



wwPDB X-ray Structure Validation Summary Report ⓘ

Oct 9, 2023 – 10:33 PM EDT

PDB ID : 6BUW
Title : Thermus thermophilus 70S complex containing 16S G299A ram mutation and empty A site.
Authors : Hoffer, E.D.; Maehigashi, T.; Fagan, C.E.; Dunham, C.M.
Deposited on : 2017-12-11
Resolution : 3.50 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 : **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

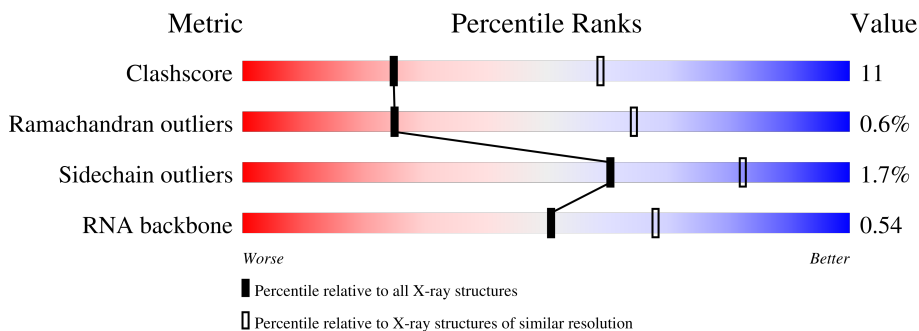
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.50 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1036 (3.58-3.42)
Ramachandran outliers	138981	1005 (3.58-3.42)
Sidechain outliers	138945	1006 (3.58-3.42)
RNA backbone	3102	1002 (4.00-3.00)

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 $\leq 5\%$

Note EDS failed to run properly.

Mol	Chain	Length	Quality of chain
1	QA	1508	48% 42% 9% ..
1	XA	1508	48% 42% 10% .
2	QB	256	58% 32% . 8%
2	XB	256	61% 30% . 8%
3	QC	239	55% 30% . 14%
3	XC	239	59% 26% 14%

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Mol	Chain	Length	Quality of chain
4	QD	209	66% 33%
4	XD	209	68% 29%
5	QE	162	69% 23% 7%
5	XE	162	70% 23% 7%
6	QF	101	78% 21%
6	XF	101	66% 32%
7	QG	156	78% 21%
7	XG	156	74% 23%
8	QH	138	61% 38%
8	XH	138	70% 28%
9	QI	128	52% 43%
9	XI	128	71% 26%
10	QJ	105	53% 40% 6%
10	XJ	105	57% 34% 9%
11	QK	129	66% 25% 8%
11	XK	129	64% 26% 10%
12	QL	132	59% 33% 5%
12	XL	132	65% 26% 8%
13	QM	126	58% 35% 5%
13	XM	126	57% 37% 6%
14	QN	61	51% 46%
14	XN	61	66% 28% 5%
15	QO	89	74% 25%
15	XO	89	75% 22%
16	QP	88	78% 17% 5%

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Mol	Chain	Length	Quality of chain
16	XP	88	67% 26% 5%
17	QQ	105	73% 20% 5%
17	XQ	105	66% 29% 5%
18	QR	88	52% 27% 20%
18	XR	88	56% 22% 20%
19	QS	93	49% 33% 6% 11%
19	XS	93	60% 30% 10%
20	QT	106	63% 27% 7%
20	XT	106	59% 32% 7%
21	QU	27	63% 30% 7%
21	XU	27	67% 22% 7%
22	QV	77	55% 31% 14%
22	XV	77	65% 26% 8%
23	QX	25	16% 28% 52%
23	XX	25	12% 24% 8% 56%
24	RA	2915	51% 39% 8% ..
24	YA	2915	50% 39% 10% ..
25	RB	122	51% 33% 14% ..
25	YB	122	49% 40% 7% ..
26	RD	276	70% 28% .
26	YD	276	68% 30% .
27	RE	206	64% 34% .
27	YE	206	64% 33% .
28	RF	210	64% 31% ..
28	YF	210	66% 30% .











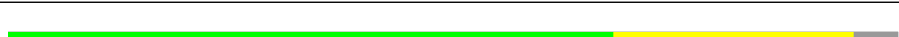


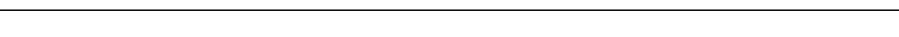
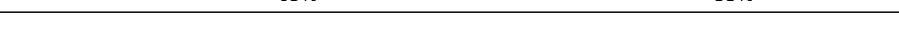
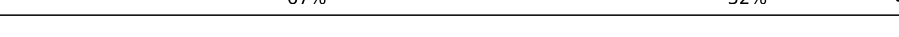



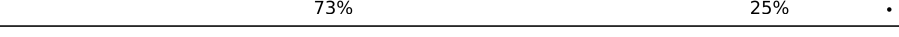





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Mol	Chain	Length	Quality of chain
29	RG	182	60% 37% ...
29	YG	182	65% 34% ..
30	RH	180	58% 35% . .
30	YH	180	63% 33% ...
31	RI	148	66% 28% . .
31	YI	148	56% 39% ...
32	RN	140	79% 20% .
32	YN	140	70% 28% ..
33	RO	122	68% 32%
33	YO	122	79% 21%
34	RP	150	67% 31% .
34	YP	150	60% 37% ...
35	RQ	141	60% 38% .
35	YQ	141	70% 30% .
36	RR	118	62% 36% ..
36	YR	118	66% 31% ..
37	RS	112	66% 32% ..
37	YS	112	68% 29% ..
38	RT	146	64% 28% . 6%
38	YT	146	63% 29% . 6%
39	RU	118	70% 25% . .
39	YU	118	64% 32% . .
40	RV	101	71% 29%
40	YV	101	80% 19% .
41	RW	113	66% 33% .



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Mol	Chain	Length	Quality of chain
41	YW	113	 74% 24% .
42	RX	96	 69% 27% .
42	YX	96	 76% 20% .
43	RY	110	 79% 18% .
43	YY	110	 64% 33% ..
44	RZ	206	 55% 31% . 11%
44	YZ	206	 58% 27% . 11%
45	R0	85	 69% 26% 5%
45	Y0	85	 67% 29% .
46	R1	98	 74% 22% ..
46	Y1	98	 68% 27% 5%
47	R2	72	 68% 24% . .
47	Y2	72	 65% 31% .
48	R3	60	 65% 33% .
48	Y3	60	 67% 32% .
49	R4	71	 58% 30% . 6% .
49	Y4	71	 68% 18% 7% . .
50	R5	60	 73% 22% . .
50	Y5	60	 73% 25% .
51	R6	54	 61% 35% . .
51	Y6	54	 78% 19% . .
52	R7	49	 59% 37% .
52	Y7	49	 69% 29% .
53	R8	65	 55% 37% . . .
53	Y8	65	 63% 34% . .

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Mol	Chain	Length	Quality of chain
54	R9	37	
54	Y9	37	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
56	SF4	XD	301	-	-	X	-

2 Entry composition i

There are 57 unique types of molecules in this entry. The entry contains 291948 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	32246	14353	5981	10413	1499	0	0	0
1	XA	1500	32248	14354	5984	10411	1499	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
QA	299	A	G	engineered mutation	GB 55771382
XA	299	A	G	engineered mutation	GB 55771382

- 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	1907	1217	342	343	5	0	0	0
2	XB	236	1915	1223	343	344	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	1605	1011	313	280	1	0	0	0
3	XC	205	1605	1011	313	280	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	1703	1066	339	291	7	0	0	0

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

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
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
			Total	C	N	O	S			
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
			Total	C	N	O	S			
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
			Total	C	N	O	S			
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
			Total	C	N	O			
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
			Total	C	N	O	S			
10	QJ	99	Total 801	C 504	N 157	O 139	S 1	0	0	0
10	XJ	96	Total 777	C 487	N 153	O 136	S 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	Total 885	C 549	N 168	O 165	S 3	0	0	0
11	XK	116	Total 864	C 537	N 164	O 160	S 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	Total 975	C 614	N 196	O 164	S 1	0	0	0
12	XL	122	Total 956	C 603	N 193	O 159	S 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	Total 955	C 591	N 197	O 165	S 2	0	0	0
13	XM	119	Total 946	C 585	N 195	O 164	S 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	Total 492	C 312	N 104	O 72	S 4	0	0	0
14	XN	60	Total 492	C 312	N 104	O 72	S 4	0	0	0

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

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

- 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			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
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 fMet.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
22	QV	77	Total	C	N	O	P	0	0	0
			1644	732	297	538	77			
22	XV	77	Total	C	N	O	P	0	0	0
			1644	732	297	538	77			

- Molecule 23 is a RNA chain called messenger RNA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
23	QX	12	Total	C	N	O	P	0	0	0
			261	117	51	81	12			
23	XX	11	Total	C	N	O	P	0	0	0
			239	107	46	75	11			

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
24	RA	2882	Total	C	N	O	P	0	0	0
			62071	27627	11611	19952	2881			
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
			Total	C	N	O	S			
26	RD	272	Total	C	N	O	S	0	0	0
			2115	1335	420	357	3			
26	YD	272	Total	C	N	O	S	0	0	0
			2115	1335	420	357	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	205	Total	C	N	O	S	0	0	0
			1568	991	300	271	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	174	Total	C	N	O	S	0	0	0
			1336	848	251	236	1			

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

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

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

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

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
34	RP	150	Total	C	N	O	S	0	0	0
			1145	712	232	198	3			
34	YP	147	Total	C	N	O	S	0	0	0
			1122	698	229	192	3			

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
42	RX	92	725	471	131	123	0	0	0
42	YX	92	725	471	131	123	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	82	648	401	138	108	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	96	755	475	149	130	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
47	R2	69	Total	C	N	O	S	0	0	0
			581	358	118	104	1			
47	Y2	69	Total	C	N	O	S	0	0	0
			581	358	118	104	1			

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

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

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

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
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
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
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
52	R7	47	Total	C	N	O	S	0	0	0
			409	251	102	54	2			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
52	Y7	48	Total 418	C 257	N 104	O 55	S 2	0	0	0

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

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

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

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

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

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
55	QA	180	Total 180	Mg 180	0	0
55	QC	1	Total 1	Mg 1	0	0
55	QF	1	Total 1	Mg 1	0	0
55	QH	1	Total 1	Mg 1	0	0
55	QL	1	Total 1	Mg 1	0	0
55	QV	6	Total 6	Mg 6	0	0
55	QX	2	Total 2	Mg 2	0	0
55	RA	493	Total 493	Mg 493	0	0
55	RB	10	Total 10	Mg 10	0	0
55	RD	1	Total 1	Mg 1	0	0

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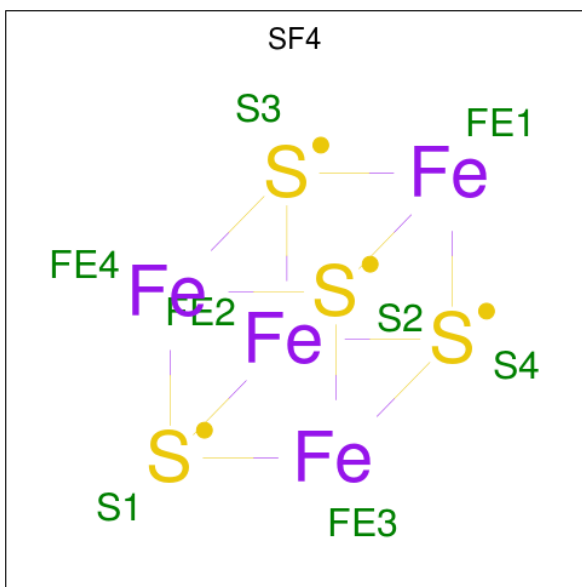
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
55	RE	4	Total Mg 4 4	0	0
55	RF	1	Total Mg 1 1	0	0
55	RI	1	Total Mg 1 1	0	0
55	RN	1	Total Mg 1 1	0	0
55	RO	1	Total Mg 1 1	0	0
55	RP	3	Total Mg 3 3	0	0
55	RQ	2	Total Mg 2 2	0	0
55	RT	1	Total Mg 1 1	0	0
55	RU	1	Total Mg 1 1	0	0
55	RW	1	Total Mg 1 1	0	0
55	RX	1	Total Mg 1 1	0	0
55	RY	1	Total Mg 1 1	0	0
55	R0	2	Total Mg 2 2	0	0
55	R1	2	Total Mg 2 2	0	0
55	R5	1	Total Mg 1 1	0	0
55	XA	171	Total Mg 171 171	0	0
55	XE	2	Total Mg 2 2	0	0
55	XL	1	Total Mg 1 1	0	0
55	XM	1	Total Mg 1 1	0	0
55	XQ	1	Total Mg 1 1	0	0
55	XS	1	Total Mg 1 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
55	XV	8	Total 8	Mg 8	0	0
55	YA	515	Total 515	Mg 515	0	0
55	YB	10	Total 10	Mg 10	0	0
55	YD	2	Total 2	Mg 2	0	0
55	YE	4	Total 4	Mg 4	0	0
55	YO	1	Total 1	Mg 1	0	0
55	YP	3	Total 3	Mg 3	0	0
55	YQ	3	Total 3	Mg 3	0	0
55	YU	1	Total 1	Mg 1	0	0
55	YX	2	Total 2	Mg 2	0	0
55	YY	1	Total 1	Mg 1	0	0
55	Y0	1	Total 1	Mg 1	0	0
55	Y5	1	Total 1	Mg 1	0	0
55	Y7	1	Total 1	Mg 1	0	0
55	Y8	1	Total 1	Mg 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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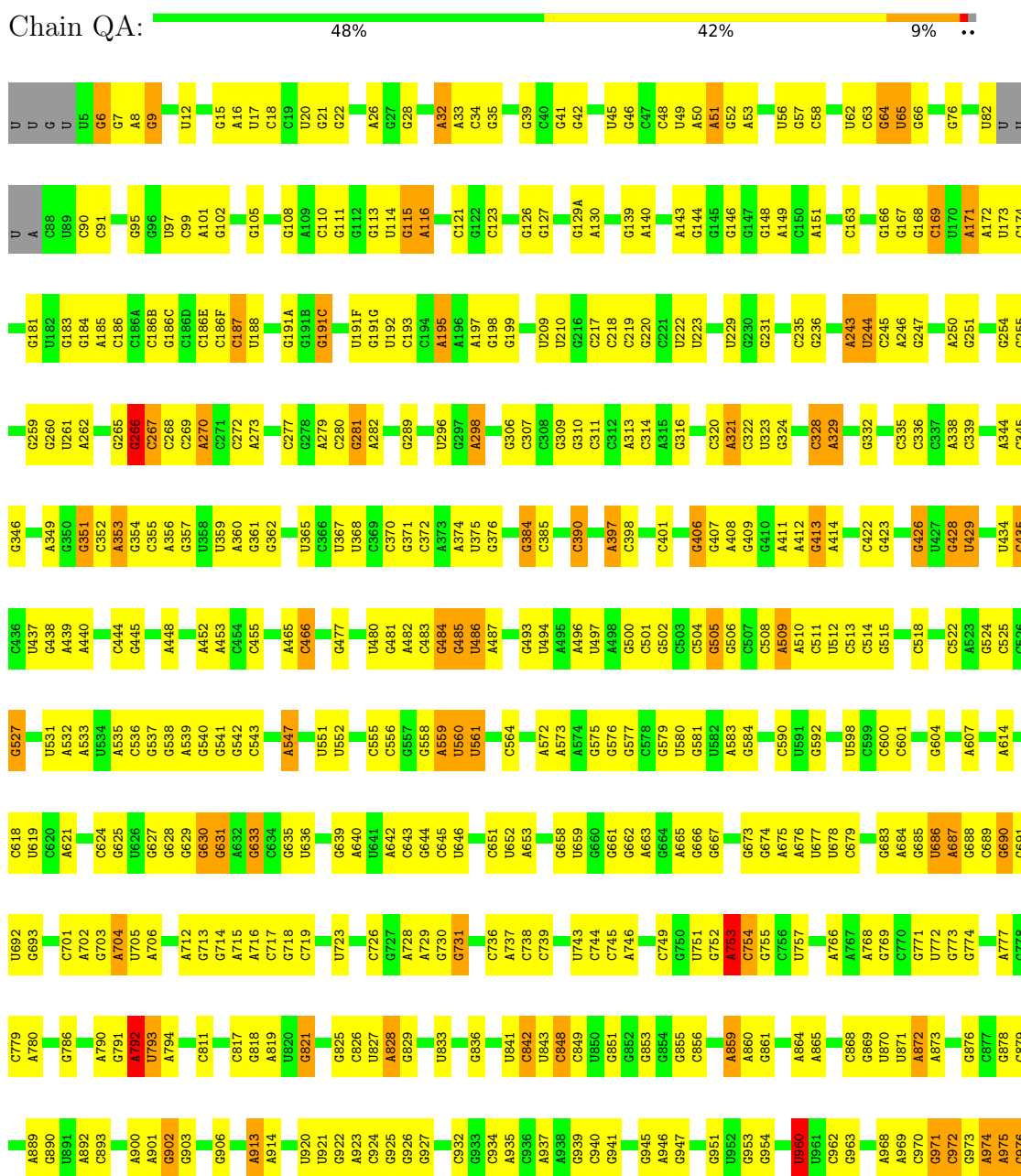
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
57	Y6	1	Total 1	Zn 1	0	0
57	Y9	1	Total 1	Zn 1	0	0

