Full wwPDB EM Validation Report ⓘ

Nov 16, 2022 – 06:39 PM JST

PDB ID	:	7BTB
EMDB ID	:	EMD-30174
Title	:	Cryo-EM structure of pre-60S ribosome from Saccharomyces cerevisiae rpl4delta63-87 strain at 3.22 Angstroms resolution(state R2)
Authors	:	Li, Y.; Wilson, D.M.
Deposited on	:	2020-04-01
Resolution	:	3.22 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:

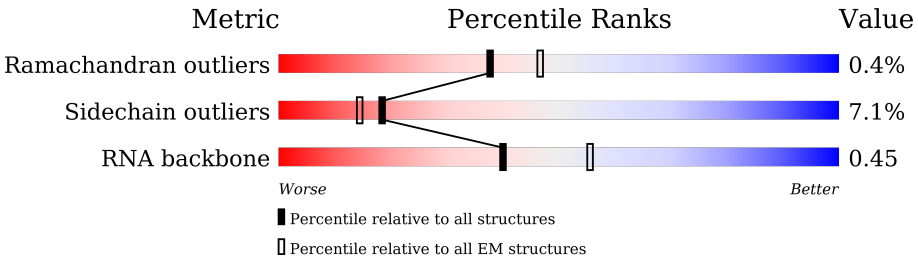
EMDB validation analysis	:	0.0.1.dev43
Mogul	:	1.8.5 (274361), CSD as541be (2020)
MolProbity	:	4.02b-467
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.9
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.31.2

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 3.22 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 <=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	L	199	10% 86% 7% 7%
2	a	149	7% 58% 5% 38%
3	A	254	• 70% 6% 24%
4	B	387	6% 92% 8%
5	C	362	7% 87% 6% 7%
6	D	297	65% 89% • 8%
7	E	176	5% 85% • 11%
8	F	244	• 87% • 9%

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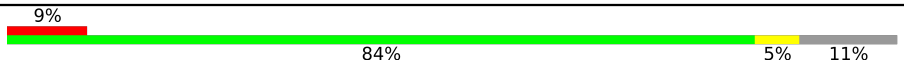
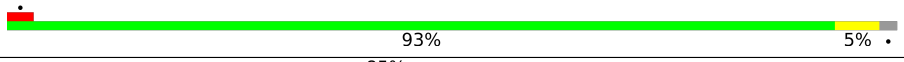
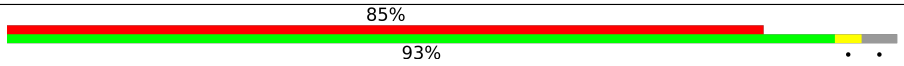
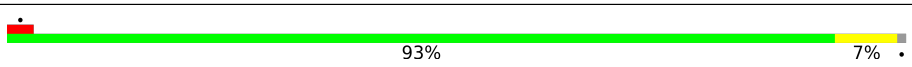
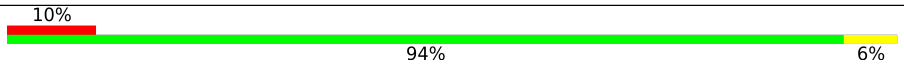
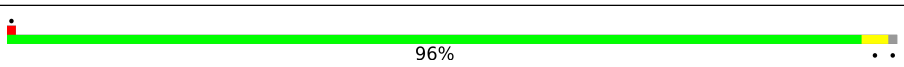
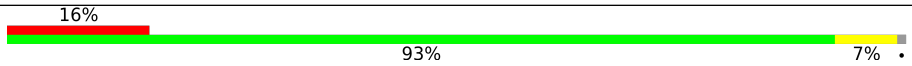
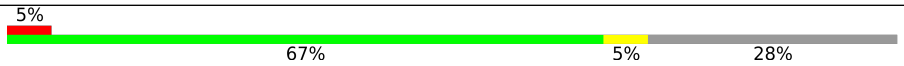
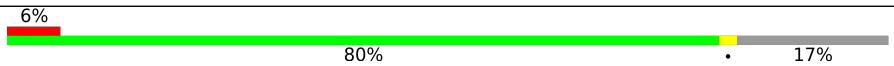
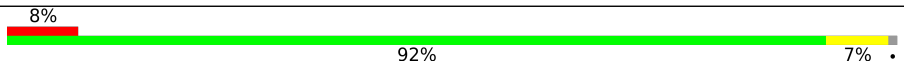
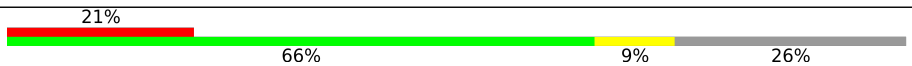
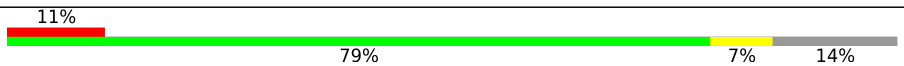
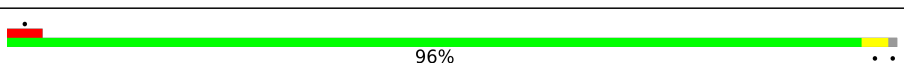
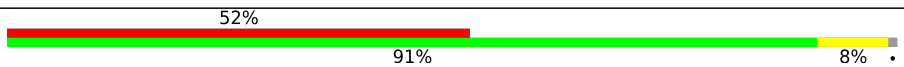
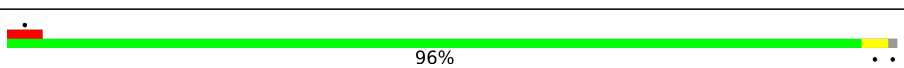
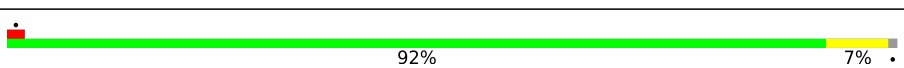
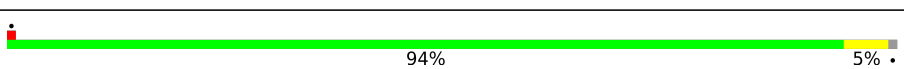
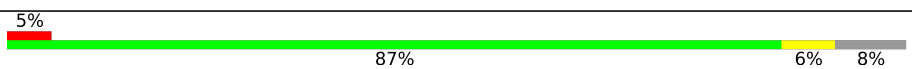
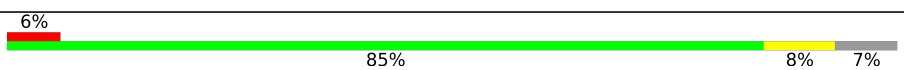
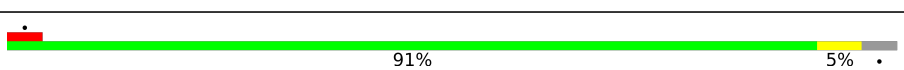
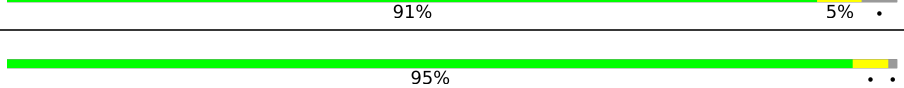
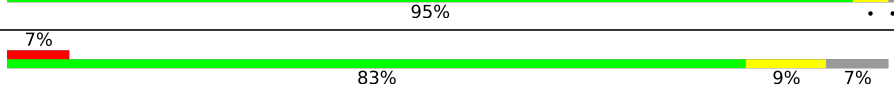
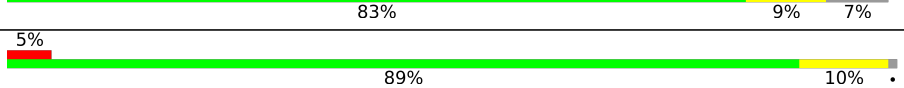
Mol	Chain	Length	Quality of chain
9	G	256	
10	H	191	
11	J	174	
12	K	376	
13	M	138	
14	N	204	
15	O	199	
16	P	184	
17	Q	186	
18	R	189	
19	S	172	
20	T	160	
21	U	121	
22	V	137	
23	W	236	
24	X	142	
25	Y	127	
26	Z	136	
27	b	647	
28	c	105	
29	d	113	
30	e	130	
31	f	107	
32	g	121	
33	h	120	

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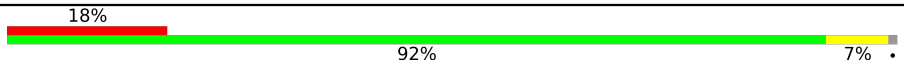
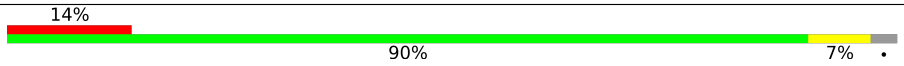
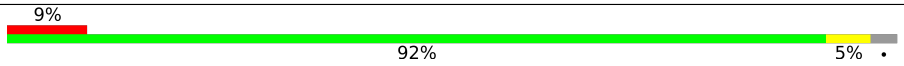
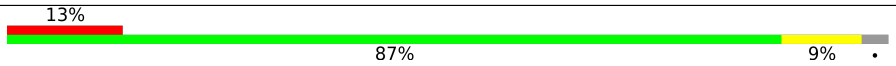
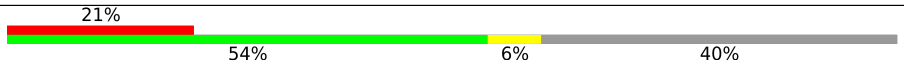
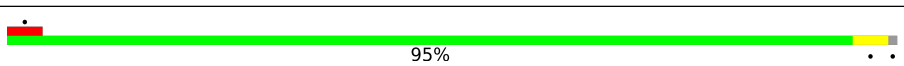
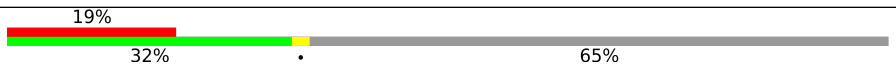
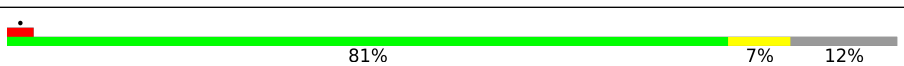
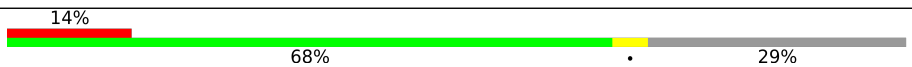
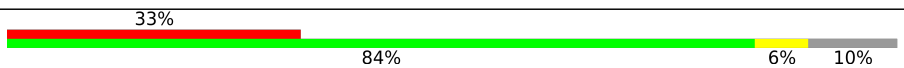
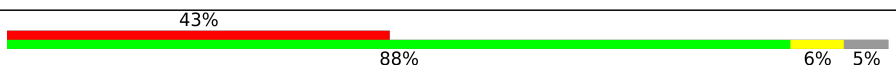
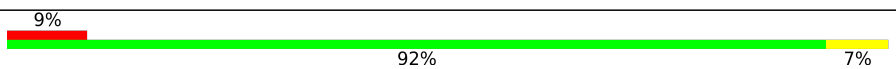
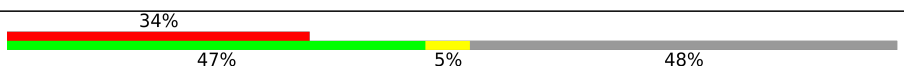
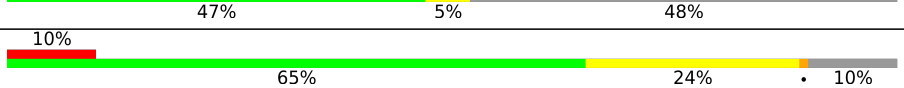
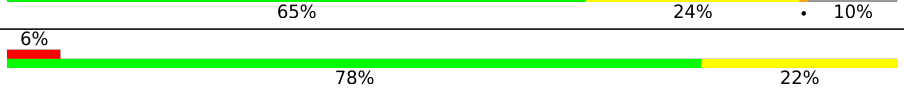
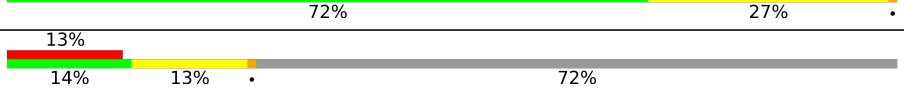
Mol	Chain	Length	Quality of chain
34	i	100	
35	j	88	
36	k	78	
37	m	486	
38	n	605	
39	o	220	
40	p	92	
41	q	455	
42	r	261	
43	t	322	
44	u	199	
45	v	344	
46	w	203	
47	x	515	
48	y	245	
49	z	106	
50	1	3396	
51	2	158	
52	3	121	
53	6	232	

2 Entry composition

There are 56 unique types of molecules in this entry. The entry contains 147931 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 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
1	L	185	1484	923	305	256	0	0

- Molecule 2 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	a	93	735	479	130	125	1	0	0

- Molecule 3 is a protein called 60S ribosomal protein L2-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
3	A	193	1492	938	294	260	0	0

- Molecule 4 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	B	386	3081	1956	584	533	8	0	0

- Molecule 5 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	C	336	2576	1628	483	462	3	0	0

- Molecule 6 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	D	274	2197	1388	388	419	2	0	0

- Molecule 7 is a protein called 60S ribosomal protein L6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	E	156	Total	C	N	O	S	0	0
			1239	800	222	216	1		

- Molecule 8 is a protein called 60S ribosomal protein L7-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	F	222	Total	C	N	O	S	0	0
			1784	1151	324	308	1		

- Molecule 9 is a protein called 60S ribosomal protein L8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	G	227	Total	C	N	O	S	0	0
			1775	1136	318	318	3		

- Molecule 10 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	H	188	Total	C	N	O	S	0	0
			1493	948	271	270	4		

- Molecule 11 is a protein called 60S ribosomal protein L11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	J	167	Total	C	N	O	S	0	0
			1336	838	249	245	4		

- Molecule 12 is a protein called Proteasome-interacting protein CIC1.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	K	253	Total	C	N	O	S	0	0
			2044	1318	339	384	3		

- Molecule 13 is a protein called 60S ribosomal protein L14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	M	137	Total	C	N	O	S	0	0
			1059	678	200	179	2		

- Molecule 14 is a protein called 60S ribosomal protein L15-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	N	203	Total	C	N	O	S	0	0
			1720	1077	361	281	1		

- Molecule 15 is a protein called 60S ribosomal protein L16-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	O	197	Total	C	N	O	S	0	0
			1555	1003	289	262	1		

- Molecule 16 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	P	183	Total	C	N	O	0	0
			1442	896	287	259		

- Molecule 17 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	Q	134	Total	C	N	O	S	0	0
			1035	659	196	179	1		

- Molecule 18 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
18	R	156	Total	C	N	O	0	0
			1258	781	265	212		

- Molecule 19 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	S	171	Total	C	N	O	S	0	0
			1437	925	266	243	3		

- Molecule 20 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	T	119	Total	C	N	O	S	0	0
			943	595	180	165	3		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
21	U	104	Total 826	C 534	N 134	O 158	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
22	V	136	Total 1003	C 628	N 189	O 179	S 7	0	0

- Molecule 23 is a protein called Ribosome assembly factor MRT4.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	W	234	Total 1885	C 1194	N 323	O 362	S 6	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
24	X	141	Total 1100	C 705	N 196	O 197	S 2	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
25	Y	126	Total 993	C 625	N 192	O 176	0	0

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

Mol	Chain	Residues	Atoms				AltConf	Trace
26	Z	135	Total 1092	C 710	N 202	O 180	0	0

- Molecule 27 is a protein called Nucleolar GTP-binding protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	b	509	Total 4137	C 2624	N 723	O 771	S 19	0	0

- Molecule 28 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	c	97	Total	C	N	O	S	0	0
			743	479	124	139	1		

- Molecule 29 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	d	105	Total	C	N	O	S	0	0
			856	544	163	148	1		

- Molecule 30 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	e	125	Total	C	N	O	S	0	0
			1007	638	203	165	1		

- Molecule 31 is a protein called 60S ribosomal protein L33-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	f	106	Total	C	N	O	S	0	0
			850	540	165	144	1		

- Molecule 32 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	g	112	Total	C	N	O	S	0	0
			881	546	179	152	4		

- Molecule 33 is a protein called 60S ribosomal protein L35-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	h	119	Total	C	N	O	S	0	0
			969	615	186	167	1		

- Molecule 34 is a protein called 60S ribosomal protein L36-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	i	99	Total	C	N	O	S	0	0
			771	481	156	132	2		

- Molecule 35 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	j	85	Total	C	N	O	S	0	0
			670	408	146	111	5		

- Molecule 36 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	k	76	Total	C	N	O	0	0
			604	385	114	105		

- Molecule 37 is a protein called Nucleolar GTP-binding protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	m	469	Total	C	N	O	S	0	0
			3774	2381	685	699	9		

- Molecule 38 is a protein called Pescadillo homolog.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	n	366	Total	C	N	O	S	0	0
			2988	1936	517	525	10		

- Molecule 39 is a protein called Ribosome biogenesis protein 15.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	o	129	Total	C	N	O	S	0	0
			1064	685	192	183	4		

- Molecule 40 is a protein called 60S ribosomal protein L43-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	p	91	Total	C	N	O	S	0	0
			694	429	138	121	6		

- Molecule 41 is a protein called Ribosome biogenesis protein NOP53.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	q	158	Total	C	N	O	S	0	0
			1313	827	235	250	1		

- Molecule 42 is a protein called Ribosome biogenesis protein NSA2.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	r	230	Total	C	N	O	S	0	0
			1860	1177	352	324	7		

- Molecule 43 is a protein called Ribosome biogenesis protein RLP7.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	t	287	Total	C	N	O	S	0	0
			2306	1459	427	417	3		

- Molecule 44 is a protein called Ribosome biogenesis protein RLP24.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	u	142	Total	C	N	O	S	0	0
			1196	751	239	197	9		

- Molecule 45 is a protein called Ribosome biogenesis protein RPF2.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	v	287	Total	C	N	O	S	0	0
			2318	1482	408	412	16		

- Molecule 46 is a protein called Regulator of ribosome biosynthesis.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	w	182	Total	C	N	O	S	0	0
			1448	911	261	271	5		

- Molecule 47 is a protein called Ribosome assembly protein 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	x	488	Total	C	N	O	S	0	0
			3807	2398	677	711	21		

- Molecule 48 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	y	244	Total	C	N	O	S	0	0
			1849	1146	319	377	7		

- Molecule 49 is a protein called UPF0642 protein YBL028C.

Mol	Chain	Residues	Atoms				AltConf	Trace
49	z	55	Total 444	C 273	N 88	O 83	0	0

- Molecule 50 is a RNA chain called RDN25-1 rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	1	3058	Total 65427	C 29223	N 11807	O 21339	P 3058	0	0

- Molecule 51 is a RNA chain called RDN5.8-1 rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	2	158	Total 3353	C 1500	N 586	O 1109	P 158	0	0

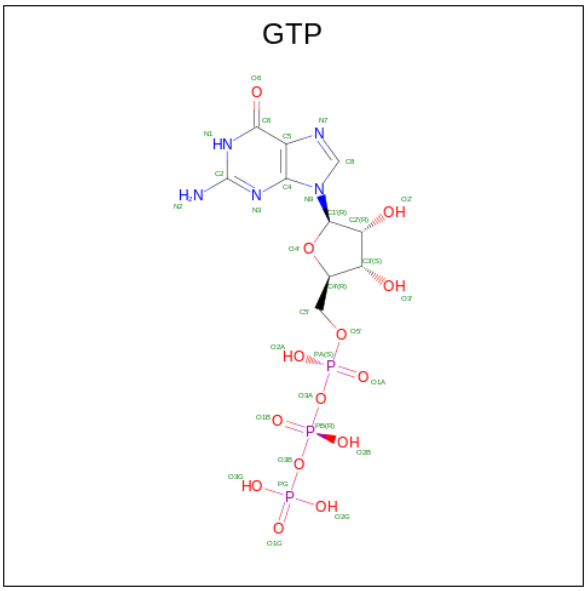
- Molecule 52 is a RNA chain called RDN5-2 rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	3	121	Total 2579	C 1152	N 461	O 845	P 121	0	0

- Molecule 53 is a RNA chain called ITS2-1 miscRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	6	65	Total 1370	C 614	N 228	O 463	P 65	0	0

- Molecule 54 is GUANOSINE-5'-TRIPHOSPHATE (three-letter code: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



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

- Molecule 55 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		AltConf
55	b	1	Total	Mg	0
			1	1	
55	m	1	Total	Mg	0
			1	1	

- Molecule 56 is ZINC ION (three-letter code: ZN) (formula: Zn).

