



wwPDB EM Validation Summary Report ⓘ

May 2, 2024 – 05:28 PM JST

PDB ID : 8H6E
EMDB ID : EMD-34500
Title : Cryo-EM structure of human exon-defined spliceosome in the late pre-B state.
Authors : Zhang, W.; Zhan, X.; Zhang, X.; Bai, R.; Lei, J.; Yan, C.; Shi, Y.
Deposited on : 2022-10-17
Resolution : 3.20 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:

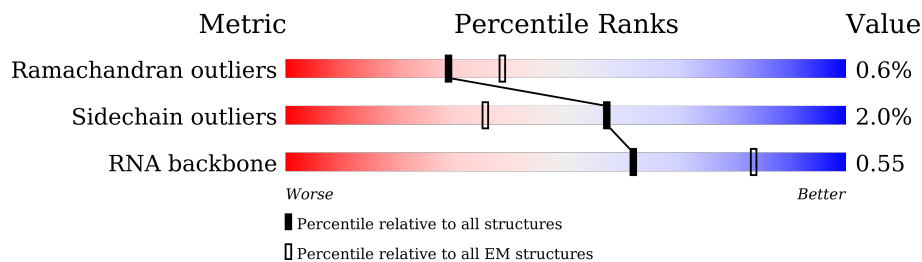
EMDB validation analysis : 0.0.1.dev92
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

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 3.20 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)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	A	144	
2	6A	107	
3	6a	95	
4	6b	102	
5	6c	139	
6	6d	91	
7	6e	80	
8	6f	103	

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Mol	Chain	Length	Quality of chain
9	6g	96	64% 63% 36%
10	5A	117	10% 62% 32%
11	5B	2335	93% 5%
12	5C	972	87% 12%
13	5D	2136	6% 92% 6%
14	5E	357	83% 85% 15%
15	2a	231	37% 37% 63%
15	4a	231	20% 35% 65%
15	5a	231	6% 37% 63%
16	2b	119	69% 69% 31%
16	4b	119	33% 68% 32%
16	5b	119	69% 69% 31%
17	2c	118	72% 71% 28%
17	4c	118	59% 78% 22%
17	5c	118	14% 81% 18%
18	2d	86	86% 86% 14%
18	4d	86	60% 83% 16%
18	5d	86	5% 85% 15%
19	2e	92	86% 86% 14%
19	4e	92	61% 82% 17%
19	5e	92	86% 86% 14%
20	2f	76	88% 88% 12%
20	4f	76	54% 96%
20	5f	76	7% 97%
21	2g	126	63% 63% 37%




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Mol	Chain	Length	Quality of chain
21	4g	126	31% 66% 34%
21	5g	126	61% 39%
22	4A	146	26% 63% 20% 14%
23	4B	683	18% 28% 72%
24	4C	522	29% 69% 31%
25	4D	499	41% 64% 34%
26	4E	128	34% 97%
27	4F	142	98%
28	4G	941	29% 83% 16%
29	4R	480	21% 78%
30	4S	800	8% 91%
31	4T	565	80% 19%
32	4U	820	19% 81%
33	4X	155	14% 86%
34	4Y	1007	32% 32% 68%
35	2A	188	58% 33% 21% 42%
36	2B	255	64% 63% 36%
37	2C	225	42% 42% 58%
38	2D	793	17% 22% 77%
39	2E	464	20% 18% 80%
40	2F	501	84% 83% 16%
41	2G	1304	80% 78% 20%
42	2H	895	20% 20% 80%
43	2I	1217	96% 94%
44	2J	424	18% 18% 82%

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Mol	Chain	Length	Quality of chain
45	2K	125	 <p>86% 83% 14%</p>
46	2L	110	 <p>80% 81% 19%</p>
47	2M	86	 <p>77% 74% 23%</p>

2 Entry composition

There are 51 unique types of molecules in this entry. The entry contains 96125 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called pre-mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	A	59	1232	551	193	429	59	0	0

- Molecule 2 is a RNA chain called U6 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	6A	59	1251	558	230	404	59	0	0

- Molecule 3 is a protein called U6 snRNA-associated Sm-like protein LSm2.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	6a	89	356	178	89	89	0	0

- Molecule 4 is a protein called U6 snRNA-associated Sm-like protein LSm3.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
4	6b	74	296	148	74	74	0	0

- Molecule 5 is a protein called U6 snRNA-associated Sm-like protein LSm4.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	6c	74	296	148	74	74	0	0

- Molecule 6 is a protein called U6 snRNA-associated Sm-like protein LSm5.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
6	6d	72	288	144	72	72	0	0

- Molecule 7 is a protein called U6 snRNA-associated Sm-like protein LSm6.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
7	6e	70	280	140	70	70	0	0

- Molecule 8 is a protein called U6 snRNA-associated Sm-like protein LSm7.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
8	6f	65	260	130	65	65	0	0

- Molecule 9 is a protein called U6 snRNA-associated Sm-like protein LSm8.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
9	6g	61	244	122	61	61	0	0

- Molecule 10 is a RNA chain called U5 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
10	5A	114	2398	1074	398	812	114	0	0

- Molecule 11 is a protein called Pre-mRNA-processing-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	5B	2214	18281	11782	3177	3243	79	0	0

- Molecule 12 is a protein called 116 kDa U5 small nuclear ribonucleoprotein component.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	5C	852	6727	4300	1127	1266	34	0	0

- Molecule 13 is a protein called U5 small nuclear ribonucleoprotein 200 kDa helicase.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	5D	2001	16077	10235	2767	2991	84	0	0

- Molecule 14 is a protein called U5 small nuclear ribonucleoprotein 40 kDa protein.

Mol	Chain	Residues	Atoms				AltConf	Trace
14	5E	304	Total	C	N	O	0	0
			1497	888	304	305		

- Molecule 15 is a protein called Isoform SM-B of Small nuclear ribonucleoprotein-associated proteins B and B'.

Mol	Chain	Residues	Atoms				AltConf	Trace
15	5a	85	Total	C	N	O	0	0
			340	170	85	85		
15	4a	82	Total	C	N	O	0	0
			405	241	82	82		
15	2a	85	Total	C	N	O	0	0
			340	170	85	85		

- Molecule 16 is a protein called Small nuclear ribonucleoprotein Sm D1.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	5b	82	Total	C	N	O	0	0
			328	164	82	82		
16	4b	81	Total	C	N	O	0	0
			401	239	81	81		
16	2b	82	Total	C	N	O	0	0
			328	164	82	82		

- Molecule 17 is a protein called Small nuclear ribonucleoprotein Sm D2.

Mol	Chain	Residues	Atoms				AltConf	Trace
17	5c	97	Total	C	N	O	0	0
			388	194	97	97		
17	4c	92	Total	C	N	O	0	0
			455	271	92	92		
17	2c	85	Total	C	N	O	0	0
			340	170	85	85		

- Molecule 18 is a protein called Small nuclear ribonucleoprotein F.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	5d	73	Total	C	N	O	0	0
			292	146	73	73		
18	4d	72	Total	C	N	O	0	0
			351	207	72	72		
18	2d	74	Total	C	N	O	0	0
			296	148	74	74		

- Molecule 19 is a protein called Small nuclear ribonucleoprotein E.

Mol	Chain	Residues	Atoms				AltConf	Trace
19	5e	79	Total	C	N	O	0	0
			316	158	79	79		
19	4e	76	Total	C	N	O	0	0
			376	224	76	76		
19	2e	79	Total	C	N	O	0	0
			316	158	79	79		

- Molecule 20 is a protein called Small nuclear ribonucleoprotein G.

Mol	Chain	Residues	Atoms				AltConf	Trace
20	5f	74	Total	C	N	O	0	0
			296	148	74	74		
20	4f	73	Total	C	N	O	0	0
			358	212	73	73		
20	2f	67	Total	C	N	O	0	0
			268	134	67	67		

- Molecule 21 is a protein called Small nuclear ribonucleoprotein Sm D3.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	5g	77	Total	C	N	O	0	0
			308	154	77	77		
21	4g	83	Total	C	N	O	0	0
			409	243	83	83		
21	2g	80	Total	C	N	O	0	0
			320	160	80	80		

- Molecule 22 is a RNA chain called U4 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	4A	125	Total	C	N	O	P	0	0
			2653	1187	471	872	123		

- Molecule 23 is a protein called U4/U6 small nuclear ribonucleoprotein Prp3.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	4B	193	Total	C	N	O	0	0
			954	568	193	193		

- Molecule 24 is a protein called U4/U6 small nuclear ribonucleoprotein Prp4.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
24	4C	359	1765	1047	359	359	0	0

- Molecule 25 is a protein called U4/U6 small nuclear ribonucleoprotein Prp31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	4D	327	1764	1057	357	348	2	0	0

- Molecule 26 is a protein called NHP2-like protein 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
26	4E	124	615	367	124	124	0	0

- Molecule 27 is a protein called Thioredoxin-like protein 4A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
27	4F	141	1169	751	194	214	10	0	0

- Molecule 28 is a protein called Pre-mRNA-processing factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
28	4G	794	4803	2915	933	943	12	0	0

- Molecule 29 is a protein called RNA-binding protein 42.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
29	4R	106	874	553	160	157	4	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
30	4S	70	549	343	103	100	3	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
31	4T	456	3749	2427	635	673	14	0	0

- Molecule 32 is a protein called Probable ATP-dependent RNA helicase DDX23.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	4U	153	1338	831	262	243	2	0	0

- Molecule 33 is a protein called U4/U6.U5 small nuclear ribonucleoprotein 27 kDa protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
33	4X	21	184	115	40	28	1	0	0

- Molecule 34 is a protein called Serine/threonine-protein kinase PRP4 homolog.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
34	4Y	322	1595	951	322	322	0	0

- Molecule 35 is a RNA chain called U2 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
35	2A	109	2311	1032	396	774	109	0	0

- Molecule 36 is a protein called U2 small nuclear ribonucleoprotein A'.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
36	2B	162	648	324	162	162	0	0

- Molecule 37 is a protein called U2 small nuclear ribonucleoprotein B'.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
37	2C	94	376	188	94	94	0	0

- Molecule 38 is a protein called Splicing factor 3A subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	2D	181	Total	C	N	O	S	0	0
			969	546	206	216	1		

- Molecule 39 is a protein called Splicing factor 3A subunit 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
39	2E	94	Total	C	N	O	0	0
			376	188	94	94		

- Molecule 40 is a protein called Splicing factor 3A subunit 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
40	2F	423	Total	C	N	O	0	0
			1693	847	423	423		

- Molecule 41 is a protein called Splicing factor 3B subunit 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	2G	1048	Total	C	N	O	0	0
			4192	2096	1048	1048		

- Molecule 42 is a protein called Splicing factor 3B subunit 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
42	2H	182	Total	C	N	O	0	0
			728	364	182	182		

- Molecule 43 is a protein called Splicing factor 3B subunit 3.

Mol	Chain	Residues	Atoms				AltConf	Trace
43	2I	1168	Total	C	N	O	0	0
			4672	2336	1168	1168		

- Molecule 44 is a protein called Splicing factor 3B subunit 4.

Mol	Chain	Residues	Atoms				AltConf	Trace
44	2J	78	Total	C	N	O	0	0
			312	156	78	78		

- Molecule 45 is a protein called Splicing factor 3B subunit 6.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
45	2K	108	432	216	108	108	0	0

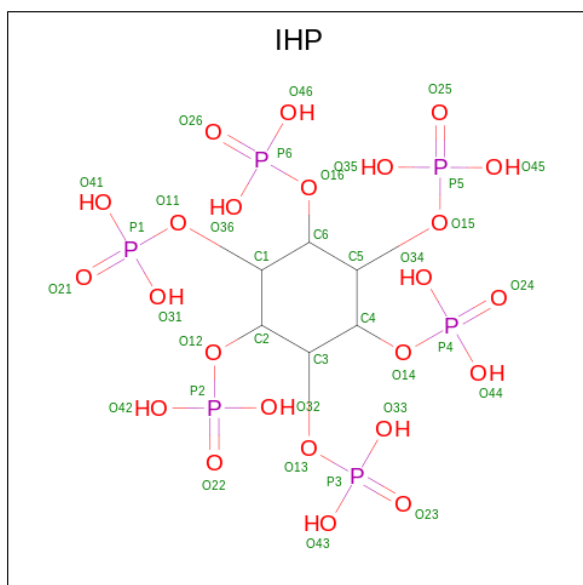
- Molecule 46 is a protein called PHD finger-like domain-containing protein 5A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
46	2L	89	356	178	89	89	0	0

- Molecule 47 is a protein called Splicing factor 3B subunit 5.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
47	2M	66	264	132	66	66	0	0

- Molecule 48 is INOSITOL HEXAKISPHOSPHATE (three-letter code: IHP) (formula: $C_6H_{18}O_{24}P_6$) (labeled as "Ligand of Interest" by depositor).

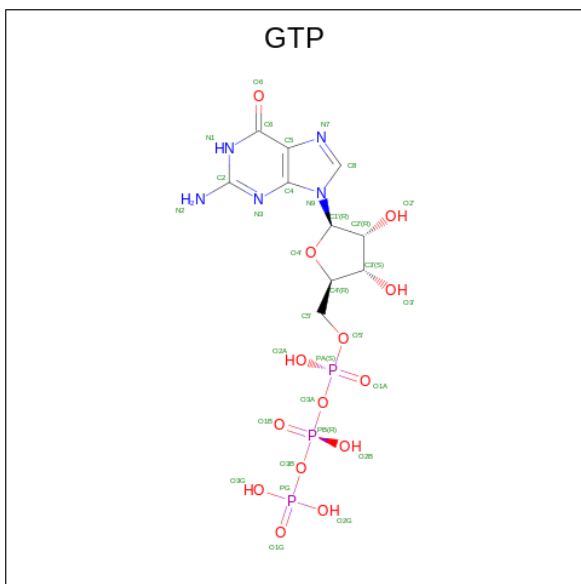


Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
48	5B	1	36	6	24	6	0

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

Mol	Chain	Residues	Atoms		AltConf
49	5C	1	Total	Mg	0
			1	1	

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



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

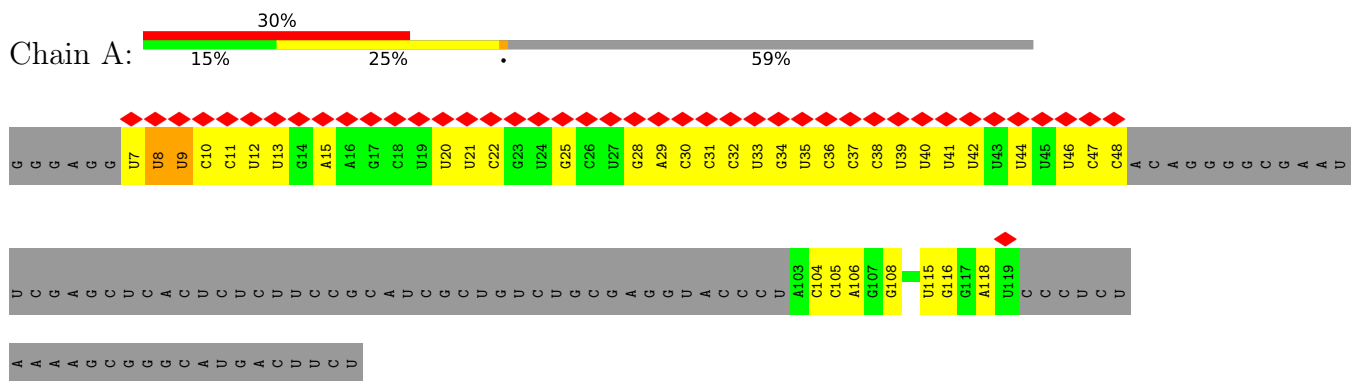
- Molecule 51 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
51	4T	1	Total	Zn	0
			1	1	

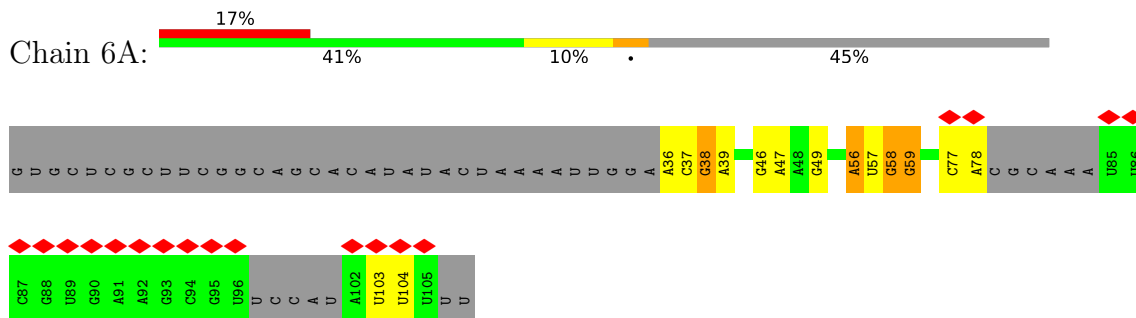
3 Residue-property plots [i](#)

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.