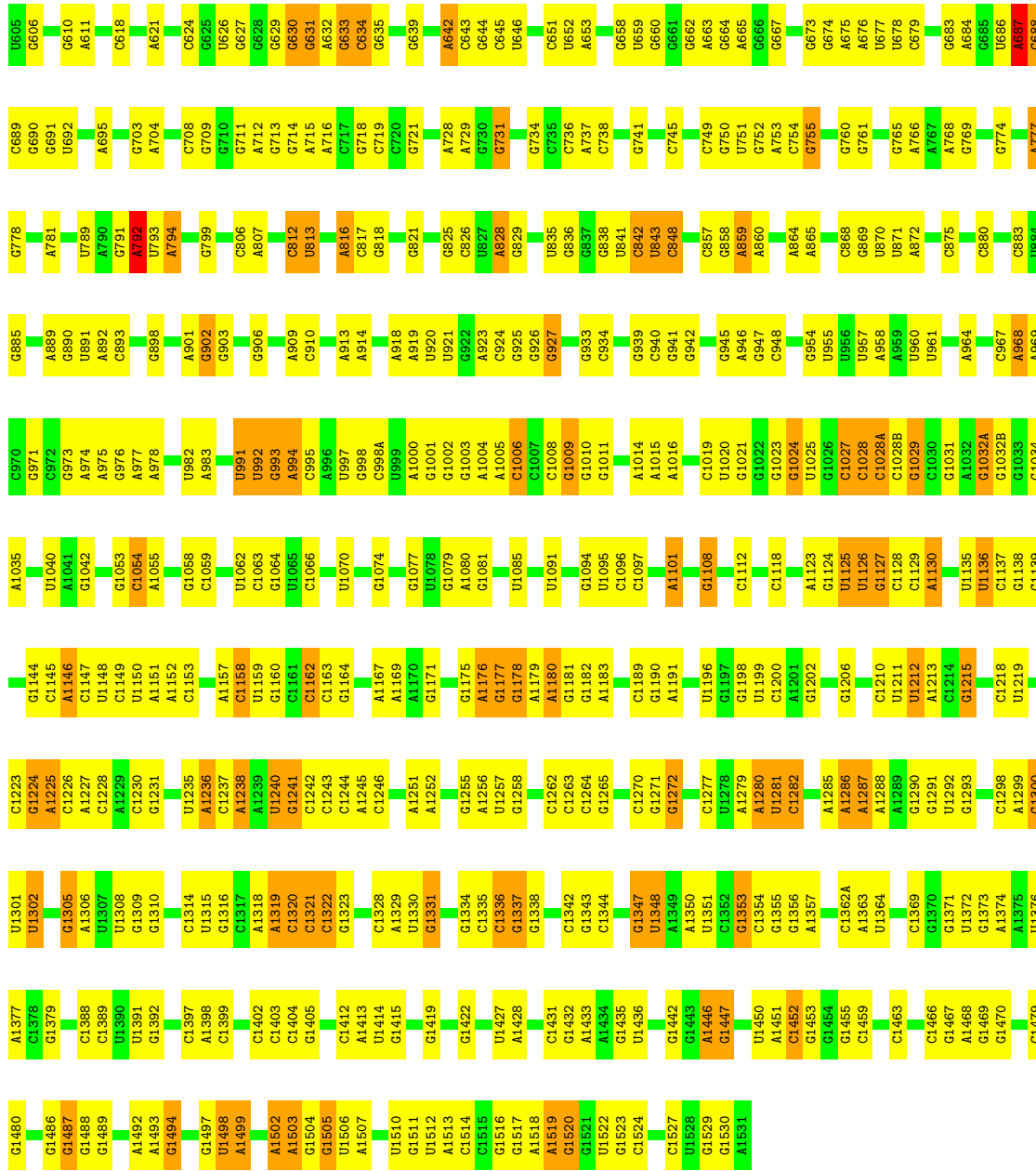
3 Residue-property plots [i](#)

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.

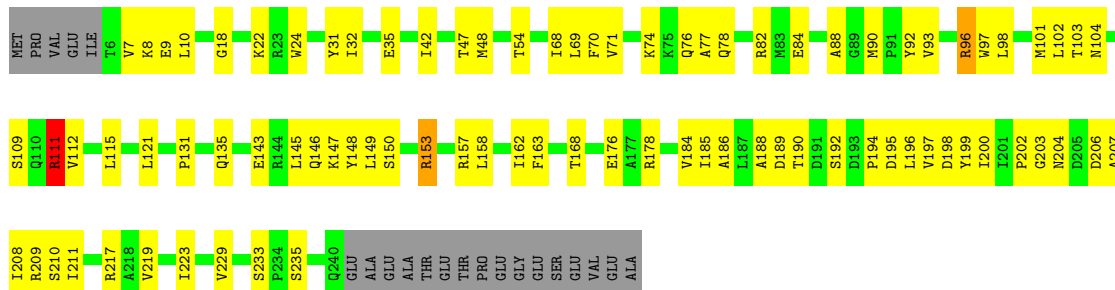
Note EDS failed to run properly.

- Molecule 1: 16S rRNA



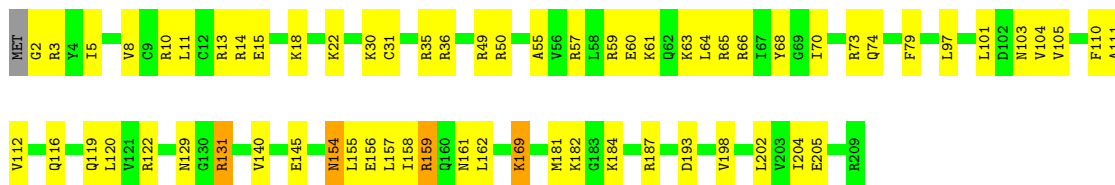


• Molecule 2: 30S ribosomal protein S2



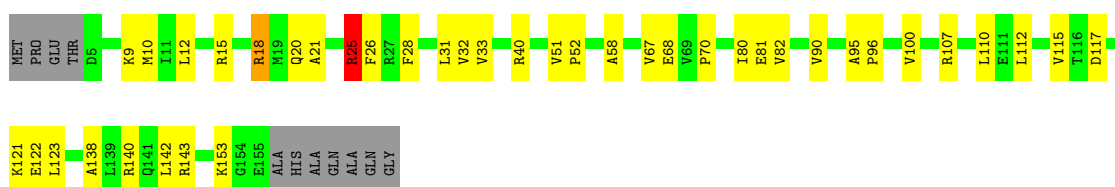
- Molecule 4: 30S ribosomal protein S4

Chain XD:  68% 29%



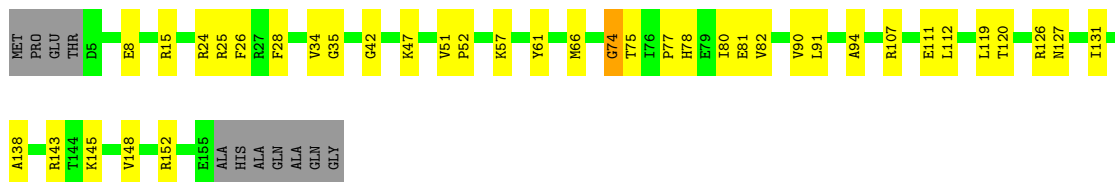
- Molecule 5: 30S ribosomal protein S5

Chain QE:  69% 23% 7%




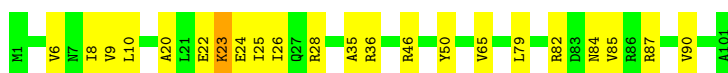
- Molecule 5: 30S ribosomal protein S5

Chain XE:  70% 23% 7%



- Molecule 6: 30S ribosomal protein S6

Chain QF:  78% 21%




- Molecule 6: 30S ribosomal protein S6

Chain XF:  66% 32%



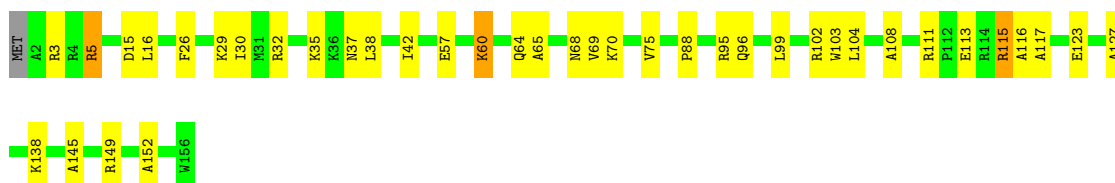
- Molecule 7: 30S ribosomal protein S7

Chain QG:  78% 21%



- Molecule 7: 30S ribosomal protein S7

Chain XG: 74% 23% ..



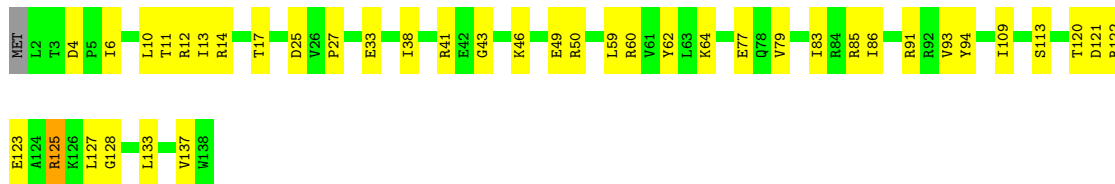
- Molecule 8: 30S ribosomal protein S8

Chain QH: 61% 38% .



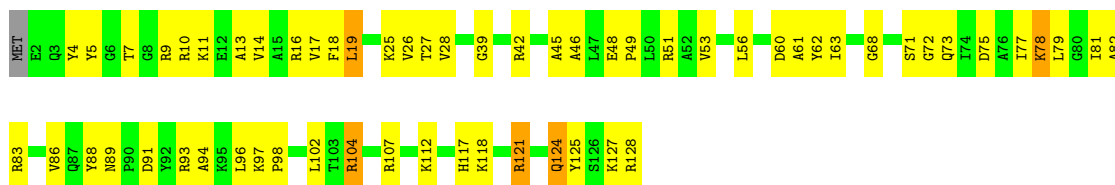
- Molecule 8: 30S ribosomal protein S8

Chain XH: 70% 28% ..



- Molecule 9: 30S ribosomal protein S9

Chain QI: 52% 43% ..



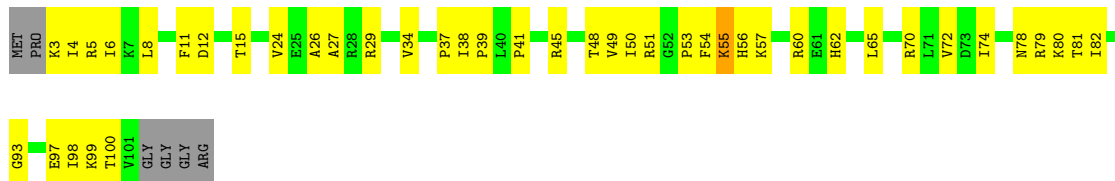
- Molecule 9: 30S ribosomal protein S9

Chain XI: 71% 26% ..



