



Full wwPDB EM Validation Report ⓘ

Apr 23, 2024 – 08:42 am BST

PDB ID : 6ZON
EMDB ID : EMD-11325
Title : SARS-CoV-2 Nsp1 bound to a human 43S preinitiation ribosome complex - state 1
Authors : Thoms, M.; Buschauer, R.; Ameismeier, M.; Denk, T.; Kratzat, H.; Mackens-Kiani, T.; Cheng, J.; Berninghausen, O.; Becker, T.; Beckmann, R.
Deposited on : 2020-07-07
Resolution : 3.00 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:

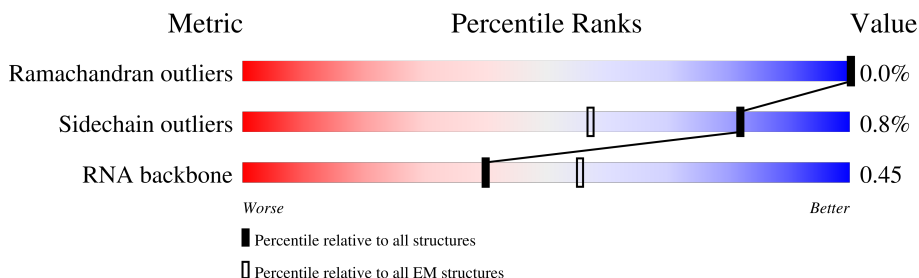
EMDB validation analysis : 0.0.1.dev92
MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ : 1.9.13
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36.2

1 Overall quality at a glance

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.00 Å.

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



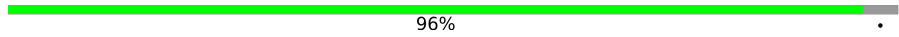
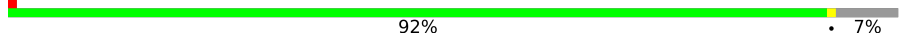

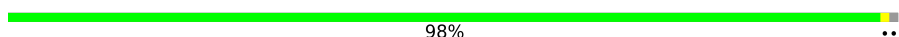

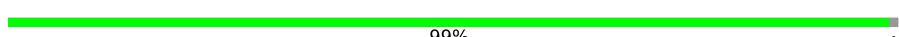
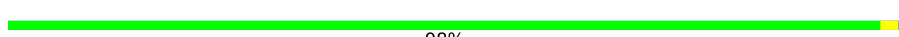



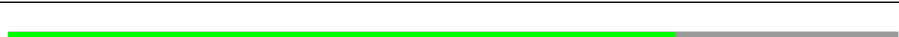


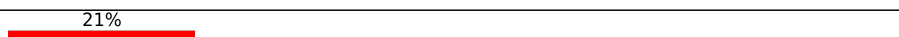
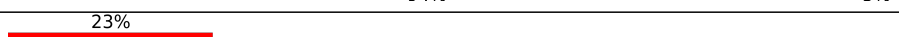
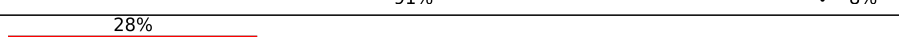
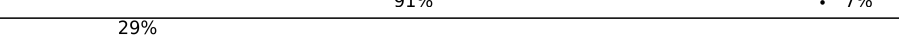


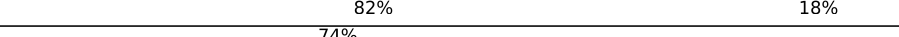

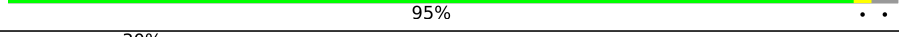



Metric	Whole archive (#Entries)	EM structures (#Entries)
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826
RNA backbone	4643	859

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

Mol	Chain	Length	Quality of chain
1	a	295	
2	p	264	
3	d	293	
4	Q	115	
5	q	263	
6	W	25	
7	r	249	
8	s	194	

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Mol	Chain	Length	Quality of chain
9	t	208	 96%
10	c	194	 92% 7%
11	n	158	 85% 15%
12	m	151	 98%
13	i	151	 82% 17%
14	y	83	 99%
15	f	130	 98%
16	j	143	 97%
17	z	133	 92% 8%
18	R	84	 96%
19	T	59	 75% 25%
20	2	1868	 58% 29% 8%
21	w	135	 95% 5%
22	g	146	 21% 94% 5%
23	b	243	 23% 91% 8%
24	e	204	 28% 91% 7%
25	u	165	 29% 58% 42%
26	v	132	 75% 83% 16%
27	o	145	 64% 82% 18%
28	k	152	 74% 89% 8%
29	x	145	 34% 95%
30	h	119	 30% 82% 18%
31	P	125	 44% 55% 44%
32	S	69	 19% 83% 6% 12%
33	l	56	 91% 5%

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Mol	Chain	Length	Quality of chain
34	U	156	
35	V	317	
36	I	325	
37	B	814	
38	A	703	
39	C	913	
40	E	445	
41	F	357	
42	H	352	
43	K	218	
44	L	564	
45	M	374	
46	D	548	
47	Y	78	
48	J	180	

2 Entry composition i

There are 49 unique types of molecules in this entry. The entry contains 109201 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a protein called 40S ribosomal protein SA.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	a	216	1705	1083	299	315	8	0	0

- Molecule 2 is a protein called 40S ribosomal protein S3a.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	p	211	1715	1088	307	306	14	0	0

- Molecule 3 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	d	216	1674	1085	287	292	10	0	0

- Molecule 4 is a protein called 40S ribosomal protein S26.

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

- Molecule 5 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
5	q	255	2031	1299	377	347	8	0	0

- Molecule 6 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
6	W	24	230	139	62	26	3	0	0

- Molecule 7 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
7	r	222	1794	1123	357	308	6	0	0

- Molecule 8 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
8	s	173	1399	898	256	244	1	0	0

- Molecule 9 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
9	t	199	1638	1027	322	284	5	0	0

- Molecule 10 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
10	c	180	1499	955	300	242	2	0	0

- Molecule 11 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
11	n	135	1119	715	211	187	6	0	0

- Molecule 12 is a protein called 40S ribosomal protein S13.

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

- Molecule 13 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
13	i	125	939	574	187	172	6	0	0

- Molecule 14 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	y	82	Total	C	N	O	S	0	0
			625	384	116	120	5		

- Molecule 15 is a protein called 40S ribosomal protein S15a.

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

- Molecule 16 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
16	j	139	Total	C	N	O	S	0	0
			1080	682	214	181	3		

- Molecule 17 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	z	122	Total	C	N	O	S	0	0
			999	633	196	165	5		

- Molecule 18 is a protein called 40S ribosomal protein S27.

Mol	Chain	Residues	Atoms					AltConf	Trace
18	R	82	Total	C	N	O	S	0	0
			640	402	118	113	7		

- Molecule 19 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	T	44	Total	C	N	O	S	0	0
			354	216	81	56	1		

- Molecule 20 is a RNA chain called 18S ribosomal RNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	2	1721	Total	C	N	O	P	0	0
			36718	16400	6603	12004	1711		

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
2	1772	C	G	conflict	GB 337376

- Molecule 21 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
21	w	128	1011	641	182	184	4	0	0

- Molecule 22 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
22	g	138	1100	699	208	190	3	0	0

- Molecule 23 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
23	b	224	1745	1112	314	312	7	0	0

- Molecule 24 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
24	e	189	1495	934	284	270	7	0	0

- Molecule 25 is a protein called 40S ribosomal protein S10.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
25	u	95	799	524	139	130	6	0	0

- Molecule 26 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
26	v	111	861	544	151	159	7	0	0

- Molecule 27 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	o	119	Total	C	N	O	S	0	0
			980	623	183	167	7		

- Molecule 28 is a protein called 40S ribosomal protein S18.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	k	140	Total	C	N	O	S	0	0
			1162	731	234	196	1		

- Molecule 29 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	x	141	Total	C	N	O	S	0	0
			1094	685	210	196	3		

- Molecule 30 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	h	98	Total	C	N	O	S	0	0
			780	489	148	139	4		

- Molecule 31 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	P	70	Total	C	N	O	S	0	0
			557	358	101	97	1		

- Molecule 32 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	S	61	Total	C	N	O	S	0	0
			479	292	95	90	2		

- Molecule 33 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	l	54	Total	C	N	O	S	0	0
			450	282	93	70	5		

- Molecule 34 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
34	U	57	Total	C	N	O	S	0	0
			465	295	89	74	7		

- Molecule 35 is a protein called Receptor of activated protein C kinase 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	V	296	Total	C	N	O	S	0	0
			2314	1464	404	434	12		

- Molecule 36 is a protein called Eukaryotic translation initiation factor 3 subunit I.

Mol	Chain	Residues	Atoms				AltConf	Trace
36	I	305	Total	C	N	O	0	0
			1497	887	305	305		

- Molecule 37 is a protein called Eukaryotic translation initiation factor 3 subunit B.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	B	536	Total	C	N	O	S	0	0
			2966	1801	580	580	5		

- Molecule 38 is a protein called Eukaryotic translation initiation factor 3 subunit A, Eukaryotic translation initiation factor 3 subunit A.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	A	694	Total	C	N	O	S	0	0
			5394	3385	982	1005	22		

- Molecule 39 is a protein called Eukaryotic translation initiation factor 3 subunit C.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	C	625	Total	C	N	O	S	0	0
			5070	3204	898	933	35		

- Molecule 40 is a protein called Eukaryotic translation initiation factor 3 subunit E.

Mol	Chain	Residues	Atoms					AltConf	Trace
40	E	416	Total	C	N	O	S	0	0
			3437	2202	585	630	20		

- Molecule 41 is a protein called Eukaryotic translation initiation factor 3 subunit F.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
41	F	269	2090	1317	356	405	12	0	0

- Molecule 42 is a protein called Eukaryotic translation initiation factor 3 subunit H.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
42	H	295	2413	1532	417	449	15	0	0

- Molecule 43 is a protein called Eukaryotic translation initiation factor 3 subunit K.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
43	K	217	1750	1116	288	334	12	0	0

- Molecule 44 is a protein called Eukaryotic translation initiation factor 3 subunit L.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
44	L	372	3111	2011	520	563	17	0	0

- Molecule 45 is a protein called Eukaryotic translation initiation factor 3 subunit M.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
45	M	340	2718	1734	459	508	17	0	0

- Molecule 46 is a protein called Eukaryotic translation initiation factor 3 subunit D.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
46	D	447	3617	2279	625	691	22	0	0

- Molecule 47 is a protein called Unknown factor.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
47	Y	78	390	234	78	78	0	0

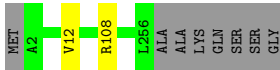
- Molecule 48 is a protein called Host translation inhibitor Nsp1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
48	J	30	244	148	44	51	1	0	0

- Molecule 49 is ZINC ION (three-letter code: ZN) (formula: Zn).

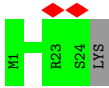
Mol	Chain	Residues	Atoms		AltConf
49	Q	1	Total	Zn	0
			1	1	
49	l	1	Total	Zn	0
			1	1	
49	U	1	Total	Zn	0
			1	1	

Chain q:  96%




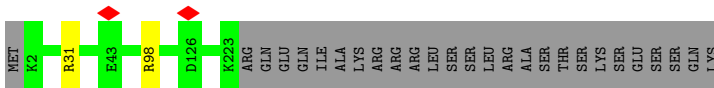
- Molecule 6: 60S ribosomal protein L41

Chain W:  96%




- Molecule 7: 40S ribosomal protein S6

Chain r:  88%



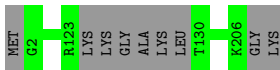
- Molecule 8: 40S ribosomal protein S7

Chain s:  89%

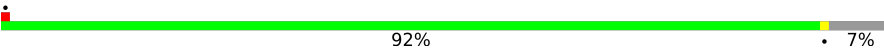


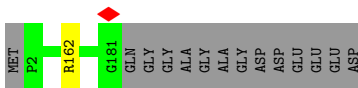
- Molecule 9: 40S ribosomal protein S8

Chain t:  96%




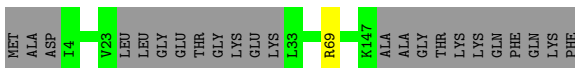
- Molecule 10: 40S ribosomal protein S9

Chain c:  92%



- Molecule 11: 40S ribosomal protein S11

Chain n:  85%




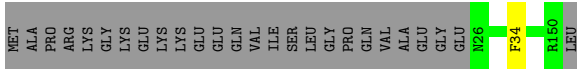
- Molecule 12: 40S ribosomal protein S13

Chain m:  98%



- Molecule 13: 40S ribosomal protein S14

Chain i:  82%



- Molecule 14: 40S ribosomal protein S21

Chain y:  99%



- Molecule 15: 40S ribosomal protein S15a

Chain f:  98%

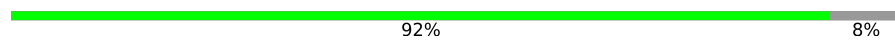


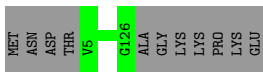
- Molecule 16: 40S ribosomal protein S23

Chain j:  97%



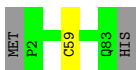
- Molecule 17: 40S ribosomal protein S24

Chain z:  92%

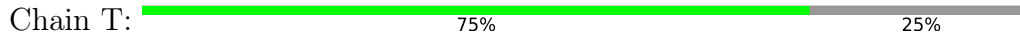


- Molecule 18: 40S ribosomal protein S27

Chain R:  96%

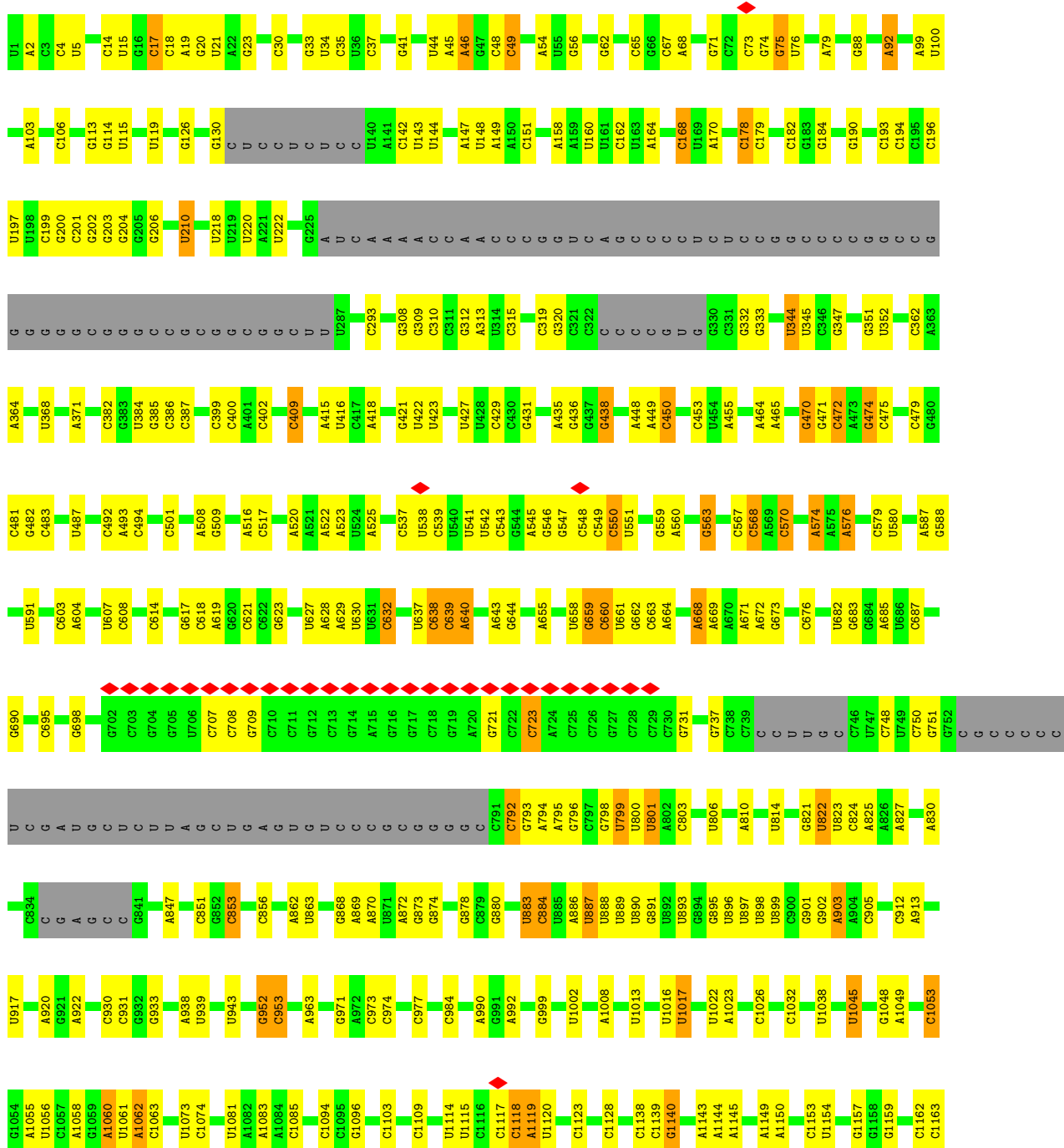


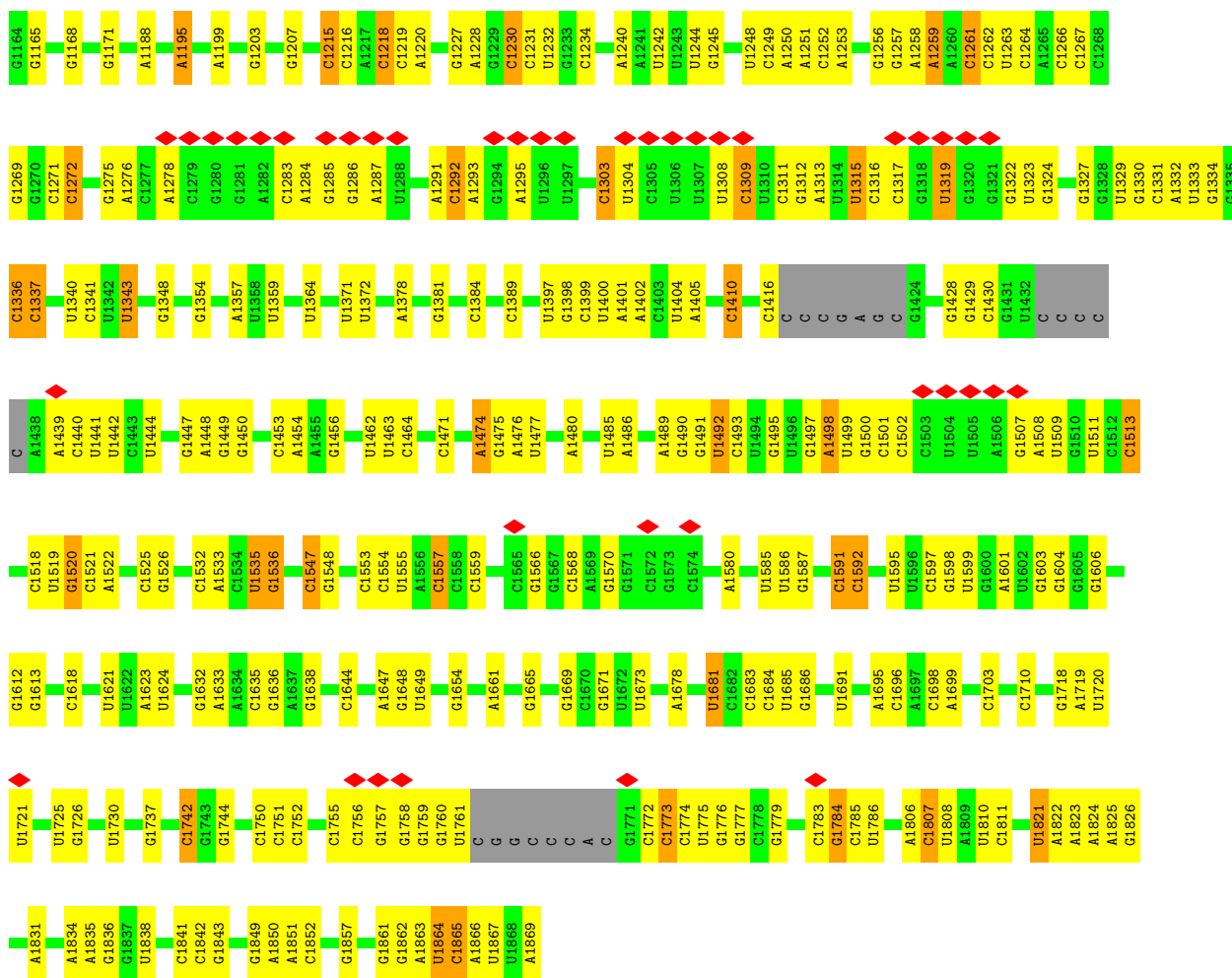
- Molecule 19: 40S ribosomal protein S30



