



wwPDB EM Validation Summary Report ⓘ

Dec 10, 2022 – 09:32 am GMT

PDB ID : 5A9Z
EMDB ID : EMD-6396
Title : Complex of Thermophilus thermophilus ribosome bound to BipA-GDPCP
Authors : Kumar, V.; Chen, Y.; Ahmed, T.; Tan, J.; Ero, R.; Bhushan, S.; Gao, Y.-G.
Deposited on : 2015-07-23
Resolution : 4.70 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.dev43
Mogul : 1.8.4, 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) : 2.31.3

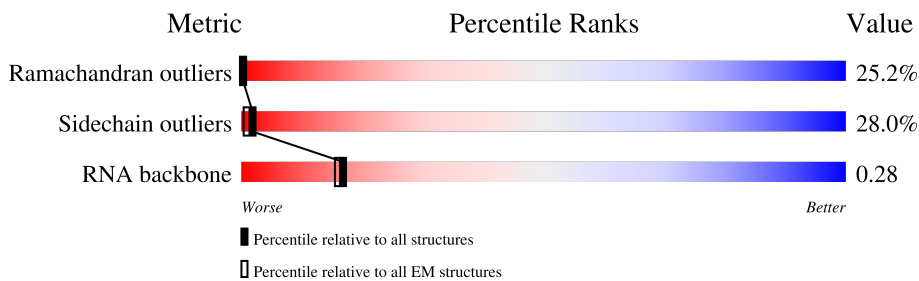
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 4.70 Å.

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



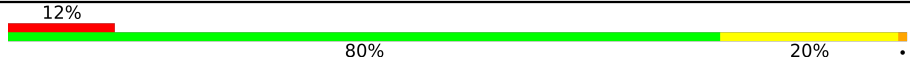
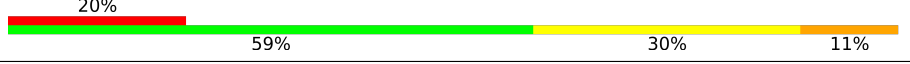
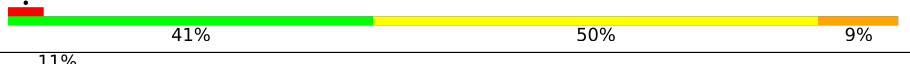
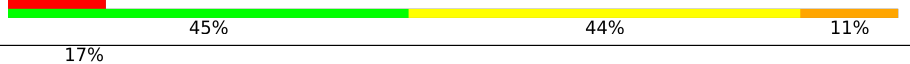
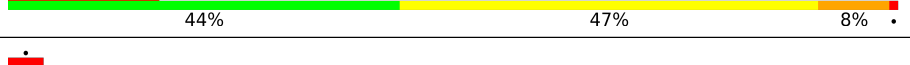
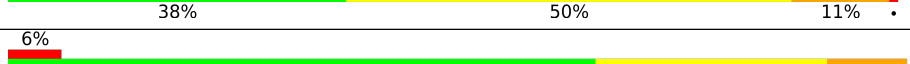
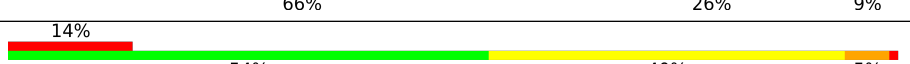
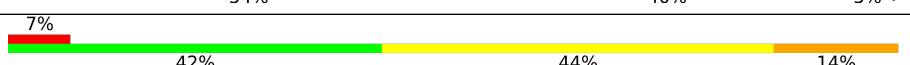
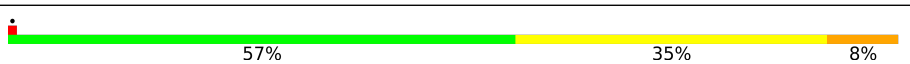


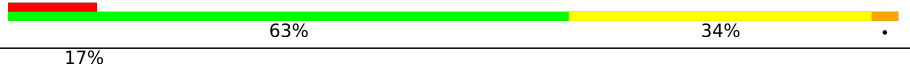


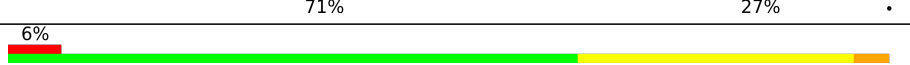
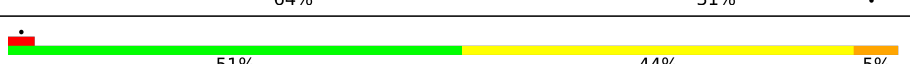
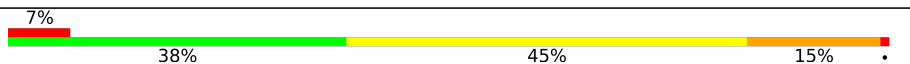
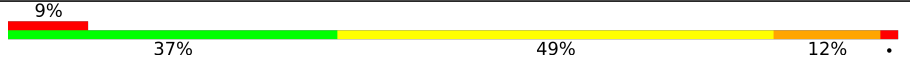
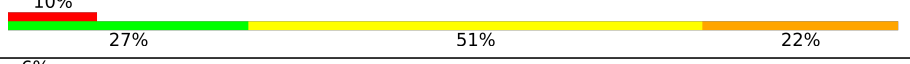
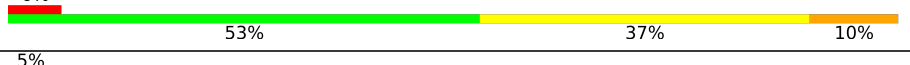


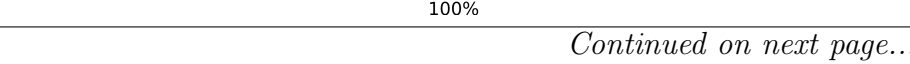


Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	AA	2889	
2	AB	123	
3	AC	228	
4	AD	272	
5	AE	206	
6	AF	208	
7	AG	182	
8	AH	174	




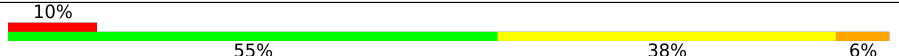
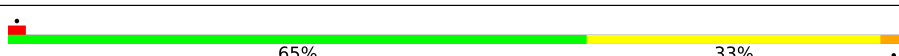
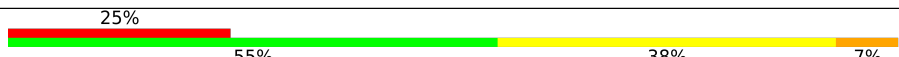
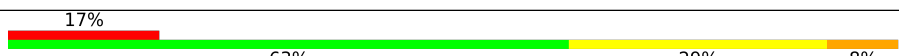
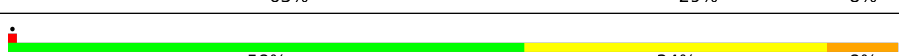
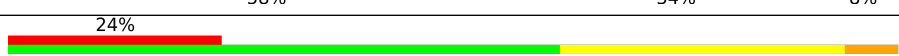

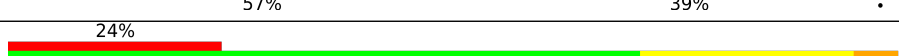


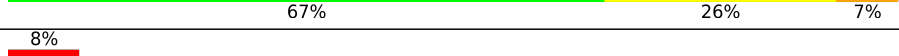





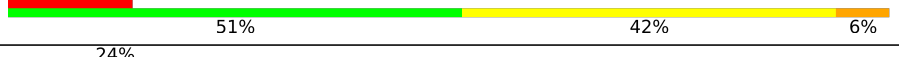

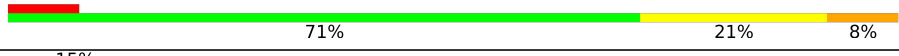
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Mol	Chain	Length	Quality of chain
9	AI	153	
10	AJ	134	
11	AK	139	
12	AL	122	
13	AM	145	
14	AN	136	
15	AO	117	
16	AP	110	
17	AQ	117	
18	AR	117	
19	AS	101	
20	AT	110	
21	AU	94	
22	AV	110	
23	AW	180	
24	AX	85	
25	AY	67	
26	AZ	59	
27	Aa	71	
28	Ab	57	
29	Ac	49	
30	Ad	49	
31	Ae	64	
32	Af	37	
33	Ag	128	

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Mol	Chain	Length	Quality of chain
34	BA	1515	
35	BF	234	
36	BG	206	
37	BH	208	
38	BI	150	
39	BJ	101	
40	BK	155	
41	BL	138	
42	BM	127	
43	BN	98	
44	BO	119	
45	BP	124	
46	BQ	114	
47	BR	60	
48	BS	88	
49	BT	83	
50	BU	104	
51	BV	73	
52	BW	80	
53	BX	99	
54	BY	24	
55	CA	593	

2 Entry composition

There are 57 unique types of molecules in this entry. The entry contains 150547 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 23S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
1	AA	2889	62218	27691	11629	20009	2889	0	0

There are 23 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AA	?	-	C	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	A	deletion	GB 37223181
AA	?	-	A	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	A	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	G	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	?	-	C	deletion	GB 37223181
AA	1134	G	UNK	conflict	GB 37223181

- Molecule 2 is a RNA chain called 5S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	P		
2	AB	123	2641	1175	488	855	123	0	0

- Molecule 3 is a protein called 50S ribosomal protein L1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	AC	228	1742	1102	318	319	3	0	0

- Molecule 4 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	AD	272	2124	1339	424	358	3	0	0

- Molecule 5 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	AE	206	1578	997	302	273	6	0	0

- Molecule 6 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	AF	208	1625	1034	303	286	2	0	0

- Molecule 7 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	AG	182	1482	947	269	261	5	0	0

- Molecule 8 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	AH	174	1328	844	248	235	1	0	0

- Molecule 9 is a protein called 50S ribosomal protein L10.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
9	AI	153	752	446	153	153	0	0

- Molecule 10 is a protein called 50S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	AJ	134	993	632	175	181	5	0	0

- Molecule 11 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	AK	139	1113	717	207	186	3	0	0

- Molecule 12 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
12	AL	122	932	587	171	170	4	0	0

- Molecule 13 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	AM	145	1106	688	226	190	2	0	0

- Molecule 14 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
14	AN	136	1080	688	204	183	5	0	0

- Molecule 15 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
15	AO	117	960	599	202	159	0	0

- Molecule 16 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
16	AP	110	877	553	175	149	0	0

- Molecule 17 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
17	AQ	117	976	614	197	164	1	0	0

- Molecule 18 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
18	AR	117	964	610	202	151	1	0	0

- Molecule 19 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
19	AS	101	779	501	142	135	1	0	0

- Molecule 20 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
20	AT	110	876	552	171	151	2	0	0

- Molecule 21 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
21	AU	94	742	483	133	126	0	0

- Molecule 22 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	AV	110	844	539	158	141	6	0	0

- Molecule 23 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	AW	180	Total	C	N	O	S	0	0
			1435	916	256	260	3		

- Molecule 24 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AX	85	Total	C	N	O	S	0	0
			670	415	141	112	2		

- Molecule 25 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AY	67	Total	C	N	O	S	0	0
			567	350	116	99	2		

- Molecule 26 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	AZ	59	Total	C	N	O	0	0
			469	298	90	81		

- Molecule 27 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	Aa	71	Total	C	N	O	S	0	0
			581	364	108	104	5		

- Molecule 28 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	Ab	57	Total	C	N	O	S	0	0
			445	279	87	74	5		

- Molecule 29 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	Ac	49	Total	C	N	O	S	0	0
			426	265	87	70	4		

- Molecule 30 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Ad	49	Total	C	N	O	S	0	0
			430	263	108	57	2		

- Molecule 31 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Ae	64	Total	C	N	O	S	0	0
			515	331	102	79	3		

- Molecule 32 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	Af	37	Total	C	N	O	S	0	0
			307	188	68	47	4		

- Molecule 33 is a protein called Unknown peptide.

Mol	Chain	Residues	Atoms				AltConf	Trace
33	Ag	128	Total	C	N	O	0	5
			620	369	128	123		

- Molecule 34 is a RNA chain called 16S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	BA	1515	Total	C	N	O	P	0	0
			32554	14490	6022	10527	1515		

- Molecule 35 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	BF	234	Total	C	N	O	S	0	0
			1900	1213	341	341	5		

- Molecule 36 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	BG	206	Total	C	N	O	S	0	0
			1612	1016	314	281	1		

- Molecule 37 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	BH	208	Total	C	N	O	S	0	0
			1703	1066	339	291	7		

- Molecule 38 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	BI	150	Total	C	N	O	S	0	0
			1146	724	217	201	4		

- Molecule 39 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	BJ	101	Total	C	N	O	S	0	0
			843	531	155	154	3		

- Molecule 40 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	BK	155	Total	C	N	O	S	0	0
			1257	781	252	218	6		

- Molecule 41 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	BL	138	Total	C	N	O	S	0	0
			1116	705	215	193	3		

- Molecule 42 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms				AltConf	Trace
42	BM	127	Total	C	N	O	0	0
			1010	639	197	174		

- Molecule 43 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	BN	98	Total	C	N	O	S	0	0
			794	499	156	138	1		

- Molecule 44 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	BO	119	Total	C	N	O	S	0	0
			885	549	168	165	3		

- Molecule 45 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	BP	124	Total	C	N	O	S	0	0
			970	611	195	163	1		

- Molecule 46 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	BQ	114	Total	C	N	O	S	0	0
			914	565	189	158	2		

- Molecule 47 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	BR	60	Total	C	N	O	S	0	0
			492	312	104	72	4		

- Molecule 48 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	BS	88	Total	C	N	O	S	0	0
			734	459	147	126	2		

- Molecule 49 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	BT	83	Total	C	N	O	S	0	0
			700	443	139	117	1		

- Molecule 50 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	BU	104	Total	C	N	O	S	0	0
			857	547	161	147	2		

- Molecule 51 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				AltConf	Trace
51	BV	73	Total	C	N	O	0	0
			597	380	118	99		

- Molecule 52 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	BW	80	Total	C	N	O	S	0	0
			647	414	119	112	2		

- Molecule 53 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	BX	99	Total	C	N	O	S	0	0
			763	470	162	129	2		

- Molecule 54 is a protein called 30S ribosomal protein Thx.

Mol	Chain	Residues	Atoms				AltConf	Trace
54	BY	24	Total	C	N	O	0	0
			208	128	50	30		

- Molecule 55 is a protein called BipA.

