



wwPDB EM Validation Summary Report ⓘ

Apr 1, 2025 – 10:35 pm BST

PDB ID : 6YLG / pdb_00006ylg
EMDB ID : EMD-10838
Title : Rix1-Rea1 pre-60S particle - 60S core, body 1 (rigid body refinement)
Authors : Kater, L.; Beckmann, R.
Deposited on : 2020-04-07
Resolution : 3.00 Å (reported)
Based on initial models : 3JCT, 6N8J

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.dev117
Mogul : 1.8.4, CSD as541be (2020)
MolProbity : 4.02b-467
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.42

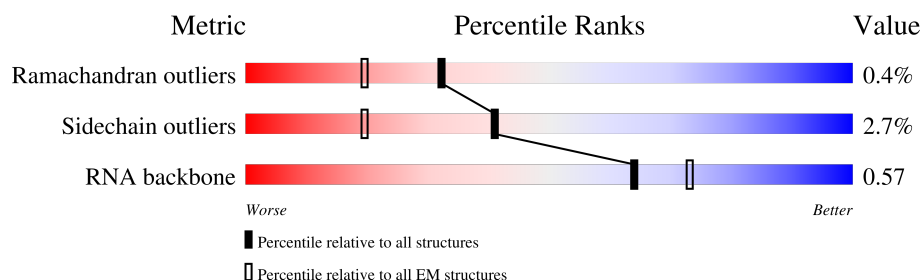
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 3.00 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	1	3396	
2	2	158	
3	3	121	
4	4	593	
5	5	120	
6	A	254	
7	B	387	
8	C	362	

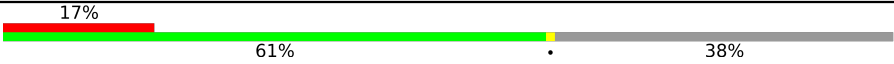
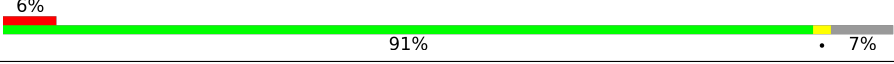
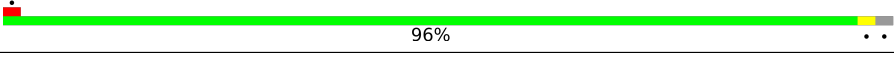
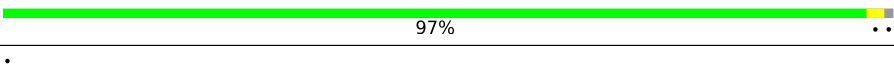

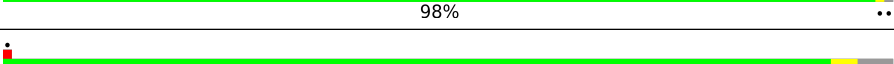
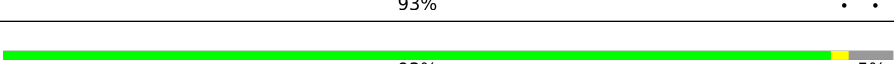
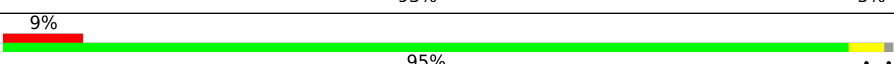
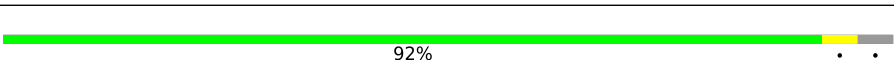

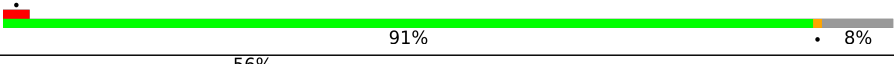

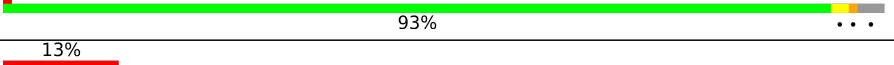









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Mol	Chain	Length	Quality of chain
9	D	297	
10	E	176	
11	F	244	
12	G	256	
13	H	191	
14	I	166	
15	J	174	
16	K	334	
17	L	199	
18	M	138	
19	N	204	
20	O	199	
21	P	184	
22	Q	186	
23	R	189	
24	S	172	
25	T	160	
26	U	121	
27	V	137	
28	W	236	
29	X	142	
30	Y	127	
31	Z	136	
32	a	149	
33	b	647	

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Mol	Chain	Length	Quality of chain
34	c	175	
35	d	113	
36	e	130	
37	f	107	
38	g	121	
39	h	120	
40	i	100	
41	j	88	
42	k	78	
43	l	51	
44	m	486	
45	n	105	
46	o	217	
47	p	92	
48	q	165	
49	r	261	
50	s	520	
51	t	767	
52	u	199	
53	x	515	
54	y	245	
55	z	106	

2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 147190 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 25S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	1	3039	Total	C	N	O	P	0	0
			65028	29041	11740	21208	3039		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
2	2	154	Total	C	N	O	P	0	0
			3273	1464	576	1079	154		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
3	3	117	Total	C	N	O	P	0	0
			2494	1114	446	817	117		

- Molecule 4 is a protein called Probable metalloprotease ARX1.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	4	509	Total	C	N	O	S	0	0
			3945	2503	673	754	15		

- Molecule 5 is a protein called rRNA-processing protein CGR1.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	5	78	Total	C	N	O	S	0	0
			681	419	140	119	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
6	A	245	Total	C	N	O	S	0	0
			1863	1162	376	324	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
			3081	1956	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
			2749	1730	522	494	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
9	D	243	Total	C	N	O	S	0	0
			1969	1250	344	373	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	216	Total	C	N	O	S	0	0
			1744	1127	317	299	1		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
12	G	228	Total	C	N	O	S	0	0
			1784	1142	320	319	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
13	H	187	Total	C	N	O	S	0	0
			1486	944	270	268	4		

- Molecule 14 is a protein called Bud site selection protein 20.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	I	130	Total	C	N	O	S	0	0
			1051	657	194	197	3		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
15	J	168	Total	C	N	O	S	0	0
			1344	841	251	248	4		

- Molecule 16 is a protein called Pre-rRNA-processing protein IPI1.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	K	234	Total	C	N	O	S	0	0
			1875	1203	331	333	8		

- Molecule 17 is a protein called 60S ribosomal protein L13-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	L	181	Total	C	N	O	S	0	0
			1456	907	301	248			

- Molecule 18 is a protein called 60S ribosomal protein L14-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	M	134	Total	C	N	O	S	0	0
			1040	666	196	176	2		

- Molecule 19 is a protein called 60S ribosomal protein L15-A.

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

- Molecule 20 is a protein called 60S ribosomal protein L16-A.

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

- Molecule 21 is a protein called 60S ribosomal protein L17-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
21	P	171	Total	C	N	O	0	0
			1360	845	272	243		

- Molecule 22 is a protein called 60S ribosomal protein L18-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	Q	144	Total	C	N	O	S	0	0
			1110	704	213	192	1		

- Molecule 23 is a protein called 60S ribosomal protein L19-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
23	R	151	Total	C	N	O	0	0
			1219	757	258	204		

- Molecule 24 is a protein called 60S ribosomal protein L20-A.

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

- Molecule 25 is a protein called 60S ribosomal protein L21-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	T	124	Total	C	N	O	S	0	0
			983	619	188	173	3		

- Molecule 26 is a protein called 60S ribosomal protein L22-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	U	101	Total	C	N	O	0	0
			800	518	131	151		

- Molecule 27 is a protein called 60S ribosomal protein L23-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	V	134	Total	C	N	O	S	0	0
			993	623	187	176	7		

- Molecule 28 is a protein called Ribosome assembly factor MRT4.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	W	233	Total	C	N	O	S	0	0
			1877	1189	322	361	5		

- Molecule 29 is a protein called 60S ribosomal protein L25.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	X	140	Total	C	N	O	S	0	0
			1092	699	195	196	2		

- Molecule 30 is a protein called 60S ribosomal protein L26-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Y	125	Total	C	N	O		0	0
			984	620	191	173			

- Molecule 31 is a protein called 60S ribosomal protein L27-A.

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

- Molecule 32 is a protein called 60S ribosomal protein L28.

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

- Molecule 33 is a protein called Nucleolar GTP-binding protein 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	b	613	Total	C	N	O	S	0	0
			4953	3110	892	926	25		

- Molecule 34 is a protein called Ribosome biogenesis protein ALB1.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	c	109	Total	C	N	O		0	0
			872	543	171	158			

- Molecule 35 is a protein called 60S ribosomal protein L31-A.

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

- Molecule 36 is a protein called 60S ribosomal protein L32.

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

- Molecule 37 is a protein called 60S ribosomal protein L33-A.

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

- Molecule 38 is a protein called 60S ribosomal protein L34-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	g	107	Total	C	N	O	S	0	0
			846	525	173	144	4		

- Molecule 39 is a protein called 60S ribosomal protein L35-A.

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

- Molecule 40 is a protein called 60S ribosomal protein L36-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	i	96	Total	C	N	O	S	0	0
			743	465	148	128	2		

- Molecule 41 is a protein called 60S ribosomal protein L37-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	j	84	Total	C	N	O	S	0	0
			665	405	145	110	5		

- Molecule 42 is a protein called 60S ribosomal protein L38.

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

- Molecule 43 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	l	49	Total	C	N	O	S	0	0
			428	266	96	64	2		

- Molecule 44 is a protein called Nucleolar GTP-binding protein 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	m	439	Total	C	N	O	S	0	0
			3546	2249	647	641	9		

- Molecule 45 is a protein called 60S ribosomal protein L30.

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

- Molecule 46 is a protein called 60S ribosomal protein L1-A.

Mol	Chain	Residues	Atoms				AltConf	Trace
46	o	177	Total	C	N	O	0	0
			877	523	177	177		

- Molecule 47 is a protein called 60S ribosomal protein L43-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	p	89	Total	C	N	O	S	0	0
			680	421	136	117	6		

- Molecule 48 is a protein called 60S ribosomal protein L12-A.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	q	126	Total	C	N	O	S	0	0
			961	606	171	182	2		

- Molecule 49 is a protein called Ribosome biogenesis protein NSA2.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	r	225	Total	C	N	O	S	0	0
			1818	1152	345	314	7		

- Molecule 50 is a protein called Nuclear GTP-binding protein NUG1.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	s	56	Total	C	N	O	S	0	0
			463	291	94	77	1		

- Molecule 51 is a protein called Protein SDA1.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	t	431	Total	C	N	O	S	0	0
			3395	2156	587	629	23		

- Molecule 52 is a protein called Ribosome biogenesis protein RLP24.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	u	148	Total	C	N	O	S	0	0
			1247	783	250	205	9		

- Molecule 53 is a protein called Ribosome assembly protein 4.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	x	388	Total	C	N	O	S	0	0
			3033	1900	549	564	20		

- Molecule 54 is a protein called Eukaryotic translation initiation factor 6.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	y	243	Total	C	N	O	S	0	0
			1841	1141	318	376	6		

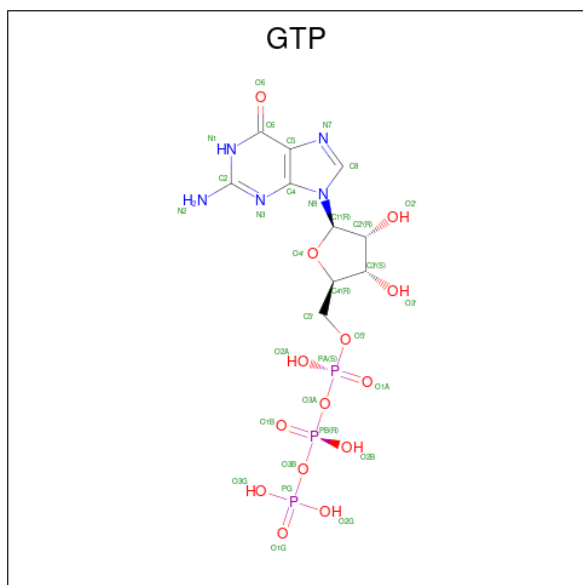
- Molecule 55 is a protein called UPF0642 protein YBL028C.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	z	77	Total	C	N	O	S	0	0
			643	403	130	109	1		

- Molecule 56 is ZINC ION (CCD ID: ZN) (formula: Zn).

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

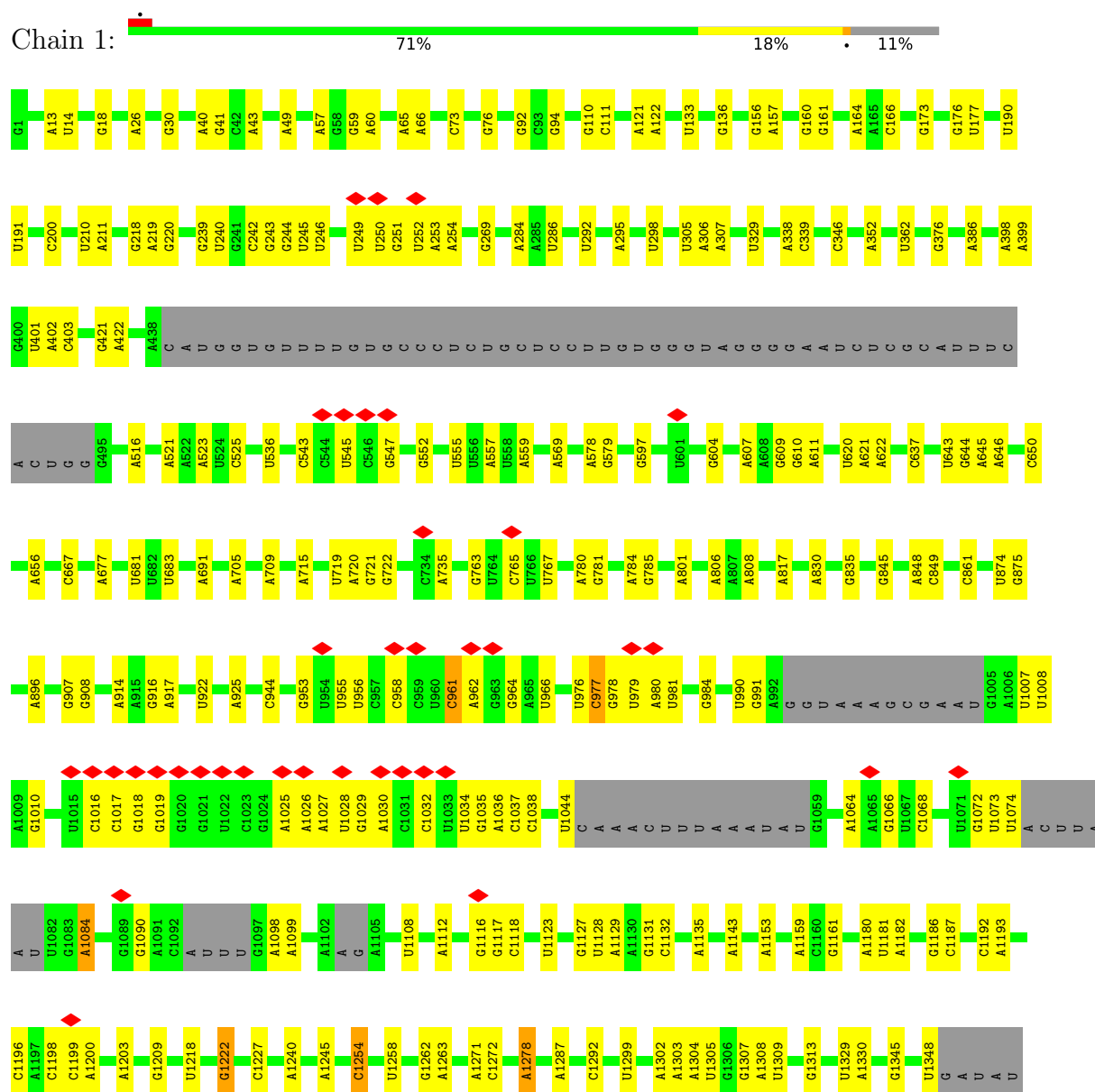
- Molecule 57 is GUANOSINE-5'-TRIPHOSPHATE (CCD ID: GTP) (formula: $C_{10}H_{16}N_5O_{14}P_3$).



