

# Dopamine and Sleep

Jaime M. Monti · S.R. Pandi-Perumal  
S. Chokroverty  
Editors

# Dopamine and Sleep

Molecular, Functional, and Clinical Aspects

 Springer

*Editors*

Jaime M. Monti  
Department of Pharmacology  
and Therapeutics  
School of Medicine  
Montevideo  
Uruguay

S. Chokroverty  
Department of Neurology  
New Jersey Neuroscience Institute  
Edison, NJ  
USA

S.R. Pandi-Perumal  
Somnogen Canada Inc.  
Toronto, ON  
Canada

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*This book is dedicated to our families*

# Preface

This first edition of *Dopamine and Sleep: Molecular, Functional, and Clinical Aspects* provides comprehensive, yet up-to-date information pertaining to the role of dopamine in sleep and wakefulness. The dopamine system is being increasingly studied in the sleep field due to its prominent role in normal and aberrant brain processes. Since dopamine plays a crucial role in brain processes such as alertness, attention, cognitive organization, and mood regulation, it is particularly relevant to understand how its actions affect sleep and wakefulness.

The study of dopamine has expanded markedly in recent years with the application of electrophysiological, neurochemical, genetic, and neuropharmacological techniques. These techniques are now being used successfully to help decipher the role of dopamine in the regulation of sleep and wakefulness in health and disease. The results are of great importance for the understanding and treatment of sleep disruption in neurological and psychiatric disorders.

The editors believe that there is a current need to increase the awareness of the latest developments in this multidisciplinary field. Hence, they have brought together in the chapters of this volume a number of key studies with the overall aim of summarizing and selectively presenting these developments. The contributors are leading scientists in their respective fields.

The chapters in the first part of the book deal with preclinical studies on the role of dopamine in the promotion of wakefulness and the inhibition of REM sleep. The chapters in the second part relate to the effect of melanin-concentrating hormone and orexin/hypocretin on dopaminergic neurons involved in the regulation of the behavioral state. The third part of the volume focuses on the role of dopamine in sleep disturbances in different disease conditions. These include Parkinson's disease, narcolepsy, schizophrenia, depression, and restless legs syndrome. An attempt is made also to see how a number of drugs that are used in these conditions produce their effect by modifying dopamine function.

We have made every effort to ensure that the dosage recommendations are accurate and in agreement with the standards and collective opinion accepted at the time of publication. The formulations and usage described do not necessarily have specific approval by the regulatory authorities of all countries. Since dosage

regimens may be modified as new clinical research accumulates, readers are strongly advised to check the prescribing information to see whether changes have been made to the recommended dosages and/or contraindications for use.

Despite the editors' best efforts, it is possible that certain errors may have occurred in this volume. The authors and editors would be grateful for any criticisms or comments to ensure that this volume continues to evolve in the future.

The volume is meant for specialized readers in the field of sleep medicine, neurology, psychiatry, and life sciences, as well as for basic researchers in their respective fields.

We hope that this multidisciplinary volume on dopamine will become yet another contribution to advancing translational neuroscience, CNS drug development, and the fields of clinical neurology and psychiatry.

Montevideo, Uruguay  
Toronto, USA  
Edison, USA

Jaime M. Monti  
S.R. Pandi-Perumal  
S. Chokroverty

# Acknowledgments

A few acknowledgments are in order. A project like this represents not the work of one, but that of a community of scholars, and this is especially true of this volume. The authoritative chapters of the book are written by some of the leading experts in the field. We wish to thank these authors for their excellent contributions to this volume. It was a great pleasure to compile this volume. We sincerely hope that it will serve as an up-to-date and important source of information that covers the recent trends in CNS drug discovery. As editors of this volume, we would like to thank each other, because no coeditors could ever have been more patient, understanding, and helpful. We treasure the friendship and respect that editing this volume together has built.

We are grateful to our editor Beatrice Menz at Springer for her enthusiastic support in bringing this undertaking to fruition. We also would like to thank the staff at Springer for their enthusiastic support and guidance during the preparation of the book. In particular, we would like to thank Martina Hemberger, Springer Heidelberg, Germany, who inspired us to take up this project and set the publication process in motion, and Abirami Purushothaman, SPS, Chennai, for coordinating the publication process. They were wonderful to work with!

Finally, we would like to warmly thank our family for their support, encouragement, understanding, and especially patience. We also thank them for reminding us that there are things in life beyond writing and editing volumes.

