



wwPDB X-ray Structure Validation Summary Report ⓘ

Oct 4, 2023 – 04:07 PM EDT

PDB ID : 6NUO
Title : Modified tRNA(Pro) bound to Thermus thermophilus 70S (cognate)
Authors : Hoffer, E.D.; Subaramanian, S.; Hong, S.; Maehigashi, T.; Dunham, C.M.
Deposited on : 2019-02-01
Resolution : 3.20 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)
Xtrriage (Phenix) : 1.13
EDS : **FAILED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35.1

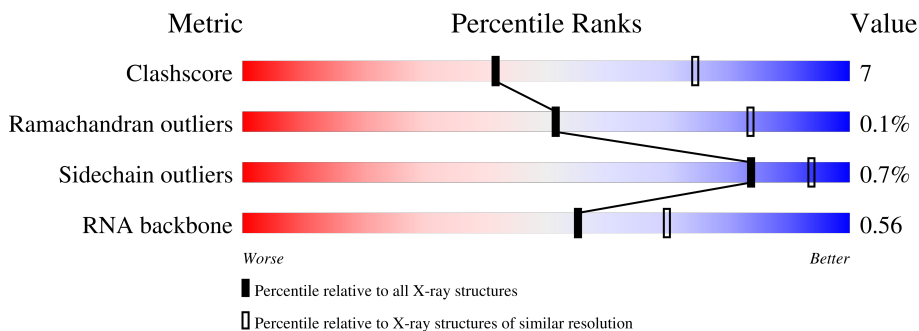
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 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)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RNA backbone	3102	1010 (3.50-2.90)











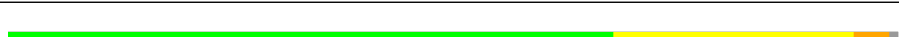


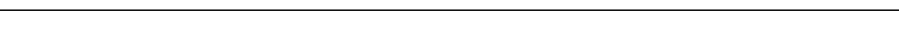
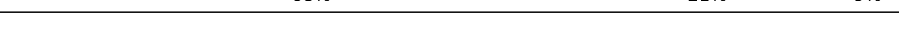
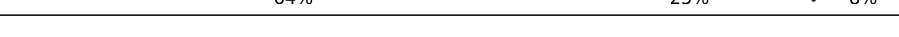



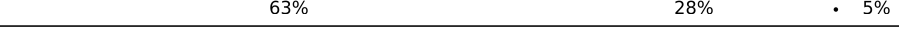





The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. 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 $\leq 5\%$

Note EDS failed to run properly.

Mol	Chain	Length	Quality of chain
1	QA	1521	
1	XA	1521	
2	QB	256	
2	XB	256	
3	QC	239	
3	XC	239	

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Mol	Chain	Length	Quality of chain
4	QD	209	 77% 22%
4	XD	209	 66% 30%
5	QE	162	 67% 25% 7%
5	XE	162	 76% 17% 7%
6	QF	101	 74% 25%
6	XF	101	 80% 18%
7	QG	156	 79% 19% ..
7	XG	156	 72% 25% ..
8	QH	138	 78% 22%
8	XH	138	 76% 22% ..
9	QI	128	 68% 27% ..
9	XI	128	 60% 32% 6%
10	QJ	105	 56% 34% 6%
10	XJ	105	 68% 21% 9%
11	QK	129	 64% 25% 8%
11	XK	129	 71% 18% 10%
12	QL	132	 78% 15% 5%
12	XL	132	 67% 20% 5% 8%
13	QM	126	 63% 28% 5%
13	XM	126	 53% 37% 6%
14	QN	61	 51% 43% 5%
14	XN	61	 75% 18% 5%
15	QO	89	 88% 10% ..
15	XO	89	 82% 16%
16	QP	88	 68% 26% 5%

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Mol	Chain	Length	Quality of chain
16	XP	88	68% 25% • 5%
17	QQ	105	61% 32% • 5%
17	XQ	105	79% 15% • 5%
18	QR	88	61% 18% 20%
18	XR	88	61% 17% • 20%
19	QS	93	66% 22% • 11%
19	XS	93	61% 26% • 10%
20	QT	106	70% 22% • 7%
20	XT	106	60% 31% • 7%
21	QU	27	78% 15% 7%
21	XU	27	56% 33% • 7%
22	QV	77	38% 47% 13% •
22	XV	77	45% 43% 9% •
23	QX	19	26% 68% 5%
23	XX	19	26% 58% 11% 5%
24	RA	2915	51% 35% 11% ••
24	YA	2915	50% 35% 11% ••
25	RB	122	65% 24% 9% ••
25	YB	122	51% 32% 13% ••
26	RD	276	78% 21% •
26	YD	276	84% 14% ••
27	RE	206	77% 23%
27	YE	206	78% 20% ••
28	RF	210	74% 22% •
28	YF	210	73% 23% •









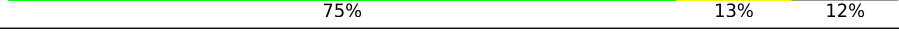

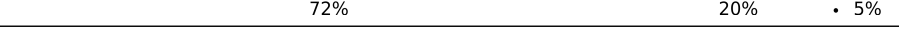
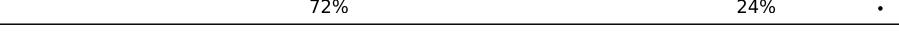

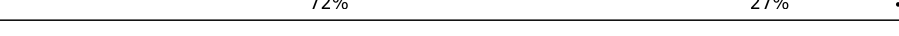


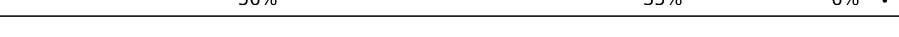

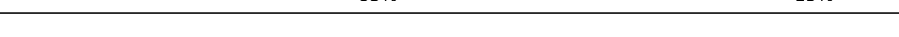






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Mol	Chain	Length	Quality of chain
29	RG	182	67% 29% ..
29	YG	182	65% 32% ...
30	RH	180	62% 32% ..
30	YH	180	82% 14% ..
31	RI	148	71% 25% ..
31	YI	148	74% 22% ..
32	RN	140	85% 13% ..
32	YN	140	79% 19% .
33	RO	122	75% 23% .
33	YO	122	80% 19% .
34	RP	150	78% 19% ...
34	YP	150	74% 24% .
35	RQ	141	62% 35% .
35	YQ	141	86% 14%
36	RR	118	75% 23% ..
36	YR	118	82% 15% ..
37	RS	112	71% 25% ..
37	YS	112	79% 20% .
38	RT	146	65% 25% . 6%
38	YT	146	67% 23% .. 6%
39	RU	118	78% 19% ..
39	YU	118	82% 14% ..
40	RV	101	80% 19% .
40	YV	101	82% 13% 5%
41	RW	113	81% 19% .





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Mol	Chain	Length	Quality of chain
41	YW	113	 82% 17% .
42	RX	96	 82% 14% .
42	YX	96	 86% 11% .
43	RY	110	 78% 18% ..
43	YY	110	 81% 15% ..
44	RZ	206	 54% 32% . 11%
44	YZ	206	 67% 21% 11%
45	R0	85	 71% 24% . 5%
45	Y0	85	 75% 13% 12%
46	R1	98	 79% 16% ..
46	Y1	98	 72% 20% . 5%
47	R2	72	 72% 24% .
47	Y2	72	 69% 22% 8%
48	R3	60	 72% 27% .
48	Y3	60	 78% 20% .
49	R4	71	 58% 37% ..
49	Y4	71	 56% 35% 6% .
50	R5	60	 83% 15% .
50	Y5	60	 83% 15% .
51	R6	54	 81% 15% ..
51	Y6	54	 78% 19% ..
52	R7	49	 80% 16% .
52	Y7	49	 90% 8% .
53	R8	65	 60% 38% .
53	Y8	65	 62% 34% ...

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Mol	Chain	Length	Quality of chain	
54	R9	37	 78%	 22%
54	Y9	37	 70%	 30%

2 Entry composition [i](#)

There are 57 unique types of molecules in this entry. The entry contains 291964 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 16S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	P			
1	QA	1500	Total 32247	C 14353	N 5981	O 10414	P 1499	0	0	0
1	XA	1500	Total 32249	C 14354	N 5984	O 10412	P 1499	0	0	0

- Molecule 2 is a protein called 30S ribosomal protein S2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	QB	235	Total 1907	C 1217	N 342	O 343	S 5	0	0	0
2	XB	236	Total 1915	C 1223	N 343	O 344	S 5	0	0	0

- Molecule 3 is a protein called 30S ribosomal protein S3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	QC	205	Total 1605	C 1011	N 313	O 280	S 1	0	0	0
3	XC	205	Total 1605	C 1011	N 313	O 280	S 1	0	0	0

- Molecule 4 is a protein called 30S ribosomal protein S4.

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

- Molecule 5 is a protein called 30S ribosomal protein S5.

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

- Molecule 6 is a protein called 30S ribosomal protein S6.

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

- Molecule 7 is a protein called 30S ribosomal protein S7.

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

- Molecule 8 is a protein called 30S ribosomal protein S8.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
8	QH	137	Total	C	N	O	S	0	0	0
			1108	700	214	192	2			
8	XH	137	Total	C	N	O	S	0	0	0
			1108	700	214	192	2			

- Molecule 9 is a protein called 30S ribosomal protein S9.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
9	QI	127	Total	C	N	O	0	0	0
			1010	639	197	174			
9	XI	126	Total	C	N	O	0	0	0
			998	633	193	172			

- Molecule 10 is a protein called 30S ribosomal protein S10.

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

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
10	XJ	96	777	487	153	136	1	0	0	0

- Molecule 11 is a protein called 30S ribosomal protein S11.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
11	QK	119	885	549	168	165	3	0	0	0
11	XK	116	864	537	164	160	3	0	0	0

- Molecule 12 is a protein called 30S ribosomal protein S12.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
12	QL	125	975	614	196	164	1	0	0	0
12	XL	122	956	603	193	159	1	0	0	0

- Molecule 13 is a protein called 30S ribosomal protein S13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
13	QM	120	955	591	197	165	2	0	0	0
13	XM	119	946	585	195	164	2	0	0	0

- Molecule 14 is a protein called 30S ribosomal protein S14 type Z.

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

- Molecule 15 is a protein called 30S ribosomal protein S15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
15	QO	88	734	459	147	126	2	0	0	0
15	XO	87	729	457	146	124	2	0	0	0

- Molecule 16 is a protein called 30S ribosomal protein S16.

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

- Molecule 17 is a protein called 30S ribosomal protein S17.

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

- Molecule 18 is a protein called 30S ribosomal protein S18.

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

- Molecule 19 is a protein called 30S ribosomal protein S19.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
19	QS	83	Total	C	N	O	S	0	0	0
			665	424	124	115	2			
19	XS	84	Total	C	N	O	S	0	0	0
			674	430	126	116	2			

- Molecule 20 is a protein called 30S ribosomal protein S20.

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

- Molecule 21 is a protein called 30S ribosomal protein Thx.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
21	QU	25	Total	C	N	O	0	0	0
			217	134	52	31			
21	XU	25	Total	C	N	O	0	0	0
			217	134	52	31			

- Molecule 22 is a RNA chain called P-site tRNA-Pro.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
22	QV	77	Total	C	N	O	P	0	0	0
			1648	734	295	542	77			
22	XV	77	Total	C	N	O	P	0	0	0
			1648	734	295	542	77			

- Molecule 23 is a RNA chain called mRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
23	QX	19	Total	C	N	O	P	0	0	0
			418	186	86	127	19			
23	XX	19	Total	C	N	O	P	0	0	0
			418	186	86	127	19			

- Molecule 24 is a RNA chain called 23S rRNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
24	RA	2881	Total	C	N	O	P	0	0	0
			62051	27618	11609	19944	2880			
24	YA	2883	Total	C	N	O	P	0	0	0
			62091	27636	11613	19960	2882			

- Molecule 25 is a RNA chain called 5S rRNA.

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

- Molecule 26 is a protein called 50S ribosomal protein L2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
26	RD	274	Total	C	N	O	S	0	0	0
			2135	1347	426	359	3			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
26	YD	274	Total	C	N	O	S	0	0	0
			2135	1347	426	359	3			

- Molecule 27 is a protein called 50S ribosomal protein L3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
27	RE	205	Total	C	N	O	S	0	0	0
			1568	991	300	271	6			
27	YE	204	Total	C	N	O	S	0	0	0
			1563	988	299	270	6			

- Molecule 28 is a protein called 50S ribosomal protein L4.

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

- Molecule 29 is a protein called 50S ribosomal protein L5.

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

- Molecule 30 is a protein called 50S ribosomal protein L6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
30	RH	174	Total	C	N	O	S	0	0	0
			1336	848	251	236	1			
30	YH	173	Total	C	N	O	S	0	0	0
			1330	845	250	234	1			

- Molecule 31 is a protein called 50S ribosomal protein L9.

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

- Molecule 32 is a protein called 50S ribosomal protein L13.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
32	RN	138	Total 1104	C 712	N 206	O 182	S 4	0	0	0
32	YN	140	Total 1121	C 722	N 208	O 187	S 4	0	0	0

- Molecule 33 is a protein called 50S ribosomal protein L14.

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

- Molecule 34 is a protein called 50S ribosomal protein L15.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
34	RP	149	Total 1139	C 709	N 231	O 196	S 3	0	0	0
34	YP	147	Total 1122	C 698	N 229	O 192	S 3	0	0	0

- Molecule 35 is a protein called 50S ribosomal protein L16.

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

- Molecule 36 is a protein called 50S ribosomal protein L17.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
36	RR	117	Total 960	C 599	N 202	O 159	0	0	0
36	YR	117	Total 960	C 599	N 202	O 159	0	0	0

- Molecule 37 is a protein called 50S ribosomal protein L18.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
37	RS	111	Total	C	N	O	0	0	0
			882	556	176	150			
37	YS	110	Total	C	N	O	0	0	0
			877	553	175	149			

- Molecule 38 is a protein called 50S ribosomal protein L19.

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

- Molecule 39 is a protein called 50S ribosomal protein L20.

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

- Molecule 40 is a protein called 50S ribosomal protein L21.

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

- Molecule 41 is a protein called 50S ribosomal protein L22.

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

- Molecule 42 is a protein called 50S ribosomal protein L23.

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

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
42	YX	94	742	482	134	125	1	0	0	0

- Molecule 43 is a protein called 50S ribosomal protein L24.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
43	RY	107	818	525	155	132	6	0	0	0
43	YY	107	818	525	155	132	6	0	0	0

- Molecule 44 is a protein called 50S ribosomal protein L25.

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

- Molecule 45 is a protein called 50S ribosomal protein L27.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
45	R0	81	643	398	137	107	1	0	0	0
45	Y0	75	599	370	127	101	1	0	0	0

- Molecule 46 is a protein called 50S ribosomal protein L28.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
46	R1	97	763	481	150	131	1	0	0	0
46	Y1	93	729	457	145	126	1	0	0	0

- Molecule 47 is a protein called 50S ribosomal protein L29.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
47	R2	69	581	358	118	104	1	0	0	0
47	Y2	66	558	346	113	98	1	0	0	0

- Molecule 48 is a protein called 50S ribosomal protein L30.

