



Full wwPDB EM Validation Report ⓘ

Mar 23, 2026 – 02:02 AM UTC

PDB ID : 9BDL / pdb_00009bdl
EMDB ID : EMD-44461
Title : 80S ribosome with angiogenin
Authors : Loveland, A.B.; Korostelev, A.A.
Deposited on : 2024-04-12
Resolution : 2.80 Å(reported)

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

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

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev132
MolProbity : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
EM percentile statistics : 202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

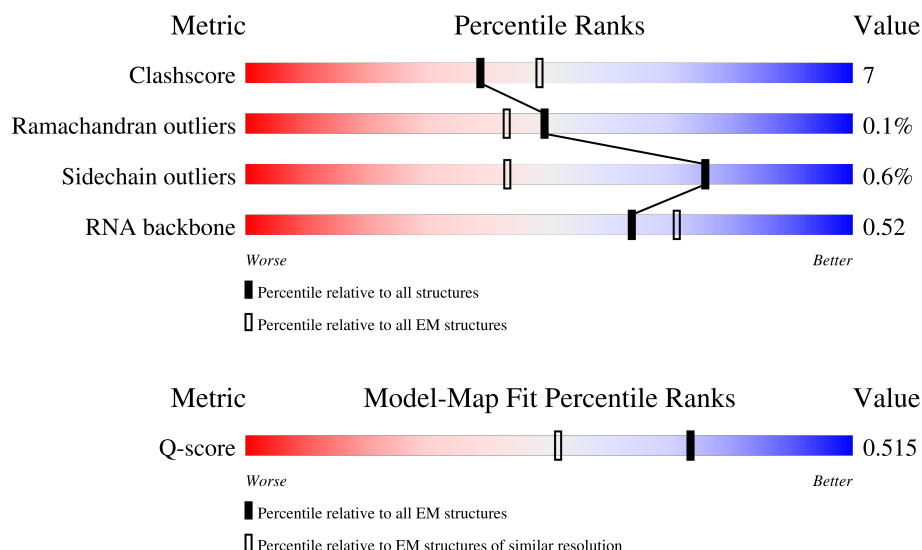
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

ELECTRON MICROSCOPY

The reported resolution of this entry is 2.80 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.



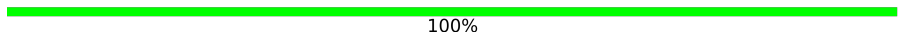
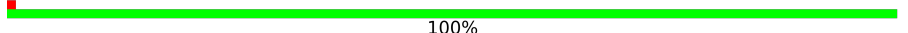
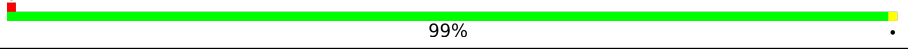
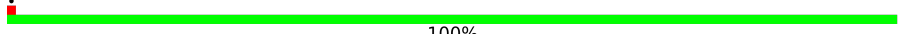
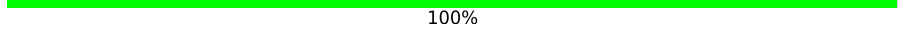
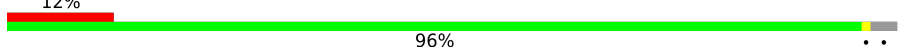
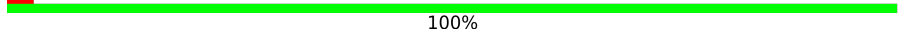
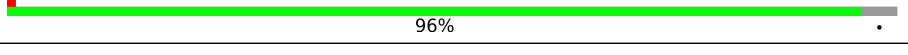
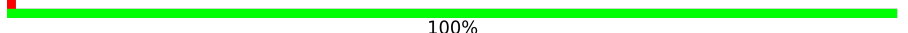
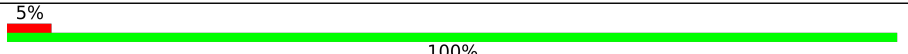
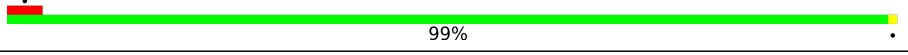
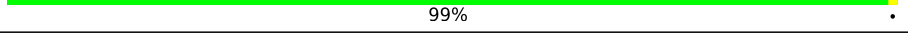
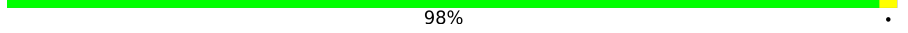
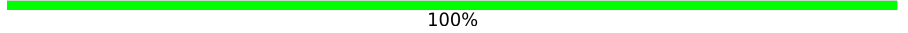
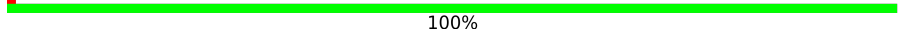
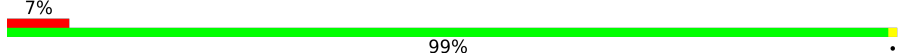
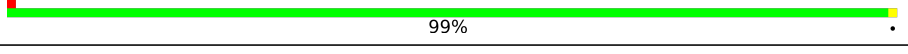
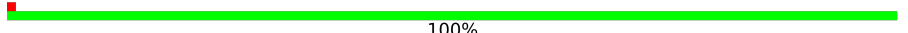
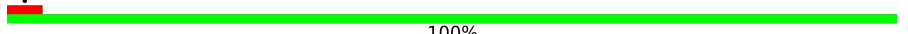
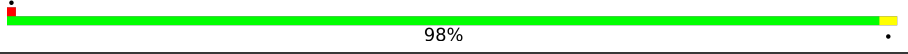
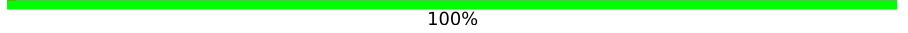
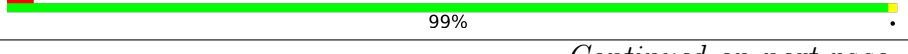
Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	229148	23984	-
Ramachandran outliers	224038	23583	-
Sidechain outliers	223484	23102	-
RNA backbone	8273	3508	-
Q-score	-	25397	11806 (2.30 - 3.30)

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	A18S	1869	
2	A28S	3601	
3	A58S	156	

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Mol	Chain	Length	Quality of chain
4	A5S	120	 88%12%
5	AL02	248	 100%
6	AL03	394	 100%
7	AL04	362	 99%
8	AL05	293	 100%
9	AL06	251	 85%14%
10	AL07	225	 100%
11	AL08	240	 12%96%
12	AL09	190	 100%
13	AL10	213	 96%
14	AL11	170	 100%
15	AL13	210	 5%100%
16	AL14	138	 99%
17	AL15	203	 99%
18	AL16	199	 98%
19	AL17	153	 100%
20	AL18	187	 100%
21	AL19	180	 7%99%
22	AL20	176	 99%
23	AL21	159	 100%
24	AL22	99	 100%
25	AL23	131	 98%
26	AL24	121	 52%48%
27	AL25	118	 100%
28	AL26	134	 99%

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Mol	Chain	Length	Quality of chain
29	AL27	135	100%
30	AL28	147	100%
31	AL29	245	7% 42% 58%
32	AL30	98	100%
33	AL31	107	99%
34	AL32	128	100%
35	AL33	109	100%
36	AL34	114	5% 98%
37	AL35	122	98%
38	AL36	102	99%
39	AL37	86	100%
40	AL38	69	100%
41	AL39	50	98%
42	AL40	52	100%
43	AL41	25	100%
44	AL42	104	98%
45	AL43	91	99%
46	ALNW	124	99%
47	ANG	147	7% 66% 15% 18%
48	ARAC	313	52% 99%
49	AS00	217	10% 100%
50	AS01	213	100%
51	AS02	221	7% 100%
52	AS03	228	18% 100%
53	AS04	262	5% 100%

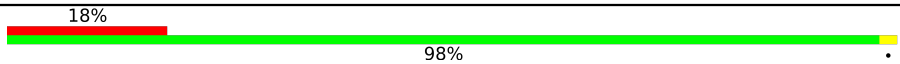
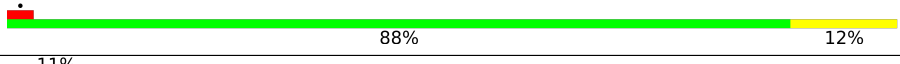
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Mol	Chain	Length	Quality of chain
54	AS05	191	
55	AS06	237	
56	AS07	189	
57	AS08	206	
58	AS09	185	
59	AS10	96	
60	AS11	151	
61	AS12	117	
62	AS13	149	
63	AS14	135	
64	AS15	120	
65	AS16	142	
66	AS17	132	
67	AS18	144	
68	AS19	141	
69	AS20	100	
70	AS21	83	
71	AS22	129	
72	AS23	141	
73	AS24	124	
74	AS25	75	
75	AS26	101	
76	AS27	83	
77	AS28	62	
78	AS29	55	

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Mol	Chain	Length	Quality of chain
79	AS30	55	
80	ETRN	77	
80	PTRN	77	
81	MRNA	28	

2 Entry composition

There are 81 unique types of molecules in this entry. The entry contains 212927 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 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A18S	1691	Total	C	N	O	P	0	0
			36103	16115	6485	11813	1690		

- Molecule 2 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	A28S	3557	Total	C	N	O	P	0	0
			76286	33975	13979	24775	3557		

- Molecule 3 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	A58S	151	Total	C	N	O	P	0	0
			3208	1432	564	1062	150		

- Molecule 4 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
4	A5S	120	Total	C	N	O	P	0	0
			2558	1141	456	842	119		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A5S	2	U	N	conflict	GB X06789.1
A5S	36	C	N	conflict	GB X06789.1
A5S	102	U	N	conflict	GB X06789.1
A5S	112	U	N	conflict	GB X06789.1
A5S	114	U	N	conflict	GB X06789.1
A5S	119	U	C	conflict	GB X06789.1
A5S	120	U	N	conflict	GB X06789.1

- Molecule 5 is a protein called 60S ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	AL02	248	Total	C	N	O	S	0	0
			1898	1189	389	314	6		

- Molecule 6 is a protein called 60S ribosomal protein L3.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	AL03	394	Total	C	N	O	S	0	0
			3172	2020	597	542	13		

- Molecule 7 is a protein called 60S ribosomal protein L4.

Mol	Chain	Residues	Atoms					AltConf	Trace
7	AL04	362	Total	C	N	O	S	0	0
			2883	1812	577	480	14		

- Molecule 8 is a protein called Large ribosomal subunit protein uL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
8	AL05	293	Total	C	N	O	S	0	0
			2391	1512	438	427	14		

- Molecule 9 is a protein called 60S ribosomal protein L6.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	AL06	216	Total	C	N	O	S	0	0
			1729	1115	329	282	3		

- Molecule 10 is a protein called 60S ribosomal protein L7.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	AL07	225	Total	C	N	O	S	0	0
			1875	1205	358	303	9		

- Molecule 11 is a protein called Large ribosomal subunit protein eL8.

Mol	Chain	Residues	Atoms					AltConf	Trace
11	AL08	233	Total	C	N	O	S	0	0
			1879	1199	361	315	4		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL08	244	GLY	CYS	conflict	UNP G1STW0

- Molecule 12 is a protein called 60S ribosomal protein L9.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	AL09	190	Total	C	N	O	S	0	0
			1516	954	284	272	6		

- Molecule 13 is a protein called Ribosomal protein L10.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	AL10	205	Total	C	N	O	S	0	0
			1664	1056	321	274	13		

- Molecule 14 is a protein called 60S ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	AL11	170	Total	C	N	O	S	0	0
			1361	861	254	240	6		

- Molecule 15 is a protein called Large ribosomal subunit protein eL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	AL13	210	Total	C	N	O	S	0	0
			1702	1065	354	279	4		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL13	74	ARG	HIS	conflict	UNP G1TKB3
AL13	190	ARG	HIS	conflict	UNP G1TKB3

- Molecule 16 is a protein called Large ribosomal subunit protein eL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	AL14	138	Total	C	N	O	S	0	0
			1137	727	221	182	7		

- Molecule 17 is a protein called 60S ribosomal protein L15.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	AL15	203	Total	C	N	O	S	0	0
			1701	1072	359	266	4		

- Molecule 18 is a protein called Large ribosomal subunit protein uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	AL16	199	Total	C	N	O	S	0	0
			1630	1051	319	255	5		

- Molecule 19 is a protein called 60S ribosomal protein L17.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	AL17	153	Total	C	N	O	S	0	0
			1242	777	241	215	9		

- Molecule 20 is a protein called Large ribosomal subunit protein eL18.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	AL18	187	Total	C	N	O	S	0	0
			1515	946	315	250	4		

There are 12 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL18	4	ASP	ASN	conflict	UNP G1TFE0
AL18	14	ARG	TRP	conflict	UNP G1TFE0
AL18	53	MET	LEU	conflict	UNP G1TFE0
AL18	58	ARG	TRP	conflict	UNP G1TFE0
AL18	75	ARG	GLN	conflict	UNP G1TFE0
AL18	80	ALA	PRO	conflict	UNP G1TFE0
AL18	86	VAL	ILE	conflict	UNP G1TFE0
AL18	104	ARG	HIS	conflict	UNP G1TFE0
AL18	110	ARG	CYS	conflict	UNP G1TFE0
AL18	137	VAL	GLY	conflict	UNP G1TFE0
AL18	157	GLY	ARG	conflict	UNP G1TFE0
AL18	181	ARG	TRP	conflict	UNP G1TFE0

- Molecule 21 is a protein called 60S ribosomal protein L19.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	AL19	180	Total	C	N	O	S	0	0
			1508	933	328	238	9		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL19	38	ARG	HIS	conflict	UNP G1TYL6
AL19	151	ARG	HIS	conflict	UNP G1TYL6

- Molecule 22 is a protein called 60S ribosomal protein L18a.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	AL20	176	Total	C	N	O	S	0	0
			1462	930	285	236	11		

There are 23 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL20	1	MET	THR	conflict	UNP G1TTY7
AL20	18	PRO	-	insertion	UNP G1TTY7
AL20	19	THR	-	insertion	UNP G1TTY7
AL20	20	PRO	SER	conflict	UNP G1TTY7
AL20	22	CYS	SER	conflict	UNP G1TTY7
AL20	23	ARG	PRO	conflict	UNP G1TTY7
AL20	24	THR	ALA	conflict	UNP G1TTY7
AL20	49	SER	LEU	conflict	UNP G1TTY7
AL20	50	GLN	GLU	conflict	UNP G1TTY7
AL20	95	ARG	HIS	conflict	UNP G1TTY7
AL20	101	THR	ILE	conflict	UNP G1TTY7
AL20	102	THR	MET	conflict	UNP G1TTY7
AL20	104	GLY	SER	conflict	UNP G1TTY7
AL20	126	ILE	VAL	conflict	UNP G1TTY7
AL20	132	ILE	MET	conflict	UNP G1TTY7
AL20	135	SER	ALA	conflict	UNP G1TTY7
AL20	136	LYS	ARG	conflict	UNP G1TTY7
AL20	138	ARG	PRO	conflict	UNP G1TTY7
AL20	149	LYS	ARG	conflict	UNP G1TTY7
AL20	151	LYS	ARG	conflict	UNP G1TTY7
AL20	168	THR	TYR	conflict	UNP G1TTY7
AL20	169	THR	ALA	conflict	UNP G1TTY7
AL20	176	PHE	-	insertion	UNP G1TTY7

- Molecule 23 is a protein called 60S ribosomal protein L21.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	AL21	159	Total	C	N	O	S	0	0
			1298	823	252	217	6		

- Molecule 24 is a protein called Large ribosomal subunit protein eL22.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	AL22	99	Total	C	N	O	S	0	0
			809	519	141	147	2		

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL22	18	LEU	VAL	conflict	UNP G1TSG1
AL22	32	GLY	ARG	conflict	UNP G1TSG1
AL22	36	ALA	GLU	conflict	UNP G1TSG1
AL22	39	PHE	SER	conflict	UNP G1TSG1
AL22	54	GLY	ARG	conflict	UNP G1TSG1
AL22	60	VAL	ALA	conflict	UNP G1TSG1
AL22	62	SER	THR	conflict	UNP G1TSG1
AL22	63	LEU	ILE	conflict	UNP G1TSG1
AL22	97	ARG	HIS	conflict	UNP G1TSG1
AL22	106	THR	SER	conflict	UNP G1TSG1

- Molecule 25 is a protein called 60S ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	AL23	131	Total	C	N	O	S	0	0
			979	618	184	172	5		

- Molecule 26 is a protein called Ribosomal protein L24.

Mol	Chain	Residues	Atoms					AltConf	Trace
26	AL24	63	Total	C	N	O	S	0	0
			528	337	103	85	3		

- Molecule 27 is a protein called Large ribosomal subunit protein uL23.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	AL25	118	Total	C	N	O	S	0	0
			967	618	181	167	1		

- Molecule 28 is a protein called 60S ribosomal protein L26.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	AL26	134	Total	C	N	O	S	0	0
			1115	700	226	186	3		

- Molecule 29 is a protein called 60S ribosomal protein L27.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	AL27	135	Total	C	N	O	S	0	0
			1107	714	208	182	3		

- Molecule 30 is a protein called 60S ribosomal protein L27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	AL28	147	Total	C	N	O	S	0	0
			1162	734	239	185	4		

- Molecule 31 is a protein called Large ribosomal subunit protein eL29.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	AL29	104	Total	C	N	O	S	0	0
			848	527	189	129	3		

- Molecule 32 is a protein called 60S ribosomal protein L30.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	AL30	98	Total	C	N	O	S	0	0
			761	481	134	140	6		

- Molecule 33 is a protein called 60S ribosomal protein L31.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	AL31	107	Total	C	N	O	S	0	0
			888	560	171	155	2		

- Molecule 34 is a protein called Large ribosomal subunit protein eL32.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	AL32	128	Total	C	N	O	S	0	0
			1053	667	216	165	5		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL32	3	ALA	SER	conflict	UNP G1TUN8
AL32	13	VAL	ILE	conflict	UNP G1TUN8
AL32	16	ARG	TRP	conflict	UNP G1TUN8
AL32	81	ASN	SER	conflict	UNP G1TUN8

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Chain	Residue	Modelled	Actual	Comment	Reference
AL32	98	GLU	LYS	conflict	UNP G1TUN8
AL32	108	ARG	CYS	conflict	UNP G1TUN8
AL32	115	ALA	VAL	conflict	UNP G1TUN8

- Molecule 35 is a protein called 60S ribosomal protein L35a.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	AL33	109	Total	C	N	O	S	0	0
			876	555	174	143	4		

- Molecule 36 is a protein called 60S ribosomal protein L34.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	AL34	114	Total	C	N	O	S	0	0
			906	566	187	147	6		

- Molecule 37 is a protein called 60S ribosomal protein L35.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	AL35	122	Total	C	N	O	S	0	0
			1013	640	204	168	1		

- Molecule 38 is a protein called 60S ribosomal protein L36.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	AL36	102	Total	C	N	O	S	0	0
			830	520	176	129	5		

- Molecule 39 is a protein called 60S ribosomal protein L37.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	AL37	86	Total	C	N	O	S	0	0
			705	434	155	111	5		

- Molecule 40 is a protein called Large ribosomal subunit protein eL38.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	AL38	69	Total	C	N	O	S	0	0
			569	366	103	99	1		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AL38	24	LYS	ASN	conflict	UNP G1U001

- Molecule 41 is a protein called 60S ribosomal protein L39.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	AL39	50	Total	C	N	O	S	0	0
			447	286	96	64	1		

- Molecule 42 is a protein called Large ribosomal subunit protein eL40.

