wwPDB EM Validation Summary Report ⓘ

May 17, 2025 – 11:35 PM EDT

PDB ID	:	8ETG / pdb_00008etg
EMDB ID	:	EMD-24397
Title	:	Fkbp39 associated 60S nascent ribosome State 3
Authors	:	Zhou, X.; Bilokapic, S.; Deshmukh, A.A.; Halic, M.
Deposited on	:	2022-10-17
Resolution	:	3.40 Å(reported)

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

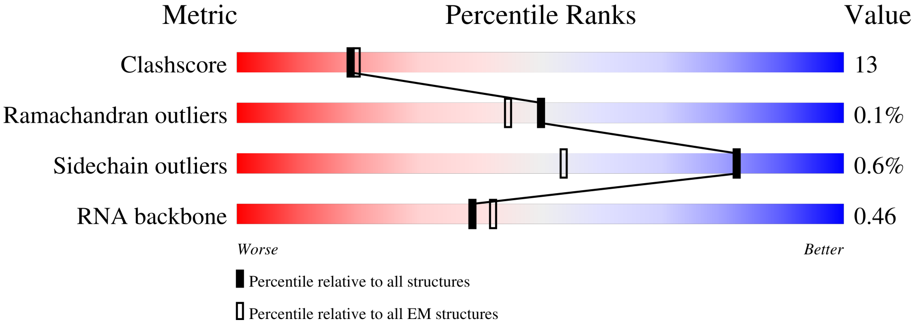
EMDB validation analysis	:	0.0.1.dev118
MolProbity	:	4-5-2 with Phenix2.0rc1
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance

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

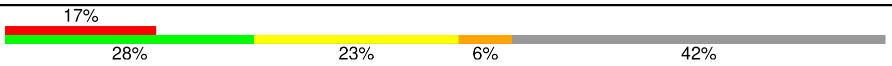
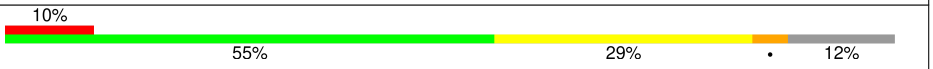
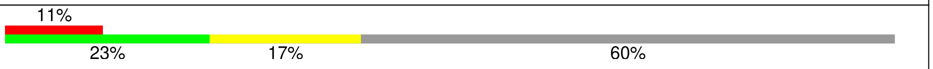
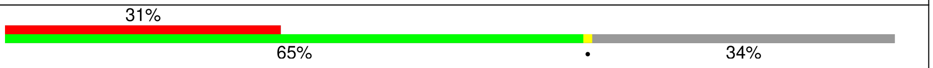
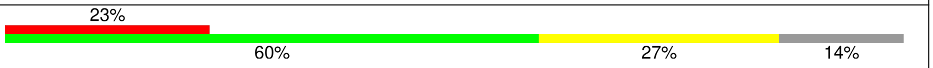
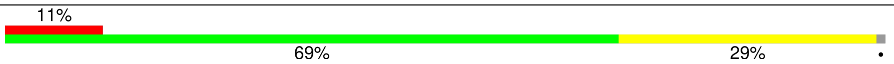
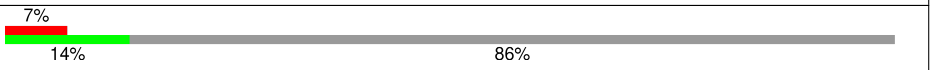
The reported resolution of this entry is 3.40 Å.

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



Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
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	1	3497	
2	2	165	
3	3	302	
4	A	295	
5	B	388	
6	C	363	
7	D	578	

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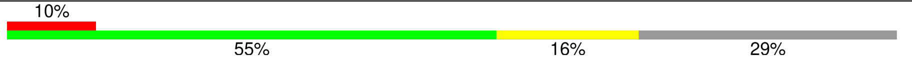
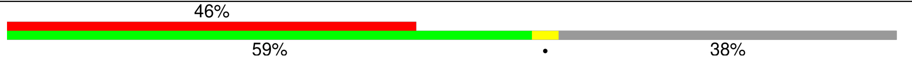
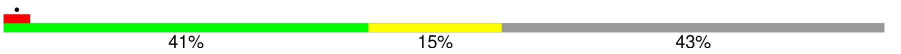
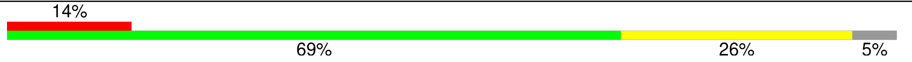
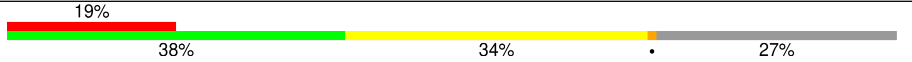
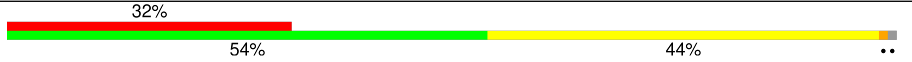
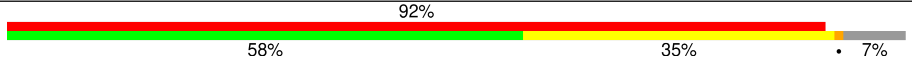
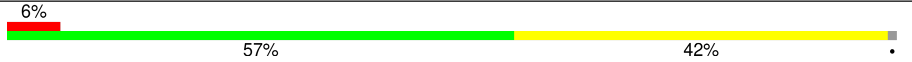
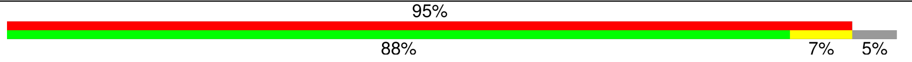
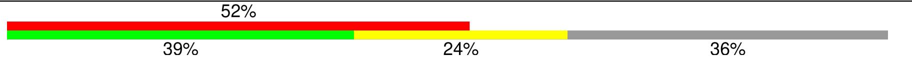
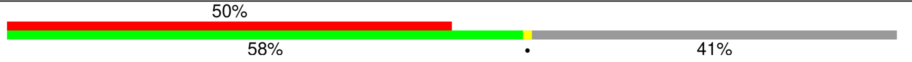
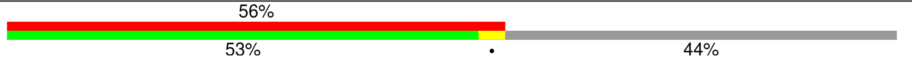
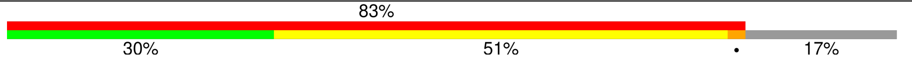
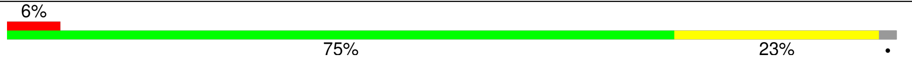
Mol	Chain	Length	Quality of chain
8	E	195	 18% 45% 29% 26%
9	F	250	 • 58% 27% 14%
10	G	259	 10% 55% 16% 29%
11	H	190	 51% 51% 45% • •
12	K	373	 46% 59% • 38%
13	L	208	 • 41% 15% 43%
14	M	134	 13% 53% 38% • 7%
15	N	201	 • 63% 20% 17%
16	O	197	 14% 69% 26% 5%
17	P	187	 19% 38% 34% • 27%
18	Q	187	 6% 51% 18% 30%
19	R	193	 30% 18% 12% 70%
20	S	176	 32% 54% 44% ••
21	U	117	 84% 82% • 16%
22	V	139	 92% 58% 35% • 7%
23	W	241	 80% 77% • 20%
24	X	141	 85% 64% 28% 8%
25	Y	126	 6% 57% 42% •
26	Z	136	 95% 88% 7% 5%
27	a	148	 52% 39% 24% 36%
28	b	642	 50% 58% • 41%
29	c	117	 56% 53% • 44%
30	d	113	 83% 30% 51% • 17%
31	e	127	 • 60% 31% • 8%
32	f	108	 6% 75% 23% •

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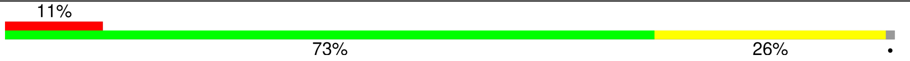
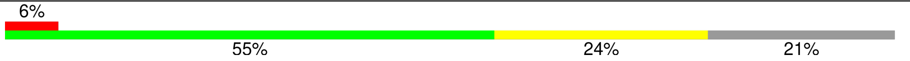
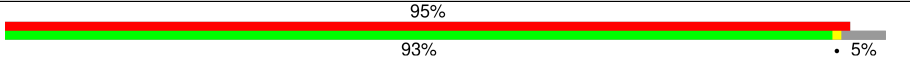
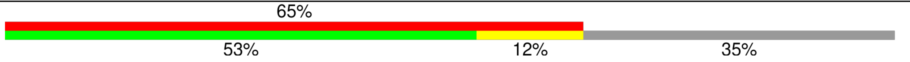
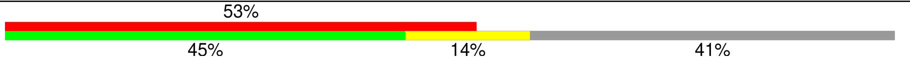
Mol	Chain	Length	Quality of chain
33	g	112	
34	h	122	
35	i	99	
36	j	91	
37	k	74	
38	m	740	
39	n	607	
40	o	276	
41	p	440	
42	r	260	
43	t	249	
44	u	192	
45	v	209	
46	y	244	
47	T	160	
48	6	300	

2 Entry composition (i)

There are 49 unique types of molecules in this entry. The entry contains 99257 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called RNA (1912-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	2018	Total	C	N	O	P	0	0
			43202	19298	7842	14044	2018		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
1	3196	U	C	conflict	GB 157310483

- Molecule 2 is a RNA chain called RNA (146-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	146	Total	C	N	O	P	0	0
			3102	1388	547	1021	146		

- Molecule 3 is a protein called Protein mak16.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	120	Total	C	N	O	S	0	0
			1015	642	190	177	6		

- Molecule 4 is a protein called Ribosome biogenesis protein brx1.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	A	196	Total	C	N	O	0	0
			1015	610	201	204		

- Molecule 5 is a protein called 60S ribosomal protein L3-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	B	334	Total	C	N	O	S	0	0
			2653	1682	491	471	9		

- Molecule 6 is a protein called 60S ribosomal protein L4-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	C	359	2795	1765	536	491	3	0	0

- Molecule 7 is a protein called ATP-dependent RNA helicase has1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
7	D	82	408	244	82	82	0	0

- Molecule 8 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	E	145	1126	723	208	192	3	0	0

- Molecule 9 is a protein called 60S ribosomal protein L7-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	F	214	1745	1124	320	298	3	0	0

- Molecule 10 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	G	184	1452	934	262	254	2	0	0

- Molecule 11 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	H	183	1451	914	266	265	6	0	0

- Molecule 12 is a protein called Putative ribosome biogenesis protein C8F11.04.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
12	K	231	1145	683	231	231	0	0

- Molecule 13 is a protein called 60S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	L	118	Total	C	N	O	S	0	0
			962	603	204	154	1		

- Molecule 14 is a protein called 60S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	M	124	Total	C	N	O	S	0	0
			1000	639	190	167	4		

- Molecule 15 is a protein called 60S ribosomal protein L15-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	N	166	Total	C	N	O	S	0	0
			1406	883	291	229	3		

- Molecule 16 is a protein called 60S ribosomal protein L16-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	O	187	Total	C	N	O	S	0	0
			1483	956	281	242	4		

- Molecule 17 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	P	136	Total	C	N	O	S	0	0
			1080	690	196	191	3		

- Molecule 18 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	Q	130	Total	C	N	O	S	0	0
			1020	646	196	177	1		

- Molecule 19 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	R	57	Total	C	N	O	S	0	0
			456	282	93	78	3		

- Molecule 20 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	S	174	1434	925	269	235	5	0	0

- Molecule 21 is a protein called 60S ribosomal protein L22.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
21	U	98	484	288	98	98	0	0

- Molecule 22 is a protein called 60S ribosomal protein L23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	V	129	976	617	179	172	8	0	0

- Molecule 23 is a protein called Ribosome assembly factor mrt4.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
23	W	193	948	562	193	193	0	0

- Molecule 24 is a protein called 60S ribosomal protein L25-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	X	130	1032	658	192	181	1	0	0

- Molecule 25 is a protein called 60S ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	Y	125	998	622	201	173	2	0	0

- Molecule 26 is a protein called 60S ribosomal protein L27-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
26	Z	129	637	378	129	130	0	0

- Molecule 27 is a protein called 60S ribosomal protein L28-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
27	a	94	747	474	142	131	0	0

- Molecule 28 is a protein called Probable nucleolar GTP-binding protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
28	b	378	1875	1119	378	378	0	0

- Molecule 29 is a protein called 60S ribosomal protein L30-2.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
29	c	66	325	193	66	66	0	0

- Molecule 30 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	d	94	787	500	156	128	3	0	0

- Molecule 31 is a protein called 60S ribosomal protein L32-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	e	117	939	588	190	156	5	0	0

- Molecule 32 is a protein called 60S ribosomal protein L33-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	f	106	839	534	162	140	3	0	0

- Molecule 33 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
33	g	87	428	254	87	87	0	0

- Molecule 34 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
34	h	121	999	629	194	176	0	0

- Molecule 35 is a protein called 60S ribosomal protein L36-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
35	i	78	637	394	135	107	1	0	0

- Molecule 36 is a protein called 60S ribosomal protein L37-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
36	j	71	563	346	121	90	6	0	0

- Molecule 37 is a protein called 60S ribosomal protein L38-1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
37	k	70	349	209	70	70	0	0

- Molecule 38 is a protein called Ribosome biogenesis protein erb1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
38	m	484	2881	1757	557	566	1	0	0

- Molecule 39 is a protein called Pescadillo homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
39	n	416	3389	2186	587	604	12	0	0

- Molecule 40 is a protein called Uncharacterized RNA-binding protein C1827.05c.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
40	o	109	897	579	162	150	6	0	0

- Molecule 41 is a protein called Ribosome biogenesis protein ytm1.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	p	287	Total 1416	C 842	N 287	O 287	0	0

- Molecule 42 is a protein called Ribosome biogenesis protein nsa2.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	r	154	Total 1009	C 613	N 208	O 187	S 1	0	0

- Molecule 43 is a protein called 60S ribosomal protein L7-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	t	235	Total 1948	C 1242	N 367	O 334	S 5	0	0

- Molecule 44 is a protein called Ribosome biogenesis protein rlp24.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	u	99	Total 491	C 293	N 99	O 99	0	0

- Molecule 45 is a protein called Nucleolar protein 16.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	v	140	Total 1143	C 721	N 220	O 199	S 3	0	0

- Molecule 46 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	y	225	Total 1107	C 657	N 225	O 225	0	0

- Molecule 47 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
47	T	19	Total 147	C 93	N 26	O 28	0	0

- Molecule 48 is a RNA chain called RNA (62-MER).

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
48	6	62	1315	590	229	434	62	0	0

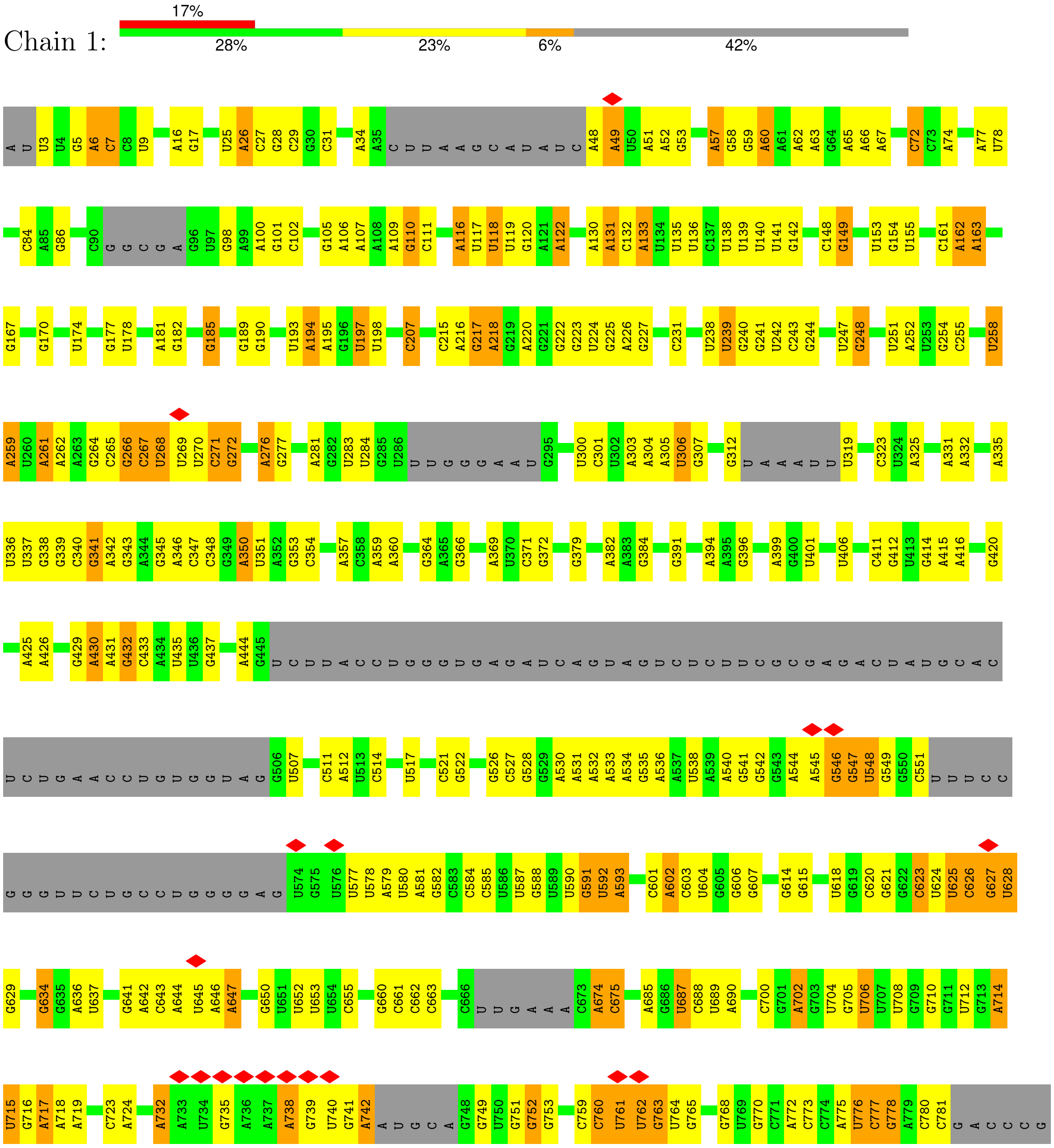
- Molecule 49 is ZINC ION (CCD ID: ZN) (formula: Zn).

