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## Preface

In vivo neuropharmacological and neurophysiological methods and techniques will be used in the future as in the past. Alternative in vitro assessments will not be able to replace them because only in vivo it is possible to explore neuronal circuits and transmitter release from undamaged neurons so as to elucidate brain function and etiology of brain disorders and, in this way, to develop appropriate drugs for their treatment.

The aim of this volume is to present some of the prominent assays used today in vivo. Besides the classical approaches such as c-fos, electrochemistry, microdialysis microstimulation, and push-pull superfusion, exciting new methods will be described for behavioral analyses and techniques based on optogenetics and noninvasive magnetic resonance imaging.

The motto of this edition is *the detailed description of techniques and methods so that reproducibility is feasible, followed by findings obtained by using the described procedures*. In this sense, chapters contain a separate subchapter in which difficulties, tips, tricks, and precautions are discussed. They may be useful for those who intend to use the described technique. Helpful for the beginners in the field of brain research may be the first chapter dealing with principles of stereotaxy. Indeed, in almost all publications solely coordinates for reaching a distinct brain area without further details are mentioned that are enigmatic for most of the newcomers.

I hope that this volume will be useful for experienced and less experienced investigators of brain function and brain disorders.

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