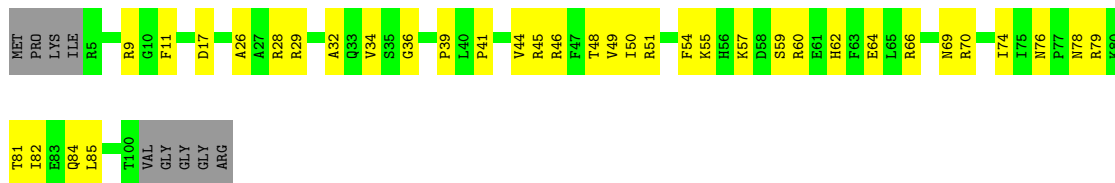
- Molecule 10: 30S ribosomal protein S10

Chain QJ: 53% 40% 6%



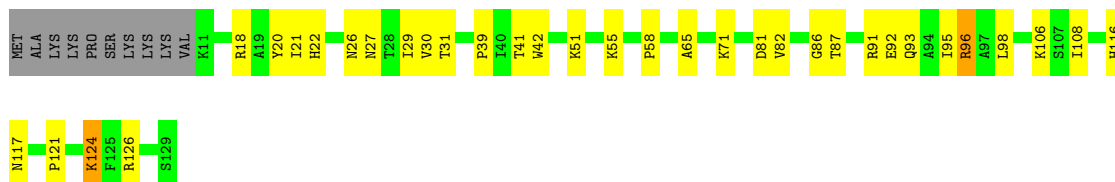
- Molecule 10: 30S ribosomal protein S10

Chain XJ: 57% 34% 9%



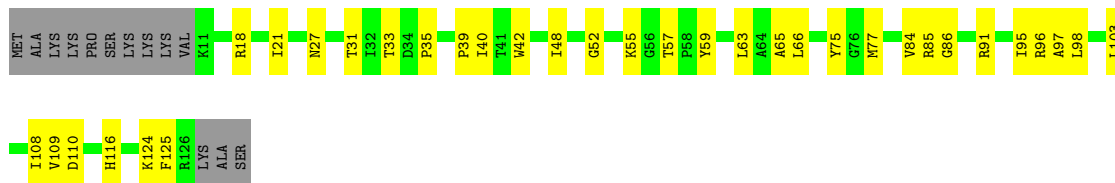
- Molecule 11: 30S ribosomal protein S11

Chain QK: 66% 25% 8%



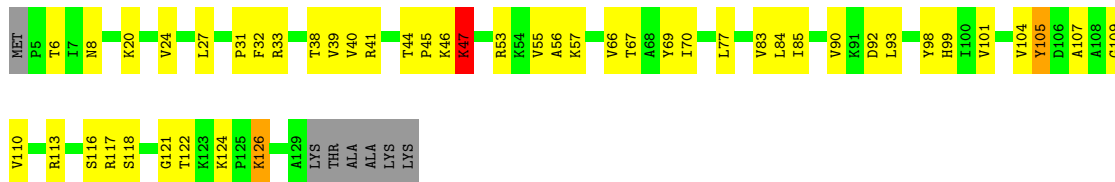
- Molecule 11: 30S ribosomal protein S11

Chain XK: 64% 26% 10%



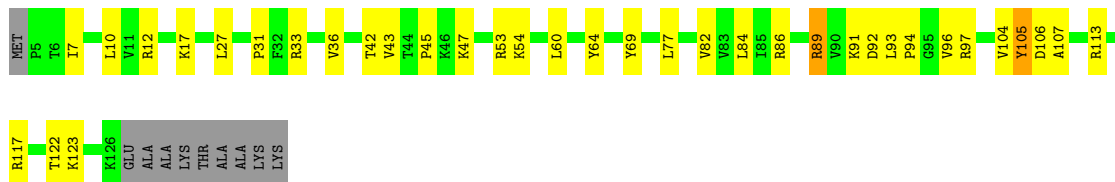
- Molecule 12: 30S ribosomal protein S12

Chain QL:  59% 33% •• 5%



- Molecule 12: 30S ribosomal protein S12

Chain XL:  65% 26% • 8%



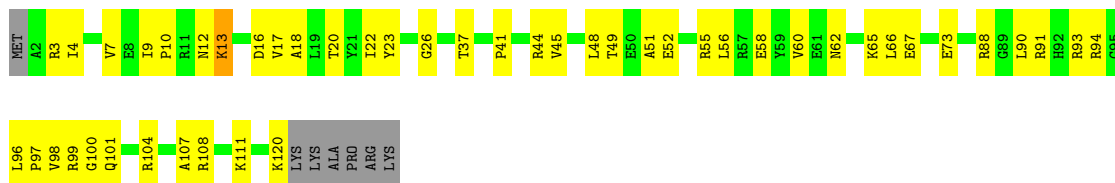
- Molecule 13: 30S ribosomal protein S13

Chain QM:  58% 35% • 5%



- Molecule 13: 30S ribosomal protein S13

Chain XM:  57% 37% • 6%



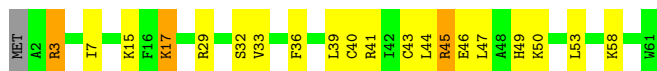
- Molecule 14: 30S ribosomal protein S14 type Z

Chain QN:  51% 46% ••

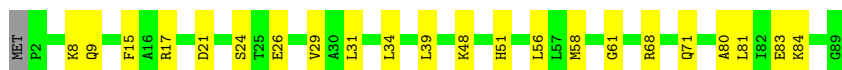
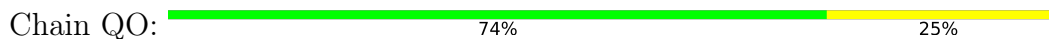


- Molecule 14: 30S ribosomal protein S14 type Z

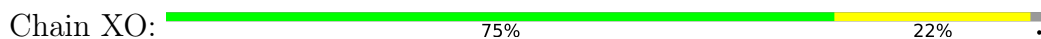
Chain XN:  66% 28% • 5%



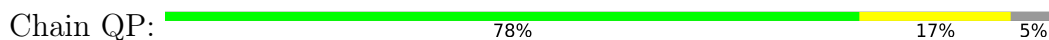
- Molecule 15: 30S ribosomal protein S15



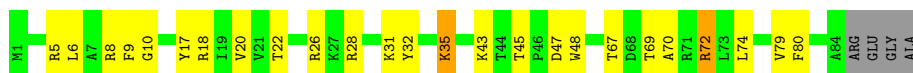
- Molecule 15: 30S ribosomal protein S15



- Molecule 16: 30S ribosomal protein S16



- Molecule 16: 30S ribosomal protein S16



- Molecule 17: 30S ribosomal protein S17



- Molecule 17: 30S ribosomal protein S17

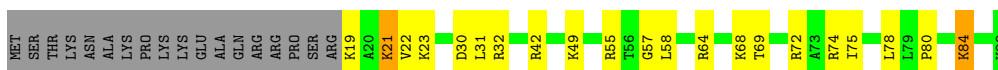


- Molecule 18: 30S ribosomal protein S18

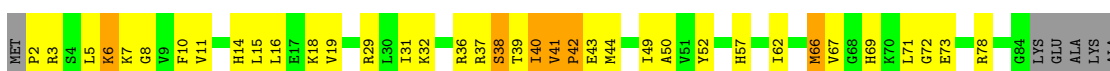




• Molecule 18: 30S ribosomal protein S18



• Molecule 19: 30S ribosomal protein S19



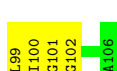
• Molecule 19: 30S ribosomal protein S19



• Molecule 20: 30S ribosomal protein S20



• Molecule 20: 30S ribosomal protein S20



• Molecule 21: 30S ribosomal protein Thx





• Molecule 21: 30S ribosomal protein Thx



• Molecule 22: P-site tRNA fMet



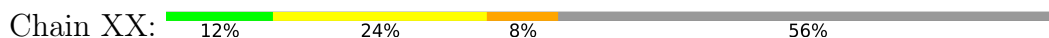
• Molecule 22: P-site tRNA fMet



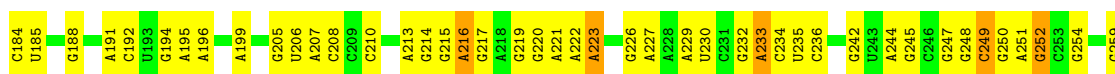
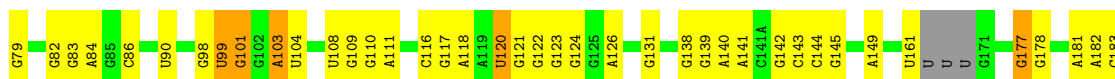
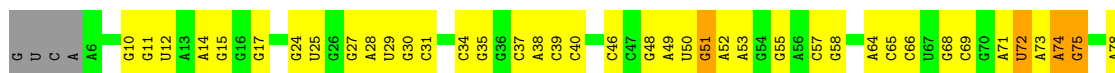
• Molecule 23: messenger RNA