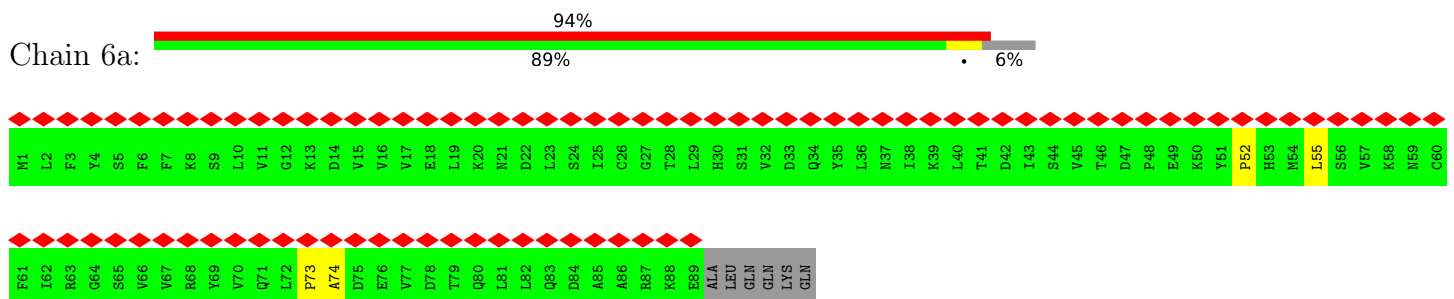
- Molecule 1: pre-mRNA



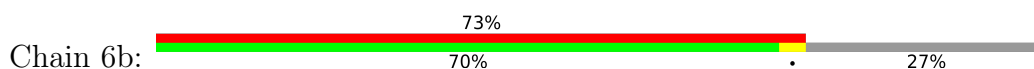
- Molecule 2: U6 snRNA



- Molecule 3: U6 snRNA-associated Sm-like protein LSm2

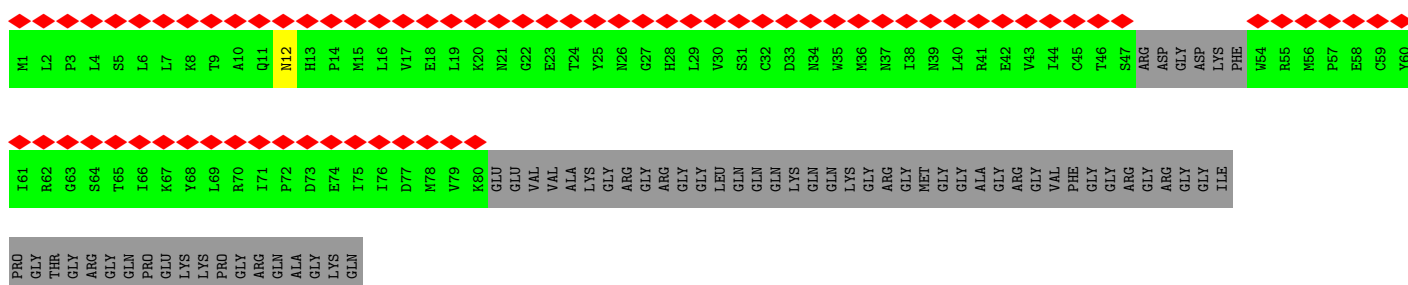


- Molecule 4: U6 snRNA-associated Sm-like protein LSm3

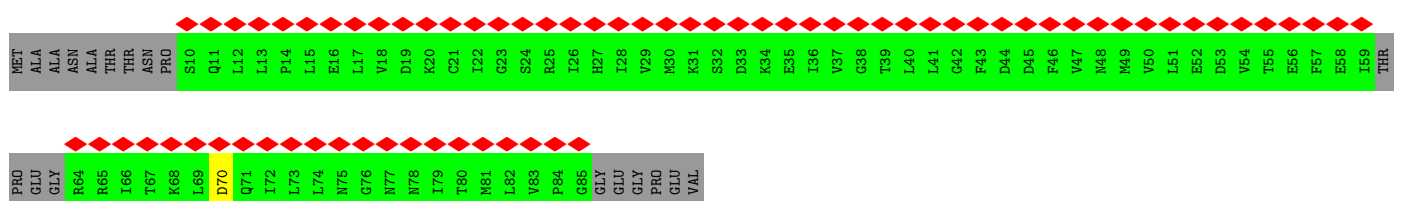
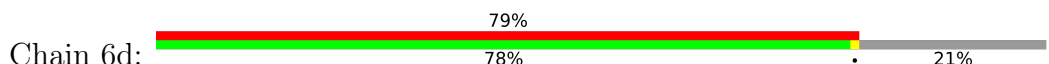




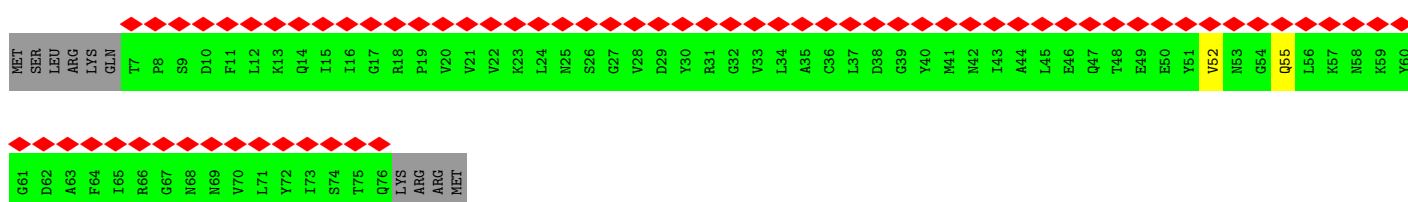
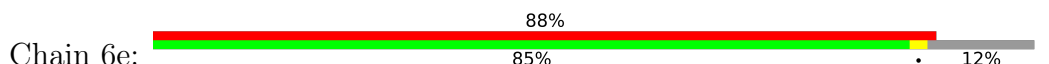
• Molecule 5: U6 snRNA-associated Sm-like protein LSm4



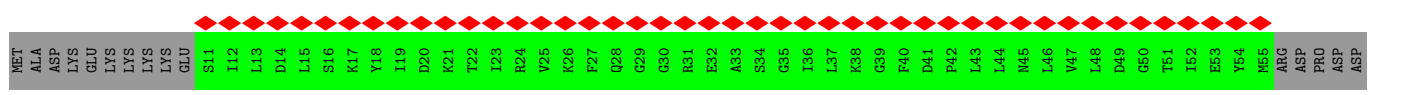
• Molecule 6: U6 snRNA-associated Sm-like protein LSm5

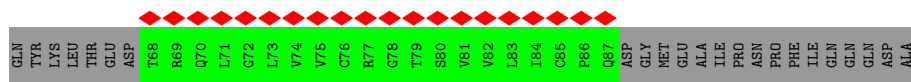


• Molecule 7: U6 snRNA-associated Sm-like protein LSm6

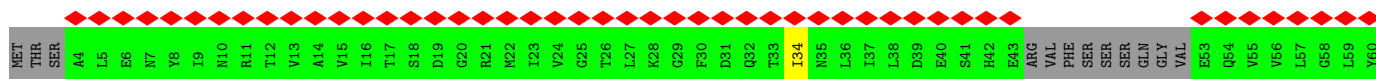


• Molecule 8: U6 snRNA-associated Sm-like protein LSm7





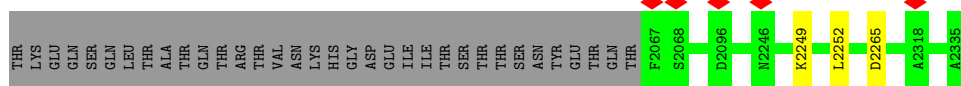
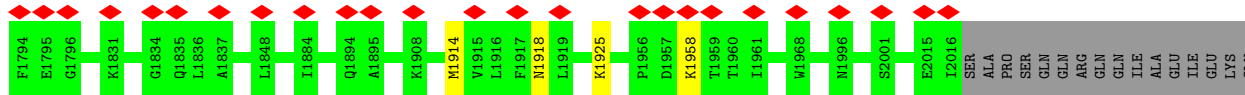
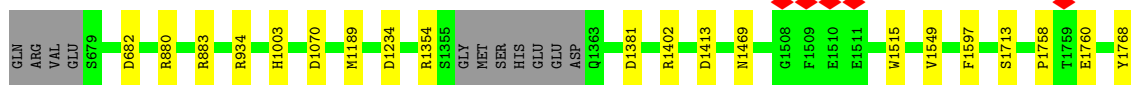
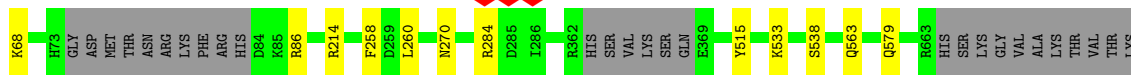
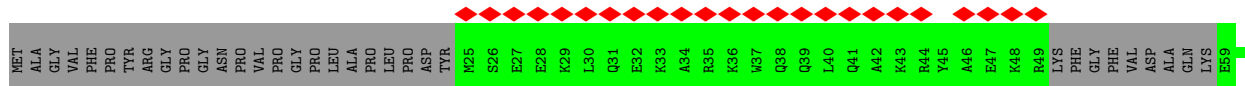
• Molecule 9: U6 snRNA-associated Sm-like protein LSm8



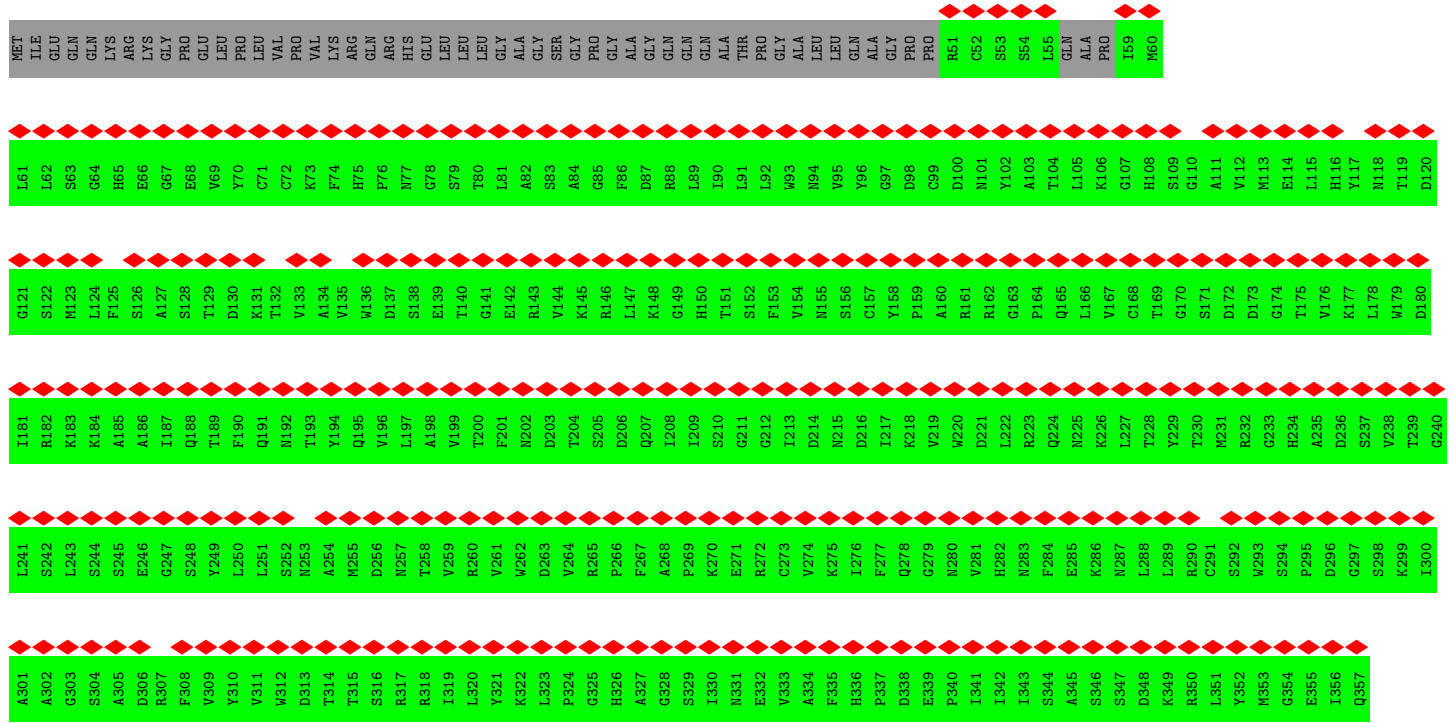
• Molecule 10: U5 snRNA



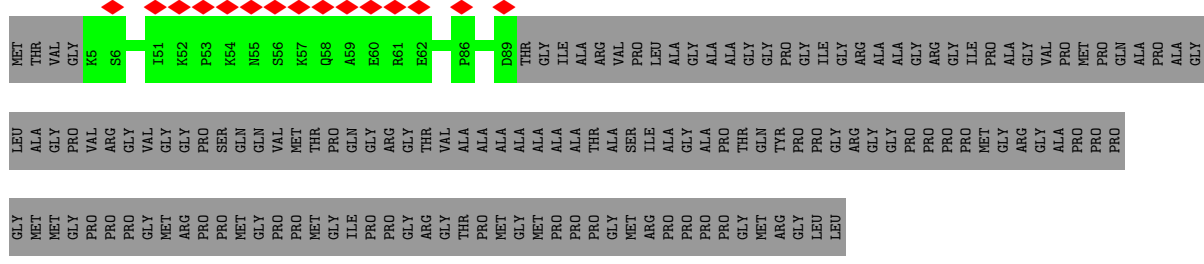
• Molecule 11: Pre-mRNA-processing-splicing factor 8



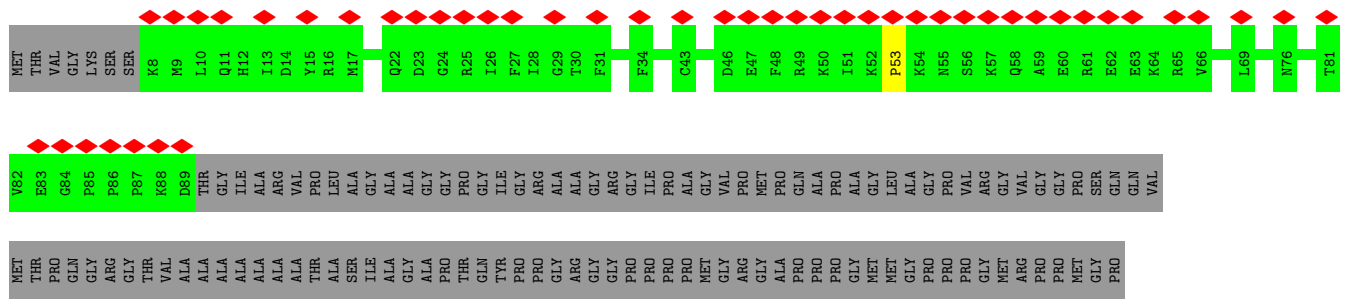
• Molecule 12: 116 kDa U5 small nuclear ribonucleoprotein component

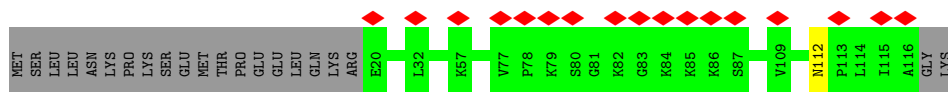


• Molecule 15: Isoform SM-B of Small nuclear ribonucleoprotein-associated proteins B and B'

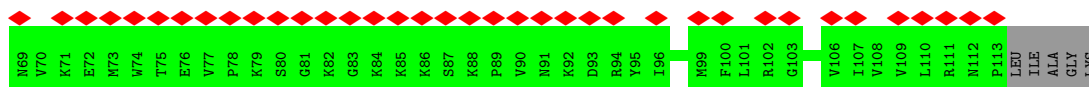
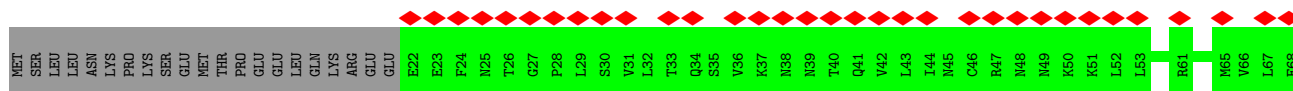
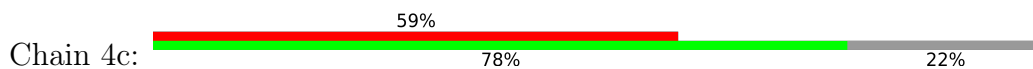


• Molecule 15: Isoform SM-B of Small nuclear ribonucleoprotein-associated proteins B and B'

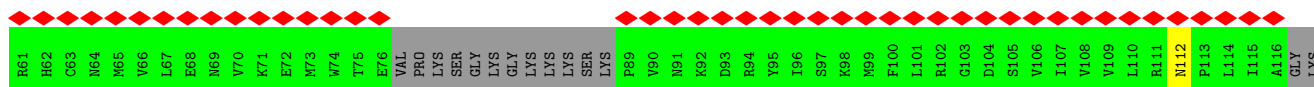
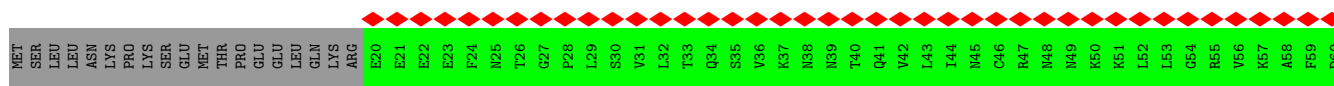
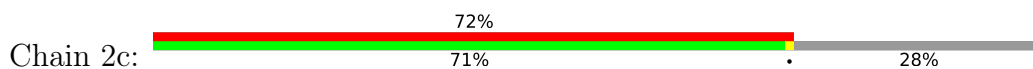




