wwPDB EM Validation Summary Report

Mar 6, 2026 – 09:22 PM UTC

PDB ID	:	8Y6O / pdb_00008y6o
EMDB ID	:	EMD-38993
Title	:	Cryo-EM Structure of the human minor pre-B complex (pre-precatalytic spliceosome) U11 and tri-snRNP part
Authors	:	Bai, R.; Yuan, M.; Zhang, P.; Luo, T.; Shi, Y.; Wan, R.
Deposited on	:	2024-02-02
Resolution	:	3.38 Å(reported)

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

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

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

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

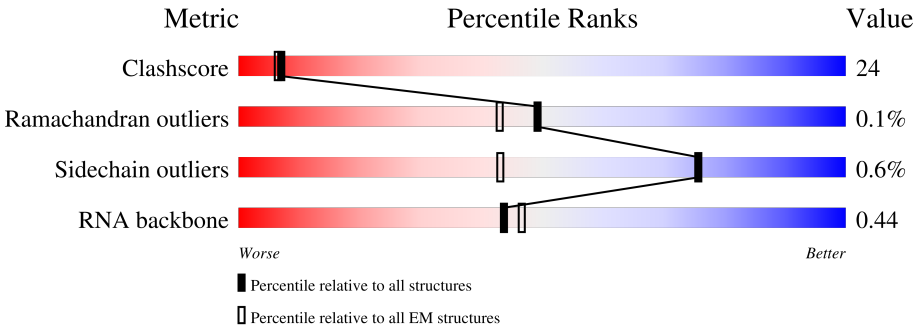
EMDB validation analysis	:	0.0.1.dev132
Mogul	:	2022.3.0, CSD as543be (2022)
MolProbity	:	4-5-2 with Phenix2.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

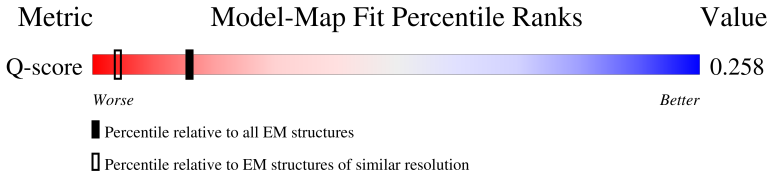
1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.38 Å.

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





Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	14261 (2.88 - 3.88)

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	A	280	95%
2	B	117	8% 27% 44% 15% 8% 7%
3	C	2335	55% 40% 5%

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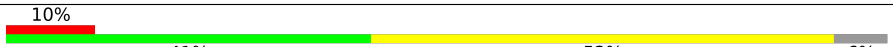
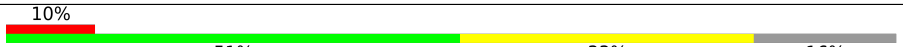
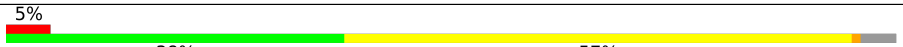
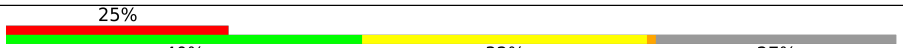
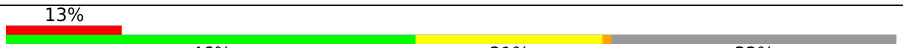
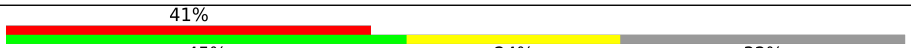
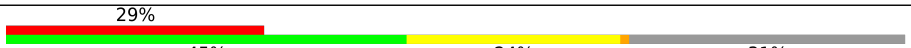
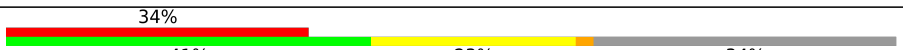
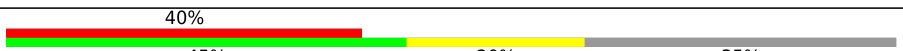
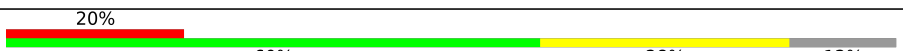
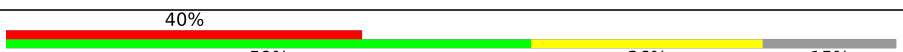
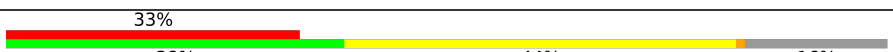
Mol	Chain	Length	Quality of chain
4	D	972	
5	E	2136	
6	F	357	
7	G	941	
8	H	149	
9	I	820	
10	a	240	
10	h	240	
10	o	240	
11	b	119	
11	i	119	
11	p	119	
12	c	118	
12	j	118	
12	q	118	
13	d	126	
13	k	126	
13	r	126	
14	e	92	
14	l	92	
14	s	92	
15	f	86	
15	m	86	
15	t	86	
16	g	76	

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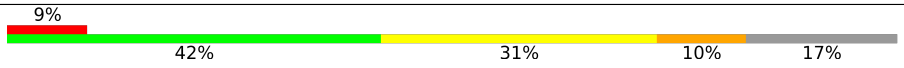
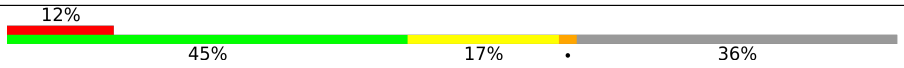
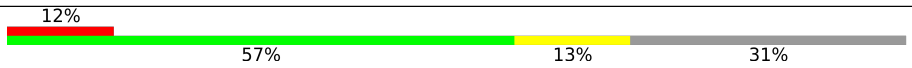
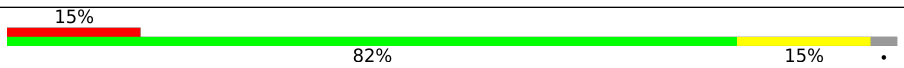
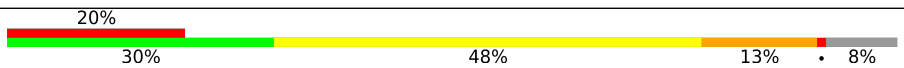
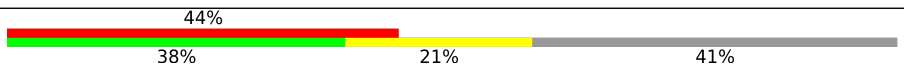
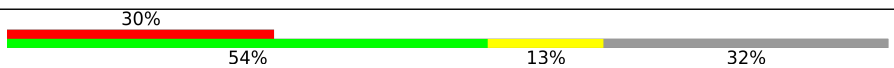
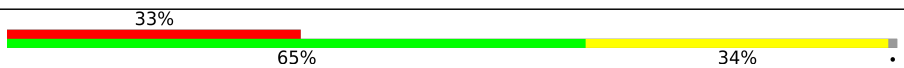
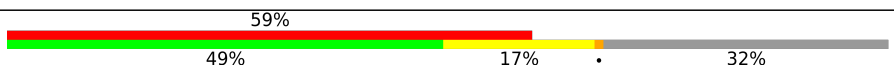
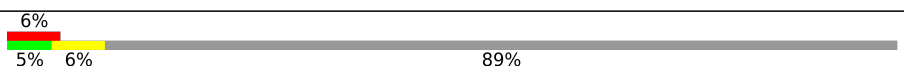
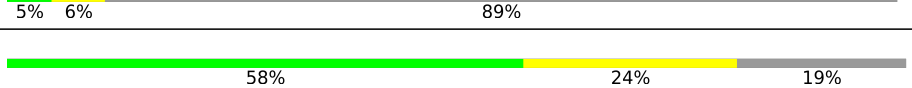
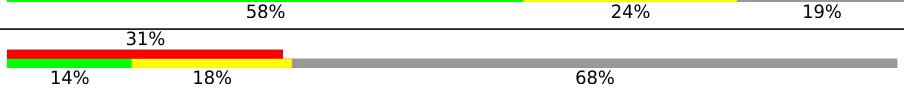
Mol	Chain	Length	Quality of chain
16	n	76	
16	u	76	
17	J	131	
18	K	125	
19	L	499	
20	M	522	
21	N	683	
22	O	128	
23	R	332	
24	P	135	
25	V	170	
26	W	246	
27	X	132	
28	Y	339	
29	Z	485	
30	S	800	
31	U	565	
32	Q	1007	

2 Entry composition (i)

There are 36 unique types of molecules in this entry. The entry contains 101504 atoms, of which 12 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 pre-mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	13	268	121	41	93	13	0	0

- Molecule 2 is a RNA chain called U5 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	B	109	2296	1028	383	776	109	0	0

- Molecule 3 is a protein called Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	C	2227	18488	11912	3215	3280	81	0	0

- Molecule 4 is a protein called 116 kDa U5 small nuclear ribonucleoprotein component.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	D	855	6747	4313	1130	1270	34	0	0

- Molecule 5 is a protein called U5 small nuclear ribonucleoprotein 200 kDa helicase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	E	2001	16077	10235	2767	2991	84	0	0

- Molecule 6 is a protein called U5 small nuclear ribonucleoprotein 40 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	F	307	2399	1504	423	458	14	0	0

- Molecule 7 is a protein called Pre-mRNA-processing factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	G	793	Total	C	N	O	S	0	0
			6229	3910	1143	1148	28		

- Molecule 8 is a protein called Thioredoxin-like protein 4B.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	H	143	Total	C	N	O	S	0	0
			1145	742	182	217	4		

- Molecule 9 is a protein called Probable ATP-dependent RNA helicase DDX23.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	I	597	Total	C	N	O	S	0	0
			4819	3033	869	897	20		

- Molecule 10 is a protein called Small nuclear ribonucleoprotein-associated proteins B and B'.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	a	73	Total	C	N	O	S	0	0
			594	376	108	103	7		
10	h	82	Total	C	N	O	S	0	0
			669	423	122	117	7		
10	o	86	Total	C	N	O	S	0	0
			692	435	126	124	7		

- Molecule 11 is a protein called Small nuclear ribonucleoprotein Sm D1.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	b	81	Total	C	N	O	S	0	0
			641	408	112	118	3		
11	i	81	Total	C	N	O	S	0	0
			641	408	112	118	3		
11	p	82	Total	C	N	O	S	0	0
			649	413	113	119	4		

- Molecule 12 is a protein called Small nuclear ribonucleoprotein Sm D2.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	c	98	Total	C	N	O	S	0	0
			796	498	144	148	6		

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Mol	Chain	Residues	Atoms					AltConf	Trace
12	j	92	Total	C	N	O	S	0	0
			737	463	138	131	5		
12	q	104	Total	C	N	O	S	0	0
			844	528	153	157	6		

- Molecule 13 is a protein called Small nuclear ribonucleoprotein Sm D3.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	d	84	Total	C	N	O	S	0	0
			657	412	116	123	6		
13	k	83	Total	C	N	O	S	0	0
			652	409	115	122	6		
13	r	82	Total	C	N	O	S	0	0
			643	403	113	121	6		

- Molecule 14 is a protein called Small nuclear ribonucleoprotein E.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	e	77	Total	C	N	O	S	0	0
			638	405	113	115	5		
14	l	76	Total	C	N	O	S	0	0
			631	400	112	114	5		
14	s	81	Total	C	N	O	S	0	0
			668	424	119	120	5		

- Molecule 15 is a protein called Small nuclear ribonucleoprotein F.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	f	73	Total	C	N	O	S	0	0
			567	367	94	101	5		
15	m	72	Total	C	N	O	S	0	0
			562	364	93	100	5		
15	t	74	Total	C	N	O	S	0	0
			576	373	95	103	5		

- Molecule 16 is a protein called Small nuclear ribonucleoprotein G.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	g	74	Total	C	N	O	S	0	0
			577	364	104	103	6		
16	n	74	Total	C	N	O	S	0	0
			577	364	104	103	6		

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Mol	Chain	Residues	Atoms					AltConf	Trace
16	u	73	Total	C	N	O	S	0	0
			568	358	102	102	6		

- Molecule 17 is a RNA chain called U4atac snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	J	109	Total	C	N	O	P	0	0
			2320	1037	399	774	110		

- Molecule 18 is a RNA chain called U6atac snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	K	44	Total	C	N	O	P	0	0
			942	420	172	306	44		

- Molecule 19 is a protein called U4/U6 small nuclear ribonucleoprotein Prp31.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	L	318	Total	C	N	O	S	0	0
			2512	1576	443	478	15		

- Molecule 20 is a protein called U4/U6 small nuclear ribonucleoprotein Prp4.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	M	361	Total	C	N	O	S	0	0
			2863	1807	512	525	19		

- Molecule 21 is a protein called U4/U6 small nuclear ribonucleoprotein Prp3.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	N	228	Total	C	N	O	S	0	0
			1861	1186	334	335	6		

- Molecule 22 is a protein called NHP2-like protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	O	124	Total	C	N	O	S	0	0
			960	607	171	177	5		

- Molecule 23 is a protein called Centrosomal AT-AC splicing factor.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	R	157	Total	C	N	O	S	0	0
			1285	808	240	225	12		

- Molecule 24 is a RNA chain called U11 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	P	124	Total	C	N	O	P	0	0
			2647	1181	469	873	124		

- Molecule 25 is a protein called Zinc finger matrin-type protein 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	V	101	Total	C	N	O	S	0	0
			857	533	163	153	8		

- Molecule 26 is a protein called U11/U12 small nuclear ribonucleoprotein 35 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	W	167	Total	C	N	O	S	0	0
			1359	866	248	242	3		

- Molecule 27 is a protein called U11/U12 small nuclear ribonucleoprotein 25 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	X	131	Total	C	N	O	S	0	0
			1055	667	184	197	7		

- Molecule 28 is a protein called U11/U12 small nuclear ribonucleoprotein 48 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Y	229	Total	C	N	O	S	0	0
			1889	1172	333	373	11		

- Molecule 29 is a protein called Programmed cell death protein 7.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Z	210	Total	C	N	O	S	0	0
			1727	1059	359	305	4		

- Molecule 30 is a protein called U4/U6.U5 tri-snRNP-associated protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	S	87	Total	C	N	O	S	0	0
			701	441	128	128	4		

- Molecule 31 is a protein called U4/U6.U5 tri-snRNP-associated protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	U	458	Total	C	N	O	S	0	0
			3765	2435	638	678	14		

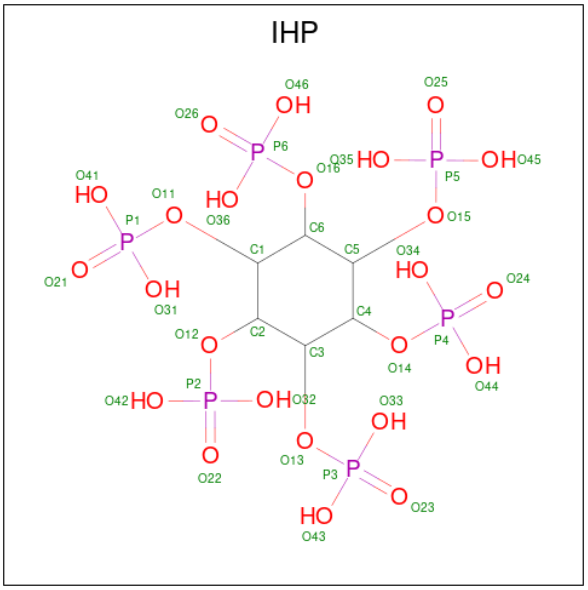
- Molecule 32 is a protein called Serine/threonine-protein kinase PRP4 homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Q	322	Total	C	N	O	S	0	0
			2626	1682	462	467	15		

- Molecule 33 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

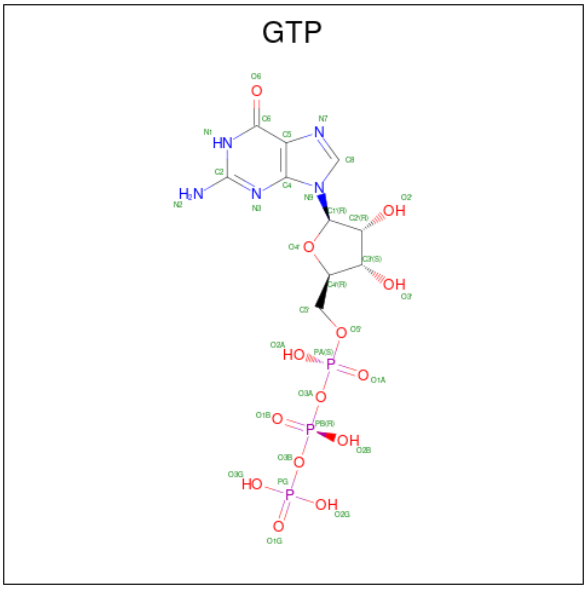
Mol	Chain	Residues	Atoms		AltConf
33	B	1	Total	Mg	0
			1	1	
33	D	1	Total	Mg	0
			1	1	

- Molecule 34 is INOSITOL HEXAKISPHOSPHATE (CCD ID: IHP) (formula: $C_6H_{18}O_{24}P_6$).



Mol	Chain	Residues	Atoms					AltConf
34	C	1	Total	C	H	O	P	0
			48	6	12	24	6	

- Molecule 35 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



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

- Molecule 36 is ZINC ION (CCD ID: ZN) (formula: Zn).

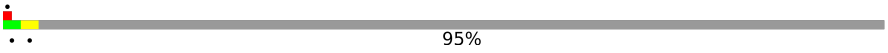
Mol	Chain	Residues	Atoms		AltConf
36	R	2	Total	Zn	0
			2	2	
36	V	2	Total	Zn	0
			2	2	
36	Y	1	Total	Zn	0
			1	1	
36	U	1	Total	Zn	0
			1	1	

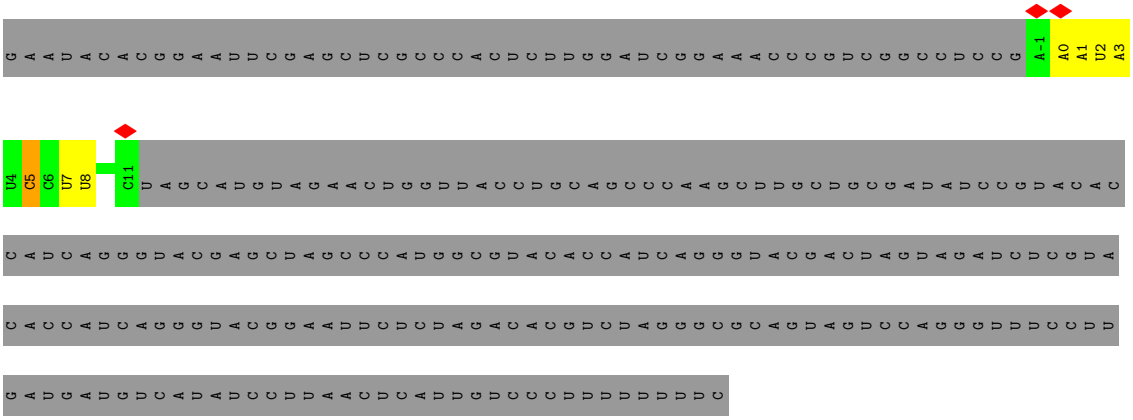
3 Residue-property plots (i)

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

• Molecule 1: pre-mRNA

Chain A:





• Molecule 2: U5 snRNA

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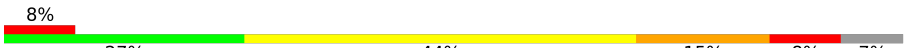
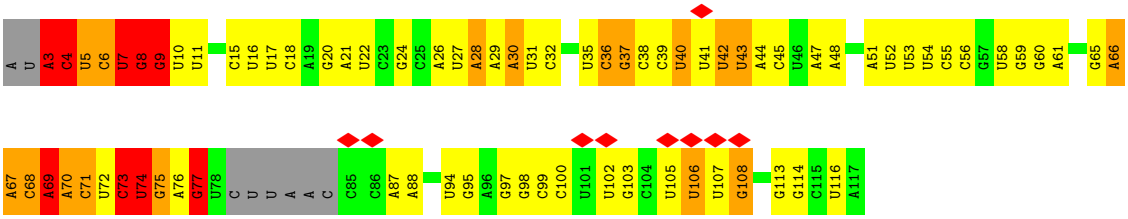
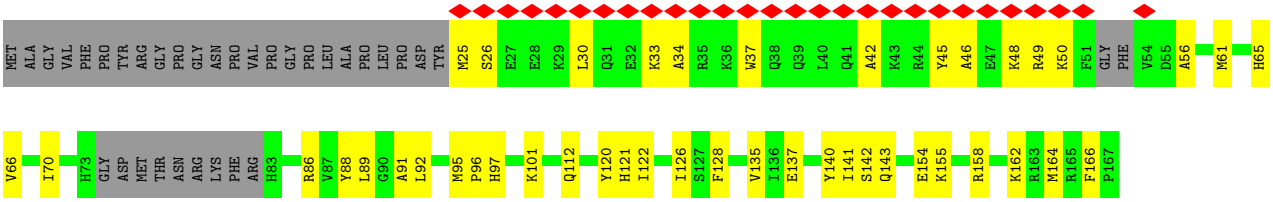
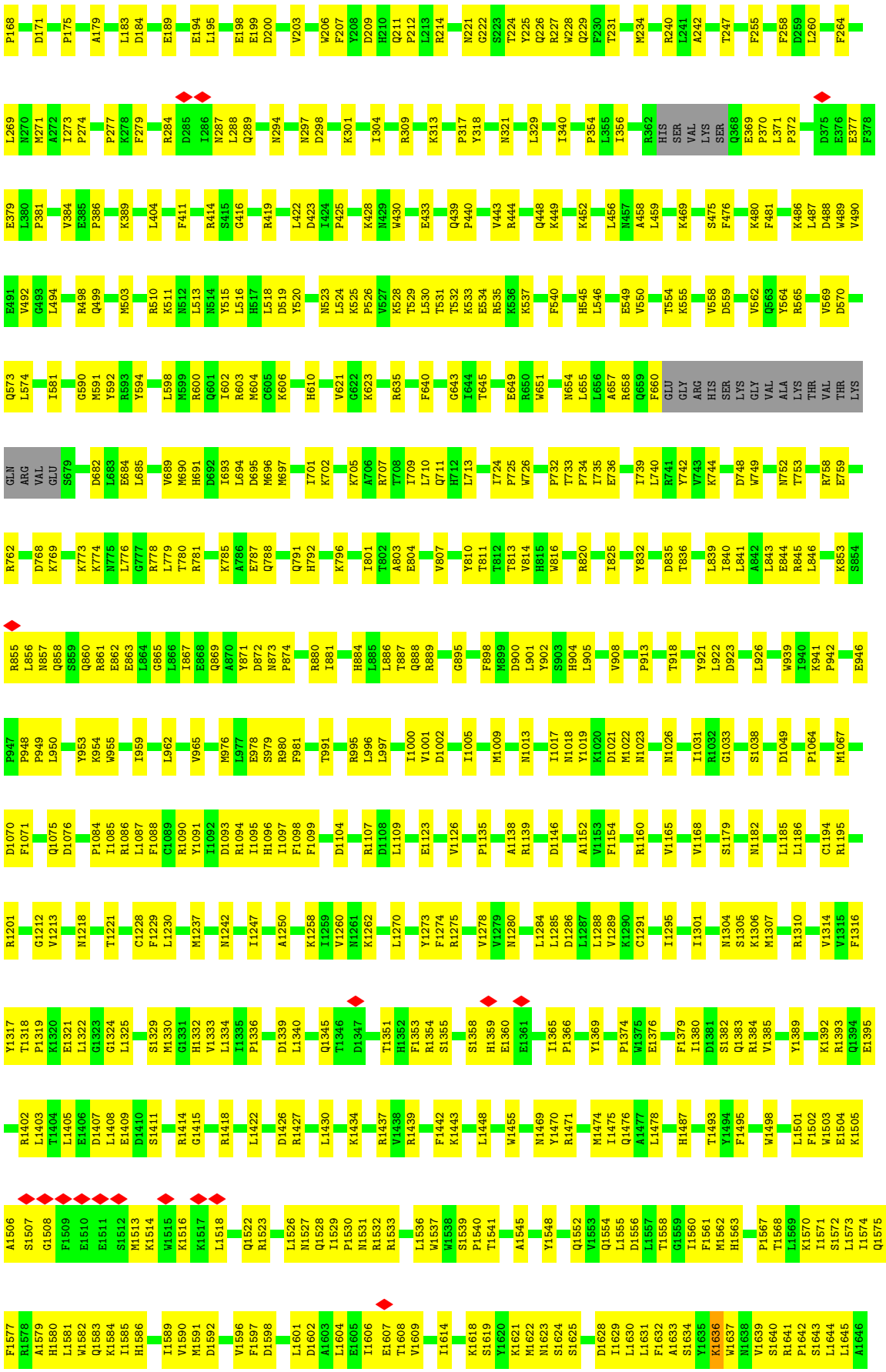




