Full wwPDB EM Validation Report ⓘ

Dec 17, 2024 – 04:55 AM EST

PDB ID	:	6D90
EMDB ID	:	EMD-7834
Title	:	Mammalian 80S ribosome with a double translocated CrPV-IRES, P-site tRNA and eRF1.
Authors	:	Pisareva, V.P.; Pisarev, A.V.; Fernandez, I.S.
Deposited on	:	2018-04-27
Resolution	:	3.20 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:

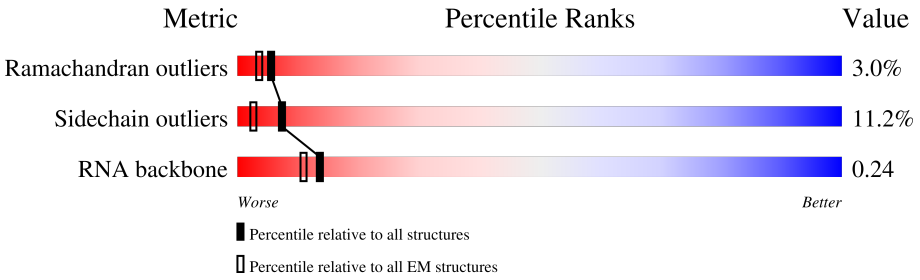
EMDB validation analysis	:	0.0.1.dev113
MolProbity	:	4.02b-467
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.20 Å.

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



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

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

Mol	Chain	Length	Quality of chain
1	A	257	79% 13% • 7%
2	B	403	80% 17% • •
3	C	392	80% 12% • 8%
4	D	297	87% 12% •
5	E	291	65% 9% 26%
6	F	249	80% 10% 10%
7	G	242	88% 9% •
8	H	192	89% 10% ••

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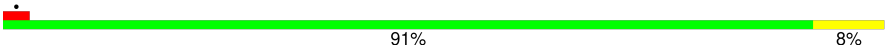
Mol	Chain	Length	Quality of chain
9	I	214	
10	J	178	
11	L	211	
12	M	198	
13	N	204	
14	O	199	
15	P	184	
16	Q	188	
17	R	181	
18	S	176	
19	T	160	
20	U	128	
21	V	140	
22	W	157	
23	X	156	
24	Y	145	
25	Z	136	
26	a	148	
27	b	226	
28	c	115	
29	d	125	
30	e	135	
31	f	110	
32	g	126	
33	h	123	

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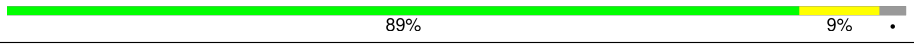
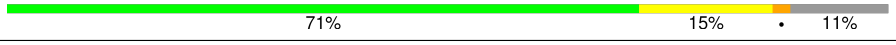
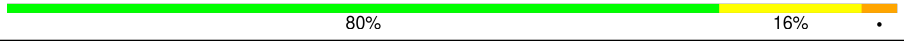
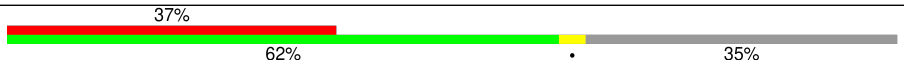
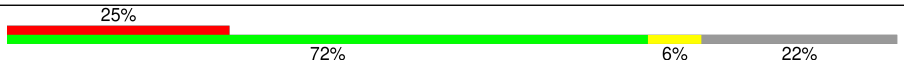
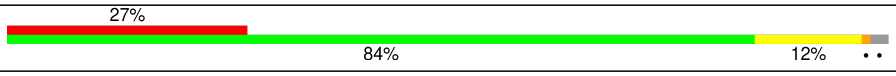
Mol	Chain	Length	Quality of chain
34	i	105	
35	j	97	
36	k	70	
37	l	51	
38	m	52	
39	n	25	
40	o	106	
41	p	92	
42	r	137	
43	s	303	
44	t	195	
45	5	3594	
46	7	119	
47	8	151	
48	K	217	
49	2	1697	
50	3	87	
51	BB	295	
52	CC	264	
53	DD	255	
54	EE	281	
55	FF	263	
56	GG	204	
57	HH	249	
58	II	194	

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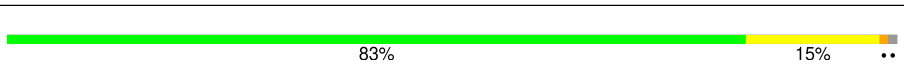
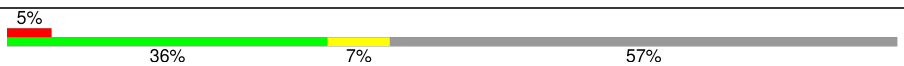
Mol	Chain	Length	Quality of chain
59	JJ	208	
60	KK	194	
61	LL	149	
62	MM	158	
63	NN	132	
64	OO	151	
65	PP	151	
66	QQ	145	
67	RR	172	
68	SS	135	
69	TT	152	
70	UU	145	
71	VV	119	
72	WW	83	
73	XX	130	
74	YY	143	
75	ZZ	134	
76	aa	125	
77	bb	115	
78	cc	84	
79	dd	69	
80	ee	56	
81	ff	133	
82	gg	156	
83	hh	317	

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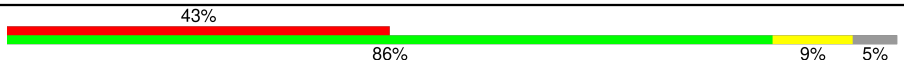
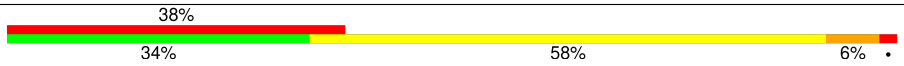
Mol	Chain	Length	Quality of chain
84	jj	437	
85	4	194	

2 Entry composition

There are 85 unique types of molecules in this entry. The entry contains 223875 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 Ribosomal protein L8.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	239	1777	1110	361	300	6	0	0

- Molecule 2 is a protein called uL3.

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

- Molecule 3 is a protein called Ribosomal protein L4.

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

- Molecule 4 is a protein called Large ribosomal subunit protein uL18.

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

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
D	1	LYS	-	expression tag	UNP P19949

- Molecule 5 is a protein called 60S ribosomal protein L6.

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

- Molecule 6 is a protein called uL30.

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

- Molecule 7 is a protein called eL8.

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

- Molecule 8 is a protein called 60S ribosomal protein L9.

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

- Molecule 9 is a protein called 60S ribosomal protein L10.

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

- Molecule 10 is a protein called Ribosomal protein L11.

Mol	Chain	Residues	Atoms					AltConf	Trace
10	J	170	Total	C	N	O	S	0	0
			1362	861	254	241	6		

- Molecule 11 is a protein called eL13.

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

- Molecule 12 is a protein called Large ribosomal subunit protein eL14.

Mol	Chain	Residues	Atoms					AltConf	Trace
12	M	137	Total	C	N	O	S	0	0
			1130	722	220	181	7		

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
M	?	-	LYS	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	GLN	deletion	UNP G1SZ12
M	?	-	LYS	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	PRO	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	GLN	deletion	UNP G1SZ12
M	?	-	LYS	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	PRO	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	GLN	deletion	UNP G1SZ12
M	?	-	LYS	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	ALA	deletion	UNP G1SZ12
M	?	-	GLY	deletion	UNP G1SZ12
M	?	-	GLN	deletion	UNP G1SZ12

- Molecule 13 is a protein called Ribosomal protein L15.

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

- Molecule 14 is a protein called uL13.

Mol	Chain	Residues	Atoms					AltConf	Trace
14	O	198	Total	C	N	O	S	0	0
			1623	1046	318	254	5		

- Molecule 15 is a protein called Large ribosomal subunit protein uL22.

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

- Molecule 16 is a protein called rL18.

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

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
Q	6	ARG	LEU	conflict	UNP G1TX70
Q	14	ARG	TRP	conflict	UNP G1TX70
Q	23	ILE	MET	conflict	UNP G1TX70
Q	24	TYR	CYS	conflict	UNP G1TX70
Q	38	ARG	HIS	conflict	UNP G1TX70
Q	57	ASN	LYS	conflict	UNP G1TX70
Q	66	MET	VAL	conflict	UNP G1TX70
Q	74	GLY	ASP	conflict	UNP G1TX70
Q	75	ARG	PRO	conflict	UNP G1TX70
Q	86	VAL	ILE	conflict	UNP G1TX70
Q	110	ARG	HIS	conflict	UNP G1TX70
Q	117	GLY	GLU	conflict	UNP G1TX70
Q	124	ASP	HIS	conflict	UNP G1TX70
Q	150	ARG	GLN	conflict	UNP G1TX70
Q	172	ARG	GLY	conflict	UNP G1TX70
Q	184	ARG	TRP	conflict	UNP G1TX70

- Molecule 17 is a protein called Ribosomal protein L19.

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

There are 3 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
R	38	ARG	CYS	conflict	UNP G1TJR3
R	64	ARG	GLN	conflict	UNP G1TJR3
R	94	THR	LYS	conflict	UNP G1TJR3

- Molecule 18 is a protein called 60S ribosomal protein L18a.

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

There are 23 discrepancies between the modelled and reference sequences:

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

- Molecule 19 is a protein called eL21.

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

- Molecule 20 is a protein called eL22.

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

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
U	18	LEU	VAL	conflict	UNP G1TSG1
U	32	GLY	ARG	conflict	UNP G1TSG1
U	36	ALA	GLU	conflict	UNP G1TSG1
U	39	PHE	SER	conflict	UNP G1TSG1

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Chain	Residue	Modelled	Actual	Comment	Reference
U	54	GLY	ARG	conflict	UNP G1TSG1
U	60	VAL	ALA	conflict	UNP G1TSG1
U	62	SER	THR	conflict	UNP G1TSG1
U	63	LEU	ILE	conflict	UNP G1TSG1
U	97	ARG	HIS	conflict	UNP G1TSG1
U	106	THR	SER	conflict	UNP G1TSG1

- Molecule 21 is a protein called Ribosomal protein L23.

Mol	Chain	Residues	Atoms					AltConf	Trace
21	V	129	Total	C	N	O	S	0	0
			969	613	182	169	5		

- Molecule 22 is a protein called eL24.

Mol	Chain	Residues	Atoms					AltConf	Trace
22	W	106	Total	C	N	O	S	0	0
			860	538	174	144	4		

- Molecule 23 is a protein called eL23.

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

- Molecule 24 is a protein called uL24.

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

- Molecule 25 is a protein called 60S ribosomal protein L27.

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

- Molecule 26 is a protein called uL15.

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

- Molecule 27 is a protein called eL29.

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

- Molecule 28 is a protein called eL30.

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

- Molecule 29 is a protein called eL31.

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

- Molecule 30 is a protein called Ribosomal protein L32.

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

- Molecule 31 is a protein called eL33.

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

- Molecule 32 is a protein called Large ribosomal subunit protein eL34.

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

- Molecule 33 is a protein called eL35.

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

- Molecule 34 is a protein called 60S ribosomal protein L36.

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

- Molecule 35 is a protein called Ribosomal protein L37.

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

- Molecule 36 is a protein called eL38.

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

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
k	3	ARG	GLN	conflict	UNP G1U3J0
k	38	CYS	TYR	conflict	UNP G1U3J0
k	48	THR	MET	conflict	UNP G1U3J0
k	66	VAL	MET	conflict	UNP G1U3J0

- Molecule 37 is a protein called eL39.

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

- Molecule 38 is a protein called eL40.

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

- Molecule 39 is a protein called eL41.

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

- Molecule 40 is a protein called Large ribosomal subunit protein eL42.

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

- Molecule 41 is a protein called eL43.

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

- Molecule 42 is a protein called eL28.

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

- Molecule 43 is a protein called 60S acidic ribosomal protein P0.

Mol	Chain	Residues	Atoms					AltConf	Trace
43	s	196	Total	C	N	O	S	0	0
			1507	959	263	276	9		

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
s	262	LEU	ALA	conflict	UNP A0A1U7UFL5
s	?	-	GLU	deletion	UNP A0A1U7UFL5
s	266	THR	ALA	conflict	UNP A0A1U7UFL5
s	267	LEU	PHE	conflict	UNP A0A1U7UFL5
s	269	ILE	ALA	conflict	UNP A0A1U7UFL5
s	270	ILE	ASP	conflict	UNP A0A1U7UFL5
s	?	-	SER	deletion	UNP A0A1U7UFL5
s	?	-	ALA	deletion	UNP A0A1U7UFL5
s	?	-	PHE	deletion	UNP A0A1U7UFL5
s	?	-	VAL	deletion	UNP A0A1U7UFL5
s	?	-	ALA	deletion	UNP A0A1U7UFL5
s	?	-	ALA	deletion	UNP A0A1U7UFL5

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Chain	Residue	Modelled	Actual	Comment	Reference
s	?	-	ALA	deletion	UNP A0A1U7UFL5
s	?	-	PRO	deletion	UNP A0A1U7UFL5
s	?	-	VAL	deletion	UNP A0A1U7UFL5
s	272	VAL	ALA	conflict	UNP A0A1U7UFL5
s	273	ARG	ALA	conflict	UNP A0A1U7UFL5
s	274	ASP	ALA	conflict	UNP A0A1U7UFL5
s	275	SER	ALA	conflict	UNP A0A1U7UFL5
s	276	THR	PRO	conflict	UNP A0A1U7UFL5
s	278	ASP	ALA	conflict	UNP A0A1U7UFL5
s	282	ALA	LEU	conflict	UNP A0A1U7UFL5
s	284	GLN	ALA	conflict	UNP A0A1U7UFL5
s	286	SER	ALA	conflict	UNP A0A1U7UFL5
s	290	PRO	ALA	conflict	UNP A0A1U7UFL5
s	?	-	GLU	deletion	UNP A0A1U7UFL5
s	?	-	GLU	deletion	UNP A0A1U7UFL5
s	?	-	SER	deletion	UNP A0A1U7UFL5
s	?	-	GLU	deletion	UNP A0A1U7UFL5
s	294	ASN	ASP	conflict	UNP A0A1U7UFL5

- Molecule 44 is a protein called Ribosomal protein L12.

Mol	Chain	Residues	Atoms					AltConf	Trace
44	t	153	Total	C	N	O	S	0	0
			1160	722	218	217	3		

- Molecule 45 is a RNA chain called 28S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
45	5	3594	Total	C	N	O	P	0	0
			77073	34324	14116	25039	3594		

- Molecule 46 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
46	7	119	Total	C	N	O	P	0	0
			2538	1132	454	834	118		

- Molecule 47 is a RNA chain called 5.8S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
47	8	151	Total	C	N	O	P	0	0
			3208	1432	564	1062	150		

- Molecule 48 is a protein called Ribosomal protein.

Mol	Chain	Residues	Atoms					AltConf	Trace
48	K	212	Total	C	N	O	S	0	0
			1705	1091	306	300	8		

- Molecule 49 is a RNA chain called 18S rRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
49	2	1697	Total	C	N	O	P	0	0
			36229	16171	6507	11855	1696		

- Molecule 50 is a RNA chain called P-tRNA.

Mol	Chain	Residues	Atoms					AltConf	Trace
50	3	87	Total	C	N	O	P	0	0
			1861	829	333	612	87		

- Molecule 51 is a protein called Small ribosomal subunit protein uS2.

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

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
BB	114	THR	ALA	conflict	UNP G1TLT8
BB	235	GLU	ALA	conflict	UNP G1TLT8
BB	252	MET	VAL	conflict	UNP G1TLT8
BB	288	MET	VAL	conflict	UNP G1TLT8

- Molecule 52 is a protein called 40S ribosomal protein S3a.

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

- Molecule 53 is a protein called uS5.

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

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
DD	97	PHE	CYS	conflict	UNP G1SWM1
DD	101	SER	ALA	conflict	UNP G1SWM1
DD	141	VAL	LEU	conflict	UNP G1SWM1
DD	181	PRO	LEU	conflict	UNP G1SWM1
DD	191	VAL	-	insertion	UNP G1SWM1
DD	215	MET	LEU	conflict	UNP G1SWM1
DD	271	ASP	ASN	conflict	UNP G1SWM1
DD	274	VAL	MET	conflict	UNP G1SWM1

- Molecule 54 is a protein called Ribosomal protein S3.

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

- Molecule 55 is a protein called 40S ribosomal protein S4.

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

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
FF	25	GLY	SER	conflict	UNP G1TK17
FF	51	ARG	LYS	conflict	UNP G1TK17
FF	78	THR	ALA	conflict	UNP G1TK17
FF	156	VAL	MET	conflict	UNP G1TK17

- Molecule 56 is a protein called Ribosomal protein S5.

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

- Molecule 57 is a protein called 40S ribosomal protein S6.

Mol	Chain	Residues	Atoms					AltConf	Trace
57	HH	237	Total	C	N	O	S	0	0
			1923	1200	387	329	7		

- Molecule 58 is a protein called 40S ribosomal protein S7.

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

- Molecule 59 is a protein called 40S ribosomal protein S8.

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

There is a discrepancy between the modelled and reference sequences:

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

- Molecule 60 is a protein called Ribosomal protein S9 (Predicted).

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

- Molecule 61 is a protein called S10_plectin domain-containing protein.

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

- Molecule 62 is a protein called Ribosomal protein S11.

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

- Molecule 63 is a protein called 40S ribosomal protein S12.

Mol	Chain	Residues	Atoms					AltConf	Trace
63	NN	117	Total	C	N	O	S	0	0
			908	570	161	169	8		

- Molecule 64 is a protein called Ribosomal protein S13.

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

- Molecule 65 is a protein called Small ribosomal subunit protein uS11.

Mol	Chain	Residues	Atoms					AltConf	Trace
65	PP	136	Total	C	N	O	S	0	0
			1016	621	199	190	6		

- Molecule 66 is a protein called uS19.

Mol	Chain	Residues	Atoms					AltConf	Trace
66	QQ	115	Total	C	N	O	S	0	0
			956	610	176	163	7		

- Molecule 67 is a protein called Ribosomal protein S16.

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

- Molecule 68 is a protein called eS17.

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

- Molecule 69 is a protein called uS13.

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

- Molecule 70 is a protein called eS19.

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

- Molecule 71 is a protein called uS10.

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

- Molecule 72 is a protein called 40S ribosomal protein S21.

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

There are 7 discrepancies between the modelled and reference sequences:

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

- Molecule 73 is a protein called Ribosomal protein S15a.

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

- Molecule 74 is a protein called Ribosomal protein S23.

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

- Molecule 75 is a protein called 40S ribosomal protein S24.

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

- Molecule 76 is a protein called eS25.

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

- Molecule 77 is a protein called 40S ribosomal protein S26.

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

There are 2 discrepancies between the modelled and reference sequences:

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

- Molecule 78 is a protein called 40S ribosomal protein S27.

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

- Molecule 79 is a protein called Ribosomal protein S28.

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

- Molecule 80 is a protein called eS29.

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

- Molecule 81 is a protein called 40S ribosomal protein S30.

Mol	Chain	Residues	Atoms					AltConf	Trace
81	ff	57	Total	C	N	O	S	0	0
			457	282	101	73	1		

- Molecule 82 is a protein called Ribosomal protein S27a.

Mol	Chain	Residues	Atoms					AltConf	Trace
82	gg	68	Total	C	N	O	S	0	0
			555	351	103	94	7		

- Molecule 83 is a protein called RACK1.

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

- Molecule 84 is a protein called Eukaryotic peptide chain release factor subunit 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
84	jj	416	Total	C	N	O	S	0	0
			3280	2087	559	623	11		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
jj	183	ALA	GLY	conflict	UNP P62495
jj	184	ALA	GLY	conflict	UNP P62495

- Molecule 85 is a RNA chain called CrPV-IRES.

Mol	Chain	Residues	Atoms					AltConf	Trace
85	4	194	Total	C	N	O	P	0	0
			4105	1840	704	1367	194		

There are 4 discrepancies between the modelled and reference sequences:

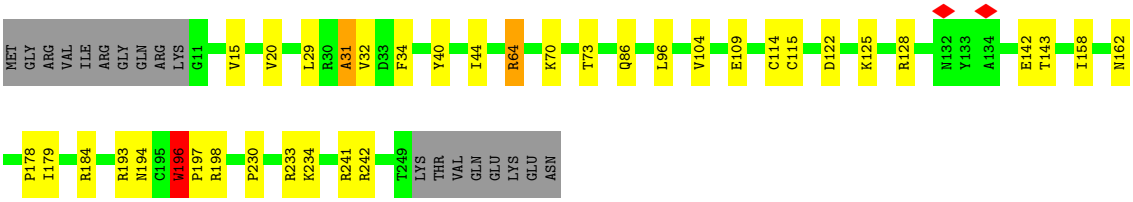
Chain	Residue	Modelled	Actual	Comment	Reference
4	?	-	G	deletion	GB KP974707.1
4	6219	C	A	conflict	GB KP974707.1
4	6220	U	C	conflict	GB KP974707.1
4	6222	G	U	conflict	GB KP974707.1

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.

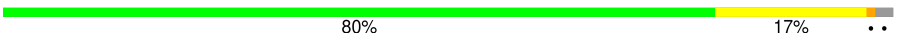
• Molecule 1: Ribosomal protein L8

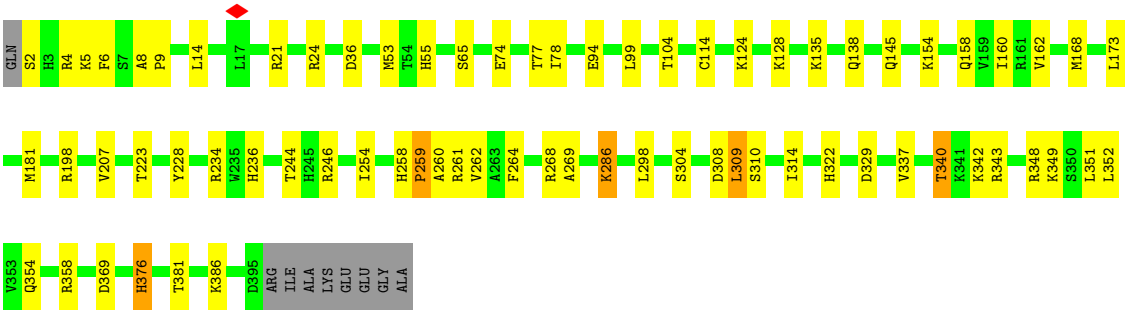
Chain A:



• Molecule 2: uL3

Chain B:



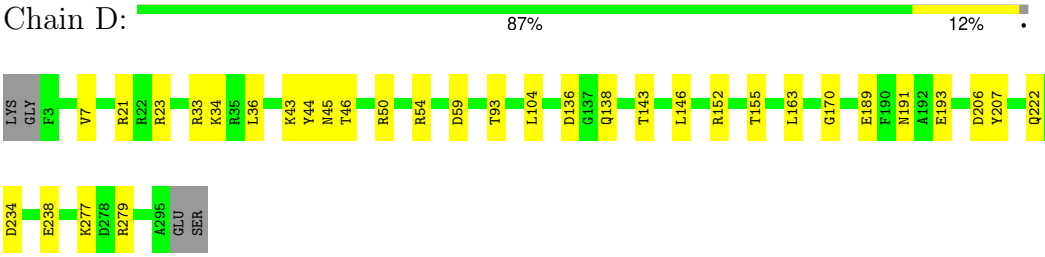


• Molecule 3: Ribosomal protein L4

Chain C:

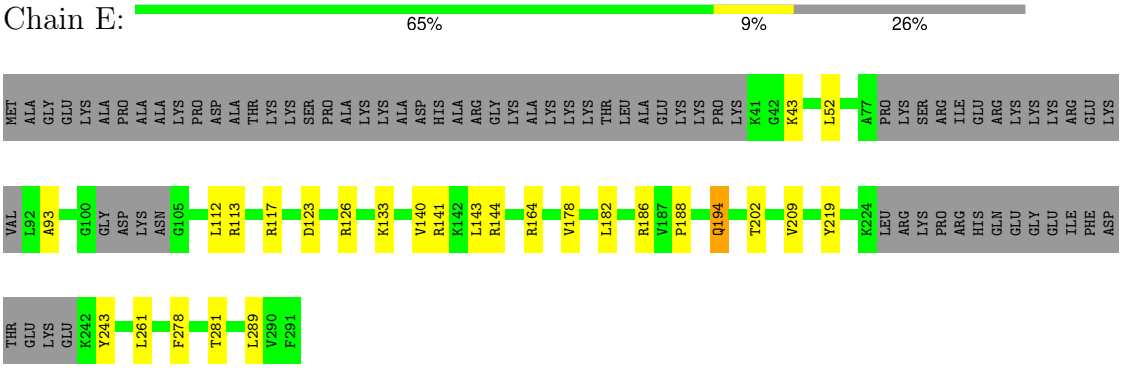
• Molecule 4: Large ribosomal subunit protein uL18

Chain D:



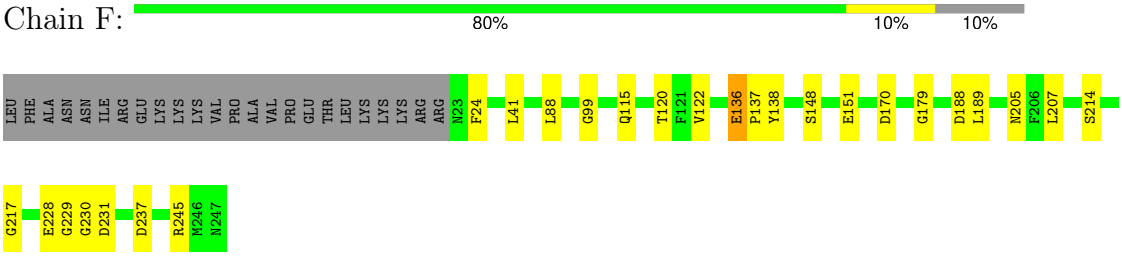
• Molecule 5: 60S ribosomal protein L6

Chain E:



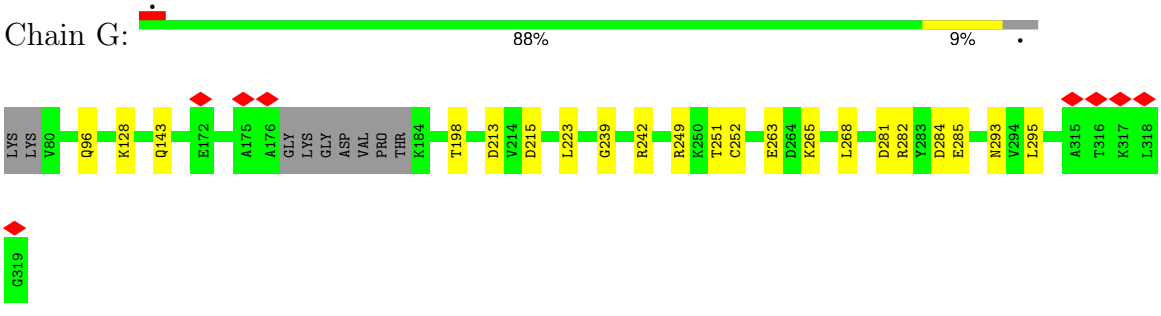
• Molecule 6: uL30

Chain F:



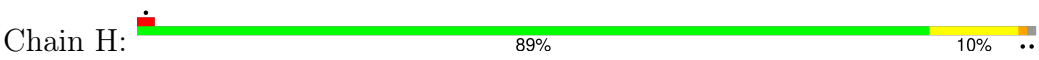
• Molecule 7: eL8

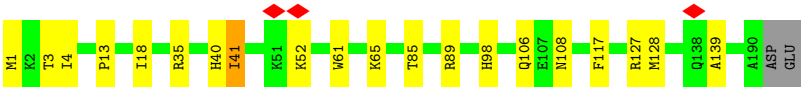
Chain G:



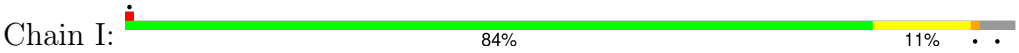
• Molecule 8: 60S ribosomal protein L9

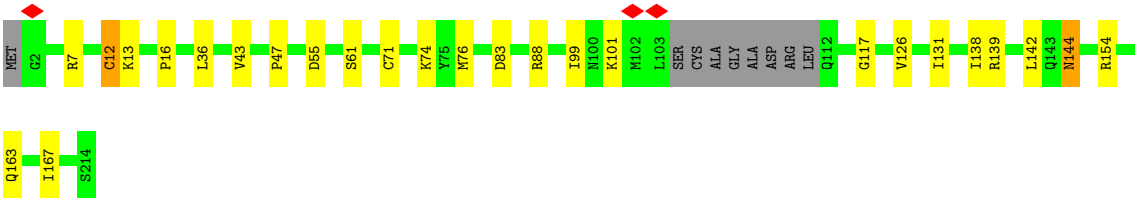
Chain H:



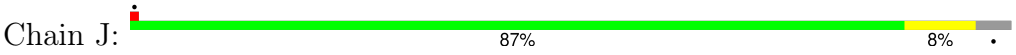


• Molecule 9: 60S ribosomal protein L10

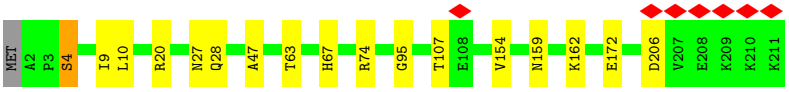




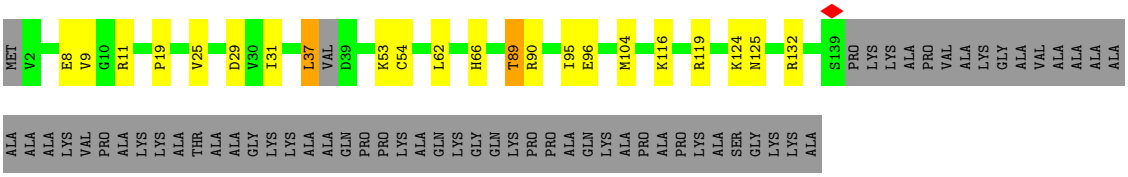
• Molecule 10: Ribosomal protein L11



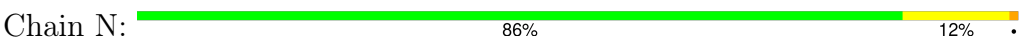
• Molecule 11: eL13

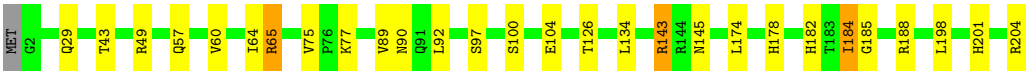


• Molecule 12: Large ribosomal subunit protein eL14

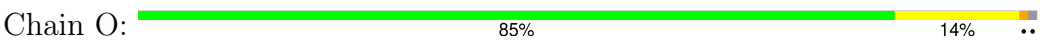


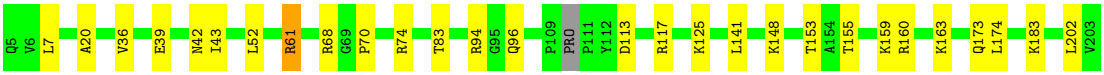
• Molecule 13: Ribosomal protein L15





• Molecule 14: uL13



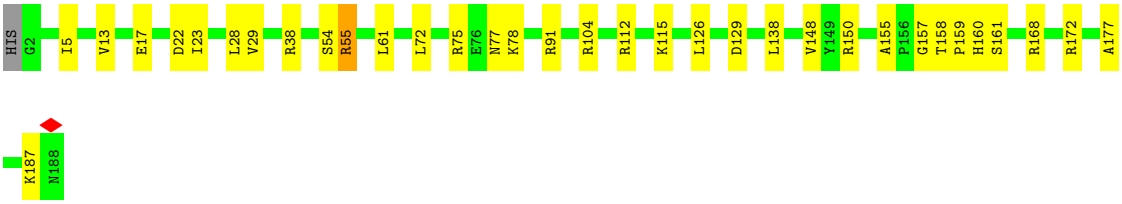


• Molecule 15: Large ribosomal subunit protein uL22

Chain P:

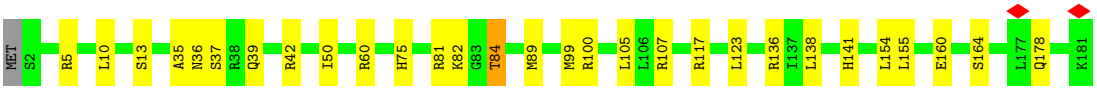
• Molecule 16: rL18

Chain Q:



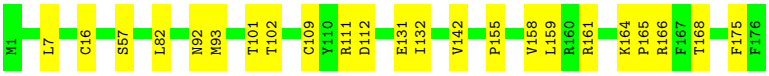
• Molecule 17: Ribosomal protein L19

Chain R:



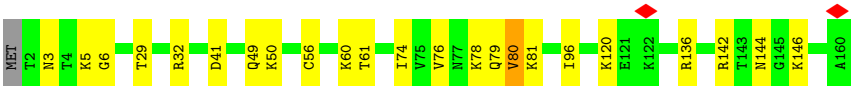
• Molecule 18: 60S ribosomal protein L18a

Chain S:



• Molecule 19: eL21

Chain T:

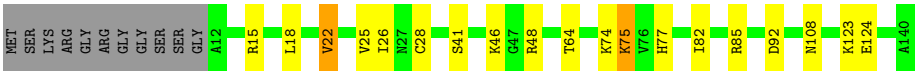


• Molecule 20: eL22

Chain U:

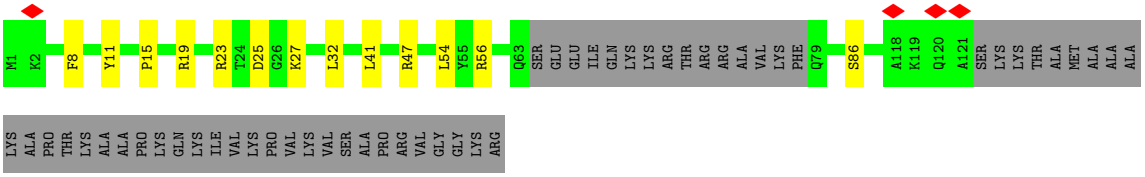
• Molecule 21: Ribosomal protein L23

Chain V:



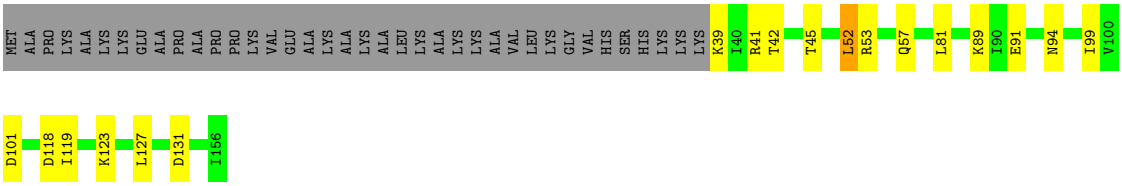
• Molecule 22: eL24

Chain W:



• Molecule 23: eL23

Chain X:

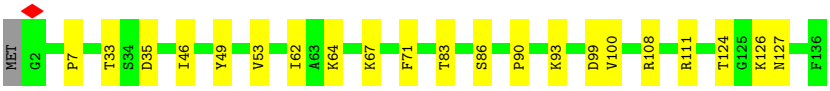


• Molecule 24: uL24

Chain Y:

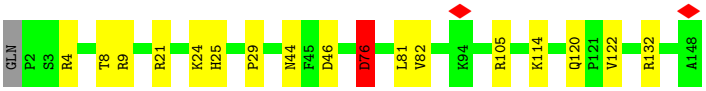
• Molecule 25: 60S ribosomal protein L27

Chain Z:



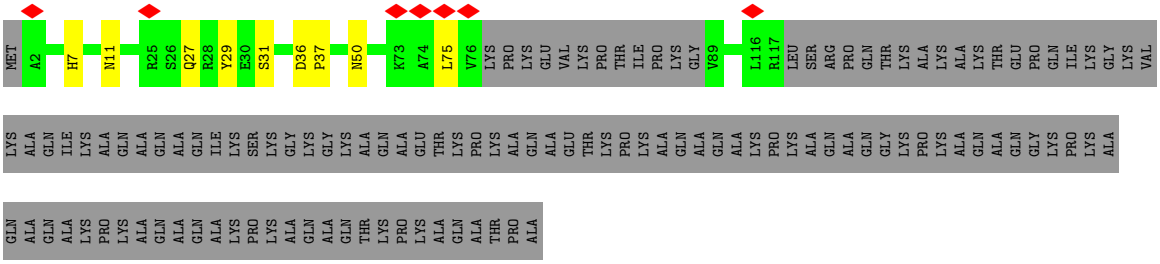
• Molecule 26: uL15

Chain a:



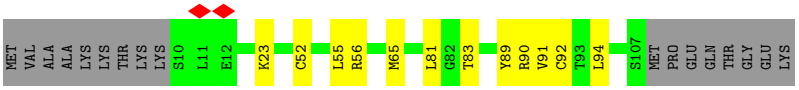
• Molecule 27: eL29

Chain b:



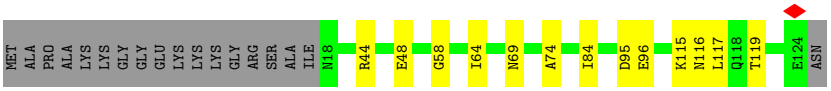
• Molecule 28: eL30

Chain c:



• Molecule 29: eL31

Chain d:

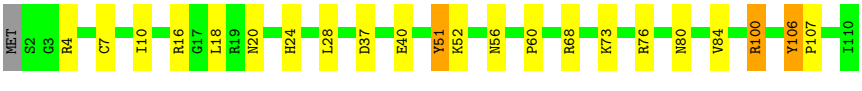


• Molecule 30: Ribosomal protein L32

Chain e:

