



wwPDB EM Validation Summary Report ⓘ

Jul 3, 2025 – 03:43 am BST

PDB ID : 6GQ1 / pdb_00006gq1
EMDB ID : EMD-0047
Title : Cryo-EM reconstruction of yeast 80S ribosome in complex with mRNA, tRNA and eEF2 (GMPPCP/sordarin)
Authors : Pellegrino, S.; Demeshkina, N.; Mancera-Martinez, E.; Melnikov, S.; Simonetti, A.; Myasnikov, A.; Yusupov, M.; Yusupova, G.; Hashem, Y.
Deposited on : 2018-06-07
Resolution : 4.40 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev118
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4-5-2 with Phenix2.0rc1
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.44

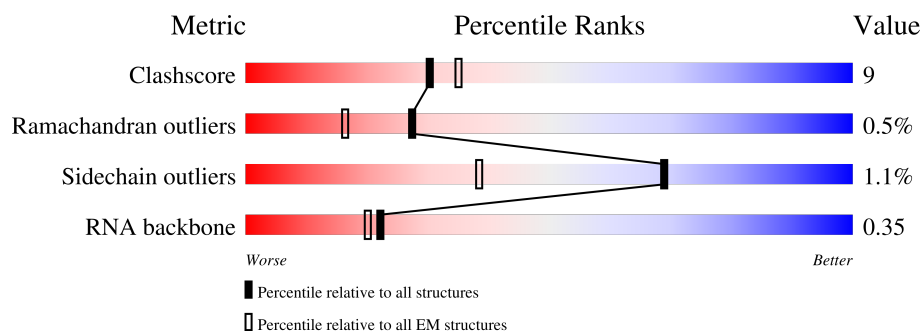
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.40 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.



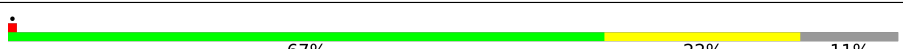
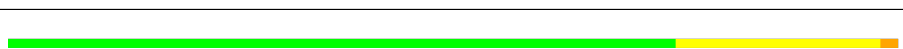
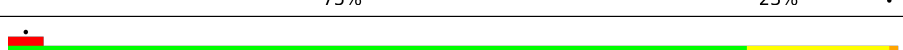
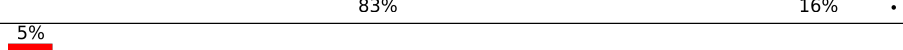
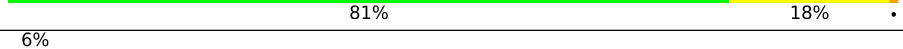
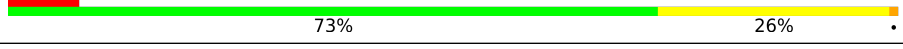
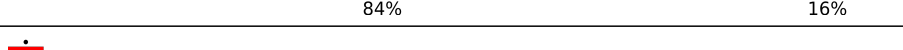
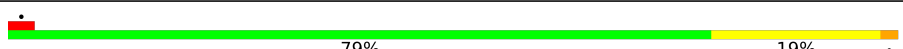
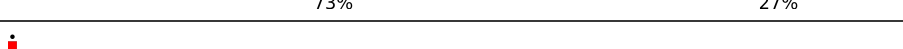
Metric	Whole archive (#Entries)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415
RNA backbone	6643	2191

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

Mol	Chain	Length	Quality of chain
1	1	3396	
2	3	121	
3	4	158	
4	P0	189	
5	P2	94	
6	A	252	
7	B	386	

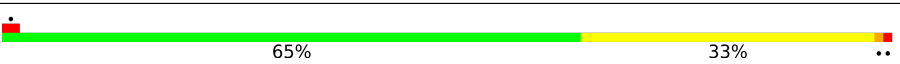
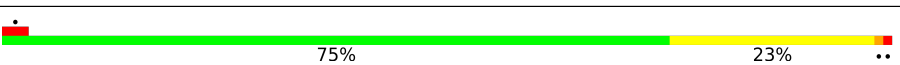
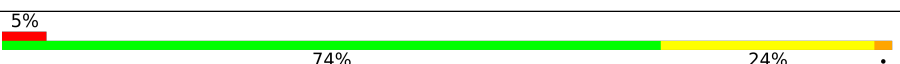
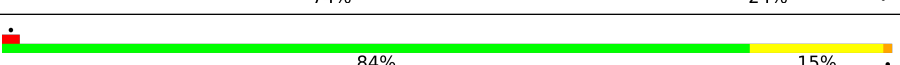
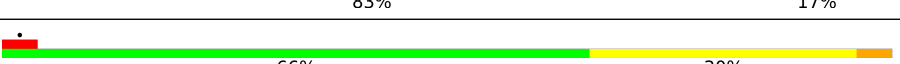
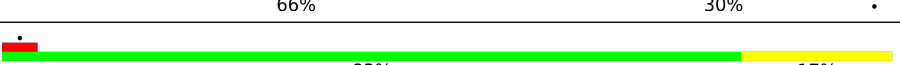
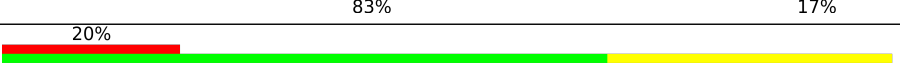
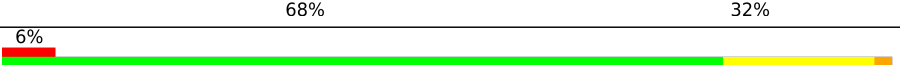
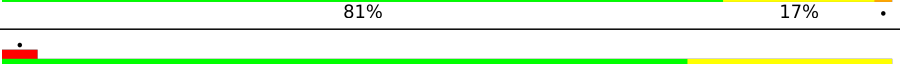
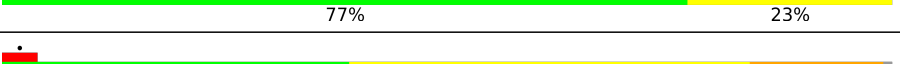
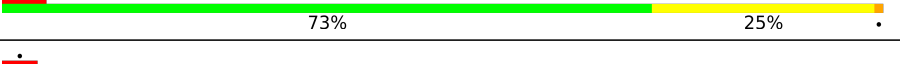
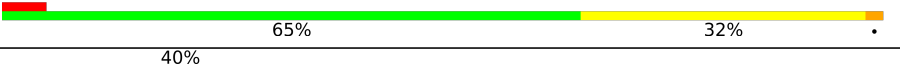
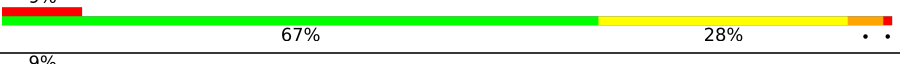
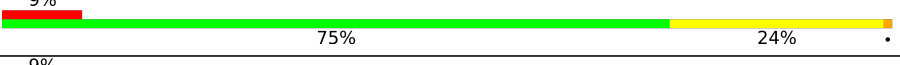
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Mol	Chain	Length	Quality of chain
8	C	361	
9	D	296	
10	E	175	
11	F	222	
12	G	233	
13	H	191	
14	I	220	
15	J	169	
16	L	193	
17	M	136	
18	N	203	
19	O	197	
20	P	183	
21	Q	185	
22	R	188	
23	S	172	
24	T	159	
25	U	100	
26	V	136	
27	W	63	
28	X	121	
29	Y	126	
30	Z	135	
31	a	148	
32	b	58	

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Mol	Chain	Length	Quality of chain
33	c	97	
34	d	109	
35	e	127	
36	f	106	
37	g	112	
38	h	119	
39	i	99	
40	j	87	
41	k	77	
42	l	50	
43	m	52	
44	n	25	
45	o	105	
46	p	91	
47	2	1797	
48	q	206	
49	r	214	
50	s	217	
51	t	223	
52	u	260	
53	v	206	
54	w	223	
55	x	184	
56	y	199	
57	z	185	

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Mol	Chain	Length	Quality of chain
58	AA	105	
59	AB	153	
60	AC	124	
61	AD	150	
62	AE	127	
63	AF	124	
64	AG	141	
65	AH	125	
66	AI	145	
67	AJ	143	
68	AK	107	
69	AL	87	
70	AM	129	
71	AN	144	
72	AO	134	
73	AP	70	
74	AQ	97	
75	AR	81	
76	AS	63	
77	AT	53	
78	AU	60	
79	AV	318	
80	AW	37	
81	AX	76	
82	AY	8	

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Mol	Chain	Length	Quality of chain
83	AZ	840	13% 66% 32%

2 Entry composition

There are 86 unique types of molecules in this entry. The entry contains 210540 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called *Saccharomyces cerevisiae* S288C 35S pre-ribosomal RNA (RDN37-1), miscRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	3223	Total	C	N	O	P	0	0
			68931	30790	12416	22502	3223		

- Molecule 2 is a RNA chain called 5.8S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	3	121	Total	C	N	O	P	0	0
			2579	1152	461	845	121		

- Molecule 3 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	4	158	Total	C	N	O	P	0	0
			3353	1500	586	1109	158		

- Molecule 4 is a protein called 60S acidic ribosomal protein P0.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	P0	189	Total	C	N	O	S	0	0
			1473	942	257	270	4		

- Molecule 5 is a protein called 60S ribosomal protein L12-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	P2	94	Total	C	N	O	S	0	0
			723	448	138	135	2		

- Molecule 6 is a protein called 60S ribosomal protein L2-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	A	252	Total	C	N	O	S	0	0
			1914	1191	388	334	1		

- Molecule 7 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	B	386	Total	C	N	O	S	0	0
			3075	1950	584	533	8		

- Molecule 8 is a protein called 60S ribosomal protein L4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	C	361	Total	C	N	O	S	0	0
			2748	1729	522	494	3		

- Molecule 9 is a protein called 60S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	D	296	Total	C	N	O	S	0	0
			2375	1501	414	458	2		

- Molecule 10 is a protein called 60S ribosomal protein L6-A.

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

- Molecule 11 is a protein called 60S ribosomal protein L7-A.

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

- Molecule 12 is a protein called 60S ribosomal protein L8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	G	233	Total	C	N	O	S	0	0
			1804	1151	323	327	3		

- Molecule 13 is a protein called 60S ribosomal protein L9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	H	191	Total	C	N	O	S	0	0
			1518	963	274	277	4		

- Molecule 14 is a protein called 60S ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	I	211	Total	C	N	O	S	0	0
			1705	1083	322	294	6		

- Molecule 15 is a protein called 60S ribosomal protein L11-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	J	169	Total	C	N	O	S	0	0
			1353	847	253	249	4		

- Molecule 16 is a protein called 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	L	193	Total	C	N	O	S	0	0
			1543	962	315	266			

- Molecule 17 is a protein called 60S ribosomal protein L14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	M	136	Total	C	N	O	S	0	0
			1053	675	199	177	2		

- Molecule 18 is a protein called 60S ribosomal protein L15-A.

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

- Molecule 19 is a protein called 60S ribosomal protein L16-A.

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

- Molecule 20 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	P	183	Total	C	N	O	S	0	0
			1420	882	281	257			

- Molecule 21 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	Q	185	Total	C	N	O	S	0	0
			1441	908	290	241	2		

- Molecule 22 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	R	188	Total	C	N	O		0	0
			1521	935	326	260			

- Molecule 23 is a protein called 60S ribosomal protein L20-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	S	172	Total	C	N	O	S	0	0
			1445	930	267	244	4		

- Molecule 24 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	T	159	Total	C	N	O	S	0	0
			1276	805	246	221	4		

- Molecule 25 is a protein called 60S ribosomal protein L22-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	U	100	Total	C	N	O		0	0
			796	516	131	149			

- Molecule 26 is a protein called 60S ribosomal protein L23-A.

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

- Molecule 27 is a protein called 60S ribosomal protein L24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	W	63	Total	C	N	O	S	0	0
			521	336	102	82	1		

- Molecule 28 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	X	121	Total	C	N	O	S	0	0
			964	620	169	173	2		

- Molecule 29 is a protein called 60S ribosomal protein L26-A.

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

- Molecule 30 is a protein called 60S ribosomal protein L27-A.

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

- Molecule 31 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	a	148	Total	C	N	O	S	0	0
			1173	749	231	190	3		

- Molecule 32 is a protein called 60S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	b	58	Total	C	N	O		0	0
			462	289	100	73			

- Molecule 33 is a protein called 60S ribosomal protein L30.

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

- Molecule 34 is a protein called 60S ribosomal protein L31-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	d	109	Total	C	N	O	S	0	0
			883	559	167	156	1		

- Molecule 35 is a protein called 60S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	e	127	Total	C	N	O	S	0	0
			1020	647	205	167	1		

- Molecule 36 is a protein called 60S ribosomal protein L33-A.

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

- Molecule 37 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	g	112	Total	C	N	O	S	0	0
			880	545	179	152	4		

- Molecule 38 is a protein called 60S ribosomal protein L35-A.

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

- Molecule 39 is a protein called 60S ribosomal protein L36-A.

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

- Molecule 40 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	j	87	Total	C	N	O	S	0	0
			681	414	148	114	5		

- Molecule 41 is a protein called 60S ribosomal protein L38.

Mol	Chain	Residues	Atoms				AltConf	Trace
41	k	77	Total	C	N	O	0	0
			612	391	115	106		

- Molecule 42 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	l	50	Total	C	N	O	S	0	0
			436	272	97	65	2		

- Molecule 43 is a protein called Ubiquitin-60S ribosomal protein L40.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	m	52	Total	C	N	O	S	0	0
			417	259	86	67	5		

- Molecule 44 is a protein called 60S ribosomal protein L41-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	n	25	Total	C	N	O	S	0	0
			227	139	60	27	1		

- Molecule 45 is a protein called 60S ribosomal protein L42-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	o	105	Total	C	N	O	S	0	0
			847	534	170	138	5		

- Molecule 46 is a protein called 60S ribosomal protein L43-A.

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

- Molecule 47 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	2	1776	Total	C	N	O	P	0	0
			37845	16918	6702	12449	1776		

- Molecule 48 is a protein called 40S ribosomal protein S0-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	q	206	Total	C	N	O	S	0	0
			1577	1014	278	283	2		

- Molecule 49 is a protein called 40S ribosomal protein S1-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	r	214	Total	C	N	O	S	0	0
			1709	1084	310	311	4		

- Molecule 50 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	s	217	Total	C	N	O	S	0	0
			1635	1047	289	297	2		

- Molecule 51 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	t	223	Total	C	N	O	S	0	0
			1734	1101	313	314	6		

- Molecule 52 is a protein called 40S ribosomal protein S4-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	u	260	Total	C	N	O	S	0	0
			2068	1316	389	360	3		

- Molecule 53 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	v	206	Total	C	N	O	S	0	0
			1609	1007	300	299	3		

- Molecule 54 is a protein called 40S ribosomal protein S6-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	w	223	Total	C	N	O	S	0	0
			1790	1123	346	318	3		

- Molecule 55 is a protein called 40S ribosomal protein S7-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
55	x	184	Total	C	N	O	0	0
			1481	951	265	265		

- Molecule 56 is a protein called 40S ribosomal protein S8-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	y	188	Total	C	N	O	S	0	0
			1489	925	298	264	2		

- Molecule 57 is a protein called 40S ribosomal protein S9-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	z	185	Total	C	N	O	S	0	0
			1494	943	289	261	1		

- Molecule 58 is a protein called 40S ribosomal protein S10-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	AA	96	Total	C	N	O	S	0	0
			772	499	126	145	2		

- Molecule 59 is a protein called 40S ribosomal protein S11-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	AB	153	Total	C	N	O	S	0	0
			1220	780	231	206	3		

- Molecule 60 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	AC	124	Total	C	N	O	S	0	0
			890	560	156	172	2		

- Molecule 61 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	AD	150	Total	C	N	O	S	0	0
			1192	759	224	207	2		

- Molecule 62 is a protein called 40S ribosomal protein S14-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	AE	127	Total	C	N	O	S	0	0
			891	545	182	163	1		

- Molecule 63 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	AF	124	Total	C	N	O	S	0	0
			977	622	182	166	7		

- Molecule 64 is a protein called 40S ribosomal protein S16-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	AG	141	Total	C	N	O		0	0
			1105	708	203	194			

- Molecule 65 is a protein called 40S ribosomal protein S17-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	AH	120	Total	C	N	O	S	0	0
			926	577	177	170	2		

- Molecule 66 is a protein called 40S ribosomal protein S18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	AI	145	Total	C	N	O	S	0	0
			1192	743	237	210	2		

- Molecule 67 is a protein called 40S ribosomal protein S19-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	AJ	143	Total	C	N	O	S	0	0
			1112	694	208	208	2		

- Molecule 68 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	AK	107	Total	C	N	O	S	0	0
			855	539	156	159	1		

- Molecule 69 is a protein called 40S ribosomal protein S21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	AL	87	Total	C	N	O	S	0	0
			684	420	125	137	2		

- Molecule 70 is a protein called 40S ribosomal protein S22-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	AM	129	Total	C	N	O	S	0	0
			1021	650	188	180	3		

- Molecule 71 is a protein called 40S ribosomal protein S23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	AN	144	Total	C	N	O	S	0	0
			1121	708	220	191	2		

- Molecule 72 is a protein called 40S ribosomal protein S24-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	AO	134	Total	C	N	O		0	0
			1073	676	208	189			

- Molecule 73 is a protein called 40S ribosomal protein S25-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	AP	70	Total	C	N	O		0	0
			563	360	104	99			

- Molecule 74 is a protein called 40S ribosomal protein S26-B.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	AQ	97	Total	C	N	O	S	0	0
			769	475	160	129	5		

- Molecule 75 is a protein called 40S ribosomal protein S27-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	AR	81	Total	C	N	O	S	0	0
			610	382	110	113	5		

- Molecule 76 is a protein called 40S ribosomal protein S28-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	AS	63	Total	C	N	O	S	0	0
			497	306	99	91	1		

- Molecule 77 is a protein called 40S ribosomal protein S29-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	AT	53	Total	C	N	O	S	0	0
			442	274	92	72	4		

- Molecule 78 is a protein called 40S ribosomal protein S30-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	AU	60	Total	C	N	O	S	0	0
			475	299	98	77	1		

- Molecule 79 is a protein called Guanine nucleotide-binding protein subunit beta-like protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	AV	318	Total	C	N	O	S	0	0
			2437	1541	418	470	8		

- Molecule 80 is a protein called Ubiquitin-40S ribosomal protein S31.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	AW	37	Total	C	N	O	S	0	0
			287	177	57	49	4		

- Molecule 81 is a RNA chain called Transfer RNA - Phe.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	AX	76	Total	C	N	O	P	0	0
			1626	725	293	532	76		

- Molecule 82 is a RNA chain called Messenger RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	AY	8	Total	C	N	O	P	0	0
			164	74	23	59	8		

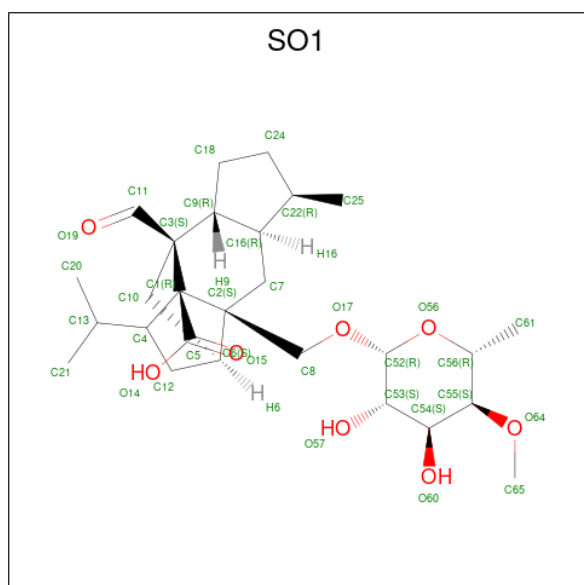
- Molecule 83 is a protein called Elongation factor 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
83	AZ	840	Total	C	N	O	S	0	0
			6551	4161	1124	1237	29		

- Molecule 84 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		AltConf
84	j	1	Total	Zn	0
			1	1	
84	m	1	Total	Zn	0
			1	1	
84	o	1	Total	Zn	0
			1	1	
84	p	1	Total	Zn	0
			1	1	
84	AQ	1	Total	Zn	0
			1	1	
84	AR	1	Total	Zn	0
			1	1	
84	AT	1	Total	Zn	0
			1	1	
84	AW	1	Total	Zn	0
			1	1	

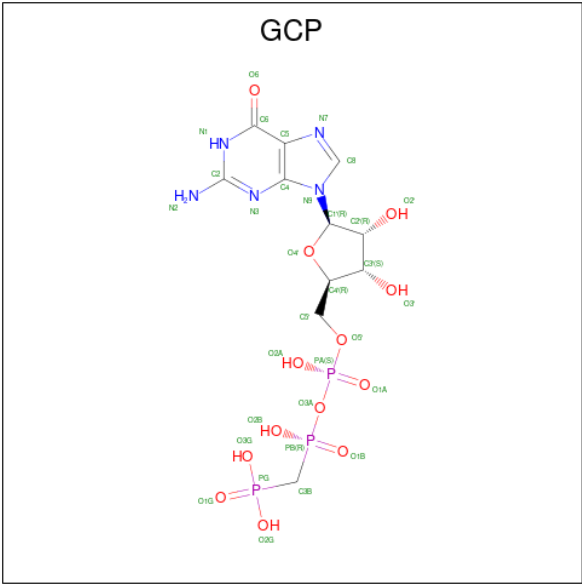
- Molecule 85 is [1R-(1.ALPHA.,3A.BETA.,4.BETA.,4A.BETA.,7.BETA.,7A.ALPHA.,8A.BETA.)]8A-[(6-DEOXY-4-O-METHYL-BETA-D-ALTROPYRANOSYLOXY)METHYL]-4-FORMYL-4,4A,5,6,7,7A,8,8A-OCTAHYDRO-7-METHYL-3-(1-METHYLETHYL)-1,4-METHANO-S-INDACENE-3A(1H)-CARBOXYLIC ACID (CCD ID: SO1) (formula: $C_{27}H_{42}O_8$).