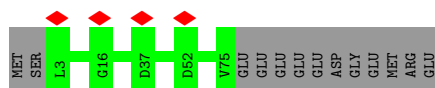
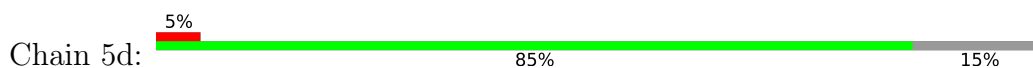
- Molecule 17: Small nuclear ribonucleoprotein Sm D2



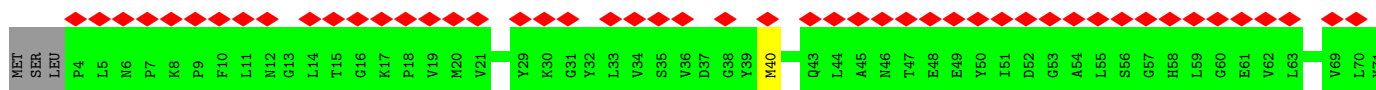
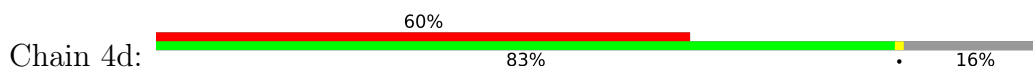
- Molecule 17: Small nuclear ribonucleoprotein Sm D2



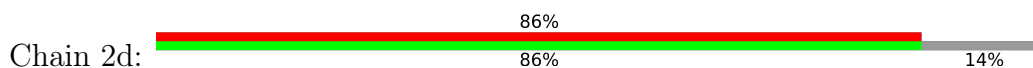
- Molecule 18: Small nuclear ribonucleoprotein F

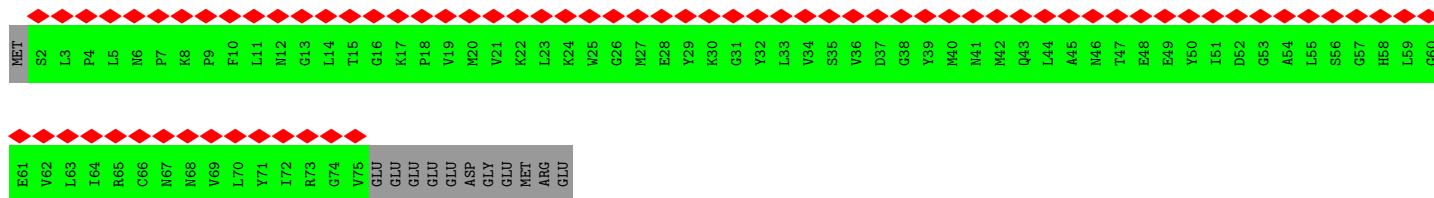


- Molecule 18: Small nuclear ribonucleoprotein F

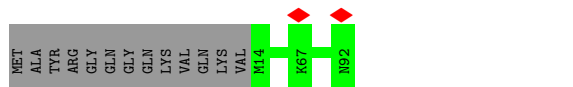
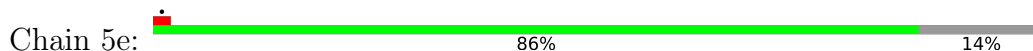


- Molecule 18: Small nuclear ribonucleoprotein F

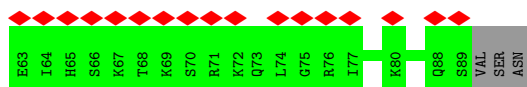
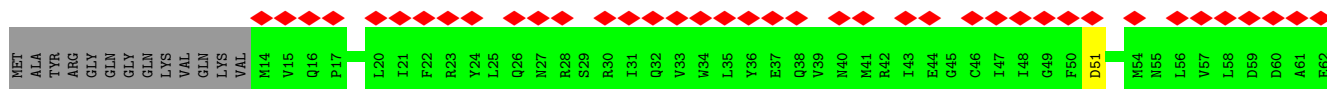
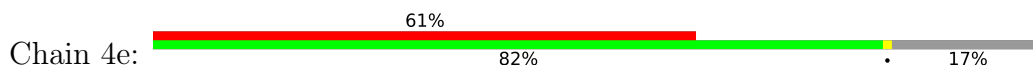




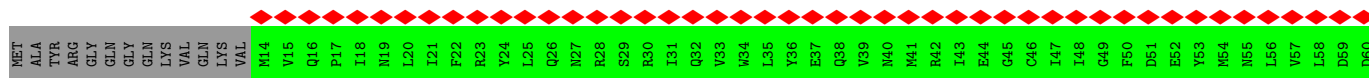
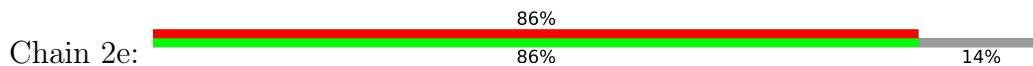
• Molecule 19: Small nuclear ribonucleoprotein E



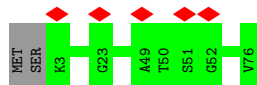
• Molecule 19: Small nuclear ribonucleoprotein E



• Molecule 19: Small nuclear ribonucleoprotein E

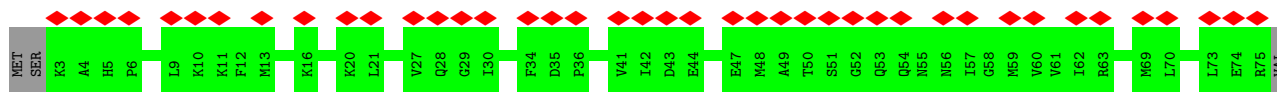


• Molecule 20: Small nuclear ribonucleoprotein G

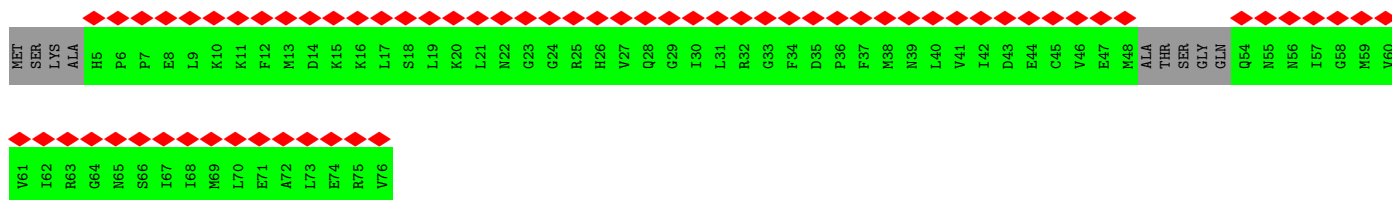
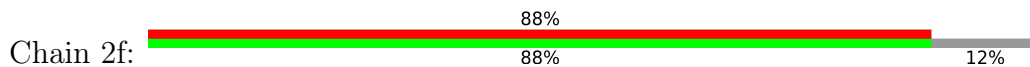


• Molecule 20: Small nuclear ribonucleoprotein G

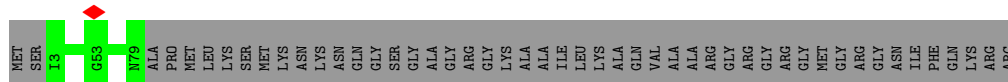




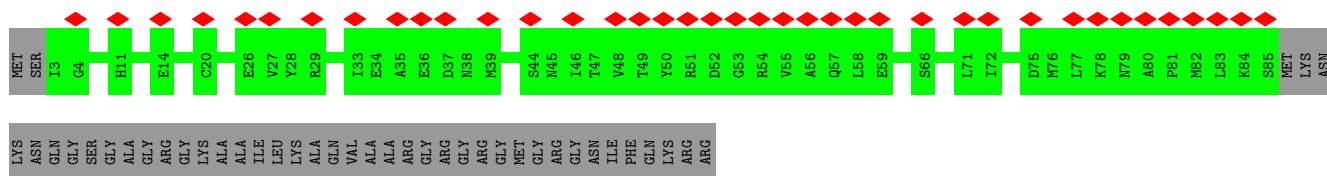
• Molecule 20: Small nuclear ribonucleoprotein G



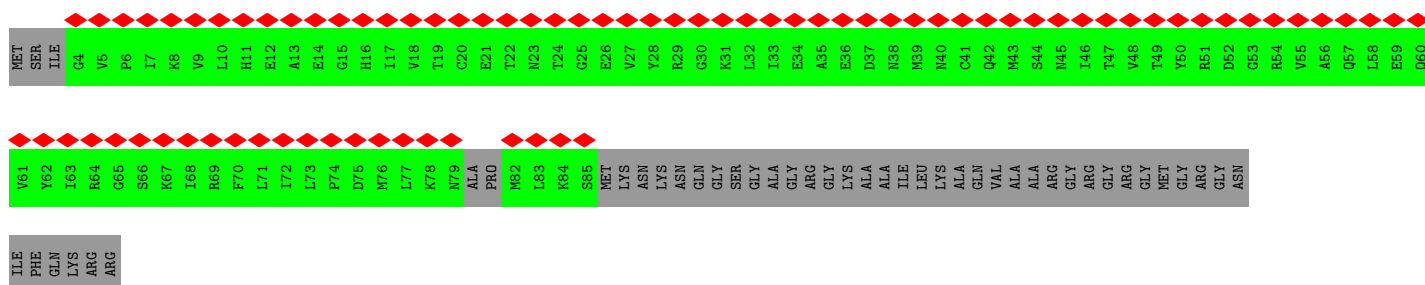
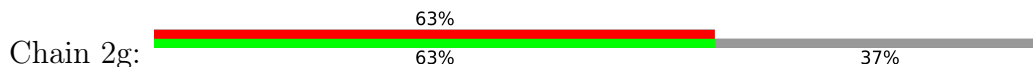
• Molecule 21: Small nuclear ribonucleoprotein Sm D3



• Molecule 21: Small nuclear ribonucleoprotein Sm D3

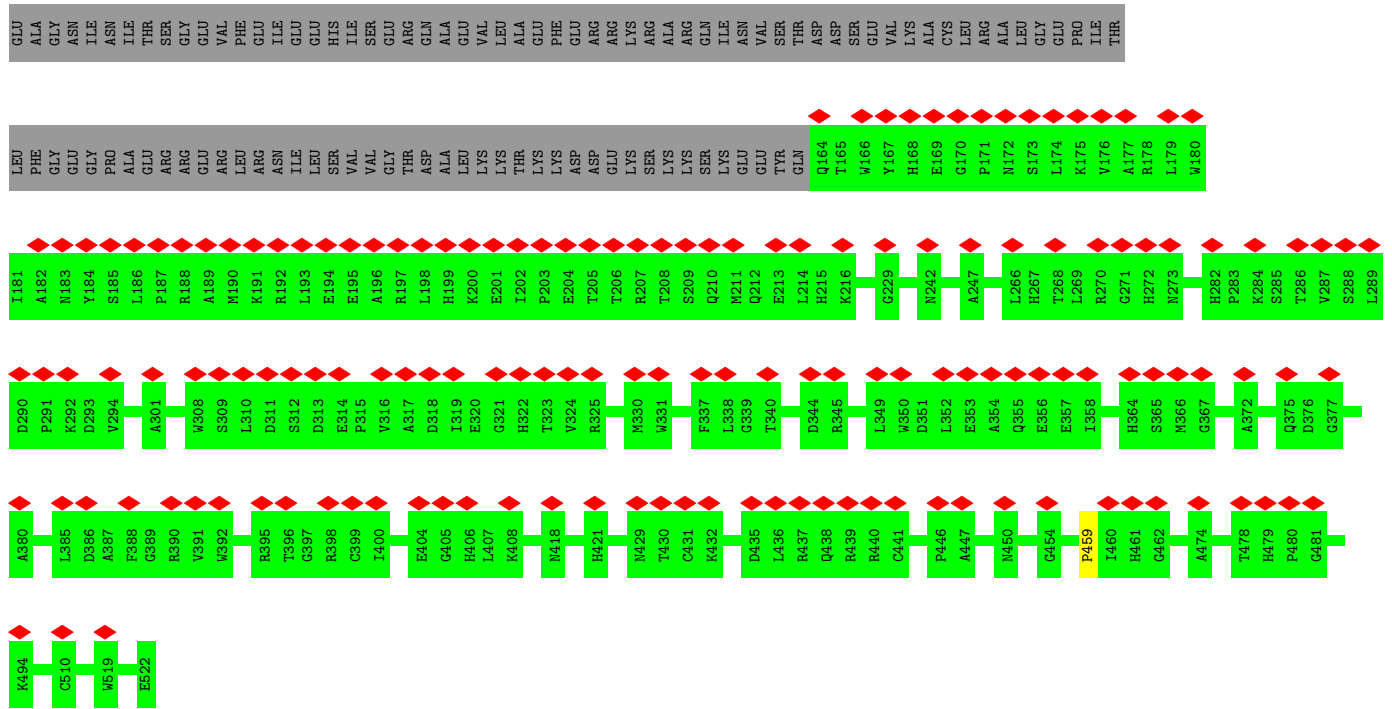


• Molecule 21: Small nuclear ribonucleoprotein Sm D3

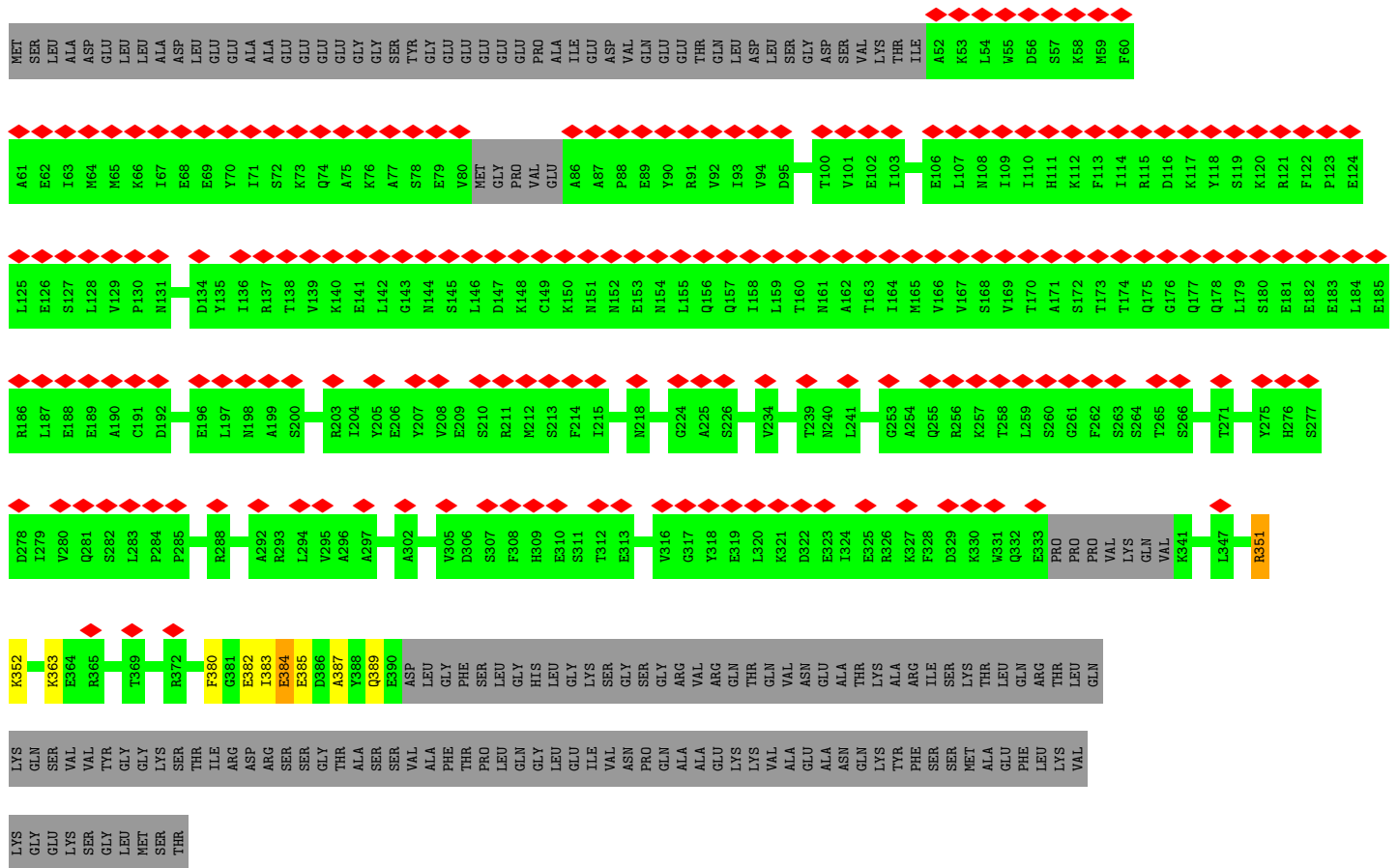
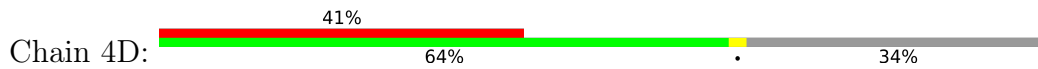