• Molecule 31: eL33

Chain f:



• Molecule 32: Large ribosomal subunit protein eL34

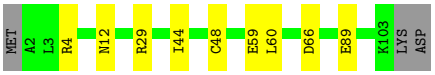
Chain g:

• Molecule 33: eL35

Chain h:

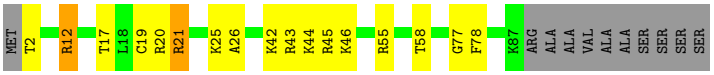
• Molecule 34: 60S ribosomal protein L36

Chain i:



• Molecule 35: Ribosomal protein L37

Chain j:

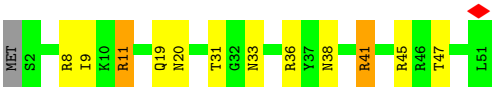


• Molecule 36: eL38

Chain k:

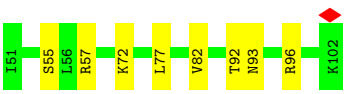
• Molecule 37: eL39

Chain l:



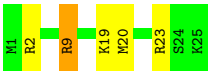
• Molecule 38: eL40

Chain m:



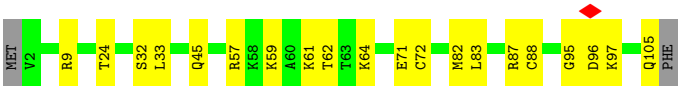
• Molecule 39: eL41

Chain n:



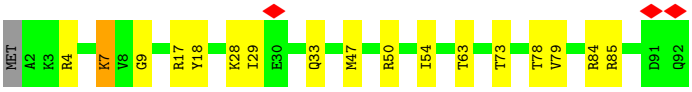
• Molecule 40: Large ribosomal subunit protein eL42

Chain o:



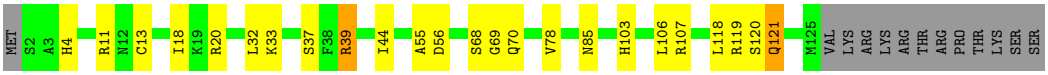
• Molecule 41: eL43

Chain p:



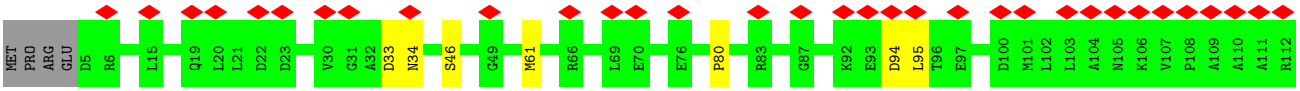
• Molecule 42: eL28

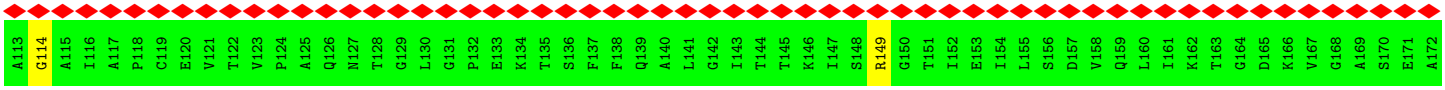
Chain r:

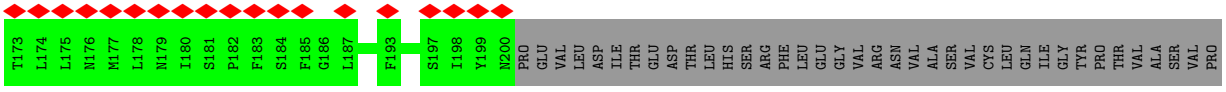


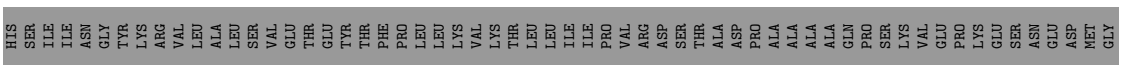
• Molecule 43: 60S acidic ribosomal protein P0

Chain s:



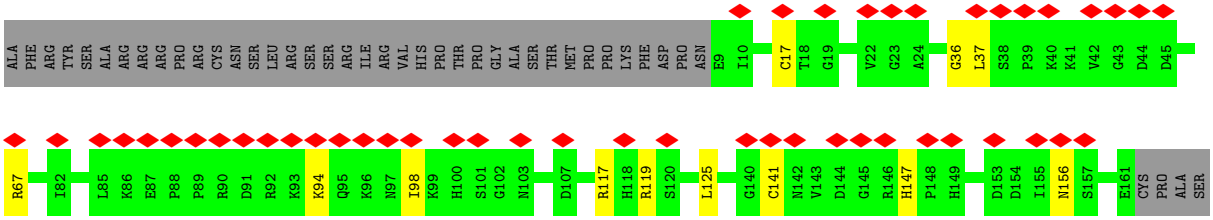






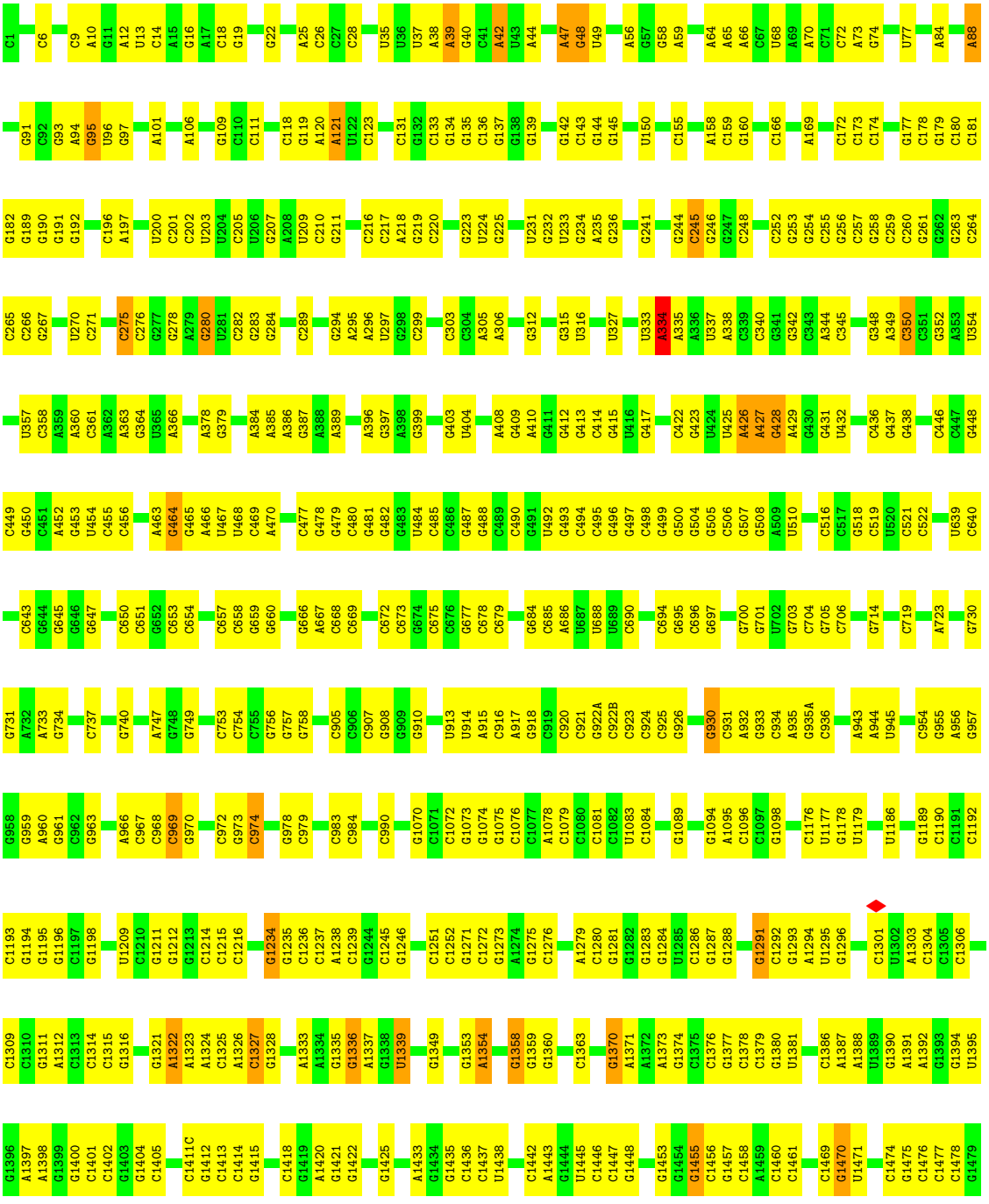
• Molecule 44: Ribosomal protein L12

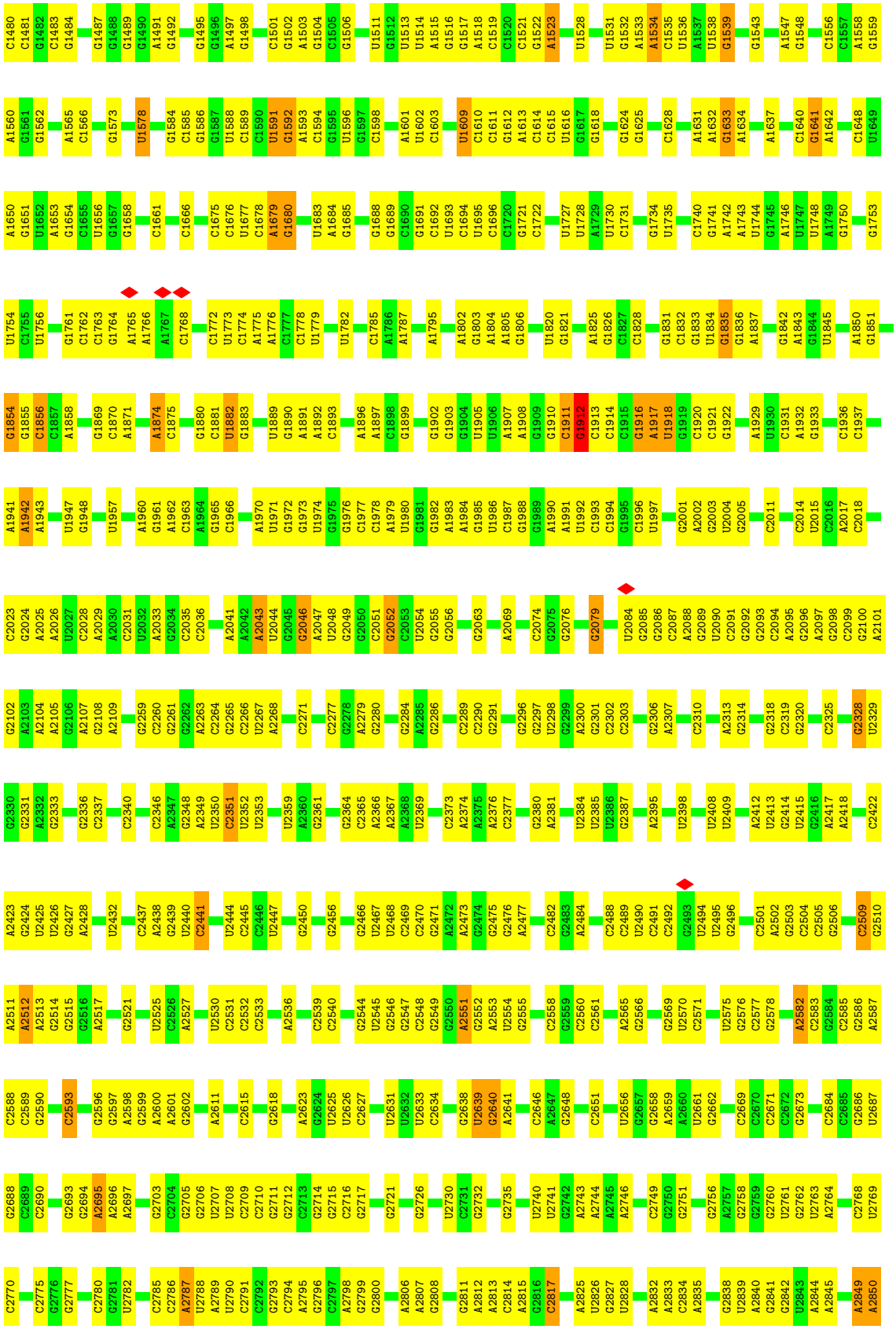
Chain t:

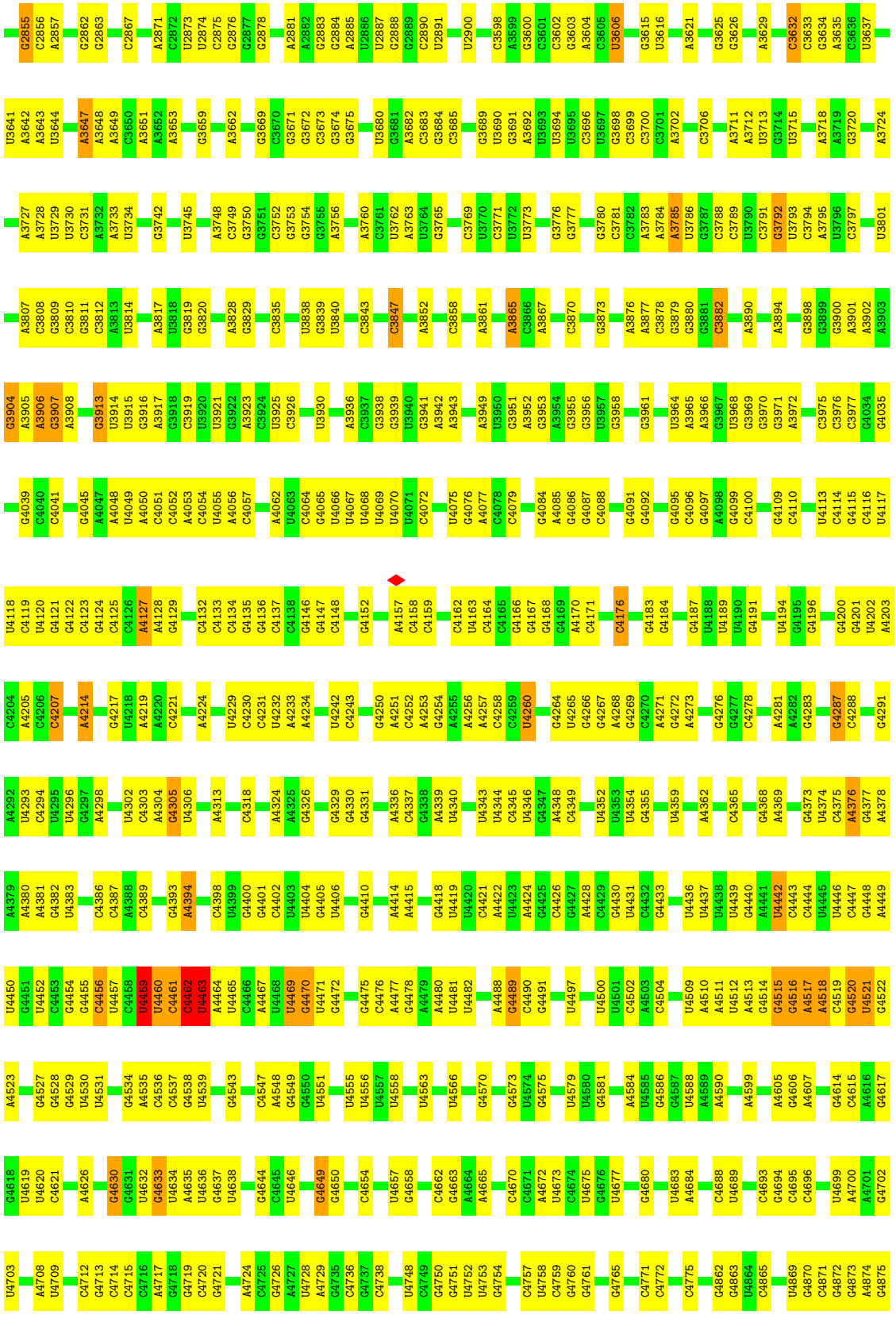


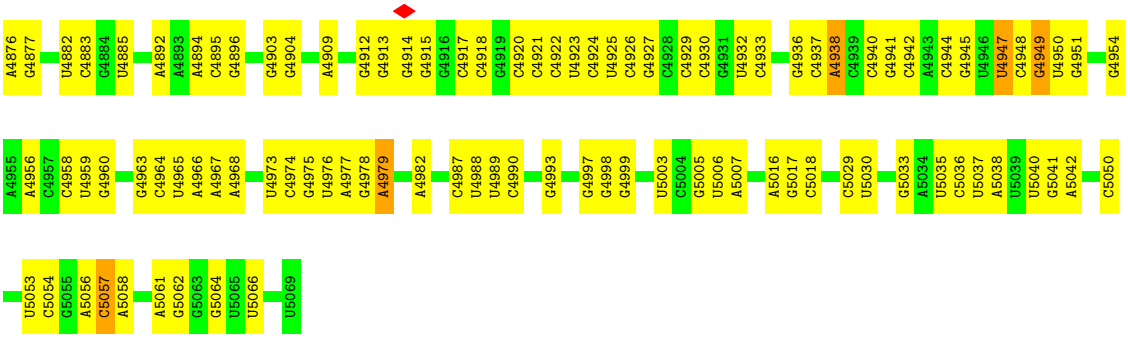
• Molecule 45: 28S rRNA

Chain 5:







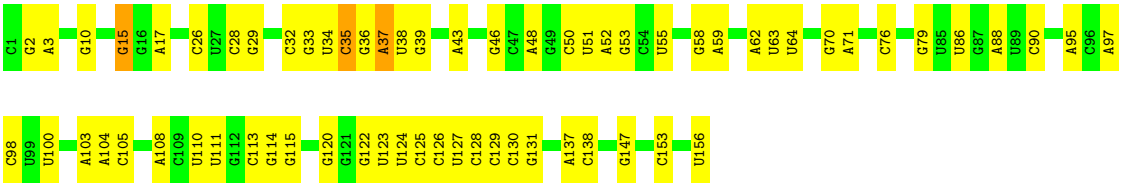


• Molecule 46: 5S rRNA

Chain 7:

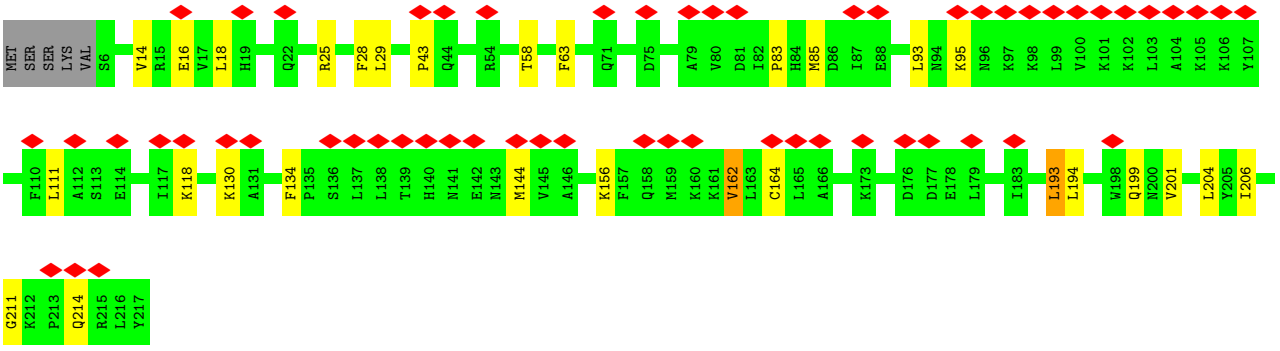
• Molecule 47: 5.8S rRNA

Chain 8:



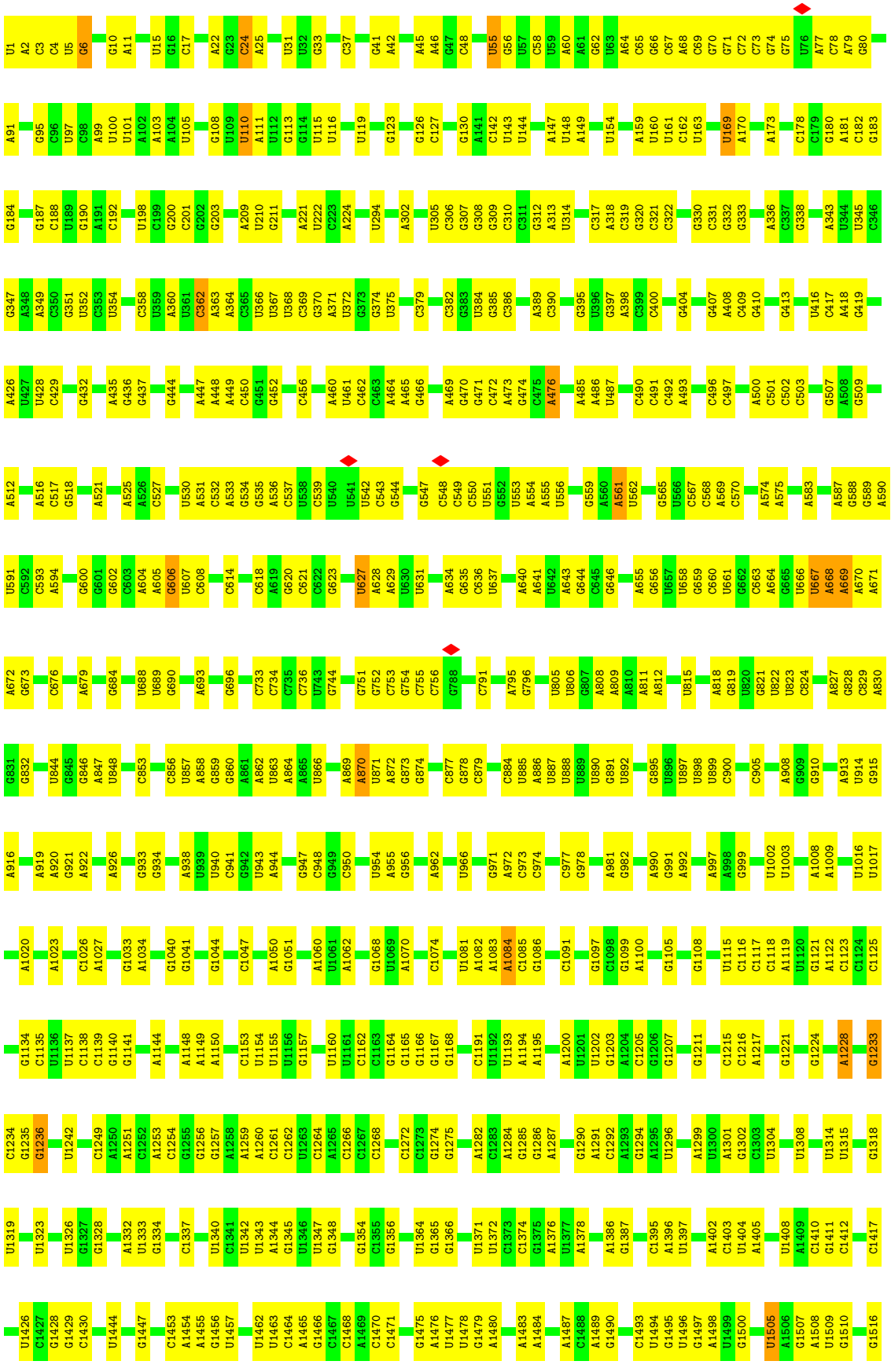
• Molecule 48: Ribosomal protein

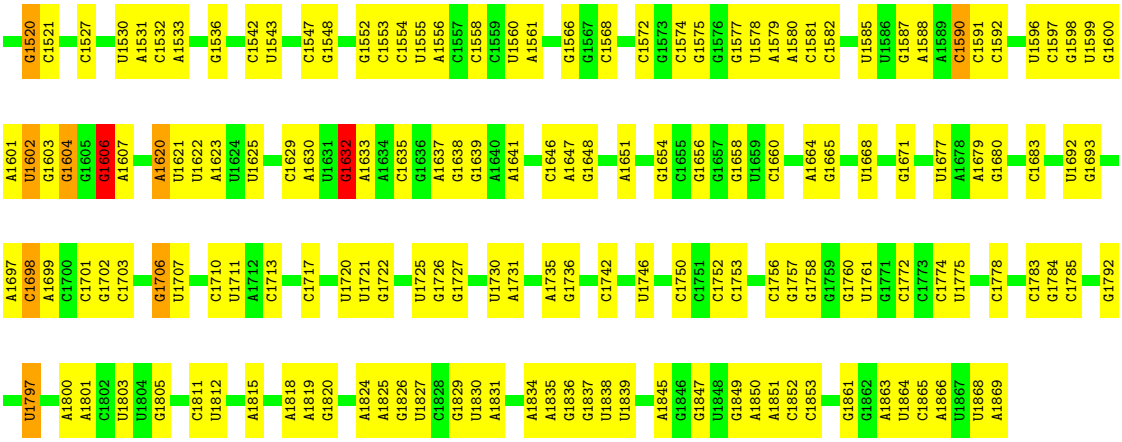
Chain K:



• Molecule 49: 18S rRNA

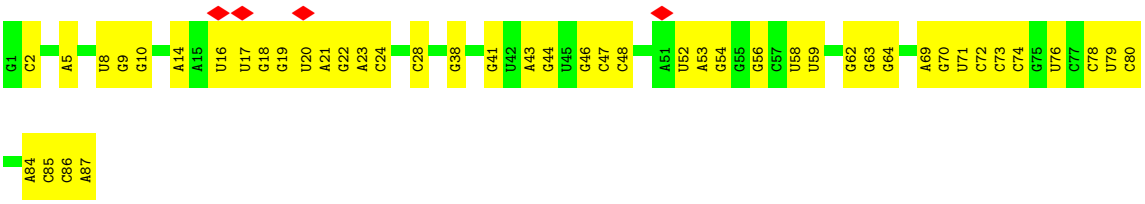
Chain 2:


U1 A2 C3 C4 U5 G6 G10 A11 U15 G16 C17 A22 G23 C24 A25 U31 U32 G33 C37 G41 A42 A45 A46 G47 C48 U55 G56 U57 C58 U59 A60 A61 G62 U63 A64 C65 G66 C67 A68 C69 G70 G71 C72 C73 G74 G75 U76 A77 C78 A79 G80
A91 G95 C96 U97 C98 A99 U100 U101 A102 A103 A104 U105 G108 U109 U110 A111 U112 G113 G114 U115 U116 U119 G123 G126 C127 G130 A141 C142 U143 U144 A147 U148 A149 U154 A159 U160 U161 C162 U163 U169 A170 A173 C178 C179 G180 A181 C182 G183
G184 G187 C188 U189 G190 A191 C192 U198 C199 G200 C201 G202 G203 A209 U210 G211 A221 U222 C223 A224 U294 A302 U305 C306 G307 G308 G309 C310 C311 G312 A313 U314 C317 A318 C319 G320 C321 C322 G330 C331 G332 G333 A336 C337 G338 A343 U344 U345 C346
G347 A348 A349 C350 G351 U352 C353 U354 C358 U359 A360 U361 C362 A363 A364 C365 U366 U367 U368 C369 G370 A371 U372 G373 G374 U375 C379 C382 G383 U384 G385 C386 A389 C390 G395 U396 G397 A398 C399 C400 G404 G407 A408 C409 G410 G413 U416 C417 A418 G419
A426 U427 U428 C429 G432 A435 G436 G437 G444 A447 A448 A449 C450 G451 G452 C456 A460 U461 C462 C463 A464 A465 G466 A469 G470 G471 C472 A473 G474 C475 A476 A485 A486 U487 C490 C491 C492 A493 C496 C497 A500 C501 C502 C503 G507 A508 G509
A512 A516 C517 G518 A521 A525 A526 C527 U530 A531 C532 A533 G534 G535 A536 C537 U538 C539 U540 U541 U542 C543 G544 G547 C548 C549 C550 U551 G552 U553 A554 A555 U556 G559 A560 A561 U562 G565 U566 C567 C568 A569 C570 A574 A575 A583 A587 G588 G589 A590
U591 C592 C593 A594 G600 G601 G602 C603 A604 A605 G606 U607 C608 C614 C618 A619 G620 C621 C622 G623 U627 A628 A629 U630 U631 A634 G635 C636 U637 A640 A641 U642 A643 G644 C645 G646 A655 G656 U657 U658 G659 C660 U661 G662 C663 A664 G665 U666 U667 A668 A669 A670 A671
A672 G673 C676 A679 G684 U688 U689 G690 A693 G696 C733 C734 C735 C736 U743 G744 G751 G752 C753 G754 C755 C756 G788 C791 A795 G796 U805 U806 G807 A808 A809 A810 A811 A812 U815 A818 G819 U820 G821 U822 U823 C824 A827 G828 C829 A830
G831 G832 U844 G845 G846 A847 U848 C853 C856 U857 A858 G859 G860 A861 A862 U863 A864 A865 U866 A869 A870 U871 A872 G873 G874 C877 G878 C879 C884 U885 A886 U887 U888 U889 U890 G891 U892 G895 U896 U897 U898 U899 C900 C905 A908 G909 G910 A913 U914 G915
A916 A919 A920 G921 A922 A926 G933 G934 A938 U939 U940 C941 G942 U943 A944 G947 C948 G949 C950 U954 A955 G956 A962 U966 G971 A972 C973 C974 C977 G978 A981 G982 A990 G991 A992 A997 A998 G999 U1002 U1003 A1008 A1009 U1016 U1017
A1020 A1023 C1026 A1027 G1033 A1034 G1040 G1041 G1044 C1047 A1050 G1051 A1060 U1061 A1062 G1068 U1069 A1070 C1074 U1081 A1082 A1083 A1084 C1085 G1086 C1091 G1097 C1098 G1099 A1100 G1105 G1108 U1115 C1116 C1117 C1118 A1119 U1120 G1121 A1122 C1123 C1124 C1125
G1134 C1135 U1136 U1137 C1138 C1139 G1140 G1141 A1144 A1148 A1149 A1150 C1153 U1154 U1155 U1156 G1157 U1160 U1161 C1162 C1163 G1164 G1165 G1166 G1167 G1168 C1191 U1192 U1193 A1194 A1195 A1200 U1201 U1202 G1203 A1204 C1205 G1206 G1207 G1211 C1215 C1216 A1217 G1221 G1224 A1228 G1233
C1234 G1235 G1236 U1242 C1249 A1250 A1251 C1252 A1253 C1254 G1255 G1256 G1257 A1258 A1259 A1260 C1261 C1262 U1263 C1264 A1265 C1266 C1267 C1268 C1272 C1273 G1274 G1275 A1282 C1283 A1284 G1285 G1286 A1287 G1290 A1291 C1292 A1293 G1294 A1295 U1296 A1299 U1300 A1301 G1302 C1303 U1304 U1308 U1314 U1315 G1318
U1319 U1323 U1326 G1327 G1328 A1332 U1333 G1334 C1337 U1340 C1341 U1342 U1343 A1344 U1345 U1346 U1347 G1348 G1354 C1355 G1356 U1364 G1365 G1366 U1371 U1372 C1373 C1374 G1375 A1376 U1377 A1378 A1386 G1387 C1395 A1396 U1397 A1402 C1403 U1404 A1405 U1408 A1409 C1410 G1411 C1412 C1417
U1426 C1427 G1428 G1429 C1430 U1444 G1447 C1453 A1454 A1455 G1456 U1457 U1462 U1463 C1464 A1465 G1466 C1467 C1468 A1469 C1470 C1471 G1475 A1476 U1477 U1478 G1479 A1480 A1483 A1484 A1487 C1488 A1489 G1490 C1493 U1494 G1495 U1496 G1497 A1498 U1499 G1500 U1505 A1506 G1507 A1508 U1509 G1510 G1516



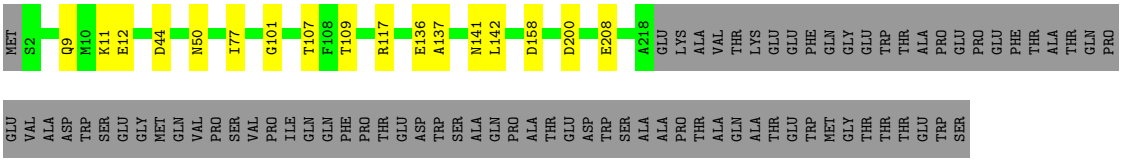
• Molecule 50: P-tRNA

Chain 3:



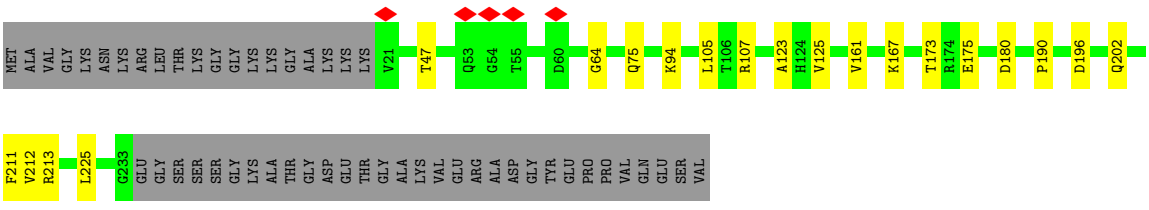
• Molecule 51: Small ribosomal subunit protein uS2

Chain BB:



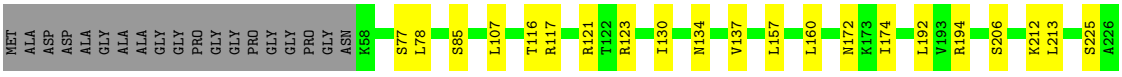
• Molecule 52: 40S ribosomal protein S3a

Chain CC:



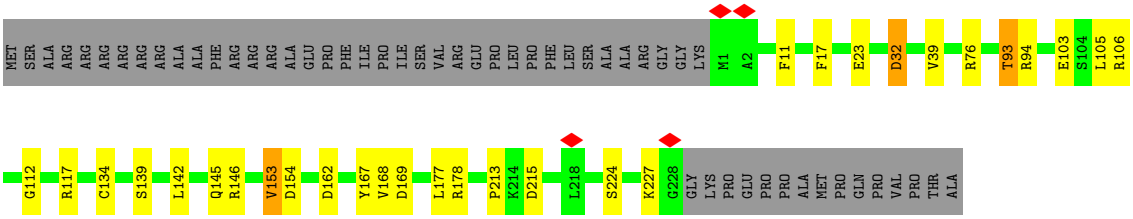
• Molecule 53: uS5

Chain DD:



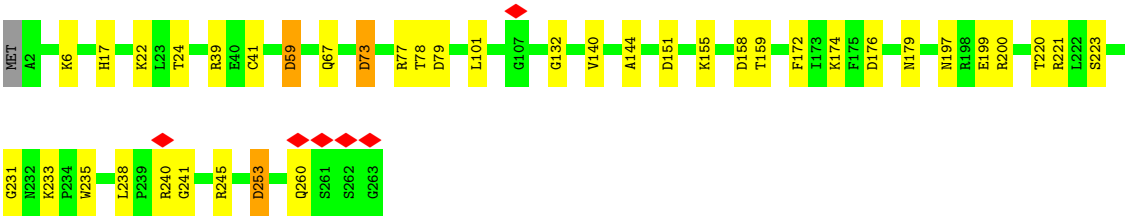
• Molecule 54: Ribosomal protein S3

Chain EE:



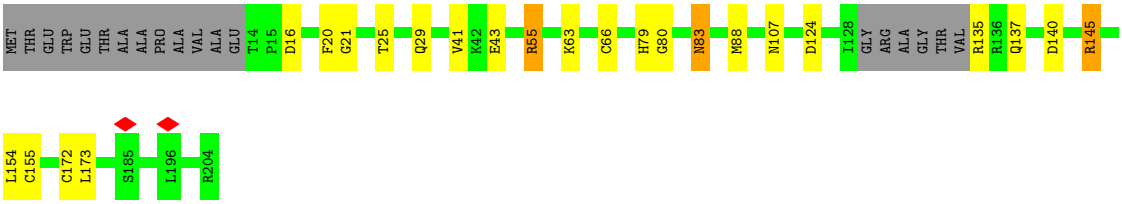
• Molecule 55: 40S ribosomal protein S4

Chain FF:



• Molecule 56: Ribosomal protein S5

Chain GG:

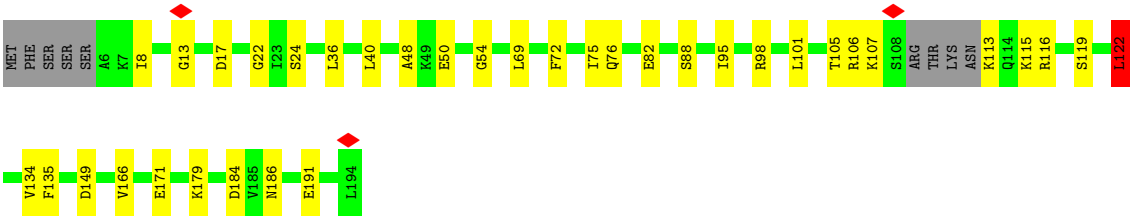


• Molecule 57: 40S ribosomal protein S6

Chain HH:

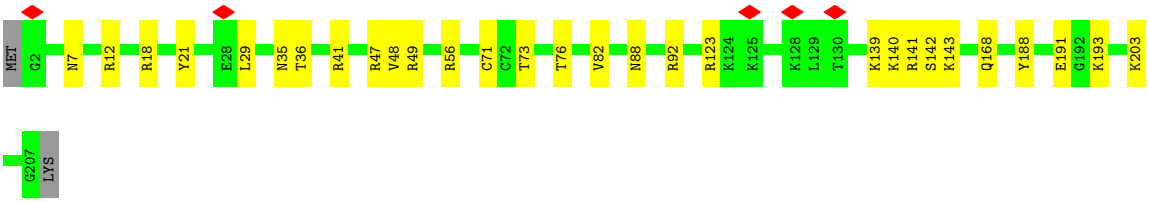
• Molecule 58: 40S ribosomal protein S7

Chain II:



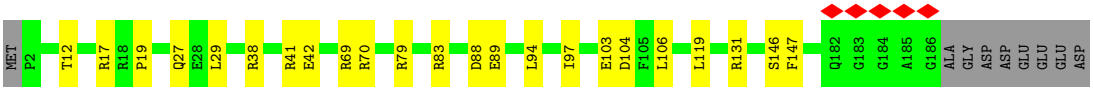
• Molecule 59: 40S ribosomal protein S8

Chain JJ:



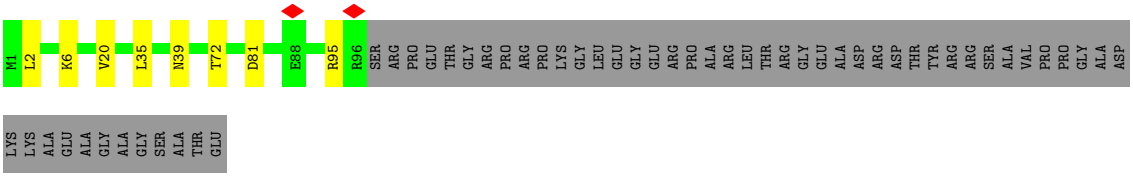
• Molecule 60: Ribosomal protein S9 (Predicted)

Chain KK:



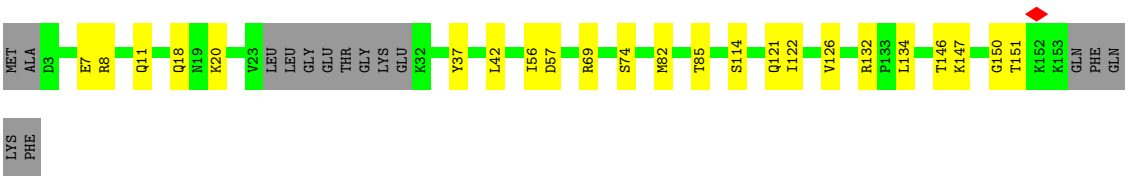
• Molecule 61: S10_plectin domain-containing protein

Chain LL:



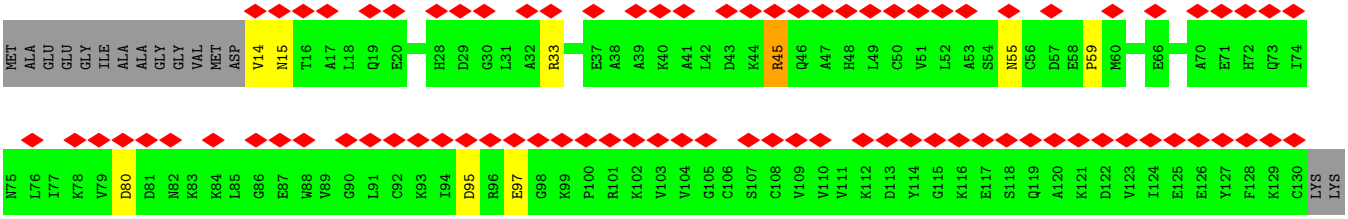
• Molecule 62: Ribosomal protein S11

Chain MM:



• Molecule 63: 40S ribosomal protein S12

Chain NN:

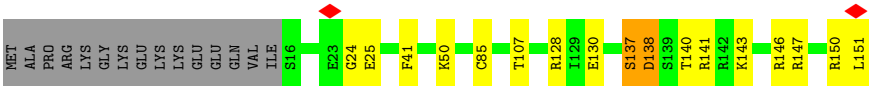


• Molecule 64: Ribosomal protein S13

Chain OO:

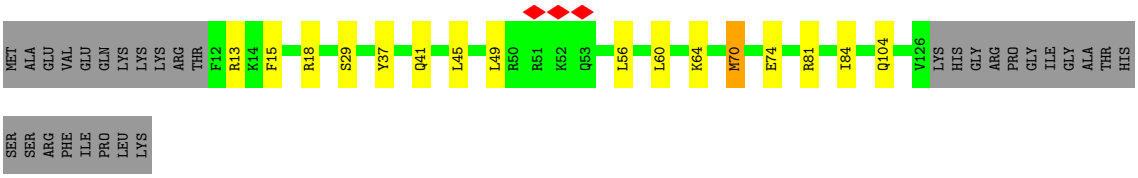
• Molecule 65: Small ribosomal subunit protein uS11

Chain PP:



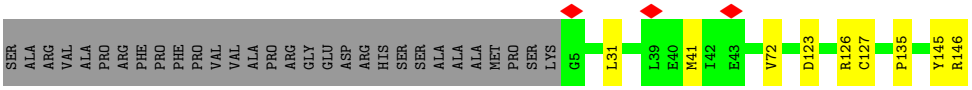
• Molecule 66: uS19

Chain QQ:



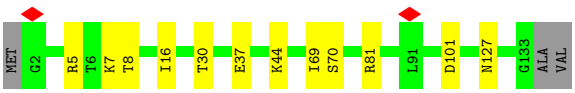
• Molecule 67: Ribosomal protein S16

Chain RR:



• Molecule 68: eS17

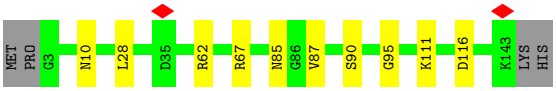
Chain SS:



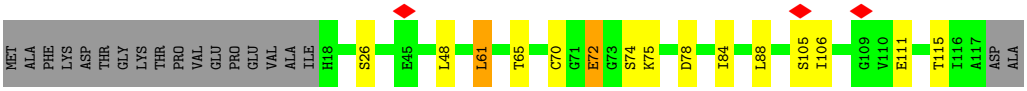
• Molecule 69: uS13

Chain TT:

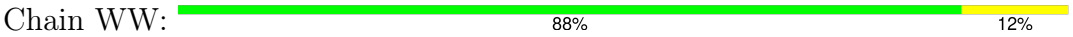
• Molecule 70: eS19



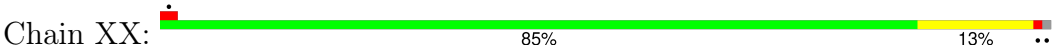
• Molecule 71: uS10

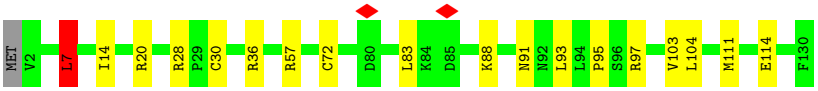


• Molecule 72: 40S ribosomal protein S21

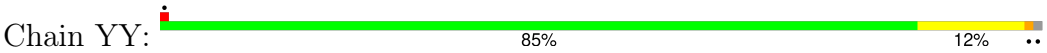


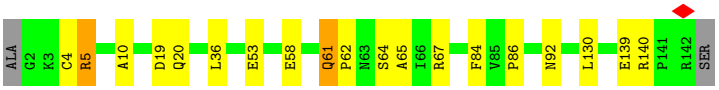
• Molecule 73: Ribosomal protein S15a



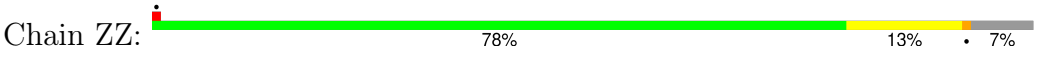


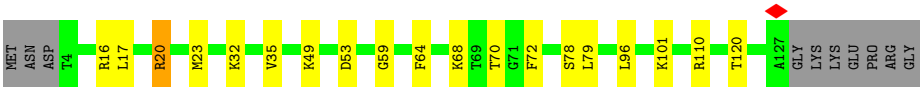
• Molecule 74: Ribosomal protein S23





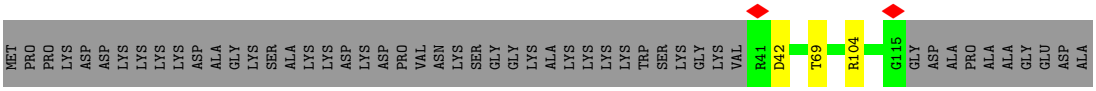
• Molecule 75: 40S ribosomal protein S24





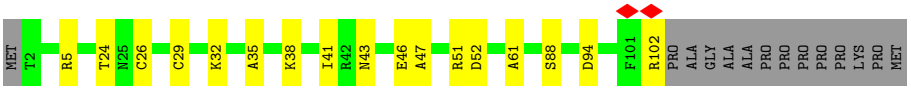
• Molecule 76: eS25

Chain aa:



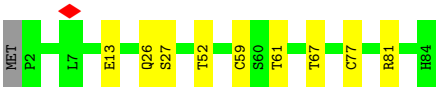
• Molecule 77: 40S ribosomal protein S26

Chain bb:



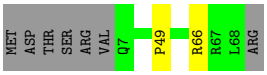
• Molecule 78: 40S ribosomal protein S27

Chain cc:



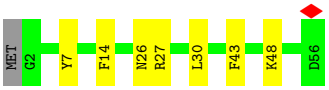
• Molecule 79: Ribosomal protein S28

Chain dd:



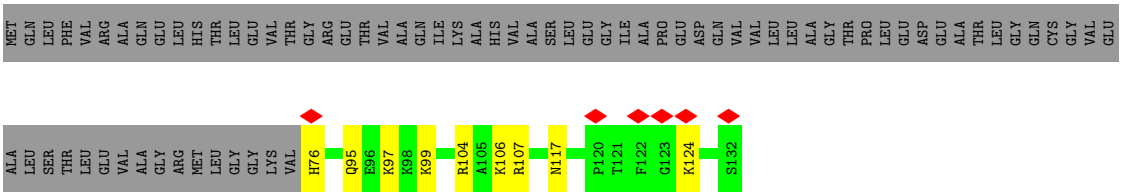
• Molecule 80: eS29

Chain ee:



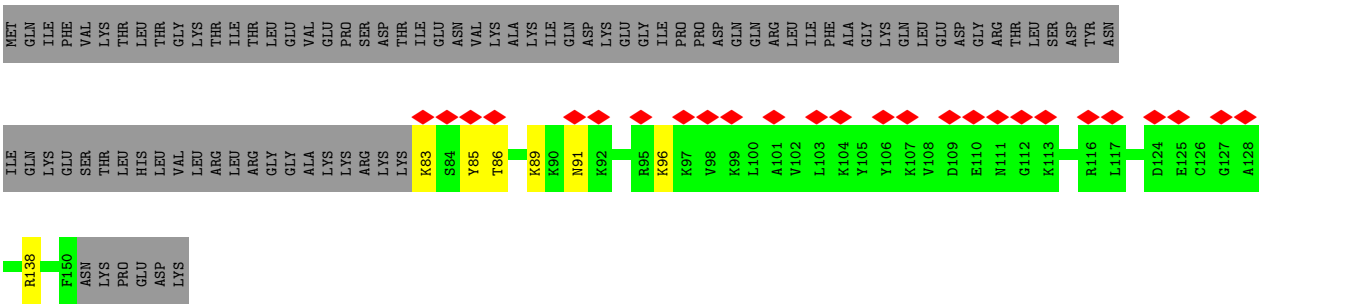
• Molecule 81: 40S ribosomal protein S30

Chain ff:



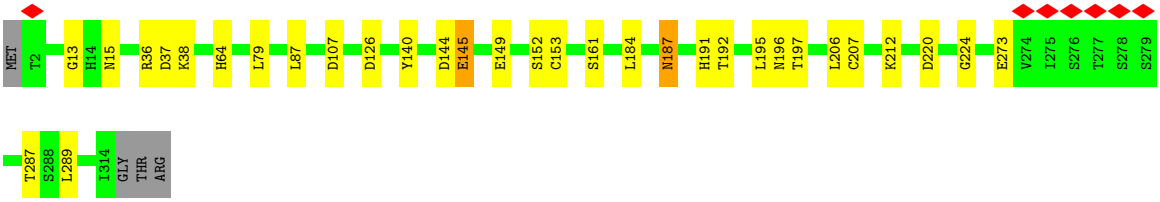
• Molecule 82: Ribosomal protein S27a

Chain gg:



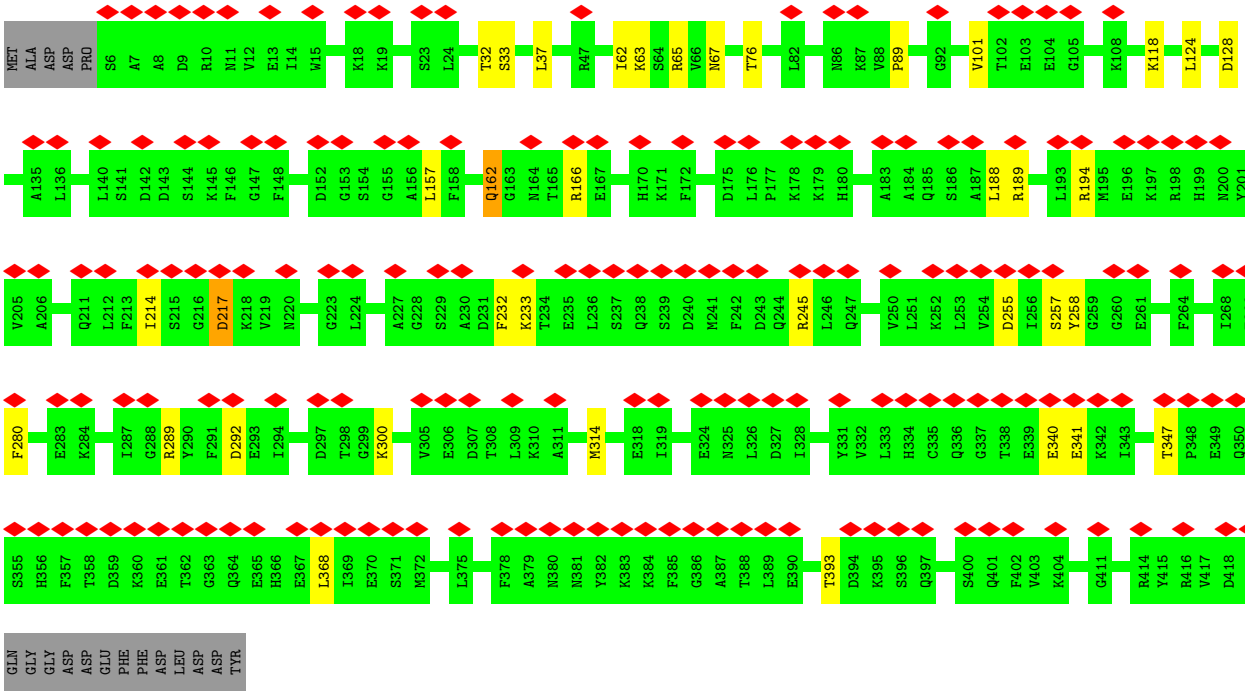
• Molecule 83: RACK1

Chain hh:



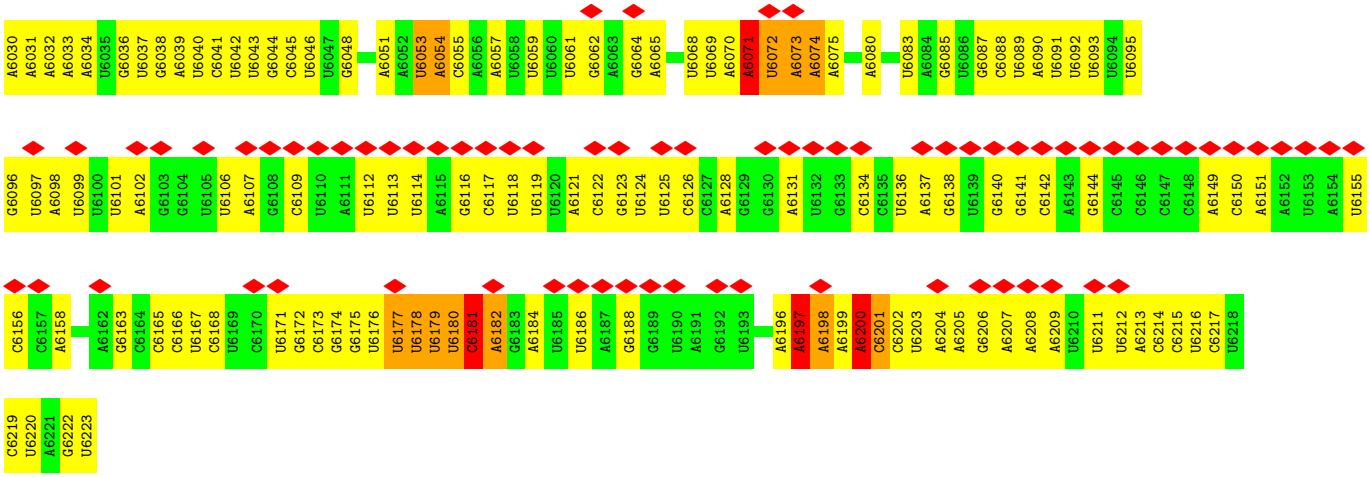
• Molecule 84: Eukaryotic peptide chain release factor subunit 1

Chain jj:



• Molecule 85: CrPV-IRES

Chain 4:


A6030 A6031 A6032 A6033 A6034 U6035 G6036 U6037 G6038 A6039 U6040 C6041 U6042 U6043 G6044 C6045 U6046 U6047 G6048
A6051 A6052 U6053 A6054 C6055 A6056 A6057 U6058 U6059 U6060 U6061 G6062 A6063 G6064 A6065
U6068 U6069 A6070 A6071 U6072 A6073 A6074 A6075
A6080
U6083 A6084 G6085 U6086 G6087 C6088 U6089 A6090 U6091 U6092 U6093 U6094 U6095
G6096 U6097 A6098 U6099 U6100 U6101 A6102 G6103 G6104 U6105 U6106 A6107 G6108 C6109 U6110 A6111 U6112 U6113 U6114 A6115 G6116 C6117 U6118 U6119 U6120 A6121 C6122 G6123 U6124 U6125 C6126 C6127 A6128 G6129 G6130 A6131 U6132 G6133 C6134 C6135 U6136 A6137 G6138 U6139 G6140 G6141 C6142 A6143 G6144 C6145 C6146 C6147 C6148 A6149 C6150 A6151 A6152 U6153 A6154 U6155
C6156 C6157 A6158 A6162 G6163 C6164 C6165 C6166 U6167 C6168 U6169 C6170 U6171 G6172 C6173 G6174 G6175 U6176 U6177 U6178 U6179 U6180 C6181 A6182 G6183 A6184 U6185 U6186 A6187 G6188 G6189 U6190 A6191 G6192 U6193 A6196 A6197 A6198 A6199 A6200 C6201 C6202 U6203 A6204 A6205 G6206 A6207 A6208 A6209 U6210 U6211 U6212 A6213 C6214 C6215 U6216 C6217 U6218
C6219 U6220 A6221 G6222 U6223

4 Experimental information (i)

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	75654	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ($e^-/Å^2$)	64	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k x 4k)	Depositor
Maximum map value	0.144	Depositor
Minimum map value	-0.061	Depositor
Average map value	0.002	Depositor
Map value standard deviation	0.010	Depositor
Recommended contour level	0.025	Depositor
Map size (Å)	432.00003, 432.00003, 432.00003	wwPDB
Map dimensions	400, 400, 400	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.08, 1.08, 1.08	Depositor

5 Model quality (i)

5.1 Standard geometry (i)

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.73	0/1812	0.95	3/2439 (0.1%)
2	B	0.70	0/3240	0.98	5/4339 (0.1%)
3	C	0.73	0/2936	0.96	3/3943 (0.1%)
4	D	0.59	0/2437	0.77	3/3264 (0.1%)
5	E	0.63	0/1762	0.89	2/2362 (0.1%)
6	F	0.68	1/1911 (0.1%)	0.84	2/2549 (0.1%)
7	G	0.60	0/1910	0.79	0/2569
8	H	0.66	0/1535	0.87	0/2063
9	I	0.67	0/1702	0.89	1/2272 (0.0%)
10	J	0.59	0/1385	0.77	1/1852 (0.1%)
11	L	0.62	0/1733	0.83	0/2316
12	M	0.69	0/1150	0.88	1/1534 (0.1%)
13	N	0.74	0/1746	1.05	5/2338 (0.2%)
14	O	0.73	0/1653	0.95	1/2206 (0.0%)
15	P	0.74	0/1268	0.93	0/1700
16	Q	0.70	0/1539	0.97	0/2054
17	R	0.67	0/1524	0.98	3/2013 (0.1%)
18	S	0.69	0/1501	0.89	0/2012
19	T	0.69	0/1326	0.88	0/1770
20	U	0.67	1/823 (0.1%)	0.80	1/1104 (0.1%)
21	V	0.72	0/983	0.94	0/1319
22	W	0.65	0/873	0.90	1/1158 (0.1%)
23	X	0.70	0/984	0.92	2/1323 (0.2%)
24	Y	0.67	0/1132	0.86	0/1504
25	Z	0.67	0/1130	0.86	2/1507 (0.1%)
26	a	0.76	0/1191	0.94	2/1590 (0.1%)
27	b	0.61	0/861	0.80	0/1138
28	c	0.64	0/771	0.82	0/1034
29	d	0.76	0/903	0.93	0/1216
30	e	0.76	1/1071 (0.1%)	1.02	0/1429
31	f	0.77	0/895	1.04	4/1198 (0.3%)
32	g	0.70	0/916	1.01	0/1220
33	h	0.68	0/1021	0.93	1/1348 (0.1%)
34	i	0.59	0/841	0.82	0/1112

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
35	j	0.78	0/720	1.09	2/952 (0.2%)
36	k	0.62	0/575	0.81	0/761
37	l	0.71	0/459	1.07	2/608 (0.3%)
38	m	0.67	0/435	0.95	0/575
39	n	0.77	0/240	1.32	2/305 (0.7%)
40	o	0.58	0/864	0.78	1/1140 (0.1%)
41	p	0.73	0/718	0.93	0/953
42	r	0.71	0/1010	0.99	1/1354 (0.1%)
43	s	0.58	0/1530	0.64	0/2064
44	t	0.57	0/1174	0.65	0/1582
45	5	0.62	88/86202 (0.1%)	0.91	151/134412 (0.1%)
46	7	0.50	0/2836	0.79	0/4421
47	8	0.64	5/3581 (0.1%)	0.87	2/5577 (0.0%)
48	K	0.61	0/1730	0.76	1/2315 (0.0%)
49	2	0.55	30/40502 (0.1%)	0.84	23/63100 (0.0%)
50	3	0.39	0/2079	0.77	2/3238 (0.1%)
51	BB	0.95	2/1747 (0.1%)	0.75	2/2374 (0.1%)
52	CC	0.59	0/1756	0.75	0/2350
53	DD	0.64	0/1753	0.87	2/2369 (0.1%)
54	EE	0.60	0/1796	0.82	1/2417 (0.0%)
55	FF	0.62	0/2118	0.88	0/2849
56	GG	0.58	0/1492	0.76	1/2005 (0.0%)
57	HH	0.58	0/1946	0.83	0/2590
58	II	0.60	0/1510	0.81	1/2022 (0.0%)
59	JJ	0.66	0/1715	0.85	0/2287
60	KK	0.64	0/1550	0.88	0/2069
61	LL	0.62	0/834	0.78	0/1125
62	MM	0.71	0/1195	0.89	0/1597
63	NN	0.55	1/918 (0.1%)	0.64	0/1233
64	OO	0.67	0/1226	0.81	0/1649
65	PP	0.57	0/1029	0.79	1/1380 (0.1%)
66	QQ	0.59	0/974	0.83	1/1301 (0.1%)
67	RR	0.55	0/1146	0.71	0/1534
68	SS	0.60	0/1082	0.78	0/1452
69	TT	0.60	0/1208	0.82	0/1618
70	UU	0.56	0/1115	0.68	0/1493
71	VV	0.74	1/805 (0.1%)	0.84	1/1081 (0.1%)
72	WW	0.62	0/643	0.80	0/860
73	XX	0.68	0/1051	0.92	3/1406 (0.2%)
74	YY	0.75	0/1116	0.96	1/1490 (0.1%)
75	ZZ	0.60	0/1028	0.86	1/1366 (0.1%)
76	aa	0.59	0/604	0.70	0/810
77	bb	0.65	0/828	0.86	0/1109

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#|Z| >5	RMSZ	#|Z| >5
78	cc	0.63	0/665	0.87	0/891
79	dd	0.57	0/490	0.78	0/656
80	ee	0.63	0/470	0.85	0/623
81	ff	0.61	0/462	0.88	0/607
82	gg	0.56	0/567	0.67	0/753
83	hh	0.56	0/2492	0.68	0/3391
84	jj	0.63	1/3333 (0.0%)	0.70	1/4483 (0.0%)
85	4	0.51	6/4586 (0.1%)	1.24	61/7136 (0.9%)
All	All	0.62	137/240370 (0.1%)	0.88	307/352528 (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
1	A	0	4
2	B	0	2
3	C	0	3
12	M	0	1
13	N	0	1
16	Q	0	1
22	W	0	1
23	X	0	1
24	Y	0	1
27	b	0	1
29	d	0	1
30	e	0	1
31	f	0	3
32	g	0	2
35	j	0	1
36	k	0	1
37	l	0	1
40	o	0	1
45	5	0	7
48	K	0	2
49	2	0	3
51	BB	0	1
52	CC	0	1
54	EE	0	1
55	FF	0	3
57	HH	0	2

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Mol	Chain	#Chirality outliers	#Planarity outliers
65	PP	0	2
69	TT	0	1
73	XX	0	2
74	YY	0	1
81	ff	0	1
83	hh	0	1
85	4	1	4
All	All	1	59

All (137) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
51	BB	12	GLU	CD-OE2	28.29	1.56	1.25
85	4	6182	A	O3'-P	-13.04	1.45	1.61
45	5	4520	G	O3'-P	11.08	1.74	1.61
51	BB	208	GLU	CD-OE2	10.87	1.37	1.25
71	VV	72	GLU	CD-OE2	10.83	1.37	1.25
45	5	1522	G	O3'-P	9.19	1.72	1.61
45	5	42	A	O3'-P	8.89	1.71	1.61
85	4	6178	U	C1'-N1	8.66	1.61	1.48
85	4	6030	A	O3'-P	8.57	1.71	1.61
49	2	667	U	O3'-P	8.09	1.70	1.61
45	5	1591	U	O3'-P	7.94	1.70	1.61
45	5	2527	A	O3'-P	7.91	1.70	1.61
45	5	2890	C	O3'-P	7.75	1.70	1.61
45	5	1339	U	O3'-P	7.55	1.70	1.61
45	5	2441	C	O3'-P	7.54	1.70	1.61
45	5	2079	G	O3'-P	7.53	1.70	1.61
45	5	4516	G	O3'-P	7.50	1.70	1.61
45	5	4620	U	O3'-P	-7.48	1.52	1.61
84	jj	341	GLU	CD-OE2	7.42	1.33	1.25
45	5	2593	C	O3'-P	7.22	1.69	1.61
45	5	1917	A	O3'-P	-7.22	1.52	1.61
45	5	3870	C	O3'-P	7.19	1.69	1.61
45	5	4376	A	O3'-P	7.17	1.69	1.61
45	5	2044	U	O3'-P	6.95	1.69	1.61
45	5	1506	G	O3'-P	6.83	1.69	1.61
49	2	6	G	O3'-P	6.82	1.69	1.61
47	8	15	G	O3'-P	6.81	1.69	1.61
45	5	1650	A	O3'-P	6.80	1.69	1.61
45	5	3882	C	O3'-P	6.75	1.69	1.61
49	2	1706	G	O3'-P	-6.70	1.53	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	5	3852	A	O3'-P	6.70	1.69	1.61
45	5	2087	C	O3'-P	-6.66	1.53	1.61
45	5	3694	U	O3'-P	6.65	1.69	1.61
49	2	1658	G	O3'-P	-6.60	1.53	1.61
45	5	39	A	O3'-P	6.59	1.69	1.61
45	5	5057	C	O3'-P	6.58	1.69	1.61
45	5	2512	A	O3'-P	6.55	1.69	1.61
45	5	4461	C	O3'-P	6.55	1.69	1.61
45	5	2577	C	O3'-P	-6.52	1.53	1.61
45	5	1907	A	O3'-P	6.47	1.69	1.61
45	5	2440	U	O3'-P	-6.45	1.53	1.61
45	5	40	G	O3'-P	6.44	1.68	1.61
45	5	1470	G	O3'-P	-6.44	1.53	1.61
45	5	1354	A	O3'-P	6.41	1.68	1.61
49	2	1081	U	O3'-P	6.40	1.68	1.61
45	5	2817	C	O3'-P	6.31	1.68	1.61
45	5	350	C	O3'-P	6.29	1.68	1.61
45	5	1905	U	O3'-P	6.27	1.68	1.61
47	8	29	G	O3'-P	-6.27	1.53	1.61
49	2	669	A	O3'-P	6.26	1.68	1.61
45	5	3913	G	O3'-P	6.25	1.68	1.61
45	5	2856	C	O3'-P	6.24	1.68	1.61
49	2	360	A	O3'-P	6.23	1.68	1.61
45	5	2850	A	O3'-P	6.22	1.68	1.61
45	5	88	A	O3'-P	6.21	1.68	1.61
45	5	3829	G	O3'-P	6.21	1.68	1.61
45	5	4998	G	O3'-P	6.20	1.68	1.61
45	5	2780	C	O3'-P	-6.20	1.53	1.61
45	5	4979	A	O3'-P	6.20	1.68	1.61
49	2	1345	G	O3'-P	6.19	1.68	1.61
45	5	4386	C	O3'-P	-6.13	1.53	1.61
45	5	4442	U	O3'-P	-6.11	1.53	1.61
49	2	690	G	O5'-C5'	6.09	1.54	1.44
45	5	111	C	O3'-P	-6.09	1.53	1.61
49	2	1797	U	O3'-P	6.07	1.68	1.61
49	2	857	U	O3'-P	-5.98	1.53	1.61
49	2	456	C	O3'-P	5.91	1.68	1.61
49	2	1505	U	O3'-P	5.86	1.68	1.61
45	5	4517	A	O3'-P	5.84	1.68	1.61
49	2	668	A	O3'-P	5.84	1.68	1.61
85	4	6181	C	O3'-P	-5.83	1.54	1.61
45	5	4352	U	O3'-P	-5.80	1.54	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
45	5	1633	G	O3'-P	5.79	1.68	1.61
45	5	2785	C	O3'-P	-5.78	1.54	1.61
49	2	1084	A	O3'-P	-5.75	1.54	1.61
45	5	1609	U	O3'-P	5.75	1.68	1.61
49	2	941	C	O3'-P	-5.73	1.54	1.61
45	5	106	A	O3'-P	5.71	1.68	1.61
85	4	6074	A	O3'-P	-5.69	1.54	1.61
49	2	375	U	O3'-P	-5.68	1.54	1.61
45	5	1336	G	O3'-P	5.67	1.68	1.61
47	8	35	C	O3'-P	-5.64	1.54	1.61
49	2	1590	C	O3'-P	5.63	1.68	1.61
45	5	403	G	O3'-P	-5.63	1.54	1.61
45	5	1856	C	O3'-P	5.62	1.67	1.61
49	2	824	C	O3'-P	-5.62	1.54	1.61
45	5	2286	G	O3'-P	-5.61	1.54	1.61
20	U	75	GLU	CG-CD	5.58	1.60	1.51
47	8	37	A	O3'-P	5.58	1.67	1.61
45	5	3847	C	O3'-P	-5.57	1.54	1.61
49	2	437	G	O3'-P	5.56	1.67	1.61
49	2	655	A	O3'-P	5.53	1.67	1.61
45	5	464	G	O3'-P	5.52	1.67	1.61
45	5	1539	G	O3'-P	5.51	1.67	1.61
47	8	39	G	O3'-P	5.49	1.67	1.61
45	5	4644	G	O3'-P	5.47	1.67	1.61
45	5	3792	G	O3'-P	-5.47	1.54	1.61
45	5	3651	A	O3'-P	-5.45	1.54	1.61
49	2	1602	U	O3'-P	5.44	1.67	1.61
45	5	4402	C	O3'-P	5.43	1.67	1.61
45	5	4260	U	O3'-P	-5.39	1.54	1.61
45	5	2881	A	O3'-P	-5.37	1.54	1.61
45	5	3754	G	O3'-P	-5.35	1.54	1.61
30	e	42	ASP	CB-CG	5.34	1.62	1.51
45	5	4214	A	O3'-P	5.33	1.67	1.61
45	5	4633	G	O3'-P	5.32	1.67	1.61
45	5	1585	C	O3'-P	5.32	1.67	1.61
49	2	1340	U	O3'-P	-5.30	1.54	1.61
45	5	3939	G	O3'-P	-5.30	1.54	1.61
45	5	1322	A	O3'-P	5.29	1.67	1.61
45	5	1610	C	O3'-P	5.29	1.67	1.61
45	5	4368	G	O3'-P	-5.29	1.54	1.61
49	2	345	U	O3'-P	5.26	1.67	1.61
85	4	6072	U	O3'-P	5.25	1.67	1.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	2	362	C	O3'-P	-5.23	1.54	1.61
45	5	1641	G	O3'-P	-5.20	1.54	1.61
45	5	4997	G	O3'-P	-5.19	1.54	1.61
49	2	1651	A	O3'-P	-5.18	1.54	1.61
45	5	4345	C	O3'-P	-5.18	1.54	1.61
45	5	4566	U	O3'-P	-5.18	1.54	1.61
63	NN	97	GLU	CD-OE1	5.18	1.31	1.25
45	5	2351	C	O3'-P	5.13	1.67	1.61
45	5	1592	G	O3'-P	-5.12	1.55	1.61
49	2	1167	G	O3'-P	5.11	1.67	1.61
49	2	1233	G	O3'-P	-5.06	1.55	1.61
45	5	283	G	O3'-P	-5.06	1.55	1.61
45	5	2639	U	O3'-P	5.04	1.67	1.61
45	5	3820	G	O3'-P	-5.04	1.55	1.61
49	2	169	U	O3'-P	5.04	1.67	1.61
45	5	1908	A	O3'-P	-5.03	1.55	1.61
45	5	3865	A	O3'-P	5.03	1.67	1.61
45	5	930	G	O3'-P	-5.03	1.55	1.61
45	5	2320	G	O3'-P	-5.02	1.55	1.61
45	5	2359	U	O3'-P	5.02	1.67	1.61
6	F	138	TYR	CB-CG	-5.01	1.44	1.51
49	2	1236	G	O3'-P	-5.01	1.55	1.61
45	5	1870	C	O3'-P	-5.00	1.55	1.61

All (307) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
85	4	6030	A	P-O3'-C3'	-33.29	79.75	119.70
85	4	6030	A	O3'-P-O5'	26.39	154.14	104.00
85	4	6072	U	N1-C1'-C2'	15.69	134.40	114.00
85	4	6200	A	N9-C1'-C2'	15.45	134.08	114.00
85	4	6181	C	C4'-C3'-O3'	-15.21	77.45	109.40
85	4	6178	U	N1-C1'-C2'	14.22	132.49	114.00
45	5	4462	C	O5'-P-OP2	-13.78	93.29	105.70
85	4	6030	A	OP1-P-O3'	-13.27	76.00	105.20
85	4	6178	U	C2-N1-C1'	12.66	132.89	117.70
45	5	1523	A	O5'-P-OP1	-12.10	94.81	105.70
85	4	6178	U	C6-N1-C1'	-11.92	104.52	121.20
85	4	6177	U	N1-C1'-C2'	11.47	128.92	114.00
85	4	6072	U	C2'-C3'-O3'	11.38	134.54	109.50
85	4	6200	A	C8-N9-C1'	-11.33	107.30	127.70
85	4	6071	A	O4'-C1'-C2'	-11.12	94.68	105.80