Mol	Chain	Residues	Atoms			AltConf
85	AZ	1	Total	C	O	0
			35	27	8	

- Molecule 86 is PHOSPHOMETHYLPHOSPHONIC ACID GUANYLATE ESTER (CCD

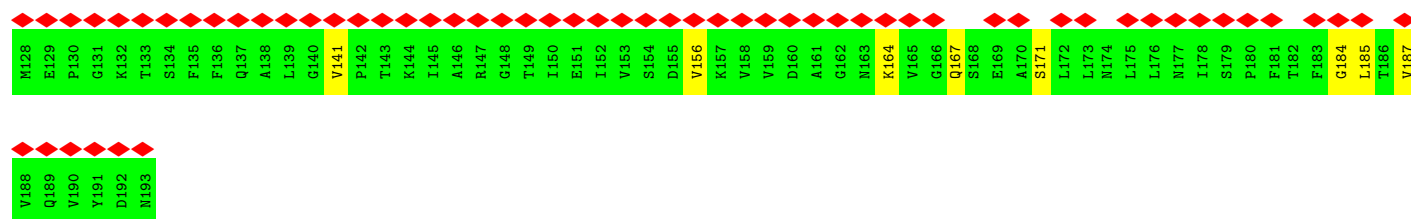
ID: GCP) (formula: C₁₁H₁₈N₅O₁₃P₃).



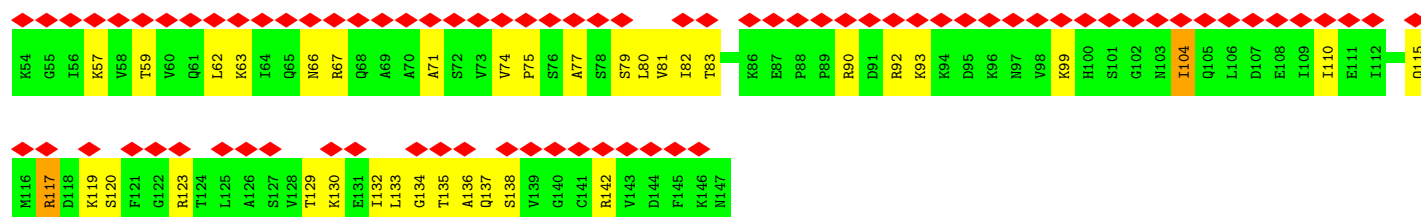
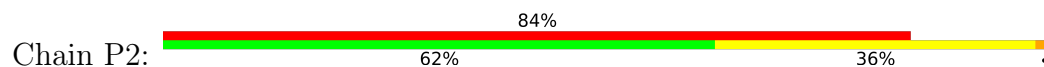
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			Total	C	N	O	P	
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A1841	C1772	A1593	A1842	U1672	U1512	C1437	U1349	A1271	C1201	G1127	U1044	G968	A895	A807
C1843	C1773	A1594	C1843	A1683	G1516	U1438	A1350	C1272	A1203	A1129	U1044	A970	A896	A808
C1844	G1775	C1596	G1845	A1687	G1517	U1440	U1351	A1274	A1204	G1131	A1046	C975	U897	A816
G1845	U1687	C1596	U1687	U1687	G1521	G1443	U1353	C1275	A1205	C1132	A1047	U976	G900	A817
A1847	C1778	A1604	A1848	C1693	U1522	G1604	G1354	C1277	G1206	A1133	C977	C977	U903	U821
C1848	G1780	U1606	C1848	U1694	U1523	A1446	A1355	C1277	G1209	G1134	A1053	G822	A903	C923
A1849	C1781	U1607	A1850	U1695	A1524	G1447	U1356	C1279	U1210	A1135	A1054	U979	A904	
A1850	U1782	C1608	A1851	G1608	G1525	U1448	G1357	C1280	U1211	C1136	A1055	A980	A904	
C1851	U1783	C1609	G1851	U1609	U1526	A1449	G1362	G1281	A1212	G1137	A1062	U981	G907	G826
U1851	A1707	G1610	U1851	G1610	A1529	G1450	A1363	G1282	G1213	G1142	G1063	G884	G908	A827
U1855	U1785	A1613	U1855	A1613	U1530	C1451	A1363	C1283	U1214	A1143	A1064	U985	G909	A830
A1859	G1786	A1613	A1859	C1710	U1530	U1455	U1368	C1284	A1217	G1145	A1066	C911	C911	G833
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C1863	G1788	A1618	C1863	G1713	A1534	U1457	A1370	A1286	C1219	G1149	U1070	A992	A915	G835
A1864	A1714	U1620	A1864	A1714	A1535	U1458	C1372	A1287	U1220	G1152	G1071	G993	G916	A836
A1865	A1715	A1621	A1865	U1716	G1541	U1459	A1373	A1290	A1221	G1152	U1071	G994	A917	A837
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A1867	G1718	G1624	A1867	G1718	U1551	U1460	G1374	C1292	C1224	A1154	C1076	A998	A921	G842
G1868	G1719	A1625	G1868	G1719	G1552	G1464	G1382	G1295	A1225	C1155	A1076	A998	A920	A843
A1797	U1720	U1626	A1797	U1720	U1553	A1468	G1383	C1296	G1229	C1156	A1079	G999	G924	A846
A1798	U1627	U1627	A1798	U1627	U1554	G1469	U1384	C1297	G1230	G1157	A1080	C1000	A925	A847
U1799	C1628	U1628	U1799	C1628	U1555	U1470	U1385	C1297	A1301	A1158	U1081	G1001	C928	A848
A1800	U1629	U1629	A1800	U1629	C1556	U1471	A1386	A1301	A1303	A1159	U1082	A1002	A929	U849
U1801	U1630	U1630	U1801	U1630	A1557	U1472	G1387	A1302	C1232	G1160	G1083	G1005	A932	U850
C1805	G1727	G1473	C1805	A1558	U1565	U1473	U1388	U1305	G1233	G1161	A1084	A1006	U932	C851
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C1807	G1730	U1636	C1807	G1730	U1561	A1482	G1392	A1308	G1237	U1167	U1094	C937	U855	G854
G1808	A1731	A1637	U1808	A1731	C1562	G1483	A1393	U1309	C1238	U1171	U1095	G938	A955	
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C1816	U1740	C1644	C1816	U1740	U1568	U1488	U1405	C1317	U1249	G1176	U1100	C1017	G943	G860
A1817	U1741	U1645	A1817	U1741	U1569	A1489	U1405	A1317	G1249	C1177	G1101	G1018	U944	C861
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C1819	G1748	G1653	C1819	G1748	U1570	G1491	G1408	U1322	U1253	G1179	A1103	G1021	U946	U865
U1820	A1749	A1654	U1820	A1749	U1571	G1492	C1411	U1323	U1253	A1180	G1021	G1021	U947	U866
A1821	C1750	G1655	A1821	C1750	U1572	G1493	G1417	U1324	C1254	U1181	A1104	G1021	G947	A866
C1822	G1751	C1573	C1822	G1751	G1573	U1494	G1417	U1325	G1256	A1182	A1106	C1023	C948	
A1823	U1657	A1656	A1823	U1657	C1574	U1497	A1418	U1325	G1256	C1182	G1106	G1024	C949	U871
C1827	C1756	G1657	C1827	C1756	G1577	A1498	A1419	A1330	C1257	C1185	U1110	A1025	G950	
A1828	A1757	U1658	A1828	A1757	U1577	C1499	G1420	A1330	U1257	G1186	U1026	A952	A951	U874
C1904	U1758	C1578	C1904	U1758	C1578	G1500	G1421	U1336	U1258	C1187	A1026	A952	G875	A876
G1905	G1760	G1661	G1905	G1760	C1579	U1501	G1422	U1337	A1260	G1115	A1027	C959	U960	C877
C1906	C1761	U1662	C1906	C1761	C1581	C1502	C1423	A1337	G1261	G1116	U1028	C961	U879	
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C1834	U1763	C1664	C1834	U1763	C1582	U1425	U1425	U1341	A1263	G1117	U1028	C961	U879	
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C1836	U1765	A1667	C1836	U1765	A1587	C1508	G1431	A1343	U1265	C1196	C1032	A965	A882	A882
U1837	G1769	G1668	U1837	G1769	A1587	U1588	G1434	A1509	G1268	A1197	U1125	U1033	U966	A888
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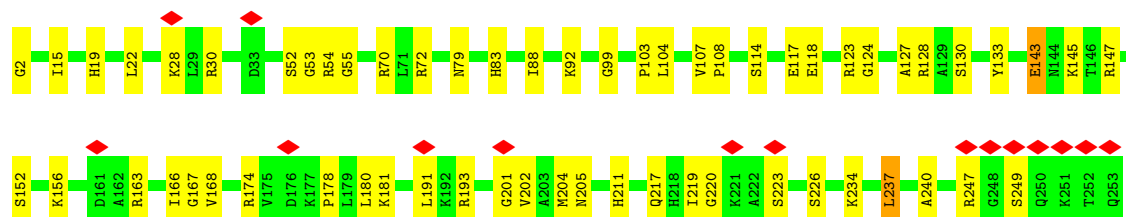
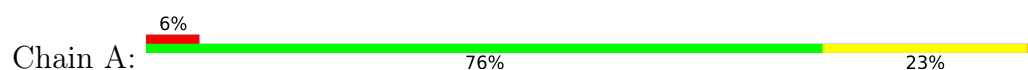
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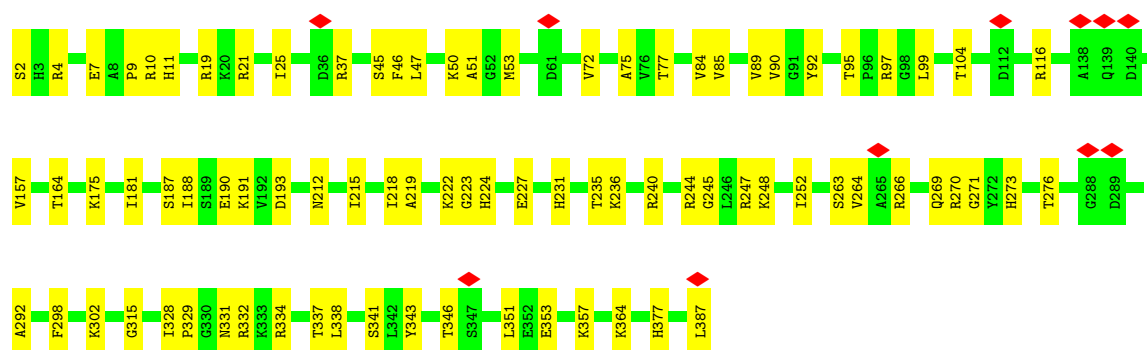
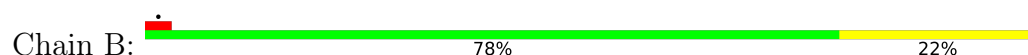
• Molecule 5: 60S ribosomal protein L12-A



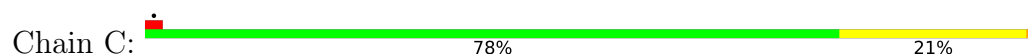
• Molecule 6: 60S ribosomal protein L2-A

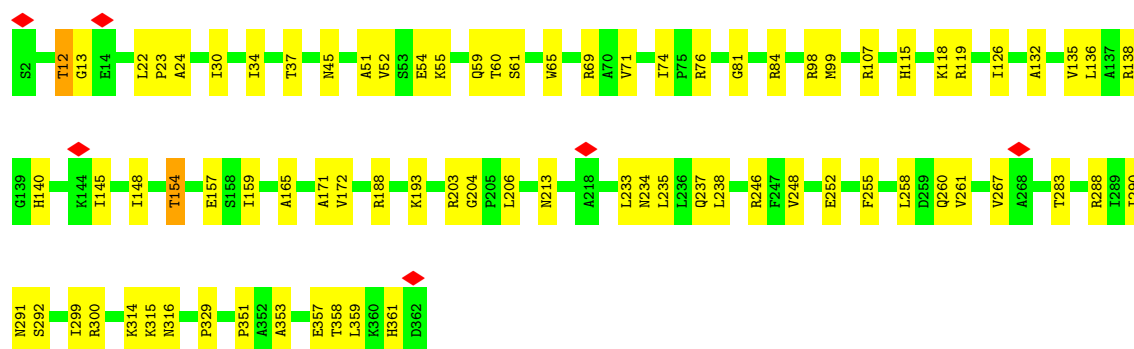


• Molecule 7: 60S ribosomal protein L3

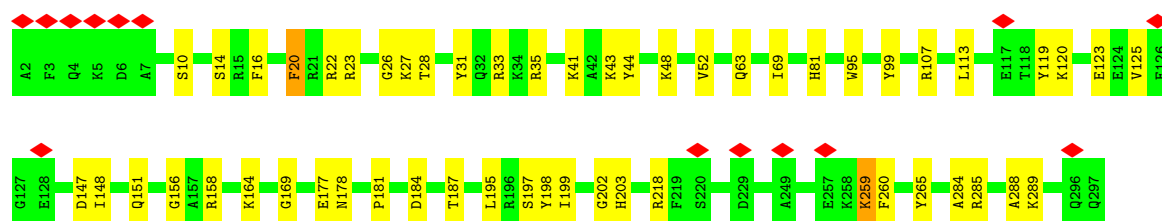
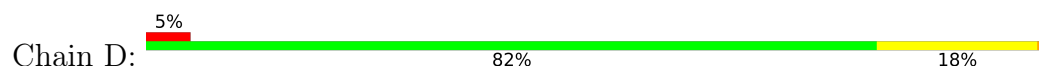


• Molecule 8: 60S ribosomal protein L4-A

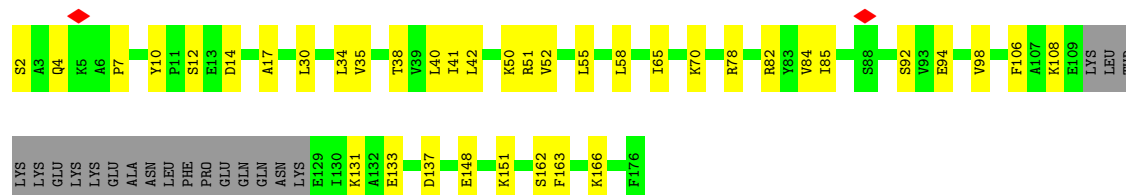




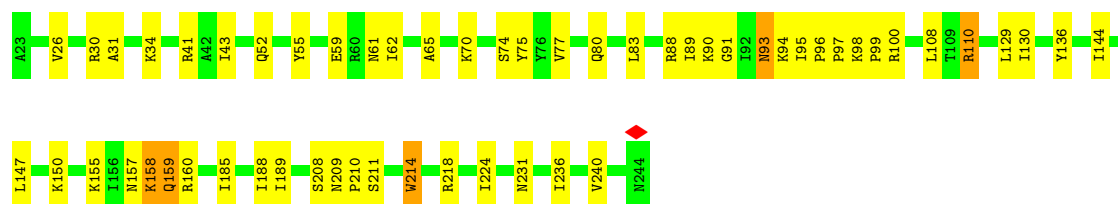
• Molecule 9: 60S ribosomal protein L5



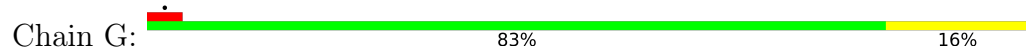
• Molecule 10: 60S ribosomal protein L6-A

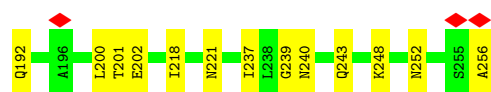


• Molecule 11: 60S ribosomal protein L7-A

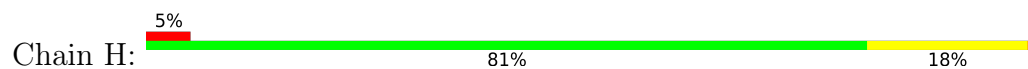


• Molecule 12: 60S ribosomal protein L8-A

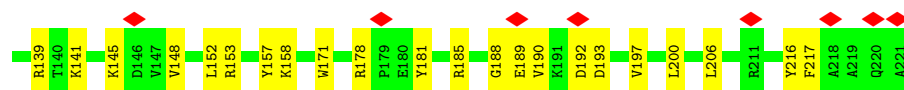
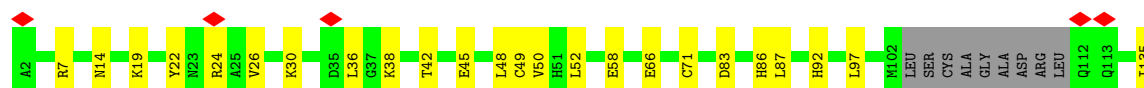
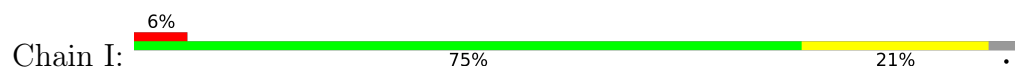




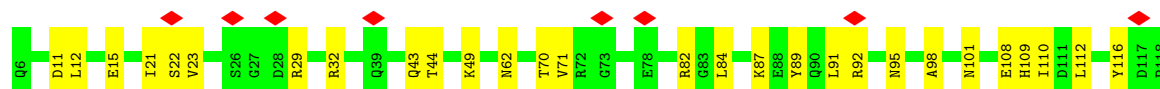
- Molecule 13: 60S ribosomal protein L9-A



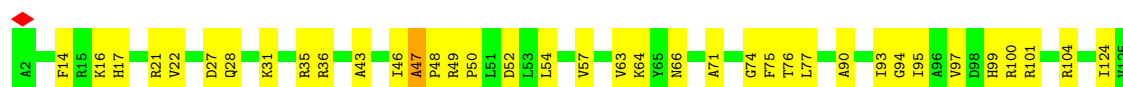
- Molecule 14: 60S ribosomal protein L10