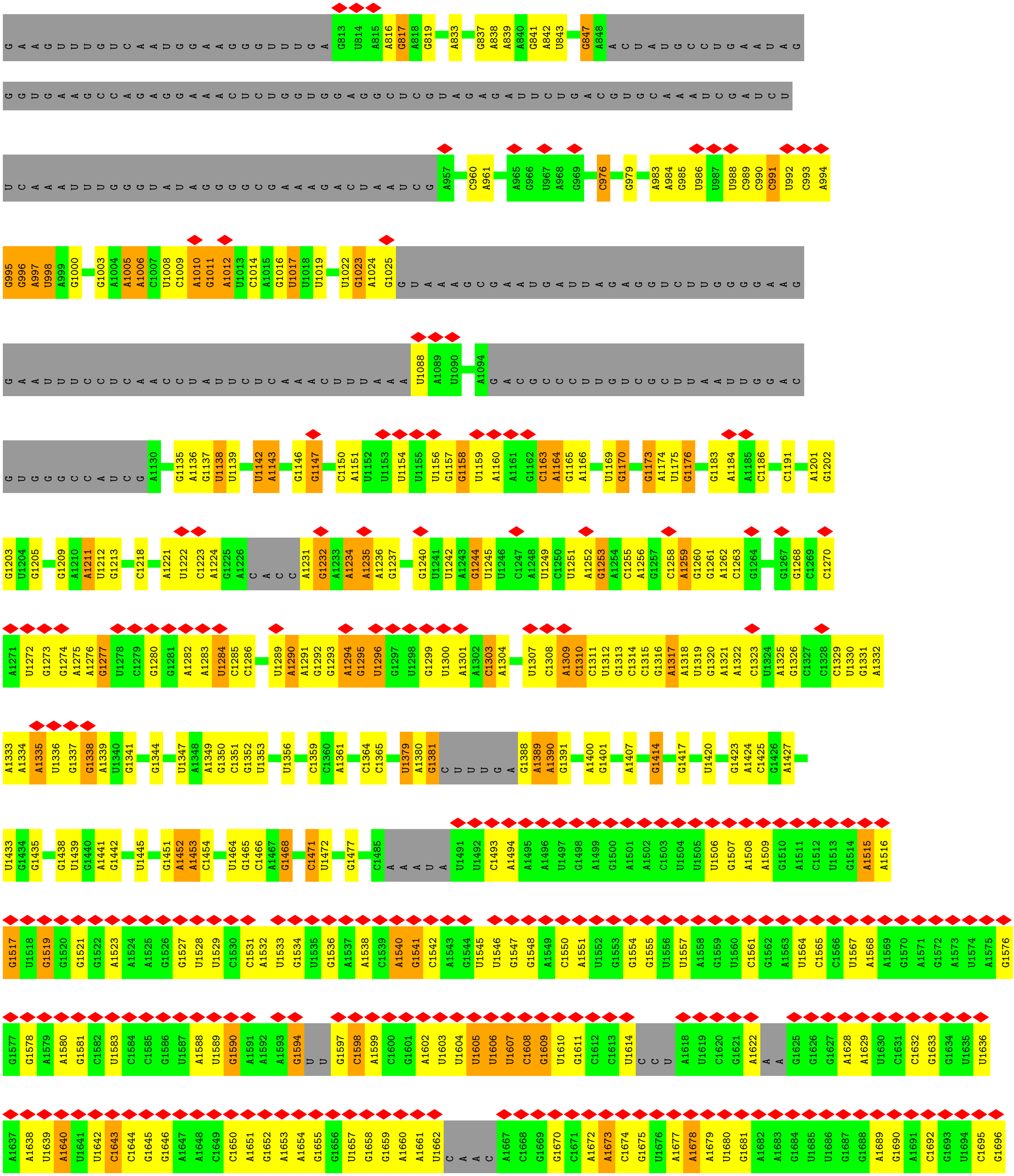
Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
49	j	1	1	1	0

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: RNA (1912-MER)

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G G U G A A G C C A G G A G G A A A C U C U G G U G G A G G C U C G U A G A G A U U C U G A C G U G C A A A U C G A U C U
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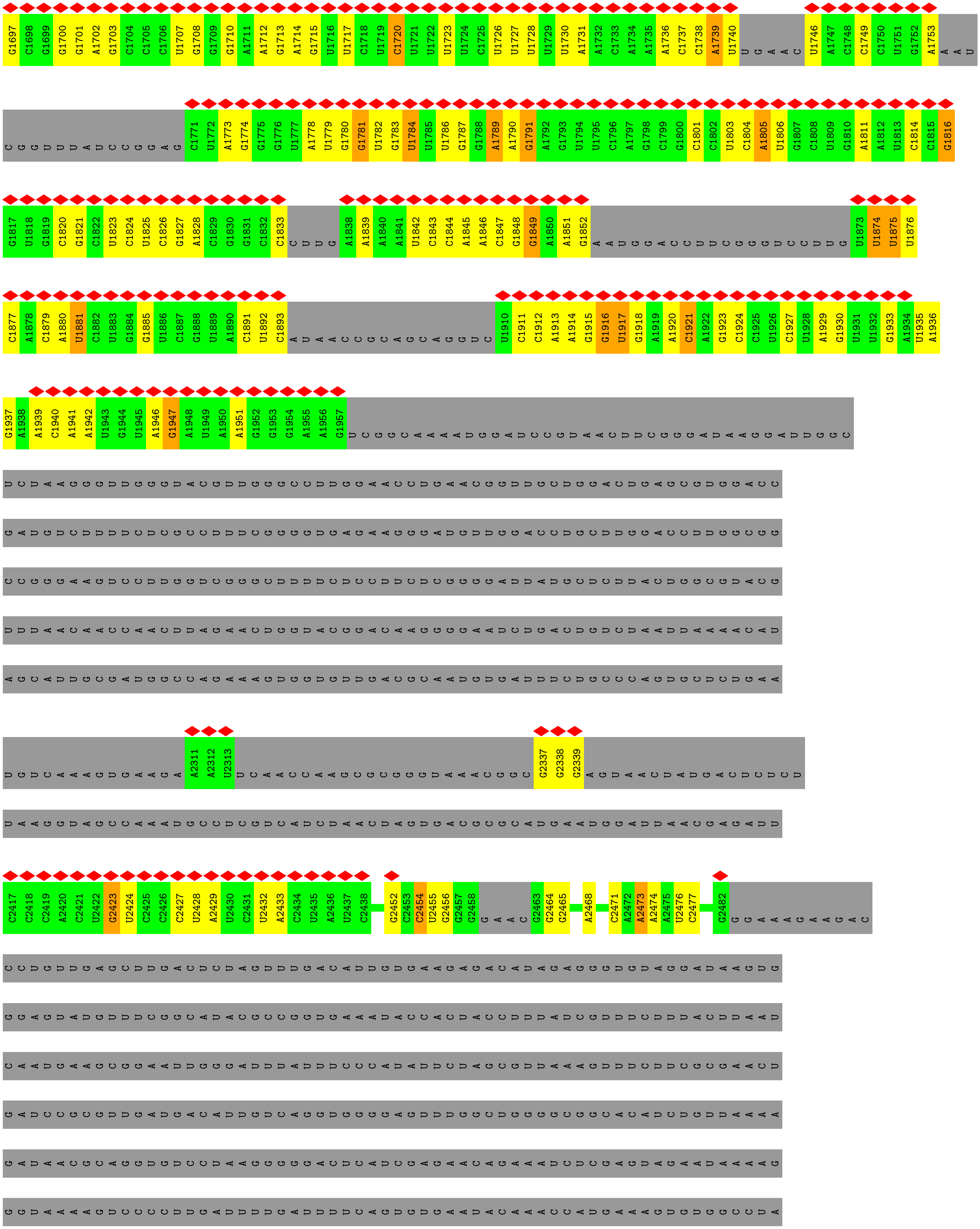
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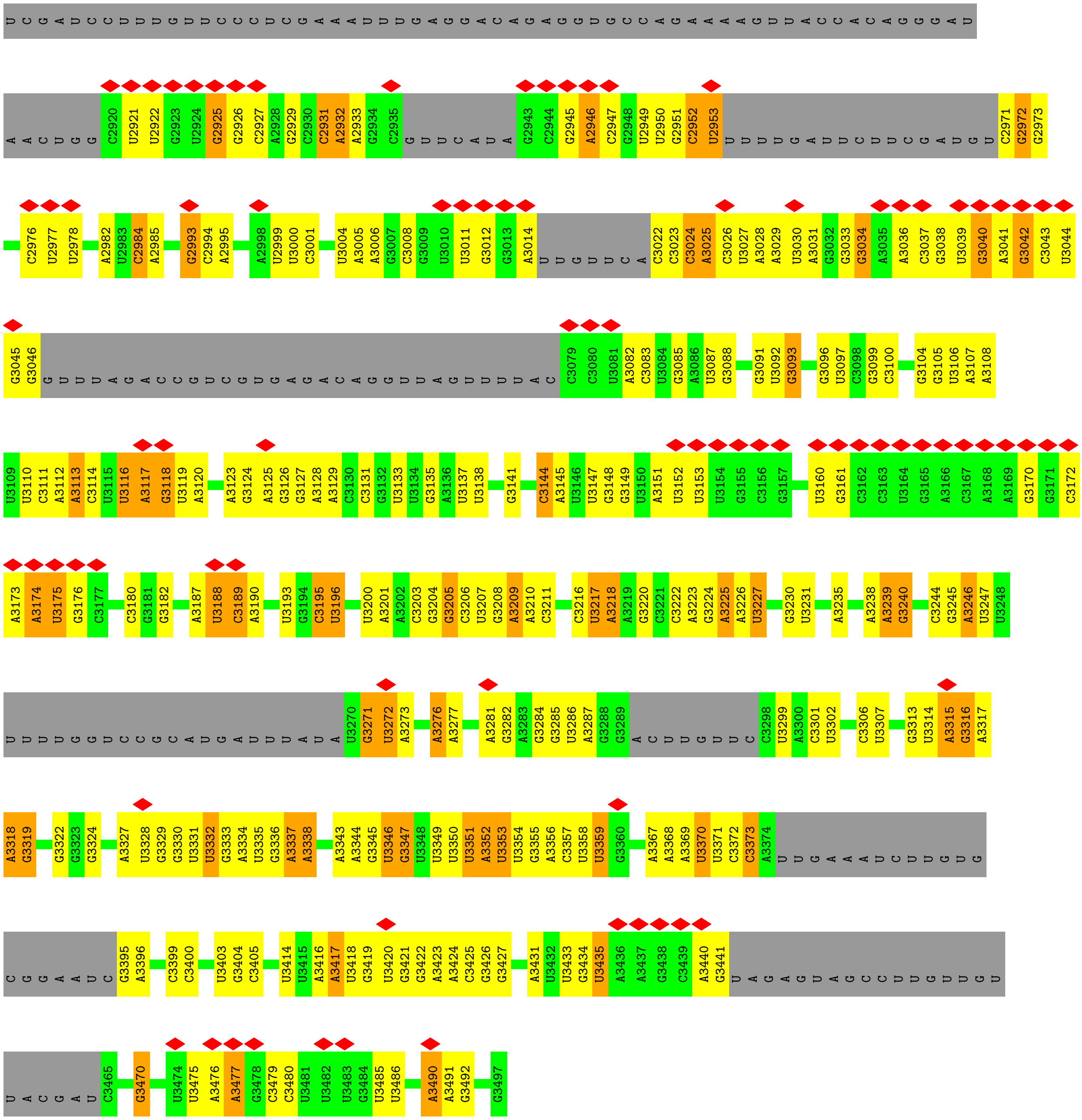
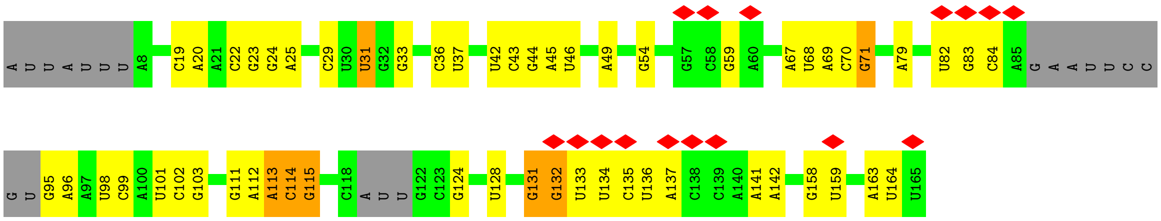


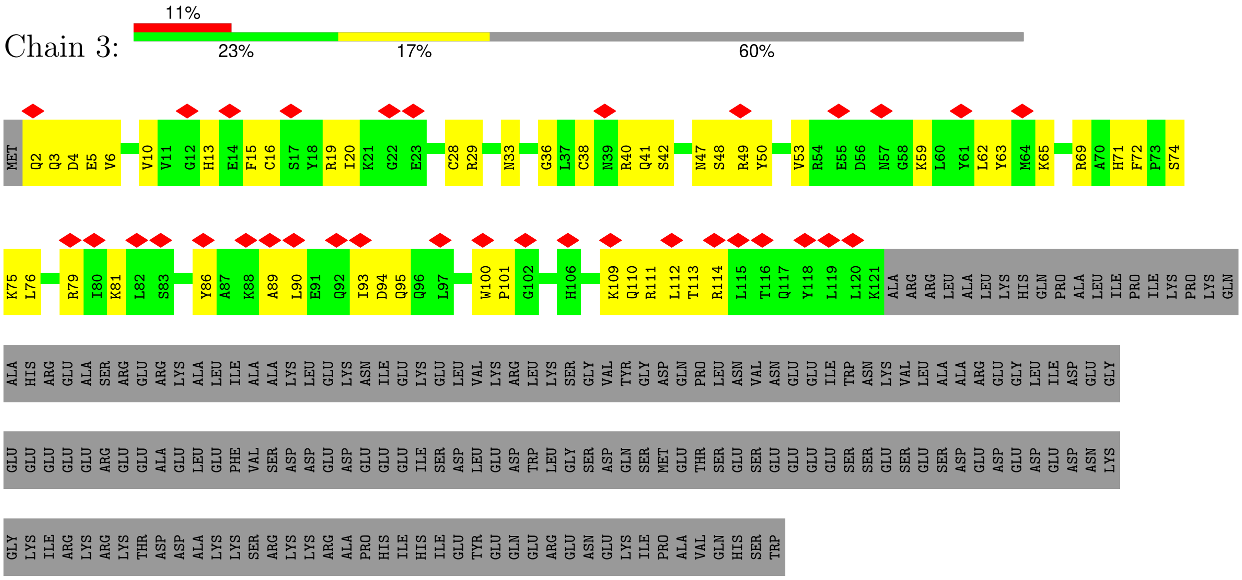
- Molecule 2: RNA (146-MER)

Chain 2:



- Molecule 3: Protein mak16

Chain 3:



- Molecule 4: Ribosome biogenesis protein brx1

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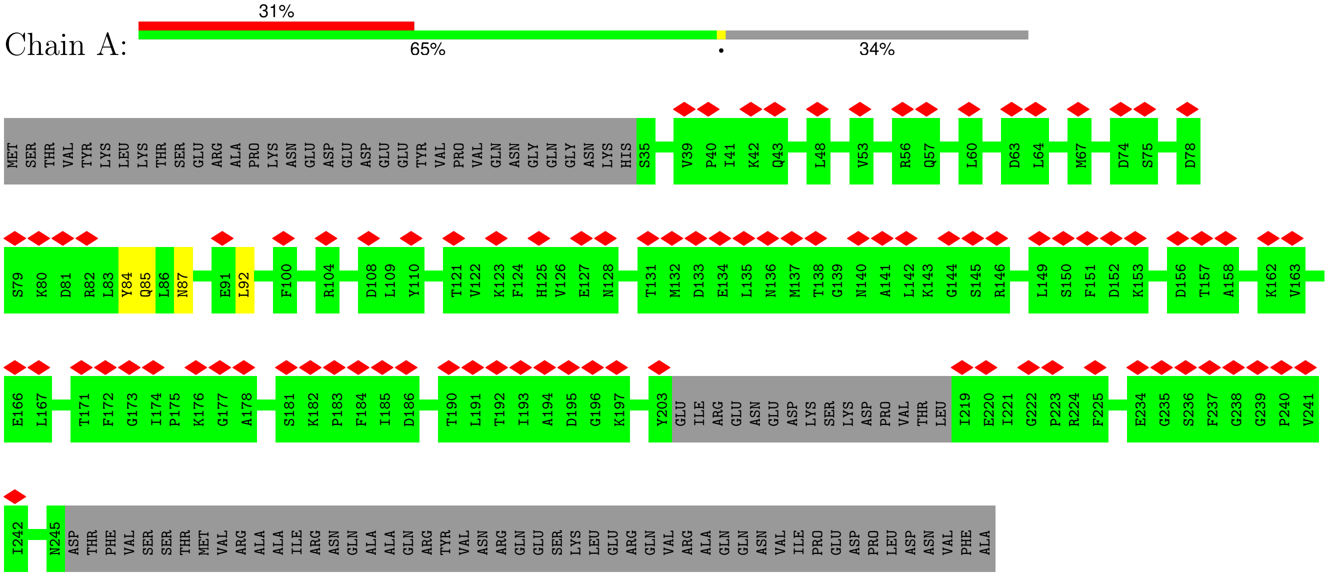

- Molecule 5: 60S ribosomal protein L3-A

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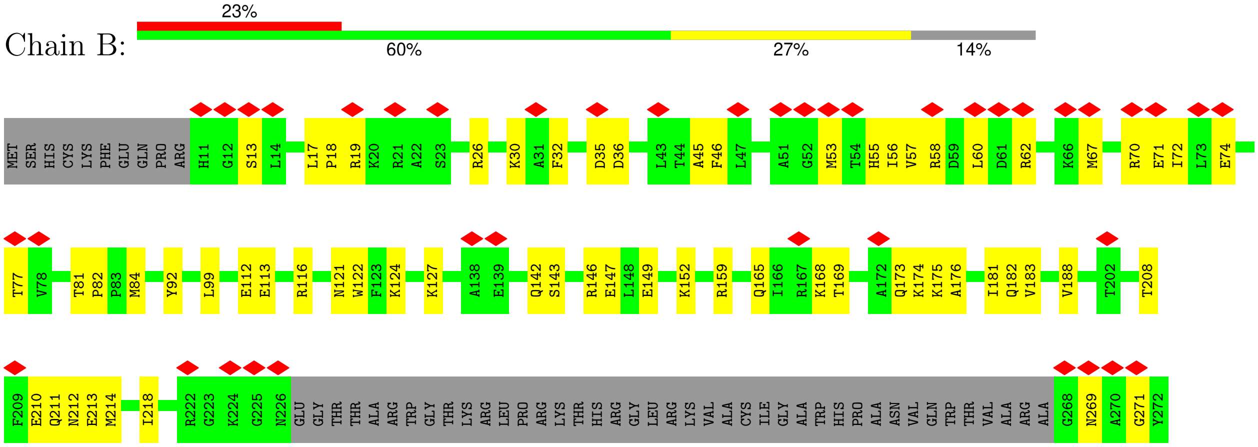

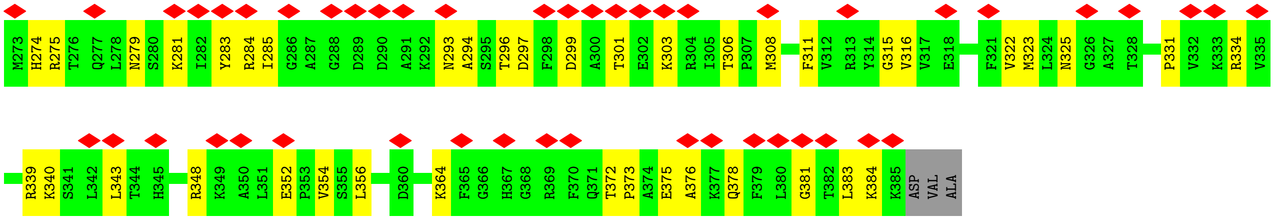

- Molecule 6: 60S ribosomal protein L4-B

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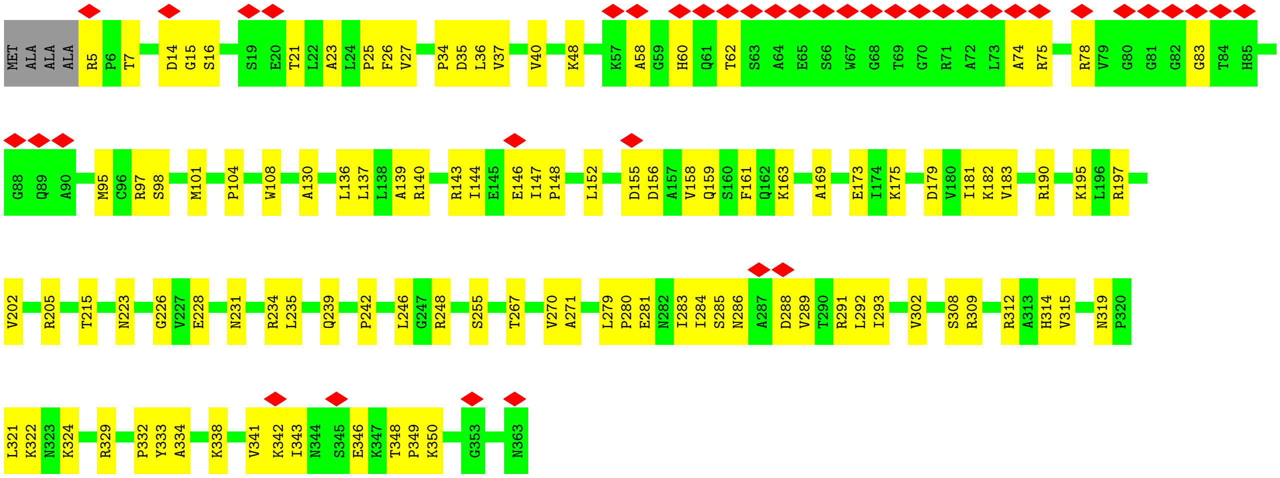
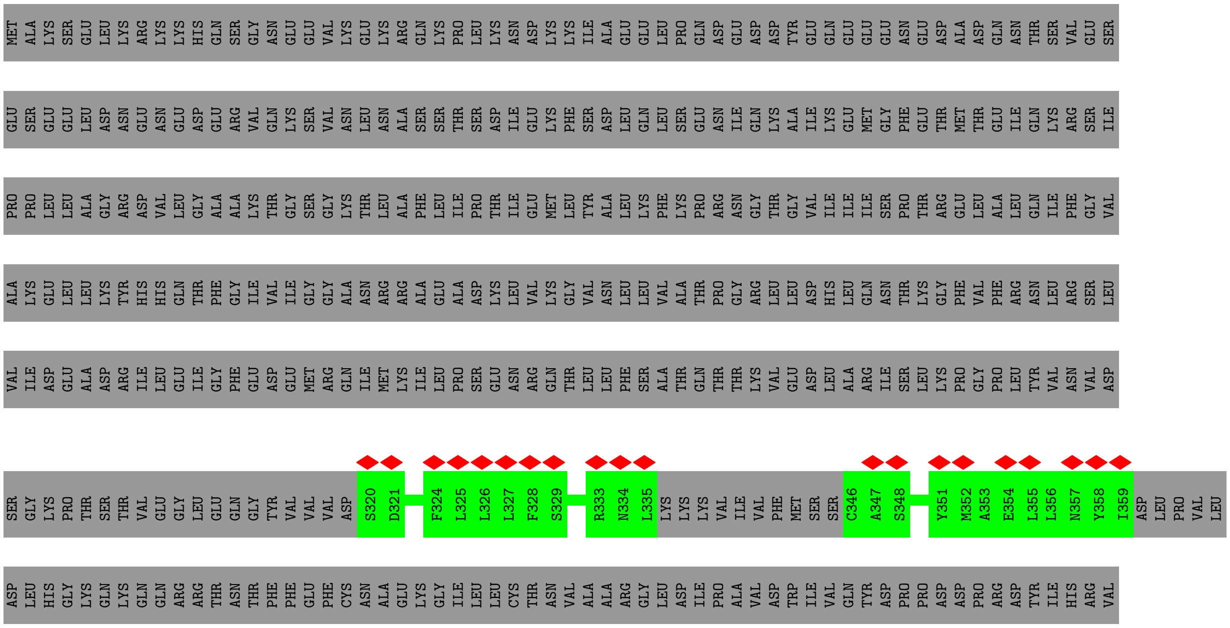
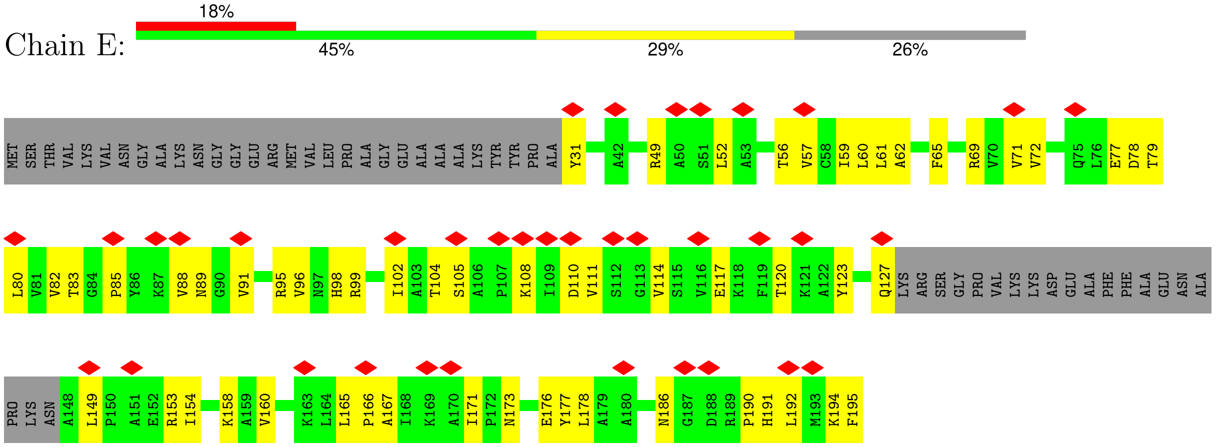


