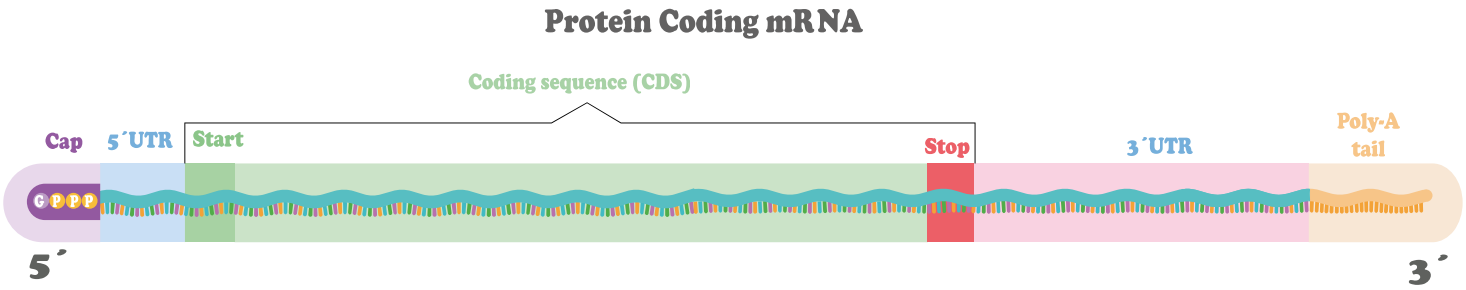
CONCEPT: mRNA MODIFICATION

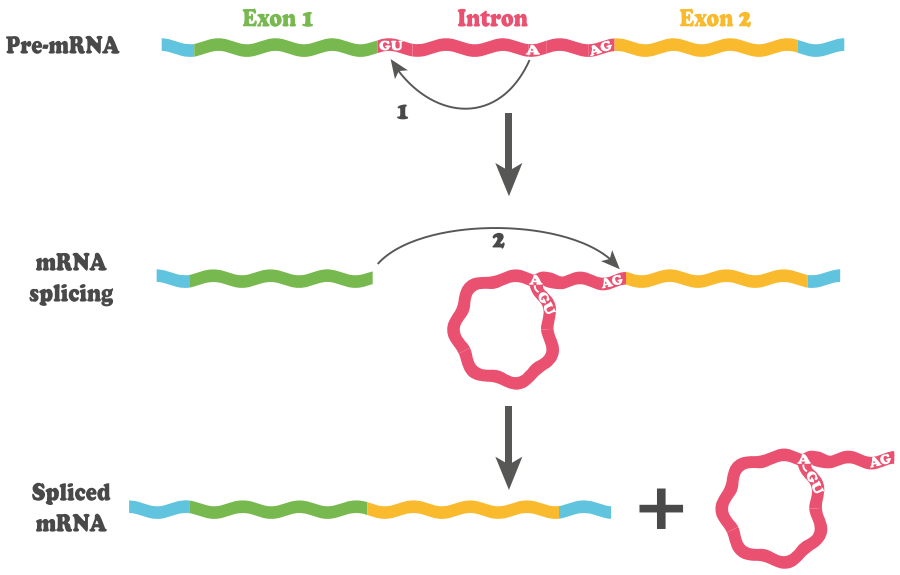
- After transcription RNA goes through _____ processing steps before translation
  - □ It gets a **5' cap** through the attachment of a 7-methylguanosine molecule
    - Protects RNA from degradation
    - Important for translation
  - □ It gets a **3' polyadenylation tail** through adding 150-200 adenine nucleotides at the end
    - A **polyadenylation signal** (AAUAAA) triggers the addition of the poly A tail

EXAMPLE:



- **Splicing** removes non-coding **introns** from the _____ **exons**
  - □ The **Spliceosome** splices the introns out of the pre-mRNA
    - The spliceosome is made up of **small nuclear RNAs** (U1,U2,U4,U5,U6) and proteins
    - We call the spliceosome **small ribonucleoprotein complex (snRNP)**
  - □ The spliceosome recognizes three sequences that are required for splicing
    - The **5' splice site** is a **GU**
    - The **3' splice site** a **AG** (called the **GU-AG rule**)
    - **Branch point** is a single adenine nucleotide around 18-40 nucleotides upstream of the 3' splice site
    - The intron forms a **lariat**, which is a small circular structure, when it is excised from the pre-mRNA

EXAMPLE:



- **RNA editing** is a form of post-transcriptional RNA _____
  - □ **Substitution editing** is when a nucleotide is changes
  - □ **Insertional editing** is when a nucleotide is added
  - □ **Deletion editing** is when a nucleotide is deleted
  - □ **Guide RNAs** are RNAs that choose where RNA editing will occur

EXAMPLE: