

# wwPDB EM Validation Summary Report (i)

Oct 6, 2024 - 07:11 pm BST

PDB ID 7PHA : EMDB ID : EMD-13411 Title : 70S ribosome with EF-Tu-tRNA and P-site tRNA in chloramphenicol-treated Mycoplasma pneumoniae cells Xue, L.; Lenz, S.; Rappsilber, J.; Mahamid, J. Authors : 2021-08-16 Deposited on : 8.50 Å(reported) Resolution : Based on initial models 700C, 700D, 4V7C, 4V5L :

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

We welcome your comments at *validation@mail.wwpdb.org* A user guide is available at https://www.wwpdb.org/validation/2017/EMValidationReportHelp with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

EMDB validation analysis	:	0.0.1.dev $113$
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

# 1 Overall quality at a glance (i)

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

The reported resolution of this entry is 8.50 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 $(\#Entries)$	${f EM} {f structures} \ (\#{f Entries})$
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	0	48	96%	• •
2	1	59	100%	
3	2	37	95%	5%
4	9	394	98%	·
5	А	294	79%	18%
6	В	273	78%	21%
7	С	205	97%	•••
8	D	219	<b>68%</b> • 3	0%



Continued from previous page... Chain Length Quality of chain Mol 5% 9 Е 21576% 22% • 6% F . . 10 15597% i. 11 G 142••• 98% ÷. Η 121327% • 90% 11% Ι 13108• 6% 92% 7% 14J 12194% 6% . . Κ 1513994% ÷ L • 5% 1612494% Þ М . . 1761 97% 5% . . Ν 1886 94% i Ο 199484% 15% • 7% Р 2085 98% ÷ 21Q 10460% 38% • 22 $\mathbf{R}$ . . 87 95%  $\mathbf{S}$ 2387 87% 11% 24Т 60 87% 12% . 25287 $\mathbf{a}$ 99% • 28726b 79% 20% 5% . . 27212 $\mathbf{c}$ 96% 7% . . 28d 18096% • . . 29184е 94% 45% f . . 30 14994% 8% 16131 70% 6% • 24% g 18% 32137h 93% 7% 33 ••• i 14698%



Mol	Chain	Length	Quality of chain	
34	j	122	98%	
35	k	151	97%	••
36	1	139	96%	•••
37	m	124	93%	
38	n	116	95%	••
39	0	119	97%	·
40	р	127	90%	10%
41	q	100	96%	
42	r	159	87%	13%
43	s	237	<b>3</b> 9% 61%	
44	t	111	11%	
45	u	104	82%	17%
46	v	65	97%	•
47	W	111	90%	10%
48	x	97	<b>4</b> 4% • 55%	
49	у	57	89%	9% •
50	Z	53	92%	• 6%
51	3	2907	52% 46%	••
52	4	108	38% 56%	••
53	5	1520	56% 40%	••
54	6	76	51% 43%	5%
54	7	76	34% 63%	<del>.</del>

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# 2 Entry composition (i)

There are 54 unique types of molecules in this entry. The entry contains 149139 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 50S ribosomal protein L34.

Mol	Chain	Residues		Atc	$\mathbf{ms}$	AltConf	Trace		
1	0	47	Total 380	C 236	N 81	O 61	${S \over 2}$	0	0

• Molecule 2 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues		Atc	$\mathbf{ms}$	AltConf	Trace		
2	1	59	Total 477	C 300	N 99	0 77	S 1	0	0

• Molecule 3 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues		Ato	$\mathbf{ms}$	AltConf	Trace		
3	2	37	Total 304	C 189	N 65	O 46	$\frac{S}{4}$	0	0

• Molecule 4 is a protein called Elongation factor Tu.

Mol	Chain	Residues		At	AltConf	Trace			
4	9	393	Total 3021	C 1892	N 533	O 583	S 13	0	0

• Molecule 5 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues		Ate	AltConf	Trace			
5	А	240	Total 1921	C 1226	N 334	O 352	S 9	0	0

• Molecule 6 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues		Ate	AltConf	Trace			
6	В	215	Total 1698	C 1073	N 313	O 307	${ m S}{ m 5}$	0	0



• Molecule 7 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues		At	AltConf	Trace			
7	С	203	Total 1660	C 1051	N 314	O 290	${ m S}{ m 5}$	0	0

• Molecule 8 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues		At	oms	AltConf	Trace		
8	D	153	Total 1173	С 742	N 226	O 202	${ m S} { m 3}$	0	0

• Molecule 9 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues		At	$\mathbf{oms}$	AltConf	Trace		
9	Е	167	Total 1362	C 857	N 240	O 263	$\begin{array}{c} \mathrm{S} \\ \mathrm{2} \end{array}$	0	0

• Molecule 10 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues		At	oms			AltConf	Trace
10	F	154	Total 1246	C 785	N 239	0 216	S 6	0	0

• Molecule 11 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues		At	oms			AltConf	Trace
11	G	141	Total 1110	С 723	N 193	0 192	$\begin{array}{c} \mathrm{S} \\ \mathrm{2} \end{array}$	0	0

• Molecule 12 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues		At	oms	AltConf	Trace		
12	Н	128	Total 1028	$\begin{array}{c} \mathrm{C} \\ 655 \end{array}$	N 191	0 181	S 1	0	0

• Molecule 13 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues		At	oms			AltConf	Trace
13	Ι	101	Total 809	C 523	N 142	0 143	S 1	0	0

• Molecule 14 is a protein called 30S ribosomal protein S11.



Mol	Chain	Residues		At	oms			AltConf	Trace
14	J	114	Total 829	C 514	N 153	O 156	S 6	0	0

• Molecule 15 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues		At	oms	AltConf	Trace		
15	K	136	Total 1076	C 680	N 213	0 181	${ m S} { m 2}$	0	0

• Molecule 16 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues		Ato	ms	AltConf	Trace	
16	L	118	Total 951	C 594	N 191	O 166	0	0

• Molecule 17 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues		Ato	$\mathbf{ms}$	AltConf	Trace		
17	М	60	Total 474	C 302	N 96	O 72	$\frac{S}{4}$	0	0

• Molecule 18 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues		Ato	ms	AltConf	Trace	
18	Ν	83	Total 673	C 428	N 125	O 120	0	0

• Molecule 19 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues		At	oms	AltConf	Trace		
19	Ο	80	Total 646	C 414	N 119	0 111	${S \over 2}$	0	0

• Molecule 20 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues		Ato	ms	AltConf	Trace	
20	Р	83	Total 675	C 425	N 135	0 115	0	0

• Molecule 21 is a protein called 30S ribosomal protein S18.



Mol	Chain	Residues		Ate	oms	AltConf	Trace		
21	Q	65	Total 535	C 342	N 103	O 86	$\frac{S}{4}$	0	0

• Molecule 22 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues		At	AltConf	Trace			
22	R	84	Total 682	C 435	N 127	0 118	${S \over 2}$	0	0

• Molecule 23 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues		Ato	ms	AltConf	Trace	
23	S	77	Total 629	C 383	N 135	0 111	0	0

• Molecule 24 is a protein called 30S ribosomal protein S21.

Mol	Chain	Residues		Ate	oms	AltConf	Trace		
24	Т	53	Total 471	C 295	N 103	0 72	S 1	0	0

• Molecule 25 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues		At	AltConf	Trace			
25	a	285	Total 2225	C 1385	N 437	0 397	S 6	0	0

• Molecule 26 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues		At	AltConf	Trace			
26	b	229	Total 1762	C 1119	N 318	0 318	${ m S} 7$	0	0

• Molecule 27 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues		Ate	AltConf	Trace			
27	С	210	Total 1644	C 1047	N 297	0 297	${ m S} { m 3}$	0	0

• Molecule 28 is a protein called 50S ribosomal protein L5.