Mol	Chain	Residues	Atoms					AltConf	Trace
42	AL40	52	Total	C	N	O	S	0	0
			429	266	90	67	6		

- Molecule 43 is a protein called eL41.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	AL41	25	Total	C	N	O	S	0	0
			239	145	64	27	3		

- Molecule 44 is a protein called eL42.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	AL42	104	Total	C	N	O	S	0	0
			851	533	174	138	6		

- Molecule 45 is a protein called 60S ribosomal protein L37a.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	AL43	91	Total	C	N	O	S	0	0
			708	445	136	120	7		

- Molecule 46 is a protein called 60S ribosomal protein L28.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	ALNW	124	Total	C	N	O	S	0	0
			994	616	205	167	6		

- Molecule 47 is a protein called Angiogenin.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	ANG	120	Total	C	N	O	S	0	0
			955	591	186	171	7		

- Molecule 48 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	ARAC	313	Total	C	N	O	S	0	0
			2436	1535	424	465	12		

- Molecule 49 is a protein called 40S_SA_C domain-containing protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	AS00	217	Total	C	N	O	S	0	0
			1710	1086	300	316	8		

- Molecule 50 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	AS01	213	Total	C	N	O	S	0	0
			1729	1098	309	308	14		

- Molecule 51 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	AS02	221	Total	C	N	O	S	0	0
			1716	1111	295	301	9		

- Molecule 52 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	AS03	228	Total	C	N	O	S	0	0
			1768	1126	318	316	8		

- Molecule 53 is a protein called 40S ribosomal protein S4.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	AS04	262	Total	C	N	O	S	0	0
			2076	1324	386	358	8		

- Molecule 54 is a protein called Ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	AS05	185	Total	C	N	O	S	0	0
			1471	921	277	266	7		

- Molecule 55 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
55	AS06	237	Total	C	N	O	S	0	0
			1922	1199	387	329	7		

- Molecule 56 is a protein called Small ribosomal subunit protein eS7.

Mol	Chain	Residues	Atoms					AltConf	Trace
56	AS07	185	Total	C	N	O	S	0	0
			1488	952	271	264	1		

- Molecule 57 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	AS08	206	Total	C	N	O	S	0	0
			1686	1058	332	291	5		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AS08	47	ARG	GLY	conflict	UNP G1TJW1

- Molecule 58 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
58	AS09	185	Total	C	N	O	S	0	0
			1525	969	306	248	2		

- Molecule 59 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
59	AS10	96	Total	C	N	O	S	0	0
			810	530	143	131	6		

- Molecule 60 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
60	AS11	143	Total	C	N	O	S	0	0
			1175	749	222	198	6		

- Molecule 61 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
61	AS12	99	Total	C	N	O	S	0	0
			758	475	139	137	7		

- Molecule 62 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
62	AS13	149	Total	C	N	O	S	0	0
			1202	770	228	203	1		

- Molecule 63 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	AS14	135	Total	C	N	O	S	0	0
			1004	614	196	188	6		

- Molecule 64 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
64	AS15	120	Total	C	N	O	S	0	0
			997	635	187	168	7		

- Molecule 65 is a protein called Small ribosomal subunit protein uS9.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	AS16	142	Total	C	N	O	S	0	0
			1128	717	213	195	3		

- Molecule 66 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	AS17	132	Total	C	N	O	S	0	0
			1068	670	199	195	4		

- Molecule 67 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
67	AS18	144	Total	C	N	O	S	0	0
			1190	746	241	202	1		

- Molecule 68 is a protein called Small ribosomal subunit protein eS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
68	AS19	141	Total	C	N	O	S	0	0
			1097	688	211	195	3		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AS19	119	GLY	TRP	conflict	UNP G1TN62

- Molecule 69 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
69	AS20	100	Total	C	N	O	S	0	0
			795	498	152	141	4		

- Molecule 70 is a protein called eS21.

Mol	Chain	Residues	Atoms					AltConf	Trace
70	AS21	83	Total	C	N	O	S	0	0
			636	393	117	121	5		

There are 7 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AS21	3	ASN	SER	conflict	UNP G1TM82
AS21	4	ASP	ASN	conflict	UNP G1TM82
AS21	33	GLN	PRO	conflict	UNP G1TM82
AS21	50	PHE	SER	conflict	UNP G1TM82
AS21	75	ALA	SER	conflict	UNP G1TM82
AS21	76	ASP	HIS	conflict	UNP G1TM82
AS21	81	LYS	GLN	conflict	UNP G1TM82

- Molecule 71 is a protein called 40S ribosomal protein S15a.

Mol	Chain	Residues	Atoms					AltConf	Trace
71	AS22	129	Total	C	N	O	S	0	0
			1034	659	193	176	6		

- Molecule 72 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
72	AS23	141	Total	C	N	O	S	0	0
			1098	693	219	183	3		

- Molecule 73 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
73	AS24	124	Total	C	N	O	S	0	0
			1011	640	198	168	5		

- Molecule 74 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
74	AS25	75	Total	C	N	O	S	0	0
			598	382	111	104	1		

- Molecule 75 is a protein called eS26.

Mol	Chain	Residues	Atoms					AltConf	Trace
75	AS26	101	Total	C	N	O	S	0	0
			814	507	170	132	5		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AS26	28	ARG	CYS	conflict	UNP G1TFE8
AS26	56	ALA	VAL	conflict	UNP G1TFE8

- Molecule 76 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
76	AS27	83	Total	C	N	O	S	0	0
			651	408	121	115	7		

- Molecule 77 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
77	AS28	62	Total	C	N	O	S	0	0
			488	297	97	92	2		

- Molecule 78 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
78	AS29	55	Total	C	N	O	S	0	0
			459	286	94	74	5		

- Molecule 79 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
79	AS30	55	Total	C	N	O	S	0	0
			443	274	97	71	1		

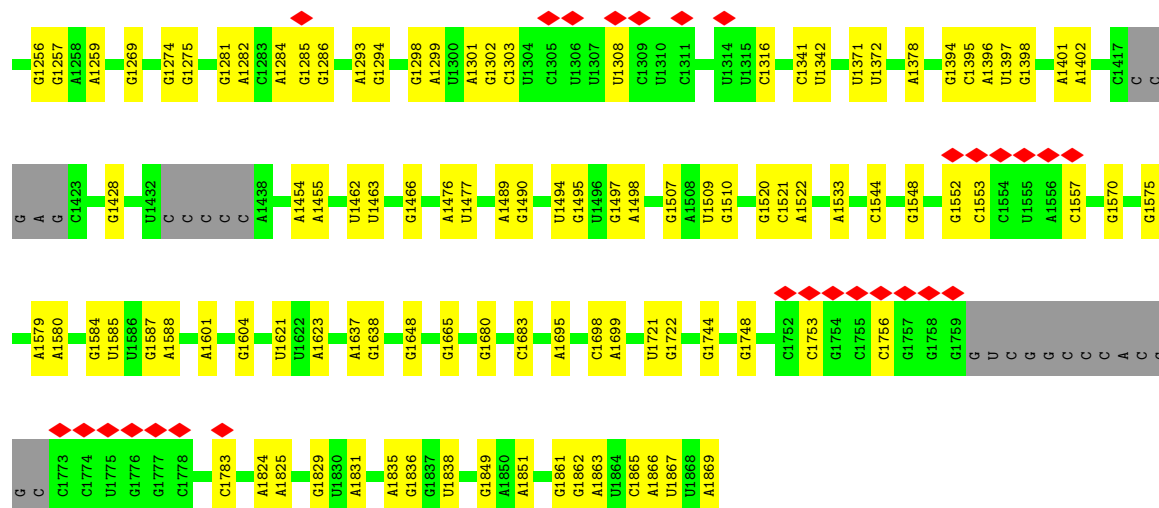
- Molecule 80 is a RNA chain called tRNAfMet.

Mol	Chain	Residues	Atoms					AltConf	Trace
80	ETRN	77	Total	C	N	O	P	0	0
			1640	732	297	535	76		
80	PTRN	77	Total	C	N	O	P	0	0
			1640	732	297	535	76		

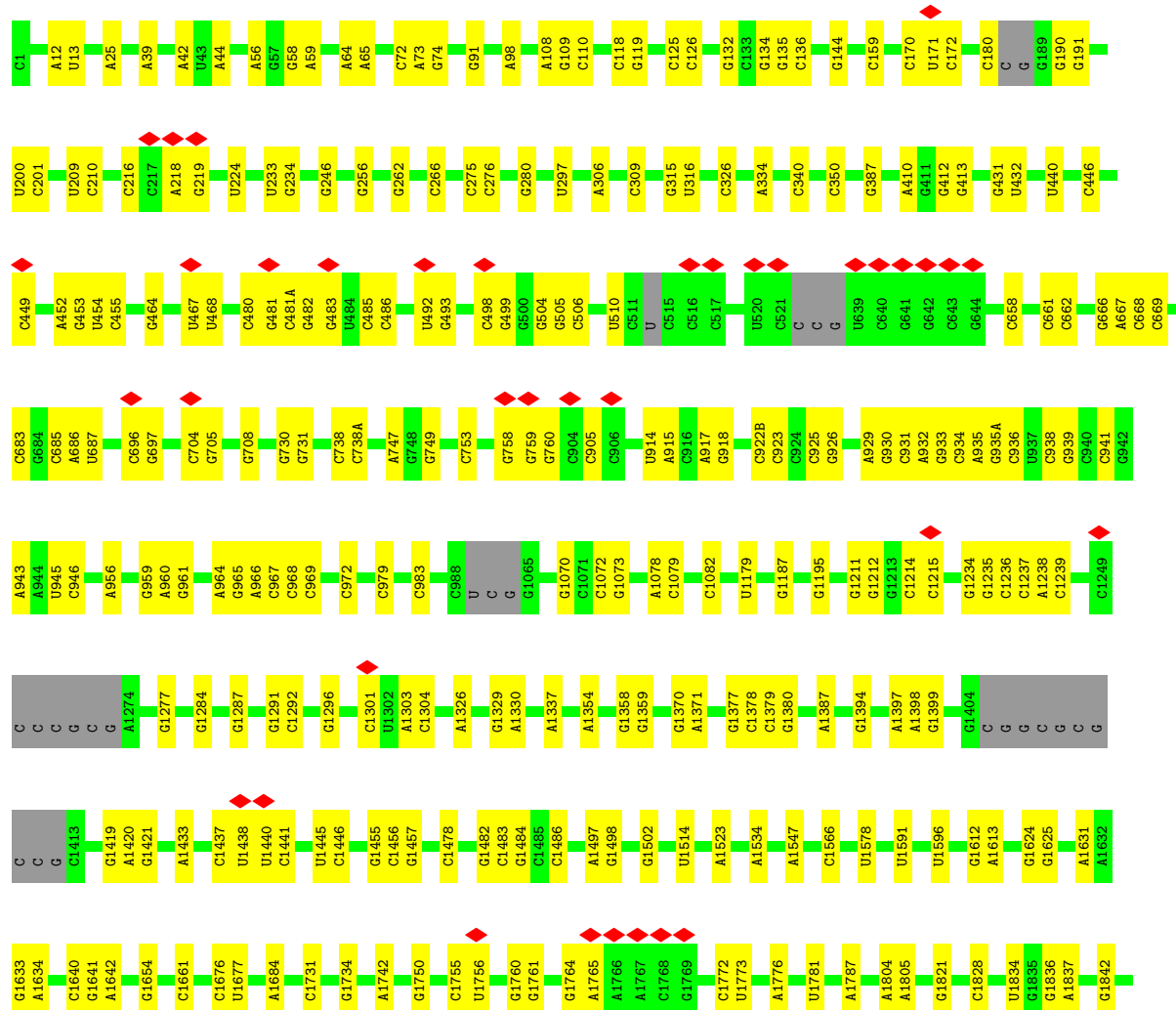
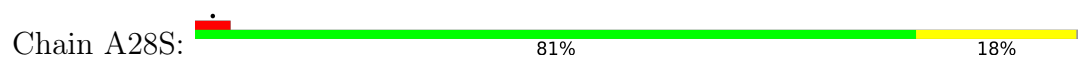
- Molecule 81 is a RNA chain called Model mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	MRNA	10	Total	C	N	O	P	0	0
			207	93	33	71	10		





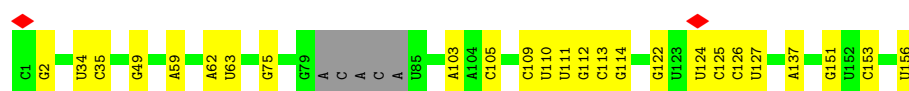
• Molecule 2: 28S rRNA



G5041	C5047	C5050	U5053	C5054	A5058	A5061	G5062	U5069	G4915	C4918	G4919	C4920	C4921	C4922	U4923	C4924	U4925	C4926	G4927	C4928	G4931	C4937	A4943	C4944	U4947	C4948	G4949	U4950	G4951	A4955	C4957	C4958	U4959	G4960	G4963	C4964	U4965	A4966	A4967	U4976	U4985	U4988	C4989	C4990	U4991	C4992	C4993	G5017	G5020	C	U	G5028	C5029	U5040
U4699	A4700	U4709	U4719	C4720	A4729	G	C	G4737	G4743	G4751	G4754	C4757	U4758	C4759	G4760	G4761	G4765	C4771	C4775	C4776	C	G	G4860	G4868	U4869	G4870	C4871	G4872	G4873	A4874	G4875	U4882	C4883	G4884	U4885	C4895	G4904	C4905	C4906	C	U	A4910	A4911	G4912	G4913	G4914								
A4415	U4419	A4422	C4444	G4448	A4449	A4464	U4465	C4466	U4471	G4472	U4500	U4512	A4513	C4519	G4524	U4531	A4548	G4549	C4560	G4567	G4573	U4574	G4575	A4584	U4585	G4586	A4590	U4636	C4637	G4652	A4656	U4657	C4670	C4671	A4672	U4677																		
A4233	G4249	C4250	A4251	C4252	C4253	G4254	G4266	A4268	A4271	C4272	A4281	G4291	G4297	A4304	G4305	U4306	C4314	A4317	C4318	C4319	G4329	C4330	G4331	C4332	A4336	C4349	U4354	G4355	G4373	A4376	G4377	A4378	U4379	A4380	C4387	G4391	A4394	U4395																
A4085	G4086	A4087	C4088	A4098	G4099	C	C	G	G4108	G4109	C4110	U4111	C4112	C4116	U4117	C4118	U4119	U4120	G4121	C4122	C4125	C4126	A4127	C4136	C4137	C	G	C4147	C4148	C4158	C4162	U4163	G4166	A4170	C4171	C4183	C4184	G4191	A4203	A4212	G4225	U4229	U4232											
A3901	A3905	A3906	A3907	A3908	U3915	G3916	A3917	G3938	G3939	U3957	G3958	U3959	A3960	G3961	A3962	A3963	U3964	A3965	A3966	G3967	U3968	G3969	G3970	G3971	A3972	G3973	G3974	C3975	G3976	A4035	G4036	C4041	G4042	G4043	U4044	A4047	A4048	U4049	A4050	A4053	C4054	U4055	U4058	C4059	G4065	U4066	U4069	G4076						
U3645	A3646	A3647	A3648	A3662	U3663	G3664	C3673	G3674	C3677	C3678	C3696	A3711	U3729	A3748	G3753	A3759	A3760	C3761	U3773	G3776	U3788	G3777	A3784	A3785	U3786	C3810	G3811	C3812	C3813	U3814	A3817	U3818	G3819	U3822	U3838	G3839	U3840	A3877	C3878	G3879	G3888	G3889	G3897											
G2712	C2716	G2721	A2725	C2726	G2735	U2740	A2743	A2744	G2754	G2760	U2761	G2762	A2764	C2768	U2769	A2787	U2788	G2789	U2790	C2794	A2798	U2826	G2827	U2837	G2838	G2842	G2855	U2900	C	G	C3598	A3604	C3605	G3625	G3626	A3635	U3644																	
U2490	C2491	C2503	C2504	C2505	C2506	A2513	C2520	A2529	U2530	A2537	G2544	U2545	G2546	G2547	A2553	C2563	U2575	C2583	G2586	A2587	G2602	G2618	C2627	G2638	U2639	G2640	C2653	G2662	C2669	G2686	U2687	A2695	A2696	U2707	U2708	C2709	C2710	C2711																
C1994	G1995	U1996	U1997	A1998	G2001	A2002	G2003	U2004	G2005	U2006	G2007	U2008	A2009	A2010	C2011	A2012	A2013	C2014	U2015	C2023	G2024	A2025	A2026	G2046	A2047	U2048	G2052	G2055	G2056	C2062	G2063	G2064	A2069	U2084	G2089	U2090	C2091	G2092	G2093	C2094	A2097	G2098	C2099	G2100	A2101	G2102	A2103	A2104	A2105					
G1855	G1869	U1882	A1892	A1897	G1910	U1918	G1919	C1920	C1921	G1922	C1931	C1935	G1940	G1948	U1957	A1958	U1959	A1960	G1961	A1962	C1963	A1964	G1969	A1970	U1971	G1972	G1973	U1974	G1975	G1976	C1977	G1978	A1979	U1980	G1981	G1982	A1983	A1984	G1985	U1986	C1987	G1988	A1989	A1990	A1991	U1992								

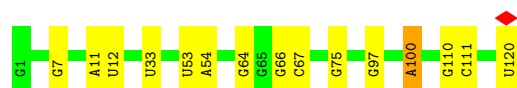
• Molecule 3: 5.8S rRNA

Chain A58S:  81% 16%



- Molecule 4: 5S rRNA

Chain A5S:  88% 12%

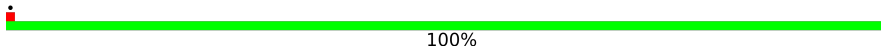


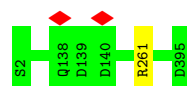
- Molecule 5: 60S ribosomal protein L8

Chain AL02:  100%

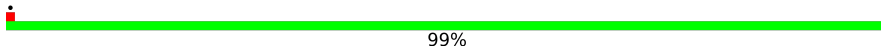


- Molecule 6: 60S ribosomal protein L3

Chain AL03:  100%



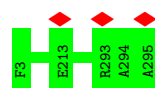
- Molecule 7: 60S ribosomal protein L4

Chain AL04:  99%



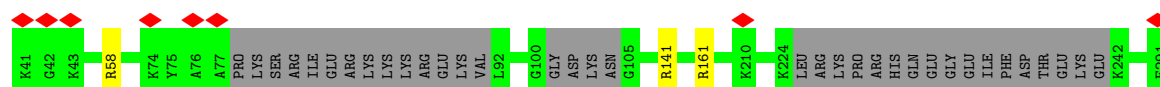
- Molecule 8: Large ribosomal subunit protein uL18

Chain AL05:  100%



- Molecule 9: 60S ribosomal protein L6

Chain AL06:  85% 14%

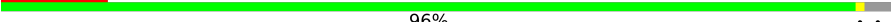


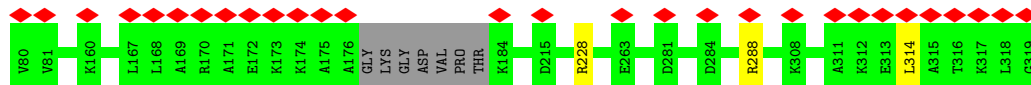
- Molecule 10: 60S ribosomal protein L7

Chain AL07:  100%



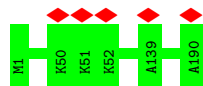
- Molecule 11: Large ribosomal subunit protein eL8

Chain AL08:  12%  96%



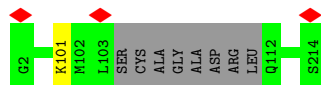
- Molecule 12: 60S ribosomal protein L9

Chain AL09:  100%



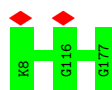
- Molecule 13: Ribosomal protein L10

Chain AL10:  96%



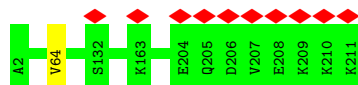
- Molecule 14: 60S ribosomal protein L11

Chain AL11:  100%



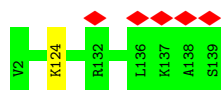
- Molecule 15: Large ribosomal subunit protein eL13

Chain AL13:  5%  100%



- Molecule 16: Large ribosomal subunit protein eL14

Chain AL14:  99%



- Molecule 17: 60S ribosomal protein L15

Chain AL15: 99%



- Molecule 18: Large ribosomal subunit protein uL13

Chain AL16: 98%



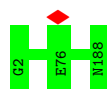
- Molecule 19: 60S ribosomal protein L17

Chain AL17: 100%

There are no outlier residues recorded for this chain.

