



wwPDB X-ray Structure Validation Summary Report ⓘ

Nov 5, 2023 – 12:08 AM EDT

PDB ID : 5VPP
Title : The 70S P-site tRNA SufA6 complex
Authors : Hong, S.; Sunita, S.; Dunkle, J.A.; Maehigashi, T.; Dunham, C.M.
Deposited on : 2017-05-05
Resolution : 3.90 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

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

A user guide is available at

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

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:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

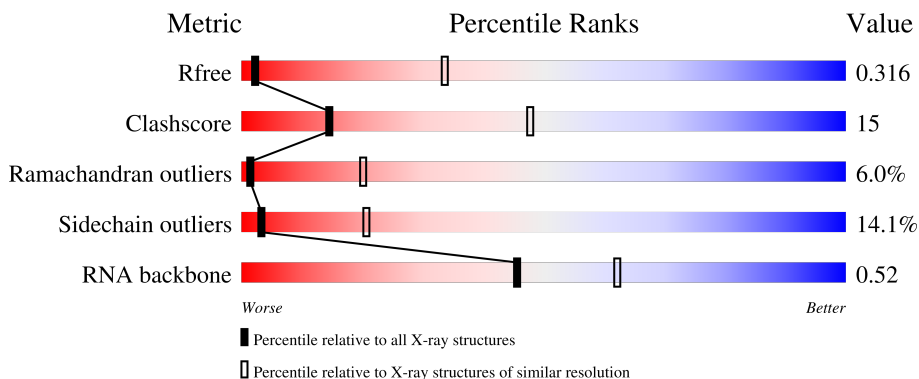
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.90 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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1002 (4.14-3.66)
Clashscore	141614	1004 (4.12-3.68)
Ramachandran outliers	138981	1021 (4.14-3.66)
Sidechain outliers	138945	1014 (4.14-3.66)
RNA backbone	3102	1040 (4.76-3.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	RA	2915	41% 46% 11% ..
1	YA	2915	41% 47% 11% ..
2	RB	122	48% 38% 11% ..
2	YB	122	53% 31% 14% .
3	RD	276	66% 25% 7% .
3	YD	276	66% 28% 5% .

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
4	RE	206	 53% 36% 9% .
4	YE	206	 58% 33% 8% .
5	RF	210	 64% 28% . .
5	YF	210	 63% 28% 5% .
6	RG	182	 56% 36% 7% .
6	YG	182	 56% 34% 9% .
7	RH	180	 53% 31% 9% . 6%
7	YH	180	 53% 30% 10% . 6%
8	RI	148	 49% 37% 11% ..
8	YI	148	 53% 34% 11% .
9	RN	140	 59% 35% 5% .
9	YN	140	 59% 34% 6% .
10	RO	122	 80% 16% .
10	YO	122	 74% 21% 5%
11	RP	150	 48% 37% 14% .
11	YP	150	 51% 33% 15% .
12	RQ	141	 57% 35% 6% .
12	YQ	141	 57% 37% 5% .
13	RR	118	 63% 32% 5%
13	YR	118	 62% 32% 6%
14	RS	112	 60% 27% 11% ..
14	YS	112	 59% 30% 9% ..
15	RT	146	 53% 34% 5% . 6%
15	YT	146	 48% 38% 8% 6%
16	RU	118	 67% 25% 6% ..

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
16	YU	118	67% 26% . . .
17	RV	101	61% 32% 7%
17	YV	101	60% 33% 6% .
18	RW	113	74% 20% 5%
18	YW	113	70% 23% 7%
19	RX	96	65% 29% . .
19	YX	96	67% 25% . .
20	RY	110	44% 40% 9% 7%
20	YY	110	51% 33% 9% 7%
21	RZ	206	49% 32% 8% 11%
21	YZ	206	47% 33% 9% 11%
22	R0	85	73% 20% . .
22	Y0	85	71% 25% . .
23	R1	98	66% 29% . . .
23	Y1	98	65% 27% 6% . .
24	R2	72	62% 26% 7% .
24	Y2	72	57% 31% 7% . .
25	R3	60	75% 22% . .
25	Y3	60	87% 8% . .
26	R5	60	52% 37% 8% . .
26	Y5	60	50% 33% 13% . .
27	R6	54	28% 41% 22% 9%
27	Y6	54	35% 35% 20% 9%
28	R7	49	69% 27% .
28	Y7	49	71% 24% .

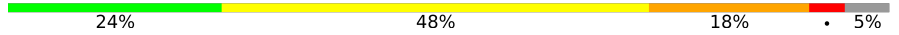



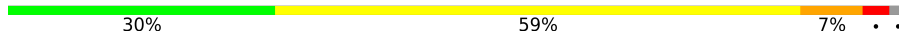



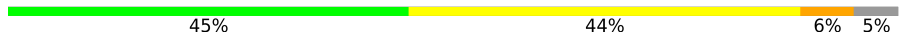
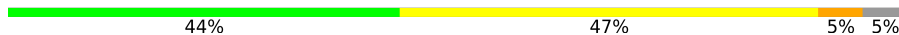
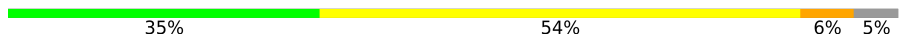
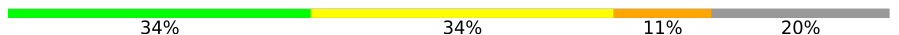
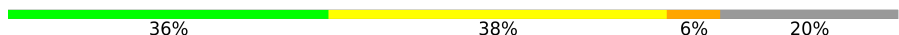












Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
29	R8	65	52% 38% 6% . .
29	Y8	65	60% 26% 11% . .
30	R9	37	70% 30%
30	Y9	37	76% 24%
31	QB	256	42% 41% 9% . 8%
31	XB	256	41% 41% 9% 8%
32	QC	239	42% 37% 8% 13%
32	XC	239	42% 38% 6% 13%
33	QD	209	47% 40% 11% .
33	XD	209	48% 43% 7% .
34	QE	162	51% 37% 5% . 7%
34	XE	162	49% 39% . . 7%
35	QF	101	51% 36% 12% .
35	XF	101	49% 39% 11% .
36	QG	156	62% 31% 5% . .
36	XG	156	51% 42% 7% .
37	QH	138	48% 43% 9% .
37	XH	138	43% 46% 10% .
38	QI	128	45% 51% . .
38	XI	128	54% 36% 9% .
39	QJ	105	44% 38% 11% . 6%
39	XJ	105	35% 49% 10% 6%
40	QK	129	43% 44% 5% 8%
40	XK	129	47% 36% 10% 8%
41	QL	132	16% 57% 18% . 5%

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
41	XL	132	
42	QM	126	
42	XM	126	
43	QN	61	
43	XN	61	
44	QO	89	
44	XO	89	
45	QP	88	
45	XP	88	
46	QQ	105	
46	XQ	105	
47	QR	88	
47	XR	88	
48	QT	106	
48	XT	106	
49	QA	1521	
49	XA	1521	
50	QS	93	
50	XS	93	
51	R4	71	
51	Y4	71	
52	QX	19	
52	XX	19	
53	QV	78	
53	XV	78	

2 Entry composition [i](#)

There are 55 unique types of molecules in this entry. The entry contains 291660 atoms, of which 0 are hydrogens and 0 are deuteriums.

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

- Molecule 1 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	RA	2882	Total	C	N	O	P	0	0	0
			62071	27627	11611	19952	2881			
1	YA	2883	Total	C	N	O	P	0	0	0
			62091	27636	11613	19960	2882			

- Molecule 2 is a RNA chain called 5S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
2	RB	120	Total	C	N	O	P	0	0	0
			2573	1146	476	832	119			
2	YB	120	Total	C	N	O	P	0	0	0
			2573	1146	476	832	119			

- Molecule 3 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	RD	272	Total	C	N	O	S	0	0	0
			2115	1335	420	357	3			
3	YD	272	Total	C	N	O	S	0	0	0
			2115	1335	420	357	3			

- Molecule 4 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	RE	205	Total	C	N	O	S	0	0	0
			1568	991	300	271	6			
4	YE	205	Total	C	N	O	S	0	0	0
			1568	991	300	271	6			

- Molecule 5 is a protein called 50S ribosomal protein L4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
5	RF	202	Total	C	N	O	S	0	0	0
			1585	1011	297	275	2			
5	YF	202	Total	C	N	O	S	0	0	0
			1585	1011	297	275	2			

- Molecule 6 is a protein called 50S ribosomal protein L5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
6	RG	181	Total	C	N	O	S	0	0	0
			1474	942	268	260	4			
6	YG	181	Total	C	N	O	S	0	0	0
			1474	942	268	260	4			

- Molecule 7 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
7	RH	170	Total	C	N	O	S	0	0	0
			1307	829	245	232	1			
7	YH	170	Total	C	N	O	S	0	0	0
			1307	829	245	232	1			

- Molecule 8 is a protein called 50S ribosomal protein L9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	RI	146	Total	C	N	O	S	0	0	0
			1136	726	201	208	1			
8	YI	146	Total	C	N	O	S	0	0	0
			1136	726	201	208	1			

- Molecule 9 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
9	RN	138	Total	C	N	O	S	0	0	0
			1104	712	206	182	4			
9	YN	138	Total	C	N	O	S	0	0	0
			1104	712	206	182	4			

- Molecule 10 is a protein called 50S ribosomal protein L14.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
10	RO	122	Total	C	N	O	S	0	0	0
			933	588	171	170	4			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	YO	122	933	588	171	170	4	0	0	0

- Molecule 11 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	RP	150	1145	712	232	198	3	0	0	0
11	YP	150	1145	712	232	198	3	0	0	0

- Molecule 12 is a protein called 50S ribosomal protein L16.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	RQ	141	1122	715	212	188	7	0	0	0
12	YQ	141	1122	715	212	188	7	0	0	0

- Molecule 13 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	RR	118	968	604	203	160	1	0	0	0
13	YR	118	968	604	203	160	1	0	0	0

- Molecule 14 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
14	RS	111	882	556	176	150	0	0	0
14	YS	111	882	556	176	150	0	0	0

- Molecule 15 is a protein called 50S ribosomal protein L19.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
15	RT	137	1141	710	234	196	1	0	0	0
15	YT	137	1141	710	234	196	1	0	0	0

- Molecule 16 is a protein called 50S ribosomal protein L20.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
16	RU	117	Total	C	N	O	S	0	0	0
			964	610	202	151	1			
16	YU	117	Total	C	N	O	S	0	0	0
			964	610	202	151	1			

- Molecule 17 is a protein called 50S ribosomal protein L21.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
17	RV	101	Total	C	N	O	S	0	0	0
			779	501	142	135	1			
17	YV	101	Total	C	N	O	S	0	0	0
			779	501	142	135	1			

- Molecule 18 is a protein called 50S ribosomal protein L22.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
18	RW	113	Total	C	N	O	S	0	0	0
			900	566	177	155	2			
18	YW	113	Total	C	N	O	S	0	0	0
			900	566	177	155	2			

- Molecule 19 is a protein called 50S ribosomal protein L23.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
19	RX	92	Total	C	N	O	0	0	0
			725	471	131	123			
19	YX	92	Total	C	N	O	0	0	0
			725	471	131	123			

- Molecule 20 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
20	RY	102	Total	C	N	O	S	0	0	0
			785	505	150	125	5			
20	YY	102	Total	C	N	O	S	0	0	0
			785	505	150	125	5			

- Molecule 21 is a protein called 50S ribosomal protein L25.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
21	RZ	183	Total	C	N	O	S	0	0	0
			1461	933	260	265	3			
21	YZ	183	Total	C	N	O	S	0	0	0
			1461	933	260	265	3			

- Molecule 22 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
22	R0	82	Total	C	N	O	S	0	0	0
			648	401	138	108	1			
22	Y0	82	Total	C	N	O	S	0	0	0
			648	401	138	108	1			

- Molecule 23 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
23	R1	97	Total	C	N	O	S	0	0	0
			763	481	150	131	1			
23	Y1	97	Total	C	N	O	S	0	0	0
			763	481	150	131	1			

- Molecule 24 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
24	R2	69	Total	C	N	O	S	0	0	0
			581	358	118	104	1			
24	Y2	69	Total	C	N	O	S	0	0	0
			581	358	118	104	1			

- Molecule 25 is a protein called 50S ribosomal protein L30.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
25	R3	59	Total	C	N	O	0	0	0
			469	298	90	81			
25	Y3	59	Total	C	N	O	0	0	0
			469	298	90	81			

- Molecule 26 is a protein called 50S ribosomal protein L32.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
26	R5	59	Total	C	N	O	S	0	0	0
			459	288	90	76	5			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
26	Y5	59	Total	C	N	O	S	0	0	0
			459	288	90	76	5			

- Molecule 27 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
27	R6	49	Total	C	N	O	S	0	0	0
			424	264	87	69	4			
27	Y6	49	Total	C	N	O	S	0	0	0
			424	264	87	69	4			

- Molecule 28 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
28	R7	49	Total	C	N	O	S	0	0	0
			430	263	108	57	2			
28	Y7	49	Total	C	N	O	S	0	0	0
			430	263	108	57	2			

- Molecule 29 is a protein called 50S ribosomal protein L35.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
29	R8	64	Total	C	N	O	S	0	0	0
			517	331	102	82	2			
29	Y8	64	Total	C	N	O	S	0	0	0
			517	331	102	82	2			

- Molecule 30 is a protein called 50S ribosomal protein L36.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
30	R9	37	Total	C	N	O	S	0	0	0
			307	188	68	47	4			
30	Y9	37	Total	C	N	O	S	0	0	0
			307	188	68	47	4			

- Molecule 31 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
31	QB	235	Total	C	N	O	S	0	0	0
			1909	1218	342	344	5			
31	XB	235	Total	C	N	O	S	0	0	0
			1909	1218	342	344	5			

- Molecule 32 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
32	QC	207	Total	C	N	O	S	0	0	0
			1620	1022	315	282	1			
32	XC	207	Total	C	N	O	S	0	0	0
			1620	1022	315	282	1			

- Molecule 33 is a protein called 30S ribosomal protein S4.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
33	QD	208	Total	C	N	O	S	0	0	0
			1703	1066	339	291	7			
33	XD	208	Total	C	N	O	S	0	0	0
			1703	1066	339	291	7			

- Molecule 34 is a protein called 30S ribosomal protein S5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
34	QE	151	Total	C	N	O	S	0	0	0
			1155	729	218	204	4			
34	XE	151	Total	C	N	O	S	0	0	0
			1155	729	218	204	4			

- Molecule 35 is a protein called 30S ribosomal protein S6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
35	QF	101	Total	C	N	O	S	0	0	0
			843	531	155	154	3			
35	XF	101	Total	C	N	O	S	0	0	0
			843	531	155	154	3			

- Molecule 36 is a protein called 30S ribosomal protein S7.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
36	QG	155	Total	C	N	O	S	0	0	0
			1257	781	252	218	6			
36	XG	155	Total	C	N	O	S	0	0	0
			1257	781	252	218	6			

- Molecule 37 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
37	QH	138	Total	C	N	O	S	0	0	0
			1116	705	215	193	3			
37	XH	138	Total	C	N	O	S	0	0	0
			1116	705	215	193	3			

- Molecule 38 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
38	QI	127	Total	C	N	O	S	0	0	0
			1010	639	197	174				
38	XI	127	Total	C	N	O	S	0	0	0
			1010	639	197	174				

- Molecule 39 is a protein called 30S ribosomal protein S10.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
39	QJ	99	Total	C	N	O	S	0	0	0
			801	504	157	139	1			
39	XJ	99	Total	C	N	O	S	0	0	0
			801	504	157	139	1			

- Molecule 40 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
40	QK	119	Total	C	N	O	S	0	0	0
			885	549	168	165	3			
40	XK	119	Total	C	N	O	S	0	0	0
			885	549	168	165	3			

- Molecule 41 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
41	QL	125	Total	C	N	O	S	0	0	0
			975	614	196	164	1			
41	XL	125	Total	C	N	O	S	0	0	0
			975	614	196	164	1			

- Molecule 42 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
42	QM	114	Total	C	N	O	S	0	0	0
			914	565	189	158	2			

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
42	XM	114	Total	C	N	O	S	0	0	0
			914	565	189	158	2			

- Molecule 43 is a protein called 30S ribosomal protein S14 type Z.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
43	QN	60	Total	C	N	O	S	0	0	0
			492	312	104	72	4			
43	XN	60	Total	C	N	O	S	0	0	0
			492	312	104	72	4			

- Molecule 44 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
44	QO	88	Total	C	N	O	S	0	0	0
			734	459	147	126	2			
44	XO	88	Total	C	N	O	S	0	0	0
			734	459	147	126	2			

- Molecule 45 is a protein called 30S ribosomal protein S16.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
45	QP	84	Total	C	N	O	S	0	0	0
			705	446	140	118	1			
45	XP	84	Total	C	N	O	S	0	0	0
			705	446	140	118	1			

- Molecule 46 is a protein called 30S ribosomal protein S17.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
46	QQ	100	Total	C	N	O	S	0	0	0
			834	534	155	143	2			
46	XQ	100	Total	C	N	O	S	0	0	0
			834	534	155	143	2			

- Molecule 47 is a protein called 30S ribosomal protein S18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
47	QR	70	Total	C	N	O	0	0	0
			574	367	112	95			
47	XR	70	Total	C	N	O	0	0	0
			574	367	112	95			

- Molecule 48 is a protein called 30S ribosomal protein S20.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
48	QT	99	Total 763	C 470	N 162	O 129	S 2	0	0	0
48	XT	99	Total 763	C 470	N 162	O 129	S 2	0	0	0

- Molecule 49 is a RNA chain called 16S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
49	QA	1511	Total 32472	C 14454	N 6013	O 10495	P 1510	0	0	0
49	XA	1515	Total 32554	C 14491	N 6024	O 10525	P 1514	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
QA	458C	G	C	conflict	GB 55771382
XA	458C	G	C	conflict	GB 55771382