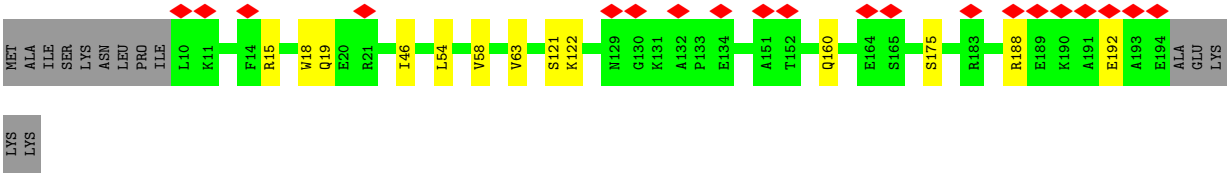
Mol	Chain	Residues	Atoms		AltConf
56	j	1	Total	Zn	0
			1	1	
56	p	1	Total	Zn	0
			1	1	
56	u	1	Total	Zn	0
			1	1	

3 Residue-property plots (i)

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

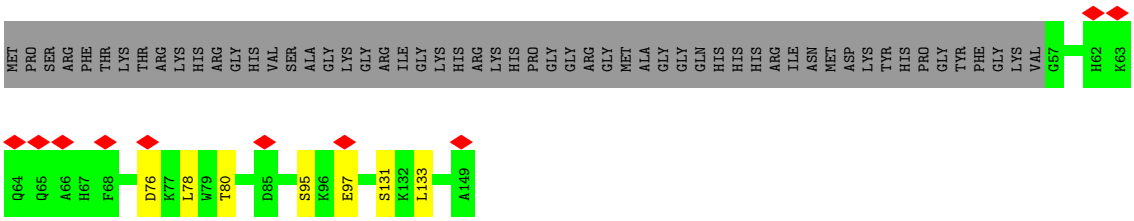
• Molecule 1: 60S ribosomal protein L13-A

Chain L:



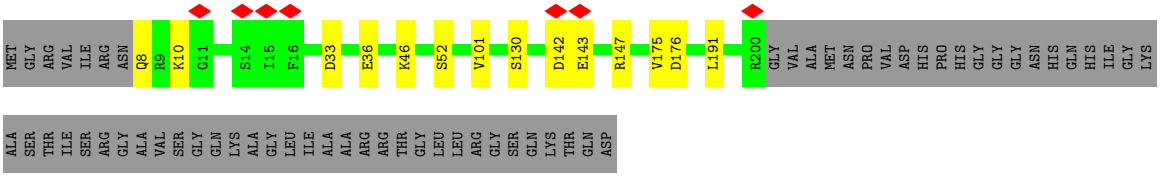
• Molecule 2: 60S ribosomal protein L28

Chain a:



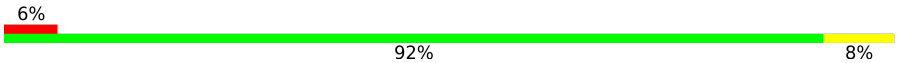
• Molecule 3: 60S ribosomal protein L2-A

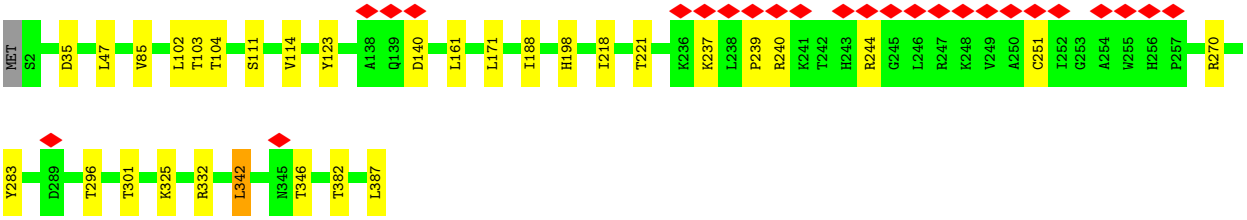
Chain A:



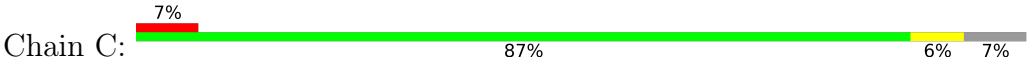
• Molecule 4: 60S ribosomal protein L3

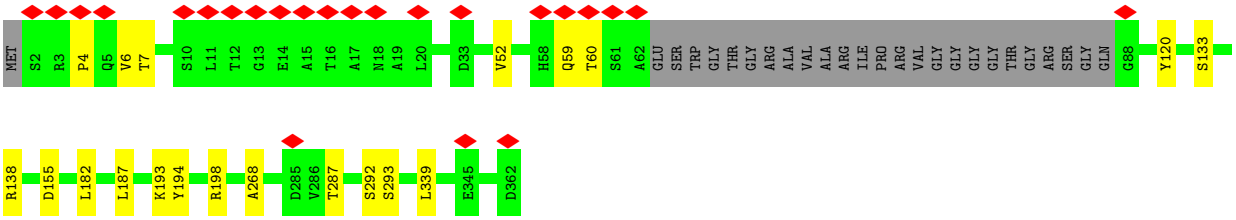
Chain B:



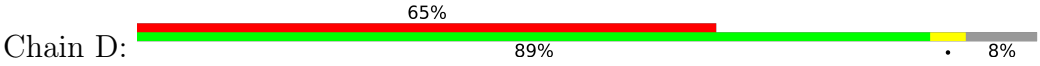


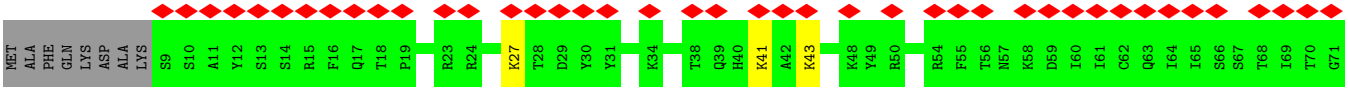
• Molecule 5: 60S ribosomal protein L4-A

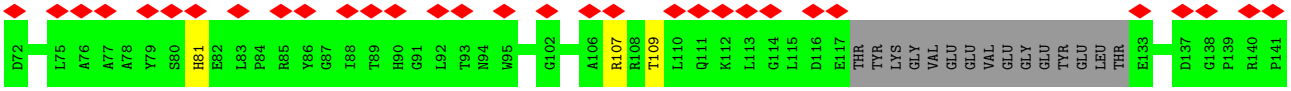


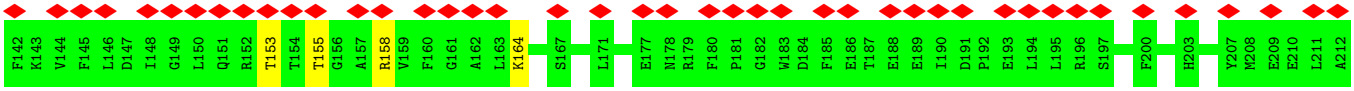


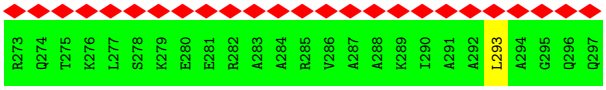
• Molecule 6: 60S ribosomal protein L5



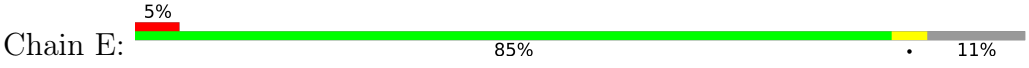


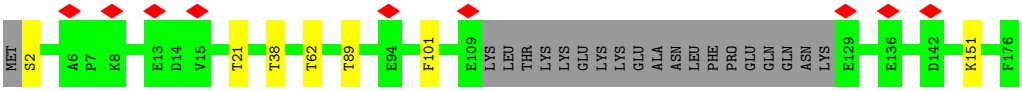






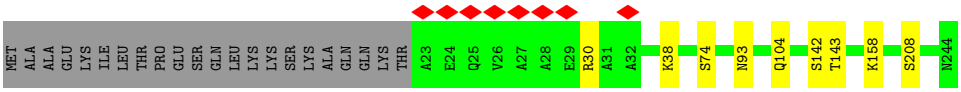
• Molecule 7: 60S ribosomal protein L6-A





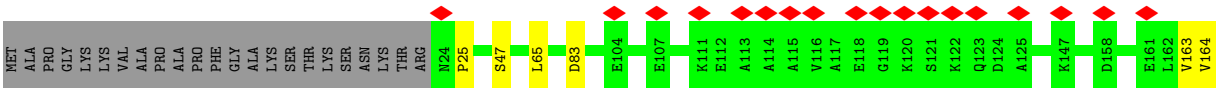
• Molecule 8: 60S ribosomal protein L7-A

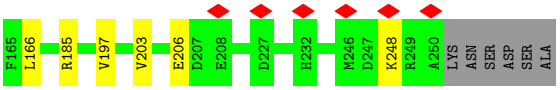
Chain F:



• Molecule 9: 60S ribosomal protein L8-A

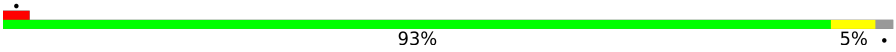
Chain G:





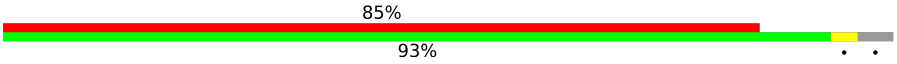
• Molecule 10: 60S ribosomal protein L9-A

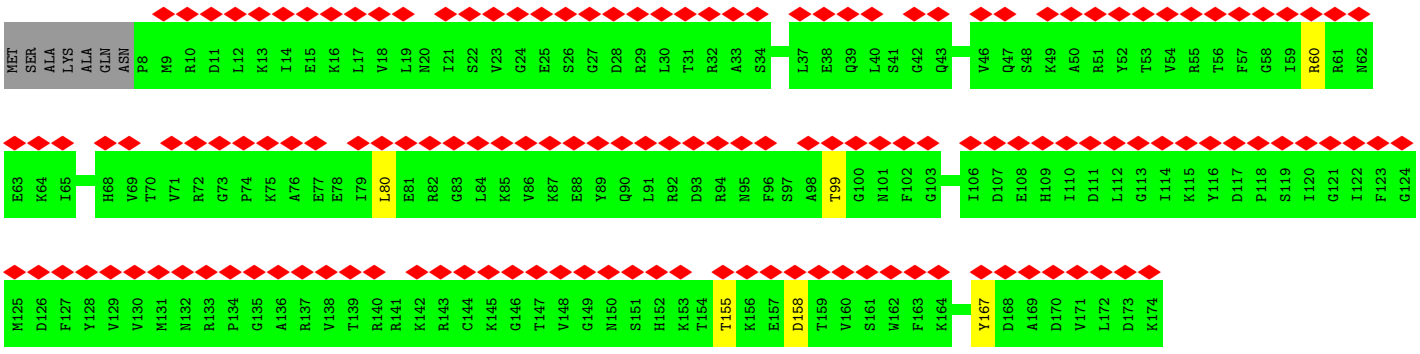
Chain H:



• Molecule 11: 60S ribosomal protein L11-A

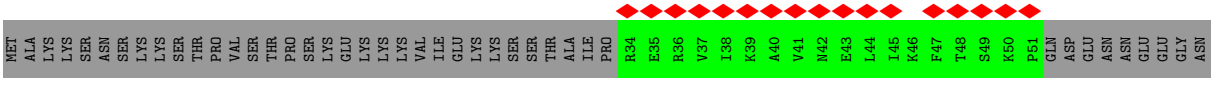
Chain J:

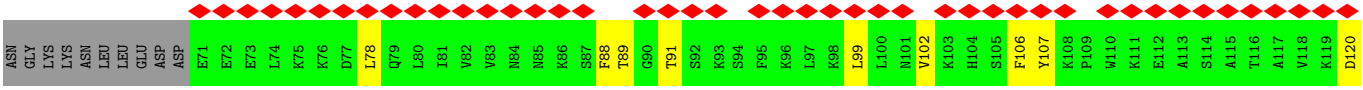


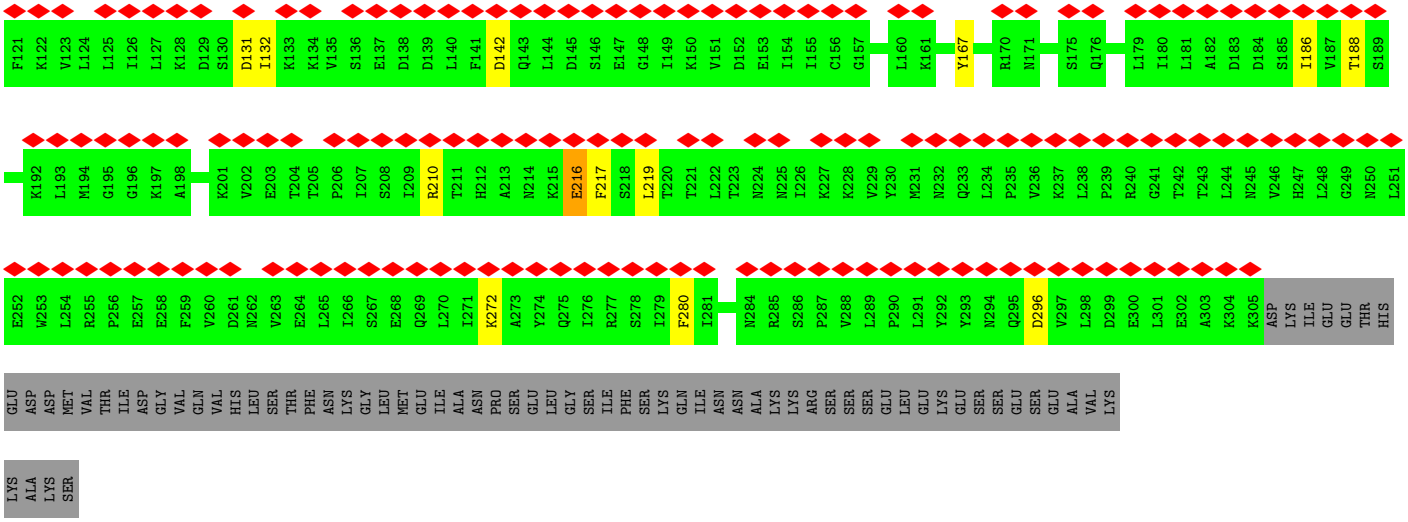


• Molecule 12: Proteasome-interacting protein CIC1

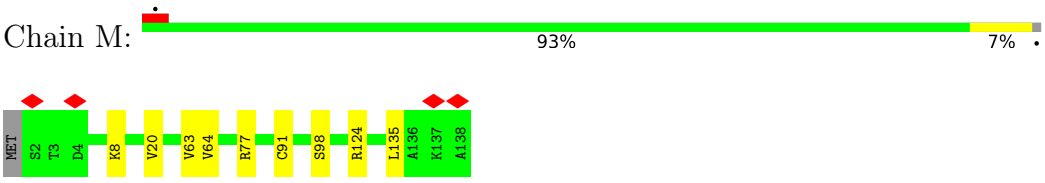
Chain K:



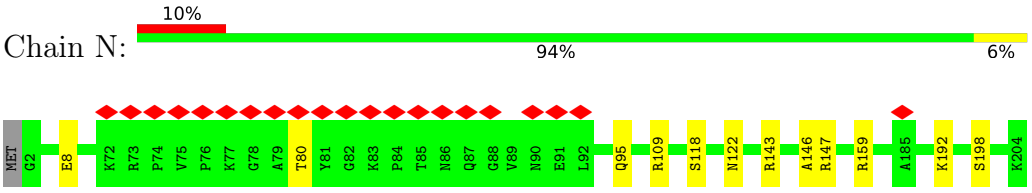




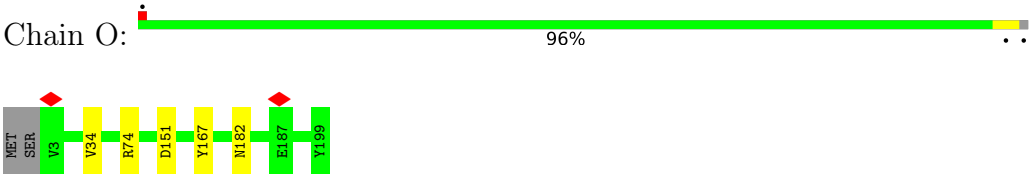
• Molecule 13: 60S ribosomal protein L14-A



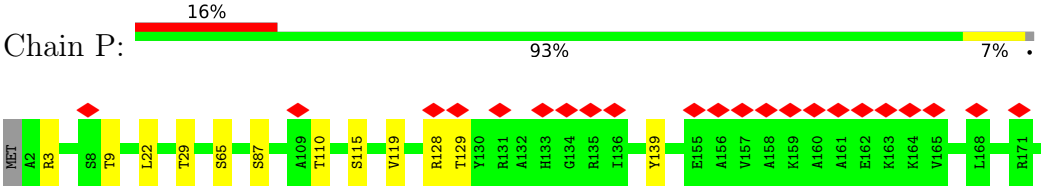
• Molecule 14: 60S ribosomal protein L15-A



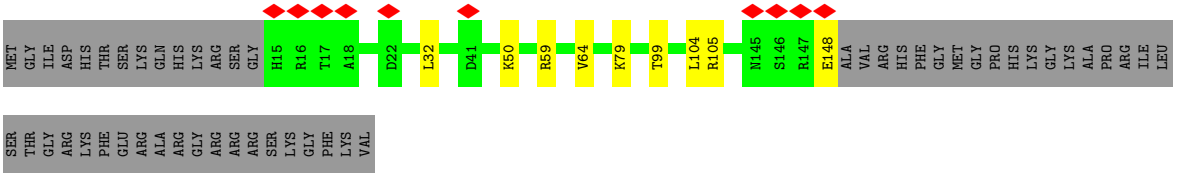
• Molecule 15: 60S ribosomal protein L16-A



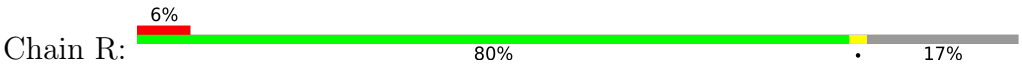
• Molecule 16: 60S ribosomal protein L17-A

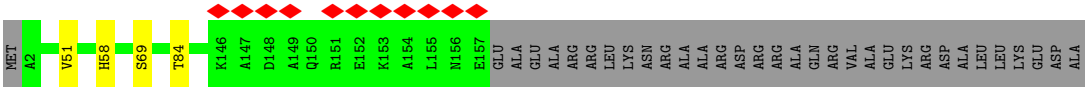


• Molecule 17: 60S ribosomal protein L18-A

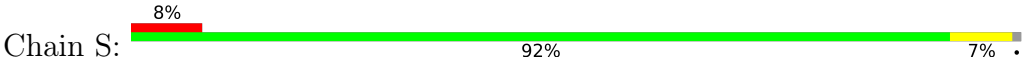


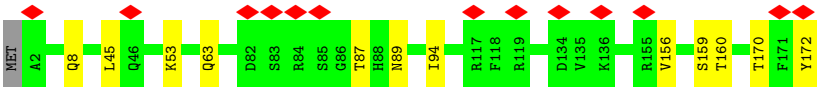
• Molecule 18: 60S ribosomal protein L19-A



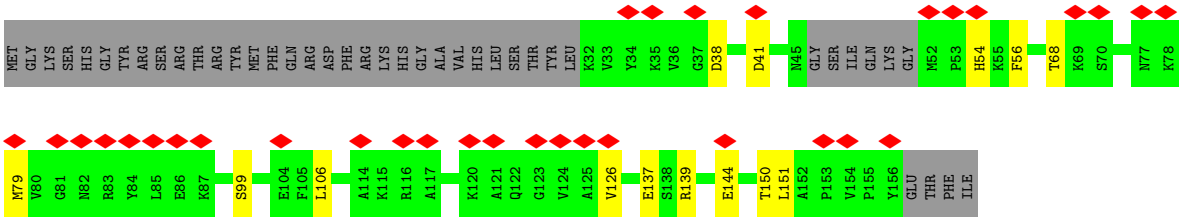


• Molecule 19: 60S ribosomal protein L20-A

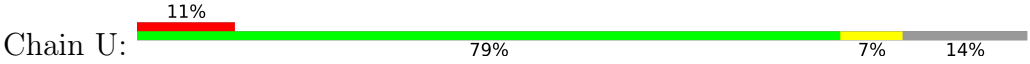


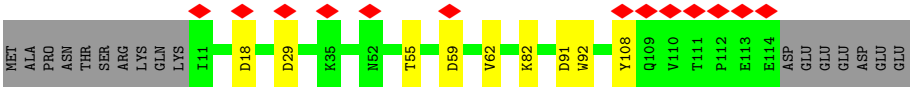


• Molecule 20: 60S ribosomal protein L21-A

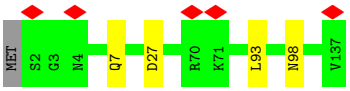


• Molecule 21: 60S ribosomal protein L22-A



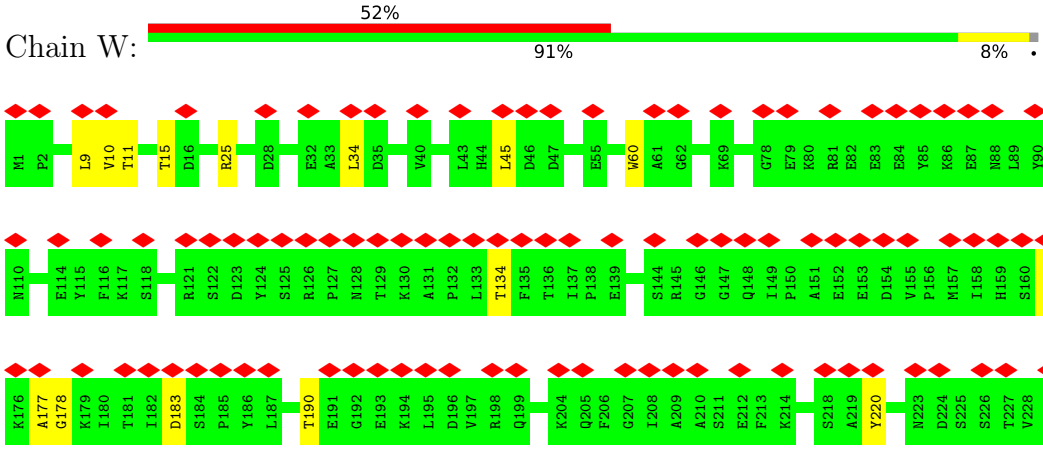


• Molecule 22: 60S ribosomal protein L23-A



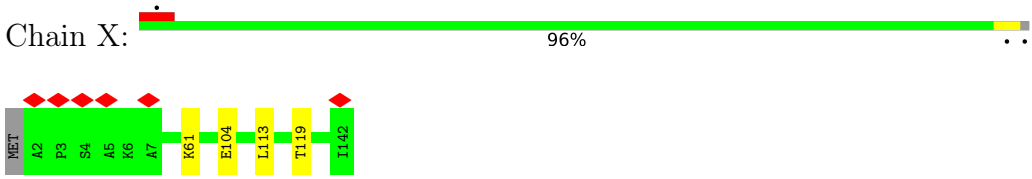
• Molecule 23: Ribosome assembly factor MRT4

Chain W:



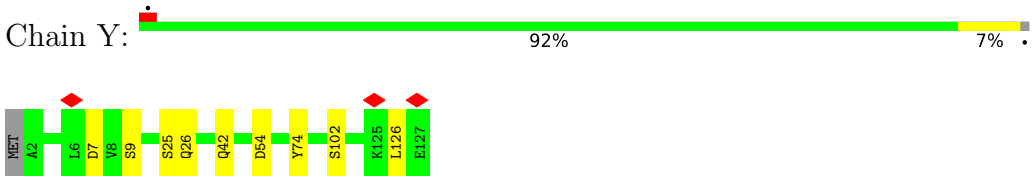
• Molecule 24: 60S ribosomal protein L25

Chain X:



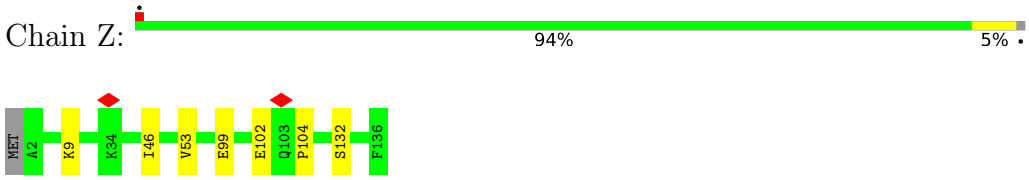
• Molecule 25: 60S ribosomal protein L26-A

Chain Y:



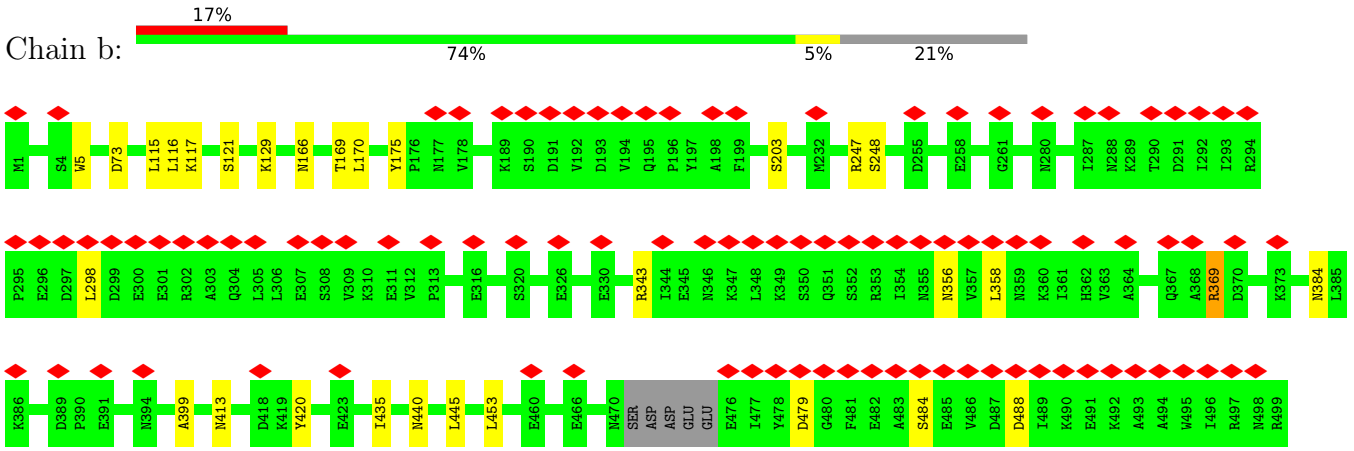
• Molecule 26: 60S ribosomal protein L27-A

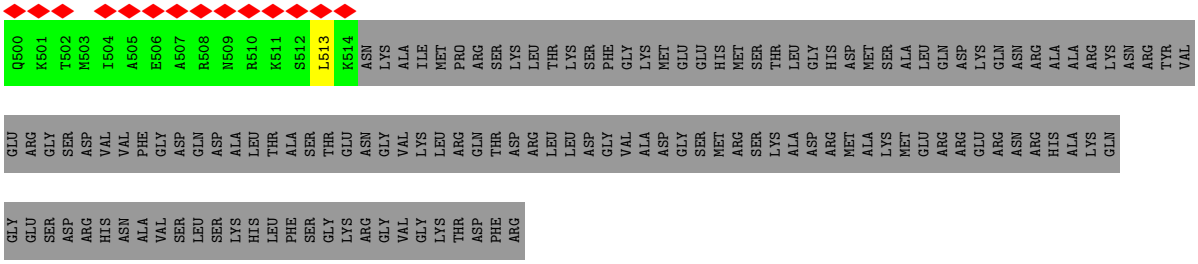
Chain Z:



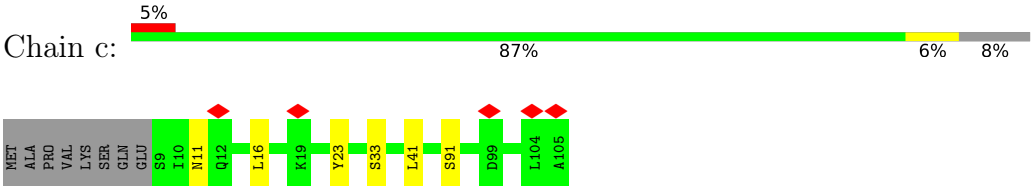
• Molecule 27: Nucleolar GTP-binding protein 1

Chain b:

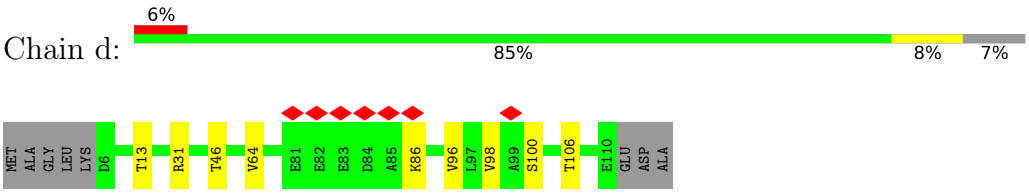




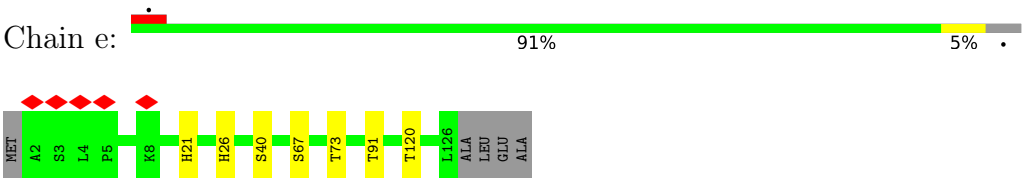
• Molecule 28: 60S ribosomal protein L30



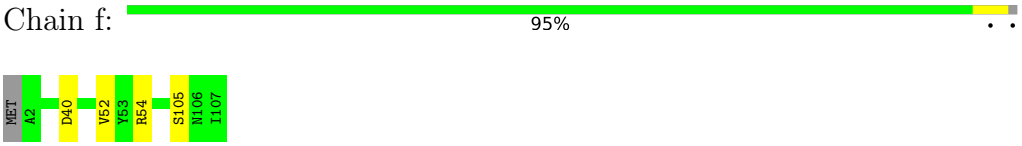
• Molecule 29: 60S ribosomal protein L31-A



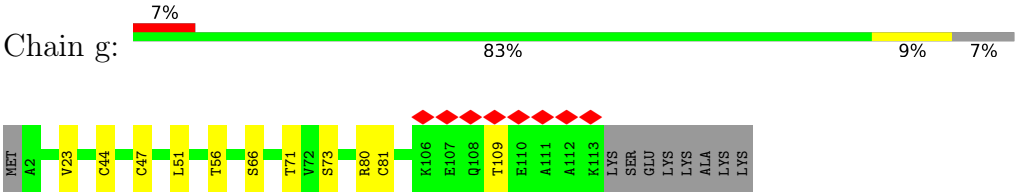
• Molecule 30: 60S ribosomal protein L32



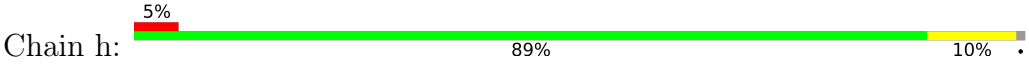
• Molecule 31: 60S ribosomal protein L33-A

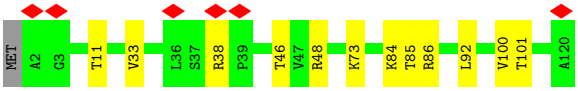


• Molecule 32: 60S ribosomal protein L34-A



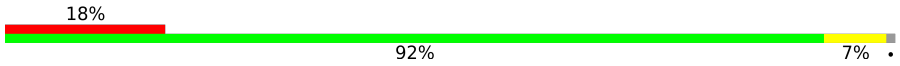
• Molecule 33: 60S ribosomal protein L35-A

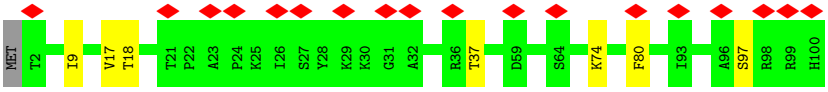




• Molecule 34: 60S ribosomal protein L36-A

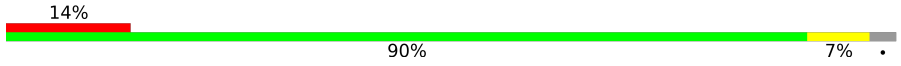
Chain i:

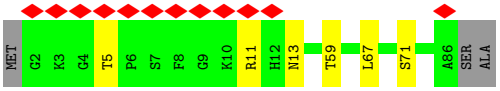




• Molecule 35: 60S ribosomal protein L37-A

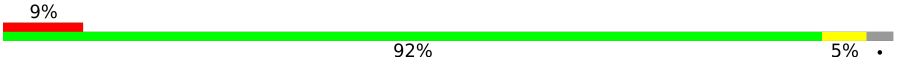
Chain j:

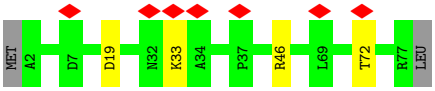




• Molecule 36: 60S ribosomal protein L38

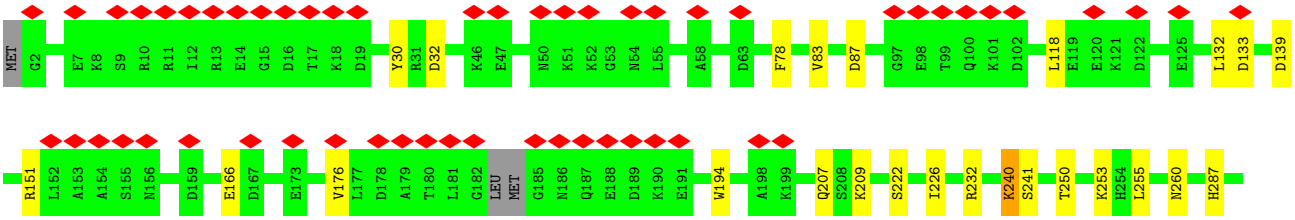
Chain k:





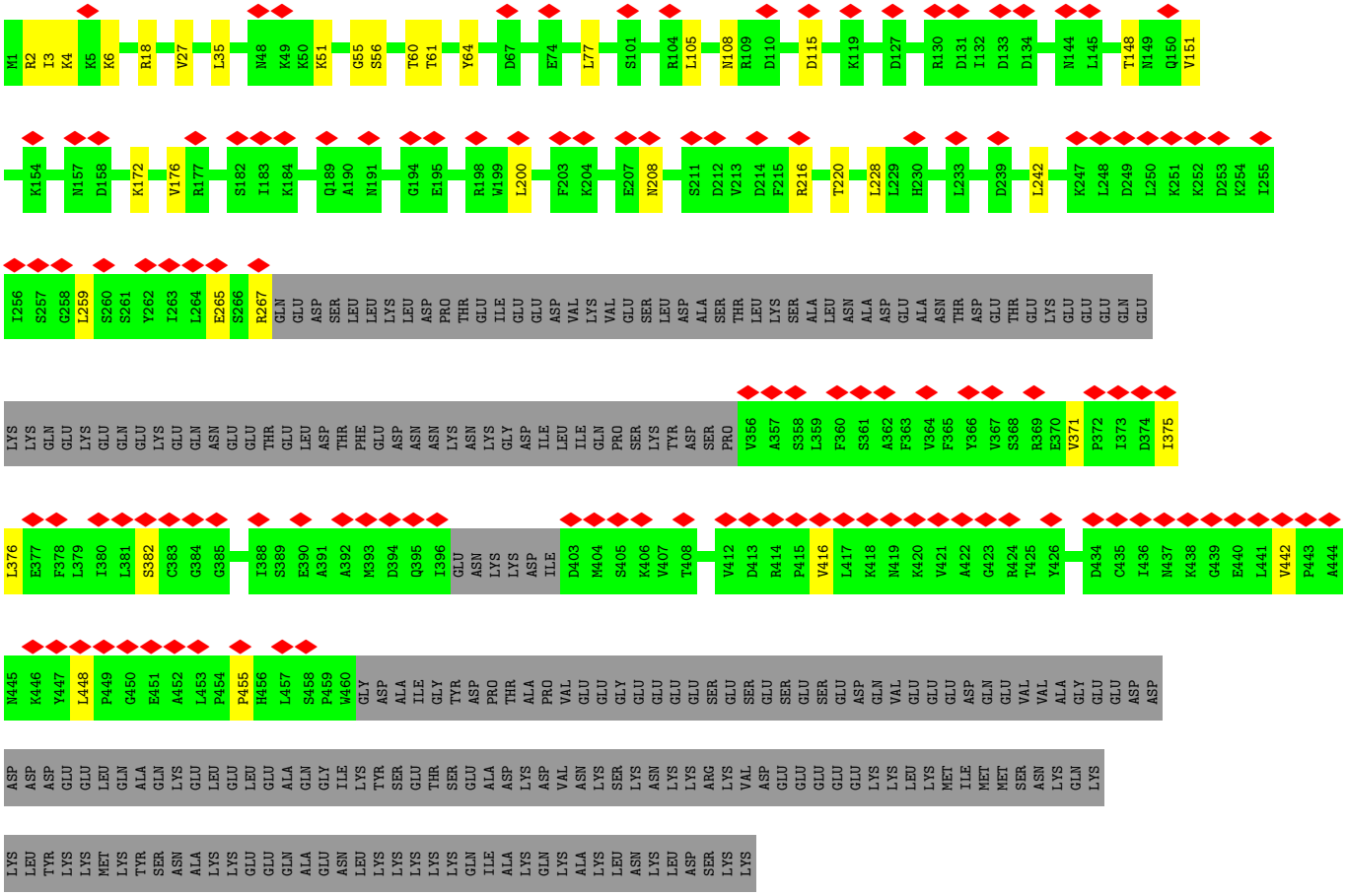
• Molecule 37: Nucleolar GTP-binding protein 2

Chain m:



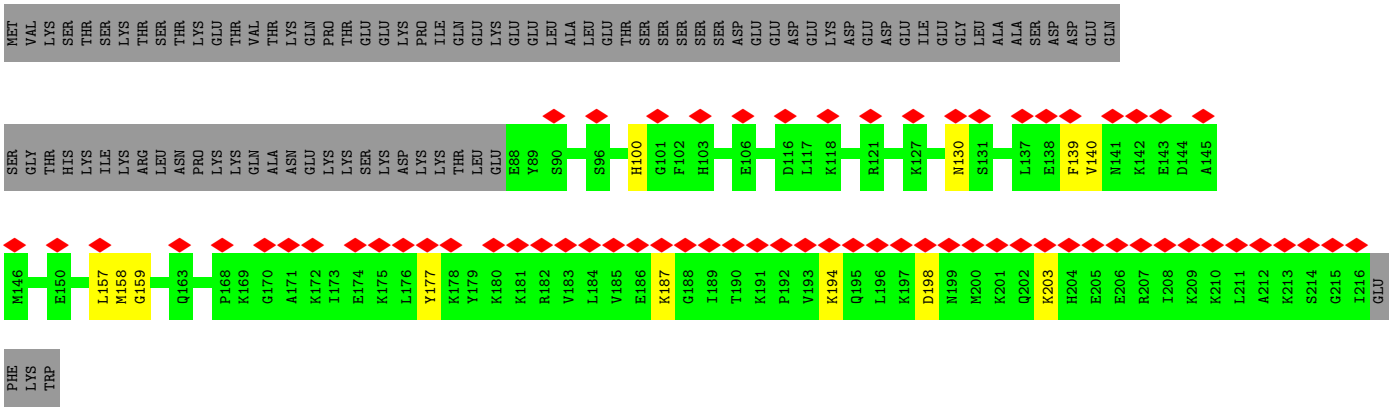
• Molecule 38: Pescadillo homolog

Chain n:



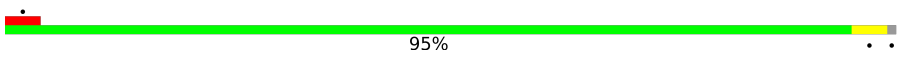
• Molecule 39: Ribosome biogenesis protein 15

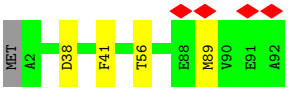
Chain o:



• Molecule 40: 60S ribosomal protein L43-A

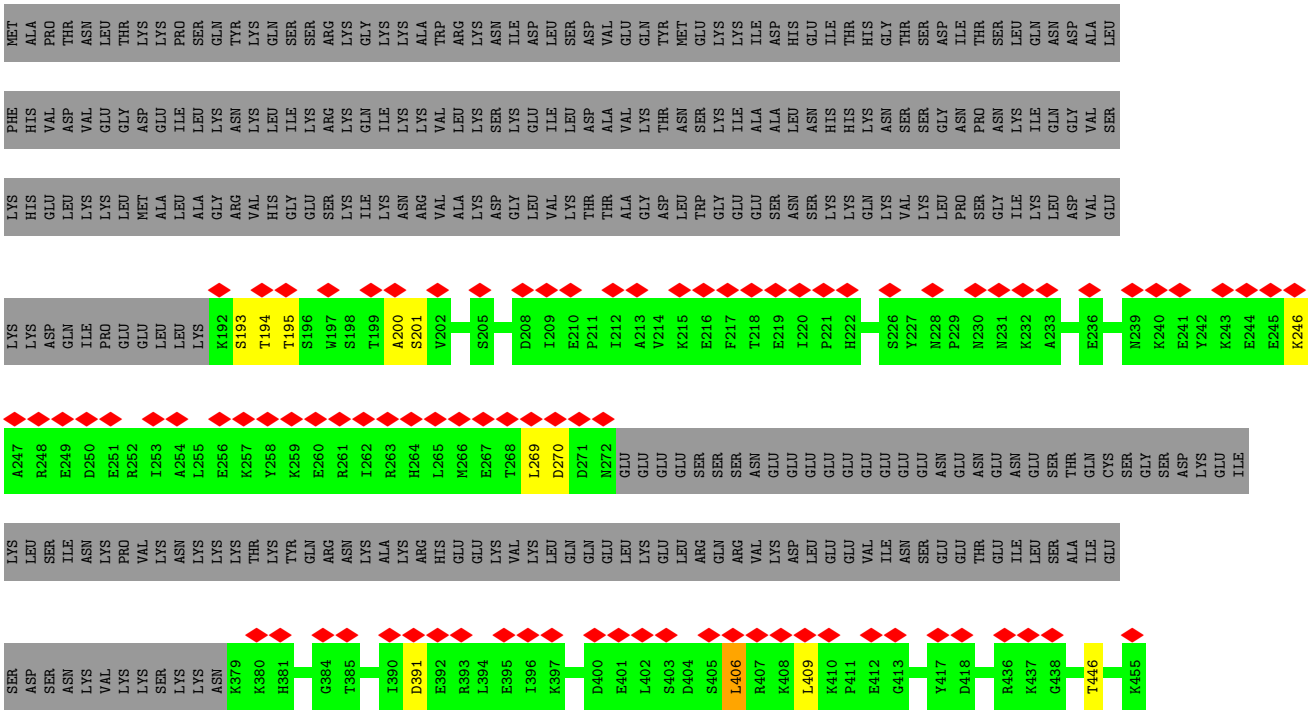
Chain p:





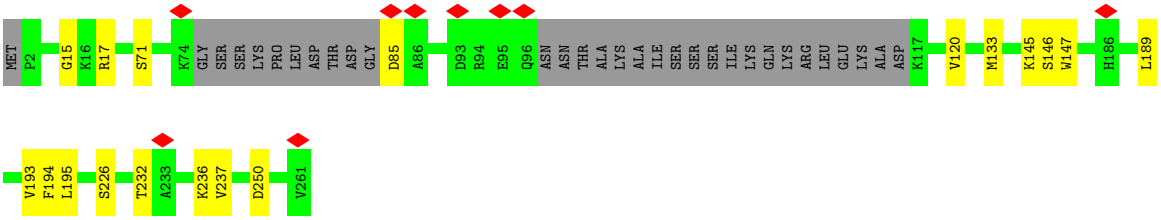
• Molecule 41: Ribosome biogenesis protein NOP53

Chain q:



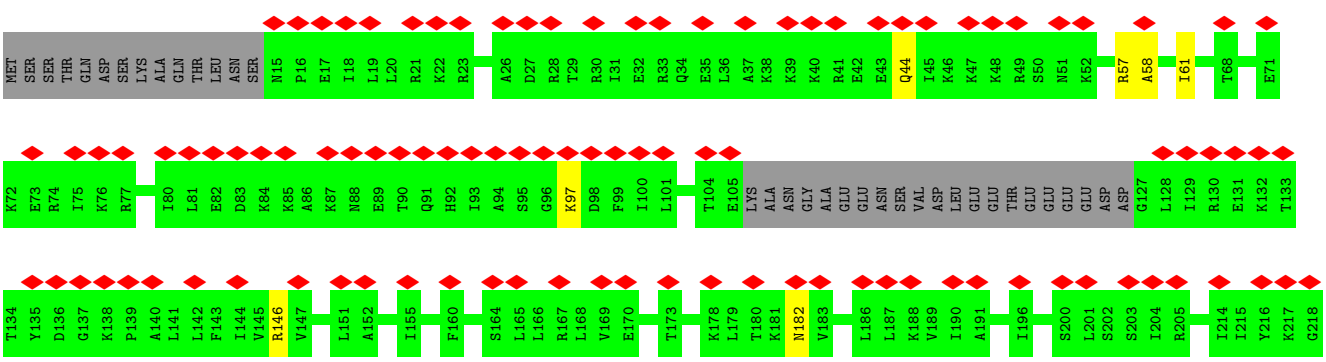
• Molecule 42: Ribosome biogenesis protein NSA2

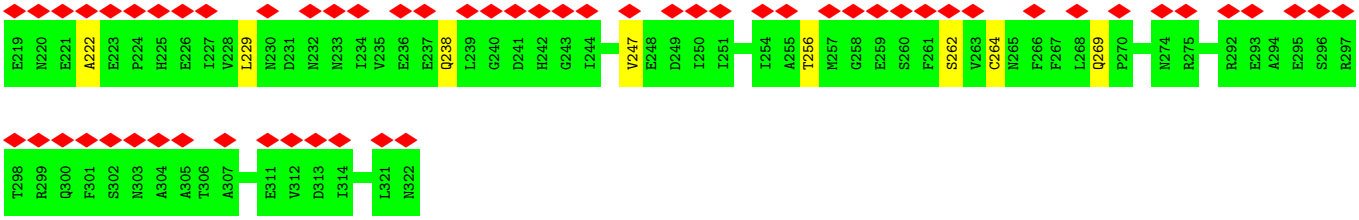
Chain r:



• Molecule 43: Ribosome biogenesis protein RLP7

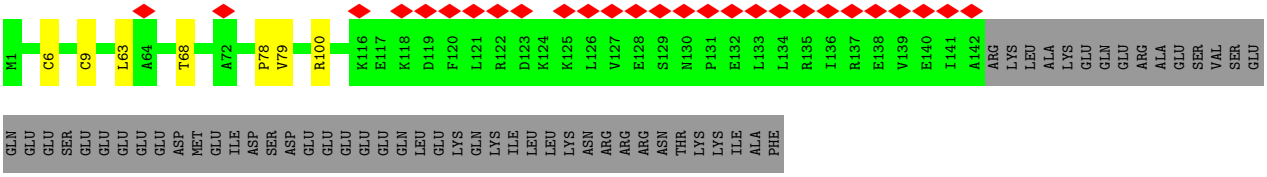
Chain t:





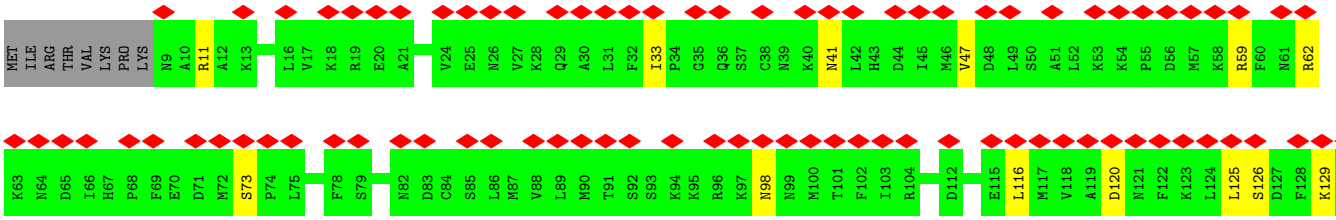
• Molecule 44: Ribosome biogenesis protein RLP24

