

Drug Discovery

Acute Brain Impairment

Scientific Discoveries and Translational Research

Edited by Philip V. Peplow, Svetlana A. Dambinova,
Thomas A. Gennarelli and Bridget Martinez



A rise in the number of young and old patients suffering from a stroke or traumatic brain injury has led to the need for better drug development and treatment, as well as diagnosis and prevention of ischemic stroke and traumatic brain injury. This book provides a comprehensive overview of scientific advancements in these areas.

Chapters provide the latest knowledge in neuroscience, biotechnology, and personalized medicine applicable to acute brain injuries. Development of neuroprotective drugs is treated in detail. Chemical biomarkers for detection, imaging and preventative strategies are covered to provide medicinal chemists with a broad view of translational aspects of the field.

This book will be useful to postgraduate students and researchers in medicinal chemistry and pharmacology as well as specialists in the acute brain injury field.

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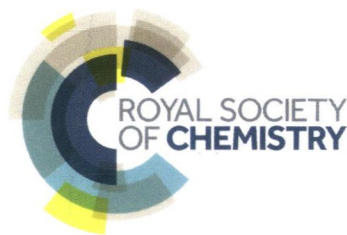
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Edited by

Philip V. Peplow

University of Otago, New Zealand

Email: phil.peplow@otago.ac.nz

Svetlana A. Dambinova

DeKalb Medical Center, Decatur, GA, USA

Email: dambinova@aol.com

Thomas A. Gennarelli

George Washington University, USA

Email: tgennarelli@att.net

and

Bridget Martinez

University of California, Merced, USA

Email: bmartinez26@ucmerced.edu



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Preface

Acute brain injury is associated with considerable short-term and long-term morbidity and mortality. The increasing effort devoted to understanding the cellular pathways and key molecules involved in acute brain injury, together with identifying markers that can improve diagnostic and prognostic accuracy, has provided the impetus for the construction of this book.

It is the goal of this book to provide a forum for clinical experts to present recent data on biomarkers and advanced neuroimaging modalities for acute brain injury. It also brings together scientific experts to present the state of the art in their fields. It is my hope that the topics covered herein will provide new information on the cellular and biochemical mechanisms involved in acute brain injury and that this knowledge will lead to a more effective approach to recognition and clinical management.

I wish to express my deep appreciation to each of the chapter authors for the time and effort spent on writing informative reviews on their respective areas of clinical and research interest. Also, I wish to express my gratitude to Professor Svetlana Dambinova for helping me to plan and organize the book chapters, and to my co-editors Professor Svetlana Dambinova, Professor Thomas A. Gennarelli, and Dr Bridget Martinez. I also wish to thank Rowan Frame and Dr Hannah Aitchison of the Royal Society of Chemistry for their help, support, and patience in the course of putting together this book.

Philip V. Peplow

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Dedication

This book is dedicated to Dr Bridget Martinez, whose friendship is a joy and inspiration to me. In loving memory of Bridget's father, Elmer Martinez, whose memory and spirit have guided her through life and an incredible journey in science, research and medicine. It is also dedicated to Bridget's mother, Eda Luz Noguera, who has been a source of love and motivation for her.

Philip Peplow

To my teacher, Acad. Natalia P. Bechtereva, an outstanding neurologist and neurophysiologist who unlocked to me the wonders of research in executive brain functions.

Svetlana Dambinova

My gratitude to my colleagues, friends and family who have supported me in this effort.

Thomas Gennarelli

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