Mol	Chain	Residues		At	oms			AltConf	Trace
28	d	175	Total 1388	C 893	N 245	O 246	$\frac{S}{4}$	0	0

• Molecule 29 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues		Ato	ms	AltConf	Trace	
29	e	176	Total	С	Ν	0	0	0
	C	110	1396	899	247	250		0

• Molecule 30 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues		At	oms	AltConf	Trace		
30	f	145	Total 1182	C 763	N 206	0 210	${ m S} { m 3}$	0	0

• Molecule 31 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues		At	oms	AltConf	Trace		
31	g	123	Total 936	C 599	N 160	0 174	${ m S} { m 3}$	0	0

• Molecule 32 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues		At	oms	AltConf	Trace		
32	h	128	Total 959	C 616	N 160	0 177	S 6	0	0

• Molecule 33 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues		At	oms	AltConf	Trace		
33	i	144	Total 1164	C 737	N 213	O 209	${f S}{5}$	0	0

• Molecule 34 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues		At	oms			AltConf	Trace
34	j	122	Total 944	C 595	N 178	O 167	${S \atop 4}$	0	0

• Molecule 35 is a protein called 50S ribosomal protein L15.



Mol	Chain	Residues		Ato	$\mathbf{ms}$	AltConf	Trace	
35	k	148	Total 1153	C 731	N 226	O 196	0	0

• Molecule 36 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues		At	oms	AltConf	Trace		
36	1	136	Total 1079	C 694	N 196	0 182	${ m S} 7$	0	0

• Molecule 37 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues		At	oms	AltConf	Trace		
37	m	119	Total 958	C 609	N 175	0 171	${ m S} { m 3}$	0	0

• Molecule 38 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues		At	oms	AltConf	Trace		
38	n	112	Total 889	C 557	N 175	0 155	${ m S} { m 2}$	0	0

• Molecule 39 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues		At	oms	AltConf	Trace		
39	0	115	Total 938	C 592	N 180	0 165	S 1	0	0

• Molecule 40 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues		At	oms	AltConf	Trace		
40	р	114	Total 947	C 603	N 188	0 154	${S \over 2}$	0	0

• Molecule 41 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues		At	oms	Atoms					
41	q	99	Total 811	C 525	N 148	0 134	$\begin{array}{c} \mathrm{S} \\ 4 \end{array}$	0	0		

• Molecule 42 is a protein called 50S ribosomal protein L22.



Mol	Chain	Residues		At	oms			AltConf	Trace
42	r	139	Total 1068	C 663	N 207	0 191	${ m S} 7$	0	0

• Molecule 43 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues		At	oms	AltConf	Trace		
43	s	92	Total 720	C 475	N 122	0 122	S 1	0	0

• Molecule 44 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues		At	oms	AltConf	Trace		
44	t	111	Total 872	$\begin{array}{c} \mathrm{C} \\ 550 \end{array}$	N 166	0 153	${ m S} { m 3}$	0	0

• Molecule 45 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues		At	oms			AltConf	Trace
45	u	86	Total	C	N	0	S	0	0
			657	409	130	117	T		

• Molecule 46 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues		Ate	oms			AltConf	Trace
46	v	63	Total 513	C 317	N 108	0 87	S 1	0	0

• Molecule 47 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues		Ato	ms		AltConf	Trace
47	117	100	Total	С	Ν	Ο	0	0
41	W	100	818	517	153	148	0	0

• Molecule 48 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues		Atc	$\mathbf{ms}$			AltConf	Trace
48	x	44	Total 344	C 221	N 55	O 64	${S \atop 4}$	0	0

• Molecule 49 is a protein called 50S ribosomal protein L32.



Mol	Chain	Residues		Atc	$\mathbf{ms}$			AltConf	Trace
40	17	56	Total	С	Ν	Ο	S	0	0
49	У	50	452	274	98	75	5	0	0

• Molecule 50 is a protein called 50S ribosomal protein L33 1.

Mol	Chain	Residues		Ato	$\mathbf{ms}$			AltConf	Trace
50	Z	50	Total 408	$\begin{array}{c} \mathrm{C} \\ 255 \end{array}$	N 81	O 68	$\frac{S}{4}$	0	0

• Molecule 51 is a RNA chain called 23S ribosomal RNA.

Mol	Chain	Residues			Atoms			AltConf	Trace
51	3	2878	Total 61664	C 27558	N 11236	O 19995	Р 2875	0	0

• Molecule 52 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues		At	toms			AltConf	Trace
52	4	105	Total 2239	C 1003	N 409	0 724	Р 103	0	0

• Molecule 53 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues		1	Atoms			AltConf	Trace
53	5	1493	Total 31943	C 14279	N 5792	O 10382	Р 1490	0	0

• Molecule 54 is a RNA chain called tRNA-Phe.

Mol	Chain	Residues		A	toms			AltConf	Trace
54	6	76	Total	С	Ν	0	Р	0	0
04	0	10	1618	723	289	531	75	0	0
54	7	76	Total	С	Ν	0	Р	0	0
04	1	10	1618	723	289	531	75	0	



# 3 Residue-property plots (i)

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

• Molecule 1: 50S ribosomal protein L34

Chain 0:	96%		•
MI R28 R28 ARG			
• Molecule 2: 50S	ribosomal protein L35		
Chain 1:	100%		-
There are no outli	er residues recorded for this	s chain.	
• Molecule 3: 50S	ribosomal protein L36		
Chain 2:	95%	5	%
M 110 336 336 337 336			
• Molecule 4: Elor	gation factor Tu		
	50%		_
Chain 9:	98%		
ME 42 42 42 42 76 76 76 70 77 85 85 85 85 85 85 85 85 85 85 85 85 85	A A A A A A A A A A A A A A A A A A A	A	AE EE EE EE EE EE EE EE EE EE EE EE EE E
••••	• ••••• •• • • •	******* ** ***	**** * ****** *
872 873 875 875 877 877 877 878 878 878 878 878	C82 P83 C84 C84 C84 C84 C84 C85 C85 C85 C85 C85 C85 C97 C10 C101	A102 V105 V106 S107 T109 D110 D110 D110 D110 D1114 C115 P114 P114 P114 P114 P114 P114 P114 P	1120 1212 1221 1222 1229 1229 1239 1239 1239 1239 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 1235 12555 1255 1255 1255 1255 1255 1255 1255 1255 1255 1255
D138 1146 A141 A141 A141 D145 E144 E148 C147 Q147 E148	V156 A15: A15: A15: A15: A15: A15: A15: A15:	N167 1166 1176 1176 1176 1176 1176 1176	<ul> <li>P192</li> <li>P183</li> <li>P183</li> <li>P184</li> <li>P194</li> <li>P194</li></ul>





 $\bullet$  Molecule 5: 30S ribosomal protein S2

Chain A:	79%	• 18%
MET SER GUU CEU LEU LEU TILE PIC PIC VAL VAL THR THR THR THR THR THR ALA	CLU LEU VAL 819 813 813 813 813 813 814 814 814 814 814 814 814 814 814 814	A141 A142 D143 K447 R195 F243 F243 K249 F243 F243 F243 F243 F249 F249 F249 F249 F249 F249 F249 F249
GLN VAL VAL ASN ASN ALA ALA ALA ALA CLN CLN CLN CLN CLN CLN ARC GLN	LEU THE THE THR ASN PRO ASN VAL LEU VAL LEU VAL ARG GUU	
• Molecule 6: 30S ri	bosomal protein S3	
Chain B:	78%	• 21%
MET GLY G3 V56 K90 K90 K90 E102 E108	S115 A149 A149 L160 L160 P168 K191 K191 K191 C14 R217 THR PR0 ALA	HIS ILLE LEU HIS PRO GLN GLN ASN ASN ASN ASN GLN GLN GLN GLN GLN GLN GLN CILN CILN CILN CILN CILN CILN CILN CI
SER ALA ALA ASN LYS LEU THR SER ASP VAL CLU THR SER SER SER SER	GLM ALA LAU THR LLD LLYS PRO PRO ASN GLU SCU CLYS GLU GLU GLU	
• Molecule 7: 30S ri	bosomal protein S4	
Chain C:	97%	
M1 F16 K30 K30 K30 K341 F44 F44 F44 F44 F44 F44 F44 F44 F44 F	1135 1135 1135 1135 1136 1136 1136 1136	
ع من	bosomal protein S5	
ا اللہ اللہ اللہ اللہ اللہ اللہ اللہ ا	bosomal protein S5	• 30%
• Molecule 8: 30S ri Chain D:	bosomal protein S5	LYS ALLA VAL. SER LIYS LIYS GLY GLY ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN
Molecule 8: 30S ri Chain D:	bosomal protein S5	ALA VALA SPR SVALA SPR CLY GLV ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN
Image: Second state sta	Structure       Structure	v All SER LYS CLU GUU ASN ASN ASN ASN ASN ASN ASN ASN ASN ASN











