

# Gene silencing

**Gene** silencing is the regulation of gene expression in a cell to prevent the expression of a certain gene.

Gene silencing can occur during either transcription or translation and is often used in research.

In particular, methods used to silence genes are being increasingly used to produce therapeutics to combat cancer and diseases, such as infectious diseases and neurodegenerative disorders.

Gene silencing is often considered the same as gene knockdown.

When genes are silenced, their expression is reduced.

In contrast, when genes are knocked out, they are completely erased from the organism's genome and, thus, have no expression.

Gene silencing is considered a gene knockdown mechanism since the methods used to silence genes, such as RNAi, CRISPR, or siRNA, generally reduce the expression of a gene by at least 70% but do not completely eliminate it. Methods using gene silencing are often considered better than gene knockouts since they allow researchers to study essential genes that are required for the animal models to survive and cannot be removed. In addition, they provide a more complete view on the development of diseases since diseases are generally associated with genes that have a reduced expression.

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