W O R L D W I D E

wwPDB

P R O T E I N   D A T A   B A N K

Full wwPDB EM Validation Report (i)

Oct 20, 2024 – 11:19 AM EDT

PDB ID	:	6VWM
EMDB ID	:	EMD-21421
Title	:	70S ribosome bound to HIV frameshifting stem-loop (FSS) and P-site tRNA (non-rotated conformation, Structure I)
Authors	:	Loerch, S.; Bao, C.; Ling, C.; Korostelev, A.A.; Grigorieff, N.; Ermolenko, D.M.
Deposited on	:	2020-02-20
Resolution	:	3.40 Å(reported)

1   Overall quality at a glance   ⓘ

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

The reported resolution of this entry is 3.40 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	Percentile Ranks	Value
Ramachandran outliers		0
Sidechain outliers		1.6%
RNA backbone		0.54

Worse   *Better*

▮ Percentile relative to all structures

▯ Percentile relative to all EM structures
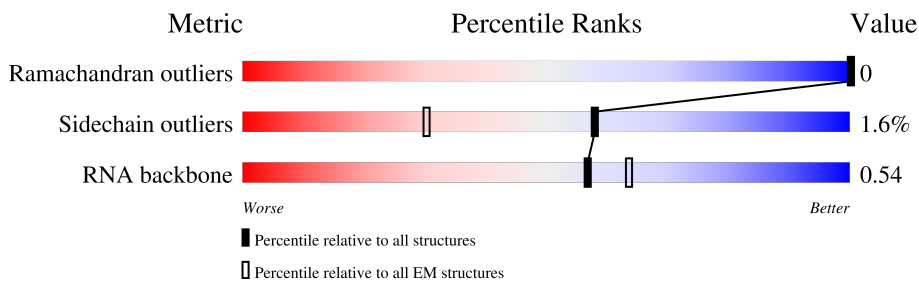
Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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	3	120	72% 28%
2	5	76	28% · 75% 25%
3	A	273	99%
4	B	209	100%
5	C	201	8% · 100%
6	D	179	37% · 95%
7	E	177	15% · 98%
8	G	149	16% · 32% 68%
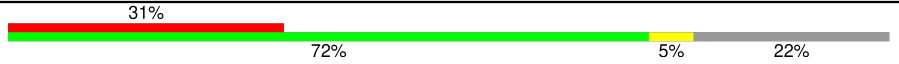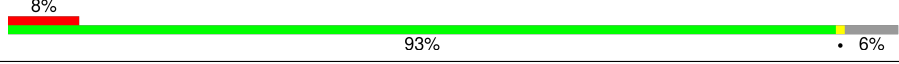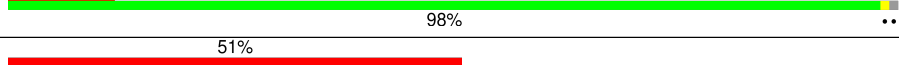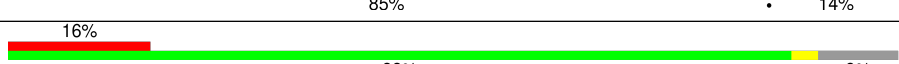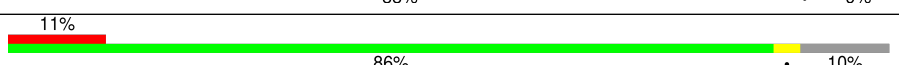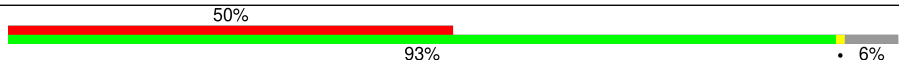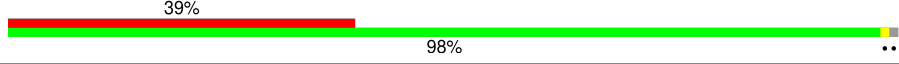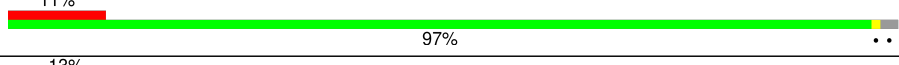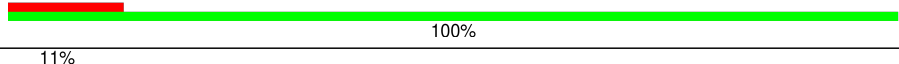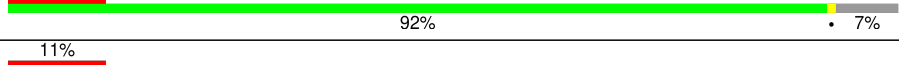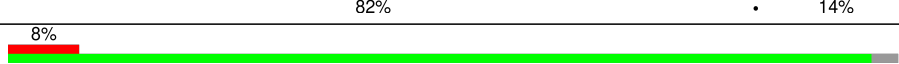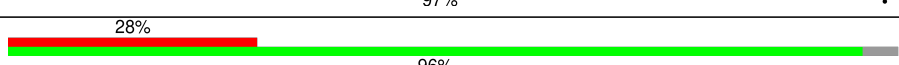
Continued from previous page...

Mol	Chain	Length	Quality of chain
9	H	142	99%
10	I	123	100%
11	J	144	98%
12	K	136	100%
13	L	127	94% 6%
14	M	117	12% 95%
15	N	115	97%
16	O	118	98%
17	P	103	5% 100%
18	Q	110	100%
19	R	100	90% 10%
20	S	104	91% 8%
21	T	94	6% 97%
22	U	85	86% 12%
23	V	78	99%
24	W	63	95% 5%
25	X	59	98%
26	Y	57	96%
27	Z	55	44% 87% 13%
28	AA	46	100%
29	AB	65	95%
30	AC	38	97%
31	2	2903	7% 78% 19%
32	a	241	62% 90% 9%
33	b	233	30% 84% 15%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
34	c	206	31% / 72% / 5% / 22%
35	d	167	8% / 93% / 6%
36	e	135	23% / 75% / 25%
37	f	179	35% / 54% / 46%
38	g	130	12% / 98%
39	h	130	51% / 90% / 7%
40	i	103	51% / 85% / 14%
41	j	129	16% / 88% / 9%
42	k	124	11% / 86% / 10%
43	l	118	50% / 93% / 6%
44	m	101	39% / 98%
45	n	89	11% / 97%
46	o	82	13% / 100%
47	p	84	11% / 92% / 7%
48	q	75	11% / 72% / 28%
49	r	92	52% / 82% / 14%
50	s	87	8% / 97%
51	t	71	28% / 96%
52	1	1540	8% / 77% / 20%
53	4	93	28% / 35% / 11% / 54%

2 Entry composition ⓘ

There are 54 unique types of molecules in this entry. The entry contains 140044 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 ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	3	120	Total	C	N	O	P	0	0
			2568	1145	471	833	119		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
3	120	A	U	conflict	GB 984297099

- Molecule 2 is a RNA chain called tRNAPhe.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	5	76	Total	C	N	O	P	0	0
			1622	724	292	531	75		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
5	47	G	U	conflict	GB 984297099
5	48	U	C	conflict	GB 984297099

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

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

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

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

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

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

- Molecule 6 is a protein called 50S ribosomal protein L5.

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

- Molecule 7 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	E	173	Total 1298	C 817	N 238	O 241	S 2	0	0

- Molecule 8 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	G	48	Total 368	C 238	N 63	O 66	S 1	0	0

- Molecule 9 is a protein called 50S ribosomal protein L13.

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

- Molecule 10 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	I	123	Total 947	C 593	N 181	O 167	S 6	0	0

- Molecule 11 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	143	Total 1043	C 649	N 206	O 186	S 2	0	0

- Molecule 12 is a protein called 50S ribosomal protein L16.

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

- Molecule 13 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	119	Total 951	C 588	N 195	O 163	S 5	0	0

- Molecule 14 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	M	114	Total 875	C 542	N 175	O 158	0	0

- Molecule 15 is a protein called 50S ribosomal protein L19.

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

- Molecule 16 is a protein called 50S ribosomal protein L20.

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

- Molecule 17 is a protein called 50S ribosomal protein L21.

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

- Molecule 18 is a protein called 50S ribosomal protein L22.

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

- Molecule 19 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	90	Total 714	C 449	N 136	O 128	S 1	0	0

- Molecule 20 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	S	96	Total 735	C 464	N 138	O 133	0	0

- Molecule 21 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	T	93	Total 745	C 474	N 136	O 133	S 2	0	0

- Molecule 22 is a protein called 50S ribosomal protein L27.

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

- Molecule 23 is a protein called 50S ribosomal protein L28.

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

- Molecule 24 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	W	60	Total 491	C 303	N 96	O 91	S 1	0	0

- Molecule 25 is a protein called 50S ribosomal protein L30.

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

- Molecule 26 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	Y	55	Total 434	C 263	N 92	O 78	S 1	0	0

- Molecule 27 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms				AltConf	Trace
27	Z	48	Total 396	C 255	N 72	O 69	0	0

- Molecule 28 is a protein called 50S ribosomal protein L34.

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

- Molecule 29 is a protein called 50S ribosomal protein L35.

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

- Molecule 30 is a protein called 50S ribosomal protein L36.

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

- Molecule 31 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues	Atoms						AltConf	Trace
31	2	2833	Total 60819	C 27131	N 11192	O 19664	P 2832		0	0

There are 19 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	208	C	-	insertion	GB 984297099
2	284	U	C	conflict	GB 984297099
2	285	G	A	conflict	GB 984297099
2	356	G	A	conflict	GB 984297099
2	542	C	U	conflict	GB 984297099
2	747	C	U	conflict	GB 984297099

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
2	1174	U	G	conflict	GB 984297099
2	1211	C	U	conflict	GB 984297099
2	1513	U	C	conflict	GB 984297099
2	1723	G	A	conflict	GB 984297099
2	1730	C	U	conflict	GB 984297099
2	1865	U	C	conflict	GB 984297099
2	2163	A	G	conflict	GB 984297099
2	2712	C	U	conflict	GB 984297099
2	2794	C	U	conflict	GB 984297099
2	2796	U	C	conflict	GB 984297099
2	2797	U	C	conflict	GB 984297099
2	2799	A	G	conflict	GB 984297099
2	2802	G	A	conflict	GB 984297099

- Molecule 32 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	a	220	Total 1672	C 1062	N 293	O 310	S 7	0	0

- Molecule 33 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	b	197	Total 1502	C 957	N 276	O 266	S 3	0	0

- Molecule 34 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	c	160	Total 1280	C 801	N 241	O 235	S 3	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
c	47	ILE	LEU	conflict	UNP P0A7V8

- Molecule 35 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	d	157	Total 1146	C 714	N 215	O 211	S 6	0	0

- Molecule 36 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	e	101	Total 824	C 520	N 149	O 149	S 6	0	0

- Molecule 37 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	f	97	Total 742	C 467	N 133	O 139	S 3	0	0

- Molecule 38 is a protein called 30S ribosomal protein S8.

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

- Molecule 39 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	h	121	Total 950	C 591	N 189	O 168	S 2	0	0

- Molecule 40 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	i	89	Total 726	C 455	N 141	O 129	S 1	0	0

- Molecule 41 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	j	117	Total 877	C 540	N 174	O 160	S 3	0	0

- Molecule 42 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	k	111	Total 867	C 535	N 180	O 148	S 4	0	0

- Molecule 43 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	l	111	Total 859	C 531	N 172	O 153	S 3	0	0

- Molecule 44 is a protein called 30S ribosomal protein S14.

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

- Molecule 45 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	n	87	Total 702	C 433	N 140	O 128	S 1	0	0

- Molecule 46 is a protein called 30S ribosomal protein S16.

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

- Molecule 47 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	p	78	Total 632	C 400	N 118	O 111	S 3	0	0

- Molecule 48 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
48	q	54	Total 443	C 281	N 81	O 81	0	0

- Molecule 49 is a protein called 30S ribosomal protein S19.

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

- Molecule 50 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	s	84	Total 655	C 406	N 136	O 110	S 3	0	0

- Molecule 51 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	t	68	Total 566	C 351	N 120	O 94	S 1	0	0

- Molecule 52 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	1	1508	Total 32365	C 14434	N 5945	O 10478	P 1508	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	1517	A	G	conflict	GB 1726036237

- Molecule 53 is a RNA chain called HIV frameshift stimulating sequence mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	4	43	Total 926	C 413	N 174	O 296	P 43	0	0

- Molecule 54 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
54	A	1	Total 1	Mg 1	0
54	Y	1	Total 1	Mg 1	0
54	2	45	Total 45	Mg 45	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		AltConf
54	1	6	Total	Mg	0
			6	6	

3 Residue-property plots ⓘ

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

• Molecule 1: 5S ribosomal RNA
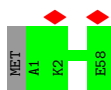
Chain 3:
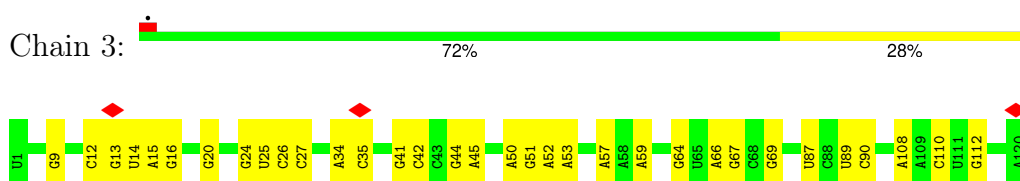
• Molecule 2: tRNAPhe

Chain 5:
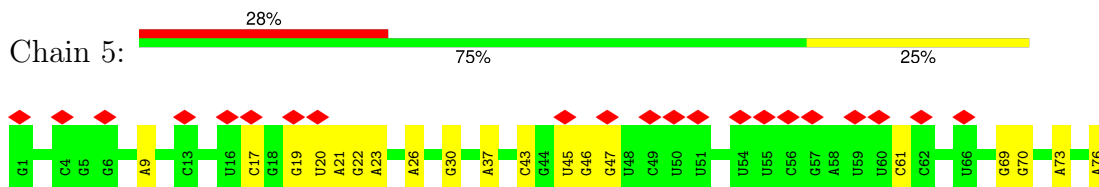
• Molecule 3: 50S ribosomal protein L2
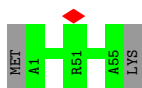
Chain A:
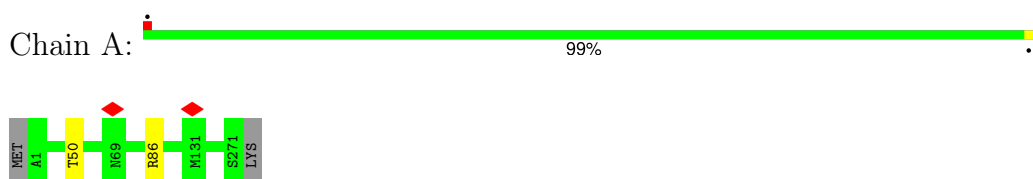
• Molecule 4: 50S ribosomal protein L3

Chain B:
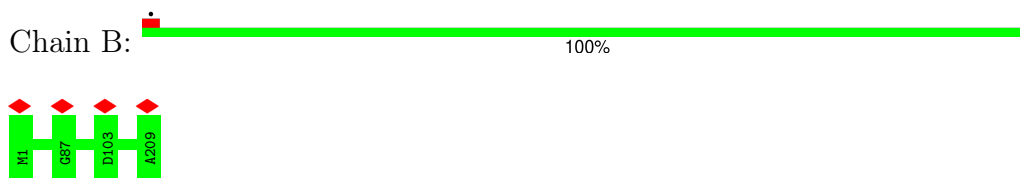
• Molecule 5: 50S ribosomal protein L4

Chain C:
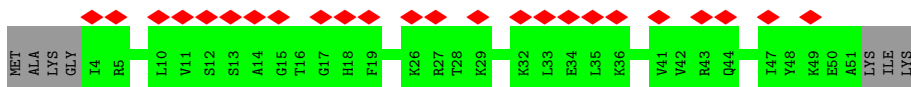
• Molecule 6: 50S ribosomal protein L5

