

Book Review

In Vivo MR Techniques in Drug Discovery and Development. Nicolau Beckmann, ed., Taylor & Francis Group, New York, NY, 2006, Hardcover, 568 pages, ISBN: 0849330262

Drug discovery and development is time-consuming and costly process with many failures. Hence, there is a great need to accelerate the drug discovery process and reduce the cost for the process. Imaging technologies are presently receiving considerable attention in pharmaceutical area due to their potential to accelerate the process of drug discovery and development. The development of molecular imaging techniques makes it possible to image the biochemical processes of disease non-invasively. Magnetic resonance imaging (MRI) is one of the principal imaging modality and is able to provide high-resolution anatomical and functional information on intact organisms. Therefore, MRI is very useful in comprehensive characterization of the state of a disease and evaluation of the response of a drug.

The book, *In Vivo MR Techniques in Drug Discovery and Development*, consists of 27 chapters and broadly reviews the use of MR techniques in various important diseases such as neurological disorders, cancer, cardiac diseases, airway diseases, diabetes, and arthritis. The utilization of MRI in solid organ transplantation and in stem cell based therapy is addressed as well. Each disease area is discussed from the pre-clinical and clinical points of view, emphasizing the advantages and limitations on the MRI techniques. The book begins with an introduction of the process of drug discovery and development followed by a general discussion of imaging techniques in this area. Then, the book introduces the design of contrast agents for molecular imaging and rapid phenotyping

of mice with MRI. The authors focus on the use of MR imaging and spectroscopy in individual disease areas after the introductory part. Chapter 6 to chapter 12 discuss the utilization of MR techniques in neurological disorders. The use of MR in cancer is addressed in chapter 13 to chapter 15. Cardiac MRI applications are discussed in chapter 16 and chapter 17. Chapter 18 to chapter 21 focus on the use of MRI in airway diseases and the use of MR spectroscopy in diabetes research. The utilization of MR techniques in arthritis is discussed in chapter 22 and chapter 23. After dealing with the utilization of MRI approaches in organ transplantation and stem cell-based therapy in chapter 24 and chapter 25, the authors address the use of MR techniques in pharmaceutical safety assessments and the value of MR in pharmaceutical research in Chapter 26 and chapter 27, respectively.

The text is written in a clear and concise manner. The goals of each chapter are clearly stated and the formatting makes it easy to quickly locate specific information of interest. The authors and editor have done a great job of discussing the utilization of MR techniques in various important diseases. This book should be of great interest to the scientists involved in drug discovery and development. The book is also an excellent reference for the scientists working in the area of molecular imaging.

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