• Molecule 23: messenger RNA



• Molecule 24: 23S rRNA

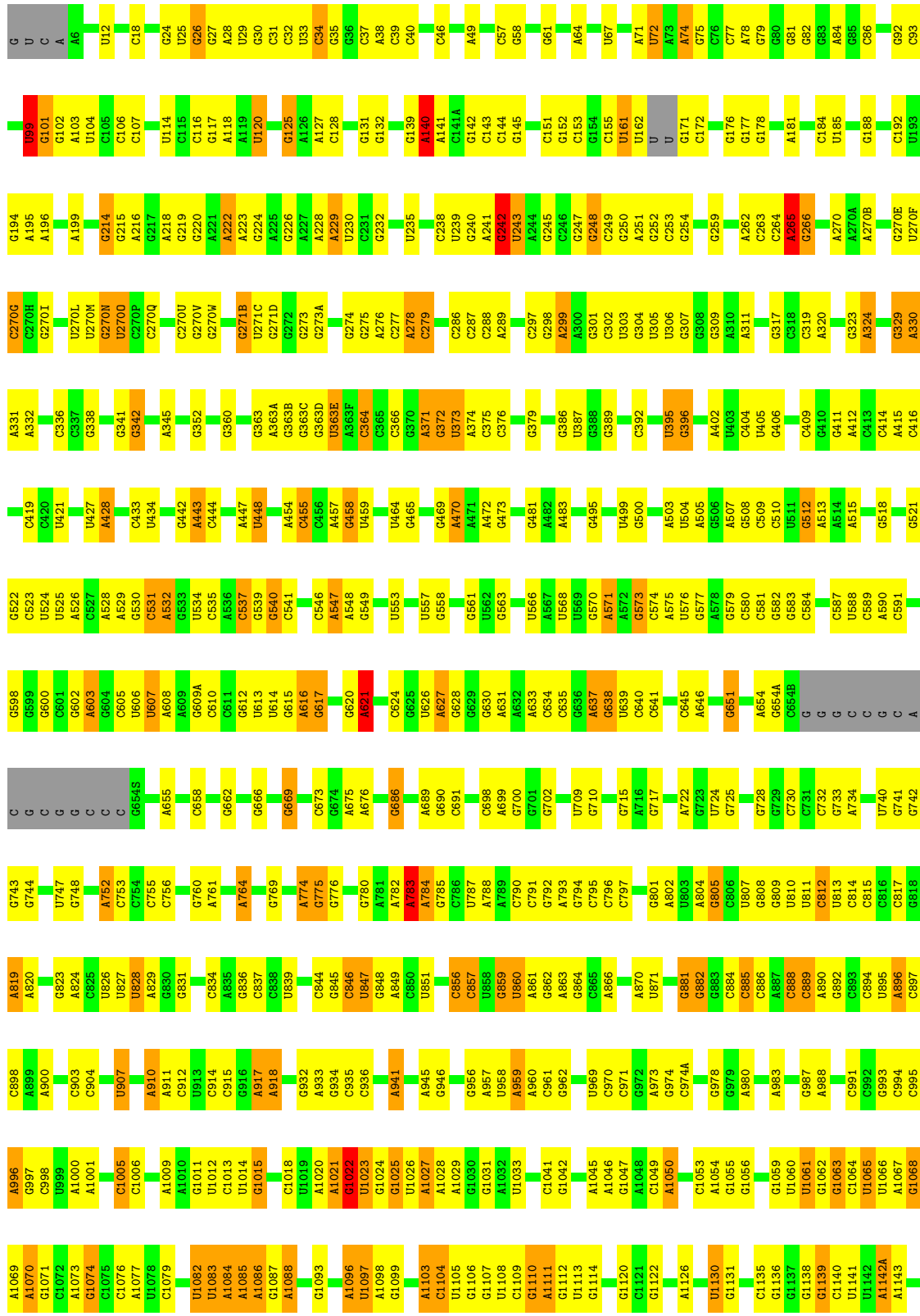


C1417	C1418	A1419	U1420	G1421	G1422	G1423	G1424	G1425	G1426	G1427	G1428	G1429	C1430	C1431	C1432	U1433	G1436	G1444	A1444A	C1445	A1449	G1449A	C1448	C1455	C1456	C1457	C1458	C1459	C1460	C1461	C1464	A1469	G1470	A1471	A1472	C1473	C1474	C1475	C1476	A1477	C1482	G1483	G1484	G1485	G1486	G1487	A1490	C1493	A1494	A1495	A1496	U1497	C1498																																																																																																																																																																																																																																																									
G1332	A1336	G1337	G1338	U1341	G1346	G1347	G1348	A1349	U1352	A1353	A1354	A1359	A1365	A1366	A1367	C1370	G1371	U1372	A1379	G1380	A1384	G1385	G1389	U1390	A1391	A1392	A1393	U1394	A1395	U1396	U1397	A1398	C1399	G1400	C1401	C1402	C1403	U1404	U1405	U1406	C1407	C1408	C1409	G1410	C1411	A1412	G1413	A1414	A1415	A1416																																																																																																																																																																																																																																																												
A1254	U1255	G1256	C1257	G1258	G1259	U1263	G1264	G1265	G1266	C1270	G1271	A1272	A1273	A1274	A1275	A1276	G1277	A1278	G1279	U1282	G1283	A1286	A1287	U1288	C1289	C1290	C1291	U1292	C1293	G1296	C1297	C1298	U1299	U1300	A1301	A1302	G1308	G1309	G1310	G1311	G1312	U1313	C1314	C1315	U1316	A1317	A1321	A1322	A1323	U1329	A1330	A1331																																																																																																																																																																																																																																																										
U1165	C1166	U1167	G1168	G1171	G1173	A1174	A1175	G1176	G1177	C1178	G1179	G1180	C1181	A1182	G1186	G1187	U1188	A1189	G1190	G1191	G1195	C1196	G1197	C1201	G1202	G1203	A1204	U1205	G1206	U1210	A1211	U1212	A1220	C1221	C1222	G1223	G1224	G1225	G1226	A1227	G1235	G1236	A1237	G1238	A1246	A1247	A1248	U1249	G1250	A1253																																																																																																																																																																																																																																																												
A1073	C1076	A1077	U1078	C1079	C1080	U1081	U1082	U1083	A1084	A1085	A1086	G1087	A1088	A1089	U1090	G1091	C1092	G1093	A1096	U1097	A1098	A1103	C1104	U1105	G1106	G1107	C1110	A1111	G1112	C1116	G1117	G1122	A1126	G1131	C1135	G1136	C1140	U1141	U1142	A1142A	A1148	A1155	U1159	G1163	G1164																																																																																																																																																																																																																																																																	
A1000	A1001	G1002	G1003	A1010	G1011	U1012	C1013	U1014	G1015	A1016	G1017	C1018	U1019	A1020	A1021	G1022	U1023	G994	C995	C996	U997	A998	A941	A945	U946	G947	U948	G954	A957	U958	A959	A960	C961	G968	U969	C970	G974	C974A	G978	G979	A980	A983	G989	A989	C994	G995	A996	G997																																																																																																																																																																																																																																																														
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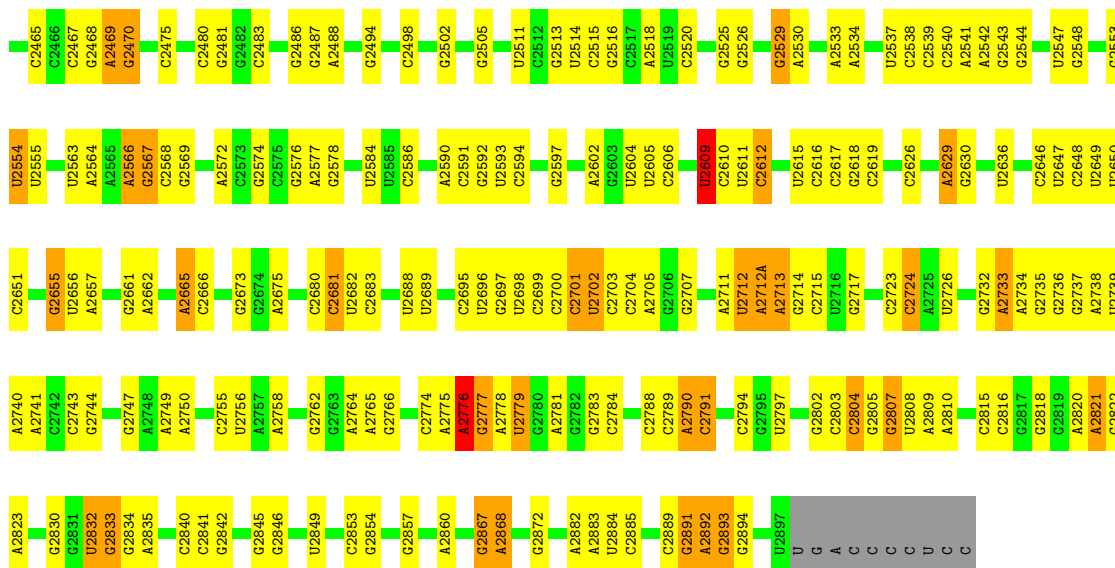
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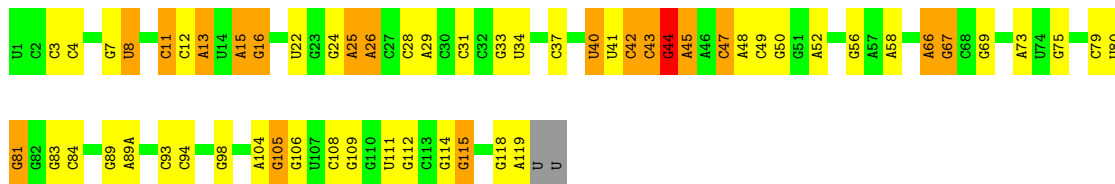
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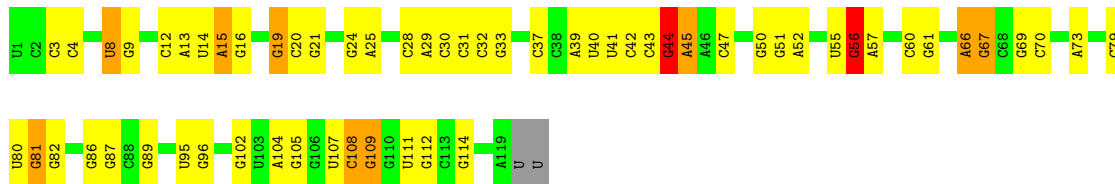
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A2422	A2335	G2093	A2020	A2020	G1817	U1931	U1818	G1725	G1622	A1544	A1471	A1287	A1287	C1179	
U2423	C2342	U2099	C2021	C2021	U1818	A1932	U1818	G1726	G1622	A1544	A1472	A1287	A1288	C1180	
C2424	C2343	G2100	U2022	U2022	A1819	G1933	A1819	G1727	G1628	A1545	A1473	U1391	U1288	C1180	
A2425	U2344	G2101	G2025	G2025	A1825	G1935	A1825	U1728	G1629	A1545A	G1473	U1394	U1292	G1184	
G2426	G2345	U2102	C2026	C2026	G1826	A1936	G1826	A1729	U1629	C1546	C1474	U1394	U1293	G1184	
C2427	A2346	C2103	C2026	C2026	C1827	A1937	C1827	U1730	A1632	C1548	C1476	U1397	U1294	G1187	
G2428	A2347	G2104	A1938	A1938	G1828	A1938	G1828	G1731	A1632	C1549	A1477	U1397	U1294	G1187	
G2429	U2348	C2105	U1939	U1939	A1829	A1939	A1829	G1732	C1636	C1550	G1478	G1400	U1300	G1190	
U2430	C2350	G2107	U1940	U1940	A1833	G1942	A1833	G1733	A1637	C1551	G1479	G1401	A1301	G1191	
A2433	G2354	G2110	U1942	U1942	U1841	G1943	U1841	G1743	C1640	A1558	U1483	G1402	G1309	A1194	
U2434	C2355	G2111	U1944	U1944	G1842	G1944	G1842	G1750	A1641	A1559	G1483	C1403	G1310	G1195	
C2436	C2356	C2112	G2036	G2036	C1843	G1945	C1843	G1751	A1562	A1562	G1485	U1405	U1313	C1201	
U2437	G2357	U2113	U2037	U2037	G1844	U1946	G1844	C1752	G1563	G1563	A1486	C1407	C1314	C1202	
G2438	A2358	A2114	G2038	G2038	G1845	C1947	G1845	G1753	A1566	A1566	G1487	C1315	G1203	G1203	
A2439	C2363	G2115	C2039	C2039	G1846	U1955	G1846	C1754	A1651	A1566	G1488	U1316	U1204	A1204	
U2440	C2364	G2116	U2041	U2041	A1847	U1956	A1847	A1755	G1651	A1569	U1489	A1317	U1205	U1205	
C2441	G2365	A2117	A2042	A2042	A1848	C1957	A1848	G1756	A1652	A1570	A1490	C1318	G1206	G1206	
G2442	A2366	U2118	C2043	C2043	A1853	U1966	A1853	A1759	G1653	A1571	G1491	A1427	C1225	C1225	
C2443	C2368	G2120	G2048	G2048	A1854	A1960	A1854	A1759	A1654	A1571	G1492	C1428	G1226	G1226	
G2446	A2369	G2121	G2049	G2049	A1854	U1963	A1854	G1763	A1655	A1572	C1493	G1429	A1336	A1212	
U2447	G2370	U2122	U2052	U2052	G1888	G1964	G1888	G1764	C1657	C1576	A1495	A1430	U1330	G1212	
A2448	C2373	G2123	G2055	G2055	A1889	U1964	A1889	A1773	C1658	U1576	A1496	G1421	A1331	A1220	
U2449	G2374	G2124	C2056	C2056	U1864	C1967	U1864	A1773	A1664	C1577	G1497	A1427	G1332	C1220	
A2450	C2380	A2126	G2056	G2056	G1869	G1968	G1869	A1780	A1665	A1578	C1498	A1427	G1333	C1225	
G2453	G2383	G2127	A2057	A2057	C1870	A1969	C1870	C1781	G1666	A1579	G1499	G1429	A1336	G1226	
U2454	C2384	C2128	A2058	A2058	A1871	A1970	A1871	C1782	G1667	A1580	G1500	G1429	A1336	G1226	
G2455	G2385	U2132	A2059	A2059	A1872	A1971	A1872	A1783	A1668	G1581	C1505	U1431	G1337	G1232	
C2456	C2386	G2133	A2060	A2060	A1878	A1972	A1878	A1784	A1669	A1586	C1506	U1432	G1339	G1232	
U2457	G2389	A2134	C2061	C2061	C1879	G1973	C1879	A1785	C1670	A1587	U1507	U1433	G1339	G1232	
G2458	C2390	G2135	A2062	A2062	A1882	A1978	A1882	A1786	C1671	A1588	A1508	A1434	U1341	G1236	
A2459	G2391	C2136	C2064	C2064	G1883	A1979	G1883	A1787	U1672	C1589	C1509	A1434	U1341	G1236	
U2460	A2392	G2137	C2065	C2065	A1888	G1980	A1888	A1788	C1673	U1590	A1510	U1438	G1344	G1238	
C2461	C2393	C2138	C2066	C2066	A1889	A1981	A1889	A1790	G1674	A1511	A1439	U1438	G1344	G1238	
U2462	G2394	U2312	G2067	G2067	A1892	A1982	A1892	A1792	C1675	G1512	G1444	U1439	G1349	G1248	
												G1444A	A1349	U1249	G1250
															C1251



