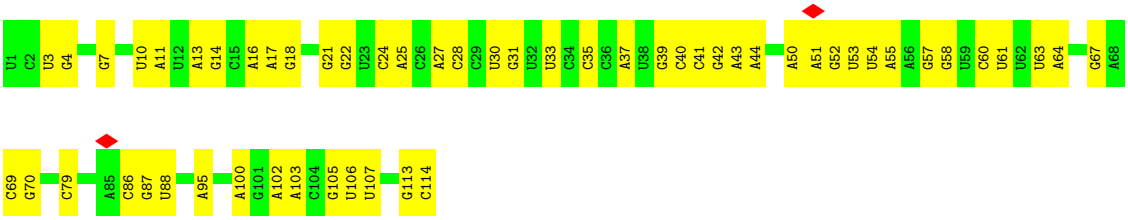
3 Residue-property plots (i)

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

• Molecule 1: 5S

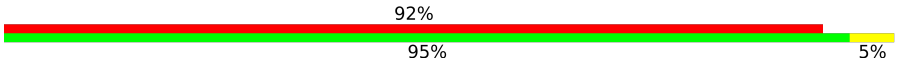
Chain C:

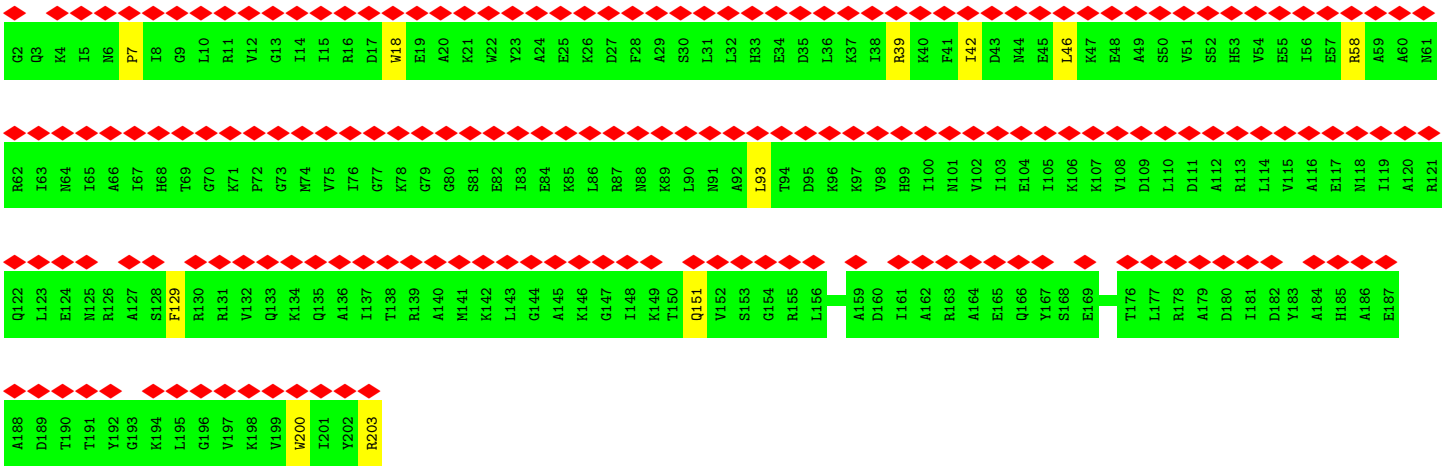




• Molecule 2: 30S ribosomal protein S3

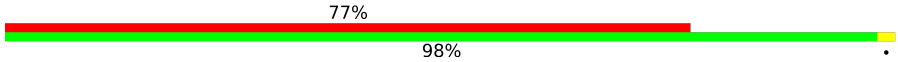
Chain B:

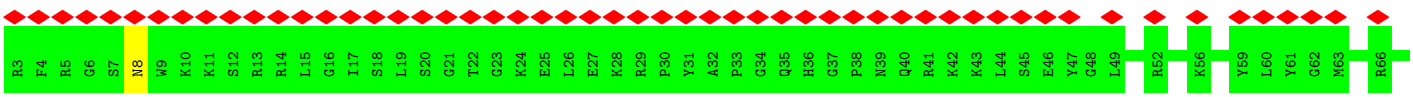


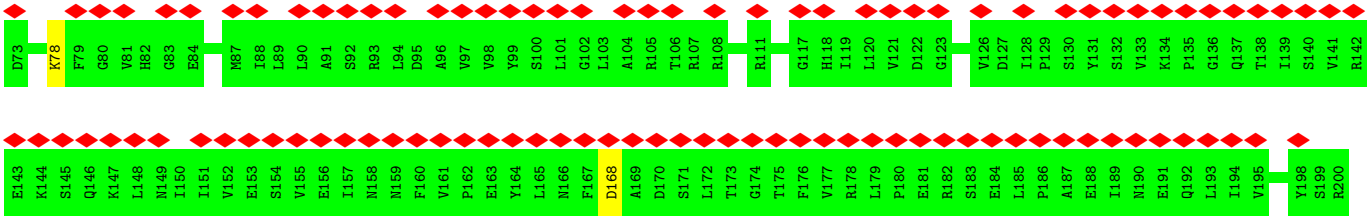


• Molecule 3: 30S ribosomal protein S4

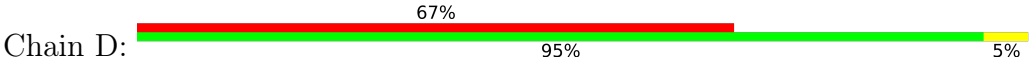
Chain l:

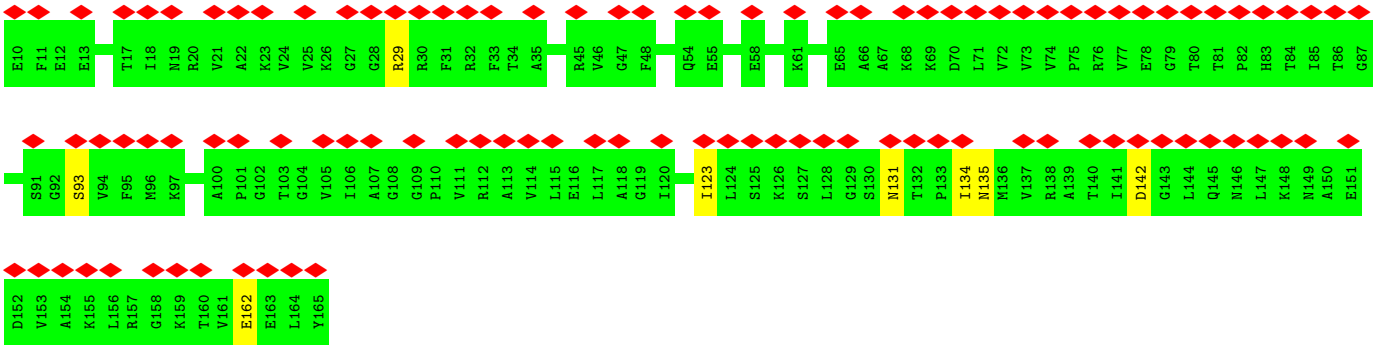




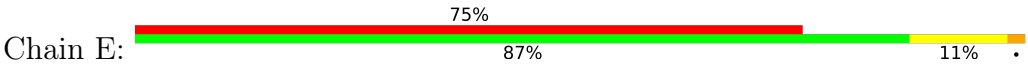


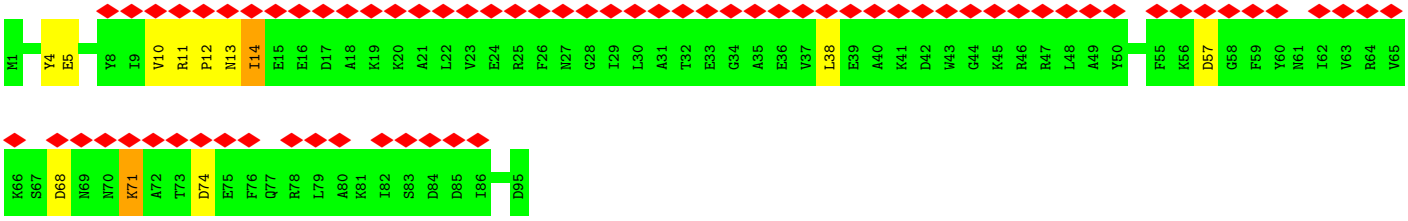
• Molecule 4: 30S ribosomal protein S5



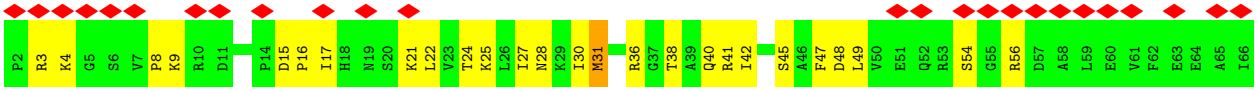


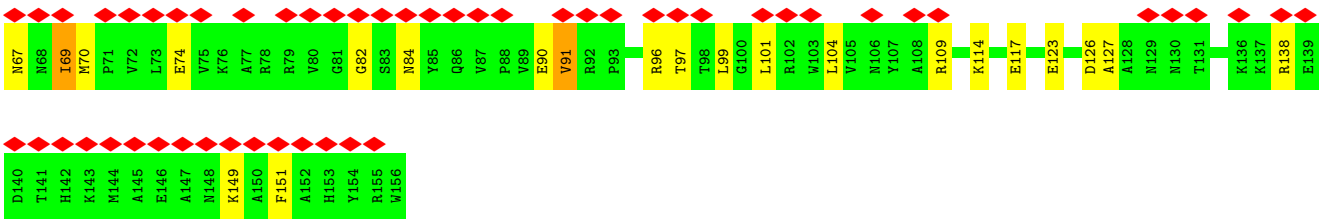
• Molecule 5: 30S ribosomal protein S6





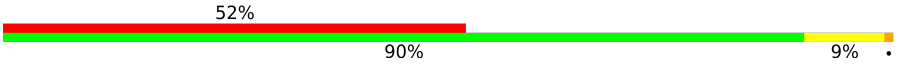
• Molecule 6: 30S ribosomal protein S7

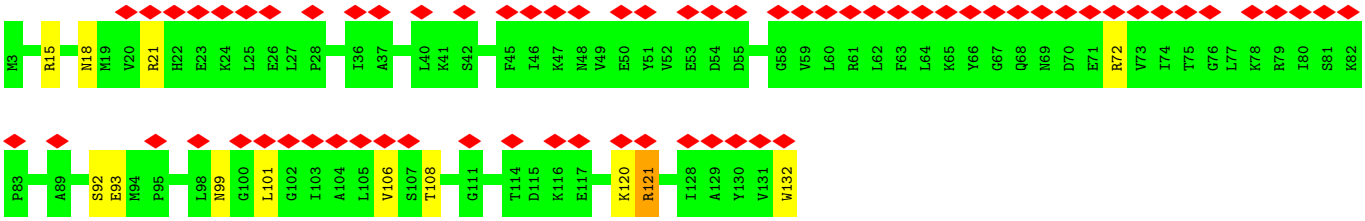




• Molecule 7: 30S ribosomal protein S8

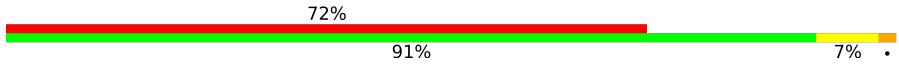
Chain F:

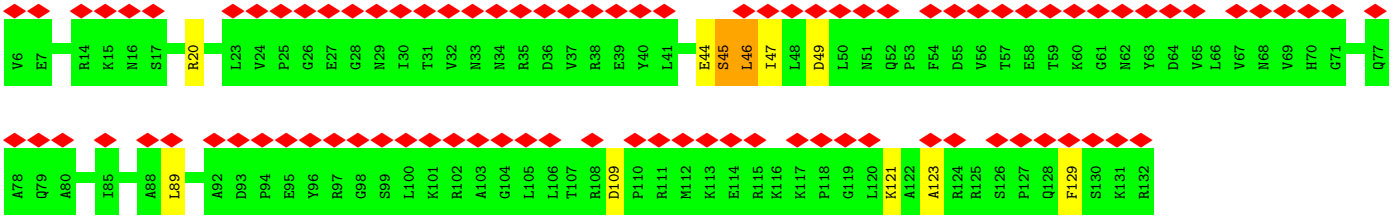




• Molecule 8: 30S ribosomal protein S9

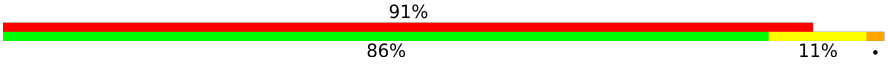
Chain H:

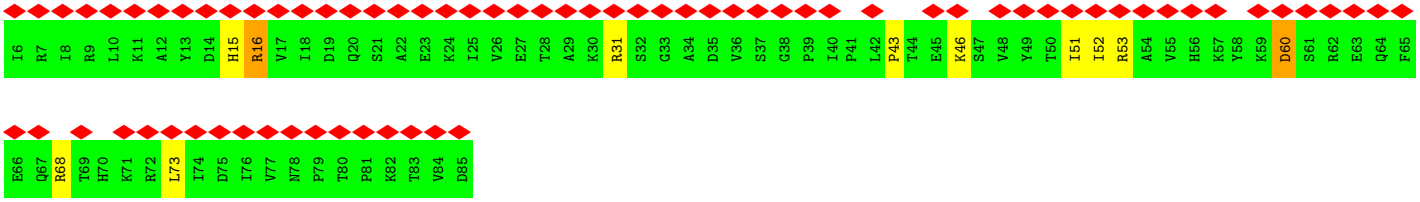




• Molecule 9: 30S ribosomal protein S10

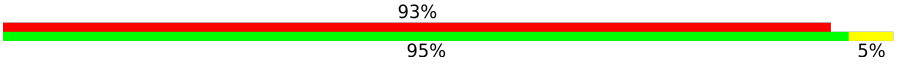
Chain 1:

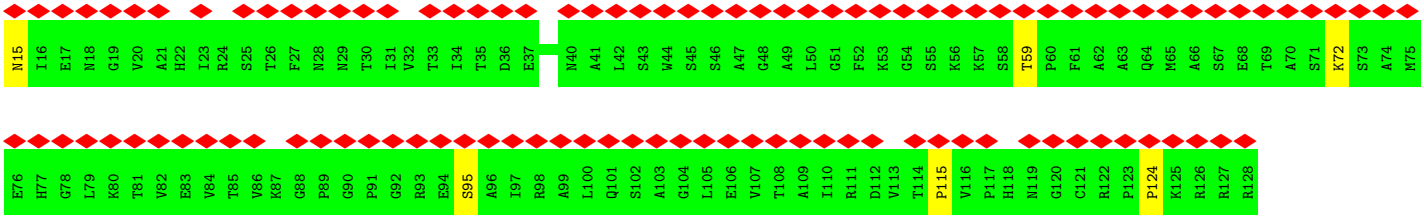




• Molecule 10: 30S ribosomal protein S11

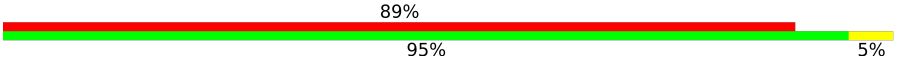
Chain 2:

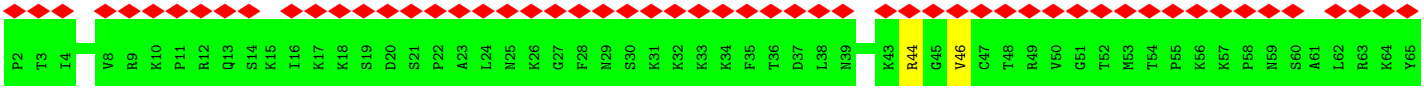


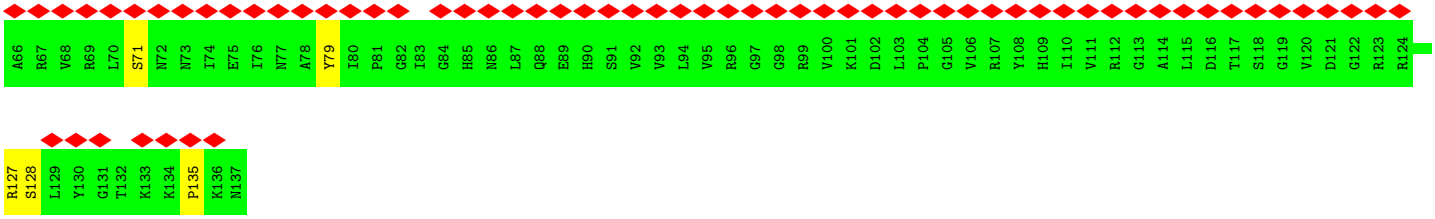


• Molecule 11: 30S ribosomal protein S12

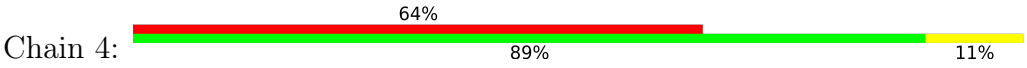
Chain 3:

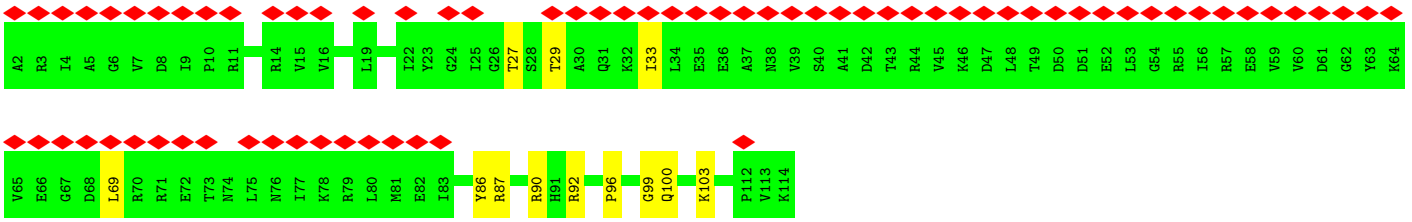




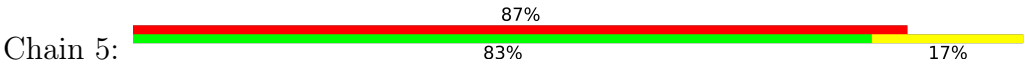


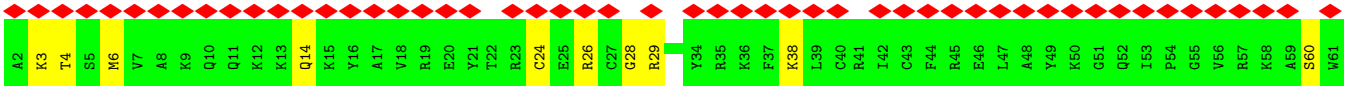
• Molecule 12: 30S ribosomal protein S13



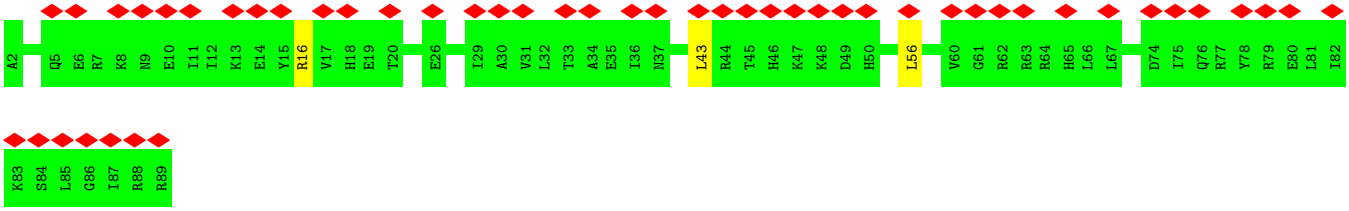


• Molecule 13: 30S ribosomal protein S14 type Z

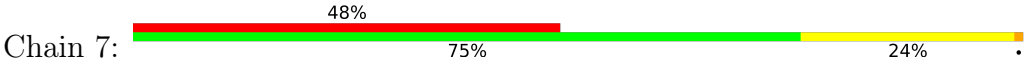


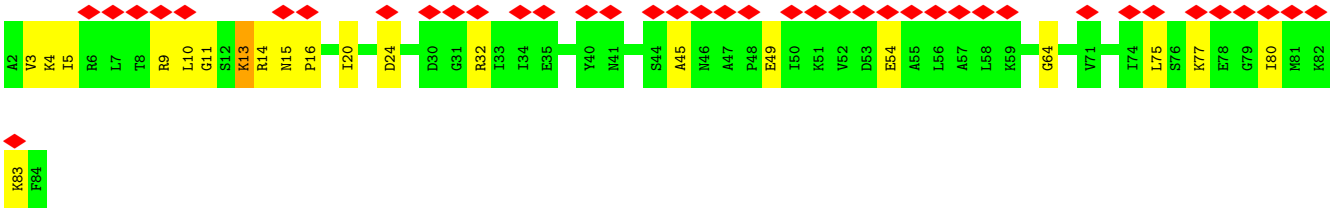


• Molecule 14: 30S ribosomal protein S15



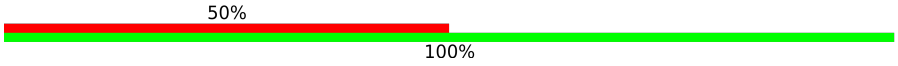
• Molecule 15: 30S ribosomal protein S16

