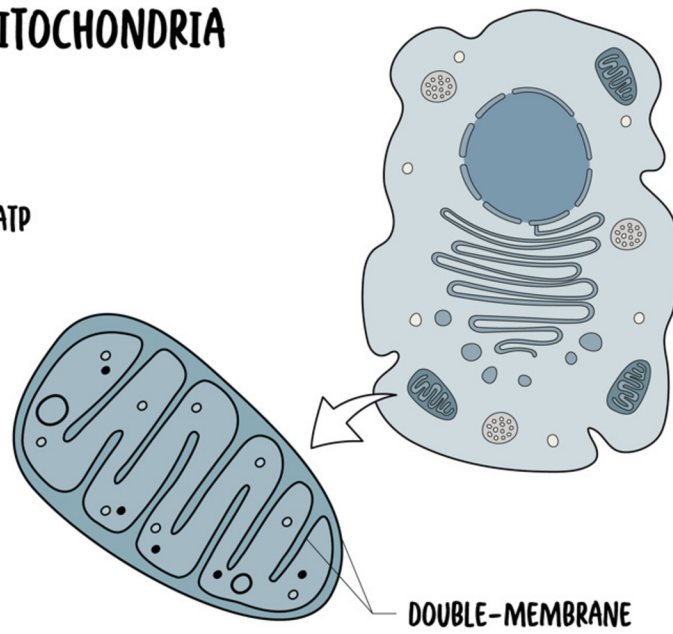


## MITOCHONDRIA

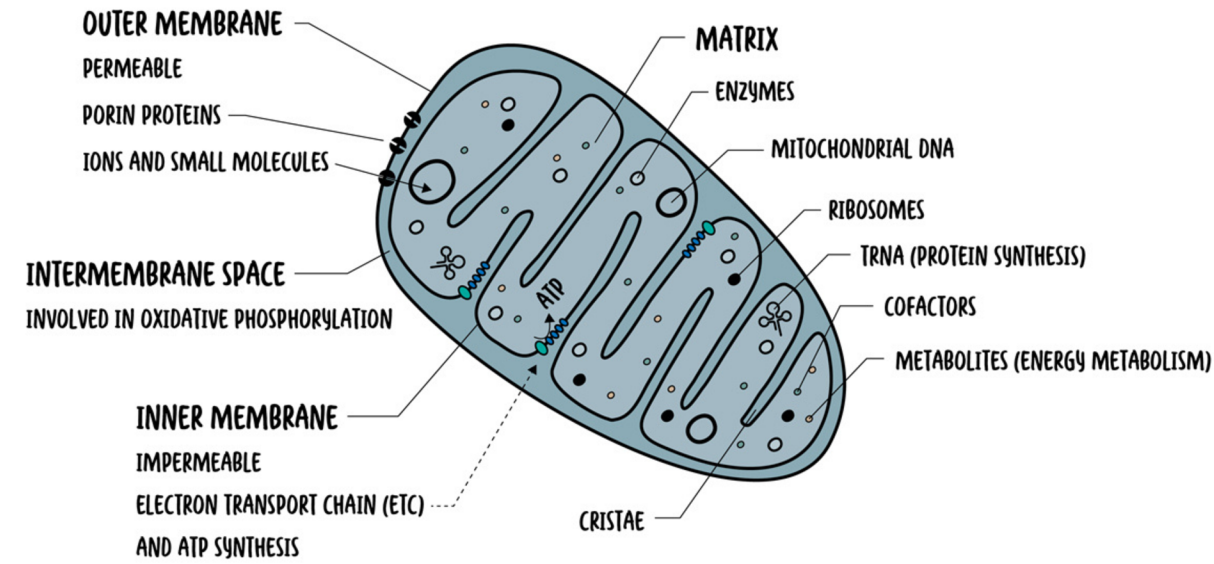
### FUNCTIONS

"POWERHOUSES" OF THE CELL – GENERATING ATP  
(OXIDATIVE PHOSPHORYLATION)

