

# Your Second Genome and its Effects on You

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**Abstract:** Mitochondria are ubiquitous organelles in every cell. They produce most of the energy in a cell, and they have their own DNA. People have looked at defects in mitochondrial DNA to see if they are associated with certain genetic diseases and for aging. The idea that mitochondria are a part of aging is called the mitochondrial theory of aging. There have also been studies on how mitochondrial efficiency might be related to climate. In colder climates, mitochondria might not produce energy as efficiently as they do in hotter climates, causing them to generate more heat. My project was to sequence and look at the mitochondrial encoded gene cytochrome b to see if it has a role in climate adaptation or the mitochondrial theory of aging.