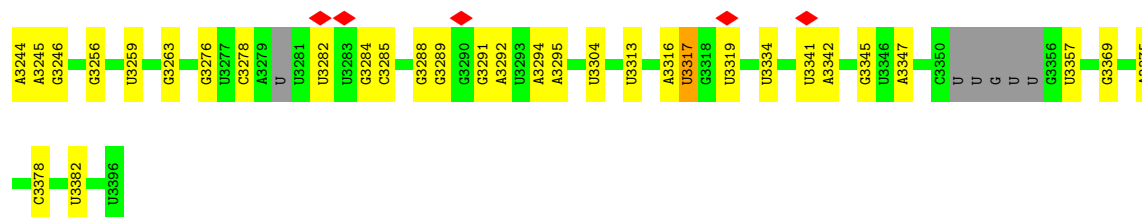
3 Residue-property plots

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.

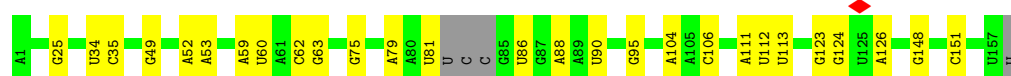
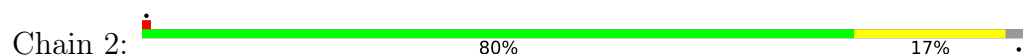
• Molecule 1: 25S rRNA



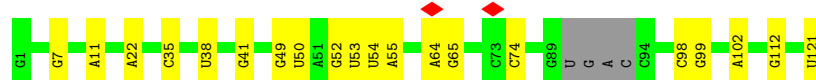
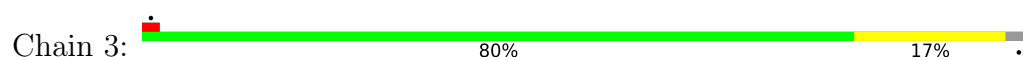
U100	G2937	G2831	G2735	G2632	G2530	U2411	C	A2126	U	U1821	A	G
G3101	G2938	G2834	A2736	U2633	C2531	G2412	A	A2127	U	C	U	A1355
C3115	A2941	G2835	C2737	U2634	U2532	G2418	C	A2131	G	U	U	U1356
G3116	G2942	G2836	A2738	A	G2533	A2419	U	G2134	U	C	G	A1386
A3129	U2944	A2837	C2742	C	U2537	G2435	A	A2149	A	C	G	G1392
U3130	A2838	A2838	G2753	A	U2538	U2436	U	G2169	U	U	U	A1580
A3142	U2841	U2842	C2754	A	C2539	U2437	U	G2170	G	G	G	C1581
C3143	U2843	U2844	C2755	A	A2540	C2444	A	U2184	C	U	C	G1400
A3150	C2844	A2845	U2756	A	U2541	A2445	U	U2194	C	A	U	U1405
U3151	U2846	U2847	A	C	U2542	U2446	A	G2195	U	C	A	A1588
U3152	U2847	U2848	C	C	U2543	G2447	A	U2205	G	U	U	A1589
U3153	U2849	U2850	U2757	A	U2544	A2449	C	G2231	U	G	U	A1419
C	U2851	U2852	U2758	A	U2545	G2450	C	U2232	U	U	U	G1434
U	U2853	U2854	C2759	A	U2546	G2451	C	U2233	U	U	U	G1435
U	U2855	U2856	U2760	A	U2547	G2452	C	U2234	U	U	U	U1436
U	U2857	U2858	U2761	A	U2548	U2453	A	U2235	U	U	U	C1437
G3158	U2859	U2860	U2762	A	U2549	U2454	U	U2236	U	U	U	G1443
C3159	U2861	U2862	U2763	A	U2550	A2459	A	A2244	U	U	U	U1455
U3160	U2863	U2864	U2764	A	U2551	A2462	A	G2245	U	U	U	G1483
C3161	U2865	U2866	C2765	A	U2552	G2463	U	G2246	U	U	U	U1484
C3162	U2867	U2868	U2766	A	U2553	U2467	U	G2247	U	U	U	G1487
A3163	U2869	U2870	U2767	A	U2554	G2467	U	U2248	U	U	U	C1496
C3164	U2871	U2872	U2768	A	U2555	A2468	U	U2249	U	U	U	A1503
A3165	U2873	U2874	U2769	A	U2556	G2469	U	U2250	U	U	U	C1508
C3166	U2875	U2876	U2770	A	U2557	U2471	U	U2251	U	U	U	U1522
A3167	U2877	U2878	U2771	A	U2558	C2472	U	U2252	U	U	U	U1523
A3168	U2879	U2880	U2772	A	U2559	G2473	U	U2253	U	U	U	A1524
U	U2881	U2882	U2773	A	U2560	U2474	U	U2254	U	U	U	G1525
A3170	U2883	U2884	U2774	A	U2561	G2475	U	U2255	U	U	U	U1533
U3171	U2885	U2886	U2775	A	U2562	C2476	U	U2256	U	U	U	G1536
A3172	U2887	U2888	U2776	A	U2563	U2477	U	U2257	U	U	U	A1539
C3173	U2889	U2890	U2777	A	U2564	C2478	U	U2258	U	U	U	U1555
A3174	U2891	U2892	U2778	A	U2565	U2479	U	U2259	U	U	U	C1556
U3175	U2893	U2894	U2779	A	U2566	A2480	U	U2260	U	U	U	A1557
G3176	U2895	U2896	U2780	A	U2567	U2481	U	U2261	U	U	U	G1560
U3179	U2897	U2898	U2781	A	U2568	G2482	U	U2262	U	U	U	G1561
A3180	U2899	U2900	U2782	A	U2569	U2483	U	U2263	U	U	U	C1562
C3181	U2901	U2902	U2783	A	U2570	A2494	U	U2264	U	U	U	G1565
G3182	U2903	U2904	U2784	A	U2571	U2501	U	U2265	U	U	U	A
A3187	U2905	U2906	U2785	A	U2572	A2502	U	U2266	U	U	U	U
U3195	U2907	U2908	U2786	A	U2573	G2503	U	U2267	U	U	U	U
U3196	U2909	U2910	U2787	A	U2574	U2504	U	U2268	U	U	U	U
C3206	U2911	U2912	U2788	A	U2575	U2505	U	U2269	U	U	U	U
U3207	U2913	U2914	U2789	A	U2576	U2506	U	U2270	U	U	U	U
A3217	U2915	U2916	U2790	A	U2577	U2507	U	U2271	U	U	U	U
A3218	U2917	U2918	U2791	A	U2578	U2508	U	U2272	U	U	U	U
G3219	U2919	U2920	U2792	A	U2579	U2509	U	U2273	U	U	U	U
A3227	U2921	U2922	U2793	A	U2580	U2510	U	U2274	U	U	U	U



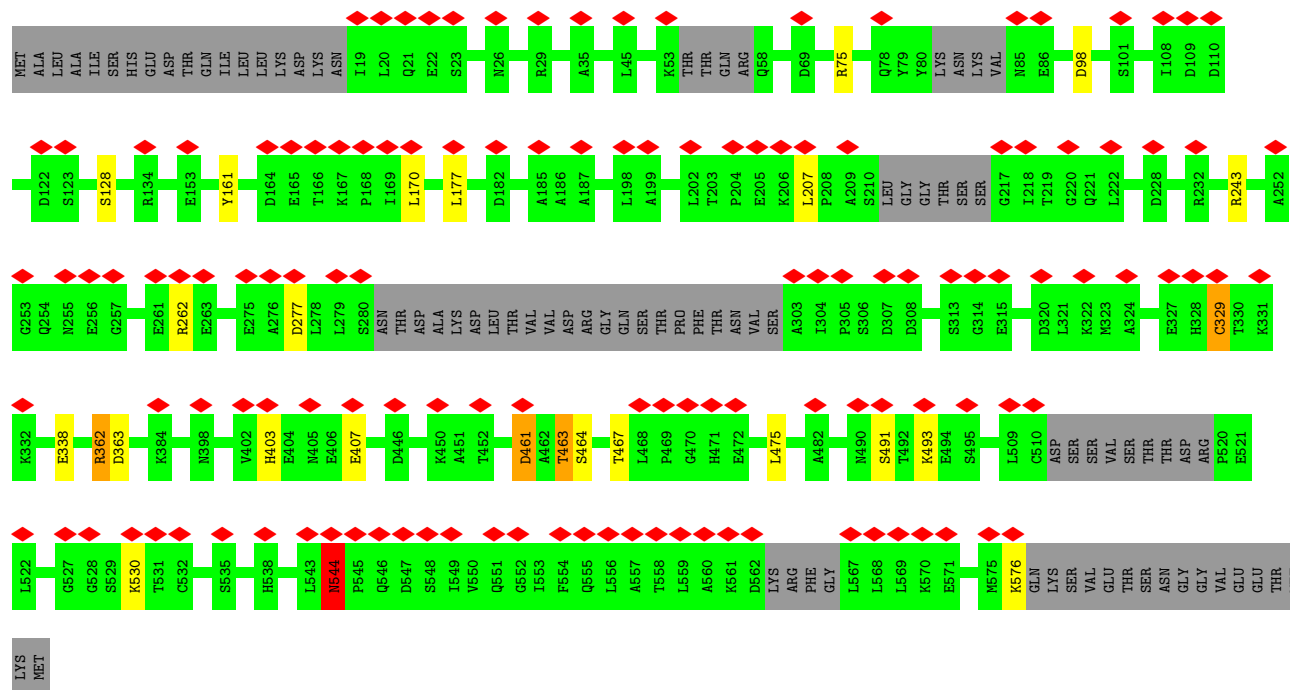
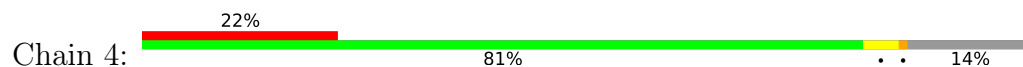
• Molecule 2: 5.8S rRNA



• Molecule 3: 5S rRNA

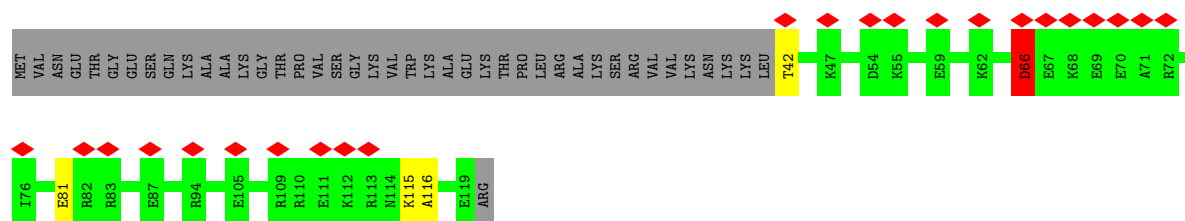


• Molecule 4: Probable metalloprotease ARX1



• Molecule 5: rRNA-processing protein CGR1





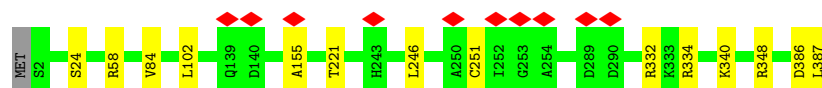
• Molecule 6: 60S ribosomal protein L2-A

Chain A: 94%



• Molecule 7: 60S ribosomal protein L3

Chain B: 96%



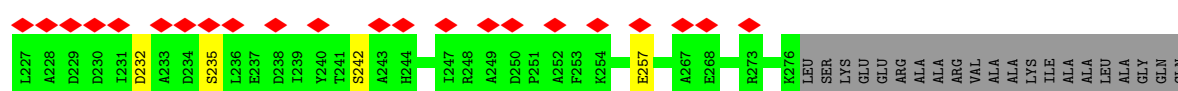
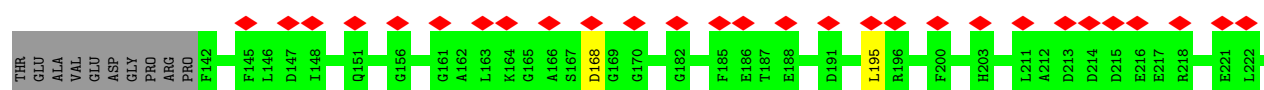
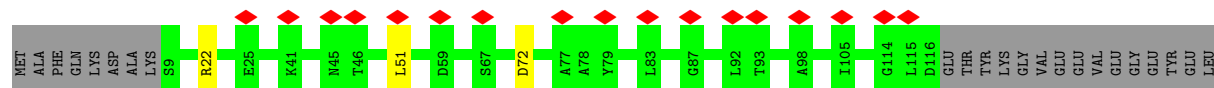
• Molecule 8: 60S ribosomal protein L4-A

Chain C: 98%



• Molecule 9: 60S ribosomal protein L5

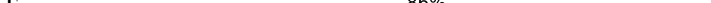
Chain D: 23% 79% 18%

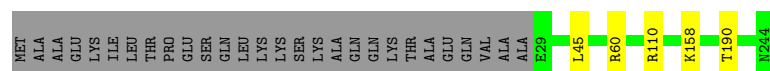


• Molecule 10: 60S ribosomal protein L6-A


Chain E: 85% 11%

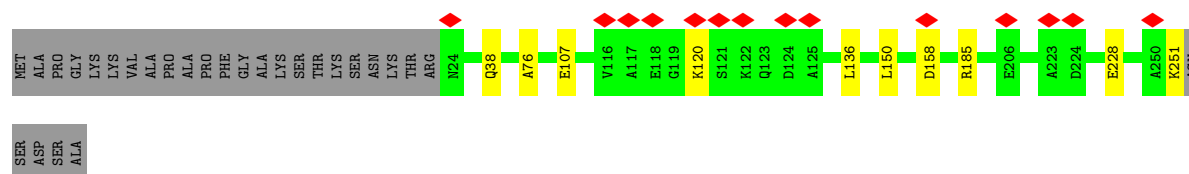
- Molecule 11: 60S ribosomal protein L7-A