- Molecule 50 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
50	XS	79	Total 633	C 405	N 115	O 111	S 2	0	0	0
50	QS	79	Total 633	C 405	N 115	O 111	S 2	0	0	0

- Molecule 51 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
51	R4	34	Total 262	C 169	N 43	O 48	S 2	0	0	0
51	Y4	46	Total 357	C 229	N 59	O 64	S 5	0	0	0

- Molecule 52 is a RNA chain called messenger RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
52	XX	19	Total 409	C 184	N 81	O 126	P 18	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
52	QX	19	409	184	81	126	18	0	0	0

- Molecule 53 is a RNA chain called P-site tRNA SufA6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
53	XV	78	1670	744	300	548	78	0	0	0
53	QV	78	1670	744	300	548	78	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
XV	38	1MG	-	insertion	GB 1151176235
QV	38	1MG	-	insertion	GB 1151176235

- Molecule 54 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
54	RA	562	Total	Mg	0	0
			562	562		
54	RB	15	Total	Mg	0	0
			15	15		
54	RD	10	Total	Mg	0	0
			10	10		
54	RE	7	Total	Mg	0	0
			7	7		
54	RF	4	Total	Mg	0	0
			4	4		
54	RI	1	Total	Mg	0	0
			1	1		
54	RO	2	Total	Mg	0	0
			2	2		
54	RQ	2	Total	Mg	0	0
			2	2		
54	RR	3	Total	Mg	0	0
			3	3		
54	RT	3	Total	Mg	0	0
			3	3		
54	RU	1	Total	Mg	0	0
			1	1		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
54	RX	2	Total Mg 2 2	0	0
54	RY	1	Total Mg 1 1	0	0
54	R0	2	Total Mg 2 2	0	0
54	R1	3	Total Mg 3 3	0	0
54	R3	1	Total Mg 1 1	0	0
54	R6	1	Total Mg 1 1	0	0
54	R8	3	Total Mg 3 3	0	0
54	YA	379	Total Mg 379 379	0	0
54	YB	10	Total Mg 10 10	0	0
54	YD	4	Total Mg 4 4	0	0
54	YE	5	Total Mg 5 5	0	0
54	YI	1	Total Mg 1 1	0	0
54	YP	1	Total Mg 1 1	0	0
54	YQ	1	Total Mg 1 1	0	0
54	YR	1	Total Mg 1 1	0	0
54	YT	2	Total Mg 2 2	0	0
54	YU	1	Total Mg 1 1	0	0
54	YX	1	Total Mg 1 1	0	0
54	YY	1	Total Mg 1 1	0	0
54	Y0	1	Total Mg 1 1	0	0
54	Y1	1	Total Mg 1 1	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
54	Y8	1	Total 1	Mg 1	0	0
54	QC	1	Total 1	Mg 1	0	0
54	QD	3	Total 3	Mg 3	0	0
54	QE	1	Total 1	Mg 1	0	0
54	QL	3	Total 3	Mg 3	0	0
54	QP	2	Total 2	Mg 2	0	0
54	QQ	2	Total 2	Mg 2	0	0
54	QT	2	Total 2	Mg 2	0	0
54	QA	131	Total 131	Mg 131	0	0
54	XC	1	Total 1	Mg 1	0	0
54	XD	1	Total 1	Mg 1	0	0
54	XE	1	Total 1	Mg 1	0	0
54	XK	1	Total 1	Mg 1	0	0
54	XL	2	Total 2	Mg 2	0	0
54	XM	1	Total 1	Mg 1	0	0
54	XO	1	Total 1	Mg 1	0	0
54	XP	1	Total 1	Mg 1	0	0
54	XA	128	Total 128	Mg 128	0	0

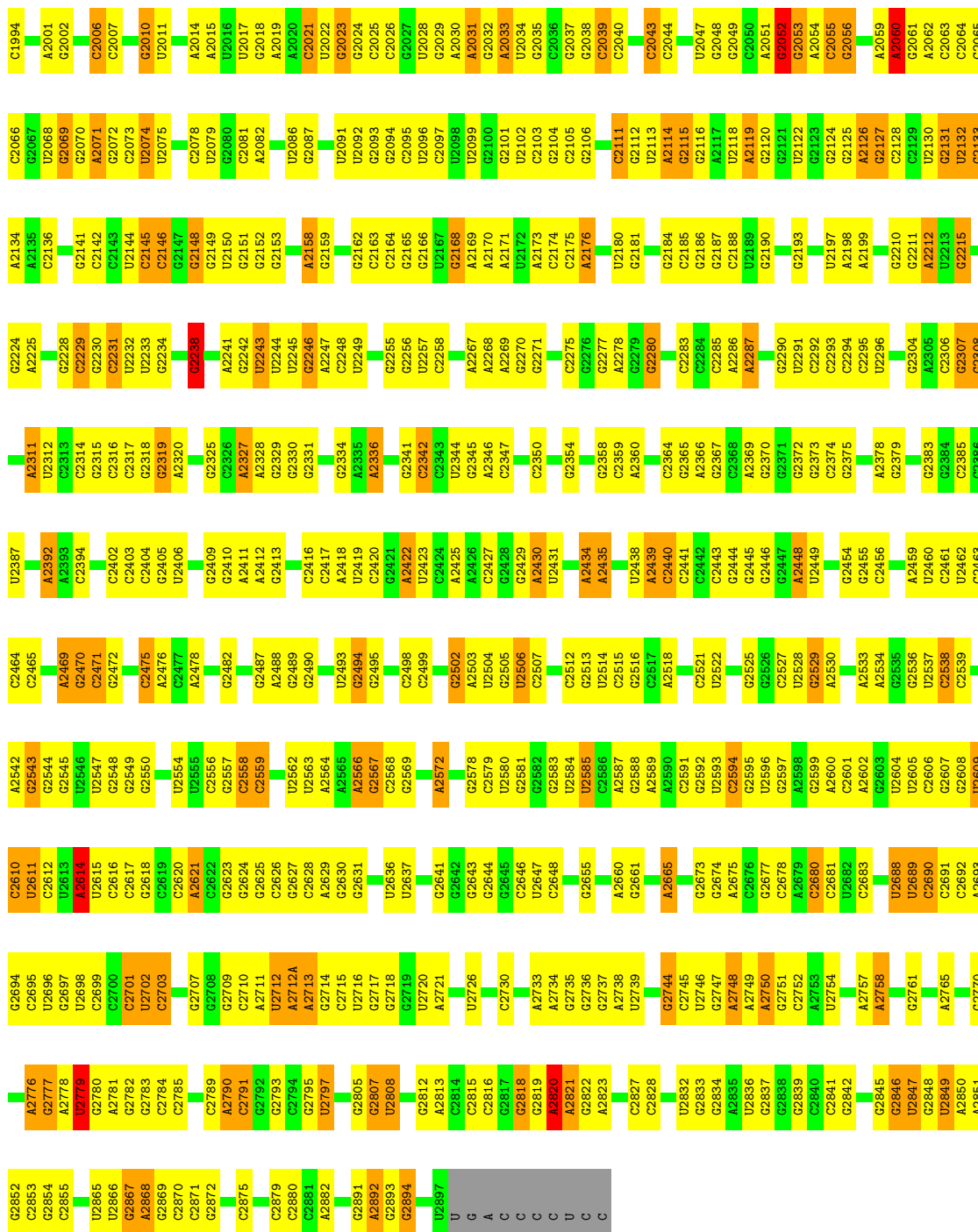
- Molecule 55 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
55	Y9	1	Total 1	Zn 1	0	0

Continued on next page...

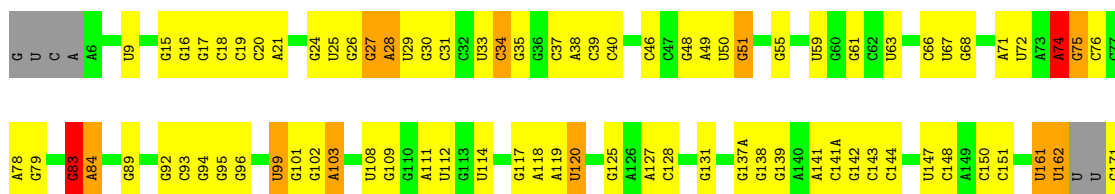
Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
55	QD	2	Total 2	Zn 2	0	0
55	XD	1	Total 1	Zn 1	0	0

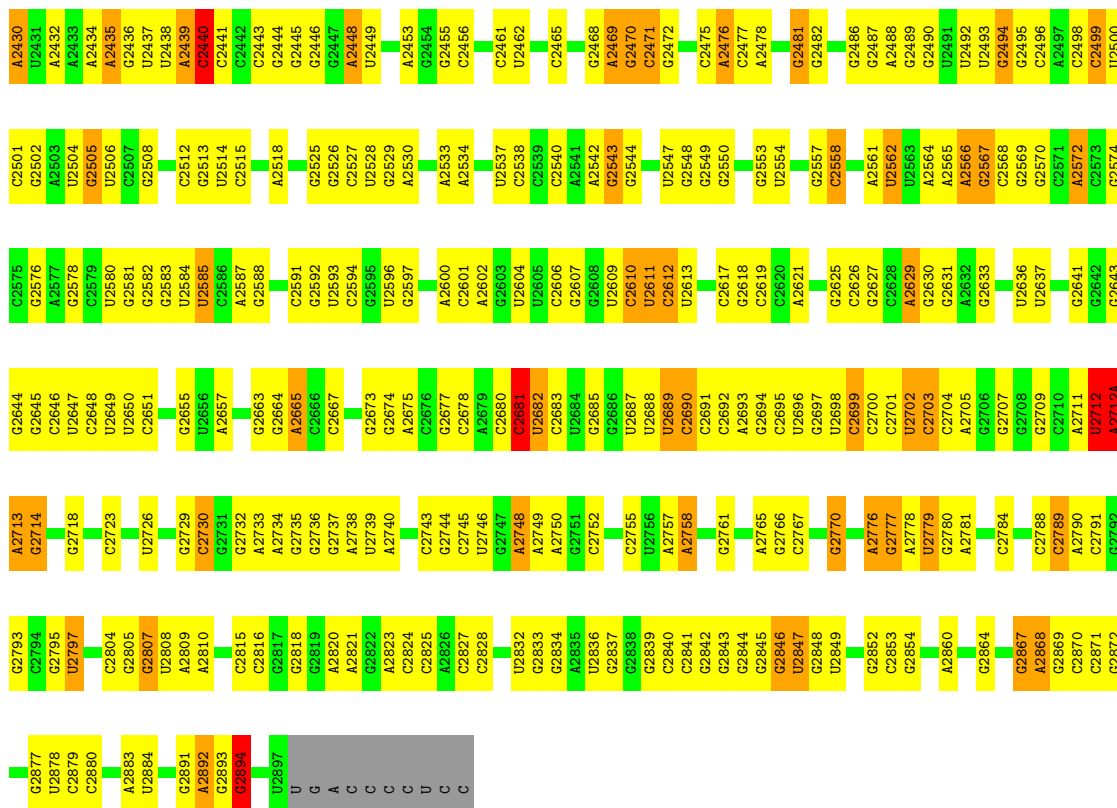


• Molecule 1: 23S rRNA

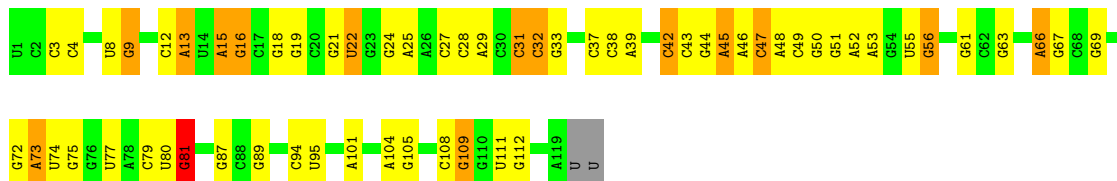
Chain YA: 41% 47% 11% ..



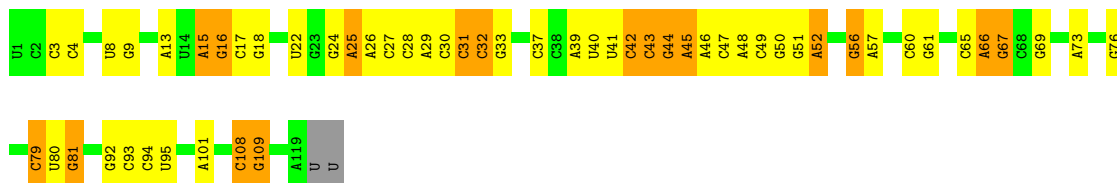
G1236	U1313	G1389	G1458	C1532	A1610	U1680	A1780	G1845	G1935	G2018	G2087	C2164	G2354
A1237	G1314	U1390	G1459	C1533	C1611	G1681	C1781	G1846	G1936	A2019	U2091	G2165	G2375
G1238	C1315	U1391	G1461	U1535	G1612	G1682	C1782	A1847	A1936	A2020	U2092	U2166	G2376
A1241	U1316	A1392	G1462	C1536	A1614	C1686	A1783	A1848	A1937	C2021	U2093	G2167	G2377
G1243	C1317	A1393	G1463	U1537	G1615	U1688	A1784	G1849	U1938	U2022	G2094	G2168	C2359
	C1318	U1394	G1464	G1538	A1616	A1689	A1785	G1850	U1939	G2023	G2095	C2173	A2360
	A1321	C1398	G1465	G1539	A1617	A1690	A1786	U1851	C1942	G2024	C2095	A2173	A2361
	A1322	C1399	G1466	U1540	G1618	A1691	A1787	U1852	U1943	C2025	U2099	A2176	G2362
	U1329	G1400	C1467	U1541	G1622	U1692	C1790	A1853	A1854	C2026	G2100	G2176	C2363
	C1251	G1401	A1471	U1542	A1625	C1694	G1792	G1858	A1854	U2028	U2101	G2184	C2364
	A1253	C1402	U1471	U1543	G1626	C1695	C1793	U1859	C1947	G2029	C2103	C2186	G2365
	U1254	C1403	C1474	A1543	G1627	G1695	U1794	U1864	A1952	A2031	G2104	G2187	C2372
	G1256	G1404	G1475	U1544	A1628	A1698	C1795	G1869	U1955	A2032	C2105	C2190	G2373
	G1259	U1405	U1476	A1545	G1629	A1700	U1796	U1870	U1956	A2033	G2106	G2191	A2374
	G1260	U1406	A1477	C1547	U1630	A1701	C1797	A1872	U1957	U2034	G2107	C2192	A2375
	C1261	C1407	G1478	U1548	G1632	G1702	U1798	U1873	A1960	G2043	C2111	U2197	A2376
	U1262	C1408	G1479	C1550	A1632	G1702	G1799	G1878	U1961	C2044	G2112	A2198	A2377
	U1263	C1409	G1480	C1551	C1636	U1709	C1800	C1882	U1962	G2045	U2113	A2199	A2378
	U1264	C1411	U1482	C1552	A1637	C1710	G1801	U1888	G1964	U2047	A2114	A2199	G2379
	A1265	C1412	G1483	C1553	G1638	C1711	A1802	G1889	U1967	G2048	G2210	G2210	C2380
	G1266	G1413	G1484	C1554	U1639	C1711	A1803	A1894	C1967	C2049	G2211	G2211	C2381
	G1267	G1414	G1485	C1555	C1640	G1726	U1804	A1895	U1968	A2051	G2212	G2212	C2382
	U1267	U1415	A1490	C1556	C1641	G1727	U1805	C1887	A1970	G2052	G2213	G2228	C2383
	A1268	C1416	A1491	C1557	A1642	U1727	C1806	G1888	A1971	C2053	A2126	G2229	G2314
	A1269	C1417	C1493	C1558	G1643	G1728	A1810	A1889	A1972	C2054	G2127	G2230	G2315
	C1270	C1418	A1494	C1559	C1643	U1729	A1811	A1890	G1973	A2055	C2128	U2233	C2316
	A1271	C1419	A1495	C1560	C1644	U1730	A1812	A1891	U1974	C2056	C2129	G2234	C2317
	U1272	C1420	A1496	C1561	C1645	G1731	A1813	C1893	C1983	A2057	U2130	G2235	C2318
	U1273	G1422	U1497	C1562	C1646	C1732	G1816	G1897	C1984	A2058	U2131	G2236	C2319
	A1278	C1422	C1498	C1563	C1647	C1733	C1816	U1898	C1985	A2059	G2132	G2237	A2320
	G1279	G1425	U1501	C1502	C1648	C1734	A1819	G1899	C1986	A2060	U2133	G2238	C2404
	G1283	G1426	C1503	C1504	C1649	G1742	U1820	C1902	C1987	A2061	G2134	C2239	G2405
	A1284	A1426	U1504	C1505	A1654	G1743	A1821	G1903	U1989	G2062	U2135	G2240	U2406
	A1286	C1428	C1506	C1506	A1655	G1750	G1823	G1904	U1990	A2063	G2136	A2241	G2407
	C1289	C1429	A1507	C1507	C1656	G1753	A1824	C1905	C1991	C2064	C2136	G2242	U2408
	C1290	U1431	A1508	C1508	C1657	C1754	A1825	C1906	C1992	C2065	C2137	U2243	G2409
	C1291	C1434	A1509	C1509	C1658	A1755	A1826	G1907	C1993	C2066	G2138	U2244	C2410
	U1292	G1435	A1510	C1510	U1659	G1756	G1827	C1908	G1994	G2067	C2139	U2245	G2326
	C1293	G1436	U1511	C1511	C1663	U1757	A1828	A1912	C1995	U2068	G2140	G2246	A2327
	U1294	C1437	C1512	C1512	A1664	G1758	A1829	A1913	C2000	G2069	G2141	A2247	A2328
	G1295	A1438	A1439	C1513	A1665	C1758	C1830	A1914	A2001	A2070	C2142	A2247	G2329
	G1296	C1444	C1444	C1514	C1666	A1762	G1831	A1914	G2002	G2071	G2143	G2250	C2330
	C1297	C1445	C1445	C1515	C1667	G1763	U1833	A1918	G2003	A2072	G2144	G2251	G2331
	G1298	C1446	C1446	C1516	A1668	G1764	U1834	A1919	C2004	C2073	G2145	U2252	G2332
	U1300	C1447	C1447	C1517	C1669	G1769	G1835	C1920	C2005	U2074	U2150	U2253	G2333
	G1301	G1448	G1448	C1518	C1670	C1770	C1836	C1921	C2006	U2075	G2151	G2254	G2334
	A1302	A1449	A1449	C1519	C1671	C1771	U1837	C1922	C2007	A2076	G2152	G2255	A2335
	G1303	G1449A	G1449A	C1520	C1672	A1772	C1838	U1924	C2008	U2077	G2153	G2256	A2336
	G1309	C1455	C1455	C1521	C1673	C1773	G1839	C1925	C2009	A2078	G2154	A2266	U2344
	C1386	C1455	C1455	C1522	C1674	C1774	U1840	A1927	G2010	A2081	G2155	A2267	A2345
				C1523	C1675	C1775	U1841	U1928	U2011	A2082	G2156	A2268	A2346
				C1524	C1676	C1776	U1842	G1929	A2014	C2085	A2158	G2272	C2347
				C1525	C1677	C1777	G1843	U1930	U2015	C2086	U2271	U2271	G2348
				C1526	C1678	C1778	C1844	U1931	U2016	U2086	C2163	A2273	C2350
				C1527	C1679	C1779	C1844	U1931	U2017	U2086	C2163	A2273	C2350