- Molecule 7: ATP-dependent RNA helicase has1

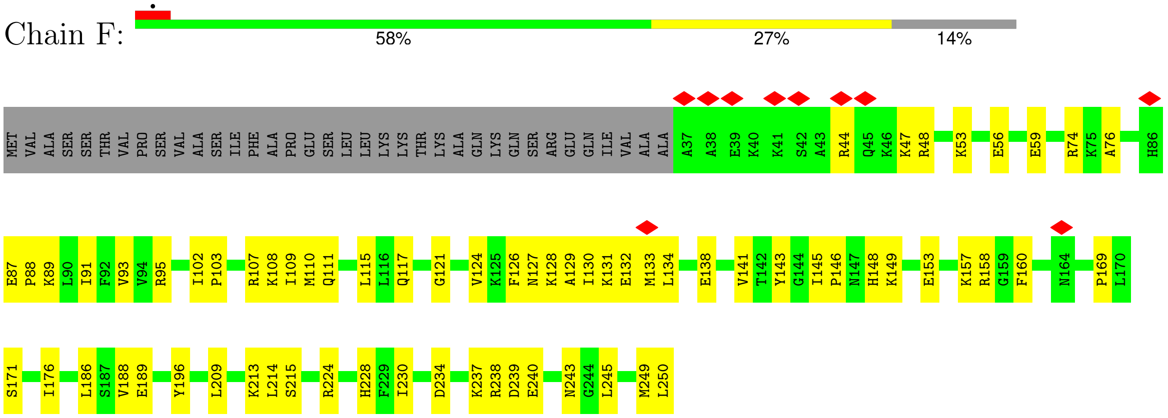
Chain D:



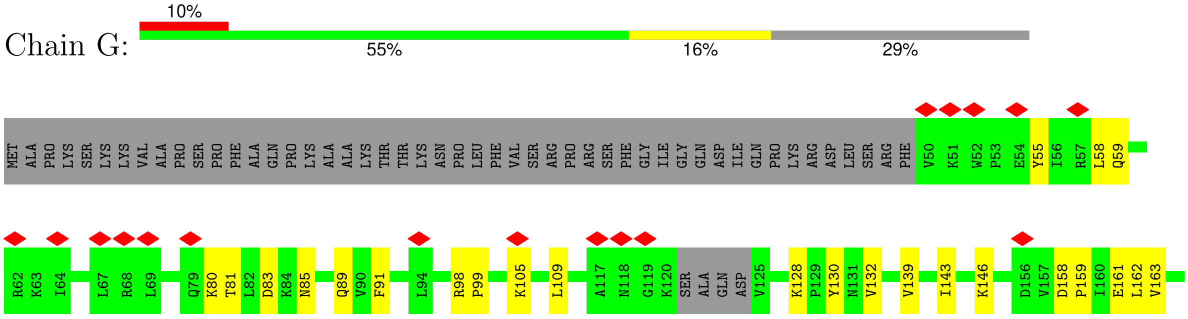
- Molecule 8: 60S ribosomal protein L6

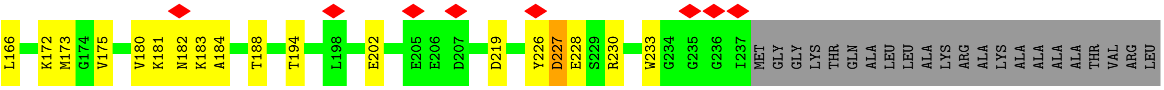


- Molecule 9: 60S ribosomal protein L7-B



- Molecule 10: 60S ribosomal protein L8





- Molecule 11: 60S ribosomal protein L9-A

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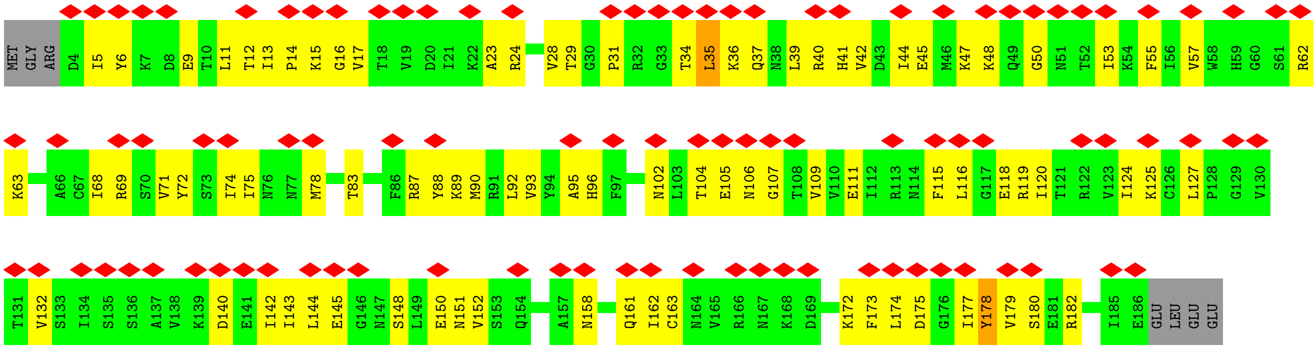
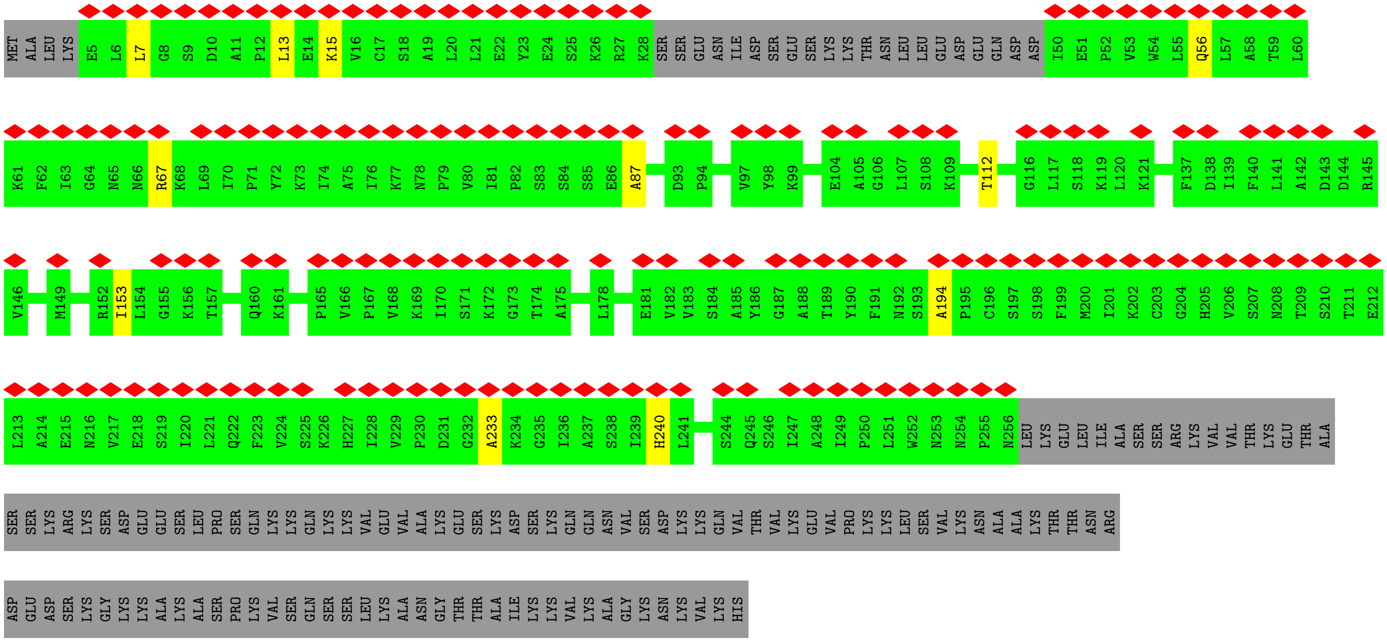


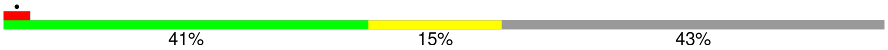
- Molecule 12: Putative ribosome biogenesis protein C8F11.04

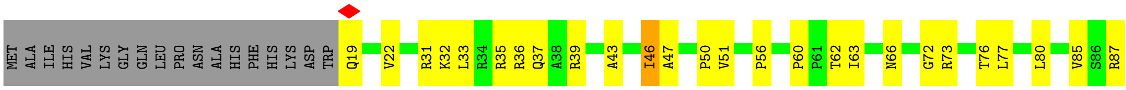
Chain K:

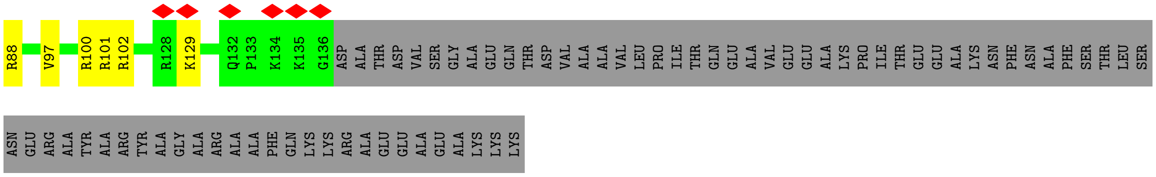


- Molecule 13: 60S ribosomal protein L13

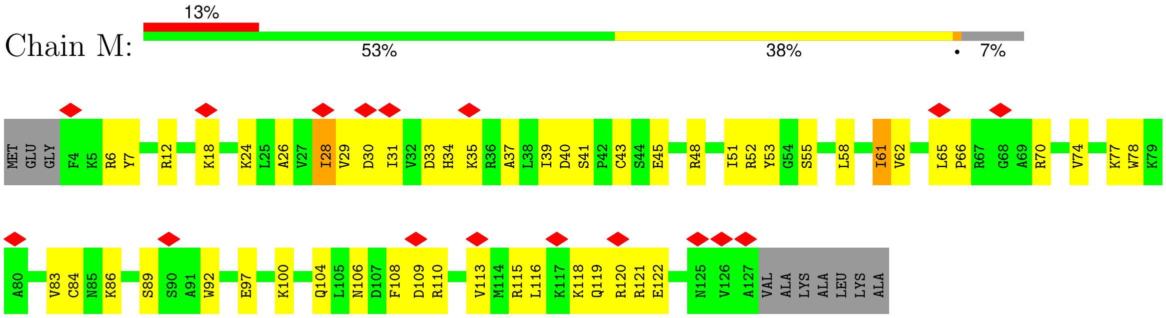
Chain L:



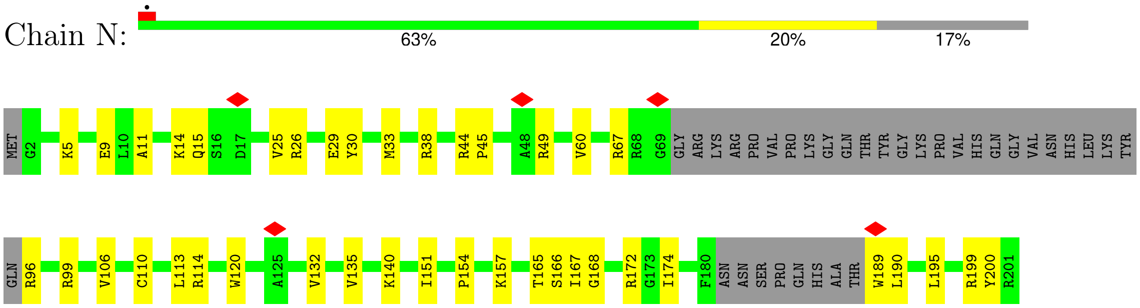




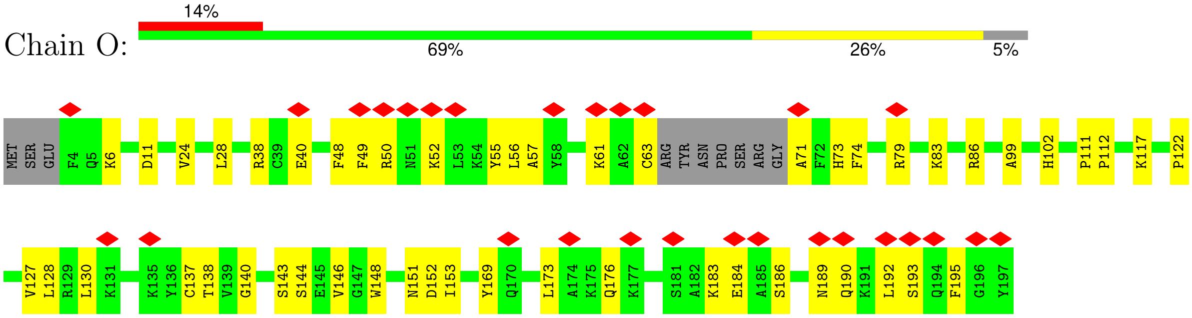
- Molecule 14: 60S ribosomal protein L14



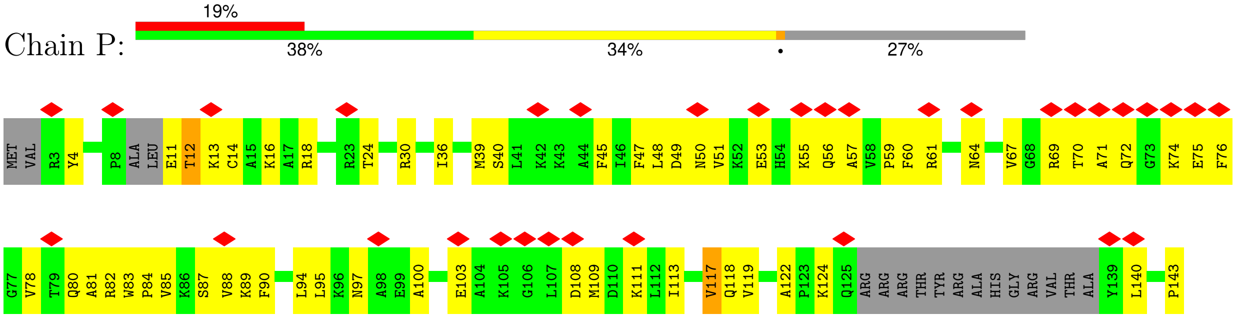
- Molecule 15: 60S ribosomal protein L15-A

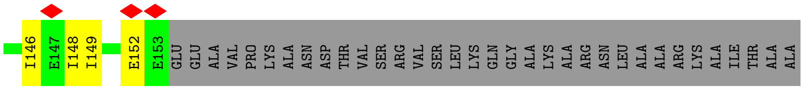


- Molecule 16: 60S ribosomal protein L16-B



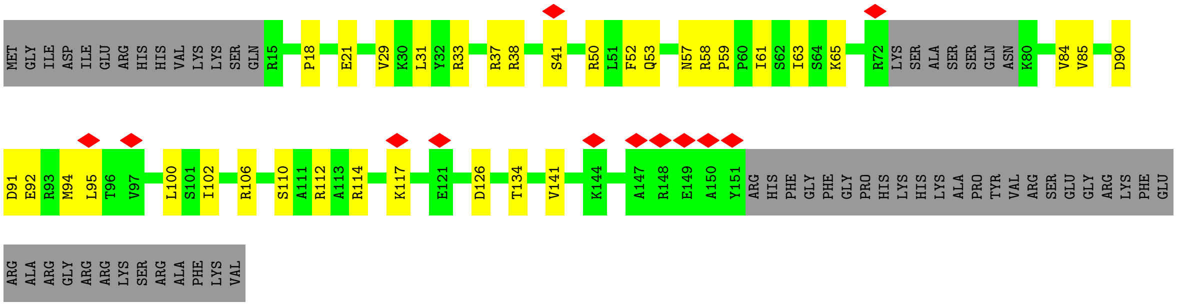
- Molecule 17: 60S ribosomal protein L17-A





- Molecule 18: 60S ribosomal protein L18-A

Chain Q:



- Molecule 19: 60S ribosomal protein L19-A

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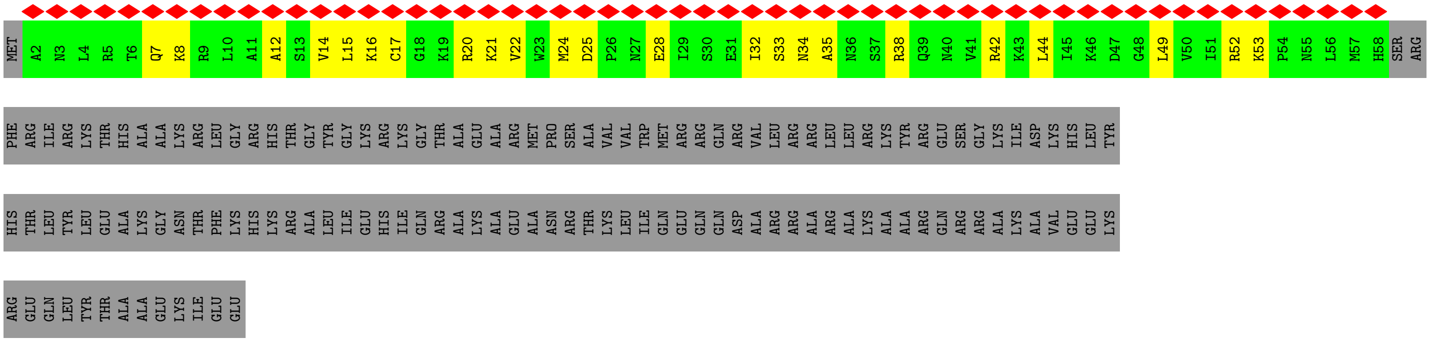

