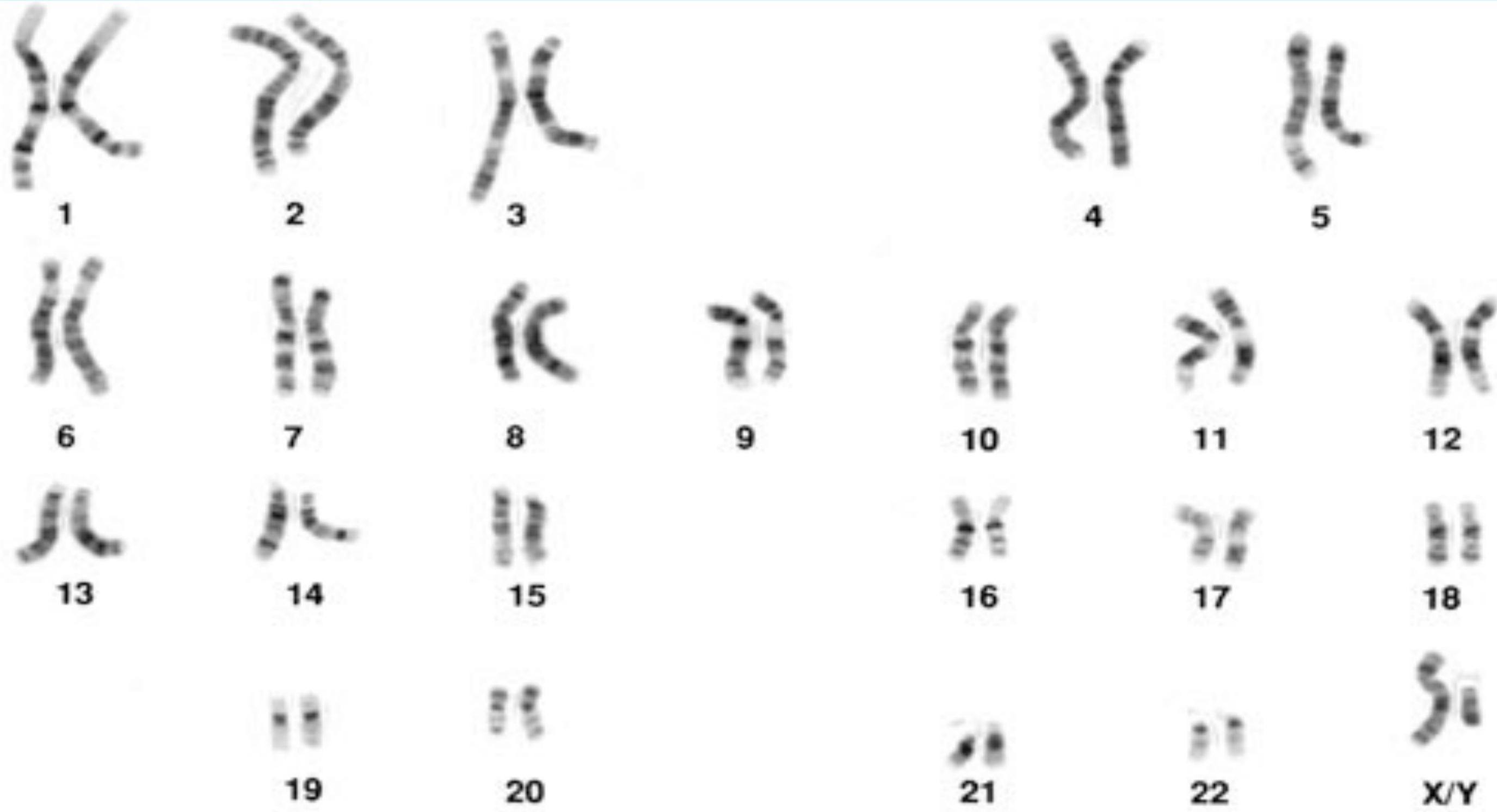


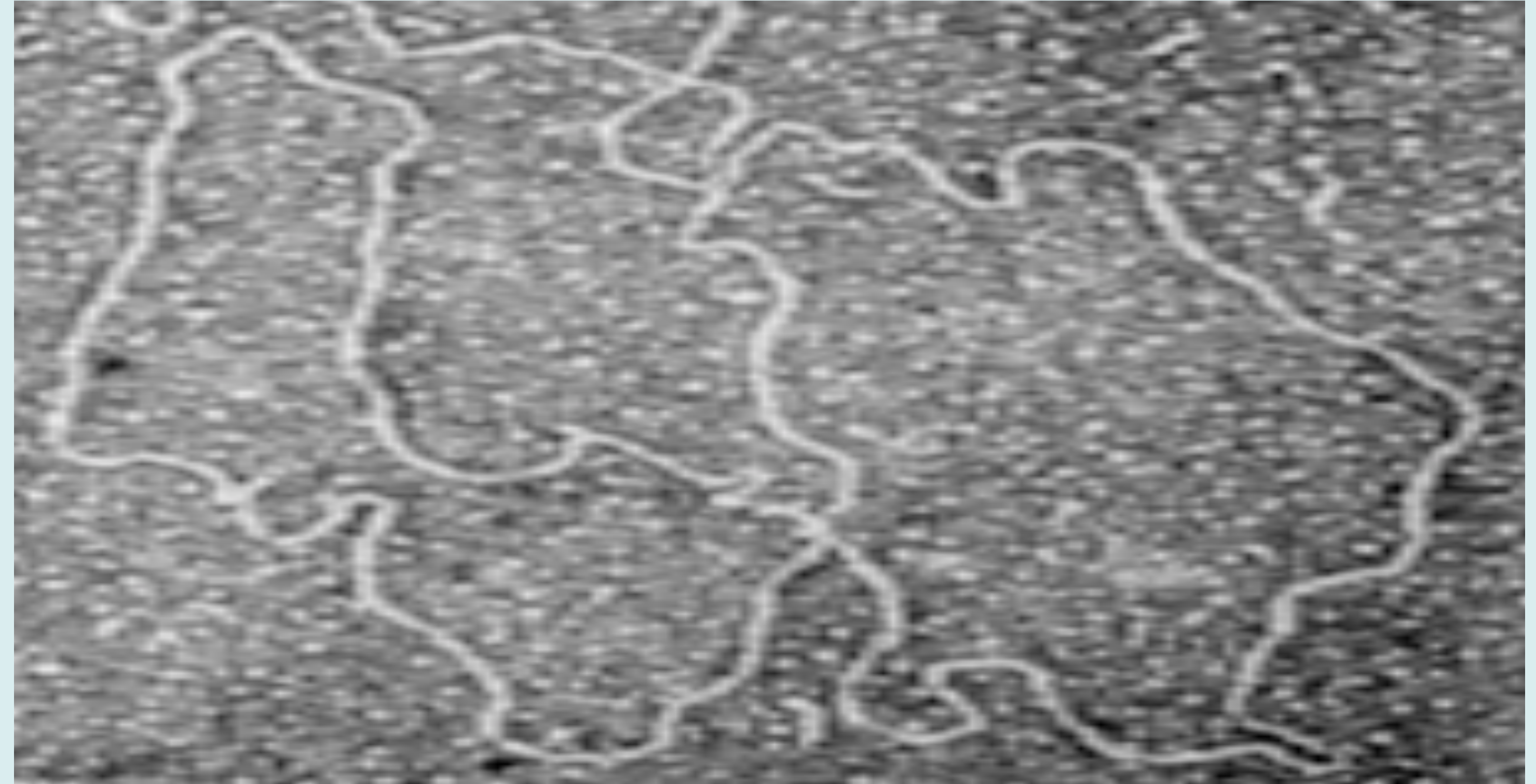
Nuclear DNA v mtDNA: principles of inheritance

Nuclear DNA (nDNA)