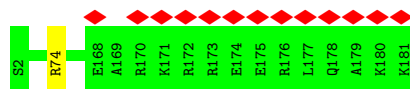
- Molecule 20: Large ribosomal subunit protein eL18

Chain AL18: 100%



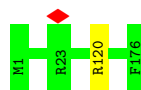
- Molecule 21: 60S ribosomal protein L19

Chain AL19: 99%



- Molecule 22: 60S ribosomal protein L18a

Chain AL20: 99%

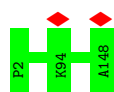


- Molecule 23: 60S ribosomal protein L21

Chain AL21: 100%

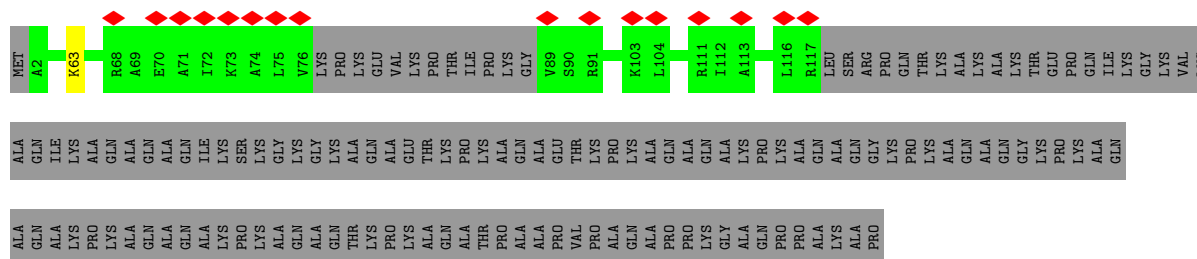


Chain AL28:  100%



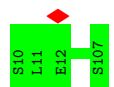
- Molecule 31: Large ribosomal subunit protein eL29

Chain AL29:  7% 42% 58%



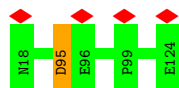
- Molecule 32: 60S ribosomal protein L30

Chain AL30:  100%



- Molecule 33: 60S ribosomal protein L31

Chain AL31:  99%



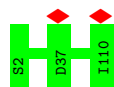
- Molecule 34: Large ribosomal subunit protein eL32

Chain AL32:  100%

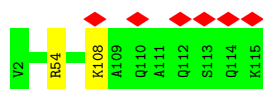


- Molecule 35: 60S ribosomal protein L35a

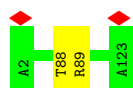
Chain AL33:  100%



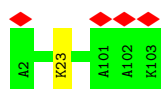
- Molecule 36: 60S ribosomal protein L34



- Molecule 37: 60S ribosomal protein L35



- Molecule 38: 60S ribosomal protein L36



- Molecule 39: 60S ribosomal protein L37



There are no outlier residues recorded for this chain.

- Molecule 40: Large ribosomal subunit protein eL38



- Molecule 41: 60S ribosomal protein L39



- Molecule 42: Large ribosomal subunit protein eL40



- Molecule 43: eL41

Chain AL41:  100%



- Molecule 44: eL42

Chain AL42:  98%



- Molecule 45: 60S ribosomal protein L37a

Chain AL43:  99%



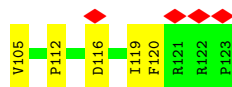
- Molecule 46: 60S ribosomal protein L28

Chain ALNW:  99%



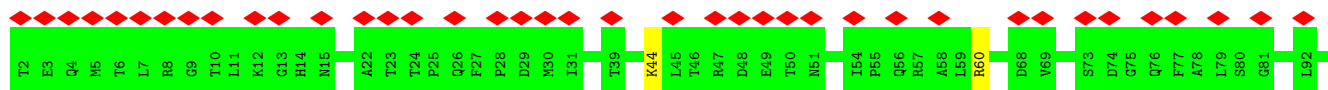
- Molecule 47: Angiogenin

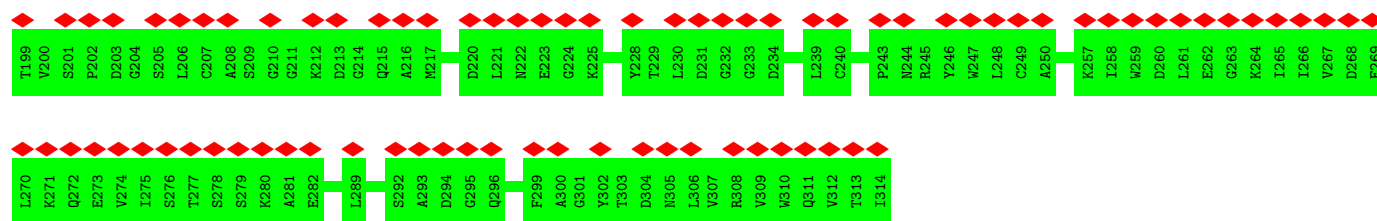
Chain ANG:  7% 66% 15% 18%



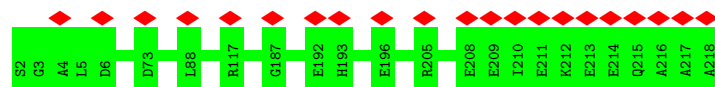
- Molecule 48: Receptor of activated protein C kinase 1

Chain ARAC:  52% 99%

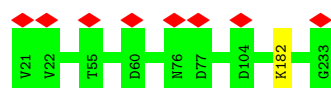




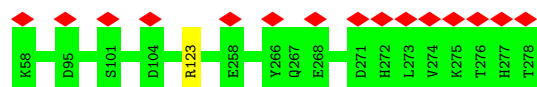
- Molecule 49: 40S_SA_C domain-containing protein



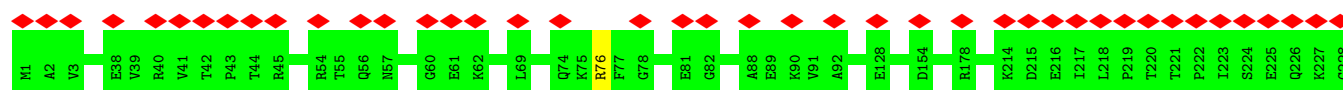
- Molecule 50: 40S ribosomal protein S3a



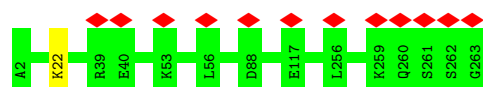
- Molecule 51: 40S ribosomal protein S2



- Molecule 52: 40S ribosomal protein S3

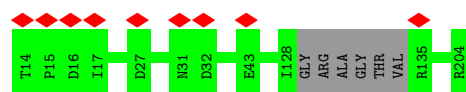


- Molecule 53: 40S ribosomal protein S4

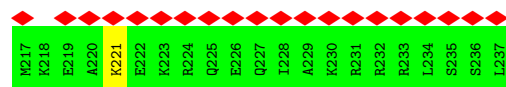
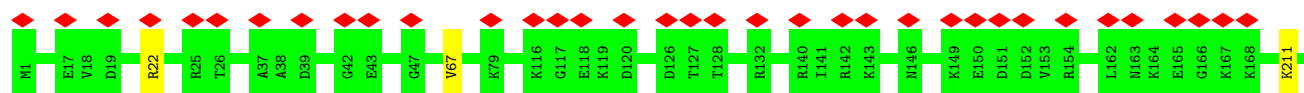


- Molecule 54: Ribosomal protein S5

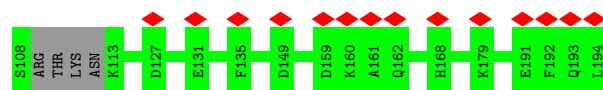
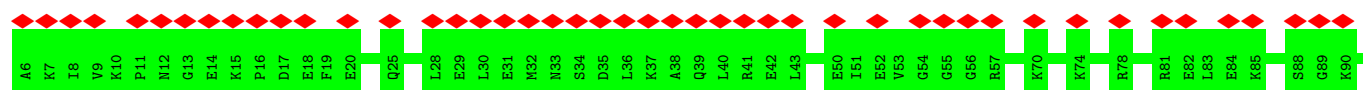




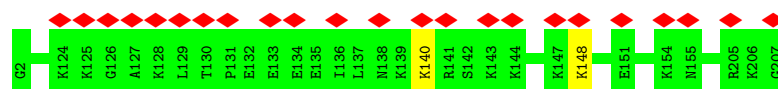
- Molecule 55: 40S ribosomal protein S6



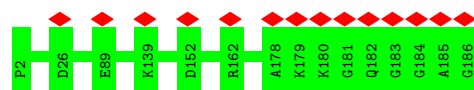
- Molecule 56: Small ribosomal subunit protein eS7



- Molecule 57: 40S ribosomal protein S8



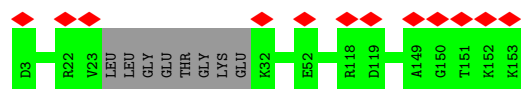
- Molecule 58: 40S ribosomal protein S9



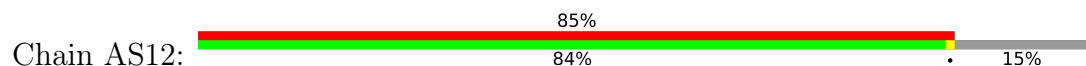
- Molecule 59: 40S ribosomal protein S10



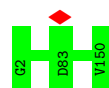
- Molecule 60: 40S ribosomal protein S11



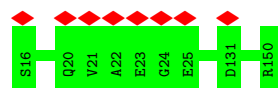
- Molecule 61: 40S ribosomal protein S12



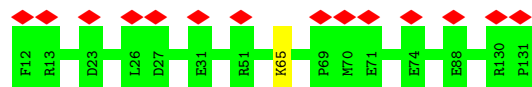
- Molecule 62: 40S ribosomal protein S13



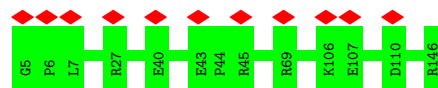
- Molecule 63: Small ribosomal subunit protein uS11



- Molecule 64: 40S ribosomal protein S15

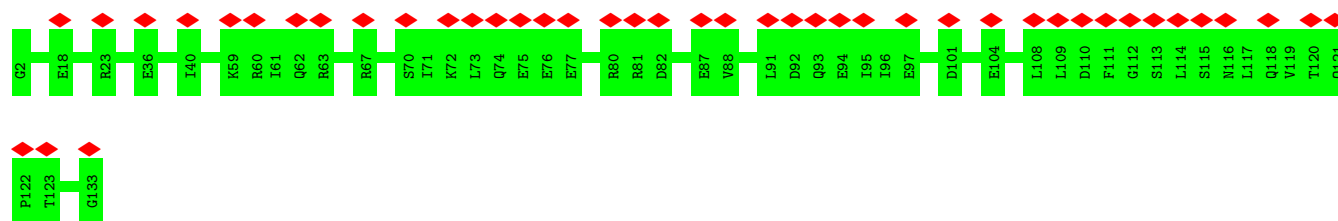


- Molecule 65: Small ribosomal subunit protein uS9

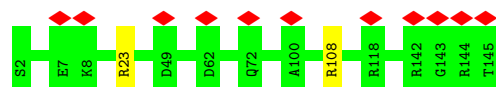


- Molecule 66: 40S ribosomal protein S17

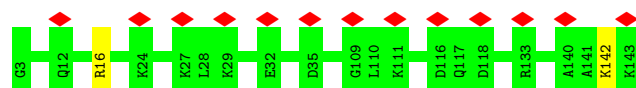




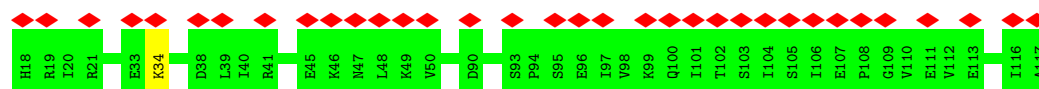
- Molecule 67: 40S ribosomal protein S18



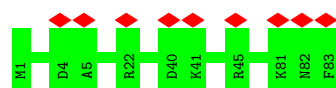
- Molecule 68: Small ribosomal subunit protein eS19



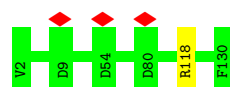
- Molecule 69: 40S ribosomal protein S20



- Molecule 70: eS21



- Molecule 71: 40S ribosomal protein S15a

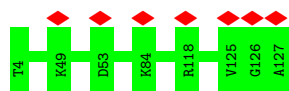


- Molecule 72: 40S ribosomal protein S23

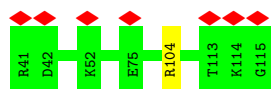




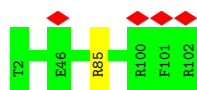
- Molecule 73: 40S ribosomal protein S24



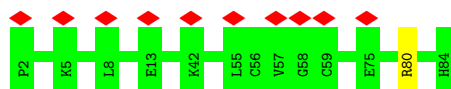
- Molecule 74: 40S ribosomal protein S25



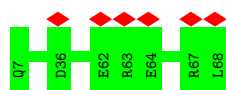
- Molecule 75: eS26



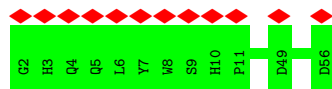
- Molecule 76: 40S ribosomal protein S27



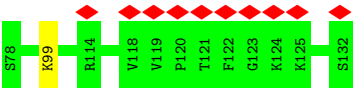
- Molecule 77: 40S ribosomal protein S28



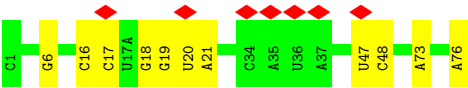
- Molecule 78: 40S ribosomal protein S29



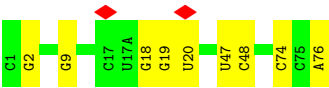
- Molecule 79: 40S ribosomal protein S30



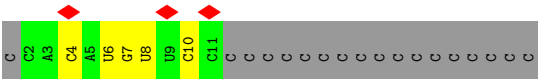
• Molecule 80: tRNAfMet



• Molecule 80: tRNAfMet



• Molecule 81: Model mRNA



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	101572	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING ONLY	Depositor
Microscope	FEI TALOS ARCTICA	Depositor
Voltage (kV)	200	Depositor
Electron dose ($e^-/\text{\AA}^2$)	30	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	1500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor
Maximum map value	30.079	Depositor
Minimum map value	-10.342	Depositor
Average map value	0.006	Depositor
Map value standard deviation	0.932	Depositor
Recommended contour level	3.5	Depositor
Map size ($\text{\AA}$)	528.96, 528.96, 528.96	wwPDB
Map dimensions	608, 608, 608	wwPDB
Map angles ($^\circ$)	90.0, 90.0, 90.0	wwPDB
Pixel spacing ($\text{\AA}$)	0.87000006, 0.87000006, 0.87000006	Depositor

5 Model quality

5.1 Standard geometry

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	A18S	0.28	0/40369	0.25	0/62910
2	A28S	0.39	0/85336	0.29	0/133087
3	A58S	0.39	0/3581	0.24	0/5577
4	A5S	0.34	0/2858	0.21	0/4455
5	AL02	0.42	0/1936	0.49	0/2596
6	AL03	0.37	0/3240	0.44	0/4339
7	AL04	0.38	0/2937	0.46	0/3946
8	AL05	0.30	0/2437	0.40	0/3264
9	AL06	0.28	0/1762	0.44	0/2362
10	AL07	0.38	0/1911	0.45	0/2549
11	AL08	0.31	0/1910	0.46	0/2569
12	AL09	0.33	0/1535	0.48	0/2063
13	AL10	0.35	0/1702	0.43	0/2272
14	AL11	0.28	0/1384	0.44	0/1850
15	AL13	0.34	0/1733	0.47	0/2316
16	AL14	0.31	0/1158	0.46	0/1547
17	AL15	0.44	0/1746	0.51	0/2338
18	AL16	0.38	0/1662	0.46	1/2222 (0.0%)
19	AL17	0.40	0/1268	0.47	0/1700
20	AL18	0.38	0/1539	0.49	0/2054
21	AL19	0.34	0/1524	0.45	0/2013
22	AL20	0.37	0/1501	0.45	0/2012
23	AL21	0.36	0/1326	0.46	0/1770
24	AL22	0.27	0/823	0.49	0/1104
25	AL23	0.38	0/993	0.43	0/1332
26	AL24	0.35	0/541	0.46	0/720
27	AL25	0.34	0/984	0.40	0/1323
28	AL26	0.35	0/1132	0.45	0/1504
29	AL27	0.33	0/1130	0.42	0/1507
30	AL28	0.40	0/1191	0.44	0/1590
31	AL29	0.29	0/861	0.43	0/1138
32	AL30	0.34	0/771	0.36	0/1034
33	AL31	0.36	0/903	0.43	0/1216
34	AL32	0.42	0/1071	0.52	0/1429