Chain R:	95%	• •	I
MET SER 83 83 83 83 8 8 8 8 8 8 8 8 8 8 8 8 8	K27 NB6 ARG		
• Molecule 23:	30S ribosomal protein S20		
Chain S:	87%	11%	
MET ALA N3 N3 R64 GLN VAL THR ALA	VAL GLU GLU VAL		
• Molecule 24:	30S ribosomal protein S21		
Chain T:	87%	• 12%	-
MET PRO LYS LIYS EE E5 F13 ASN MET MET	VAL		
• Molecule 25:	50S ribosomal protein L2		
Chain a:	99%		
MET P2 I7 N29 P33	F71 1110 6114 6114 7130 7130 7130 7130 7130 7130 7130 7130		
• Molecule 26:	50S ribosomal protein L3		
Chain b:	79%	20%	
M1 V11 F17 R23 K23 V57	IB4 IB4 IB4 IB4 IB4 IB4 IB4 IB4	GLN THR VAL GLU ALA LYS	VAL ASP THR PRO VAL VAL GLU PRO
LYS PRO GLU GLU VAL LYS LYS ALA ALA PRO VAL	VAL LYS GLY ASP ASP LYS		
• Molecule 27:	50S ribosomal protein L4		
Chain c:	96%		
MET A2 19 15 15 124	S51 S51 K67 R75 R75 R75 C88 C88 C88 C88 C88 C10 C88 C88 C88 C88 C88 C88 C88 C88 C88 C8		
• Molecule 28:	50S ribosomal protein L5		
Chain d:	96%		





• Molecule 34: 50S ribosomal protein L14



Chain j:	98%	
M1 T14 G15 A16 P48 S49 S49	K88 E105 ← ◆	
• Molecule 35:	50S ribosomal protein L15	
Chain k:	97%	
MET GLU L3 L6 R42 A68 A68	K119 F126 E186 LYS	
• Molecule 36:	50S ribosomal protein L16	
Chain l:	96%	
M1 H13 L58 F69	VAL VAL SER ALA	
• Molecule 37:	50S ribosomal protein L17	
Chain m:	93%	• •
MET 82 82 14 N5 P7 P7 K39	ALA TYR LYS	
• Molecule 38:	50S ribosomal protein L18	
Chain n:	95%	
M1 H12 M64 GLY ASN M69 M69		
• Molecule 39:	50S ribosomal protein L19	
Chain o:	97%	·
MET LYS K3 K3 L18 145 145	D71 188 887 188 887 188 87 188 188 188 18	
• Molecule 40:	50S ribosomal protein L20	
Chain p:	90%	10%
M1 S114 S114 GLU GLU GLU CLN ALA ALA ALA ALA ALA PRO	ALA ALA LEU GLY ASN	
	PROTEIN DATA BANK	

• Molecule 41:	50S ribosomal protein L21		
Chain q:	969	%	
M1 E26 A27 A27 A27 A27 A2 B26 B21	90 1907 1907		
• Molecule 42:	50S ribosomal protein L22	2	
Chain r:	87%	13%	
M1 A43 M64 C74 R139 GLN	LYS ALA VAL THR SER VAL LYS LYS FRO FRO FRO CLY GLY GLY GLY CLY GLN CLY GLN		
• Molecule 43:	50S ribosomal protein L23	}	
Chain s:	39%	61%	
MET D2 A90 A90 CU U93 ALA ALA	PR0 CLU LVB LVB LVB ASP RVC FVB ASP ASP ASP LVS CLV CLVS CLU SER THR THR CLU SER CLU CLV SER CLU CLV CLVS CLU CLU CLU CLU CLU CLU CLU CLU CLU CLU	LLE LLFS ASP ASP LLYS ASN ASN ASN ASN ASN ASN ASN ALA ALA ALA ALA ALA ALA ALA CLU CLU CLU CLU CLU CLU CLU CLU CLU CLU	VAL THR THR
ALA PRO CLU CLU GLN THR VAL VAL VAL VAL VAL	LYS CLU VAL LYS CLU VAL LYS VAL LYS PRO CLU LYS VAL LYS PRO THR THR PRO CLU	ALAA ALAA LYS ALA ALA ALA ALA ALA ALA ALA ALA CLU SER CLU CLYS CLU CLU CLYS CLU CLU CLU CLU CLU CLU CLU CLU CLU CLU	ALA LYS
GLU THR LYS GLU LYS SER ALA LYS THR THR	LYS THR ALA ALA ALA THR THR THR THR THR THR LYS THR LYS UYS VAL LYS VAL LYS		
• Molecule 44:	50S ribosomal protein L24	L	
Chain t:	10	0%	
M1 14 221 V36 K48	151         152         K53         R54         A55         A55         A55         A56         K57         A56         K59         K99         K99         K111		
• Molecule 45:	50S ribosomal protein L27	,	
Chain u:	82%	• 17%	
MET ASN ASN ASN LYS TYR PHE LEU LEU LEU LYS ILE ASP	LEU GIAN PHE PHE PHE PHE PHE PHE PHE PHE PHE AIA		
• Molecule 46:	50S ribosomal protein L28	3	
Chain v:	97	%	
MET A2 L64 SER			



• Molecule 47: 50S r	ibosomal proteir	n L29		
Chain w:		90%		10%
MET 12 138 1798 1798 1798 1798 1798 1798 1798 179	SAT SAT 6018			
• Molecule 48: 50S 1	ibosomal proteir	n L31		
Chain x:	44%		55%	_
MET LYS LYS ASP ASP ASP ASP C19 C19 C19 C19 C19 C19 C19 C19 C19 C19	THR THR LYS LYS CLN THR VAL HIS GLY ARG ALA GLU CYS	SER SER CLYS CLYS CLYS ALA ALA ALA ALA ALA ALA CLU CLEU CLEU	LYS THR PRO LYS LYS LYS GLU THR CYS GLU	TYR TYR LYS LYS HIS SER SER LEU ASN
CTU CTU				
• Molecule 49: 50S 1	ibosomal proteir	n L32		
Chain y:		89%	9'	% •
MET A2 R7 M47 M47 D50 L51 L51 L51 R52 R52				
• Molecule 50: 50S $_{1}$	ribosomal proteir	n L33 1		
Chain z:		92%	•	6%
MET A2 A2 A51 A51 A51 A51 A51 A51 A51 A51 A51 A51				
• Molecule 51: 23S 1	ribosomal RNA			
Chain 3:	52%		46%	
U A A A A A 15 A 15 A 15 A 15 C O C O C O	U21 U27 028 028 034 U35 034 035 038 038 038 038 038	C39 A40 A44 A44 C49 C49 C49 C53 C53 C56	G57 A58 A58 C60 C60 C62 C62 U63 U64 U69	672 473 475 476 677 677 682
<b>G83</b> <b>G84</b> <b>C84</b> <b>U85</b> <b>C87</b> <b>C88</b> <b>C88</b> <b>C88</b> <b>C88</b> <b>C88</b> <b>C98</b> <b>C99</b> <b>C99</b> <b>C95</b> <b>C95</b> <b>C95</b> <b>C94</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C97</b> <b>C98</b> <b>C98</b> <b>C98</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C99</b> <b>C</b>	C101 A102 G103 A112 A112 A115 A119 A119 A120 U121	6122 C126 A127 A127 A128 G133 G133 G133 G133 G136 G136 G136	C146 C147 U148 A149 A156 A156 D161 C162 A163 A163 A163	U165 A168 6171 0172 <b>C173</b> A174
A178 A179 A180 C181 C181 C181 A183 A184 A183 A183 C187 C185 C186 C186 C186 C191 C191 C191	U192 6193 U197 A200 A200 A200 A203 A203 C201 C207	U210 4211 6213 6219 4220 4226 4226 4226 4226 4226 4226	C229 C230 C233 A233 V233 C234 C234 C234 C243 C243 C244 C245 C245 C245 C245	C246 C247 C250 C251 C253 C253 C253 C253
A255 G265 G265 G265 G265 G270 G270 G270 G270 G277 C277 C277	U279 A280 U281 U284 U284 U284 U286 G286 G283 G294	U295 U296 C297 U298 U298 U2905 U304 U305 G305 G305 G305 U309 U310	G3.11 U312 G314 G314 A315 C316 U317 U318 G319 A320 A321 A321	A323 A326 U327 A328 G329 A333