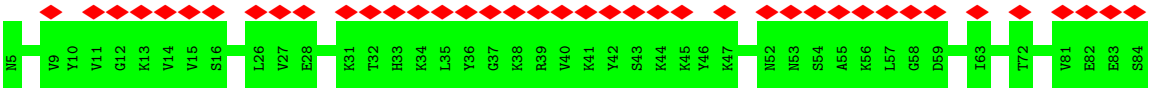




• Molecule 16: 30S ribosomal protein S17

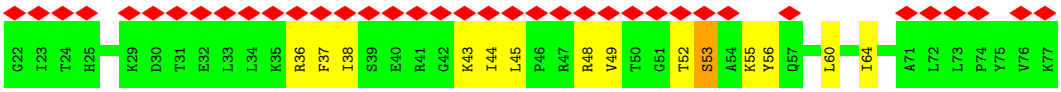
Chain 8:





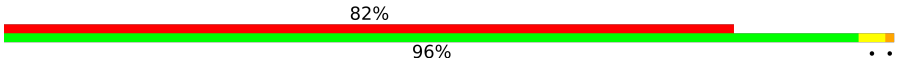
• Molecule 17: 30S ribosomal protein S18

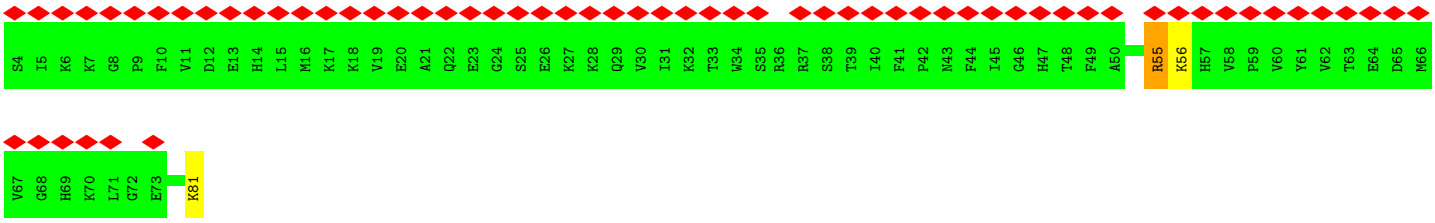
Chain 9:



• Molecule 18: 30S ribosomal protein S19

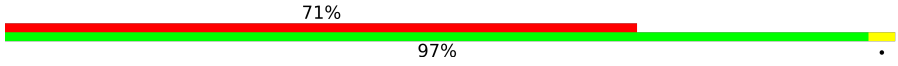
Chain I:

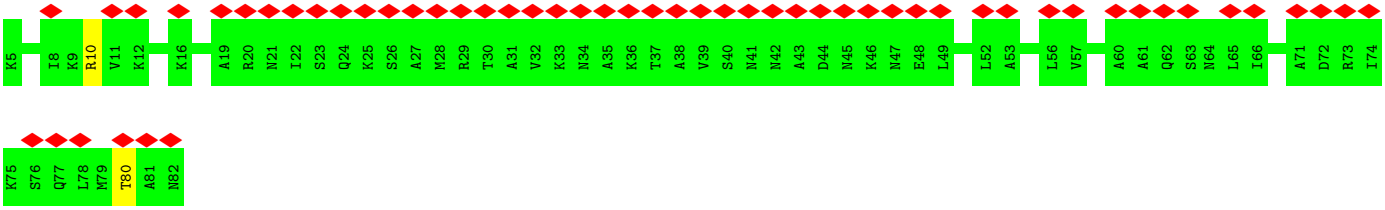




• Molecule 19: 30S ribosomal protein S20

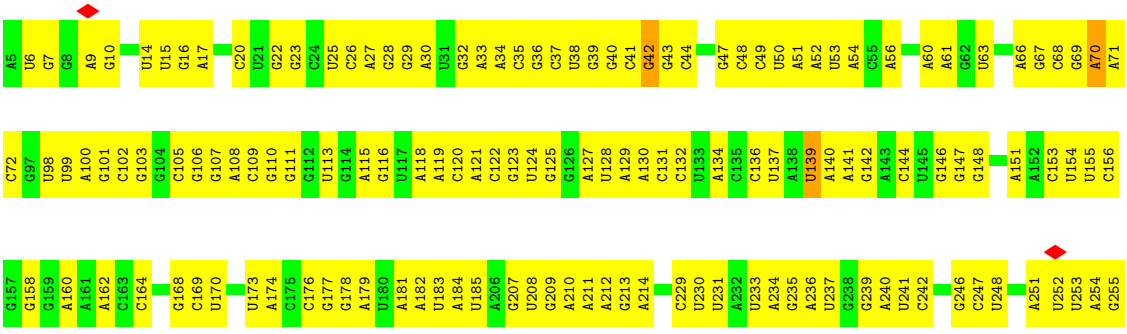
Chain A:

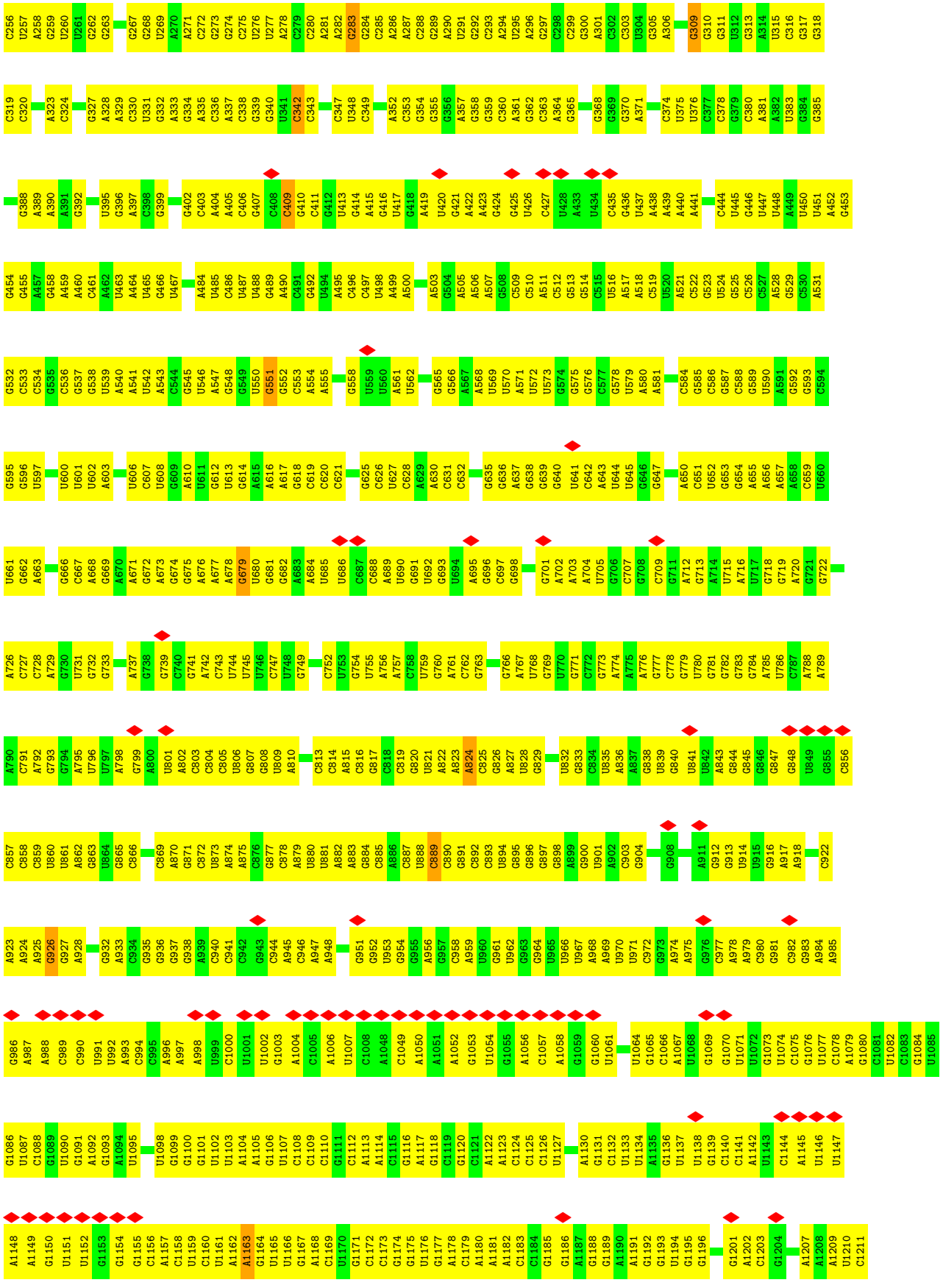


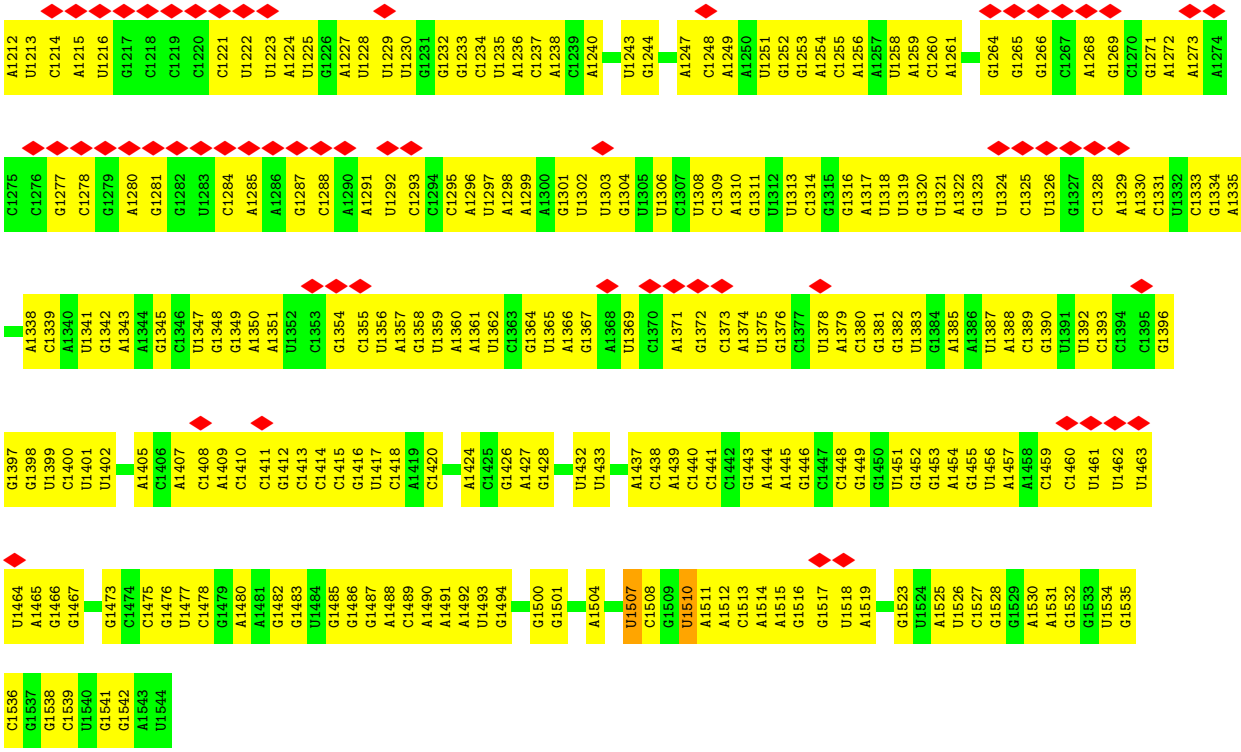


• Molecule 20: 16S

Chain X:

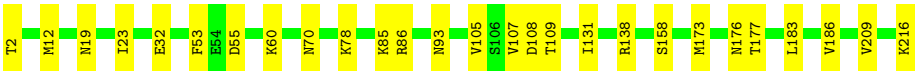






• Molecule 21: 50S ribosomal protein L3

Chain e:

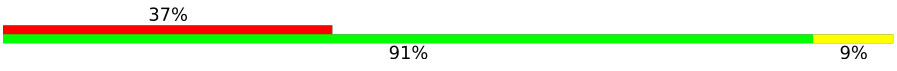


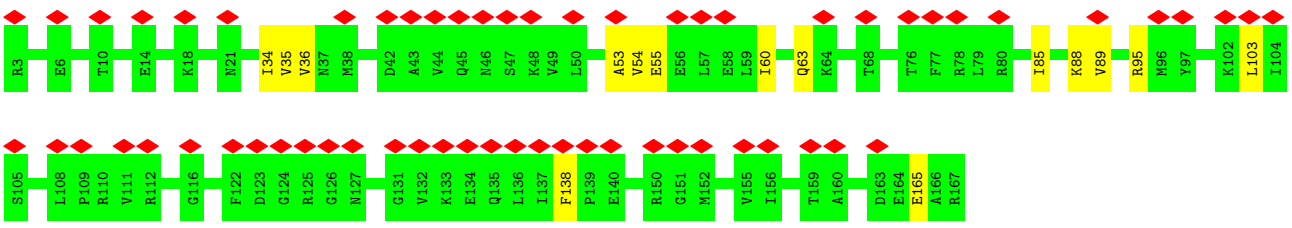
• Molecule 22: 50S ribosomal protein L4

Chain J:

• Molecule 23: 50S ribosomal protein L5

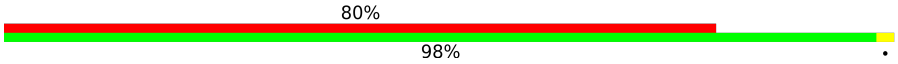
Chain K:

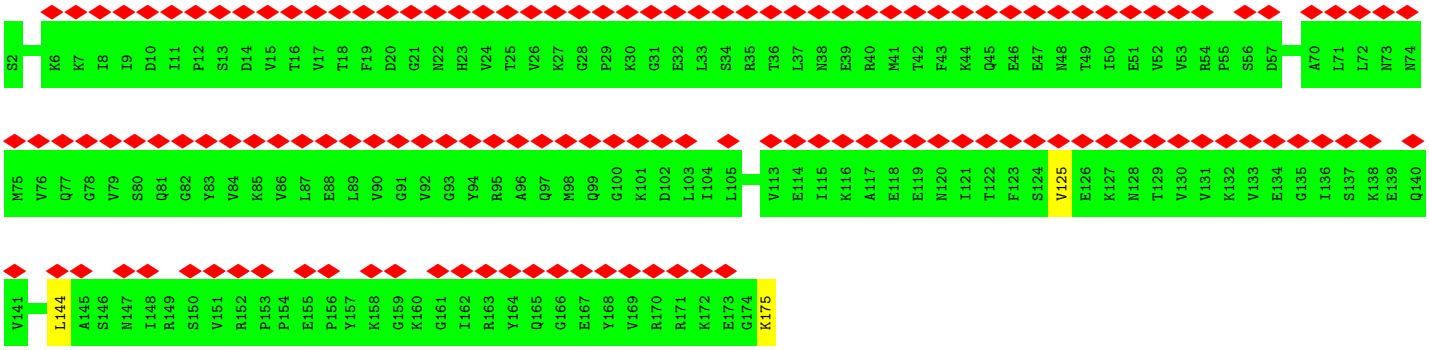




• Molecule 24: 50S ribosomal protein L6

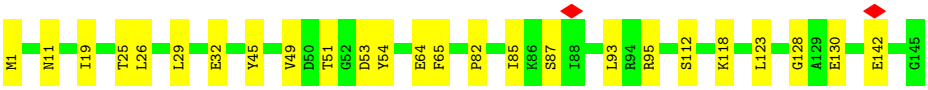
Chain L:





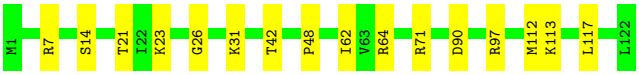
• Molecule 25: 50S ribosomal protein L13

Chain M:



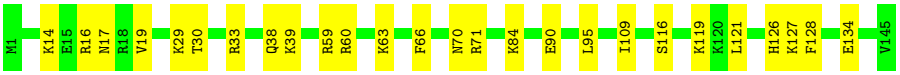
• Molecule 26: 50S ribosomal protein L14

Chain N:



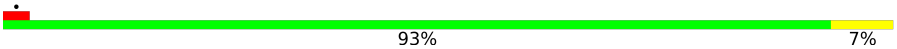
• Molecule 27: 50S ribosomal protein L15

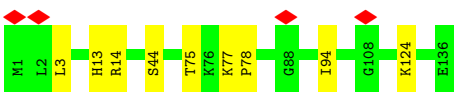
Chain O:



• Molecule 28: 50S ribosomal protein L16

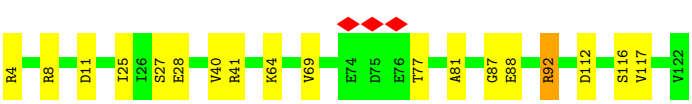
Chain P:





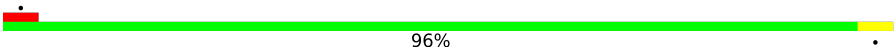
• Molecule 29: 50S ribosomal protein L17

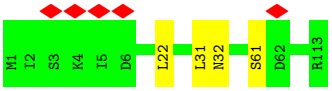
Chain Q:



• Molecule 30: 50S ribosomal protein L18

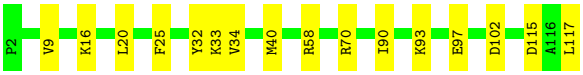
Chain R:





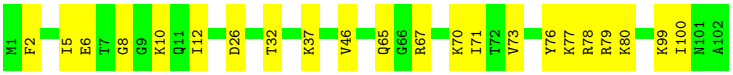
• Molecule 31: 50S ribosomal protein L20

Chain S:



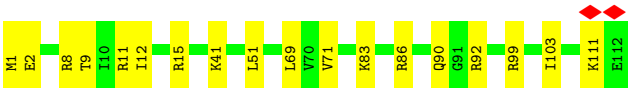
• Molecule 32: 50S ribosomal protein L21

Chain U:



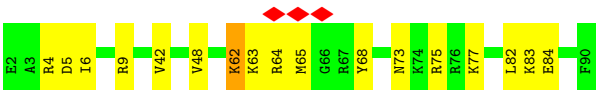
• Molecule 33: 50S ribosomal protein L22

Chain V:



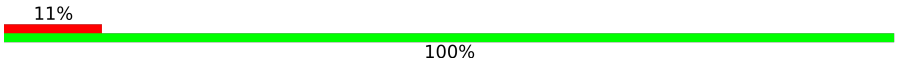
• Molecule 34: 50S ribosomal protein L23

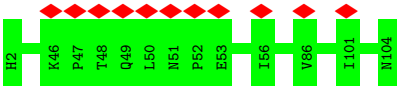
Chain W:



• Molecule 35: 50S ribosomal protein L24

Chain Z:

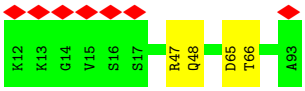




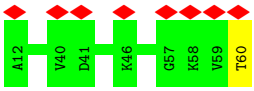
• Molecule 36: 50S ribosomal protein L25

Chain a:

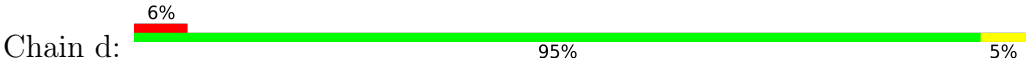
• Molecule 37: 50S ribosomal protein L27

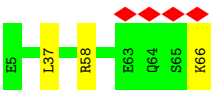


• Molecule 38: 50S ribosomal protein L28

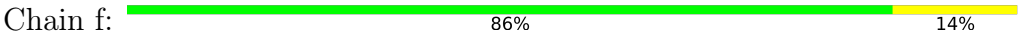


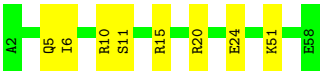
• Molecule 39: 50S ribosomal protein L29



