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REPUBLIC OF KOREA

Technical report: Laboratory Animal Science*

Prepared for the Government of the Republic of Korea
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Zenichi SATO,
expert in laboratory animal science

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Contact with UNIDO Seoul Office:

At any of the three terms of my present visit to KRICT, I had no chance to meet the UNIDO Seoul Office staff, owing to my flight schedules. The UNIDO Seoul Office was informed of my arrival each time by Jung Koo Roh, Ph.D., Director of Toxicology Research Center of KRICT, by telephone.

KRICT members I met:

I was met in Seoul each time by Sang Seop Hah, Ph.D. The persons I daily discussed with in KRICT were as follows:

Jung Koo Roh, Ph.D.
Director of Toxicology Research Center

Sang Seop Hah, Ph.D.
Research Scientist of Toxicology Research Center

EXPLANATORY NOTES

Abbreviations:

KRICT: Korea Research Institute of Chemical Technology

GLP: Good Laboratory Practices

SOPs: Standard operating procedures

SPF: Specific pathogen free

JNIH: National Institute of Health of Japan

ABSTRACT

The aim of my visit is to give the director and staff members of the Toxicology Research Center of KRICT advice on various problems and technical training concerning laboratory animal science. This visit was undertaken at three divided terms (totaling about 1 month) between February 9 and April 30, 1987. The center has been run on trial since 1986, and the main purpose of this visit was to further elevate the levels of the management and laboratory work in the center I instructed so far. I could give them more concrete and practical advice and training than before. In addition, the spirit of preventing cruelty to laboratory animals and the ethical sense in animal experiment were basically understood.

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1. Introduction

The construction of a new laboratory animal facility of Toxicology Research Center of KRICT, which was started in 1985, was completed, and the long-term test run of the facility systems gave satisfactory results. In this new facility, the production of rodents (mouse and rat) and animal feed has been performed on trial, and the test use of the animals and feed produced was also started. The facility has encountered various problems since the start of the trial run, but with the efforts of the director and staff, the results are good at the present first stage.

As a whole, however, it cannot be denied that they have not enough experience or mastery -- though this is inevitable because it is not long after their work started. More efforts will be necessary for the facility director to train the staff members as skilled technicians for each theme and obtain better and stable results in animal production and safety studies. I gave them my advice and guidance on these points. In addition, I stressed that a long-range education should be given to all laboratory staff in order to develop their ethical sense in animal experiment.

The brief summary of the advice and guidance given is described hereinafter.

2. Production of Laboratory Animals

2.1 Status of production

The trial production of the mouse (ICR) and rat (SD-F344) has been started. The productivity is high at present, but the production scale is small. The aimed production will be initiated in earnest around June 1987.

2.2 Quality tests of animals

Much attention has so far been paid to the necropsy and microbiological tests. Advice was given to add biochemical findings and organ weights to the background data.

2.2.1 Necropsy findings

The necropsy has revealed some renal disorders in male rats. To find the cause and remove it, it is planned to do an extensive study. No other significant findings have been shown.

2.2.2 Microbiological findings

The bacterial culture test has been carried out in KRICT, and the serological examination has been done in JNIH. All the tests gave negative results, proving that the animals are high-level SPF animals.

2.2.3 Biochemical tests

The biochemical tests will be started in May 1987.

2.2.4 Organ weights and growth curve

These data are now being prepared. They will be analyzed statistically around this June and served as the background data.

3. Feed, water and bedding

These three materials, which are very important factors for laboratory animals, seems to be of no problem basically, judging from the production results obtained so far. It is necessary, however, to examine whether or not the feed is involved in the occurrence of the before-mentioned renal disorders in male rats.

4. Facilities

The facilities and the air-conditioning system have worked well. Close attention must be further paid to the maintenance of the whole system of the facility in the intermediate period changing from winter to summer.

4.1 Building

No large defects have been found in the building or its facilities, but some small ones are now being modified.

4.2 Environmental conditions

The environmental conditions are satisfactorily controlled by the computerized air-conditioning system. Nevertheless, much care will be necessary because the system has not yet been run through the four seasons of a year.

5. Equipment (Cages and racks)

The racks used has no problem. With respect to cages, I advised to produce cages of internationally standard sizes (The recommended reference is "Guide for the Care and Use of Laboratory Animals (USA)").

6. Design of a new facility for multiple uses

A second laboratory building now under construction was designed to serve for multiple purposes. It consists of rooms for SPF animals, rooms for medium-sized animals (non-rodents such as the rabbit, dog and guinea pig), and many experimental rooms for pathology, biochemistry and so on. Great care is taken that each room will not have bad effects on other rooms.

7. Necessity of preventing cruelty to laboratory animals and ethics for animal experiment

A basic idea is that the laboratory animal is a member of this world. Therefore, in performing experiments with animals, researchers must attain a maximal level of objective, using the least number of animals and minimizing distress to the animals. Furthermore, efforts must be made to devise biological study methods replacing the conventional ones with animals. I stressed that the education to develop this ethical sense of the laboratory staff should be strongly promoted.

8. Advice for future

KRICT has not yet been much experienced in laboratory animal production, animal experiment or management of the testing facility, and it has few background data at present. This is inevitable because the institute has been in a test period; from now on it enters on its active stage in earnest. Fortunately, KRICT is being equipped fully with various kinds of laboratory instrument, and the future success can be expected.

The important points which KRICT must consider are as follows.

- (1) Formation of the organization for GLP and its management
- (2) Completion of SOPs in compliance with GLP
- (3) Better understanding of laboratory animal medicine and establishment of test systems based on it
- (4) Promotion of education on laboratory animal science in a wide sense

- (5) Correct understanding of the necessity of preventing cruelty to animals and the ethical sense in laboratory animal science, and reflection of these ideas in daily laboratory work

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