Bell Ringer

What is a codon?

What is an anticodon?

Translation

What is it?

Creating an amino acid chain (protein) from an mRNA message.

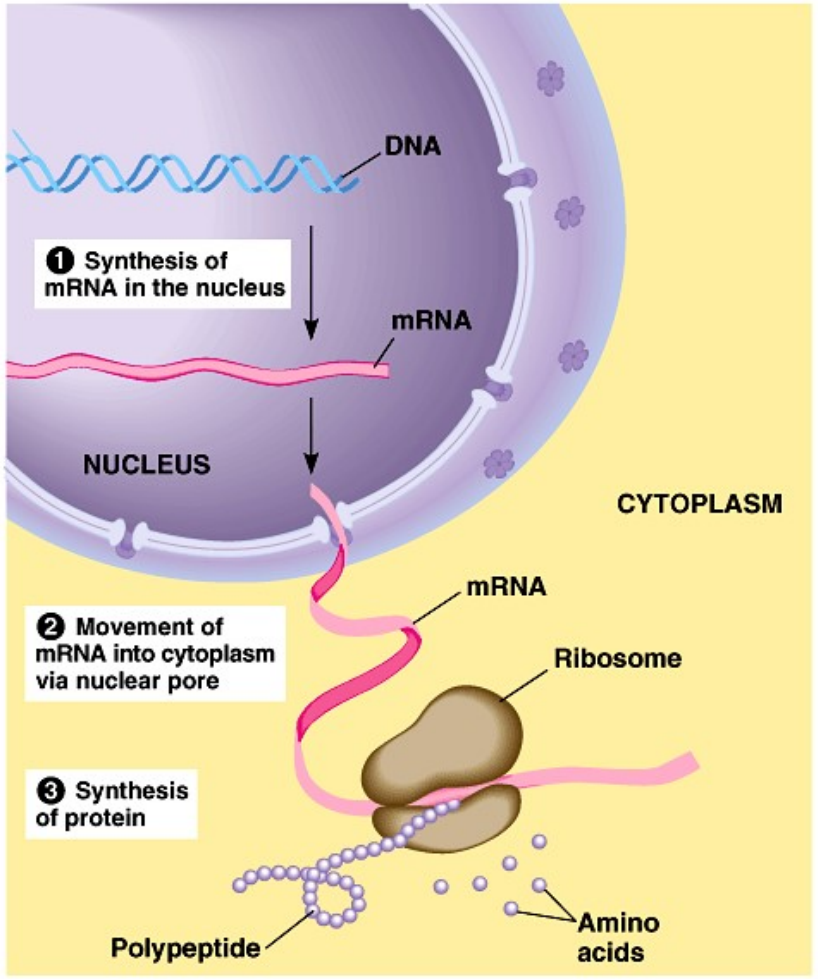
Where does it happen?

mRNA leaves the nucleus,
then…

Where does it happen?

mRNA leaves the nucleus, then…

mRNA binds to a **ribosome** in the cytoplasm.