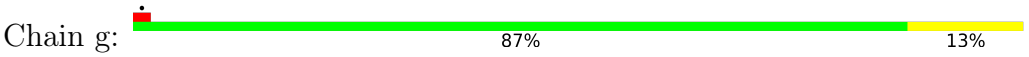


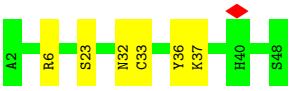
• Molecule 40: 50S ribosomal protein L30



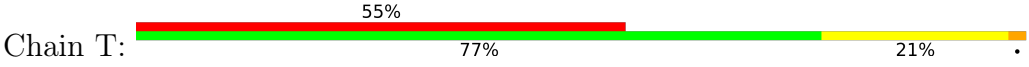


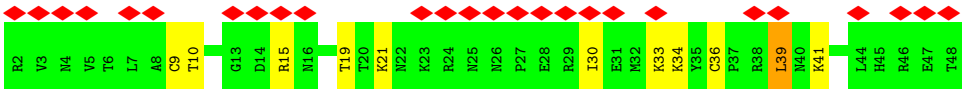
• Molecule 41: 50S ribosomalprotein L32p





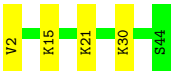
• Molecule 42: 50S ribosomal protein L33





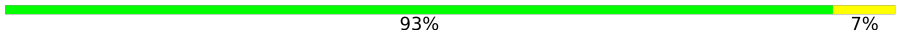
• Molecule 43: 50S ribosomal protein L34

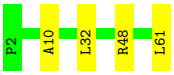
Chain i:



• Molecule 44: 50S ribosomal protein L35

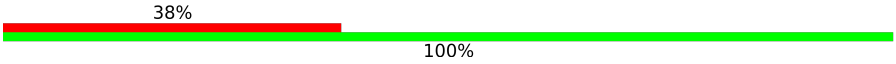
Chain j:

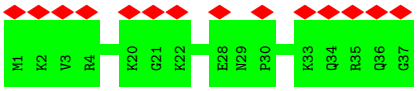




• Molecule 45: 50S ribosomal protein L36

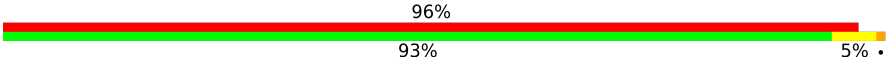
Chain k:

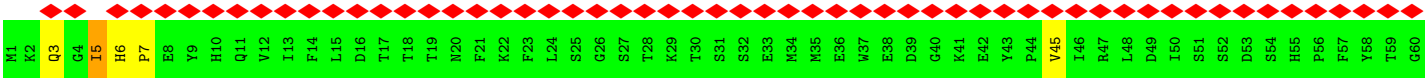


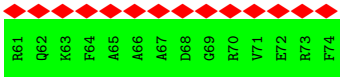


• Molecule 46: 50S ribosomal protein L31 type B

Chain h:

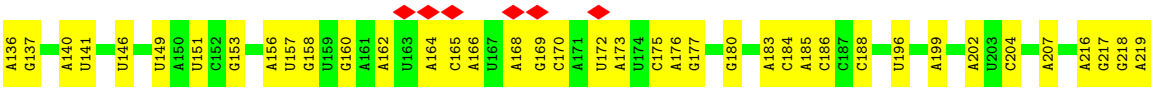


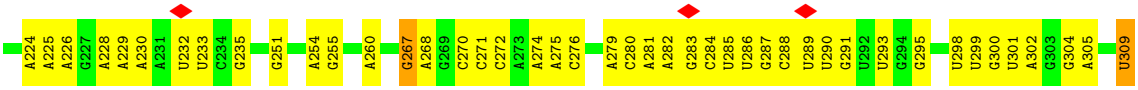


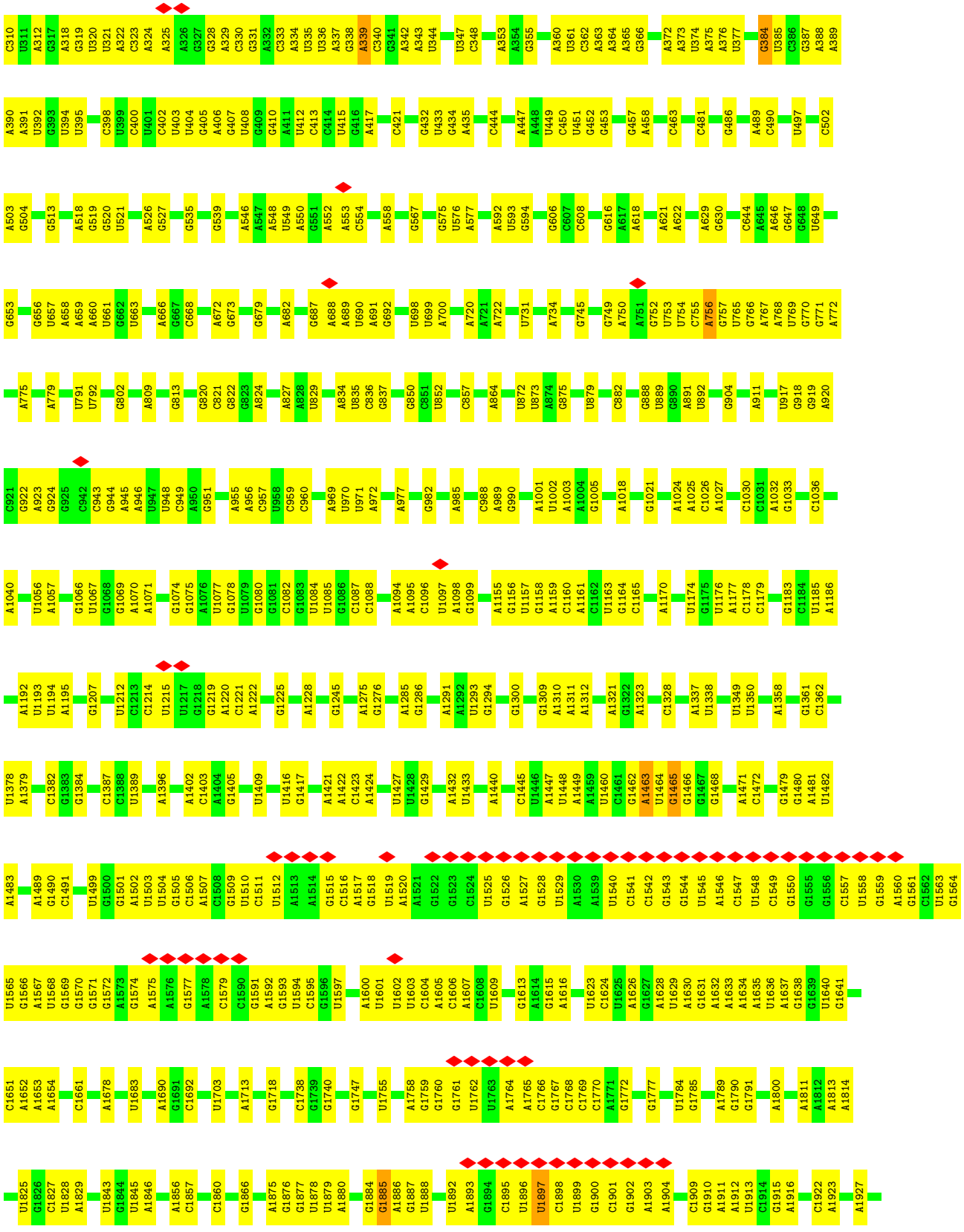


• Molecule 47: 23S

Chain Y:






C310 U311 A312 G317 A318 G319 U320 U321 A322 C323 A324 A325 A326 G327 G328 A329 C330 G331 A332 C333 A334 U335 U336 A337 G338 A339 C340 G341 A342 A343 U344 U347 C348 A353 A354 G355 A360 U361 C362 A363 A364 A365 G366 A372 A373 U374 A375 A376 U377 C384 U385 C386 G387 A388 A389
A390 A391 U392 G393 U394 U395 C398 U399 C400 U401 C402 U403 U404 G405 A406 G407 U408 G409 G410 A411 U412 C413 C414 U415 G416 A417 C421 G432 U433 G434 A435 C444 A447 A448 U449 C450 U451 G452 G453 G457 A458 C463 C481 G486 A489 C490 U497 C502
A503 G504 G513 A518 G519 G520 U521 A526 G527 G535 G539 A546 A547 A548 U549 A550 G551 A552 A553 C554 A558 G567 G575 U576 A577 A592 U593 G594 G606 C607 C608 G616 A617 A618 A621 A622 A629 G630 C644 A645 A646 G647 G648 U649
G653 G656 U657 A658 A659 A660 U661 G662 U663 A666 G667 C668 A672 G673 G679 A682 G687 A688 A689 U690 A691 G692 U698 U699 A700 A720 A721 A722 U731 A734 G745 G749 A750 A751 G752 U753 U754 C755 A756 G757 U765 G766 A767 A768 U769 G770 G771 A772
A775 A779 U791 U792 C802 A809 G813 C820 C821 G822 G823 A824 A827 A828 U829 A834 U835 C836 G837 C850 C851 U852 C857 A864 U872 U873 A874 G875 U879 C882 G888 U889 G890 A891 U892 G904 A911 U917 G918 G919 A920
C921 G922 A923 G924 G925 C942 C943 G944 A945 A946 U947 U948 C949 A950 G951 A955 A956 C957 U958 C959 C960 A969 U970 U971 A972 A977 G982 A985 C988 A989 G990 A1001 U1002 A1003 A1004 G1005 A1018 G1021 A1024 A1025 C1026 A1027 C1030 C1031 A1032 G1033 C1036
A1040 U1056 A1057 G1066 U1067 G1068 G1069 A1070 A1071 G1074 G1075 A1076 U1077 G1078 U1079 G1080 G1081 C1082 G1083 U1084 U1085 G1086 C1087 C1088 A1094 A1095 C1096 U1097 A1098 G1099 A1155 G1156 U1157 G1158 A1159 C1160 A1161 C1162 U1163 G1164 C1165 A1170 U1174 G1175 U1176 A1177 C1178 C1179 G1183 C1184 U1185 A1186
A1192 U1193 U1194 A1195 G1207 U1212 C1213 C1214 U1215 U1217 G1218 G1219 A1220 C1221 A1222 G1225 A1228 G1245 A1275 G1276 A1285 G1286 A1291 A1292 U1293 G1294 G1300 G1309 A1310 A1311 A1312 A1321 G1322 A1323 C1328 A1337 U1338 U1349 U1350 A1358 G1361 C1362
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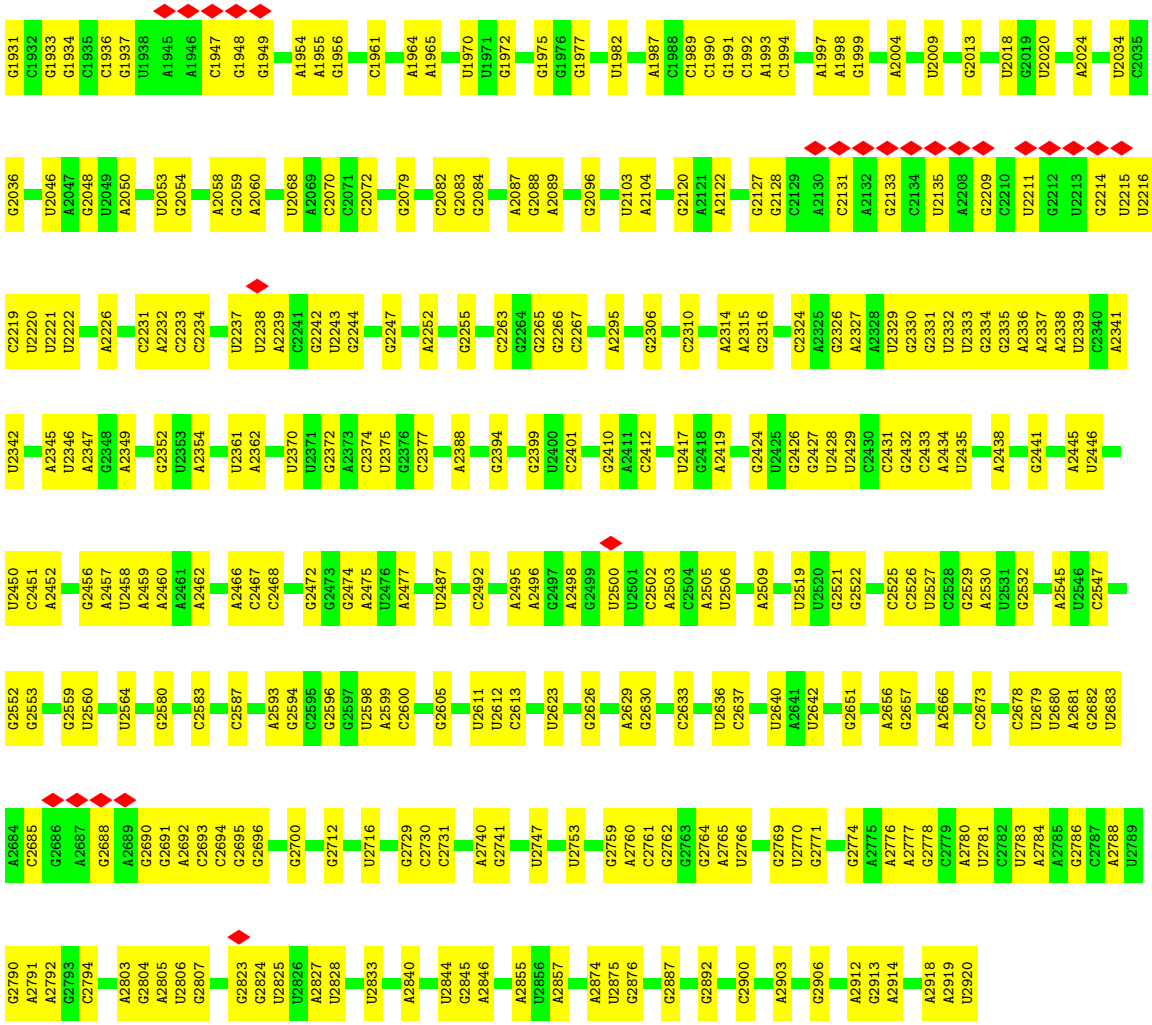
U1565 G1566 A1567 U1568 G1569 G1570 G1571 G1572 A1573 G1574 A1575 A1576 G1577 A1578 C1579 C1590 G1591 A1592 G1593 U1594 C1595 G1596 U1597 A1600 U1601 U1602 U1603 C1604 A1605 C1606 A1607 C1608 U1609 G1613 A1614 G1615 A1616 U1623 C1624 U1625 A1626 G1627 A1628 U1629 A1630 G1631 A1632 A1633 A1634 A1635 U1636 A1637 G1638 G1639 U1640 G1641
C1651 A1652 A1653 A1654 C1661 A1678 U1683 A1690 G1691 C1692 U1703 A1713 G1718 C1738 G1739 G1740 G1747 U1755 A1758 G1759 G1760 G1761 U1762 U1763 A1764 A1765 C1766 G1767 C1768 C1769 C1770 A1771 G1772 G1777 U1784 G1785 A1789 G1790 G1791 A1800 A1811 A1812 A1813 A1814
U1825 G1826 C1827 U1828 A1829 U1843 G1844 U1845 A1846 A1856 C1857 C1860 G1866 A1875 G1876 G1877 U1878 U1879 A1880 G1884 G1885 A1886 G1887 U1888 U1892 A1893 G1894 C1895 U1896 U1897 C1898 U1899 G1900 C1901 G1902 A1903 A1904 C1909 G1910 A1911 A1912 U1913 C1914 G1915 A1916 C1922 A1923 A1927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U2450 C2451 A2452 G2456 A2457 U2458 A2459 A2460 A2461 A2462 A2466 C2467 C2468 G2472 G2473 G2474 A2475 U2476 A2477 U2487 C2492 A2495 A2496 G2497 A2498 G2499 U2500 U2501 C2502 A2503 C2504 A2505 U2506 A2509 U2519 U2520 G2521 G2522 C2525 C2526 U2527 C2528 G2529 A2530 U2531 G2532 A2545 U2546 C2547
G2552 G2553 G2559 U2560 U2564 G2580 C2583 C2587 A2593 G2594 C2595 G2596 G2597 U2598 A2599 C2600 G2605 U2611 U2612 C2613 U2623 G2626 A2629 G2630 C2633 U2636 C2637 U2640 A2641 U2642 G2651 A2656 G2657 A2666 C2673 C2678 U2679 U2680 A2681 G2682 U2683
A2684 C2685 G2686 A2687 G2688 A2689 G2690 G2691 A2692 C2693 C2694 G2695 G2696 G2700 G2712 U2716 G2729 C2730 C2731 A2740 G2741 U2747 U2753 G2759 A2760 C2761 G2762 G2763 G2764 A2765 U2766 G2769 U2770 G2771 G2774 A2775 A2776 A2777 G2778 C2779 A2780 U2781 C2782 U2783 A2784 A2785 G2786 C2787 A2788 U2789
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4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	123520	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	47	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.039	Depositor
Minimum map value	-0.016	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.0052	Depositor
Map size (Å)	361.2, 361.2, 361.2	wwPDB
Map dimensions	420, 420, 420	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.86, 0.86, 0.86	Depositor

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	C	0.20	0/2717	0.63	0/4232
2	B	0.42	0/1573	0.71	1/2121 (0.0%)
3	l	0.32	0/1062	0.62	0/1465
4	D	0.47	0/1167	0.75	0/1576
5	E	0.50	0/796	0.78	1/1069 (0.1%)
6	G	0.66	0/1180	0.60	0/1595
7	F	0.49	0/1019	0.80	0/1371
8	H	0.46	0/990	0.72	1/1332 (0.1%)
9	1	0.48	0/637	0.61	0/865
10	2	0.42	0/840	0.70	0/1137
11	3	0.47	0/991	0.77	0/1337
12	4	0.45	0/835	0.71	1/1123 (0.1%)
13	5	0.54	0/507	0.77	0/674
14	6	0.38	0/721	0.73	2/964 (0.2%)
15	7	0.72	0/541	0.70	0/733
16	8	0.36	0/527	0.70	0/721
17	9	0.54	0/465	0.66	0/620
18	I	0.43	0/551	0.72	0/747
19	A	0.44	0/502	0.60	0/679
20	X	0.21	0/33951	0.65	15/52921 (0.0%)
21	e	0.67	0/1593	0.59	0/2143
22	J	0.66	0/1536	0.57	0/2078
23	K	0.49	0/1028	0.68	1/1405 (0.1%)
24	L	0.33	0/1074	0.68	1/1467 (0.1%)
25	M	0.65	0/1146	0.56	0/1546
26	N	0.66	0/925	0.59	0/1242
27	O	0.68	0/1034	0.60	0/1388
28	P	0.60	1/1067 (0.1%)	0.68	0/1436
29	Q	0.66	0/900	0.57	0/1205
30	R	0.42	0/770	0.65	0/1044
31	S	0.63	0/954	0.55	0/1264
32	U	0.67	0/758	0.57	0/1014
33	V	0.66	0/845	0.59	0/1140
34	W	0.65	0/701	0.57	0/939

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	Z	0.46	0/742	0.66	0/1001
36	a	0.41	0/655	0.77	0/888
37	b	0.72	0/621	0.71	0/824
38	c	0.57	0/382	0.65	0/512
39	d	0.47	0/494	0.69	0/660
40	f	0.66	0/438	0.58	0/591
41	g	0.65	0/361	0.58	0/481
42	T	0.63	0/385	0.57	0/518
43	i	0.62	0/371	0.57	0/484
44	j	0.70	0/450	0.83	1/597 (0.2%)
45	k	0.38	0/275	0.69	0/366
46	h	0.39	0/454	0.62	0/624
47	Y	0.21	1/65313 (0.0%)	0.63	9/101832 (0.0%)
All	All	0.33	2/136844 (0.0%)	0.64	33/205971 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
2	B	0	2
3	l	0	3
4	D	0	1
7	F	0	1
8	H	0	1
10	2	0	2
11	3	0	3
12	4	0	2
13	5	0	1
19	A	0	1
23	K	0	1
24	L	0	1
30	R	0	3
39	d	0	1
44	j	0	2
46	h	0	1
All	All	0	26

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
47	Y	765	U	O3'-P	7.60	1.70	1.61
28	P	124	LYS	C-N	-5.85	1.20	1.34

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
47	Y	1463	A	C2'-C3'-O3'	7.93	126.95	109.50
47	Y	756	A	C2'-C3'-O3'	7.61	126.24	109.50
47	Y	267	G	C2'-C3'-O3'	7.36	125.69	109.50
20	X	409	C	C2'-C3'-O3'	7.05	125.00	109.50
20	X	139	U	C2'-C3'-O3'	7.01	124.92	109.50
47	Y	339	A	C2'-C3'-O3'	6.81	124.60	113.70
20	X	309	G	C2'-C3'-O3'	6.66	124.35	113.70
20	X	283	G	C2'-C3'-O3'	6.64	124.33	113.70
20	X	824	A	C2'-C3'-O3'	6.59	124.24	113.70
20	X	1507	U	C2'-C3'-O3'	6.59	124.24	113.70
20	X	551	G	C2'-C3'-O3'	6.54	124.16	113.70
47	Y	1897	U	C2'-C3'-O3'	6.43	124.00	113.70
20	X	342	C	C2'-C3'-O3'	6.41	123.96	113.70
20	X	1163	A	O5'-P-OP2	-6.40	99.94	105.70
20	X	889	C	C2'-C3'-O3'	6.33	123.83	113.70
20	X	42	G	C2'-C3'-O3'	6.26	123.72	113.70
47	Y	384	G	C2'-C3'-O3'	6.24	123.69	113.70
20	X	679	G	C2'-C3'-O3'	6.20	123.61	113.70
23	K	103	LEU	CA-CB-CG	6.08	129.29	115.30
14	6	56	LEU	CA-CB-CG	5.90	128.87	115.30
14	6	43	LEU	CA-CB-CG	5.77	128.56	115.30
20	X	926	G	C2'-C3'-O3'	5.67	122.77	113.70
2	B	93	LEU	CA-CB-CG	5.53	128.01	115.30
5	E	38	LEU	CA-CB-CG	5.52	127.99	115.30
8	H	89	LEU	CA-CB-CG	5.44	127.82	115.30
47	Y	1465	G	C2'-C3'-O3'	5.40	122.33	113.70
24	L	144	LEU	CA-CB-CG	5.39	127.70	115.30
47	Y	1885	G	C2'-C3'-O3'	5.27	122.14	113.70
20	X	70	A	C2'-C3'-O3'	5.24	122.09	113.70
47	Y	309	U	C2'-C3'-O3'	5.13	121.92	113.70
44	j	32	LEU	CA-CB-CG	5.12	127.08	115.30
12	4	69	LEU	CA-CB-CG	5.09	127.00	115.30
20	X	1510	U	C2'-C3'-O3'	5.07	121.82	113.70

There are no chirality outliers.

