

# A comparison of codon usage among four different species

Zhang, S., Zubay, G. and Goldman, E., *Gene* **105**, 61-72 (1991).

A. ECO: total codons: 323059, total proteins: 968

	U	C	A	G	
U	6089 (Phe)	3382 (Ser)	4875 (Tyr)	1552 (Cys)	U
	5838 (Phe)	3048 (Ser)	4295 (Tyr)	1961 (Cys)	C
	3397 (Leu)	2105 (Ser)	644 (STP)	259 (STP)	A
	3659 (Leu)	2549 (Ser)	65 (STP)	4169 (Trp)	G
C	3204 (Leu)	2123 (Pro)	3666 (His)	7981 (Arg)	U
	3135 (Leu)	1354 (Pro)	3471 (His)	6946 (Arg)	C
	960 (Leu)	2623 (Pro)	4223 (Gln)	989 (Arg)	A
	17477 (Leu)	7724 (Pro)	9589 (Gln)	1491 (Arg)	G
A	8809 (Ile)	3499 (Thr)	5265 (Asn)	2380 (Ser)	U
	8712 (Ile)	7873 (Thr)	7868 (Asn)	4831 (Ser)	C
	1273 (Ile)	2108 (Thr)	12104 (Lys)	692 (Arg)	A
	8507 (Met)	4050 (Thr)	3857 (Lys)	428 (Arg)	G
G	6716 (Val)	5770 (Ala)	10382 (Asp)	9202 (Gly)	U
	4552 (Val)	7490 (Ala)	7116 (Asp)	9824 (Gly)	C
	3896 (Val)	6760 (Ala)	14134 (Glu)	2246 (Gly)	A
	7972 (Val)	10641 (Ala)	6149 (Glu)	3110 (Gly)	G

B. YSC: total codons: 241099, total proteins: 484

	U	C	A	G	
U	5559 (Phe)	5954 (Ser)	3962 (Tyr)	1842 (Cys)	U
	4813 (Phe)	3535 (Ser)	3998 (Tyr)	900 (Cys)	C
	5867 (Leu)	3722 (Ser)	256 (STP)	136 (STP)	A
	7776 (Leu)	1555 (Ser)	92 (STP)	2490 (Trp)	G
C	2297 (Leu)	3083 (Pro)	2977 (His)	1801 (Arg)	U
	981 (Leu)	1388 (Pro)	2017 (His)	467 (Arg)	C
	2840 (Leu)	5162 (Pro)	7098 (Gln)	531 (Arg)	A
	2003 (Leu)	988 (Pro)	2500 (Gln)	255 (Arg)	G
A	7454 (Ile)	5281 (Thr)	7567 (Asn)	2802 (Ser)	U
	4494 (Ile)	3425 (Thr)	6235 (Asn)	1732 (Ser)	C
	3054 (Ile)	3703 (Thr)	9104 (Lys)	5791 (Arg)	A
	5180 (Met)	1587 (Thr)	8536 (Lys)	1814 (Arg)	G
G	6486 (Val)	6884 (Ala)	8962 (Asp)	8375 (Gly)	U
	3622 (Val)	3765 (Ala)	5418 (Asp)	2146 (Gly)	C
	2366 (Val)	3666 (Ala)	11836 (Glu)	2137 (Gly)	A
	2280 (Val)	1242 (Ala)	4082 (Glu)	1228 (Gly)	G

C. DRO: total codons: 125527, total proteins: 244

	U	C	A	G	
U	1473 (Phe)	776 (Ser)	1337 (Tyr)	710 (Cys)	U
	2976 (Phe)	2541 (Ser)	2514 (Tyr)	1782 (Cys)	C
	589 (Leu)	772 (Ser)	127 (STP)	50 (STP)	A
	1831 (Leu)	2121 (Ser)	67 (STP)	1258 (Trp)	G
C	924 (Leu)	719 (Pro)	1304 (His)	1267 (Arg)	U
	1600 (Leu)	2393 (Pro)	2135 (His)	2217 (Arg)	C
	813 (Leu)	1542 (Pro)	1680 (Gln)	873 (Arg)	A
	4606 (Leu)	1992 (Pro)	4670 (Gln)	908 (Arg)	G
A	2001 (Ile)	1086 (Thr)	2608 (Asn)	1215 (Ser)	U
	3237 (Ile)	2939 (Thr)	3318 (Asn)	2369 (Ser)	C
	882 (Ile)	1207 (Thr)	1902 (Lys)	629 (Arg)	A
	2997 (Met)	1704 (Thr)	5323 (Lys)	777 (Arg)	G
G	1371 (Val)	1900 (Ala)	3386 (Asp)	1983 (Gly)	U
	1956 (Val)	4797 (Ala)	3199 (Asp)	3824 (Gly)	C
	665 (Val)	1436 (Ala)	2308 (Glu)	2451 (Gly)	A
	3424 (Val)	1714 (Ala)	5773 (Glu)	599 (Gly)	G

D. PRI: total codons: 608694, total proteins: 1518

	U	C	A	G	
U	9684 (Phe)	8052 (Ser)	7504 (Tyr)	5982 (Cys)	U
	13718 (Phe)	10677 (Ser)	11186 (Tyr)	8522 (Cys)	C
	3279 (Leu)	5766 (Ser)	442 (STP)	774 (STP)	A
	6670 (Leu)	2448 (Ser)	302 (STP)	8390 (Trp)	G
C	6538 (Leu)	9352 (Pro)	5643 (His) <sup>A</sup>	2818 (Arg)	U
	12177 (Leu)	12138 (Pro)	8815 (His) <sup>S</sup>	6945 (Arg)	C
	3871 (Leu)	9007 (Pro)	6661 (Gln)	3258 (Arg)	A
	28255 (Leu)	3901 (Pro)	20956 (Gln)	6354 (Arg)	G
A	9159 (Ile)	7776 (Thr)	10115 (Asn)	5747 (Ser)	U
	14619 (Ile)	13820 (Thr)	13589 (Asn)	11285 (Ser)	C
	3605 (Ile)	8768 (Thr)	13636 (Lys)	6086 (Arg)	A
	13572 (Met)	4064 (Thr)	21516 (Lys)	6627 (Arg)	G
G	6238 (Val)	11788 (Ala)	13231 (Asp)	6627 (Gly)	U
	9773 (Val)	17754 (Ala)	17615 (Asp)	15198 (Gly)	C
	3610 (Val)	8514 (Ala)	16379 (Glu)	10442 (Gly)	A
	19009 (Val)	4509 (Ala)	25461 (Glu)	10497 (Gly)	G