

Perspectives on Nuclear Medicine for Molecular Diagnosis and Integrated Therapy

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 Springer Open

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ISBN 978-4-431-55892-7

ISBN 978-4-431-55894-1 (eBook)

DOI 10.1007/978-4-431-55894-1

Library of Congress Control Number: 2015959921

Springer Tokyo Heidelberg New York Dordrecht London

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Printed on acid-free paper

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Preface

Molecular imaging aims to visualize specific molecular and cellular targets that are relevant to tissue characterization. Molecular imaging technologies have rapidly developed worldwide in recent years. Among such developments, nuclear medicine technologies using PET and SPECT have come to play important roles in quantitative analysis of biological processes *in vivo* and are now widely used in clinical settings. In particular, serial assessments of molecular function are commonly used for monitoring efficacy of various treatments. Prediction of treatment outcome is also an attractive field, in which nuclear medicine technologies may be applied. Indeed, a new era has arrived with the clinical use of nuclear medicine and molecular imaging for personalized medicine. However, in order to further facilitate the use of these technologies for the precise assessment of tissue function and planning of treatment strategies, significant improvement in imaging modalities, selection of optimal imaging biomarkers, and appropriate clinical applications are required.

We conducted international symposia on PET and molecular imaging in 1999, 2003, and 2009 and published the proceedings each time. Rapid progress has been made since then; therefore, we decided to organize another international symposium in order to extend our discussion on the recent progress and future perspectives on nuclear medicine in terms of molecular diagnosis and integrated therapy. Accordingly, we invited our old and new colleagues all over Japan and overseas to this latest international symposium entitled “Perspectives on Nuclear Medicine for Molecular Diagnosis and Integrated Therapy.” Over 100 physicians and scientists attended our symposium for two days on July 31 to August 1, 2015. It was a great and unique opportunity to interactively exchange ideas and information among researchers on various related fields.

In order to keep a record of the symposium and share our great experiences with many specialists worldwide who are interested in these research fields, we decided to publish this new volume on the proceedings of the symposium. This volume should be helpful for understanding new advances of nuclear medicine and molecular imaging technologies and their applications to integrated medical therapy and

future drug development. We sincerely hope that this volume will benefit researchers in various fields of life sciences, including those working in drug development, molecular imaging, and medical therapy, as well as physicians who utilize diagnostic imaging.

Finally, we would like to express our thanks to Drs. Masako Wada and Eriko Suzuki for their support during the preparation of the manuscripts.

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