



wwPDB EM Validation Summary Report ⓘ

Mar 8, 2026 – 05:39 AM UTC

PDB ID : 5OPT / pdb_00005opt
EMDB ID : EMD-3844
Title : Structure of KSRP in context of Trypanosoma cruzi 40S
Authors : Brito Querido, J.; Mancera-Martinez, E.; Vicens, Q.; Bochler, A.; Chicher, J.; Simonetti, A.; Hashem, Y.
Deposited on : 2017-08-10
Resolution : 4.00 Å(reported)

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

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A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

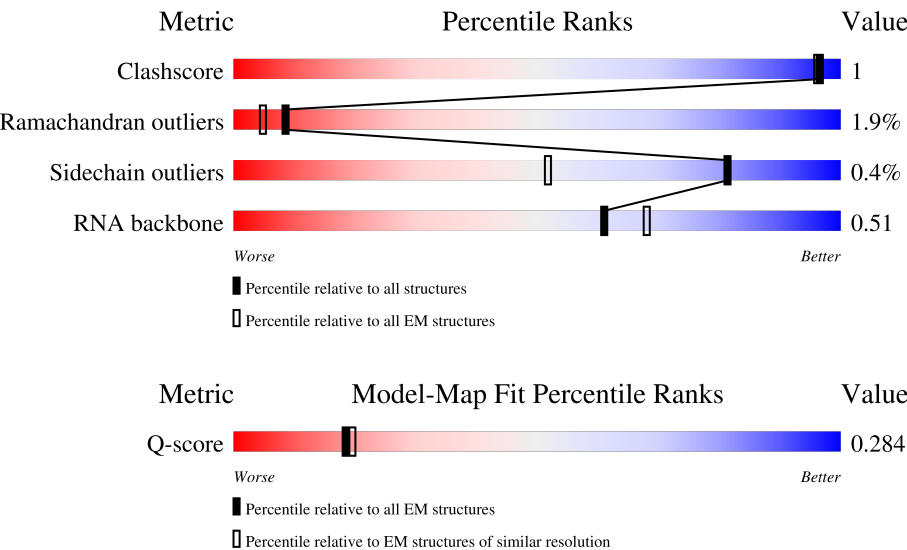
EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

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 4.00 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	7587 (3.50 - 4.50)

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

Mol	Chain	Length	Quality of chain
1	p	318	<div><div>85%</div><div>94%</div><div></div><div></div><div></div></div>
2	q	57	<div><div>37%</div><div>60%</div><div>7%</div><div>33%</div><div></div></div>
3	r	149	<div><div>50%</div><div>77%</div><div>15%</div><div>6%</div><div></div></div>

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Mol	Chain	Length	Quality of chain
4	t	152	
5	u	153	
6	L	273	
7	M	143	
8	O	190	
9	Q	211	
10	R	151	
11	S	86	
12	T	112	
13	U	112	
14	V	144	
15	W	261	
16	X	173	
17	Y	137	
18	Z	221	
19	b	190	
20	f	245	
21	d	263	
22	e	130	
23	g	236	
24	a	110	
25	i	141	
26	j	150	
27	P	250	
28	k	196	

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Mol	Chain	Length	Quality of chain
29	l	117	
30	m	214	
31	n	161	
32	o	167	
33	c	66	
34	h	257	
35	E	2319	

2 Entry composition

There are 35 unique types of molecules in this entry. The entry contains 82219 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Activated protein kinase C receptor, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	p	310	Total	C	N	O	S	0	0
			2405	1505	424	463	13		

- Molecule 2 is a protein called Ribosomal protein S29, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	q	38	Total	C	N	O	S	0	0
			311	191	64	52	4		

- Molecule 3 is a protein called 40S ribosomal protein S16, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	r	140	Total	C	N	O	S	0	0
			1113	706	212	192	3		

- Molecule 4 is a protein called 40S ribosomal protein S15, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	t	119	Total	C	N	O	S	0	0
			969	615	185	165	4		

- Molecule 5 is a protein called 40S ribosomal protein S18, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	u	120	Total	C	N	O	S	0	0
			981	614	194	169	4		

- Molecule 6 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	L	258	Total	C	N	O	S	0	0
			2038	1290	383	354	11		

- Molecule 7 is a protein called 40S ribosomal protein S23, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	M	142	Total	C	N	O	S	0	0
			1116	706	220	188	2		

- Molecule 8 is a protein called 40S ribosomal protein S5, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	O	190	Total	C	N	O	S	0	0
			1493	932	286	269	6		

- Molecule 9 is a protein called Ribosomal protein S7, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	Q	200	Total	C	N	O	S	0	0
			1670	1063	324	277	6		

- Molecule 10 is a protein called 40S ribosomal protein S13, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	R	141	Total	C	N	O	S	0	0
			1143	724	221	190	8		

- Molecule 11 is a protein called 40S ribosomal protein S27, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	S	82	Total	C	N	O	S	0	0
			630	384	121	116	9		

- Molecule 12 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	T	104	Total	C	N	O	S	0	0
			829	510	177	132	10		

- Molecule 13 is a protein called 40S ribosomal protein S33, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	U	68	Total	C	N	O	S	0	0
			526	315	107	100	4		

- Molecule 14 is a protein called 40S ribosomal protein S14, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	V	135	Total	C	N	O	S	0	0
			1011	620	195	187	9		

- Molecule 15 is a protein called 40S ribosomal protein S3a-2.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	W	217	Total	C	N	O	S	0	0
			1781	1124	337	313	7		

- Molecule 16 is a protein called 40S ribosomal protein S11, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	X	148	Total	C	N	O	S	0	0
			1212	760	239	207	6		

- Molecule 17 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Y	123	Total	C	N	O	S	0	0
			989	628	194	165	2		

- Molecule 18 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Z	175	Total	C	N	O	S	0	0
			1404	885	283	233	3		

- Molecule 19 is a protein called 40S ribosomal protein S9, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	b	164	Total	C	N	O	S	0	0
			1365	864	266	227	8		

- Molecule 20 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	f	207	Total	C	N	O	S	0	0
			1658	1060	299	288	11		

- Molecule 21 is a protein called 40S ribosomal protein S2, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	d	223	Total	C	N	O	S	0	0
			1726	1098	304	314	10		

- Molecule 22 is a protein called 40S ribosomal protein S15a, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	e	129	Total	C	N	O	S	0	0
			1019	647	188	176	8		

- Molecule 23 is a protein called 40S ribosomal protein S21, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	g	83	Total	C	N	O	S	0	0
			635	395	116	122	2		

- Molecule 24 is a protein called Ribosomal protein S25, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	a	70	Total	C	N	O	S	0	0
			553	356	97	97	3		

- Molecule 25 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	i	121	Total	C	N	O	S	0	0
			958	594	174	185	5		

- Molecule 26 is a protein called Ubiquitin/ribosomal protein S27a, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	j	64	Total	C	N	O	S	0	0
			518	324	98	90	6		

- Molecule 27 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	P	249	Total	C	N	O	S	0	0
			1983	1244	402	333	4		

- Molecule 28 is a protein called 40S ribosomal protein S17, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	k	118	Total	C	N	O	S	0	0
			972	610	187	170	5		

- Molecule 29 is a protein called Ribosomal protein S20, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	l	99	Total	C	N	O	S	0	0
			784	497	144	140	3		

- Molecule 30 is a protein called 40S ribosomal protein S3, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	m	200	Total	C	N	O	S	0	0
			1587	995	302	279	11		

- Molecule 31 is a protein called 40S ribosomal protein S10, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	n	93	Total	C	N	O	S	0	0
			780	508	136	132	4		

- Molecule 32 is a protein called Ribosomal protein S19, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	o	140	Total	C	N	O	S	0	0
			1116	702	221	185	8		

- Molecule 33 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	c	60	Total	C	N	O	S	0	0
			480	303	98	78	1		

- Molecule 34 is a protein called RNA-binding protein, putative.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	h	173	Total	C	N	O	S	0	0
			1358	862	259	234	3		

- Molecule 35 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	E	2022	Total	C	N	O	P	0	0
			43106	19268	7710	14111	2017		

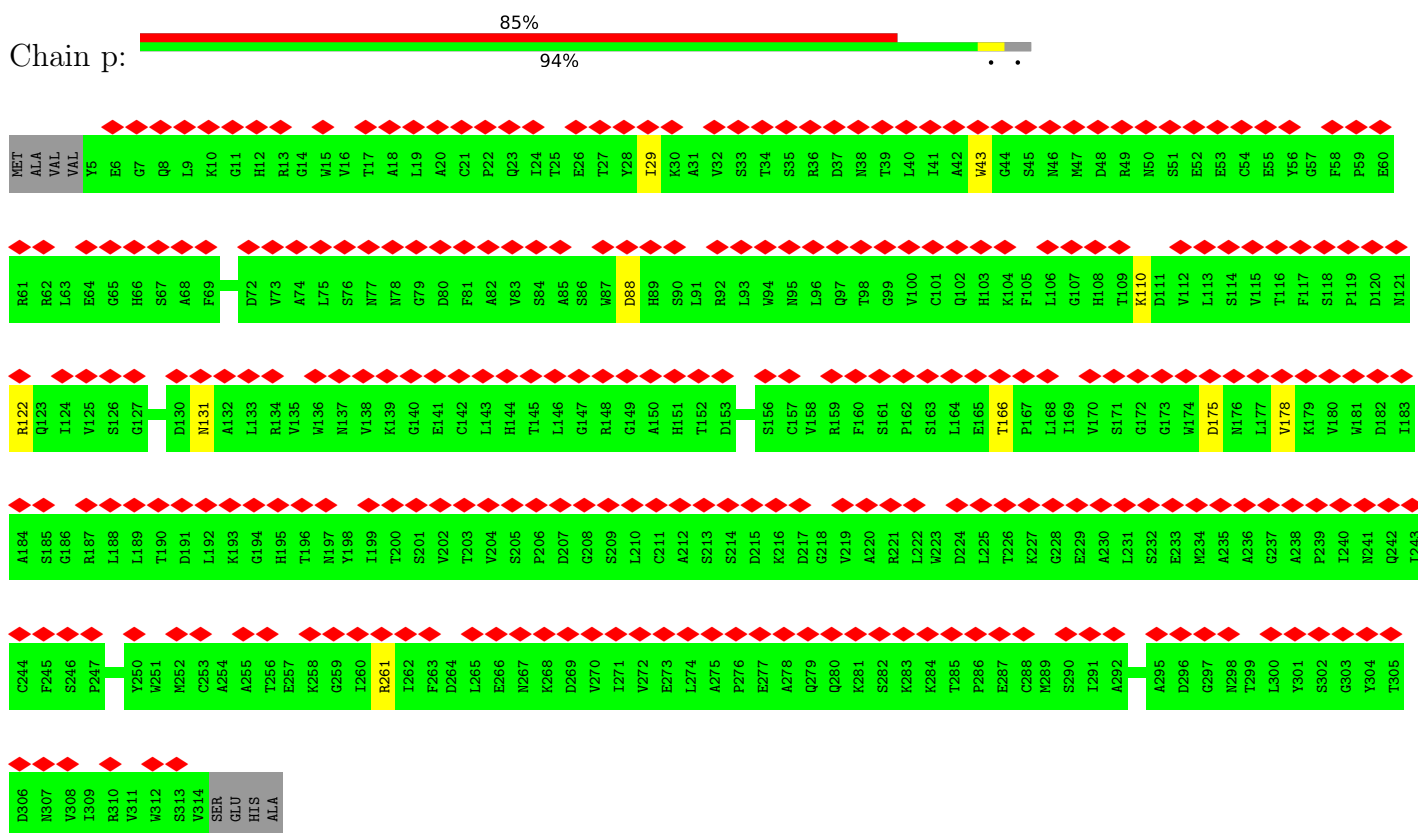
There are 5 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
E	143	C	A	conflict	GB 320364483
E	805	C	U	conflict	GB 320364483
E	2316	U	-	insertion	GB 320364483
E	2317	U	-	insertion	GB 320364483
E	2318	U	-	insertion	GB 320364483