• Molecule 2: 5S rRNA

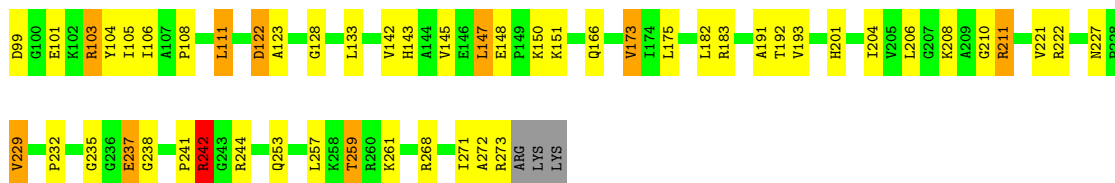


• Molecule 2: 5S rRNA

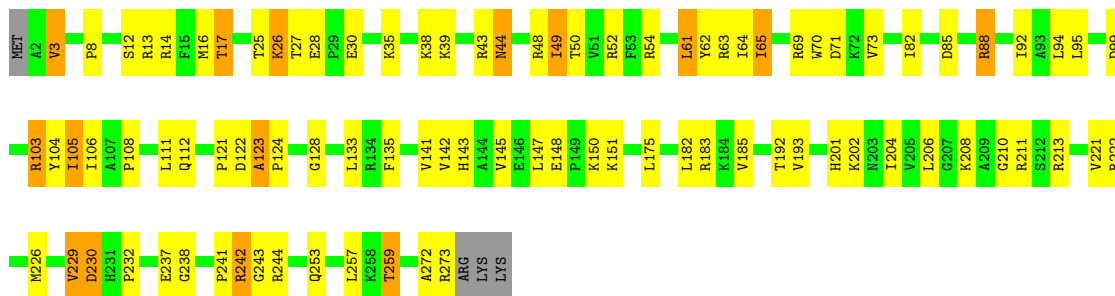


• Molecule 3: 50S ribosomal protein L2

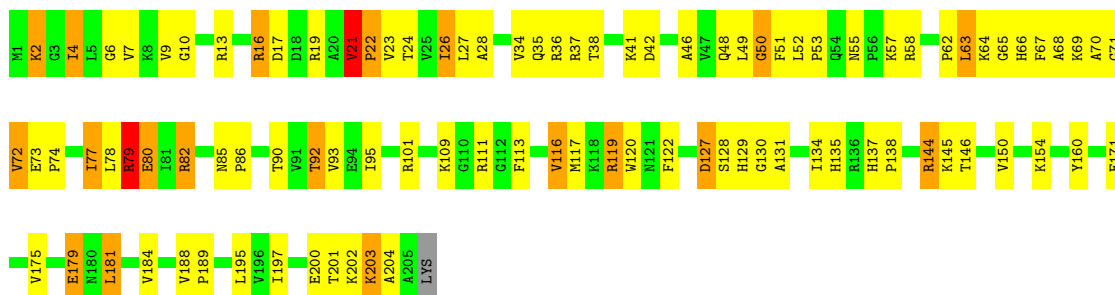




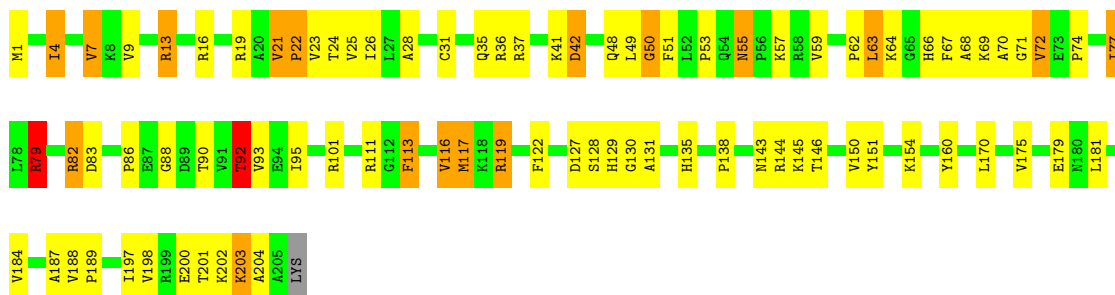
• Molecule 3: 50S ribosomal protein L2



• Molecule 4: 50S ribosomal protein L3

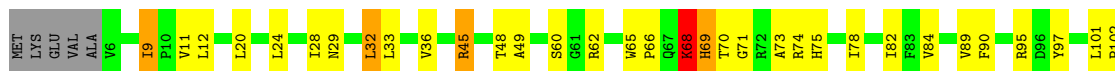


• Molecule 4: 50S ribosomal protein L3



• Molecule 5: 50S ribosomal protein L4

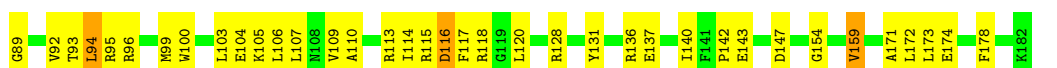
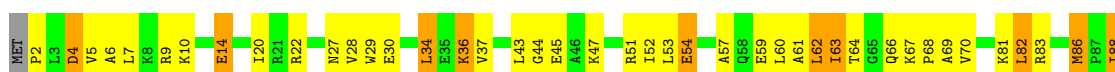




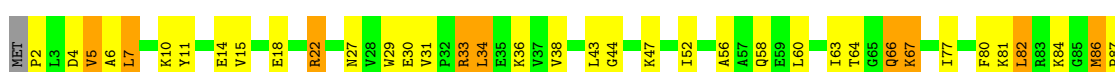
• Molecule 5: 50S ribosomal protein L4



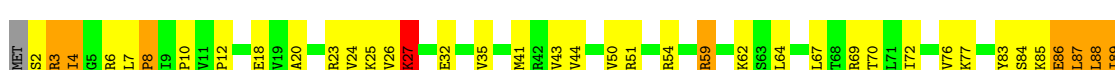
• Molecule 6: 50S ribosomal protein L5

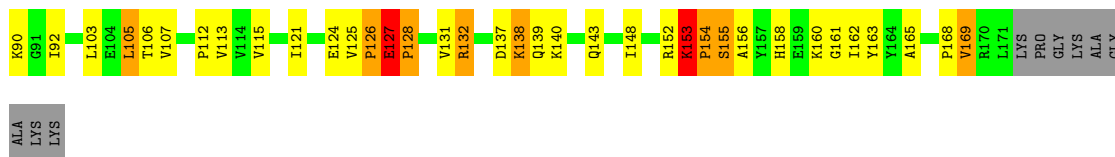


• Molecule 6: 50S ribosomal protein L5



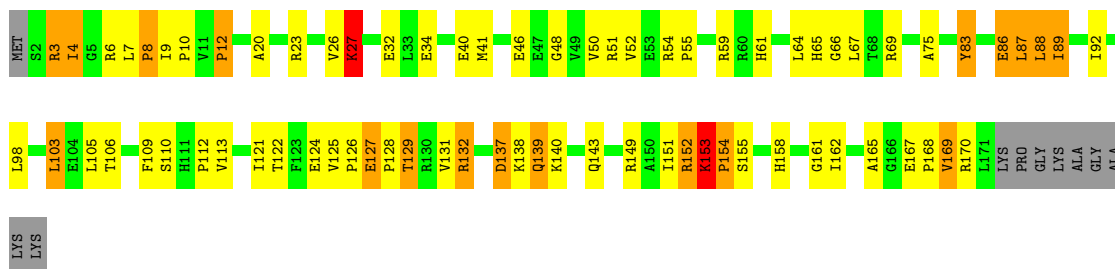
• Molecule 7: 50S ribosomal protein L6





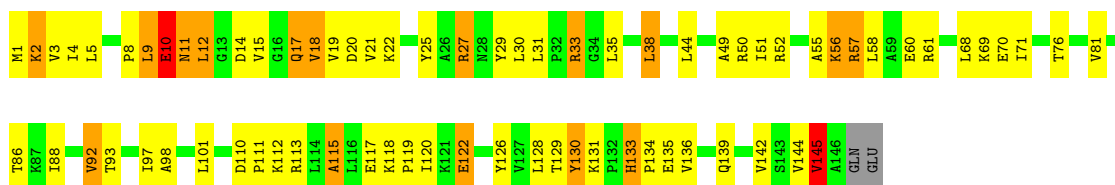
- Molecule 7: 50S ribosomal protein L6

Chain YH:



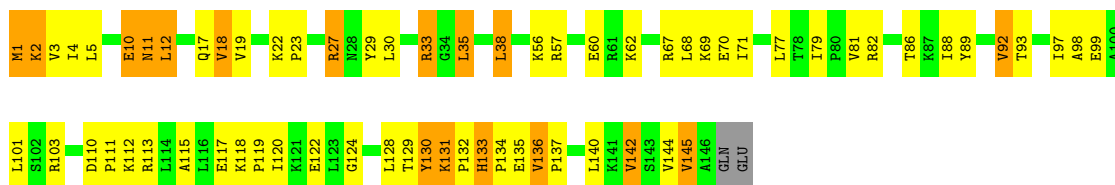
- Molecule 8: 50S ribosomal protein L9

Chain RI:



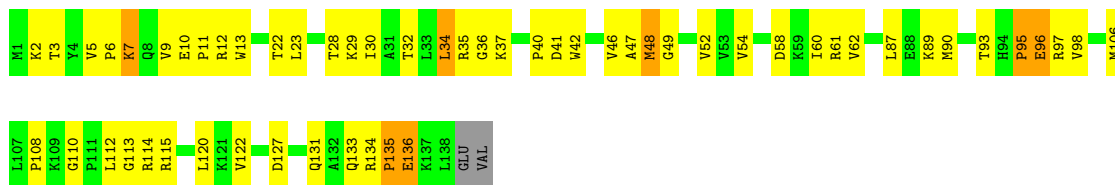
- Molecule 8: 50S ribosomal protein L9

Chain YI:



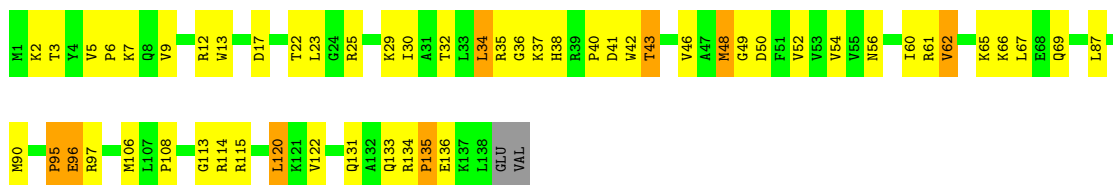
- Molecule 9: 50S ribosomal protein L13

Chain RN:




- Molecule 9: 50S ribosomal protein L13

Chain YN:  59% 34% 6%




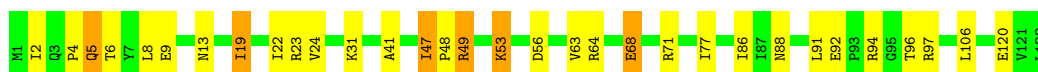
- Molecule 10: 50S ribosomal protein L14

Chain RO:  80% 16%



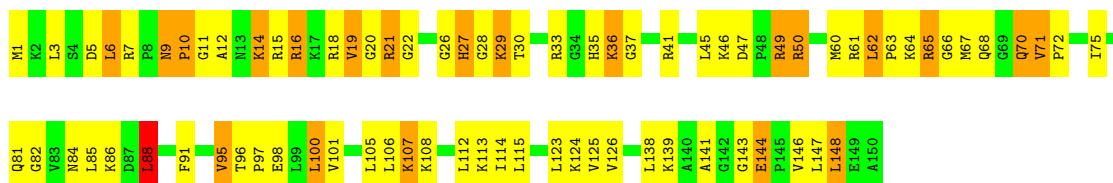
- Molecule 10: 50S ribosomal protein L14

Chain YO:  74% 21% 5%



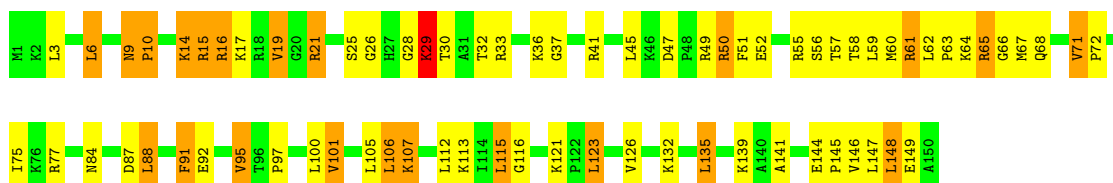
- Molecule 11: 50S ribosomal protein L15

Chain RP:  48% 37% 14%



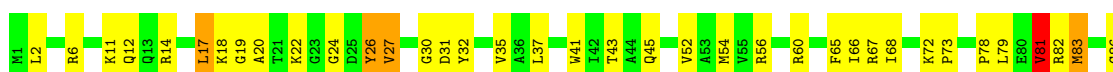
- Molecule 11: 50S ribosomal protein L15

Chain YP:  51% 33% 15%



- Molecule 12: 50S ribosomal protein L16

Chain RQ:  57% 35% 6%

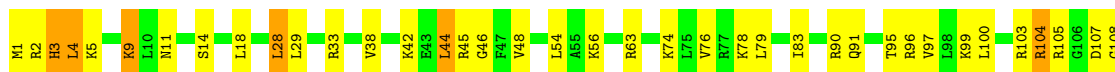




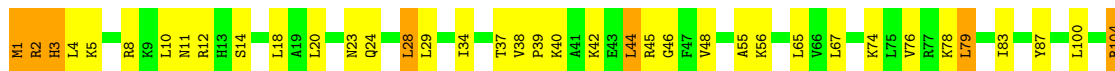
- Molecule 12: 50S ribosomal protein L16



- Molecule 13: 50S ribosomal protein L17



- Molecule 13: 50S ribosomal protein L17



- Molecule 14: 50S ribosomal protein L18



- Molecule 14: 50S ribosomal protein L18

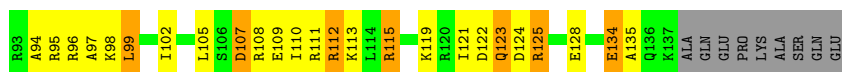
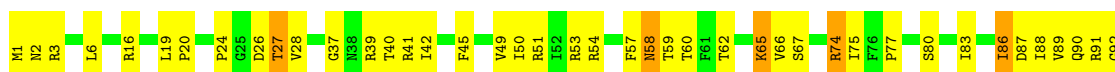




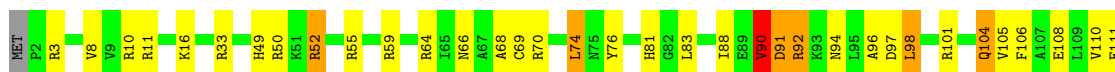
• Molecule 15: 50S ribosomal protein L19



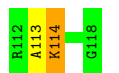
• Molecule 15: 50S ribosomal protein L19



• Molecule 16: 50S ribosomal protein L20



• Molecule 16: 50S ribosomal protein L20

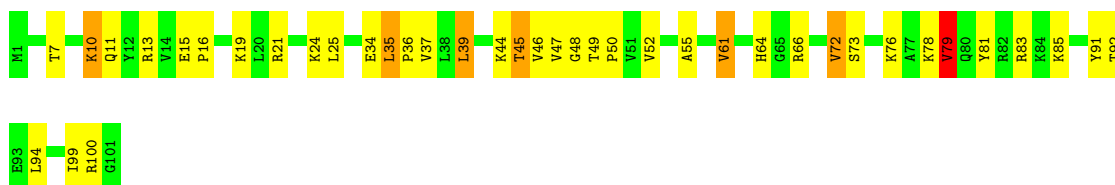


• Molecule 17: 50S ribosomal protein L21




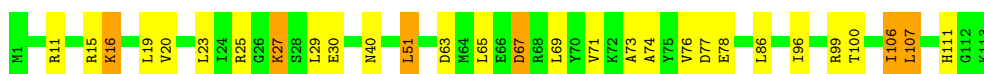
- Molecule 17: 50S ribosomal protein L21

Chain YV: 



- Molecule 18: 50S ribosomal protein L22

Chain RW: 



