

Chapter 12-3: RNA & Protein Synthesis

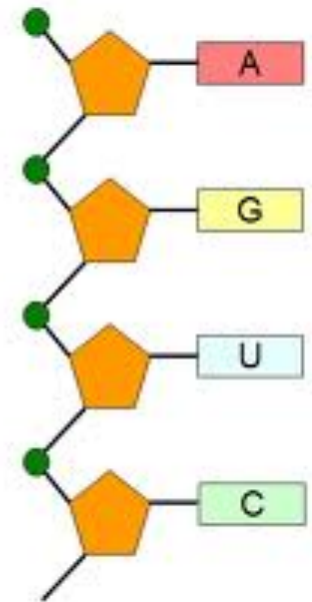
Essential Questions:

- What are 3 types of *RNA*?
- What is the function of 3 types of RNA?
- What happens during *transcription*?
- What happens during *translation*?

How does a gene *work*?

- Structure of RNA
 - *Ribose*, not deoxyribose
 - *Uracil* replaces thymine
 - Single, not double strand

Structure of RNA:

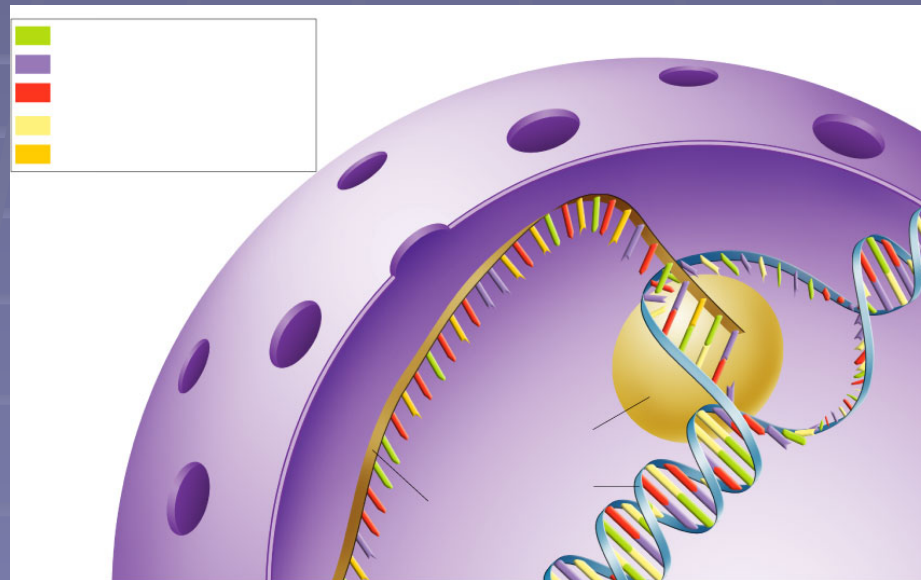