- Molecule 20: 60S ribosomal protein L20-A

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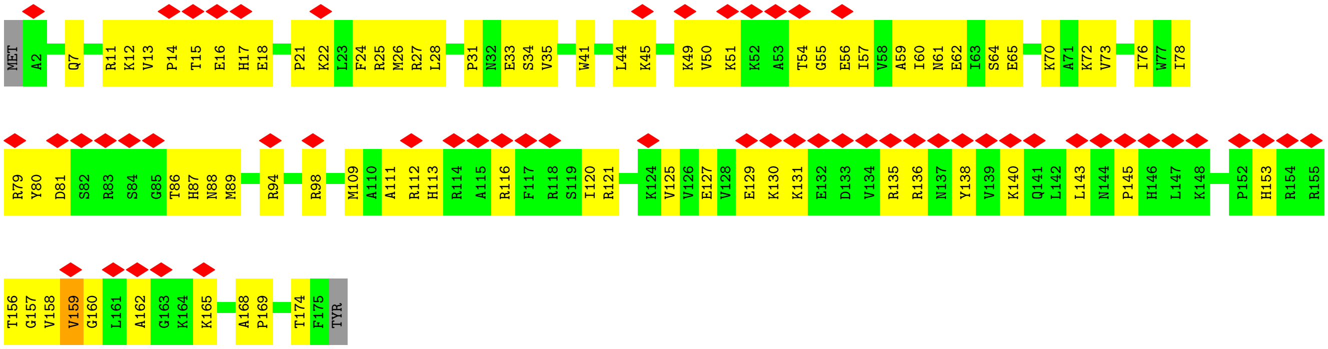
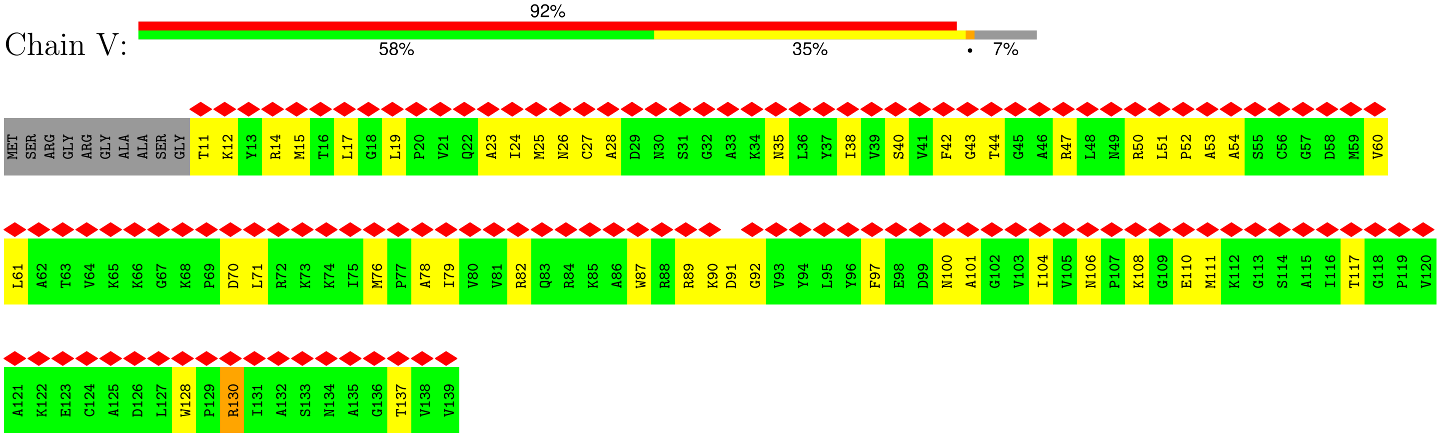


- Molecule 21: 60S ribosomal protein L22

Chain U:

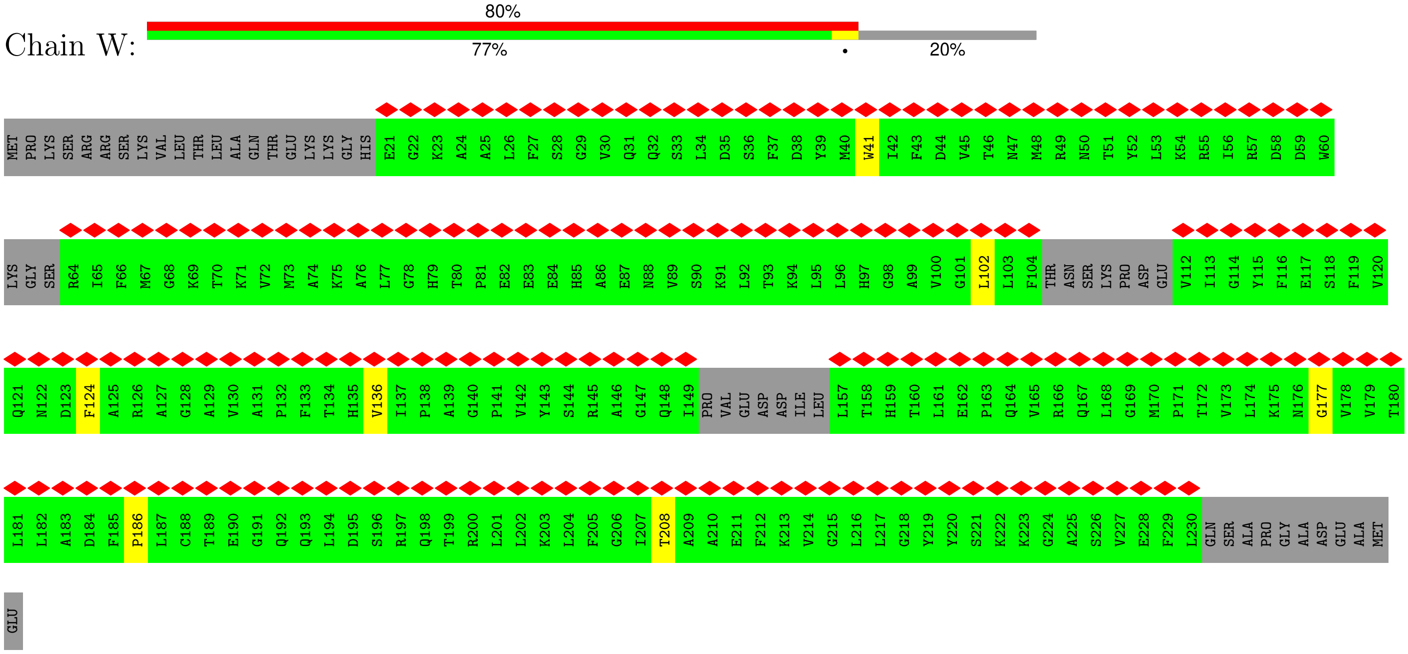
- Molecule 22: 60S ribosomal protein L23-A

Chain V:



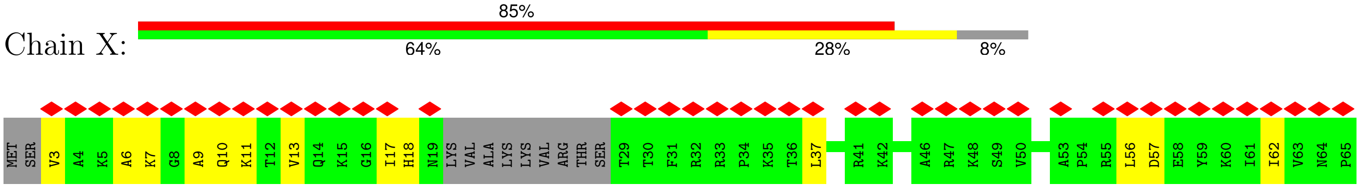
- Molecule 23: Ribosome assembly factor mrt4

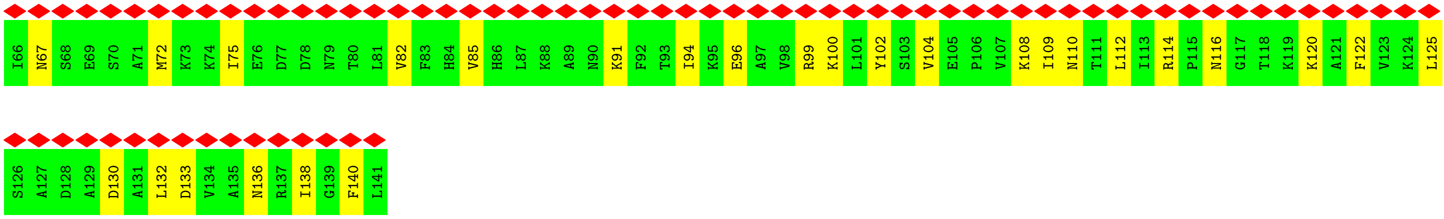
Chain W:



- Molecule 24: 60S ribosomal protein L25-A

Chain X:





- Molecule 25: 60S ribosomal protein L26

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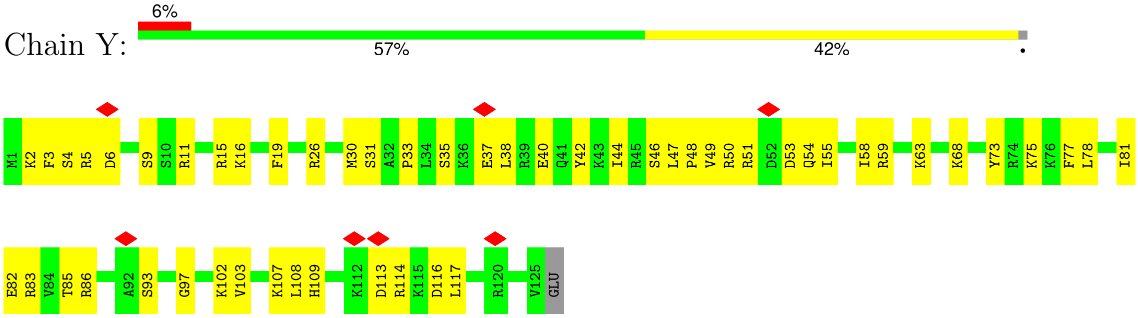
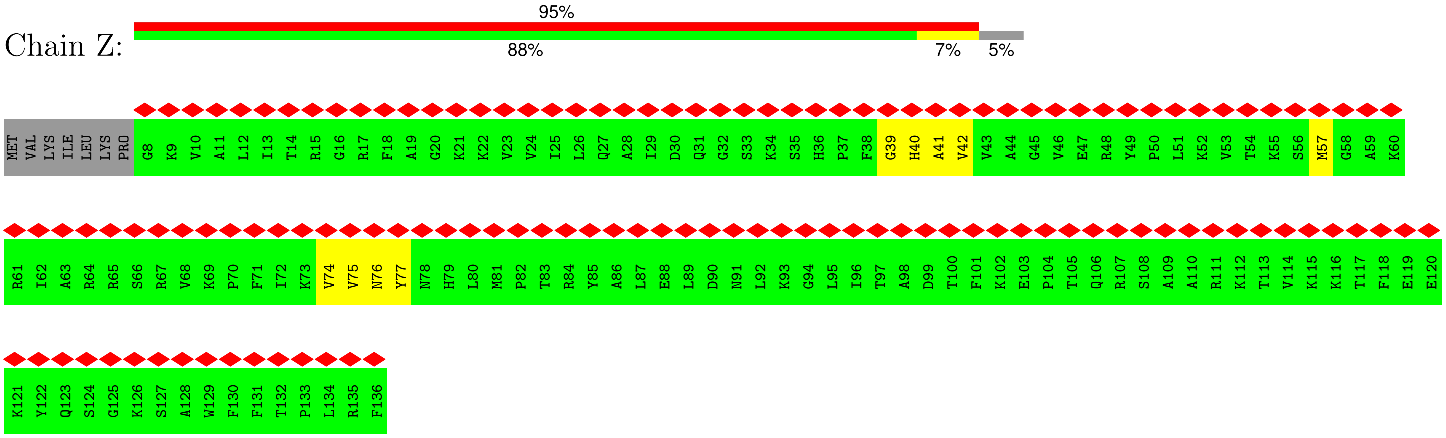


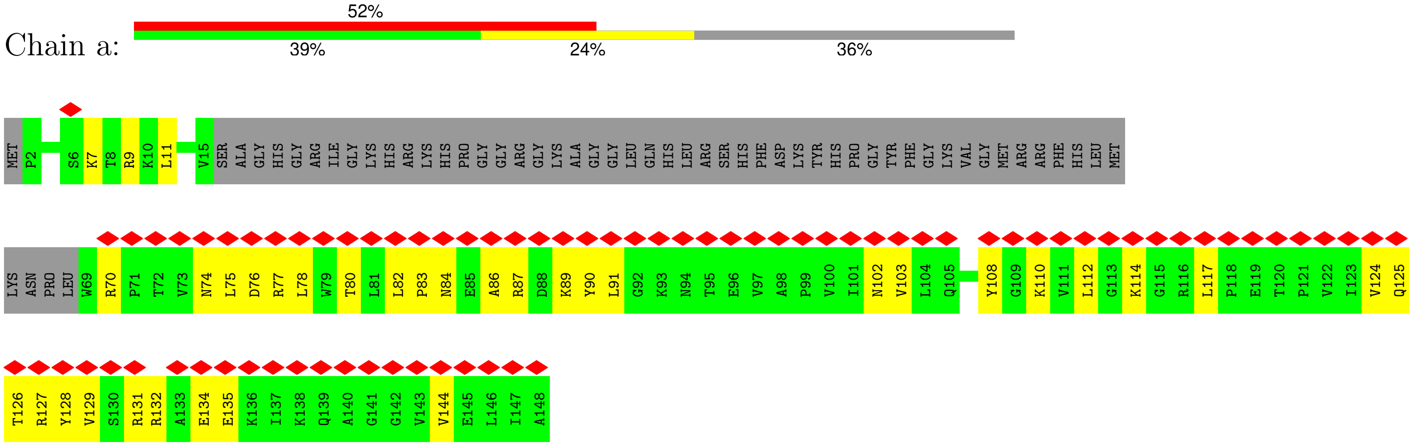
- Molecule 26: 60S ribosomal protein L27-A

Chain Z:



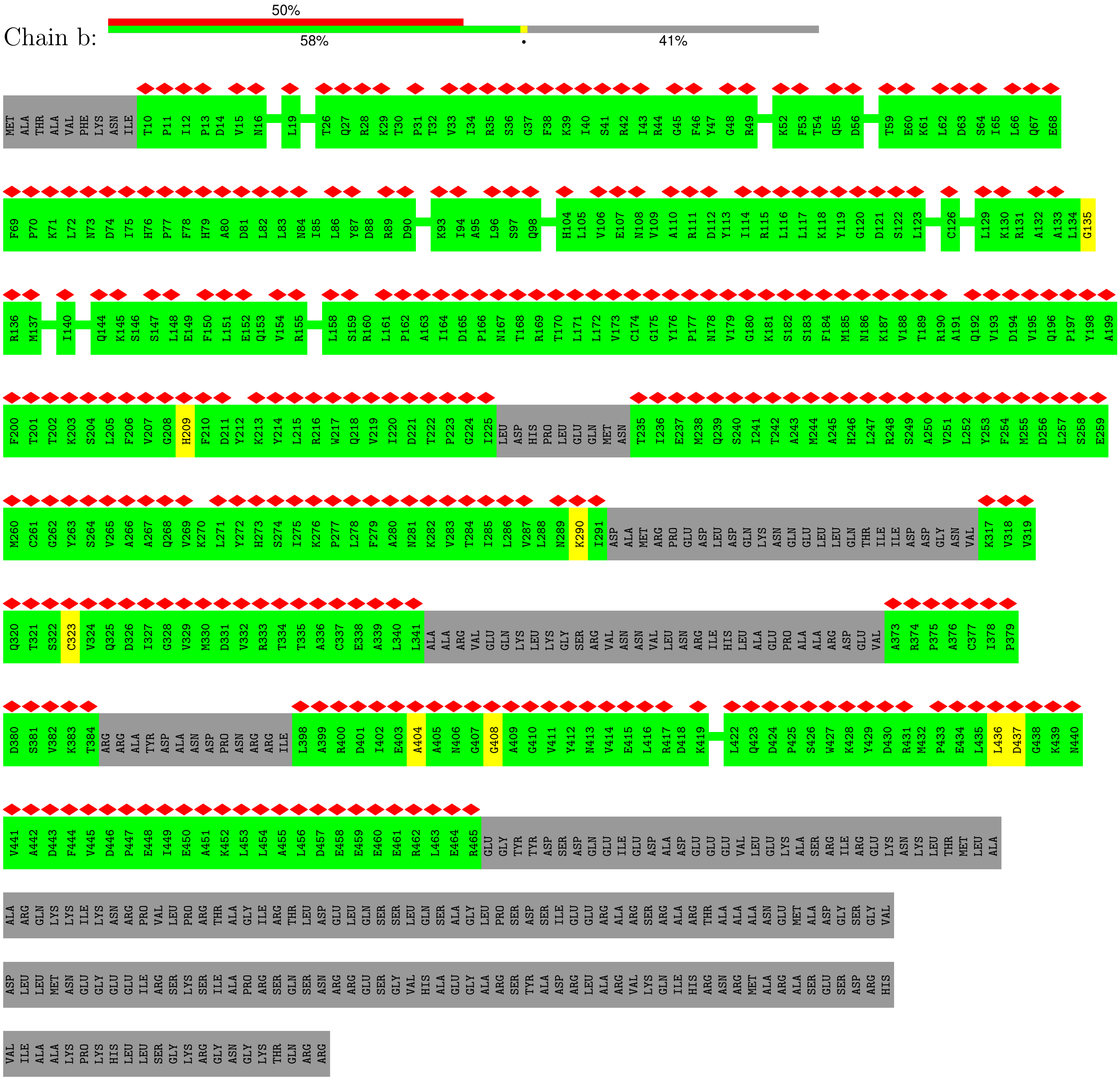
- Molecule 27: 60S ribosomal protein L28-A

Chain a:



- Molecule 28: Probable nucleolar GTP-binding protein 1

Chain b:



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F69 P70 K71 L72 N73 D74 I75 H76 P77 F78 H79 A80 D81 L82 L83 N84 I85 L86 Y87 D88 R89 D90 K93 I94 A95 L96 S97 Q98 H104 L105 V106 E107 N108 V109 A110 R111 D112 Y113 I114 R115 L116 L117 K118 Y119 G120 D121 S122 L123 C126 L129 K130 R131 A132 A133 L134 G135

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M260 C261 G262 Y263 S264 V265 A266 A267 Q268 V269 K270 L271 Y272 H273 S274 I275 K276 P277 L278 F279 A280 N281 K282 V283 T284 I285 L286 V287 L288 N289 K290 I291 ASP ALA MET ARG PRO GLU ASP LEU ASP GLN LYS ASN GLN GLU LEU LEU GLN THR ILE ILE ASP ASP GLY ASN VAL K317 V318 V319

Q320 T321 S322 C323 V324 Q325 D326 I327 G328 V329 M330 D331 V332 R333 T334 T335 A336 C337 E338 A339 L340 L341 ALA ALA ARG VAL GLU GLN LYS LEU LYS GLY SER ARG VAL ASN ASN VAL LEU ASN ARG ILE HIS LEU ALA GLU PRO ALA ALA ARG ASP GLU VAL A373 R374 P375 A376 C377 I378 P379

D380 S381 V382 K383 T384 ARG ARG ALA TYR ASP ALA ASN ASP PRO ASN ARG ARG ILE L398 A399 R400 D401 I402 E403 A404 A405 N406 G407 G408 A409 G410 V411 Y412 N413 V414 E415 L416 R417 D418 K419 L422 Q423 D424 P425 S426 W427 K428 Y429 D430 R431 M432 P433 E434 L435 L436 D437 G438 K439 N440

V441 A442 D443 F444 V445 D446 P447 E448 I449 E450 A451 K452 L453 L454 A455 L456 D457 E458 E459 E460 E461 R462 L463 E464 R465 GLU GLY TYR TYR ASP SER ASP GLN GLU ILE GLU ASP ALA ASP GLU GLU GLU VAL LEU GLU LYS ALA SER ARG ILE ARG GLU LYS ASN LYS LEU THR MET LEU ALA

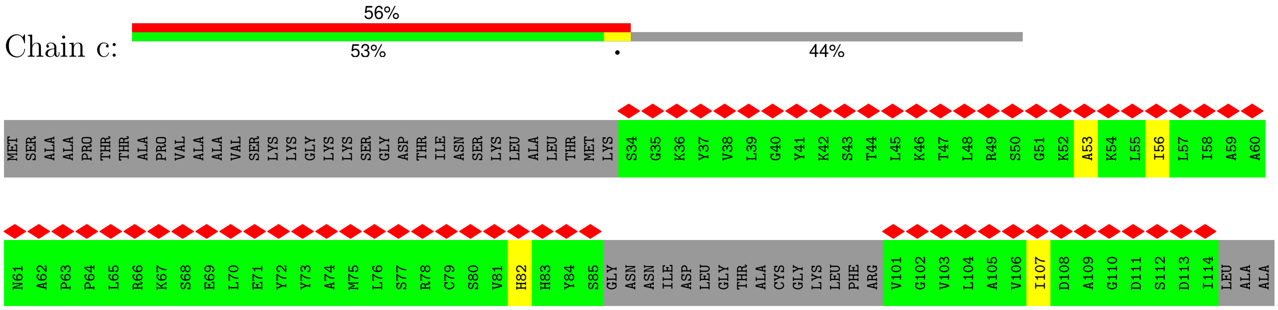
ALA ARG GLN LYS LYS ILE LYS ASN ARG PRO VAL LEU PRO ARG THR ALA GLY ILE ARG THR LEU ASP GLU LEU GLN SER SER LEU GLN SER ALA GLY LEU PRO SER ASP SER ILE GLU GLU ARG ALA ARG SER ARG ALA ARG THR ALA ALA ALA ASN GLU MET ALA ASP GLY SER GLY VAL