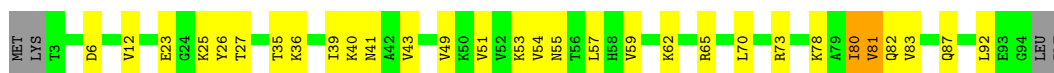
- Molecule 18: 50S ribosomal protein L22

Chain YW: 



- Molecule 19: 50S ribosomal protein L23

Chain RX: 



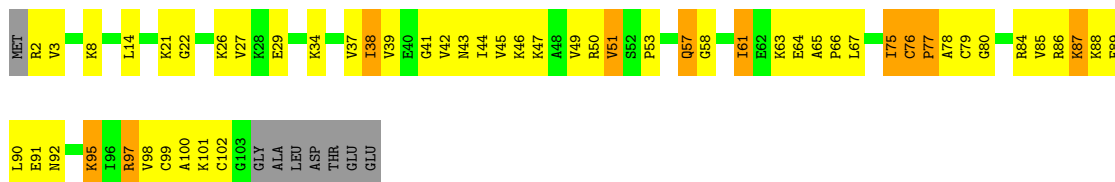
- Molecule 19: 50S ribosomal protein L23

Chain YX: 



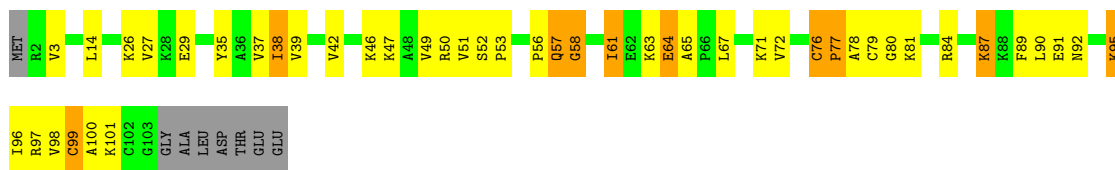
- Molecule 20: 50S ribosomal protein L24

Chain RY: 



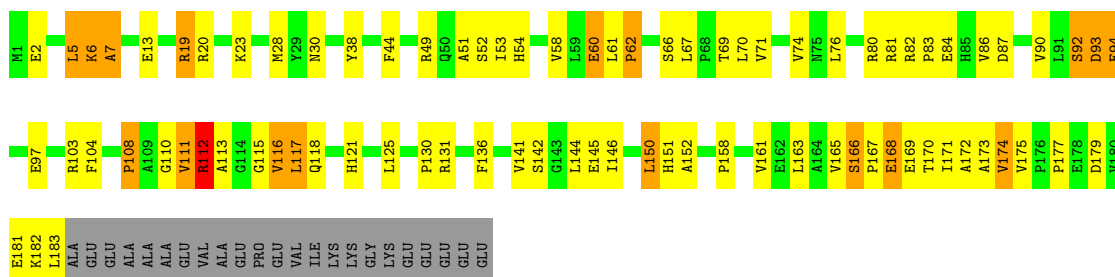
- Molecule 20: 50S ribosomal protein L24

Chain YY:  51% 33% 9% 7%



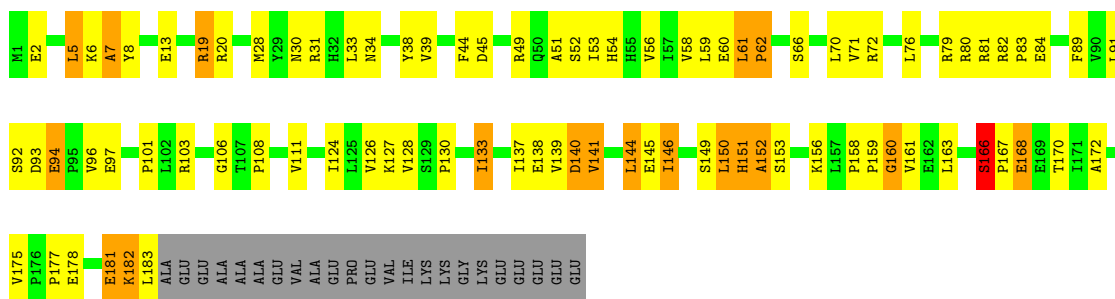
- Molecule 21: 50S ribosomal protein L25

Chain RZ:  49% 32% 8% 11%



- Molecule 21: 50S ribosomal protein L25

Chain YZ:  47% 33% 9% 11%



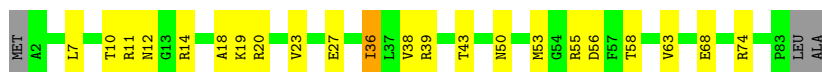
- Molecule 22: 50S ribosomal protein L27

Chain R0:  73% 20% 7% 0%



- Molecule 22: 50S ribosomal protein L27

Chain Y0:  71% 25% 4% 0%



- Molecule 23: 50S ribosomal protein L28

Chain R1:  66% 29% ..



- Molecule 23: 50S ribosomal protein L28

Chain Y1:  65% 27% 6% ..



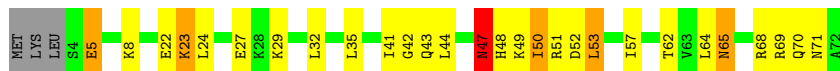
- Molecule 24: 50S ribosomal protein L29

Chain R2:  62% 26% 7% .




- Molecule 24: 50S ribosomal protein L29

Chain Y2:  57% 31% 7% ..




- Molecule 25: 50S ribosomal protein L30

Chain R3:  75% 22% ..



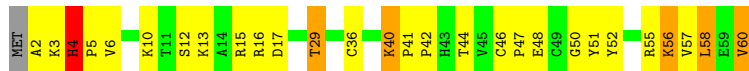
- Molecule 25: 50S ribosomal protein L30

Chain Y3:  87% 8% ..



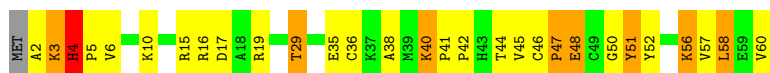
- Molecule 26: 50S ribosomal protein L32

Chain R5:  52% 37% 8% ..

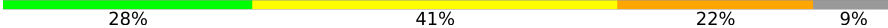


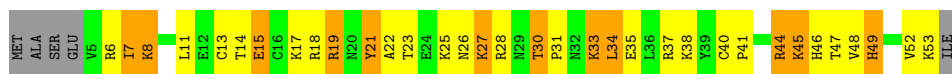
- Molecule 26: 50S ribosomal protein L32

Chain Y5:  50% 33% 13% ..



- Molecule 27: 50S ribosomal protein L33

Chain R6:  28% 41% 22% 9%



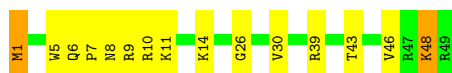
- Molecule 27: 50S ribosomal protein L33

Chain Y6:  35% 35% 20% 9%



- Molecule 28: 50S ribosomal protein L34

Chain R7:  69% 27% .



- Molecule 28: 50S ribosomal protein L34

Chain Y7:  71% 24% .



- Molecule 29: 50S ribosomal protein L35

Chain R8:  52% 38% 6% ..



- Molecule 29: 50S ribosomal protein L35

Chain Y8:  60% 26% 11% ..




- Molecule 30: 50S ribosomal protein L36

Chain R9:  70% 30%



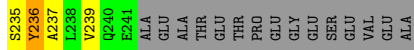
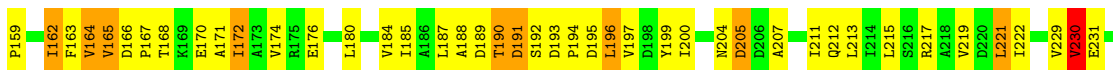
- Molecule 30: 50S ribosomal protein L36

Chain Y9:  76% 24%



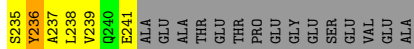
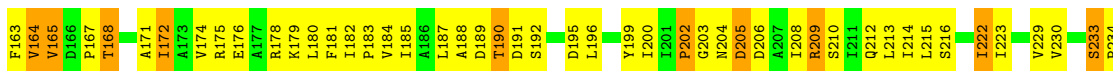
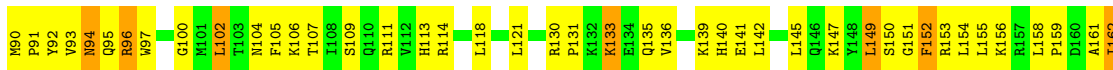
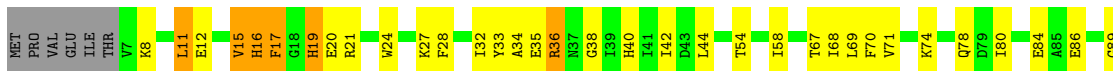
- Molecule 31: 30S ribosomal protein S2

Chain QB:  42% 41% 9% 8%



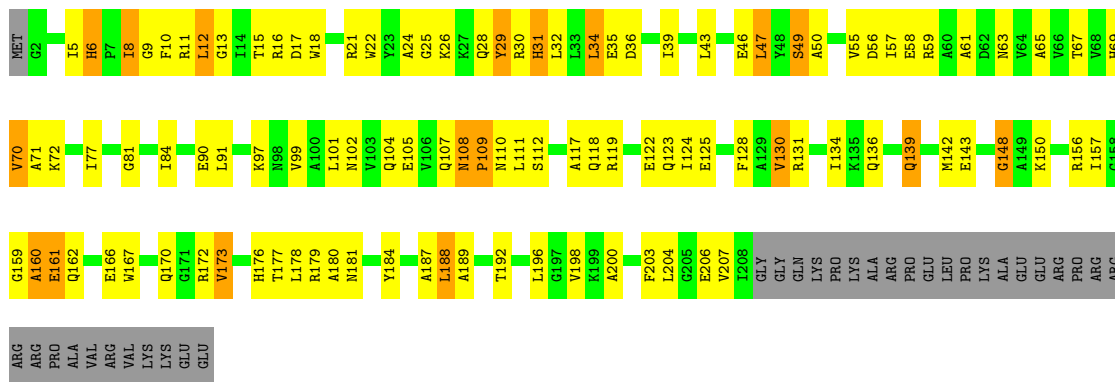
- Molecule 31: 30S ribosomal protein S2

Chain XB:  41% 41% 9% 8%

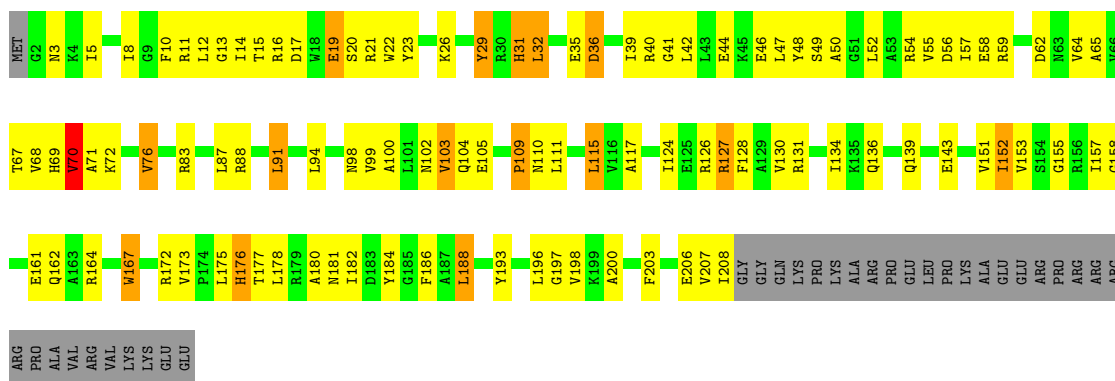


- Molecule 32: 30S ribosomal protein S3

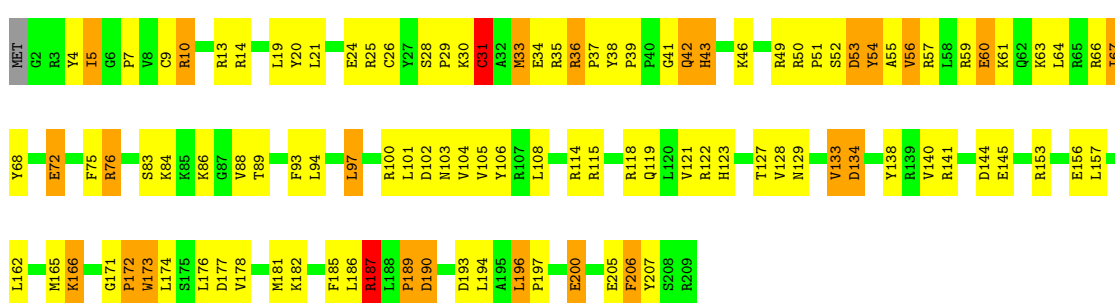
Chain QC:  42% 37% 8% 13%



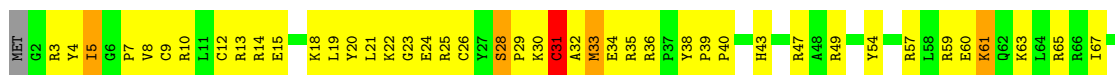
• Molecule 32: 30S ribosomal protein S3

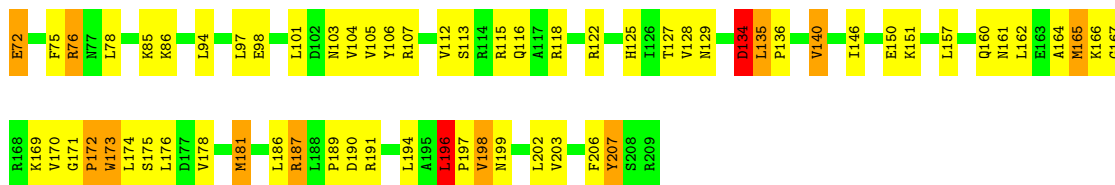


• Molecule 33: 30S ribosomal protein S4

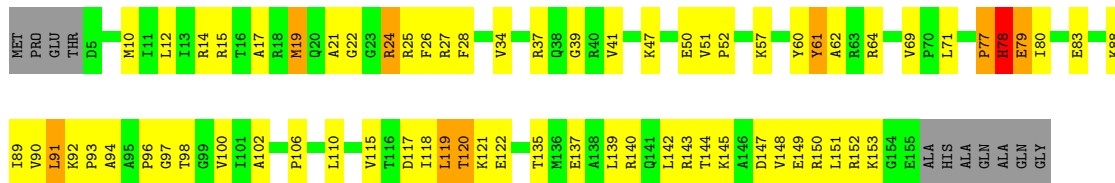


• Molecule 33: 30S ribosomal protein S4

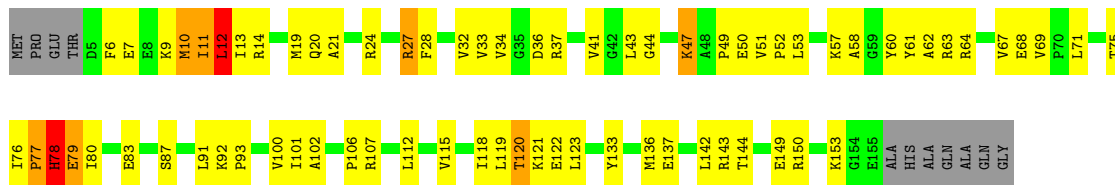




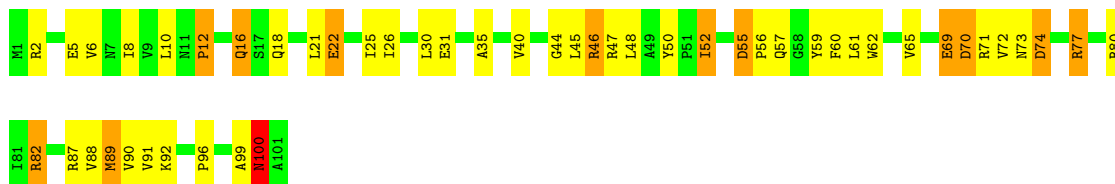
• Molecule 34: 30S ribosomal protein S5



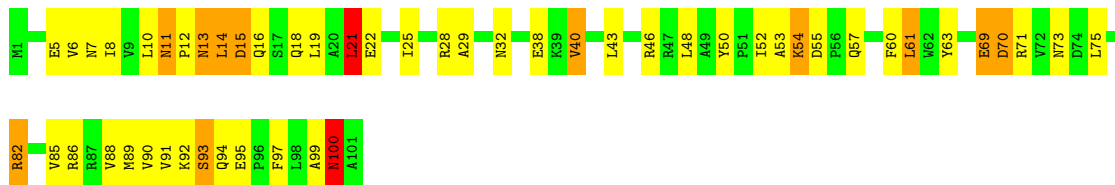
• Molecule 34: 30S ribosomal protein S5



• Molecule 35: 30S ribosomal protein S6

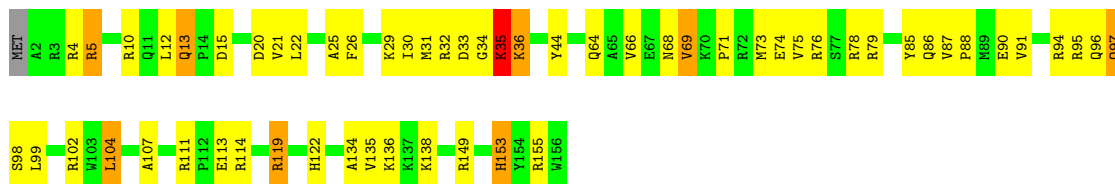


• Molecule 35: 30S ribosomal protein S6



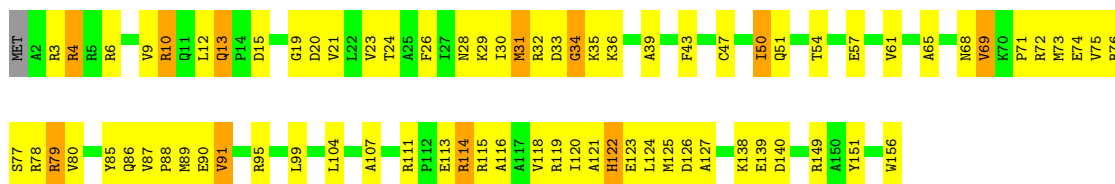
• Molecule 36: 30S ribosomal protein S7

Chain QG:  62% 31% 5% ..



