

hey

The Genetic Code

Fill in the blank:

A codon is a sequence of 3 ribonucleotides.

The code that translates from the DNA into a protein in the mRNA.

In bacteria, ^{initiation} initiation is started by a molecule called f met

Describe the triplet code.

It has 64 codons
specifies 20 amino acids
has 3 stop codons

What does it mean when the code is unambiguous and degenerate?

unambiguous: a code can only be read once to only code for 1 AA

Degenerate: an AA can be coded by more than one sequence

What are the other 3 descriptors of the genetic code?

Commaless: read w/o breaths

NON overlapping: only read once

Nearly universal: the coding dictionary

What is the wobble hypothesis?

The last ribonucleotide is the least important and can change (sometimes) w/o affecting the resulting polypeptide chain.

Describe initiation.

Methionine: coded by AUG, starts the process of protein synthesis

(f-met in bacteria)

What are the termination codes? How do they work?

UAG UAA UGA

These do not code for anything, so the chain just stops and exits the ribosome

What are nonsense mutations? What example was provided in class?

An early stop codon is produced, stopping/altering a protein's production

Dwarf cattle - COL2 and COL10 are affected, decreasing growth plate development

Mitochondrial DNA is unique in many ways. Describe how unique it is in regard to the triplet code.

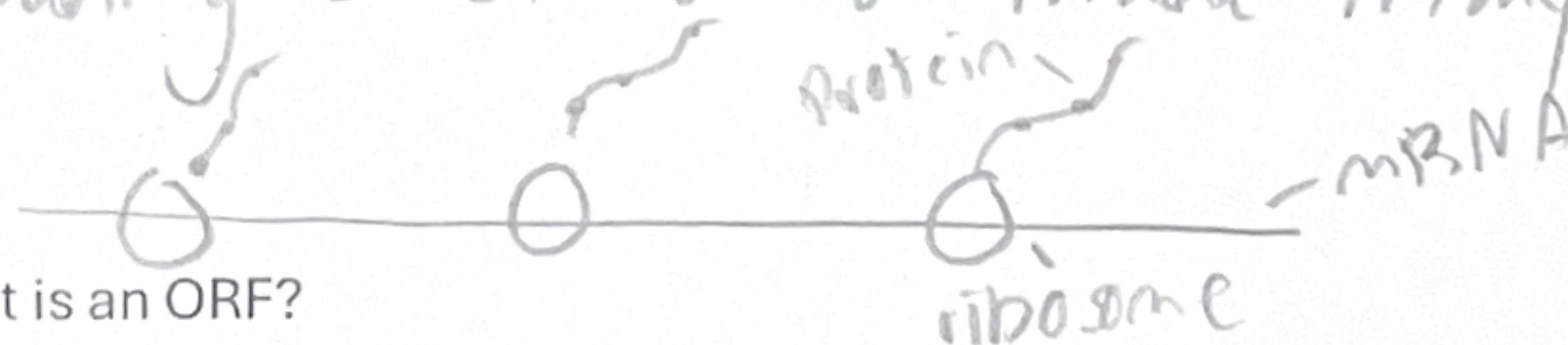
Universal exception

UGA $\neq$ stop; it codes for tryptophan

AUA $\neq$ isoleucine; it codes for methionine

What are overlapping genes?

When mRNA has many start codons meaning 1 strand can make many proteins



What is an ORF?

caused by overlapping genes

AUG GGU ACC CAU GCU