All (26) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
10	2	124	PRO	Peptide
10	2	72	LYS	Peptide
11	3	46	VAL	Peptide
11	3	71	SER	Peptide
11	3	79	TYR	Mainchain
12	4	100	GLN	Peptide
12	4	103	LYS	Peptide
13	5	14	GLN	Peptide
19	A	10	ARG	Peptide
2	B	58	ARG	Peptide
2	B	7	PRO	Peptide
4	D	123	ILE	Peptide
7	F	93	GLU	Peptide
8	H	109	ASP	Peptide
23	K	165	GLU	Peptide
24	L	125	VAL	Peptide
30	R	31	LEU	Peptide
30	R	32	ASN	Peptide
30	R	61	SER	Peptide
39	d	37	LEU	Peptide
46	h	45	VAL	Peptide
44	j	10	ALA	Peptide
44	j	48	ARG	Peptide
3	l	168	ASP	Peptide
3	l	78	LYS	Peptide
3	l	8	ASN	Peptide

5.2 Too-close contacts

Due to software issues we are unable to calculate clashes - this section is therefore empty.

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
2	B	200/202 (99%)	155 (78%)	43 (22%)	2 (1%)	13 40
3	l	196/198 (99%)	128 (65%)	68 (35%)	0	100 100
4	D	154/156 (99%)	118 (77%)	35 (23%)	1 (1%)	22 52
5	E	93/95 (98%)	66 (71%)	23 (25%)	4 (4%)	2 11
6	G	153/155 (99%)	105 (69%)	39 (26%)	9 (6%)	1 7
7	F	128/130 (98%)	89 (70%)	36 (28%)	3 (2%)	5 22
8	H	125/127 (98%)	88 (70%)	33 (26%)	4 (3%)	3 17
9	1	78/80 (98%)	63 (81%)	12 (15%)	3 (4%)	2 14
10	2	112/114 (98%)	78 (70%)	33 (30%)	1 (1%)	14 43
11	3	134/136 (98%)	92 (69%)	40 (30%)	2 (2%)	8 31
12	4	111/113 (98%)	79 (71%)	29 (26%)	3 (3%)	4 19
13	5	58/60 (97%)	39 (67%)	18 (31%)	1 (2%)	7 29
14	6	86/88 (98%)	64 (74%)	22 (26%)	0	100 100
15	7	81/83 (98%)	55 (68%)	18 (22%)	8 (10%)	0 2
16	8	78/80 (98%)	51 (65%)	27 (35%)	0	100 100
17	9	54/56 (96%)	41 (76%)	12 (22%)	1 (2%)	6 26
18	I	76/78 (97%)	47 (62%)	27 (36%)	2 (3%)	4 20
19	A	76/78 (97%)	64 (84%)	12 (16%)	0	100 100
21	e	213/215 (99%)	173 (81%)	37 (17%)	3 (1%)	9 32
22	J	203/205 (99%)	175 (86%)	26 (13%)	2 (1%)	13 40
23	K	163/165 (99%)	112 (69%)	46 (28%)	5 (3%)	3 17
24	L	172/174 (99%)	115 (67%)	57 (33%)	0	100 100
25	M	143/145 (99%)	123 (86%)	15 (10%)	5 (4%)	3 15
26	N	120/122 (98%)	99 (82%)	18 (15%)	3 (2%)	4 20
27	O	143/145 (99%)	111 (78%)	30 (21%)	2 (1%)	9 32
28	P	134/136 (98%)	115 (86%)	17 (13%)	2 (2%)	8 31
29	Q	117/119 (98%)	97 (83%)	14 (12%)	6 (5%)	1 9
30	R	111/113 (98%)	80 (72%)	31 (28%)	0	100 100
31	S	114/116 (98%)	108 (95%)	4 (4%)	2 (2%)	7 27
32	U	100/102 (98%)	73 (73%)	24 (24%)	3 (3%)	3 18
33	V	110/112 (98%)	95 (86%)	15 (14%)	0	100 100
34	W	87/89 (98%)	70 (80%)	13 (15%)	4 (5%)	2 11

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
35	Z	101/103 (98%)	74 (73%)	27 (27%)	0	100 100
36	a	91/93 (98%)	69 (76%)	22 (24%)	0	100 100
37	b	80/82 (98%)	68 (85%)	10 (12%)	2 (2%)	4 20
38	c	47/49 (96%)	38 (81%)	9 (19%)	0	100 100
39	d	60/62 (97%)	49 (82%)	11 (18%)	0	100 100
40	f	55/57 (96%)	52 (94%)	3 (6%)	0	100 100
41	g	45/47 (96%)	38 (84%)	6 (13%)	1 (2%)	5 23
42	T	45/47 (96%)	41 (91%)	3 (7%)	1 (2%)	5 23
43	i	41/43 (95%)	36 (88%)	5 (12%)	0	100 100
44	j	58/60 (97%)	43 (74%)	15 (26%)	0	100 100
45	k	35/37 (95%)	24 (69%)	11 (31%)	0	100 100
46	h	72/74 (97%)	40 (56%)	30 (42%)	2 (3%)	4 19
All	All	4653/4741 (98%)	3540 (76%)	1026 (22%)	87 (2%)	9 26

All (87) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	E	12	PRO
15	7	13	LYS
21	e	19	ASN
23	K	95	ARG
28	P	78	PRO
29	Q	69	VAL
46	h	5	ILE
2	B	129	PHE
5	E	5	GLU
6	G	16	PRO
6	G	31	MET
6	G	69	ILE
7	F	72	ARG
8	H	44	GLU
8	H	45	SER
8	H	46	LEU
12	4	27	THR
12	4	99	GLY
15	7	54	GLU
18	I	55	ARG
21	e	105	VAL

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Mol	Chain	Res	Type
23	K	89	VAL
25	M	26	LEU
25	M	142	GLU
28	P	44	SER
29	Q	81	ALA
31	S	9	VAL
32	U	8	GLY
46	h	7	PRO
4	D	162	GLU
5	E	14	ILE
6	G	82	GLY
6	G	114	LYS
15	7	14	ARG
25	M	11	ASN
27	O	29	LYS
27	O	70	ASN
29	Q	28	GLU
31	S	102	ASP
34	W	4	ARG
41	g	33	CYS
5	E	71	LYS
6	G	104	LEU
6	G	127	ALA
7	F	92	SER
7	F	121	ARG
8	H	123	ALA
9	1	16	ARG
9	1	60	ASP
15	7	45	ALA
15	7	49	GLU
17	9	53	SER
18	I	56	LYS
23	K	53	ALA
26	N	90	ASP
29	Q	92	ARG
34	W	63	LYS
37	b	65	ASP
37	b	66	THR
42	T	39	LEU
6	G	8	PRO
11	3	127	ARG
11	3	135	PRO

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Mol	Chain	Res	Type
15	7	11	GLY
15	7	64	GLY
22	J	134	PRO
25	M	82	PRO
25	M	128	GLY
32	U	46	VAL
32	U	78	ARG
34	W	62	LYS
34	W	84	GLU
2	B	18	TRP
23	K	138	PHE
29	Q	27	SER
29	Q	87	GLY
23	K	36	VAL
26	N	48	PRO
21	e	107	VAL
22	J	15	GLY
9	1	43	PRO
15	7	16	PRO
6	G	91	VAL
12	4	96	PRO
13	5	28	GLY
10	2	115	PRO
26	N	26	GLY

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
2	B	151/164 (92%)	145 (96%)	6 (4%)	27 56
3	l	23/174 (13%)	23 (100%)	0	100 100
4	D	120/122 (98%)	114 (95%)	6 (5%)	20 48
5	E	82/83 (99%)	73 (89%)	9 (11%)	5 20
6	G	115/131 (88%)	73 (64%)	42 (36%)	0 0

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
7	F	107/111 (96%)	97 (91%)	10 (9%)	7 26
8	H	96/105 (91%)	89 (93%)	7 (7%)	11 35
9	1	67/73 (92%)	57 (85%)	10 (15%)	2 10
10	2	85/90 (94%)	82 (96%)	3 (4%)	31 59
11	3	95/118 (80%)	93 (98%)	2 (2%)	48 71
12	4	75/97 (77%)	69 (92%)	6 (8%)	10 32
13	5	51/52 (98%)	43 (84%)	8 (16%)	2 9
14	6	74/80 (92%)	73 (99%)	1 (1%)	62 79
15	7	36/70 (51%)	22 (61%)	14 (39%)	0 0
16	8	35/75 (47%)	35 (100%)	0	100 100
17	9	49/50 (98%)	35 (71%)	14 (29%)	0 1
18	I	45/69 (65%)	43 (96%)	2 (4%)	24 52
19	A	37/65 (57%)	36 (97%)	1 (3%)	40 65
21	e	158/173 (91%)	134 (85%)	24 (15%)	2 9
22	J	154/168 (92%)	127 (82%)	27 (18%)	1 7
23	K	67/146 (46%)	59 (88%)	8 (12%)	4 16
24	L	61/152 (40%)	60 (98%)	1 (2%)	58 77
25	M	117/123 (95%)	97 (83%)	20 (17%)	1 7
26	N	100/100 (100%)	87 (87%)	13 (13%)	3 14
27	O	91/111 (82%)	67 (74%)	24 (26%)	0 1
28	P	101/113 (89%)	95 (94%)	6 (6%)	16 42
29	Q	90/100 (90%)	77 (86%)	13 (14%)	2 11
30	R	63/90 (70%)	62 (98%)	1 (2%)	58 77
31	S	96/96 (100%)	82 (85%)	14 (15%)	2 11
32	U	68/86 (79%)	49 (72%)	19 (28%)	0 1
33	V	84/91 (92%)	66 (79%)	18 (21%)	1 4
34	W	72/80 (90%)	58 (81%)	14 (19%)	1 5
35	Z	71/88 (81%)	71 (100%)	0	100 100
36	a	58/82 (71%)	58 (100%)	0	100 100
37	b	61/64 (95%)	59 (97%)	2 (3%)	33 60
38	c	38/41 (93%)	37 (97%)	1 (3%)	41 66

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
39	d	52/57 (91%)	50 (96%)	2 (4%)	28 57
40	f	50/51 (98%)	42 (84%)	8 (16%)	2 8
41	g	35/43 (81%)	30 (86%)	5 (14%)	2 11
42	T	42/45 (93%)	31 (74%)	11 (26%)	0 1
43	i	39/39 (100%)	35 (90%)	4 (10%)	6 21
44	j	44/52 (85%)	43 (98%)	1 (2%)	45 68
45	k	29/35 (83%)	29 (100%)	0	100 100
46	h	23/66 (35%)	20 (87%)	3 (13%)	3 14
All	All	3207/4021 (80%)	2827 (88%)	380 (12%)	7 17

All (380) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	B	39	ARG
2	B	42	ILE
2	B	46	LEU
2	B	151	GLN
2	B	200	TRP
2	B	203	ARG
4	D	29	ARG
4	D	93	SER
4	D	131	ASN
4	D	134	ILE
4	D	135	ASN
4	D	142	ASP
5	E	4	TYR
5	E	10	VAL
5	E	11	ARG
5	E	13	ASN
5	E	14	ILE
5	E	57	ASP
5	E	68	ASP
5	E	71	LYS
5	E	74	ASP
6	G	3	ARG
6	G	4	LYS
6	G	9	LYS
6	G	15	ASP
6	G	17	ILE

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Mol	Chain	Res	Type
6	G	21	LYS
6	G	22	LEU
6	G	24	THR
6	G	25	LYS
6	G	27	ILE
6	G	28	ASN
6	G	30	ILE
6	G	31	MET
6	G	36	ARG
6	G	38	THR
6	G	40	GLN
6	G	41	ARG
6	G	42	ILE
6	G	45	SER
6	G	47	PHE
6	G	48	ASP
6	G	49	LEU
6	G	54	SER
6	G	56	ARG
6	G	67	ASN
6	G	69	ILE
6	G	70	MET
6	G	74	GLU
6	G	84	ASN
6	G	90	GLU
6	G	91	VAL
6	G	96	ARG
6	G	97	THR
6	G	99	LEU
6	G	101	LEU
6	G	109	ARG
6	G	117	GLU
6	G	123	GLU
6	G	126	ASP
6	G	138	ARG
6	G	149	LYS
6	G	151	PHE
7	F	15	ARG
7	F	18	ASN
7	F	21	ARG
7	F	99	ASN
7	F	101	LEU

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Mol	Chain	Res	Type
7	F	106	VAL
7	F	108	THR
7	F	120	LYS
7	F	121	ARG
7	F	132	TRP
8	H	20	ARG
8	H	45	SER
8	H	46	LEU
8	H	47	ILE
8	H	49	ASP
8	H	121	LYS
8	H	129	PHE
9	1	15	HIS
9	1	16	ARG
9	1	31	ARG
9	1	46	LYS
9	1	51	ILE
9	1	52	ILE
9	1	53	ARG
9	1	60	ASP
9	1	68	ARG
9	1	73	LEU
10	2	15	ASN
10	2	59	THR
10	2	95	SER
11	3	44	ARG
11	3	128	SER
12	4	29	THR
12	4	33	ILE
12	4	86	TYR
12	4	87	ARG
12	4	90	ARG
12	4	92	ARG
13	5	3	LYS
13	5	4	THR
13	5	6	MET
13	5	24	CYS
13	5	26	ARG
13	5	29	ARG
13	5	38	LYS
13	5	60	SER
14	6	16	ARG

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Mol	Chain	Res	Type
15	7	3	VAL
15	7	4	LYS
15	7	5	ILE
15	7	9	ARG
15	7	10	LEU
15	7	13	LYS
15	7	15	ASN
15	7	20	ILE
15	7	24	ASP
15	7	32	ARG
15	7	75	LEU
15	7	77	LYS
15	7	80	ILE
15	7	83	LYS
17	9	36	ARG
17	9	37	PHE
17	9	38	ILE
17	9	43	LYS
17	9	44	ILE
17	9	45	LEU
17	9	48	ARG
17	9	49	VAL
17	9	52	THR
17	9	53	SER
17	9	55	LYS
17	9	56	TYR
17	9	60	LEU
17	9	64	ILE
18	I	55	ARG
18	I	81	LYS
19	A	80	THR
21	e	2	THR
21	e	12	MET
21	e	23	ILE
21	e	32	GLU
21	e	53	PHE
21	e	55	ASP
21	e	60	LYS
21	e	70	ASN
21	e	78	LYS
21	e	85	LYS
21	e	86	ARG

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Mol	Chain	Res	Type
21	e	93	ASN
21	e	108	ASP
21	e	109	THR
21	e	131	ILE
21	e	138	ARG
21	e	158	SER
21	e	173	MET
21	e	176	ASN
21	e	177	THR
21	e	183	LEU
21	e	186	VAL
21	e	209	VAL
21	e	216	LYS
22	J	8	LYS
22	J	10	ASP
22	J	21	ASP
22	J	23	VAL
22	J	29	ASN
22	J	41	ARG
22	J	45	ARG
22	J	54	ARG
22	J	58	SER
22	J	66	LYS
22	J	107	ARG
22	J	108	LEU
22	J	111	ARG
22	J	115	SER
22	J	126	VAL
22	J	127	ASP
22	J	137	LYS
22	J	150	LYS
22	J	164	GLU
22	J	177	THR
22	J	179	GLN
22	J	186	ILE
22	J	187	THR
22	J	192	LEU
22	J	193	VAL
22	J	194	ILE
22	J	200	LYS
23	K	34	ILE
23	K	35	VAL

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Mol	Chain	Res	Type
23	K	54	VAL
23	K	55	GLU
23	K	60	ILE
23	K	63	GLN
23	K	85	ILE
23	K	88	LYS
24	L	175	LYS
25	M	1	MET
25	M	19	ILE
25	M	25	THR
25	M	29	LEU
25	M	32	GLU
25	M	45	TYR
25	M	49	VAL
25	M	51	THR
25	M	53	ASP
25	M	54	TYR
25	M	64	GLU
25	M	65	PHE
25	M	85	ILE
25	M	87	SER
25	M	93	LEU
25	M	95	ARG
25	M	112	SER
25	M	118	LYS
25	M	123	LEU
25	M	130	GLU
26	N	7	ARG
26	N	14	SER
26	N	21	THR
26	N	23	LYS
26	N	31	LYS
26	N	42	THR
26	N	62	ILE
26	N	64	ARG
26	N	71	ARG
26	N	97	ARG
26	N	112	MET
26	N	113	LYS
26	N	117	LEU
27	O	14	LYS
27	O	16	ARG

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Mol	Chain	Res	Type
27	O	17	ASN
27	O	19	VAL
27	O	30	THR
27	O	33	ARG
27	O	38	GLN
27	O	39	LYS
27	O	59	ARG
27	O	60	ARG
27	O	63	LYS
27	O	66	PHE
27	O	71	ARG
27	O	84	LYS
27	O	90	GLU
27	O	95	LEU
27	O	109	ILE
27	O	116	SER
27	O	119	LYS
27	O	121	LEU
27	O	126	HIS
27	O	127	LYS
27	O	128	PHE
27	O	134	GLU
28	P	3	LEU
28	P	13	HIS
28	P	14	ARG
28	P	75	THR
28	P	77	LYS
28	P	94	ILE
29	Q	4	ARG
29	Q	8	ARG
29	Q	11	ASP
29	Q	25	ILE
29	Q	40	VAL
29	Q	41	ARG
29	Q	64	LYS
29	Q	77	THR
29	Q	88	GLU
29	Q	92	ARG
29	Q	112	ASP
29	Q	116	SER
29	Q	117	VAL
30	R	22	LEU

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Mol	Chain	Res	Type
31	S	16	LYS
31	S	20	LEU
31	S	25	PHE
31	S	32	TYR
31	S	33	LYS
31	S	34	VAL
31	S	40	MET
31	S	58	ARG
31	S	70	ARG
31	S	90	ILE
31	S	93	LYS
31	S	97	GLU
31	S	115	ASP
31	S	117	LEU
32	U	2	PHE
32	U	5	ILE
32	U	6	GLU
32	U	10	LYS
32	U	12	ILE
32	U	26	ASP
32	U	32	THR
32	U	37	LYS
32	U	65	GLN
32	U	67	ARG
32	U	70	LYS
32	U	71	ILE
32	U	73	VAL
32	U	76	TYR
32	U	77	LYS
32	U	79	ARG
32	U	80	LYS
32	U	99	LYS
32	U	100	ILE
33	V	1	MET
33	V	2	GLU
33	V	8	ARG
33	V	9	THR
33	V	11	ARG
33	V	12	ILE
33	V	15	ARG
33	V	41	LYS
33	V	51	LEU