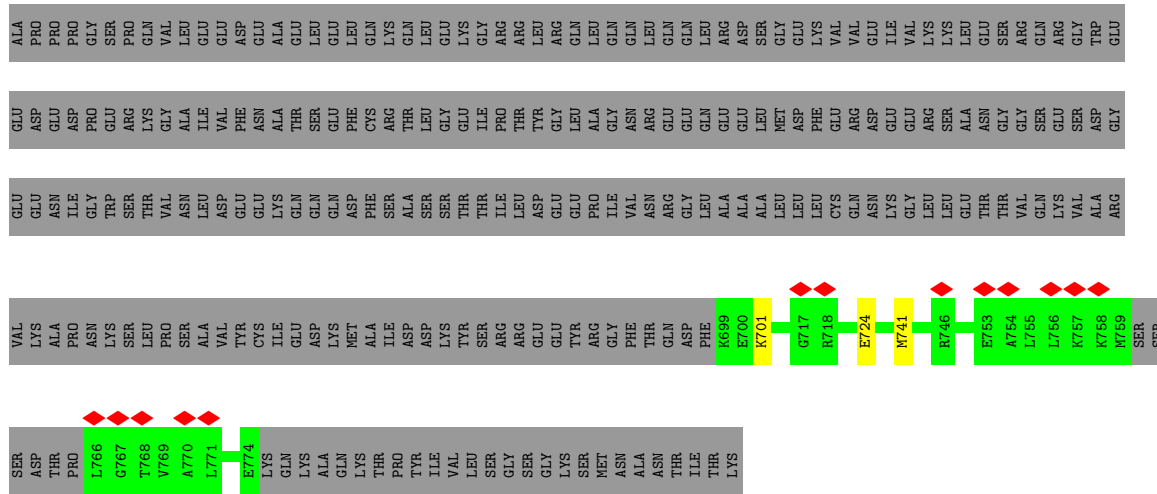
• Molecule 22: U4 snRNA



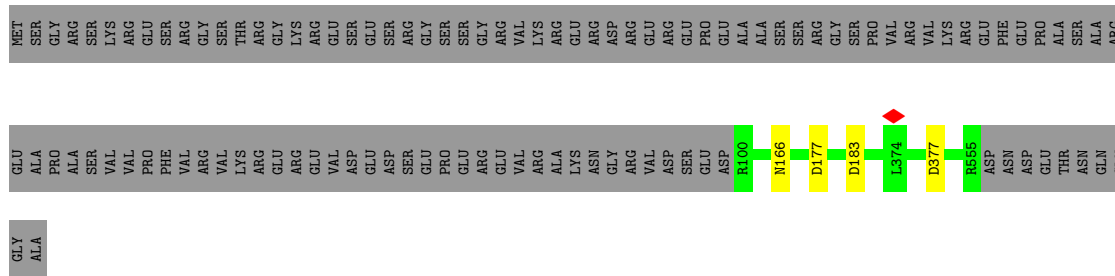
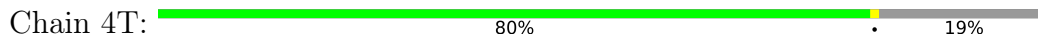


• Molecule 25: U4/U6 small nuclear ribonucleoprotein Prp31

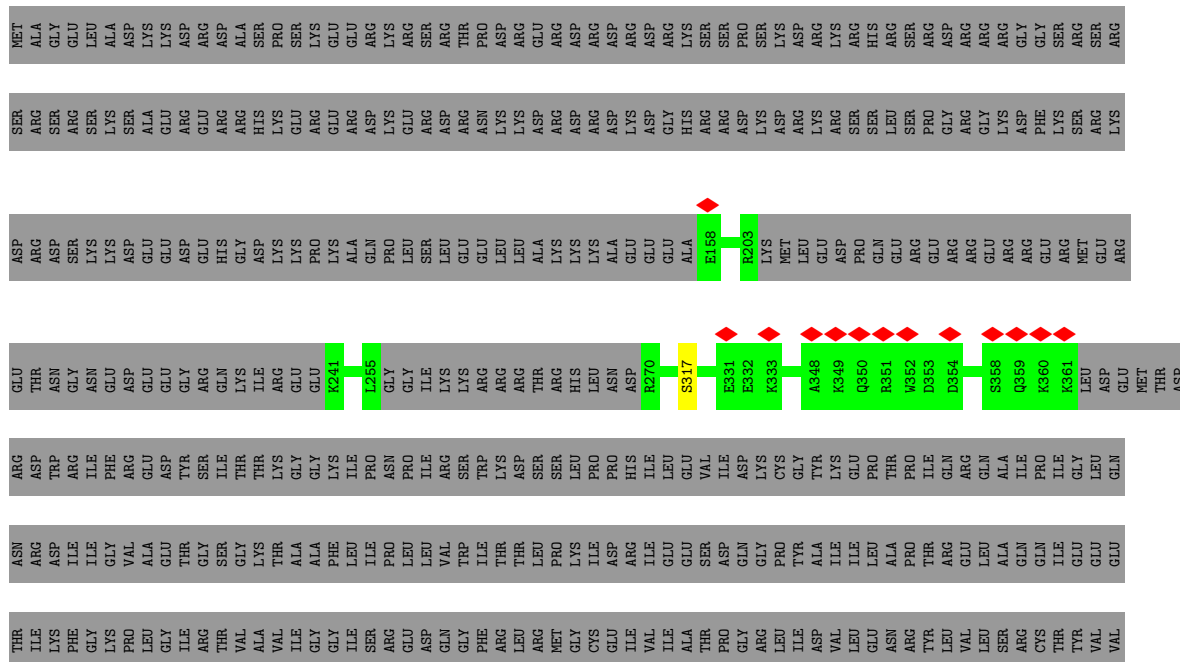


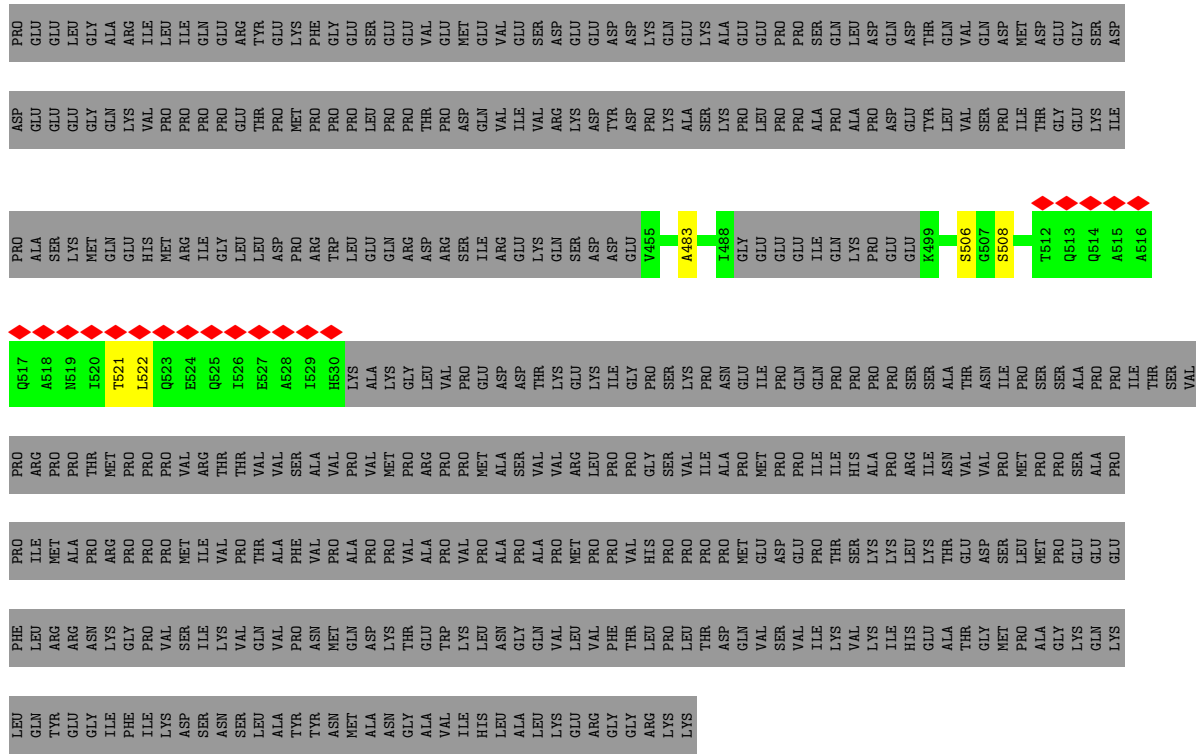


• Molecule 31: U4/U6.U5 tri-snRNP-associated protein 2

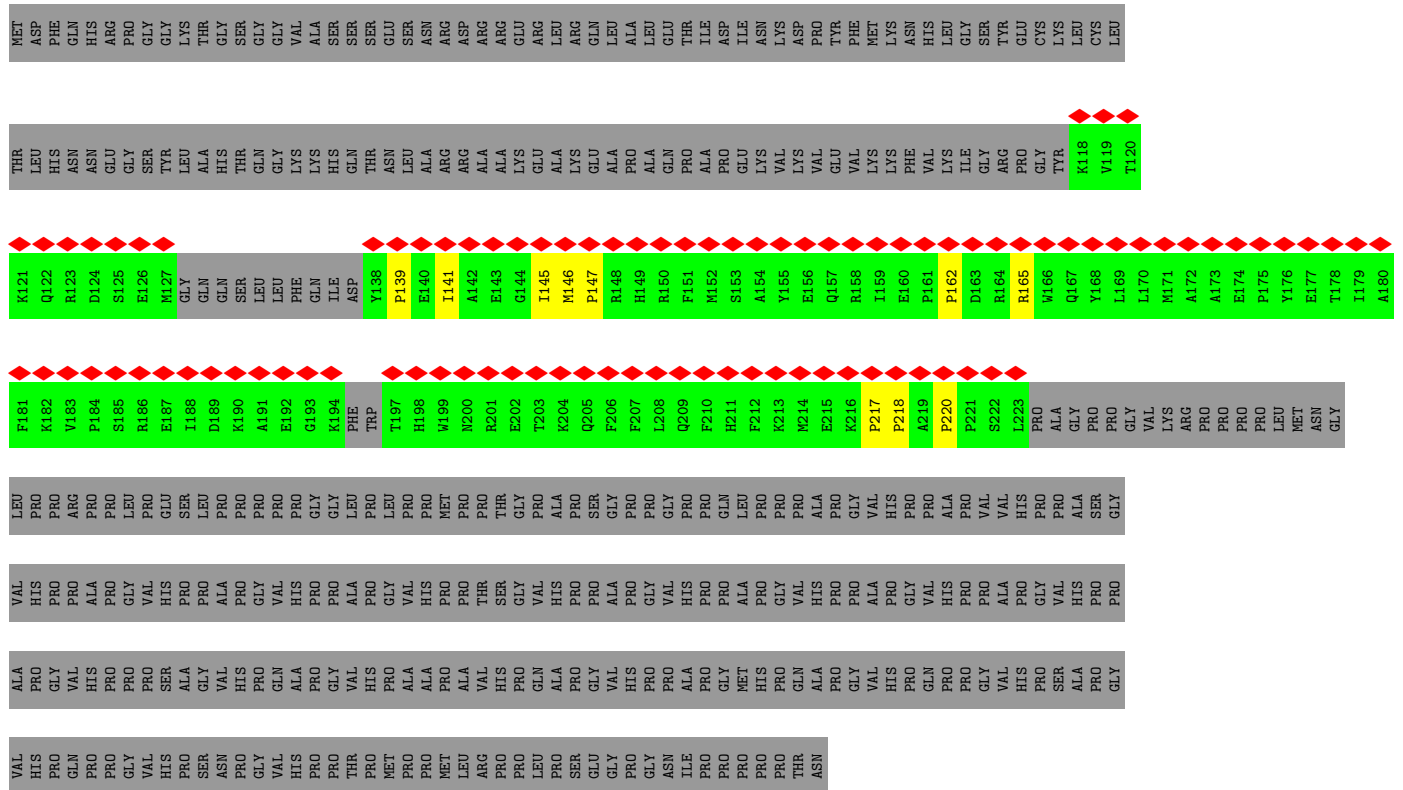


• Molecule 32: Probable ATP-dependent RNA helicase DDX23



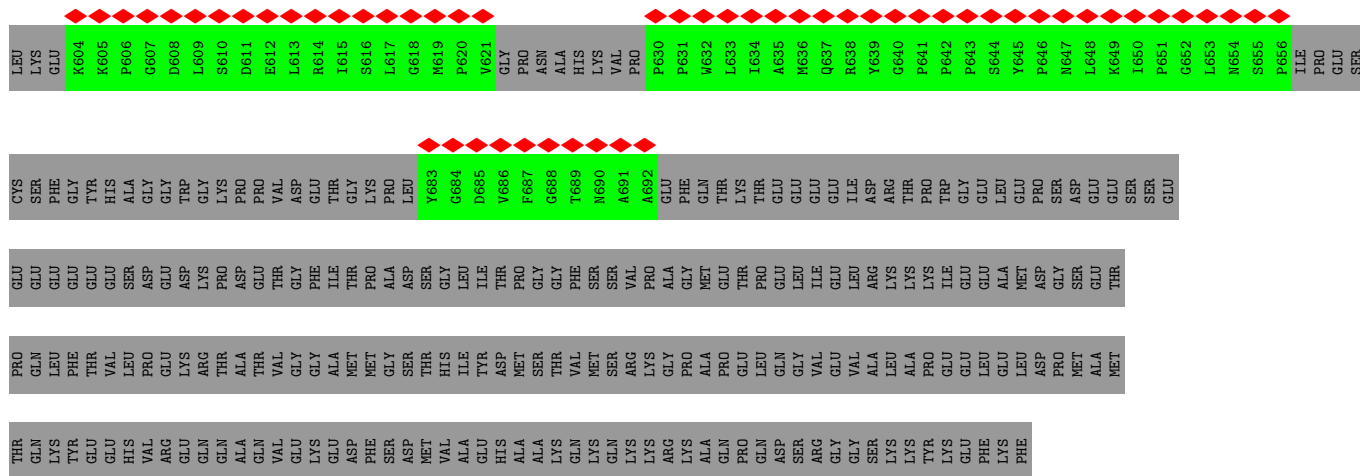


• Molecule 39: Splicing factor 3A subunit 2

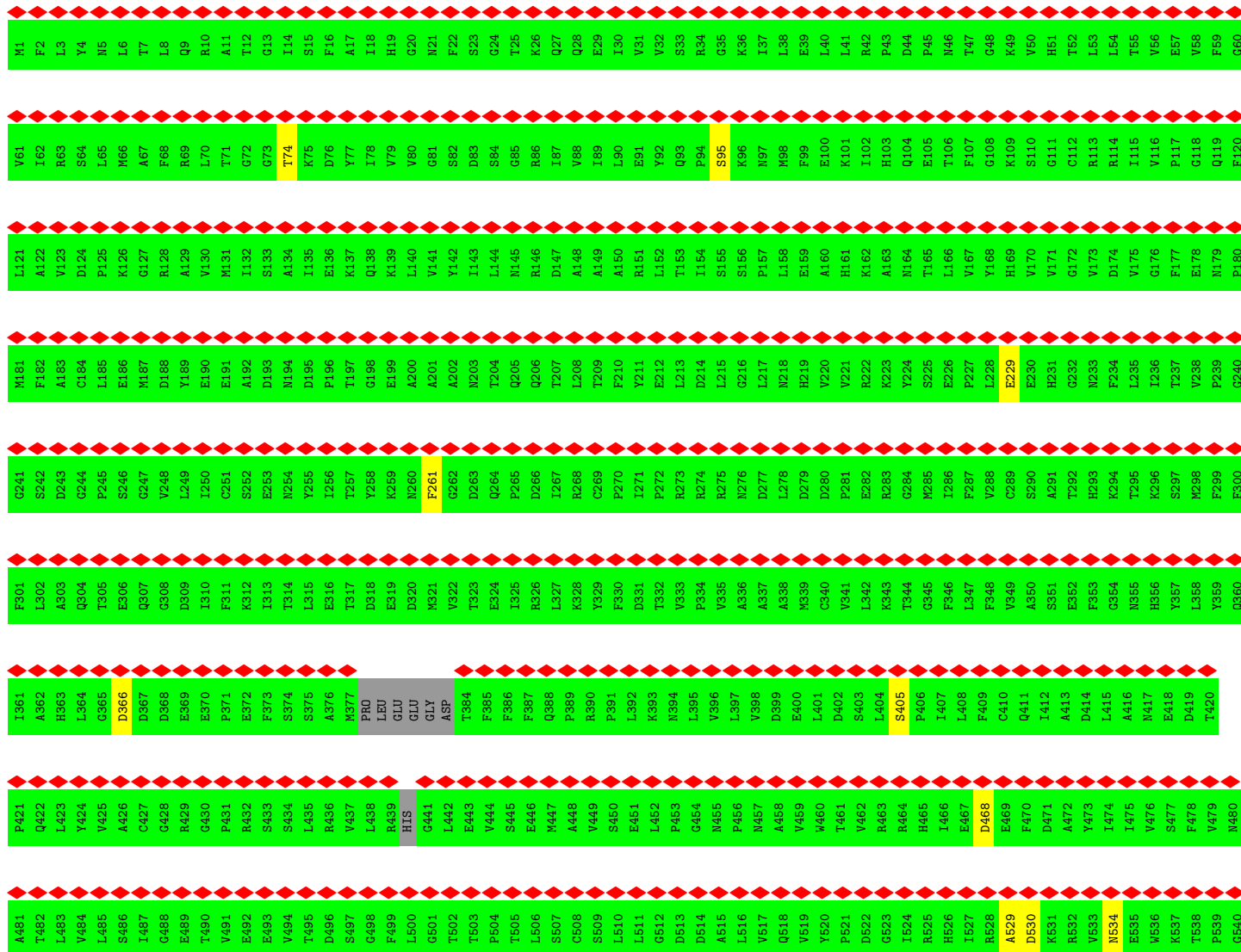
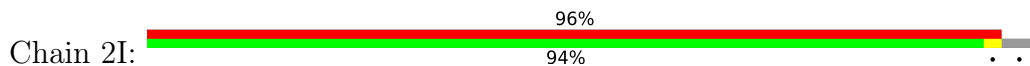


• Molecule 40: Splicing factor 3A subunit 3

A comprehensive list of amino acid residues from a protein structure, with each residue name (e.g., G241, S242, R301) placed within a colored diamond-shaped cell. The residues are organized into horizontal rows. The colors of the cells vary, including shades of green, grey, yellow, and light green, likely representing different classification categories such as conservation or validation status. The list includes residues from chains G, H, I, K, L, M, N, P, Q, R, S, T, V, W, Y, and Z, spanning a wide range of sequence positions from G241 to V960.