- Molecule 15: 60S ribosomal protein L11-B



- Molecule 16: 60S ribosomal protein L13-A



- Molecule 17: 60S ribosomal protein L14-A

T3	D4	S5	K8	A9	S10	N11	W12	R13	L14	V15	V20	D40	K43	I46	D47	G48	G52	V53	P54	R55	L65	T66	L72	R77	T78	A79	T80	E92	K102	Q105	R106	E107	R108	L112	T113	E116	L123	R124	R128	K137	A138
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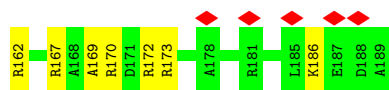
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| L22 |
| R38 |
| A39 |
| A40 |
| R44 |
| I61 |
| Y62 |
| R63 |
| V64 |
| R65 |
| V66 |
| R67 |
| R68 |
| K72 |
| K83 |
| P84 |
| Q87 |
| K93 |
| Y94 |
| Q95 |
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| T101 |
| A102 |
| E103 |
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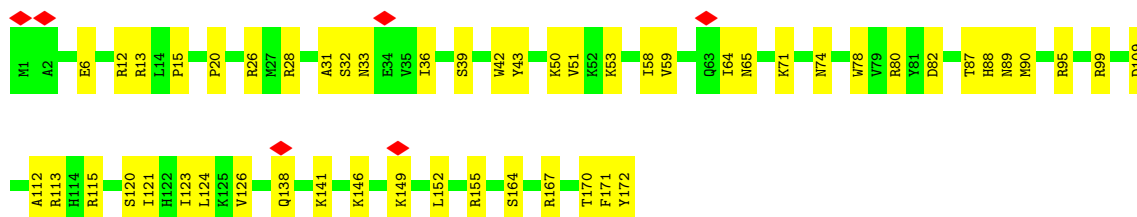
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| K27 | 100 |
| V30 | 100 |
| R38 | 100 |
| R39 | 100 |
| K50 | 100 |
| A51 | 100 |
| S55 | 100 |
| R59 | 100 |
| V62 | 100 |
| R69 | 100 |
| N78 | 100 |
| V82 | 100 |
| V83 | 100 |
| V84 | 100 |
| T87 | 100 |
| T88 | 100 |
| D89 | 100 |
| D90 | 100 |
| A91 | 100 |
| A92 | 100 |
| I93 | 100 |
| A102 | 100 |
| L127 | 100 |
| R144 | 100 |
| R164 | 100 |
| R170 | 100 |
| K171 | 100 |
| R178 | 100 |
| K182 | 100 |
| K185 | 100 |
| I188 | 100 |

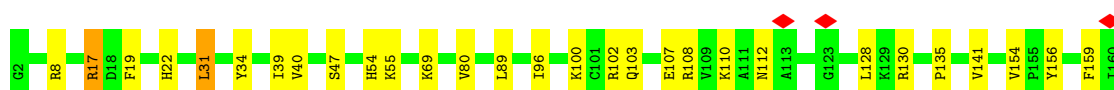
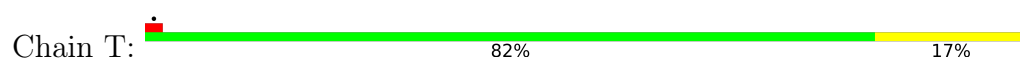
-
- | Category | Count |
|----------|-------|
| A2 | 100 |
| T6 | 80 |
| L10 | 70 |
| G16 | 60 |
| R20 | 50 |
| I41 | 40 |
| R42 | 30 |
| V45 | 20 |
| K60 | 10 |
| S61 | 10 |
| R62 | 10 |
| T63 | 10 |
| R64 | 10 |
| R74 | 10 |
| K82 | 10 |
| R85 | 10 |
| I96 | 10 |
| L99 | 10 |
| R100 | 10 |
| V101 | 10 |
| L102 | 10 |
| R103 | 10 |
| Y109 | 10 |
| K114 | 10 |
| I115 | 10 |
| Y120 | 10 |
| Y124 | 10 |
| S127 | 10 |
| K128 | 10 |
| F132 | 10 |
| K135 | 10 |
| L138 | 10 |
| I143 | 10 |
| K146 | 10 |
| A147 | 10 |
| E152 | 10 |



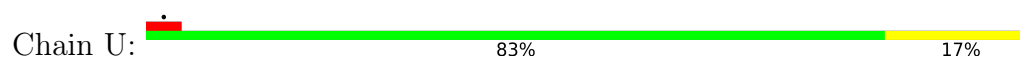
- Molecule 23: 60S ribosomal protein L20-A



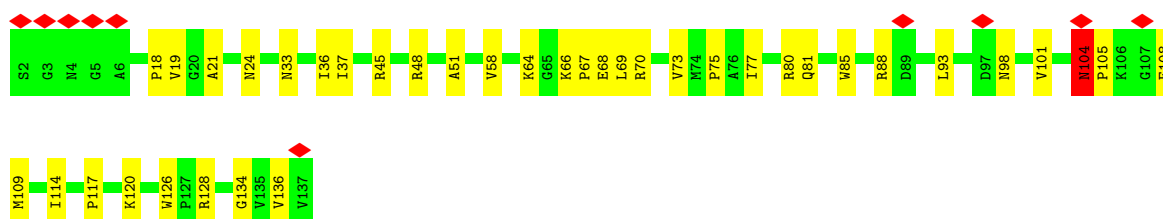
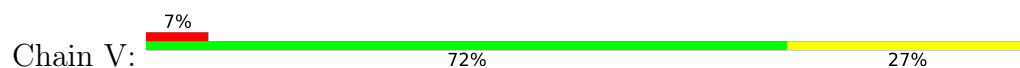
- Molecule 24: 60S ribosomal protein L21-A



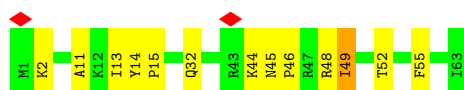
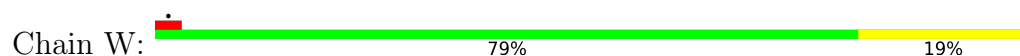
- Molecule 25: 60S ribosomal protein L22-A



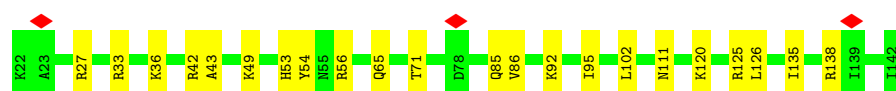
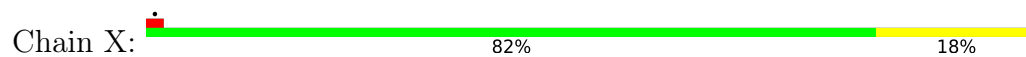
- Molecule 26: 60S ribosomal protein L23-A



- Molecule 27: 60S ribosomal protein L24-A



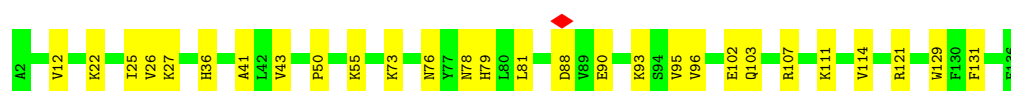
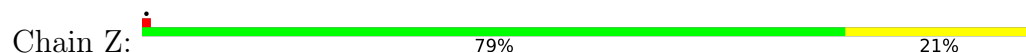
- Molecule 28: 60S ribosomal protein L25



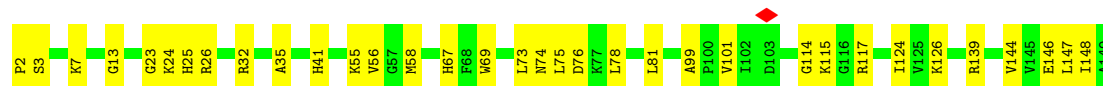
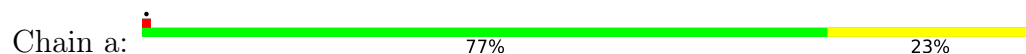
- Molecule 29: 60S ribosomal protein L26-A



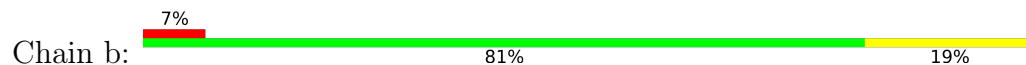
- Molecule 30: 60S ribosomal protein L27-A



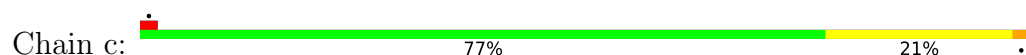
- Molecule 31: 60S ribosomal protein L28



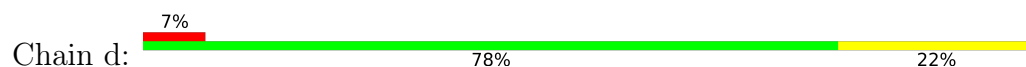
- Molecule 32: 60S ribosomal protein L29



- Molecule 33: 60S ribosomal protein L30

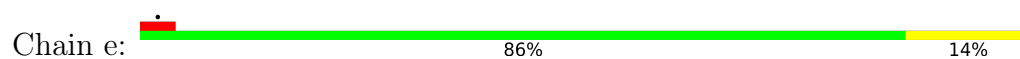


- Molecule 34: 60S ribosomal protein L31-A

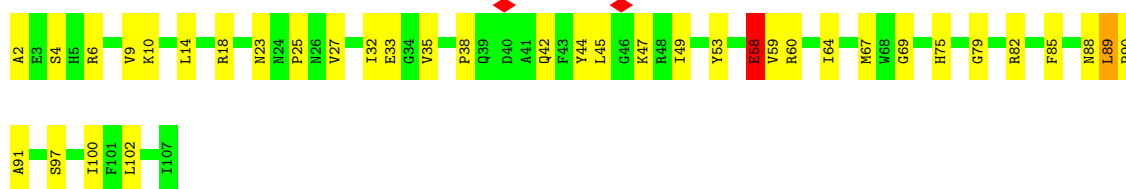




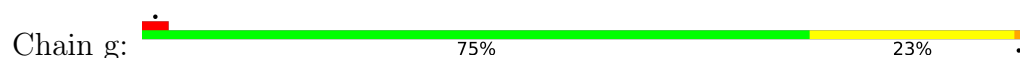
- Molecule 35: 60S ribosomal protein L32



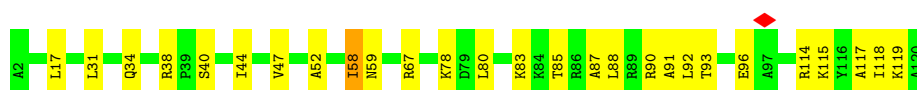
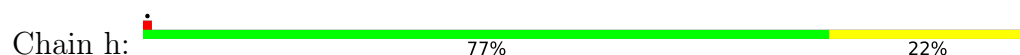
- Molecule 36: 60S ribosomal protein L33-A



- Molecule 37: 60S ribosomal protein L34-A



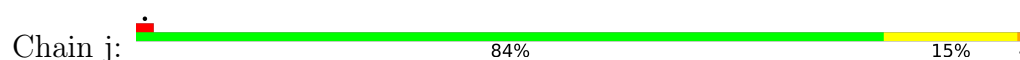
- Molecule 38: 60S ribosomal protein L35-A

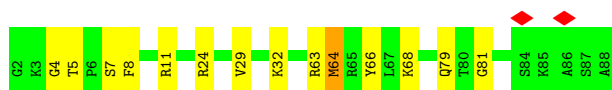


- Molecule 39: 60S ribosomal protein L36-A

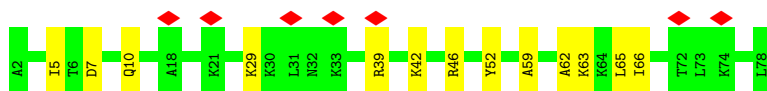
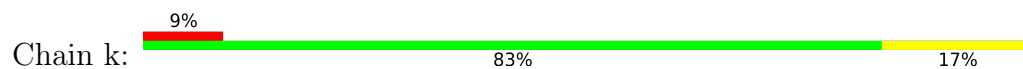


- Molecule 40: 60S ribosomal protein L37-A

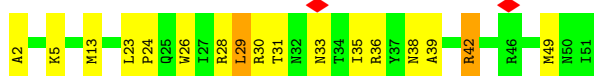




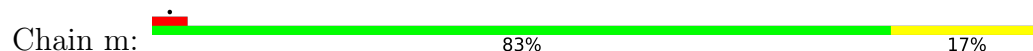
- Molecule 41: 60S ribosomal protein L38



- Molecule 42: 60S ribosomal protein L39



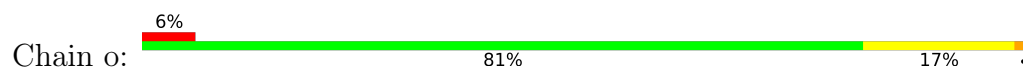
- Molecule 43: Ubiquitin-60S ribosomal protein L40



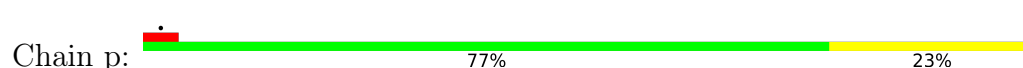
- Molecule 44: 60S ribosomal protein L41-B



- Molecule 45: 60S ribosomal protein L42-A

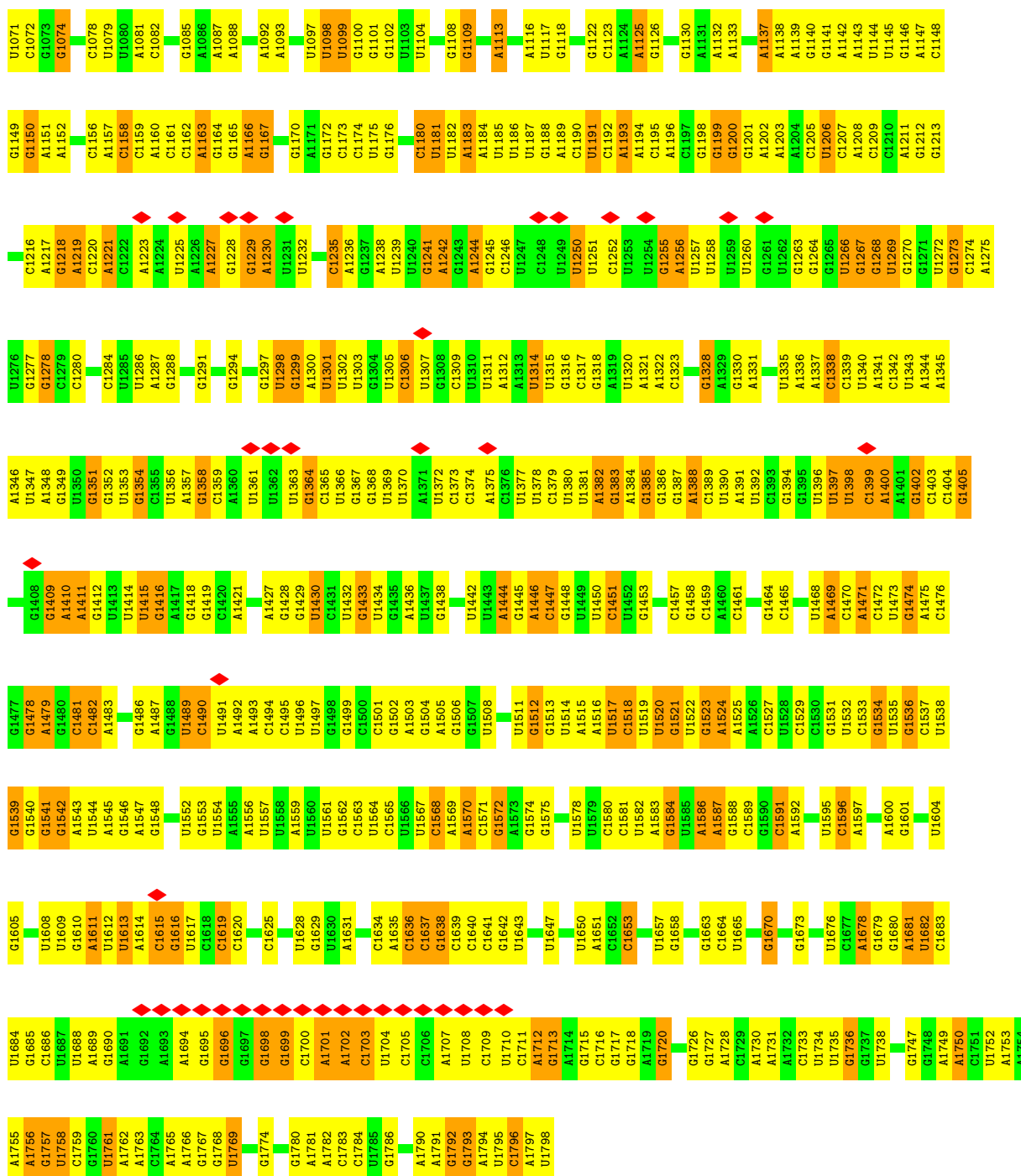


- Molecule 46: 60S ribosomal protein L43-A

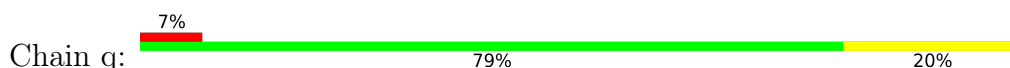


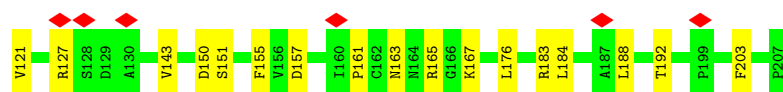
- Molecule 47: 18S ribosomal RNA



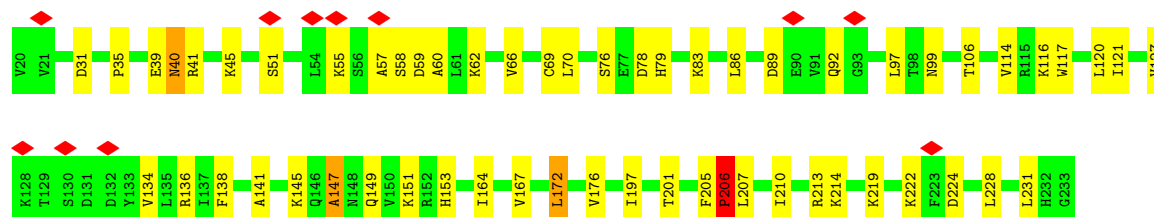
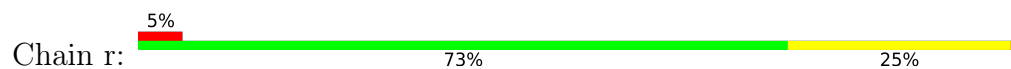


• Molecule 48: 40S ribosomal protein S0-A

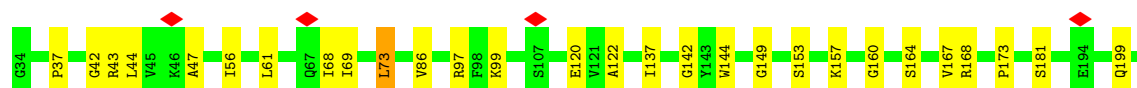
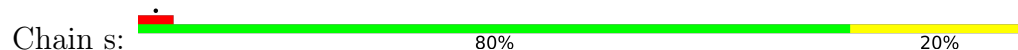




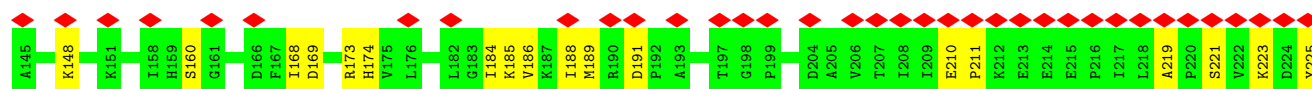
- Molecule 49: 40S ribosomal protein S1-A