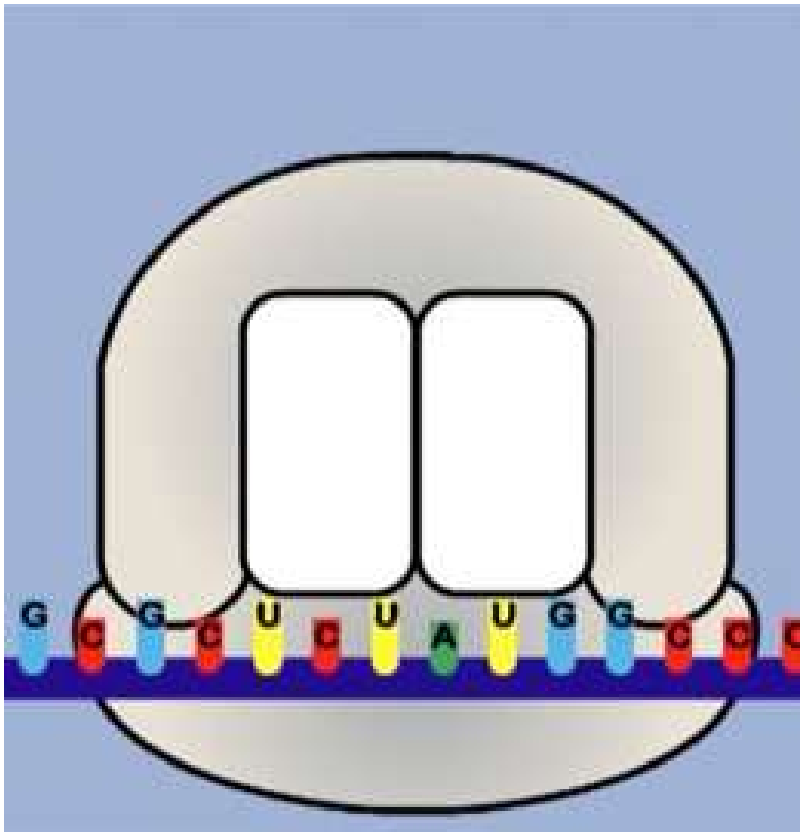


Step 1: Ribosome binds

Ribosome: a protein structure that provides the machinery for creating an amino acid chain.

- The translation “factory”

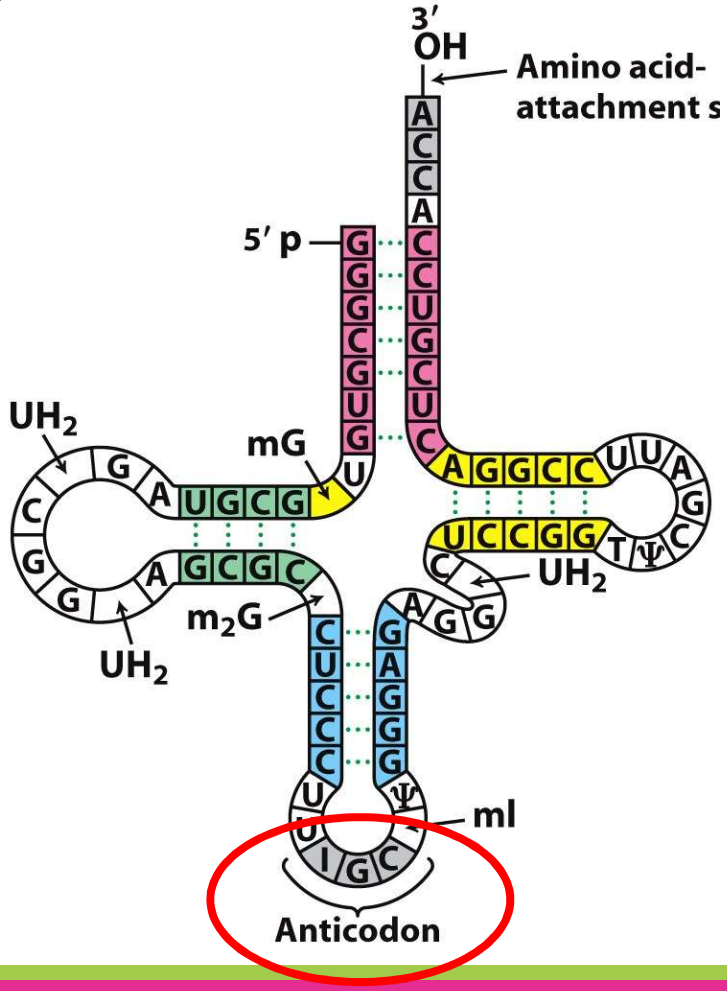
The mRNA strand binds to the ribosome to begin translation



Step 2: tRNAs bring amino acids

tRNA (transfer RNA): specially folded RNA structures that carry specific amino acids based on their **anticodon** sequence.