• Molecule 43: Splicing factor 3B subunit 3



MET	THR	ASP	ARG	TYR	THR	ILE	HIS	SER	GLN	LEU	GLU	HIS	LEU	Q15	S16	K17	Y18	I19	G20	G22	H23	A24	D25	T26	T27	K28	W29	E30	W31	L32	V33	N34	Q35	H36	R37	D38	S39	Y40	C41	S42	Y43	M44	G45	H46	F47	D48	L49	L50	N51	Y52	F53	A54	I55	A56	E57	N58	E59	S60
K61	A62	R63	V64	R65	F66	N67	L68	M69	E70	K71	M72	L73	Q74	P76	C76	G77	P78	P79	A80	ASP	LIS	PRO	GLU	GLU	ASN																																	

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	140426	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	50	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	3.381	Depositor
Minimum map value	-1.074	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.065	Depositor
Recommended contour level	0.25	Depositor
Map size (\AA)	563.2, 563.2, 563.2	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.1, 1.1, 1.1	Depositor

5 Model quality i

5.1 Standard geometry i

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

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	0.66	3/1368 (0.2%)	0.90	1/2122 (0.0%)
2	6A	0.42	1/1398 (0.1%)	0.91	6/2172 (0.3%)
3	6a	0.43	0/355	0.67	0/442
4	6b	0.47	0/294	0.75	0/364
5	6c	0.34	0/294	0.61	0/364
6	6d	0.43	0/286	0.59	0/354
7	6e	0.43	0/279	0.72	0/347
8	6f	0.39	0/258	0.61	0/319
9	6g	0.41	0/242	0.64	0/299
10	5A	0.31	0/2673	0.95	11/4156 (0.3%)
11	5B	0.27	0/18786	0.49	0/25502
12	5C	0.27	0/6879	0.51	1/9344 (0.0%)
13	5D	0.25	0/16393	0.50	0/22174
14	5E	0.28	0/1495	0.57	0/2074
15	2a	0.50	0/339	0.69	0/422
15	4a	0.30	0/404	0.60	0/561
15	5a	0.51	0/339	0.69	0/422
16	2b	0.56	0/327	0.68	0/407
16	4b	0.29	0/400	0.61	0/556
16	5b	0.57	0/327	0.67	0/407
17	2c	0.71	0/338	0.73	0/419
17	4c	0.33	0/454	0.63	0/631
17	5c	0.69	0/387	0.72	0/482
18	2d	0.78	0/295	0.76	0/367
18	4d	0.36	0/350	0.64	0/483
18	5d	0.78	0/291	0.76	0/362
19	2e	0.64	0/315	0.75	0/392
19	4e	0.29	0/375	0.66	0/521
19	5e	0.64	0/315	0.75	0/392
20	2f	0.55	0/266	0.63	0/329
20	4f	0.30	0/357	0.65	0/494
20	5f	0.54	0/295	0.61	0/367

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
21	2g	0.47	0/318	0.56	0/394
21	4g	0.29	0/408	0.58	0/566
21	5g	0.46	0/307	0.55	0/382
22	4A	0.49	2/2960 (0.1%)	0.92	12/4599 (0.3%)
23	4B	0.25	0/949	0.45	0/1314
24	4C	0.24	0/1764	0.48	0/2450
25	4D	0.29	0/1767	0.49	0/2434
26	4E	0.23	0/614	0.43	0/855
27	4F	0.27	0/1198	0.48	0/1620
28	4G	0.25	0/4833	0.48	1/6625 (0.0%)
29	4R	0.28	0/891	0.56	0/1188
30	4S	0.26	0/555	0.53	0/731
31	4T	0.27	0/3845	0.48	0/5208
32	4U	0.24	0/1356	0.53	0/1790
33	4X	0.28	0/187	0.63	0/245
34	4Y	0.32	0/1592	0.53	0/2215
35	2A	0.86	11/2576 (0.4%)	1.43	56/4003 (1.4%)
36	2B	0.63	0/647	1.42	0/807
37	2C	0.61	0/375	1.20	0/467
38	2D	0.24	0/972	0.46	0/1260
39	2E	0.28	0/373	0.52	0/461
40	2F	0.25	0/1688	0.47	0/2102
41	2G	1.04	4/4184 (0.1%)	0.83	2/5216 (0.0%)
42	2H	0.74	0/722	0.72	0/892
43	2I	0.85	0/4664	0.76	0/5816
44	2J	0.62	0/311	0.65	0/387
45	2K	0.79	0/431	0.79	0/537
46	2L	0.74	0/355	0.68	0/442
47	2M	1.01	0/263	0.77	0/327
All	All	0.45	21/98279 (0.0%)	0.66	90/133380 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
15	4a	0	1
17	2c	0	1
17	5c	0	1
18	4d	0	1
19	4e	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
22	4A	0	1
24	4C	0	1
40	2F	0	1
41	2G	0	11
42	2H	0	3
43	2I	0	11
45	2K	0	1
47	2M	0	1
All	All	0	35

The worst 5 of 21 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
41	2G	407	MET	N-CA	12.40	1.71	1.46
22	4A	87	C	O3'-P	11.54	1.75	1.61
2	6A	59	G	P-O5'	8.69	1.68	1.59
41	2G	406	ALA	C-N	7.96	1.52	1.34
35	2A	142	C	C1'-N1	7.25	1.59	1.48

The worst 5 of 90 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
10	5A	78	U	P-O3'-C3'	-12.65	104.52	119.70
10	5A	57	G	P-O3'-C3'	-12.60	104.58	119.70
35	2A	167	U	C5-C4-O4	11.56	132.84	125.90
41	2G	406	ALA	C-N-CA	10.26	147.35	121.70
10	5A	77	G	P-O3'-C3'	-10.20	107.46	119.70

There are no chirality outliers.

5 of 35 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
22	4A	90	G	Sidechain
24	4C	459	PRO	Peptide
15	4a	53	PRO	Peptide
18	4d	40	MET	Peptide
17	5c	112	ASN	Peptide

5.2 Too-close contacts [i](#)

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

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	6a	87/95 (92%)	76 (87%)	7 (8%)	4 (5%)	2	18
4	6b	70/102 (69%)	64 (91%)	3 (4%)	3 (4%)	2	20
5	6c	70/139 (50%)	64 (91%)	5 (7%)	1 (1%)	11	46
6	6d	68/91 (75%)	63 (93%)	4 (6%)	1 (2%)	10	44
7	6e	68/80 (85%)	64 (94%)	2 (3%)	2 (3%)	4	28
8	6f	61/103 (59%)	56 (92%)	5 (8%)	0	100	100
9	6g	57/96 (59%)	52 (91%)	4 (7%)	1 (2%)	8	41
11	5B	2200/2335 (94%)	2105 (96%)	92 (4%)	3 (0%)	51	83
12	5C	850/972 (87%)	819 (96%)	31 (4%)	0	100	100
13	5D	1989/2136 (93%)	1906 (96%)	83 (4%)	0	100	100
14	5E	300/357 (84%)	282 (94%)	18 (6%)	0	100	100
15	2a	83/231 (36%)	81 (98%)	2 (2%)	0	100	100
15	4a	80/231 (35%)	71 (99%)	9 (11%)	0	100	100
15	5a	83/231 (36%)	81 (98%)	2 (2%)	0	100	100
16	2b	80/119 (67%)	77 (96%)	3 (4%)	0	100	100
16	4b	79/119 (66%)	75 (95%)	4 (5%)	0	100	100
16	5b	80/119 (67%)	77 (96%)	3 (4%)	0	100	100
17	2c	81/118 (69%)	78 (96%)	3 (4%)	0	100	100
17	4c	90/118 (76%)	84 (93%)	6 (7%)	0	100	100
17	5c	95/118 (80%)	91 (96%)	4 (4%)	0	100	100
18	2d	72/86 (84%)	68 (94%)	4 (6%)	0	100	100
18	4d	70/86 (81%)	69 (99%)	1 (1%)	0	100	100
18	5d	71/86 (83%)	68 (96%)	3 (4%)	0	100	100
19	2e	77/92 (84%)	76 (99%)	1 (1%)	0	100	100
19	4e	74/92 (80%)	71 (96%)	3 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
19	5e	77/92 (84%)	76 (99%)	1 (1%)	0	100	100
20	2f	63/76 (83%)	61 (97%)	2 (3%)	0	100	100
20	4f	71/76 (93%)	65 (92%)	6 (8%)	0	100	100
20	5f	72/76 (95%)	70 (97%)	2 (3%)	0	100	100
21	2g	76/126 (60%)	74 (97%)	2 (3%)	0	100	100
21	4g	81/126 (64%)	76 (94%)	5 (6%)	0	100	100
21	5g	75/126 (60%)	73 (97%)	2 (3%)	0	100	100
23	4B	183/683 (27%)	177 (97%)	6 (3%)	0	100	100
24	4C	357/522 (68%)	332 (93%)	25 (7%)	0	100	100
25	4D	321/499 (64%)	297 (92%)	19 (6%)	5 (2%)	9	43
26	4E	122/128 (95%)	114 (93%)	8 (7%)	0	100	100
27	4F	139/142 (98%)	134 (96%)	5 (4%)	0	100	100
28	4G	786/941 (84%)	744 (95%)	39 (5%)	3 (0%)	34	69
29	4R	104/480 (22%)	95 (91%)	9 (9%)	0	100	100
30	4S	66/800 (8%)	64 (97%)	2 (3%)	0	100	100
31	4T	454/565 (80%)	419 (92%)	35 (8%)	0	100	100
32	4U	147/820 (18%)	143 (97%)	4 (3%)	0	100	100
33	4X	19/155 (12%)	19 (100%)	0	0	100	100
34	4Y	316/1007 (31%)	294 (93%)	18 (6%)	4 (1%)	12	47
36	2B	160/255 (63%)	146 (91%)	12 (8%)	2 (1%)	12	47
37	2C	92/225 (41%)	90 (98%)	2 (2%)	0	100	100
38	2D	173/793 (22%)	157 (91%)	12 (7%)	4 (2%)	6	34
39	2E	88/464 (19%)	61 (69%)	17 (19%)	10 (11%)	0	2
40	2F	413/501 (82%)	367 (89%)	41 (10%)	5 (1%)	13	49
41	2G	1032/1304 (79%)	845 (82%)	165 (16%)	22 (2%)	7	37
42	2H	170/895 (19%)	151 (89%)	15 (9%)	4 (2%)	6	34
43	2I	1152/1217 (95%)	1053 (91%)	89 (8%)	10 (1%)	17	56
44	2J	76/424 (18%)	75 (99%)	1 (1%)	0	100	100
45	2K	106/125 (85%)	85 (80%)	18 (17%)	3 (3%)	5	29
46	2L	87/110 (79%)	74 (85%)	13 (15%)	0	100	100
47	2M	64/86 (74%)	55 (86%)	8 (12%)	1 (2%)	9	43

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	14077/22191 (63%)	13104 (93%)	885 (6%)	88 (1%)	29	64

5 of 88 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	6a	55	LEU
4	6b	84	MET
6	6d	70	ASP
7	6e	52	VAL
7	6e	55	GLN

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	
11	5B	1980/2108 (94%)	1944 (98%)	36 (2%)	59	82
12	5C	754/866 (87%)	744 (99%)	10 (1%)	69	87
13	5D	1779/1908 (93%)	1744 (98%)	35 (2%)	55	80
25	4D	35/424 (8%)	28 (80%)	7 (20%)	1	6
27	4F	129/130 (99%)	127 (98%)	2 (2%)	62	84
28	4G	246/792 (31%)	237 (96%)	9 (4%)	34	68
29	4R	94/369 (26%)	90 (96%)	4 (4%)	29	64
30	4S	54/681 (8%)	51 (94%)	3 (6%)	21	57
31	4T	418/511 (82%)	414 (99%)	4 (1%)	76	90
32	4U	139/721 (19%)	138 (99%)	1 (1%)	84	94
33	4X	19/144 (13%)	19 (100%)	0	100	100
38	2D	53/709 (8%)	49 (92%)	4 (8%)	13	45
All	All	5700/9363 (61%)	5585 (98%)	115 (2%)	57	80

5 of 115 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
13	5D	442	TYR
32	4U	317	SER
13	5D	1451	PHE
31	4T	377	ASP
29	4R	384	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 10 such sidechains are listed below:

Mol	Chain	Res	Type
30	4S	734	HIS
31	4T	233	ASN
31	4T	362	HIS
11	5B	1823	HIS
13	5D	785	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A	57/144 (39%)	33 (57%)	10 (17%)
10	5A	113/117 (96%)	36 (31%)	5 (4%)
2	6A	56/107 (52%)	13 (23%)	5 (8%)
22	4A	119/146 (81%)	24 (20%)	3 (2%)
35	2A	105/188 (55%)	22 (20%)	3 (2%)
All	All	450/702 (64%)	128 (28%)	26 (5%)

5 of 128 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A	8	U
1	A	9	U
1	A	10	C
1	A	11	C
1	A	12	U

5 of 26 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
2	6A	77	C
10	5A	80	U
35	2A	164	C
10	5A	79	C

Continued on next page...

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Mol	Chain	Res	Type
10	5A	94	U

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 2 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
50	GTP	5C	1002	49	26,34,34	1.18	2 (7%)	32,54,54	1.71	7 (21%)
48	IHP	5B	2401	-	36,36,36	0.74	0	54,60,60	1.15	3 (5%)

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. '2' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
50	GTP	5C	1002	49	-	2/18/38/38	0/3/3/3
48	IHP	5B	2401	-	-	7/30/54/54	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
50	5C	1002	GTP	C5-C6	-4.20	1.38	1.47

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
50	5C	1002	GTP	C2-N3	2.07	1.38	1.33

The worst 5 of 10 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
50	5C	1002	GTP	PB-O3B-PG	-4.45	117.55	132.83
50	5C	1002	GTP	PA-O3A-PB	-3.72	120.06	132.83
50	5C	1002	GTP	C5-C6-N1	3.34	119.86	113.95
48	5B	2401	IHP	C5-C4-C3	3.24	117.50	110.41
50	5C	1002	GTP	C8-N7-C5	3.10	108.89	102.99

There are no chirality outliers.