Chain F:  86% • 11%



- Molecule 12: 60S ribosomal protein L8-A

Chain G:  5% 85% 11%



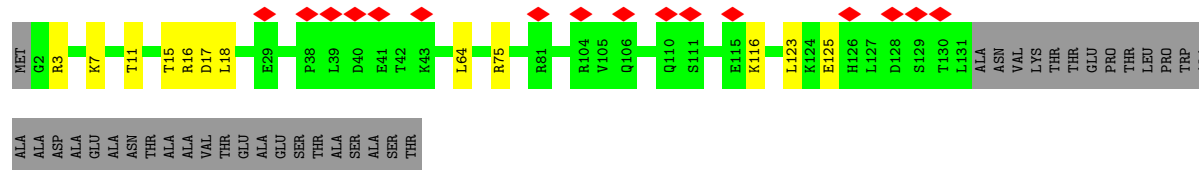
- Molecule 13: 60S ribosomal protein L9-A

Chain H:  96%

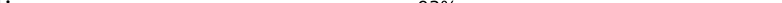


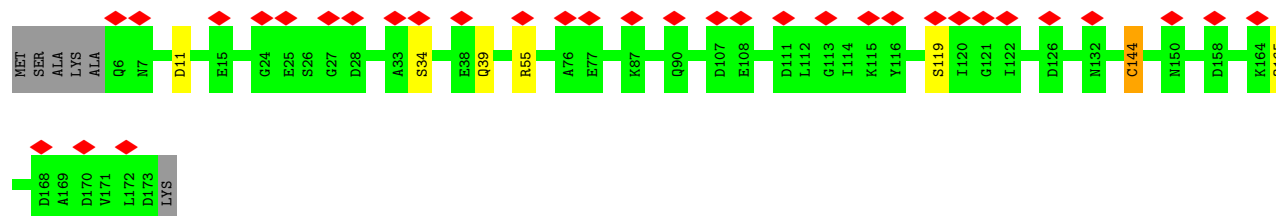
- Molecule 14: Bud site selection protein 20

Chain I:  10% 71% 7% 22%

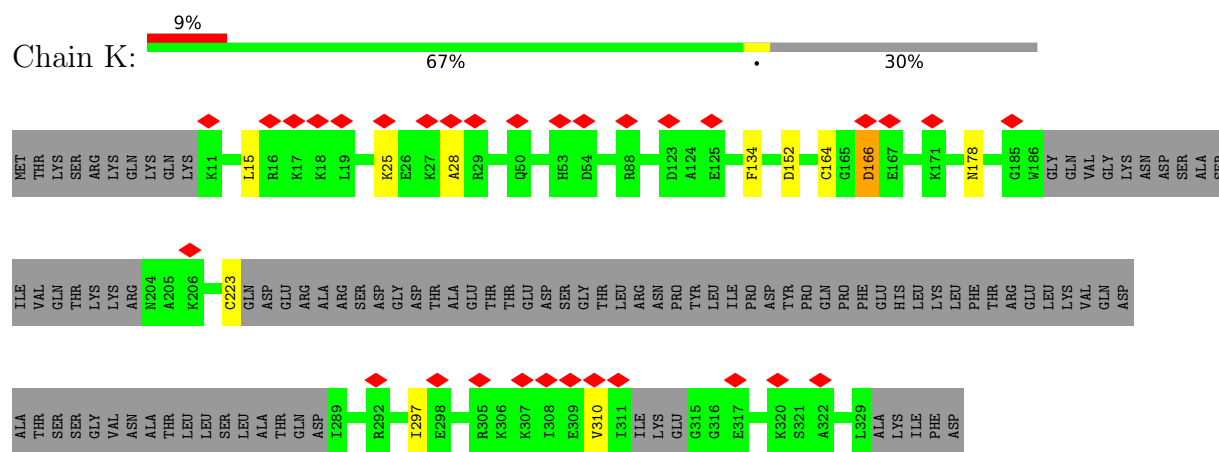


- Molecule 15: 60S ribosomal protein L11-A

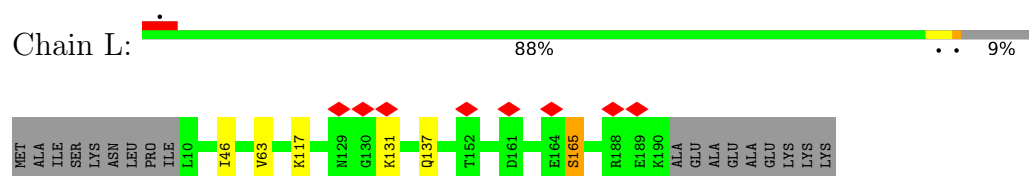
Chain J:  19% 93%



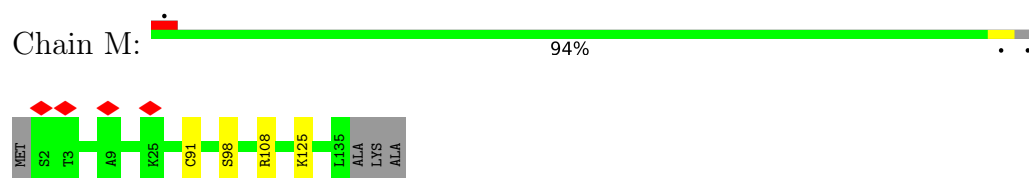
- Molecule 16: Pre-rRNA-processing protein IPI1



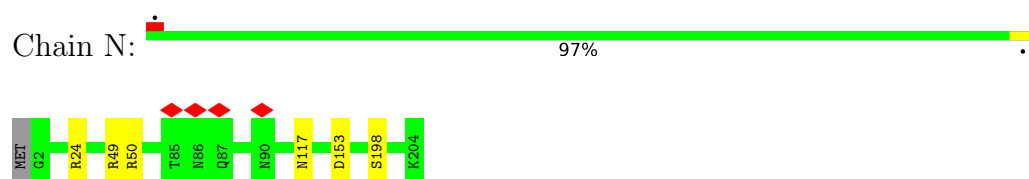
• Molecule 17: 60S ribosomal protein L13-A



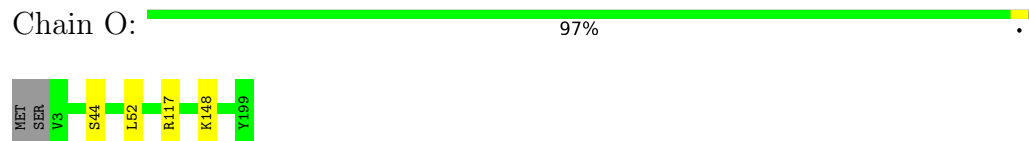
• Molecule 18: 60S ribosomal protein L14-A



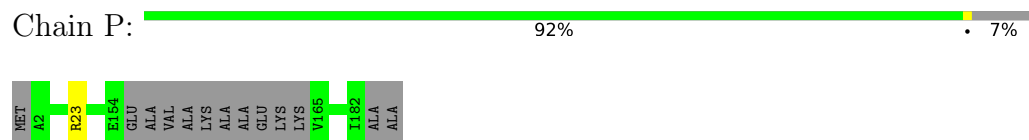
• Molecule 19: 60S ribosomal protein L15-A




• Molecule 20: 60S ribosomal protein L16-A

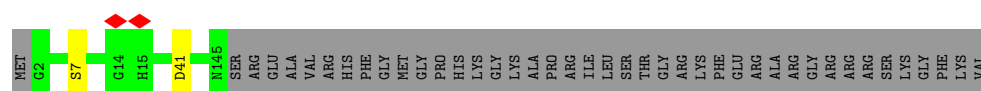


• Molecule 21: 60S ribosomal protein L17-A




- Molecule 22: 60S ribosomal protein L18-A

Chain Q:  76% 23%



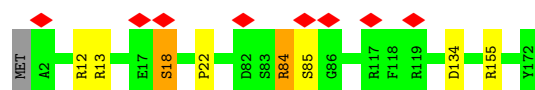
- Molecule 23: 60S ribosomal protein L19-A

Chain R:  79% 20%



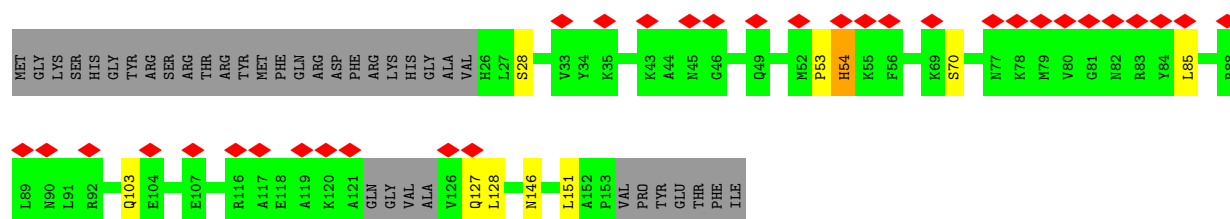
- Molecule 24: 60S ribosomal protein L20-A

Chain S:  5% 95%




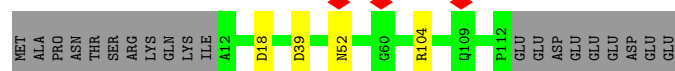
- Molecule 25: 60S ribosomal protein L21-A

Chain T:  21% 71% 6% 22%




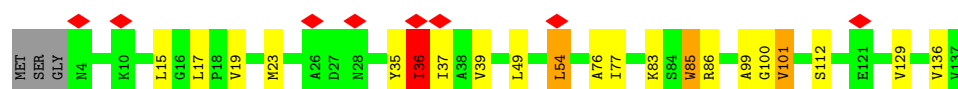
- Molecule 26: 60S ribosomal protein L22-A

Chain U:  80% 17%



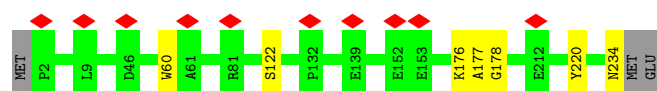
- Molecule 27: 60S ribosomal protein L23-A

Chain V:  6% 82% 12%



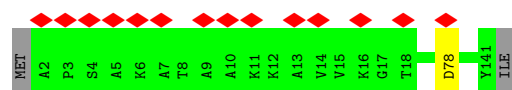
- Molecule 28: Ribosome assembly factor MRT4

Chain W:  96%



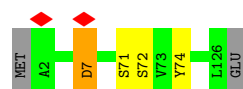
- Molecule 29: 60S ribosomal protein L25

Chain X:  98%



- Molecule 30: 60S ribosomal protein L26-A

Chain Y:  95%



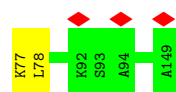
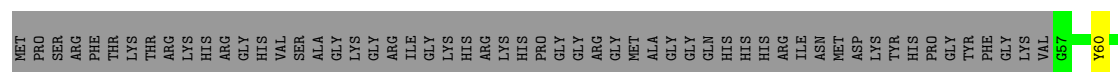
- Molecule 31: 60S ribosomal protein L27-A

Chain Z:  96%




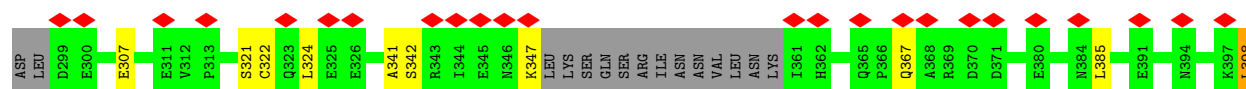
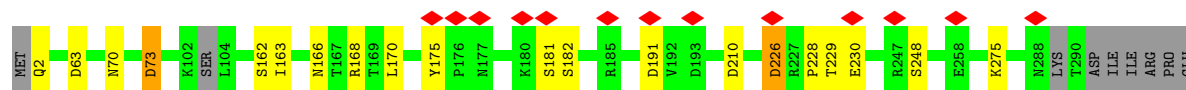
- Molecule 32: 60S ribosomal protein L28

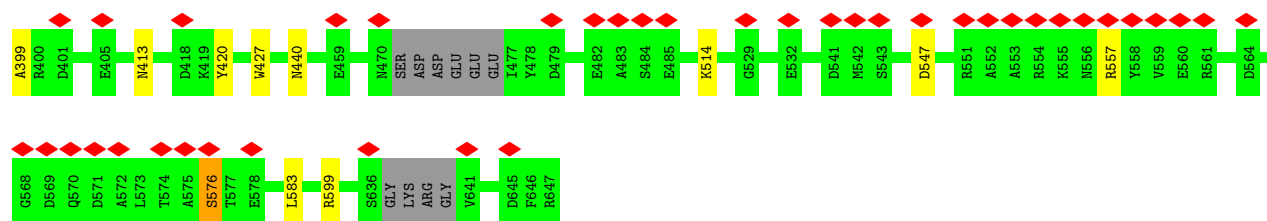
Chain a:  60% 38%



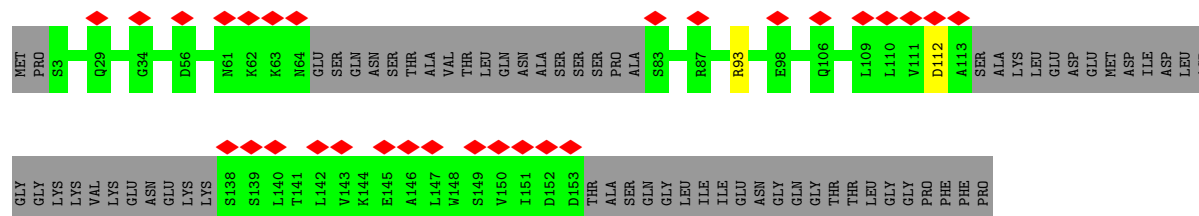
- Molecule 33: Nucleolar GTP-binding protein 1

Chain b:  88% 6% 5%

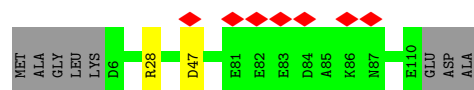
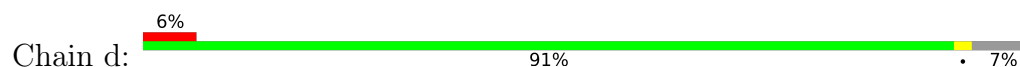




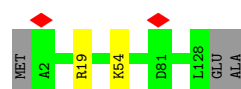
- Molecule 34: Ribosome biogenesis protein ALB1



- Molecule 35: 60S ribosomal protein L31-A



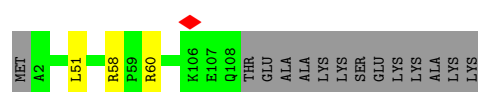
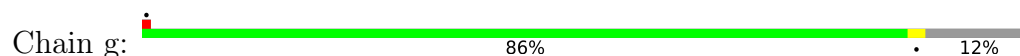
- Molecule 36: 60S ribosomal protein L32



- Molecule 37: 60S ribosomal protein L33-A

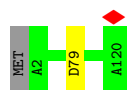


- Molecule 38: 60S ribosomal protein L34-A




- Molecule 39: 60S ribosomal protein L35-A

Chain h:  98%



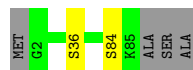
- Molecule 40: 60S ribosomal protein L36-A

