

# Tsukuba Safety Center

Satoru TOMITA

Director (July 2004 ~ )

Katsuhiko MASUDA

Director ( ~ June 2004)

---

## Goal

The safe management of the recombinant DNA experiments, radiation experiments, research ethics, animal experiments, high-pressure gas, chemical substances, and prevention of the environmental pollution are conducted to the work of Tsukuba Safety Center. The maintenance or improvement of the related facilities and equipments, and the procedure to the related government and municipal offices are carried out, and the safety training to the researcher is supported to maintain their safe.

Taking a part to go well with the local resident, we work for preservation of the environment cooperating with the Research Promotion Division and provide the information about safe control conditions at the explanatory meeting held by Tsukuba City for local resident.

## Members

### Director

Satoru TOMITA (2004. 7 ~ )

Katsuhiko MASUDA ( ~ 2004. 6)

### Manager

Akira KOBE ( April, 2004 ~ )

### Senior Technical Scientist

Kenrou TAKI, ( April, 2001 ~ )

### Technical Scientist

Kaoru HARASAWA ( April, 2001 ~ )

### Assistants

Hiroyoshi NISHIHIRA (April, 2001 ~ )

Tatsuo KOIBUCHI (April, 2001 ~ )

Yoichi OTA (January, 2003 ~ )

Mikiko SATO ( April, 2003 ~ March, 2004)

Haruko AKUTSU (April, 2004 ~ )

Minako KEZUKA (October, 2004 ~ )

## 2003 ~ 2005



Akutsu, Kezuka, Koibuchi, Ota, Nishihira,  
Kobe, Harasawa, Tomita, Taki

## Activities

### 1. Recombinant DNA Experiment (January, 2003 thru September, 2005)

In compliance with the “Law for the conservation and sustainable use of biological diversity by the regulation of the handling and use of modified organisms (June 18, FY2003. Article 97)” which was enforced on February, 19, 2004, the regulations have been revised and experiment classification has been reviewed.

#### (1) Research Themes

The number of research themes approved or accepted by the Safety Control Committee for Recombinant DNA Experiment are shown in the Table 1.

Table 1 Recombinant DNA Experiments in Operation (As of 30/09/2005)

Numbers of Experiments	Containment Level	Numbers of Host-Vector
45	P1	69
	P2	37
	P3	2
	P1A	22
	P2A	9
	PIP	9
	Minister Affirmed Experiments	5

## 2003 ~ 2005

## (2) Facility Inspection (Safety Cabinets)

The safety cabinets used for recombinant DNA experiments (48 cabinets in total) have been inspected on its HEPA filter and air flow rate. Numbers of laboratory exhaust filters replaced are shown in the Table 2.

Table 2 Numbers of Filters Replaced

HEPA	PRE	MIDDLE	Charcoal
137(35)*	132(35)*	4	16

\*(Filters in Radiation Controlled Areas)

## (3) Physical Checkup and Education

The numbers of physical checkup and education implemented for researchers engaged in recombinant DNA experiments for the current fiscal year are shown in the Table 3 and 4.

Table 3 Numbers of People Had Physical Checkup (Total Number)

Before Starting the DNA experiment	Periodical (for DNA)	Special Periodical (for DNA)
148	654	150

Before Starting the RI experiment	Periodical (for RI)
119	1018

Table 4 Numbers of People Educated

Before Starting the DNA experiment	Before Starting the RI experiment
284	112

## 2. Radiation Safety Control (January, 2003 thru September, 2005)

The radiation controlled areas are dispersed to 4 buildings on 6 floors. According to the "Law for Prevention of Radiation Hazard", the radiation from the areas has been re-calculated due to the reduction of area.

## (1) Radioisotope Usage Plan

The safety center has approved the 13 usage plans in the former term of FY2003 and 12 usage plans in the latter term of FY2003, the 11 usage plans in the former term of FY2004 and 11 usage plans in the latter term of FY2004, and the 10 usage plans in the former term of FY2005 and 9 usage plans in the latter term of FY2005, and the safety center allotted isotopes to the plans.

## (2) Radioisotopes

The admitted isotopes to handle in Tsukuba Research Institute are H-3, C-14, P-32, P-33, S-35, Ca-45, Cr-51, Zn-65, I-125, I-131 (total of 10 types). Amount purchased this fiscal year is shown in the Table 5.

Table 5 Radioisotope Amounts Purchased

Types	Amounts	Types	Amounts	Types	Amounts
H-3 :	92.5 MBq	C-14 :	23.865 MBq	P-32 :	8415.65 MBq
S-35 :	1887.0 MBq	Cr-51 :	407.0 MBq	125-I :	37.0 MBq

## 2003 ~ 2005

## (3) Registration of Radiation Worker and Exposure Rate Control

The numbers of newly registered radiation workers were 120, and the total radiation workers came out as 202 as of September 2005.

The exposure rate checked by the Luxel badge every month in each worker resulted under the detection limit.

## (4) Radiation Waste

The total amounts of radiation waste transferred to the Japan Isotope Association of corporate juridical party on February 28, 2003, February 24, 2004, and February 24, 2005 are shown in the Table 6.