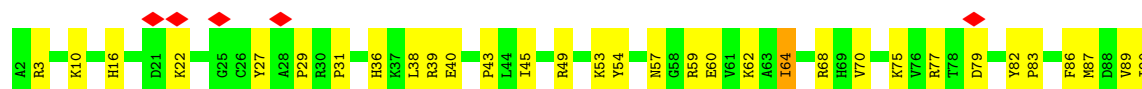
- Molecule 50: 40S ribosomal protein S2

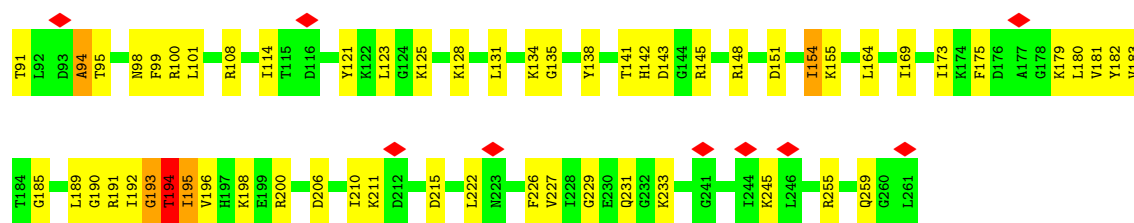


- Molecule 51: 40S ribosomal protein S3

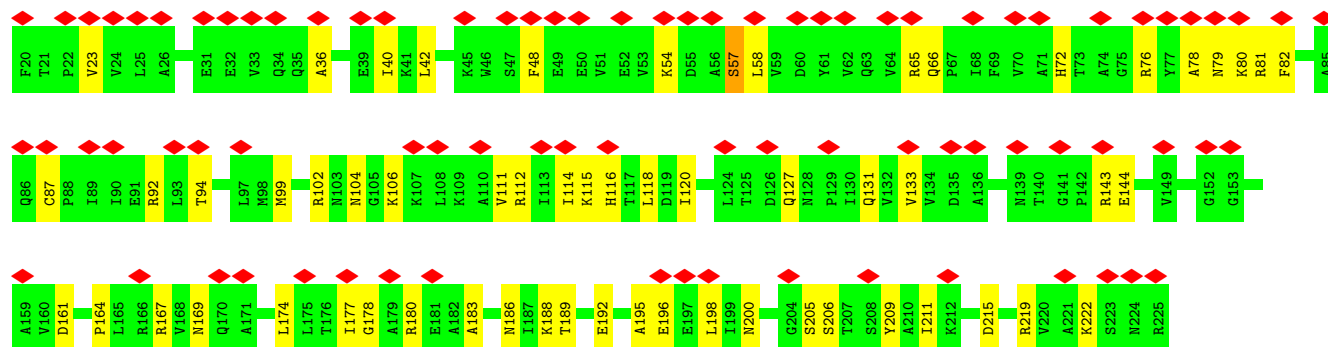
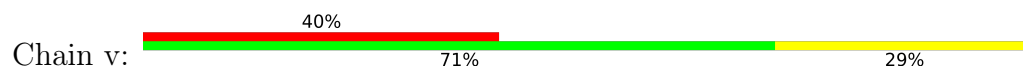


- Molecule 52: 40S ribosomal protein S4-A

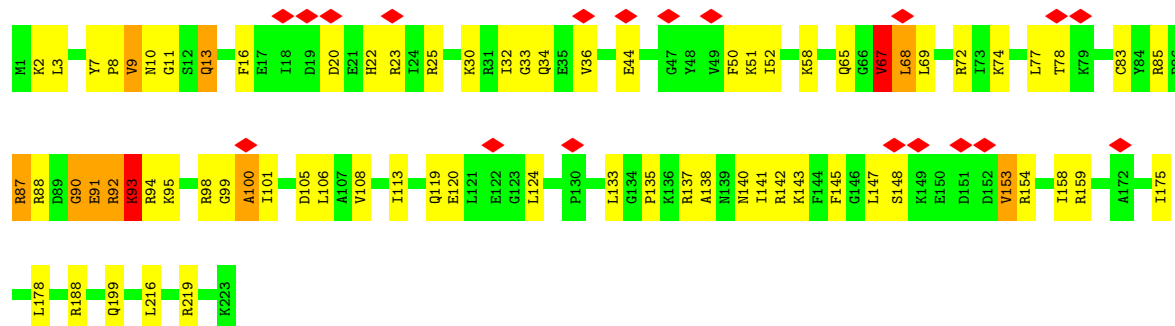




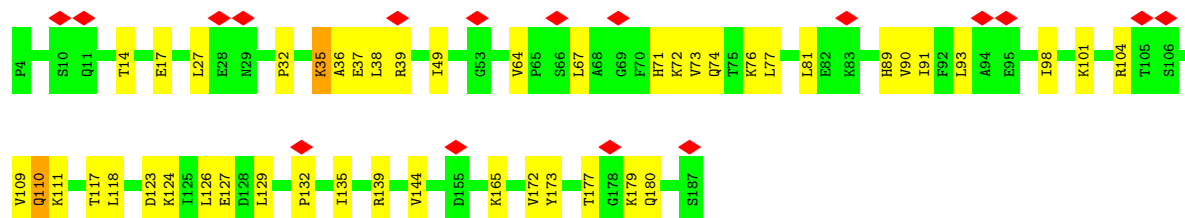
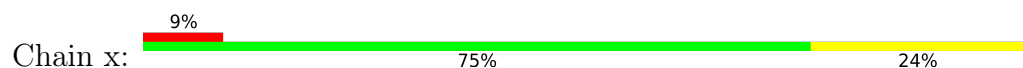
• Molecule 53: 40S ribosomal protein S5



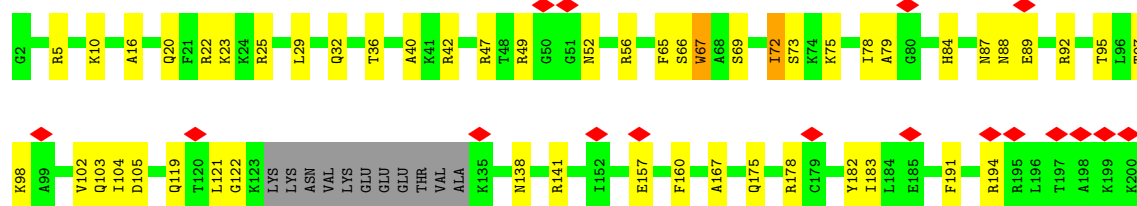
• Molecule 54: 40S ribosomal protein S6-A



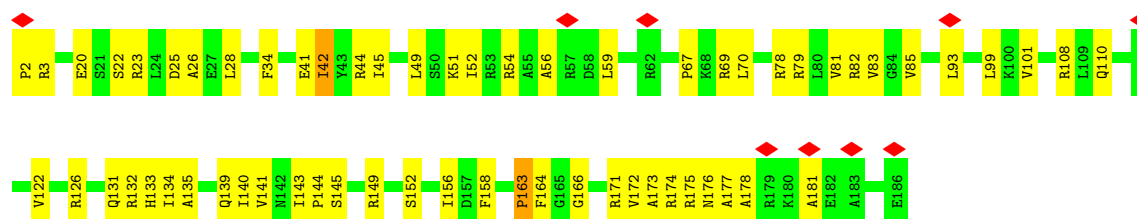
• Molecule 55: 40S ribosomal protein S7-A



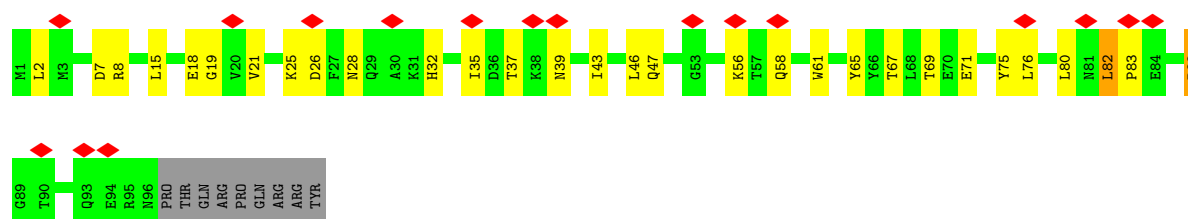
• Molecule 56: 40S ribosomal protein S8-A



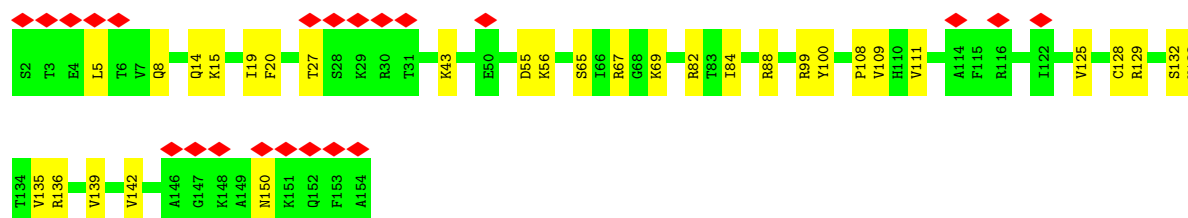
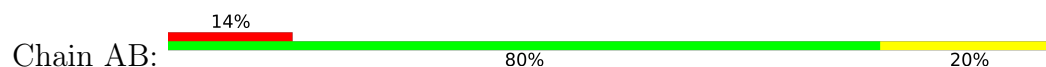
- Molecule 57: 40S ribosomal protein S9-A



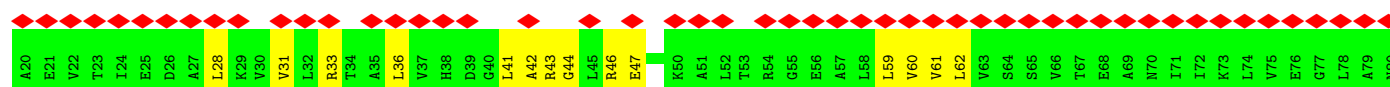
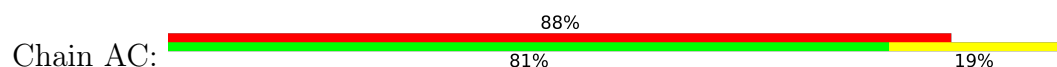
- Molecule 58: 40S ribosomal protein S10-A

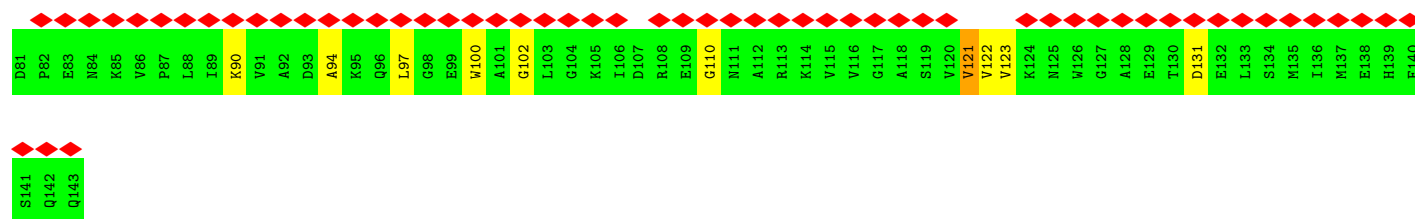


- Molecule 59: 40S ribosomal protein S11-A



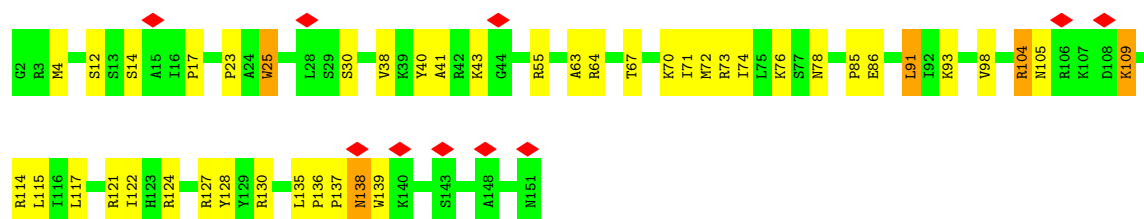
- Molecule 60: 40S ribosomal protein S12





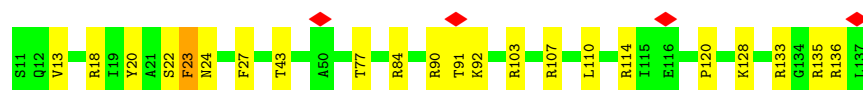
- Molecule 61: 40S ribosomal protein S13

Chain AD: 7% 71% 26%



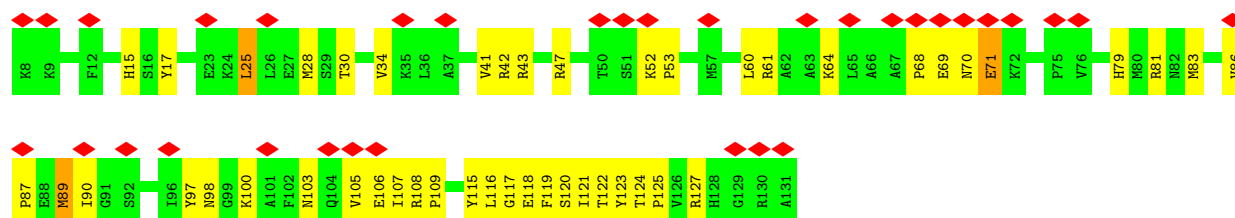
- Molecule 62: 40S ribosomal protein S14-B

Chain AE: 83% 17%



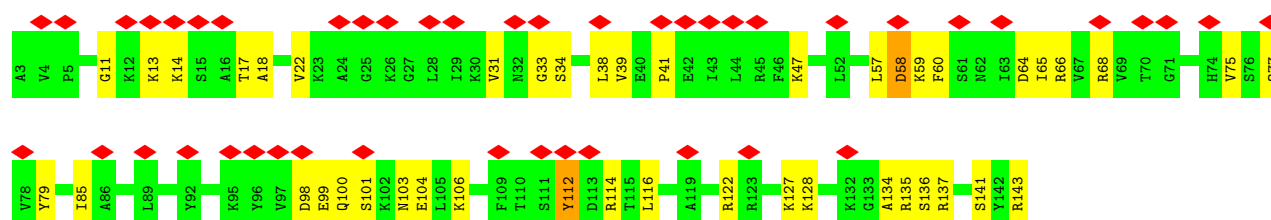
- Molecule 63: 40S ribosomal protein S15

Chain AF: 27% 62% 35%



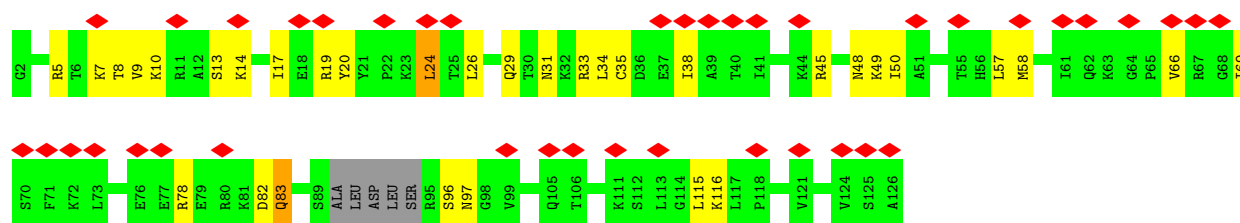
- Molecule 64: 40S ribosomal protein S16-A

Chain AG: 32% 69% 30%



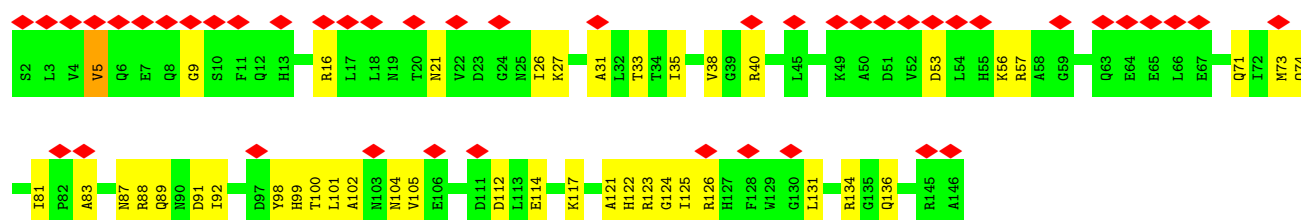
- Molecule 65: 40S ribosomal protein S17-B

Chain AH: 



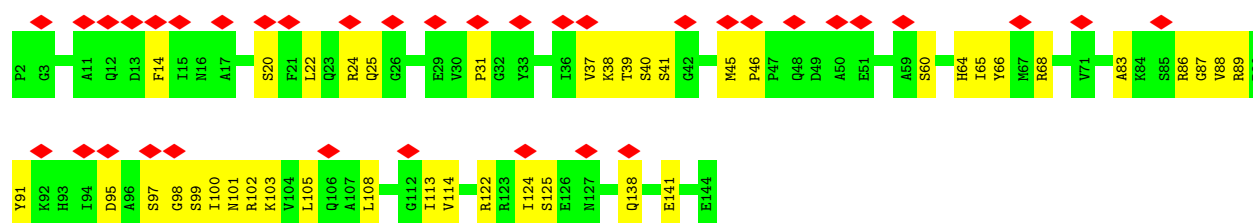
- Molecule 66: 40S ribosomal protein S18-A

Chain AI: 



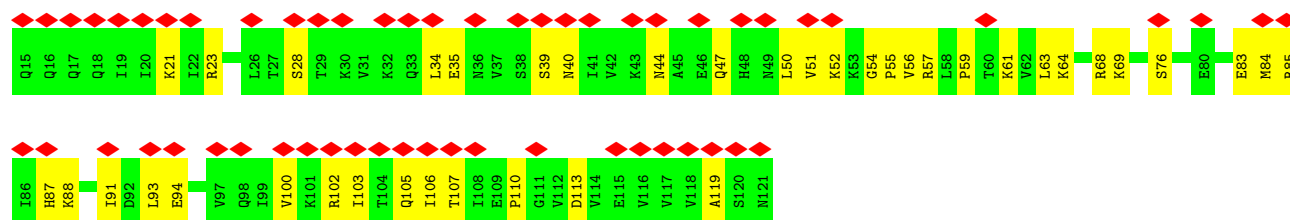
- Molecule 67: 40S ribosomal protein S19-A

Chain AJ: 



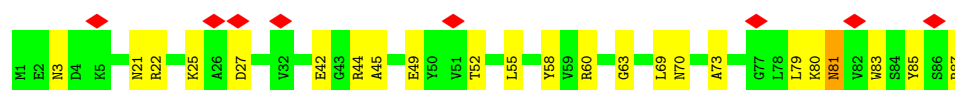
- Molecule 68: 40S ribosomal protein S20

Chain AK: 



- Molecule 69: 40S ribosomal protein S21-A

Chain AL: 



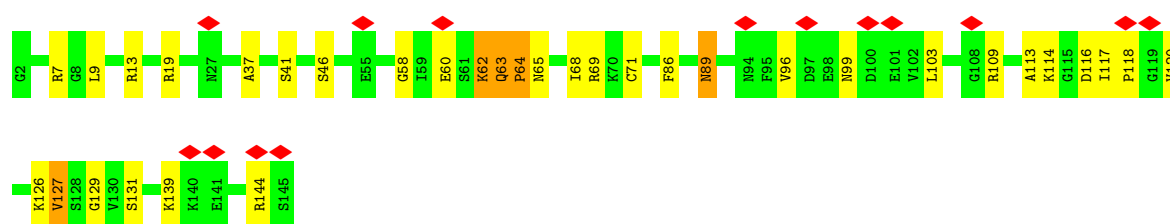
- Molecule 70: 40S ribosomal protein S22-A

Chain AM:  72% 26%



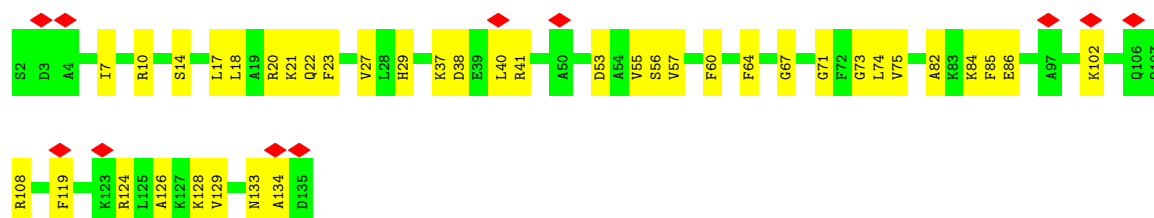
- Molecule 71: 40S ribosomal protein S23-A

