wwPDB EM Validation Summary Report ⓘ

Dec 8, 2025 – 01:38 PM JST

PDB ID	:	9KN6 / pdb_00009kn6
EMDB ID	:	EMD-62454
Title	:	Structure of the HCV IRES-dependent pre-48S translation initiation complex with eIF1A, eIF5B, and eIF3
Authors	:	Iwasaki, W.; Kashiwagi, K.; Sakamoto, A.; Nishimoto, M.; Takahashi, M.; Machida, K.; Imataka, H.; Matsumoto, A.; Shichino, Y.; Iwasaki, S.; Imami, K.; Ito, T.
Deposited on	:	2024-11-18
Resolution	:	3.30 Å(reported)

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

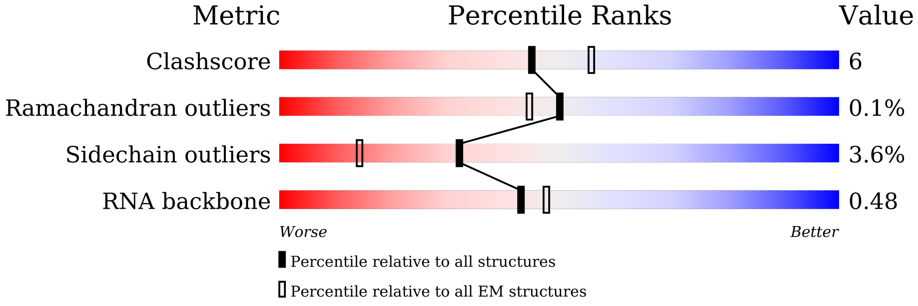
EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.47

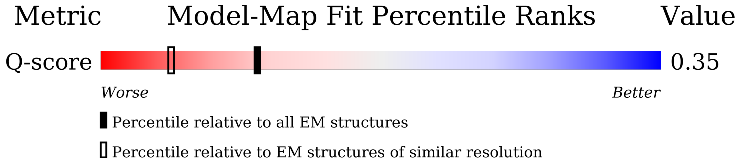
1 Overall quality at a glance

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

The reported resolution of this entry is 3.30 Å.

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





Metric	**Whole archive (#Entries)**	**EM structures (#Entries)**	**Similar EM resolution (#Entries, resolution range(Å))**
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
RNA backbone	6643	2191	-
Q-score	-	25397	15087 (2.80 - 3.80)

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	1A	144	
2	5B	621	

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Mol	Chain	Length	Quality of chain
3	SA	295	60% 13% 27%
4	SB	264	67% 13% 20%
5	SC	293	66% 9% 25%
6	SD	243	77% 15% 7%
7	SE	263	87% 11% •
8	SF	204	81% 13% 6%
9	SG	249	77% 18% 5%
10	SH	194	78% 18% • •
11	SI	208	87% 10% ••
12	SJ	194	77% 15% • 7%
13	SK	165	45% 12% • 42%
14	SL	158	• 78% 16% • 5%
15	Sf	132	5% 63% 27% • 8%
16	SN	151	85% 14% •
17	SO	151	76% 13% • 11%
18	SP	145	66% 16% 18%
19	SQ	146	84% 12% • •
20	SR	135	71% 25% • •
21	SS	152	80% 13% • 6%
22	ST	145	85% 13% •
23	SU	119	58% 26% • 15%
24	SV	83	84% 14% •
25	SW	130	87% 12% •
26	SX	143	85% 11% • •
27	SY	133	74% 19% 7%

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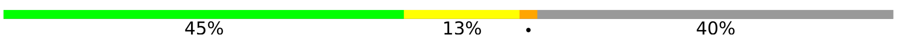
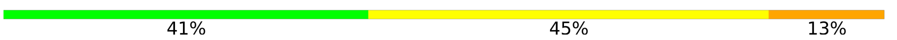
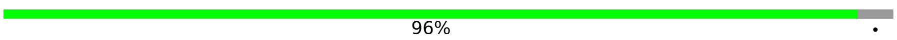
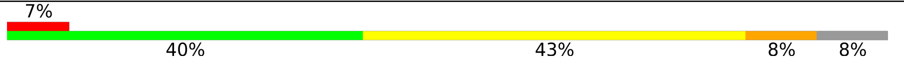
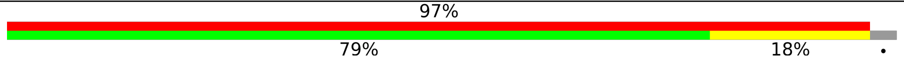
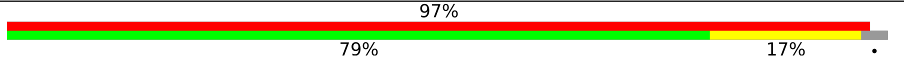
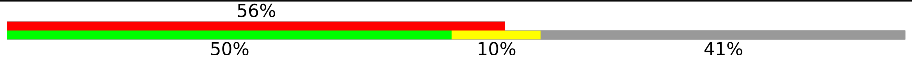
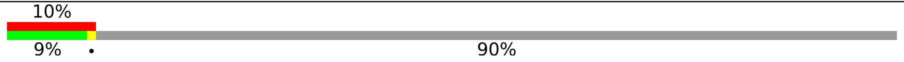
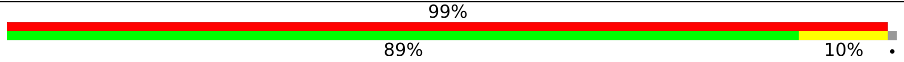
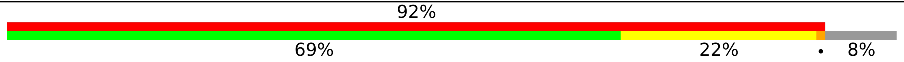
Mol	Chain	Length	Quality of chain
28	SZ	125	
29	Sa	115	
30	Sb	84	
31	Sc	69	
32	Sd	56	
33	Se	59	
34	sh	156	
35	Sg	317	
36	zy	75	
37	Ln	25	
38	zz	332	
39	S2	1869	
40	3m	374	
41	3f	357	
42	3a	1382	
43	3e	445	
44	3c	913	
45	3h	352	
46	3d	548	
47	3k	218	
48	3l	564	

2 Entry composition

There are 51 unique types of molecules in this entry. The entry contains 115376 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 Eukaryotic translation initiation factor 1A, X-chromosomal.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	1A	98	783	494	139	146	4	0	0

- Molecule 2 is a protein called Eukaryotic translation initiation factor 5B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	5B	621	4917	3135	847	913	22	0	0

- Molecule 3 is a protein called Small ribosomal subunit protein uS2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	SA	216	1705	1083	299	315	8	0	0

- Molecule 4 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	SB	212	1722	1093	308	307	14	0	0

- Molecule 5 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	SC	219	1700	1100	292	298	10	0	0

- Molecule 6 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	SD	226	1756	1119	316	314	7	0	0

- Molecule 7 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	SE	260	2065	1319	384	354	8	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	SF	192	1518	948	287	276	7	0	0

- Molecule 9 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	SG	237	1923	1200	387	329	7	0	0

- Molecule 10 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	SH	187	1506	961	277	267	1	0	0

- Molecule 11 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	SI	205	1682	1056	331	290	5	0	0

- Molecule 12 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	SJ	180	1499	955	300	242	2	0	0

- Molecule 13 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	SK	96	810	530	143	131	6	0	0

- Molecule 14 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	SL	150	1220	776	228	210	6	0	0

- Molecule 15 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
15	Sf	121	935	586	165	175	9	0	0

- Molecule 16 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
16	SN	149	1202	770	228	203	1	0	0

- Molecule 17 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	SO	135	1007	617	198	186	6	0	0

- Molecule 18 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	SP	119	984	625	187	165	7	0	0

- Molecule 19 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	SQ	140	1116	710	211	192	3	0	0

- Molecule 20 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	SR	132	1068	670	199	195	4	0	0

- Molecule 21 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	SS	143	1184	743	240	200	1	0	0

- Molecule 22 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	ST	142	1103	691	212	197	3	0	0

- Molecule 23 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	SU	101	803	504	153	142	4	0	0

- Molecule 24 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	SV	83	636	393	117	121	5	0	0

- Molecule 25 is a protein called 40S ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	SW	129	1034	659	193	176	6	0	0

- Molecule 26 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	SX	141	1098	693	219	183	3	0	0

- Molecule 27 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	SY	124	1014	641	198	170	5	0	0

- Molecule 28 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	SZ	75	601	385	111	104	1	0	0

- Molecule 29 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	Sa	100	803	501	166	131	5	0	0

- Molecule 30 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	Sb	83	651	408	121	115	7	0	0

- Molecule 31 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	Sc	62	488	297	97	92	2	0	0

- Molecule 32 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	Sd	55	459	286	94	74	5	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	Se	52	417	259	92	65	1	0	0

- Molecule 34 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
34	sh	64	522	329	99	87	7	0	0

- Molecule 35 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	Sg	313	Total 2436	C 1535	N 424	O 465	S 12	0	0

- Molecule 36 is a RNA chain called Initiator Met-tRNA-i.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	zy	75	Total 1607	C 717	N 298	O 517	P 75	0	0

- Molecule 37 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	Ln	24	Total 230	C 139	N 62	O 26	S 3	0	0

- Molecule 38 is a RNA chain called HCV-IRES RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	zz	306	Total 6528	C 2909	N 1164	O 2149	P 306	0	0

- Molecule 39 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	S2	1759	Total 37626	C 16795	N 6759	O 12310	P 1762	4	0

- Molecule 40 is a protein called Eukaryotic translation initiation factor 3 subunit M.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	3m	363	Total 2639	C 1666	N 450	O 511	S 12	0	0

- Molecule 41 is a protein called Eukaryotic translation initiation factor 3 subunit F.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	3f	269	Total 2063	C 1303	N 354	O 394	S 12	0	0

- Molecule 42 is a protein called Eukaryotic translation initiation factor 3 subunit A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	3a	592	4470	2835	796	818	21	0	0

- Molecule 43 is a protein called Eukaryotic translation initiation factor 3 subunit E.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	3e	430	3224	2053	561	594	16	0	0

- Molecule 44 is a protein called Eukaryotic translation initiation factor 3 subunit C.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	3c	543	3907	2452	716	716	23	0	0

- Molecule 45 is a protein called Eukaryotic translation initiation factor 3 subunit H.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	3h	318	2520	1599	431	475	15	0	0

- Molecule 46 is a protein called Eukaryotic translation initiation factor 3 subunit D.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	3d	55	343	220	64	58	1	0	0

- Molecule 47 is a protein called Eukaryotic translation initiation factor 3 subunit K.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
47	3k	215	1475	932	251	282	10	0	0

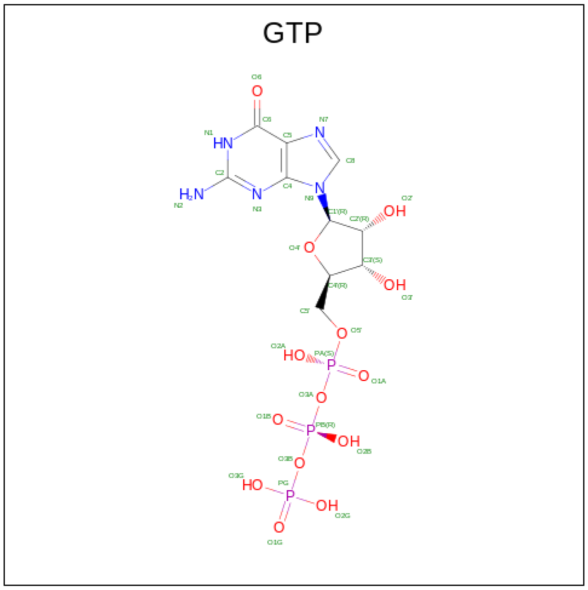
- Molecule 48 is a protein called Eukaryotic translation initiation factor 3 subunit L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	3l	520	4335	2808	715	793	19	0	0

- Molecule 49 is MAGNESIUM ION (CCD ID: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
49	5B	1	1	1	0
49	S2	7	7	7	0

- Molecule 50 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					AltConf
			Total	C	N	O	P	
50	5B	1	32	10	5	14	3	0

- Molecule 51 is ZINC ION (CCD ID: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

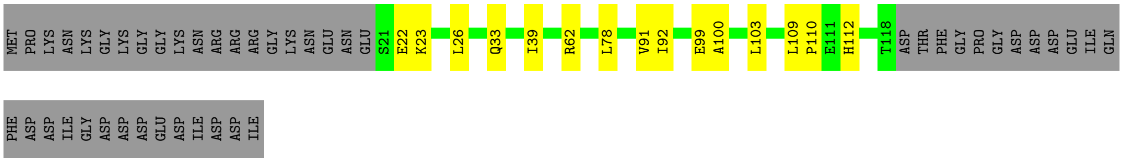
Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
51	Sa	1	1	1	0
51	sh	1	1	1	0

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.

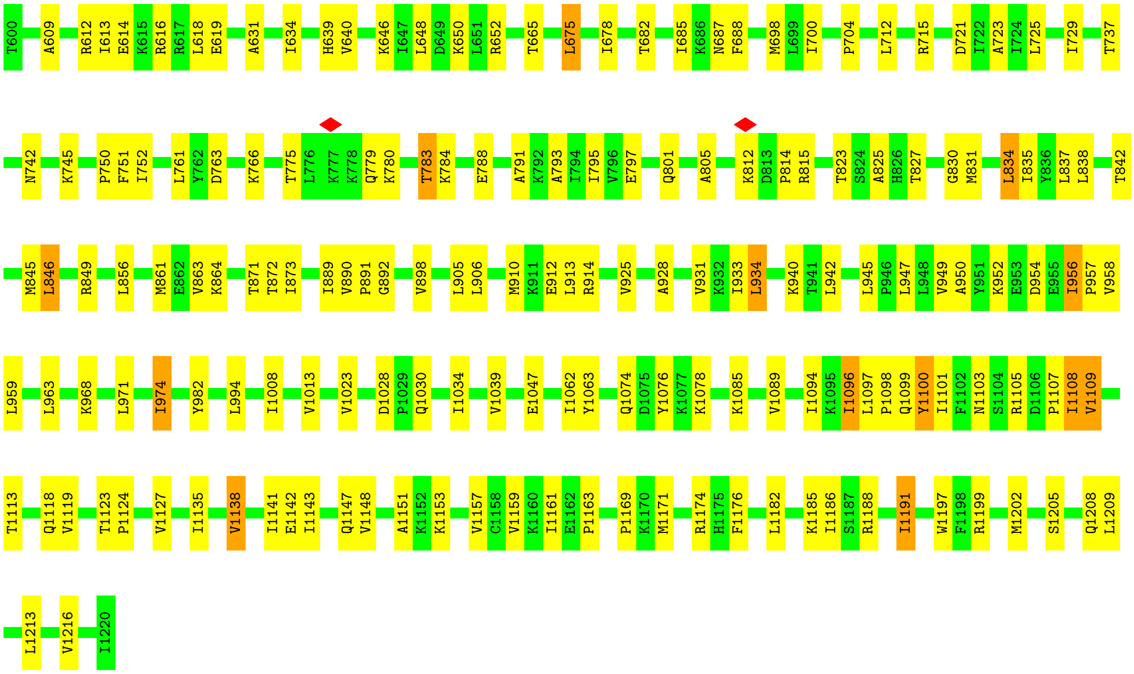
- Molecule 1: Eukaryotic translation initiation factor 1A, X-chromosomal

Chain 1A:



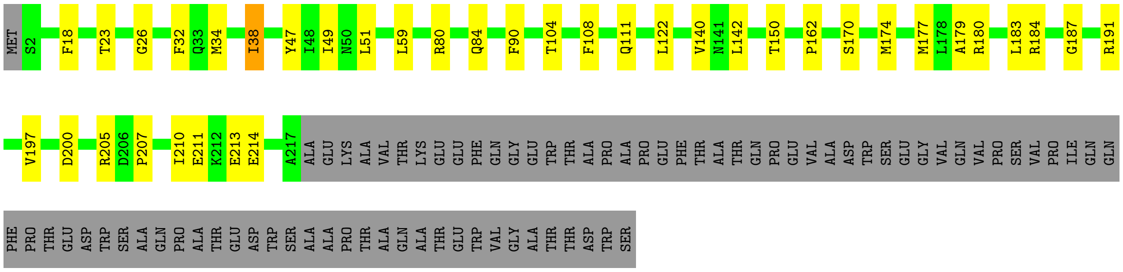
- Molecule 2: Eukaryotic translation initiation factor 5B

Chain 5B:



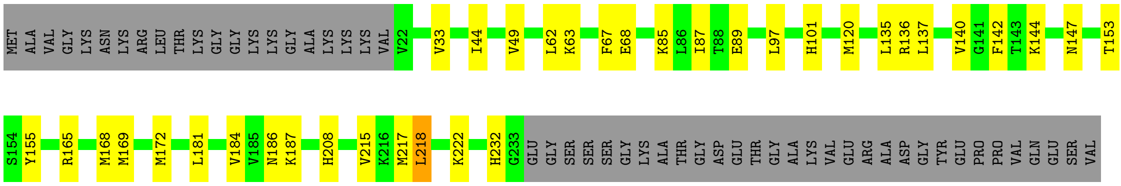
- Molecule 3: Small ribosomal subunit protein uS2

Chain SA:



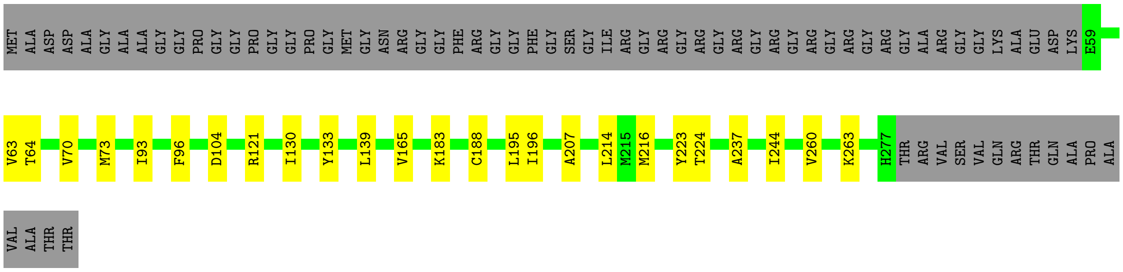
- Molecule 4: 40S ribosomal protein S3a

Chain SB:



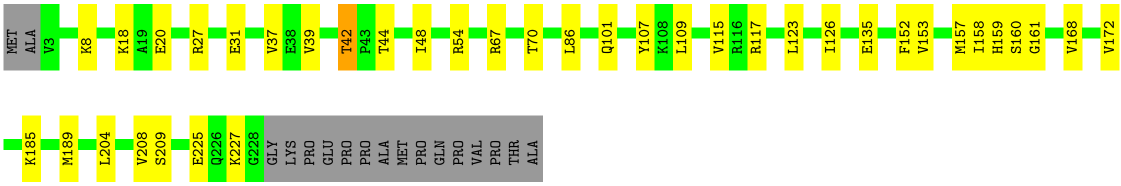
- Molecule 5: 40S ribosomal protein S2

Chain SC:



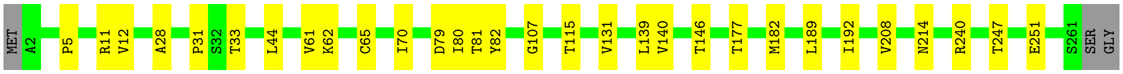
- Molecule 6: 40S ribosomal protein S3

Chain SD:



