



Full wwPDB EM Validation Report ⓘ

Nov 11, 2024 – 12:44 PM JST

PDB ID : 6J6Q
EMDB ID : EMD-0692
Title : Cryo-EM structure of the yeast B*-b2 complex at an average resolution of 3.7 angstrom
Authors : Wan, R.; Bai, R.; Yan, C.; Lei, J.; Shi, Y.
Deposited on : 2019-01-15
Resolution : 3.70 Å(reported)

This is a Full wwPDB EM Validation 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:

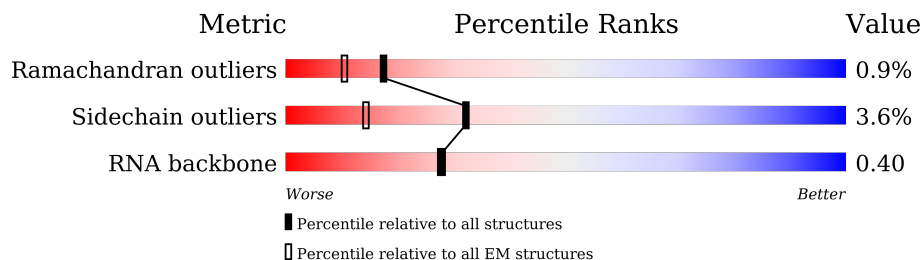
EMDB validation analysis : 0.0.1.dev113
Mogul : 1.8.5 (274361), CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.39

1 Overall quality at a glance i

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

The reported resolution of this entry is 3.70 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.



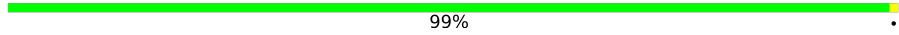


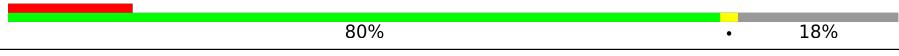







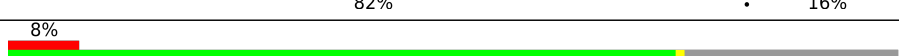




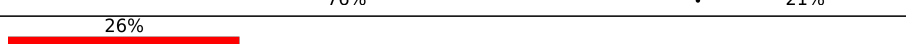
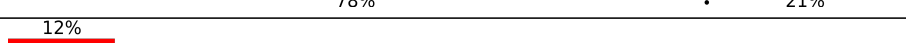



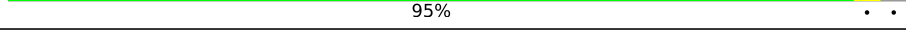



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	2413	
2	C	1008	
3	J	135	
4	O	451	
5	P	379	
6	Q	364	
7	R	339	
8	S	175	

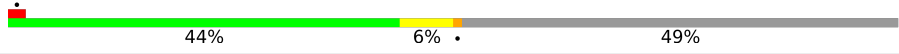




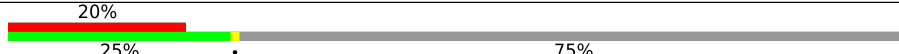

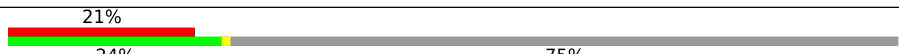
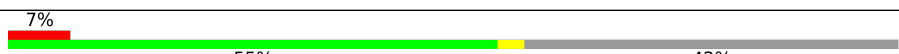
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Mol	Chain	Length	Quality of chain
9	T	157	 99%
10	Z	577	 21% 75% 23%
11	c	590	 38% 72% 26%
12	d	687	 14% 80% 18%
13	I	215	 47% 53%
14	n	455	 40% 62% 34%
15	H	235	 5% 39% 60%
16	B	246	 11% 12% 77%
17	D	214	 56% 28% 16%
18	E	112	 51% 41% 8%
19	L	1175	 10% 8% 82%
20	v	859	 16% 82% 16%
21	a	111	 8% 75% 24%
22	b	238	 15% 68% 29%
23	t	175	 84% 81% 8% 11%
24	i	94	 76% 21%
24	u	94	 26% 78% 21%
25	m	146	 12% 75% 6% 18%
25	z	146	 14% 74% 26%
26	j	77	 5% 86% 12% 1%
26	x	77	 36% 95% 1% 2%
27	h	86	 79% 21%
27	w	86	 20% 79% 2% 2%
28	e	110	 25% 84% 8% 8%
28	g	110	 14% 85% 6% 8%

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Mol	Chain	Length	Quality of chain
29	k	196	
29	s	196	
30	l	101	
30	y	101	
31	o	503	
31	p	503	
31	q	503	
31	r	503	
32	F	278	

2 Entry composition [i](#)

There are 36 unique types of molecules in this entry. The entry contains 80535 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called Pre-mRNA-splicing factor 8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	1913	15793	10154	2714	2868	57	0	0

- Molecule 2 is a protein called Pre-mRNA-splicing factor SNU114.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	920	7348	4733	1223	1362	30	0	0

- Molecule 3 is a protein called Pre-mRNA-splicing factor CWC21.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	J	27	190	112	38	40	0	0

- Molecule 4 is a protein called Pre-mRNA-splicing factor PRP46.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	O	357	2810	1777	493	530	10	0	0

- Molecule 5 is a protein called Pre-mRNA-processing protein 45.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	P	205	1608	1003	294	304	7	0	0

- Molecule 6 is a protein called Pre-mRNA-splicing factor SLT11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	Q	292	2301	1461	399	426	15	0	0

- Molecule 7 is a protein called Pre-mRNA-splicing factor CWC2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	R	261	2089	1320	369	388	12	0	0

- Molecule 8 is a protein called Pre-mRNA-splicing factor CWC15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	S	70	567	355	113	98	1	0	0

- Molecule 9 is a protein called Pre-mRNA-splicing factor BUD31.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	T	157	1291	808	240	232	11	0	0

- Molecule 10 is a protein called Pre-mRNA-splicing factor CWC22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	Z	447	3651	2343	602	688	18	0	0

- Molecule 11 is a protein called Pre-mRNA-splicing factor CEF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	c	436	2978	1843	552	575	8	0	0

- Molecule 12 is a protein called Pre-mRNA-splicing factor CLF1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	d	566	3881	2433	707	732	9	0	0

- Molecule 13 is a protein called Pre-mRNA-splicing factor SYF2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	I	102	822	504	152	165	1	0	0

- Molecule 14 is a protein called Pre-mRNA-processing factor 17.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	P			S
14	n	299	1894	1175	340	372	1	6	0	0

- Molecule 15 is a protein called Pre-mRNA-splicing factor ISY1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	S			
15	H	95	810	506	152	151	1		0	0

- Molecule 16 is a RNA chain called UBC4 pre-mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	P			
16	B	57	1206	542	209	398	57		0	0

- Molecule 17 is a RNA chain called U5 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	P			
17	D	179	3795	1699	660	1258	178		0	0

- Molecule 18 is a RNA chain called U6 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	P			
18	E	103	2192	982	391	716	103		0	0

- Molecule 19 is a RNA chain called U2 snRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	P			
19	L	210	4425	1981	739	1495	210		0	0

- Molecule 20 is a protein called Pre-mRNA-splicing factor SYF1.

Mol	Chain	Residues	Atoms					AltConf	Trace	
			Total	C	N	O	S			
20	v	722	4625	2893	825	895	12		0	0

- Molecule 21 is a protein called U2 small nuclear ribonucleoprotein B”.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
21	a	84	416	248	84	84	0	0

- Molecule 22 is a protein called U2 small nuclear ribonucleoprotein A'.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
22	b	169	841	503	169	169	0	0

- Molecule 23 is a protein called Pre-mRNA-splicing factor SNT309.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	t	156	926	585	160	180	1	0	0

- Molecule 24 is a protein called Small nuclear ribonucleoprotein E.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	u	74	526	346	87	90	3	0	0
24	i	74	541	358	90	90	3	0	0

- Molecule 25 is a protein called Small nuclear ribonucleoprotein Sm D1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	m	119	917	575	163	176	3	0	0
25	z	108	824	521	142	158	3	0	0

- Molecule 26 is a protein called Small nuclear ribonucleoprotein G.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	j	75	552	350	98	103	1	0	0
26	x	75	552	350	98	103	1	0	0

- Molecule 27 is a protein called Small nuclear ribonucleoprotein F.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	h	68	Total	C	N	O	S	0	0
			518	337	96	84	1		
27	w	68	Total	C	N	O	S	0	0
			518	337	96	84	1		

- Molecule 28 is a protein called Small nuclear ribonucleoprotein Sm D2.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	g	101	Total	C	N	O	S	0	0
			785	504	149	128	4		
28	e	101	Total	C	N	O	S	0	0
			785	504	149	128	4		

- Molecule 29 is a protein called Small nuclear ribonucleoprotein-associated protein B.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	k	100	Total	C	N	O	S	0	0
			809	514	150	142	3		
29	s	93	Total	C	N	O	S	0	0
			749	476	138	132	3		

- Molecule 30 is a protein called Small nuclear ribonucleoprotein Sm D3.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	l	83	Total	C	N	O	S	0	0
			641	408	111	120	2		
30	y	81	Total	C	N	O	S	0	0
			616	394	107	113	2		

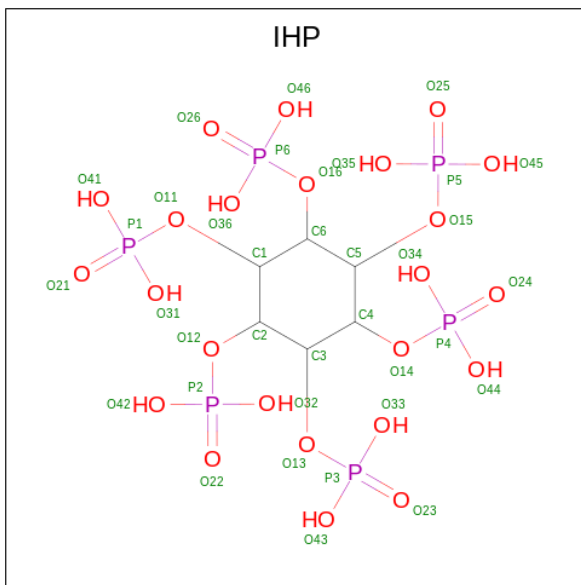
- Molecule 31 is a protein called Pre-mRNA-processing factor 19.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	r	125	Total	C	N	O	S	0	0
			823	521	133	167	2		
31	p	128	Total	C	N	O	S	0	0
			843	532	136	173	2		
31	q	129	Total	C	N	O	S	0	0
			850	537	137	174	2		
31	o	126	Total	C	N	O	S	0	0
			830	525	134	169	2		

- Molecule 32 is a protein called Splicing factor YJU2.

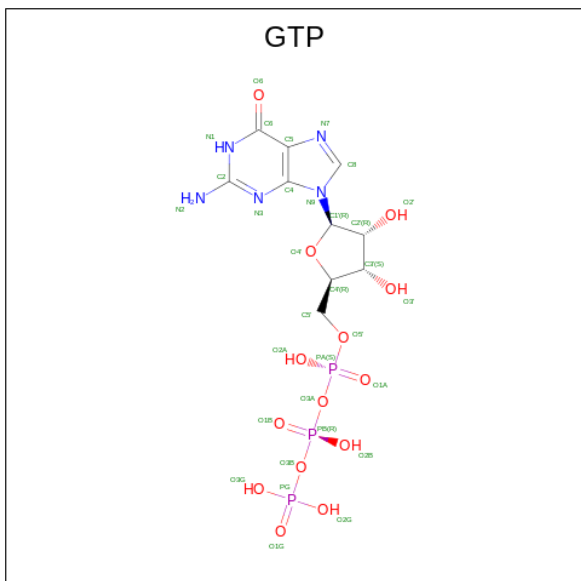
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
32	F	161	1316	817	240	248	11	0	0

- Molecule 33 is INOSITOL HEXAKISPHOSPHATE (three-letter code: IHP) (formula: $C_6H_{18}O_{24}P_6$).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	O	P	
33	A	1	36	6	24	6	0

- Molecule 34 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



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

- Molecule 35 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
			Total	Mg	
35	C	1	1	1	0
35	B	1	1	1	0
35	E	4	4	4	0

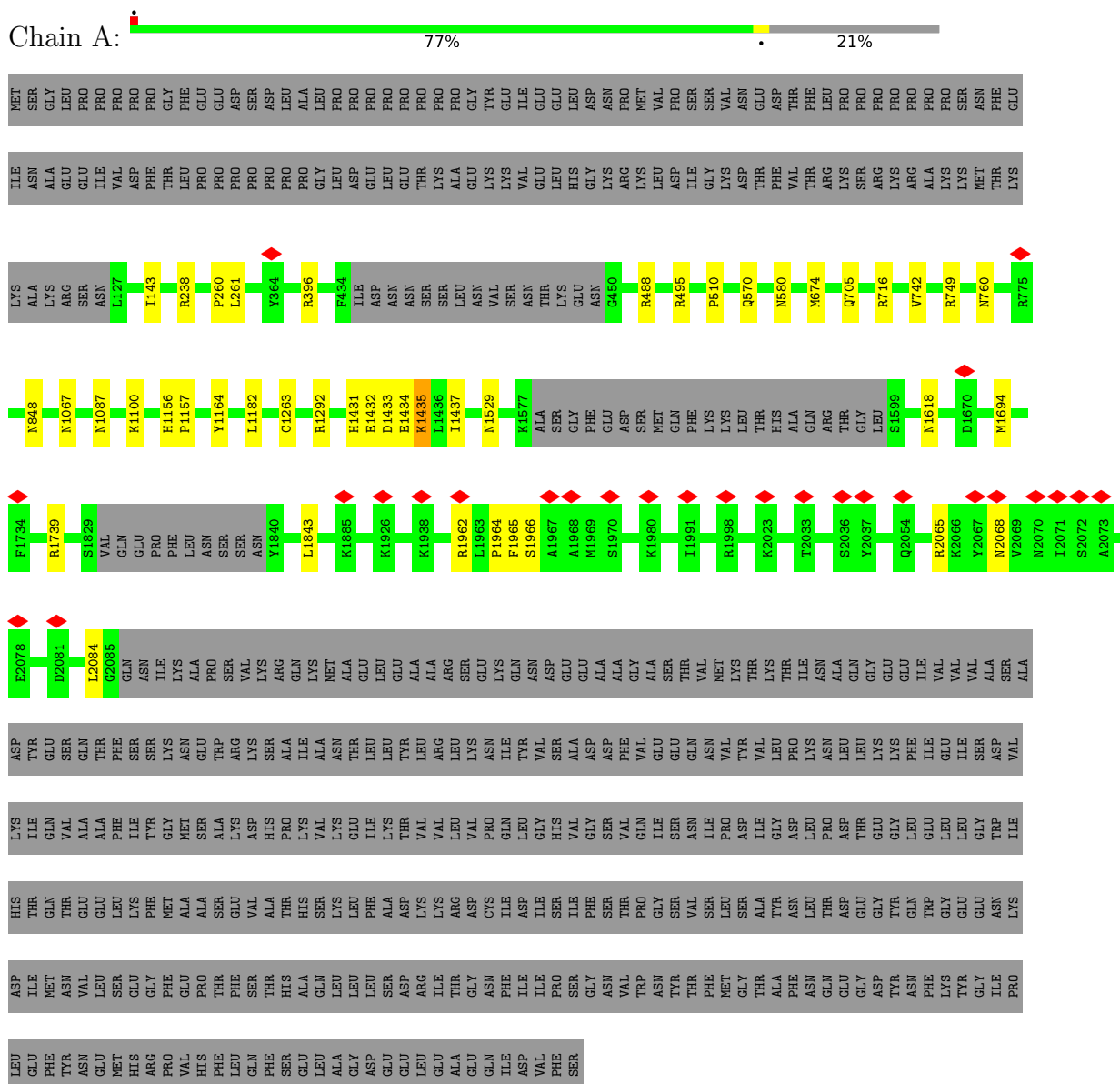
- Molecule 36 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
			Total	Zn	
36	Q	2	2	2	0
36	R	1	1	1	0
36	T	3	3	3	0
36	F	1	1	1	0