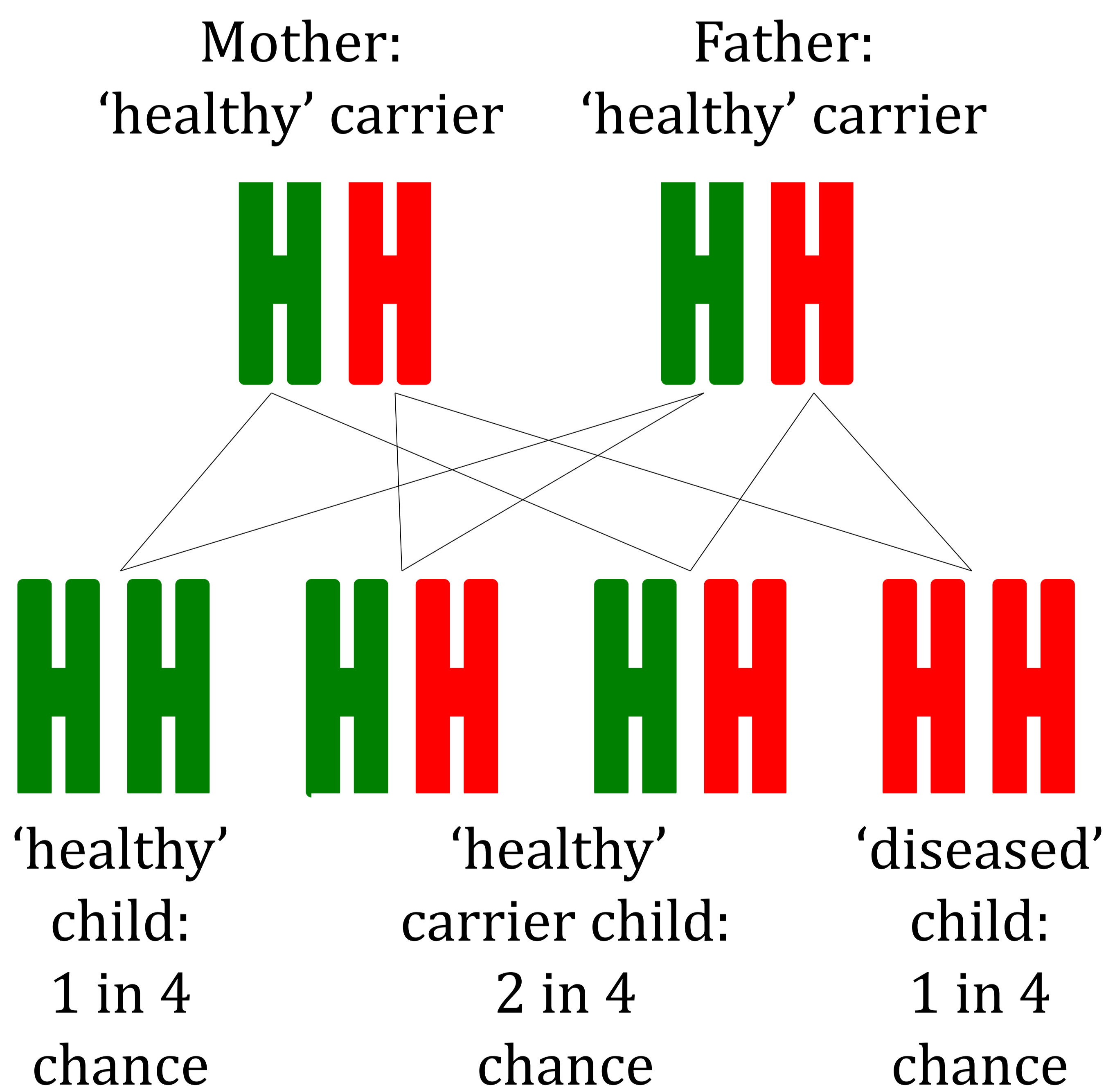
- Found in the nucleus of the cell
- 3,300,000,000 bases (A, T, C and G)
- Arranged in linear chromosomes
- Two copies of each chromosome
- Maternally and paternally inherited
- Contains approximately 20,000 genes
- 93% of the genome is non-coding DNA

Mitochondrial DNA (mtDNA)