Table 6 Total Amounts of Radiation Waste

Combustible (50L)	Incombustible (50L)	Noncombustible (50L)
51cans	100cans	45cans

Uncompressed noncombustible (50L)	Animals (50L)	Inorganic Solvent (25L)
65cans	1cans	21cans

Noncombustible Filter	Combustible Filter	Noncombustible Charcoal Filter
3,343 L	12,161 L	2,125 L

Among the radiation waste from the liquid scintillation counter, the waste containing only 6 types (H-3, C-14, P-32, P-33, S-35, and Ca-45) has incinerated at Tsukuba Research Institute.

## (5) Facility Inspection

Facility inspection of radiation controlled areas was performed in February and September 2003, February and August 2004, and February and August 2005, and the results were confirmed to agree to the standard established by the law.

## (6) Physical Checkup and Education

The number of physical checkup and education implemented for people engaged in radioisotope handling during the current fiscal year are shown in Table 3 and 4.

## 3. High Pressure Gas Safety Control (January, 2003 thru September, 2005)

In Tsukuba Research Institute, the four liquid Nitrogen tanks are regulated by the "High Pressure Gas Safety Law" since those tanks throughput ability is 100m<sup>3</sup>/day which corresponds to the 2<sup>nd</sup> sort factory.

## (1) CE Tank Inspection (Liquid Nitrogen)

The inspection standardized by the "High Pressure Gas Safety Law" was performed on March 2003, February 2004, and March 2005.

## (2) High Pressure Gas Safety Handling Course

The high pressure gas safety training was performed 18 times during the current fiscal year, and total people engaged in high pressure gas handling came out as 119 at the end of September 2005.

## 2003 ~ 2005

## 4. Prevention of Environmental Pollution (January, 2003 thru September, 2005)

## (1) Drainage Control

The experimental waste water from the radiation controlled areas is confirmed that the density is below the standard before draining it to non-radiation waste water tank, and the Batch style disposal treatment is implemented. The experimental waste water is confirmed to agree to the standard established by Drainage Law before it is drained.

Times of disposal treatment between January, 2003 and September, 2005: 840 times  
Amounts Disposed: 83,624m<sup>3</sup>

## (2) Experimental Waste

The waste oil, waste solvent and high density inorganic solvent is collected and sorted out, and the waste is transferred to the outside contractor. The amounts transferred are shown in the Table 7. Also, the sludge from the experimental waste water is treated in the same way.

Table 7 Amounts of Experimental Waste Solvent

Halogenated Organic Solvent	622 L	alkaline Solution	40 L
Non-Halogenated Organic Solvent	1,192 L	High density acidic Solvent	67 L
Waste Oil	96 L	Syringe	2,616 L
High density Cyanogen	420 L	Needle	175.5 L
High density Heavy Metal Solvent	235 L	Ethisiumbromide Stained Objects	1,272 L
Developing Solution	1,794 L	Sludge from the experimental waste water	116,090 kg

## 5. Chemical Substance Safety Control (January, 2003 thru September, 2005)

Poisonous and deleterious substance storage conditions were inspected on April and October 2003, 2004, and April 2005. The special physical checkup for people handling certain chemical substances was implemented on June and November 2003, 2004, and June 2005.

The psychotropic storage conditions were inspected on January and July 2003, 2004, and 2005. The psychotropic usage alteration has been reported based on the Narcotic Control Law.

## 6. Microorganism Safety Control (January, 2003 thru September, 2005)

Notifications of microorganism experiment for eight cases at level 1 and five cases at level 2 have been submitted as of September 2005.

The training based on the Microorganisms Handling Manual is performed 23 times, and the total people engaged in the handling came out as 287 as of September 2005.

## 7. Research Ethics (January, 2003 thru September, 2005)

The research themes approved (including conditional) by the Tsukuba Research Ethics Committee were 42 themes (including alteration).

There are 13 themes that correspond to the Guidelines of Human Genome, and there are 2 themes that do not correspond to the guidelines but handle the human subjects as of September 2005.

## 8. Animal Experiments (January, 2003 thru September, 2005)

The Animal Experiment Supervisory Panels were held in June 2003, and the 1 new theme, 8 continuations, 9 alterations, 9 report, and 9 completed experiments were reviewed and approved. According to the revision of "Guidelines for Animal Experiments", the first Animal Experiment Committee was inaugurated on December 17, 2003 and the 11 new themes, facilities, manuals, and regulations for coordinating committee were reviewed and approved. Also, the second Animal Experiment Committee

## **2003 ~ 2005**

was inaugurated on June 21, 2004 and the 10 continuations were reviewed and approved. The third Animal Experiment Committee was inaugurated on June 23, 2005 and the 11 new themes and continuations were reviewed and approved.

### 9. Facility Study Tour (January, 2003 thru September, 2005)

The facility tour of P4 area was implemented for 91 applicants.

### 10. Orientation for Local Residents (January, 2003 thru September, 2005)

The orientation for the local residents was held by “the Environment and Human Rights for Tsukuba City Committee”, “the Kukizaki branch”, and “the Preservation of the Tsukuba Environment.” Tsukuba Safety Center attended the meeting with the Promotion Division and BRC.

### 11. Other

As part of the recombinant DNA safety control, the laboratory glassware is washed by the intensive management system. Moreover, as part of the radiation safety control, laboratory wears in the radiation controlled area is washed by the intensive management system.