Chain AN:  10% 76% 20%

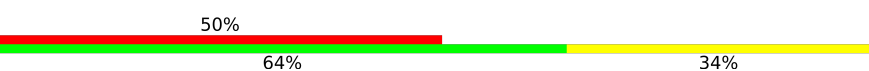


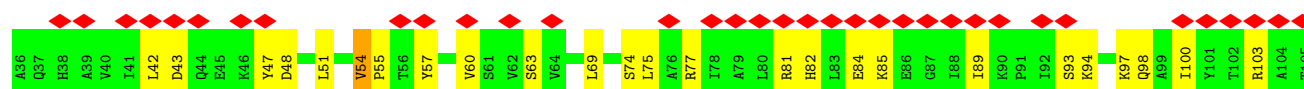
- Molecule 72: 40S ribosomal protein S24-A

Chain AO:  8% 71% 29%



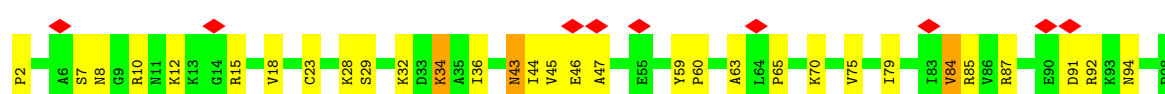
- Molecule 73: 40S ribosomal protein S25-A

Chain AP:  50% 64% 34%

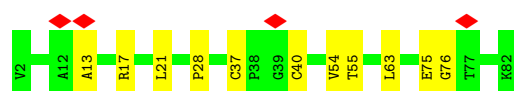
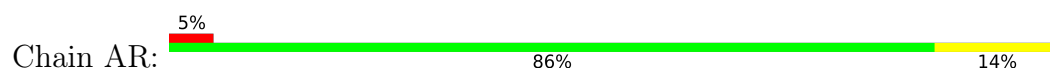


- Molecule 74: 40S ribosomal protein S26-B

Chain AQ:  9% 68% 29%



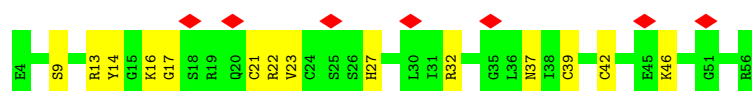
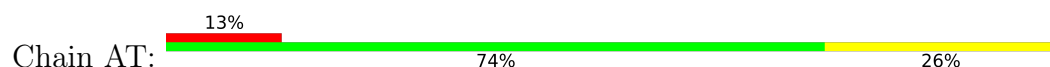
- Molecule 75: 40S ribosomal protein S27-A



- Molecule 76: 40S ribosomal protein S28-A



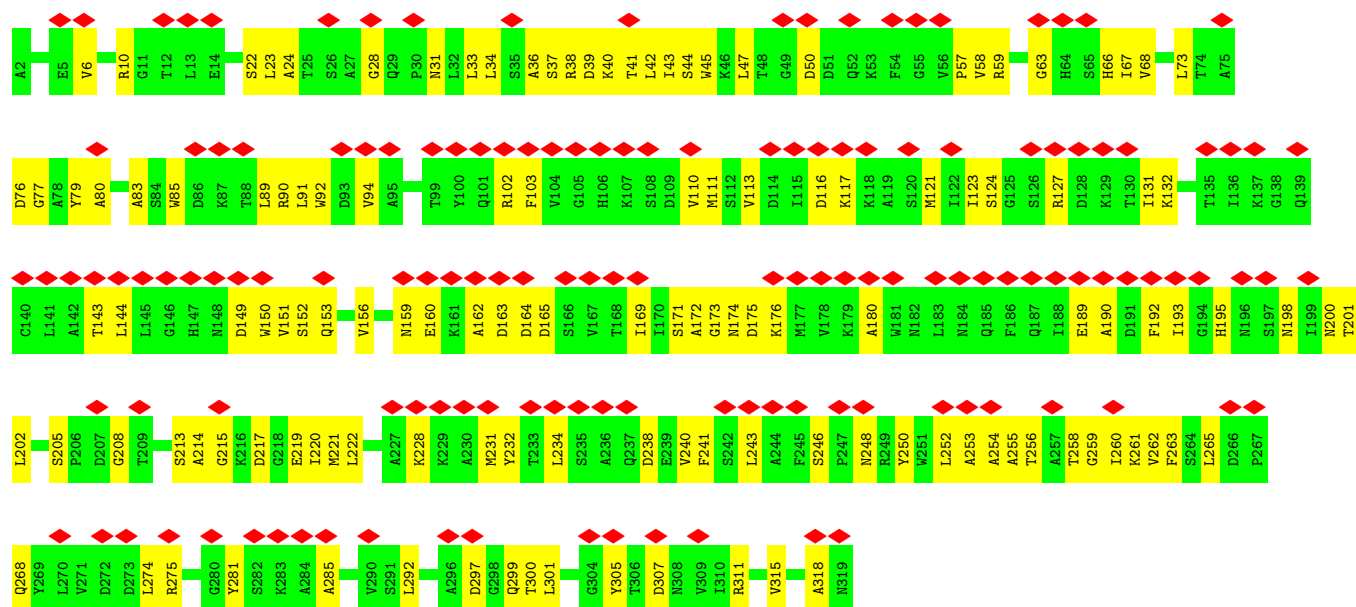
- Molecule 77: 40S ribosomal protein S29-A



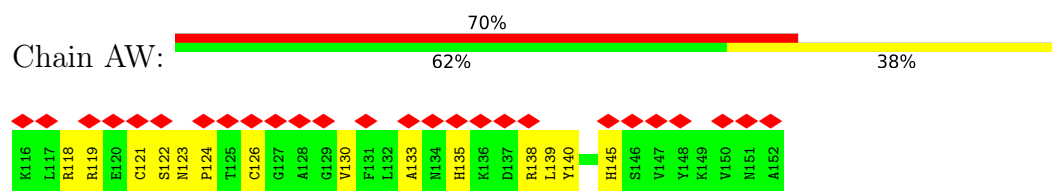
- Molecule 78: 40S ribosomal protein S30-A



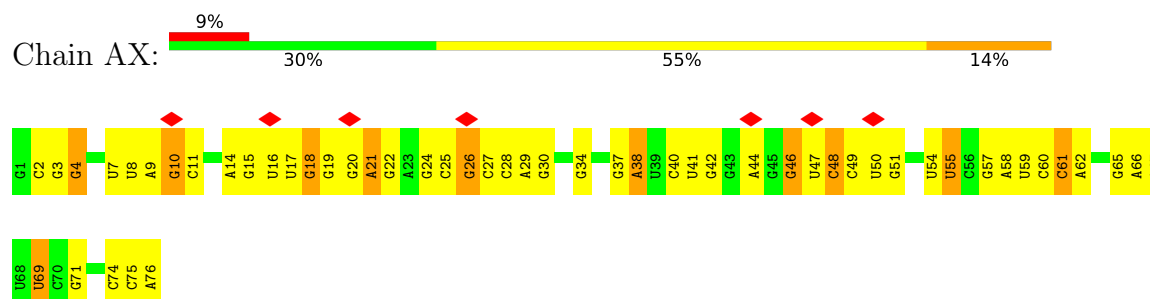
- Molecule 79: Guanine nucleotide-binding protein subunit beta-like protein



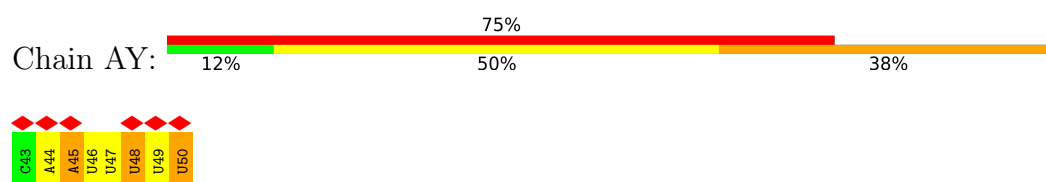
- Molecule 80: Ubiquitin-40S ribosomal protein S31



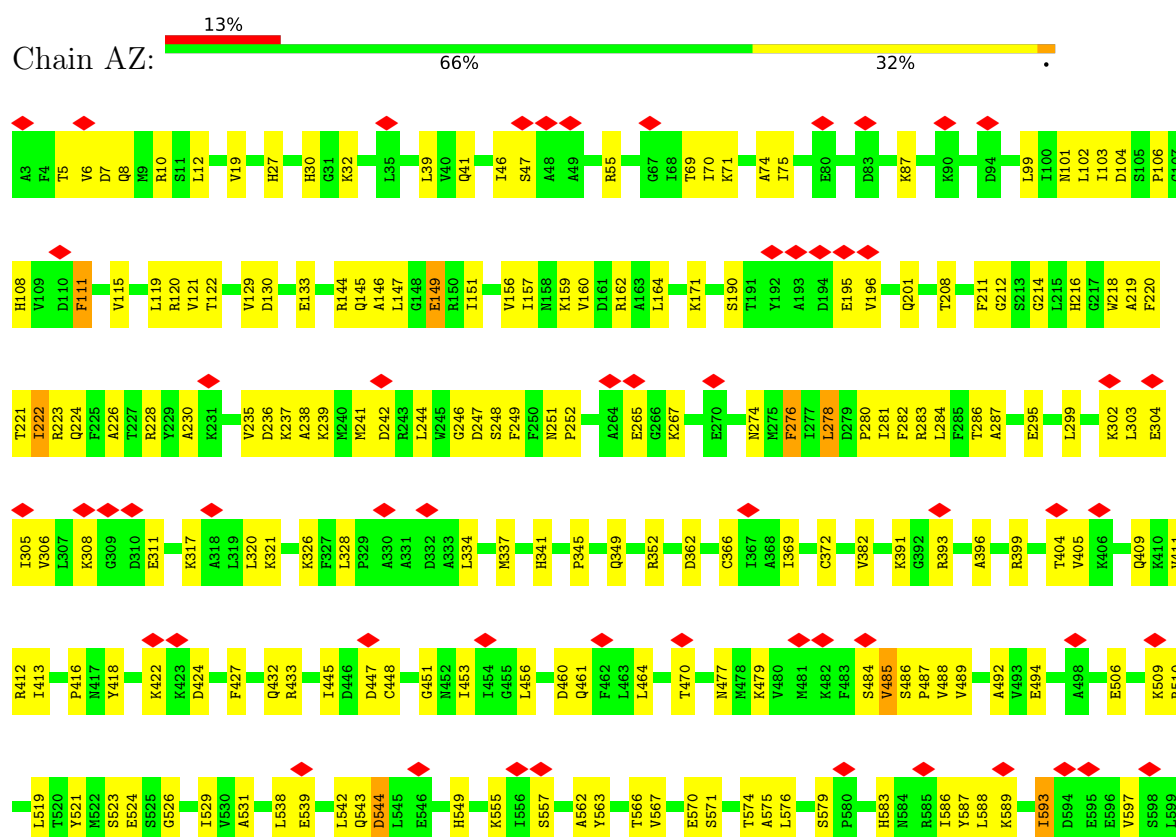
- Molecule 81: Transfer RNA - Phe

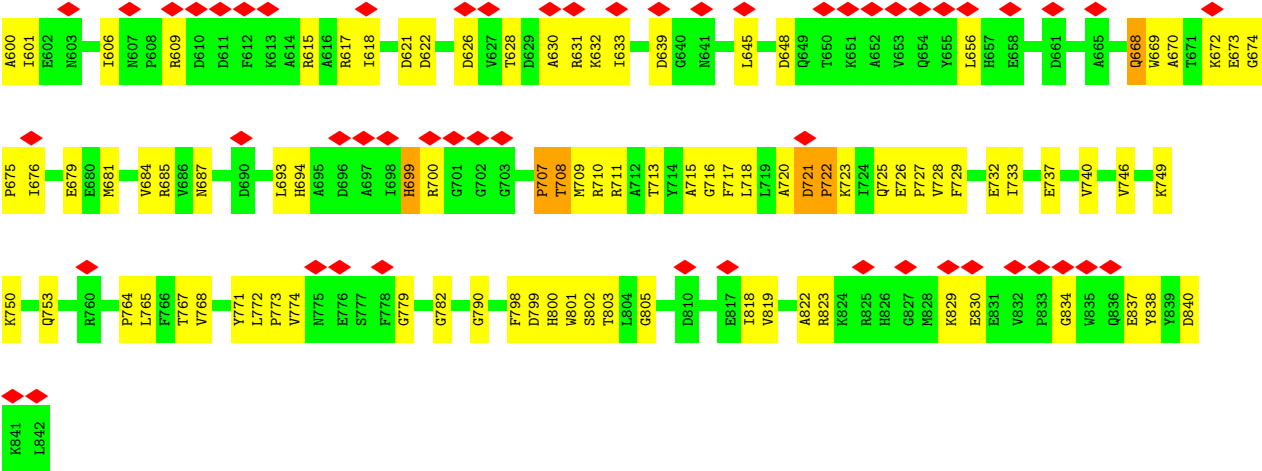


- Molecule 82: Messenger RNA



- Molecule 83: Elongation factor 2





4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	189700	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	60	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.347	Depositor
Minimum map value	-0.197	Depositor
Average map value	0.003	Depositor
Map value standard deviation	0.018	Depositor
Recommended contour level	0.05	Depositor
Map size (Å)	396.0, 396.0, 396.0	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.1, 1.1, 1.1	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: DDE, ZN, SO1, GCP

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	1	0.30	0/77157	0.47	1/120295 (0.0%)
2	3	0.26	0/2883	0.42	0/4491
3	4	0.29	0/3746	0.46	0/5832
4	P0	0.25	0/1498	0.70	1/2025 (0.0%)
5	P2	0.27	0/728	0.80	0/975
6	A	0.37	0/1948	0.72	0/2617
7	B	0.32	0/3146	0.68	0/4228
8	C	0.30	0/2800	0.67	0/3790
9	D	0.27	0/2425	0.66	0/3271
10	E	0.23	0/1260	0.59	0/1694
11	F	0.31	0/1821	0.71	0/2451
12	G	0.28	0/1836	0.72	0/2481
13	H	0.27	0/1539	0.70	0/2073
14	I	0.31	0/1741	0.70	0/2335
15	J	0.27	0/1374	0.78	0/1842
16	L	0.31	0/1568	0.79	3/2106 (0.1%)
17	M	0.26	0/1068	0.61	0/1438
18	N	0.35	0/1757	0.79	0/2354
19	O	0.33	0/1585	0.73	1/2128 (0.0%)
20	P	0.29	0/1443	0.64	0/1944
21	Q	0.28	0/1465	0.66	0/1965
22	R	0.28	0/1538	0.65	0/2050
23	S	0.29	0/1481	0.66	0/1990
24	T	0.30	0/1300	0.73	2/1743 (0.1%)
25	U	0.25	0/812	0.65	2/1099 (0.2%)
26	V	0.31	0/1018	0.72	1/1369 (0.1%)
27	W	0.31	0/533	0.70	0/707
28	X	0.27	0/979	0.65	0/1321
29	Y	0.27	0/1004	0.66	0/1341
30	Z	0.28	0/1118	0.68	3/1497 (0.2%)
31	a	0.32	0/1204	0.70	0/1612
32	b	0.24	0/473	0.67	0/629

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	c	0.27	0/751	0.62	0/1008
34	d	0.31	0/897	0.65	0/1205
35	e	0.28	0/1041	0.67	0/1394
36	f	0.34	0/868	0.81	2/1168 (0.2%)
37	g	0.32	0/890	0.77	1/1189 (0.1%)
38	h	0.29	0/978	0.71	1/1301 (0.1%)
39	i	0.28	0/778	0.74	0/1034
40	j	0.36	0/696	0.85	1/923 (0.1%)
41	k	0.24	0/618	0.66	0/826
42	l	0.45	0/443	1.02	0/588
43	m	0.28	0/423	0.64	0/562
44	n	0.26	0/228	0.71	0/293
45	o	0.29	0/860	0.72	0/1136
46	p	0.32	0/701	0.76	0/934
47	2	0.26	0/42328	0.48	3/65955 (0.0%)
48	q	0.26	0/1617	0.70	0/2215
49	r	0.30	0/1735	0.83	4/2335 (0.2%)
50	s	0.27	0/1665	0.68	0/2263
51	t	0.29	0/1759	0.74	1/2368 (0.0%)
52	u	0.29	0/2109	0.83	8/2839 (0.3%)
53	v	0.29	0/1629	0.77	2/2202 (0.1%)
54	w	0.30	0/1814	0.90	7/2425 (0.3%)
55	x	0.31	0/1506	0.80	2/2028 (0.1%)
56	y	0.29	0/1514	0.79	5/2021 (0.2%)
57	z	0.28	0/1519	0.78	3/2035 (0.1%)
58	AA	0.31	0/789	0.78	1/1067 (0.1%)
59	AB	0.27	0/1247	0.72	1/1681 (0.1%)
60	AC	0.26	0/898	0.73	0/1220
61	AD	0.29	0/1215	0.80	2/1638 (0.1%)
62	AE	0.28	0/901	0.73	2/1217 (0.2%)
63	AF	0.34	0/998	0.91	4/1341 (0.3%)
64	AG	0.28	0/1125	0.81	0/1510
65	AH	0.27	0/935	0.72	1/1254 (0.1%)
66	AI	0.25	0/1211	0.70	0/1628
67	AJ	0.26	0/1130	0.70	0/1517
68	AK	0.28	0/865	0.70	0/1169
69	AL	0.34	0/693	0.87	2/935 (0.2%)
70	AM	0.33	0/1038	0.73	1/1395 (0.1%)
71	AN	0.33	0/1139	0.82	0/1518
72	AO	0.25	0/1087	0.67	0/1449
73	AP	0.31	0/571	0.76	0/768
74	AQ	0.34	0/782	0.98	4/1047 (0.4%)
75	AR	0.31	0/620	0.86	0/838

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
76	AS	0.25	0/499	0.70	0/670
77	AT	0.22	0/452	0.67	0/600
78	AU	0.24	0/483	0.65	0/643
79	AV	0.26	0/2490	0.70	4/3389 (0.1%)
80	AW	0.23	0/292	0.76	3/390 (0.8%)
81	AX	0.22	0/1818	0.48	0/2831
82	AY	0.32	0/181	0.64	0/278
83	AZ	0.31	0/6655	0.82	10/9009 (0.1%)
All	All	0.29	0/225729	0.59	89/330942 (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
4	P0	0	2
5	P2	0	1
6	A	0	1
7	B	0	1
9	D	0	5
10	E	0	1
11	F	0	3
12	G	0	3
13	H	0	2
14	I	0	2
15	J	0	1
16	L	0	1
19	O	0	2
21	Q	0	1
24	T	0	2
26	V	0	2
27	W	0	1
31	a	0	1
34	d	0	2
35	e	0	2
36	f	0	1
37	g	0	3
38	h	0	1
39	i	0	3
40	j	0	1
42	l	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
45	o	0	3
48	q	0	4
49	r	0	4
51	t	0	1
52	u	0	5
53	v	0	2
54	w	0	11
55	x	0	2
56	y	0	1
57	z	0	2
59	AB	0	1
60	AC	0	1
61	AD	0	3
63	AF	0	2
64	AG	0	3
65	AH	0	2
66	AI	0	1
69	AL	0	2
71	AN	0	1
72	AO	0	1
73	AP	0	1
74	AQ	0	7
75	AR	0	2
79	AV	0	1
83	AZ	0	14
All	All	0	123

There are no bond length outliers.

The worst 5 of 89 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	z	164	PHE	N-CA-C	-8.78	100.04	111.02
63	AF	71	GLU	CA-C-N	8.65	132.41	120.39
63	AF	71	GLU	C-N-CA	8.65	132.41	120.39
63	AF	69	GLU	CA-C-N	7.75	136.35	121.54
63	AF	69	GLU	C-N-CA	7.75	136.35	121.54

There are no chirality outliers.