Chain D:

• Molecule 7: 50S ribosomal protein L6

Chain E:

• Molecule 8: 50S ribosomal protein L9

Chain G:

• Molecule 9: 50S ribosomal protein L13

Chain H:

• Molecule 10: 50S ribosomal protein L14

Chain I:
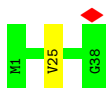
There are no outlier residues recorded for this chain.
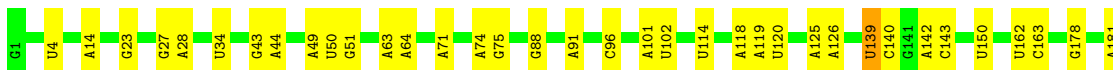
• Molecule 11: 50S ribosomal protein L15

Chain J:
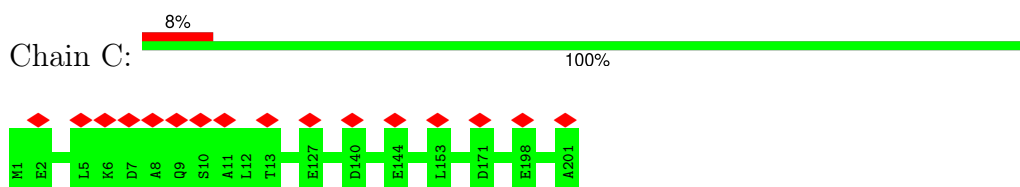
• Molecule 12: 50S ribosomal protein L16

Chain K:

100%
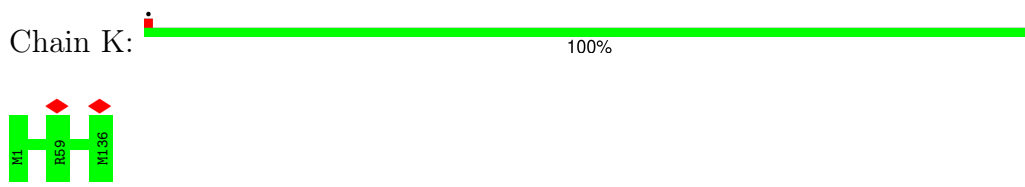
• Molecule 13: 50S ribosomal protein L17

Chain L:

94%   6%
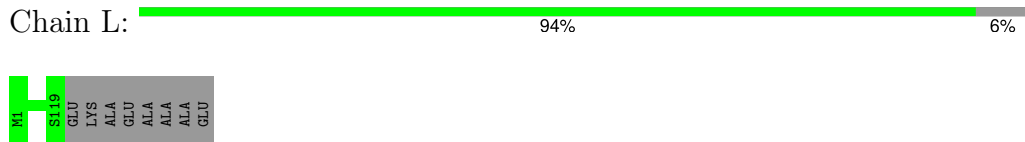
• Molecule 14: 50S ribosomal protein L18

Chain M:

12%

95%
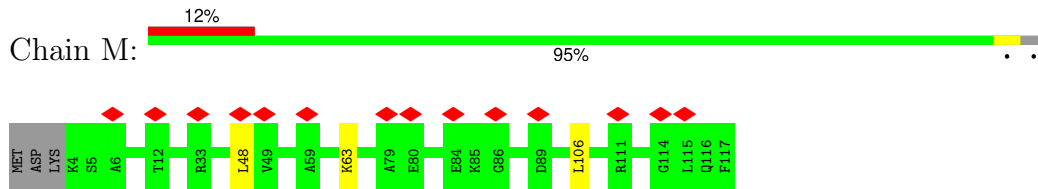
• Molecule 15: 50S ribosomal protein L19

Chain N:

97%
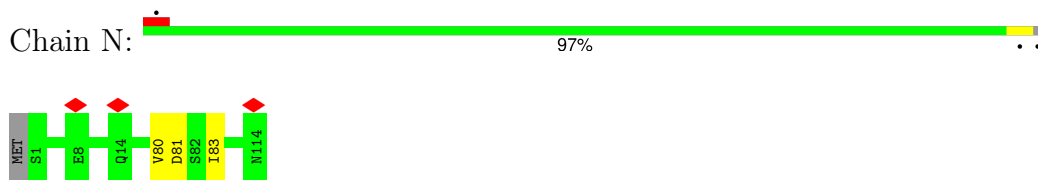
• Molecule 16: 50S ribosomal protein L20

Chain O:

98%
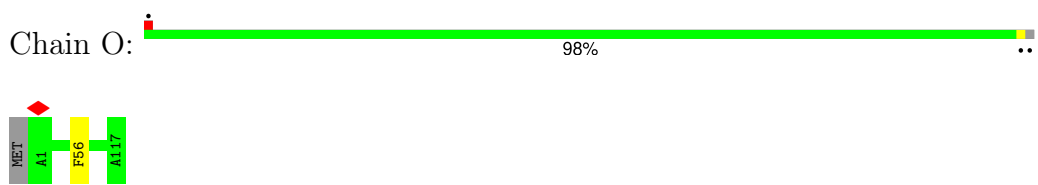
• Molecule 17: 50S ribosomal protein L21

Chain P:

5%

100%
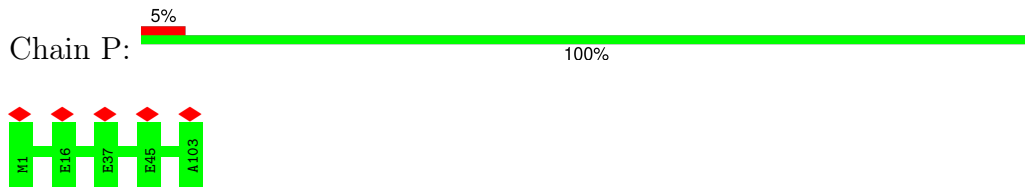
• Molecule 18: 50S ribosomal protein L22

Chain Q:

100%
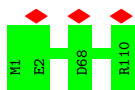
• Molecule 19: 50S ribosomal protein L23

Chain R:

90% 10%
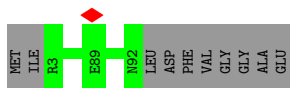
• Molecule 20: 50S ribosomal protein L24

Chain S:

91% 8%
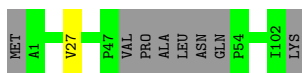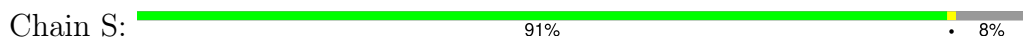
• Molecule 21: 50S ribosomal protein L25

6%

Chain T:

97%
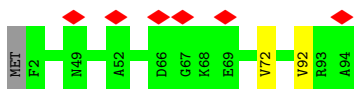
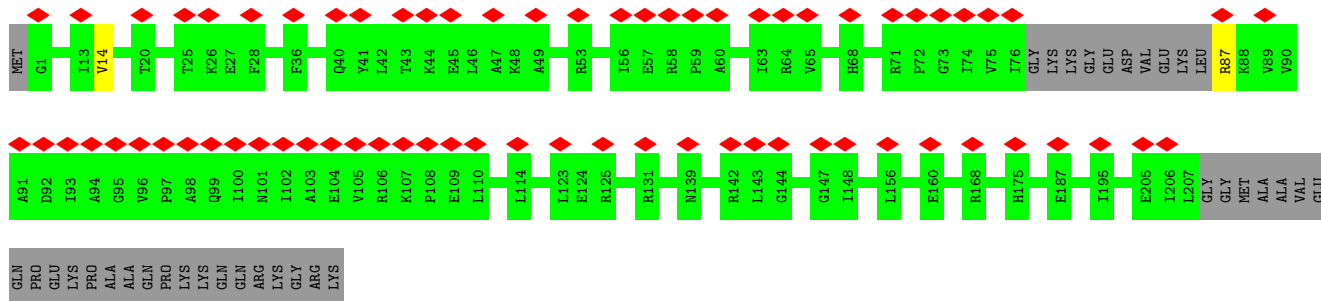• Molecule 22: 50S ribosomal protein L27

Chain U:

86% 12%
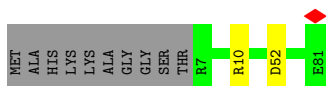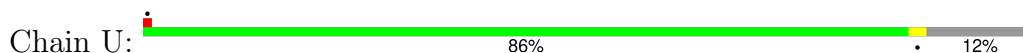
• Molecule 23: 50S ribosomal protein L28

Chain V:

99%
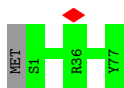
• Molecule 24: 50S ribosomal protein L29

Chain W:

95% 5%
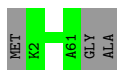
• Molecule 25: 50S ribosomal protein L30

Chain X:

98%

MET A1 K2 E58

• Molecule 26: 50S ribosomal protein L32

Chain Y:

96%

MET A1 R51 A55 LYS

• Molecule 27: 50S ribosomal protein L33

Chain Z:

44%

87%   13%

MET ALA LYS GLY I4 R5 L10 V11 S12 S13 A14 G15 T16 G17 H18 F19 K26 R27 T28 K29 K32 L33 E34 L35 K36 V41 V42 R43 Q44 I47 Y48 K49 E50 A51 LYS ILE LYS

• Molecule 28: 50S ribosomal protein L34

Chain AA:

100%

There are no outlier residues recorded for this chain.

• Molecule 29: 50S ribosomal protein L35

Chain AB:

95%

MET P1 T5 V6 A64

• Molecule 30: 50S ribosomal protein L36

Chain AC:

97%

M1 V25 G38

• Molecule 31: 23S ribosomal RNA

Chain 2:

7%

78%   19%

G1 U4 A14 G23 C27 A28 U34 G43 A44 A49 U50 G51 A63 A64 A71 U74 G75 G88 A91 C96 A101 U102 U114 A118 A119 U120 A125 A126 U139 C140 G141 A142 C143 U150 U162 C163 G178 A181
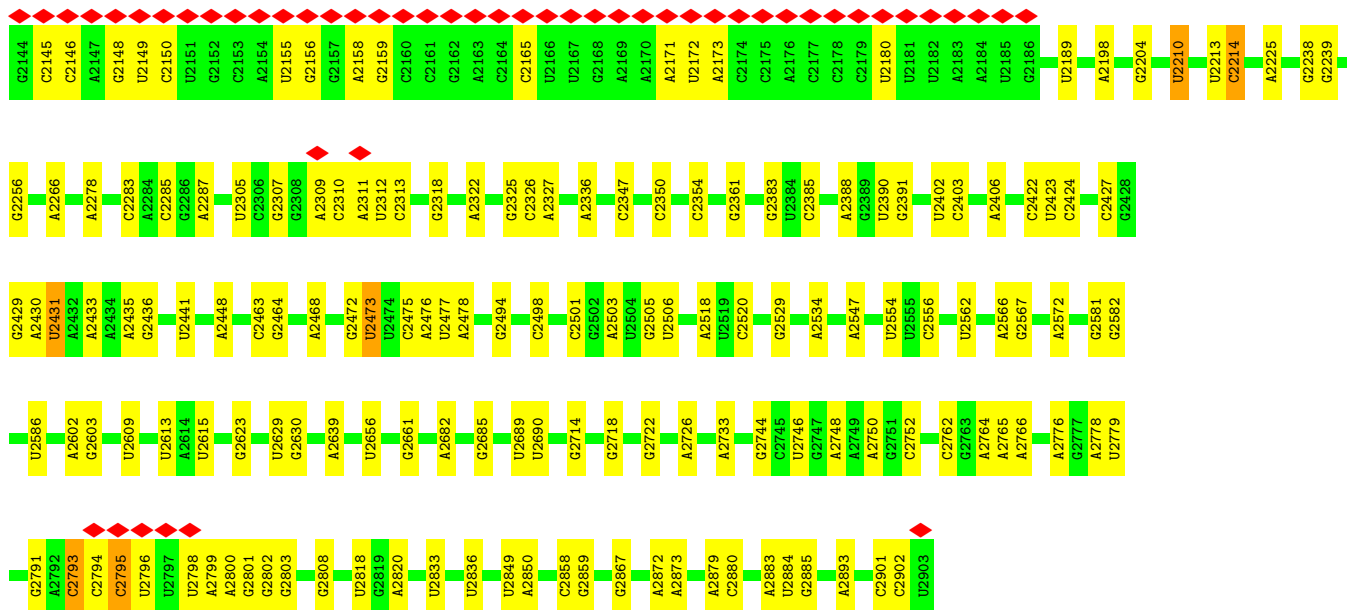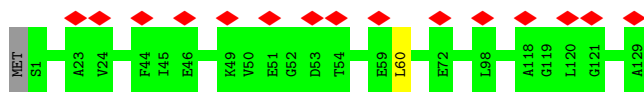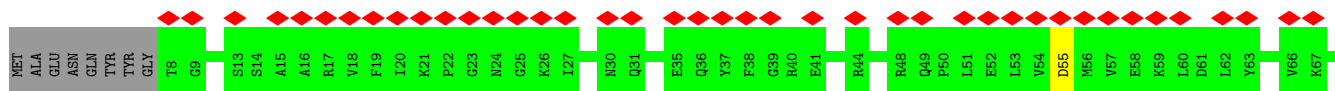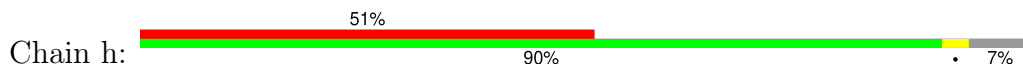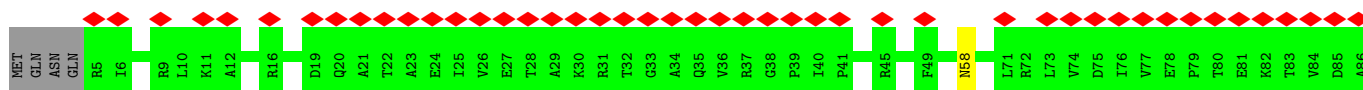
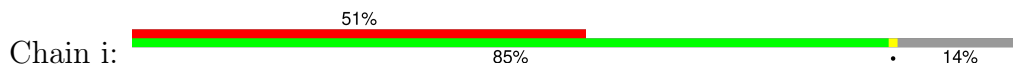• Molecule 32: 30S ribosomal protein S2

Chain a:
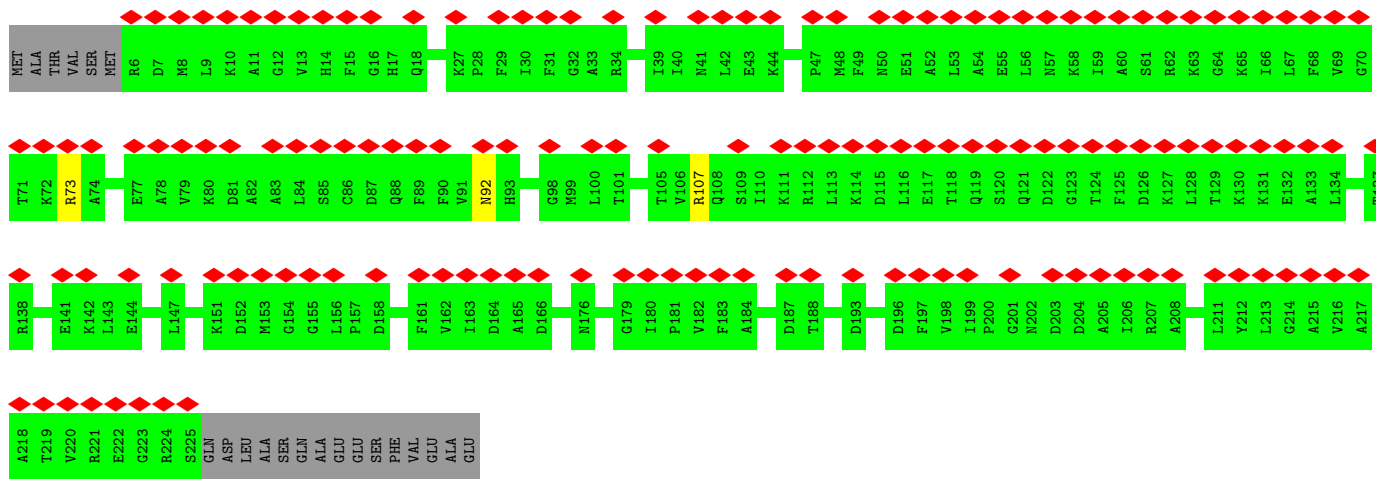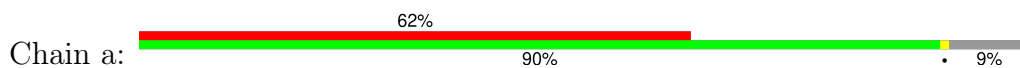
• Molecule 33: 30S ribosomal protein S3