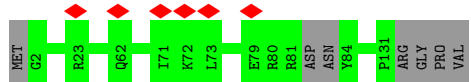
LYS	VAL	HIS	GLY	SER	LEU	A7	Y45	VAL	PRO	THR	PHE	G20	GLY	LYS	LYS	G54	H58	SER
-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

● Molecule 20: 18S ribosomal RNA

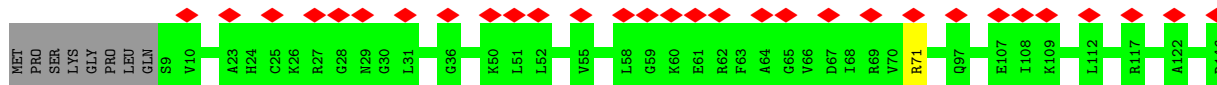




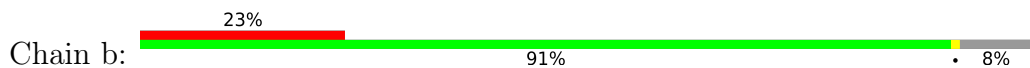
• Molecule 21: 40S ribosomal protein S17

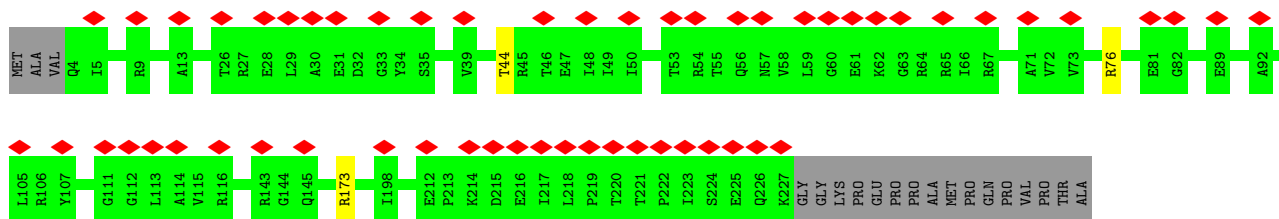


• Molecule 22: 40S ribosomal protein S16

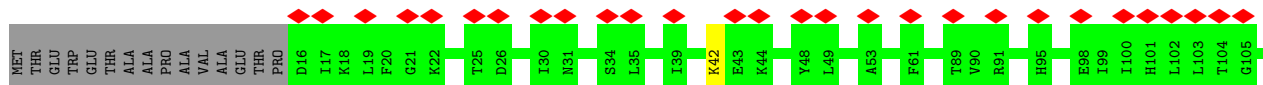


• Molecule 23: 40S ribosomal protein S3

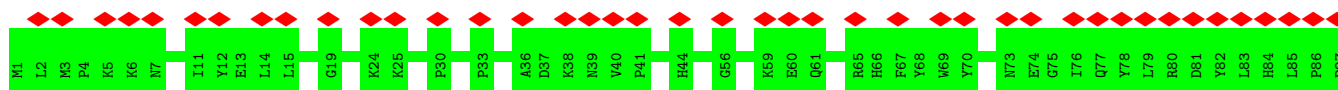




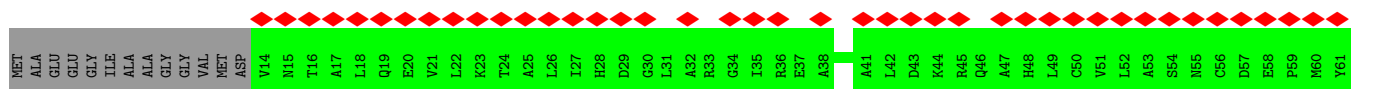
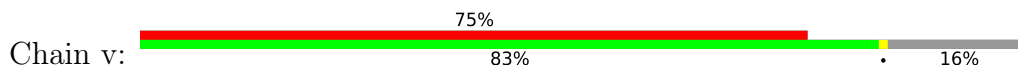
• Molecule 24: 40S ribosomal protein S5



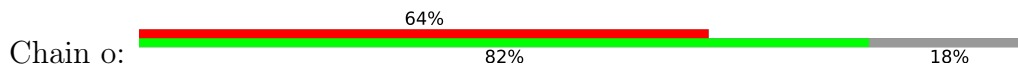
• Molecule 25: 40S ribosomal protein S10

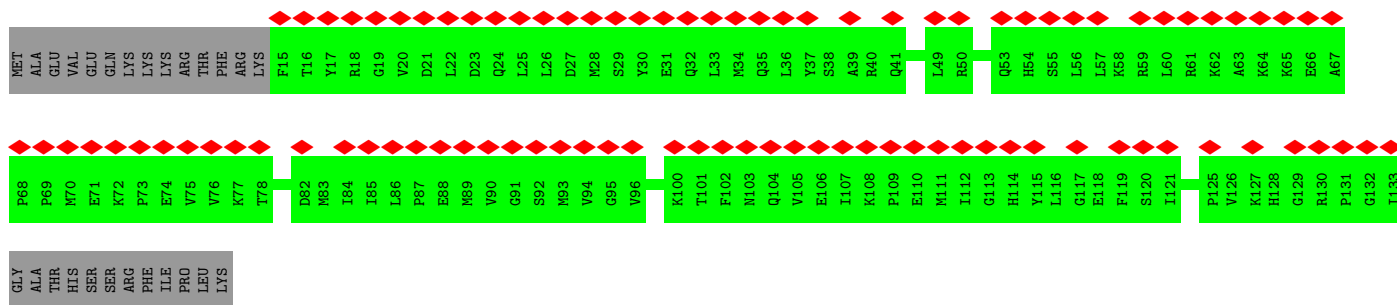


• Molecule 26: 40S ribosomal protein S12

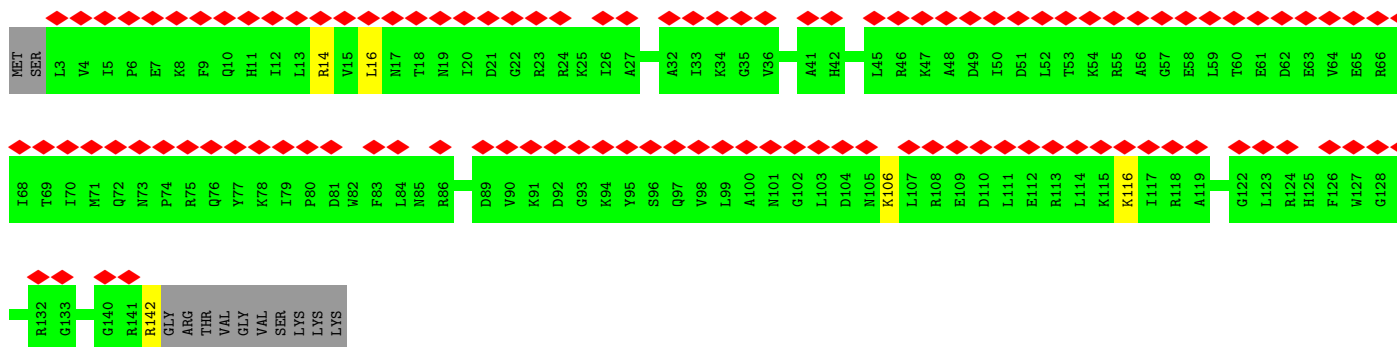
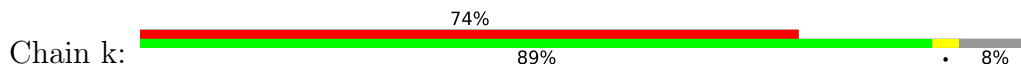


• Molecule 27: 40S ribosomal protein S15

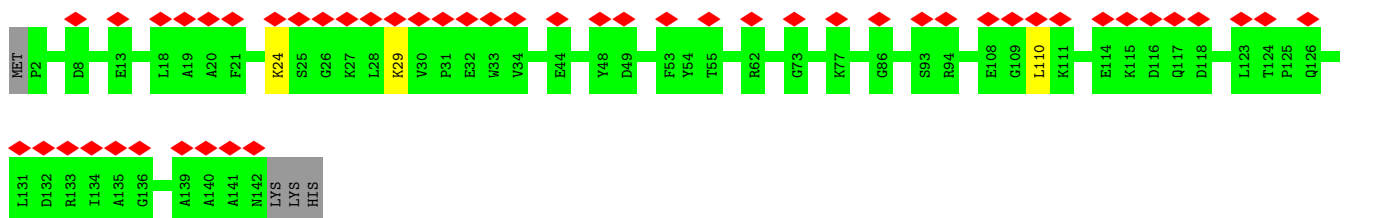




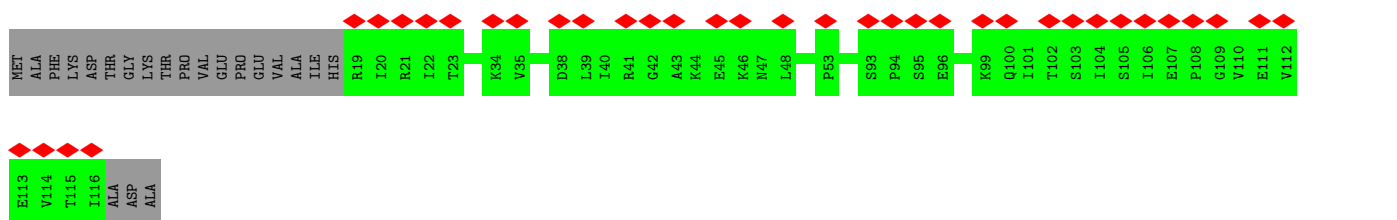
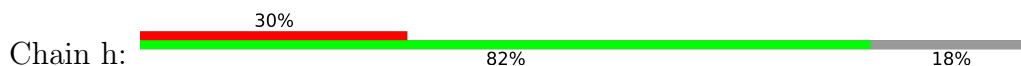
• Molecule 28: 40S ribosomal protein S18



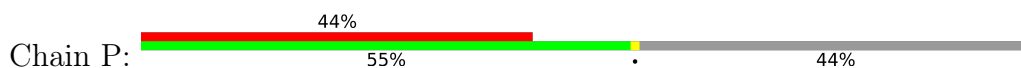
• Molecule 29: 40S ribosomal protein S19

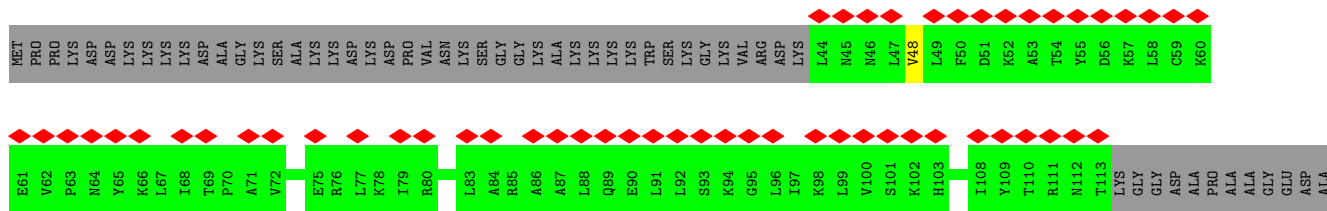


• Molecule 30: 40S ribosomal protein S20

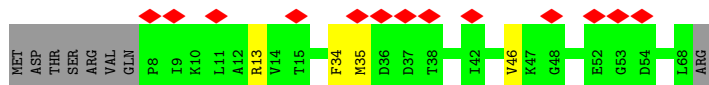
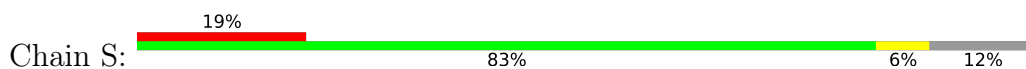


• Molecule 31: 40S ribosomal protein S25

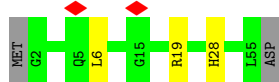
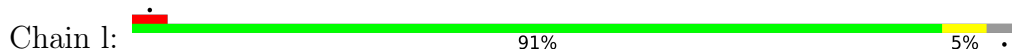




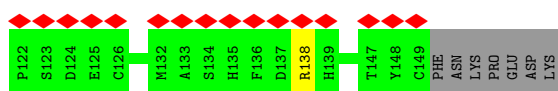
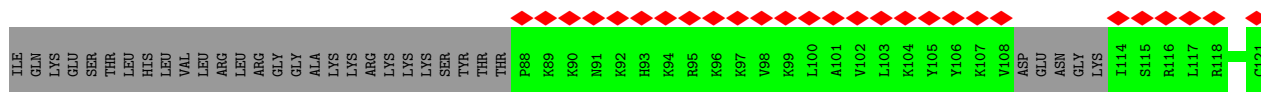
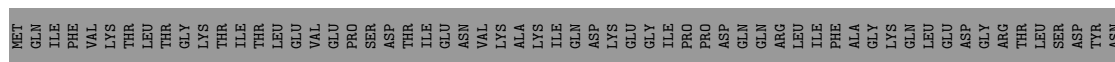
• Molecule 32: 40S ribosomal protein S28



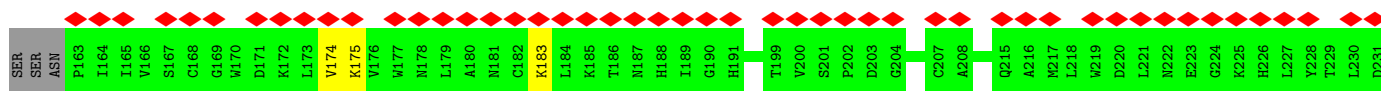
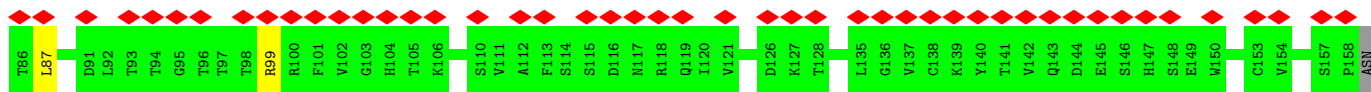
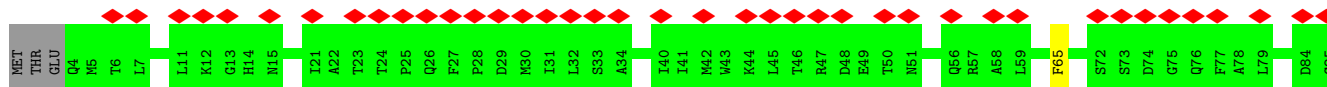
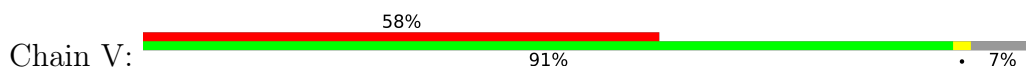
• Molecule 33: 40S ribosomal protein S29



• Molecule 34: Ubiquitin-40S ribosomal protein S27a

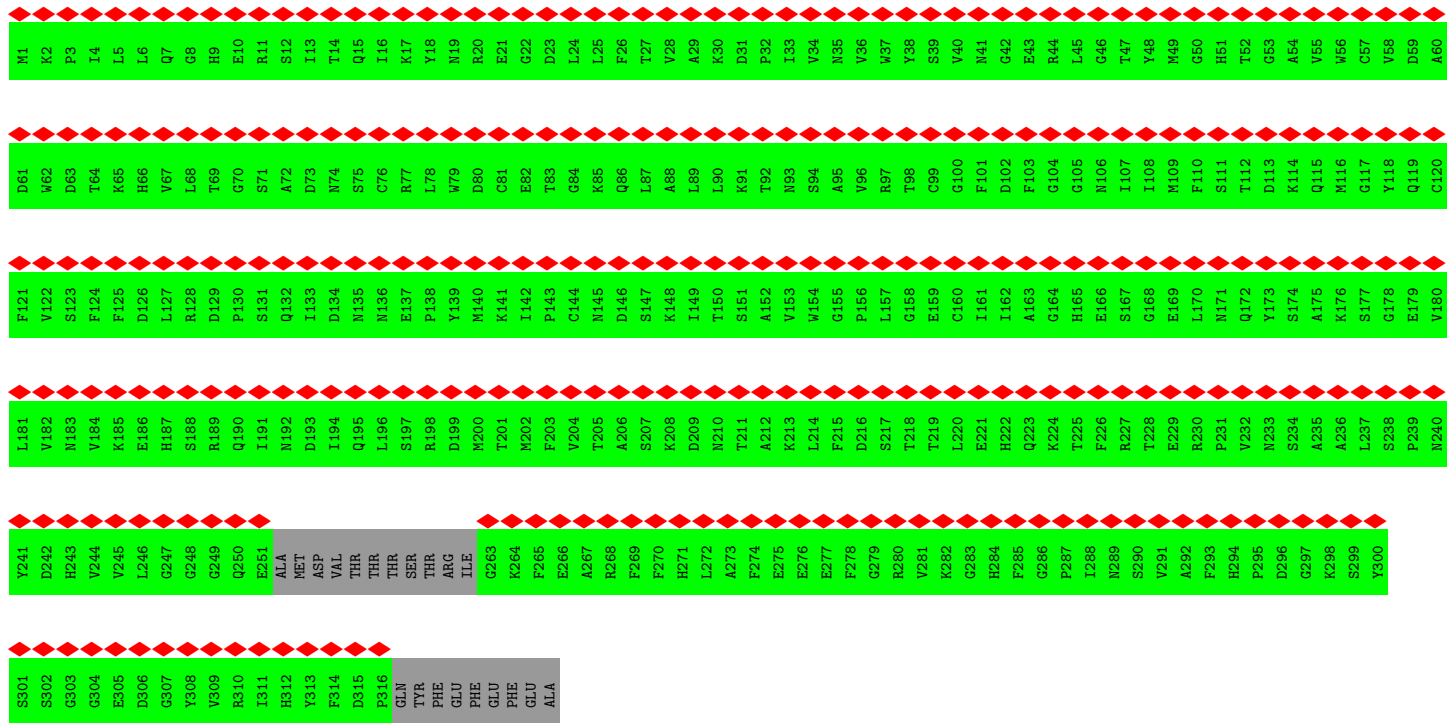
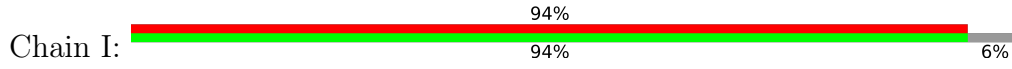