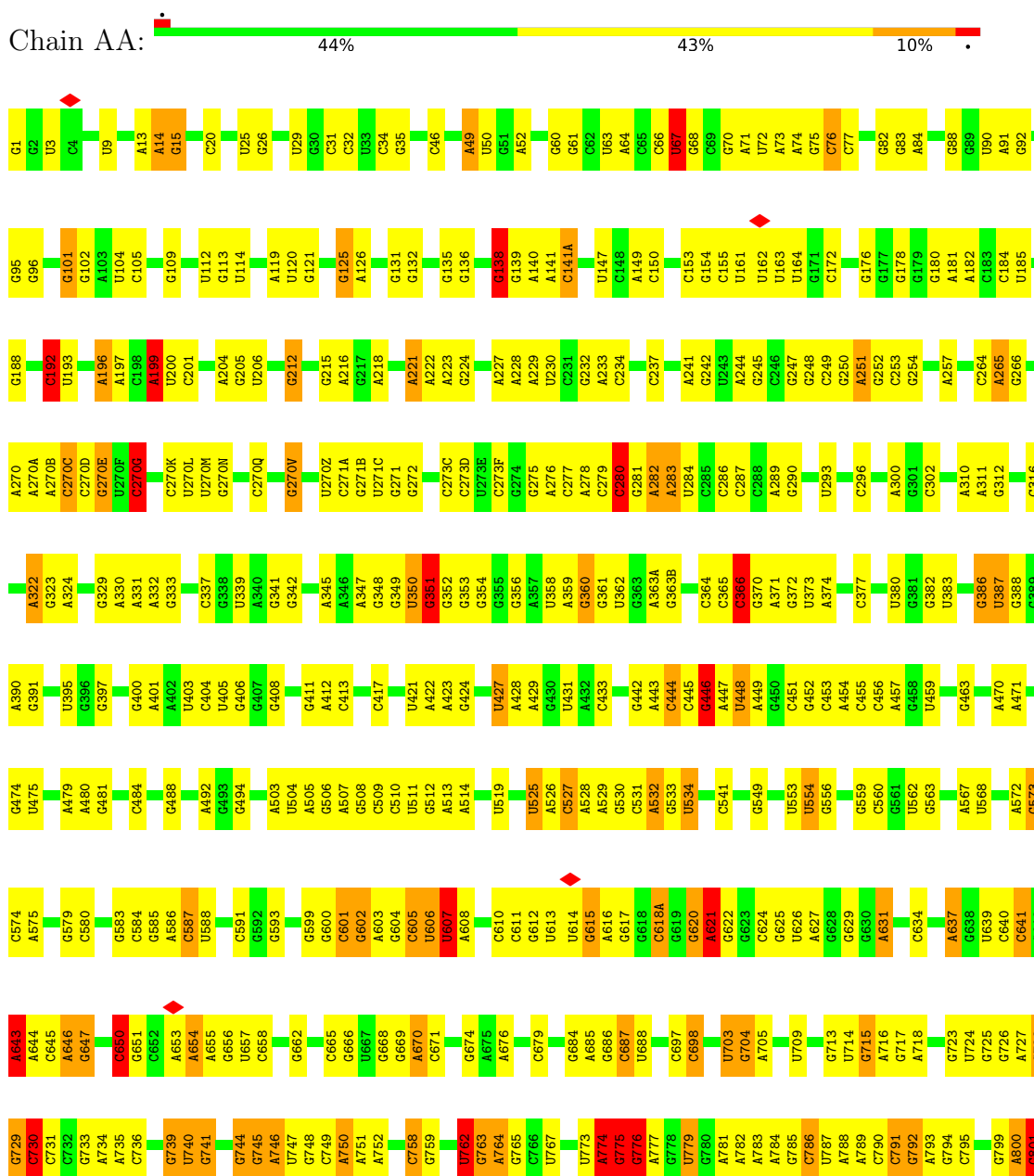
Mol	Chain	Residues	Atoms					AltConf	Trace
55	CA	593	Total	C	N	O	S	0	0
			4532	2856	791	868	17		

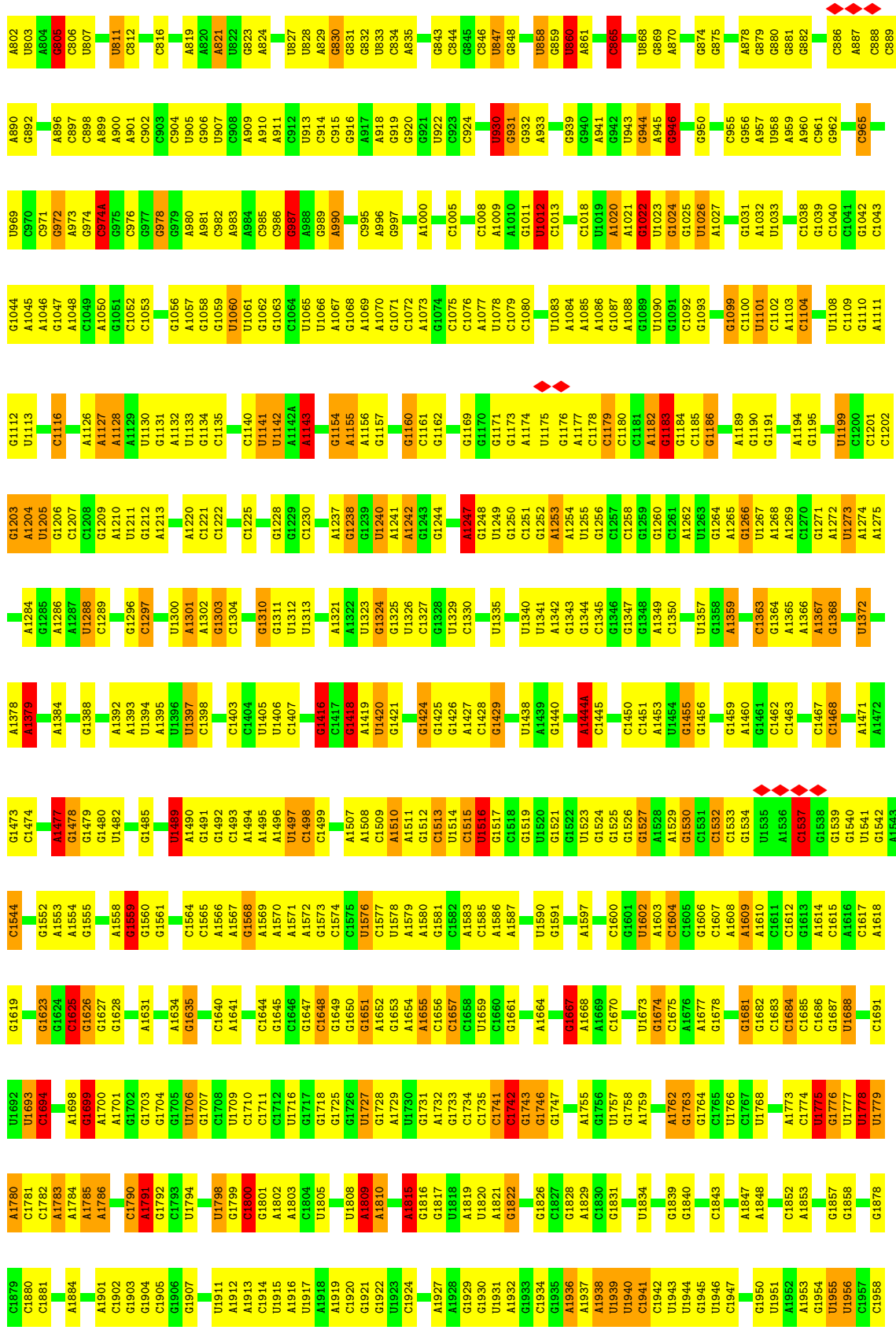
- Molecule 56 is NEOMYCIN (three-letter code: NMY) (formula: C₂₃H₄₆N₆O₁₃).

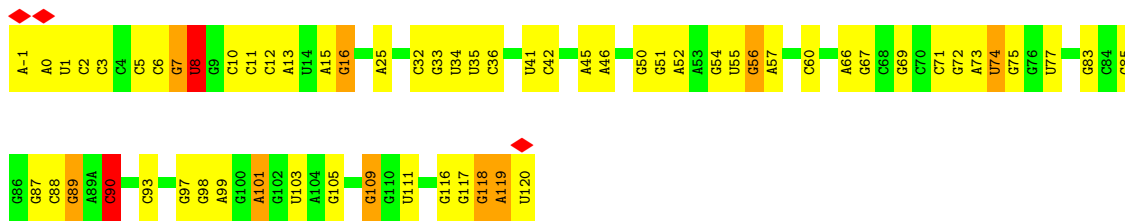
3 Residue-property plots

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.

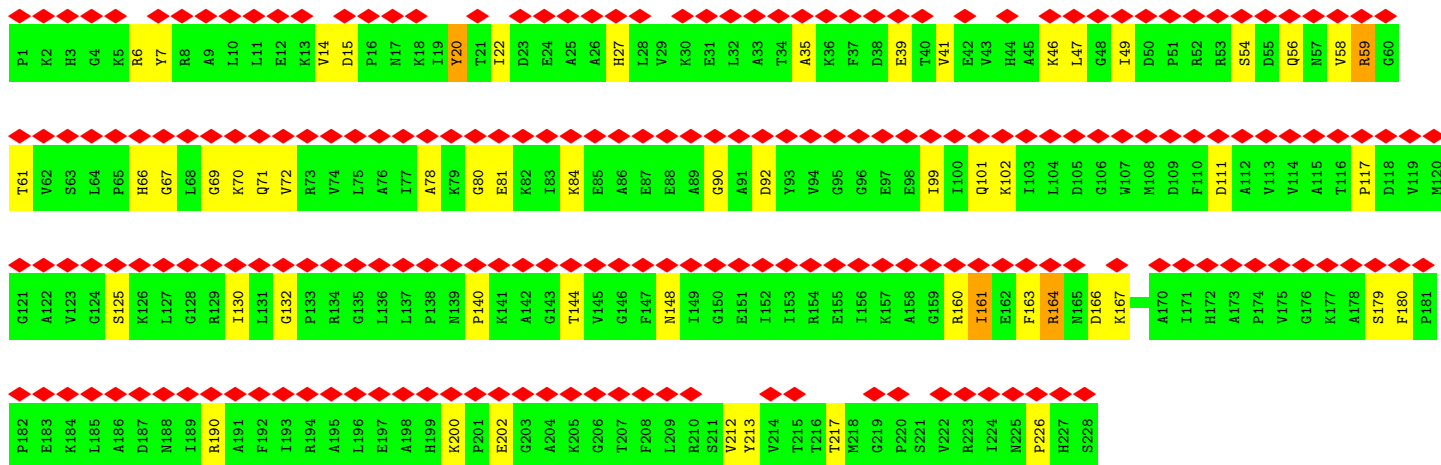
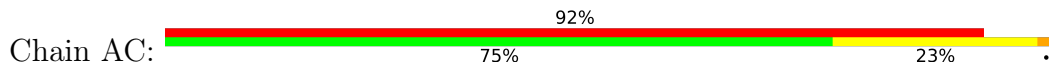
- Molecule 1: 23S ribosomal RNA



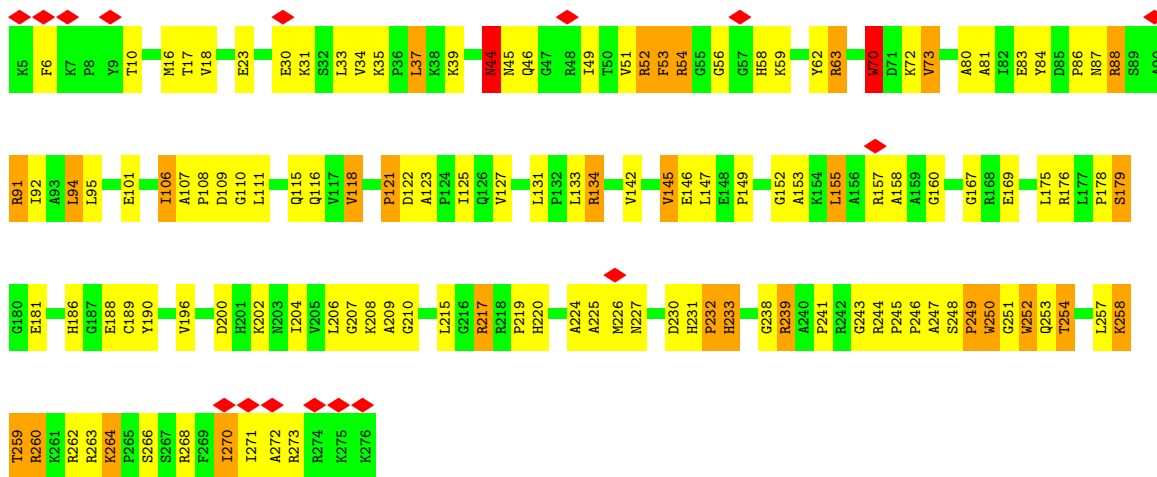




• Molecule 3: 50S ribosomal protein L1

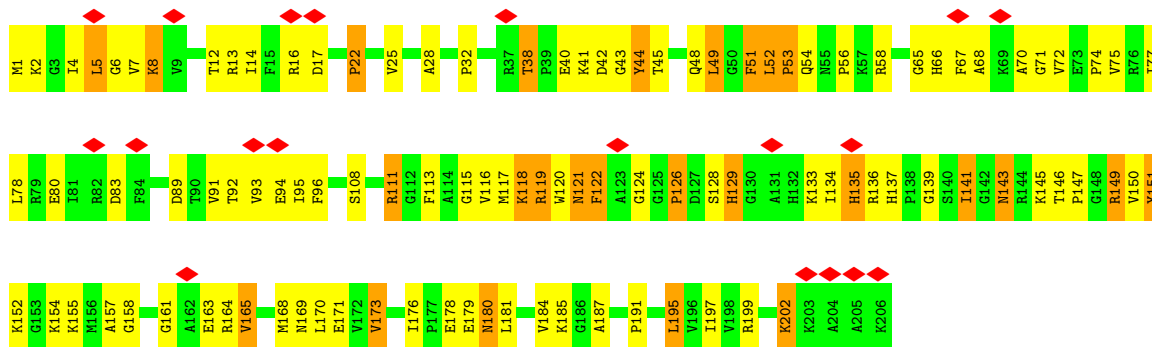


• Molecule 4: 50S ribosomal protein L2

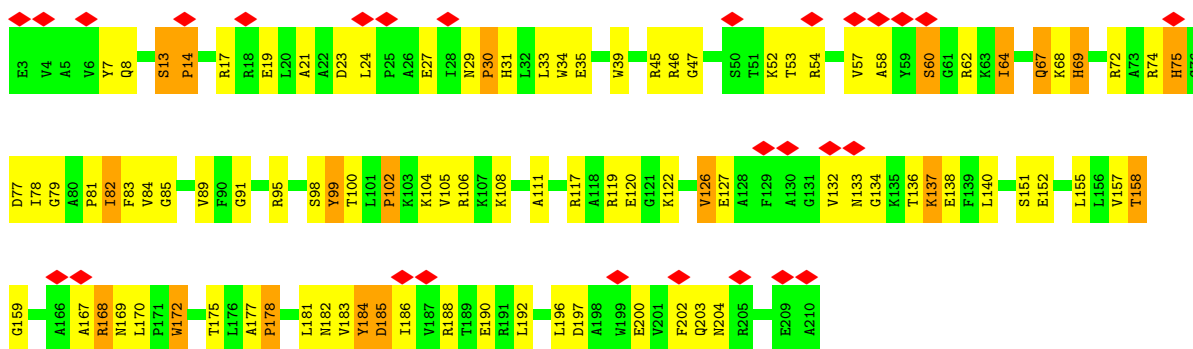


• Molecule 5: 50S ribosomal protein L3

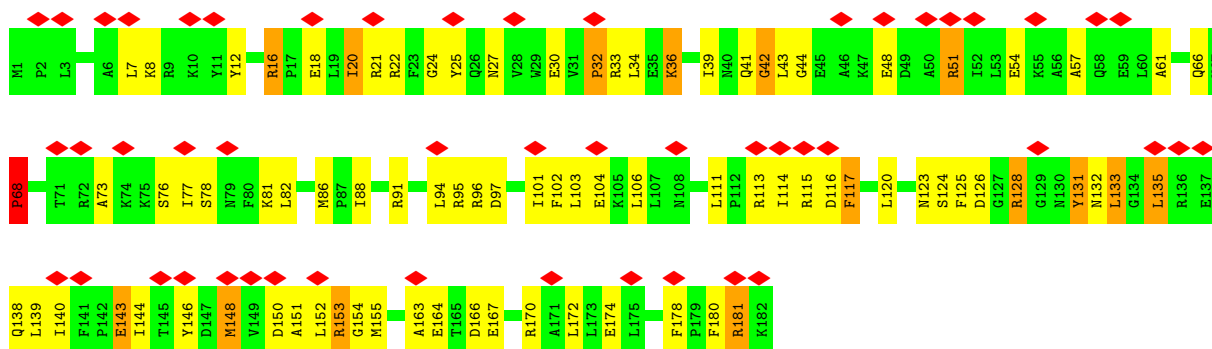




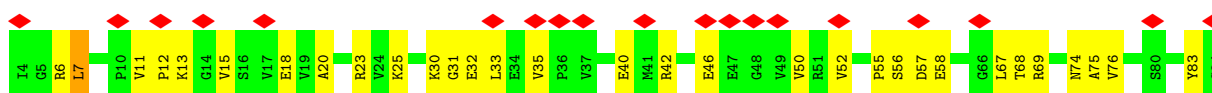
• Molecule 6: 50S ribosomal protein L4

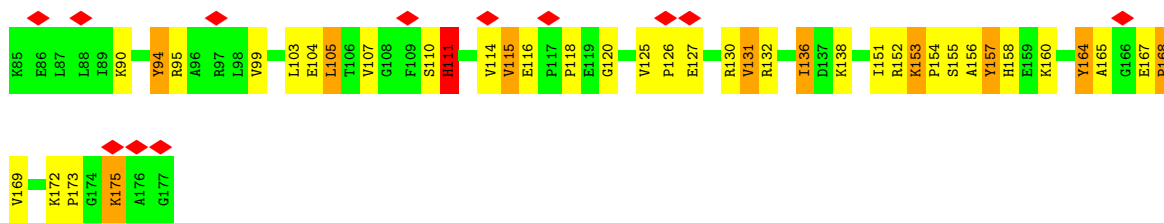


• Molecule 7: 50S ribosomal protein L5

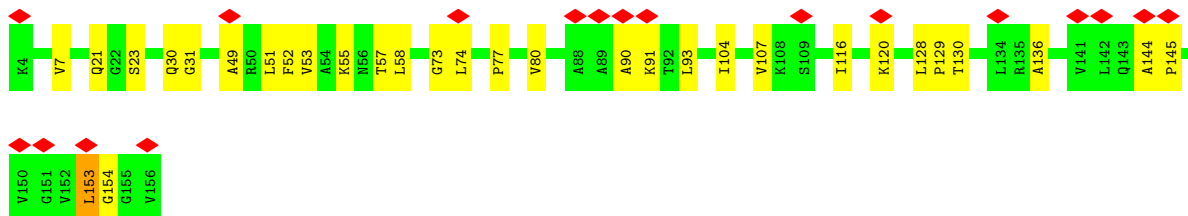
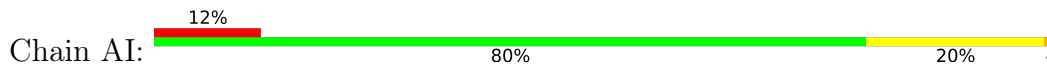