A334	6335 C336	U339 11340	6341 6341	7409	A345 G346	C347	G351	C352	C354	A355	A356 A357		G361	0363	A364	1360 C360		G372	U373 A374	U375		A379 A380	A381	U382 U383	G384	0385 0386	U387	C389	A390	4392	C393	A396		G401 A402	U403	C404	0407	6410 6410
U411	6412 6413 6414		4410 A419	A422	C423 G424	U425	0770	U430	0431 G432		A437 A438	U439	C440	0441 G442	C443	G447	A448		G456 U457		G460	1050	A465	A400	G478	A479 C480	C481	4483 A483	U484	6486 G486	C487	G488 A489	A490	A491 C492	A493	6494 U495	A496	<mark>U500</mark> G501
-	G504 G505	(1509	0510 0511 0510	4513 A513	A514 A515	A516 Ge17		A519	C521		6530	A532		4540 A540		U543	C551	C552	A553 U554		C558	C562	A563	G566	U567	G568 U569	C570	TION	C575	CS77	A578	A581	A582	0583 G584	U585	G587 U587	G588	U595 G596
C597	G598 U599	A605	0000 1607	4008 U609	G610 A611		AC10 AC19	G620	A623	U624	G625	A628	G629	C030 A631	A632	G633 C634	G635	<b>U636</b>	U637 A638		U641	G647	G648	4049 G650		G656 A657	G658	U660	G661	<mark>6666</mark>		A673	U678	A679 A680	A681	A682 G683	A684	U688 U689
0690	G691	0696 1696		G704	A705 C706	0	A/10 A711	A712 67713	G714	G715	G716 U717		A720	G722		G725	U729		G732 C733	A734	G735	U737	U738	6739 A740	A741	U744		G748	U749	G760	G761	A762 G763	G764	A765 C766	C767	G768 A769	U782	C787
G7 88	A789		6798 6798	A/ 39 C800	1801 1	A806	G810	G811	7105	A816	A817 A818	U819	U820	A823	A824	U825 C826	G827	A828	A829	C833	G834	0020 G836	A837	0838 A839	G840	C841 U842	G843	11-OP	C847	<mark>(850</mark>		A854 A855	A856	U857 A858	<mark>G859</mark>	C860 U861	U862 U863	A864 A865
<b>G866</b>	U874	C880	A 00 1 C882	A 803 A 884	A885 U886	A887	U890	000	6894 G894	G895	0896	C901	U902	C904	<b>U905</b>	6906 4907		U911	A912 U913	G914	A915	69160		A	0	сc	A	6328 6929	C930	U932	A933	C934 U935	<b>G936</b>	A937 A938	1939	A942	A943 U944	<mark>U945</mark> A946
A947	A948 C949	U952		6909	0960 1967	0968	1970	U971	U973	C974	G975	G978	1004	G982		6860 1000		A993	U994 A995	A996	6697	G1005	U1006	C1007 A1008	A1009	G1010 A1011	G1012		A1016	G1018	A1019	G1020 C1021	C1022	C1023 A1024	G1025	A1026 U1027	C1028 A1029	A1032
_	01035 01036	U1040	C1042 C1042	C1043	A1045 A1046	A1047	A1046 U1049	A 10E 0	C1053	U1054	A1055 A1056	G1057	U1058	A1061	A1062	A1063	G1066	A1067	U1068	A1073	A1074	01076		A1080 A1081	A1082	A1085	1000	COOT W	U1095	61097	<mark>G1098</mark>	C1099 U1100	U1101	A1102 G1103	A1104	A1105 G1106	C1107 A1108	<mark>G1109</mark>
G1115	01116 1116	011100	61124 61124	07110	C1132	C1144	A1146	G1147	G1149	U1150	01151	<mark>U1154</mark>	G1155 G1155		<mark>C1159</mark>	G1160 A1161	A1162	G1163	A1164 U1165		A1168	C1170	G1171	G1173 G1173	G1174	01175 01176	A1177	G1179	U1180	TOTTW	A1186	C1187 C1188		U1192 U1193	-	01196	A1199	<mark>G1203</mark> A120 <del>4</del>
1205	1206 1207 1208	1209	1211	717	1215 1216	1217	1219	1220	1771	1 <mark>227</mark>	1 233	1234	1235	0021	1240	1043		1247	1250	1251	1252	1254	1255	1257	1258	1269	1261	1263	1264	1268		1276 1277	1278	1279 1280	1281	1282 1283	1284 1285	1286
.n	91 92 00			01 01	03 03 03	04 05	01 07	008 W	10	11	12 13	14 U	15 0.	17	118 U	- <b>0</b>	23	124 C	125 126 A	127 G	50 C	30 10	5 - 55 10	27 G. H	140 C	141 A.		100 C	151 U	56 U.		60 A	62 G	60 60 60	A C	172 G	174 A: 175 U:	676 177
612 G12				613 613	3 C13 U13	2 013	613	5 A13	013	G13	2 A13	413 413	A13		2 U13	410 10	A13	5 A13	1 013 013	G13	5 A13	010	0		2 U13		10		613 613	G13	<b>10</b>	8 U13	C13	0 1 U13			0 013 013 013	7 G13 A13
C1378	C1373 U1380	G1380	C1390	01392 G1392	A1393	G140	61400	A1406	01400 G1408		A1412 A1413	C1414	41100	A1420 A1421	U142	A1423	U142	C142(	A143		C143(	G1438	U143	01440 A1441	G1442	A144 C144	U144	A1447	U1448	3 <del>5</del> 7 FD	C1450	A145 A1458	A1459	G146( A146:	A1462	G146 G146	U146 U146	U146
C1470	C1474	U1478	A14/9 A1480	01461 01482	G1483 G1484	A1485	01480 01487	U1488	40 <del>4</del> 19	G1492	A1493 111494	A1495	A1496	A1497 U1498		A1502	G1504	G1505	01506 G1507	G1508	U1509	C1511	A1512	01514	A1515	G1516 G1517	C1518	A1513 A1520	A1521	01522 C1523		01526 01527	G1528	01529 G1530	C1531	A1532 U1533	A1534 A1535	U1538
U1539	G1540 A1541 C1542	U1543	A1545	A1548	U1549 G1550		U1556	G1557	A1559 A1559	D	5 A	: 5	n	5 A	D	ວ <b>⊲</b>	A1570	G1571	U1572 A1573	G1574	C1575	A1577		01581 01581	G1582	G1583 U1584	A1585	01587 U1587	A1588	ROCTH	A1592	01593 G1594	C1595	U1596 U1597	U1598	C1599 A1600	A1603	A1604 A1605