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

- Molecule 49 is a protein called 50S ribosomal protein L31.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
49	R4	69	Total	C	N	O	S	0	0	0
			565	356	103	101	5			
49	Y4	69	Total	C	N	O	S	0	0	0
			565	356	103	101	5			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
50	R5	59	Total	C	N	O	S	0	0	0
			459	288	90	76	5			
50	Y5	59	Total	C	N	O	S	0	0	0
			459	288	90	76	5			

- Molecule 51 is a protein called 50S ribosomal protein L33.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
51	R6	53	Total	C	N	O	S	0	0	0
			453	281	91	77	4			
51	Y6	53	Total	C	N	O	S	0	0	0
			453	281	91	77	4			

- Molecule 52 is a protein called 50S ribosomal protein L34.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
52	R7	47	Total	C	N	O	S	0	0	0
			409	251	102	54	2			
52	Y7	48	Total	C	N	O	S	0	0	0
			418	257	104	55	2			

- Molecule 53 is a protein called 50S ribosomal protein L35.

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

- Molecule 54 is a protein called 50S ribosomal protein L36.

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

- Molecule 55 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

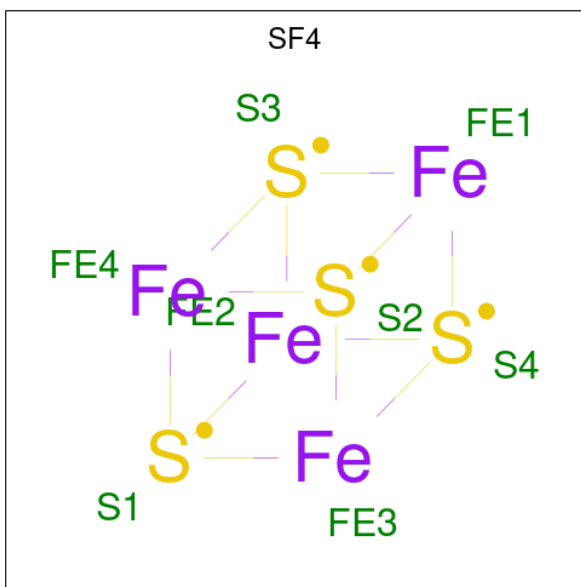
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
55	QA	64	Total	Mg	0	0
			64	64		
55	QV	1	Total	Mg	0	0
			1	1		
55	RA	444	Total	Mg	0	0
			444	444		
55	RB	7	Total	Mg	0	0
			7	7		
55	RE	5	Total	Mg	0	0
			5	5		
55	RF	1	Total	Mg	0	0
			1	1		
55	RN	1	Total	Mg	0	0
			1	1		
55	RQ	1	Total	Mg	0	0
			1	1		
55	RR	1	Total	Mg	0	0
			1	1		
55	RT	1	Total	Mg	0	0
			1	1		
55	RX	1	Total	Mg	0	0
			1	1		
55	R0	2	Total	Mg	0	0
			2	2		
55	R8	2	Total	Mg	0	0
			2	2		
55	XA	78	Total	Mg	0	0
			78	78		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
55	XE	1	Total Mg 1 1	0	0
55	XM	2	Total Mg 2 2	0	0
55	XV	1	Total Mg 1 1	0	0
55	YA	510	Total Mg 510 510	0	0
55	YB	7	Total Mg 7 7	0	0
55	YD	2	Total Mg 2 2	0	0
55	YE	5	Total Mg 5 5	0	0
55	YP	3	Total Mg 3 3	0	0
55	YQ	3	Total Mg 3 3	0	0
55	YR	1	Total Mg 1 1	0	0
55	Y0	2	Total Mg 2 2	0	0
55	Y1	2	Total Mg 2 2	0	0
55	Y3	1	Total Mg 1 1	0	0
55	Y5	1	Total Mg 1 1	0	0
55	Y7	1	Total Mg 1 1	0	0
55	Y8	1	Total Mg 1 1	0	0

- Molecule 56 is IRON/SULFUR CLUSTER (three-letter code: SF4) (formula: Fe₄S₄).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
56	QD	1	Total	Fe S	0	0
			8	4 4		
56	XD	1	Total	Fe S	0	0
			8	4 4		

- Molecule 57 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
57	QN	1	Total	Zn	0	0
			1	1		
57	RY	1	Total	Zn	0	0
			1	1		
57	R4	1	Total	Zn	0	0
			1	1		
57	R5	1	Total	Zn	0	0
			1	1		
57	R6	1	Total	Zn	0	0
			1	1		
57	R9	1	Total	Zn	0	0
			1	1		
57	XN	1	Total	Zn	0	0
			1	1		
57	YY	1	Total	Zn	0	0
			1	1		
57	Y4	1	Total	Zn	0	0
			1	1		
57	Y5	1	Total	Zn	0	0
			1	1		

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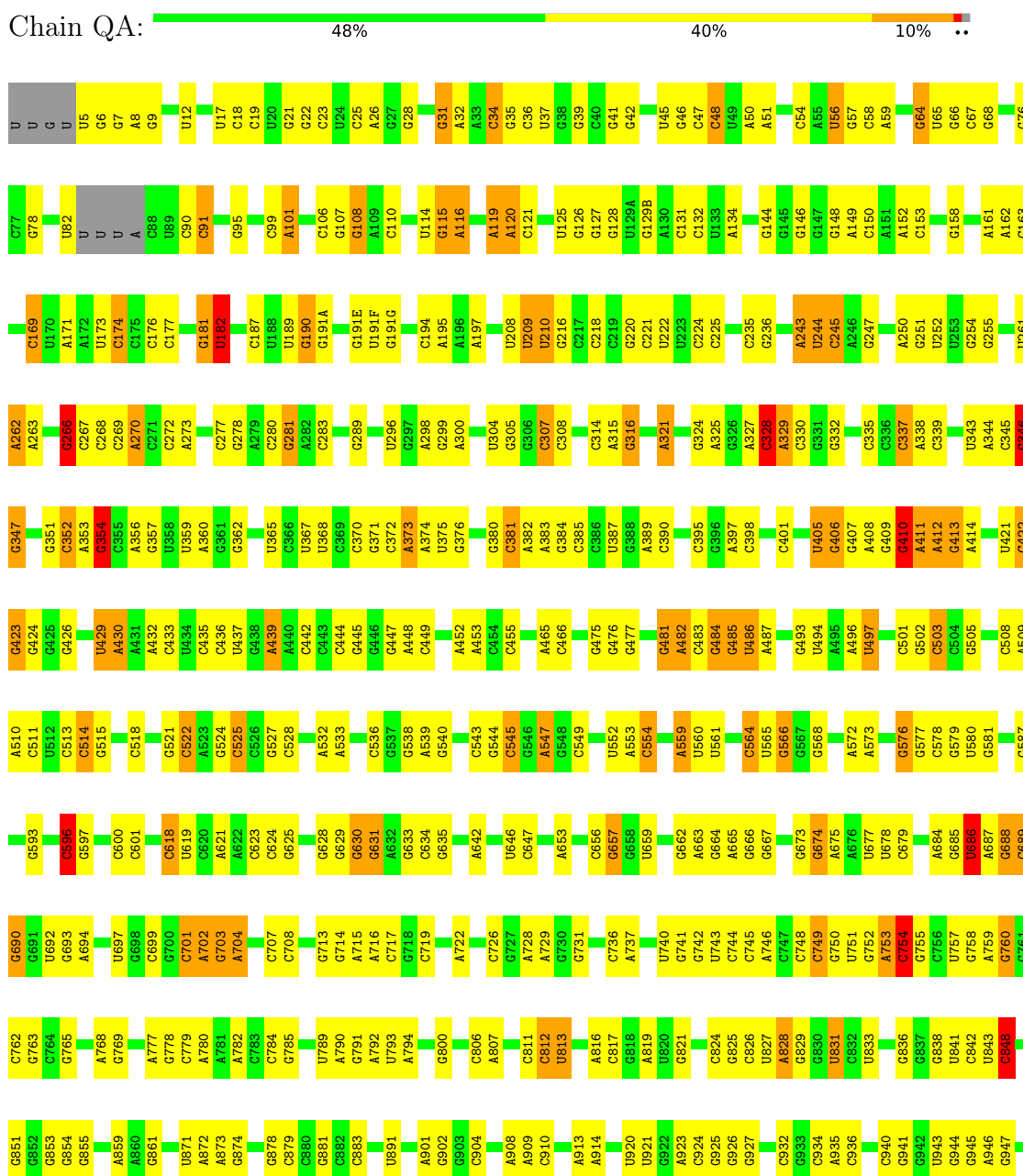
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
57	Y6	1	Total 1	Zn 1	0	0
57	Y9	1	Total 1	Zn 1	0	0

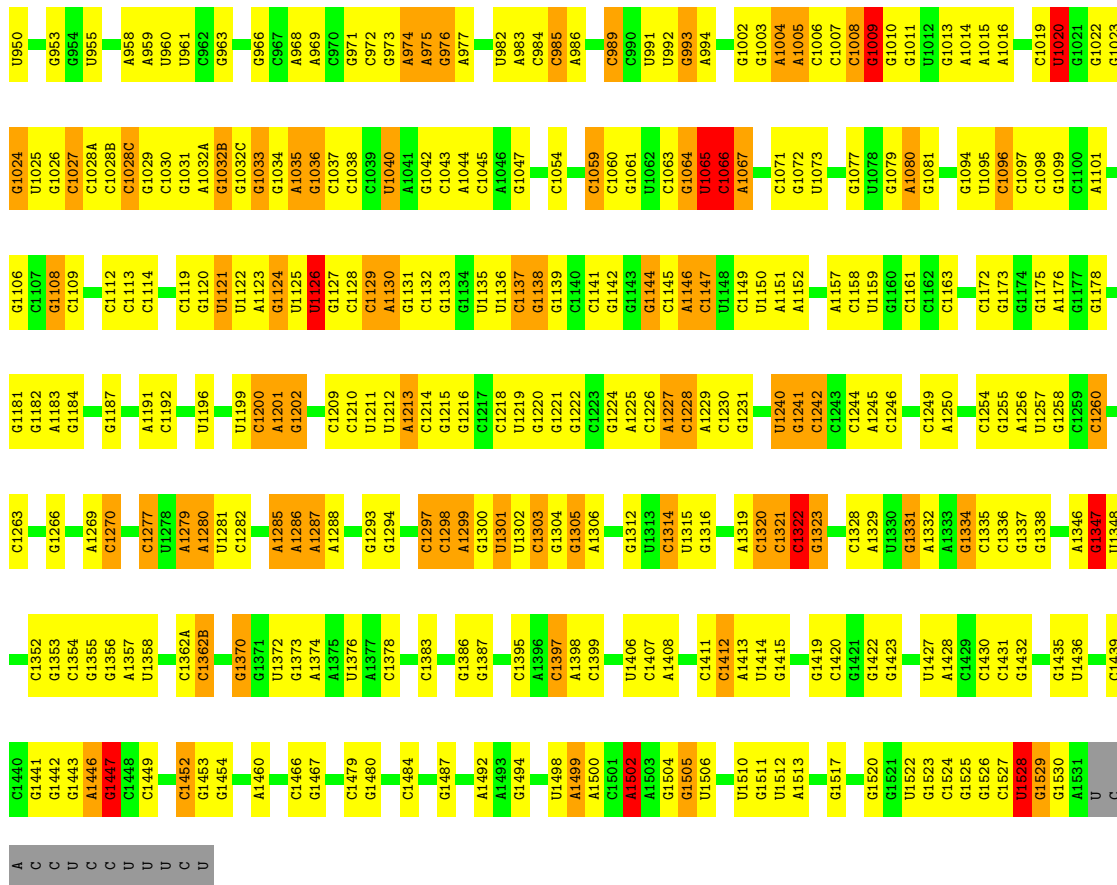
3 Residue-property plots [i](#)

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. 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. 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.

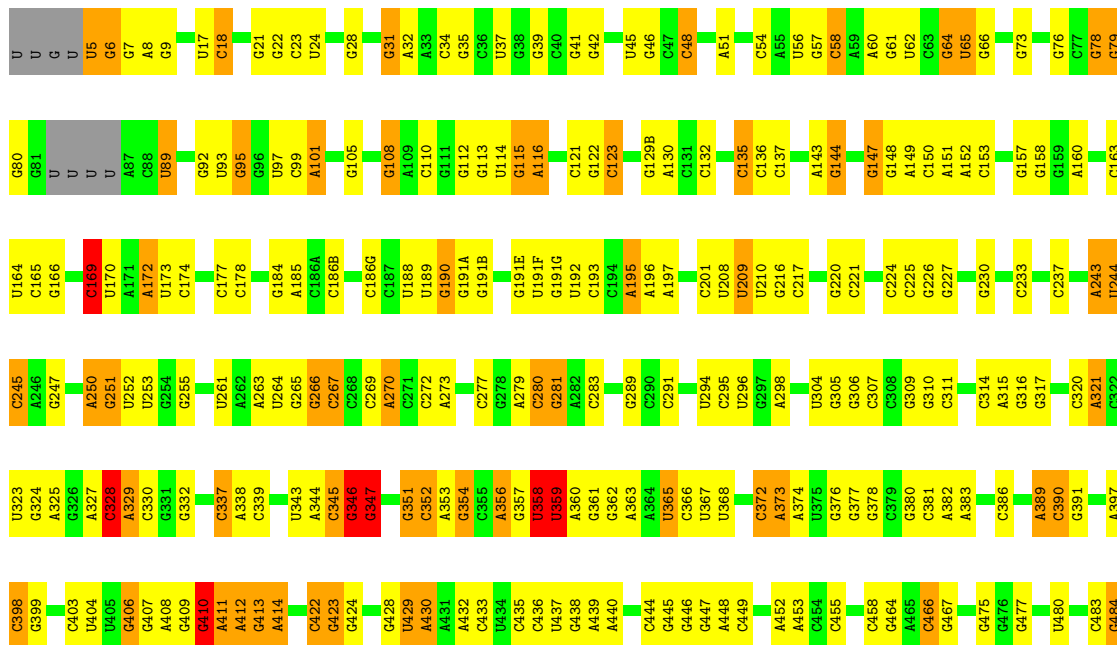
Note EDS failed to run properly.

