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## Present status and history of the mouse colony of Okayama University Medical School.

Masaki Ohmori\*

\*Kagawa Medical School,

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## Abstract

The present status and the history of inbred strains of mice in the Experimental Animal Center, Okayama University Medical School, otherwise known as “The Colony of Okayama University Medical School” are described.

**KEYWORDS:** inbred strain, mouse colony, Okayama University Medical School.

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— MISCELLANY —

**PRESENT STATUS AND HISTORY OF THE MOUSE COLONY  
OF OKAYAMA UNIVERSITY MEDICAL SCHOOL**

Masaki OHMORI

*Department of Pathology, Kagawa Medical School, Kagawa 761-07,  
and Department of Pathology, Okayama University  
Medical School, Okayama 700, Japan*

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*Abstract.* The present status and the history of inbred strains of mice in the Experimental Animal Center, Okayama University Medical School, otherwise known as “The Mouse Colony of Okayama University Medical School” are described.

*Key words :* inbred strain, mouse colony, Okayama University Medical School.

It is 22 years since the strain preservation shed for inbred mice was established in the Okayama University Medical School. This establishment was formerly called “The Mouse Colony of Okayama University Medical School” and had its own management within the medical school; however, in 1973 when the general animal experimental center was established and the first construction unit was completed, the breeding house and its management system were integrated as it is today.

The following is an outline for general information of the mouse colony as well as the records of how the mice are being maintained.

*Nomenclature of the Establishment*

General Animal Experimental Center, Okayama University Medical School, Strain Preservation Section (commonly known as the Mouse Colony of Okayama University Medical School).

*The Outline*

The Experimental Animal Laboratory of Okayama University Medical School, Kirschbaum Memorial Mouse Colony in Okayama University Medical School, had its beginning in May, 1958, as a unique mouse colony in Japan. In 1955, Dr. Noriaki Ida, then the head of the pediatric clinic of the Hiroshima Prefectural Hospital (formerly Assist. professor, of the Okayama University Medical School, and now Director, of Toyo Engineering Co. Hospital, Hiroshima) went to M.D. Anderson Hospital, Houston, to study under Prof. G. Taylor and conducted research work with the Cancer Research Group of Texas University and Baylor University. There was a substantial inbred mouse colony

in the Department of Anatomy, Baylor University, where Prof. A. Kirschbaum (Fig. 1) was the head.

Prof. H. Yagi, then Dean of Okayama University Medical School, learned about the mouse colony of Baylor University from Dr. N. Ida, and went to Houston in 1957. He asked Dr. G. Taylor to spare some inbred mice as well as to conduct a joint cancer research by accepting Japanese doctors in Houston. As a result an agreement was reached. In order to meet the problems arising from such an agreement, an inbred mouse research committee comprising the following seven members was established in our medical school: Profs H. Yagi, T. Takeda, Y. Hamazaki, E. Hamamoto, S. Murakami, K. Hiraki, and Dr. N. Ida, a non-permanent instructor. At that time Prof. S. Murakami, Dean of the Medical School, occupied the post of chairman. This committee handled affairs such as management and maintenance of inbred mice as well as dispatching and selecting doctors to Baylor and Texas Universities for the cooperative cancer



Fig. 1. (*left*) Late Prof. Dr. A. Kirschbaum, Kirschbaum Memorial Laboratory, Baylor College of Medicine (as of 1956).

Fig. 2. (*right*) Drs. Liebelt (1976). Dr. R. Liebelt is Dean of Northeastern Ohio Universities, College of Medicine, Ohio. Dr. A. G. Liebelt is Professor of Anatomy, Director of Kirschbaum Memorial Laboratory. They are both endeavoring to construct a new medical school.

study agreed upon by Prof. G. Taylor and Prof. H. Yagi in their talks. For the actual execution of this project, a two-story wooden building of 198 m<sup>2</sup> which had formerly been used as the Hygiene Research Institute (at the site where the basic lecture-training building stands now) was remodeled to house about 3,000 experimental animals constantly.