• Molecule 35: Receptor of activated protein C kinase 1

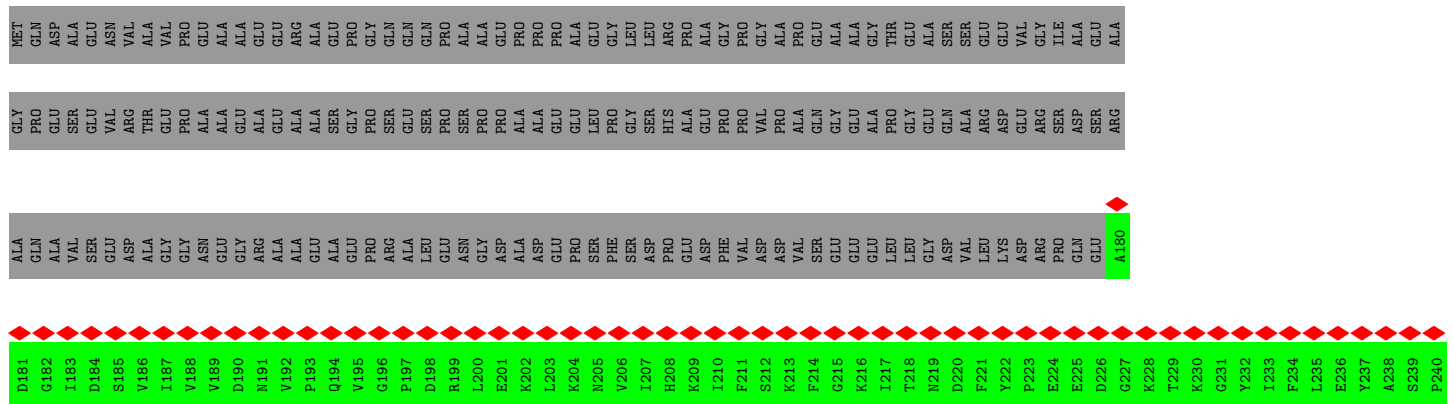


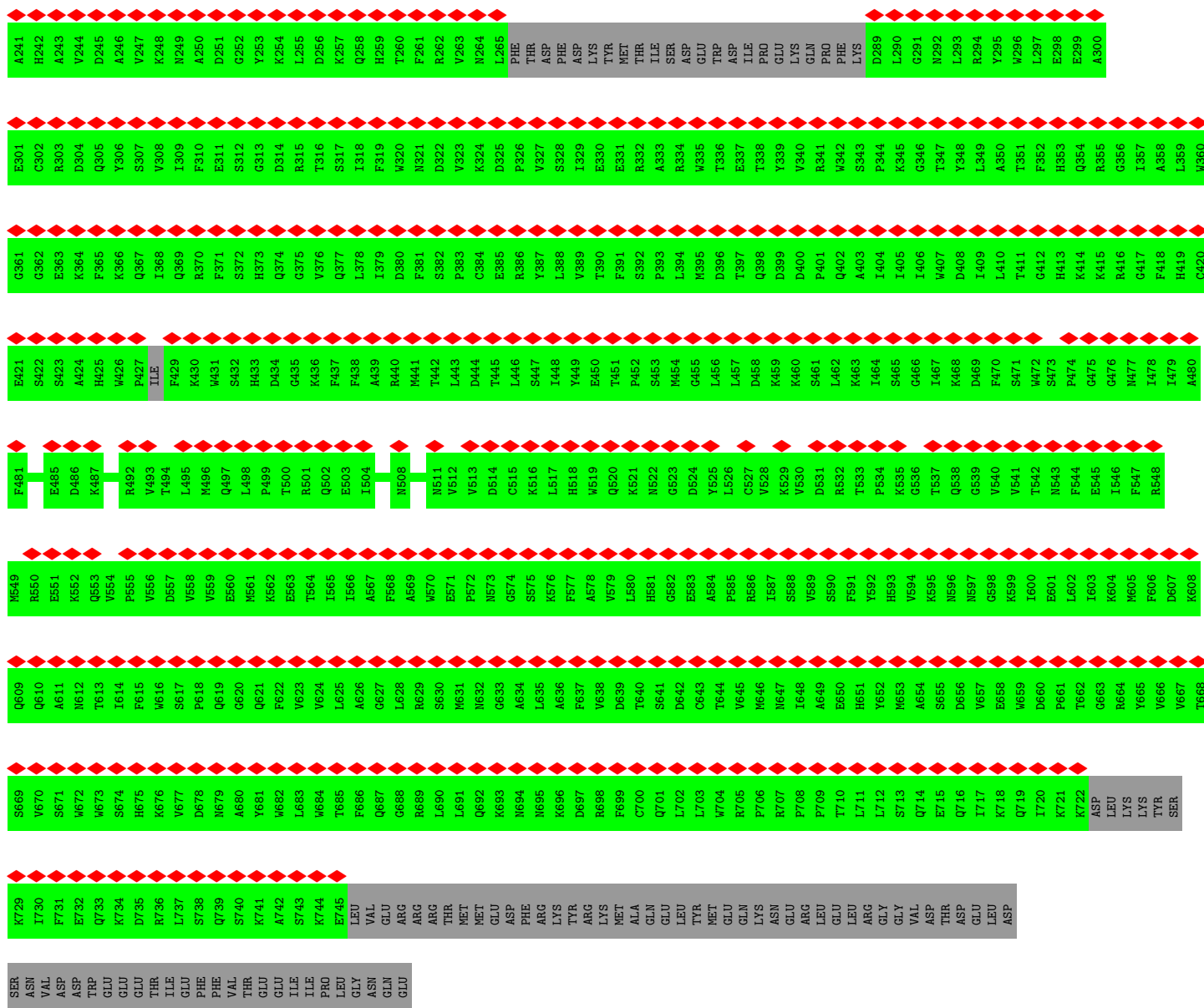


• Molecule 36: Eukaryotic translation initiation factor 3 subunit I

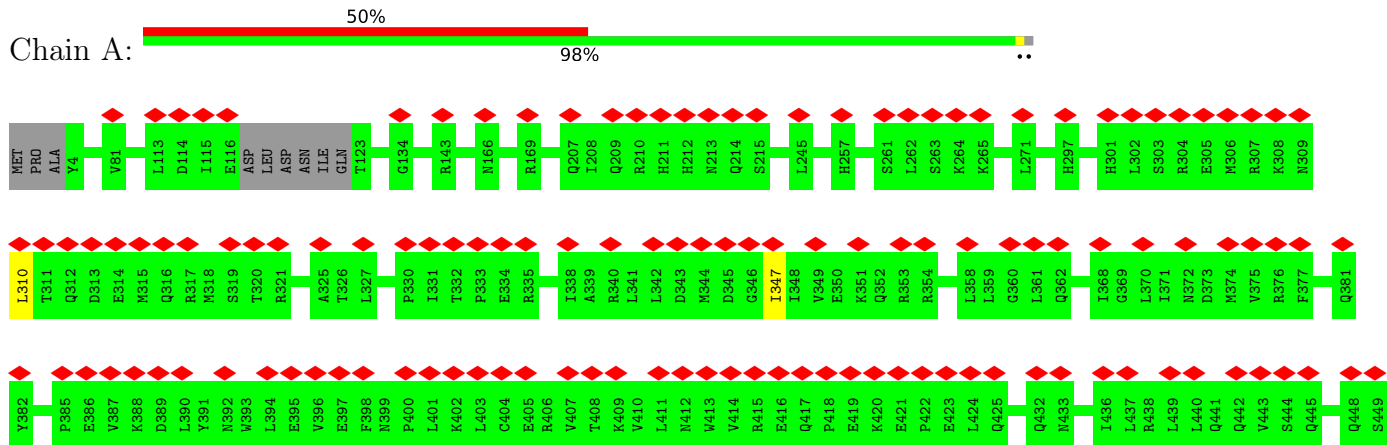


• Molecule 37: Eukaryotic translation initiation factor 3 subunit B

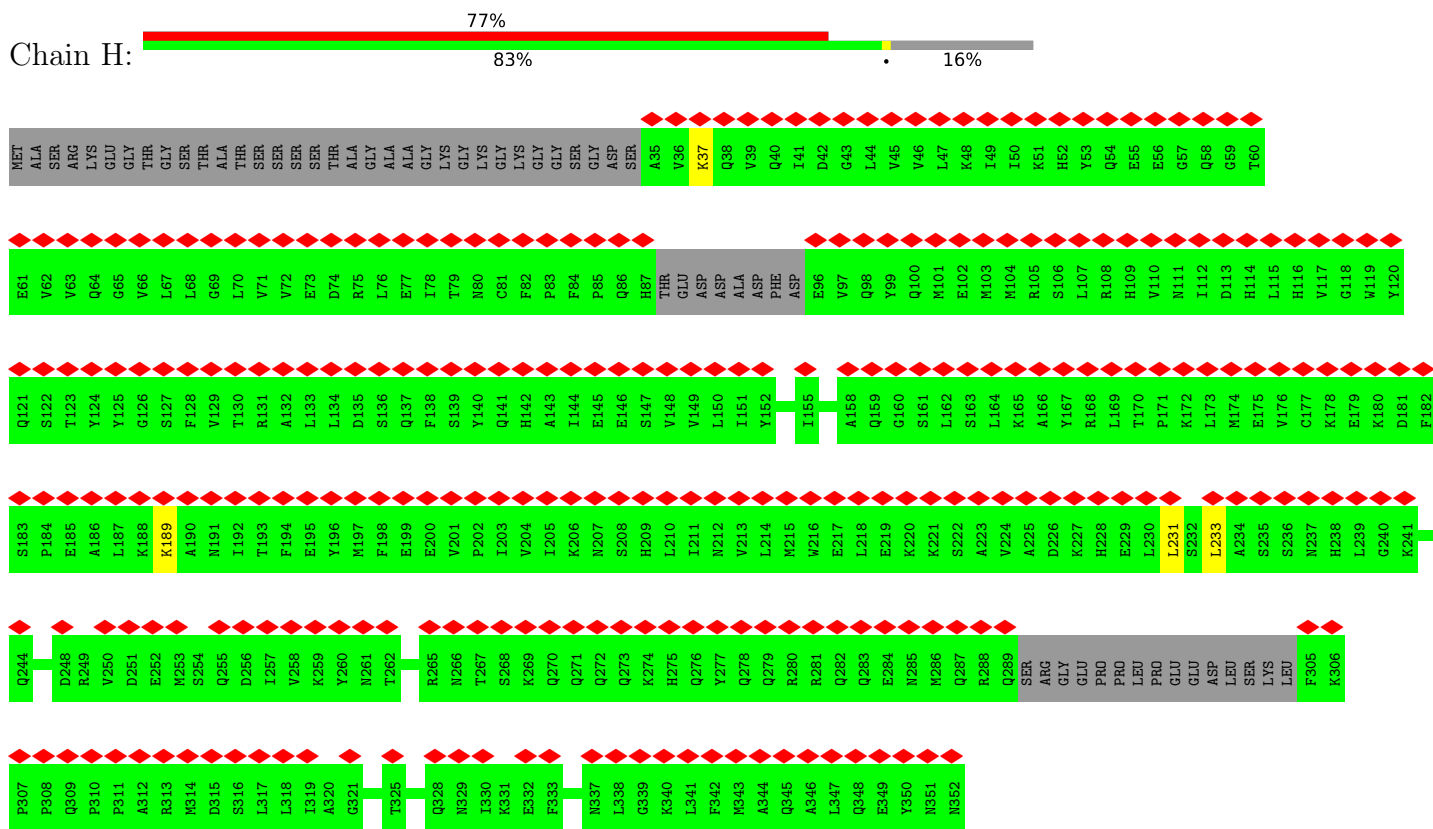




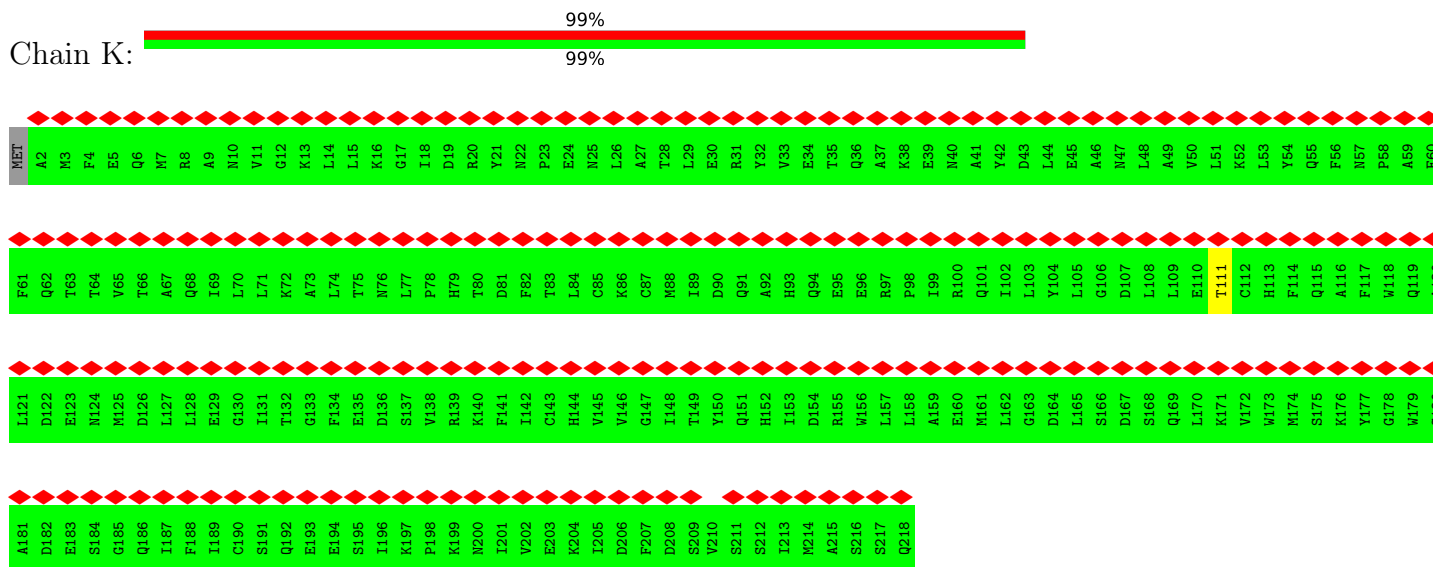
● Molecule 38: Eukaryotic translation initiation factor 3 subunit A, Eukaryotic translation initiation factor 3 subunit A



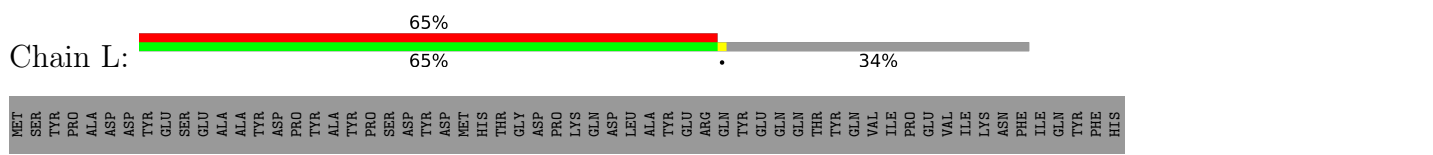
• Molecule 42: Eukaryotic translation initiation factor 3 subunit H



• Molecule 43: Eukaryotic translation initiation factor 3 subunit K

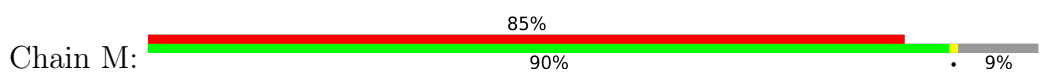


• Molecule 44: Eukaryotic translation initiation factor 3 subunit L



LYS	THR	GLN	VAL	GLY	ASN	ASP	LEU	ILE	ASP	GLN	VAL	LYS	VAL	TYR	LEU	GLU	LEU	GLN	ALA	THR	SER	ARG	VAL	SER	SER	SER	ASP	GLN	LYS	VAL	VAL	GLY	PRO	SER	TYR	GLU	ILE	GLN	ARG	ASP	ARG	PHE	ILE	GLU	TYR	ASN	TYR	SER	TRP	THR	LYS	LYS	ASN	LEU	THR	GLU	GLU	ARG	PHE	ILE	LYS	LEU	LEU	ALA	ALA	PRO	PRO	GLY	TRP	TRP	ALA	ALA	PRO	PRO	GLU	GLU	ALA	ALA	PRO	PRO	ASN
Q181	W182	L183	W184	D185	I186	I187	D188	E189	F190	I191	Y192	Q193	F194	Q195	F196	S197	S198	Q199	Y200	C201	K202	T203	S204	L205	K206	K207	S208	E209	E210	E211	I212	D213	F214	L215	R216	S217	N218	P219	K220	I221	W222	N223	W224	G225	W226	V227	L228	N229	V230	L231	H232	S233	S234	L235	V236	D237	S238	N239	I240																						
N241	R242	Q243	L244	E245	V246	Y247	T248	S249	G250	G251	D252	P253	E254	S255	V256	A257	G258	E259	Y260	G261	R262	H263	S264	L265	Y266	K267	M268	L269	G270	Y271	F272	S273	L274	V275	G276	L277	L278	R279	L280	H281	S282	L283	L284	G285	D286	Y287	Y288	Q289	A290	I291	K292	V293	L294	E295	N296	I297	E298	L299	N300																						
K301	K302	S303	M304	S305	R306	V308	P309	E310	C311	Q312	V313	T314	T315	Y316	Y317	Y318	V319	G320	F321	A322	Y323	L324	M325	M326	R327	R328	Y329	Q330	D331	A332	I333	R334	V335	F336	A337	N338	I339	L340	L341	Y342	I343	Q344	R345	T346	K347	S348	M349	F350	Q351	R352	T353	T354	Y355	K356	Y357	E358	M359	I360																							
N361	K362	Q363	N364	E365	Q366	M367	H368	A369	L370	L371	A372	I373	A374	L375	T376	M377	Y378	P379	M380	R381	I382	D383	E384	S385	I386	H387	L388	Q389	L390	R391	E392	K393	Y394	G395	D396	K397	M398	L399	R400	M401	Q402	K403	G404	D405	P406	Q407	V408	Y409	E410	E411	L412	F413	S414	Y415	S416	C417	P418	K419	F420																						
L421	S422	P423	V424	A425	P426	N427	Y428	A429	N430	V431	H432	P433	N434	Y435	H436	K437	E438	P439	F440	L441	L442	Q443	Q444	K445	V446	F447	S448	D449	E450	V451	Q452	Q453	Q454	A455	Q456	L457	S458	T459	I460	R461	S462	F463	L464	K465	L466	Y467	T468	M469	M470	P471	V472	A473	K474	L475	A476	G477	F478	L479	D480																						
L481	T482	E483	Q484	E485	F486	R487	I488	Q489	L490	L491	V492	F493	K494	H495	K496	M497	K498	M499	L500	V501	W502	T503	S504	G505	I506	S507	A508	L509	D510	G511	E512	F513	Q514	S515	A516	S517	E518	V519	D520	F521	Y522	I523	D524	I528	H529	I530	A531	D532	T533	K534	V535	A536	R537	R538	Y539	G540	D541	F542																							
F543	I544	R545	Q546	I547	H548	K549	F550	E551	E552	LEU	ASN	ARG	THR	LEU	LYS	MET	GLY	GLN	ARG	PRO																																																													

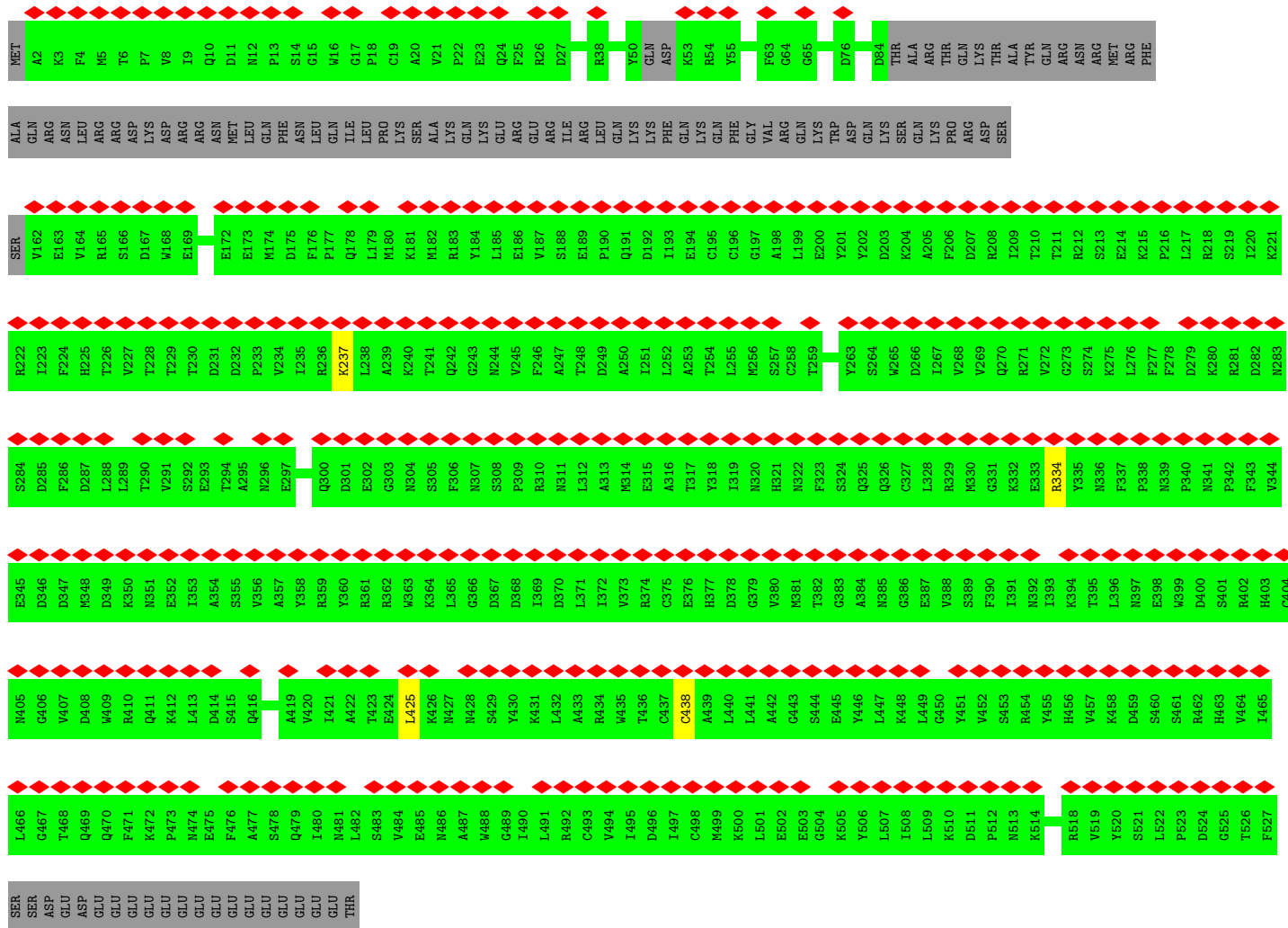
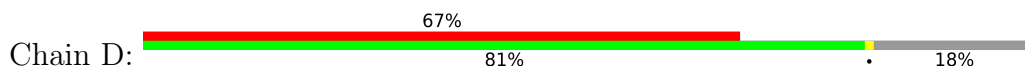
• Molecule 45: Eukaryotic translation initiation factor 3 subunit M



