

Preface

THE PREFACE TO THE FIRST EDITION OF THIS VOLUME, *Calcium Signaling*, compiled in 2011, mentioned the enormity of the literature encompassing the functions of calcium as a cellular messenger. It is exciting that over the past 8 years, the supralinear increase in our knowledge of the complex ways in which cells utilize calcium has continued. This new knowledge is not incremental; there have been many hugely significant findings—characterization of the mitochondrial uniporter complex, atomic resolution of calcium channels, discovering yet more interactions between calcium signaling pathways—to name but a few. As with the first edition, the idea of this volume is to provide a detailed snapshot of the calcium signaling field as it stands now and to give some historical perspective of the underlying research. We tasked the authors with the need for comprehensive overviews of their respective fields that were relevant to both expert and nonexpert researchers alike. We are extremely grateful to the authors for their commitment to this project, and for submitting such illuminating and scholarly articles.

The chapters in this volume span the breadth of calcium signaling, from details of discrete calcium channels and transporters and the generation and sensing of calcium signals within cells to the effector mechanisms that translate calcium signals into biological outcomes. The involvement of calcium signaling in disease is becoming ever more apparent, and many chapters in this volume consider the roles of both physiological and pathological calcium signals within cells and tissues. This volume updates a number of topics from the first edition, particularly those areas of great activity, but it also extends the Cold Spring Harbor subject collection on calcium signaling to several new topics, including the role of calcium in cellular regeneration, tissue calcification, and lysosomal calcium signaling. Collectively, the chapters illustrate both the generic nature of calcium signaling and its unique cell- and tissue-specific functions.

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