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
35	AL33	0.41	0/895	0.50	0/1198
36	AL34	0.36	0/916	0.47	0/1220
37	AL35	0.32	0/1021	0.42	0/1348
38	AL36	0.31	0/841	0.47	0/1112
39	AL37	0.44	0/720	0.50	0/952
40	AL38	0.28	0/575	0.47	0/761
41	AL39	0.37	0/459	0.47	0/608
42	AL40	0.32	0/435	0.49	0/575
43	AL41	0.32	0/240	0.49	0/305
44	AL42	0.36	0/864	0.45	0/1140
45	AL43	0.39	0/718	0.40	0/953
46	ALNW	0.35	0/1010	0.44	0/1354
47	ANG	0.30	0/979	0.52	0/1322
48	ARAC	0.23	1/2493 (0.0%)	0.47	0/3394
49	AS00	0.24	0/1747	0.45	0/2374
50	AS01	0.26	0/1756	0.43	0/2350
51	AS02	0.26	0/1753	0.44	0/2369
52	AS03	0.23	0/1796	0.50	0/2417
53	AS04	0.24	0/2118	0.43	0/2849
54	AS05	0.25	0/1492	0.49	0/2005
55	AS06	0.21	0/1944	0.45	1/2586 (0.0%)
56	AS07	0.22	0/1510	0.50	0/2022
57	AS08	0.27	0/1715	0.46	0/2287
58	AS09	0.23	0/1550	0.44	0/2069
59	AS10	0.24	0/834	0.55	0/1125
60	AS11	0.31	0/1195	0.44	0/1597
61	AS12	0.22	0/765	0.53	0/1029
62	AS13	0.28	0/1226	0.43	0/1649
63	AS14	0.30	0/1017	0.45	0/1365
64	AS15	0.23	0/1017	0.48	0/1358
65	AS16	0.24	0/1146	0.45	0/1534
66	AS17	0.23	0/1082	0.53	0/1452
67	AS18	0.25	0/1208	0.52	0/1618
68	AS19	0.24	0/1115	0.45	0/1493
69	AS20	0.23	0/805	0.44	0/1081
70	AS21	0.23	0/643	0.45	0/860
71	AS22	0.28	0/1051	0.40	0/1406
72	AS23	0.30	0/1116	0.49	0/1490
73	AS24	0.23	0/1028	0.40	0/1366
74	AS25	0.24	0/604	0.44	0/810
75	AS26	0.31	0/828	0.46	0/1109
76	AS27	0.23	0/665	0.40	0/891
77	AS28	0.25	0/490	0.42	0/656

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
78	AS29	0.23	0/470	0.50	0/623
79	AS30	0.22	0/447	0.42	0/587
80	ETRN	0.18	0/1832	0.23	0/2855
80	PTRN	0.23	0/1832	0.24	0/2855
81	MRNA	0.25	0/229	0.39	0/353
All	All	0.34	1/228947 (0.0%)	0.35	2/336440 (0.0%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
33	AL31	0	1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
48	ARAC	44	LYS	CA-CB	5.13	1.62	1.53

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
55	AS06	67	VAL	N-CA-C	-5.81	108.19	113.71
18	AL16	185	VAL	N-CA-C	-5.32	108.10	113.20

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
33	AL31	95	ASP	Peptide

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A18S	36103	0	0	0	0
2	A28S	76286	0	0	0	0
3	A58S	3208	0	0	0	0
4	A5S	2558	0	1296	3	0
5	AL02	1898	0	0	0	0
6	AL03	3172	0	0	0	0
7	AL04	2883	0	0	0	0
8	AL05	2391	0	0	0	0
9	AL06	1729	0	0	0	0
10	AL07	1875	0	0	0	0
11	AL08	1879	0	0	0	0
12	AL09	1516	0	0	0	0
13	AL10	1664	0	0	0	0
14	AL11	1361	0	0	0	0
15	AL13	1702	0	0	0	0
16	AL14	1137	0	0	0	0
17	AL15	1701	0	0	0	0
18	AL16	1630	0	0	0	0
19	AL17	1242	0	0	0	0
20	AL18	1515	0	0	0	0
21	AL19	1508	0	0	0	0
22	AL20	1462	0	0	0	0
23	AL21	1298	0	0	0	0
24	AL22	809	0	0	0	0
25	AL23	979	0	0	0	0
26	AL24	528	0	0	0	0
27	AL25	967	0	0	0	0
28	AL26	1115	0	0	0	0
29	AL27	1107	0	0	0	0
30	AL28	1162	0	0	0	0
31	AL29	848	0	0	0	0
32	AL30	761	0	0	0	0
33	AL31	888	0	0	0	0
34	AL32	1053	0	0	0	0
35	AL33	876	0	0	0	0
36	AL34	906	0	0	0	0
37	AL35	1013	0	0	0	0
38	AL36	830	0	0	0	0
39	AL37	705	0	0	0	0
40	AL38	569	0	0	0	0
41	AL39	447	0	0	0	0
42	AL40	429	0	0	0	0
43	AL41	239	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
44	AL42	851	0	0	0	0
45	AL43	708	0	0	0	0
46	ALNW	994	0	0	0	0
47	ANG	955	0	922	12	0
48	ARAC	2436	0	0	0	0
49	AS00	1710	0	0	0	0
50	AS01	1729	0	0	0	0
51	AS02	1716	0	0	0	0
52	AS03	1768	0	0	0	0
53	AS04	2076	0	0	0	0
54	AS05	1471	0	0	0	0
55	AS06	1922	0	0	0	0
56	AS07	1488	0	0	0	0
57	AS08	1686	0	0	0	0
58	AS09	1525	0	0	0	0
59	AS10	810	0	0	0	0
60	AS11	1175	0	0	0	0
61	AS12	758	0	0	0	0
62	AS13	1202	0	0	0	0
63	AS14	1004	0	0	0	0
64	AS15	997	0	0	0	0
65	AS16	1128	0	0	0	0
66	AS17	1068	0	0	0	0
67	AS18	1190	0	0	0	0
68	AS19	1097	0	0	0	0
69	AS20	795	0	0	0	0
70	AS21	636	0	0	0	0
71	AS22	1034	0	0	0	0
72	AS23	1098	0	0	0	0
73	AS24	1011	0	0	0	0
74	AS25	598	0	0	0	0
75	AS26	814	0	0	0	0
76	AS27	651	0	0	0	0
77	AS28	488	0	0	0	0
78	AS29	459	0	0	0	0
79	AS30	443	0	0	0	0
80	ETRN	1640	0	0	0	0
80	PTRN	1640	0	0	0	0
81	MRNA	207	0	0	0	0
All	All	212927	0	2218	15	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 7.

All (15) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
47:ANG:20:GLY:HA3	47:ANG:25:TYR:HB2	1.65	0.79
47:ANG:30:MET:HE1	47:ANG:43:ASN:HB3	1.81	0.62
47:ANG:105:VAL:HG11	47:ANG:112:PRO:HB3	1.86	0.58
47:ANG:71:ILE:HG22	47:ANG:104:VAL:HB	1.88	0.55
47:ANG:104:VAL:HG13	47:ANG:116:ASP:HB3	1.93	0.51
47:ANG:58:GLU:HG3	47:ANG:60:LYS:HE2	1.93	0.50
47:ANG:119:ILE:HG22	47:ANG:120:PHE:O	2.14	0.48
47:ANG:62:GLY:O	47:ANG:70:ARG:NH2	2.41	0.45
47:ANG:63:ASN:HA	47:ANG:64:PRO:HD3	1.88	0.44
47:ANG:15:ASP:OD1	47:ANG:25:TYR:OH	2.25	0.43
47:ANG:101:ARG:HG2	47:ANG:120:PHE:CE1	2.53	0.43
4:A5S:11:A:N1	4:A5S:66:G:O2'	2.48	0.42
4:A5S:12:U:OP2	4:A5S:67:C:O2'	2.35	0.42
47:ANG:44:THR:HA	47:ANG:80:THR:HA	2.02	0.42
4:A5S:75:G:N2	4:A5S:100:A:OP2	2.43	0.41

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
5	AL02	246/248 (99%)	233 (95%)	13 (5%)	0	100	100
6	AL03	392/394 (100%)	378 (96%)	14 (4%)	0	100	100
7	AL04	360/362 (99%)	346 (96%)	14 (4%)	0	100	100
8	AL05	291/293 (99%)	279 (96%)	12 (4%)	0	100	100
9	AL06	208/251 (83%)	198 (95%)	10 (5%)	0	100	100
10	AL07	223/225 (99%)	218 (98%)	4 (2%)	1 (0%)	30	60
11	AL08	229/240 (95%)	219 (96%)	10 (4%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
12	AL09	188/190 (99%)	177 (94%)	11 (6%)	0	100	100
13	AL10	201/213 (94%)	191 (95%)	10 (5%)	0	100	100
14	AL11	168/170 (99%)	161 (96%)	7 (4%)	0	100	100
15	AL13	208/210 (99%)	197 (95%)	10 (5%)	1 (0%)	24	55
16	AL14	136/138 (99%)	128 (94%)	8 (6%)	0	100	100
17	AL15	201/203 (99%)	188 (94%)	12 (6%)	1 (0%)	24	55
18	AL16	197/199 (99%)	195 (99%)	2 (1%)	0	100	100
19	AL17	151/153 (99%)	148 (98%)	3 (2%)	0	100	100
20	AL18	185/187 (99%)	172 (93%)	13 (7%)	0	100	100
21	AL19	178/180 (99%)	174 (98%)	4 (2%)	0	100	100
22	AL20	174/176 (99%)	167 (96%)	7 (4%)	0	100	100
23	AL21	157/159 (99%)	151 (96%)	6 (4%)	0	100	100
24	AL22	97/99 (98%)	91 (94%)	6 (6%)	0	100	100
25	AL23	129/131 (98%)	126 (98%)	3 (2%)	0	100	100
26	AL24	61/121 (50%)	59 (97%)	2 (3%)	0	100	100
27	AL25	116/118 (98%)	113 (97%)	3 (3%)	0	100	100
28	AL26	132/134 (98%)	130 (98%)	2 (2%)	0	100	100
29	AL27	133/135 (98%)	126 (95%)	7 (5%)	0	100	100
30	AL28	145/147 (99%)	137 (94%)	8 (6%)	0	100	100
31	AL29	100/245 (41%)	94 (94%)	6 (6%)	0	100	100
32	AL30	96/98 (98%)	93 (97%)	3 (3%)	0	100	100
33	AL31	105/107 (98%)	97 (92%)	7 (7%)	1 (1%)	12	38
34	AL32	126/128 (98%)	122 (97%)	4 (3%)	0	100	100
35	AL33	107/109 (98%)	101 (94%)	6 (6%)	0	100	100
36	AL34	112/114 (98%)	109 (97%)	3 (3%)	0	100	100
37	AL35	120/122 (98%)	116 (97%)	2 (2%)	2 (2%)	7	25
38	AL36	100/102 (98%)	95 (95%)	5 (5%)	0	100	100
39	AL37	84/86 (98%)	83 (99%)	1 (1%)	0	100	100
40	AL38	67/69 (97%)	65 (97%)	2 (3%)	0	100	100
41	AL39	48/50 (96%)	44 (92%)	4 (8%)	0	100	100
42	AL40	50/52 (96%)	50 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
43	AL41	23/25 (92%)	23 (100%)	0	0	100	100
44	AL42	102/104 (98%)	99 (97%)	3 (3%)	0	100	100
45	AL43	89/91 (98%)	84 (94%)	5 (6%)	0	100	100
46	ALNW	122/124 (98%)	119 (98%)	3 (2%)	0	100	100
47	ANG	118/147 (80%)	113 (96%)	4 (3%)	1 (1%)	16	44
48	ARAC	311/313 (99%)	293 (94%)	18 (6%)	0	100	100
49	AS00	215/217 (99%)	201 (94%)	14 (6%)	0	100	100
50	AS01	211/213 (99%)	200 (95%)	11 (5%)	0	100	100
51	AS02	219/221 (99%)	214 (98%)	5 (2%)	0	100	100
52	AS03	226/228 (99%)	220 (97%)	6 (3%)	0	100	100
53	AS04	260/262 (99%)	253 (97%)	7 (3%)	0	100	100
54	AS05	181/191 (95%)	165 (91%)	16 (9%)	0	100	100
55	AS06	235/237 (99%)	227 (97%)	8 (3%)	0	100	100
56	AS07	181/189 (96%)	175 (97%)	6 (3%)	0	100	100
57	AS08	204/206 (99%)	193 (95%)	11 (5%)	0	100	100
58	AS09	183/185 (99%)	180 (98%)	3 (2%)	0	100	100
59	AS10	94/96 (98%)	85 (90%)	9 (10%)	0	100	100
60	AS11	139/151 (92%)	130 (94%)	9 (6%)	0	100	100
61	AS12	97/117 (83%)	93 (96%)	4 (4%)	0	100	100
62	AS13	147/149 (99%)	142 (97%)	5 (3%)	0	100	100
63	AS14	133/135 (98%)	127 (96%)	6 (4%)	0	100	100
64	AS15	118/120 (98%)	112 (95%)	6 (5%)	0	100	100
65	AS16	140/142 (99%)	135 (96%)	5 (4%)	0	100	100
66	AS17	130/132 (98%)	118 (91%)	12 (9%)	0	100	100
67	AS18	142/144 (99%)	131 (92%)	11 (8%)	0	100	100
68	AS19	139/141 (99%)	133 (96%)	6 (4%)	0	100	100
69	AS20	98/100 (98%)	93 (95%)	5 (5%)	0	100	100
70	AS21	81/83 (98%)	80 (99%)	1 (1%)	0	100	100
71	AS22	127/129 (98%)	122 (96%)	5 (4%)	0	100	100
72	AS23	139/141 (99%)	130 (94%)	9 (6%)	0	100	100
73	AS24	122/124 (98%)	121 (99%)	1 (1%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
74	AS25	73/75 (97%)	73 (100%)	0	0	100	100
75	AS26	99/101 (98%)	94 (95%)	5 (5%)	0	100	100
76	AS27	81/83 (98%)	78 (96%)	3 (4%)	0	100	100
77	AS28	60/62 (97%)	59 (98%)	1 (2%)	0	100	100
78	AS29	53/55 (96%)	51 (96%)	2 (4%)	0	100	100
79	AS30	53/55 (96%)	52 (98%)	1 (2%)	0	100	100
All	All	11166/11646 (96%)	10689 (96%)	470 (4%)	7 (0%)	49	77

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
10	AL07	236	GLU
15	AL13	64	VAL
17	AL15	79	ALA
37	AL35	89	ARG
47	ANG	68	ASN
33	AL31	95	ASP
37	AL35	88	THR

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	
5	AL02	190/190 (100%)	189 (100%)	1 (0%)	81	93
6	AL03	342/342 (100%)	341 (100%)	1 (0%)	86	95
7	AL04	302/302 (100%)	299 (99%)	3 (1%)	68	88
8	AL05	247/247 (100%)	247 (100%)	0	100	100
9	AL06	190/223 (85%)	187 (98%)	3 (2%)	55	83
10	AL07	196/196 (100%)	196 (100%)	0	100	100
11	AL08	200/205 (98%)	197 (98%)	3 (2%)	57	84
12	AL09	169/169 (100%)	169 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
13	AL10	175/180 (97%)	174 (99%)	1 (1%)	78	92
14	AL11	143/143 (100%)	143 (100%)	0	100	100
15	AL13	175/175 (100%)	175 (100%)	0	100	100
16	AL14	117/117 (100%)	116 (99%)	1 (1%)	70	89
17	AL15	171/171 (100%)	170 (99%)	1 (1%)	78	92
18	AL16	171/171 (100%)	169 (99%)	2 (1%)	63	87
19	AL17	134/134 (100%)	134 (100%)	0	100	100
20	AL18	164/164 (100%)	164 (100%)	0	100	100
21	AL19	159/159 (100%)	158 (99%)	1 (1%)	78	92
22	AL20	157/157 (100%)	156 (99%)	1 (1%)	78	92
23	AL21	139/139 (100%)	139 (100%)	0	100	100
24	AL22	89/89 (100%)	89 (100%)	0	100	100
25	AL23	101/101 (100%)	99 (98%)	2 (2%)	48	80
26	AL24	55/100 (55%)	55 (100%)	0	100	100
27	AL25	106/106 (100%)	106 (100%)	0	100	100
28	AL26	124/124 (100%)	122 (98%)	2 (2%)	55	83
29	AL27	117/117 (100%)	117 (100%)	0	100	100
30	AL28	119/119 (100%)	119 (100%)	0	100	100
31	AL29	84/184 (46%)	83 (99%)	1 (1%)	63	87
32	AL30	84/84 (100%)	84 (100%)	0	100	100
33	AL31	98/98 (100%)	98 (100%)	0	100	100
34	AL32	114/114 (100%)	114 (100%)	0	100	100
35	AL33	88/88 (100%)	88 (100%)	0	100	100
36	AL34	98/98 (100%)	96 (98%)	2 (2%)	48	80
37	AL35	109/109 (100%)	109 (100%)	0	100	100
38	AL36	86/86 (100%)	85 (99%)	1 (1%)	63	87
39	AL37	73/73 (100%)	73 (100%)	0	100	100
40	AL38	64/64 (100%)	64 (100%)	0	100	100
41	AL39	47/47 (100%)	46 (98%)	1 (2%)	47	79
42	AL40	48/48 (100%)	48 (100%)	0	100	100
43	AL41	24/24 (100%)	24 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
44	AL42	92/92 (100%)	90 (98%)	2 (2%)	45	78
45	AL43	74/74 (100%)	73 (99%)	1 (1%)	59	85
46	ALNW	108/108 (100%)	107 (99%)	1 (1%)	70	89
47	ANG	105/129 (81%)	103 (98%)	2 (2%)	50	81
48	ARAC	272/272 (100%)	271 (100%)	1 (0%)	84	94
49	AS00	180/181 (99%)	180 (100%)	0	100	100
50	AS01	194/194 (100%)	193 (100%)	1 (0%)	81	93
51	AS02	187/187 (100%)	186 (100%)	1 (0%)	81	93
52	AS03	190/190 (100%)	189 (100%)	1 (0%)	81	93
53	AS04	224/224 (100%)	223 (100%)	1 (0%)	84	94
54	AS05	158/161 (98%)	158 (100%)	0	100	100
55	AS06	206/207 (100%)	203 (98%)	3 (2%)	57	84
56	AS07	165/169 (98%)	165 (100%)	0	100	100
57	AS08	178/178 (100%)	176 (99%)	2 (1%)	65	87
58	AS09	161/161 (100%)	161 (100%)	0	100	100
59	AS10	87/87 (100%)	86 (99%)	1 (1%)	65	87
60	AS11	130/136 (96%)	130 (100%)	0	100	100
61	AS12	83/99 (84%)	82 (99%)	1 (1%)	63	87
62	AS13	130/130 (100%)	130 (100%)	0	100	100
63	AS14	104/105 (99%)	104 (100%)	0	100	100
64	AS15	109/109 (100%)	108 (99%)	1 (1%)	70	89
65	AS16	117/117 (100%)	117 (100%)	0	100	100
66	AS17	119/119 (100%)	119 (100%)	0	100	100
67	AS18	125/125 (100%)	123 (98%)	2 (2%)	55	83
68	AS19	111/111 (100%)	109 (98%)	2 (2%)	51	82
69	AS20	92/92 (100%)	91 (99%)	1 (1%)	65	87
70	AS21	67/67 (100%)	67 (100%)	0	100	100
71	AS22	112/112 (100%)	111 (99%)	1 (1%)	70	89
72	AS23	113/113 (100%)	113 (100%)	0	100	100
73	AS24	107/107 (100%)	107 (100%)	0	100	100
74	AS25	66/66 (100%)	65 (98%)	1 (2%)	57	84