Chain i:  93%




- Molecule 41: 60S ribosomal protein L37-A

Chain j:  93% • 5%



- Molecule 42: 60S ribosomal protein L38

Chain k:  9% 95%




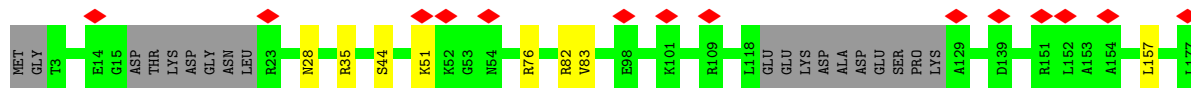
- Molecule 43: 60S ribosomal protein L39

Chain l:  92%

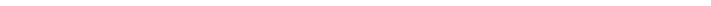


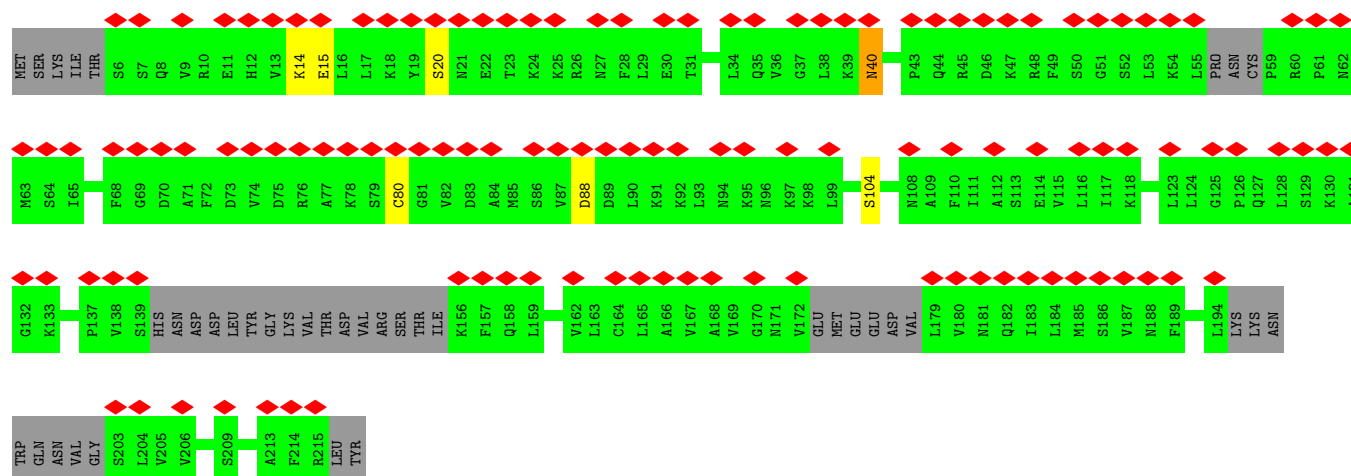
- Molecule 44: Nucleolar GTP-binding protein 2

Chain m:  86% • 10%

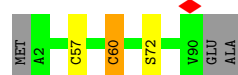


- Molecule 45: 60S ribosomal protein L30

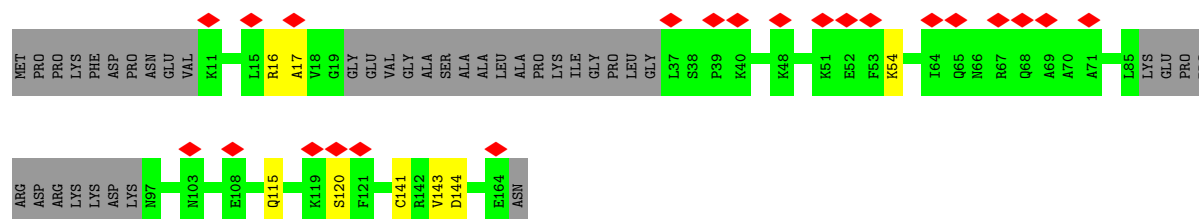
- Chain o:  56% 78% 18%

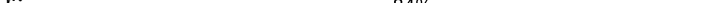


- Chain p: 93% ...



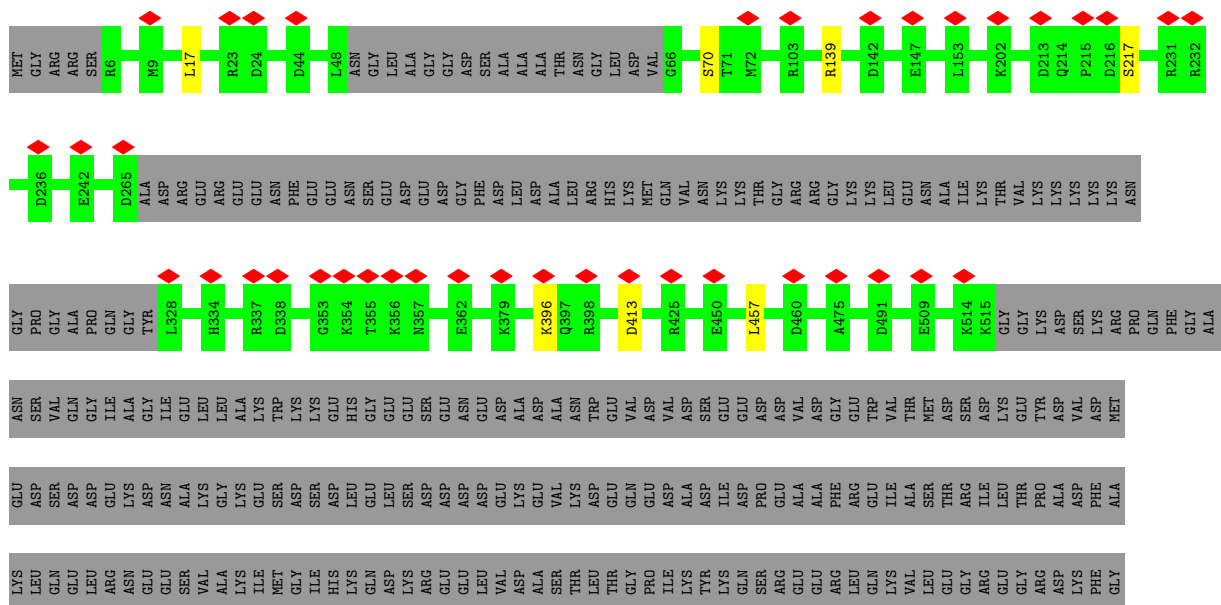
- Chain q: 



- Chain r:  84% 14%



Chain s: 10% 89%



SER ARG ARG GLY LYS ARG ASP ASN MET SER SER THR THR ASN ARG ARG LYS ARG ARG MET SER SER VAL MET SER SER LYS HIS LYS ARG SER VAL ARG GLN LYS GLN LYS MET MET SER LEU ASP LYS ASP LYS VAL ARG ALA HIS ILE THR THR GLN LYS LYS GLY TYR

• Molecule 52: Ribosome biogenesis protein RLP24

Chain u:



HI F8 S11 L19 R23 R43 R44 R45 A64 V77 D119 S129 R135 E140 K144 L145 A146 K147 E148 GLN GLU ARG GLN LYS ALA GLU SER VAL SER GLU GLN GLN GLU SER GLU GLU GLU GLU GLU GLU GLU GLU MET ASP ILE THR THR GLN LYS LYS TYR

• Molecule 53: Ribosome assembly protein 4

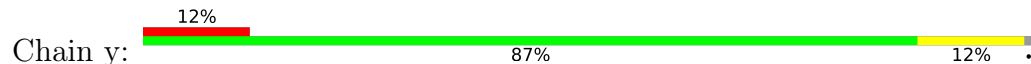
Chain x:



MET SER THR LEU ILE PRO PRO SER SER LYS GLN LYS LYS GLU ALA GLN LEU LEU PRO ARG GLU VAL ILE ILE PRO LYS ASP LEU PRO ASN VAL SER ILE LYS PHE GLN ALA LEU THR ASP THR ASP ASN VAL ILE LYS GLY ALA LEU ARG VAL PRO GLY ALA THR ILE SER GLU LYS LEU LEU

TYR THR PRO ARG ALA VAL PHE K128 R134 S135 S136 H142 S254 Y272 Q289 W304 R311 W322 K345 E361 K365 K366 N367 G368 N369 S370 K390 R415 R441 S454 R474 H515

• Molecule 54: Eukaryotic translation initiation factor 6



MET A2 F7 V15 L19 D44 A45 I46 V49 H50 A54 I58 I59 V72 I77 L81 I94 V97 V107 I108 V114 I121 D122 R123 E124 T125 E126 E127 L128 I129 S130 D131 V132 V135 S143 I146 L173 L177 V199

• Molecule 55: UPF0642 protein YBL028C



MET A2 K3 S4 S15 R19 L37 D40 L41 E47 D48 K51 LYS GLU GLU GLN GLY ILE ASP MET ASP VAL ASP GLU LYS LYS SER SER ASN GLU ALA PRO ARG LYS ILE SER THR SER GLY W80 R81 D82 G83 R84 K89 L93 S97 K98 K99 K100

R105 F106

4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	114398	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	75	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 QUANTUM (4k x 4k)	Depositor
Maximum map value	0.130	Depositor
Minimum map value	-0.049	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.007	Depositor
Recommended contour level	0.02	Depositor
Map size (\AA)	423.6, 423.6, 423.6	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (\AA)	1.059, 1.059, 1.059	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

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

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# $ Z > 5$	RMSZ	# $ Z > 5$
1	1	0.37	5/72767 (0.0%)	0.91	87/113396 (0.1%)
2	2	0.36	0/3657	0.85	0/5692
3	3	0.27	0/2787	0.83	2/4339 (0.0%)
4	4	0.28	0/4015	0.63	3/5447 (0.1%)
5	5	0.31	0/685	0.69	1/895 (0.1%)
6	A	0.31	0/1897	0.65	1/2550 (0.0%)
7	B	0.31	0/3152	0.67	2/4239 (0.0%)
8	C	0.29	0/2801	0.58	0/3792
9	D	0.28	0/2013	0.62	0/2715
10	E	0.30	0/1260	0.63	1/1694 (0.1%)
11	F	0.31	0/1781	0.60	0/2396
12	G	0.31	0/1816	0.58	0/2450
13	H	0.29	0/1507	0.56	0/2029
14	I	0.28	0/1067	0.61	1/1433 (0.1%)
15	J	0.27	0/1365	0.66	1/1831 (0.1%)
16	K	0.27	0/1903	0.59	1/2561 (0.0%)
17	L	0.31	0/1480	0.69	2/1986 (0.1%)
18	M	0.28	0/1055	0.58	0/1421
19	N	0.32	0/1757	0.67	0/2354
20	O	0.31	0/1585	0.60	0/2128
21	P	0.32	0/1382	0.64	0/1856
22	Q	0.29	0/1127	0.63	0/1521
23	R	0.29	0/1236	0.66	0/1650
24	S	0.31	0/1473	0.63	1/1980 (0.1%)
25	T	0.29	0/997	0.67	1/1336 (0.1%)
26	U	0.30	0/817	0.52	0/1109
27	V	0.40	0/1008	1.18	18/1356 (1.3%)
28	W	0.28	0/1910	0.57	0/2575
29	X	0.29	0/1108	0.55	0/1492
30	Y	0.28	0/995	0.59	0/1329
31	Z	0.31	0/1118	0.61	0/1497
32	a	0.29	0/751	0.55	0/1013

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	b	0.29	0/5032	0.68	9/6756 (0.1%)
34	c	0.28	0/879	0.64	1/1171 (0.1%)
35	d	0.29	0/870	0.64	0/1168
36	e	0.28	0/1041	0.60	0/1394
37	f	0.31	0/868	0.58	0/1168
38	g	0.31	0/856	0.67	0/1144
39	h	0.30	0/978	0.56	0/1301
40	i	0.28	0/749	0.65	0/995
41	j	0.31	0/680	0.68	0/901
42	k	0.30	0/618	0.61	0/826
43	l	0.29	0/435	0.63	0/577
44	m	0.30	0/3617	0.63	1/4870 (0.0%)
45	n	0.28	0/751	0.63	2/1008 (0.2%)
46	o	0.24	0/872	0.70	2/1208 (0.2%)
47	p	0.31	0/687	0.65	0/915
48	q	0.27	0/969	0.59	0/1301
49	r	0.31	0/1850	0.62	0/2472
50	s	0.27	0/467	0.69	2/609 (0.3%)
51	t	0.27	0/3447	0.54	0/4643
52	u	0.31	0/1269	0.72	3/1687 (0.2%)
53	x	0.28	0/3111	0.61	2/4218 (0.0%)
54	y	0.34	0/1864	1.11	27/2538 (1.1%)
55	z	0.26	0/650	0.60	0/854
All	All	0.33	5/156832 (0.0%)	0.80	171/227786 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
4	4	0	4
5	5	0	3
6	A	0	4
7	B	0	3
9	D	0	3
10	E	0	1
11	F	0	2
12	G	0	2
13	H	0	1
14	I	0	1
15	J	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
16	K	0	3
17	L	0	1
18	M	0	1
24	S	0	4
25	T	0	4
27	V	0	7
28	W	0	1
30	Y	0	1
31	Z	0	2
33	b	0	11
34	c	0	1
40	i	0	1
42	k	0	2
44	m	0	1
45	n	0	1
46	o	0	6
47	p	0	1
48	q	0	2
49	r	0	1
52	u	0	1
54	y	0	5
All	All	0	84

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	1	3093	C	C4-C5	10.73	1.51	1.43
1	1	3093	C	N1-C2	9.40	1.49	1.40
1	1	3093	C	N3-C4	9.07	1.40	1.33
1	1	3093	C	C2-N3	8.52	1.42	1.35
1	1	2318	U	C1'-N1	5.87	1.57	1.48

The worst 5 of 171 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	1	3048	A	O4'-C1'-N9	12.94	118.55	108.20
1	1	3093	C	C5-C6-N1	10.67	126.34	121.00
1	1	2335	G	O4'-C1'-N9	10.03	116.22	108.20
1	1	3093	C	C6-N1-C2	-9.96	116.31	120.30
1	1	2531	C	C2-N1-C1'	9.73	129.51	118.80

There are no chirality outliers.