- Types of RNA

- mRNA: messenger RNA
- rRNA: ribosomal RNA
- tRNA: transfer RNA

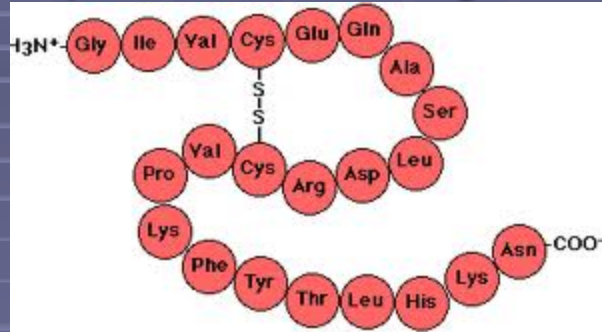
- Transcription

- Enzymes separate DNA strand, uses 1 strand to make mRNA strand

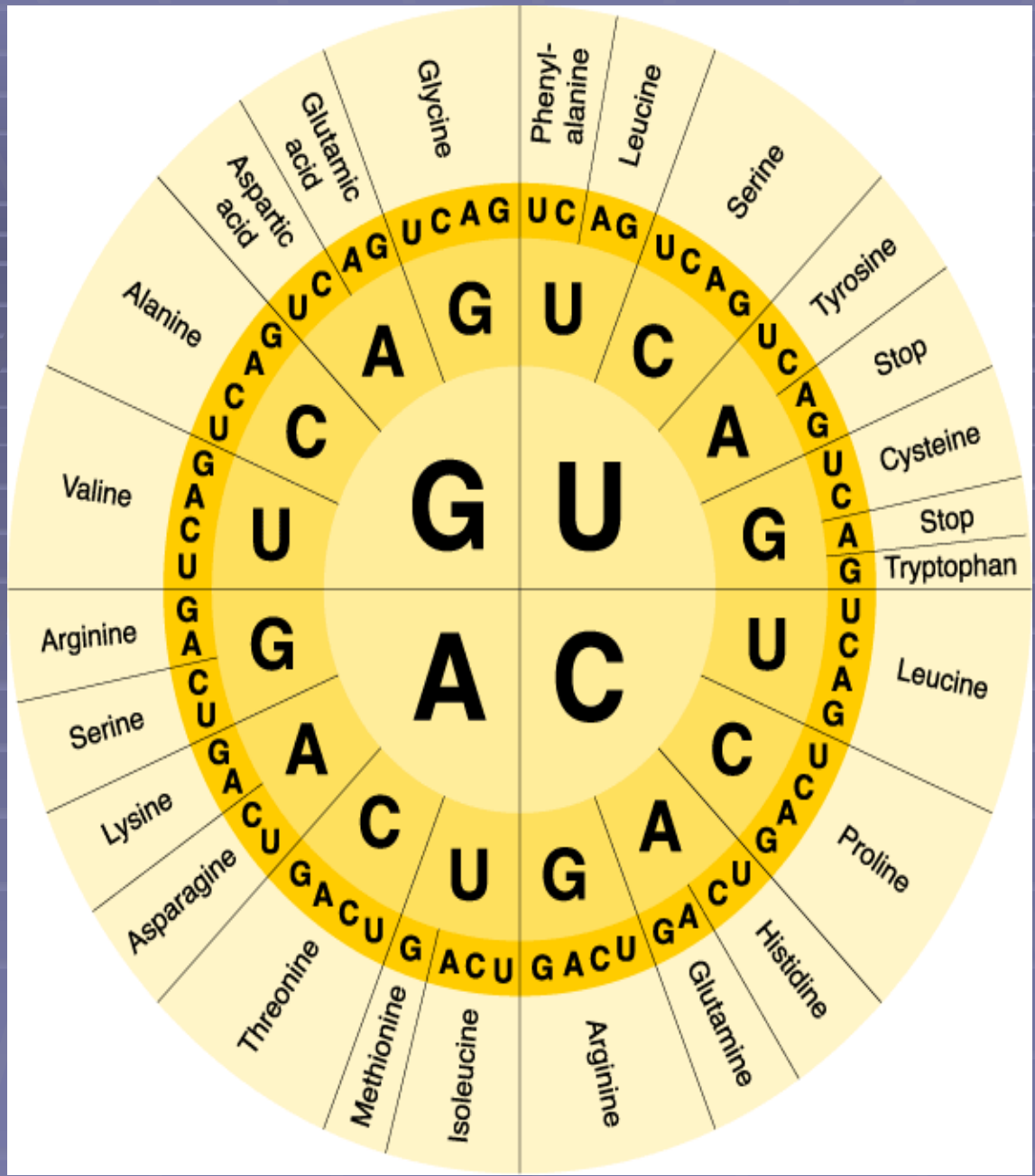


■ The Genetic Code

- Proteins = polypeptides = long chains of amino acids



- Codon = 3 base sequence, specifies a single amino acid
 - Ex: UGUGGAACGCAU
 - $4 \times 4 \times 4 = 64$ possible combinations