Chain u:



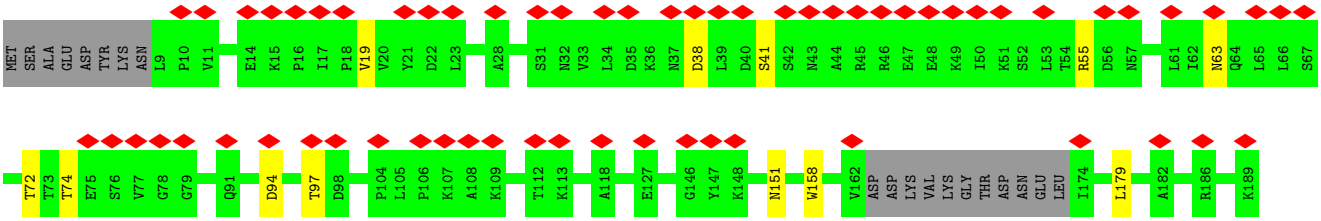
• Molecule 45: Ribosome biogenesis protein RPF2

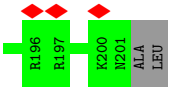
Chain v:



• Molecule 46: Regulator of ribosome biosynthesis

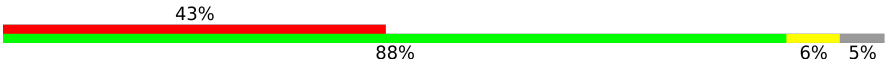
Chain w:

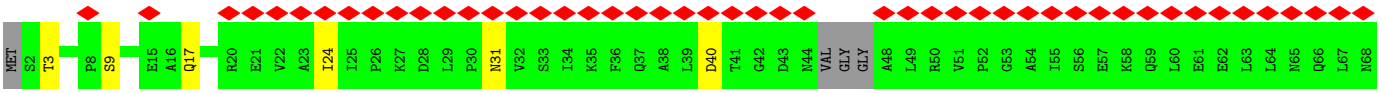


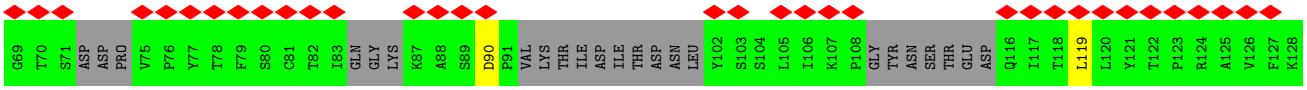


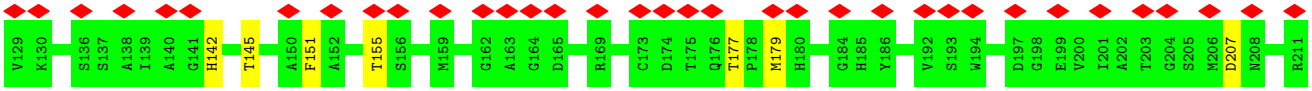
• Molecule 47: Ribosome assembly protein 4

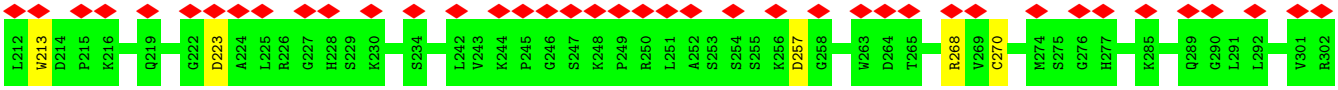
Chain x:

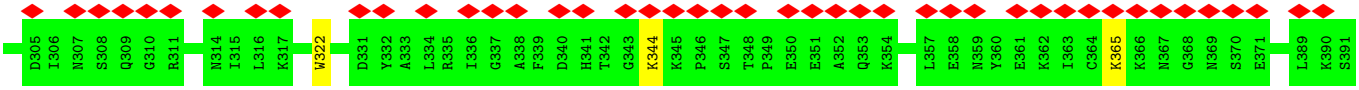


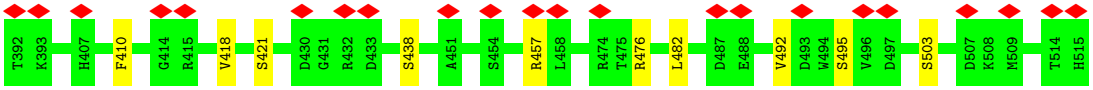






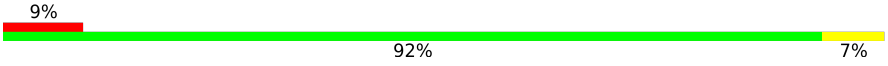


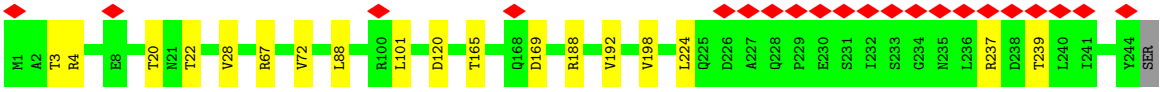




• Molecule 48: Eukaryotic translation initiation factor 6

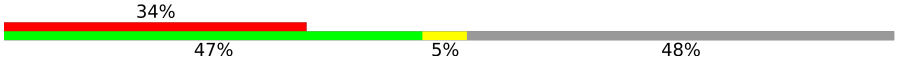
Chain y:

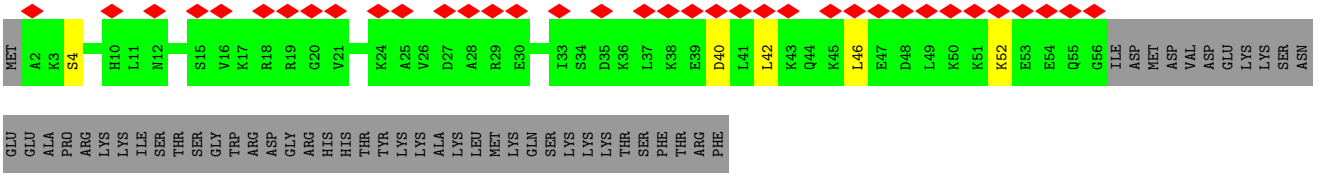




• Molecule 49: UPF0642 protein YBL028C

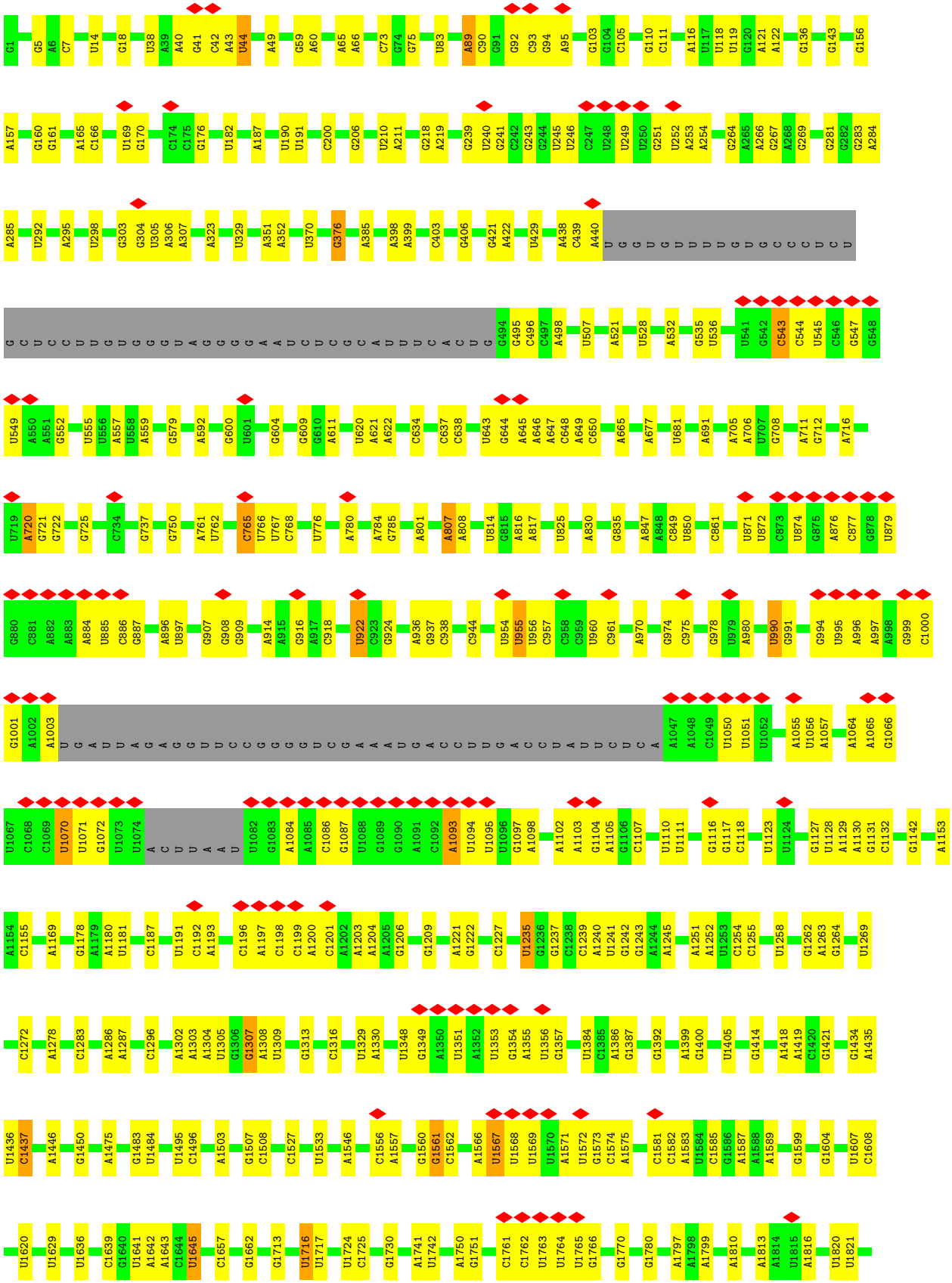
Chain z:

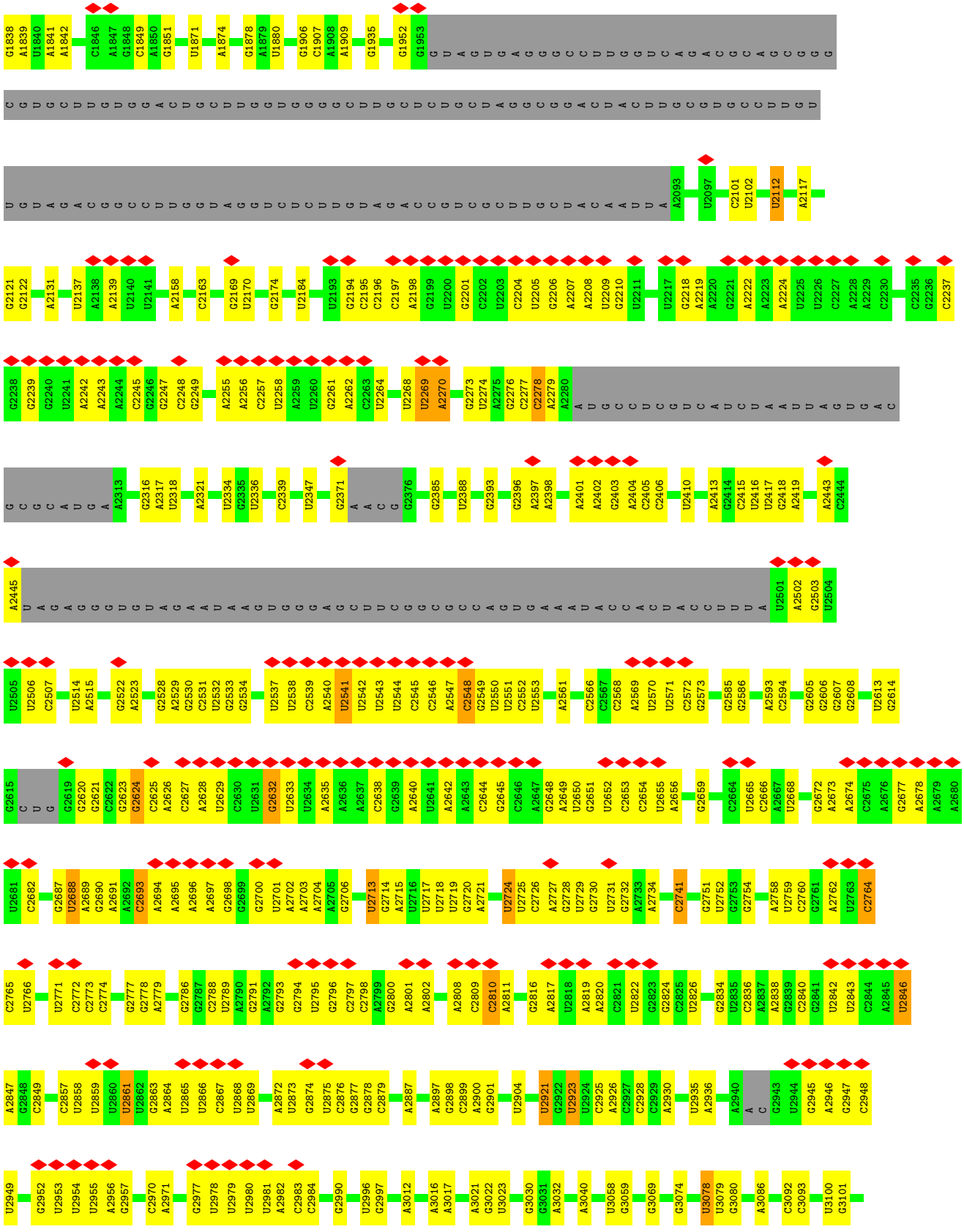


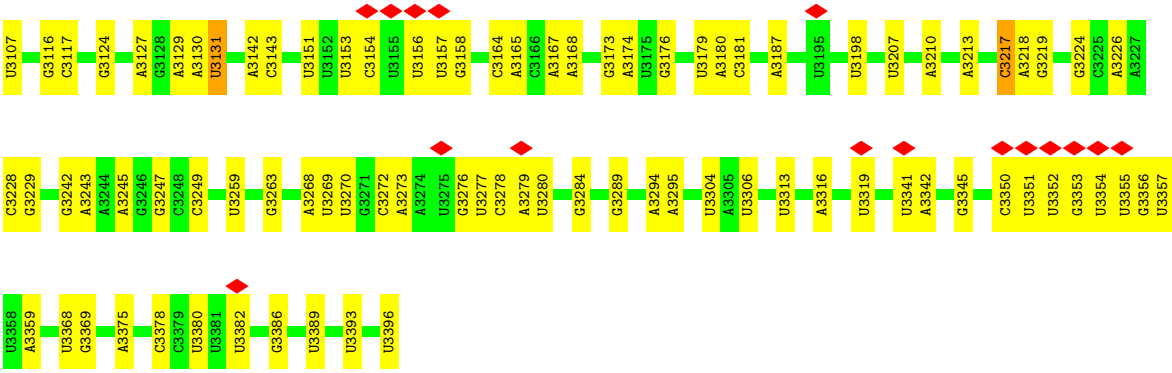


• Molecule 50: RDN25-1 rRNA

Chain 1:

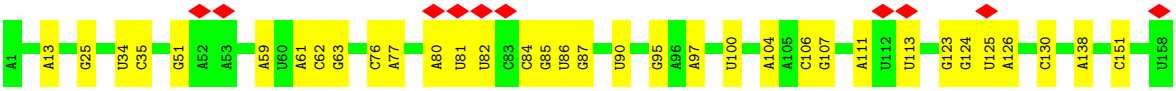






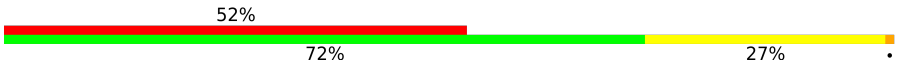
• Molecule 51: RDN5.8-1 rRNA

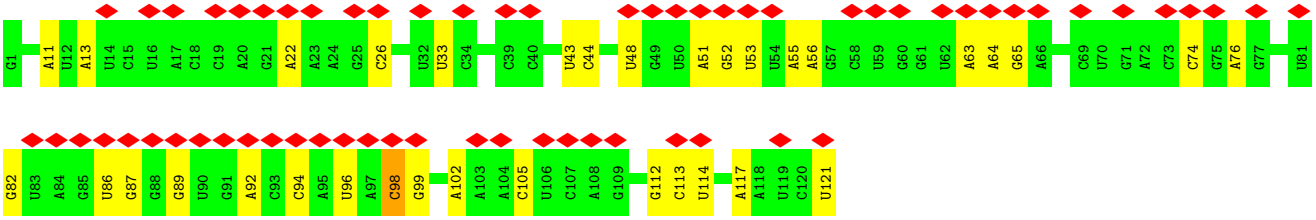
Chain 2:



• Molecule 52: RDN5-2 rRNA

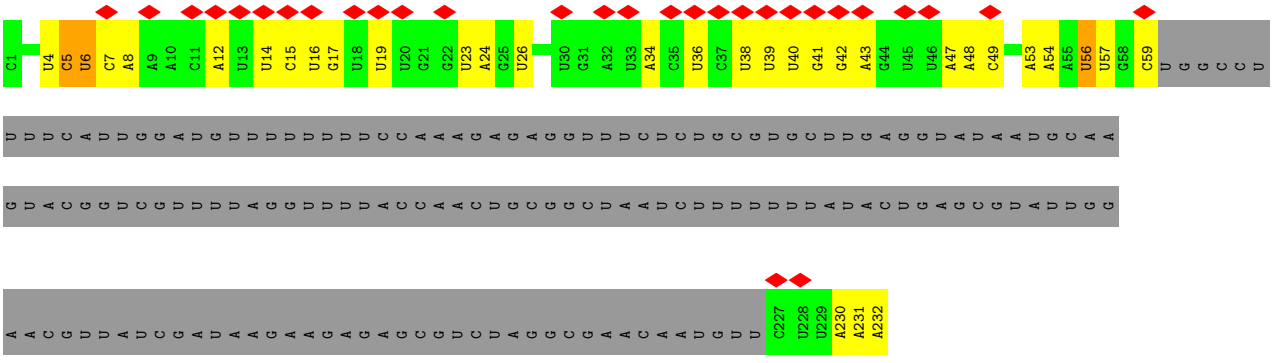
Chain 3:





• Molecule 53: ITS2-1 miscRNA

Chain 6:



4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	47025	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	1.9	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	0.208	Depositor
Minimum map value	-0.120	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.010	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	412.02, 412.02, 412.02	wwPDB
Map dimensions	300, 300, 300	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.3734, 1.3734, 1.3734	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, MG, GTP

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|>5$	RMSZ	#$\|Z\|>5$
1	L	0.37	0/1508	0.53	0/2024
2	a	0.36	0/751	0.50	0/1013
3	A	0.41	0/1520	0.51	0/2043
4	B	0.41	0/3152	0.52	0/4239
5	C	0.38	0/2624	0.52	1/3553 (0.0%)
6	D	0.30	0/2243	0.48	0/3025
7	E	0.34	0/1260	0.49	0/1694
8	F	0.40	0/1821	0.50	0/2451
9	G	0.37	0/1807	0.52	0/2439
10	H	0.39	0/1514	0.50	0/2039
11	J	0.25	0/1357	0.51	0/1818
12	K	0.28	0/2077	0.51	0/2800
13	M	0.36	0/1074	0.48	0/1446
14	N	0.41	0/1757	0.51	0/2354
15	O	0.44	0/1585	0.48	0/2128
16	P	0.38	0/1465	0.51	0/1968
17	Q	0.36	0/1050	0.48	0/1419
18	R	0.38	0/1275	0.46	0/1702
19	S	0.39	0/1473	0.49	0/1980
20	T	0.31	0/957	0.51	0/1285
21	U	0.37	0/843	0.51	0/1144
22	V	0.40	0/1018	0.52	0/1369
23	W	0.30	0/1918	0.50	0/2586
24	X	0.40	0/1116	0.50	0/1503
25	Y	0.35	0/1004	0.53	0/1341
26	Z	0.37	0/1118	0.53	0/1497
27	b	0.36	0/4211	0.50	0/5675
28	c	0.37	0/751	0.46	0/1008
29	d	0.42	0/870	0.47	0/1168
30	e	0.39	0/1028	0.47	0/1376
31	f	0.43	0/868	0.50	0/1168
32	g	0.45	0/891	0.53	0/1191

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	h	0.39	0/978	0.48	0/1301
34	i	0.31	0/778	0.47	0/1034
35	j	0.42	0/685	0.51	0/908
36	k	0.33	0/610	0.52	0/815
37	m	0.37	0/3848	0.52	0/5181
38	n	0.33	0/3057	0.52	1/4127 (0.0%)
39	o	0.31	0/1083	0.54	0/1440
40	p	0.46	0/701	0.52	0/934
41	q	0.29	0/1336	0.49	0/1788
42	r	0.38	0/1892	0.53	0/2528
43	t	0.29	0/2333	0.47	0/3128
44	u	0.36	0/1218	0.49	0/1621
45	v	0.29	0/2361	0.48	0/3153
46	w	0.30	0/1471	0.50	0/1980
47	x	0.29	0/3897	0.51	1/5282 (0.0%)
48	y	0.36	0/1872	0.54	0/2548
49	z	0.25	0/445	0.40	0/585
50	1	0.67	0/73234	0.92	97/114167 (0.1%)
51	2	0.73	0/3746	0.89	1/5832 (0.0%)
52	3	0.33	0/2883	0.93	1/4491 (0.0%)
53	6	0.37	0/1527	0.98	9/2371 (0.4%)
All	All	0.53	0/157861	0.77	111/229660 (0.0%)

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
1	L	0	1
4	B	0	2
8	F	0	1
11	J	0	1
12	K	0	1
23	W	0	1
29	d	0	1
32	g	0	1
37	m	0	3
38	n	0	3
39	o	0	1
41	q	0	2
42	r	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
44	u	0	2
47	x	0	1
All	All	0	23

There are no bond length outliers.