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Sudhansu Chokroverty

# Contributors

**Darío Acuña-Castroviejo** Institute of Biotechnology, Biomedical Research Center, Health Science Technology Park, University of Granada, Granada, Spain

**Oscar Arias-Carrión** Unidad de Trastornos del Movimiento y Sueño (TMS), Hospital General Dr. Manuel Gea González, México D.F., Mexico

**Luciana Benedetto** Laboratorio de Neurobiología Del Sueño, Departamento de Fisiología, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay

**Michel Billiard** Department of Neurology, Gui de Chauliac Hospital, Montpellier, France

**Ritchie E. Brown** In Vitro Neurophysiology Section, Laboratory of Neuroscience, Department of Psychiatry, VA Boston Healthcare System and Harvard Medical School, VA Medical Center Brockton, Brockton, MA, USA

**Daniel Cardinali** Department of Teaching and Research, Faculty of Medical Sciences, Pontificia Universidad Católica Argentina BIOMED-UCA-CONICET, Buenos Aires, Argentina

**Dipesh Chaudhury** Division of Science, New York University Abu Dhabi (NYUAD), Abu Dhabi, United Arab Emirates

**Sudhansu Chokroverty** NJ Neuroscience Institute at JFK, Edison, NJ, USA; Robert Wood Johnson Medical School, New Brunswick, NJ, USA

**Victor Demaria-Pesce** Directeur de Recherche, Institut National de La Santé et de La Recherche Médicale (INSERM), Paris, France

**Patrick H. Finan** Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, USA

**Andrea Herrera-Solís** Unidad de Trastornos del Movimiento y Sueño (TMS), Hospital General Dr. Manuel Gea González, México D.F., Mexico

**Mudasir Ahmad Khanday** School of Life Sciences, Jawaharlal Nehru University, New Delhi, India

**He Liu** Division of Science, New York University Abu Dhabi (NYUAD), Abu Dhabi, United Arab Emirates

**Birendra Nath Mallick** School of Life Sciences, Jawaharlal Nehru University, New Delhi, India

**Jaime M. Monti** Departamento de Farmacología y Terapéutica, Facultad de Medicina, Hospital de Clínicas, Universidad de la República, Montevideo, Uruguay; Department of Pharmacology and Therapeutics, School of Medicine Clinics Hospital, Montevideo, Uruguay

**Eric Murillo-Rodríguez** Laboratorio de Neurociencias Moleculares e Integrativas Escuela de Medicina, División Ciencias de la Salud, Universidad Anáhuac Mayab, Mérida, Yucatán, Mexico; Grupo de Investigación en Envejecimiento, División Ciencias de la Salud, Universidad Anáhuac Mayab, Mérida, Yucatán, Mexico; Grupo de Investigación Desarrollos Tecnológicos para la Salud, División de Ingeniería y Ciencias Exactas, Universidad Anáhuac Mayab, Mérida, Yucatán, Mexico

**Seiji Nishino** Sleep and Circadian Neurobiology Laboratory, Stanford University School of Medicine, Palo Alto, CA, USA

**William G. Ondo** Methodist Neurological Institute, Houston, USA

**Seithikurippu R. Pandi Perumal** Somnogen Canada Inc., Toronto, ON, Canada

**Santiago Perez-Lloret** Cardiology Research Institute, University of Buenos Aires, National Research Council (ININCA-UBA-CONICET), Buenos Aires, Argentina

**Basma Radwan** Division of Science, New York University Abu Dhabi (NYUAD), Abu Dhabi, United Arab Emirates

**Noriaki Sakai** Sleep and Circadian Neurobiology Laboratory, Stanford University School of Medicine, Palo Alto, CA, USA

**Mireille Salas-Crisóstomo** Laboratorio de Neurociencias Moleculares e Integrativas Escuela de Medicina, División Ciencias de la Salud, Universidad Anáhuac Mayab, Mérida, Yucatán, Mexico; Grupo de Investigación en Envejecimiento, División Ciencias de la Salud, Universidad Anáhuac Mayab, Mérida, Yucatán, Mexico

**Andrea Sarro-Ramírez** Laboratorio de Neurociencias Moleculares e Integrativas Escuela de Medicina, División Ciencias de la Salud, Universidad Anáhuac Mayab, Mérida, Yucatán, Mexico; Grupo de Investigación en Envejecimiento, División Ciencias de la Salud, Universidad Anáhuac Mayab, Mérida, Yucatán, Mexico

**Traci J. Speed** Department of Psychiatry and Behavioral Sciences, Johns Hopkins University School of Medicine, Baltimore, USA

**Todd J. Swick** University of Texas School of Medicine-Houston, Houston, TX, USA; Apnix Sleep Disorders Centers, Houston, TX, USA; The Sleep Center at North Cypress Medical Center, Cypress, TX, USA

**Pablo Torterolo** Laboratorio de Neurobiología Del Sueño, Departamento de Fisiología, Facultad de Medicina, Universidad de la República, Montevideo, Uruguay; Department of Physiology, School of Medicine, Montevideo, Uruguay

**Raghunandan Kumar Yadav** School of Life Sciences, Jawaharlal Nehru University, New Delhi, India