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Editor

Tumor Microenvironment

Hematopoietic Cells – Part B

Editor

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This book is dedicated to my mother, Marina Sobolevsky, of blessed memory, who passed away during the creation of this volume. Professor of Mathematics at the State University of Ceará (UECE), she was loved by her colleagues and students, whom she inspired by her unique manner of teaching. All success in my career and personal life I owe to her.



*My beloved mom Marina Sobolevsky of blessed memory
(July 28, 1959–June 3, 2020) and my father Lev Birbrair.*

Preface

This book's initial title was "Tumor Microenvironment." However, due to the current great interest in this topic, we were able to assemble more chapters than would fit in one book, covering tumor microenvironment biology from different perspectives. Therefore, the book was subdivided into several volumes.

This book "Tumor Microenvironment: Hematopoietic Cells – Part B" presents contributions by expert researchers and clinicians in the multidisciplinary areas of medical and biological research. The chapters provide timely detailed overviews of recent advances in the field. This book describes the major contributions of different hematopoietic components in the tumor microenvironment during cancer development. Further insights into these mechanisms will have important implications for our understanding of cancer initiation, development, and progression. The authors focus on the modern methodologies and the leading-edge concepts in the field of cancer biology. In recent years, remarkable progress has been made in the identification and characterization of different components of the tumor microenvironment in several tissues using state-of-art techniques. These advantages facilitated identification of key targets and definition of the molecular basis of cancer progression within different organs. Thus, the present book is an attempt to describe the most recent developments in the area of tumor biology which is one of the emergent hot topics in the field of molecular and cellular biology today. Here, we present a selected collection of detailed chapters on what we know so far about the hematopoietic components in the tumor microenvironment in various tissues. Eleven chapters written by experts in the field summarize the present knowledge about distinct hematopoietic components during tumor development.

Fabrizio Mattei and colleagues from Istituto Superiore di Sanità discuss the role of eosinophils in the tumor microenvironment. Karan Kohli and Venu G. Pillarisetty from the University of Washington describe dendritic cells in the tumor microenvironment. Jason B. Williams and Thomas S. Kupper from Harvard Medical School compile our understanding of resident memory T cells in the tumor microenvironment. Camille Guillerey from The University of Queensland updates us with what we know about tumoral NK cells. Caroline Imbert and Daniel Olive from Inserm, France, summarize current knowledge on $\gamma\delta$ T cells in tumor microenvironment. Dario A.A. Vignali and colleagues from the University of Pittsburgh School of Medicine address the importance of regulatory T cells in the tumor microenvironment. Huichun

Zhan and Kenneth Kaushansky from Stony Brook School of Medicine talk about the hematopoietic stem cells microenvironment in myeloproliferative neoplasms. Aarthi Rajesh and Merilyn Hibma from the University of Otago focus on Langerhans cells in the tumor microenvironment. Angélica Aponte-López and Samira Muñoz-Cruz from Universidad Nacional Autónoma de México give an overview of the mast cells in the tumor microenvironment. Markus Maeurer and colleagues from Champalimaud Center for the Unknown present the role of B cells in the gastrointestinal tumor microenvironment. Finally, Samuel Cheshier and colleagues from the University of Utah School of Medicine introduce what we know so far about the role of microglia within brain tumors.

It is hoped that the articles published in this book will become a source of reference and inspiration for future research ideas. I would like to express my deep gratitude to my wife Veranika Ushakova and Mr. Murugesan Tamilselvan from Springer, who helped at every step of the execution of this project.

Belo Horizonte, Minas Gerais, Brazil

Alexander Birbrair

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