• Molecule 3: Pre-mRNA-processing-splicing factor 8

Chain C:

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Y1317 T1318 P1319 K1320 E1321 L1322 G1323 G1324 L1325 S1329 M1330 G1331 H1332 V1333 L1334 I1335 P1336 D1339 L1340 Q1345 T1346 D1347 T1351 H1352 F1353 R1354 S1355 S1358 H1359 E1360 E1361 I1365 P1366 Y1369 P1374 W1375 E1376 F1379 I1380 D1381 S1382 Q1383 R1384 V1385 Y1389 K1392 R1393 Q1394 E1395
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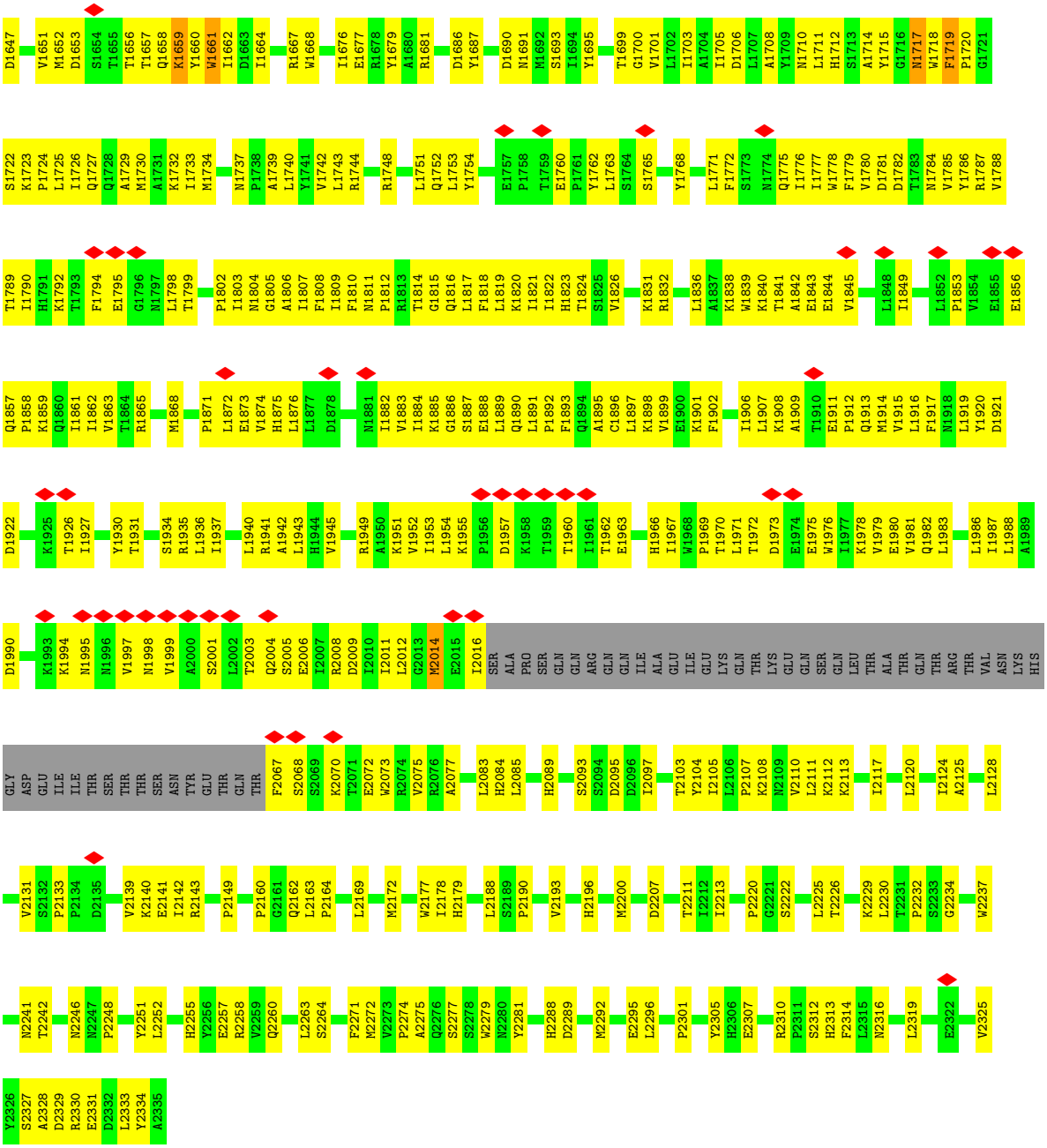
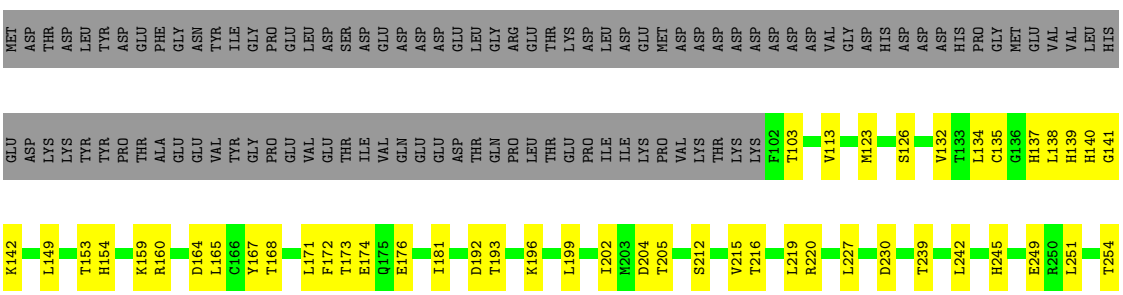
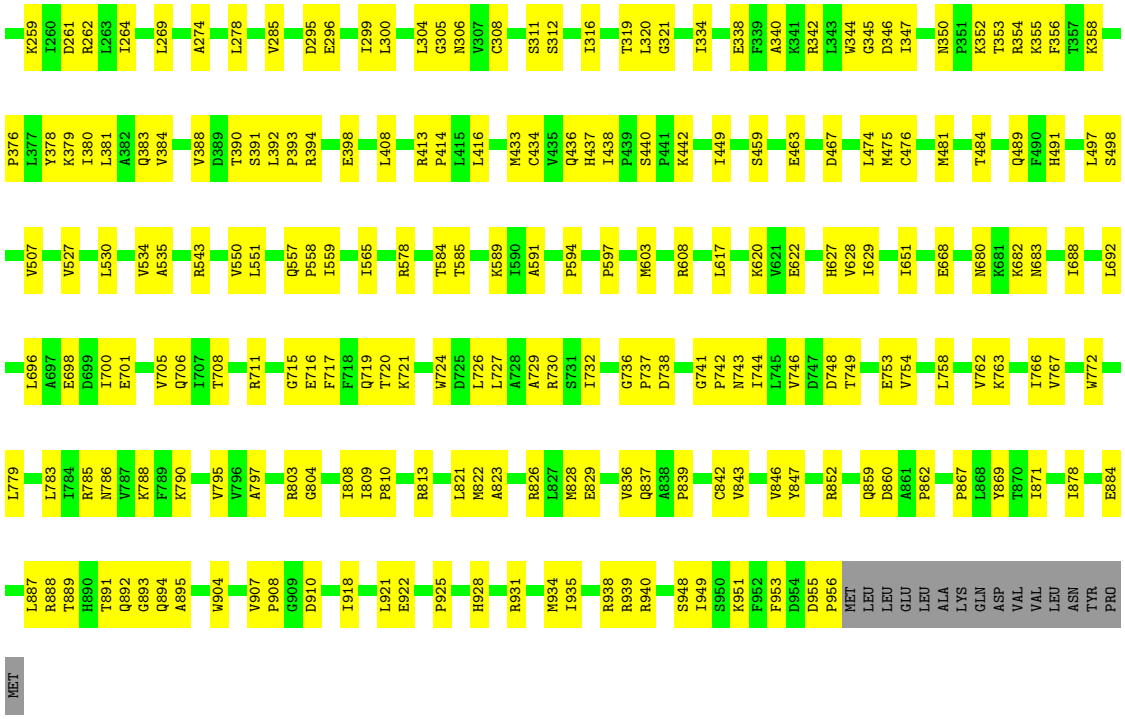


• Molecule 4: 116 kDa U5 small nuclear ribonucleoprotein component

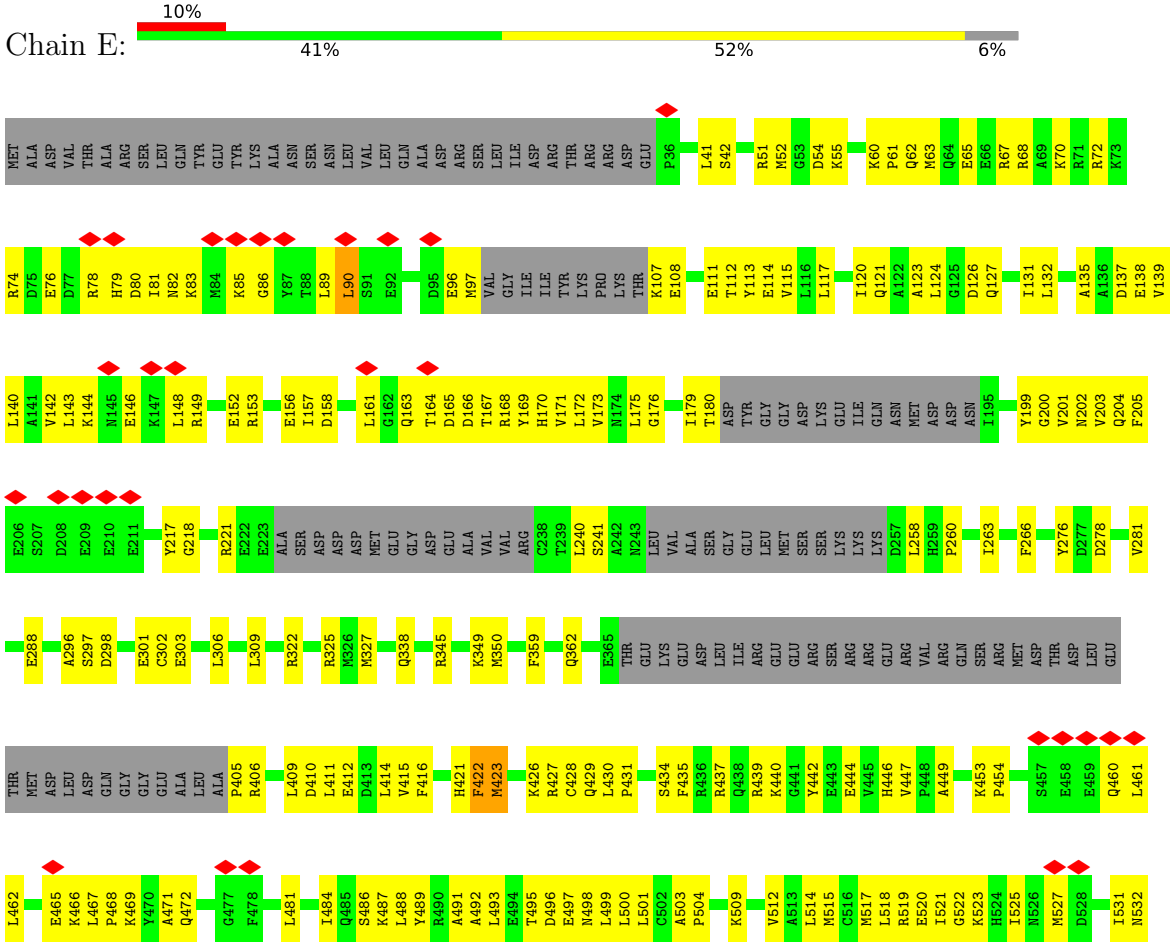
Chain D:

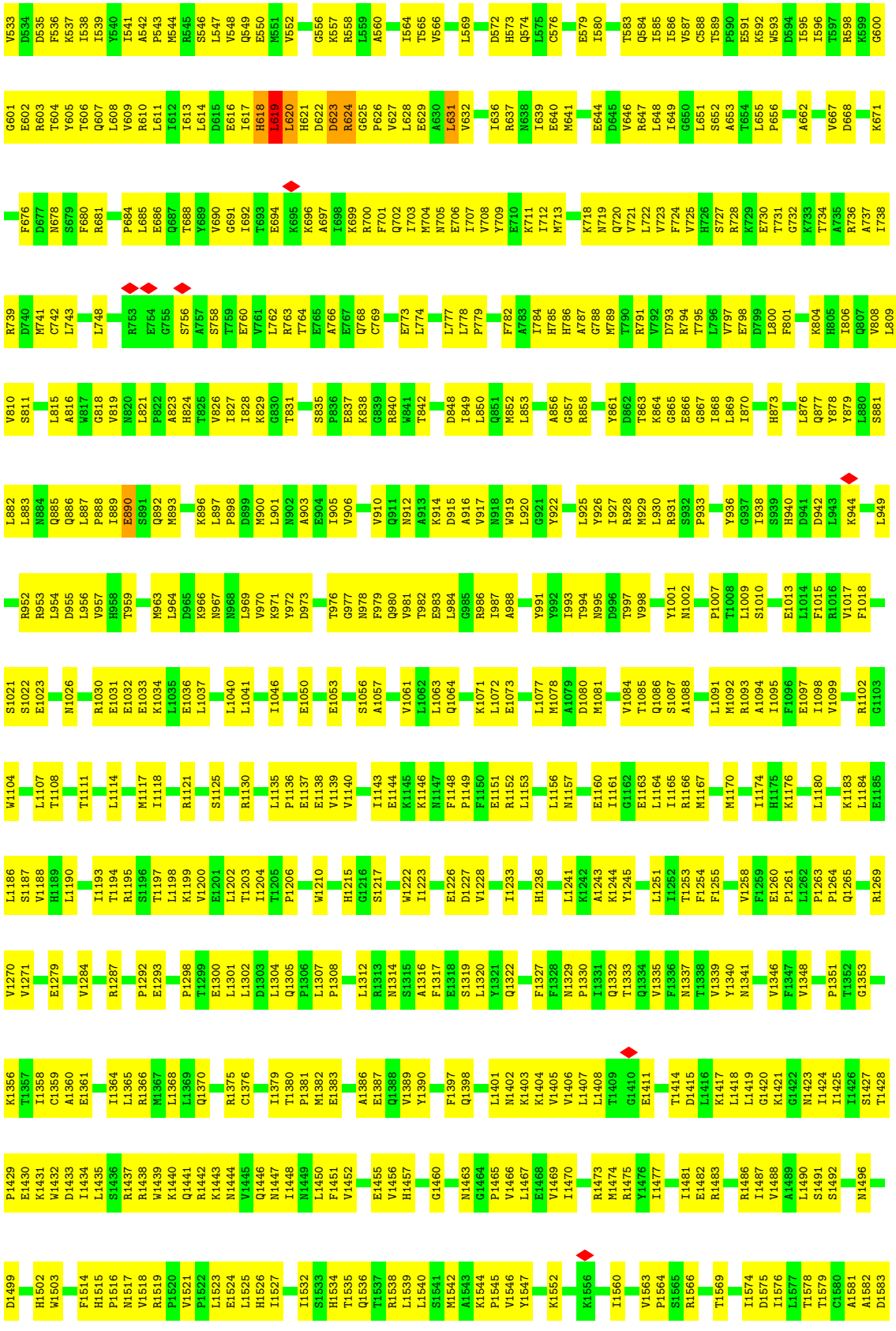




• Molecule 5: U5 small nuclear ribonucleoprotein 200 kDa helicase

Chain E:

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V1270 V1271 E1279 V1284 R1287 P1292 E1293 P1298 T1299 E1300 L1301 L1302 D1303 L1304 Q1305 P1306 L1307 P1308 L1312 R1313 N1314 S1315 A1316 F1317 E1318 S1319 L1320 Y1321 Q1322 F1327 F1328 H1329 P1330 I1331 Q1332 T1333 Q1334 V1335 F1336 N1337 T1338 V1339 Y1340 N1341 V1346 F1347 V1348 P1351 T1352 G1353
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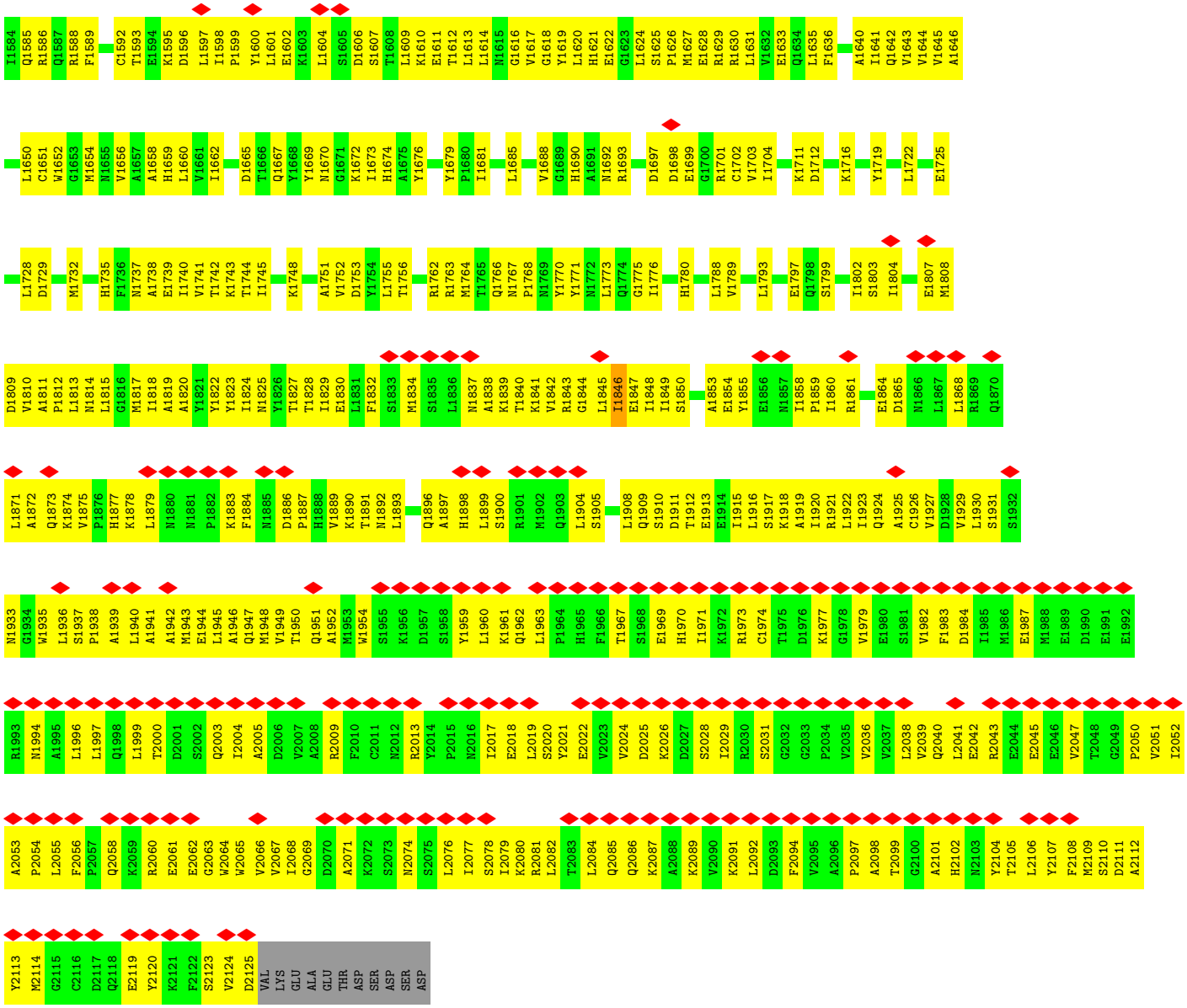
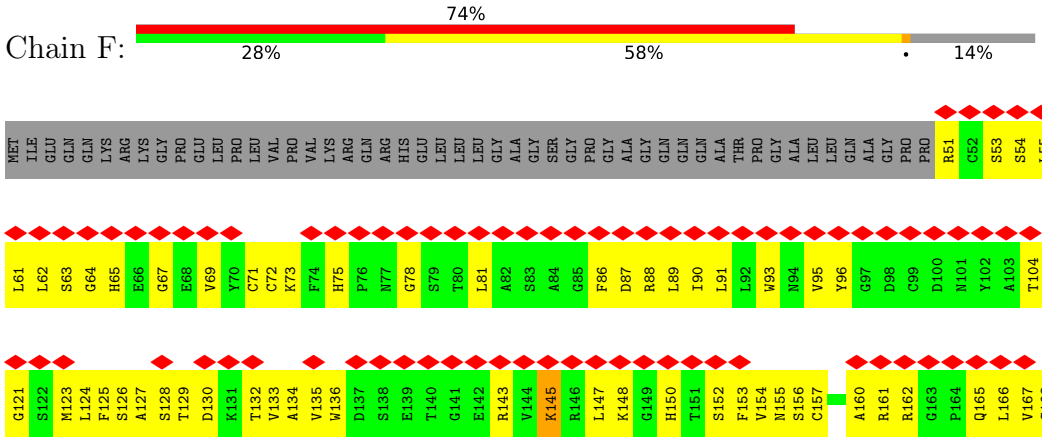
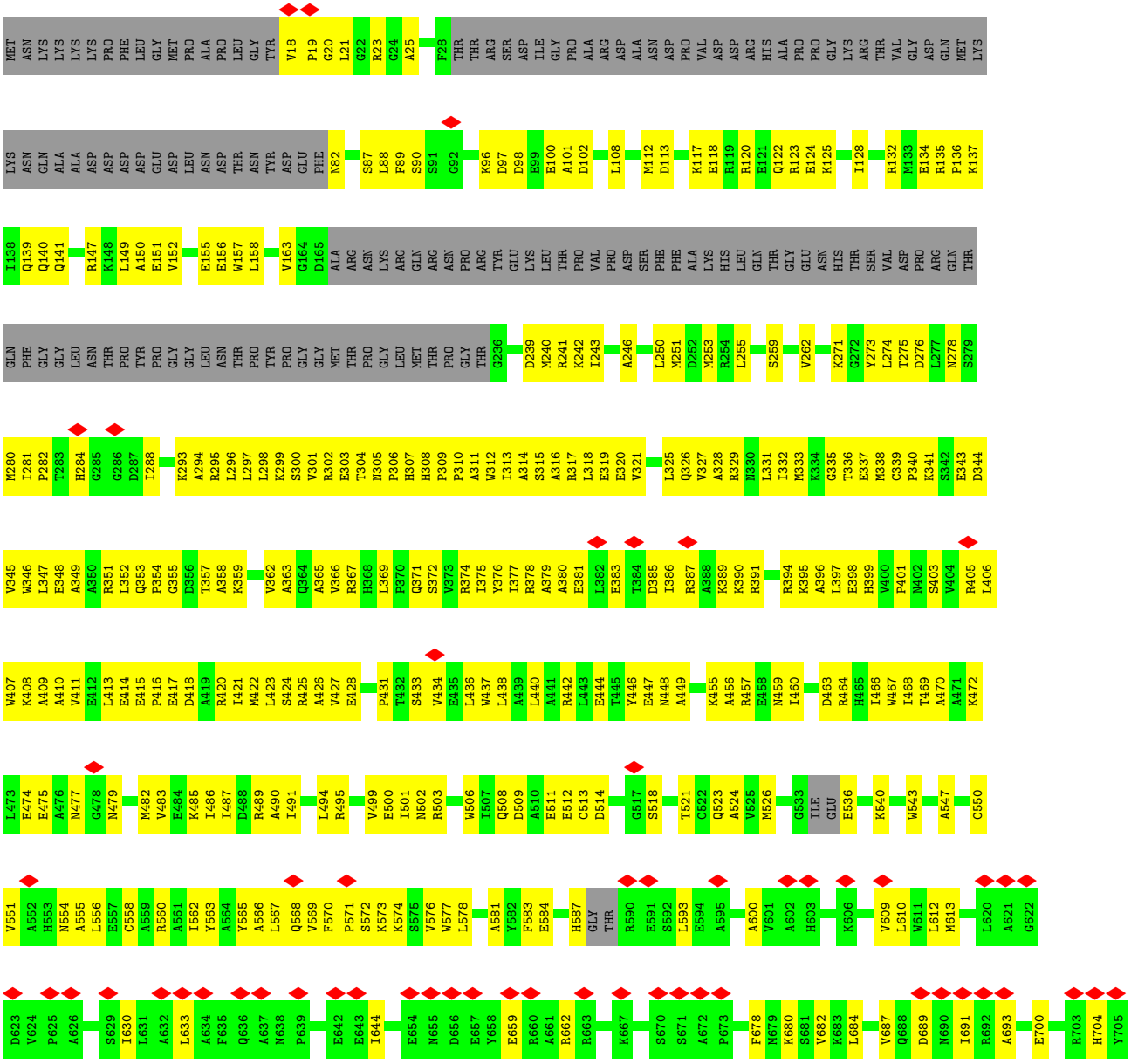


