

MOLECULAR IMAGING WITH REPORTER GENES

Reporter genes have been used for several decades to study intracellular molecular events, such as regulation of gene expression *in vitro*. However, it was little more than a decade ago that a new class of reporter genes was developed for imaging intracellular and intercellular molecular events within living subjects. Studying molecular biology and medicine in the intact and natural environment within living research subjects will enable better translation of knowledge for use in humans. In fact, reporter gene imaging is now possible in humans. This book focuses on this group of imaging reporter genes, starting with detailed descriptions of all reporter genes from different imaging modalities, including optical, MRI, and radionuclide-based imaging. This is followed by a chapter describing all instrumentation used in molecular imaging. Key scientists in the field then explain various applications of the reporter gene imaging technologies.

This is the first comprehensive book on all aspects of reporter gene imaging, detailing what is known in the field and future goals for research. Reporter gene imaging plays a role in basic biomedical science research, in the development of novel therapeutic agents and will soon be an important part of clinical molecular imaging. Therefore, this book will benefit biomedical scientists of all fields in both academia and pharmaceutical/biotechnology industries, assist regulators in forming better policies for assessing safety and efficacy of novel therapeutic agents, and inform physicians of a new molecular imaging tool that will in the near future have clinical applications.

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UNIVERSITY PRESS
www.cambridge.org

ISBN 978-0-521-88233-0



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