This experimental animal laboratory of Okayama University Medical School was to meet the needs of our school and those from outside. Maintenance was financed by funds from the Okayama District Cancer Research Association with one permanent technician.

On May 7, 1958, mice from the Department of Anatomy (Prof. A. Kirschbaum, Director), Baylor University, including mice from the Mouse Colony of Texas University by the courtesy of Dr. A.G. Liebelt (Fig. 2) of the same university, were shipped to the Haneda Airport by U.S. Army airplane and arrived at Okayama Railway Station on May 9 (Fig. 3). These mice consisted of 10 strains (A. AKR, BALB/ c, C58, C57BL, C3H, C3Hf, DBA/2f, DBAFN, and RIII) a total of 72 mice. Prof. Y. Hamazaki was in charge of management and Dr. N. Ida guided the breeding of animals.



Fig. 3. Mice on the arrival at Okayama Railway Station in May, 1958. From left Dr. N. Ida, late dean H. Yagi, Chief clerk, Mr. M. Sunami, Prof. Y. Hamazaki.

Thereafter funds were allocated from the Education Ministry for the maintenance of inbred animals from 1968, which was conducted under the supervision of Prof. B. Osogoe, Assist. Prof. K. Suwa, and Prof. I. Nishida in that order. Breeding was supervised by Dr. H. Fujita (now at Kagawa Prefectural Central Hospital) for a long period of time.

The building housing these mice was an old wooden one constructed in the Taisho Era and was a fire hazard on account of the heating used to keep the animals warm.

Moreover, each department had animal huts scattered over the school campus for animal breeding. All of these were incomplete, temporary, the management was not satisfactory, and a reduction in personnel was needed.

Hence the call arose to integrate all these huts into one central breeding house which could be managed in concert by all departments, thus facilitating its use and care-taking. Other factors that hastened the construction of a central building were complaints from patients and residents near the animal huts, especially in regard to the barking of dogs.

To ameliorate the situation, the general animal experimental center committee was formed in Feb. 1972 with Prof. H. Yamazaki as chairman.

The construction plan was divided into two. The first stage was to give priority to the construction of a building for strain maintenance of inbred mice and breeding of dogs, coupled with facilities for experimental breeding of cats and monkeys. In July, 1973, a three-story building of 1,141 m<sup>2</sup> was completed. On this occasion, the Experimental Animal Laboratory of Okayama University Medical School (The Mouse Colony) was incorporated into the General Animal