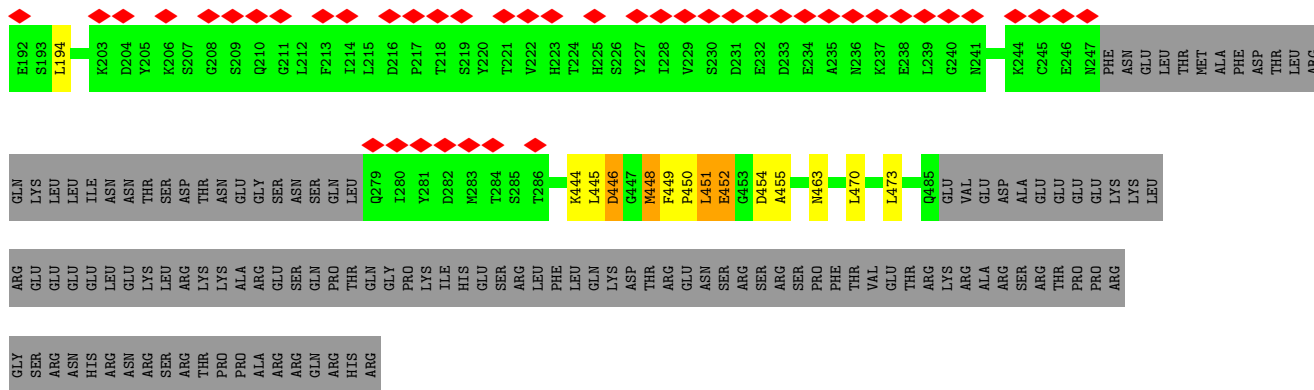
3 Residue-property plots [i](#)

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

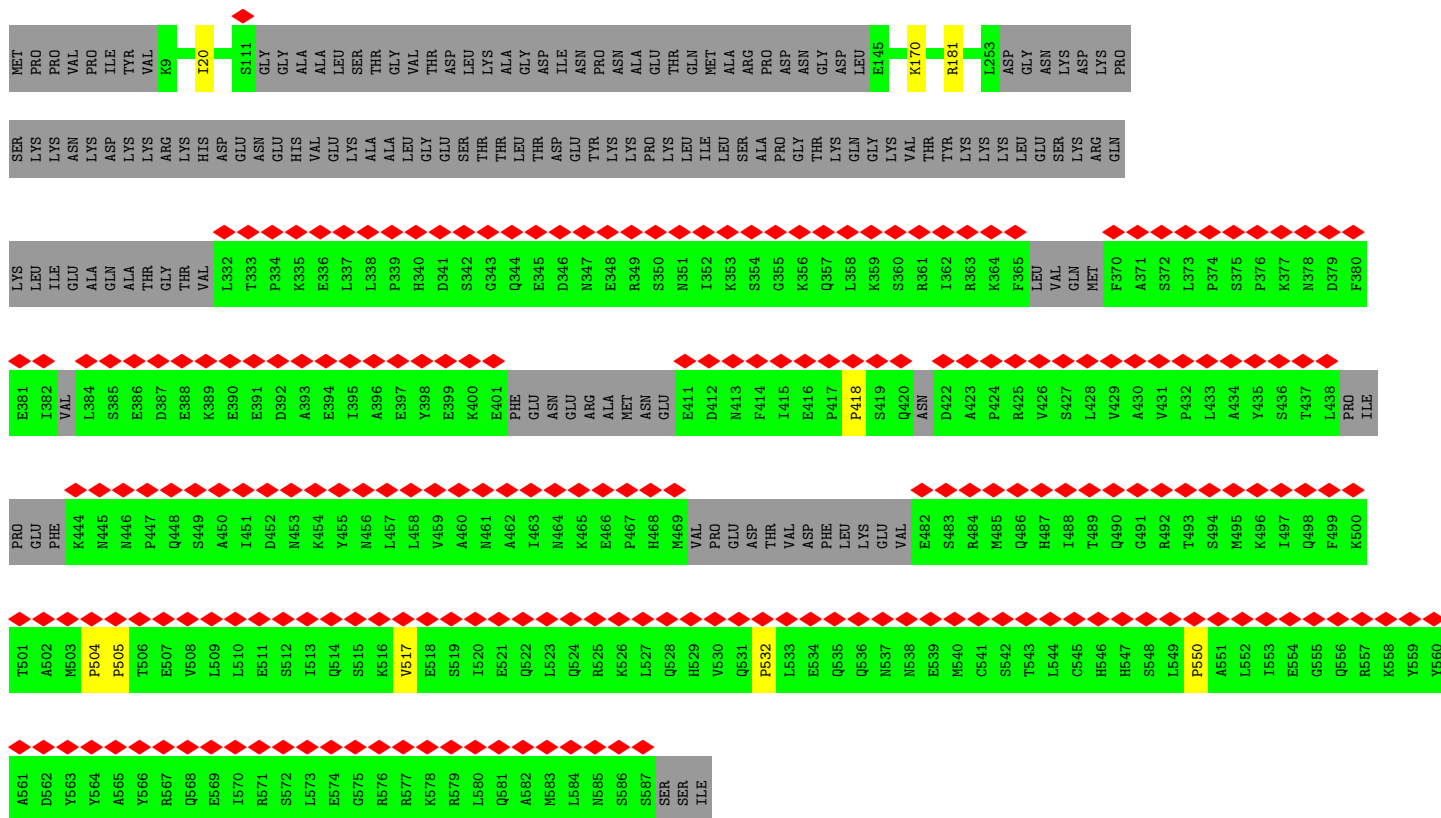
- Molecule 1: Pre-mRNA-splicing factor 8



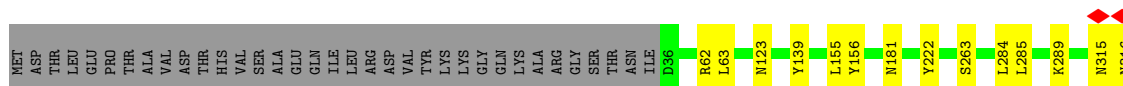
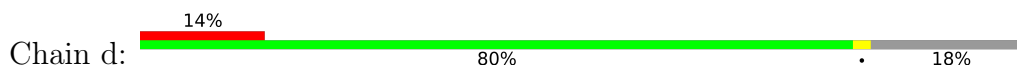
- Molecule 2: Pre-mRNA-splicing factor SNU114

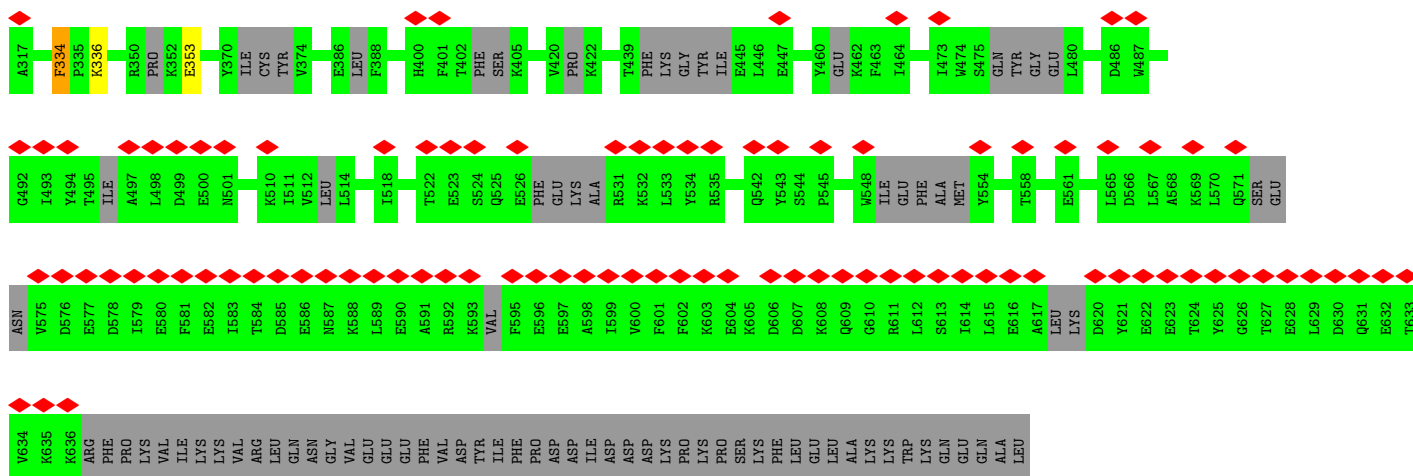


● Molecule 11: Pre-mRNA-splicing factor CEF1

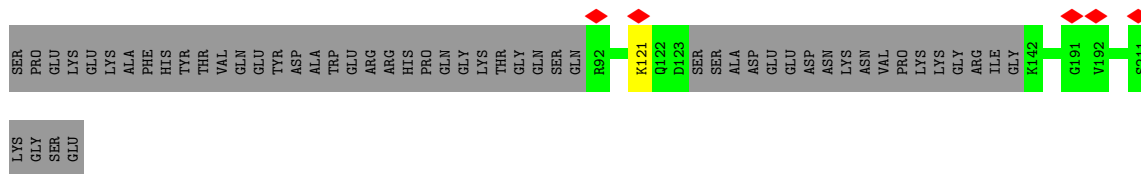
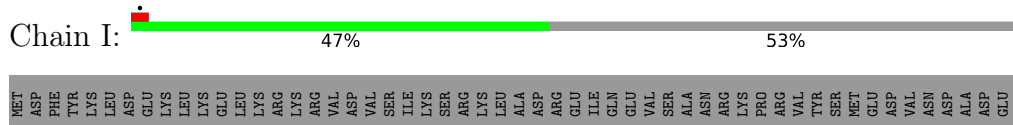


● Molecule 12: Pre-mRNA-splicing factor CLF1

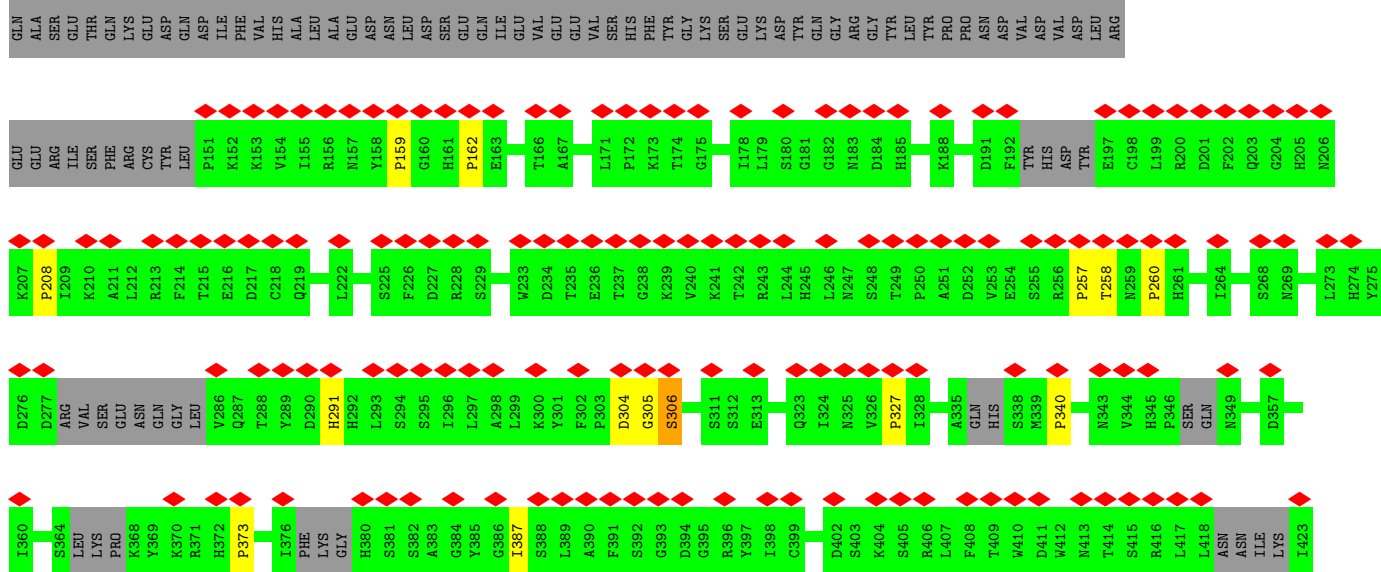
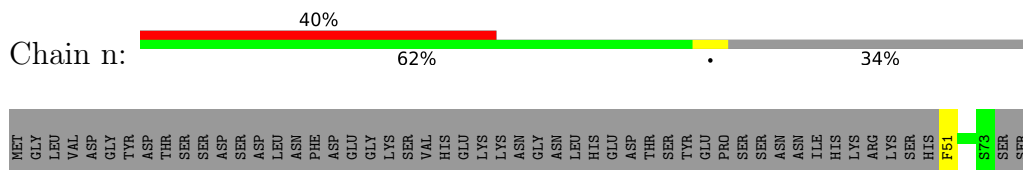


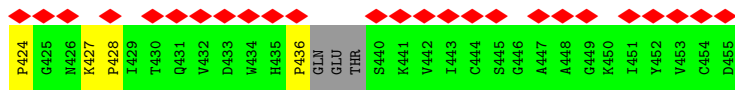


• Molecule 13: Pre-mRNA-splicing factor SYF2

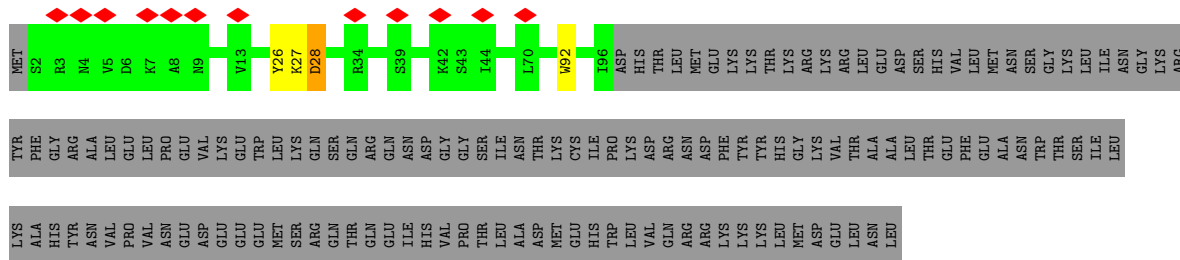
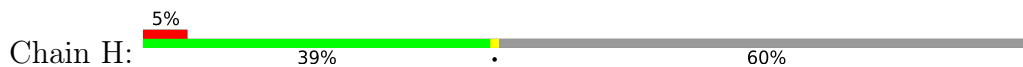


