Full wwPDB EM Validation Report ⓘ

Apr 16, 2024 – 12:56 pm BST

PDB ID	:	8OZ0
EMDB ID	:	EMD-17297
Title	:	Structure of a human 48S translation initiation complex with eIF4F and eIF4A
Authors	:	Brito Querido, J.; Sokabe, M.; Diaz-Lopez, I.; Gordiyenko, Y.; Fraser, C.S.; Ramakrishnan, V.
Deposited on	:	2023-05-06
Resolution	:	3.50 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:

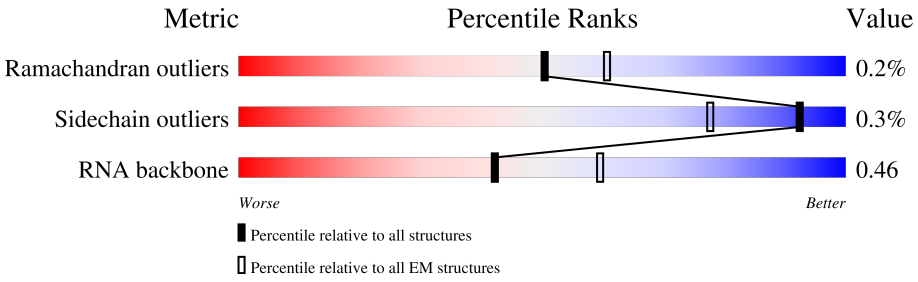
EMDB validation analysis	:	0.0.1.dev92
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4.02b-467
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 3.50 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 <=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	5	445	19% 98%
2	6	357	24% 75% 25%
3	7	320	24% 76%
4	8	352	26% 89% 10%
5	9	25	96%
6	A	1382	7% 53% 47%
7	B	218	39% 99%
8	C	374	29% 97%

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Mol	Chain	Length	Quality of chain
9	D	315	14% 86% 12%
10	E	472	41% 98%
11	F	325	51% 100%
12	G	144	67% 33%
13	H	431	12% 34% 65%
14	I	814	13% 70% 29%
15	J	913	8% 75% 25%
16	K	564	34% 94% 6%
17	L	194	92% 8%
18	M	84	96%
19	N	83	98%
20	O	293	75% 25%
21	P	264	80% 20%
22	Q	295	73% 27%
23	R	115	85% 14%
24	S	249	91% 8%
25	T	151	88% 12%
26	U	333	26% 42% 58%
27	V	151	99%
28	W	1719	70% 27%
29	X	158	89% 10%
30	Y	263	97%
31	Z	194	91% 9%
32	a	143	97%
33	b	59	80% 20%

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Mol	Chain	Length	Quality of chain
34	c	130	99%
35	d	208	95% 5%
36	e	133	94% 6%
37	f	204	90% 10%
38	g	146	97%
39	h	243	93% 7%
40	i	165	59% 40%
41	j	145	76% 24%
42	k	317	98%
43	l	145	98%
44	m	125	53% 47%
45	n	151	93% 6%
46	o	56	89% 11%
47	p	156	34% 66%
48	q	132	19% 92% 8%
49	s	69	91% 9%
50	v	135	96%
51	w	119	86% 13%
52	x	548	22% 79% 20%
53	y	75	56% 44%
54	z	207	9% 14% 76%
55	1	406	67% 90% 9%
55	3	406	51% 93% 7%
56	2	1404	15% 17% 83%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit crite-

ria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
28	JMH	W	1219	X	-	-	-

2 Entry composition

There are 58 unique types of molecules in this entry. The entry contains 121610 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 Eukaryotic translation initiation factor 3 subunit E.

Mol	Chain	Residues	Atoms				AltConf	Trace
1	5	437	Total	C	N	O	0	0
			2175	1301	437	437		

- Molecule 2 is a protein called Eukaryotic translation initiation factor 3 subunit F.

Mol	Chain	Residues	Atoms				AltConf	Trace
2	6	269	Total	C	N	O	0	0
			1330	791	269	270		

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

Mol	Chain	Residues	Atoms				AltConf	Trace
3	7	77	Total	C	N	O	0	0
			616	389	111	116		

- Molecule 4 is a protein called Eukaryotic translation initiation factor 3 subunit H.

Mol	Chain	Residues	Atoms				AltConf	Trace
4	8	316	Total	C	N	O	0	0
			1569	936	316	317		

- Molecule 5 is a protein called 60S ribosomal protein L41.

Mol	Chain	Residues	Atoms					AltConf	Trace
5	9	24	Total	C	N	O	S	0	0
			230	139	62	26	3		

- Molecule 6 is a protein called Eukaryotic translation initiation factor 3 subunit A.

Mol	Chain	Residues	Atoms					AltConf	Trace
6	A	733	Total	C	N	O	S	0	0
			5386	3376	979	1008	23		

- Molecule 7 is a protein called Eukaryotic translation initiation factor 3 subunit K.

Mol	Chain	Residues	Atoms				AltConf	Trace
7	B	215	Total	C	N	O	0	0
			1066	636	215	215		

- Molecule 8 is a protein called Eukaryotic translation initiation factor 3 subunit M.

Mol	Chain	Residues	Atoms				AltConf	Trace
8	C	364	Total	C	N	O	0	0
			1809	1080	364	365		

- Molecule 9 is a protein called Eukaryotic translation initiation factor 2 subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
9	D	278	Total	C	N	O	S	0	0
			2234	1410	390	421	13		

- Molecule 10 is a protein called Eukaryotic translation initiation factor 2 subunit 3.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	E	464	Total	C	N	O	S	0	0
			3540	2245	620	658	17		

- Molecule 11 is a protein called Eukaryotic translation initiation factor 3 subunit I.

Mol	Chain	Residues	Atoms				AltConf	Trace
11	F	325	Total	C	N	O	0	0
			1598	947	325	326		

- Molecule 12 is a protein called Eukaryotic translation initiation factor 1A, X-chromosomal.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	G	97	Total	C	N	O	S	0	0
			789	492	147	146	4		

- Molecule 13 is a protein called Eukaryotic translation initiation factor 5.

Mol	Chain	Residues	Atoms					AltConf	Trace
13	H	149	Total	C	N	O	S	0	0
			1176	740	208	217	11		

- Molecule 14 is a protein called Eukaryotic translation initiation factor 3 subunit B.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	I	575	Total 4569	C 2935	N 788	O 828	S 18	0	0

- Molecule 15 is a protein called Eukaryotic translation initiation factor 3 subunit C.

Mol	Chain	Residues	Atoms					AltConf	Trace
15	J	687	Total 5207	C 3252	N 936	O 986	S 33	0	0

- Molecule 16 is a protein called Eukaryotic translation initiation factor 3 subunit L.

Mol	Chain	Residues	Atoms				AltConf	Trace
16	K	531	Total 2637	C 1574	N 531	O 532	0	0

- Molecule 17 is a protein called 40S ribosomal protein S7.

Mol	Chain	Residues	Atoms					AltConf	Trace
17	L	178	Total 1439	C 923	N 262	O 253	S 1	0	0

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

Mol	Chain	Residues	Atoms					AltConf	Trace
18	M	81	Total 631	C 397	N 116	O 111	S 7	0	0

- Molecule 19 is a protein called 40S ribosomal protein S21.

Mol	Chain	Residues	Atoms					AltConf	Trace
19	N	81	Total 617	C 380	N 114	O 118	S 5	0	0

- Molecule 20 is a protein called 40S ribosomal protein S2.

Mol	Chain	Residues	Atoms					AltConf	Trace
20	O	220	Total 1707	C 1104	N 292	O 301	S 10	0	0

- Molecule 21 is a protein called 40S ribosomal protein S3a.

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

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

Mol	Chain	Residues	Atoms					AltConf	Trace
22	Q	214	Total	C	N	O	S	0	0
			1695	1077	297	313	8		

- Molecule 23 is a protein called 40S ribosomal protein S26.

Mol	Chain	Residues	Atoms					AltConf	Trace
23	R	99	Total	C	N	O	S	0	0
			792	492	165	130	5		

- Molecule 24 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
24	S	230	Total	C	N	O	S	0	0
			1862	1164	371	320	7		

- Molecule 25 is a protein called 40S ribosomal protein S14.

Mol	Chain	Residues	Atoms					AltConf	Trace
25	T	133	Total	C	N	O	S	0	0
			997	610	196	185	6		

- Molecule 26 is a protein called Eukaryotic translation initiation factor 2 subunit 2.

Mol	Chain	Residues	Atoms				AltConf	Trace
26	U	139	Total	C	N	O	0	0
			689	411	139	139		

- Molecule 27 is a protein called 40S ribosomal protein S13.

Mol	Chain	Residues	Atoms					AltConf	Trace
27	V	150	Total	C	N	O	S	0	0
			1208	773	229	205	1		

- Molecule 28 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
28	W	1716	Total	C	N	O	P	0	0
			36639	16369	6570	11985	1715		

- Molecule 29 is a protein called 40S ribosomal protein S11.

Mol	Chain	Residues	Atoms					AltConf	Trace
29	X	142	Total	C	N	O	S	0	0
			1166	743	218	199	6		

- Molecule 30 is a protein called 40S ribosomal protein S4, X isoform.

Mol	Chain	Residues	Atoms					AltConf	Trace
30	Y	256	Total	C	N	O	S	0	0
			2035	1302	378	347	8		

- Molecule 31 is a protein called 40S ribosomal protein S9.

Mol	Chain	Residues	Atoms					AltConf	Trace
31	Z	177	Total	C	N	O	S	0	0
			1477	941	295	239	2		

- Molecule 32 is a protein called 40S ribosomal protein S23.

Mol	Chain	Residues	Atoms					AltConf	Trace
32	a	140	Total	C	N	O	S	0	0
			1087	687	215	182	3		

- Molecule 33 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
33	b	47	Total	C	N	O	S	0	0
			378	231	85	61	1		

- Molecule 34 is a protein called 40S ribosomal protein S15a.

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

- Molecule 35 is a protein called 40S ribosomal protein S8.

Mol	Chain	Residues	Atoms					AltConf	Trace
35	d	198	Total	C	N	O	S	0	0
			1627	1021	322	279	5		

- Molecule 36 is a protein called 40S ribosomal protein S24.

Mol	Chain	Residues	Atoms					AltConf	Trace
36	e	125	Total	C	N	O	S	0	0
			1015	642	199	169	5		

- Molecule 37 is a protein called 40S ribosomal protein S5.

Mol	Chain	Residues	Atoms					AltConf	Trace
37	f	184	Total	C	N	O	S	0	0
			1461	914	276	264	7		

- Molecule 38 is a protein called 40S ribosomal protein S16.

Mol	Chain	Residues	Atoms					AltConf	Trace
38	g	141	Total	C	N	O	S	0	0
			1124	715	212	194	3		

- Molecule 39 is a protein called 40S ribosomal protein S3.

Mol	Chain	Residues	Atoms					AltConf	Trace
39	h	227	Total	C	N	O	S	0	0
			1765	1125	317	315	8		

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

Mol	Chain	Residues	Atoms					AltConf	Trace
40	i	99	Total	C	N	O	S	0	0
			834	544	149	135	6		

- Molecule 41 is a protein called 40S ribosomal protein S15.

Mol	Chain	Residues	Atoms					AltConf	Trace
41	j	110	Total	C	N	O	S	0	0
			913	580	168	158	7		

- Molecule 42 is a protein called Receptor of activated protein C kinase 1.

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

- Molecule 43 is a protein called 40S ribosomal protein S19.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	l	142	Total	C	N	O	S	0	0
			1105	692	213	197	3		

- Molecule 44 is a protein called 40S ribosomal protein S25.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	m	66	Total	C	N	O	S	0	0
			523	338	93	91	1		

- Molecule 45 is a protein called Small ribosomal subunit protein uS13.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	n	142	Total	C	N	O	S	0	0
			1176	737	239	199	1		

- Molecule 46 is a protein called 40S ribosomal protein S29.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	o	50	Total	C	N	O	S	0	0
			419	262	85	67	5		

- Molecule 47 is a protein called Ubiquitin-40S ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	p	53	Total	C	N	O	S	0	0
			435	276	82	70	7		

- Molecule 48 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	q	122	Total	C	N	O	S	0	0
			950	596	168	177	9		

- Molecule 49 is a protein called 40S ribosomal protein S28.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	s	63	Total	C	N	O	S	0	0
			498	302	101	93	2		

- Molecule 50 is a protein called 40S ribosomal protein S17.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	v	131	Total	C	N	O	S	0	0
			1064	668	198	194	4		

- Molecule 51 is a protein called 40S ribosomal protein S20.

Mol	Chain	Residues	Atoms					AltConf	Trace
51	w	103	Total	C	N	O	S	0	0
			817	511	155	147	4		

- Molecule 52 is a protein called Eukaryotic translation initiation factor 3 subunit D.

Mol	Chain	Residues	Atoms					AltConf	Trace
52	x	440	Total	C	N	O	S	0	0
			2920	1798	539	574	9		

- Molecule 53 is a RNA chain called tRNAiMet.

Mol	Chain	Residues	Atoms					AltConf	Trace
53	y	75	Total	C	N	O	P	0	0
			1604	717	298	515	74		

- Molecule 54 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
54	z	50	Total	C	N	O	P	0	0
			853	373	104	326	50		

- Molecule 55 is a protein called Eukaryotic initiation factor 4A-I.

Mol	Chain	Residues	Atoms				AltConf	Trace
55	3	378	Total	C	N	O	0	0
			1869	1113	378	378		
55	1	371	Total	C	N	O	0	0
			1834	1092	371	371		

- Molecule 56 is a protein called Eukaryotic translation initiation factor 4 gamma 1.

Mol	Chain	Residues	Atoms				AltConf	Trace
56	2	237	Total	C	N	O	0	0
			1178	704	237	237		

- Molecule 57 is ZINC ION (three-letter code: ZN) (formula: Zn) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		AltConf
57	R	1	Total	Zn	0
			1	1	
57	p	1	Total	Zn	0
			1	1	

- Molecule 58 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

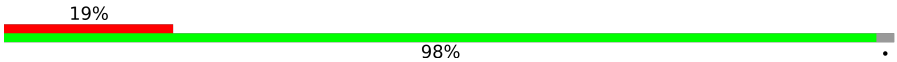
Mol	Chain	Residues	Atoms		AltConf
58	T	2	Total	Mg	0
			2	2	
58	W	86	Total	Mg	0
			86	86	
58	f	1	Total	Mg	0
			1	1	

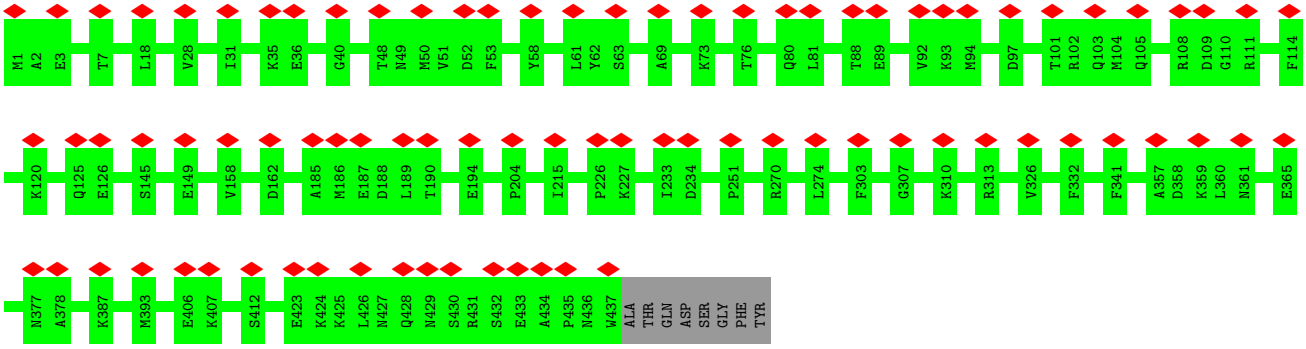
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Eukaryotic translation initiation factor 3 subunit E

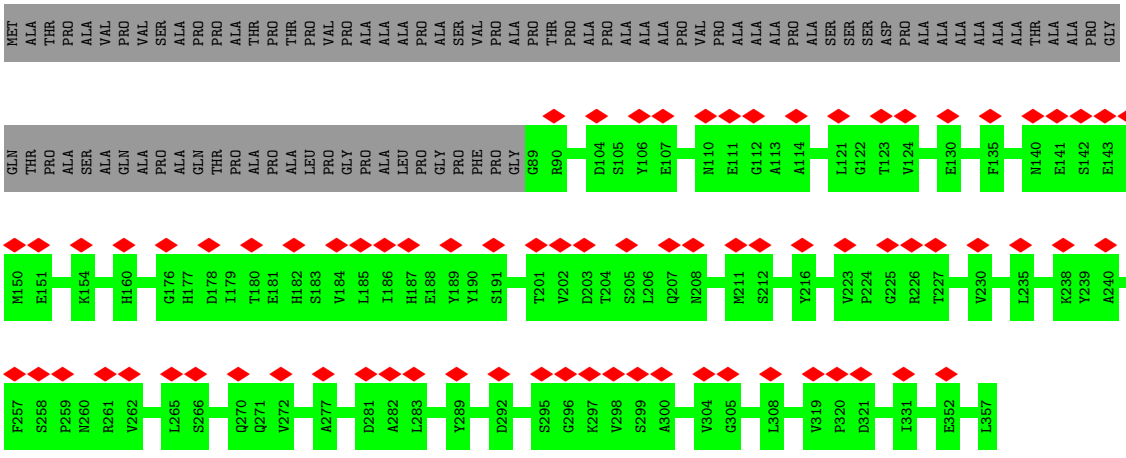
Chain 5:





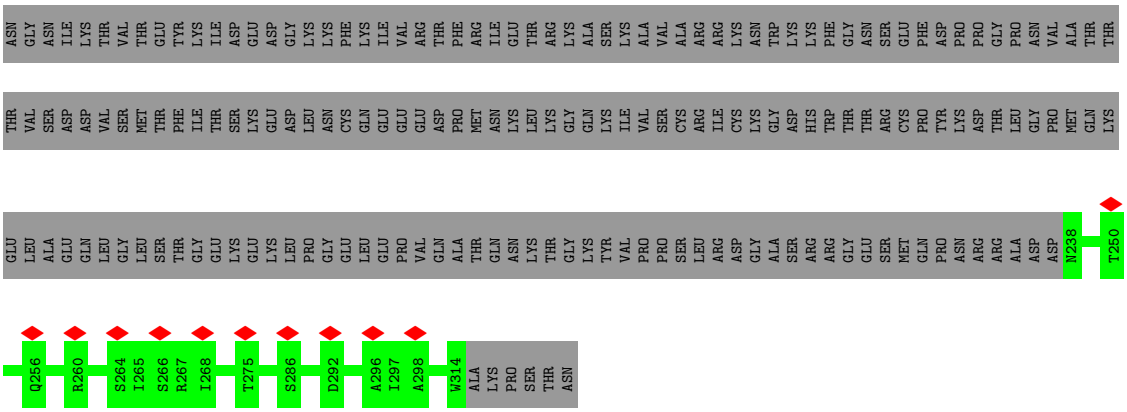
• Molecule 2: Eukaryotic translation initiation factor 3 subunit F

Chain 6:

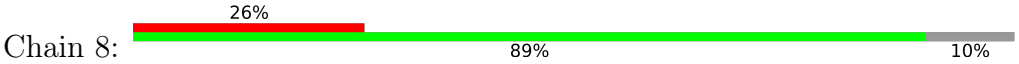


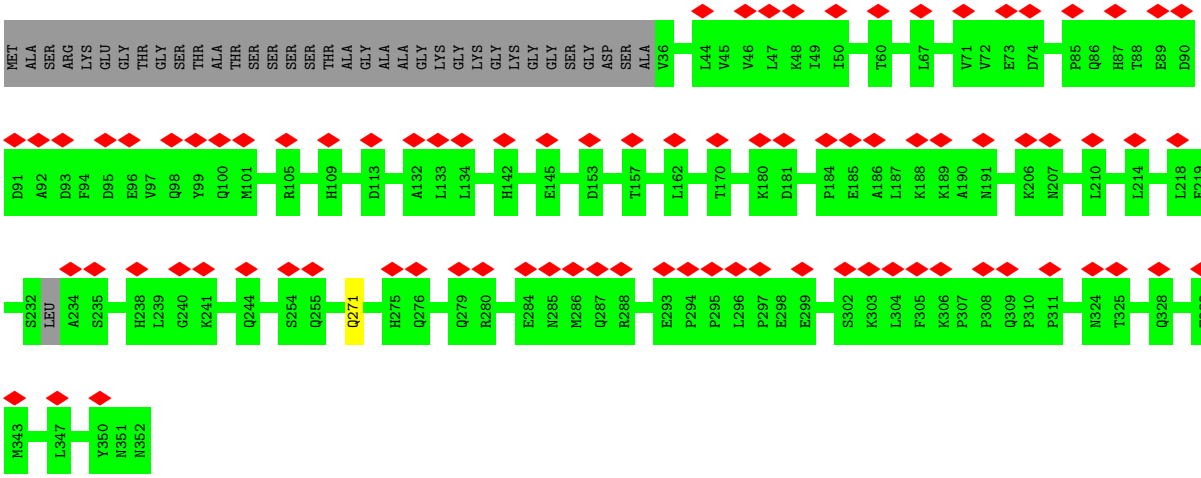
• Molecule 3: Eukaryotic translation initiation factor 3 subunit G

Chain 7:

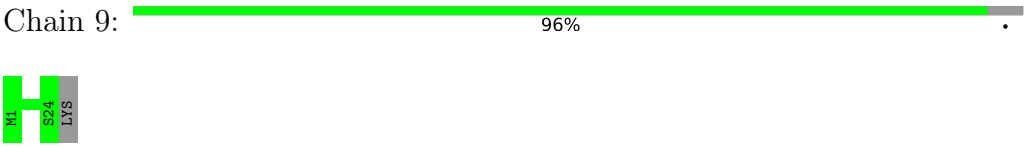


• Molecule 4: Eukaryotic translation initiation factor 3 subunit H

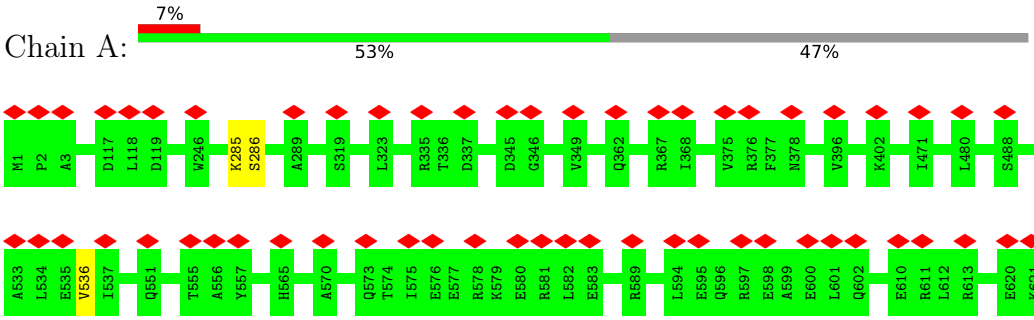


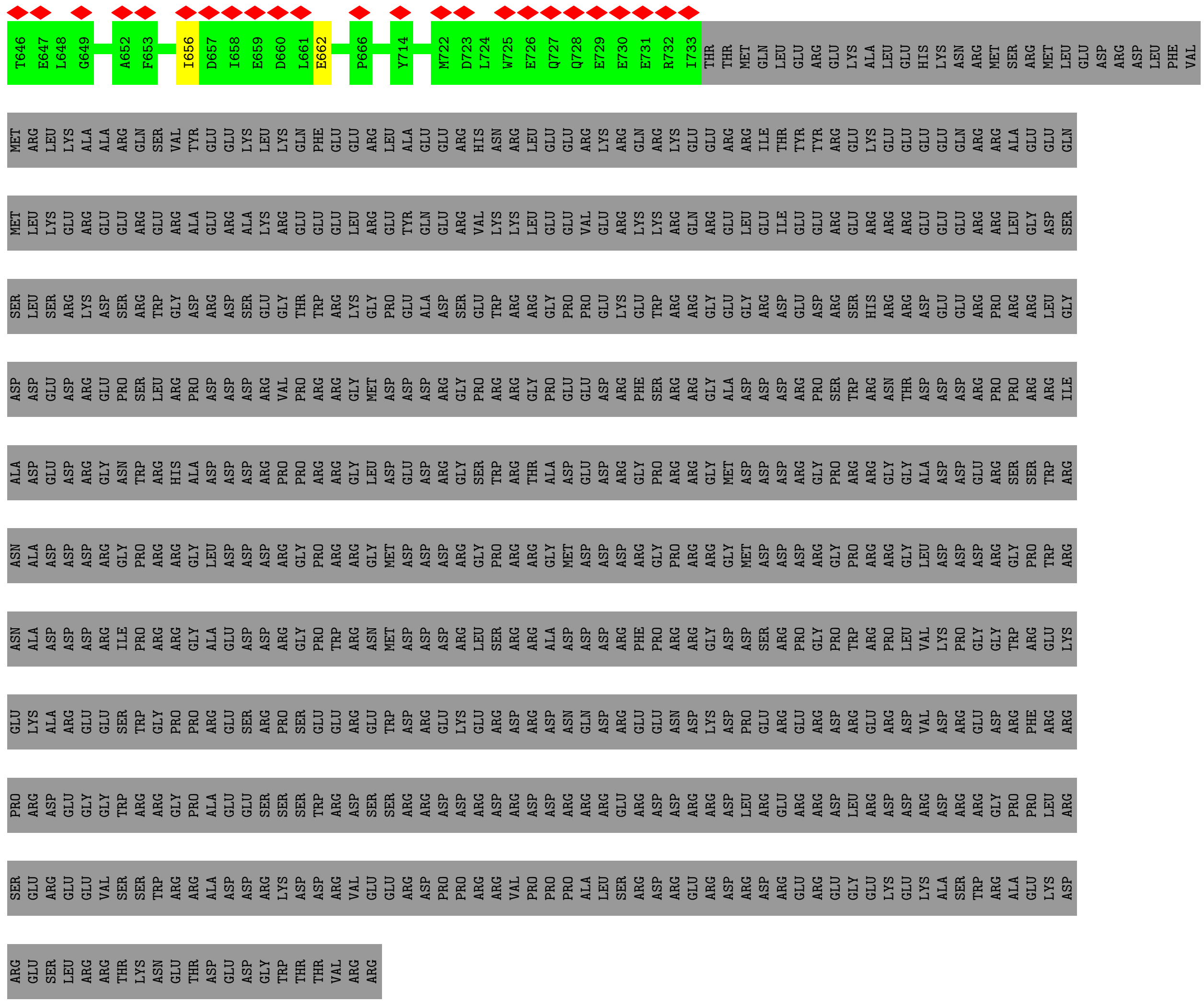


• Molecule 5: 60S ribosomal protein L41



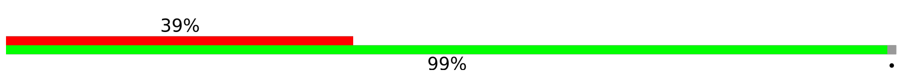
• Molecule 6: Eukaryotic translation initiation factor 3 subunit A

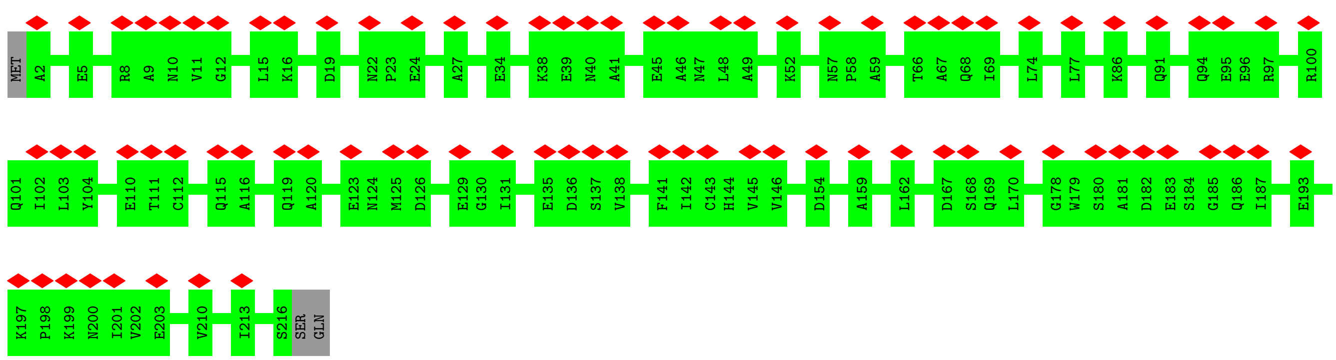




- Molecule 7: Eukaryotic translation initiation factor 3 subunit K

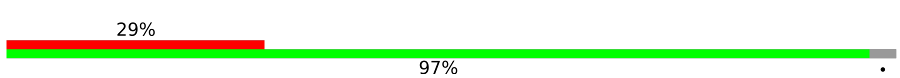
Chain B:

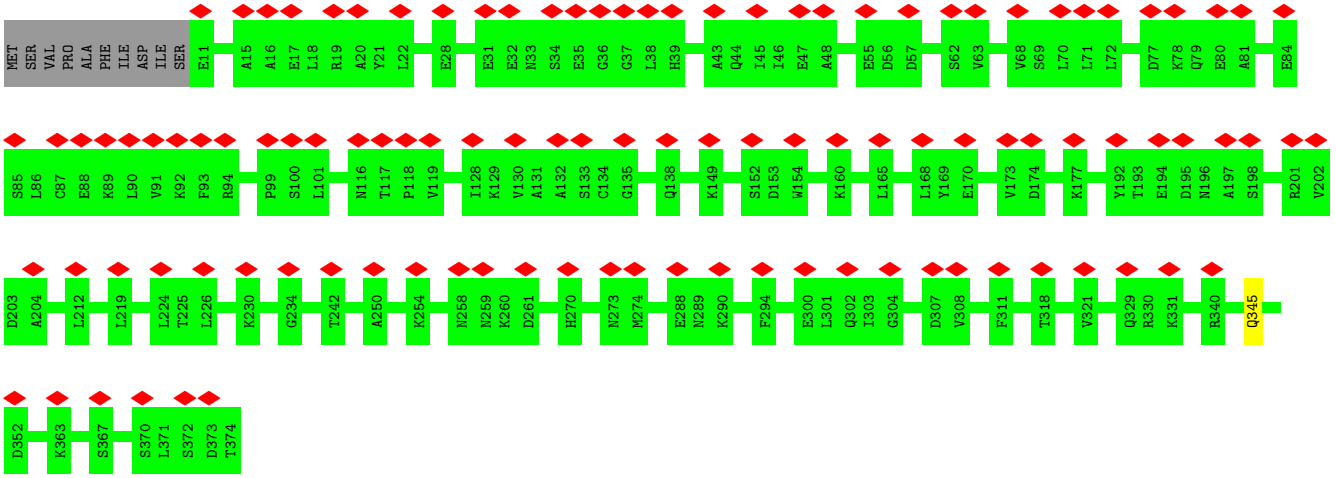




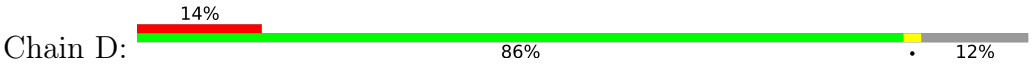
- Molecule 8: Eukaryotic translation initiation factor 3 subunit M

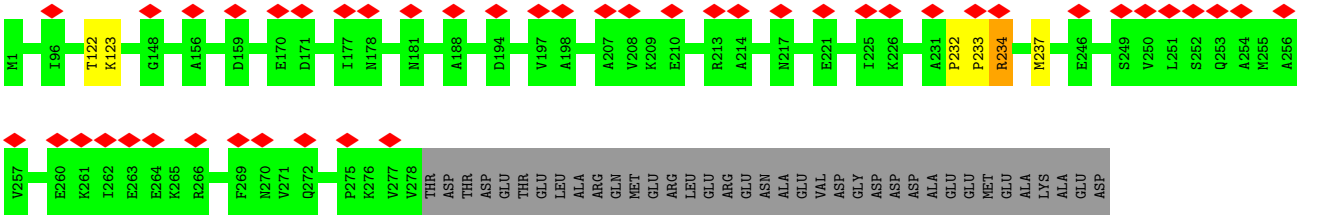
Chain C:



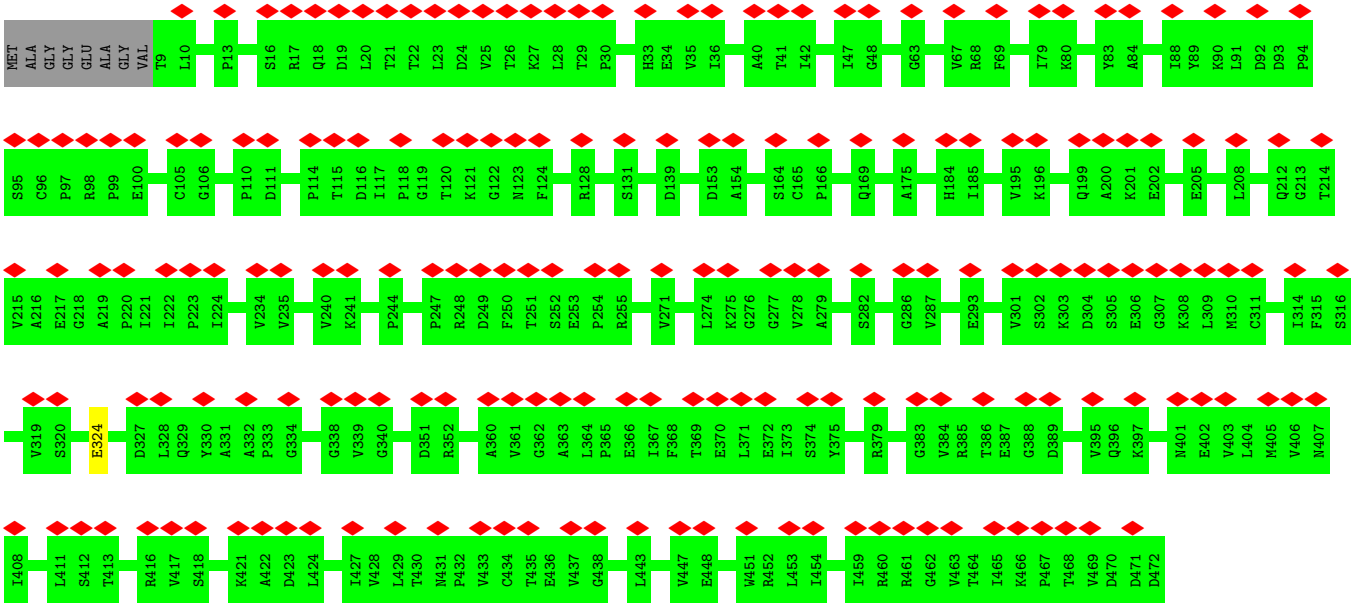


• Molecule 9: Eukaryotic translation initiation factor 2 subunit 1

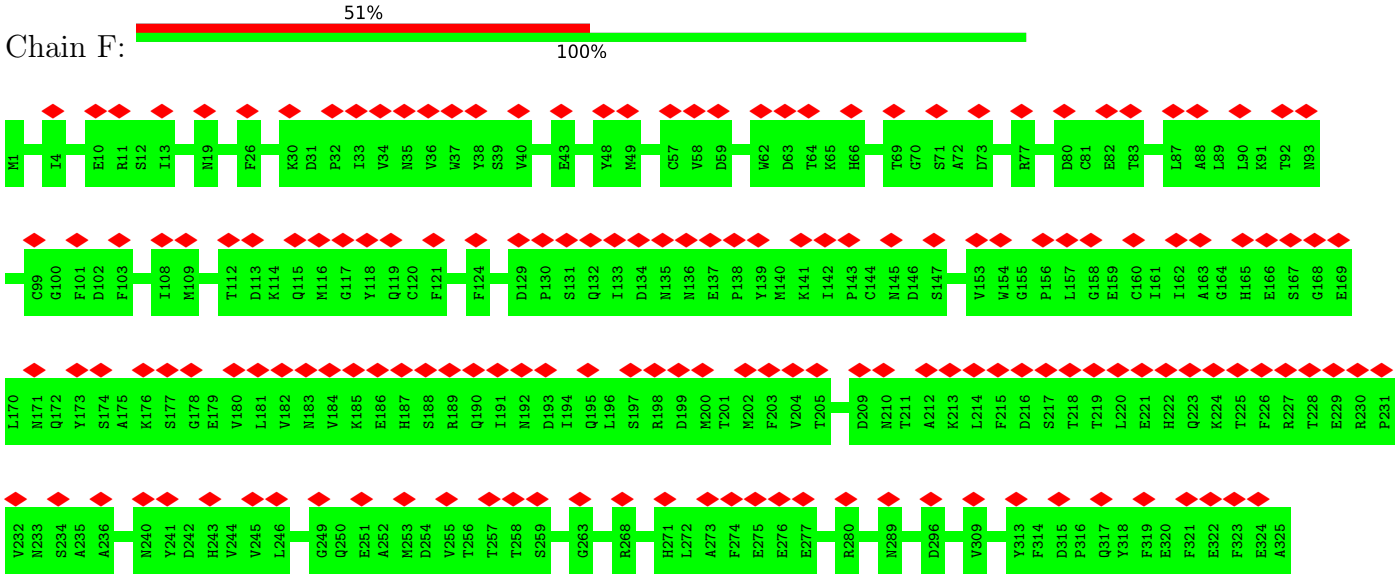




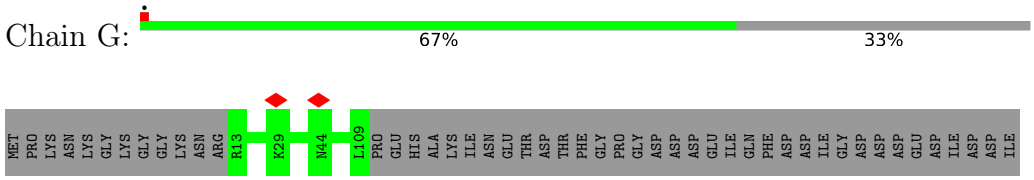
• Molecule 10: Eukaryotic translation initiation factor 2 subunit 3



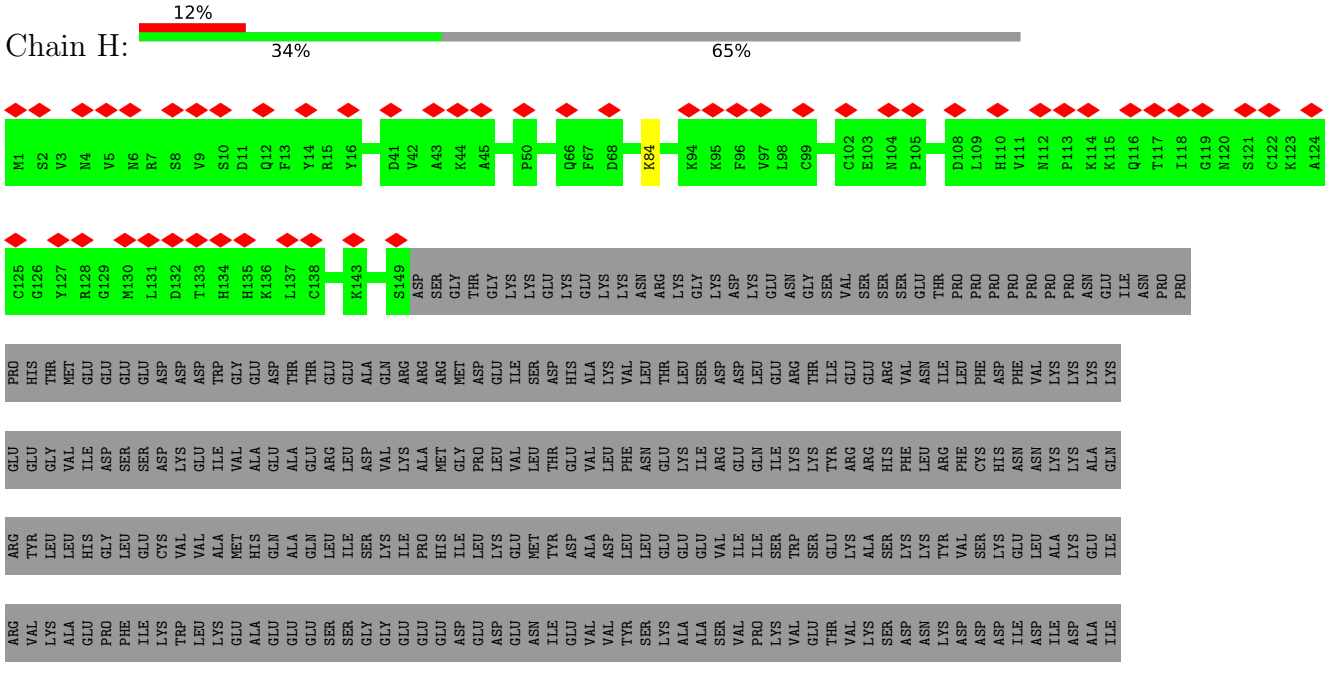
• Molecule 11: Eukaryotic translation initiation factor 3 subunit I



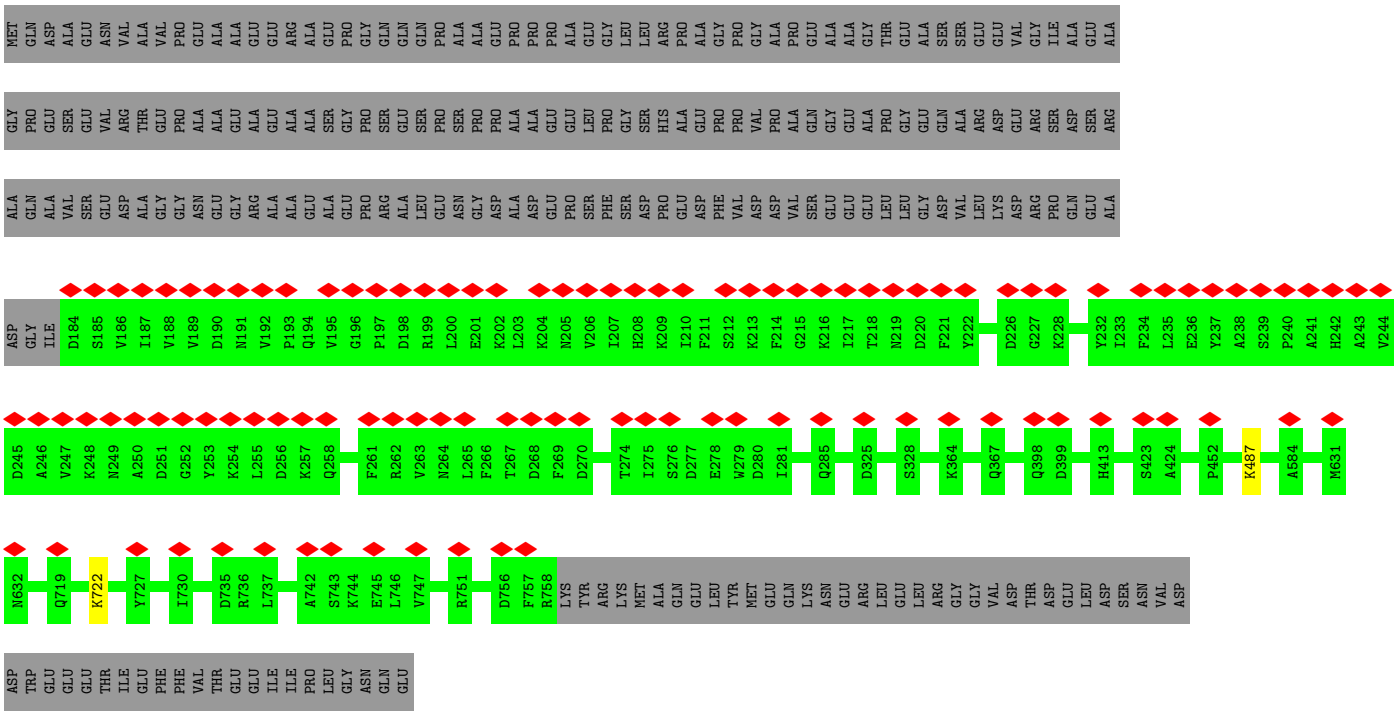
• Molecule 12: Eukaryotic translation initiation factor 1A, X-chromosomal



• Molecule 13: Eukaryotic translation initiation factor 5

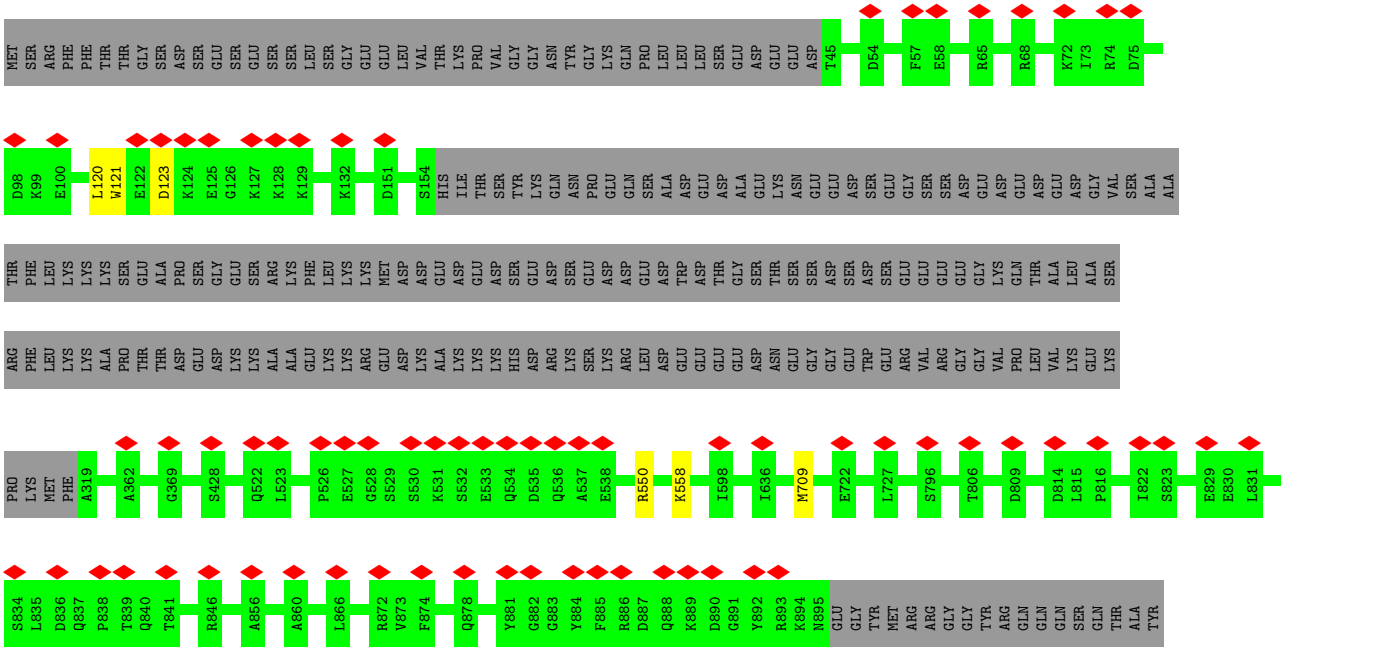


• Molecule 14: Eukaryotic translation initiation factor 3 subunit B



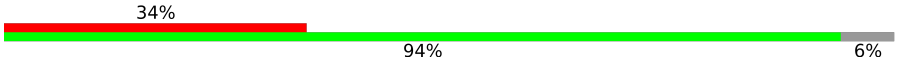
• Molecule 15: Eukaryotic translation initiation factor 3 subunit C