All (111) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	1	922	U	C2-N1-C1'	9.37	128.95	117.70
50	1	2846	U	C2-N1-C1'	8.03	127.34	117.70
50	1	2788	C	N1-C2-O2	7.99	123.70	118.90
50	1	2788	C	N3-C2-O2	-7.90	116.37	121.90
50	1	3058	U	C2-N1-C1'	7.89	127.17	117.70
50	1	2112	U	C2-N1-C1'	7.67	126.91	117.70
53	6	6	U	C2-N1-C1'	7.57	126.79	117.70
50	1	3058	U	N1-C2-O2	7.33	127.93	122.80
50	1	2846	U	N1-C2-O2	7.31	127.92	122.80
50	1	2245	C	N1-C2-O2	7.19	123.22	118.90
50	1	2137	U	C2-N1-C1'	7.12	126.24	117.70
50	1	2548	C	N1-C2-O2	7.09	123.15	118.90
50	1	543	C	N1-C2-O2	7.06	123.13	118.90
50	1	922	U	C6-N1-C1'	-7.01	111.39	121.20
53	6	56	U	C2-N1-C1'	6.95	126.04	117.70
50	1	3058	U	N3-C2-O2	-6.83	117.42	122.20
53	6	6	U	N1-C2-O2	6.78	127.55	122.80
50	1	2764	C	N1-C2-O2	6.77	122.96	118.90
50	1	3078	U	C2-N1-C1'	6.74	125.79	117.70
38	n	448	LEU	CA-CB-CG	6.74	130.79	115.30
50	1	960	U	N3-C2-O2	-6.65	117.55	122.20
50	1	2270	A	O5'-P-OP1	-6.62	99.74	105.70
50	1	3078	U	N1-C2-O2	6.60	127.42	122.80
50	1	2688	U	C2-N1-C1'	6.44	125.42	117.70
50	1	2923	U	C2-N1-C1'	6.42	125.40	117.70
50	1	807	A	O4'-C1'-N9	6.42	113.33	108.20
50	1	922	U	N1-C2-O2	6.35	127.25	122.80
50	1	3016	A	O4'-C1'-N9	6.34	113.28	108.20
50	1	2846	U	N3-C2-O2	-6.26	117.82	122.20
50	1	2137	U	O4'-C1'-N1	6.25	113.20	108.20
53	6	56	U	N1-C2-O2	6.25	127.17	122.80
50	1	543	C	C2-N1-C1'	6.23	125.65	118.80
50	1	1496	C	C2-N1-C1'	6.22	125.64	118.80
50	1	2245	C	C2-N1-C1'	6.18	125.60	118.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	1	2112	U	N1-C2-O2	6.18	127.13	122.80
50	1	2548	C	C2-N1-C1'	6.17	125.59	118.80
50	1	1283	C	N1-C2-O2	6.14	122.59	118.90
50	1	2724	U	N3-C2-O2	-6.14	117.91	122.20
50	1	2112	U	N3-C2-O2	-6.06	117.96	122.20
50	1	2724	U	N1-C2-O2	6.04	127.03	122.80
50	1	1255	C	C2-N1-C1'	6.01	125.41	118.80
50	1	1070	U	N1-C2-O2	5.95	126.96	122.80
53	6	56	U	N3-C2-O2	-5.94	118.04	122.20
50	1	1716	U	P-O3'-C3'	5.92	126.80	119.70
50	1	765	C	OP2-P-O3'	5.90	118.19	105.20
50	1	2245	C	N3-C2-O2	-5.87	117.79	121.90
50	1	3217	C	N1-C2-O2	5.86	122.42	118.90
50	1	3131	U	C2-N1-C1'	5.82	124.68	117.70
50	1	2923	U	N1-C2-O2	5.78	126.85	122.80
50	1	1437	C	C2-N1-C1'	5.78	125.16	118.80
50	1	2548	C	N3-C2-O2	-5.77	117.86	121.90
52	3	98	C	N1-C2-O2	5.76	122.35	118.90
50	1	2693	C	N1-C2-O2	5.75	122.35	118.90
50	1	1283	C	N3-C2-O2	-5.72	117.90	121.90
50	1	3078	U	N3-C2-O2	-5.71	118.20	122.20
50	1	2861	U	C2-N1-C1'	5.66	124.49	117.70
50	1	961	C	C2-N1-C1'	5.66	125.02	118.80
50	1	720	A	P-O3'-C3'	5.64	126.47	119.70
50	1	1307	G	P-O3'-C3'	5.63	126.46	119.70
53	6	6	U	N3-C2-O2	-5.62	118.27	122.20
50	1	960	U	N1-C2-O2	5.56	126.69	122.80
50	1	960	U	C2-N1-C1'	5.54	124.35	117.70
50	1	543	C	N3-C2-O2	-5.53	118.03	121.90
47	x	213	TRP	C-N-CA	5.52	135.50	121.70
50	1	955	U	C2-N1-C1'	5.52	124.33	117.70
50	1	2923	U	N3-C2-O2	-5.50	118.35	122.20
50	1	1070	U	C2-N1-C1'	5.50	124.30	117.70
50	1	1070	U	N3-C2-O2	-5.49	118.36	122.20
50	1	990	U	P-O3'-C3'	5.47	126.27	119.70
50	1	94	G	N3-C4-C5	-5.42	125.89	128.60
50	1	1645	U	C2-N1-C1'	5.41	124.19	117.70
50	1	1187	C	C2-N1-C1'	5.40	124.74	118.80
50	1	2846	U	C6-N1-C1'	-5.34	113.72	121.20
50	1	1561	G	O4'-C1'-N9	5.34	112.47	108.20
50	1	2741	C	N1-C2-O2	5.31	122.08	118.90
50	1	1235	U	C5-C4-O4	-5.29	122.72	125.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
50	1	1567	U	OP2-P-O3'	5.29	116.84	105.20
50	1	94	G	C4-N9-C1'	5.27	133.35	126.50
50	1	2861	U	N1-C2-O2	5.26	126.48	122.80
50	1	922	U	N3-C2-O2	-5.26	118.52	122.20
50	1	2921	U	C2-N1-C1'	5.25	124.00	117.70
50	1	2688	U	N1-C2-O2	5.23	126.46	122.80
50	1	1235	U	N3-C4-O4	5.21	123.05	119.40
53	6	5	C	N1-C2-O2	5.21	122.03	118.90
5	C	182	LEU	CA-CB-CG	5.20	127.25	115.30
50	1	2624	G	N3-C4-N9	-5.20	122.88	126.00
50	1	2137	U	C5-C6-N1	5.19	125.29	122.70
50	1	2764	C	N3-C2-O2	-5.19	118.27	121.90
50	1	720	A	OP2-P-O3'	5.19	116.61	105.20
50	1	2632	G	N3-C4-N9	-5.19	122.89	126.00
50	1	835	G	O4'-C1'-N9	5.17	112.34	108.20
50	1	44	U	C5-C6-N1	5.17	125.28	122.70
50	1	3306	U	N3-C2-O2	-5.16	118.59	122.20
50	1	2269	U	O4'-C1'-N1	5.16	112.33	108.20
51	2	100	U	C2-N1-C1'	5.16	123.89	117.70
50	1	3058	U	C6-N1-C1'	-5.15	113.99	121.20
50	1	1567	U	P-O3'-C3'	5.14	125.86	119.70
53	6	6	U	C6-N1-C1'	-5.12	114.03	121.20
50	1	89	A	C3'-C2'-C1'	5.09	105.57	101.50
53	6	6	U	C5-C6-N1	5.08	125.24	122.70
50	1	2278	C	N1-C2-O2	5.08	121.95	118.90
50	1	2713	U	C5-C4-O4	5.05	128.93	125.90
50	1	2724	U	C2-N1-C1'	5.05	123.76	117.70
50	1	2764	C	C2-N1-C1'	5.05	124.35	118.80
50	1	1604	G	C4-N9-C1'	5.04	133.05	126.50
50	1	406	G	O4'-C1'-N9	5.04	112.23	108.20
50	1	2541	U	P-O3'-C3'	5.03	125.73	119.70
50	1	376	G	N3-C4-N9	5.02	129.01	126.00
50	1	2406	C	C2-N1-C1'	5.01	124.32	118.80
50	1	2810	C	C6-N1-C2	-5.01	118.30	120.30
50	1	1093	A	O4'-C1'-N9	5.01	112.21	108.20

There are no chirality outliers.

All (23) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	B	221	THR	Peptide
4	B	346	THR	Peptide

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Mol	Chain	Res	Type	Group
8	F	158	LYS	Peptide
11	J	167	TYR	Peptide
12	K	216	GLU	Peptide
1	L	46	ILE	Peptide
23	W	177	ALA	Peptide
29	d	86	LYS	Peptide
32	g	80	ARG	Peptide
37	m	240	LYS	Peptide
37	m	253	LYS	Peptide
37	m	417	GLU	Peptide
38	n	3	ILE	Peptide
38	n	375	ILE	Peptide
38	n	4	LYS	Peptide
39	o	158	MET	Peptide
41	q	200	ALA	Peptide
41	q	270	ASP	Peptide
42	r	15	GLY	Peptide
42	r	236	LYS	Peptide
44	u	78	PRO	Peptide
44	u	79	VAL	Peptide
47	x	207	ASP	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 (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	L	183/199 (92%)	157 (86%)	25 (14%)	1 (0%)	29 66
2	a	91/149 (61%)	79 (87%)	11 (12%)	1 (1%)	14 50

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	A	191/254 (75%)	172 (90%)	19 (10%)	0	100	100
4	B	384/387 (99%)	330 (86%)	51 (13%)	3 (1%)	19	57
5	C	332/362 (92%)	282 (85%)	47 (14%)	3 (1%)	17	55
6	D	270/297 (91%)	246 (91%)	24 (9%)	0	100	100
7	E	152/176 (86%)	136 (90%)	16 (10%)	0	100	100
8	F	220/244 (90%)	204 (93%)	16 (7%)	0	100	100
9	G	225/256 (88%)	196 (87%)	29 (13%)	0	100	100
10	H	186/191 (97%)	169 (91%)	16 (9%)	1 (0%)	29	66
11	J	165/174 (95%)	136 (82%)	29 (18%)	0	100	100
12	K	249/376 (66%)	217 (87%)	30 (12%)	2 (1%)	19	57
13	M	135/138 (98%)	124 (92%)	11 (8%)	0	100	100
14	N	201/204 (98%)	185 (92%)	14 (7%)	2 (1%)	15	52
15	O	195/199 (98%)	188 (96%)	7 (4%)	0	100	100
16	P	181/184 (98%)	163 (90%)	18 (10%)	0	100	100
17	Q	132/186 (71%)	120 (91%)	12 (9%)	0	100	100
18	R	154/189 (82%)	145 (94%)	9 (6%)	0	100	100
19	S	169/172 (98%)	154 (91%)	15 (9%)	0	100	100
20	T	115/160 (72%)	98 (85%)	17 (15%)	0	100	100
21	U	102/121 (84%)	90 (88%)	12 (12%)	0	100	100
22	V	134/137 (98%)	124 (92%)	10 (8%)	0	100	100
23	W	232/236 (98%)	209 (90%)	22 (10%)	1 (0%)	34	69
24	X	139/142 (98%)	131 (94%)	8 (6%)	0	100	100
25	Y	124/127 (98%)	118 (95%)	6 (5%)	0	100	100
26	Z	133/136 (98%)	113 (85%)	18 (14%)	2 (2%)	10	43
27	b	505/647 (78%)	430 (85%)	72 (14%)	3 (1%)	25	63
28	c	95/105 (90%)	91 (96%)	4 (4%)	0	100	100
29	d	103/113 (91%)	91 (88%)	12 (12%)	0	100	100
30	e	123/130 (95%)	113 (92%)	10 (8%)	0	100	100
31	f	104/107 (97%)	99 (95%)	5 (5%)	0	100	100
32	g	110/121 (91%)	103 (94%)	7 (6%)	0	100	100
33	h	117/120 (98%)	106 (91%)	10 (8%)	1 (1%)	17	55

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
34	i	97/100 (97%)	86 (89%)	11 (11%)	0	100	100
35	j	83/88 (94%)	75 (90%)	8 (10%)	0	100	100
36	k	74/78 (95%)	67 (90%)	7 (10%)	0	100	100
37	m	465/486 (96%)	389 (84%)	70 (15%)	6 (1%)	12	46
38	n	360/605 (60%)	311 (86%)	46 (13%)	3 (1%)	19	57
39	o	127/220 (58%)	110 (87%)	16 (13%)	1 (1%)	19	57
40	p	89/92 (97%)	80 (90%)	9 (10%)	0	100	100
41	q	154/455 (34%)	128 (83%)	24 (16%)	2 (1%)	12	46
42	r	224/261 (86%)	188 (84%)	33 (15%)	3 (1%)	12	46
43	t	283/322 (88%)	238 (84%)	42 (15%)	3 (1%)	14	50
44	u	140/199 (70%)	126 (90%)	14 (10%)	0	100	100
45	v	283/344 (82%)	265 (94%)	18 (6%)	0	100	100
46	w	178/203 (88%)	158 (89%)	20 (11%)	0	100	100
47	x	476/515 (92%)	422 (89%)	54 (11%)	0	100	100
48	y	242/245 (99%)	213 (88%)	29 (12%)	0	100	100
49	z	53/106 (50%)	51 (96%)	2 (4%)	0	100	100
All	All	9279/11058 (84%)	8226 (89%)	1015 (11%)	38 (0%)	38	69

All (38) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
5	C	339	LEU
12	K	216	GLU
26	Z	102	GLU
37	m	241	SER
1	L	63	VAL
2	a	78	LEU
14	N	95	GLN
27	b	399	ALA
27	b	484	SER
37	m	78	PHE
37	m	209	LYS
37	m	418	ILE
37	m	424	ALA
41	q	201	SER
43	t	58	ALA

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Mol	Chain	Res	Type
43	t	222	ALA
43	t	247	VAL
5	C	4	PRO
12	K	167	TYR
27	b	369	ARG
37	m	240	LYS
38	n	455	PRO
41	q	406	LEU
42	r	17	ARG
42	r	147	TRP
4	B	342	LEU
5	C	268	ALA
23	W	178	GLY
33	h	92	LEU
38	n	6	LYS
42	r	146	SER
10	H	50	ASN
39	o	159	GLY
4	B	188	ILE
14	N	146	ALA
38	n	55	GLY
4	B	239	PRO
26	Z	104	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	L	147/159 (92%)	136 (92%)	11 (8%)	13 44
2	a	76/119 (64%)	70 (92%)	6 (8%)	12 42
3	A	152/196 (78%)	138 (91%)	14 (9%)	9 33
4	B	322/323 (100%)	295 (92%)	27 (8%)	11 38
5	C	273/289 (94%)	257 (94%)	16 (6%)	19 54
6	D	226/245 (92%)	215 (95%)	11 (5%)	25 60

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
7	E	134/153 (88%)	127 (95%)	7 (5%)	23	58
8	F	186/205 (91%)	178 (96%)	8 (4%)	29	63
9	G	186/208 (89%)	174 (94%)	12 (6%)	17	50
10	H	168/171 (98%)	159 (95%)	9 (5%)	22	57
11	J	145/150 (97%)	140 (97%)	5 (3%)	37	69
12	K	234/346 (68%)	214 (92%)	20 (8%)	10	38
13	M	108/109 (99%)	99 (92%)	9 (8%)	11	40
14	N	175/176 (99%)	165 (94%)	10 (6%)	20	55
15	O	160/162 (99%)	155 (97%)	5 (3%)	40	71
16	P	145/146 (99%)	133 (92%)	12 (8%)	11	40
17	Q	110/151 (73%)	101 (92%)	9 (8%)	11	40
18	R	129/154 (84%)	125 (97%)	4 (3%)	40	71
19	S	155/156 (99%)	143 (92%)	12 (8%)	13	43
20	T	102/137 (74%)	88 (86%)	14 (14%)	3	16
21	U	91/107 (85%)	82 (90%)	9 (10%)	8	30
22	V	104/105 (99%)	100 (96%)	4 (4%)	33	66
23	W	211/213 (99%)	194 (92%)	17 (8%)	11	41
24	X	117/118 (99%)	113 (97%)	4 (3%)	37	69
25	Y	109/110 (99%)	100 (92%)	9 (8%)	11	40
26	Z	115/116 (99%)	110 (96%)	5 (4%)	29	63
27	b	457/573 (80%)	428 (94%)	29 (6%)	18	52
28	c	81/88 (92%)	75 (93%)	6 (7%)	13	45
29	d	92/97 (95%)	84 (91%)	8 (9%)	10	36
30	e	108/111 (97%)	101 (94%)	7 (6%)	17	50
31	f	90/91 (99%)	86 (96%)	4 (4%)	28	62
32	g	95/103 (92%)	85 (90%)	10 (10%)	7	27
33	h	104/105 (99%)	93 (89%)	11 (11%)	6	27
34	i	81/82 (99%)	74 (91%)	7 (9%)	10	37
35	j	69/71 (97%)	63 (91%)	6 (9%)	10	36
36	k	67/69 (97%)	63 (94%)	4 (6%)	19	53
37	m	413/428 (96%)	375 (91%)	38 (9%)	9	33

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
38	n	329/548 (60%)	298 (91%)	31 (9%)	8 32
39	o	114/199 (57%)	104 (91%)	10 (9%)	10 36
40	p	71/72 (99%)	67 (94%)	4 (6%)	21 56
41	q	147/420 (35%)	138 (94%)	9 (6%)	18 53
42	r	203/229 (89%)	190 (94%)	13 (6%)	17 51
43	t	256/287 (89%)	244 (95%)	12 (5%)	26 61
44	u	126/180 (70%)	121 (96%)	5 (4%)	31 65
45	v	258/309 (84%)	236 (92%)	22 (8%)	10 38
46	w	161/179 (90%)	149 (92%)	12 (8%)	13 44
47	x	428/451 (95%)	397 (93%)	31 (7%)	14 46
48	y	210/211 (100%)	192 (91%)	18 (9%)	10 37
49	z	48/95 (50%)	43 (90%)	5 (10%)	7 28
All	All	8088/9522 (85%)	7517 (93%)	571 (7%)	18 46

All (571) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	L	15	ARG
1	L	18	TRP
1	L	19	GLN
1	L	54	LEU
1	L	58	VAL
1	L	121	SER
1	L	122	LYS
1	L	160	GLN
1	L	175	SER
1	L	188	ARG
1	L	192	GLU
2	a	76	ASP
2	a	80	THR
2	a	95	SER
2	a	97	GLU
2	a	131	SER
2	a	133	LEU
3	A	8	GLN
3	A	10	LYS
3	A	33	ASP
3	A	36	GLU

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Mol	Chain	Res	Type
3	A	46	LYS
3	A	52	SER
3	A	101	VAL
3	A	130	SER
3	A	142	ASP
3	A	143	GLU
3	A	147	ARG
3	A	175	VAL
3	A	176	ASP
3	A	191	LEU
4	B	35	ASP
4	B	47	LEU
4	B	85	VAL
4	B	102	LEU
4	B	103	THR
4	B	104	THR
4	B	111	SER
4	B	114	VAL
4	B	123	TYR
4	B	140	ASP
4	B	161	LEU
4	B	171	LEU
4	B	198	HIS
4	B	218	ILE
4	B	237	LYS
4	B	240	ARG
4	B	244	ARG
4	B	251	CYS
4	B	270	ARG
4	B	283	TYR
4	B	296	THR
4	B	301	THR
4	B	325	LYS
4	B	332	ARG
4	B	342	LEU
4	B	382	THR
4	B	387	LEU
5	C	6	VAL
5	C	7	THR
5	C	52	VAL
5	C	59	GLN
5	C	60	THR

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Mol	Chain	Res	Type
5	C	120	TYR
5	C	133	SER
5	C	138	ARG
5	C	155	ASP
5	C	187	LEU
5	C	193	LYS
5	C	194	TYR
5	C	198	ARG
5	C	287	THR
5	C	292	SER
5	C	293	SER
6	D	27	LYS
6	D	41	LYS
6	D	43	LYS
6	D	81	HIS
6	D	107	ARG
6	D	109	THR
6	D	153	THR
6	D	155	THR
6	D	158	ARG
6	D	164	LYS
6	D	293	LEU
7	E	2	SER
7	E	21	THR
7	E	38	THR
7	E	62	THR
7	E	89	THR
7	E	101	PHE
7	E	151	LYS
8	F	30	ARG
8	F	38	LYS
8	F	74	SER
8	F	93	ASN
8	F	104	GLN
8	F	142	SER
8	F	143	THR
8	F	208	SER
9	G	25	PRO
9	G	47	SER
9	G	65	LEU
9	G	83	ASP
9	G	163	VAL

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Mol	Chain	Res	Type
9	G	164	VAL
9	G	166	LEU
9	G	185	ARG
9	G	197	VAL
9	G	203	VAL
9	G	206	GLU
9	G	248	LYS
10	H	6	THR
10	H	17	THR
10	H	33	THR
10	H	35	THR
10	H	44	THR
10	H	68	LEU
10	H	73	SER
10	H	139	ASN
10	H	144	ILE
11	J	60	ARG
11	J	80	LEU
11	J	99	THR
11	J	155	THR
11	J	158	ASP
12	K	78	LEU
12	K	88	PHE
12	K	89	THR
12	K	91	THR
12	K	99	LEU
12	K	102	VAL
12	K	106	PHE
12	K	107	TYR
12	K	120	ASP
12	K	131	ASP
12	K	132	ILE
12	K	142	ASP
12	K	186	ILE
12	K	188	THR
12	K	210	ARG
12	K	217	PHE
12	K	219	LEU
12	K	272	LYS
12	K	280	PHE
12	K	296	ASP
13	M	8	LYS

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Mol	Chain	Res	Type
13	M	20	VAL
13	M	63	VAL
13	M	64	VAL
13	M	77	ARG
13	M	91	CYS
13	M	98	SER
13	M	124	ARG
13	M	135	LEU
14	N	8	GLU
14	N	80	THR
14	N	109	ARG
14	N	118	SER
14	N	122	ASN
14	N	143	ARG
14	N	147	ARG
14	N	159	ARG
14	N	192	LYS
14	N	198	SER
15	O	34	VAL
15	O	74	ARG
15	O	151	ASP
15	O	167	TYR
15	O	182	ASN
16	P	3	ARG
16	P	9	THR
16	P	22	LEU
16	P	29	THR
16	P	65	SER
16	P	87	SER
16	P	110	THR
16	P	115	SER
16	P	119	VAL
16	P	128	ARG
16	P	129	THR
16	P	139	TYR
17	Q	32	LEU
17	Q	50	LYS
17	Q	59	ARG
17	Q	64	VAL
17	Q	79	LYS
17	Q	99	THR
17	Q	104	LEU

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Mol	Chain	Res	Type
17	Q	105	ARG
17	Q	148	GLU
18	R	51	VAL
18	R	58	HIS
18	R	69	SER
18	R	84	THR
19	S	8	GLN
19	S	45	LEU
19	S	53	LYS
19	S	63	GLN
19	S	87	THR
19	S	89	ASN
19	S	94	ILE
19	S	156	VAL
19	S	159	SER
19	S	160	THR
19	S	170	THR
19	S	172	TYR
20	T	38	ASP
20	T	41	ASP
20	T	54	HIS
20	T	56	PHE
20	T	68	THR
20	T	79	MET
20	T	99	SER
20	T	106	LEU
20	T	126	VAL
20	T	137	GLU
20	T	139	ARG
20	T	144	GLU
20	T	150	THR
20	T	151	LEU
21	U	18	ASP
21	U	29	ASP
21	U	55	THR
21	U	59	ASP
21	U	62	VAL
21	U	82	LYS
21	U	91	ASP
21	U	92	TRP
21	U	108	TYR
22	V	7	GLN

