

Epigenetics

Biology

Heritable changes in gene expression without changes to the sequence.

The main epigenetic mechanisms.

Mechanism	Effect
DNA methylation	Usually silences the gene
Histone acetylation	Loosens chromatin — increases expression
Histone methylation	Can activate or repress, depending on site
Non-coding RNA	Interferes with transcription or translation
Chromatin remodelling	Alters physical accessibility

Some marks are heritable across generations. The Dutch Hunger Winter cohort remains the most-cited human evidence.