• Molecule 14: Pre-mRNA-processing factor 17





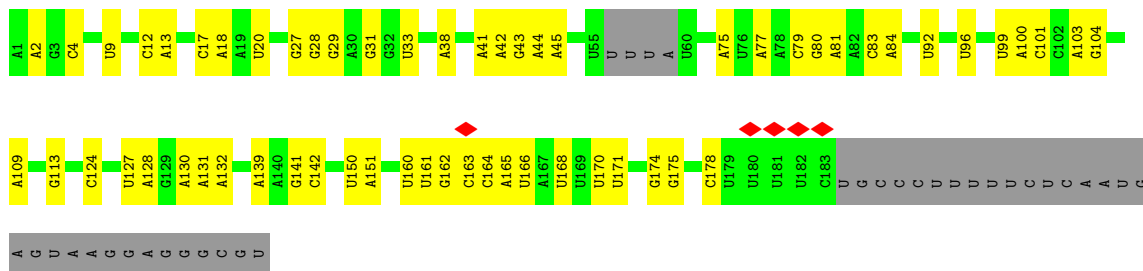
• Molecule 15: Pre-mRNA-splicing factor ISY1



• Molecule 16: UBC4 pre-mRNA



• Molecule 17: U5 snRNA

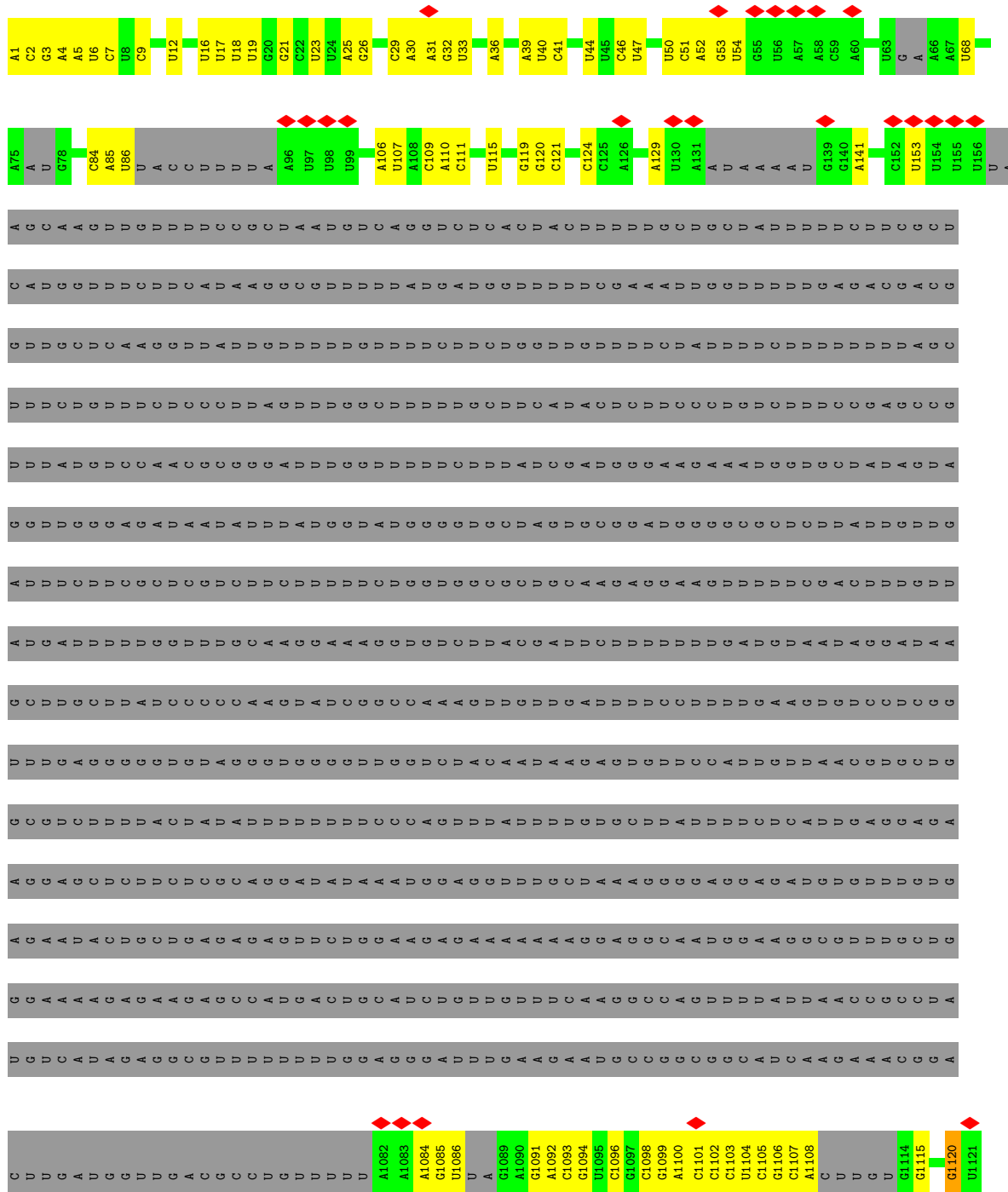


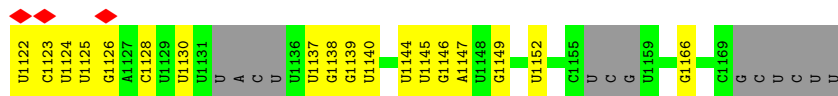
• Molecule 18: U6 snRNA



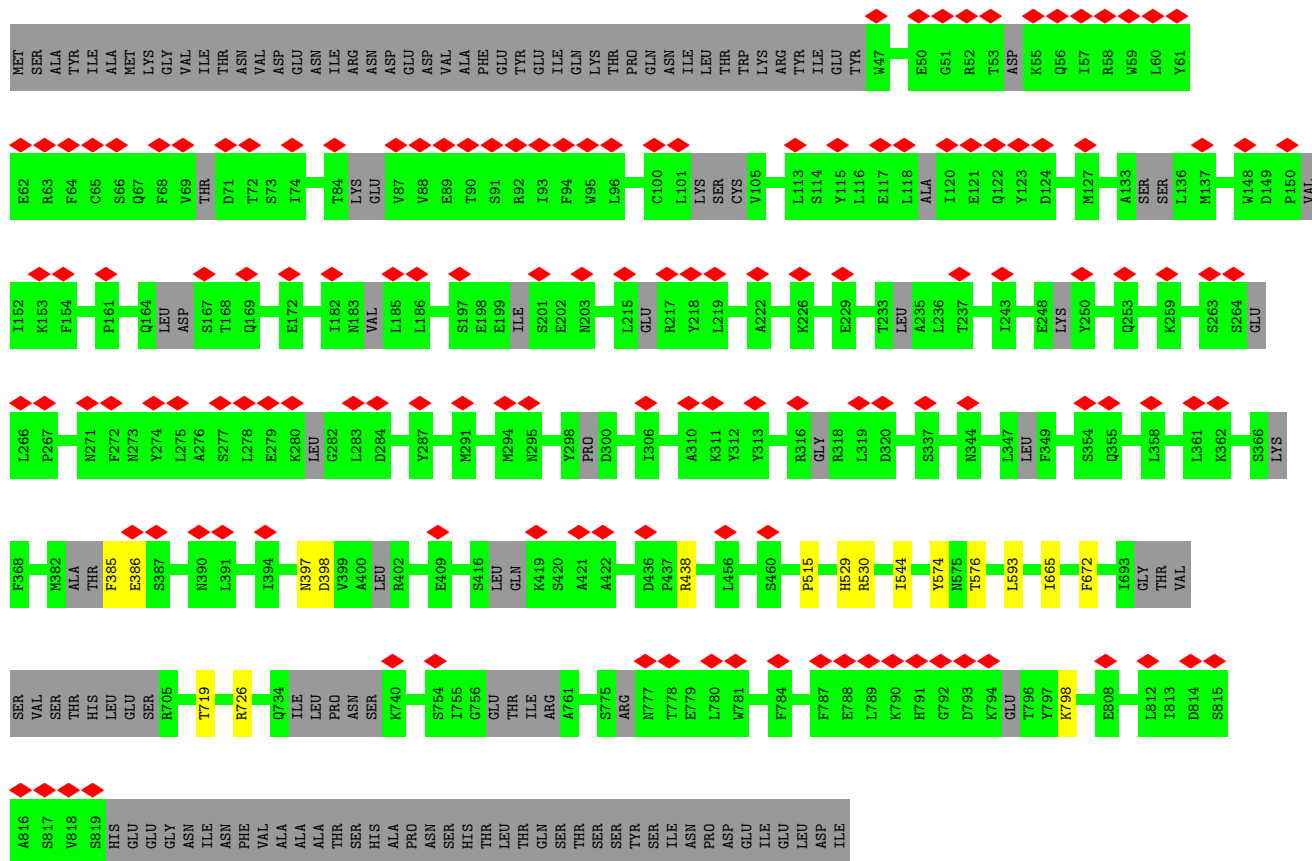
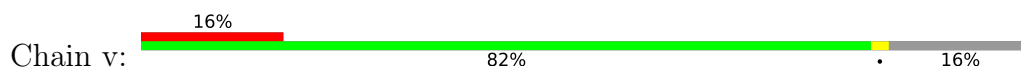


● Molecule 19: U2 snRNA

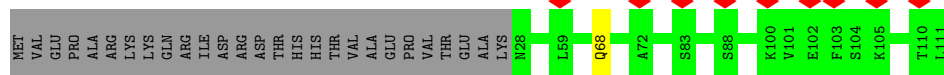
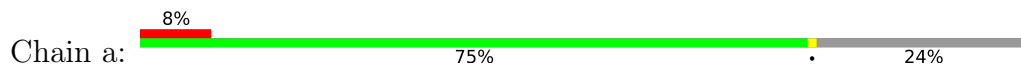




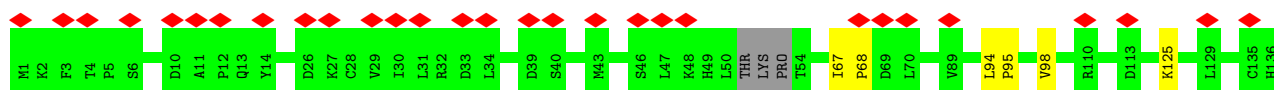
• Molecule 20: Pre-mRNA-splicing factor SYF1

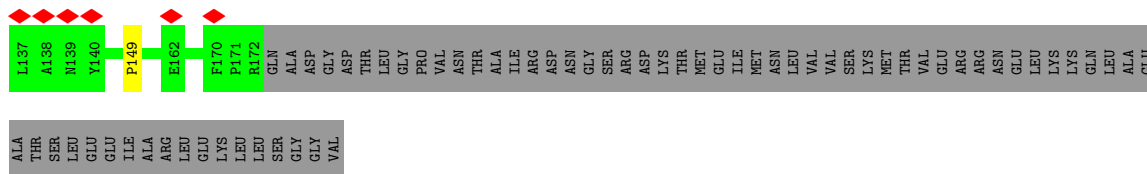


• Molecule 21: U2 small nuclear ribonucleoprotein B''

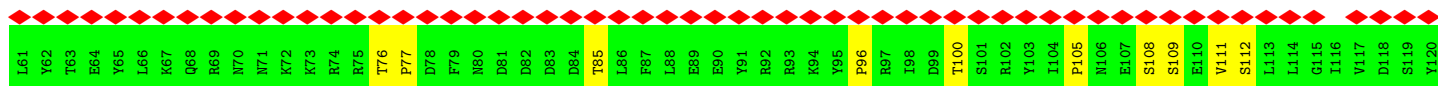
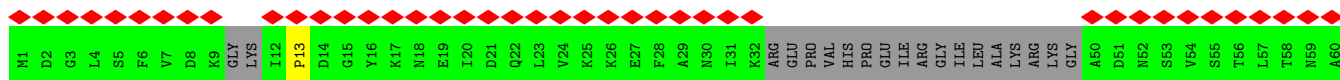
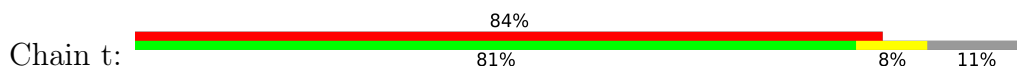


• Molecule 22: U2 small nuclear ribonucleoprotein A'

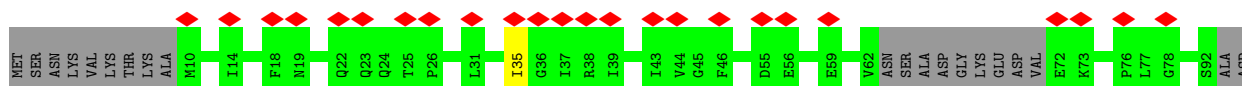
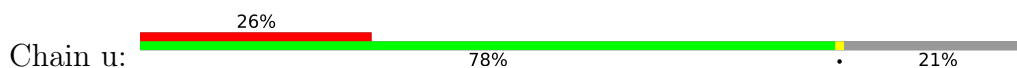




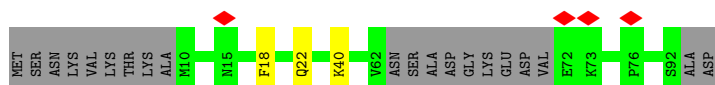
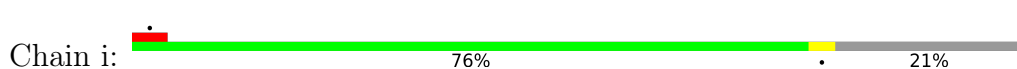
• Molecule 23: Pre-mRNA-splicing factor SNT309



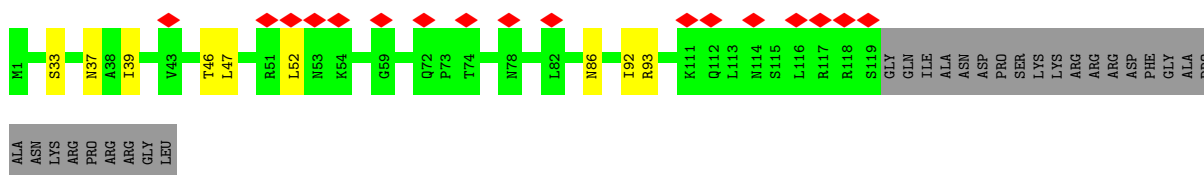
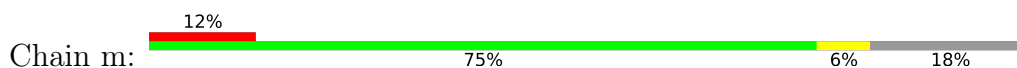
• Molecule 24: Small nuclear ribonucleoprotein E



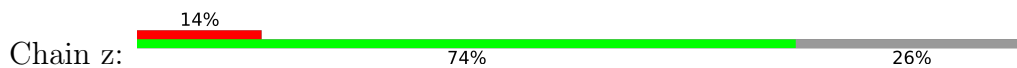
• Molecule 24: Small nuclear ribonucleoprotein E

