Mitochondrial ribosome

The ribosome is a complex molecular machine, found within all living cells, that serves as the site of biological protein synthesis (translation).

Transfer RNA is an adaptor molecule composed of RNA, typically 76 to 90 nucleotides in length, that serves as the physical link between the mRNA and the amino acid sequence of proteins. Transfer RNA does this by carrying an amino acid to the protein synthesizing machinery of a cell called the ribosome.

Ribosomes link amino acids together in the order specified by messenger RNA (mRNA) molecules. Ribosomes consist of two major components: the small ribosomal subunits, which reads the RNA, and the large subunits, which joins amino acids to form a polypeptide chain. Each subunit is composed of one or more ribosomal RNA (rRNA) molecules and a variety of ribosomal proteins (r-protein or rProtein

The ribosomes and associated molecules are also known as the translational apparatus.

Mitochondrial ribosome or mitoribosome is a protein complex that is active in mitochondria and functions as a riboprotein for translating mitochondrial mRNAs encoded in mtDNA. Mitoribosomes, like cytoplasmic ribosomes, consist of two subunits — large (mtLSU) and small (mt-SSU).

However, the ratio of rRNA/protein is different from cytoplasmic ribosomes, mitoribosomes consist of several specific proteins and less rRNAs.

The enhanced growth of cancer cells often requires an increase in global protein synthesis that it is strongly linked to increased ribosome activity [1) 2) 3)].

1)
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