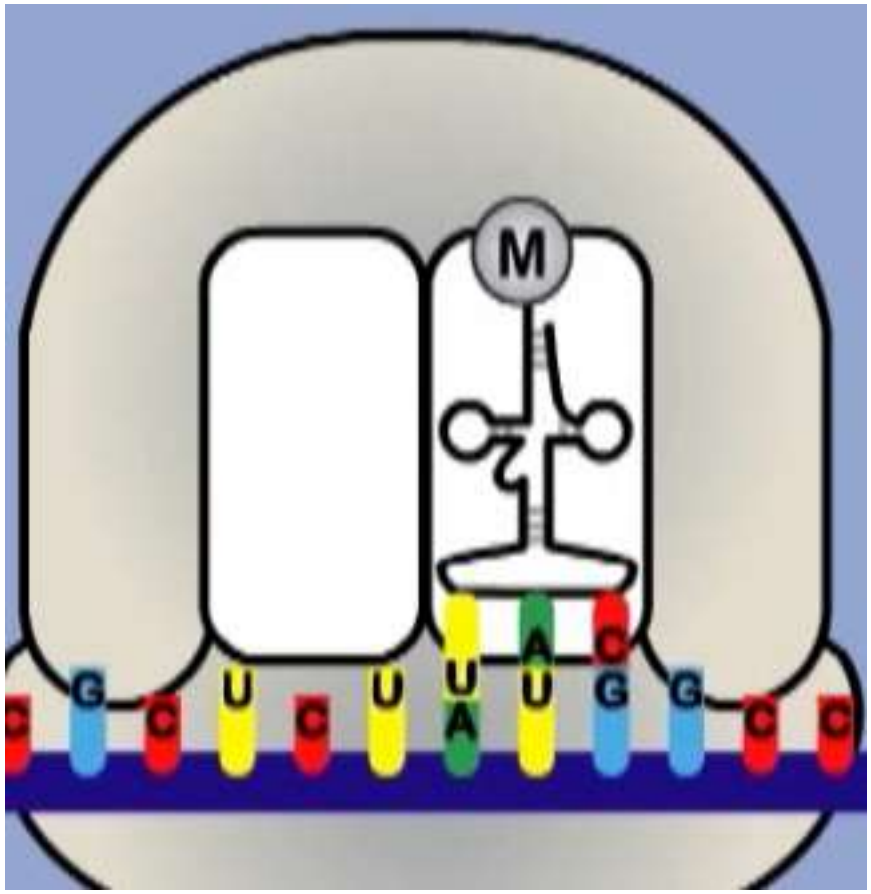
Anticodon: a group of 3 unpaired RNA bases on the tRNA that can pair with codons on the mRNA.



Step 2: tRNAs bring amino acids

The first tRNA enters the ribosome.

The anticodon pairs with the Start codon (AUG)