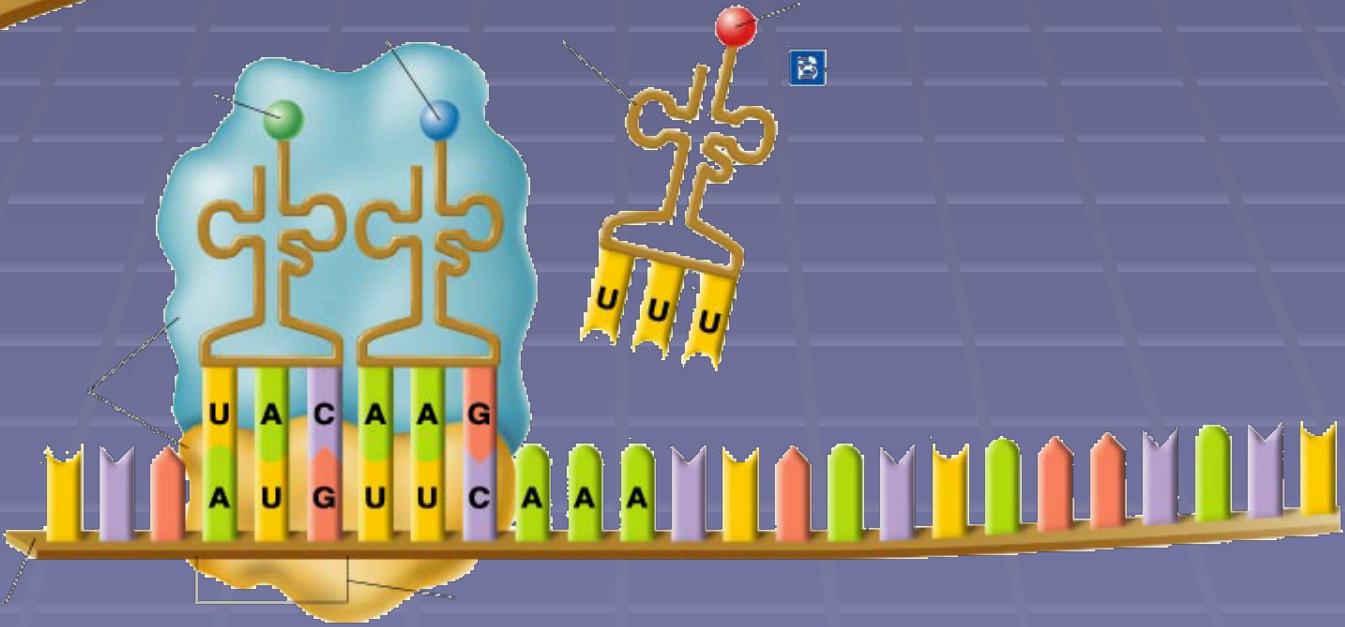
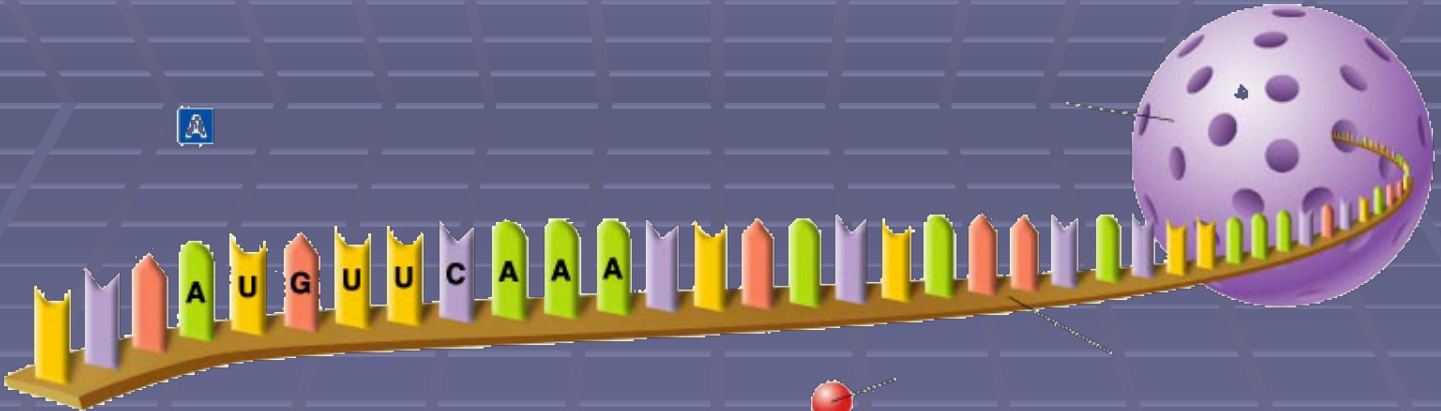
■ Translation

