Mitosis / Cytokinesis

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Preface

Mitosis and cytokinesis are two activities of fundamental importance to eukaryotic cells. This book reflects the current knowledge of investigators whose chief concern has been to understand mitosis and cytokinesis. Even though various aspects of mitosis and cytokinesis have been covered in separate chapters or review articles, no comprehensive treatment of these subjects has appeared since the classic monograph of Franz Schrader in 1953 and the extended review of Dan Mazia in 1961. We have attempted to fill this gap by providing in one book an extended treatment of cell division, from the formation of chromosomes in the nucleus until the end of cell cleavage.

The chapters in this book cover various aspects of mitosis and cytokinesis as studied from different points of view by various authors. The chapters summarize work at different levels of organization, including phenomenological, molecular, genetic, and structural levels. In many cases we asked the contributors to restrict themselves to studies at one particular level of organization or to studies using one particular approach. The authors were asked to include an overview of the field, to develop a main theme in their area of expertise, and to describe the conclusions so that they could be understood by a broad range of biologists. They were also encouraged, if and where appropriate, to speculate somewhat on potential developments and to include in their contributions new and previously unpublished material. Thus we anticipate that this volume will provide background and perspective into research on mitosis and cytokinesis that will be of use and of interest to a broad range of scientists and advanced students interested in basic cellular events, including cell biologists, molecular biologists, developmental biologists, geneticists, biochemists, and physiologists.

The book is organized into three general sections. The chapters in Part I deal with premeiotic and premitotic events, in Part II with mitosis, and in Part III with cytokinesis. We hope that the book will give readers some appreciation of how workers in the field presently understand and approach mitosis and cytokinesis, two processes of prime importance to the eukaryotic cell.

Arthur M. Zimmerman
Arthur Forer

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Premeiotic / Premitotic Events