

182 Lecture 10 DNA & RNA

NUCLEIC ACID

Gene coding → codon = 3 nucleotides

DNA

- Directs RNA synthesis
- Genetic material inherited from parents

RNA

- Phosphate + sugar backbone with Nitrogenous base
 - o Ribose sugar = 5 carbon
 - RNA = OH
 - DNA = H (deoxy = no oxygen)
 - Connects 5'-3'
 - Represented with R on structural drawings
 - o Phosphoric acid
 - Can lose/gain H⁺ depending on the pH (pKa)
 - DRAWING

PYRIMIDINES

- Uracil
- Cytosine
- Thymine

PURINES

- Adenine
- Guanine

NUCLEOSIDES

A base joined to the anomeric carbon of ribose sugar

NUCLEOTIDE

Nucleoside + phosphate (joined to 5' and attaches to 3' of the next)

DNA & RNA:

- Informational = Genomic DNA & messenger RNA
- Structural = Ribosomal RNA & transfer RNA
 - o Genomic DNA
 - 2 separate nucleic acid polymer strands (antiparallel)
 - Many hydrogen bonds between the bases
 - 10 base pairs between each helix loop

BASES

Bases	Common name
Adenine	Adenosine triphosphate
Cytosine	Cytidine Triphosphate
Guanine	Guanosine Triphosphate
Thymine	Thymidine triphosphate
Uracil	Uridine triphosphate