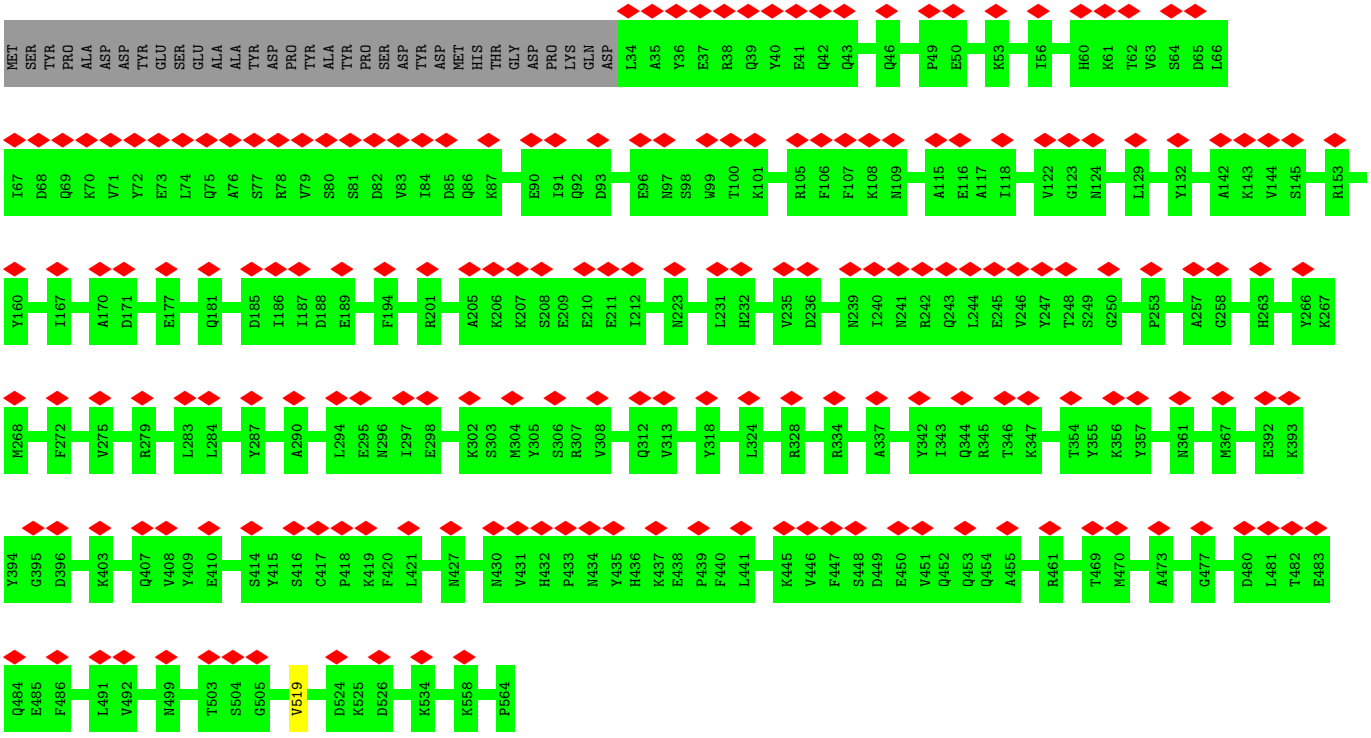
Chain J:



• Molecule 16: Eukaryotic translation initiation factor 3 subunit L

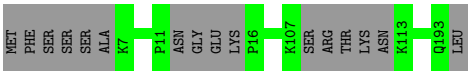
Chain K:





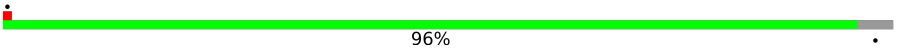
• Molecule 17: 40S ribosomal protein S7

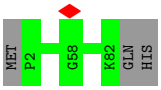
Chain L:



• Molecule 18: 40S ribosomal protein S27

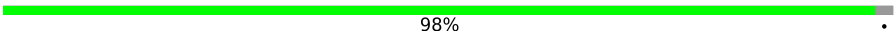
Chain M:





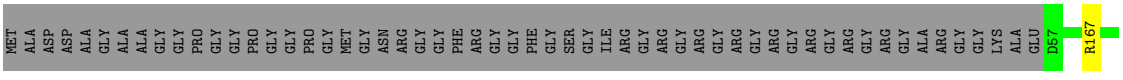
• Molecule 19: 40S ribosomal protein S21

Chain N:



• Molecule 20: 40S ribosomal protein S2

Chain O:

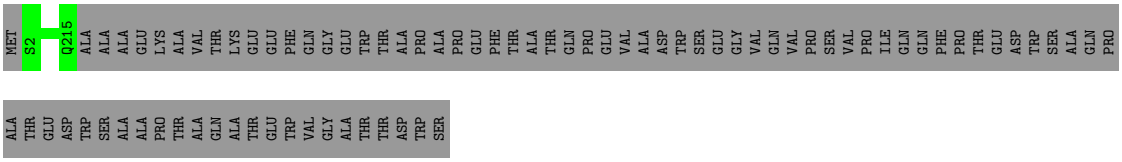


• Molecule 21: 40S ribosomal protein S3a

Chain P:

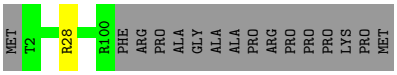
• Molecule 22: 40S ribosomal protein SA

Chain Q:



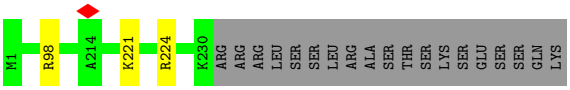
• Molecule 23: 40S ribosomal protein S26

Chain R:



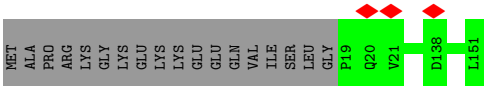
• Molecule 24: 40S ribosomal protein S6

Chain S:



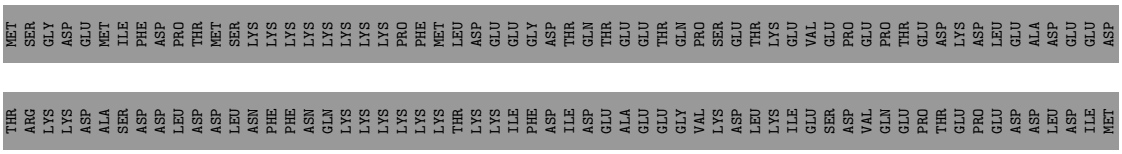
• Molecule 25: 40S ribosomal protein S14

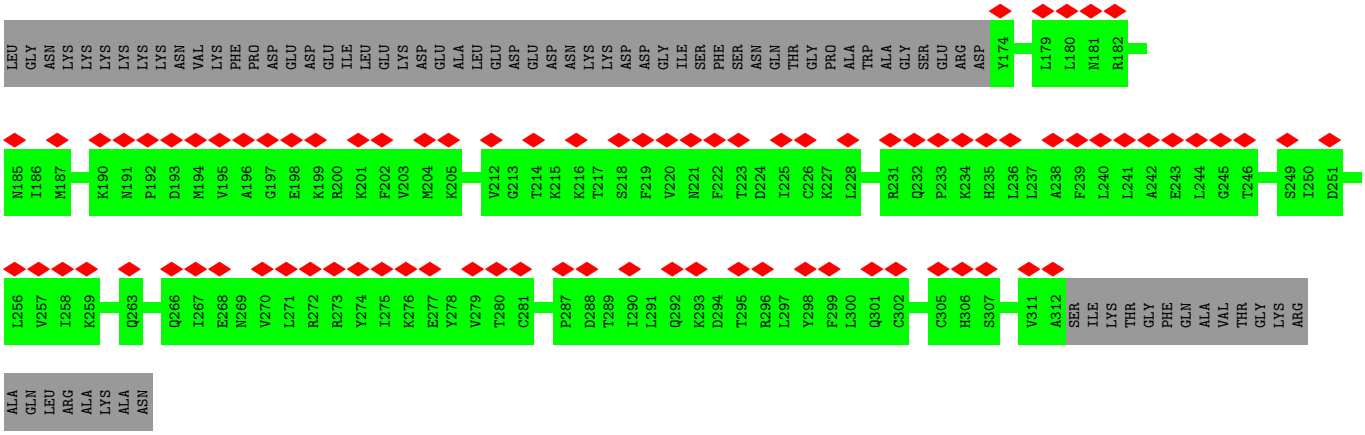
Chain T:



• Molecule 26: Eukaryotic translation initiation factor 2 subunit 2

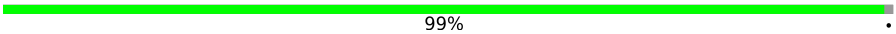
Chain U:





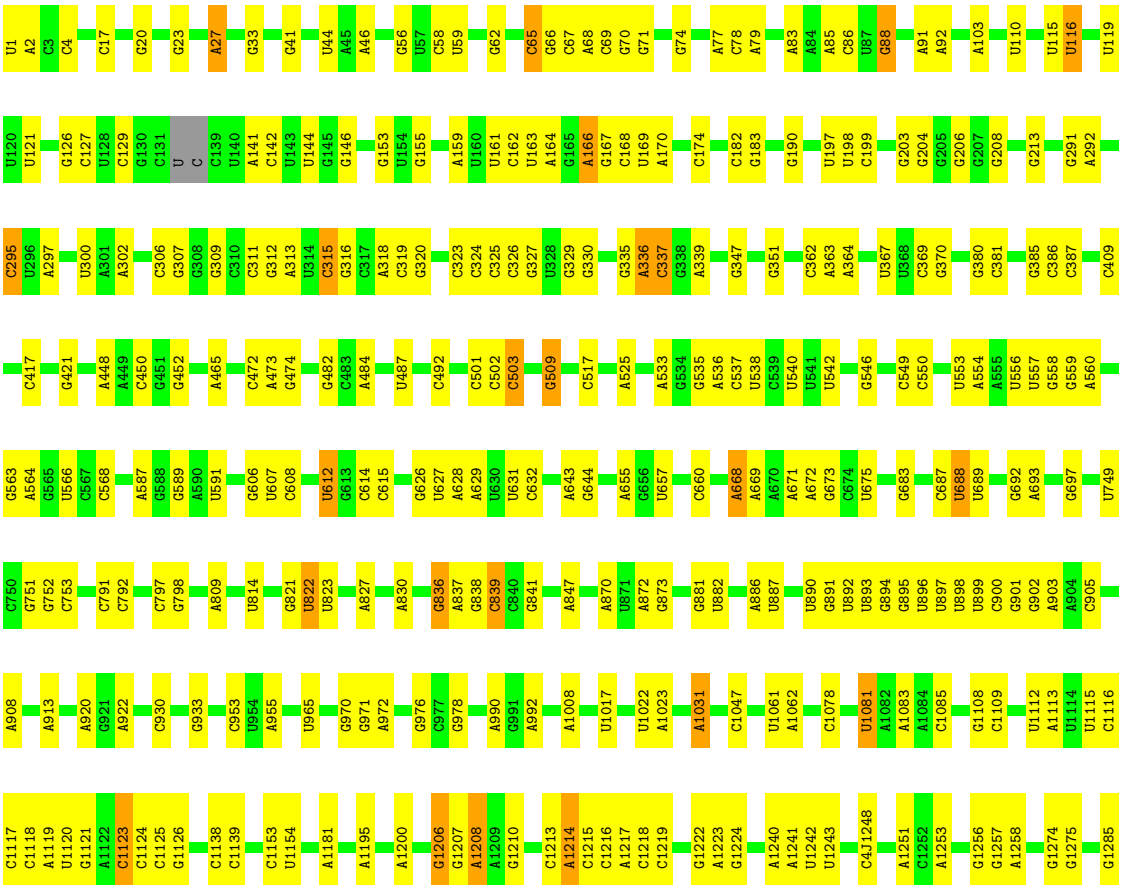
• Molecule 27: 40S ribosomal protein S13

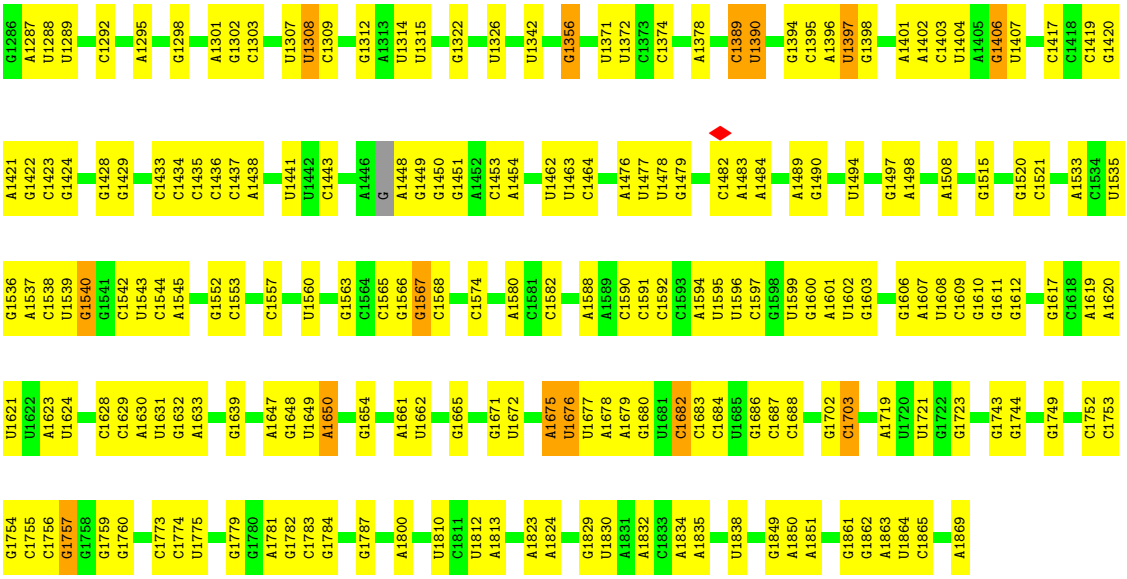
Chain V:



• Molecule 28: 18S rRNA

Chain W:



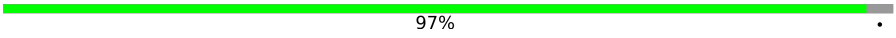


• Molecule 29: 40S ribosomal protein S11

Chain X:

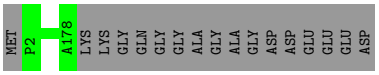
• Molecule 30: 40S ribosomal protein S4, X isoform

Chain Y:



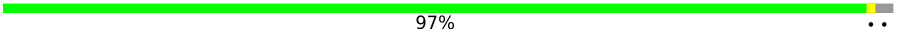
• Molecule 31: 40S ribosomal protein S9

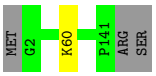
Chain Z:



• Molecule 32: 40S ribosomal protein S23

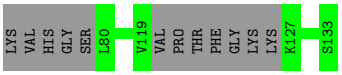
Chain a:





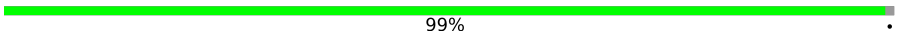
• Molecule 33: 40S ribosomal protein S30

Chain b:



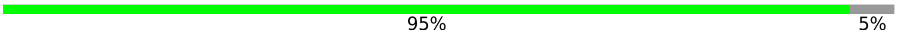
• Molecule 34: 40S ribosomal protein S15a

Chain c:



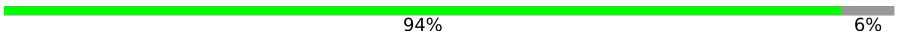
• Molecule 35: 40S ribosomal protein S8

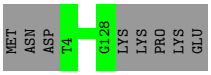
Chain d:



• Molecule 36: 40S ribosomal protein S24

Chain e:



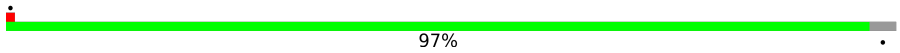


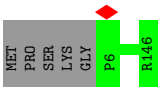
• Molecule 37: 40S ribosomal protein S5

Chain f:

• Molecule 38: 40S ribosomal protein S16

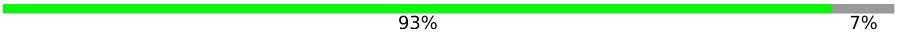
Chain g:

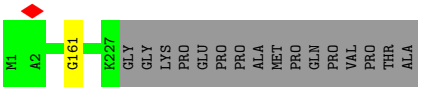




• Molecule 39: 40S ribosomal protein S3

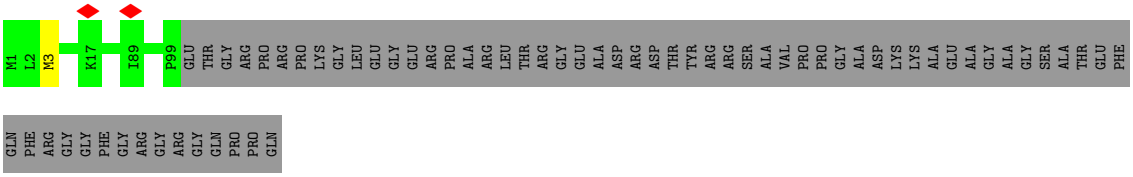
Chain h:





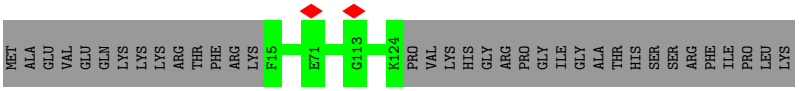
• Molecule 40: 40S ribosomal protein S10

Chain i:



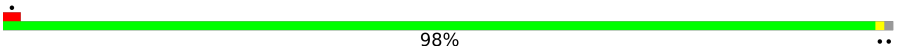
• Molecule 41: 40S ribosomal protein S15

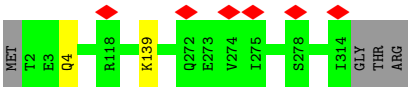
Chain j:



• Molecule 42: Receptor of activated protein C kinase 1

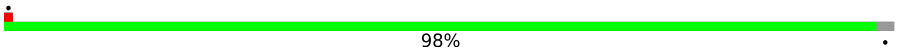
Chain k:

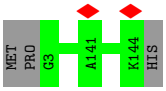




• Molecule 43: 40S ribosomal protein S19

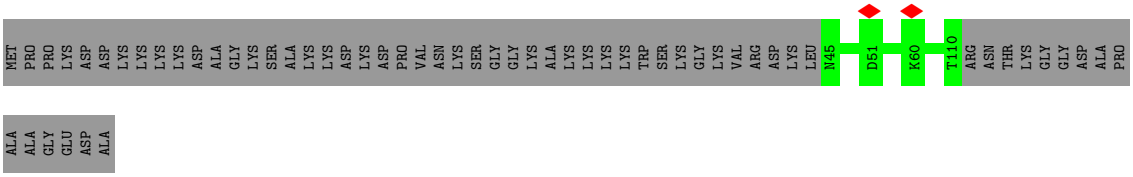
Chain l:





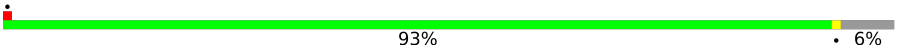
• Molecule 44: 40S ribosomal protein S25

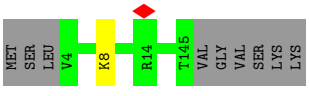
Chain m:



• Molecule 45: Small ribosomal subunit protein uS13

Chain n:



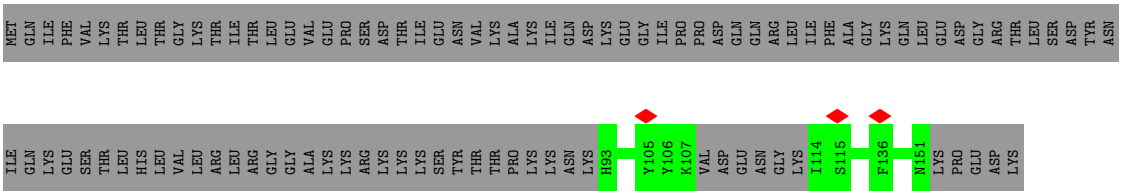


• Molecule 46: 40S ribosomal protein S29

Chain o:

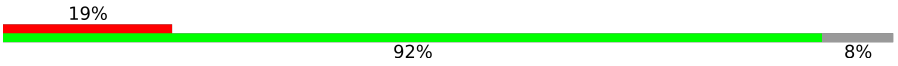
• Molecule 47: Ubiquitin-40S ribosomal protein S27a

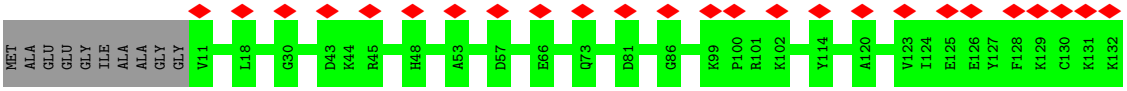
Chain p:



• Molecule 48: 40S ribosomal protein S12

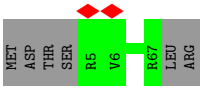
Chain q:





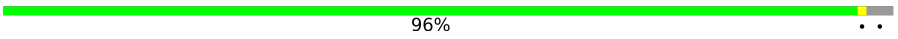
• Molecule 49: 40S ribosomal protein S28

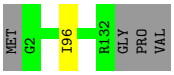
Chain s:



• Molecule 50: 40S ribosomal protein S17

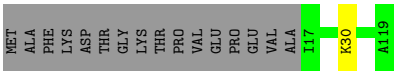
Chain v:





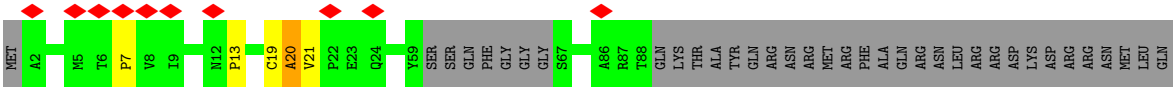
• Molecule 51: 40S ribosomal protein S20

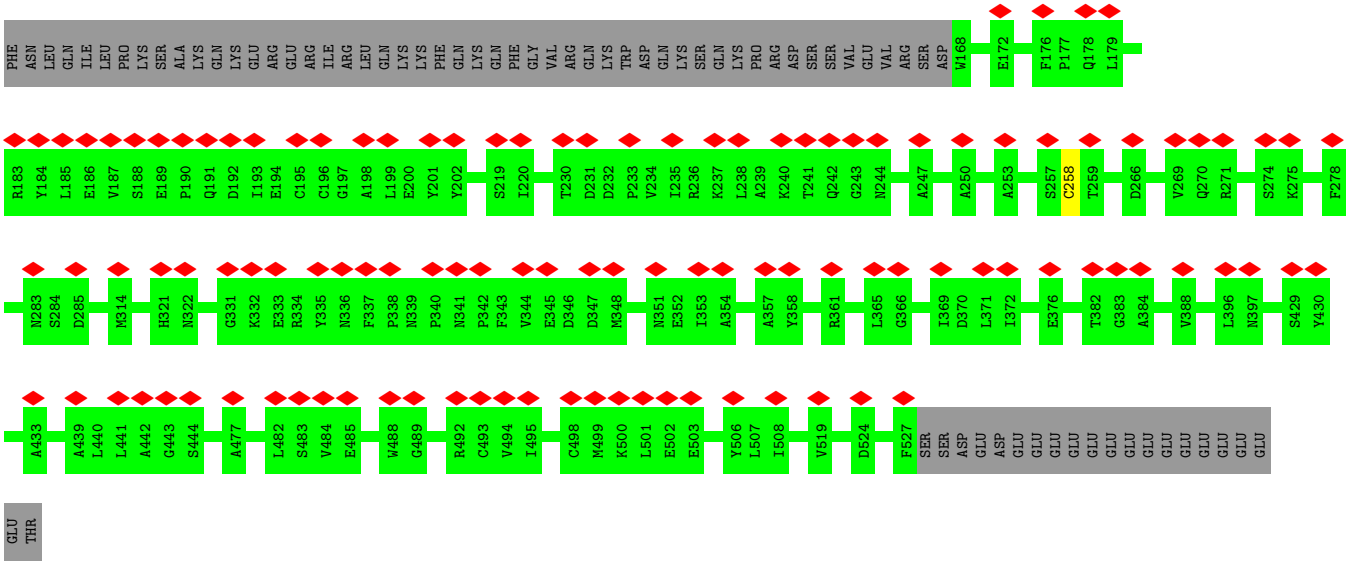
Chain w:



• Molecule 52: Eukaryotic translation initiation factor 3 subunit D

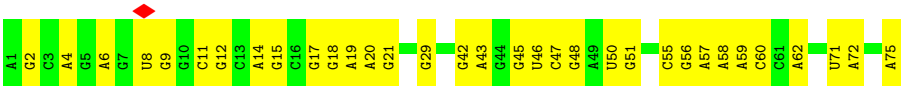
Chain x:





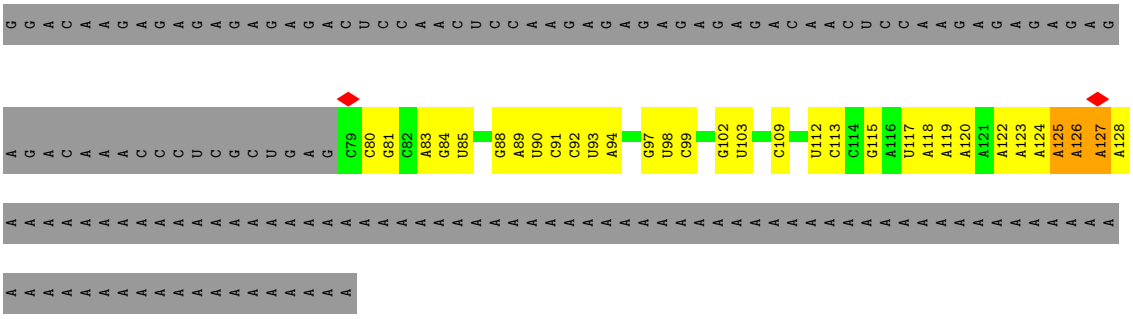
• Molecule 53: tRNAiMet

Chain y:



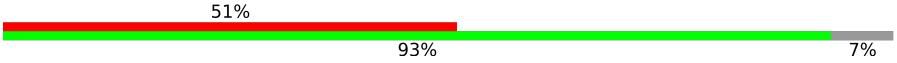
• Molecule 54: mRNA

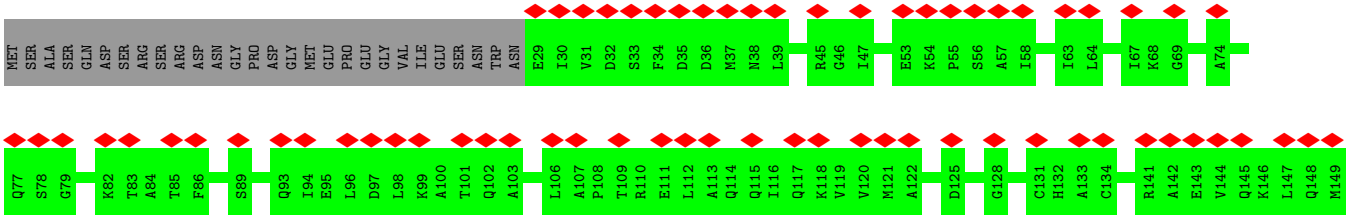
Chain z:

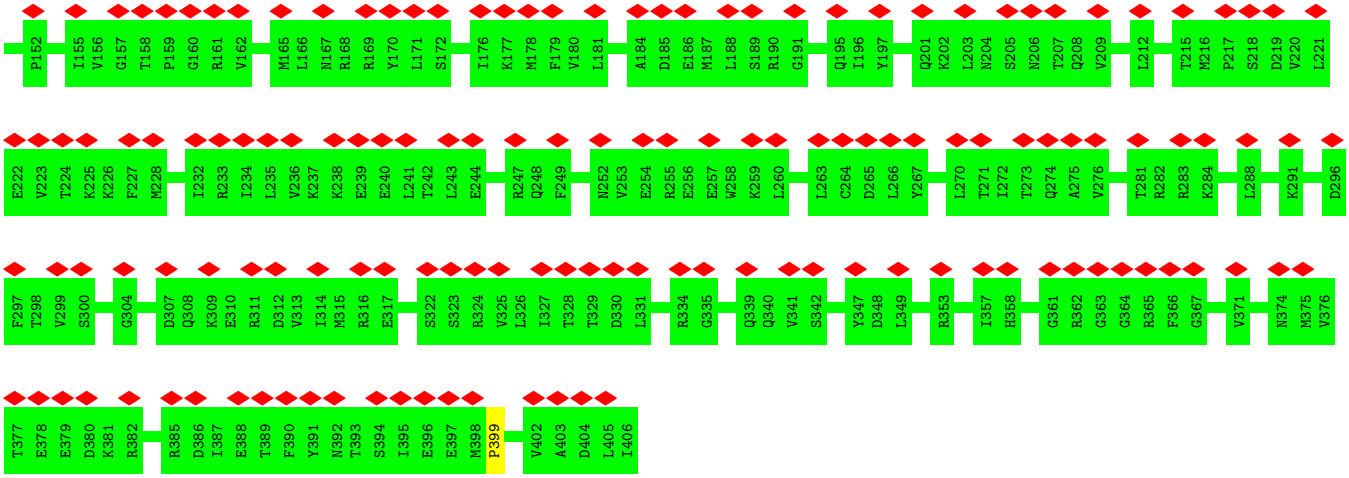


• Molecule 55: Eukaryotic initiation factor 4A-I

Chain 3:

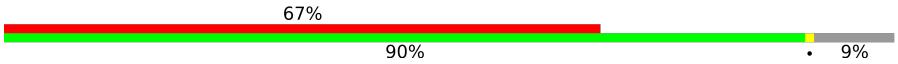


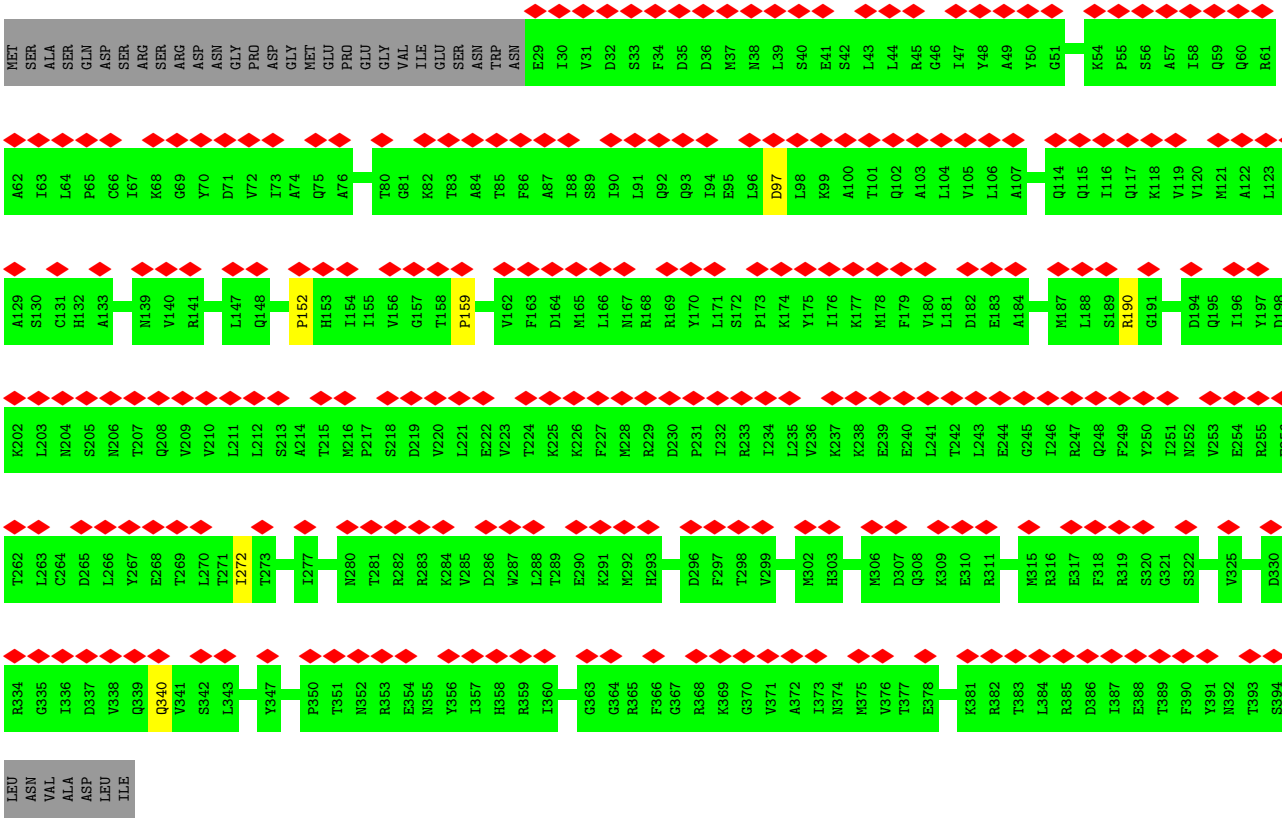




• Molecule 55: Eukaryotic initiation factor 4A-I

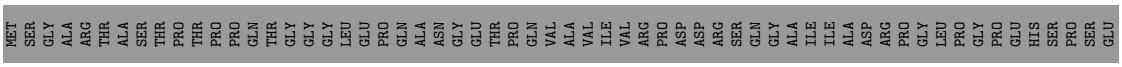
Chain 1:





• Molecule 56: Eukaryotic translation initiation factor 4 gamma 1

Chain 2:



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

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

ILE PRO SER ALA THR PRO ALA THR ALA PRO SER ALA THR SER PRO ALA GLN GLU GLU GLU MET GLU GLU GLU GLU GLU GLU GLU GLY GLU ALA GLY GLU ALA GLY GLU ALA GLU SER GLU LYS GLY GLY GLU GLU LEU LEU PRO PRO GLU SER THR PRO ILE PRO ALA ASN LEU SER

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

GLU SER GLU GLY SER GLY VAL PRO PRO ARG PRO GLU GLU ALA ASP GLU THR TRP ASP SER LYS GLU ASP LYS ILE HIS ASN ALA GLU ASN ILE GLN PRO GLY GLU GLN LYS TYR GLU TYR LYS SER ASP GLN TRP LYS PRO LEU ASN LEU GLU GLU LYS LYS ARG TYR ASP ARG GLU PHE

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

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

PRO SER SER LYS ARG THR ALA ALA ASP LYS ASP ARG GLY GLU GLU ASP ALA ASP G754 S755 K756 T757 L760 F761 R762 R763 V764 R765 S766 I767 L768 T772 P773 Q774 Q777 Q778 L779 M780 K781 Q782 V783 T784 Q785 L786 A787 I788 D789 T790 E791 E792 R793 L794 K795 G796 V797 I798 D799

L800 I801 F802 E803 K804 A805 I806 S807 E808 P809 N810 V813 A814 Y815 A816 N817 M818 C819 R820 C821 L822 M823 A824 L825 K826 V827 P828 T829 T830 E831 K832 P833 T834 V835 T836 V837 N838 F839 R840 K841 L842 L843 L844 N845 R846 C847 Q848 K849 E850 F851 E852 K853 D854 K855 D856 D857 D858 E859 V860

F861 E862 K863 K864 Q865 K866 E867 M868 D869 E870 A871 A872 T873 A874 E875 E876 R877 G878 R879 L880 K881 E882 E883 L884 E885 E886 A887 R888 D889 I890 A891 R892 R893 R894 S895 L896 G897 N898 I899 K900 F901 I902 G903 E904 L905 F906 K907 L908 K909 M910 L911 T912 E913 A914 I915 M916 H917 D918 C919 V920

V921 K922 L923 L924 K925 N926 H927 D928 E929 E930 S931 L932 E933 C934 L935 C936 R937 L938 L939 T940 T941 I942 G943 K944 D945 L946 D947 F948 E949 K950 A951 K952 P953 R954 M955 D956 Q957 Y958 F959 N960 Q961 M962 E963 K964 I965 I966 K967 E968 K969 K970 T971 S972 S973 R974 I975 R976 F977 M978 L979 Q980

D981 V982 L983 D984 L985 R986 G987 S988 N989 W990 VAL PRO ARG ARG GLY ASP GLN GLY PRO LYS THR ILE ASP GLN ILE HIS LYS GLU ALA GLU MET GLU GLU HIS ARG GLU HIS ILE LYS VAL GLN GLN LEU MET ALA LYS GLY SER ASP LYS ARG ARG GLY GLY PRO PRO GLY PRO PRO ILE

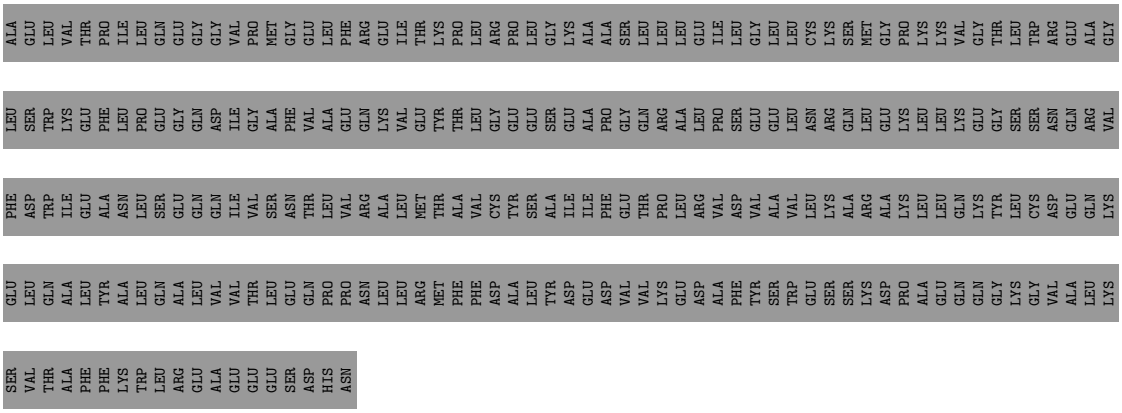
SER ARG GLY LEU PRO LEU VAL ASP ASP GLY GLY TRP ASN THR VAL PRO ILE SER LYS GLY SER ARG PRO ILE ASP THR SER ARG LEU THR LYS ILE THR LYS PRO GLY SER ILE ASP SER ASN ASN GLN LEU PHE ALA PRO GLY GLY ARG LEU SER TRP GLY LYS GLY SER SER GLY GLY

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

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

VAL LYS ARG GLU ALA ALA LEU PRO PRO VAL SER PRO LEU LYS ALA ALA LEU SER GLU GLU GLU LEU GLU LYS LYS SER LYS ALA ILE ILE GLU GLU TYR LEU HIS LEU ASN ASP MET LYS GLU ALA VAL GLN CYS VAL GLN GLU LEU ALA SER PRO SER LEU LEU PHE ILE PHE VAL ARG

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

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	241389	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 ($e^-/Å^2$)	47.88	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	3000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.065	Depositor
Minimum map value	-0.023	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.002	Depositor
Recommended contour level	0.006	Depositor
Map size (Å)	423.99997, 423.99997, 423.99997	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.06, 1.06, 1.06	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: A2M, OMC, 6MZ, ZN, 5MU, PSU, UR3, MA6, C4J, MG, OMU, JMH, 5MC, OMG

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	5	0.24	0/2174	0.39	0/3036
2	6	0.25	0/1329	0.43	0/1848
3	7	0.31	0/628	0.68	0/846
4	8	0.24	0/1567	0.42	0/2182
5	9	0.31	0/231	0.96	0/294
6	A	0.29	0/5470	0.58	0/7444
7	B	0.23	0/1065	0.40	0/1484
8	C	0.26	0/1807	0.39	0/2518
9	D	0.31	0/2267	0.62	0/3056
10	E	0.27	0/3598	0.58	0/4868
11	F	0.24	0/1597	0.50	0/2216
12	G	0.31	0/797	0.68	0/1061
13	H	0.28	0/1200	0.55	0/1618
14	I	0.29	0/4695	0.58	0/6376
15	J	0.30	0/5288	0.59	0/7159
16	K	0.27	0/2636	0.41	0/3676
17	L	0.30	0/1460	0.63	0/1953
18	M	0.30	0/644	0.62	0/864
19	N	0.31	0/623	0.65	0/833
20	O	0.31	0/1743	0.58	0/2354
21	P	0.32	0/1742	0.60	0/2330
22	Q	0.31	0/1732	0.62	0/2353
23	R	0.33	0/805	0.68	0/1079
24	S	0.30	0/1885	0.69	0/2510
25	T	0.28	0/1010	0.68	0/1353
26	U	0.23	0/688	0.44	0/958
27	V	0.31	0/1232	0.64	0/1656
28	W	2.05	15/40246 (0.0%)	1.44	111/62715 (0.2%)
29	X	0.31	0/1186	0.64	0/1585
30	Y	0.30	0/2077	0.63	0/2796
31	Z	0.30	0/1502	0.71	0/2008
32	a	0.30	0/1105	0.62	0/1476

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
33	b	0.28	0/380	0.67	0/496
34	c	0.30	0/1051	0.63	0/1406
35	d	0.31	0/1654	0.64	0/2203
36	e	0.31	0/1032	0.65	0/1371
37	f	0.28	0/1481	0.63	0/1988
38	g	0.29	0/1142	0.65	0/1528
39	h	0.31	0/1793	0.66	0/2414
40	i	0.33	0/859	0.64	0/1159
41	j	0.30	0/929	0.65	0/1241
42	k	0.26	0/2493	0.60	0/3394
43	l	0.30	0/1123	0.62	0/1504
44	m	0.30	0/529	0.66	0/712
45	n	0.29	0/1194	0.71	0/1599
46	o	0.29	0/429	0.68	0/568
47	p	0.30	0/444	0.67	0/588
48	q	0.28	0/960	0.60	0/1286
49	s	0.27	0/500	0.75	0/669
50	v	0.29	0/1077	0.64	0/1444
51	w	0.25	0/827	0.67	0/1110
52	x	0.33	1/2963 (0.0%)	1.35	3/4050 (0.1%)
53	y	0.37	0/1795	0.96	0/2798
54	z	0.37	0/944	0.97	3/1463 (0.2%)
55	1	0.24	0/1833	0.44	0/2552
55	3	0.24	0/1868	0.46	0/2601
56	2	0.24	0/1177	0.37	0/1642
All	All	1.18	16/126506 (0.0%)	1.00	117/180291 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
6	A	0	1
9	D	0	1
28	W	1	0
32	a	0	1
39	h	0	1
42	k	0	1
52	x	0	1
All	All	1	6

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	W	1675	A	N3-C4	182.60	2.44	1.34
28	W	1675	A	C6-N1	161.45	2.48	1.35
28	W	1650	A	N9-C4	151.21	2.28	1.37
28	W	1675	A	C5-C4	126.71	2.27	1.38
28	W	1675	A	C2-N3	125.17	2.46	1.33
28	W	1675	A	N1-C2	120.54	2.42	1.34
28	W	1675	A	C5-C6	109.22	2.39	1.41
28	W	1650	A	C8-N7	105.50	2.05	1.31
28	W	1650	A	N9-C8	-61.16	0.88	1.37
28	W	1650	A	N7-C5	45.88	1.66	1.39
28	W	1650	A	C5-C4	-30.10	1.17	1.38
28	W	1650	A	C1'-N9	11.93	1.66	1.48
28	W	1650	A	N3-C4	10.96	1.41	1.34
52	x	20	ALA	C-N	6.71	1.49	1.34
28	W	1675	A	N9-C8	6.51	1.43	1.37
28	W	1675	A	C8-N7	6.14	1.35	1.31

All (117) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	1650	A	N7-C8-N9	-155.06	36.27	113.80
28	W	1650	A	C4-C5-N7	-154.51	33.45	110.70
28	W	1650	A	C5-N7-C8	89.96	148.88	103.90
28	W	1650	A	C8-N9-C4	74.22	135.49	105.80
52	x	20	ALA	O-C-N	-61.71	23.96	122.70
52	x	20	ALA	C-N-CA	-44.79	9.73	121.70
28	W	1650	A	N9-C4-C5	43.93	123.37	105.80
28	W	1650	A	C6-C5-N7	38.30	159.11	132.30
28	W	1650	A	C2-N3-C4	34.94	128.07	110.60
28	W	1650	A	C8-N9-C1'	-32.84	68.59	127.70
28	W	1675	A	N1-C2-N3	-31.12	113.74	129.30
28	W	1675	A	C4-C5-N7	-29.94	95.73	110.70
28	W	1675	A	N7-C8-N9	29.61	128.61	113.80
28	W	1675	A	N9-C4-C5	-29.17	94.13	105.80
28	W	1650	A	N3-C4-C5	-27.39	107.63	126.80
28	W	1675	A	N3-C4-N9	22.29	145.23	127.40
28	W	1675	A	C2-N3-C4	21.83	121.51	110.60
28	W	1650	A	C4-C5-C6	18.40	126.20	117.00
28	W	1650	A	C6-N1-C2	-16.64	108.61	118.60
28	W	1650	A	C4-N9-C1'	16.38	155.79	126.30
28	W	1650	A	C5-C6-N1	15.79	125.60	117.70
28	W	1675	A	C4-C5-C6	14.67	124.33	117.00
28	W	1675	A	C8-N9-C4	13.93	111.37	105.80

Continued on next page...