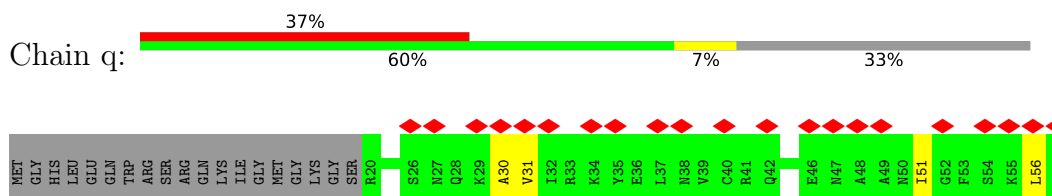
3 Residue-property plots

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: Activated protein kinase C receptor, putative

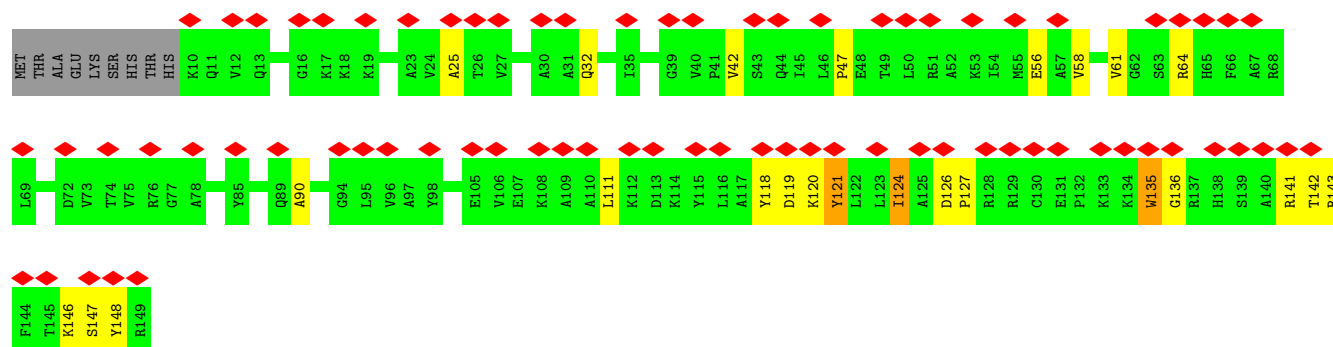


- Molecule 2: Ribosomal protein S29, putative

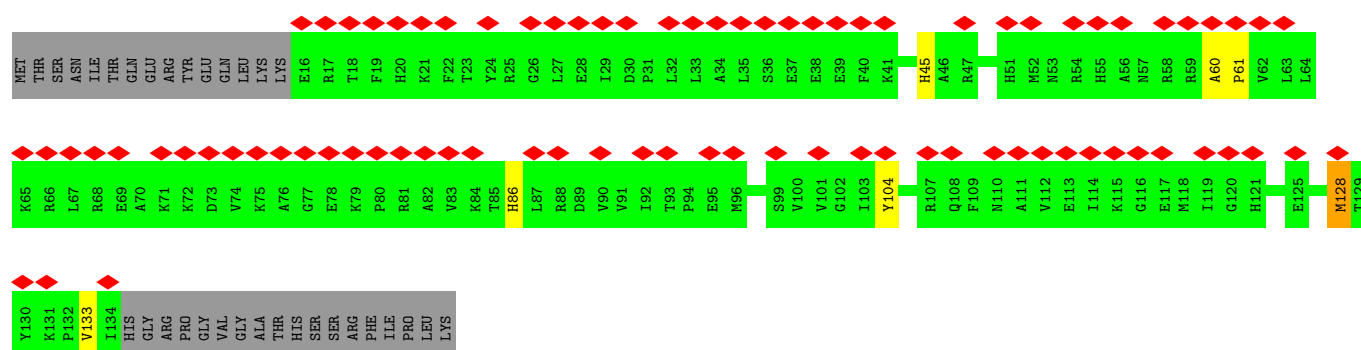


- Molecule 3: 40S ribosomal protein S16, putative

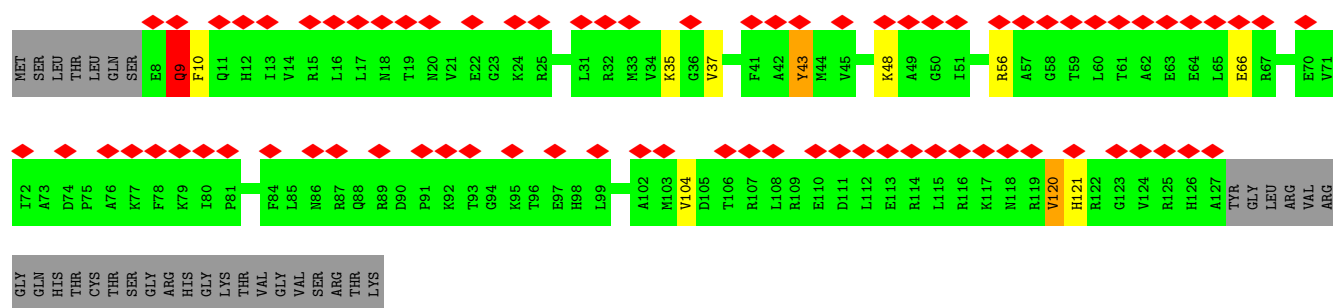




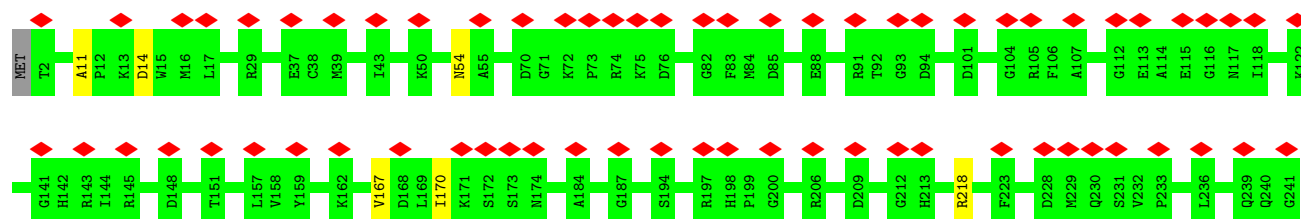
- Molecule 4: 40S ribosomal protein S15, putative

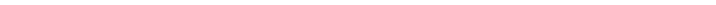


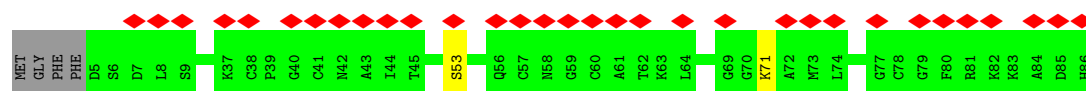
- Molecule 5: 40S ribosomal protein S18, putative



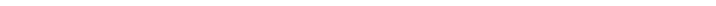
- Molecule 6: 40S ribosomal protein S4

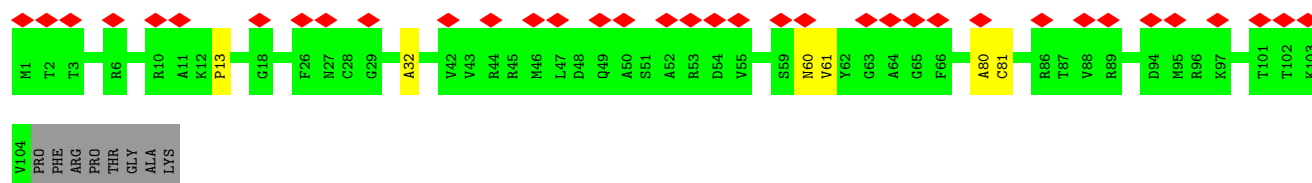


Chain S:  37% 93% 5%

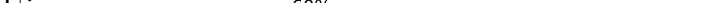


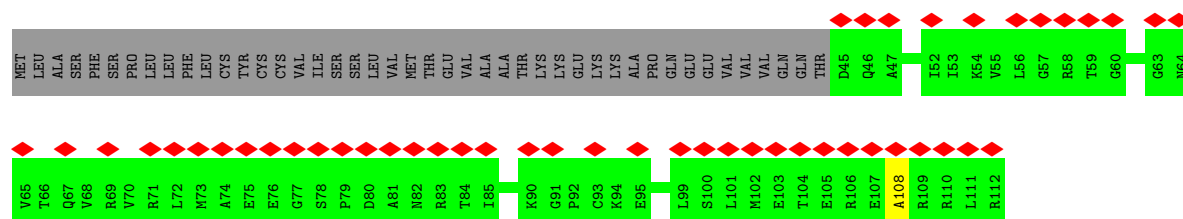
- Molecule 12: 40S ribosomal protein S26

Chain T:  32% 88% 5% 7%



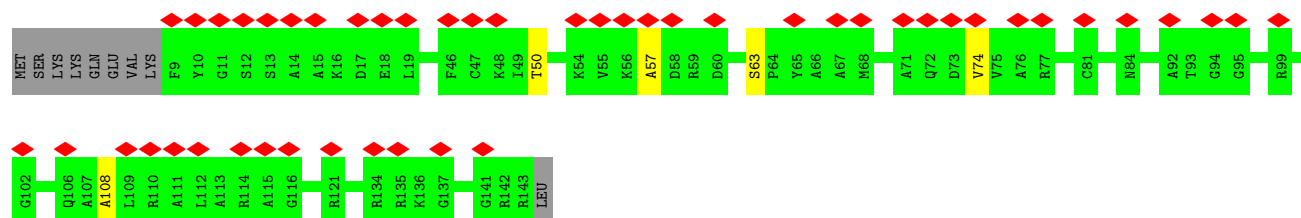
- Molecule 13: 40S ribosomal protein S33, putative

Chain U:  43% 60% 39%




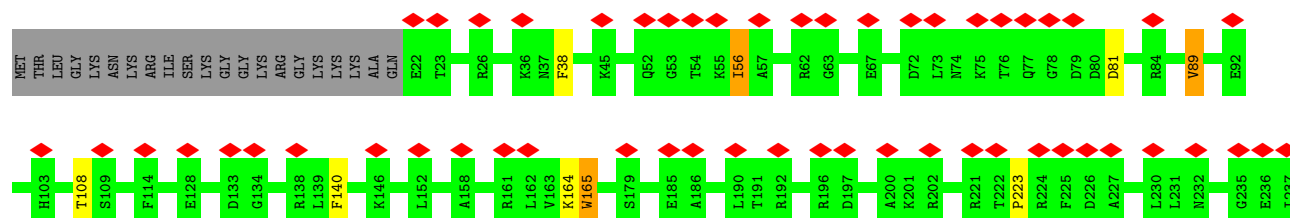
- Molecule 14: 40S ribosomal protein S14, putative

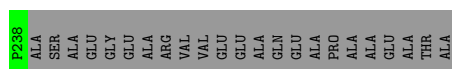
Chain V:  33% 90% 6%



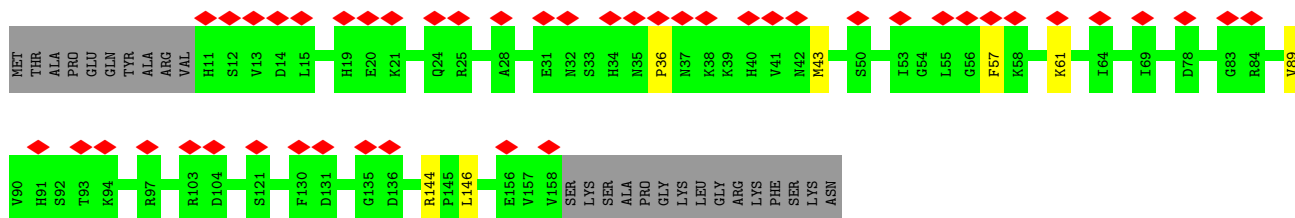
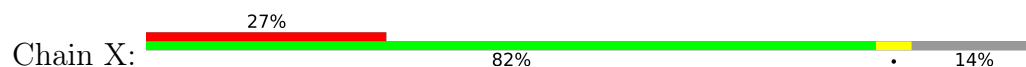
- Molecule 15: 40S ribosomal protein S3a-2

