

Abstract

Epigenetics is the study of heritable changes in gene activities that are not caused by changes in the DNA sequence. Epigenetic mechanisms can be employed at many levels, from transcription to translation. They include DNA methylation, histone modification, and with it connected chromatin modification, and RNA interference. The result is the change of chromatin conformation leading to decrease or increase of certain gene expression, X-chromosome inactivation or gene imprinting. Epigenetic regulation plays important role in etiopatogenesis of multifactorial diseases. Genetic predisposing factors (in autoimmune diseases there are genes of major histocompatibility complex) and environmental factors, which affect our genome just through epigenetic modifications, are involved in their manifestation.

Key words:

Epigenetic mechanisms, DNA methylation, histone modification, RNA interference, genomic imprinting, X-chromosome inactivation, multifactorial disease.