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
85	4	6177	U	C2'-C3'-O3'	10.77	133.19	109.50
85	4	6178	U	C2'-C3'-O3'	10.73	133.11	109.50
85	4	6073	A	C2'-C3'-O3'	10.64	132.91	109.50
45	5	1680	G	O5'-P-OP2	-10.46	96.29	105.70
85	4	6074	A	C5'-C4'-O4'	10.43	121.61	109.10
85	4	6178	U	C5'-C4'-O4'	10.28	121.44	109.10
45	5	2695	A	C2'-C3'-O3'	10.18	131.90	109.50
45	5	4516	G	N9-C1'-C2'	10.17	127.22	114.00
45	5	1911	C	N1-C1'-C2'	10.16	127.21	114.00
45	5	4516	G	C2'-C3'-O3'	10.08	131.67	109.50
45	5	930	G	C2'-C3'-O3'	10.06	131.63	109.50
85	4	6179	U	C5'-C4'-O4'	10.06	121.17	109.10
45	5	4520	G	C1'-C2'-O2'	-10.03	80.53	110.60
85	4	6072	U	C2-N1-C1'	9.82	129.48	117.70
85	4	6200	A	O4'-C1'-N9	9.56	115.85	108.20
51	BB	12	GLU	OE1-CD-OE2	9.54	134.75	123.30
85	4	6071	A	N9-C1'-C2'	9.52	126.38	114.00
45	5	1882	U	O5'-P-OP1	-9.47	97.18	105.70
45	5	4514	G	N9-C1'-C2'	9.47	126.31	114.00
45	5	4461	C	C4'-C3'-O3'	9.42	131.84	113.00
45	5	3907	G	O5'-P-OP2	-9.35	97.28	105.70
85	4	6197	A	N9-C1'-C2'	9.33	126.13	114.00
45	5	4516	G	O4'-C4'-C3'	-9.28	94.72	104.00
85	4	6073	A	O4'-C1'-N9	9.21	115.57	108.20
45	5	4518	A	O5'-P-OP1	-9.15	97.46	105.70
85	4	6178	U	C1'-C2'-O2'	9.07	137.81	110.60
85	4	6073	A	N9-C1'-C2'	8.89	125.56	114.00
85	4	6182	A	OP2-P-O3'	8.78	124.53	105.20
85	4	6073	A	C1'-O4'-C4'	-8.68	102.95	109.90
85	4	6073	A	C5'-C4'-O4'	8.68	119.51	109.10
45	5	4462	C	C2'-C3'-O3'	8.64	128.50	109.50
49	2	1632	G	O4'-C1'-N9	8.63	115.10	108.20
45	5	4947	U	C2'-C3'-O3'	8.59	128.40	109.50
45	5	48	G	C2'-C3'-O3'	8.56	128.33	109.50
85	4	6200	A	C4-N9-C1'	8.55	141.69	126.30
85	4	6072	U	C6-N1-C1'	-8.48	109.33	121.20
85	4	6180	U	N1-C1'-C2'	8.46	125.00	114.00
49	2	1606	G	O4'-C1'-N9	8.45	114.96	108.20
45	5	4520	G	C2'-C3'-O3'	8.39	127.95	109.50
45	5	1291	G	C2'-C3'-O3'	8.25	127.64	109.50
45	5	4517	A	C2'-C3'-O3'	8.23	127.62	109.50
45	5	1523	A	O5'-P-OP2	8.21	120.56	110.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
85	4	6054	A	C2'-C3'-O3'	8.20	127.53	109.50
45	5	4515	G	C4'-C3'-O3'	8.11	129.22	113.00
45	5	2849	A	N9-C1'-C2'	7.98	124.37	114.00
45	5	4523	A	O5'-P-OP2	7.95	120.24	110.70
37	l	41	ARG	NE-CZ-NH1	7.89	124.24	120.30
85	4	6071	A	C4'-C3'-O3'	7.83	128.66	113.00
45	5	1578	U	C2'-C3'-O3'	7.81	126.69	109.50
45	5	280	G	N9-C1'-C2'	7.80	124.15	114.00
85	4	6180	U	O4'-C4'-C3'	-7.74	96.26	104.00
45	5	4305	G	N9-C1'-C2'	7.70	124.01	114.00
45	5	4127	A	N9-C1'-C2'	7.68	123.99	114.00
45	5	1680	G	O5'-P-OP1	7.63	119.86	110.70
45	5	4460	U	N1-C1'-C2'	7.60	123.88	114.00
45	5	4459	U	N1-C1'-C2'	7.59	123.86	114.00
45	5	4462	C	O4'-C4'-C3'	-7.55	96.45	104.00
45	5	4938	A	N9-C1'-C2'	7.53	123.79	114.00
45	5	1358	G	C4'-C3'-O3'	7.53	128.06	113.00
45	5	1917	A	C2'-C3'-O3'	7.52	126.03	109.50
45	5	1327	C	O5'-P-OP1	7.50	119.69	110.70
45	5	2787	A	N9-C1'-C2'	7.42	123.65	114.00
85	4	6074	A	C5'-C4'-C3'	7.42	127.87	116.00
1	A	64	ARG	NE-CZ-NH1	7.40	124.00	120.30
85	4	6201	C	C2'-C3'-O3'	7.38	125.74	109.50
45	5	4462	C	O5'-P-OP1	7.25	119.40	110.70
49	2	1698	C	C2'-C3'-O3'	7.24	125.43	109.50
49	2	670	A	O5'-P-OP1	-7.22	99.20	105.70
45	5	1534	A	O5'-P-OP2	-7.19	99.22	105.70
45	5	1910	G	N9-C1'-C2'	7.18	123.33	114.00
45	5	1679	A	O5'-P-OP1	-7.16	99.25	105.70
45	5	1648	C	O5'-P-OP2	-7.14	99.27	105.70
85	4	6053	U	C4'-C3'-O3'	7.12	127.25	113.00
45	5	335	A	N9-C1'-C2'	7.12	123.25	114.00
45	5	426	A	N9-C1'-C2'	7.10	123.23	114.00
45	5	2046	G	C2'-C3'-O3'	7.09	125.09	109.50
45	5	2043	A	N9-C1'-C2'	7.08	123.20	114.00
45	5	47	A	C4'-C3'-O3'	7.03	127.05	113.00
45	5	3870	C	C2'-C3'-O3'	7.00	124.90	113.70
45	5	2440	U	N1-C1'-C2'	-6.99	104.31	112.00
85	4	6030	A	OP2-P-O3'	-6.97	89.86	105.20
85	4	6182	A	O3'-P-O5'	-6.95	90.80	104.00
75	ZZ	20	ARG	NE-CZ-NH2	6.91	123.75	120.30
50	3	69	A	N9-C1'-C2'	6.88	122.95	114.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
45	5	2551	A	C2'-C3'-O3'	6.86	124.68	113.70
12	M	37	LEU	CA-CB-CG	6.81	130.97	115.30
6	F	217	GLY	N-CA-C	-6.80	96.11	113.10
49	2	1620	A	N9-C1'-C2'	6.79	122.83	114.00
85	4	6178	U	C1'-O4'-C4'	-6.79	104.47	109.90
85	4	6179	U	N1-C1'-C2'	6.78	122.81	114.00
85	4	6179	U	C5'-C4'-C3'	6.77	126.83	116.00
49	2	870	A	C2'-C3'-O3'	6.74	124.48	113.70
45	5	95	G	O5'-P-OP1	-6.72	99.65	105.70
85	4	6072	U	O4'-C4'-C3'	-6.66	97.34	104.00
45	5	2052	G	C2'-C3'-O3'	6.66	124.35	113.70
49	2	1148	A	O4'-C1'-N9	6.65	113.52	108.20
49	2	24	C	C2'-C3'-O3'	6.60	124.26	113.70
49	2	55	U	N1-C1'-C2'	6.59	122.57	114.00
3	C	188	ARG	NE-CZ-NH1	6.58	123.59	120.30
13	N	65	ARG	NE-CZ-NH2	6.56	123.58	120.30
17	R	136	ARG	NE-CZ-NH1	6.55	123.58	120.30
31	f	106	TYR	C-N-CD	-6.49	106.33	120.60
45	5	334	A	N9-C1'-C2'	6.46	122.40	114.00
3	C	150	LEU	CA-CB-CG	6.43	130.10	115.30
31	f	18	LEU	CB-CG-CD1	6.43	121.93	111.00
85	4	6184	A	P-O3'-C3'	6.42	127.41	119.70
2	B	259	PRO	N-CA-C	-6.41	95.44	112.10
49	2	1148	A	O4'-C1'-C2'	-6.38	99.42	105.80
45	5	2786	C	C2'-C3'-O3'	-6.37	95.48	109.50
49	2	670	A	O5'-P-OP2	6.35	118.32	110.70
2	B	55	HIS	CB-CA-C	-6.34	97.73	110.40
45	5	2328	G	C4'-C3'-O3'	6.34	125.67	113.00
85	4	6074	A	C1'-O4'-C4'	-6.32	104.84	109.90
58	II	122	LEU	CA-CB-CG	6.21	129.59	115.30
48	K	211	GLY	N-CA-C	6.21	128.62	113.10
45	5	427	A	C2'-C3'-O3'	6.20	123.62	113.70
45	5	3694	U	O5'-P-OP2	-6.20	100.12	105.70
2	B	21	ARG	NE-CZ-NH2	-6.19	117.20	120.30
45	5	338	A	O5'-P-OP1	-6.18	100.13	105.70
45	5	4518	A	O5'-P-OP2	6.18	118.12	110.70
47	8	128	C	C4'-C3'-O3'	6.18	125.35	113.00
45	5	4649	G	N9-C1'-C2'	-6.14	105.24	112.00
45	5	2051	C	N1-C1'-C2'	6.11	121.94	114.00
31	f	100	ARG	NE-CZ-NH1	6.10	123.35	120.30
45	5	1916	G	O5'-P-OP2	-6.09	100.22	105.70
22	W	56	ARG	NE-CZ-NH1	6.08	123.34	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
85	4	6071	A	O4'-C1'-N9	-6.08	103.33	108.20
74	YY	61	GLN	C-N-CD	-6.07	107.24	120.60
13	N	65	ARG	NE-CZ-NH1	-6.07	117.27	120.30
45	5	2052	G	O5'-P-OP2	-6.07	100.24	105.70
85	4	6073	A	C8-N9-C1'	6.05	138.59	127.70
45	5	3904	G	C2'-C3'-O3'	6.04	123.37	113.70
45	5	4517	A	N9-C1'-C2'	6.03	121.83	114.00
23	X	52	LEU	CA-CB-CG	6.02	129.15	115.30
45	5	4517	A	P-O5'-C5'	-6.02	111.27	120.90
1	A	64	ARG	NE-CZ-NH2	-5.99	117.31	120.30
45	5	974	C	C5'-C4'-O4'	5.98	116.28	109.10
45	5	1327	C	O5'-P-OP2	-5.97	100.33	105.70
85	4	6073	A	C4-N9-C1'	-5.97	115.56	126.30
6	F	207	LEU	CA-CB-CG	5.96	129.01	115.30
45	5	4633	G	C1'-C2'-O2'	-5.96	92.72	110.60
45	5	4125	C	N1-C1'-C2'	5.95	121.74	114.00
45	5	4176	C	C2'-C3'-O3'	5.95	123.21	113.70
49	2	627	U	C2'-C3'-O3'	5.93	123.18	113.70
85	4	6071	A	C4'-C3'-C2'	-5.93	96.67	102.60
45	5	1835	G	C2'-C3'-O3'	5.92	123.17	113.70
45	5	4394	A	C4'-C3'-O3'	5.92	124.83	113.00
45	5	4463	U	C1'-C2'-O2'	5.92	128.35	110.60
45	5	4469	U	C2'-C3'-O3'	5.89	123.13	113.70
84	jj	62	ILE	CB-CA-C	-5.89	99.83	111.60
45	5	1683	U	O5'-P-OP1	-5.87	100.41	105.70
45	5	4516	G	O5'-P-OP2	-5.87	100.42	105.70
49	2	110	U	C2'-C3'-O3'	5.85	123.06	113.70
45	5	4456	C	C2'-C3'-O3'	5.84	123.05	113.70
45	5	2855	G	O5'-P-OP1	-5.84	100.45	105.70
13	N	143	ARG	NE-CZ-NH1	5.83	123.22	120.30
45	5	1358	G	C2'-C3'-O3'	-5.83	96.67	109.50
45	5	2623	A	C2'-C3'-O3'	5.82	123.01	113.70
45	5	4558	U	O5'-P-OP1	-5.80	100.48	105.70
71	VV	61	LEU	CA-CB-CG	5.77	128.57	115.30
45	5	4461	C	N1-C1'-C2'	5.74	121.47	114.00
20	U	81	ARG	NE-CZ-NH1	5.72	123.16	120.30
45	5	4302	U	O5'-P-OP2	-5.72	100.55	105.70
45	5	4630	G	C2'-C3'-O3'	5.71	122.83	113.70
65	PP	141	ARG	NE-CZ-NH2	5.71	123.15	120.30
85	4	6188	G	O4'-C1'-N9	5.70	112.76	108.20
31	f	4	ARG	NE-CZ-NH1	5.69	123.14	120.30
45	5	2043	A	C1'-C2'-O2'	-5.68	93.57	110.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
45	5	42	A	P-O3'-C3'	5.67	126.51	119.70
45	5	4462	C	N1-C1'-C2'	5.66	121.36	114.00
85	4	6073	A	O4'-C4'-C3'	-5.66	98.34	104.00
45	5	4949	G	C4'-C3'-O3'	5.65	124.30	113.00
66	QQ	81	ARG	NE-CZ-NH1	5.65	123.12	120.30
39	n	2	ARG	NE-CZ-NH2	5.62	123.11	120.30
85	4	6179	U	C1'-O4'-C4'	-5.61	105.42	109.90
45	5	1370	G	C2'-C3'-O3'	5.60	122.67	113.70
35	j	21	ARG	NE-CZ-NH1	5.60	123.10	120.30
45	5	1455	G	C2'-C3'-O3'	5.59	122.65	113.70
45	5	4287	G	C2'-C3'-O3'	5.59	122.65	113.70
85	4	6182	A	O4'-C1'-N9	5.59	112.67	108.20
45	5	4461	C	O4'-C4'-C3'	-5.58	98.42	104.00
73	XX	7	LEU	CA-CB-CG	5.56	128.09	115.30
45	5	1918	U	O5'-P-OP1	5.56	117.37	110.70
45	5	275	C	C2'-C3'-O3'	5.55	122.58	113.70
13	N	185	GLY	N-CA-C	-5.54	99.24	113.10
45	5	3785	A	O4'-C1'-N9	5.54	112.63	108.20
45	5	3606	U	C2'-C3'-O3'	5.54	122.56	113.70
45	5	428	G	O5'-P-OP1	5.54	117.34	110.70
45	5	1650	A	P-O3'-C3'	5.54	126.34	119.70
45	5	2582	A	O5'-P-OP1	5.53	117.34	110.70
45	5	4469	U	O4'-C4'-C3'	-5.52	98.48	104.00
73	XX	20	ARG	NE-CZ-NH1	5.52	123.06	120.30
49	2	6	G	C2'-C3'-O3'	5.50	122.50	113.70
17	R	107	ARG	NE-CZ-NH2	-5.49	117.55	120.30
45	5	4516	G	O4'-C1'-N9	-5.49	103.81	108.20
45	5	4516	G	C5'-C4'-O4'	-5.49	102.51	109.10
45	5	4586	G	C2'-C3'-O3'	5.49	122.48	113.70
25	Z	108	ARG	NE-CZ-NH2	-5.49	117.56	120.30
45	5	245	C	C2'-C3'-O3'	5.48	122.47	113.70
49	2	606	G	N9-C1'-C2'	5.47	121.11	114.00
45	5	1942	A	N9-C1'-C2'	5.47	121.11	114.00
45	5	2888	G	N9-C1'-C2'	5.46	121.11	114.00
51	BB	12	GLU	CG-CD-OE2	-5.46	107.39	118.30
42	r	39	ARG	NE-CZ-NH2	5.45	123.02	120.30
85	4	6186	U	P-O3'-C3'	5.44	126.23	119.70
45	5	2640	G	N9-C1'-C2'	5.43	121.05	114.00
49	2	1228	A	C2'-C3'-O3'	5.43	122.38	113.70
45	5	4491	G	N9-C1'-C2'	5.42	121.05	114.00
4	D	152	ARG	NE-CZ-NH1	5.42	123.01	120.30
23	X	41	ARG	NE-CZ-NH1	5.41	123.01	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
45	5	4127	A	C3'-C2'-C1'	-5.41	97.17	101.50
45	5	4683	U	O5'-P-OP2	-5.40	100.84	105.70
35	j	19	CYS	CA-CB-SG	5.39	123.71	114.00
45	5	4518	A	C2'-C3'-O3'	-5.38	97.67	109.50
45	5	1234	G	C2'-C3'-O3'	5.37	122.29	113.70
45	5	3647	A	C2'-C3'-O3'	5.37	122.30	113.70
85	4	6200	A	C2'-C3'-O3'	5.37	122.29	113.70
2	B	268	ARG	NE-CZ-NH2	5.35	122.98	120.30
45	5	2509	C	C2'-C3'-O3'	5.35	122.26	113.70
50	3	69	A	O4'-C1'-N9	5.35	112.48	108.20
56	GG	145	ARG	NE-CZ-NH1	5.34	122.97	120.30
45	5	3706	C	N1-C1'-C2'	-5.33	106.13	112.00
45	5	1854	G	N9-C1'-C2'	5.33	120.93	114.00
45	5	1914	C	C1'-C2'-O2'	5.33	126.59	110.60
45	5	2044	U	O5'-P-OP1	-5.32	100.91	105.70
49	2	1249	C	N1-C1'-C2'	5.31	120.91	114.00
45	5	1591	U	P-O3'-C3'	5.31	126.07	119.70
25	Z	108	ARG	NE-CZ-NH1	5.31	122.95	120.30
40	o	87	ARG	NE-CZ-NH2	-5.30	117.65	120.30
3	C	303	ARG	NE-CZ-NH1	5.30	122.95	120.30
85	4	6180	U	C2'-C3'-O3'	5.30	122.18	113.70
4	D	21	ARG	NE-CZ-NH1	5.29	122.94	120.30
45	5	4517	A	O4'-C1'-N9	-5.29	103.97	108.20
1	A	196	TRP	C-N-CD	-5.28	108.99	120.60
45	5	4521	U	N1-C1'-C2'	-5.26	106.21	112.00
45	5	2509	C	C1'-O4'-C4'	-5.25	105.70	109.90
73	XX	97	ARG	NE-CZ-NH1	5.25	122.93	120.30
17	R	42	ARG	NE-CZ-NH1	-5.25	117.67	120.30
45	5	2549	G	C2'-C3'-O3'	5.24	122.08	113.70
49	2	915	G	O4'-C1'-N9	5.24	112.39	108.20
37	l	11	ARG	NE-CZ-NH1	5.23	122.92	120.30
85	4	6201	C	C4'-C3'-O3'	-5.23	98.41	109.40
26	a	76	ASP	CB-CG-OD1	5.23	123.00	118.30
45	5	4619	U	O5'-P-OP1	-5.23	101.00	105.70
45	5	4514	G	C2'-C3'-O3'	5.22	122.06	113.70
45	5	4523	A	C5'-C4'-C3'	5.22	124.34	116.00
45	5	1573	G	N9-C1'-C2'	5.21	120.78	114.00
33	h	89	ARG	NE-CZ-NH2	-5.21	117.69	120.30
49	2	561	A	C2'-C3'-O3'	5.21	122.04	113.70
45	5	121	A	N9-C1'-C2'	5.21	120.77	114.00
85	4	6180	U	C1'-O4'-C4'	-5.21	105.74	109.90
45	5	3763	A	C2'-C3'-O3'	5.19	122.01	113.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
10	J	58	ARG	NE-CZ-NH1	5.19	122.90	120.30
45	5	4207	C	C2'-C3'-O3'	5.19	122.00	113.70
85	4	6198	A	C4'-C3'-O3'	5.19	123.38	113.00
49	2	1520	G	N9-C1'-C2'	5.19	120.74	114.00
53	DD	137	VAL	CB-CA-C	-5.18	101.55	111.40
45	5	4459	U	O4'-C4'-C3'	-5.17	98.83	104.00
4	D	54	ARG	NE-CZ-NH1	5.17	122.88	120.30
45	5	360	A	O5'-P-OP2	-5.17	101.05	105.70
49	2	1148	A	C3'-C2'-C1'	-5.16	97.37	101.50
45	5	2845	A	C4'-C3'-O3'	-5.15	98.59	109.40
54	EE	105	LEU	CA-CB-CG	5.14	127.13	115.30
13	N	188	ARG	NE-CZ-NH1	5.14	122.87	120.30
26	a	9	ARG	NE-CZ-NH2	5.12	122.86	120.30
2	B	21	ARG	NE-CZ-NH1	5.10	122.85	120.30
45	5	1912	G	N9-C1'-C2'	5.10	120.63	114.00
39	n	9	ARG	NE-CZ-NH1	-5.09	117.75	120.30
47	8	15	G	N9-C1'-C2'	5.09	120.62	114.00
45	5	4394	A	P-O3'-C3'	5.09	125.81	119.70
85	4	6073	A	C5'-C4'-C3'	5.09	124.15	116.00
45	5	969	C	C2'-C3'-O3'	5.08	121.82	113.70
45	5	2427	G	N9-C1'-C2'	5.08	120.60	114.00
45	5	1633	G	P-O3'-C3'	5.07	125.79	119.70
14	O	61	ARG	NE-CZ-NH1	5.07	122.83	120.30
45	5	2052	G	N9-C1'-C2'	5.06	120.58	114.00
45	5	4633	G	P-O3'-C3'	5.06	125.77	119.70
9	I	7	ARG	NE-CZ-NH1	5.04	122.82	120.30
45	5	3906	A	C2'-C3'-O3'	5.04	121.77	113.70
5	E	113	ARG	NE-CZ-NH1	5.04	122.82	120.30
49	2	1164	G	N9-C1'-C2'	5.04	120.55	114.00
45	5	3653	A	O5'-P-OP2	-5.03	101.17	105.70
53	DD	251	LEU	CA-CB-CG	5.03	126.88	115.30
49	2	476	A	C2'-C3'-O3'	5.03	121.75	113.70
45	5	4470	G	N9-C1'-C2'	-5.03	106.47	112.00
45	5	4521	U	O5'-P-OP1	-5.02	101.18	105.70
5	E	113	ARG	NE-CZ-NH2	-5.02	117.79	120.30
45	5	1874	A	P-O5'-C5'	-5.01	112.89	120.90
45	5	3632	C	O5'-P-OP1	5.01	116.71	110.70
45	5	5005	G	N9-C1'-C2'	5.01	120.51	114.00
45	5	4176	C	P-O5'-C5'	-5.00	112.89	120.90
45	5	2440	U	C4'-C3'-O3'	5.00	123.00	113.00

All (1) chirality outliers are listed below:

Mol	Chain	Res	Type	Atom
85	4	6200	A	C1'

All (59) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
49	2	1604	G	Sidechain
49	2	1606	G	Sidechain
49	2	1632	G	Sidechain
85	4	6071	A	Sidechain
85	4	6181	C	Sidechain
85	4	6197	A	Sidechain
85	4	6200	A	Sidechain
45	5	1911	C	Sidechain
45	5	1912	G	Sidechain
45	5	334	A	Sidechain
45	5	4459	U	Sidechain
45	5	4462	C	Sidechain
45	5	4463	U	Sidechain
45	5	4489	G	Sidechain
1	A	162	ASN	Peptide
1	A	178	PRO	Peptide
1	A	196	TRP	Peptide
1	A	31	ALA	Peptide
2	B	2	SER	Peptide
2	B	258	HIS	Peptide
51	BB	77	ILE	Peptide
3	C	149	GLU	Peptide
3	C	150	LEU	Peptide
3	C	90	GLY	Peptide
52	CC	211	PHE	Peptide
54	EE	153	VAL	Peptide
55	FF	22	LYS	Peptide
55	FF	253	ASP	Peptide
55	FF	78	THR	Peptide
57	HH	213	LEU	Peptide
57	HH	67	VAL	Peptide
48	K	162	VAL	Peptide
48	K	18	LEU	Peptide
12	M	31	ILE	Peptide
13	N	184	ILE	Peptide
65	PP	137	SER	Peptide
65	PP	138	ASP	Peptide
16	Q	155	ALA	Peptide

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Mol	Chain	Res	Type	Group
69	TT	7	GLU	Peptide
22	W	54	LEU	Peptide
23	X	99	ILE	Peptide
73	XX	57	ARG	Peptide
73	XX	88	LYS	Peptide
24	Y	101	PRO	Peptide
74	YY	61	GLN	Peptide
27	b	11	ASN	Peptide
29	d	95	ASP	Peptide
30	e	51	GLY	Peptide
31	f	106	TYR	Peptide
31	f	51	TYR	Peptide
31	f	80	ASN	Peptide
81	ff	117	ASN	Peptide
32	g	107	LEU	Peptide
32	g	60	ARG	Peptide
83	hh	145	GLU	Peptide
35	j	44	LYS	Peptide
36	k	67	LYS	Peptide
37	l	47	THR	Peptide
40	o	61	LYS	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	A	237/257 (92%)	183 (77%)	45 (19%)	9 (4%)	2 18
2	B	392/403 (97%)	327 (83%)	46 (12%)	19 (5%)	2 14

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	C	358/392 (91%)	298 (83%)	48 (13%)	12 (3%)	3	21
4	D	291/297 (98%)	257 (88%)	29 (10%)	5 (2%)	7	36
5	E	208/291 (72%)	173 (83%)	29 (14%)	6 (3%)	3	24
6	F	223/249 (90%)	193 (86%)	24 (11%)	6 (3%)	4	26
7	G	229/242 (95%)	202 (88%)	25 (11%)	2 (1%)	14	49
8	H	188/192 (98%)	157 (84%)	20 (11%)	11 (6%)	1	10
9	I	201/214 (94%)	171 (85%)	24 (12%)	6 (3%)	3	23
10	J	168/178 (94%)	144 (86%)	20 (12%)	4 (2%)	5	29
11	L	208/211 (99%)	184 (88%)	19 (9%)	5 (2%)	5	29
12	M	133/198 (67%)	108 (81%)	20 (15%)	5 (4%)	2	18
13	N	201/204 (98%)	171 (85%)	25 (12%)	5 (2%)	4	28
14	O	194/199 (98%)	167 (86%)	25 (13%)	2 (1%)	13	47
15	P	151/184 (82%)	123 (82%)	22 (15%)	6 (4%)	2	18
16	Q	185/188 (98%)	154 (83%)	24 (13%)	7 (4%)	2	18
17	R	178/181 (98%)	148 (83%)	24 (14%)	6 (3%)	3	21
18	S	174/176 (99%)	142 (82%)	26 (15%)	6 (3%)	3	21
19	T	157/160 (98%)	128 (82%)	22 (14%)	7 (4%)	2	15
20	U	97/128 (76%)	80 (82%)	14 (14%)	3 (3%)	3	22
21	V	127/140 (91%)	107 (84%)	16 (13%)	4 (3%)	3	22
22	W	102/157 (65%)	87 (85%)	9 (9%)	6 (6%)	1	10
23	X	116/156 (74%)	101 (87%)	11 (10%)	4 (3%)	3	21
24	Y	132/145 (91%)	106 (80%)	23 (17%)	3 (2%)	5	29
25	Z	133/136 (98%)	108 (81%)	21 (16%)	4 (3%)	3	23
26	a	145/148 (98%)	115 (79%)	28 (19%)	2 (1%)	9	40
27	b	100/226 (44%)	86 (86%)	10 (10%)	4 (4%)	2	18
28	c	96/115 (84%)	87 (91%)	9 (9%)	0	100	100
29	d	105/125 (84%)	87 (83%)	13 (12%)	5 (5%)	2	14
30	e	126/135 (93%)	97 (77%)	24 (19%)	5 (4%)	2	18
31	f	107/110 (97%)	91 (85%)	13 (12%)	3 (3%)	4	25
32	g	112/126 (89%)	91 (81%)	14 (12%)	7 (6%)	1	8
33	h	120/123 (98%)	99 (82%)	19 (16%)	2 (2%)	7	36

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
34	i	100/105 (95%)	90 (90%)	10 (10%)	0	100 100
35	j	84/97 (87%)	67 (80%)	11 (13%)	6 (7%)	1 6
36	k	67/70 (96%)	51 (76%)	12 (18%)	4 (6%)	1 10
37	l	48/51 (94%)	38 (79%)	7 (15%)	3 (6%)	1 8
38	m	50/52 (96%)	42 (84%)	8 (16%)	0	100 100
39	n	23/25 (92%)	17 (74%)	5 (22%)	1 (4%)	2 16
40	o	102/106 (96%)	94 (92%)	6 (6%)	2 (2%)	6 32
41	p	89/92 (97%)	74 (83%)	11 (12%)	4 (4%)	2 15
42	r	122/137 (89%)	95 (78%)	14 (12%)	13 (11%)	0 2
43	s	194/303 (64%)	163 (84%)	27 (14%)	4 (2%)	5 31
44	t	151/195 (77%)	126 (83%)	22 (15%)	3 (2%)	6 32
48	K	204/217 (94%)	143 (70%)	51 (25%)	10 (5%)	2 14
51	BB	215/295 (73%)	193 (90%)	19 (9%)	3 (1%)	9 40
52	CC	211/264 (80%)	174 (82%)	33 (16%)	4 (2%)	6 34
53	DD	219/255 (86%)	185 (84%)	30 (14%)	4 (2%)	7 35
54	EE	226/281 (80%)	187 (83%)	36 (16%)	3 (1%)	10 41
55	FF	260/263 (99%)	212 (82%)	37 (14%)	11 (4%)	2 17
56	GG	181/204 (89%)	153 (84%)	19 (10%)	9 (5%)	1 13
57	HH	235/249 (94%)	197 (84%)	32 (14%)	6 (3%)	4 27
58	II	181/194 (93%)	147 (81%)	22 (12%)	12 (7%)	1 7
59	JJ	204/208 (98%)	173 (85%)	23 (11%)	8 (4%)	2 18
60	KK	183/194 (94%)	155 (85%)	23 (13%)	5 (3%)	4 26
61	LL	94/149 (63%)	84 (89%)	9 (10%)	1 (1%)	12 44
62	MM	139/158 (88%)	120 (86%)	16 (12%)	3 (2%)	5 30
63	NN	115/132 (87%)	91 (79%)	20 (17%)	4 (4%)	3 20
64	OO	147/151 (97%)	118 (80%)	22 (15%)	7 (5%)	2 14
65	PP	134/151 (89%)	116 (87%)	17 (13%)	1 (1%)	19 54
66	QQ	113/145 (78%)	83 (74%)	26 (23%)	4 (4%)	3 20
67	RR	140/172 (81%)	123 (88%)	16 (11%)	1 (1%)	19 54
68	SS	130/135 (96%)	114 (88%)	15 (12%)	1 (1%)	16 51
69	TT	142/152 (93%)	125 (88%)	14 (10%)	3 (2%)	5 31

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
70	UU	139/145 (96%)	120 (86%)	17 (12%)	2 (1%)	9 40
71	VV	98/119 (82%)	82 (84%)	14 (14%)	2 (2%)	6 32
72	WW	81/83 (98%)	71 (88%)	6 (7%)	4 (5%)	2 14
73	XX	127/130 (98%)	107 (84%)	17 (13%)	3 (2%)	5 29
74	YY	139/143 (97%)	112 (81%)	21 (15%)	6 (4%)	2 16
75	ZZ	122/134 (91%)	103 (84%)	17 (14%)	2 (2%)	8 37
76	aa	73/125 (58%)	65 (89%)	7 (10%)	1 (1%)	9 40
77	bb	99/115 (86%)	77 (78%)	16 (16%)	6 (6%)	1 9
78	cc	81/84 (96%)	66 (82%)	13 (16%)	2 (2%)	4 28
79	dd	60/69 (87%)	50 (83%)	9 (15%)	1 (2%)	7 36
80	ee	53/56 (95%)	33 (62%)	18 (34%)	2 (4%)	2 18
81	ff	55/133 (41%)	44 (80%)	9 (16%)	2 (4%)	3 20
82	gg	66/156 (42%)	49 (74%)	16 (24%)	1 (2%)	8 38
83	hh	310/317 (98%)	237 (76%)	69 (22%)	4 (1%)	10 41
84	jj	414/437 (95%)	344 (83%)	65 (16%)	5 (1%)	11 43
All	All	12114/13834 (88%)	10082 (83%)	1668 (14%)	364 (3%)	5 23

All (364) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	104	VAL
1	A	196	TRP
2	B	8	ALA
2	B	9	PRO
2	B	135	LYS
2	B	259	PRO
2	B	260	ALA
2	B	286	LYS
2	B	342	LYS
3	C	90	GLY
3	C	126	SER
3	C	150	LEU
4	D	44	TYR
4	D	155	THR
5	E	186	ARG
5	E	194	GLN
6	F	136	GLU

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Mol	Chain	Res	Type
6	F	137	PRO
6	F	179	GLY
8	H	128	MET
8	H	139	ALA
9	I	12	CYS
11	L	47	ALA
11	L	63	THR
12	M	19	PRO
15	P	114	ILE
16	Q	55	ARG
16	Q	148	VAL
16	Q	177	ALA
17	R	37	SER
19	T	79	GLN
19	T	80	VAL
22	W	47	ARG
23	X	94	ASN
23	X	118	ASP
25	Z	90	PRO
25	Z	100	VAL
26	a	114	LYS
27	b	7	HIS
29	d	74	ALA
30	e	42	ASP
30	e	43	ASN
31	f	107	PRO
32	g	16	ALA
32	g	69	LYS
33	h	94	ARG
35	j	25	LYS
36	k	30	ASP
36	k	62	PRO
42	r	11	ARG
42	r	13	CYS
42	r	20	ARG
42	r	69	GLY
42	r	121	GLN
43	s	46	SER
48	K	95	LYS
48	K	201	VAL
51	BB	44	ASP
52	CC	190	PRO

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Mol	Chain	Res	Type
53	DD	134	ASN
53	DD	174	ILE
55	FF	79	ASP
55	FF	144	ALA
55	FF	240	ARG
56	GG	55	ARG
56	GG	80	GLY
58	II	13	GLY
58	II	88	SER
58	II	107	LYS
58	II	119	SER
58	II	122	LEU
58	II	135	PHE
60	KK	19	PRO
62	MM	57	ASP
63	NN	45	ARG
64	OO	12	SER
72	WW	31	SER
72	WW	74	LYS
73	XX	28	ARG
74	YY	5	ARG
74	YY	10	ALA
74	YY	62	PRO
74	YY	65	ALA
74	YY	86	PRO
81	ff	106	LYS
81	ff	107	ARG
82	gg	89	LYS
83	hh	187	ASN
84	jj	314	MET
1	A	143	THR
1	A	234	LYS
1	A	241	ARG
2	B	228	TYR
2	B	264	PHE
2	B	304	SER
2	B	309	LEU
2	B	329	ASP
3	C	194	GLY
3	C	288	ASP
4	D	222	GLN
6	F	99	GLY

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Mol	Chain	Res	Type
7	G	239	GLY
8	H	40	HIS
8	H	52	LYS
8	H	61	TRP
8	H	85	THR
8	H	98	HIS
9	I	16	PRO
10	J	141	ILE
10	J	143	ASP
11	L	4	SER
11	L	95	GLY
13	N	57	GLN
13	N	184	ILE
13	N	201	HIS
14	O	20	ALA
16	Q	75	ARG
16	Q	159	PRO
17	R	100	ARG
18	S	166	ARG
20	U	67	LYS
22	W	15	PRO
23	X	119	ILE
29	d	58	GLY
32	g	60	ARG
32	g	76	ARG
33	h	47	ILE
35	j	77	GLY
37	l	19	GLN
37	l	20	ASN
37	l	31	THR
39	n	23	ARG
42	r	33	LYS
42	r	44	ILE
42	r	55	ALA
42	r	107	ARG
44	t	67	ARG
48	K	14	VAL
48	K	16	GLU
48	K	199	GLN
53	DD	77	SER
55	FF	59	ASP
55	FF	132	GLY

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Mol	Chain	Res	Type
56	GG	20	PHE
56	GG	41	VAL
56	GG	79	HIS
57	HH	68	LEU
57	HH	134	GLY
58	II	48	ALA
58	II	54	GLY
58	II	75	ILE
59	JJ	48	VAL
59	JJ	56	ARG
59	JJ	71	CYS
59	JJ	140	LYS
60	KK	146	SER
61	LL	39	ASN
62	MM	151	THR
64	OO	8	GLY
64	OO	26	LEU
64	OO	59	GLY
64	OO	103	GLU
64	OO	108	ASP
66	QQ	70	MET
66	QQ	104	GLN
70	UU	95	GLY
70	UU	111	LYS
76	aa	104	ARG
77	bb	26	CYS
77	bb	94	ASP
79	dd	49	PRO
80	ee	7	TYR
83	hh	161	SER
83	hh	224	GLY
84	jj	217	ASP
1	A	34	PHE
1	A	197	PRO
2	B	236	HIS
2	B	269	ALA
2	B	348	ARG
2	B	376	HIS
3	C	18	SER
8	H	108	ASN
12	M	9	VAL
12	M	53	LYS

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Mol	Chain	Res	Type
13	N	100	SER
14	O	70	PRO
16	Q	157	GLY
16	Q	160	HIS
18	S	161	ARG
18	S	165	PRO
19	T	60	LYS
19	T	81	LYS
20	U	45	GLU
21	V	92	ASP
27	b	36	ASP
27	b	37	PRO
29	d	96	GLU
29	d	116	ASN
30	e	125	PRO
31	f	37	ASP
31	f	60	PRO
32	g	50	PRO
35	j	12	ARG
35	j	26	ALA
36	k	40	ARG
41	p	7	LYS
42	r	68	SER
42	r	120	SER
43	s	34	ASN
44	t	94	LYS
48	K	43	PRO
48	K	83	PRO
48	K	193	LEU
52	CC	123	ALA
52	CC	202	GLN
54	EE	32	ASP
55	FF	223	SER
56	GG	16	ASP
57	HH	122	PRO
57	HH	198	ARG
65	PP	24	GLY
66	QQ	49	LEU
71	VV	105	SER
72	WW	30	ALA
72	WW	73	ALA
73	XX	7	LEU

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Mol	Chain	Res	Type
75	ZZ	64	PHE
77	bb	35	ALA
83	hh	13	GLY
1	A	31	ALA
2	B	198	ARG
3	C	65	GLU
3	C	75	ARG
3	C	141	GLY
4	D	46	THR
4	D	170	GLY
5	E	43	LYS
7	G	215	ASP
8	H	41	ILE
9	I	47	PRO
9	I	144	ASN
10	J	103	GLY
10	J	146	ARG
11	L	28	GLN
12	M	89	THR
15	P	21	ASN
15	P	36	ILE
17	R	35	ALA
17	R	84	THR
17	R	138	LEU
17	R	141	HIS
18	S	155	PRO
19	T	29	THR
21	V	22	VAL
21	V	74	LYS
21	V	75	LYS
22	W	19	ARG
22	W	27	LYS
23	X	42	THR
27	b	29	TYR
32	g	3	GLN
35	j	21	ARG
40	o	24	THR
41	p	9	GLY
42	r	119	ARG
48	K	162	VAL
51	BB	137	ALA
54	EE	112	GLY

