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Intracellular Signalling Proteins

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Intracellular signalling activates pathways that control cell function and coordinate the crosstalk between tissues in human body. Mechanisms of initiation and control of the intracellular signalling pathways for decades have been and still are one of the most studied topics in biology. This has resulted in the detailed characterisation of numerous intracellular signalling pathways. Consequently, researchers designed different strategies for specific targeting of signalling pathways that could be used for therapeutic benefit. Although an immense advance in this field has been made, there are still many unanswered questions that need further relatively complex carefully designed investigations in order to allow a constricted control of particular signalling pathways without affecting others.

This thematic volume explores different intracellular signalling pathways with particular focus on proteins involved in these pathways. Nucleobindins, estrogen, AMP-activated protein kinase, mitofusin 2, gp130/Jak/STAT and dopamine signalling pathways, aquaporin water channels role in health and disease, and recent advances in computational studies of GPCR-G protein interactions are reviewed in details. The role of different molecular signalling pathways in the regulation of cell survival and differentiation in bones and in the metamorphosis of sponges is discussed. This volume will be particularly useful for researchers working on mechanisms of initiation and control of intracellular signalling pathways and/or targeting these mechanisms as therapeutic strategies. This volume is also intended as a scholarly material for use by students interested and/or working on projects in the field.

Cover image: AQP4 mediates the communication between astrocytes and microglia during neuroinflammation with consequent cell swelling. For further details, please read Sisto et al. published in this volume.

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