

Abstract

Exact cause of rheumatoid arthritis, as well as other autoimmune diseases has not been identified yet. In last twenty years, epigenetics showed a new face of immune system. DNA methylation, modification of histones – proteins around which DNA is wrapped, or interference of small RNA sequences – microRNAs, these all are heritable changes outside the DNA sequence that provide another component involved in autoimmunity. Presented epigenetic mechanisms alter gene expression and thus facilitate production of pro-inflammatory factors leading to autoimmune reactions. Moreover, genes regulating apoptosis are also frequently targeted by epigenetic modifications. Not only these mechanisms provide another level of immune defense, they also explain higher female susceptibility to autoimmune diseases and the influence of environment on pathogenesis of these diseases.