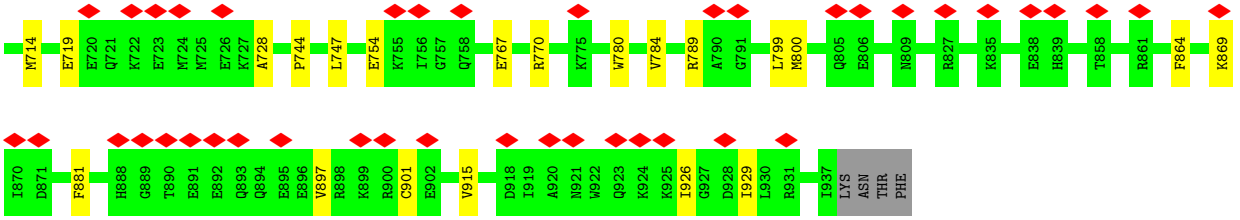
• Molecule 6: U5 small nuclear ribonucleoprotein 40 kDa protein



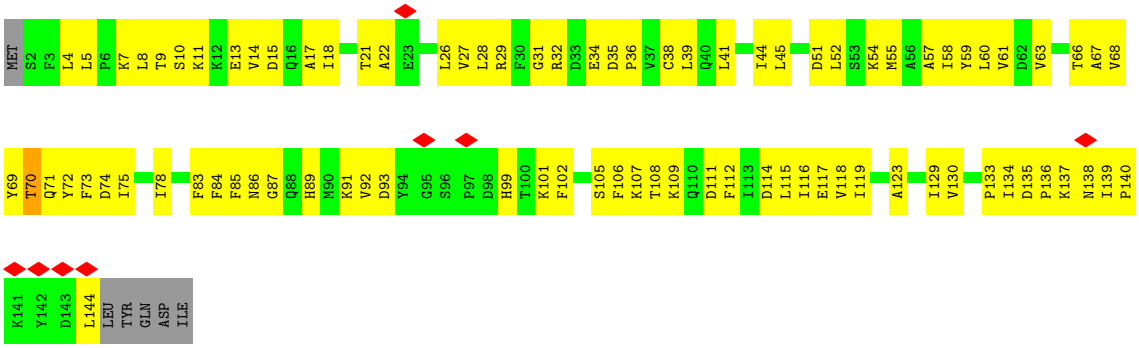
• Molecule 7: Pre-mRNA-processing factor 6

Chain G:

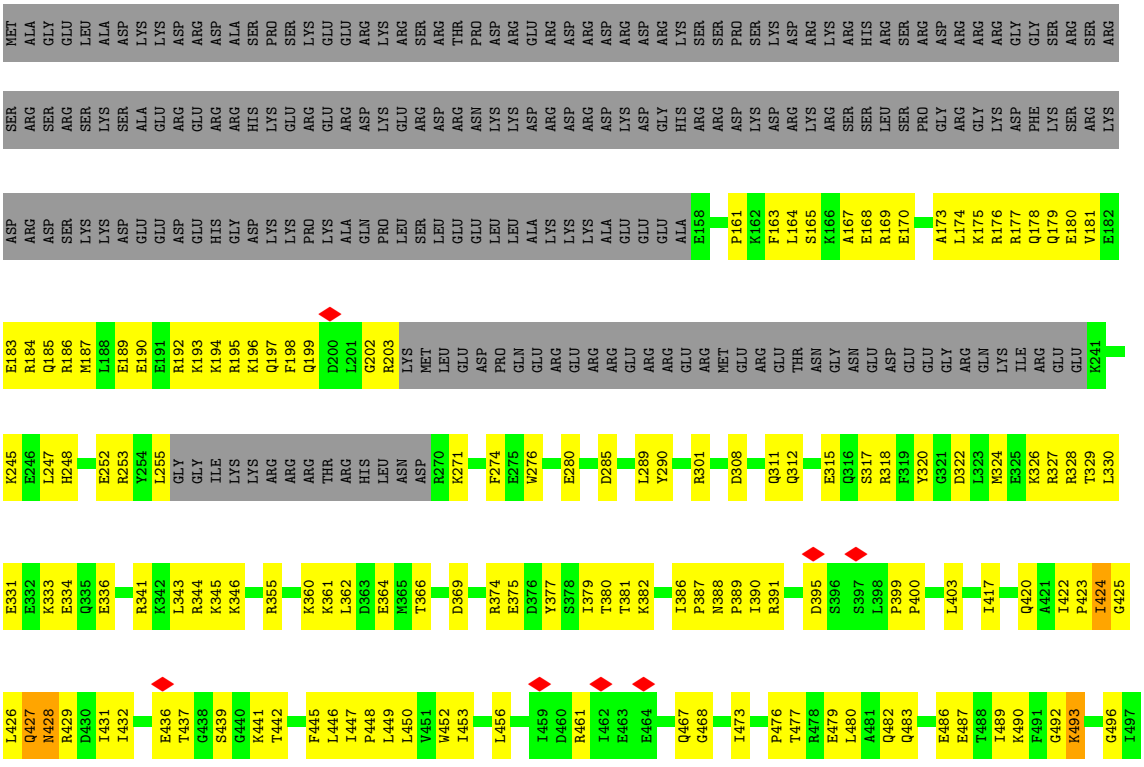


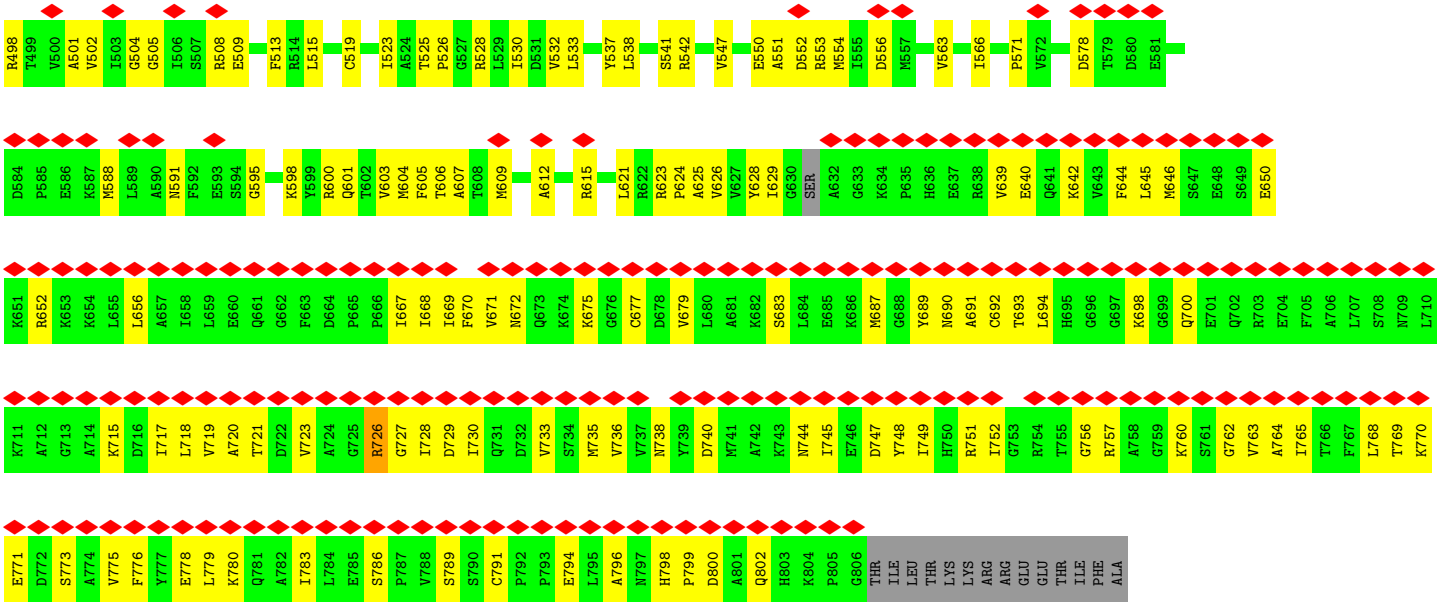


• Molecule 8: Thioredoxin-like protein 4B

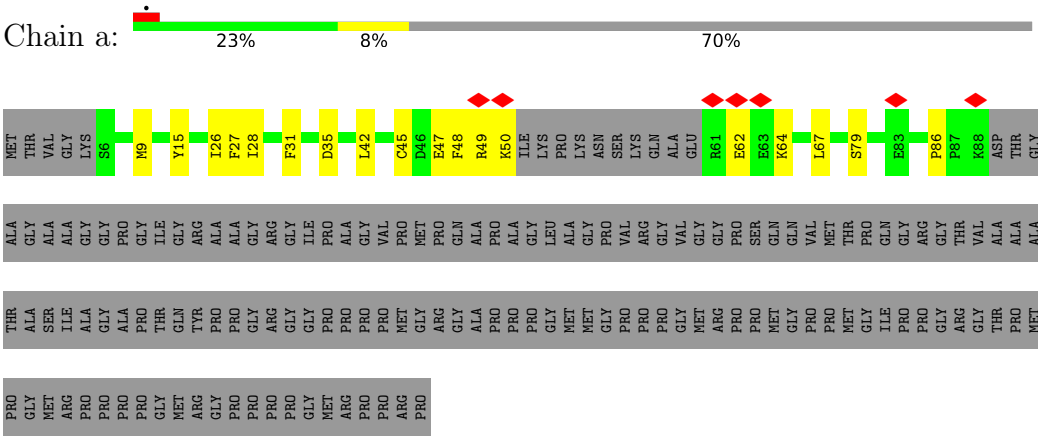


• Molecule 9: Probable ATP-dependent RNA helicase DDX23

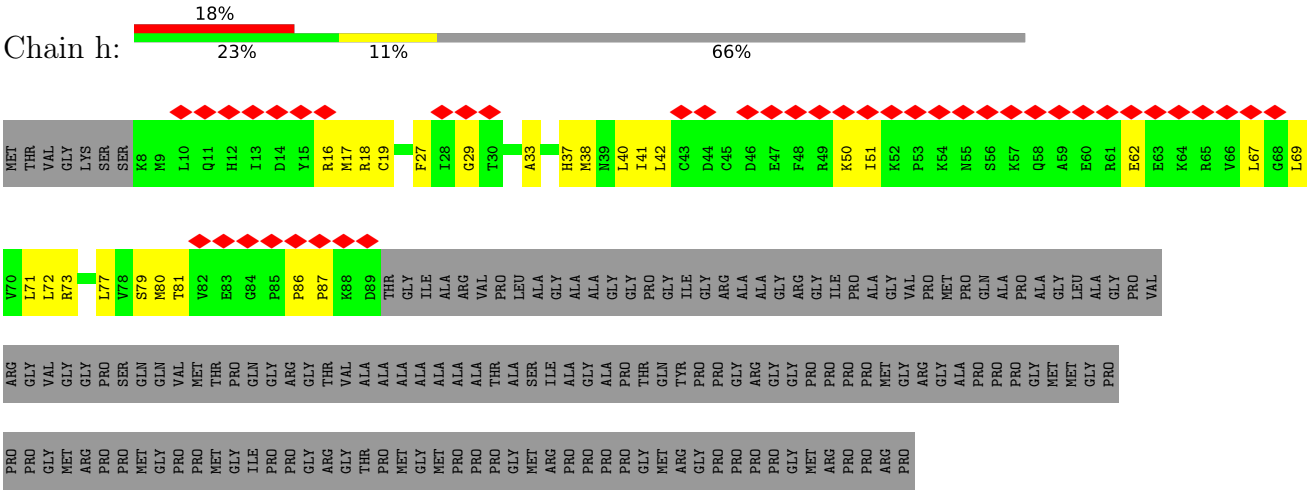




• Molecule 10: Small nuclear ribonucleoprotein-associated proteins B and B'

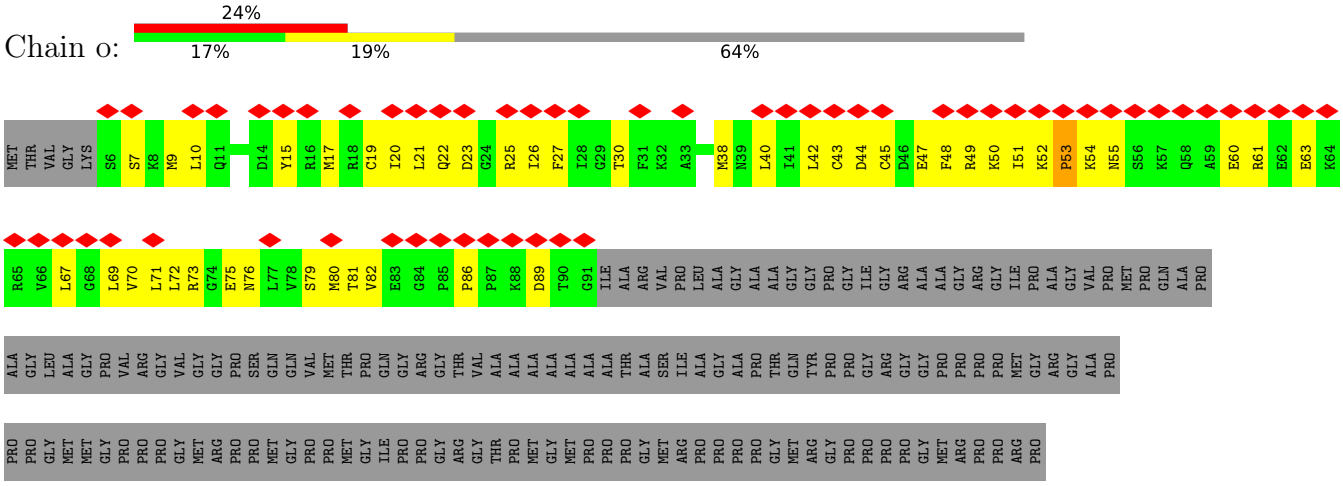


• Molecule 10: Small nuclear ribonucleoprotein-associated proteins B and B'



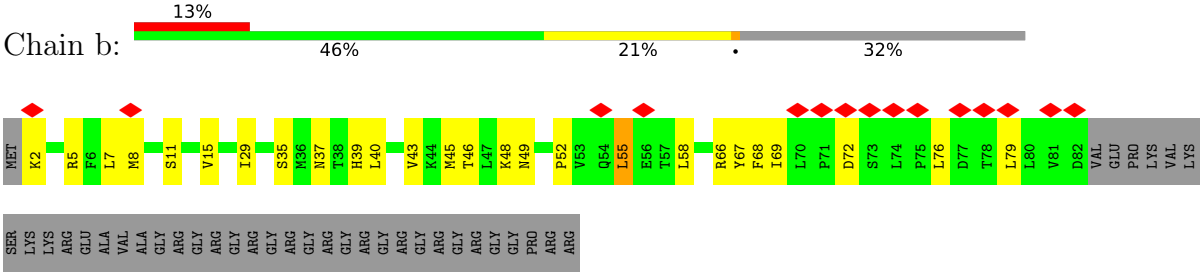
• Molecule 10: Small nuclear ribonucleoprotein-associated proteins B and B'

Chain o:



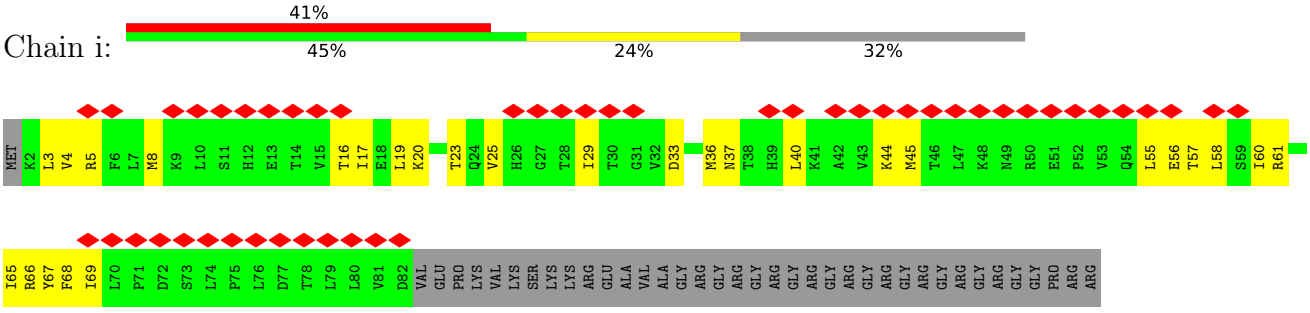
• Molecule 11: Small nuclear ribonucleoprotein Sm D1

Chain b:



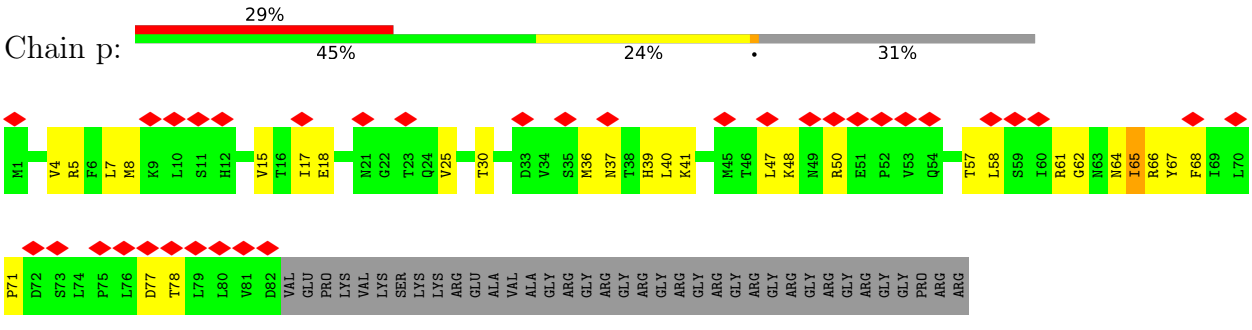
• Molecule 11: Small nuclear ribonucleoprotein Sm D1

Chain i:



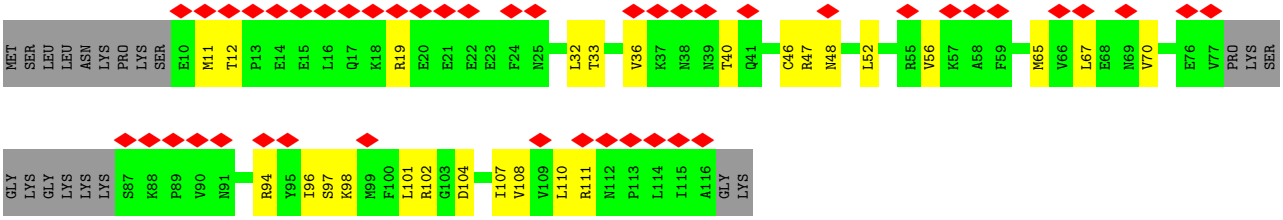
• Molecule 11: Small nuclear ribonucleoprotein Sm D1

Chain p:



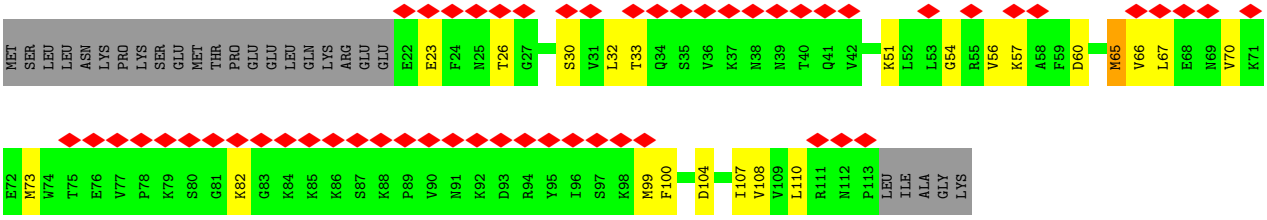
• Molecule 12: Small nuclear ribonucleoprotein Sm D2

Chain c:



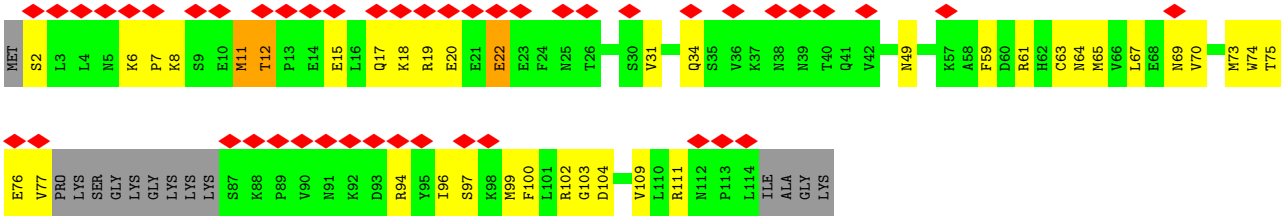
• Molecule 12: Small nuclear ribonucleoprotein Sm D2