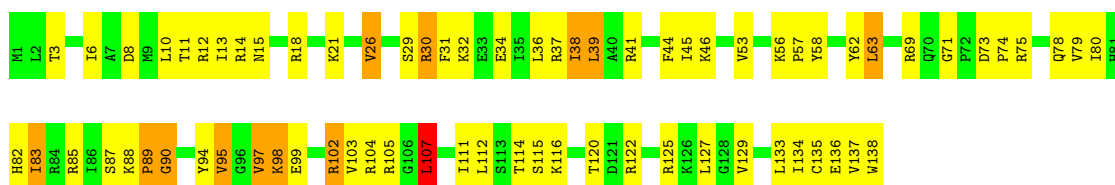
- Molecule 36: 30S ribosomal protein S7

Chain XG:  51% 42% 7% .



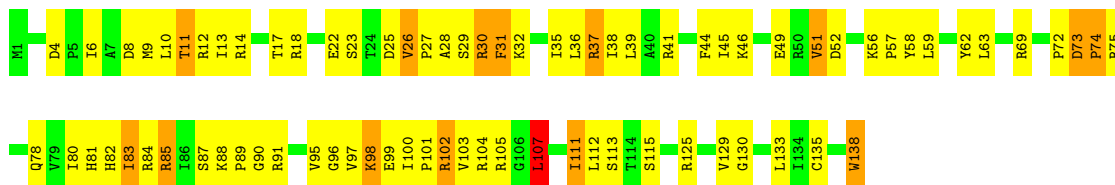
- Molecule 37: 30S ribosomal protein S8

Chain QH:  48% 43% 9% .



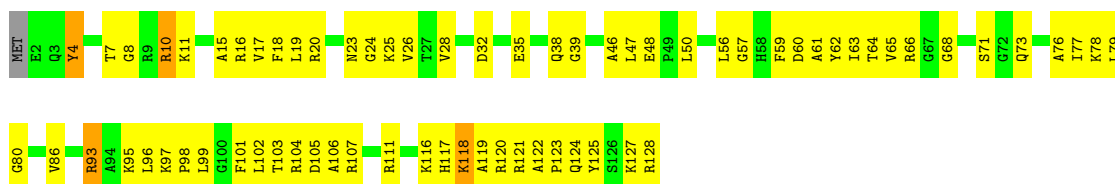
- Molecule 37: 30S ribosomal protein S8

Chain XH:  43% 46% 10% .



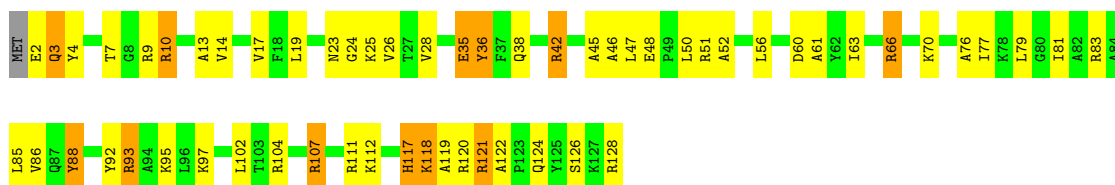
- Molecule 38: 30S ribosomal protein S9

Chain QI:  45% 51% ..



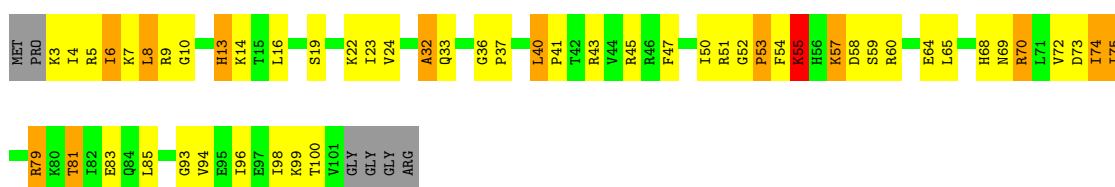
- Molecule 38: 30S ribosomal protein S9

Chain XI:  54% 36% 9%



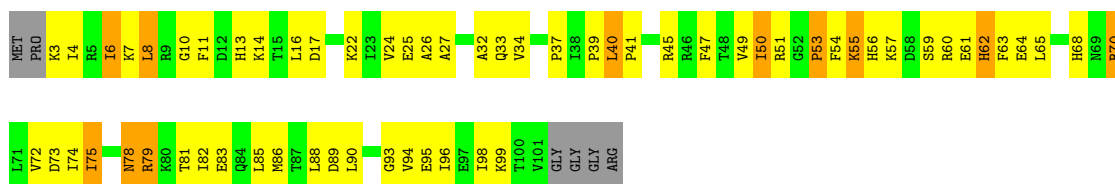
- Molecule 39: 30S ribosomal protein S10

Chain QJ:  44% 38% 11% 6%



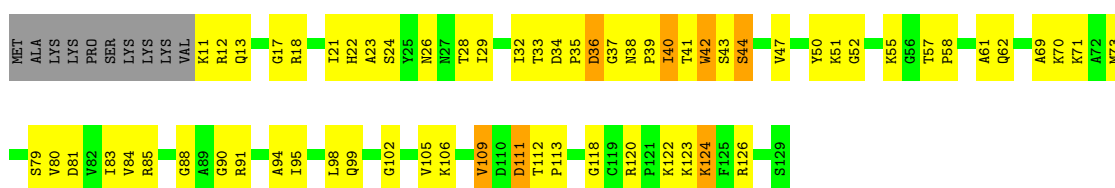
- Molecule 39: 30S ribosomal protein S10

Chain XJ:  35% 49% 10% 6%



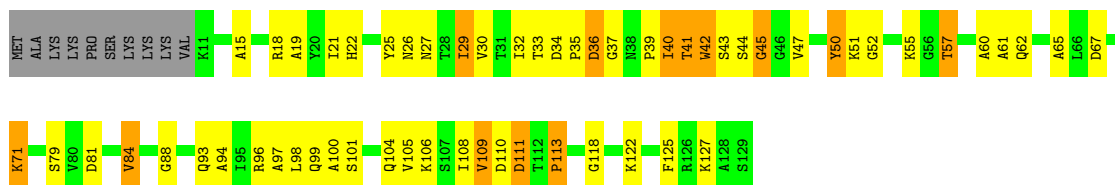
- Molecule 40: 30S ribosomal protein S11

Chain QK:  43% 44% 5% 8%



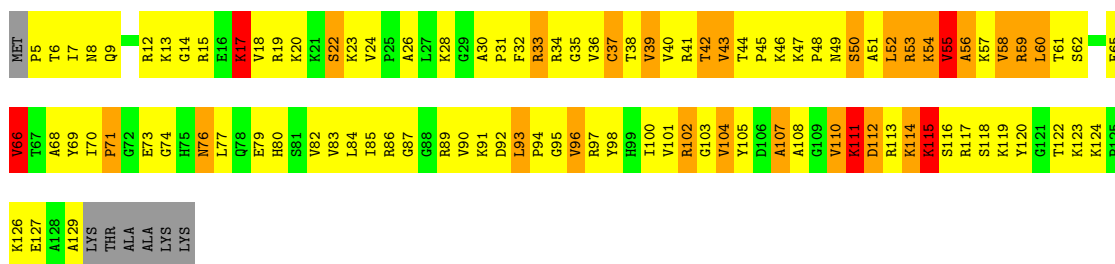
- Molecule 40: 30S ribosomal protein S11

Chain XK:  47% 36% 10% 8%



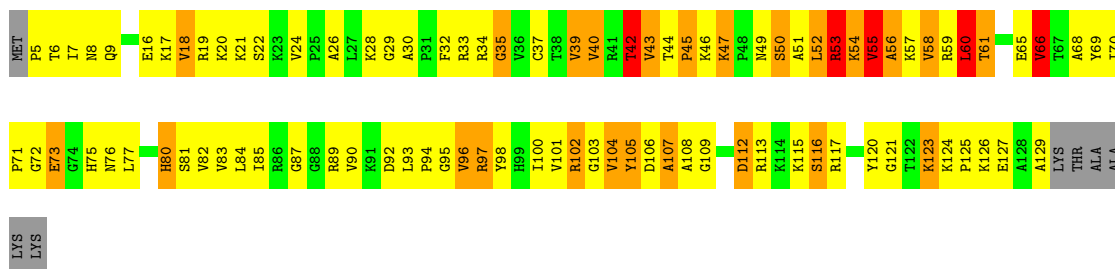
- Molecule 41: 30S ribosomal protein S12

Chain QL: 16% 57% 18% 5%



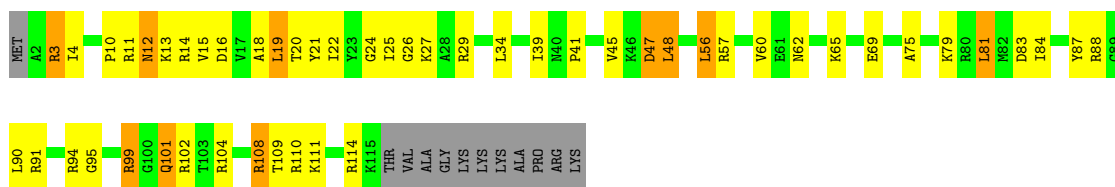
- Molecule 41: 30S ribosomal protein S12

Chain XL: 24% 48% 18% 5%



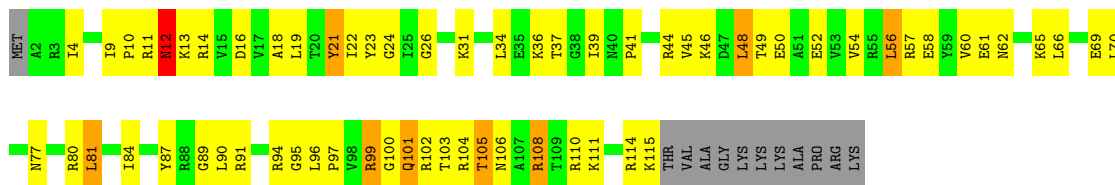
- Molecule 42: 30S ribosomal protein S13

Chain QM: 50% 33% 8% 10%



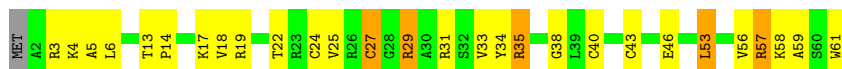
- Molecule 42: 30S ribosomal protein S13

Chain XM: 40% 44% 6% 10%

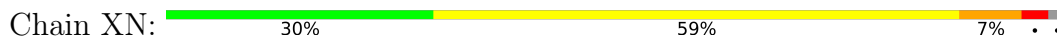


- Molecule 43: 30S ribosomal protein S14 type Z

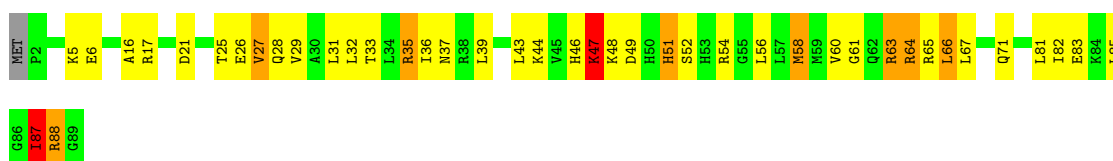
Chain QN: 52% 38% 8%



- Molecule 43: 30S ribosomal protein S14 type Z



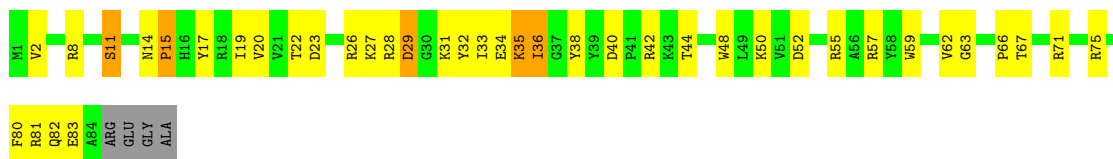
- Molecule 44: 30S ribosomal protein S15



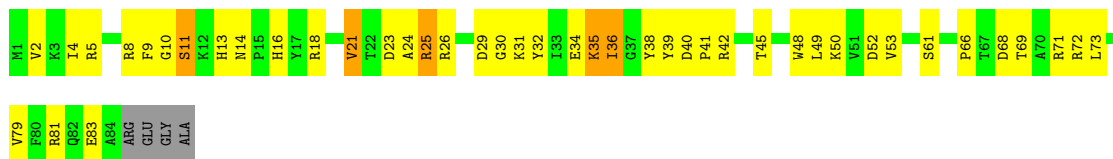
- Molecule 44: 30S ribosomal protein S15



- Molecule 45: 30S ribosomal protein S16

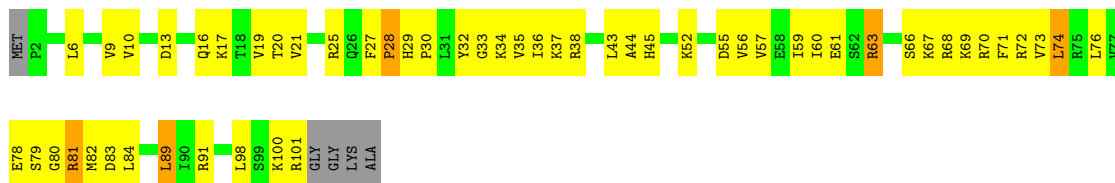


- Molecule 45: 30S ribosomal protein S16



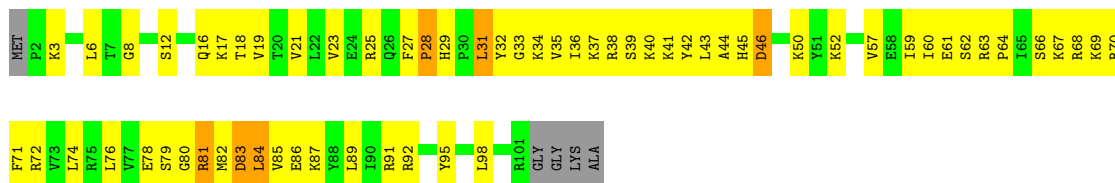
- Molecule 46: 30S ribosomal protein S17





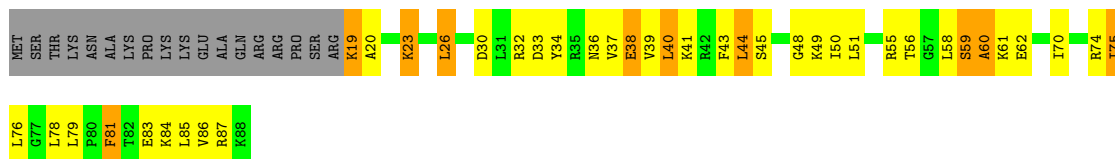
- Molecule 46: 30S ribosomal protein S17

Chain XQ: 35% 54% 6% 5%



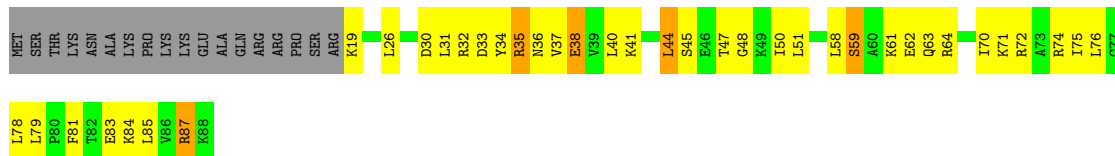
- Molecule 47: 30S ribosomal protein S18

Chain QR: 34% 34% 11% 20%



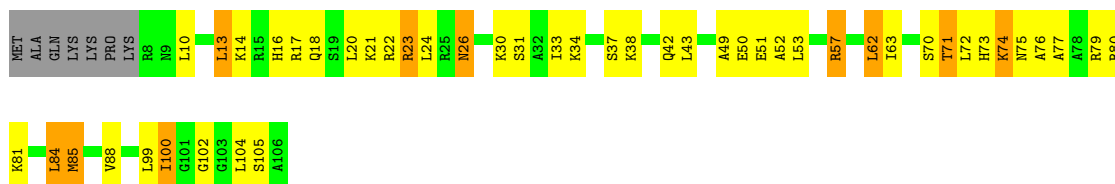
- Molecule 47: 30S ribosomal protein S18

Chain XR: 36% 38% 6% 20%



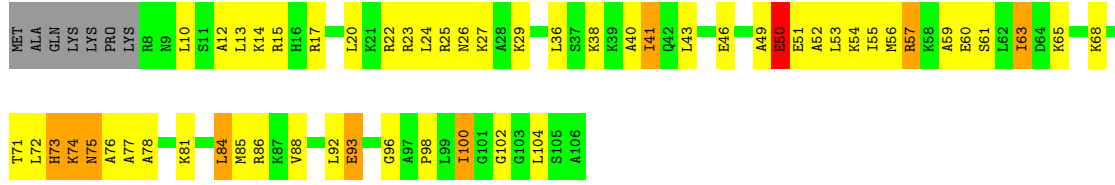
- Molecule 48: 30S ribosomal protein S20