<b>C1608</b>	U1609	U1612	61614 61614 61615	G1616 G1616	U1617 U1618 A1610	CTOTW	C1622	G1625	A1630	C1632	C1635	01636 01636	A1637 C1638	C1639	G1640 A1641	G1642 A1643	A1043	A1648	C1649 A1660	C1651	A1652 C1653	A1656		A1664	G1668	A1669 U1670	C1671 C1672	U1673	G1676	G1677	01678 01679	A1680	G1682 C1682	G1683	G1687
A1688	A1692	A1694	G1695 C1696 C1696	01097 A1698	G1701	A1703	01705 01705	C1706 U1707	G1708		C1720	A1723	A1724 G1725	U1726	U1727 A1728	C1 733	A1734	A1735 G1736	G1737	G1739	U1740 G1741	111 74.8	A1749	A1750 A1751	A1752	C1758	C1759 C1760	C1761	A1762 G1763	U1764	G1765 A1766	A1767	61768 A1769	A1770 C1771	G1772
A1773 G1774	C1777	G1778	G1779 A1780	U1784	A1787	C1789	01/90 A1791	A1792 A1793	A1794	C1797	C1800	20010	C1807 C1808		C1812 C1813	G1814 111015	A1816	U1820	G1821	A1022 U1823	G1824 U1825	A1826 111827	A1828	U1829 G1830	G1831	01834	G1835 A1836	C1837	A1838	G1842	C1843 C1844	C1845	A 1846 G 1847	U1851	G1852
G1853 A1854	A1855	G1857	U1858 U1859	A160U	G1863 A1864 A1065	G1866	61867 A1868	G1869 G1870	U1871	7/010	G1876 C1877		C1881 G1882	A1883	A1884 G1885	C1886	01000 U1888	U1889 U1890	A1891	ZEOTH	A1896	C1899	U1905	G1906 A1907	A1908	61910 61910	G1913	G1914	A1919	A1920	C1921	C1927	U1930	A1934	A1935
G1936 G1937	U1938	A1944	01945 01946 11047	C1948		U1953	G1955	U1958	A1959	U1962	C1 068	C1969	C1970 G1971	C1972	01973 01974	A1 077	01978 U1978	G1979	G1982	A1984	A1985	A1988 111989		A1996 C1997	U1998	01999 02000	C2001	C2003	G2004 G2005		A2008 U2009	A2010	42011 A2012	C2013	A2020
A2021	C2025	G2028	U2029 A2030	G2032	A2037	G2039	A2040 C2041	C2045		G2051	C2052	A2055	A2056 C2057		G2060 A2061	C2062	G2064	A2065 A2066	A2067	42069 A2069	C2070 C2071	112075	G2076	A2077	U2082	02083 A2084	C2085 1120.86	G2087	120000	C2091	U2092 U2093		00179	A2104 G2105	G2106
A2107 C2108	A2109	U2111 U2111	A2112 U2113 20114	02114 A2115	02116 G2117 112118	A2119	62120	A2123 A2124	U2125	G2127	60131	G2132	A2133 G2134		U2138 C2139	G2140	C2144	A2145	110148		G2151 C2152	U2153 A2154	G2155	G2156 A2157	110160	00170	G2167 C2168	G2169	A21/0 A2171	A2172	G2174 G2174	A0178	A2179	U2180 A2181	C2182
C2187 U2188	U2189	U2193	2194 2195	2197	2198 2199	2201	2203	2204 12205	12206	12209	2210	2212	2219	A2220	12221 32222		42230	<mark>A2231</mark> G2232	A2233	32243	<mark>U2244 G2245</mark>	<mark>G2246</mark>	A2249	12252	U2253	<b>5</b> 224	12257	2259	0063	264	2265 2266	2267	2274	2275 2276	A2277
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62: 62:	U2280	C2283	G2284 G2285 U 10000	AZ280	02290 02291 02291	A2294 G	A2296 A2296 U		Focort	C2305		C2310 U	G2311 G2312	U2313	02314 G2315	G2316 A2317	A2318	A2319 U2320	C2321 C2327	U2323	U2327	A2328 C2329	A2330	(2333	U2334	A2335 A2336	U2337 C2338	G2339 G	02340 62341	U2342 62	A2343 A2344 C2		02351 U2352	G2353 A A2354 A	C2355
U2356 G2357 G2357	U2358 U2280	A2362 C2283	C2363 G2284 G A2364 G2285 U	A2366 A2260 U	C236/ G2290 G3 A2368 U2291 G3 C1360	G2370 A2294 G	U23/1 A2295 U A2296 U	A2375 A2376 U2299 U	A2377 A2377 A2377	G2379 C2305 L	U2380 C2381	A2382 C2310 U	A2385 G2312 U	A2386 U2313	U2387 U2314 U2314 C2388 G2315 (	A2389 G2316 C2300	G2391 A2318	U2392 A2319 C2393 U2320	A2394 C2321	423396 U2323 U2323	U2401 U2327	C2402 A2328 C2403 C2329	02.230 A2330	C2411 A2412 G2333	G2413 U2334	02414 A2335 02414 A2336 A2415 A2336	U2416 U2337 U 02417 C2338 C	G2418 G2339 G	02340 02340 02341 02	G2423 U2342 G2	A2343 U2 G2429 A2344 C2	C2430	02431 02351 C2432 02352 A	A2433 G2353 A A2434 A2354 A	C2435 C2355
G2436 U2356 G2 G2437 G2357 G2	A2438 U2358 U2280	A2362 C2283	A2442 C2363 G2284 G A2364 G2285 U A2364 G2285 U	6445 02505 Az260 66	C2448 C2367 G2290 G3 U2449 A2368 U2291 G3 C746A C7366 U2291 G3	C2451 G2370 A2294 G	G2455 U23/1 A2296 U	A2456 A2375 Q2457 C		<b>U2465</b> G2379 C2305 L	G2466 U2380 G A 24 67 G2381 A23 0 G	U2468 A2382 C2310 U	A2469 62311 62312 10 62312 10 62312 10 10 62312 10 10 10 10 10 10 10 10 10 10 10 10 10	A2386 U2313	C2474 U2387 U2314 U2314 U2315 U2315 U2315 U2315 U2315 U2388 U2315 U2388 U2315	A2477 A2389 G2316	A2479 G2391 A2318	G2480 U2392 A2319 U2481 C2393 U2320	U2482 A2394 C2321	A2484 A2396 U2323	U2485 A2486 U2401 U2327	U2487 C2402 A2328 C2488 C2403 G2329	021100 42330	G2492 C2411 G2493 A2412 G2333 I	C2494 G2413 U2334	A2495 02414 A2355 0 G2496 A2415 A2336	U2497 U2416 U2337 U C2498 C2417 C2338 G	U2499 G2418 G2339 G	(1350) (1350) (1341) (1341) (13	<b>G2503 G2423 U2342 G2</b>	C2504 A2343 U2 A2505 G2429 A2344 C3	C2506 C2430 G	C250/ U2431 U2351 U2508 C2432 U2352 A	C2509 A2433 G2353 A A2434 A2354 A	U2512 C2435 C2355
G2513         G2436         U2356         G2           U2514         G2437         G2357         G2357	C251 A2438 U2358 U2280	U2519 02710 A2362 C2283	C2220 A2442 C2363 C2284 GG A2521 A2564 G2285 UG A2564 G2285 UG	42526 0.2445 0.2565 A2266 G	U2227 C2446 C2367 U2290 G3 C2528 U2449 A2368 U2291 G3 C7450 C2568 U2291 C3	G2534 C2451 G2370 A2294 G	A2538 G2455 U23/1 A2295 U	A2539 A2456 A2375 C ( U2457 C2376 U2299 U	U2545 A2377 A2377	G2548 U2465 G2379 C2305 L	A2549 G2466 U2380 G A2550 A2467 G2384 A2306 G	42000 42401 4201 4200 U2468 42382 C2310 U	U2555 A2469 G2311 C2556 C2470 A2385 G2312	G2557 A2386 U2313	U2560 C2474 U2387 U2314 U2560 C2388 C2315 (	C2561 A2477 A2389 C2316 10560 00470 00300 A0317	42479 G2391 A2318	C2566 G2480 U2392 A2319 C2567 U2481 C2393 U2320	C2568 U2482 A2394 C2321	4203 02570 02590 02522 02523 02570 02570 02570 02523 02500 025700 025700	U2571 U2485 A2572 A2486 U2401 U2327	<b>A2573</b> U2487 C2402 A2328 A2574 C2488 C2403 G2329	G2575 G2575 G2575 G25730	A2576 G2492 C2411 G2577 G2493 A2412 G2333 I	A2578 C2494 G2413 U2334	U25/9 A2495 U2414 A2355 U A2580 G2496 A2415 A2336	C2581 U2497 U2416 U2337 U C2582 C2498 C2417 C2338 G	U2583 U2499 G2418 G2339 G	G2584 U2340 U2340 U2340 U2340 U2340 U2340 U2340 U2340 U23841 U238	(2566 (2503 (2423 (2342 (2	U2587 C2504 A2343 U2 U2588 A2505 G2429 A2344 C5	<b>C2589</b> C2506 C2430 C2506 C2430 C2430 C2430 C2430 C2430 C2430 C2430 C2430 C2506 C2430 C2506 C2207 C220 C220 C2206 C2206 C2206 C2206 C2207 C2206 C2206 C2207 C207 C	G2591 U2608 C2432 U2352 A	U2592 C2509 A2433 G2353 A U2593 A2434 A2354 A	C2594 U2512 C2435 C2355
A2695         C2513         C2436         U2356         C2           A2696         U2514         C2437         C2         C2	2.560 C260 C260 C260 C260 C260 C260 C260 C2	4200 U2519 42362 C2283 U2519 42362 C2283	U2605 A252U A2442 C2653 G2285 CG 0.2605 A2521 A2551 G2285 U	4200 4250 0.2300 4250 0 02607 42526 42366 42200 0	A2608 U252/ C.2448 U.256/ U229/ G. 02609 C2528 U2249 U2291 G. 1.0510 D. 02568 U2291 G.	72010 G2534 C2451 G2370 A2294 G	42512 42538 62455 42296 0	C2615 A2539 A2456 A2375 C C2616 U2457 C2376 U2299 U	U2617 U2645 A2377 12645 A2377 A2640 A2377 A2640 A2377 A2640 A2377 A2640 A2377 A2640 A2660 A26600 A26600 A26600 A26600 A26600 A26600 A26000 A26600 A2600 A26600 A26	C2010 C2619 C2548 U2465 C2379 C2305 L	A2527 A2549 C2466 U2380 G A2527 A2550 A2550 G	U2623 U2623 U2468 A2382 C2310 U	C2624 U2555 A2469 C2311 112625 C2470 A2385 C2312 II	G2657 A2386 U2313	U2628 C2474 U2387 U2314 C2629 U2315 C2388 C2315 C	Cost Cost Cost Cost Cost Cost Cost Cost	C203 C2633 A2479 C2391 A2318	C2634 C2666 G2480 U2392 A2319 C2635 C2667 U2481 C2393 U2320	U2636 C2568 U2482 A2394 C2321 A5637 A2666 C2463 U2482 A2394 C2321	A2007 A2009 0.2400 0.2309 0.2322 (2638 U2570 A2484 A2396 U2323 0	02639         02571         02485           A2572         A2486         02401         02327	C2642 A2573 U2487 C2402 A2328 42643 42574 C2488 C2403 C2329	N2040 02575 02576 022700 02200 02200	A2647 G2492 C2411 G2533 A2647 G2577 G2493 A2647 G2533 A2647	A2648 A2578 C2494 C2413 U2334	62049 U25/9 A2495 U2414 A2335 U A2580 G2496 A2415 A2336	G2653         C2581         U2497         U2416         U2337         U           N7654         C2582         C248         C2417         C2338         C	U2665 U2583 U2499 G2418 G2339 G	42662 42584 C2562 C2540 C2540 C2540 C2562 C2341 C2	<b>G2663 G2586 G2503 G2423 U2342 G2</b>	U2664 U2587 C2504 A2343 U2 U2588 A2505 G2429 A2344 C5	A2668 G2589 C2506 C2430 G.	42669 02590 02500 02401 02551 A 025691 02568 02432 02352 A	G2679         U2592         C2509         A2433         G2353         A           C2680         U2593         A         A2434         A2354         A	G2681 C2594 U2512 C2435 C2355



