

1. Preface



Due to remarkable advances in technology and methodology, life science has become a very promising discipline in the 21st century. Now it covers not only biology, agriculture and medicine but also biotechnology. With this trend, the importance of bioresources as the intellectual foundation supporting life science has been widely recognized by the scientific community. The demand for biological materials for experimental research is growing.

To meet this demand, the BioResource Center was established in January 2001 to collect, preserve and distribute a wide range of bioresources, such as living organisms, mice and Arabidopsis, their cultured cells and genes as the core facility in the National Bioresource Project of the Ministry of Education, Culture, Sports, Science and Technology. The Center also provides information on bioresources and high-grade technical support and conducts R&D on related resources.

The Tsukuba Life Science Research Center was opened in 1984 to promote molecular genetics research, and most sections of the Center were combined with the RIKEN Yokohama Institute in 2000. The Tsukuba Center was renamed RIKEN Tsukuba Institute, which currently consists of the BioResource Center (RIKEN BRC) and three research collaborative groups, working closely with BRC.

Efforts to establish a support system for bioresources was started in Japan much earlier by pioneering scientists in this field such as Dr. Komai. To meet the proposal of Dr. Komai's committee, the Ministry of Education approved a budget for maintaining bioresources in national universities and research institutes in 1951, although it was not a large budget. After three decades, the Cell and Gene Bank was established in the Tsukuba Center in 1987, in addition to the Genetics Stocks Research Center in the National Institute of Genetics founded in 1974.

To cope with further advancements in life science, more governmental support has been recommended a number of times by the Science Council of Japan. During the last quarter of the 20th century, however, molecular biology based on reverse genetics made great progress.

This trend finally succeeded in analysis of the total genome sequence of humans at the beginning of the 21st century, followed by several other organisms including the mouse and Arabidopsis.

Following the epoch-making success in genome analysis, the next goal of life science should be molecular analysis of functional mechanisms of the genomes in organisms including humans. For this analysis, an experimental approach using an appropriate model organism is essential, because of the complexity of the developmental and spatial interactions among multigenes in each phenotype. The model organisms employed should be well designed and strictly controlled genetically and microbiologically.

In addition to the highly controlled quality of each resource, its evolutionary history is a matter of concern in our Center. The genetic background has long been of interest in the field of genetic breeding but remained unresolved. Recent developments in genome analysis have made it possible to determine relevant genes in the genetic background that affect the expression of a major gene.

At RIKEN Tsukuba Institute, we continue to dedicate our efforts towards leading the field of genetic R&D, focusing on such themes as increasing the scientific value of the bioresources we are handling. We have five bioresource evaluating committees for obtaining opinions of researches in the relevant fields. An ethics committee was also established to evaluate ethical problems, especially those related to human materials.

RIKEN Tsukuba Institute is ready to make another great leap forward as a unique player in the life science field in Japan. We appreciate your support for our activities.