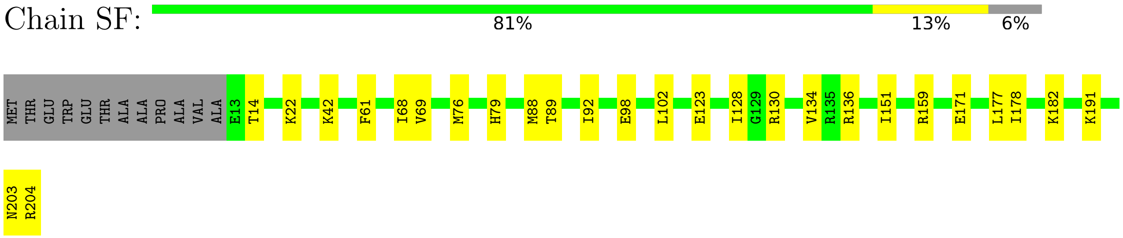
- Molecule 7: 40S ribosomal protein S4, X isoform

Chain SE:



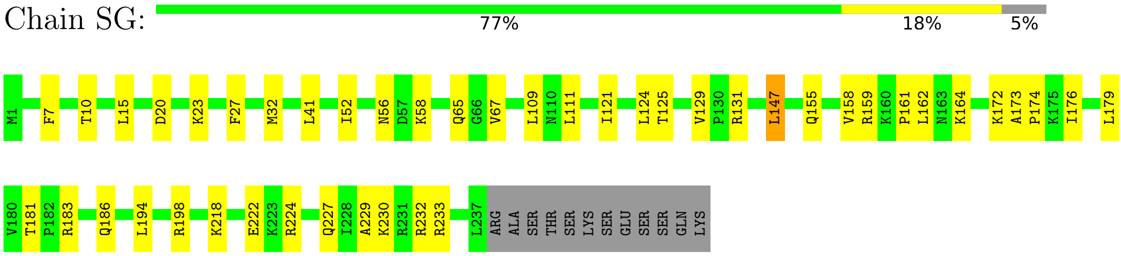
- Molecule 8: 40S ribosomal protein S5

Chain SF:



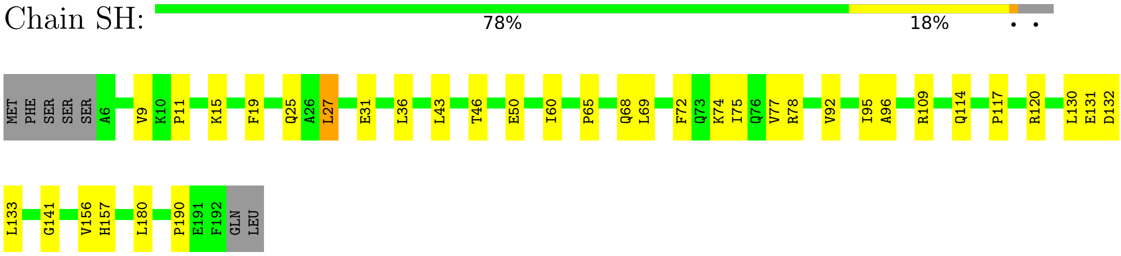
- Molecule 9: 40S ribosomal protein S6

Chain SG:



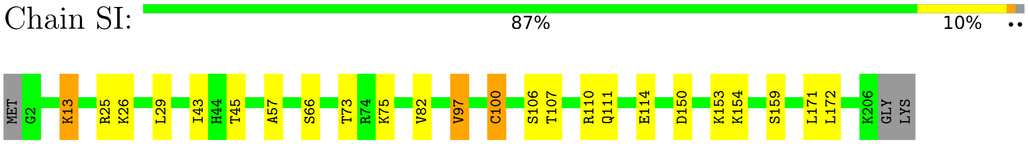
- Molecule 10: 40S ribosomal protein S7

Chain SH:



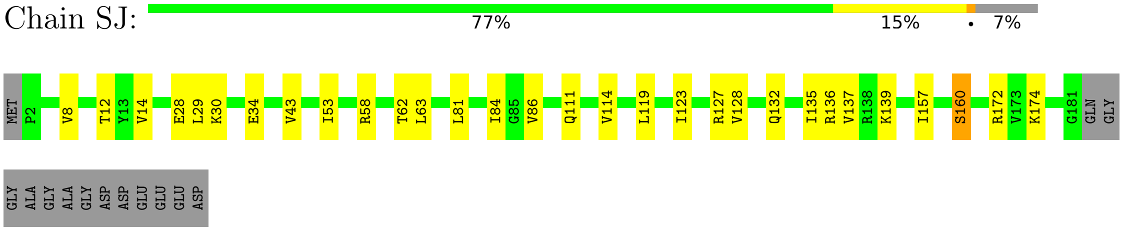
- Molecule 11: 40S ribosomal protein S8

Chain SI:



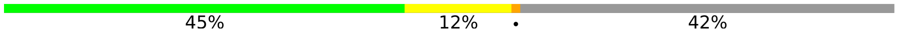
- Molecule 12: 40S ribosomal protein S9

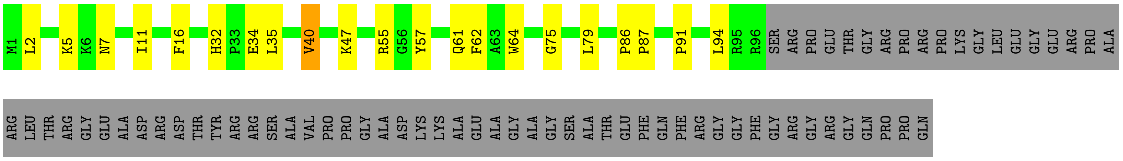
Chain SJ:



- Molecule 13: 40S ribosomal protein S10

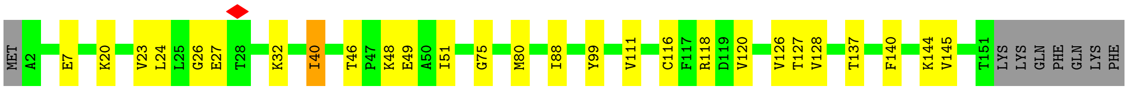
Chain SK:





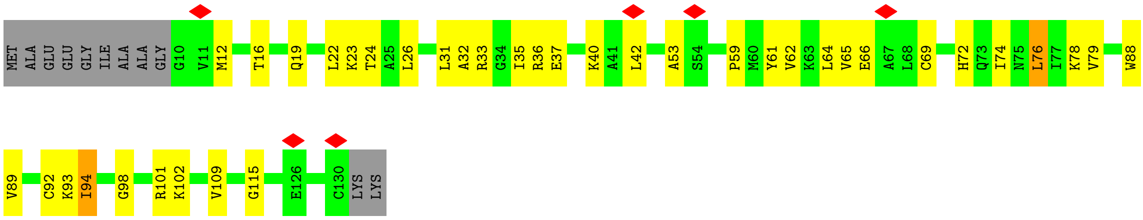
- Molecule 14: 40S ribosomal protein S11

Chain SL:



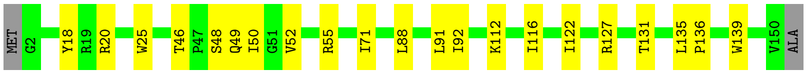
- Molecule 15: 40S ribosomal protein S12

Chain Sf:



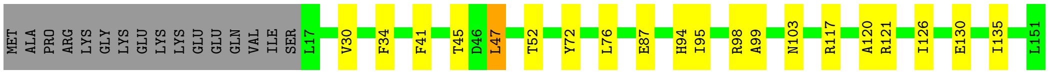
- Molecule 16: 40S ribosomal protein S13

Chain SN:



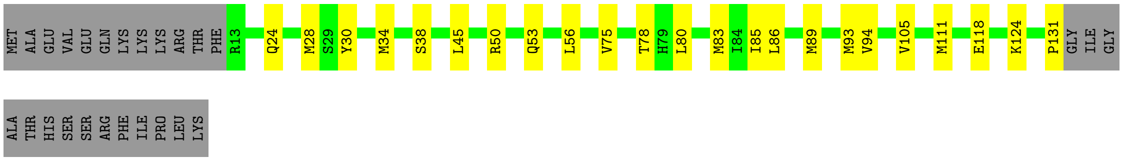
- Molecule 17: 40S ribosomal protein S14

Chain SO:



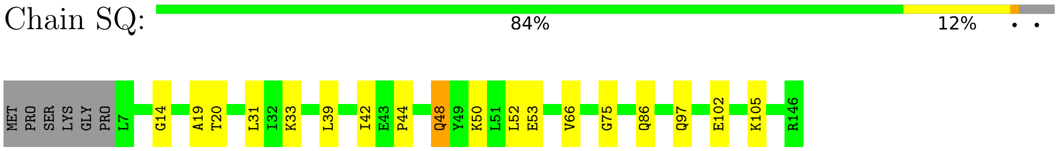
- Molecule 18: 40S ribosomal protein S15

Chain SP:



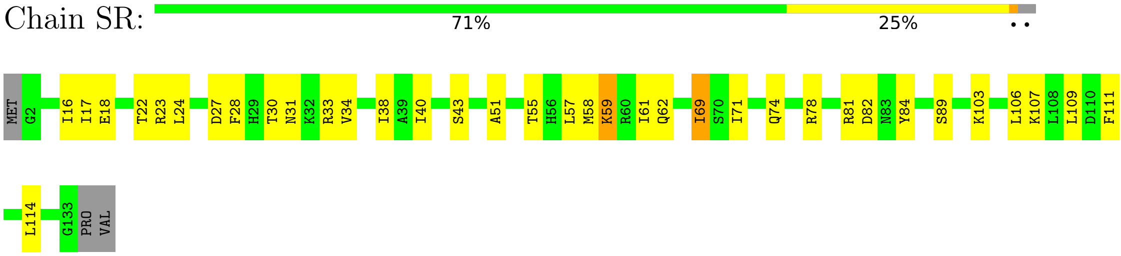
- Molecule 19: 40S ribosomal protein S16

Chain SQ:



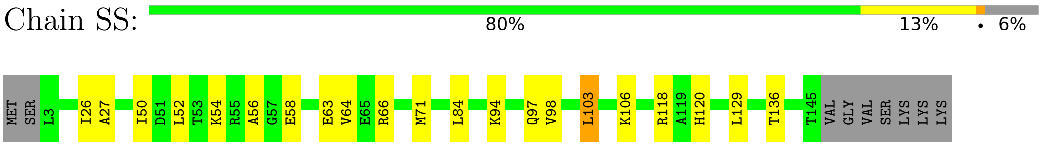
- Molecule 20: 40S ribosomal protein S17

Chain SR:



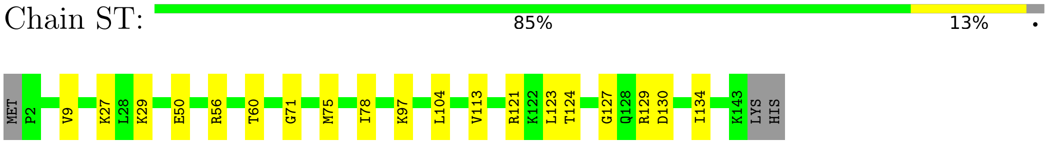
- Molecule 21: 40S ribosomal protein S18

Chain SS:



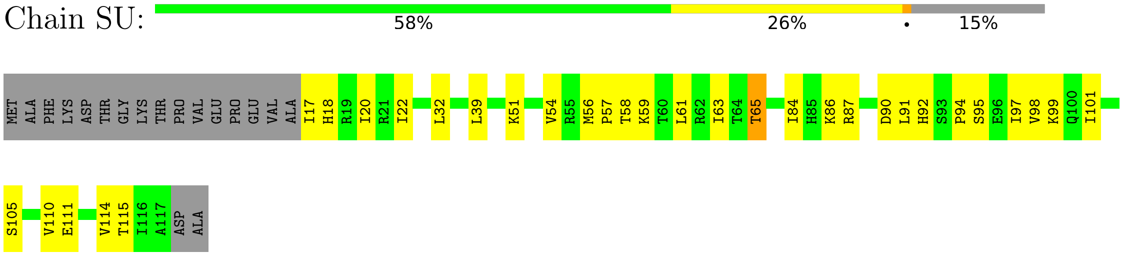
- Molecule 22: 40S ribosomal protein S19

Chain ST:



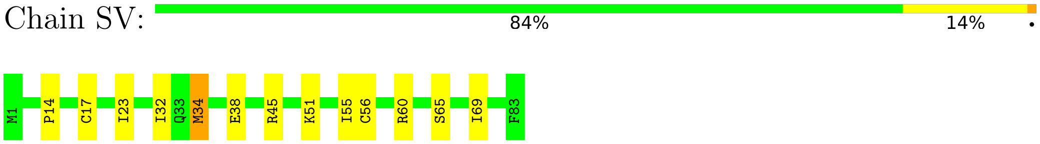
- Molecule 23: 40S ribosomal protein S20

Chain SU:



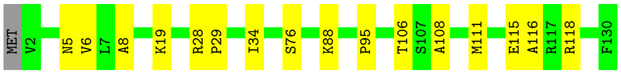
- Molecule 24: 40S ribosomal protein S21

Chain SV:



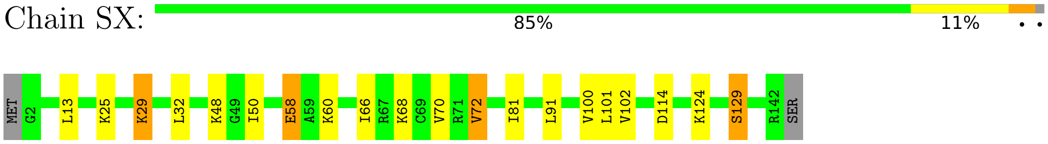
- Molecule 25: 40S ribosomal protein S15a

Chain SW:



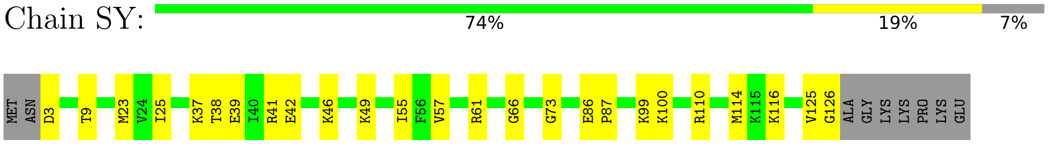
- Molecule 26: 40S ribosomal protein S23

Chain SX:



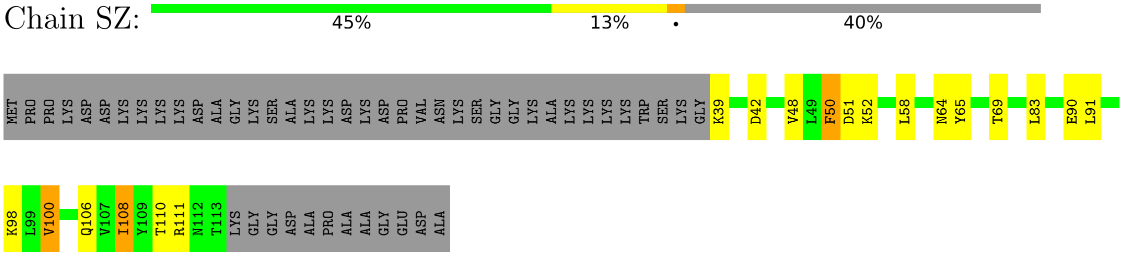
- Molecule 27: 40S ribosomal protein S24

Chain SY:



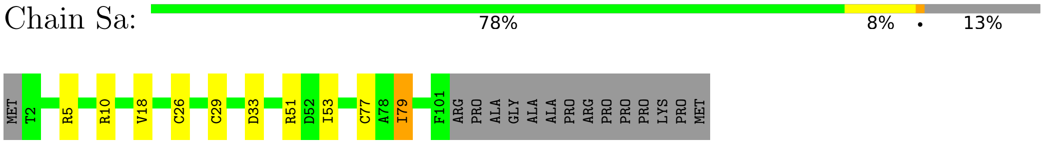
- Molecule 28: 40S ribosomal protein S25

Chain SZ:



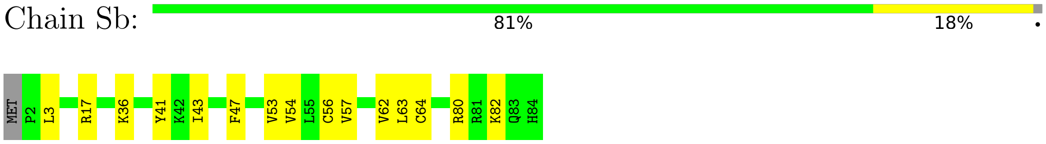
- Molecule 29: 40S ribosomal protein S26

Chain Sa:



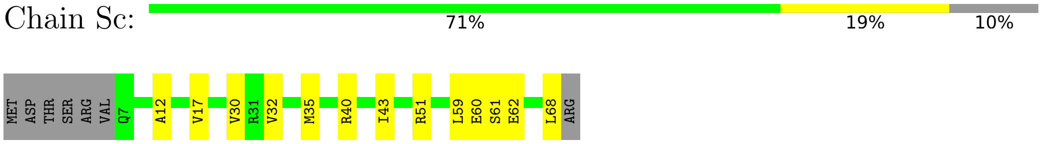
- Molecule 30: 40S ribosomal protein S27

Chain Sb:



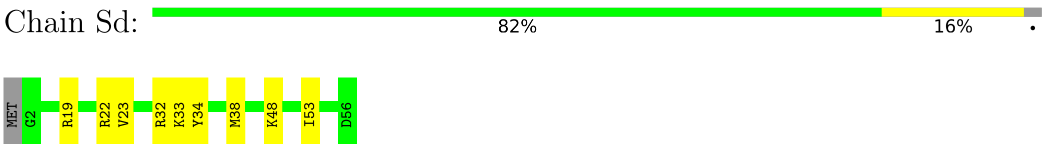
- Molecule 31: 40S ribosomal protein S28

Chain Sc:



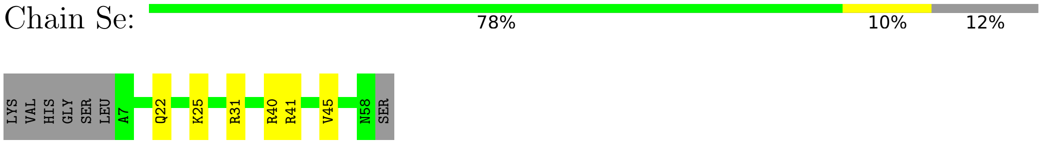
- Molecule 32: 40S ribosomal protein S29

Chain Sd:



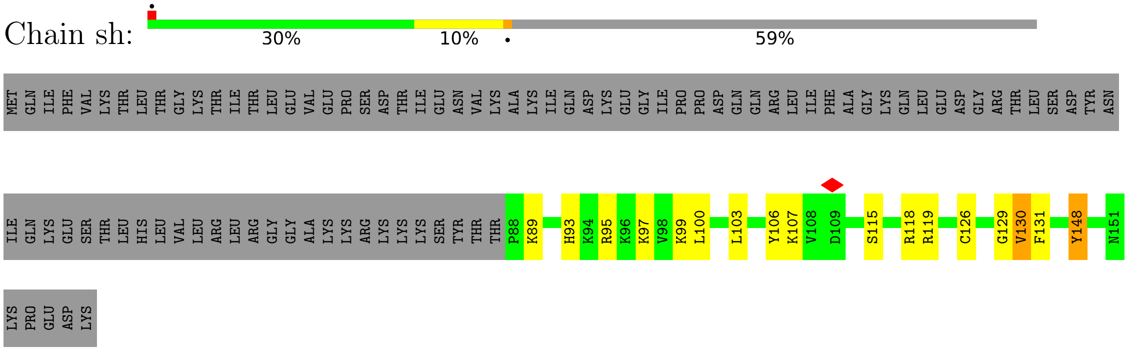
- Molecule 33: 40S ribosomal protein S30

Chain Se:



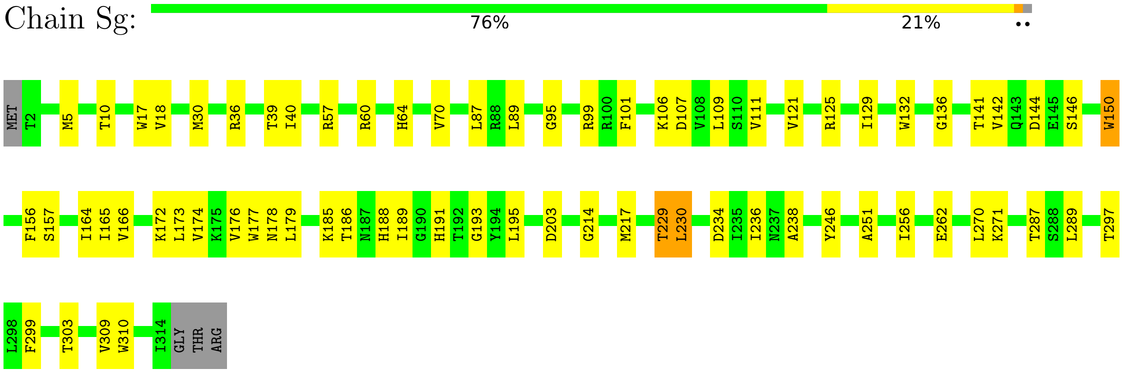
- Molecule 34: Ubiquitin-40S ribosomal protein S27a

Chain sh:



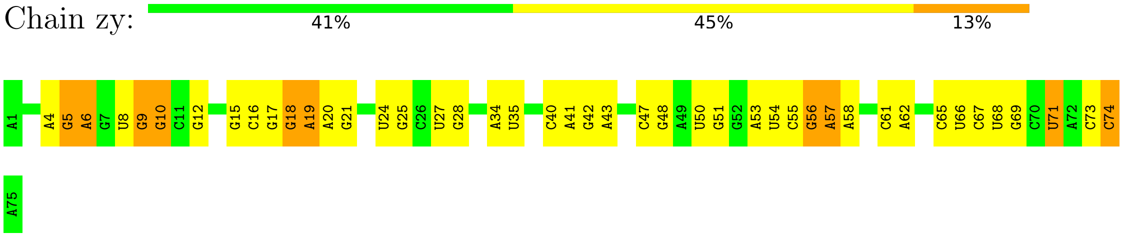
- Molecule 35: Receptor of activated protein C kinase 1

Chain Sg:

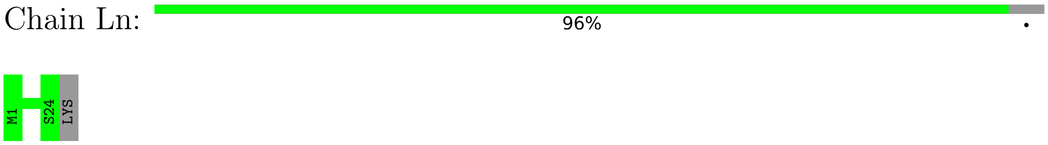


- Molecule 36: Initiator Met-tRNA-i

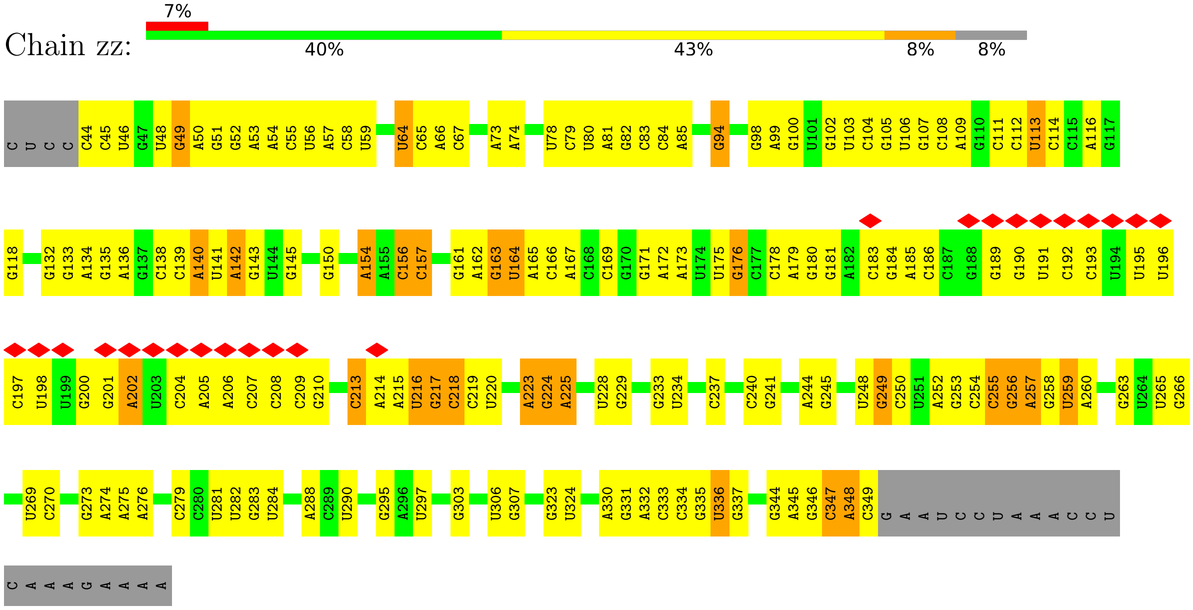
Chain zy:



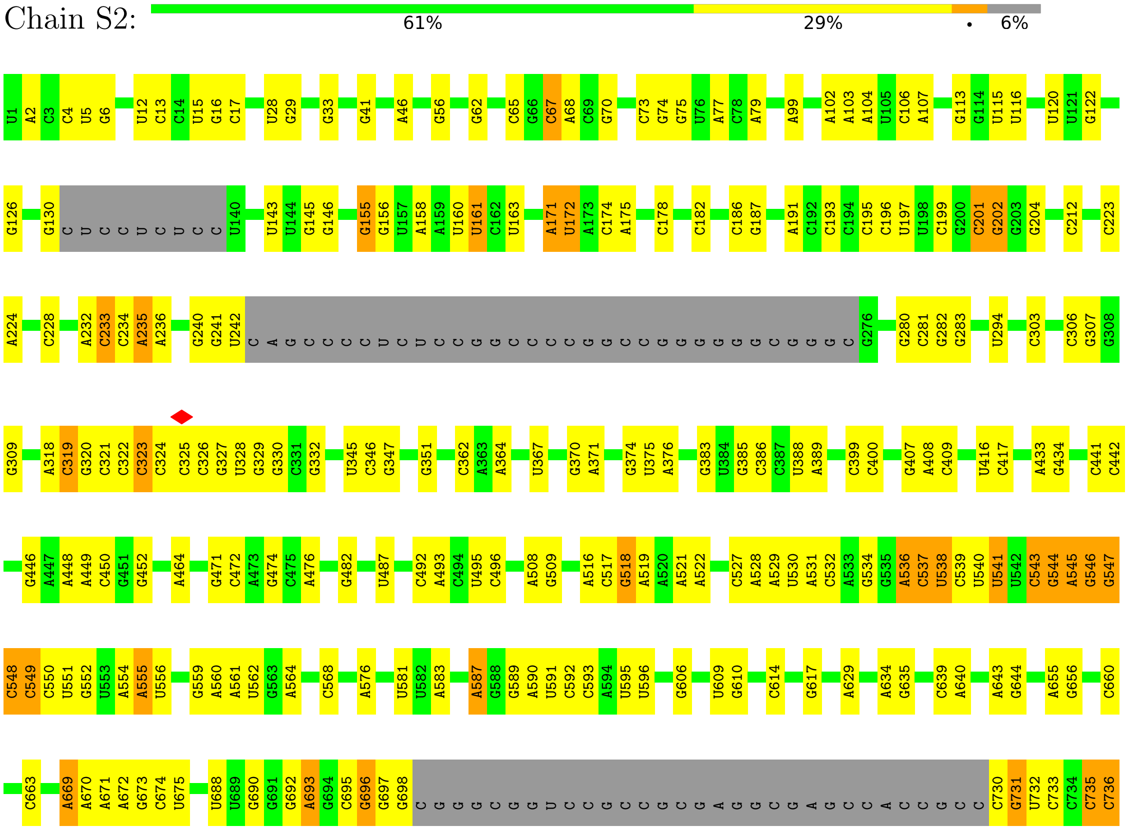
- Molecule 37: 60S ribosomal protein L41

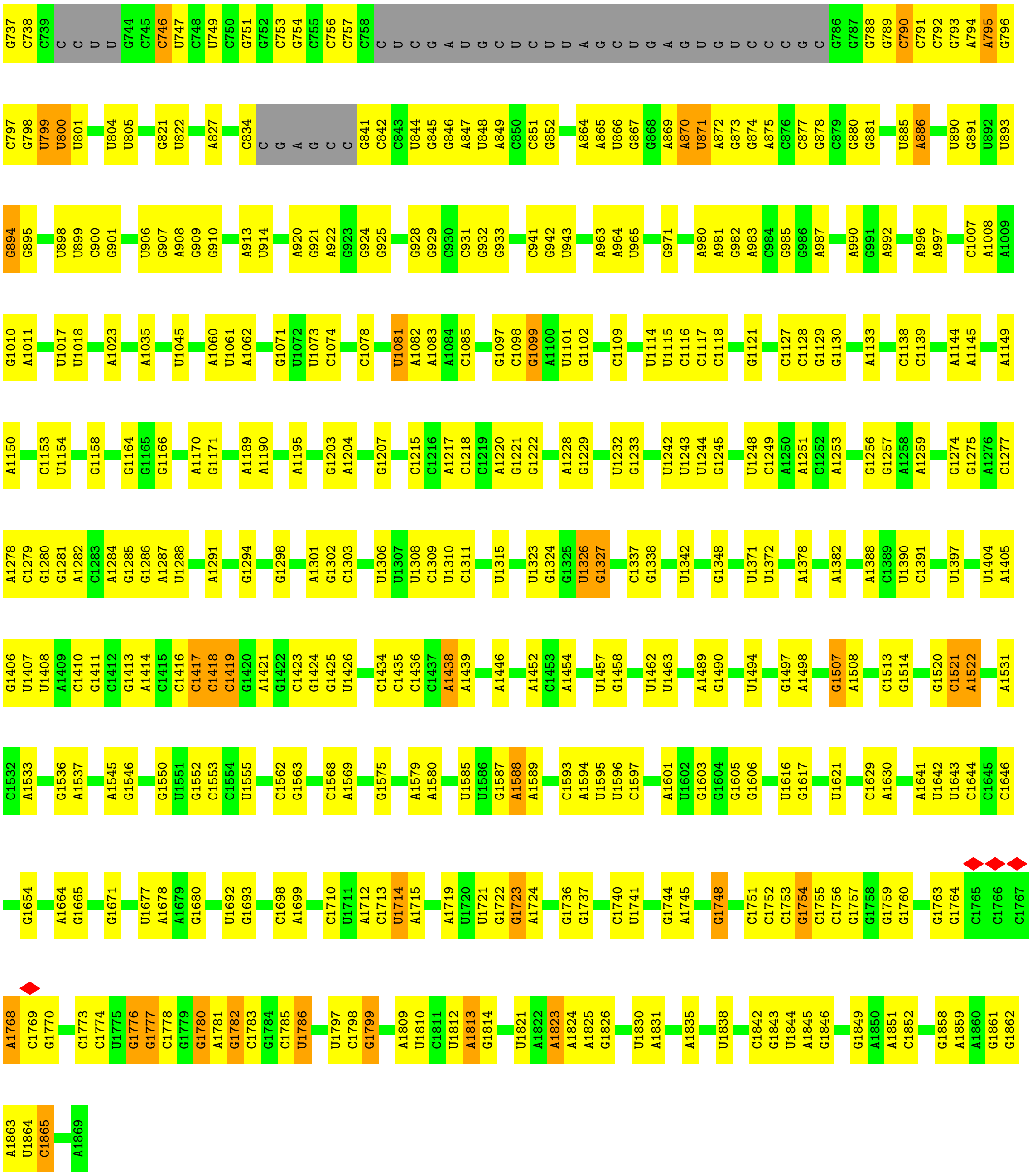


- Molecule 38: HCV-IRES RNA



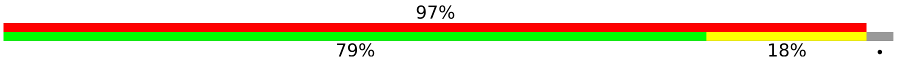
- Molecule 39: 18S ribosomal RNA

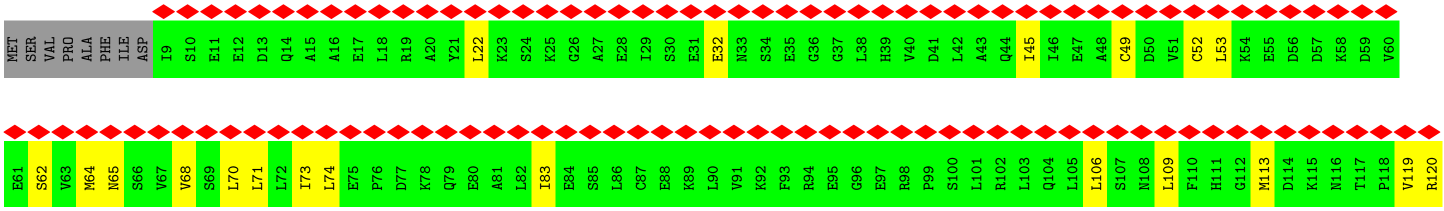




- Molecule 40: Eukaryotic translation initiation factor 3 subunit M

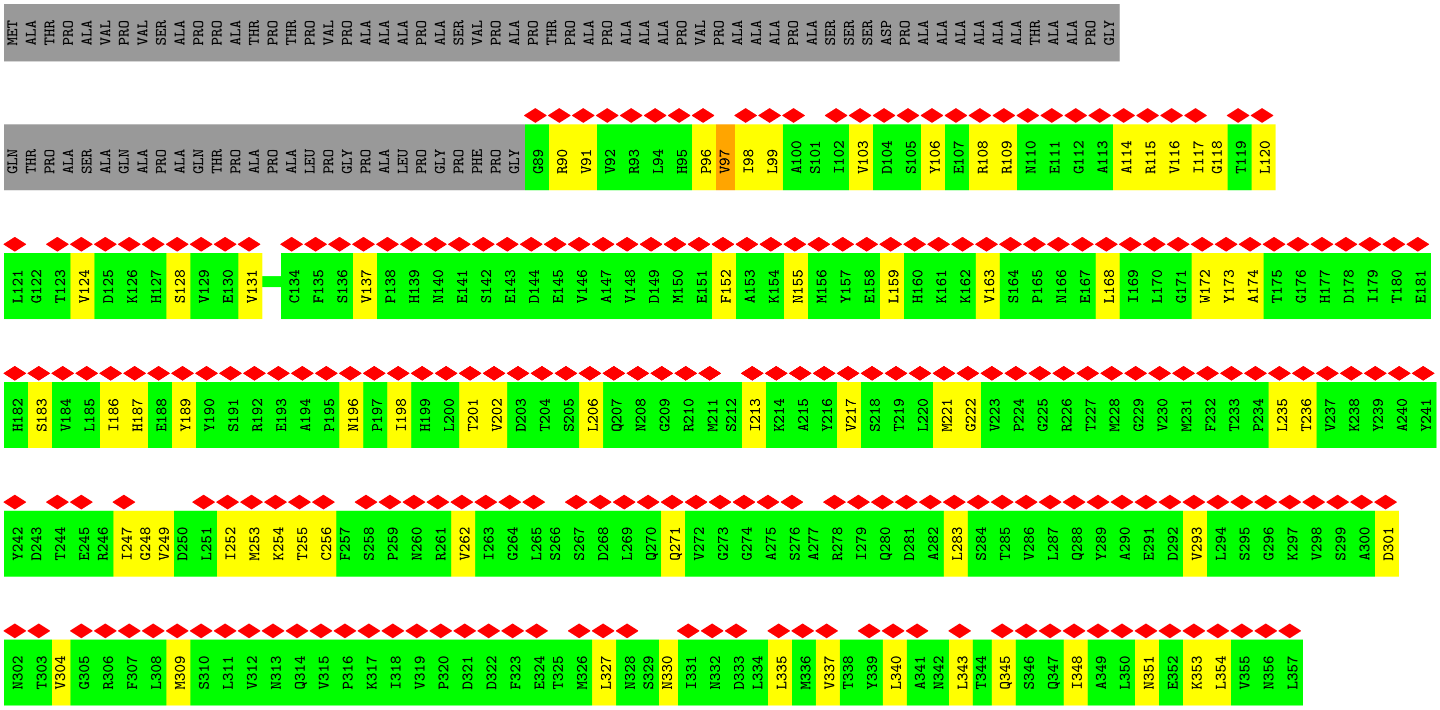
Chain 3m:





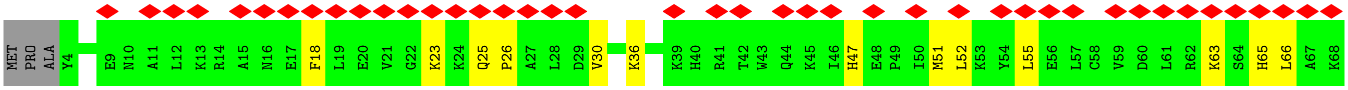
• Molecule 41: Eukaryotic translation initiation factor 3 subunit F

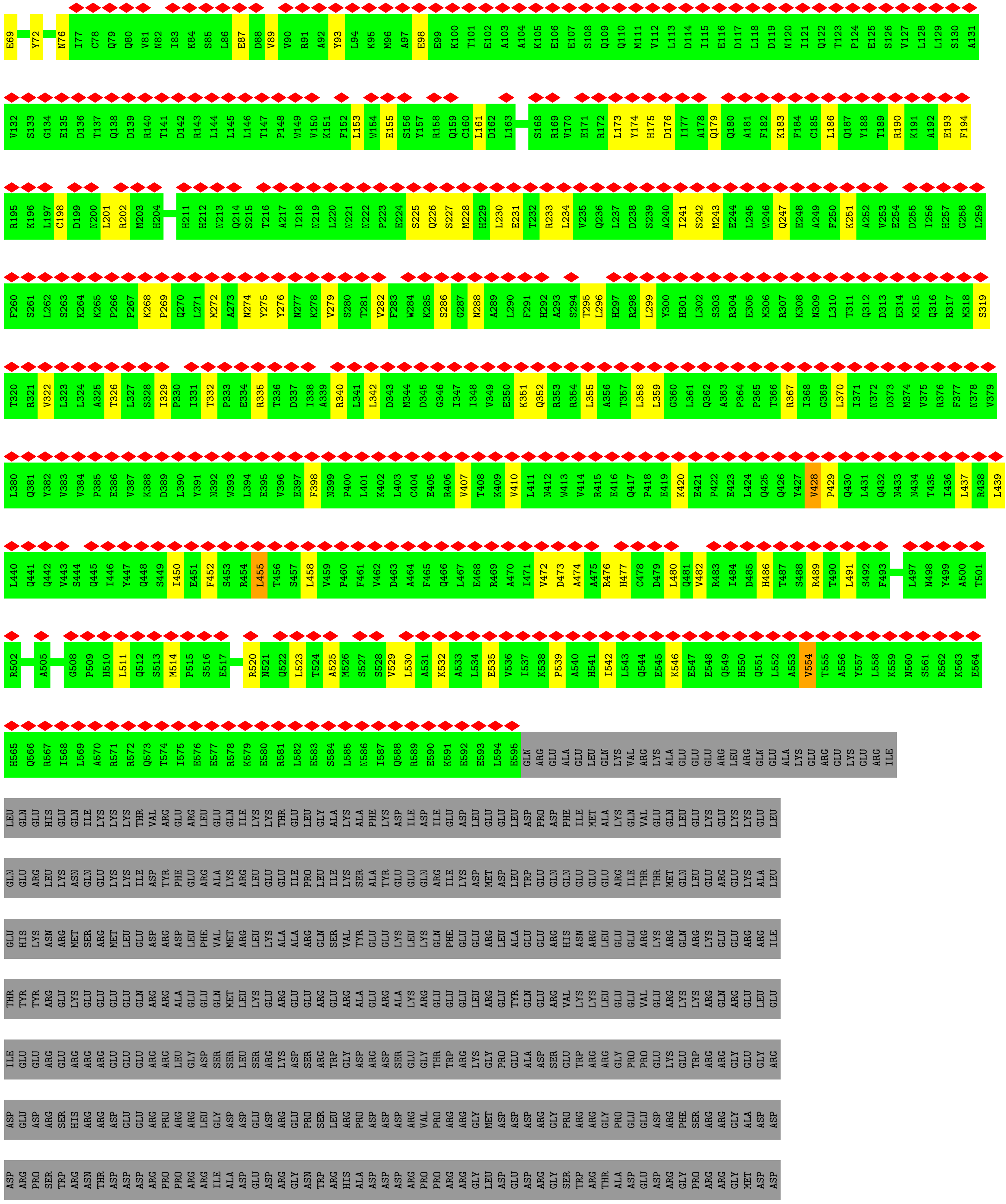
Chain 3f:

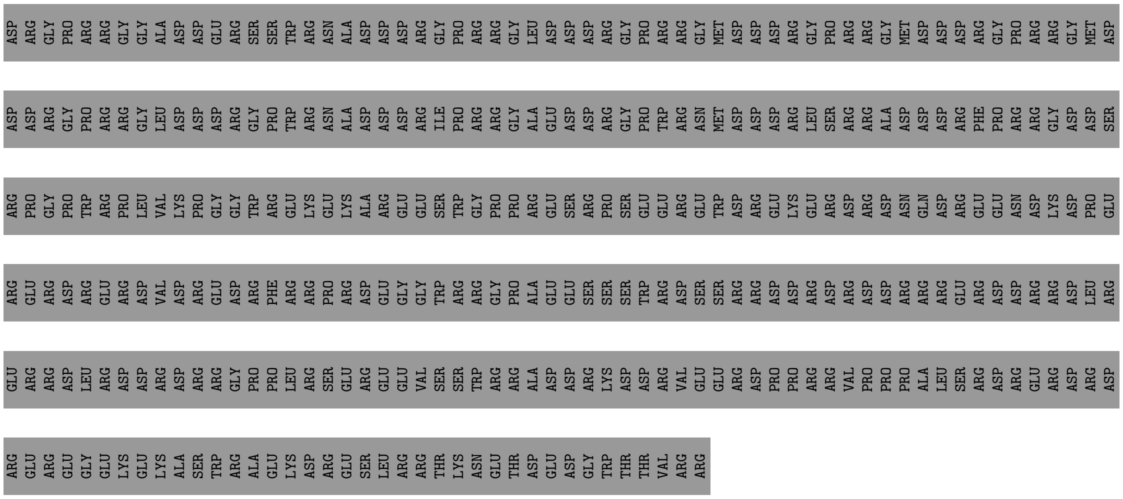


• Molecule 42: Eukaryotic translation initiation factor 3 subunit A

Chain 3a:

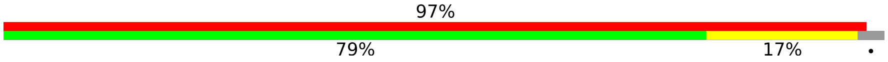


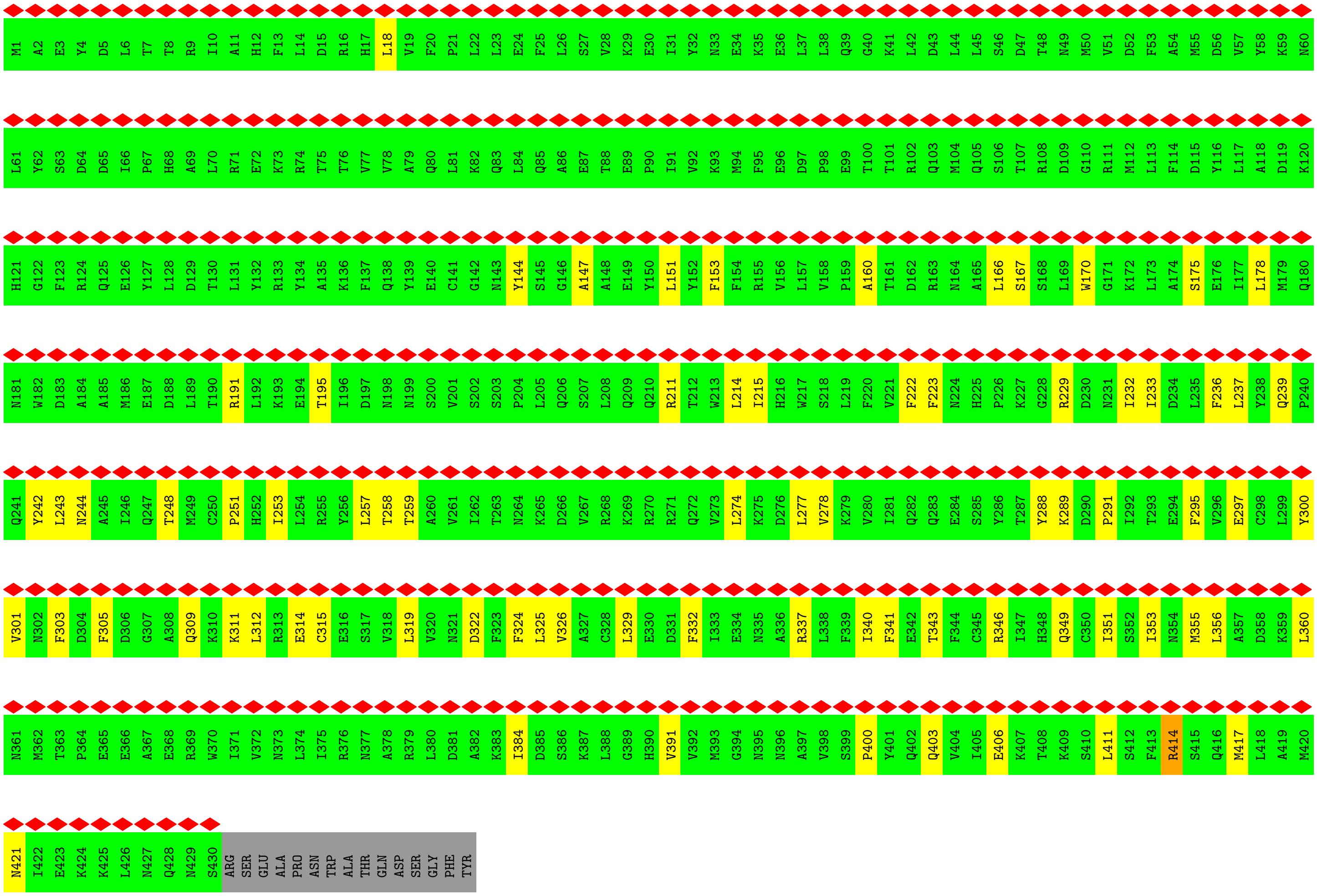

E69 Y72 N76 I77 C78 Q79 Q80 V81 N82 I83 K84 S85 L86 E87 D88 V89 V90 R91 A92 Y93 L94 K95 M96 A97 E98 E99 K100 T101 E102 A103 A104 K105 E106 E107 S108 Q109 Q110 M111 V112 L113 D114 I115 E116 D117 L118 D119 N120 I121 Q122 T123 P124 E125 S126 V127 L128 L129 S130 A131
V132 S133 G134 E135 D136 T137 Q138 D139 R140 T141 D142 R143 L144 L145 L146 T147 P148 W149 V150 K151 F152 L153 W154 E155 S156 Y157 R158 Q159 C160 L161 D162 L163 S168 R169 V170 E171 R172 L173 Y174 H175 D176 I177 A178 Q179 Q180 A181 F182 K183 F184 C185 L186 Q187 Y188 T189 R190 K191 A192 E193 F194
R195 K196 L197 C198 D199 N200 L201 R202 M203 H204 H211 H212 N213 Q214 S215 T216 A217 I218 N219 L220 N221 N222 P223 E224 S225 Q226 S227 M228 H229 L230 E231 T232 R233 L234 V235 Q236 L237 D238 S239 A240 I241 S242 M243 E244 L245 W246 Q247 E248 A249 F250 K251 A252 V253 E254 D255 I256 H257 G258 L259
F260 S261 L262 S263 K264 K265 P266 P267 K268 P269 Q270 L271 M272 A273 N274 Y275 Y276 N277 K278 V279 S280 T281 V282 F283 W284 K285 S286 G287 N288 A289 L290 F291 H292 A293 S294 T295 L296 H297 R298 L299 Y300 H301 L302 S303 R304 E305 M306 R307 K308 N309 L310 T311 Q312 D313 E314 M315 Q316 R317 M318 S319
T320 R321 V322 L323 L324 A325 T326 L327 S328 I329 P330 I331 T332 P333 E334 R335 T336 D337 I338 A339 R340 L341 L342 D343 M344 D345 G346 I347 I348 V349 E350 K351 Q352 R353 R354 L355 A356 T357 L358 L359 G360 L361 Q362 A363 P364 P365 T366 R367 I368 G369 L370 I371 N372 D373 M374 V375 R376 F377 N378 V379
L380 Q381 Y382 V383 V384 P385 E386 V387 K388 D389 L390 Y391 N392 W393 L394 E395 V396 E397 F398 N399 P400 L401 K402 L403 C404 E405 R406 V407 T408 K409 V410 L411 N412 W413 V414 R415 E416 Q417 P418 E419 K420 E421 P422 E423 L424 Q425 Q426 Y427 V428 P429 Q430 L431 Q432 N433 N434 T435 I436 L437 R438 L439
L440 Q441 Q442 V443 S444 Q445 I446 Y447 Q448 S449 I450 E451 F452 S453 R454 L455 T456 S457 L458 V459 P460 F461 V462 D463 A464 F465 Q466 L467 E468 R469 A470 I471 V472 D473 A474 A475 R476 H477 C478 D479 L480 Q481 V482 R483 I484 D485 H486 T487 S488 R489 T490 L491 S492 F493 L497 N498 Y499 A500 T501
R502 A505 G508 P509 H510 L511 Q512 S513 M514 P515 S516 E517 R520 N521 Q522 L523 T524 A525 M526 S527 S528 V529 L530 A531 K532 A533 L534 E535 V536 I537 K538 P539 A540 H541 I542 L543 Q544 E545 K546 E547 E548 Q549 H550 Q551 L552 A553 V554 T555 A556 Y557 L558 K559 N560 S561 R562 K563 E564
H565 Q566 R567 I568 L569 A570 R571 R572 Q573 T574 I575 E576 E577 R578 K579 E580 R581 L582 E583 S584 L585 N586 I587 Q588 R589 E590 K591 E592 E593 L594 E595 GLN ARG GLU ALA GLU LEU GLN LYS VAL ARG LYS ALA GLU GLU GLU ARG LEU ARG GLN GLU ALA LYS GLU ARG GLU LYS GLU ARG ILE
LEU GLN GLU HIS GLU GLN ILE LYS LYS LYS THR VAL ARG GLU ARG LEU GLU GLN ILE LYS LYS THR GLU LEU GLY ALA LYS ALA PHE LYS ASP ILE ASP ILE GLU ASP LEU GLU GLU LEU ASP PRO ASP PHE ILE MET ALA LYS GLN VAL GLU GLN LEU GLU LYS GLU LYS LYS GLU LEU
GLN GLU ARG LEU LYS ASN GLN GLU LYS LYS ILE ASP TYR PHE GLU ARG ALA LYS ARG LEU GLU GLU ILE PRO LEU ILE LYS SER ALA TYR GLU GLU GLN ARG ILE LYS ASP MET ASP LEU TRP GLU GLN GLN GLU GLU GLU ARG ILE THR THR MET GLN LEU GLU ARG GLU LYS ALA LEU
GLU HIS LYS ASN ARG MET SER ARG MET LEU GLU ASP ARG ASP LEU PHE VAL MET ARG LEU LYS ALA ALA ARG GLN SER VAL TYR GLU GLU LYS LEU LYS GLN PHE GLU GLU ARG LEU ALA GLU GLU ARG HIS ASN ARG LEU GLU GLU ARG LYS ARG GLN ARG LYS GLU GLU ARG ILE
THR TYR TYR ARG GLU LYS GLU GLU GLU GLN ARG ALA GLU GLU GLN MET LEU LYS GLU ARG GLU GLU ARG GLU ARG ALA GLU ARG ALA LYS ARG GLU GLU LEU ARG GLU TYR GLN GLU ARG VAL LYS LEU GLU GLU VAL GLU ARG LYS LYS ARG GLN ARG GLU LEU GLU
ILE GLU GLU ARG GLU ARG ARG GLU GLU ARG ARG LEU GLY ASP SER SER LEU SER ARG LYS ASP SER ARG TRP GLY ASP ARG ASP SER GLU GLY THR TRP ARG LYS GLY PRO GLU ALA ASP SER GLU TRP ARG ARG GLY PRO PRO GLU LYS GLU TRP ARG ARG GLY GLU GLY ARG
ASP GLU ASP ARG SER HIS ARG ARG ASP GLU GLU ARG PRO ARG ARG LEU GLY ASP ASP GLU ASP ARG GLU PRO SER LEU ARG PRO ASP ASP ASP ARG VAL PRO ARG ARG GLY MET ASP ASP ASP ARG GLY PRO ARG GLY PRO GLU GLU ASP ARG PHE SER ARG ARG GLY ALA ASP ASP
ASP ARG PRO SER TRP ARG ASN THR ASP ASP ARG PRO PRO ARG ARG ILE ALA ASP GLU ASP ARG GLY ASN TRP ARG HIS ALA ASP ASP ASP ARG PRO PRO ARG ARG GLY LEU ASP GLU ASP ARG GLY SER TRP ARG THR ALA ASP GLU ASP ARG GLY PRO ARG ARG GLY MET ASP ASP



- Molecule 43: Eukaryotic translation initiation factor 3 subunit E

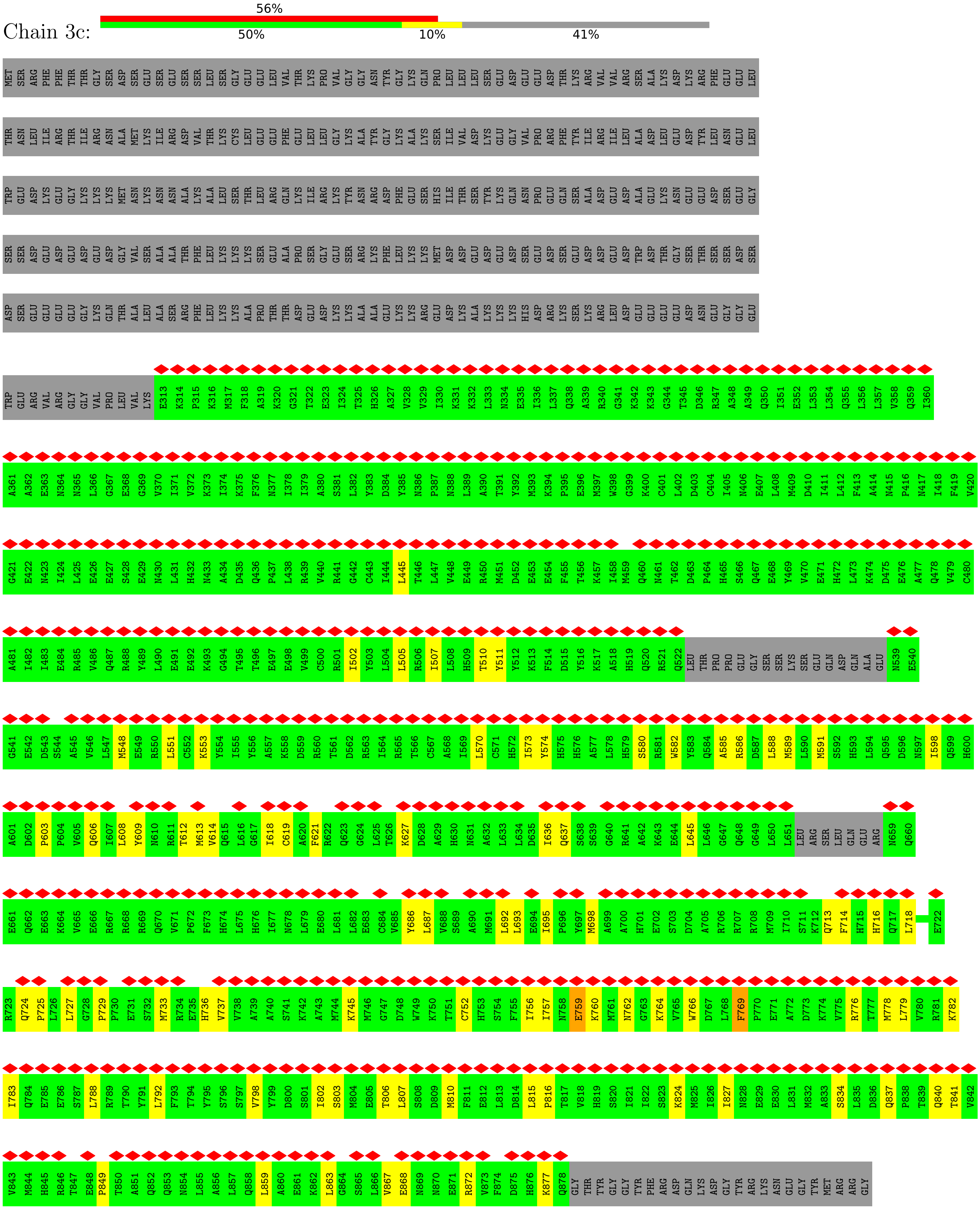
Chain 3e:





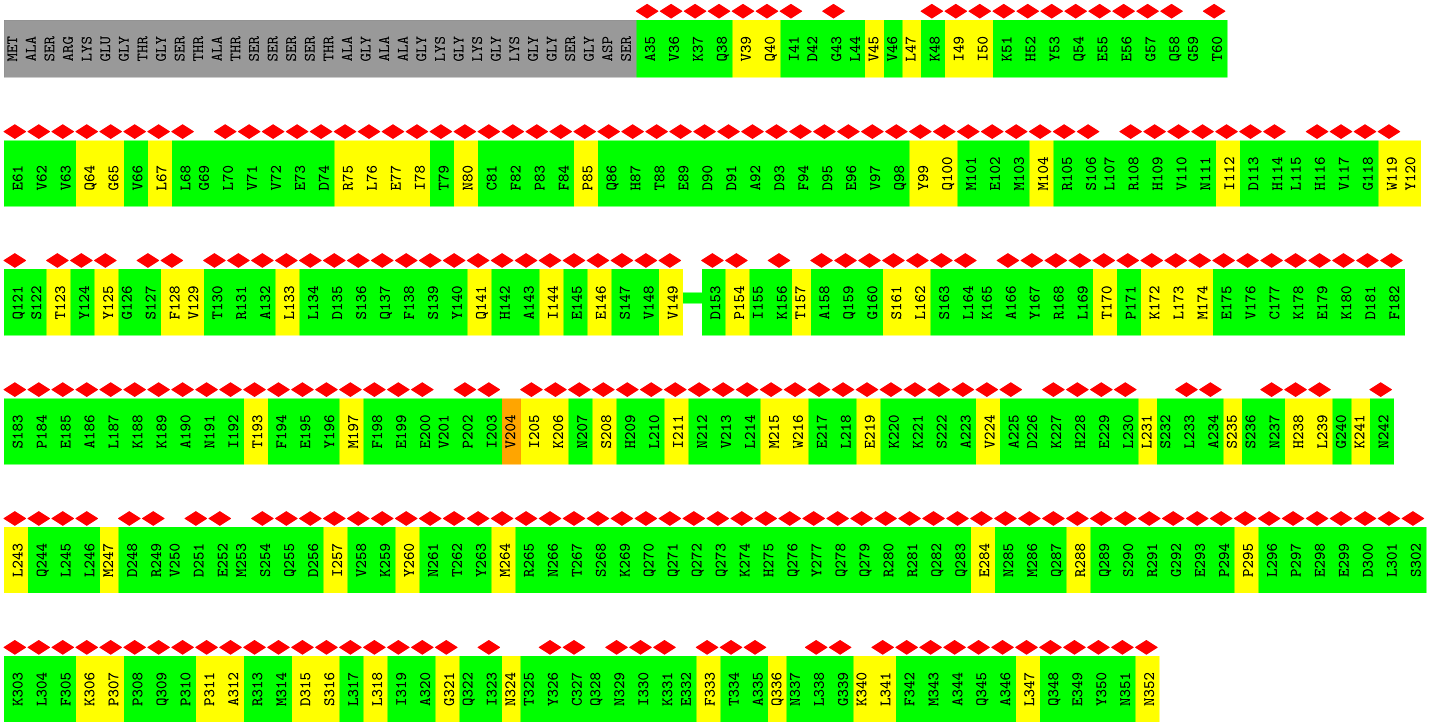
- Molecule 44: Eukaryotic translation initiation factor 3 subunit C

