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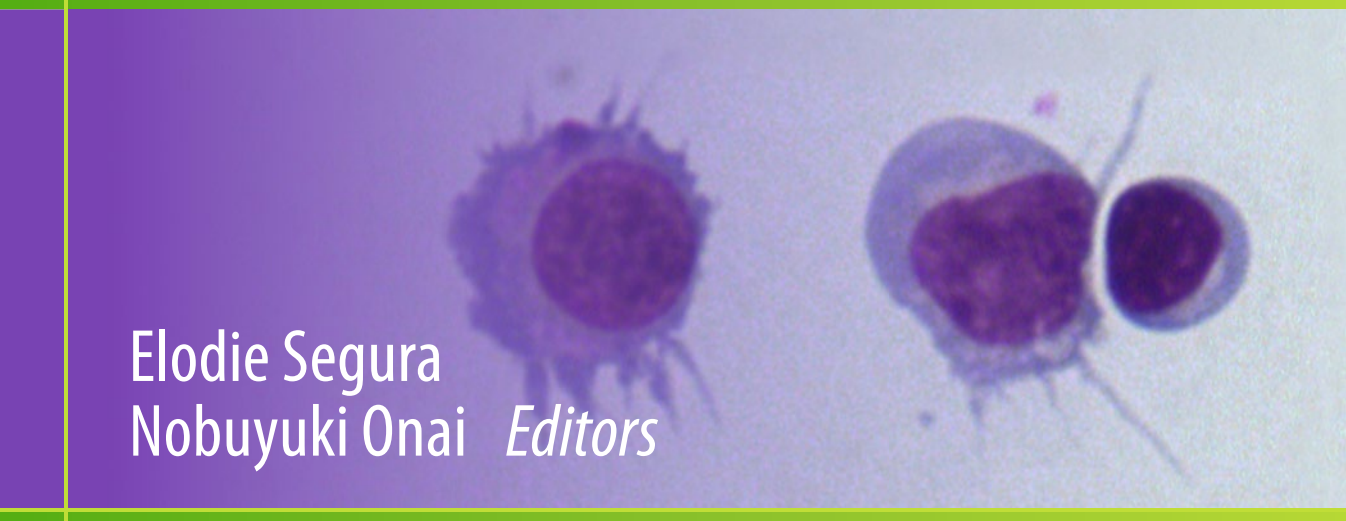

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Dendritic Cell Protocols

Third Edition

Humana Press

METHODS IN MOLECULAR BIOLOGY

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Preface

Dendritic cells are fascinating cells but can be challenging to work with. In this new edition of *Dendritic Cell Protocols*, we aimed at complementing the previous edition in order to provide both beginners and more experienced researchers a choice of methods to isolate and analyze dendritic cells. An introductory review provides an overview of recent advances in the characterization of DC subsets in mouse and human.

Dendritic cells are rare, fragile, and their isolation is often a tedious procedure. For those who wish to generate dendritic cells in vitro, two chapters provide methods to culture human and mouse dendritic cells. Several chapters are devoted to protocols for the isolation of dendritic cells from various organs and tissues (lymphoid organs, intestine, skin, lung, liver), both in mouse and human. In addition, a chapter describes the isolation of dendritic cell progenitors from mouse, and another chapter the purification of dendritic cells from human blood.

Dendritic cells are often described as conductors of the immune response and, as such, perform a wide range of functions. We have compiled cutting-edge methods for the analysis of dendritic cell properties ex vivo. Some of these methods can be applied to dendritic cells from any species. We also included a "bioinformatics tutorial" chapter for the analysis of dendritic cell transcriptome by nonexperts.

In vivo mouse studies have significantly contributed to our knowledge of dendritic cells homeostasis, interactions with other immune cells, and division of labor between dendritic cell subsets. The last section contains several protocols for the in vivo analysis of dendritic cells through cell ablation, adoptive transfer, infection models, or in vivo imaging. Finally, we provide a protocol for the generation of humanized mice for analyzing human dendritic cells in a physiological setting.

The editors wish to thank all authors for their excellent contributions. We hope that this Protocols book will be a valuable tool for a better understanding of dendritic cell biology.

Paris, France — ***Elodie Segura***
Tokyo, Japan — ***Nobuyuki Onai***

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Part I

Introduction