Chain W:  21% 80% 17%

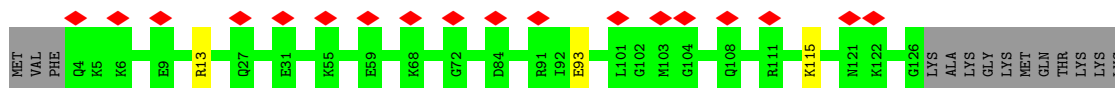
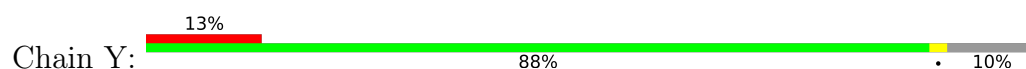




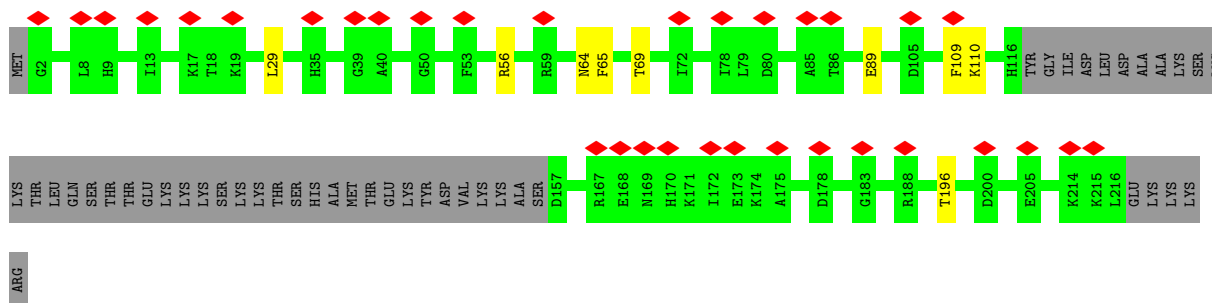
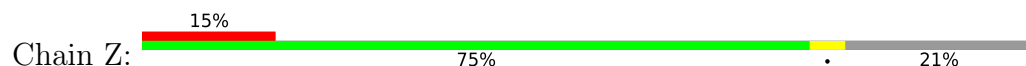
- Molecule 16: 40S ribosomal protein S11, putative



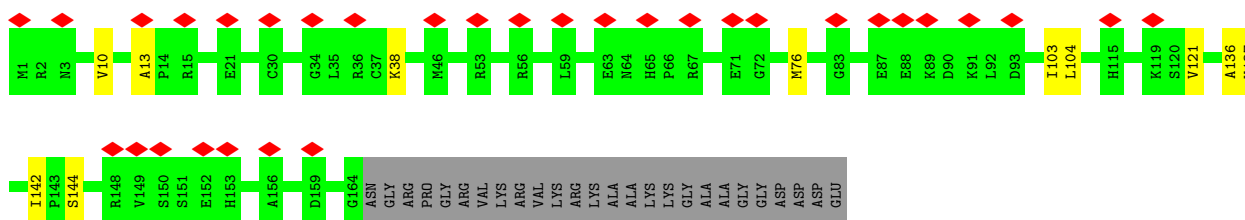
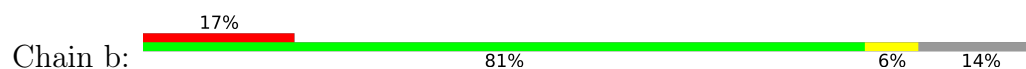
- Molecule 17: 40S ribosomal protein S24



- Molecule 18: 40S ribosomal protein S8

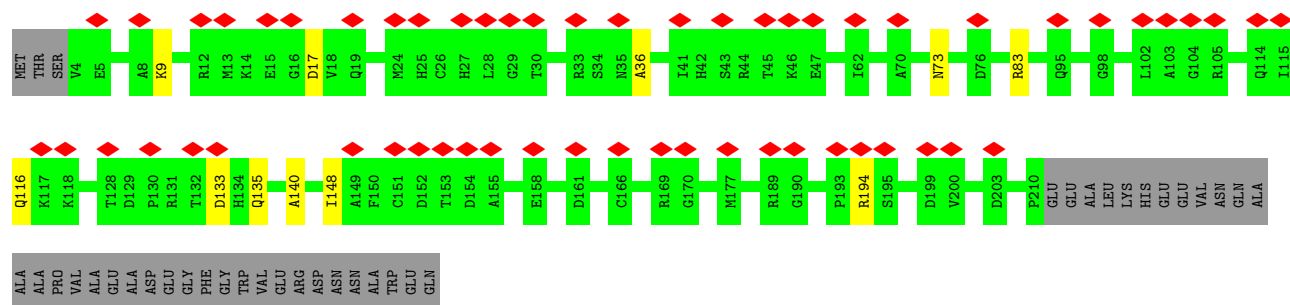


- Molecule 19: 40S ribosomal protein S9, putative

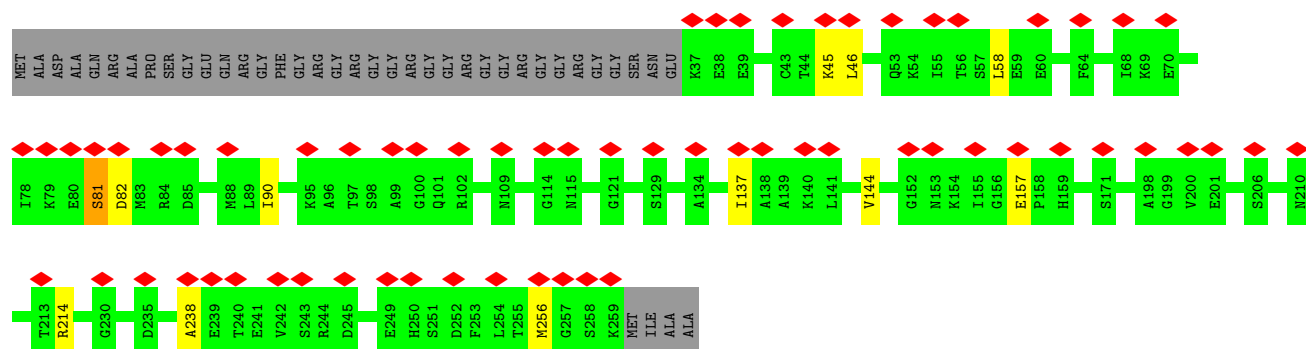
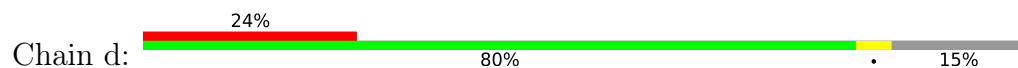


- Molecule 20: 40S ribosomal protein SA

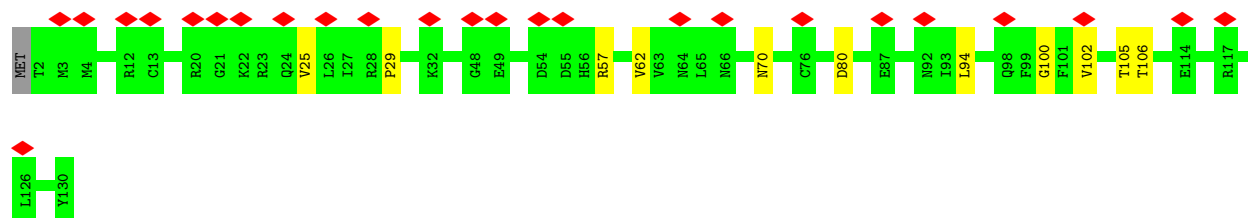




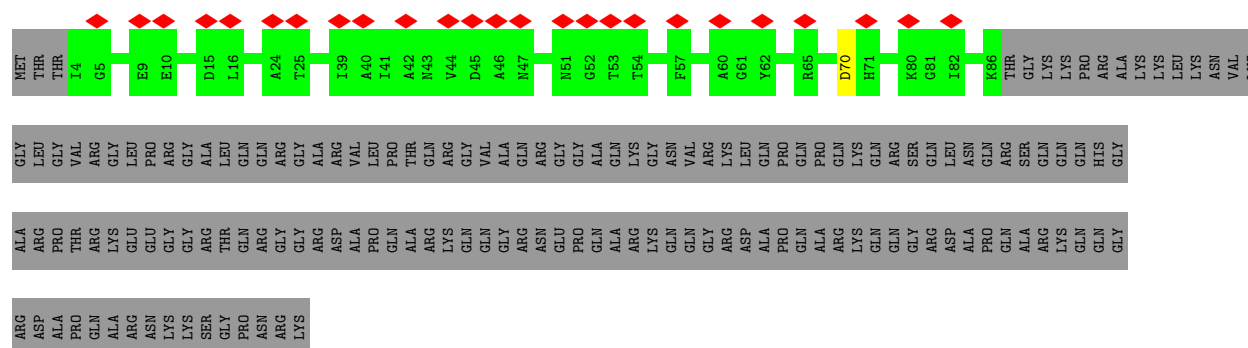
- Molecule 21: 40S ribosomal protein S2, putative



- Molecule 22: 40S ribosomal protein S15a, putative



- Molecule 23: 40S ribosomal protein S21, putative



Chain a:

40% 55% 6% 36%

MET PRO PRO PRO LYS LYS ASN LYS LYS THR LYS PRO ALA PRO LYS LYS LYS LYS LYS MET ASN MET ASN LYS GLY GLY ALA LYS LYS ALA LYS TRP SER LYS GLY ARG THR ARG GLU A41 L42 Q43 M44 A45 V46 V47 F48 D49 K50 E51 T52 M53 D54 E59 V60 P61 K62 V63

K64 V65 I66 T67 P68 I71 S72 D73 R74 L75 K76 I77 A80 L81 A82 A83 K84 H88 L89 C90 R91 Q92 K93 L94 I95 K96 S99 C100 S101 S102 K103 F104 R105 L106 Y107 S108 R109 V110

Chain i:

Amino Acid	Position
A122	122
V123	123
R124	124
D125	125
F126	126
G127	127
E128	128
R129	129
T130	130
R131	131
A132	132
L133	133
E134	134
F135	135
L136	136
L137	137
S138	138
H139	139
L140	140
R141	141
C62	62
V63	63
L64	64
A65	65
E66	66
D67	67
C68	68
E69	69
D70	70
E71	71
E72	72
Y73	73
K74	74
K75	75
L76	76
I77	77
T78	78
A79	79
L80	80
A81	81
K82	82
Q83	83
G84	84
E85	85
V86	86
D87	87
L88	88
I89	89
N90	90
V91	91
E92	92
E93	93
R94	94
E95	95
K96	96
L97	97
A98	98
Q99	99
W100	100
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G102	102
L103	103
T104	104
K105	105
M106	106
D107	107
S108	108
T109	109
G110	110
E111	111
L112	112
K113	113
K114	114
T115	115
F116	116
K117	117
C118	118
S119	119
G120	120
V121	121
MET	1
ALA	2
GLU	3
THR	4
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VAL	6
LEU	7
GLU	8
VAL	9
SER	10
PRO	11
ALA	12
VAL	13
VAL	14
ASP	15
ALA	16
VAL	17
MET	18
ASP	19
A21	21
T22	22
P23	23
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L26	26
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D28	28
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Q35	35
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I44	44
R45	45
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V50	50
A51	51
R52	52
A53	53
L54	54
D55	55
R56	56
R57	57
T58	58
A59	59
H60	60
L61	61

Chain j:

35% 37% 6% 57%

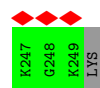
Residue	Count
MET	1
GLN	1
ILE	1
PHE	1
VAL	1
LYS	1
SER	1
ALA	1
ALA	1
GLY	1
LYS	1
THR	1
SER	1
ALA	1
GLN	1
GLU	1
THR	1
VAL	1
ALA	1
ALA	1
SER	1
LEU	1
LYS	1
SER	1
LYS	1
ALA	1
GLY	1
VAL	1
CYS	1
ASP	1
GLY	1
THR	1
LEU	1
PHE	1
TYR	1
GLY	1
GLY	1
HIS	1
CYS	1
LEU	1
CYS	1
ASP	1
GLU	1
ALA	1
THR	1
LEU	1
ALA	1
ASP	1
TYR	1
GLY	1
LEU	1
GLN	1
ARG	1
GLU	1
SER	1
THR	1

