

**Table 2. A comparison of codon usage between two human genes**

Codon	Gene A, <i>n</i> (%)	Gene B, <i>n</i> (%)	Codon	Gene A, <i>n</i> (%)	Gene B, <i>n</i> (%)
gcc	9 (20)	19 (58)	aac	8 (38)	5 (83)
gcg	3 (7)	8 (24)	aat	13 (62)	1 (17)
gca	17 (38)	3 (9)	Asn, <i>P</i> = 0.076812		
gct	16 (36)	3 (9)	ccc	3 (12)	16 (53)
Ala, <i>P</i> = 0.000024			ccg	1 (4)	9 (30)
tgc	2 (12)	5 (50)	cca	13 (54)	4 (13)
tgt	14 (88)	5 (50)	cct	7 (29)	1 (3)
Cys, <i>P</i> = 0.068653			Pro, <i>P</i> = 0.000009		
gac	10 (53)	13 (93)	cag	12 (60%)	23 (96)
gat	9 (47)	1 (7)	caa	8 (40%)	1 (4)
Asp, <i>P</i> = 0.020940			Gln, <i>P</i> = 0.006346		
gag	13 (34)	22 (92)	cgc	1 (5)	8 (26)
gaa	25 (66)	2 (8)	cgg	0 (0)	7 (23)
Glu, <i>P</i> = 0.000006			cga	3 (14)	2 (6)
ttc	8 (35)	9 (82)	cgt	5 (24)	0 (0)
ttt	15 (65)	2 (18)	agg	3 (14)	14 (45)
Phe, <i>P</i> = 0.025510			aga	9 (43)	0 (0)
ggc	8 (17)	13 (52)	Arg, <i>P</i> = 0.000000		
ggg	6 (13)	9 (36)	agc	5 (14)	11 (46)
gga	21 (45)	3 (12)	agt	12 (32)	0 (0)
ggt	12 (26)	0 (0)	tcc	2 (5)	7 (29)
Gly, <i>P</i> = 0.000018			tcg	1 (3)	6 (25)
cac	1 (12)	7 (70)	tca	6 (16)	0 (0)
cat	7 (88)	3 (30)	tct	11 (30)	0 (0)
His, <i>P</i> = 0.024818			Ser, <i>P</i> = 0.000000		
atc	7 (22)	6 (86)	acc	11 (31)	9 (82)
ata	9 (28)	0 (0)	acg	2 (6)	0 (0)
att	16 (50)	1 (14)	aca	14 (39)	1 (9)
Ile, <i>P</i> = 0.008006			act	9 (25)	1 (9)
aag	8 (30)	9 (100)	Thr, <i>P</i> = 0.036607		
aaa	19 (70)	0 (0)	gtc	7 (16)	8 (27)
Lys, <i>P</i> = 0.000258			gtg	13 (30)	18 (60)
ctc	6 (11)	10 (21)	gta	11 (26)	3 (10)
ctg	6 (11)	37 (77)	gtt	12 (28)	1 (3)
cta	8 (15)	0 (0)	Val, <i>P</i> = 0.003838		
ctt	20 (36)	1 (2)	tac	5 (36)	2 (50)
ttg	9 (16)	0 (0)	tat	9 (64)	2 (50)
tta	6 (11)	0 (0)	Tyr, <i>P</i> = 1.000000		
Leu, <i>P</i> = 0.000000					

For each codon, we report the absolute frequency in each gene and the relative frequency compared to synonymous codons. The *P* value for each amino acid is calculated by using a  $n \times 2$  Fisher exact test on the frequencies of synonymous codons. There are 11 amino acids with significantly different encodings ( $P < 0.01$ ) between these two genes. Gene A, testes-specific glycerol kinase (GI:516123, 554 residues); gene B, endometrial bleeding factor (gene B, GI:2058537, 371 residues).