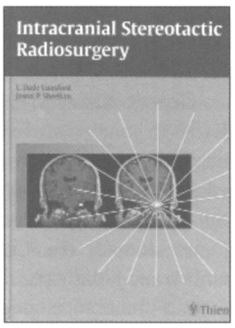
INTRACRANIAL STEREOTACTIC RADIOSURGERY. 2009. By L. Dade Lunsford, Jason P. Sheehan. Published by Thieme Medical Publishers. 182 pages. C$185 approx.

Rated ☆☆☆☆



This is an excellent book, but it is what one would expect from the editors who are leaders in the field of stereotactic radiosurgery. Although small (182 pages), it is a comprehensive reference for anybody who deals with patients with intracranial pathology which might be suitable to stereotactic radiosurgery treatment.

The first four chapters overview development, radiobiology, tumor tissue response to stereotactic radiosurgery, and general principles of the CyberKnife. The following chapters discuss indications, outcome, and complications for specific pathologies which are treated with stereotactic radiosurgery. Of interest, there is a chapter about stereotactic radiosurgery procedures for ocular disorders. The last four chapters deal with radiosurgical treatment of malignant brain tumors. This book provides the latest information on the subject with references up to 2007.

The only critique I have is that some authors reported only their own (although very extensive) experience without discussing data from other treatment centers. Also, there is very little about other forms of stereotactic radiosurgery like LINAC and proton beam treatment. I think that should have been included for completeness of the information.

I would highly recommend this book to anyone who deals with intracranial (and ocular) pathology, which may be amenable to stereotactic radiosurgery treatment. It serves as an excellent resource for physicians to provide their patients with the necessary information about this treatment and as such it can be used not only by Neurosurgeons, but also Neurologists and other physicians who may refer patients for intracranial stereotactic radiosurgery. It is also an excellent source of necessary information for neurosurgical residents in training.

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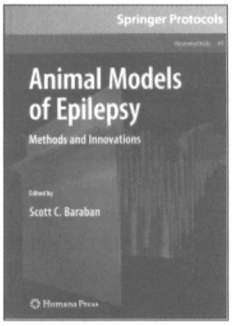
ANIMAL MODELS OF EPILEPSY: METHODS AND INNOVATIONS. 2009. Edited by Scott C. Baraban. Published by Humana Press. 272 pages. C$150 approx.

Rated **UNAVAILABLE**

As a clinical epileptologist interested in fundamental aspects of epilepsy, I obtained a thorough update on the several frontiers of current epilepsy research from this lucid volume. Basic scientists will profit from these 14 distinct and succinct reviews that also treat methodology and pitfalls in detail. Thus, this work is recommended for basic science and clinical epileptologists as well as students of these disciplines. Comparison with Experimental Models of Epilepsy (1972) edited by D. Purpura et al discloses the considerable progress in models, topics confronted and methodology over the past 37 years. However, electrophysiology remains at the forefront!



Chapter 1: The nematode, caennorhabditis elegans, as an emerging model for investigating epilepsy. Locke CJ, Caldwell KA, Caldwell GA.

Because of their small size and much commonality with mammalian neuro-physiology, nematodes, specifically C. *Elegans* can serve as a model of an entire nervous system. A prolific self fertilizer, 300 offspring per parent may appear; adulthood is attained within three days! This species shares many cellular and molecular pathways with mammals, including humans. Of its ~ 1000 somatic cells, ~ 300 are neurons, organized into the components of which the "nerve ring" appears to roughly correspond to a brain. Human neurotransmitters including glutamate, GABA, acetylcholine, dopamine and serotonin have been found in C.*Elegans*. GABA mediates foraging behaviour; eliminating GABA alters motor movements of foraging. Patterns of locomotion alter depending on the balance of excitatory and inhibitory transmission at neuromuscular junctions. Thus, behavioural assays enable isolation of genes affecting neuronal excitability. Electrophysiological data have been difficult to obtain, but optical imaging techniques have provided behavioural –physiological correlations.

Chapter 2: The genetics and molecular biology of seizure susceptibility in drosophila. Song J, Tanouye MA.

Surprising similarities relate Drosophilia (fruit fly) to mammalian nervous systems: voltage –gated and ligand-gated signaling molecules including: sodium, potassium, and calcium channels as well as acetylcholine, glutamate, and GABA transmitters and receptors. Thus Drosophila has the potential to model several human central nervous system disorders. A set of seizure-sensitive Drosophila mutants has been developed that share some features of human epilepsies. That two mutations may create a phenotype that differs from that resulting from either mutation alone suggests a basis for variability within given human epilepsy syndromes. Easily identifiable seizure suppressor mutations abundantly appear in Drosophila. These were initially disclosed through a reverse genetics approach, i.e. seeking mutants that would suppress seizure-like behaviour in bang-sensitive (BS) and other Drosophila mutants. Moreover, mutation of a gene encoding a gap junction protein impairs electrical transmission and elevates seizure threshold in this species. These data may well lead to effective anti-epileptic drug (AED) development. These authors propose that an effective way to discover unexpected seizure suppressor genes is using an unbiased "forward genetics" approach that is detailed in their chapter.

Chapter 3: The albino xenopus laevis tadpole as a novel model of developmental seizures. Hewapathirane DS, Haas K.

Whether early life seizures cause later comorbidities such as seizures, cognitive impairment or behavioural abnormalities or whether early seizures and later comorbidities share a common pathogenesis remains uncertain. These authors propose use of Xenopus laevis tadpole to answer this question. This organism is widely used to study early brain development and its neuronal physiology shares many aspects with mammalian species. These

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