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Mol	Chain	Res	Type
22	V	27	ASP
22	V	93	LEU
22	V	98	ASN
23	W	9	LEU
23	W	10	VAL
23	W	11	THR
23	W	15	THR
23	W	25	ARG
23	W	34	LEU
23	W	45	LEU
23	W	60	TRP
23	W	96	CYS
23	W	102	LEU
23	W	134	THR
23	W	161	LEU
23	W	164	THR
23	W	183	ASP
23	W	190	THR
23	W	220	TYR
23	W	230	SER
24	X	61	LYS
24	X	104	GLU
24	X	113	LEU
24	X	119	THR
25	Y	7	ASP
25	Y	9	SER
25	Y	25	SER
25	Y	26	GLN
25	Y	42	GLN
25	Y	54	ASP
25	Y	74	TYR
25	Y	102	SER
25	Y	126	LEU
26	Z	9	LYS
26	Z	46	ILE
26	Z	53	VAL
26	Z	99	GLU
26	Z	132	SER
27	b	5	TRP
27	b	73	ASP
27	b	115	LEU
27	b	116	LEU

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Mol	Chain	Res	Type
27	b	117	LYS
27	b	121	SER
27	b	129	LYS
27	b	166	ASN
27	b	169	THR
27	b	170	LEU
27	b	175	TYR
27	b	203	SER
27	b	247	ARG
27	b	248	SER
27	b	298	LEU
27	b	343	ARG
27	b	356	ASN
27	b	358	LEU
27	b	369	ARG
27	b	384	ASN
27	b	413	ASN
27	b	420	TYR
27	b	435	ILE
27	b	440	ASN
27	b	445	LEU
27	b	453	LEU
27	b	479	ASP
27	b	488	ASP
27	b	513	LEU
28	c	11	ASN
28	c	16	LEU
28	c	23	TYR
28	c	33	SER
28	c	41	LEU
28	c	91	SER
29	d	13	THR
29	d	31	ARG
29	d	46	THR
29	d	64	VAL
29	d	96	VAL
29	d	98	VAL
29	d	100	SER
29	d	106	THR
30	e	21	HIS
30	e	26	HIS
30	e	40	SER

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Mol	Chain	Res	Type
30	e	67	SER
30	e	73	THR
30	e	91	THR
30	e	120	THR
31	f	40	ASP
31	f	52	VAL
31	f	54	ARG
31	f	105	SER
32	g	23	VAL
32	g	44	CYS
32	g	47	CYS
32	g	51	LEU
32	g	56	THR
32	g	66	SER
32	g	71	THR
32	g	73	SER
32	g	81	CYS
32	g	109	THR
33	h	11	THR
33	h	33	VAL
33	h	38	ARG
33	h	46	THR
33	h	48	ARG
33	h	73	LYS
33	h	84	LYS
33	h	85	THR
33	h	86	ARG
33	h	100	VAL
33	h	101	THR
34	i	9	ILE
34	i	17	VAL
34	i	18	THR
34	i	37	THR
34	i	74	LYS
34	i	80	PHE
34	i	97	SER
35	j	5	THR
35	j	11	ARG
35	j	13	ASN
35	j	59	THR
35	j	67	LEU
35	j	71	SER

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Mol	Chain	Res	Type
36	k	19	ASP
36	k	33	LYS
36	k	46	ARG
36	k	72	THR
37	m	30	TYR
37	m	32	ASP
37	m	83	VAL
37	m	87	ASP
37	m	118	LEU
37	m	132	LEU
37	m	133	ASP
37	m	139	ASP
37	m	151	ARG
37	m	166	GLU
37	m	176	VAL
37	m	194	TRP
37	m	207	GLN
37	m	222	SER
37	m	226	ILE
37	m	232	ARG
37	m	250	THR
37	m	255	LEU
37	m	260	ASN
37	m	287	HIS
37	m	290	ILE
37	m	291	THR
37	m	299	LEU
37	m	307	SER
37	m	312	ASP
37	m	313	ARG
37	m	326	THR
37	m	342	GLN
37	m	353	TRP
37	m	367	CYS
37	m	385	ARG
37	m	394	THR
37	m	422	LYS
37	m	430	ILE
37	m	452	GLN
37	m	454	LEU
37	m	462	ILE
37	m	466	VAL

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Mol	Chain	Res	Type
38	n	2	ARG
38	n	18	ARG
38	n	27	VAL
38	n	35	LEU
38	n	51	LYS
38	n	56	SER
38	n	60	THR
38	n	61	THR
38	n	64	TYR
38	n	77	LEU
38	n	105	LEU
38	n	108	ASN
38	n	115	ASP
38	n	148	THR
38	n	151	VAL
38	n	172	LYS
38	n	176	VAL
38	n	200	LEU
38	n	208	ASN
38	n	216	ARG
38	n	220	THR
38	n	228	LEU
38	n	242	LEU
38	n	259	LEU
38	n	265	GLU
38	n	267	ARG
38	n	371	VAL
38	n	376	LEU
38	n	382	SER
38	n	416	VAL
38	n	442	VAL
39	o	100	HIS
39	o	130	ASN
39	o	139	PHE
39	o	140	VAL
39	o	157	LEU
39	o	177	TYR
39	o	187	LYS
39	o	194	LYS
39	o	198	ASP
39	o	203	LYS
40	p	38	ASP

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Mol	Chain	Res	Type
40	p	41	PHE
40	p	56	THR
40	p	89	MET
41	q	193	SER
41	q	194	THR
41	q	195	THR
41	q	246	LYS
41	q	269	LEU
41	q	391	ASP
41	q	406	LEU
41	q	409	LEU
41	q	446	THR
42	r	71	SER
42	r	85	ASP
42	r	120	VAL
42	r	133	MET
42	r	145	LYS
42	r	189	LEU
42	r	193	VAL
42	r	194	PHE
42	r	195	LEU
42	r	226	SER
42	r	232	THR
42	r	237	VAL
42	r	250	ASP
43	t	44	GLN
43	t	57	ARG
43	t	61	ILE
43	t	97	LYS
43	t	146	ARG
43	t	182	ASN
43	t	229	LEU
43	t	238	GLN
43	t	256	THR
43	t	262	SER
43	t	264	CYS
43	t	269	GLN
44	u	6	CYS
44	u	9	CYS
44	u	63	LEU
44	u	68	THR
44	u	100	ARG

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Mol	Chain	Res	Type
45	v	11	ARG
45	v	33	ILE
45	v	41	ASN
45	v	47	VAL
45	v	59	ARG
45	v	62	ARG
45	v	73	SER
45	v	98	ASN
45	v	116	LEU
45	v	120	ASP
45	v	125	LEU
45	v	126	SER
45	v	129	LYS
45	v	148	PHE
45	v	190	PHE
45	v	220	ARG
45	v	224	VAL
45	v	238	HIS
45	v	239	THR
45	v	277	MET
45	v	290	MET
45	v	293	LEU
46	w	19	VAL
46	w	38	ASP
46	w	41	SER
46	w	55	ARG
46	w	63	ASN
46	w	72	THR
46	w	74	THR
46	w	94	ASP
46	w	97	THR
46	w	151	ASN
46	w	158	TRP
46	w	179	LEU
47	x	3	THR
47	x	9	SER
47	x	17	GLN
47	x	24	ILE
47	x	31	ASN
47	x	40	ASP
47	x	90	ASP
47	x	119	LEU

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Mol	Chain	Res	Type
47	x	142	HIS
47	x	145	THR
47	x	151	PHE
47	x	155	THR
47	x	177	THR
47	x	179	MET
47	x	223	ASP
47	x	257	ASP
47	x	268	ARG
47	x	270	CYS
47	x	322	TRP
47	x	344	LYS
47	x	365	LYS
47	x	410	PHE
47	x	418	VAL
47	x	421	SER
47	x	438	SER
47	x	457	ARG
47	x	476	ARG
47	x	482	LEU
47	x	492	VAL
47	x	495	SER
47	x	503	SER
48	y	3	THR
48	y	4	ARG
48	y	20	THR
48	y	22	THR
48	y	28	VAL
48	y	67	ARG
48	y	72	VAL
48	y	88	LEU
48	y	101	LEU
48	y	120	ASP
48	y	165	THR
48	y	169	ASP
48	y	188	ARG
48	y	192	VAL
48	y	198	VAL
48	y	224	LEU
48	y	237	ARG
48	y	239	THR
49	z	4	SER

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Mol	Chain	Res	Type
49	z	40	ASP
49	z	42	LEU
49	z	46	LEU
49	z	52	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (115) such sidechains are listed below:

Mol	Chain	Res	Type
1	L	25	HIS
1	L	103	ASN
1	L	106	GLN
2	a	74	ASN
3	A	38	HIS
3	A	83	HIS
3	A	97	ASN
3	A	132	ASN
3	A	140	ASN
4	B	231	HIS
5	C	59	GLN
5	C	114	ASN
5	C	221	ASN
6	D	17	GLN
6	D	111	GLN
7	E	61	ASN
8	F	172	ASN
9	G	24	ASN
9	G	41	GLN
9	G	79	GLN
9	G	85	ASN
9	G	95	ASN
9	G	137	ASN
9	G	138	HIS
9	G	145	ASN
10	H	50	ASN
10	H	59	ASN
10	H	157	ASN
11	J	109	HIS
12	K	214	ASN
12	K	247	HIS
13	M	41	GLN
13	M	126	GLN
14	N	37	HIS

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Mol	Chain	Res	Type
14	N	195	ASN
15	O	72	HIS
16	P	96	GLN
16	P	133	HIS
17	Q	126	GLN
17	Q	135	GLN
17	Q	145	ASN
18	R	34	GLN
18	R	118	HIS
19	S	63	GLN
19	S	142	GLN
20	T	90	ASN
20	T	95	HIS
20	T	98	HIS
20	T	131	GLN
23	W	14	GLN
23	W	44	HIS
23	W	88	ASN
24	X	94	GLN
25	Y	4	GLN
25	Y	110	HIS
26	Z	57	HIS
27	b	152	GLN
27	b	333	ASN
27	b	465	ASN
27	b	509	ASN
29	d	57	GLN
29	d	87	ASN
30	e	35	GLN
30	e	52	GLN
31	f	42	GLN
33	h	62	GLN
34	i	63	ASN
35	j	76	ASN
36	k	10	GLN
37	m	156	ASN
37	m	187	GLN
37	m	276	HIS
37	m	452	GLN
38	n	48	ASN
38	n	149	ASN
38	n	430	GLN

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Mol	Chain	Res	Type
38	n	456	HIS
39	o	160	HIS
39	o	204	HIS
41	q	222	HIS
41	q	228	ASN
41	q	414	ASN
41	q	451	HIS
42	r	4	ASN
42	r	10	HIS
42	r	14	HIS
42	r	40	GLN
43	t	91	GLN
43	t	154	ASN
43	t	252	HIS
43	t	265	ASN
43	t	269	GLN
43	t	303	ASN
44	u	37	HIS
44	u	76	ASN
45	v	9	ASN
45	v	82	ASN
45	v	144	GLN
45	v	213	GLN
45	v	286	GLN
46	w	64	GLN
46	w	151	ASN
47	x	12	GLN
47	x	65	ASN
47	x	154	HIS
47	x	208	ASN
47	x	271	GLN
47	x	321	HIS
47	x	353	GLN
47	x	402	GLN
47	x	443	HIS
47	x	449	GLN
48	y	11	ASN
48	y	79	GLN
48	y	106	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
50	1	3048/3396 (89%)	815 (26%)	64 (2%)
51	2	157/158 (99%)	32 (20%)	1 (0%)
52	3	120/121 (99%)	33 (27%)	1 (0%)
53	6	63/232 (27%)	33 (52%)	2 (3%)
All	All	3388/3907 (86%)	913 (26%)	68 (2%)

All (913) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
50	1	5	G
50	1	7	C
50	1	14	U
50	1	18	G
50	1	38	U
50	1	40	A
50	1	41	G
50	1	42	C
50	1	43	A
50	1	44	U
50	1	49	A
50	1	59	G
50	1	60	A
50	1	65	A
50	1	66	A
50	1	73	C
50	1	75	G
50	1	83	U
50	1	89	A
50	1	90	C
50	1	92	G
50	1	93	C
50	1	95	A
50	1	103	G
50	1	105	C
50	1	110	G
50	1	111	C
50	1	116	A
50	1	118	U
50	1	119	U
50	1	121	A
50	1	122	A
50	1	136	G
50	1	143	G

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Mol	Chain	Res	Type
50	1	156	G
50	1	157	A
50	1	161	G
50	1	165	A
50	1	166	C
50	1	170	G
50	1	176	G
50	1	182	U
50	1	187	A
50	1	190	U
50	1	191	U
50	1	200	C
50	1	206	G
50	1	210	U
50	1	211	A
50	1	218	G
50	1	219	A
50	1	240	U
50	1	241	G
50	1	243	G
50	1	245	U
50	1	246	U
50	1	249	U
50	1	251	G
50	1	252	U
50	1	253	A
50	1	254	A
50	1	264	G
50	1	266	A
50	1	267	G
50	1	269	G
50	1	281	G
50	1	283	G
50	1	284	A
50	1	285	A
50	1	292	U
50	1	295	A
50	1	298	U
50	1	303	G
50	1	304	G
50	1	305	U
50	1	306	A

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Mol	Chain	Res	Type
50	1	307	A
50	1	323	A
50	1	329	U
50	1	351	A
50	1	352	A
50	1	370	U
50	1	376	G
50	1	385	A
50	1	398	A
50	1	399	A
50	1	403	C
50	1	421	G
50	1	422	A
50	1	429	U
50	1	438	A
50	1	439	C
50	1	440	A
50	1	495	G
50	1	496	C
50	1	498	A
50	1	507	U
50	1	521	A
50	1	528	U
50	1	532	A
50	1	535	G
50	1	536	U
50	1	543	C
50	1	544	C
50	1	545	U
50	1	547	G
50	1	549	U
50	1	552	G
50	1	555	U
50	1	557	A
50	1	559	A
50	1	579	G
50	1	592	A
50	1	600	G
50	1	604	G
50	1	609	G
50	1	611	A
50	1	620	U

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Mol	Chain	Res	Type
50	1	621	A
50	1	622	A
50	1	634	C
50	1	637	C
50	1	638	C
50	1	643	U
50	1	644	G
50	1	645	A
50	1	646	A
50	1	647	A
50	1	648	C
50	1	650	C
50	1	665	A
50	1	677	A
50	1	681	U
50	1	691	A
50	1	705	A
50	1	706	A
50	1	708	G
50	1	711	A
50	1	712	G
50	1	716	A
50	1	720	A
50	1	721	G
50	1	722	G
50	1	725	G
50	1	737	G
50	1	750	G
50	1	762	U
50	1	765	C
50	1	766	U
50	1	767	U
50	1	768	C
50	1	776	U
50	1	780	A
50	1	784	A
50	1	785	G
50	1	801	A
50	1	807	A
50	1	808	A
50	1	814	U
50	1	816	A

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Mol	Chain	Res	Type
50	1	817	A
50	1	825	U
50	1	830	A
50	1	847	A
50	1	849	C
50	1	850	U
50	1	861	C
50	1	871	U
50	1	872	U
50	1	874	U
50	1	876	A
50	1	877	C
50	1	879	U
50	1	884	A
50	1	885	U
50	1	886	C
50	1	887	G
50	1	896	A
50	1	897	U
50	1	907	G
50	1	908	G
50	1	909	G
50	1	914	A
50	1	916	G
50	1	918	C
50	1	922	U
50	1	924	G
50	1	936	A
50	1	938	C
50	1	944	C
50	1	954	U
50	1	955	U
50	1	956	U
50	1	957	C
50	1	970	A
50	1	974	G
50	1	975	C
50	1	978	G
50	1	980	A
50	1	991	G
50	1	994	G
50	1	995	U

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Mol	Chain	Res	Type
50	1	996	A
50	1	997	A
50	1	999	G
50	1	1000	C
50	1	1001	G
50	1	1003	A
50	1	1050	U
50	1	1051	U
50	1	1055	A
50	1	1056	U
50	1	1057	A
50	1	1064	A
50	1	1065	A
50	1	1066	G
50	1	1070	U
50	1	1071	U
50	1	1072	G
50	1	1084	A
50	1	1086	C
50	1	1087	G
50	1	1093	A
50	1	1094	U
50	1	1095	U
50	1	1097	G
50	1	1098	A
50	1	1102	A
50	1	1103	A
50	1	1104	G
50	1	1105	A
50	1	1107	C
50	1	1110	U
50	1	1111	U
50	1	1116	G
50	1	1117	G
50	1	1118	C
50	1	1123	U
50	1	1127	G
50	1	1128	U
50	1	1129	A
50	1	1130	A
50	1	1131	G
50	1	1132	C

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Mol	Chain	Res	Type
50	1	1142	G
50	1	1153	A
50	1	1155	C
50	1	1169	A
50	1	1178	G
50	1	1180	A
50	1	1181	U
50	1	1191	U
50	1	1192	C
50	1	1193	A
50	1	1196	C
50	1	1197	A
50	1	1198	C
50	1	1199	C
50	1	1200	A
50	1	1201	C
50	1	1203	A
50	1	1204	A
50	1	1206	G
50	1	1209	G
50	1	1221	A
50	1	1222	G
50	1	1227	C
50	1	1235	U
50	1	1237	G
50	1	1239	C
50	1	1240	A
50	1	1241	U
50	1	1242	G
50	1	1243	G
50	1	1245	A
50	1	1251	A
50	1	1252	A
50	1	1254	C
50	1	1258	U
50	1	1262	G
50	1	1263	A
50	1	1264	G
50	1	1269	U
50	1	1272	C
50	1	1278	A
50	1	1286	A

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Mol	Chain	Res	Type
50	1	1287	A
50	1	1296	C
50	1	1302	A
50	1	1303	A
50	1	1304	A
50	1	1305	U
50	1	1307	G
50	1	1308	A
50	1	1309	U
50	1	1313	G
50	1	1316	C
50	1	1330	A
50	1	1348	U
50	1	1349	G
50	1	1351	U
50	1	1353	U
50	1	1354	G
50	1	1355	A
50	1	1356	U
50	1	1357	G
50	1	1384	U
50	1	1386	A
50	1	1387	G
50	1	1392	G
50	1	1399	A
50	1	1400	G
50	1	1405	U
50	1	1414	G
50	1	1418	A
50	1	1419	A
50	1	1421	G
50	1	1434	G
50	1	1435	A
50	1	1436	U
50	1	1437	C
50	1	1446	A
50	1	1450	G
50	1	1475	A
50	1	1483	G
50	1	1484	U
50	1	1495	U
50	1	1503	A

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Mol	Chain	Res	Type
50	1	1507	G
50	1	1508	C
50	1	1527	C
50	1	1533	U
50	1	1546	A
50	1	1556	C
50	1	1557	A
50	1	1560	G
50	1	1561	G
50	1	1562	C
50	1	1566	A
50	1	1567	U
50	1	1568	U
50	1	1569	U
50	1	1571	A
50	1	1572	U
50	1	1573	G
50	1	1575	A
50	1	1581	C
50	1	1582	C
50	1	1583	A
50	1	1585	C
50	1	1587	A
50	1	1589	A
50	1	1599	G
50	1	1607	U
50	1	1608	C
50	1	1620	U
50	1	1629	U
50	1	1636	U
50	1	1639	C
50	1	1641	U
50	1	1642	A
50	1	1643	A
50	1	1645	U
50	1	1657	C
50	1	1662	G
50	1	1713	G
50	1	1716	U
50	1	1717	U
50	1	1724	U
50	1	1725	C

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Mol	Chain	Res	Type
50	1	1730	G
50	1	1741	A
50	1	1742	U
50	1	1750	A
50	1	1751	G
50	1	1761	C
50	1	1762	C
50	1	1763	U
50	1	1764	U
50	1	1765	U
50	1	1766	G
50	1	1770	G
50	1	1780	G
50	1	1797	A
50	1	1799	A
50	1	1810	A
50	1	1813	A
50	1	1816	A
50	1	1820	U
50	1	1821	U
50	1	1838	G
50	1	1839	A
50	1	1841	A
50	1	1842	A
50	1	1849	C
50	1	1851	G
50	1	1871	U
50	1	1874	A
50	1	1878	G
50	1	1880	U
50	1	1906	G
50	1	1907	C
50	1	1909	A
50	1	1935	G
50	1	1952	G
50	1	2102	U
50	1	2112	U
50	1	2117	A
50	1	2121	G
50	1	2122	G
50	1	2131	A
50	1	2139	A

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Mol	Chain	Res	Type
50	1	2158	A
50	1	2163	C
50	1	2169	G
50	1	2170	U
50	1	2174	G
50	1	2184	U
50	1	2194	G
50	1	2195	C
50	1	2196	C
50	1	2197	C
50	1	2198	A
50	1	2201	G
50	1	2204	C
50	1	2205	U
50	1	2206	G
50	1	2207	A
50	1	2208	A
50	1	2209	U
50	1	2210	G
50	1	2218	G
50	1	2219	A
50	1	2222	A
50	1	2224	A
50	1	2237	C
50	1	2239	G
50	1	2242	A
50	1	2243	A
50	1	2247	G
50	1	2248	C
50	1	2249	G
50	1	2255	A
50	1	2256	A
50	1	2257	C
50	1	2258	U
50	1	2261	G
50	1	2262	A
50	1	2264	U
50	1	2268	U
50	1	2269	U
50	1	2270	A
50	1	2273	G
50	1	2274	U

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Mol	Chain	Res	Type
50	1	2276	G
50	1	2277	C
50	1	2278	C
50	1	2279	A
50	1	2316	G
50	1	2318	U
50	1	2321	A
50	1	2334	U
50	1	2336	U
50	1	2339	C
50	1	2347	U
50	1	2371	G
50	1	2385	G
50	1	2388	U
50	1	2393	G
50	1	2396	G
50	1	2397	A
50	1	2398	A
50	1	2401	A
50	1	2402	A
50	1	2403	G
50	1	2404	A
50	1	2405	C
50	1	2410	U
50	1	2413	A
50	1	2415	C
50	1	2416	U
50	1	2417	U
50	1	2418	G
50	1	2419	A
50	1	2443	A
50	1	2445	A
50	1	2502	A
50	1	2503	G
50	1	2506	U
50	1	2507	C
50	1	2514	U
50	1	2515	A
50	1	2522	G
50	1	2523	A
50	1	2528	G
50	1	2529	A

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Mol	Chain	Res	Type
50	1	2530	G
50	1	2531	C
50	1	2532	U
50	1	2533	G
50	1	2534	G
50	1	2538	U
50	1	2539	C
50	1	2540	A
50	1	2541	U
50	1	2542	U
50	1	2543	U
50	1	2544	U
50	1	2545	C
50	1	2546	C
50	1	2547	A
50	1	2548	C
50	1	2549	G
50	1	2550	U
50	1	2551	U
50	1	2552	C
50	1	2553	U
50	1	2561	A
50	1	2566	C
50	1	2568	C
50	1	2569	A
50	1	2570	U
50	1	2571	U
50	1	2572	C
50	1	2573	G
50	1	2585	G
50	1	2586	G
50	1	2593	A
50	1	2594	C
50	1	2605	G
50	1	2606	G
50	1	2607	G
50	1	2608	G
50	1	2613	U
50	1	2614	G
50	1	2620	G
50	1	2621	G
50	1	2623	G