#### A2761 U2765 A2773 A2777 A2777 A2777 A2777 A2765 A2777 A2765 A2777 A2765 A2777 A2766 U2789 V2795 U2799 U2799 U2799 U2799 U2799 C2792 U2799 A2811 U2794 U2795 A2812 C2792 C2813 A2813 A2814 C2813 A2814 C2813 A2814 C2813 A2814 C2813 A2814 C2813 A2814 C2813 A2813 C2813 A2813 C2813 C2823 C2833 C2823 C2833 C283

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 $\bullet$  Molecule 52: 5S ribosomal RNA

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 $\bullet$  Molecule 53: 16S ribosomal RNA









# 4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SUBTOMOGRAM AVERAGING	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of subtomograms used	1786	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE	Depositor
	CORRECTION	
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{\AA}^2)$	3.2	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3750	Depositor
Magnification	81000	Depositor
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	1.572	Depositor
Minimum map value	-0.560	Depositor
Average map value	0.024	Depositor
Map value standard deviation	0.126	Depositor
Recommended contour level	0.4	Depositor
Map size (Å)	435.328, 435.328, 435.328	wwPDB
Map dimensions	256, 256, 256	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.7005, 1.7005, 1.7005	Depositor



# 5 Model quality (i)

### 5.1 Standard geometry (i)

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).

Mal	Chain	Bo	ond lengths	I	Bond angles
	Ullaili	RMSZ	# Z  > 5	RMSZ	# Z  > 5
1	0	0.31	0/383	0.54	0/504
2	1	0.30	0/484	0.58	0/637
3	2	0.36	0/306	0.54	0/401
4	9	0.31	0/3071	0.53	1/4147~(0.0%)
5	А	0.32	0/1954	0.54	1/2642~(0.0%)
6	В	0.33	0/1721	0.54	0/2323
7	С	0.33	0/1691	0.52	0/2267
8	D	0.32	0/1188	0.57	0/1593
9	Е	0.39	0/1384	0.60	2/1867~(0.1%)
10	F	0.31	0/1266	0.52	0/1700
11	G	0.35	0/1126	0.59	0/1517
12	Н	0.32	0/1044	0.56	1/1395~(0.1%)
13	Ι	0.33	0/820	0.59	0/1103
14	J	0.34	0/844	0.52	0/1136
15	Κ	0.32	0/1094	0.58	0/1468
16	L	0.28	0/962	0.51	0/1289
17	М	0.35	0/483	0.54	0/643
18	Ν	0.29	0/679	0.49	0/907
19	0	0.29	0/659	0.50	0/885
20	Р	0.35	0/684	0.56	0/913
21	Q	0.35	0/545	0.66	0/730
22	R	0.34	0/698	0.53	0/936
23	S	0.32	0/631	0.51	0/838
24	Т	0.32	0/475	0.51	0/621
25	a	0.32	0/2267	0.56	0/3044
26	b	0.35	0/1795	0.57	0/2412
27	с	0.33	0/1671	0.56	0/2246
28	d	0.34	0/1409	0.56	0/1894
29	е	0.35	$0/1\overline{420}$	0.61	$1/1912 \ \overline{(0.1\%)}$
30	f	0.29	$0/1\overline{205}$	0.58	$2/1616 \ \overline{(0.1\%)}$
31	g	3.60	6/944~(0.6%)	0.65	1/1260~(0.1%)
32	h	0.29	$0/\overline{968}$	0.50	$0/1\overline{298}$
33	i	0.35	0/1186	0.52	0/1592
34	j	0.33	0/953	0.59	0/1275