Chain QT: 49% 35% 9% 7%

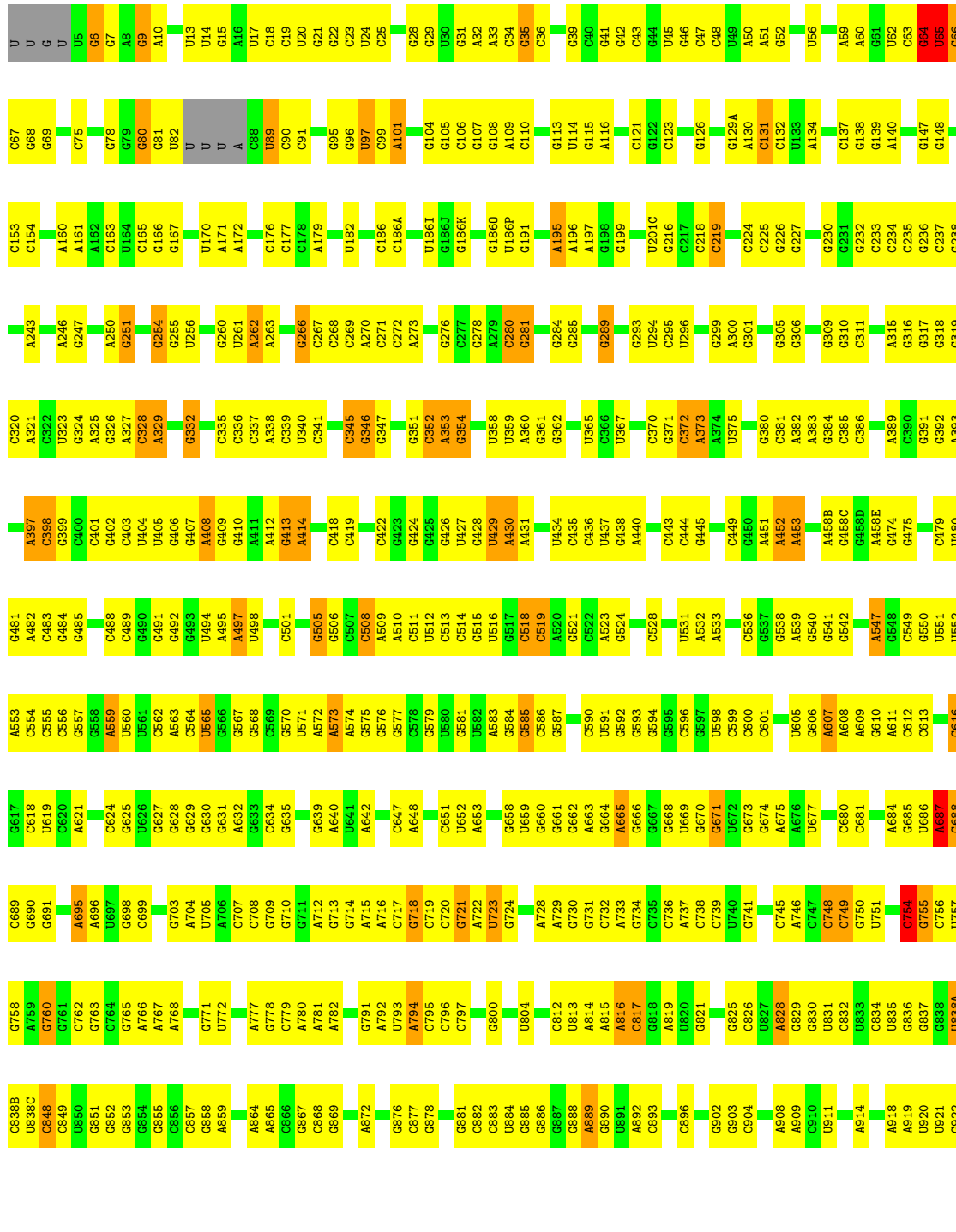


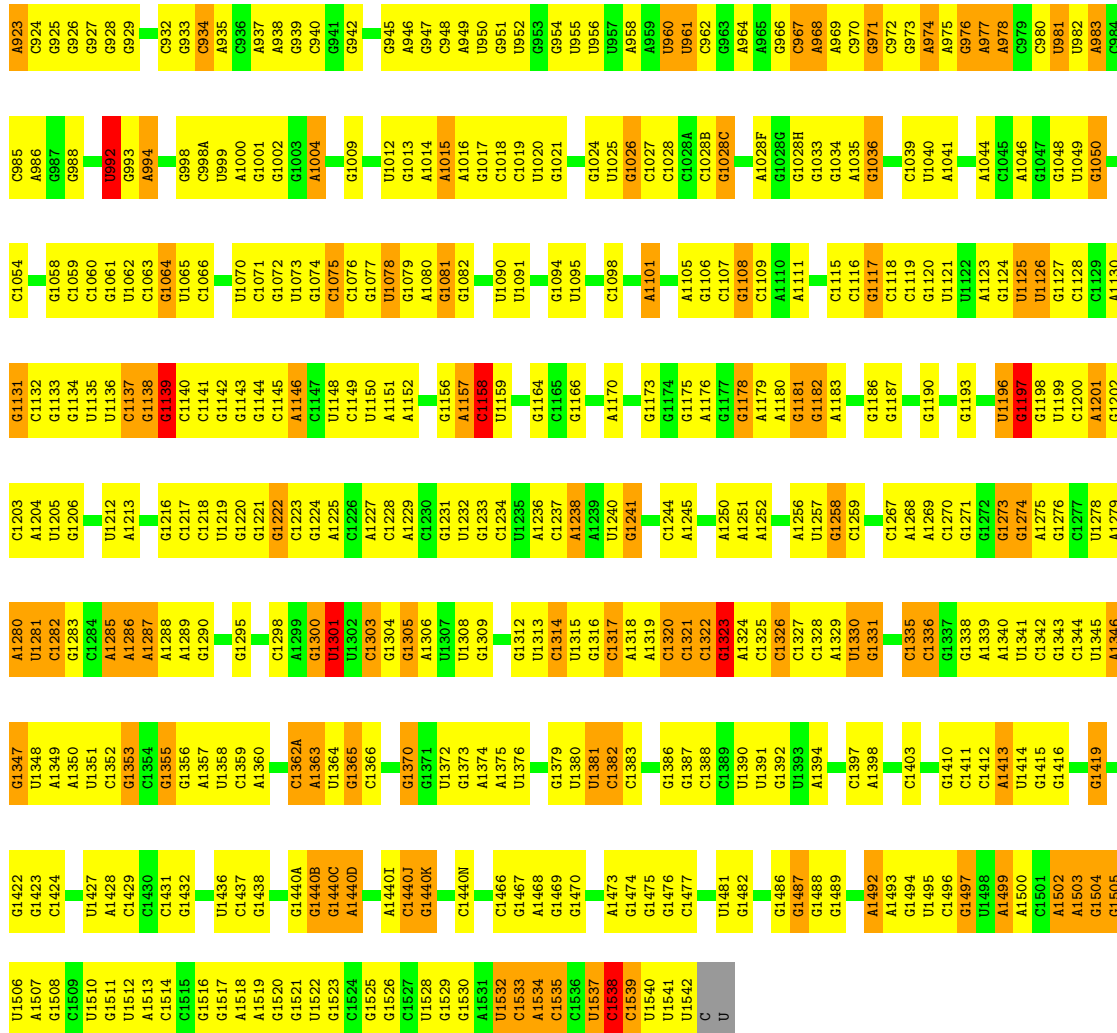
- Molecule 48: 30S ribosomal protein S20

Chain XT: 42% 42% 8% 7%

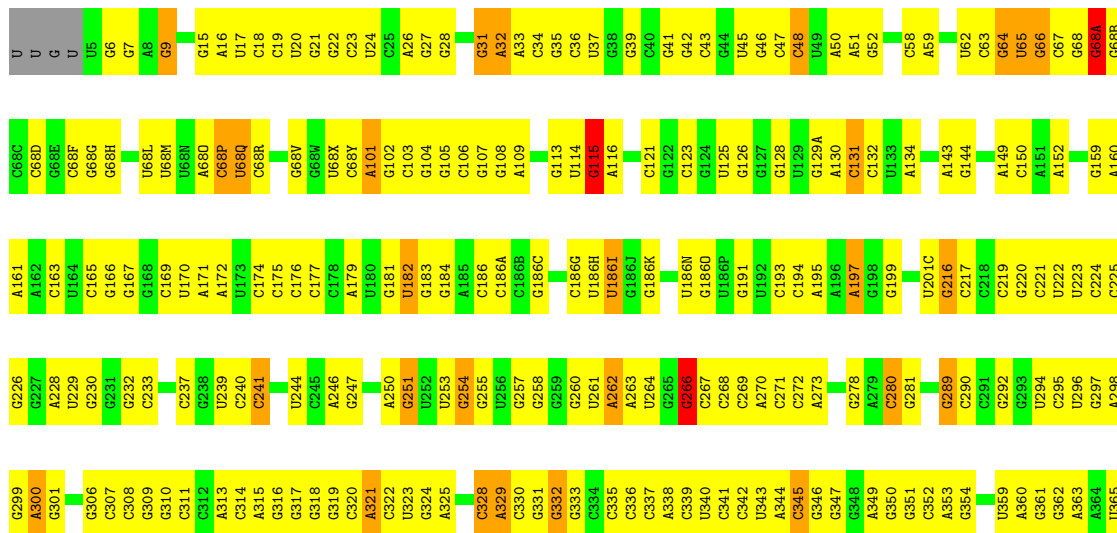


• Molecule 49: 16S rRNA





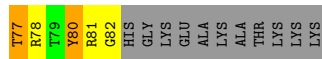
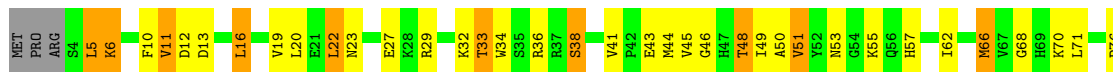
• Molecule 49: 16S rRNA



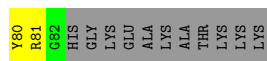
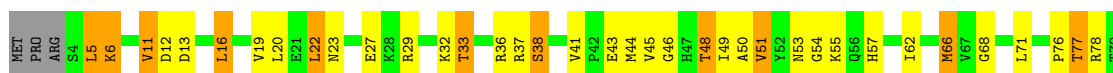
U1393	C1327	A1266	G1182	C1107	G1028H	G971	G902	U820	C744	G673	G604	U534	C436	C366
A1394	C1328	U1257	A1183	G1108	G1033	G972	G903	G821	C745	G674	U605	A535	U437	U867
C1397	A1329	G1268	G1186	C1109	A1034	G973	G906	C824	C748	A675	G606	C536	C438	C370
G1400	C1330	C1269	A1187	C1112	A1035	A974	A907	G825	A975	A676	A607	C537	A440	G371
C1409	A1331	A1261	G1188	G1115	G1036	A975	A908	C826	C749	A677	A608	G538	C443	C372
G1410	A1332	C1262	C1189	C1116	C1037	G976	A909	U827	G750	A678	A609	G539	C444	A373
C1411	A1333	G1263	G1190	C1117	C1038	A977	A910	A828	U751	C680	G610	G540	C445	A374
A1413	C1334	C1264	G1193	C1118	U1040	A978	U911	G829	G752	C681	A611	G541	G445	U375
U1414	A1335	G1265	G1196	C1119	A1041	C980	A914	C832	C754	G682	C612	G542	G446	G376
G1415	C1336	A1268	U1197	G1120	G1042	U981	A918	U833	C755	A684	A614	C545	A452	G377
C1419	A1337	A1269	G1198	U1121	C1043	U982	A919	C834	C756	G685	G615	G546	A453	G378
G1420	C1338	G1270	G1199	G1124	G1044	C983	A918	U835	C757	U686	G616	A547	C458A	C379
C1421	A1339	A1271	G1198	U1125	A1046	U984	U920	C836	C758	C688	G617	C548	U458B	G380
G1422	C1340	C1272	G1199	G1126	G1047	A985	U921	U838A	C760	C689	U619	U552	A458C	C381
U1423	A1341	G1273	C1200	U1127	A1048	A986	U921	C838B	G761	C690	U620	U551	A459	A362
C1424	G1342	A1274	G1201	G1127	G1049	C987	A923	U838C	G762	G691	A621	C554	G458D	A363
U1425	C1343	G1275	C1202	C1128	U1050	C988	G924	C848	G763	U692	G622	C555	A458E	G384
C1426	A1344	A1276	G1193	C1129	G1051	U992	G925	C849	C764	G693	C623	C556	G474	C385
U1427	C1345	A1280	G1196	U1130	U1052	G993	G926	U850	C770	A701	G624	C557	U480	G388
A1428	G1346	A1281	G1197	G1131	G1053	A994	G927	U851	G771	G703	G625	C558	A481	A389
C1431	A1347	C1282	G1206	U1135	C1054	C995	G928	G852	A777	A704	U626	C559	A482	G392
G1432	C1348	G1283	U1212	U1136	U1055	A996	G929	G853	A768	A705	G627	U560	C483	G393
C1433	A1349	C1284	A1213	C1137	G1056	C998A	G930	G854	C779	C708	G633	U561	C484	A393
U1434	C1350	A1285	G1216	G1138	G1057	U999	G931	G855	A780	G709	G634	C562	G485	C394
C1435	A1351	A1286	G1217	U1139	G1058	U999	G932	C856	U781	A712	C635	A963	C491	C395
U1436	C1352	A1287	C1218	C1140	C1059	A1000	G933	C857	C784	G713	G636	C564	U498	G396
A1438	G1353	G1288	G1218	U1141	G1060	G1001	C934	C858	A778	G714	U637	U565	C492	A397
C1439	A1354	A1289	U1219	C1145	G1061	G1002	A935	U859	C779	A715	G638	U566	G493	C398
G1440B	C1355	C1296	G1222	C1146	U1062	G1003	G939	A864	A780	G717	A642	C969	U494	G399
U1440C	A1356	A1297	C1223	U1147	G1064	A1004	C940	A865	U781	A718	G643	C969	A495	C400
G1440E	C1357	C1297	G1223	C1148	U1066	C1007	G941	A866	C784	G719	C644	C970	U497	C401
C1440F	A1358	A1298	G1224	U1149	C1066	G1008	G941	C867	A780	A720	G645	C971	U498	C402
U1440G	G1359	G1300	C1225	U1150	G1067	G1009	A946	C868	U788	G715	C646	A572	U500	G403
C1440H	C1360	U1301	A1226	A1151	G1073	G1010	G947	G869	U789	A716	U646	A573	C501	U405
U1440I	A1361	U1302	A1227	C1152	G1074	G1011	C948	U870	U789	C717	C647	A574	G406	G407
C1440J	C1362	G1303	C1228	A1157	G1075	U1012	A949	U871	A790	G718	A648	C975	A408	A408
U1440K	A1363	A1304	A1229	C1158	G1077	G1013	U950	A872	C791	G719	G650	C976	G409	G409
C1440L	G1364	G1305	C1230	G1159	U1078	A1014	G951	C875	A792	C720	C651	C977	A509	A412
U1440M	A1365	A1306	G1231	G1160	G1079	A1015	U952	G876	U793	G721	U652	C978	A510	A413
C1463	G1370	U1307	C1232	C1161	A1080	G1016	G954	C877	A794	A722	A653	C979	C511	G413
G1464	A1371	G1309	G1233	G1161	G1081	G1017	U955	C878	G799	U723	G654	U582	U612	A414
C1465	C1372	G1310	U1235	G1166	G1082	C1018	U956	C879	G799	G727	G658	C980	C422	C422
U1466	A1373	A1236	A1167	A1167	U1083	C1019	U957	C880	G800	A728	U659	C981	C513	G423
C1467	G1380	C1237	A1169	G1173	G1084	G1021	A958	C881	C806	A729	G660	C982	C514	G424
U1469	A1381	A1239	A1171	C1171	G1094	G1022	A959	G888	A807	A730	G661	C983	C515	G425
G1470	C1382	U1240	G1174	G1172	U1095	G1023	U960	A889	C807	G731	G662	C984	C518	G426
C1476	A1383	G1241	C1173	C1096	G1096	U1025	U961	G890	C811	C732	A663	C985	C519	U427
G1477	G1385	C1242	G1175	C1097	G1026	G1026	G963	G890	C812	A733	G664	C986	C521	G428
C1477	A1386	A1243	G1176	C1098	A964	C893	U964	C893	C812	G734	A665	C987	C522	G429
U1480	G1387	C1244	A1176	G1099	A965	C896	G965	C896	C814	C735	G666	C988	A523	U429
A1481	C1388	A1245	G1177	G1100	C1028A	C896	G966	C896	A815	C736	G667	C989	G524	A430
C1482	A1389	G1323	G1178	A1101	C1028B	C899	C967	C899	A816	A737	G668	C990	C525	A431
U1483	C1390	A1324	A1179	G1105	G1028C	A968	A968	A900	C817	C738	G671	C991	C432	A432
G1484	C1392	G1255	G1181	A1105	G1029C	A969	A969	A901	G818	A737	C671	C992	U433	U434
				G1106	G1208C	C970	C970		A819	U743	U672	U603	A533	C435



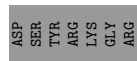
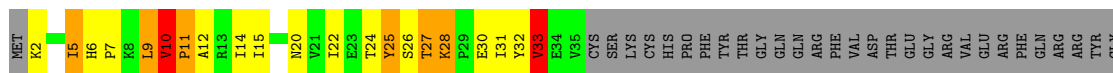
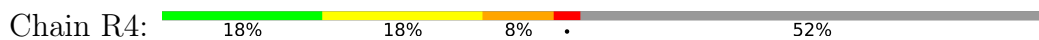
• Molecule 50: 30S ribosomal protein S19



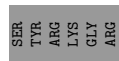
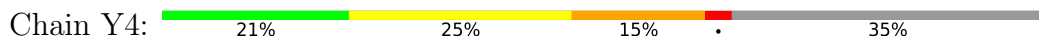
• Molecule 50: 30S ribosomal protein S19



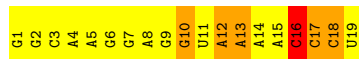
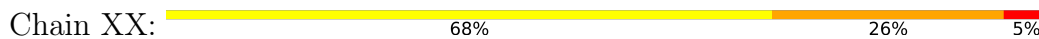
• Molecule 51: 50S ribosomal protein L31