• Molecule 8: 50S ribosomal protein L6

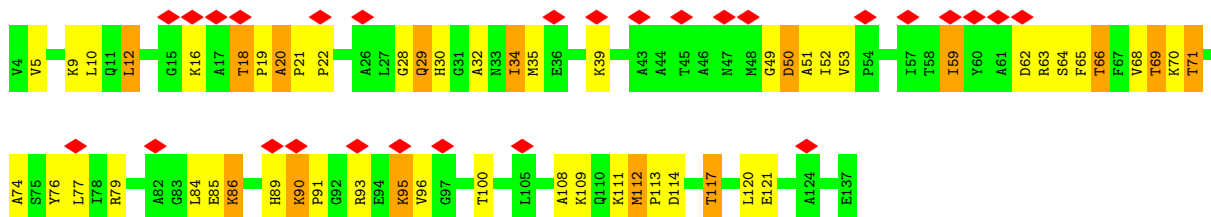




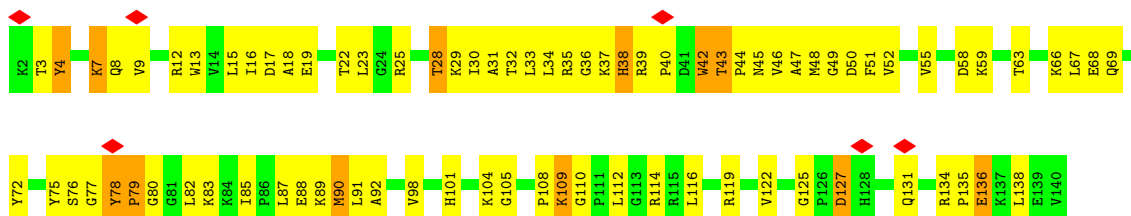
• Molecule 9: 50S ribosomal protein L10



• Molecule 10: 50S ribosomal protein L11

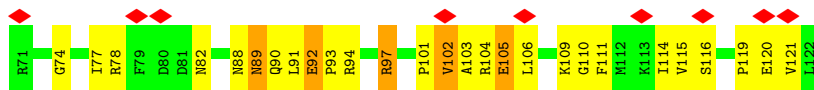


• Molecule 11: 50S ribosomal protein L13

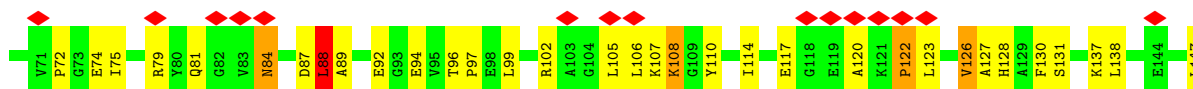


• Molecule 12: 50S ribosomal protein L14

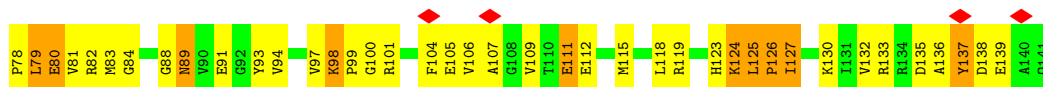




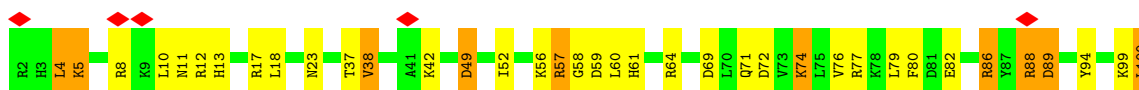
- Molecule 13: 50S ribosomal protein L15



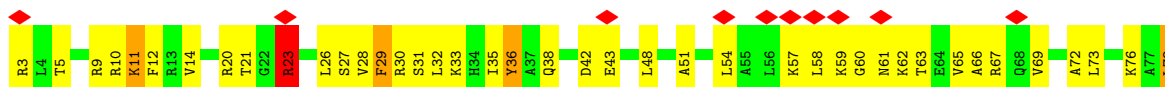
- Molecule 14: 50S ribosomal protein L16



- Molecule 15: 50S ribosomal protein L17

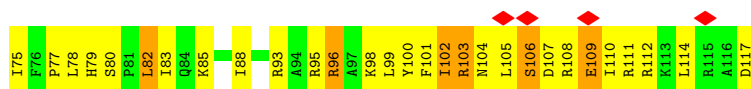
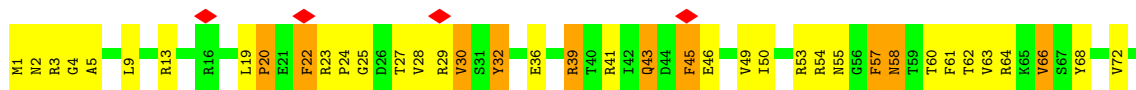


- Molecule 16: 50S ribosomal protein L18

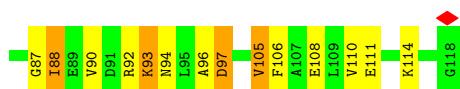
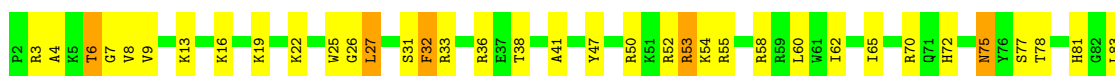




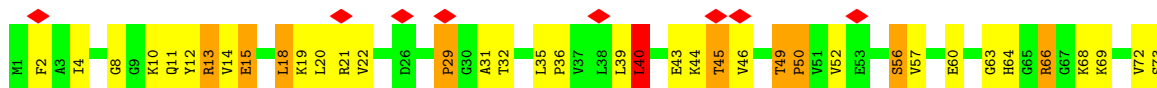
• Molecule 17: 50S ribosomal protein L19



• Molecule 18: 50S ribosomal protein L20



• Molecule 19: 50S ribosomal protein L21

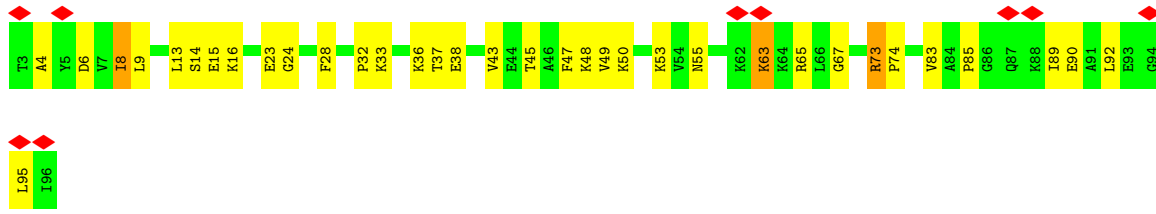


• Molecule 20: 50S ribosomal protein L22

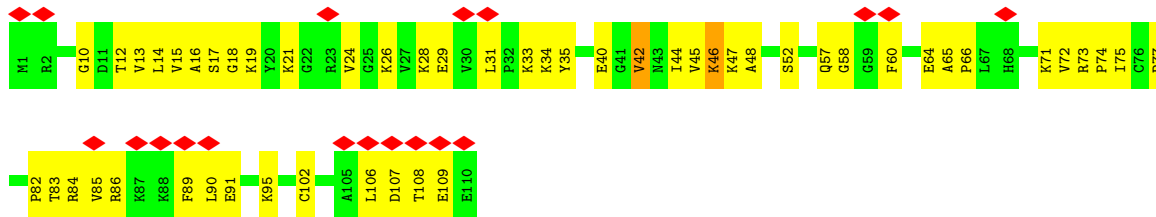


• Molecule 21: 50S ribosomal protein L23

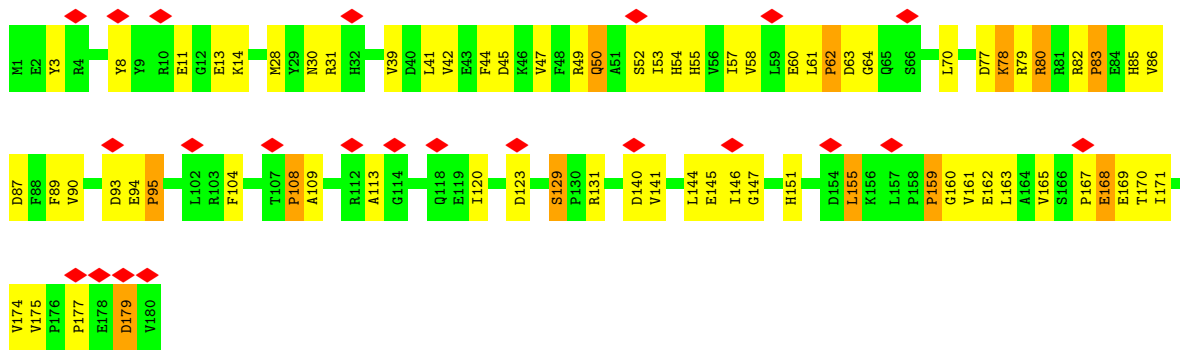




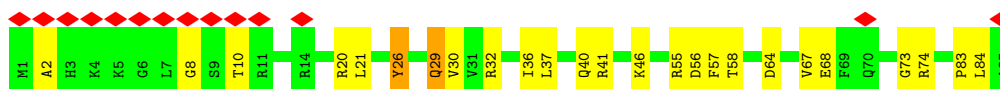
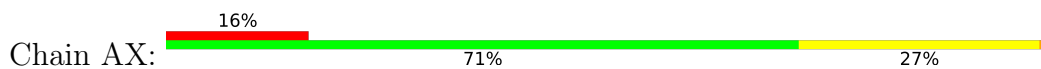
• Molecule 22: 50S ribosomal protein L24



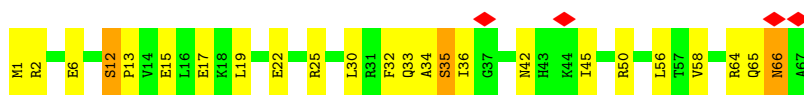
• Molecule 23: 50S ribosomal protein L25



• Molecule 24: 50S ribosomal protein L27



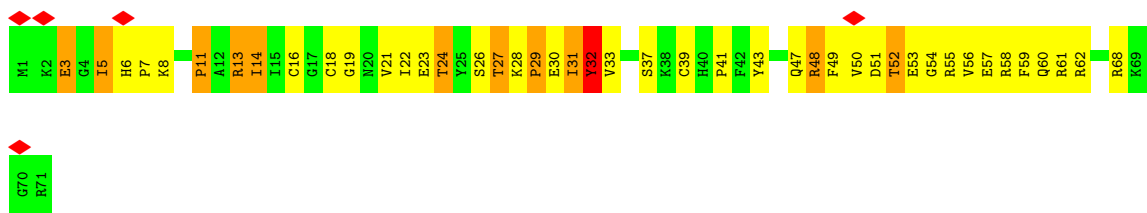
• Molecule 25: 50S ribosomal protein L29



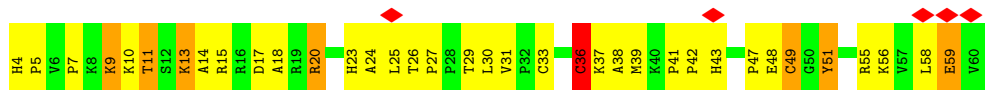
• Molecule 26: 50S ribosomal protein L30



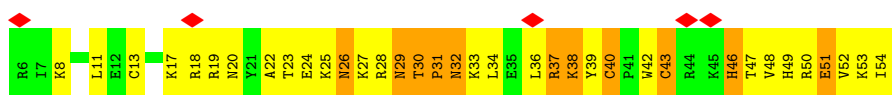
• Molecule 27: 50S ribosomal protein L31



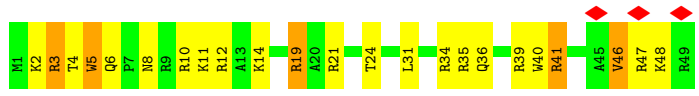
• Molecule 28: 50S ribosomal protein L32



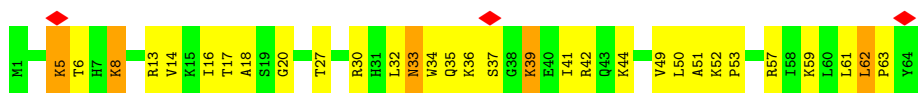
• Molecule 29: 50S ribosomal protein L33