Mal	Chain	Bo	ond lengths	I	Bond angles
	Chain	RMSZ	# Z  > 5	RMSZ	# Z  > 5
35	k	0.33	0/1170	0.68	2/1559~(0.1%)
36	1	0.34	0/1104	0.57	0/1481
37	m	0.33	0/973	0.54	0/1309
38	n	0.30	0/897	0.56	0/1198
39	0	0.34	0/948	0.57	0/1262
40	р	0.33	0/961	0.49	0/1278
41	q	0.33	0/828	0.58	1/1111~(0.1%)
42	r	0.32	0/1077	0.53	0/1441
43	s	0.34	0/732	0.57	0/988
44	t	0.31	0/879	0.53	0/1165
45	u	0.32	0/665	0.57	1/884~(0.1%)
46	V	0.32	0/519	0.59	0/695
47	W	0.28	0/826	0.45	0/1104
48	Х	0.31	0/353	0.53	0/474
49	у	0.35	0/457	0.56	0/601
50	Z	0.32	0/412	0.57	0/547
51	3	0.58	0/69073	1.10	134/107710~(0.1%)
52	4	0.57	0/2505	1.10	4/3902~(0.1%)
53	5	0.56	0/35768	1.07	66/55764~(0.1%)
54	6	0.53	0/1808	1.26	25/2817~(0.9%)
54	7	0.54	0/1808	1.12	3/2817~(0.1%)
All	All	0.58	6/161773~(0.0%)	0.97	245/241118~(0.1%)

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
31	g	112	TYR	CD2-CE2	62.16	2.32	1.39
31	g	112	TYR	CD1-CE1	61.27	2.31	1.39
31	g	112	TYR	CE1-CZ	38.53	1.88	1.38
31	g	112	TYR	CE2-CZ	37.99	1.88	1.38
31	g	112	TYR	CG-CD2	28.20	1.75	1.39

The worst 5 of 245 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	$Observed(^{o})$	$Ideal(^{o})$
35	k	42	ARG	NE-CZ-NH2	-10.84	114.88	120.30
35	k	42	ARG	NE-CZ-NH1	9.71	125.15	120.30
53	5	573	G	N3-C4-N9	-8.75	120.75	126.00
54	6	30	G	C4-C5-N7	8.53	114.21	110.80
54	6	30	G	C6-C5-N7	-8.48	125.31	130.40

There are no chirality outliers.



There are no planarity outliers.

#### 5.2 Too-close contacts (i)

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

#### 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	Perce	ntiles
1	0	45/48~(94%)	44 (98%)	1 (2%)	0	100	100
2	1	57/59~(97%)	44 (77%)	13~(23%)	0	100	100
3	2	35/37~(95%)	33 (94%)	2~(6%)	0	100	100
4	9	391/394~(99%)	347~(89%)	42 (11%)	2(0%)	25	64
5	А	238/294~(81%)	202 (85%)	35~(15%)	1 (0%)	30	68
6	В	213/273~(78%)	182 (85%)	31 (15%)	0	100	100
7	С	201/205~(98%)	170 (85%)	30 (15%)	1 (0%)	25	64
8	D	151/219~(69%)	132 (87%)	19 (13%)	0	100	100
9	Е	165/215~(77%)	126 (76%)	39 (24%)	0	100	100
10	F	152/155~(98%)	126 (83%)	25 (16%)	1 (1%)	19	57
11	G	139/142~(98%)	113 (81%)	25~(18%)	1 (1%)	19	57
12	Н	126/132~(96%)	110 (87%)	15 (12%)	1 (1%)	16	55
13	Ι	99/108~(92%)	84 (85%)	15~(15%)	0	100	100
14	J	112/121~(93%)	100 (89%)	12 (11%)	0	100	100
15	K	134/139~(96%)	107 (80%)	26 (19%)	1 (1%)	19	57
16	L	116/124~(94%)	102 (88%)	14 (12%)	0	100	100
17	М	58/61~(95%)	49 (84%)	9~(16%)	0	100	100
18	N	81/86~(94%)	76 (94%)	5 (6%)	0	100	100
19	Ο	78/94~(83%)	67 (86%)	11 (14%)	0	100	100



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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Perce	ntiles
20	Р	81/85~(95%)	71 (88%)	10 (12%)	0	100	100
21	Q	63/104~(61%)	45 (71%)	16 (25%)	2 (3%)	3	21
22	R	82/87~(94%)	62 (76%)	19 (23%)	1 (1%)	11	44
23	S	75/87~(86%)	68 (91%)	7(9%)	0	100	100
24	Т	51/60~(85%)	47 (92%)	4 (8%)	0	100	100
25	a	283/287~(99%)	231 (82%)	52 (18%)	0	100	100
26	b	227/287~(79%)	196 (86%)	31 (14%)	0	100	100
27	с	208/212~(98%)	182 (88%)	24 (12%)	2 (1%)	13	49
28	d	173/180~(96%)	141 (82%)	32 (18%)	0	100	100
29	е	174/184~(95%)	156 (90%)	17 (10%)	1 (1%)	22	60
30	f	143/149~(96%)	120 (84%)	21 (15%)	2 (1%)	9	41
31	g	119/161 (74%)	102 (86%)	16 (13%)	1 (1%)	16	55
32	h	126/137~(92%)	114 (90%)	12 (10%)	0	100	100
33	i	142/146~(97%)	119 (84%)	23 (16%)	0	100	100
34	j	120/122~(98%)	107 (89%)	12 (10%)	1 (1%)	16	55
35	k	146/151~(97%)	124 (85%)	22 (15%)	0	100	100
36	1	134/139~(96%)	111 (83%)	22 (16%)	1 (1%)	19	57
37	m	117/124 (94%)	103 (88%)	13 (11%)	1 (1%)	14	52
38	n	108/116~(93%)	88 (82%)	20 (18%)	0	100	100
39	0	113/119~(95%)	100 (88%)	13 (12%)	0	100	100
40	р	112/127~(88%)	98 (88%)	14 (12%)	0	100	100
41	q	97/100~(97%)	76 (78%)	19 (20%)	2 (2%)	5	30
42	r	137/159~(86%)	116 (85%)	21 (15%)	0	100	100
43	s	90/237~(38%)	74 (82%)	16 (18%)	0	100	100
44	t	109/111 (98%)	94 (86%)	15 (14%)	0	100	100
45	u	84/104 (81%)	72 (86%)	12 (14%)	0	100	100
46	v	61/65~(94%)	52 (85%)	9 (15%)	0	100	100
47	W	96/111 (86%)	79 (82%)	17 (18%)	0	100	100
48	x	42/97~(43%)	37 (88%)	5 (12%)	0	100	100
49	У	54/57~(95%)	46 (85%)	8 (15%)	0	100	100
50	Z	48/53~(91%)	40 (83%)	8 (17%)	0	100	100



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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	6206/7064~(88%)	5285 (85%)	899 (14%)	22~(0%)	32 68

5 of 22 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
11	G	109	ASN
12	Н	62	ASN
21	Q	79	CYS
21	Q	80	GLN
27	с	76	GLN

#### 5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent side chain 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	Perce	ntiles
1	0	40/41~(98%)	39~(98%)	1 (2%)	42	61
2	1	51/51~(100%)	51 (100%)	0	100	100
3	2	35/35~(100%)	33~(94%)	2~(6%)	17	38
4	9	324/325~(100%)	321~(99%)	3~(1%)	75	83
5	А	212/262~(81%)	207~(98%)	5 (2%)	44	62
6	В	180/232~(78%)	178 (99%)	2(1%)	70	80
7	С	181/183~(99%)	178 (98%)	3 (2%)	56	72
8	D	123/178~(69%)	120~(98%)	3(2%)	44	62
9	Ε	150/196~(76%)	149 (99%)	1 (1%)	81	87
10	F	131/132~(99%)	128~(98%)	3(2%)	45	64
11	G	123/124~(99%)	122 (99%)	1 (1%)	79	85
12	Н	111/115~(96%)	104 (94%)	7~(6%)	15	36
13	Ι	95/99~(96%)	93~(98%)	2(2%)	48	66
14	J	91/97~(94%)	91 (100%)	0	100	100
15	К	117/120~(98%)	113 (97%)	4 (3%)	32	51
16	L	100/105~(95%)	98~(98%)	2 (2%)	50	68