Chain 3c:


56%
50%
10%
41%
MET SER ARG PHE PHE THR THR GLY SER ASP SER GLU SER GLU SER SER LEU SER GLY GLU GLU LEU VAL THR LYS PRO VAL GLY GLY ASN TYR GLY LYS GLN PRO LEU LEU LEU SER SER GLU ASP GLU GLU ASP THR LYS ARG VAL VAL ARG SER ALA LYS ASP LYS ARG PHE GLU GLU LEU
THR ASN LEU ILE ARG THR ILE ARG ASN ALA MET LYS ILE ARG ASP VAL THR LYS CYS LEU GLU GLU PHE GLU LEU LEU GLY LYS ALA TYR GLY LYS ALA LYS SER ILE VAL ASP LYS GLU GLY VAL PRO ARG PHE TYR ILE ARG ILE LEU ALA ASP LEU GLU ASP TYR LEU ASN GLU LEU
TRP GLU ASP LYS GLU GLY LYS LYS LYS MET ASN LYS ASN ASN ALA LYS ALA LEU SER THR LEU ARG GLN LYS ILE ARG LYS TYR ASN ARG ASP PHE GLU SER HIS ILE THR SER TYR LYS GLN ASN PRO GLU GLN SER ALA ASP GLU ASP ALA GLU LYS ASN GLU GLU ASP SER GLU GLY
SER SER ASP GLU ASP GLU ASP GLU ASP GLY VAL SER ALA ALA THR PHE LEU LYS LYS LYS SER GLU ALA PRO SER GLY GLU SER ARG LYS PHE LEU LYS LYS MET ASP ASP GLU ASP ASP SER GLU ASP SER GLU ASP ASP GLU ASP TRP ASP THR GLY SER THR SER SER ASP SER
ASP SER GLU GLU GLU GLU GLY LYS GLN THR ALA LEU ALA SER ARG PHE LEU LYS LYS ALA PRO THR THR ASP GLU ASP LYS LYS ALA ALA GLU LYS LYS ARG GLU ASP LYS ALA LYS LYS LYS HIS ASP ARG LYS SER LYS ARG LEU ASP GLU GLU GLU GLU ASP ASN GLU GLY GLY GLU
TRP GLU ARG VAL ARG GLY GLY VAL PRO LEU VAL LYS E313 K314 P315 K316 M317 F318 A319 K320 G321 T322 E323 I324 T325 H326 A327 V328 V329 I330 K331 K332 L333 N334 E335 I336 L337 Q338 A339 R340 G341 K342 K343 G344 T345 D346 R347 A348 A349 Q350 I351 E352 L353 L354 Q355 L356 L357 V358 Q359 I360
A361 A362 E363 N364 N365 L366 G367 E368 G369 V370 I371 V372 K373 I374 K375 F376 N377 I378 I379 A380 S381 L382 Y383 D384 Y385 N386 P387 N388 L389 A390 T391 Y392 M393 K394 P395 E396 M397 W398 G399 K400 C401 L402 D403 C404 I405 N406 E407 L408 M409 D410 I411 L412 F413 A414 N415 P416 N417 I418 F419 V420
G421 E422 N423 I424 L425 E426 E427 S428 E429 N430 L431 H432 N433 A434 D435 Q436 P437 L438 R439 V440 R441 G442 C443 I444 L445 T446 L447 V448 E449 R450 M451 D452 E453 E454 F455 T456 K457 I458 M459 Q460 N461 T462 D463 P464 H465 S466 Q467 E468 Y469 V470 E471 H472 L473 K474 D475 E476 A477 Q478 V479 C480
A481 I482 I483 E484 R485 V486 Q487 R488 Y489 L490 E491 E492 K493 G494 T495 E496 E497 E498 V499 C500 R501 I502 Y503 L504 L505 R506 I507 L508 H509 T510 Y511 Y512 K513 F514 D515 Y516 K517 A518 H519 Q520 R521 Q522 LEU THR PRO PRO GLU GLY SER SER LYS SER GLU GLN ASP GLN ALA GLU N539 E540
G541 E542 D543 S544 A545 V546 L547 M548 E549 R550 L551 C552 K553 Y554 I555 Y556 A557 K558 D559 R560 T561 D562 R563 I564 R565 T566 C567 A568 I569 L570 C571 H572 I573 Y574 H575 H576 A577 L578 H579 S580 R581 W582 Y583 Q584 A585 R586 D587 L588 M589 L590 M591 S592 H593 L594 Q595 D596 N597 I598 Q599 H600
A601 D602 P603 P604 V605 Q606 I607 L608 Y609 N610 R611 T612 M613 V614 Q615 L616 G617 I618 C619 A620 F621 R622 Q623 G624 L625 T626 K627 D628 A629 H630 N631 A632 L633 L634 D635 I636 Q637 S638 S639 G640 R641 A642 K643 E644 L645 G646 G647 Q648 G649 L650 L651 LEU ARG SER LEU GLN GLU ARG N659 Q660
E661 Q662 E663 K664 V665 E666 R667 R668 R669 Q670 V671 P672 F673 H674 L675 H676 I677 N678 L679 E680 L681 L682 E683 C684 V685 Y686 L687 V688 S689 A690 M691 L692 L693 E694 I695 P696 Y697 M698 A699 A700 H701 E702 S703 D704 A705 R706 R707 R708 M709 I710 S711 K712 Q713 F714 H715 H716 Q717 L718 E722
R723 Q724 P725 L726 L727 G728 P729 P730 E731 S732 M733 R734 E735 H736 V737 V738 A739 A740 S741 K742 A743 M744 K745 M746 G747 D748 W749 K750 T751 C752 H753 S754 F755 I756 I757 N758 E759 K760 M761 N762 G763 K764 V765 W766 D767 L768 F769 P770 E771 A772 D773 K774 V775 R776 T777 M778 L779 V780 R781 K782
I783 Q784 E785 E786 S787 L788 R789 T790 Y791 L792 F793 T794 Y795 S796 S797 V798 Y799 D800 S801 I802 S803 M804 E805 T806 L807 S808 D809 M810 F811 E812 L813 D814 L815 P816 T817 V818 H819 S820 I821 I822 S823 K824 M825 I826 I827 N828 E829 E830 L831 M832 A833 S834 L835 D836 Q837 P838 T839 Q840 T841 V842
V843 M844 H845 R846 T847 E848 P849 T850 A851 Q852 Q853 N854 L855 A856 L857 Q858 L859 A860 E861 K862 L863 G864 S865 L866 V867 E868 N869 N870 E871 R872 V873 F874 D875 H876 K877 Q878 GLY THR TYR GLY GLY TYR PHE ARG ASP GLN LYS ASP GLY TYR ARG LYS ASN GLU GLY TYR MET ARG ARG GLY

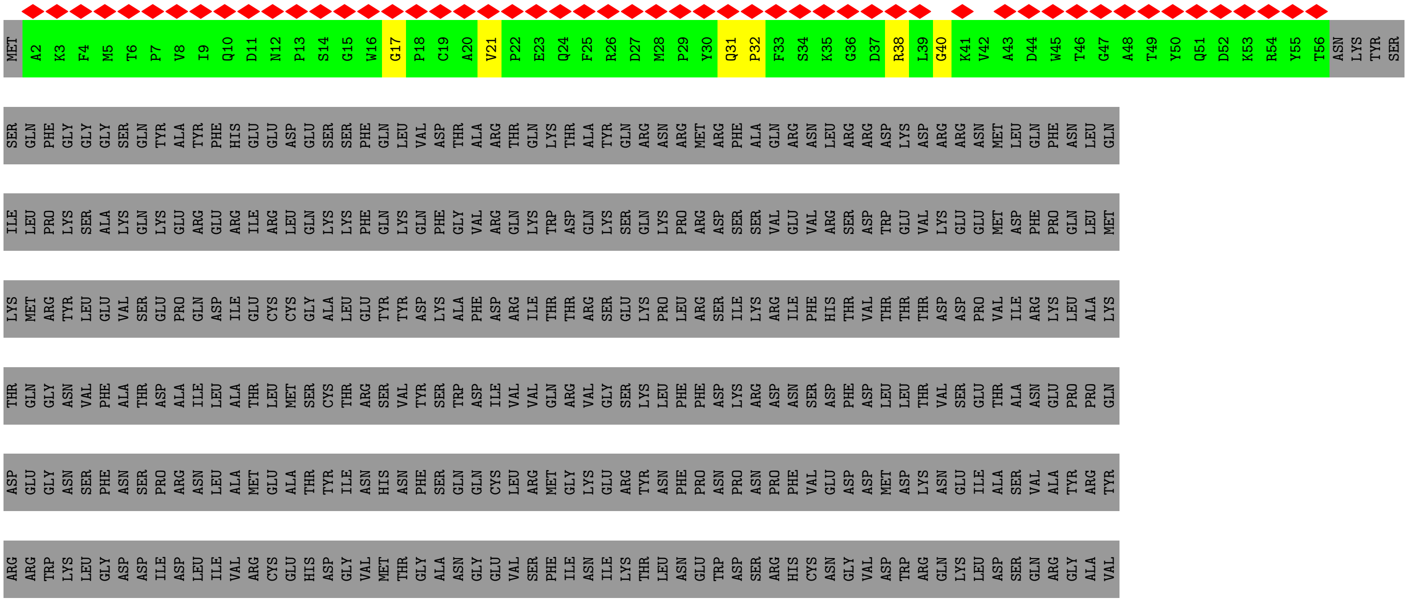
- Molecule 45: Eukaryotic translation initiation factor 3 subunit H

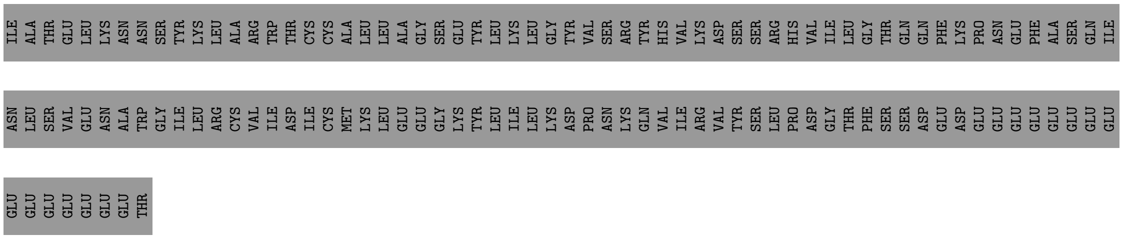
Chain 3h:



- Molecule 46: Eukaryotic translation initiation factor 3 subunit D

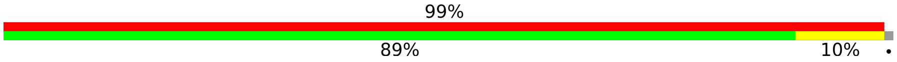
Chain 3d:

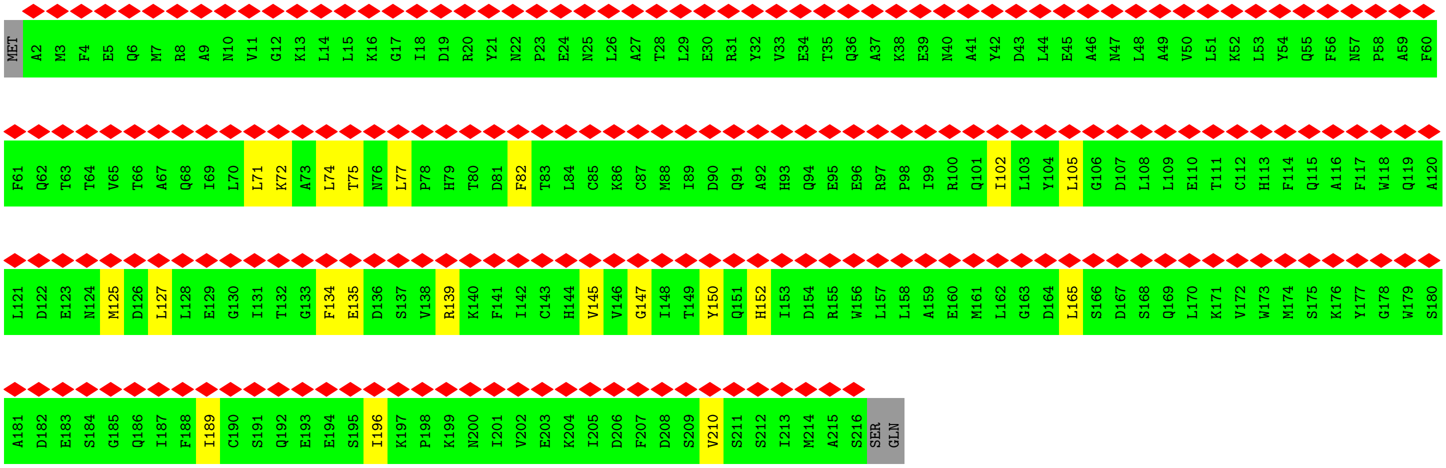




- Molecule 47: Eukaryotic translation initiation factor 3 subunit K

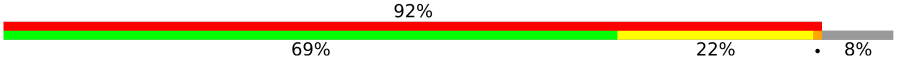
Chain 3k:

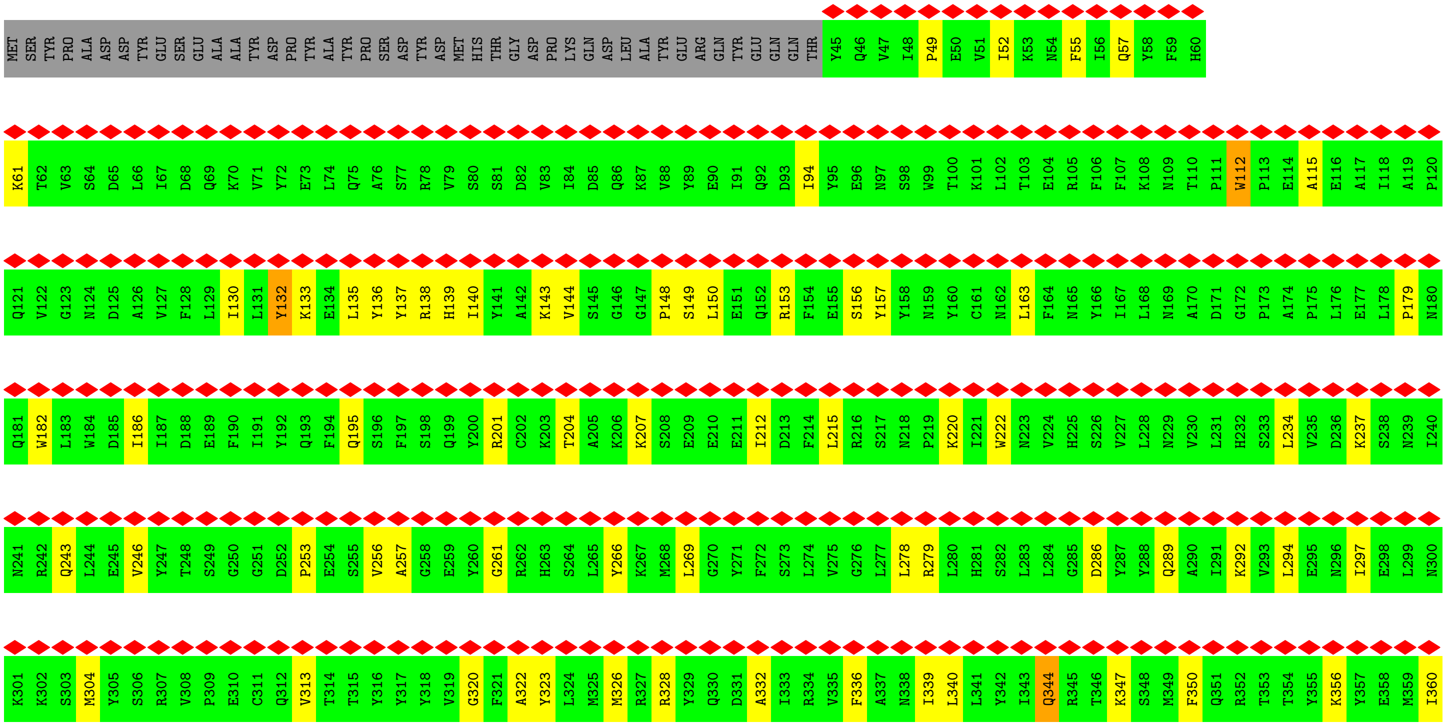




- Molecule 48: Eukaryotic translation initiation factor 3 subunit L

Chain 3l:






N361
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Q363
N364
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Q366
M367
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A372
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L375
T376
M377
Y378
P379
M380
R381
I382
D383
E384
S385
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H387
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Q389
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G395
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S422
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V424
V425
P426
N427
Y428
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N430
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Q562
R563
P564

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	19430	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	TFS KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	56.2	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.103	Depositor
Minimum map value	-0.016	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.003	Depositor
Recommended contour level	0.011	Depositor
Map size (Å)	636.0, 636.0, 636.0	wwPDB
Map dimensions	500, 500, 500	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.272, 1.272, 1.272	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: GTP, MG, 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	1A	0.15	0/793	0.41	0/1061
2	5B	0.20	0/4999	0.54	0/6740
3	SA	0.19	0/1742	0.38	0/2367
4	SB	0.19	0/1749	0.36	0/2340
5	SC	0.20	0/1737	0.43	0/2347
6	SD	0.18	0/1784	0.40	0/2402
7	SE	0.20	0/2107	0.38	0/2836
8	SF	0.20	0/1540	0.42	0/2071
9	SG	0.17	0/1946	0.37	0/2590
10	SH	0.19	0/1529	0.42	0/2048
11	SI	0.18	0/1711	0.35	0/2282
12	SJ	0.18	0/1524	0.36	0/2035
13	SK	0.18	0/834	0.45	0/1125
14	SL	0.20	0/1241	0.37	0/1662
15	Sf	0.20	0/945	0.57	0/1269
16	SN	0.20	0/1226	0.39	0/1649
17	SO	0.19	0/1020	0.40	0/1368
18	SP	0.20	0/1003	0.49	0/1340
19	SQ	0.23	0/1133	0.49	0/1517
20	SR	0.22	0/1082	0.54	0/1452
21	SS	0.18	0/1202	0.42	0/1610
22	ST	0.20	0/1122	0.42	0/1504
23	SU	0.18	0/813	0.45	0/1092
24	SV	0.17	0/643	0.36	0/860
25	SW	0.21	0/1051	0.38	0/1406
26	SX	0.20	0/1116	0.43	0/1490
27	SY	0.19	0/1031	0.46	0/1370
28	SZ	0.24	0/607	0.58	0/815
29	Sa	0.22	0/817	0.39	0/1095
30	Sb	0.20	0/665	0.39	0/891
31	Sc	0.23	0/490	0.49	0/656
32	Sd	0.20	0/470	0.41	0/623

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	Se	0.15	0/422	0.41	0/555
34	sh	0.18	0/533	0.44	0/706
35	Sg	0.16	0/2493	0.42	0/3394
36	zy	0.15	0/1798	0.32	0/2802
37	Ln	0.19	0/231	0.42	0/294
38	zz	0.16	0/7294	0.35	0/11371
39	S2	0.19	0/42073	0.31	0/65576
40	3m	0.14	0/2676	0.40	0/3635
41	3f	0.15	0/2099	0.40	0/2856
42	3a	0.16	0/4556	0.39	0/6205
43	3e	0.15	0/3288	0.39	0/4475
44	3c	0.15	0/3973	0.41	0/5406
45	3h	0.15	0/2571	0.39	0/3484
46	3d	0.14	0/354	0.36	0/488
47	3k	0.12	0/1502	0.36	0/2052
48	3l	0.15	0/4446	0.40	0/6013
All	All	0.18	0/121981	0.38	0/175225

There are no bond length outliers.

