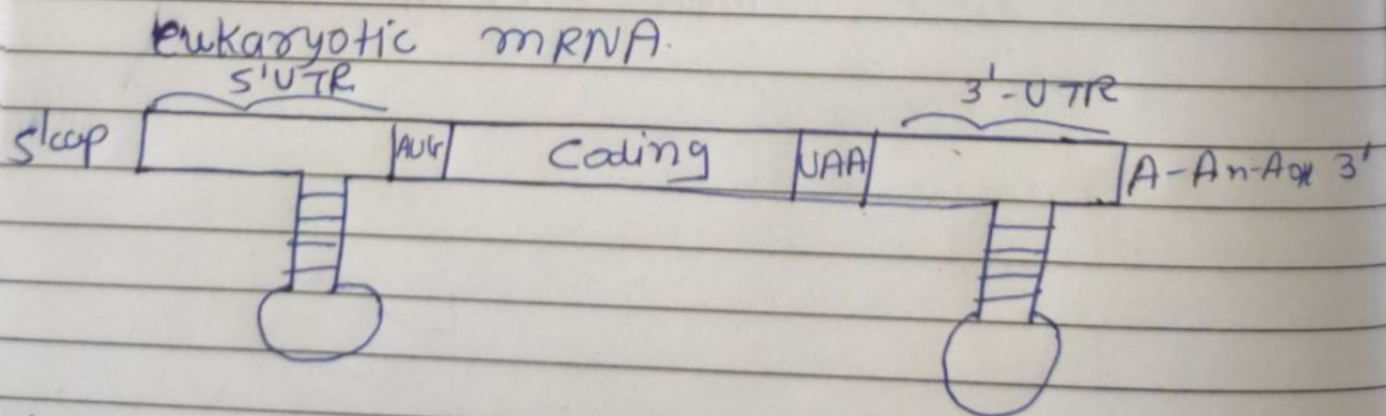


## way of gene expression regulation,

### \* Regulation of mRNA stability :-

- Importance :- Direct relationship between mRNA amount & translation of that mRNA into its cognate protein
- Changes in stability of specific mRNA have major effects on biologic processes
- mRNA exist in cytoplasm as ribonucleo protein particle [RNPs].
  - ↓
  - Function - <sup>some</sup> protect mRNA from digestion by nucleases
  - other under certain conditions promote nuclease attack.
- Stabilized or destabilized by interaction of protein with various structure or sequences
- Hormone may regulate stability by ↑ing or ↓ing amount of these mRNA binding proteins.



→ 6

Structure involved in mRNA stability:

- 5' cap - prevent attack by 5'-exonucleases
- poly A tail - prevent action of 3'-exonucleases
- sequence in 5'-UTR [untranslated region]
- sequence in coding region
- sequence in 3'-UTR [untranslated region]

- prevent initial endonucleolytic action
- metabolism take place in cytoplasmic bodies
- AU rich region in 3' Non coding
- stem loop structure in 5' & 3' Non coding
- represent binding site for specific protein that modulate mRNA stability

- Both are required for efficient initiation of protein synthesis

- Differentiation protein-protein interactions between general & specific mRNA translational apparatus & 5' cap result in m<sup>6</sup>A (cap dependent translation control)