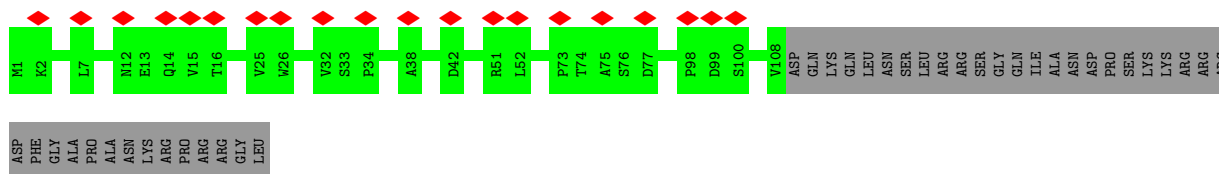


• Molecule 25: Small nuclear ribonucleoprotein Sm D1

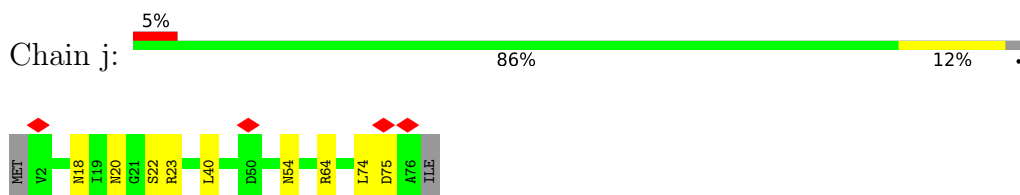


• Molecule 25: Small nuclear ribonucleoprotein Sm D1

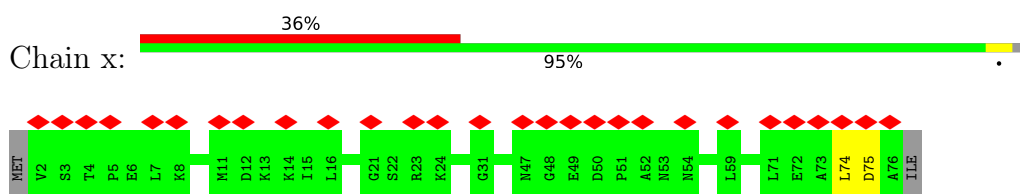




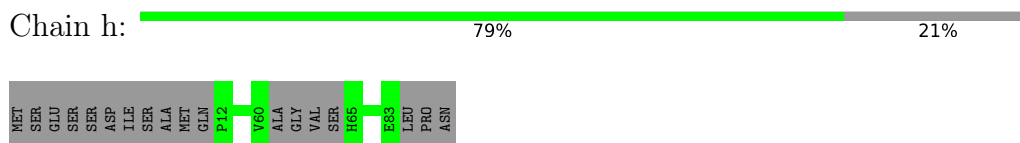
- Molecule 26: Small nuclear ribonucleoprotein G



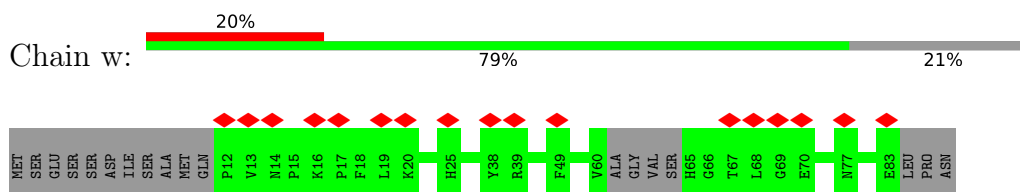
- Molecule 26: Small nuclear ribonucleoprotein G



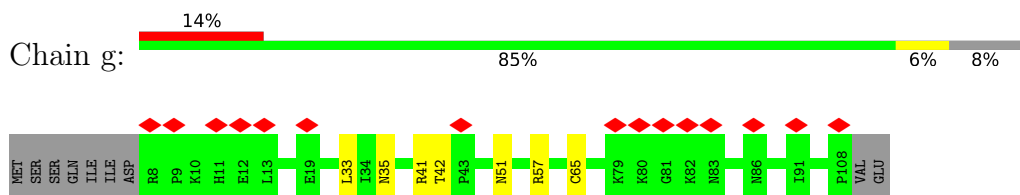
- Molecule 27: Small nuclear ribonucleoprotein F



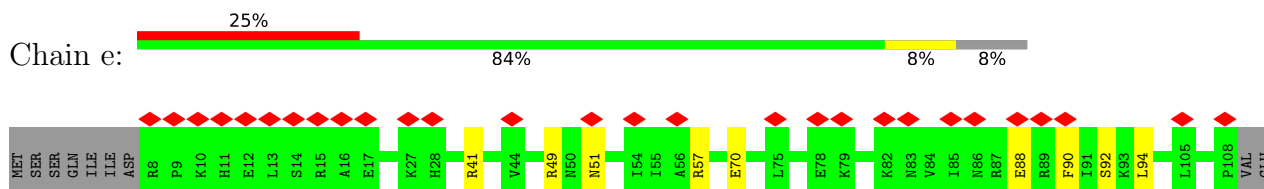
- Molecule 27: Small nuclear ribonucleoprotein F



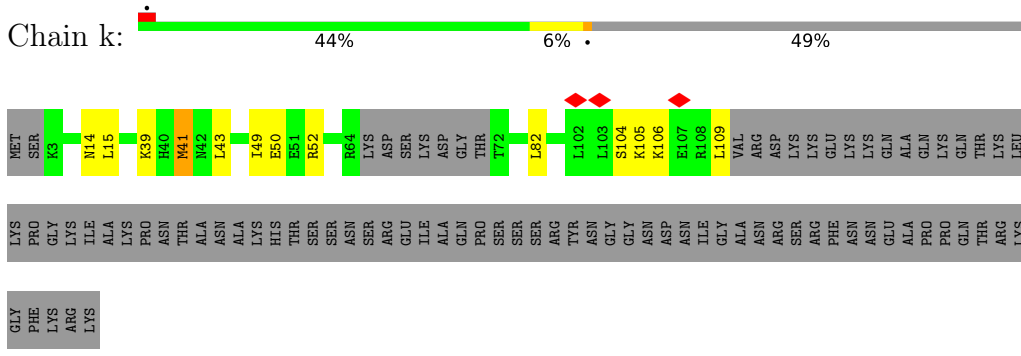
- Molecule 28: Small nuclear ribonucleoprotein Sm D2



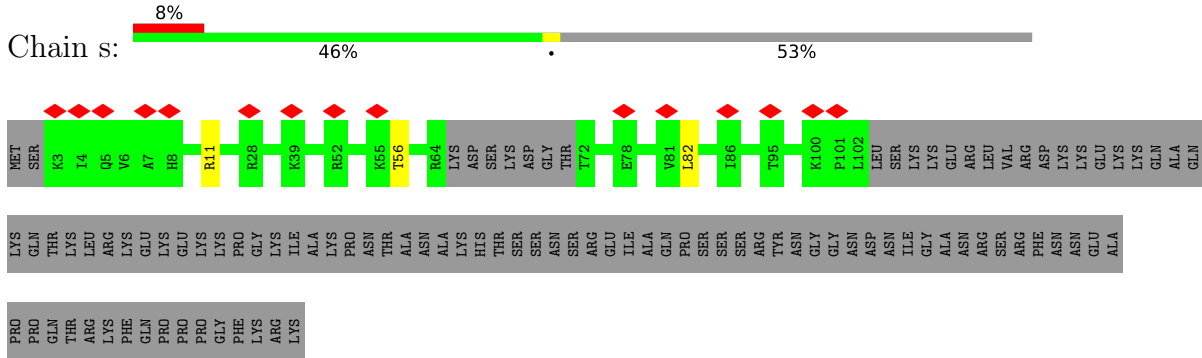
- Molecule 28: Small nuclear ribonucleoprotein Sm D2



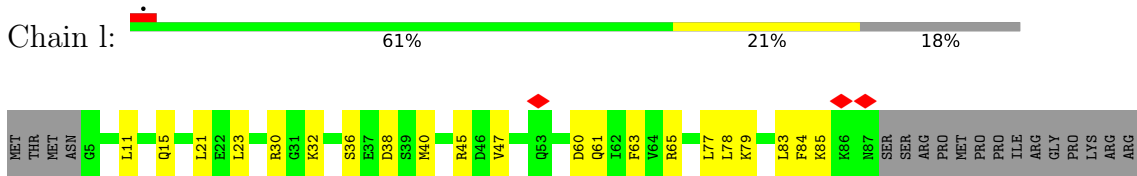
● Molecule 29: Small nuclear ribonucleoprotein-associated protein B



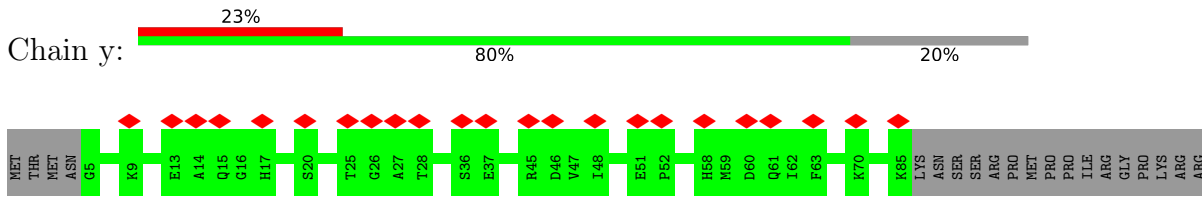
● Molecule 29: Small nuclear ribonucleoprotein-associated protein B



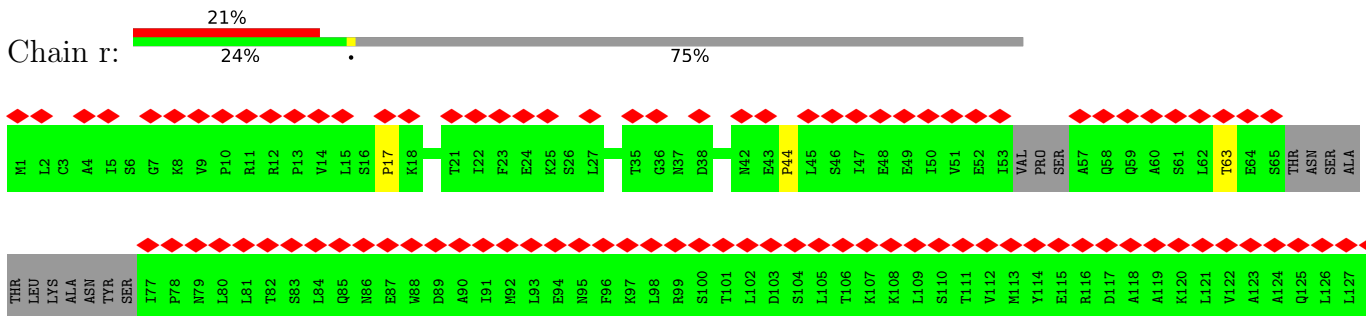
● Molecule 30: Small nuclear ribonucleoprotein Sm D3



● Molecule 30: Small nuclear ribonucleoprotein Sm D3



● Molecule 31: Pre-mRNA-processing factor 19



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	395458	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 ($e^-/\text{\AA}^2$)	49.3	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.114	Depositor
Minimum map value	-0.059	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.004	Depositor
Recommended contour level	0.0116	Depositor
Map size (Å)	532.0, 532.0, 532.0	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.33, 1.33, 1.33	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: IHP, MG, GTP, ZN, SEP

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	0.47	0/16198	0.58	0/21958
2	C	0.48	0/7503	0.59	0/10159
3	J	0.39	0/191	0.56	0/254
4	O	0.54	0/2872	0.62	0/3902
5	P	0.38	0/1629	0.53	0/2194
6	Q	0.40	0/2339	0.61	0/3154
7	R	0.44	0/2135	0.57	0/2871
8	S	0.40	0/581	0.55	0/776
9	T	0.39	0/1315	0.53	0/1759
10	Z	0.36	0/3712	0.54	0/5004
11	c	0.35	0/2996	0.49	0/4033
12	d	0.33	0/3931	0.48	0/5356
13	I	0.36	0/826	0.52	0/1097
14	n	0.32	0/1894	0.57	0/2529
15	H	0.39	0/826	0.67	0/1108
16	B	0.58	0/1347	0.91	0/2091
17	D	0.55	0/4239	0.94	0/6598
18	E	0.74	1/2452 (0.0%)	0.89	0/3817
19	L	0.36	1/4926 (0.0%)	0.76	0/7641
20	v	0.42	0/4662	0.51	0/6358
21	a	0.42	0/415	0.57	0/577
22	b	0.69	0/839	0.70	0/1169
23	t	0.29	0/924	0.42	0/1244
24	i	0.29	0/551	0.50	0/750
24	u	0.29	0/535	0.48	0/730
25	m	0.35	0/926	0.55	0/1257
25	z	0.30	0/833	0.54	0/1134
26	j	0.45	0/557	0.54	0/756
26	x	0.34	0/557	0.51	0/756
27	h	0.28	0/529	0.50	0/715
27	w	0.28	0/529	0.50	0/715
28	e	0.38	0/799	0.52	0/1078

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
28	g	0.40	0/799	0.55	0/1078
29	k	0.41	0/815	0.60	0/1092
29	s	0.36	0/755	0.59	0/1014
30	l	0.49	0/650	0.57	0/879
30	y	0.31	0/625	0.50	0/847
31	o	0.28	0/835	0.50	0/1126
31	p	0.25	0/848	0.51	0/1143
31	q	0.30	0/856	0.52	0/1155
31	r	0.29	0/828	0.54	0/1117
32	F	0.39	1/1333 (0.1%)	0.62	0/1775
All	All	0.44	3/82912 (0.0%)	0.62	0/114766

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
18	E	95	A	O3'-P	-14.36	1.44	1.61
32	F	41	ILE	C-N	6.67	1.49	1.34
19	L	1120	G	O3'-P	-5.48	1.54	1.61

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	1905/2413 (79%)	1801 (94%)	91 (5%)	13 (1%)	19 51

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	C	914/1008 (91%)	871 (95%)	39 (4%)	4 (0%)	30	62
3	J	25/135 (18%)	21 (84%)	4 (16%)	0	100	100
4	O	355/451 (79%)	321 (90%)	30 (8%)	4 (1%)	12	43
5	P	197/379 (52%)	190 (96%)	7 (4%)	0	100	100
6	Q	288/364 (79%)	266 (92%)	19 (7%)	3 (1%)	13	44
7	R	259/339 (76%)	238 (92%)	13 (5%)	8 (3%)	3	27
8	S	64/175 (37%)	61 (95%)	3 (5%)	0	100	100
9	T	155/157 (99%)	145 (94%)	9 (6%)	1 (1%)	22	54
10	Z	443/577 (77%)	417 (94%)	19 (4%)	7 (2%)	8	37
11	c	418/590 (71%)	397 (95%)	20 (5%)	1 (0%)	44	72
12	d	534/687 (78%)	513 (96%)	16 (3%)	5 (1%)	14	47
13	I	98/215 (46%)	95 (97%)	3 (3%)	0	100	100
14	n	279/455 (61%)	253 (91%)	20 (7%)	6 (2%)	5	32
15	H	93/235 (40%)	86 (92%)	4 (4%)	3 (3%)	3	27
20	v	666/859 (78%)	642 (96%)	22 (3%)	2 (0%)	37	67
21	a	82/111 (74%)	78 (95%)	3 (4%)	1 (1%)	11	41
22	b	165/238 (69%)	138 (84%)	20 (12%)	7 (4%)	2	21
23	t	150/175 (86%)	145 (97%)	4 (3%)	1 (1%)	19	51
24	i	70/94 (74%)	67 (96%)	3 (4%)	0	100	100
24	u	70/94 (74%)	67 (96%)	3 (4%)	0	100	100
25	m	117/146 (80%)	111 (95%)	6 (5%)	0	100	100
25	z	106/146 (73%)	100 (94%)	6 (6%)	0	100	100
26	j	73/77 (95%)	67 (92%)	5 (7%)	1 (1%)	9	39
26	x	73/77 (95%)	65 (89%)	7 (10%)	1 (1%)	9	39
27	h	64/86 (74%)	60 (94%)	4 (6%)	0	100	100
27	w	64/86 (74%)	61 (95%)	3 (5%)	0	100	100
28	e	99/110 (90%)	95 (96%)	3 (3%)	1 (1%)	13	44
28	g	99/110 (90%)	93 (94%)	4 (4%)	2 (2%)	6	34
29	k	96/196 (49%)	90 (94%)	5 (5%)	1 (1%)	13	44
29	s	89/196 (45%)	83 (93%)	6 (7%)	0	100	100
30	l	81/101 (80%)	79 (98%)	0	2 (2%)	4	30