5 of 123 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	A	143	GLU	Peptide
7	B	25	ILE	Peptide
4	P0	39	HIS	Peptide
4	P0	41	VAL	Peptide
5	P2	117	ARG	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	1	68931	0	34637	848	0
2	3	2579	0	1304	32	0
3	4	3353	0	1695	32	0
4	P0	1473	0	1514	39	0
5	P2	723	0	774	31	0
6	A	1914	0	1981	47	0
7	B	3075	0	3142	57	0
8	C	2748	0	2859	57	0
9	D	2375	0	2325	34	0
10	E	1239	0	1326	24	0
11	F	1784	0	1862	38	0
12	G	1804	0	1877	26	0
13	H	1518	0	1587	28	0
14	I	1705	0	1736	30	0
15	J	1353	0	1383	29	0
16	L	1543	0	1608	41	0
17	M	1053	0	1149	25	0
18	N	1720	0	1779	51	0
19	O	1555	0	1659	30	0
20	P	1420	0	1437	17	0
21	Q	1441	0	1543	26	0
22	R	1521	0	1617	28	0
23	S	1445	0	1487	44	0
24	T	1276	0	1323	23	0
25	U	796	0	812	9	0
26	V	1003	0	1048	20	0
27	W	521	0	551	6	0
28	X	964	0	1025	19	0
29	Y	993	0	1081	25	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
30	Z	1092	0	1155	20	0
31	a	1173	0	1215	31	0
32	b	462	0	491	8	0
33	c	743	0	797	13	0
34	d	883	0	918	19	0
35	e	1020	0	1090	11	0
36	f	850	0	880	24	0
37	g	880	0	941	20	0
38	h	969	0	1078	19	0
39	i	771	0	849	19	0
40	j	681	0	683	9	0
41	k	612	0	682	7	0
42	l	436	0	475	14	0
43	m	417	0	458	6	0
44	n	227	0	273	9	0
45	o	847	0	915	15	0
46	p	694	0	734	20	0
47	2	37845	0	19040	632	0
48	q	1577	0	1567	24	0
49	r	1709	0	1784	31	0
50	s	1635	0	1723	29	0
51	t	1734	0	1817	47	0
52	u	2068	0	2154	60	0
53	v	1609	0	1675	49	0
54	w	1790	0	1881	48	0
55	x	1481	0	1572	31	0
56	y	1489	0	1525	37	0
57	z	1494	0	1573	40	0
58	AA	772	0	727	20	0
59	AB	1220	0	1281	21	0
60	AC	890	0	887	14	0
61	AD	1192	0	1255	30	0
62	AE	891	0	883	15	0
63	AF	977	0	1002	42	0
64	AG	1105	0	1166	29	0
65	AH	926	0	930	23	0
66	AI	1192	0	1222	34	0
67	AJ	1112	0	1124	32	0
68	AK	855	0	917	27	0
69	AL	684	0	672	17	0
70	AM	1021	0	1060	26	0
71	AN	1121	0	1196	32	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
72	AO	1073	0	1132	26	0
73	AP	563	0	603	17	0
74	AQ	769	0	816	23	0
75	AR	610	0	632	5	0
76	AS	497	0	535	19	0
77	AT	442	0	431	18	0
78	AU	475	0	525	4	0
79	AV	2437	0	2386	77	0
80	AW	287	0	287	8	0
81	AX	1626	0	820	24	0
82	AY	164	0	84	10	0
83	AZ	6551	0	6613	194	0
84	AQ	1	0	0	0	0
84	AR	1	0	0	0	0
84	AT	1	0	0	0	0
84	AW	1	0	0	0	0
84	j	1	0	0	0	0
84	m	1	0	0	0	0
84	o	1	0	0	0	0
84	p	1	0	0	0	0
85	AZ	35	0	41	13	0
86	AZ	32	0	14	5	0
All	All	210540	0	157307	3106	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 9.

The worst 5 of 3106 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:2:40:A:H62	47:2:467:G:N2	1.55	1.03
47:2:214:G:N2	47:2:251:A:H62	1.55	1.03
1:1:1636:U:H5'	1:1:1636:U:H6	1.24	1.02
1:1:1636:U:H5'	1:1:1636:U:C6	1.94	1.02
47:2:214:G:H21	47:2:251:A:N6	1.59	0.99

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
4	P0	187/189 (99%)	151 (81%)	36 (19%)	0	100	100
5	P2	92/94 (98%)	71 (77%)	21 (23%)	0	100	100
6	A	250/252 (99%)	212 (85%)	38 (15%)	0	100	100
7	B	384/386 (100%)	337 (88%)	47 (12%)	0	100	100
8	C	359/361 (99%)	307 (86%)	52 (14%)	0	100	100
9	D	294/296 (99%)	257 (87%)	35 (12%)	2 (1%)	19	56
10	E	152/175 (87%)	135 (89%)	17 (11%)	0	100	100
11	F	220/222 (99%)	184 (84%)	34 (16%)	2 (1%)	14	50
12	G	231/233 (99%)	199 (86%)	31 (13%)	1 (0%)	30	67
13	H	189/191 (99%)	159 (84%)	30 (16%)	0	100	100
14	I	207/220 (94%)	182 (88%)	24 (12%)	1 (0%)	25	63
15	J	167/169 (99%)	135 (81%)	31 (19%)	1 (1%)	22	59
16	L	191/193 (99%)	155 (81%)	34 (18%)	2 (1%)	13	48
17	M	134/136 (98%)	119 (89%)	15 (11%)	0	100	100
18	N	201/203 (99%)	171 (85%)	30 (15%)	0	100	100
19	O	195/197 (99%)	170 (87%)	22 (11%)	3 (2%)	8	39
20	P	181/183 (99%)	161 (89%)	20 (11%)	0	100	100
21	Q	183/185 (99%)	162 (88%)	21 (12%)	0	100	100
22	R	186/188 (99%)	173 (93%)	13 (7%)	0	100	100
23	S	170/172 (99%)	147 (86%)	23 (14%)	0	100	100
24	T	157/159 (99%)	137 (87%)	19 (12%)	1 (1%)	22	59
25	U	98/100 (98%)	85 (87%)	13 (13%)	0	100	100
26	V	134/136 (98%)	114 (85%)	19 (14%)	1 (1%)	19	56
27	W	61/63 (97%)	55 (90%)	6 (10%)	0	100	100
28	X	119/121 (98%)	103 (87%)	16 (13%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
29	Y	124/126 (98%)	112 (90%)	12 (10%)	0	100	100
30	Z	133/135 (98%)	111 (84%)	22 (16%)	0	100	100
31	a	146/148 (99%)	117 (80%)	28 (19%)	1 (1%)	19	56
32	b	56/58 (97%)	48 (86%)	8 (14%)	0	100	100
33	c	95/97 (98%)	84 (88%)	11 (12%)	0	100	100
34	d	107/109 (98%)	91 (85%)	16 (15%)	0	100	100
35	e	125/127 (98%)	111 (89%)	12 (10%)	2 (2%)	8	37
36	f	104/106 (98%)	82 (79%)	20 (19%)	2 (2%)	6	33
37	g	110/112 (98%)	99 (90%)	9 (8%)	2 (2%)	7	34
38	h	117/119 (98%)	103 (88%)	14 (12%)	0	100	100
39	i	97/99 (98%)	78 (80%)	19 (20%)	0	100	100
40	j	85/87 (98%)	65 (76%)	19 (22%)	1 (1%)	11	43
41	k	75/77 (97%)	67 (89%)	8 (11%)	0	100	100
42	l	48/50 (96%)	36 (75%)	11 (23%)	1 (2%)	5	30
43	m	50/52 (96%)	45 (90%)	5 (10%)	0	100	100
44	n	23/25 (92%)	23 (100%)	0	0	100	100
45	o	103/105 (98%)	78 (76%)	25 (24%)	0	100	100
46	p	89/91 (98%)	78 (88%)	11 (12%)	0	100	100
48	q	204/206 (99%)	169 (83%)	33 (16%)	2 (1%)	13	48
49	r	212/214 (99%)	161 (76%)	49 (23%)	2 (1%)	14	50
50	s	215/217 (99%)	183 (85%)	32 (15%)	0	100	100
51	t	221/223 (99%)	182 (82%)	39 (18%)	0	100	100
52	u	258/260 (99%)	200 (78%)	56 (22%)	2 (1%)	16	53
53	v	204/206 (99%)	164 (80%)	40 (20%)	0	100	100
54	w	221/223 (99%)	157 (71%)	61 (28%)	3 (1%)	9	40
55	x	182/184 (99%)	150 (82%)	31 (17%)	1 (0%)	25	63
56	y	184/199 (92%)	141 (77%)	43 (23%)	0	100	100
57	z	183/185 (99%)	153 (84%)	30 (16%)	0	100	100
58	AA	94/105 (90%)	77 (82%)	16 (17%)	1 (1%)	12	46
59	AB	151/153 (99%)	125 (83%)	26 (17%)	0	100	100
60	AC	122/124 (98%)	98 (80%)	23 (19%)	1 (1%)	16	53

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
61	AD	148/150 (99%)	129 (87%)	15 (10%)	4 (3%)	4	26
62	AE	125/127 (98%)	105 (84%)	20 (16%)	0	100	100
63	AF	122/124 (98%)	85 (70%)	33 (27%)	4 (3%)	3	21
64	AG	139/141 (99%)	111 (80%)	26 (19%)	2 (1%)	9	40
65	AH	116/125 (93%)	97 (84%)	19 (16%)	0	100	100
66	AI	143/145 (99%)	122 (85%)	19 (13%)	2 (1%)	9	40
67	AJ	141/143 (99%)	124 (88%)	17 (12%)	0	100	100
68	AK	105/107 (98%)	91 (87%)	14 (13%)	0	100	100
69	AL	85/87 (98%)	64 (75%)	20 (24%)	1 (1%)	11	43
70	AM	127/129 (98%)	114 (90%)	12 (9%)	1 (1%)	16	53
71	AN	142/144 (99%)	114 (80%)	26 (18%)	2 (1%)	9	40
72	AO	132/134 (98%)	112 (85%)	20 (15%)	0	100	100
73	AP	68/70 (97%)	46 (68%)	21 (31%)	1 (2%)	8	39
74	AQ	95/97 (98%)	65 (68%)	30 (32%)	0	100	100
75	AR	79/81 (98%)	57 (72%)	21 (27%)	1 (1%)	10	42
76	AS	61/63 (97%)	54 (88%)	7 (12%)	0	100	100
77	AT	51/53 (96%)	46 (90%)	5 (10%)	0	100	100
78	AU	58/60 (97%)	49 (84%)	9 (16%)	0	100	100
79	AV	316/318 (99%)	254 (80%)	61 (19%)	1 (0%)	37	72
80	AW	35/37 (95%)	26 (74%)	9 (26%)	0	100	100
83	AZ	837/840 (100%)	676 (81%)	157 (19%)	4 (0%)	25	63
All	All	12005/12221 (98%)	10010 (83%)	1937 (16%)	58 (0%)	27	63

5 of 58 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
19	O	111	PRO
48	q	113	ARG
49	r	207	LEU
54	w	10	ASN
54	w	68	LEU

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	P0	160/160 (100%)	160 (100%)	0	100	100
5	P2	81/81 (100%)	80 (99%)	1 (1%)	67	79
6	A	193/194 (100%)	192 (100%)	1 (0%)	86	90
7	B	321/322 (100%)	316 (98%)	5 (2%)	58	74
8	C	288/288 (100%)	285 (99%)	3 (1%)	73	81
9	D	244/244 (100%)	243 (100%)	1 (0%)	89	91
10	E	134/152 (88%)	134 (100%)	0	100	100
11	F	186/186 (100%)	183 (98%)	3 (2%)	58	74
12	G	187/191 (98%)	186 (100%)	1 (0%)	86	90
13	H	171/171 (100%)	170 (99%)	1 (1%)	84	88
14	I	177/186 (95%)	175 (99%)	2 (1%)	70	80
15	J	147/147 (100%)	147 (100%)	0	100	100
16	L	154/154 (100%)	154 (100%)	0	100	100
17	M	107/107 (100%)	104 (97%)	3 (3%)	38	59
18	N	175/175 (100%)	170 (97%)	5 (3%)	37	58
19	O	160/160 (100%)	154 (96%)	6 (4%)	28	50
20	P	140/145 (97%)	137 (98%)	3 (2%)	48	67
21	Q	150/150 (100%)	149 (99%)	1 (1%)	81	87
22	R	153/153 (100%)	150 (98%)	3 (2%)	50	69
23	S	156/156 (100%)	155 (99%)	1 (1%)	84	88
24	T	136/136 (100%)	133 (98%)	3 (2%)	47	66
25	U	87/87 (100%)	87 (100%)	0	100	100
26	V	104/104 (100%)	103 (99%)	1 (1%)	73	81
27	W	55/55 (100%)	52 (94%)	3 (6%)	18	40
28	X	104/105 (99%)	103 (99%)	1 (1%)	73	81
29	Y	109/109 (100%)	109 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
30	Z	115/115 (100%)	115 (100%)	0	100	100
31	a	118/118 (100%)	118 (100%)	0	100	100
32	b	46/46 (100%)	45 (98%)	1 (2%)	47	66
33	c	81/81 (100%)	78 (96%)	3 (4%)	29	51
34	d	94/96 (98%)	94 (100%)	0	100	100
35	e	109/109 (100%)	108 (99%)	1 (1%)	75	83
36	f	90/90 (100%)	89 (99%)	1 (1%)	70	80
37	g	95/95 (100%)	95 (100%)	0	100	100
38	h	104/104 (100%)	102 (98%)	2 (2%)	52	70
39	i	81/81 (100%)	81 (100%)	0	100	100
40	j	70/70 (100%)	70 (100%)	0	100	100
41	k	68/68 (100%)	67 (98%)	1 (2%)	60	75
42	l	45/45 (100%)	44 (98%)	1 (2%)	47	66
43	m	47/47 (100%)	46 (98%)	1 (2%)	48	67
44	n	22/23 (96%)	22 (100%)	0	100	100
45	o	90/90 (100%)	90 (100%)	0	100	100
46	p	71/71 (100%)	70 (99%)	1 (1%)	62	76
48	q	164/173 (95%)	163 (99%)	1 (1%)	84	88
49	r	191/191 (100%)	188 (98%)	3 (2%)	58	74
50	s	176/176 (100%)	174 (99%)	2 (1%)	70	80
51	t	182/182 (100%)	181 (100%)	1 (0%)	86	90
52	u	221/221 (100%)	219 (99%)	2 (1%)	75	83
53	v	173/173 (100%)	173 (100%)	0	100	100
54	w	189/191 (99%)	188 (100%)	1 (0%)	86	90
55	x	165/165 (100%)	164 (99%)	1 (1%)	84	88
56	y	150/160 (94%)	148 (99%)	2 (1%)	65	77
57	z	158/158 (100%)	157 (99%)	1 (1%)	84	88
58	AA	77/98 (79%)	76 (99%)	1 (1%)	65	77
59	AB	133/134 (99%)	131 (98%)	2 (2%)	60	75
60	AC	88/100 (88%)	85 (97%)	3 (3%)	32	53
61	AD	127/127 (100%)	124 (98%)	3 (2%)	44	63

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
62	AE	81/96 (84%)	79 (98%)	2 (2%)	42	62
63	AF	101/104 (97%)	100 (99%)	1 (1%)	73	81
64	AG	117/117 (100%)	116 (99%)	1 (1%)	75	83
65	AH	94/113 (83%)	94 (100%)	0	100	100
66	AI	128/128 (100%)	127 (99%)	1 (1%)	79	85
67	AJ	115/115 (100%)	115 (100%)	0	100	100
68	AK	100/100 (100%)	99 (99%)	1 (1%)	73	81
69	AL	74/74 (100%)	74 (100%)	0	100	100
70	AM	110/110 (100%)	107 (97%)	3 (3%)	40	60
71	AN	119/119 (100%)	114 (96%)	5 (4%)	25	47
72	AO	112/112 (100%)	111 (99%)	1 (1%)	75	83
73	AP	61/61 (100%)	60 (98%)	1 (2%)	58	74
74	AQ	83/83 (100%)	81 (98%)	2 (2%)	44	63
75	AR	70/70 (100%)	69 (99%)	1 (1%)	62	76
76	AS	56/56 (100%)	56 (100%)	0	100	100
77	AT	47/47 (100%)	47 (100%)	0	100	100
78	AU	51/51 (100%)	51 (100%)	0	100	100
79	AV	259/261 (99%)	258 (100%)	1 (0%)	89	91
80	AW	31/31 (100%)	30 (97%)	1 (3%)	34	55
83	AZ	711/712 (100%)	702 (99%)	9 (1%)	65	77
All	All	10139/10276 (99%)	10026 (99%)	113 (1%)	69	80

5 of 113 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
42	l	42	ARG
83	AZ	593	ILE
56	y	72	ILE
83	AZ	529	ILE
74	AQ	36	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 167 such sidechains are listed below:

Mol	Chain	Res	Type
57	z	139	GLN
72	AO	113	ASN
59	AB	8	GLN
66	AI	44	ASN
79	AV	184	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	3220/3396 (94%)	1049 (32%)	18 (0%)
2	3	120/121 (99%)	31 (25%)	0
3	4	157/158 (99%)	50 (31%)	2 (1%)
47	2	1774/1797 (98%)	665 (37%)	23 (1%)
81	AX	75/76 (98%)	33 (44%)	1 (1%)
82	AY	7/8 (87%)	5 (71%)	0
All	All	5353/5556 (96%)	1833 (34%)	44 (0%)

5 of 1833 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	11	A
1	1	15	C
1	1	16	A
1	1	18	G
1	1	19	U

5 of 44 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
47	2	865	A
47	2	1338	C
47	2	941	A
47	2	1273	G
47	2	1491	U

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

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

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The

Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
83	DDE	AZ	699	83	14,20,21	1.97	3 (21%)	14,28,30	2.18	5 (35%)

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
83	DDE	AZ	699	83	-	7/20/21/23	0/1/1/1

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
83	AZ	699	DDE	CBI-NAD	5.69	1.47	1.32
83	AZ	699	DDE	CAT-CE1	3.25	1.54	1.50
83	AZ	699	DDE	OAG-CBI	-2.11	1.19	1.23

All (5) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
83	AZ	699	DDE	CBW-CBI-NAD	5.22	121.94	115.28
83	AZ	699	DDE	CAC-NCB-CAB	3.55	117.80	108.10
83	AZ	699	DDE	OAG-CBI-NAD	-2.80	118.14	123.00
83	AZ	699	DDE	CAU-CBW-CBI	-2.27	106.70	111.20
83	AZ	699	DDE	CG-ND1-CE1	2.01	108.99	103.05

There are no chirality outliers.

5 of 7 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
83	AZ	699	DDE	N-CA-CB-CG
83	AZ	699	DDE	C-CA-CB-CG
83	AZ	699	DDE	CAT-CAU-CBW-CBI
83	AZ	699	DDE	CAT-CAU-CBW-NCB
83	AZ	699	DDE	CE1-CAT-CAU-CBW

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
83	AZ	699	DDE	1	0

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 8 are monoatomic - leaving 2 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z > 2$	Counts	RMSZ	# $ Z > 2$
85	SO1	AZ	901	-	35,39,39	0.20	0	39,64,64	0.85	2 (5%)
86	GCP	AZ	902	-	27,34,34	1.18	4 (14%)	34,54,54	2.22	10 (29%)

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
85	SO1	AZ	901	-	-	9/21/104/104	0/7/5/5
86	GCP	AZ	902	-	-	6/15/38/38	0/3/3/3

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
86	AZ	902	GCP	C6-N1	3.06	1.38	1.33
86	AZ	902	GCP	PB-O2B	-2.73	1.50	1.56
86	AZ	902	GCP	PG-O1G	2.17	1.54	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
86	AZ	902	GCP	PG-O3G	-2.15	1.50	1.54

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
86	AZ	902	GCP	C5-C6-N1	-8.16	112.27	123.43
86	AZ	902	GCP	C2-N1-C6	5.76	125.08	115.93
85	AZ	901	SO1	C18-C9-C16	-4.13	97.73	103.64
86	AZ	902	GCP	O2B-PB-C3B	3.94	122.68	106.58
86	AZ	902	GCP	N3-C2-N1	-2.94	123.30	127.22

There are no chirality outliers.