ASP LEU LEU MET ASN GLU GLY GLU GLU ILE ARG SER LYS SER ILE ALA PRO ARG SER GLN SER ASN ARG ARG GLU SER GLY VAL HIS ALA GLU GLY ALA ARG SER TYR ALA ASP ARG LEU ALA ARG VAL LYS GLN ILE HIS ARG ASN ARG MET ALA ARG ALA SER GLU SER ASP ARG HIS

VAL ILE ALA ALA LYS PRO LYS HIS LEU LEU SER GLY LYS ARG GLY ASN GLY LYS THR GLN ARG ARG

- Molecule 29: 60S ribosomal protein L30-2

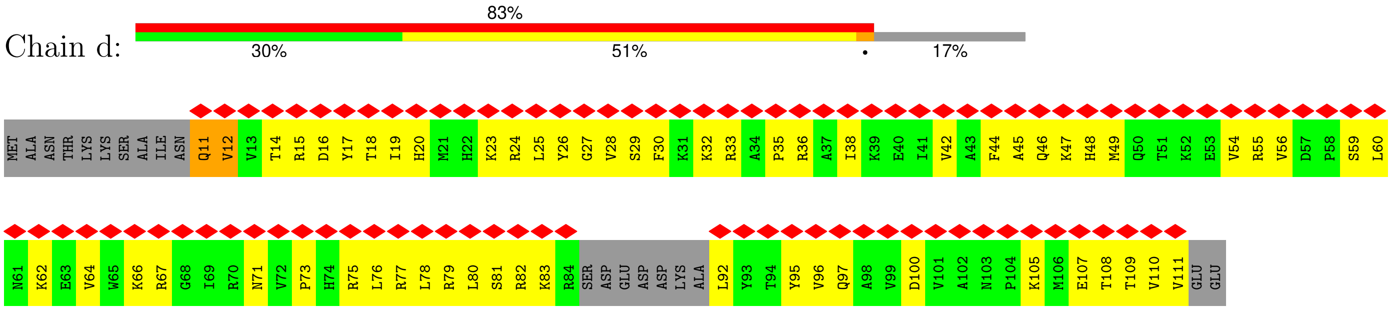
Chain c:



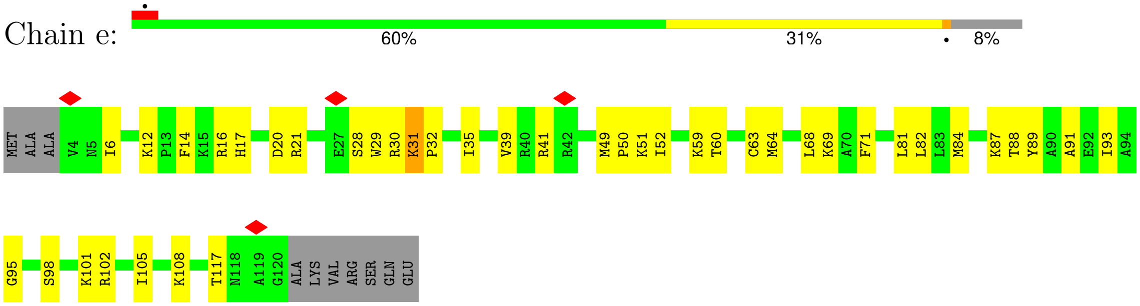
MET SER ALA ALA PRO THR THR ALA PRO VAL ALA ALA VAL SER LYS LYS GLY LYS LYS SER GLY ASP THR ILE ASN SER LYS LEU ALA LEU THR MET LYS S34 G35 K36 Y37 V38 L39 G40 Y41 K42 S43 T44 L45 K46 T47 L48 R49 S50 G51 K52 A53 K54 L55 I56 L57 I58 A59 A60

N61 A62 P63 P64 L65 R66 K67 S68 E69 L70 E71 Y72 Y73 A74 M75 L76 S77 R78 C79 S80 V81 H82 H83 Y84 S85 GLY ASN ASN ILE ASP LEU GLY THR ALA CYS GLY LYS LEU PHE ARG V101 G102 V103 L104 A105 V106 I107 D108 A109 G110 D111 S112 D113 I114 LEU ALA ALA

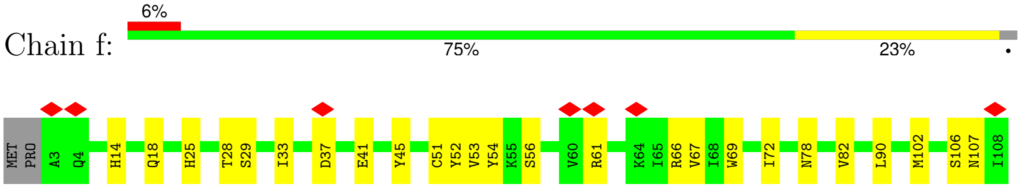
- Molecule 30: 60S ribosomal protein L31



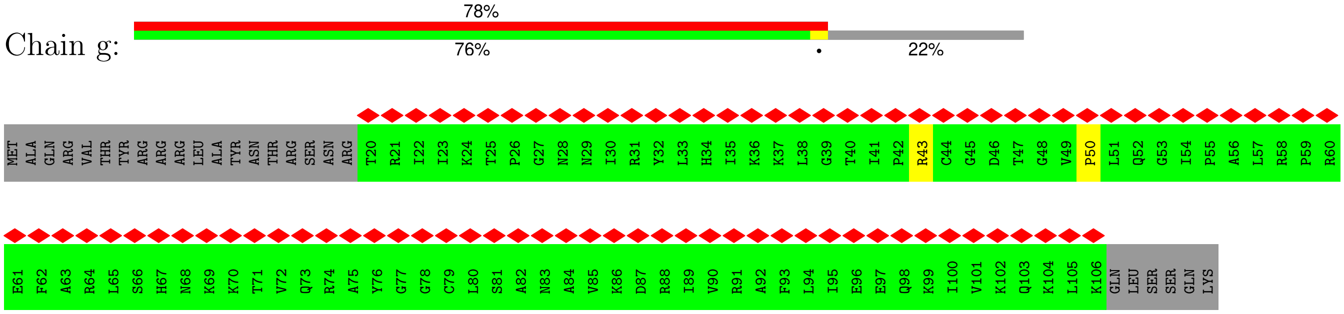
- Molecule 31: 60S ribosomal protein L32-A



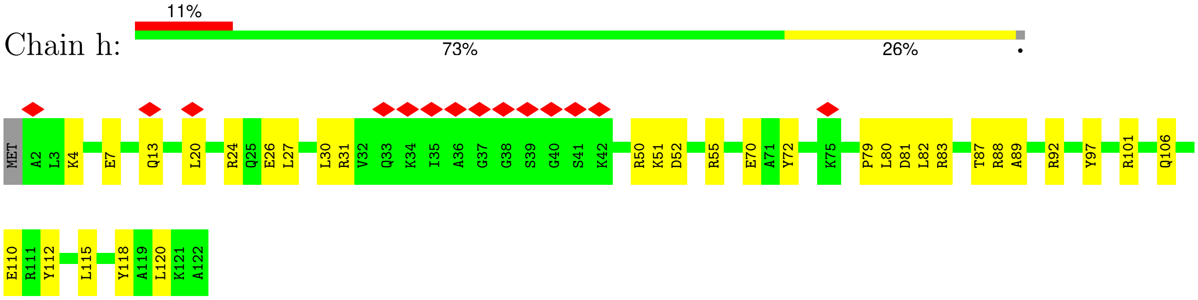
- Molecule 32: 60S ribosomal protein L33-B



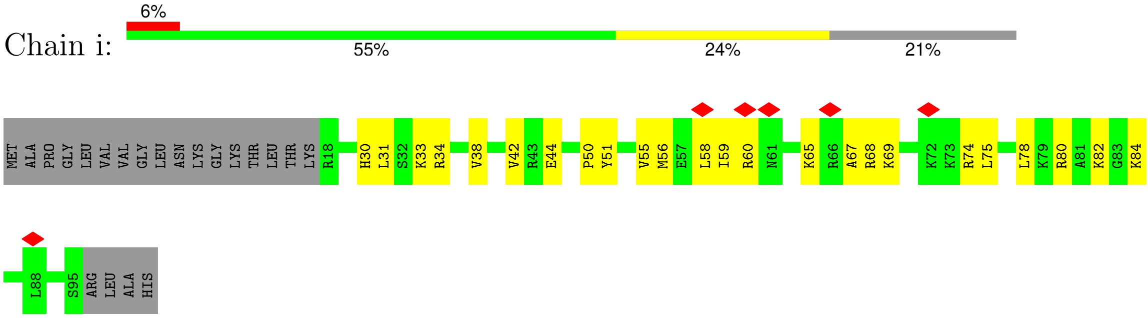
- Molecule 33: 60S ribosomal protein L34-A



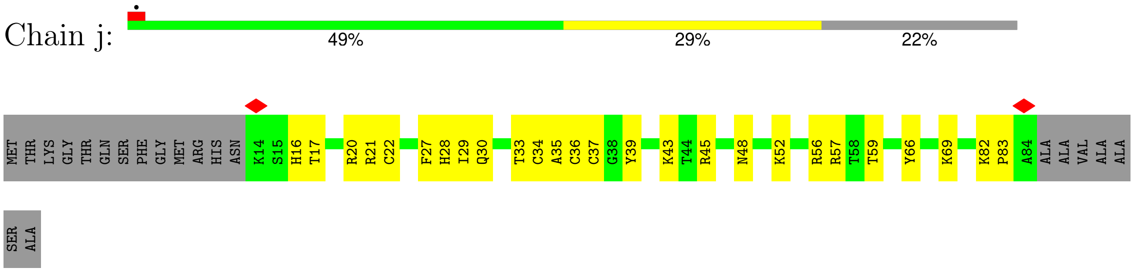
- Molecule 34: 60S ribosomal protein L35



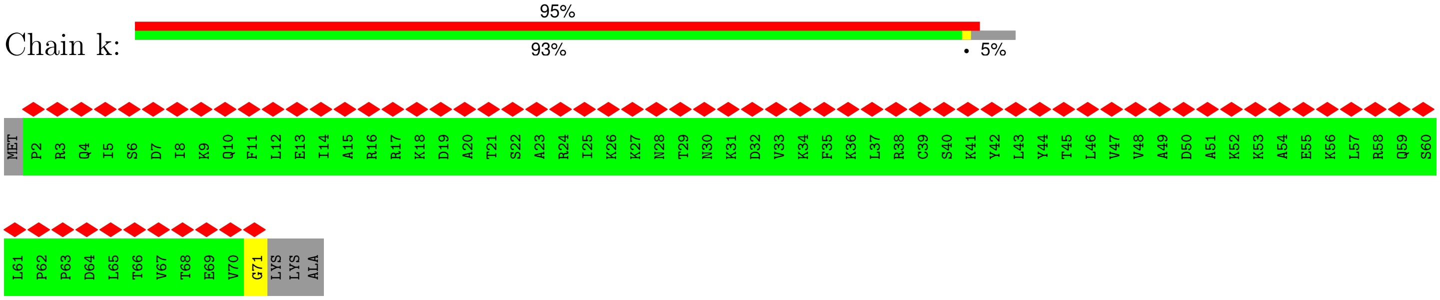
- Molecule 35: 60S ribosomal protein L36-B



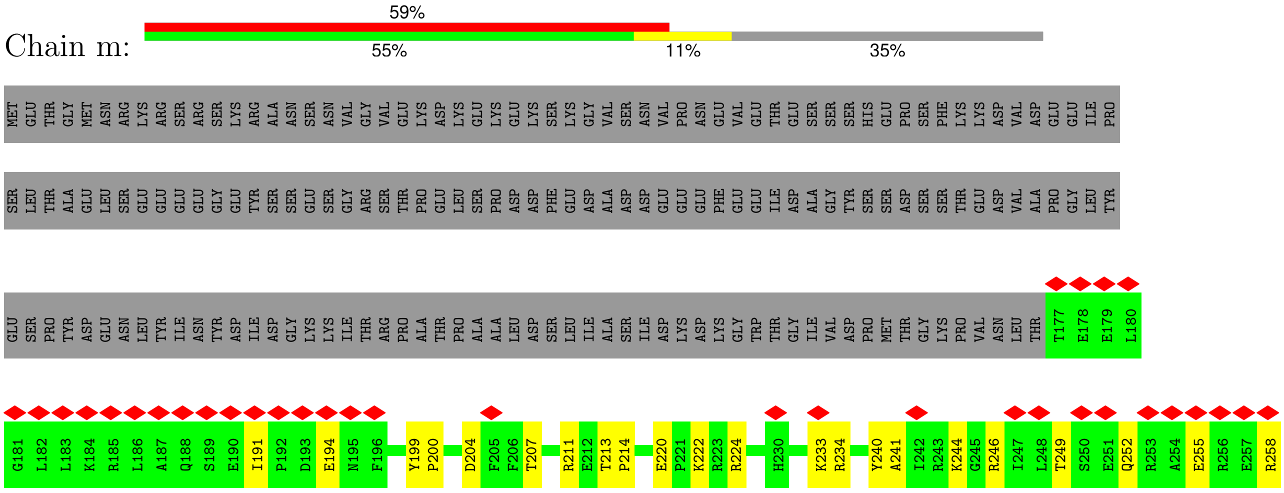
- Molecule 36: 60S ribosomal protein L37-B

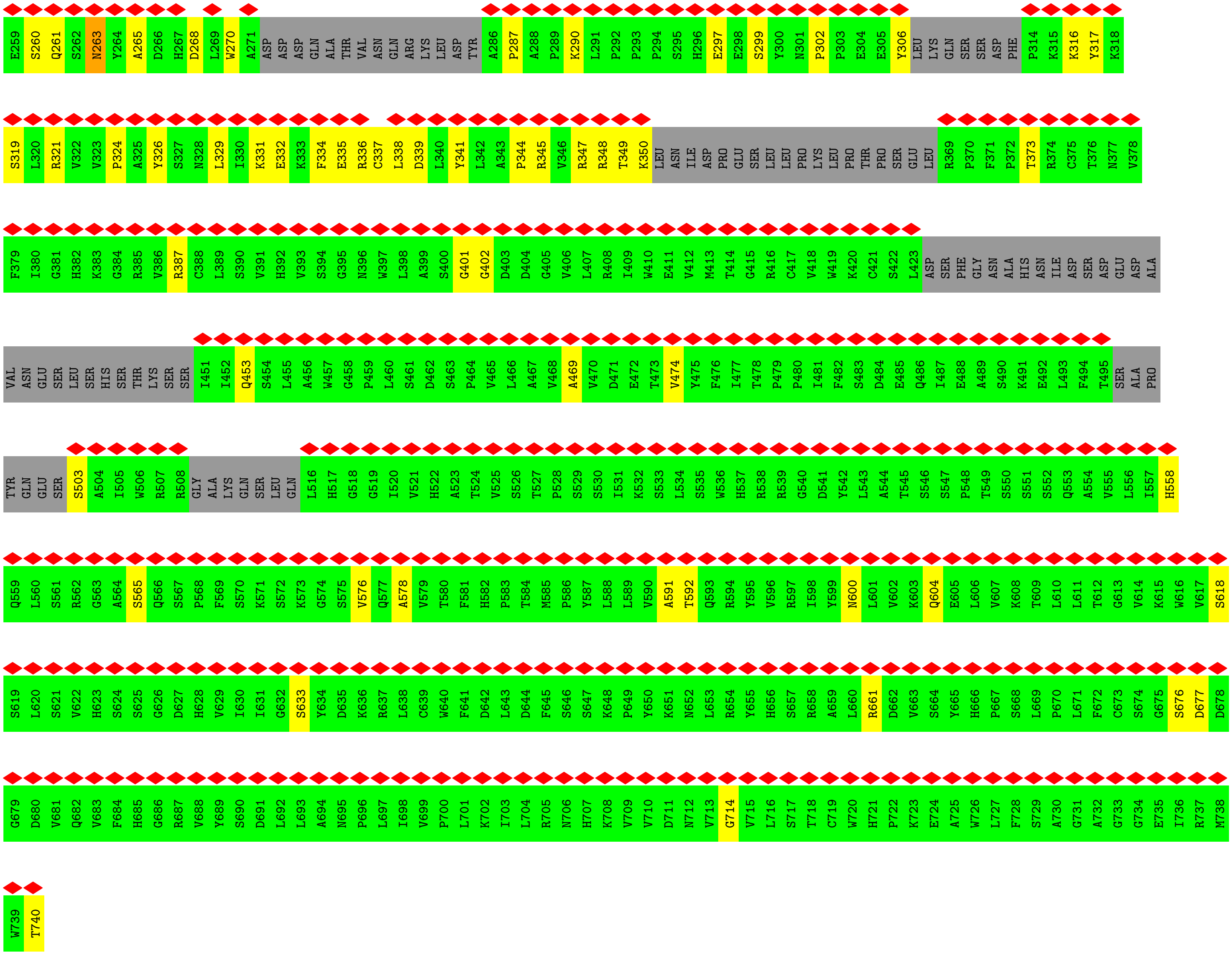


- Molecule 37: 60S ribosomal protein L38-1



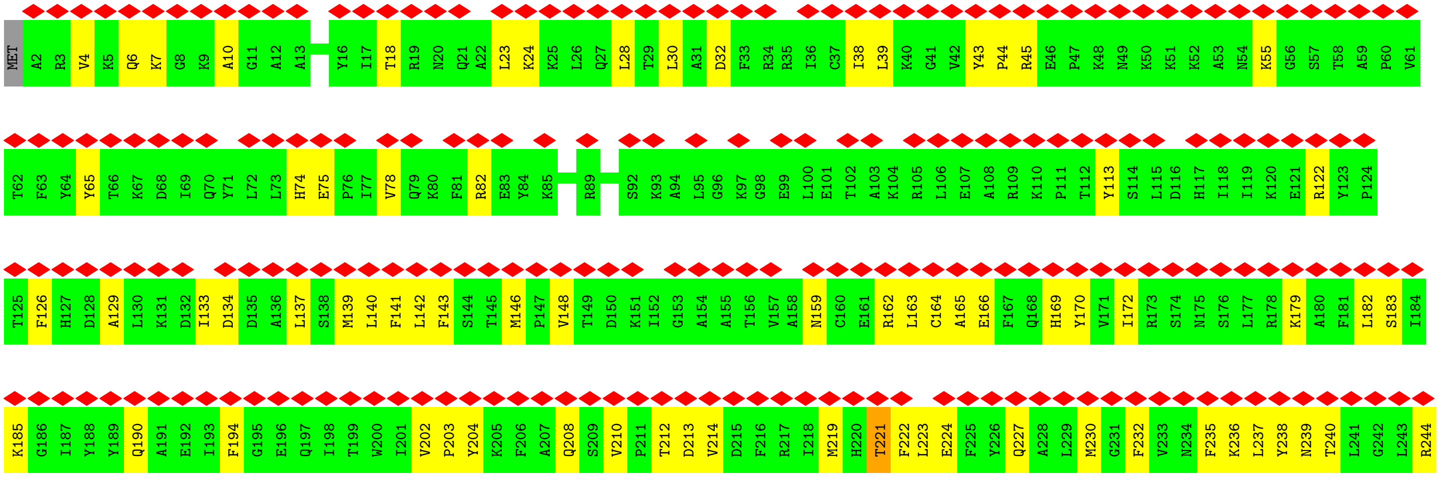
- Molecule 38: Ribosome biogenesis protein erb1