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Mol	Chain	Res	Type
50	1	2625	C
50	1	2626	A
50	1	2627	C
50	1	2628	A
50	1	2629	U
50	1	2632	G
50	1	2633	U
50	1	2635	A
50	1	2638	C
50	1	2640	A
50	1	2642	A
50	1	2644	C
50	1	2645	G
50	1	2648	G
50	1	2649	A
50	1	2650	U
50	1	2651	G
50	1	2652	U
50	1	2653	C
50	1	2654	C
50	1	2655	U
50	1	2656	A
50	1	2659	G
50	1	2665	U
50	1	2666	C
50	1	2668	U
50	1	2672	G
50	1	2673	A
50	1	2674	A
50	1	2677	G
50	1	2678	A
50	1	2682	C
50	1	2687	G
50	1	2688	U
50	1	2689	A
50	1	2690	G
50	1	2691	A
50	1	2693	C
50	1	2694	A
50	1	2695	A
50	1	2696	A
50	1	2697	A

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Mol	Chain	Res	Type
50	1	2698	G
50	1	2700	G
50	1	2701	U
50	1	2702	A
50	1	2703	A
50	1	2704	A
50	1	2706	G
50	1	2713	U
50	1	2714	G
50	1	2715	A
50	1	2717	U
50	1	2718	U
50	1	2719	U
50	1	2720	G
50	1	2721	A
50	1	2724	U
50	1	2725	U
50	1	2726	C
50	1	2727	A
50	1	2728	G
50	1	2729	U
50	1	2730	G
50	1	2731	U
50	1	2732	G
50	1	2734	A
50	1	2741	C
50	1	2751	G
50	1	2752	U
50	1	2754	G
50	1	2758	A
50	1	2759	U
50	1	2760	C
50	1	2762	A
50	1	2764	C
50	1	2765	C
50	1	2766	U
50	1	2771	U
50	1	2772	C
50	1	2773	C
50	1	2774	C
50	1	2777	G
50	1	2778	G

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Mol	Chain	Res	Type
50	1	2779	A
50	1	2786	G
50	1	2789	U
50	1	2791	G
50	1	2793	G
50	1	2794	G
50	1	2795	U
50	1	2796	G
50	1	2797	C
50	1	2798	C
50	1	2800	G
50	1	2801	A
50	1	2802	A
50	1	2808	A
50	1	2809	C
50	1	2810	C
50	1	2811	A
50	1	2816	G
50	1	2817	A
50	1	2819	A
50	1	2820	A
50	1	2822	U
50	1	2824	G
50	1	2826	U
50	1	2834	G
50	1	2836	C
50	1	2838	A
50	1	2840	C
50	1	2842	U
50	1	2843	U
50	1	2846	U
50	1	2847	A
50	1	2849	C
50	1	2858	U
50	1	2859	U
50	1	2861	U
50	1	2863	G
50	1	2864	A
50	1	2865	U
50	1	2866	U
50	1	2867	C
50	1	2868	U

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Mol	Chain	Res	Type
50	1	2869	U
50	1	2872	A
50	1	2873	U
50	1	2874	G
50	1	2875	U
50	1	2876	C
50	1	2877	G
50	1	2878	G
50	1	2879	C
50	1	2887	A
50	1	2897	A
50	1	2898	G
50	1	2899	C
50	1	2900	A
50	1	2901	G
50	1	2904	U
50	1	2921	U
50	1	2923	U
50	1	2925	C
50	1	2926	A
50	1	2928	C
50	1	2930	A
50	1	2935	U
50	1	2936	A
50	1	2945	G
50	1	2946	A
50	1	2947	G
50	1	2948	C
50	1	2949	U
50	1	2952	G
50	1	2953	U
50	1	2954	U
50	1	2955	U
50	1	2956	A
50	1	2957	G
50	1	2970	C
50	1	2971	A
50	1	2977	G
50	1	2978	U
50	1	2979	U
50	1	2980	U
50	1	2981	U

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Mol	Chain	Res	Type
50	1	2982	A
50	1	2983	C
50	1	2984	C
50	1	2990	G
50	1	2996	U
50	1	2997	G
50	1	3012	A
50	1	3017	A
50	1	3021	A
50	1	3022	G
50	1	3023	U
50	1	3030	G
50	1	3032	A
50	1	3040	A
50	1	3059	G
50	1	3069	G
50	1	3074	G
50	1	3078	U
50	1	3079	U
50	1	3080	G
50	1	3086	A
50	1	3092	C
50	1	3093	C
50	1	3100	U
50	1	3101	G
50	1	3107	U
50	1	3116	G
50	1	3117	C
50	1	3124	G
50	1	3127	A
50	1	3129	A
50	1	3130	A
50	1	3131	U
50	1	3142	A
50	1	3143	C
50	1	3151	U
50	1	3153	U
50	1	3154	C
50	1	3156	U
50	1	3157	U
50	1	3158	G
50	1	3164	C

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Mol	Chain	Res	Type
50	1	3165	A
50	1	3167	A
50	1	3168	A
50	1	3173	G
50	1	3174	A
50	1	3176	G
50	1	3179	U
50	1	3180	A
50	1	3181	C
50	1	3187	A
50	1	3198	U
50	1	3207	U
50	1	3210	A
50	1	3213	A
50	1	3217	C
50	1	3218	A
50	1	3219	G
50	1	3224	G
50	1	3226	A
50	1	3228	C
50	1	3229	G
50	1	3242	G
50	1	3243	A
50	1	3245	A
50	1	3247	G
50	1	3249	C
50	1	3259	U
50	1	3263	G
50	1	3268	A
50	1	3270	U
50	1	3272	C
50	1	3273	A
50	1	3276	G
50	1	3277	U
50	1	3278	C
50	1	3279	A
50	1	3280	U
50	1	3284	G
50	1	3289	G
50	1	3294	A
50	1	3295	A
50	1	3304	U

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Mol	Chain	Res	Type
50	1	3313	U
50	1	3316	A
50	1	3319	U
50	1	3341	U
50	1	3342	A
50	1	3345	G
50	1	3350	C
50	1	3351	U
50	1	3352	U
50	1	3353	G
50	1	3354	U
50	1	3355	U
50	1	3356	G
50	1	3357	U
50	1	3359	A
50	1	3368	U
50	1	3369	G
50	1	3375	A
50	1	3378	C
50	1	3380	U
50	1	3382	U
50	1	3386	G
50	1	3389	U
50	1	3393	U
50	1	3396	U
51	2	13	A
51	2	25	G
51	2	34	U
51	2	35	C
51	2	51	G
51	2	59	A
51	2	61	A
51	2	62	C
51	2	63	G
51	2	76	C
51	2	77	A
51	2	80	A
51	2	81	U
51	2	82	U
51	2	84	C
51	2	85	G
51	2	86	U

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Mol	Chain	Res	Type
51	2	87	G
51	2	90	U
51	2	95	G
51	2	97	A
51	2	104	A
51	2	106	C
51	2	107	G
51	2	111	A
51	2	113	U
51	2	124	G
51	2	125	U
51	2	126	A
51	2	130	C
51	2	138	A
51	2	151	C
52	3	11	A
52	3	13	A
52	3	22	A
52	3	26	C
52	3	33	U
52	3	43	U
52	3	44	C
52	3	48	U
52	3	51	A
52	3	53	U
52	3	55	A
52	3	56	A
52	3	63	A
52	3	64	A
52	3	65	G
52	3	74	C
52	3	76	A
52	3	82	G
52	3	86	U
52	3	87	G
52	3	89	G
52	3	92	A
52	3	94	C
52	3	96	U
52	3	98	C
52	3	99	G
52	3	102	A

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Mol	Chain	Res	Type
52	3	105	C
52	3	112	G
52	3	113	C
52	3	114	U
52	3	117	A
52	3	121	U
53	6	4	U
53	6	5	C
53	6	6	U
53	6	7	C
53	6	8	A
53	6	12	A
53	6	14	U
53	6	15	C
53	6	16	U
53	6	17	G
53	6	19	U
53	6	23	U
53	6	24	A
53	6	26	U
53	6	34	A
53	6	36	U
53	6	38	U
53	6	39	U
53	6	40	U
53	6	41	G
53	6	42	G
53	6	43	A
53	6	47	A
53	6	48	A
53	6	49	C
53	6	53	A
53	6	54	A
53	6	56	U
53	6	57	U
53	6	59	C
53	6	230	A
53	6	231	A
53	6	232	A

All (68) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
50	1	89	A
50	1	160	G
50	1	169	U
50	1	239	G
50	1	305	U
50	1	637	C
50	1	643	U
50	1	647	A
50	1	649	A
50	1	720	A
50	1	761	A
50	1	765	C
50	1	784	A
50	1	849	C
50	1	937	G
50	1	990	U
50	1	1064	A
50	1	1097	G
50	1	1102	A
50	1	1103	A
50	1	1128	U
50	1	1129	A
50	1	1241	U
50	1	1302	A
50	1	1307	G
50	1	1329	U
50	1	1355	A
50	1	1556	C
50	1	1567	U
50	1	1568	U
50	1	1574	C
50	1	1581	C
50	1	1589	A
50	1	1607	U
50	1	1716	U
50	1	2101	C
50	1	2209	U
50	1	2269	U
50	1	2277	C
50	1	2317	A
50	1	2537	U
50	1	2541	U
50	1	2545	C

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Mol	Chain	Res	Type
50	1	2569	A
50	1	2593	A
50	1	2624	G
50	1	2625	C
50	1	2651	G
50	1	2652	U
50	1	2655	U
50	1	2689	A
50	1	2727	A
50	1	2728	G
50	1	2758	A
50	1	2801	A
50	1	2808	A
50	1	2819	A
50	1	2857	C
50	1	2866	U
50	1	2875	U
50	1	2900	A
50	1	3218	A
50	1	3269	U
50	1	3350	C
51	2	123	G
52	3	52	G
53	6	16	U
53	6	56	U

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

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

Of 7 ligands modelled in this entry, 5 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	$\#\|Z\| > 2$
54	GTP	b	701	55	26,34,34	1.14	1 (3%)	32,54,54	1.65	7 (21%)
54	GTP	m	501	-	26,34,34	1.28	4 (15%)	32,54,54	1.71	7 (21%)

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
54	GTP	b	701	55	-	3/18/38/38	0/3/3/3
54	GTP	m	501	-	-	7/18/38/38	0/3/3/3

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
54	m	501	GTP	C5-C6	-4.22	1.38	1.47
54	b	701	GTP	C5-C6	-4.13	1.39	1.47
54	m	501	GTP	C2-N3	2.04	1.38	1.33
54	m	501	GTP	O4'-C4'	-2.03	1.40	1.45
54	m	501	GTP	C5-C4	-2.02	1.37	1.43

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
54	m	501	GTP	PA-O3A-PB	-4.29	118.09	132.83
54	b	701	GTP	PA-O3A-PB	-4.17	118.50	132.83
54	b	701	GTP	PB-O3B-PG	-3.83	119.67	132.83
54	m	501	GTP	C5-C6-N1	3.52	120.16	113.95
54	m	501	GTP	C8-N7-C5	3.31	109.30	102.99
54	m	501	GTP	PB-O3B-PG	-3.28	121.56	132.83
54	m	501	GTP	C2-N1-C6	-3.19	119.22	125.10
54	b	701	GTP	C5-C6-N1	3.19	119.58	113.95
54	b	701	GTP	C8-N7-C5	3.08	108.86	102.99
54	b	701	GTP	C2-N1-C6	-2.81	119.93	125.10
54	b	701	GTP	C3'-C2'-C1'	2.42	104.62	100.98
54	m	501	GTP	C3'-C2'-C1'	2.15	104.22	100.98

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
54	m	501	GTP	O6-C6-C5	-2.15	120.18	124.37
54	b	701	GTP	O6-C6-C5	-2.11	120.24	124.37

There are no chirality outliers.

All (10) torsion outliers are listed below:

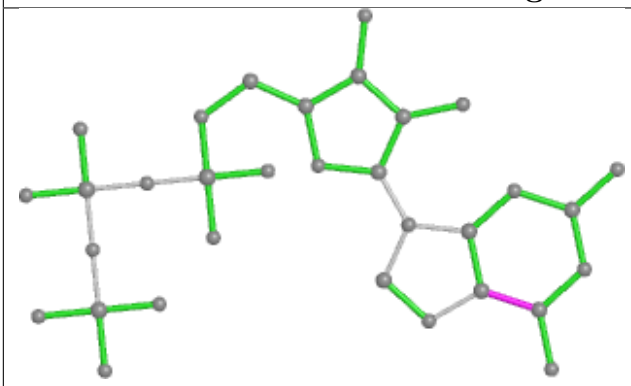
Mol	Chain	Res	Type	Atoms
54	m	501	GTP	O4'-C4'-C5'-O5'
54	m	501	GTP	C3'-C4'-C5'-O5'
54	b	701	GTP	C3'-C4'-C5'-O5'
54	m	501	GTP	PB-O3B-PG-O1G
54	b	701	GTP	O4'-C4'-C5'-O5'
54	m	501	GTP	PB-O3A-PA-O1A
54	m	501	GTP	PB-O3B-PG-O2G
54	m	501	GTP	PB-O3B-PG-O3G
54	b	701	GTP	C5'-O5'-PA-O1A
54	m	501	GTP	C5'-O5'-PA-O1A

There are no ring outliers.

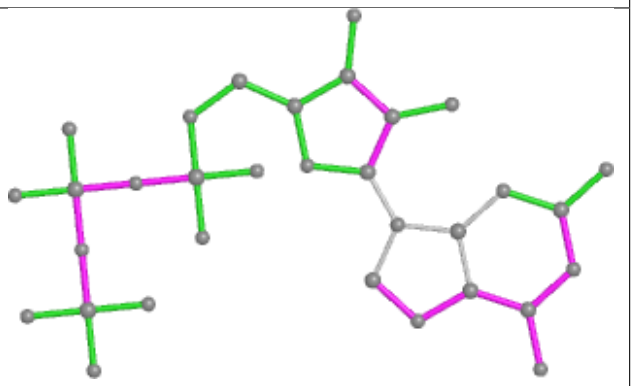
No monomer is involved in short contacts.

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

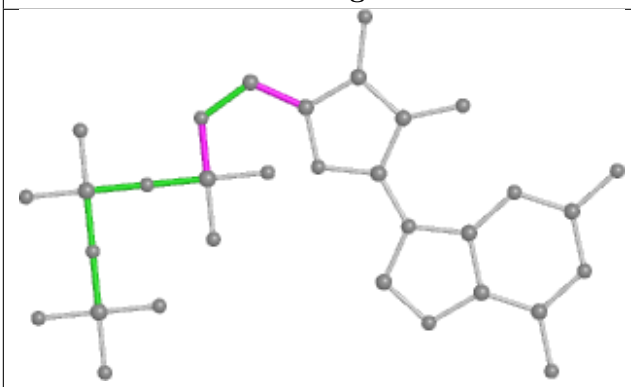
Ligand GTP b 701



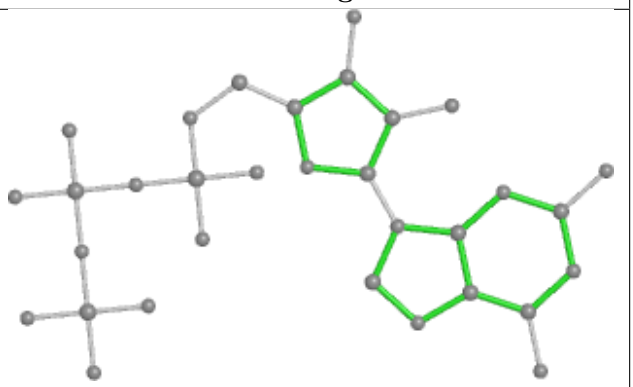
Bond lengths



Bond angles

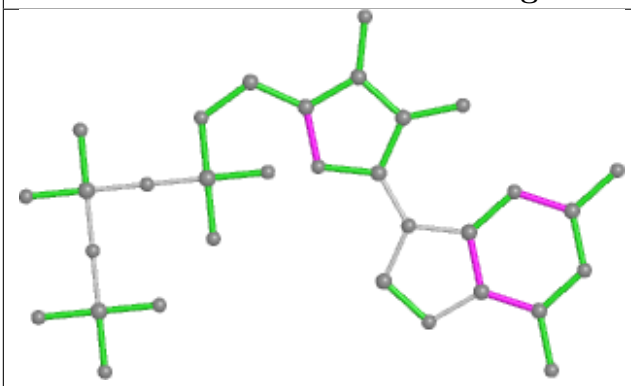


Torsions

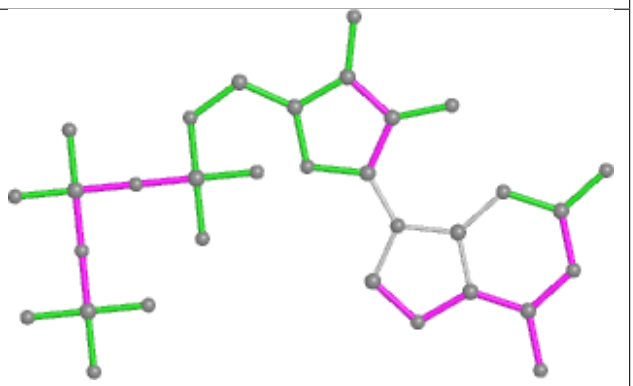


Rings

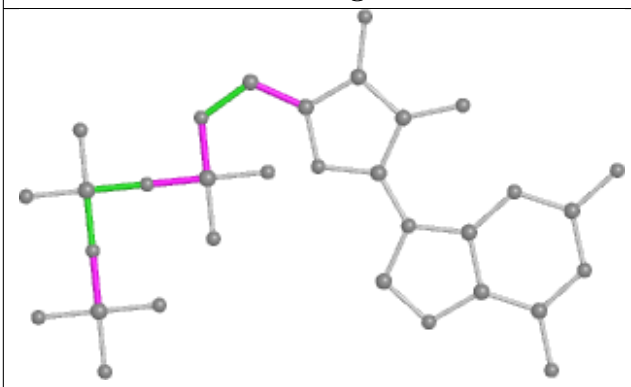
Ligand GTP m 501



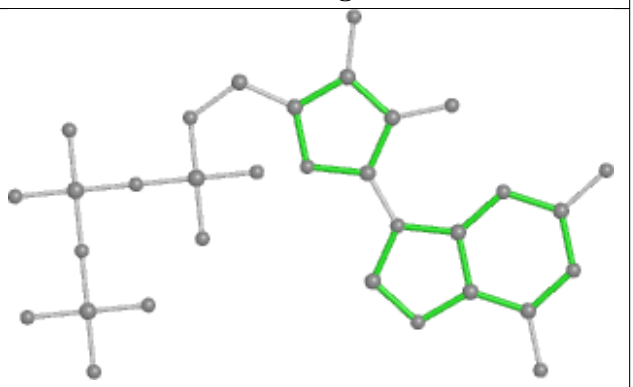
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

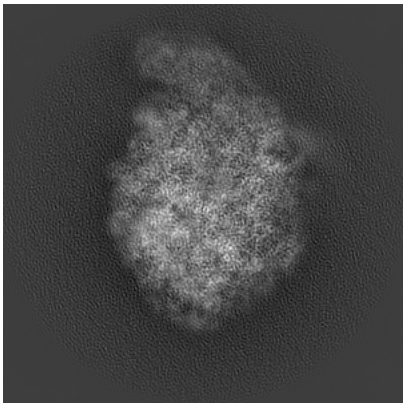
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-30174. These allow visual inspection of the internal detail of the map and identification of artifacts.

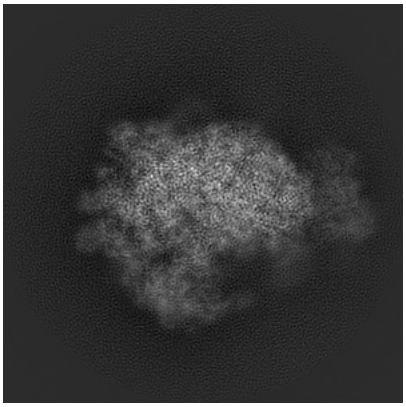
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

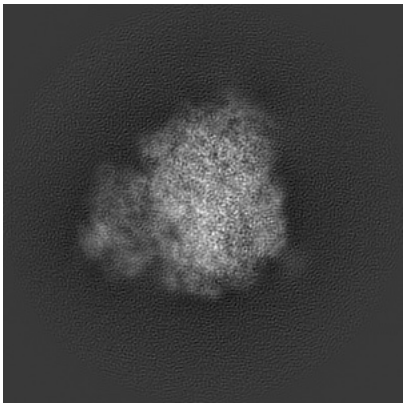
6.1.1 Primary map



X



Y

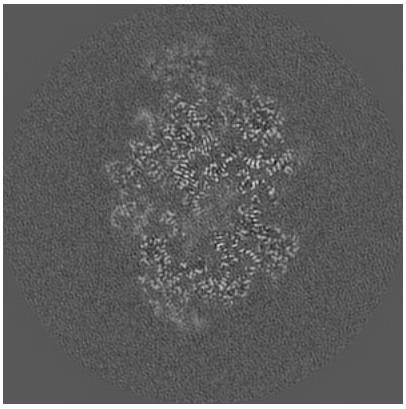


Z

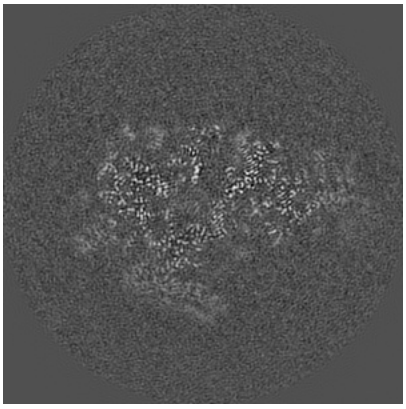
The images above show the map projected in three orthogonal directions.