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
75	AS26	88/88 (100%)	87 (99%)	1 (1%)	65	87
76	AS27	75/75 (100%)	74 (99%)	1 (1%)	61	86
77	AS28	55/55 (100%)	55 (100%)	0	100	100
78	AS29	48/48 (100%)	48 (100%)	0	100	100
79	AS30	46/46 (100%)	45 (98%)	1 (2%)	45	78
All	All	9747/9991 (98%)	9691 (99%)	56 (1%)	76	92

All (56) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
5	AL02	242	ARG
6	AL03	261	ARG
7	AL04	114	ARG
7	AL04	188	ARG
7	AL04	300	ARG
9	AL06	58	ARG
9	AL06	141	ARG
9	AL06	161	ARG
11	AL08	228	ARG
11	AL08	288	ARG
11	AL08	314	LEU
13	AL10	101	LYS
16	AL14	124	LYS
17	AL15	50	ARG
18	AL16	36	VAL
18	AL16	117	ARG
21	AL19	74	ARG
22	AL20	120	ARG
25	AL23	18	LEU
25	AL23	48	ARG
28	AL26	2	LYS
28	AL26	45	ARG
31	AL29	63	LYS
36	AL34	54	ARG
36	AL34	108	LYS
38	AL36	23	LYS
41	AL39	46	ARG
44	AL42	78	ARG
44	AL42	87	ARG
45	AL43	17	ARG

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Mol	Chain	Res	Type
46	ALNW	71	ARG
47	ANG	67	GLU
47	ANG	68	ASN
48	ARAC	60	ARG
50	AS01	182	LYS
51	AS02	123	ARG
52	AS03	76	ARG
53	AS04	22	LYS
55	AS06	22	ARG
55	AS06	211	LYS
55	AS06	221	LYS
57	AS08	140	LYS
57	AS08	148	LYS
59	AS10	96	ARG
61	AS12	84	LYS
64	AS15	65	LYS
67	AS18	23	ARG
67	AS18	108	ARG
68	AS19	16	ARG
68	AS19	142	LYS
69	AS20	34	LYS
71	AS22	118	ARG
74	AS25	104	ARG
75	AS26	85	ARG
76	AS27	80	ARG
79	AS30	99	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA ⓘ

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	A18S	1680/1869 (89%)	293 (17%)	14 (0%)
2	A28S	3534/3601 (98%)	629 (17%)	44 (1%)
3	A58S	149/156 (95%)	24 (16%)	1 (0%)
4	A5S	119/120 (99%)	10 (8%)	0
80	ETR N	76/77 (98%)	11 (14%)	0
80	PTR N	76/77 (98%)	9 (11%)	1 (1%)
81	MRNA	9/28 (32%)	4 (44%)	1 (11%)
All	All	5643/5928 (95%)	980 (17%)	61 (1%)

All (980) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	A18S	2	A
1	A18S	3	C
1	A18S	17	C
1	A18S	25	A
1	A18S	26	U
1	A18S	33	G
1	A18S	41	G
1	A18S	46	A
1	A18S	56	G
1	A18S	58	C
1	A18S	67	C
1	A18S	68	A
1	A18S	71	G
1	A18S	75	G
1	A18S	77	A
1	A18S	79	A
1	A18S	103	A
1	A18S	111	A
1	A18S	113	G
1	A18S	115	U
1	A18S	116	U
1	A18S	124	U
1	A18S	126	G
1	A18S	127	C
1	A18S	128	U
1	A18S	130	G
1	A18S	142	C
1	A18S	143	U
1	A18S	147	A
1	A18S	155	G
1	A18S	161	U
1	A18S	162	C
1	A18S	163	U
1	A18S	167	G
1	A18S	168	C
1	A18S	180	G
1	A18S	182	C
1	A18S	183	G
1	A18S	184	G
1	A18S	192	C
1	A18S	202	G
1	A18S	206	G

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Mol	Chain	Res	Type
1	A18S	209	A
1	A18S	292	A
1	A18S	306	C
1	A18S	307	G
1	A18S	308	G
1	A18S	309	G
1	A18S	312	G
1	A18S	314	U
1	A18S	318	A
1	A18S	319	C
1	A18S	320	G
1	A18S	339	A
1	A18S	347	G
1	A18S	350	C
1	A18S	351	G
1	A18S	360	A
1	A18S	362	C
1	A18S	364	A
1	A18S	368	U
1	A18S	369	C
1	A18S	370	G
1	A18S	385	G
1	A18S	386	C
1	A18S	398	A
1	A18S	400	C
1	A18S	408	A
1	A18S	409	C
1	A18S	418	A
1	A18S	435	A
1	A18S	438	G
1	A18S	448	A
1	A18S	449	A
1	A18S	450	C
1	A18S	464	A
1	A18S	465	A
1	A18S	466	G
1	A18S	472	C
1	A18S	473	A
1	A18S	474	G
1	A18S	482	G
1	A18S	487	U
1	A18S	492	C

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Mol	Chain	Res	Type
1	A18S	496	C
1	A18S	516	A
1	A18S	525	A
1	A18S	532	C
1	A18S	533	A
1	A18S	547	G
1	A18S	548	C
1	A18S	549	C
1	A18S	550	C
1	A18S	551	U
1	A18S	554	A
1	A18S	555	A
1	A18S	556	U
1	A18S	559	G
1	A18S	560	A
1	A18S	563	G
1	A18S	564	A
1	A18S	568	C
1	A18S	576	A
1	A18S	583	A
1	A18S	587	A
1	A18S	588	G
1	A18S	590	A
1	A18S	591	U
1	A18S	604	A
1	A18S	606	G
1	A18S	608	C
1	A18S	614	C
1	A18S	626	G
1	A18S	627	U
1	A18S	628	A
1	A18S	629	A
1	A18S	631	U
1	A18S	643	A
1	A18S	644	G
1	A18S	660	C
1	A18S	668	A
1	A18S	669	A
1	A18S	671	A
1	A18S	672	A
1	A18S	673	G
1	A18S	684	G

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Mol	Chain	Res	Type
1	A18S	688	U
1	A18S	752	G
1	A18S	753	C
1	A18S	754	G
1	A18S	798	G
1	A18S	799	U
1	A18S	801	U
1	A18S	810	A
1	A18S	811	A
1	A18S	821	G
1	A18S	822	U
1	A18S	830	A
1	A18S	834	C
1	A18S	847	A
1	A18S	852	G
1	A18S	853	C
1	A18S	870	A
1	A18S	871	U
1	A18S	872	A
1	A18S	874	G
1	A18S	878	G
1	A18S	879	C
1	A18S	887	U
1	A18S	888	U
1	A18S	890	U
1	A18S	894	G
1	A18S	898	U
1	A18S	901	G
1	A18S	913	A
1	A18S	914	U
1	A18S	920	A
1	A18S	933	G
1	A18S	934	G
1	A18S	943	U
1	A18S	971	G
1	A18S	990	A
1	A18S	992	A
1	A18S	999	G
1	A18S	1017	U
1	A18S	1023	A
1	A18S	1041	G
1	A18S	1060	A

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Mol	Chain	Res	Type
1	A18S	1062	A
1	A18S	1083	A
1	A18S	1085	C
1	A18S	1097	G
1	A18S	1109	C
1	A18S	1115	U
1	A18S	1116	C
1	A18S	1117	C
1	A18S	1118	C
1	A18S	1121	G
1	A18S	1131	G
1	A18S	1138	C
1	A18S	1139	C
1	A18S	1148	A
1	A18S	1149	A
1	A18S	1150	A
1	A18S	1153	C
1	A18S	1154	U
1	A18S	1195	A
1	A18S	1207	G
1	A18S	1215	C
1	A18S	1224	G
1	A18S	1242	U
1	A18S	1251	A
1	A18S	1253	A
1	A18S	1256	G
1	A18S	1257	G
1	A18S	1259	A
1	A18S	1269	G
1	A18S	1274	G
1	A18S	1275	G
1	A18S	1281	G
1	A18S	1282	A
1	A18S	1284	A
1	A18S	1285	G
1	A18S	1286	G
1	A18S	1293	A
1	A18S	1294	G
1	A18S	1298	G
1	A18S	1299	A
1	A18S	1301	A
1	A18S	1302	G

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Mol	Chain	Res	Type
1	A18S	1303	C
1	A18S	1308	U
1	A18S	1316	C
1	A18S	1341	C
1	A18S	1342	U
1	A18S	1371	U
1	A18S	1372	U
1	A18S	1378	A
1	A18S	1395	C
1	A18S	1396	A
1	A18S	1397	U
1	A18S	1398	G
1	A18S	1401	A
1	A18S	1402	A
1	A18S	1428	G
1	A18S	1454	A
1	A18S	1455	A
1	A18S	1462	U
1	A18S	1463	U
1	A18S	1466	G
1	A18S	1476	A
1	A18S	1477	U
1	A18S	1489	A
1	A18S	1490	G
1	A18S	1494	U
1	A18S	1495	G
1	A18S	1497	G
1	A18S	1498	A
1	A18S	1507	G
1	A18S	1509	U
1	A18S	1510	G
1	A18S	1521	C
1	A18S	1522	A
1	A18S	1533	A
1	A18S	1544	C
1	A18S	1548	G
1	A18S	1552	G
1	A18S	1553	C
1	A18S	1557	C
1	A18S	1570	G
1	A18S	1575	G
1	A18S	1579	A

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Mol	Chain	Res	Type
1	A18S	1580	A
1	A18S	1584	G
1	A18S	1585	U
1	A18S	1587	G
1	A18S	1588	A
1	A18S	1601	A
1	A18S	1604	G
1	A18S	1621	U
1	A18S	1623	A
1	A18S	1637	A
1	A18S	1638	G
1	A18S	1648	G
1	A18S	1665	G
1	A18S	1680	G
1	A18S	1683	C
1	A18S	1695	A
1	A18S	1698	C
1	A18S	1699	A
1	A18S	1721	U
1	A18S	1722	G
1	A18S	1744	G
1	A18S	1748	G
1	A18S	1753	C
1	A18S	1756	C
1	A18S	1783	C
1	A18S	1824	A
1	A18S	1825	A
1	A18S	1829	G
1	A18S	1831	A
1	A18S	1835	A
1	A18S	1836	G
1	A18S	1838	U
1	A18S	1849	G
1	A18S	1851	A
1	A18S	1861	G
1	A18S	1862	G
1	A18S	1863	A
1	A18S	1865	C
1	A18S	1866	A
1	A18S	1867	U
1	A18S	1869	A
2	A28S	12	A

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Mol	Chain	Res	Type
2	A28S	13	U
2	A28S	25	A
2	A28S	39	A
2	A28S	42	A
2	A28S	44	A
2	A28S	56	A
2	A28S	58	G
2	A28S	59	A
2	A28S	64	A
2	A28S	65	A
2	A28S	72	C
2	A28S	73	A
2	A28S	74	G
2	A28S	91	G
2	A28S	98	A
2	A28S	108	A
2	A28S	109	G
2	A28S	110	C
2	A28S	118	C
2	A28S	119	G
2	A28S	126	C
2	A28S	132	G
2	A28S	134	G
2	A28S	135	G
2	A28S	136	C
2	A28S	144	G
2	A28S	159	C
2	A28S	170	C
2	A28S	171	U
2	A28S	172	C
2	A28S	180	C
2	A28S	190	G
2	A28S	191	G
2	A28S	200	U
2	A28S	201	C
2	A28S	209	U
2	A28S	210	C
2	A28S	216	C
2	A28S	218	A
2	A28S	219	G
2	A28S	224	U
2	A28S	233	U

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Mol	Chain	Res	Type
2	A28S	234	G
2	A28S	246	G
2	A28S	256	G
2	A28S	262	G
2	A28S	266	C
2	A28S	276	C
2	A28S	280	G
2	A28S	297	U
2	A28S	306	A
2	A28S	309	C
2	A28S	315	G
2	A28S	316	U
2	A28S	326	C
2	A28S	334	A
2	A28S	340	C
2	A28S	350	C
2	A28S	387	G
2	A28S	410	A
2	A28S	412	G
2	A28S	413	G
2	A28S	431	G
2	A28S	432	U
2	A28S	440	U
2	A28S	446	C
2	A28S	449	C
2	A28S	452	A
2	A28S	453	G
2	A28S	454	U
2	A28S	455	C
2	A28S	464	G
2	A28S	467	U
2	A28S	468	U
2	A28S	481	G
2	A28S	481(A)	C
2	A28S	482	G
2	A28S	483	G
2	A28S	485	C
2	A28S	486	C
2	A28S	492	U
2	A28S	493	G
2	A28S	498	C
2	A28S	499	G

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Mol	Chain	Res	Type
2	A28S	505	G
2	A28S	506	C
2	A28S	510	U
2	A28S	658	C
2	A28S	661	C
2	A28S	662	C
2	A28S	666	G
2	A28S	667	A
2	A28S	668	C
2	A28S	669	C
2	A28S	683	C
2	A28S	685	C
2	A28S	686	A
2	A28S	687	U
2	A28S	696	C
2	A28S	697	G
2	A28S	704	C
2	A28S	705	G
2	A28S	708	G
2	A28S	730	G
2	A28S	731	G
2	A28S	738	C
2	A28S	738(A)	C
2	A28S	747	A
2	A28S	749	G
2	A28S	758	G
2	A28S	759	G
2	A28S	760	G
2	A28S	905	C
2	A28S	914	U
2	A28S	915	A
2	A28S	917	A
2	A28S	918	G
2	A28S	922(B)	C
2	A28S	923	C
2	A28S	925	C
2	A28S	926	G
2	A28S	929	A
2	A28S	931	C
2	A28S	932	A
2	A28S	933	G
2	A28S	934	C

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Mol	Chain	Res	Type
2	A28S	935	A
2	A28S	935(A)	G
2	A28S	936	C
2	A28S	938	C
2	A28S	939	G
2	A28S	941	C
2	A28S	943	A
2	A28S	945	U
2	A28S	946	C
2	A28S	956	A
2	A28S	959	G
2	A28S	960	A
2	A28S	961	G
2	A28S	964	A
2	A28S	965	G
2	A28S	966	A
2	A28S	967	C
2	A28S	968	C
2	A28S	969	C
2	A28S	972	C
2	A28S	979	C
2	A28S	983	C
2	A28S	1070	G
2	A28S	1072	C
2	A28S	1073	G
2	A28S	1078	A
2	A28S	1079	C
2	A28S	1082	C
2	A28S	1179	U
2	A28S	1187	G
2	A28S	1195	G
2	A28S	1211	G
2	A28S	1212	G
2	A28S	1214	C
2	A28S	1215	C
2	A28S	1234	G
2	A28S	1235	G
2	A28S	1236	C
2	A28S	1237	C
2	A28S	1238	A
2	A28S	1239	C
2	A28S	1277	G

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Mol	Chain	Res	Type
2	A28S	1284	G
2	A28S	1287	G
2	A28S	1292	C
2	A28S	1296	G
2	A28S	1301	C
2	A28S	1303	A
2	A28S	1304	C
2	A28S	1326	A
2	A28S	1330	A
2	A28S	1337	A
2	A28S	1354	A
2	A28S	1358	G
2	A28S	1359	G
2	A28S	1371	A
2	A28S	1377	G
2	A28S	1378	C
2	A28S	1379	C
2	A28S	1380	G
2	A28S	1387	A
2	A28S	1394	G
2	A28S	1397	A
2	A28S	1398	A
2	A28S	1399	G
2	A28S	1419	G
2	A28S	1420	A
2	A28S	1421	G
2	A28S	1433	A
2	A28S	1437	C
2	A28S	1438	U
2	A28S	1441	C
2	A28S	1445	U
2	A28S	1446	C
2	A28S	1456	C
2	A28S	1457	G
2	A28S	1478	C
2	A28S	1482	G
2	A28S	1483	C
2	A28S	1484	G
2	A28S	1486	C
2	A28S	1497	A
2	A28S	1498	G
2	A28S	1502	G

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Mol	Chain	Res	Type
2	A28S	1514	U
2	A28S	1523	A
2	A28S	1534	A
2	A28S	1547	A
2	A28S	1566	C
2	A28S	1578	U
2	A28S	1591	U
2	A28S	1596	U
2	A28S	1612	G
2	A28S	1613	A
2	A28S	1624	G
2	A28S	1625	G
2	A28S	1631	A
2	A28S	1633	G
2	A28S	1634	A
2	A28S	1640	C
2	A28S	1641	G
2	A28S	1642	A
2	A28S	1654	G
2	A28S	1661	C
2	A28S	1676	C
2	A28S	1677	U
2	A28S	1684	A
2	A28S	1731	C
2	A28S	1734	G
2	A28S	1742	A
2	A28S	1750	G
2	A28S	1755	C
2	A28S	1756	U
2	A28S	1760	G
2	A28S	1761	G
2	A28S	1764	G
2	A28S	1765	A
2	A28S	1772	C
2	A28S	1773	U
2	A28S	1776	A
2	A28S	1781	U
2	A28S	1787	A
2	A28S	1804	A
2	A28S	1805	A
2	A28S	1821	G
2	A28S	1828	C

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Mol	Chain	Res	Type
2	A28S	1834	U
2	A28S	1836	G
2	A28S	1837	A
2	A28S	1842	G
2	A28S	1855	G
2	A28S	1869	G
2	A28S	1882	U
2	A28S	1892	A
2	A28S	1897	A
2	A28S	1910	G
2	A28S	1918	U
2	A28S	1920	C
2	A28S	1921	C
2	A28S	1922	G
2	A28S	1931	C
2	A28S	1935	C
2	A28S	1940	G
2	A28S	1948	G
2	A28S	1957	U
2	A28S	1960	A
2	A28S	1961	G
2	A28S	1962	A
2	A28S	1964	A
2	A28S	1971	U
2	A28S	1975	G
2	A28S	1979	A
2	A28S	1984	A
2	A28S	1985	G
2	A28S	1987	C
2	A28S	1991	A
2	A28S	2001	G
2	A28S	2002	A
2	A28S	2003	G
2	A28S	2011	C
2	A28S	2024	G
2	A28S	2025	A
2	A28S	2026	A
2	A28S	2046	G
2	A28S	2047	A
2	A28S	2048	U
2	A28S	2052	G
2	A28S	2055	G

