Transcription

• Conversion of DNA to RNA
• Not all DNA is copied
• Specific regions corresponding to genes
  – Encode proteins or structural RNA molecules

• First step in protein production in the general scheme:

  DNA $\rightarrow$ RNA $\rightarrow$ Protein
RNA polymerase

- Three different types of RNA need to be synthesized:
  - rRNA, tRNA and mRNA
- One RNA polymerase responsible for RNA synthesis in prokaryotes
- Multi-subunit enzyme
  - Molecular weight approx 450 KDa
  - Holoenzyme $\alpha_2,\beta,\beta',\sigma,\omega$
  - Core polymerase $\alpha_2,\beta,\beta'$
3 steps in transcription

- Initiation
- Elongation
- Termination
Termination

Protein release factors

Uncharged tRNA and peptide released from ribosome, which is accompanied by GTP hydrolysis and RFs released.

Ribosome dissociates