

Bioinformatics CSM17 Week 5: DNA and Genetics

- Genetics
- Cell Structure
- DNA
- Transcription (->RNA)
- Protein Structure

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Genetics

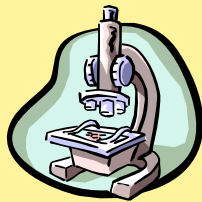
- Gregor Mendel (1865)
- Chromosomes
 - 46 in humans
- Reproduction
 - female has XX
 - male has XY



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Cell Structure

- Nucleus & cytoplasm
- Mitochondria
- Chloroplasts
- Endoplasmic reticulum



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DNA - history

- Watson & Crick (1953)
- The double helix (like a twisted ladder)



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DNA - copying

- Replication
- DNA polymerase

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DNA - structure

- double helix (spiral)
- sugar-phosphate backbone
- nucleotide bases
 - Adenine (A)
 - Guanine (G)
 - Cytosine (C)
 - Thymine (T)



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Prokaryotes (simple cells)

- Circular DNA
- Mitochondria (in animals, plants, fungi)
- Chloroplasts (in plants)
- Endosymbiosis ... leads to Eukaryotes

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Transcription - reading the data

- enzyme - transcriptase
- gene opens up and...
- messenger RNA is formed
- mRNA moves off through nuclear pores...
- ...to the ribosomes

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