

**TABLE 9.2 THE HUMAN NUCLEAR AND MITOCHONDRIAL GENOMES**

	Nuclear genome	Mitochondrial genome
Size	3.1 Gb	16.6 kb
Number of different DNA molecules	23 (in XX cells) or 24 (in XY cells); all linear	one circular DNA molecule
Total number of DNA molecules per cell	varies according to ploidy; 46 in diploid cells	often several thousand copies (but copy number varies in different cell types)
Associated protein	several classes of histone and nonhistone protein	largely free of protein
Number of protein-coding genes	~21,000	13
Number of RNA genes	uncertain, but >6000	24
Gene density	~1/120 kb, but great uncertainty	1/0.45 kb
Repetitive DNA	more than 50% of genome; see Figure 9.1	very little
Transcription	genes are often independently transcribed	multigenic transcripts are produced from both the heavy and light strands
Introns	found in most genes	absent
Percentage of protein-coding DNA	~1.1%	~66%
Codon usage	61 amino acid codons plus three stop codons <sup>a</sup>	60 amino acid codons plus four stop codons <sup>a</sup>
Recombination	at least once for each pair of homologs at meiosis	not evident
Inheritance	Mendelian for X chromosome and autosomes; paternal for Y chromosome	exclusively maternal

<sup>a</sup>For details see Figure 1.25.