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Mol	Chain	Res	Type
33	V	69	LEU
33	V	71	VAL
33	V	83	LYS
33	V	86	ARG
33	V	90	GLN
33	V	92	ARG
33	V	99	ARG
33	V	103	ILE
33	V	111	LYS
34	W	5	ASP
34	W	6	ILE
34	W	9	ARG
34	W	42	VAL
34	W	48	VAL
34	W	62	LYS
34	W	64	ARG
34	W	65	MET
34	W	68	TYR
34	W	73	ASN
34	W	75	ARG
34	W	77	LYS
34	W	82	LEU
34	W	83	LYS
37	b	47	ARG
37	b	48	GLN
38	c	60	THR
39	d	58	ARG
39	d	66	LYS
40	f	5	GLN
40	f	6	ILE
40	f	10	ARG
40	f	11	SER
40	f	15	ARG
40	f	20	ARG
40	f	24	GLU
40	f	51	LYS
41	g	6	ARG
41	g	23	SER
41	g	32	ASN
41	g	36	TYR
41	g	37	LYS
42	T	9	CYS

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Mol	Chain	Res	Type
42	T	10	THR
42	T	15	ARG
42	T	19	THR
42	T	21	LYS
42	T	30	ILE
42	T	33	LYS
42	T	34	LYS
42	T	36	CYS
42	T	39	LEU
42	T	41	LYS
43	i	2	VAL
43	i	15	LYS
43	i	21	LYS
43	i	30	LYS
44	j	61	LEU
46	h	3	GLN
46	h	5	ILE
46	h	6	HIS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (52) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	133	GLN
4	D	83	HIS
4	D	135	ASN
4	D	145	GLN
6	G	40	GLN
6	G	84	ASN
6	G	86	GLN
6	G	122	ASN
7	F	69	ASN
8	H	68	ASN
9	1	78	ASN
11	3	5	ASN
11	3	109	HIS
13	5	10	GLN
13	5	52	GLN
14	6	9	ASN
14	6	65	HIS
15	7	15	ASN
16	8	5	ASN
21	e	33	ASN

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Mol	Chain	Res	Type
21	e	37	GLN
22	J	141	ASN
22	J	179	GLN
22	J	182	ASN
23	K	63	GLN
24	L	65	HIS
24	L	111	HIS
25	M	136	GLN
25	M	137	GLN
26	N	4	GLN
27	O	54	GLN
27	O	104	ASN
27	O	143	HIS
28	P	25	ASN
30	R	32	ASN
31	S	29	HIS
32	U	18	GLN
33	V	102	HIS
34	W	47	ASN
35	Z	67	ASN
36	a	85	GLN
37	b	58	ASN
39	d	64	GLN
40	f	5	GLN
40	f	52	HIS
41	g	14	ASN
41	g	32	ASN
42	T	22	ASN
42	T	25	ASN
42	T	26	ASN
45	k	29	ASN
45	k	32	HIS

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	C	113/114 (99%)	55 (48%)	2 (1%)
20	X	1401/1415 (99%)	1035 (73%)	80 (5%)
47	Y	2703/2720 (99%)	954 (35%)	36 (1%)
All	All	4217/4249 (99%)	2044 (48%)	118 (2%)

All (2044) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	C	3	U
1	C	4	G
1	C	7	G
1	C	10	U
1	C	11	A
1	C	13	A
1	C	14	G
1	C	16	A
1	C	17	A
1	C	18	G
1	C	21	G
1	C	22	G
1	C	24	C
1	C	25	A
1	C	27	A
1	C	28	C
1	C	30	U
1	C	31	G
1	C	33	U
1	C	35	C
1	C	37	A
1	C	39	G
1	C	40	C
1	C	41	C
1	C	42	G
1	C	43	A
1	C	44	A
1	C	50	A
1	C	51	A
1	C	52	G
1	C	53	U
1	C	54	U
1	C	55	A
1	C	57	G
1	C	58	G
1	C	60	C
1	C	61	U
1	C	63	U
1	C	64	A
1	C	67	G
1	C	69	C
1	C	70	G
1	C	79	C

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Mol	Chain	Res	Type
1	C	86	C
1	C	87	G
1	C	88	U
1	C	95	A
1	C	100	A
1	C	102	A
1	C	103	A
1	C	105	G
1	C	106	U
1	C	107	U
1	C	113	G
1	C	114	C
20	X	6	U
20	X	7	G
20	X	9	A
20	X	10	G
20	X	14	U
20	X	15	U
20	X	16	G
20	X	17	A
20	X	20	C
20	X	22	G
20	X	23	G
20	X	25	U
20	X	26	C
20	X	27	A
20	X	28	G
20	X	29	G
20	X	30	A
20	X	32	G
20	X	33	A
20	X	34	A
20	X	35	C
20	X	36	G
20	X	37	C
20	X	38	U
20	X	39	G
20	X	40	G
20	X	41	C
20	X	43	G
20	X	44	C
20	X	47	G

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Mol	Chain	Res	Type
20	X	48	C
20	X	49	C
20	X	50	U
20	X	51	A
20	X	52	A
20	X	53	U
20	X	54	A
20	X	56	A
20	X	60	A
20	X	61	A
20	X	63	U
20	X	66	A
20	X	67	G
20	X	68	C
20	X	69	G
20	X	70	A
20	X	71	A
20	X	72	C
20	X	98	U
20	X	99	U
20	X	100	A
20	X	101	G
20	X	102	C
20	X	103	G
20	X	105	C
20	X	106	G
20	X	107	G
20	X	108	A
20	X	109	C
20	X	110	G
20	X	111	G
20	X	113	U
20	X	115	A
20	X	116	G
20	X	118	A
20	X	119	A
20	X	120	C
20	X	121	A
20	X	122	C
20	X	123	G
20	X	124	U
20	X	125	G

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Mol	Chain	Res	Type
20	X	127	A
20	X	128	U
20	X	129	A
20	X	130	A
20	X	131	C
20	X	132	C
20	X	134	A
20	X	136	C
20	X	137	U
20	X	139	U
20	X	140	A
20	X	141	A
20	X	142	G
20	X	144	C
20	X	146	G
20	X	147	G
20	X	148	G
20	X	151	A
20	X	153	C
20	X	154	U
20	X	155	U
20	X	156	C
20	X	158	G
20	X	160	A
20	X	162	A
20	X	164	C
20	X	168	G
20	X	169	C
20	X	170	U
20	X	173	U
20	X	174	A
20	X	176	C
20	X	177	G
20	X	178	G
20	X	179	A
20	X	181	A
20	X	182	A
20	X	183	U
20	X	184	A
20	X	185	U
20	X	207	G
20	X	208	U

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Mol	Chain	Res	Type
20	X	209	G
20	X	210	A
20	X	211	A
20	X	212	A
20	X	213	G
20	X	214	A
20	X	229	C
20	X	230	U
20	X	231	U
20	X	233	U
20	X	234	A
20	X	235	G
20	X	236	A
20	X	237	U
20	X	239	G
20	X	240	A
20	X	241	U
20	X	242	C
20	X	246	G
20	X	247	C
20	X	248	U
20	X	251	A
20	X	252	U
20	X	253	U
20	X	254	A
20	X	255	G
20	X	256	C
20	X	257	U
20	X	258	A
20	X	259	G
20	X	260	U
20	X	262	G
20	X	263	G
20	X	267	G
20	X	268	G
20	X	269	U
20	X	271	A
20	X	272	C
20	X	273	G
20	X	274	G
20	X	275	C
20	X	276	U

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Mol	Chain	Res	Type
20	X	277	U
20	X	278	A
20	X	280	C
20	X	281	A
20	X	282	A
20	X	283	G
20	X	284	G
20	X	285	C
20	X	286	A
20	X	287	A
20	X	288	C
20	X	289	G
20	X	290	A
20	X	291	U
20	X	292	G
20	X	293	C
20	X	294	A
20	X	295	U
20	X	296	A
20	X	297	G
20	X	299	C
20	X	300	G
20	X	301	A
20	X	303	C
20	X	305	G
20	X	306	A
20	X	309	G
20	X	310	G
20	X	311	G
20	X	313	G
20	X	315	U
20	X	316	C
20	X	317	G
20	X	318	G
20	X	319	C
20	X	320	C
20	X	323	A
20	X	324	C
20	X	327	G
20	X	328	A
20	X	329	A
20	X	330	C

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Mol	Chain	Res	Type
20	X	331	U
20	X	332	G
20	X	333	A
20	X	334	G
20	X	335	A
20	X	336	C
20	X	337	A
20	X	338	C
20	X	339	G
20	X	340	G
20	X	343	C
20	X	347	C
20	X	348	U
20	X	349	C
20	X	352	A
20	X	353	C
20	X	354	G
20	X	355	G
20	X	357	A
20	X	358	G
20	X	359	G
20	X	360	C
20	X	361	A
20	X	362	G
20	X	363	C
20	X	364	A
20	X	365	G
20	X	368	G
20	X	370	G
20	X	371	A
20	X	374	C
20	X	375	U
20	X	376	U
20	X	378	C
20	X	380	C
20	X	381	A
20	X	383	U
20	X	385	G
20	X	388	G
20	X	389	A
20	X	390	A
20	X	392	G

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Mol	Chain	Res	Type
20	X	395	U
20	X	396	G
20	X	397	A
20	X	399	G
20	X	402	G
20	X	403	C
20	X	404	A
20	X	405	A
20	X	406	C
20	X	407	G
20	X	410	G
20	X	411	C
20	X	413	U
20	X	414	G
20	X	415	A
20	X	416	G
20	X	417	U
20	X	419	A
20	X	420	U
20	X	421	G
20	X	422	A
20	X	423	A
20	X	424	G
20	X	425	G
20	X	426	U
20	X	427	C
20	X	435	C
20	X	436	G
20	X	437	U
20	X	438	A
20	X	439	A
20	X	440	A
20	X	441	A
20	X	444	C
20	X	445	U
20	X	446	G
20	X	447	U
20	X	448	U
20	X	450	U
20	X	451	U
20	X	452	A
20	X	453	G

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Mol	Chain	Res	Type
20	X	454	G
20	X	455	G
20	X	458	G
20	X	459	A
20	X	460	A
20	X	461	C
20	X	463	U
20	X	464	A
20	X	465	U
20	X	466	G
20	X	467	U
20	X	484	A
20	X	485	U
20	X	486	C
20	X	487	U
20	X	488	U
20	X	489	G
20	X	490	A
20	X	492	G
20	X	495	A
20	X	496	C
20	X	497	C
20	X	498	U
20	X	499	A
20	X	500	A
20	X	503	A
20	X	505	A
20	X	506	A
20	X	507	A
20	X	509	C
20	X	510	C
20	X	511	A
20	X	512	C
20	X	513	G
20	X	514	G
20	X	516	U
20	X	517	A
20	X	518	A
20	X	519	C
20	X	521	A
20	X	522	C
20	X	523	G

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Mol	Chain	Res	Type
20	X	524	U
20	X	525	G
20	X	526	C
20	X	528	A
20	X	529	G
20	X	531	A
20	X	532	G
20	X	533	C
20	X	534	C
20	X	536	C
20	X	537	G
20	X	538	G
20	X	539	U
20	X	540	A
20	X	541	A
20	X	542	U
20	X	543	A
20	X	545	G
20	X	546	U
20	X	547	A
20	X	548	G
20	X	550	U
20	X	551	G
20	X	552	G
20	X	553	C
20	X	554	A
20	X	555	A
20	X	558	G
20	X	561	A
20	X	562	U
20	X	565	G
20	X	566	G
20	X	568	A
20	X	569	U
20	X	570	U
20	X	571	A
20	X	572	U
20	X	573	U
20	X	575	G
20	X	576	G
20	X	578	G
20	X	579	U

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Mol	Chain	Res	Type
20	X	580	A
20	X	581	A
20	X	584	C
20	X	585	G
20	X	586	C
20	X	587	G
20	X	588	C
20	X	589	G
20	X	590	U
20	X	592	G
20	X	593	G
20	X	595	G
20	X	596	G
20	X	597	U
20	X	600	U
20	X	601	U
20	X	602	U
20	X	603	A
20	X	606	U
20	X	607	C
20	X	608	U
20	X	610	A
20	X	612	G
20	X	613	U
20	X	614	G
20	X	616	A
20	X	617	A
20	X	618	G
20	X	619	C
20	X	620	C
20	X	621	C
20	X	625	G
20	X	626	C
20	X	627	U
20	X	628	C
20	X	630	A
20	X	631	C
20	X	632	C
20	X	635	G
20	X	636	G
20	X	637	A
20	X	638	G

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Mol	Chain	Res	Type
20	X	639	G
20	X	640	G
20	X	641	U
20	X	642	C
20	X	643	A
20	X	644	U
20	X	645	U
20	X	647	G
20	X	650	A
20	X	651	C
20	X	652	U
20	X	653	G
20	X	654	G
20	X	655	A
20	X	656	A
20	X	657	A
20	X	659	C
20	X	661	U
20	X	662	G
20	X	663	A
20	X	666	G
20	X	667	C
20	X	668	A
20	X	669	G
20	X	671	A
20	X	672	G
20	X	673	A
20	X	674	G
20	X	675	G
20	X	676	A
20	X	677	A
20	X	678	A
20	X	679	G
20	X	680	U
20	X	681	G
20	X	682	G
20	X	684	A
20	X	685	U
20	X	686	U
20	X	688	C
20	X	689	A
20	X	690	U

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Mol	Chain	Res	Type
20	X	691	G
20	X	692	U
20	X	693	G
20	X	695	A
20	X	696	G
20	X	697	C
20	X	698	G
20	X	701	G
20	X	702	A
20	X	703	A
20	X	704	A
20	X	705	U
20	X	707	C
20	X	709	C
20	X	712	A
20	X	713	G
20	X	715	U
20	X	716	A
20	X	718	G
20	X	719	G
20	X	720	A
20	X	722	G
20	X	726	A
20	X	727	C
20	X	728	C
20	X	729	A
20	X	731	U
20	X	732	G
20	X	733	G
20	X	737	A
20	X	739	G
20	X	741	G
20	X	742	A
20	X	743	C
20	X	744	U
20	X	745	U
20	X	747	C
20	X	749	G
20	X	752	C
20	X	754	G
20	X	755	U
20	X	756	A

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Mol	Chain	Res	Type
20	X	757	A
20	X	759	U
20	X	760	G
20	X	761	A
20	X	762	C
20	X	763	G
20	X	766	G
20	X	767	A
20	X	768	U
20	X	769	G
20	X	771	G
20	X	773	G
20	X	774	A
20	X	776	A
20	X	777	G
20	X	778	C
20	X	779	G
20	X	780	U
20	X	781	G
20	X	782	G
20	X	783	G
20	X	784	G
20	X	785	A
20	X	786	U
20	X	788	A
20	X	789	A
20	X	791	C
20	X	792	A
20	X	793	G
20	X	795	A
20	X	796	U
20	X	798	A
20	X	799	G
20	X	801	U
20	X	802	A
20	X	803	C
20	X	804	C
20	X	805	C
20	X	806	U
20	X	807	G
20	X	808	G
20	X	809	U

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Mol	Chain	Res	Type
20	X	810	A
20	X	813	C
20	X	814	C
20	X	815	A
20	X	816	C
20	X	817	G
20	X	819	C
20	X	820	G
20	X	821	U
20	X	822	A
20	X	823	A
20	X	824	A
20	X	825	C
20	X	826	G
20	X	827	A
20	X	828	U
20	X	829	G
20	X	832	U
20	X	833	G
20	X	835	U
20	X	836	A
20	X	839	U
20	X	840	G
20	X	841	U
20	X	843	A
20	X	844	G
20	X	845	G
20	X	847	G
20	X	848	G
20	X	856	C
20	X	857	C
20	X	858	C
20	X	859	C
20	X	861	U
20	X	862	A
20	X	863	G
20	X	865	G
20	X	866	C
20	X	869	C
20	X	870	A
20	X	871	G
20	X	872	C

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Mol	Chain	Res	Type
20	X	873	U
20	X	874	A
20	X	875	A
20	X	878	C
20	X	879	A
20	X	880	U
20	X	881	U
20	X	882	A
20	X	883	A
20	X	885	C
20	X	887	C
20	X	888	U
20	X	890	C
20	X	891	G
20	X	892	C
20	X	893	C
20	X	894	U
20	X	895	G
20	X	896	G
20	X	897	G
20	X	898	G
20	X	900	G
20	X	901	U
20	X	903	C
20	X	904	G
20	X	912	G
20	X	913	G
20	X	914	U
20	X	916	G
20	X	917	A
20	X	918	A
20	X	922	C
20	X	923	A
20	X	924	A
20	X	925	A
20	X	926	G
20	X	927	G
20	X	928	A
20	X	932	G
20	X	933	A
20	X	935	G
20	X	936	G

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Mol	Chain	Res	Type
20	X	937	G
20	X	938	G
20	X	940	C
20	X	941	C
20	X	944	C
20	X	945	A
20	X	946	C
20	X	947	A
20	X	948	A
20	X	951	G
20	X	952	G
20	X	953	U
20	X	954	G
20	X	956	A
20	X	958	C
20	X	959	A
20	X	961	G
20	X	962	U
20	X	964	G
20	X	966	U
20	X	967	U
20	X	968	A
20	X	969	A
20	X	970	U
20	X	971	U
20	X	972	C
20	X	974	A
20	X	975	A
20	X	977	C
20	X	978	A
20	X	979	A
20	X	980	C
20	X	981	G
20	X	982	C
20	X	983	G
20	X	984	A
20	X	985	A
20	X	986	G
20	X	987	A
20	X	988	A
20	X	989	C
20	X	990	C

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Mol	Chain	Res	Type
20	X	991	U
20	X	992	U
20	X	993	A
20	X	994	C
20	X	996	A
20	X	997	A
20	X	998	A
20	X	1000	C
20	X	1002	U
20	X	1003	G
20	X	1004	A
20	X	1006	A
20	X	1007	U
20	X	1049	C
20	X	1050	A
20	X	1052	A
20	X	1053	G
20	X	1054	U
20	X	1056	A
20	X	1057	C
20	X	1058	A
20	X	1060	G
20	X	1061	U
20	X	1064	U
20	X	1065	G
20	X	1066	C
20	X	1067	A
20	X	1069	G
20	X	1070	G
20	X	1071	U
20	X	1073	G
20	X	1074	U
20	X	1075	C
20	X	1076	G
20	X	1077	U
20	X	1078	C
20	X	1079	A
20	X	1080	G
20	X	1082	U
20	X	1084	G
20	X	1086	G
20	X	1087	U

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Mol	Chain	Res	Type
20	X	1088	C
20	X	1090	U
20	X	1091	G
20	X	1092	A
20	X	1093	G
20	X	1095	U
20	X	1098	U
20	X	1099	G
20	X	1100	G
20	X	1101	G
20	X	1102	U
20	X	1103	U
20	X	1104	A
20	X	1105	A
20	X	1106	G
20	X	1107	U
20	X	1108	C
20	X	1109	C
20	X	1110	C
20	X	1112	C
20	X	1113	A
20	X	1114	A
20	X	1116	G
20	X	1117	A
20	X	1118	G
20	X	1120	G
20	X	1122	A
20	X	1123	A
20	X	1124	C
20	X	1125	C
20	X	1126	C
20	X	1127	U
20	X	1130	A
20	X	1131	G
20	X	1132	C
20	X	1133	U
20	X	1134	U
20	X	1136	G
20	X	1137	U
20	X	1138	U
20	X	1139	G
20	X	1140	C

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Mol	Chain	Res	Type
20	X	1141	C
20	X	1142	A
20	X	1144	C
20	X	1145	A
20	X	1146	U
20	X	1147	U
20	X	1148	A
20	X	1149	A
20	X	1150	G
20	X	1151	U
20	X	1152	U
20	X	1154	G
20	X	1155	G
20	X	1156	C
20	X	1157	A
20	X	1158	C
20	X	1159	U
20	X	1160	C
20	X	1161	U
20	X	1162	A
20	X	1163	A
20	X	1164	G
20	X	1165	U
20	X	1166	U
20	X	1167	G
20	X	1168	A
20	X	1169	C
20	X	1171	G
20	X	1172	C
20	X	1173	C
20	X	1174	G
20	X	1175	G
20	X	1176	U
20	X	1177	G
20	X	1178	A
20	X	1179	C
20	X	1180	A
20	X	1181	A
20	X	1182	A
20	X	1183	C
20	X	1185	G
20	X	1186	G