Chain b:

• Molecule 34: 30S ribosomal protein S4

Chain c:

• Molecule 35: 30S ribosomal protein S5

Chain d:

• Molecule 36: 30S ribosomal protein S6

Chain e:

• Molecule 37: 30S ribosomal protein S7

Chain f:

• Molecule 38: 30S ribosomal protein S8

Chain g:

MET S1 A23 V24 F44 I45 E46 K49 V50 E51 G52 D53 T54 E59 L60 E72 L98 A118 G119 L120 G121 A129
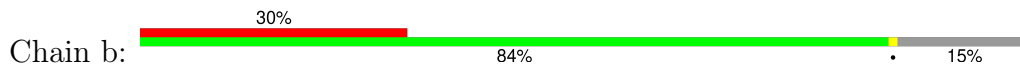
• Molecule 39: 30S ribosomal protein S9

Chain h:

51%

90%　　　7%

MET ALA GLU ASN GLN TYR TYR GLY T8 G9 S13 S14 A15 A16 R17 V18 F19 I20 K21 P22 G23 N24 G25 K26 I27 N30 Q31 E35 Q36 Y37 F38 G39 R40 E41 R44 R48 Q49 P50 L51 E52 L53 V54 D55 M56 V57 E58 K59 L60 D61 L62 Y63 V66 K67

S72 A75 G76 A77 I78 R79 H80 R84 A85 L86 M87 E88 Y89 D90 E91 S92 L93 R94 S95 E96 L97 R98 K99 A100 G101 F102 V103 D106 A107 R112 K128 ARG

• Molecule 40: 30S ribosomal protein S10

Chain i:

51%

85%　　　14%

MET GLN ASN GLN R5 I6 R9 L10 K11 A12 R16 D19 Q20 A21 T22 A23 E24 I25 V26 E27 T28 A29 K30 R31 T32 G33 A34 Q35 V36 R37 G38 P39 I40 P41 R45 F49 N58 L71 R72 L73 V74 D75 I76 V77 E78 P79 T80 E81 K82 T83 V84 D85 A86

L87 M88 R89 LEU ASP LEU ALA ALA GLY VAL ASP VAL Q99 I100 S101 L102 GLY
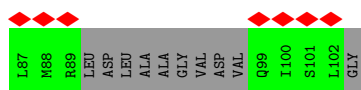
• Molecule 41: 30S ribosomal protein S11

Chain j:

16%

88%　　　9%

MET ALA LYS ALA PRO ILE ARG ALA ARG LYS ARG VAL R12 V15 S16 D17 G18 T34 R52 E67 R68 C69 A70 D71 A72 V73 K74 N80 R92 A102 G103 F104 R105 I106 T107 N108 G119 V128
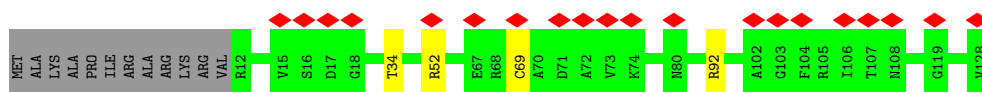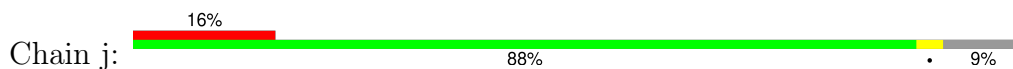
• Molecule 42: 30S ribosomal protein S12

Chain k:

11%

86%　　　10%

MET A1 K17 V20 Y37 T38 THR THR PRO LYS LYS PRO ASN SER ALA LEU R49 C52 F60 G67 G68 E69 G70 H71 G91 V106 K107 D108 R109 V118 K119 R120 P121 LYS ALA
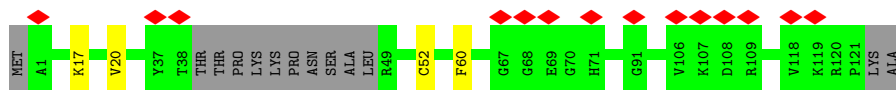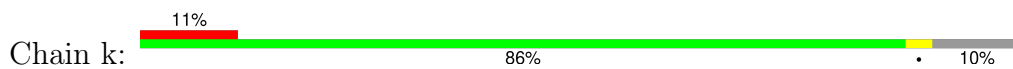
• Molecule 43: 30S ribosomal protein S13

Chain l:

50%

93%　　　6%

MET ALA ARG ILE A4 G5 I6 N7 I8 P9 D10 H11 K12 H13 A14 V15 I16 S29 K30 A31 I32 L33 A34 A35 A36 G37 I38 A39 E40 D41 V42 K43 I44 S45 E46 L47 S48 E49 G50 Q51 I52 D53 T54 L55 R56 D57 E58 V59 A60 K61 F62 V63 G66 D67 I76 K77 R78
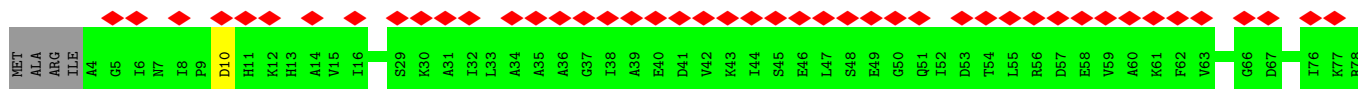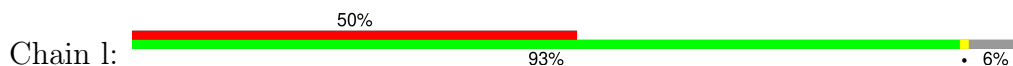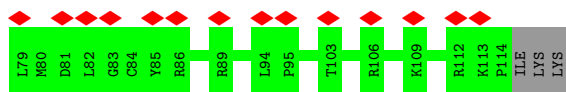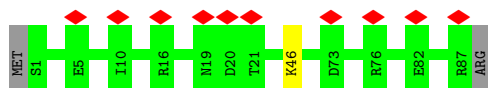
• Molecule 44: 30S ribosomal protein S14
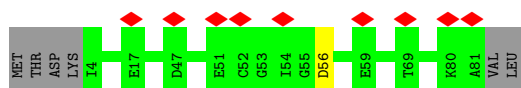
Chain m:
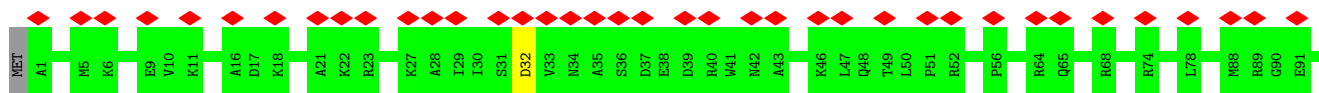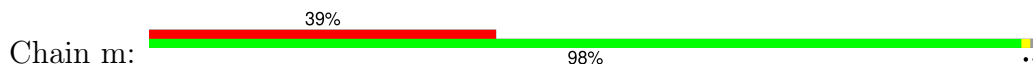
• Molecule 45: 30S ribosomal protein S15

Chain n:

• Molecule 46: 30S ribosomal protein S16

Chain o:

• Molecule 47: 30S ribosomal protein S17
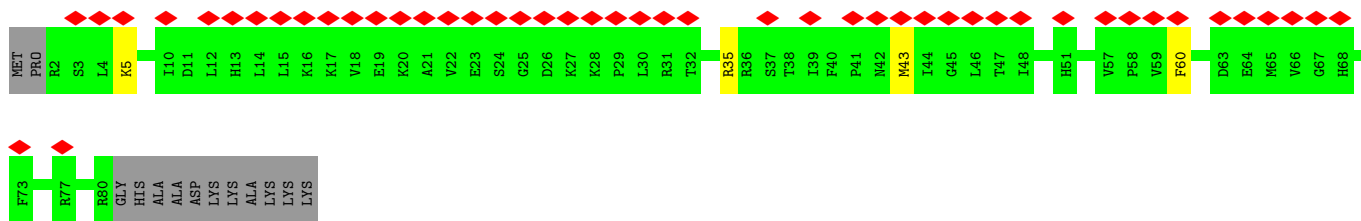
Chain p:
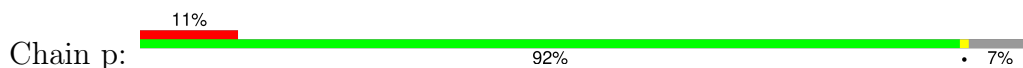
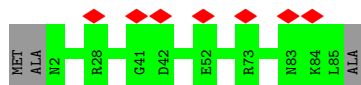• Molecule 48: 30S ribosomal protein S18

Chain q:
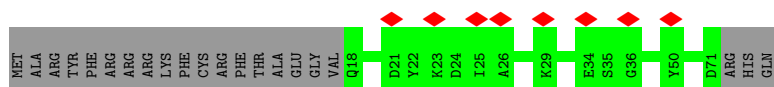
• Molecule 49: 30S ribosomal protein S19

Chain r:
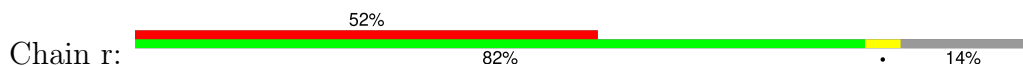
• Molecule 50: 30S ribosomal protein S20

Chain s:

8%

97%

• Molecule 51: 30S ribosomal protein S21

Chain t:

28%

96%
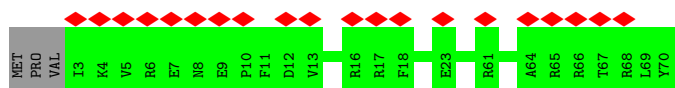
• Molecule 52: 16S ribosomal RNA

Chain 1:

8%

77%

20%
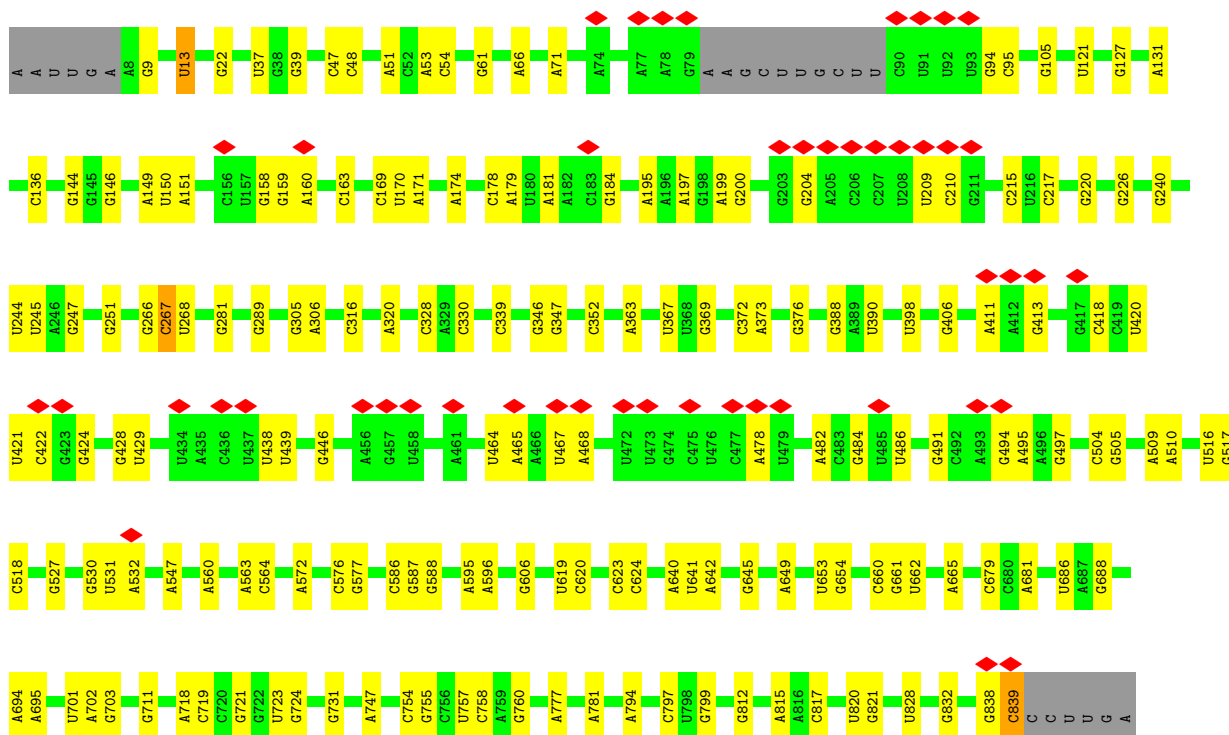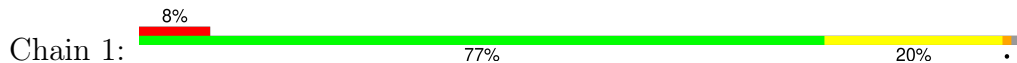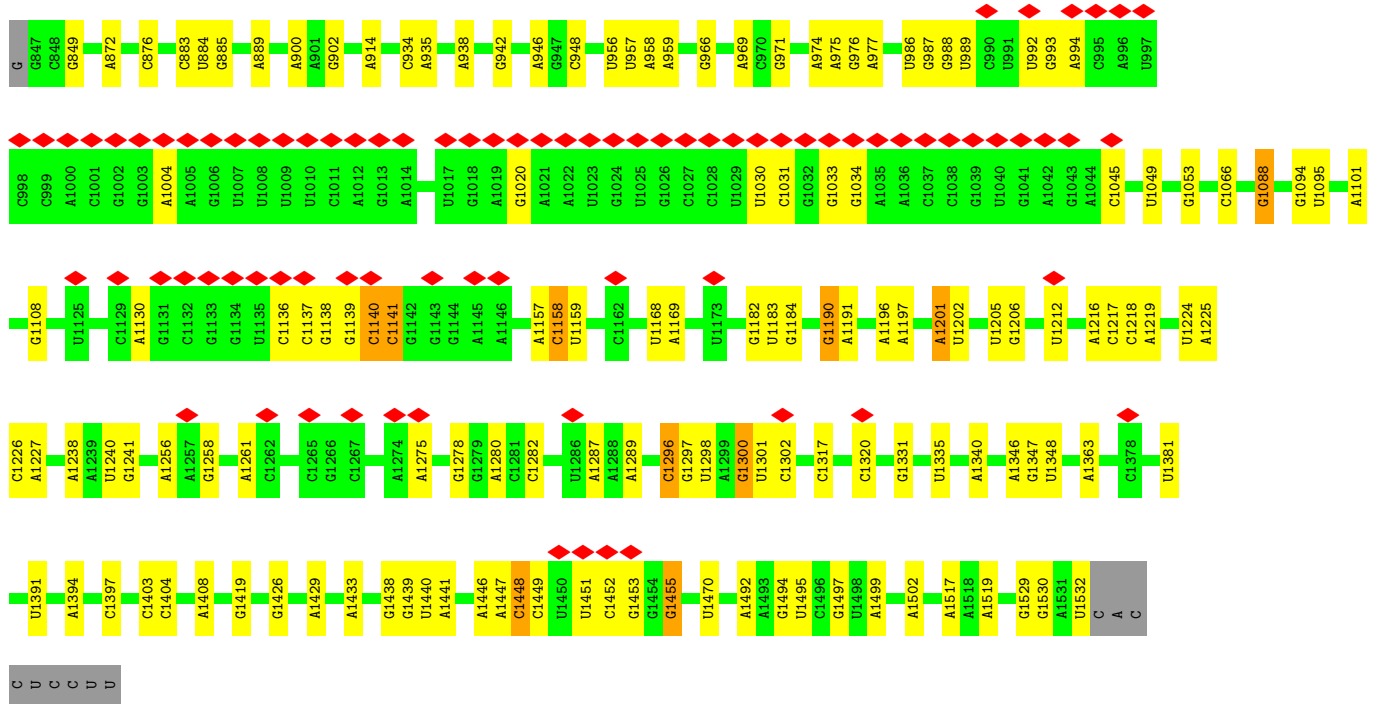
• Molecule 53: HIV frameshift stimulating sequence mRNA
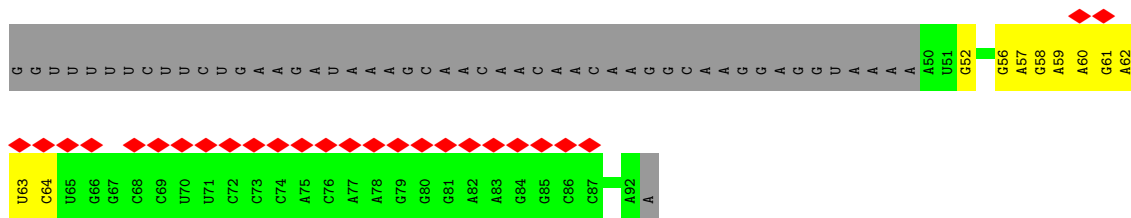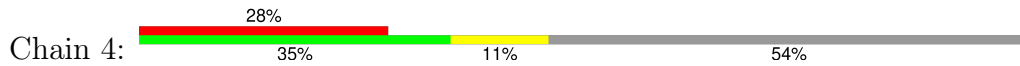
4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	640261	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	75	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	28.305	Depositor
Minimum map value	-9.165	Depositor
Average map value	0.187	Depositor
Map value standard deviation	1.136	Depositor
Recommended contour level	6	Depositor
Map size (Å)	654.48, 654.48, 654.48	wwPDB
Map dimensions	648, 648, 648	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.01, 1.01, 1.01	Depositor