5 of 84 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	4	329	CYS	Mainchain
4	4	362	ARG	Peptide
4	4	461	ASP	Mainchain
4	4	463	THR	Peptide
5	5	42	THR	Mainchain

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	
4	4	495/593 (84%)	456 (92%)	34 (7%)	5 (1%)	13	46
5	5	76/120 (63%)	71 (93%)	5 (7%)	0	100	100
6	A	243/254 (96%)	227 (93%)	16 (7%)	0	100	100
7	B	384/387 (99%)	342 (89%)	41 (11%)	1 (0%)	37	70
8	C	359/362 (99%)	336 (94%)	21 (6%)	2 (1%)	22	57
9	D	239/297 (80%)	218 (91%)	21 (9%)	0	100	100
10	E	152/176 (86%)	148 (97%)	4 (3%)	0	100	100
11	F	214/244 (88%)	195 (91%)	19 (9%)	0	100	100
12	G	226/256 (88%)	209 (92%)	17 (8%)	0	100	100
13	H	185/191 (97%)	172 (93%)	13 (7%)	0	100	100
14	I	128/166 (77%)	113 (88%)	13 (10%)	2 (2%)	8	34
15	J	166/174 (95%)	145 (87%)	20 (12%)	1 (1%)	22	57
16	K	226/334 (68%)	210 (93%)	14 (6%)	2 (1%)	14	49
17	L	179/199 (90%)	165 (92%)	12 (7%)	2 (1%)	12	44

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	M	132/138 (96%)	126 (96%)	6 (4%)	0	100	100
19	N	201/204 (98%)	187 (93%)	14 (7%)	0	100	100
20	O	195/199 (98%)	194 (100%)	1 (0%)	0	100	100
21	P	167/184 (91%)	155 (93%)	12 (7%)	0	100	100
22	Q	142/186 (76%)	131 (92%)	11 (8%)	0	100	100
23	R	149/189 (79%)	142 (95%)	7 (5%)	0	100	100
24	S	169/172 (98%)	156 (92%)	10 (6%)	3 (2%)	7	32
25	T	120/160 (75%)	115 (96%)	5 (4%)	0	100	100
26	U	99/121 (82%)	95 (96%)	4 (4%)	0	100	100
27	V	132/137 (96%)	120 (91%)	10 (8%)	2 (2%)	8	36
28	W	231/236 (98%)	225 (97%)	4 (2%)	2 (1%)	14	49
29	X	138/142 (97%)	130 (94%)	8 (6%)	0	100	100
30	Y	123/127 (97%)	119 (97%)	4 (3%)	0	100	100
31	Z	133/136 (98%)	118 (89%)	15 (11%)	0	100	100
32	a	91/149 (61%)	84 (92%)	5 (6%)	2 (2%)	5	27
33	b	600/647 (93%)	538 (90%)	58 (10%)	4 (1%)	19	54
34	c	103/175 (59%)	99 (96%)	4 (4%)	0	100	100
35	d	103/113 (91%)	100 (97%)	3 (3%)	0	100	100
36	e	125/130 (96%)	122 (98%)	3 (2%)	0	100	100
37	f	104/107 (97%)	103 (99%)	1 (1%)	0	100	100
38	g	105/121 (87%)	104 (99%)	1 (1%)	0	100	100
39	h	117/120 (98%)	113 (97%)	4 (3%)	0	100	100
40	i	94/100 (94%)	85 (90%)	8 (8%)	1 (1%)	12	44
41	j	82/88 (93%)	80 (98%)	2 (2%)	0	100	100
42	k	75/78 (96%)	71 (95%)	4 (5%)	0	100	100
43	l	47/51 (92%)	44 (94%)	3 (6%)	0	100	100
44	m	431/486 (89%)	390 (90%)	38 (9%)	3 (1%)	19	54
45	n	95/105 (90%)	92 (97%)	3 (3%)	0	100	100
46	o	167/217 (77%)	145 (87%)	22 (13%)	0	100	100
47	p	87/92 (95%)	84 (97%)	2 (2%)	1 (1%)	12	44
48	q	120/165 (73%)	101 (84%)	16 (13%)	3 (2%)	4	24

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
49	r	219/261 (84%)	197 (90%)	20 (9%)	2 (1%)	14	49
50	s	52/520 (10%)	47 (90%)	3 (6%)	2 (4%)	2	15
51	t	425/767 (55%)	399 (94%)	26 (6%)	0	100	100
52	u	146/199 (73%)	139 (95%)	7 (5%)	0	100	100
53	x	386/515 (75%)	364 (94%)	22 (6%)	0	100	100
54	y	241/245 (98%)	220 (91%)	20 (8%)	1 (0%)	30	66
55	z	73/106 (69%)	67 (92%)	6 (8%)	0	100	100
All	All	9491/11641 (82%)	8808 (93%)	642 (7%)	41 (0%)	32	66

5 of 41 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
8	C	339	LEU
28	W	177	ALA
33	b	398	LEU
33	b	399	ALA
4	4	329	CYS

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	4	445/520 (86%)	425 (96%)	20 (4%)	23	57
5	5	70/106 (66%)	67 (96%)	3 (4%)	25	58
6	A	188/196 (96%)	185 (98%)	3 (2%)	58	82
7	B	322/323 (100%)	314 (98%)	8 (2%)	42	73
8	C	288/289 (100%)	284 (99%)	4 (1%)	62	83
9	D	205/245 (84%)	199 (97%)	6 (3%)	37	70
10	E	134/153 (88%)	129 (96%)	5 (4%)	29	63
11	F	183/205 (89%)	180 (98%)	3 (2%)	58	82
12	G	187/208 (90%)	179 (96%)	8 (4%)	25	58

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	H	167/171 (98%)	165 (99%)	2 (1%)	67	86
14	I	116/141 (82%)	108 (93%)	8 (7%)	13	42
15	J	146/150 (97%)	143 (98%)	3 (2%)	48	77
16	K	214/302 (71%)	208 (97%)	6 (3%)	38	70
17	L	145/159 (91%)	142 (98%)	3 (2%)	48	77
18	M	107/109 (98%)	104 (97%)	3 (3%)	38	70
19	N	175/176 (99%)	169 (97%)	6 (3%)	32	66
20	O	160/162 (99%)	156 (98%)	4 (2%)	42	73
21	P	139/146 (95%)	138 (99%)	1 (1%)	81	91
22	Q	118/151 (78%)	116 (98%)	2 (2%)	56	81
23	R	125/154 (81%)	124 (99%)	1 (1%)	79	90
24	S	155/156 (99%)	153 (99%)	2 (1%)	65	85
25	T	107/137 (78%)	100 (94%)	7 (6%)	14	43
26	U	88/107 (82%)	84 (96%)	4 (4%)	23	57
27	V	103/105 (98%)	99 (96%)	4 (4%)	27	61
28	W	210/213 (99%)	206 (98%)	4 (2%)	52	79
29	X	116/118 (98%)	115 (99%)	1 (1%)	75	89
30	Y	108/110 (98%)	104 (96%)	4 (4%)	29	63
31	Z	115/116 (99%)	112 (97%)	3 (3%)	41	72
32	a	76/119 (64%)	75 (99%)	1 (1%)	65	85
33	b	541/573 (94%)	519 (96%)	22 (4%)	26	60
34	c	99/153 (65%)	99 (100%)	0	100	100
35	d	92/97 (95%)	90 (98%)	2 (2%)	47	76
36	e	109/111 (98%)	107 (98%)	2 (2%)	54	80
37	f	90/91 (99%)	88 (98%)	2 (2%)	47	76
38	g	92/103 (89%)	89 (97%)	3 (3%)	33	67
39	h	104/105 (99%)	103 (99%)	1 (1%)	73	88
40	i	78/82 (95%)	77 (99%)	1 (1%)	65	85
41	j	69/71 (97%)	67 (97%)	2 (3%)	37	70
42	k	68/69 (99%)	67 (98%)	1 (2%)	60	83
43	l	44/46 (96%)	42 (96%)	2 (4%)	23	57

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
44	m	388/428 (91%)	370 (95%)	18 (5%)	23	56
45	n	81/88 (92%)	81 (100%)	0	100	100
47	p	70/72 (97%)	68 (97%)	2 (3%)	37	70
48	q	105/136 (77%)	102 (97%)	3 (3%)	37	70
49	r	198/229 (86%)	195 (98%)	3 (2%)	60	83
50	s	50/445 (11%)	48 (96%)	2 (4%)	27	61
51	t	379/665 (57%)	372 (98%)	7 (2%)	54	80
52	u	131/180 (73%)	124 (95%)	7 (5%)	19	51
53	x	338/451 (75%)	330 (98%)	8 (2%)	44	74
54	y	209/211 (99%)	208 (100%)	1 (0%)	86	94
55	z	69/95 (73%)	64 (93%)	5 (7%)	12	39
All	All	8116/9748 (83%)	7893 (97%)	223 (3%)	41	71

5 of 223 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
27	V	112	SER
55	z	37	LEU
33	b	413	ASN
55	z	15	SER
51	t	396	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 39 such sidechains are listed below:

Mol	Chain	Res	Type
34	c	61	ASN
52	u	110	ASN
34	c	64	ASN
43	l	20	ASN
53	x	424	ASN

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	1	3010/3396 (88%)	598 (19%)	26 (0%)
2	2	152/158 (96%)	27 (17%)	1 (0%)

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Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
3	3	115/121 (95%)	19 (16%)	1 (0%)
All	All	3277/3675 (89%)	644 (19%)	28 (0%)

5 of 644 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	1	13	A
1	1	14	U
1	1	18	G
1	1	26	A
1	1	30	G

5 of 28 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	1	2318	U
3	3	52	G
1	1	2444	C
1	1	3042	U
1	1	2339	C

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 8 ligands modelled in this entry, 6 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
57	GTP	b	701	33,58	26,34,34	1.14	2 (7%)	32,54,54	1.70	7 (21%)
57	GTP	m	501	58	26,34,34	1.14	1 (3%)	32,54,54	1.59	7 (21%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
57	GTP	b	701	33,58	-	2/18/38/38	0/3/3/3
57	GTP	m	501	58	-	6/18/38/38	0/3/3/3

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
57	b	701	GTP	C5-C6	-4.09	1.39	1.47
57	m	501	GTP	C5-C6	-4.06	1.39	1.47
57	b	701	GTP	C2-N3	2.28	1.38	1.33

The worst 5 of 14 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
57	b	701	GTP	PA-O3A-PB	-4.29	118.11	132.83
57	m	501	GTP	PA-O3A-PB	-3.93	119.34	132.83
57	m	501	GTP	PB-O3B-PG	-3.63	120.36	132.83
57	b	701	GTP	PB-O3B-PG	-3.53	120.70	132.83
57	b	701	GTP	C5-C6-N1	3.37	119.91	113.95

There are no chirality outliers.

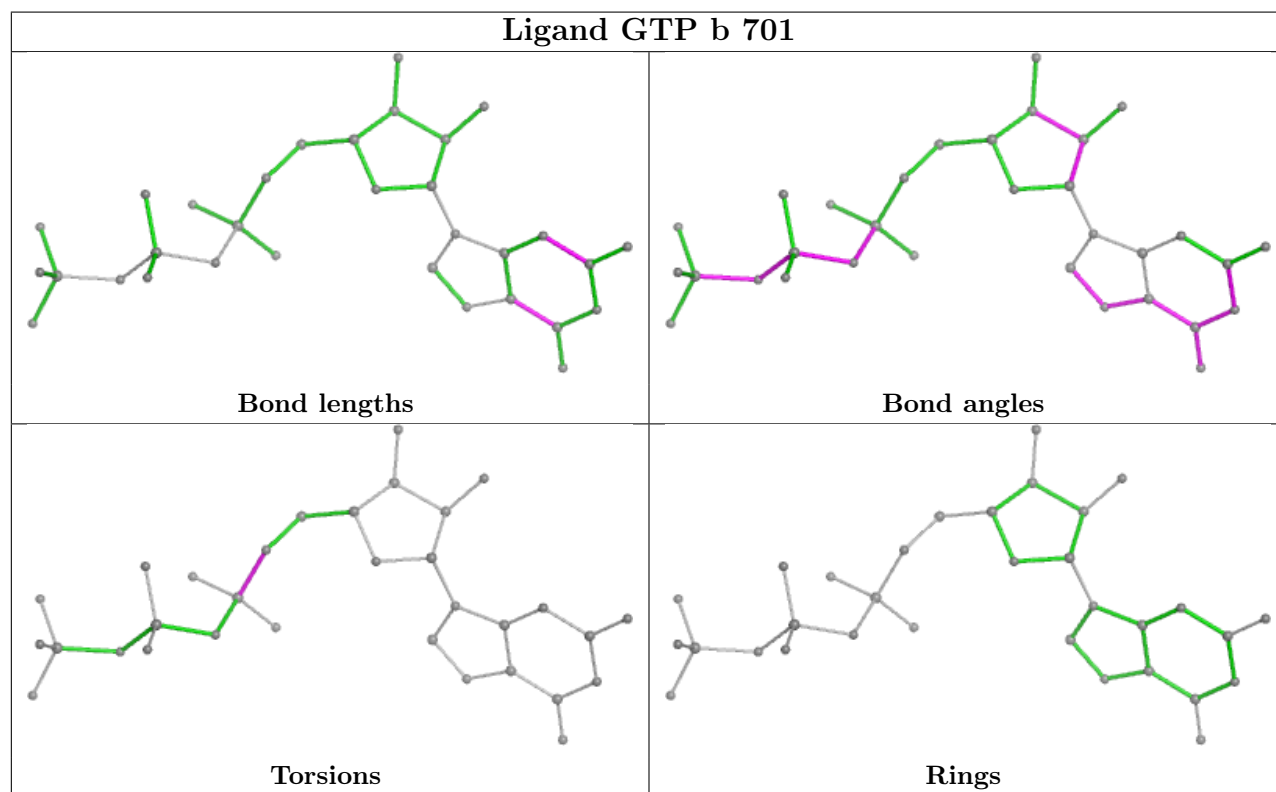
5 of 8 torsion outliers are listed below:

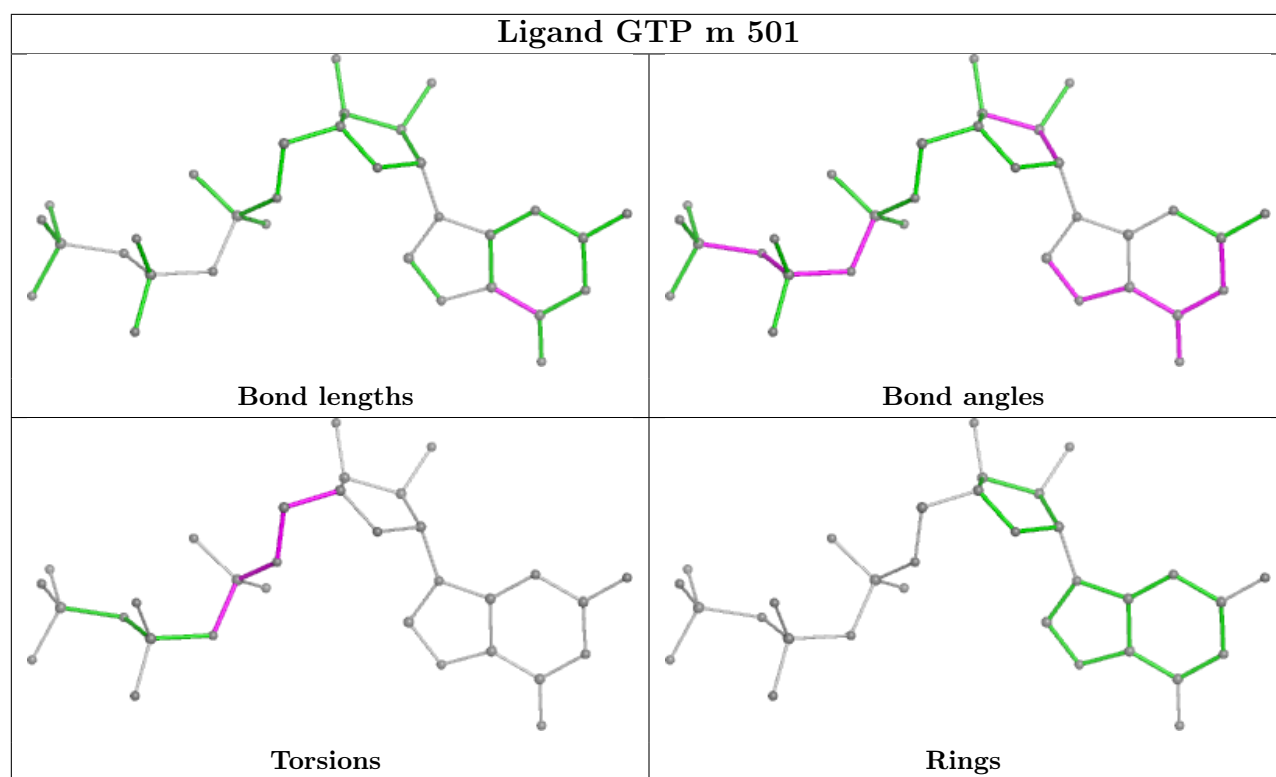
Mol	Chain	Res	Type	Atoms
57	b	701	GTP	C5'-O5'-PA-O1A
57	m	501	GTP	C5'-O5'-PA-O3A
57	m	501	GTP	C5'-O5'-PA-O2A
57	m	501	GTP	O4'-C4'-C5'-O5'
57	m	501	GTP	C4'-C5'-O5'-PA

There are no ring outliers.

