Preface

The National Institute of Radiological Sciences (NIRS) continues its scientific activities as Japan's leading research institution on radiation protection and promotion of radiological sciences. This annual report summarizes our accomplishments and research outcomes during the initial two years of the third mid-term plan from 2011 to 2015.

On March 11, 2011, just before starting this mid-term plan, the eastern part of Japan was hit by a huge earthquake and tsunami, and the events which followed triggered the severe nuclear accident in Fukushima Prefecture. NIRS directed our maximum efforts and activities toward emergency medical procedures coping with this nuclear accident. The Radiation Emergency Medical Assistant Team (REMAT), which was established in 2010, has made significant contributions to this mission. Training experts and professionals in radiological procedures and radiation protection is another important mission of NIRS, and its activity is expanding dramatically in responding to the requests of society.

In spite of such busy and difficult situations, NIRS has continued its activities for research and development in medical applications of radiological sciences. Carbon ion cancer therapy is now recognized as the most advanced and effective of radiotherapies for treatment of locally advanced cancers, maintaining excellent quality of life of the patients. The total number of patients who received this treatment has reached 7,000 cases since the first clinical trial in 1994. The technology is now being transferred to other institutions including facilities outside Japan. Molecular imaging, which can visualize molecular function in a living body, now serves as an essential tool for the accurate diagnosis of various diseases, including cancer, cardiovascular diseases, dementia and other neuropsychiatric diseases, and it is also expected to make a significant contribution in the development of new drugs. NIRS aims to serve as the nation's core institution for development of new technologies as well as for standardization and quality assurance of PET imaging technologies used for clinical research.

At the beginning of this third mid-term plan, I proposed three key targets for our activities: "Visible NIRS", "NIRS in the World" and "NIRS in History". With new challenges and opportunities, NIRS continues its maximum efforts to establish a solid base as a leading institution promoting comprehensive scientific research in a wide range of radiological sciences.

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