Chain j:



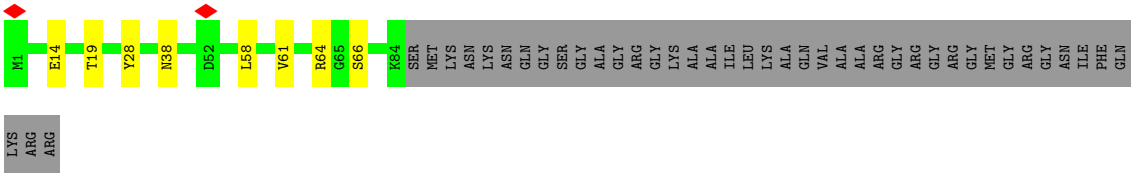
• Molecule 12: Small nuclear ribonucleoprotein Sm D2

Chain q:



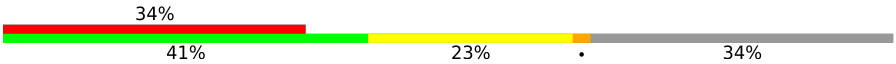
• Molecule 13: Small nuclear ribonucleoprotein Sm D3

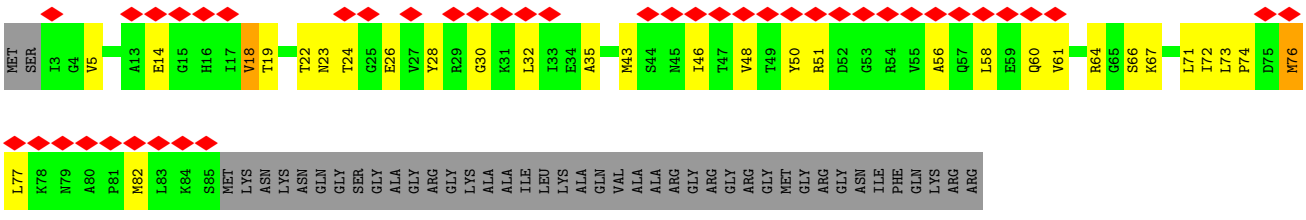
Chain d:



• Molecule 13: Small nuclear ribonucleoprotein Sm D3

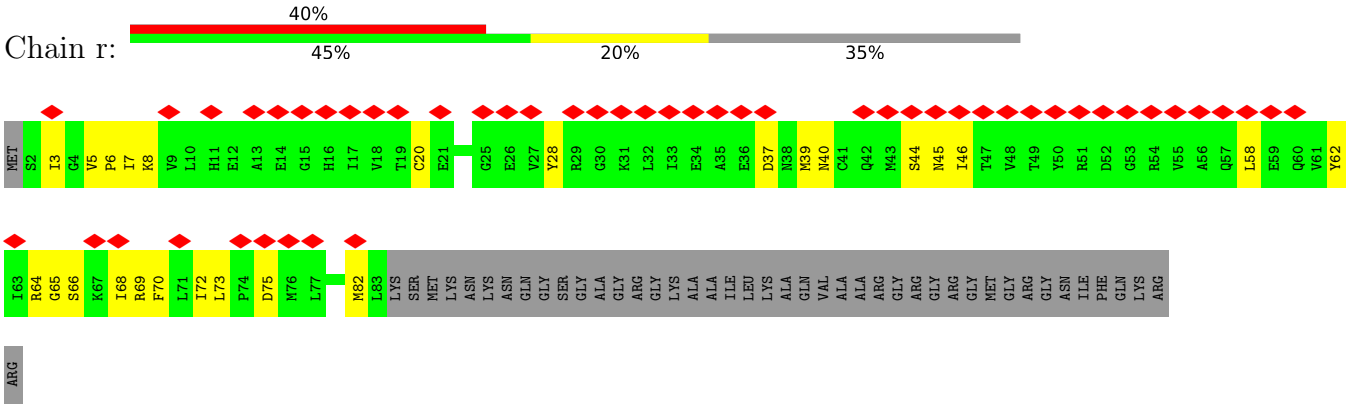
Chain k:





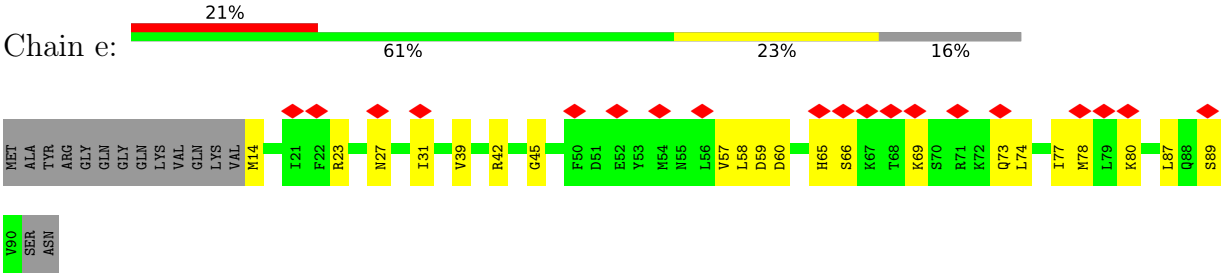
• Molecule 13: Small nuclear ribonucleoprotein Sm D3

Chain r:



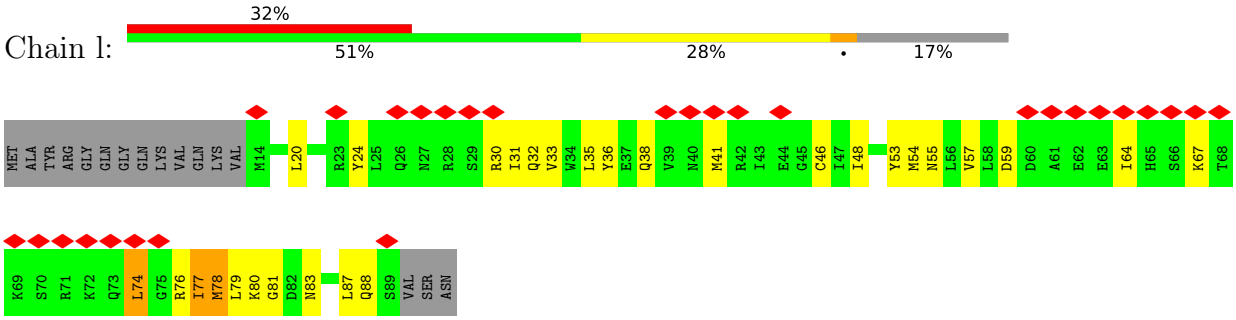
• Molecule 14: Small nuclear ribonucleoprotein E

Chain e:



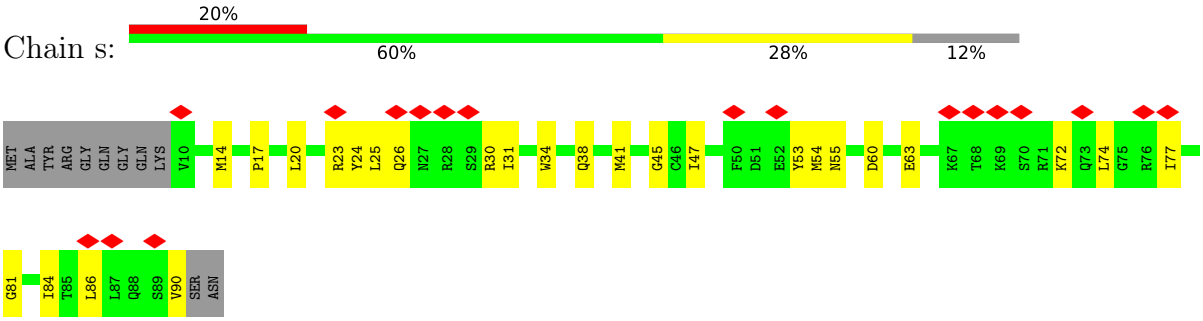
• Molecule 14: Small nuclear ribonucleoprotein E

Chain l:



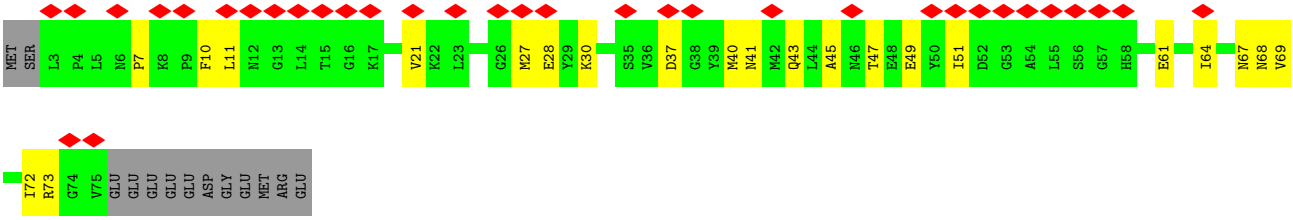
• Molecule 14: Small nuclear ribonucleoprotein E

Chain s:

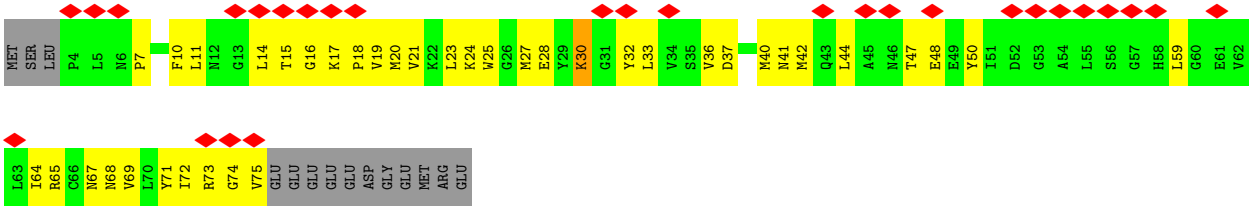


• Molecule 15: Small nuclear ribonucleoprotein F

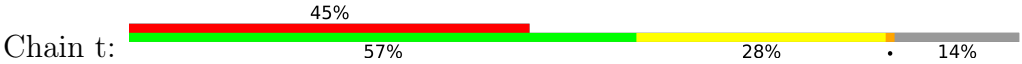
Chain f:

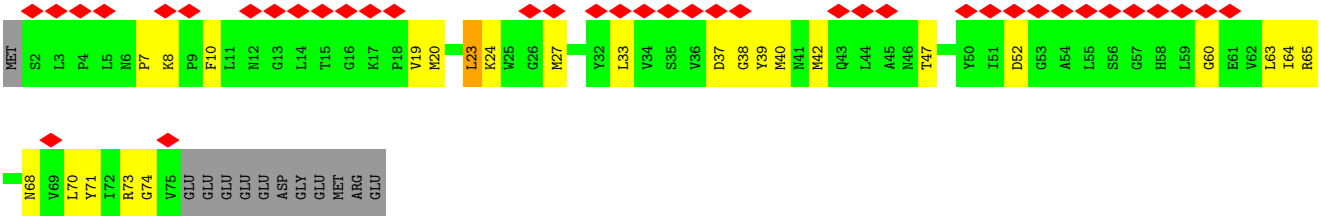


• Molecule 15: Small nuclear ribonucleoprotein F

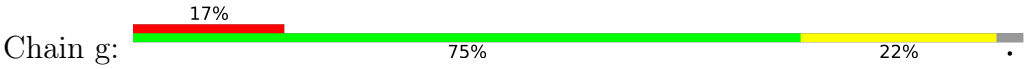


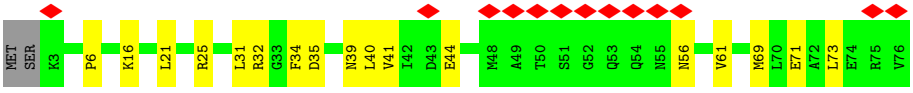
• Molecule 15: Small nuclear ribonucleoprotein F



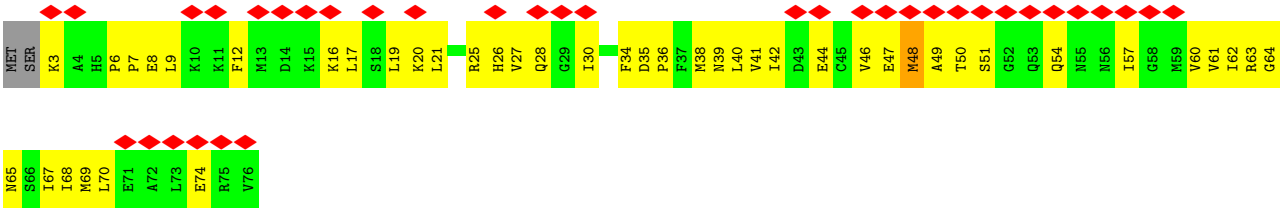


• Molecule 16: Small nuclear ribonucleoprotein G



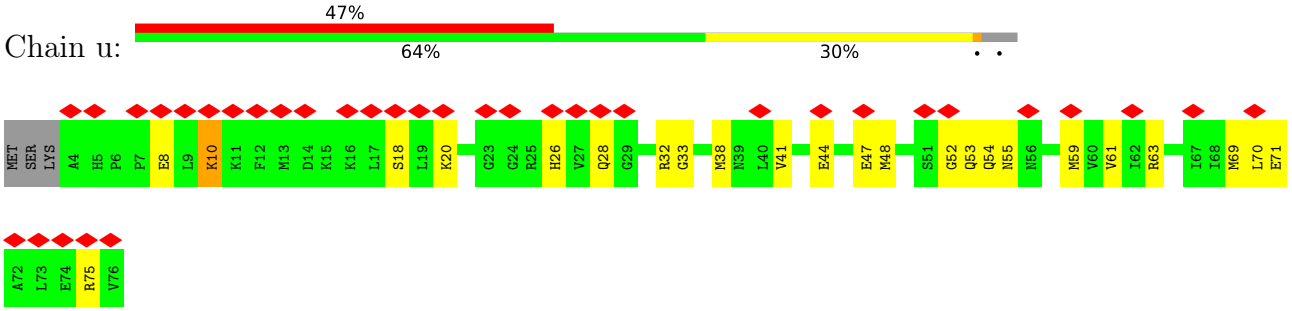


• Molecule 16: Small nuclear ribonucleoprotein G



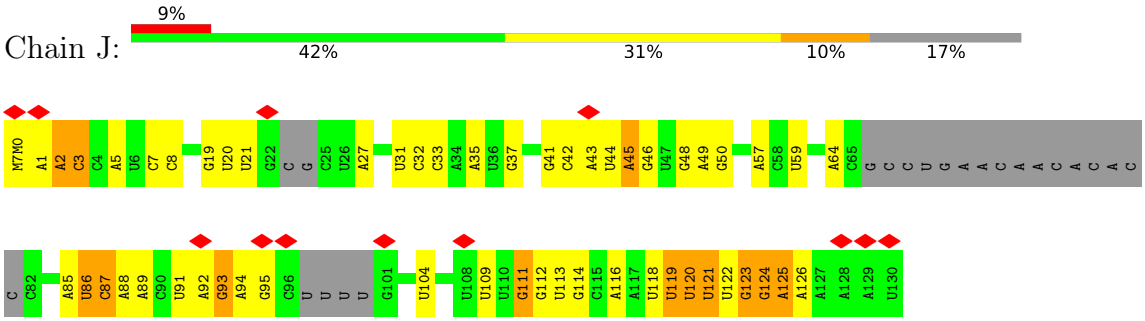
• Molecule 16: Small nuclear ribonucleoprotein G

Chain u:



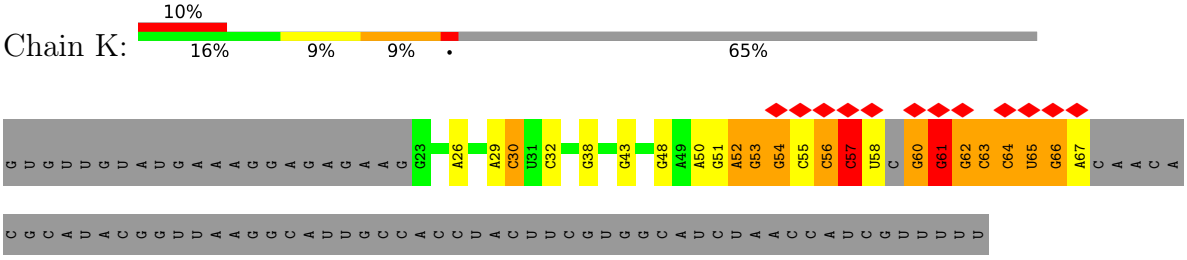
• Molecule 17: U4atac snRNA

Chain J:



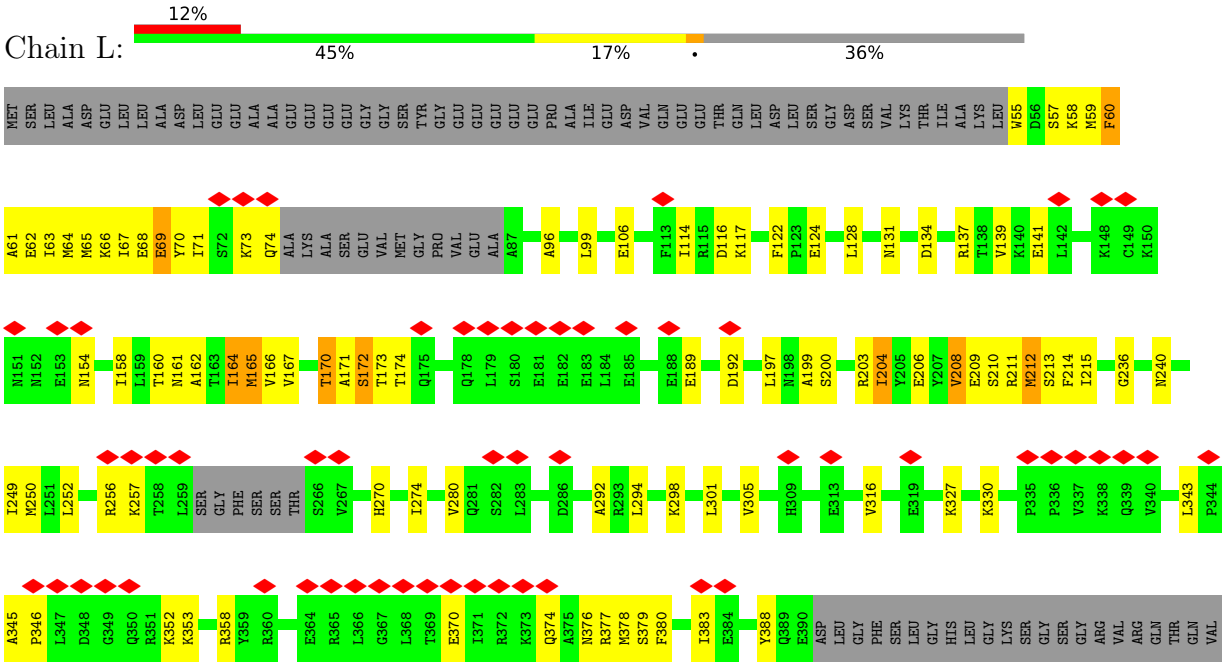
• Molecule 18: U6atac snRNA

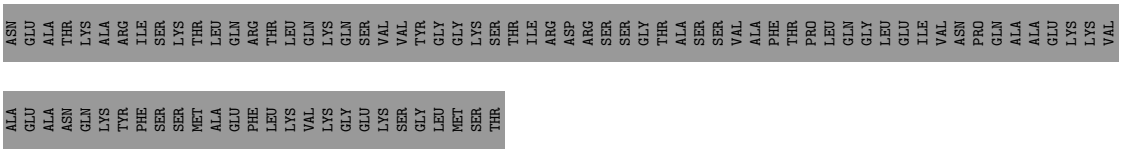
Chain K:



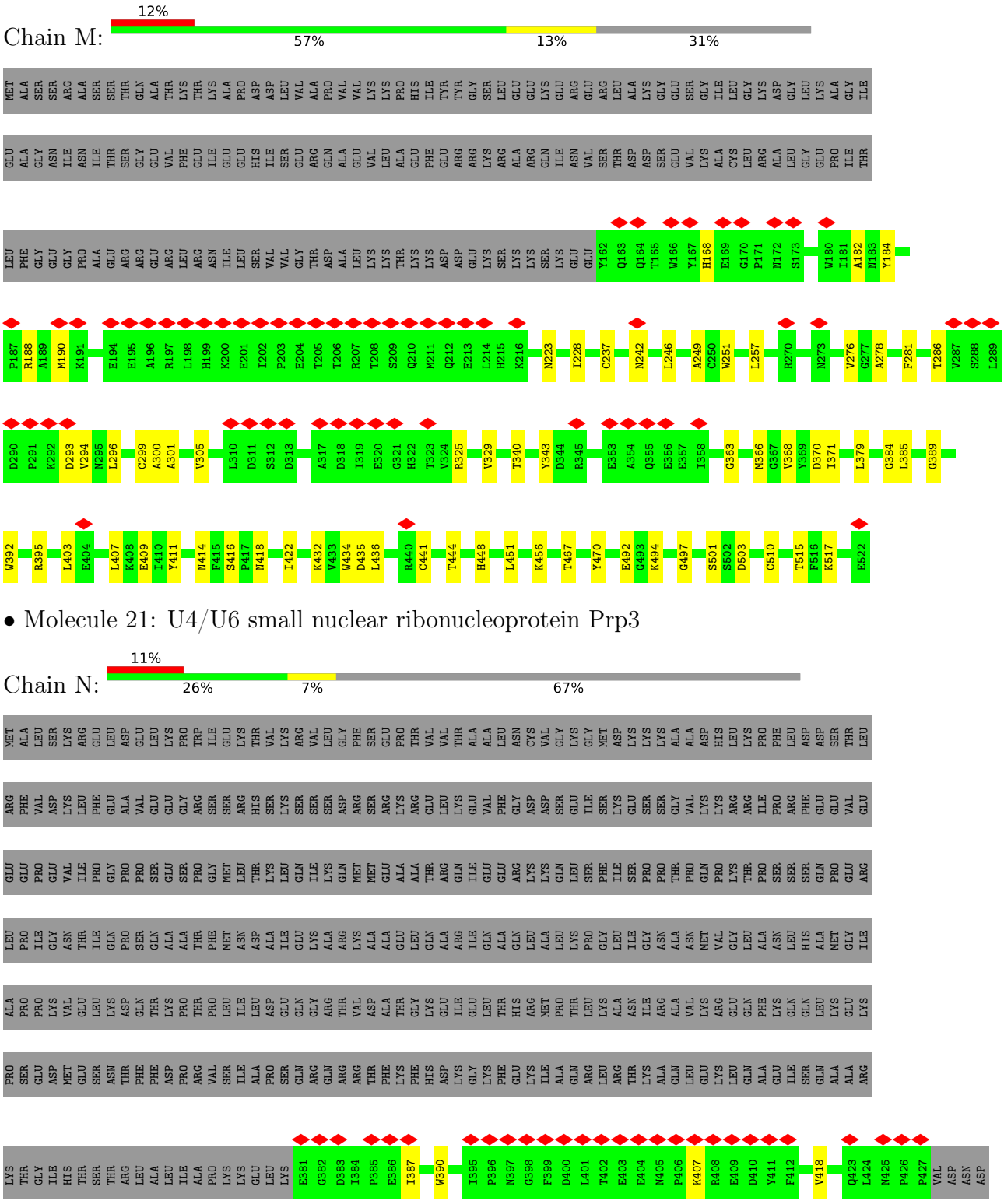
• Molecule 19: U4/U6 small nuclear ribonucleoprotein Prp31