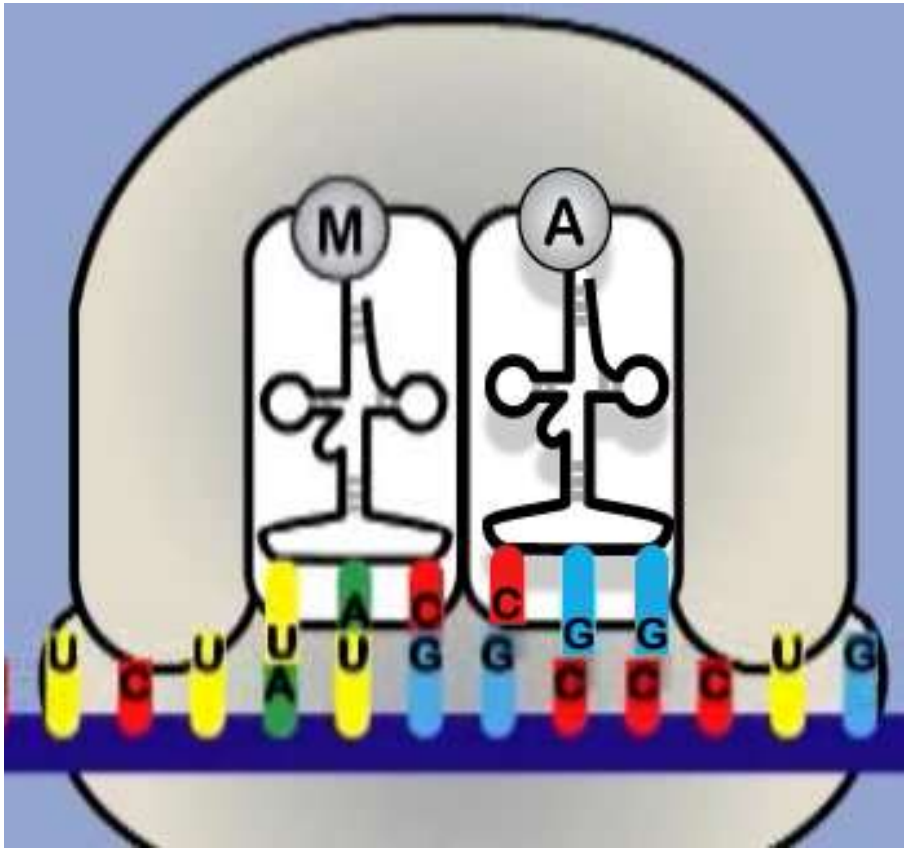


Step 2: tRNAs bring amino acids

The first tRNA enters the ribosome.

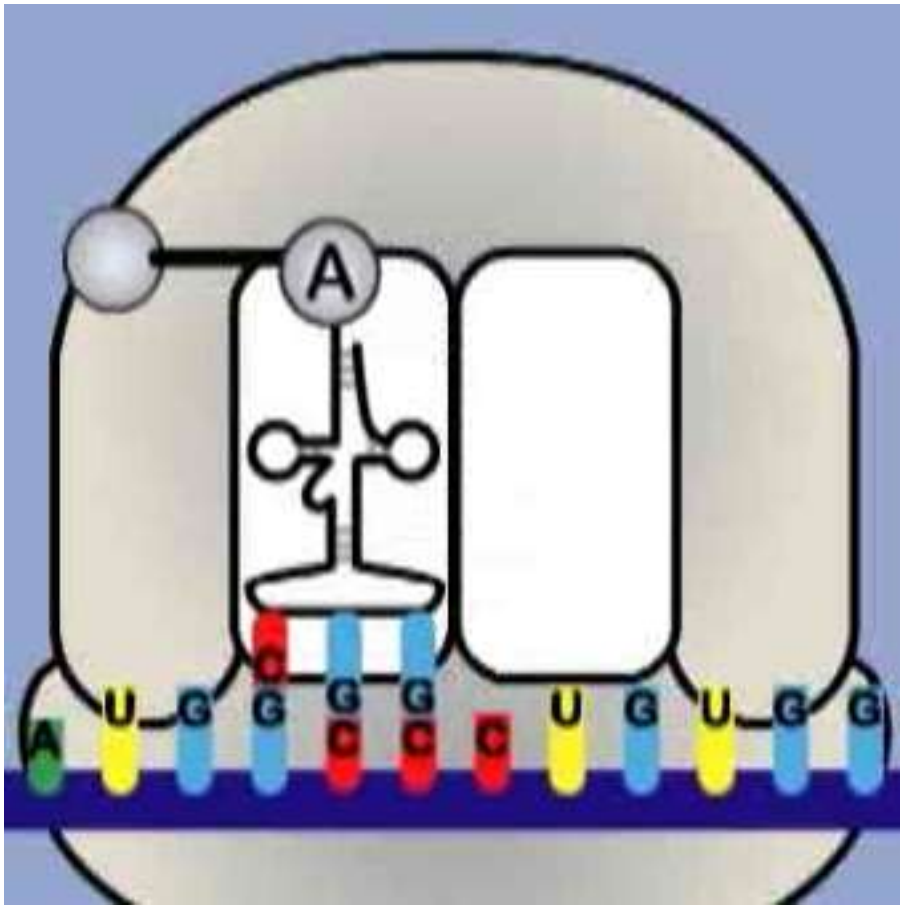
The anticodon pairs with the Start codon (AUG).