5　Model quality ⓘ

5.1　Standard geometry ⓘ

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	3	0.26	0/2872	0.87	0/4479
2	5	0.29	0/1813	0.98	0/2826
3	A	0.25	0/2121	0.44	0/2852
4	B	0.26	0/1586	0.46	0/2134
5	C	0.25	0/1571	0.42	0/2113
6	D	0.26	0/1434	0.48	1/1926 (0.1%)
7	E	0.25	0/1318	0.46	0/1786
8	G	0.26	0/373	0.44	0/502
9	H	0.25	0/1152	0.43	0/1551
10	I	0.25	0/956	0.46	0/1279
11	J	0.25	0/1052	0.45	0/1401
12	K	0.25	0/1093	0.43	0/1460
13	L	0.25	0/964	0.44	0/1289
14	M	0.25	0/885	0.46	0/1187
15	N	0.26	0/929	0.44	0/1242
16	O	0.25	0/960	0.36	0/1278
17	P	0.27	0/829	0.49	0/1107
18	Q	0.24	0/864	0.44	0/1156
19	R	0.24	0/720	0.43	0/962
20	S	0.26	0/741	0.44	0/984
21	T	0.25	0/758	0.42	0/1015
22	U	0.26	0/582	0.44	0/769
23	V	0.24	0/635	0.45	0/848
24	W	0.24	0/492	0.41	0/655
25	X	0.26	0/453	0.44	0/605
26	Y	0.24	0/440	0.47	0/588
27	Z	0.23	0/403	0.46	0/538
28	AA	0.23	0/380	0.41	0/498
29	AB	0.26	0/513	0.45	0/676
30	AC	0.24	0/303	0.44	0/397
31	2	0.29	0/68117	0.89	68/106268 (0.1%)
32	a	0.25	0/1703	0.45	0/2305

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	b	0.24	0/1528	0.43	0/2069
34	c	0.24	0/1297	0.43	0/1740
35	d	0.25	0/1159	0.47	0/1561
36	e	0.24	0/843	0.50	0/1140
37	f	0.24	0/750	0.43	0/1009
38	g	0.25	0/989	0.45	0/1326
39	h	0.24	0/960	0.49	0/1280
40	i	0.23	0/735	0.45	0/991
41	j	0.25	0/893	0.46	0/1205
42	k	0.25	0/878	0.51	0/1176
43	l	0.23	0/868	0.45	0/1161
44	m	0.24	0/817	0.44	0/1088
45	n	0.22	0/710	0.46	0/950
46	o	0.24	0/659	0.46	0/884
47	p	0.24	0/641	0.45	0/860
48	q	0.24	0/449	0.42	0/604
49	r	0.27	0/652	0.51	0/877
50	s	0.24	0/661	0.38	0/876
51	t	0.23	0/573	0.36	0/759
52	1	0.27	0/36240	0.90	40/56532 (0.1%)
53	4	0.27	0/1037	0.94	0/1616
All	All	0.28	0/152351	0.81	109/228380 (0.0%)

There are no bond length outliers.

All (109) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	2	2794	C	N3-C2-O2	-10.09	114.84	121.90
31	2	2210	U	C2-N1-C1'	9.21	128.75	117.70
31	2	2210	U	N1-C2-O2	8.95	129.06	122.80
52	1	1141	C	N3-C2-O2	-8.94	115.64	121.90
31	2	268	C	N3-C2-O2	-8.67	115.83	121.90
31	2	1858	A	N1-C6-N6	-8.10	113.74	118.60
31	2	435	C	N1-C2-O2	7.96	123.68	118.90
52	1	13	U	N3-C4-O4	-7.83	113.92	119.40
31	2	2210	U	N3-C2-O2	-7.81	116.73	122.20
31	2	435	C	C2-N1-C1'	7.64	127.20	118.80
31	2	2214	C	N1-C2-O2	7.56	123.44	118.90
52	1	1141	C	N1-C2-O2	7.53	123.42	118.90
52	1	13	U	C5-C4-O4	7.52	130.41	125.90
52	1	624	C	N3-C2-O2	-7.50	116.65	121.90
31	2	1881	C	C2-N1-C1'	7.42	126.96	118.80

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
31	2	1313	U	C2-N1-C1'	7.36	126.53	117.70
52	1	217	C	C2-N1-C1'	7.13	126.64	118.80
52	1	754	C	C2-N1-C1'	7.10	126.61	118.80
31	2	1313	U	N1-C2-O2	6.92	127.64	122.80
31	2	1313	U	N3-C2-O2	-6.84	117.41	122.20
31	2	435	C	N3-C2-O2	-6.80	117.14	121.90
31	2	268	C	C6-N1-C2	-6.78	117.59	120.30
31	2	1348	C	N1-C2-O2	6.77	122.96	118.90
31	2	2793	C	N1-C2-O2	6.75	122.95	118.90
31	2	2214	C	C2-N1-C1'	6.68	126.15	118.80
31	2	2473	U	N1-C2-O2	6.66	127.46	122.80
31	2	2473	U	C2-N1-C1'	6.50	125.50	117.70
31	2	1774	C	N3-C2-O2	-6.45	117.39	121.90
31	2	2473	U	N3-C2-O2	-6.33	117.77	122.20
52	1	839	C	N1-C2-O2	6.32	122.69	118.90
31	2	2210	U	C6-N1-C1'	-6.25	112.45	121.20
52	1	439	U	C5-C4-O4	-6.25	122.15	125.90
31	2	1170	C	C2-N1-C1'	6.16	125.58	118.80
52	1	839	C	C2-N1-C1'	6.16	125.58	118.80
52	1	1158	C	C2-N1-C1'	6.16	125.58	118.80
31	2	265	A	P-O3'-C3'	6.16	127.09	119.70
31	2	2556	C	N1-C2-O2	6.06	122.54	118.90
52	1	1201	A	P-O3'-C3'	6.03	126.93	119.70
52	1	1088	G	N1-C6-O6	-5.98	116.31	119.90
31	2	267	C	N1-C2-O2	5.97	122.48	118.90
31	2	1176	U	C2-N1-C1'	5.97	124.87	117.70
31	2	2794	C	N1-C2-O2	5.93	122.46	118.90
52	1	516	U	C2-N1-C1'	5.88	124.75	117.70
31	2	1561	C	C2-N1-C1'	5.83	125.22	118.80
31	2	1858	A	C5-C6-N6	5.82	128.36	123.70
31	2	2214	C	N3-C2-O2	-5.82	117.83	121.90
52	1	754	C	N1-C2-O2	5.79	122.37	118.90
52	1	624	C	N1-C2-N3	5.77	123.24	119.20
31	2	1893	C	N1-C2-O2	5.76	122.35	118.90
31	2	435	C	C6-N1-C2	-5.66	118.04	120.30
52	1	1391	U	N1-C2-O2	5.65	126.76	122.80
52	1	1448	C	C2-N1-C1'	5.63	125.00	118.80
52	1	428	G	C8-N9-C1'	5.60	134.29	127.00
31	2	1956	U	N1-C2-O2	5.58	126.70	122.80
31	2	1881	C	C6-N1-C1'	-5.57	114.12	120.80
31	2	1314	C	C2-N1-C1'	5.57	124.92	118.80
31	2	1176	U	N1-C2-O2	5.56	126.69	122.80

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
52	1	1140	C	N1-C2-O2	5.50	122.20	118.90
6	D	102	LEU	CA-CB-CG	5.49	127.94	115.30
52	1	1296	C	N1-C2-O2	5.48	122.19	118.90
31	2	2901	C	N1-C2-O2	5.45	122.17	118.90
31	2	2431	U	O4'-C1'-N1	5.44	112.55	108.20
52	1	1470	U	C2-N1-C1'	5.43	124.22	117.70
52	1	428	G	N3-C4-N9	-5.42	122.75	126.00
31	2	1176	U	N3-C2-O2	-5.41	118.41	122.20
52	1	1448	C	N1-C2-O2	5.40	122.14	118.90
31	2	211	C	C2-N1-C1'	5.39	124.73	118.80
52	1	1455	G	N1-C6-O6	-5.37	116.68	119.90
31	2	1574	C	N1-C2-O2	5.36	122.12	118.90
31	2	2803	G	C5-C6-O6	5.34	131.81	128.60
52	1	679	C	C2-N1-C1'	5.34	124.67	118.80
31	2	1774	C	N1-C2-O2	5.34	122.10	118.90
31	2	1868	C	C2-N1-C1'	5.34	124.67	118.80
31	2	837	C	N1-C2-O2	5.33	122.10	118.90
31	2	2562	U	C2-N1-C1'	5.33	124.09	117.70
52	1	624	C	C6-N1-C2	-5.32	118.17	120.30
31	2	139	U	C2-N1-C1'	5.30	124.06	117.70
31	2	1170	C	N1-C2-O2	5.30	122.08	118.90
31	2	2901	C	N3-C2-O2	-5.29	118.19	121.90
52	1	217	C	C6-N1-C1'	-5.28	114.46	120.80
31	2	2210	U	C5-C6-N1	5.27	125.33	122.70
31	2	2795	C	N3-C2-O2	-5.27	118.21	121.90
31	2	1348	C	C2-N1-C1'	5.25	124.58	118.80
31	2	2562	U	N1-C2-O2	5.24	126.47	122.80
52	1	623	C	N1-C2-O2	5.23	122.04	118.90
52	1	1141	C	C6-N1-C2	-5.23	118.21	120.30
31	2	114	U	C2-N1-C1'	5.22	123.97	117.70
52	1	754	C	C6-N1-C1'	-5.22	114.53	120.80
31	2	1914	C	N1-C2-O2	5.22	122.03	118.90
52	1	624	C	C2-N3-C4	-5.22	117.29	119.90
31	2	2802	G	N1-C2-N2	-5.21	111.51	116.20
52	1	1158	C	O4'-C1'-N1	5.21	112.37	108.20
31	2	436	C	C2-N1-C1'	5.20	124.52	118.80
31	2	1348	C	N3-C2-O2	-5.20	118.26	121.90
31	2	1893	C	C2-N1-C1'	5.19	124.51	118.80
31	2	732	C	C2-N1-C1'	5.18	124.50	118.80
52	1	1088	G	C5-C6-O6	5.17	131.71	128.60
31	2	1956	U	N3-C2-O2	-5.17	118.58	122.20
52	1	428	G	C4-N9-C1'	-5.16	119.79	126.50

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
52	1	1300	G	P-O3'-C3'	5.15	125.88	119.70
52	1	516	U	N3-C2-O2	-5.15	118.60	122.20
52	1	1190	G	P-O3'-C3'	5.11	125.83	119.70
52	1	1391	U	C2-N1-C1'	5.10	123.83	117.70
31	2	1666	G	N1-C6-O6	-5.06	116.86	119.90
31	2	268	C	N1-C2-O2	5.05	121.93	118.90
31	2	435	C	C6-N1-C1'	-5.04	114.75	120.80
52	1	267	C	N1-C2-O2	5.03	121.92	118.90
31	2	143	C	C2-N1-C1'	5.02	124.32	118.80
31	2	2793	C	N3-C2-O2	-5.01	118.39	121.90

There are no chirality outliers.

There are no planarity outliers.