Chain L:

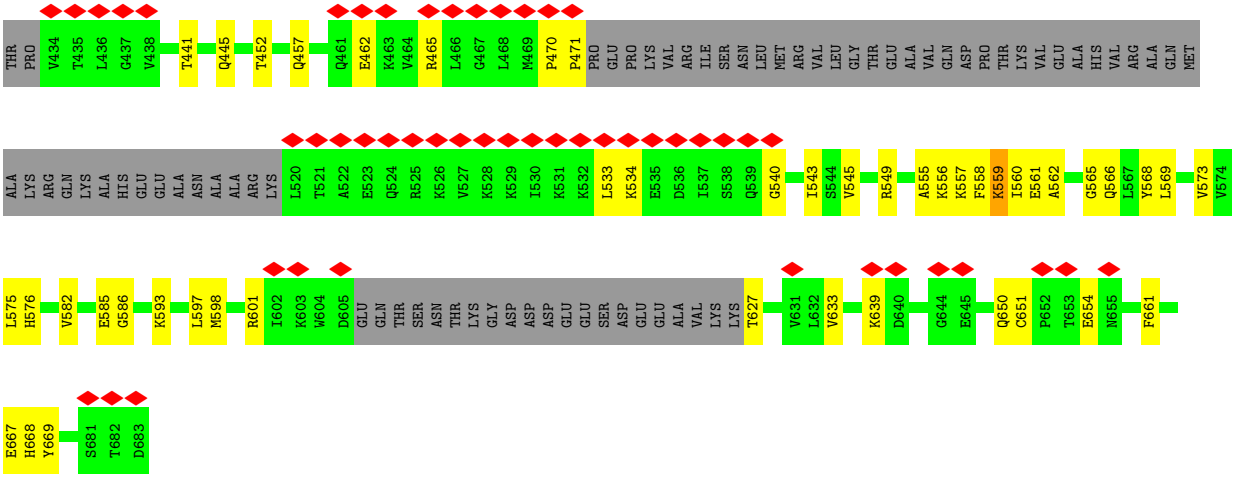




• Molecule 20: U4/U6 small nuclear ribonucleoprotein Prp4

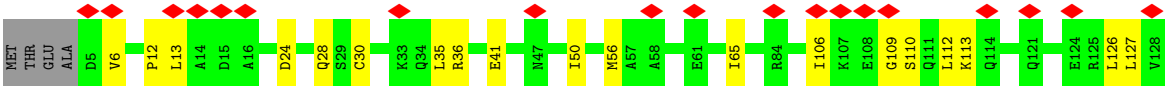


• Molecule 21: U4/U6 small nuclear ribonucleoprotein Prp3



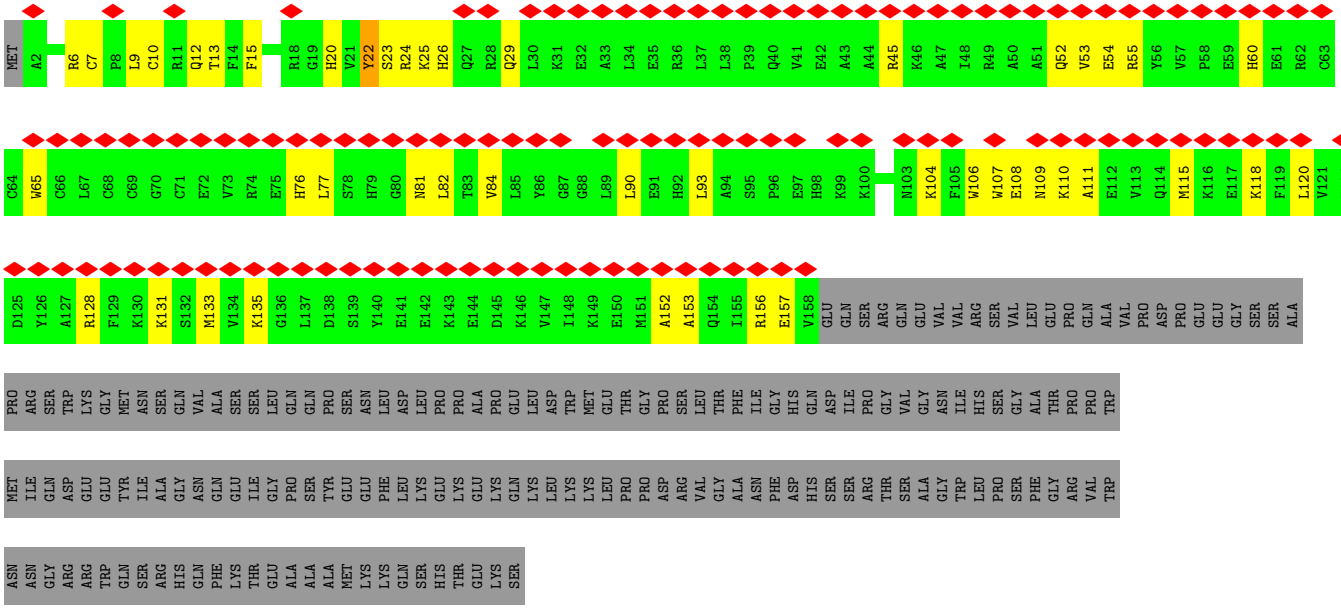
• Molecule 22: NHP2-like protein 1

Chain O:



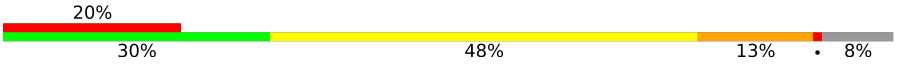
• Molecule 23: Centrosomal AT-AC splicing factor

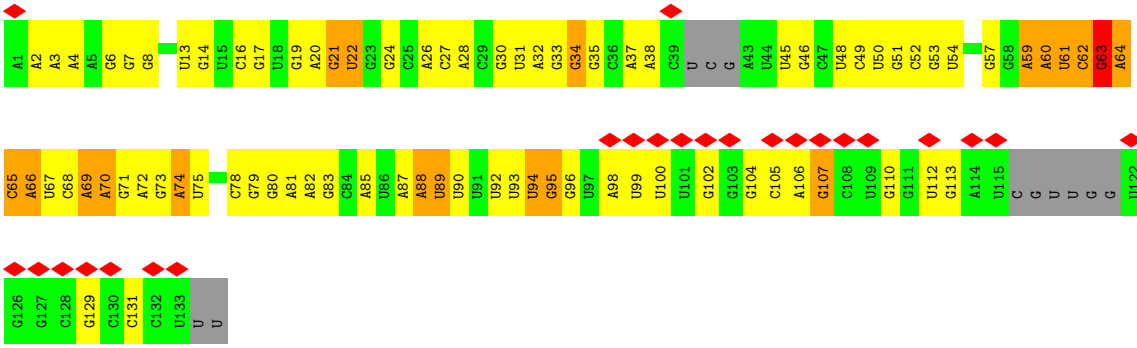
Chain R:



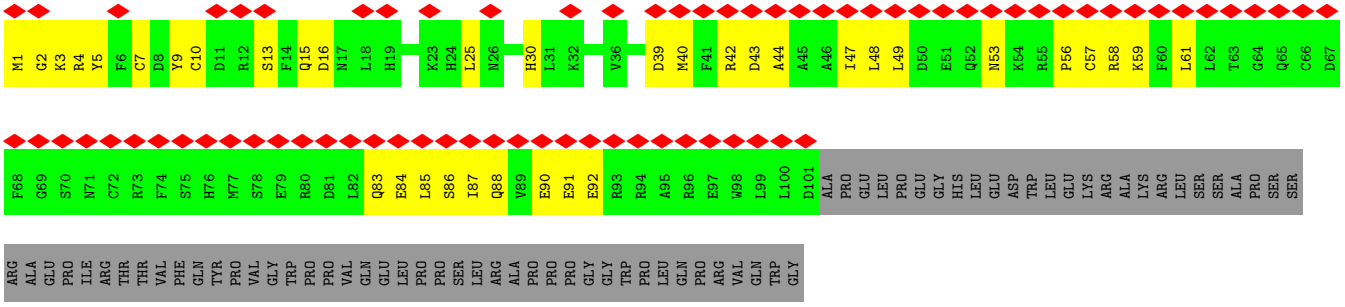
• Molecule 24: U11 snRNA

Chain P:

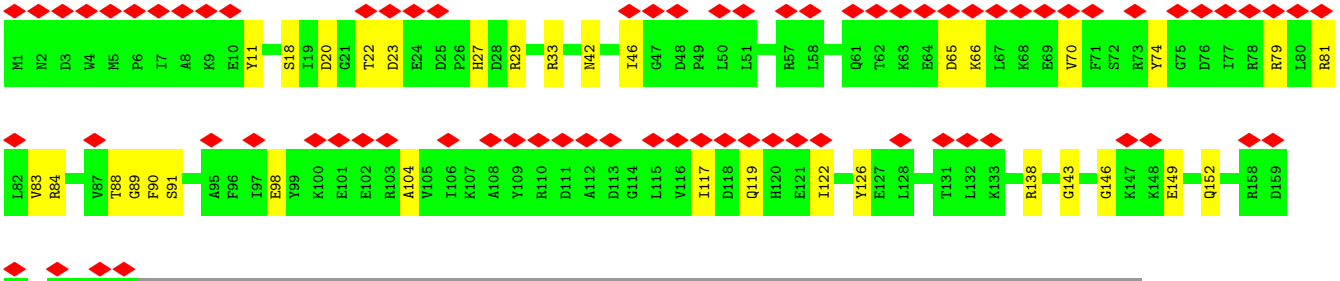




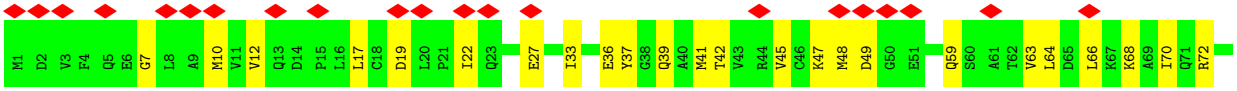
• Molecule 25: Zinc finger matrin-type protein 5

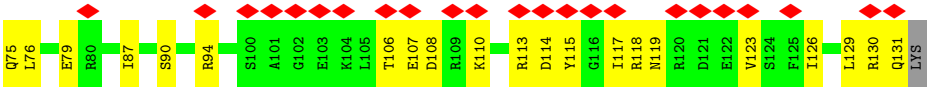


• Molecule 26: U11/U12 small nuclear ribonucleoprotein 35 kDa protein

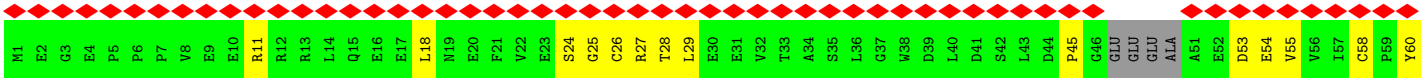


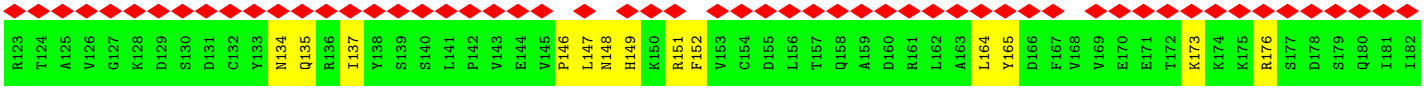
• Molecule 27: U11/U12 small nuclear ribonucleoprotein 25 kDa protein

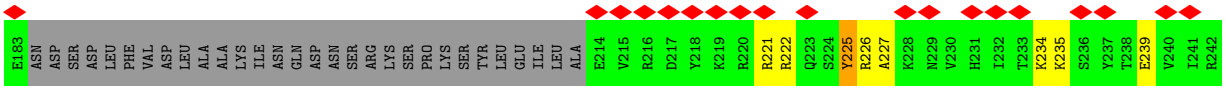


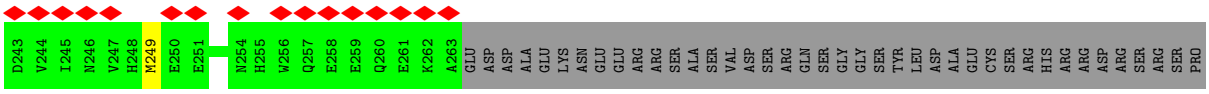


• Molecule 28: U11/U12 small nuclear ribonucleoprotein 48 kDa protein

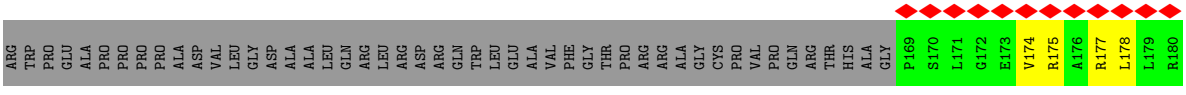


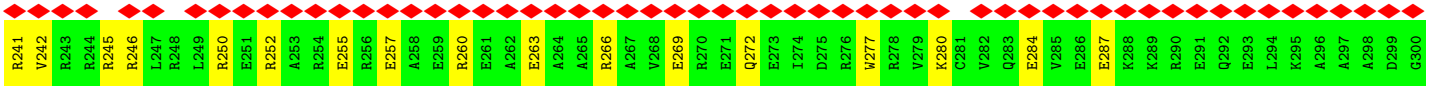


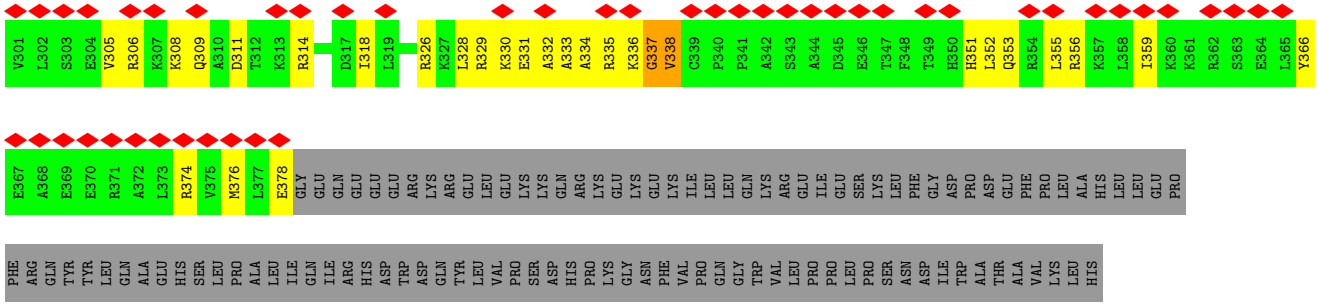




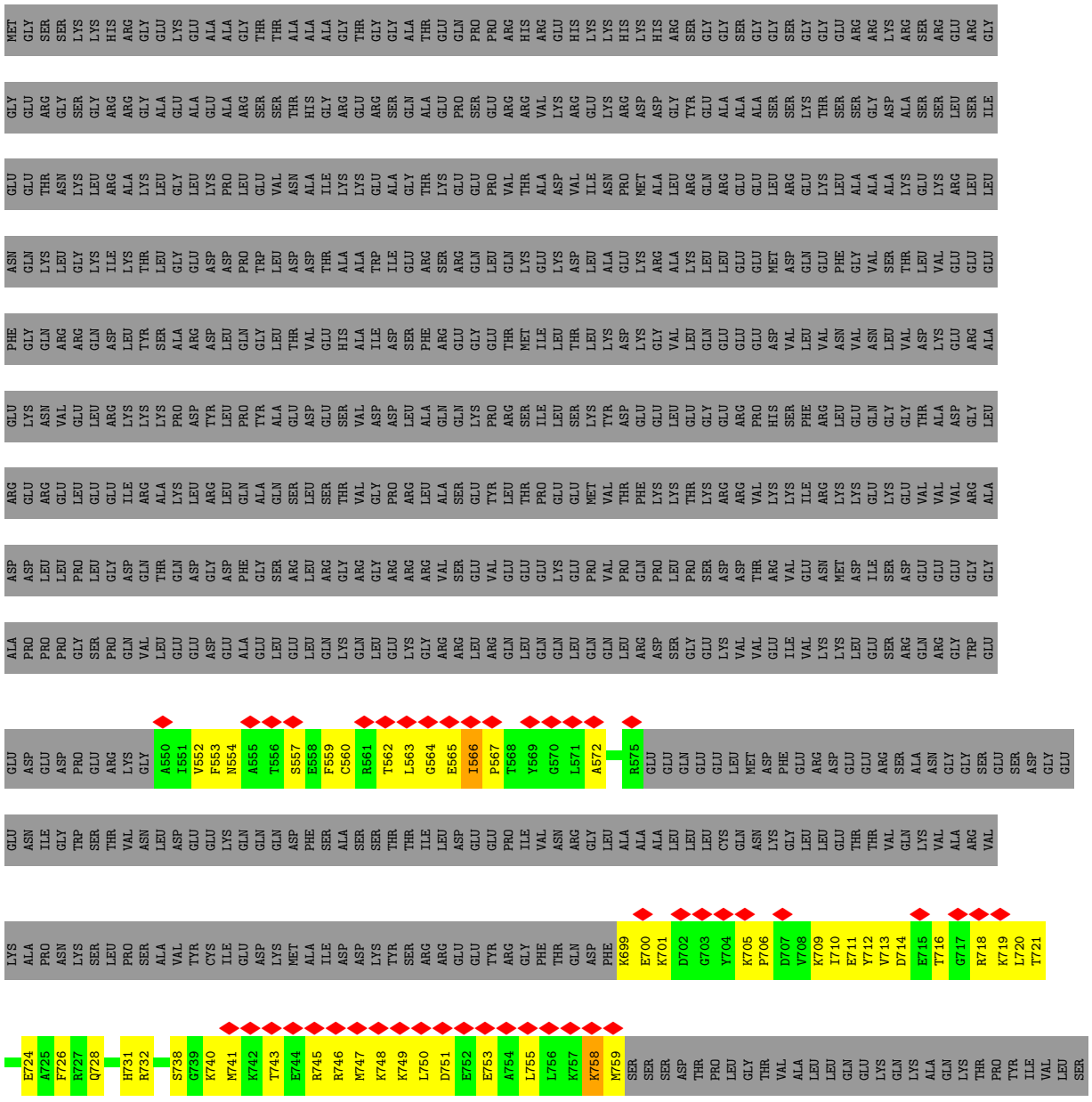
• Molecule 29: Programmed cell death protein 7





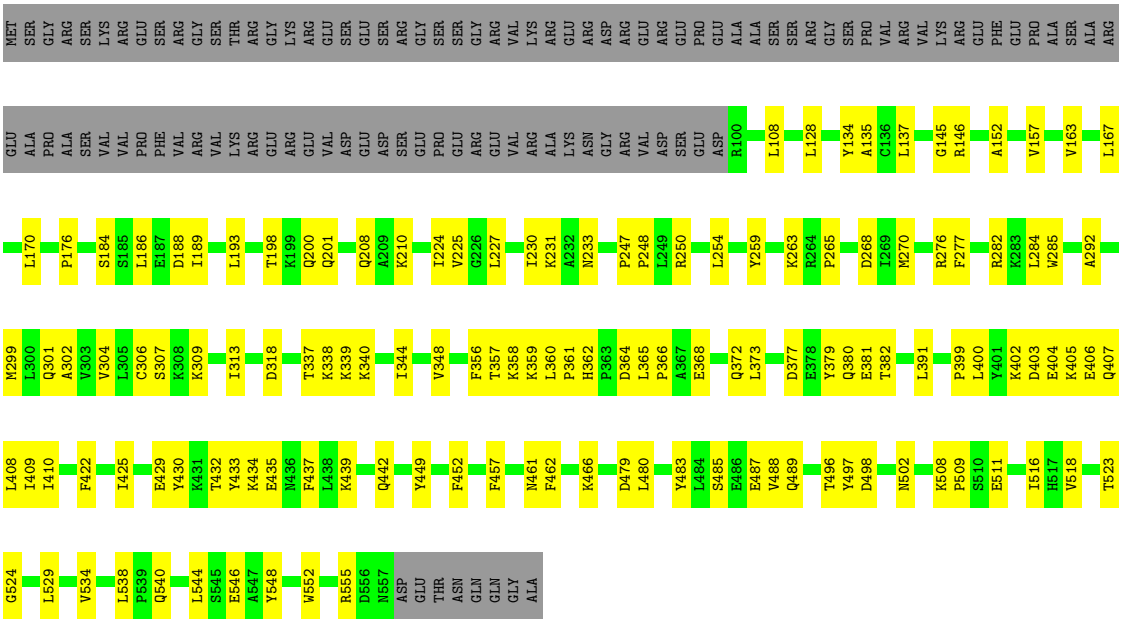


• Molecule 30: U4/U6.U5 tri-snRNP-associated protein 1



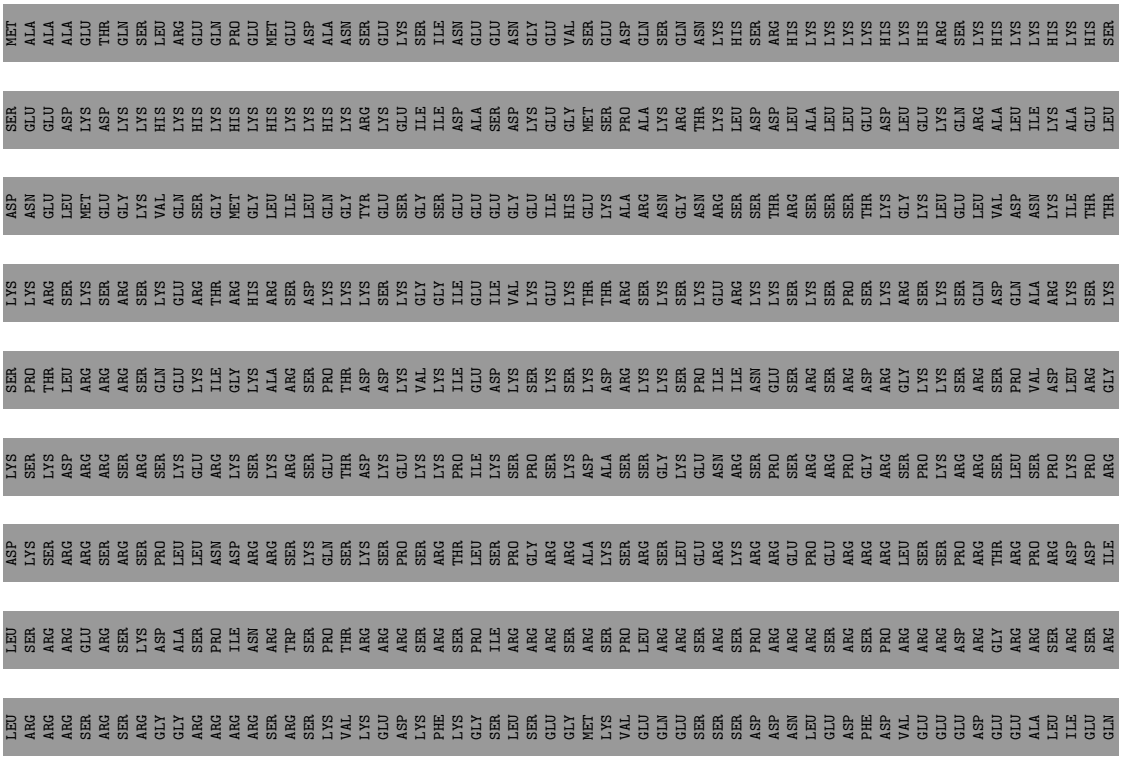
• Molecule 31: U4/U6.U5 tri-snRNP-associated protein 2

