Institute of Resource Development and Analysis

Kumamoto University

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About IRDA

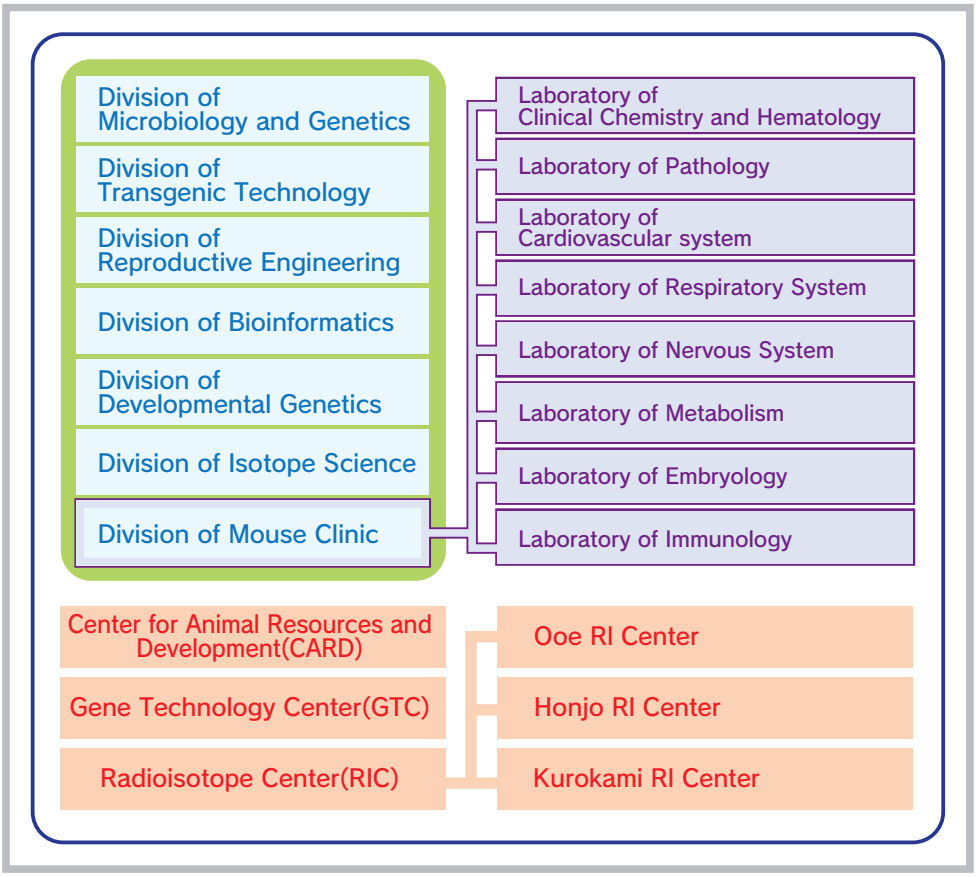
The Institute of Resource Development and Analysis (IRDA) was established in Kumamoto University in 2003. The mission of IRDA is to promote education and research in various scientific areas by providing diverse research resources and information.

IRDA was established by merging and functionally reorganizing Center for Animal Resources and Development (CARD), Gene Technology Center (GTC), Radioisotope Center (RIC) and three local radioisotope laboratories (Honjo RI, Kurokami RI, Ooe RI). Those centers and laboratories in IRDA systematically cooperate together to regional, domestic and international biomedical sciences through the use of research resources such as genetically engineered animals.

The major missions of IRDA are:

1) Production, development, preservation and supply of experimental animals including genetically engineered mice, and construction and analysis of the databases by using advanced bioinformatics.
2) Kumamoto Mouse Clinic (KMC): Phenotypic analysis of genetically modified mice.
3) Research, education, enlightenment, data management and technical support of experiments using animals, genetic materials, radioisotopes and various instrument.

