

**HUMAN MITOCHONDRIA IN HEALTH, DISEASE, AGING AND
CANCER**

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The human mitochondrial genome is a small circular DNA molecule encoding the synthesis of 13 proteins, 22 tRNAs and 2 rRNAs. Perturbations in mitochondrial function due to mutations in the genes encoded in both mitochondrial and nuclear DNA can lead to a number of diseases, including blindness, deafness, neuromuscular disorders and diabetes. Changes in mitochondrial function have been associated with aging, and somatic mutations in mitochondrial DNA can occur during carcinogenesis.

I will present the results of our analysis of mitochondrial DNA polymorphisms in the Polish population, as well as a diagnosis of several mitochondrial diseases. Preliminary results of studies on mitochondrial DNA in Polish centenarians and mutations in solid tumors will also be discussed.