

# Gene expression

The process by which information from a [gene](#) is used in the synthesis of a functional [gene product](#).

[Gene transcription](#) is the process by which [DNA](#) is used as a template to synthesize [RNA](#). It is the first step in [gene expression](#)

These products are often [proteins](#), but in [non-coding genes](#) such as [transfer RNA](#) (tRNA) or small nuclear RNA (snRNA) genes, the product is a functional RNA. The process of gene expression is used by all known life - eukaryotes (including multicellular organisms), prokaryotes (bacteria and archaea), and utilized by viruses - to generate the macromolecular machinery for life. Several steps in the gene expression process may be modulated, including the transcription, RNA splicing, translation, and post-translational modification of a protein.

## Gene expression regulation

[Gene expression regulation](#).

## Gene expression analysis

[Gene expression analysis](#).

## Gene expression profiling

[Gene expression profiling](#).

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