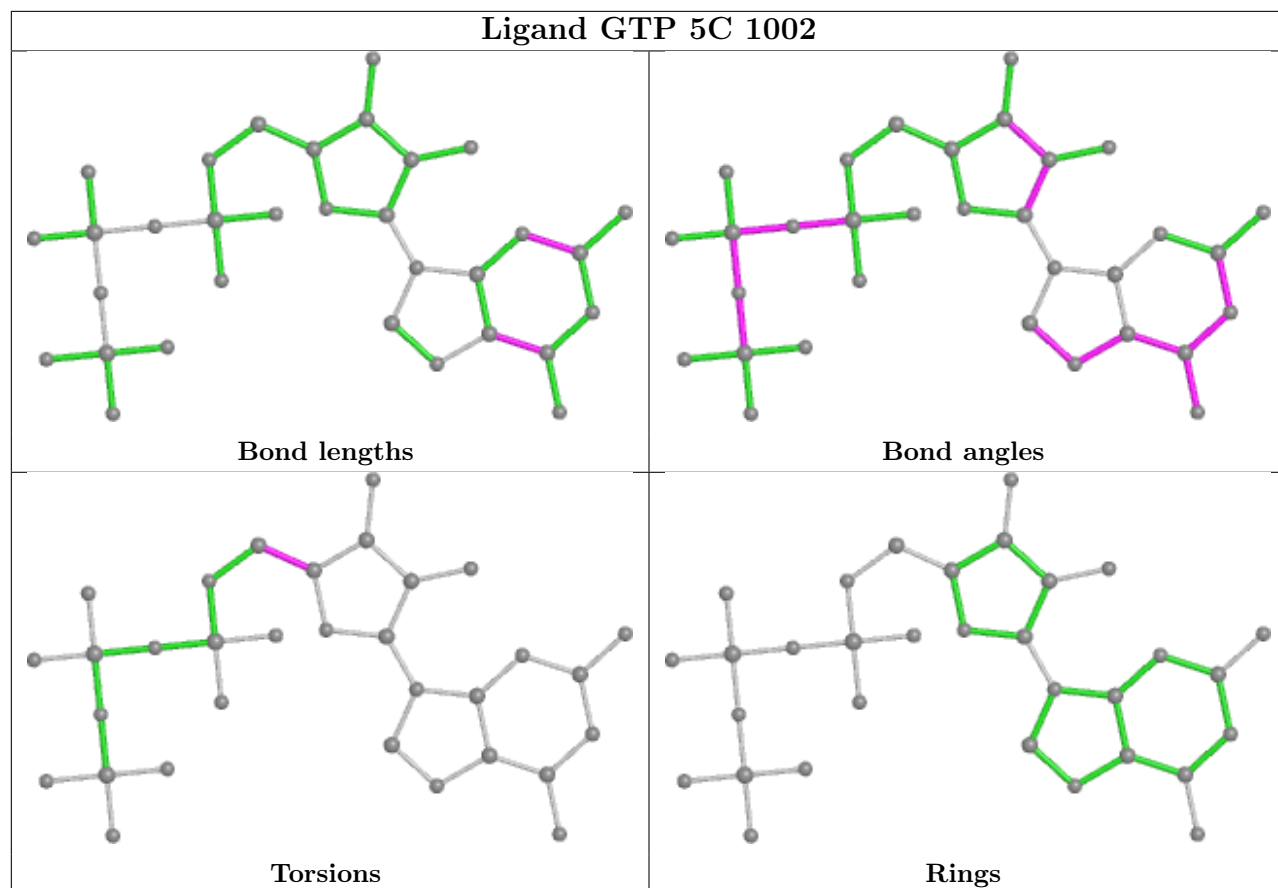
5 of 9 torsion outliers are listed below:

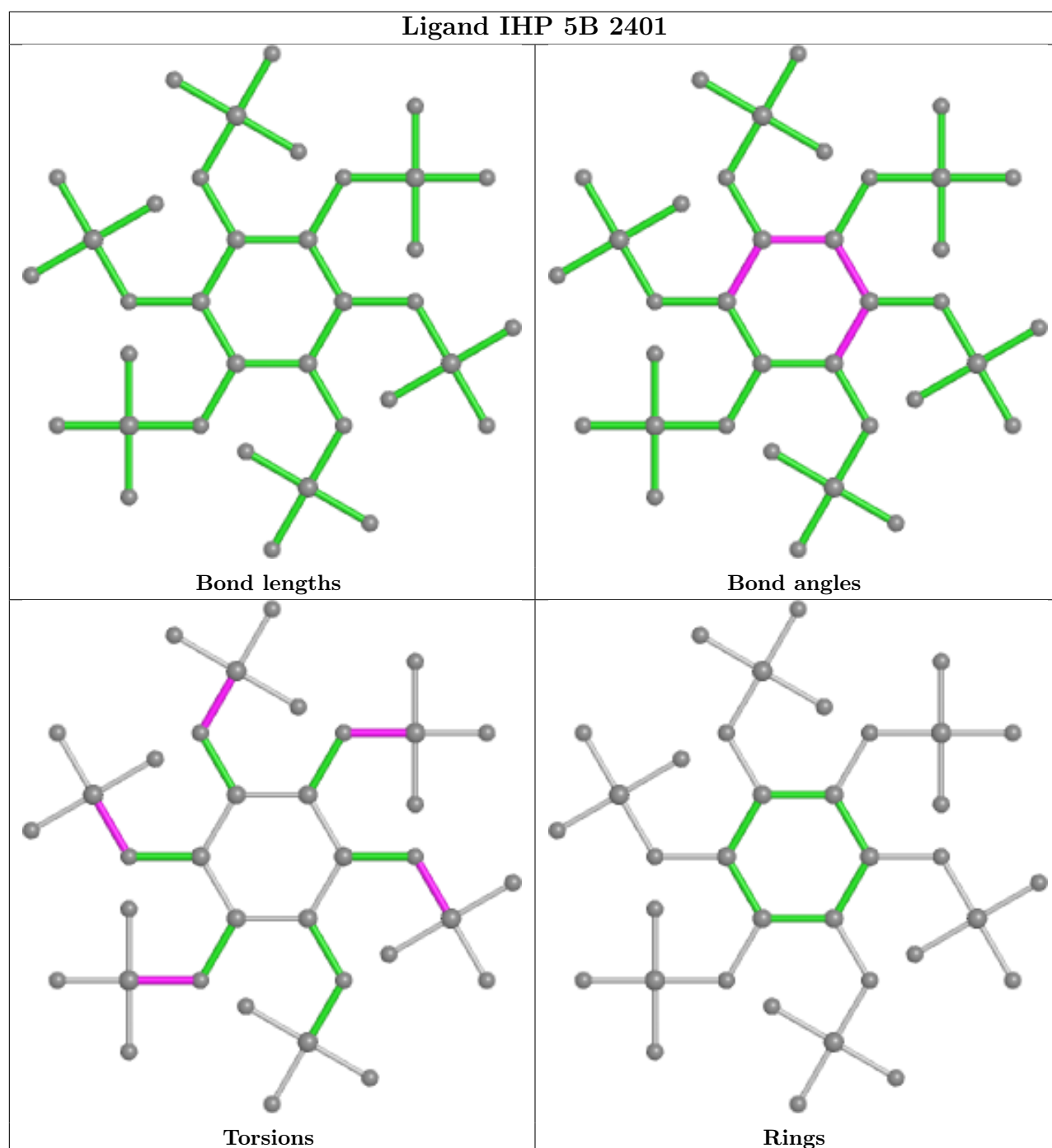
Mol	Chain	Res	Type	Atoms
48	5B	2401	IHP	C2-O12-P2-O32
48	5B	2401	IHP	C3-O13-P3-O43
50	5C	1002	GTP	O4'-C4'-C5'-O5'
50	5C	1002	GTP	C3'-C4'-C5'-O5'
48	5B	2401	IHP	C4-O14-P4-O44

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 than 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.





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

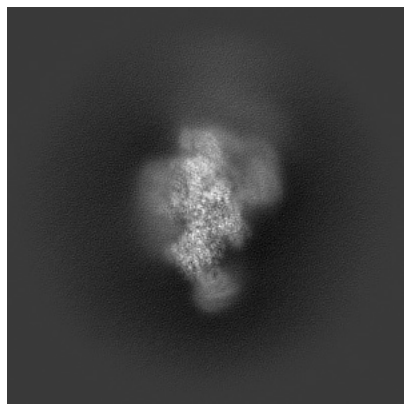
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-34500. These allow visual inspection of the internal detail of the map and identification of artifacts.

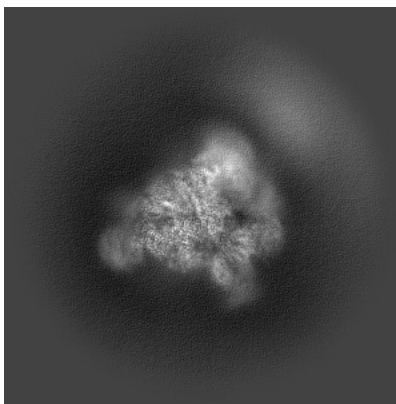
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

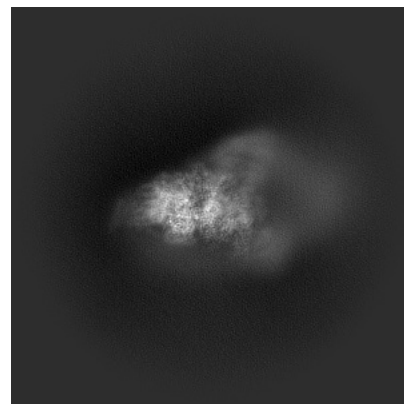
6.1.1 Primary map



X

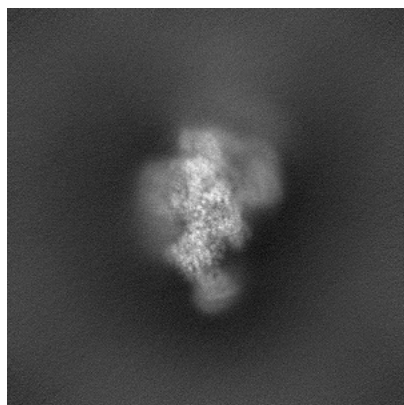


Y

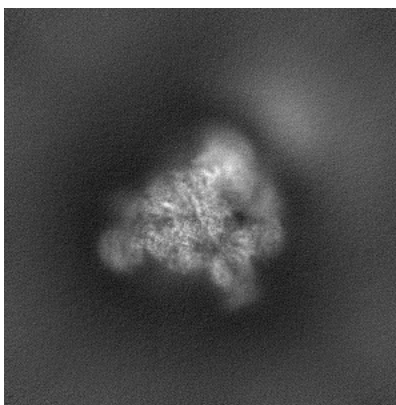


Z

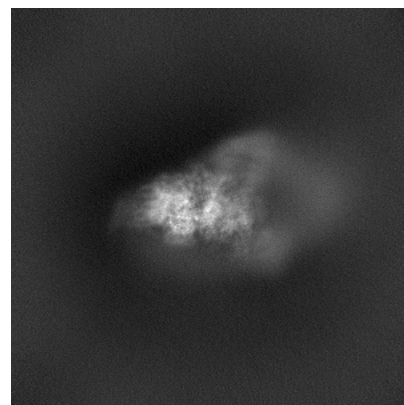
6.1.2 Raw map



X



Y

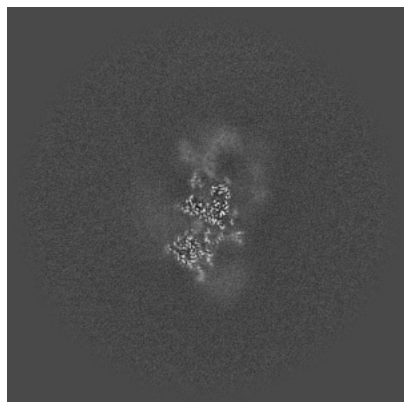


Z

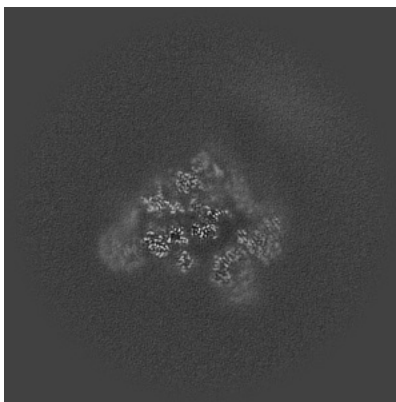
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

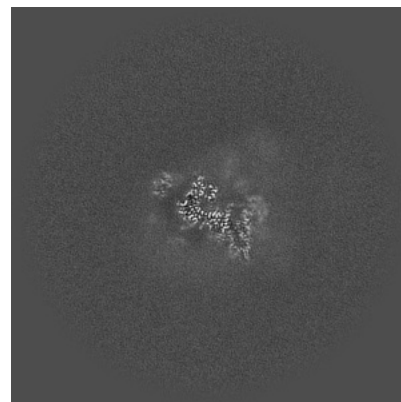
6.2.1 Primary map



X Index: 256

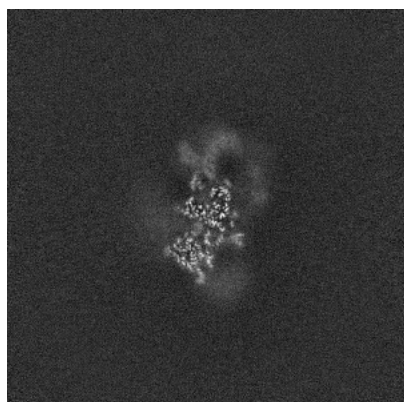


Y Index: 256

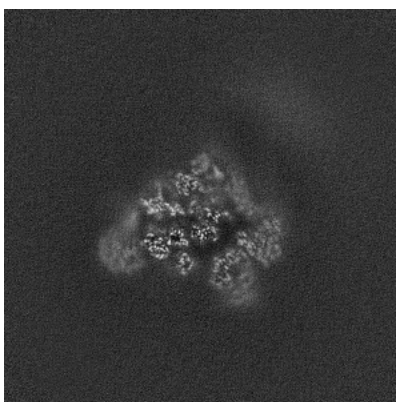


Z Index: 256

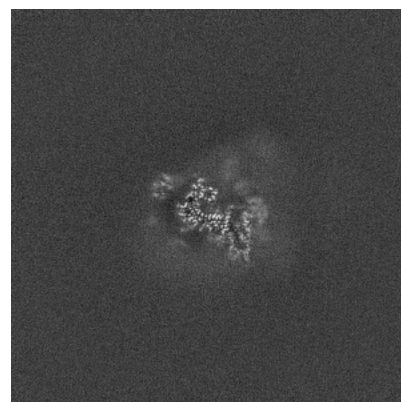
6.2.2 Raw map



X Index: 256



Y Index: 256

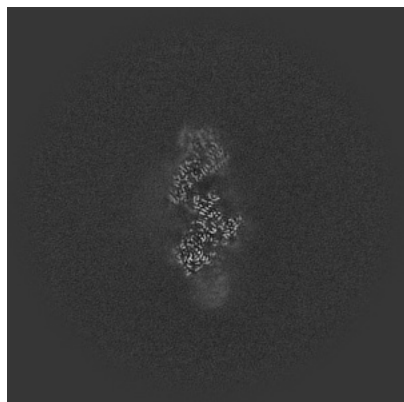


Z Index: 256

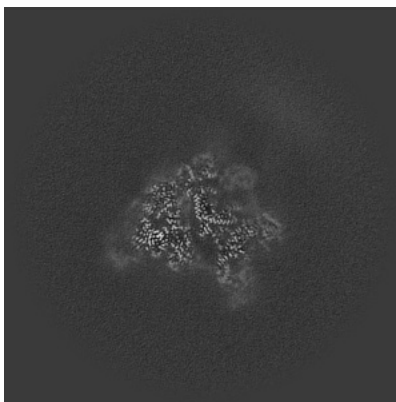
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

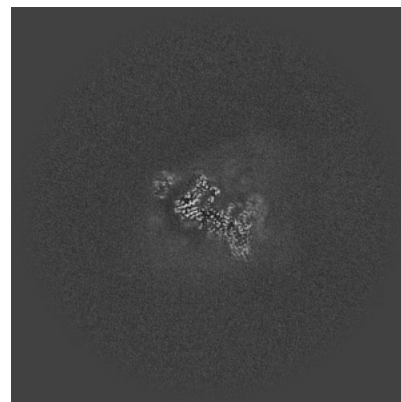
6.3.1 Primary map



X Index: 222

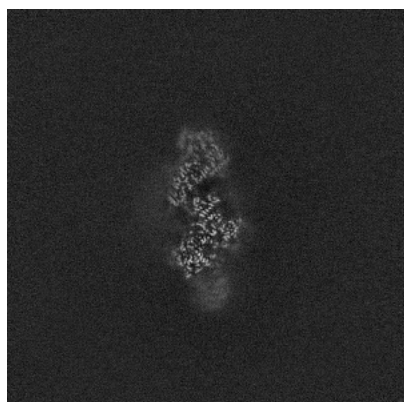


Y Index: 242

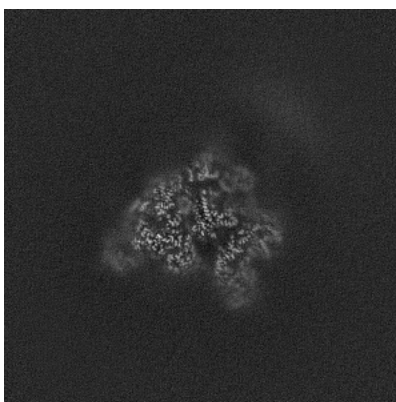


Z Index: 253

6.3.2 Raw map



X Index: 222



Y Index: 245

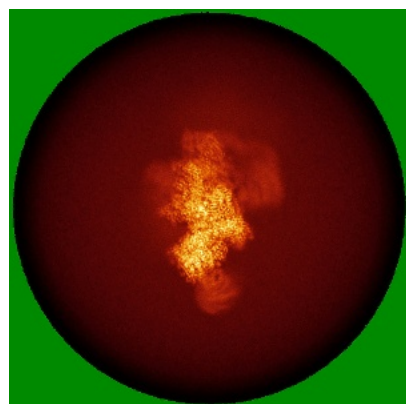


Z Index: 271

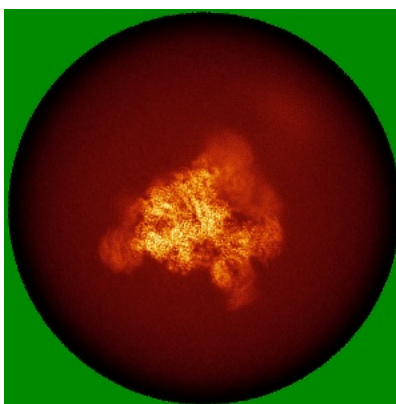
The images above show the largest variance slices of the map in three orthogonal directions.

