

Gene Regulation Overview

Transcriptional Control

- Promoter accessibility
- Transcription factor binding
- RNA polymerase recruitment
- Primary regulation point

Enhancers and Silencers

- Regulatory DNA sequences
- Can be far from gene
- Increase or decrease transcription
- Bind transcription factors

Chromatin Remodeling

- ATP-dependent complexes
- Alter nucleosome positioning
- Expose or hide DNA
- Control gene accessibility

Post-transcriptional

- mRNA stability regulation
- Alternative splicing
- MicroRNA regulation
- Translation control