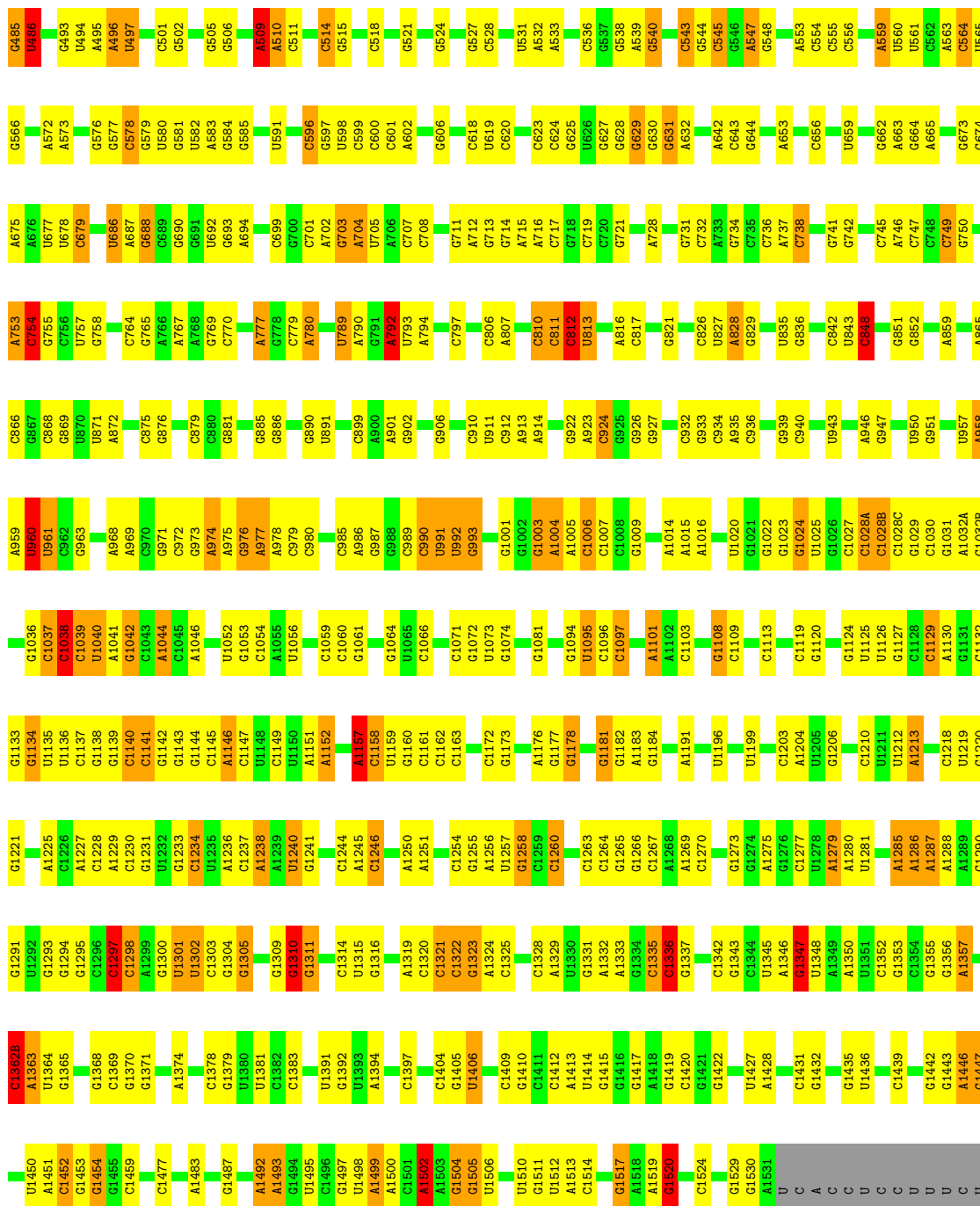
- Molecule 1: 16S rRNA





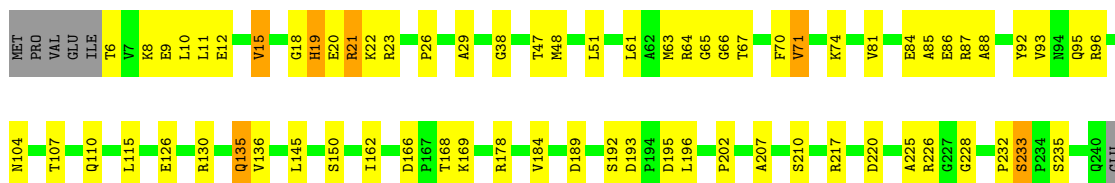
● Molecule 1: 16S rRNA





• Molecule 2: 30S ribosomal protein S2

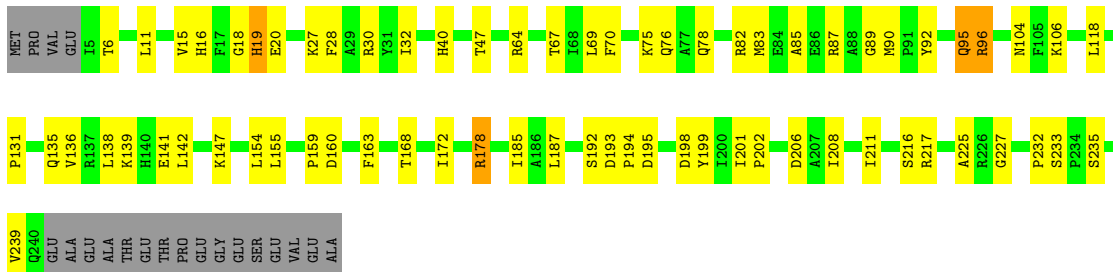
Chain QB: 64% 25% 8%



ALA
GLU
GLU
ALA
THR
GLU
THR
PRO
GLY
GLY
SER
GLU
VAL
GLU
ALA

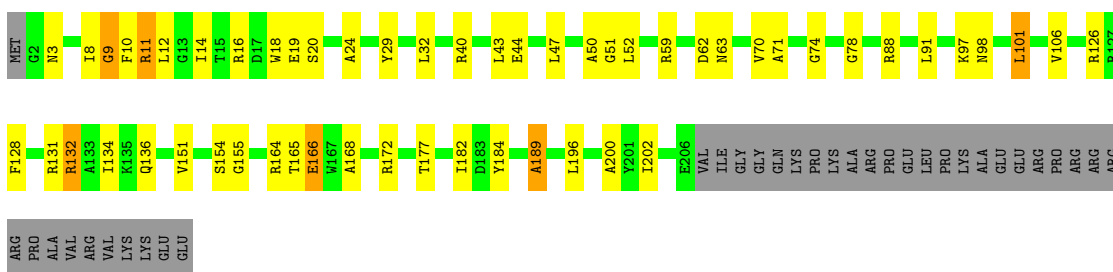
- Molecule 2: 30S ribosomal protein S2

Chain XB:  65% 25% 8%



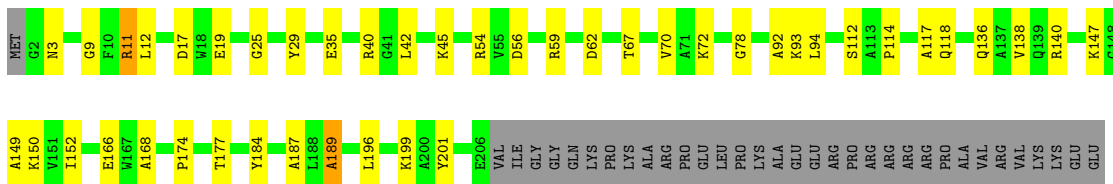
- Molecule 3: 30S ribosomal protein S3

Chain QC:  63% 21% 14%




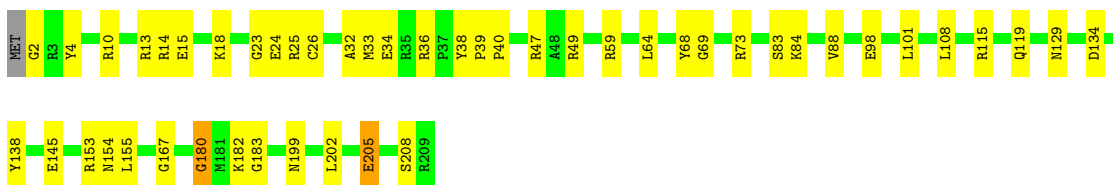
- Molecule 3: 30S ribosomal protein S3

Chain XC:  67% 18% 14%



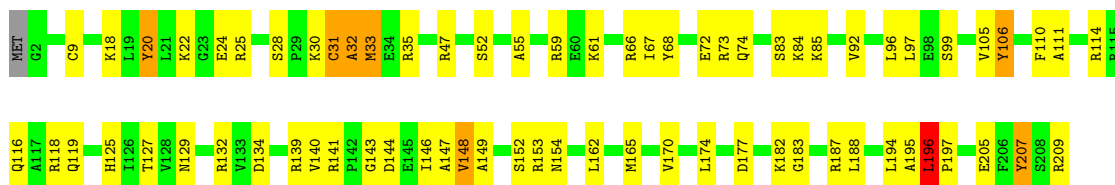
- Molecule 4: 30S ribosomal protein S4

Chain QD:  77% 22%



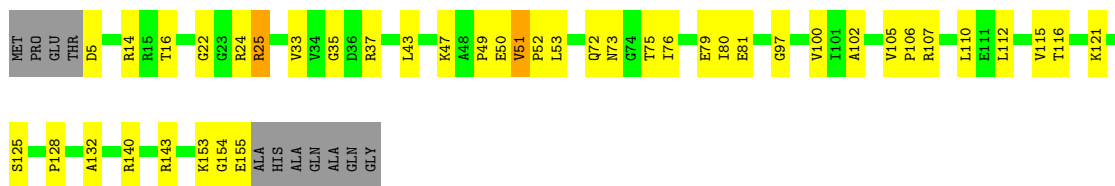
- Molecule 4: 30S ribosomal protein S4

Chain XD:  66% 30%




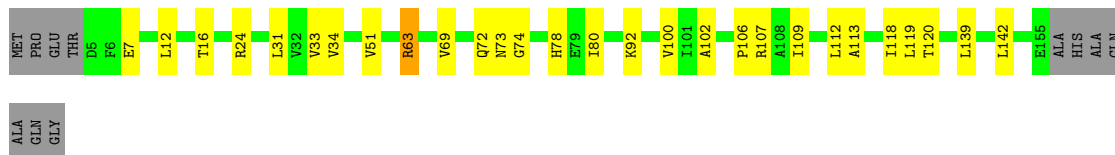
- Molecule 5: 30S ribosomal protein S5

Chain QE:  67% 25% 7%




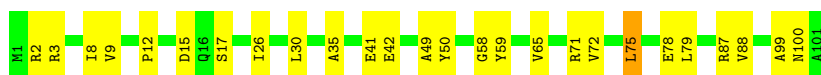
- Molecule 5: 30S ribosomal protein S5

Chain XE:  76% 17% 7%




- Molecule 6: 30S ribosomal protein S6

Chain QF:  74% 25%




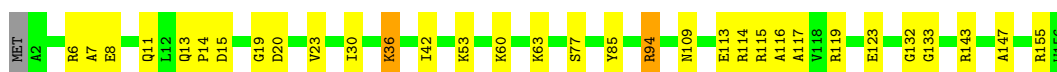
- Molecule 6: 30S ribosomal protein S6

Chain XF:  80% 18%



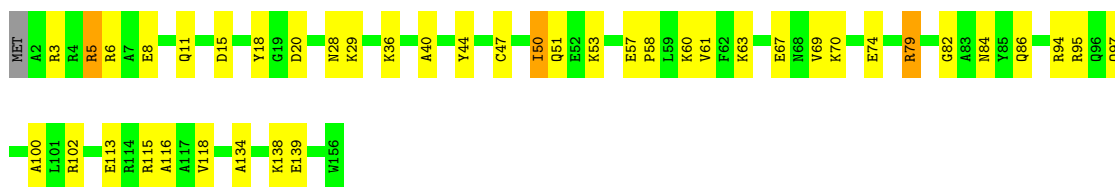
- Molecule 7: 30S ribosomal protein S7

Chain QG:  79% 19%




- Molecule 7: 30S ribosomal protein S7

Chain XG:  72% 25% ..




- Molecule 8: 30S ribosomal protein S8

Chain QH:  78% 22% .



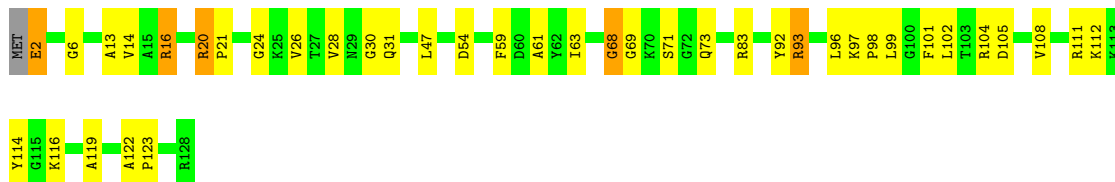
- Molecule 8: 30S ribosomal protein S8

Chain XH:  76% 22% ..



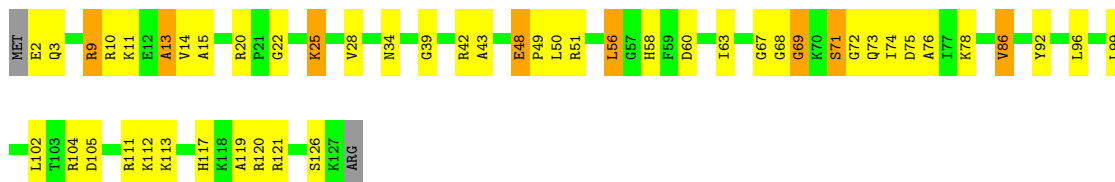
- Molecule 9: 30S ribosomal protein S9

Chain QI:  68% 27% ..



- Molecule 9: 30S ribosomal protein S9

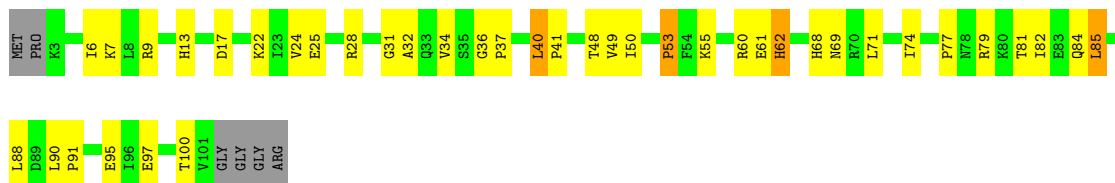
Chain XI:  60% 32% 6% .



- Molecule 10: 30S ribosomal protein S10

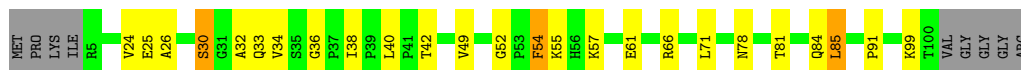
Chain QJ:  56% 34% 6%





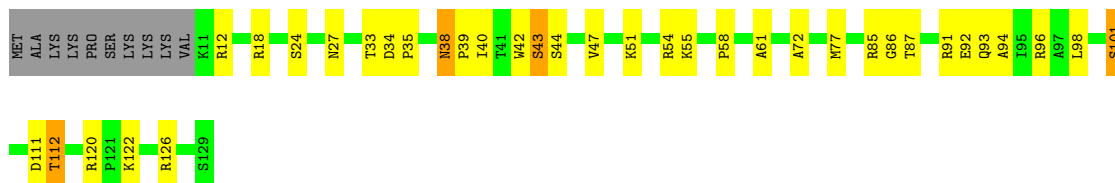
- Molecule 10: 30S ribosomal protein S10

Chain XJ: 68% 21% 9%



- Molecule 11: 30S ribosomal protein S11

Chain QK: 64% 25% 8%



- Molecule 11: 30S ribosomal protein S11

Chain XK: 71% 18% 10%



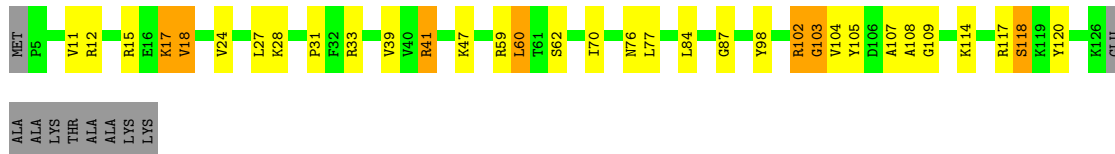
- Molecule 12: 30S ribosomal protein S12

Chain QL: 78% 15% 5%



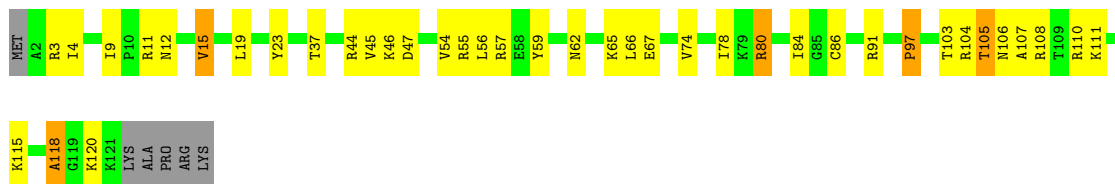
- Molecule 12: 30S ribosomal protein S12