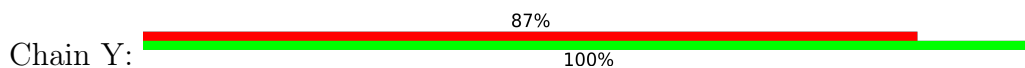
MET	SER	VAL	PRO	ALA	PHE	ILE	ASP	ILE	SER	E11	E12	D13	Q14	A15	A16	E17	L18	R19	A20	Y21	L22	K23	K25	G26	ALA	GLU	ILE	SER	GLU	GLU	ASN	SER	GLY	GLY	GLY	L38	H39	V40	D41	L42	A43	Q44	I45	L46	E47	A48	C49	D50	V51	C52	L53	LYS	GLU	ASP	ASP	LYS	ASP	V60	
E61	S62	V63	W64	M65	S66	V67	V68	S69	L70	L71	L72	I73	L74	GLU	PRO	ASP	K78	Q79	E80	A81	L82	I83	E84	S85	L86	C87	E88	R89	L90	Y91	K92	F93	R94	E95	G96	E97	R98	P99	S100	L101	R102	L103	Q104	L105	L106	S107	M108	L109	F110	H111	G112	M113	D114	K115	M116	T117	P118	V119	R120
Y121	T122	V123	Y124	C125	S126	L127	I128	K129	G130	A131	A132	S133	C134	GLY	ALA	I137	Q138	Y139	I140	P141	T142	E143	L144	D145	Q146	V147	R148	K149	W150	I151	S152	D153	W154	N155	L156	T157	L158	E159	K160	K161	H162	T163	L164	L165	R166	L167	L168	Y169	E170	A171	L172	V173	D174	C176	K177	S178	D179	A180	
A181	S182	K183	V184	M185	I186	E187	L188	L189	G190	S191	T192	I193	E194	D195	N196	A197	S198	Q199	A200	R201	V202	D203	A204	H205	R206	C207	T208	V209	R210	A211	L212	K213	D214	D215	N216	A217	F218	L219	F220	D221	H222	L223	L224	T225	L226	K227	P228	V229	K230	F231	L232	E233	G234	E235	L236	I237	H238	D239	L240



• Molecule 46: Eukaryotic translation initiation factor 3 subunit D



• Molecule 47: Unknown factor



4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	13928	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/\text{\AA}^2$)	44.8	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.299	Depositor
Minimum map value	-0.075	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.009	Depositor
Recommended contour level	0.03	Depositor
Map size (Å)	381.24, 381.24, 381.24	wwPDB
Map dimensions	360, 360, 360	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.059, 1.059, 1.059	Depositor

5 Model quality i

5.1 Standard geometry i

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

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	a	0.64	0/1742	0.58	0/2367
2	p	0.59	0/1742	0.60	1/2330 (0.0%)
3	d	0.71	0/1710	0.65	0/2310
4	Q	0.73	1/828 (0.1%)	0.65	1/1109 (0.1%)
5	q	0.65	0/2073	0.65	0/2791
6	W	0.48	0/231	0.62	0/294
7	r	0.51	0/1817	0.57	0/2421
8	s	0.51	0/1418	0.58	0/1895
9	t	0.65	0/1666	0.60	0/2223
10	c	0.72	1/1524 (0.1%)	0.63	0/2035
11	n	0.76	0/1139	0.61	0/1524
12	m	0.65	1/1226 (0.1%)	0.60	0/1649
13	i	0.58	0/951	0.64	0/1275
14	y	0.63	0/631	0.59	0/844
15	f	0.73	1/1051 (0.1%)	0.68	0/1406
16	j	0.67	0/1097	0.63	0/1464
17	z	0.64	0/1016	0.62	0/1349
18	R	0.63	0/653	0.61	0/876
19	T	0.59	0/356	0.55	0/466
20	2	1.34	58/41057 (0.1%)	1.30	491/63985 (0.8%)
21	w	0.37	0/1024	0.58	0/1377
22	g	0.32	0/1117	0.57	0/1494
23	b	0.35	0/1773	0.65	0/2387
24	e	0.31	0/1516	0.58	1/2037 (0.0%)
25	u	0.28	0/823	0.55	0/1111
26	v	0.30	0/870	0.56	0/1168
27	o	0.29	0/999	0.58	0/1336
28	k	0.29	0/1180	0.61	1/1581 (0.1%)
29	x	0.27	0/1113	0.53	1/1493 (0.1%)
30	h	0.29	0/789	0.56	0/1059
31	P	0.29	0/563	0.62	0/758
32	S	0.35	0/481	0.63	0/643

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
33	I	0.34	0/461	0.70	2/612 (0.3%)
34	U	0.31	0/474	0.63	0/626
35	V	0.29	0/2369	0.63	2/3221 (0.1%)
36	I	0.25	0/1495	0.48	0/2073
37	B	0.27	0/2981	0.51	0/4115
38	A	0.31	0/4971	0.55	2/6711 (0.0%)
39	C	0.33	0/5154	0.55	3/6942 (0.0%)
40	E	0.28	0/3503	0.54	0/4728
41	F	0.27	0/2126	0.56	0/2890
42	H	0.27	0/2458	0.57	2/3313 (0.1%)
43	K	0.28	0/1785	0.58	0/2414
44	L	0.30	0/3187	0.61	0/4299
45	M	0.27	0/2756	0.58	2/3714 (0.1%)
46	D	0.30	0/3699	0.58	1/5001 (0.0%)
48	J	0.66	0/249	0.52	0/335
All	All	0.88	62/113844 (0.1%)	0.94	510/162051 (0.3%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	a	0	1
8	s	0	1
32	S	0	3
33	I	0	1
35	V	0	1
44	L	0	1
All	All	0	8

All (62) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
20	2	1139	C	N3-C4	-7.08	1.28	1.33
10	c	162	ARG	C-N	-6.99	1.18	1.34
20	2	501	C	N3-C4	-6.50	1.29	1.33
20	2	422	U	N3-C4	-6.45	1.32	1.38
20	2	422	U	C2-O2	-6.40	1.16	1.22
20	2	119	U	N3-C4	-6.13	1.32	1.38
20	2	493	A	N9-C4	-6.08	1.34	1.37
20	2	1159	G	C6-N1	-6.06	1.35	1.39

Continued on next page...

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
20	2	1143	A	N7-C5	-5.93	1.35	1.39
20	2	170	A	N7-C5	-5.92	1.35	1.39
20	2	422	U	C2-N3	-5.84	1.33	1.37
20	2	435	A	N7-C5	-5.77	1.35	1.39
20	2	15	U	C2-N3	-5.74	1.33	1.37
4	Q	84	VAL	CB-CG1	-5.73	1.40	1.52
20	2	99	A	N7-C5	-5.64	1.35	1.39
20	2	853	C	N3-C4	-5.63	1.30	1.33
20	2	825	A	N7-C5	-5.62	1.35	1.39
20	2	493	A	C6-N1	-5.61	1.31	1.35
20	2	46	A	N7-C5	-5.59	1.35	1.39
20	2	92	A	N7-C5	-5.53	1.35	1.39
20	2	659	G	C8-N7	-5.50	1.27	1.30
20	2	974	C	N3-C4	-5.49	1.30	1.33
20	2	522	A	N9-C4	-5.49	1.34	1.37
20	2	1259	A	N9-C4	5.48	1.41	1.37
20	2	676	C	N3-C4	-5.47	1.30	1.33
20	2	999	G	N7-C5	-5.45	1.35	1.39
20	2	501	C	C4-C5	-5.42	1.38	1.43
20	2	1145	A	N7-C5	-5.40	1.36	1.39
20	2	640	A	N9-C8	-5.40	1.33	1.37
20	2	1864	U	C2-N3	-5.40	1.33	1.37
20	2	453	C	N3-C4	-5.38	1.30	1.33
20	2	1354	G	C5-C4	-5.38	1.34	1.38
20	2	1032	C	N3-C4	-5.37	1.30	1.33
20	2	19	A	C5-C4	-5.35	1.35	1.38
20	2	659	G	C6-N1	-5.34	1.35	1.39
20	2	639	C	C4-C5	-5.32	1.38	1.43
12	m	134	VAL	C-N	-5.29	1.21	1.34
20	2	416	U	C2-N3	-5.28	1.34	1.37
20	2	493	A	N3-C4	-5.27	1.31	1.34
20	2	88	G	C5-C4	-5.22	1.34	1.38
20	2	661	U	C2-N3	-5.22	1.34	1.37
20	2	662	G	C8-N7	-5.21	1.27	1.30
20	2	1199	A	N7-C5	-5.19	1.36	1.39
20	2	1140	G	C6-N1	-5.18	1.35	1.39
20	2	682	U	C2-N3	-5.17	1.34	1.37
20	2	862	A	N7-C5	-5.15	1.36	1.39
20	2	619	A	N9-C4	-5.14	1.34	1.37
20	2	1150	A	N7-C5	-5.14	1.36	1.39
15	f	72	CYS	CB-SG	-5.13	1.73	1.81
20	2	1843	G	C5-C4	-5.13	1.34	1.38

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
20	2	668	A	C5-C4	-5.12	1.35	1.38
20	2	1857	G	C5-C4	-5.11	1.34	1.38
20	2	415	A	N9-C4	-5.07	1.34	1.37
20	2	1852	C	C4-C5	-5.07	1.38	1.43
20	2	431	G	C6-N1	-5.05	1.36	1.39
20	2	431	G	C5-C4	-5.05	1.34	1.38
20	2	658	U	C2-N3	-5.05	1.34	1.37
20	2	574	A	N9-C4	-5.04	1.34	1.37
20	2	1357	A	C8-N7	-5.03	1.28	1.31
20	2	1195	A	C5-C4	-5.03	1.35	1.38
20	2	1165	G	N7-C5	-5.02	1.36	1.39
20	2	863	U	N3-C4	-5.01	1.33	1.38