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

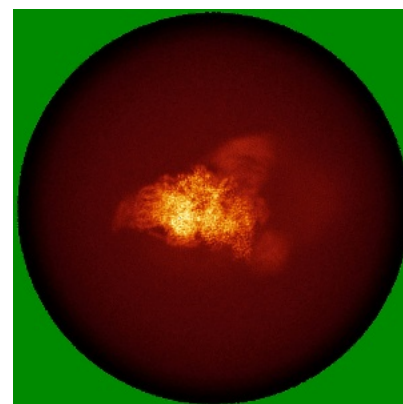
6.4.1 Primary map



X

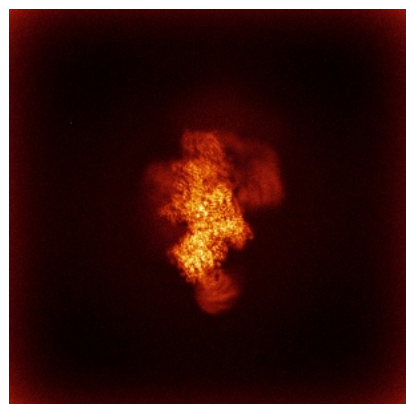


Y

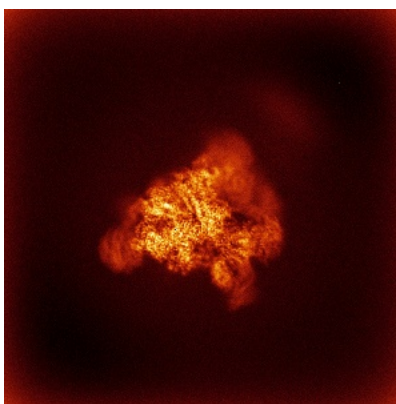


Z

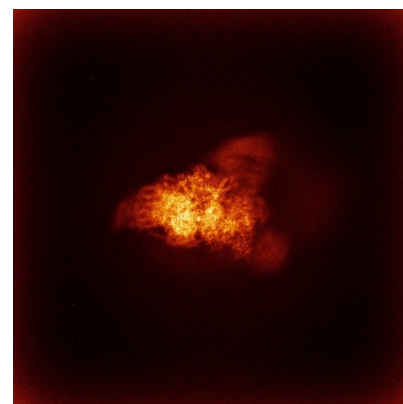
6.4.2 Raw map



X



Y

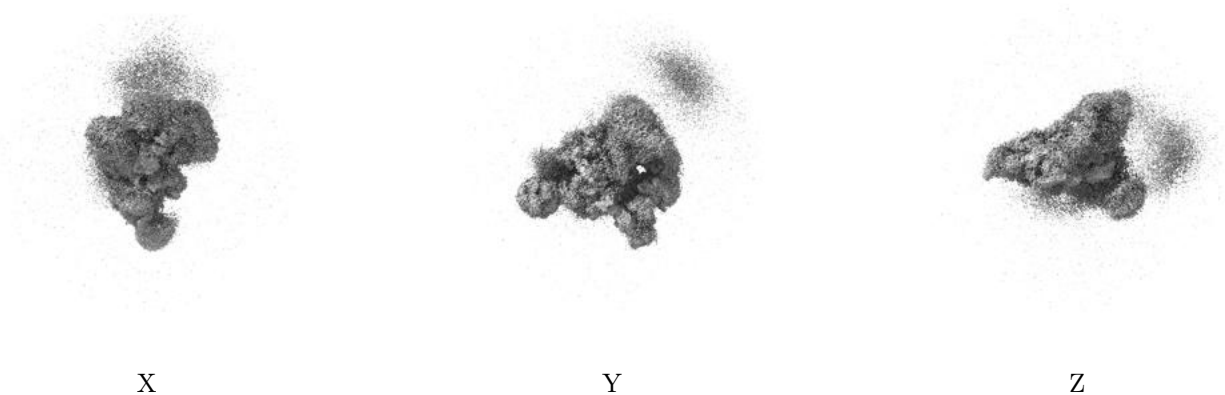


Z

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.

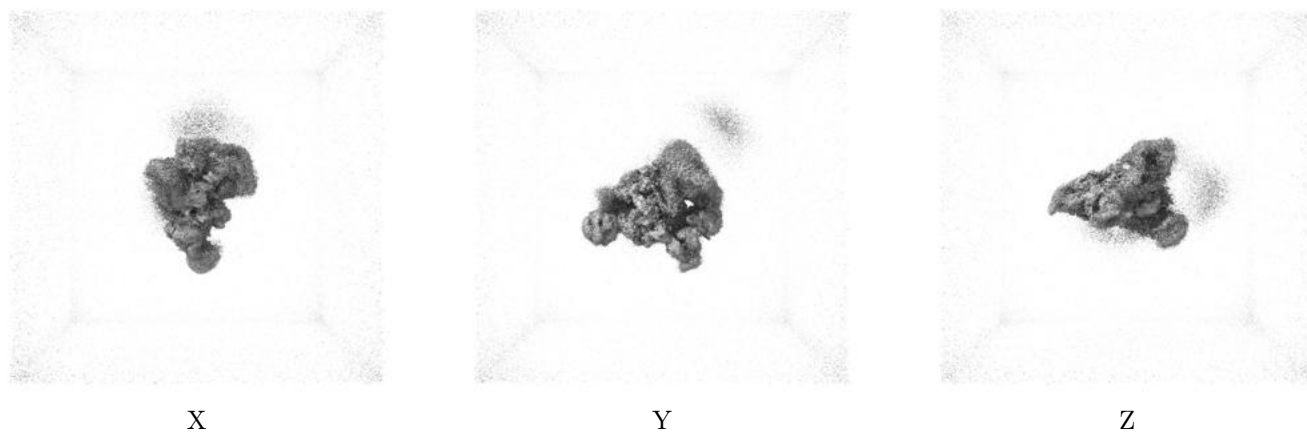
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



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



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.

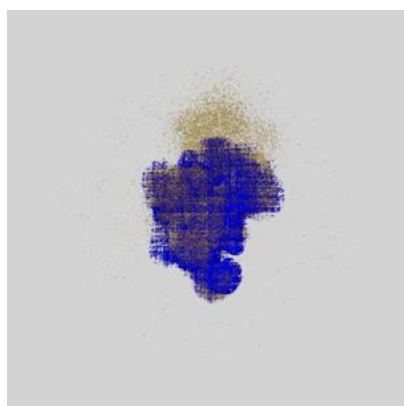
6.6 Mask visualisation [i](#)

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

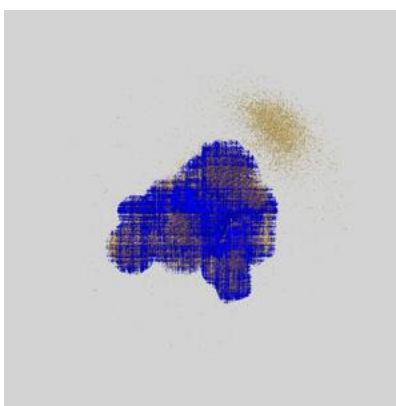
A mask typically either:

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

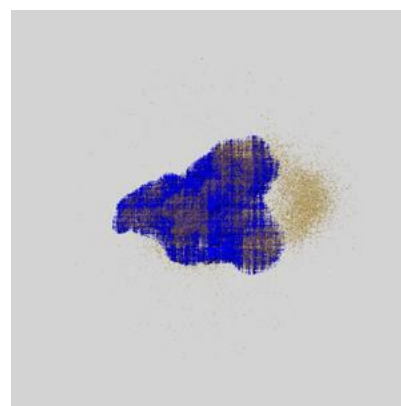
6.6.1 emd_34500_msk_1.map [i](#)



X



Y

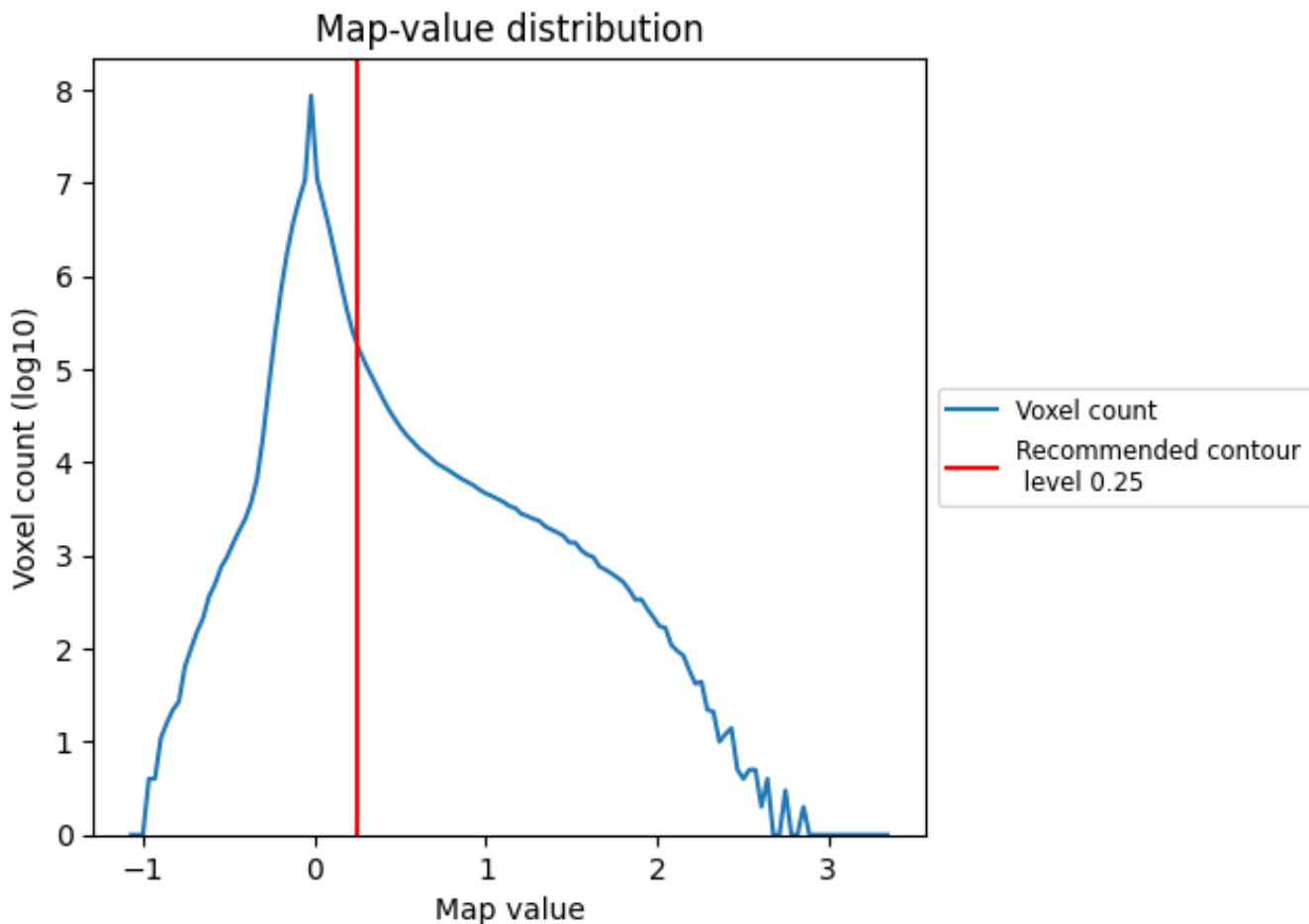


Z

7 Map analysis [i](#)

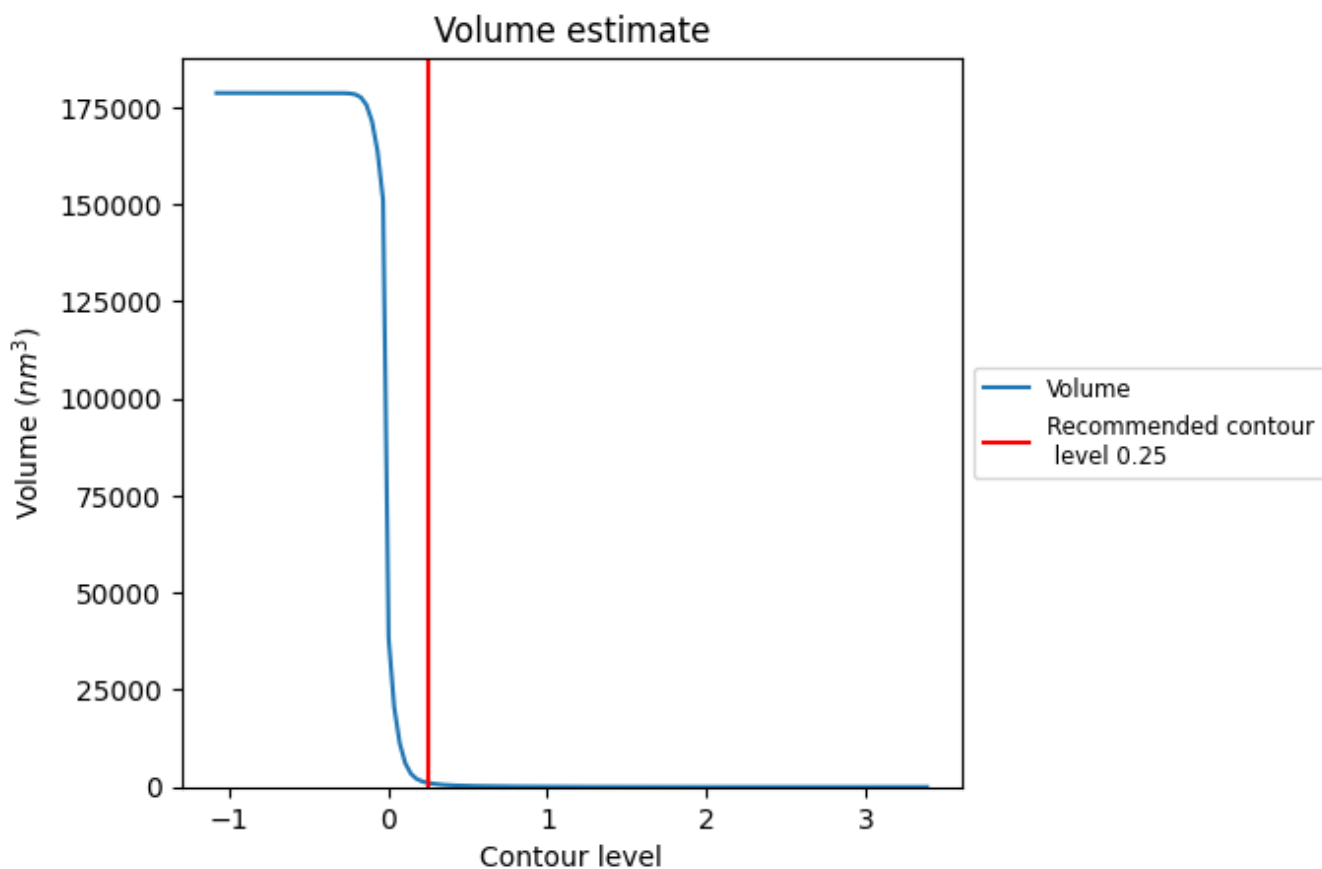
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

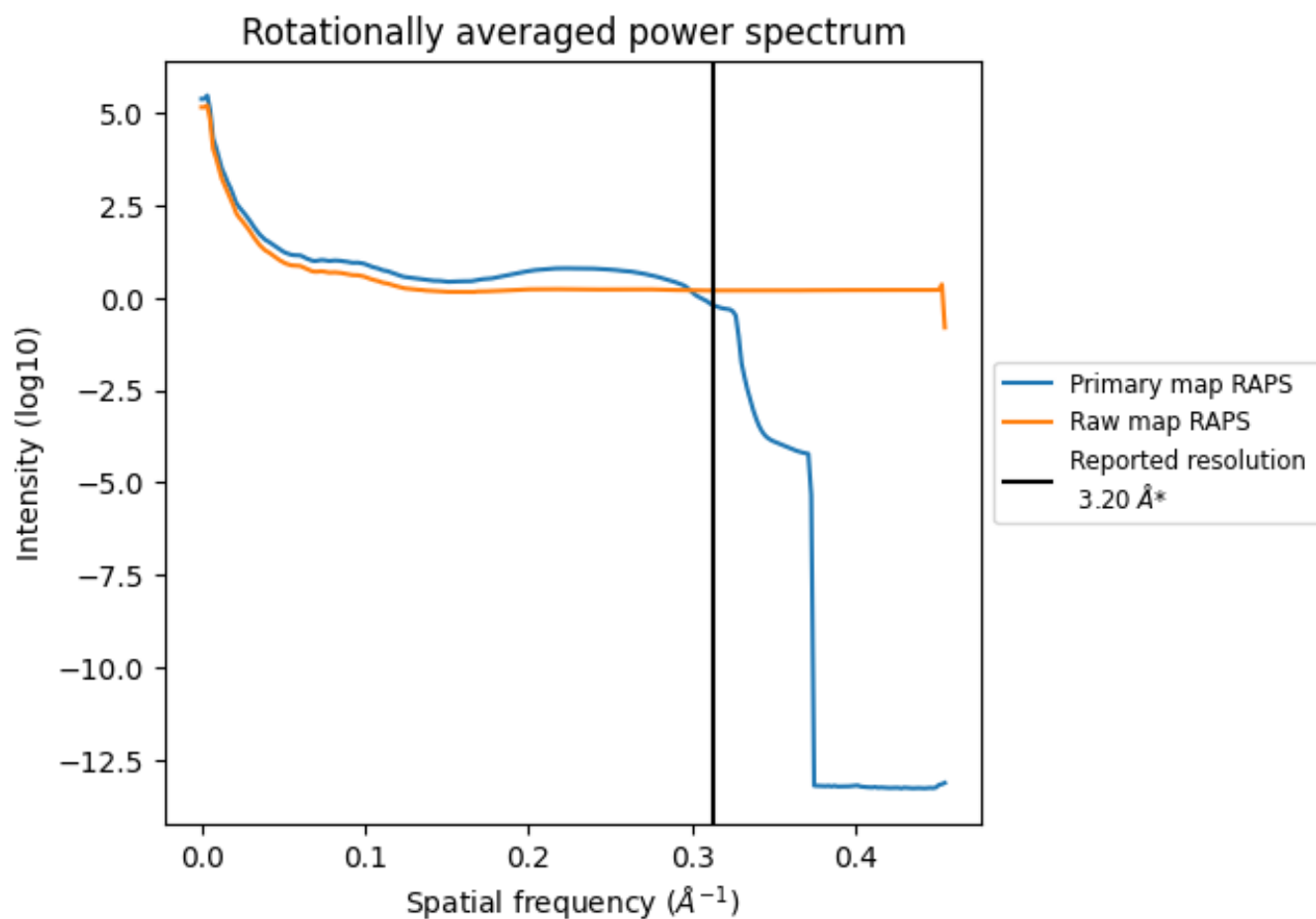
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1064 nm³; this corresponds to an approximate mass of 961 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](#)