5 of 15 torsion outliers are listed below:

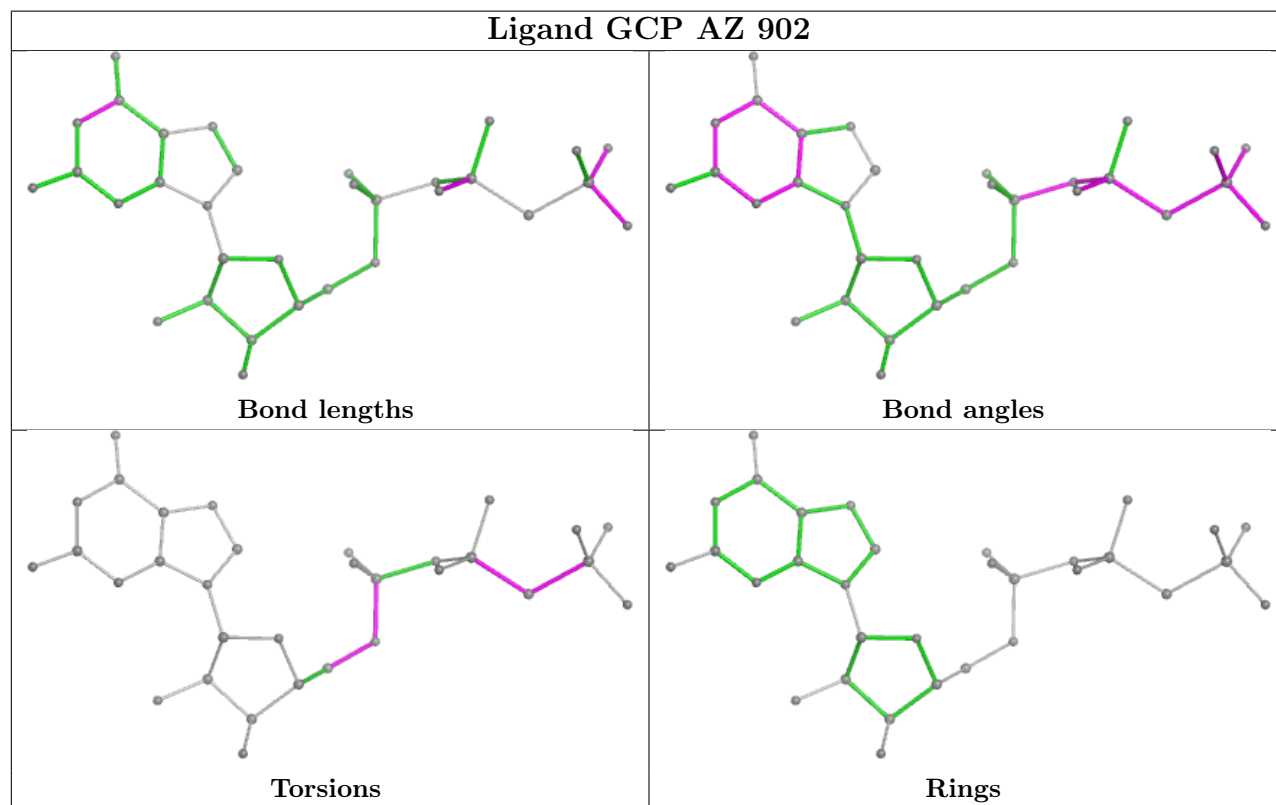
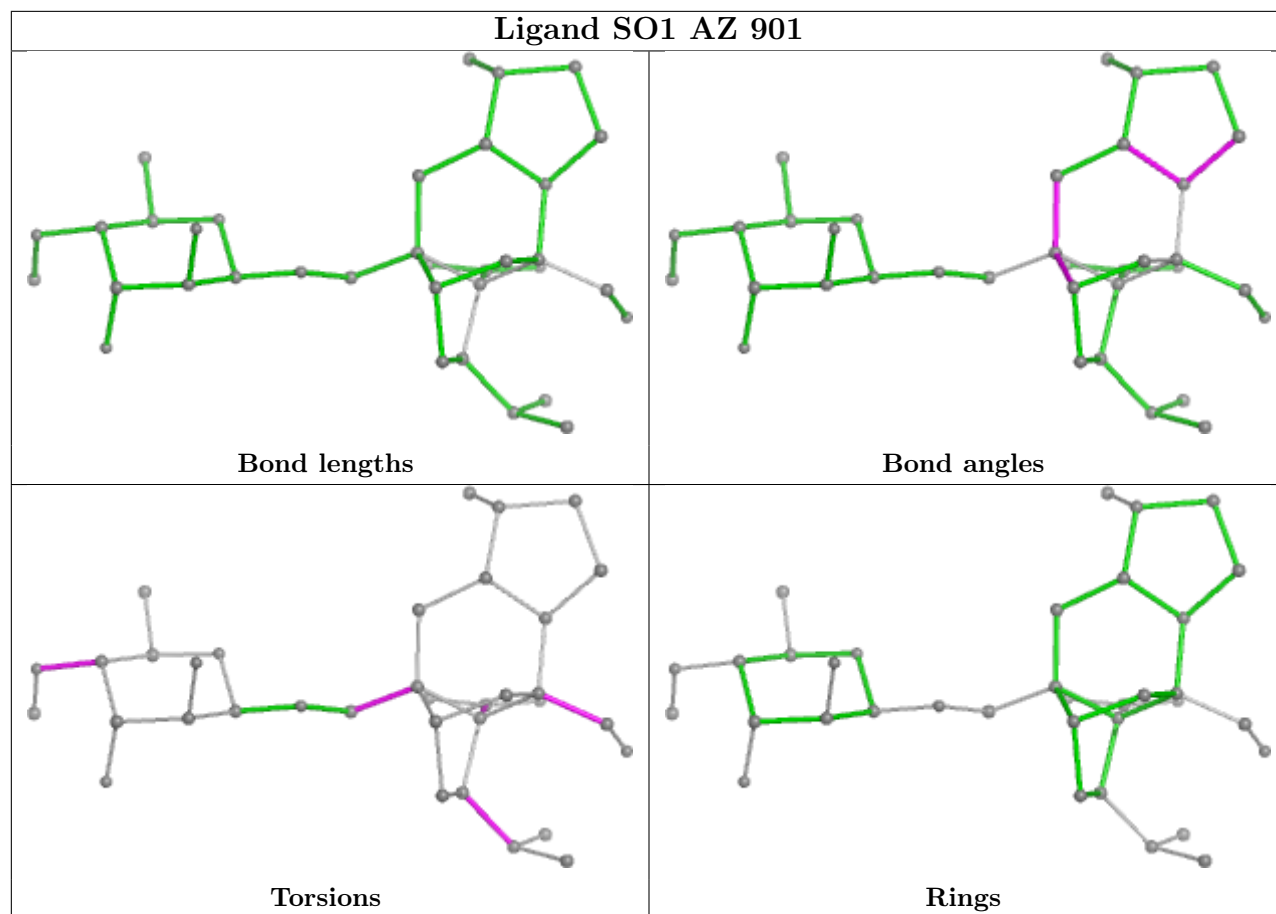
Mol	Chain	Res	Type	Atoms
86	AZ	902	GCP	PG-C3B-PB-O1B
86	AZ	902	GCP	PG-C3B-PB-O3A
85	AZ	901	SO1	C56-C55-O64-C65
85	AZ	901	SO1	C2-C1-C5-O14
85	AZ	901	SO1	C2-C1-C5-O15

There are no ring outliers.

2 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
85	AZ	901	SO1	13	0
86	AZ	902	GCP	5	0

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



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

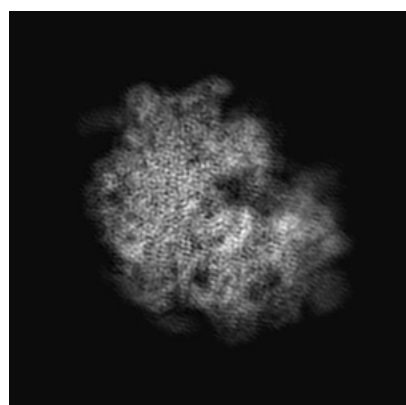
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-0047. These allow visual inspection of the internal detail of the map and identification of artifacts.

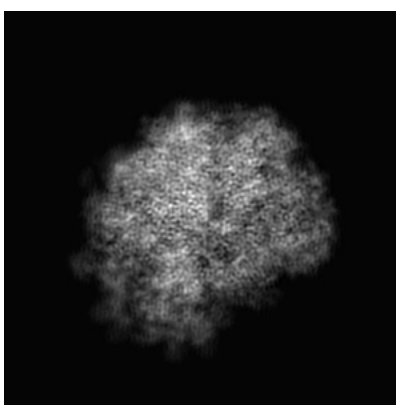
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

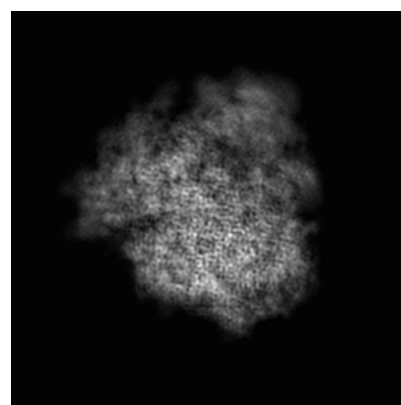
6.1.1 Primary map



X



Y

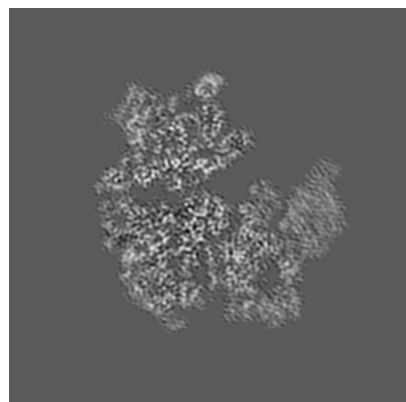


Z

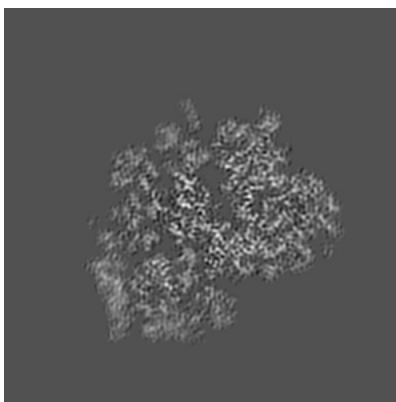
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

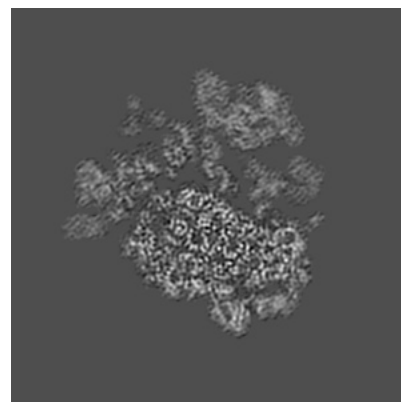
6.2.1 Primary map



X Index: 180



Y Index: 180

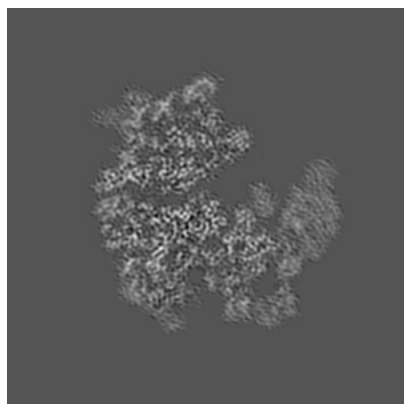


Z Index: 180

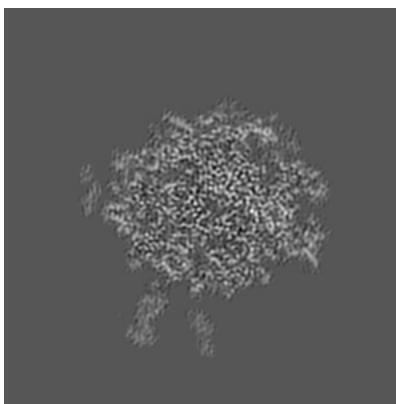
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

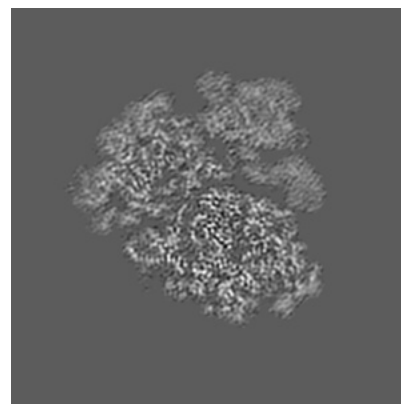
6.3.1 Primary map



X Index: 183



Y Index: 156

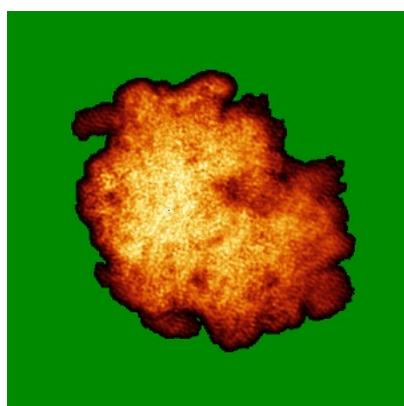


Z Index: 166

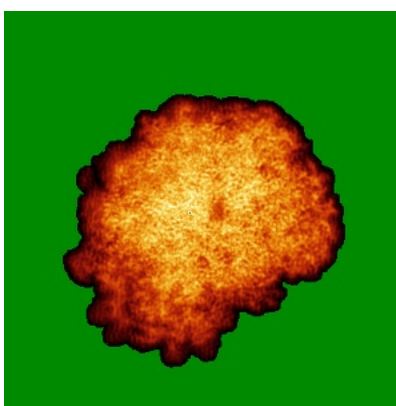
The images above show the largest variance slices of the map in three orthogonal directions.

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

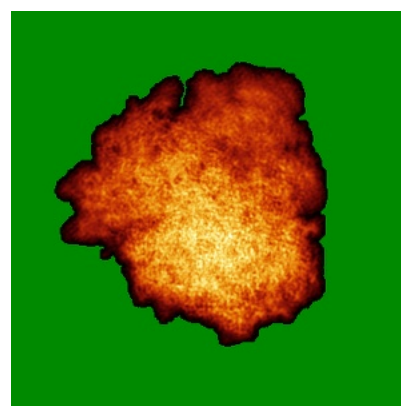
6.4.1 Primary map



X



Y

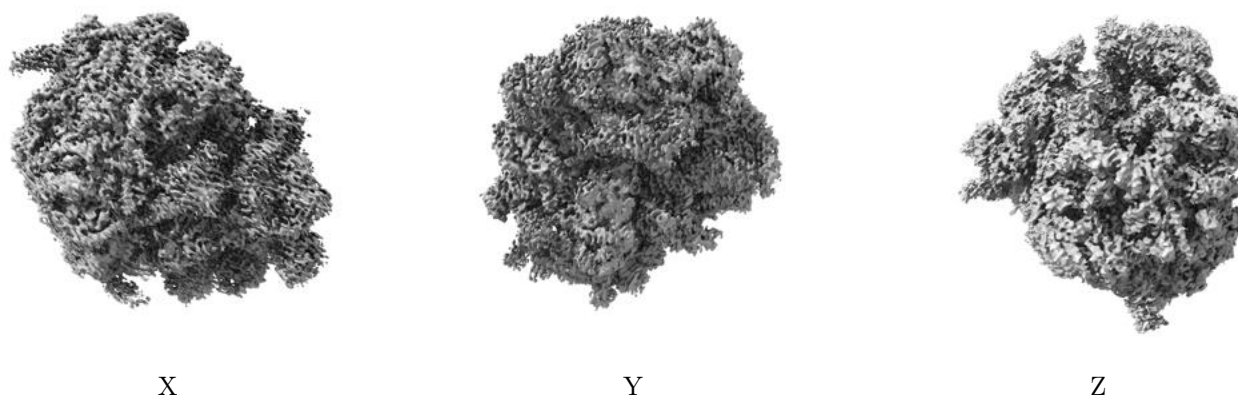


Z

The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.05. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

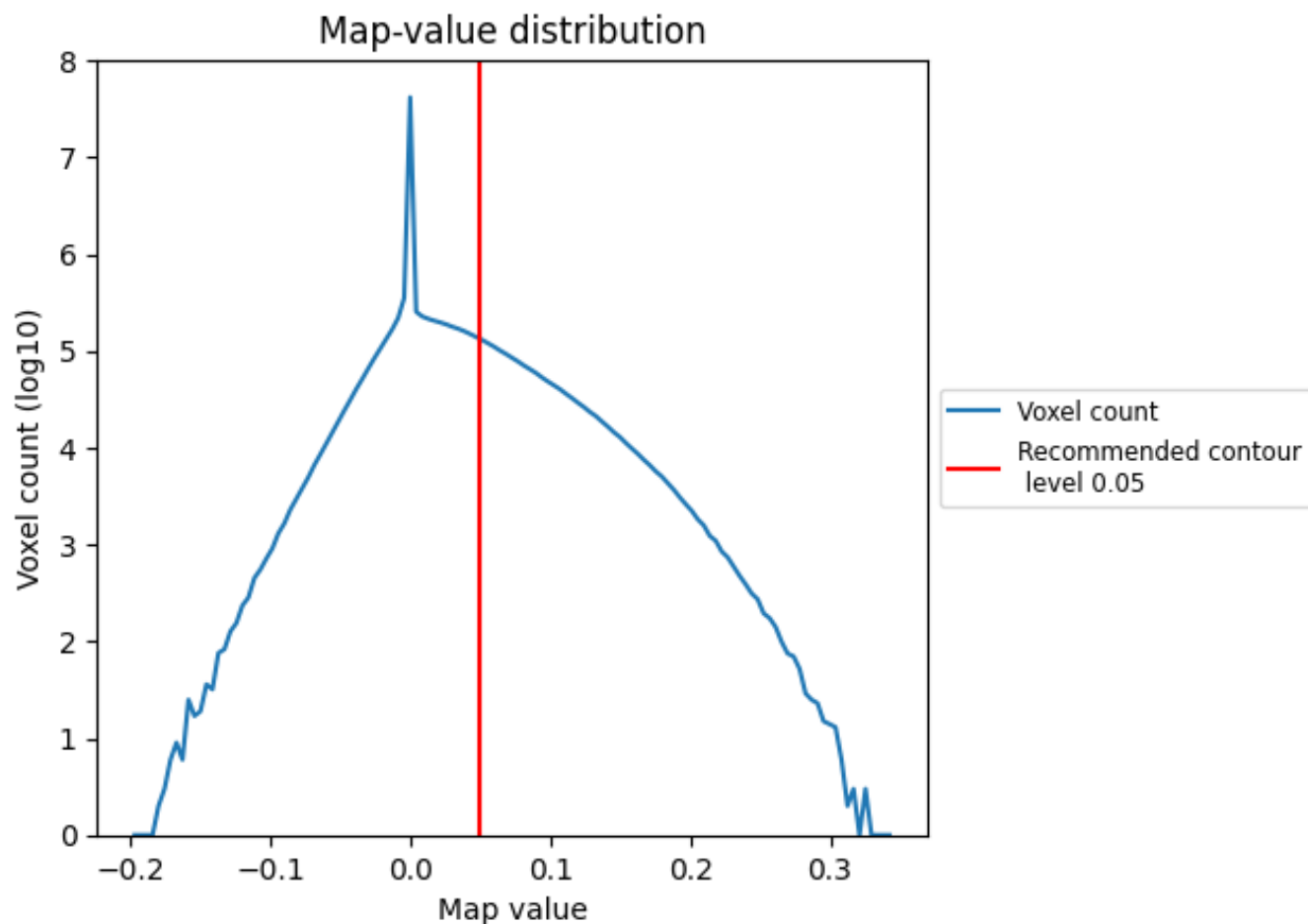
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