Chain XL: 67% 20% 5% 8%



- Molecule 13: 30S ribosomal protein S13

Chain QM:  63% 28% 5%



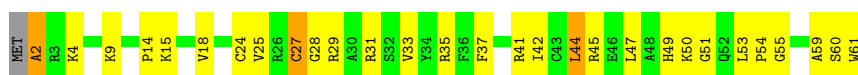
- Molecule 13: 30S ribosomal protein S13

Chain XM:  53% 37% 6%




- Molecule 14: 30S ribosomal protein S14 type Z

Chain QN:  51% 43% 5%




- Molecule 14: 30S ribosomal protein S14 type Z

Chain XN:  75% 18% 5%




- Molecule 15: 30S ribosomal protein S15

Chain QO:  88% 10% 5%



- Molecule 15: 30S ribosomal protein S15

Chain XO:  82% 16% 5%

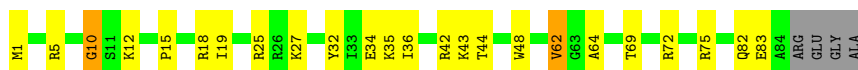


- Molecule 16: 30S ribosomal protein S16

Chain QP:  68% 26% 5%



- Molecule 16: 30S ribosomal protein S16

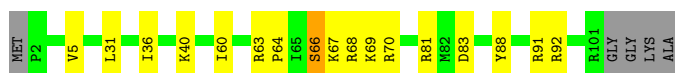
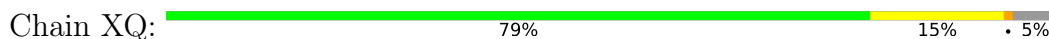


- Molecule 17: 30S ribosomal protein S17



ALA

- Molecule 17: 30S ribosomal protein S17



- Molecule 18: 30S ribosomal protein S18



- Molecule 18: 30S ribosomal protein S18



- Molecule 19: 30S ribosomal protein S19



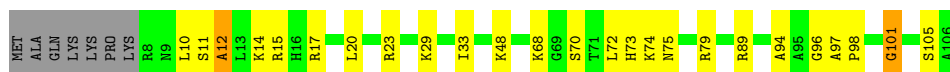
- Molecule 19: 30S ribosomal protein S19

Chain XS:  61% 26% 10%



- Molecule 20: 30S ribosomal protein S20

Chain QT:  70% 22% 7%




- Molecule 20: 30S ribosomal protein S20

Chain XT:  60% 31% 7%



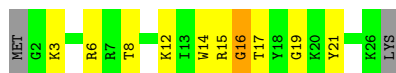
- Molecule 21: 30S ribosomal protein Thx

Chain QU:  78% 15% 7%




- Molecule 21: 30S ribosomal protein Thx

Chain XU:  56% 33% 7%



- Molecule 22: P-site tRNA-Pro

Chain QV:  38% 47% 13% 2%

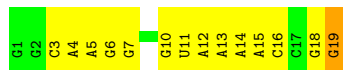
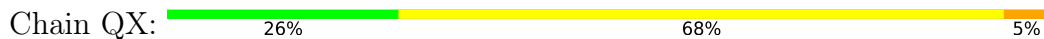