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	1A	783	0	793	8	0
2	5B	4917	0	5099	102	0
3	SA	1705	0	1706	21	0
4	SB	1722	0	1794	22	0
5	SC	1700	0	1784	11	0
6	SD	1756	0	1851	22	0
7	SE	2065	0	2169	14	0
8	SF	1518	0	1569	17	0
9	SG	1923	0	2089	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
10	SH	1506	0	1603	18	0
11	SI	1682	0	1769	14	0
12	SJ	1499	0	1618	14	0
13	SK	810	0	836	19	0
14	SL	1220	0	1289	16	0
15	Sf	935	0	964	29	0
16	SN	1202	0	1289	16	0
17	SO	1007	0	1032	10	0
18	SP	984	0	1033	15	0
19	SQ	1116	0	1185	9	0
20	SR	1068	0	1121	21	0
21	SS	1184	0	1244	11	0
22	ST	1103	0	1133	12	0
23	SU	803	0	873	16	0
24	SV	636	0	637	7	0
25	SW	1034	0	1080	12	0
26	SX	1098	0	1167	10	0
27	SY	1014	0	1082	15	0
28	SZ	601	0	662	12	0
29	Sa	803	0	850	7	0
30	Sb	651	0	672	7	0
31	Sc	488	0	514	10	0
32	Sd	459	0	452	5	0
33	Se	417	0	463	3	0
34	sh	522	0	530	9	0
35	Sg	2436	0	2393	43	0
36	zy	1607	0	815	25	0
37	Ln	230	0	276	0	0
38	zz	6528	0	3303	74	0
39	S2	37626	0	19015	268	0
40	3m	2639	0	2442	44	0
41	3f	2063	0	2054	53	0
42	3a	4470	0	4177	71	0
43	3e	3224	0	2925	45	0
44	3c	3907	0	3472	67	0
45	3h	2520	0	2445	53	0
46	3d	343	0	253	3	0
47	3k	1475	0	1239	14	0
48	3l	4335	0	4272	81	0
49	5B	1	0	0	0	0
49	S2	7	0	0	0	0
50	5B	32	0	11	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
51	Sa	1	0	0	0	0
51	sh	1	0	0	0	0
All	All	115376	0	93044	1275	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 6.

The worst 5 of 1275 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)
38:zz:259:U:H3	38:zz:274:A:N6	1.73	0.87
38:zz:256:G:N1	38:zz:276:A:N6	2.26	0.83
38:zz:259:U:H3	38:zz:274:A:H62	1.26	0.83
39:S2:885:U:H3	39:S2:901:G:H1	0.85	0.83
39:S2:1710:C:H42	39:S2:1823:A:H61	1.26	0.82

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	
1	1A	96/144 (67%)	88 (92%)	8 (8%)	0	100	100
2	5B	619/621 (100%)	580 (94%)	35 (6%)	4 (1%)	22	53
3	SA	214/295 (72%)	209 (98%)	5 (2%)	0	100	100
4	SB	210/264 (80%)	199 (95%)	11 (5%)	0	100	100
5	SC	217/293 (74%)	210 (97%)	7 (3%)	0	100	100
6	SD	224/243 (92%)	218 (97%)	6 (3%)	0	100	100
7	SE	258/263 (98%)	248 (96%)	10 (4%)	0	100	100
8	SF	190/204 (93%)	182 (96%)	8 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
9	SG	235/249 (94%)	232 (99%)	3 (1%)	0	100	100
10	SH	185/194 (95%)	180 (97%)	5 (3%)	0	100	100
11	SI	203/208 (98%)	194 (96%)	9 (4%)	0	100	100
12	SJ	178/194 (92%)	175 (98%)	3 (2%)	0	100	100
13	SK	94/165 (57%)	86 (92%)	8 (8%)	0	100	100
14	SL	148/158 (94%)	144 (97%)	4 (3%)	0	100	100
15	Sf	119/132 (90%)	109 (92%)	10 (8%)	0	100	100
16	SN	147/151 (97%)	141 (96%)	6 (4%)	0	100	100
17	SO	133/151 (88%)	120 (90%)	13 (10%)	0	100	100
18	SP	117/145 (81%)	112 (96%)	5 (4%)	0	100	100
19	SQ	138/146 (94%)	133 (96%)	5 (4%)	0	100	100
20	SR	130/135 (96%)	123 (95%)	7 (5%)	0	100	100
21	SS	141/152 (93%)	134 (95%)	7 (5%)	0	100	100
22	ST	140/145 (97%)	139 (99%)	1 (1%)	0	100	100
23	SU	99/119 (83%)	94 (95%)	4 (4%)	1 (1%)	13	42
24	SV	81/83 (98%)	81 (100%)	0	0	100	100
25	SW	127/130 (98%)	121 (95%)	6 (5%)	0	100	100
26	SX	139/143 (97%)	132 (95%)	7 (5%)	0	100	100
27	SY	122/133 (92%)	119 (98%)	3 (2%)	0	100	100
28	SZ	73/125 (58%)	69 (94%)	3 (4%)	1 (1%)	9	34
29	Sa	98/115 (85%)	95 (97%)	3 (3%)	0	100	100
30	Sb	81/84 (96%)	77 (95%)	4 (5%)	0	100	100
31	Sc	60/69 (87%)	58 (97%)	2 (3%)	0	100	100
32	Sd	53/56 (95%)	52 (98%)	1 (2%)	0	100	100
33	Se	50/59 (85%)	47 (94%)	3 (6%)	0	100	100
34	sh	62/156 (40%)	56 (90%)	6 (10%)	0	100	100
35	Sg	311/317 (98%)	292 (94%)	19 (6%)	0	100	100
37	Ln	22/25 (88%)	21 (96%)	1 (4%)	0	100	100
40	3m	361/374 (96%)	343 (95%)	18 (5%)	0	100	100
41	3f	267/357 (75%)	263 (98%)	4 (2%)	0	100	100
42	3a	590/1382 (43%)	563 (95%)	27 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
43	3e	428/445 (96%)	413 (96%)	15 (4%)	0	100	100
44	3c	537/913 (59%)	517 (96%)	20 (4%)	0	100	100
45	3h	316/352 (90%)	304 (96%)	12 (4%)	0	100	100
46	3d	53/548 (10%)	49 (92%)	4 (8%)	0	100	100
47	3k	213/218 (98%)	206 (97%)	7 (3%)	0	100	100
48	3l	518/564 (92%)	503 (97%)	15 (3%)	0	100	100
All	All	8797/11419 (77%)	8431 (96%)	360 (4%)	6 (0%)	50	76

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	5B	1099	GLN
2	5B	1108	ILE
2	5B	1098	PRO
23	SU	54	VAL
28	SZ	42	ASP

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	1A	82/123 (67%)	80 (98%)	2 (2%)	44	68
2	5B	546/546 (100%)	523 (96%)	23 (4%)	25	53
3	SA	180/243 (74%)	173 (96%)	7 (4%)	27	55
4	SB	193/231 (84%)	189 (98%)	4 (2%)	48	70
5	SC	185/225 (82%)	180 (97%)	5 (3%)	40	65
6	SD	189/202 (94%)	180 (95%)	9 (5%)	21	50
7	SE	223/225 (99%)	215 (96%)	8 (4%)	30	57
8	SF	162/170 (95%)	154 (95%)	8 (5%)	21	49
9	SG	207/218 (95%)	199 (96%)	8 (4%)	27	55
10	SH	167/174 (96%)	160 (96%)	7 (4%)	25	53

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
11	SI	178/180 (99%)	173 (97%)	5 (3%)	38	64
12	SJ	160/168 (95%)	151 (94%)	9 (6%)	17	45
13	SK	87/136 (64%)	84 (97%)	3 (3%)	32	59
14	SL	134/142 (94%)	130 (97%)	4 (3%)	36	62
15	Sf	102/108 (94%)	100 (98%)	2 (2%)	50	71
16	SN	130/131 (99%)	129 (99%)	1 (1%)	79	87
17	SO	104/119 (87%)	100 (96%)	4 (4%)	28	56
18	SP	107/130 (82%)	104 (97%)	3 (3%)	38	64
19	SQ	116/121 (96%)	113 (97%)	3 (3%)	41	66
20	SR	119/122 (98%)	110 (92%)	9 (8%)	11	34
21	SS	124/132 (94%)	118 (95%)	6 (5%)	21	50
22	ST	112/115 (97%)	110 (98%)	2 (2%)	54	74
23	SU	93/107 (87%)	86 (92%)	7 (8%)	11	34
24	SV	67/67 (100%)	65 (97%)	2 (3%)	36	62
25	SW	112/113 (99%)	111 (99%)	1 (1%)	75	85
26	SX	113/115 (98%)	103 (91%)	10 (9%)	8	28
27	SY	108/115 (94%)	105 (97%)	3 (3%)	38	64
28	SZ	67/103 (65%)	62 (92%)	5 (8%)	11	34
29	Sa	87/98 (89%)	85 (98%)	2 (2%)	45	68
30	Sb	75/76 (99%)	69 (92%)	6 (8%)	10	32
31	Sc	55/62 (89%)	53 (96%)	2 (4%)	30	57
32	Sd	48/49 (98%)	48 (100%)	0	100	100
33	Se	42/48 (88%)	40 (95%)	2 (5%)	21	50
34	sh	57/140 (41%)	53 (93%)	4 (7%)	12	37
35	Sg	272/275 (99%)	257 (94%)	15 (6%)	18	45
37	Ln	23/24 (96%)	23 (100%)	0	100	100
40	3m	252/335 (75%)	246 (98%)	6 (2%)	44	68
41	3f	229/289 (79%)	221 (96%)	8 (4%)	31	58
42	3a	433/1259 (34%)	421 (97%)	12 (3%)	38	64
43	3e	302/406 (74%)	294 (97%)	8 (3%)	41	66
44	3c	343/811 (42%)	336 (98%)	7 (2%)	50	71

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
45	3h	272/310 (88%)	262 (96%)	10 (4%)	29	56
46	3d	19/494 (4%)	18 (95%)	1 (5%)	19	47
47	3k	121/193 (63%)	119 (98%)	2 (2%)	56	74
48	3l	475/515 (92%)	460 (97%)	15 (3%)	34	61
All	All	7272/9965 (73%)	7012 (96%)	260 (4%)	32	57

5 of 260 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
44	3c	779	LEU
45	3h	219	GLU
13	SK	79	LEU
12	SJ	172	ARG
47	3k	127	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 78 such sidechains are listed below:

Mol	Chain	Res	Type
44	3c	623	GLN
47	3k	76	ASN
44	3c	648	GLN
45	3h	80	ASN
48	3l	218	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
36	zy	74/75 (98%)	26 (35%)	0
38	zz	305/332 (91%)	118 (38%)	0
39	S2	1748/1869 (93%)	325 (18%)	9 (0%)
All	All	2127/2276 (93%)	469 (22%)	9 (0%)

5 of 469 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
36	zy	5	G
36	zy	6	A
36	zy	8	U

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
36	zy	9	G
36	zy	10	G

5 of 9 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
39	S2	1326	U
39	S2	1434	C
39	S2	517	C
39	S2	531	A
39	S2	871	U

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 11 ligands modelled in this entry, 10 are monoatomic - leaving 1 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
50	GTP	5B	1302	49	26,34,34	3.54	13 (50%)	32,54,54	1.50	6 (18%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
50	GTP	5B	1302	49	-	5/18/38/38	0/3/3/3

The worst 5 of 13 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
50	5B	1302	GTP	C3'-C4'	-8.76	1.30	1.53
50	5B	1302	GTP	O4'-C4'	7.59	1.62	1.45
50	5B	1302	GTP	O4'-C1'	-7.10	1.31	1.41
50	5B	1302	GTP	C2-N3	5.42	1.46	1.33
50	5B	1302	GTP	C4-N3	4.97	1.49	1.37

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

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	5B	1302	GTP	PA-O3A-PB	-3.44	121.02	132.83
50	5B	1302	GTP	C5-C6-N1	3.28	119.75	113.95
50	5B	1302	GTP	PB-O3B-PG	-2.86	123.02	132.83
50	5B	1302	GTP	C8-N7-C5	2.73	108.20	102.99
50	5B	1302	GTP	C2-N1-C6	-2.71	120.11	125.10

There are no chirality outliers.

All (5) torsion outliers are listed below:

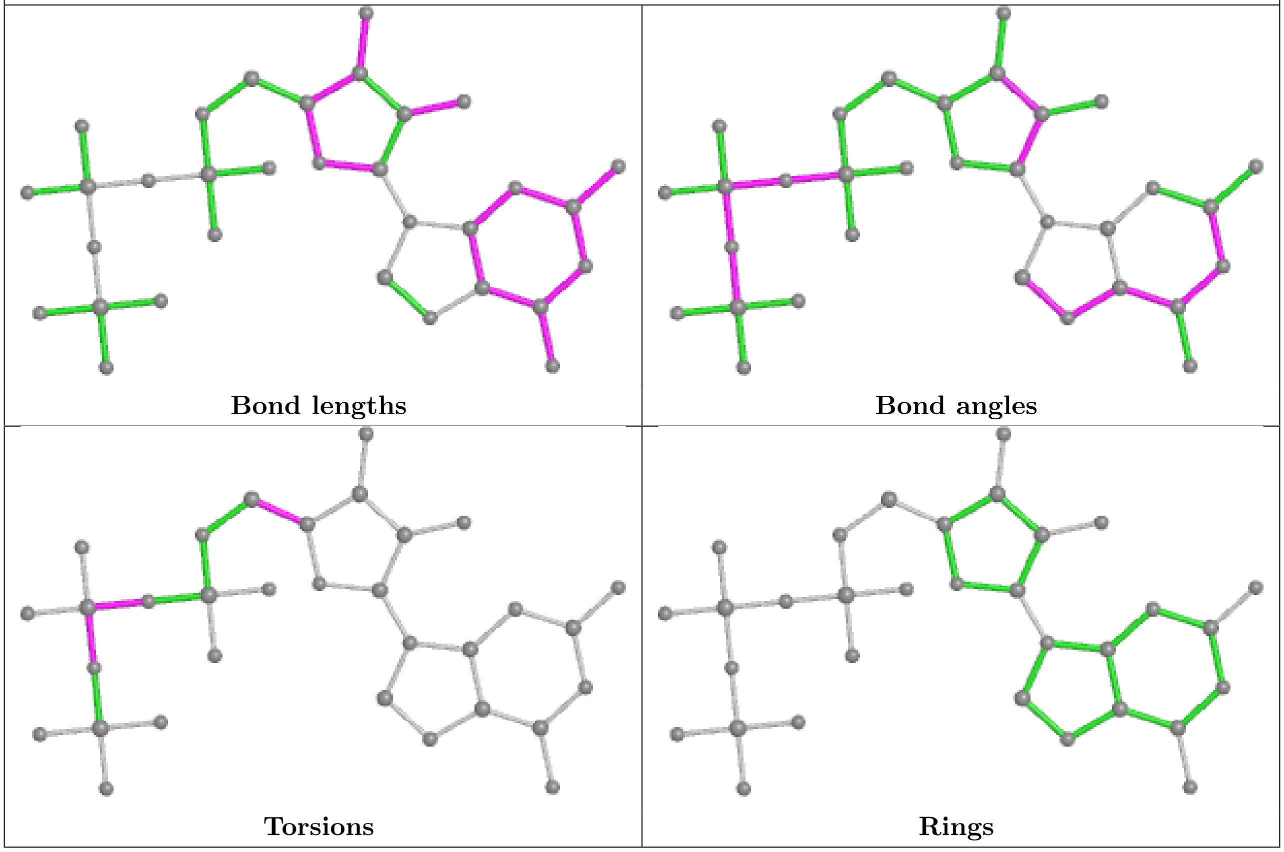
Mol	Chain	Res	Type	Atoms
50	5B	1302	GTP	PA-O3A-PB-O3B
50	5B	1302	GTP	PG-O3B-PB-O2B
50	5B	1302	GTP	O4'-C4'-C5'-O5'
50	5B	1302	GTP	PG-O3B-PB-O1B
50	5B	1302	GTP	PA-O3A-PB-O1B

There are no ring outliers.

No monomer is involved in short contacts.

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand GTP 5B 1302



Bond lengths

Bond angles

Torsions

Rings

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.

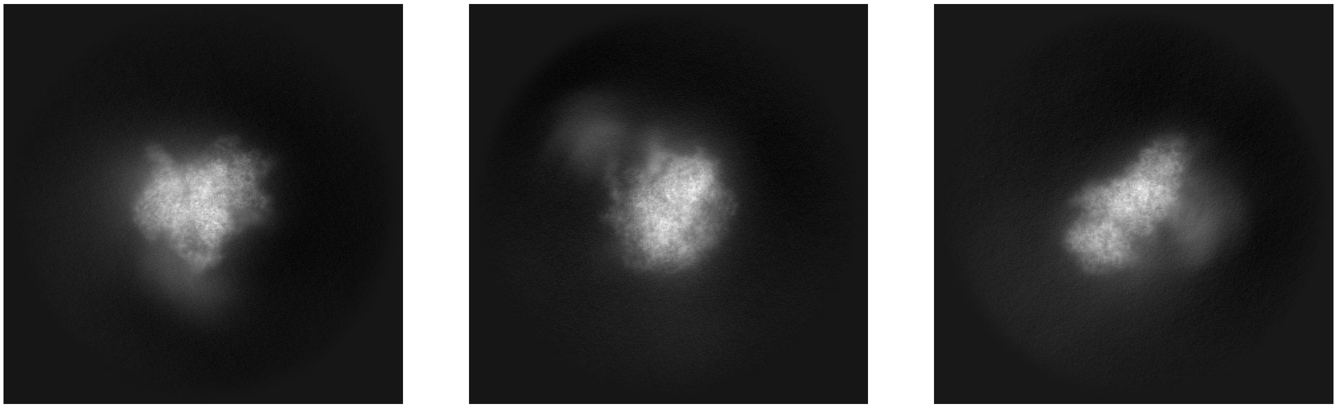
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-62454. 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.