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	337	C	P-O3'-C3'	-12.62	104.56	119.70
28	W	1675	A	C5-N7-C8	12.50	110.15	103.90
28	W	1650	A	N1-C2-N3	-11.81	123.39	129.30
28	W	1675	A	C6-N1-C2	11.44	125.46	118.60
28	W	1675	A	C6-C5-N7	10.90	139.93	132.30
28	W	1449	G	P-O3'-C3'	-10.70	106.86	119.70
52	x	20	ALA	CA-C-N	-10.34	94.45	117.20
28	W	1448	A	P-O3'-C3'	-10.24	107.41	119.70
28	W	1356	G	N3-C2-N2	-9.72	113.09	119.90
28	W	295	C	N3-C2-O2	-9.70	115.11	121.90
28	W	1650	A	O4'-C1'-N9	9.62	115.90	108.20
28	W	1687	C	N1-C2-O2	9.40	124.54	118.90
54	z	127	A	P-O3'-C3'	-9.26	108.58	119.70
28	W	1650	A	C5-C6-N6	-9.03	116.48	123.70
28	W	1675	A	N3-C4-C5	-8.98	120.51	126.80
28	W	1123	C	C6-N1-C2	-8.85	116.76	120.30
54	z	126	A	P-O3'-C3'	-8.62	109.35	119.70
28	W	336	A	P-O3'-C3'	-8.35	109.69	119.70
28	W	295	C	N1-C2-O2	8.22	123.83	118.90
28	W	882	U	N3-C2-O2	-8.12	116.52	122.20
28	W	882	U	N1-C2-O2	7.92	128.34	122.80
28	W	882	U	C2-N1-C1'	7.79	127.05	117.70
28	W	1687	C	N3-C2-O2	-7.71	116.50	121.90
54	z	125	A	P-O3'-C3'	-7.56	110.63	119.70
28	W	1356	G	N1-C2-N2	7.42	122.88	116.20
28	W	1676	U	N3-C2-O2	-7.40	117.02	122.20
28	W	1356	G	C8-N9-C4	-7.08	103.57	106.40
28	W	1597	C	N3-C2-O2	-7.08	116.95	121.90
28	W	1123	C	N1-C2-O2	7.03	123.12	118.90
28	W	1687	C	C6-N1-C2	-6.95	117.52	120.30
28	W	549	C	N3-C2-O2	-6.75	117.17	121.90
28	W	1123	C	N3-C2-O2	-6.70	117.21	121.90
28	W	1451	G	P-O3'-C3'	-6.68	111.69	119.70
28	W	1520	G	C4-N9-C1'	6.66	135.15	126.50
28	W	1687	C	C2-N1-C1'	6.63	126.09	118.80
28	W	1675	A	C5-C6-N1	-6.58	114.41	117.70
28	W	1395	C	C2-N1-C1'	6.56	126.01	118.80
28	W	1139	C	N3-C2-O2	-6.29	117.50	121.90
28	W	1206	G	C4-N9-C1'	6.29	134.68	126.50
28	W	1124	C	N3-C2-O2	-6.26	117.52	121.90
28	W	1308	U	O4'-C1'-N1	6.19	113.15	108.20
28	W	1206	G	N3-C4-C5	-6.17	125.52	128.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	1218	C	C6-N1-C2	-6.07	117.87	120.30
28	W	1395	C	N1-C2-O2	5.96	122.48	118.90
28	W	836	G	C4-N9-C1'	5.94	134.22	126.50
28	W	1406	G	C4-N9-C1'	5.82	134.07	126.50
28	W	1287	A	P-O3'-C3'	-5.81	112.73	119.70
28	W	1757	G	C4-N9-C1'	5.78	134.02	126.50
28	W	1597	C	N1-C2-O2	5.73	122.34	118.90
28	W	1397	U	C2-N1-C1'	5.72	124.56	117.70
28	W	1568	C	C6-N1-C2	-5.68	118.03	120.30
28	W	1520	G	C8-N9-C1'	-5.66	119.64	127.00
28	W	688	U	P-O3'-C3'	5.64	126.47	119.70
28	W	311	C	P-O3'-C3'	-5.63	112.95	119.70
28	W	1139	C	N1-C2-O2	5.58	122.25	118.90
28	W	1218	C	C3'-C2'-C1'	5.58	105.96	101.50
28	W	1124	C	C6-N1-C2	-5.57	118.07	120.30
28	W	1676	U	C6-N1-C2	-5.54	117.67	121.00
28	W	315	C	C6-N1-C2	-5.54	118.08	120.30
28	W	632	C	C6-N1-C2	-5.51	118.10	120.30
28	W	1389	C	C6-N1-C2	-5.51	118.10	120.30
28	W	1688	C	C6-N1-C2	-5.50	118.10	120.30
28	W	1395	C	N3-C2-O2	-5.50	118.05	121.90
28	W	88	G	N3-C4-N9	-5.45	122.73	126.00
28	W	549	C	N1-C2-O2	5.44	122.16	118.90
28	W	88	G	N3-C2-N2	-5.43	116.10	119.90
28	W	1540	G	N3-C4-N9	-5.43	122.74	126.00
28	W	1356	G	N9-C4-C5	5.40	107.56	105.40
28	W	1520	G	N3-C4-N9	5.39	129.24	126.00
28	W	1757	G	N3-C4-C5	-5.39	125.90	128.60
28	W	1139	C	C2-N1-C1'	5.39	124.73	118.80
28	W	58	C	C6-N1-C2	-5.38	118.15	120.30
28	W	1214	A	N3-C4-N9	5.38	131.71	127.40
28	W	839	C	C6-N1-C2	-5.35	118.16	120.30
28	W	1123	C	C5-C6-N1	5.34	123.67	121.00
28	W	65	C	C6-N1-C2	-5.30	118.18	120.30
28	W	1389	C	N3-C2-O2	-5.29	118.20	121.90
28	W	1395	C	C6-N1-C2	-5.29	118.18	120.30
28	W	1390	U	C2-N1-C1'	5.29	124.05	117.70
28	W	503	C	C6-N1-C2	-5.29	118.19	120.30
28	W	1206	G	N3-C4-N9	5.28	129.17	126.00
28	W	1682	C	C6-N1-C2	-5.23	118.21	120.30
28	W	1520	G	N3-C4-C5	-5.23	125.98	128.60
28	W	1397	U	N1-C2-O2	5.22	126.45	122.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	1123	C	C2-N1-C1'	5.19	124.51	118.80
28	W	1453	C	C2-N1-C1'	5.18	124.50	118.80
28	W	1208	A	C4-N9-C1'	5.16	135.59	126.30
28	W	1676	U	N1-C2-N3	5.15	117.99	114.90
28	W	550	C	C6-N1-C2	-5.12	118.25	120.30
28	W	1389	C	N1-C2-O2	5.10	121.96	118.90
28	W	1567	G	C8-N9-C4	-5.06	104.37	106.40
28	W	1022	U	C2-N1-C1'	5.06	123.78	117.70
28	W	1078	C	C6-N1-C2	-5.05	118.28	120.30
28	W	1597	C	C6-N1-C2	-5.04	118.28	120.30

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
28	W	1219	JMH	C2'

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
6	A	662	GLU	Peptide
9	D	234	ARG	Sidechain
32	a	60	LYS	Peptide
39	h	161	GLY	Peptide
42	k	4	GLN	Peptide
52	x	20	ALA	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 (i)

5.3.1 Protein backbone (i)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	5	435/445 (98%)	419 (96%)	16 (4%)	0	100	100
2	6	267/357 (75%)	252 (94%)	15 (6%)	0	100	100
3	7	75/320 (23%)	66 (88%)	9 (12%)	0	100	100
4	8	312/352 (89%)	294 (94%)	17 (5%)	1 (0%)	41	75
5	9	22/25 (88%)	22 (100%)	0	0	100	100
6	A	731/1382 (53%)	697 (95%)	32 (4%)	2 (0%)	41	75
7	B	213/218 (98%)	195 (92%)	18 (8%)	0	100	100
8	C	360/374 (96%)	340 (94%)	19 (5%)	1 (0%)	41	75
9	D	276/315 (88%)	257 (93%)	17 (6%)	2 (1%)	22	61
10	E	462/472 (98%)	442 (96%)	19 (4%)	1 (0%)	47	81
11	F	323/325 (99%)	290 (90%)	33 (10%)	0	100	100
12	G	95/144 (66%)	87 (92%)	8 (8%)	0	100	100
13	H	147/431 (34%)	139 (95%)	8 (5%)	0	100	100
14	I	571/814 (70%)	531 (93%)	38 (7%)	2 (0%)	34	72
15	J	683/913 (75%)	650 (95%)	32 (5%)	1 (0%)	51	84
16	K	529/564 (94%)	504 (95%)	24 (4%)	1 (0%)	47	81
17	L	172/194 (89%)	166 (96%)	6 (4%)	0	100	100
18	M	79/84 (94%)	75 (95%)	4 (5%)	0	100	100
19	N	79/83 (95%)	73 (92%)	6 (8%)	0	100	100
20	O	218/293 (74%)	212 (97%)	6 (3%)	0	100	100
21	P	209/264 (79%)	199 (95%)	10 (5%)	0	100	100
22	Q	212/295 (72%)	198 (93%)	14 (7%)	0	100	100
23	R	97/115 (84%)	94 (97%)	3 (3%)	0	100	100
24	S	228/249 (92%)	219 (96%)	9 (4%)	0	100	100
25	T	131/151 (87%)	123 (94%)	8 (6%)	0	100	100
26	U	137/333 (41%)	126 (92%)	11 (8%)	0	100	100
27	V	148/151 (98%)	146 (99%)	2 (1%)	0	100	100
29	X	138/158 (87%)	135 (98%)	3 (2%)	0	100	100
30	Y	254/263 (97%)	245 (96%)	9 (4%)	0	100	100
31	Z	175/194 (90%)	173 (99%)	2 (1%)	0	100	100
32	a	138/143 (96%)	135 (98%)	3 (2%)	0	100	100
33	b	43/59 (73%)	41 (95%)	2 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
34	c	127/130 (98%)	124 (98%)	3 (2%)	0	100	100
35	d	194/208 (93%)	190 (98%)	4 (2%)	0	100	100
36	e	123/133 (92%)	120 (98%)	3 (2%)	0	100	100
37	f	180/204 (88%)	167 (93%)	13 (7%)	0	100	100
38	g	139/146 (95%)	131 (94%)	8 (6%)	0	100	100
39	h	225/243 (93%)	220 (98%)	5 (2%)	0	100	100
40	i	97/165 (59%)	89 (92%)	8 (8%)	0	100	100
41	j	108/145 (74%)	103 (95%)	5 (5%)	0	100	100
42	k	311/317 (98%)	293 (94%)	18 (6%)	0	100	100
43	l	140/145 (97%)	134 (96%)	6 (4%)	0	100	100
44	m	64/125 (51%)	62 (97%)	2 (3%)	0	100	100
45	n	140/151 (93%)	129 (92%)	11 (8%)	0	100	100
46	o	48/56 (86%)	47 (98%)	1 (2%)	0	100	100
47	p	49/156 (31%)	45 (92%)	4 (8%)	0	100	100
48	q	120/132 (91%)	107 (89%)	13 (11%)	0	100	100
49	s	61/69 (88%)	52 (85%)	9 (15%)	0	100	100
50	v	127/135 (94%)	117 (92%)	9 (7%)	1 (1%)	19	58
51	w	101/119 (85%)	94 (93%)	7 (7%)	0	100	100
52	x	434/548 (79%)	361 (83%)	68 (16%)	5 (1%)	13	50
55	1	369/406 (91%)	304 (82%)	59 (16%)	6 (2%)	9	43
55	3	376/406 (93%)	353 (94%)	22 (6%)	1 (0%)	41	75
56	2	235/1404 (17%)	216 (92%)	18 (8%)	1 (0%)	34	72
All	All	11727/16023 (73%)	11003 (94%)	699 (6%)	25 (0%)	50	81

All (25) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	8	271	GLN
9	D	232	PRO
9	D	233	PRO
52	x	13	PRO
52	x	21	VAL
55	3	399	PRO
55	1	152	PRO

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Mol	Chain	Res	Type
55	1	159	PRO
56	2	833	PRO
6	A	536	VAL
6	A	656	ILE
52	x	7	PRO
55	1	97	ASP
55	1	340	GLN
10	E	324	GLU
15	J	121	TRP
52	x	19	CYS
14	I	487	LYS
52	x	258	CYS
8	C	345	GLN
14	I	722	LYS
16	K	519	VAL
50	v	96	ILE
55	1	272	ILE
55	1	190	ARG

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	7	64/277 (23%)	64 (100%)	0	100	100
5	9	23/24 (96%)	23 (100%)	0	100	100
6	A	495/1259 (39%)	493 (100%)	2 (0%)	91	96
9	D	249/280 (89%)	245 (98%)	4 (2%)	62	83
10	E	394/397 (99%)	394 (100%)	0	100	100
12	G	83/123 (68%)	83 (100%)	0	100	100
13	H	133/389 (34%)	132 (99%)	1 (1%)	81	91
14	I	470/702 (67%)	470 (100%)	0	100	100
15	J	511/811 (63%)	506 (99%)	5 (1%)	76	88
17	L	160/174 (92%)	160 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
18	M	73/76 (96%)	73 (100%)	0	100	100
19	N	65/67 (97%)	65 (100%)	0	100	100
20	O	186/225 (83%)	185 (100%)	1 (0%)	88	94
21	P	192/231 (83%)	192 (100%)	0	100	100
22	Q	180/243 (74%)	180 (100%)	0	100	100
23	R	86/98 (88%)	85 (99%)	1 (1%)	71	87
24	S	200/218 (92%)	197 (98%)	3 (2%)	65	84
25	T	104/119 (87%)	104 (100%)	0	100	100
27	V	130/131 (99%)	130 (100%)	0	100	100
29	X	129/142 (91%)	128 (99%)	1 (1%)	81	91
30	Y	220/225 (98%)	220 (100%)	0	100	100
31	Z	158/168 (94%)	158 (100%)	0	100	100
32	a	112/115 (97%)	112 (100%)	0	100	100
33	b	38/48 (79%)	38 (100%)	0	100	100
34	c	112/113 (99%)	112 (100%)	0	100	100
35	d	172/180 (96%)	172 (100%)	0	100	100
36	e	107/115 (93%)	107 (100%)	0	100	100
37	f	156/170 (92%)	156 (100%)	0	100	100
38	g	117/121 (97%)	117 (100%)	0	100	100
39	h	190/202 (94%)	190 (100%)	0	100	100
40	i	90/136 (66%)	89 (99%)	1 (1%)	73	88
41	j	100/130 (77%)	100 (100%)	0	100	100
42	k	272/275 (99%)	271 (100%)	1 (0%)	91	96
43	l	112/115 (97%)	112 (100%)	0	100	100
44	m	58/103 (56%)	58 (100%)	0	100	100
45	n	123/131 (94%)	122 (99%)	1 (1%)	81	91
46	o	44/49 (90%)	44 (100%)	0	100	100
47	p	47/140 (34%)	47 (100%)	0	100	100
48	q	104/108 (96%)	104 (100%)	0	100	100
49	s	56/62 (90%)	56 (100%)	0	100	100
50	v	119/122 (98%)	119 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
51	w	94/107 (88%)	93 (99%)	1 (1%)	73 88
52	x	205/494 (42%)	205 (100%)	0	100 100
All	All	6733/9415 (72%)	6711 (100%)	22 (0%)	92 97

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
6	A	285	LYS
6	A	286	SER
9	D	122	THR
9	D	123	LYS
9	D	234	ARG
9	D	237	MET
13	H	84	LYS
15	J	120	LEU
15	J	123	ASP
15	J	550	ARG
15	J	558	LYS
15	J	709	MET
20	O	167	ARG
23	R	28	ARG
24	S	98	ARG
24	S	221	LYS
24	S	224	ARG
29	X	69	ARG
40	i	3	MET
42	k	139	LYS
45	n	8	LYS
51	w	30	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
6	A	120	ASN
14	I	502	GLN
32	a	61	GLN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
28	W	1701/1719 (98%)	462 (27%)	13 (0%)
53	y	74/75 (98%)	33 (44%)	0
54	z	49/207 (23%)	32 (65%)	0
All	All	1824/2001 (91%)	527 (28%)	13 (0%)

All (527) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
28	W	2	A
28	W	4	C
28	W	17	C
28	W	20	G
28	W	23	G
28	W	27	A2M
28	W	33	G
28	W	41	G
28	W	44	U
28	W	46	A
28	W	56	G
28	W	59	U
28	W	62	G
28	W	65	C
28	W	66	G
28	W	67	C
28	W	68	A
28	W	69	C
28	W	70	G
28	W	71	G
28	W	74	G
28	W	77	A
28	W	78	C
28	W	79	A
28	W	83	A
28	W	85	A
28	W	86	C
28	W	88	G
28	W	91	A
28	W	92	A
28	W	103	A
28	W	110	U
28	W	115	U
28	W	116	OMU
28	W	126	G

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Mol	Chain	Res	Type
28	W	127	C
28	W	129	C
28	W	141	A
28	W	142	C
28	W	144	U
28	W	146	G
28	W	153	G
28	W	155	G
28	W	161	U
28	W	162	C
28	W	163	U
28	W	164	A
28	W	166	A2M
28	W	167	G
28	W	168	C
28	W	169	U
28	W	170	A
28	W	182	C
28	W	183	G
28	W	190	G
28	W	197	U
28	W	198	U
28	W	199	C
28	W	203	G
28	W	204	G
28	W	206	G
28	W	208	G
28	W	213	G
28	W	291	G
28	W	292	A
28	W	295	C
28	W	297	A
28	W	300	U
28	W	302	A
28	W	306	C
28	W	307	G
28	W	309	G
28	W	312	G
28	W	313	A
28	W	315	C
28	W	316	G
28	W	318	A

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Mol	Chain	Res	Type
28	W	319	C
28	W	320	G
28	W	323	C
28	W	324	C
28	W	325	C
28	W	326	C
28	W	327	G
28	W	329	G
28	W	330	G
28	W	335	G
28	W	336	A
28	W	337	C
28	W	339	A
28	W	347	G
28	W	351	G
28	W	362	C
28	W	363	A
28	W	364	A
28	W	367	U
28	W	369	C
28	W	370	G
28	W	380	G
28	W	381	C
28	W	385	G
28	W	386	C
28	W	387	C
28	W	409	C
28	W	417	C
28	W	421	G
28	W	448	A
28	W	450	C
28	W	452	G
28	W	465	A
28	W	472	C
28	W	473	A
28	W	474	G
28	W	482	G
28	W	487	U
28	W	492	C
28	W	501	C
28	W	502	C
28	W	503	C

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Mol	Chain	Res	Type
28	W	509	OMG
28	W	525	A
28	W	533	A
28	W	535	G
28	W	536	A
28	W	537	C
28	W	538	U
28	W	540	U
28	W	542	U
28	W	546	G
28	W	553	U
28	W	554	A
28	W	556	U
28	W	557	U
28	W	558	G
28	W	559	G
28	W	560	A
28	W	563	G
28	W	564	A
28	W	566	U
28	W	568	C
28	W	587	A
28	W	589	G
28	W	591	U
28	W	606	G
28	W	607	U
28	W	608	C
28	W	612	PSU
28	W	614	C
28	W	615	C
28	W	626	G
28	W	627	U
28	W	628	A
28	W	629	A
28	W	631	U
28	W	643	A
28	W	655	A
28	W	657	U
28	W	660	C
28	W	668	A2M
28	W	669	A
28	W	671	A

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Mol	Chain	Res	Type
28	W	672	A
28	W	673	G
28	W	675	U
28	W	687	C
28	W	688	U
28	W	689	U
28	W	692	G
28	W	693	A
28	W	697	G
28	W	749	U
28	W	751	G
28	W	752	G
28	W	753	C
28	W	791	C
28	W	792	C
28	W	797	C
28	W	798	G
28	W	809	A
28	W	821	G
28	W	822	PSU
28	W	827	A
28	W	830	A
28	W	836	G
28	W	837	A
28	W	838	G
28	W	839	C
28	W	841	G
28	W	847	A
28	W	870	A
28	W	872	A
28	W	873	G
28	W	881	G
28	W	886	A
28	W	887	U
28	W	890	U
28	W	891	G
28	W	892	U
28	W	893	U
28	W	894	G
28	W	895	G
28	W	896	U
28	W	897	U

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Mol	Chain	Res	Type
28	W	898	U
28	W	899	U
28	W	900	C
28	W	901	G
28	W	902	G
28	W	903	A
28	W	905	C
28	W	908	A
28	W	913	A
28	W	920	A
28	W	922	A
28	W	930	C
28	W	933	G
28	W	953	C
28	W	955	A
28	W	965	U
28	W	970	G
28	W	971	G
28	W	972	A
28	W	976	G
28	W	978	G
28	W	990	A
28	W	992	A
28	W	1008	A
28	W	1017	U
28	W	1023	A
28	W	1031	A2M
28	W	1047	C
28	W	1061	U
28	W	1062	A
28	W	1081	PSU
28	W	1083	A
28	W	1085	C
28	W	1108	G
28	W	1109	C
28	W	1112	U
28	W	1113	A
28	W	1115	U
28	W	1116	C
28	W	1117	C
28	W	1118	C
28	W	1119	A

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Mol	Chain	Res	Type
28	W	1120	U
28	W	1121	G
28	W	1123	C
28	W	1125	C
28	W	1126	G
28	W	1138	C
28	W	1153	C
28	W	1154	U
28	W	1181	A
28	W	1195	A
28	W	1200	A
28	W	1206	G
28	W	1207	G
28	W	1208	A
28	W	1210	G
28	W	1213	C
28	W	1214	A
28	W	1215	C
28	W	1216	C
28	W	1217	A
28	W	1222	G
28	W	1223	A
28	W	1224	G
28	W	1241	A
28	W	1242	U
28	W	1251	A
28	W	1253	A
28	W	1256	G
28	W	1257	G
28	W	1258	A
28	W	1274	G
28	W	1275	G
28	W	1285	G
28	W	1288	U
28	W	1289	U
28	W	1292	C
28	W	1295	A
28	W	1298	G
28	W	1301	A
28	W	1302	G
28	W	1303	C
28	W	1307	U

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Mol	Chain	Res	Type
28	W	1308	U
28	W	1309	C
28	W	1312	G
28	W	1314	U
28	W	1315	U
28	W	1322	G
28	W	1326	U
28	W	1342	U
28	W	1356	G
28	W	1371	U
28	W	1372	U
28	W	1378	A
28	W	1389	C
28	W	1390	U
28	W	1394	G
28	W	1396	A
28	W	1397	U
28	W	1398	G
28	W	1401	A
28	W	1402	A
28	W	1403	C
28	W	1404	U
28	W	1406	G
28	W	1407	U
28	W	1417	C
28	W	1419	C
28	W	1420	G
28	W	1421	A
28	W	1422	G
28	W	1423	C
28	W	1424	G
28	W	1428	G
28	W	1429	G
28	W	1433	C
28	W	1434	C
28	W	1435	C
28	W	1436	C
28	W	1437	C
28	W	1438	A
28	W	1441	U
28	W	1443	C
28	W	1450	G

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Mol	Chain	Res	Type
28	W	1454	A
28	W	1462	U
28	W	1463	U
28	W	1464	C
28	W	1476	A
28	W	1477	U
28	W	1478	U
28	W	1479	G
28	W	1482	C
28	W	1483	A
28	W	1484	A
28	W	1489	A
28	W	1490	G
28	W	1494	U
28	W	1497	G
28	W	1498	A
28	W	1508	A
28	W	1515	G
28	W	1521	C
28	W	1533	A
28	W	1535	U
28	W	1536	G
28	W	1537	A
28	W	1538	C
28	W	1539	U
28	W	1540	G
28	W	1542	C
28	W	1543	U
28	W	1544	C
28	W	1545	A
28	W	1552	G
28	W	1553	C
28	W	1557	C
28	W	1560	U
28	W	1563	G
28	W	1565	C
28	W	1566	G
28	W	1567	G
28	W	1574	C
28	W	1580	A
28	W	1582	C
28	W	1588	A

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Mol	Chain	Res	Type
28	W	1590	C
28	W	1591	C
28	W	1592	C
28	W	1594	A
28	W	1595	U
28	W	1596	U
28	W	1599	U
28	W	1600	G
28	W	1601	A
28	W	1602	U
28	W	1603	G
28	W	1607	A
28	W	1608	U
28	W	1609	C
28	W	1610	G
28	W	1611	G
28	W	1612	G
28	W	1617	G
28	W	1619	A
28	W	1620	A
28	W	1621	U
28	W	1623	A
28	W	1624	U
28	W	1628	C
28	W	1629	C
28	W	1630	A
28	W	1631	U
28	W	1632	G
28	W	1633	A
28	W	1639	G
28	W	1647	A
28	W	1648	G
28	W	1649	U
28	W	1650	A
28	W	1654	G
28	W	1661	A
28	W	1662	U
28	W	1665	G
28	W	1671	G
28	W	1672	U
28	W	1675	A
28	W	1676	U

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Mol	Chain	Res	Type
28	W	1677	U
28	W	1679	A
28	W	1680	G
28	W	1682	C
28	W	1683	C
28	W	1684	C
28	W	1686	G
28	W	1702	G
28	W	1703	OMC
28	W	1719	A
28	W	1721	U
28	W	1723	G
28	W	1743	G
28	W	1744	G
28	W	1749	G
28	W	1752	C
28	W	1753	C
28	W	1754	G
28	W	1755	C
28	W	1756	C
28	W	1757	G
28	W	1759	G
28	W	1760	G
28	W	1773	C
28	W	1774	C
28	W	1775	U
28	W	1779	G
28	W	1781	A
28	W	1782	G
28	W	1783	C
28	W	1784	G
28	W	1787	G
28	W	1800	A
28	W	1810	U
28	W	1812	U
28	W	1813	A
28	W	1823	A
28	W	1824	A
28	W	1829	G
28	W	1834	A
28	W	1835	A
28	W	1838	U

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Mol	Chain	Res	Type
28	W	1849	G
28	W	1861	G
28	W	1862	G
28	W	1863	A
28	W	1864	U
28	W	1865	C
28	W	1869	A
53	y	2	G
53	y	4	A
53	y	6	A
53	y	8	U
53	y	9	G
53	y	11	C
53	y	12	G
53	y	14	A
53	y	15	G
53	y	17	G
53	y	18	G
53	y	19	A
53	y	20	A
53	y	21	G
53	y	29	G
53	y	42	G
53	y	43	A
53	y	45	G
53	y	46	U
53	y	47	C
53	y	48	G
53	y	50	U
53	y	51	G
53	y	55	C
53	y	56	G
53	y	57	A
53	y	58	A
53	y	59	A
53	y	60	C
53	y	62	A
53	y	71	U
53	y	72	A
53	y	75	A
54	z	80	C
54	z	81	G

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Mol	Chain	Res	Type
54	z	83	A
54	z	84	G
54	z	85	U
54	z	88	G
54	z	89	A
54	z	90	U
54	z	91	C
54	z	92	C
54	z	93	U
54	z	94	A
54	z	97	G
54	z	98	U
54	z	99	C
54	z	102	G
54	z	103	U
54	z	109	C
54	z	112	U
54	z	113	C
54	z	115	G
54	z	117	U
54	z	118	A
54	z	119	A
54	z	120	A
54	z	122	A
54	z	123	A
54	z	124	A
54	z	125	A
54	z	126	A
54	z	127	A
54	z	128	A