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Mol	Chain	Res	Type
20	X	1188	G
20	X	1189	G
20	X	1191	A
20	X	1192	G
20	X	1193	G
20	X	1194	U
20	X	1195	G
20	X	1196	G
20	X	1201	G
20	X	1202	A
20	X	1203	C
20	X	1207	A
20	X	1209	A
20	X	1210	U
20	X	1211	C
20	X	1212	A
20	X	1213	U
20	X	1214	C
20	X	1215	A
20	X	1216	U
20	X	1221	C
20	X	1222	U
20	X	1223	U
20	X	1224	A
20	X	1225	U
20	X	1227	A
20	X	1228	U
20	X	1229	U
20	X	1230	U
20	X	1232	G
20	X	1233	G
20	X	1234	C
20	X	1235	U
20	X	1236	A
20	X	1237	C
20	X	1238	A
20	X	1240	A
20	X	1243	U
20	X	1244	G
20	X	1247	A
20	X	1248	C
20	X	1249	A

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Mol	Chain	Res	Type
20	X	1251	U
20	X	1252	G
20	X	1253	G
20	X	1254	A
20	X	1255	C
20	X	1256	A
20	X	1258	U
20	X	1259	A
20	X	1260	C
20	X	1261	A
20	X	1264	G
20	X	1265	G
20	X	1266	G
20	X	1268	A
20	X	1269	G
20	X	1271	G
20	X	1272	A
20	X	1273	A
20	X	1277	G
20	X	1278	C
20	X	1280	A
20	X	1281	G
20	X	1284	C
20	X	1285	A
20	X	1287	G
20	X	1288	C
20	X	1291	A
20	X	1292	U
20	X	1293	C
20	X	1295	C
20	X	1296	A
20	X	1297	U
20	X	1298	A
20	X	1299	A
20	X	1301	G
20	X	1302	U
20	X	1303	U
20	X	1304	G
20	X	1306	U
20	X	1308	U
20	X	1309	C
20	X	1310	A

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Mol	Chain	Res	Type
20	X	1311	G
20	X	1313	U
20	X	1314	C
20	X	1316	G
20	X	1317	A
20	X	1318	U
20	X	1319	U
20	X	1320	G
20	X	1321	U
20	X	1322	A
20	X	1323	G
20	X	1324	U
20	X	1325	C
20	X	1326	U
20	X	1328	C
20	X	1329	A
20	X	1330	A
20	X	1331	C
20	X	1333	C
20	X	1334	G
20	X	1335	A
20	X	1338	A
20	X	1339	C
20	X	1341	U
20	X	1342	G
20	X	1343	A
20	X	1345	G
20	X	1347	U
20	X	1348	G
20	X	1349	G
20	X	1350	A
20	X	1351	A
20	X	1354	G
20	X	1355	C
20	X	1356	U
20	X	1357	A
20	X	1358	G
20	X	1359	U
20	X	1360	A
20	X	1361	A
20	X	1362	U
20	X	1364	G

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Mol	Chain	Res	Type
20	X	1365	U
20	X	1366	A
20	X	1367	G
20	X	1369	U
20	X	1371	A
20	X	1372	G
20	X	1373	C
20	X	1374	A
20	X	1375	U
20	X	1376	G
20	X	1378	U
20	X	1379	A
20	X	1380	C
20	X	1381	G
20	X	1382	G
20	X	1383	U
20	X	1385	A
20	X	1387	U
20	X	1388	A
20	X	1389	C
20	X	1390	G
20	X	1392	U
20	X	1393	C
20	X	1396	G
20	X	1397	G
20	X	1398	G
20	X	1399	U
20	X	1400	C
20	X	1401	U
20	X	1402	U
20	X	1405	A
20	X	1407	A
20	X	1408	C
20	X	1409	A
20	X	1410	C
20	X	1411	C
20	X	1412	G
20	X	1413	C
20	X	1414	C
20	X	1415	C
20	X	1417	U
20	X	1418	C

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Mol	Chain	Res	Type
20	X	1420	C
20	X	1424	A
20	X	1426	G
20	X	1427	A
20	X	1428	G
20	X	1432	U
20	X	1433	U
20	X	1437	A
20	X	1438	C
20	X	1439	A
20	X	1440	C
20	X	1441	C
20	X	1443	G
20	X	1444	A
20	X	1445	A
20	X	1446	G
20	X	1448	C
20	X	1449	G
20	X	1451	U
20	X	1452	G
20	X	1453	G
20	X	1454	A
20	X	1455	G
20	X	1456	U
20	X	1457	A
20	X	1459	C
20	X	1460	C
20	X	1461	U
20	X	1462	U
20	X	1463	U
20	X	1464	U
20	X	1465	A
20	X	1466	G
20	X	1467	G
20	X	1473	G
20	X	1475	C
20	X	1476	G
20	X	1477	U
20	X	1478	C
20	X	1480	A
20	X	1482	G
20	X	1483	G

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Mol	Chain	Res	Type
20	X	1485	G
20	X	1486	G
20	X	1487	G
20	X	1488	A
20	X	1489	C
20	X	1490	A
20	X	1491	A
20	X	1492	A
20	X	1493	U
20	X	1494	G
20	X	1500	G
20	X	1501	G
20	X	1504	A
20	X	1508	C
20	X	1510	U
20	X	1511	A
20	X	1512	A
20	X	1513	C
20	X	1514	A
20	X	1515	A
20	X	1516	G
20	X	1517	G
20	X	1518	U
20	X	1519	A
20	X	1523	G
20	X	1525	A
20	X	1526	U
20	X	1527	C
20	X	1528	G
20	X	1530	A
20	X	1531	A
20	X	1532	G
20	X	1534	U
20	X	1535	G
20	X	1536	C
20	X	1538	G
20	X	1539	C
20	X	1541	G
20	X	1542	G
47	Y	11	U
47	Y	12	U
47	Y	14	A

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Mol	Chain	Res	Type
47	Y	26	G
47	Y	34	U
47	Y	35	G
47	Y	43	A
47	Y	45	G
47	Y	49	A
47	Y	54	G
47	Y	57	C
47	Y	58	G
47	Y	61	A
47	Y	64	A
47	Y	71	A
47	Y	74	U
47	Y	75	G
47	Y	80	G
47	Y	84	A
47	Y	86	C
47	Y	90	A
47	Y	91	A
47	Y	92	G
47	Y	93	U
47	Y	94	A
47	Y	98	U
47	Y	99	U
47	Y	100	U
47	Y	101	G
47	Y	102	A
47	Y	103	U
47	Y	104	C
47	Y	117	A
47	Y	119	U
47	Y	120	G
47	Y	133	A
47	Y	134	U
47	Y	136	A
47	Y	137	G
47	Y	140	A
47	Y	141	U
47	Y	146	U
47	Y	149	U
47	Y	151	U
47	Y	153	G

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Mol	Chain	Res	Type
47	Y	156	A
47	Y	157	U
47	Y	158	G
47	Y	160	G
47	Y	162	A
47	Y	164	A
47	Y	165	C
47	Y	166	A
47	Y	168	A
47	Y	169	G
47	Y	170	C
47	Y	172	U
47	Y	173	A
47	Y	175	C
47	Y	176	A
47	Y	177	G
47	Y	180	G
47	Y	183	A
47	Y	184	C
47	Y	185	A
47	Y	186	C
47	Y	188	C
47	Y	196	U
47	Y	199	A
47	Y	202	A
47	Y	204	C
47	Y	207	A
47	Y	216	A
47	Y	217	G
47	Y	218	G
47	Y	219	A
47	Y	224	A
47	Y	225	A
47	Y	226	A
47	Y	228	A
47	Y	229	A
47	Y	230	A
47	Y	232	U
47	Y	233	U
47	Y	235	G
47	Y	251	G
47	Y	254	A

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Mol	Chain	Res	Type
47	Y	255	G
47	Y	260	A
47	Y	267	G
47	Y	268	A
47	Y	270	C
47	Y	271	C
47	Y	272	C
47	Y	274	A
47	Y	275	A
47	Y	276	C
47	Y	279	A
47	Y	280	C
47	Y	281	A
47	Y	282	A
47	Y	283	G
47	Y	284	C
47	Y	285	U
47	Y	286	U
47	Y	287	G
47	Y	288	C
47	Y	289	U
47	Y	290	U
47	Y	291	G
47	Y	293	U
47	Y	295	G
47	Y	298	U
47	Y	299	U
47	Y	300	G
47	Y	301	U
47	Y	302	A
47	Y	304	G
47	Y	305	A
47	Y	309	U
47	Y	310	C
47	Y	312	A
47	Y	318	A
47	Y	319	G
47	Y	320	U
47	Y	321	U
47	Y	322	A
47	Y	323	C
47	Y	324	A

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Mol	Chain	Res	Type
47	Y	325	A
47	Y	328	G
47	Y	329	A
47	Y	330	C
47	Y	331	G
47	Y	333	C
47	Y	334	A
47	Y	335	U
47	Y	336	U
47	Y	337	A
47	Y	338	G
47	Y	339	A
47	Y	340	C
47	Y	342	A
47	Y	343	A
47	Y	344	U
47	Y	347	U
47	Y	348	C
47	Y	353	A
47	Y	355	G
47	Y	360	A
47	Y	361	U
47	Y	362	C
47	Y	363	A
47	Y	364	A
47	Y	365	A
47	Y	366	G
47	Y	372	A
47	Y	373	A
47	Y	374	U
47	Y	375	A
47	Y	376	A
47	Y	377	U
47	Y	384	G
47	Y	385	U
47	Y	387	G
47	Y	388	A
47	Y	389	A
47	Y	390	A
47	Y	391	A
47	Y	392	U
47	Y	394	U

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Mol	Chain	Res	Type
47	Y	395	U
47	Y	398	C
47	Y	400	C
47	Y	402	C
47	Y	403	U
47	Y	404	U
47	Y	405	G
47	Y	406	A
47	Y	407	G
47	Y	408	U
47	Y	410	G
47	Y	412	U
47	Y	413	C
47	Y	415	U
47	Y	417	A
47	Y	421	C
47	Y	432	G
47	Y	433	U
47	Y	434	G
47	Y	435	A
47	Y	444	C
47	Y	447	A
47	Y	449	U
47	Y	450	C
47	Y	451	U
47	Y	452	G
47	Y	453	G
47	Y	457	G
47	Y	458	A
47	Y	463	C
47	Y	481	C
47	Y	486	G
47	Y	489	A
47	Y	490	C
47	Y	497	U
47	Y	502	C
47	Y	503	A
47	Y	504	G
47	Y	513	G
47	Y	518	A
47	Y	519	G
47	Y	520	G

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Mol	Chain	Res	Type
47	Y	521	U
47	Y	526	A
47	Y	527	G
47	Y	535	G
47	Y	539	G
47	Y	546	A
47	Y	548	A
47	Y	549	U
47	Y	550	A
47	Y	552	A
47	Y	553	A
47	Y	554	C
47	Y	558	A
47	Y	567	G
47	Y	575	G
47	Y	576	U
47	Y	577	A
47	Y	592	A
47	Y	593	U
47	Y	594	G
47	Y	606	G
47	Y	608	C
47	Y	616	G
47	Y	618	A
47	Y	621	A
47	Y	622	A
47	Y	629	A
47	Y	630	G
47	Y	644	C
47	Y	646	A
47	Y	647	G
47	Y	649	U
47	Y	653	G
47	Y	656	G
47	Y	657	U
47	Y	658	A
47	Y	659	A
47	Y	660	A
47	Y	661	U
47	Y	663	U
47	Y	666	A
47	Y	668	C

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Mol	Chain	Res	Type
47	Y	672	A
47	Y	673	G
47	Y	679	G
47	Y	682	A
47	Y	687	G
47	Y	688	A
47	Y	689	A
47	Y	690	U
47	Y	691	A
47	Y	692	G
47	Y	698	U
47	Y	699	U
47	Y	700	A
47	Y	720	A
47	Y	722	A
47	Y	731	U
47	Y	734	A
47	Y	745	G
47	Y	749	G
47	Y	750	A
47	Y	752	G
47	Y	753	U
47	Y	754	U
47	Y	755	C
47	Y	756	A
47	Y	757	G
47	Y	766	G
47	Y	767	A
47	Y	768	A
47	Y	769	U
47	Y	770	G
47	Y	771	G
47	Y	772	A
47	Y	775	A
47	Y	779	A
47	Y	791	U
47	Y	792	U
47	Y	802	G
47	Y	809	A
47	Y	813	G
47	Y	820	G
47	Y	821	C

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Mol	Chain	Res	Type
47	Y	822	G
47	Y	824	A
47	Y	827	A
47	Y	829	U
47	Y	834	A
47	Y	836	C
47	Y	837	G
47	Y	850	G
47	Y	852	U
47	Y	857	C
47	Y	864	A
47	Y	872	U
47	Y	873	U
47	Y	875	G
47	Y	879	U
47	Y	882	C
47	Y	888	G
47	Y	889	U
47	Y	891	A
47	Y	892	U
47	Y	904	G
47	Y	911	A
47	Y	917	U
47	Y	918	G
47	Y	919	G
47	Y	920	A
47	Y	922	G
47	Y	923	A
47	Y	924	G
47	Y	943	C
47	Y	944	G
47	Y	945	A
47	Y	946	A
47	Y	948	U
47	Y	949	C
47	Y	951	G
47	Y	955	A
47	Y	956	A
47	Y	957	C
47	Y	959	C
47	Y	960	C
47	Y	969	A

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Mol	Chain	Res	Type
47	Y	970	U
47	Y	971	U
47	Y	972	A
47	Y	977	A
47	Y	982	G
47	Y	985	A
47	Y	988	C
47	Y	989	A
47	Y	990	G
47	Y	1001	A
47	Y	1002	U
47	Y	1003	A
47	Y	1005	G
47	Y	1018	A
47	Y	1021	G
47	Y	1024	A
47	Y	1025	A
47	Y	1026	C
47	Y	1027	A
47	Y	1030	C
47	Y	1032	A
47	Y	1033	G
47	Y	1036	C
47	Y	1040	A
47	Y	1056	U
47	Y	1057	A
47	Y	1066	G
47	Y	1067	U
47	Y	1069	G
47	Y	1070	A
47	Y	1071	A
47	Y	1074	G
47	Y	1075	G
47	Y	1077	U
47	Y	1078	G
47	Y	1080	G
47	Y	1082	C
47	Y	1084	U
47	Y	1085	U
47	Y	1087	C
47	Y	1088	C
47	Y	1094	A

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Mol	Chain	Res	Type
47	Y	1095	A
47	Y	1096	C
47	Y	1097	U
47	Y	1098	A
47	Y	1099	G
47	Y	1155	A
47	Y	1156	G
47	Y	1157	U
47	Y	1158	G
47	Y	1159	A
47	Y	1160	C
47	Y	1161	A
47	Y	1163	U
47	Y	1164	G
47	Y	1165	C
47	Y	1170	A
47	Y	1174	U
47	Y	1176	U
47	Y	1177	A
47	Y	1178	C
47	Y	1179	C
47	Y	1183	G
47	Y	1185	U
47	Y	1186	A
47	Y	1192	A
47	Y	1193	U
47	Y	1194	U
47	Y	1195	A
47	Y	1207	G
47	Y	1212	U
47	Y	1214	C
47	Y	1215	U
47	Y	1219	G
47	Y	1220	A
47	Y	1221	C
47	Y	1222	A
47	Y	1225	G
47	Y	1228	A
47	Y	1245	G
47	Y	1275	A
47	Y	1276	G
47	Y	1285	A

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Mol	Chain	Res	Type
47	Y	1286	G
47	Y	1291	A
47	Y	1293	U
47	Y	1294	G
47	Y	1300	G
47	Y	1309	G
47	Y	1310	A
47	Y	1311	A
47	Y	1312	A
47	Y	1321	A
47	Y	1323	A
47	Y	1328	C
47	Y	1337	A
47	Y	1338	U
47	Y	1349	U
47	Y	1350	U
47	Y	1358	A
47	Y	1361	G
47	Y	1362	C
47	Y	1378	U
47	Y	1379	A
47	Y	1382	C
47	Y	1384	G
47	Y	1387	C
47	Y	1389	U
47	Y	1396	A
47	Y	1402	A
47	Y	1403	C
47	Y	1405	G
47	Y	1409	U
47	Y	1416	U
47	Y	1417	G
47	Y	1421	A
47	Y	1422	A
47	Y	1423	C
47	Y	1424	A
47	Y	1427	U
47	Y	1429	G
47	Y	1432	A
47	Y	1433	U
47	Y	1440	A
47	Y	1445	C

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Mol	Chain	Res	Type
47	Y	1447	A
47	Y	1448	U
47	Y	1449	A
47	Y	1460	U
47	Y	1462	G
47	Y	1463	A
47	Y	1464	U
47	Y	1465	G
47	Y	1466	G
47	Y	1468	G
47	Y	1471	A
47	Y	1472	C
47	Y	1479	G
47	Y	1480	G
47	Y	1481	A
47	Y	1482	U
47	Y	1483	A
47	Y	1489	A
47	Y	1490	G
47	Y	1491	C
47	Y	1499	U
47	Y	1501	G
47	Y	1502	A
47	Y	1503	U
47	Y	1504	U
47	Y	1505	G
47	Y	1506	C
47	Y	1507	A
47	Y	1509	G
47	Y	1510	U
47	Y	1511	C
47	Y	1512	U
47	Y	1515	G
47	Y	1516	C
47	Y	1517	A
47	Y	1518	G
47	Y	1519	U
47	Y	1520	A
47	Y	1525	U
47	Y	1527	A
47	Y	1528	G
47	Y	1529	U

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Mol	Chain	Res	Type
47	Y	1540	U
47	Y	1541	C
47	Y	1542	C
47	Y	1543	G
47	Y	1544	G
47	Y	1545	U
47	Y	1546	A
47	Y	1547	C
47	Y	1548	U
47	Y	1549	C
47	Y	1550	G
47	Y	1557	C
47	Y	1558	U
47	Y	1559	G
47	Y	1560	A
47	Y	1561	G
47	Y	1563	U
47	Y	1564	G
47	Y	1565	U
47	Y	1566	G
47	Y	1567	A
47	Y	1568	U
47	Y	1569	G
47	Y	1570	G
47	Y	1571	G
47	Y	1572	G
47	Y	1574	G
47	Y	1575	A
47	Y	1577	G
47	Y	1579	C
47	Y	1591	G
47	Y	1592	A
47	Y	1593	G
47	Y	1594	U
47	Y	1595	C
47	Y	1597	U
47	Y	1600	A
47	Y	1601	U
47	Y	1602	U
47	Y	1603	U
47	Y	1604	C
47	Y	1605	A

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Mol	Chain	Res	Type
47	Y	1606	C
47	Y	1607	A
47	Y	1609	U
47	Y	1613	G
47	Y	1615	G
47	Y	1616	A
47	Y	1623	U
47	Y	1624	C
47	Y	1626	A
47	Y	1628	A
47	Y	1629	U
47	Y	1630	A
47	Y	1631	G
47	Y	1632	A
47	Y	1633	A
47	Y	1634	A
47	Y	1635	A
47	Y	1636	U
47	Y	1637	A
47	Y	1638	G
47	Y	1640	U
47	Y	1641	G
47	Y	1651	C
47	Y	1652	A
47	Y	1653	A
47	Y	1654	A
47	Y	1661	C
47	Y	1678	A
47	Y	1683	U
47	Y	1690	A
47	Y	1692	C
47	Y	1703	U
47	Y	1713	A
47	Y	1718	G
47	Y	1738	C
47	Y	1740	G
47	Y	1747	G
47	Y	1755	U
47	Y	1758	A
47	Y	1759	G
47	Y	1760	G
47	Y	1761	G

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Mol	Chain	Res	Type
47	Y	1762	U
47	Y	1764	A
47	Y	1765	A
47	Y	1766	C
47	Y	1767	G
47	Y	1768	C
47	Y	1769	C
47	Y	1770	C
47	Y	1772	G
47	Y	1777	G
47	Y	1784	U
47	Y	1785	G
47	Y	1789	A
47	Y	1790	G
47	Y	1791	G
47	Y	1800	A
47	Y	1811	A
47	Y	1813	A
47	Y	1814	A
47	Y	1825	U
47	Y	1827	C
47	Y	1828	U
47	Y	1829	A
47	Y	1843	U
47	Y	1845	U
47	Y	1846	A
47	Y	1856	A
47	Y	1857	C
47	Y	1860	C
47	Y	1866	G
47	Y	1875	A
47	Y	1876	G
47	Y	1877	G
47	Y	1878	U
47	Y	1879	U
47	Y	1880	A
47	Y	1884	G
47	Y	1885	G
47	Y	1886	A
47	Y	1887	G
47	Y	1888	U
47	Y	1892	U

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Mol	Chain	Res	Type
47	Y	1893	A
47	Y	1895	C
47	Y	1896	U
47	Y	1897	U
47	Y	1898	C
47	Y	1899	U
47	Y	1900	G
47	Y	1901	C
47	Y	1902	G
47	Y	1903	A
47	Y	1904	A
47	Y	1909	C
47	Y	1910	G
47	Y	1911	A
47	Y	1912	A
47	Y	1913	U
47	Y	1915	G
47	Y	1916	A
47	Y	1922	C
47	Y	1923	A
47	Y	1927	A
47	Y	1931	G
47	Y	1933	G
47	Y	1934	G
47	Y	1936	C
47	Y	1937	G
47	Y	1947	C
47	Y	1948	G
47	Y	1949	G
47	Y	1954	A
47	Y	1955	A
47	Y	1956	G
47	Y	1961	C
47	Y	1964	A
47	Y	1965	A
47	Y	1970	U
47	Y	1972	G
47	Y	1975	G
47	Y	1977	G
47	Y	1982	U
47	Y	1987	A
47	Y	1989	C

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Mol	Chain	Res	Type
47	Y	1990	C
47	Y	1991	G
47	Y	1992	C
47	Y	1993	A
47	Y	1994	C
47	Y	1997	A
47	Y	1998	A
47	Y	1999	G
47	Y	2004	A
47	Y	2009	U
47	Y	2013	G
47	Y	2018	U
47	Y	2020	U
47	Y	2024	A
47	Y	2034	U
47	Y	2036	G
47	Y	2046	U
47	Y	2048	G
47	Y	2050	A
47	Y	2053	U
47	Y	2054	G
47	Y	2058	A
47	Y	2059	G
47	Y	2060	A
47	Y	2068	U
47	Y	2070	C
47	Y	2072	C
47	Y	2079	G
47	Y	2082	C
47	Y	2083	G
47	Y	2084	G
47	Y	2087	A
47	Y	2088	G
47	Y	2089	A
47	Y	2096	G
47	Y	2103	U
47	Y	2104	A
47	Y	2120	G
47	Y	2122	A
47	Y	2127	G
47	Y	2128	G
47	Y	2131	C

Continued on next page...

