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# Gene Regulation in Eukaryotes

Gene regulation in eukaryotes is regulated by transcriptional activators and repressors. The repressors bind to specific DNA sequences and inhibit transcription. In eukaryotes, transcription involves several steps. It occurs in both, nucleus (transcription) and cytoplasm (translation).

# Lac operon Notes

- Lac operon contains genes involved in metabolism.
- The genes are expressed only when lactose is present and glucose is absent.
- The operon is turned on and off in response to the glucose and lactose levels: catabolite activator protein and lac repressor.
- The lac repressor blocks the transcription of the operon. In the presence of lactose, it stops acting as a repressor.
- catabolite activator protein activates the transcription of the operon, only when glucose levels are low.