9.24 lecture summary

DNA

Thomas Hunt: Fruit flies (genes sit on chromosome)

George Beatle and Edward Tatum → "one gene makes one enzyme"

What is the chemical nature of DNA?

- Double helix
- Connected with H bonds
- Genes made up of nucleic acids

1953—Watson and Crick publish 1st DNA molecule

G- Guanine

C- Cytosine

A- Adenine

T- Thymine

2 Questions about DNA:

- How does it make copies?
  - Strands unzip, then each strand makes a copy of itself
- How does it control the cell?
  - Controls protein synthesis, much of the cell is made up of protein.
  - DNA → mRNA → Protein = Central dogma of Molecular Biology
  - DNA → mRNA = transcription
  - mRNA→ Protein = translation (converting base units (GCTA) to amino acids)
  - Nucleic acid → Amino acid = translation
  - In eukaryotic cells, this takes place in the nucleous
  - Translations take place in ribosomes (found in cytoplasm or on ER)
  - Amino acids are "raw material" tRNA→ ribosomes
  - Ribosomes links amino acids to make proteins

Incomplete Dominance: One allele expressed but incomplete compensation

Co-Dominance: Both alleles expressed

What determines the kind of protein made?

- 3 sets of nucleotide bases in RNA determines which amino acid will be used to put into the protein
- More related and organism is, the more similar amino acids
- A Gene is a sequence of nucleotide bases that code for a polypeptide

Codons for amino acids are same for all organisms