ACCESSORY PROTEINS: THE CONTRADICTORY ROLE IN THE LIFE OF PRO- AND EUKARYOTES

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Accessory (or auxiliary) proteins are present in organisms of different levels of complexity and belong to a special class of polypeptides with diverse functions that include monitoring of the correct stacking of various type polypeptides at the posttranslational level, to ensure their appropriate conformation, specificity, and targeted delivery to the intracellular compartments or to the limiting membrane. Accessory proteins can influence the formation and regulation of the efficiency as well as specificity of signals transduction in the receptor–G protein–effector system, participate in the organization and dynamics of cytoskeleton structures. In the presence of accessory proteins, endosomes are formed and internalized, secretory vesicles are inserted into the cell membrane, replication and repair of the damaged DNA are performed. In pathogenic bacteria, toxins can be protected by accessory proteins. Furthermore, such proteins promote the secretion of polypeptides by their unfolding near the membrane and subsequent refolding in the periplasm. Moreover, accessory proteins contribute to the formation and regulation of organism protective reactions. In this review, an attempt has been made to generalize the available information about the role of accessory proteins in vital functions of pro- and eukaryotes, and some prospects for further research on such proteins have been proposed.

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