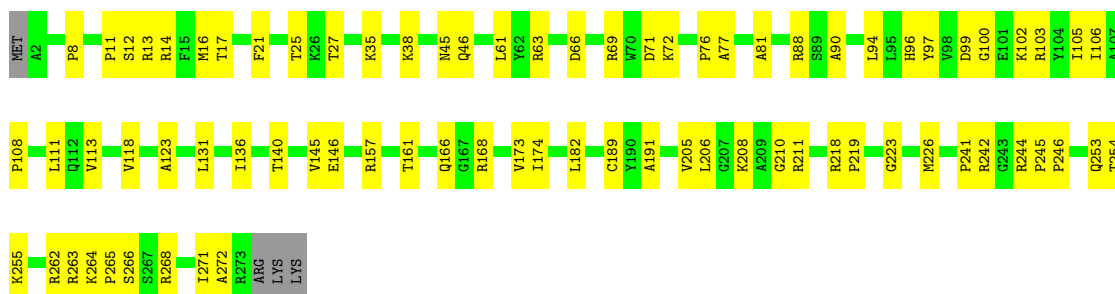
• Molecule 25: 5S rRNA



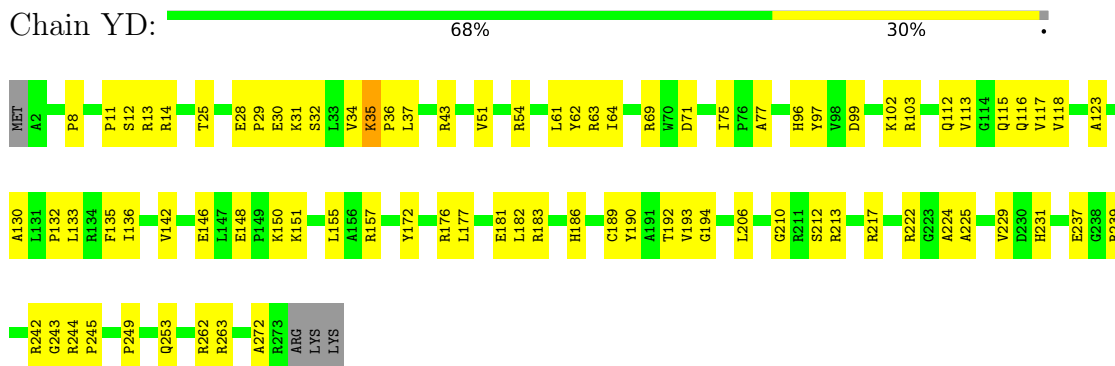
• Molecule 25: 5S rRNA



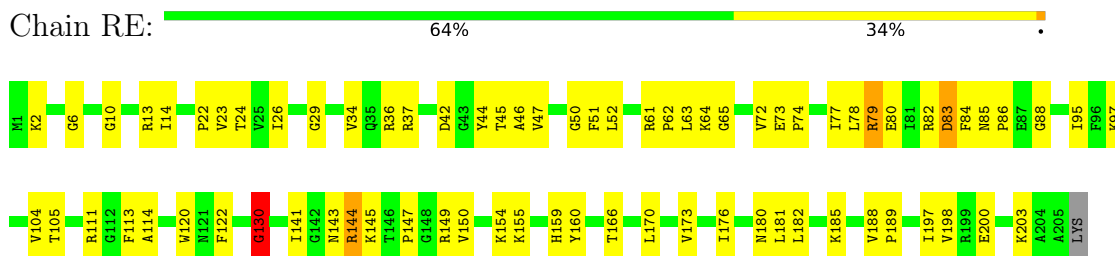
• Molecule 26: 50S ribosomal protein L2



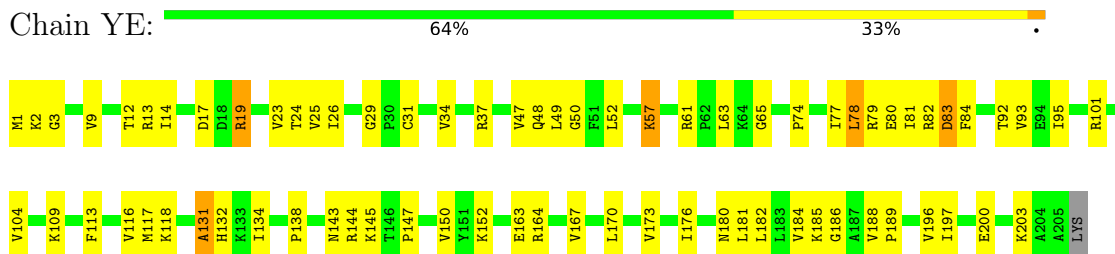
- Molecule 26: 50S ribosomal protein L2



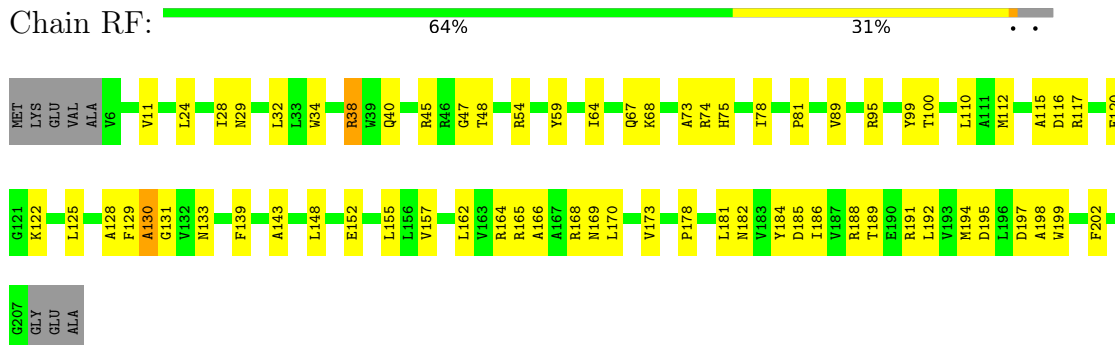
- Molecule 27: 50S ribosomal protein L3



- Molecule 27: 50S ribosomal protein L3

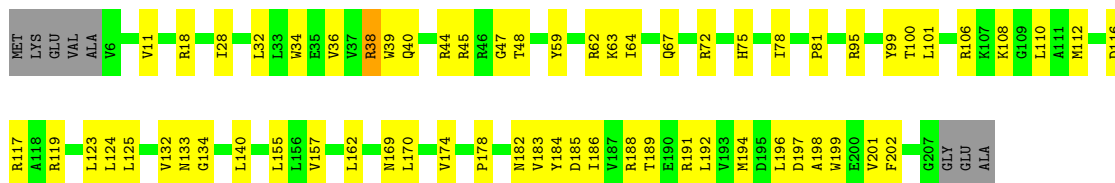


- Molecule 28: 50S ribosomal protein L4

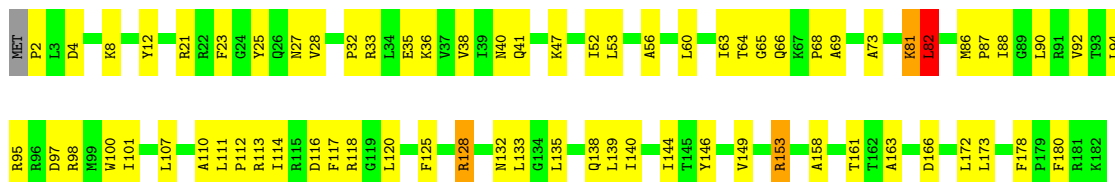


- Molecule 28: 50S ribosomal protein L4

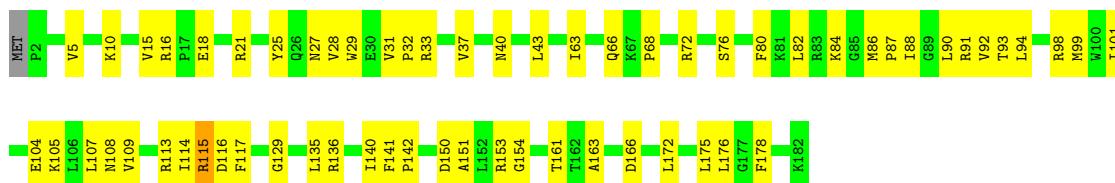




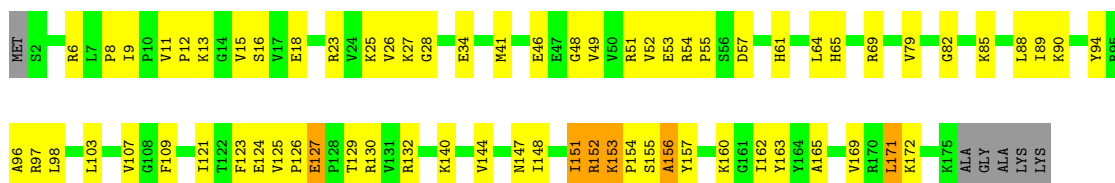
- Molecule 29: 50S ribosomal protein L5



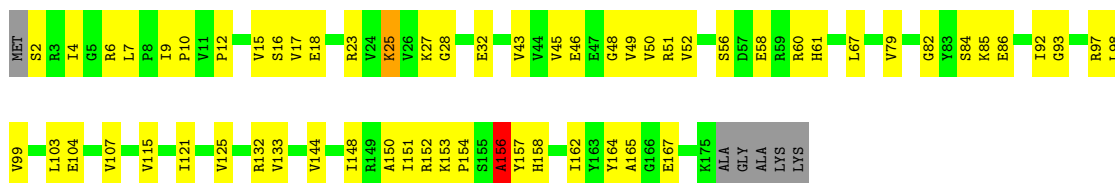
- Molecule 29: 50S ribosomal protein L5



- Molecule 30: 50S ribosomal protein L6

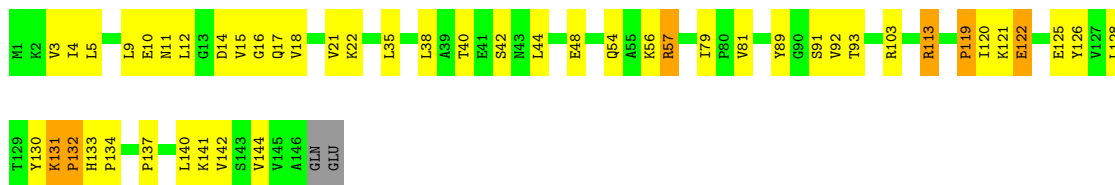


- Molecule 30: 50S ribosomal protein L6



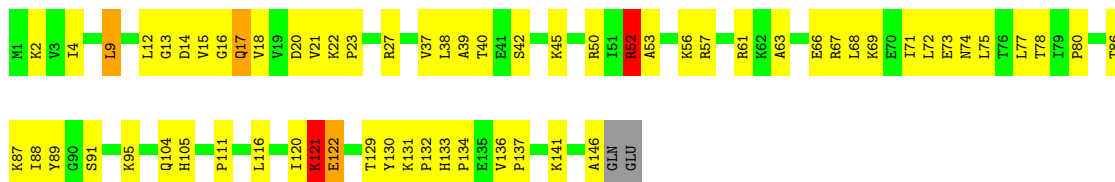
- Molecule 31: 50S ribosomal protein L9





- Molecule 31: 50S ribosomal protein L9

Chain YI: 56% 39%



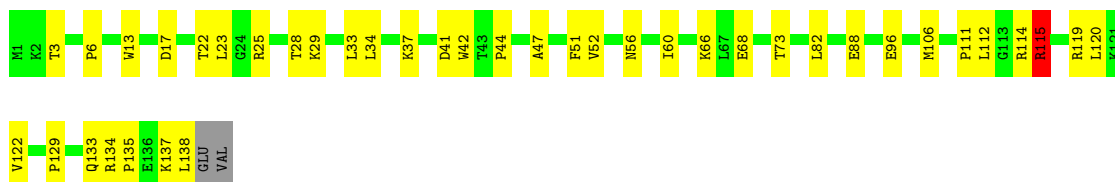
- Molecule 32: 50S ribosomal protein L13

Chain RN: 79% 20%



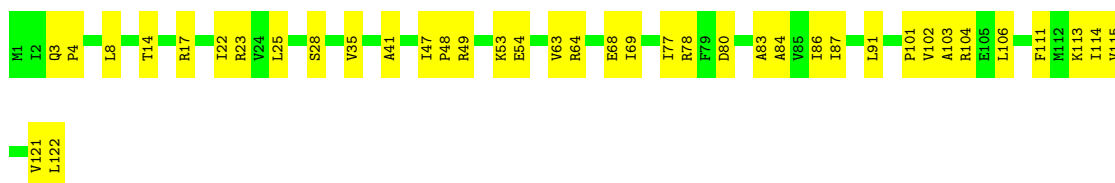
- Molecule 32: 50S ribosomal protein L13

Chain YN: 70% 28%



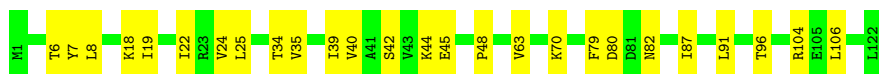
- Molecule 33: 50S ribosomal protein L14

Chain RO: 68% 32%



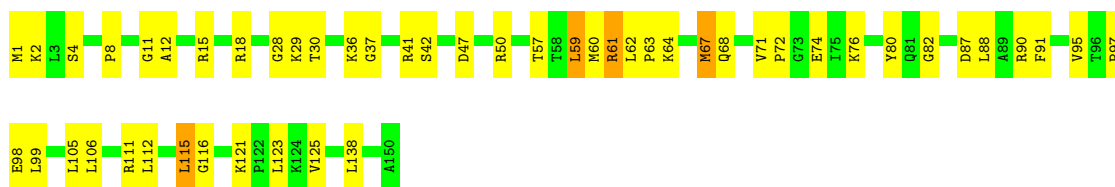
- Molecule 33: 50S ribosomal protein L14

Chain YO: 79% 21%



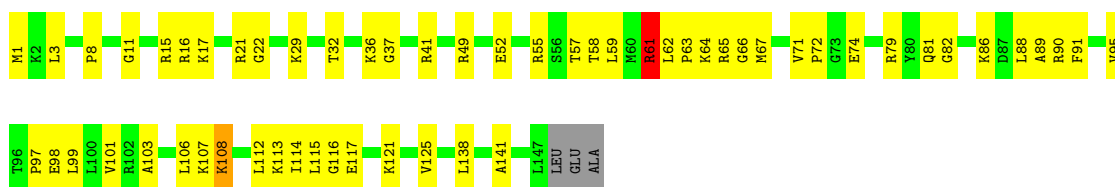
- Molecule 34: 50S ribosomal protein L15

Chain RP:  67% 31%



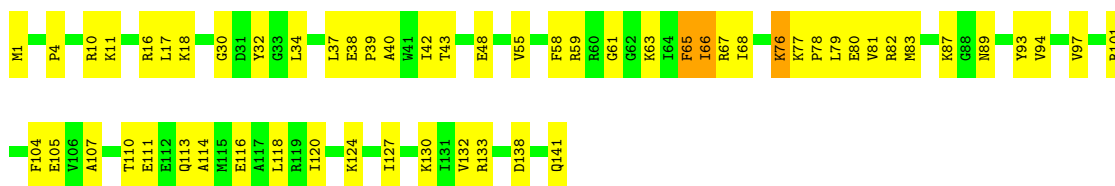
- Molecule 34: 50S ribosomal protein L15

Chain YP:  60% 37%



- Molecule 35: 50S ribosomal protein L16

Chain RQ:  60% 38%



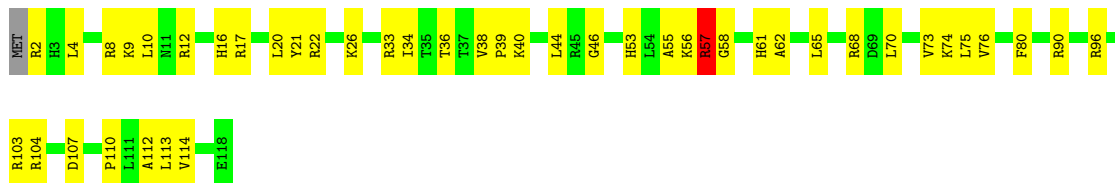
- Molecule 35: 50S ribosomal protein L16

Chain YQ:  70% 30%



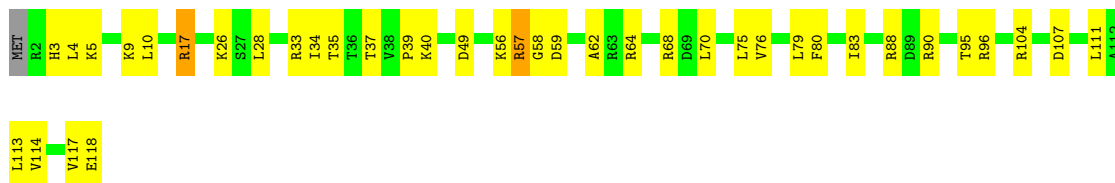
- Molecule 36: 50S ribosomal protein L17

Chain RR:  62% 36%



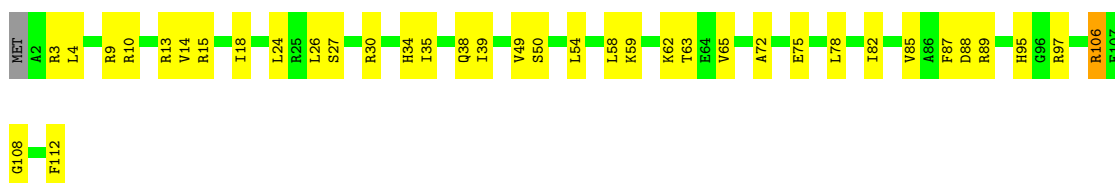
- Molecule 36: 50S ribosomal protein L17

Chain YR:  66% 31% ..



- Molecule 37: 50S ribosomal protein L18

Chain RS:  66% 32% ..



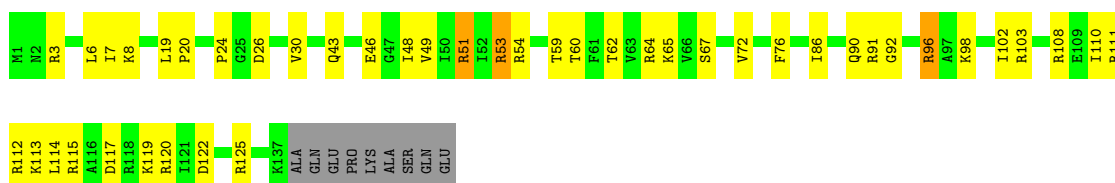
- Molecule 37: 50S ribosomal protein L18

Chain YS:  68% 29% ..



