CONCEPT: PROKARYOTIC TRANSCRIPTION

● Prokaryotic transcription _____ from eukaryotic transcription

□ Prokaryotic transcription initiation requires certain factors

- **Promoters** are sequences that signal for the start of transcription

- There are three prokaryotic promoter **consensus sequences**, meaning similar sequences

- **Pribnow box** (~10bp sequence) which is upstream of start site – 5' TATAAT 3'

- 35 base pair consensus sequence

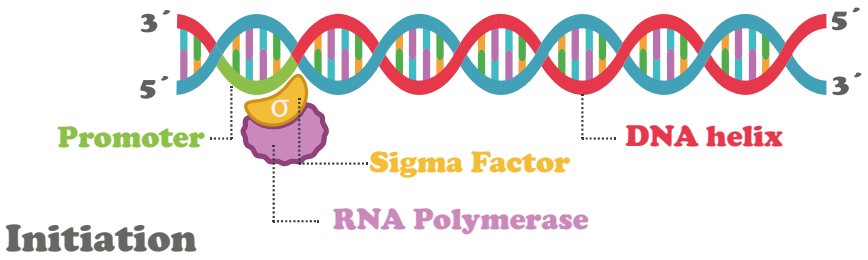
- -40 to -60 upstream sequence (occasionally there)

□ The RNA polymerase **holoenzyme** binds to the promoter

- Consists of a **sigma factor** and a **core enzyme**

- The sigma factor is a peptide sequence that controls specificity of the RNA polymerase

EXAMPLE:



□ Prokaryotic transcription elongation occurs _____ initiation

- **Transcription bubble** is a sequence of ~18 nucleotides of unwound DNA where transcription occurs

□ Prokaryotic transcription termination occurs when RNA polymerase reaches a specific _____

- **Termination sequences** (terminators) are found upstream of the termination site

- **Rho-dependent terminators** cause termination in the presence of the **rho protein**

- **Rho-independent terminators** cause termination in the absence of the rho protein

- **Intrinsic termination** occurs in uracil rich RNA transcripts, as the bonds are weak

- Can cause disassociation of RNA polymerase and transcription termination

□ **Polycistronic mRNA** is when a group of genes are transcribed into RNA in a _____ strand

- A single terminator is present at the end of a group of genes

- These genes have to be processed into individual genes

EXAMPLE: