
Series Preface

The concept of signal transduction at the cellular level is now established as a cornerstone of biological sciences. Cells sense and react to environmental cues by means of a vast panoply of signaling pathways and cascades. While the steady accretion of knowledge regarding signal transduction mechanisms is continuing to add layers of complexity, this greater depth of understanding has also provided remarkable insights into how healthy cells respond to extracellular and intracellular stimuli and how these responses can malfunction in many disease states.

Central to advances in unraveling signal transduction is the development of new methods and the refinement of existing ones. Progress in this field relies upon an integrated approach that utilizes techniques drawn from cell and molecular biology, biochemistry, genetics, immunology, and computational biology. The overall aim of this series is to bring together, and continually update the wealth of methodologies now available for research in many aspects of signal transduction. Each volume is assembled by one or more editors who are leaders in their specialty. Their guiding principle is to recruit knowledgeable authors who will present procedures and protocols in a critical, yet, reader-friendly format. Our goal is to ensure that each volume will be of maximum practical value to a broad audience, including students, seasoned investigators, and researchers who are new to the field.

The six years, since the first volume on *Calcium Signaling* edited by Dr. James Putney appeared in this series, have been marked by a rapid expansion of both knowledge and techniques applicable to this area. Like its predecessor, this second edition presents a combination of cutting edge methodology and concise reviews of both familiar and novel aspects of the field. The book presents updates of previously covered methods, such as utilization of fluorescent indicators to measure Ca^{2+} , and introduces new ones, such as, the application of high-throughput technology to follow rapid calcium changes in the cytoplasm. Particularly notable is the inclusion of approaches to studying calcium signaling in lower eukaryotes that are especially amenable to utilizing genetic approaches. In addition, attention is devoted to topics in which the importance of calcium has more recently gained prominence, such as apoptosis and strategies to identify drugs targeted to affect calcium channel function.

The broad scope of this volume serves to emphasize the swift and dynamic advances that are being made in studies of calcium signaling, a field that is central to our understanding of signal transduction mechanisms.

Joseph Eichberg, Jr., Ph.D.
Series Editor