All (13) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
28	W	1	U
28	W	163	U
28	W	291	G
28	W	688	U
28	W	1240	A
28	W	1437	C
28	W	1450	G
28	W	1463	U

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Mol	Chain	Res	Type
28	W	1599	U
28	W	1606	G
28	W	1631	U
28	W	1675	A
28	W	1782	G

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

29 non-standard protein/DNA/RNA residues are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
28	PSU	W	822	28	18,21,22	3.79	6 (33%)	22,30,33	1.80	4 (18%)
28	A2M	W	159	28	18,25,26	3.09	6 (33%)	18,36,39	1.78	3 (16%)
28	OMG	W	683	28	18,26,27	2.54	5 (27%)	19,38,41	1.34	3 (15%)
28	OMC	W	174	28	19,22,23	2.52	3 (15%)	26,31,34	0.77	0
28	JMH	W	1219	28,58	18,22,23	2.89	6 (33%)	21,32,35	3.44	5 (23%)
28	C4J	W	1248	28	24,29,30	1.54	5 (20%)	29,42,45	1.50	4 (13%)
28	5MC	W	1374	28	18,22,23	2.73	4 (22%)	26,32,35	1.08	2 (7%)
28	OMU	W	121	28	19,22,23	2.78	5 (26%)	26,31,34	3.36	8 (30%)
28	6MZ	W	1832	28,58	18,25,26	1.84	2 (11%)	16,36,39	2.15	5 (31%)
28	PSU	W	119	28	18,21,22	3.79	5 (27%)	22,30,33	1.58	3 (13%)
28	OMU	W	116	28	19,22,23	2.78	5 (26%)	26,31,34	3.31	8 (30%)
28	A2M	W	1678	28	18,25,26	2.99	7 (38%)	18,36,39	2.12	6 (33%)
28	A2M	W	1031	28	18,25,26	3.14	7 (38%)	18,36,39	1.70	3 (16%)
28	OMC	W	517	28	19,22,23	2.54	3 (15%)	26,31,34	0.80	0
28	MA6	W	1850	28	18,26,27	1.15	2 (11%)	19,38,41	1.67	2 (10%)
28	MA6	W	1851	28	18,26,27	1.20	2 (11%)	19,38,41	1.88	3 (15%)
28	A2M	W	484	28	18,25,26	2.99	8 (44%)	18,36,39	1.74	3 (16%)
28	UR3	W	1830	28	19,22,23	1.94	5 (26%)	26,32,35	1.59	4 (15%)
28	PSU	W	612	28	18,21,22	3.72	6 (33%)	22,30,33	1.71	5 (22%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
28	OMG	W	644	28	18,26,27	2.52	5 (27%)	19,38,41	1.35	3 (15%)
28	5MU	W	814	28	19,22,23	2.92	6 (31%)	28,32,35	2.28	8 (28%)
28	PSU	W	1081	28	18,21,22	3.71	6 (33%)	22,30,33	1.77	4 (18%)
28	PSU	W	823	28	18,21,22	3.72	5 (27%)	22,30,33	1.84	5 (22%)
28	A2M	W	668	28,58	18,25,26	3.03	7 (38%)	18,36,39	1.91	4 (22%)
28	OMC	W	1703	28	19,22,23	2.52	3 (15%)	26,31,34	0.78	1 (3%)
28	OMG	W	509	28,58	18,26,27	2.51	5 (27%)	19,38,41	1.34	3 (15%)
28	A2M	W	166	28	18,25,26	3.13	6 (33%)	18,36,39	1.76	3 (16%)
28	A2M	W	27	28	18,25,26	3.10	7 (38%)	18,36,39	1.77	3 (16%)
28	PSU	W	1243	28	18,21,22	3.82	5 (27%)	22,30,33	1.87	5 (22%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	PSU	W	822	28	-	1/7/25/26	0/2/2/2
28	A2M	W	159	28	-	0/5/27/28	0/3/3/3
28	OMG	W	683	28	-	0/5/27/28	0/3/3/3
28	JMH	W	1219	28,58	1/1/5/5	6/7/25/26	0/2/2/2
28	OMC	W	174	28	-	0/9/27/28	0/2/2/2
28	C4J	W	1248	28	-	2/16/34/35	0/2/2/2
28	5MC	W	1374	28	-	0/7/25/26	0/2/2/2
28	OMU	W	121	28	-	0/9/27/28	0/2/2/2
28	6MZ	W	1832	28,58	-	2/5/27/28	0/3/3/3
28	PSU	W	119	28	-	0/7/25/26	0/2/2/2
28	OMU	W	116	28	-	2/9/27/28	0/2/2/2
28	A2M	W	1678	28	-	2/5/27/28	0/3/3/3
28	A2M	W	1031	28	-	2/5/27/28	0/3/3/3
28	OMC	W	517	28	-	0/9/27/28	0/2/2/2
28	MA6	W	1850	28	-	2/7/29/30	0/3/3/3
28	MA6	W	1851	28	-	3/7/29/30	0/3/3/3
28	A2M	W	484	28	-	0/5/27/28	0/3/3/3
28	UR3	W	1830	28	-	2/7/25/26	0/2/2/2
28	PSU	W	612	28	-	2/7/25/26	0/2/2/2
28	OMG	W	644	28	-	1/5/27/28	0/3/3/3
28	5MU	W	814	28	-	0/7/25/26	0/2/2/2

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
28	PSU	W	1081	28	-	3/7/25/26	0/2/2/2
28	PSU	W	823	28	-	0/7/25/26	0/2/2/2
28	A2M	W	668	28,58	-	2/5/27/28	0/3/3/3
28	OMC	W	1703	28	-	2/9/27/28	0/2/2/2
28	OMG	W	509	28,58	-	2/5/27/28	0/3/3/3
28	A2M	W	166	28	-	4/5/27/28	0/3/3/3
28	A2M	W	27	28	-	2/5/27/28	0/3/3/3
28	PSU	W	1243	28	-	1/7/25/26	0/2/2/2

All (147) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	W	166	A2M	O3'-C3'	-10.28	1.18	1.43
28	W	1031	A2M	O3'-C3'	-10.20	1.19	1.43
28	W	159	A2M	O3'-C3'	-10.10	1.19	1.43
28	W	668	A2M	O3'-C3'	-10.02	1.19	1.43
28	W	27	A2M	O3'-C3'	-10.01	1.19	1.43
28	W	484	A2M	O3'-C3'	-9.63	1.20	1.43
28	W	1678	A2M	O3'-C3'	-9.60	1.20	1.43
28	W	1219	JMH	O2-C2	9.18	1.39	1.22
28	W	1243	PSU	C2-N1	8.91	1.48	1.36
28	W	1703	OMC	O2-C2	8.72	1.39	1.23
28	W	823	PSU	C2-N1	8.69	1.48	1.36
28	W	517	OMC	O2-C2	8.67	1.39	1.23
28	W	174	OMC	O2-C2	8.65	1.39	1.23
28	W	822	PSU	C2-N1	8.63	1.48	1.36
28	W	814	5MU	O4-C4	8.62	1.40	1.23
28	W	119	PSU	C2-N1	8.58	1.48	1.36
28	W	1081	PSU	O4-C4	8.58	1.39	1.23
28	W	119	PSU	O4-C4	8.56	1.39	1.23
28	W	1243	PSU	O4-C4	8.53	1.39	1.23
28	W	612	PSU	O4-C4	8.50	1.39	1.23
28	W	822	PSU	O4-C4	8.48	1.39	1.23
28	W	1374	5MC	O2-C2	8.42	1.39	1.23
28	W	1081	PSU	C2-N1	8.31	1.48	1.36
28	W	823	PSU	O4-C4	8.18	1.39	1.23
28	W	612	PSU	C2-N1	8.16	1.47	1.36
28	W	683	OMG	O6-C6	8.14	1.39	1.23
28	W	509	OMG	O6-C6	8.10	1.39	1.23
28	W	644	OMG	O6-C6	8.10	1.39	1.23
28	W	1243	PSU	O2-C2	8.05	1.40	1.23

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	W	823	PSU	O2-C2	7.97	1.40	1.23
28	W	119	PSU	O2-C2	7.93	1.40	1.23
28	W	116	OMU	O4-C4	7.87	1.39	1.24
28	W	121	OMU	O4-C4	7.86	1.39	1.24
28	W	822	PSU	O2-C2	7.84	1.39	1.23
28	W	612	PSU	O2-C2	7.79	1.39	1.23
28	W	1081	PSU	O2-C2	7.74	1.39	1.23
28	W	814	5MU	C6-N1	6.04	1.48	1.38
28	W	1832	6MZ	C6-N6	6.04	1.44	1.35
28	W	121	OMU	C2-N1	5.69	1.47	1.38
28	W	116	OMU	C2-N1	5.63	1.47	1.38
28	W	119	PSU	C6-C5	5.60	1.41	1.35
28	W	612	PSU	C6-C5	5.58	1.41	1.35
28	W	116	OMU	C6-N1	5.41	1.51	1.38
28	W	822	PSU	C6-C5	5.40	1.41	1.35
28	W	121	OMU	C6-N1	5.26	1.50	1.38
28	W	823	PSU	C6-C5	5.26	1.41	1.35
28	W	1243	PSU	C6-C5	5.20	1.41	1.35
28	W	1081	PSU	C6-C5	5.02	1.41	1.35
28	W	1830	UR3	C2-N1	4.92	1.45	1.38
28	W	517	OMC	C4-N4	4.91	1.45	1.33
28	W	1219	JMH	C2-N1	4.82	1.45	1.38
28	W	1703	OMC	C4-N4	4.81	1.45	1.33
28	W	174	OMC	C4-N4	4.79	1.45	1.33
28	W	1248	C4J	C6-N1	4.59	1.48	1.36
28	W	683	OMG	C2-N2	4.58	1.45	1.34
28	W	644	OMG	C2-N2	4.55	1.45	1.34
28	W	509	OMG	C2-N2	4.50	1.44	1.34
28	W	1374	5MC	C4-N4	4.42	1.45	1.34
28	W	1830	UR3	C6-N1	4.40	1.48	1.38
28	W	1374	5MC	C2-N3	4.39	1.45	1.36
28	W	1374	5MC	C6-C5	4.37	1.41	1.34
28	W	814	5MU	C4-C5	4.26	1.51	1.44
28	W	814	5MU	C2-N1	4.15	1.45	1.38
28	W	166	A2M	O4'-C1'	4.00	1.46	1.41
28	W	1219	JMH	C4-N4	4.00	1.45	1.28
28	W	174	OMC	C2-N3	3.85	1.44	1.36
28	W	517	OMC	C2-N3	3.83	1.44	1.36
28	W	1678	A2M	O4'-C1'	3.77	1.46	1.41
28	W	1031	A2M	O4'-C1'	3.72	1.46	1.41
28	W	1703	OMC	C2-N3	3.69	1.43	1.36
28	W	683	OMG	C2-N3	3.60	1.41	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	W	27	A2M	O4'-C1'	3.55	1.46	1.41
28	W	116	OMU	C2-N3	3.53	1.44	1.38
28	W	159	A2M	C4-N3	-3.52	1.30	1.35
28	W	509	OMG	C2-N3	3.51	1.41	1.33
28	W	27	A2M	C3'-C2'	-3.49	1.45	1.52
28	W	644	OMG	C2-N3	3.49	1.41	1.33
28	W	484	A2M	O4'-C1'	3.48	1.45	1.41
28	W	27	A2M	C4-N3	-3.45	1.30	1.35
28	W	159	A2M	O4'-C1'	3.42	1.45	1.41
28	W	1031	A2M	C3'-C2'	-3.41	1.45	1.52
28	W	1031	A2M	C4-N3	-3.39	1.31	1.35
28	W	121	OMU	C2-N3	3.38	1.44	1.38
28	W	1851	MA6	C4-N3	-3.35	1.31	1.35
28	W	166	A2M	C3'-C2'	-3.33	1.45	1.52
28	W	1832	6MZ	C4-N3	-3.32	1.31	1.35
28	W	668	A2M	C4-N3	-3.32	1.31	1.35
28	W	1219	JMH	C6-N1	3.28	1.45	1.38
28	W	484	A2M	C4-N3	-3.26	1.31	1.35
28	W	1830	UR3	C5-C4	3.25	1.52	1.43
28	W	1850	MA6	C4-N3	-3.24	1.31	1.35
28	W	1678	A2M	C4-N3	-3.17	1.31	1.35
28	W	166	A2M	C6-N6	3.12	1.45	1.34
28	W	159	A2M	C6-N6	3.12	1.45	1.34
28	W	1248	C4J	O4'-C1'	-3.11	1.39	1.43
28	W	159	A2M	C3'-C2'	-3.11	1.46	1.52
28	W	1678	A2M	C6-N6	3.08	1.45	1.34
28	W	668	A2M	O4'-C1'	3.08	1.45	1.41
28	W	668	A2M	C6-N6	3.04	1.45	1.34
28	W	484	A2M	C3'-C2'	-3.04	1.46	1.52
28	W	668	A2M	C3'-C2'	-3.01	1.46	1.52
28	W	27	A2M	C6-N6	2.99	1.45	1.34
28	W	1031	A2M	C6-N6	2.98	1.44	1.34
28	W	484	A2M	C6-N6	2.96	1.44	1.34
28	W	166	A2M	C4-N3	-2.86	1.31	1.35
28	W	1243	PSU	C2-N3	2.83	1.42	1.37
28	W	822	PSU	C2-N3	2.76	1.42	1.37
28	W	121	OMU	O2-C2	-2.67	1.18	1.23
28	W	1219	JMH	C6-C5	2.64	1.41	1.35
28	W	814	5MU	O2-C2	-2.63	1.18	1.23
28	W	1081	PSU	O4'-C1'	-2.63	1.40	1.43
28	W	116	OMU	O2-C2	-2.56	1.18	1.23
28	W	1830	UR3	O2-C2	-2.54	1.17	1.22

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
28	W	612	PSU	C2-N3	2.51	1.41	1.37
28	W	119	PSU	C2-N3	2.43	1.41	1.37
28	W	823	PSU	C2-N3	2.42	1.41	1.37
28	W	509	OMG	C5-C6	-2.38	1.42	1.47
28	W	683	OMG	C5-C6	-2.36	1.42	1.47
28	W	644	OMG	C5-C6	-2.35	1.42	1.47
28	W	644	OMG	C5-C4	-2.33	1.37	1.43
28	W	1678	A2M	C3'-C2'	-2.33	1.47	1.52
28	W	1830	UR3	O4-C4	-2.31	1.18	1.23
28	W	1081	PSU	C2-N3	2.31	1.41	1.37
28	W	484	A2M	O5'-C5'	-2.31	1.39	1.44
28	W	668	A2M	O5'-C5'	-2.30	1.39	1.44
28	W	822	PSU	O4'-C1'	-2.29	1.40	1.43
28	W	683	OMG	C5-C4	-2.26	1.37	1.43
28	W	612	PSU	O4'-C1'	-2.25	1.40	1.43
28	W	27	A2M	C6-C5	-2.21	1.35	1.43
28	W	509	OMG	C5-C4	-2.20	1.37	1.43
28	W	1851	MA6	C5-N7	2.17	1.47	1.39
28	W	814	5MU	C2-N3	2.17	1.41	1.38
28	W	1031	A2M	C6-C5	-2.16	1.35	1.43
28	W	484	A2M	C6-C5	-2.13	1.35	1.43
28	W	1248	C4J	O2-C2	-2.12	1.18	1.22
28	W	1248	C4J	O4-C4	-2.12	1.18	1.23
28	W	484	A2M	C2-N3	2.10	1.35	1.32
28	W	159	A2M	C6-C5	-2.10	1.35	1.43
28	W	166	A2M	C6-C5	-2.10	1.35	1.43
28	W	1678	A2M	C2-N3	2.09	1.35	1.32
28	W	27	A2M	O5'-C5'	-2.08	1.39	1.44
28	W	1219	JMH	C2-N3	2.08	1.43	1.39
28	W	668	A2M	C6-C5	-2.05	1.35	1.43
28	W	1678	A2M	C6-C5	-2.05	1.35	1.43
28	W	1850	MA6	C5-N7	2.05	1.47	1.39
28	W	1031	A2M	O5'-C5'	-2.04	1.39	1.44
28	W	1248	C4J	C2-N1	2.03	1.45	1.39

All (110) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	1219	JMH	C1'-N1-C2	11.47	136.35	116.99
28	W	121	OMU	N3-C2-N1	8.98	126.81	114.89
28	W	121	OMU	C4-N3-C2	-8.67	115.14	126.58
28	W	116	OMU	N3-C2-N1	8.61	126.32	114.89

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	116	OMU	C4-N3-C2	-8.38	115.52	126.58
28	W	116	OMU	C6-N1-C2	-7.20	111.78	120.99
28	W	121	OMU	C6-N1-C2	-7.12	111.88	120.99
28	W	814	5MU	C4-N3-C2	-6.21	119.31	127.35
28	W	1219	JMH	C6-N1-C2	-6.21	116.22	121.79
28	W	1219	JMH	C1'-N1-C6	-6.16	107.42	120.84
28	W	27	A2M	N3-C2-N1	-6.12	119.11	128.68
28	W	1851	MA6	N3-C2-N1	-6.09	119.16	128.68
28	W	1031	A2M	N3-C2-N1	-5.91	119.44	128.68
28	W	166	A2M	N3-C2-N1	-5.90	119.45	128.68
28	W	159	A2M	N3-C2-N1	-5.83	119.56	128.68
28	W	668	A2M	N3-C2-N1	-5.82	119.58	128.68
28	W	1832	6MZ	N3-C2-N1	-5.65	119.84	128.68
28	W	484	A2M	N3-C2-N1	-5.65	119.84	128.68
28	W	1850	MA6	N3-C2-N1	-5.60	119.93	128.68
28	W	1678	A2M	N3-C2-N1	-5.54	120.02	128.68
28	W	814	5MU	C5-C4-N3	5.40	119.92	115.31
28	W	1830	UR3	C4-N3-C2	-5.20	119.67	124.56
28	W	116	OMU	C5-C4-N3	5.01	122.33	114.84
28	W	121	OMU	C5-C4-N3	4.94	122.23	114.84
28	W	1219	JMH	O2-C2-N3	-4.90	114.44	121.34
28	W	1248	C4J	C4-N3-C2	-4.81	119.37	125.46
28	W	823	PSU	C4-N3-C2	-4.81	119.41	126.34
28	W	121	OMU	O2-C2-N1	-4.80	116.41	122.79
28	W	116	OMU	O2-C2-N1	-4.76	116.46	122.79
28	W	1243	PSU	C4-N3-C2	-4.70	119.57	126.34
28	W	814	5MU	N3-C2-N1	4.68	121.10	114.89
28	W	822	PSU	C4-N3-C2	-4.61	119.69	126.34
28	W	1081	PSU	C4-N3-C2	-4.57	119.75	126.34
28	W	1832	6MZ	C2-N1-C6	4.57	120.51	116.59
28	W	1243	PSU	N1-C2-N3	4.43	120.15	115.13
28	W	814	5MU	O4-C4-C5	-4.34	119.87	124.90
28	W	823	PSU	N1-C2-N3	4.33	120.04	115.13
28	W	822	PSU	N1-C2-N3	4.32	120.03	115.13
28	W	1081	PSU	N1-C2-N3	4.29	119.98	115.13
28	W	1851	MA6	C4-C5-N7	-4.27	104.95	109.40
28	W	119	PSU	C4-N3-C2	-4.21	120.27	126.34
28	W	612	PSU	N1-C2-N3	4.07	119.74	115.13
28	W	612	PSU	C4-N3-C2	-3.94	120.66	126.34
28	W	116	OMU	O4-C4-C5	-3.89	118.33	125.16
28	W	119	PSU	N1-C2-N3	3.85	119.49	115.13
28	W	116	OMU	C1'-N1-C2	3.85	124.53	117.57

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	121	OMU	O4-C4-C5	-3.71	118.64	125.16
28	W	121	OMU	C1'-N1-C2	3.70	124.27	117.57
28	W	1678	A2M	CM'-O2'-C2'	3.70	124.22	114.52
28	W	1850	MA6	C4-C5-N7	-3.66	105.59	109.40
28	W	1830	UR3	C1'-N1-C2	3.47	122.84	116.99
28	W	814	5MU	C5-C6-N1	-3.37	119.87	123.34
28	W	683	OMG	C5-C6-N1	3.36	119.89	113.95
28	W	509	OMG	C5-C6-N1	3.35	119.86	113.95
28	W	644	OMG	C5-C6-N1	3.32	119.81	113.95
28	W	668	A2M	C3'-C2'-C1'	3.28	109.05	102.89
28	W	1678	A2M	O2'-C2'-C1'	3.19	115.41	109.09
28	W	1374	5MC	CM5-C5-C6	-3.12	118.68	122.85
28	W	612	PSU	C6-N1-C2	-3.11	119.50	122.68
28	W	814	5MU	C6-C5-C4	3.04	120.57	118.03
28	W	683	OMG	C2-N1-C6	-3.02	119.55	125.10
28	W	1374	5MC	C5-C6-N1	-3.02	120.24	123.34
28	W	509	OMG	C2-N1-C6	-3.00	119.57	125.10
28	W	166	A2M	C1'-N9-C4	-2.99	121.39	126.64
28	W	1219	JMH	C2'-C1'-N1	2.95	121.57	113.22
28	W	644	OMG	C2-N1-C6	-2.87	119.81	125.10
28	W	1832	6MZ	C4-C5-N7	-2.87	106.41	109.40
28	W	668	A2M	C1'-N9-C4	-2.80	121.72	126.64
28	W	1830	UR3	C3U-N3-C2	2.78	122.19	117.31
28	W	159	A2M	C1'-N9-C4	-2.77	121.77	126.64
28	W	1678	A2M	C3'-C2'-C1'	2.77	108.09	102.89
28	W	1248	C4J	C3-N3-C4	2.73	121.33	117.31
28	W	484	A2M	C3'-C2'-C1'	2.73	108.01	102.89
28	W	668	A2M	C4-C5-N7	-2.72	106.56	109.40
28	W	1830	UR3	C6-N1-C2	-2.69	119.38	121.79
28	W	1243	PSU	O2-C2-N1	-2.68	119.84	122.79
28	W	1243	PSU	C6-N1-C2	-2.63	120.00	122.68
28	W	1832	6MZ	C9-N6-C6	-2.61	120.62	122.87
28	W	822	PSU	O2-C2-N1	-2.60	119.92	122.79
28	W	612	PSU	O2-C2-N1	-2.56	119.97	122.79
28	W	1851	MA6	C1'-N9-C4	-2.54	122.17	126.64
28	W	121	OMU	O2-C2-N3	-2.54	116.78	121.50
28	W	822	PSU	C6-N1-C2	-2.54	120.09	122.68
28	W	159	A2M	C4-C5-N7	-2.52	106.77	109.40
28	W	1243	PSU	C6-C5-C4	2.50	119.94	118.20
28	W	1031	A2M	C4-C5-N7	-2.46	106.83	109.40
28	W	1248	C4J	N3-C2-N1	2.42	120.17	116.76
28	W	27	A2M	C4-C5-N7	-2.42	106.88	109.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
28	W	1081	PSU	O2-C2-N1	-2.41	120.13	122.79
28	W	814	5MU	O2-C2-N1	-2.40	119.59	122.79
28	W	1081	PSU	C6-N1-C2	-2.36	120.27	122.68
28	W	823	PSU	O2-C2-N1	-2.35	120.20	122.79
28	W	1248	C4J	C5-C4-N3	2.35	120.52	116.17
28	W	644	OMG	O6-C6-C5	-2.34	119.80	124.37
28	W	119	PSU	C6-N1-C2	-2.34	120.29	122.68
28	W	823	PSU	C6-N1-C2	-2.31	120.32	122.68
28	W	27	A2M	C1'-N9-C4	-2.31	122.59	126.64
28	W	116	OMU	O2-C2-N3	-2.30	117.22	121.50
28	W	509	OMG	O6-C6-C5	-2.26	119.96	124.37
28	W	683	OMG	O6-C6-C5	-2.26	119.96	124.37
28	W	484	A2M	C4-C5-N7	-2.23	107.08	109.40
28	W	612	PSU	O4'-C1'-C2'	2.22	108.28	105.14
28	W	823	PSU	C6-C5-C4	2.16	119.71	118.20
28	W	1678	A2M	C4-C5-N7	-2.15	107.16	109.40
28	W	166	A2M	C4-C5-N7	-2.07	107.24	109.40
28	W	1832	6MZ	C1'-N9-C4	-2.06	123.02	126.64
28	W	1031	A2M	C1'-N9-C4	-2.04	123.05	126.64
28	W	1703	OMC	O2-C2-N3	-2.04	119.01	122.33
28	W	814	5MU	C6-N1-C2	-2.04	119.23	121.30
28	W	1678	A2M	C1'-N9-C4	-2.03	123.08	126.64

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
28	W	1219	JMH	C2'

All (43) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
28	W	166	A2M	C3'-C4'-C5'-O5'
28	W	509	OMG	O4'-C4'-C5'-O5'
28	W	509	OMG	C3'-C4'-C5'-O5'
28	W	668	A2M	O4'-C4'-C5'-O5'
28	W	668	A2M	C3'-C4'-C5'-O5'
28	W	1219	JMH	C2'-C1'-N1-C2
28	W	1219	JMH	C3'-C4'-C5'-O5'
28	W	1219	JMH	O4'-C4'-C5'-O5'
28	W	1678	A2M	C1'-C2'-O2'-CM'
28	W	1703	OMC	C3'-C4'-C5'-O5'
28	W	1703	OMC	O4'-C4'-C5'-O5'

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Mol	Chain	Res	Type	Atoms
28	W	1830	UR3	O4'-C1'-N1-C6
28	W	1830	UR3	O4'-C1'-N1-C2
28	W	1832	6MZ	C5-C6-N6-C9
28	W	1832	6MZ	N1-C6-N6-C9
28	W	1850	MA6	C5-C6-N6-C10
28	W	1851	MA6	O4'-C4'-C5'-O5'
28	W	1851	MA6	C3'-C4'-C5'-O5'
28	W	27	A2M	O4'-C4'-C5'-O5'
28	W	116	OMU	C3'-C4'-C5'-O5'
28	W	116	OMU	O4'-C4'-C5'-O5'
28	W	1081	PSU	O4'-C4'-C5'-O5'
28	W	1219	JMH	C2'-C1'-N1-C6
28	W	27	A2M	C3'-C4'-C5'-O5'
28	W	166	A2M	O4'-C4'-C5'-O5'
28	W	612	PSU	O4'-C4'-C5'-O5'
28	W	1081	PSU	C3'-C4'-C5'-O5'
28	W	1031	A2M	O4'-C4'-C5'-O5'
28	W	1851	MA6	C5-C6-N6-C10
28	W	1248	C4J	C4'-C5'-O5'-P
28	W	1219	JMH	C4'-C5'-O5'-P
28	W	1850	MA6	C5-C6-N6-C9
28	W	822	PSU	C3'-C4'-C5'-O5'
28	W	166	A2M	C4'-C5'-O5'-P
28	W	1243	PSU	C4'-C5'-O5'-P
28	W	612	PSU	C3'-C4'-C5'-O5'
28	W	166	A2M	C3'-C2'-O2'-CM'
28	W	1678	A2M	C3'-C4'-C5'-O5'
28	W	1031	A2M	C3'-C4'-C5'-O5'
28	W	1219	JMH	O4'-C1'-N1-C6
28	W	1248	C4J	C3-C31-C32-N33
28	W	644	OMG	C4'-C5'-O5'-P
28	W	1081	PSU	C4'-C5'-O5'-P

There are no ring outliers.

