Preface

Animal models of schizophrenia and major psychiatric disorders have been sought for decades. As it is clear that schizophrenia is a uniquely human disease, animal models are not likely to reproduce all facets of this disorder. However, there has been considerable growth in this field in the past several years with models that test possible pathophysiological scenarios, the role of environmental factors, or contributions of gene variants conferring risk for schizophrenia to abnormal function and behavior. As a result, we are now facing new vistas on pathophysiology that could lead to novel therapeutic approaches and even hint at possible preventive strategies. The animal models that yield this advance will be needed to gain deeper insight into biological processes that can yield to behavioral anomalies and, perhaps more importantly, to explore novel treatments. It is critical in this regard that the manipulations used to model schizophrenia-relevant phenomena are used consistently across laboratories. Hence, this book presents an overview of what information can be obtained with several different models and a detailed account of how to generate such models. As the search for animal models of schizophrenia is a decades-long endeavor, many models have been proposed. Here we cover only some; it would be unrealistic to describe all models proposed. The sample presented in this book includes pharmacological models such as non-competing NMDA antagonists, emphasizing their use in vitro, neurodevelopmental models such as the neonatal ventral hippocampal lesion and the antimitotic MAM, models that reproduce environmental factors such as neonatal hypoxia, vitamin D deficits, and prenatal immune activation, as well as several different genetic model approaches. Although not all models have been studied with the same tools, a remarkable convergence is observed for most: whenever the impact of these manipulations on cortical inhibitory interneurons was tested, it was found abnormal. Of relevance to the disease, these anomalies emerge during adolescence and are consistent with a wealth of human post-mortem and imaging data. Thus, the use of animal models to gain insight into pathophysiological mechanisms of relevance to major psychiatric disorders is paying off and will certainly be expanded to test targets that could restore or ameliorate function.

Patricio O'Donnell

http://www.springer.com/978-1-61779-156-7

Animal Models of Schizophrenia and Related Disorders
O'Donnell, P. (Ed.)
2011, XII, 290 p. 51 illus., Hardcover
ISBN: 978-1-61779-156-7
A product of Humana Press