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Mol	Chain	Res	Type
47	Y	2133	G
47	Y	2135	U
47	Y	2209	G
47	Y	2211	U
47	Y	2214	G
47	Y	2215	U
47	Y	2216	U
47	Y	2218	G
47	Y	2219	C
47	Y	2220	U
47	Y	2221	U
47	Y	2222	U
47	Y	2226	A
47	Y	2231	C
47	Y	2232	A
47	Y	2233	C
47	Y	2234	C
47	Y	2237	U
47	Y	2238	U
47	Y	2239	A
47	Y	2242	G
47	Y	2243	U
47	Y	2244	G
47	Y	2247	G
47	Y	2252	A
47	Y	2255	G
47	Y	2263	C
47	Y	2265	G
47	Y	2266	G
47	Y	2267	C
47	Y	2295	A
47	Y	2306	G
47	Y	2310	C
47	Y	2314	A
47	Y	2315	A
47	Y	2316	G
47	Y	2324	C
47	Y	2326	G
47	Y	2327	A
47	Y	2329	U
47	Y	2330	G
47	Y	2331	G

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Mol	Chain	Res	Type
47	Y	2332	U
47	Y	2333	U
47	Y	2334	G
47	Y	2335	G
47	Y	2336	A
47	Y	2337	A
47	Y	2338	A
47	Y	2339	U
47	Y	2341	A
47	Y	2342	U
47	Y	2345	A
47	Y	2346	U
47	Y	2347	A
47	Y	2349	A
47	Y	2352	G
47	Y	2354	A
47	Y	2361	U
47	Y	2362	A
47	Y	2370	U
47	Y	2372	G
47	Y	2374	C
47	Y	2375	U
47	Y	2377	C
47	Y	2388	A
47	Y	2394	G
47	Y	2399	G
47	Y	2401	C
47	Y	2410	G
47	Y	2412	C
47	Y	2417	U
47	Y	2419	A
47	Y	2424	G
47	Y	2426	G
47	Y	2427	G
47	Y	2428	U
47	Y	2429	U
47	Y	2431	C
47	Y	2432	G
47	Y	2433	C
47	Y	2434	A
47	Y	2435	U
47	Y	2438	A

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Mol	Chain	Res	Type
47	Y	2441	G
47	Y	2445	A
47	Y	2446	U
47	Y	2450	U
47	Y	2451	C
47	Y	2452	A
47	Y	2456	G
47	Y	2457	A
47	Y	2458	U
47	Y	2459	A
47	Y	2460	A
47	Y	2462	A
47	Y	2466	A
47	Y	2467	C
47	Y	2468	C
47	Y	2472	G
47	Y	2474	G
47	Y	2475	A
47	Y	2477	A
47	Y	2487	U
47	Y	2492	C
47	Y	2495	A
47	Y	2496	A
47	Y	2498	A
47	Y	2500	U
47	Y	2502	C
47	Y	2503	A
47	Y	2505	A
47	Y	2506	U
47	Y	2509	A
47	Y	2519	U
47	Y	2521	G
47	Y	2522	G
47	Y	2525	C
47	Y	2526	C
47	Y	2527	U
47	Y	2529	G
47	Y	2530	A
47	Y	2532	G
47	Y	2545	A
47	Y	2547	C
47	Y	2552	G

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Mol	Chain	Res	Type
47	Y	2553	G
47	Y	2559	G
47	Y	2560	U
47	Y	2564	U
47	Y	2580	G
47	Y	2583	C
47	Y	2587	C
47	Y	2593	A
47	Y	2594	G
47	Y	2596	G
47	Y	2598	U
47	Y	2599	A
47	Y	2600	C
47	Y	2605	G
47	Y	2611	U
47	Y	2612	U
47	Y	2613	C
47	Y	2623	U
47	Y	2626	G
47	Y	2629	A
47	Y	2630	G
47	Y	2633	C
47	Y	2636	U
47	Y	2637	C
47	Y	2640	U
47	Y	2642	U
47	Y	2651	G
47	Y	2656	A
47	Y	2657	G
47	Y	2666	A
47	Y	2673	C
47	Y	2678	C
47	Y	2679	U
47	Y	2680	U
47	Y	2681	A
47	Y	2682	G
47	Y	2683	U
47	Y	2685	C
47	Y	2688	G
47	Y	2690	G
47	Y	2691	G
47	Y	2692	A

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Mol	Chain	Res	Type
47	Y	2693	C
47	Y	2694	C
47	Y	2695	G
47	Y	2696	G
47	Y	2700	G
47	Y	2712	G
47	Y	2716	U
47	Y	2729	G
47	Y	2730	C
47	Y	2731	C
47	Y	2740	A
47	Y	2741	G
47	Y	2747	U
47	Y	2753	U
47	Y	2759	G
47	Y	2760	A
47	Y	2761	C
47	Y	2762	G
47	Y	2764	G
47	Y	2765	A
47	Y	2766	U
47	Y	2769	G
47	Y	2770	U
47	Y	2771	G
47	Y	2774	G
47	Y	2776	A
47	Y	2777	A
47	Y	2778	G
47	Y	2780	A
47	Y	2781	U
47	Y	2783	U
47	Y	2784	A
47	Y	2786	G
47	Y	2788	A
47	Y	2790	G
47	Y	2791	A
47	Y	2792	A
47	Y	2794	C
47	Y	2803	A
47	Y	2804	G
47	Y	2805	A
47	Y	2806	U

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Mol	Chain	Res	Type
47	Y	2807	G
47	Y	2823	G
47	Y	2824	G
47	Y	2825	U
47	Y	2827	A
47	Y	2828	U
47	Y	2833	U
47	Y	2840	A
47	Y	2844	U
47	Y	2845	G
47	Y	2846	A
47	Y	2855	A
47	Y	2857	A
47	Y	2874	A
47	Y	2875	U
47	Y	2876	G
47	Y	2887	G
47	Y	2892	G
47	Y	2900	C
47	Y	2903	A
47	Y	2906	G
47	Y	2912	A
47	Y	2913	G
47	Y	2914	A
47	Y	2918	A
47	Y	2919	A
47	Y	2920	U

All (118) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	C	40	C
1	C	87	G
20	X	37	C
20	X	42	G
20	X	49	C
20	X	70	A
20	X	107	G
20	X	118	A
20	X	139	U
20	X	162	A
20	X	207	G

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Mol	Chain	Res	Type
20	X	229	C
20	X	283	G
20	X	284	G
20	X	309	G
20	X	335	A
20	X	342	C
20	X	361	A
20	X	380	C
20	X	409	C
20	X	422	A
20	X	497	C
20	X	513	G
20	X	531	A
20	X	551	G
20	X	584	C
20	X	585	G
20	X	589	G
20	X	625	G
20	X	626	C
20	X	631	C
20	X	655	A
20	X	667	C
20	X	669	G
20	X	678	A
20	X	679	G
20	X	684	A
20	X	692	U
20	X	695	A
20	X	726	A
20	X	732	G
20	X	761	A
20	X	813	C
20	X	824	A
20	X	828	U
20	X	838	G
20	X	856	C
20	X	860	U
20	X	874	A
20	X	877	G
20	X	880	U
20	X	884	G
20	X	889	C

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Mol	Chain	Res	Type
20	X	895	G
20	X	924	A
20	X	926	G
20	X	927	G
20	X	936	G
20	X	970	U
20	X	991	U
20	X	992	U
20	X	1076	G
20	X	1078	C
20	X	1098	U
20	X	1126	C
20	X	1137	U
20	X	1163	A
20	X	1171	G
20	X	1265	G
20	X	1268	A
20	X	1296	A
20	X	1298	A
20	X	1335	A
20	X	1379	A
20	X	1387	U
20	X	1388	A
20	X	1389	C
20	X	1392	U
20	X	1416	G
20	X	1507	U
20	X	1510	U
20	X	1513	C
47	Y	267	G
47	Y	285	U
47	Y	289	U
47	Y	309	U
47	Y	329	A
47	Y	333	C
47	Y	339	A
47	Y	342	A
47	Y	343	A
47	Y	384	G
47	Y	548	A
47	Y	756	A
47	Y	767	A

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Mol	Chain	Res	Type
47	Y	769	U
47	Y	821	C
47	Y	835	U
47	Y	872	U
47	Y	1463	A
47	Y	1465	G
47	Y	1480	G
47	Y	1511	C
47	Y	1515	G
47	Y	1526	G
47	Y	1560	A
47	Y	1593	G
47	Y	1623	U
47	Y	1637	A
47	Y	1845	U
47	Y	1885	G
47	Y	1897	U
47	Y	1898	C
47	Y	1933	G
47	Y	1934	G
47	Y	2338	A
47	Y	2769	G
47	Y	2780	A

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

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

5.5 Carbohydrates

There are no oligosaccharides in this entry.

5.6 Ligand geometry

There are no ligands in this entry.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
47	Y	16
20	X	11

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	Y	1492:G	O3'	1498:U	P	29.74
1	Y	2135:U	O3'	2208:A	P	19.22
1	Y	1530:A	O3'	1539:A	P	17.34
1	Y	1550:G	O3'	1555:G	P	16.75
1	X	215:C	O3'	228:A	P	16.72
1	X	72:C	O3'	97:G	P	16.23
1	X	467:U	O3'	481:C	P	15.57
1	Y	1099:G	O3'	1150:A	P	15.47
1	X	428:U	O3'	433:A	P	14.86
1	Y	757:G	O3'	765:U	P	13.39
1	Y	1579:C	O3'	1590:C	P	13.25
1	X	185:U	O3'	206:A	P	12.66
1	X	1008:C	O3'	1048:A	P	12.51
1	X	1494:G	O3'	1498:G	P	12.05
1	Y	925:G	O3'	942:C	P	11.65
1	Y	1088:C	O3'	1092:A	P	9.46
1	Y	1215:U	O3'	1217:U	P	8.57
1	Y	1449:A	O3'	1459:A	P	8.55
1	Y	1938:U	O3'	1945:A	P	8.02
1	X	455:G	O3'	457:A	P	7.96
1	Y	2239:A	O3'	2241:C	P	7.96
1	Y	312:A	O3'	317:G	P	7.93
1	Y	2820:U	O3'	2822:C	P	7.51
1	Y	1485:G	O3'	1487:G	P	7.45
1	X	1428:G	O3'	1430:G	P	6.97
1	X	709:C	O3'	711:G	P	6.66
1	X	1288:C	O3'	1290:A	P	4.93

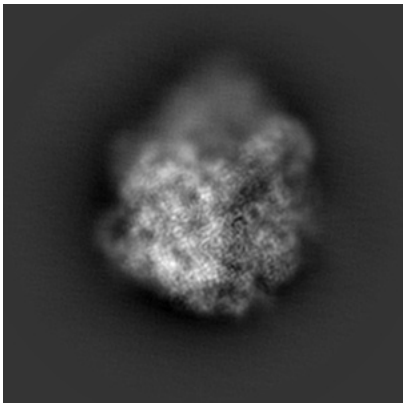
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-11902. These allow visual inspection of the internal detail of the map and identification of artifacts.

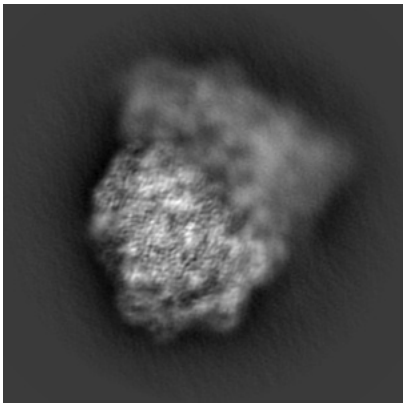
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

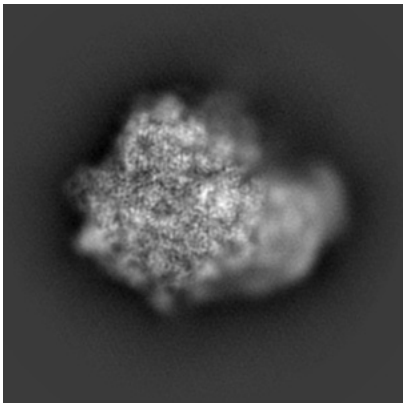
6.1.1 Primary map



X



Y

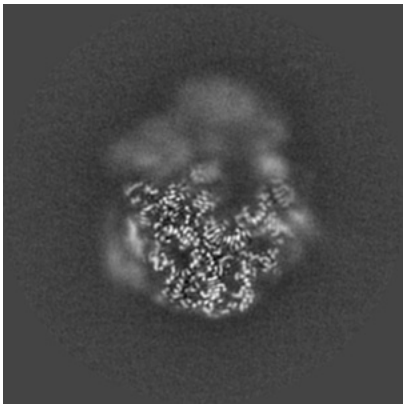


Z

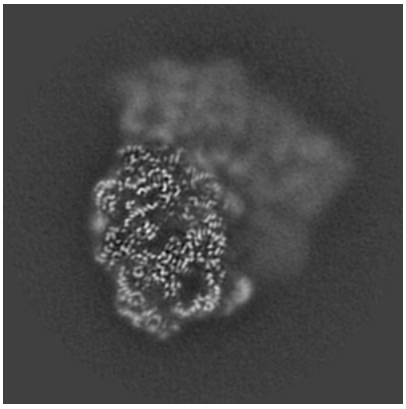
The images above show the map projected in three orthogonal directions.

6.2 Central slices

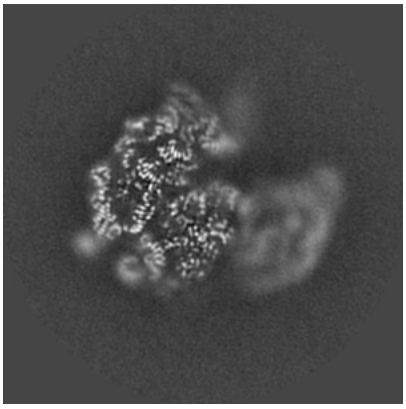
6.2.1 Primary map



X Index: 210



Y Index: 210

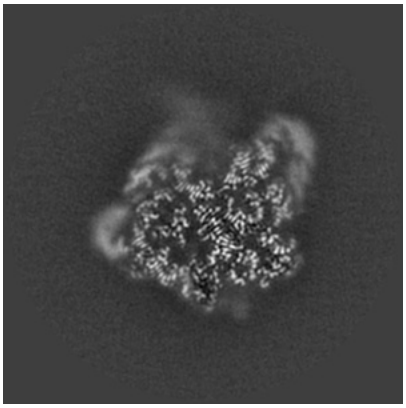


Z Index: 210

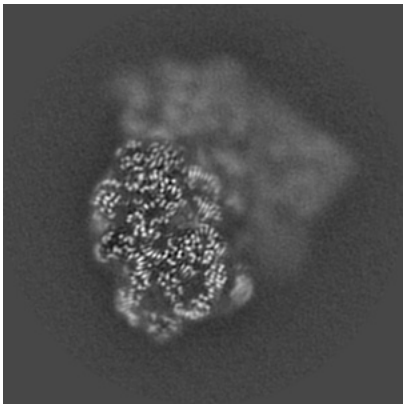
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

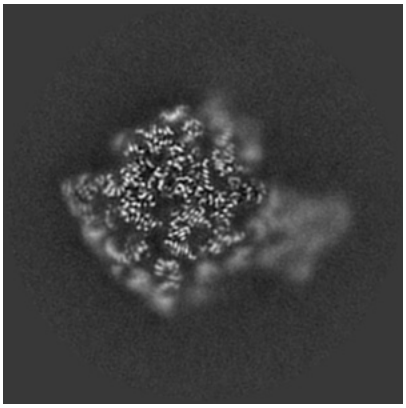
6.3.1 Primary map



X Index: 167



Y Index: 214

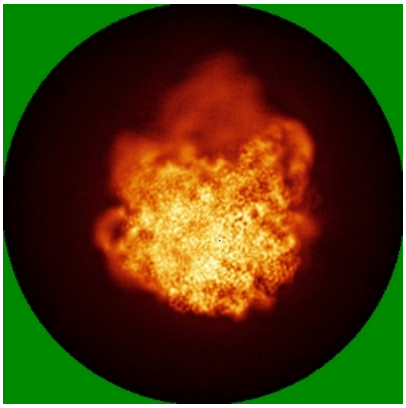


Z Index: 167

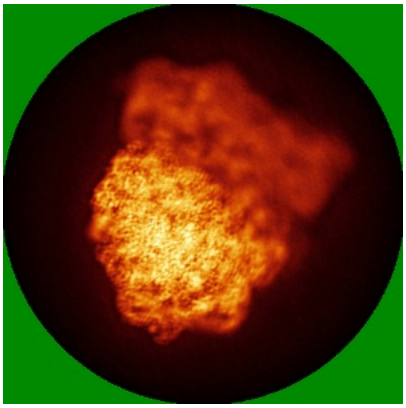
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

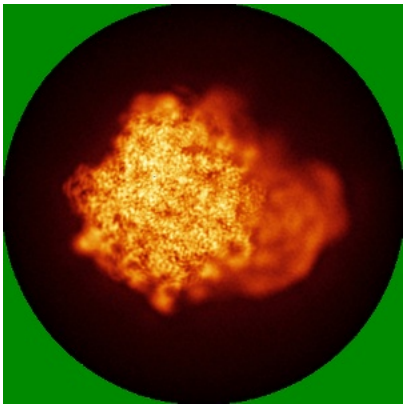
6.4.1 Primary map



X



Y



Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.0052. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