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	
3	A	269/273 (98%)	255 (95%)	14 (5%)	0	100	100
4	B	207/209 (99%)	200 (97%)	7 (3%)	0	100	100
5	C	199/201 (99%)	193 (97%)	6 (3%)	0	100	100
6	D	175/179 (98%)	161 (92%)	14 (8%)	0	100	100
7	E	171/177 (97%)	159 (93%)	12 (7%)	0	100	100
8	G	46/149 (31%)	44 (96%)	2 (4%)	0	100	100
9	H	140/142 (99%)	137 (98%)	3 (2%)	0	100	100
10	I	121/123 (98%)	116 (96%)	5 (4%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
11	J	141/144 (98%)	136 (96%)	5 (4%)	0	100	100
12	K	134/136 (98%)	132 (98%)	2 (2%)	0	100	100
13	L	117/127 (92%)	110 (94%)	7 (6%)	0	100	100
14	M	112/117 (96%)	103 (92%)	9 (8%)	0	100	100
15	N	112/115 (97%)	101 (90%)	11 (10%)	0	100	100
16	O	115/118 (98%)	114 (99%)	1 (1%)	0	100	100
17	P	101/103 (98%)	100 (99%)	1 (1%)	0	100	100
18	Q	108/110 (98%)	104 (96%)	4 (4%)	0	100	100
19	R	88/100 (88%)	85 (97%)	3 (3%)	0	100	100
20	S	92/104 (88%)	92 (100%)	0	0	100	100
21	T	91/94 (97%)	87 (96%)	4 (4%)	0	100	100
22	U	73/85 (86%)	72 (99%)	1 (1%)	0	100	100
23	V	75/78 (96%)	74 (99%)	1 (1%)	0	100	100
24	W	58/63 (92%)	57 (98%)	1 (2%)	0	100	100
25	X	56/59 (95%)	54 (96%)	2 (4%)	0	100	100
26	Y	53/57 (93%)	51 (96%)	2 (4%)	0	100	100
27	Z	46/55 (84%)	46 (100%)	0	0	100	100
28	AA	44/46 (96%)	44 (100%)	0	0	100	100
29	AB	62/65 (95%)	59 (95%)	3 (5%)	0	100	100
30	AC	36/38 (95%)	34 (94%)	2 (6%)	0	100	100
32	a	218/241 (90%)	209 (96%)	9 (4%)	0	100	100
33	b	193/233 (83%)	186 (96%)	7 (4%)	0	100	100
34	c	158/206 (77%)	149 (94%)	9 (6%)	0	100	100
35	d	155/167 (93%)	149 (96%)	6 (4%)	0	100	100
36	e	99/135 (73%)	87 (88%)	12 (12%)	0	100	100
37	f	93/179 (52%)	88 (95%)	5 (5%)	0	100	100
38	g	127/130 (98%)	124 (98%)	3 (2%)	0	100	100
39	h	119/130 (92%)	106 (89%)	13 (11%)	0	100	100
40	i	85/103 (82%)	81 (95%)	4 (5%)	0	100	100
41	j	115/129 (89%)	107 (93%)	8 (7%)	0	100	100
42	k	107/124 (86%)	95 (89%)	12 (11%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
43	l	109/118 (92%)	101 (93%)	8 (7%)	0	100	100
44	m	98/101 (97%)	92 (94%)	6 (6%)	0	100	100
45	n	85/89 (96%)	82 (96%)	3 (4%)	0	100	100
46	o	80/82 (98%)	77 (96%)	3 (4%)	0	100	100
47	p	76/84 (90%)	66 (87%)	10 (13%)	0	100	100
48	q	52/75 (69%)	49 (94%)	3 (6%)	0	100	100
49	r	77/92 (84%)	65 (84%)	12 (16%)	0	100	100
50	s	82/87 (94%)	79 (96%)	3 (4%)	0	100	100
51	t	66/71 (93%)	63 (96%)	3 (4%)	0	100	100
All	All	5236/5843 (90%)	4975 (95%)	261 (5%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2　Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	A	216/218 (99%)	214 (99%)	2 (1%)	75	86
4	B	164/164 (100%)	164 (100%)	0	100	100
5	C	165/165 (100%)	165 (100%)	0	100	100
6	D	148/150 (99%)	142 (96%)	6 (4%)	26	51
7	E	134/138 (97%)	134 (100%)	0	100	100
8	G	39/114 (34%)	38 (97%)	1 (3%)	41	64
9	H	116/116 (100%)	114 (98%)	2 (2%)	56	74
10	I	104/104 (100%)	104 (100%)	0	100	100
11	J	102/103 (99%)	100 (98%)	2 (2%)	50	70
12	K	109/109 (100%)	109 (100%)	0	100	100
13	L	99/103 (96%)	99 (100%)	0	100	100
14	M	84/87 (97%)	81 (96%)	3 (4%)	30	56

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	N	99/100 (99%)	96 (97%)	3 (3%)	36	61
16	O	89/90 (99%)	88 (99%)	1 (1%)	70	81
17	P	84/84 (100%)	84 (100%)	0	100	100
18	Q	93/93 (100%)	93 (100%)	0	100	100
19	R	77/84 (92%)	77 (100%)	0	100	100
20	S	78/85 (92%)	77 (99%)	1 (1%)	65	78
21	T	77/78 (99%)	75 (97%)	2 (3%)	41	64
22	U	57/63 (90%)	55 (96%)	2 (4%)	31	56
23	V	67/68 (98%)	67 (100%)	0	100	100
24	W	54/55 (98%)	54 (100%)	0	100	100
25	X	48/49 (98%)	48 (100%)	0	100	100
26	Y	46/48 (96%)	46 (100%)	0	100	100
27	Z	44/49 (90%)	44 (100%)	0	100	100
28	AA	38/38 (100%)	38 (100%)	0	100	100
29	AB	51/52 (98%)	49 (96%)	2 (4%)	27	53
30	AC	34/34 (100%)	33 (97%)	1 (3%)	37	61
32	a	171/199 (86%)	168 (98%)	3 (2%)	54	73
33	b	152/190 (80%)	150 (99%)	2 (1%)	65	78
34	c	134/173 (78%)	123 (92%)	11 (8%)	9	31
35	d	117/126 (93%)	115 (98%)	2 (2%)	56	74
36	e	88/116 (76%)	88 (100%)	0	100	100
37	f	77/147 (52%)	76 (99%)	1 (1%)	65	78
38	g	104/105 (99%)	103 (99%)	1 (1%)	73	83
39	h	97/107 (91%)	93 (96%)	4 (4%)	26	51
40	i	80/90 (89%)	79 (99%)	1 (1%)	65	78
41	j	90/99 (91%)	86 (96%)	4 (4%)	24	50
42	k	93/104 (89%)	89 (96%)	4 (4%)	25	50
43	l	90/96 (94%)	89 (99%)	1 (1%)	70	81
44	m	83/84 (99%)	82 (99%)	1 (1%)	67	80
45	n	75/77 (97%)	74 (99%)	1 (1%)	65	78
46	o	65/65 (100%)	65 (100%)	0	100	100

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
47	p	72/78 (92%)	71 (99%)	1 (1%)	62	77
48	q	47/65 (72%)	47 (100%)	0	100	100
49	r	70/79 (89%)	66 (94%)	4 (6%)	17	43
50	s	64/66 (97%)	64 (100%)	0	100	100
51	t	56/61 (92%)	56 (100%)	0	100	100
All	All	4341/4768 (91%)	4272 (98%)	69 (2%)	58	75

All (69) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	A	50	THR
3	A	86	ARG
6	D	6	TYR
6	D	7	TYR
6	D	39	VAL
6	D	43	ILE
6	D	47	LYS
6	D	114	ARG
8	G	21	VAL
9	H	17	VAL
9	H	96	ARG
11	J	57	LEU
11	J	111	ILE
14	M	48	LEU
14	M	63	LYS
14	M	106	LEU
15	N	80	VAL
15	N	81	ASP
15	N	83	ILE
16	O	56	PHE
20	S	27	VAL
21	T	72	VAL
21	T	92	VAL
22	U	10	ARG
22	U	52	ASP
29	AB	5	THR
29	AB	6	VAL
30	AC	25	VAL
32	a	73	ARG
32	a	92	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
32	a	107	ARG
33	b	14	VAL
33	b	87	ARG
34	c	45	PRO
34	c	69	ARG
34	c	71	PHE
34	c	82	LYS
34	c	100	VAL
34	c	115	GLN
34	c	124	VAL
34	c	154	VAL
34	c	169	TRP
34	c	181	PHE
34	c	190	LEU
35	d	10	LEU
35	d	92	ARG
37	f	91	ARG
38	g	60	LEU
39	h	55	ASP
39	h	93	LEU
39	h	106	ASP
39	h	128	LYS
40	i	58	ASN
41	j	34	THR
41	j	52	ARG
41	j	69	CYS
41	j	92	ARG
42	k	17	LYS
42	k	20	VAL
42	k	52	CYS
42	k	60	PHE
43	l	10	ASP
44	m	32	ASP
45	n	46	LYS
47	p	56	ASP
49	r	5	LYS
49	r	35	ARG
49	r	43	MET
49	r	60	PHE

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

Mol	Chain	Res	Type
3	A	133	ASN
4	B	32	ASN
4	B	150	GLN
5	C	163	ASN
6	D	4	HIS
6	D	36	ASN
6	D	62	GLN
7	E	63	GLN
9	H	40	HIS
9	H	136	GLN
13	L	31	HIS
14	M	38	GLN
14	M	98	GLN
16	O	36	GLN
16	O	43	GLN
16	O	71	ASN
17	P	91	GLN
18	Q	31	GLN
18	Q	61	ASN
20	S	45	GLN
20	S	65	GLN
20	S	68	ASN
27	Z	18	HIS
32	a	38	HIS
32	a	50	ASN
32	a	88	GLN
32	a	102	ASN
32	a	145	ASN
33	b	99	GLN
34	c	84	ASN
34	c	115	GLN
34	c	130	ASN
34	c	197	HIS
35	d	145	ASN
36	e	11	HIS
36	e	17	GLN
37	f	27	ASN
37	f	96	ASN
39	h	31	GLN
41	j	118	ASN
43	l	99	GLN
44	m	59	GLN
45	n	45	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
46	o	79	ASN
47	p	30	HIS
47	p	50	ASN
48	q	51	GLN
49	r	55	GLN
50	s	2	ASN
50	s	19	HIS
50	s	47	GLN
50	s	77	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	3	119/120 (99%)	33 (27%)	1 (0%)
2	5	75/76 (98%)	19 (25%)	0
31	2	2831/2903 (97%)	550 (19%)	9 (0%)
52	1	1505/1540 (97%)	307 (20%)	6 (0%)
53	4	42/93 (45%)	10 (23%)	0
All	All	4572/4732 (96%)	919 (20%)	16 (0%)