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
30	y	79/101 (78%)	75 (95%)	4 (5%)	0	100	100
31	o	120/503 (24%)	115 (96%)	5 (4%)	0	100	100
31	p	122/503 (24%)	118 (97%)	4 (3%)	0	100	100
31	q	125/503 (25%)	116 (93%)	9 (7%)	0	100	100
31	r	119/503 (24%)	112 (94%)	7 (6%)	0	100	100
32	F	157/278 (56%)	147 (94%)	4 (2%)	6 (4%)	2	23
All	All	8913/13473 (66%)	8399 (94%)	434 (5%)	80 (1%)	17	47

All (80) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	1431	HIS
1	A	1435	LYS
1	A	1966	SER
2	C	682	SER
2	C	828	ASP
4	O	329	ASP
7	R	39	GLN
7	R	41	PHE
7	R	45	THR
7	R	152	LYS
7	R	208	SER
9	T	104	CYS
10	Z	448	MET
10	Z	450	PRO
10	Z	451	LEU
12	d	181	ASN
12	d	353	GLU
14	n	306	SER
21	a	68	GLN
22	b	68	PRO
22	b	95	PRO
22	b	125	LYS
22	b	149	PRO
26	j	75	ASP
32	F	47	PHE
32	F	58	ILE
32	F	59	PRO
1	A	260	PRO
1	A	1263	CYS

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Mol	Chain	Res	Type
1	A	1432	GLU
2	C	683	ASN
2	C	684	GLU
4	O	351	GLY
7	R	151	LEU
10	Z	452	GLU
10	Z	455	ALA
14	n	291	HIS
14	n	304	ASP
14	n	387	ILE
15	H	27	LYS
20	v	798	LYS
22	b	98	VAL
23	t	112	SER
28	g	51	ASN
28	g	65	CYS
29	k	41	MET
28	e	51	ASN
30	l	78	LEU
1	A	510	PRO
1	A	1965	PHE
4	O	327	CYS
4	O	352	ILE
6	Q	255	SER
10	Z	182	GLN
12	d	63	LEU
12	d	336	LYS
20	v	515	PRO
22	b	67	ILE
22	b	94	LEU
32	F	48	SER
1	A	1164	TYR
1	A	1843	LEU
1	A	1964	PRO
7	R	43	GLY
14	n	305	GLY
30	l	40	MET
26	x	75	ASP
32	F	76	LEU
15	H	26	TYR
15	H	28	ASP
6	Q	215	PRO

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Mol	Chain	Res	Type
10	Z	446	ASP
14	n	427	LYS
1	A	1157	PRO
1	A	1156	HIS
6	Q	191	PRO
7	R	153	PRO
11	c	418	PRO
12	d	334	PHE
32	F	46	PRO

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	
1	A	1737/2182 (80%)	1705 (98%)	32 (2%)	54	71
2	C	830/910 (91%)	815 (98%)	15 (2%)	54	71
3	J	21/121 (17%)	21 (100%)	0	100	100
4	O	312/397 (79%)	305 (98%)	7 (2%)	47	65
5	P	175/328 (53%)	173 (99%)	2 (1%)	70	80
6	Q	265/332 (80%)	260 (98%)	5 (2%)	52	70
7	R	224/296 (76%)	212 (95%)	12 (5%)	18	46
8	S	57/151 (38%)	52 (91%)	5 (9%)	8	32
9	T	141/141 (100%)	140 (99%)	1 (1%)	81	88
10	Z	417/538 (78%)	403 (97%)	14 (3%)	32	56
11	c	214/525 (41%)	206 (96%)	8 (4%)	29	54
12	d	274/633 (43%)	261 (95%)	13 (5%)	22	48
13	I	92/193 (48%)	91 (99%)	1 (1%)	70	80
14	n	122/412 (30%)	108 (88%)	14 (12%)	4	22
15	H	88/216 (41%)	86 (98%)	2 (2%)	45	64
20	v	294/786 (37%)	279 (95%)	15 (5%)	20	47
23	t	39/165 (24%)	26 (67%)	13 (33%)	0	1

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
24	i	55/83 (66%)	52 (94%)	3 (6%)	18	45
24	u	52/83 (63%)	51 (98%)	1 (2%)	52	70
25	m	106/129 (82%)	97 (92%)	9 (8%)	8	33
25	z	95/129 (74%)	95 (100%)	0	100	100
26	j	56/66 (85%)	48 (86%)	8 (14%)	2	16
26	x	56/66 (85%)	55 (98%)	1 (2%)	54	71
27	h	51/77 (66%)	51 (100%)	0	100	100
27	w	51/77 (66%)	51 (100%)	0	100	100
28	e	82/103 (80%)	74 (90%)	8 (10%)	6	27
28	g	82/103 (80%)	77 (94%)	5 (6%)	15	43
29	k	92/176 (52%)	79 (86%)	13 (14%)	3	17
29	s	85/176 (48%)	82 (96%)	3 (4%)	31	56
30	l	72/89 (81%)	53 (74%)	19 (26%)	0	3
30	y	68/89 (76%)	68 (100%)	0	100	100
31	o	60/451 (13%)	57 (95%)	3 (5%)	20	47
31	p	62/451 (14%)	58 (94%)	4 (6%)	14	41
31	q	62/451 (14%)	59 (95%)	3 (5%)	21	48
31	r	60/451 (13%)	57 (95%)	3 (5%)	20	47
32	F	145/256 (57%)	143 (99%)	2 (1%)	62	76
All	All	6694/11832 (57%)	6450 (96%)	244 (4%)	32	55

All (244) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	143	ILE
1	A	238	ARG
1	A	261	LEU
1	A	396	ARG
1	A	488	ARG
1	A	495	ARG
1	A	570	GLN
1	A	580	ASN
1	A	674	MET
1	A	705	GLN
1	A	716	ARG

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Mol	Chain	Res	Type
1	A	742	VAL
1	A	749	ARG
1	A	760	ASN
1	A	848	ASN
1	A	1067	ASN
1	A	1087	ASN
1	A	1100	LYS
1	A	1182	LEU
1	A	1292	ARG
1	A	1433	ASP
1	A	1434	GLU
1	A	1435	LYS
1	A	1437	ILE
1	A	1529	ASN
1	A	1618	ASN
1	A	1694	MET
1	A	1739	ARG
1	A	1962	ARG
1	A	2065	ARG
1	A	2068	ASN
1	A	2084	LEU
2	C	81	LYS
2	C	107	THR
2	C	148	SER
2	C	289	ASN
2	C	294	ASN
2	C	461	LYS
2	C	545	LEU
2	C	683	ASN
2	C	684	GLU
2	C	685	SER
2	C	697	ARG
2	C	726	ASN
2	C	733	ASN
2	C	745	ARG
2	C	893	LYS
4	O	152	ASN
4	O	236	LEU
4	O	327	CYS
4	O	330	ASP
4	O	349	LYS
4	O	350	THR

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Mol	Chain	Res	Type
4	O	384	TYR
5	P	30	LEU
5	P	87	ASN
6	Q	230	LYS
6	Q	233	LYS
6	Q	251	LEU
6	Q	282	LEU
6	Q	291	ILE
7	R	10	LYS
7	R	39	GLN
7	R	41	PHE
7	R	44	ASN
7	R	54	GLN
7	R	150	HIS
7	R	152	LYS
7	R	159	ARG
7	R	204	LEU
7	R	205	LEU
7	R	208	SER
7	R	257	ASN
8	S	12	ARG
8	S	35	THR
8	S	36	THR
8	S	128	ARG
8	S	135	ARG
9	T	153	CYS
10	Z	34	MET
10	Z	53	ARG
10	Z	194	LEU
10	Z	444	LYS
10	Z	445	LEU
10	Z	446	ASP
10	Z	448	MET
10	Z	449	PHE
10	Z	451	LEU
10	Z	452	GLU
10	Z	454	ASP
10	Z	463	ASN
10	Z	470	LEU
10	Z	473	LEU
11	c	20	ILE
11	c	170	LYS

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Mol	Chain	Res	Type
11	c	181	ARG
11	c	504	PRO
11	c	505	PRO
11	c	517	VAL
11	c	532	PRO
11	c	550	PRO
12	d	62	ARG
12	d	123	ASN
12	d	139	TYR
12	d	155	LEU
12	d	156	TYR
12	d	222	TYR
12	d	263	SER
12	d	284	LEU
12	d	285	LEU
12	d	289	LYS
12	d	315	ASN
12	d	316	ASN
12	d	334	PHE
13	I	121	LYS
14	n	51	PHE
14	n	159	PRO
14	n	162	PRO
14	n	208	PRO
14	n	257	PRO
14	n	258	THR
14	n	260	PRO
14	n	306	SER
14	n	327	PRO
14	n	340	PRO
14	n	373	PRO
14	n	424	PRO
14	n	428	PRO
14	n	436	PRO
15	H	28	ASP
15	H	92	TRP
20	v	385	PHE
20	v	386	GLU
20	v	397	ASN
20	v	398	ASP
20	v	438	ARG
20	v	529	HIS

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Mol	Chain	Res	Type
20	v	530	ARG
20	v	544	ILE
20	v	574	TYR
20	v	576	THR
20	v	593	LEU
20	v	665	ILE
20	v	672	PHE
20	v	719	THR
20	v	726	ARG
23	t	13	PRO
23	t	76	THR
23	t	77	PRO
23	t	85	THR
23	t	96	PRO
23	t	100	THR
23	t	105	PRO
23	t	108	SER
23	t	109	SER
23	t	111	VAL
23	t	133	PRO
23	t	136	VAL
23	t	150	THR
24	u	35	ILE
25	m	33	SER
25	m	37	ASN
25	m	39	ILE
25	m	46	THR
25	m	47	LEU
25	m	52	LEU
25	m	86	ASN
25	m	92	ILE
25	m	93	ARG
26	j	18	ASN
26	j	20	ASN
26	j	22	SER
26	j	23	ARG
26	j	40	LEU
26	j	54	ASN
26	j	64	ARG
26	j	74	LEU
28	g	33	LEU
28	g	35	ASN

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Mol	Chain	Res	Type
28	g	41	ARG
28	g	42	THR
28	g	57	ARG
29	k	14	ASN
29	k	15	LEU
29	k	39	LYS
29	k	41	MET
29	k	43	LEU
29	k	49	ILE
29	k	50	GLU
29	k	52	ARG
29	k	82	LEU
29	k	104	SER
29	k	105	LYS
29	k	106	LYS
29	k	109	LEU
28	e	41	ARG
28	e	49	ARG
28	e	57	ARG
28	e	70	GLU
28	e	88	GLU
28	e	90	PHE
28	e	92	SER
28	e	94	LEU
29	s	11	ARG
29	s	56	THR
29	s	82	LEU
30	l	11	LEU
30	l	15	GLN
30	l	21	LEU
30	l	23	LEU
30	l	30	ARG
30	l	32	LYS
30	l	36	SER
30	l	38	ASP
30	l	45	ARG
30	l	47	VAL
30	l	60	ASP
30	l	61	GLN
30	l	63	PHE
30	l	65	ARG
30	l	77	LEU

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Mol	Chain	Res	Type
30	l	79	LYS
30	l	83	LEU
30	l	84	PHE
30	l	85	LYS
24	i	18	PHE
24	i	22	GLN
24	i	40	LYS
26	x	74	LEU
31	r	17	PRO
31	r	44	PRO
31	r	63	THR
31	p	17	PRO
31	p	44	PRO
31	p	63	THR
31	p	98	LEU
31	q	17	PRO
31	q	44	PRO
31	q	55	PRO
31	o	17	PRO
31	o	44	PRO
31	o	63	THR
32	F	25	ARG
32	F	62	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (99) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	310	ASN
1	A	523	GLN
1	A	541	ASN
1	A	580	ASN
1	A	658	ASN
1	A	659	HIS
1	A	675	HIS
1	A	864	GLN
1	A	948	HIS
1	A	952	ASN
1	A	1034	ASN
1	A	1067	ASN
1	A	1087	ASN
1	A	1128	GLN
1	A	1368	GLN

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Mol	Chain	Res	Type
1	A	1404	HIS
1	A	1449	ASN
1	A	1529	ASN
1	A	1538	ASN
1	A	1540	ASN
1	A	1618	ASN
1	A	1687	HIS
1	A	2018	ASN
1	A	2068	ASN
2	C	84	GLN
2	C	183	GLN
2	C	251	GLN
2	C	289	ASN
2	C	294	ASN
2	C	310	ASN
2	C	608	GLN
2	C	623	ASN
2	C	647	ASN
2	C	726	ASN
2	C	733	ASN
2	C	869	HIS
3	J	19	HIS
4	O	99	ASN
4	O	152	ASN
4	O	317	HIS
5	P	87	ASN
5	P	110	HIS
6	Q	106	ASN
6	Q	141	ASN
6	Q	243	ASN
7	R	58	HIS
7	R	91	HIS
7	R	150	HIS
7	R	257	ASN
8	S	8	GLN
8	S	34	HIS
8	S	173	HIS
9	T	143	HIS
10	Z	84	ASN
10	Z	116	ASN
10	Z	310	HIS
10	Z	354	HIS

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Mol	Chain	Res	Type
10	Z	441	ASN
11	c	214	ASN
12	d	79	HIS
12	d	123	ASN
12	d	147	ASN
12	d	315	ASN
12	d	316	ASN
15	H	9	ASN
20	v	397	ASN
20	v	529	HIS
20	v	643	HIS
24	u	86	ASN
25	m	12	ASN
25	m	14	GLN
25	m	21	ASN
25	m	30	GLN
25	m	83	GLN
25	m	86	ASN
25	m	94	GLN
26	j	18	ASN
26	j	20	ASN
26	j	54	ASN
28	g	50	ASN
28	g	52	HIS
28	g	86	ASN
29	k	14	ASN
28	e	64	HIS
28	e	66	ASN
28	e	71	ASN
28	e	86	ASN
30	l	15	GLN
30	l	41	ASN
30	l	43	GLN
30	l	68	GLN
27	w	50	ASN
26	x	20	ASN
25	z	12	ASN
25	z	14	GLN
25	z	21	ASN
25	z	30	GLN
32	F	8	ASN
32	F	38	HIS