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Mol	Chain	Analysed	Rotameric	Outliers	Perce	ntiles
17	М	47/48~(98%)	46 (98%)	1 (2%)	48	66
18	Ν	76/78~(97%)	74 (97%)	2(3%)	41	59
19	Ο	69/82~(84%)	68~(99%)	1 (1%)	62	75
20	Р	73/75~(97%)	73 (100%)	0	100	100
21	Q	56/94~(60%)	55 (98%)	1 (2%)	54	71
22	R	74/77~(96%)	74 (100%)	0	100	100
23	S	70/77~(91%)	69 (99%)	1 (1%)	62	75
24	Т	49/56~(88%)	48 (98%)	1 (2%)	50	68
25	a	241/243~(99%)	240 (100%)	1 (0%)	89	91
26	b	186/233~(80%)	185 (100%)	1 (0%)	86	89
27	с	182/184~(99%)	178 (98%)	4 (2%)	47	65
28	d	150/154~(97%)	148 (99%)	2 (1%)	65	77
29	е	153/159~(96%)	152 (99%)	1 (1%)	81	87
30	f	131/134 (98%)	130 (99%)	1 (1%)	79	85
31	g	99/129~(77%)	90 (91%)	9 (9%)	7	24
32	h	102/110~(93%)	102 (100%)	0	100	100
33	i	126/128~(98%)	125 (99%)	1 (1%)	79	85
34	j	103/103~(100%)	100 (97%)	3~(3%)	37	56
35	k	123/126~(98%)	122 (99%)	1 (1%)	79	85
36	1	113/115~(98%)	110 (97%)	3(3%)	40	58
37	m	105/109~(96%)	102 (97%)	3(3%)	37	56
38	n	96/99~(97%)	94 (98%)	2 (2%)	48	66
39	0	101/105~(96%)	101 (100%)	0	100	100
40	р	100/108~(93%)	100 (100%)	0	100	100
41	q	90/91~(99%)	88 (98%)	2(2%)	47	65
42	r	116/132~(88%)	116 (100%)	0	100	100
43	s	82/208~(39%)	82 (100%)	0	100	100
44	t	96/96~(100%)	96 (100%)	0	100	100
45	u	69/85~(81%)	69 (100%)	0	100	100
46	V	58/60~(97%)	58 (100%)	0	100	100
47	W	87/98~(89%)	87 (100%)	0	100	100



Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
48	х	41/86~(48%)	40 (98%)	1 (2%)	44 62
49	У	48/49~(98%)	43~(90%)	5 (10%)	5 19
50	Z	47/50~(94%)	46~(98%)	1 (2%)	48 66
All	All	5423/6076~(89%)	5336~(98%)	87 (2%)	58 73

Continued from previous page...

5 of 87 residues with a non-rotameric side chain are listed below:

Mol	Chain	$\mathbf{Res}$	Type
31	g	31	SER
36	l	14	ASN
31	g	44	LEU
33	i	15	ARG
37	m	39	LYS

Sometimes side chains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 142 such side chains are listed below:

Mol	Chain	$\mathbf{Res}$	Type
36	1	123	HIS
38	n	49	ASN
42	r	102	ASN
11	G	73	ASN
11	G	58	GLN

#### 5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
51	3	2875/2907~(98%)	1332~(46%)	45~(1%)
52	4	103/108~(95%)	62~(60%)	4(3%)
53	5	1490/1520~(98%)	615 (41%)	14 (0%)
54	6	75/76~(98%)	32~(42%)	2(2%)
54	7	75/76~(98%)	48 (64%)	5~(6%)
All	All	4618/4687 (98%)	2089~(45%)	70 (1%)

5 of 2089 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
51	3	14	U
51	3	15	А
51	3	16	А



Continued from previous page...

Mol	Chain	Res	Type
51	3	17	G
51	3	20	С

5 of 70 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
53	5	928	G
53	5	1133	А
54	7	4	U
51	3	1507	G
51	3	1481	U

#### 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-13411. These allow visual inspection of the internal detail of the map and identification of artifacts.

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

### 6.1 Orthogonal projections (i)

#### 6.1.1 Primary map



6.1.2 Raw map



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



## 6.2 Central slices (i)

#### 6.2.1 Primary map



X Index: 128



Y Index: 128



Z Index: 128

#### 6.2.2 Raw map



X Index: 128

Y Index: 128



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



#### 6.3 Largest variance slices (i)

#### 6.3.1 Primary map



X Index: 134





Z Index: 113

#### 6.3.2 Raw map



X Index: 130

Y Index: 120



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



6.4.2 Raw map



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 0.4. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

#### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.



#### Mask visualisation (i) 6.6

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

#### $emd_{13411}_{msk}_{1.map}$ (i) 6.6.1





# 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 2426  $\rm nm^3;$  this corresponds to an approximate mass of 2192 kDa.

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



#### 7.3 Rotationally averaged power spectrum (i)



\*Reported resolution corresponds to spatial frequency of 0.118  ${\rm \AA^{-1}}$ 



## 8 Fourier-Shell correlation (i)

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 (i)



\*Reported resolution corresponds to spatial frequency of 0.118  $\mathrm{\AA^{-1}}$ 



#### 8.2 Resolution estimates (i)

$\mathbf{Bosolution} \text{ ostimato } (\mathbf{\hat{\lambda}})$	Estimation criterion (FSC cut-off)		
Resolution estimate (A)	0.143	0.5	Half-bit
Reported by author	8.50	-	-
Author-provided FSC curve	8.42	11.49	8.80
Unmasked-calculated*	11.17	19.05	12.36

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 11.17 differs from the reported value 8.5 by more than 10 %



# 9 Map-model fit (i)

This section contains information regarding the fit between EMDB map EMD-13411 and PDB model 7PHA. Per-residue inclusion information can be found in section 3 on page 13.

### 9.1 Map-model overlay (i)



The images above show the 3D surface view of the map at the recommended contour level 0.4 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 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 (0.4).



#### 9.4 Atom inclusion (i)



At the recommended contour level, 95% of all backbone atoms, 93% of all non-hydrogen atoms, are inside the map.



1.0

0.0 <0.0

#### 9.5 Map-model fit summary (i)

The table lists the average atom inclusion at the recommended contour level (0.4) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	$\mathbf{Q} extsf{-score}$
All	0.9270	0.1960
0	0.9200	0.1720
1	0.9030	0.1840
2	0.8550	0.1370
3	0.9860	0.2050
4	0.9920	0.2070
5	0.9890	0.2070
6	0.9250	0.1850
7	0.9820	0.1980
9	0.4360	0.1500
А	0.7930	0.1990
В	0.8220	0.1960
С	0.8350	0.1790
D	0.8090	0.1730
E	0.7780	0.2010
F	0.7950	0.1730
G	0.8190	0.1700
Н	0.8700	0.1730
Ι	0.7800	0.1650
J	0.8320	0.1610
K	0.8750	0.1840
L	0.8480	0.1860
М	0.8920	0.1450
Ν	0.8140	0.1920
0	0.9050	0.1770
Р	0.8540	0.1810
Q	0.8860	0.1890
R	0.8840	0.1650
S	0.9080	0.1900
Т	0.8880	0.2210
a	0.8800	0.1690
b	0.8540	0.1650
с	0.8520	0.1840
d	0.8260	0.1760
е	0.8230	0.1930



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Chain	Atom inclusion	Q-score
f	0.4380	0.1740
g	0.7380	0.1570
h	0.6830	0.1800
i	0.9030	0.1820
j	0.8210	0.1850
k	0.8760	0.1700
1	0.8730	0.1700
m	0.8570	0.1760
n	0.8820	0.1820
0	0.7980	0.1830
р	0.9070	0.1740
q	0.8410	0.1860
r	0.9070	0.1850
S	0.8520	0.1960
t	0.7680	0.1820
u	0.8950	0.1700
V	0.9090	0.1650
W	0.8760	0.2150
X	0.8600	0.2100
У	0.9010	0.1730
Z	0.9240	0.1940