All (919) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	3	9	G
1	3	12	C
1	3	13	G
1	3	14	U
1	3	15	A
1	3	16	G
1	3	20	G
1	3	24	G
1	3	25	U
1	3	26	C
1	3	27	C
1	3	34	A
1	3	35	C
1	3	41	G
1	3	42	C
1	3	44	G
1	3	45	A
1	3	50	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	3	51	G
1	3	52	A
1	3	53	A
1	3	57	A
1	3	59	A
1	3	64	G
1	3	66	A
1	3	67	G
1	3	69	G
1	3	87	U
1	3	89	U
1	3	90	C
1	3	108	A
1	3	110	C
1	3	112	G
2	5	9	A
2	5	17	C
2	5	19	G
2	5	20	U
2	5	21	A
2	5	22	G
2	5	23	A
2	5	26	A
2	5	30	G
2	5	37	A
2	5	43	C
2	5	45	U
2	5	46	G
2	5	47	G
2	5	61	C
2	5	69	G
2	5	70	G
2	5	73	A
2	5	76	A
31	2	4	U
31	2	14	A
31	2	23	G
31	2	27	G
31	2	28	A
31	2	34	U
31	2	43	G
31	2	44	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	49	A
31	2	50	U
31	2	51	G
31	2	63	A
31	2	64	A
31	2	71	A
31	2	74	A
31	2	75	G
31	2	88	G
31	2	91	A
31	2	96	C
31	2	101	A
31	2	102	U
31	2	118	A
31	2	119	A
31	2	120	U
31	2	125	A
31	2	126	A
31	2	139	U
31	2	140	C
31	2	142	A
31	2	150	U
31	2	162	U
31	2	163	C
31	2	178	G
31	2	181	A
31	2	186	G
31	2	196	A
31	2	199	A
31	2	205	G
31	2	212	G
31	2	215	G
31	2	216	A
31	2	222	A
31	2	223	A
31	2	228	C
31	2	229	C
31	2	233	A
31	2	238	C
31	2	239	C
31	2	242	G
31	2	248	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	255	A
31	2	265	A
31	2	266	G
31	2	267	C
31	2	268	C
31	2	271	G
31	2	275	C
31	2	276	U
31	2	277	G
31	2	281	C
31	2	284	U
31	2	286	U
31	2	289	G
31	2	290	U
31	2	291	G
31	2	292	U
31	2	311	A
31	2	322	A
31	2	323	C
31	2	329	G
31	2	330	A
31	2	343	C
31	2	345	A
31	2	346	A
31	2	347	A
31	2	348	A
31	2	349	U
31	2	350	G
31	2	354	A
31	2	356	G
31	2	358	U
31	2	362	A
31	2	365	U
31	2	369	U
31	2	370	G
31	2	372	G
31	2	384	A
31	2	386	G
31	2	387	U
31	2	390	U
31	2	404	A
31	2	406	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	411	G
31	2	422	A
31	2	424	G
31	2	436	C
31	2	455	C
31	2	456	C
31	2	467	G
31	2	481	G
31	2	490	C
31	2	491	G
31	2	504	A
31	2	505	A
31	2	509	C
31	2	512	G
31	2	518	G
31	2	527	C
31	2	528	A
31	2	529	A
31	2	531	C
31	2	532	A
31	2	544	C
31	2	545	U
31	2	546	U
31	2	549	G
31	2	563	A
31	2	573	U
31	2	575	A
31	2	580	U
31	2	603	A
31	2	613	A
31	2	614	A
31	2	615	U
31	2	616	A
31	2	627	A
31	2	637	A
31	2	643	A
31	2	644	A
31	2	647	G
31	2	653	U
31	2	654	A
31	2	669	G
31	2	675	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	686	U
31	2	695	G
31	2	711	G
31	2	714	U
31	2	717	C
31	2	726	G
31	2	727	A
31	2	730	A
31	2	734	A
31	2	737	C
31	2	738	G
31	2	740	C
31	2	747	C
31	2	748	G
31	2	765	C
31	2	775	G
31	2	782	A
31	2	783	A
31	2	784	G
31	2	785	G
31	2	790	U
31	2	792	A
31	2	805	G
31	2	810	U
31	2	812	C
31	2	819	A
31	2	827	U
31	2	828	U
31	2	846	U
31	2	847	U
31	2	857	G
31	2	858	G
31	2	859	G
31	2	860	U
31	2	864	G
31	2	866	A
31	2	878	A
31	2	883	G
31	2	887	U
31	2	896	A
31	2	897	C
31	2	899	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	902	C
31	2	910	A
31	2	914	G
31	2	915	C
31	2	923	G
31	2	931	U
31	2	932	U
31	2	933	A
31	2	934	U
31	2	937	C
31	2	941	A
31	2	945	A
31	2	946	C
31	2	953	G
31	2	961	C
31	2	973	A
31	2	974	G
31	2	979	A
31	2	983	A
31	2	985	C
31	2	995	C
31	2	996	A
31	2	1009	A
31	2	1010	A
31	2	1012	U
31	2	1013	C
31	2	1022	G
31	2	1025	G
31	2	1026	G
31	2	1033	U
31	2	1115	G
31	2	1122	G
31	2	1124	G
31	2	1132	U
31	2	1134	A
31	2	1135	C
31	2	1141	U
31	2	1142	A
31	2	1143	A
31	2	1155	A
31	2	1168	G
31	2	1169	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	1170	C
31	2	1171	G
31	2	1172	C
31	2	1173	U
31	2	1174	U
31	2	1175	A
31	2	1176	U
31	2	1180	U
31	2	1186	G
31	2	1211	C
31	2	1212	G
31	2	1236	G
31	2	1247	A
31	2	1248	G
31	2	1253	A
31	2	1256	G
31	2	1264	A
31	2	1268	A
31	2	1271	G
31	2	1272	A
31	2	1287	A
31	2	1289	C
31	2	1300	G
31	2	1301	A
31	2	1329	U
31	2	1333	G
31	2	1341	G
31	2	1345	C
31	2	1346	G
31	2	1360	G
31	2	1365	A
31	2	1368	G
31	2	1379	U
31	2	1395	A
31	2	1407	G
31	2	1416	G
31	2	1419	A
31	2	1420	A
31	2	1421	G
31	2	1425	G
31	2	1427	A
31	2	1428	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	1437	C
31	2	1452	G
31	2	1455	G
31	2	1460	U
31	2	1461	C
31	2	1482	G
31	2	1490	A
31	2	1491	G
31	2	1503	A
31	2	1504	A
31	2	1515	A
31	2	1522	A
31	2	1523	U
31	2	1524	G
31	2	1528	A
31	2	1530	G
31	2	1534	U
31	2	1535	A
31	2	1536	C
31	2	1537	G
31	2	1540	G
31	2	1541	C
31	2	1546	G
31	2	1548	A
31	2	1554	U
31	2	1559	U
31	2	1561	C
31	2	1566	A
31	2	1569	A
31	2	1578	U
31	2	1584	U
31	2	1603	A
31	2	1607	C
31	2	1608	A
31	2	1613	G
31	2	1639	C
31	2	1646	C
31	2	1647	U
31	2	1648	U
31	2	1649	G
31	2	1654	A
31	2	1663	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	1674	G
31	2	1695	G
31	2	1702	G
31	2	1703	G
31	2	1721	G
31	2	1728	C
31	2	1729	U
31	2	1730	C
31	2	1732	C
31	2	1733	G
31	2	1738	G
31	2	1756	G
31	2	1764	C
31	2	1773	A
31	2	1782	U
31	2	1800	C
31	2	1801	A
31	2	1808	A
31	2	1816	C
31	2	1819	A
31	2	1829	A
31	2	1835	G
31	2	1839	G
31	2	1845	G
31	2	1848	A
31	2	1849	G
31	2	1850	G
31	2	1856	U
31	2	1857	G
31	2	1858	A
31	2	1860	G
31	2	1867	G
31	2	1870	C
31	2	1876	A
31	2	1880	U
31	2	1883	U
31	2	1884	G
31	2	1885	A
31	2	1893	C
31	2	1906	G
31	2	1912	A
31	2	1913	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	1914	C
31	2	1918	A
31	2	1924	C
31	2	1926	U
31	2	1927	A
31	2	1929	G
31	2	1930	G
31	2	1936	A
31	2	1937	A
31	2	1938	A
31	2	1939	U
31	2	1940	U
31	2	1955	U
31	2	1964	G
31	2	1966	A
31	2	1967	C
31	2	1970	A
31	2	1972	G
31	2	1989	G
31	2	1991	U
31	2	1992	G
31	2	1993	U
31	2	1995	U
31	2	1996	C
31	2	1997	C
31	2	2022	U
31	2	2023	C
31	2	2031	A
31	2	2034	U
31	2	2043	C
31	2	2052	A
31	2	2055	C
31	2	2056	G
31	2	2060	A
31	2	2061	G
31	2	2062	A
31	2	2069	G
31	2	2093	G
31	2	2097	A
31	2	2098	U
31	2	2106	U
31	2	2110	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	2112	G
31	2	2113	U
31	2	2118	U
31	2	2119	A
31	2	2120	G
31	2	2121	G
31	2	2126	A
31	2	2127	G
31	2	2131	U
31	2	2132	U
31	2	2133	G
31	2	2134	A
31	2	2136	G
31	2	2138	G
31	2	2145	C
31	2	2146	C
31	2	2148	G
31	2	2149	U
31	2	2150	C
31	2	2155	U
31	2	2156	G
31	2	2158	A
31	2	2159	G
31	2	2165	C
31	2	2171	A
31	2	2172	U
31	2	2173	A
31	2	2180	U
31	2	2189	U
31	2	2198	A
31	2	2204	G
31	2	2210	U
31	2	2213	U
31	2	2214	C
31	2	2225	A
31	2	2238	G
31	2	2239	G
31	2	2256	G
31	2	2266	A
31	2	2278	A
31	2	2283	C
31	2	2285	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	2287	A
31	2	2305	U
31	2	2307	G
31	2	2309	A
31	2	2310	C
31	2	2311	A
31	2	2312	U
31	2	2313	C
31	2	2318	G
31	2	2322	A
31	2	2325	G
31	2	2326	C
31	2	2327	A
31	2	2336	A
31	2	2347	C
31	2	2350	C
31	2	2354	C
31	2	2361	G
31	2	2383	G
31	2	2385	C
31	2	2388	A
31	2	2390	U
31	2	2391	G
31	2	2402	U
31	2	2403	C
31	2	2406	A
31	2	2422	C
31	2	2423	U
31	2	2424	C
31	2	2427	C
31	2	2429	G
31	2	2430	A
31	2	2431	U
31	2	2433	A
31	2	2435	A
31	2	2436	G
31	2	2441	U
31	2	2448	A
31	2	2463	C
31	2	2464	G
31	2	2468	A
31	2	2472	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	2473	U
31	2	2475	C
31	2	2476	A
31	2	2477	U
31	2	2478	A
31	2	2494	G
31	2	2498	C
31	2	2501	C
31	2	2503	A
31	2	2505	G
31	2	2506	U
31	2	2518	A
31	2	2520	C
31	2	2529	G
31	2	2534	A
31	2	2547	A
31	2	2554	U
31	2	2566	A
31	2	2567	G
31	2	2572	A
31	2	2582	G
31	2	2586	U
31	2	2602	A
31	2	2603	G
31	2	2609	U
31	2	2613	U
31	2	2615	U
31	2	2623	G
31	2	2629	U
31	2	2630	G
31	2	2639	A
31	2	2656	U
31	2	2661	G
31	2	2682	A
31	2	2685	G
31	2	2689	U
31	2	2690	U
31	2	2714	G
31	2	2718	G
31	2	2722	G
31	2	2726	A
31	2	2733	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
31	2	2744	G
31	2	2746	U
31	2	2748	A
31	2	2750	A
31	2	2752	C
31	2	2762	C
31	2	2764	A
31	2	2765	A
31	2	2766	A
31	2	2776	A
31	2	2778	A
31	2	2779	U
31	2	2791	G
31	2	2793	C
31	2	2795	C
31	2	2796	U
31	2	2798	U
31	2	2799	A
31	2	2800	A
31	2	2801	G
31	2	2808	G
31	2	2818	U
31	2	2820	A
31	2	2833	U
31	2	2836	U
31	2	2849	U
31	2	2850	A
31	2	2859	G
31	2	2867	G
31	2	2872	A
31	2	2873	A
31	2	2879	A
31	2	2880	C
31	2	2883	A
31	2	2884	U
31	2	2885	G
31	2	2893	A
31	2	2902	C
52	1	9	G
52	1	13	U
52	1	22	G
52	1	37	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	39	G
52	1	47	C
52	1	48	C
52	1	51	A
52	1	53	A
52	1	54	C
52	1	61	G
52	1	66	A
52	1	71	A
52	1	94	G
52	1	95	C
52	1	105	G
52	1	121	U
52	1	127	G
52	1	131	A
52	1	136	C
52	1	144	G
52	1	146	G
52	1	149	A
52	1	150	U
52	1	151	A
52	1	158	G
52	1	159	G
52	1	160	A
52	1	163	C
52	1	169	C
52	1	170	U
52	1	171	A
52	1	174	A
52	1	179	A
52	1	181	A
52	1	184	G
52	1	195	A
52	1	197	A
52	1	199	A
52	1	200	G
52	1	204	G
52	1	209	U
52	1	210	C
52	1	215	C
52	1	220	G
52	1	226	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	240	G
52	1	244	U
52	1	245	U
52	1	247	G
52	1	251	G
52	1	266	G
52	1	267	C
52	1	268	U
52	1	281	G
52	1	289	G
52	1	305	G
52	1	306	A
52	1	316	C
52	1	320	A
52	1	328	C
52	1	330	C
52	1	339	C
52	1	346	G
52	1	347	G
52	1	352	C
52	1	363	A
52	1	367	U
52	1	369	G
52	1	372	C
52	1	373	A
52	1	376	G
52	1	388	G
52	1	390	U
52	1	398	U
52	1	406	G
52	1	411	A
52	1	413	G
52	1	418	C
52	1	420	U
52	1	421	U
52	1	422	C
52	1	424	G
52	1	429	U
52	1	438	U
52	1	446	G
52	1	464	U
52	1	465	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	467	U
52	1	468	A
52	1	478	A
52	1	482	A
52	1	484	G
52	1	486	U
52	1	491	G
52	1	494	G
52	1	495	A
52	1	497	G
52	1	504	C
52	1	505	G
52	1	509	A
52	1	510	A
52	1	517	G
52	1	518	C
52	1	527	G
52	1	530	G
52	1	531	U
52	1	532	A
52	1	547	A
52	1	560	A
52	1	563	A
52	1	564	C
52	1	572	A
52	1	576	C
52	1	577	G
52	1	586	C
52	1	587	G
52	1	588	G
52	1	595	A
52	1	596	A
52	1	606	G
52	1	619	U
52	1	620	C
52	1	640	A
52	1	641	U
52	1	642	A
52	1	645	G
52	1	649	A
52	1	653	U
52	1	654	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	660	C
52	1	661	G
52	1	662	U
52	1	665	A
52	1	681	A
52	1	686	U
52	1	688	G
52	1	694	A
52	1	695	A
52	1	701	U
52	1	702	A
52	1	703	G
52	1	711	G
52	1	718	A
52	1	719	C
52	1	721	G
52	1	723	U
52	1	724	G
52	1	731	G
52	1	747	A
52	1	755	G
52	1	757	U
52	1	758	C
52	1	760	G
52	1	777	A
52	1	781	A
52	1	794	A
52	1	797	C
52	1	799	G
52	1	812	G
52	1	815	A
52	1	817	C
52	1	820	U
52	1	821	G
52	1	828	U
52	1	832	G
52	1	838	G
52	1	839	C
52	1	849	G
52	1	872	A
52	1	876	C
52	1	883	C

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	884	U
52	1	885	G
52	1	889	A
52	1	900	A
52	1	902	G
52	1	914	A
52	1	934	C
52	1	935	A
52	1	938	A
52	1	942	G
52	1	946	A
52	1	948	C
52	1	956	U
52	1	957	U
52	1	958	A
52	1	959	A
52	1	966	G
52	1	969	A
52	1	971	G
52	1	974	A
52	1	975	A
52	1	976	G
52	1	977	A
52	1	986	U
52	1	987	G
52	1	988	G
52	1	989	U
52	1	992	U
52	1	993	G
52	1	994	A
52	1	1004	A
52	1	1020	G
52	1	1030	U
52	1	1031	C
52	1	1033	G
52	1	1034	G
52	1	1045	C
52	1	1049	U
52	1	1053	G
52	1	1066	C
52	1	1088	G
52	1	1094	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	1095	U
52	1	1101	A
52	1	1108	G
52	1	1130	A
52	1	1136	C
52	1	1137	C
52	1	1138	G
52	1	1139	G
52	1	1140	C
52	1	1141	C
52	1	1157	A
52	1	1158	C
52	1	1159	U
52	1	1168	U
52	1	1169	A
52	1	1182	G
52	1	1183	U
52	1	1184	G
52	1	1191	A
52	1	1196	A
52	1	1197	A
52	1	1202	U
52	1	1205	U
52	1	1206	G
52	1	1212	U
52	1	1216	A
52	1	1217	C
52	1	1218	C
52	1	1219	A
52	1	1224	U
52	1	1225	A
52	1	1226	C
52	1	1227	A
52	1	1238	A
52	1	1240	U
52	1	1241	G
52	1	1256	A
52	1	1258	G
52	1	1261	A
52	1	1275	A
52	1	1278	G
52	1	1280	A

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	1282	C
52	1	1287	A
52	1	1289	A
52	1	1296	C
52	1	1297	G
52	1	1298	U
52	1	1300	G
52	1	1301	U
52	1	1302	C
52	1	1317	C
52	1	1320	C
52	1	1331	G
52	1	1335	U
52	1	1340	A
52	1	1346	A
52	1	1347	G
52	1	1348	U
52	1	1363	A
52	1	1381	U
52	1	1394	A
52	1	1397	C
52	1	1403	C
52	1	1404	C
52	1	1408	A
52	1	1419	G
52	1	1426	G
52	1	1429	A
52	1	1433	A
52	1	1438	G
52	1	1439	G
52	1	1440	U
52	1	1441	A
52	1	1446	A
52	1	1447	A
52	1	1448	C
52	1	1449	C
52	1	1451	U
52	1	1452	C
52	1	1453	G
52	1	1455	G
52	1	1492	A
52	1	1494	G

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
52	1	1495	U
52	1	1497	G
52	1	1499	A
52	1	1502	A
52	1	1517	A
52	1	1519	A
52	1	1529	G
52	1	1530	G
52	1	1532	U
53	4	52	G
53	4	56	G
53	4	57	A
53	4	58	G
53	4	59	A
53	4	60	A
53	4	61	G
53	4	62	A
53	4	63	U
53	4	64	C

All (16) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	3	52	A
31	2	227	A
31	2	265	A
31	2	784	G
31	2	859	G
31	2	882	G
31	2	1179	G
31	2	1340	U
31	2	2581	G
31	2	2858	C
52	1	178	C
52	1	421	U
52	1	509	A
52	1	1190	G
52	1	1201	A
52	1	1300	G

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 53 ligands modelled in this entry, 53 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-21421. 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 |
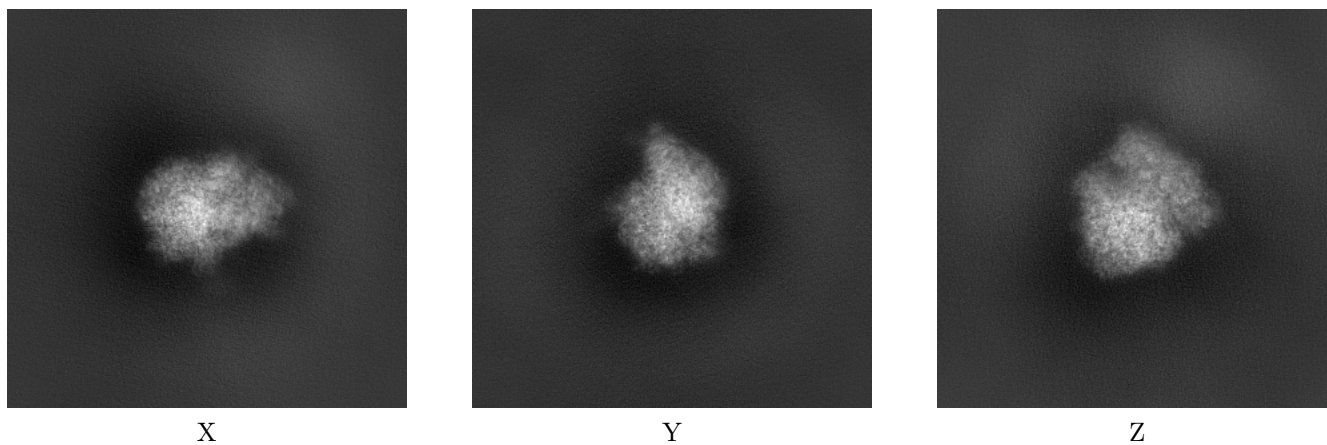
The images above show the map projected in three orthogonal directions.

6.2 Central slices ⓘ

6.2.1 Primary map

| X Index: 324 | Y Index: 324 | Z Index: 324 |
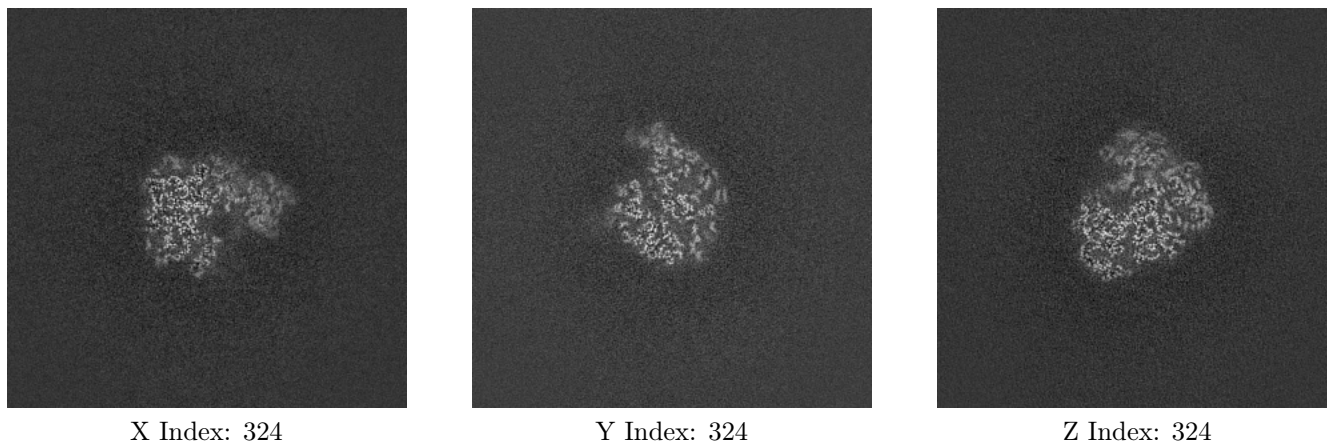
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

6.3.1 Primary map
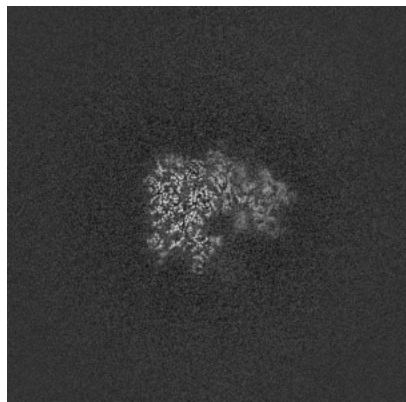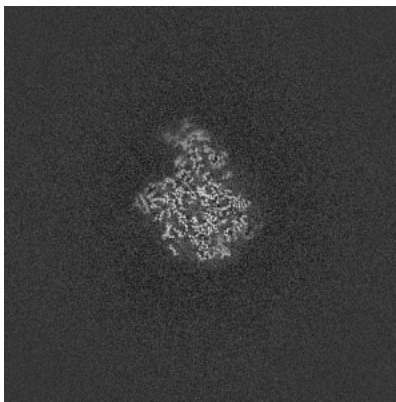
| X Index: 331 | Y Index: 312 | Z Index: 310 |
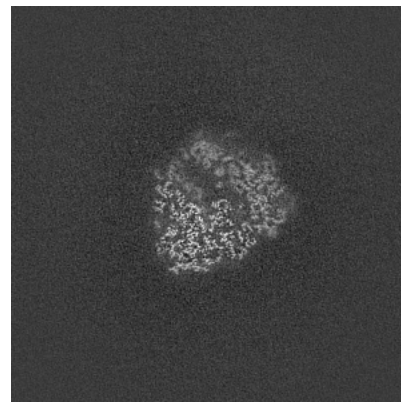
The images above show the largest variance slices of the map in three orthogonal directions.