No monomer is involved in short contacts.

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





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	1	3

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	1	3167:A	O3'	3168:A	P	4.92
1	1	1012:G	O3'	1013:G	P	3.13
1	1	1039:U	O3'	1040:A	P	3.07

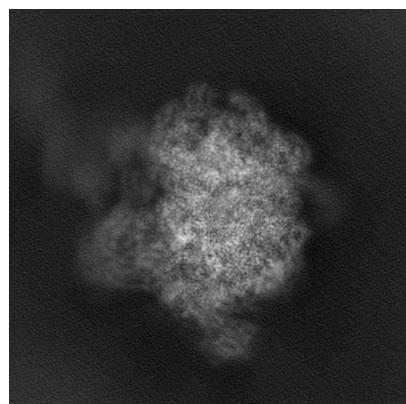
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-10838. These allow visual inspection of the internal detail of the map and identification of artifacts.

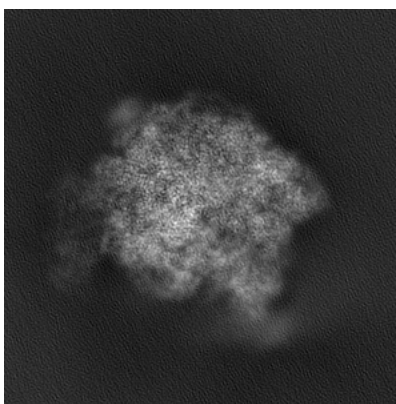
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

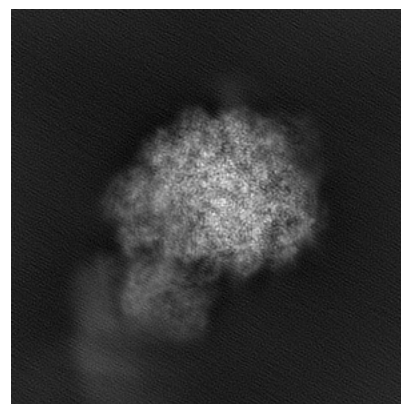
6.1.1 Primary map



X

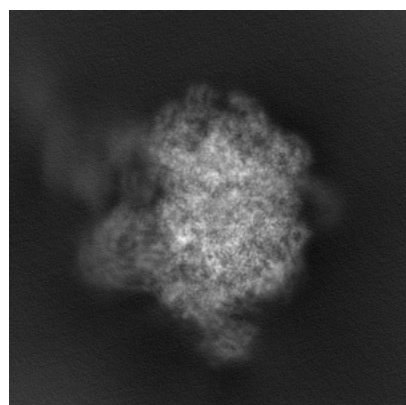


Y

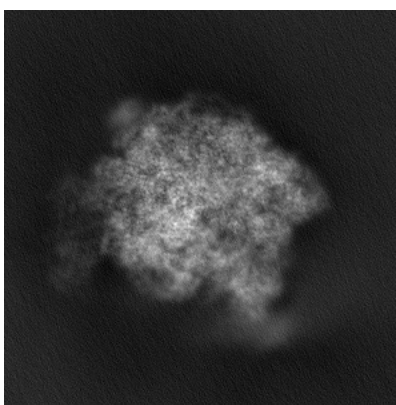


Z

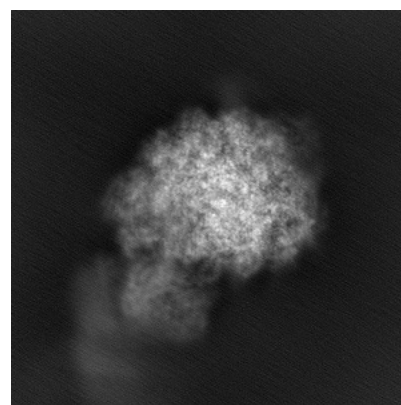
6.1.2 Raw map



X



Y

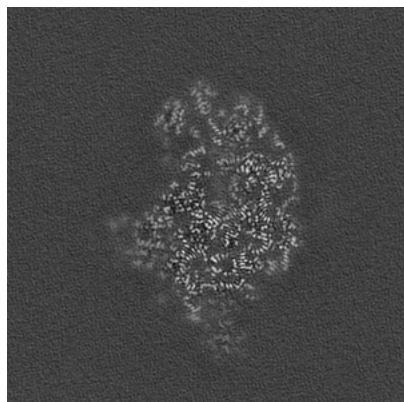


Z

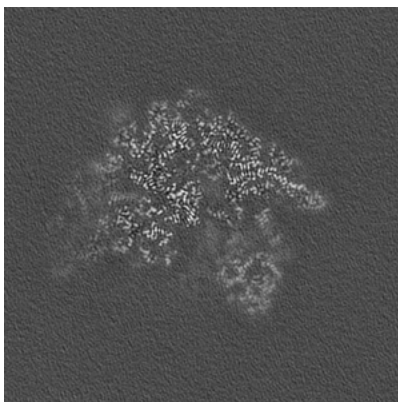
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

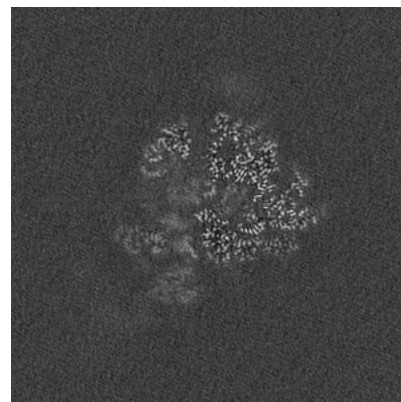
6.2.1 Primary map



X Index: 200

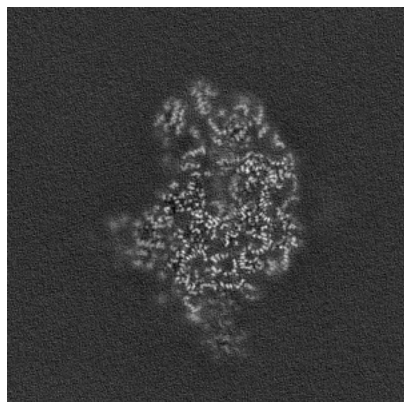


Y Index: 200

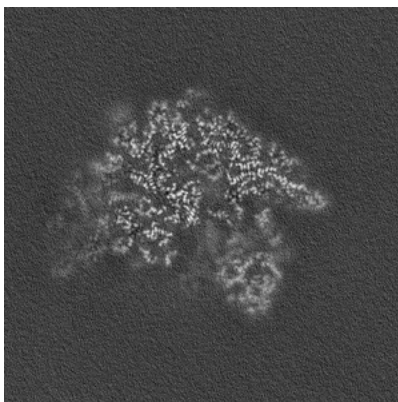


Z Index: 200

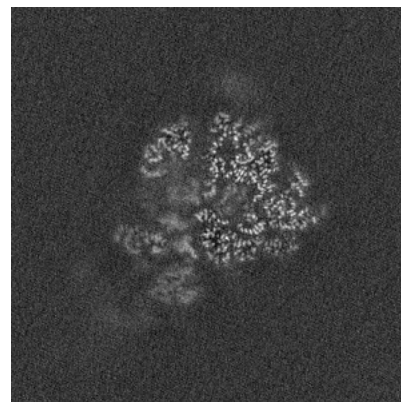
6.2.2 Raw map



X Index: 200



Y Index: 200

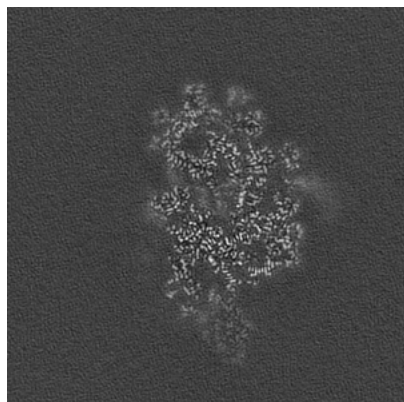


Z Index: 200

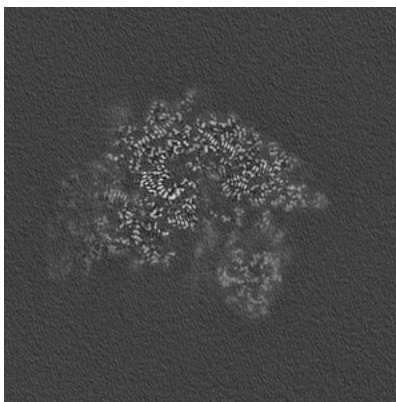
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

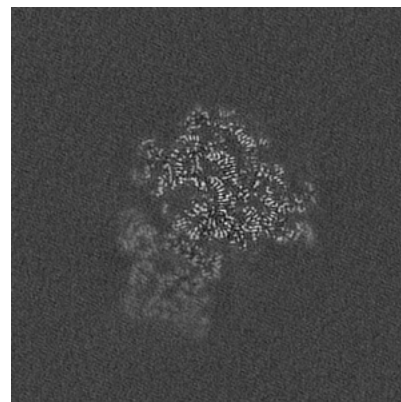
6.3.1 Primary map



X Index: 216

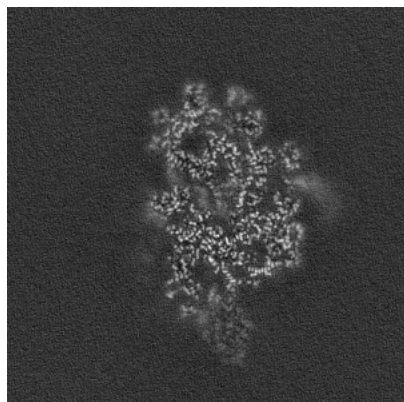


Y Index: 203

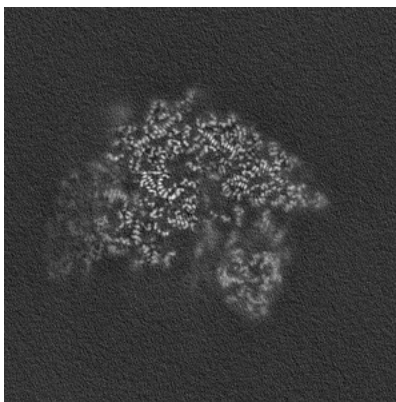


Z Index: 171

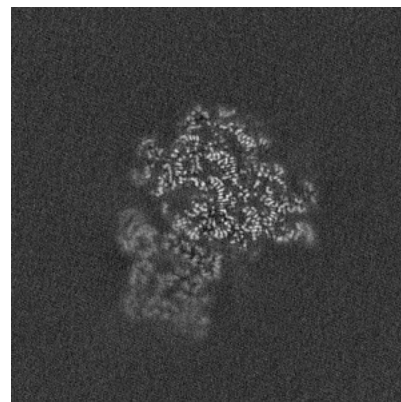
6.3.2 Raw map



X Index: 216



Y Index: 203

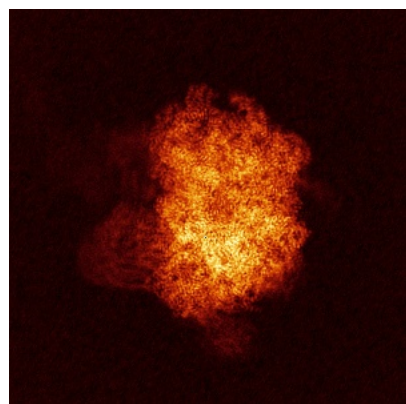


Z Index: 171

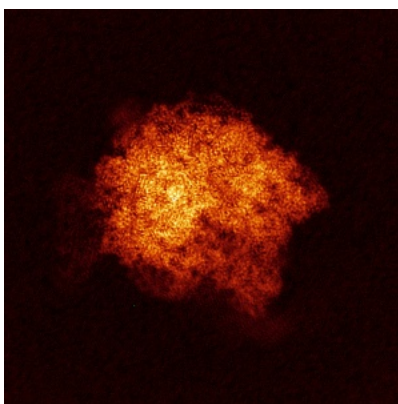
The images above show the largest variance slices of the map in three orthogonal directions.