APOPTOSIS  
CALCIUM SIGNALING  
SYNTHESIS OF CERTAIN BIOMOLECULES



## STRUCTURE



## MITOCHONDRIAL DNA (MTDNA)

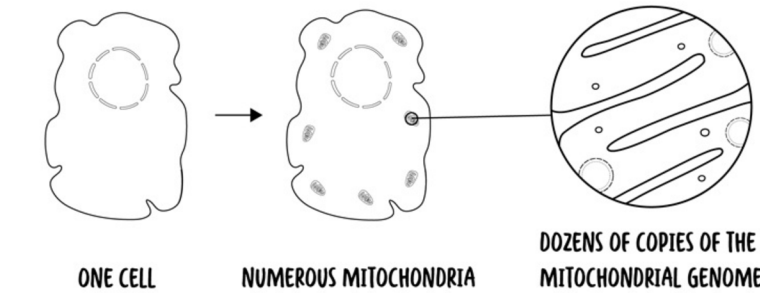
INHERITANCE: MATERNALLY INHERITED

STRUCTURE:

37 GENES THAT ENCODE 13 PROTEINS, 22 TRNAS, AND 2 RRNAS

MUTATION RATE HIGHER THAN THE NUCLEAR GENOME

DOUBLE-STRANDED DNA



## MITOCHONDRIAL DNA (MTDNA)

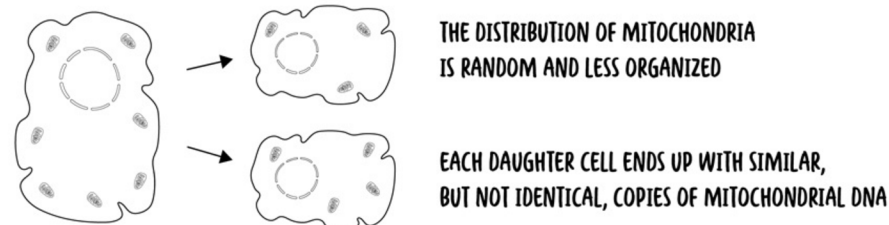
INHERITANCE: MATERNALLY INHERITED

STRUCTURE:

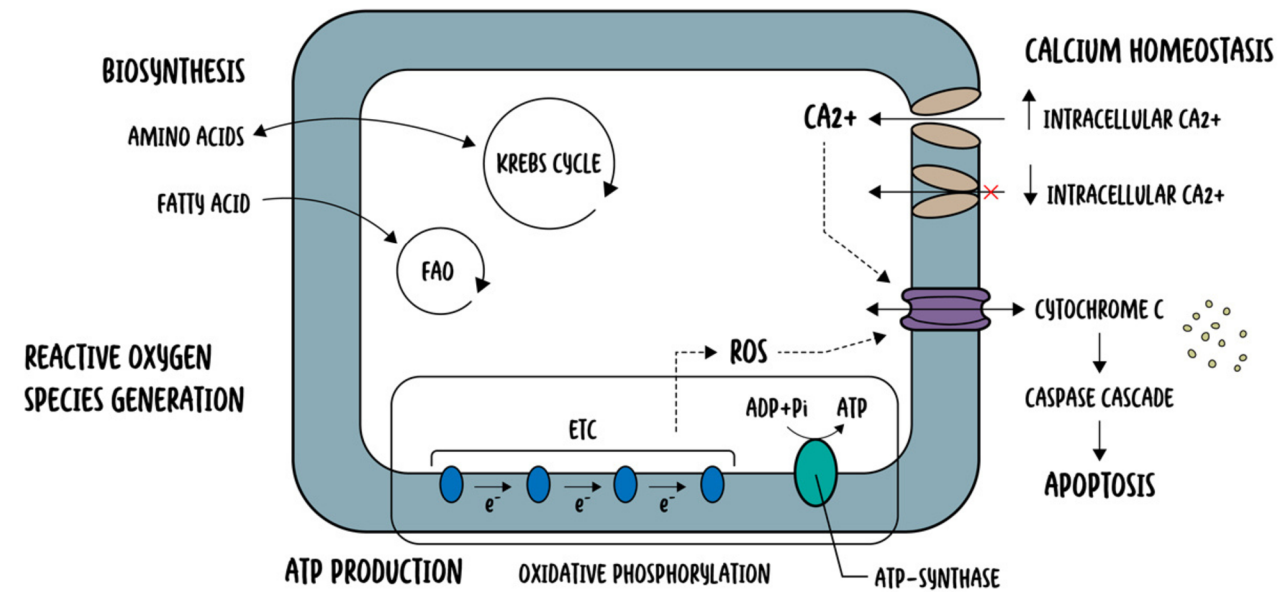
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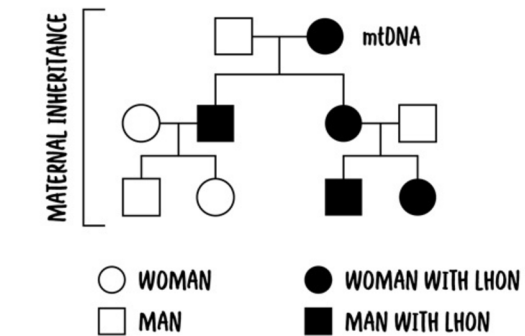
## FUNCTIONS