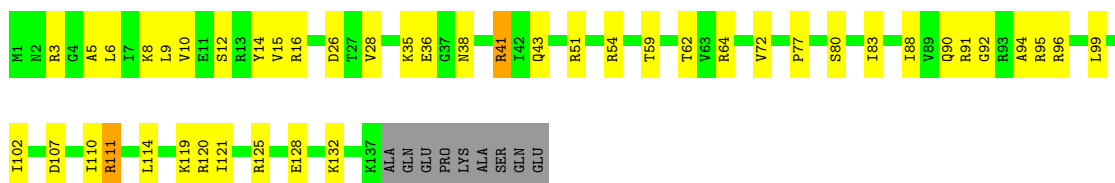
- Molecule 38: 50S ribosomal protein L19

Chain RT:  64% 28% 6% ..

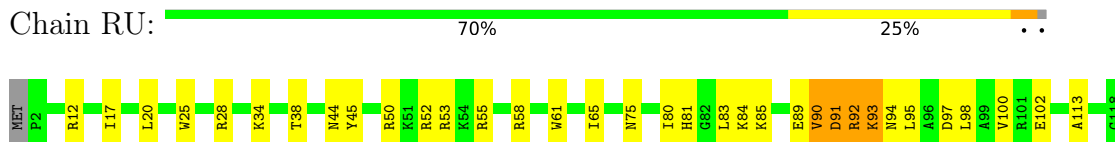


- Molecule 38: 50S ribosomal protein L19

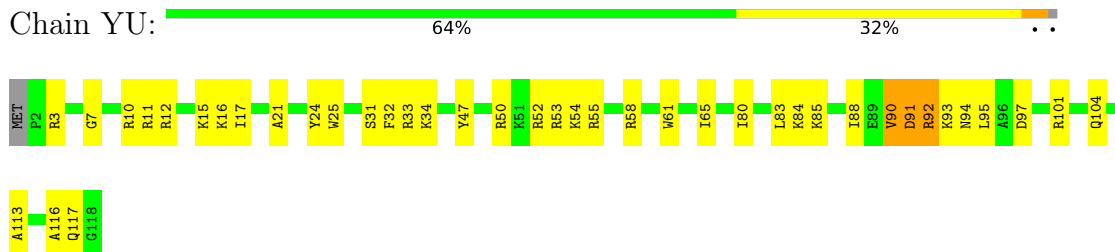
Chain YT:  63% 29% 6% ..



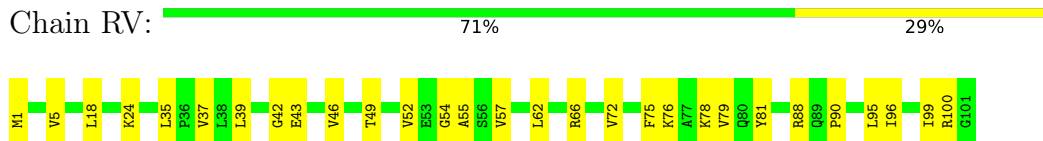
- Molecule 39: 50S ribosomal protein L20



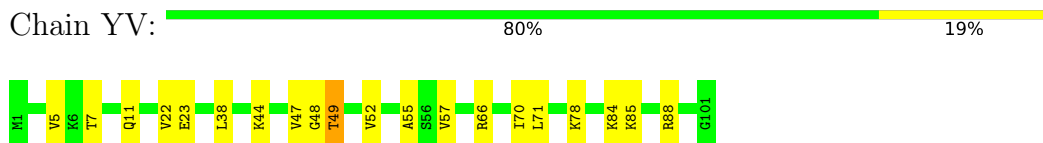
- Molecule 39: 50S ribosomal protein L20



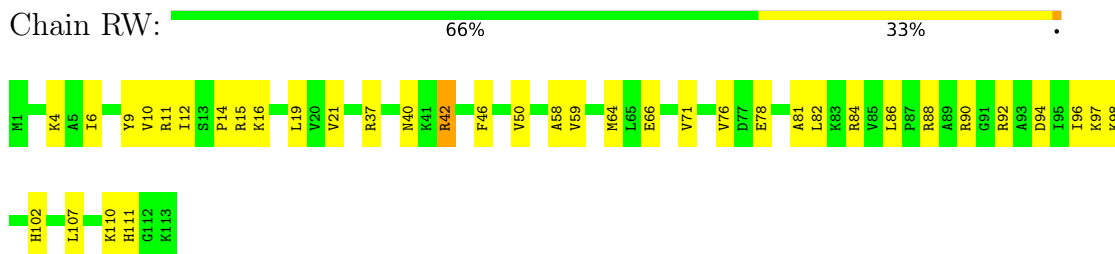
- Molecule 40: 50S ribosomal protein L21



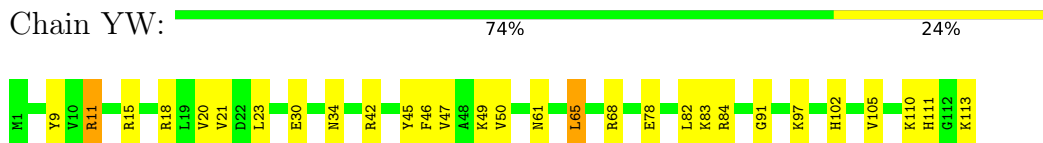
- Molecule 40: 50S ribosomal protein L21



- Molecule 41: 50S ribosomal protein L22



- Molecule 41: 50S ribosomal protein L22

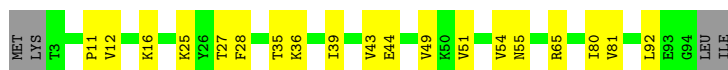
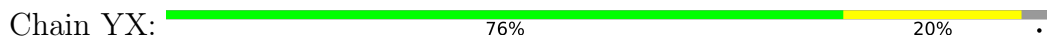


- Molecule 42: 50S ribosomal protein L23

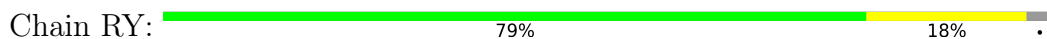




- Molecule 42: 50S ribosomal protein L23



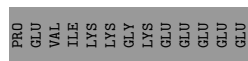
- Molecule 43: 50S ribosomal protein L24



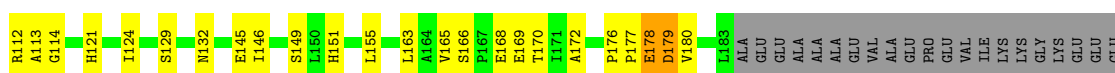
- Molecule 43: 50S ribosomal protein L24



- Molecule 44: 50S ribosomal protein L25

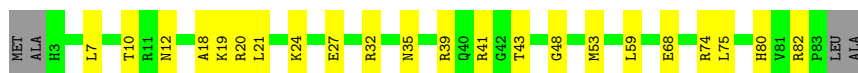


- Molecule 44: 50S ribosomal protein L25



- Molecule 45: 50S ribosomal protein L27

Chain R0:  69% 26% 5%



- Molecule 45: 50S ribosomal protein L27

Chain Y0:  67% 29%



- Molecule 46: 50S ribosomal protein L28

Chain R1:  74% 22%



- Molecule 46: 50S ribosomal protein L28

Chain Y1:  68% 27% 5%



- Molecule 47: 50S ribosomal protein L29

Chain R2:  68% 24%



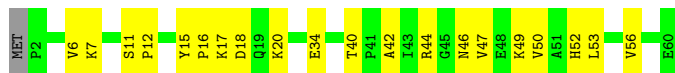
- Molecule 47: 50S ribosomal protein L29

Chain Y2:  65% 31%



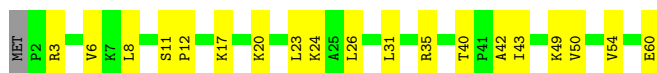
- Molecule 48: 50S ribosomal protein L30

Chain R3:  65% 33%



- Molecule 48: 50S ribosomal protein L30

Chain Y3:  67% 32%



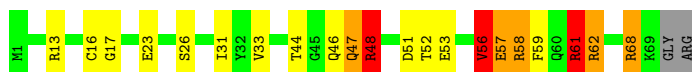
- Molecule 49: 50S ribosomal protein L31

Chain R4:  58% 30% 6% 6%



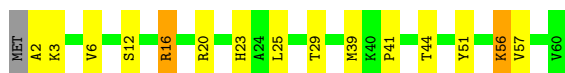
- Molecule 49: 50S ribosomal protein L31

Chain Y4:  68% 18% 7% 7%



- Molecule 50: 50S ribosomal protein L32

Chain R5:  73% 22%



- Molecule 50: 50S ribosomal protein L32

Chain Y5:  73% 25%




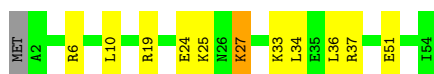
- Molecule 51: 50S ribosomal protein L33

Chain R6:  61% 35%



- Molecule 51: 50S ribosomal protein L33

Chain Y6:  78% 19%



- Molecule 52: 50S ribosomal protein L34

Chain R7:  59% 37%



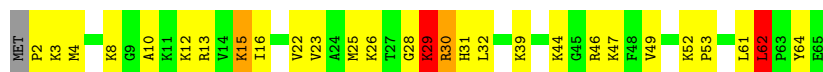
- Molecule 52: 50S ribosomal protein L34

Chain Y7:  69% 29%



- Molecule 53: 50S ribosomal protein L35

Chain R8:  55% 37%




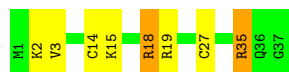
- Molecule 53: 50S ribosomal protein L35

Chain Y8:  63% 34%



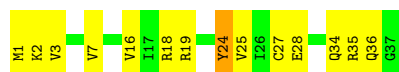
- Molecule 54: 50S ribosomal protein L36

Chain R9:  78% 16% 5%



- Molecule 54: 50S ribosomal protein L36

Chain Y9:  62% 35%



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	210.24Å 449.36Å 618.47Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	121.99 – 3.50	Depositor
% Data completeness (in resolution range)	97.9 (121.99-3.50)	Depositor
R_{merge}	0.17	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.45 (at 3.26Å)	Xtriage
Refinement program	PHENIX 1.12-2829	Depositor
R, R_{free}	0.207 , 0.250	Depositor
Wilson B-factor (Å ²)	86.9	Xtriage
Anisotropy	0.138	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.41$, $\langle L^2 \rangle = 0.23$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	291948	wwPDB-VP
Average B, all atoms (Å ²)	97.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.72% 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: ZN, MG, 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	0.31	0/36097	0.87	27/56339 (0.0%)
1	XA	0.33	0/36100	0.90	26/56344 (0.0%)
2	QB	0.26	0/1942	0.55	2/2619 (0.1%)
2	XB	0.26	0/1950	0.51	0/2630
3	QC	0.26	0/1629	0.52	0/2195
3	XC	0.26	0/1629	0.51	0/2195
4	QD	0.28	0/1733	0.52	0/2318
4	XD	0.33	1/1733 (0.1%)	0.71	2/2318 (0.1%)
5	QE	0.29	0/1171	0.55	1/1576 (0.1%)
5	XE	0.26	0/1171	0.51	0/1576
6	QF	0.25	0/856	0.51	0/1154
6	XF	0.25	0/856	0.50	0/1154
7	QG	0.27	0/1276	0.50	1/1709 (0.1%)
7	XG	0.25	0/1276	0.47	0/1709
8	QH	0.26	0/1128	0.48	0/1517
8	XH	0.26	0/1128	0.49	0/1517
9	QI	0.31	0/1029	0.59	0/1379
9	XI	0.30	0/1017	0.52	0/1365
10	QJ	0.27	0/814	0.54	0/1095
10	XJ	0.26	0/790	0.53	0/1063
11	QK	0.25	0/900	0.50	0/1213
11	XK	0.25	0/879	0.46	0/1187
12	QL	0.27	0/991	0.53	0/1327
12	XL	0.26	0/972	0.54	0/1301
13	QM	0.25	0/965	0.52	0/1292
13	XM	0.27	0/956	0.55	0/1281
14	QN	0.27	0/501	0.54	0/664
14	XN	0.26	0/501	0.54	0/664
15	QO	0.25	0/745	0.48	0/992
15	XO	0.25	0/740	0.47	0/987
16	QP	0.26	0/721	0.47	0/970
16	XP	0.26	0/721	0.51	0/970

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
17	QQ	0.26	0/847	0.48	0/1131
17	XQ	0.25	0/847	0.53	0/1131
18	QR	0.25	0/579	0.49	0/768
18	XR	0.25	0/579	0.51	0/768
19	QS	0.27	0/680	0.64	0/915
19	XS	0.25	0/689	0.56	0/926
20	QT	0.27	0/765	0.57	0/1007
20	XT	0.27	0/765	0.55	0/1007
21	QU	0.23	0/221	0.49	0/288
21	XU	0.38	0/221	0.56	1/288 (0.3%)
22	QV	0.40	1/1836 (0.1%)	0.91	0/2859
22	XV	0.41	1/1836 (0.1%)	0.89	1/2859 (0.0%)
23	QX	0.23	0/293	0.69	0/455
23	XX	0.24	0/268	0.68	0/416
24	RA	0.38	0/69521	0.92	54/108529 (0.0%)
24	YA	0.41	0/69543	0.96	70/108563 (0.1%)
25	RB	0.32	0/2878	0.91	3/4490 (0.1%)
25	YB	0.36	0/2878	0.97	6/4490 (0.1%)
26	RD	0.29	0/2165	0.54	0/2919
26	YD	0.28	0/2165	0.52	0/2919
27	RE	0.28	0/1601	0.59	0/2160
27	YE	0.34	1/1601 (0.1%)	0.60	1/2160 (0.0%)
28	RF	0.29	0/1620	0.50	0/2194
28	YF	0.28	0/1620	0.51	0/2194
29	RG	0.28	0/1499	0.65	1/2016 (0.0%)
29	YG	0.26	0/1499	0.53	0/2016
30	RH	0.27	0/1362	0.58	1/1841 (0.1%)
30	YH	0.29	0/1362	0.55	0/1841
31	RI	0.28	0/1151	0.64	0/1558
31	YI	0.31	0/1151	0.68	2/1558 (0.1%)
32	RN	0.27	0/1131	0.52	0/1525
32	YN	0.27	0/1131	0.53	0/1525
33	RO	0.27	0/943	0.49	0/1269
33	YO	0.26	0/943	0.52	0/1269
34	RP	0.52	1/1162 (0.1%)	0.68	2/1544 (0.1%)
34	YP	0.29	0/1139	0.67	4/1514 (0.3%)
35	RQ	0.28	0/1143	0.59	1/1527 (0.1%)
35	YQ	0.27	0/1143	0.54	0/1527
36	RR	0.28	0/974	0.52	0/1302
36	YR	0.29	0/974	0.56	0/1302
37	RS	0.28	0/892	0.54	0/1187
37	YS	0.28	0/892	0.53	0/1187
38	RT	0.27	0/1155	0.51	0/1542

