

Abstract

Riboswitches are segments of pre-mRNAs and mRNAs, present in their UTRs or introns, which are able to bind small molecules (usually a metabolite, ion or nucleotide) and in response „switch“ between two conformations, which can affect the downstream gene expression process. In most cases, at least in bacteria, the mRNA which the riboswitch regulates encodes a component of the metabolism of the riboswitch-binding ligand. Contrary to other mechanisms of gene expression regulation, riboswitches do not require the participation of a protein. They may represent a way for the hypothetical early forms of life to regulate their genes. Riboswitches are abundant in bacteria and there is only a handful in eukaryotes. The scope of the study of riboswitches is ever more increasing and today it could very well be an independent branch of molecular biology.