

Special Issue

Mitochondrial DNA and RNA

Message from the Guest Editor

Mitochondria are the primary sites of ATP production and are also involved in several other important cellular processes such as programmed cell death and cell signaling. Mitochondria are surrounded by a double-membrane system consisting of inner and outer mitochondrial membranes separated by an intermembrane space. The inner membrane delimitates the innermost compartment, the matrix, where mitochondrial DNA (mtDNA) resides. Human mtDNA is circular, 16 kbp long molecule that encodes 13 proteins, two ribosomal RNAs, and 22 tRNAs. Once transcribed, mitochondrial RNA (mtRNA) is processed, mitoribosomes are assembled, and mtDNA-encoded proteins belonging to the respiratory chain are synthesized. All these processes require the coordinated spatiotemporal action of several enzymes, and many different factors are involved in the regulation and control of protein synthesis and in the stability and turnover of mitochondrial DNA and RNA. The goal of this Special Issue is to present the current knowledge on mtDNA replication and repair mechanisms, processing of mitochondrial RNA transcripts, and how alteration of these processes may affect cell physiology in pathological conditions.

Guest Editor

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