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Mol	Chain	Res	Type
2	A28S	2056	G
2	A28S	2062	C
2	A28S	2064	G
2	A28S	2069	A
2	A28S	2084	U
2	A28S	2089	G
2	A28S	2090	U
2	A28S	2092	G
2	A28S	2093	G
2	A28S	2094	C
2	A28S	2097	A
2	A28S	2098	G
2	A28S	2100	G
2	A28S	2102	G
2	A28S	2104	A
2	A28S	2105	A
2	A28S	2107	A
2	A28S	2108	G
2	A28S	2267	U
2	A28S	2268	A
2	A28S	2275	G
2	A28S	2279	A
2	A28S	2289	C
2	A28S	2300	A
2	A28S	2301	G
2	A28S	2313	A
2	A28S	2314	G
2	A28S	2316	G
2	A28S	2333	G
2	A28S	2348	G
2	A28S	2351	C
2	A28S	2360	A
2	A28S	2364	G
2	A28S	2395	A
2	A28S	2417	A
2	A28S	2422	C
2	A28S	2425	U
2	A28S	2433	G
2	A28S	2441	C
2	A28S	2450	G
2	A28S	2453	A
2	A28S	2475	G

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Mol	Chain	Res	Type
2	A28S	2488	C
2	A28S	2489	C
2	A28S	2490	U
2	A28S	2491	C
2	A28S	2503	G
2	A28S	2505	C
2	A28S	2506	G
2	A28S	2513	A
2	A28S	2520	C
2	A28S	2529	A
2	A28S	2530	U
2	A28S	2537	A
2	A28S	2544	G
2	A28S	2545	U
2	A28S	2546	G
2	A28S	2547	G
2	A28S	2553	A
2	A28S	2575	U
2	A28S	2583	C
2	A28S	2586	G
2	A28S	2587	A
2	A28S	2602	G
2	A28S	2618	G
2	A28S	2627	C
2	A28S	2638	G
2	A28S	2640	G
2	A28S	2653	C
2	A28S	2662	G
2	A28S	2669	C
2	A28S	2686	G
2	A28S	2687	U
2	A28S	2695	A
2	A28S	2696	A
2	A28S	2707	U
2	A28S	2708	U
2	A28S	2709	C
2	A28S	2710	C
2	A28S	2711	G
2	A28S	2712	G
2	A28S	2716	C
2	A28S	2721	G
2	A28S	2725	A

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Mol	Chain	Res	Type
2	A28S	2726	G
2	A28S	2735	G
2	A28S	2740	U
2	A28S	2743	A
2	A28S	2744	A
2	A28S	2754	G
2	A28S	2760	G
2	A28S	2761	U
2	A28S	2763	U
2	A28S	2764	A
2	A28S	2768	C
2	A28S	2769	U
2	A28S	2787	A
2	A28S	2788	U
2	A28S	2790	U
2	A28S	2794	C
2	A28S	2798	A
2	A28S	2826	U
2	A28S	2827	G
2	A28S	2837	U
2	A28S	2838	G
2	A28S	2842	G
2	A28S	2855	G
2	A28S	3604	A
2	A28S	3605	C
2	A28S	3625	G
2	A28S	3626	G
2	A28S	3635	A
2	A28S	3644	U
2	A28S	3646	A
2	A28S	3648	A
2	A28S	3662	A
2	A28S	3664	G
2	A28S	3673	C
2	A28S	3674	G
2	A28S	3696	C
2	A28S	3711	A
2	A28S	3729	U
2	A28S	3748	A
2	A28S	3753	G
2	A28S	3759	A
2	A28S	3760	A

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Mol	Chain	Res	Type
2	A28S	3761	C
2	A28S	3773	U
2	A28S	3776	G
2	A28S	3777	G
2	A28S	3784	A
2	A28S	3786	U
2	A28S	3810	C
2	A28S	3811	G
2	A28S	3812	C
2	A28S	3814	U
2	A28S	3817	A
2	A28S	3819	G
2	A28S	3822	U
2	A28S	3838	U
2	A28S	3840	U
2	A28S	3877	A
2	A28S	3878	C
2	A28S	3879	G
2	A28S	3889	G
2	A28S	3897	G
2	A28S	3901	A
2	A28S	3905	A
2	A28S	3906	A
2	A28S	3907	G
2	A28S	3908	A
2	A28S	3915	U
2	A28S	3916	G
2	A28S	3917	A
2	A28S	3938	G
2	A28S	3939	G
2	A28S	3957	U
2	A28S	3959	U
2	A28S	3960	A
2	A28S	3963	A
2	A28S	3965	A
2	A28S	3969	G
2	A28S	3973	G
2	A28S	3976	C
2	A28S	4048	A
2	A28S	4049	U
2	A28S	4065	G
2	A28S	4066	U

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Mol	Chain	Res	Type
2	A28S	4069	U
2	A28S	4076	G
2	A28S	4085	A
2	A28S	4086	G
2	A28S	4088	C
2	A28S	4116	C
2	A28S	4118	U
2	A28S	4119	C
2	A28S	4120	U
2	A28S	4121	G
2	A28S	4122	G
2	A28S	4125	C
2	A28S	4127	A
2	A28S	4137	C
2	A28S	4158	C
2	A28S	4162	C
2	A28S	4163	U
2	A28S	4166	G
2	A28S	4170	A
2	A28S	4171	C
2	A28S	4183	G
2	A28S	4184	G
2	A28S	4191	G
2	A28S	4203	A
2	A28S	4212	A
2	A28S	4225	G
2	A28S	4229	U
2	A28S	4233	A
2	A28S	4249	G
2	A28S	4251	A
2	A28S	4253	A
2	A28S	4254	G
2	A28S	4266	G
2	A28S	4268	A
2	A28S	4271	A
2	A28S	4273	A
2	A28S	4281	A
2	A28S	4291	G
2	A28S	4297	G
2	A28S	4304	A
2	A28S	4305	G
2	A28S	4306	U

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Mol	Chain	Res	Type
2	A28S	4314	C
2	A28S	4317	A
2	A28S	4318	C
2	A28S	4319	C
2	A28S	4329	G
2	A28S	4330	G
2	A28S	4332	C
2	A28S	4336	A
2	A28S	4349	C
2	A28S	4354	U
2	A28S	4355	G
2	A28S	4373	G
2	A28S	4376	A
2	A28S	4377	G
2	A28S	4378	A
2	A28S	4380	A
2	A28S	4387	C
2	A28S	4391	G
2	A28S	4394	A
2	A28S	4395	U
2	A28S	4415	A
2	A28S	4419	U
2	A28S	4422	A
2	A28S	4444	C
2	A28S	4448	G
2	A28S	4449	A
2	A28S	4464	A
2	A28S	4466	C
2	A28S	4471	U
2	A28S	4472	G
2	A28S	4500	U
2	A28S	4512	U
2	A28S	4513	A
2	A28S	4519	C
2	A28S	4524	G
2	A28S	4531	U
2	A28S	4548	A
2	A28S	4549	G
2	A28S	4560	C
2	A28S	4567	G
2	A28S	4573	G
2	A28S	4574	U

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Mol	Chain	Res	Type
2	A28S	4575	G
2	A28S	4584	A
2	A28S	4586	G
2	A28S	4590	A
2	A28S	4636	U
2	A28S	4637	G
2	A28S	4652	G
2	A28S	4656	A
2	A28S	4657	U
2	A28S	4670	C
2	A28S	4672	A
2	A28S	4677	U
2	A28S	4700	A
2	A28S	4709	U
2	A28S	4719	G
2	A28S	4720	C
2	A28S	4729	A
2	A28S	4743	G
2	A28S	4751	G
2	A28S	4754	G
2	A28S	4757	C
2	A28S	4759	C
2	A28S	4761	G
2	A28S	4765	G
2	A28S	4771	C
2	A28S	4868	G
2	A28S	4870	G
2	A28S	4871	C
2	A28S	4873	G
2	A28S	4875	G
2	A28S	4882	U
2	A28S	4883	C
2	A28S	4885	U
2	A28S	4895	C
2	A28S	4904	G
2	A28S	4906	C
2	A28S	4910	A
2	A28S	4912	G
2	A28S	4914	G
2	A28S	4915	G
2	A28S	4918	C
2	A28S	4919	G

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Mol	Chain	Res	Type
2	A28S	4921	C
2	A28S	4922	C
2	A28S	4924	C
2	A28S	4925	U
2	A28S	4926	C
2	A28S	4927	G
2	A28S	4928	C
2	A28S	4931	G
2	A28S	4937	C
2	A28S	4943	A
2	A28S	4944	C
2	A28S	4948	C
2	A28S	4949	G
2	A28S	4950	U
2	A28S	4951	G
2	A28S	4955	A
2	A28S	4956	A
2	A28S	4958	C
2	A28S	4960	G
2	A28S	4963	G
2	A28S	4965	U
2	A28S	4966	A
2	A28S	4967	A
2	A28S	4976	U
2	A28S	4985	U
2	A28S	4988	U
2	A28S	4990	C
2	A28S	4991	U
2	A28S	4993	G
2	A28S	5017	G
2	A28S	5029	C
2	A28S	5040	U
2	A28S	5041	G
2	A28S	5047	C
2	A28S	5050	C
2	A28S	5053	U
2	A28S	5054	C
2	A28S	5058	A
2	A28S	5061	A
2	A28S	5062	G
3	A58S	2	G
3	A58S	34	U

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Mol	Chain	Res	Type
3	A58S	35	C
3	A58S	49	G
3	A58S	59	A
3	A58S	62	A
3	A58S	63	U
3	A58S	75	G
3	A58S	103	A
3	A58S	105	C
3	A58S	109	C
3	A58S	110	U
3	A58S	111	U
3	A58S	112	G
3	A58S	113	C
3	A58S	114	G
3	A58S	122	G
3	A58S	125	C
3	A58S	126	C
3	A58S	127	U
3	A58S	137	A
3	A58S	151	G
3	A58S	153	C
3	A58S	156	U
4	A5S	7	G
4	A5S	33	U
4	A5S	53	U
4	A5S	54	A
4	A5S	64	G
4	A5S	97	G
4	A5S	100	A
4	A5S	110	G
4	A5S	111	C
4	A5S	120	U
80	ETRN	6	G
80	ETRN	16	C
80	ETRN	17	C
80	ETRN	18	G
80	ETRN	19	G
80	ETRN	20	U
80	ETRN	21	A
80	ETRN	47	U
80	ETRN	48	C
80	ETRN	73	A

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Mol	Chain	Res	Type
80	ETR N	76	A
81	MRNA	4	C
81	MRNA	7	G
81	MRNA	8	U
81	MRNA	10	C
80	PTR N	2	G
80	PTR N	9	G
80	PTR N	18	G
80	PTR N	19	G
80	PTR N	20	U
80	PTR N	47	U
80	PTR N	48	C
80	PTR N	74	C
80	PTR N	76	A

All (61) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
1	A18S	110	U
1	A18S	291	G
1	A18S	434	G
1	A18S	465	A
1	A18S	532	C
1	A18S	553	U
1	A18S	642	U
1	A18S	752	G
1	A18S	1137	U
1	A18S	1394	G
1	A18S	1395	C
1	A18S	1396	A
1	A18S	1520	G
1	A18S	1521	C
2	A28S	12	A
2	A28S	125	C
2	A28S	275	C
2	A28S	480	C
2	A28S	485	C
2	A28S	492	U
2	A28S	504	G
2	A28S	696	C
2	A28S	753	C
2	A28S	930	G

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Mol	Chain	Res	Type
2	A28S	966	A
2	A28S	1072	C
2	A28S	1211	G
2	A28S	1236	C
2	A28S	1238	A
2	A28S	1291	G
2	A28S	1329	G
2	A28S	1370	G
2	A28S	1440	U
2	A28S	1445	U
2	A28S	1455	G
2	A28S	1633	G
2	A28S	1804	A
2	A28S	1921	C
2	A28S	1960	A
2	A28S	2046	G
2	A28S	2089	G
2	A28S	2546	G
2	A28S	2639	U
2	A28S	2695	A
2	A28S	3625	G
2	A28S	3888	G
2	A28S	3959	U
2	A28S	3968	U
2	A28S	4119	C
2	A28S	4232	U
2	A28S	4354	U
2	A28S	4395	U
2	A28S	4448	G
2	A28S	4699	U
2	A28S	4719	G
2	A28S	4884	G
2	A28S	4925	U
2	A28S	4947	U
3	A58S	124	U
81	MRNA	6	U
80	PTRN	47	U

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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
2	A28S	12

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A28S	1219:G	O3'	1233:G	P	20.06
1	A28S	3976:C	O3'	4035:G	P	14.96
1	A28S	1696:C	O3'	1720:C	P	14.73
1	A28S	1364:U	O3'	1368:A	P	13.71
1	A28S	1180:C	O3'	1183:C	P	8.80
1	A28S	1438:U	O3'	1440:U	P	8.02
1	A28S	1239:C	O3'	1244:G	P	5.26
1	A28S	1100:U	O3'	1168:G	P	4.97
1	A28S	760:G	O3'	904:C	P	4.49
1	A28S	500:G	O3'	504:G	P	3.77
1	A28S	4740:G	O3'	4743:G	P	3.35
1	A28S	4899:G	O3'	4902:C	P	3.35

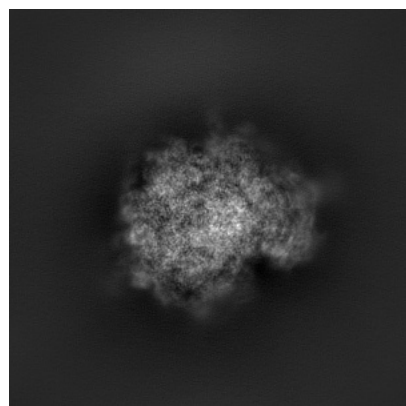
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-44461. These allow visual inspection of the internal detail of the map and identification of artifacts.

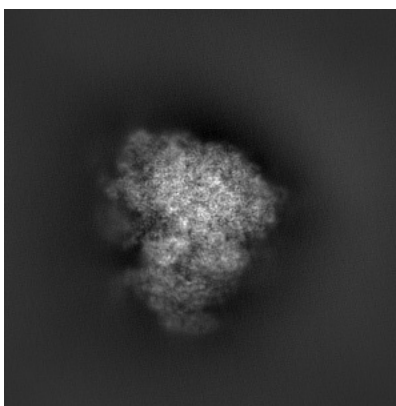
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections [i](#)

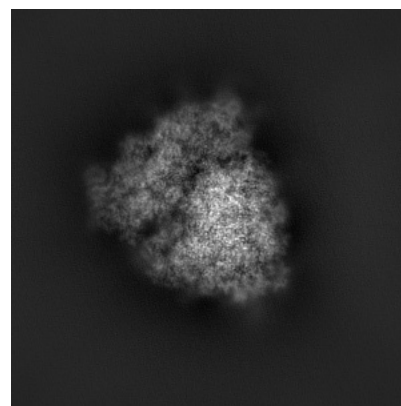
6.1.1 Primary map



X

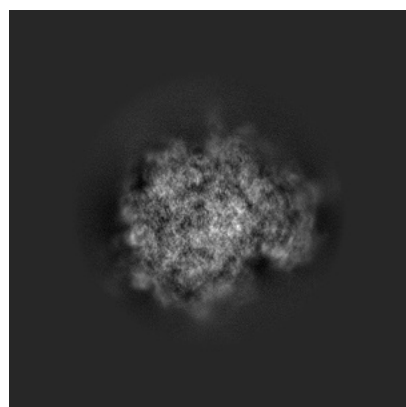


Y

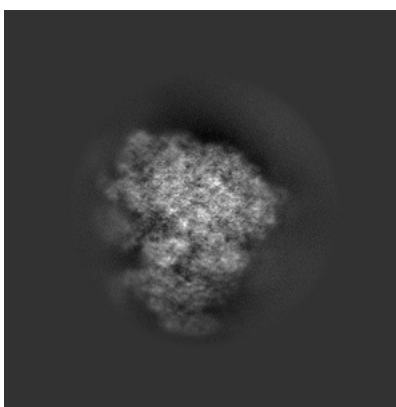


Z

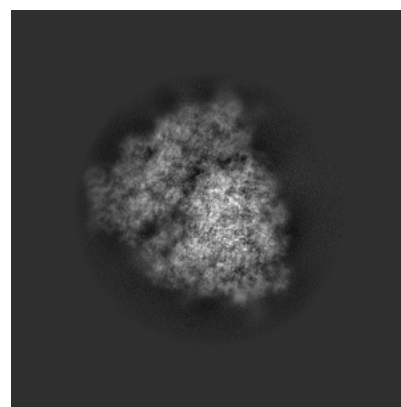
6.1.2 Raw map



X



Y

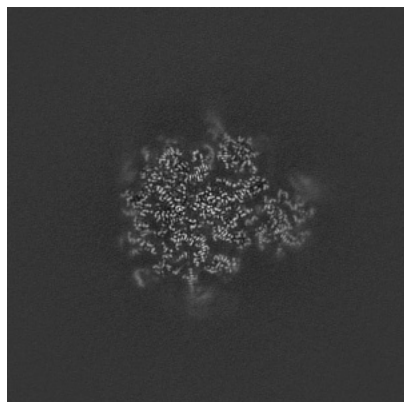


Z

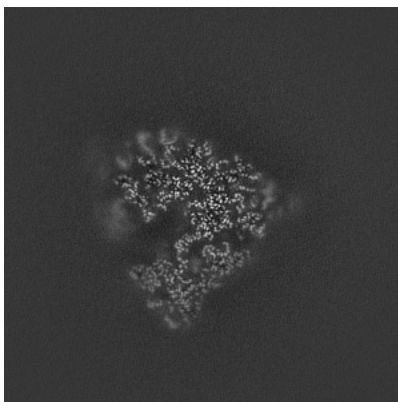
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

