

# Protein Synthesis

Monday, April 24, 2017  
9:27 AM

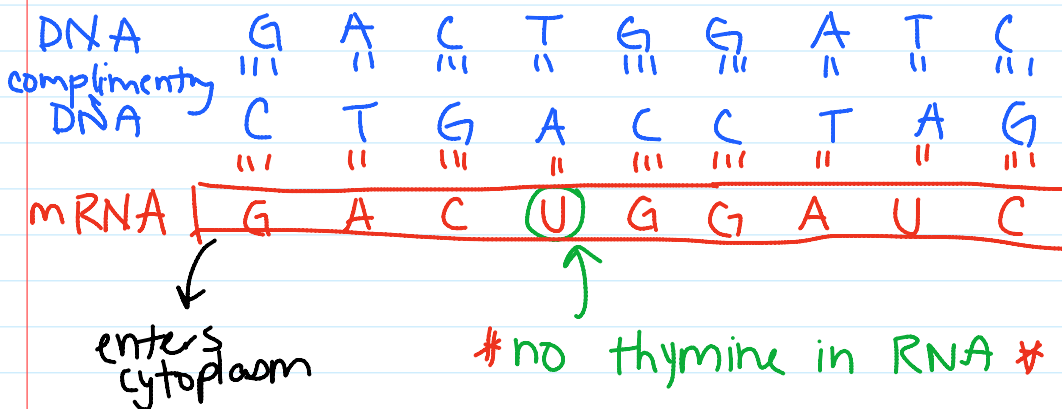
1. Transcription
2. Translation
  - a) Initiation
  - b) Elongation
  - c) Termination

## ① TRANSCRIPTION

- assemble mRNA from a section of DNA (gene) that contains the code for 1 protein.
- takes place in nucleus.

### STEPS:

1. specific section of DNA unwinds, exposing a set of bases
2. Along 1 of the strands of DNA, complimentary RNA bases are brought in.
3. adjacent RNA nucleotides form sugar-phosphate bonds
4. RNA is released from DNA  $\Rightarrow$  messenger RNA
5. mRNA enters cytoplasm (mRNA)



**CODON**: each 3-letter unit of mRNA is called a codon

- ↳ codes for 1 amino acid
- ↳ chain of amino acids make a protein
- ↳ each codon binds with ANTI-CODON on tRNA

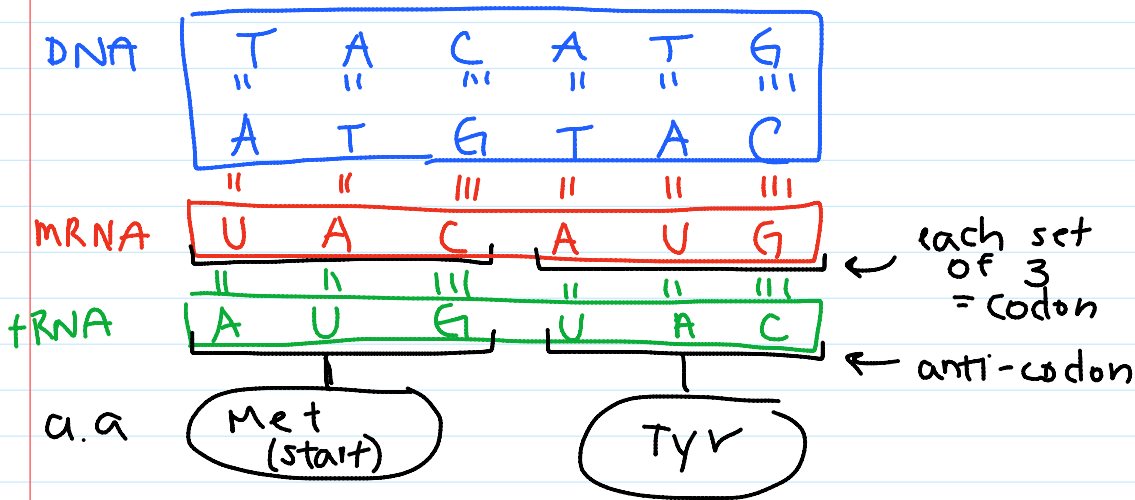
## ② TRANSLATION

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- process that changes RNA message into the actual protein.
- occurs @ the ribosome in 3 steps:

### a.) Initiation

- mRNA binds to a ribosome
- **AUG** codon = START = codes for amino acid methionine
- **tRNA (transfer)** binds to the START codon on mRNA (anti-codon)



### b.) Elongation

- more a.a. are added and connected together to form a protein

### c.) Termination

- the process repeats until a special codon called a STOP CODON is reached UAA, UAG, UGA
- STOP CODON releases mRNA and protein.  
↳ to golgi body for packaging.