• Molecule 30: 50S ribosomal protein L34

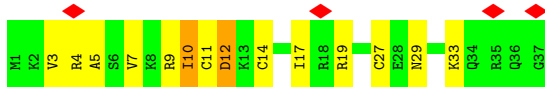


• Molecule 31: 50S ribosomal protein L35

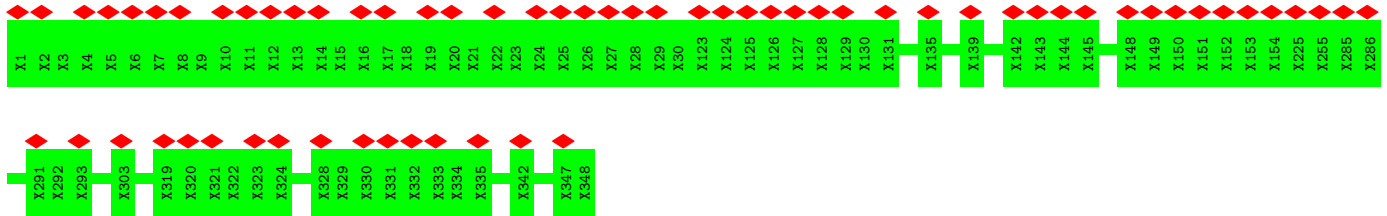


• Molecule 32: 50S ribosomal protein L36

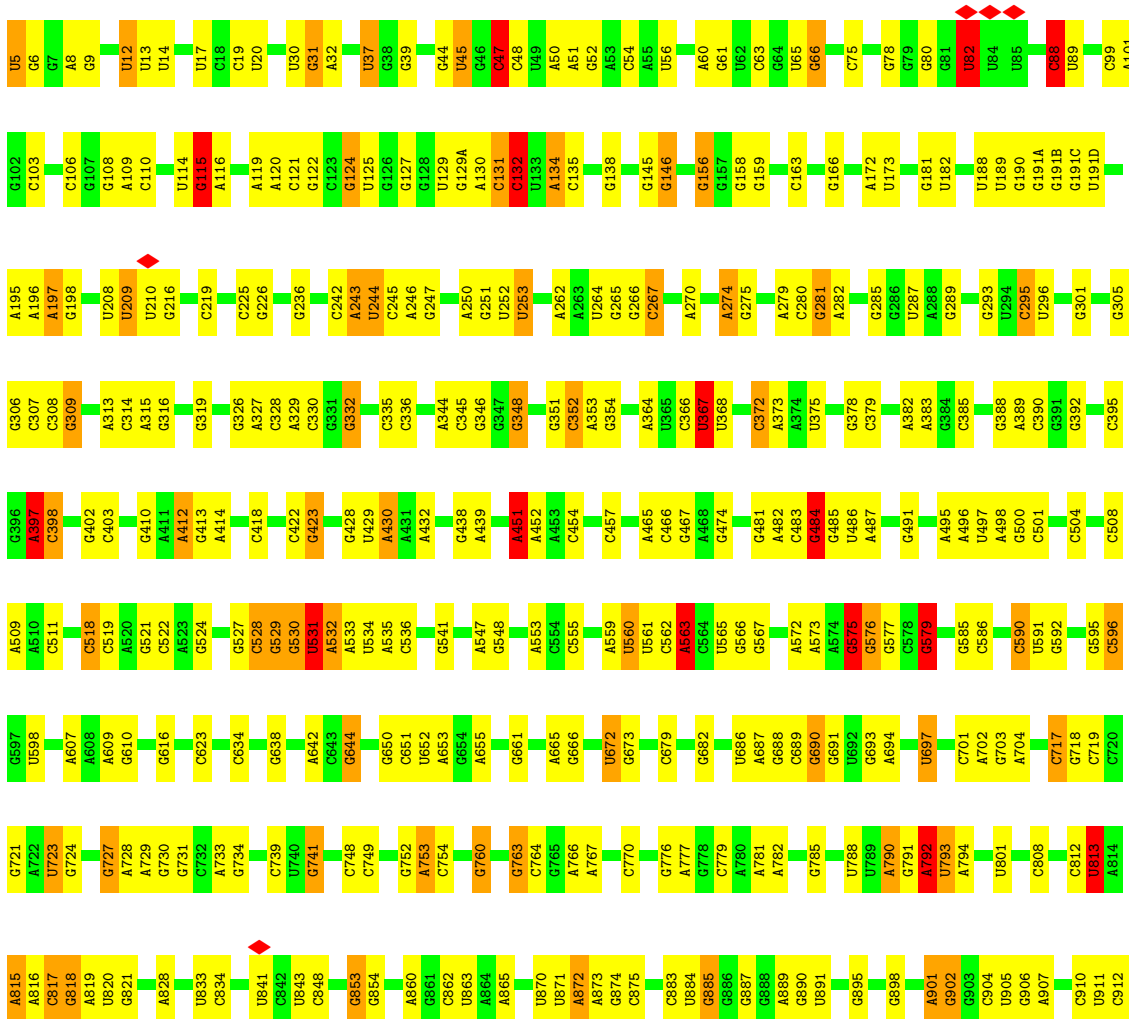


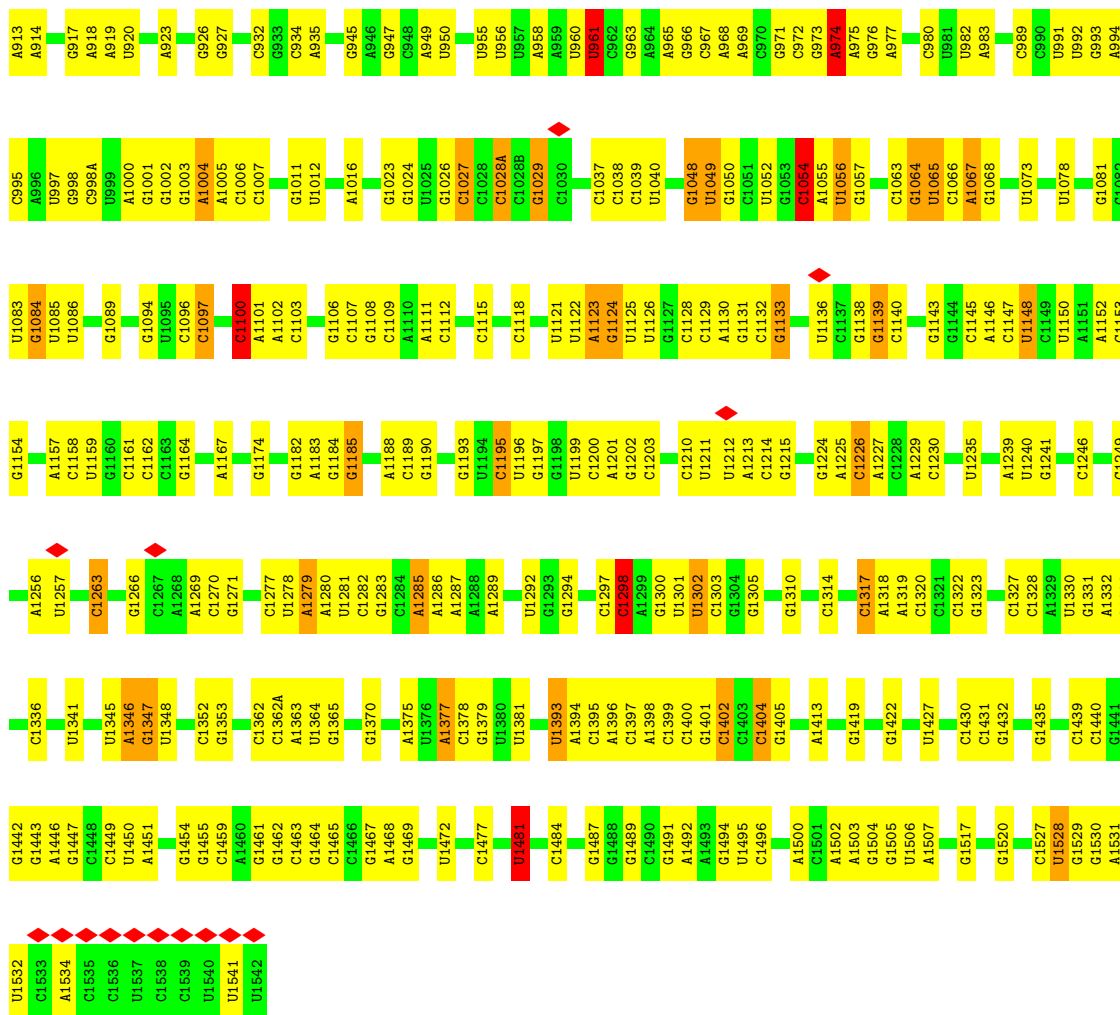


• Molecule 33: Unknown peptide

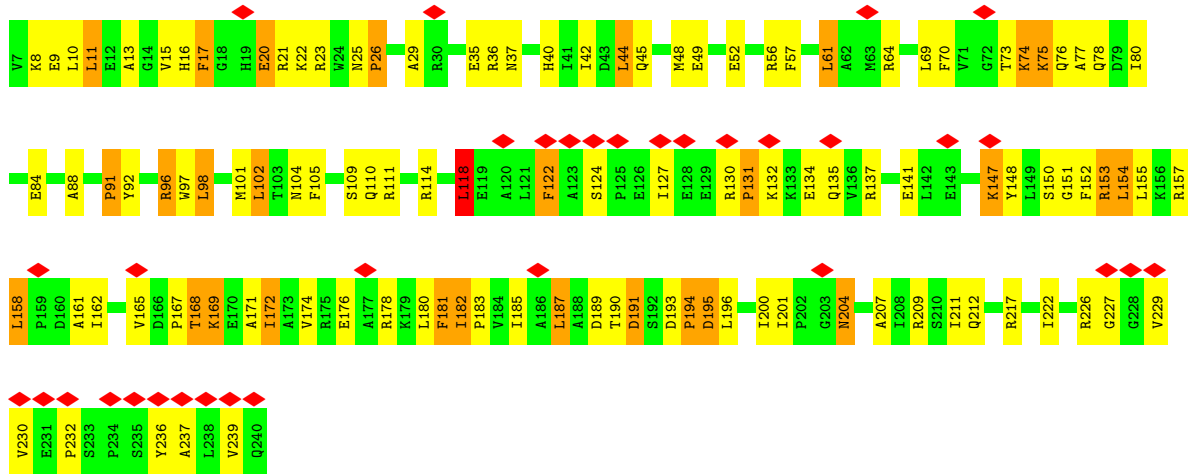


• Molecule 34: 16S ribosomal RNA

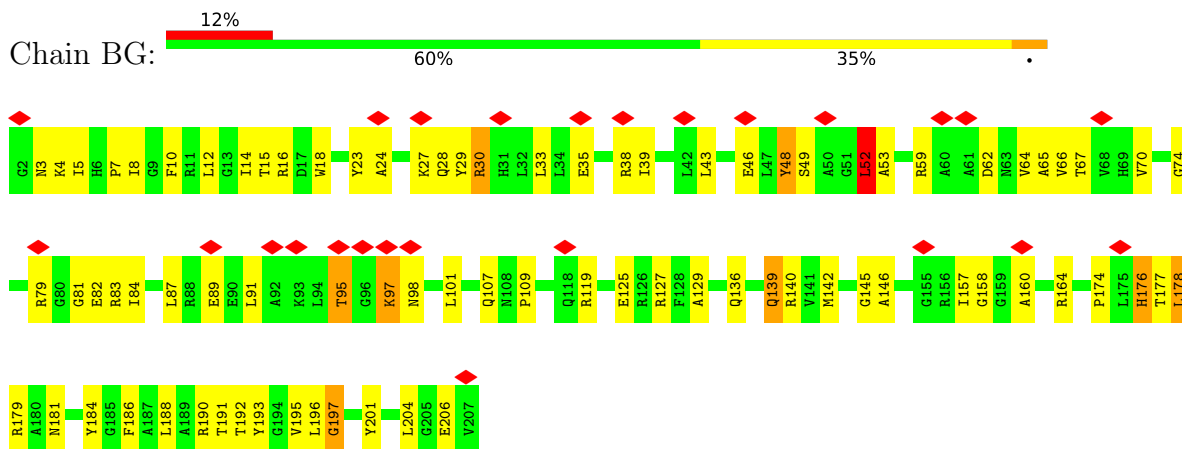




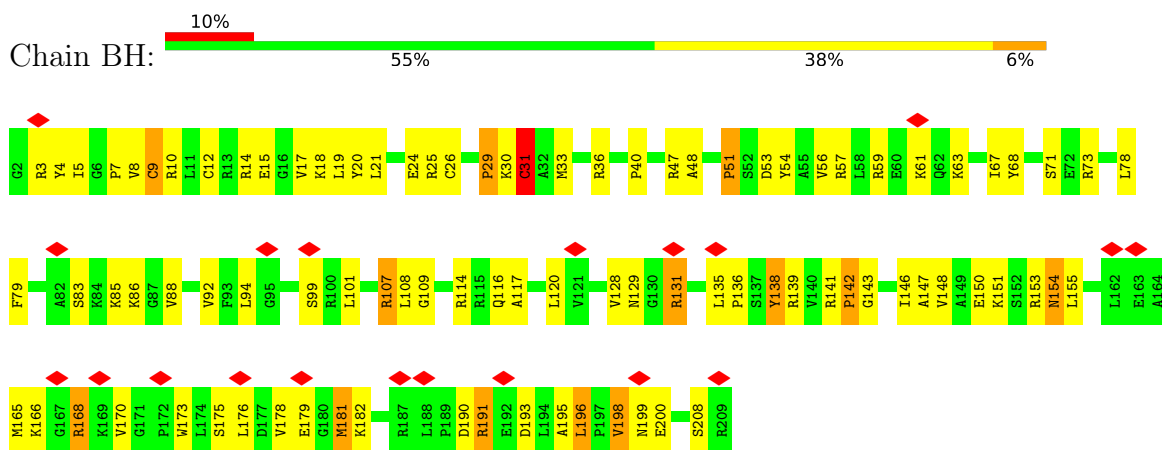
• Molecule 35: 30S ribosomal protein S2



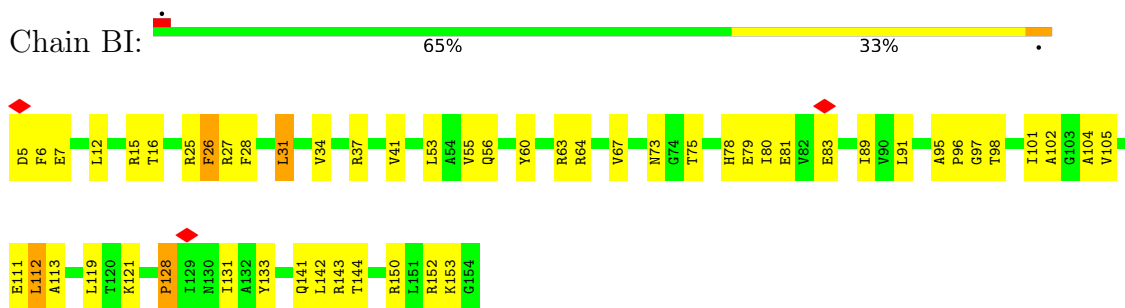
• Molecule 36: 30S ribosomal protein S3



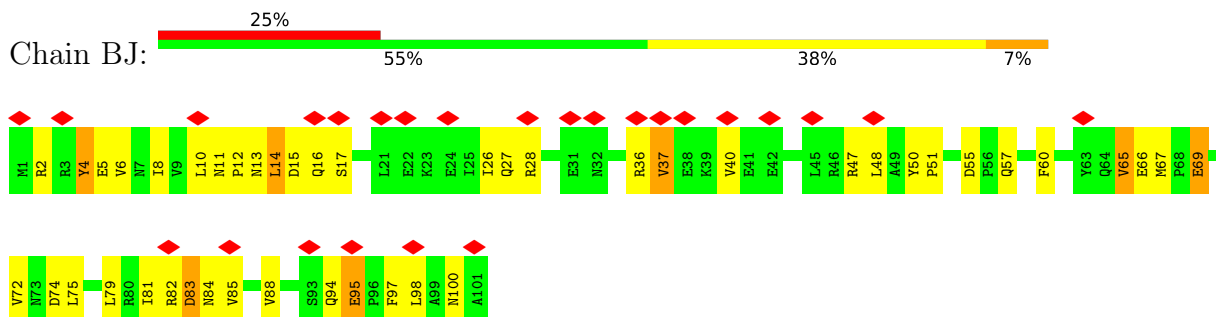
- Molecule 37: 30S ribosomal protein S4



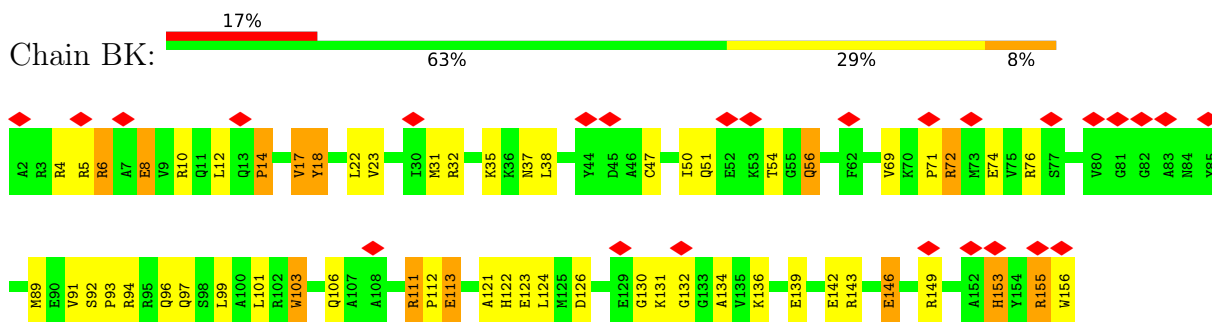
- Molecule 38: 30S ribosomal protein S5



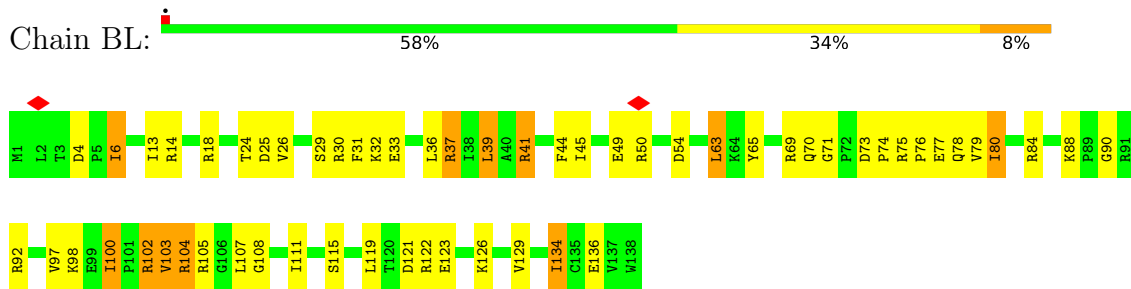
- Molecule 39: 30S ribosomal protein S6



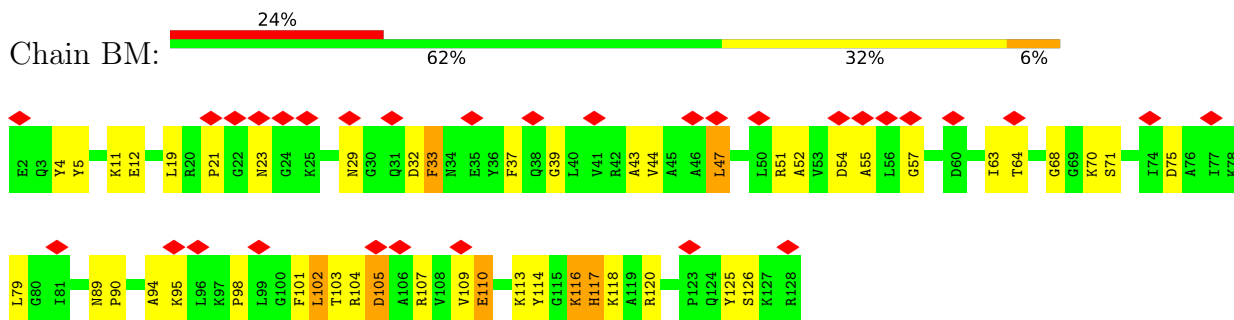
• Molecule 40: 30S ribosomal protein S7



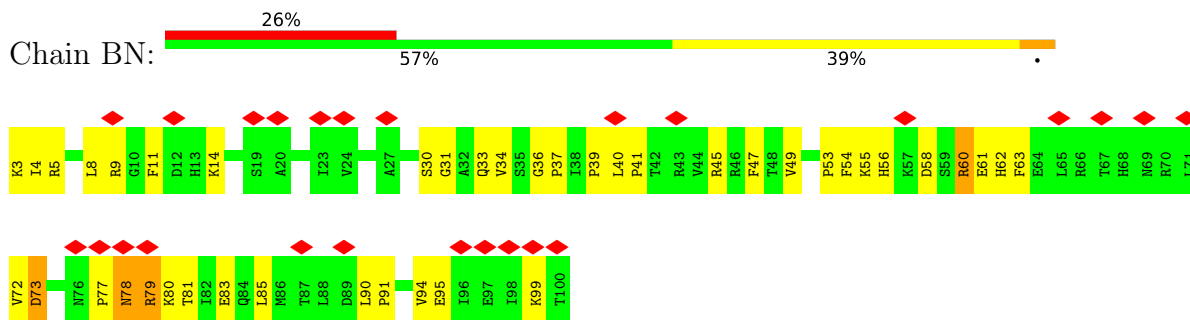
• Molecule 41: 30S ribosomal protein S8



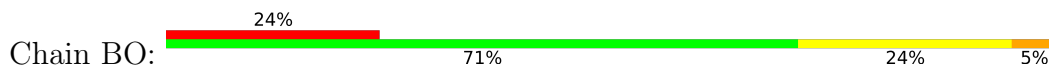
• Molecule 42: 30S ribosomal protein S9

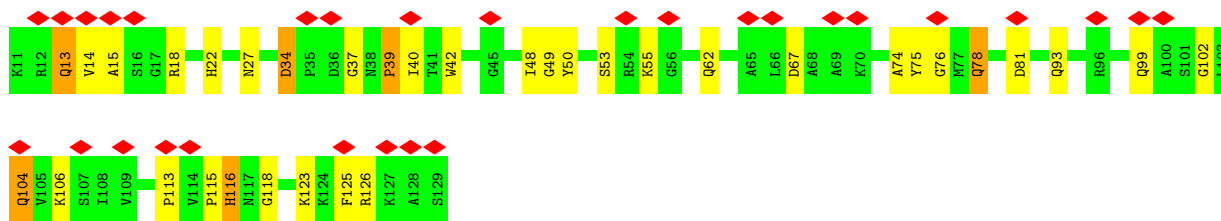


• Molecule 43: 30S ribosomal protein S10

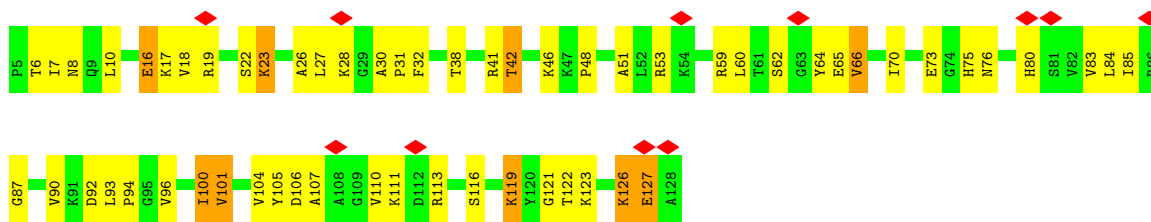


• Molecule 44: 30S ribosomal protein S11

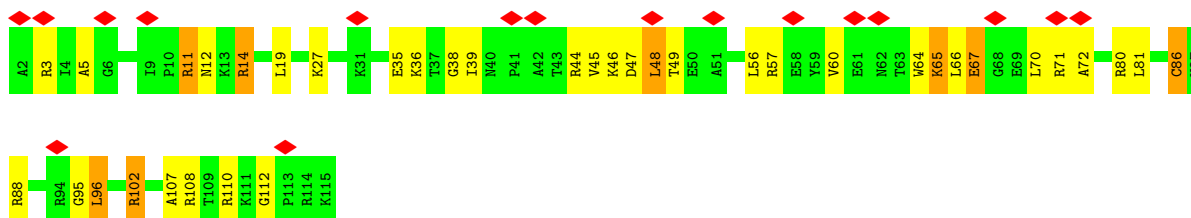




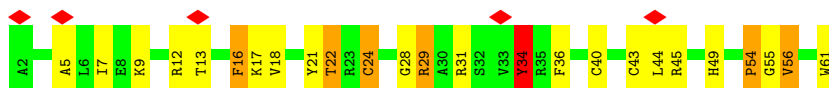
- Molecule 45: 30S ribosomal protein S12



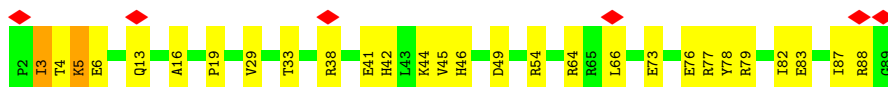
- Molecule 46: 30S ribosomal protein S13



- Molecule 47: 30S ribosomal protein S14 type Z

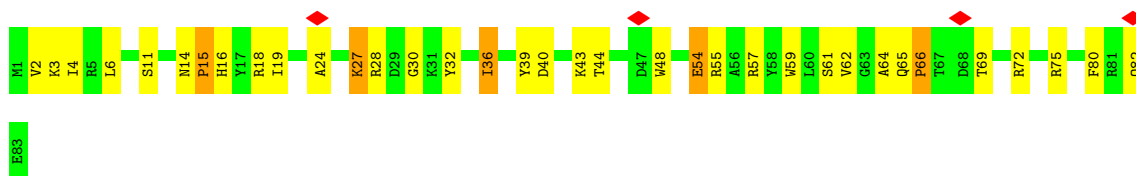


- Molecule 48: 30S ribosomal protein S15

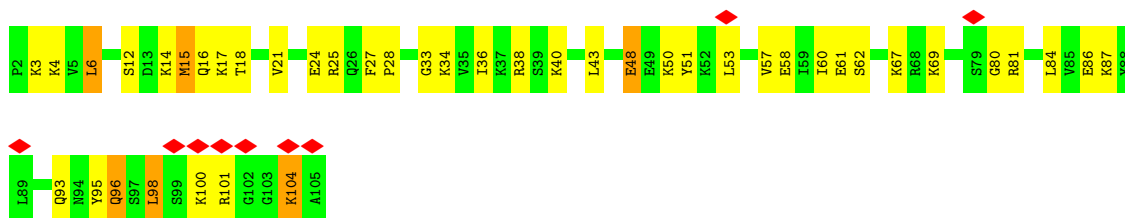


- Molecule 49: 30S ribosomal protein S16

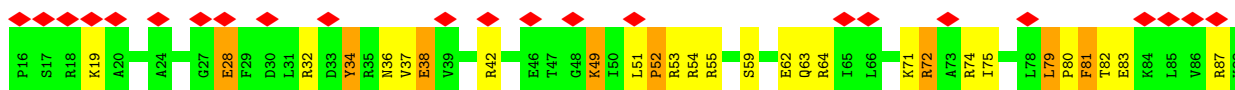




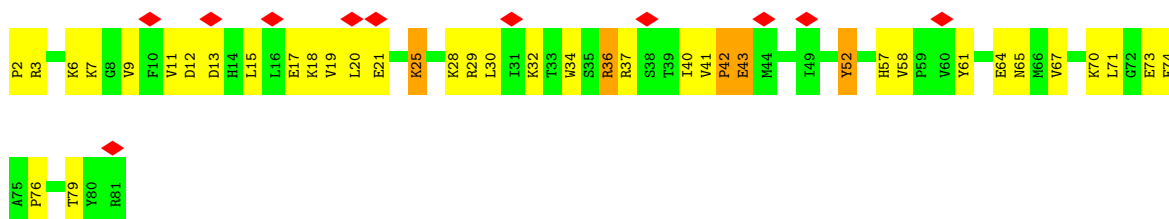
• Molecule 50: 30S ribosomal protein S17



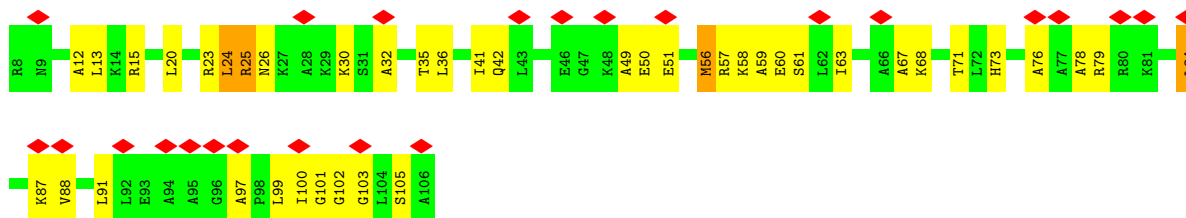
• Molecule 51: 30S ribosomal protein S18



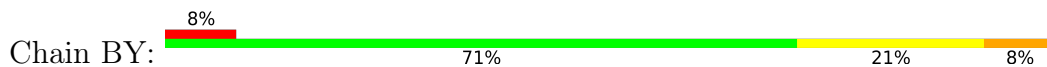
• Molecule 52: 30S ribosomal protein S19

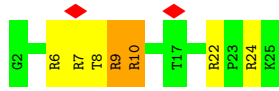


• Molecule 53: 30S ribosomal protein S20

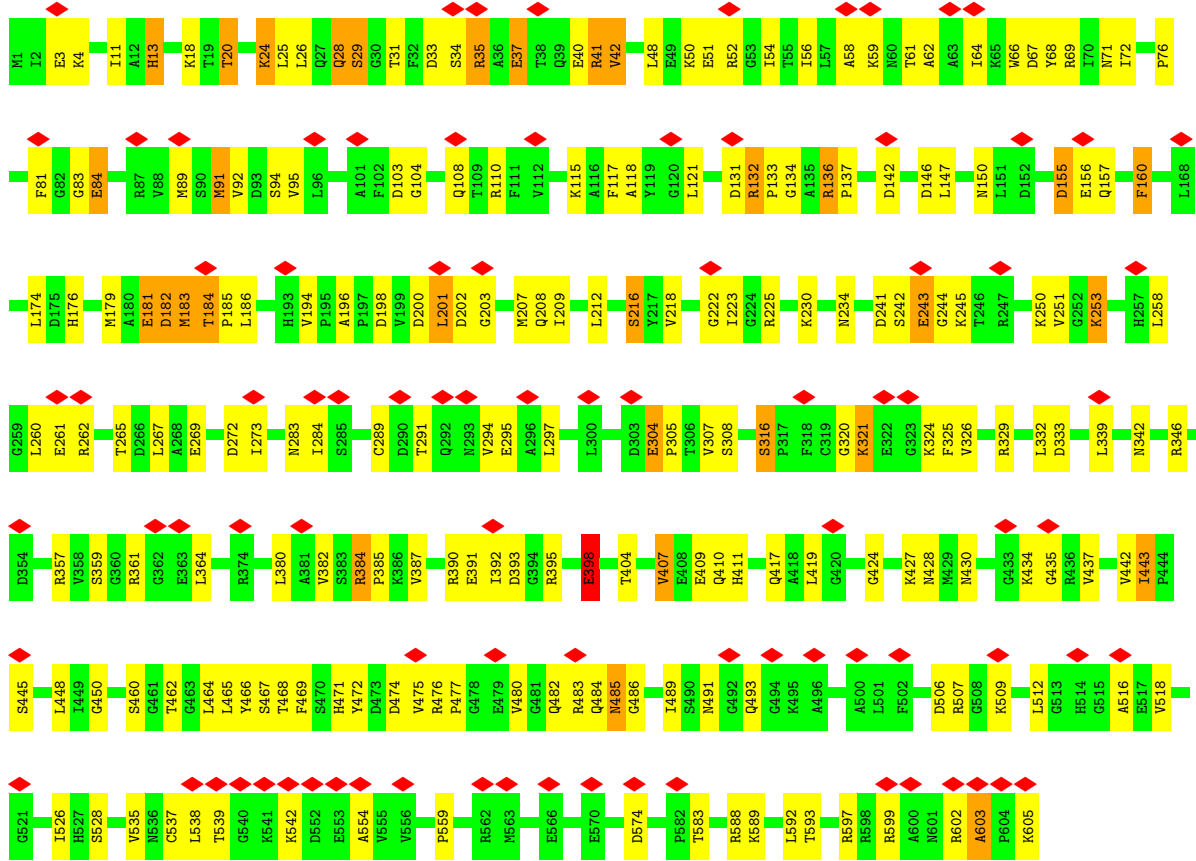


• Molecule 54: 30S ribosomal protein Thx





• Molecule 55: BipA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	61165	Depositor
Resolution determination method	Not provided	
CTF correction method	CTFFIND3	Depositor
Microscope	FEI TECNAI F20	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	20	Depositor
Minimum defocus (nm)	1500	Depositor
Maximum defocus (nm)	2700	Depositor
Magnification	53000	Depositor
Image detector	FEI FALCON II (4k x 4k)	Depositor
Maximum map value	0.975	Depositor
Minimum map value	-0.416	Depositor
Average map value	0.009	Depositor
Map value standard deviation	0.049	Depositor
Recommended contour level	0.109	Depositor
Map size (\AA)	364.56, 364.56, 364.56	wwPDB
Map dimensions	294, 294, 294	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.24, 1.24, 1.24	Depositor

5 Model quality

5.1 Standard geometry

