Breeding system for genetically modified mice

Purpose:

To understand biological effects of low dose and low dose-rate ionizing radiation, we found specific phenomena in the whole body animal, and then analyzed the mechanisms in cellular and molecular levels. In order to apply the knowledge to the risk assessment of low dose radiation, it becomes necessary to confirm that the cellular and molecular mechanisms would work actually in whole body animal. Because the usage of genetically modified mice can accelerate the confirmation, we installed this system to make, breed, care and supply genetically modified mice and to observe the radiation effects on them.

Outlines:

This system is made of breeding rooms and laboratories for check and analysis of the mice. The breeding rooms consist of conventional condition rooms and P2A clean breeding room and laboratory in compliance with the physical containment levels for recombinant DNA animal experiment, P2A level. The P2A clean breeding room is equipped with individually ventilated isolator-cages racks (IVC racks), which make it possible to keep many strains of mice in one room.

Confocal laser scanning microscopy is installed in the laboratories. It can acquire high spatial resolution tomographic images of interesting fluorescent molecules semi-automatically to analyze distributions and behavior of biomolecules inside cells, and to evaluate biological doses of ionizing radiation at low dose and low dose rate.

Specifications:

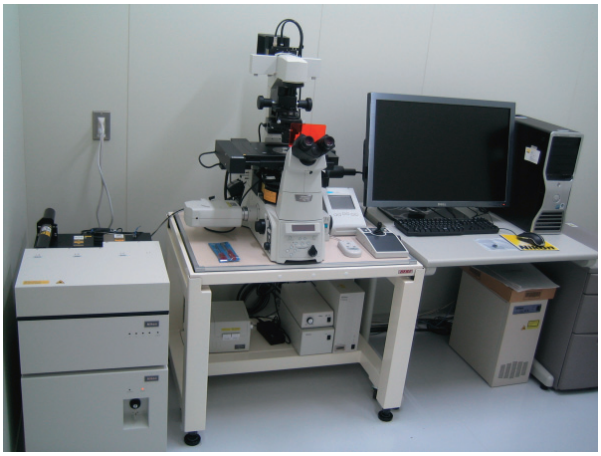
1) Breeding rooms
 - Size: 5 m x 7 m (P2A clean breeding room and laboratory) and 3 m x 5 m (conventional condition rooms)
 - Class 10,000 clean rooms with all fresh air type ventilation; temperature, 23 ± 2℃; humidity, 50 ± 10 %
 - Animal housing capacity of IVC racks: 336 cages

2) Confocal microscopy
 - Inverted confocal laser scanning microscopy: semi-automatic image capturing function with high speed and high accuracy auto focus.

Location and Date of Installation:

Komae Area, March 2009

IVC racks in P2A clean breeding room



Confocal laser scanning microscopy