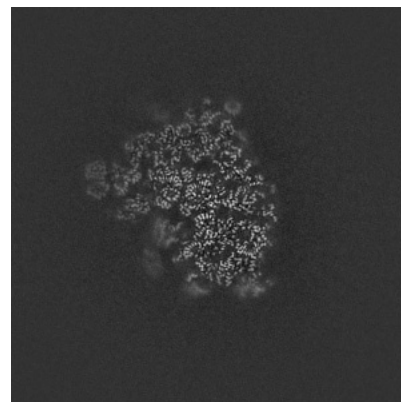
6.2.1 Primary map



X Index: 304

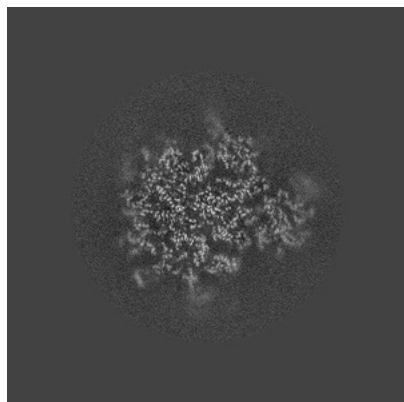


Y Index: 304

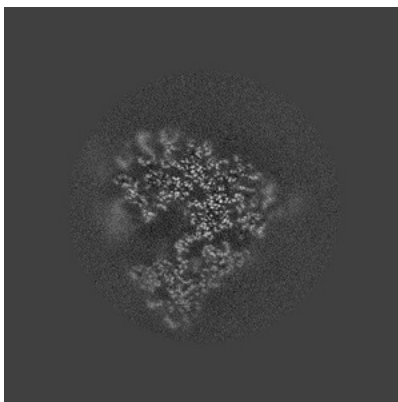


Z Index: 304

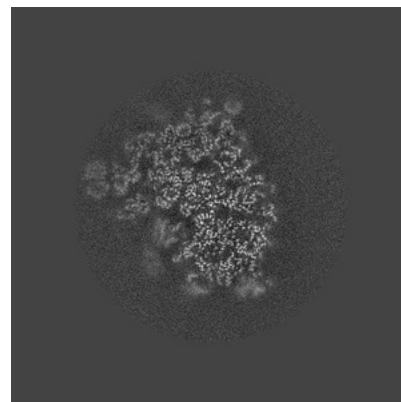
6.2.2 Raw map



X Index: 304



Y Index: 304

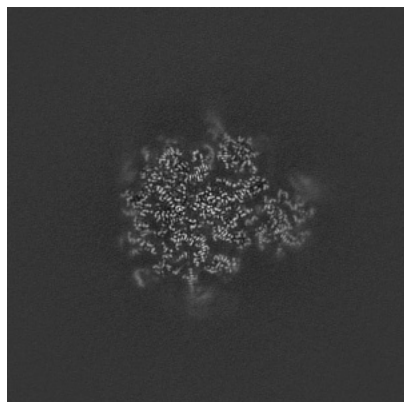


Z Index: 304

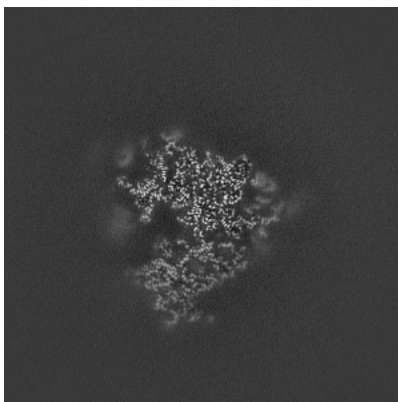
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

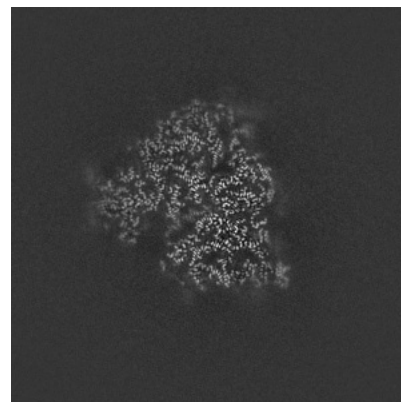
6.3.1 Primary map



X Index: 304

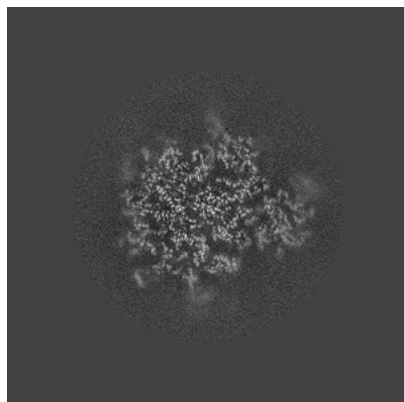


Y Index: 314

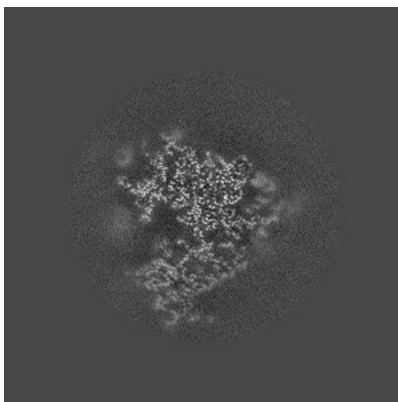


Z Index: 274

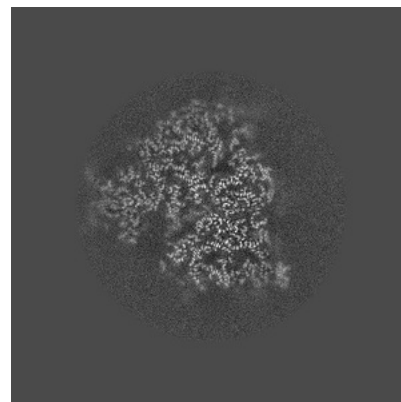
6.3.2 Raw map



X Index: 304



Y Index: 314

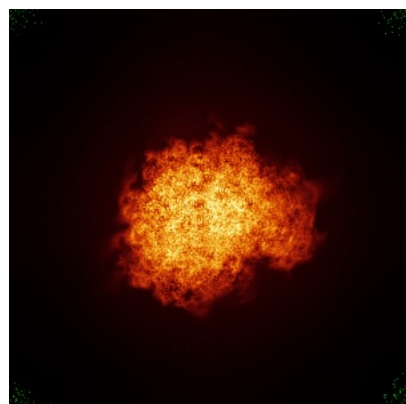


Z Index: 274

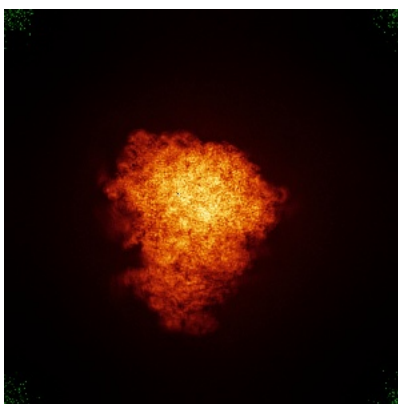
The images above show the largest variance slices of the map in three orthogonal directions.

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

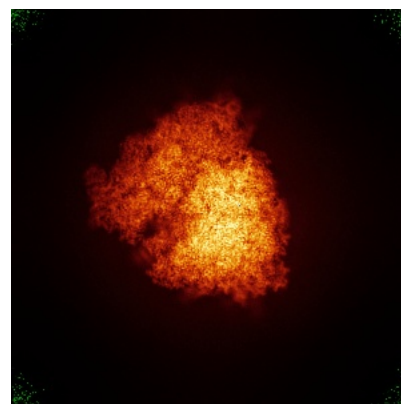
6.4.1 Primary map



X

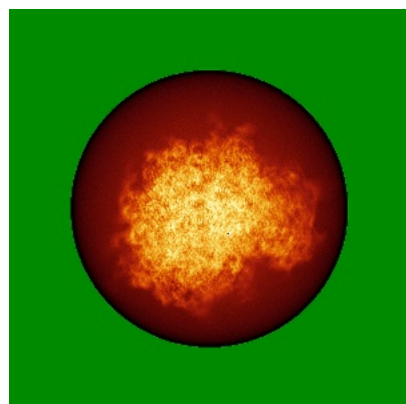


Y

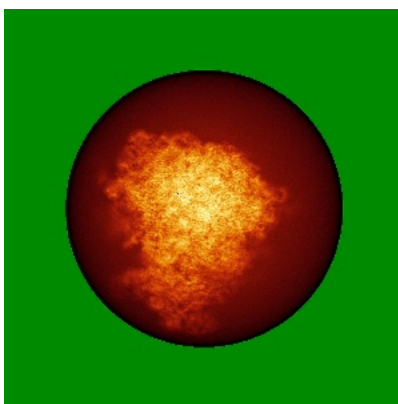


Z

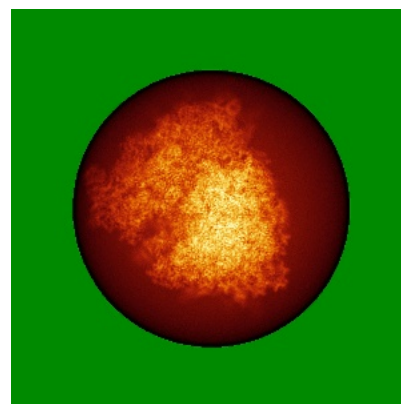
6.4.2 Raw map



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.

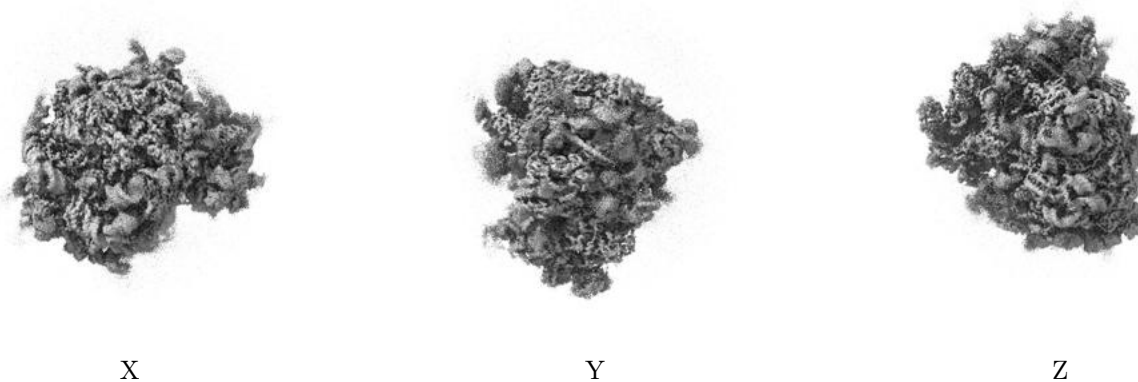
6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 3.5. 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.

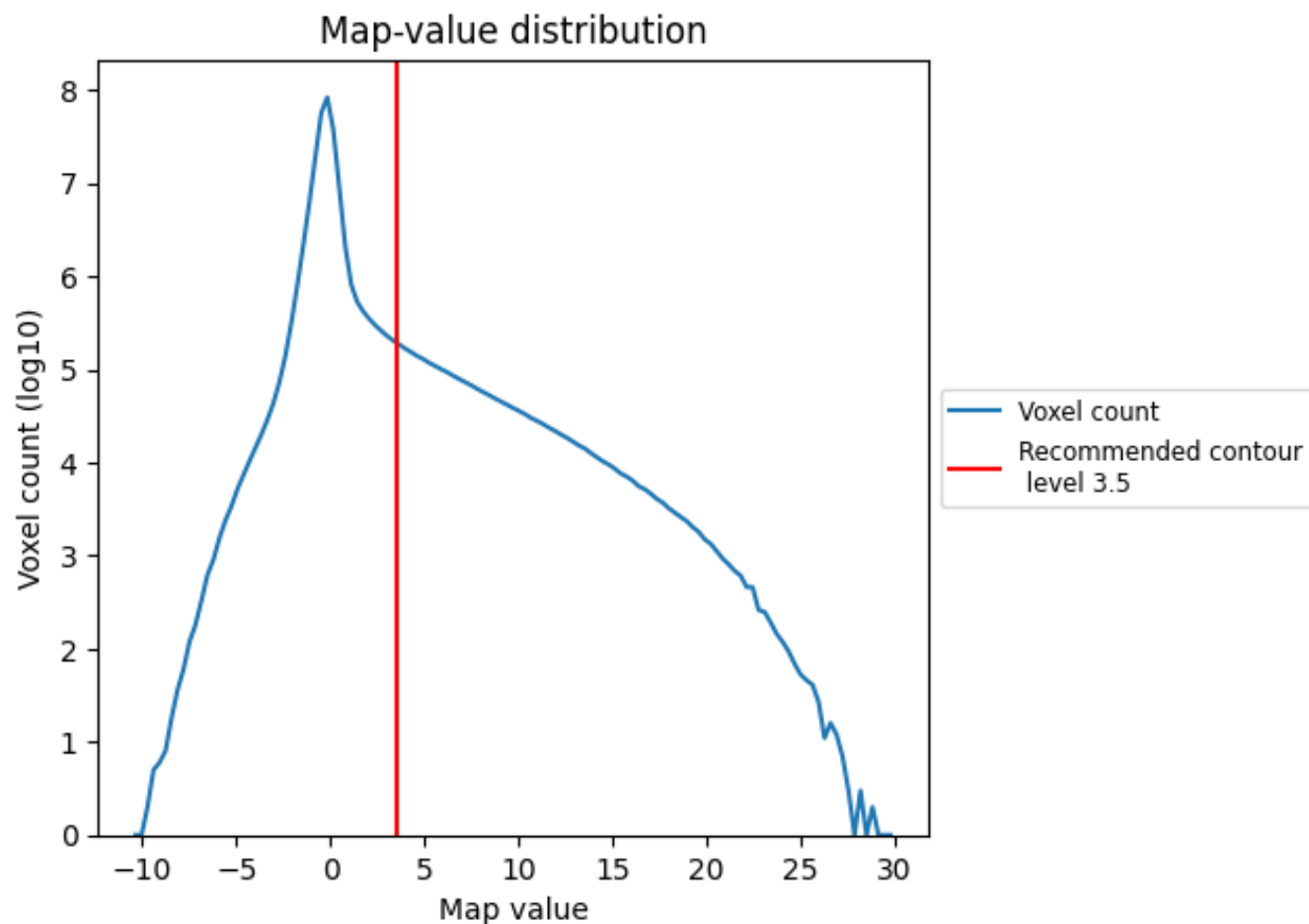
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

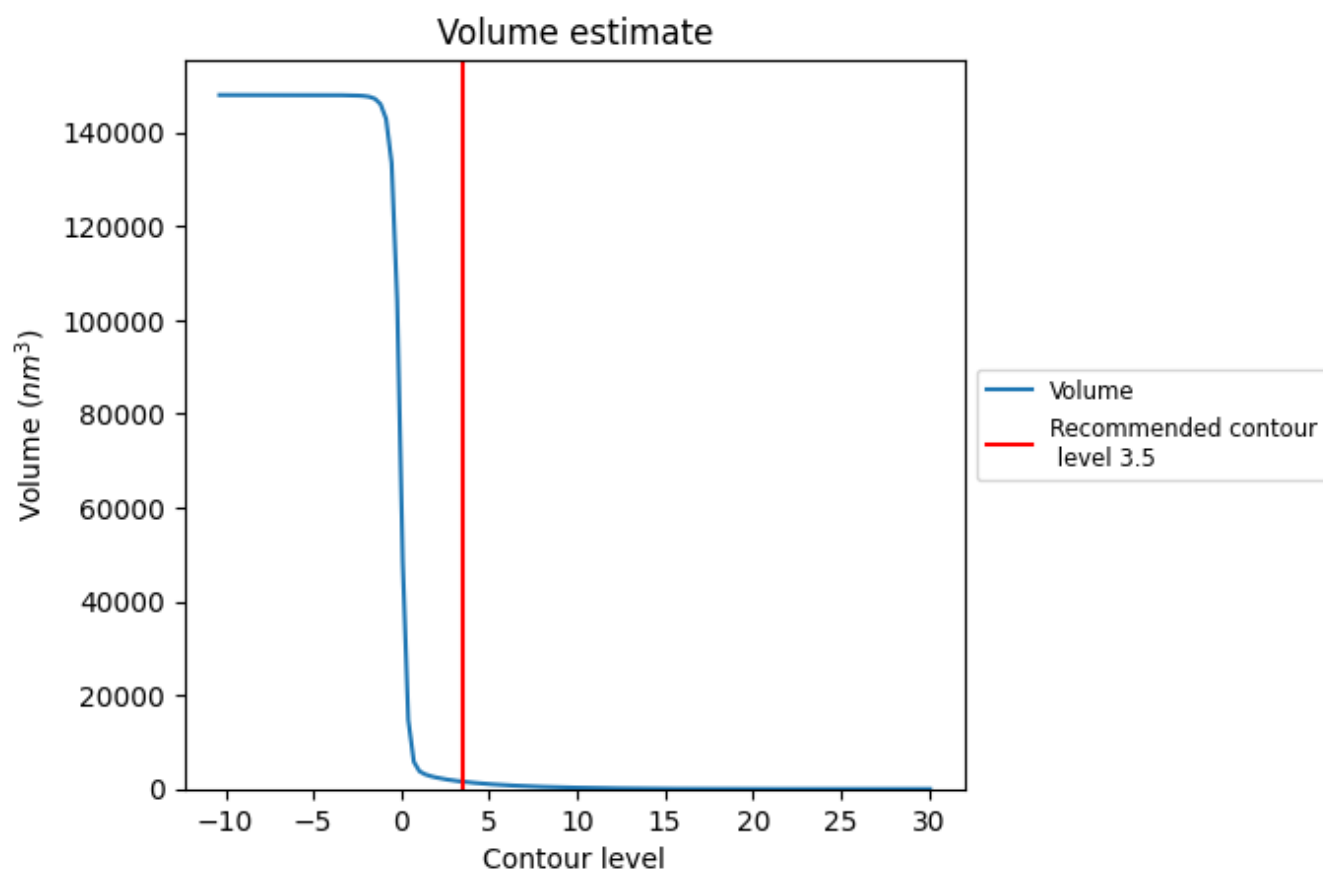
This section contains the results of statistical analysis of the map.

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.