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

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	AA	1.00	106/69677 (0.2%)	1.08	349/108754 (0.3%)
2	AB	0.83	4/2954 (0.1%)	0.99	7/4606 (0.2%)
3	AC	0.54	0/1775	0.86	0/2393
4	AD	0.72	2/2174 (0.1%)	1.19	13/2927 (0.4%)
5	AE	0.75	0/1611	1.16	13/2171 (0.6%)
6	AF	0.64	0/1660	1.03	4/2247 (0.2%)
7	AG	0.62	0/1507	1.06	4/2027 (0.2%)
8	AH	0.59	0/1354	0.98	4/1831 (0.2%)
9	AI	0.50	1/751 (0.1%)	0.82	4/1042 (0.4%)
10	AJ	0.52	0/1012	0.64	8/1373 (0.6%)
11	AK	0.78	1/1140 (0.1%)	1.16	8/1537 (0.5%)
12	AL	0.92	1/942 (0.1%)	1.31	10/1268 (0.8%)
13	AM	0.71	0/1123	1.12	5/1493 (0.3%)
14	AN	0.72	0/1100	1.19	8/1470 (0.5%)
15	AO	0.70	0/974	1.06	2/1302 (0.2%)
16	AP	0.72	0/887	1.06	4/1180 (0.3%)
17	AQ	0.85	0/990	1.31	9/1325 (0.7%)
18	AR	0.76	0/982	1.08	0/1306
19	AS	0.87	1/790 (0.1%)	1.28	9/1057 (0.9%)
20	AT	0.66	0/886	1.04	1/1189 (0.1%)
21	AU	0.57	0/756	0.93	0/1015
22	AV	0.54	0/857	1.04	2/1142 (0.2%)
23	AW	0.66	0/1467	1.11	7/1992 (0.4%)
24	AX	0.65	0/679	1.04	1/902 (0.1%)
25	AY	0.59	0/569	0.88	0/751
26	AZ	0.59	0/474	1.09	2/635 (0.3%)
27	Aa	0.84	1/594 (0.2%)	1.31	8/795 (1.0%)
28	Ab	0.72	0/459	1.16	3/621 (0.5%)
29	Ac	0.85	1/433 (0.2%)	1.36	5/576 (0.9%)
30	Ad	0.73	0/438	1.01	0/575
31	Ae	0.60	0/523	1.14	5/690 (0.7%)
32	Af	0.59	0/310	1.08	1/407 (0.2%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
34	BA	0.92	25/36437 (0.1%)	1.09	139/56865 (0.2%)
35	BF	0.64	0/1935	1.00	4/2609 (0.2%)
36	BG	0.55	0/1636	0.92	4/2205 (0.2%)
37	BH	0.64	1/1733 (0.1%)	0.98	3/2318 (0.1%)
38	BI	0.63	0/1162	1.01	3/1564 (0.2%)
39	BJ	0.60	0/856	0.95	0/1154
40	BK	0.57	0/1276	0.90	3/1709 (0.2%)
41	BL	0.62	0/1136	1.01	3/1527 (0.2%)
42	BM	0.54	0/1029	0.83	0/1379
43	BN	0.48	0/807	0.89	1/1085 (0.1%)
44	BO	0.63	0/900	0.98	0/1213
45	BP	0.60	0/986	1.00	3/1320 (0.2%)
46	BQ	0.33	0/924	0.45	2/1238 (0.2%)
47	BR	0.55	0/501	0.97	1/664 (0.2%)
48	BS	0.62	0/745	0.95	0/992
49	BT	0.62	0/716	0.95	2/963 (0.2%)
50	BU	0.68	1/870 (0.1%)	0.99	2/1159 (0.2%)
51	BV	0.59	0/603	1.01	1/799 (0.1%)
52	BW	0.53	1/661 (0.2%)	1.34	5/890 (0.6%)
53	BX	0.65	0/765	1.00	2/1007 (0.2%)
54	BY	0.45	0/212	0.80	0/277
55	CA	0.36	0/4598	0.49	15/6200 (0.2%)
All	All	0.87	146/162336 (0.1%)	1.06	689/241736 (0.3%)

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	AA	0	430
2	AB	0	17
3	AC	0	1
5	AE	0	1
6	AF	0	1
9	AI	0	2
11	AK	0	1
14	AN	0	1
17	AQ	0	1
19	AS	0	1
27	Aa	0	1
28	Ab	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
34	BA	0	170
37	BH	0	1
39	BJ	0	1
44	BO	0	1
47	BR	0	1
55	CA	0	1
All	All	0	633

The worst 5 of 146 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	AA	1060	U	O3'-P	-80.27	0.64	1.61
34	BA	1317	C	O3'-P	-70.09	0.77	1.61
1	AA	1203	G	O3'-P	-34.69	1.19	1.61
34	BA	1167	A	O3'-P	20.86	1.86	1.61
1	AA	2500	U	C4-O4	18.53	1.38	1.23

The worst 5 of 689 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
34	BA	1064	G	N1-C2-N2	-71.66	51.71	116.20
34	BA	1064	G	N3-C2-N2	57.69	160.28	119.90
34	BA	1317	C	P-O3'-C3'	-48.76	61.18	119.70
34	BA	1317	C	O3'-P-O5'	30.59	162.12	104.00
1	AA	1060	U	O3'-P-O5'	28.66	158.46	104.00

There are no chirality outliers.