Residue	Count
ILE	1
GLN	1
VAL	1
MET	1
LEU	1
PRO	1
VAL	1
GLU	1
GLY	1
LYS	1
GLY	1
LYS	1
GLY	1
LYS	1
VAL	1
PHE	1
THR	1
LYS	1
PRO	1
LYS	1
LYS	1
P86	1
T87	1
H88	1
R89	1
H90	1
K91	1
L92	1
E93	1
K94	1
M95	1
R96	1
A97	1
L98	1
K99	1
Y100	1
F101	1
K102	1
V103	1
T104	1
E105	1
M106	1
D107	1
D108	1
G109	1
S110	1
F111	1
K112	1
V113	1
E114	1
R115	1
T116	1
R117	1
D118	1
E119	1
T120	1

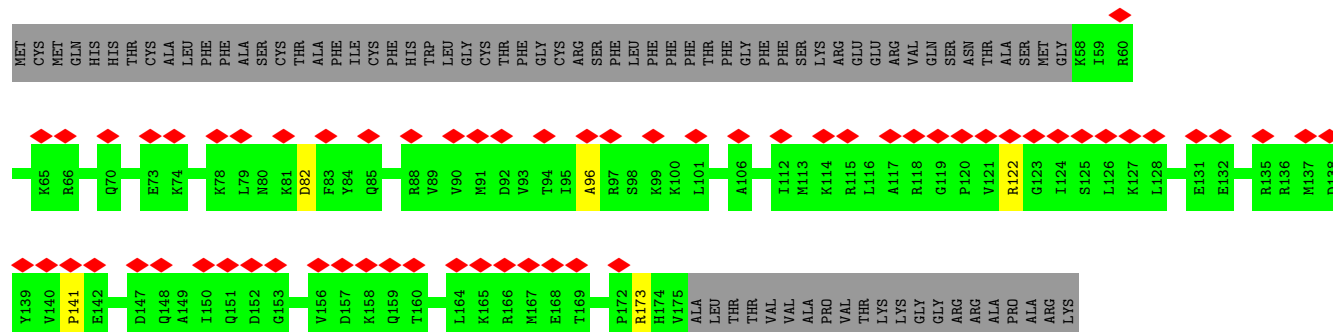
Residue	Count
P121	1
N122	1
P123	1
V124	1
C125	1
G126	1
A127	1
Q133	1
H134	1
K135	1
D136	1
R137	1
K138	1
Y139	1
G140	1
H144	1
L145	1
T146	1
Y147	1
A148	1
A149	1
LYS	1

Chain P:

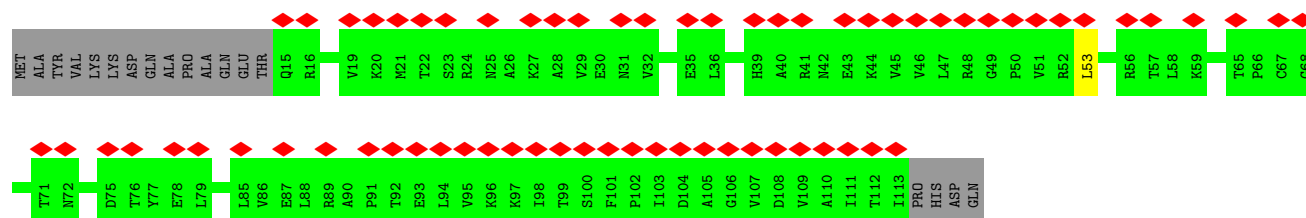
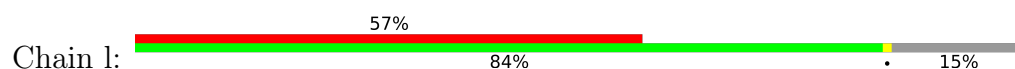
Segment Color	Percentage
Red	27%
Green	94%
Yellow	5%



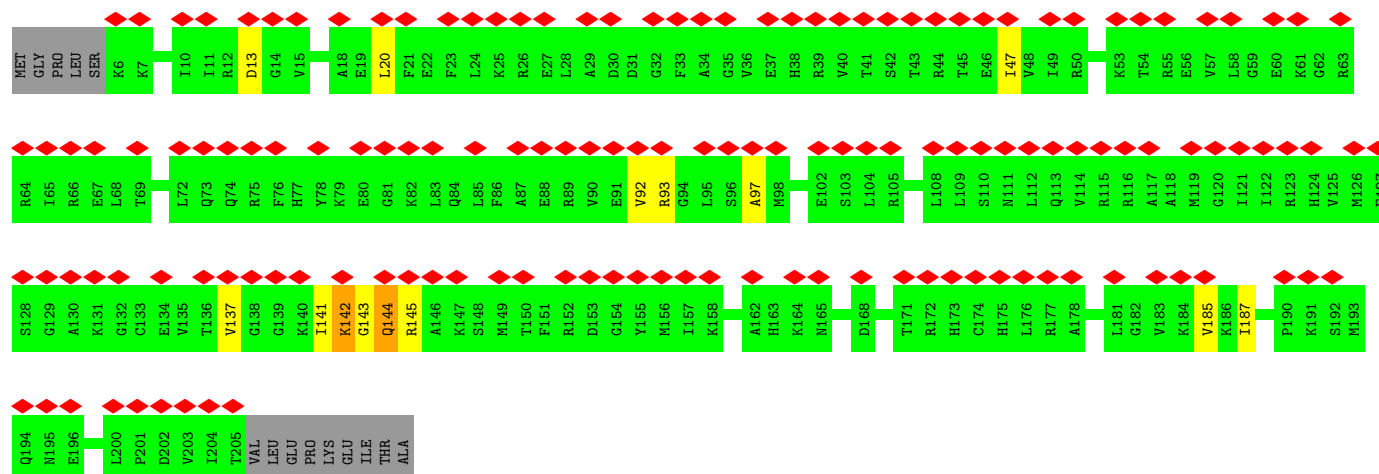
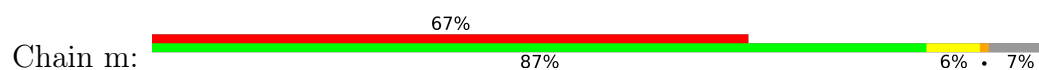
- Molecule 28: 40S ribosomal protein S17, putative



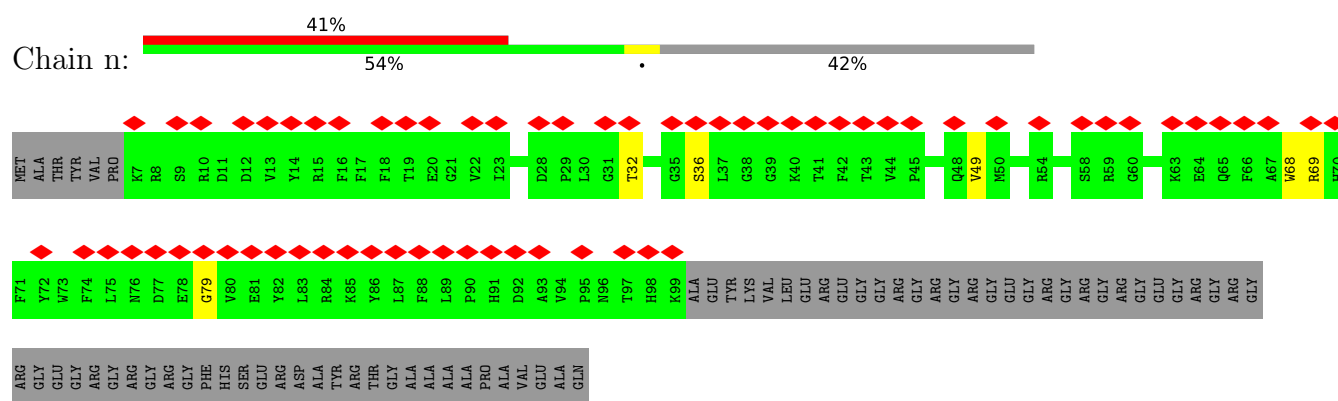
- Molecule 29: Ribosomal protein S20, putative



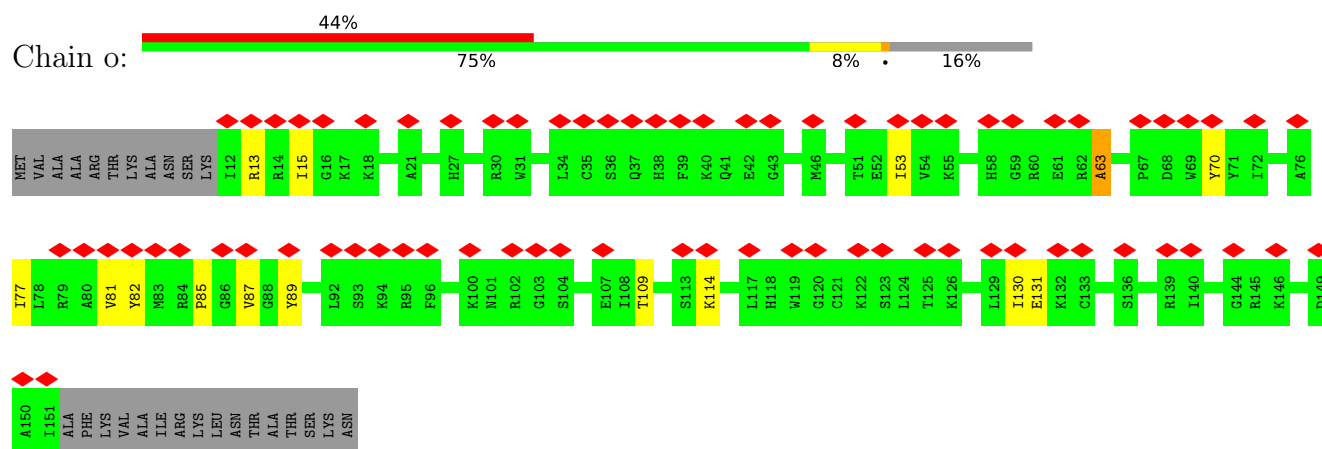
- Molecule 30: 40S ribosomal protein S3, putative



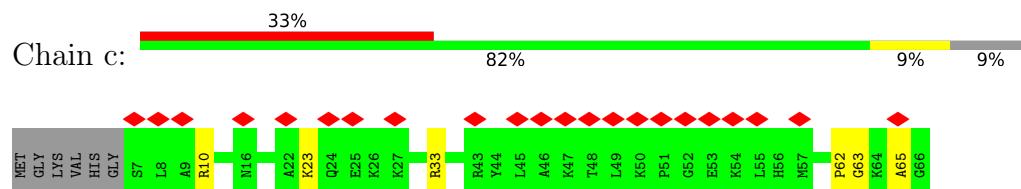
- Molecule 31: 40S ribosomal protein S10, putative