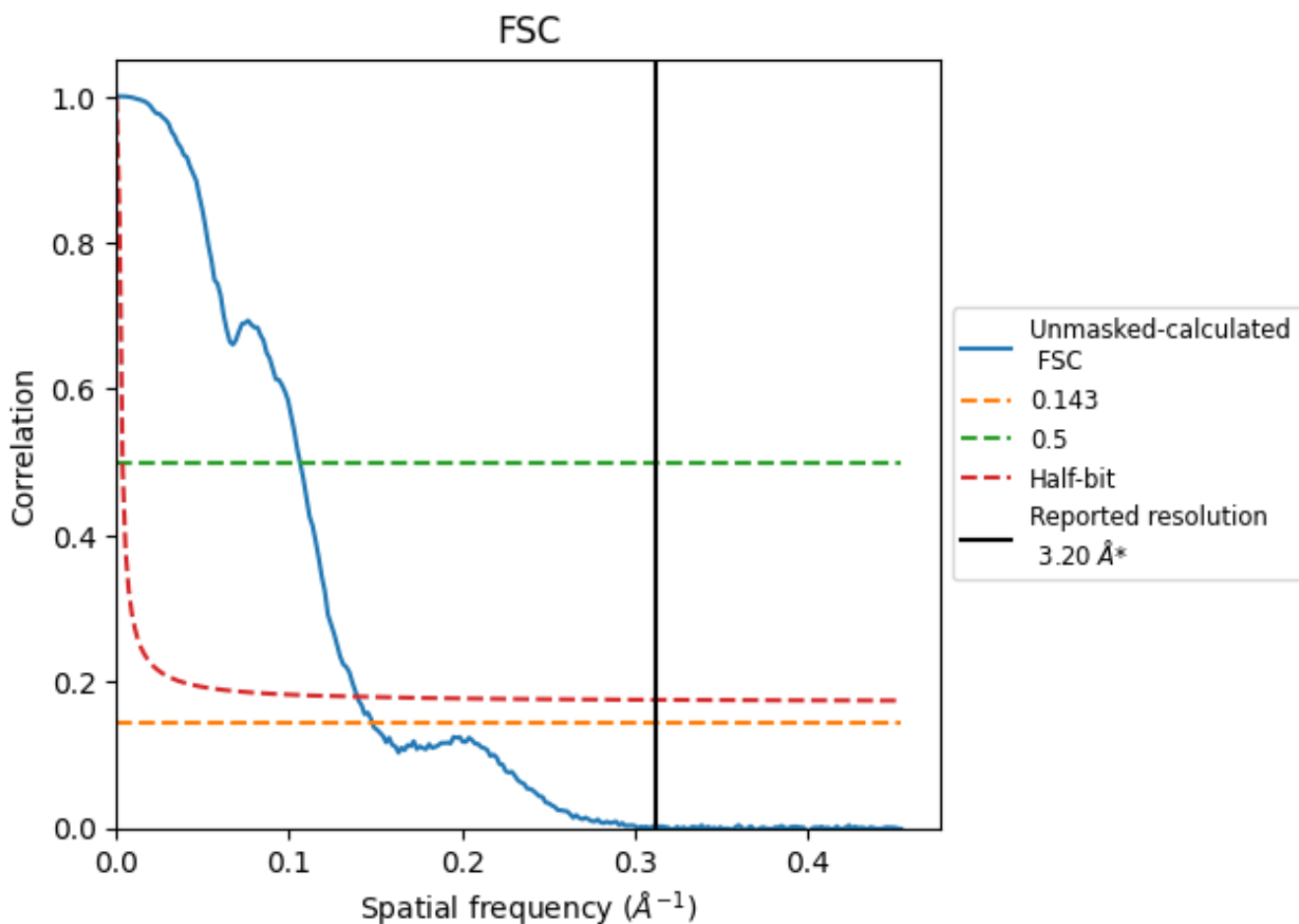


*Reported resolution corresponds to spatial frequency of 0.312 Å⁻¹

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.312\AA^{-1}

8.2 Resolution estimates [i](#)

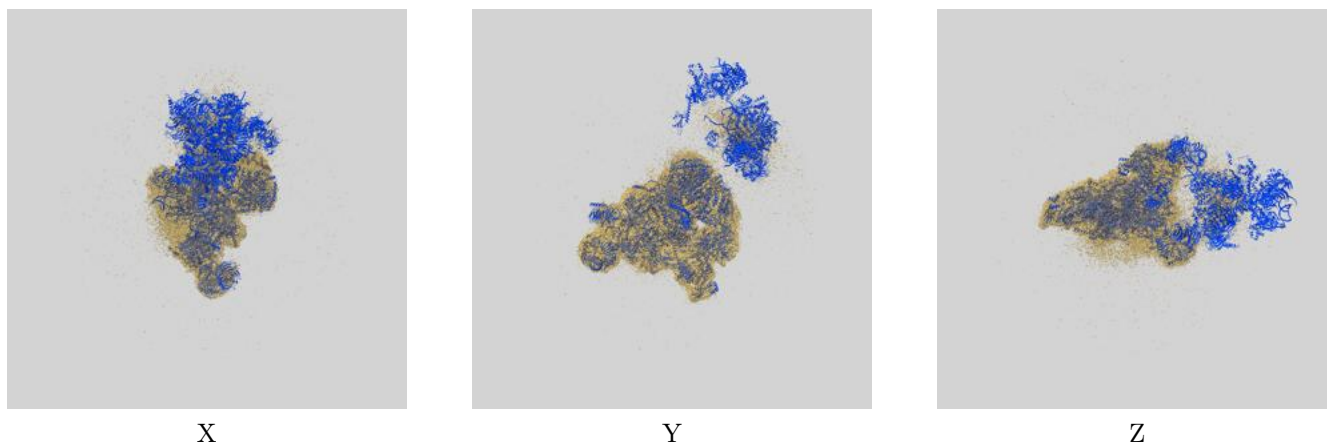
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	6.74	9.40	7.17

*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 6.74 differs from the reported value 3.2 by more than 10 %

9 Map-model fit [i](#)

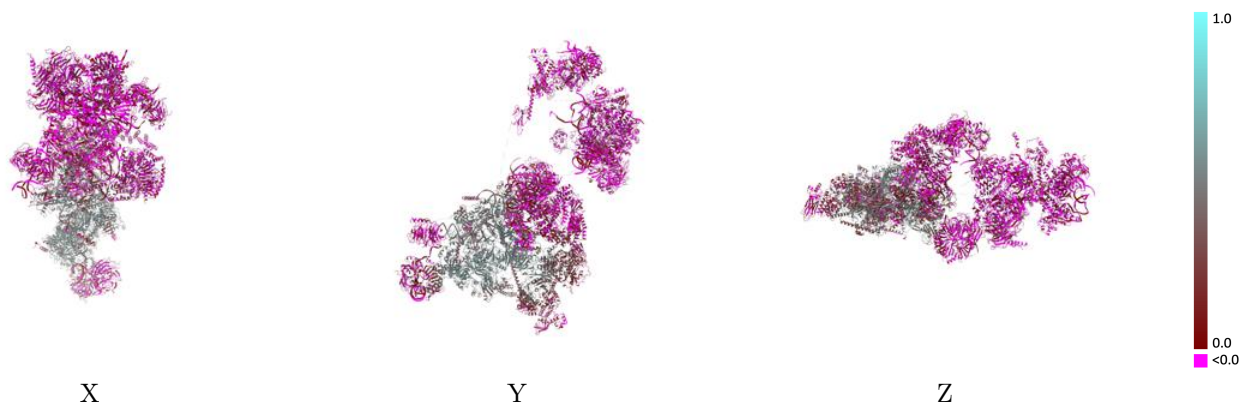
This section contains information regarding the fit between EMDB map EMD-34500 and PDB model 8H6E. Per-residue inclusion information can be found in section 3 on page 15.

9.1 Map-model overlay [i](#)



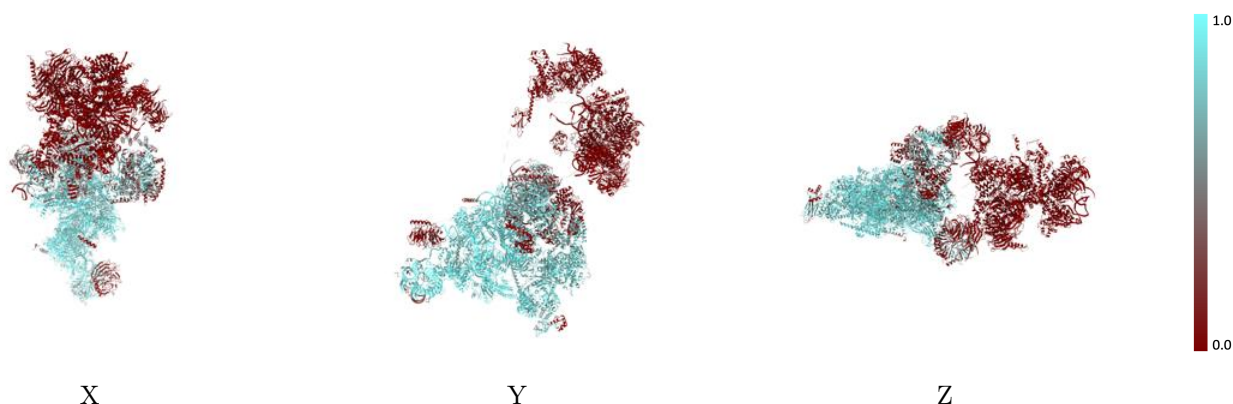
The images above show the 3D surface view of the map at the recommended contour level 0.25 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



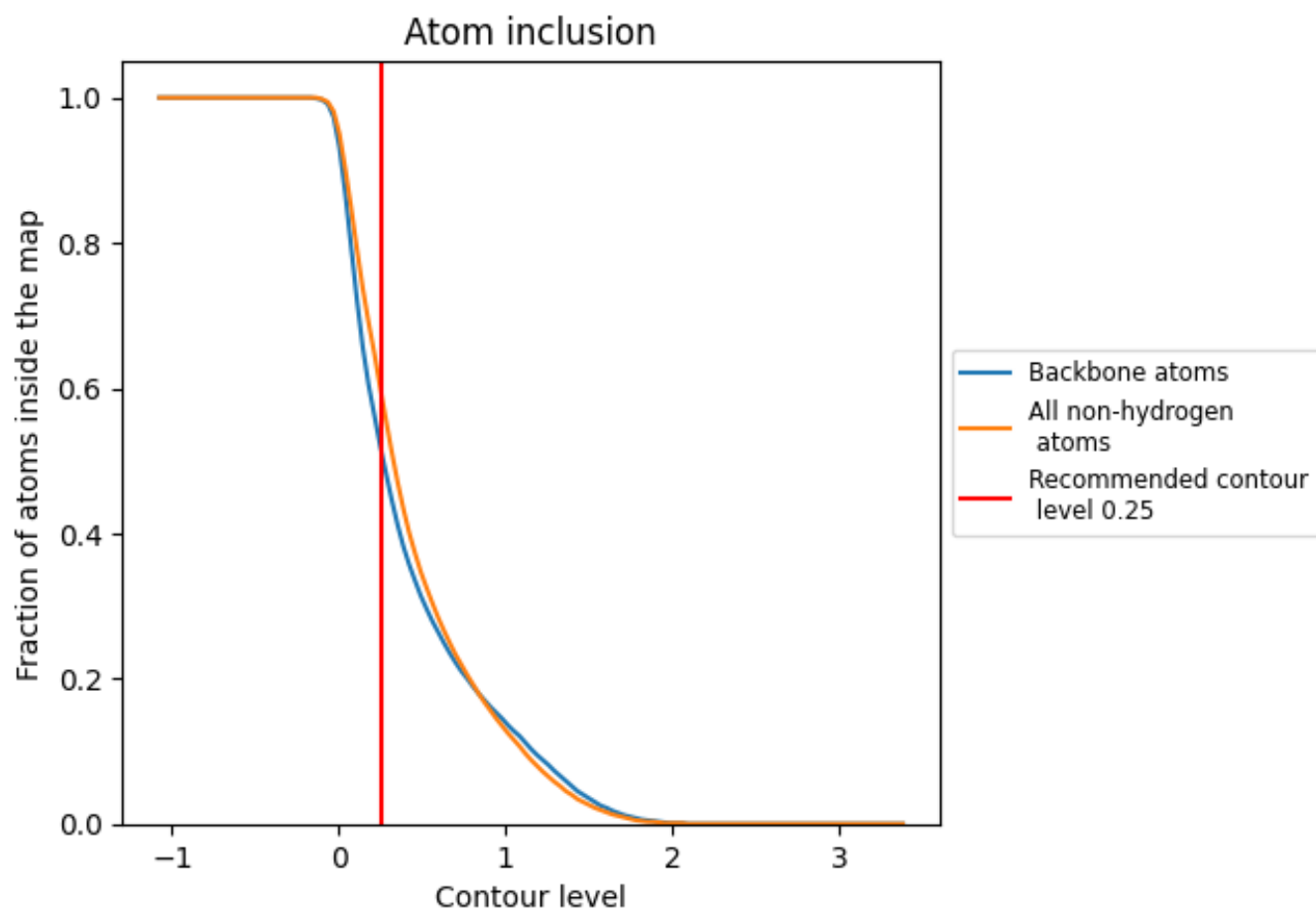
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.25).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 52% of all backbone atoms, 60% 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	 0.5990	 0.2360
2A	 0.0050	 -0.0080
2B	 0.0000	 -0.0110
2C	 0.0000	 -0.0400
2D	 0.3370	 0.2070
2E	 0.0000	 0.0010
2F	 0.0010	 0.0060
2G	 0.0080	 0.0050
2H	 0.0040	 0.0140
2I	 0.0040	 -0.0000
2J	 0.0000	 0.0150
2K	 0.0000	 -0.0320
2L	 0.0170	 -0.0300
2M	 0.0080	 0.0260
2a	 0.0000	 0.0180
2b	 0.0000	 0.0160
2c	 0.0000	 -0.0750
2d	 0.0000	 0.0100
2e	 0.0000	 0.0210
2f	 0.0000	 0.0070
2g	 0.0000	 0.0390
4A	 0.6490	 0.0900
4B	 0.3900	 0.0270
4C	 0.5380	 0.0200
4D	 0.3980	 0.1020
4E	 0.6080	 0.0780
4F	 0.9680	 0.5220
4G	 0.6630	 0.1510
4R	 0.8340	 0.2830
4S	 0.7650	 0.3010
4T	 0.9700	 0.4950
4U	 0.7840	 0.3270
4X	 0.7990	 0.3030
4Y	 0.0340	 -0.0070
4a	 0.4320	 0.0060



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Chain	Atom inclusion	Q-score
4b	 0.4860	 0.0410
4c	 0.2770	 0.0130
4d	 0.2740	 0.0420
4e	 0.3060	 -0.0230
4f	 0.4580	 0.0350
4g	 0.4940	 -0.0130
5A	 0.8410	 0.2620
5B	 0.9230	 0.4610
5C	 0.9620	 0.5050
5D	 0.8300	 0.2890
5E	 0.0730	 -0.0100
5a	 0.8030	 0.1790
5b	 0.8870	 0.1170
5c	 0.7220	 0.0460
5d	 0.8150	 0.0990
5e	 0.9050	 0.1350
5f	 0.8580	 0.2370
5g	 0.9420	 0.3440
6A	 0.6380	 0.1840
6a	 0.0060	 -0.0090
6b	 0.0030	 -0.0680
6c	 0.0030	 -0.0030
6d	 0.0040	 -0.0000
6e	 0.0040	 0.0190
6f	 0.0000	 0.0500
6g	 0.0000	 0.0380
A	 0.2620	 0.1110