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Mol	Chain	Res	Type
55	FF	155	LYS
55	FF	241	GLY
57	HH	135	PRO
59	JJ	92	ARG
59	JJ	123	ARG
59	JJ	143	LYS
60	KK	17	ARG
60	KK	41	ARG
66	QQ	18	ARG
67	RR	135	PRO
69	TT	100	ALA
71	VV	70	CYS
74	YY	92	ASN
77	bb	47	ALA
78	cc	59	CYS
80	ee	43	PHE
2	B	314	ILE
2	B	340	THR
3	C	4	ALA
3	C	6	PRO
3	C	265	GLY
5	E	93	ALA
6	F	230	GLY
9	I	117	GLY
22	W	11	TYR
24	Y	83	GLU
25	Z	7	PRO
25	Z	49	TYR
32	g	59	VAL
35	j	78	PHE
41	p	18	TYR
42	r	56	ASP
43	s	80	PRO
54	EE	93	THR
56	GG	43	GLU
57	HH	8	PRO
59	JJ	41	ARG
60	KK	147	PHE
63	NN	59	PRO
63	NN	80	ASP
63	NN	95	ASP
69	TT	49	ASP

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Mol	Chain	Res	Type
69	TT	137	LYS
77	bb	51	ARG
77	bb	61	ALA
78	cc	81	ARG
84	jj	118	LYS
84	jj	162	GLN
8	H	13	PRO
9	I	99	ILE
19	T	61	THR
20	U	28	PRO
22	W	8	PHE
24	Y	101	PRO
26	a	76	ASP
36	k	59	SER
52	CC	64	GLY
55	FF	17	HIS
55	FF	73	ASP
55	FF	231	GLY
56	GG	83	ASN
58	II	115	LYS
73	XX	95	PRO
84	jj	89	PRO
13	N	60	VAL
15	P	65	GLY
18	S	164	LYS
29	d	64	ILE
41	p	54	ILE
48	K	58	THR
51	BB	101	GLY
58	II	22	GLY
64	OO	79	GLY
15	P	7	ASP
15	P	117	ILE
30	e	41	ILE
30	e	59	GLY
58	II	8	ILE
75	ZZ	59	GLY
19	T	6	GLY
24	Y	22	PRO
40	o	95	GLY
43	s	114	GLY
68	SS	69	ILE

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Mol	Chain	Res	Type
1	A	230	PRO
5	E	188	PRO
5	E	209	VAL
6	F	229	GLY
8	H	4	ILE
12	M	25	VAL
18	S	158	VAL
56	GG	21	GLY
62	MM	150	GLY
44	t	36	GLY
53	DD	130	ILE

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	172/199 (86%)	146 (85%)	26 (15%)	2 12
2	B	342/348 (98%)	290 (85%)	52 (15%)	2 12
3	C	302/323 (94%)	267 (88%)	35 (12%)	4 21
4	D	247/250 (99%)	220 (89%)	27 (11%)	5 23
5	E	190/251 (76%)	169 (89%)	21 (11%)	5 22
6	F	196/218 (90%)	178 (91%)	18 (9%)	7 29
7	G	200/208 (96%)	181 (90%)	19 (10%)	7 28
8	H	169/171 (99%)	159 (94%)	10 (6%)	16 48
9	I	175/181 (97%)	154 (88%)	21 (12%)	4 19
10	J	143/149 (96%)	133 (93%)	10 (7%)	12 42
11	L	175/176 (99%)	162 (93%)	13 (7%)	11 40
12	M	116/151 (77%)	99 (85%)	17 (15%)	2 12
13	N	171/172 (99%)	150 (88%)	21 (12%)	4 19
14	O	170/171 (99%)	144 (85%)	26 (15%)	2 11
15	P	134/163 (82%)	116 (87%)	18 (13%)	3 15

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
16	Q	164/165 (99%)	137 (84%)	27 (16%)	2 9
17	R	159/160 (99%)	138 (87%)	21 (13%)	3 16
18	S	157/157 (100%)	140 (89%)	17 (11%)	5 23
19	T	139/140 (99%)	122 (88%)	17 (12%)	4 19
20	U	89/114 (78%)	85 (96%)	4 (4%)	23 56
21	V	100/107 (94%)	83 (83%)	17 (17%)	1 8
22	W	86/126 (68%)	81 (94%)	5 (6%)	17 49
23	X	106/134 (79%)	94 (89%)	12 (11%)	4 22
24	Y	124/135 (92%)	104 (84%)	20 (16%)	2 9
25	Z	117/118 (99%)	101 (86%)	16 (14%)	3 14
26	a	119/120 (99%)	104 (87%)	15 (13%)	3 18
27	b	84/172 (49%)	80 (95%)	4 (5%)	21 55
28	c	84/98 (86%)	72 (86%)	12 (14%)	2 13
29	d	98/110 (89%)	91 (93%)	7 (7%)	12 42
30	e	114/121 (94%)	100 (88%)	14 (12%)	4 19
31	f	88/89 (99%)	73 (83%)	15 (17%)	1 8
32	g	98/106 (92%)	86 (88%)	12 (12%)	4 19
33	h	109/110 (99%)	97 (89%)	12 (11%)	5 23
34	i	86/89 (97%)	77 (90%)	9 (10%)	5 24
35	j	73/80 (91%)	63 (86%)	10 (14%)	3 14
36	k	64/65 (98%)	57 (89%)	7 (11%)	5 23
37	l	47/48 (98%)	39 (83%)	8 (17%)	1 8
38	m	48/48 (100%)	40 (83%)	8 (17%)	2 9
39	n	24/24 (100%)	21 (88%)	3 (12%)	3 18
40	o	92/94 (98%)	76 (83%)	16 (17%)	1 8
41	p	74/75 (99%)	60 (81%)	14 (19%)	1 6
42	r	108/121 (89%)	96 (89%)	12 (11%)	5 22
43	s	164/258 (64%)	159 (97%)	5 (3%)	36 66
44	t	126/163 (77%)	117 (93%)	9 (7%)	12 42
48	K	190/196 (97%)	172 (90%)	18 (10%)	7 28
51	BB	180/246 (73%)	169 (94%)	11 (6%)	15 47

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
52	CC	194/231 (84%)	179 (92%)	15 (8%)	10 39
53	DD	187/206 (91%)	164 (88%)	23 (12%)	4 19
54	EE	190/232 (82%)	162 (85%)	28 (15%)	2 12
55	FF	224/225 (100%)	196 (88%)	28 (12%)	3 18
56	GG	158/170 (93%)	141 (89%)	17 (11%)	5 23
57	HH	207/218 (95%)	189 (91%)	18 (9%)	8 32
58	II	165/174 (95%)	140 (85%)	25 (15%)	2 12
59	JJ	178/180 (99%)	157 (88%)	21 (12%)	4 20
60	KK	161/168 (96%)	143 (89%)	18 (11%)	5 22
61	LL	87/125 (70%)	80 (92%)	7 (8%)	10 37
62	MM	130/142 (92%)	110 (85%)	20 (15%)	2 11
63	NN	99/108 (92%)	94 (95%)	5 (5%)	20 53
64	OO	130/131 (99%)	113 (87%)	17 (13%)	3 16
65	PP	106/119 (89%)	91 (86%)	15 (14%)	2 13
66	QQ	105/130 (81%)	93 (89%)	12 (11%)	4 21
67	RR	117/140 (84%)	109 (93%)	8 (7%)	13 43
68	SS	119/121 (98%)	108 (91%)	11 (9%)	7 29
69	TT	125/132 (95%)	113 (90%)	12 (10%)	7 28
70	UU	111/116 (96%)	103 (93%)	8 (7%)	12 41
71	VV	92/107 (86%)	79 (86%)	13 (14%)	3 14
72	WW	67/67 (100%)	61 (91%)	6 (9%)	8 30
73	XX	112/113 (99%)	100 (89%)	12 (11%)	5 24
74	YY	113/114 (99%)	100 (88%)	13 (12%)	4 21
75	ZZ	107/115 (93%)	90 (84%)	17 (16%)	2 10
76	aa	66/103 (64%)	64 (97%)	2 (3%)	36 66
77	bb	88/98 (90%)	77 (88%)	11 (12%)	3 18
78	cc	75/76 (99%)	68 (91%)	7 (9%)	7 29
79	dd	55/62 (89%)	54 (98%)	1 (2%)	54 77
80	ee	48/49 (98%)	43 (90%)	5 (10%)	5 25
81	ff	47/106 (44%)	41 (87%)	6 (13%)	3 17
82	gg	61/140 (44%)	55 (90%)	6 (10%)	6 27

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
83	hh	272/275 (99%)	243 (89%)	29 (11%)	5 24
84	jj	358/376 (95%)	323 (90%)	35 (10%)	6 27
All	All	10567/11789 (90%)	9385 (89%)	1182 (11%)	7 22

All (1182) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	15	VAL
1	A	20	VAL
1	A	29	LEU
1	A	32	VAL
1	A	40	TYR
1	A	44	ILE
1	A	64	ARG
1	A	70	LYS
1	A	73	THR
1	A	86	GLN
1	A	96	LEU
1	A	109	GLU
1	A	114	CYS
1	A	115	CYS
1	A	122	ASP
1	A	125	LYS
1	A	128	ARG
1	A	142	GLU
1	A	158	ILE
1	A	179	ILE
1	A	184	ARG
1	A	193	ARG
1	A	194	ASN
1	A	198	ARG
1	A	233	ARG
1	A	242	ARG
2	B	4	ARG
2	B	5	LYS
2	B	6	PHE
2	B	14	LEU
2	B	24	ARG
2	B	36	ASP
2	B	53	MET
2	B	65	SER

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Mol	Chain	Res	Type
2	B	74	GLU
2	B	77	THR
2	B	78	ILE
2	B	94	GLU
2	B	99	LEU
2	B	104	THR
2	B	114	CYS
2	B	124	LYS
2	B	128	LYS
2	B	138	GLN
2	B	145	GLN
2	B	154	LYS
2	B	158	GLN
2	B	160	ILE
2	B	162	VAL
2	B	168	MET
2	B	173	LEU
2	B	181	MET
2	B	207	VAL
2	B	223	THR
2	B	234	ARG
2	B	244	THR
2	B	246	ARG
2	B	254	ILE
2	B	261	ARG
2	B	262	VAL
2	B	286	LYS
2	B	298	LEU
2	B	308	ASP
2	B	309	LEU
2	B	310	SER
2	B	322	HIS
2	B	337	VAL
2	B	340	THR
2	B	343	ARG
2	B	349	LYS
2	B	351	LEU
2	B	352	LEU
2	B	354	GLN
2	B	358	ARG
2	B	369	ASP
2	B	376	HIS

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Mol	Chain	Res	Type
2	B	381	THR
2	B	386	LYS
3	C	33	ARG
3	C	35	ASP
3	C	42	THR
3	C	63	SER
3	C	71	ARG
3	C	73	VAL
3	C	85	HIS
3	C	95	MET
3	C	100	ARG
3	C	118	THR
3	C	121	ARG
3	C	125	CYS
3	C	188	ARG
3	C	202	ILE
3	C	208	CYS
3	C	213	GLU
3	C	219	LYS
3	C	228	THR
3	C	230	LEU
3	C	234	LYS
3	C	246	VAL
3	C	248	ARG
3	C	260	LEU
3	C	261	ASP
3	C	262	ASP
3	C	267	TRP
3	C	284	MET
3	C	289	LEU
3	C	297	GLU
3	C	307	LYS
3	C	312	ARG
3	C	323	ARG
3	C	348	LYS
3	C	351	VAL
3	C	353	ARG
4	D	7	VAL
4	D	23	ARG
4	D	33	ARG
4	D	34	LYS
4	D	36	LEU

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Mol	Chain	Res	Type
4	D	43	LYS
4	D	45	ASN
4	D	50	ARG
4	D	59	ASP
4	D	93	THR
4	D	104	LEU
4	D	136	ASP
4	D	138	GLN
4	D	143	THR
4	D	146	LEU
4	D	163	LEU
4	D	189	GLU
4	D	191	ASN
4	D	193	GLU
4	D	206	ASP
4	D	207	TYR
4	D	224	SER
4	D	225	GLN
4	D	234	ASP
4	D	238	GLU
4	D	277	LYS
4	D	279	ARG
5	E	52	LEU
5	E	112	LEU
5	E	117	ARG
5	E	123	ASP
5	E	126	ARG
5	E	133	LYS
5	E	140	VAL
5	E	141	ARG
5	E	143	LEU
5	E	144	ARG
5	E	164	ARG
5	E	178	VAL
5	E	182	LEU
5	E	194	GLN
5	E	202	THR
5	E	219	TYR
5	E	243	TYR
5	E	261	LEU
5	E	278	PHE
5	E	281	THR

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Mol	Chain	Res	Type
5	E	289	LEU
6	F	24	PHE
6	F	41	LEU
6	F	88	LEU
6	F	115	GLN
6	F	120	THR
6	F	122	VAL
6	F	136	GLU
6	F	148	SER
6	F	151	GLU
6	F	170	ASP
6	F	188	ASP
6	F	189	LEU
6	F	205	ASN
6	F	214	SER
6	F	228	GLU
6	F	231	ASP
6	F	237	ASP
6	F	245	ARG
7	G	96	GLN
7	G	128	LYS
7	G	143	GLN
7	G	198	THR
7	G	213	ASP
7	G	223	LEU
7	G	242	ARG
7	G	249	ARG
7	G	251	THR
7	G	252	CYS
7	G	263	GLU
7	G	265	LYS
7	G	268	LEU
7	G	281	ASP
7	G	282	ARG
7	G	284	ASP
7	G	285	GLU
7	G	293	ASN
7	G	295	LEU
8	H	1	MET
8	H	3	THR
8	H	18	ILE
8	H	35	ARG

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Mol	Chain	Res	Type
8	H	41	ILE
8	H	65	LYS
8	H	89	ARG
8	H	106	GLN
8	H	117	PHE
8	H	127	ARG
9	I	12	CYS
9	I	13	LYS
9	I	36	LEU
9	I	43	VAL
9	I	55	ASP
9	I	61	SER
9	I	71	CYS
9	I	74	LYS
9	I	76	MET
9	I	83	ASP
9	I	88	ARG
9	I	101	LYS
9	I	126	VAL
9	I	131	ILE
9	I	138	ILE
9	I	139	ARG
9	I	142	LEU
9	I	144	ASN
9	I	154	ARG
9	I	163	GLN
9	I	167	ILE
10	J	16	ARG
10	J	51	SER
10	J	52	LYS
10	J	60	PHE
10	J	66	GLU
10	J	81	GLU
10	J	90	ARG
10	J	101	ASP
10	J	168	GLN
10	J	175	LEU
11	L	4	SER
11	L	9	ILE
11	L	10	LEU
11	L	20	ARG
11	L	27	ASN

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Mol	Chain	Res	Type
11	L	67	HIS
11	L	74	ARG
11	L	107	THR
11	L	154	VAL
11	L	159	ASN
11	L	162	LYS
11	L	172	GLU
11	L	206	ASP
12	M	8	GLU
12	M	11	ARG
12	M	29	ASP
12	M	37	LEU
12	M	54	CYS
12	M	62	LEU
12	M	66	HIS
12	M	89	THR
12	M	90	ARG
12	M	95	ILE
12	M	96	GLU
12	M	104	MET
12	M	116	LYS
12	M	119	ARG
12	M	124	LYS
12	M	125	ASN
12	M	132	ARG
13	N	29	GLN
13	N	43	THR
13	N	49	ARG
13	N	64	ILE
13	N	65	ARG
13	N	75	VAL
13	N	77	LYS
13	N	89	VAL
13	N	90	ASN
13	N	92	LEU
13	N	97	SER
13	N	104	GLU
13	N	126	THR
13	N	134	LEU
13	N	143	ARG
13	N	145	ASN
13	N	174	LEU

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Mol	Chain	Res	Type
13	N	178	HIS
13	N	182	HIS
13	N	198	LEU
13	N	204	ARG
14	O	7	LEU
14	O	36	VAL
14	O	39	GLU
14	O	42	ASN
14	O	43	ILE
14	O	52	LEU
14	O	61	ARG
14	O	68	ARG
14	O	74	ARG
14	O	83	THR
14	O	94	ARG
14	O	96	GLN
14	O	113	ASP
14	O	117	ARG
14	O	125	LYS
14	O	141	LEU
14	O	148	LYS
14	O	153	THR
14	O	155	THR
14	O	159	LYS
14	O	160	ARG
14	O	163	LYS
14	O	173	GLN
14	O	174	LEU
14	O	183	LYS
14	O	202	LEU
15	P	10	ASN
15	P	14	SER
15	P	24	VAL
15	P	26	PHE
15	P	31	GLU
15	P	34	GLN
15	P	57	CYS
15	P	62	ARG
15	P	79	THR
15	P	93	HIS
15	P	95	LEU
15	P	96	LYS

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Mol	Chain	Res	Type
15	P	103	GLU
15	P	104	LEU
15	P	120	ASN
15	P	129	THR
15	P	149	ILE
15	P	154	GLU
16	Q	5	ILE
16	Q	13	VAL
16	Q	17	GLU
16	Q	22	ASP
16	Q	23	ILE
16	Q	28	LEU
16	Q	29	VAL
16	Q	38	ARG
16	Q	54	SER
16	Q	55	ARG
16	Q	61	LEU
16	Q	72	LEU
16	Q	77	ASN
16	Q	78	LYS
16	Q	91	ARG
16	Q	104	ARG
16	Q	112	ARG
16	Q	115	LYS
16	Q	126	LEU
16	Q	129	ASP
16	Q	138	LEU
16	Q	150	ARG
16	Q	158	THR
16	Q	161	SER
16	Q	168	ARG
16	Q	172	ARG
16	Q	187	LYS
17	R	5	ARG
17	R	10	LEU
17	R	13	SER
17	R	36	ASN
17	R	39	GLN
17	R	50	ILE
17	R	60	ARG
17	R	75	HIS
17	R	81	ARG

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Mol	Chain	Res	Type
17	R	82	LYS
17	R	84	THR
17	R	89	MET
17	R	99	MET
17	R	105	LEU
17	R	117	ARG
17	R	123	LEU
17	R	154	LEU
17	R	155	LEU
17	R	160	GLU
17	R	164	SER
17	R	178	GLN
18	S	7	LEU
18	S	16	CYS
18	S	57	SER
18	S	82	LEU
18	S	92	ASN
18	S	93	MET
18	S	101	THR
18	S	102	THR
18	S	109	CYS
18	S	111	ARG
18	S	112	ASP
18	S	131	GLU
18	S	132	ILE
18	S	142	VAL
18	S	159	LEU
18	S	168	THR
18	S	175	PHE
19	T	3	ASN
19	T	5	LYS
19	T	32	ARG
19	T	41	ASP
19	T	49	GLN
19	T	50	LYS
19	T	56	CYS
19	T	74	ILE
19	T	76	VAL
19	T	78	LYS
19	T	80	VAL
19	T	96	ILE
19	T	120	LYS

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Mol	Chain	Res	Type
19	T	136	ARG
19	T	142	ARG
19	T	144	ASN
19	T	146	LYS
20	U	63	LEU
20	U	83	LEU
20	U	87	THR
20	U	101	ARG
21	V	15	ARG
21	V	18	LEU
21	V	22	VAL
21	V	25	VAL
21	V	26	ILE
21	V	28	CYS
21	V	41	SER
21	V	46	LYS
21	V	48	ARG
21	V	64	THR
21	V	75	LYS
21	V	77	HIS
21	V	82	ILE
21	V	85	ARG
21	V	108	ASN
21	V	123	LYS
21	V	124	GLU
22	W	23	ARG
22	W	25	ASP
22	W	32	LEU
22	W	41	LEU
22	W	86	SER
23	X	39	LYS
23	X	45	THR
23	X	52	LEU
23	X	53	ARG
23	X	57	GLN
23	X	81	LEU
23	X	89	LYS
23	X	91	GLU
23	X	101	ASP
23	X	123	LYS
23	X	127	LEU
23	X	131	ASP

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Mol	Chain	Res	Type
24	Y	2	LYS
24	Y	8	THR
24	Y	11	ARG
24	Y	14	ASN
24	Y	28	LYS
24	Y	31	SER
24	Y	34	LEU
24	Y	50	ARG
24	Y	58	VAL
24	Y	63	LYS
24	Y	72	GLN
24	Y	76	LYS
24	Y	89	LYS
24	Y	102	SER
24	Y	104	VAL
24	Y	105	VAL
24	Y	107	THR
24	Y	110	LYS
24	Y	112	ASP
24	Y	126	ARG
25	Z	33	THR
25	Z	35	ASP
25	Z	46	ILE
25	Z	53	VAL
25	Z	62	ILE
25	Z	64	LYS
25	Z	67	LYS
25	Z	71	PHE
25	Z	83	THR
25	Z	86	SER
25	Z	93	LYS
25	Z	99	ASP
25	Z	111	ARG
25	Z	124	THR
25	Z	126	LYS
25	Z	127	ASN
26	a	4	ARG
26	a	8	THR
26	a	21	ARG
26	a	24	LYS
26	a	25	HIS
26	a	29	PRO

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Mol	Chain	Res	Type
26	a	44	ASN
26	a	46	ASP
26	a	76	ASP
26	a	81	LEU
26	a	82	VAL
26	a	105	ARG
26	a	120	GLN
26	a	122	VAL
26	a	132	ARG
27	b	27	GLN
27	b	31	SER
27	b	50	ASN
27	b	75	LEU
28	c	23	LYS
28	c	52	CYS
28	c	55	LEU
28	c	56	ARG
28	c	65	MET
28	c	81	LEU
28	c	83	THR
28	c	89	TYR
28	c	90	ARG
28	c	91	VAL
28	c	92	CYS
28	c	94	LEU
29	d	44	ARG
29	d	48	GLU
29	d	69	ASN
29	d	84	ILE
29	d	115	LYS
29	d	117	LEU
29	d	119	THR
30	e	18	LYS
30	e	41	ILE
30	e	47	ARG
30	e	48	ARG
30	e	52	GLN
30	e	54	LEU
30	e	63	ASN
30	e	70	LEU
30	e	86	GLU
30	e	89	LEU

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Mol	Chain	Res	Type
30	e	94	SER
30	e	102	ASN
30	e	122	VAL
30	e	123	THR
31	f	7	CYS
31	f	10	ILE
31	f	16	ARG
31	f	20	ASN
31	f	24	HIS
31	f	28	LEU
31	f	40	GLU
31	f	51	TYR
31	f	52	LYS
31	f	56	ASN
31	f	68	ARG
31	f	73	LYS
31	f	76	ARG
31	f	84	VAL
31	f	100	ARG
32	g	11	LEU
32	g	21	ARG
32	g	24	ARG
32	g	25	THR
32	g	29	ARG
32	g	46	CYS
32	g	54	ARG
32	g	61	PRO
32	g	68	SER
32	g	74	VAL
32	g	98	GLU
32	g	114	GLN
33	h	4	ILE
33	h	13	LYS
33	h	15	GLU
33	h	17	LEU
33	h	22	ASP
33	h	70	ARG
33	h	77	LYS
33	h	78	TYR
33	h	88	THR
33	h	89	ARG
33	h	96	ASN

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Mol	Chain	Res	Type
33	h	114	TYR
34	i	4	ARG
34	i	12	ASN
34	i	29	ARG
34	i	44	ILE
34	i	48	CYS
34	i	59	GLU
34	i	60	LEU
34	i	66	ASP
34	i	89	GLU
35	j	2	THR
35	j	12	ARG
35	j	17	THR
35	j	20	ARG
35	j	42	LYS
35	j	43	ARG
35	j	45	ARG
35	j	46	LYS
35	j	55	ARG
35	j	58	THR
36	k	6	GLU
36	k	7	GLU
36	k	19	ASP
36	k	27	LYS
36	k	31	ASN
36	k	58	GLN
36	k	69	LEU
37	l	8	ARG
37	l	9	ILE
37	l	11	ARG
37	l	33	ASN
37	l	36	ARG
37	l	38	ASN
37	l	41	ARG
37	l	45	ARG
38	m	55	SER
38	m	57	ARG
38	m	72	LYS
38	m	77	LEU
38	m	82	VAL
38	m	92	THR
38	m	93	ASN

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Mol	Chain	Res	Type
38	m	96	ARG
39	n	9	ARG
39	n	19	LYS
39	n	20	MET
40	o	9	ARG
40	o	32	SER
40	o	33	LEU
40	o	45	GLN
40	o	57	ARG
40	o	59	LYS
40	o	62	THR
40	o	64	LYS
40	o	71	GLU
40	o	72	CYS
40	o	82	MET
40	o	83	LEU
40	o	88	CYS
40	o	96	ASP
40	o	97	LYS
40	o	105	GLN
41	p	4	ARG
41	p	7	LYS
41	p	17	ARG
41	p	28	LYS
41	p	29	ILE
41	p	33	GLN
41	p	47	MET
41	p	50	ARG
41	p	63	THR
41	p	73	THR
41	p	78	THR
41	p	79	VAL
41	p	84	ARG
41	p	85	ARG
42	r	4	HIS
42	r	18	ILE
42	r	32	LEU
42	r	37	SER
42	r	39	ARG
42	r	70	GLN
42	r	78	VAL
42	r	85	ASN

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Mol	Chain	Res	Type
42	r	103	HIS
42	r	106	LEU
42	r	118	LEU
42	r	121	GLN
43	s	33	ASP
43	s	61	MET
43	s	94	ASP
43	s	95	LEU
43	s	149	ARG
44	t	17	CYS
44	t	37	LEU
44	t	98	ILE
44	t	117	ARG
44	t	119	ARG
44	t	125	LEU
44	t	141	CYS
44	t	147	HIS
44	t	156	ASN
48	K	25	ARG
48	K	28	PHE
48	K	29	LEU
48	K	63	PHE
48	K	85	MET
48	K	93	LEU
48	K	111	LEU
48	K	118	LYS
48	K	130	LYS
48	K	134	PHE
48	K	144	MET
48	K	156	LYS
48	K	164	CYS
48	K	193	LEU
48	K	194	LEU
48	K	204	LEU
48	K	206	ILE
48	K	214	GLN
51	BB	9	GLN
51	BB	11	LYS
51	BB	50	ASN
51	BB	107	THR
51	BB	109	THR
51	BB	117	ARG

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Mol	Chain	Res	Type
51	BB	136	GLU
51	BB	141	ASN
51	BB	142	LEU
51	BB	158	ASP
51	BB	200	ASP
52	CC	47	THR
52	CC	75	GLN
52	CC	94	LYS
52	CC	105	LEU
52	CC	107	ARG
52	CC	125	VAL
52	CC	161	VAL
52	CC	167	LYS
52	CC	173	THR
52	CC	175	GLU
52	CC	180	ASP
52	CC	196	ASP
52	CC	212	VAL
52	CC	213	ARG
52	CC	225	LEU
53	DD	78	LEU
53	DD	85	SER
53	DD	107	LEU
53	DD	116	THR
53	DD	117	ARG
53	DD	121	ARG
53	DD	123	ARG
53	DD	157	LEU
53	DD	160	LEU
53	DD	172	ASN
53	DD	192	LEU
53	DD	194	ARG
53	DD	206	SER
53	DD	212	LYS
53	DD	213	LEU
53	DD	225	SER
53	DD	227	ARG
53	DD	236	PHE
53	DD	245	SER
53	DD	254	ASP
53	DD	255	LEU
53	DD	259	THR

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Mol	Chain	Res	Type
53	DD	277	HIS
54	EE	11	PHE
54	EE	17	PHE
54	EE	23	GLU
54	EE	32	ASP
54	EE	39	VAL
54	EE	76	ARG
54	EE	93	THR
54	EE	94	ARG
54	EE	103	GLU
54	EE	106	ARG
54	EE	117	ARG
54	EE	134	CYS
54	EE	139	SER
54	EE	142	LEU
54	EE	145	GLN
54	EE	146	ARG
54	EE	153	VAL
54	EE	154	ASP
54	EE	162	ASP
54	EE	167	TYR
54	EE	168	VAL
54	EE	169	ASP
54	EE	177	LEU
54	EE	178	ARG
54	EE	213	PRO
54	EE	215	ASP
54	EE	224	SER
54	EE	227	LYS
55	FF	6	LYS
55	FF	24	THR
55	FF	39	ARG
55	FF	41	CYS
55	FF	59	ASP
55	FF	67	GLN
55	FF	73	ASP
55	FF	77	ARG
55	FF	101	LEU
55	FF	140	VAL
55	FF	151	ASP
55	FF	158	ASP
55	FF	159	THR

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Mol	Chain	Res	Type
55	FF	172	PHE
55	FF	174	LYS
55	FF	176	ASP
55	FF	179	ASN
55	FF	197	ASN
55	FF	199	GLU
55	FF	200	ARG
55	FF	220	THR
55	FF	221	ARG
55	FF	233	LYS
55	FF	235	TRP
55	FF	238	LEU
55	FF	245	ARG
55	FF	253	ASP
55	FF	260	GLN
56	GG	25	THR
56	GG	29	GLN
56	GG	55	ARG
56	GG	63	LYS
56	GG	66	CYS
56	GG	83	ASN
56	GG	88	MET
56	GG	107	ASN
56	GG	124	ASP
56	GG	135	ARG
56	GG	137	GLN
56	GG	140	ASP
56	GG	145	ARG
56	GG	154	LEU
56	GG	155	CYS
56	GG	172	CYS
56	GG	173	LEU
57	HH	6	SER
57	HH	12	CYS
57	HH	19	ASP
57	HH	41	LEU
57	HH	63	MET
57	HH	96	SER
57	HH	98	ARG
57	HH	107	SER
57	HH	108	VAL
57	HH	133	LEU

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Mol	Chain	Res	Type
57	HH	139	SER
57	HH	141	ILE
57	HH	154	ARG
57	HH	175	LYS
57	HH	177	GLN
57	HH	183	ARG
57	HH	201	LYS
57	HH	213	LEU
58	II	17	ASP
58	II	24	SER
58	II	36	LEU
58	II	40	LEU
58	II	50	GLU
58	II	69	LEU
58	II	72	PHE
58	II	76	GLN
58	II	82	GLU
58	II	95	ILE
58	II	98	ARG
58	II	101	LEU
58	II	105	THR
58	II	106	ARG
58	II	113	LYS
58	II	116	ARG
58	II	122	LEU
58	II	134	VAL
58	II	149	ASP
58	II	166	VAL
58	II	171	GLU
58	II	179	LYS
58	II	184	ASP
58	II	186	ASN
58	II	191	GLU
59	JJ	7	ASN
59	JJ	12	ARG
59	JJ	18	ARG
59	JJ	21	TYR
59	JJ	29	LEU
59	JJ	35	ASN
59	JJ	36	THR
59	JJ	47	ARG
59	JJ	49	ARG

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Mol	Chain	Res	Type
59	JJ	73	THR
59	JJ	76	THR
59	JJ	82	VAL
59	JJ	88	ASN
59	JJ	139	LYS
59	JJ	141	ARG
59	JJ	142	SER
59	JJ	168	GLN
59	JJ	188	TYR
59	JJ	191	GLU
59	JJ	193	LYS
59	JJ	203	LYS
60	KK	12	THR
60	KK	27	GLN
60	KK	29	LEU
60	KK	38	ARG
60	KK	42	GLU
60	KK	69	ARG
60	KK	70	ARG
60	KK	79	ARG
60	KK	83	ARG
60	KK	88	ASP
60	KK	89	GLU
60	KK	94	LEU
60	KK	97	ILE
60	KK	103	GLU
60	KK	104	ASP
60	KK	106	LEU
60	KK	119	LEU
60	KK	131	ARG
61	LL	2	LEU
61	LL	6	LYS
61	LL	20	VAL
61	LL	35	LEU
61	LL	72	THR
61	LL	81	ASP
61	LL	95	ARG
62	MM	7	GLU
62	MM	8	ARG
62	MM	11	GLN
62	MM	18	GLN
62	MM	20	LYS

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Mol	Chain	Res	Type
62	MM	37	TYR
62	MM	42	LEU
62	MM	56	ILE
62	MM	69	ARG
62	MM	74	SER
62	MM	82	MET
62	MM	85	THR
62	MM	114	SER
62	MM	121	GLN
62	MM	122	ILE
62	MM	126	VAL
62	MM	132	ARG
62	MM	134	LEU
62	MM	146	THR
62	MM	147	LYS
63	NN	14	VAL
63	NN	15	ASN
63	NN	33	ARG
63	NN	45	ARG
63	NN	55	ASN
64	OO	12	SER
64	OO	14	SER
64	OO	27	LYS
64	OO	39	LYS
64	OO	42	LYS
64	OO	43	LYS
64	OO	55	ARG
64	OO	60	VAL
64	OO	62	GLN
64	OO	76	LYS
64	OO	83	ASP
64	OO	84	LEU
64	OO	86	GLU
64	OO	94	LYS
64	OO	125	LEU
64	OO	140	LYS
64	OO	149	LEU
65	PP	25	GLU
65	PP	41	PHE
65	PP	50	LYS
65	PP	85	CYS
65	PP	107	THR

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Mol	Chain	Res	Type
65	PP	128	ARG
65	PP	130	GLU
65	PP	137	SER
65	PP	138	ASP
65	PP	140	THR
65	PP	143	LYS
65	PP	146	ARG
65	PP	147	ARG
65	PP	150	ARG
65	PP	151	LEU
66	QQ	13	ARG
66	QQ	15	PHE
66	QQ	29	SER
66	QQ	37	TYR
66	QQ	41	GLN
66	QQ	45	LEU
66	QQ	56	LEU
66	QQ	60	LEU
66	QQ	64	LYS
66	QQ	70	MET
66	QQ	74	GLU
66	QQ	84	ILE
67	RR	31	LEU
67	RR	41	MET
67	RR	72	VAL
67	RR	123	ASP
67	RR	126	ARG
67	RR	127	CYS
67	RR	145	TYR
67	RR	146	ARG
68	SS	5	ARG
68	SS	7	LYS
68	SS	8	THR
68	SS	16	ILE
68	SS	30	THR
68	SS	37	GLU
68	SS	44	LYS
68	SS	70	SER
68	SS	81	ARG
68	SS	101	ASP
68	SS	127	ASN
69	TT	8	LYS

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Mol	Chain	Res	Type
69	TT	19	ASN
69	TT	49	ASP
69	TT	52	LEU
69	TT	71	MET
69	TT	72	GLN
69	TT	83	PHE
69	TT	85	ASN
69	TT	111	LEU
69	TT	115	LYS
69	TT	132	ARG
69	TT	136	THR
70	UU	10	ASN
70	UU	28	LEU
70	UU	62	ARG
70	UU	67	ARG
70	UU	85	ASN
70	UU	87	VAL
70	UU	90	SER
70	UU	116	ASP
71	VV	26	SER
71	VV	48	LEU
71	VV	61	LEU
71	VV	65	THR
71	VV	72	GLU
71	VV	74	SER
71	VV	75	LYS
71	VV	78	ASP
71	VV	84	ILE
71	VV	88	LEU
71	VV	106	ILE
71	VV	111	GLU
71	VV	115	THR
72	WW	10	ASP
72	WW	11	LEU
72	WW	42	VAL
72	WW	50	PHE
72	WW	70	LEU
72	WW	82	ASN
73	XX	7	LEU
73	XX	14	ILE
73	XX	30	CYS
73	XX	36	ARG

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Mol	Chain	Res	Type
73	XX	72	CYS
73	XX	83	LEU
73	XX	91	ASN
73	XX	93	LEU
73	XX	103	VAL
73	XX	104	LEU
73	XX	111	MET
73	XX	114	GLU
74	YY	4	CYS
74	YY	5	ARG
74	YY	19	ASP
74	YY	20	GLN
74	YY	36	LEU
74	YY	53	GLU
74	YY	58	GLU
74	YY	64	SER
74	YY	67	ARG
74	YY	84	PHE
74	YY	130	LEU
74	YY	139	GLU
74	YY	140	ARG
75	ZZ	16	ARG
75	ZZ	17	LEU
75	ZZ	20	ARG
75	ZZ	23	MET
75	ZZ	32	LYS
75	ZZ	35	VAL
75	ZZ	49	LYS
75	ZZ	53	ASP
75	ZZ	68	LYS
75	ZZ	70	THR
75	ZZ	72	PHE
75	ZZ	78	SER
75	ZZ	79	LEU
75	ZZ	96	LEU
75	ZZ	101	LYS
75	ZZ	110	ARG
75	ZZ	120	THR
76	aa	42	ASP
76	aa	69	THR
77	bb	5	ARG
77	bb	24	THR

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Mol	Chain	Res	Type
77	bb	29	CYS
77	bb	32	LYS
77	bb	38	LYS
77	bb	41	ILE
77	bb	43	ASN
77	bb	46	GLU
77	bb	52	ASP
77	bb	88	SER
77	bb	102	ARG
78	cc	13	GLU
78	cc	26	GLN
78	cc	27	SER
78	cc	52	THR
78	cc	61	THR
78	cc	67	THR
78	cc	77	CYS
79	dd	66	ARG
80	ee	14	PHE
80	ee	26	ASN
80	ee	27	ARG
80	ee	30	LEU
80	ee	48	LYS
81	ff	76	HIS
81	ff	95	GLN
81	ff	97	LYS
81	ff	99	LYS
81	ff	104	ARG
81	ff	124	LYS
82	gg	83	LYS
82	gg	85	TYR
82	gg	86	THR
82	gg	91	ASN
82	gg	96	LYS
82	gg	138	ARG
83	hh	15	ASN
83	hh	36	ARG
83	hh	37	ASP
83	hh	38	LYS
83	hh	64	HIS
83	hh	79	LEU
83	hh	87	LEU
83	hh	107	ASP

