

Edexcel (A) Biology A-level

7.16 - Gene Expression

Flashcards

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Not all genes in a cell are expressed.
Why?



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Proteins called DNA transcription factors silence or activate genes to enable cell specialisation / to control when proteins are produced.



How do transcription factors work?



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1. Move from the cytoplasm into nucleus.
2. Bind to promoter or enhancer region of target gene.
3. Makes it easier or more difficult for RNA polymerase to bind to gene. This increases or decreases rate of transcription.



What is the promoter region?



What is the promoter region?

Base sequence upstream of a gene.

Facilitates binding of RNA polymerase to promote transcription.



What is the enhancer region?



What is the enhancer region?

Short base sequence. Binding of transcription factor changes chromatin structure. Enables RNA polymerase to bind.



Give an example of a hormone that affects transcription and explain how it works.



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1. Steroid hormone oestrogen diffuses through cell membrane.
2. Forms hormone-receptor complex with ER α receptor in the cytoplasm.
3. Complex enters the nucleus & acts as transcription factor to facilitate binding of RNA polymerase.

