



The Basal Ganglia Pathophysiology: Recent Advances 2007

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About the Authors

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Giuseppe Di Giovanni received his PhD in Neuroscience from the University of Chieti, Department of Neurology, Italy and was a postdoctoral fellow with Professor Wei Xing Shi at Yale University. His doctoral research, at the Mario Negri Sud Institute, Santa Maria Imbaro, Chieti, focused on the role of serotonin on the modulation of the central dopaminergic system and their role in the pathogenesis of a variety of neurological and mental disorders, including Parkinson's disease and schizophrenia. He is currently a Senior Lecturer of Human Physiology at the Medical School of the University of Palermo, Italy. His research field is focused on understanding the substrates of the cellular and molecular mechanisms that underlie neurotoxin-induced neurodegeneration of the nigrostriatal system and new possible neuroprotective therapeutic approaches for Parkinson patients.

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Ennio Esposito is currently the Head of the Laboratory of Neurophysiology at the Mario Negri Sud Institute, Santa Maria Imbaro, Chieti, Italy. He is also an Adjunct Professor of Psychobiology and Neuropsychopharmacology at the School of Psychology, University of Chieti. He received his M.D. from the University of Chieti, Italy, was a postdoctoral fellow at the Mario Negri Institute, Milan under the supervision of Rosario Samamin and successively completed his formation with Benjamin S. Bunney at Yale University. His studies, on the physiology and pharmacology of central monoaminergic neurons, have influenced the field of neuropharmacology.

Preface

The term *Basal Ganglia* in English first appeared courtesy of David Ferrier writing in 1876 and as an adaptation of the German term, *Stammganglion*, coined by Forel in 1872. It was, without any doubt, better than *Buttocks*, Galen's earlier definition! However, the anatomical network of the basal ganglia circuits was not outlined with any degree of precision until the 20th century. During the last couple of centuries, advances in the understanding of the pathophysiology of the basal ganglia have represented one of the success stories of medicine. Nevertheless, although an enormous amount of experimental evidence has revealed the pivotal role of this group of nuclei in largely diverse motor, behavioural, physiological and pathological processes, we are far away from a comprehensive understanding of the BG.

Perhaps in no other area of Neuroscience than the study of the BG has the confluence of basic science and clinical investigation been so fruitful. I hope that the book entitled "The Basal Ganglia Pathophysiology: Recent Advances" continues that tradition. Indeed, the idea for this book was born to provide a unique environment for the open presentation and discussion of new and challenging information about the basal ganglia as it relates to health and disease, covering all areas of basic science and research. The book is composed of thirteen review articles by prestigious scientists in the field of neuroscience. Specific topics include circuitry, modelling, behaviour, physiology, movement disorders, neuropathology, neurotransmitters, pharmacology, immunology, and treatments for BG disorders, functional imaging, and much more.

In this book, each prestigious group of scientists updates and outlines the most recent and outstanding results of individual studies on the BG physiopathology in their own research fields. As editor responsible for the realization of this book, I indeed hope that these articles will provide the essential information and knowledge required for the future progression as well as development of ongoing studies in the field by the readers of different disciplines. I hope that this volume will be useful for all researchers in the fields of neurobiology, neuroanatomy, and neuropharmacology and also for students of other disciplines.

I wish to dedicate this book to Giuseppe Amato, neurophysiologist, who prematurely departed this life at the beginning of winter 2004. He was a great lecturer and scientist. He would have celebrated it with me, but, he would also have challenged me to even greater heights.

Palermo, 10th of March 2007

G. Di Giovanni

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