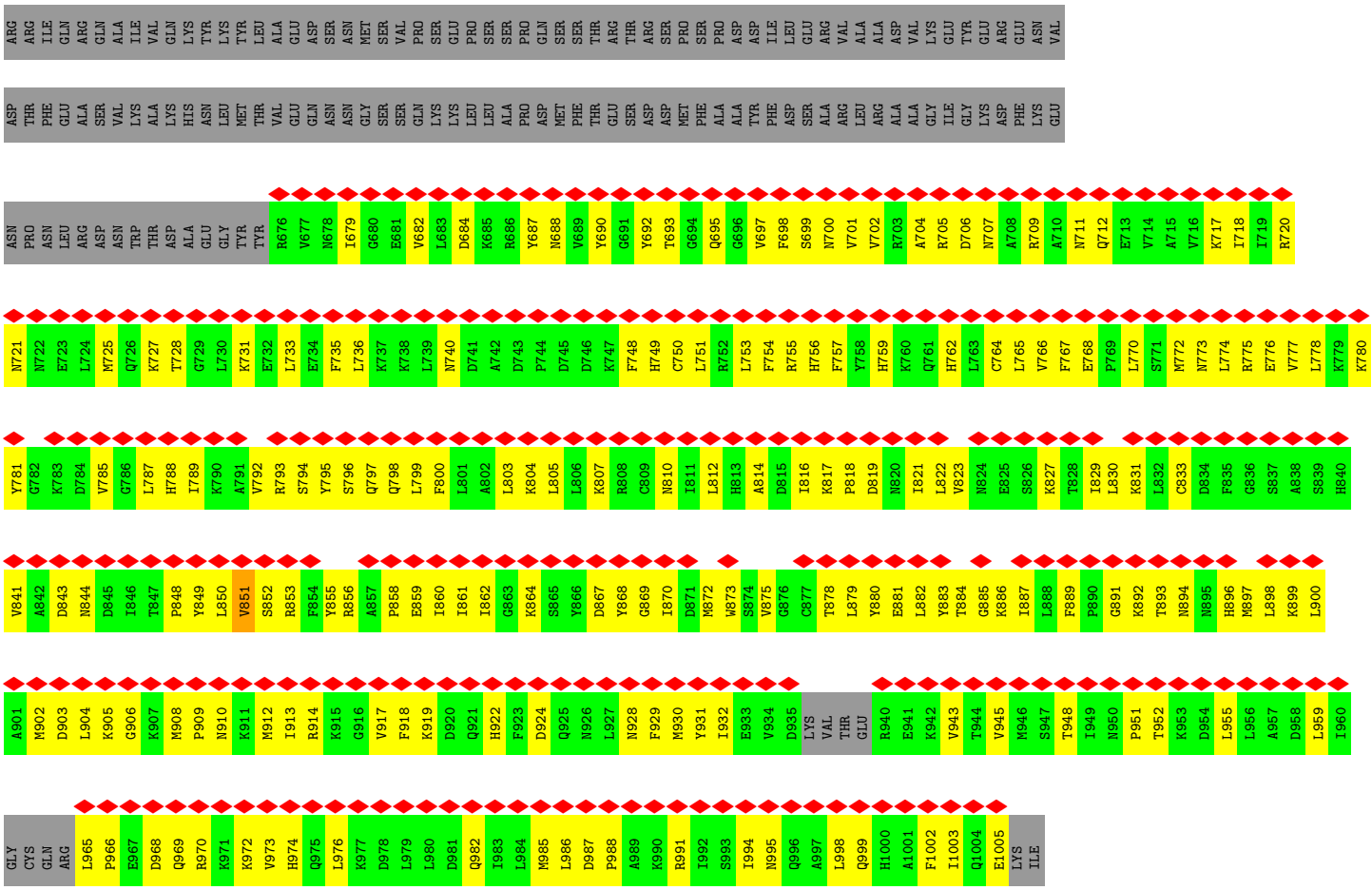
Chain U:



• Molecule 32: Serine/threonine-protein kinase PRP4 homolog

Chain Q:




ARG ARG ILE GLN ARG GLN ALA ILE VAL GLN LYS TYR LYS TYR LEU ALA GLU ASP SER ASN MET SER VAL PRO SER GLU PRO SER SER PRO GLN SER SER THR ARG THR ARG SER PRO SER PRO ASP ASP ILE LEU GLU ARG VAL ALA ALA ASP VAL LYS GLU TYR GLU ARG GLU ASN VAL
ASP THR PHE GLU ALA SER VAL LYS ALA LYS HIS ASN LEU MET THR VAL GLU GLN ASN ASN GLY SER GLN LYS LYS LEU LEU ALA PRO ASP MET PHE THR GLU SER ASP ASP MET PHE ALA ALA TYR PHE ASP SER ALA ARG LEU ARG ALA ALA GLY ILE GLY LYS ASP PHE LYS GLU
ASN PRO ASN LEU ASP ASN TRP THR ASP ALA GLU GLY TYR TYR R676 V677 N678 I679 G680 E681 V682 L683 D684 K685 R686 Y687 N688 V689 Y690 G691 Y692 T693 G694 Q695 G696 V697 F698 S699 N700 V701 V702 R703 A704 R705 D706 N707 A708 R709 A710 N711 Q712 E713 V714 A715 V716 K717 I718 I719 R720
N721 N722 E723 L724 M725 Q726 K727 T728 G729 L730 K731 E732 L733 E734 F735 L736 K737 K738 L739 N740 D741 A742 D743 P744 D745 D746 K747 F748 H749 C750 L751 R752 L753 F754 R755 H756 F757 Y758 H759 K760 Q761 H762 L763 C764 L765 V766 F767 E768 F769 L770 S771 M772 N773 L774 R775 E776 V777 L778 K779 K780
Y781 G782 K783 D784 V785 G786 L787 H788 I789 K790 A791 V792 R793 S794 Y795 S796 Q797 Q798 L799 F800 L801 A802 L803 K804 L805 L806 K807 R808 C809 N810 I811 L812 H813 A814 D815 I816 K817 P818 D819 N820 I821 L822 V823 N824 E825 S826 K827 T828 I829 L830 K831 L832 C833 D834 F835 G836 S837 A838 S839 H840
V841 A842 D843 N844 D845 I846 T847 P848 Y849 L850 V851 S852 R853 F854 Y855 R856 A857 P858 E859 I860 I861 I862 G863 K864 S865 Y866 D867 Y868 G869 I870 D871 M872 W873 S874 V875 G876 C877 T878 L879 Y880 E881 L882 Y883 T884 G885 K886 I887 L888 F889 P890 G891 K892 T893 N894 N895 H896 M897 L898 K899 L900
A901 M902 D903 L904 K905 G906 K907 M908 P909 N910 K911 M912 I913 R914 K915 G916 V917 F918 K919 D920 Q921 H922 F923 D924 Q925 N926 L927 N928 F929 M930 Y931 I932 E933 V934 D935 LYS VAL THR GLU R940 E941 K942 V943 T944 V945 M946 S947 T948 I949 N950 P951 T952 K953 D954 L955 L956 A957 D958 L959 I960
GLY CYS GLN ARG L965 P966 E967 D968 Q969 R970 K971 K972 V973 H974 Q975 L976 K977 D978 L979 L980 D981 Q982 I983 L984 M985 L986 D987 P988 A989 K990 R991 I992 S993 I994 N995 Q996 A997 L998 Q999 H1000 A1001 F1002 I1003 Q1004 E1005 LYS ILE

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	388888	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	50	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	81000	Depositor
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.669	Depositor
Minimum map value	-1.184	Depositor
Average map value	0.004	Depositor
Map value standard deviation	0.049	Depositor
Recommended contour level	0.25	Depositor
Map size (Å)	549.9904, 549.9904, 549.9904	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.0742, 1.0742, 1.0742	Depositor

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, ZN, IHP, M7M, GTP

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	A	0.26	0/297	0.28	0/458
2	B	0.38	0/2559	0.66	15/3977 (0.4%)
3	C	0.25	0/19000	0.37	2/25777 (0.0%)
4	D	0.27	0/6899	0.35	0/9372
5	E	0.20	0/16393	0.39	5/22174 (0.0%)
6	F	0.30	0/2453	0.43	0/3323
7	G	0.20	0/6341	0.40	0/8559
8	H	0.21	0/1169	0.40	0/1580
9	I	0.33	0/4903	0.57	4/6584 (0.1%)
10	a	0.32	0/602	0.55	0/801
10	h	0.34	0/679	0.59	1/905 (0.1%)
10	o	0.54	0/702	0.88	3/936 (0.3%)
11	b	0.18	0/649	0.49	0/878
11	i	0.28	0/649	0.51	0/878
11	p	0.33	0/657	0.63	0/888
12	c	0.20	0/805	0.61	0/1081
12	j	0.31	0/747	0.51	0/1000
12	q	0.47	0/854	0.77	1/1146 (0.1%)
13	d	0.19	0/665	0.44	0/896
13	k	0.36	0/660	0.64	0/889
13	r	0.45	0/651	0.82	0/878
14	e	0.24	0/646	0.70	0/867
14	l	0.36	0/639	0.67	0/857
14	s	0.51	0/676	0.81	0/907
15	f	0.24	0/579	0.65	0/783
15	m	0.61	1/574 (0.2%)	0.75	0/775
15	t	0.49	0/588	0.69	0/795
16	g	0.18	0/584	0.47	0/779
16	n	0.55	0/584	0.74	0/779
16	u	0.50	0/575	0.77	0/768
17	J	0.25	1/2553 (0.0%)	0.40	4/3966 (0.1%)
18	K	0.45	0/1052	0.82	10/1636 (0.6%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
19	L	0.42	0/2550	0.73	4/3432 (0.1%)
20	M	0.22	0/2943	0.51	0/3996
21	N	0.27	0/1898	0.57	0/2550
22	O	0.25	0/972	0.57	0/1312
23	R	0.34	0/1313	0.57	0/1762
24	P	0.35	0/2957	0.50	6/4603 (0.1%)
25	V	0.28	0/874	0.74	1/1166 (0.1%)
26	W	0.40	0/1388	0.62	0/1866
27	X	0.52	0/1069	0.75	0/1441
28	Y	0.37	0/1923	0.64	0/2588
29	Z	0.30	0/1741	0.59	1/2323 (0.0%)
30	S	0.18	0/711	0.36	0/942
31	U	0.27	0/3861	0.39	0/5230
32	Q	0.11	0/2673	0.32	0/3593
All	All	0.29	2/104257 (0.0%)	0.50	57/142696 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
17	J	1	A	P-O5'	-6.59	1.49	1.59
15	m	30	LYS	CG-CD	-5.37	1.36	1.52

The worst 5 of 57 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
24	P	64	A	P-O3'-C3'	-9.27	106.30	120.20
18	K	65	U	P-O3'-C3'	-8.88	106.87	120.20
24	P	62	C	P-O3'-C3'	-8.87	106.90	120.20
2	B	67	A	P-O3'-C3'	-8.65	107.23	120.20
2	B	66	A	P-O3'-C3'	-8.50	107.44	120.20

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	268	0	138	10	0
2	B	2296	0	1163	91	0
3	C	18488	0	18369	1010	0
4	D	6747	0	6755	210	0
5	E	16077	0	16192	1229	0
6	F	2399	0	2334	286	0
7	G	6229	0	6163	442	0
8	H	1145	0	1160	132	0
9	I	4819	0	4893	271	0
10	a	594	0	615	11	0
10	h	669	0	697	26	0
10	o	692	0	717	40	0
11	b	641	0	681	19	0
11	i	641	0	681	20	0
11	p	649	0	693	23	0
12	c	796	0	821	17	0
12	j	737	0	780	21	0
12	q	844	0	876	32	0
13	d	657	0	675	6	0
13	k	652	0	670	36	0
13	r	643	0	657	20	0
14	e	638	0	657	17	0
14	l	631	0	648	28	0
14	s	668	0	689	21	0
15	f	567	0	575	15	0
15	m	562	0	574	42	0
15	t	576	0	589	30	0
16	g	577	0	603	12	0
16	n	577	0	603	45	0
16	u	568	0	590	24	0
17	J	2320	0	1178	48	0
18	K	942	0	478	39	0
19	L	2512	0	2526	148	0
20	M	2863	0	2763	43	0
21	N	1861	0	1895	39	0
22	O	960	0	1010	13	0
23	R	1285	0	1282	47	0
24	P	2647	0	1334	80	0
25	V	857	0	829	26	0
26	W	1359	0	1375	32	0
27	X	1055	0	1083	44	0
28	Y	1889	0	1831	64	0
29	Z	1727	0	1827	47	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
30	S	701	0	721	74	0
31	U	3765	0	3777	111	0
32	Q	2626	0	2698	223	0
33	B	1	0	0	0	0
33	D	1	0	0	0	0
34	C	36	12	6	3	0
35	D	32	0	12	5	0
36	R	2	0	0	0	0
36	U	1	0	0	0	0
36	V	2	0	0	0	0
36	Y	1	0	0	0	0
All	All	101492	12	97883	4787	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 24.

The worst 5 of 4787 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)
7:G:577:TRP:CE3	7:G:600:ALA:HB2	1.65	1.30
19:L:61:ALA:HA	19:L:64:MET:HB3	1.24	1.16
7:G:577:TRP:CD2	7:G:600:ALA:HB1	1.80	1.15
7:G:577:TRP:CE3	7:G:600:ALA:CB	2.29	1.14
8:H:55:MET:CE	19:L:345:ALA:HB2	1.78	1.14

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
3	C	2215/2335 (95%)	2139 (97%)	75 (3%)	1 (0%)	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	D	853/972 (88%)	825 (97%)	28 (3%)	0	100	100
5	E	1989/2136 (93%)	1910 (96%)	77 (4%)	2 (0%)	48	77
6	F	305/357 (85%)	292 (96%)	12 (4%)	1 (0%)	36	64
7	G	783/941 (83%)	763 (97%)	20 (3%)	0	100	100
8	H	141/149 (95%)	138 (98%)	3 (2%)	0	100	100
9	I	589/820 (72%)	565 (96%)	24 (4%)	0	100	100
10	a	69/240 (29%)	67 (97%)	2 (3%)	0	100	100
10	h	80/240 (33%)	75 (94%)	5 (6%)	0	100	100
10	o	84/240 (35%)	78 (93%)	5 (6%)	1 (1%)	10	34
11	b	79/119 (66%)	75 (95%)	4 (5%)	0	100	100
11	i	79/119 (66%)	76 (96%)	3 (4%)	0	100	100
11	p	80/119 (67%)	77 (96%)	3 (4%)	0	100	100
12	c	94/118 (80%)	90 (96%)	4 (4%)	0	100	100
12	j	90/118 (76%)	85 (94%)	5 (6%)	0	100	100
12	q	100/118 (85%)	91 (91%)	7 (7%)	2 (2%)	6	24
13	d	82/126 (65%)	80 (98%)	2 (2%)	0	100	100
13	k	81/126 (64%)	78 (96%)	3 (4%)	0	100	100
13	r	80/126 (64%)	76 (95%)	4 (5%)	0	100	100
14	e	75/92 (82%)	72 (96%)	3 (4%)	0	100	100
14	l	74/92 (80%)	70 (95%)	4 (5%)	0	100	100
14	s	79/92 (86%)	76 (96%)	3 (4%)	0	100	100
15	f	71/86 (83%)	69 (97%)	2 (3%)	0	100	100
15	m	70/86 (81%)	69 (99%)	1 (1%)	0	100	100
15	t	72/86 (84%)	71 (99%)	1 (1%)	0	100	100
16	g	72/76 (95%)	69 (96%)	3 (4%)	0	100	100
16	n	72/76 (95%)	67 (93%)	4 (6%)	1 (1%)	9	30
16	u	71/76 (93%)	65 (92%)	6 (8%)	0	100	100
19	L	312/499 (62%)	296 (95%)	15 (5%)	1 (0%)	36	64
20	M	359/522 (69%)	345 (96%)	14 (4%)	0	100	100
21	N	220/683 (32%)	206 (94%)	13 (6%)	1 (0%)	24	53
22	O	122/128 (95%)	119 (98%)	3 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
23	R	155/332 (47%)	152 (98%)	3 (2%)	0	100	100
25	V	99/170 (58%)	98 (99%)	1 (1%)	0	100	100
26	W	165/246 (67%)	161 (98%)	4 (2%)	0	100	100
27	X	129/132 (98%)	124 (96%)	5 (4%)	0	100	100
28	Y	223/339 (66%)	212 (95%)	10 (4%)	1 (0%)	30	58
29	Z	208/485 (43%)	207 (100%)	0	1 (0%)	24	53
30	S	83/800 (10%)	79 (95%)	3 (4%)	1 (1%)	10	34
31	U	456/565 (81%)	437 (96%)	19 (4%)	0	100	100
32	Q	316/1007 (31%)	304 (96%)	11 (4%)	1 (0%)	36	64
All	All	11376/16189 (70%)	10948 (96%)	414 (4%)	14 (0%)	49	77

5 of 14 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
30	S	566	ILE
32	Q	851	VAL
3	C	56	ALA
19	L	172	SER
29	Z	338	VAL

5.3.2 Protein sidechains (i)

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	C	2015/2108 (96%)	2009 (100%)	6 (0%)	86	84
4	D	756/866 (87%)	755 (100%)	1 (0%)	88	89
5	E	1779/1908 (93%)	1769 (99%)	10 (1%)	78	80
6	F	263/300 (88%)	262 (100%)	1 (0%)	84	82
7	G	626/792 (79%)	626 (100%)	0	100	100
8	H	131/137 (96%)	130 (99%)	1 (1%)	73	77
9	I	518/721 (72%)	516 (100%)	2 (0%)	84	82

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
10	a	67/177 (38%)	66 (98%)	1 (2%)	57 69
10	h	75/177 (42%)	75 (100%)	0	100 100
10	o	78/177 (44%)	78 (100%)	0	100 100
11	b	76/101 (75%)	75 (99%)	1 (1%)	61 71
11	i	76/101 (75%)	76 (100%)	0	100 100
11	p	77/101 (76%)	76 (99%)	1 (1%)	61 71
12	c	93/110 (84%)	92 (99%)	1 (1%)	65 74
12	j	86/110 (78%)	85 (99%)	1 (1%)	63 72
12	q	100/110 (91%)	100 (100%)	0	100 100
13	d	73/101 (72%)	73 (100%)	0	100 100
13	k	73/101 (72%)	71 (97%)	2 (3%)	39 61
13	r	72/101 (71%)	71 (99%)	1 (1%)	59 70
14	e	72/84 (86%)	72 (100%)	0	100 100
14	l	71/84 (84%)	67 (94%)	4 (6%)	19 46
14	s	75/84 (89%)	75 (100%)	0	100 100
15	f	61/74 (82%)	61 (100%)	0	100 100
15	m	61/74 (82%)	61 (100%)	0	100 100
15	t	63/74 (85%)	62 (98%)	1 (2%)	55 68
16	g	64/66 (97%)	64 (100%)	0	100 100
16	n	64/66 (97%)	62 (97%)	2 (3%)	35 59
16	u	63/66 (96%)	62 (98%)	1 (2%)	55 68
19	L	271/424 (64%)	265 (98%)	6 (2%)	45 63
20	M	308/442 (70%)	308 (100%)	0	100 100
21	N	203/599 (34%)	201 (99%)	2 (1%)	68 75
22	O	107/111 (96%)	107 (100%)	0	100 100
23	R	136/287 (47%)	135 (99%)	1 (1%)	76 78
25	V	92/151 (61%)	90 (98%)	2 (2%)	45 63
26	W	140/215 (65%)	140 (100%)	0	100 100
27	X	117/119 (98%)	117 (100%)	0	100 100
28	Y	213/313 (68%)	208 (98%)	5 (2%)	44 63
29	Z	173/401 (43%)	172 (99%)	1 (1%)	78 80

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
30	S	74/681 (11%)	73 (99%)	1 (1%)	59 70
31	U	420/511 (82%)	419 (100%)	1 (0%)	87 85
32	Q	291/919 (32%)	291 (100%)	0	100 100
All	All	10173/14144 (72%)	10117 (99%)	56 (1%)	76 80

5 of 56 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
19	L	165	MET
31	U	339	LYS
13	k	76	MET
30	S	758	LYS
29	Z	335	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 125 such sidechains are listed below:

Mol	Chain	Res	Type
7	G	733	ASN
12	q	69	ASN
15	f	68	ASN
11	p	26	HIS
31	U	316	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	12/280 (4%)	4 (33%)	0
17	J	104/131 (79%)	25 (24%)	1 (0%)
18	K	42/125 (33%)	9 (21%)	0
2	B	108/117 (92%)	32 (29%)	2 (1%)
24	P	121/135 (89%)	46 (38%)	2 (1%)
All	All	387/788 (49%)	116 (29%)	5 (1%)

5 of 116 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	0	A
1	A	1	A
1	A	2	U

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Mol	Chain	Res	Type
1	A	5	C
2	B	4	C

All (5) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	B	3	A
2	B	7	U
17	J	45	A
24	P	52	C
24	P	88	A

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

Of 10 ligands modelled in this entry, 8 are monoatomic - leaving 2 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	$\#\|Z\| > 2$
35	GTP	D	1500	33	33,34,34	0.95	0	50,54,54	1.63	8 (16%)
34	IHP	C	3000	-	36,36,36	0.79	0	60,60,60	0.89	0

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
35	GTP	D	1500	33	-	2/22/38/38	0/3/3/3
34	IHP	C	3000	-	-	3/30/54/54	0/1/1/1

There are no bond length outliers.

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
35	D	1500	GTP	C5-C4-N3	-4.99	120.45	128.39
35	D	1500	GTP	C2-N3-C4	4.75	120.48	112.30
35	D	1500	GTP	N9-C4-N3	3.09	132.12	125.95
35	D	1500	GTP	C2-N1-C6	-3.05	119.58	125.11
35	D	1500	GTP	N9-C8-N7	-2.94	107.95	113.40

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
35	D	1500	GTP	O4'-C4'-C5'-O5'
35	D	1500	GTP	C3'-C4'-C5'-O5'
34	C	3000	IHP	C3-O13-P3-O23
34	C	3000	IHP	C5-O15-P5-O25
34	C	3000	IHP	C6-O16-P6-O26

There are no ring outliers.

