


Bio 115 Cells & Evolution of Life

## Protein Synthesis

### Structure and Properties of DNA and Genes



University of Idaho

Start Audio Lecture!

1

---

---

---

---

---

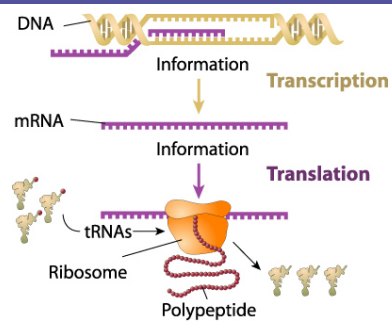
---

---

---

Bio 115 Cells & Evolution of Life

## DNA: The Recipe for Life



DNA

Information

mRNA

Information

tRNAs

Ribosome

Polypeptide

Transcription

Translation

2

---

---

---

---

---

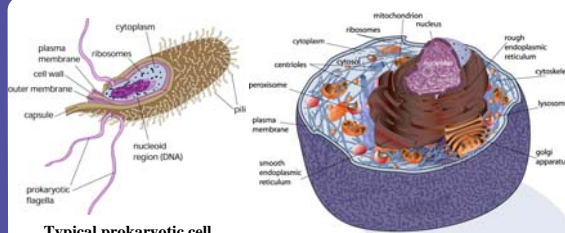
---

---

---

Bio 115 Cells & Evolution of Life

## DNA Is Found in All Living Cells



cytoplasm

plasma membrane

cell wall

outer membrane

capsule

ribosomes

nucleoid region (DNA)

prokaryotic flagella

Typical prokaryotic cell.

mitochondrion

ribosomes

nucleus

cytoplasm

centrioles

peroxisome

plasma membrane

smooth endoplasmic reticulum

rough endoplasmic reticulum

cytoskeleton

lysosome

golgi apparatus

Eukaryotic animal cell.

3

---

---

---

---

---

---

---

---

Bio 115 Cells & Evolution of Life

### The DNA Double Helix

Hydrogen bond

Phosphodiester linkages holding sugar-phosphate backbone together.

a nucleotide

4

---

---

---

---

---

---

---

---

Bio 115 Cells & Evolution of Life

### Hydrogen Bonding In DNA

Hydrogen bond

Hydrogen bonds form between complementary bases to hold the two separate strands of DNA together.

5

---

---

---

---

---

---

---

---

Bio 115 Cells & Evolution of Life

### DNA: Antiparallel Strands

Carbon numbers of deoxyribose.

Strand continues

Strand continues

6

---

---

---

---

---

---

---

---

Bio 115 Cells & Evolution of Life

## Genes: DNA That Codes for Protein

Genes are segments of DNA that are used to make proteins, through the processes of transcription and translation.

7

---

---

---

---

---

---

---

---

Bio 115 Cells & Evolution of Life

## DNA: Gene Regulatory Sequences

An example of prokaryotic gene organization.

8

---

---

---

---

---

---

---

---

Bio 115 Cells & Evolution of Life

## How Much DNA Do Cells Have?

Genome size in different organisms.

9

---

---

---

---

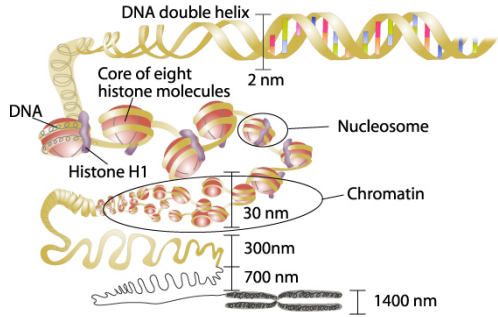
---

---

---

---

## The Packaging of DNA



---

---

---

---

---

---

---

---