- Molecule 22: P-site tRNA-Pro

Chain XV:  45% 43% 9% 3%



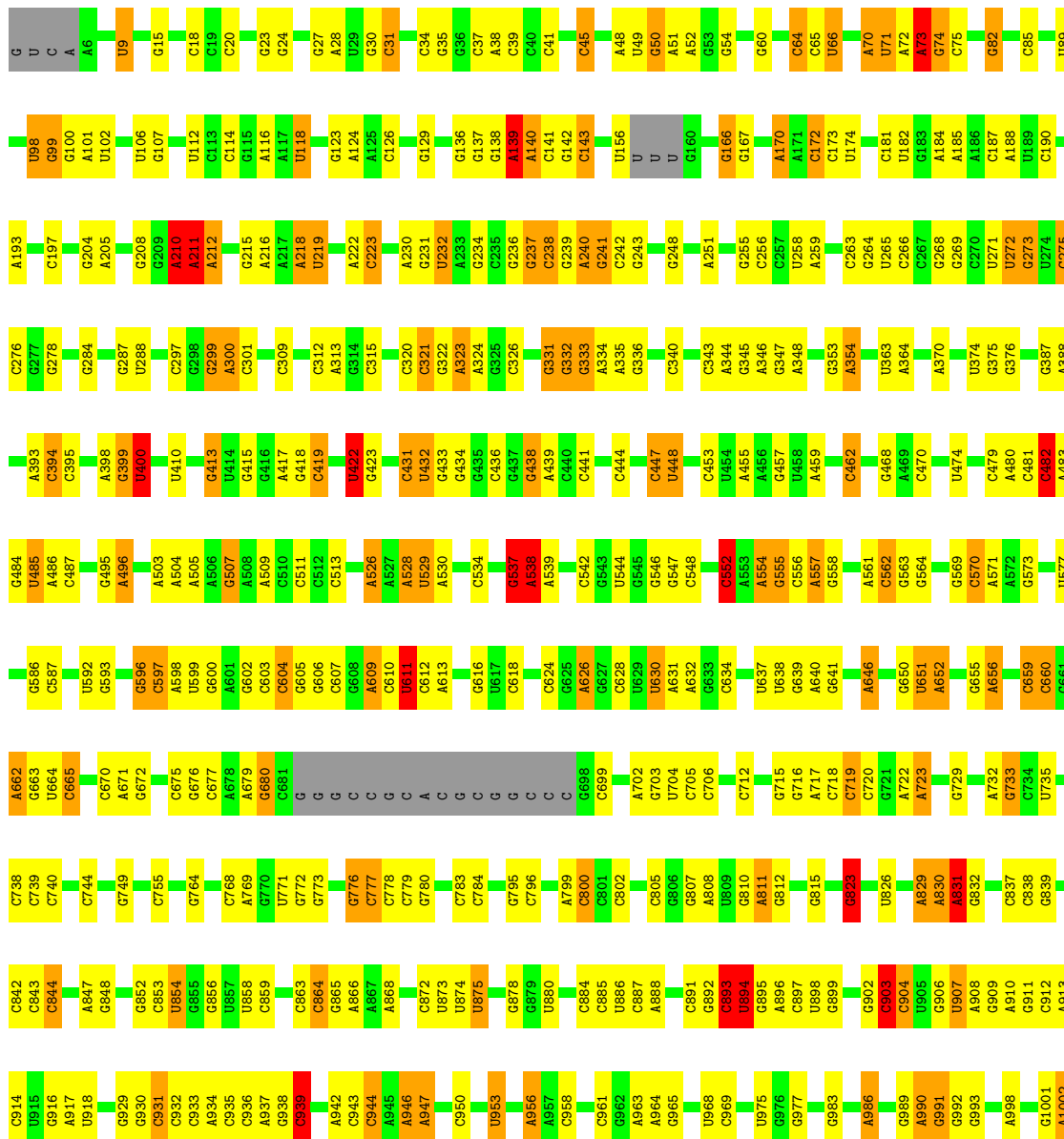
- Molecule 23: mRNA

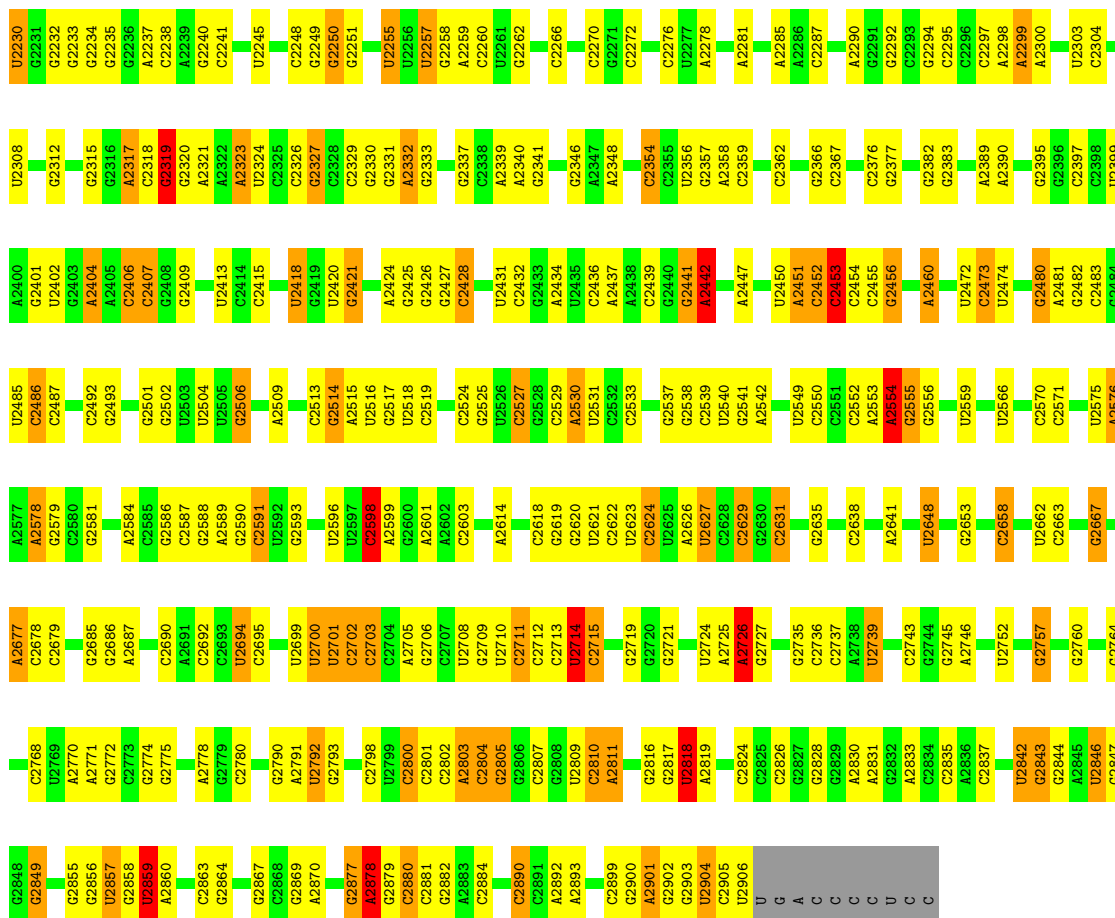


• Molecule 23: mRNA

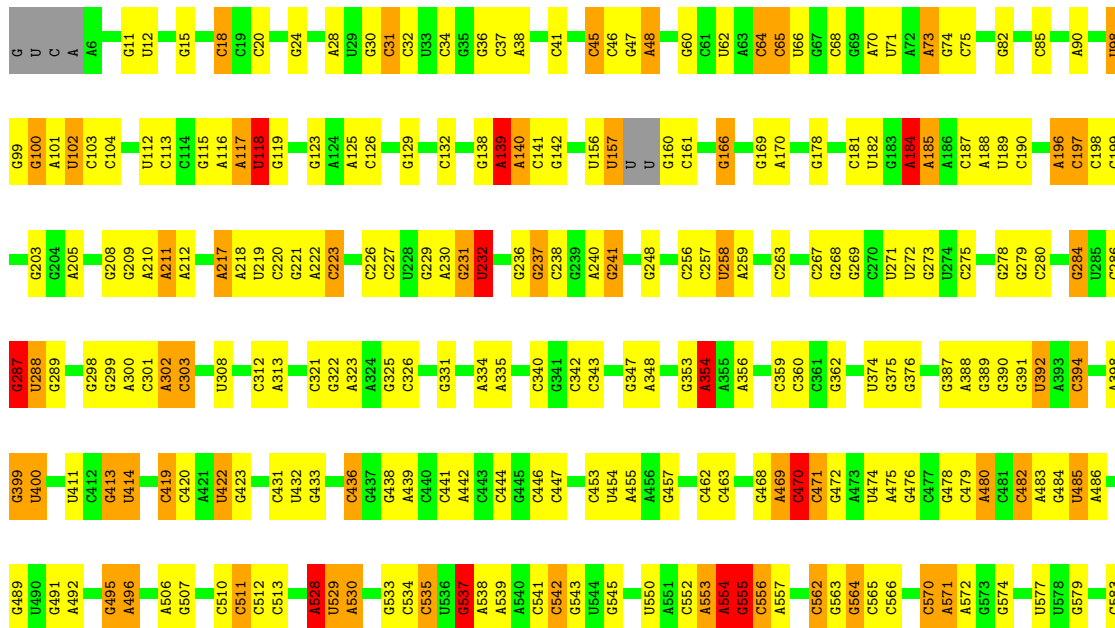


• Molecule 24: 23S rRNA

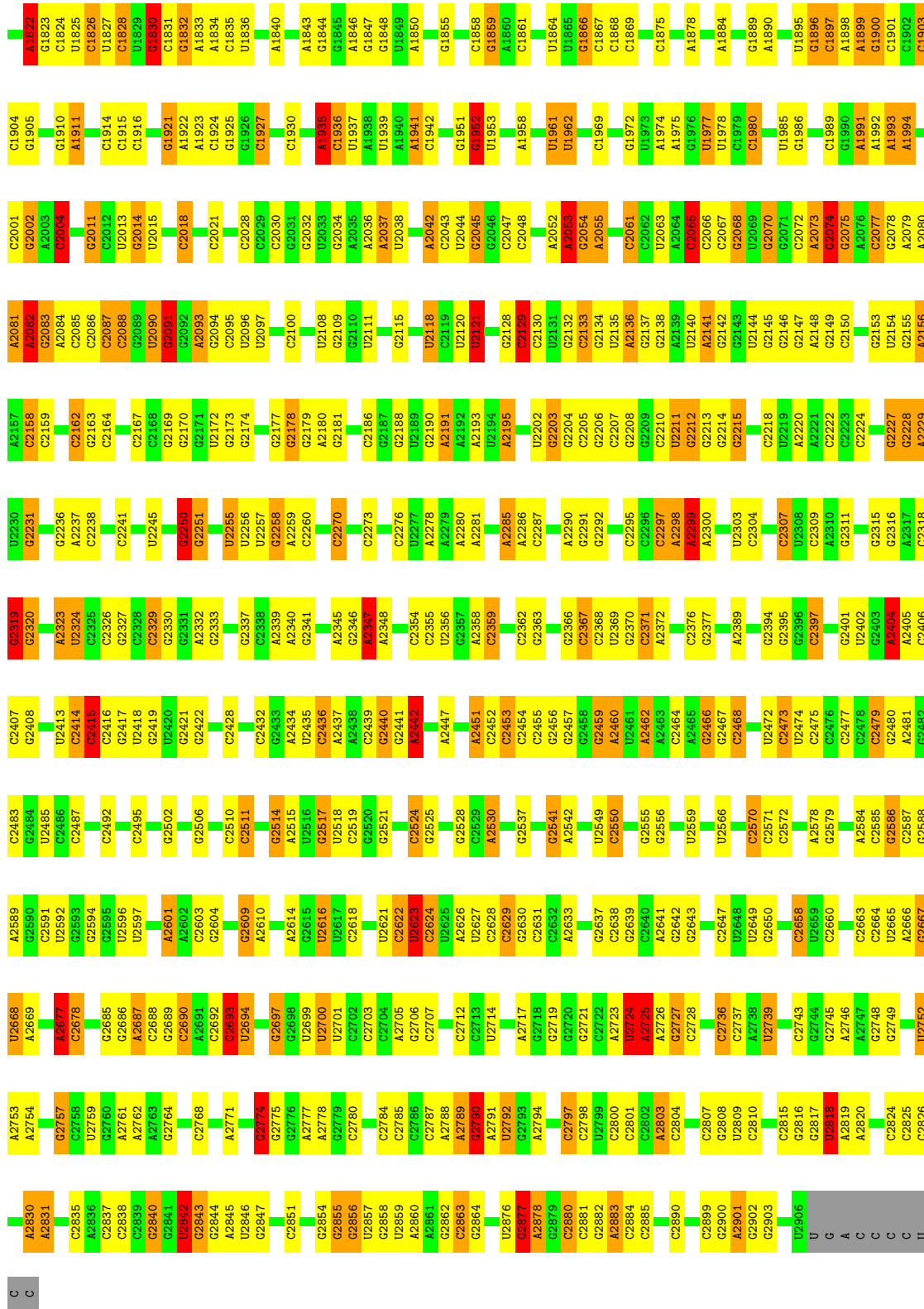




• Molecule 24: 23S rRNA



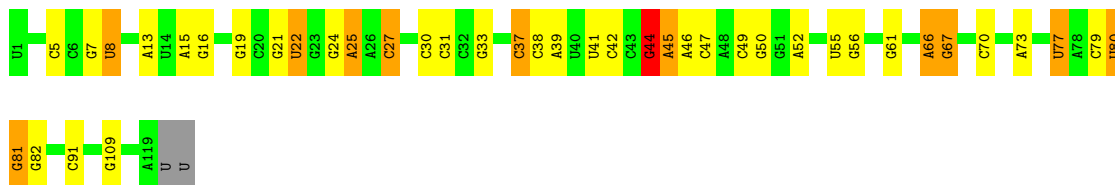
C1645	C1646	C1649	C1650	C1651	C1652	C1653	C1654	C1655	C1656	C1657	C1658	C1661	C1662	C1663	C1664	C1665	C1666	C1667	C1668	C1669	C1670	C1671	C1672	C1673	C1674	C1675	C1676	C1677	C1678	C1679	C1680	C1681	C1682	C1683	C1684	C1685	C1686	C1687	C1688	C1689	C1690	C1691	C1692	C1693	C1694	C1695	C1696	C1697	C1698	C1699	C1700	C1701	C1702	C1703	C1704	C1705	C1706	C1707	C1708	C1709	C1710	C1711	C1712	C1713	C1714	C1715	C1716	C1717	C1718	C1719	C1720	C1721	C1722	C1723	C1724	C1725																																																														
U1479	A1480	G1481	C1488	C1490	A1491	C1492	C1493	A1496	C1497	C1498	A1500	C1501	C1502	C1503	A1504	C1505	C1506	A1507	C1508	C1509	C1510	C1511	C1514	C1515	A1518	C1521	C1522	C1523	C1524	C1525	C1526	C1527	C1528	C1529	C1530	C1531	A1536	C1539	A1542	C1543	C1544	C1545	C1546	C1550	C1551	C1552	C1553	C1554	C1555	C1556	C1557	C1558	C1559	C1560	C1561	C1562	C1563	C1564	C1565	C1566	C1567	C1568	C1569	C1570	C1571	C1572	C1573	C1574	C1575	C1576	C1577	C1578	C1579	C1580	C1581	C1582	C1583	C1584	C1585	C1586	C1587	C1588	C1589	C1590	C1591	C1592	C1593	C1594	C1595	C1596	C1597	C1598	C1599	C1600	C1601	C1602	C1603	C1604	C1605	C1606	C1607	C1608	C1609	C1610	C1611	C1612	C1613	C1614	C1615	C1616	C1617	C1618	C1619	C1620	C1621	C1622	C1623	C1624	C1625	C1626	C1627	C1628	C1629	C1630	C1631	C1632	C1633	C1634	C1635	C1636	C1637	C1638	C1639	C1640	C1641	C1642	C1643	C1644
U1128	U1129	A1130	A1131	A1132	A1133	A1134	U1135	U1136	U1137	G1139	U1140	U1141	A1142	U1143	A1149	A1150	C1155	U1156	U1159	G1166	C1167	G1168	C1169	C1170	C1171	A1172	A1173	A1174	A1175	A1176	A1177	U1178	U1179	C1180	C1181	G1182	C1183	C1184	C1185	U1186	U1187	A1188	U1189	C1190	C1191	C1192	C1193	C1194	C1195	C1196	C1204	G1206	C1207	C1208	G1209	U1210	U1211	C1212																																																																																
G1057	U1058	C1059	U1060	G1061	C1064	U1065	U1066	A1067	C1068	U1069	U1070	G1071	U1072	A1073	A1074	A1075	G1076	U1079	C1086	G1087	C1088	C1089	A1092	G1093	C1099	C1098	A1100	G1101	G1102	A1103	G1104	C1105	U1106	U1107	U1108	G1109	C1110	U1111	U1112	A1113	G1114	A1115	A1116	G1117	C1118	A1119	G1120	C1121	C1122	U1123	U1124	C1125																																																																																						
G983	G984	G985	A986	G989	A990	G991	G992	G993	C994	A913	C914	U924	G927	G928	G929	G930	C931	C932	C933	A934	G935	C936	A937	G938	C939	C940	U941	A942	C943	C944	G945	A946	A947	C950	U953	A956	A957	C958	G961	G962	G963	A964	G965	G966	G967	G968	G969	U975	G976	G977	C1051	C1052	C1053																																																																																					
C659	C660	C661	C662	C663	C664	C665	C666	C670	A671	G672	G673	G674	C675	G676	A679	C680	C681	C682	C683	C684	C685	C686	C687	C688	C689	C690	C691	C692	C693	C694	C695	C696	C697	C698	A702	G703	U704	C705	C708	G709	C710	C711	C712	C713	C714	C715	C716	A717	C718	C719	C720	C721	A722	A723	C724	C725																																																																																		
C726	C730	C731	A732	C733	C734	U735	A736	C737	C738	C739	C745	A746	G749	G755	A769	G773	G776	C777	C778	A793	U794	C795	C796	A797	C798	A799	C800	C801	C802	C805	A808	C809	C810	C811	C812	C813	C814	C815	C816	C817	C818	C819	U820	A821	G822	G823	A824	G825	U826	G827	A828	A829																																																																																						
A830	A831	G832	G833	U834	G835	A836	C837	C838	G839	A840	G841	G842	C843	C844	A847	G848	A849	U850	A851	C852	C853	U854	G855	C856	C857	C858	C859	C860	C861	C862	C863	C864	C865	C866	C867	C868	C869	C870	C871	C872	C873	C874	C875	C876	C877	C878	C879	C880	C881	C882	C883	C884	C885	C886	C887	C888	C889	C890	C891	C892	C893	C894	C895	C896	C897	C898																																																																								
U585	G586	C587	C588	U589	A590	U591	U592	A593	A594	A595	C596	A597	C598	A599	G600	G602	C603	C604	G605	C606	C607	C610	U611	C612	A613	C614	C615	C616	C617	C618	C619	C620	C621	C622	C623	C624	G625	A626	C627	C628	U629	U630	C634	U637	U638	G639	A640	G641	C645	A646	G647	G650	U651	C652	G653	G654	A655	C656	C657	C658	C659	C660	C661	C662	C663	C664	C665	C666	C667	C668	C669	C670	C671	C672	C673	C674	C675	C676	C677	C678	C679	C680	C681	C682	C683	C684	C685	C686	C687	C688	C689	C690	C691	C692	C693	C694	C695	C696	C697	C698	C699	C700	C701	C702	C703	C704	C705	C706	C707	C708	C709	C710	C711	C712	C713	C714	C715	C716	C717	C718	C719	C720	C721	C722	C723	C724	C725											



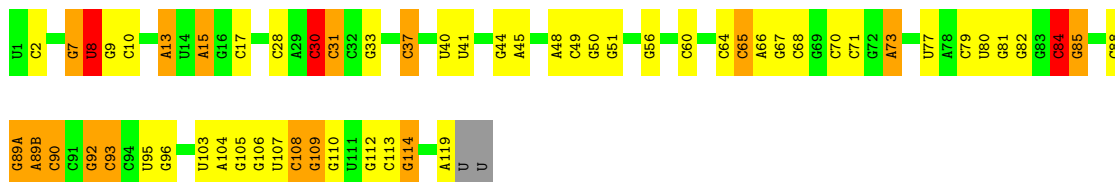
● Molecule 25: 5S rRNA

Chain RB:

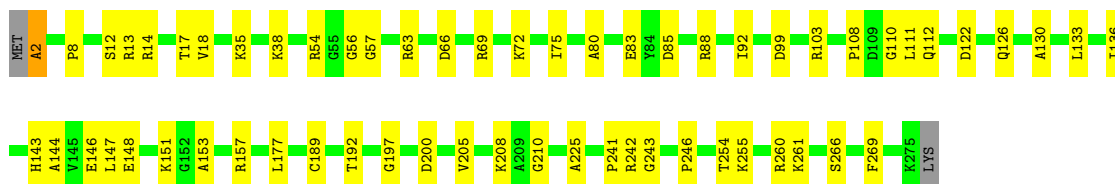
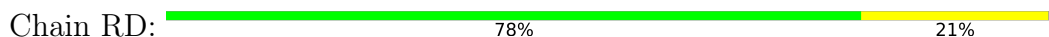




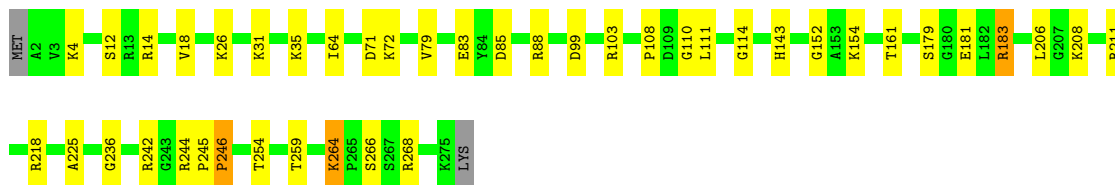
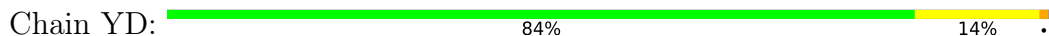
• Molecule 25: 5S rRNA



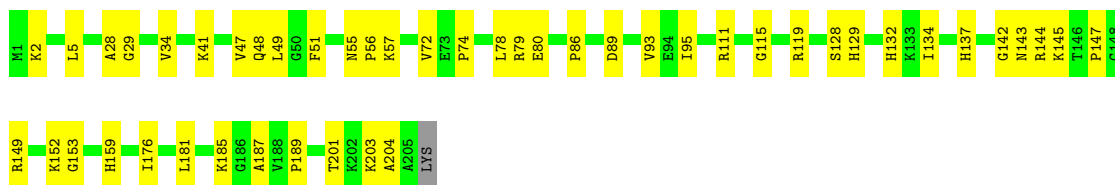
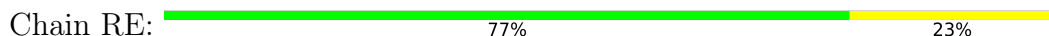
• Molecule 26: 50S ribosomal protein L2



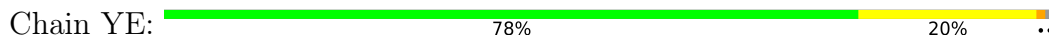
• Molecule 26: 50S ribosomal protein L2

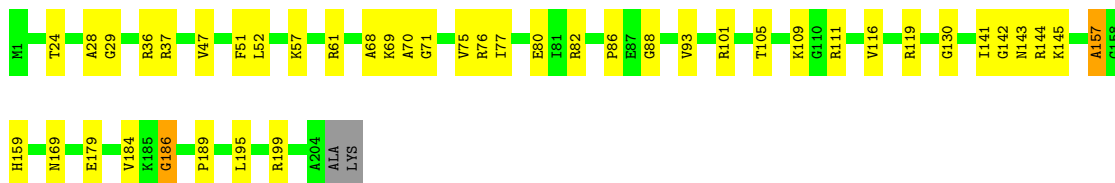


• Molecule 27: 50S ribosomal protein L3

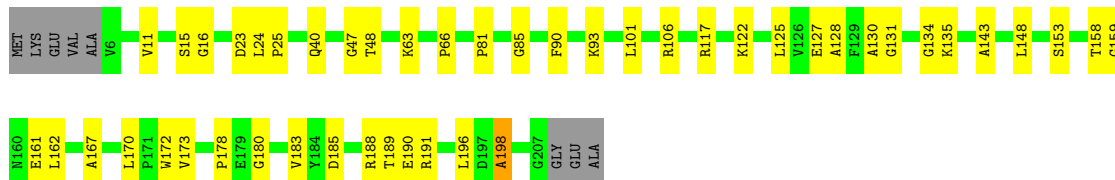


• Molecule 27: 50S ribosomal protein L3

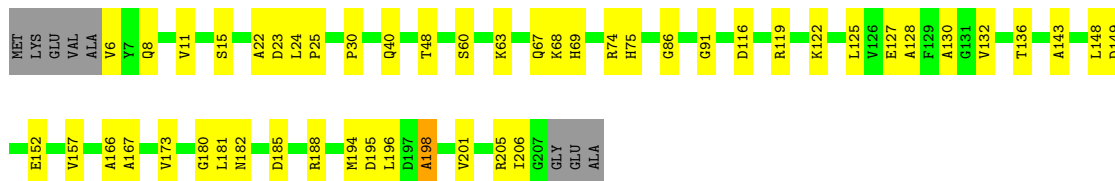




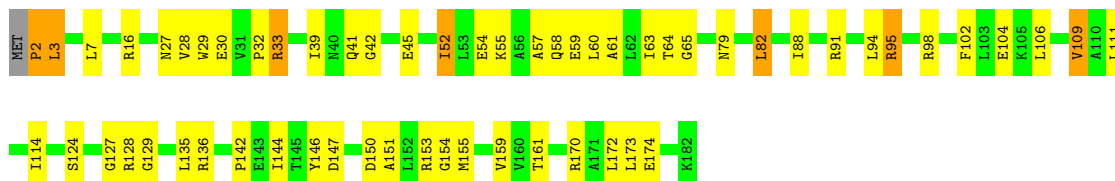
• Molecule 28: 50S ribosomal protein L4



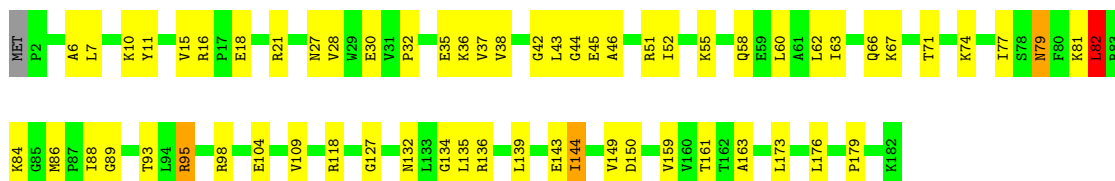
• Molecule 28: 50S ribosomal protein L4



• Molecule 29: 50S ribosomal protein L5

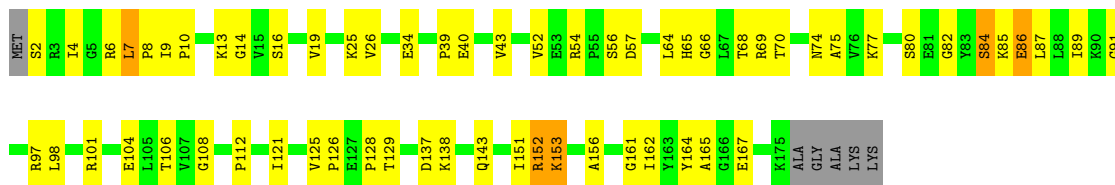


• Molecule 29: 50S ribosomal protein L5



• Molecule 30: 50S ribosomal protein L6





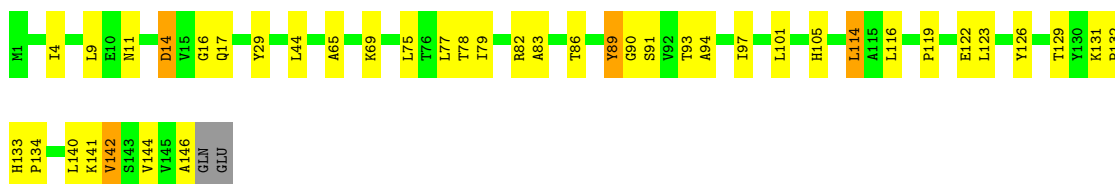
- Molecule 30: 50S ribosomal protein L6

Chain YH: 82% 14% ..