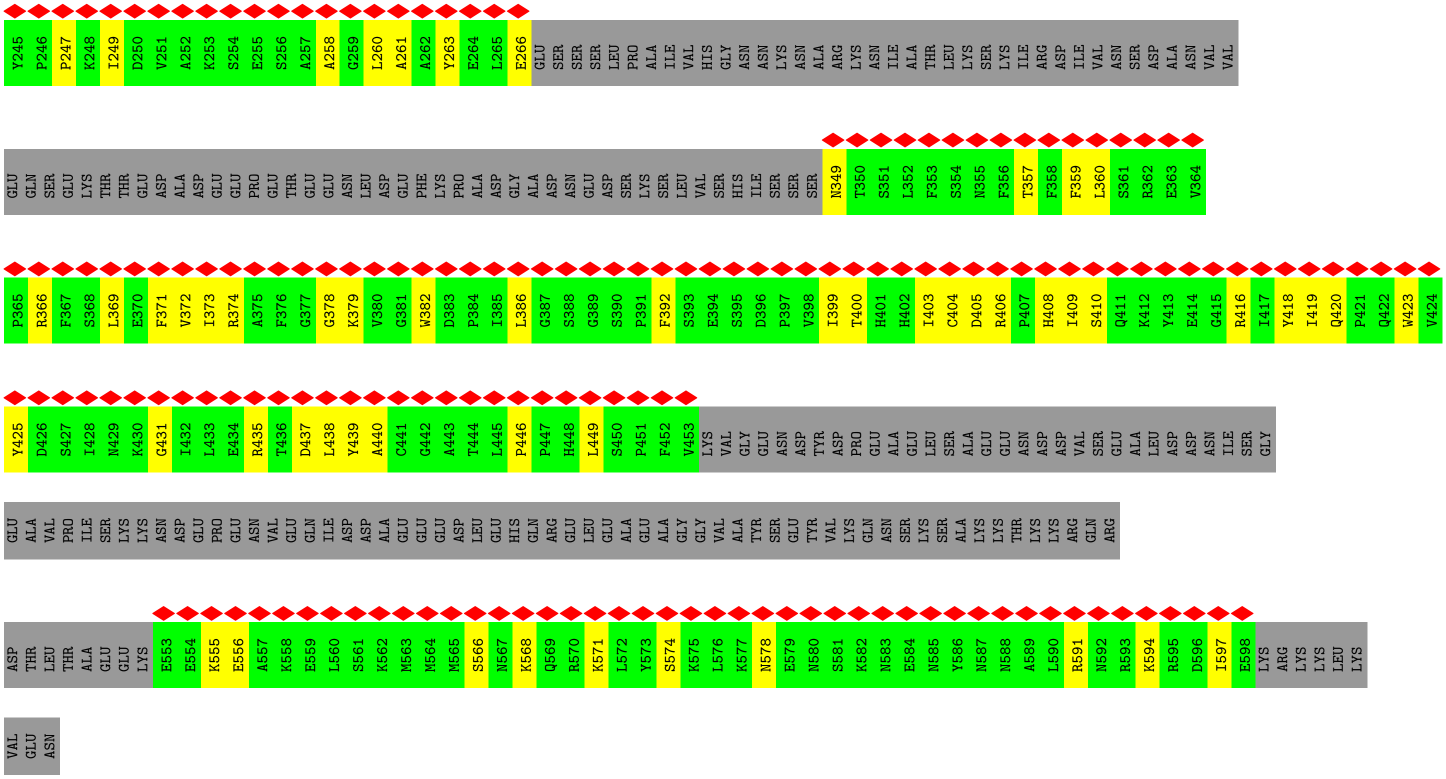




- Molecule 39: Pescadillo homolog

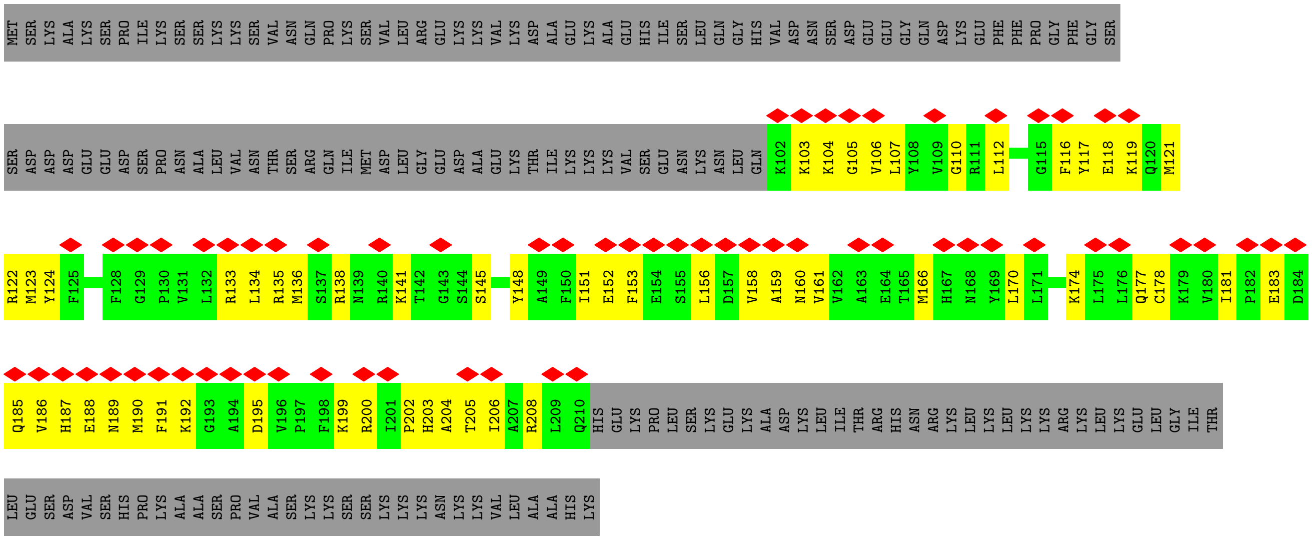
Chain n:





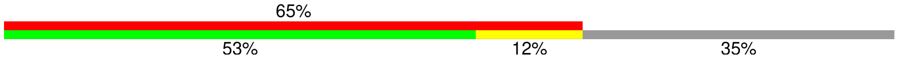
• Molecule 40: Uncharacterized RNA-binding protein C1827.05c

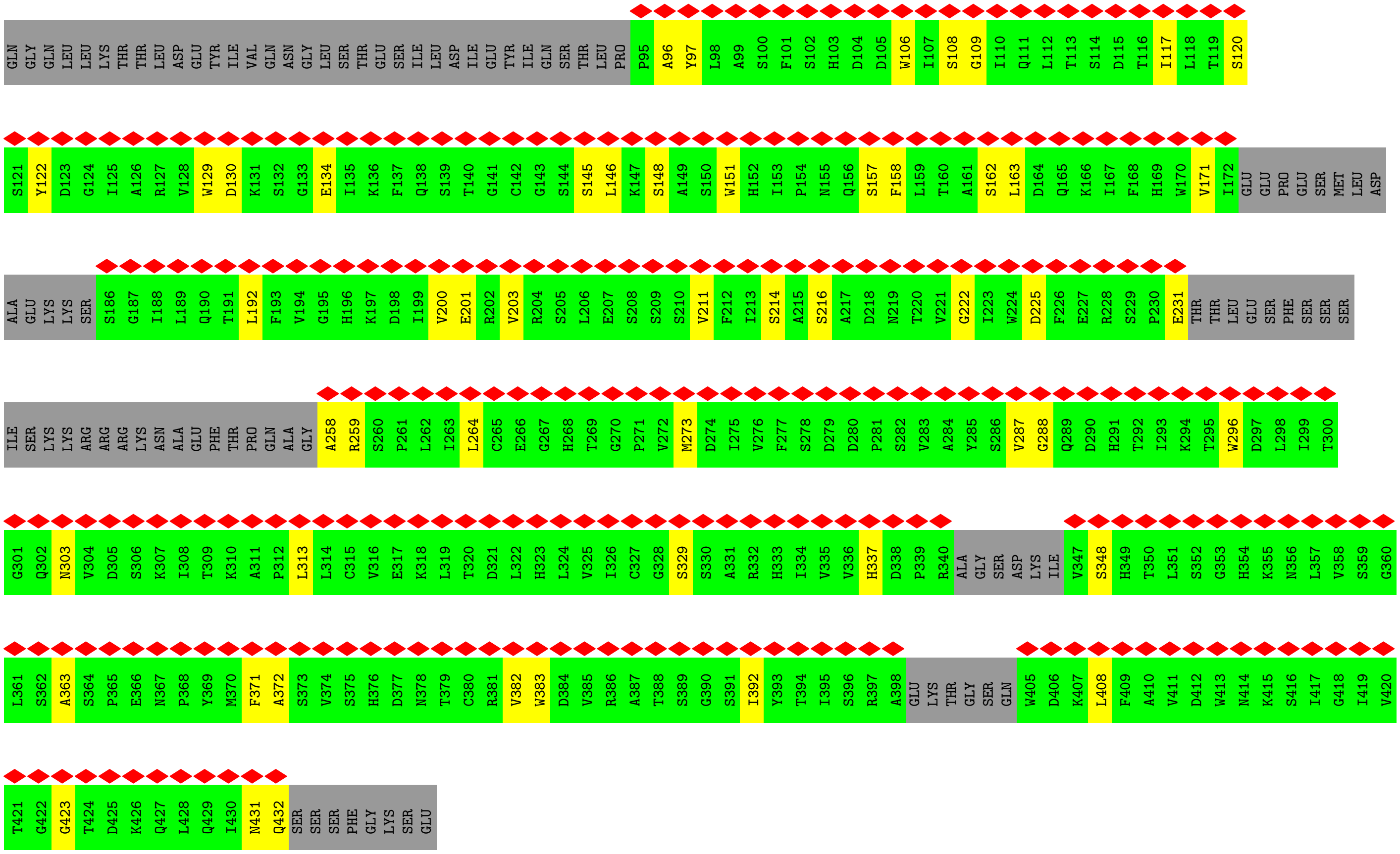
Chain o:



• Molecule 41: Ribosome biogenesis protein ytm1

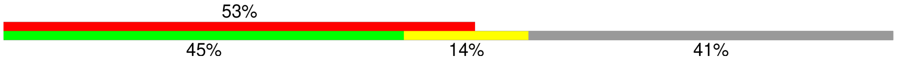
Chain p:

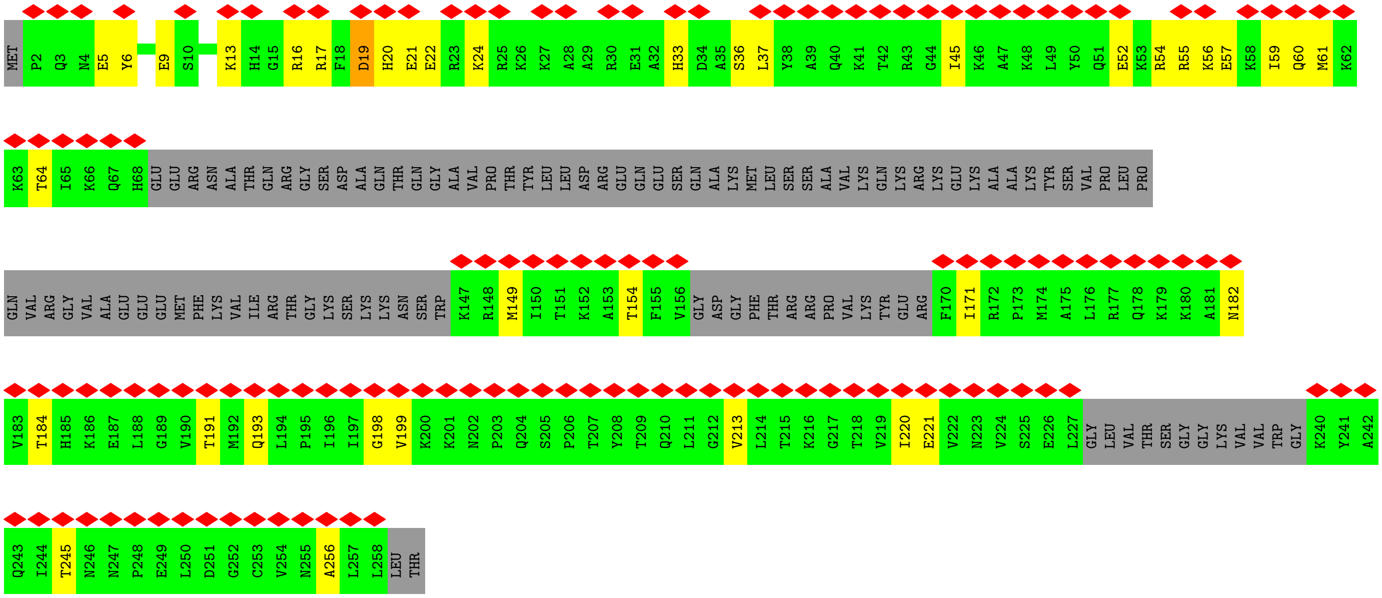




- Molecule 42: Ribosome biogenesis protein nsa2

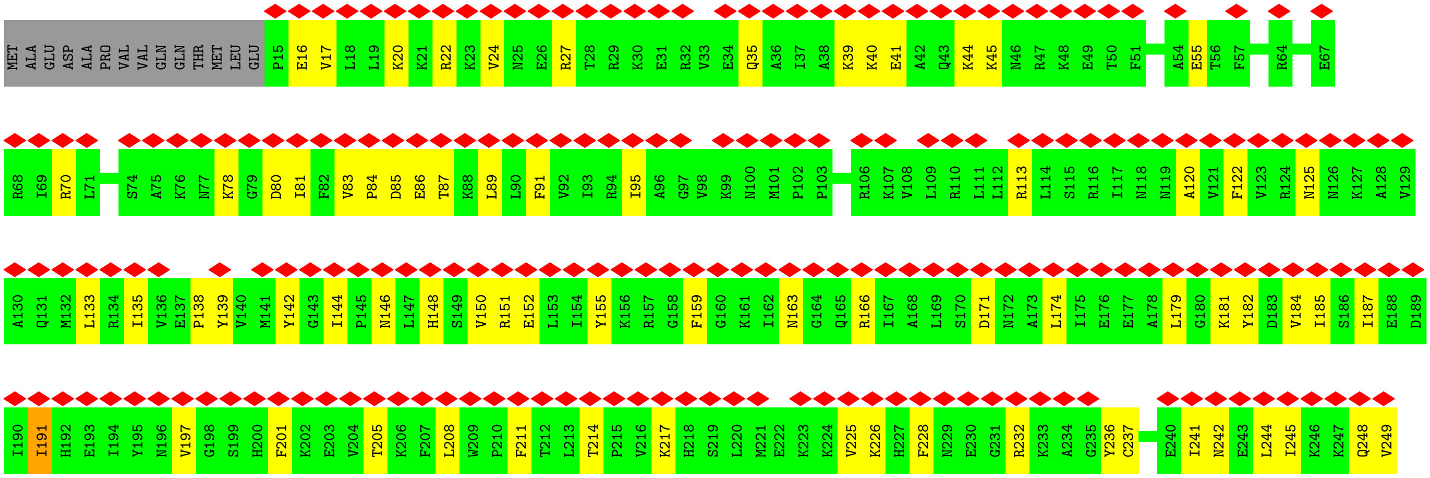
Chain r:





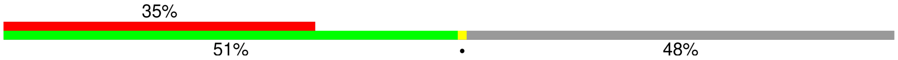
- Molecule 43: 60S ribosomal protein L7-A

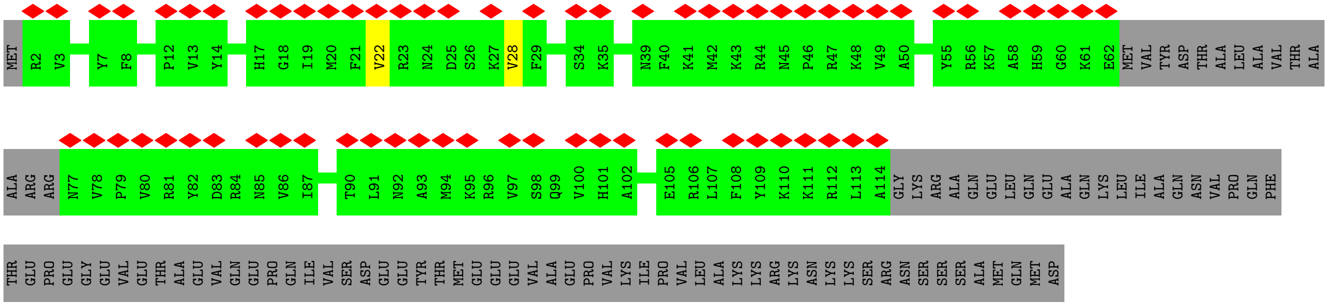
Chain t:



- Molecule 44: Ribosome biogenesis protein rlp24

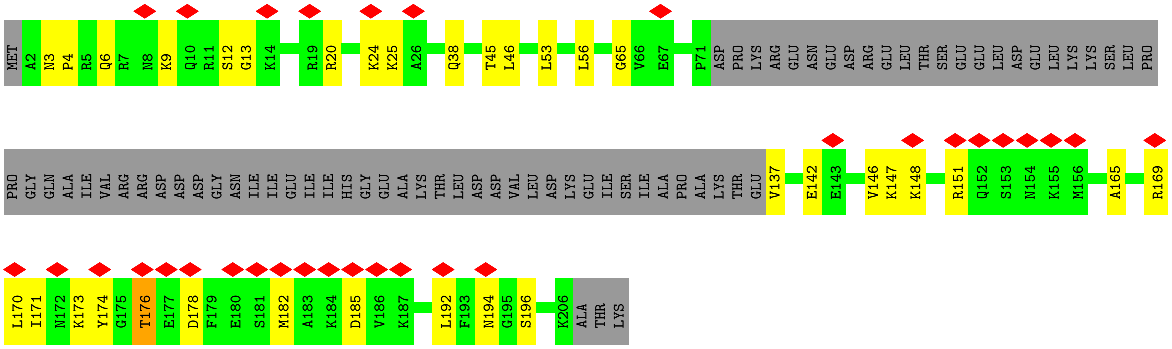
Chain u:





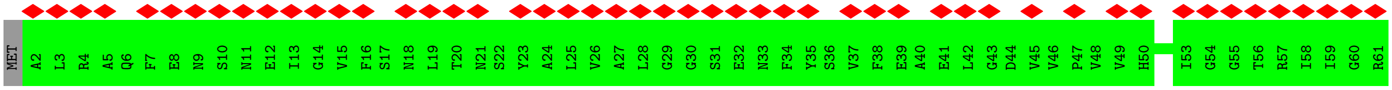
- Molecule 45: Nucleolar protein 16

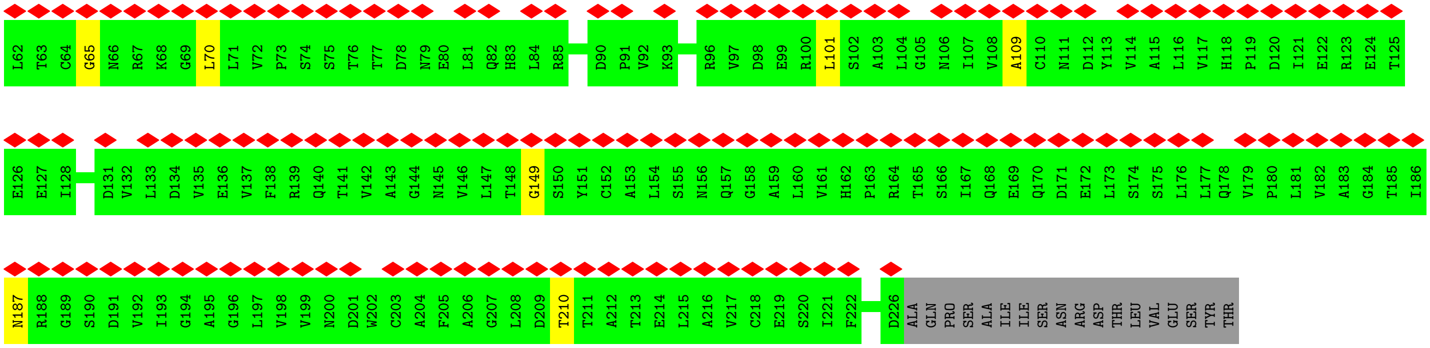
Chain v:



- Molecule 46: Eukaryotic translation initiation factor 6

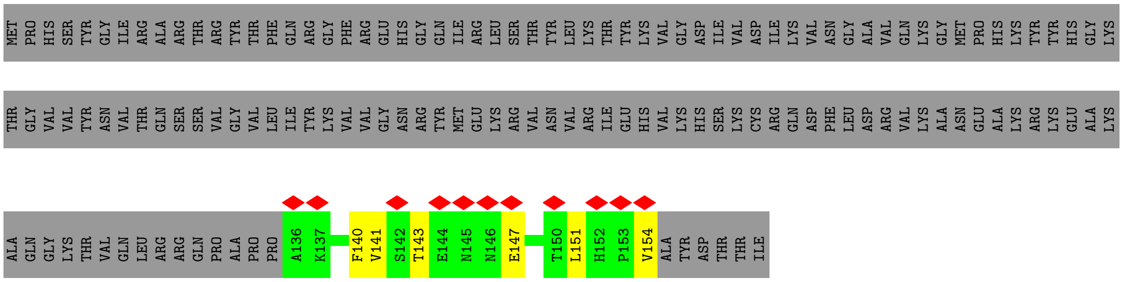
Chain y:





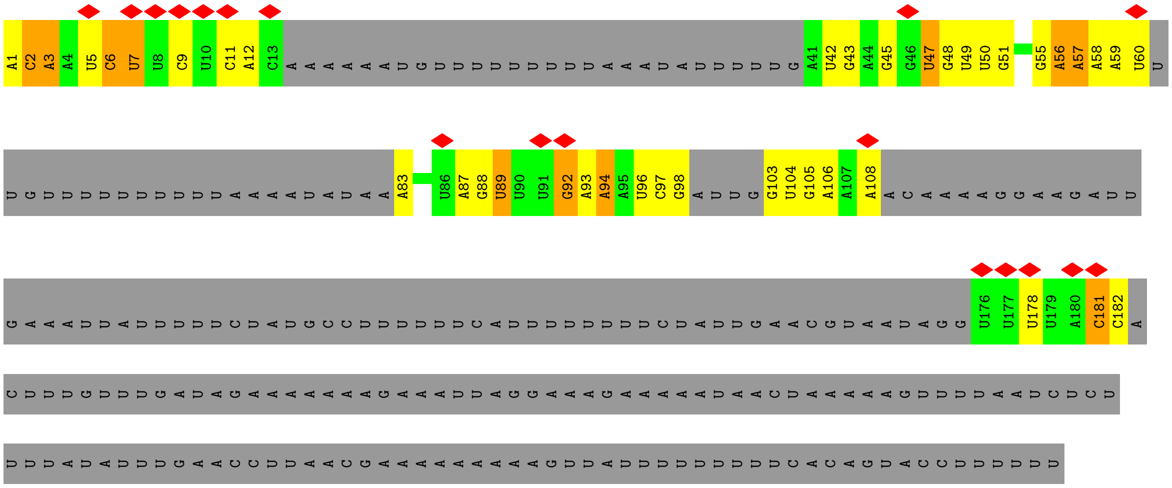
- Molecule 47: 60S ribosomal protein L21-A

Chain T:



- Molecule 48: RNA (62-MER)

Chain 6:



4 Experimental information ⓘ

Property	**Value**	**Source**
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	19000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	60	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.532	Depositor
Minimum map value	-0.304	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.008	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	542.72, 542.72, 542.72	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\#\|Z\| > 5$	RMSZ	$\#\|Z\| > 5$
1	1	0.17	0/48337	0.26	0/75284
2	2	0.23	0/3465	0.31	0/5390
3	3	0.18	0/1037	0.40	0/1396
4	A	0.06	0/1015	0.23	0/1406
5	B	0.15	0/2706	0.33	0/3635
6	C	0.22	0/2848	0.39	0/3842
7	D	0.06	0/404	0.16	0/558
8	E	0.14	0/1146	0.34	0/1545
9	F	0.19	0/1781	0.34	0/2389
10	G	0.22	0/1474	0.34	0/1987
11	H	0.15	0/1470	0.36	0/1982
12	K	0.10	0/1143	0.25	0/1591
13	L	0.33	1/980 (0.1%)	0.42	0/1314
14	M	0.17	0/1017	0.32	0/1365
15	N	0.27	0/1436	0.35	0/1920
16	O	0.17	0/1511	0.30	0/2023
17	P	0.16	0/1101	0.34	0/1475
18	Q	0.18	0/1031	0.33	0/1384
19	R	0.23	0/460	0.43	0/614
20	S	0.17	0/1470	0.35	0/1977
21	U	0.05	0/483	0.19	0/671
22	V	0.12	0/992	0.33	0/1337
23	W	0.06	0/944	0.23	0/1305
24	X	0.18	0/1048	0.39	0/1406
25	Y	0.22	0/1008	0.37	0/1341
26	Z	0.05	0/636	0.16	0/882
27	a	0.26	0/760	0.47	0/1026
28	b	0.05	0/1870	0.18	0/2601
29	c	0.06	0/323	0.18	0/446
30	d	0.30	0/801	0.52	0/1075
31	e	0.21	0/953	0.32	0/1271
32	f	0.20	0/859	0.34	0/1152

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	g	0.05	0/427	0.18	0/592
34	h	0.20	0/1008	0.29	0/1340
35	i	0.15	0/643	0.32	0/852
36	j	0.22	0/575	0.35	0/761
37	k	0.05	0/348	0.18	0/485
38	m	0.19	0/2910	0.27	0/3993
39	n	0.15	0/3468	0.29	0/4670
40	o	0.18	0/919	0.42	0/1232
41	p	0.07	0/1411	0.20	0/1956
42	r	0.15	0/1014	0.38	0/1361
43	t	0.14	0/1979	0.31	0/2645
44	u	0.06	0/489	0.19	0/679
45	v	0.19	0/1161	0.39	0/1552
46	y	0.05	0/1106	0.19	0/1536
47	T	0.14	0/151	0.39	0/207
48	6	0.09	0/1466	0.16	0/2270
All	All	0.17	1/105584 (0.0%)	0.29	0/153721

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
13	L	60	PRO	CA-C	-6.40	1.48	1.51

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

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	1	43202	0	21751	685	0
2	2	3102	0	1570	32	0
3	3	1015	0	1015	46	0
4	A	1015	0	495	6	0
5	B	2653	0	2736	86	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	C	2795	0	2918	105	0
7	D	408	0	181	1	0
8	E	1126	0	1207	52	0
9	F	1745	0	1818	56	0
10	G	1452	0	1557	31	0
11	H	1451	0	1511	72	0
12	K	1145	0	504	5	0
13	L	962	0	1033	28	0
14	M	1000	0	1063	46	0
15	N	1406	0	1441	34	0
16	O	1483	0	1584	41	0
17	P	1080	0	1095	53	0
18	Q	1020	0	1114	30	0
19	R	456	0	493	25	0
20	S	1434	0	1497	70	0
21	U	484	0	222	1	0
22	V	976	0	1026	41	0
23	W	948	0	440	4	0
24	X	1032	0	1102	37	0
25	Y	998	0	1090	44	0
26	Z	637	0	296	5	0
27	a	747	0	790	32	0
28	b	1875	0	831	6	0
29	c	325	0	154	2	0
30	d	787	0	837	66	0
31	e	939	0	1000	39	0
32	f	839	0	866	23	0
33	g	428	0	193	1	0
34	h	999	0	1092	23	0
35	i	637	0	696	20	0
36	j	563	0	578	19	0
37	k	349	0	156	1	0
38	m	2881	0	1917	80	0
39	n	3389	0	3436	98	0
40	o	897	0	914	47	0
41	p	1416	0	627	27	0
42	r	1009	0	791	33	0
43	t	1948	0	2066	62	0
44	u	491	0	217	1	0
45	v	1143	0	1192	30	0
46	y	1107	0	514	4	0
47	T	147	0	140	6	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
48	6	1315	0	666	20	0
49	j	1	0	0	0	0
All	All	99257	0	70432	1928	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 13.

The worst 5 of 1928 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)
30:d:49:MET:HE1	30:d:82:ARG:HE	1.15	1.05
5:B:331:PRO:HD2	5:B:334:ARG:HE	1.33	0.91
1:1:607:G:H4'	32:f:107:ASN:HD21	1.36	0.88
38:m:249:THR:HG23	38:m:252:GLN:HE22	1.36	0.88
11:H:93:VAL:HB	11:H:178:TYR:HE1	1.40	0.86

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	3	118/302 (39%)	108 (92%)	10 (8%)	0	100	100
4	A	192/295 (65%)	188 (98%)	4 (2%)	0	100	100
5	B	330/388 (85%)	307 (93%)	23 (7%)	0	100	100
6	C	357/363 (98%)	329 (92%)	28 (8%)	0	100	100
7	D	74/578 (13%)	74 (100%)	0	0	100	100
8	E	141/195 (72%)	133 (94%)	8 (6%)	0	100	100
9	F	212/250 (85%)	202 (95%)	10 (5%)	0	100	100
10	G	180/259 (70%)	170 (94%)	8 (4%)	2 (1%)	12	37

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
11	H	181/190 (95%)	166 (92%)	15 (8%)	0	100	100
12	K	227/373 (61%)	213 (94%)	13 (6%)	1 (0%)	30	60
13	L	116/208 (56%)	108 (93%)	7 (6%)	1 (1%)	14	41
14	M	122/134 (91%)	116 (95%)	6 (5%)	0	100	100
15	N	160/201 (80%)	147 (92%)	13 (8%)	0	100	100
16	O	183/197 (93%)	180 (98%)	3 (2%)	0	100	100
17	P	130/187 (70%)	115 (88%)	14 (11%)	1 (1%)	16	44
18	Q	126/187 (67%)	119 (94%)	7 (6%)	0	100	100
19	R	55/193 (28%)	51 (93%)	4 (7%)	0	100	100
20	S	172/176 (98%)	160 (93%)	10 (6%)	2 (1%)	11	35
21	U	96/117 (82%)	92 (96%)	4 (4%)	0	100	100
22	V	127/139 (91%)	124 (98%)	3 (2%)	0	100	100
23	W	185/241 (77%)	176 (95%)	9 (5%)	0	100	100
24	X	126/141 (89%)	121 (96%)	5 (4%)	0	100	100
25	Y	123/126 (98%)	117 (95%)	6 (5%)	0	100	100
26	Z	127/136 (93%)	125 (98%)	2 (2%)	0	100	100
27	a	90/148 (61%)	87 (97%)	3 (3%)	0	100	100
28	b	368/642 (57%)	360 (98%)	8 (2%)	0	100	100
29	c	62/117 (53%)	60 (97%)	2 (3%)	0	100	100
30	d	90/113 (80%)	82 (91%)	7 (8%)	1 (1%)	12	37
31	e	115/127 (91%)	109 (95%)	6 (5%)	0	100	100
32	f	104/108 (96%)	96 (92%)	8 (8%)	0	100	100
33	g	85/112 (76%)	84 (99%)	1 (1%)	0	100	100
34	h	119/122 (98%)	117 (98%)	2 (2%)	0	100	100
35	i	76/99 (77%)	73 (96%)	3 (4%)	0	100	100
36	j	69/91 (76%)	67 (97%)	2 (3%)	0	100	100
37	k	68/74 (92%)	67 (98%)	1 (2%)	0	100	100
38	m	470/740 (64%)	450 (96%)	20 (4%)	0	100	100
39	n	410/607 (68%)	388 (95%)	22 (5%)	0	100	100
40	o	107/276 (39%)	102 (95%)	5 (5%)	0	100	100
41	p	277/440 (63%)	270 (98%)	7 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
42	r	146/260 (56%)	143 (98%)	3 (2%)	0	100	100
43	t	233/249 (94%)	219 (94%)	14 (6%)	0	100	100
44	u	95/192 (50%)	90 (95%)	5 (5%)	0	100	100
45	v	136/209 (65%)	127 (93%)	9 (7%)	0	100	100
46	y	223/244 (91%)	219 (98%)	4 (2%)	0	100	100
47	T	17/160 (11%)	17 (100%)	0	0	100	100
All	All	7220/10706 (67%)	6868 (95%)	344 (5%)	8 (0%)	50	78

5 of 8 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
17	P	12	THR
20	S	158	VAL
10	G	227	ASP
20	S	159	VAL
12	K	153	ILE

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	3	109/271 (40%)	109 (100%)	0	100	100
4	A	11/266 (4%)	11 (100%)	0	100	100
5	B	283/326 (87%)	283 (100%)	0	100	100
6	C	296/297 (100%)	295 (100%)	1 (0%)	91	95
8	E	119/155 (77%)	119 (100%)	0	100	100
9	F	180/210 (86%)	179 (99%)	1 (1%)	84	90
10	G	154/212 (73%)	153 (99%)	1 (1%)	84	90
11	H	164/170 (96%)	162 (99%)	2 (1%)	67	80
13	L	99/167 (59%)	98 (99%)	1 (1%)	73	83
14	M	107/113 (95%)	105 (98%)	2 (2%)	52	71

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
15	N	146/176 (83%)	146 (100%)	0	100	100
16	O	153/162 (94%)	153 (100%)	0	100	100
17	P	112/149 (75%)	111 (99%)	1 (1%)	75	86
18	Q	111/159 (70%)	111 (100%)	0	100	100
19	R	51/162 (32%)	50 (98%)	1 (2%)	50	70
20	S	152/154 (99%)	152 (100%)	0	100	100
22	V	102/107 (95%)	101 (99%)	1 (1%)	73	83
24	X	112/122 (92%)	112 (100%)	0	100	100
25	Y	110/111 (99%)	110 (100%)	0	100	100
27	a	81/122 (66%)	81 (100%)	0	100	100
30	d	86/102 (84%)	83 (96%)	3 (4%)	31	56
31	e	100/107 (94%)	99 (99%)	1 (1%)	73	83
32	f	89/91 (98%)	89 (100%)	0	100	100
34	h	106/107 (99%)	105 (99%)	1 (1%)	75	86
35	i	68/84 (81%)	68 (100%)	0	100	100
36	j	58/71 (82%)	58 (100%)	0	100	100
38	m	132/659 (20%)	131 (99%)	1 (1%)	79	87
39	n	364/532 (68%)	361 (99%)	3 (1%)	79	87
40	o	96/246 (39%)	96 (100%)	0	100	100
42	r	59/224 (26%)	57 (97%)	2 (3%)	32	57
43	t	211/223 (95%)	210 (100%)	1 (0%)	86	91
45	v	120/181 (66%)	119 (99%)	1 (1%)	79	87
47	T	17/139 (12%)	17 (100%)	0	100	100
All	All	4158/6377 (65%)	4134 (99%)	24 (1%)	82	90

5 of 24 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
31	e	31	LYS
39	n	18	THR
38	m	263	ASN
39	n	148	VAL
14	M	28	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 37 such sidechains are listed below:

Mol	Chain	Res	Type
39	n	580	ASN
47	T	139	HIS
39	n	585	ASN
42	r	40	GLN
13	L	66	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	1981/3497 (56%)	472 (23%)	23 (1%)
2	2	143/165 (86%)	23 (16%)	2 (1%)
48	6	57/300 (19%)	24 (42%)	0
All	All	2181/3962 (55%)	519 (23%)	25 (1%)

5 of 519 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	5	G
1	1	6	A
1	1	7	C
1	1	25	U
1	1	26	A

5 of 25 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	1540	A
1	1	3217	U
2	2	131	G
1	1	1916	G
1	1	3239	A

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 1 ligands modelled in this entry, 1 is monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

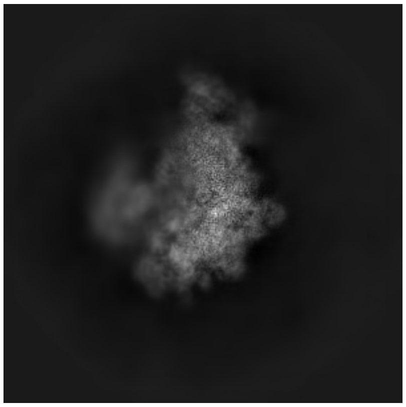
6 Map visualisation

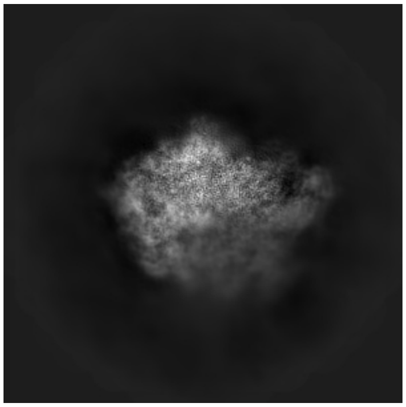
This section contains visualisations of the EMDB entry EMD-24397. These allow visual inspection of the internal detail of the map and identification of artifacts.

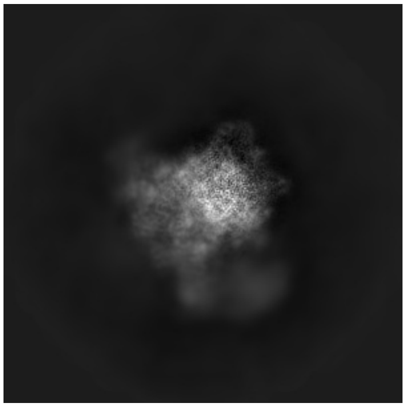
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

6.1.1 Primary map


X

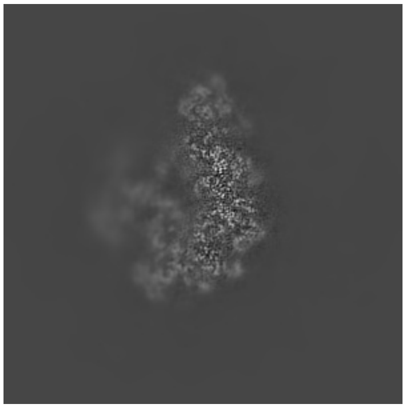

Y

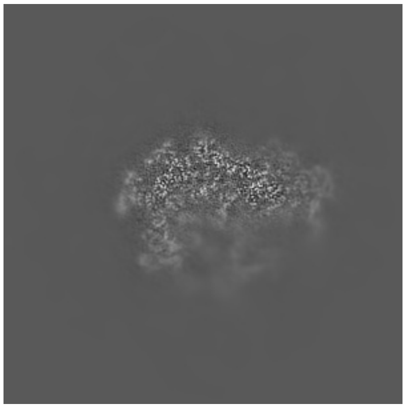

Z

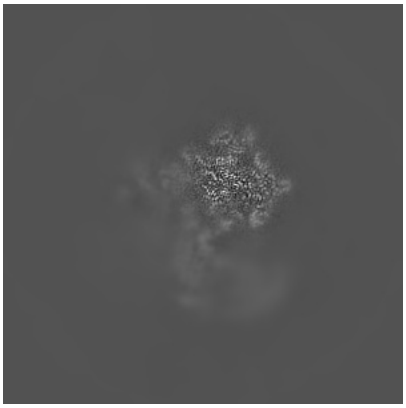
The images above show the map projected in three orthogonal directions.