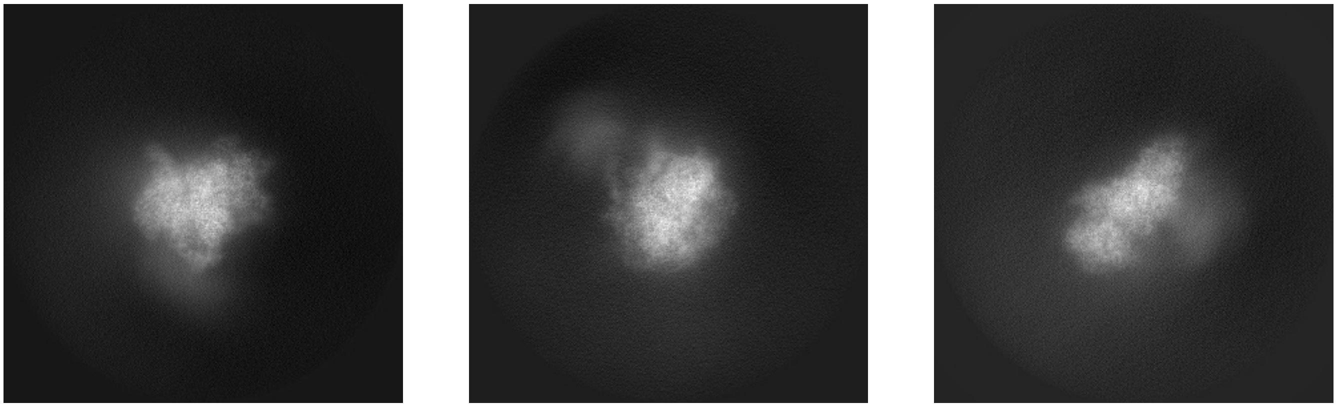
6.1 Orthogonal projections

6.1.1 Primary map



X Y Z

6.1.2 Raw map

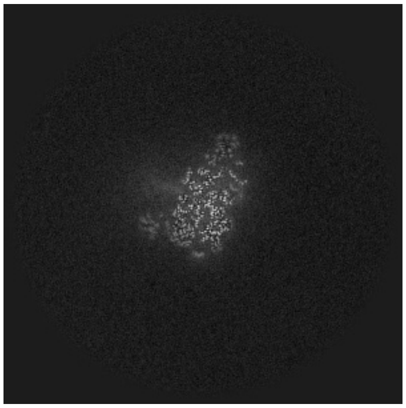


X Y Z

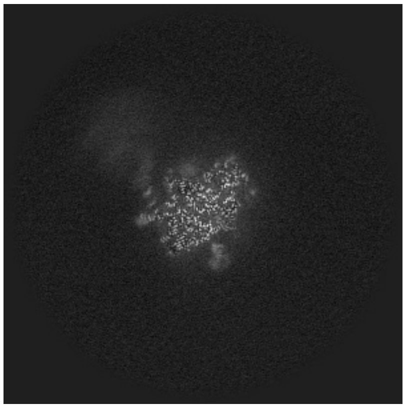
The images above show the map projected in three orthogonal directions.

6.2 Central slices

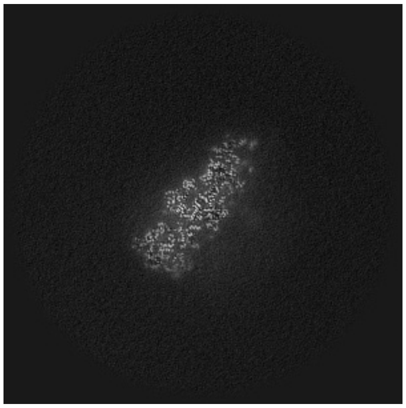
6.2.1 Primary map



X Index: 250

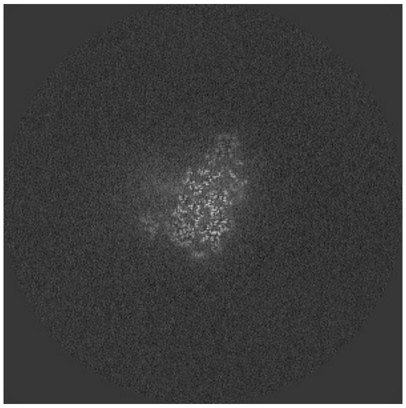


Y Index: 250

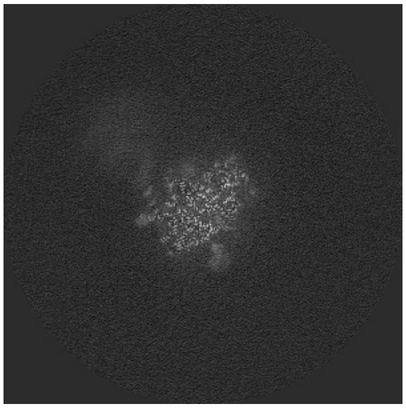


Z Index: 250

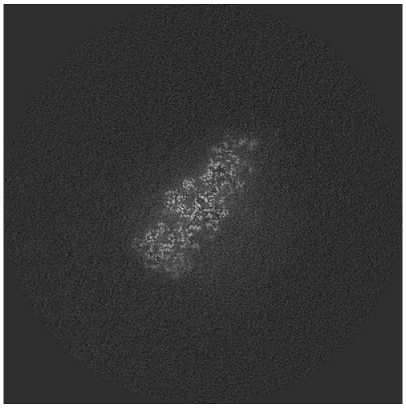
6.2.2 Raw map



X Index: 250



Y Index: 250

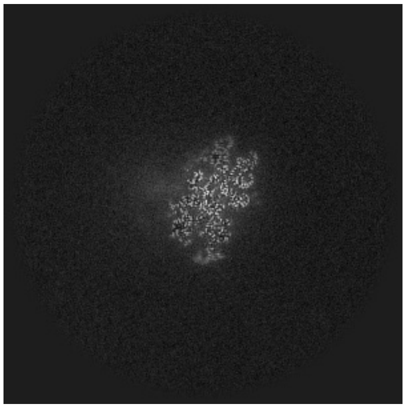


Z Index: 250

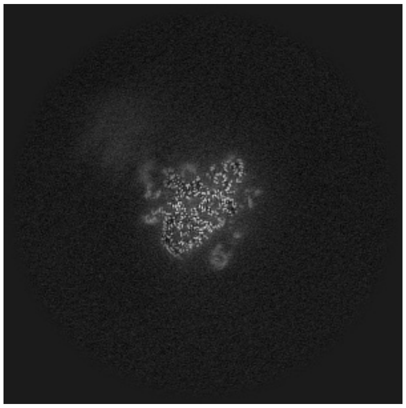
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices

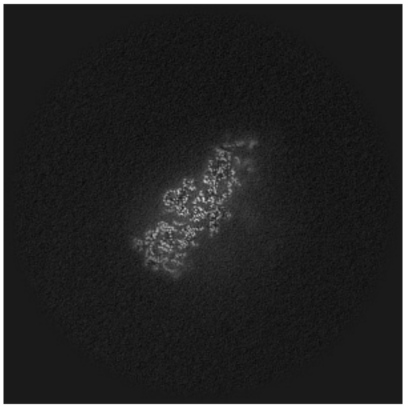
6.3.1 Primary map



X Index: 260

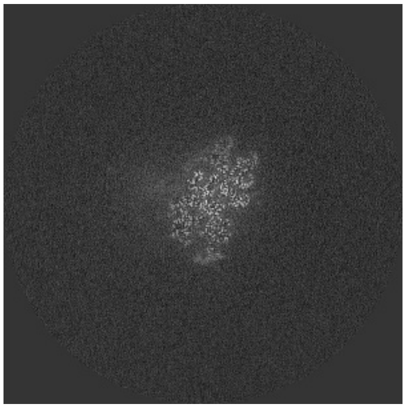


Y Index: 255

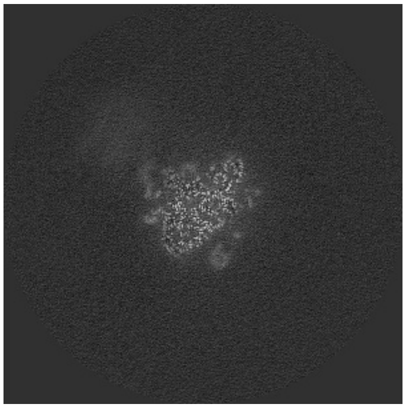


Z Index: 248

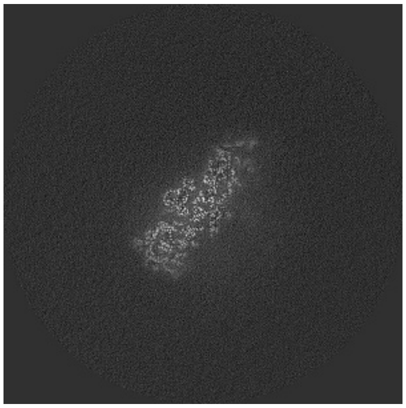
6.3.2 Raw map



X Index: 260



Y Index: 255

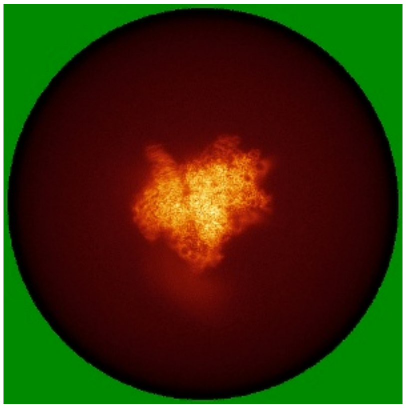


Z Index: 248

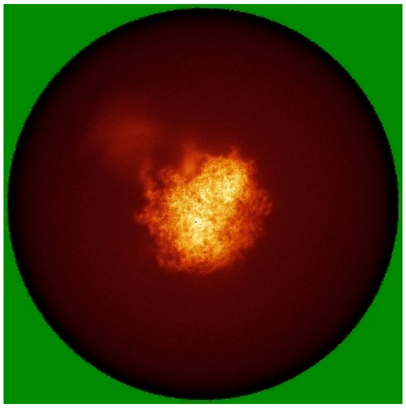
The images above show the largest variance slices of the map in three orthogonal directions.

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

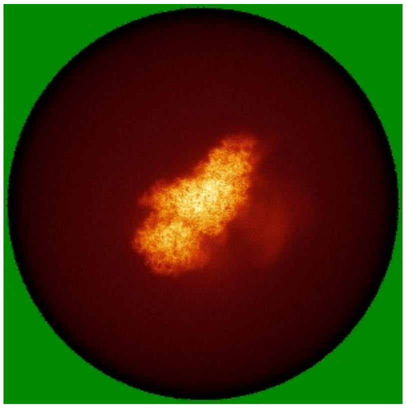
6.4.1 Primary map



X

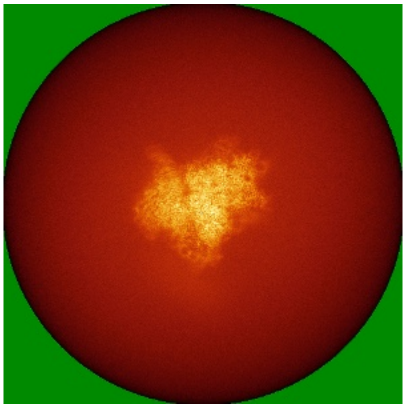


Y

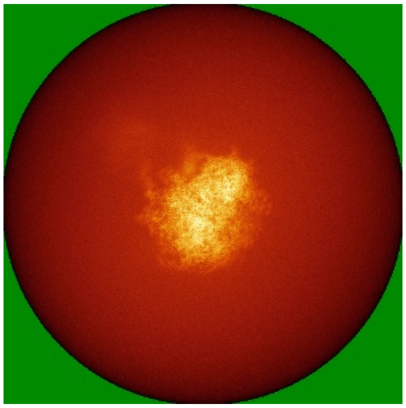


Z

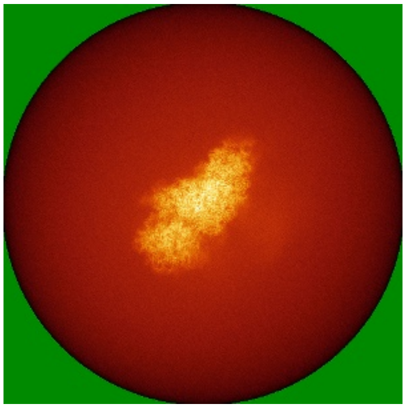
6.4.2 Raw map



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

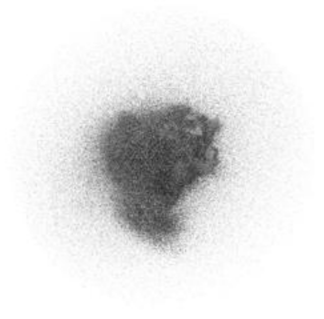
X

Y

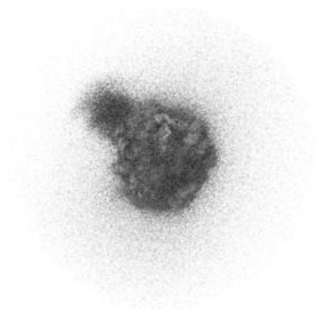
Z

The images above show the 3D surface view of the map at the recommended contour level 0.011. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

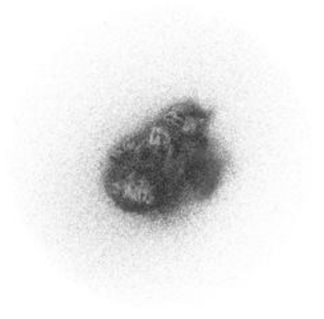
6.5.2 Raw map



X



Y



Z

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.

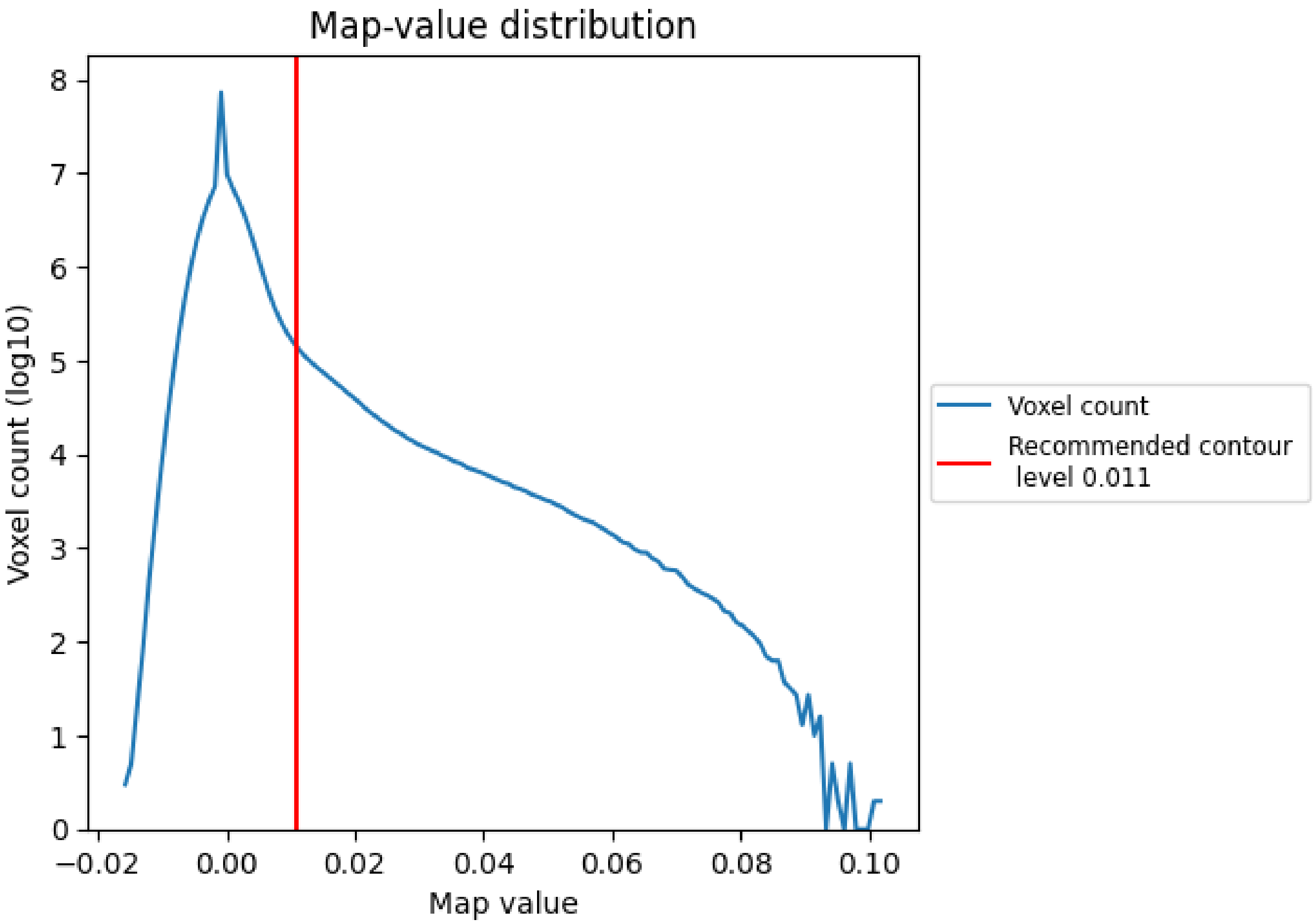
6.6 Mask visualisation ⓘ

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

7 Map analysis ⓘ

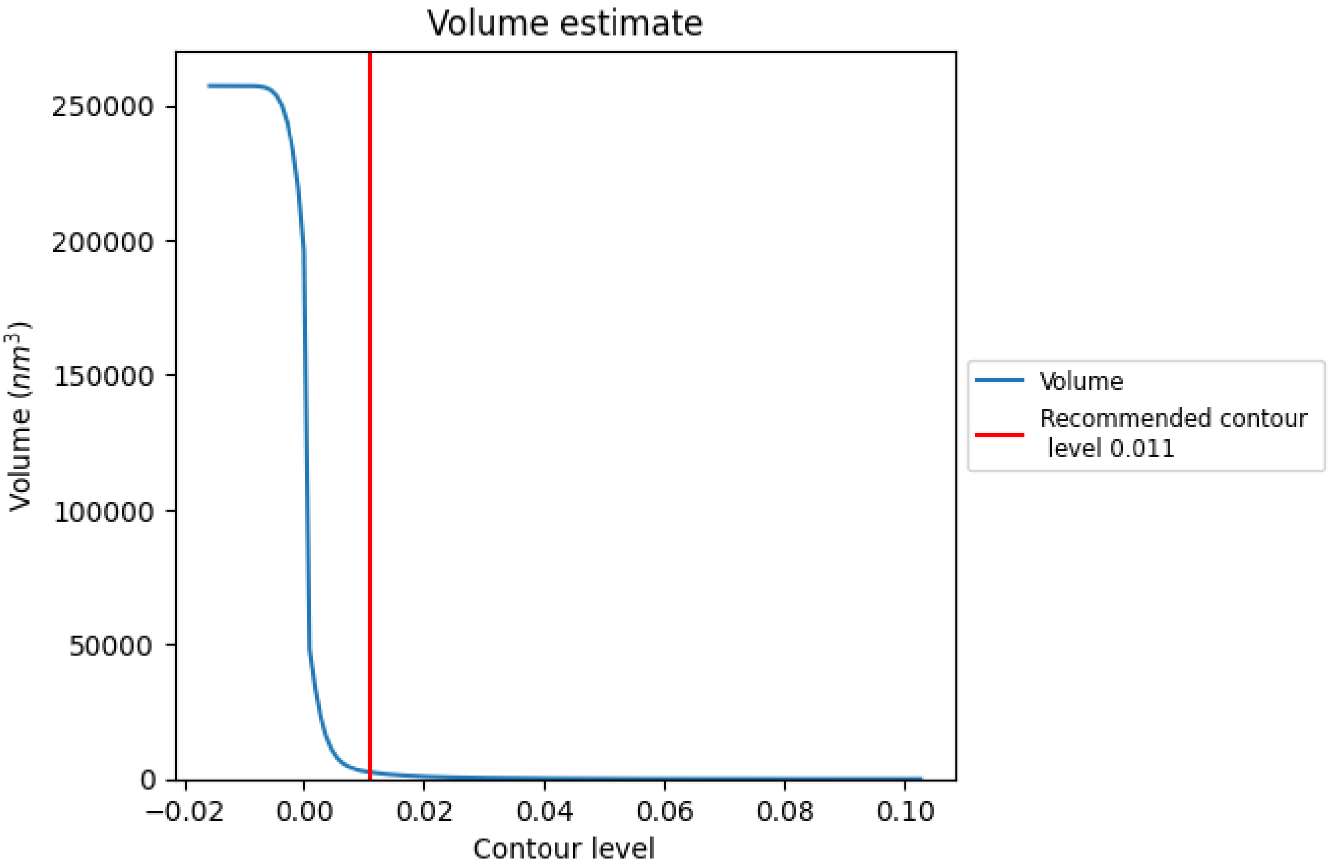
This section contains the results of statistical analysis of the map.