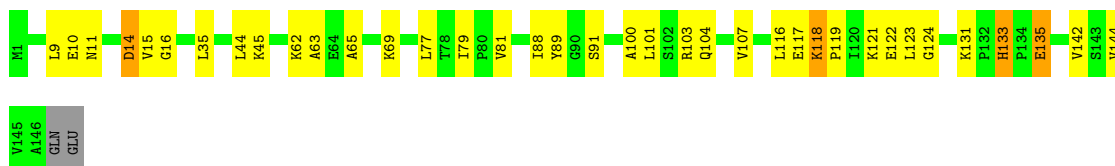
- Molecule 31: 50S ribosomal protein L9

Chain RI: 71% 25% ..



- Molecule 31: 50S ribosomal protein L9

Chain YI: 74% 22% ..



- Molecule 32: 50S ribosomal protein L13

Chain RN: 85% 13% ..




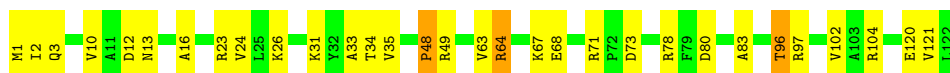
- Molecule 32: 50S ribosomal protein L13

Chain YN: 79% 19% ..




- Molecule 33: 50S ribosomal protein L14

Chain RO:  75% 23%




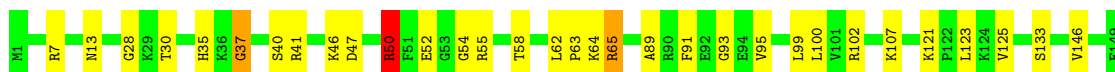
- Molecule 33: 50S ribosomal protein L14

Chain YO:  80% 19%




- Molecule 34: 50S ribosomal protein L15

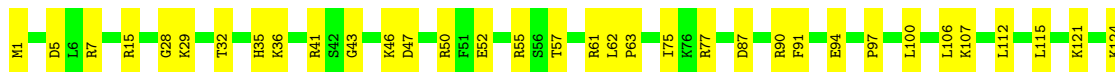
Chain RP:  78% 19%



ALA

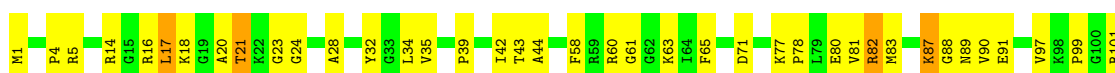
- Molecule 34: 50S ribosomal protein L15

Chain YP:  74% 24%




- Molecule 35: 50S ribosomal protein L16

Chain RQ:  62% 35%




- Molecule 35: 50S ribosomal protein L16

Chain YQ:  86% 14%




- Molecule 36: 50S ribosomal protein L17

Chain RR:  75% 23% ..



- Molecule 36: 50S ribosomal protein L17

Chain YR:  82% 15% ..




- Molecule 37: 50S ribosomal protein L18

Chain RS:  71% 25% ..



- Molecule 37: 50S ribosomal protein L18

Chain YS:  79% 20% .



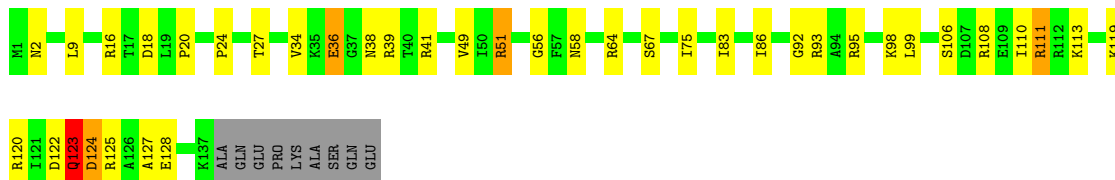
- Molecule 38: 50S ribosomal protein L19

Chain RT:  65% 25% 6% .




- Molecule 38: 50S ribosomal protein L19

Chain YT:  67% 23% 6% ..



- Molecule 39: 50S ribosomal protein L20

Chain RU:  78% 19% ..



- Molecule 39: 50S ribosomal protein L20

Chain YU: 82% 14%



- Molecule 40: 50S ribosomal protein L21

Chain RV: 80% 19%



- Molecule 40: 50S ribosomal protein L21

Chain YV: 82% 13% 5%



- Molecule 41: 50S ribosomal protein L22

Chain RW: 81% 19%



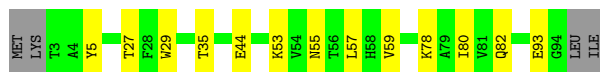
- Molecule 41: 50S ribosomal protein L22

Chain YW: 82% 17%



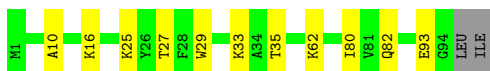
- Molecule 42: 50S ribosomal protein L23

Chain RX: 82% 14%

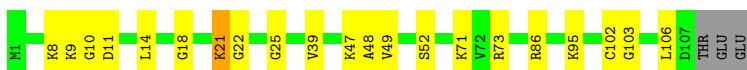
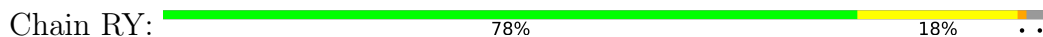


- Molecule 42: 50S ribosomal protein L23

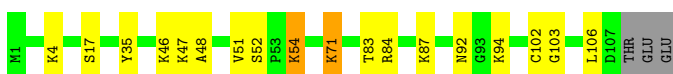
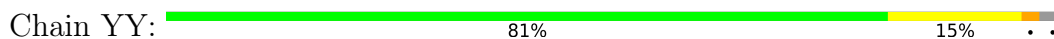
Chain YX: 86% 11%



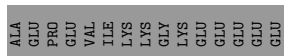
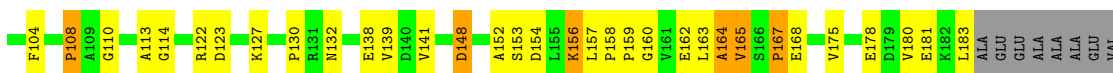
- Molecule 43: 50S ribosomal protein L24



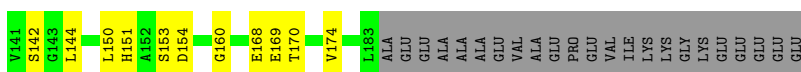
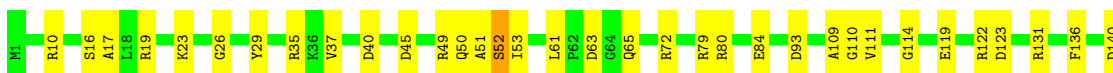
- Molecule 43: 50S ribosomal protein L24



- Molecule 44: 50S ribosomal protein L25



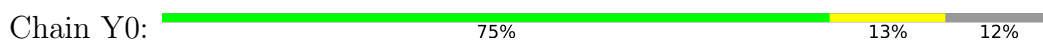
- Molecule 44: 50S ribosomal protein L25



- Molecule 45: 50S ribosomal protein L27



- Molecule 45: 50S ribosomal protein L27





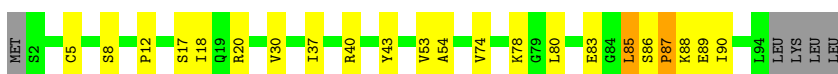
- Molecule 46: 50S ribosomal protein L28

Chain R1: 79% 16%



- Molecule 46: 50S ribosomal protein L28

Chain Y1: 72% 20% 5%



- Molecule 47: 50S ribosomal protein L29

Chain R2: 72% 24%



- Molecule 47: 50S ribosomal protein L29

Chain Y2: 69% 22% 8%



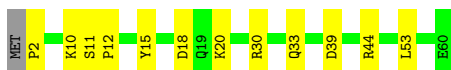
- Molecule 48: 50S ribosomal protein L30

Chain R3: 72% 27%



- Molecule 48: 50S ribosomal protein L30

Chain Y3: 78% 20%



- Molecule 49: 50S ribosomal protein L31

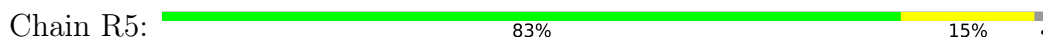
Chain R4: 58% 37%



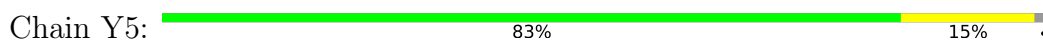
- Molecule 49: 50S ribosomal protein L31



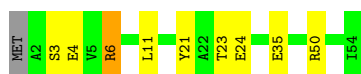
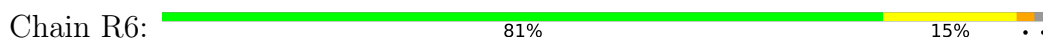
- Molecule 50: 50S ribosomal protein L32



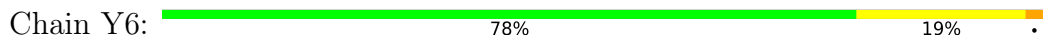
- Molecule 50: 50S ribosomal protein L32



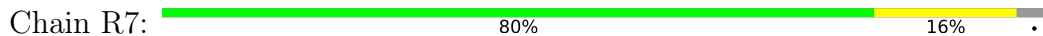
- Molecule 51: 50S ribosomal protein L33



- Molecule 51: 50S ribosomal protein L33

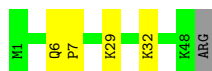


- Molecule 52: 50S ribosomal protein L34



- Molecule 52: 50S ribosomal protein L34





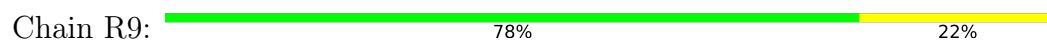
- Molecule 53: 50S ribosomal protein L35



- Molecule 53: 50S ribosomal protein L35



- Molecule 54: 50S ribosomal protein L36



- Molecule 54: 50S ribosomal protein L36



4 Data and refinement statistics

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	210.17Å 451.47Å 620.21Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	152.46 – 3.20	Depositor
% Data completeness (in resolution range)	99.1 (152.46-3.20)	Depositor
R_{merge}	0.26	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.69 (at 3.19Å)	Xtriage
Refinement program	PHENIX 1.14_3260	Depositor
R, R_{free}	0.224 , 0.256	Depositor
Wilson B-factor (Å ²)	71.2	Xtriage
Anisotropy	0.167	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.42$, $\langle L^2 \rangle = 0.25$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	291964	wwPDB-VP
Average B, all atoms (Å ²)	103.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.60% of the height of the origin peak. No significant pseudotranslation is detected.*

¹ Intensities estimated from amplitudes.

² Theoretical 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, SF4

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	QA	0.96	1/36098 (0.0%)	1.22	232/56341 (0.4%)
1	XA	0.95	3/36101 (0.0%)	1.23	252/56346 (0.4%)
2	QB	0.42	0/1942	0.63	0/2619
2	XB	0.42	0/1950	0.57	0/2630
3	QC	0.38	0/1629	0.62	1/2195 (0.0%)
3	XC	0.37	0/1629	0.58	0/2195
4	QD	0.52	0/1733	0.58	0/2318
4	XD	0.54	1/1733 (0.1%)	0.64	0/2318
5	QE	0.45	0/1171	0.62	0/1576
5	XE	0.49	0/1171	0.57	0/1576
6	QF	0.45	0/856	0.59	0/1154
6	XF	0.55	0/856	0.54	0/1154
7	QG	0.37	0/1276	0.55	0/1709
7	XG	0.37	0/1276	0.54	0/1709
8	QH	0.51	0/1128	0.61	0/1517
8	XH	0.54	0/1128	0.62	0/1517
9	QI	0.34	0/1029	0.64	1/1379 (0.1%)
9	XI	0.39	0/1017	0.64	0/1365
10	QJ	0.36	0/814	0.62	0/1095
10	XJ	0.34	0/790	0.60	0/1063
11	QK	0.47	0/900	0.61	0/1213
11	XK	0.49	0/879	0.54	0/1187
12	QL	0.62	0/991	0.61	0/1327
12	XL	0.57	0/972	0.64	1/1301 (0.1%)
13	QM	0.37	0/965	0.64	0/1292
13	XM	0.33	0/956	0.65	0/1281
14	QN	0.43	0/501	0.70	1/664 (0.2%)
14	XN	0.44	0/501	0.63	1/664 (0.2%)
15	QO	0.46	0/745	0.59	0/992
15	XO	0.49	0/740	0.52	0/987
16	QP	0.55	0/721	0.60	0/970
16	XP	0.46	0/721	0.60	0/970

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
17	QQ	0.54	0/847	0.60	0/1131
17	XQ	0.55	0/847	0.58	0/1131
18	QR	0.46	0/579	0.64	0/768
18	XR	0.49	0/579	0.60	0/768
19	QS	0.36	0/680	0.66	0/915
19	XS	0.35	0/689	0.65	0/926
20	QT	0.43	0/765	0.57	0/1007
20	XT	0.36	0/765	0.58	0/1007
21	QU	0.39	0/221	0.88	1/288 (0.3%)
21	XU	0.34	0/221	0.58	0/288
22	QV	0.62	1/1814 (0.1%)	1.10	6/2825 (0.2%)
22	XV	0.57	1/1814 (0.1%)	1.21	8/2825 (0.3%)
23	QX	0.46	0/470	1.00	1/733 (0.1%)
23	XX	0.52	0/470	1.22	6/733 (0.8%)
24	RA	1.32	53/69498 (0.1%)	1.31	773/108491 (0.7%)
24	YA	1.59	262/69543 (0.4%)	1.39	981/108563 (0.9%)
25	RB	0.92	0/2878	1.24	26/4490 (0.6%)
25	YB	1.86	31/2878 (1.1%)	6.09	81/4490 (1.8%)
26	RD	0.75	1/2185 (0.0%)	0.62	0/2944
26	YD	0.87	1/2185 (0.0%)	0.67	0/2944
27	RE	0.71	0/1601	0.61	0/2160
27	YE	0.83	1/1596 (0.1%)	0.66	0/2153
28	RF	0.68	0/1620	0.61	0/2194
28	YF	0.85	0/1620	0.63	0/2194
29	RG	0.41	0/1499	0.64	0/2016
29	YG	0.51	0/1499	0.63	1/2016 (0.0%)
30	RH	0.48	0/1362	0.65	1/1841 (0.1%)
30	YH	0.72	0/1356	0.59	0/1833
31	RI	0.44	0/1151	0.69	1/1558 (0.1%)
31	YI	0.50	0/1151	0.70	1/1558 (0.1%)
32	RN	0.60	0/1131	0.59	0/1525
32	YN	0.82	1/1148 (0.1%)	0.67	0/1547
33	RO	0.73	0/943	0.61	0/1269
33	YO	0.82	1/943 (0.1%)	0.66	1/1269 (0.1%)
34	RP	0.61	0/1156	0.62	0/1537
34	YP	0.74	0/1139	0.64	0/1514
35	RQ	0.60	0/1143	0.63	0/1527
35	YQ	0.82	0/1143	0.59	0/1527
36	RR	0.67	0/974	0.64	1/1302 (0.1%)
36	YR	0.77	0/974	0.72	0/1302
37	RS	0.49	0/892	0.73	1/1187 (0.1%)
37	YS	0.68	0/887	0.58	0/1180
38	RT	0.62	0/1155	0.66	1/1542 (0.1%)