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
16	B	55/246 (22%)	29 (52%)	3 (5%)
17	D	177/214 (82%)	55 (31%)	8 (4%)
18	E	102/112 (91%)	45 (44%)	3 (2%)
19	L	201/1175 (17%)	85 (42%)	15 (7%)
All	All	535/1747 (30%)	214 (40%)	29 (5%)

All (214) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
16	B	-11	U
16	B	-10	G
16	B	-8	U
16	B	-6	U
16	B	-1	A
16	B	0	G
16	B	2	U
16	B	3	A
16	B	4	U
16	B	9	A
16	B	10	A
16	B	11	A
16	B	12	G
16	B	13	U
16	B	52	U
16	B	55	U
16	B	58	U
16	B	59	C
16	B	62	A
16	B	63	U
16	B	64	U
16	B	67	C
16	B	68	U
16	B	70	A
16	B	71	C
16	B	72	A
16	B	73	A
16	B	74	A
16	B	75	A
17	D	2	A
17	D	4	C
17	D	9	U

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Mol	Chain	Res	Type
17	D	12	C
17	D	13	A
17	D	18	A
17	D	20	U
17	D	27	G
17	D	28	G
17	D	29	G
17	D	31	G
17	D	33	U
17	D	38	A
17	D	41	A
17	D	42	A
17	D	43	G
17	D	44	A
17	D	45	A
17	D	75	A
17	D	77	A
17	D	79	C
17	D	80	G
17	D	81	A
17	D	84	A
17	D	92	U
17	D	96	U
17	D	100	A
17	D	101	C
17	D	103	A
17	D	104	G
17	D	109	A
17	D	113	G
17	D	124	C
17	D	127	U
17	D	128	A
17	D	130	A
17	D	131	A
17	D	132	A
17	D	139	A
17	D	141	G
17	D	142	C
17	D	151	A
17	D	160	U
17	D	161	U
17	D	162	G

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Mol	Chain	Res	Type
17	D	163	C
17	D	164	C
17	D	165	A
17	D	166	U
17	D	168	U
17	D	170	U
17	D	171	U
17	D	174	G
17	D	175	G
17	D	178	C
18	E	5	G
18	E	12	A
18	E	13	A
18	E	14	C
18	E	15	C
18	E	16	C
18	E	23	G
18	E	31	G
18	E	33	C
18	E	36	U
18	E	39	G
18	E	40	A
18	E	42	A
18	E	51	A
18	E	52	G
18	E	54	U
18	E	56	A
18	E	59	A
18	E	60	G
18	E	62	A
18	E	63	G
18	E	64	U
18	E	65	U
18	E	66	C
18	E	67	C
18	E	68	C
18	E	73	A
18	E	74	U
18	E	77	G
18	E	80	U
18	E	81	G
18	E	84	C

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Mol	Chain	Res	Type
18	E	85	C
18	E	86	G
18	E	87	U
18	E	88	U
18	E	90	U
18	E	91	A
18	E	92	C
18	E	98	G
18	E	99	A
18	E	100	U
18	E	101	U
18	E	102	U
18	E	103	A
19	L	2	C
19	L	4	A
19	L	5	A
19	L	6	U
19	L	7	C
19	L	9	C
19	L	12	U
19	L	16	U
19	L	17	U
19	L	18	U
19	L	19	U
19	L	21	G
19	L	23	U
19	L	25	A
19	L	26	G
19	L	29	C
19	L	30	A
19	L	31	A
19	L	32	G
19	L	33	U
19	L	36	A
19	L	39	A
19	L	41	C
19	L	44	U
19	L	47	U
19	L	50	U
19	L	51	C
19	L	52	A
19	L	53	G

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Mol	Chain	Res	Type
19	L	54	U
19	L	68	U
19	L	84	C
19	L	85	A
19	L	86	U
19	L	106	A
19	L	107	U
19	L	109	C
19	L	110	A
19	L	111	C
19	L	115	U
19	L	119	G
19	L	120	G
19	L	121	C
19	L	124	C
19	L	129	A
19	L	141	A
19	L	153	U
19	L	1084	A
19	L	1085	G
19	L	1086	U
19	L	1091	G
19	L	1093	C
19	L	1094	G
19	L	1096	C
19	L	1098	C
19	L	1099	G
19	L	1100	A
19	L	1101	C
19	L	1102	C
19	L	1103	C
19	L	1104	U
19	L	1105	C
19	L	1106	G
19	L	1107	C
19	L	1108	A
19	L	1115	G
19	L	1120	G
19	L	1122	U
19	L	1123	C
19	L	1124	U
19	L	1125	U

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Mol	Chain	Res	Type
19	L	1126	G
19	L	1128	C
19	L	1130	U
19	L	1137	U
19	L	1138	G
19	L	1139	G
19	L	1140	U
19	L	1144	U
19	L	1145	U
19	L	1146	G
19	L	1147	A
19	L	1149	G
19	L	1152	U
19	L	1166	G

All (29) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
16	B	2	U
16	B	3	A
16	B	9	A
17	D	17	C
17	D	27	G
17	D	28	G
17	D	83	C
17	D	99	U
17	D	130	A
17	D	150	U
17	D	163	C
18	E	14	C
18	E	64	U
18	E	101	U
19	L	1	A
19	L	3	G
19	L	5	A
19	L	40	U
19	L	46	C
19	L	51	C
19	L	53	G
19	L	109	C
19	L	120	G
19	L	1085	G

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Mol	Chain	Res	Type
19	L	1092	A
19	L	1093	C
19	L	1106	G
19	L	1107	C
19	L	1146	G

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

1 non-standard protein/DNA/RNA residue is modelled in this entry.

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
14	SEP	n	73	14	8,9,10	0.65	0	8,12,14	0.59	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
14	SEP	n	73	14	-	4/5/8/10	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
14	n	73	SEP	CB-OG-P-O1P
14	n	73	SEP	CB-OG-P-O2P
14	n	73	SEP	CB-OG-P-O3P
14	n	73	SEP	N-CA-CB-OG

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 15 ligands modelled in this entry, 13 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
34	GTP	C	1500	35	26,34,34	0.94	2 (7%)	32,54,54	0.94	1 (3%)
33	IHP	A	3000	-	36,36,36	0.77	0	54,60,60	0.52	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
34	GTP	C	1500	35	-	2/18/38/38	0/3/3/3
33	IHP	A	3000	-	-	9/30/54/54	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	C	1500	GTP	C5-C6	-2.58	1.42	1.47
34	C	1500	GTP	C8-N7	-2.06	1.31	1.35

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	C	1500	GTP	PB-O3B-PG	-3.28	121.58	132.83

There are no chirality outliers.

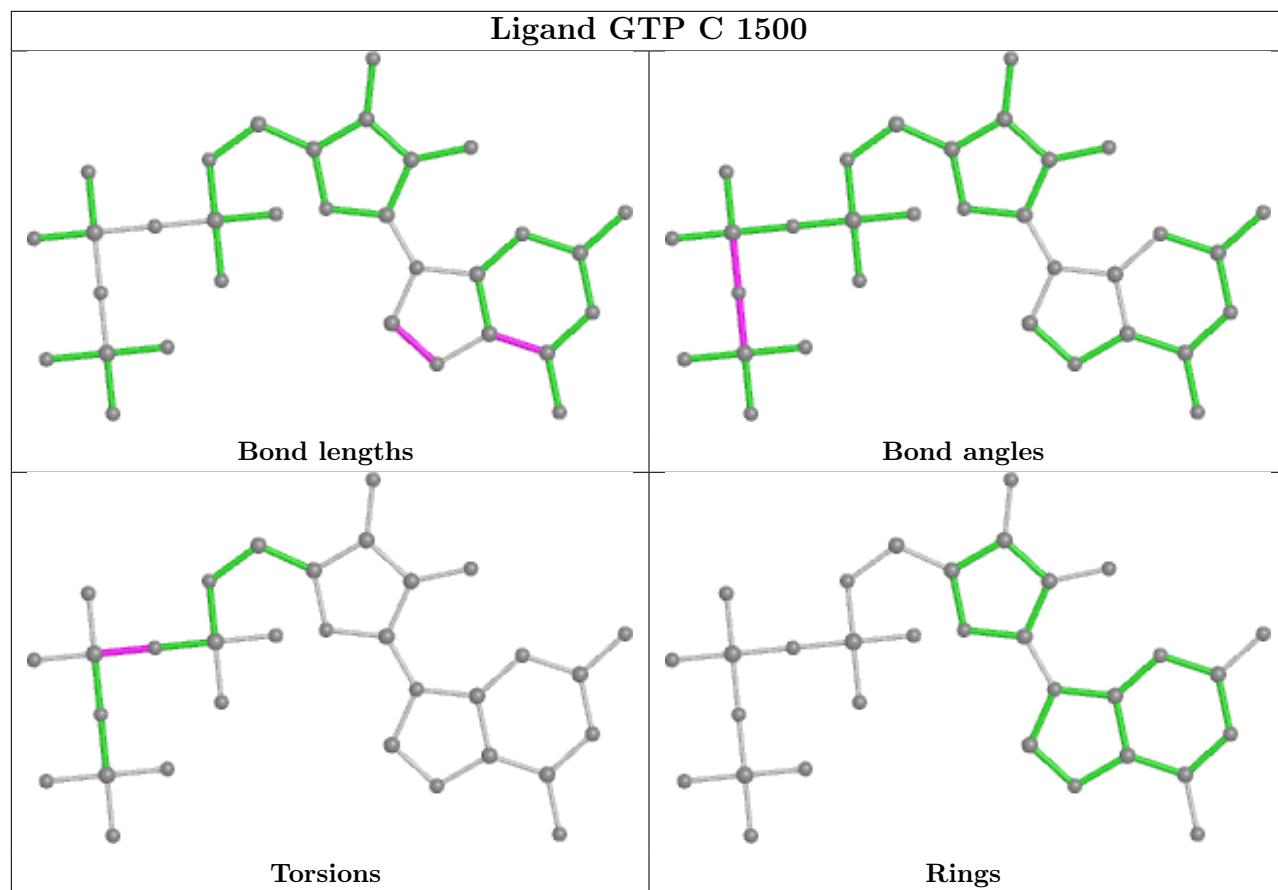
All (11) torsion outliers are listed below:

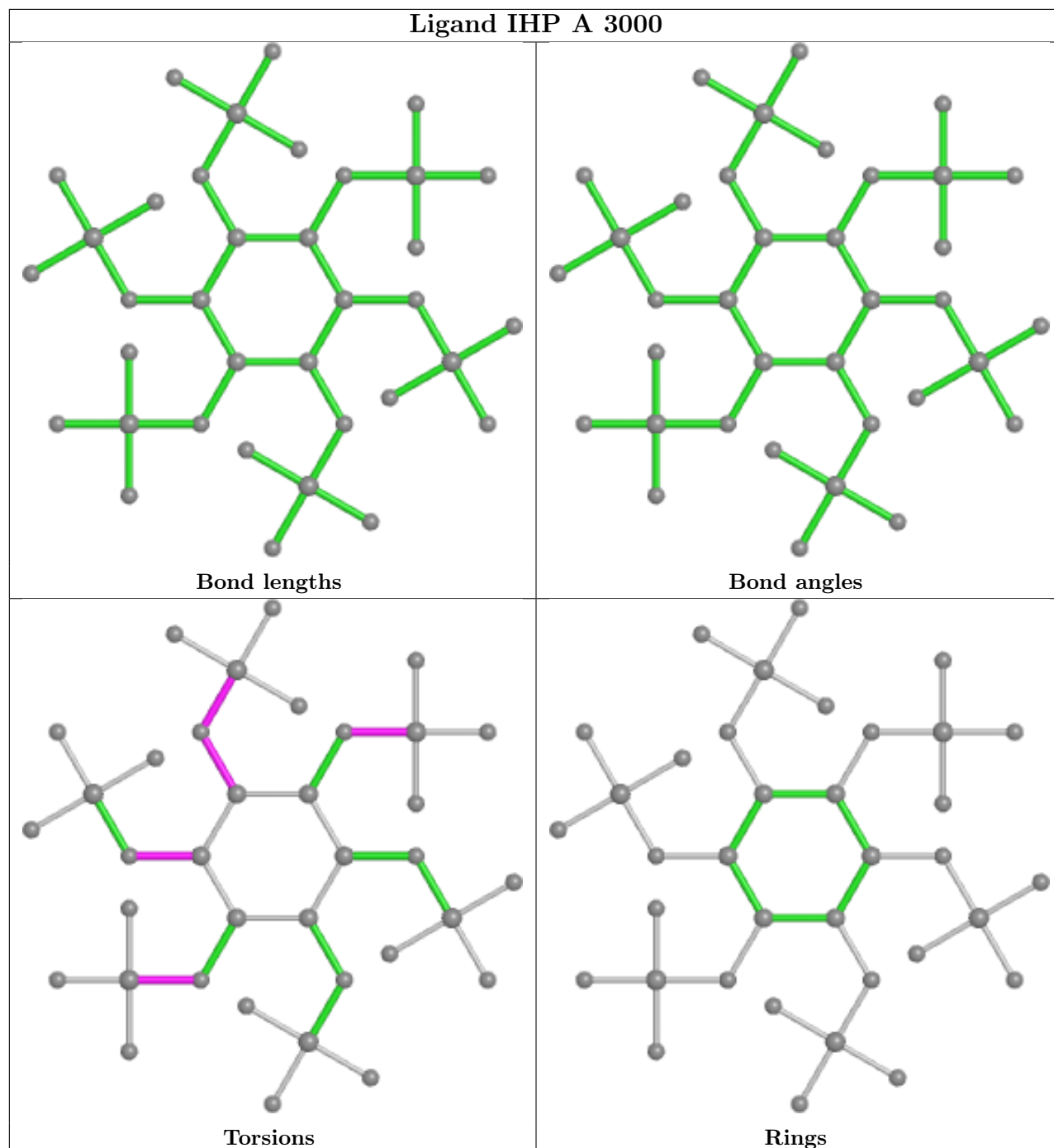
Mol	Chain	Res	Type	Atoms
33	A	3000	IHP	C3-C2-O12-P2
33	A	3000	IHP	C4-O14-P4-O24
33	A	3000	IHP	C2-C3-O13-P3
33	A	3000	IHP	C4-C3-O13-P3
33	A	3000	IHP	C1-C2-O12-P2
34	C	1500	GTP	PA-O3A-PB-O2B
34	C	1500	GTP	PA-O3A-PB-O1B
33	A	3000	IHP	C3-O13-P3-O23
33	A	3000	IHP	C1-O11-P1-O41
33	A	3000	IHP	C3-O13-P3-O33
33	A	3000	IHP	C3-O13-P3-O43

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.

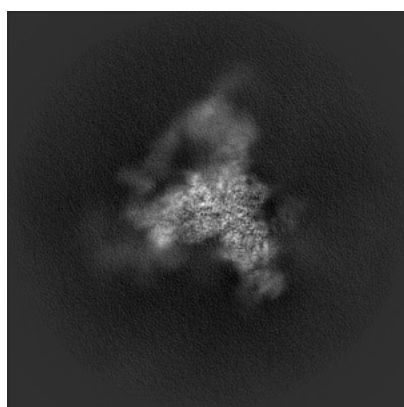
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-0692. These allow visual inspection of the internal detail of the map and identification of artifacts.