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
38	YT	0.28	0/1155	0.56	0/1542
39	RU	0.28	0/982	0.52	0/1306
39	YU	0.28	0/982	0.50	0/1306
40	RV	0.27	0/790	0.55	0/1057
40	YV	0.29	0/790	0.60	0/1057
41	RW	0.27	0/911	0.50	0/1220
41	YW	0.26	0/911	0.56	1/1220 (0.1%)
42	RX	0.27	0/739	0.47	0/993
42	YX	0.28	0/739	0.51	0/993
43	RY	0.27	0/831	0.48	0/1108
43	YY	0.29	0/831	0.57	2/1108 (0.2%)
44	RZ	0.28	0/1493	0.65	1/2026 (0.0%)
44	YZ	0.27	0/1493	0.61	1/2026 (0.0%)
45	R0	0.27	0/652	0.47	0/867
45	Y0	0.31	0/657	0.51	0/874
46	R1	0.29	0/761	0.53	0/1008
46	Y1	0.27	0/736	0.52	0/978
47	R2	0.27	0/583	0.51	0/771
47	Y2	0.26	0/583	0.48	0/771
48	R3	0.25	0/474	0.46	0/635
48	Y3	0.25	0/474	0.47	0/635
49	R4	0.28	0/578	0.60	0/776
49	Y4	0.27	0/578	0.60	0/776
50	R5	0.25	0/473	0.45	0/639
50	Y5	0.37	0/473	0.52	0/639
51	R6	0.23	0/460	0.47	0/613
51	Y6	0.43	1/460 (0.2%)	0.63	1/613 (0.2%)
52	R7	0.24	0/417	0.51	0/550
52	Y7	0.25	0/426	0.45	0/561
53	R8	0.30	0/525	0.65	1/691 (0.1%)
53	Y8	0.29	0/525	0.62	0/691
54	R9	0.24	0/310	0.48	0/407
54	Y9	0.26	0/310	0.50	0/407
All	All	0.35	6/315683 (0.0%)	0.84	213/471970 (0.0%)

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
2	XB	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
3	QC	0	1
4	QD	0	1
5	QE	0	2
5	XE	0	2
7	QG	0	1
7	XG	0	1
9	QI	0	1
12	QL	0	2
12	XL	0	2
13	QM	0	1
18	QR	0	1
18	XR	0	1
19	QS	0	5
20	QT	0	3
20	XT	0	3
26	YD	0	2
27	RE	0	3
27	YE	0	2
29	RG	0	4
29	YG	0	1
30	RH	0	7
30	YH	0	9
31	RI	0	7
31	YI	0	4
32	RN	0	2
32	YN	0	2
33	YO	0	1
34	RP	0	1
34	YP	0	2
35	RQ	0	3
35	YQ	0	2
36	RR	0	1
38	RT	0	1
38	YT	0	2
39	RU	0	1
39	YU	0	1
40	RV	0	2
40	YV	0	2
44	RZ	0	5
44	YZ	0	4
46	R1	0	1
46	Y1	0	1

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Mol	Chain	#Chirality outliers	#Planarity outliers
47	R2	0	2
47	Y2	0	1
49	R4	0	4
49	Y4	0	3
53	R8	0	3
53	Y8	0	1
54	Y9	0	1
All	All	0	116

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
34	RP	68	GLN	CG-CD	-11.33	1.25	1.51
22	XV	1	C	OP3-P	-10.64	1.48	1.61
22	QV	1	C	OP3-P	-10.59	1.48	1.61
27	YE	109	LYS	C-N	6.64	1.45	1.33
51	Y6	27	LYS	CD-CE	6.39	1.67	1.51

The worst 5 of 213 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	XD	159	ARG	NE-CZ-NH2	-18.27	111.16	120.30
4	XD	159	ARG	NE-CZ-NH1	14.35	127.48	120.30
29	RG	21	ARG	NE-CZ-NH2	10.54	125.57	120.30
1	XA	792	A	O4'-C1'-N9	8.90	115.32	108.20
1	XA	1158	C	C2-N1-C1'	8.42	128.06	118.80

There are no chirality outliers.

5 of 116 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	QC	143	GLU	Peptide
4	QD	33	MET	Peptide
5	QE	10	MET	Peptide
5	QE	25	ARG	Peptide
7	QG	155	ARG	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	32246	0	16278	582	0
1	XA	32248	0	16279	542	2
2	QB	1907	0	1958	59	0
2	XB	1915	0	1969	56	0
3	QC	1605	0	1668	59	0
3	XC	1605	0	1668	47	0
4	QD	1703	0	1766	63	0
4	XD	1703	0	1767	50	1
5	QE	1155	0	1213	25	0
5	XE	1155	0	1213	22	0
6	QF	843	0	857	15	0
6	XF	843	0	857	28	0
7	QG	1257	0	1296	23	0
7	XG	1257	0	1296	27	0
8	QH	1108	0	1165	44	0
8	XH	1108	0	1165	37	0
9	QI	1010	0	1037	57	0
9	XI	998	0	1024	32	0
10	QJ	801	0	849	42	0
10	XJ	777	0	816	38	0
11	QK	885	0	904	26	0
11	XK	864	0	881	28	0
12	QL	975	0	1062	33	0
12	XL	956	0	1046	25	0
13	QM	955	0	1021	43	0
13	XM	946	0	1007	36	0
14	QN	492	0	529	27	0
14	XN	492	0	529	16	0
15	QO	734	0	771	18	0
15	XO	729	0	768	12	0
16	QP	705	0	725	12	0
16	XP	705	0	725	25	0
17	QQ	834	0	904	21	0
17	XQ	834	0	904	25	0
18	QR	574	0	644	16	0
18	XR	574	0	644	19	0
19	QS	665	0	686	40	0
19	XS	674	0	699	24	0
20	QT	763	0	861	23	0
20	XT	763	0	861	25	0
21	QU	217	0	234	7	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
21	XU	217	0	234	6	0
22	QV	1644	0	836	23	0
22	XV	1644	0	836	15	0
23	QX	261	0	130	2	0
23	XX	239	0	119	3	0
24	RA	62071	0	31291	862	2
24	YA	62091	0	31301	958	0
25	RB	2573	0	1306	44	0
25	YB	2573	0	1306	45	0
26	RD	2115	0	2195	56	0
26	YD	2115	0	2195	75	0
27	RE	1568	0	1634	52	0
27	YE	1568	0	1634	65	0
28	RF	1585	0	1632	54	0
28	YF	1585	0	1632	44	0
29	RG	1474	0	1535	58	0
29	YG	1474	0	1535	51	0
30	RH	1336	0	1418	41	0
30	YH	1336	0	1418	38	0
31	RI	1136	0	1223	26	2
31	YI	1136	0	1223	43	0
32	RN	1104	0	1180	17	0
32	YN	1104	0	1180	30	0
33	RO	933	0	996	26	0
33	YO	933	0	996	17	0
34	RP	1145	0	1228	43	0
34	YP	1122	0	1206	56	0
35	RQ	1122	0	1179	51	0
35	YQ	1122	0	1179	32	0
36	RR	960	0	1021	38	0
36	YR	960	0	1021	29	0
37	RS	882	0	943	31	0
37	YS	882	0	943	32	0
38	RT	1141	0	1202	37	0
38	YT	1141	0	1202	41	0
39	RU	964	0	1022	33	0
39	YU	964	0	1022	39	0
40	RV	779	0	852	24	0
40	YV	779	0	852	17	1
41	RW	900	0	964	26	0
41	YW	900	0	964	21	0
42	RX	725	0	778	23	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
42	YX	725	0	778	14	0
43	RY	818	0	911	12	0
43	YY	818	0	912	26	0
44	RZ	1461	0	1493	55	0
44	YZ	1461	0	1493	46	0
45	R0	643	0	667	18	0
45	Y0	648	0	672	23	0
46	R1	755	0	836	16	0
46	Y1	729	0	802	20	0
47	R2	581	0	629	13	0
47	Y2	581	0	629	12	1
48	R3	469	0	518	13	0
48	Y3	469	0	518	14	0
49	R4	565	0	560	31	0
49	Y4	565	0	559	20	0
50	R5	459	0	476	17	0
50	Y5	459	0	478	11	1
51	R6	453	0	475	16	0
51	Y6	453	0	474	11	0
52	R7	409	0	454	14	0
52	Y7	418	0	467	10	0
53	R8	517	0	582	25	0
53	Y8	517	0	582	24	0
54	R9	307	0	336	6	0
54	Y9	307	0	335	13	0
55	QA	180	0	0	0	0
55	QC	1	0	0	0	0
55	QF	1	0	0	0	0
55	QH	1	0	0	0	0
55	QL	1	0	0	0	0
55	QV	6	0	0	0	0
55	QX	2	0	0	0	0
55	R0	2	0	0	0	0
55	R1	2	0	0	0	0
55	R5	1	0	0	0	0
55	RA	493	0	0	0	0
55	RB	10	0	0	0	0
55	RD	1	0	0	0	0
55	RE	4	0	0	0	0
55	RF	1	0	0	0	0
55	RI	1	0	0	0	0
55	RN	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
55	RO	1	0	0	0	0
55	RP	3	0	0	0	0
55	RQ	2	0	0	0	0
55	RT	1	0	0	0	0
55	RU	1	0	0	0	0
55	RW	1	0	0	0	0
55	RX	1	0	0	0	0
55	RY	1	0	0	0	0
55	XA	171	0	0	0	0
55	XE	2	0	0	0	0
55	XL	1	0	0	0	0
55	XM	1	0	0	0	0
55	XQ	1	0	0	0	0
55	XS	1	0	0	0	0
55	XV	8	0	0	0	0
55	Y0	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	515	0	0	0	0
55	YB	10	0	0	0	0
55	YD	2	0	0	0	0
55	YE	4	0	0	0	0
55	YO	1	0	0	0	0
55	YP	3	0	0	0	0
55	YQ	3	0	0	0	0
55	YU	1	0	0	0	0
55	YX	2	0	0	0	0
55	YY	1	0	0	0	0
56	QD	8	0	0	1	0
56	XD	8	0	0	2	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

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
57	YY	1	0	0	0	0
All	All	291948	0	197745	5207	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 11.

The worst 5 of 5207 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:2285:C:OP2	51:R6:6:ARG:NH2	1.85	1.08
24:RA:2068:U:H3	24:RA:2430:A:H2	1.11	0.99
24:RA:676:A:H8	24:RA:2069:G:H21	1.04	0.98
10:QJ:4:ILE:HG22	10:QJ:74:ILE:HG12	1.46	0.96
1:XA:686:U:H1'	11:XK:42:TRP:HE1	1.31	0.93

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)
24:RA:2217:G:OP1	4:XD:159:ARG:NH2[4_555]	2.08	0.12
31:RI:89:TYR:O	1:XA:357:G:O2'[4_555]	2.11	0.09
40:YV:49:THR:OG1	50:Y5:60:VAL:O[4_445]	2.12	0.08
24:RA:310:A:OP2	47:Y2:71:ASN:ND2[3_555]	2.14	0.06
31:RI:91:SER:OG	1:XA:368:U:OP1[4_555]	2.17	0.03