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Mol	Chain	Res	Type
83	hh	126	ASP
83	hh	140	TYR
83	hh	144	ASP
83	hh	145	GLU
83	hh	149	GLU
83	hh	152	SER
83	hh	153	CYS
83	hh	184	LEU
83	hh	187	ASN
83	hh	191	HIS
83	hh	192	THR
83	hh	195	LEU
83	hh	196	ASN
83	hh	197	THR
83	hh	206	LEU
83	hh	207	CYS
83	hh	212	LYS
83	hh	220	ASP
83	hh	273	GLU
83	hh	287	THR
83	hh	289	LEU
84	jj	32	THR
84	jj	33	SER
84	jj	37	LEU
84	jj	63	LYS
84	jj	65	ARG
84	jj	67	ASN
84	jj	76	THR
84	jj	101	VAL
84	jj	124	LEU
84	jj	128	ASP
84	jj	157	LEU
84	jj	162	GLN
84	jj	166	ARG
84	jj	188	LEU
84	jj	189	ARG
84	jj	194	ARG
84	jj	202	VAL
84	jj	214	ILE
84	jj	217	ASP
84	jj	232	PHE
84	jj	233	LYS

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Mol	Chain	Res	Type
84	jj	245	ARG
84	jj	255	ASP
84	jj	257	SER
84	jj	258	TYR
84	jj	270	LEU
84	jj	280	PHE
84	jj	289	ARG
84	jj	292	ASP
84	jj	300	LYS
84	jj	340	GLU
84	jj	347	THR
84	jj	368	LEU
84	jj	393	THR
84	jj	420	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (147) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	100	ASN
2	B	42	HIS
2	B	165	HIS
2	B	167	GLN
2	B	179	HIS
2	B	271	GLN
3	C	61	GLN
3	C	119	GLN
3	C	338	ASN
4	D	45	ASN
4	D	222	GLN
5	E	185	ASN
5	E	259	GLN
5	E	269	GLN
6	F	98	ASN
6	F	205	ASN
6	F	238	GLN
7	G	206	GLN
7	G	293	ASN
8	H	106	GLN
8	H	108	ASN
8	H	156	ASN
9	I	92	HIS
9	I	100	ASN

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Mol	Chain	Res	Type
9	I	163	GLN
10	J	155	HIS
11	L	19	GLN
11	L	40	GLN
11	L	67	HIS
13	N	8	GLN
13	N	37	HIS
13	N	91	GLN
13	N	99	GLN
13	N	145	ASN
13	N	199	GLN
14	O	5	GLN
14	O	96	GLN
14	O	173	GLN
15	P	80	GLN
15	P	120	ASN
16	Q	57	ASN
17	R	36	ASN
17	R	39	GLN
17	R	40	GLN
18	S	50	GLN
18	S	146	HIS
19	T	77	ASN
19	T	90	ASN
19	T	127	GLN
20	U	94	ASN
21	V	36	ASN
21	V	50	ASN
21	V	107	ASN
21	V	108	ASN
23	X	125	ASN
24	Y	14	ASN
24	Y	56	GLN
24	Y	65	GLN
24	Y	127	GLN
25	Z	79	HIS
25	Z	97	ASN
26	a	28	HIS
26	a	120	GLN
27	b	12	GLN
29	d	18	ASN
29	d	69	ASN

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Mol	Chain	Res	Type
29	d	93	ASN
29	d	118	GLN
30	e	52	GLN
31	f	56	ASN
32	g	114	GLN
33	h	96	ASN
34	i	20	ASN
36	k	28	ASN
36	k	31	ASN
37	l	20	ASN
37	l	33	ASN
37	l	38	ASN
38	m	61	GLN
38	m	83	ASN
38	m	91	HIS
40	o	25	GLN
40	o	76	ASN
41	p	33	GLN
42	r	70	GLN
43	s	39	GLN
43	s	139	GLN
43	s	176	ASN
48	K	158	GLN
48	K	171	HIS
48	K	184	HIS
48	K	200	ASN
48	K	214	GLN
52	CC	157	GLN
52	CC	158	HIS
52	CC	159	GLN
52	CC	202	GLN
54	EE	74	GLN
55	FF	67	GLN
55	FF	224	ASN
55	FF	232	ASN
56	GG	29	GLN
56	GG	83	ASN
56	GG	114	ASN
56	GG	118	ASN
57	HH	110	ASN
57	HH	177	GLN
57	HH	186	GLN

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Mol	Chain	Res	Type
57	HH	202	ASN
58	II	25	GLN
58	II	97	GLN
58	II	163	GLN
59	JJ	7	ASN
59	JJ	35	ASN
59	JJ	84	ASN
59	JJ	111	GLN
60	KK	75	ASN
60	KK	111	GLN
60	KK	113	GLN
61	LL	7	ASN
62	MM	18	GLN
62	MM	100	ASN
63	NN	19	GLN
63	NN	55	ASN
63	NN	82	ASN
64	OO	5	HIS
64	OO	62	GLN
64	OO	138	ASN
66	QQ	103	ASN
67	RR	48	GLN
67	RR	86	GLN
68	SS	31	ASN
69	TT	76	GLN
69	TT	97	GLN
70	UU	10	ASN
70	UU	85	ASN
72	WW	35	ASN
72	WW	47	ASN
73	XX	113	HIS
75	ZZ	85	ASN
77	bb	7	ASN
78	cc	49	HIS
79	dd	29	GLN
81	ff	88	GLN
83	hh	143	GLN
84	jj	67	ASN
84	jj	200	ASN

5.3.3 RNA (i)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
45	5	3562/3594 (99%)	1631 (45%)	283 (7%)
46	7	118/119 (99%)	40 (33%)	5 (4%)
47	8	149/151 (98%)	61 (40%)	5 (3%)
49	2	1681/1697 (99%)	713 (42%)	107 (6%)
50	3	86/87 (98%)	44 (51%)	5 (5%)
85	4	193/194 (99%)	123 (63%)	28 (14%)
All	All	5789/5842 (99%)	2612 (45%)	433 (7%)

All (2612) RNA backbone outliers are listed below:

Mol	Chain	Res	Type
45	5	6	C
45	5	9	C
45	5	10	A
45	5	12	A
45	5	13	U
45	5	14	C
45	5	16	G
45	5	18	C
45	5	19	G
45	5	22	G
45	5	25	A
45	5	26	C
45	5	28	C
45	5	35	U
45	5	37	U
45	5	38	A
45	5	39	A
45	5	42	A
45	5	44	A
45	5	48	G
45	5	49	U
45	5	56	A
45	5	58	G
45	5	59	A
45	5	64	A
45	5	65	A
45	5	66	A
45	5	68	U
45	5	70	A
45	5	73	A
45	5	74	G
45	5	77	U

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Mol	Chain	Res	Type
45	5	84	A
45	5	88	A
45	5	91	G
45	5	93	G
45	5	94	A
45	5	95	G
45	5	96	U
45	5	97	G
45	5	101	A
45	5	109	G
45	5	118	C
45	5	119	G
45	5	120	A
45	5	121	A
45	5	123	C
45	5	131	C
45	5	133	C
45	5	134	G
45	5	135	G
45	5	136	C
45	5	137	G
45	5	139	G
45	5	142	G
45	5	143	C
45	5	144	G
45	5	145	G
45	5	150	U
45	5	155	C
45	5	158	A
45	5	159	C
45	5	160	G
45	5	166	C
45	5	169	A
45	5	172	C
45	5	173	C
45	5	174	C
45	5	177	G
45	5	178	C
45	5	179	G
45	5	180	C
45	5	181	C
45	5	182	G

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Mol	Chain	Res	Type
45	5	190	G
45	5	191	G
45	5	192	G
45	5	196	C
45	5	197	A
45	5	200	U
45	5	201	C
45	5	202	C
45	5	203	U
45	5	205	C
45	5	209	U
45	5	210	C
45	5	211	G
45	5	216	C
45	5	218	A
45	5	219	G
45	5	220	C
45	5	223	G
45	5	224	U
45	5	225	G
45	5	231	U
45	5	232	G
45	5	233	U
45	5	234	G
45	5	235	A
45	5	236	G
45	5	241	G
45	5	244	G
45	5	246	G
45	5	248	C
45	5	252	C
45	5	254	G
45	5	255	C
45	5	256	G
45	5	257	C
45	5	258	G
45	5	259	C
45	5	260	C
45	5	261	G
45	5	263	G
45	5	264	C
45	5	265	C

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Mol	Chain	Res	Type
45	5	266	C
45	5	267	G
45	5	270	U
45	5	271	C
45	5	276	C
45	5	278	G
45	5	280	G
45	5	282	C
45	5	284	G
45	5	289	C
45	5	294	G
45	5	295	A
45	5	296	A
45	5	297	U
45	5	299	C
45	5	303	C
45	5	305	A
45	5	306	A
45	5	312	G
45	5	315	G
45	5	316	U
45	5	327	U
45	5	333	U
45	5	334	A
45	5	337	U
45	5	340	C
45	5	342	G
45	5	344	A
45	5	345	C
45	5	348	G
45	5	349	A
45	5	350	C
45	5	352	G
45	5	354	U
45	5	357	U
45	5	358	C
45	5	361	C
45	5	363	A
45	5	364	G
45	5	366	A
45	5	378	A
45	5	379	G

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Mol	Chain	Res	Type
45	5	384	A
45	5	385	A
45	5	386	A
45	5	387	G
45	5	389	A
45	5	396	A
45	5	397	G
45	5	399	G
45	5	404	U
45	5	409	G
45	5	410	A
45	5	412	G
45	5	413	G
45	5	414	C
45	5	415	G
45	5	417	G
45	5	422	C
45	5	423	G
45	5	425	U
45	5	429	A
45	5	431	G
45	5	432	U
45	5	436	C
45	5	437	G
45	5	446	C
45	5	448	G
45	5	449	C
45	5	450	G
45	5	452	A
45	5	453	G
45	5	454	U
45	5	455	C
45	5	456	C
45	5	463	A
45	5	464	G
45	5	465	G
45	5	466	A
45	5	467	U
45	5	468	U
45	5	469	C
45	5	470	A
45	5	477	C

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Mol	Chain	Res	Type
45	5	478	G
45	5	479	G
45	5	480	C
45	5	481	G
45	5	482	G
45	5	484	U
45	5	485	C
45	5	487	G
45	5	488	G
45	5	490	C
45	5	492	U
45	5	493	G
45	5	494	C
45	5	495	C
45	5	496	G
45	5	497	G
45	5	498	C
45	5	499	G
45	5	500	G
45	5	505	G
45	5	506	C
45	5	507	G
45	5	508	G
45	5	510	U
45	5	516	C
45	5	518	G
45	5	519	C
45	5	521	C
45	5	522	C
45	5	639	U
45	5	640	C
45	5	643	C
45	5	645	G
45	5	647	G
45	5	650	C
45	5	651	C
45	5	653	C
45	5	654	C
45	5	657	C
45	5	658	C
45	5	659	G
45	5	660	G

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Mol	Chain	Res	Type
45	5	666	G
45	5	667	A
45	5	668	C
45	5	669	C
45	5	672	C
45	5	673	C
45	5	675	C
45	5	677	G
45	5	678	C
45	5	679	C
45	5	684	G
45	5	685	C
45	5	686	A
45	5	688	U
45	5	690	C
45	5	694	C
45	5	695	G
45	5	696	C
45	5	697	G
45	5	700	G
45	5	701	G
45	5	703	G
45	5	704	C
45	5	705	G
45	5	706	C
45	5	714	G
45	5	719	C
45	5	723	A
45	5	730	G
45	5	731	G
45	5	733	A
45	5	734	G
45	5	737	C
45	5	740	G
45	5	747	A
45	5	749	G
45	5	753	C
45	5	754	C
45	5	756	G
45	5	757	G
45	5	758	G
45	5	905	C

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Mol	Chain	Res	Type
45	5	907	C
45	5	908	G
45	5	910	G
45	5	913	U
45	5	914	U
45	5	915	A
45	5	916	C
45	5	917	A
45	5	918	G
45	5	920	C
45	5	921	C
45	5	922(A)	G
45	5	922(B)	C
45	5	923	C
45	5	924	C
45	5	925	C
45	5	926	G
45	5	930	G
45	5	931	C
45	5	932	A
45	5	933	G
45	5	934	C
45	5	935	A
45	5	935(A)	G
45	5	936	C
45	5	943	A
45	5	944	A
45	5	945	U
45	5	954	C
45	5	955	G
45	5	956	A
45	5	957	G
45	5	959	G
45	5	960	A
45	5	961	G
45	5	963	G
45	5	966	A
45	5	967	C
45	5	968	C
45	5	969	C
45	5	970	G
45	5	973	G

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Mol	Chain	Res	Type
45	5	974	C
45	5	978	G
45	5	979	C
45	5	983	C
45	5	984	C
45	5	990	C
45	5	1070	G
45	5	1073	G
45	5	1074	G
45	5	1075	G
45	5	1076	C
45	5	1078	A
45	5	1079	C
45	5	1081	C
45	5	1083	U
45	5	1084	C
45	5	1089	G
45	5	1094	G
45	5	1095	A
45	5	1096	C
45	5	1098	G
45	5	1176	C
45	5	1177	U
45	5	1178	G
45	5	1179	U
45	5	1186	U
45	5	1189	G
45	5	1190	C
45	5	1192	C
45	5	1193	C
45	5	1194	G
45	5	1195	G
45	5	1196	G
45	5	1198	G
45	5	1209	U
45	5	1211	G
45	5	1212	G
45	5	1214	C
45	5	1215	C
45	5	1216	C
45	5	1234	G
45	5	1235	G

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Mol	Chain	Res	Type
45	5	1236	C
45	5	1238	A
45	5	1239	C
45	5	1245	C
45	5	1246	G
45	5	1251	C
45	5	1252	C
45	5	1272	C
45	5	1273	G
45	5	1275	G
45	5	1276	C
45	5	1279	A
45	5	1280	C
45	5	1281	G
45	5	1283	G
45	5	1284	G
45	5	1287	G
45	5	1288	G
45	5	1292	C
45	5	1293	G
45	5	1294	A
45	5	1295	U
45	5	1296	G
45	5	1301	C
45	5	1303	A
45	5	1304	C
45	5	1306	C
45	5	1309	C
45	5	1311	G
45	5	1312	A
45	5	1315	C
45	5	1316	G
45	5	1321	G
45	5	1322	A
45	5	1323	A
45	5	1324	A
45	5	1325	C
45	5	1326	A
45	5	1327	C
45	5	1328	G
45	5	1333	A
45	5	1335	G

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Mol	Chain	Res	Type
45	5	1336	G
45	5	1337	A
45	5	1339	U
45	5	1349	G
45	5	1353	G
45	5	1354	A
45	5	1358	G
45	5	1359	G
45	5	1360	G
45	5	1363	C
45	5	1370	G
45	5	1371	A
45	5	1373	A
45	5	1374	G
45	5	1376	C
45	5	1377	G
45	5	1378	C
45	5	1379	C
45	5	1380	G
45	5	1381	U
45	5	1387	A
45	5	1388	A
45	5	1390	G
45	5	1391	A
45	5	1392	A
45	5	1394	G
45	5	1395	U
45	5	1397	A
45	5	1398	A
45	5	1400	G
45	5	1401	C
45	5	1402	C
45	5	1404	G
45	5	1405	C
45	5	1411(C)	C
45	5	1412	G
45	5	1413	C
45	5	1414	C
45	5	1415	G
45	5	1418	C
45	5	1420	A
45	5	1421	G

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Mol	Chain	Res	Type
45	5	1422	G
45	5	1425	G
45	5	1433	A
45	5	1435	G
45	5	1436	C
45	5	1438	U
45	5	1442	C
45	5	1443	A
45	5	1445	U
45	5	1446	C
45	5	1447	C
45	5	1448	G
45	5	1453	G
45	5	1456	C
45	5	1457	G
45	5	1458	C
45	5	1460	C
45	5	1461	C
45	5	1469	C
45	5	1470	G
45	5	1471	U
45	5	1474	C
45	5	1475	G
45	5	1476	C
45	5	1477	C
45	5	1478	C
45	5	1480	C
45	5	1481	C
45	5	1483	C
45	5	1484	G
45	5	1487	G
45	5	1489	G
45	5	1491	A
45	5	1492	G
45	5	1495	G
45	5	1497	A
45	5	1498	G
45	5	1501	C
45	5	1502	G
45	5	1503	A
45	5	1504	G
45	5	1511	U

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Mol	Chain	Res	Type
45	5	1513	U
45	5	1514	U
45	5	1515	A
45	5	1516	G
45	5	1518	A
45	5	1519	C
45	5	1521	C
45	5	1523	A
45	5	1528	U
45	5	1531	U
45	5	1532	G
45	5	1534	A
45	5	1535	C
45	5	1536	U
45	5	1538	U
45	5	1539	G
45	5	1543	G
45	5	1547	A
45	5	1548	G
45	5	1556	C
45	5	1558	A
45	5	1559	G
45	5	1560	A
45	5	1562	G
45	5	1565	A
45	5	1566	C
45	5	1578	U
45	5	1584	G
45	5	1586	G
45	5	1588	U
45	5	1589	C
45	5	1591	U
45	5	1592	G
45	5	1593	A
45	5	1594	C
45	5	1596	U
45	5	1598	C
45	5	1601	A
45	5	1602	U
45	5	1603	C
45	5	1609	U
45	5	1611	C

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Mol	Chain	Res	Type
45	5	1612	G
45	5	1613	A
45	5	1614	C
45	5	1615	C
45	5	1616	U
45	5	1618	G
45	5	1624	G
45	5	1625	G
45	5	1628	C
45	5	1631	A
45	5	1632	A
45	5	1633	G
45	5	1634	A
45	5	1637	A
45	5	1640	C
45	5	1641	G
45	5	1642	A
45	5	1651	G
45	5	1653	A
45	5	1654	G
45	5	1656	U
45	5	1658	G
45	5	1661	C
45	5	1666	C
45	5	1675	C
45	5	1676	C
45	5	1677	U
45	5	1678	C
45	5	1679	A
45	5	1680	G
45	5	1684	A
45	5	1685	G
45	5	1688	G
45	5	1689	G
45	5	1691	G
45	5	1692	C
45	5	1694	C
45	5	1695	U
45	5	1696	C
45	5	1721	G
45	5	1722	C
45	5	1727	U

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Mol	Chain	Res	Type
45	5	1728	U
45	5	1730	U
45	5	1731	C
45	5	1734	G
45	5	1735	U
45	5	1740	C
45	5	1741	G
45	5	1742	A
45	5	1743	A
45	5	1744	U
45	5	1746	A
45	5	1748	U
45	5	1750	G
45	5	1754	U
45	5	1756	U
45	5	1761	G
45	5	1762	C
45	5	1763	C
45	5	1764	G
45	5	1765	A
45	5	1766	A
45	5	1768	C
45	5	1772	C
45	5	1773	U
45	5	1774	C
45	5	1775	A
45	5	1776	A
45	5	1778	C
45	5	1782	U
45	5	1785	C
45	5	1787	A
45	5	1795	A
45	5	1802	A
45	5	1803	G
45	5	1804	A
45	5	1805	A
45	5	1806	G
45	5	1820	U
45	5	1821	G
45	5	1825	A
45	5	1826	G
45	5	1828	C

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Mol	Chain	Res	Type
45	5	1831	G
45	5	1832	C
45	5	1833	G
45	5	1834	U
45	5	1835	G
45	5	1836	G
45	5	1837	A
45	5	1842	G
45	5	1843	A
45	5	1845	U
45	5	1850	A
45	5	1851	G
45	5	1854	G
45	5	1855	G
45	5	1856	C
45	5	1858	A
45	5	1869	G
45	5	1871	A
45	5	1874	A
45	5	1875	C
45	5	1880	G
45	5	1881	C
45	5	1882	U
45	5	1889	U
45	5	1890	G
45	5	1891	A
45	5	1892	A
45	5	1893	C
45	5	1896	A
45	5	1897	A
45	5	1899	G
45	5	1902	G
45	5	1903	G
45	5	1912	G
45	5	1913	C
45	5	1916	G
45	5	1918	U
45	5	1920	C
45	5	1921	C
45	5	1922	G
45	5	1929	A
45	5	1931	C

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Mol	Chain	Res	Type
45	5	1932	A
45	5	1933	G
45	5	1936	C
45	5	1937	C
45	5	1941	A
45	5	1942	A
45	5	1943	A
45	5	1948	G
45	5	1957	U
45	5	1960	A
45	5	1961	G
45	5	1962	A
45	5	1963	C
45	5	1965	G
45	5	1966	C
45	5	1970	A
45	5	1971	U
45	5	1972	G
45	5	1973	G
45	5	1974	U
45	5	1976	G
45	5	1977	C
45	5	1978	C
45	5	1980	U
45	5	1982	G
45	5	1983	A
45	5	1984	A
45	5	1985	G
45	5	1986	U
45	5	1987	C
45	5	1988	G
45	5	1990	A
45	5	1991	A
45	5	1992	U
45	5	1993	C
45	5	1994	C
45	5	1996	C
45	5	1997	U
45	5	2001	G
45	5	2002	A
45	5	2003	G
45	5	2004	U

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Mol	Chain	Res	Type
45	5	2005	G
45	5	2011	C
45	5	2014	C
45	5	2015	U
45	5	2017	A
45	5	2018	C
45	5	2023	C
45	5	2024	G
45	5	2025	A
45	5	2026	A
45	5	2028	C
45	5	2029	A
45	5	2031	C
45	5	2033	A
45	5	2035	C
45	5	2036	C
45	5	2041	A
45	5	2043	A
45	5	2047	A
45	5	2048	U
45	5	2049	G
45	5	2052	G
45	5	2054	U
45	5	2055	G
45	5	2056	G
45	5	2063	G
45	5	2069	A
45	5	2074	C
45	5	2076	G
45	5	2079	G
45	5	2084	U
45	5	2085	G
45	5	2086	G
45	5	2088	A
45	5	2089	G
45	5	2090	U
45	5	2091	C
45	5	2092	G
45	5	2093	G
45	5	2094	C
45	5	2095	A
45	5	2096	G

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Mol	Chain	Res	Type
45	5	2097	A
45	5	2098	G
45	5	2099	C
45	5	2100	G
45	5	2101	A
45	5	2102	G
45	5	2104	A
45	5	2105	A
45	5	2107	A
45	5	2108	G
45	5	2109	A
45	5	2259	G
45	5	2260	C
45	5	2261	G
45	5	2263	A
45	5	2264	C
45	5	2265	G
45	5	2266	C
45	5	2267	U
45	5	2268	A
45	5	2271	C
45	5	2277	C
45	5	2279	A
45	5	2280	G
45	5	2284	G
45	5	2289	C
45	5	2291	G
45	5	2296	G
45	5	2297	G
45	5	2298	U
45	5	2300	A
45	5	2301	G
45	5	2302	C
45	5	2303	C
45	5	2306	G
45	5	2307	A
45	5	2313	A
45	5	2314	G
45	5	2318	G
45	5	2319	C
45	5	2325	C
45	5	2328	G

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Mol	Chain	Res	Type
45	5	2329	U
45	5	2331	G
45	5	2333	G
45	5	2336	G
45	5	2337	C
45	5	2340	C
45	5	2346	C
45	5	2348	G
45	5	2349	A
45	5	2350	U
45	5	2351	C
45	5	2352	U
45	5	2353	U
45	5	2364	G
45	5	2365	C
45	5	2366	A
45	5	2367	A
45	5	2369	U
45	5	2373	C
45	5	2374	A
45	5	2376	A
45	5	2377	C
45	5	2380	G
45	5	2381	A
45	5	2384	U
45	5	2385	U
45	5	2387	G
45	5	2395	A
45	5	2398	U
45	5	2409	U
45	5	2412	A
45	5	2413	U
45	5	2414	G
45	5	2415	U
45	5	2417	A
45	5	2418	A
45	5	2422	C
45	5	2423	A
45	5	2424	G
45	5	2425	U
45	5	2426	U
45	5	2432	U

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Mol	Chain	Res	Type
45	5	2437	C
45	5	2438	A
45	5	2439	G
45	5	2441	C
45	5	2444	U
45	5	2445	C
45	5	2447	U
45	5	2450	G
45	5	2456	G
45	5	2466	G
45	5	2467	U
45	5	2468	U
45	5	2469	C
45	5	2470	C
45	5	2471	G
45	5	2473	A
45	5	2475	G
45	5	2476	G
45	5	2477	A
45	5	2482	C
45	5	2484	A
45	5	2488	C
45	5	2489	C
45	5	2490	U
45	5	2491	C
45	5	2492	C
45	5	2494	U
45	5	2495	U
45	5	2496	G
45	5	2501	C
45	5	2503	G
45	5	2504	C
45	5	2505	C
45	5	2506	G
45	5	2509	C
45	5	2510	G
45	5	2511	A
45	5	2512	A
45	5	2513	A
45	5	2514	G
45	5	2515	G
45	5	2517	A

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Mol	Chain	Res	Type
45	5	2521	G
45	5	2525	U
45	5	2530	U
45	5	2531	C
45	5	2532	C
45	5	2533	C
45	5	2536	A
45	5	2539	C
45	5	2540	C
45	5	2544	G
45	5	2545	U
45	5	2546	G
45	5	2547	G
45	5	2548	C
45	5	2552	G
45	5	2553	A
45	5	2554	U
45	5	2555	G
45	5	2558	C
45	5	2560	C
45	5	2561	C
45	5	2565	A
45	5	2566	G
45	5	2569	G
45	5	2570	U
45	5	2571	C
45	5	2575	U
45	5	2576	G
45	5	2578	G
45	5	2582	A
45	5	2583	C
45	5	2585	C
45	5	2586	G
45	5	2587	A
45	5	2588	C
45	5	2589	C
45	5	2590	G
45	5	2593	C
45	5	2596	G
45	5	2597	G
45	5	2598	A
45	5	2599	G

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Mol	Chain	Res	Type
45	5	2600	A
45	5	2601	A
45	5	2602	G
45	5	2611	A
45	5	2615	C
45	5	2618	G
45	5	2625	U
45	5	2626	U
45	5	2627	C
45	5	2631	U
45	5	2633	U
45	5	2634	C
45	5	2638	G
45	5	2639	U
45	5	2640	G
45	5	2641	A
45	5	2646	C
45	5	2648	G
45	5	2651	C
45	5	2656	U
45	5	2658	G
45	5	2659	A
45	5	2661	U
45	5	2662	G
45	5	2669	C
45	5	2671	C
45	5	2673	G
45	5	2684	C
45	5	2686	G
45	5	2687	U
45	5	2688	G
45	5	2690	C
45	5	2693	G
45	5	2694	G
45	5	2696	A
45	5	2697	A
45	5	2703	G
45	5	2706	G
45	5	2707	U
45	5	2708	U
45	5	2709	C
45	5	2710	C

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Mol	Chain	Res	Type
45	5	2711	G
45	5	2712	G
45	5	2714	G
45	5	2715	G
45	5	2716	C
45	5	2721	G
45	5	2726	G
45	5	2730	U
45	5	2732	G
45	5	2735	G
45	5	2740	U
45	5	2741	U
45	5	2743	A
45	5	2744	A
45	5	2746	A
45	5	2749	C
45	5	2751	G
45	5	2756	G
45	5	2758	G
45	5	2760	G
45	5	2761	U
45	5	2762	G
45	5	2763	U
45	5	2764	A
45	5	2768	C
45	5	2769	U
45	5	2770	C
45	5	2775	C
45	5	2777	G
45	5	2782	U
45	5	2787	A
45	5	2788	U
45	5	2789	A
45	5	2790	U
45	5	2791	C
45	5	2793	G
45	5	2794	C
45	5	2795	A
45	5	2796	G
45	5	2798	A
45	5	2799	G
45	5	2800	G

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Mol	Chain	Res	Type
45	5	2806	A
45	5	2807	A
45	5	2808	G
45	5	2811	G
45	5	2812	A
45	5	2813	A
45	5	2814	C
45	5	2815	A
45	5	2817	C
45	5	2825	A
45	5	2826	U
45	5	2827	G
45	5	2828	U
45	5	2832	A
45	5	2833	A
45	5	2834	C
45	5	2835	A
45	5	2838	G
45	5	2839	U
45	5	2840	A
45	5	2841	G
45	5	2842	G
45	5	2844	A
45	5	2849	A
45	5	2850	A
45	5	2855	G
45	5	2857	A
45	5	2862	G
45	5	2863	G
45	5	2867	C
45	5	2871	A
45	5	2873	U
45	5	2874	U
45	5	2875	C
45	5	2876	G
45	5	2878	G
45	5	2883	G
45	5	2884	G
45	5	2885	A
45	5	2891	U
45	5	2900	U
45	5	3598	C

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Mol	Chain	Res	Type
45	5	3600	G
45	5	3602	C
45	5	3604	A
45	5	3606	U
45	5	3615	G
45	5	3616	U
45	5	3621	A
45	5	3625	G
45	5	3626	G
45	5	3629	A
45	5	3632	C
45	5	3633	C
45	5	3635	A
45	5	3637	U
45	5	3641	U
45	5	3642	A
45	5	3643	A
45	5	3644	U
45	5	3647	A
45	5	3648	A
45	5	3649	A
45	5	3659	G
45	5	3662	A
45	5	3669	G
45	5	3671	G
45	5	3672	G
45	5	3673	C
45	5	3674	G
45	5	3675	G
45	5	3680	U
45	5	3683	C
45	5	3684	G
45	5	3685	C
45	5	3689	G
45	5	3690	U
45	5	3691	G
45	5	3692	A
45	5	3696	C
45	5	3698	G
45	5	3699	C
45	5	3700	C
45	5	3702	A

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Mol	Chain	Res	Type
45	5	3711	A
45	5	3712	A
45	5	3713	U
45	5	3715	U
45	5	3718	A
45	5	3720	G
45	5	3724	A
45	5	3727	A
45	5	3728	A
45	5	3729	U
45	5	3730	U
45	5	3731	C
45	5	3733	A
45	5	3734	U
45	5	3742	G
45	5	3745	U
45	5	3748	A
45	5	3749	C
45	5	3750	G
45	5	3752	C
45	5	3753	G
45	5	3756	A
45	5	3760	A
45	5	3762	U
45	5	3765	G
45	5	3769	C
45	5	3771	C
45	5	3773	U
45	5	3776	G
45	5	3777	G
45	5	3780	G
45	5	3781	C
45	5	3783	A
45	5	3784	A
45	5	3785	A
45	5	3786	U
45	5	3788	C
45	5	3789	C
45	5	3791	C
45	5	3792	G
45	5	3793	U
45	5	3794	C

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Mol	Chain	Res	Type
45	5	3795	A
45	5	3797	C
45	5	3801	U
45	5	3807	A
45	5	3808	C
45	5	3809	G
45	5	3810	C
45	5	3811	G
45	5	3812	C
45	5	3814	U
45	5	3817	A
45	5	3819	G
45	5	3828	A
45	5	3835	C
45	5	3838	U
45	5	3839	G
45	5	3840	U
45	5	3847	C
45	5	3858	C
45	5	3861	A
45	5	3865	A
45	5	3867	A
45	5	3873	G
45	5	3876	A
45	5	3877	A
45	5	3878	C
45	5	3879	G
45	5	3880	G
45	5	3882	C
45	5	3890	A
45	5	3894	A
45	5	3898	G
45	5	3900	G
45	5	3901	A
45	5	3902	A
45	5	3905	A
45	5	3906	A
45	5	3907	G
45	5	3908	A
45	5	3914	U
45	5	3915	U
45	5	3916	G

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Mol	Chain	Res	Type
45	5	3917	A
45	5	3919	C
45	5	3921	U
45	5	3923	A
45	5	3925	U
45	5	3926	C
45	5	3930	U
45	5	3936	A
45	5	3938	G
45	5	3941	G
45	5	3942	A
45	5	3943	A
45	5	3949	A
45	5	3951	G
45	5	3952	A
45	5	3953	G
45	5	3955	G
45	5	3956	G
45	5	3958	G
45	5	3961	G
45	5	3964	U
45	5	3965	A
45	5	3966	A
45	5	3968	U
45	5	3969	G
45	5	3970	G
45	5	3971	G
45	5	3972	A
45	5	3975	C
45	5	3976	C
45	5	3977	C
45	5	4035	G
45	5	4039	G
45	5	4041	C
45	5	4045	G
45	5	4048	A
45	5	4049	U
45	5	4050	A
45	5	4051	C
45	5	4052	C
45	5	4053	A
45	5	4054	C

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Mol	Chain	Res	Type
45	5	4055	U
45	5	4056	A
45	5	4057	C
45	5	4062	A
45	5	4064	C
45	5	4065	G
45	5	4066	U
45	5	4067	U
45	5	4068	U
45	5	4069	U
45	5	4070	U
45	5	4072	C
45	5	4075	U
45	5	4076	G
45	5	4077	A
45	5	4079	C
45	5	4084	G
45	5	4085	A
45	5	4086	G
45	5	4087	G
45	5	4088	C
45	5	4091	G
45	5	4092	G
45	5	4095	G
45	5	4096	C
45	5	4097	G
45	5	4099	G
45	5	4100	C
45	5	4109	G
45	5	4110	C
45	5	4113	U
45	5	4114	C
45	5	4115	G
45	5	4116	C
45	5	4117	U
45	5	4118	U
45	5	4119	C
45	5	4120	U
45	5	4121	G
45	5	4122	G
45	5	4123	C
45	5	4124	G

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Mol	Chain	Res	Type
45	5	4127	A
45	5	4128	A
45	5	4129	G
45	5	4132	C
45	5	4133	C
45	5	4134	C
45	5	4135	G
45	5	4136	G
45	5	4137	C
45	5	4147	G
45	5	4148	C
45	5	4152	G
45	5	4157	A
45	5	4158	C
45	5	4159	C
45	5	4162	C
45	5	4163	U
45	5	4164	C
45	5	4166	G
45	5	4167	G
45	5	4168	G
45	5	4171	C
45	5	4176	C
45	5	4183	G
45	5	4184	G
45	5	4187	G
45	5	4189	U
45	5	4191	G
45	5	4194	U
45	5	4196	G
45	5	4200	G
45	5	4201	G
45	5	4202	U
45	5	4203	A
45	5	4205	A
45	5	4207	C
45	5	4214	A
45	5	4217	G
45	5	4219	A
45	5	4224	A
45	5	4229	U
45	5	4230	C

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Mol	Chain	Res	Type
45	5	4231	C
45	5	4233	A
45	5	4234	A
45	5	4242	U
45	5	4243	C
45	5	4250	G
45	5	4251	A
45	5	4252	C
45	5	4254	G
45	5	4256	A
45	5	4258	C
45	5	4260	U
45	5	4264	G
45	5	4265	U
45	5	4266	G
45	5	4267	G
45	5	4268	A
45	5	4269	G
45	5	4271	A
45	5	4272	G
45	5	4273	A
45	5	4276	G
45	5	4278	C
45	5	4281	A
45	5	4283	G
45	5	4288	C
45	5	4291	G
45	5	4293	U
45	5	4294	C
45	5	4296	U
45	5	4298	A
45	5	4303	C
45	5	4304	A
45	5	4305	G
45	5	4306	U
45	5	4313	A
45	5	4318	C
45	5	4324	A
45	5	4326	G
45	5	4329	G
45	5	4330	G
45	5	4331	G

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Mol	Chain	Res	Type
45	5	4336	A
45	5	4337	C
45	5	4339	A
45	5	4340	U
45	5	4343	U
45	5	4344	U
45	5	4346	U
45	5	4348	A
45	5	4349	C
45	5	4354	U
45	5	4355	G
45	5	4359	U
45	5	4362	A
45	5	4365	C
45	5	4369	A
45	5	4373	G
45	5	4374	U
45	5	4375	C
45	5	4376	A
45	5	4377	G
45	5	4378	A
45	5	4380	A
45	5	4381	A
45	5	4382	G
45	5	4383	U
45	5	4387	C
45	5	4389	C
45	5	4393	G
45	5	4394	A
45	5	4398	C
45	5	4400	G
45	5	4401	G
45	5	4404	U
45	5	4405	G
45	5	4406	U
45	5	4410	G
45	5	4414	A
45	5	4415	A
45	5	4418	G
45	5	4419	U
45	5	4421	C
45	5	4422	A

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Mol	Chain	Res	Type
45	5	4424	A
45	5	4426	C
45	5	4428	A
45	5	4430	G
45	5	4431	U
45	5	4433	G
45	5	4437	U
45	5	4439	U
45	5	4440	G
45	5	4442	U
45	5	4443	C
45	5	4444	C
45	5	4446	U
45	5	4447	C
45	5	4448	G
45	5	4449	A
45	5	4450	U
45	5	4452	U
45	5	4454	G
45	5	4455	G
45	5	4456	C
45	5	4457	U
45	5	4459	U
45	5	4460	U
45	5	4461	C
45	5	4462	C
45	5	4463	U
45	5	4464	A
45	5	4465	U
45	5	4467	A
45	5	4469	U
45	5	4470	G
45	5	4471	U
45	5	4472	G
45	5	4475	G
45	5	4476	C
45	5	4477	A
45	5	4478	G
45	5	4480	A
45	5	4481	U
45	5	4482	U
45	5	4488	A

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Mol	Chain	Res	Type
45	5	4489	G
45	5	4490	C
45	5	4500	U
45	5	4502	C
45	5	4504	C
45	5	4509	U
45	5	4510	A
45	5	4511	A
45	5	4512	U
45	5	4513	A
45	5	4515	G
45	5	4516	G
45	5	4517	A
45	5	4518	A
45	5	4519	C
45	5	4520	G
45	5	4521	U
45	5	4522	G
45	5	4527	G
45	5	4528	G
45	5	4529	G
45	5	4530	U
45	5	4531	U
45	5	4534	G
45	5	4535	A
45	5	4536	C
45	5	4537	C
45	5	4538	G
45	5	4539	U
45	5	4543	G
45	5	4547	C
45	5	4548	A
45	5	4549	G
45	5	4551	U
45	5	4555	U
45	5	4556	U
45	5	4563	U
45	5	4570	G
45	5	4573	G
45	5	4575	G
45	5	4579	U
45	5	4581	G