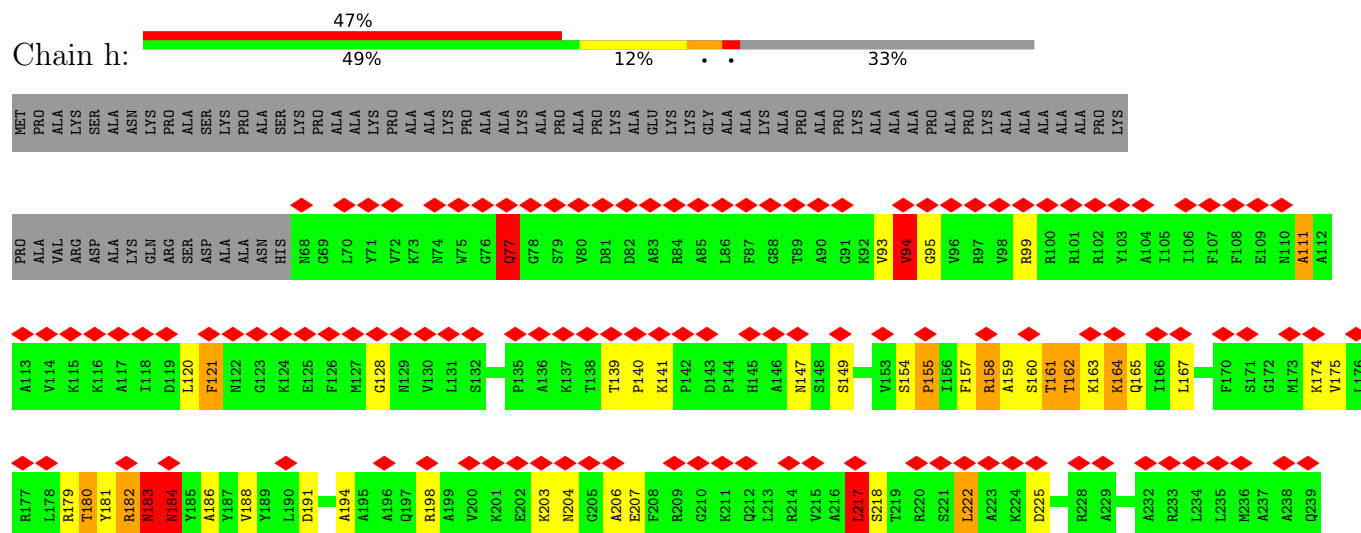
- Molecule 32: Ribosomal protein S19, putative



- Molecule 33: 40S ribosomal protein S30

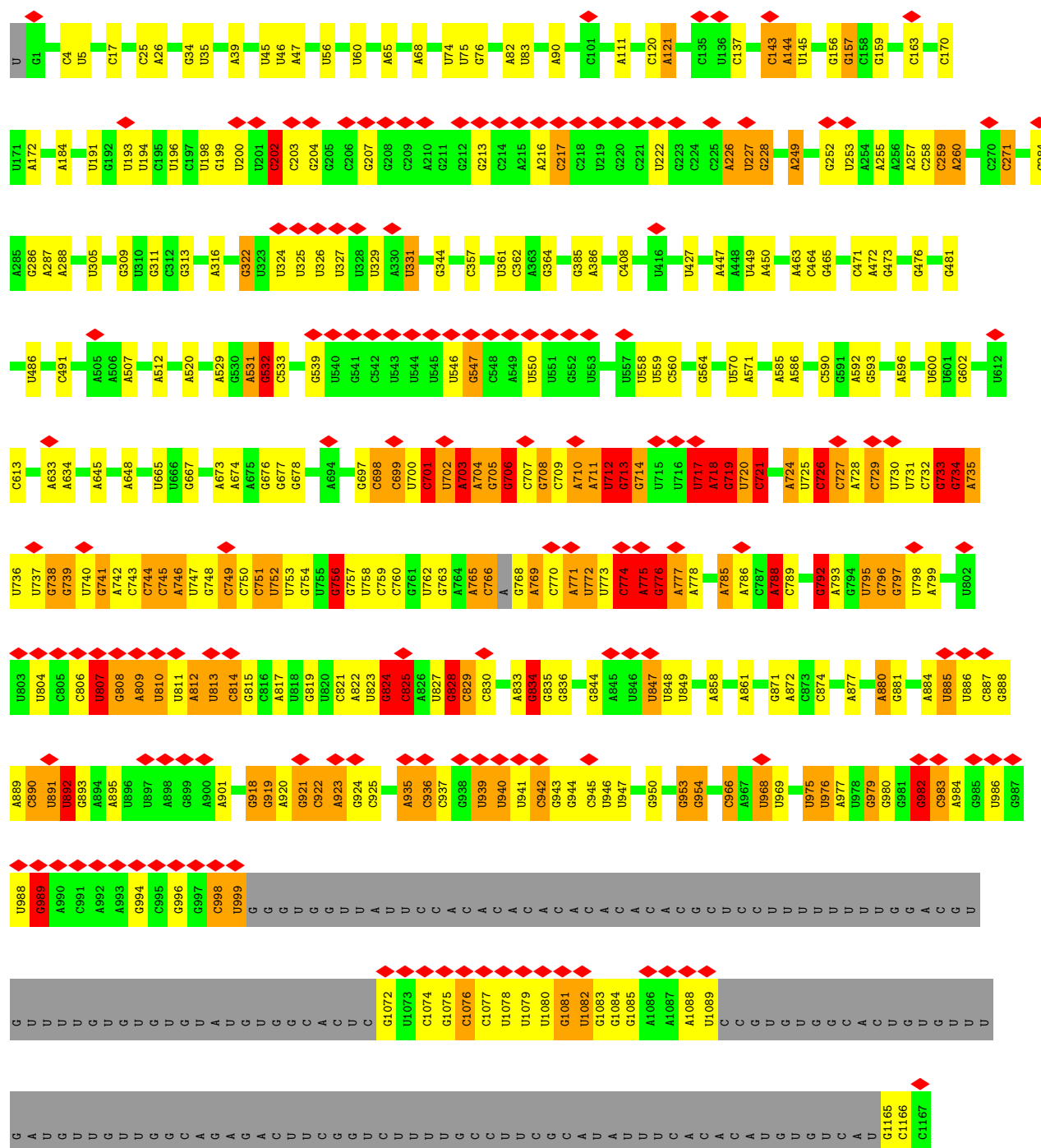


- Molecule 34: RNA-binding protein, putative





• Molecule 35: 18S rRNA





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	86000	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 ($e^-/\text{\AA}^2$)	2.2	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.257	Depositor
Minimum map value	-0.132	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.0549	Depositor
Map size (Å)	499.19998, 499.19998, 499.19998	wwPDB
Map dimensions	320, 320, 320	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.56, 1.56, 1.56	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	p	1.23	0/2461	1.35	3/3347 (0.1%)
2	q	1.36	0/314	1.45	2/416 (0.5%)
3	r	1.29	0/1131	1.63	14/1520 (0.9%)
4	t	1.29	0/988	1.57	2/1325 (0.2%)
5	u	1.32	0/996	1.65	10/1334 (0.7%)
6	L	1.29	0/2073	1.41	8/2787 (0.3%)
7	M	1.27	0/1137	1.45	3/1520 (0.2%)
8	O	1.26	0/1515	1.59	8/2034 (0.4%)
9	Q	1.33	0/1703	1.57	17/2290 (0.7%)
10	R	1.28	0/1164	1.64	11/1559 (0.7%)
11	S	1.28	0/641	1.43	0/858
12	T	1.40	0/845	1.54	10/1129 (0.9%)
13	U	1.43	0/527	1.32	0/702
14	V	1.31	0/1026	1.51	8/1376 (0.6%)
15	W	1.30	0/1809	1.47	10/2437 (0.4%)
16	X	1.31	0/1238	1.39	7/1662 (0.4%)
17	Y	1.28	0/1004	1.48	5/1335 (0.4%)
18	Z	1.36	0/1424	1.45	7/1904 (0.4%)
19	b	1.31	0/1394	1.60	13/1874 (0.7%)
20	f	1.24	0/1693	1.56	15/2290 (0.7%)
21	d	1.22	0/1760	1.57	18/2376 (0.8%)
22	e	1.27	0/1037	1.54	5/1391 (0.4%)
23	g	1.23	0/644	1.42	2/875 (0.2%)
24	a	1.18	0/559	1.58	2/748 (0.3%)
25	i	1.24	0/966	1.43	2/1295 (0.2%)
26	j	1.28	0/530	1.47	3/707 (0.4%)
27	P	1.35	0/2008	1.51	18/2678 (0.7%)
28	k	1.27	0/985	1.55	3/1313 (0.2%)
29	l	1.28	0/794	1.42	2/1076 (0.2%)
30	m	1.32	0/1606	1.57	13/2141 (0.6%)
31	n	1.20	0/804	1.60	5/1082 (0.5%)
32	o	1.27	0/1140	1.65	13/1524 (0.9%)
33	c	1.23	0/488	1.55	5/644 (0.8%)
34	h	1.30	0/1381	1.67	23/1857 (1.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
35	E	0.91	1/48215 (0.0%)	1.13	169/75140 (0.2%)
All	All	1.10	1/88000 (0.0%)	1.31	436/128546 (0.3%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	p	0	3
3	r	0	7
4	t	0	2
5	u	0	4
8	O	0	3
9	Q	0	3
15	W	0	1
18	Z	0	1
22	e	0	1
24	a	0	2
26	j	0	1
27	P	0	2
28	k	0	1
30	m	0	2
32	o	0	2
33	c	0	2
34	h	0	22
35	E	4	121
All	All	4	180

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
35	E	734	G	N9-C4	-5.42	1.27	1.38

The worst 5 of 436 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
35	E	774	C	P-O3'-C3'	29.99	165.19	120.20
35	E	1187	C	P-O3'-C3'	26.78	160.37	120.20
35	E	703	A	P-O3'-C3'	18.68	148.22	120.20
35	E	975	U	O3'-P-O5'	18.32	131.48	104.00
35	E	531	A	P-O3'-C3'	17.55	146.52	120.20

All (4) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
35	E	325	U	C3'
35	E	702	U	C1'
35	E	810	U	C3'
35	E	1903	A	C3'

5 of 180 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	p	110	LYS	Peptide
1	p	261	ARG	Sidechain
1	p	43	TRP	Peptide
3	r	32	GLN	Peptide
3	r	42	VAL	Peptide

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	p	2405	0	2323	0	0
2	q	311	0	319	0	0
3	r	1113	0	1175	3	0
4	t	969	0	1003	0	0
5	u	981	0	1021	2	0
6	L	2038	0	2142	0	0
7	M	1116	0	1169	0	0
8	O	1493	0	1562	0	0
9	Q	1670	0	1778	1	0
10	R	1143	0	1226	1	0
11	S	630	0	630	0	0
12	T	829	0	866	0	0
13	U	526	0	550	0	0
14	V	1011	0	1019	0	0
15	W	1781	0	1853	0	0
16	X	1212	0	1250	0	0
17	Y	989	0	1065	0	0
18	Z	1404	0	1503	1	0
19	b	1365	0	1410	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
20	f	1658	0	1704	0	0
21	d	1726	0	1774	0	0
22	e	1019	0	1050	2	0
23	g	635	0	631	0	0
24	a	553	0	608	1	0
25	i	958	0	981	0	0
26	j	518	0	513	1	0
27	P	1983	0	2131	0	0
28	k	972	0	1031	1	0
29	l	784	0	848	0	0
30	m	1587	0	1662	0	0
31	n	780	0	771	0	0
32	o	1116	0	1166	0	0
33	c	480	0	532	0	0
34	h	1358	0	1419	4	0
35	E	43106	0	21756	88	0
All	All	82219	0	62441	102	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 1.