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

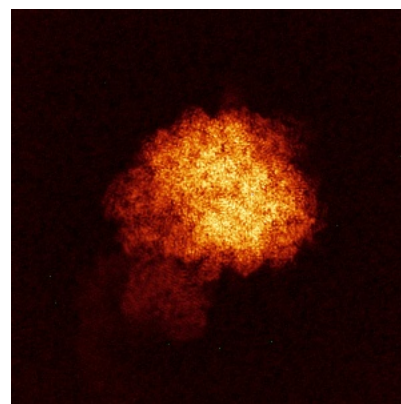
6.4.1 Primary map



X

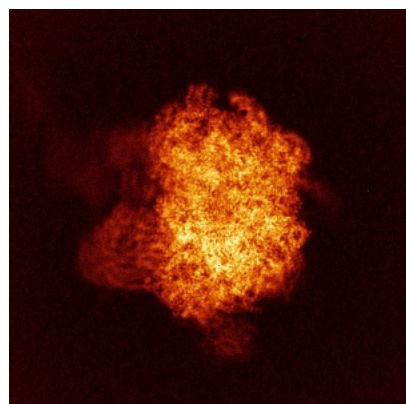


Y

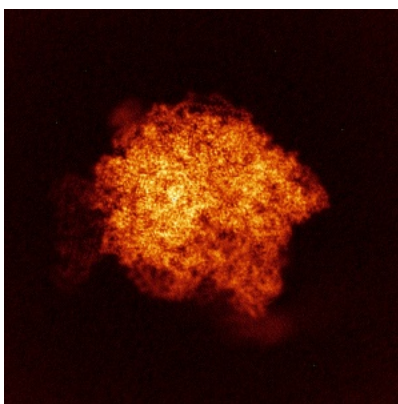


Z

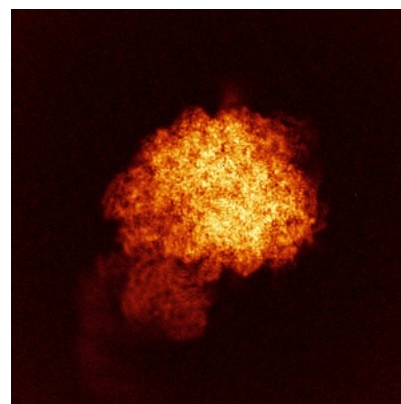
6.4.2 Raw map



X



Y

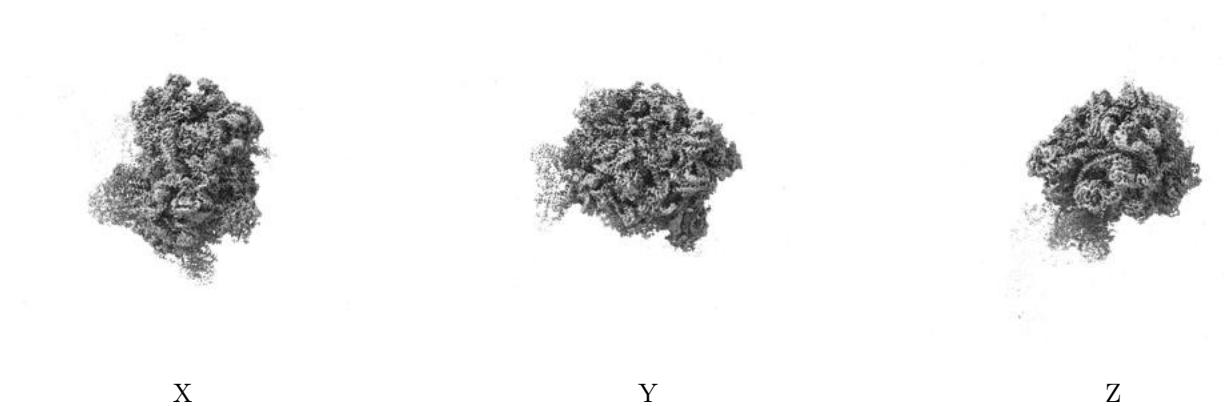


Z

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

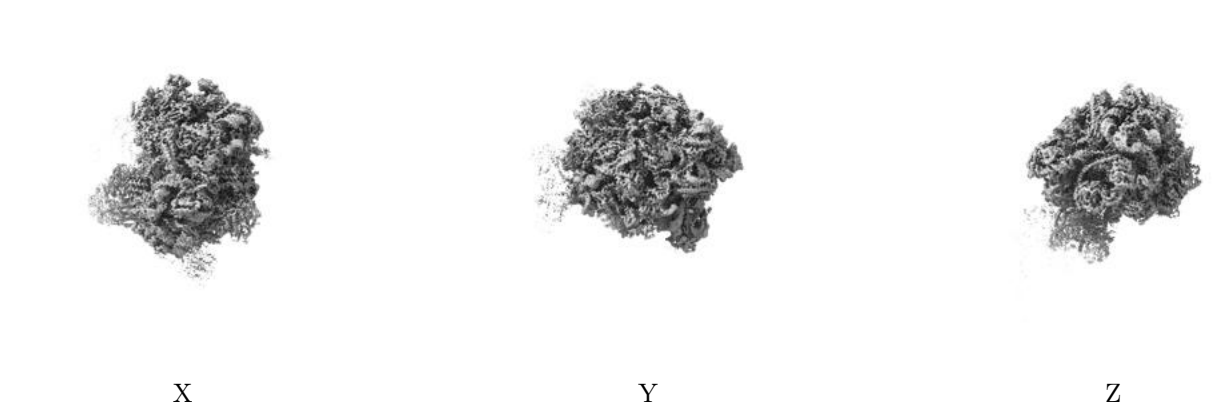
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.02. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

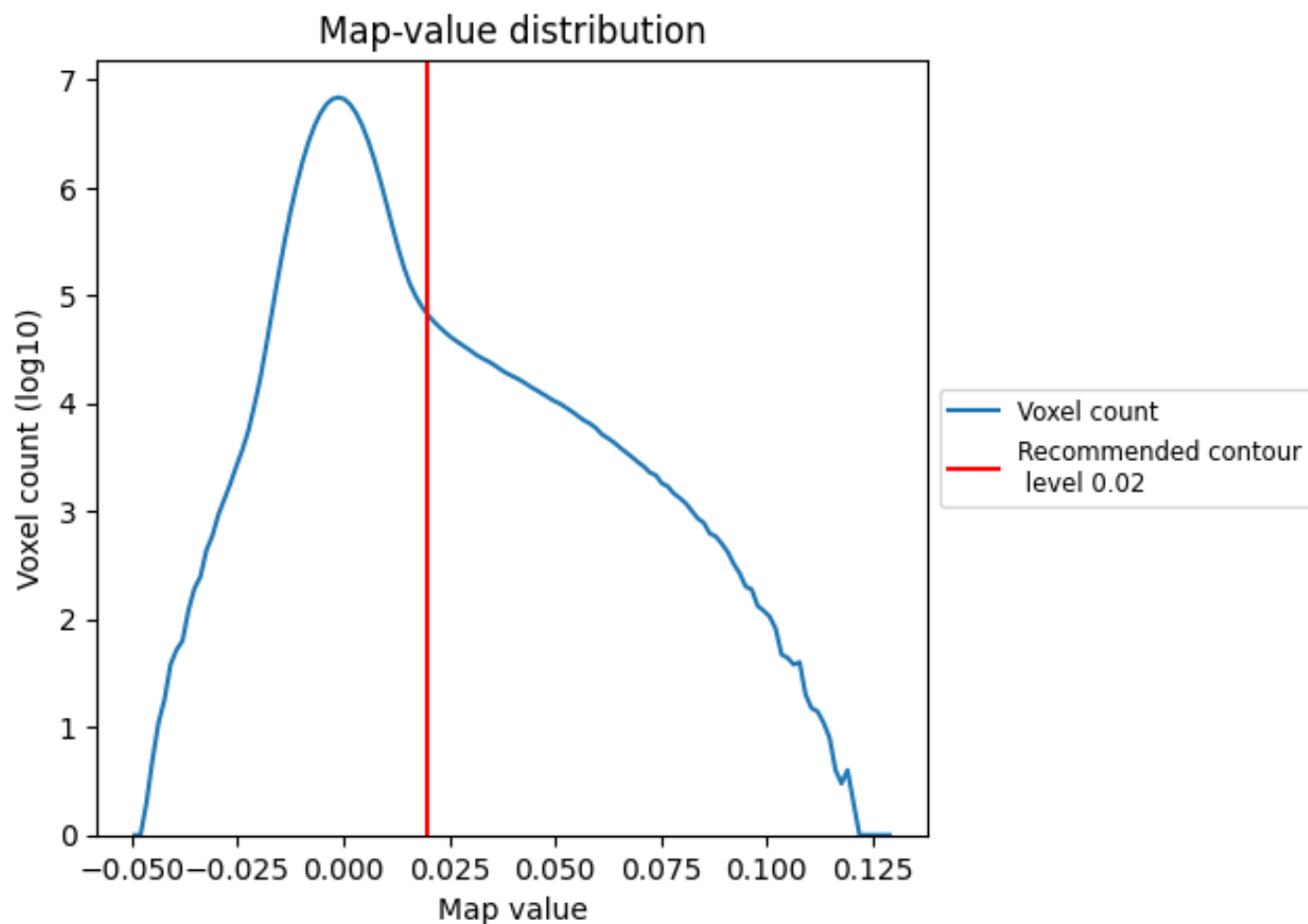
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

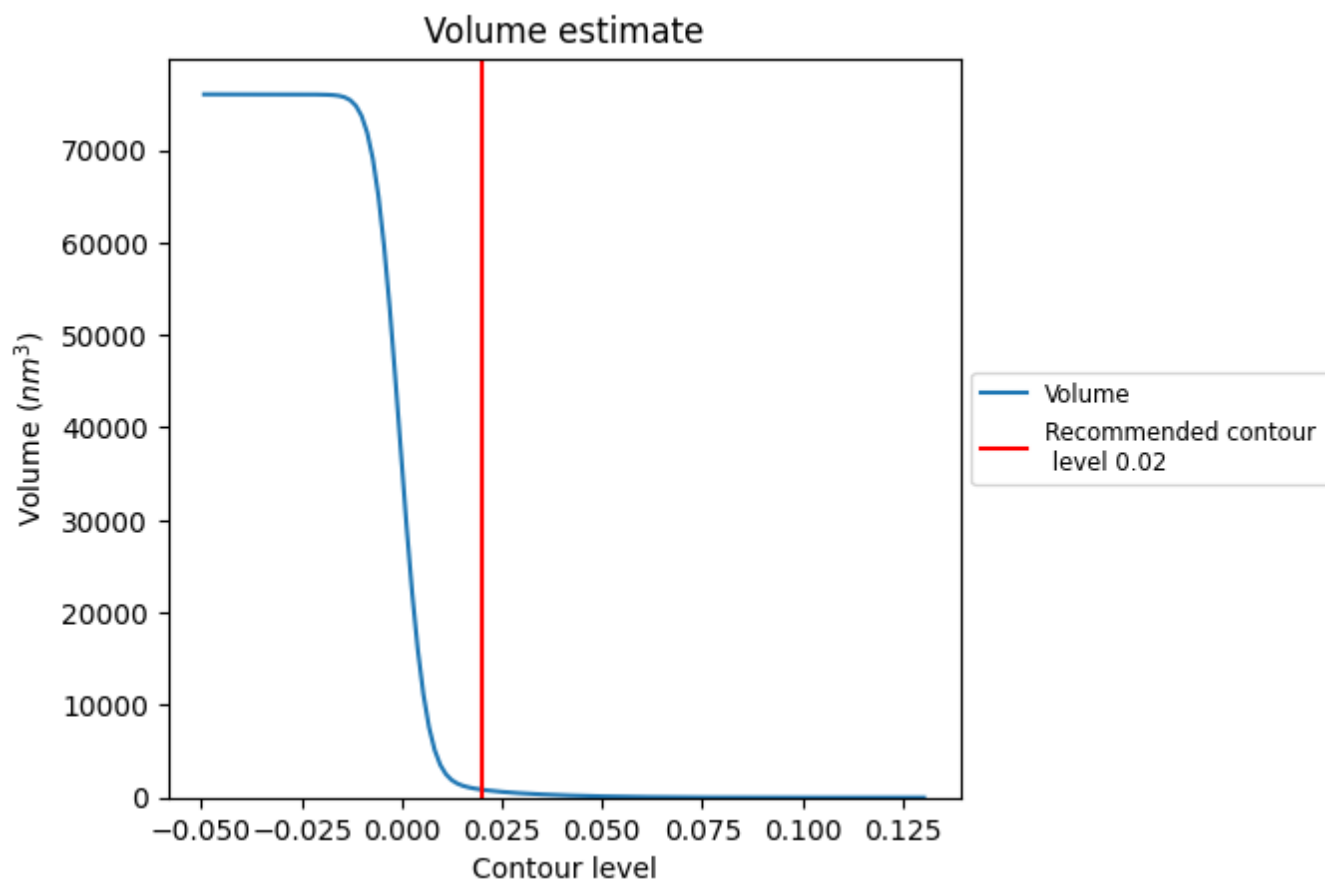
This section contains the results of statistical analysis of the map.

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.

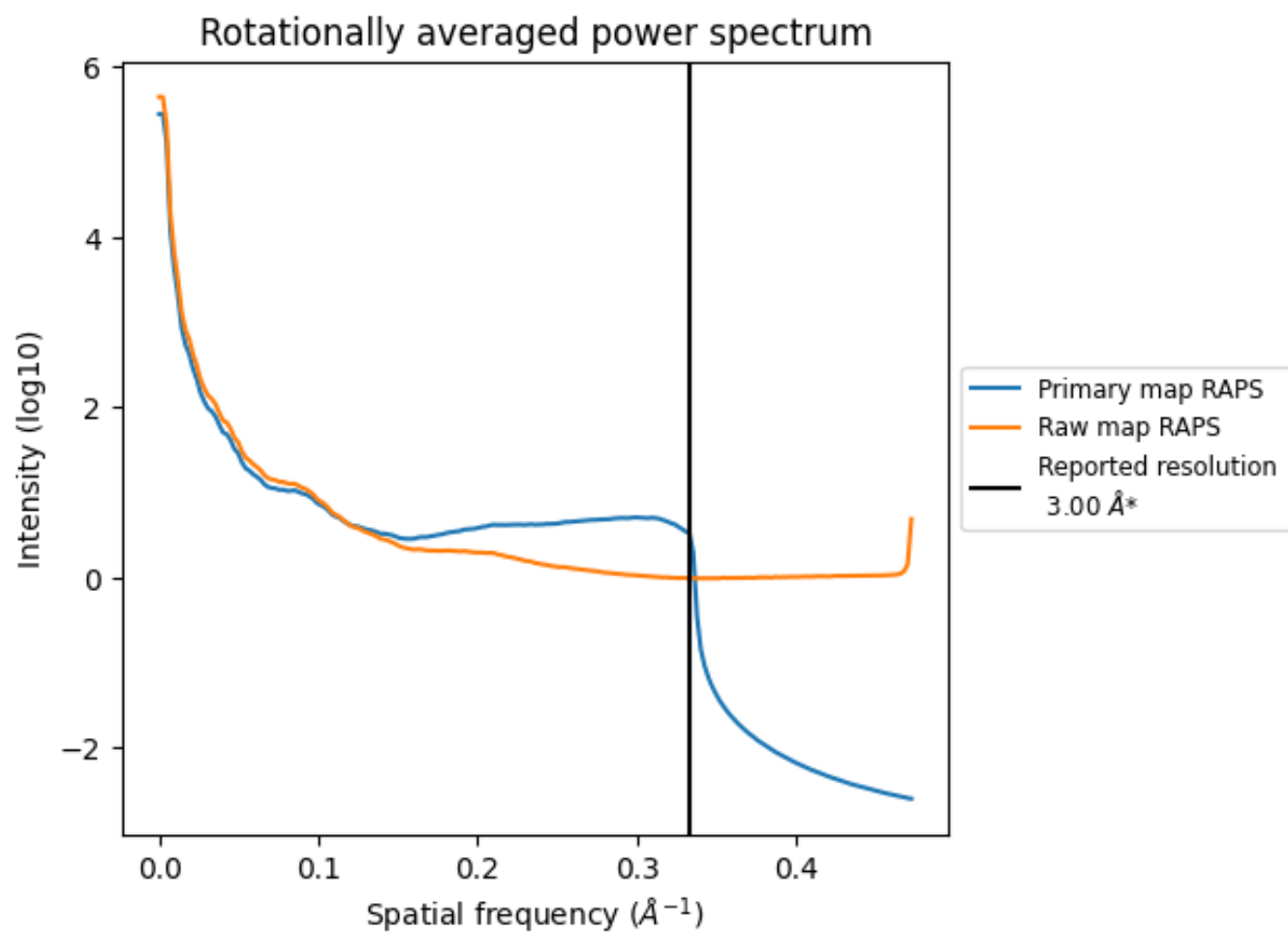
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 856 nm³; this corresponds to an approximate mass of 773 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 ⓘ

