Pre-Processing of mRNA

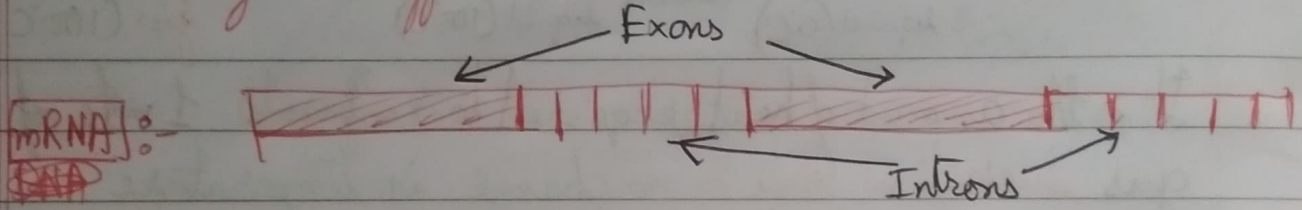
After pre-mRNA is formed after transcription, it needs to be pre-processed in case of eukaryotes

In pre-mRNA we have :-

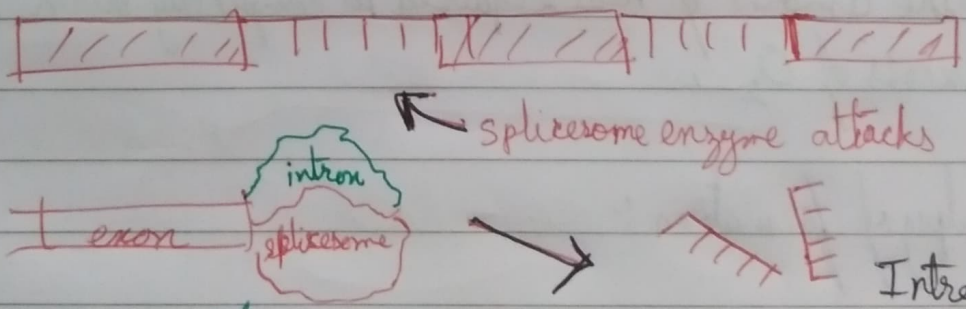
1) Exons → codes for proteins
2) Introns → does not code for proteins

*

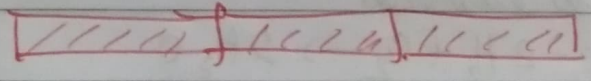
Introns do not have any purpose in protein synthesis
Hence they are reffered to as non-sensual



∴ These Introns do not actually contribute to protein synthesis
They are spliced out by Spliceosome enzyme



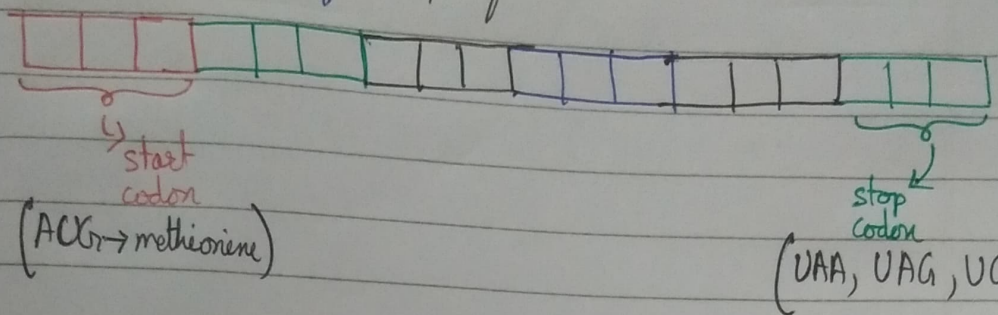
After Introns splice out, Exons rejoin to form nature RNA



This end product nature RNA leaves the nucleus → cytoplasm

mRNA :-

In mRNA, sequence of 3 bases → codon
Each codon codes for specific amino acid

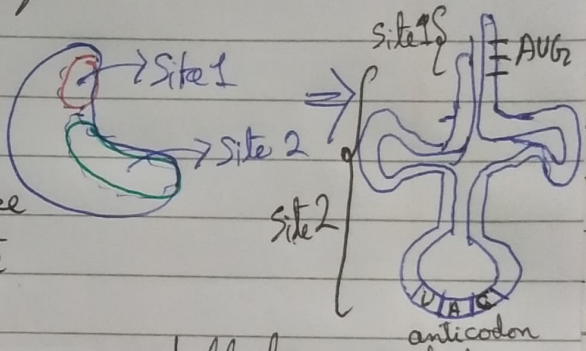


tRNA :-

When mature mRNA reaches cytoplasm, the enzyme Aminoacyle tRNA synthetase help in recognition of amino acid.

This enzyme has two sites :-

- Site 1 → recognises AUG and binds here
- Site 2 → tRNA binds in this site



Steps :-

1) tRNA picks up appropriate amino acid floating in cytoplasm
2) Amino acids transported to mRNA
3) tRNA has anti-codons that are complementary to mRNA codons
4) These anticodons recognises codons on the mRNA and bonds to them via H-bond.

Anti-codon — H-bond — Codon

Throughout this binding process, 4 ATP(s) are required for each amino acid added to polypeptide chain
Two ATP → to charge tRNA
One ATP → to carry charged tRNA to ribosome
One ATP → to move ribosome to next codon