The worst 5 of 102 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
35:E:725:U:H3	35:E:733:G:H1	1.12	0.96
35:E:1849:U:H3	35:E:1869:G:H1	1.26	0.83
35:E:207:G:H1	35:E:222:U:H3	1.30	0.78
35:E:2220:G:H1	35:E:2232:U:H3	1.32	0.77
35:E:711:A:N1	35:E:746:A:N1	2.33	0.77

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	p	308/318 (97%)	288 (94%)	18 (6%)	2 (1%)	21	57
2	q	36/57 (63%)	28 (78%)	6 (17%)	2 (6%)	1	17
3	r	138/149 (93%)	113 (82%)	18 (13%)	7 (5%)	1	18
4	t	117/152 (77%)	105 (90%)	8 (7%)	4 (3%)	3	24
5	u	118/153 (77%)	102 (86%)	13 (11%)	3 (2%)	4	29
6	L	256/273 (94%)	239 (93%)	16 (6%)	1 (0%)	30	65
7	M	140/143 (98%)	131 (94%)	8 (6%)	1 (1%)	18	54
8	O	188/190 (99%)	165 (88%)	16 (8%)	7 (4%)	2	22
9	Q	198/211 (94%)	178 (90%)	16 (8%)	4 (2%)	6	33
10	R	139/151 (92%)	127 (91%)	11 (8%)	1 (1%)	18	54
11	S	80/86 (93%)	73 (91%)	5 (6%)	2 (2%)	4	29
12	T	102/112 (91%)	90 (88%)	12 (12%)	0	100	100
13	U	66/112 (59%)	62 (94%)	3 (4%)	1 (2%)	8	38
14	V	133/144 (92%)	116 (87%)	16 (12%)	1 (1%)	16	52
15	W	215/261 (82%)	200 (93%)	13 (6%)	2 (1%)	14	48
16	X	146/173 (84%)	133 (91%)	11 (8%)	2 (1%)	9	39
17	Y	121/137 (88%)	113 (93%)	8 (7%)	0	100	100
18	Z	171/221 (77%)	157 (92%)	12 (7%)	2 (1%)	10	42
19	b	162/190 (85%)	143 (88%)	17 (10%)	2 (1%)	10	42
20	f	205/245 (84%)	190 (93%)	12 (6%)	3 (2%)	8	38
21	d	221/263 (84%)	205 (93%)	14 (6%)	2 (1%)	14	48
22	e	127/130 (98%)	118 (93%)	8 (6%)	1 (1%)	16	52
23	g	81/236 (34%)	78 (96%)	3 (4%)	0	100	100
24	a	68/110 (62%)	58 (85%)	6 (9%)	4 (6%)	1	16
25	i	119/141 (84%)	111 (93%)	7 (6%)	1 (1%)	16	52
26	j	62/150 (41%)	47 (76%)	11 (18%)	4 (6%)	1	15
27	P	247/250 (99%)	226 (92%)	21 (8%)	0	100	100
28	k	116/196 (59%)	102 (88%)	13 (11%)	1 (1%)	14	48
29	l	97/117 (83%)	82 (84%)	15 (16%)	0	100	100
30	m	198/214 (92%)	179 (90%)	14 (7%)	5 (2%)	4	29

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
31	n	91/161 (56%)	83 (91%)	5 (6%)	3 (3%)	3	24
32	o	138/167 (83%)	112 (81%)	21 (15%)	5 (4%)	2	23
33	c	58/66 (88%)	53 (91%)	4 (7%)	1 (2%)	7	36
34	h	171/257 (66%)	123 (72%)	31 (18%)	17 (10%)	0	8
All	All	4833/5936 (81%)	4330 (90%)	412 (8%)	91 (2%)	8	34

5 of 91 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	r	121	TYR
3	r	124	ILE
5	u	120	VAL
9	Q	138	CYS
21	d	81	SER

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	
1	p	262/268 (98%)	260 (99%)	2 (1%)	73	77
2	q	34/49 (69%)	34 (100%)	0	100	100
3	r	113/121 (93%)	113 (100%)	0	100	100
4	t	102/131 (78%)	102 (100%)	0	100	100
5	u	104/132 (79%)	104 (100%)	0	100	100
6	L	217/230 (94%)	217 (100%)	0	100	100
7	M	116/117 (99%)	116 (100%)	0	100	100
8	O	160/160 (100%)	160 (100%)	0	100	100
9	Q	188/195 (96%)	187 (100%)	1 (0%)	81	82
10	R	125/132 (95%)	124 (99%)	1 (1%)	73	77
11	S	70/73 (96%)	70 (100%)	0	100	100
12	T	87/93 (94%)	87 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	U	57/97 (59%)	57 (100%)	0	100	100
14	V	103/112 (92%)	103 (100%)	0	100	100
15	W	194/223 (87%)	192 (99%)	2 (1%)	68	76
16	X	137/157 (87%)	137 (100%)	0	100	100
17	Y	104/116 (90%)	104 (100%)	0	100	100
18	Z	143/184 (78%)	143 (100%)	0	100	100
19	b	148/165 (90%)	148 (100%)	0	100	100
20	f	182/211 (86%)	182 (100%)	0	100	100
21	d	187/208 (90%)	187 (100%)	0	100	100
22	e	110/111 (99%)	109 (99%)	1 (1%)	70	76
23	g	68/186 (37%)	68 (100%)	0	100	100
24	a	64/96 (67%)	62 (97%)	2 (3%)	35	56
25	i	103/120 (86%)	102 (99%)	1 (1%)	68	76
26	j	55/123 (45%)	55 (100%)	0	100	100
27	P	204/205 (100%)	204 (100%)	0	100	100
28	k	108/172 (63%)	108 (100%)	0	100	100
29	l	89/104 (86%)	89 (100%)	0	100	100
30	m	167/179 (93%)	166 (99%)	1 (1%)	78	81
31	n	84/125 (67%)	84 (100%)	0	100	100
32	o	118/139 (85%)	117 (99%)	1 (1%)	73	77
33	c	49/53 (92%)	49 (100%)	0	100	100
34	h	138/191 (72%)	133 (96%)	5 (4%)	31	53
All	All	4190/4978 (84%)	4173 (100%)	17 (0%)	81	84

5 of 17 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
34	h	188	VAL
34	h	222	LEU
24	a	95	ILE
24	a	106	LEU
25	i	121	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 107 such sidechains are listed below:

Mol	Chain	Res	Type
16	X	30	ASN
20	f	73	ASN
32	o	49	ASN
17	Y	4	GLN
19	b	132	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
35	E	2017/2319 (86%)	439 (21%)	86 (4%)

5 of 439 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
35	E	4	C
35	E	5	U
35	E	17	C
35	E	25	C
35	E	26	A

5 of 86 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
35	E	1187	C
35	E	1903	A
35	E	1191	G
35	E	1712	U
35	E	2017	G

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

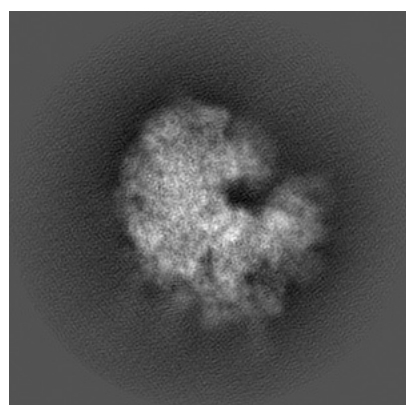
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-3844. These allow visual inspection of the internal detail of the map and identification of artifacts.

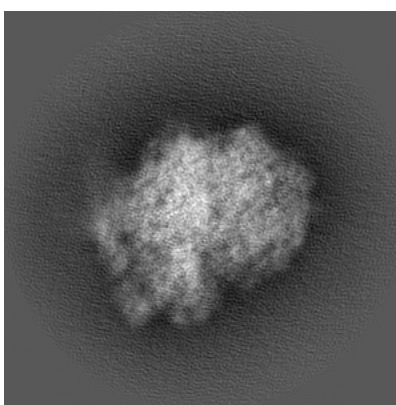
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

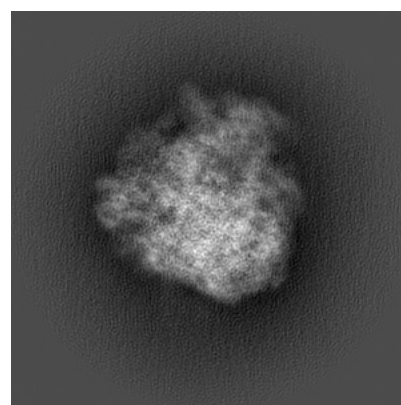
6.1.1 Primary map



X



Y

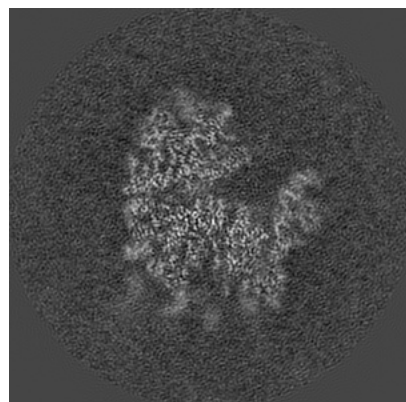


Z

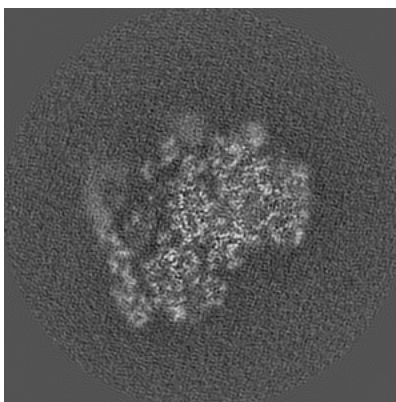
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

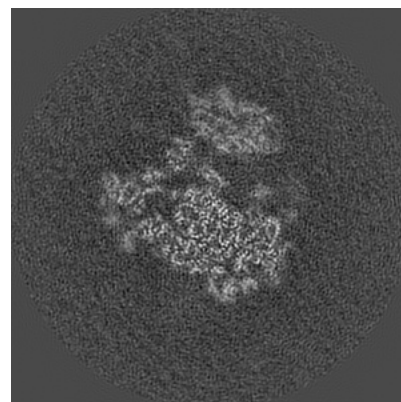
6.2.1 Primary map



X Index: 160



Y Index: 160

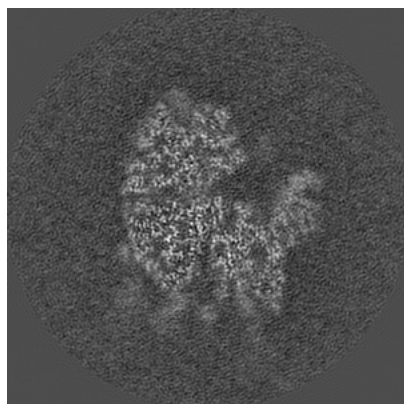


Z Index: 160

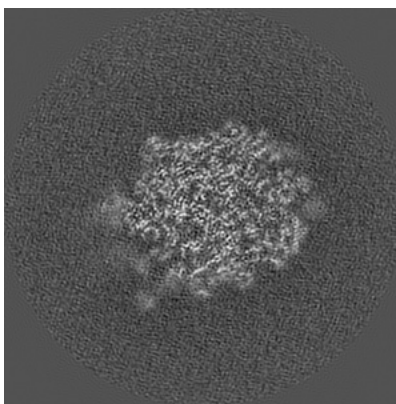
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

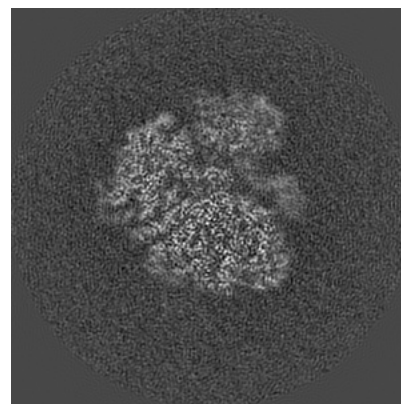
6.3.1 Primary map



X Index: 157



Y Index: 134

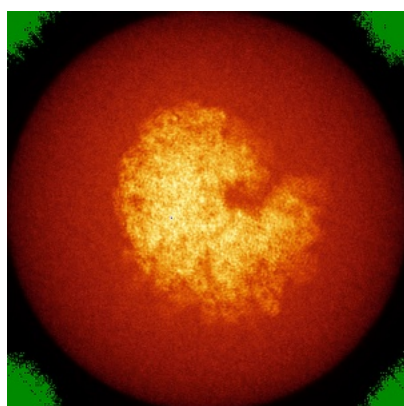


Z Index: 147

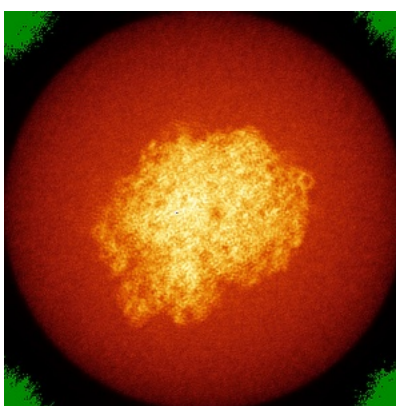
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) [i](#)