5 of 633 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	AA	14	A	Sidechain
1	AA	25	U	Sidechain
1	AA	3	U	Sidechain
1	AA	31	C	Sidechain
1	AA	9	U	Sidechain

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	
3	AC	226/228 (99%)	155 (69%)	41 (18%)	30 (13%)	0	5
4	AD	270/272 (99%)	125 (46%)	59 (22%)	86 (32%)	0	0
5	AE	204/206 (99%)	117 (57%)	31 (15%)	56 (28%)	0	0
6	AF	206/208 (99%)	109 (53%)	46 (22%)	51 (25%)	0	1
7	AG	180/182 (99%)	79 (44%)	47 (26%)	54 (30%)	0	0
8	AH	172/174 (99%)	80 (46%)	46 (27%)	46 (27%)	0	0
9	AI	151/153 (99%)	89 (59%)	33 (22%)	29 (19%)	0	2
10	AJ	132/134 (98%)	56 (42%)	44 (33%)	32 (24%)	0	1
11	AK	137/139 (99%)	64 (47%)	28 (20%)	45 (33%)	0	0
12	AL	120/122 (98%)	59 (49%)	23 (19%)	38 (32%)	0	0
13	AM	143/145 (99%)	57 (40%)	36 (25%)	50 (35%)	0	0
14	AN	134/136 (98%)	49 (37%)	33 (25%)	52 (39%)	0	0
15	AO	115/117 (98%)	57 (50%)	39 (34%)	19 (16%)	0	4
16	AP	108/110 (98%)	48 (44%)	29 (27%)	31 (29%)	0	0
17	AQ	115/117 (98%)	52 (45%)	26 (23%)	37 (32%)	0	0
18	AR	115/117 (98%)	35 (30%)	50 (44%)	30 (26%)	0	1
19	AS	99/101 (98%)	52 (52%)	19 (19%)	28 (28%)	0	0
20	AT	108/110 (98%)	63 (58%)	24 (22%)	21 (19%)	0	2
21	AU	92/94 (98%)	57 (62%)	16 (17%)	19 (21%)	0	2
22	AV	108/110 (98%)	43 (40%)	32 (30%)	33 (31%)	0	0
23	AW	178/180 (99%)	96 (54%)	43 (24%)	39 (22%)	0	1
24	AX	83/85 (98%)	52 (63%)	21 (25%)	10 (12%)	0	6
25	AY	65/67 (97%)	36 (55%)	20 (31%)	9 (14%)	0	5
26	AZ	57/59 (97%)	34 (60%)	8 (14%)	15 (26%)	0	1
27	Aa	69/71 (97%)	23 (33%)	16 (23%)	30 (44%)	0	0

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
28	Ab	55/57 (96%)	14 (26%)	19 (34%)	22 (40%)	0	0
29	Ac	47/49 (96%)	14 (30%)	7 (15%)	26 (55%)	0	0
30	Ad	47/49 (96%)	20 (43%)	12 (26%)	15 (32%)	0	0
31	Ae	62/64 (97%)	23 (37%)	18 (29%)	21 (34%)	0	0
32	Af	35/37 (95%)	20 (57%)	5 (14%)	10 (29%)	0	0
35	BF	232/234 (99%)	114 (49%)	41 (18%)	77 (33%)	0	0
36	BG	204/206 (99%)	107 (52%)	46 (22%)	51 (25%)	0	1
37	BH	206/208 (99%)	95 (46%)	57 (28%)	54 (26%)	0	1
38	BI	148/150 (99%)	93 (63%)	38 (26%)	17 (12%)	0	7
39	BJ	99/101 (98%)	58 (59%)	19 (19%)	22 (22%)	0	1
40	BK	153/155 (99%)	73 (48%)	45 (29%)	35 (23%)	0	1
41	BL	136/138 (99%)	68 (50%)	35 (26%)	33 (24%)	0	1
42	BM	125/127 (98%)	62 (50%)	33 (26%)	30 (24%)	0	1
43	BN	96/98 (98%)	52 (54%)	20 (21%)	24 (25%)	0	1
44	BO	117/119 (98%)	65 (56%)	29 (25%)	23 (20%)	0	2
45	BP	122/124 (98%)	50 (41%)	30 (25%)	42 (34%)	0	0
46	BQ	112/114 (98%)	64 (57%)	29 (26%)	19 (17%)	0	3
47	BR	58/60 (97%)	24 (41%)	16 (28%)	18 (31%)	0	0
48	BS	86/88 (98%)	36 (42%)	35 (41%)	15 (17%)	0	3
49	BT	81/83 (98%)	42 (52%)	24 (30%)	15 (18%)	0	2
50	BU	102/104 (98%)	62 (61%)	23 (22%)	17 (17%)	0	3
51	BV	71/73 (97%)	26 (37%)	26 (37%)	19 (27%)	0	0
52	BW	78/80 (98%)	30 (38%)	25 (32%)	23 (30%)	0	0
53	BX	97/99 (98%)	38 (39%)	32 (33%)	27 (28%)	0	0
54	BY	22/24 (92%)	9 (41%)	6 (27%)	7 (32%)	0	0
55	CA	587/593 (99%)	313 (53%)	170 (29%)	104 (18%)	0	3
All	All	6565/6671 (98%)	3259 (50%)	1650 (25%)	1656 (25%)	0	1

5 of 1656 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	AC	35	ALA
3	AC	39	GLU

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Mol	Chain	Res	Type
3	AC	54	SER
3	AC	61	THR
3	AC	66	HIS

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	AC	180/180 (100%)	151 (84%)	29 (16%)	2	15
4	AD	215/215 (100%)	153 (71%)	62 (29%)	0	3
5	AE	166/166 (100%)	102 (61%)	64 (39%)	0	0
6	AF	164/164 (100%)	105 (64%)	59 (36%)	0	1
7	AG	156/156 (100%)	112 (72%)	44 (28%)	0	3
8	AH	143/143 (100%)	108 (76%)	35 (24%)	0	4
10	AJ	101/101 (100%)	71 (70%)	30 (30%)	0	2
11	AK	118/118 (100%)	79 (67%)	39 (33%)	0	2
12	AL	100/100 (100%)	69 (69%)	31 (31%)	0	2
13	AM	111/111 (100%)	71 (64%)	40 (36%)	0	1
14	AN	106/106 (100%)	65 (61%)	41 (39%)	0	0
15	AO	100/100 (100%)	71 (71%)	29 (29%)	0	3
16	AP	87/87 (100%)	63 (72%)	24 (28%)	0	3
17	AQ	105/105 (100%)	68 (65%)	37 (35%)	0	1
18	AR	93/93 (100%)	64 (69%)	29 (31%)	0	2
19	AS	82/82 (100%)	57 (70%)	25 (30%)	0	2
20	AT	90/90 (100%)	64 (71%)	26 (29%)	0	3
21	AU	76/76 (100%)	57 (75%)	19 (25%)	0	4
22	AV	91/91 (100%)	72 (79%)	19 (21%)	1	7
23	AW	159/159 (100%)	120 (76%)	39 (24%)	0	4
24	AX	67/67 (100%)	51 (76%)	16 (24%)	0	5

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
25	AY	62/62 (100%)	44 (71%)	18 (29%)	0	3
26	AZ	51/51 (100%)	36 (71%)	15 (29%)	0	2
27	Aa	63/63 (100%)	45 (71%)	18 (29%)	0	3
28	Ab	50/50 (100%)	31 (62%)	19 (38%)	0	0
29	Ac	48/48 (100%)	33 (69%)	15 (31%)	0	2
30	Ad	42/42 (100%)	29 (69%)	13 (31%)	0	2
31	Ae	54/54 (100%)	44 (82%)	10 (18%)	1	10
32	Af	34/34 (100%)	29 (85%)	5 (15%)	3	17
35	BF	202/202 (100%)	138 (68%)	64 (32%)	0	2
36	BG	160/160 (100%)	123 (77%)	37 (23%)	1	5
37	BH	180/180 (100%)	131 (73%)	49 (27%)	0	4
38	BI	115/115 (100%)	78 (68%)	37 (32%)	0	2
39	BJ	90/90 (100%)	61 (68%)	29 (32%)	0	2
40	BK	126/126 (100%)	93 (74%)	33 (26%)	0	4
41	BL	119/119 (100%)	86 (72%)	33 (28%)	0	3
42	BM	98/98 (100%)	73 (74%)	25 (26%)	0	4
43	BN	88/88 (100%)	67 (76%)	21 (24%)	0	5
44	BO	90/90 (100%)	73 (81%)	17 (19%)	1	9
45	BP	104/104 (100%)	81 (78%)	23 (22%)	1	6
46	BQ	92/92 (100%)	67 (73%)	25 (27%)	0	4
47	BR	49/49 (100%)	36 (74%)	13 (26%)	0	4
48	BS	79/79 (100%)	64 (81%)	15 (19%)	1	9
49	BT	72/72 (100%)	49 (68%)	23 (32%)	0	2
50	BU	96/96 (100%)	67 (70%)	29 (30%)	0	2
51	BV	64/64 (100%)	48 (75%)	16 (25%)	0	4
52	BW	71/71 (100%)	52 (73%)	19 (27%)	0	4
53	BX	76/76 (100%)	59 (78%)	17 (22%)	1	6
54	BY	19/19 (100%)	17 (90%)	2 (10%)	7	26
55	CA	479/507 (94%)	349 (73%)	130 (27%)	0	4
All	All	5383/5411 (100%)	3876 (72%)	1507 (28%)	2	3

5 of 1507 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
36	BG	52	LEU
42	BM	64	THR
37	BH	9	CYS
36	BG	48	TYR
39	BJ	6	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 186 such sidechains are listed below:

Mol	Chain	Res	Type
38	BI	72	GLN
43	BN	68	HIS
39	BJ	18	GLN
40	BK	110	GLN
44	BO	117	ASN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	AA	2880/2889 (99%)	1261 (43%)	253 (8%)
2	AB	122/123 (99%)	46 (37%)	3 (2%)
34	BA	1514/1515 (99%)	484 (31%)	140 (9%)
All	All	4516/4527 (99%)	1791 (39%)	396 (8%)

5 of 1791 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	AA	13	A
1	AA	14	A
1	AA	15	G
1	AA	20	C
1	AA	26	G

5 of 396 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	AA	2610	C
34	BA	327	A
1	AA	2690	C
34	BA	47	C
34	BA	495	A

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

3 ligands are 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
57	GCP	CA	701	-	27,34,34	1.53	6 (22%)	34,54,54	1.98	8 (23%)
56	NMY	BA	1601	-	45,45,45	0.51	0	63,67,67	1.07	6 (9%)
56	NMY	AA	3001	-	45,45,45	0.52	0	63,67,67	1.19	6 (9%)

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
57	GCP	CA	701	-	-	6/15/38/38	0/3/3/3
56	NMY	BA	1601	-	-	5/18/94/94	0/4/4/4
56	NMY	AA	3001	-	-	4/18/94/94	1/4/4/4

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
57	CA	701	GCP	C5-C6	4.22	1.48	1.41
57	CA	701	GCP	PG-O2G	2.85	1.61	1.54
57	CA	701	GCP	PG-O3G	2.84	1.61	1.54

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
57	CA	701	GCP	PB-O3A	2.75	1.61	1.58
57	CA	701	GCP	C5-C4	2.50	1.47	1.40

The worst 5 of 20 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	CA	701	GCP	C2-N3-C4	4.97	121.03	115.36
57	CA	701	GCP	C2-N1-C6	4.00	122.29	115.93
57	CA	701	GCP	C5-C6-N1	-3.95	118.03	123.43
57	CA	701	GCP	PB-O3A-PA	-3.80	120.51	132.56
57	CA	701	GCP	C4-C5-C6	-3.74	117.22	120.80

There are no chirality outliers.

5 of 15 torsion outliers are listed below:

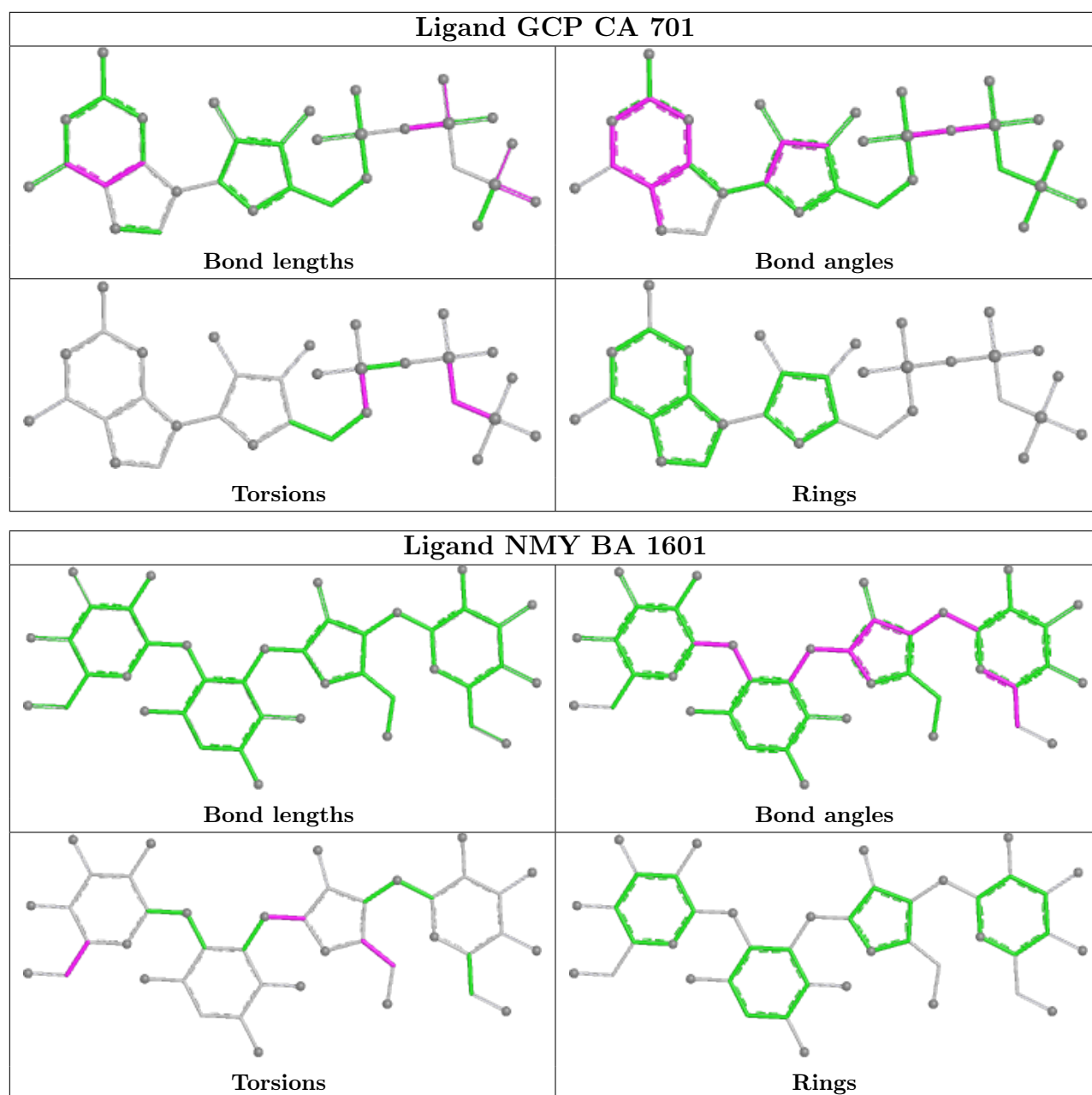
Mol	Chain	Res	Type	Atoms
56	AA	3001	NMY	C19-C18-O18-C15
56	BA	1601	NMY	O5-C5-C6-N6
56	BA	1601	NMY	C14-C13-O11-C11
57	CA	701	GCP	PG-C3B-PB-O1B
57	CA	701	GCP	PG-C3B-PB-O2B

