PREFACE

Gliomas are the primary brain tumors of the central nervous system. They arise from the glial and other cells and are categorized into 1) astrocytomas, including astrocytoma, anaplastic astrocytoma and glioblastoma, 2) ependymomas, including anaplastic ependymoma, myxopapillary ependymoma and subependymoma, and 3) oligodendrogliomas, including anaplastic oligodendroglioma and oligoastrocytoma. The prognosis, especially for high-grade gliomas, is dismal; the treatment of these tumors represents an unmet need in medicine. More patients die from malignant gliomas than, for example, from melanoma. Unlike for low-grade glioma, modest progress has been made in the treatment of these tumors during the last several decades.

In this book several critical issues pertinent to the understanding and treating gliomas are discussed. The need for more clinically relevant models for studying both the disease's etiopathogenesis and the effect of treatments is urgent. The presence of glioma stem-like cells and their role in tumor progression and resistance to therapies need further documentation. Metabolism is now considered as one of the most promising targets in cancer therapies and gliomas are not different. In addition, specific mutations in metabolic pathways have become hallmark of gliomas, such as IDH mutations. There are several drug candidates under development aiming at abnormal metabolic processes and which ones have the best future remains to be seen. Personalized medicine requires not only specific targets, but also determination of who will be the best responder to therapy. Here comes the role of bioinformatics in the analyses of large amount of generated data. Neurosurgeons now receive much help through neuro-functional monitoring in order to perform precise and least damaging operations. One of the frequent symptoms of gliomas, such as epileptic seizures, is being better understood with a hope for more targeted and effective interventions.

The 13 chapters of the book tackle the above-mentioned areas of investigations and research interest. It is not possible to cover comprehensively such a big subject as gliomas in one book, but the individual contributions provide a glimpse on the magnitude of challenges and potential solutions in a variety of research areas. It is hoped that the book will be an informative step in further studies of the much-to-understand diseases like gliomas.

Waldemar Debinski, MD, PhD
Tom and Laura Hearn Professor for the Brain Tumor Center of Excellence
Director, Brain Tumor Center of Excellence
Professor, Cancer Biology, Radiation Oncology, Immunology and Microbiology, Translational Science Institute and Neurosurgery
Leader, Neuro-Oncology Program
Wake Forest Baptist Medical Center Comprehensive Cancer Center
Winston-Salem, NC, USA
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