Then a second tRNA binds to the second mRNA codon.



Step 3: Amino acid chain forms

The amino acids on each tRNA bind together to begin forming an amino acid chain.



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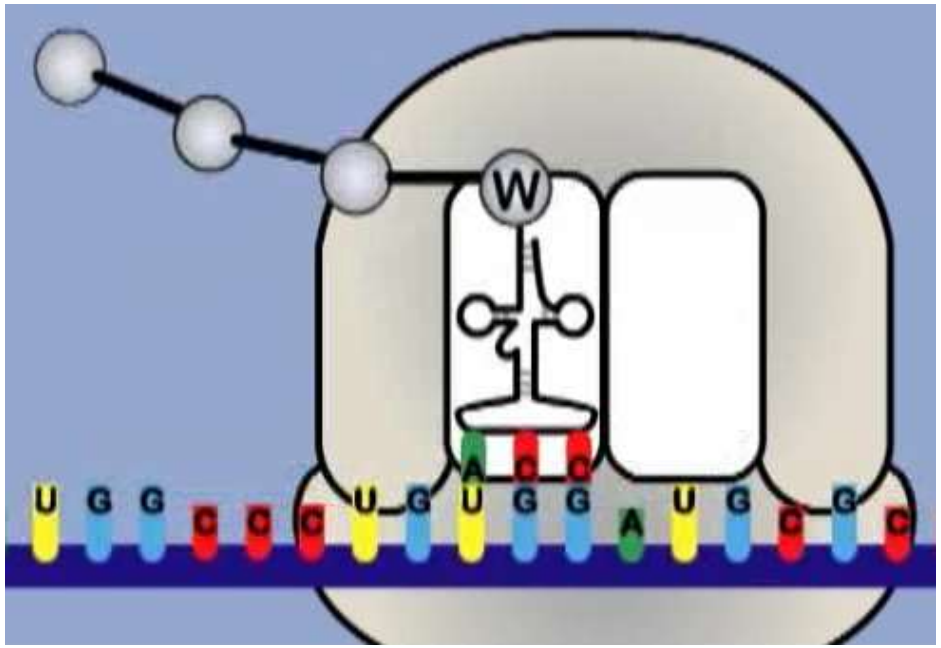

Ribosome shifts along mRNA strand to continue adding tRNAs.

Practice

What are the anticodons that pair with these mRNA codons?

AUG UCC CGA

Practice

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AUG UCC CGA

UAC AGG GCU

Review

DNA is transcribed into an _____ strand.

Review

DNA is transcribed into an mRNA strand.

The mRNA strand leaves the _____.

Review

DNA is transcribed into an mRNA strand.

The mRNA strand leaves the nucleus.

The mRNA binds to a _____ to begin _____.

Review

DNA is transcribed into an mRNA strand.

The mRNA strand leaves the nucleus.

The mRNA binds to a ribosome to begin translation.

_____ bring amino acids to the ribosome and pair with the mRNA based on their _____.

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DNA is transcribed into an mRNA strand.

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tRNAs bring amino acids to the ribosome and pair with the mRNA based on their anticodons.

The _____ _____ bond together to form a chain and become a _____.

Review

DNA is transcribed into an mRNA strand.

The mRNA strand leaves the nucleus.

The mRNA binds to a ribosome to begin translation.

tRNAs bring amino acids to the ribosome and pair with the mRNA based on their anticodons.

The amino acids bond together to form a chain and become a protein.

EXIT TASK

If you make a mistake (mutation) in the DNA or mRNA, how would that affect the protein "message" that would be made?