Organization



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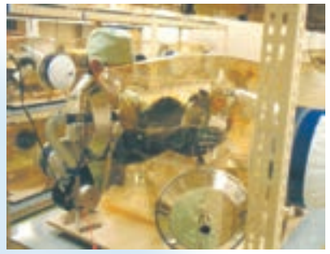
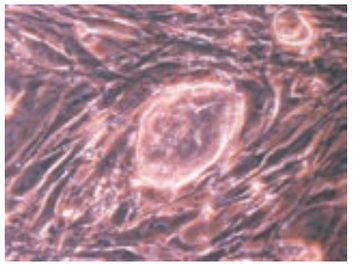

Isolator.

Chimeric mouse.

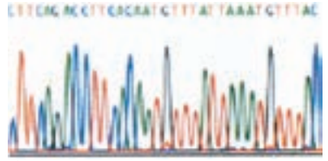

Embryonic stem cells (ES cells).

Microinjecting DNA into a pronuclei of mouse fertilized egg.

Research and Development

Development of novel methods for molecular and genetic diagnosis for the causes of infectious diseases of laboratory animals.
Production and analysis of genetically engineering mice by exchangeable gene-trap method.
Production of genetically modified mice about human disease model.
Analysis of gene function using genetically modified mice.
Molecular imaging of laboratory animals.
Development of mouse reproductive techniques.
Management of radiation safety.

Cryopreservation of embryo/spermatozoa.


DNA sequencing.

Experiment handling unsealed radioisotopes.

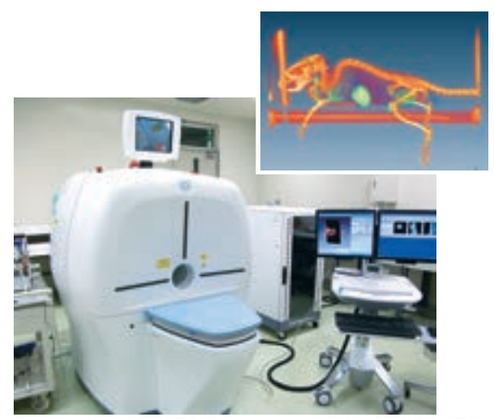
Research Support

Husbandry and management of laboratory animals.
Genetically engineered mice production services.
Phenotypic analysis of mice.
Cryopreservation of mouse embryo and sperm.
Collection and distribution of bioresources.
Publication of database for archived mice lines: CARD R-BASE.
Operation and maintenance of database for the Exchangeable Gene Trap Clones (EGTC).
Technical support about radioisotope experiments.

Education

Guide for the use of laboratory animals.
Safety training for recombinant DNA experiment.
Training of mouse reproductive techniques.
Education and training for radiation workers.
Holding of IRDA symposium, CARD seminar and GTC seminar.
Guidance of student practice with RI.
Undergraduate and graduate education.

Open House “DNA Museum”.


Small animal SPECT/CT system and ^{99m}Tc-SPECT/CT images.

International Mouse Resources include CARD.

Community Support

Distribution of up-to-date information about bioresources.
Collaboration with global mouse resource banks.
Education about genome science at junior high and high school.
Educational activities about radioisotopes and radiation.
Holding of workshop for mouse reproductive technology.
Open House “DNA museum”.

Blastocyst injection.

Automated analyzer for clinical chemistry.

Divisions

Division of Microbiology and Genetics

We improve the techniques of animal care and control of pathogens, and perform the following research projects:

1. Study of oncogenesis for adult T-cell leukemia (ATL) using an animal model and development of an animal model for evaluation of therapeutic agents for ATL.
2. Development of a novel method for molecular and genetic diagnosis for the causes of infectious diseases of laboratory animals.
3. Analysis of intestinal and vaginal flora of experimental animals.

Division of Transgenic Technology

Research support and Technical development related to the production of genetically engineered mice.

1) Genetically Engineered Mice Production
2) Analysis of mouse models for human diseases
3) Development of new technology and basic research of developmental engineering technology

Division of Reproductive Engineering

We have provides the service of mouse bank as archiving cryopreserved embryos and sperm of genetically modified mice and rederivation of the mice to scientific community and developed mouse reproductive techniques.

1) Collection, reservation and production of genetically engineered mice using mouse reproductive technology.
2) Development of mouse reproductive techniques.
3) Education of mouse reproductive techniques.