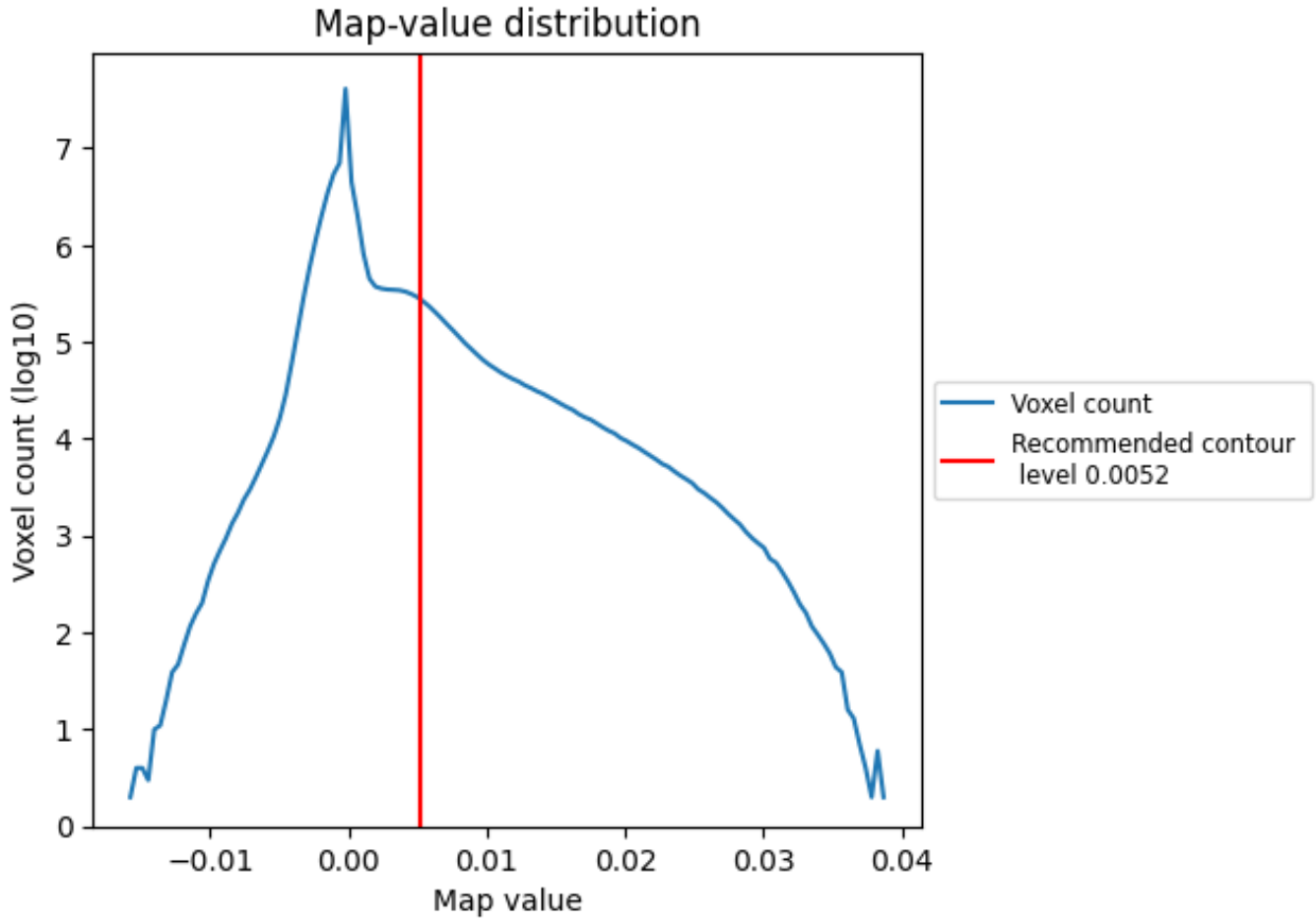
6.6 Mask visualisation (i)

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

7 Map analysis

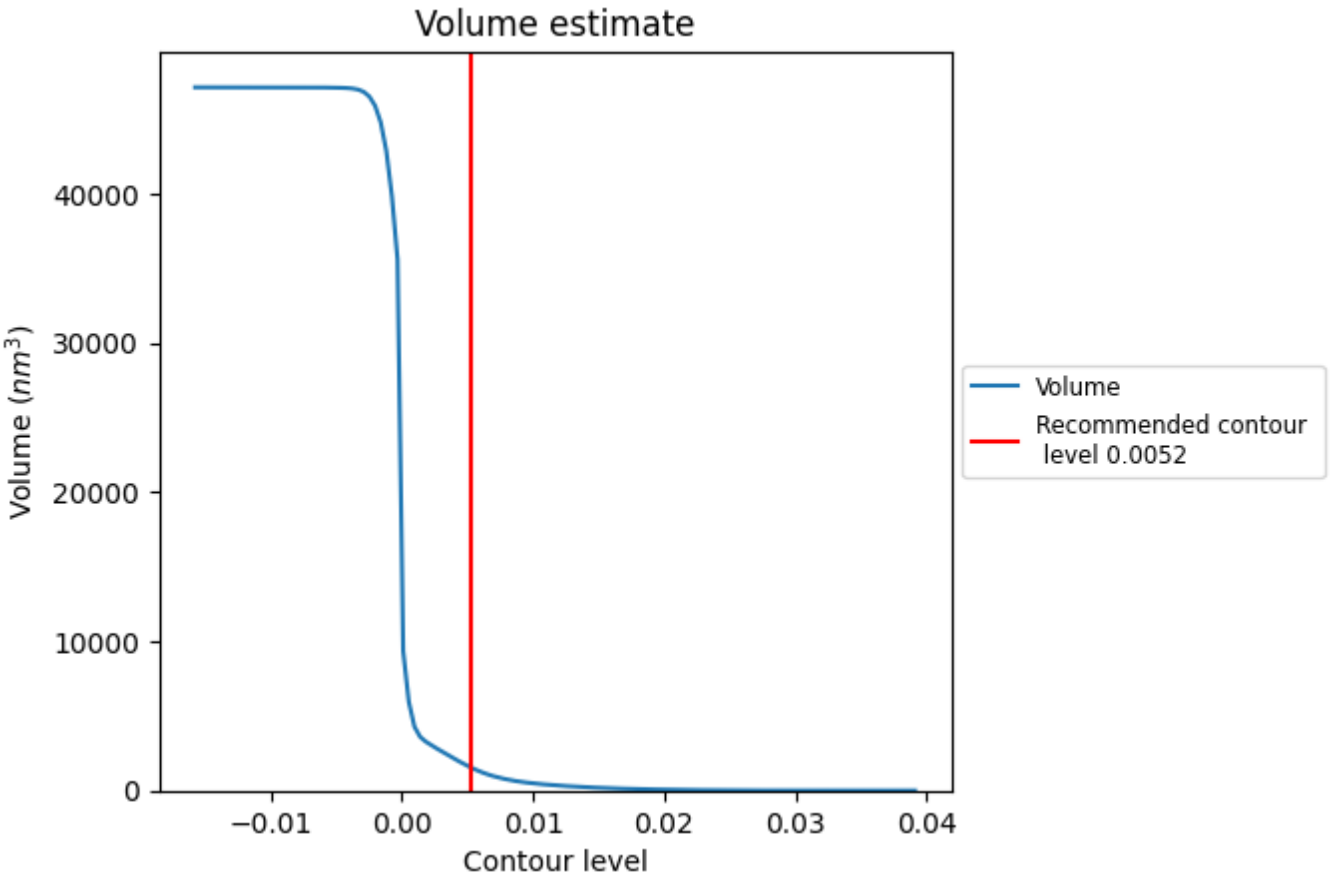
This section contains the results of statistical analysis of the map.

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.

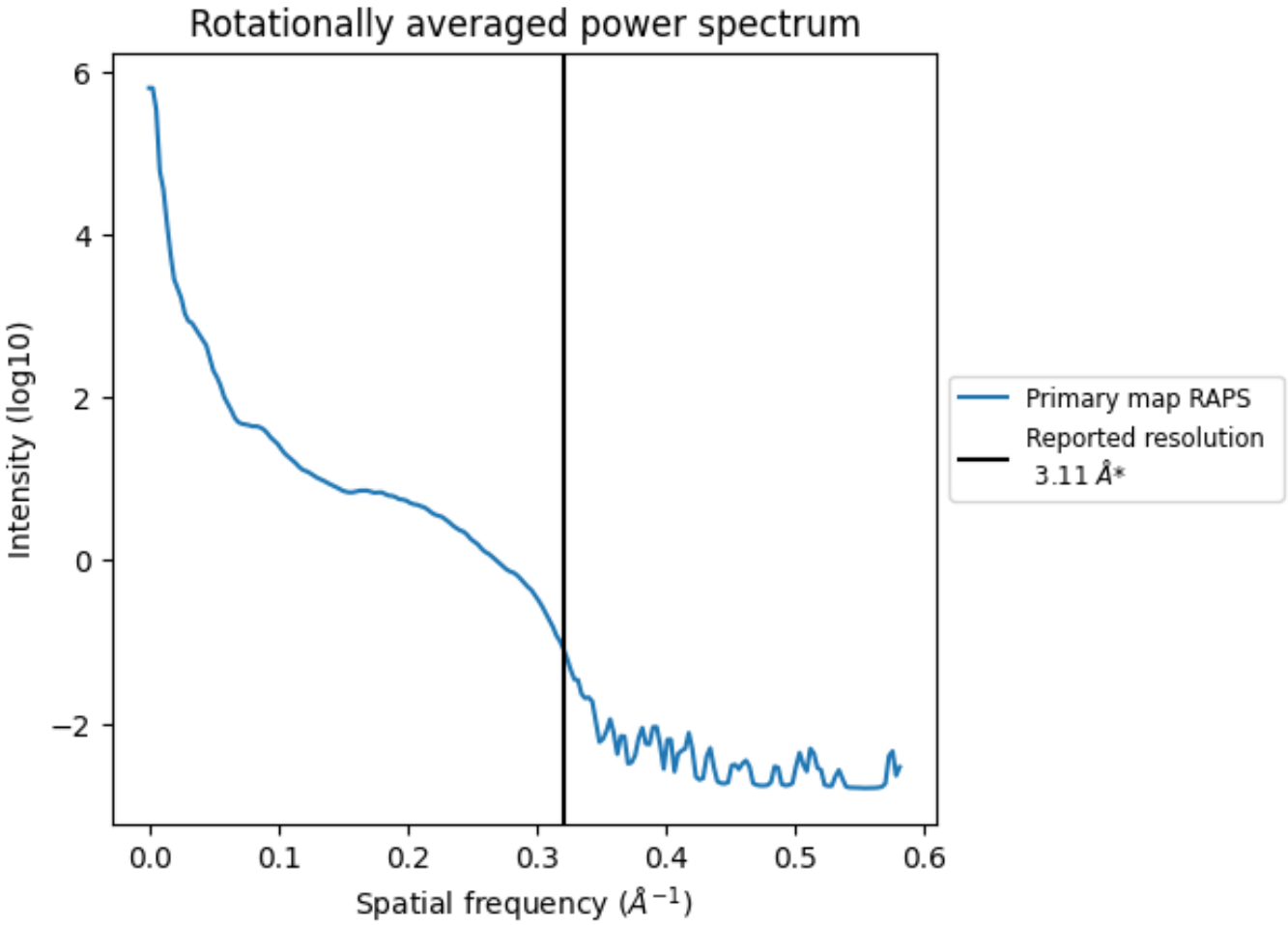
7.2 Volume estimate



The volume at the recommended contour level is 1571 nm^3; this corresponds to an approximate mass of 1419 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 0.322 Å^{-1}

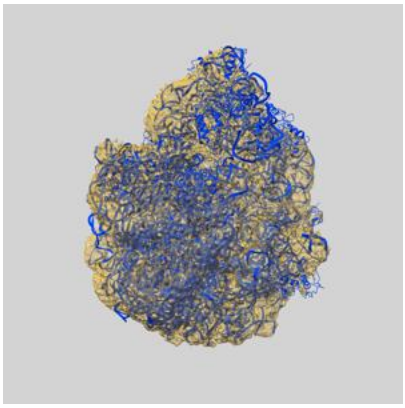
8 Fourier-Shell correlation

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

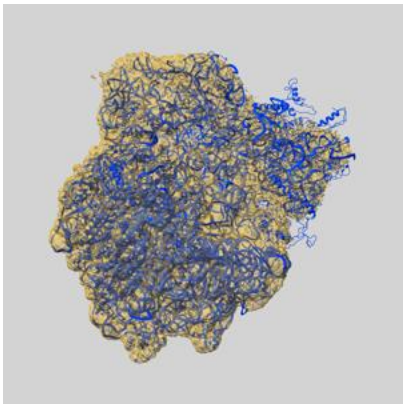
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-11902 and PDB model 7ASO. Per-residue inclusion information can be found in section 3 on page 12.

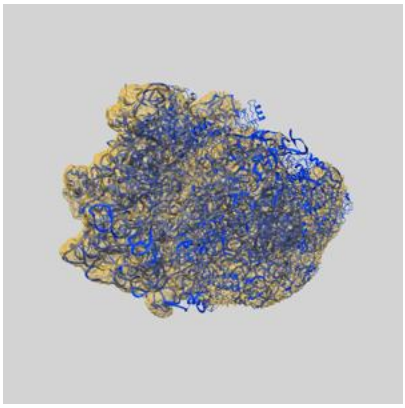
9.1 Map-model overlay



X



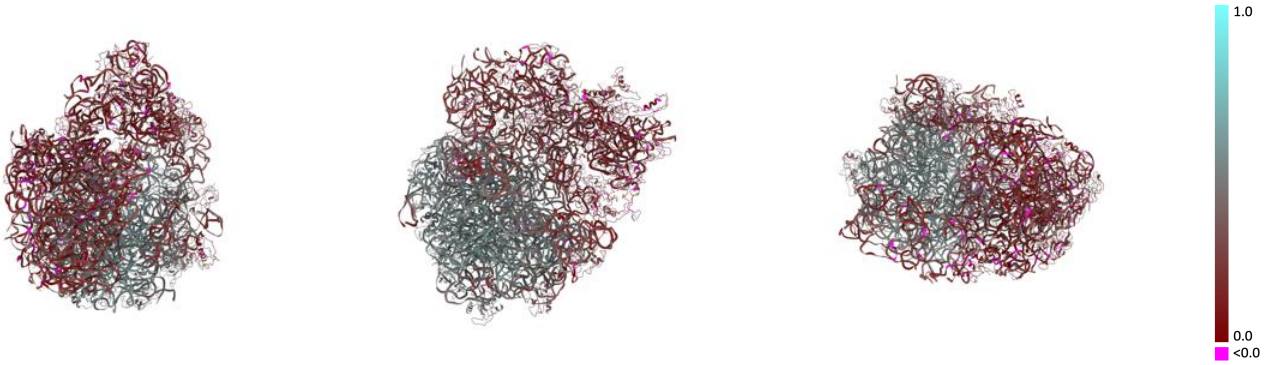
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.0052 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.

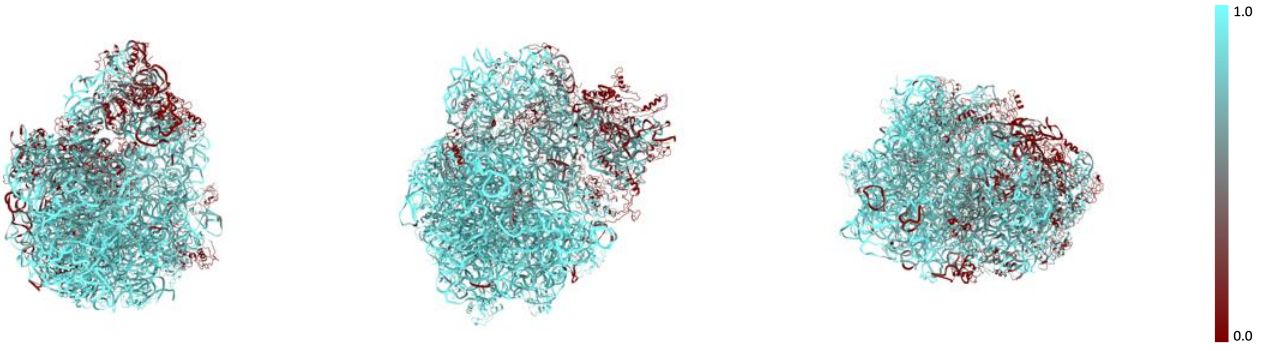
9.2 Q-score mapped to coordinate model



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.

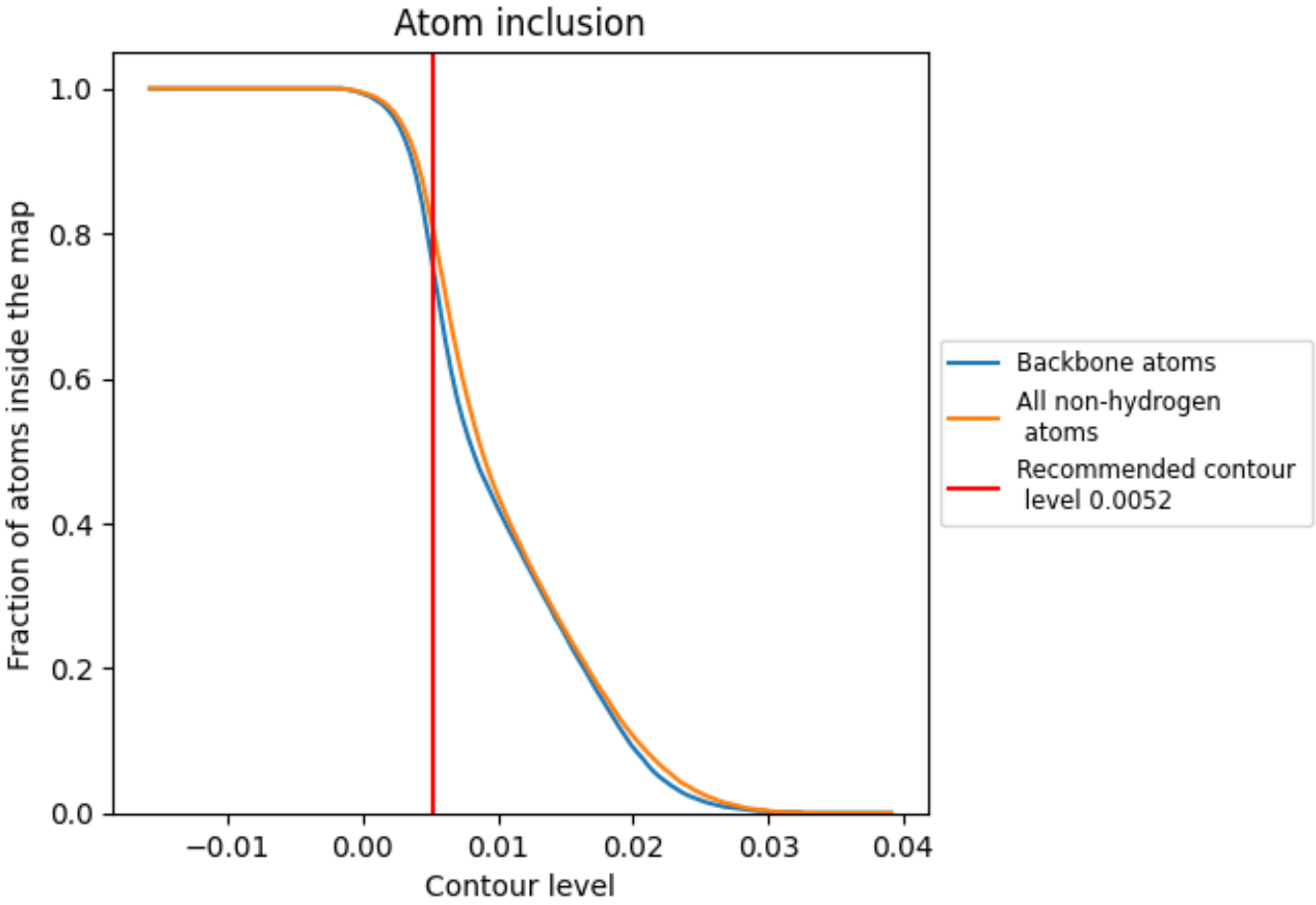
9.3 Atom inclusion mapped to coordinate model



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 (0.0052).

9.4 Atom inclusion (i)



At the recommended contour level, 75% of all backbone atoms, 80% 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 (0.0052) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8050	0.3580
1	0.1170	0.1950
2	0.0890	0.2510
3	0.1020	0.2140
4	0.3150	0.2170
5	0.1370	0.2110
6	0.3920	0.2180
7	0.4750	0.1430
8	0.4380	0.2580
9	0.3450	0.2210
A	0.2720	0.2000
B	0.0890	0.2520
C	0.9440	0.2810
D	0.2920	0.2540
E	0.2540	0.1940
F	0.4140	0.2310
G	0.4520	0.1910
H	0.2700	0.2470
I	0.1680	0.2250
J	0.9080	0.4850
K	0.6090	0.2410
L	0.2190	0.2550
M	0.9100	0.5130
N	0.8490	0.5230
O	0.9040	0.4810
P	0.8370	0.4750
Q	0.9000	0.5110
R	0.8640	0.3240
S	0.9280	0.5410
T	0.4280	0.3970
U	0.9350	0.5160
V	0.8930	0.5300
W	0.8630	0.4550
X	0.8040	0.1890
Y	0.9410	0.4510

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Chain	Atom inclusion	Q-score
Z	0.7720	0.4180
a	0.3600	0.3440
b	0.8510	0.5050
c	0.7330	0.4770
d	0.8350	0.3850
e	0.9370	0.5280
f	0.9140	0.5110
g	0.8630	0.4480
h	0.0520	0.2470
i	0.9100	0.5490
j	0.8880	0.5200
k	0.5260	0.3340
l	0.2660	0.2720