No monomer is involved in short contacts.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 91 ligands modelled in this entry, 91 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
28	W	7
8	C	1
14	I	1
50	v	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	W	753:C	O3'	788:G	P	16.10
1	W	1760:G	O3'	1771:G	P	15.61
1	W	697:G	O3'	733:C	P	15.25
1	W	225:G	O3'	287:U	P	11.87
1	W	740:C	O3'	746:C	P	6.05
1	C	155:ASN	C	156:LEU	N	5.87
1	W	1219:JMH	O3'	1220:A	P	5.81
1	I	713:SER	C	714:GLN	N	3.71
1	v	93:GLN	C	94:GLU	N	3.41
1	W	1310:U	O3'	1311:C	P	3.02

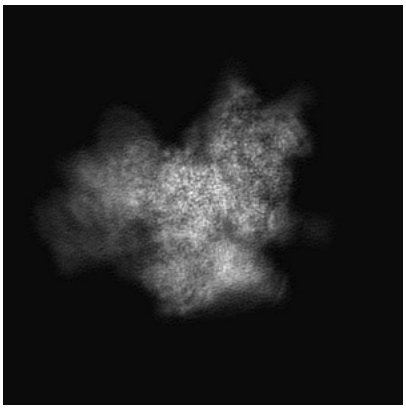
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-17297. These allow visual inspection of the internal detail of the map and identification of artifacts.

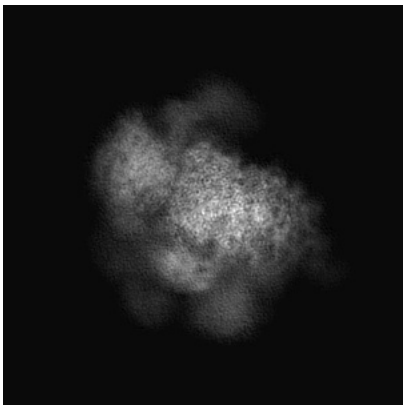
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

6.1 Orthogonal projections

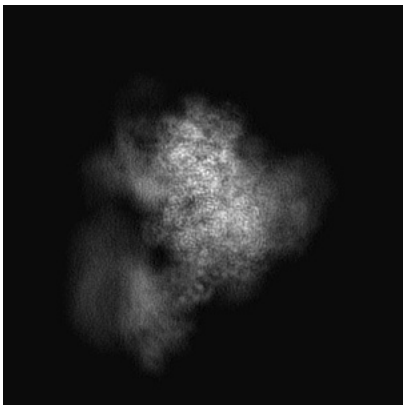
6.1.1 Primary map



X

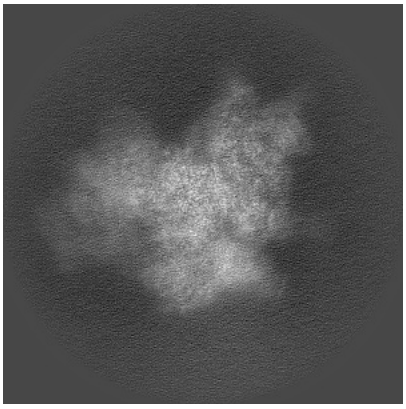


Y

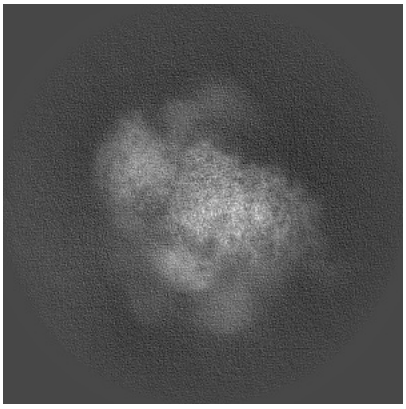


Z

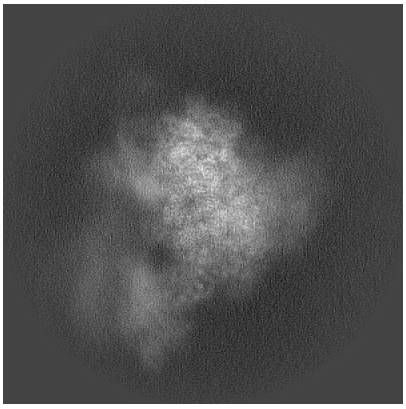
6.1.2 Raw map



X



Y

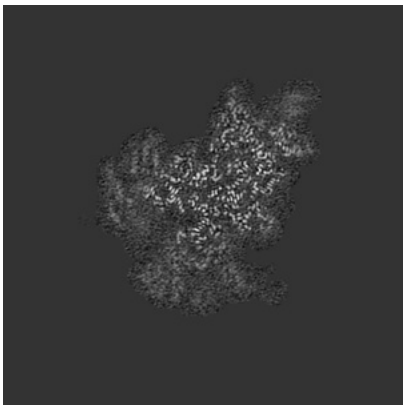


Z

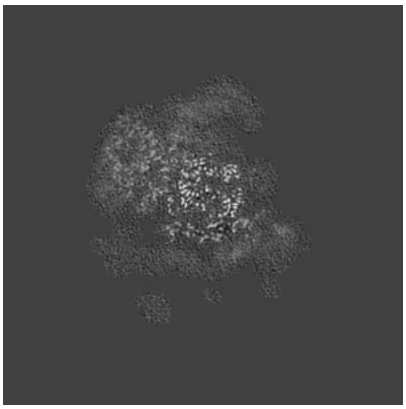
The images above show the map projected in three orthogonal directions.

6.2 Central slices (i)

6.2.1 Primary map



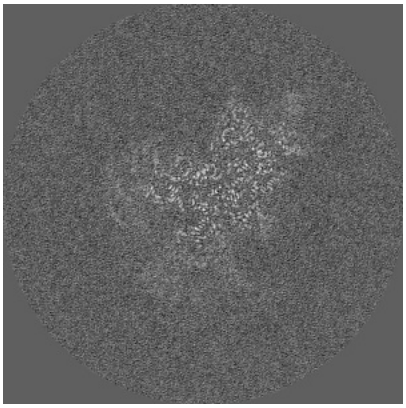
X Index: 200



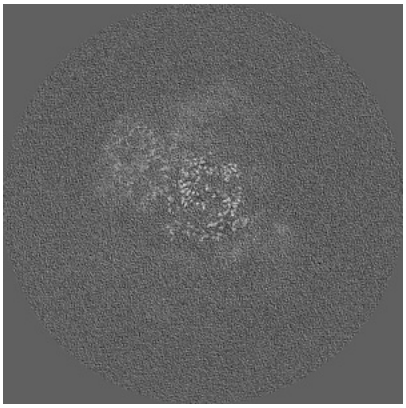
Y Index: 200

Z Index: 200

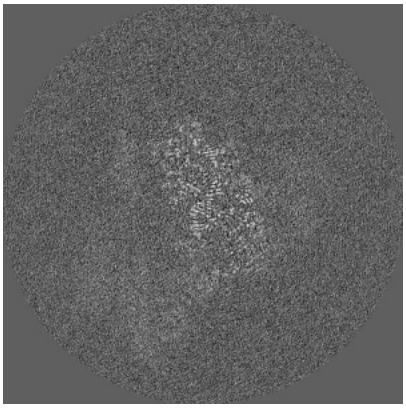
6.2.2 Raw map



X Index: 200



Y Index: 200

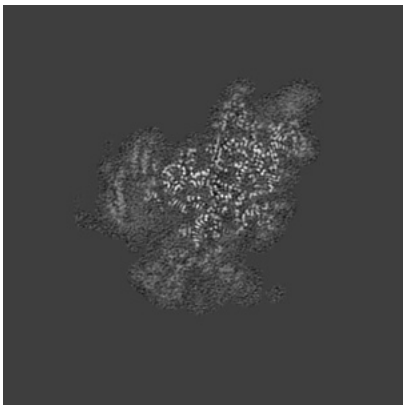


Z Index: 200

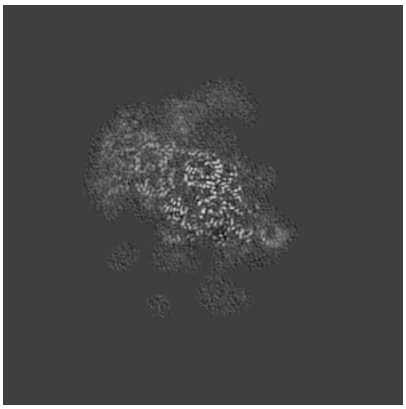
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

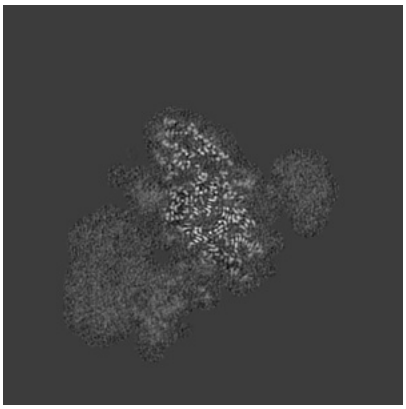
6.3.1 Primary map



X Index: 197

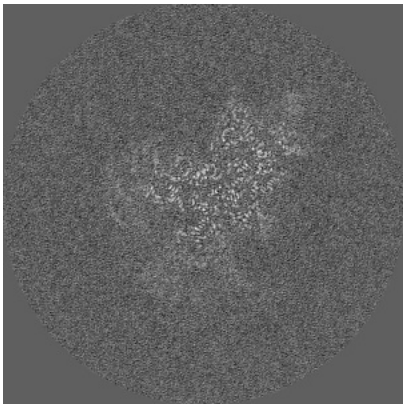


Y Index: 192

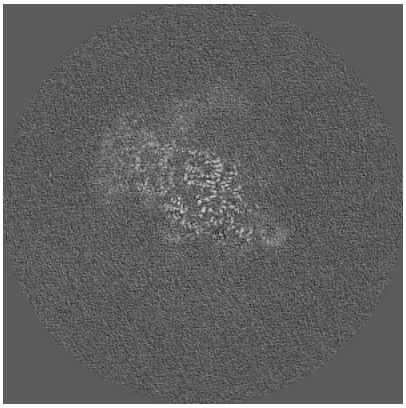


Z Index: 218

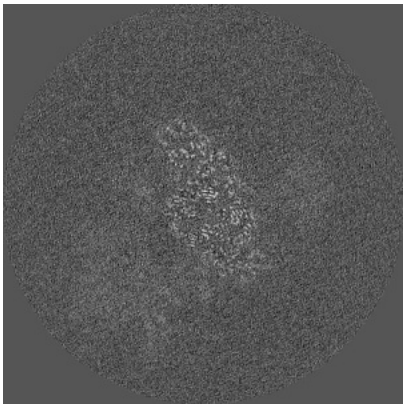
6.3.2 Raw map



X Index: 200



Y Index: 192

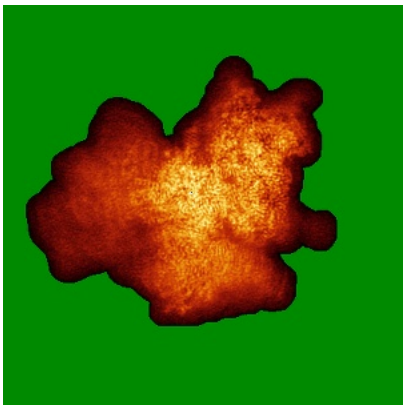


Z Index: 213

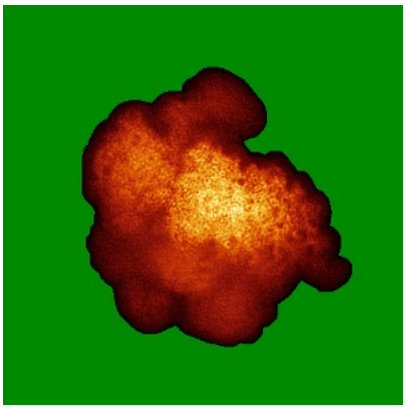
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

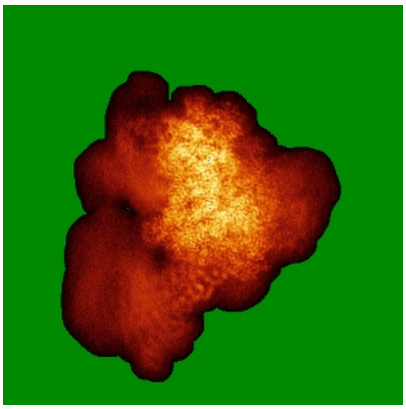
6.4.1 Primary map



X

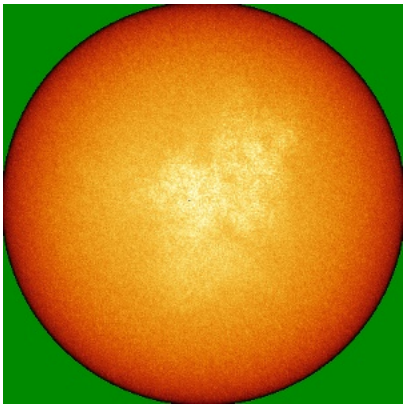


Y

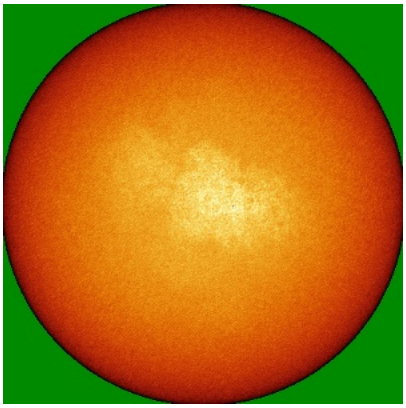


Z

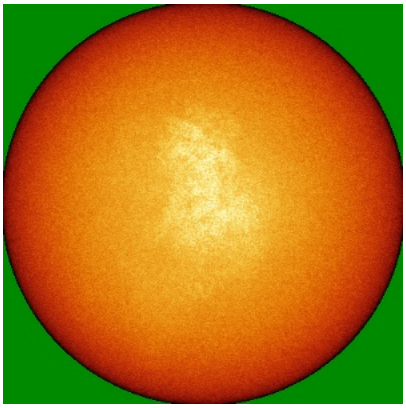
6.4.2 Raw map



X



Y

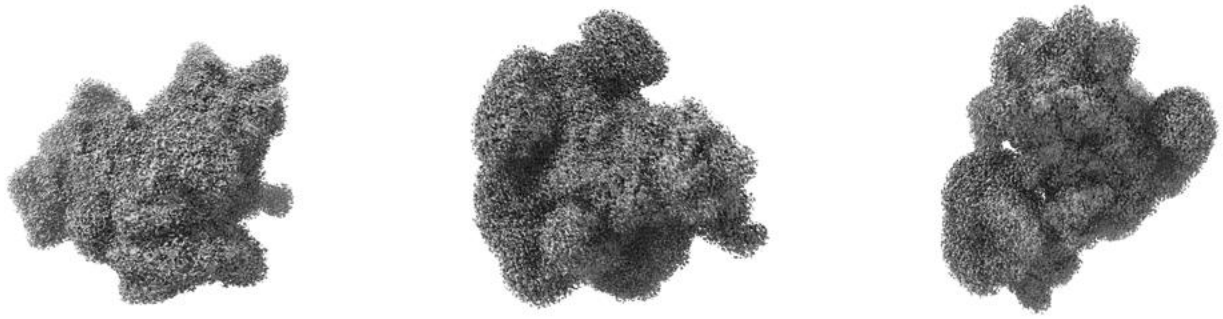


Z

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)

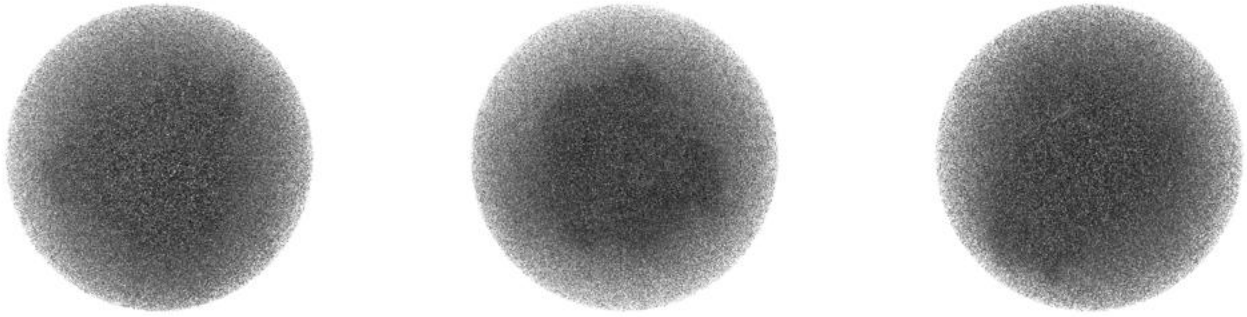
6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.006. 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



X Y Z

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.

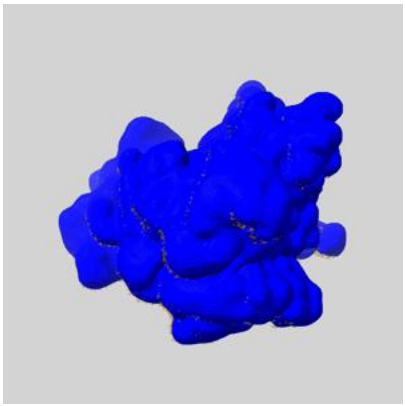
6.6 Mask visualisation

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

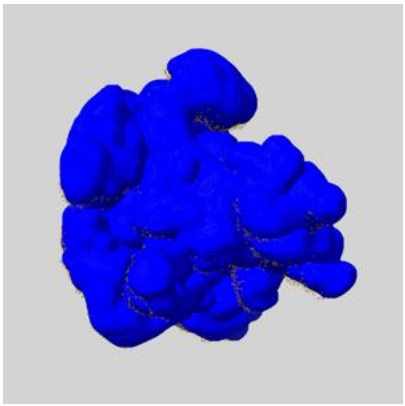
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