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Mol	Chain	Res	Type
45	5	4584	A
45	5	4588	U
45	5	4590	A
45	5	4599	A
45	5	4605	A
45	5	4606	G
45	5	4607	A
45	5	4614	G
45	5	4615	C
45	5	4617	G
45	5	4621	C
45	5	4632	U
45	5	4633	G
45	5	4634	U
45	5	4635	A
45	5	4636	U
45	5	4637	G
45	5	4638	U
45	5	4646	U
45	5	4649	G
45	5	4650	G
45	5	4654	C
45	5	4657	U
45	5	4658	G
45	5	4662	C
45	5	4663	G
45	5	4665	A
45	5	4670	C
45	5	4672	A
45	5	4673	U
45	5	4675	U
45	5	4677	U
45	5	4680	G
45	5	4684	A
45	5	4688	C
45	5	4689	U
45	5	4693	C
45	5	4694	G
45	5	4695	C
45	5	4696	C
45	5	4700	A
45	5	4702	G

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Mol	Chain	Res	Type
45	5	4703	U
45	5	4708	A
45	5	4709	U
45	5	4712	C
45	5	4713	G
45	5	4714	C
45	5	4715	C
45	5	4717	A
45	5	4720	C
45	5	4721	G
45	5	4724	A
45	5	4726	G
45	5	4728	U
45	5	4729	A
45	5	4736	C
45	5	4738	C
45	5	4748	U
45	5	4750	G
45	5	4751	G
45	5	4752	U
45	5	4753	U
45	5	4754	G
45	5	4757	C
45	5	4758	U
45	5	4759	C
45	5	4760	G
45	5	4761	G
45	5	4765	G
45	5	4771	C
45	5	4772	C
45	5	4775	C
45	5	4862	G
45	5	4863	G
45	5	4865	C
45	5	4869	U
45	5	4870	G
45	5	4871	C
45	5	4872	G
45	5	4873	G
45	5	4874	A
45	5	4875	G
45	5	4876	A

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Mol	Chain	Res	Type
45	5	4877	G
45	5	4882	U
45	5	4883	C
45	5	4885	U
45	5	4892	A
45	5	4894	A
45	5	4895	C
45	5	4896	G
45	5	4903	G
45	5	4909	A
45	5	4912	G
45	5	4913	G
45	5	4914	G
45	5	4915	G
45	5	4917	C
45	5	4918	C
45	5	4920	C
45	5	4921	C
45	5	4922	C
45	5	4923	U
45	5	4924	C
45	5	4926	C
45	5	4929	C
45	5	4930	C
45	5	4932	U
45	5	4933	C
45	5	4937	C
45	5	4938	A
45	5	4940	C
45	5	4941	G
45	5	4942	C
45	5	4944	C
45	5	4945	G
45	5	4948	C
45	5	4949	G
45	5	4950	U
45	5	4951	G
45	5	4954	G
45	5	4956	A
45	5	4958	C
45	5	4959	U
45	5	4960	G

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Mol	Chain	Res	Type
45	5	4963	G
45	5	4964	C
45	5	4965	U
45	5	4966	A
45	5	4967	A
45	5	4968	A
45	5	4973	U
45	5	4974	C
45	5	4976	U
45	5	4977	A
45	5	4978	G
45	5	4979	A
45	5	4982	A
45	5	4987	C
45	5	4988	U
45	5	4989	U
45	5	4990	C
45	5	4993	G
45	5	4999	G
45	5	5003	U
45	5	5006	U
45	5	5007	A
45	5	5016	A
45	5	5017	G
45	5	5018	C
45	5	5029	C
45	5	5030	U
45	5	5033	G
45	5	5035	U
45	5	5036	C
45	5	5037	U
45	5	5038	A
45	5	5040	U
45	5	5041	G
45	5	5042	A
45	5	5050	C
45	5	5053	U
45	5	5054	C
45	5	5056	A
45	5	5057	C
45	5	5058	A
45	5	5061	A

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Mol	Chain	Res	Type
45	5	5062	G
45	5	5064	G
45	5	5066	U
46	7	5	A
46	7	7	G
46	7	10	C
46	7	13	A
46	7	15	C
46	7	17	C
46	7	22	A
46	7	23	A
46	7	28	C
46	7	30	C
46	7	34	C
46	7	36	C
46	7	37	G
46	7	40	U
46	7	41	G
46	7	42	A
46	7	44	C
46	7	51	G
46	7	52	C
46	7	53	U
46	7	54	A
46	7	57	C
46	7	64	G
46	7	66	G
46	7	69	U
46	7	78	C
46	7	82	G
46	7	83	A
46	7	93	G
46	7	94	C
46	7	97	G
46	7	98	G
46	7	99	G
46	7	100	A
46	7	101	A
46	7	110	G
46	7	113	G
46	7	116	G
46	7	117	G

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Mol	Chain	Res	Type
46	7	119	U
47	8	2	G
47	8	3	A
47	8	10	G
47	8	15	G
47	8	17	A
47	8	26	C
47	8	28	C
47	8	32	C
47	8	33	G
47	8	34	U
47	8	35	C
47	8	36	G
47	8	37	A
47	8	38	U
47	8	43	A
47	8	46	G
47	8	50	C
47	8	51	U
47	8	52	A
47	8	53	G
47	8	55	U
47	8	58	G
47	8	59	A
47	8	62	A
47	8	63	U
47	8	64	U
47	8	70	G
47	8	71	A
47	8	76	C
47	8	79	G
47	8	86	U
47	8	88	A
47	8	90	C
47	8	95	A
47	8	97	A
47	8	98	C
47	8	100	U
47	8	103	A
47	8	104	A
47	8	105	C
47	8	108	A

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Mol	Chain	Res	Type
47	8	110	U
47	8	111	U
47	8	113	C
47	8	114	G
47	8	115	G
47	8	120	G
47	8	122	G
47	8	123	U
47	8	124	U
47	8	125	C
47	8	126	C
47	8	127	U
47	8	129	C
47	8	130	C
47	8	131	G
47	8	137	A
47	8	138	C
47	8	147	G
47	8	153	C
47	8	156	U
49	2	2	A
49	2	3	C
49	2	4	C
49	2	5	U
49	2	6	G
49	2	10	G
49	2	11	A
49	2	15	U
49	2	17	C
49	2	22	A
49	2	25	A
49	2	31	U
49	2	33	G
49	2	37	C
49	2	41	G
49	2	42	A
49	2	46	A
49	2	48	C
49	2	56	G
49	2	58	C
49	2	60	A
49	2	62	G

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Mol	Chain	Res	Type
49	2	64	A
49	2	65	C
49	2	66	G
49	2	67	C
49	2	68	A
49	2	69	C
49	2	70	G
49	2	71	G
49	2	72	C
49	2	73	C
49	2	74	G
49	2	75	G
49	2	77	A
49	2	78	C
49	2	79	A
49	2	80	G
49	2	91	A
49	2	95	G
49	2	97	U
49	2	99	A
49	2	100	U
49	2	101	U
49	2	103	A
49	2	105	U
49	2	108	G
49	2	110	U
49	2	111	A
49	2	113	G
49	2	115	U
49	2	116	U
49	2	119	U
49	2	123	G
49	2	126	G
49	2	127	C
49	2	130	G
49	2	142	C
49	2	143	U
49	2	144	U
49	2	147	A
49	2	148	U
49	2	149	A
49	2	154	U

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Mol	Chain	Res	Type
49	2	159	A
49	2	161	U
49	2	162	C
49	2	163	U
49	2	169	U
49	2	170	A
49	2	173	A
49	2	178	C
49	2	180	G
49	2	181	A
49	2	182	C
49	2	183	G
49	2	184	G
49	2	187	G
49	2	188	C
49	2	190	G
49	2	192	C
49	2	198	U
49	2	200	G
49	2	201	C
49	2	203	G
49	2	209	A
49	2	210	U
49	2	211	G
49	2	221	A
49	2	222	U
49	2	224	A
49	2	302	A
49	2	306	C
49	2	307	G
49	2	308	G
49	2	309	G
49	2	310	C
49	2	312	G
49	2	313	A
49	2	314	U
49	2	317	C
49	2	318	A
49	2	319	C
49	2	320	G
49	2	321	C
49	2	322	C

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Mol	Chain	Res	Type
49	2	330	G
49	2	331	C
49	2	332	G
49	2	333	G
49	2	336	A
49	2	338	G
49	2	343	A
49	2	347	G
49	2	349	A
49	2	351	G
49	2	352	U
49	2	354	U
49	2	358	C
49	2	362	C
49	2	363	A
49	2	364	A
49	2	366	U
49	2	367	U
49	2	368	U
49	2	369	C
49	2	370	G
49	2	371	A
49	2	372	U
49	2	374	G
49	2	379	C
49	2	382	C
49	2	384	U
49	2	385	G
49	2	386	C
49	2	389	A
49	2	390	C
49	2	395	G
49	2	397	G
49	2	398	A
49	2	400	C
49	2	404	G
49	2	407	G
49	2	408	A
49	2	409	C
49	2	410	G
49	2	413	G
49	2	416	U

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Mol	Chain	Res	Type
49	2	417	C
49	2	418	A
49	2	419	G
49	2	426	A
49	2	428	U
49	2	429	C
49	2	432	G
49	2	435	A
49	2	436	G
49	2	444	G
49	2	447	A
49	2	448	A
49	2	449	A
49	2	450	C
49	2	452	G
49	2	460	A
49	2	461	U
49	2	462	C
49	2	465	A
49	2	466	G
49	2	469	A
49	2	470	G
49	2	471	G
49	2	472	C
49	2	473	A
49	2	474	G
49	2	485	A
49	2	486	A
49	2	487	U
49	2	490	C
49	2	491	C
49	2	492	C
49	2	493	A
49	2	496	C
49	2	497	C
49	2	500	A
49	2	501	C
49	2	502	C
49	2	503	C
49	2	507	G
49	2	509	G
49	2	512	A

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Mol	Chain	Res	Type
49	2	517	C
49	2	518	G
49	2	521	A
49	2	525	A
49	2	527	C
49	2	530	U
49	2	531	A
49	2	532	C
49	2	533	A
49	2	534	G
49	2	535	G
49	2	536	A
49	2	537	C
49	2	539	C
49	2	542	U
49	2	543	C
49	2	544	G
49	2	547	G
49	2	548	C
49	2	549	C
49	2	550	C
49	2	551	U
49	2	554	A
49	2	555	A
49	2	556	U
49	2	559	G
49	2	561	A
49	2	562	U
49	2	565	G
49	2	567	C
49	2	568	C
49	2	569	A
49	2	570	C
49	2	574	A
49	2	575	A
49	2	583	A
49	2	587	A
49	2	588	G
49	2	589	G
49	2	590	A
49	2	591	U
49	2	593	C

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Mol	Chain	Res	Type
49	2	594	A
49	2	600	G
49	2	602	G
49	2	604	A
49	2	605	A
49	2	606	G
49	2	607	U
49	2	608	C
49	2	614	C
49	2	618	C
49	2	620	G
49	2	621	C
49	2	623	G
49	2	627	U
49	2	628	A
49	2	629	A
49	2	631	U
49	2	634	A
49	2	635	G
49	2	636	C
49	2	637	U
49	2	640	A
49	2	641	A
49	2	643	A
49	2	644	G
49	2	646	G
49	2	656	G
49	2	658	U
49	2	659	G
49	2	660	C
49	2	661	U
49	2	663	C
49	2	664	A
49	2	666	U
49	2	667	U
49	2	668	A
49	2	669	A
49	2	671	A
49	2	672	A
49	2	673	G
49	2	676	C
49	2	679	A

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Mol	Chain	Res	Type
49	2	684	G
49	2	689	U
49	2	693	A
49	2	696	G
49	2	733	C
49	2	734	C
49	2	736	C
49	2	744	G
49	2	751	G
49	2	752	G
49	2	753	C
49	2	754	G
49	2	755	C
49	2	756	C
49	2	791	C
49	2	795	A
49	2	796	G
49	2	805	U
49	2	806	U
49	2	809	A
49	2	811	A
49	2	812	A
49	2	815	U
49	2	819	G
49	2	821	G
49	2	822	U
49	2	823	U
49	2	827	A
49	2	828	G
49	2	829	C
49	2	830	A
49	2	832	G
49	2	844	U
49	2	846	G
49	2	847	A
49	2	848	U
49	2	853	C
49	2	856	C
49	2	858	A
49	2	859	G
49	2	860	G
49	2	862	A

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Mol	Chain	Res	Type
49	2	863	U
49	2	864	A
49	2	866	U
49	2	870	A
49	2	871	U
49	2	872	A
49	2	873	G
49	2	874	G
49	2	877	C
49	2	878	G
49	2	879	C
49	2	884	C
49	2	885	U
49	2	886	A
49	2	888	U
49	2	890	U
49	2	891	G
49	2	892	U
49	2	895	G
49	2	897	U
49	2	898	U
49	2	899	U
49	2	900	C
49	2	905	C
49	2	908	A
49	2	910	G
49	2	913	A
49	2	914	U
49	2	916	A
49	2	919	A
49	2	920	A
49	2	921	G
49	2	922	A
49	2	926	A
49	2	933	G
49	2	934	G
49	2	938	A
49	2	940	U
49	2	943	U
49	2	944	A
49	2	947	G
49	2	948	C

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Mol	Chain	Res	Type
49	2	950	C
49	2	954	U
49	2	955	A
49	2	956	G
49	2	962	A
49	2	966	U
49	2	971	G
49	2	972	A
49	2	973	C
49	2	974	C
49	2	977	C
49	2	978	G
49	2	981	A
49	2	982	G
49	2	990	A
49	2	991	G
49	2	992	A
49	2	997	A
49	2	999	G
49	2	1002	U
49	2	1003	U
49	2	1008	A
49	2	1009	A
49	2	1017	U
49	2	1020	A
49	2	1023	A
49	2	1026	C
49	2	1033	G
49	2	1034	A
49	2	1040	G
49	2	1041	G
49	2	1044	G
49	2	1047	C
49	2	1050	A
49	2	1051	G
49	2	1060	A
49	2	1062	A
49	2	1068	G
49	2	1070	A
49	2	1074	C
49	2	1082	A
49	2	1083	A

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Mol	Chain	Res	Type
49	2	1084	A
49	2	1085	C
49	2	1086	G
49	2	1097	G
49	2	1099	G
49	2	1100	A
49	2	1105	G
49	2	1108	G
49	2	1115	U
49	2	1116	C
49	2	1117	C
49	2	1118	C
49	2	1119	A
49	2	1121	G
49	2	1122	A
49	2	1123	C
49	2	1125	C
49	2	1134	G
49	2	1135	C
49	2	1138	C
49	2	1139	C
49	2	1140	G
49	2	1141	G
49	2	1144	A
49	2	1149	A
49	2	1150	A
49	2	1153	C
49	2	1154	U
49	2	1155	U
49	2	1157	G
49	2	1160	U
49	2	1162	C
49	2	1165	G
49	2	1166	G
49	2	1168	G
49	2	1191	C
49	2	1193	U
49	2	1194	A
49	2	1195	A
49	2	1200	A
49	2	1202	U
49	2	1203	G

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Mol	Chain	Res	Type
49	2	1205	C
49	2	1207	G
49	2	1211	G
49	2	1215	C
49	2	1216	C
49	2	1221	G
49	2	1224	G
49	2	1233	G
49	2	1234	C
49	2	1235	G
49	2	1236	G
49	2	1242	U
49	2	1251	A
49	2	1253	A
49	2	1254	C
49	2	1256	G
49	2	1257	G
49	2	1259	A
49	2	1260	A
49	2	1261	C
49	2	1262	C
49	2	1264	C
49	2	1266	C
49	2	1268	C
49	2	1272	C
49	2	1274	G
49	2	1275	G
49	2	1282	A
49	2	1284	A
49	2	1285	G
49	2	1286	G
49	2	1287	A
49	2	1290	G
49	2	1291	A
49	2	1292	C
49	2	1294	G
49	2	1296	U
49	2	1299	A
49	2	1301	A
49	2	1302	G
49	2	1304	U
49	2	1308	U

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Mol	Chain	Res	Type
49	2	1314	U
49	2	1315	U
49	2	1318	G
49	2	1319	U
49	2	1323	U
49	2	1328	G
49	2	1332	A
49	2	1333	U
49	2	1334	G
49	2	1337	C
49	2	1342	U
49	2	1344	A
49	2	1347	U
49	2	1348	G
49	2	1354	G
49	2	1356	G
49	2	1364	U
49	2	1365	G
49	2	1366	G
49	2	1371	U
49	2	1372	U
49	2	1374	C
49	2	1376	A
49	2	1378	A
49	2	1386	A
49	2	1387	G
49	2	1396	A
49	2	1397	U
49	2	1402	A
49	2	1403	C
49	2	1404	U
49	2	1405	A
49	2	1408	U
49	2	1410	C
49	2	1411	G
49	2	1412	C
49	2	1417	C
49	2	1426	U
49	2	1428	G
49	2	1429	G
49	2	1430	C
49	2	1444	U

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Mol	Chain	Res	Type
49	2	1447	G
49	2	1453	C
49	2	1454	A
49	2	1455	A
49	2	1456	G
49	2	1457	U
49	2	1462	U
49	2	1463	U
49	2	1464	C
49	2	1465	A
49	2	1466	G
49	2	1468	C
49	2	1470	C
49	2	1471	C
49	2	1475	G
49	2	1476	A
49	2	1477	U
49	2	1478	U
49	2	1479	G
49	2	1480	A
49	2	1483	A
49	2	1484	A
49	2	1487	A
49	2	1489	A
49	2	1490	G
49	2	1493	C
49	2	1494	U
49	2	1495	G
49	2	1496	U
49	2	1497	G
49	2	1498	A
49	2	1500	G
49	2	1505	U
49	2	1507	G
49	2	1508	A
49	2	1509	U
49	2	1510	G
49	2	1516	G
49	2	1520	G
49	2	1521	C
49	2	1527	C
49	2	1530	U

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Mol	Chain	Res	Type
49	2	1531	A
49	2	1532	C
49	2	1533	A
49	2	1536	G
49	2	1542	C
49	2	1543	U
49	2	1547	C
49	2	1548	G
49	2	1552	G
49	2	1553	C
49	2	1554	C
49	2	1555	U
49	2	1556	A
49	2	1558	C
49	2	1560	U
49	2	1561	A
49	2	1566	G
49	2	1568	C
49	2	1572	C
49	2	1574	C
49	2	1575	G
49	2	1577	G
49	2	1578	U
49	2	1579	A
49	2	1580	A
49	2	1581	C
49	2	1582	C
49	2	1585	U
49	2	1587	G
49	2	1588	A
49	2	1590	C
49	2	1591	C
49	2	1592	C
49	2	1596	U
49	2	1597	C
49	2	1598	G
49	2	1599	U
49	2	1600	G
49	2	1601	A
49	2	1602	U
49	2	1603	G
49	2	1604	G

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Mol	Chain	Res	Type
49	2	1606	G
49	2	1607	A
49	2	1621	U
49	2	1622	U
49	2	1623	A
49	2	1625	U
49	2	1629	C
49	2	1633	A
49	2	1635	C
49	2	1637	A
49	2	1638	G
49	2	1639	G
49	2	1641	A
49	2	1646	C
49	2	1647	A
49	2	1648	G
49	2	1654	G
49	2	1656	G
49	2	1660	C
49	2	1664	A
49	2	1665	G
49	2	1668	U
49	2	1671	G
49	2	1677	U
49	2	1680	G
49	2	1683	C
49	2	1692	U
49	2	1693	G
49	2	1697	A
49	2	1698	C
49	2	1699	A
49	2	1701	C
49	2	1702	G
49	2	1703	C
49	2	1706	G
49	2	1707	U
49	2	1710	C
49	2	1711	U
49	2	1713	C
49	2	1717	C
49	2	1720	U
49	2	1721	U

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Mol	Chain	Res	Type
49	2	1722	G
49	2	1725	U
49	2	1726	G
49	2	1727	G
49	2	1730	U
49	2	1731	A
49	2	1735	A
49	2	1736	G
49	2	1742	C
49	2	1746	U
49	2	1750	C
49	2	1752	C
49	2	1753	C
49	2	1756	C
49	2	1757	G
49	2	1758	G
49	2	1760	G
49	2	1761	U
49	2	1772	C
49	2	1774	C
49	2	1775	U
49	2	1778	C
49	2	1783	C
49	2	1784	G
49	2	1785	C
49	2	1792	G
49	2	1797	U
49	2	1800	A
49	2	1801	A
49	2	1803	U
49	2	1805	G
49	2	1811	C
49	2	1812	U
49	2	1815	A
49	2	1818	A
49	2	1819	A
49	2	1820	G
49	2	1824	A
49	2	1826	G
49	2	1827	U
49	2	1829	G
49	2	1830	U

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Mol	Chain	Res	Type
49	2	1831	A
49	2	1834	A
49	2	1835	A
49	2	1836	G
49	2	1837	G
49	2	1838	U
49	2	1839	U
49	2	1845	A
49	2	1847	G
49	2	1849	G
49	2	1850	A
49	2	1851	A
49	2	1852	C
49	2	1853	C
49	2	1861	G
49	2	1863	A
49	2	1864	U
49	2	1865	C
49	2	1869	A
50	3	2	C
50	3	5	A
50	3	8	U
50	3	9	G
50	3	10	G
50	3	14	A
50	3	16	U
50	3	17	U
50	3	18	G
50	3	19	G
50	3	20	U
50	3	21	A
50	3	22	G
50	3	23	A
50	3	24	C
50	3	28	C
50	3	38	G
50	3	41	G
50	3	43	A
50	3	44	G
50	3	46	G
50	3	47	C
50	3	48	C

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Mol	Chain	Res	Type
50	3	52	U
50	3	53	A
50	3	54	G
50	3	56	G
50	3	59	U
50	3	62	G
50	3	63	G
50	3	64	G
50	3	70	G
50	3	71	U
50	3	72	C
50	3	73	C
50	3	74	C
50	3	76	U
50	3	78	C
50	3	79	U
50	3	80	C
50	3	84	A
50	3	85	C
50	3	86	C
50	3	87	A
85	4	6031	A
85	4	6032	A
85	4	6033	A
85	4	6034	A
85	4	6036	G
85	4	6037	U
85	4	6038	G
85	4	6039	A
85	4	6040	U
85	4	6041	C
85	4	6042	U
85	4	6043	U
85	4	6044	G
85	4	6045	C
85	4	6046	U
85	4	6048	G
85	4	6051	A
85	4	6053	U
85	4	6054	A
85	4	6055	C
85	4	6057	A

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Mol	Chain	Res	Type
85	4	6059	U
85	4	6061	U
85	4	6062	G
85	4	6064	G
85	4	6065	A
85	4	6068	U
85	4	6069	U
85	4	6070	A
85	4	6071	A
85	4	6072	U
85	4	6073	A
85	4	6074	A
85	4	6075	A
85	4	6080	A
85	4	6083	U
85	4	6085	G
85	4	6087	G
85	4	6088	C
85	4	6089	U
85	4	6090	A
85	4	6091	U
85	4	6092	U
85	4	6093	U
85	4	6095	U
85	4	6096	G
85	4	6097	U
85	4	6099	U
85	4	6101	U
85	4	6102	A
85	4	6106	U
85	4	6107	A
85	4	6109	C
85	4	6112	U
85	4	6113	U
85	4	6114	U
85	4	6116	G
85	4	6117	C
85	4	6118	U
85	4	6119	U
85	4	6121	A
85	4	6122	C
85	4	6123	G

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Mol	Chain	Res	Type
85	4	6124	U
85	4	6125	U
85	4	6126	C
85	4	6128	A
85	4	6131	A
85	4	6134	C
85	4	6136	U
85	4	6137	A
85	4	6138	G
85	4	6140	G
85	4	6141	G
85	4	6142	C
85	4	6144	G
85	4	6150	C
85	4	6151	A
85	4	6155	U
85	4	6156	C
85	4	6158	A
85	4	6163	G
85	4	6165	C
85	4	6166	C
85	4	6167	U
85	4	6168	C
85	4	6171	U
85	4	6172	G
85	4	6173	C
85	4	6174	G
85	4	6175	G
85	4	6176	U
85	4	6177	U
85	4	6178	U
85	4	6179	U
85	4	6180	U
85	4	6181	C
85	4	6182	A
85	4	6196	A
85	4	6197	A
85	4	6198	A
85	4	6199	A
85	4	6200	A
85	4	6201	C
85	4	6202	C

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Mol	Chain	Res	Type
85	4	6203	U
85	4	6204	A
85	4	6205	A
85	4	6206	G
85	4	6207	A
85	4	6208	A
85	4	6209	A
85	4	6211	U
85	4	6212	U
85	4	6213	A
85	4	6214	C
85	4	6215	C
85	4	6216	U
85	4	6217	C
85	4	6219	C
85	4	6220	U
85	4	6222	G
85	4	6223	U

All (433) RNA pucker outliers are listed below:

Mol	Chain	Res	Type
45	5	12	A
45	5	13	U
45	5	42	A
45	5	47	A
45	5	48	G
45	5	58	G
45	5	72	C
45	5	119	G
45	5	134	G
45	5	135	G
45	5	159	C
45	5	189	G
45	5	200	U
45	5	207	G
45	5	209	U
45	5	210	C
45	5	217	C
45	5	219	G
45	5	233	U
45	5	235	A

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Mol	Chain	Res	Type
45	5	245	C
45	5	253	G
45	5	258	G
45	5	261	G
45	5	265	C
45	5	275	C
45	5	280	G
45	5	296	A
45	5	349	A
45	5	352	G
45	5	354	U
45	5	361	C
45	5	385	A
45	5	408	A
45	5	417	G
45	5	426	A
45	5	427	A
45	5	428	G
45	5	438	G
45	5	449	C
45	5	453	G
45	5	455	C
45	5	465	G
45	5	467	U
45	5	492	U
45	5	497	G
45	5	504	G
45	5	667	A
45	5	686	A
45	5	757	G
45	5	916	C
45	5	921	C
45	5	924	C
45	5	925	C
45	5	930	G
45	5	956	A
45	5	972	C
45	5	978	G
45	5	1072	C
45	5	1211	G
45	5	1215	C
45	5	1237	C

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Mol	Chain	Res	Type
45	5	1238	A
45	5	1271	G
45	5	1283	G
45	5	1286	C
45	5	1291	G
45	5	1294	A
45	5	1295	U
45	5	1314	C
45	5	1322	A
45	5	1358	G
45	5	1370	G
45	5	1380	G
45	5	1381	U
45	5	1386	C
45	5	1390	G
45	5	1437	C
45	5	1445	U
45	5	1455	G
45	5	1480	C
45	5	1484	G
45	5	1497	A
45	5	1502	G
45	5	1503	A
45	5	1517	G
45	5	1518	A
45	5	1521	C
45	5	1533	A
45	5	1558	A
45	5	1578	U
45	5	1601	A
45	5	1613	A
45	5	1632	A
45	5	1676	C
45	5	1678	C
45	5	1693	U
45	5	1740	C
45	5	1753	G
45	5	1768	C
45	5	1773	U
45	5	1779	U
45	5	1805	A
45	5	1833	G

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Mol	Chain	Res	Type
45	5	1834	U
45	5	1835	G
45	5	1854	G
45	5	1881	C
45	5	1883	G
45	5	1892	A
45	5	1913	C
45	5	1917	A
45	5	1947	U
45	5	1979	A
45	5	1986	U
45	5	2002	A
45	5	2003	G
45	5	2024	G
45	5	2046	G
45	5	2052	G
45	5	2055	G
45	5	2084	U
45	5	2089	G
45	5	2090	U
45	5	2091	C
45	5	2092	G
45	5	2093	G
45	5	2259	G
45	5	2260	C
45	5	2266	C
45	5	2279	A
45	5	2290	C
45	5	2310	C
45	5	2348	G
45	5	2361	G
45	5	2381	A
45	5	2398	U
45	5	2408	U
45	5	2425	U
45	5	2428	A
45	5	2437	C
45	5	2467	U
45	5	2468	U
45	5	2502	A
45	5	2503	G
45	5	2509	C

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Mol	Chain	Res	Type
45	5	2530	U
45	5	2531	C
45	5	2551	A
45	5	2575	U
45	5	2587	A
45	5	2597	G
45	5	2600	A
45	5	2656	U
45	5	2661	U
45	5	2695	A
45	5	2705	G
45	5	2710	C
45	5	2717	G
45	5	2760	G
45	5	2761	U
45	5	2763	U
45	5	2769	U
45	5	2782	U
45	5	2787	A
45	5	2788	U
45	5	2790	U
45	5	2794	C
45	5	2795	A
45	5	2806	A
45	5	2817	C
45	5	2826	U
45	5	2833	A
45	5	2849	A
45	5	2875	C
45	5	2887	U
45	5	3603	G
45	5	3606	U
45	5	3634	G
45	5	3642	A
45	5	3644	U
45	5	3647	A
45	5	3648	A
45	5	3673	C
45	5	3682	A
45	5	3689	G
45	5	3711	A
45	5	3784	A

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Mol	Chain	Res	Type
45	5	3809	G
45	5	3810	C
45	5	3811	G
45	5	3817	A
45	5	3843	C
45	5	3876	A
45	5	3878	C
45	5	3904	G
45	5	3907	G
45	5	3913	G
45	5	3938	G
45	5	3970	G
45	5	3976	C
45	5	4054	C
45	5	4070	U
45	5	4075	U
45	5	4076	G
45	5	4115	G
45	5	4119	C
45	5	4120	U
45	5	4146	G
45	5	4166	G
45	5	4170	A
45	5	4183	G
45	5	4221	C
45	5	4232	U
45	5	4253	A
45	5	4254	G
45	5	4257	A
45	5	4266	G
45	5	4269	G
45	5	4287	G
45	5	4305	G
45	5	4354	U
45	5	4374	U
45	5	4376	A
45	5	4378	A
45	5	4380	A
45	5	4393	G
45	5	4404	U
45	5	4414	A
45	5	4436	U

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Mol	Chain	Res	Type
45	5	4443	C
45	5	4447	C
45	5	4448	G
45	5	4449	A
45	5	4456	C
45	5	4459	U
45	5	4461	C
45	5	4462	C
45	5	4463	U
45	5	4464	A
45	5	4469	U
45	5	4475	G
45	5	4488	A
45	5	4497	U
45	5	4512	U
45	5	4516	G
45	5	4517	A
45	5	4520	G
45	5	4521	U
45	5	4527	G
45	5	4528	G
45	5	4555	U
45	5	4626	A
45	5	4630	G
45	5	4633	G
45	5	4635	A
45	5	4649	G
45	5	4693	C
45	5	4694	G
45	5	4699	U
45	5	4719	G
45	5	4771	C
45	5	4862	G
45	5	4870	G
45	5	4872	G
45	5	4882	U
45	5	4895	C
45	5	4904	G
45	5	4921	C
45	5	4925	U
45	5	4927	G
45	5	4936	G

Continued on next page...

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Mol	Chain	Res	Type
45	5	4937	C
45	5	4942	C
45	5	4944	C
45	5	4947	U
45	5	4949	G
45	5	4965	U
45	5	4975	G
45	5	4976	U
45	5	5006	U
45	5	5016	A
45	5	5040	U
46	7	13	A
46	7	32	A
46	7	52	C
46	7	89	G
46	7	109	U
47	8	37	A
47	8	48	A
47	8	51	U
47	8	110	U
47	8	124	U
49	2	1	U
49	2	6	G
49	2	24	C
49	2	41	G
49	2	45	A
49	2	55	U
49	2	70	G
49	2	110	U
49	2	115	U
49	2	126	G
49	2	160	U
49	2	161	U
49	2	182	C
49	2	183	G
49	2	294	U
49	2	305	U
49	2	308	G
49	2	312	G
49	2	313	A
49	2	317	C
49	2	363	A

Continued on next page...

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Mol	Chain	Res	Type
49	2	400	C
49	2	407	G
49	2	417	C
49	2	428	U
49	2	449	A
49	2	464	A
49	2	465	A
49	2	471	G
49	2	476	A
49	2	500	A
49	2	516	A
49	2	532	C
49	2	550	C
49	2	553	U
49	2	561	A
49	2	589	G
49	2	627	U
49	2	643	A
49	2	656	G
49	2	658	U
49	2	659	G
49	2	688	U
49	2	733	C
49	2	752	G
49	2	808	A
49	2	809	A
49	2	818	A
49	2	821	G
49	2	822	U
49	2	869	A
49	2	870	A
49	2	873	G
49	2	887	U
49	2	891	G
49	2	955	A
49	2	971	G
49	2	1002	U
49	2	1016	U
49	2	1027	A
49	2	1085	C
49	2	1091	C
49	2	1117	C

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Mol	Chain	Res	Type
49	2	1137	U
49	2	1153	C
49	2	1165	G
49	2	1217	A
49	2	1228	A
49	2	1253	A
49	2	1260	A
49	2	1286	G
49	2	1326	U
49	2	1342	U
49	2	1343	U
49	2	1395	C
49	2	1404	U
49	2	1454	A
49	2	1476	A
49	2	1477	U
49	2	1489	A
49	2	1493	C
49	2	1497	G
49	2	1508	A
49	2	1527	C
49	2	1606	G
49	2	1620	A
49	2	1621	U
49	2	1623	A
49	2	1630	A
49	2	1632	G
49	2	1637	A
49	2	1679	A
49	2	1697	A
49	2	1698	C
49	2	1701	C
49	2	1721	U
49	2	1783	C
49	2	1805	G
49	2	1820	G
49	2	1825	A
49	2	1830	U
49	2	1834	A
49	2	1835	A
49	2	1836	G
49	2	1837	G

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Mol	Chain	Res	Type
49	2	1866	A
49	2	1868	U
50	3	16	U
50	3	18	G
50	3	19	G
50	3	58	U
50	3	85	C
85	4	6032	A
85	4	6045	C
85	4	6053	U
85	4	6054	A
85	4	6072	U
85	4	6073	A
85	4	6074	A
85	4	6098	A
85	4	6106	U
85	4	6149	A
85	4	6150	C
85	4	6151	A
85	4	6174	G
85	4	6177	U
85	4	6178	U
85	4	6179	U
85	4	6180	U
85	4	6196	A
85	4	6199	A
85	4	6200	A
85	4	6201	C
85	4	6202	C
85	4	6203	U
85	4	6208	A
85	4	6212	U
85	4	6213	A
85	4	6215	C
85	4	6219	C

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

There are no ligands in this entry.

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
45	5	36
49	2	18
48	K	3
47	8	1
50	3	1
83	hh	1
3	C	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	5	2113:G	O3'	2258:C	P	42.98
1	5	1252:C	O3'	1271:G	P	33.33
1	5	1219:G	O3'	1233:G	P	21.96
1	2	697:G	O3'	729:C	P	20.32
1	5	1696:C	O3'	1720:C	P	19.72
1	2	834:C	O3'	841:G	P	19.68
1	2	130:G	O3'	141:A	P	19.30
1	5	4138:C	O3'	4146:G	P	18.68
1	5	3977:C	O3'	4034:G	P	18.51
1	2	323:C	O3'	329:G	P	17.86
1	5	5022:U	O3'	5028:G	P	17.72
1	5	523:C	O3'	638:G	P	17.19
1	5	1405:C	O3'	1411(A):G	P	17.18
1	2	1417:C	O3'	1423:C	P	16.83

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	5	4101:C	O3'	4107:G	P	16.60
1	2	756:C	O3'	788:G	P	16.59
1	5	990:C	O3'	1064:G	P	16.03
1	5	2901:G	O3'	3597:G	P	15.30
1	8	79:G	O3'	85:U	P	14.66
1	5	4777:C	O3'	4859:C	P	14.49
1	5	1364:U	O3'	1368:A	P	13.87
1	2	1761:U	O3'	1771:G	P	13.36
1	5	1100:U	O3'	1168:G	P	13.02
1	5	760:G	O3'	904:C	P	12.32
1	5	182:G	O3'	189:G	P	11.66
1	5	1180:C	O3'	1183:C	P	11.42
1	5	4729:A	O3'	4735:G	P	10.94
1	5	971(A):G	O3'	972:C	P	10.40
1	5	4045:G	O3'	4047:A	P	9.82
1	5	737:C	O3'	738(A):C	P	9.26
1	5	4740:G	O3'	4743:G	P	8.92
1	2	225:G	O3'	287:U	P	8.62
1	5	970:G	O3'	971:U	P	8.42
1	2	745:C	O3'	749:U	P	8.30
1	3	57:C	O3'	58:U	P	7.78
1	5	512:U	O3'	515:C	P	7.39
1	hh	2:THR	C	3:GLU	N	6.79
1	5	500:G	O3'	504:G	P	6.45
1	K	194:LEU	C	195:LYS	N	6.36
1	2	322:C	O3'	323:C	P	6.30
1	5	1957:U	O3'	1958:A	P	6.14
1	5	4899:G	O3'	4902:C	P	5.83
1	5	738(A):C	O3'	739:G	P	5.23
1	K	9:THR	C	10:LEU	N	5.09
1	2	903:A	O3'	904:A	P	4.97
1	5	971:U	O3'	971(A):G	P	4.58
1	K	172:VAL	C	173:LYS	N	4.43
1	2	304:C	O3'	305:U	P	4.19
1	2	1432:U	O3'	1438:A	P	4.18
1	5	1239:C	O3'	1244:G	P	4.17
1	2	689:U	O3'	690:G	P	3.92
1	2	798:G	O3'	799:U	P	3.90
1	5	751:G	O3'	752:G	P	3.80
1	5	170:C	O3'	171:U	P	3.64
1	5	1438:U	O3'	1440:U	P	3.38
1	5	267:G	O3'	268:G	P	3.24

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Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	C	132:ALA	C	133:LEU	N	3.18
1	5	5020:G	O3'	5021:C	P	3.14
1	2	736:C	O3'	743:U	P	3.12
1	2	886:A	O3'	887:U	P	3.07
1	2	902:G	O3'	903:A	P	3.07

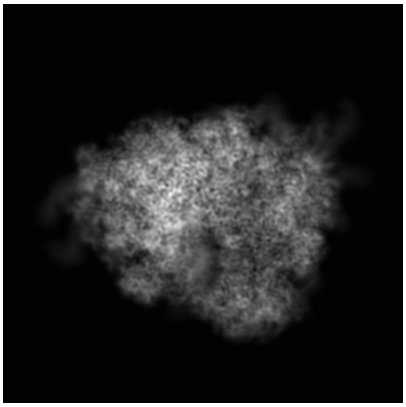
6 Map visualisation

This section contains visualisations of the EMDB entry EMD-7834. These allow visual inspection of the internal detail of the map and identification of artifacts.