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

6.4.1 Primary map

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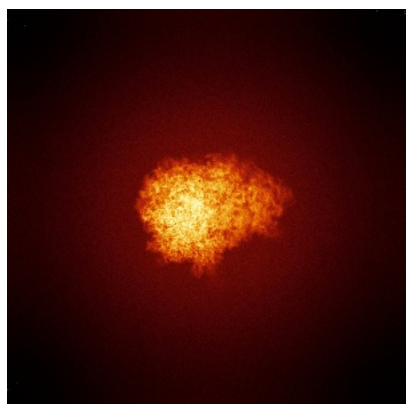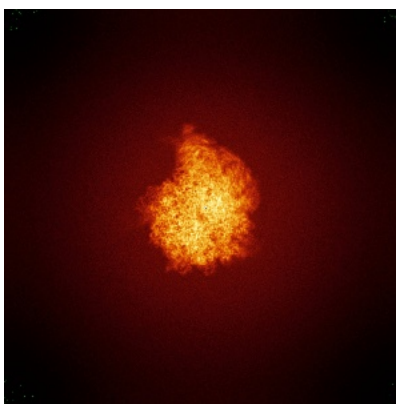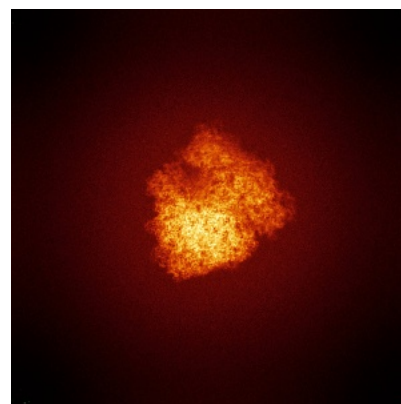
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X	Y	Z
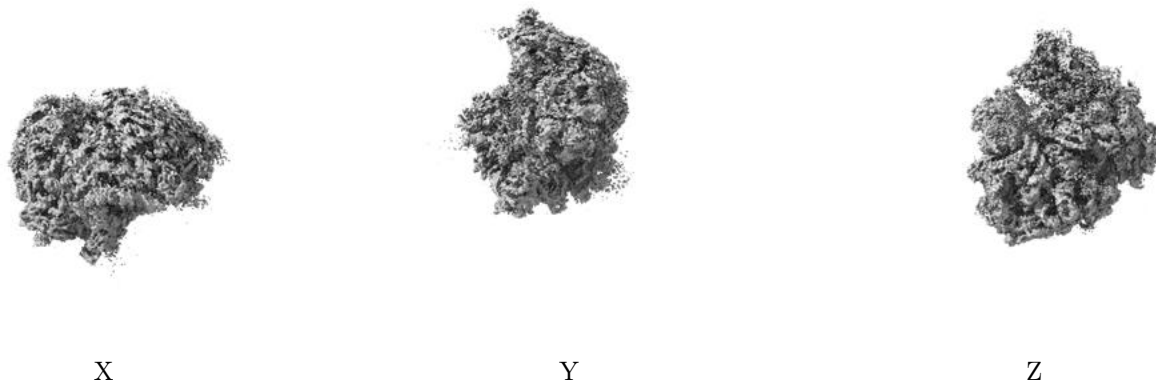
The images above show the 3D surface view of the map at the recommended contour level 6.0. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.6 Mask visualisation ⓘ

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

7　Map analysis ⓘ

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

7.1　Map-value distribution ⓘ
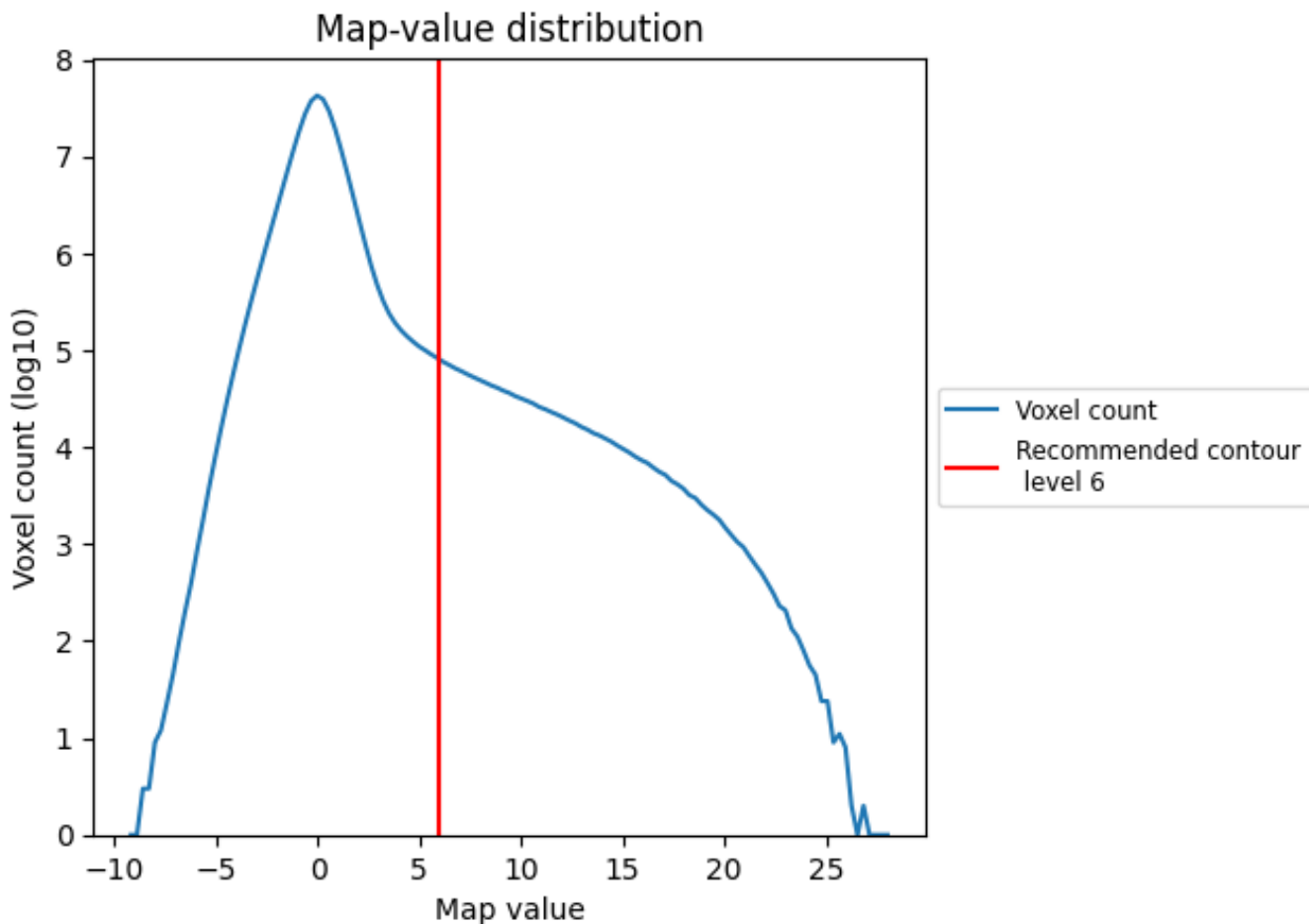
The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2　Volume estimate ⓘ
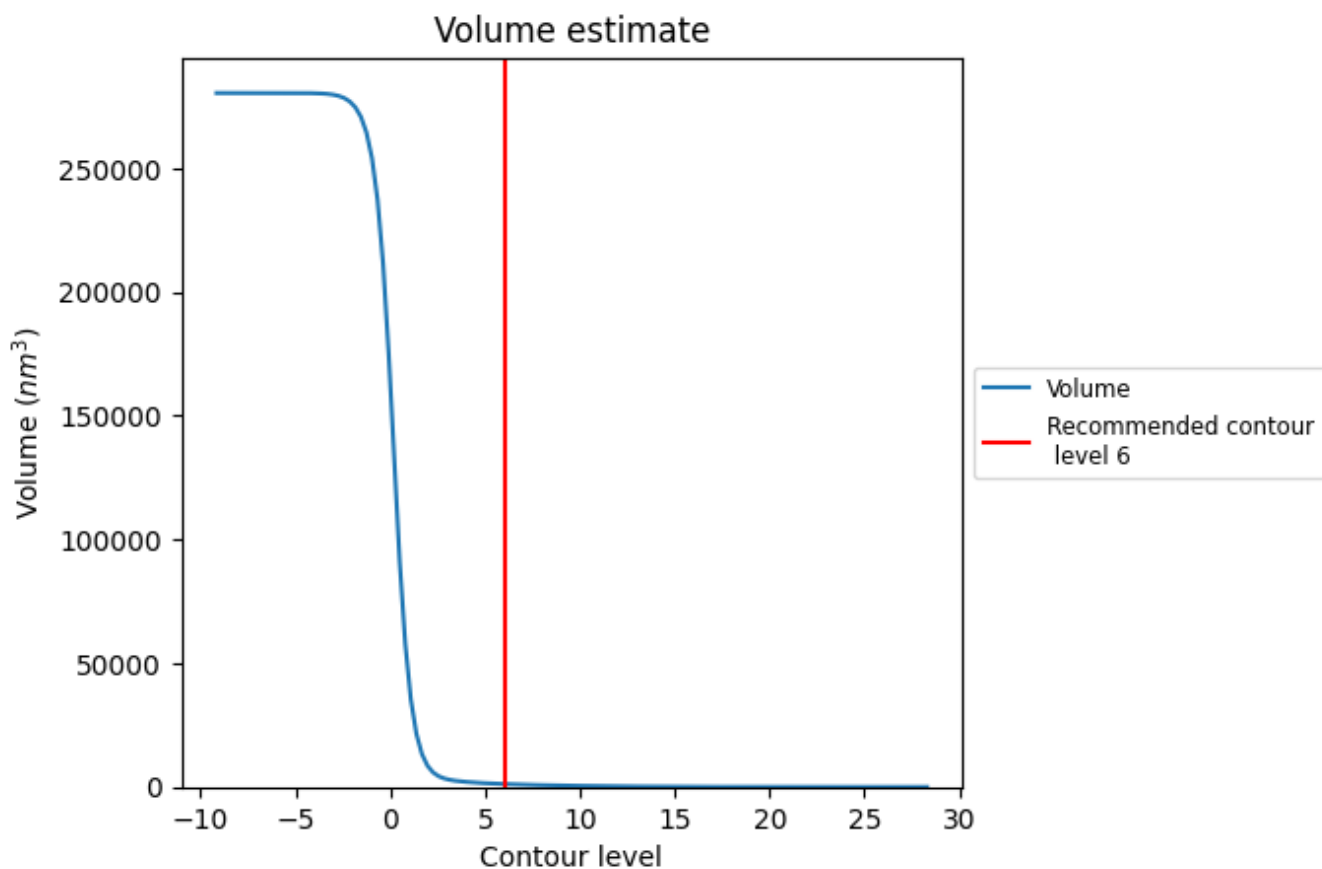
The volume at the recommended contour level is 1184 nm^3; this corresponds to an approximate mass of 1070 kDa.

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

7.3　Rotationally averaged power spectrum ⓘ
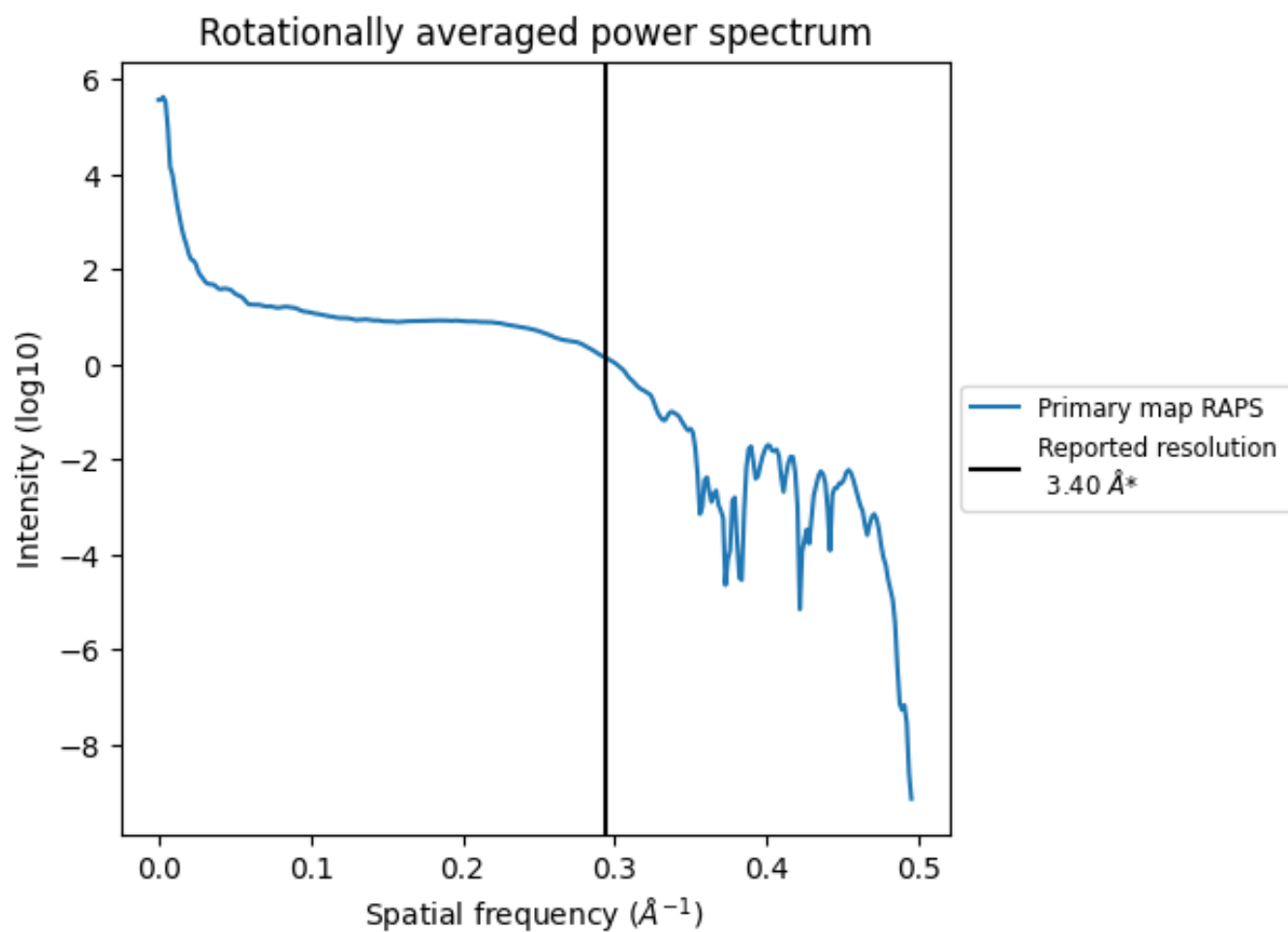
*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8 Fourier-Shell correlation ⓘ