## MITOCHONDRIAL DISEASES

MITOCHONDRIAL DNA IS INHERITED FROM A PERSON'S MOTHER

MULTISYSTEMIC, AFFECTING ORGANS WITH HIGH-ENERGY DEMANDS (BRAIN, MUSCLES, AND HEART)



MUTATIONS IN mtDNA OR NUCLEAR GENES

↓

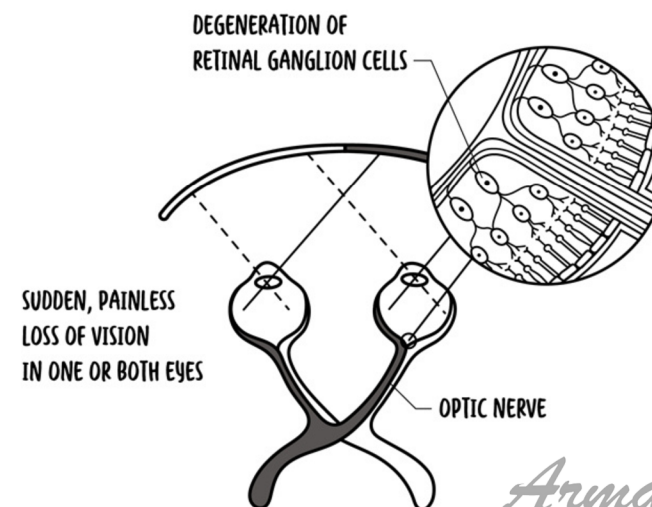
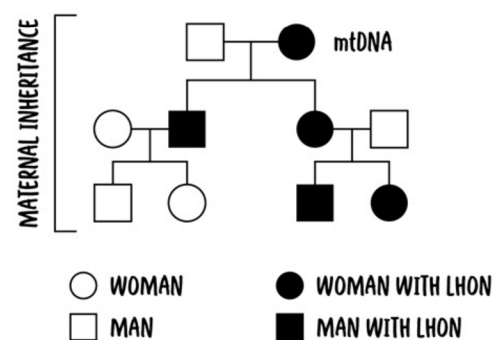
ABNORMAL MITOCHONDRIAL PROTEINS

↓

MITOCHONDRIAL DISEASES

## LEBER'S HEREDITARY OPTIC NEUROPATHY (LHON)

IS A MITOCHONDRIAL GENETIC DISORDER AFFECTING YOUNG ADULTS



Armando H. Faigl