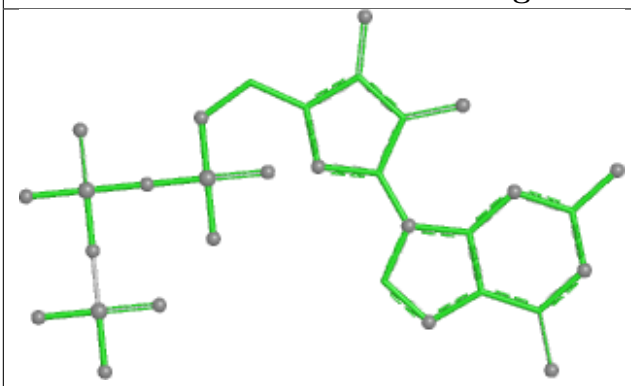
2 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
35	D	1500	GTP	5	0
34	C	3000	IHP	3	0

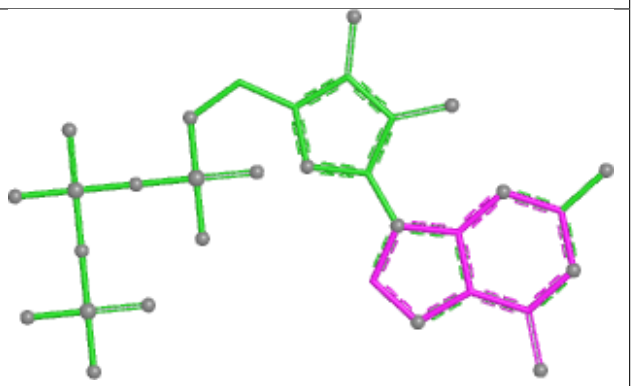
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

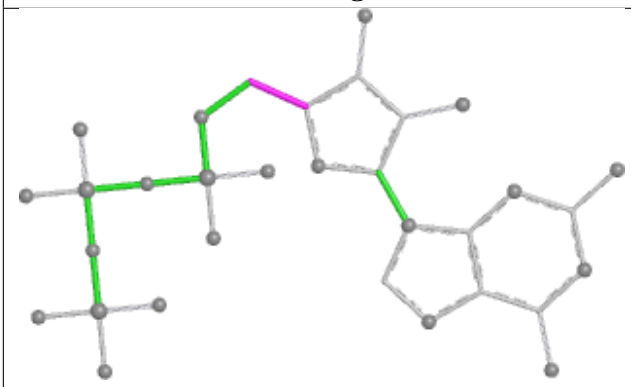
Ligand GTP D 1500



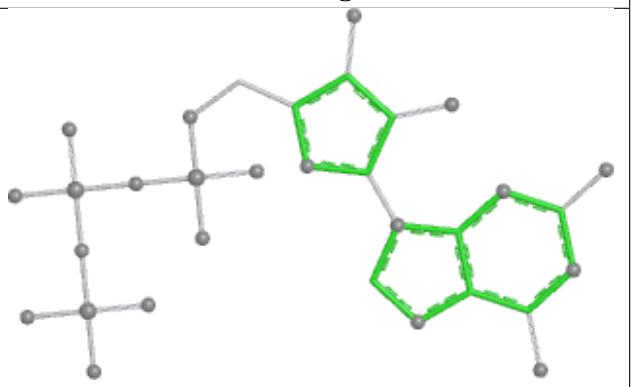
Bond lengths



Bond angles

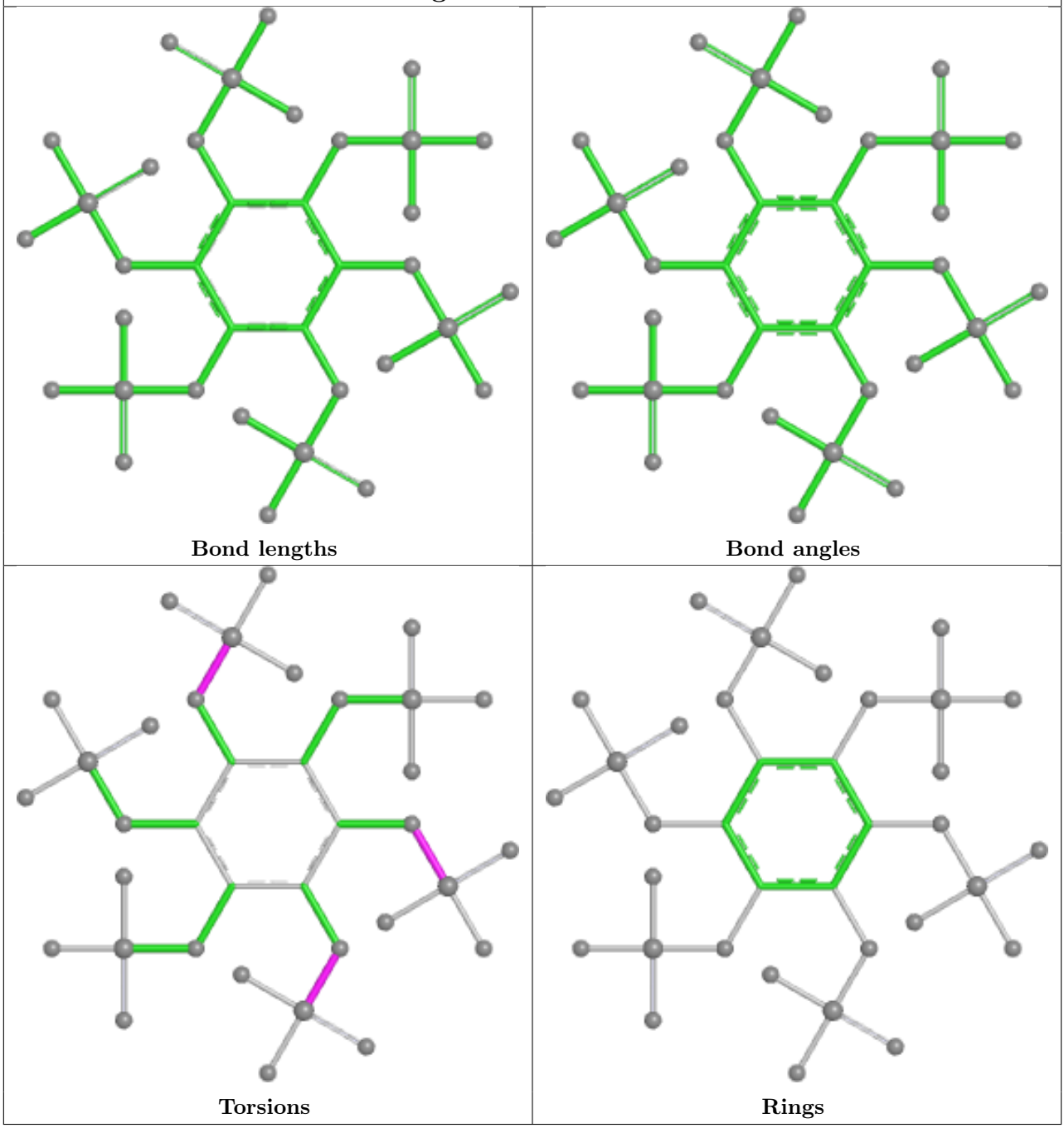


Torsions



Rings

Ligand IHP C 3000



5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

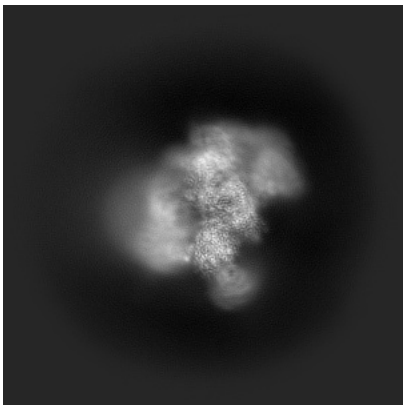
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-38993. These allow visual inspection of the internal detail of the map and identification of artifacts.

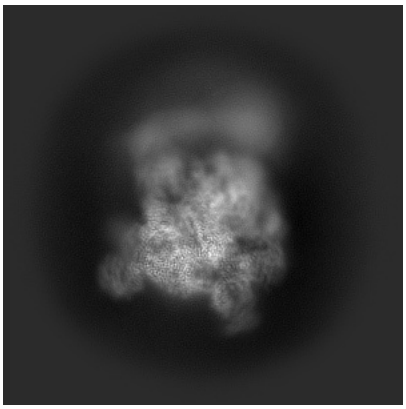
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

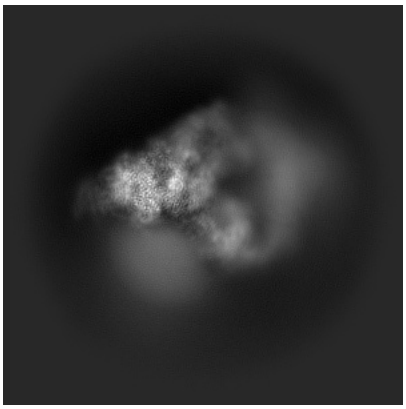
6.1.1 Primary map



X

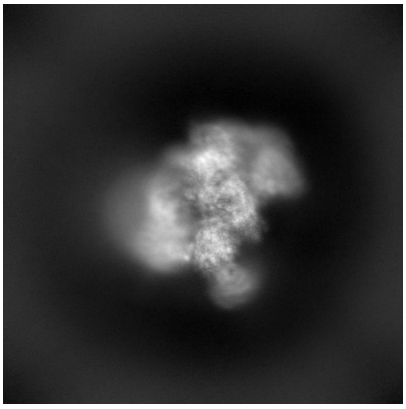


Y

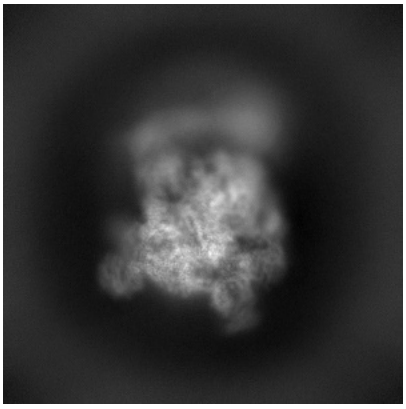


Z

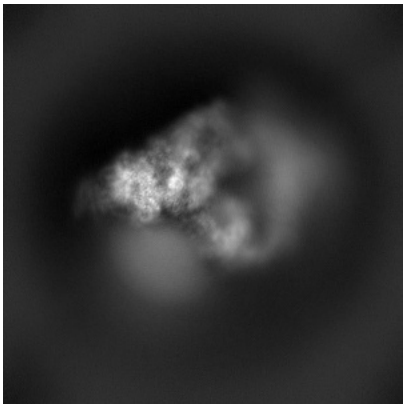
6.1.2 Raw map



X



Y

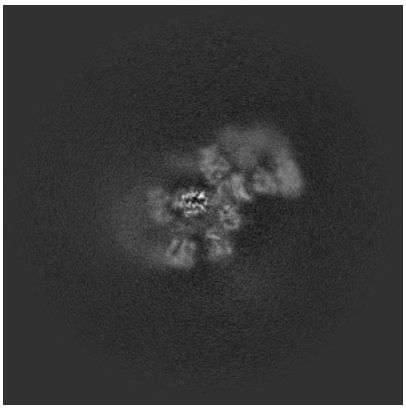


Z

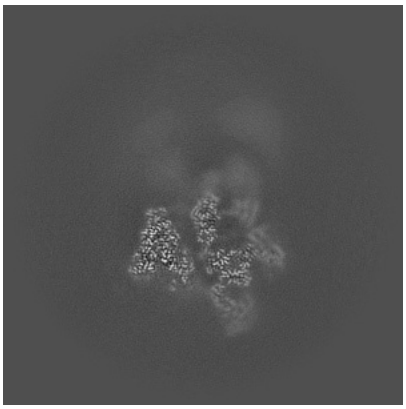
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

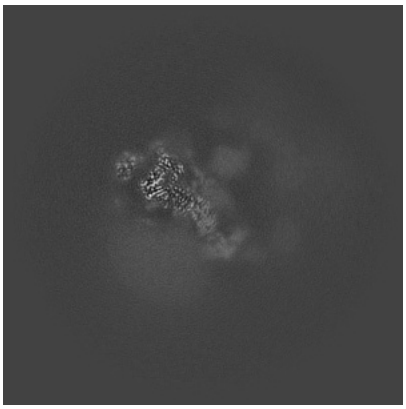
6.2.1 Primary map



X Index: 256

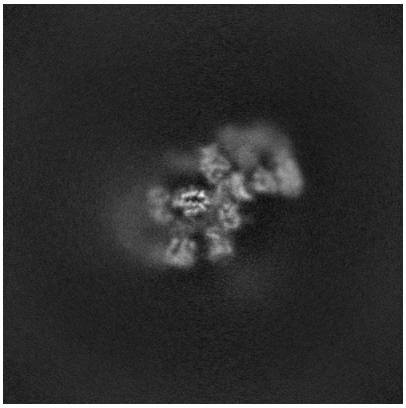


Y Index: 256

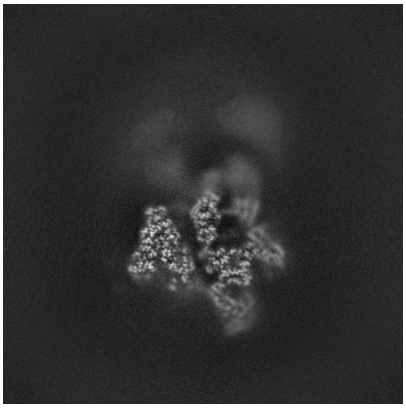


Z Index: 256

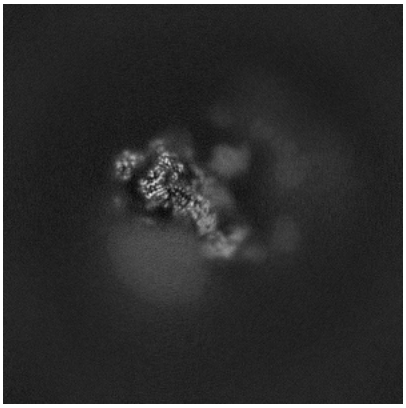
6.2.2 Raw map



X Index: 256



Y Index: 256

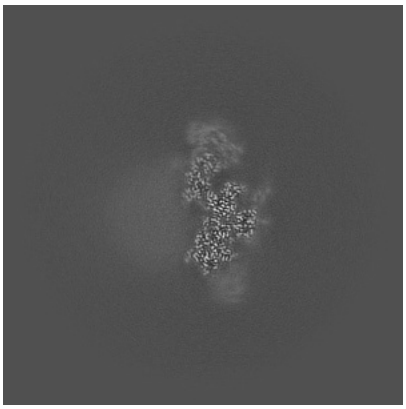


Z Index: 256

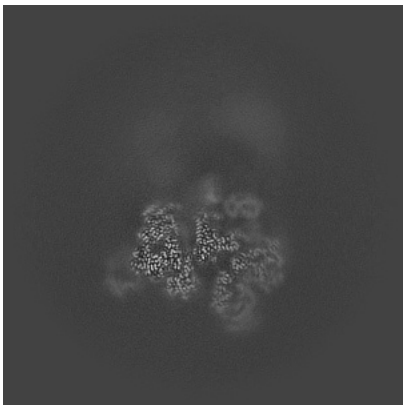
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

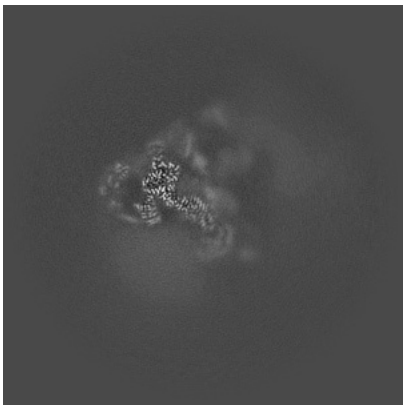
6.3.1 Primary map



X Index: 188

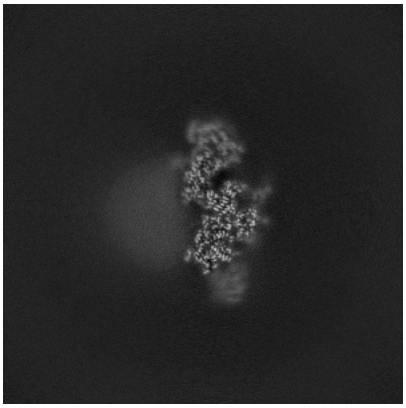


Y Index: 268

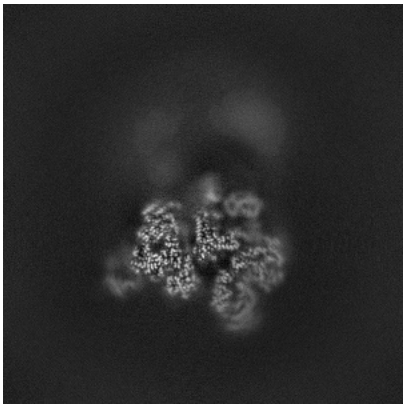


Z Index: 266

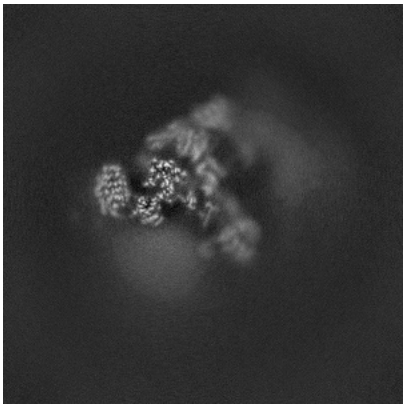
6.3.2 Raw map



X Index: 187



Y Index: 268

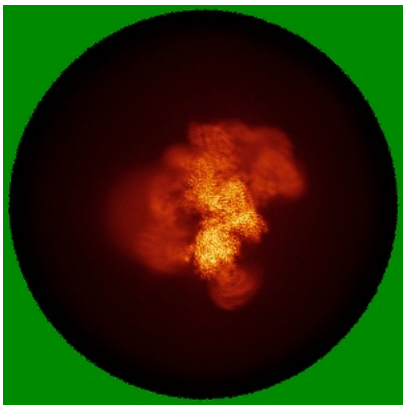


Z Index: 275

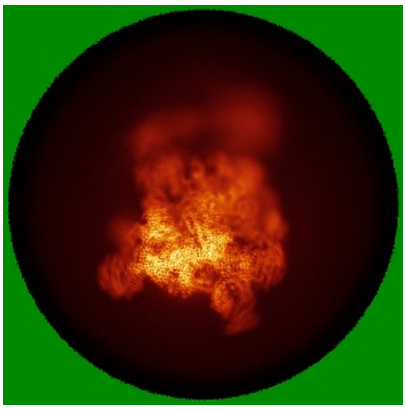
The images above show the largest variance slices of the map in three orthogonal directions.

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

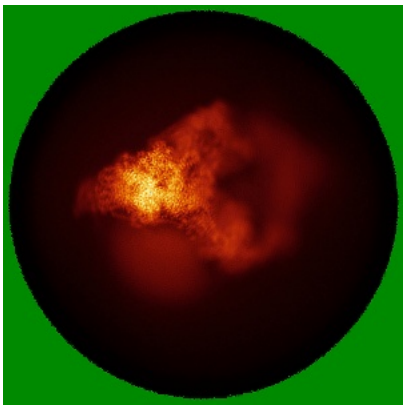
6.4.1 Primary map



X

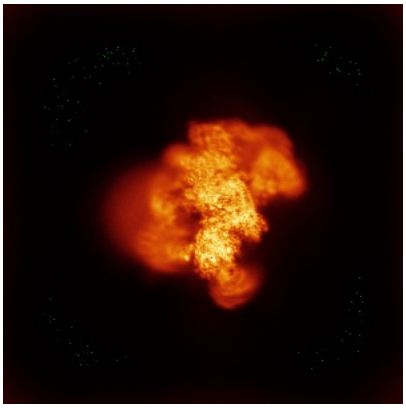


Y

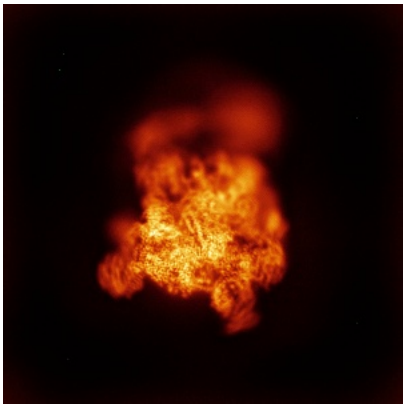


Z

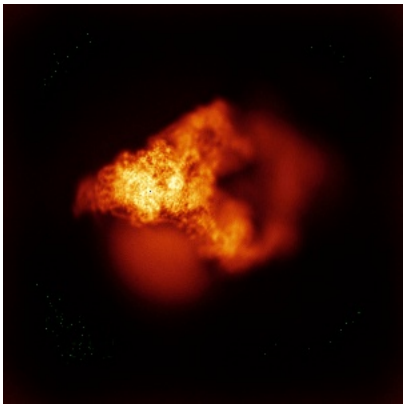
6.4.2 Raw map



X



Y

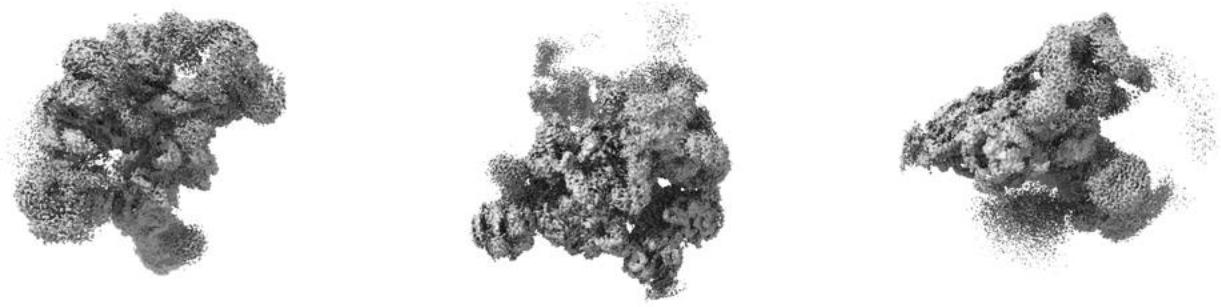


Z

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 (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.25. 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.