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.

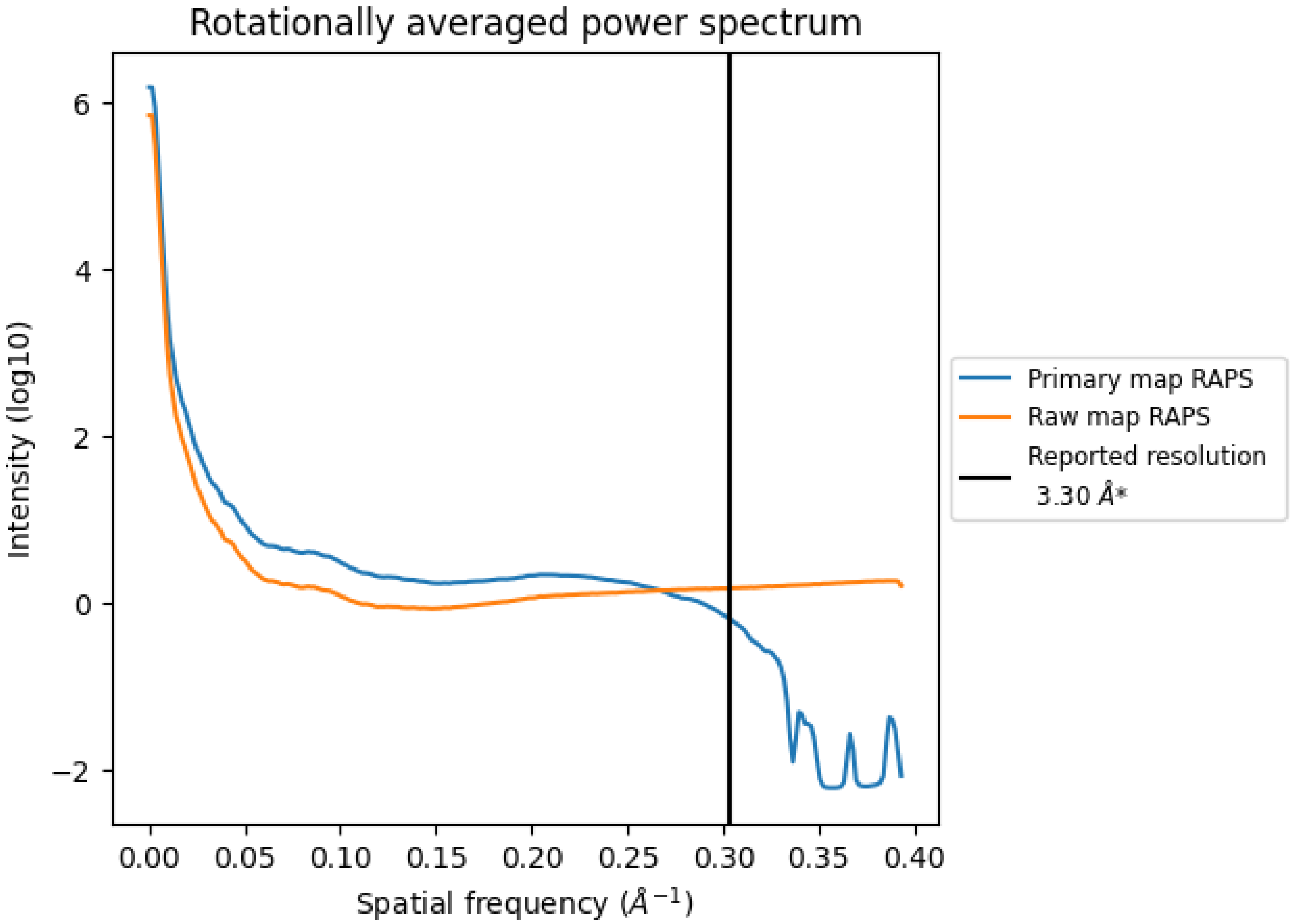
7.2 Volume estimate (i)



The volume at the recommended contour level is 2536 nm^3; this corresponds to an approximate mass of 2291 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 ⓘ

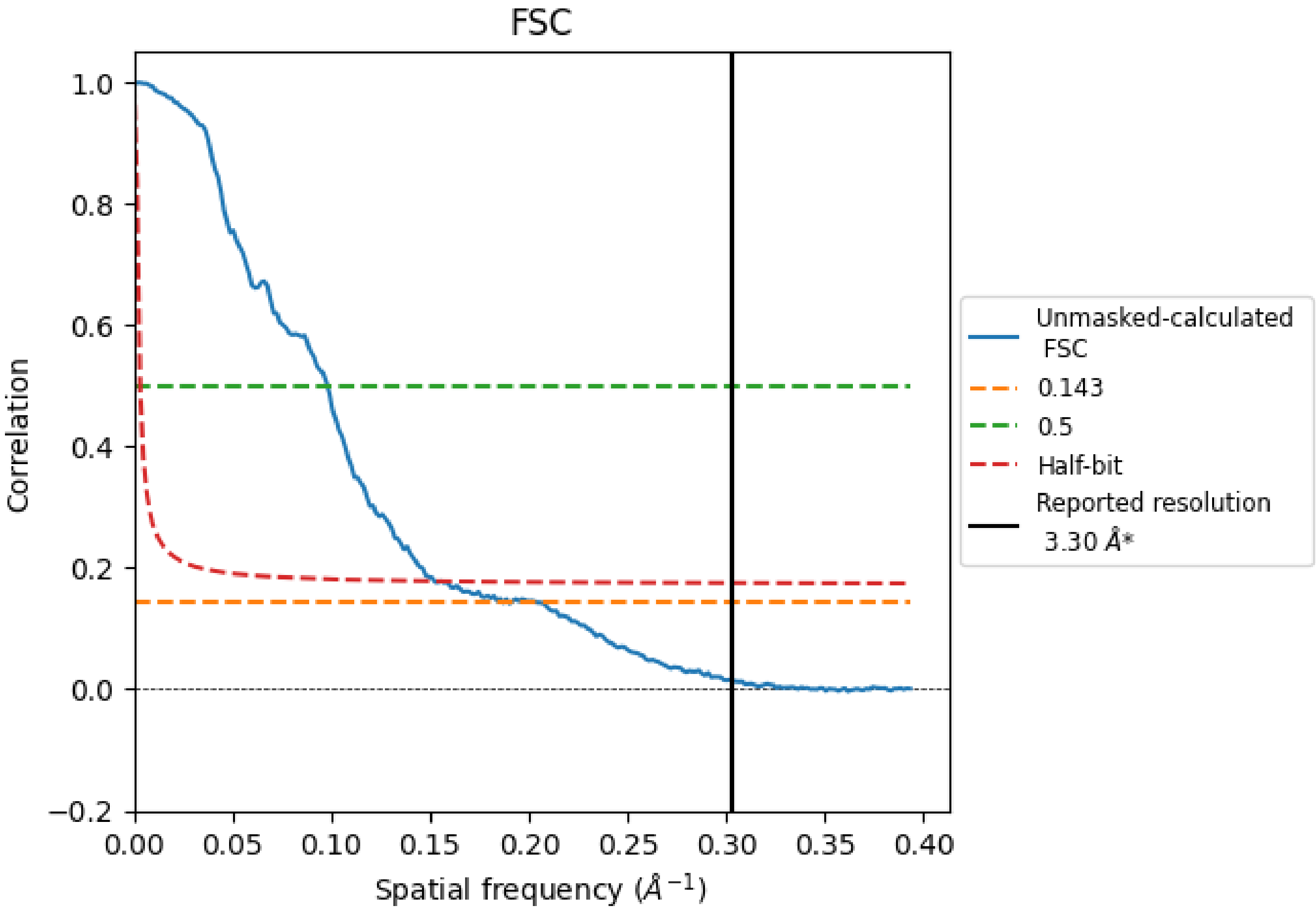


*Reported resolution corresponds to spatial frequency of 0.303 $Å^{-1}$

8 Fourier-Shell correlation ⓘ

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

8.1 FSC ⓘ



*Reported resolution corresponds to spatial frequency of 0.303 $Å^{-1}$

8.2 Resolution estimates (i)

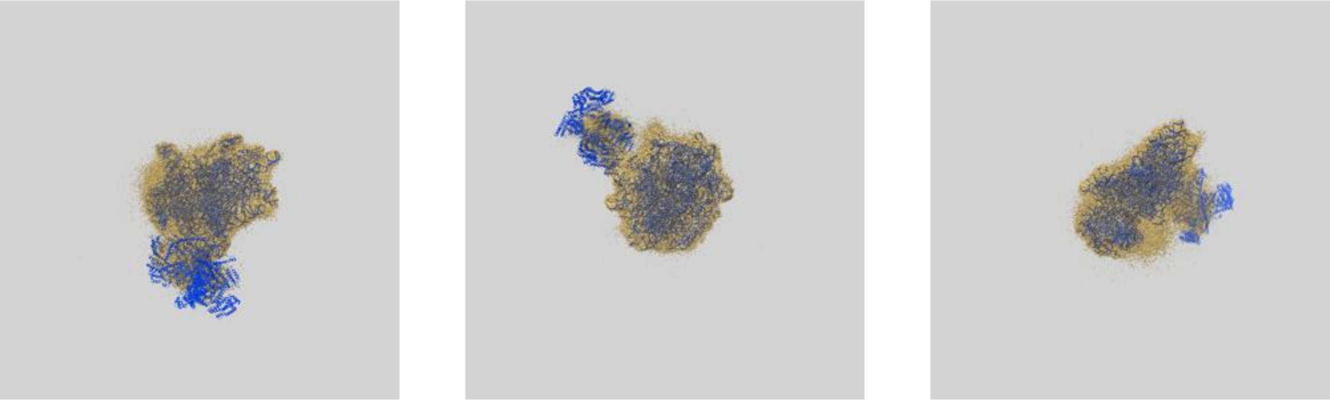
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.30	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	5.35	10.21	6.57

*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 5.35 differs from the reported value 3.3 by more than 10 %

9 Map-model fit ⓘ

This section contains information regarding the fit between EMDB map EMD-62454 and PDB model 9KN6. Per-residue inclusion information can be found in section 3 on page 13.

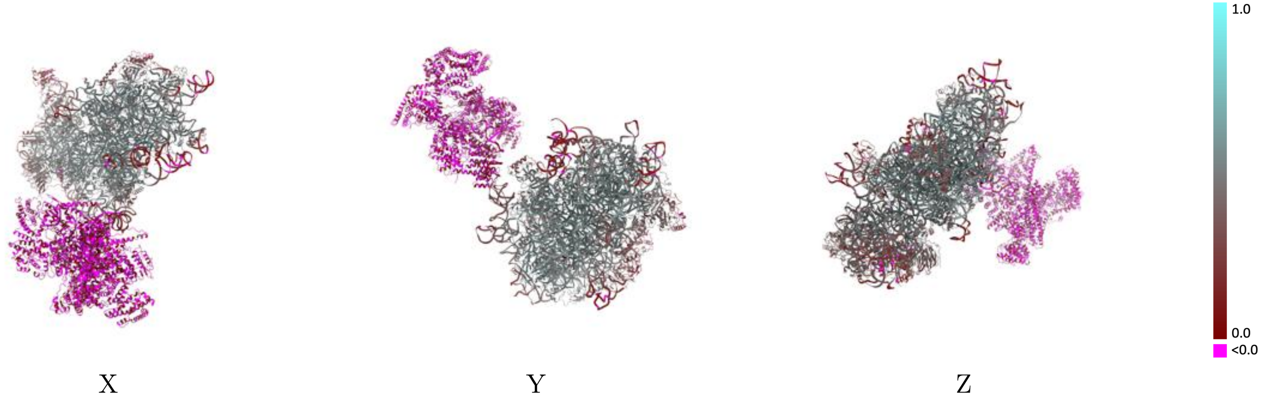
9.1 Map-model overlay ⓘ



X Y Z

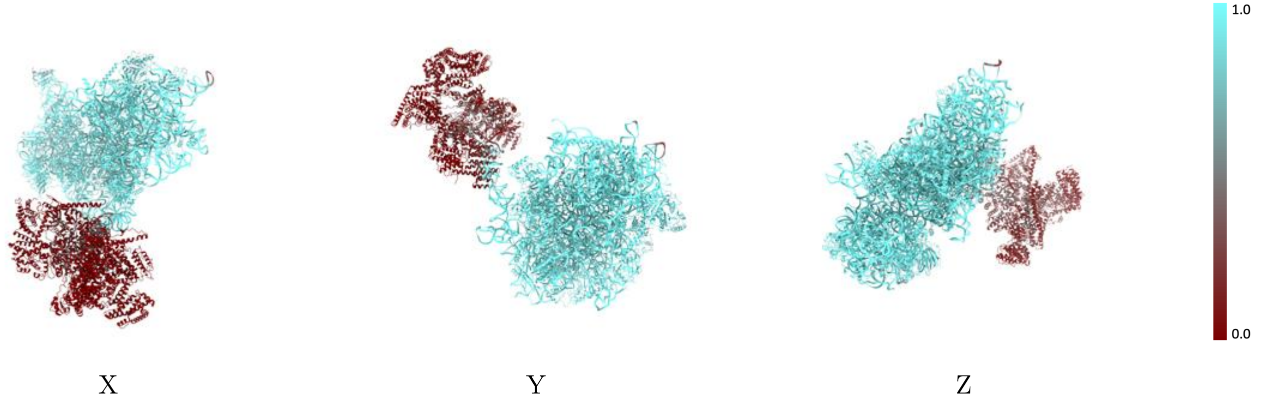
The images above show the 3D surface view of the map at the recommended contour level 0.011 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2 Q-score mapped to coordinate model ⓘ



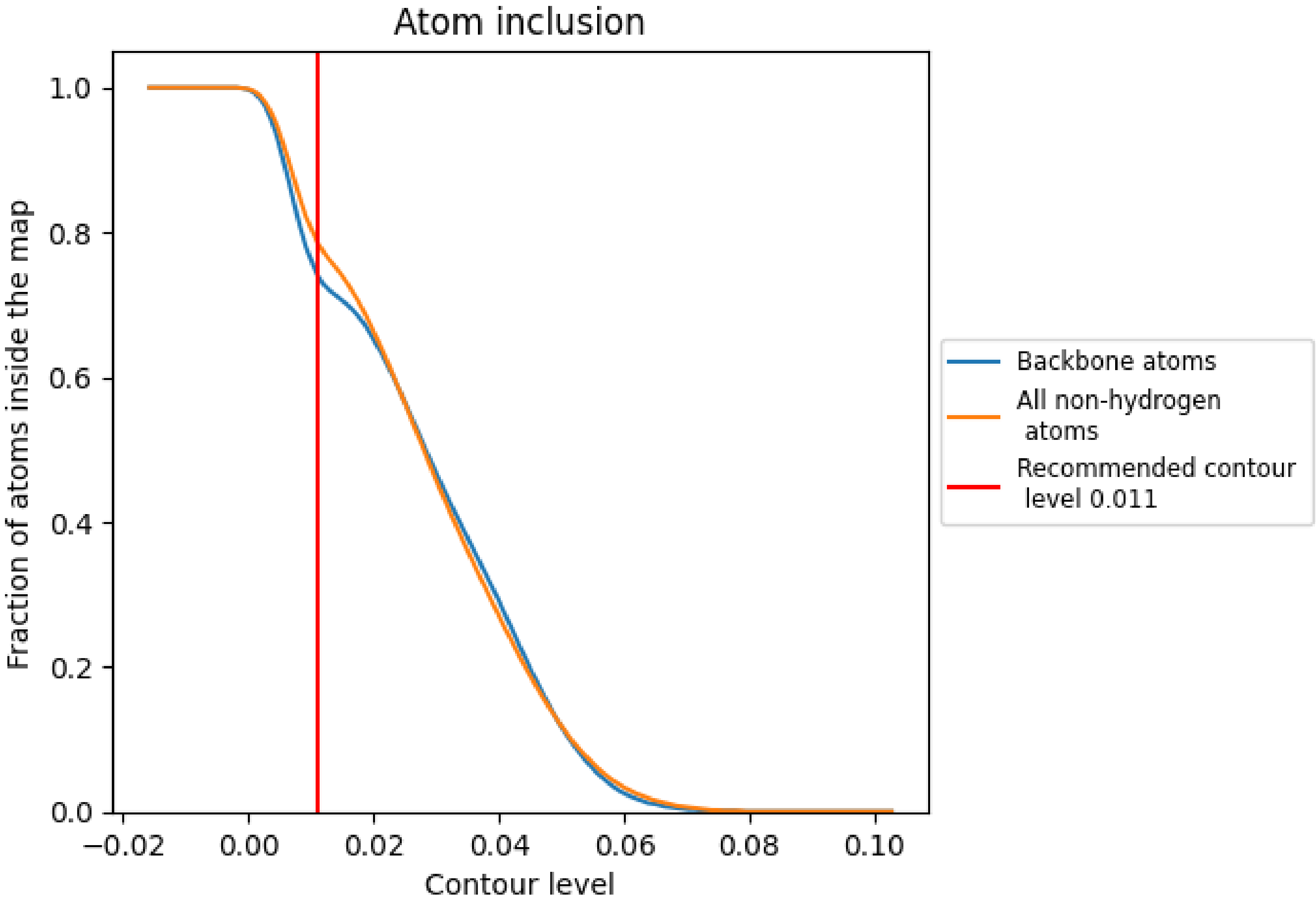
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 ⓘ



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 (0.011).

9.4 Atom inclusion ⓘ



At the recommended contour level, 74% of all backbone atoms, 79% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.011) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7870	0.3500
1A	0.9900	0.4410
3a	0.1570	0.0020
3c	0.0930	-0.0030
3d	0.0270	-0.0250
3e	0.0200	-0.0010
3f	0.1090	0.0040
3h	0.1570	-0.0020
3k	0.0070	0.0190
3l	0.0110	0.0050
3m	0.0220	0.0060
5B	0.9480	0.3550
Ln	1.0000	0.5100
S2	0.9930	0.4690
SA	0.9970	0.5080
SB	0.9890	0.5170
SC	0.9990	0.5310
SD	0.9990	0.4530
SE	0.9980	0.5250
SF	0.9970	0.5110
SG	0.9780	0.4420
SH	0.9830	0.4420
SI	0.9800	0.4850
SJ	0.9980	0.5190
SK	0.9920	0.3710
SL	0.9870	0.5100
SN	1.0000	0.5160
SO	0.9980	0.5260
SP	0.9650	0.3710
SQ	0.9980	0.4680
SR	0.9960	0.4510
SS	0.9860	0.4350
ST	0.9850	0.4160
SU	0.9910	0.4250
SV	0.9980	0.5180

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Chain	Atom inclusion	Q-score
SW	0.9990	0.5430
SX	1.0000	0.5390
SY	0.9970	0.4970
SZ	0.9860	0.4530
Sa	1.0000	0.5310
Sb	0.9980	0.4990
Sc	1.0000	0.5130
Sd	1.0000	0.4750
Se	1.0000	0.4750
Sf	0.8300	0.1640
Sg	0.9800	0.3610
sh	0.9020	0.2190
zy	0.9820	0.2600
zz	0.9210	0.3100