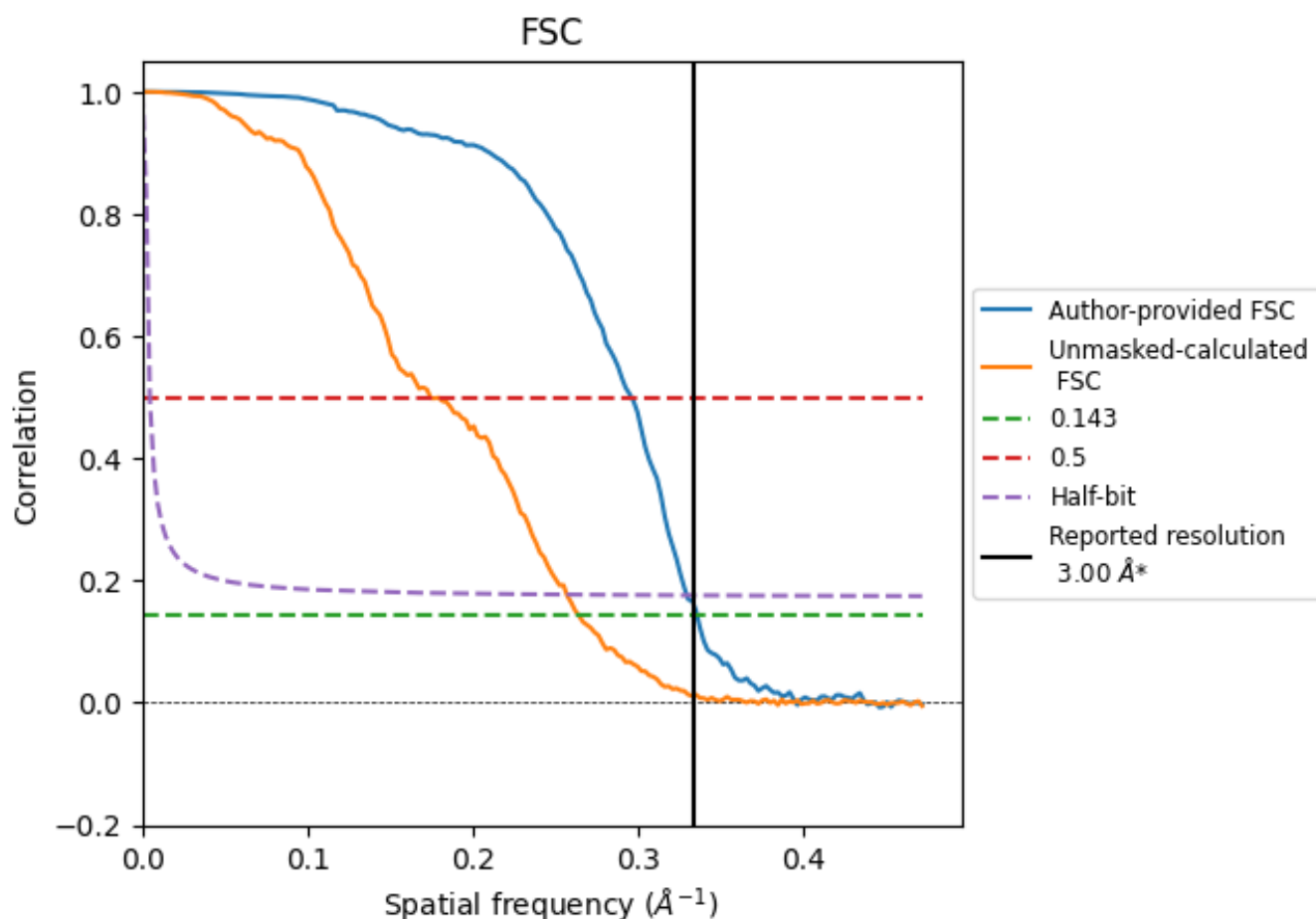


*Reported resolution corresponds to spatial frequency of 0.333 \AA^{-1}

8 Fourier-Shell correlation [i](#)

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

8.1 FSC [i](#)



*Reported resolution corresponds to spatial frequency of 0.333 \AA^{-1}

8.2 Resolution estimates [i](#)

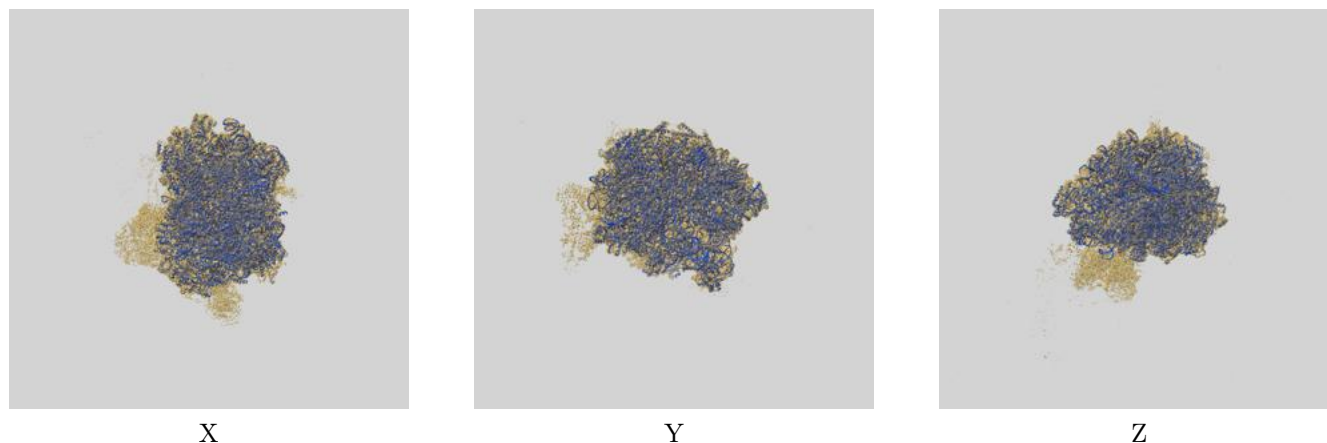
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	2.98	3.38	3.03
Unmasked-calculated*	3.79	5.73	3.89

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 3.79 differs from the reported value 3.0 by more than 10 %

9 Map-model fit [i](#)

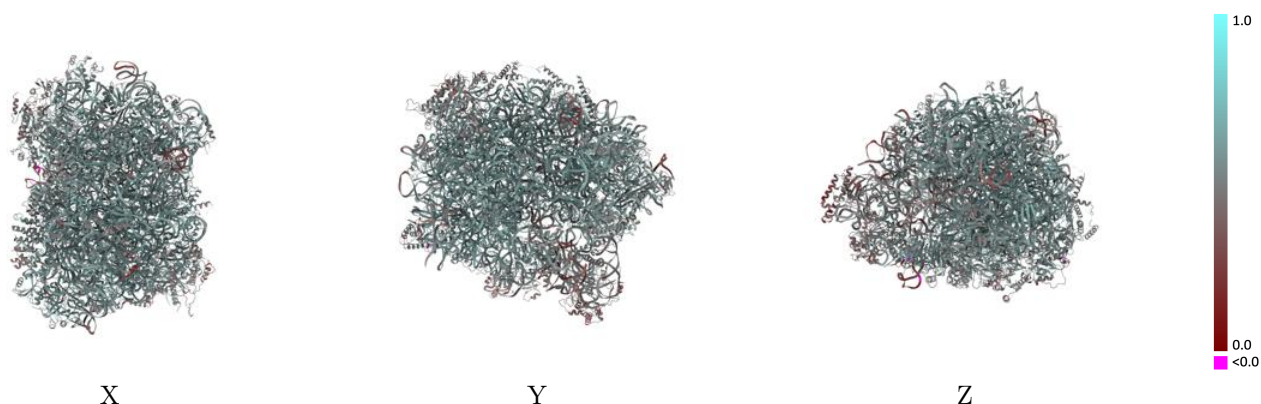
This section contains information regarding the fit between EMDB map EMD-10838 and PDB model 6YLG. Per-residue inclusion information can be found in section [3](#) on page [14](#).

9.1 Map-model overlay [i](#)



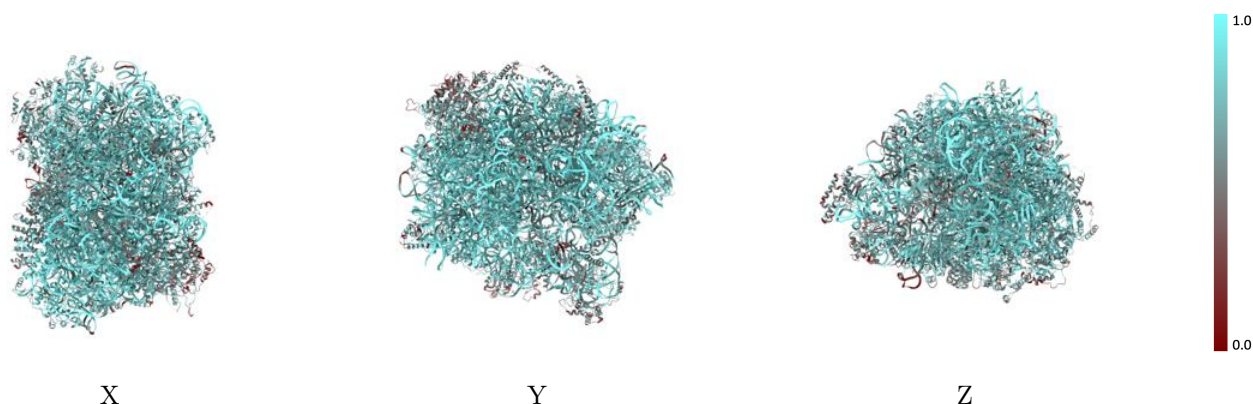
The images above show the 3D surface view of the map at the recommended contour level 0.02 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



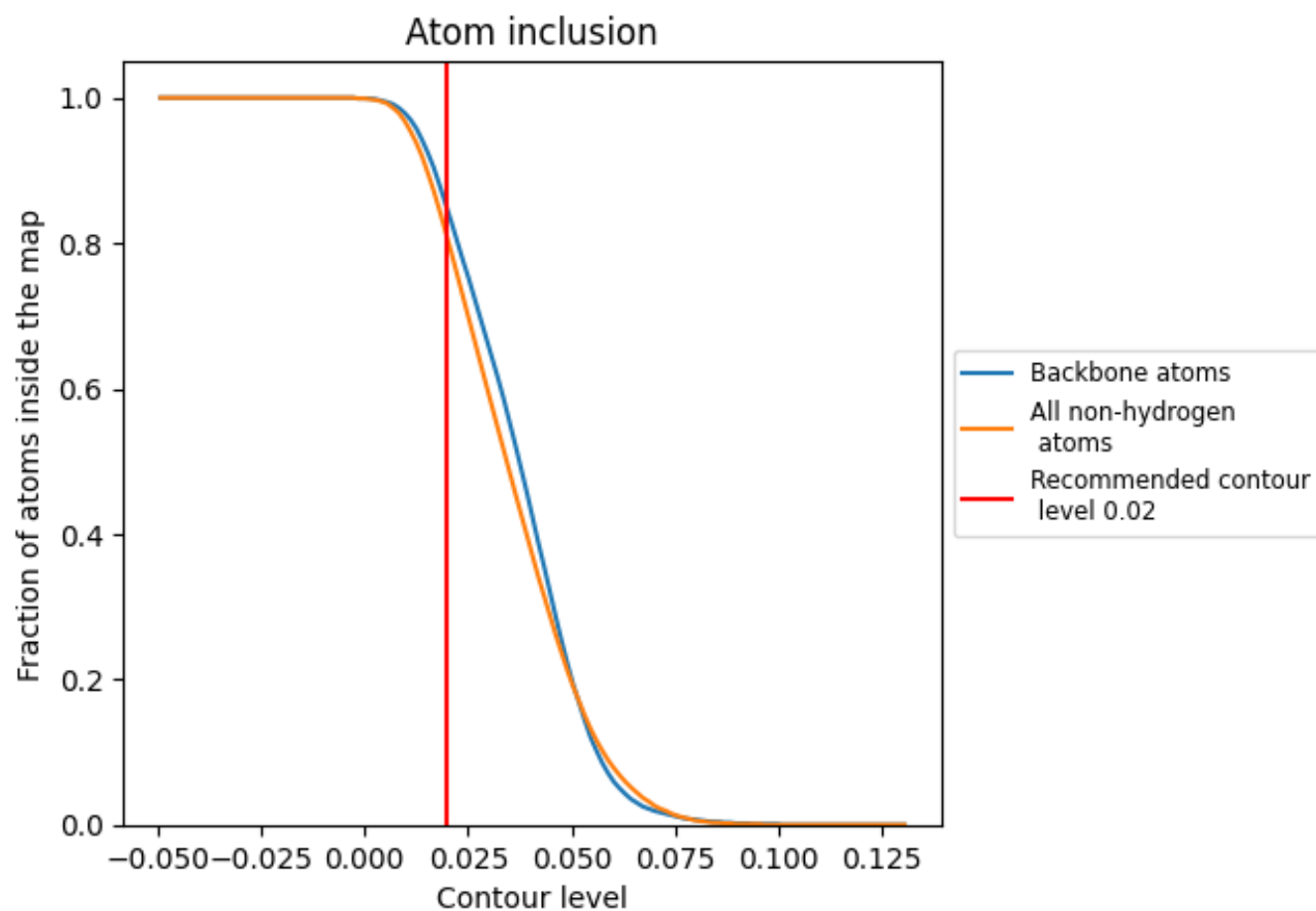
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (0.02).







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 85% 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 (0.02) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8060	 0.5450
1	 0.8930	 0.5550
2	 0.9410	 0.5890
3	 0.8600	 0.4940
4	 0.5350	 0.4960
5	 0.5110	 0.4530
A	 0.8680	 0.6000
B	 0.8140	 0.5750
C	 0.8000	 0.5680
D	 0.5290	 0.4160
E	 0.7600	 0.5430
F	 0.7970	 0.5550
G	 0.7490	 0.5330
H	 0.7890	 0.5620
I	 0.6210	 0.5320
J	 0.6060	 0.4570
K	 0.6130	 0.4870
L	 0.7890	 0.5520
M	 0.8070	 0.5580
N	 0.8530	 0.5920
O	 0.8290	 0.5790
P	 0.8210	 0.5800
Q	 0.7790	 0.5570
R	 0.8060	 0.5610
S	 0.7420	 0.5420
T	 0.5150	 0.4710
U	 0.7730	 0.5390
V	 0.7460	 0.5110
W	 0.7110	 0.5050
X	 0.7670	 0.5720
Y	 0.7970	 0.5690
Z	 0.7860	 0.5410
a	 0.8120	 0.5640
b	 0.6590	 0.5160
c	 0.5520	 0.5410



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Chain	Atom inclusion	Q-score
d	 0.7870	 0.5720
e	 0.8070	 0.5820
f	 0.8540	 0.6020
g	 0.8070	 0.5760
h	 0.8040	 0.5690
i	 0.7500	 0.5420
j	 0.8830	 0.6000
k	 0.6910	 0.5320
l	 0.8530	 0.6010
m	 0.7500	 0.5510
n	 0.7850	 0.5390
o	 0.3630	 0.3880
p	 0.8140	 0.5820
q	 0.6040	 0.4710
r	 0.7920	 0.5720
s	 0.4980	 0.5050
t	 0.6360	 0.5100
u	 0.7590	 0.5460
x	 0.7530	 0.5360
y	 0.6930	 0.5060
z	 0.6190	 0.5340