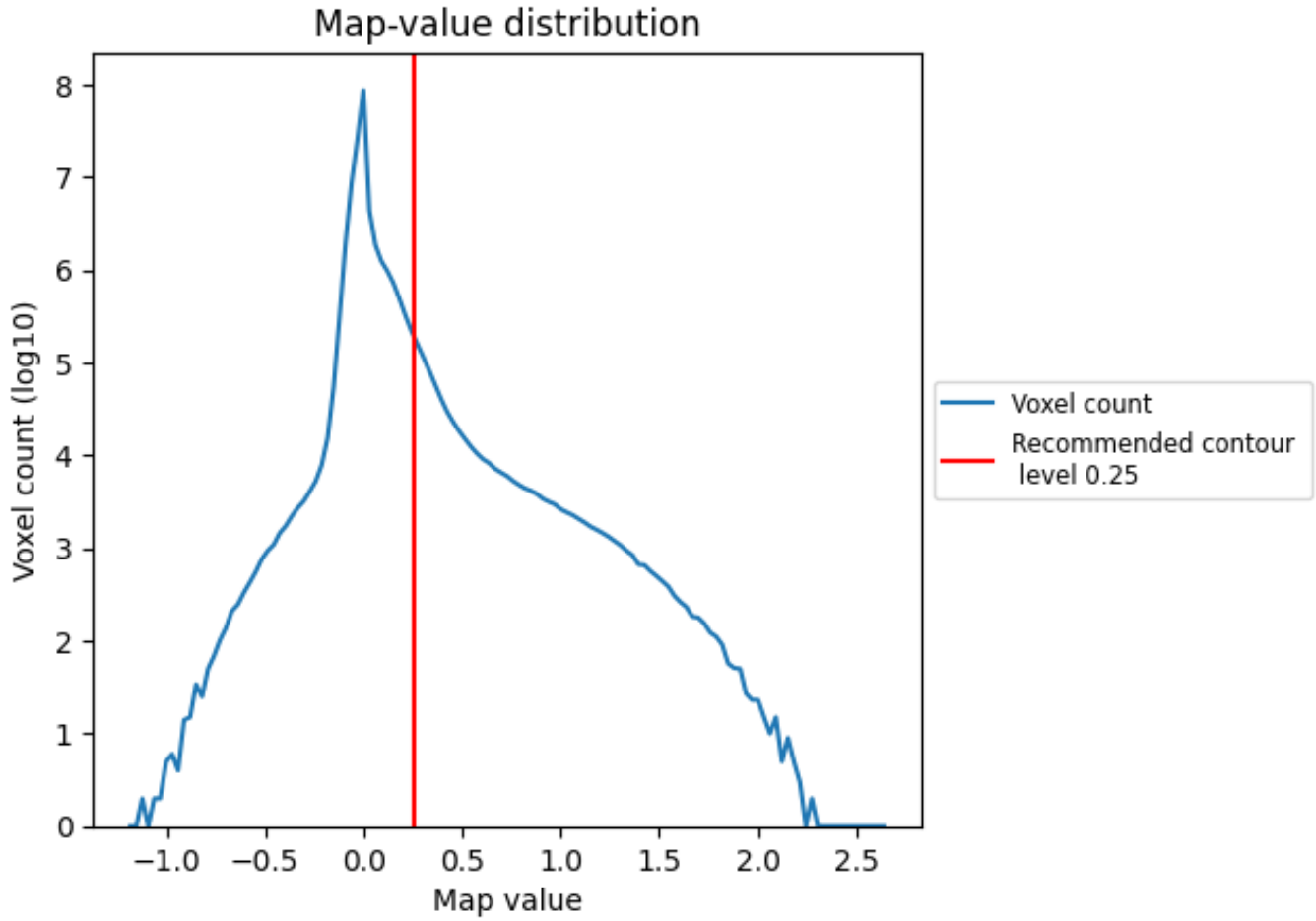
6.6 Mask visualisation (i)

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

7 Map analysis

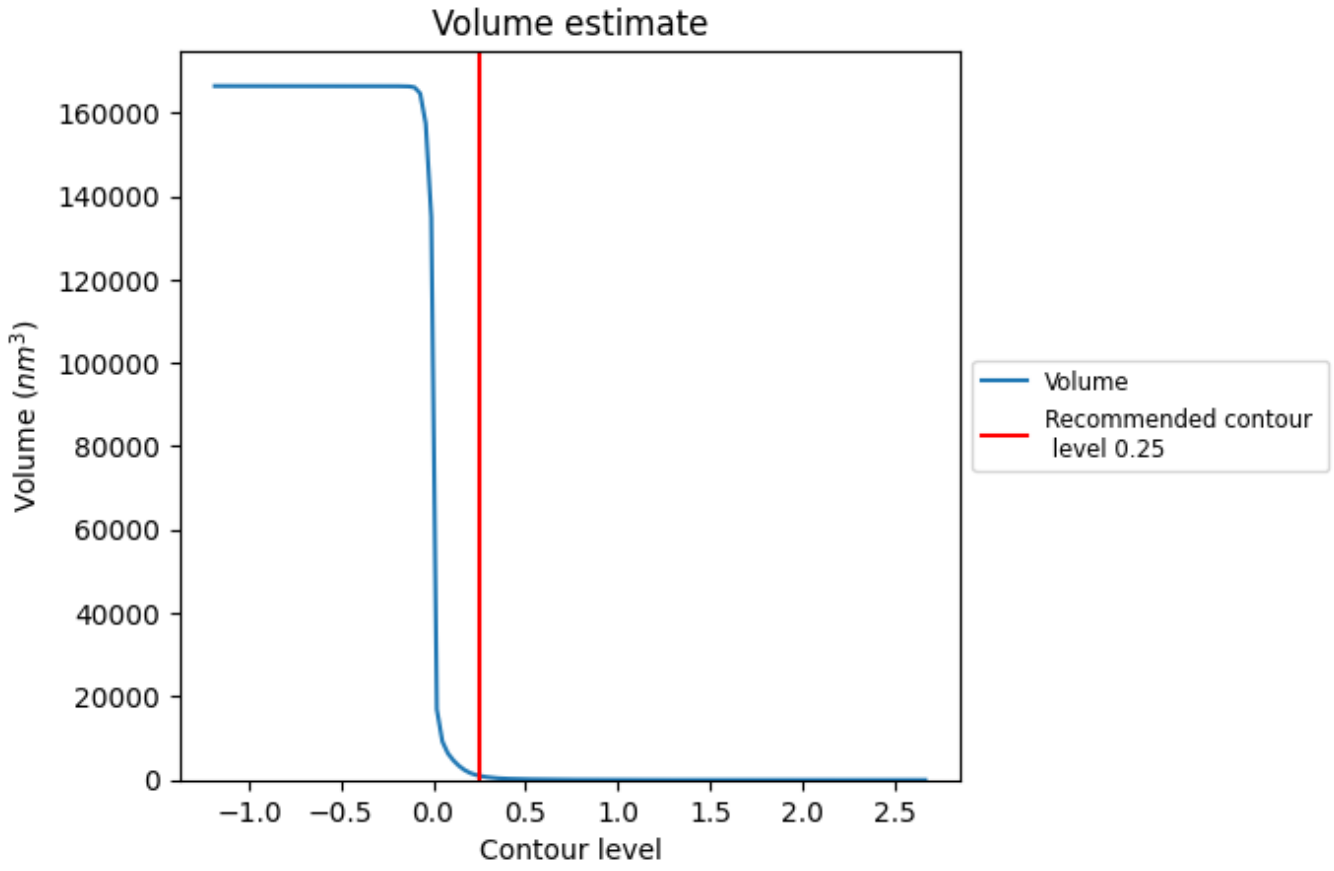
This section contains the results of statistical analysis of the map.

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.

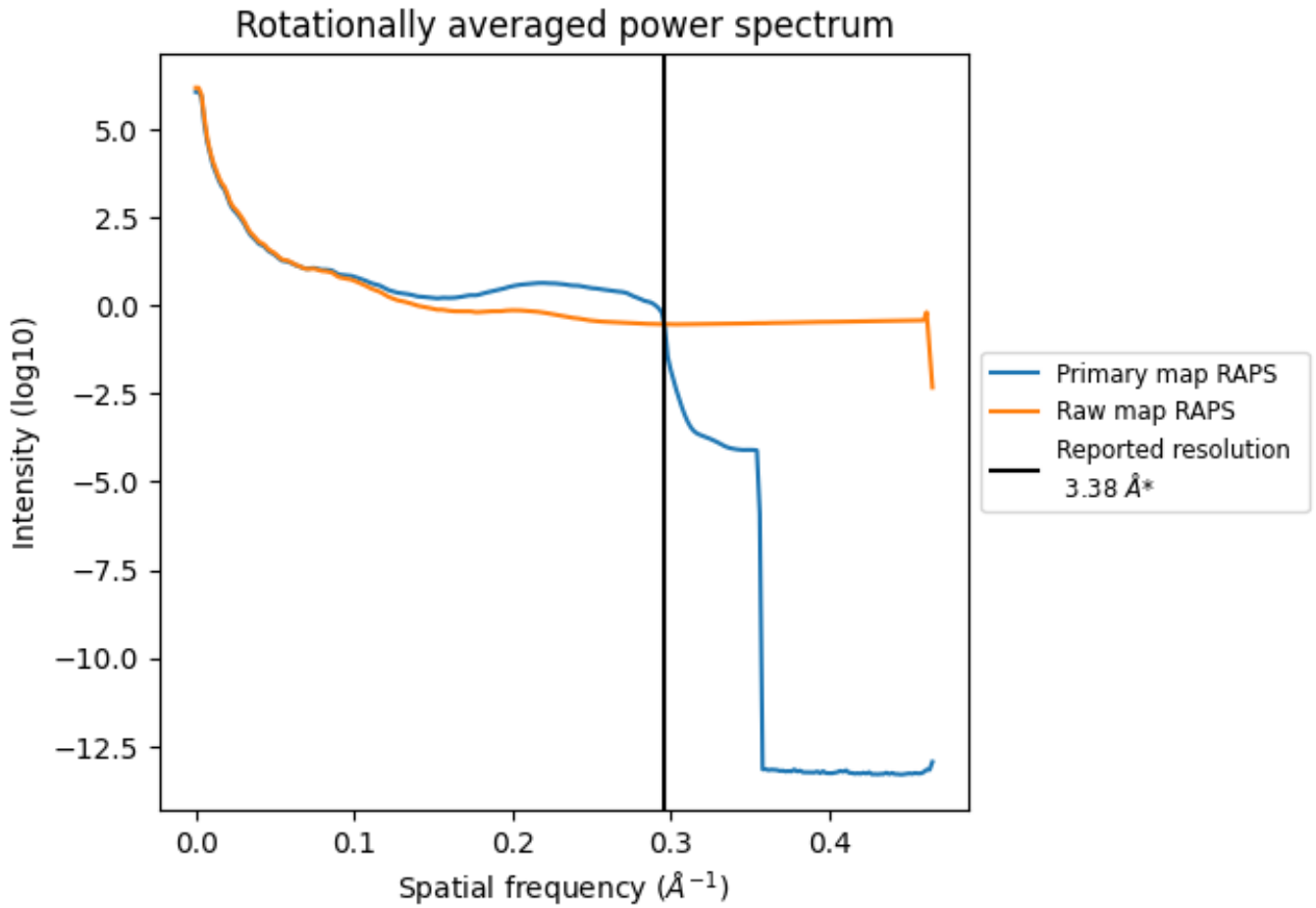
7.2 Volume estimate (i)



The volume at the recommended contour level is 1019 nm^3; this corresponds to an approximate mass of 920 kDa.

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

7.3 Rotationally averaged power spectrum (i)

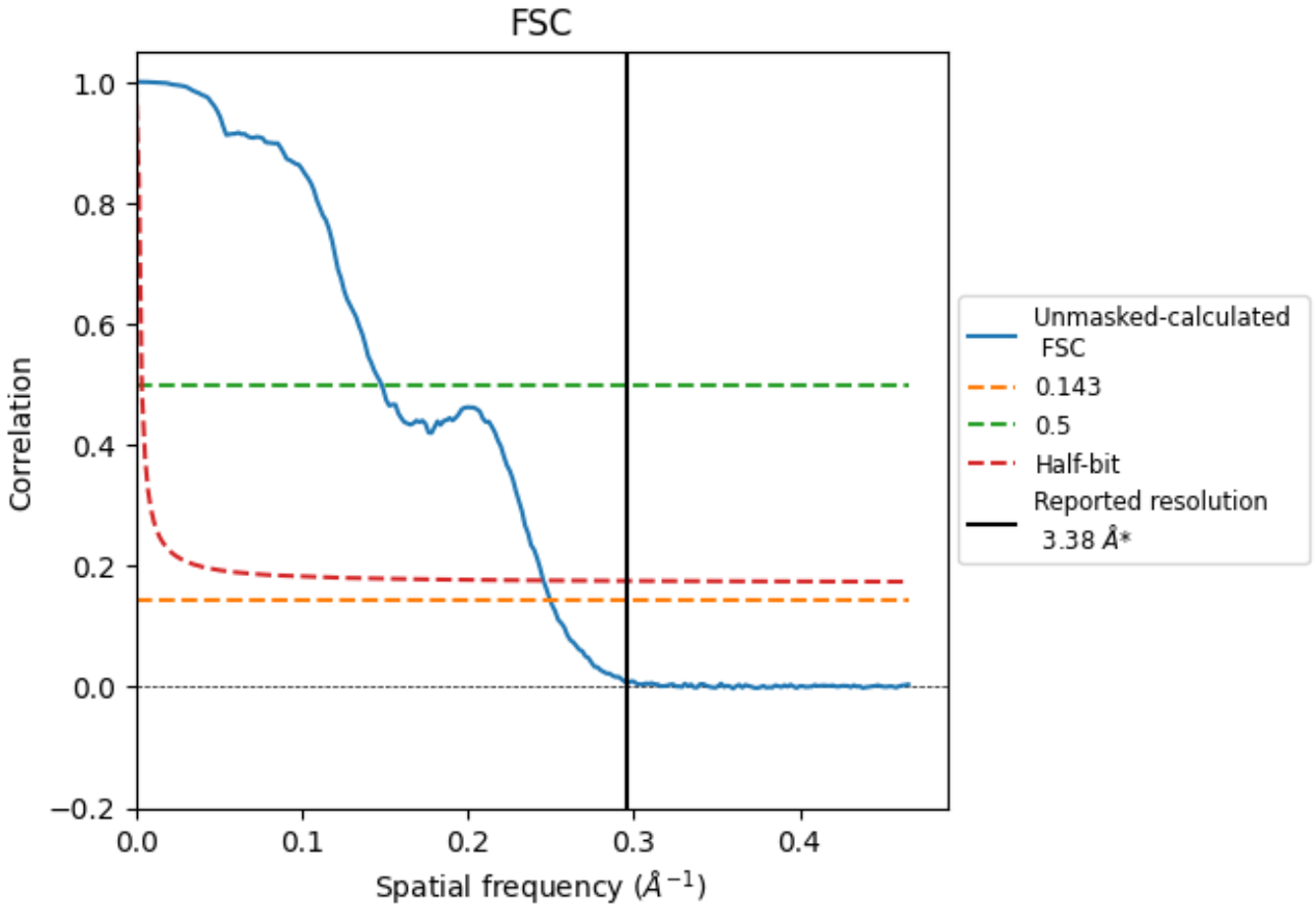


*Reported resolution corresponds to spatial frequency of 0.296 $Å^{-1}$

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 0.296 Å^{-1}

8.2 Resolution estimates (i)

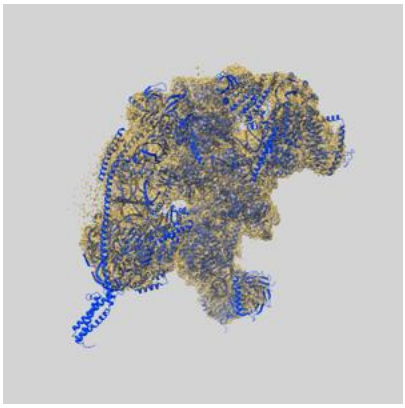
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.38	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.00	6.76	4.07

*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 4.00 differs from the reported value 3.38 by more than 10 %

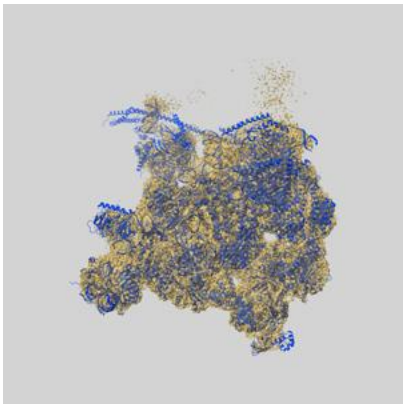
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-38993 and PDB model 8Y6O. Per-residue inclusion information can be found in section 3 on page 12.

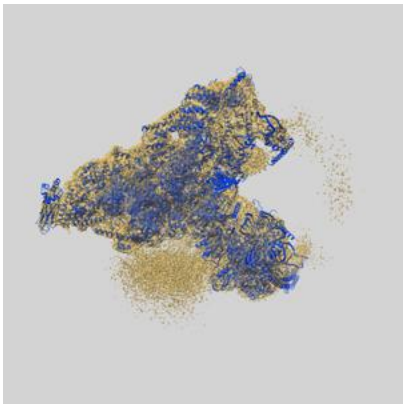
9.1 Map-model overlay



X



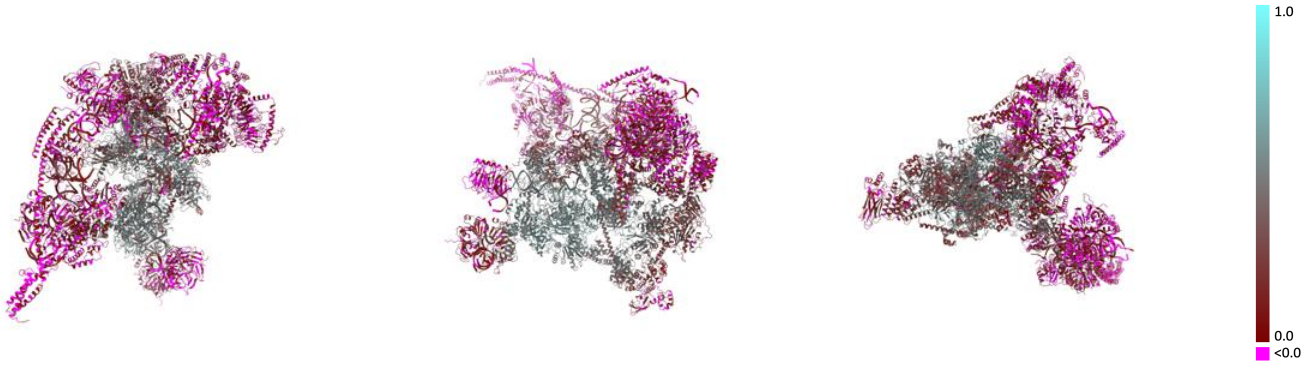
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.25 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.

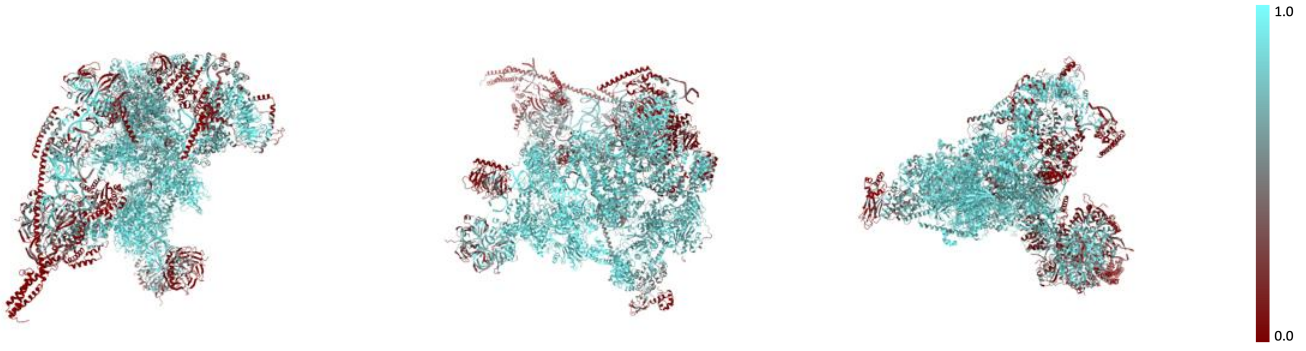
9.2 Q-score mapped to coordinate model



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.

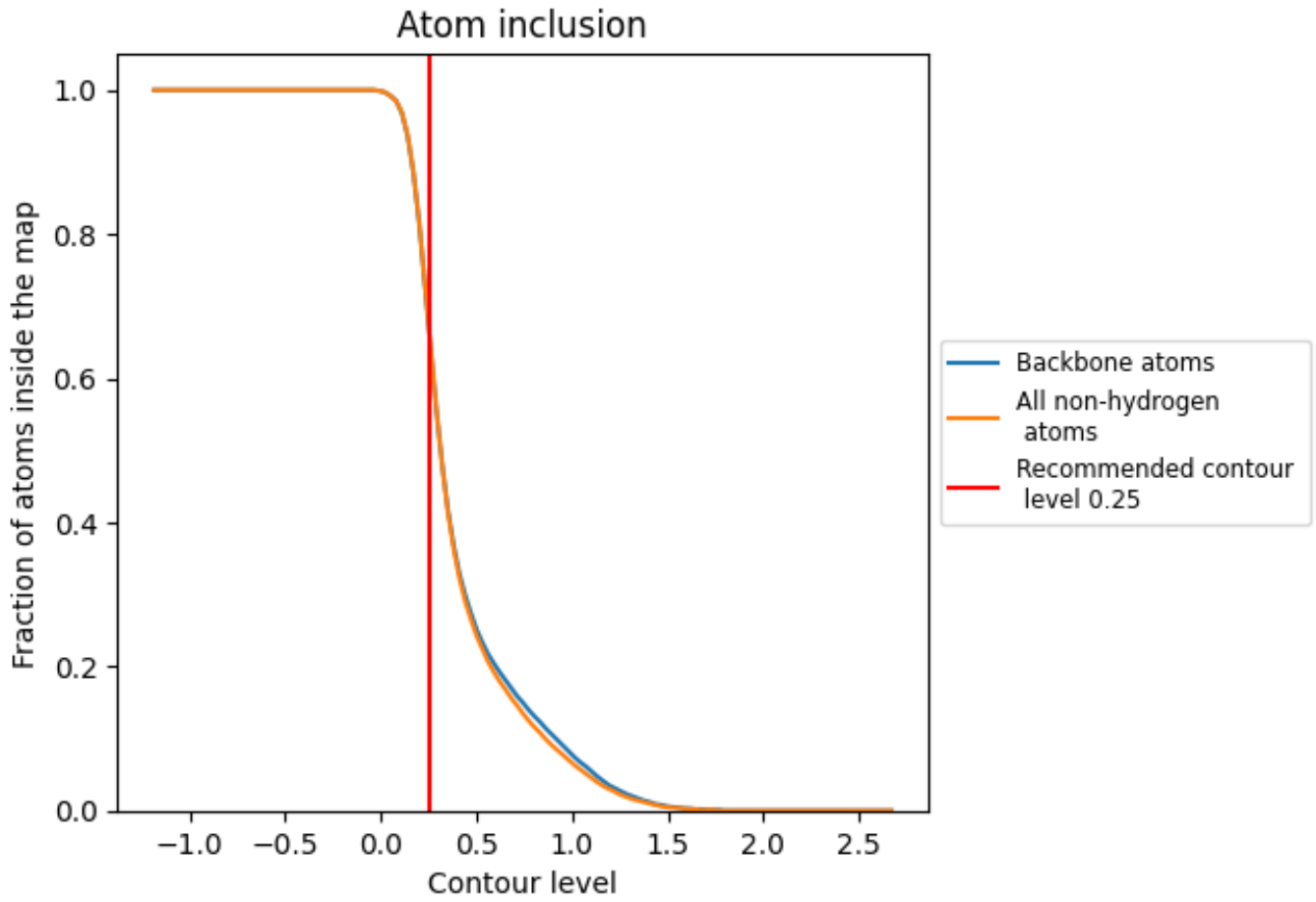
9.3 Atom inclusion mapped to coordinate model



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 (0.25).

9.4 Atom inclusion (i)



At the recommended contour level, 67% of all backbone atoms, 68% 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 (0.25) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.6760	0.2580
A	0.6490	0.1320
B	0.8580	0.3050
C	0.8850	0.4490
D	0.9600	0.5390
E	0.7700	0.3290
F	0.1450	-0.0050
G	0.7440	0.1650
H	0.7850	0.2830
I	0.5710	0.2360
J	0.7860	0.0990
K	0.6800	0.1030
L	0.6520	0.1720
M	0.7370	0.0570
N	0.5620	0.0760
O	0.6580	0.1350
P	0.6990	0.1240
Q	0.0780	0.0890
R	0.1980	0.0080
S	0.4200	0.1720
U	0.9600	0.5260
V	0.2160	0.0440
W	0.4960	0.0680
X	0.5310	0.1190
Y	0.1360	0.0350
Z	0.1530	0.0330
a	0.7010	0.2520
b	0.5930	0.1370
c	0.4560	0.0880
d	0.8320	0.4020
e	0.5870	0.1890
f	0.5100	0.1330
g	0.6610	0.2940
h	0.3910	0.0660
i	0.3460	0.0320

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Chain	Atom inclusion	Q-score
j	0.3820	0.0770
k	0.4160	0.0300
l	0.5610	0.0420
m	0.5960	0.0450
n	0.4620	0.0300
o	0.2970	0.0230
p	0.4950	0.0480
q	0.4820	0.0720
r	0.3250	0.1010
s	0.5920	0.0810
t	0.4400	0.0660
u	0.3980	0.0450