

# General Biology

Course No: BNG2003  
Credits: 3.00

## 10. Genetics: From Genes to Proteins

### Repetition

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## Cracking the Code

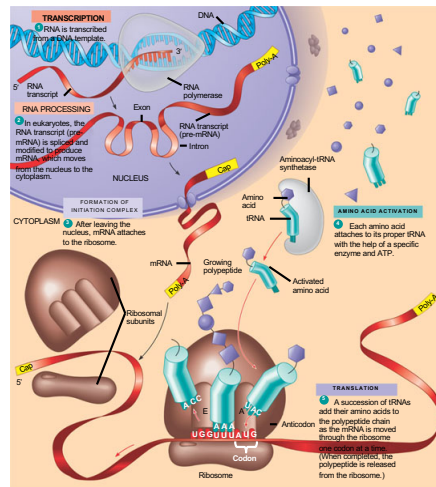
64 options

- A codon in messenger RNA is either translated into an amino acid or serves as a translational stop signal
- Codons must be read in the correct **reading frame** for the specified polypeptide to be produced
- The **genetic code is nearly universal** shared by organisms from the simplest bacteria to the most complex animals

		Second mRNA base						
		U	C	A	G			
U	UUU	Phe	UCU	Ser	UAU	Tyr	UGU	Cys
	UUC		UCC		UAC		UGC	
	UUA	Leu	UCA		UAA	Stop	UGA	Stop
	UUG		UCG		UAG	Stop	UGG	Trp
C	CUU		CCU	Pro	CAU	His	CGU	
	CUC	Leu	CCC		CAC		CGC	Arg
	CUA		CCA		CAA	Gln	CGA	
	CUG		CCG		CAG		CGG	
A	AUU		ACU	Thr	AAU	Asn	AGU	Ser
	AUC	Ile	ACC		AAc		AGC	
	AUA		ACA		AAA	Lys	AGA	
	AUG	Met or start	ACG		AAG		AGG	Arg
G	GUU		GCU	Ala	GAU	Asp	GGU	
	GUC	Val	GCC		GAC		GGC	Gly
	GUA		GCA		GAA		GGA	
	GUG		GCG		GAG		GGG	

## What is a gene? revisiting the question

- A gene is a region of DNA whose final product is either a polypeptide or an RNA molecule
- A summary of transcription and translation in a eukaryotic cell



## Overview of four basic molecular genetic processes