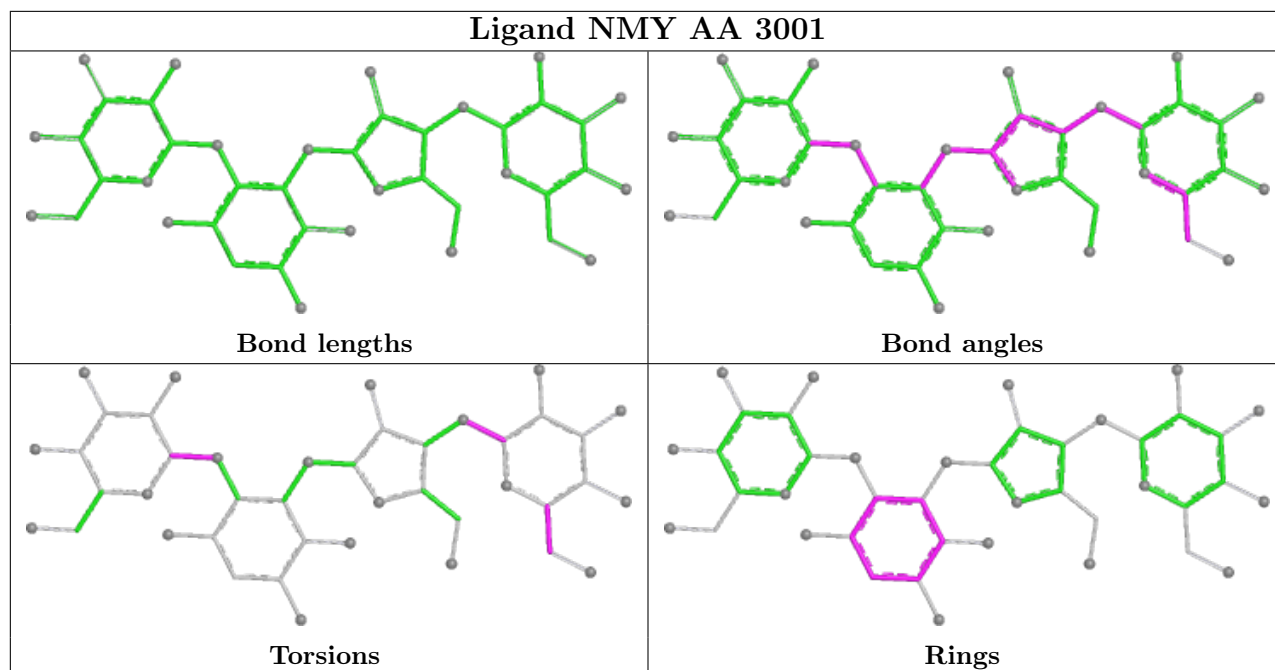
All (1) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
56	AA	3001	NMY	C10-C11-C12-C7-C8-C9

No monomer is involved in short contacts.

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





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	AA	11
33	Ag	3
34	BA	3
55	CA	2
9	AI	1

The worst 5 of 20 chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	Ag	30:UNK	C	123:UNK	N	31.39
1	CA	542:LYS	C	552:ASP	N	16.28
1	AA	164:U	O3'	171:G	P	7.69
1	AA	2893:G	O3'	2894:G	P	5.34
1	CA	277:THR	C	281:GLU	N	5.08

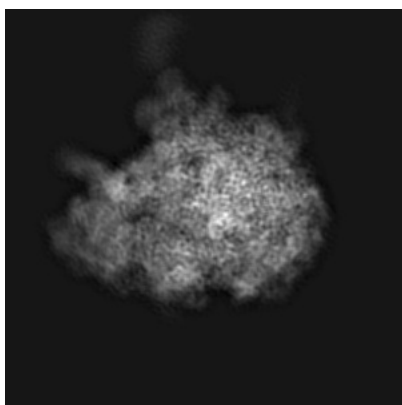
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-6396. These allow visual inspection of the internal detail of the map and identification of artifacts.

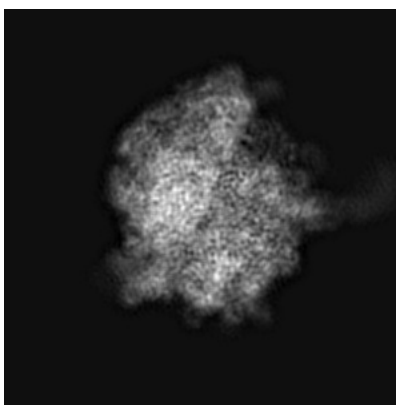
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

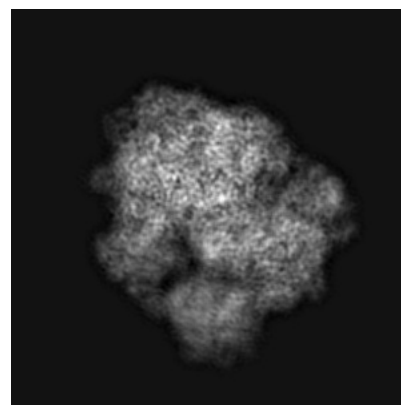
6.1.1 Primary map



X



Y

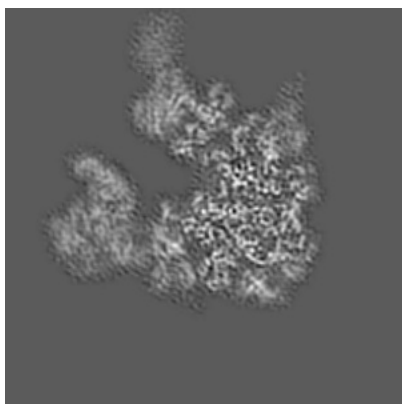


Z

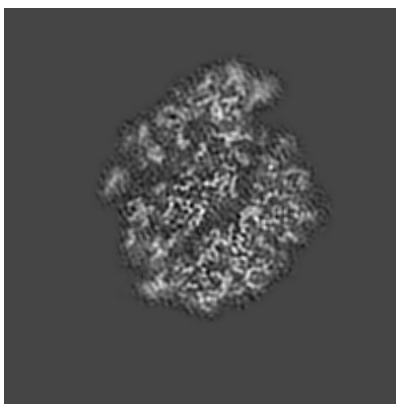
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

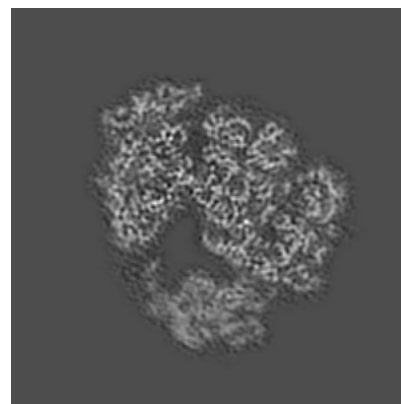
6.2.1 Primary map



X Index: 147



Y Index: 147

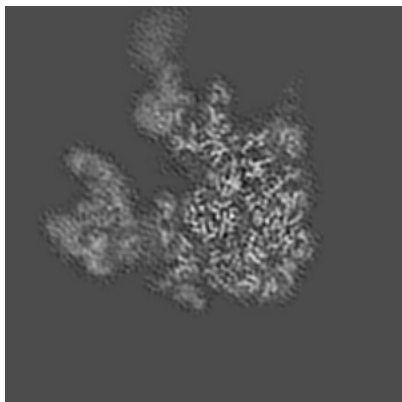


Z Index: 147

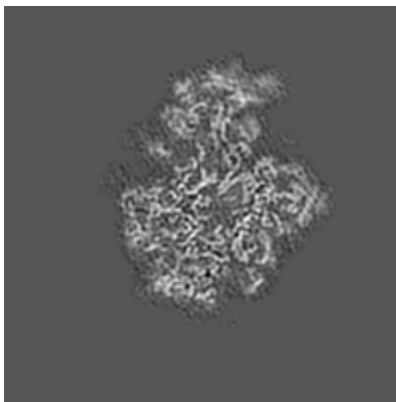
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

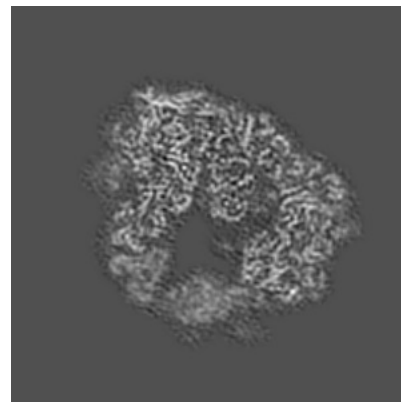
6.3.1 Primary map



X Index: 153



Y Index: 153



Z Index: 157

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

6.4 Orthogonal surface views [i](#)

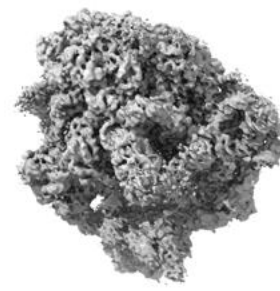
6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.109. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

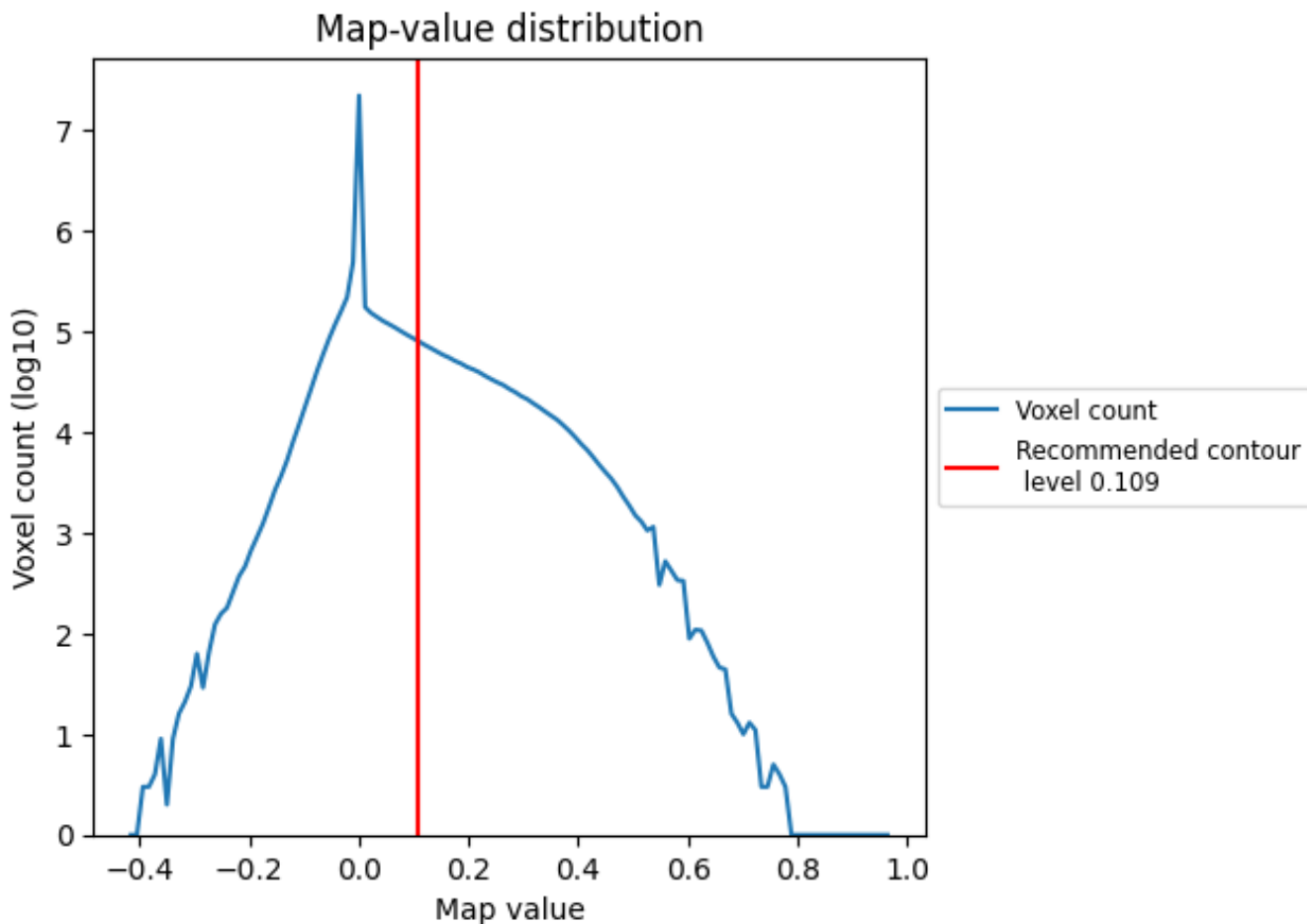
6.5 Mask visualisation

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

7 Map analysis [i](#)

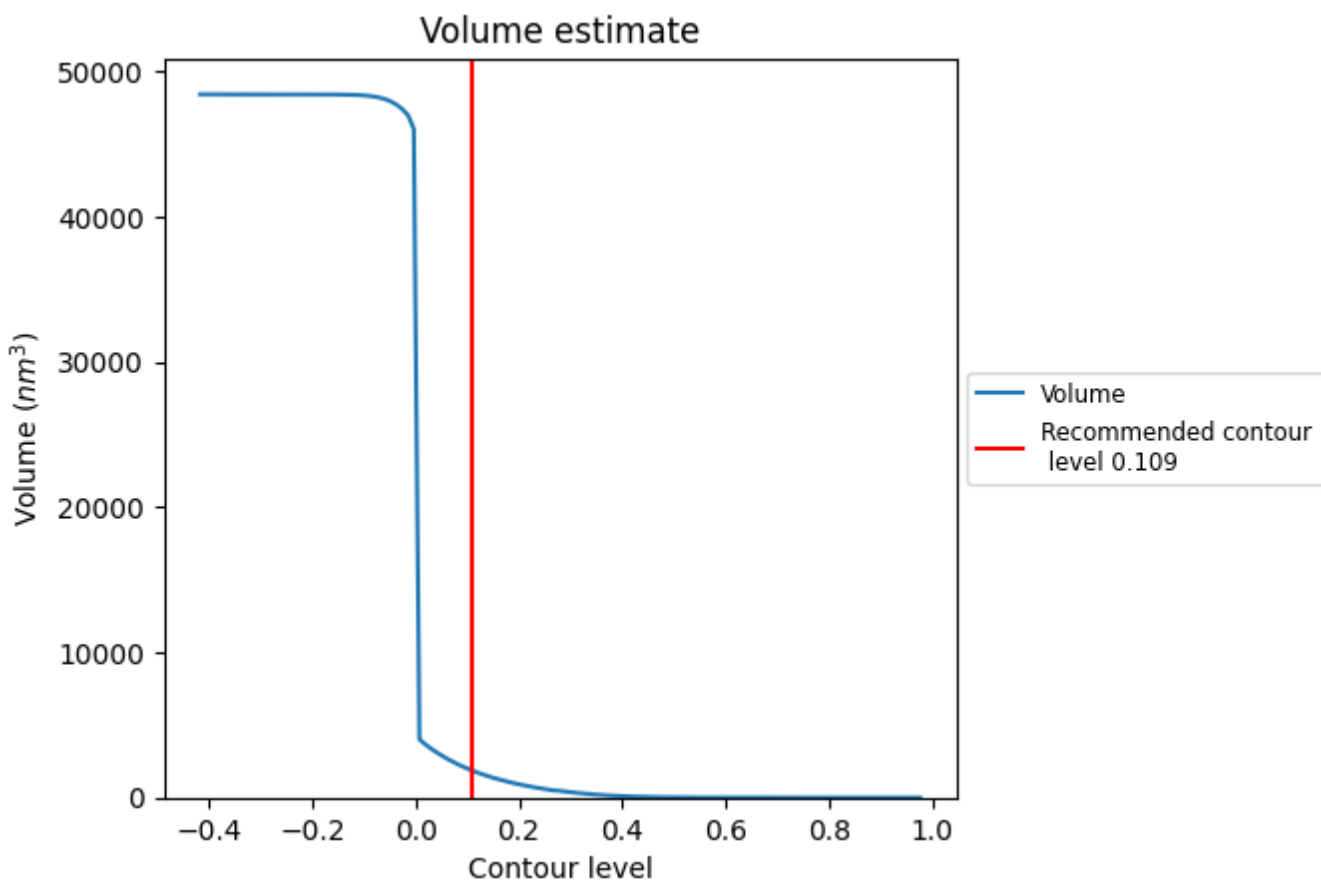
This section contains the results of statistical analysis of the map.