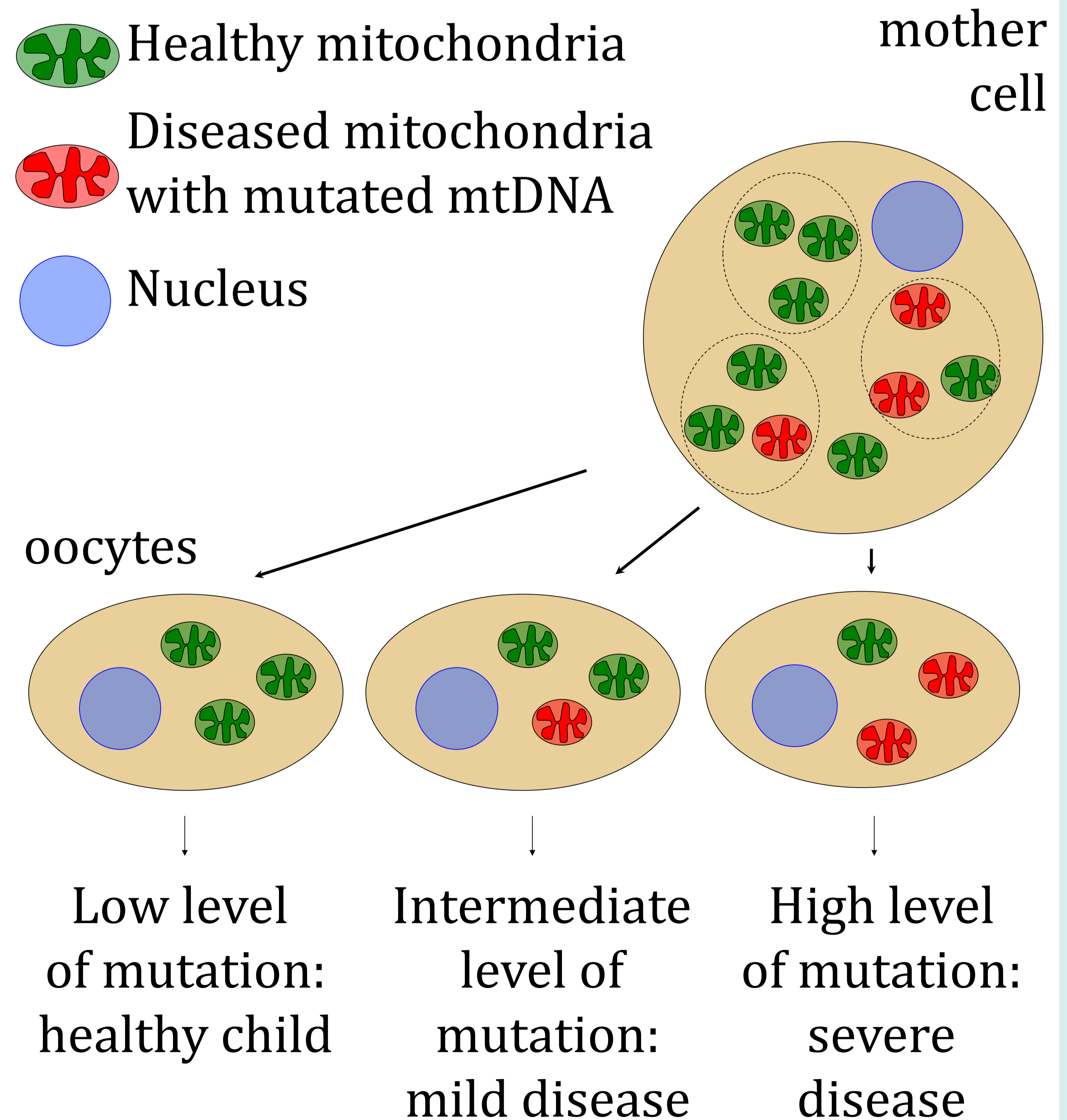
- Found in the mitochondrial matrix
- 16,569 bases (A, T, C and G)
- Arranged in a circular chain of DNA
- Multiple copies present
- Maternally inherited
- Contains 37 genes
- 3% of the genome is non-coding DNA

Mendelian inheritance



- Example of an autosomal recessive disease

Non-Mendelian inheritance



- Disease severity is correlated to ratio of healthy to diseased mitochondria