6.2 Central slices

6.2.1 Primary map


X Index: 256

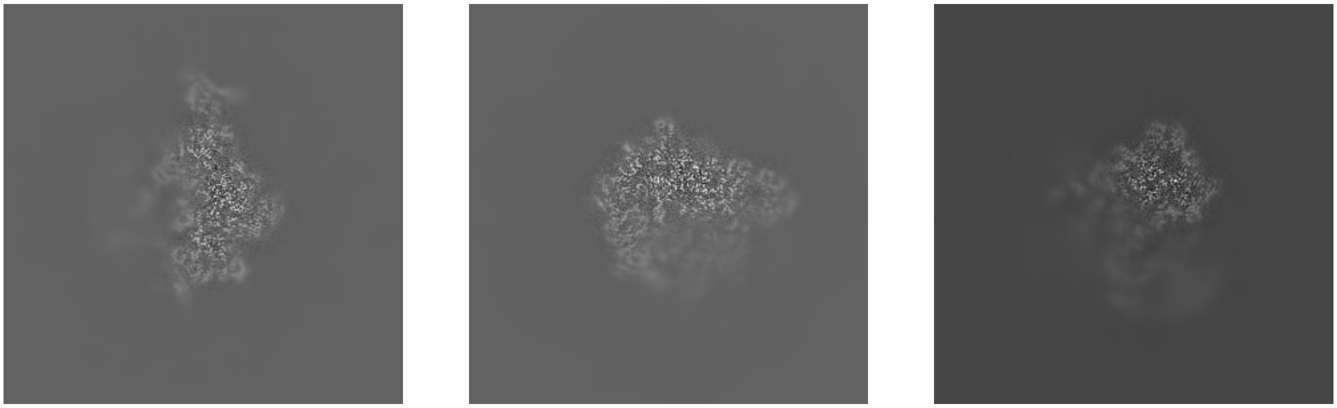

Y Index: 256


Z Index: 256

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

6.3 Largest variance slices

6.3.1 Primary map

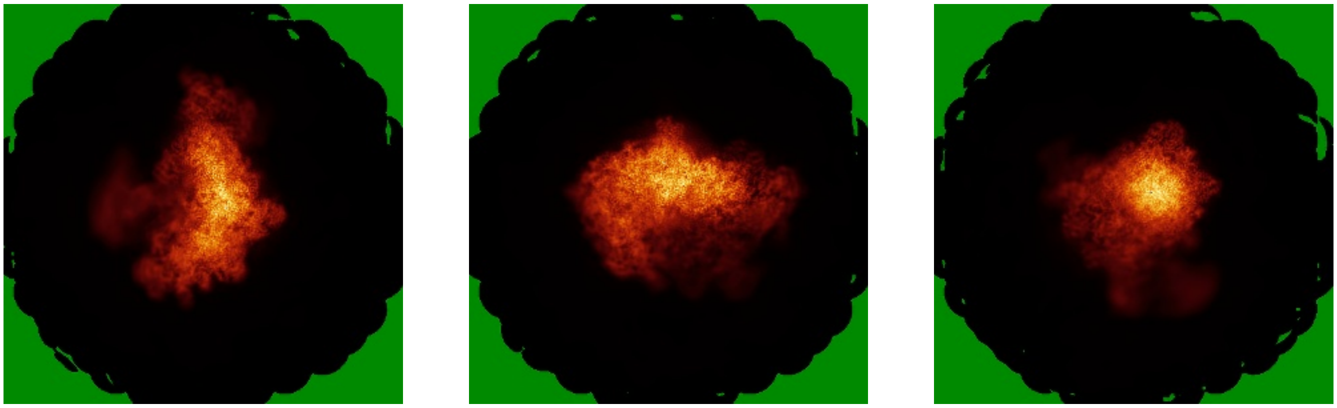


X Index: 282 Y Index: 272 Z Index: 250

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

6.4 Orthogonal standard-deviation projections (False-color)

6.4.1 Primary map



X Y Z

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

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

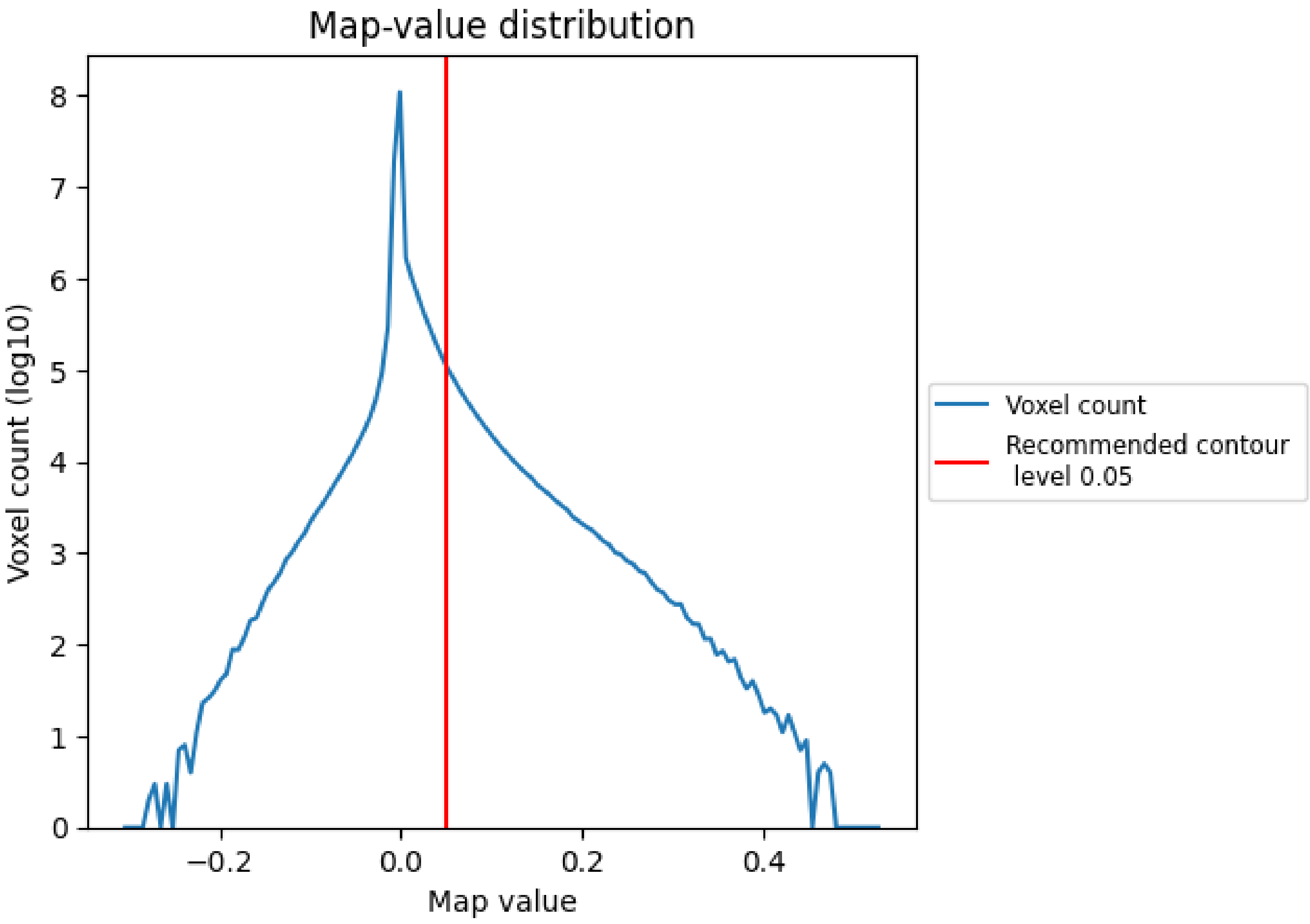
6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

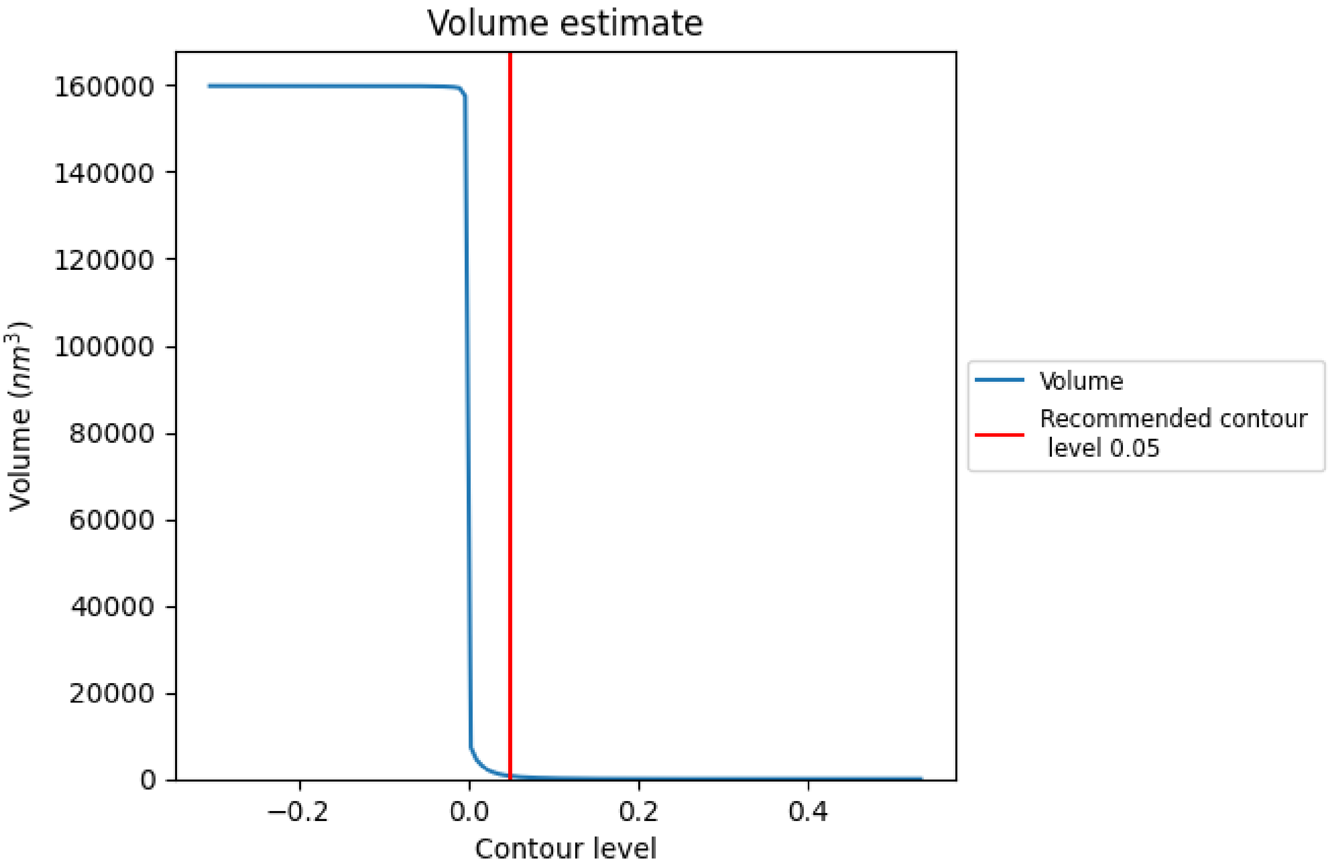
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ



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

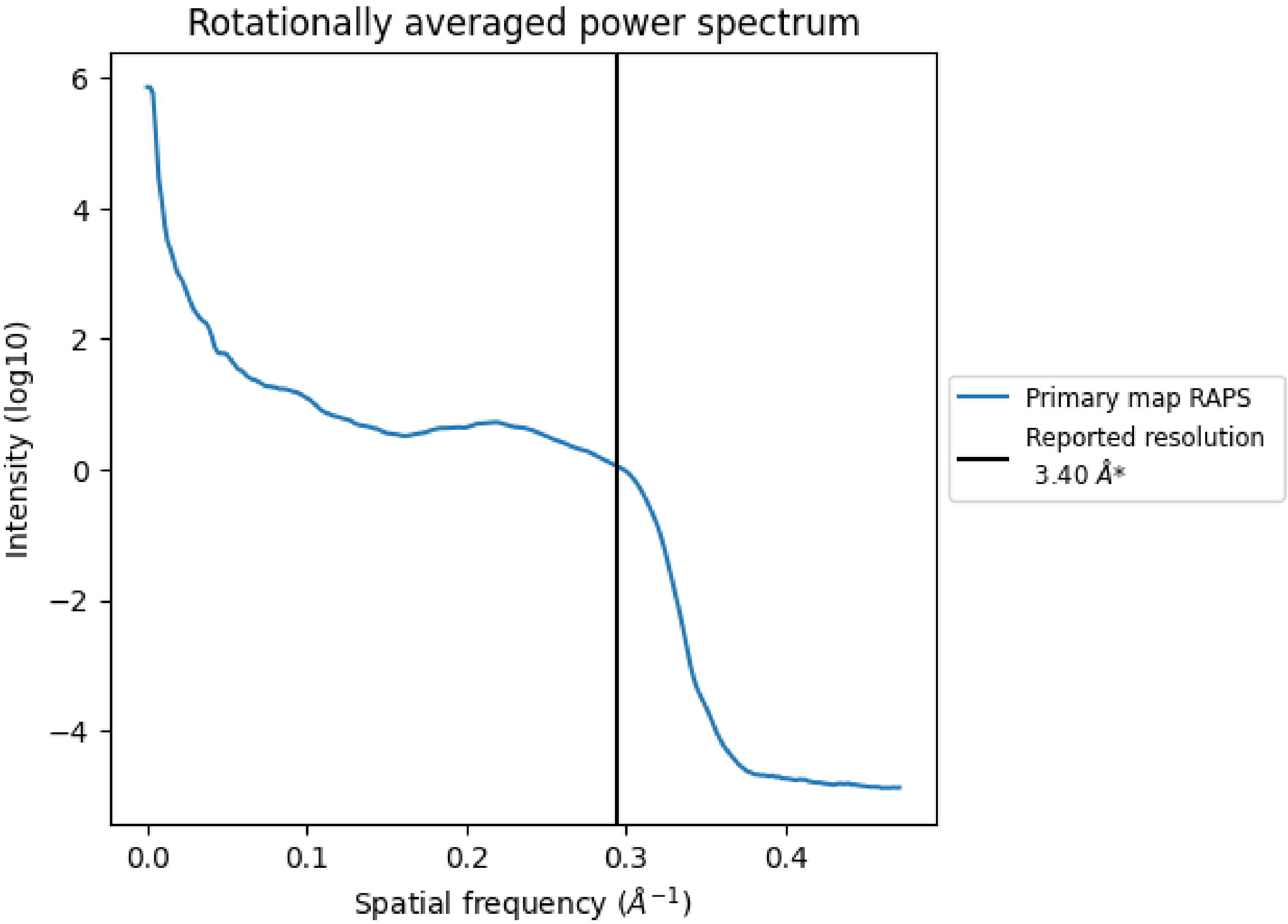
7.2 Volume estimate ⓘ



The volume at the recommended contour level is 669 nm^3; this corresponds to an approximate mass of 605 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ



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

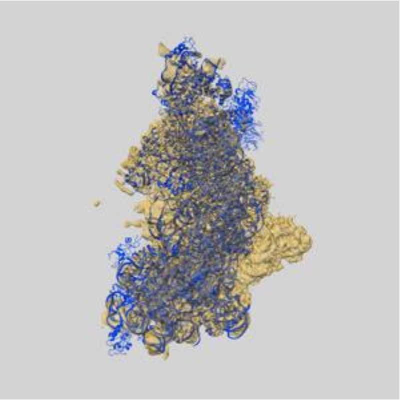
8 Fourier-Shell correlation ⓘ

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

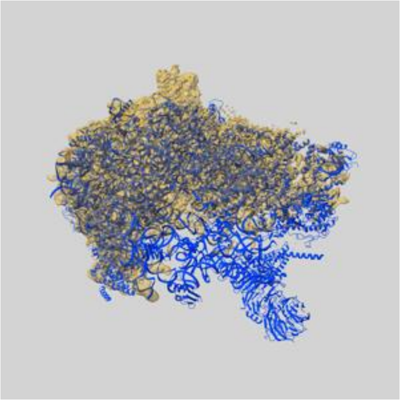
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-24397 and PDB model 8ETG. Per-residue inclusion information can be found in section 3 on page 13.

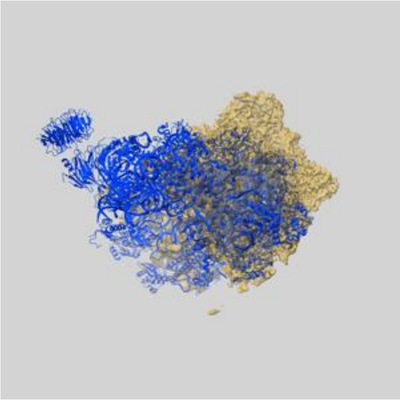
9.1 Map-model overlay



X



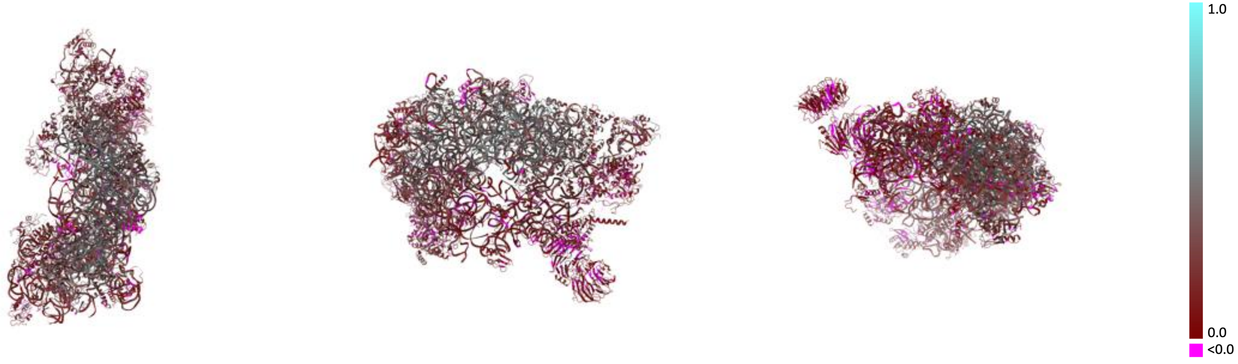
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

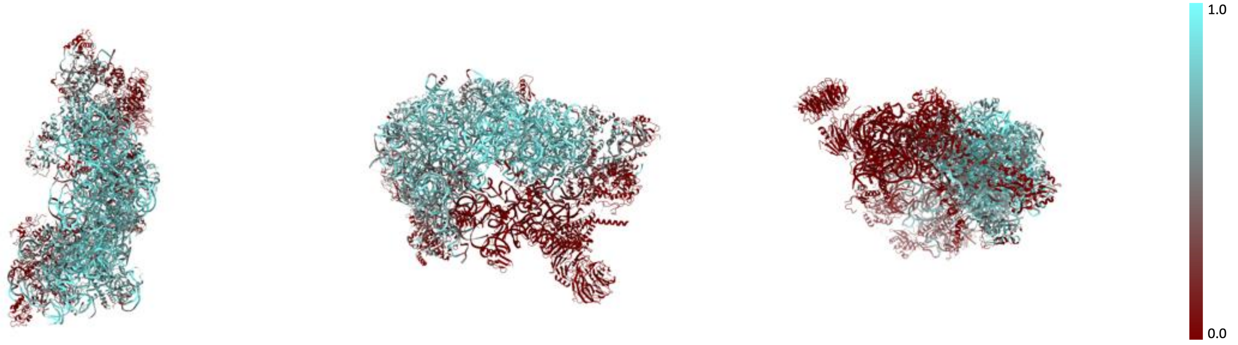
9.2 Q-score mapped to coordinate model ⓘ



X Y Z

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

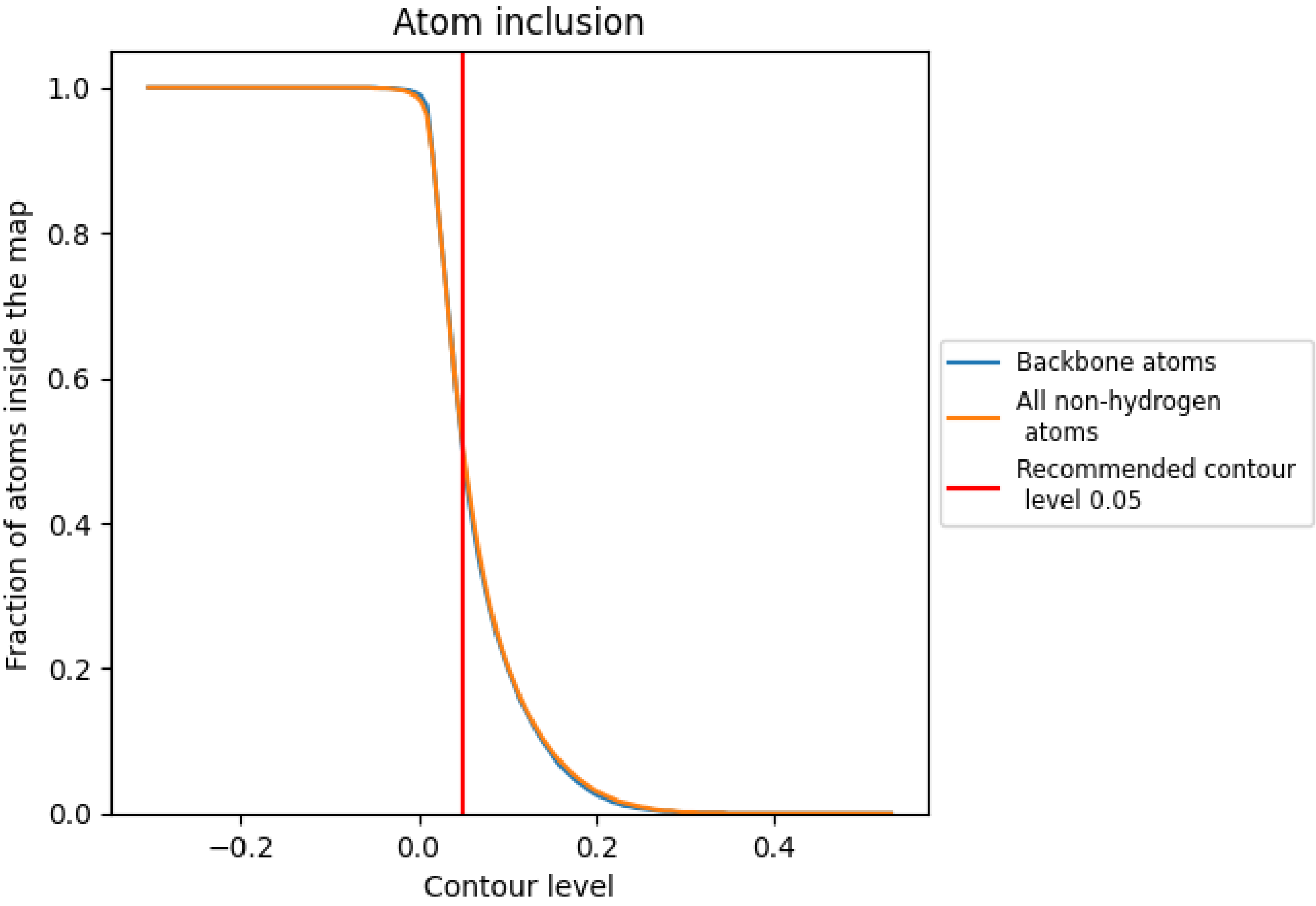
9.3 Atom inclusion mapped to coordinate model ⓘ



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.05).

9.4 Atom inclusion ⓘ



At the recommended contour level, 50% of all backbone atoms, 50% 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 (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.5050	0.2580
1	0.6110	0.2740
2	0.7840	0.3630
3	0.5550	0.1600
6	0.4840	0.2490
A	0.4910	0.2160
B	0.5580	0.2520
C	0.7320	0.3730
D	0.4260	0.3090
E	0.5830	0.2080
F	0.7450	0.3850
G	0.6270	0.2970
H	0.3860	0.1750
K	0.2660	0.2550
L	0.8260	0.4420
M	0.6180	0.2650
N	0.7830	0.4010
O	0.6580	0.3360
P	0.5680	0.2640
Q	0.6910	0.3180
R	0.0000	0.1510
S	0.5210	0.2810
T	0.3470	0.2810
U	0.0000	0.1600
V	0.0400	0.0870
W	0.0040	0.1490
X	0.0990	0.2120
Y	0.7310	0.3790
Z	0.0000	0.1140
a	0.1530	0.0820
b	0.1630	0.1630
c	0.0000	0.0820
d	0.0040	0.1560
e	0.7730	0.3970
f	0.7740	0.3980

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Chain	Atom inclusion	Q-score
g	0.0000	0.0670
h	0.6860	0.3740
i	0.6880	0.3140
j	0.8280	0.4290
k	0.0000	0.1790
m	0.1130	0.1280
n	0.0820	0.1570
o	0.3330	0.2010
p	0.0000	0.0760
r	0.1450	0.1580
t	0.1370	0.1360
u	0.3460	0.2140
v	0.6180	0.3110
y	0.1400	0.1250