All (510) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	501	C	N1-C2-O2	15.01	127.91	118.90
20	2	422	U	N3-C2-O2	-14.66	111.94	122.20
20	2	501	C	C2-N1-C1'	13.96	134.16	118.80
20	2	119	U	N3-C2-O2	-13.69	112.62	122.20
20	2	293	C	N1-C2-O2	13.10	126.76	118.90
20	2	501	C	N3-C2-O2	-12.75	112.97	121.90
20	2	1453	C	N1-C2-O2	12.71	126.53	118.90
20	2	1864	U	N3-C2-O2	-12.41	113.51	122.20
20	2	887	U	C2-N1-C1'	12.33	132.49	117.70
20	2	1773	C	N1-C2-O2	12.04	126.12	118.90
20	2	887	U	N1-C2-O2	11.74	131.02	122.80
20	2	974	C	N3-C2-O2	-11.73	113.69	121.90
20	2	293	C	C2-N1-C1'	11.62	131.58	118.80
20	2	863	U	N3-C2-O2	-11.35	114.26	122.20
20	2	427	U	N3-C2-O2	-10.88	114.59	122.20
20	2	1139	C	N3-C2-O2	-10.85	114.31	121.90
20	2	1773	C	C2-N1-C1'	10.85	130.73	118.80
20	2	1218	C	N1-C2-O2	10.72	125.33	118.90
20	2	853	C	C6-N1-C2	-10.60	116.06	120.30
20	2	823	U	N3-C2-O2	-10.47	114.87	122.20
20	2	887	U	N3-C2-O2	-10.43	114.90	122.20
20	2	293	C	N3-C2-O2	-10.30	114.69	121.90
20	2	853	C	C2-N1-C1'	10.28	130.11	118.80
20	2	814	U	N3-C2-O2	-10.20	115.06	122.20
20	2	1016	U	N3-C2-O2	-10.18	115.08	122.20
20	2	974	C	C6-N1-C2	-10.12	116.25	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	218	U	N3-C2-O2	-10.02	115.19	122.20
20	2	853	C	N3-C2-O2	-9.99	114.91	121.90
20	2	1215	C	C6-N1-C2	-9.98	116.31	120.30
20	2	501	C	C6-N1-C1'	-9.96	108.85	120.80
20	2	1266	C	N1-C2-O2	9.93	124.86	118.90
20	2	953	C	N3-C2-O2	-9.91	114.96	121.90
20	2	1453	C	C2-N1-C1'	9.79	129.57	118.80
20	2	953	C	C6-N1-C2	-9.55	116.48	120.30
20	2	421	G	N7-C8-N9	9.54	117.87	113.10
20	2	119	U	N1-C2-O2	9.49	129.44	122.80
20	2	1453	C	N3-C2-O2	-9.43	115.30	121.90
20	2	1618	C	N1-C2-O2	9.37	124.52	118.90
20	2	1618	C	C2-N1-C1'	9.34	129.08	118.80
20	2	421	G	C5-N7-C8	-9.33	99.64	104.30
20	2	1055	A	O4'-C1'-N9	9.31	115.65	108.20
20	2	371	A	O5'-P-OP2	-9.12	97.50	105.70
20	2	1513	C	C2-N1-C1'	9.10	128.81	118.80
20	2	421	G	C8-N9-C4	-8.93	102.83	106.40
20	2	1773	C	N3-C2-O2	-8.93	115.65	121.90
20	2	974	C	C2-N1-C1'	8.92	128.62	118.80
20	2	218	U	N1-C2-O2	8.90	129.03	122.80
20	2	1272	C	N1-C2-O2	8.85	124.21	118.90
20	2	1821	U	N3-C2-O2	-8.76	116.07	122.20
20	2	799	U	N3-C2-O2	-8.75	116.08	122.20
20	2	1864	U	N1-C2-O2	8.75	128.93	122.80
20	2	422	U	N1-C2-O2	8.72	128.91	122.80
20	2	723	C	N1-C2-O2	8.72	124.13	118.90
20	2	851	C	C6-N1-C2	-8.70	116.82	120.30
20	2	493	A	C5-N7-C8	-8.69	99.55	103.90
20	2	1262	C	C6-N1-C2	-8.69	116.82	120.30
20	2	862	A	C5-N7-C8	-8.69	99.56	103.90
20	2	1139	C	N1-C2-O2	8.69	124.11	118.90
20	2	1073	U	N3-C2-O2	-8.66	116.14	122.20
20	2	49	C	N1-C2-O2	8.62	124.08	118.90
20	2	1821	U	N1-C2-O2	8.62	128.83	122.80
20	2	974	C	N1-C2-O2	8.61	124.07	118.90
20	2	862	A	N7-C8-N9	8.60	118.10	113.80
20	2	618	C	O5'-P-OP1	-8.59	97.97	105.70
20	2	851	C	C2-N1-C1'	8.59	128.24	118.80
20	2	1259	A	C2-N3-C4	8.46	114.83	110.60
20	2	1513	C	N1-C2-O2	8.43	123.95	118.90
20	2	630	U	C2-N1-C1'	8.41	127.80	117.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	851	C	N3-C2-O2	-8.41	116.01	121.90
20	2	1821	U	C2-N1-C1'	8.39	127.76	117.70
20	2	293	C	C6-N1-C1'	-8.37	110.75	120.80
20	2	1323	U	C5-C6-N1	8.36	126.88	122.70
20	2	887	U	C6-N1-C1'	-8.36	109.50	121.20
20	2	220	U	C2-N1-C1'	8.33	127.69	117.70
20	2	501	C	C6-N1-C2	-8.29	116.99	120.30
20	2	1062	A	O4'-C1'-N9	8.26	114.81	108.20
20	2	814	U	C2-N1-C1'	8.26	127.61	117.70
20	2	1266	C	N3-C2-O2	-8.20	116.16	121.90
20	2	814	U	N1-C2-O2	8.18	128.53	122.80
20	2	973	C	N1-C2-O2	8.17	123.80	118.90
20	2	1073	U	C2-N1-C1'	8.15	127.49	117.70
20	2	119	U	C2-N1-C1'	8.12	127.44	117.70
2	p	62	LEU	CA-CB-CG	8.11	133.94	115.30
20	2	632	C	C2-N1-C1'	8.10	127.70	118.80
20	2	953	C	C2-N1-C1'	8.07	127.68	118.80
20	2	220	U	N3-C2-O2	-8.07	116.55	122.20
20	2	851	C	N1-C2-O2	8.05	123.73	118.90
20	2	1016	U	N1-C2-O2	8.05	128.43	122.80
20	2	1139	C	C2-N1-C1'	8.03	127.64	118.80
20	2	422	U	C2-N1-C1'	8.03	127.33	117.70
20	2	823	U	N1-C2-O2	8.03	128.42	122.80
20	2	1471	C	N1-C2-O2	8.02	123.71	118.90
20	2	1119	A	O4'-C1'-N9	8.01	114.61	108.20
20	2	1520	G	C4-N9-C1'	7.95	136.83	126.50
20	2	148	U	C2-N1-C1'	7.92	127.20	117.70
20	2	1453	C	C6-N1-C2	-7.92	117.13	120.30
20	2	1315	U	N3-C2-O2	-7.89	116.67	122.20
20	2	421	G	C4-C5-N7	7.86	113.94	110.80
20	2	409	C	C6-N1-C2	-7.82	117.17	120.30
20	2	1218	C	N3-C2-O2	-7.79	116.45	121.90
20	2	1272	C	C2-N1-C1'	7.78	127.36	118.80
20	2	1864	U	C2-N1-C1'	7.76	127.01	117.70
20	2	1022	U	C2-N1-C1'	7.75	127.00	117.70
20	2	1073	U	N1-C2-O2	7.74	128.22	122.80
20	2	1618	C	N3-C2-O2	-7.73	116.49	121.90
20	2	1485	U	N3-C2-O2	-7.73	116.79	122.20
20	2	862	A	O4'-C1'-N9	7.71	114.37	108.20
20	2	148	U	N3-C2-O2	-7.70	116.81	122.20
20	2	344	U	O4'-C1'-N1	7.66	114.33	108.20
20	2	493	A	N7-C8-N9	7.64	117.62	113.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	1520	G	N3-C4-C5	-7.63	124.78	128.60
20	2	863	U	C2-N1-C1'	7.62	126.84	117.70
20	2	1266	C	C2-N1-C1'	7.59	127.15	118.80
20	2	1315	U	N1-C2-O2	7.57	128.10	122.80
20	2	799	U	N1-C2-O2	7.57	128.09	122.80
20	2	1773	C	C6-N1-C1'	-7.52	111.77	120.80
20	2	1775	U	C2-N1-C1'	7.49	126.69	117.70
20	2	632	C	C6-N1-C2	-7.48	117.31	120.30
20	2	977	C	C2-N1-C1'	7.48	127.02	118.80
20	2	1118	C	N1-C2-O2	7.46	123.38	118.90
20	2	799	U	C2-N1-C1'	7.46	126.65	117.70
20	2	1215	C	C5-C6-N1	7.45	124.72	121.00
20	2	1139	C	C6-N1-C2	-7.44	117.32	120.30
20	2	1520	G	N3-C4-N9	7.41	130.45	126.00
20	2	639	C	C5-C6-N1	7.41	124.70	121.00
20	2	1502	C	N1-C2-O2	7.39	123.34	118.90
20	2	218	U	C2-N1-C1'	7.38	126.56	117.70
20	2	953	C	N1-C2-O2	7.35	123.31	118.90
20	2	1681	U	C2-N1-C1'	7.33	126.50	117.70
20	2	685	A	C5-N7-C8	-7.31	100.25	103.90
20	2	30	C	C6-N1-C2	-7.29	117.38	120.30
20	2	630	U	N1-C2-O2	7.28	127.89	122.80
20	2	1215	C	N1-C2-O2	7.25	123.25	118.90
20	2	574	A	O4'-C1'-N9	7.24	114.00	108.20
20	2	1303	C	N1-C2-O2	7.24	123.24	118.90
20	2	632	C	C5-C6-N1	7.20	124.60	121.00
20	2	1149	A	N1-C6-N6	-7.19	114.29	118.60
20	2	1266	C	C6-N1-C2	-7.19	117.42	120.30
20	2	723	C	N3-C2-O2	-7.18	116.87	121.90
20	2	1485	U	N1-C2-O2	7.16	127.81	122.80
20	2	853	C	N1-C2-O2	7.14	123.19	118.90
20	2	1453	C	C2-N3-C4	7.14	123.47	119.90
20	2	1811	C	N1-C2-O2	7.14	123.18	118.90
20	2	1773	C	C6-N1-C2	-7.13	117.45	120.30
20	2	427	U	N1-C2-O2	7.12	127.79	122.80
20	2	409	C	C5-C6-N1	7.12	124.56	121.00
20	2	1773	C	C5-C6-N1	7.09	124.55	121.00
20	2	422	U	N1-C2-N3	7.09	119.15	114.90
20	2	1852	C	C6-N1-C2	-7.08	117.47	120.30
20	2	220	U	N1-C2-O2	7.08	127.75	122.80
20	2	1784	G	N3-C4-N9	7.05	130.23	126.00
20	2	1842	C	C6-N1-C2	-7.05	117.48	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	1389	C	N3-C2-O2	-7.04	116.97	121.90
20	2	931	C	C6-N1-C2	-7.02	117.49	120.30
20	2	309	G	O4'-C1'-N9	7.01	113.81	108.20
20	2	1048	G	O5'-P-OP1	-7.01	99.39	105.70
20	2	1271	C	N1-C2-O2	6.99	123.10	118.90
20	2	49	C	N3-C2-O2	-6.98	117.01	121.90
20	2	1410	C	N1-C2-O2	6.97	123.08	118.90
20	2	1022	U	N1-C2-O2	6.97	127.68	122.80
42	H	231	LEU	CA-CB-CG	6.94	131.27	115.30
20	2	1062	A	C5-N7-C8	-6.94	100.43	103.90
20	2	4	C	C6-N1-C2	-6.94	117.53	120.30
20	2	1336	C	C6-N1-C2	-6.94	117.53	120.30
20	2	1775	U	N3-C2-O2	-6.94	117.34	122.20
20	2	1389	C	N1-C2-O2	6.93	123.06	118.90
20	2	14	C	N1-C2-O2	6.92	123.05	118.90
20	2	450	C	O5'-P-OP1	-6.92	99.47	105.70
20	2	494	C	N1-C2-O2	6.92	123.05	118.90
20	2	37	C	C6-N1-C2	-6.91	117.54	120.30
20	2	1081	U	N3-C2-O2	-6.89	117.38	122.20
20	2	1513	C	C6-N1-C2	-6.89	117.54	120.30
20	2	14	C	N3-C2-O2	-6.89	117.08	121.90
20	2	973	C	C2-N1-C1'	6.84	126.33	118.80
20	2	1453	C	C5-C6-N1	6.84	124.42	121.00
20	2	1022	U	N3-C2-O2	-6.83	117.42	122.20
20	2	18	C	C6-N1-C2	-6.82	117.57	120.30
20	2	1017	U	N3-C2-O2	-6.82	117.43	122.20
20	2	1162	C	C6-N1-C2	-6.81	117.58	120.30
20	2	1262	C	C2-N1-C1'	6.81	126.29	118.80
20	2	1261	C	N1-C2-O2	6.80	122.98	118.90
20	2	1592	C	N1-C2-O2	6.79	122.97	118.90
20	2	973	C	N3-C2-O2	-6.77	117.16	121.90
20	2	723	C	C2-N1-C1'	6.75	126.22	118.80
20	2	1123	C	N1-C2-O2	6.74	122.95	118.90
20	2	493	A	O4'-C1'-N9	6.73	113.58	108.20
20	2	977	C	N3-C2-O2	-6.73	117.19	121.90
20	2	1323	U	C6-N1-C2	-6.71	116.97	121.00
20	2	1485	U	C2-N1-C1'	6.71	125.75	117.70
20	2	574	A	C5-N7-C8	-6.70	100.55	103.90
20	2	1696	C	C6-N1-C2	-6.70	117.62	120.30
20	2	1149	A	C2-N3-C4	6.70	113.95	110.60
20	2	659	G	C4-N9-C1'	6.66	135.16	126.50
39	C	835	LEU	CA-CB-CG	6.65	130.59	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	1272	C	N3-C2-O2	-6.64	117.25	121.90
20	2	723	C	C6-N1-C2	-6.63	117.65	120.30
20	2	1513	C	C5-C6-N1	6.62	124.31	121.00
20	2	862	A	C8-N9-C4	-6.62	103.15	105.80
20	2	1013	U	N3-C2-O2	-6.61	117.58	122.20
20	2	685	A	O4'-C1'-N9	6.60	113.48	108.20
20	2	1118	C	N3-C2-O2	-6.60	117.28	121.90
20	2	293	C	C6-N1-C2	-6.60	117.66	120.30
20	2	931	C	C5-C6-N1	6.57	124.29	121.00
20	2	1311	C	N1-C2-O2	6.57	122.84	118.90
20	2	1513	C	N3-C2-O2	-6.57	117.30	121.90
20	2	973	C	C6-N1-C2	-6.56	117.67	120.30
20	2	1520	G	C8-N9-C1'	-6.56	118.47	127.00
20	2	823	U	C2-N1-C1'	6.56	125.57	117.70
20	2	977	C	N1-C2-O2	6.55	122.83	118.90
20	2	639	C	C6-N1-C2	-6.52	117.69	120.30
29	x	110	LEU	CA-CB-CG	6.52	130.30	115.30
20	2	1292	C	C6-N1-C2	-6.51	117.70	120.30
20	2	427	U	C2-N1-C1'	6.50	125.50	117.70
20	2	1536	G	N9-C4-C5	6.50	108.00	105.40
20	2	1017	U	N1-C2-O2	6.49	127.34	122.80
20	2	1103	C	C6-N1-C2	-6.49	117.71	120.30
20	2	1062	A	C4-C5-N7	6.48	113.94	110.70
20	2	663	C	C6-N1-C2	-6.46	117.72	120.30
20	2	685	A	N7-C8-N9	6.45	117.03	113.80
20	2	1062	A	C6-C5-N7	-6.45	127.78	132.30
20	2	1618	C	C6-N1-C1'	-6.42	113.09	120.80
20	2	630	U	N3-C2-O2	-6.42	117.71	122.20
38	A	310	LEU	CA-CB-CG	6.42	130.05	115.30
20	2	887	U	C5-C6-N1	6.41	125.91	122.70
28	k	16	LEU	CA-CB-CG	6.40	130.03	115.30
20	2	148	U	N1-C2-O2	6.40	127.28	122.80
20	2	1016	U	C2-N1-C1'	6.40	125.38	117.70
20	2	862	A	C4-C5-N7	6.40	113.90	110.70
20	2	917	U	C5-C6-N1	6.40	125.90	122.70
20	2	37	C	N3-C2-O2	-6.38	117.43	121.90
20	2	1474	A	P-O3'-C3'	6.38	127.35	119.70
20	2	1498	A	C8-N9-C4	-6.38	103.25	105.80
20	2	481	C	C6-N1-C2	-6.37	117.75	120.30
20	2	1123	C	N3-C2-O2	-6.37	117.44	121.90
20	2	1215	C	N3-C2-O2	-6.37	117.44	121.90
20	2	930	C	N1-C2-O2	6.36	122.72	118.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	939	U	N1-C2-O2	6.36	127.25	122.80
20	2	579	C	N3-C2-O2	-6.35	117.45	121.90
20	2	1062	A	N7-C8-N9	6.33	116.97	113.80
20	2	1267	C	N1-C2-O2	6.32	122.69	118.90
20	2	1557	C	N1-C2-O2	6.32	122.69	118.90
20	2	1309	C	N3-C2-O2	-6.31	117.48	121.90
35	V	87	LEU	CA-CB-CG	6.30	129.79	115.30
20	2	1319	U	C5-C4-O4	-6.30	122.12	125.90
20	2	1685	U	N3-C2-O2	-6.30	117.79	122.20
20	2	1841	C	C6-N1-C2	-6.28	117.79	120.30
20	2	917	U	C2-N1-C1'	6.28	125.23	117.70
20	2	422	U	C5-C4-O4	6.28	129.66	125.90
20	2	567	C	N1-C2-O2	6.26	122.66	118.90
20	2	1453	C	C6-N1-C1'	-6.25	113.30	120.80
20	2	930	C	N3-C2-O2	-6.24	117.53	121.90
20	2	1163	C	C6-N1-C2	-6.23	117.81	120.30
20	2	579	C	N1-C2-O2	6.21	122.63	118.90
20	2	863	U	N1-C2-O2	6.21	127.15	122.80
20	2	1262	C	N1-C2-O2	6.21	122.62	118.90
45	M	219	LEU	CA-CB-CG	6.18	129.52	115.30
20	2	1471	C	C2-N1-C1'	6.18	125.60	118.80
20	2	1618	C	C6-N1-C2	-6.18	117.83	120.30
20	2	493	A	C4-C5-N7	6.17	113.78	110.70
20	2	973	C	C5-C6-N1	6.16	124.08	121.00
20	2	1775	U	N1-C2-O2	6.16	127.11	122.80
20	2	178	C	N3-C2-O2	-6.16	117.59	121.90
20	2	863	U	N1-C2-N3	6.16	118.59	114.90
20	2	1262	C	N3-C2-O2	-6.16	117.59	121.90
20	2	1852	C	C2-N1-C1'	6.15	125.57	118.80
20	2	883	U	N1-C2-O2	6.14	127.10	122.80
20	2	1841	C	N3-C2-O2	-6.14	117.60	121.90
20	2	570	C	N3-C2-O2	-6.14	117.60	121.90
20	2	1865	C	C6-N1-C2	-6.11	117.86	120.30
20	2	685	A	C4-C5-N7	6.11	113.75	110.70
20	2	1513	C	C6-N1-C1'	-6.09	113.49	120.80
20	2	570	C	N1-C2-O2	6.09	122.55	118.90
20	2	1784	G	C4-N9-C1'	6.08	134.41	126.50
20	2	1045	U	N3-C2-O2	-6.08	117.94	122.20
20	2	1319	U	C2-N1-C1'	6.08	124.99	117.70
20	2	18	C	C5-C6-N1	6.07	124.04	121.00
20	2	792	C	N1-C2-O2	6.07	122.54	118.90
20	2	1557	C	N3-C2-O2	-6.07	117.65	121.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	178	C	N1-C2-O2	6.07	122.54	118.90
45	M	266	LEU	CA-CB-CG	6.06	129.24	115.30
20	2	1865	C	N3-C2-O2	-6.06	117.66	121.90
20	2	1644	C	C6-N1-C2	-6.06	117.88	120.30
20	2	203	G	C8-N9-C4	-6.05	103.98	106.40
20	2	1062	A	C4-N9-C1'	6.05	137.19	126.30
20	2	1315	U	C2-N1-C1'	6.04	124.95	117.70
20	2	1123	C	C6-N1-C2	-6.04	117.89	120.30
20	2	1234	C	N1-C2-O2	6.04	122.52	118.90
20	2	638	C	O4'-C1'-N1	6.04	113.03	108.20
20	2	222	U	N1-C2-O2	6.03	127.02	122.80
20	2	1309	C	N1-C2-O2	6.02	122.51	118.90
20	2	1215	C	C2-N1-C1'	6.01	125.42	118.80
20	2	1742	C	N1-C2-O2	6.01	122.51	118.90
20	2	939	U	N3-C2-O2	-6.01	118.00	122.20
20	2	1696	C	C2-N1-C1'	6.00	125.41	118.80
20	2	210	U	N1-C2-O2	6.00	127.00	122.80
20	2	1852	C	N1-C2-O2	6.00	122.50	118.90
20	2	402	C	C5-C6-N1	6.00	124.00	121.00
20	2	472	C	C6-N1-C2	-5.99	117.90	120.30
20	2	148	U	C6-N1-C1'	-5.99	112.82	121.20
20	2	54	A	N1-C2-N3	-5.98	126.31	129.30
20	2	1343	U	N3-C2-O2	-5.97	118.02	122.20
20	2	1821	U	C6-N1-C1'	-5.97	112.84	121.20
20	2	630	U	C6-N1-C1'	-5.97	112.85	121.20
20	2	1557	C	C2-N1-C1'	5.96	125.36	118.80
20	2	640	A	N7-C8-N9	5.94	116.77	113.80
20	2	222	U	N3-C2-O2	-5.94	118.04	122.20
20	2	1471	C	N3-C2-O2	-5.92	117.76	121.90
20	2	1492	U	N3-C2-O2	-5.89	118.08	122.20
20	2	1784	G	C8-N9-C1'	-5.89	119.34	127.00
20	2	576	A	C5-N7-C8	-5.88	100.96	103.90
20	2	1821	U	O4'-C1'-N1	5.87	112.89	108.20
20	2	1073	U	C6-N1-C1'	-5.86	112.99	121.20
20	2	952	G	O4'-C1'-N9	5.85	112.88	108.20
20	2	1710	C	N1-C2-O2	5.85	122.41	118.90
20	2	1261	C	N3-C2-O2	-5.84	117.81	121.90
20	2	34	U	N3-C2-O2	-5.83	118.12	122.20
20	2	493	A	C2-N3-C4	-5.82	107.69	110.60
20	2	853	C	C6-N1-C1'	-5.82	113.82	120.80
20	2	1303	C	C2-N1-C1'	5.80	125.18	118.80
20	2	1852	C	C5-C6-N1	5.80	123.90	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	659	G	C8-N9-C1'	-5.78	119.48	127.00
20	2	1303	C	C5-C6-N1	5.77	123.89	121.00
20	2	20	G	N1-C6-O6	-5.77	116.44	119.90
20	2	663	C	C5-C6-N1	5.76	123.88	121.00
20	2	1444	U	N1-C2-O2	5.76	126.83	122.80
20	2	984	C	C6-N1-C2	-5.76	118.00	120.30
20	2	1259	A	N3-C4-C5	-5.76	122.77	126.80
20	2	637	U	N3-C2-O2	-5.73	118.19	122.20
20	2	883	U	N3-C2-O2	-5.73	118.19	122.20
20	2	475	C	C6-N1-C2	-5.72	118.01	120.30
20	2	1511	U	C2-N1-C1'	5.72	124.56	117.70
20	2	1649	U	N1-C2-O2	5.71	126.80	122.80
20	2	1684	C	C6-N1-C2	-5.71	118.01	120.30
20	2	474	G	C4-N9-C1'	5.71	133.92	126.50
20	2	1492	U	N1-C2-O2	5.71	126.80	122.80
20	2	162	C	C6-N1-C2	-5.71	118.02	120.30
20	2	493	A	C8-N9-C4	-5.71	103.52	105.80
20	2	508	A	N1-C6-N6	-5.70	115.18	118.60
20	2	1502	C	N3-C2-O2	-5.70	117.91	121.90
20	2	570	C	C6-N1-C2	-5.69	118.02	120.30
20	2	1696	C	C5-C6-N1	5.68	123.84	121.00
20	2	1311	C	N3-C2-O2	-5.68	117.92	121.90
20	2	1272	C	C6-N1-C2	-5.66	118.04	120.30
20	2	5	U	N3-C2-O2	-5.65	118.24	122.20
20	2	803	C	N3-C2-O2	-5.64	117.95	121.90
20	2	1343	U	C2-N1-C1'	5.64	124.47	117.70
20	2	1518	C	C6-N1-C2	-5.64	118.05	120.30
39	C	425	LEU	CA-CB-CG	5.61	128.21	115.30
20	2	168	C	N1-C2-O2	5.61	122.26	118.90
20	2	1683	C	C5-C6-N1	5.60	123.80	121.00
20	2	220	U	C6-N1-C1'	-5.59	113.37	121.20
20	2	315	C	N1-C2-O2	5.58	122.25	118.90
20	2	574	A	N7-C8-N9	5.57	116.59	113.80
20	2	1511	U	N3-C2-O2	-5.57	118.30	122.20
20	2	1591	C	N1-C2-O2	5.57	122.24	118.90
20	2	75	G	C4-N9-C1'	5.56	133.73	126.50
20	2	14	C	C6-N1-C2	-5.55	118.08	120.30
20	2	193	C	C2-N1-C1'	5.54	124.90	118.80
20	2	293	C	C5-C6-N1	5.54	123.77	121.00
20	2	494	C	N3-C2-O2	-5.54	118.02	121.90
20	2	801	U	N3-C2-O2	-5.54	118.32	122.20
20	2	884	C	C6-N1-C2	-5.54	118.09	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	1410	C	N3-C2-O2	-5.52	118.03	121.90
20	2	422	U	C6-N1-C2	-5.51	117.69	121.00
20	2	856	C	N1-C2-O2	5.51	122.21	118.90
20	2	1267	C	N3-C2-O2	-5.50	118.05	121.90
35	V	65	PHE	CB-CG-CD1	5.50	124.65	120.80
20	2	1262	C	C5-C6-N1	5.50	123.75	121.00
20	2	423	U	N3-C2-O2	-5.49	118.35	122.20
20	2	1271	C	N3-C2-O2	-5.49	118.06	121.90
20	2	399	C	OP2-P-O3'	5.48	117.27	105.20
20	2	1502	C	C6-N1-C2	-5.47	118.11	120.30
20	2	17	C	O5'-P-OP2	-5.47	100.78	105.70
20	2	1681	U	N1-C2-O2	5.47	126.63	122.80
20	2	119	U	C6-N1-C2	-5.47	117.72	121.00
20	2	37	C	N1-C2-O2	5.47	122.18	118.90
20	2	1317	C	C6-N1-C2	-5.47	118.11	120.30
20	2	1681	U	C6-N1-C1'	-5.47	113.55	121.20
20	2	550	C	P-O3'-C3'	5.46	126.26	119.70
20	2	568	C	N1-C2-O2	5.46	122.18	118.90
20	2	822	U	C2-N1-C1'	5.46	124.26	117.70
20	2	977	C	C6-N1-C1'	-5.46	114.24	120.80
20	2	14	C	C2-N1-C1'	5.45	124.80	118.80
20	2	479	C	N3-C2-O2	-5.45	118.08	121.90
20	2	543	C	N1-C2-O2	5.45	122.17	118.90
20	2	1811	C	N3-C2-O2	-5.44	118.09	121.90
20	2	1683	C	N1-C2-O2	5.44	122.16	118.90
20	2	1536	G	C8-N9-C4	-5.44	104.22	106.40
20	2	1491	G	C8-N9-C4	-5.43	104.23	106.40
20	2	49	C	C2-N1-C1'	5.42	124.76	118.80
20	2	151	C	C6-N1-C2	-5.42	118.13	120.30
20	2	210	U	N3-C2-O2	-5.42	118.41	122.20
20	2	1807	C	P-O3'-C3'	5.42	126.20	119.70
20	2	1683	C	C6-N1-C2	-5.42	118.13	120.30
42	H	233	LEU	CA-CB-CG	5.42	127.76	115.30
20	2	660	C	C6-N1-C2	-5.41	118.14	120.30
20	2	218	U	C6-N1-C2	-5.40	117.76	121.00
20	2	806	U	C5-C6-N1	5.40	125.40	122.70
20	2	415	A	N1-C2-N3	-5.40	126.60	129.30
20	2	421	G	O4'-C1'-N9	5.40	112.52	108.20
20	2	34	U	N1-C2-O2	5.40	126.58	122.80
20	2	695	C	N1-C2-O2	5.39	122.13	118.90
20	2	1259	A	C4-N9-C1'	5.38	135.99	126.30
20	2	917	U	N1-C2-O2	5.37	126.56	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	48	C	C6-N1-C2	-5.37	118.15	120.30
39	C	324	ILE	CG1-CB-CG2	-5.37	99.58	111.40
20	2	639	C	C2-N1-C1'	5.37	124.71	118.80
20	2	851	C	C5-C6-N1	5.37	123.69	121.00
20	2	1272	C	C6-N1-C1'	-5.37	114.36	120.80
20	2	853	C	O4'-C1'-N1	5.36	112.49	108.20
20	2	1081	U	N1-C2-O2	5.36	126.55	122.80
20	2	1811	C	C2-N1-C1'	5.35	124.69	118.80
20	2	193	C	N1-C2-O2	5.34	122.10	118.90
20	2	1062	A	C8-N9-C1'	-5.34	118.09	127.70
20	2	168	C	N3-C2-O2	-5.34	118.16	121.90
24	e	112	LEU	CA-CB-CG	5.33	127.56	115.30
20	2	210	U	C2-N1-C1'	5.33	124.09	117.70
20	2	563	G	O4'-C1'-N9	5.33	112.46	108.20
20	2	574	A	C4-C5-N7	5.32	113.36	110.70
33	1	6	LEU	CA-CB-CG	5.32	127.52	115.30
20	2	1149	A	N1-C2-N3	-5.31	126.64	129.30
20	2	422	U	N3-C4-O4	-5.31	115.68	119.40
20	2	75	G	N3-C4-N9	5.31	129.18	126.00
20	2	387	C	C6-N1-C2	-5.31	118.18	120.30
20	2	1557	C	C6-N1-C2	-5.31	118.18	120.30
20	2	1864	U	C6-N1-C1'	-5.30	113.77	121.20
20	2	856	C	N3-C2-O2	-5.30	118.19	121.90
20	2	119	U	C5-C4-O4	5.29	129.08	125.90
20	2	1359	U	N3-C2-O2	-5.29	118.50	122.20
20	2	1592	C	N3-C2-O2	-5.28	118.20	121.90
20	2	1865	C	C4-C5-C6	5.28	120.04	117.40
20	2	21	U	N3-C2-O2	-5.28	118.50	122.20
20	2	1399	C	C6-N1-C2	-5.27	118.19	120.30
20	2	1337	C	N1-C2-O2	5.27	122.06	118.90
20	2	1691	U	N3-C2-O2	-5.27	118.51	122.20
20	2	1526	G	N3-C4-N9	5.26	129.16	126.00
20	2	1604	G	N3-C4-N9	5.26	129.16	126.00
20	2	75	G	N3-C4-C5	-5.26	125.97	128.60
20	2	1249	C	O4'-C1'-N1	5.25	112.40	108.20
20	2	1597	C	C6-N1-C2	-5.25	118.20	120.30
20	2	100	U	N3-C2-O2	-5.23	118.54	122.20
20	2	792	C	N3-C2-O2	-5.23	118.24	121.90
20	2	1635	C	C6-N1-C2	-5.23	118.21	120.30
20	2	35	C	C6-N1-C2	-5.22	118.21	120.30
20	2	676	C	N3-C2-O2	-5.22	118.24	121.90
20	2	474	G	C8-N9-C1'	-5.22	120.21	127.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	144	U	N3-C2-O2	-5.22	118.55	122.20
20	2	723	C	C5-C6-N1	5.22	123.61	121.00
20	2	1444	U	C2-N1-C1'	5.22	123.96	117.70
20	2	695	C	N3-C2-O2	-5.22	118.25	121.90
20	2	1094	C	C6-N1-C2	-5.21	118.22	120.30
20	2	1841	C	N1-C2-O2	5.21	122.02	118.90
20	2	851	C	O4'-C1'-N1	5.20	112.36	108.20
20	2	1309	C	C6-N1-C2	-5.20	118.22	120.30
4	Q	60	ASP	CB-CG-OD1	5.19	122.97	118.30
20	2	806	U	N1-C2-O2	5.19	126.44	122.80
20	2	1060	A	P-O3'-C3'	5.19	125.93	119.70
20	2	438	G	N3-C4-N9	5.18	129.11	126.00
20	2	803	C	N1-C2-O2	5.18	122.01	118.90
20	2	1319	U	C5-C6-N1	5.18	125.29	122.70
20	2	1139	C	C4-C5-C6	5.18	119.99	117.40
20	2	567	C	N3-C2-O2	-5.18	118.28	121.90
20	2	1547	C	N1-C2-O2	5.18	122.01	118.90
20	2	1218	C	C2-N1-C1'	5.18	124.49	118.80
20	2	1703	C	C6-N1-C2	-5.18	118.23	120.30
20	2	824	C	N3-C2-O2	-5.17	118.28	121.90
20	2	352	U	N1-C2-O2	5.17	126.42	122.80
20	2	1230	C	C5-C6-N1	5.17	123.59	121.00
20	2	106	C	C6-N1-C2	-5.16	118.24	120.30
20	2	179	C	N1-C2-O2	5.16	121.99	118.90
20	2	1389	C	C2-N1-C1'	5.15	124.47	118.80
20	2	1219	C	N1-C2-O2	5.15	121.99	118.90
20	2	1128	C	C6-N1-C2	-5.15	118.24	120.30
20	2	520	A	N1-C2-N3	-5.13	126.73	129.30
20	2	903	A	N9-C4-C5	-5.13	103.75	105.80
20	2	162	C	C5-C6-N1	5.12	123.56	121.00
20	2	708	C	C5-C6-N1	5.12	123.56	121.00
38	A	511	LEU	CA-CB-CG	5.12	127.07	115.30
20	2	1316	C	C6-N1-C2	-5.11	118.26	120.30
20	2	1681	U	N3-C2-O2	-5.10	118.63	122.20
20	2	1022	U	C6-N1-C1'	-5.10	114.06	121.20
20	2	387	C	C5-C6-N1	5.10	123.55	121.00
20	2	30	C	C5-C6-N1	5.10	123.55	121.00
20	2	1259	A	C8-N9-C4	-5.08	103.77	105.80
33	1	6	LEU	CB-CG-CD2	-5.08	102.36	111.00
20	2	1316	C	C5-C6-N1	5.08	123.54	121.00
20	2	21	U	N1-C2-O2	5.08	126.35	122.80
20	2	1750	C	C5-C6-N1	5.08	123.54	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
20	2	1128	C	N1-C2-O2	5.07	121.94	118.90
20	2	1502	C	C5-C6-N1	5.07	123.54	121.00
20	2	65	C	C6-N1-C2	-5.07	118.27	120.30
20	2	1595	U	N3-C2-O2	-5.07	118.65	122.20
20	2	1045	U	N1-C2-O2	5.07	126.34	122.80
20	2	119	U	N1-C2-N3	5.06	117.94	114.90
20	2	806	U	N3-C2-O2	-5.06	118.66	122.20
20	2	682	U	N3-C2-O2	-5.06	118.66	122.20
46	D	425	LEU	CA-CB-CG	5.06	126.93	115.30
20	2	1038	U	N3-C2-O2	-5.05	118.66	122.20
20	2	1865	C	C2-N1-C1'	5.05	124.36	118.80
20	2	1053	C	C6-N1-C2	-5.05	118.28	120.30
20	2	1311	C	C6-N1-C2	-5.04	118.28	120.30
20	2	1535	U	C2-N1-C1'	5.04	123.74	117.70
20	2	470	G	O4'-C1'-N9	5.03	112.22	108.20
20	2	576	A	N7-C8-N9	5.03	116.31	113.80
20	2	580	U	N3-C2-O2	-5.03	118.68	122.20
20	2	1618	C	C5-C6-N1	5.03	123.51	121.00
20	2	1784	G	C6-C5-N7	-5.02	127.39	130.40
20	2	1215	C	C2-N3-C4	5.02	122.41	119.90
20	2	632	C	C6-N1-C1'	-5.01	114.78	120.80
20	2	1278	A	N7-C8-N9	5.01	116.30	113.80

