

# tRNA

Transfer RNA

## STRUCTURE:

- Clover shaped
- top:
  - attaches an amino acid
- Bottom:
  - anticodon (3 nucleotides that complimentary base pair with the mRNA codon)

# TRANSLATION

mRNA --> Protein

## What is translation?

- Nucleotides of mRNA are decoded into sequences of amino acids, in a polypeptide chain, which ultimately assembles a protein

## STEP 1:

- mRNA in the cytoplasm attaches to a ribosome
- tRNA meets mRNA and the process begins at the start codon

## What is the...

- start codon? ■ AUG
- start anticodon? ■ UAC
- starting amino acid? ■ Methionine

## **STEP 2:**

- Once the Methionine is bound, the ribosome moves along the mRNA strand, codon by codon
- As the ribosome moves to the next mRNA codon the tRNA floats away, but leaves the amino acid behind

## **STEP 3:**

- Each amino acid left behind covalently bonds to the next by a peptide bond (thus forming a polypeptide)

## **STEP 4:**

- Process continues until the ribosome reaches one of the three stop codons
- What are the stop codons?
- UGA, UAA, UAG

## **RESULTS:**

- The polypeptide chain is released
- The assembly of a protein is complete

## **CLOSURE:**

- Using the following DNA strand:
  - ATGCCTAAGGCACGGTAAAAG
- Find:
  - The complimentary strand of DNA
  - The complimentary strand of mRNA
  - The amino acid sequence (Protein)

## **ANSWERS:**

- TACGGATTCCGTGCCATTTTC
- UACGGAUUCGUGCCAUUUUC
- Tyr,Gly,Phe,Arg,Ala,Ile,Phe