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%)	197 (84%)	35 (15%)	1 (0%)	34 72
2	XB	234/256 (91%)	203 (87%)	31 (13%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
3	QC	203/239 (85%)	186 (92%)	16 (8%)	1 (0%)	29	68
3	XC	203/239 (85%)	188 (93%)	14 (7%)	1 (0%)	29	68
4	QD	206/209 (99%)	189 (92%)	16 (8%)	1 (0%)	29	68
4	XD	206/209 (99%)	196 (95%)	8 (4%)	2 (1%)	15	54
5	QE	149/162 (92%)	139 (93%)	10 (7%)	0	100	100
5	XE	149/162 (92%)	144 (97%)	4 (3%)	1 (1%)	22	61
6	QF	99/101 (98%)	96 (97%)	3 (3%)	0	100	100
6	XF	99/101 (98%)	99 (100%)	0	0	100	100
7	QG	153/156 (98%)	143 (94%)	10 (6%)	0	100	100
7	XG	153/156 (98%)	144 (94%)	9 (6%)	0	100	100
8	QH	135/138 (98%)	128 (95%)	7 (5%)	0	100	100
8	XH	135/138 (98%)	129 (96%)	6 (4%)	0	100	100
9	QI	125/128 (98%)	110 (88%)	15 (12%)	0	100	100
9	XI	124/128 (97%)	114 (92%)	10 (8%)	0	100	100
10	QJ	97/105 (92%)	90 (93%)	6 (6%)	1 (1%)	15	54
10	XJ	94/105 (90%)	86 (92%)	8 (8%)	0	100	100
11	QK	117/129 (91%)	109 (93%)	8 (7%)	0	100	100
11	XK	114/129 (88%)	108 (95%)	6 (5%)	0	100	100
12	QL	123/132 (93%)	109 (89%)	12 (10%)	2 (2%)	9	43
12	XL	120/132 (91%)	104 (87%)	14 (12%)	2 (2%)	9	42
13	QM	118/126 (94%)	102 (86%)	14 (12%)	2 (2%)	9	42
13	XM	117/126 (93%)	104 (89%)	12 (10%)	1 (1%)	17	56
14	QN	58/61 (95%)	49 (84%)	8 (14%)	1 (2%)	9	42
14	XN	58/61 (95%)	50 (86%)	7 (12%)	1 (2%)	9	42
15	QO	86/89 (97%)	79 (92%)	7 (8%)	0	100	100
15	XO	85/89 (96%)	81 (95%)	4 (5%)	0	100	100
16	QP	82/88 (93%)	78 (95%)	4 (5%)	0	100	100
16	XP	82/88 (93%)	78 (95%)	4 (5%)	0	100	100
17	QQ	98/105 (93%)	94 (96%)	4 (4%)	0	100	100
17	XQ	98/105 (93%)	93 (95%)	5 (5%)	0	100	100
18	QR	68/88 (77%)	67 (98%)	1 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
18	XR	68/88 (77%)	65 (96%)	3 (4%)	0	100	100
19	QS	81/93 (87%)	66 (82%)	14 (17%)	1 (1%)	13	50
19	XS	82/93 (88%)	69 (84%)	13 (16%)	0	100	100
20	QT	97/106 (92%)	83 (86%)	11 (11%)	3 (3%)	4	30
20	XT	97/106 (92%)	86 (89%)	9 (9%)	2 (2%)	7	38
21	QU	23/27 (85%)	21 (91%)	2 (9%)	0	100	100
21	XU	23/27 (85%)	21 (91%)	2 (9%)	0	100	100
26	RD	270/276 (98%)	251 (93%)	19 (7%)	0	100	100
26	YD	270/276 (98%)	244 (90%)	25 (9%)	1 (0%)	34	72
27	RE	203/206 (98%)	169 (83%)	31 (15%)	3 (2%)	10	45
27	YE	203/206 (98%)	173 (85%)	29 (14%)	1 (0%)	29	68
28	RF	200/210 (95%)	183 (92%)	16 (8%)	1 (0%)	29	68
28	YF	200/210 (95%)	185 (92%)	15 (8%)	0	100	100
29	RG	179/182 (98%)	148 (83%)	30 (17%)	1 (1%)	25	64
29	YG	179/182 (98%)	157 (88%)	22 (12%)	0	100	100
30	RH	172/180 (96%)	151 (88%)	21 (12%)	0	100	100
30	YH	172/180 (96%)	145 (84%)	25 (14%)	2 (1%)	13	50
31	RI	144/148 (97%)	113 (78%)	28 (19%)	3 (2%)	7	38
31	YI	144/148 (97%)	123 (85%)	18 (12%)	3 (2%)	7	38
32	RN	136/140 (97%)	121 (89%)	15 (11%)	0	100	100
32	YN	136/140 (97%)	119 (88%)	17 (12%)	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	148/150 (99%)	123 (83%)	25 (17%)	0	100	100
34	YP	145/150 (97%)	111 (77%)	34 (23%)	0	100	100
35	RQ	139/141 (99%)	115 (83%)	22 (16%)	2 (1%)	11	46
35	YQ	139/141 (99%)	118 (85%)	19 (14%)	2 (1%)	11	46
36	RR	115/118 (98%)	108 (94%)	6 (5%)	1 (1%)	17	56
36	YR	115/118 (98%)	108 (94%)	6 (5%)	1 (1%)	17	56
37	RS	109/112 (97%)	91 (84%)	18 (16%)	0	100	100
37	YS	109/112 (97%)	93 (85%)	16 (15%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
38	RT	135/146 (92%)	120 (89%)	15 (11%)	0	100	100
38	YT	135/146 (92%)	115 (85%)	20 (15%)	0	100	100
39	RU	115/118 (98%)	107 (93%)	4 (4%)	4 (4%)	3	27
39	YU	115/118 (98%)	104 (90%)	8 (7%)	3 (3%)	5	33
40	RV	99/101 (98%)	84 (85%)	15 (15%)	0	100	100
40	YV	99/101 (98%)	89 (90%)	10 (10%)	0	100	100
41	RW	111/113 (98%)	101 (91%)	10 (9%)	0	100	100
41	YW	111/113 (98%)	101 (91%)	10 (9%)	0	100	100
42	RX	90/96 (94%)	85 (94%)	5 (6%)	0	100	100
42	YX	90/96 (94%)	86 (96%)	4 (4%)	0	100	100
43	RY	105/110 (96%)	99 (94%)	6 (6%)	0	100	100
43	YY	105/110 (96%)	103 (98%)	2 (2%)	0	100	100
44	RZ	181/206 (88%)	147 (81%)	30 (17%)	4 (2%)	6	37
44	YZ	181/206 (88%)	145 (80%)	32 (18%)	4 (2%)	6	37
45	R0	79/85 (93%)	75 (95%)	4 (5%)	0	100	100
45	Y0	80/85 (94%)	76 (95%)	4 (5%)	0	100	100
46	R1	92/98 (94%)	79 (86%)	13 (14%)	0	100	100
46	Y1	91/98 (93%)	81 (89%)	10 (11%)	0	100	100
47	R2	67/72 (93%)	60 (90%)	6 (9%)	1 (2%)	10	45
47	Y2	67/72 (93%)	63 (94%)	4 (6%)	0	100	100
48	R3	57/60 (95%)	56 (98%)	1 (2%)	0	100	100
48	Y3	57/60 (95%)	55 (96%)	2 (4%)	0	100	100
49	R4	67/71 (94%)	51 (76%)	11 (16%)	5 (8%)	1	11
49	Y4	67/71 (94%)	51 (76%)	12 (18%)	4 (6%)	1	15
50	R5	57/60 (95%)	52 (91%)	5 (9%)	0	100	100
50	Y5	57/60 (95%)	53 (93%)	4 (7%)	0	100	100
51	R6	51/54 (94%)	49 (96%)	2 (4%)	0	100	100
51	Y6	51/54 (94%)	46 (90%)	5 (10%)	0	100	100
52	R7	45/49 (92%)	45 (100%)	0	0	100	100
52	Y7	46/49 (94%)	46 (100%)	0	0	100	100
53	R8	62/65 (95%)	51 (82%)	9 (14%)	2 (3%)	4	29

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
53	Y8	62/65 (95%)	48 (77%)	14 (23%)	0	100	100
54	R9	35/37 (95%)	34 (97%)	1 (3%)	0	100	100
54	Y9	35/37 (95%)	34 (97%)	1 (3%)	0	100	100
All	All	11456/12128 (94%)	10265 (90%)	1120 (10%)	71 (1%)	25	64

5 of 71 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	QC	12	LEU
20	QT	74	LYS
39	RU	91	ASP
39	RU	92	ARG
44	RZ	53	ILE

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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%)	200 (98%)	3 (2%)	65	84
2	XB	204/220 (93%)	199 (98%)	5 (2%)	47	75
3	QC	159/188 (85%)	158 (99%)	1 (1%)	86	94
3	XC	159/188 (85%)	158 (99%)	1 (1%)	86	94
4	QD	180/181 (99%)	178 (99%)	2 (1%)	73	88
4	XD	180/181 (99%)	173 (96%)	7 (4%)	32	64
5	QE	116/123 (94%)	113 (97%)	3 (3%)	46	74
5	XE	116/123 (94%)	115 (99%)	1 (1%)	78	90
6	QF	90/90 (100%)	88 (98%)	2 (2%)	52	78
6	XF	90/90 (100%)	87 (97%)	3 (3%)	38	68
7	QG	126/127 (99%)	124 (98%)	2 (2%)	62	83
7	XG	126/127 (99%)	122 (97%)	4 (3%)	39	69
8	QH	118/119 (99%)	116 (98%)	2 (2%)	60	82

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
8	XH	118/119 (99%)	117 (99%)	1 (1%)	81	91
9	QI	98/99 (99%)	94 (96%)	4 (4%)	30	63
9	XI	97/99 (98%)	94 (97%)	3 (3%)	40	70
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%)	88 (98%)	2 (2%)	52	78
11	XK	88/99 (89%)	88 (100%)	0	100	100
12	QL	104/109 (95%)	98 (94%)	6 (6%)	20	53
12	XL	103/109 (94%)	101 (98%)	2 (2%)	57	80
13	QM	96/101 (95%)	95 (99%)	1 (1%)	76	88
13	XM	95/101 (94%)	95 (100%)	0	100	100
14	QN	49/50 (98%)	49 (100%)	0	100	100
14	XN	49/50 (98%)	45 (92%)	4 (8%)	11	40
15	QO	79/80 (99%)	79 (100%)	0	100	100
15	XO	79/80 (99%)	78 (99%)	1 (1%)	69	86
16	QP	72/74 (97%)	71 (99%)	1 (1%)	67	85
16	XP	72/74 (97%)	70 (97%)	2 (3%)	43	72
17	QQ	95/97 (98%)	93 (98%)	2 (2%)	53	79
17	XQ	95/97 (98%)	93 (98%)	2 (2%)	53	79
18	QR	61/77 (79%)	61 (100%)	0	100	100
18	XR	61/77 (79%)	60 (98%)	1 (2%)	62	83
19	QS	72/80 (90%)	70 (97%)	2 (3%)	43	72
19	XS	73/80 (91%)	72 (99%)	1 (1%)	67	85
20	QT	76/82 (93%)	75 (99%)	1 (1%)	69	86
20	XT	76/82 (93%)	76 (100%)	0	100	100
21	QU	20/22 (91%)	19 (95%)	1 (5%)	24	58
21	XU	20/22 (91%)	20 (100%)	0	100	100
26	RD	214/218 (98%)	214 (100%)	0	100	100
26	YD	214/218 (98%)	212 (99%)	2 (1%)	78	90
27	RE	165/166 (99%)	163 (99%)	2 (1%)	71	87
27	YE	165/166 (99%)	163 (99%)	2 (1%)	71	87

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
28	RF	161/166 (97%)	160 (99%)	1 (1%)	86	94
28	YF	161/166 (97%)	158 (98%)	3 (2%)	57	80
29	RG	155/156 (99%)	153 (99%)	2 (1%)	69	86
29	YG	155/156 (99%)	153 (99%)	2 (1%)	69	86
30	RH	145/148 (98%)	142 (98%)	3 (2%)	53	79
30	YH	145/148 (98%)	143 (99%)	2 (1%)	67	85
31	RI	122/124 (98%)	118 (97%)	4 (3%)	38	68
31	YI	122/124 (98%)	120 (98%)	2 (2%)	62	83
32	RN	117/119 (98%)	117 (100%)	0	100	100
32	YN	117/119 (98%)	116 (99%)	1 (1%)	78	90
33	RO	100/100 (100%)	99 (99%)	1 (1%)	76	88
33	YO	100/100 (100%)	100 (100%)	0	100	100
34	RP	116/116 (100%)	114 (98%)	2 (2%)	60	82
34	YP	114/116 (98%)	111 (97%)	3 (3%)	46	74
35	RQ	111/111 (100%)	110 (99%)	1 (1%)	78	90
35	YQ	111/111 (100%)	109 (98%)	2 (2%)	59	81
36	RR	100/101 (99%)	99 (99%)	1 (1%)	76	88
36	YR	100/101 (99%)	97 (97%)	3 (3%)	41	71
37	RS	87/88 (99%)	86 (99%)	1 (1%)	73	88
37	YS	87/88 (99%)	85 (98%)	2 (2%)	50	77
38	RT	120/127 (94%)	116 (97%)	4 (3%)	38	68
38	YT	120/127 (94%)	119 (99%)	1 (1%)	81	91
39	RU	93/94 (99%)	91 (98%)	2 (2%)	52	78
39	YU	93/94 (99%)	93 (100%)	0	100	100
40	RV	82/82 (100%)	82 (100%)	0	100	100
40	YV	82/82 (100%)	82 (100%)	0	100	100
41	RW	92/92 (100%)	89 (97%)	3 (3%)	38	68
41	YW	92/92 (100%)	90 (98%)	2 (2%)	52	78
42	RX	74/78 (95%)	73 (99%)	1 (1%)	67	85
42	YX	74/78 (95%)	73 (99%)	1 (1%)	67	85
43	RY	88/91 (97%)	86 (98%)	2 (2%)	50	77

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
43	YY	88/91 (97%)	88 (100%)	0	100	100
44	RZ	162/179 (90%)	159 (98%)	3 (2%)	57	80
44	YZ	162/179 (90%)	160 (99%)	2 (1%)	71	87
45	R0	65/67 (97%)	64 (98%)	1 (2%)	65	84
45	Y0	65/67 (97%)	63 (97%)	2 (3%)	40	70
46	R1	81/83 (98%)	79 (98%)	2 (2%)	47	75
46	Y1	78/83 (94%)	78 (100%)	0	100	100
47	R2	64/67 (96%)	60 (94%)	4 (6%)	18	51
47	Y2	64/67 (96%)	64 (100%)	0	100	100
48	R3	51/52 (98%)	51 (100%)	0	100	100
48	Y3	51/52 (98%)	51 (100%)	0	100	100
49	R4	62/63 (98%)	59 (95%)	3 (5%)	25	60
49	Y4	62/63 (98%)	58 (94%)	4 (6%)	17	50
50	R5	51/52 (98%)	48 (94%)	3 (6%)	19	53
50	Y5	51/52 (98%)	50 (98%)	1 (2%)	55	79
51	R6	51/52 (98%)	50 (98%)	1 (2%)	55	79
51	Y6	51/52 (98%)	49 (96%)	2 (4%)	32	64
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%)	52 (96%)	2 (4%)	34	65
53	Y8	54/55 (98%)	53 (98%)	1 (2%)	57	80
54	R9	34/34 (100%)	32 (94%)	2 (6%)	19	53
54	Y9	34/34 (100%)	33 (97%)	1 (3%)	42	71
All	All	9690/10066 (96%)	9524 (98%)	166 (2%)	60	82

5 of 166 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
14	XN	15	LYS
35	YQ	133	ARG
16	XP	35	LYS
28	YF	44	ARG
41	YW	11	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 21 such sidechains are listed below:

Mol	Chain	Res	Type
7	XG	68	ASN
20	XT	90	GLN
45	Y0	3	HIS
31	YI	28	ASN
9	XI	38	GLN

5.3.3 RNA [i](#)

Mol	Chain	Analysed	Backbone Outliers	Pucker Outliers
1	QA	1498/1508 (99%)	263 (17%)	30 (2%)
1	XA	1498/1508 (99%)	286 (19%)	27 (1%)
22	QV	76/77 (98%)	18 (23%)	2 (2%)
22	XV	76/77 (98%)	16 (21%)	3 (3%)
23	QX	11/25 (44%)	7 (63%)	0
23	XX	10/25 (40%)	6 (60%)	0
24	RA	2879/2915 (98%)	577 (20%)	33 (1%)
24	YA	2880/2915 (98%)	570 (19%)	36 (1%)
25	RB	119/122 (97%)	24 (20%)	1 (0%)
25	YB	119/122 (97%)	23 (19%)	1 (0%)
All	All	9166/9294 (98%)	1790 (19%)	133 (1%)

5 of 1790 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	48	C

5 of 133 RNA pucker outliers are listed below:

Mol	Chain	Res	Type
24	YA	1178	C
24	YA	1460	A
24	YA	2832	U
24	RA	1085	A
24	RA	1026	U

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

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 1464 ligands modelled in this entry, 1462 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	-	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	-	-	-	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.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
56	QD	301	SF4	1	0
56	XD	301	SF4	2	0

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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

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

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

6.3 Carbohydrates [i](#)

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

6.4 Ligands [i](#)

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

6.5 Other polymers [i](#)

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