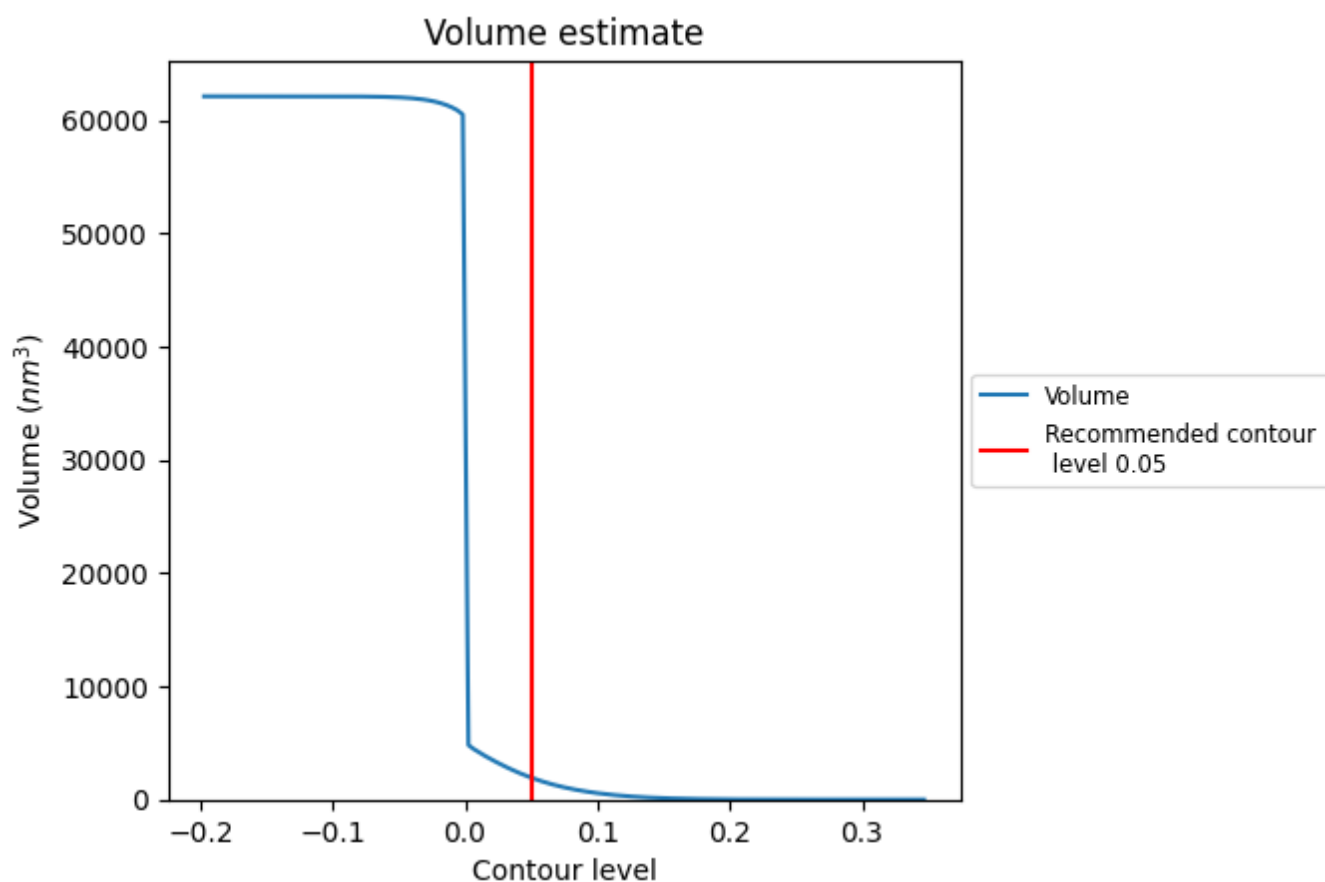
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

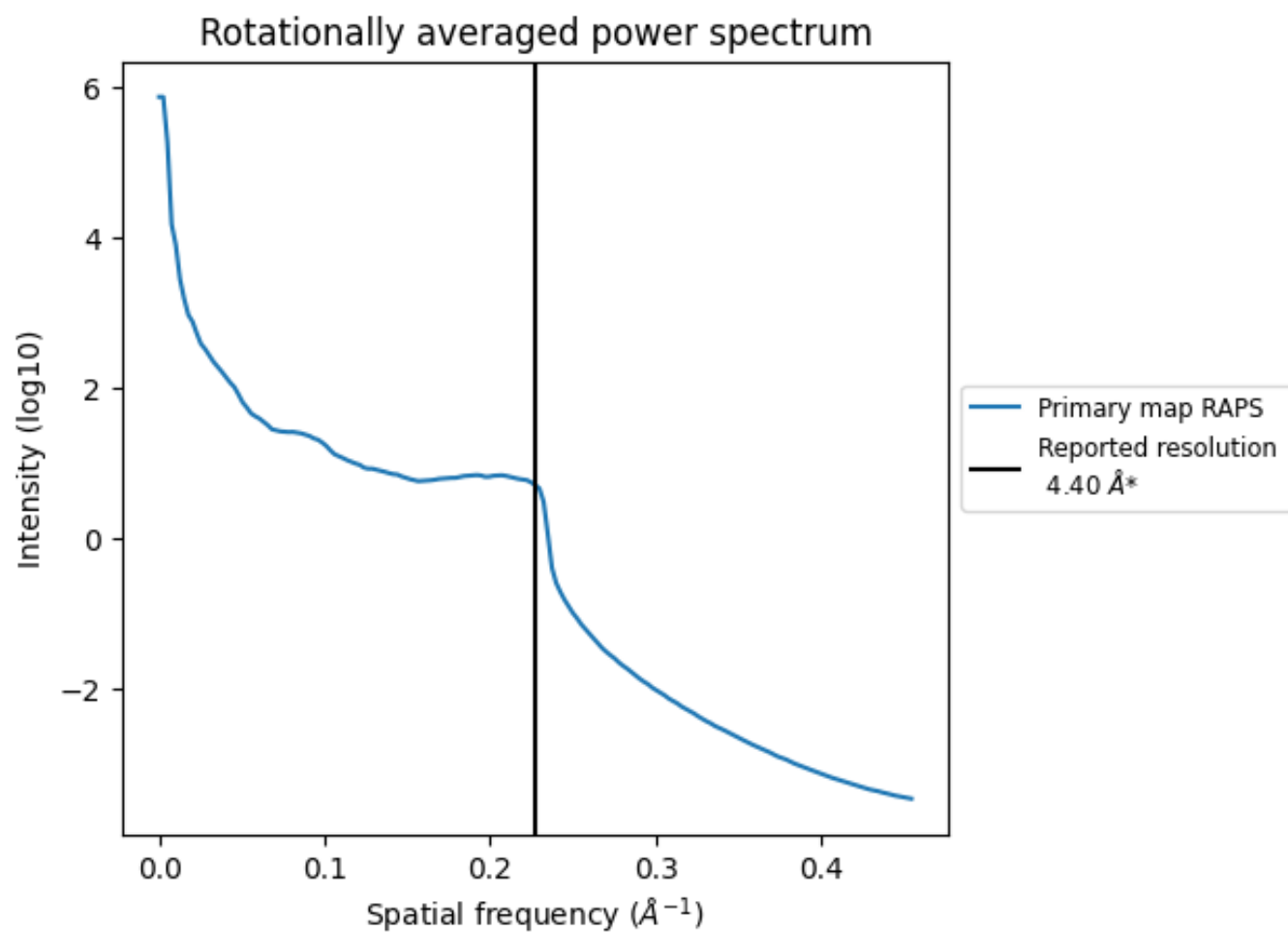
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1936 nm³; this corresponds to an approximate mass of 1749 kDa.

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

7.3 Rotationally averaged power spectrum ⓘ



*Reported resolution corresponds to spatial frequency of 0.227 Å⁻¹

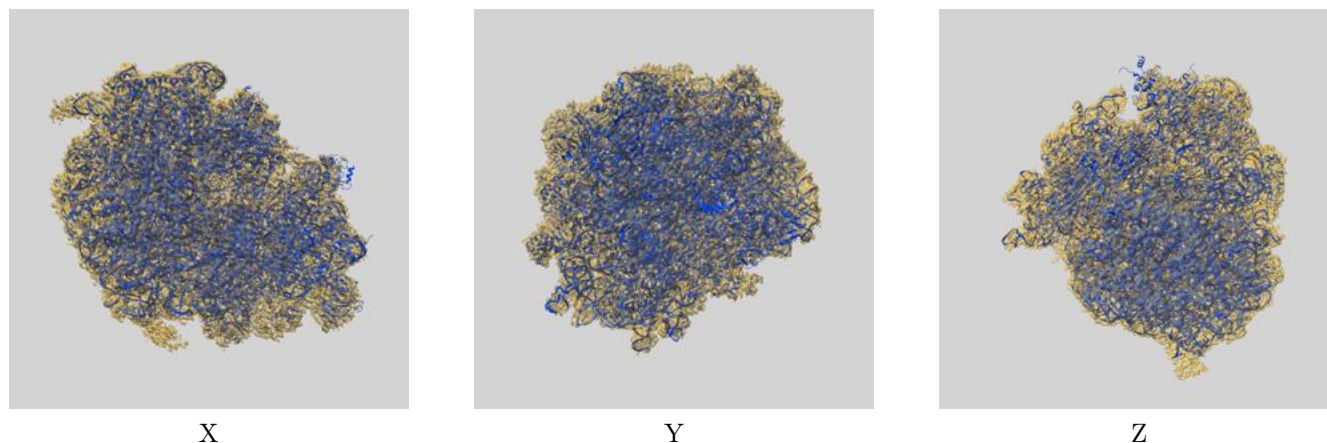
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

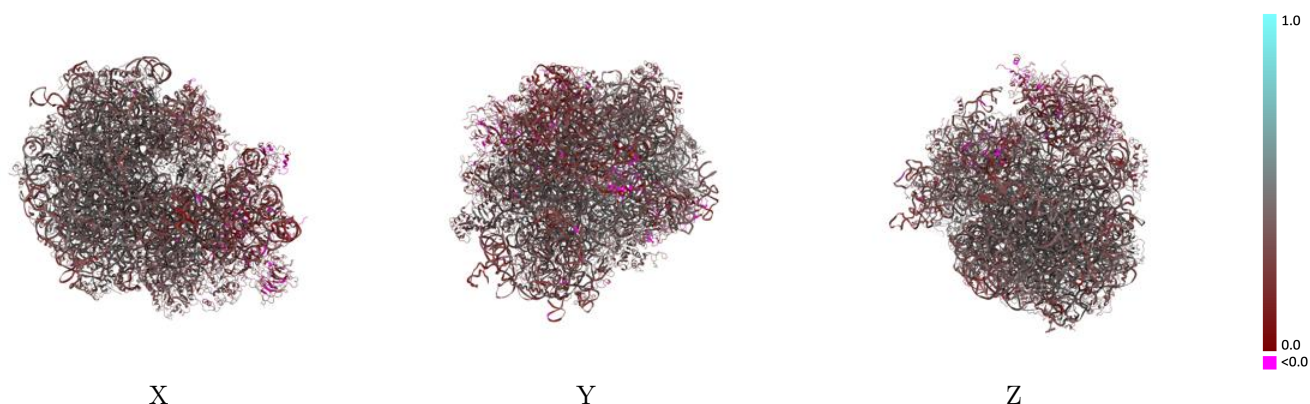
This section contains information regarding the fit between EMDB map EMD-0047 and PDB model 6GQ1. Per-residue inclusion information can be found in section 3 on page 21.

9.1 Map-model overlay [i](#)



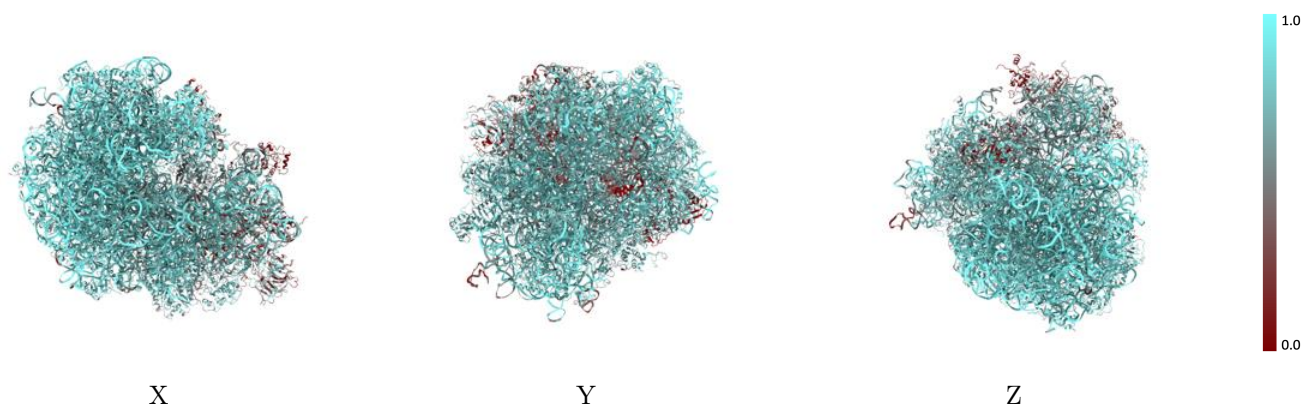
The images above show the 3D surface view of the map at the recommended contour level 0.05 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



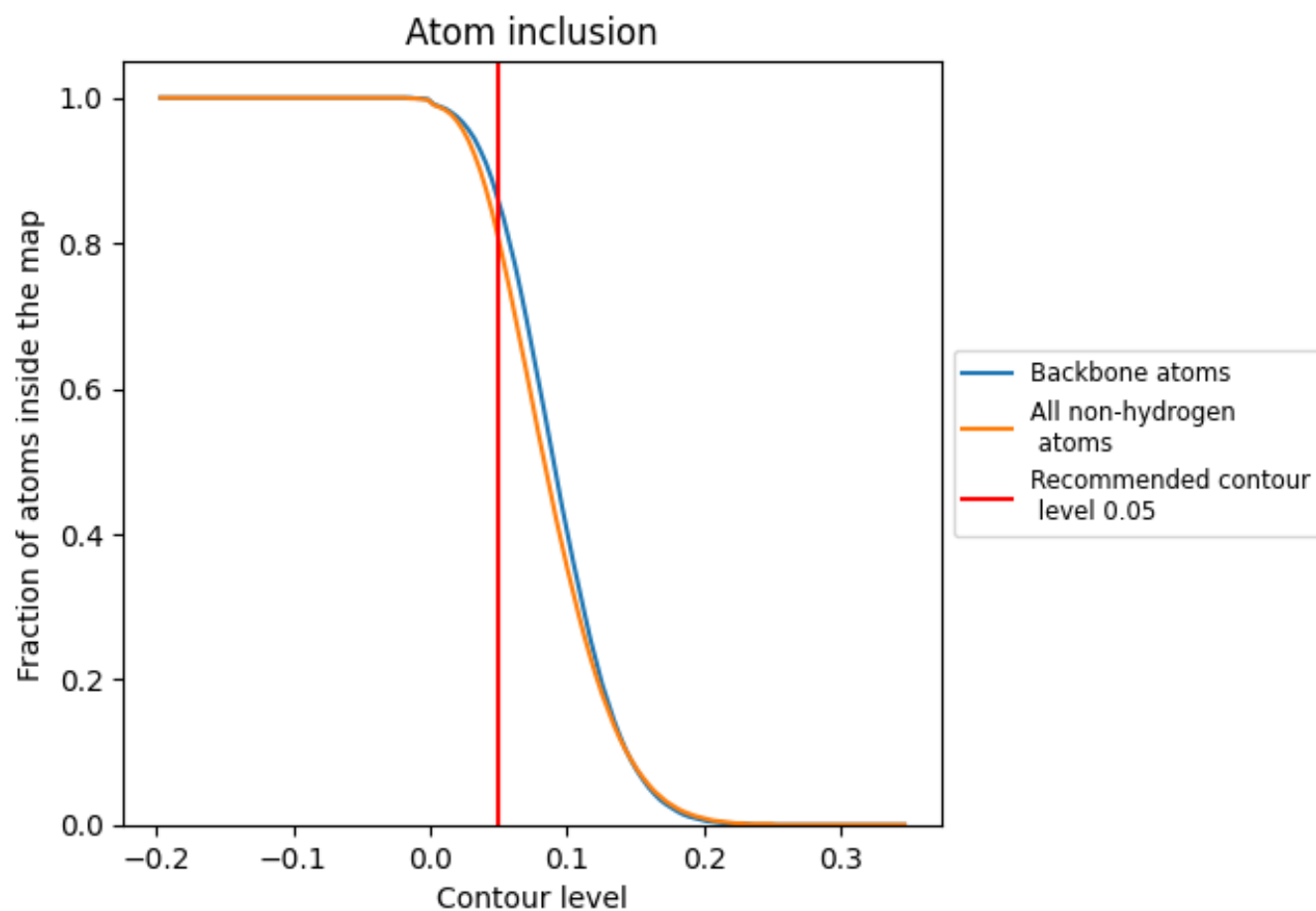
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.05).

9.4 Atom inclusion [i](#)



At the recommended contour level, 86% of all backbone atoms, 81% 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 (0.05) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8060	 0.3570
1	 0.9110	 0.3810
2	 0.8440	 0.3240
3	 0.9360	 0.3530
4	 0.9340	 0.3930
A	 0.7740	 0.4380
AA	 0.6570	 0.2610
AB	 0.6780	 0.3880
AC	 0.1070	 0.1250
AD	 0.7700	 0.3720
AE	 0.7990	 0.3800
AF	 0.6000	 0.2770
AG	 0.5530	 0.2570
AH	 0.5300	 0.2530
AI	 0.5570	 0.2540
AJ	 0.5780	 0.2420
AK	 0.3580	 0.2170
AL	 0.7110	 0.3380
AM	 0.7650	 0.3910
AN	 0.6980	 0.3920
AO	 0.7460	 0.3370
AP	 0.3710	 0.1990
AQ	 0.7460	 0.3600
AR	 0.7480	 0.3620
AS	 0.4110	 0.2240
AT	 0.7030	 0.2720
AU	 0.6250	 0.3360
AV	 0.4710	 0.2100
AW	 0.3210	 0.1830
AX	 0.6670	 0.2570
AY	 0.2990	 0.3080
AZ	 0.6610	 0.3520
B	 0.8060	 0.4140
C	 0.8280	 0.4080
D	 0.7760	 0.3260



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Chain	Atom inclusion	Q-score
E	 0.8090	 0.3660
F	 0.8180	 0.3970
G	 0.7980	 0.3630
H	 0.7720	 0.3940
I	 0.7780	 0.4000
J	 0.7450	 0.3430
L	 0.8120	 0.3950
M	 0.8110	 0.3730
N	 0.8330	 0.4160
O	 0.8140	 0.3990
P	 0.8200	 0.4120
P0	 0.1920	 0.1770
P2	 0.1750	 0.1810
Q	 0.8150	 0.4190
R	 0.7980	 0.3970
S	 0.8030	 0.4050
T	 0.7980	 0.4070
U	 0.7560	 0.3640
V	 0.7370	 0.4370
W	 0.7860	 0.4210
X	 0.7830	 0.4060
Y	 0.8320	 0.4070
Z	 0.8170	 0.3910
a	 0.8350	 0.4160
b	 0.7630	 0.4150
c	 0.7970	 0.3830
d	 0.7530	 0.4080
e	 0.8160	 0.4230
f	 0.8030	 0.4150
g	 0.7860	 0.4240
h	 0.7840	 0.3870
i	 0.7950	 0.3630
j	 0.8550	 0.4370
k	 0.7460	 0.3910
l	 0.7900	 0.4110
m	 0.7770	 0.4180
n	 0.6300	 0.4360
o	 0.7720	 0.4100
p	 0.7630	 0.4320
q	 0.7250	 0.3320
r	 0.7530	 0.3650
s	 0.7290	 0.3740

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Chain	Atom inclusion	Q-score
t	 0.5030	 0.2530
u	 0.7380	 0.3500
v	 0.4740	 0.2470
w	 0.7180	 0.3120
x	 0.7030	 0.3170
y	 0.7330	 0.3570
z	 0.7560	 0.3450