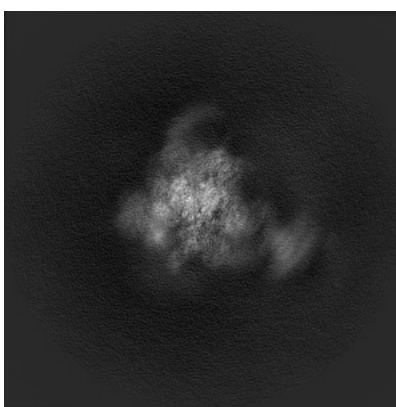
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

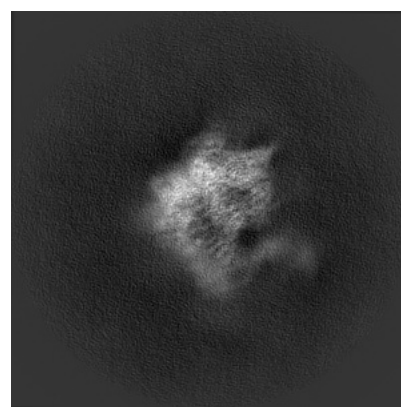
6.1.1 Primary map



X



Y

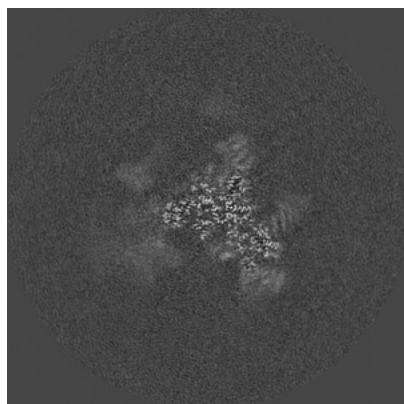


Z

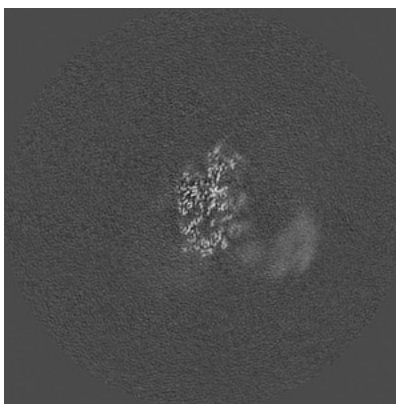
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

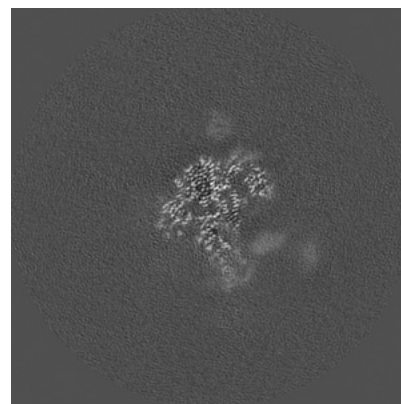
6.2.1 Primary map



X Index: 200



Y Index: 200

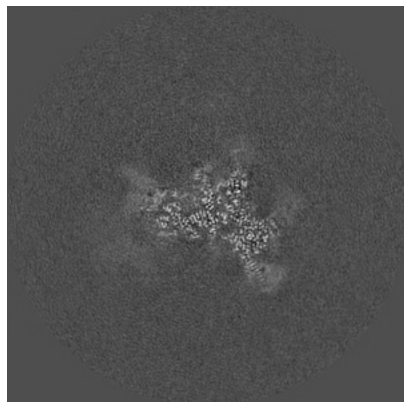


Z Index: 200

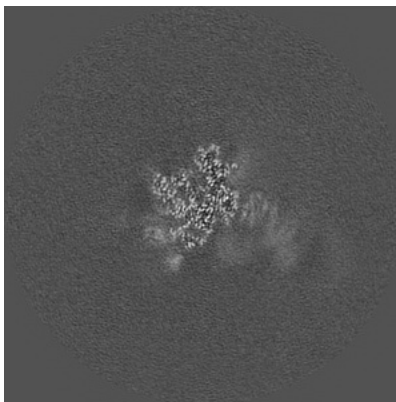
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

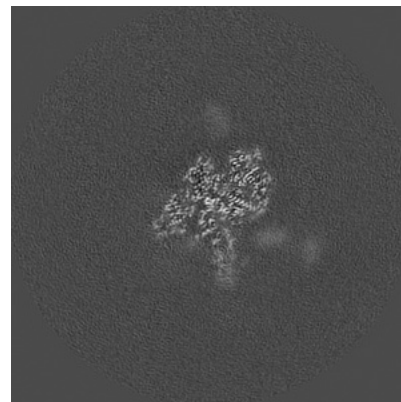
6.3.1 Primary map



X Index: 210



Y Index: 228

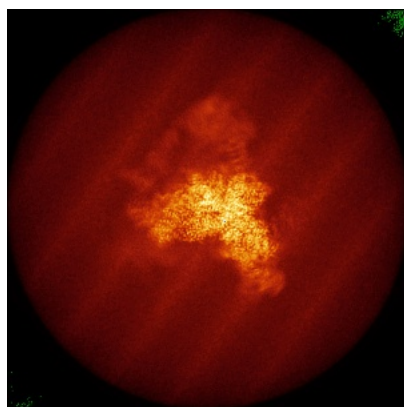


Z Index: 206

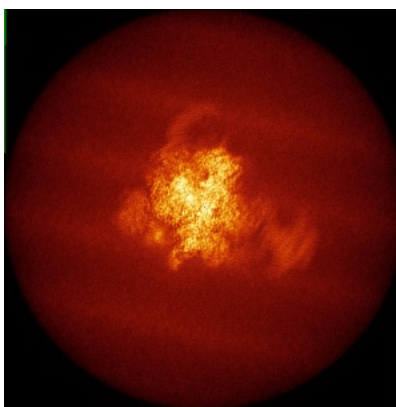
The images above show the largest variance slices of the map in three orthogonal directions.

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

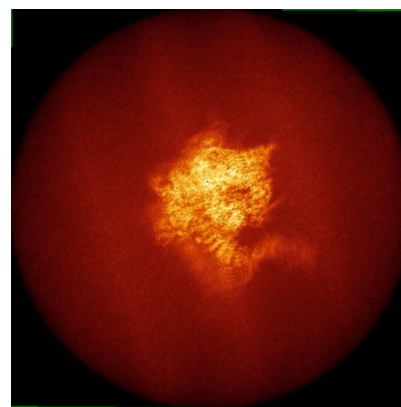
6.4.1 Primary map



X



Y

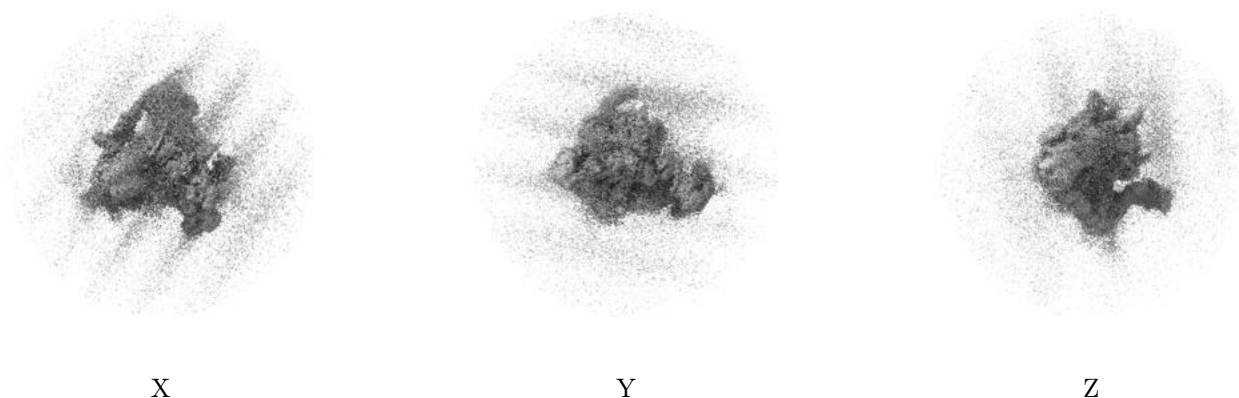


Z

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 0.0116. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

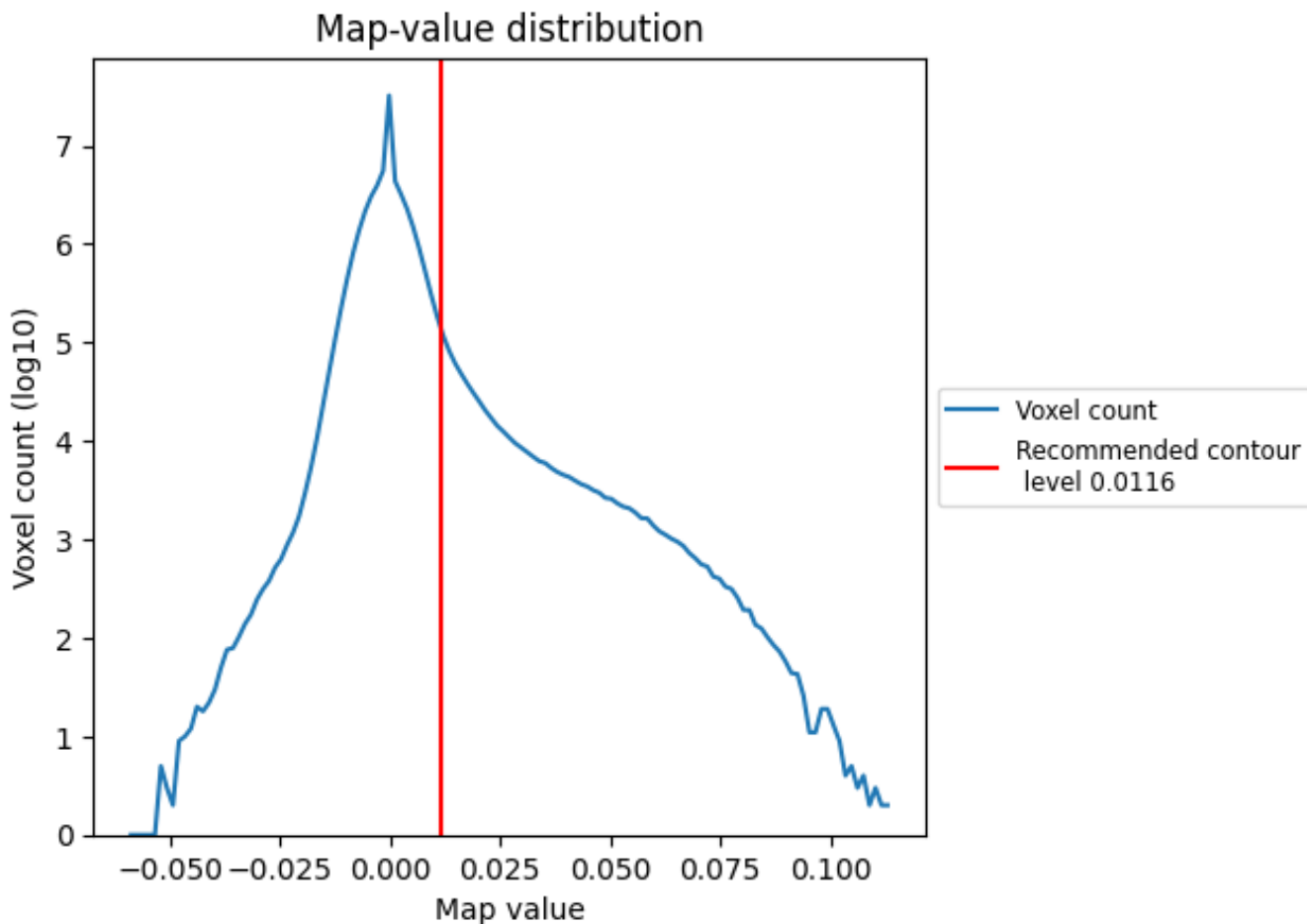
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

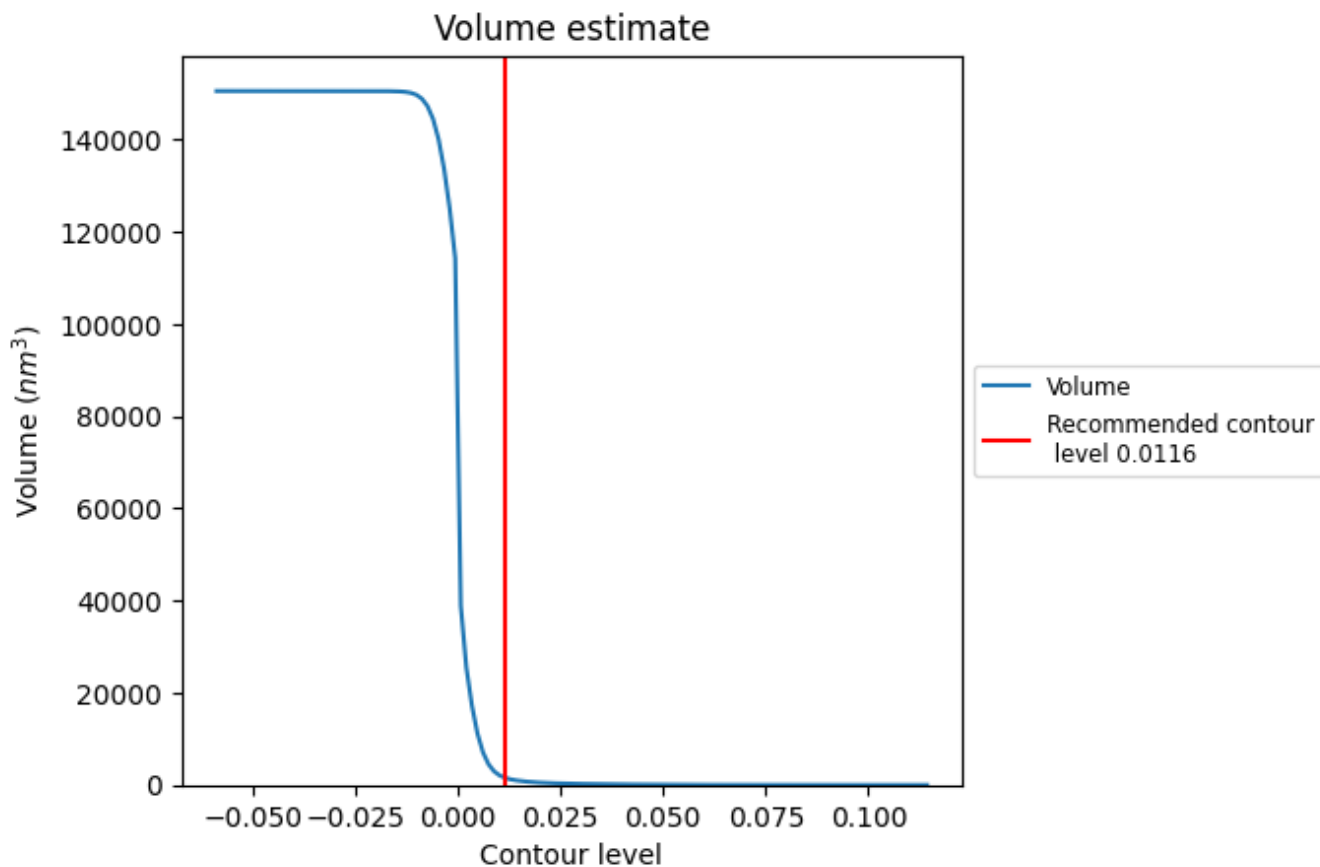
This section contains the results of statistical analysis of the map.