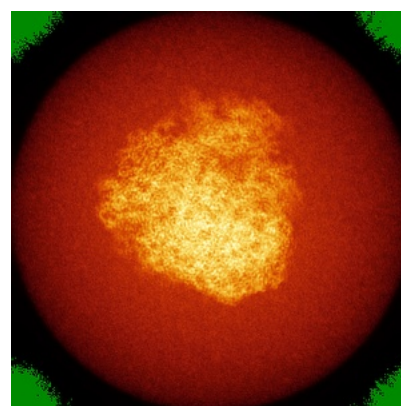
6.4.1 Primary map



X



Y

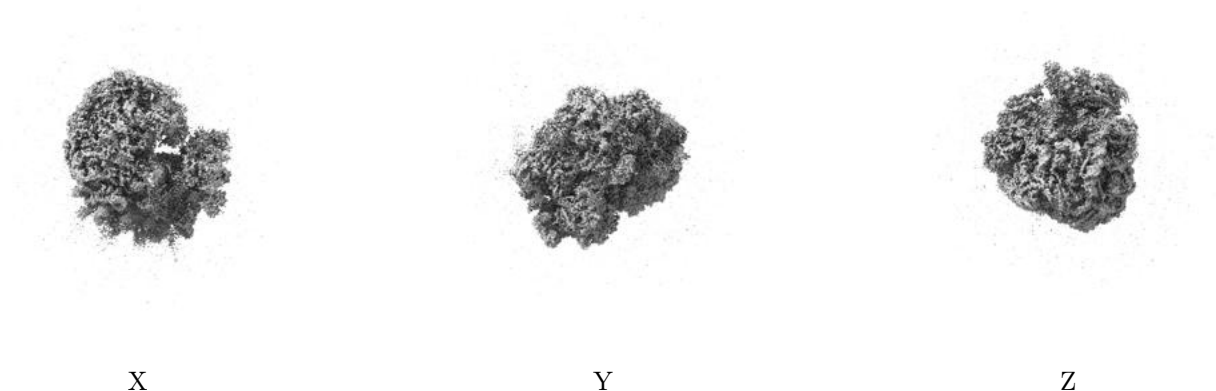


Z

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



The images above show the 3D surface view of the map at the recommended contour level 0.0549. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

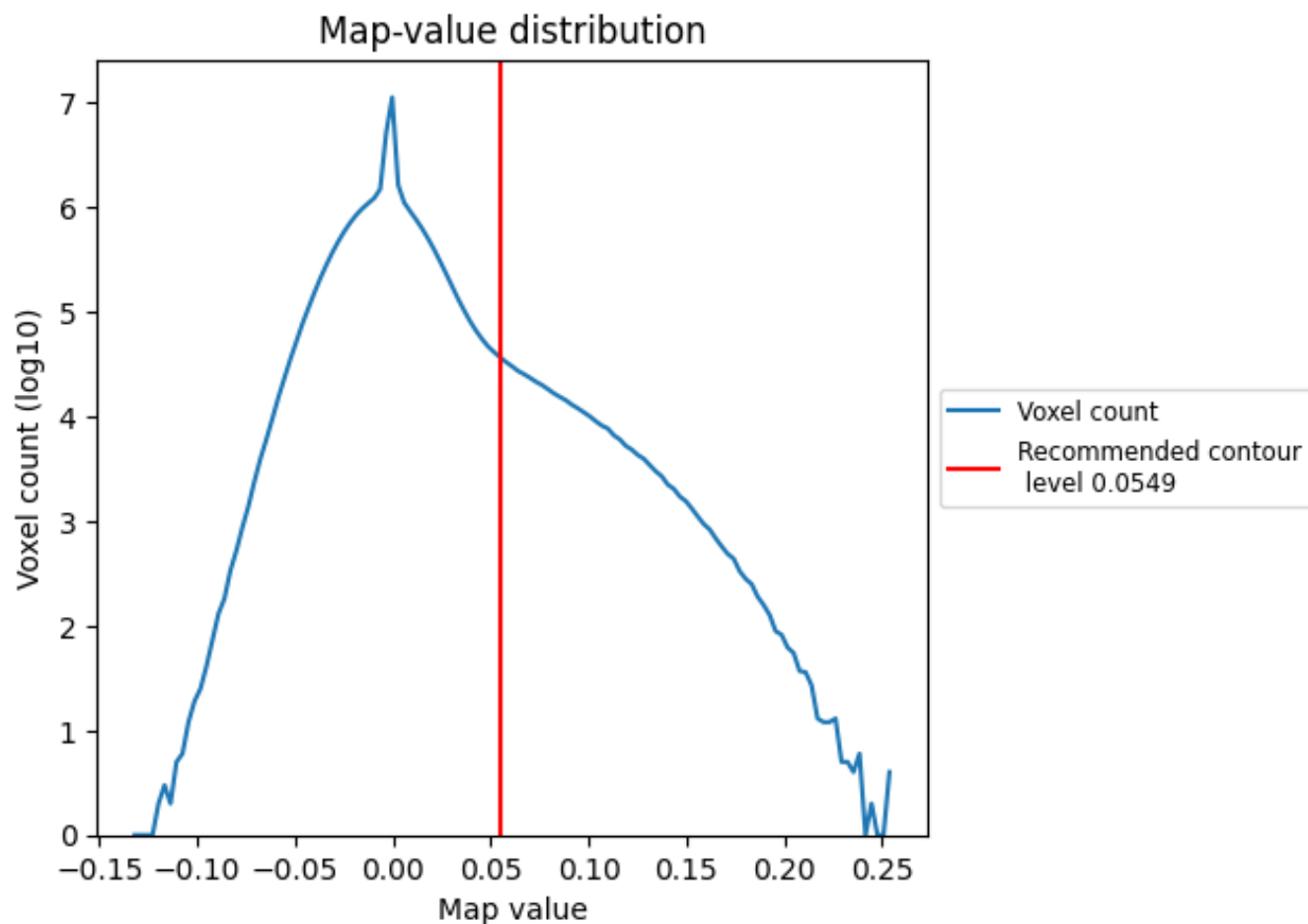
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

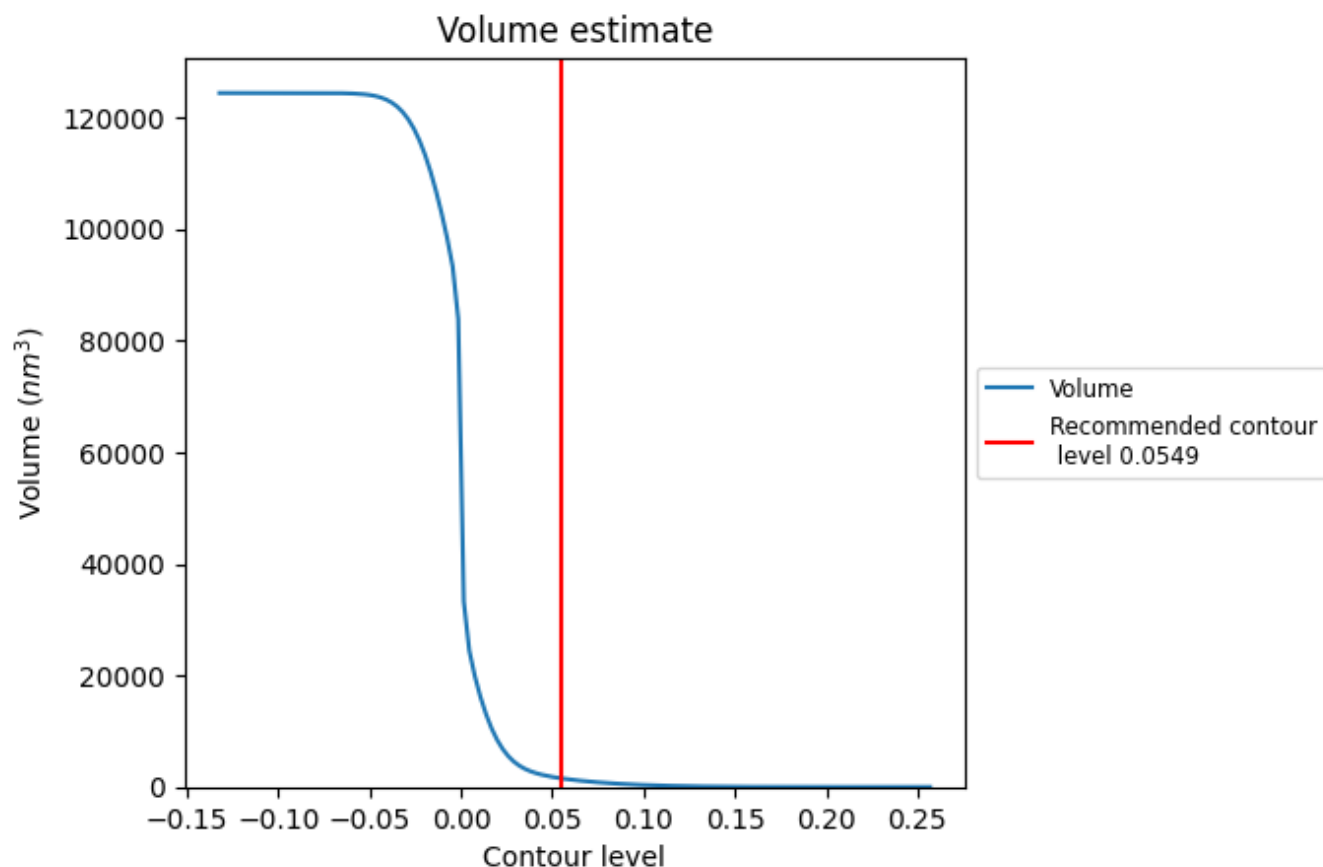
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

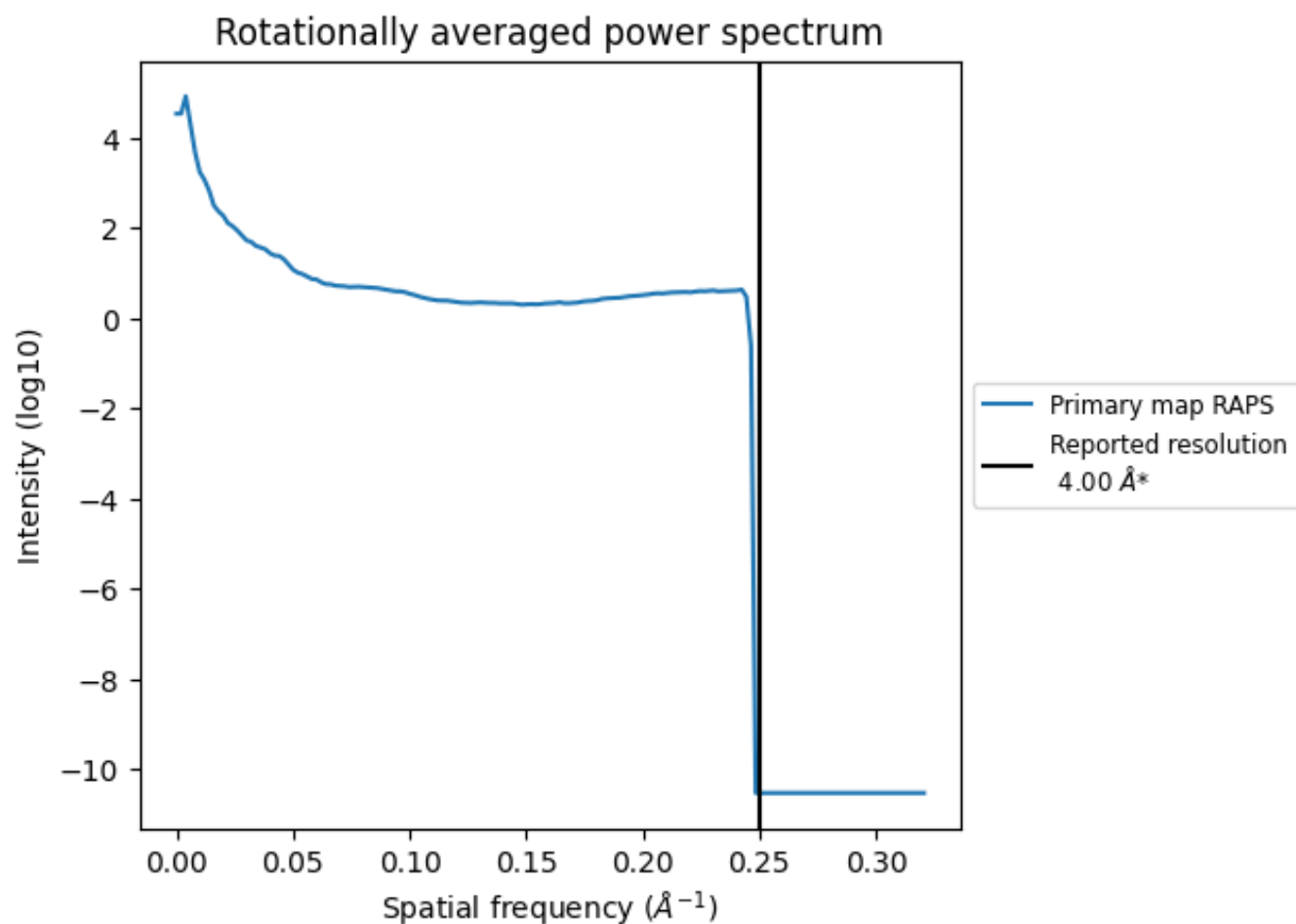
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1549 nm^3 ; this corresponds to an approximate mass of 1400 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 0.250 Å⁻¹

