Preface

Over the past decades we have seen a rapid growth in two independent disciplines, i.e. medical imaging technology and molecular biology, both of which are giving us new insights into the study of human beings. Medical imaging permits us to see the inside of the human body non-invasively. Three modalities, magnetic resonance imaging (MR), positron emission tomography (PET) and single photon emission computed tomography (SPECT), play a major role in visualizing the function of human body both in normal subjects and in patients with various diseases. On the other hand, molecular biology started to clarify the fundamental architecture of the complicated human body and its function. We believe that the time has come to make an effort to integrate these two fields as "Biomedical Imaging".

As the first step to accomplish this aim, we organized the International Workshop on Biomedical Imaging: MR and PET/SPECT in Fukui, Japan on August 28-30, 1996. In spite of the inconvenient location and bad weather, over 150 participants from various fields of medical imaging joined in the active and fruitful discussion. Through this workshop, with leading world experts, many ideas, approaches and discoveries were innovated to guide us into the new era of medical imaging toward the 21st century.

While preparing for the workshop, we felt that it would be important to publish the contents of the workshop for wide distribution because many distinguished international scientists had accepted our invitation. As the field of medical imaging is rapidly growing, timely publication is essential, and we had to ask the speakers to write a manuscript within a short period of time. We were able to include most of the presentations, and appreciate the efforts of all contributors to make rapid publication possible.

The contents of this volume address various approaches of medical imaging for visualizing the complicated physiological and biochemical processes of the human body. The topics include the cardiovascular-pulmonary system, brain function and tumor imaging as well as new approaches to realize the imaging of the molecular mechanisms of aging and diseases. We hope this book will convey the ideas of biomedical imaging, which we believe is worth the challenge for the next century.

Yoshiharu Yonekura, MD (for the editors)
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