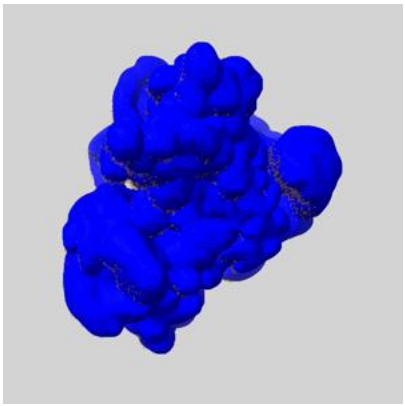
6.6.1 emd_17297_msk_1.map



X



Y

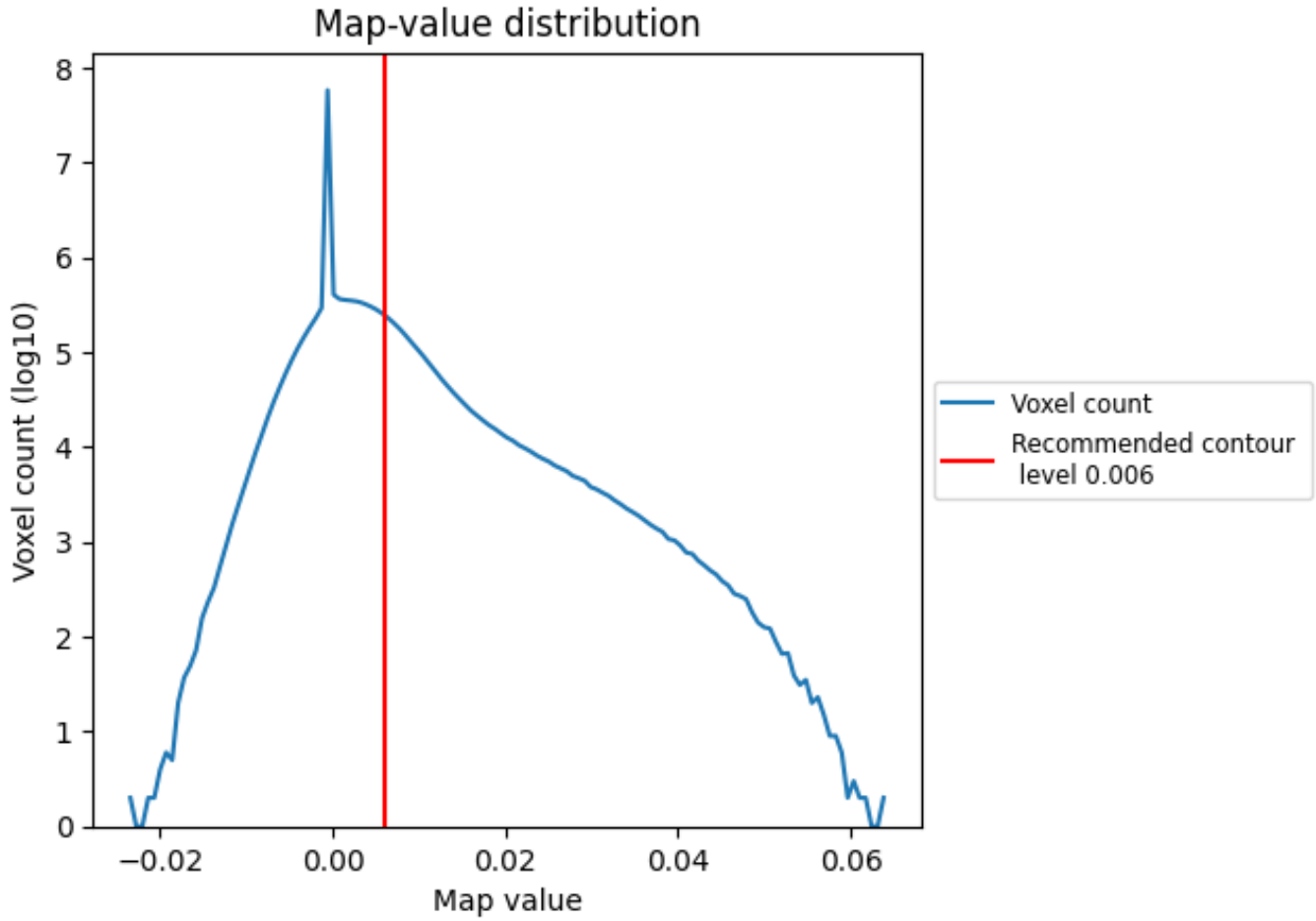


Z

7 Map analysis

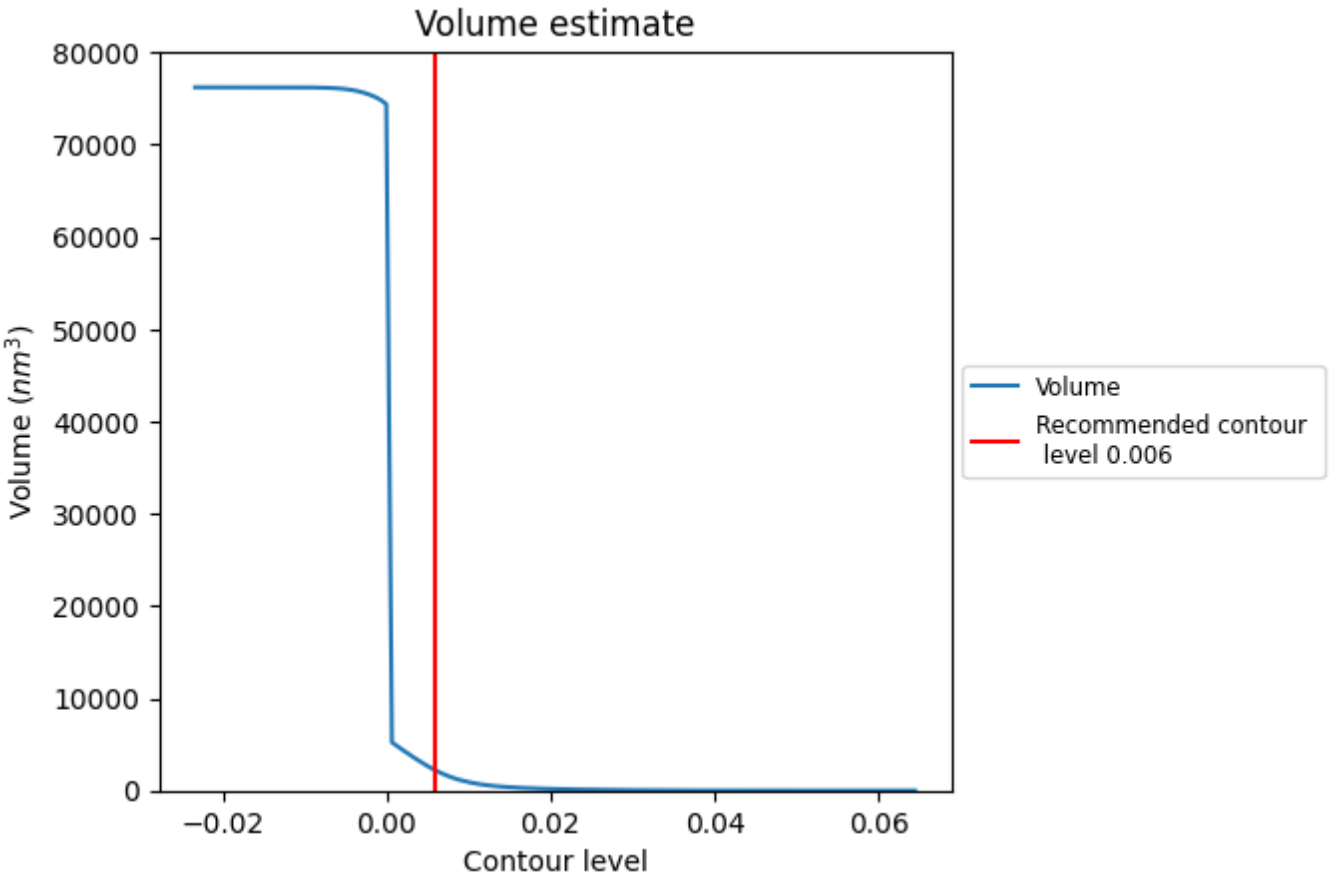
This section contains the results of statistical analysis of the map.

7.1 Map-value distribution



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.

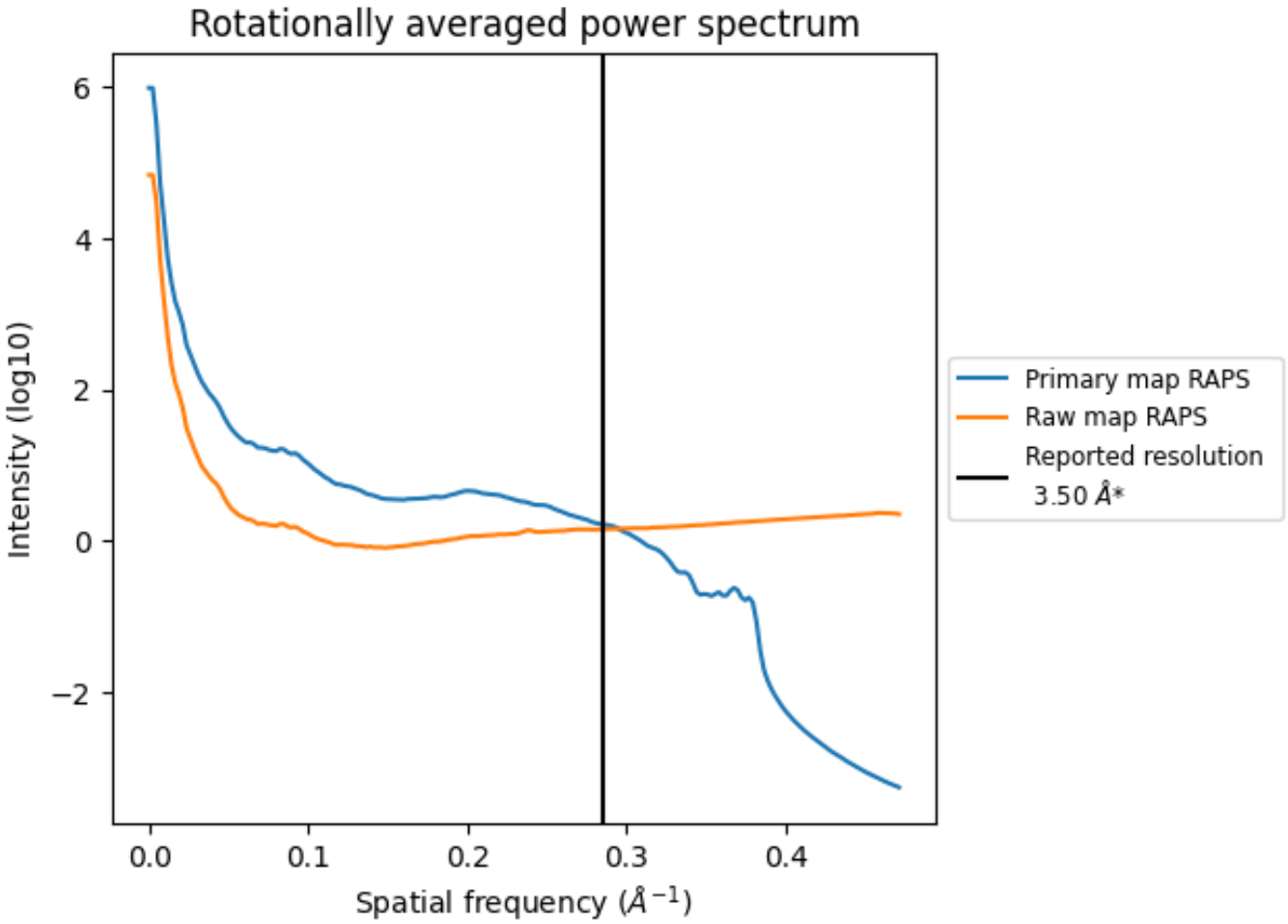
7.2 Volume estimate



The volume at the recommended contour level is 2177 nm^3; this corresponds to an approximate mass of 1966 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)

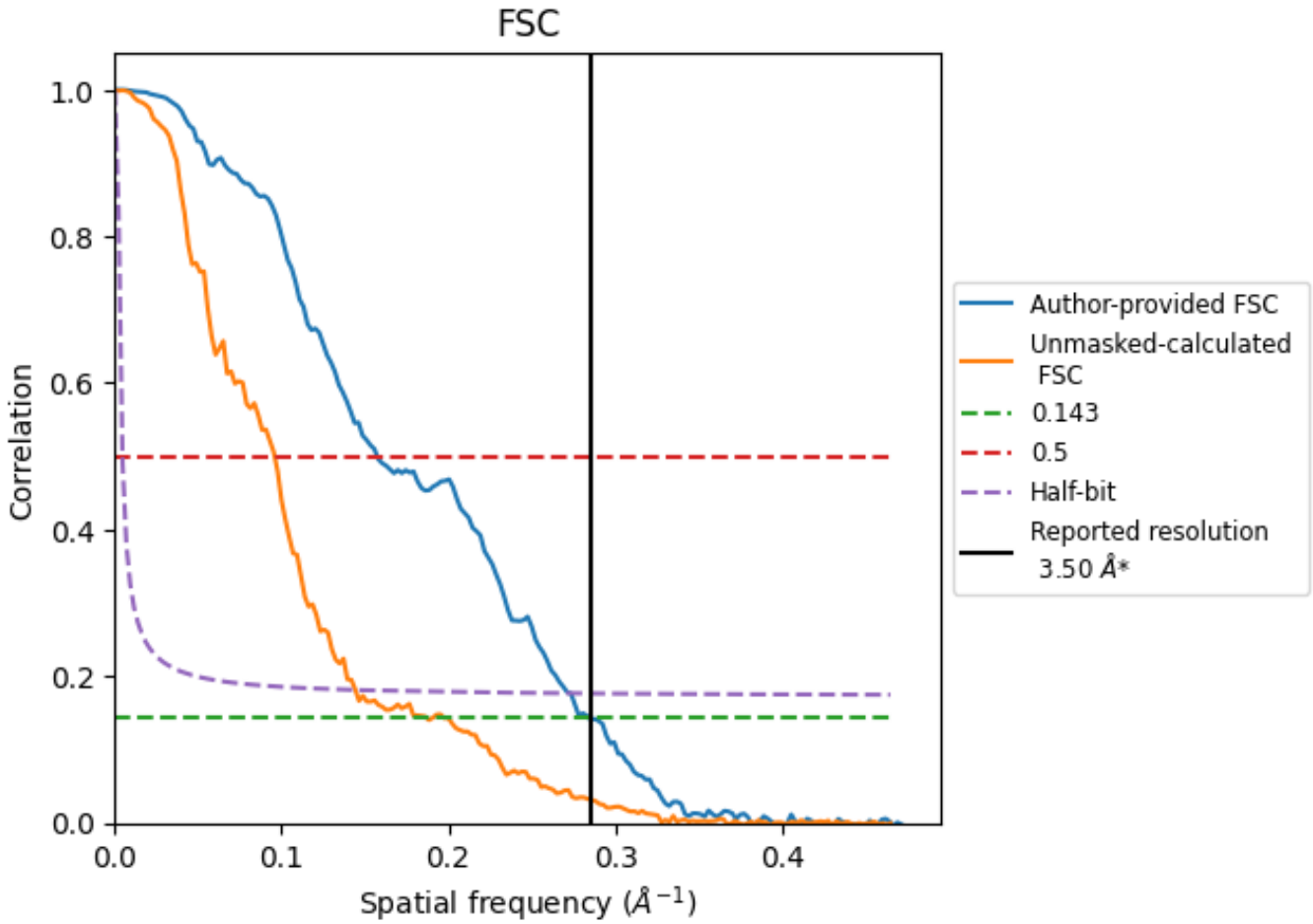


*Reported resolution corresponds to spatial frequency of 0.286 $Å^{-1}$

8 Fourier-Shell correlation

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



*Reported resolution corresponds to spatial frequency of 0.286 Å^{-1}

8.2 Resolution estimates (i)

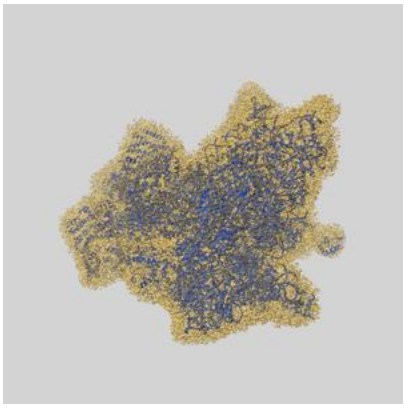
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.50	-	-
Author-provided FSC curve	3.52	6.36	3.66
Unmasked-calculated*	5.35	10.43	6.93

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 5.35 differs from the reported value 3.5 by more than 10 %

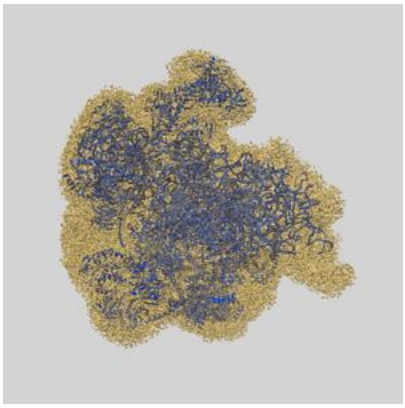
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-17297 and PDB model 8OZ0. Per-residue inclusion information can be found in section 3 on page 15.

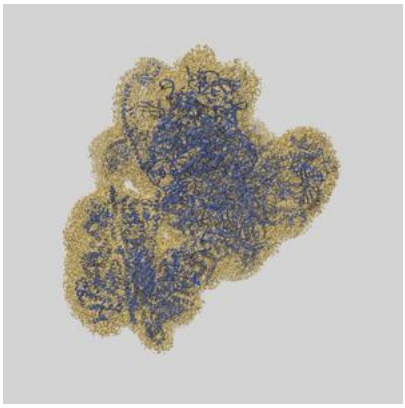
9.1 Map-model overlay



X



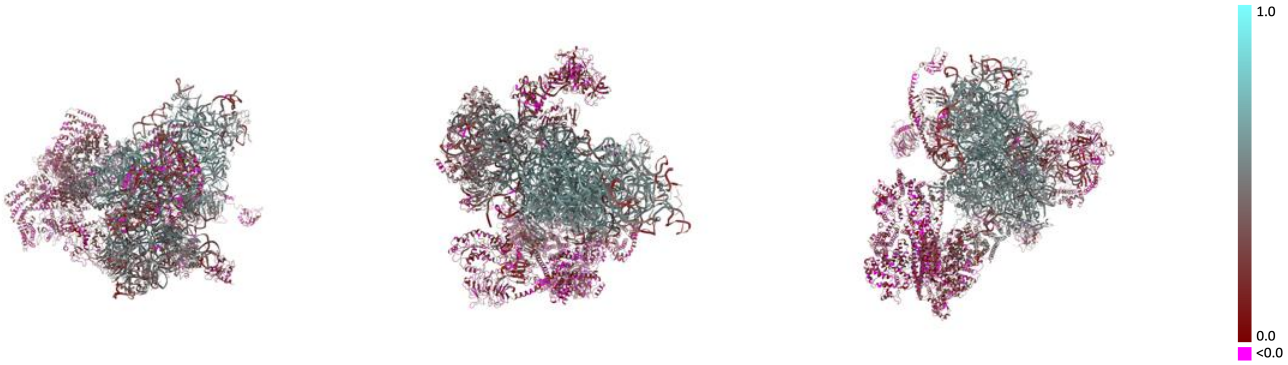
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.006 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.

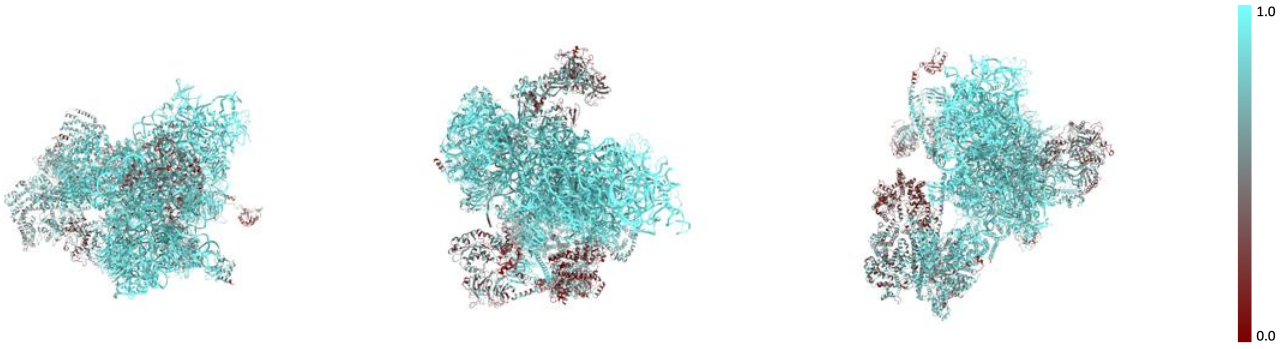
9.2 Q-score mapped to coordinate model (i)



X Y Z

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

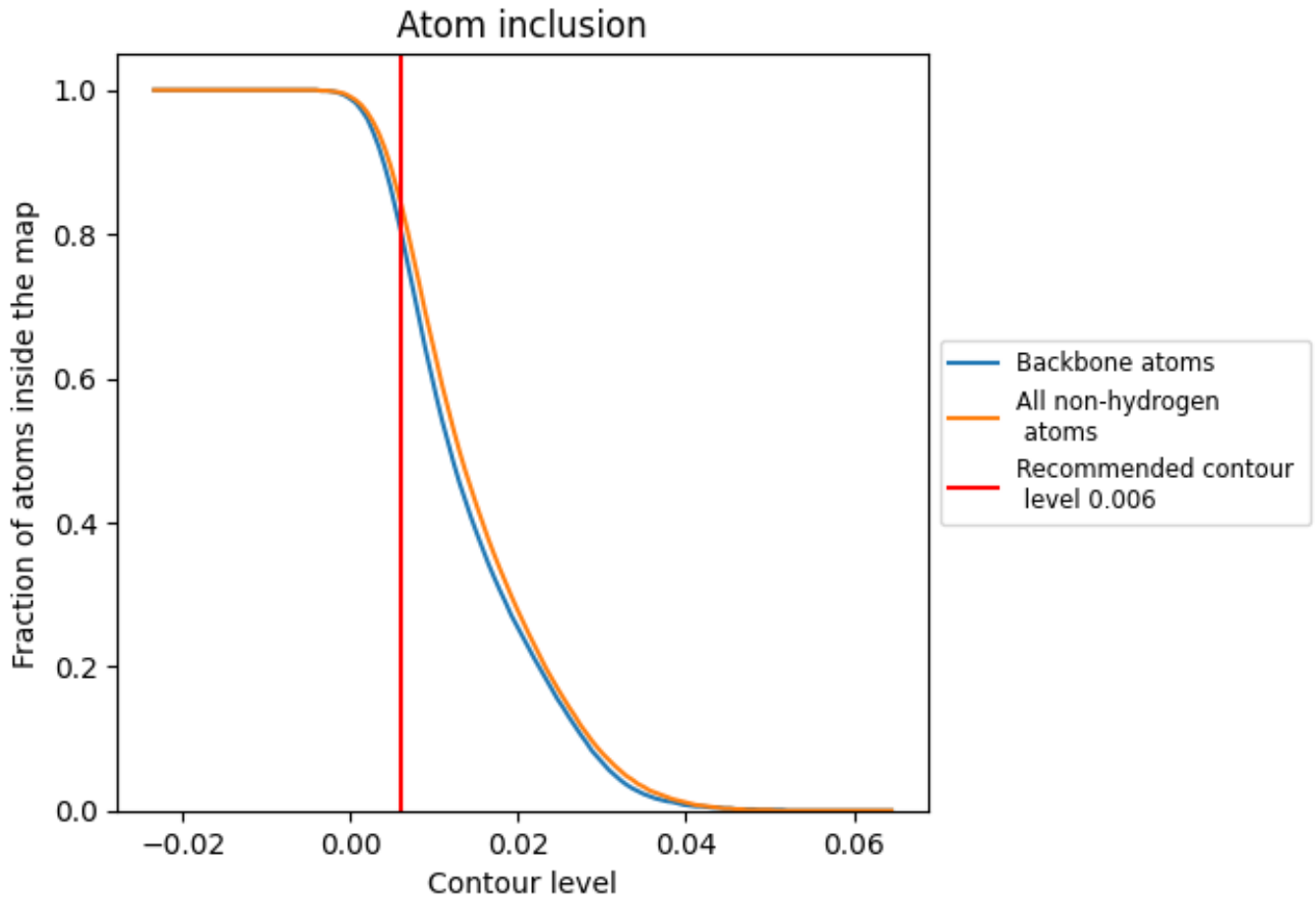
9.3 Atom inclusion mapped to coordinate model (i)



X Y Z

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 (0.006).

9.4 Atom inclusion (i)



At the recommended contour level, 80% of all backbone atoms, 84% 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 (0.006) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8440	0.3910
1	0.3550	0.1560
2	0.2350	0.1320
3	0.4650	0.1990
5	0.7240	0.1690
6	0.6350	0.1830
7	0.7650	0.2560
8	0.6560	0.1800
9	0.9760	0.5390
A	0.7770	0.2550
B	0.5570	0.1480
C	0.6220	0.1600
D	0.7210	0.2600
E	0.4530	0.1810
F	0.4770	0.1950
G	0.8750	0.3700
H	0.5600	0.2520
I	0.7370	0.2770
J	0.8020	0.2830
K	0.5950	0.1740
L	0.9570	0.4930
M	0.9870	0.5550
N	0.9770	0.5480
O	0.9890	0.5750
P	0.9780	0.5390
Q	0.9840	0.5580
R	0.9910	0.5650
S	0.9490	0.4490
T	0.9620	0.5230
U	0.4310	0.1720
V	0.9860	0.5450
W	0.9780	0.4960
X	0.9850	0.5730
Y	0.9950	0.5760
Z	0.9890	0.5690

Continued on next page...

Continued from previous page...

Chain	Atom inclusion	Q-score
a	0.9940	0.5880
b	0.9950	0.5600
c	0.9890	0.5880
d	0.9840	0.5310
e	0.9840	0.5450
f	0.9670	0.4750
g	0.9590	0.4650
h	0.9580	0.4450
i	0.9290	0.4260
j	0.8950	0.4160
k	0.9030	0.3770
l	0.9530	0.4250
m	0.8930	0.3980
n	0.9040	0.3970
o	0.9900	0.5110
p	0.7610	0.1950
q	0.6560	0.2460
s	0.9310	0.4720
v	0.9640	0.4920
w	0.9440	0.4450
x	0.6540	0.2610
y	0.8600	0.2650
z	0.7990	0.2440