

Protein biosynthesis is a core process in all living organisms. Assembly of the protein chain from aminoacids is catalysed by the ribosome, an ancient and extremely complex macromolecular machine. Several different classes of accessory molecules are involved in translation, and one set of them, called translational GTPases (trGTPases) is the focus of this work. These proteins oscillate between their GTP- and GDP-bound states via regulated cycles of GTP hydrolysis and exchange of GDP for GTP. The exchange of GDP for GTP is accelerated by the GDP/GTP Exchange Factor (GEF), while hydrolase activity of the GTPase is stimulated by the GTPase-Activating Protein (GAP). The conformation of the GTPase in complex with GTP usually differs from that in complex with GDP, and these structural changes serve as a signal for a partner molecule, inducing changes in its conformation.

This book provides a comprehensive overview of the state of the art in trGTPase research, touching upon structural, biochemical and thermodynamical aspects and would be a useful reference for anybody interested in the mechanisms and regulation of protein biosynthesis.

Vasili Hauryliuk

Vasili Hauryliuk (born April 28, 1980, Moscow) earned his Ms. Sci. in Moscow State University, 2002. In 2006 he defended his PhD in the same university, and in 2008 defended his second PhD in Uppsala University, Sweden. Vasili is currently based in Tartu University, Estonia and works on protein biosynthesis.



9 783639 127003

978-3-639-12700-3