There are no chirality outliers.

All (8) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
44	L	432	HIS	Peptide
32	S	34	PHE	Peptide
32	S	35	MET	Peptide
32	S	46	VAL	Peptide
35	V	174	VAL	Peptide
1	a	73	ASP	Peptide
33	l	28	HIS	Peptide
8	s	134	VAL	Peptide

5.2 Too-close contacts [i](#)

Due to software issues we are unable to calculate clashes - this section is therefore empty.

5.3 Torsion angles

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	
1	a	214/295 (72%)	209 (98%)	5 (2%)	0	100	100
2	p	209/264 (79%)	196 (94%)	13 (6%)	0	100	100
3	d	214/293 (73%)	199 (93%)	15 (7%)	0	100	100
4	Q	99/115 (86%)	95 (96%)	4 (4%)	0	100	100
5	q	253/263 (96%)	241 (95%)	12 (5%)	0	100	100
6	W	22/25 (88%)	22 (100%)	0	0	100	100
7	r	220/249 (88%)	209 (95%)	11 (5%)	0	100	100
8	s	165/194 (85%)	160 (97%)	5 (3%)	0	100	100
9	t	195/208 (94%)	182 (93%)	13 (7%)	0	100	100
10	c	178/194 (92%)	172 (97%)	6 (3%)	0	100	100
11	n	131/158 (83%)	126 (96%)	5 (4%)	0	100	100
12	m	147/151 (97%)	147 (100%)	0	0	100	100
13	i	123/151 (82%)	114 (93%)	9 (7%)	0	100	100
14	y	80/83 (96%)	79 (99%)	1 (1%)	0	100	100
15	f	127/130 (98%)	124 (98%)	3 (2%)	0	100	100
16	j	137/143 (96%)	133 (97%)	4 (3%)	0	100	100
17	z	120/133 (90%)	115 (96%)	5 (4%)	0	100	100
18	R	80/84 (95%)	75 (94%)	5 (6%)	0	100	100
19	T	40/59 (68%)	39 (98%)	1 (2%)	0	100	100
21	w	124/135 (92%)	112 (90%)	12 (10%)	0	100	100
22	g	136/146 (93%)	125 (92%)	11 (8%)	0	100	100
23	b	222/243 (91%)	196 (88%)	26 (12%)	0	100	100
24	e	187/204 (92%)	167 (89%)	20 (11%)	0	100	100
25	u	93/165 (56%)	83 (89%)	10 (11%)	0	100	100
26	v	107/132 (81%)	97 (91%)	10 (9%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
27	o	117/145 (81%)	112 (96%)	5 (4%)	0	100	100
28	k	138/152 (91%)	126 (91%)	12 (9%)	0	100	100
29	x	139/145 (96%)	131 (94%)	8 (6%)	0	100	100
30	h	96/119 (81%)	87 (91%)	9 (9%)	0	100	100
31	P	68/125 (54%)	61 (90%)	7 (10%)	0	100	100
32	S	59/69 (86%)	51 (86%)	8 (14%)	0	100	100
33	l	52/56 (93%)	45 (86%)	7 (14%)	0	100	100
34	U	53/156 (34%)	51 (96%)	2 (4%)	0	100	100
35	V	290/317 (92%)	258 (89%)	31 (11%)	1 (0%)	41	76
36	I	301/325 (93%)	293 (97%)	8 (3%)	0	100	100
37	B	528/814 (65%)	491 (93%)	37 (7%)	0	100	100
38	A	588/703 (84%)	562 (96%)	26 (4%)	0	100	100
39	C	615/913 (67%)	575 (94%)	40 (6%)	0	100	100
40	E	406/445 (91%)	394 (97%)	12 (3%)	0	100	100
41	F	267/357 (75%)	244 (91%)	23 (9%)	0	100	100
42	H	289/352 (82%)	270 (93%)	19 (7%)	0	100	100
43	K	215/218 (99%)	202 (94%)	13 (6%)	0	100	100
44	L	370/564 (66%)	332 (90%)	38 (10%)	0	100	100
45	M	328/374 (88%)	314 (96%)	14 (4%)	0	100	100
46	D	441/548 (80%)	402 (91%)	39 (9%)	0	100	100
48	J	28/180 (16%)	25 (89%)	3 (11%)	0	100	100
All	All	9011/11294 (80%)	8443 (94%)	567 (6%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
35	V	175	LYS

5.3.2 Protein sidechains [i](#)

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

The Analysed column shows the number of residues for which the sidechain conformation was

analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	a	180/243 (74%)	179 (99%)	1 (1%)	86	95
2	p	192/231 (83%)	192 (100%)	0	100	100
3	d	182/225 (81%)	182 (100%)	0	100	100
4	Q	88/98 (90%)	88 (100%)	0	100	100
5	q	220/225 (98%)	218 (99%)	2 (1%)	78	92
6	W	23/24 (96%)	23 (100%)	0	100	100
7	r	193/218 (88%)	191 (99%)	2 (1%)	76	91
8	s	155/174 (89%)	155 (100%)	0	100	100
9	t	174/180 (97%)	174 (100%)	0	100	100
10	c	160/168 (95%)	160 (100%)	0	100	100
11	n	125/142 (88%)	124 (99%)	1 (1%)	81	93
12	m	130/131 (99%)	130 (100%)	0	100	100
13	i	98/119 (82%)	97 (99%)	1 (1%)	76	91
14	y	66/67 (98%)	66 (100%)	0	100	100
15	f	112/113 (99%)	111 (99%)	1 (1%)	78	92
16	j	111/115 (96%)	110 (99%)	1 (1%)	78	92
17	z	106/115 (92%)	106 (100%)	0	100	100
18	R	74/76 (97%)	73 (99%)	1 (1%)	67	88
19	T	35/48 (73%)	35 (100%)	0	100	100
21	w	111/122 (91%)	111 (100%)	0	100	100
22	g	114/121 (94%)	113 (99%)	1 (1%)	78	92
23	b	188/202 (93%)	185 (98%)	3 (2%)	62	86
24	e	159/170 (94%)	157 (99%)	2 (1%)	69	89
25	u	86/136 (63%)	86 (100%)	0	100	100
26	v	94/108 (87%)	93 (99%)	1 (1%)	73	90
27	o	107/130 (82%)	107 (100%)	0	100	100
28	k	122/132 (92%)	118 (97%)	4 (3%)	38	73
29	x	111/115 (96%)	109 (98%)	2 (2%)	59	85
30	h	91/107 (85%)	91 (100%)	0	100	100
31	P	62/103 (60%)	61 (98%)	1 (2%)	62	86
32	S	54/62 (87%)	53 (98%)	1 (2%)	57	84

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
33	l	47/49 (96%)	46 (98%)	1 (2%)	53	82
34	U	51/140 (36%)	50 (98%)	1 (2%)	55	83
35	V	256/275 (93%)	253 (99%)	3 (1%)	71	90
37	B	90/702 (13%)	90 (100%)	0	100	100
38	A	545/553 (99%)	543 (100%)	2 (0%)	91	97
39	C	553/811 (68%)	547 (99%)	6 (1%)	73	90
40	E	380/406 (94%)	378 (100%)	2 (0%)	88	96
41	F	237/289 (82%)	234 (99%)	3 (1%)	69	89
42	H	269/310 (87%)	267 (99%)	2 (1%)	84	94
43	K	192/193 (100%)	191 (100%)	1 (0%)	88	96
44	L	342/515 (66%)	336 (98%)	6 (2%)	59	85
45	M	305/335 (91%)	304 (100%)	1 (0%)	92	97
46	D	398/494 (81%)	395 (99%)	3 (1%)	81	93
48	J	26/151 (17%)	26 (100%)	0	100	100
All	All	7414/9443 (78%)	7358 (99%)	56 (1%)	82	93

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

Mol	Chain	Res	Type
1	a	157	VAL
5	q	12	VAL
5	q	108	ARG
7	r	31	ARG
7	r	98	ARG
11	n	69	ARG
13	i	34	PHE
15	f	80	ASP
16	j	105	PHE
18	R	59	CYS
22	g	71	ARG
23	b	44	THR
23	b	76	ARG
23	b	173	ARG
24	e	42	LYS
24	e	193	LYS
26	v	101	ARG
28	k	14	ARG

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Mol	Chain	Res	Type
28	k	106	LYS
28	k	116	LYS
28	k	142	ARG
29	x	24	LYS
29	x	29	LYS
31	P	48	VAL
32	S	13	ARG
33	l	19	ARG
34	U	138	ARG
35	V	99	ARG
35	V	183	LYS
35	V	287	THR
38	A	347	ILE
38	A	563	LYS
39	C	347	ARG
39	C	412	LEU
39	C	426	GLU
39	C	553	LYS
39	C	723	ARG
39	C	832	MET
40	E	132	TYR
40	E	385	ASP
41	F	210	ARG
41	F	255	THR
41	F	261	ARG
42	H	37	LYS
42	H	189	LYS
43	K	111	THR
44	L	220	LYS
44	L	239	ASN
44	L	304	MET
44	L	468	THR
44	L	470	MET
44	L	546	GLN
45	M	92	LYS
46	D	237	LYS
46	D	334	ARG
46	D	438	CYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (140) such sidechains are listed below:

Mol	Chain	Res	Type
1	a	9	GLN
2	p	40	ASN
2	p	149	GLN
2	p	157	GLN
2	p	160	GLN
3	d	235	ASN
4	Q	43	ASN
5	q	8	HIS
5	q	17	HIS
5	q	36	HIS
5	q	98	ASN
5	q	138	HIS
5	q	216	ASN
5	q	224	ASN
7	r	13	GLN
7	r	56	ASN
8	s	73	GLN
8	s	114	GLN
8	s	162	GLN
9	t	64	ASN
9	t	146	GLN
10	c	132	GLN
11	n	13	GLN
11	n	18	GLN
11	n	83	GLN
11	n	112	HIS
12	m	62	GLN
13	i	38	ASN
13	i	43	HIS
13	i	79	GLN
13	i	113	GLN
14	y	29	HIS
15	f	113	HIS
16	j	61	GLN
16	j	73	GLN
17	z	22	GLN
18	R	26	GLN
18	R	65	GLN
19	T	44	ASN
21	w	31	ASN
22	g	97	GLN
23	b	101	GLN
24	e	65	GLN

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Mol	Chain	Res	Type
24	e	74	ASN
24	e	82	ASN
24	e	137	GLN
24	e	148	ASN
24	e	179	ASN
25	u	73	ASN
26	v	119	GLN
27	o	98	ASN
28	k	19	ASN
28	k	73	ASN
28	k	101	ASN
28	k	105	ASN
29	x	10	ASN
29	x	51	ASN
29	x	128	GLN
29	x	137	GLN
31	P	46	ASN
33	l	10	HIS
34	U	91	ASN
35	V	20	GLN
35	V	178	ASN
35	V	237	ASN
35	V	296	GLN
35	V	311	GLN
37	B	511	ASN
37	B	520	GLN
37	B	522	ASN
37	B	553	GLN
38	A	47	HIS
38	A	200	ASN
38	A	226	GLN
38	A	392	ASN
38	A	566	GLN
38	A	586	ASN
39	C	406	ASN
39	C	430	ASN
39	C	433	ASN
39	C	460	GLN
39	C	610	ASN
39	C	623	GLN
39	C	724	GLN
39	C	852	GLN

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Mol	Chain	Res	Type
39	C	854	ASN
39	C	869	ASN
40	E	33	ASN
40	E	49	ASN
40	E	83	GLN
40	E	181	ASN
40	E	210	GLN
40	E	283	GLN
40	E	302	ASN
40	E	373	ASN
40	E	395	ASN
40	E	427	ASN
41	F	133	ASN
41	F	182	HIS
41	F	260	ASN
41	F	280	GLN
41	F	302	ASN
41	F	342	ASN
41	F	345	GLN
41	F	347	GLN
41	F	356	ASN
42	H	58	GLN
42	H	111	ASN
42	H	159	GLN
42	H	244	GLN
42	H	255	GLN
42	H	261	ASN
42	H	266	ASN
42	H	285	ASN
42	H	324	ASN
42	H	336	GLN
42	H	337	ASN
42	H	345	GLN
43	K	10	ASN
43	K	186	GLN
44	L	239	ASN
44	L	363	GLN
44	L	489	GLN
45	M	108	ASN
45	M	146	GLN
45	M	155	ASN
45	M	205	HIS

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Mol	Chain	Res	Type
45	M	258	ASN
45	M	355	ASN
45	M	362	ASN
46	D	62	GLN
46	D	68	GLN
46	D	191	GLN
46	D	242	GLN
46	D	270	GLN
46	D	341	ASN
46	D	351	ASN
46	D	392	ASN
46	D	486	ASN
48	J	158	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
20	2	1707/1868 (91%)	457 (26%)	9 (0%)

All (457) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
20	2	2	A
20	2	17	C
20	2	23	G
20	2	33	G
20	2	41	G
20	2	44	U
20	2	45	A
20	2	46	A
20	2	49	C
20	2	56	G
20	2	62	G
20	2	67	C
20	2	68	A
20	2	71	G
20	2	73	C
20	2	74	G
20	2	75	G
20	2	76	U
20	2	79	A

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Mol	Chain	Res	Type
20	2	92	A
20	2	103	A
20	2	113	G
20	2	114	G
20	2	115	U
20	2	126	G
20	2	130	G
20	2	142	C
20	2	143	U
20	2	147	A
20	2	149	A
20	2	158	A
20	2	160	U
20	2	164	A
20	2	168	C
20	2	178	C
20	2	182	C
20	2	184	G
20	2	190	G
20	2	194	C
20	2	196	C
20	2	197	U
20	2	199	C
20	2	200	G
20	2	201	C
20	2	202	G
20	2	204	G
20	2	206	G
20	2	210	U
20	2	308	G
20	2	310	C
20	2	312	G
20	2	313	A
20	2	319	C
20	2	320	G
20	2	333	G
20	2	344	U
20	2	345	U
20	2	347	G
20	2	351	G
20	2	362	C
20	2	364	A

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Mol	Chain	Res	Type
20	2	368	U
20	2	382	C
20	2	384	U
20	2	385	G
20	2	386	C
20	2	400	C
20	2	409	C
20	2	418	A
20	2	429	C
20	2	436	G
20	2	438	G
20	2	448	A
20	2	449	A
20	2	450	C
20	2	455	A
20	2	464	A
20	2	465	A
20	2	470	G
20	2	471	G
20	2	472	C
20	2	474	G
20	2	482	G
20	2	483	C
20	2	487	U
20	2	492	C
20	2	509	G
20	2	516	A
20	2	517	C
20	2	523	A
20	2	525	A
20	2	537	C
20	2	538	U
20	2	539	C
20	2	541	U
20	2	542	U
20	2	545	A
20	2	546	G
20	2	547	G
20	2	548	C
20	2	549	C
20	2	551	U
20	2	559	G

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Mol	Chain	Res	Type
20	2	560	A
20	2	563	G
20	2	568	C
20	2	570	C
20	2	574	A
20	2	576	A
20	2	587	A
20	2	588	G
20	2	591	U
20	2	603	C
20	2	604	A
20	2	607	U
20	2	608	C
20	2	614	C
20	2	617	G
20	2	621	C
20	2	623	G
20	2	627	U
20	2	628	A
20	2	629	A
20	2	632	C
20	2	638	C
20	2	639	C
20	2	640	A
20	2	643	A
20	2	644	G
20	2	655	A
20	2	659	G
20	2	660	C
20	2	664	A
20	2	668	A
20	2	669	A
20	2	671	A
20	2	672	A
20	2	673	G
20	2	683	G
20	2	687	C
20	2	690	G
20	2	698	G
20	2	707	C
20	2	709	G
20	2	721	G

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Mol	Chain	Res	Type
20	2	723	C
20	2	731	G
20	2	737	G
20	2	748	C
20	2	750	C
20	2	751	G
20	2	792	C
20	2	793	G
20	2	794	A
20	2	795	A
20	2	796	G
20	2	798	G
20	2	799	U
20	2	800	U
20	2	801	U
20	2	810	A
20	2	821	G
20	2	822	U
20	2	827	A
20	2	830	A
20	2	847	A
20	2	853	C
20	2	869	A
20	2	870	A
20	2	872	A
20	2	873	G
20	2	874	G
20	2	878	G
20	2	880	G
20	2	883	U
20	2	884	C
20	2	886	A
20	2	887	U
20	2	888	U
20	2	889	U
20	2	890	U
20	2	891	G
20	2	893	U
20	2	895	G
20	2	896	U
20	2	897	U
20	2	898	U

