RNA binding protein

RNA-binding proteins (often abbreviated as RBPs) are proteins that bind to the double or single stranded RNA in cells and participate in forming ribonucleoprotein complexes. RBPs contain various structural motifs, such as RNA recognition motif (RRM), dsRNA binding domain, zinc finger and others.

They are cytoplasmic and nuclear proteins. However, since most mature RNA is exported from the nucleus relatively quickly, most RBPs in the nucleus exist as complexes of protein and pre-mRNA called heterogeneous ribonucleoprotein particles (hnRNPs). RBPs have crucial roles in various cellular processes such as: cellular function, transport and localization. They especially play a major role in post- transcriptional control of RNAs, such as: splicing, polyadenylation, mRNA stabilization, mRNA localization and translation. Eukaryotic cells encode diverse RBPs, approximately 500 genes, with unique RNA-binding activity and protein-protein interaction. During evolution, the diversity of RBPs greatly increased with the increase in the number of introns. Diversity enabled eukaryotic cells to utilize RNA exons in various arrangements, giving rise to a unique RNP (ribonucleoprotein) for each RNA. Although RBPs have a crucial role in post-transcriptional regulation in gene expression, relatively few RBPs have been studied systematically.

see Cold inducible RNA binding protein.

RNA binding proteins (RBPs) are strongly linked to the pathophysiology of motor neuron diseases.

see TIA1