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.

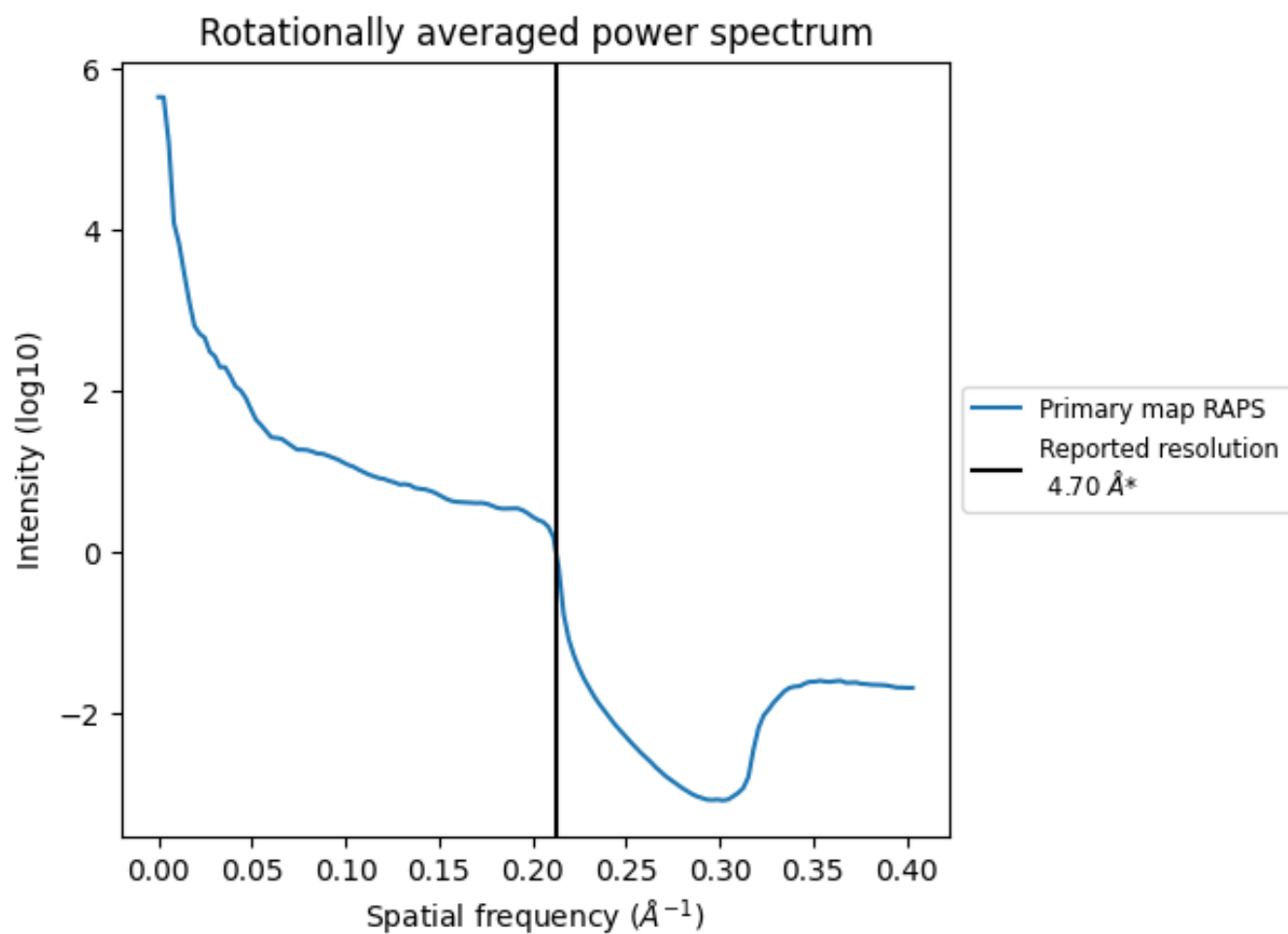
7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 1869 nm³; this corresponds to an approximate mass of 1688 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 0.213\AA^{-1}

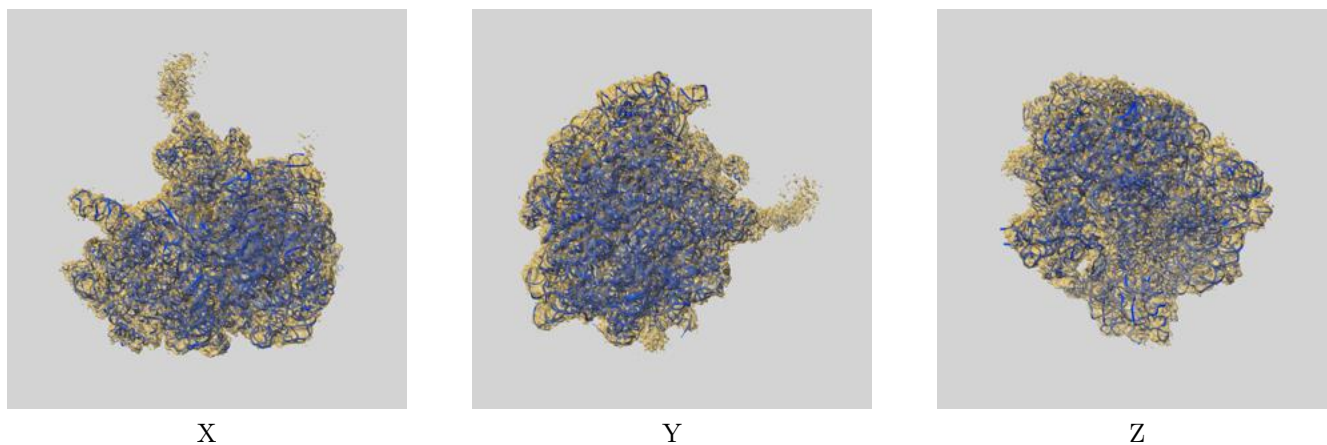
8 Fourier-Shell correlation

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

9 Map-model fit [i](#)

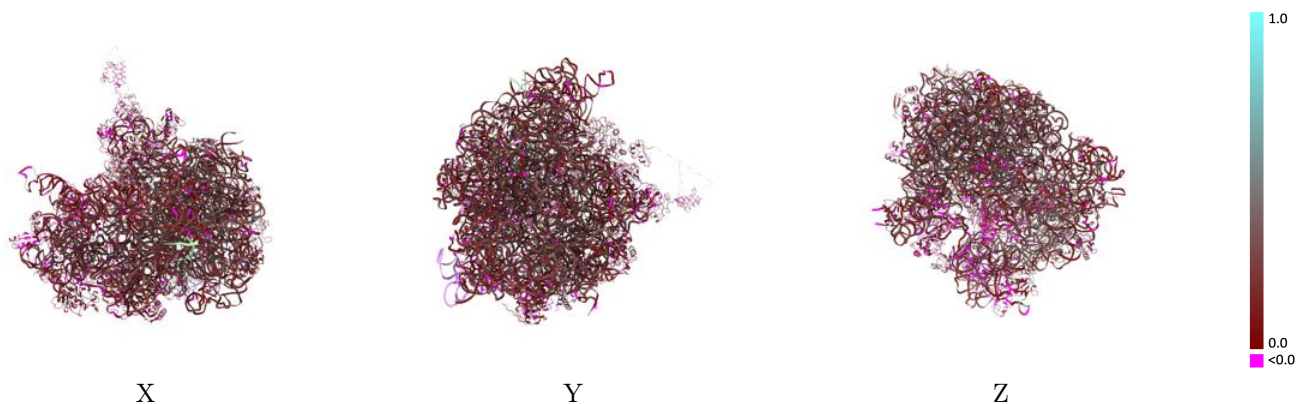
This section contains information regarding the fit between EMDB map EMD-6396 and PDB model 5A9Z. Per-residue inclusion information can be found in section 3 on page 15.

9.1 Map-model overlay [i](#)



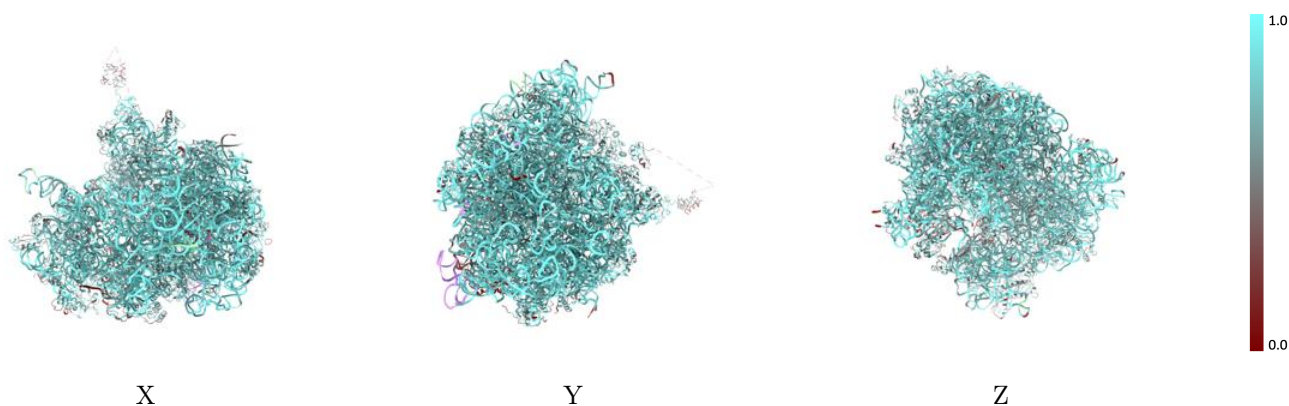
The images above show the 3D surface view of the map at the recommended contour level 0.109 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



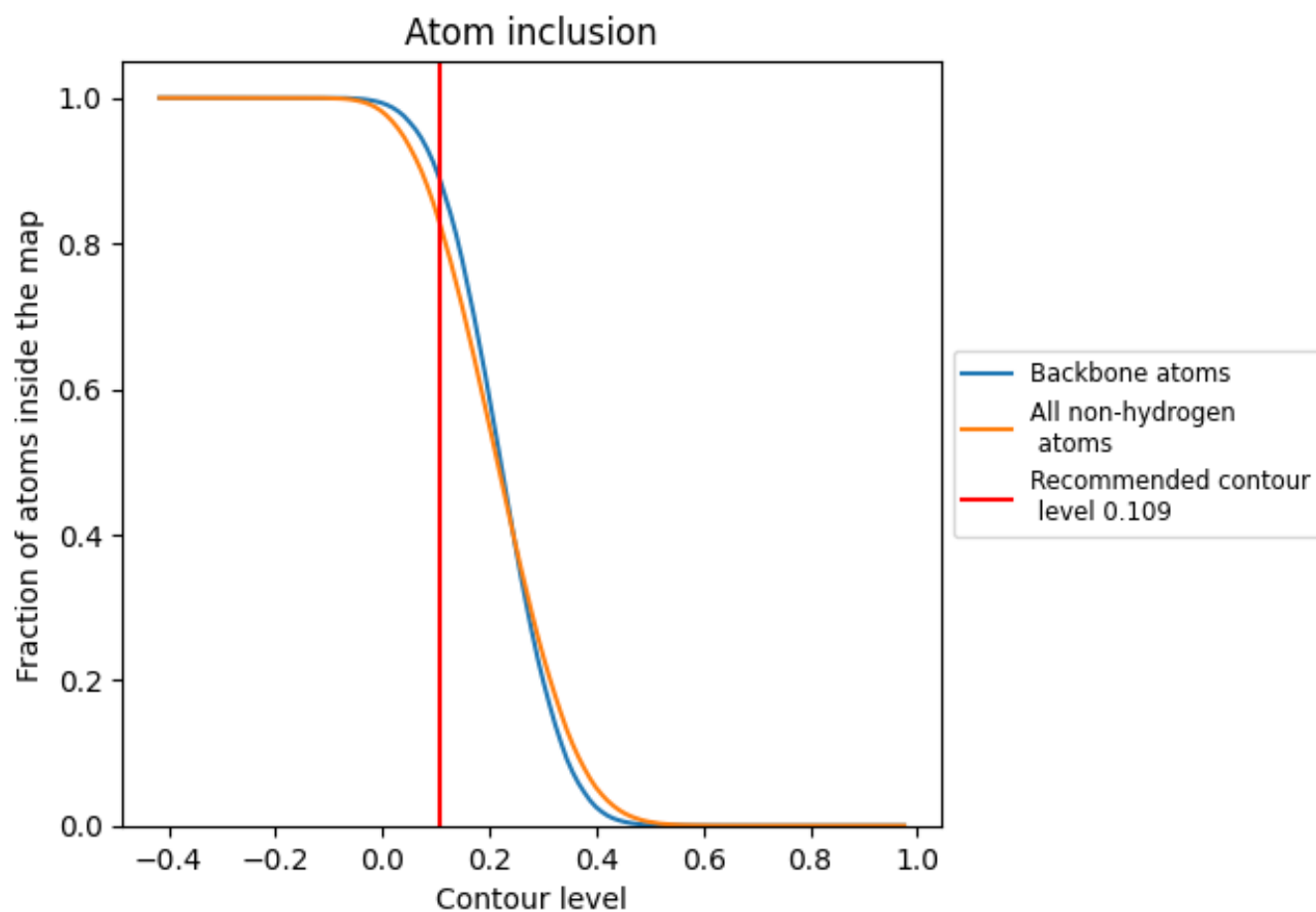
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.109).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 88% of all backbone atoms, 82% 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 (0.109) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8231	 0.2090
AA	 0.9004	 0.2540
AB	 0.9106	 0.2090
AC	 0.1008	 0.0200
AD	 0.7450	 0.2320
AE	 0.7536	 0.2100
AF	 0.7046	 0.1700
AG	 0.6139	 0.0710
AH	 0.6886	 0.1350
AI	 0.7965	 0.1740
AJ	 0.6544	 0.1090
AK	 0.7380	 0.1860
AL	 0.6967	 0.1970
AM	 0.6822	 0.1460
AN	 0.7550	 0.2400
AO	 0.7584	 0.2040
AP	 0.7070	 0.1120
AQ	 0.7215	 0.2100
AR	 0.7809	 0.2180
AS	 0.7192	 0.1630
AT	 0.7699	 0.2100
AU	 0.7098	 0.1650
AV	 0.6735	 0.1470
AW	 0.6872	 0.1320
AX	 0.6838	 0.1650
AY	 0.6984	 0.1930
AZ	 0.7325	 0.1930
Aa	 0.7018	 0.1870
Ab	 0.7621	 0.2390
Ac	 0.7579	 0.1800
Ad	 0.7337	 0.2120
Ae	 0.7117	 0.2070
Af	 0.7075	 0.2050
Ag	 0.4935	 0.1580
BA	 0.8930	 0.1970



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Chain	Atom inclusion	Q-score
BF	 0.6791	 0.1570
BG	 0.7058	 0.1770
BH	 0.7256	 0.1570
BI	 0.7768	 0.2330
BJ	 0.6494	 0.1300
BK	 0.6763	 0.1180
BL	 0.8241	 0.2200
BM	 0.6502	 0.0560
BN	 0.6078	 0.0600
BO	 0.6454	 0.1070
BP	 0.6820	 0.1980
BQ	 0.6935	 0.1170
BR	 0.7045	 0.0950
BS	 0.7331	 0.1700
BT	 0.7766	 0.1550
BU	 0.7410	 0.1690
BV	 0.5889	 0.0870
BW	 0.7290	 0.0650
BX	 0.6198	 0.1290
BY	 0.7330	 0.0190
CA	 0.6443	 0.2160