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Mol	Chain	Res	Type
20	2	899	U
20	2	901	G
20	2	902	G
20	2	903	A
20	2	905	C
20	2	913	A
20	2	920	A
20	2	922	A
20	2	933	G
20	2	938	A
20	2	943	U
20	2	952	G
20	2	953	C
20	2	963	A
20	2	971	G
20	2	990	A
20	2	992	A
20	2	1002	U
20	2	1008	A
20	2	1017	U
20	2	1023	A
20	2	1026	C
20	2	1045	U
20	2	1049	A
20	2	1053	C
20	2	1056	U
20	2	1058	A
20	2	1060	A
20	2	1061	U
20	2	1062	A
20	2	1063	C
20	2	1074	C
20	2	1083	A
20	2	1085	C
20	2	1096	G
20	2	1109	C
20	2	1114	U
20	2	1115	U
20	2	1117	C
20	2	1118	C
20	2	1119	A
20	2	1120	U

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Mol	Chain	Res	Type
20	2	1138	C
20	2	1140	G
20	2	1144	A
20	2	1153	C
20	2	1154	U
20	2	1157	G
20	2	1168	G
20	2	1171	G
20	2	1188	A
20	2	1195	A
20	2	1203	G
20	2	1207	G
20	2	1215	C
20	2	1216	C
20	2	1218	C
20	2	1220	A
20	2	1227	G
20	2	1228	A
20	2	1230	C
20	2	1231	C
20	2	1232	U
20	2	1240	A
20	2	1242	U
20	2	1244	U
20	2	1245	G
20	2	1248	U
20	2	1250	A
20	2	1251	A
20	2	1252	C
20	2	1253	A
20	2	1256	G
20	2	1257	G
20	2	1258	A
20	2	1259	A
20	2	1261	C
20	2	1263	U
20	2	1264	C
20	2	1269	G
20	2	1272	C
20	2	1275	G
20	2	1276	A
20	2	1283	C

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Mol	Chain	Res	Type
20	2	1284	A
20	2	1285	G
20	2	1286	G
20	2	1287	A
20	2	1291	A
20	2	1293	A
20	2	1295	A
20	2	1303	C
20	2	1304	U
20	2	1308	U
20	2	1309	C
20	2	1312	G
20	2	1313	A
20	2	1315	U
20	2	1319	U
20	2	1322	G
20	2	1324	G
20	2	1327	G
20	2	1330	G
20	2	1331	C
20	2	1332	A
20	2	1333	U
20	2	1334	G
20	2	1336	C
20	2	1337	C
20	2	1340	U
20	2	1341	C
20	2	1343	U
20	2	1348	G
20	2	1364	U
20	2	1371	U
20	2	1372	U
20	2	1378	A
20	2	1381	G
20	2	1384	C
20	2	1397	U
20	2	1398	G
20	2	1400	U
20	2	1401	A
20	2	1402	A
20	2	1404	U
20	2	1405	A

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Mol	Chain	Res	Type
20	2	1410	C
20	2	1416	C
20	2	1428	G
20	2	1429	G
20	2	1430	C
20	2	1439	A
20	2	1440	C
20	2	1441	U
20	2	1442	U
20	2	1447	G
20	2	1448	A
20	2	1449	G
20	2	1450	G
20	2	1454	A
20	2	1456	G
20	2	1462	U
20	2	1463	U
20	2	1464	C
20	2	1475	G
20	2	1476	A
20	2	1477	U
20	2	1480	A
20	2	1486	A
20	2	1489	A
20	2	1490	G
20	2	1492	U
20	2	1493	C
20	2	1495	G
20	2	1497	G
20	2	1498	A
20	2	1499	U
20	2	1500	G
20	2	1501	C
20	2	1507	G
20	2	1508	A
20	2	1509	U
20	2	1513	C
20	2	1519	U
20	2	1520	G
20	2	1521	C
20	2	1522	A
20	2	1525	C

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Mol	Chain	Res	Type
20	2	1532	C
20	2	1533	A
20	2	1535	U
20	2	1536	G
20	2	1547	C
20	2	1548	G
20	2	1553	C
20	2	1554	C
20	2	1555	U
20	2	1557	C
20	2	1559	C
20	2	1566	G
20	2	1568	C
20	2	1570	G
20	2	1580	A
20	2	1585	U
20	2	1586	U
20	2	1587	G
20	2	1591	C
20	2	1592	C
20	2	1598	G
20	2	1599	U
20	2	1601	A
20	2	1603	G
20	2	1606	G
20	2	1612	G
20	2	1613	G
20	2	1621	U
20	2	1623	A
20	2	1624	U
20	2	1632	G
20	2	1633	A
20	2	1636	G
20	2	1638	G
20	2	1647	A
20	2	1648	G
20	2	1654	G
20	2	1661	A
20	2	1665	G
20	2	1669	G
20	2	1671	G
20	2	1673	U

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Mol	Chain	Res	Type
20	2	1678	A
20	2	1681	U
20	2	1686	G
20	2	1695	A
20	2	1698	C
20	2	1699	A
20	2	1718	G
20	2	1719	A
20	2	1720	U
20	2	1721	U
20	2	1725	U
20	2	1726	G
20	2	1730	U
20	2	1737	G
20	2	1742	C
20	2	1744	G
20	2	1751	C
20	2	1752	C
20	2	1755	C
20	2	1756	C
20	2	1757	G
20	2	1758	G
20	2	1759	G
20	2	1760	G
20	2	1761	U
20	2	1772	C
20	2	1773	C
20	2	1774	C
20	2	1776	G
20	2	1777	G
20	2	1779	G
20	2	1783	C
20	2	1784	G
20	2	1785	C
20	2	1786	U
20	2	1806	A
20	2	1808	U
20	2	1810	U
20	2	1821	U
20	2	1822	A
20	2	1823	A
20	2	1824	A

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Mol	Chain	Res	Type
20	2	1825	A
20	2	1826	G
20	2	1831	A
20	2	1834	A
20	2	1835	A
20	2	1836	G
20	2	1838	U
20	2	1849	G
20	2	1850	A
20	2	1851	A
20	2	1861	G
20	2	1862	G
20	2	1863	A
20	2	1864	U
20	2	1865	C
20	2	1866	A
20	2	1867	U
20	2	1869	A

All (9) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
20	2	332	G
20	2	550	C
20	2	868	G
20	2	912	C
20	2	1060	A
20	2	1292	C
20	2	1329	U
20	2	1474	A
20	2	1807	C

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 3 ligands modelled in this entry, 3 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

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
20	2	4
38	A	3
45	M	1
10	c	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	685:UNK	C	707:UNK	N	30.94
1	A	640:UNK	C	642:UNK	N	11.63
1	M	96:GLY	C	97:GLU	N	9.05
1	2	746:C	O3'	747:U	P	4.59
1	2	1207:G	O3'	1208:A	P	4.33
1	A	601:LEU	C	602:UNK	N	3.40
1	2	1682:C	O3'	1683:C	P	3.22
1	2	368:U	O3'	369:C	P	3.18
1	c	162:ARG	C	163:SER	N	1.18

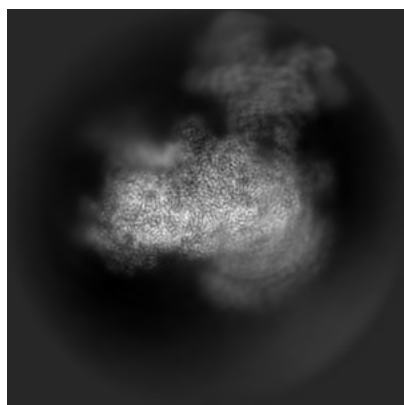
6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11325. These allow visual inspection of the internal detail of the map and identification of artifacts.

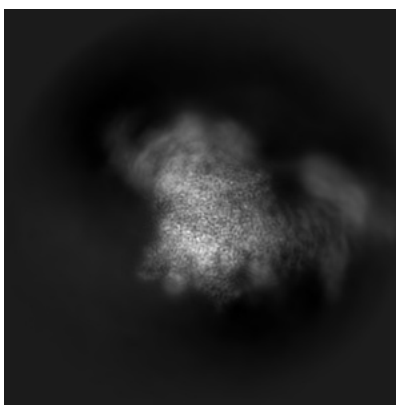
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections [i](#)

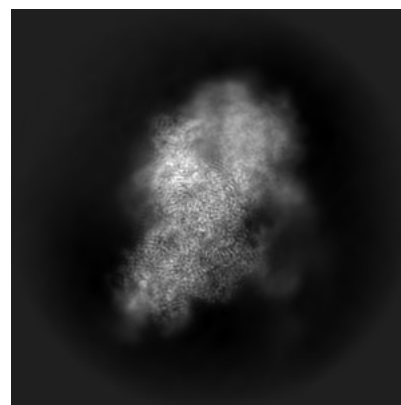
6.1.1 Primary map



X



Y

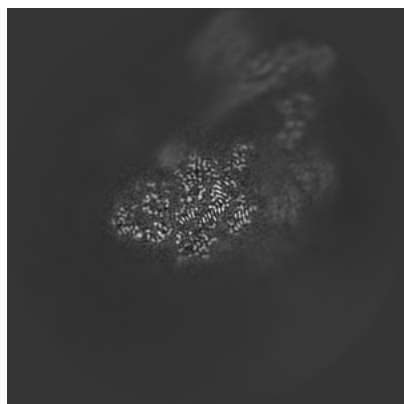


Z

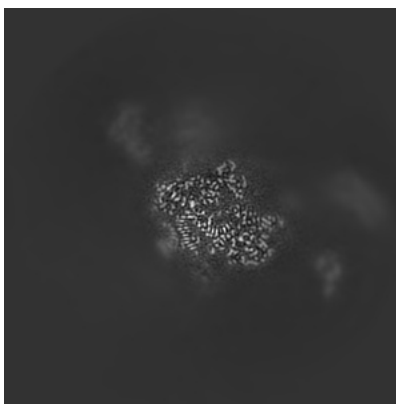
The images above show the map projected in three orthogonal directions.

6.2 Central slices [i](#)

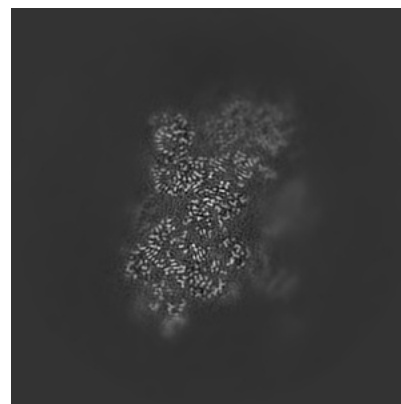
6.2.1 Primary map



X Index: 180



Y Index: 180

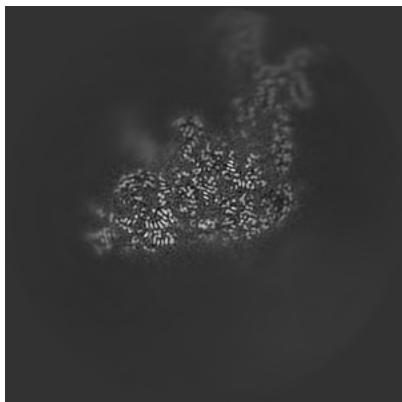


Z Index: 180

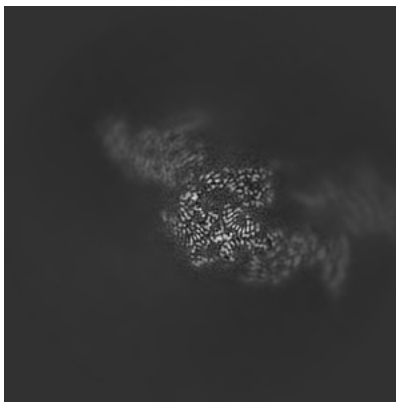
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices [i](#)

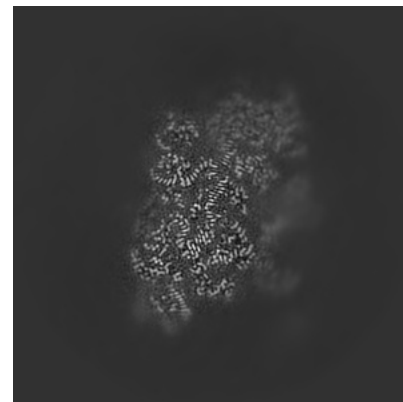
6.3.1 Primary map



X Index: 158



Y Index: 204

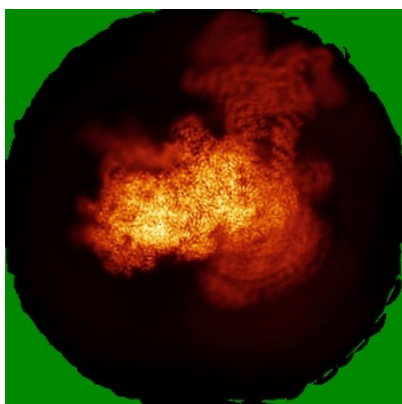


Z Index: 175

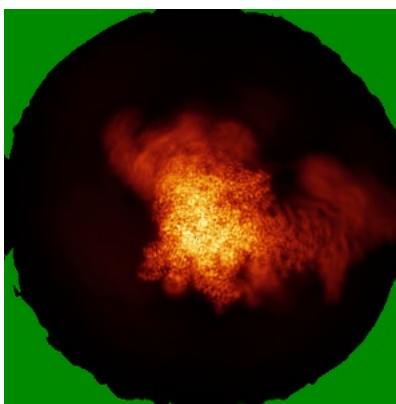
The images above show the largest variance slices of the map in three orthogonal directions.

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

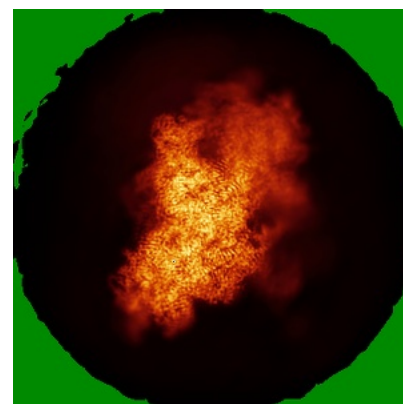
6.4.1 Primary map



X



Y

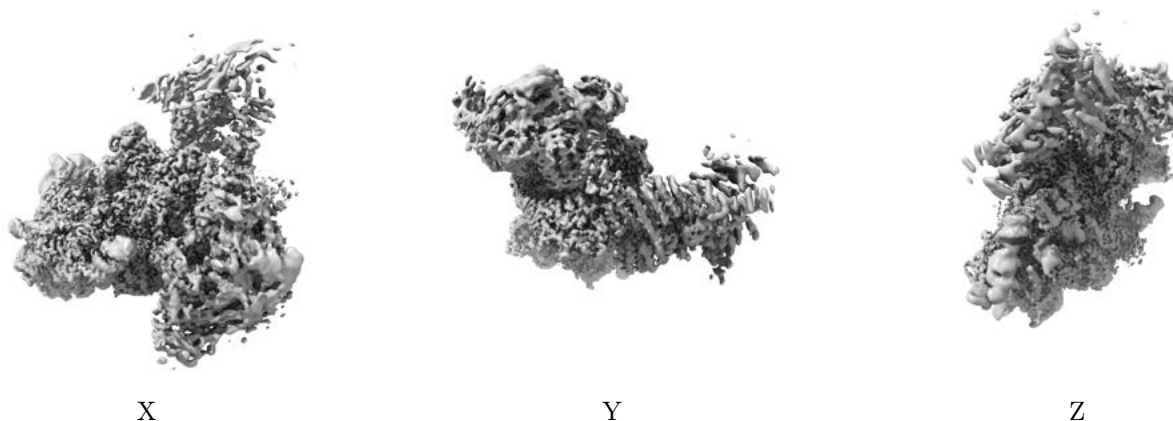


Z

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

6.5 Orthogonal surface views [i](#)

6.5.1 Primary map



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

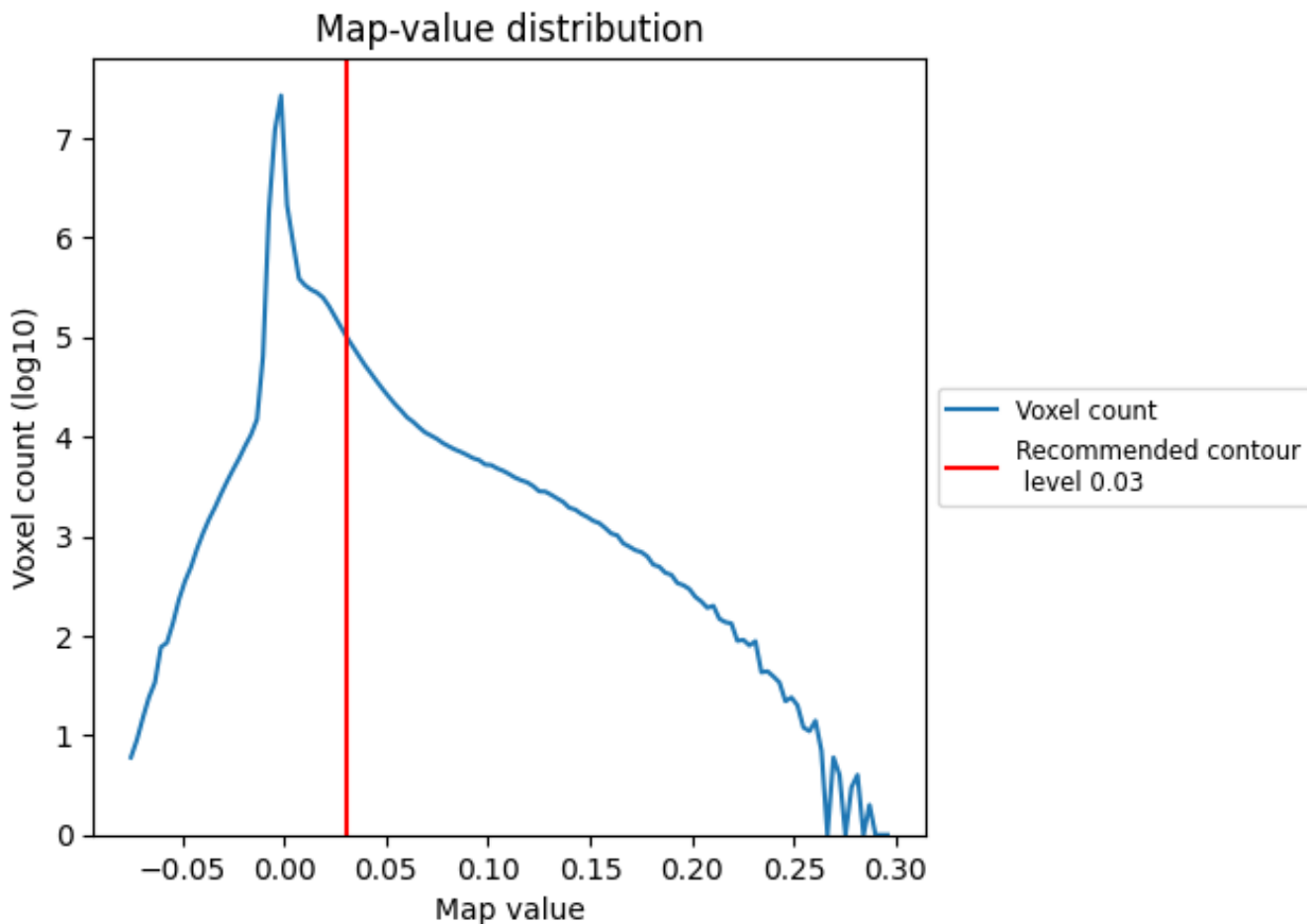
6.6 Mask visualisation [i](#)