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
38	YT	0.70	0/1155	0.67	1/1542 (0.1%)
39	RU	0.68	0/982	0.61	0/1306
39	YU	0.93	0/982	0.62	0/1306
40	RV	0.62	0/790	0.61	0/1057
40	YV	0.86	0/790	0.67	0/1057
41	RW	0.69	0/911	0.61	0/1220
41	YW	0.89	0/911	0.64	0/1220
42	RX	0.67	0/739	0.61	0/993
42	YX	0.83	0/756	0.57	0/1014
43	RY	0.60	0/831	0.58	0/1108
43	YY	0.74	0/831	0.60	0/1108
44	RZ	0.48	0/1493	0.71	2/2026 (0.1%)
44	YZ	0.63	0/1493	0.57	0/2026
45	R0	0.60	0/652	0.60	0/867
45	Y0	0.84	0/607	0.63	0/809
46	R1	0.67	0/770	0.65	0/1022
46	Y1	0.78	0/736	0.65	0/978
47	R2	0.47	0/583	0.52	0/771
47	Y2	0.65	0/560	0.61	0/741
48	R3	0.62	1/474 (0.2%)	0.61	0/635
48	Y3	0.73	0/474	0.67	0/635
49	R4	0.39	0/578	0.64	0/776
49	Y4	0.41	0/578	0.68	0/776
50	R5	0.71	0/473	0.58	0/639
50	Y5	0.91	1/473 (0.2%)	0.65	1/639 (0.2%)
51	R6	0.62	0/460	0.65	1/613 (0.2%)
51	Y6	0.75	0/460	0.65	1/613 (0.2%)
52	R7	0.74	0/417	0.57	0/550
52	Y7	0.91	0/426	0.61	0/561
53	R8	0.68	0/525	0.71	0/691
53	Y8	0.77	0/525	0.76	1/691 (0.1%)
54	R9	0.62	0/310	0.53	0/407
54	Y9	0.84	0/310	0.55	0/407
All	All	1.14	360/315985 (0.1%)	1.30	2387/472446 (0.5%)

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	XA	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
2	QB	0	22
2	XB	0	15
3	QC	0	15
3	XC	0	9
4	QD	0	12
4	XD	0	15
5	QE	0	7
5	XE	0	6
6	QF	0	5
6	XF	0	3
7	QG	0	9
7	XG	0	10
8	QH	0	3
8	XH	0	5
9	QI	0	15
9	XI	0	16
10	QJ	0	12
10	XJ	0	8
11	QK	0	5
11	XK	0	4
12	QL	0	8
12	XL	0	11
13	QM	0	13
13	XM	0	18
14	QN	0	6
14	XN	0	2
15	QO	0	1
15	XO	0	2
16	QP	0	5
16	XP	0	10
17	QQ	0	3
17	XQ	0	1
18	QR	0	5
18	XR	0	6
19	QS	0	13
19	XS	0	14
20	QT	0	10
20	XT	0	12
21	XU	0	4
24	YA	0	2
26	RD	0	13
26	YD	0	3

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Mol	Chain	#Chirality outliers	#Planarity outliers
27	RE	0	7
27	YE	0	10
28	RF	0	12
28	YF	0	15
29	RG	0	17
29	YG	0	20
30	RH	0	23
30	YH	0	1
31	RI	0	17
31	YI	0	21
32	RN	0	10
32	YN	0	7
33	RO	0	2
33	YO	0	1
34	RP	0	8
34	YP	0	5
35	RQ	0	18
35	YQ	0	6
36	RR	0	4
36	YR	0	5
37	RS	0	11
37	YS	0	1
38	RT	0	15
38	YT	0	11
39	RU	0	5
39	YU	0	5
40	RV	0	6
40	YV	0	7
41	RW	0	5
41	YW	0	5
42	RX	0	2
42	YX	0	1
43	RY	0	7
43	YY	0	5
44	RZ	0	38
44	YZ	0	10
45	R0	0	2
45	Y0	0	1
46	R1	0	10
46	Y1	0	7
47	R2	0	5
47	Y2	0	6

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Mol	Chain	#Chirality outliers	#Planarity outliers
48	R3	0	1
48	Y3	0	2
49	R4	0	15
49	Y4	0	11
50	R5	0	1
52	R7	0	1
53	R8	0	11
53	Y8	0	6
All	All	0	781

The worst 5 of 360 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
25	YB	112	G	N9-C4	30.70	1.62	1.38
25	YB	114	G	N9-C4	28.24	1.60	1.38
25	YB	112	G	N9-C8	-27.57	1.18	1.37
25	YB	114	G	N9-C8	-26.21	1.19	1.37
25	YB	112	G	C8-N7	14.77	1.39	1.30

The worst 5 of 2387 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
25	YB	114	G	C4-C5-N7	-176.50	40.20	110.80
25	YB	112	G	C4-C5-N7	-173.34	41.46	110.80
25	YB	114	G	N7-C8-N9	-148.48	38.86	113.10
25	YB	112	G	N7-C8-N9	-146.23	39.98	113.10
25	YB	112	G	C8-N9-C4	-129.76	54.49	106.40

There are no chirality outliers.

5 of 781 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	QB	15	VAL	Peptide
2	QB	18	GLY	Peptide
2	QB	19	HIS	Peptide
2	QB	21	ARG	Peptide
2	QB	38	GLY	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	QA	32247	0	16277	448	0
1	XA	32249	0	16278	456	3
2	QB	1907	0	1958	34	0
2	XB	1915	0	1969	35	0
3	QC	1605	0	1668	29	0
3	XC	1605	0	1668	21	0
4	QD	1703	0	1766	27	0
4	XD	1703	0	1764	37	0
5	QE	1155	0	1213	27	0
5	XE	1155	0	1213	12	0
6	QF	843	0	857	14	0
6	XF	843	0	857	11	0
7	QG	1257	0	1296	15	0
7	XG	1257	0	1296	22	0
8	QH	1108	0	1165	19	0
8	XH	1108	0	1165	23	0
9	QI	1010	0	1037	19	0
9	XI	998	0	1024	28	0
10	QJ	801	0	849	23	0
10	XJ	777	0	816	15	0
11	QK	885	0	904	28	0
11	XK	864	0	881	13	0
12	QL	975	0	1062	13	0
12	XL	956	0	1046	22	0
13	QM	955	0	1021	21	0
13	XM	946	0	1008	24	0
14	QN	492	0	529	19	0
14	XN	492	0	529	11	0
15	QO	734	0	771	9	0
15	XO	729	0	768	8	0
16	QP	705	0	725	15	0
16	XP	705	0	725	12	0
17	QQ	834	0	904	24	0
17	XQ	834	0	904	15	0
18	QR	574	0	644	7	0
18	XR	574	0	644	7	0
19	QS	665	0	686	8	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
19	XS	674	0	699	10	0
20	QT	763	0	861	13	0
20	XT	763	0	861	22	0
21	QU	217	0	234	4	0
21	XU	217	0	234	4	0
22	QV	1648	0	834	28	0
22	XV	1648	0	834	23	0
23	QX	418	0	209	7	0
23	XX	418	0	209	7	0
24	RA	62051	0	31279	607	3
24	YA	62091	0	31292	530	0
25	RB	2573	0	1306	22	0
25	YB	2573	0	1304	41	0
26	RD	2135	0	2221	35	0
26	YD	2135	0	2221	32	0
27	RE	1568	0	1634	29	0
27	YE	1563	0	1628	27	0
28	RF	1585	0	1632	23	0
28	YF	1585	0	1632	24	0
29	RG	1474	0	1535	35	0
29	YG	1474	0	1535	30	0
30	RH	1336	0	1418	27	0
30	YH	1330	0	1413	18	0
31	RI	1136	0	1223	13	2
31	YI	1136	0	1223	12	0
32	RN	1104	0	1180	8	0
32	YN	1121	0	1194	15	0
33	RO	933	0	996	25	0
33	YO	933	0	995	17	0
34	RP	1139	0	1223	26	0
34	YP	1122	0	1206	26	0
35	RQ	1122	0	1179	27	0
35	YQ	1122	0	1179	10	0
36	RR	960	0	1021	18	0
36	YR	960	0	1021	11	0
37	RS	882	0	943	17	0
37	YS	877	0	938	15	0
38	RT	1141	0	1202	23	0
38	YT	1141	0	1202	26	0
39	RU	964	0	1022	25	0
39	YU	964	0	1021	19	0
40	RV	779	0	852	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
40	YV	779	0	852	12	0
41	RW	900	0	964	11	0
41	YW	900	0	964	11	0
42	RX	725	0	778	7	0
42	YX	742	0	803	8	0
43	RY	818	0	909	11	0
43	YY	818	0	909	13	0
44	RZ	1461	0	1493	26	0
44	YZ	1461	0	1493	22	0
45	R0	643	0	667	12	0
45	Y0	599	0	617	7	0
46	R1	763	0	848	9	0
46	Y1	729	0	801	10	0
47	R2	581	0	629	7	0
47	Y2	558	0	610	5	2
48	R3	469	0	517	7	0
48	Y3	469	0	518	8	0
49	R4	565	0	558	9	0
49	Y4	565	0	557	13	0
50	R5	459	0	476	7	0
50	Y5	459	0	476	9	0
51	R6	453	0	473	7	0
51	Y6	453	0	473	10	0
52	R7	409	0	454	6	0
52	Y7	418	0	467	3	0
53	R8	517	0	582	12	0
53	Y8	517	0	582	13	0
54	R9	307	0	335	6	0
54	Y9	307	0	335	7	0
55	QA	64	0	0	0	0
55	QV	1	0	0	0	0
55	R0	2	0	0	0	0
55	R8	2	0	0	0	0
55	RA	444	0	0	0	0
55	RB	7	0	0	0	0
55	RE	5	0	0	0	0
55	RF	1	0	0	0	0
55	RN	1	0	0	0	0
55	RQ	1	0	0	0	0
55	RR	1	0	0	0	0
55	RT	1	0	0	0	0
55	RX	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
55	XA	78	0	0	0	0
55	XE	1	0	0	0	0
55	XM	2	0	0	0	0
55	XV	1	0	0	0	0
55	Y0	2	0	0	0	0
55	Y1	2	0	0	0	0
55	Y3	1	0	0	0	0
55	Y5	1	0	0	0	0
55	Y7	1	0	0	0	0
55	Y8	1	0	0	0	0
55	YA	510	0	0	0	0
55	YB	7	0	0	0	0
55	YD	2	0	0	0	0
55	YE	5	0	0	0	0
55	YP	3	0	0	0	0
55	YQ	3	0	0	0	0
55	YR	1	0	0	0	0
56	QD	8	0	0	0	0
56	XD	8	0	0	0	0
57	QN	1	0	0	0	0
57	R4	1	0	0	0	0
57	R5	1	0	0	0	0
57	R6	1	0	0	0	0
57	R9	1	0	0	0	0
57	RY	1	0	0	0	0
57	XN	1	0	0	0	0
57	Y4	1	0	0	0	0
57	Y5	1	0	0	0	0
57	Y6	1	0	0	0	0
57	Y9	1	0	0	0	0
57	YY	1	0	0	0	0
All	All	291964	0	197872	3283	5

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

The worst 5 of 3283 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)
24:RA:1712:A:C2'	24:RA:1713:G:H5'	1.74	1.18
43:YY:92:ASN:ND2	43:YY:94:LYS:HG2	1.60	1.15

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
24:YA:1405:A:N6	24:YA:1418:U:H3	1.48	1.10
24:RA:2818:U:C2	24:RA:2901:A:N6	2.27	1.02
24:RA:2226:C:H1'	24:RA:2232:G:N2	1.74	1.01

All (5) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
31:RI:91:SER:OG	1:XA:368:U:OP1[4_555]	2.00	0.20
24:RA:331:G:OP2	47:Y2:17:SER:CA[3_555]	2.01	0.19
24:RA:331:G:OP2	47:Y2:17:SER:CB[3_555]	2.10	0.10
31:RI:89:TYR:O	1:XA:357:G:O2'[4_555]	2.10	0.10
24:RA:2158:C:O2'	1:XA:1042:G:O2'[4_555]	2.13	0.07