6.2 Central slices

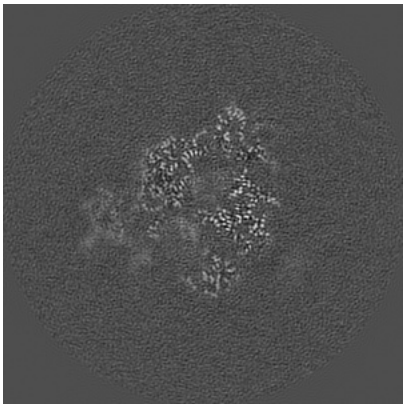
6.2.1 Primary map



X Index: 150



Y Index: 150

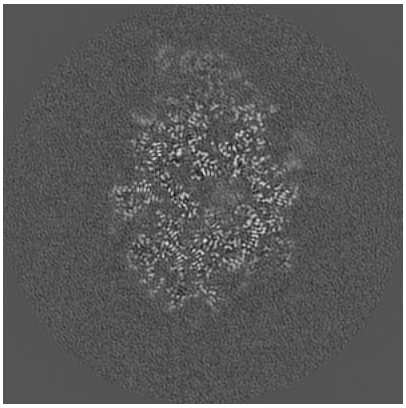


Z Index: 150

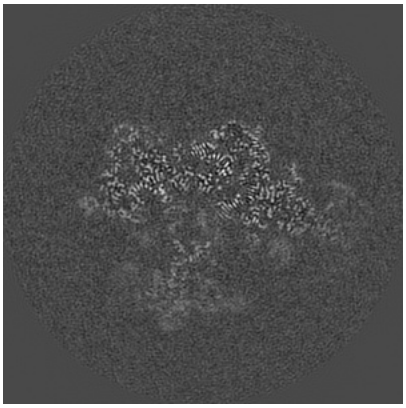
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

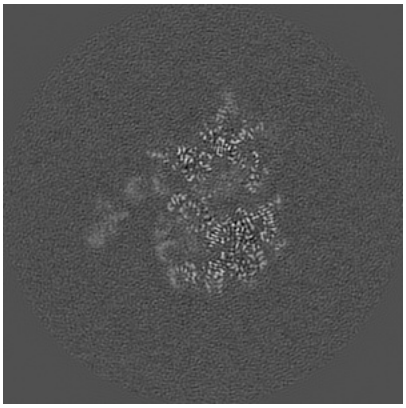
6.3.1 Primary map



X Index: 162



Y Index: 133

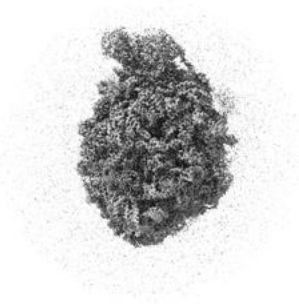


Z Index: 162

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

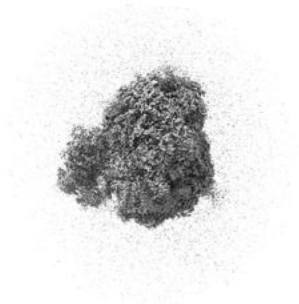
6.4 Orthogonal surface views (i)

6.4.1 Primary map



X

Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.03. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

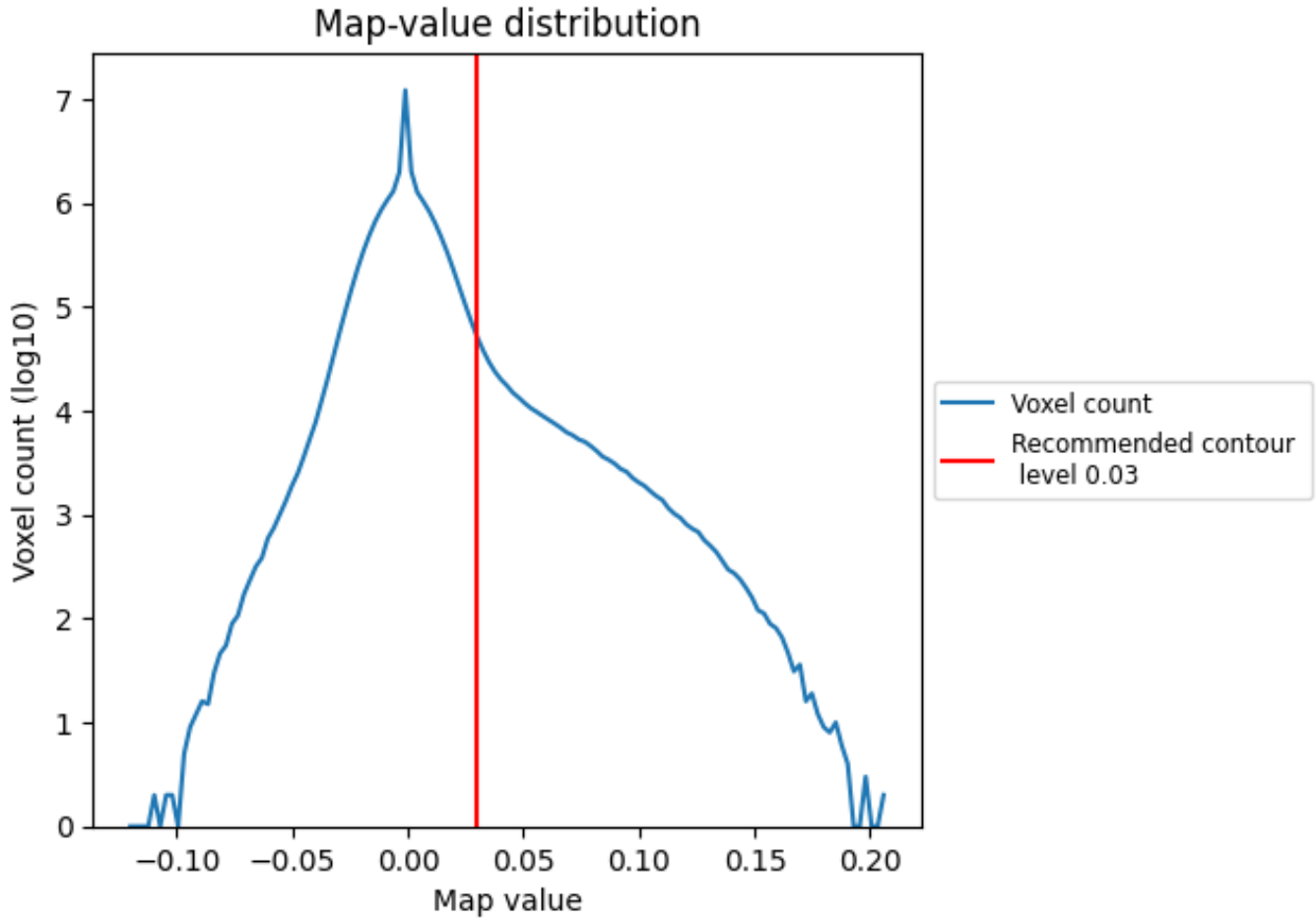
6.5 Mask visualisation (i)

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

7 Map analysis

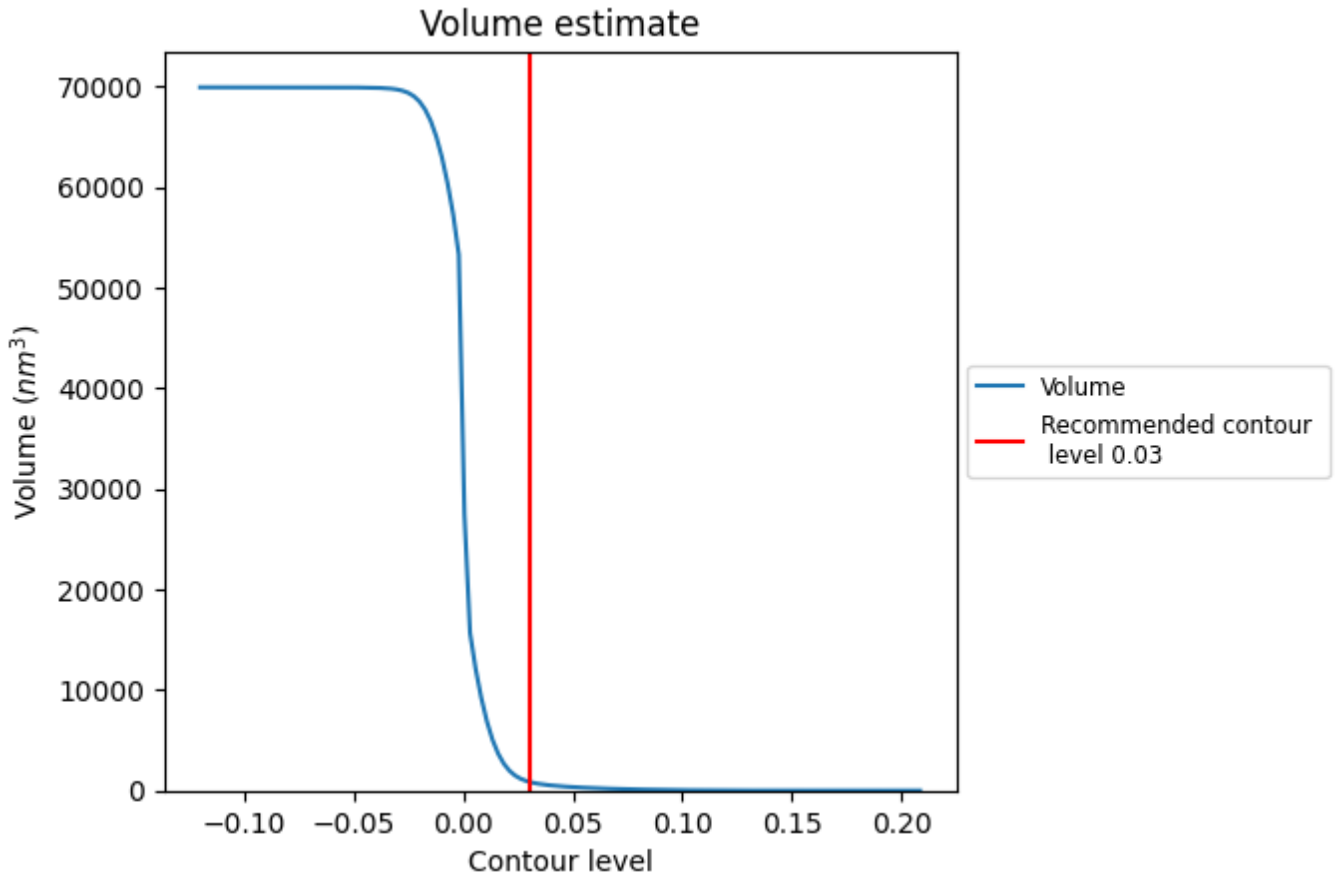
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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

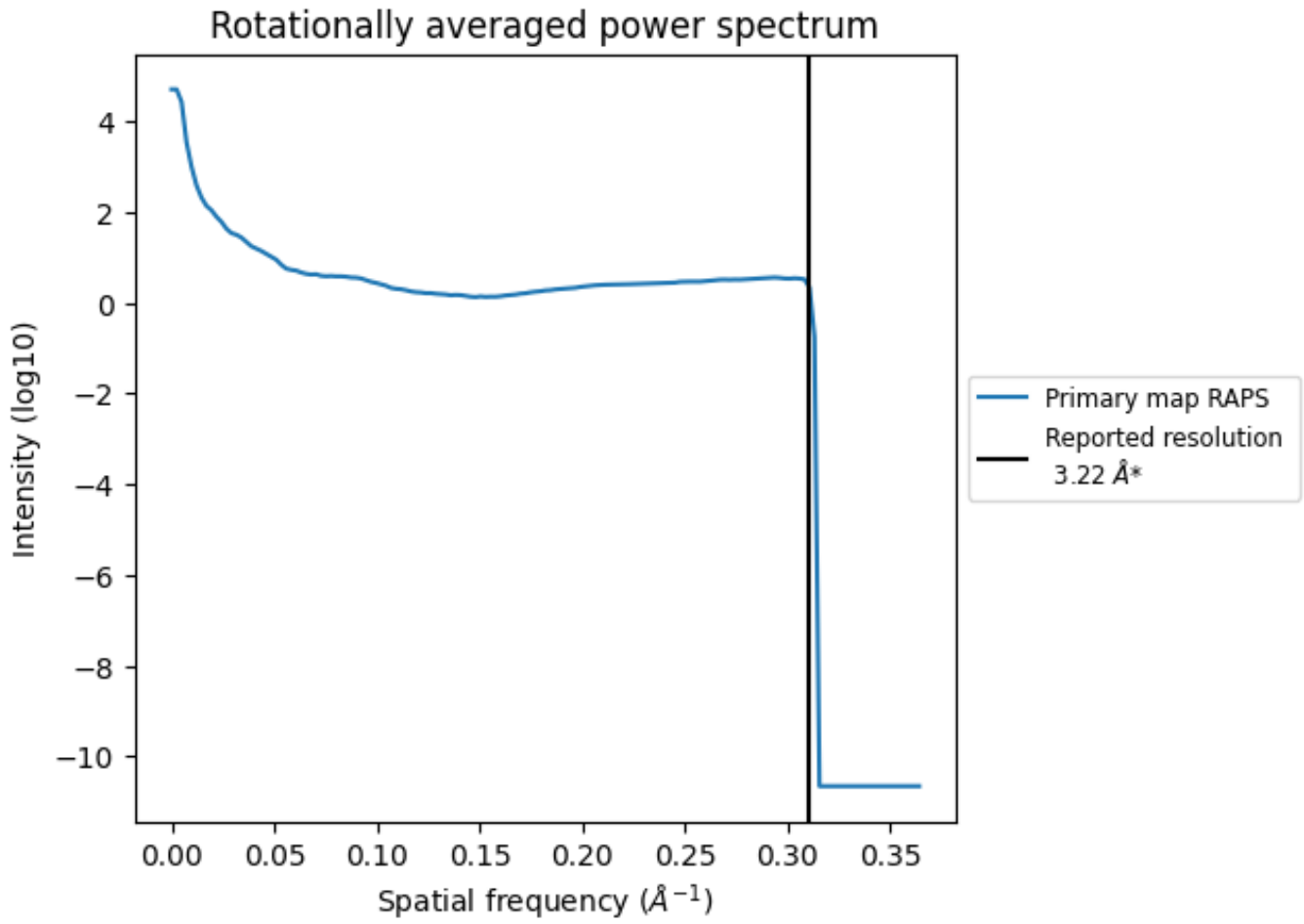
7.2 Volume estimate (i)



The volume at the recommended contour level is 879 nm^3; this corresponds to an approximate mass of 794 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 0.311 Å^{-1}

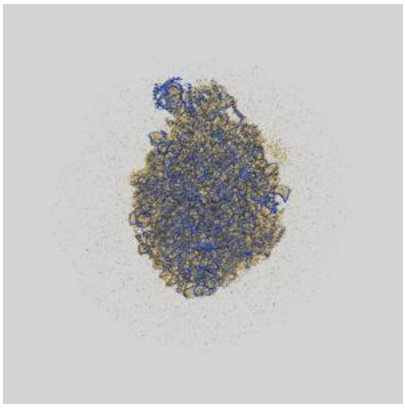
8 Fourier-Shell correlation

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

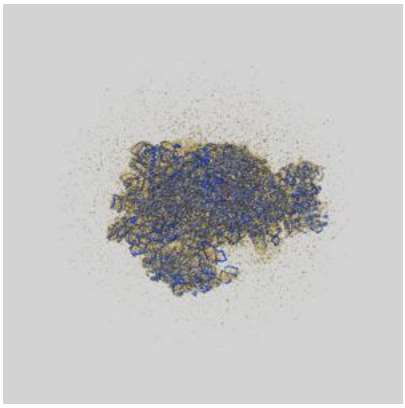
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-30174 and PDB model 7BTB. Per-residue inclusion information can be found in section 3 on page 14.

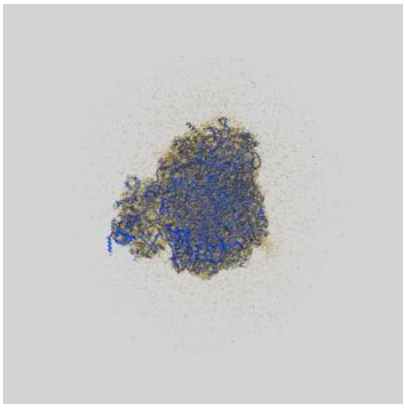
9.1 Map-model overlay



X



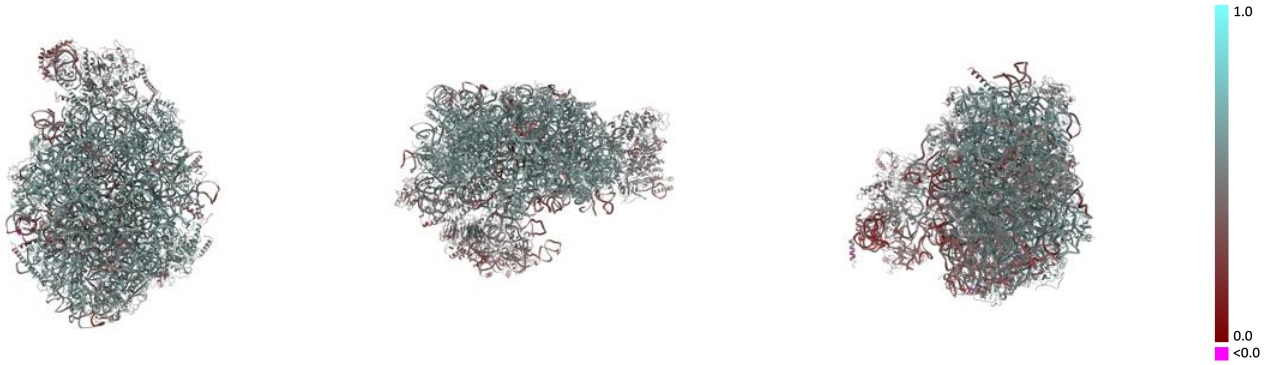
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.03 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.

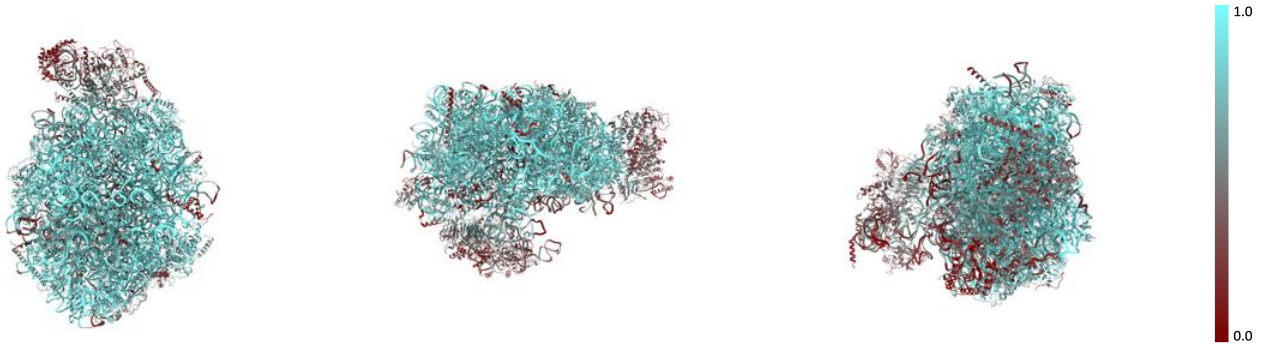
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

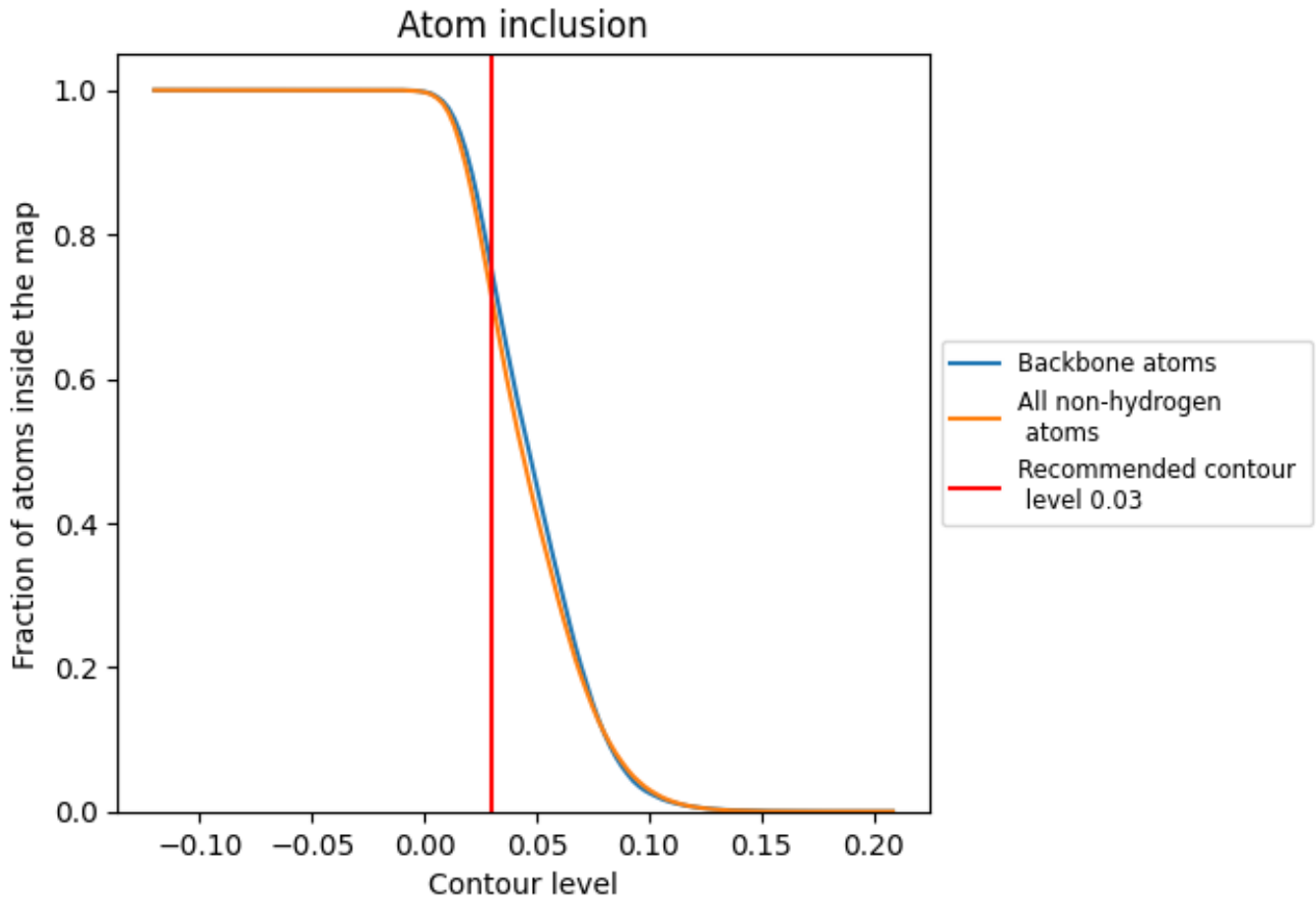
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.03).

9.4 Atom inclusion (i)



At the recommended contour level, 75% of all backbone atoms, 71% 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 (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.7107	0.5100
1	0.8040	0.5140
2	0.8897	0.5560
3	0.3967	0.2790
6	0.4139	0.3910
A	0.8089	0.5840
B	0.8064	0.5650
C	0.7911	0.5630
D	0.2935	0.3840
E	0.7337	0.5370
F	0.8031	0.5620
G	0.7080	0.5340
H	0.8123	0.5680
J	0.1695	0.3260
K	0.2042	0.4020
L	0.7402	0.5360
M	0.8014	0.5580
N	0.7703	0.5650
O	0.8501	0.5860
P	0.7335	0.5480
Q	0.7597	0.5520
R	0.7987	0.5590
S	0.7324	0.5350
T	0.5196	0.4760
U	0.6564	0.5090
V	0.8212	0.5790
W	0.4072	0.4260
X	0.7968	0.5710
Y	0.8064	0.5730
Z	0.7778	0.5560
a	0.7181	0.5340
b	0.6150	0.5010
c	0.7497	0.5470
d	0.7964	0.5680
e	0.8175	0.5740

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Chain	Atom inclusion	Q-score
f	0.8685	0.6000
g	0.8005	0.5680
h	0.7890	0.5530
i	0.6309	0.5020
j	0.7643	0.5670
k	0.6751	0.5310
m	0.7101	0.5360
n	0.5060	0.4950
o	0.3806	0.4530
p	0.8134	0.5690
q	0.4080	0.4910
r	0.7591	0.5550
t	0.3730	0.4630
u	0.7061	0.5380
v	0.3920	0.4360
w	0.4820	0.4560
x	0.4329	0.4390
y	0.7375	0.5430
z	0.3433	0.4870