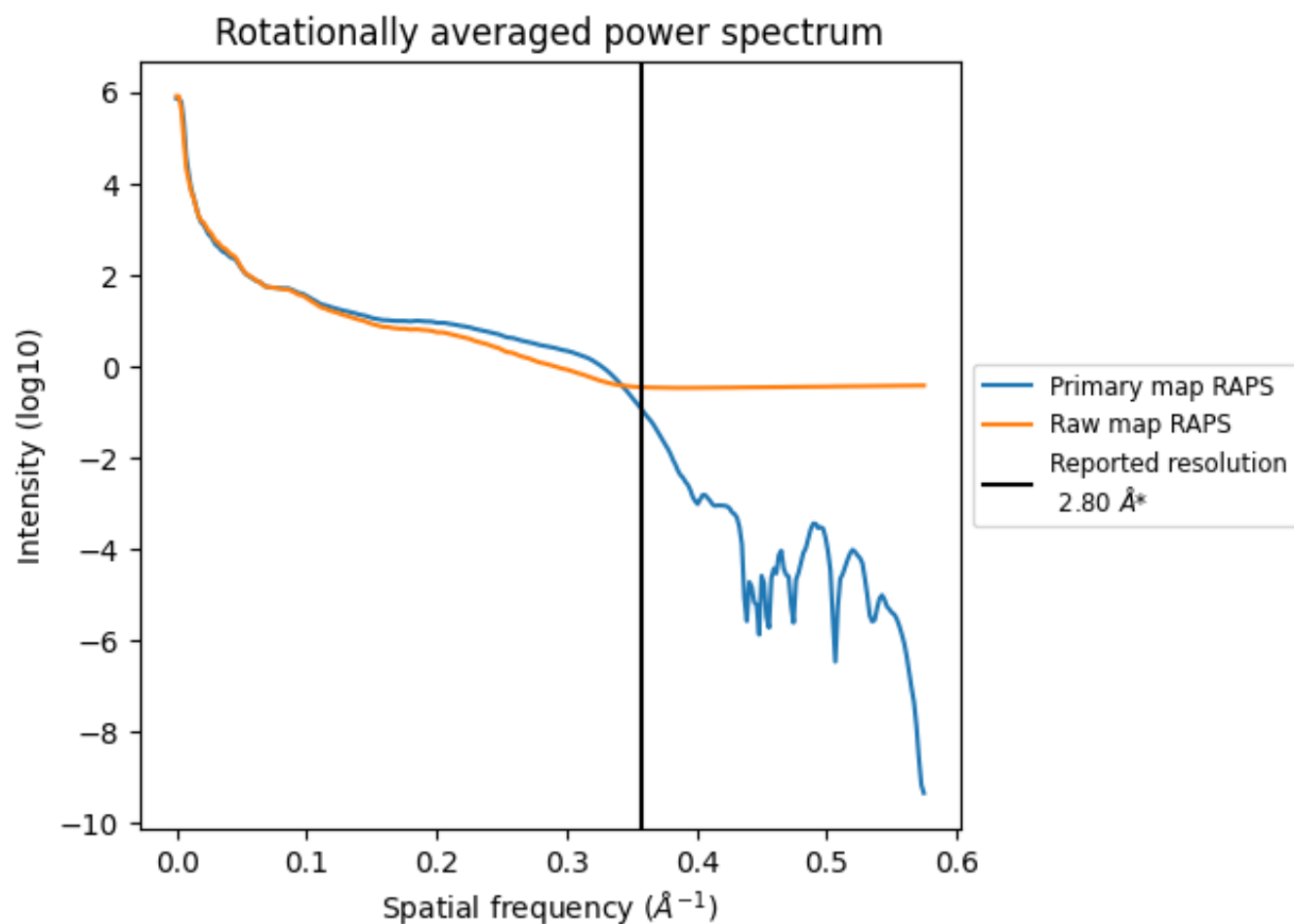
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 1555 nm^3 ; this corresponds to an approximate mass of 1404 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 ⓘ

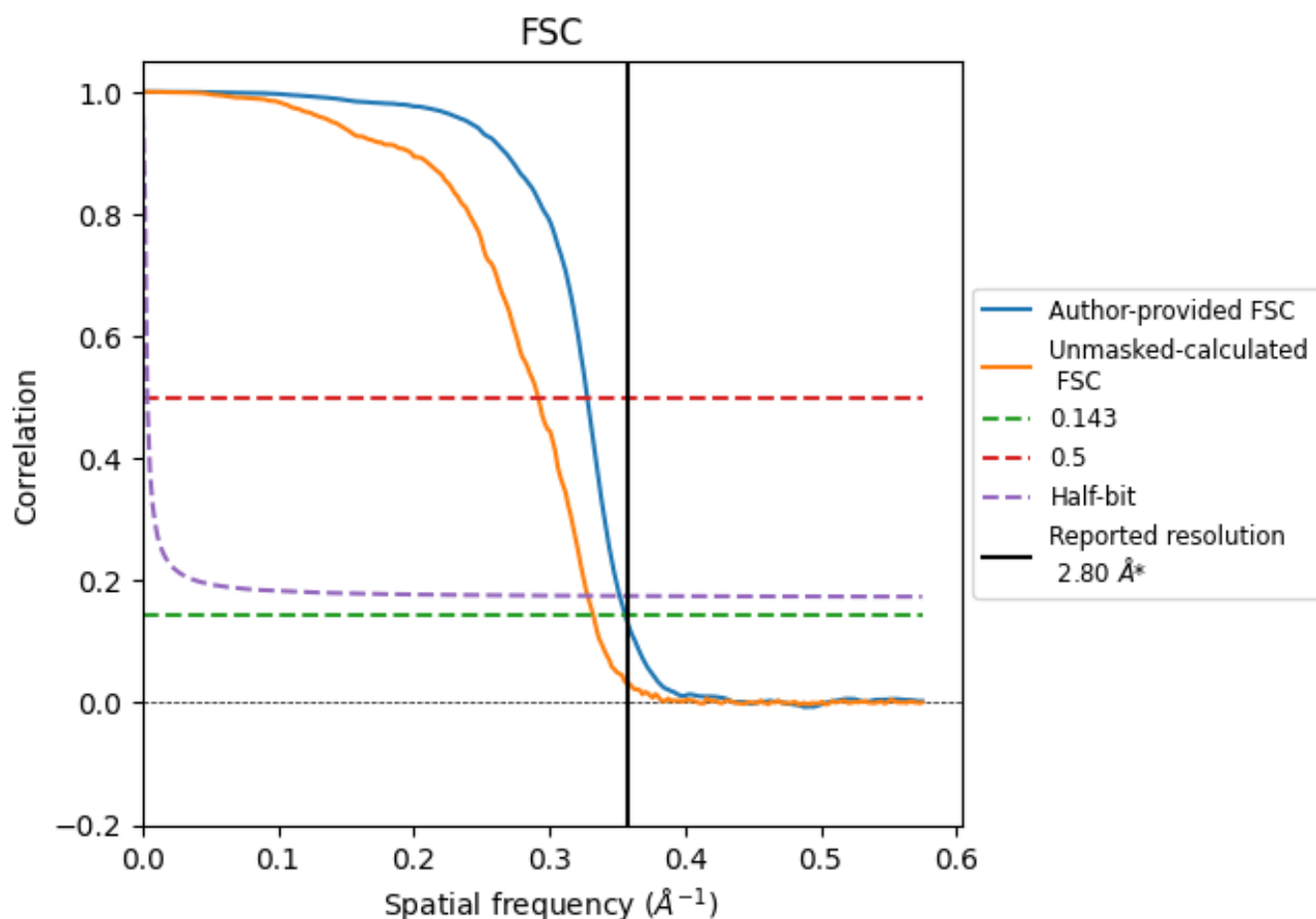


*Reported resolution corresponds to spatial frequency of 0.357 Å⁻¹

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 $0.357 \text{ \AA}^{-1}$

8.2 Resolution estimates [i](#)

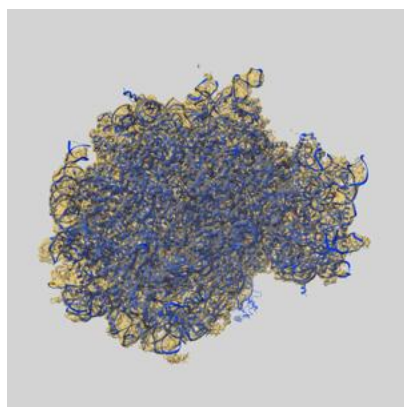
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	2.80	-	-
Author-provided FSC curve	2.81	3.05	2.84
Unmasked-calculated*	3.01	3.43	3.05

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.

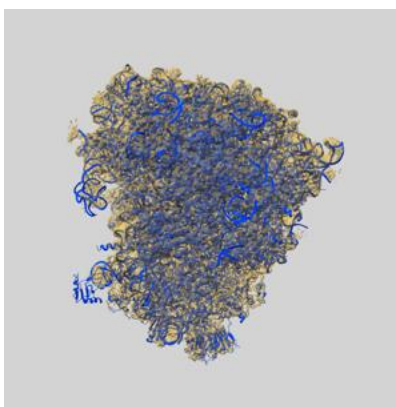
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-44461 and PDB model 9BDL. Per-residue inclusion information can be found in section 3 on page 22.

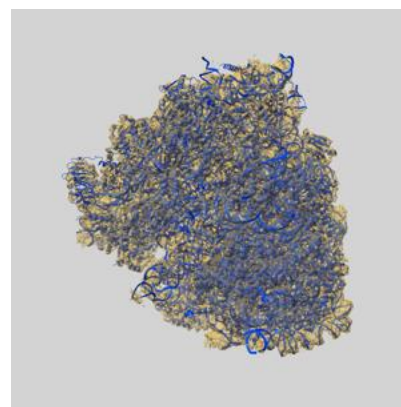
9.1 Map-model overlay [i](#)



X



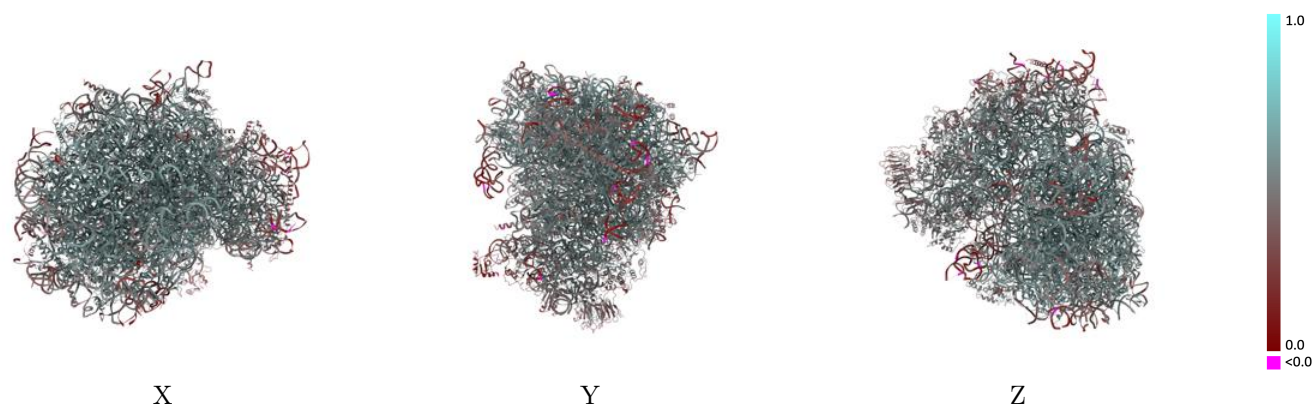
Y



Z

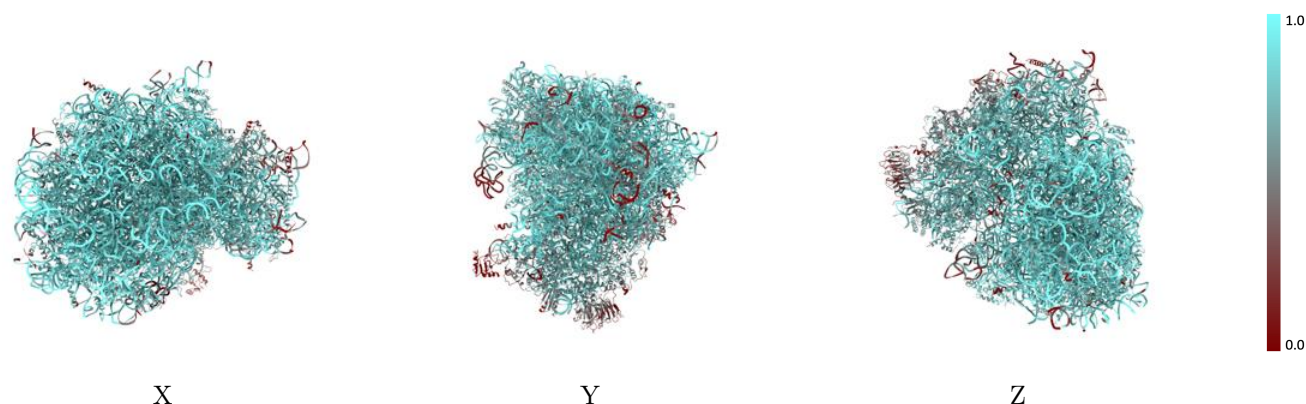
The images above show the 3D surface view of the map at the recommended contour level 3.5 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



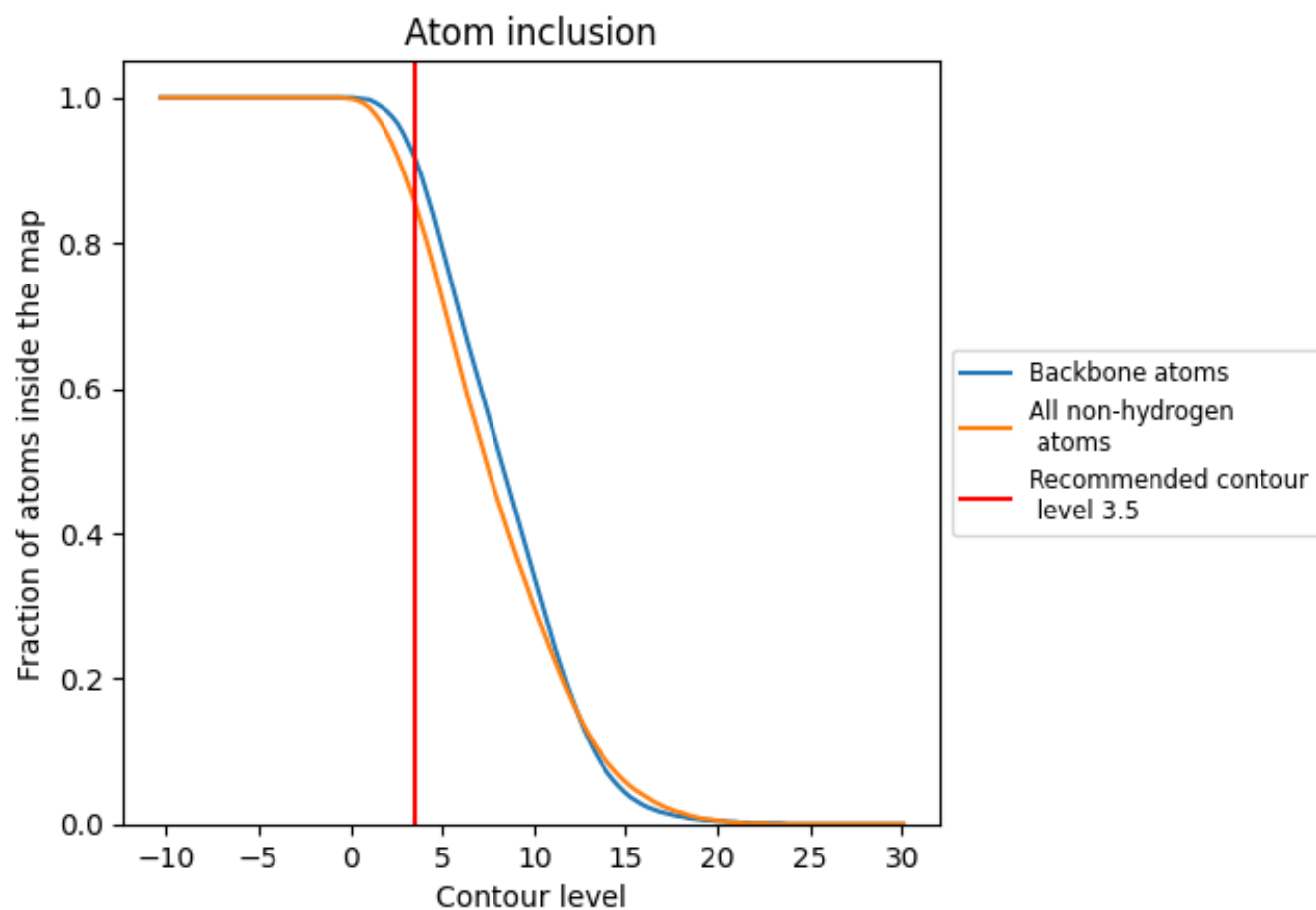
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 (3.5).

9.4 Atom inclusion [i](#)



At the recommended contour level, 92% of all backbone atoms, 86% 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 (3.5) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.8570	 0.5150
A18S	 0.9000	 0.5000
A28S	 0.9350	 0.5310
A58S	 0.9690	 0.5520
A5S	 0.9940	 0.5690
AL02	 0.9090	 0.5840
AL03	 0.8750	 0.5600
AL04	 0.8770	 0.5600
AL05	 0.8380	 0.5150
AL06	 0.8030	 0.5110
AL07	 0.8750	 0.5630
AL08	 0.7290	 0.5010
AL09	 0.7990	 0.5210
AL10	 0.8590	 0.5510
AL11	 0.8050	 0.5020
AL13	 0.8140	 0.5340
AL14	 0.8370	 0.5230
AL15	 0.9260	 0.5830
AL16	 0.8810	 0.5590
AL17	 0.8950	 0.5640
AL18	 0.8830	 0.5710
AL19	 0.8060	 0.5220
AL20	 0.8740	 0.5610
AL21	 0.8650	 0.5470
AL22	 0.7570	 0.4690
AL23	 0.8740	 0.5680
AL24	 0.8660	 0.5560
AL25	 0.8490	 0.5420
AL26	 0.8480	 0.5390
AL27	 0.8380	 0.5250
AL28	 0.9150	 0.5790
AL29	 0.7030	 0.4840
AL30	 0.8390	 0.5210
AL31	 0.8570	 0.5390
AL32	 0.8880	 0.5770



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Chain	Atom inclusion	Q-score
AL33	 0.9090	 0.5800
AL34	 0.8520	 0.5470
AL35	 0.8250	 0.5300
AL36	 0.8330	 0.5180
AL37	 0.9310	 0.5850
AL38	 0.7380	 0.4760
AL39	 0.8950	 0.5590
AL40	 0.8630	 0.5430
AL41	 0.7840	 0.5560
AL42	 0.8560	 0.5530
AL43	 0.8610	 0.5630
ALNW	 0.8830	 0.5590
ANG	 0.7230	 0.5010
ARAC	 0.3740	 0.3800
AS00	 0.6480	 0.4750
AS01	 0.7560	 0.5040
AS02	 0.7160	 0.4990
AS03	 0.5650	 0.4320
AS04	 0.7160	 0.4850
AS05	 0.7310	 0.4800
AS06	 0.5870	 0.4100
AS07	 0.5040	 0.4280
AS08	 0.7350	 0.4880
AS09	 0.7220	 0.4800
AS10	 0.4830	 0.3640
AS11	 0.7740	 0.5340
AS12	 0.0030	 0.1970
AS13	 0.7880	 0.5130
AS14	 0.7970	 0.5130
AS15	 0.6480	 0.4370
AS16	 0.6870	 0.4690
AS17	 0.5550	 0.4440
AS18	 0.7220	 0.4560
AS19	 0.6870	 0.4410
AS20	 0.5060	 0.4220
AS21	 0.6460	 0.4750
AS22	 0.8070	 0.5270
AS23	 0.8100	 0.5340
AS24	 0.6920	 0.4410
AS25	 0.6740	 0.4570
AS26	 0.8100	 0.5240
AS27	 0.6850	 0.4580

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Chain	Atom inclusion	Q-score
AS28	 0.7130	 0.4760
AS29	 0.6210	 0.4320
AS30	 0.6380	 0.4380
ETRN	 0.7450	 0.3420
MRNA	 0.6710	 0.4510
PTRN	 0.8890	 0.4990