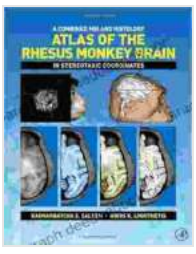
A Comprehensive Guide to the Combined MRI and Histology Atlas of the Rhesus Monkey Brain in Stereotaxic Coordinates

The rhesus monkey (*Macaca mulatta*) is a widely used animal model in biomedical research, particularly in neuroscience. The development of high-resolution magnetic resonance imaging (MRI) and histology techniques has enabled the creation of detailed anatomical atlases of the rhesus monkey brain. These atlases provide researchers with a valuable tool for studying the brain structure and function in both normal and disease states.

The Combined MRI and Histology Atlas of the Rhesus Monkey Brain in Stereotaxic Coordinates provides a comprehensive overview of the brain's anatomy, with high-resolution MRI images and corresponding histological sections. The atlas is divided into six volumes, each covering a different region of the brain:



A Combined MRI and Histology Atlas of the Rhesus Monkey Brain in Stereotaxic Coordinates

by Kadharbatcha S. Saleem

★★★★★ 5 out of 5

Language	: English
File size	: 11761 KB
Text-to-Speech	: Enabled
Print length	: 336 pages

* Volume 1: Cerebral Cortex * Volume 2: Hippocampus and Amygdala * Volume 3: Thalamus and Basal Ganglia * Volume 4: Cerebellum and Brainstem * Volume 5: Spinal Cord * Volume 6: Cranial Nerves

Each volume contains a series of coronal, sagittal, and axial MRI images, along with corresponding histological sections stained for different cellular markers. The histological sections provide detailed information about the cytoarchitecture of the brain, while the MRI images provide a three-dimensional view of the brain's structure.

The atlas is a valuable resource for researchers in a variety of disciplines, including neuroscience, anatomy, and neurology. It can be used for a variety of purposes, such as:

* Studying the brain structure and function in normal and disease states * Planning and conducting experiments * Teaching neuroanatomy * Developing new imaging techniques

MRI and Histology Techniques

The MRI images in the atlas were acquired using a 7T MRI scanner, which provides high-resolution images with excellent contrast between different brain tissues. The histological sections were stained using a variety of techniques, including hematoxylin and eosin (H&E),Nissl, and immunohistochemistry.

H&E staining is a basic histological technique that stains cell nuclei blue and cytoplasm pink. Nissl staining is a more specific histological technique that stains neurons blue. Immunohistochemistry is a technique that uses

antibodies to stain specific proteins, such as neurotransmitters or receptors.

Atlas Organization

The atlas is organized into six volumes, each covering a different region of the brain. Each volume contains a series of coronal, sagittal, and axial MRI images, along with corresponding histological sections. The MRI images are labeled with the corresponding stereotaxic coordinates, which allows researchers to easily identify the location of a particular brain region.

The histological sections are stained for different cellular markers, such as Nissl, myelin, and immunohistochemistry. The Nissl-stained sections provide detailed information about the cytoarchitecture of the brain, while the myelin-stained sections provide information about the white matter tracts. The immunohistochemistry-stained sections provide information about the distribution of specific proteins, such as neurotransmitters or receptors.

Applications

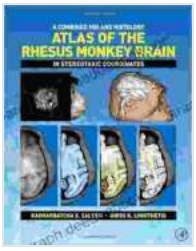
The Combined MRI and Histology Atlas of the Rhesus Monkey Brain in Stereotaxic Coordinates has a wide range of applications in neuroscience research. It can be used for a variety of purposes, such as:

* Studying the brain structure and function in normal and disease states * Planning and conducting experiments * Teaching neuroanatomy * Developing new imaging techniques

The atlas is a valuable resource for researchers in a variety of disciplines, including neuroscience, anatomy, and neurology. It provides a

comprehensive overview of the rhesus monkey brain's anatomy, with high-resolution MRI images and corresponding histological sections.

The Combined MRI and Histology Atlas of the Rhesus Monkey Brain in Stereotaxic Coordinates is a valuable resource for researchers in neuroscience. It provides a comprehensive overview of the brain's anatomy, with high-resolution MRI images and corresponding histological sections. The atlas can be used for a variety of purposes, such as studying the brain structure and function in normal and disease states, planning and conducting experiments, teaching neuroanatomy, and developing new imaging techniques.



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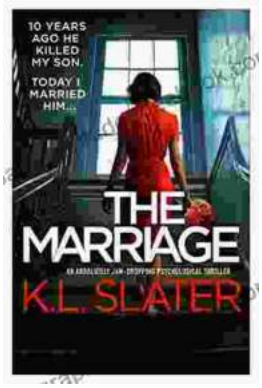

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