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The most of cell processes is induced and controlled by the external stimuli – i.e. by the signals. These signals – generally of either chemical or physical nature – are recognized by the receptors and transduced to the efficient structures inside the cell.

This publication offers a comprehensive account of the fields of membrane receptore (special interest is paid to receptors for neurotransmitters in Part II: "Membrane receptors and neurotransmitters"). The general principles of signal transduction pathways are presented in Part I: "G-proteins, adenylate cyclase and protein phosphorylation". The conversion of hormonal signal into appropriate intracellular metabolic signals, detection, integration and amplification of the external signals and the role of G-proteins in these processes are discussed here in context of specific cellular processes. In Part III: "Membrane transport and bioenergetics", transport processes mainly in various bacteria are discussed in relation to the signal transduction and to the growth.

This book covers recent development in membrane receptor research and signal transduction and membrane transport mechanisms in the context of current knowledge of the structure and function of membranes. It should be very useful to researchers and students interested in the fields of mechanism of action of hormones, signal transduction, membrane transport and generally in cell growth and development.

Eva Zažímalová (Praha)