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

7 Map analysis [i](#)

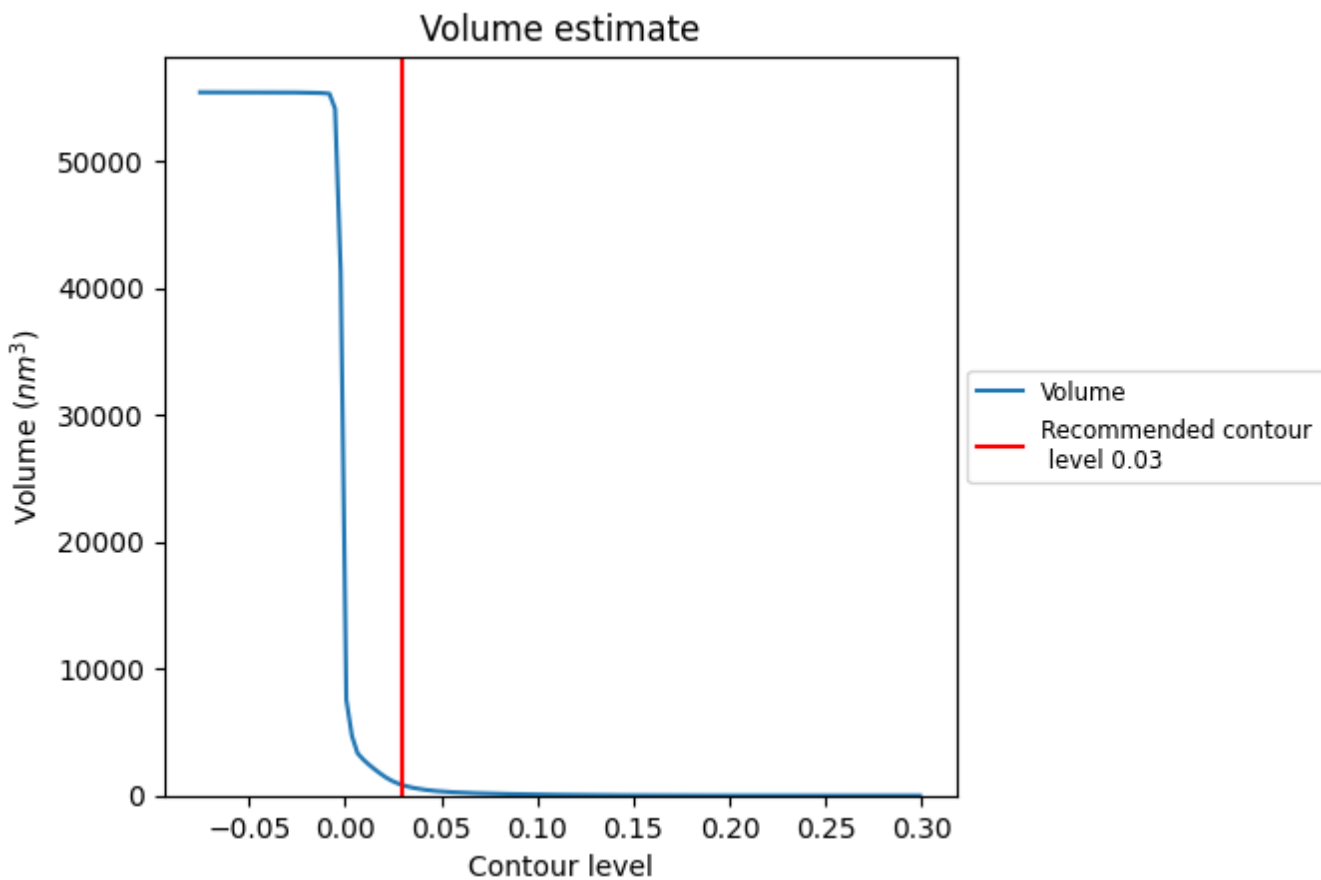
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution [i](#)



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

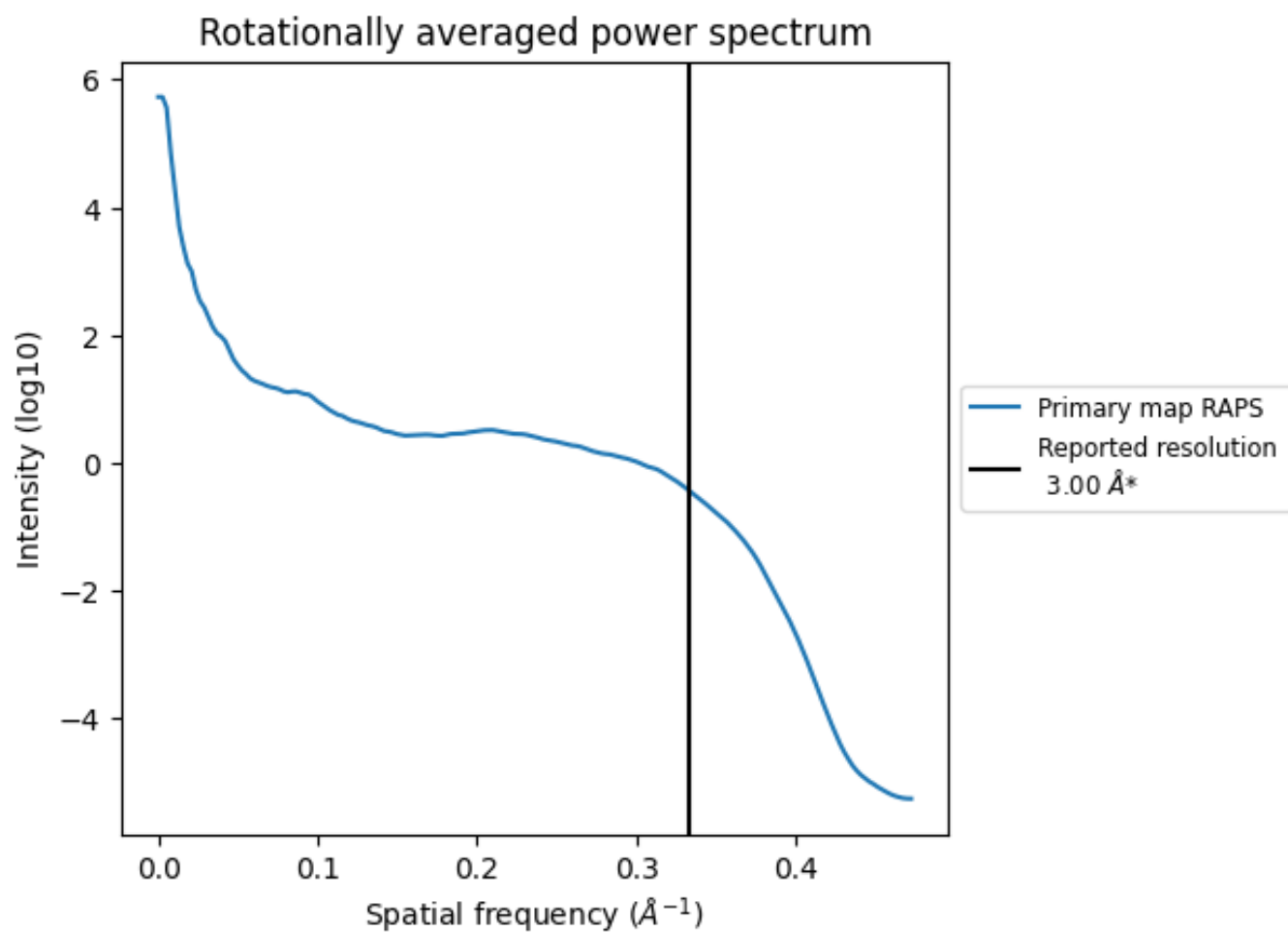
7.2 Volume estimate [i](#)



The volume at the recommended contour level is 823 nm^3 ; this corresponds to an approximate mass of 744 kDa.

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

7.3 Rotationally averaged power spectrum [i](#)

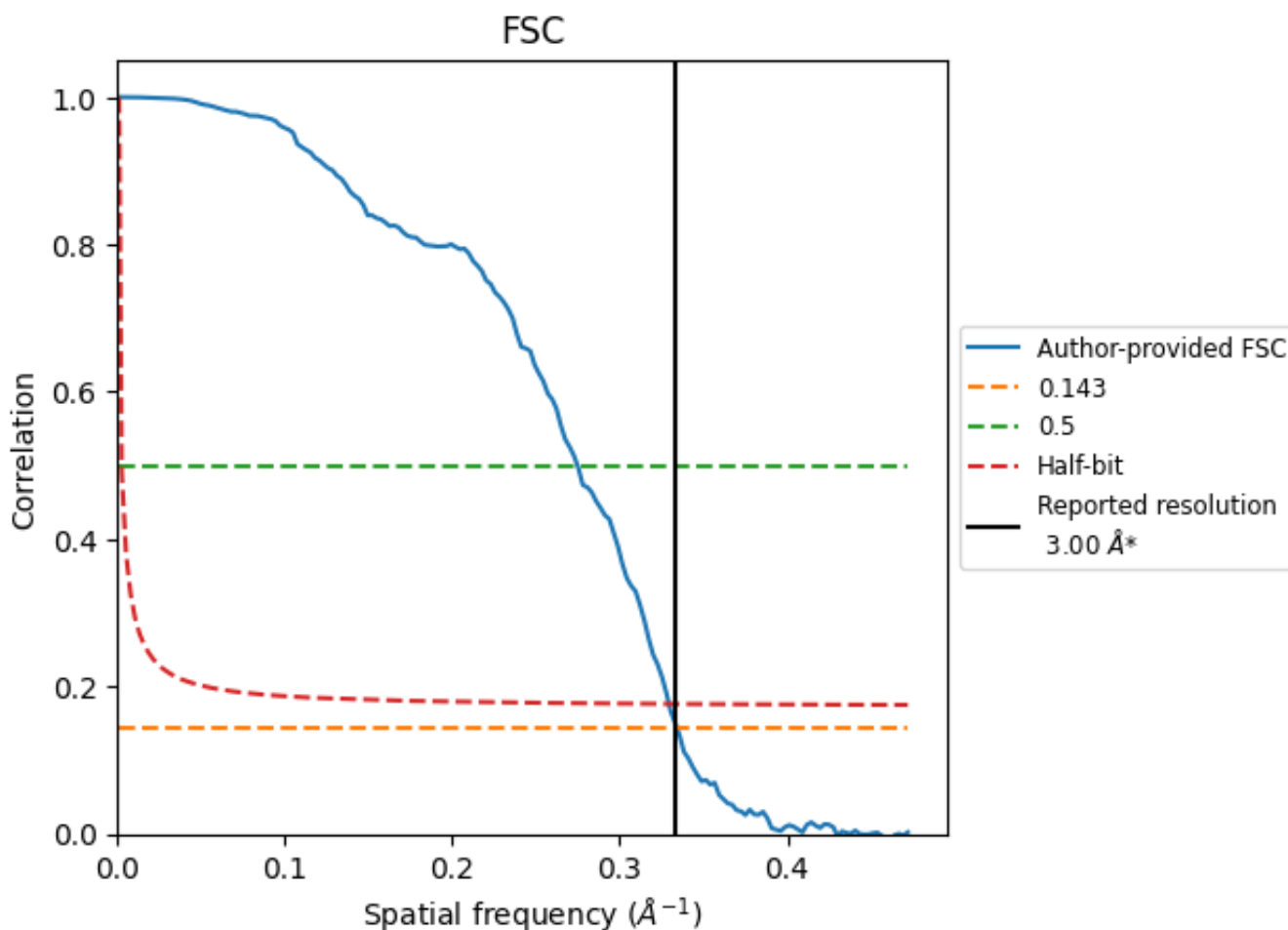


*Reported resolution corresponds to spatial frequency of 0.333 Å⁻¹

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 0.333 Å⁻¹

8.2 Resolution estimates [i](#)

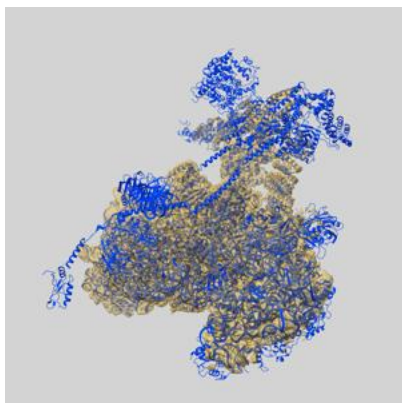
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.00	-	-
Author-provided FSC curve	2.99	3.64	3.04
Unmasked-calculated*	-	-	-

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

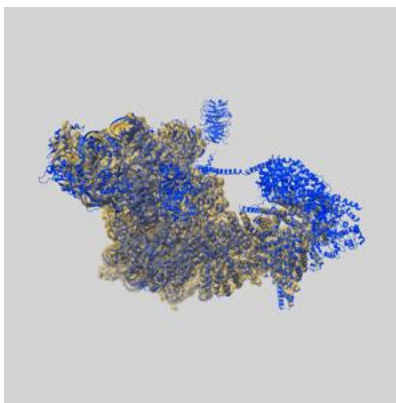
9 Map-model fit [i](#)

This section contains information regarding the fit between EMDB map EMD-11325 and PDB model 6ZON. Per-residue inclusion information can be found in section 3 on page 13.

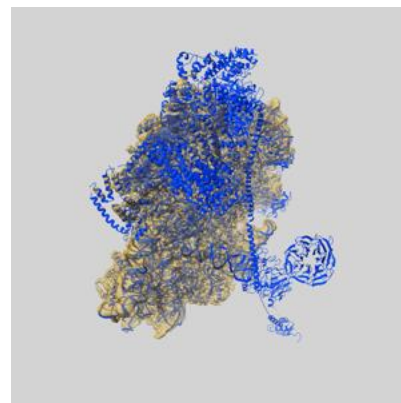
9.1 Map-model overlay [i](#)



X



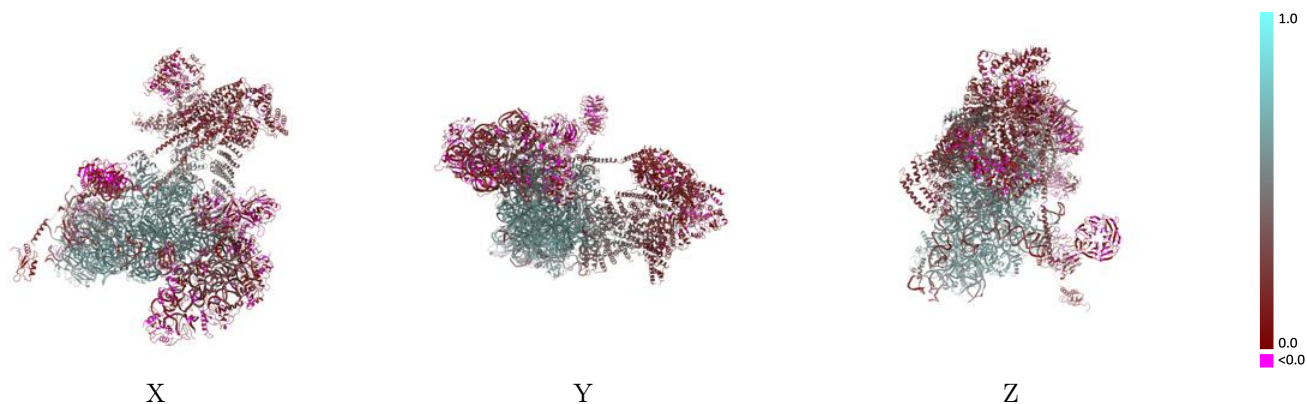
Y



Z

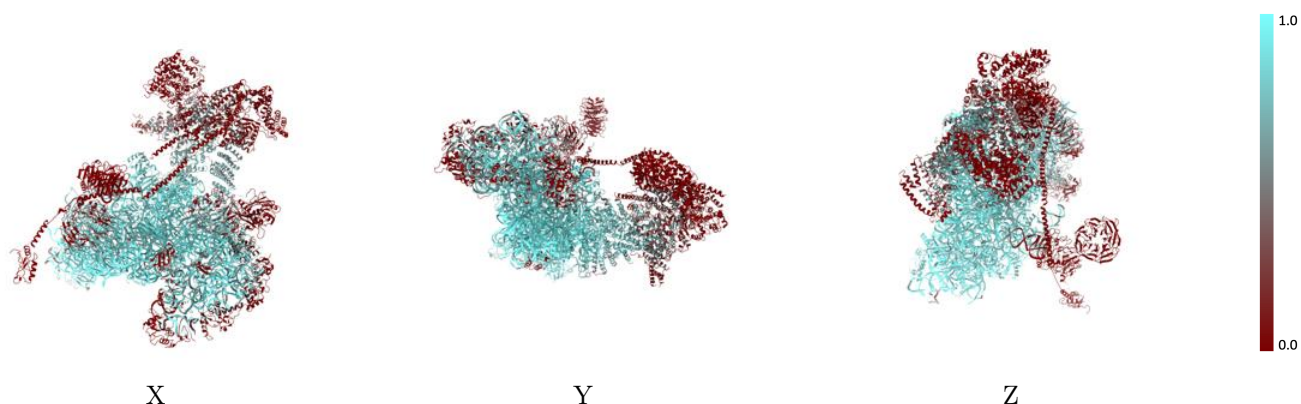
The images above show the 3D surface view of the map at the recommended contour level 0.03 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

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



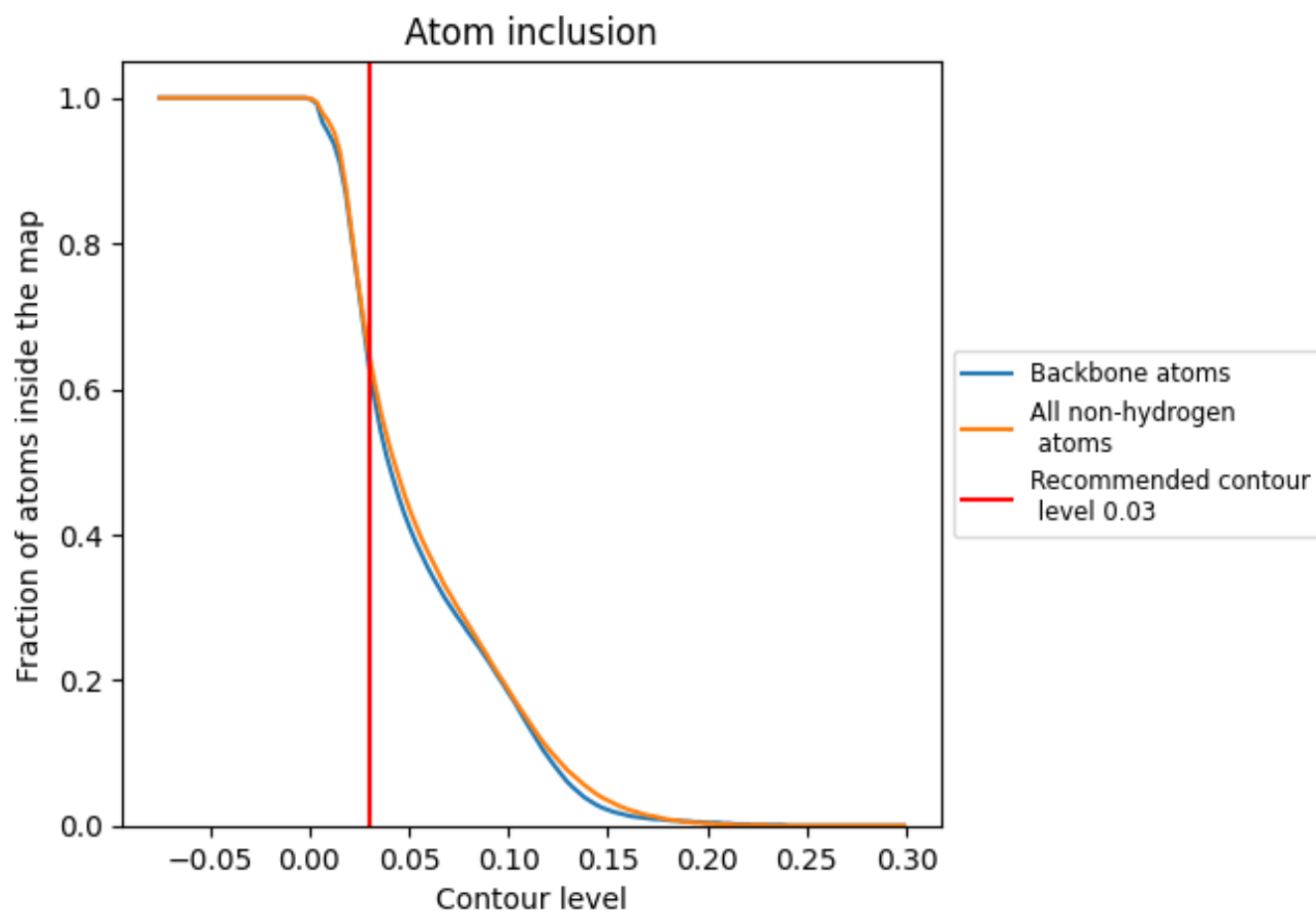
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions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

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



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







































































9.4 Atom inclusion [i](#)



At the recommended contour level, 63% of all backbone atoms, 65% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary





























The table lists the average atom inclusion at the recommended contour level (0.03) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6460	 0.3830
2	 0.9280	 0.4900
A	 0.4200	 0.3060
B	 0.0590	 0.2170
C	 0.6080	 0.3870
D	 0.1590	 0.1600
E	 0.2590	 0.1990
F	 0.0650	 0.1380
H	 0.0940	 0.1550
I	 0.0000	 0.0460
J	 0.9620	 0.6020
K	 0.0070	 0.1210
L	 0.0170	 0.1190
M	 0.0650	 0.1540
P	 0.1760	 0.1100
Q	 0.9510	 0.6040
R	 0.9630	 0.5890
S	 0.6750	 0.2810
T	 0.9760	 0.6080
U	 0.1950	 0.0920
V	 0.3440	 0.1140
W	 0.8660	 0.5620
Y	 0.1640	 0.1650
a	 0.9430	 0.5910
b	 0.6390	 0.2680
c	 0.9650	 0.6150
d	 0.9740	 0.6240
e	 0.5740	 0.2270
f	 0.9860	 0.6390
g	 0.6710	 0.2320
h	 0.5470	 0.2410
i	 0.9560	 0.5900
j	 0.9810	 0.6290
k	 0.1890	 0.1370
l	 0.8410	 0.2370



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Chain	Atom inclusion	Q-score
m	 0.9590	 0.5960
n	 0.9780	 0.6220
o	 0.1850	 0.0840
p	 0.9320	 0.5880
q	 0.9810	 0.6190
r	 0.9160	 0.5420
s	 0.9030	 0.5270
t	 0.9350	 0.5730
u	 0.4370	 0.1460
v	 0.1080	 0.0660
w	 0.8130	 0.4160
x	 0.5410	 0.2130
y	 0.9640	 0.6080
z	 0.9580	 0.5970