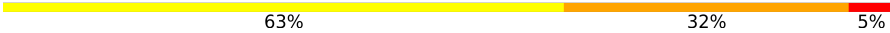
• Molecule 51: 50S ribosomal protein L31



• Molecule 52: messenger RNA



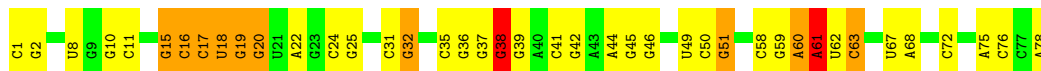
• Molecule 52: messenger RNA

Chain QX:  63% 32% 5%



- Molecule 53: P-site tRNA SufA6

Chain XV:  47% 37% 13%



- Molecule 53: P-site tRNA SufA6

Chain QV:  49% 32% 13% 6%



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	210.75Å 450.05Å 626.64Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	16.60 – 3.90 49.96 – 3.90	Depositor EDS
% Data completeness (in resolution range)	98.3 (16.60-3.90) 98.2 (49.96-3.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.36 (at 3.88Å)	Xtrriage
Refinement program	PHENIX	Depositor
R, R_{free}	(Not available) , (Not available) 0.272 , 0.316	Depositor DCC
R_{free} test set	23266 reflections (4.42%)	wwPDB-VP
Wilson B-factor (Å ²)	128.1	Xtrriage
Anisotropy	0.334	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.25 , 47.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.35$, $\langle L^2 \rangle = 0.17$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	291660	wwPDB-VP
Average B, all atoms (Å ²)	123.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.88% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: MG, 1MG, ZN

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	RA	0.31	11/69520 (0.0%)	0.97	171/108525 (0.2%)
1	YA	0.29	1/69543 (0.0%)	0.96	137/108563 (0.1%)
2	RB	0.29	0/2878	0.99	11/4490 (0.2%)
2	YB	0.29	0/2878	0.99	9/4490 (0.2%)
3	RD	0.28	0/2165	0.54	0/2919
3	YD	0.27	0/2165	0.53	0/2919
4	RE	0.29	0/1601	0.60	2/2160 (0.1%)
4	YE	0.32	1/1601 (0.1%)	0.59	1/2160 (0.0%)
5	RF	0.28	0/1620	0.55	1/2194 (0.0%)
5	YF	0.27	0/1620	0.51	0/2194
6	RG	0.28	0/1499	0.55	0/2016
6	YG	0.26	0/1499	0.51	0/2016
7	RH	0.28	0/1332	0.56	0/1802
7	YH	0.30	0/1332	0.61	1/1802 (0.1%)
8	RI	0.26	0/1151	0.61	0/1558
8	YI	0.27	0/1151	0.60	0/1558
9	RN	0.26	0/1131	0.51	0/1525
9	YN	0.26	0/1131	0.50	0/1525
10	RO	0.26	0/943	0.51	0/1269
10	YO	0.26	0/943	0.51	0/1269
11	RP	0.28	0/1162	0.65	1/1544 (0.1%)
11	YP	0.28	0/1162	0.63	0/1544
12	RQ	0.31	0/1143	0.58	0/1527
12	YQ	0.28	0/1143	0.55	0/1527
13	RR	0.26	0/982	0.55	0/1312
13	YR	0.29	0/982	0.57	0/1312
14	RS	0.27	0/892	0.58	0/1187
14	YS	0.27	0/892	0.60	0/1187
15	RT	0.35	0/1155	0.65	2/1542 (0.1%)
15	YT	0.32	0/1155	0.59	0/1542
16	RU	0.28	0/982	0.54	0/1306
16	YU	0.25	0/982	0.47	0/1306

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
17	RV	0.26	0/790	0.55	0/1057
17	YV	0.27	0/790	0.58	1/1057 (0.1%)
18	RW	0.26	0/911	0.48	0/1220
18	YW	0.26	0/911	0.51	0/1220
19	RX	0.28	0/739	0.49	0/993
19	YX	0.30	0/739	0.51	0/993
20	RY	0.31	0/798	0.61	0/1064
20	YY	0.30	0/798	0.60	0/1064
21	RZ	0.28	0/1493	0.57	0/2026
21	YZ	0.27	0/1493	0.58	1/2026 (0.0%)
22	R0	0.26	0/657	0.53	0/874
22	Y0	0.33	0/657	0.56	0/874
23	R1	0.31	0/770	0.58	0/1022
23	Y1	0.29	0/770	0.55	0/1022
24	R2	0.25	0/583	0.53	0/771
24	Y2	0.23	0/583	0.49	0/771
25	R3	0.27	0/474	0.51	0/635
25	Y3	0.22	0/474	0.44	0/635
26	R5	0.26	0/473	0.57	0/639
26	Y5	0.27	0/473	0.55	0/639
27	R6	0.27	0/431	0.63	0/575
27	Y6	0.25	0/431	0.61	0/575
28	R7	0.24	0/438	0.48	0/575
28	Y7	0.23	0/438	0.45	0/575
29	R8	0.27	0/525	0.58	0/691
29	Y8	0.33	0/525	0.60	0/691
30	R9	0.24	0/310	0.51	0/407
30	Y9	0.23	0/310	0.48	0/407
31	QB	0.28	0/1944	0.58	0/2621
31	XB	0.27	0/1944	0.59	0/2621
32	QC	0.26	0/1644	0.57	0/2216
32	XC	0.27	0/1644	0.60	0/2216
33	QD	0.45	2/1733 (0.1%)	0.70	4/2318 (0.2%)
33	XD	0.30	0/1733	0.62	0/2318
34	QE	0.28	0/1171	0.58	0/1576
34	XE	0.26	0/1171	0.58	1/1576 (0.1%)
35	QF	0.25	0/856	0.59	0/1154
35	XF	0.27	0/856	0.60	1/1154 (0.1%)
36	QG	0.25	0/1276	0.51	0/1709
36	XG	0.26	0/1276	0.51	0/1709
37	QH	0.26	0/1136	0.58	0/1527
37	XH	0.27	0/1136	0.58	0/1527
38	QI	0.29	0/1029	0.55	0/1379

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
38	XI	0.26	0/1029	0.55	0/1379
39	QJ	0.26	0/814	0.53	0/1095
39	XJ	0.26	0/814	0.57	0/1095
40	QK	0.28	0/900	0.54	0/1213
40	XK	0.27	0/900	0.54	0/1213
41	QL	0.28	0/991	0.68	0/1327
41	XL	0.30	0/991	0.74	1/1327 (0.1%)
42	QM	0.25	0/924	0.57	0/1238
42	XM	0.29	0/924	0.64	0/1238
43	QN	0.28	0/501	0.56	0/664
43	XN	0.30	0/501	0.59	0/664
44	QO	0.24	0/745	0.55	0/992
44	XO	0.34	1/745 (0.1%)	0.55	0/992
45	QP	0.26	0/721	0.62	0/970
45	XP	0.26	0/721	0.60	0/970
46	QQ	0.28	0/847	0.61	0/1131
46	XQ	0.27	0/847	0.59	0/1131
47	QR	0.28	0/579	0.62	0/768
47	XR	0.28	0/579	0.65	0/768
48	QT	0.23	0/765	0.53	0/1007
48	XT	0.24	0/765	0.50	0/1007
49	QA	0.25	0/36347	0.90	37/56727 (0.1%)
49	XA	0.31	6/36439 (0.0%)	0.96	86/56872 (0.2%)
50	QS	0.23	0/646	0.49	0/870
50	XS	0.24	0/646	0.49	0/870
51	R4	0.34	0/267	0.63	0/362
51	Y4	0.27	0/366	0.57	0/495
52	QX	0.22	0/459	0.89	2/715 (0.3%)
52	XX	0.21	0/459	0.89	2/715 (0.3%)
53	QV	0.22	0/1839	0.87	9/2866 (0.3%)
53	XV	0.17	0/1839	0.78	2/2866 (0.1%)
All	All	0.29	22/315578 (0.0%)	0.87	483/472056 (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	RA	0	2
3	RD	0	1
7	RH	0	2

Continued on next page...

Continued from previous page...

Mol	Chain	#Chirality outliers	#Planarity outliers
7	YH	0	2
11	RP	0	1
15	RT	0	1
21	YZ	0	1
23	R1	0	1
29	R8	0	1
33	QD	0	1
33	XD	0	1
49	XA	0	2
53	QV	0	1
All	All	0	17

The worst 5 of 22 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
49	XA	771	G	C1'-N9	18.11	1.75	1.48
1	RA	1558	A	C1'-N9	17.07	1.74	1.48
1	RA	1913	A	C5'-C4'	16.54	1.71	1.51
49	XA	771	G	C4'-O4'	14.31	1.64	1.45
1	RA	1463	C	C5'-C4'	12.46	1.66	1.51

The worst 5 of 483 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
49	XA	771	G	O4'-C1'-N9	26.71	129.57	108.20
1	RA	1558	A	C8-N9-C1'	-26.16	80.62	127.70
1	RA	1558	A	O4'-C1'-N9	-24.62	88.50	108.20
1	RA	1463	C	C2-N1-C1'	24.24	145.47	118.80
1	RA	1762	A	N1-C6-N6	-24.02	104.19	118.60

There are no chirality outliers.

5 of 17 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	RA	1558	A	Sidechain
1	RA	1765	C	Sidechain
3	RD	235	GLY	Mainchain
7	RH	127	GLU	Peptide
7	RH	153	LYS	Peptide

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	RA	62071	0	31249	1298	0
1	YA	62091	0	31283	1245	0
2	RB	2573	0	1299	53	0
2	YB	2573	0	1304	49	0
3	RD	2115	0	2191	68	0
3	YD	2115	0	2194	63	0
4	RE	1568	0	1632	58	0
4	YE	1568	0	1633	51	0
5	RF	1585	0	1630	48	0
5	YF	1585	0	1632	53	0
6	RG	1474	0	1535	68	0
6	YG	1474	0	1535	56	0
7	RH	1307	0	1382	54	0
7	YH	1307	0	1382	54	0
8	RI	1136	0	1223	44	0
8	YI	1136	0	1223	42	0
9	RN	1104	0	1180	33	0
9	YN	1104	0	1180	35	0
10	RO	933	0	995	13	0
10	YO	933	0	996	22	0
11	RP	1145	0	1228	54	0
11	YP	1145	0	1228	69	0
12	RQ	1122	0	1179	39	0
12	YQ	1122	0	1179	35	0
13	RR	968	0	1032	34	0
13	YR	968	0	1031	28	0
14	RS	882	0	943	33	0
14	YS	882	0	943	36	0
15	RT	1141	0	1200	39	0
15	YT	1141	0	1201	45	0
16	RU	964	0	1022	30	0
16	YU	964	0	1022	32	0
17	RV	779	0	852	22	0
17	YV	779	0	852	22	0
18	RW	900	0	964	13	0
18	YW	900	0	964	21	0
19	RX	725	0	778	18	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
19	YX	725	0	778	21	0
20	RY	785	0	877	30	0
20	YY	785	0	877	30	0
21	RZ	1461	0	1493	46	0
21	YZ	1461	0	1493	51	0
22	R0	648	0	671	18	0
22	Y0	648	0	672	18	0
23	R1	763	0	846	21	0
23	Y1	763	0	847	26	0
24	R2	581	0	629	15	0
24	Y2	581	0	629	14	0
25	R3	469	0	518	10	0
25	Y3	469	0	518	3	0
26	R5	459	0	480	25	0
26	Y5	459	0	479	25	0
27	R6	424	0	450	26	0
27	Y6	424	0	450	23	0
28	R7	430	0	480	11	0
28	Y7	430	0	480	12	0
29	R8	517	0	582	23	0
29	Y8	517	0	582	24	0
30	R9	307	0	338	7	0
30	Y9	307	0	335	5	0
31	QB	1909	0	1957	99	0
31	XB	1909	0	1957	100	0
32	QC	1620	0	1688	63	0
32	XC	1620	0	1687	74	0
33	QD	1703	0	1762	97	0
33	XD	1703	0	1765	83	0
34	QE	1155	0	1213	52	0
34	XE	1155	0	1213	47	0
35	QF	843	0	857	32	0
35	XF	843	0	857	42	0
36	QG	1257	0	1296	34	0
36	XG	1257	0	1296	56	0
37	QH	1116	0	1177	52	0
37	XH	1116	0	1177	73	0
38	QI	1010	0	1035	58	0
38	XI	1010	0	1037	55	0
39	QJ	801	0	849	51	0
39	XJ	801	0	849	46	0
40	QK	885	0	904	48	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
40	XK	885	0	904	47	0
41	QL	975	0	1062	109	0
41	XL	975	0	1061	88	0
42	QM	914	0	971	33	0
42	XM	914	0	971	54	0
43	QN	492	0	533	26	0
43	XN	492	0	533	34	0
44	QO	734	0	771	39	0
44	XO	734	0	768	27	0
45	QP	705	0	724	38	0
45	XP	705	0	725	39	0
46	QQ	834	0	903	48	0
46	XQ	834	0	904	59	0
47	QR	574	0	644	35	0
47	XR	574	0	644	40	0
48	QT	763	0	861	33	0
48	XT	763	0	861	44	0
49	QA	32472	0	16387	843	0
49	XA	32554	0	16414	909	0
50	QS	633	0	655	28	0
50	XS	633	0	655	28	0
51	R4	262	0	272	25	0
51	Y4	357	0	362	29	0
52	QX	409	0	209	49	0
52	XX	409	0	209	53	0
53	QV	1670	0	845	49	0
53	XV	1670	0	845	30	0
54	QA	131	0	0	0	0
54	QC	1	0	0	0	0
54	QD	3	0	0	0	0
54	QE	1	0	0	0	0
54	QL	3	0	0	0	0
54	QP	2	0	0	0	0
54	QQ	2	0	0	0	0
54	QT	2	0	0	0	0
54	R0	2	0	0	0	0
54	R1	3	0	0	0	0
54	R3	1	0	0	0	0
54	R6	1	0	0	0	0
54	R8	3	0	0	0	0
54	RA	562	0	0	0	0
54	RB	15	0	0	0	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
54	RD	10	0	0	0	0
54	RE	7	0	0	0	0
54	RF	4	0	0	0	0
54	RI	1	0	0	0	0
54	RO	2	0	0	0	0
54	RQ	2	0	0	0	0
54	RR	3	0	0	0	0
54	RT	3	0	0	0	0
54	RU	1	0	0	0	0
54	RX	2	0	0	0	0
54	RY	1	0	0	0	0
54	XA	128	0	0	0	0
54	XC	1	0	0	0	0
54	XD	1	0	0	0	0
54	XE	1	0	0	0	0
54	XK	1	0	0	0	0
54	XL	2	0	0	0	0
54	XM	1	0	0	0	0
54	XO	1	0	0	0	0
54	XP	1	0	0	0	0
54	Y0	1	0	0	0	0
54	Y1	1	0	0	0	0
54	Y8	1	0	0	0	0
54	YA	379	0	0	0	0
54	YB	10	0	0	0	0
54	YD	4	0	0	0	0
54	YE	5	0	0	0	0
54	YI	1	0	0	0	0
54	YP	1	0	0	0	0
54	YQ	1	0	0	0	0
54	YR	1	0	0	0	0
54	YT	2	0	0	0	0
54	YU	1	0	0	0	0
54	YX	1	0	0	0	0
54	YY	1	0	0	0	0
55	QD	2	0	0	0	0
55	XD	1	0	0	0	0
55	Y9	1	0	0	0	0
All	All	291660	0	197069	7411	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 15.

The worst 5 of 7411 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
49:QA:1339:A:C2	53:QV:32:G:H1'	1.41	1.52
1:RA:1558:A:N9	1:RA:1558:A:C1'	1.74	1.48
49:XA:771:G:N9	49:XA:771:G:C1'	1.75	1.46
49:XA:1531:A:C5	49:XA:1532:U:O4	1.70	1.42
49:XA:771:G:C4'	49:XA:771:G:O4'	1.64	1.41

There are no symmetry-related clashes.

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 X-ray entries followed by that with respect to entries of similar resolution.