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.

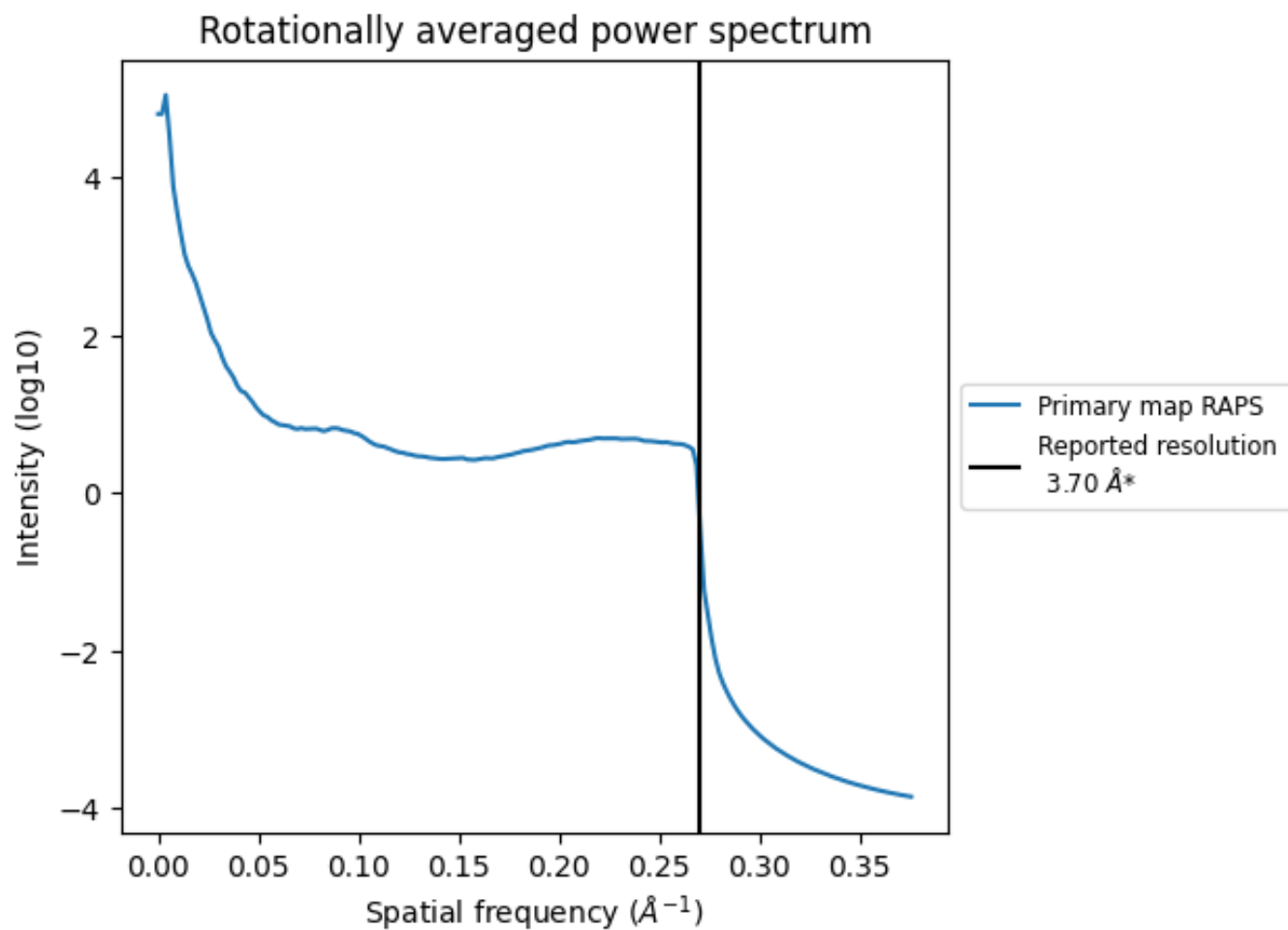
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1527 nm^3 ; this corresponds to an approximate mass of 1379 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 0.270\AA^{-1}

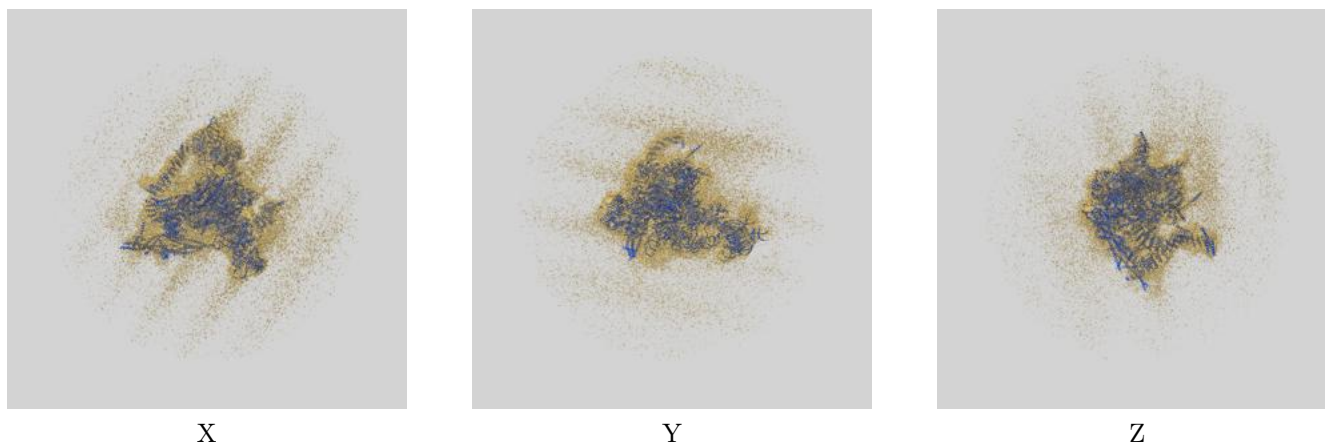
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

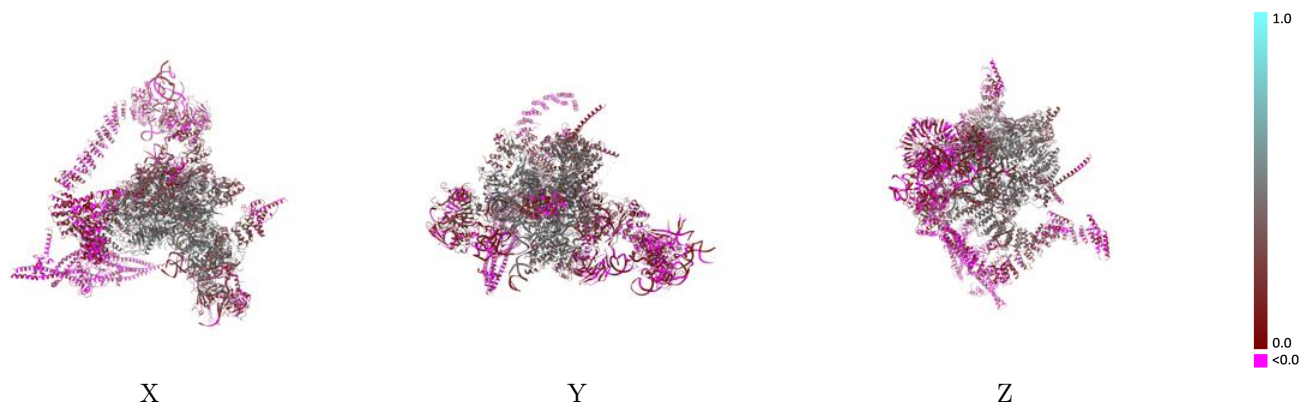
This section contains information regarding the fit between EMDB map EMD-0692 and PDB model 6J6Q. Per-residue inclusion information can be found in section 3 on page 12.

9.1 Map-model overlay [i](#)



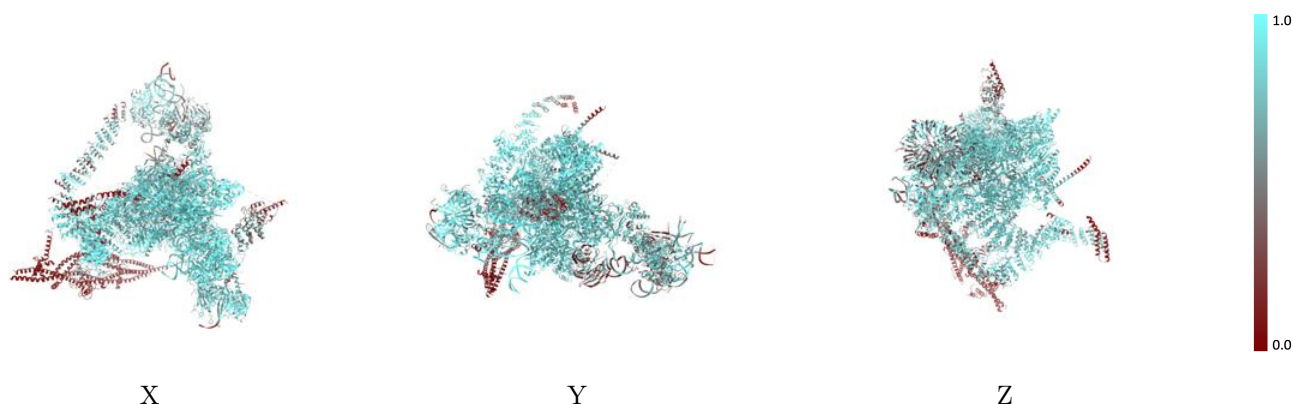
The images above show the 3D surface view of the map at the recommended contour level 0.0116 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



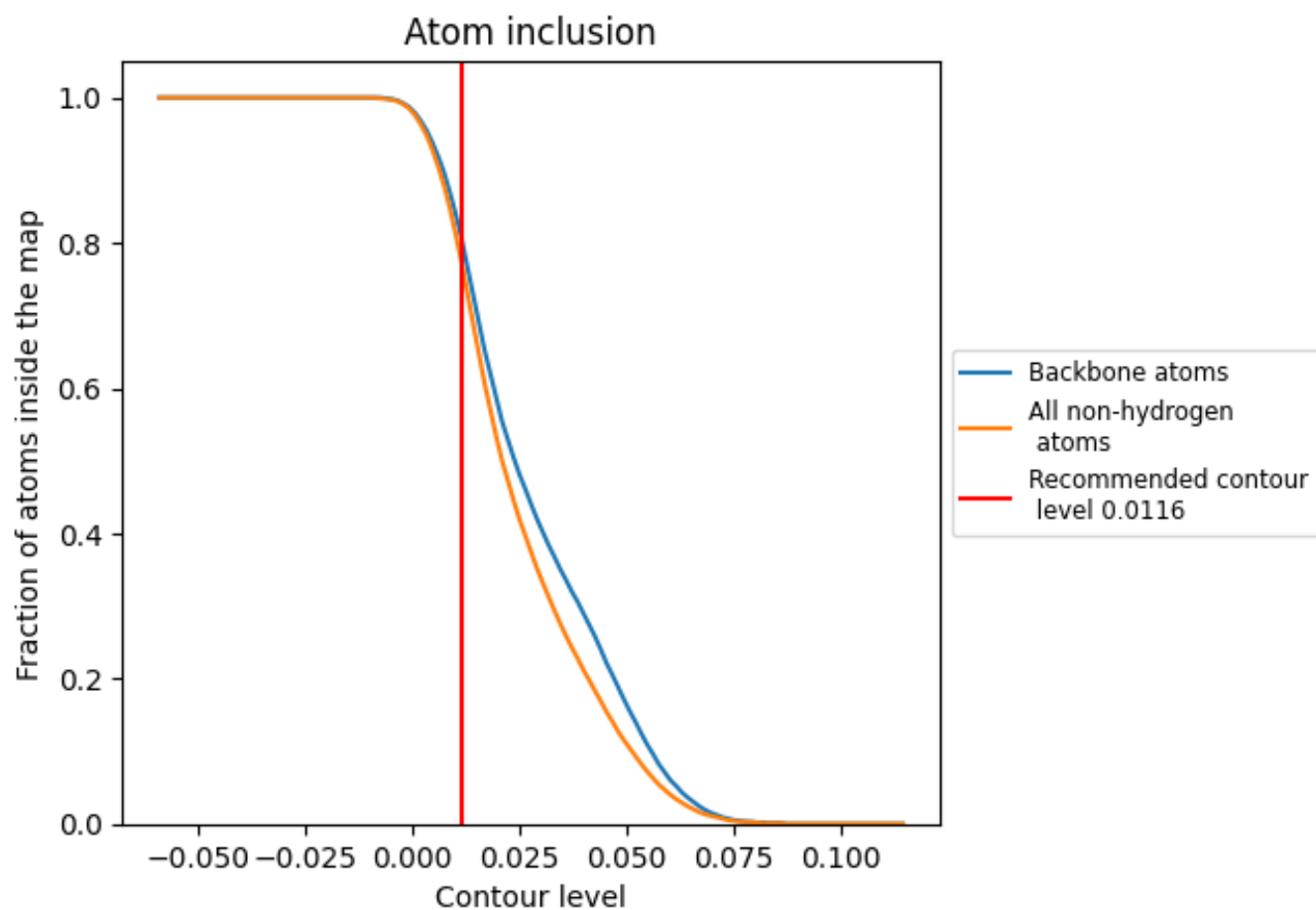
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.0116).







































































9.4 Atom inclusion [i](#)

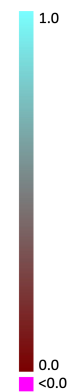


At the recommended contour level, 80% of all backbone atoms, 77% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary

















The table lists the average atom inclusion at the recommended contour level (0.0116) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.7720	 0.2610
A	 0.8990	 0.3880
B	 0.8990	 0.2650
C	 0.9180	 0.4100
D	 0.9370	 0.2600
E	 0.9840	 0.3810
F	 0.7000	 0.2500
H	 0.7630	 0.2450
I	 0.8080	 0.3130
J	 0.9570	 0.4300
L	 0.7160	 0.0950
O	 0.9270	 0.4520
P	 0.7950	 0.3440
Q	 0.8850	 0.3490
R	 0.9160	 0.4110
S	 0.8250	 0.4020
T	 0.9240	 0.4170
Z	 0.6350	 0.2470
a	 0.8000	 0.0310
b	 0.7430	 0.0480
c	 0.5280	 0.2150
d	 0.8100	 0.2390
e	 0.5770	 0.0670
g	 0.7400	 0.0900
h	 0.8970	 0.1570
i	 0.8310	 0.1170
j	 0.8030	 0.1820
k	 0.8210	 0.2480
l	 0.8660	 0.3040
m	 0.7080	 0.1410
n	 0.4090	 0.0650
o	 0.1910	 -0.0040
p	 0.1690	 -0.0030
q	 0.0380	 -0.0430
r	 0.1390	 -0.0080



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Chain	Atom inclusion	Q-score
s	 0.6960	 0.0420
t	 0.0920	 -0.0130
u	 0.5750	 0.0410
v	 0.7560	 0.1080
w	 0.6430	 0.0560
x	 0.5220	 0.0500
y	 0.5830	 0.0270
z	 0.6320	 0.0620