Division of Developmental Genetics

We are developing techniques of genome engineering using mouse ES cells, and producing humanized mice in which mouse genes with human genes causing genetic disease.

1) Functional analysis of mouse genome in vivo.
2) Developmental genetics of morphogenesis and disease.
3) Establishment of model mice of human diseases and analysis of the pathogenesis.

Division of Bioinformatics

We examine the vital functions of various genes by using genetically modified mice made by utilizing a gene trap method. We have compiled a database of information on gene trap clones and keep them as an open-resource to be used by all researchers.

1) Producing and analyzing diseased-model mice using the exchangeable gene trap method.
2) Development and improvement of the Database for the Exchangeable Gene Trap Clones (EGTC).

Division of Radioisotope science

We develop qualification method of RI (radioisotope) distribution in vivo and radiation influence in vivo and research of radiation safety management technology upgrade.

1. The research of imaging technique for in vivo function analysis by RI.
2. Research of stress response to radiation and heat, and molecular mechanism of defense mechanism.
3. Research of experimental techniques, safety control techniques and facility management in radiation safety management.

Division of Mouse Clinic

We provide an infrastructure for mouse phenotypic analysis, perform specialized diagnostic examination and educate the basic techniques about mouse phenotypic analysis. Our division is consisted of 8 laboratories: 1) Clinical Chemistry and Hematology, 2) Pathology, 3)Cardiovascular system, 4) Respiratory System, 5) Nervous System, 6) Embryology, 7) Metabolism and 8) Immunology

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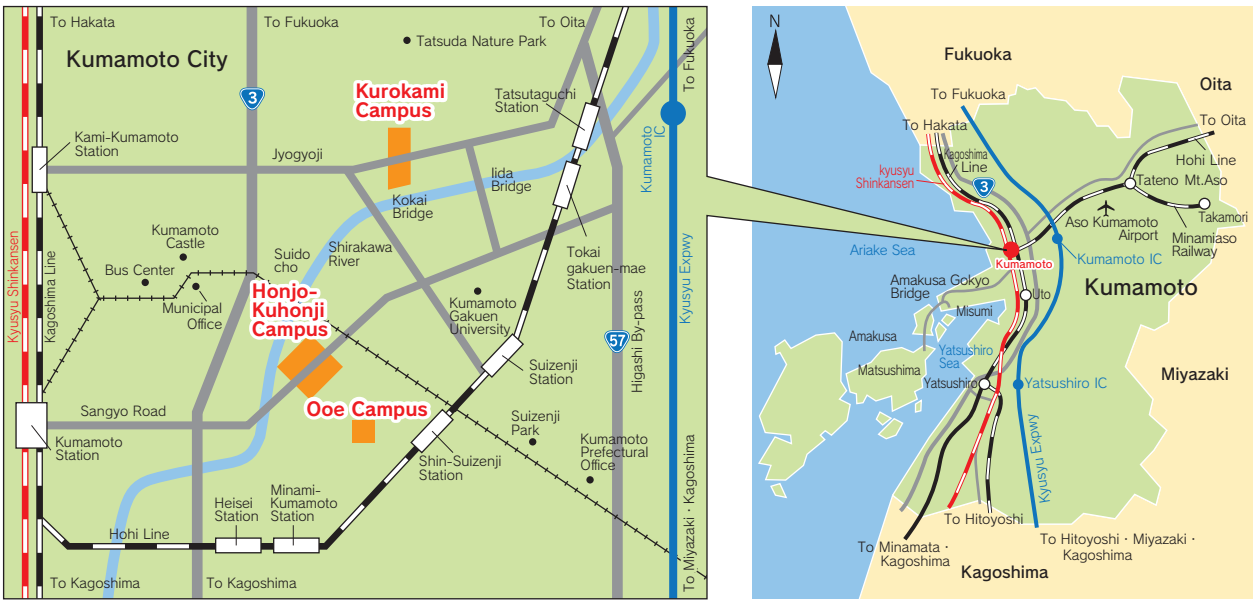
Honjo-Kuhonji Campus,Ooe Campus,Kurokami Campus