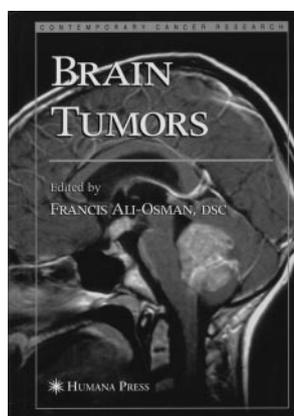# Brain Tumors

Francis Ali-Osman, ed. Totowa, NJ: Humana Press; 2004, 400 pages, $150.

Patients, family members, and physicians shudder at the diagnosis of a brain tumor. The prognosis remains dreadful, even now, after years of tumor research. Significant progress, however, has been made in the diagnosis and treatment of these devastating forms of cancer. The complex biology of brain tumors has led to bookshelves that are filled with textbooks that contain chapters on the epidemiology of brain tumors, histopathologic classification, patient management, and treatment modalities. *Brain Tumors,* in contrast, is a concisely written text that emphasizes recent research advances within the current knowledge of the molecular biology of brain tumors. It does an excellent job of focusing attention on this molecular biology, more than most other books on the subject. Although not necessarily relevant to a neuroradiology audience, neuro-oncologists, radiation oncologists, and neurosurgeons, as well as neuroradiologists interested in brain tumors, will find the explorations of the genetic mutations and the influence of various growth factors significant. They will also find the discussions of developing innovative treatment modalities and designer immuno- and pharmacotherapies important. Medical professionals involved with brain tumor research and or treatment will also find the extensive and comprehensive list of references very helpful for their work.

The editor, Francis Ali-Osman, enlisted many of the leaders in the field of neuroscience and neuro-oncology to contribute chapters to this textbook. The textbook is divided into 3 sections. Part 1 discusses the epidemiology, biology, genetics, and pathology of brain tumors. Part 2 considers their mechanisms and pathways. Part 3 details therapeutics that are being developed for the management of primary and metastatic tumors. This 3-part format gives the book a logical sequence in discussing the significance of the investigation of the nature and development of brain tumors from a molecular basis.

Ali-Osman intended this book to bring together a wealth of knowledge about the epidemiology, genetics, and molecular pathology of brain tumors that is accessible to the established brain tumor scientist and clinician, as well as the new investigator, graduate, or undergraduate student. In this he has succeeded, because most chapters of the book are well written. It is clear that great care was taken to introduce the topic of the chapter in an easy to understand format. The authors carefully describe the current knowledge on their particular topic. The major points of the chapters are usually summarized at the end along with a discussion of directions for future studies.

Moreover, the text includes numerous informative illustrations that enhance the impact of the scholarship.

One of the significant contributions to the current research milieu made by *Brain Tumors* involves highlighting the importance of the molecular biology of brain tumors with a cogent discussion of the epidemiology of brain tumor types. This is emphasized by a discussion of the histopathologic classification of tissue samples of brain tumors which has historically relied upon the World Health Organization system of identifying structural abnormalities of the tumor. This type of classification relies on the ability of the pathologist to have a sufficient and representative sample of the tumor when the histopathologic diagnosis is made. This has led to a situation in which it is not uncommon for tumors to receive different classifications from several different pathologic laboratories. This new text describes how using the genetic makeup of the tumors in the pathologic classification of the tumor types is often more reliable. This may well lead to more efficacious treatment options for the practicing physician.

The foregoing is merely one example of the contribution Ali-Osman's text makes to the scholarship focusing on brain tumors, those who treat them and those who are afflicted with them. I did find one difficulty with the book and even that may have been related to my practice being more clinically oriented with respect to this area of scholarship. It involved the chapter on the genetic modeling of glioma formation in mice. This was difficult to read at the first sitting. The authors did little to distill the material to an understandable level for a broad audience. The chapter was packed with information about the genetic modeling of glioma formation. It became easier to understand once I reviewed the later chapters on the mechanisms of tumor growth and therapeutics and then returned to read the chapter about the mouse models again. It is clear that many of the details about early development of tumors would be known if only the information from human studies were available. These studies of tumor growth and the influence of the local milieu in the mouse model have answered questions about the special environment of the nervous system on tumor growth, whether it is a primary tumor or a metastatic tumor from another site in the body.

Overall, the textbook is a highly intelligent, comprehensive collection of material about the molecular biology of brain tumors. It acknowledges that the scientific knowledge of molecular biology has grown exponentially in the past 2 decades. It details this advancement in knowledge and how it has lead to exciting new developments in the knowledge of the basic and clinical research on brain tumors. Because the types of brain tumors are quite diverse and their disease pathways are very complex, this new knowledge gained in the molecular biology of brain tumors has lead and will continue to lead to many new treatment modalities. It is only through the continued acquisition of the knowledge of the basic science of brain tumor genetics and pathophysiology and the clinical research of patient response to treatments that further gains will be made in the movement to eradicate these cancers.