- @ ribosomes

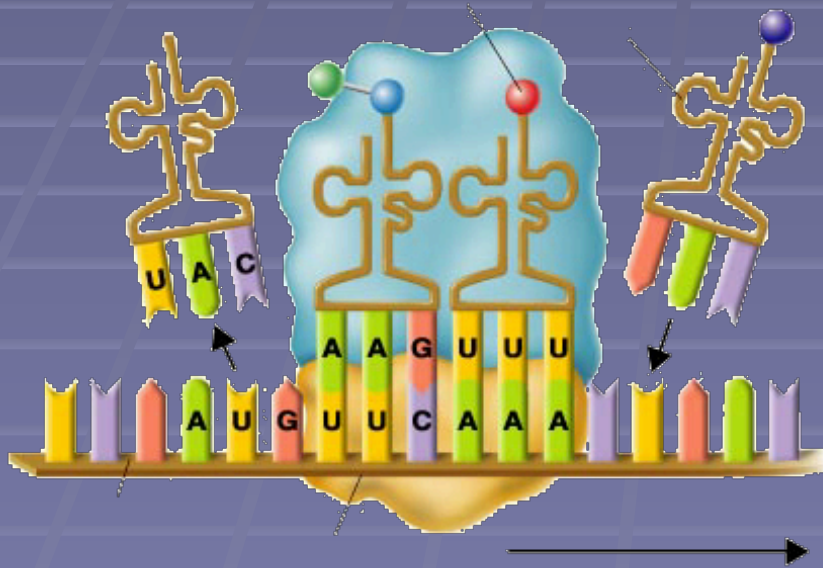
- mRNA: “instructions” – ribosome “reads”

- tRNA “anti-codon” for each a. acid, brings it to ribosome

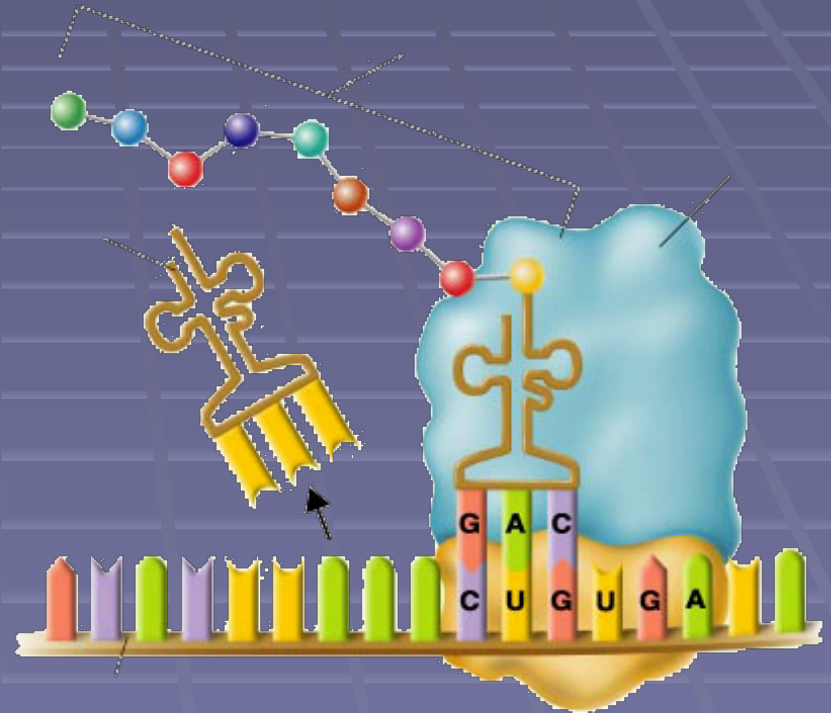
- “stop” codon: ribosome releases polypeptide chain (now a protein)



C



D



- Roles of DNA & RNA
 - Master plans vs. disposable instructions
- Genes & proteins
 - Why are proteins key?