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	
3	RD	270/276 (98%)	235 (87%)	28 (10%)	7 (3%)	5	35
3	YD	270/276 (98%)	234 (87%)	30 (11%)	6 (2%)	6	38
4	RE	203/206 (98%)	158 (78%)	29 (14%)	16 (8%)	1	15
4	YE	203/206 (98%)	154 (76%)	33 (16%)	16 (8%)	1	15
5	RF	200/210 (95%)	173 (86%)	21 (10%)	6 (3%)	4	33
5	YF	200/210 (95%)	177 (88%)	18 (9%)	5 (2%)	5	36
6	RG	179/182 (98%)	149 (83%)	20 (11%)	10 (6%)	2	21
6	YG	179/182 (98%)	151 (84%)	18 (10%)	10 (6%)	2	21
7	RH	168/180 (93%)	129 (77%)	22 (13%)	17 (10%)	0	10
7	YH	168/180 (93%)	126 (75%)	25 (15%)	17 (10%)	0	10
8	RI	144/148 (97%)	109 (76%)	25 (17%)	10 (7%)	1	17
8	YI	144/148 (97%)	108 (75%)	28 (19%)	8 (6%)	2	21
9	RN	136/140 (97%)	113 (83%)	15 (11%)	8 (6%)	1	20
9	YN	136/140 (97%)	114 (84%)	13 (10%)	9 (7%)	1	19

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
10	RO	120/122 (98%)	115 (96%)	4 (3%)	1 (1%)	19	57
10	YO	120/122 (98%)	115 (96%)	4 (3%)	1 (1%)	19	57
11	RP	148/150 (99%)	105 (71%)	32 (22%)	11 (7%)	1	16
11	YP	148/150 (99%)	106 (72%)	32 (22%)	10 (7%)	1	18
12	RQ	139/141 (99%)	104 (75%)	21 (15%)	14 (10%)	0	10
12	YQ	139/141 (99%)	105 (76%)	17 (12%)	17 (12%)	0	6
13	RR	116/118 (98%)	107 (92%)	7 (6%)	2 (2%)	9	43
13	YR	116/118 (98%)	104 (90%)	9 (8%)	3 (3%)	5	35
14	RS	109/112 (97%)	81 (74%)	19 (17%)	9 (8%)	1	14
14	YS	109/112 (97%)	83 (76%)	17 (16%)	9 (8%)	1	14
15	RT	135/146 (92%)	109 (81%)	19 (14%)	7 (5%)	2	23
15	YT	135/146 (92%)	110 (82%)	19 (14%)	6 (4%)	2	25
16	RU	115/118 (98%)	108 (94%)	5 (4%)	2 (2%)	9	43
16	YU	115/118 (98%)	108 (94%)	5 (4%)	2 (2%)	9	43
17	RV	99/101 (98%)	82 (83%)	11 (11%)	6 (6%)	1	20
17	YV	99/101 (98%)	84 (85%)	9 (9%)	6 (6%)	1	20
18	RW	111/113 (98%)	105 (95%)	4 (4%)	2 (2%)	8	42
18	YW	111/113 (98%)	105 (95%)	4 (4%)	2 (2%)	8	42
19	RX	90/96 (94%)	87 (97%)	3 (3%)	0	100	100
19	YX	90/96 (94%)	86 (96%)	4 (4%)	0	100	100
20	RY	100/110 (91%)	73 (73%)	16 (16%)	11 (11%)	0	8
20	YY	100/110 (91%)	73 (73%)	17 (17%)	10 (10%)	0	10
21	RZ	181/206 (88%)	133 (74%)	29 (16%)	19 (10%)	0	9
21	YZ	181/206 (88%)	139 (77%)	26 (14%)	16 (9%)	1	13
22	R0	80/85 (94%)	74 (92%)	6 (8%)	0	100	100
22	Y0	80/85 (94%)	75 (94%)	5 (6%)	0	100	100
23	R1	95/98 (97%)	75 (79%)	15 (16%)	5 (5%)	2	22
23	Y1	95/98 (97%)	75 (79%)	15 (16%)	5 (5%)	2	22
24	R2	67/72 (93%)	58 (87%)	4 (6%)	5 (8%)	1	16
24	Y2	67/72 (93%)	58 (87%)	4 (6%)	5 (8%)	1	16
25	R3	57/60 (95%)	52 (91%)	4 (7%)	1 (2%)	8	42

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
25	Y3	57/60 (95%)	54 (95%)	2 (4%)	1 (2%)	8	42
26	R5	57/60 (95%)	48 (84%)	8 (14%)	1 (2%)	8	42
26	Y5	57/60 (95%)	48 (84%)	7 (12%)	2 (4%)	3	30
27	R6	47/54 (87%)	21 (45%)	18 (38%)	8 (17%)	0	3
27	Y6	47/54 (87%)	24 (51%)	17 (36%)	6 (13%)	0	5
28	R7	47/49 (96%)	45 (96%)	1 (2%)	1 (2%)	7	39
28	Y7	47/49 (96%)	45 (96%)	1 (2%)	1 (2%)	7	39
29	R8	62/65 (95%)	53 (86%)	5 (8%)	4 (6%)	1	19
29	Y8	62/65 (95%)	51 (82%)	8 (13%)	3 (5%)	2	24
30	R9	35/37 (95%)	33 (94%)	2 (6%)	0	100	100
30	Y9	35/37 (95%)	33 (94%)	2 (6%)	0	100	100
31	QB	233/256 (91%)	181 (78%)	38 (16%)	14 (6%)	1	20
31	XB	233/256 (91%)	190 (82%)	31 (13%)	12 (5%)	2	23
32	QC	205/239 (86%)	152 (74%)	33 (16%)	20 (10%)	0	10
32	XC	205/239 (86%)	157 (77%)	34 (17%)	14 (7%)	1	18
33	QD	206/209 (99%)	153 (74%)	40 (19%)	13 (6%)	1	19
33	XD	206/209 (99%)	149 (72%)	41 (20%)	16 (8%)	1	15
34	QE	149/162 (92%)	128 (86%)	17 (11%)	4 (3%)	5	35
34	XE	149/162 (92%)	123 (83%)	18 (12%)	8 (5%)	2	22
35	QF	99/101 (98%)	80 (81%)	15 (15%)	4 (4%)	3	27
35	XF	99/101 (98%)	77 (78%)	17 (17%)	5 (5%)	2	23
36	QG	153/156 (98%)	127 (83%)	22 (14%)	4 (3%)	5	35
36	XG	153/156 (98%)	127 (83%)	18 (12%)	8 (5%)	2	23
37	QH	136/138 (99%)	105 (77%)	25 (18%)	6 (4%)	2	25
37	XH	136/138 (99%)	106 (78%)	24 (18%)	6 (4%)	2	25
38	QI	125/128 (98%)	106 (85%)	16 (13%)	3 (2%)	6	37
38	XI	125/128 (98%)	102 (82%)	19 (15%)	4 (3%)	4	32
39	QJ	97/105 (92%)	77 (79%)	15 (16%)	5 (5%)	2	23
39	XJ	97/105 (92%)	77 (79%)	16 (16%)	4 (4%)	3	27
40	QK	117/129 (91%)	86 (74%)	22 (19%)	9 (8%)	1	16
40	XK	117/129 (91%)	84 (72%)	23 (20%)	10 (8%)	1	13

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
41	QL	123/132 (93%)	44 (36%)	47 (38%)	32 (26%)	0	1
41	XL	123/132 (93%)	47 (38%)	44 (36%)	32 (26%)	0	1
42	QM	112/126 (89%)	95 (85%)	11 (10%)	6 (5%)	2	22
42	XM	112/126 (89%)	96 (86%)	10 (9%)	6 (5%)	2	22
43	QN	58/61 (95%)	44 (76%)	11 (19%)	3 (5%)	2	23
43	XN	58/61 (95%)	40 (69%)	12 (21%)	6 (10%)	0	9
44	QO	86/89 (97%)	74 (86%)	9 (10%)	3 (4%)	3	30
44	XO	86/89 (97%)	72 (84%)	13 (15%)	1 (1%)	13	49
45	QP	82/88 (93%)	62 (76%)	13 (16%)	7 (8%)	1	13
45	XP	82/88 (93%)	62 (76%)	14 (17%)	6 (7%)	1	16
46	QQ	98/105 (93%)	80 (82%)	17 (17%)	1 (1%)	15	52
46	XQ	98/105 (93%)	82 (84%)	13 (13%)	3 (3%)	4	32
47	QR	68/88 (77%)	52 (76%)	11 (16%)	5 (7%)	1	16
47	XR	68/88 (77%)	54 (79%)	11 (16%)	3 (4%)	2	25
48	QT	97/106 (92%)	81 (84%)	13 (13%)	3 (3%)	4	32
48	XT	97/106 (92%)	83 (86%)	12 (12%)	2 (2%)	7	39
50	QS	77/93 (83%)	43 (56%)	25 (32%)	9 (12%)	0	6
50	XS	77/93 (83%)	43 (56%)	25 (32%)	9 (12%)	0	6
51	R4	32/71 (45%)	16 (50%)	13 (41%)	3 (9%)	0	12
51	Y4	44/71 (62%)	22 (50%)	11 (25%)	11 (25%)	0	1
All	All	11338/12074 (94%)	9058 (80%)	1601 (14%)	679 (6%)	1	20

5 of 679 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	RD	26	LYS
3	RD	122	ASP
3	RD	242	ARG
4	RE	22	PRO
4	RE	53	PRO

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 X-ray entries followed by that with respect to entries of similar

resolution.

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
3	RD	214/218 (98%)	184 (86%)	30 (14%)	3	21
3	YD	214/218 (98%)	187 (87%)	27 (13%)	4	23
4	RE	165/166 (99%)	137 (83%)	28 (17%)	2	14
4	YE	165/166 (99%)	142 (86%)	23 (14%)	3	21
5	RF	161/166 (97%)	147 (91%)	14 (9%)	10	37
5	YF	161/166 (97%)	145 (90%)	16 (10%)	8	31
6	RG	155/156 (99%)	141 (91%)	14 (9%)	9	36
6	YG	155/156 (99%)	135 (87%)	20 (13%)	4	23
7	RH	142/148 (96%)	126 (89%)	16 (11%)	6	27
7	YH	142/148 (96%)	123 (87%)	19 (13%)	4	22
8	RI	122/124 (98%)	99 (81%)	23 (19%)	1	10
8	YI	122/124 (98%)	102 (84%)	20 (16%)	2	15
9	RN	117/119 (98%)	102 (87%)	15 (13%)	4	23
9	YN	117/119 (98%)	103 (88%)	14 (12%)	5	25
10	RO	100/100 (100%)	92 (92%)	8 (8%)	12	41
10	YO	100/100 (100%)	91 (91%)	9 (9%)	9	36
11	RP	116/116 (100%)	88 (76%)	28 (24%)	0	5
11	YP	116/116 (100%)	92 (79%)	24 (21%)	1	7
12	RQ	111/111 (100%)	97 (87%)	14 (13%)	4	23
12	YQ	111/111 (100%)	98 (88%)	13 (12%)	5	26
13	RR	101/101 (100%)	89 (88%)	12 (12%)	5	25
13	YR	101/101 (100%)	90 (89%)	11 (11%)	6	28
14	RS	87/88 (99%)	72 (83%)	15 (17%)	2	14
14	YS	87/88 (99%)	75 (86%)	12 (14%)	3	21
15	RT	120/127 (94%)	107 (89%)	13 (11%)	6	29
15	YT	120/127 (94%)	102 (85%)	18 (15%)	3	18
16	RU	93/94 (99%)	82 (88%)	11 (12%)	5	25
16	YU	93/94 (99%)	84 (90%)	9 (10%)	8	32
17	RV	82/82 (100%)	70 (85%)	12 (15%)	3	19

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
17	YV	82/82 (100%)	69 (84%)	13 (16%)	2	17
18	RW	92/92 (100%)	78 (85%)	14 (15%)	3	17
18	YW	92/92 (100%)	79 (86%)	13 (14%)	3	21
19	RX	74/78 (95%)	64 (86%)	10 (14%)	4	22
19	YX	74/78 (95%)	63 (85%)	11 (15%)	3	18
20	RY	85/91 (93%)	66 (78%)	19 (22%)	1	6
20	YY	85/91 (93%)	70 (82%)	15 (18%)	2	13
21	RZ	162/179 (90%)	140 (86%)	22 (14%)	3	22
21	YZ	162/179 (90%)	139 (86%)	23 (14%)	3	20
22	R0	65/67 (97%)	60 (92%)	5 (8%)	13	42
22	Y0	65/67 (97%)	63 (97%)	2 (3%)	40	64
23	R1	82/83 (99%)	77 (94%)	5 (6%)	18	48
23	Y1	82/83 (99%)	75 (92%)	7 (8%)	10	39
24	R2	64/67 (96%)	58 (91%)	6 (9%)	8	33
24	Y2	64/67 (96%)	52 (81%)	12 (19%)	1	11
25	R3	51/52 (98%)	46 (90%)	5 (10%)	8	31
25	Y3	51/52 (98%)	48 (94%)	3 (6%)	19	49
26	R5	51/52 (98%)	40 (78%)	11 (22%)	1	7
26	Y5	51/52 (98%)	39 (76%)	12 (24%)	1	5
27	R6	48/52 (92%)	38 (79%)	10 (21%)	1	7
27	Y6	48/52 (92%)	38 (79%)	10 (21%)	1	7
28	R7	42/42 (100%)	38 (90%)	4 (10%)	8	33
28	Y7	42/42 (100%)	38 (90%)	4 (10%)	8	33
29	R8	54/55 (98%)	45 (83%)	9 (17%)	2	15
29	Y8	54/55 (98%)	42 (78%)	12 (22%)	1	6
30	R9	34/34 (100%)	32 (94%)	2 (6%)	19	49
30	Y9	34/34 (100%)	32 (94%)	2 (6%)	19	49
31	QB	203/220 (92%)	170 (84%)	33 (16%)	2	16
31	XB	203/220 (92%)	169 (83%)	34 (17%)	2	15
32	QC	161/188 (86%)	141 (88%)	20 (12%)	4	24
32	XC	161/188 (86%)	136 (84%)	25 (16%)	2	17

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
33	QD	180/181 (99%)	154 (86%)	26 (14%)	3	20
33	XD	180/181 (99%)	155 (86%)	25 (14%)	3	21
34	QE	116/123 (94%)	100 (86%)	16 (14%)	3	21
34	XE	116/123 (94%)	98 (84%)	18 (16%)	2	17
35	QF	90/90 (100%)	73 (81%)	17 (19%)	1	10
35	XF	90/90 (100%)	75 (83%)	15 (17%)	2	15
36	QG	126/127 (99%)	111 (88%)	15 (12%)	5	25
36	XG	126/127 (99%)	115 (91%)	11 (9%)	10	37
37	QH	119/119 (100%)	101 (85%)	18 (15%)	3	18
37	XH	119/119 (100%)	102 (86%)	17 (14%)	3	20
38	QI	98/99 (99%)	89 (91%)	9 (9%)	9	34
38	XI	98/99 (99%)	83 (85%)	15 (15%)	2	17
39	QJ	89/92 (97%)	74 (83%)	15 (17%)	2	14
39	XJ	89/92 (97%)	72 (81%)	17 (19%)	1	10
40	QK	90/99 (91%)	83 (92%)	7 (8%)	12	41
40	XK	90/99 (91%)	80 (89%)	10 (11%)	6	27
41	QL	104/109 (95%)	83 (80%)	21 (20%)	1	8
41	XL	104/109 (95%)	85 (82%)	19 (18%)	1	11
42	QM	92/101 (91%)	80 (87%)	12 (13%)	4	23
42	XM	92/101 (91%)	75 (82%)	17 (18%)	1	11
43	QN	49/50 (98%)	42 (86%)	7 (14%)	3	20
43	XN	49/50 (98%)	36 (74%)	13 (26%)	0	4
44	QO	79/80 (99%)	60 (76%)	19 (24%)	0	5
44	XO	79/80 (99%)	71 (90%)	8 (10%)	7	30
45	QP	72/74 (97%)	71 (99%)	1 (1%)	67	81
45	XP	72/74 (97%)	65 (90%)	7 (10%)	8	32
46	QQ	95/97 (98%)	86 (90%)	9 (10%)	8	33
46	XQ	95/97 (98%)	84 (88%)	11 (12%)	5	26
47	QR	61/77 (79%)	49 (80%)	12 (20%)	1	9
47	XR	61/77 (79%)	55 (90%)	6 (10%)	8	31
48	QT	76/82 (93%)	63 (83%)	13 (17%)	2	14

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
48	XT	76/82 (93%)	60 (79%)	16 (21%)	1	7
50	QS	69/80 (86%)	55 (80%)	14 (20%)	1	8
50	XS	69/80 (86%)	55 (80%)	14 (20%)	1	8
51	R4	30/63 (48%)	20 (67%)	10 (33%)	0	1
51	Y4	41/63 (65%)	32 (78%)	9 (22%)	1	6
All	All	9589/10022 (96%)	8239 (86%)	1350 (14%)	3	21

5 of 1350 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
41	QL	18	VAL
36	XG	149	ARG
42	QM	56	LEU
41	QL	17	LYS
31	XB	165	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 18 such sidechains are listed below:

Mol	Chain	Res	Type
32	XC	104	GLN
46	XQ	16	GLN
42	XM	92	HIS
15	YT	58	ASN
31	XB	212	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	RA	2878/2915 (98%)	573 (19%)	52 (1%)
1	YA	2880/2915 (98%)	590 (20%)	55 (1%)
2	RB	119/122 (97%)	19 (15%)	2 (1%)
2	YB	119/122 (97%)	20 (16%)	2 (1%)
49	QA	1509/1521 (99%)	296 (19%)	15 (0%)
49	XA	1514/1521 (99%)	288 (19%)	19 (1%)
52	QX	18/19 (94%)	7 (38%)	1 (5%)
52	XX	18/19 (94%)	7 (38%)	1 (5%)
53	QV	77/78 (98%)	27 (35%)	4 (5%)
53	XV	77/78 (98%)	26 (33%)	5 (6%)

Continued on next page...

Continued from previous page...

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
All	All	9209/9310 (98%)	1853 (20%)	156 (1%)

5 of 1853 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	RA	9	U
1	RA	15	G
1	RA	28	A
1	RA	34	C
1	RA	35	G

5 of 156 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
49	QA	748	C
49	XA	1504	G
49	QA	1300	G
49	XA	748	C
53	XV	75	A

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

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
53	1MG	XV	38	53	18,26,27	0.66	0	19,39,42	1.18	2 (10%)
53	1MG	QV	38	53	18,26,27	0.66	0	19,39,42	1.18	2 (10%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
53	1MG	XV	38	53	-	3/3/25/26	0/3/3/3
53	1MG	QV	38	53	-	3/3/25/26	0/3/3/3

There are no bond length outliers.

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
53	XV	38	1MG	C5-C6-N1	2.75	118.03	113.90
53	QV	38	1MG	C5-C6-N1	2.74	118.02	113.90
53	XV	38	1MG	C8-N7-C5	2.29	107.35	102.99
53	QV	38	1MG	C8-N7-C5	2.26	107.30	102.99

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
53	XV	38	1MG	C4'-C5'-O5'-P
53	XV	38	1MG	O4'-C4'-C5'-O5'
53	QV	38	1MG	C4'-C5'-O5'-P
53	QV	38	1MG	O4'-C4'-C5'-O5'
53	XV	38	1MG	C3'-C4'-C5'-O5'

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
53	XV	38	1MG	2	0
53	QV	38	1MG	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 1319 ligands modelled in this entry, 1319 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	RA	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	RA	1052:C	O3'	1053:C	P	3.18

6 Fit of model and data

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.