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	
2	QB	233/256 (91%)	205 (88%)	28 (12%)	0	100	100
2	XB	234/256 (91%)	207 (88%)	27 (12%)	0	100	100
3	QC	203/239 (85%)	186 (92%)	17 (8%)	0	100	100
3	XC	203/239 (85%)	182 (90%)	21 (10%)	0	100	100
4	QD	206/209 (99%)	198 (96%)	8 (4%)	0	100	100
4	XD	206/209 (99%)	191 (93%)	12 (6%)	3 (2%)	10	44
5	QE	149/162 (92%)	140 (94%)	9 (6%)	0	100	100
5	XE	149/162 (92%)	140 (94%)	9 (6%)	0	100	100
6	QF	99/101 (98%)	97 (98%)	2 (2%)	0	100	100
6	XF	99/101 (98%)	97 (98%)	2 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
7	QG	153/156 (98%)	150 (98%)	3 (2%)	0	100	100
7	XG	153/156 (98%)	143 (94%)	10 (6%)	0	100	100
8	QH	135/138 (98%)	131 (97%)	4 (3%)	0	100	100
8	XH	135/138 (98%)	129 (96%)	6 (4%)	0	100	100
9	QI	125/128 (98%)	115 (92%)	10 (8%)	0	100	100
9	XI	124/128 (97%)	107 (86%)	17 (14%)	0	100	100
10	QJ	97/105 (92%)	88 (91%)	9 (9%)	0	100	100
10	XJ	94/105 (90%)	88 (94%)	6 (6%)	0	100	100
11	QK	117/129 (91%)	101 (86%)	16 (14%)	0	100	100
11	XK	114/129 (88%)	102 (90%)	12 (10%)	0	100	100
12	QL	123/132 (93%)	110 (89%)	13 (11%)	0	100	100
12	XL	120/132 (91%)	100 (83%)	20 (17%)	0	100	100
13	QM	118/126 (94%)	102 (86%)	16 (14%)	0	100	100
13	XM	117/126 (93%)	99 (85%)	17 (14%)	1 (1%)	17	56
14	QN	58/61 (95%)	51 (88%)	7 (12%)	0	100	100
14	XN	58/61 (95%)	50 (86%)	8 (14%)	0	100	100
15	QO	86/89 (97%)	83 (96%)	3 (4%)	0	100	100
15	XO	85/89 (96%)	84 (99%)	1 (1%)	0	100	100
16	QP	82/88 (93%)	79 (96%)	3 (4%)	0	100	100
16	XP	82/88 (93%)	74 (90%)	8 (10%)	0	100	100
17	QQ	98/105 (93%)	91 (93%)	7 (7%)	0	100	100
17	XQ	98/105 (93%)	93 (95%)	5 (5%)	0	100	100
18	QR	68/88 (77%)	63 (93%)	5 (7%)	0	100	100
18	XR	68/88 (77%)	65 (96%)	3 (4%)	0	100	100
19	QS	81/93 (87%)	71 (88%)	10 (12%)	0	100	100
19	XS	82/93 (88%)	71 (87%)	11 (13%)	0	100	100
20	QT	97/106 (92%)	90 (93%)	7 (7%)	0	100	100
20	XT	97/106 (92%)	91 (94%)	6 (6%)	0	100	100
21	QU	23/27 (85%)	22 (96%)	1 (4%)	0	100	100
21	XU	23/27 (85%)	23 (100%)	0	0	100	100
26	RD	272/276 (99%)	259 (95%)	13 (5%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
26	YD	272/276 (99%)	253 (93%)	19 (7%)	0	100	100
27	RE	203/206 (98%)	187 (92%)	16 (8%)	0	100	100
27	YE	202/206 (98%)	189 (94%)	13 (6%)	0	100	100
28	RF	200/210 (95%)	186 (93%)	14 (7%)	0	100	100
28	YF	200/210 (95%)	185 (92%)	15 (8%)	0	100	100
29	RG	179/182 (98%)	155 (87%)	24 (13%)	0	100	100
29	YG	179/182 (98%)	151 (84%)	27 (15%)	1 (1%)	25	64
30	RH	172/180 (96%)	142 (83%)	29 (17%)	1 (1%)	25	64
30	YH	171/180 (95%)	163 (95%)	8 (5%)	0	100	100
31	RI	144/148 (97%)	124 (86%)	20 (14%)	0	100	100
31	YI	144/148 (97%)	120 (83%)	24 (17%)	0	100	100
32	RN	136/140 (97%)	119 (88%)	17 (12%)	0	100	100
32	YN	138/140 (99%)	126 (91%)	12 (9%)	0	100	100
33	RO	120/122 (98%)	114 (95%)	6 (5%)	0	100	100
33	YO	120/122 (98%)	114 (95%)	6 (5%)	0	100	100
34	RP	147/150 (98%)	142 (97%)	5 (3%)	0	100	100
34	YP	145/150 (97%)	138 (95%)	6 (4%)	1 (1%)	22	61
35	RQ	139/141 (99%)	116 (84%)	22 (16%)	1 (1%)	22	61
35	YQ	139/141 (99%)	136 (98%)	3 (2%)	0	100	100
36	RR	115/118 (98%)	106 (92%)	8 (7%)	1 (1%)	17	56
36	YR	115/118 (98%)	108 (94%)	7 (6%)	0	100	100
37	RS	109/112 (97%)	89 (82%)	20 (18%)	0	100	100
37	YS	108/112 (96%)	105 (97%)	3 (3%)	0	100	100
38	RT	135/146 (92%)	119 (88%)	14 (10%)	2 (2%)	10	44
38	YT	135/146 (92%)	120 (89%)	13 (10%)	2 (2%)	10	44
39	RU	115/118 (98%)	103 (90%)	12 (10%)	0	100	100
39	YU	115/118 (98%)	107 (93%)	7 (6%)	1 (1%)	17	56
40	RV	99/101 (98%)	94 (95%)	5 (5%)	0	100	100
40	YV	99/101 (98%)	94 (95%)	5 (5%)	0	100	100
41	RW	111/113 (98%)	106 (96%)	5 (4%)	0	100	100
41	YW	111/113 (98%)	104 (94%)	7 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
42	RX	90/96 (94%)	86 (96%)	4 (4%)	0	100	100
42	YX	92/96 (96%)	90 (98%)	2 (2%)	0	100	100
43	RY	105/110 (96%)	100 (95%)	5 (5%)	0	100	100
43	YY	105/110 (96%)	97 (92%)	8 (8%)	0	100	100
44	RZ	181/206 (88%)	143 (79%)	38 (21%)	0	100	100
44	YZ	181/206 (88%)	176 (97%)	4 (2%)	1 (1%)	25	64
45	R0	79/85 (93%)	76 (96%)	3 (4%)	0	100	100
45	Y0	73/85 (86%)	70 (96%)	3 (4%)	0	100	100
46	R1	95/98 (97%)	84 (88%)	11 (12%)	0	100	100
46	Y1	91/98 (93%)	84 (92%)	7 (8%)	0	100	100
47	R2	67/72 (93%)	65 (97%)	2 (3%)	0	100	100
47	Y2	64/72 (89%)	61 (95%)	3 (5%)	0	100	100
48	R3	57/60 (95%)	54 (95%)	3 (5%)	0	100	100
48	Y3	57/60 (95%)	55 (96%)	2 (4%)	0	100	100
49	R4	67/71 (94%)	54 (81%)	13 (19%)	0	100	100
49	Y4	67/71 (94%)	55 (82%)	12 (18%)	0	100	100
50	R5	57/60 (95%)	54 (95%)	3 (5%)	0	100	100
50	Y5	57/60 (95%)	54 (95%)	3 (5%)	0	100	100
51	R6	51/54 (94%)	51 (100%)	0	0	100	100
51	Y6	51/54 (94%)	50 (98%)	1 (2%)	0	100	100
52	R7	45/49 (92%)	44 (98%)	1 (2%)	0	100	100
52	Y7	46/49 (94%)	45 (98%)	1 (2%)	0	100	100
53	R8	62/65 (95%)	49 (79%)	13 (21%)	0	100	100
53	Y8	62/65 (95%)	53 (86%)	8 (13%)	1 (2%)	9	43
54	R9	35/37 (95%)	35 (100%)	0	0	100	100
54	Y9	35/37 (95%)	34 (97%)	1 (3%)	0	100	100
All	All	11453/12128 (94%)	10502 (92%)	935 (8%)	16 (0%)	51	83

5 of 16 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
36	RR	4	LEU
4	XD	31	CYS

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Mol	Chain	Res	Type
44	YZ	52	SER
38	RT	123	GLN
38	RT	124	ASP

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	
2	QB	203/220 (92%)	202 (100%)	1 (0%)	88	95
2	XB	204/220 (93%)	203 (100%)	1 (0%)	88	95
3	QC	159/188 (85%)	159 (100%)	0	100	100
3	XC	159/188 (85%)	159 (100%)	0	100	100
4	QD	180/181 (99%)	179 (99%)	1 (1%)	86	94
4	XD	180/181 (99%)	172 (96%)	8 (4%)	28	64
5	QE	116/123 (94%)	114 (98%)	2 (2%)	60	83
5	XE	116/123 (94%)	113 (97%)	3 (3%)	46	76
6	QF	90/90 (100%)	90 (100%)	0	100	100
6	XF	90/90 (100%)	89 (99%)	1 (1%)	73	88
7	QG	126/127 (99%)	123 (98%)	3 (2%)	49	77
7	XG	126/127 (99%)	124 (98%)	2 (2%)	62	84
8	QH	118/119 (99%)	118 (100%)	0	100	100
8	XH	118/119 (99%)	118 (100%)	0	100	100
9	QI	98/99 (99%)	98 (100%)	0	100	100
9	XI	97/99 (98%)	97 (100%)	0	100	100
10	QJ	89/92 (97%)	88 (99%)	1 (1%)	73	88
10	XJ	86/92 (94%)	86 (100%)	0	100	100
11	QK	90/99 (91%)	89 (99%)	1 (1%)	73	88
11	XK	88/99 (89%)	88 (100%)	0	100	100
12	QL	104/109 (95%)	104 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
12	XL	103/109 (94%)	103 (100%)	0	100	100
13	QM	96/101 (95%)	94 (98%)	2 (2%)	53	79
13	XM	95/101 (94%)	95 (100%)	0	100	100
14	QN	49/50 (98%)	47 (96%)	2 (4%)	30	66
14	XN	49/50 (98%)	48 (98%)	1 (2%)	55	80
15	QO	79/80 (99%)	78 (99%)	1 (1%)	69	87
15	XO	79/80 (99%)	79 (100%)	0	100	100
16	QP	72/74 (97%)	71 (99%)	1 (1%)	67	86
16	XP	72/74 (97%)	72 (100%)	0	100	100
17	QQ	95/97 (98%)	94 (99%)	1 (1%)	73	88
17	XQ	95/97 (98%)	95 (100%)	0	100	100
18	QR	61/77 (79%)	61 (100%)	0	100	100
18	XR	61/77 (79%)	61 (100%)	0	100	100
19	QS	72/80 (90%)	72 (100%)	0	100	100
19	XS	73/80 (91%)	73 (100%)	0	100	100
20	QT	76/82 (93%)	76 (100%)	0	100	100
20	XT	76/82 (93%)	76 (100%)	0	100	100
21	QU	20/22 (91%)	20 (100%)	0	100	100
21	XU	20/22 (91%)	19 (95%)	1 (5%)	24	60
26	RD	216/218 (99%)	216 (100%)	0	100	100
26	YD	216/218 (99%)	214 (99%)	2 (1%)	78	91
27	RE	165/166 (99%)	164 (99%)	1 (1%)	86	94
27	YE	165/166 (99%)	164 (99%)	1 (1%)	86	94
28	RF	161/166 (97%)	161 (100%)	0	100	100
28	YF	161/166 (97%)	160 (99%)	1 (1%)	86	94
29	RG	155/156 (99%)	153 (99%)	2 (1%)	69	87
29	YG	155/156 (99%)	155 (100%)	0	100	100
30	RH	145/148 (98%)	145 (100%)	0	100	100
30	YH	144/148 (97%)	142 (99%)	2 (1%)	67	86
31	RI	122/124 (98%)	121 (99%)	1 (1%)	81	93
31	YI	122/124 (98%)	121 (99%)	1 (1%)	81	93

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
32	RN	117/119 (98%)	116 (99%)	1 (1%)	78	91
32	YN	119/119 (100%)	119 (100%)	0	100	100
33	RO	100/100 (100%)	98 (98%)	2 (2%)	55	80
33	YO	100/100 (100%)	100 (100%)	0	100	100
34	RP	116/116 (100%)	115 (99%)	1 (1%)	78	91
34	YP	114/116 (98%)	113 (99%)	1 (1%)	78	91
35	RQ	111/111 (100%)	108 (97%)	3 (3%)	44	75
35	YQ	111/111 (100%)	111 (100%)	0	100	100
36	RR	100/101 (99%)	99 (99%)	1 (1%)	76	90
36	YR	100/101 (99%)	100 (100%)	0	100	100
37	RS	87/88 (99%)	87 (100%)	0	100	100
37	YS	87/88 (99%)	87 (100%)	0	100	100
38	RT	120/127 (94%)	120 (100%)	0	100	100
38	YT	120/127 (94%)	119 (99%)	1 (1%)	81	93
39	RU	93/94 (99%)	92 (99%)	1 (1%)	73	88
39	YU	93/94 (99%)	91 (98%)	2 (2%)	52	79
40	RV	82/82 (100%)	82 (100%)	0	100	100
40	YV	82/82 (100%)	79 (96%)	3 (4%)	34	68
41	RW	92/92 (100%)	91 (99%)	1 (1%)	73	88
41	YW	92/92 (100%)	92 (100%)	0	100	100
42	RX	74/78 (95%)	74 (100%)	0	100	100
42	YX	76/78 (97%)	76 (100%)	0	100	100
43	RY	88/91 (97%)	87 (99%)	1 (1%)	73	88
43	YY	88/91 (97%)	87 (99%)	1 (1%)	73	88
44	RZ	162/179 (90%)	162 (100%)	0	100	100
44	YZ	162/179 (90%)	162 (100%)	0	100	100
45	R0	65/67 (97%)	63 (97%)	2 (3%)	40	72
45	Y0	61/67 (91%)	60 (98%)	1 (2%)	62	84
46	R1	82/83 (99%)	82 (100%)	0	100	100
46	Y1	78/83 (94%)	78 (100%)	0	100	100
47	R2	64/67 (96%)	64 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
47	Y2	62/67 (92%)	62 (100%)	0	100	100
48	R3	51/52 (98%)	50 (98%)	1 (2%)	55	80
48	Y3	51/52 (98%)	50 (98%)	1 (2%)	55	80
49	R4	62/63 (98%)	62 (100%)	0	100	100
49	Y4	62/63 (98%)	61 (98%)	1 (2%)	62	84
50	R5	51/52 (98%)	51 (100%)	0	100	100
50	Y5	51/52 (98%)	51 (100%)	0	100	100
51	R6	51/52 (98%)	51 (100%)	0	100	100
51	Y6	51/52 (98%)	50 (98%)	1 (2%)	55	80
52	R7	40/42 (95%)	40 (100%)	0	100	100
52	Y7	41/42 (98%)	41 (100%)	0	100	100
53	R8	54/55 (98%)	53 (98%)	1 (2%)	57	81
53	Y8	54/55 (98%)	53 (98%)	1 (2%)	57	81
54	R9	34/34 (100%)	34 (100%)	0	100	100
54	Y9	34/34 (100%)	34 (100%)	0	100	100
All	All	9692/10066 (96%)	9620 (99%)	72 (1%)	84	94

5 of 72 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
30	YH	49	VAL
53	Y8	42	ARG
34	YP	15	ARG
40	YV	80	GLN
35	RQ	21	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 17 such sidechains are listed below:

Mol	Chain	Res	Type
28	YF	40	GLN
43	YY	92	ASN
38	RT	58	ASN
45	R0	35	ASN
53	R8	31	HIS

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	QA	1499/1521 (98%)	289 (19%)	39 (2%)
1	XA	1499/1521 (98%)	271 (18%)	33 (2%)
22	QV	76/77 (98%)	22 (28%)	1 (1%)
22	XV	76/77 (98%)	18 (23%)	1 (1%)
23	QX	18/19 (94%)	7 (38%)	1 (5%)
23	XX	18/19 (94%)	6 (33%)	0
24	RA	2877/2915 (98%)	591 (20%)	37 (1%)
24	YA	2880/2915 (98%)	551 (19%)	43 (1%)
25	RB	119/122 (97%)	18 (15%)	1 (0%)
25	YB	119/122 (97%)	21 (17%)	1 (0%)
All	All	9181/9308 (98%)	1794 (19%)	157 (1%)

5 of 1794 RNA backbone outliers are listed below:

Mol	Chain	Res	Type
1	QA	6	G
1	QA	9	G
1	QA	32	A
1	QA	39	G
1	QA	47	C

5 of 157 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
24	YA	210	A
24	YA	1700	G
24	YA	302	A
24	YA	1068	G
24	YA	2622	C

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

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
22	1MG	XV	37	22	18,26,27	0.75	0	19,39,42	1.11	2 (10%)
22	1MG	QV	37	22	18,26,27	0.72	0	19,39,42	1.08	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
22	1MG	XV	37	22	-	0/3/25/26	0/3/3/3
22	1MG	QV	37	22	-	0/3/25/26	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(°)
22	XV	37	1MG	C8-N7-C5	2.53	107.81	102.99
22	XV	37	1MG	C5-C6-N1	2.38	117.48	113.90
22	QV	37	1MG	C8-N7-C5	2.37	107.50	102.99
22	QV	37	1MG	C5-C6-N1	2.27	117.32	113.90

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
22	QV	37	1MG	1	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 1166 ligands modelled in this entry, 1164 are monoatomic - leaving 2 for Mogul analysis.

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
56	SF4	QD	301	4	0,12,12	-	-	-		
56	SF4	XD	301	4	0,12,12	-	-	-		

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
56	SF4	QD	301	4	-	-	0/6/5/5
56	SF4	XD	301	4	-	-	0/6/5/5

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](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS failed to run properly - this section is therefore empty.

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

EDS failed to run properly - this section is therefore empty.

6.3 Carbohydrates

EDS failed to run properly - this section is therefore empty.

6.4 Ligands

EDS failed to run properly - this section is therefore empty.

6.5 Other polymers

EDS failed to run properly - this section is therefore empty.