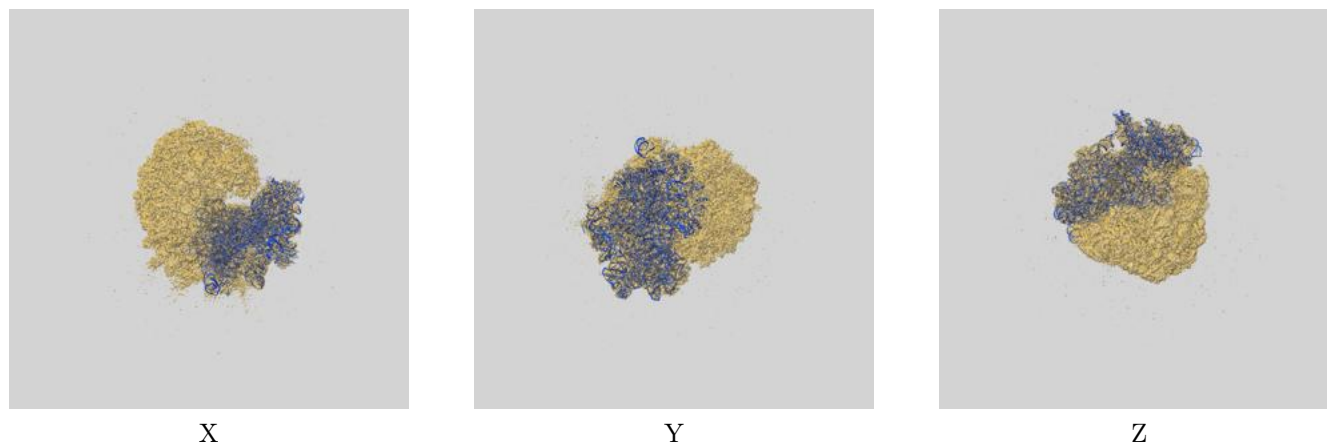
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

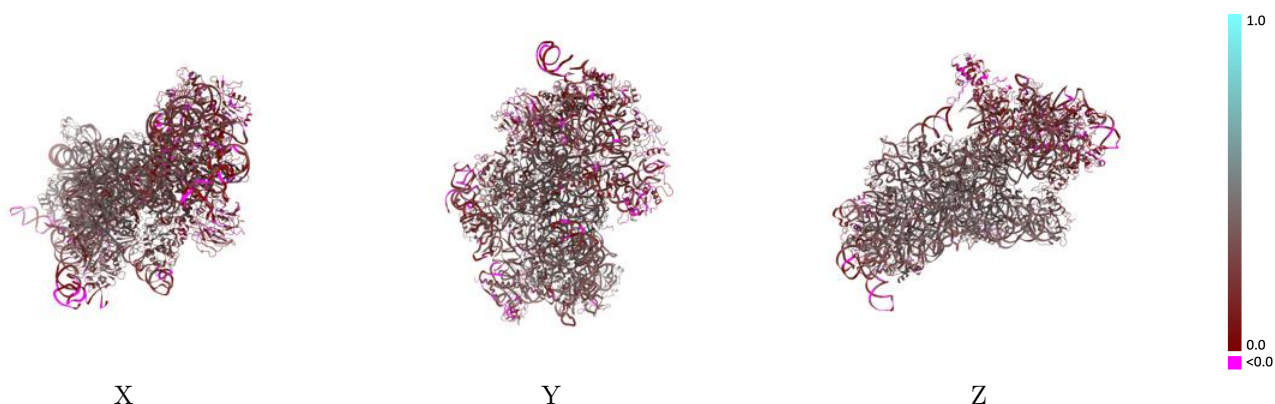
This section contains information regarding the fit between EMDB map EMD-3844 and PDB model 5OPT. Per-residue inclusion information can be found in section 3 on page 11.

9.1 Map-model overlay [i](#)



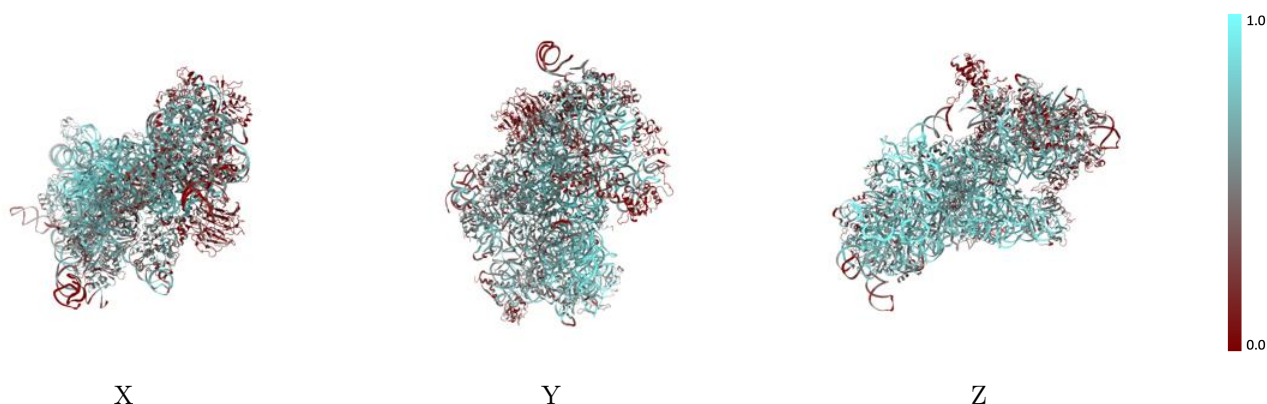
The images above show the 3D surface view of the map at the recommended contour level 0.0549 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



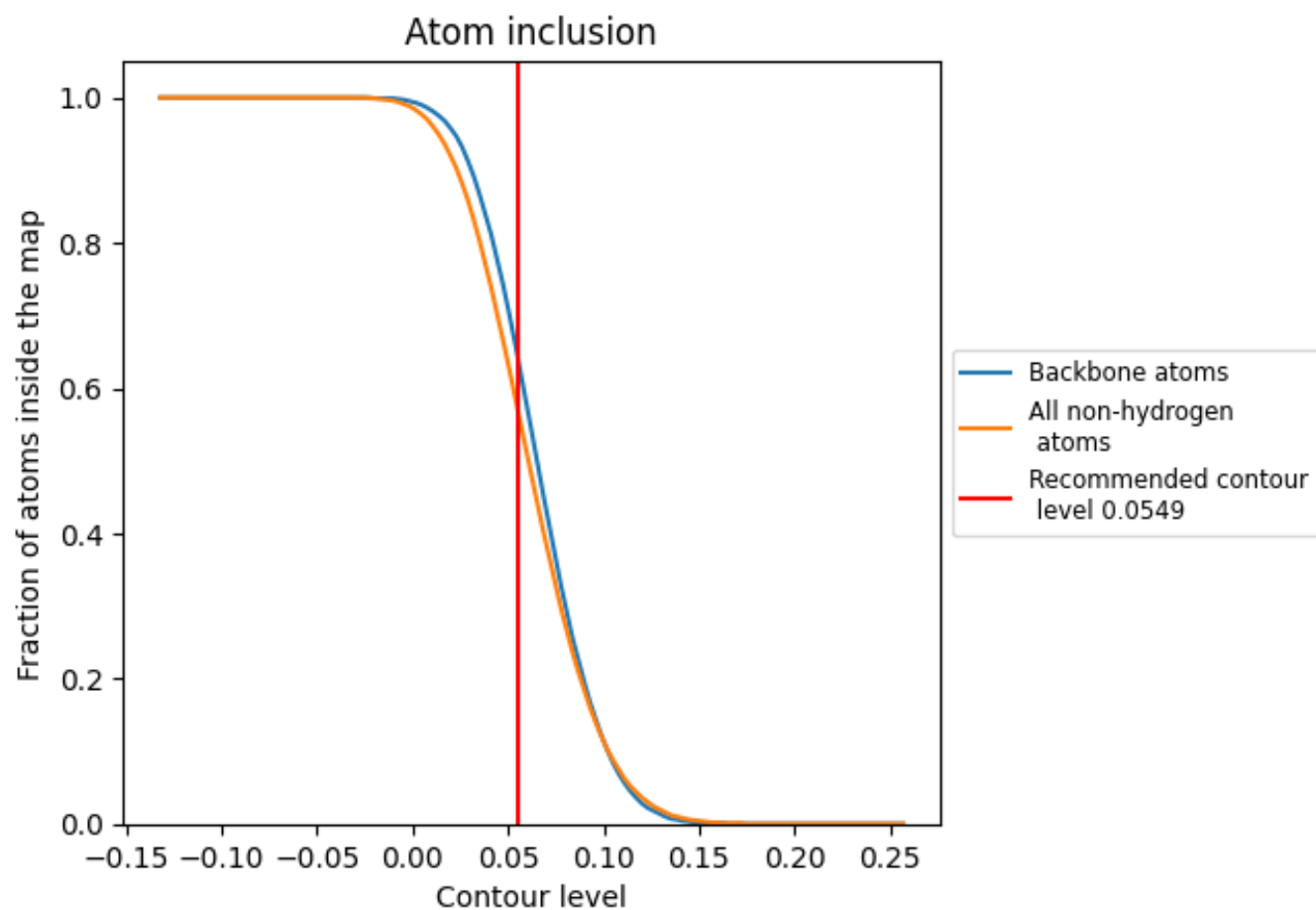
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.0549).









































































9.4 Atom inclusion [i](#)



At the recommended contour level, 65% of all backbone atoms, 57% 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 (0.0549) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.5720	 0.2840
E	 0.6990	 0.2970
L	 0.5230	 0.3590
M	 0.5610	 0.3500
O	 0.3580	 0.2240
P	 0.5280	 0.2910
Q	 0.5310	 0.3060
R	 0.5200	 0.3280
S	 0.4420	 0.3200
T	 0.5040	 0.3360
U	 0.2610	 0.2090
V	 0.4920	 0.3140
W	 0.5510	 0.3340
X	 0.5150	 0.3370
Y	 0.5850	 0.3250
Z	 0.5970	 0.3600
a	 0.2980	 0.1260
b	 0.5500	 0.3240
c	 0.4760	 0.2910
d	 0.5230	 0.3260
e	 0.5470	 0.3480
f	 0.5210	 0.3120
g	 0.5170	 0.3330
h	 0.2970	 0.1270
i	 0.1110	 0.0940
j	 0.1860	 0.1000
k	 0.3770	 0.2550
l	 0.2940	 0.2240
m	 0.2930	 0.2600
n	 0.2960	 0.2120
o	 0.3840	 0.1690
p	 0.1710	 0.1680
q	 0.3770	 0.2290
r	 0.3920	 0.2380
t	 0.2790	 0.1820
u	 0.3230	 0.1910