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

8.1 FSC ⓘ

FSC
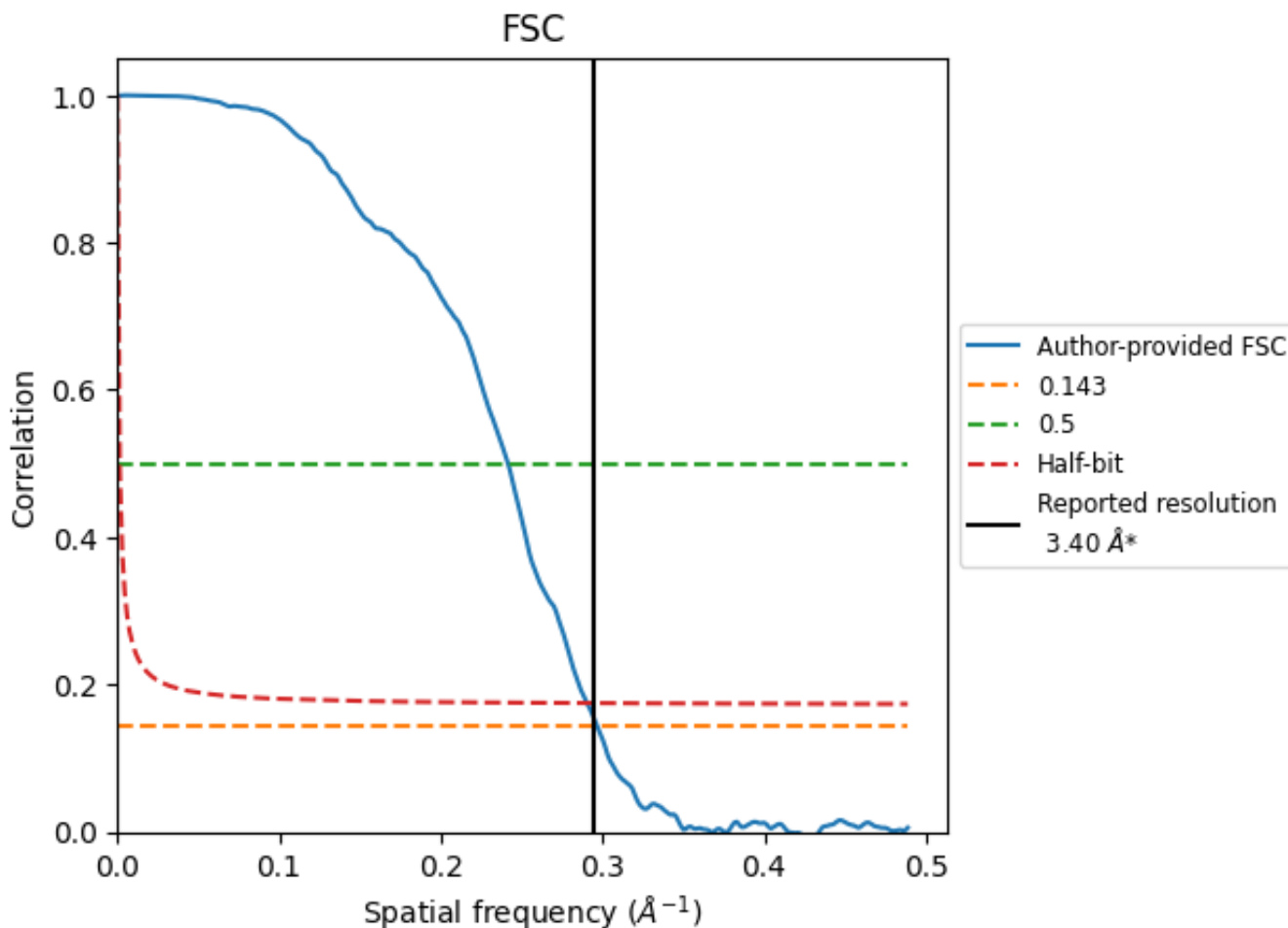
*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8.2 Resolution estimates (i)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.40	-	-
Author-provided FSC curve	3.37	4.14	3.44
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-21421 and PDB model 6VWM. Per-residue inclusion information can be found in section 3 on page 15.

9.1 Map-model overlay (i)

| X | Y | Z |
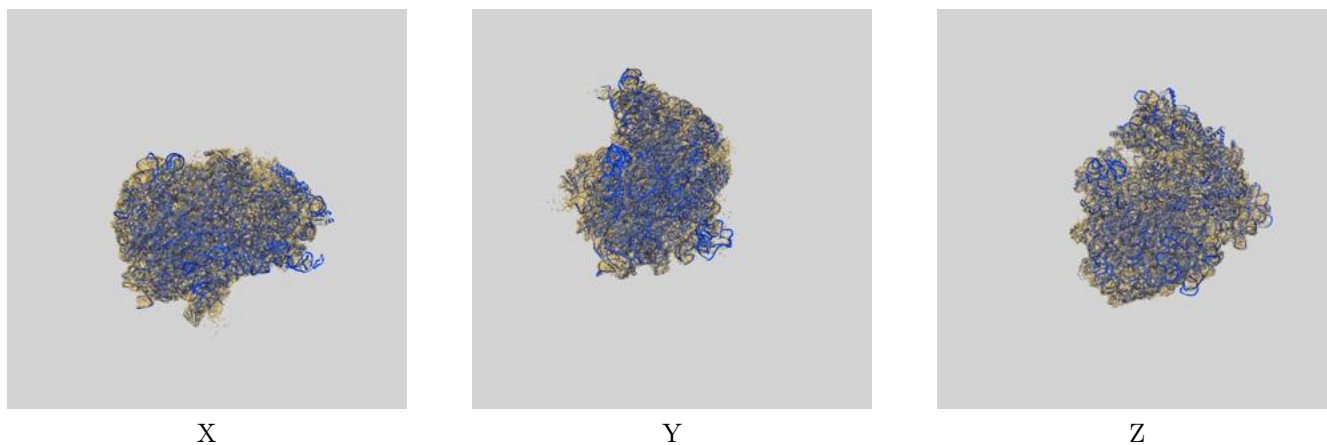
The images above show the 3D surface view of the map at the recommended contour level 6.0 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ

X   Y   Z
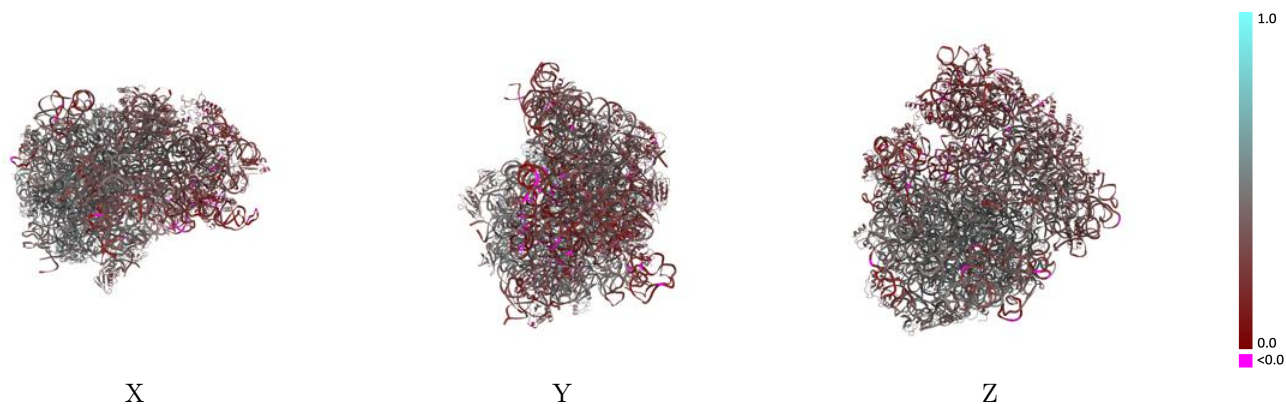
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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
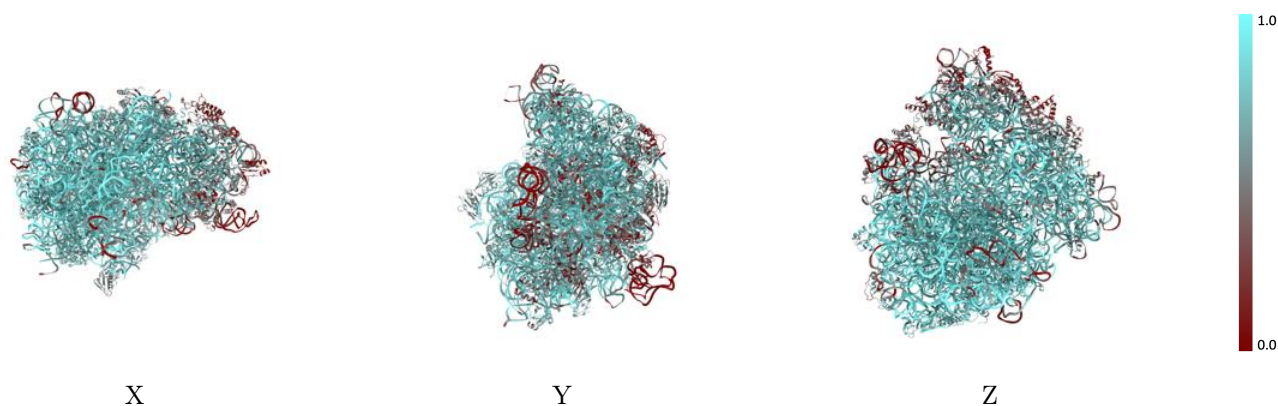
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (6).

WORLDWIDE
wwPDB
PROTEIN DATA BANK
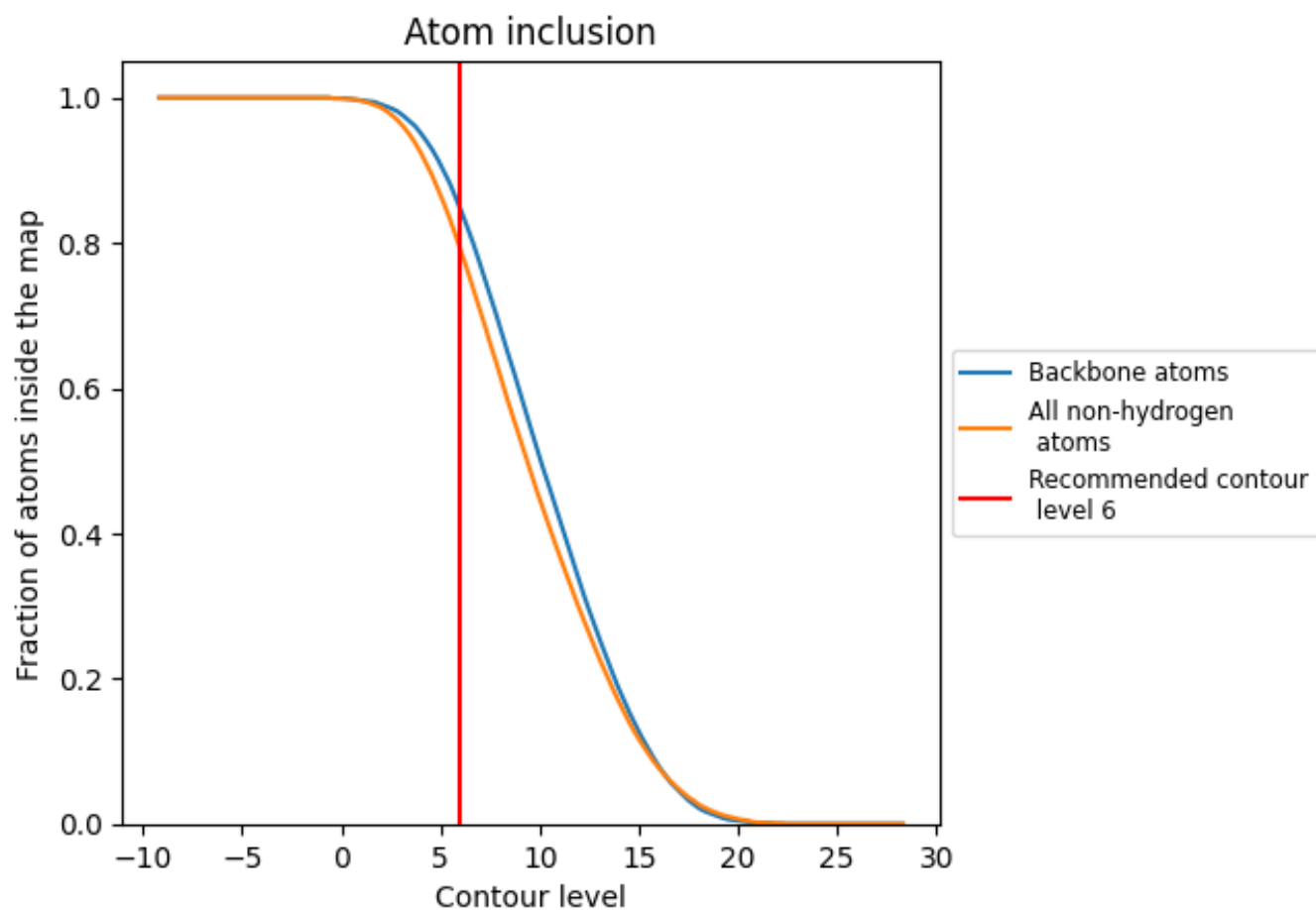
9.4 Atom inclusion ⓘ

At the recommended contour level, 85% of all backbone atoms, 79% 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 (6) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7920	0.3850
1	0.8080	0.3310
2	0.8790	0.4250
3	0.8290	0.3480
4	0.3700	0.1060
5	0.6180	0.2380
A	0.8480	0.4640
AA	0.9320	0.4860
AB	0.8620	0.4650
AC	0.8320	0.4320
B	0.8030	0.4750
C	0.7450	0.4490
D	0.4620	0.2700
E	0.6090	0.3710
G	0.4110	0.3160
H	0.8320	0.4730
I	0.8320	0.4750
J	0.8140	0.4700
K	0.8380	0.4630
L	0.8470	0.4740
M	0.6680	0.3500
N	0.8040	0.4520
O	0.8460	0.4690
P	0.7580	0.4700
Q	0.8210	0.4680
R	0.7940	0.4480
S	0.7470	0.4570
T	0.7010	0.4250
U	0.8410	0.4900
V	0.8450	0.4470
W	0.7220	0.4190
X	0.7850	0.4630
Y	0.8350	0.4720
Z	0.3710	0.3860
a	0.3310	0.2980

1.0

0.0
<0.0

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
b	0.5120	0.2990
c	0.4850	0.2900
d	0.7150	0.3810
e	0.5380	0.3210
f	0.3630	0.2040
g	0.6530	0.3520
h	0.3810	0.2370
i	0.3320	0.2660
j	0.6190	0.3170
k	0.6770	0.3500
l	0.3780	0.2020
m	0.4990	0.2650
n	0.6780	0.3400
o	0.6540	0.3650
p	0.7190	0.3750
q	0.6620	0.3500
r	0.3450	0.2450
s	0.7250	0.3240
t	0.5280	0.3200