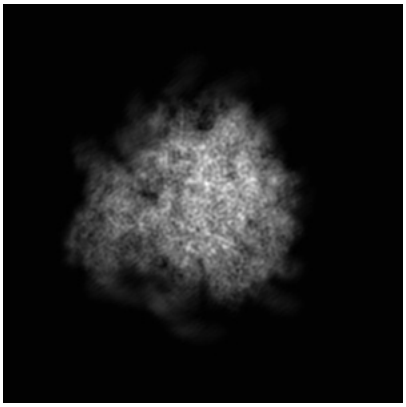
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1 Orthogonal projections

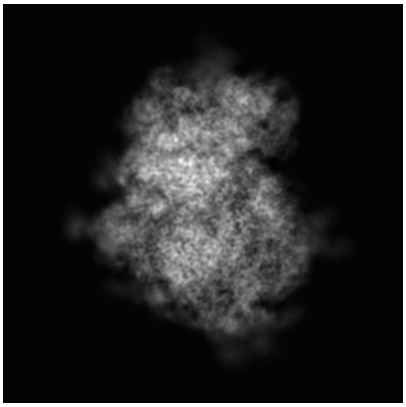
6.1.1 Primary map



X



Y

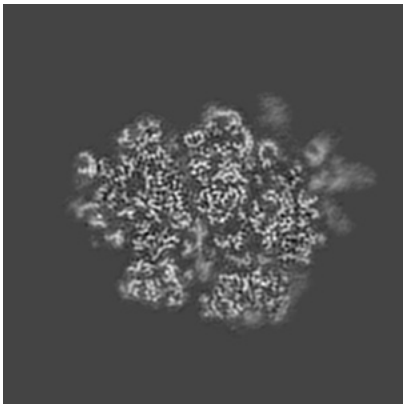


Z

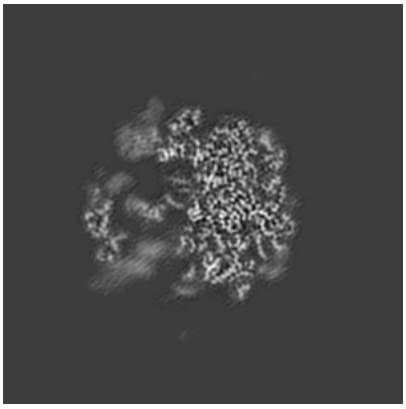
The images above show the map projected in three orthogonal directions.

6.2 Central slices

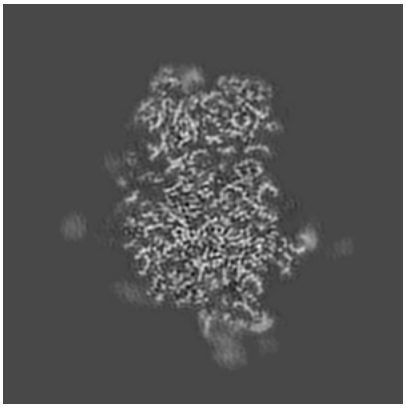
6.2.1 Primary map



X Index: 200



Y Index: 200

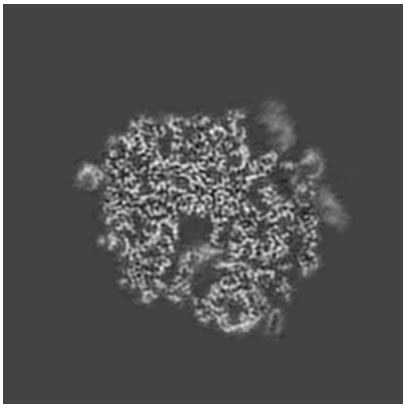


Z Index: 200

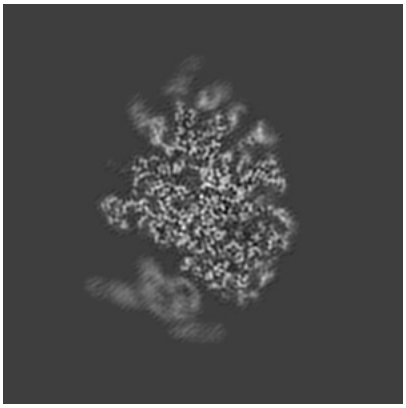
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

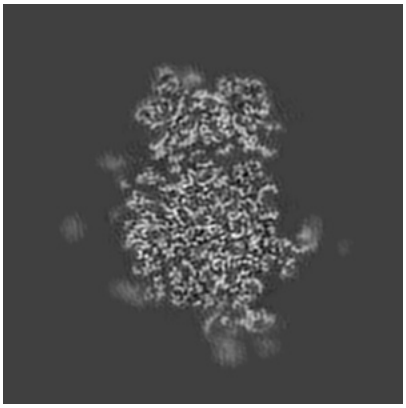
6.3.1 Primary map



X Index: 186



Y Index: 166

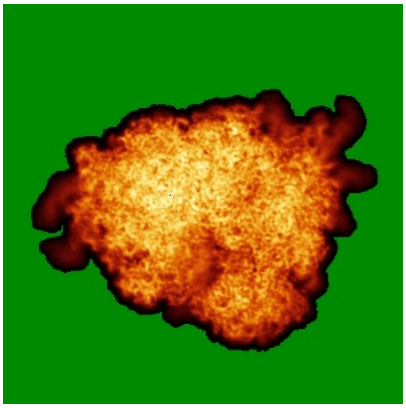


Z Index: 203

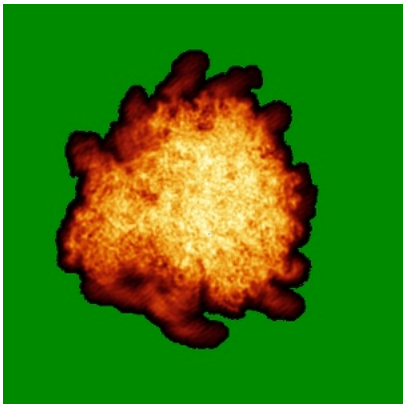
The images above show the largest variance slices of the map in three orthogonal directions.

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

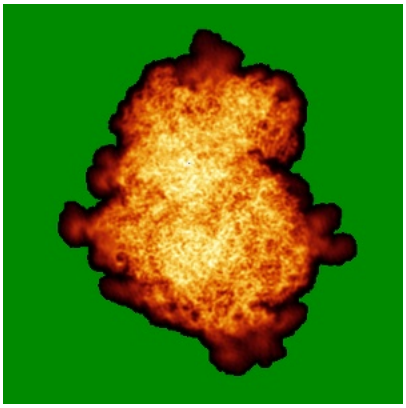
6.4.1 Primary map



X



Y

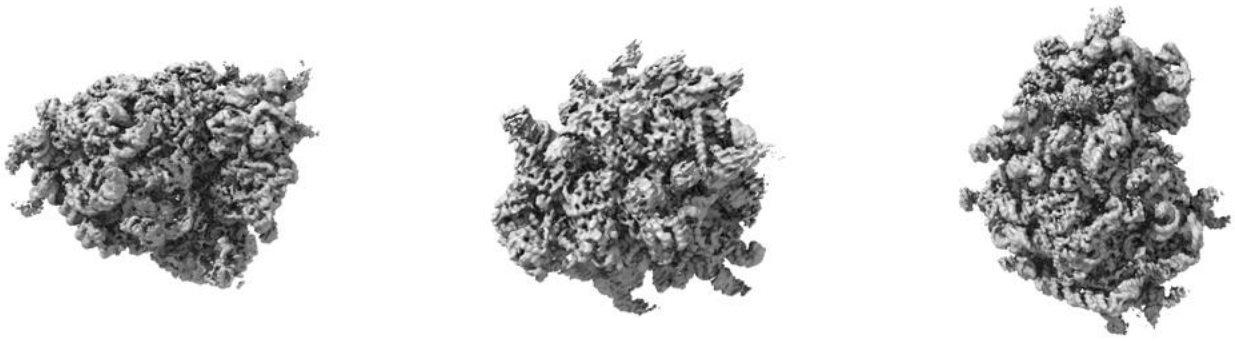


Z

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

6.5 Orthogonal surface views (i)

6.5.1 Primary map



X Y Z

The images above show the 3D surface view of the map at the recommended contour level 0.025. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

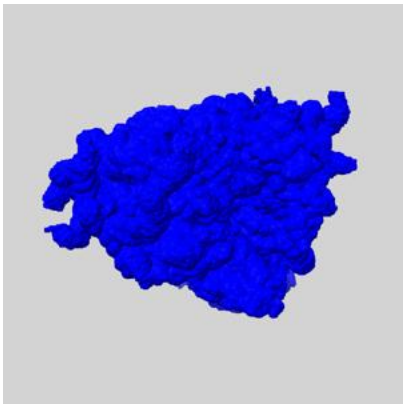
6.6 Mask visualisation

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

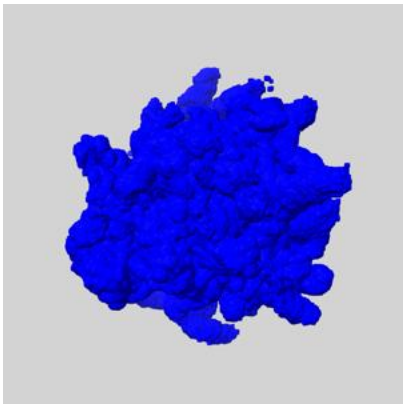
A mask typically either:

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

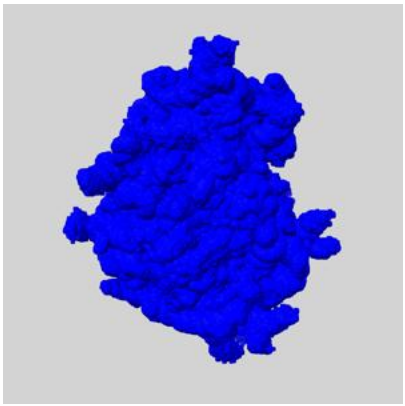
6.6.1 emd_7834_msk_1.map



X



Y

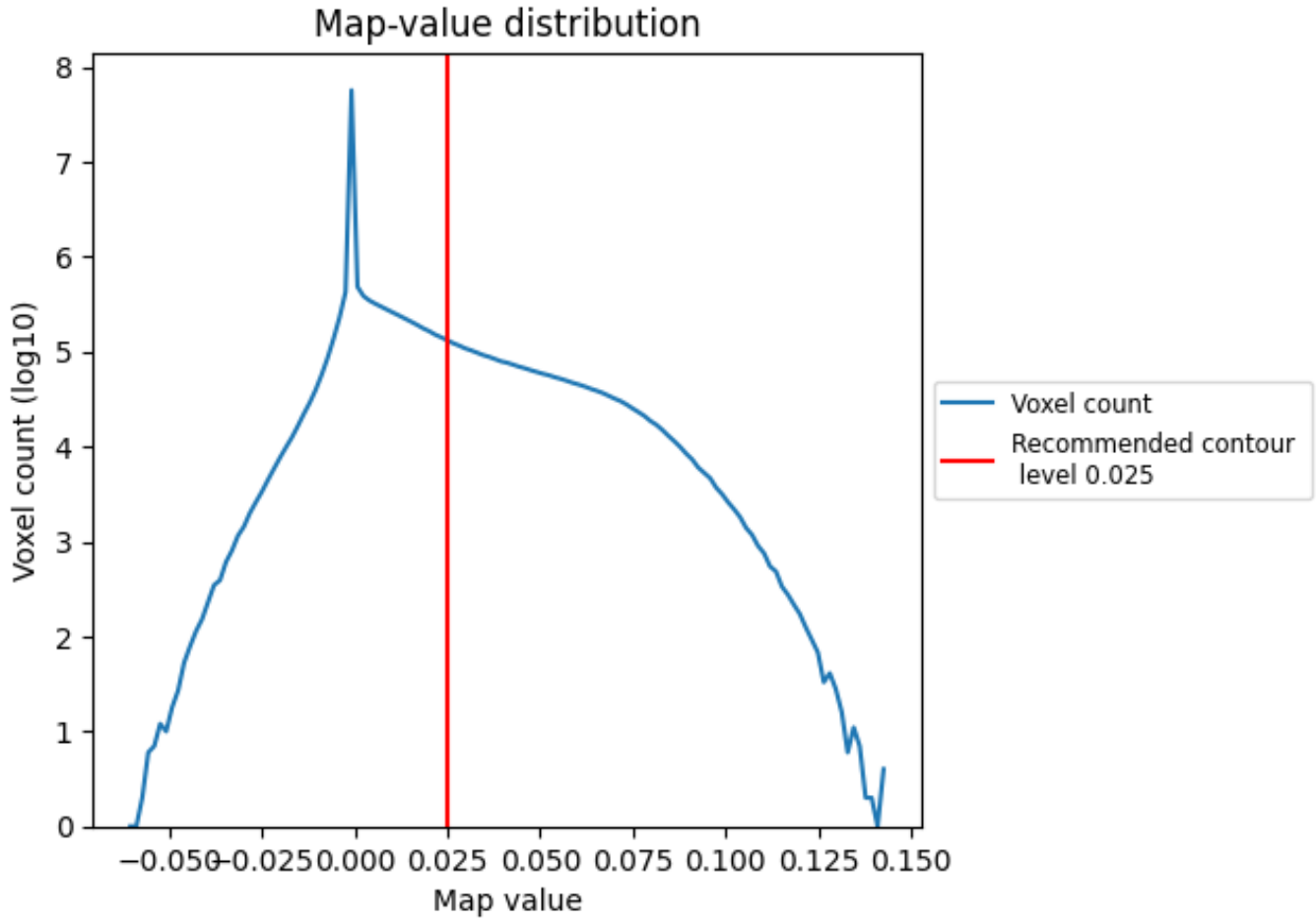


Z

7 Map analysis

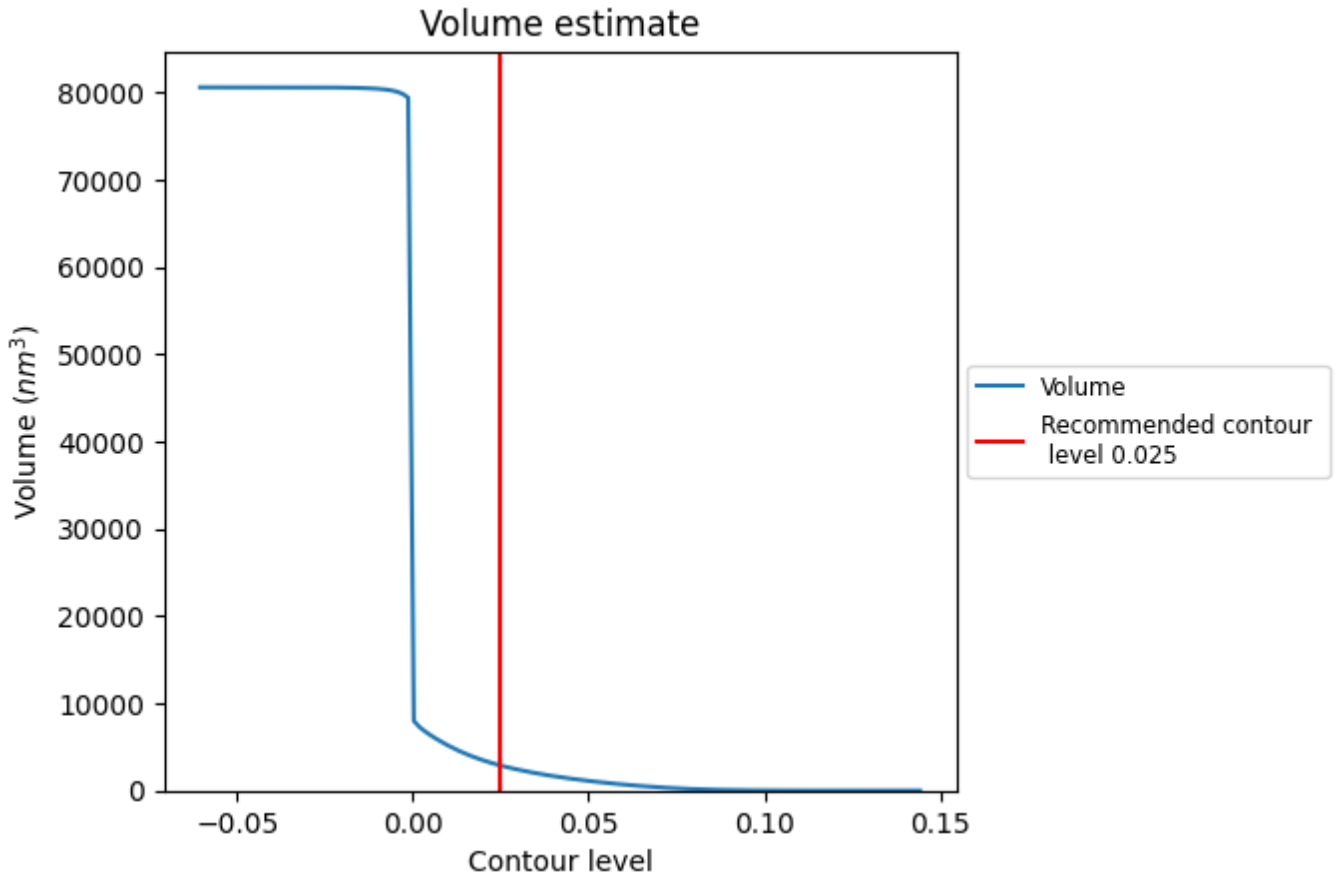
This section contains the results of statistical analysis of the map.

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.

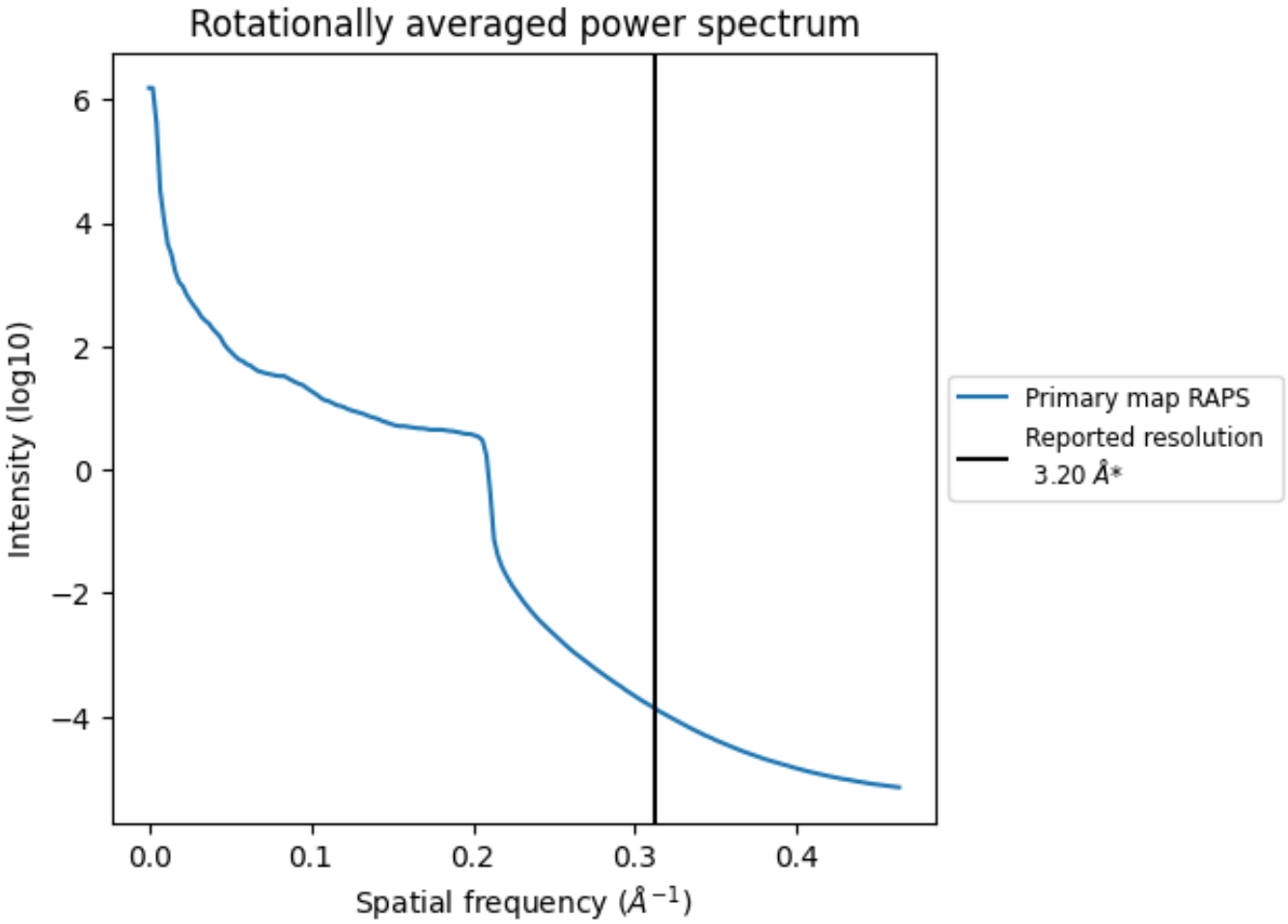
7.2 Volume estimate



The volume at the recommended contour level is 2873 nm^3; this corresponds to an approximate mass of 2595 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)

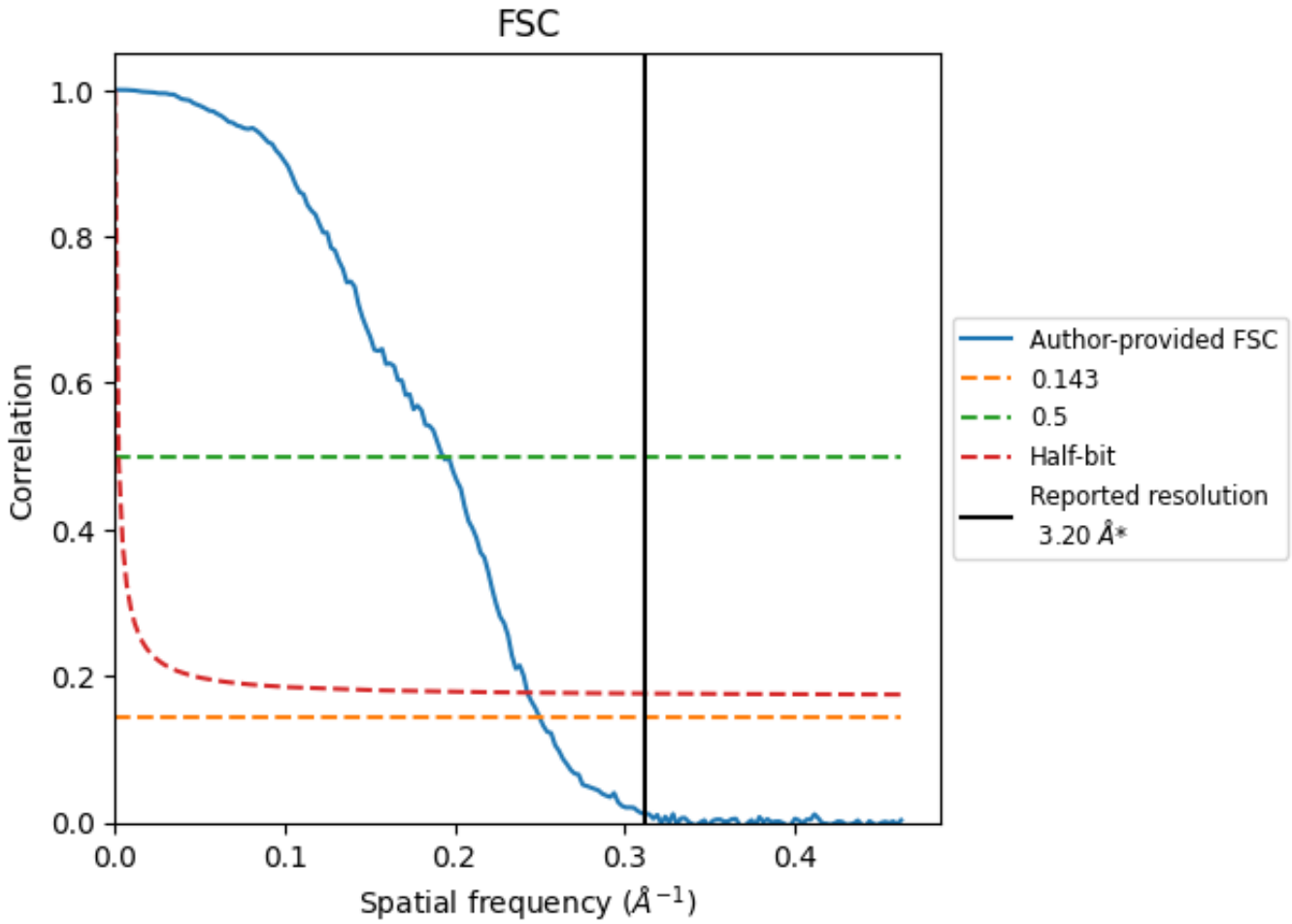


*Reported resolution corresponds to spatial frequency of 0.312 Å^{-1}

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 0.312 Å^{-1}

8.2 Resolution estimates (i)

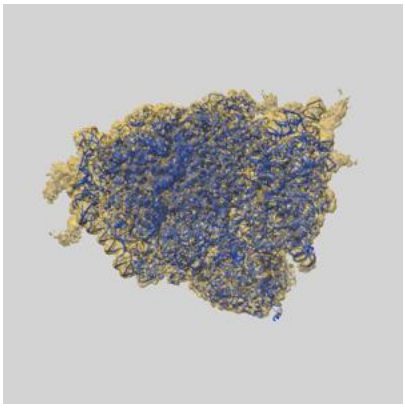
Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	3.20	-	-
Author-provided FSC curve	4.00	5.17	4.12
Unmasked-calculated*	-	-	-

*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 4.00 differs from the reported value 3.2 by more than 10 %

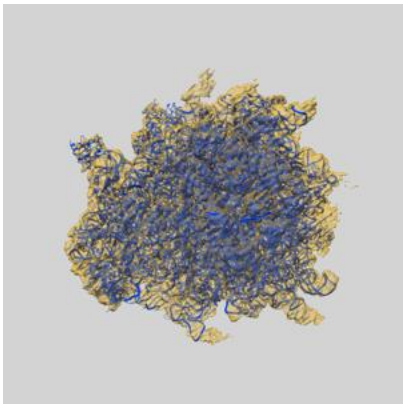
9 Map-model fit

This section contains information regarding the fit between EMDB map EMD-7834 and PDB model 6D90. Per-residue inclusion information can be found in section 3 on page 24.

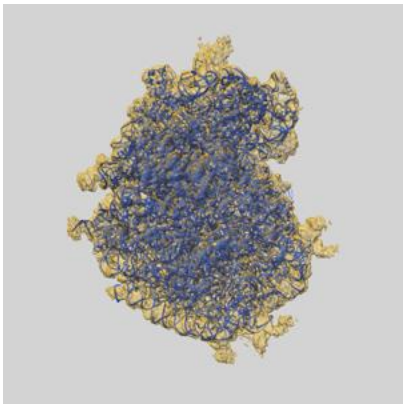
9.1 Map-model overlay



X



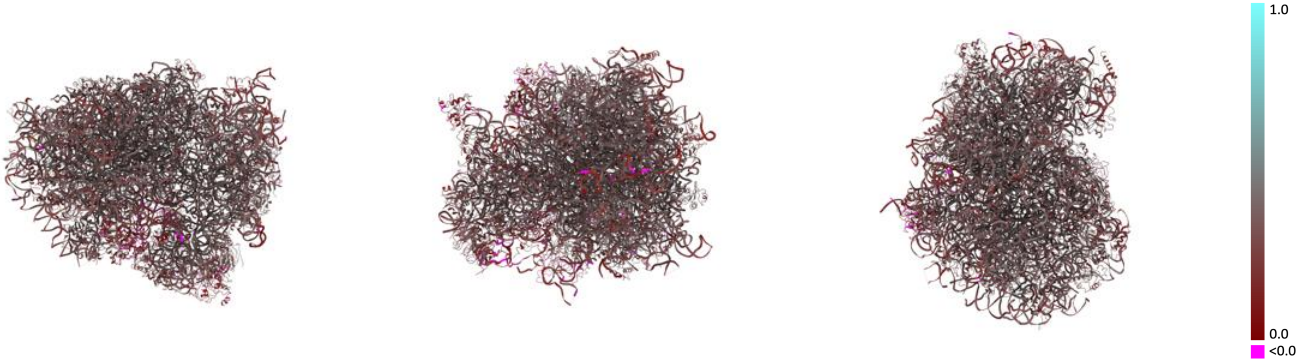
Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.025 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.

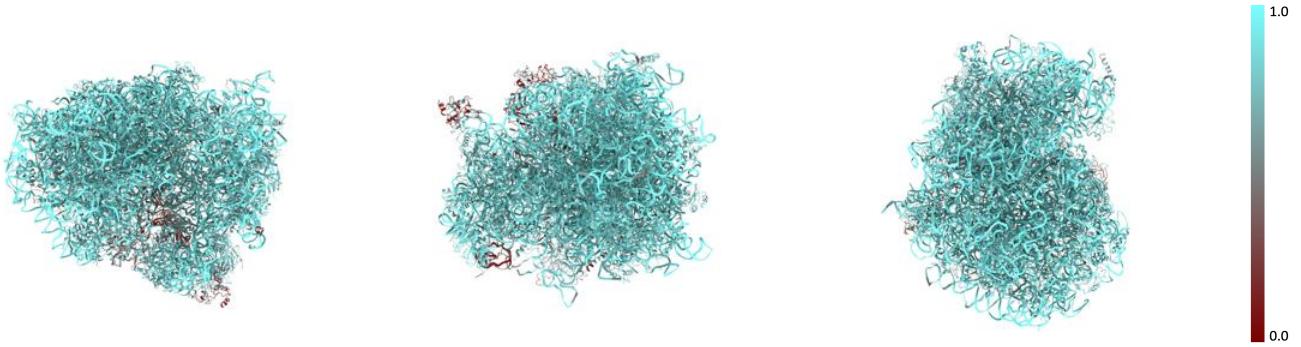
9.2 Q-score mapped to coordinate model (i)



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.

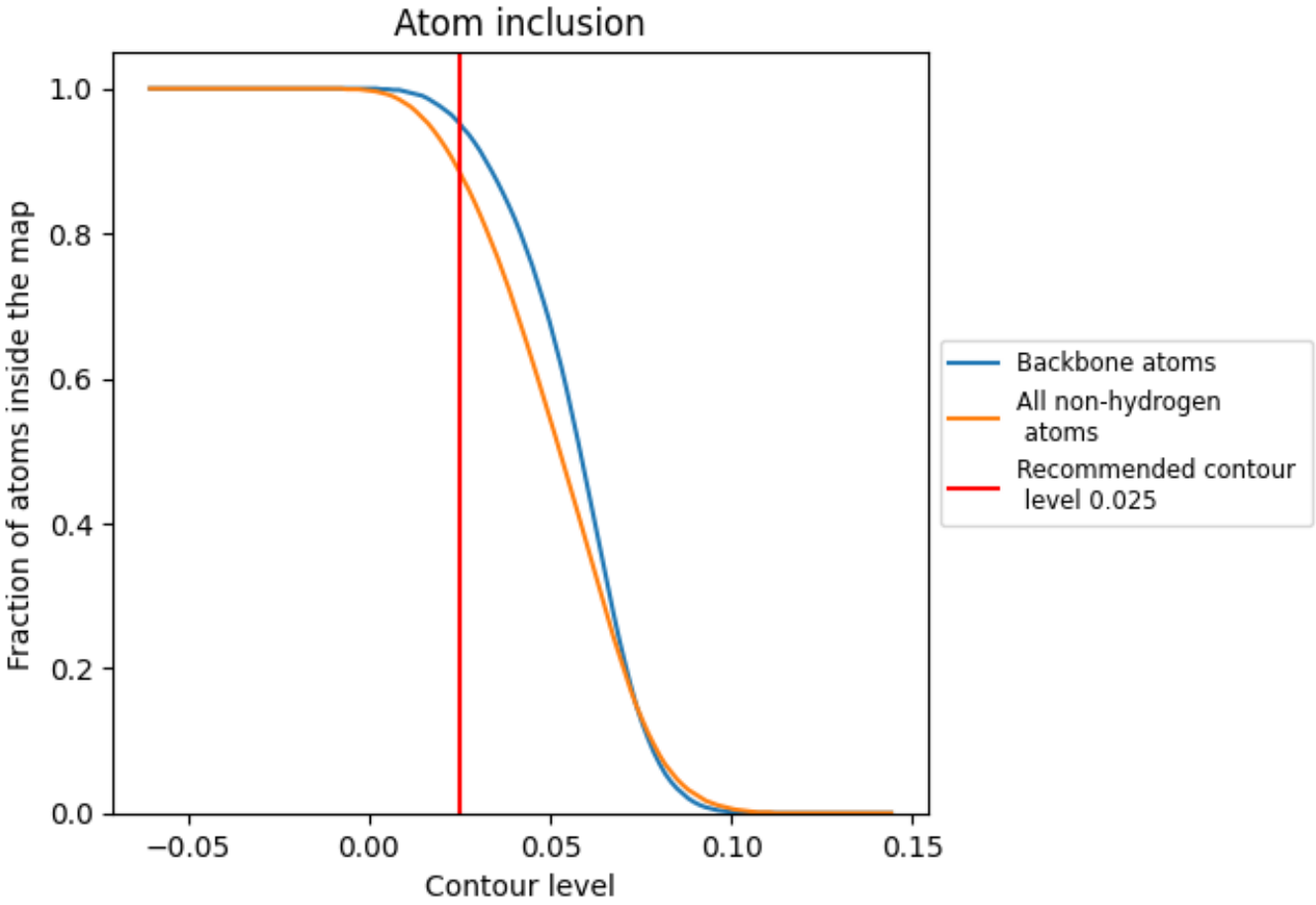
9.3 Atom inclusion mapped to coordinate model (i)



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 (0.025).

9.4 Atom inclusion (i)



At the recommended contour level, 95% of all backbone atoms, 88% 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 (0.025) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.8850	0.3350
2	0.9740	0.3550
3	0.8810	0.2840
4	0.5240	0.1010
5	0.9720	0.3540
7	0.9890	0.3620
8	0.9790	0.3650
A	0.8190	0.3560
B	0.8410	0.3650
BB	0.8110	0.3080
C	0.8330	0.3510
CC	0.8180	0.3290
D	0.8500	0.3110
DD	0.8350	0.3540
E	0.8510	0.3350
EE	0.7970	0.3320
F	0.8200	0.3260
FF	0.8330	0.3570
G	0.8020	0.3200
GG	0.7860	0.3000
H	0.8380	0.3550
HH	0.8230	0.3130
I	0.8380	0.3560
II	0.8120	0.3140
J	0.8070	0.3190
JJ	0.8180	0.3150
K	0.5930	0.1140
KK	0.8290	0.3310
L	0.8050	0.3170
LL	0.7990	0.2930
M	0.8430	0.3310
MM	0.8250	0.3550
N	0.8500	0.3550
NN	0.2660	0.1780
O	0.8340	0.3410

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Chain	Atom inclusion	Q-score
OO	0.8190	0.3350
P	0.8570	0.3600
PP	0.8230	0.3220
Q	0.8140	0.3430
QQ	0.8020	0.2750
R	0.8490	0.3310
RR	0.8080	0.2890
S	0.8450	0.3550
SS	0.7650	0.2940
T	0.8090	0.3400
TT	0.8090	0.2920
U	0.8370	0.3430
UU	0.8150	0.2870
V	0.8210	0.3610
VV	0.7750	0.3300
W	0.8090	0.3160
WW	0.8420	0.3360
X	0.8400	0.3650
XX	0.8130	0.3540
Y	0.8530	0.3350
YY	0.8360	0.3630
Z	0.8500	0.3420
ZZ	0.8510	0.3390
a	0.8440	0.3560
aa	0.7700	0.2770
b	0.7580	0.2620
bb	0.8250	0.3310
c	0.8250	0.3320
cc	0.8190	0.3460
d	0.8540	0.3660
dd	0.7910	0.3360
e	0.8650	0.3750
ee	0.8550	0.3150
f	0.8610	0.3680
ff	0.7390	0.3160
g	0.8420	0.3610
gg	0.5060	0.2330
h	0.8130	0.3180
hh	0.8390	0.3060
i	0.8320	0.3300
j	0.8850	0.3610
jj	0.4230	0.2610

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Chain	Atom inclusion	Q-score
k	0.8170	0.3430
l	0.8340	0.3440
m	0.8550	0.3530
n	0.8390	0.3350
o	0.8170	0.3380
p	0.8180	0.3440
r	0.8750	0.3710
s	0.3510	0.1620
t	0.5390	0.1760