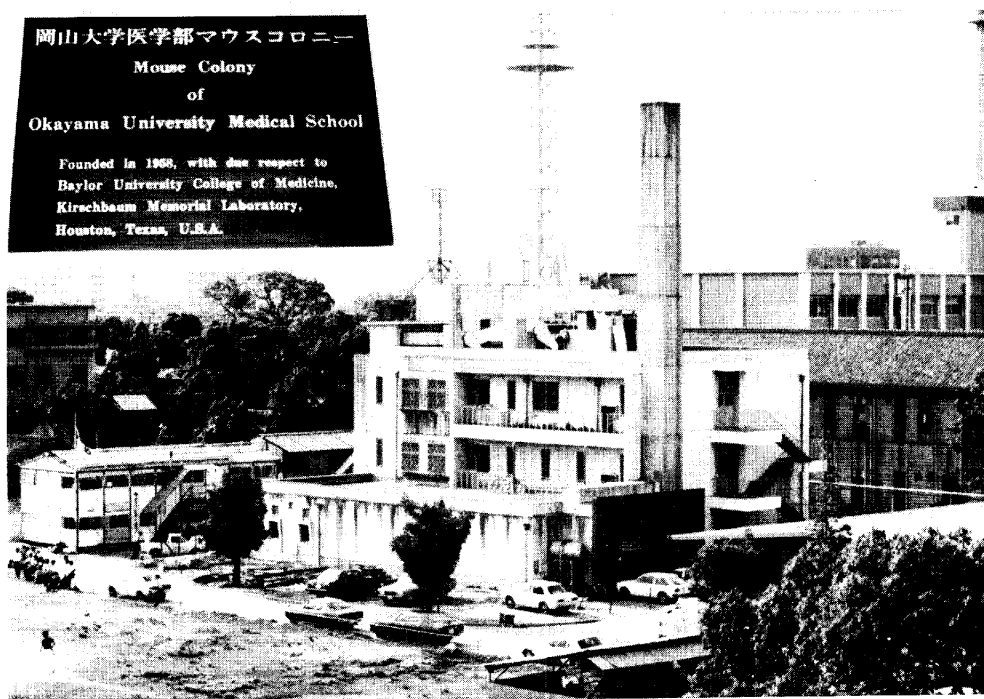


Fig. 4. General view of the General Animal Experimental Center (as of 1979).

Experimental Center of Okayama University Medical School (Prof. I. Nishida as the head of the Steering Committee followed by Prof. K. Ogawa in 1979 and up to date), and as part of the center, it is called the strain preservation section (Prof. T. Kimoto, superintendent, Dr. S. Irino, Dr. M. Ohmori as vice-superintendents, in 1978, Prof. K. Orita as the superintendent and Dr. M. Ohmori, vice-supervisor).

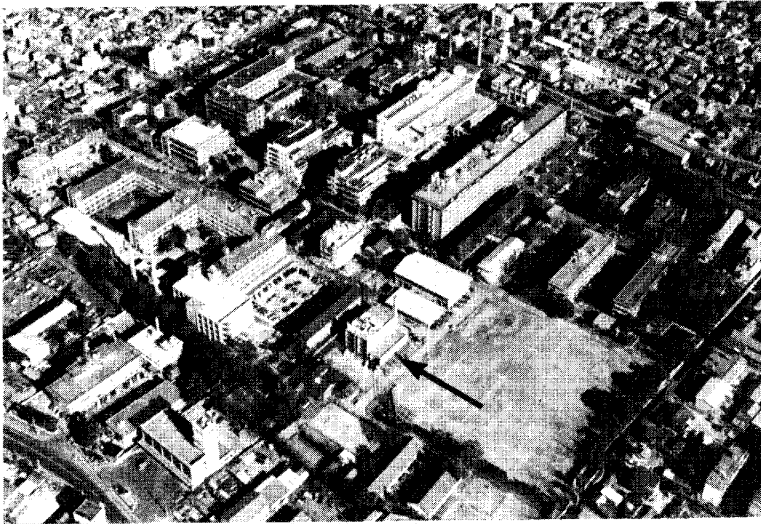


Fig. 5. (*top*) A bird's eye view of Okayama University Medical School (Mouse Colony is indicated by an arrow)

Fig. 6. (*bottom*) Inner view of mouse breeding.

At present a budget request is being presented for consolidation of the facilities and personnel, in particular, for the construction of a building about 3,000 m<sup>2</sup> as the second stage.

This animal laboratory has been called the Experimental Animal Center with a subsidy from the Education Ministry since April, 1980.

#### *Management Expenditure*

The expenses for administering the strain preservation section are covered by funds allocated by the Education Ministry for the preservation of inbred strain animals and acatalasemic mice as well as by fees collected from the users of each department of our school.

#### *Present Status of the Strain and its Preservation-Maintenance of Inbred Mice*

Of the 10 strains donated from Houston, 8 strains of mice, A, AKR, BALB/c, C58, C57BL, C3Hf, DBA/2f, and RIII, have been maintained by brother-sister mating from generation to generation for 22 years, and during that period two strains of CBA and RF have been added by importing them : CBA from the Department of Anatomy, Baylor University, and RF from the Jackson Laboratory. In addition, we have added C3H/He, Swiss, and D103 from the Japanese National Institute of Genetics and CFW from the Veterinary Hygiene Research Institute of the Ministry of Agriculture and Forestry. Further, in July, 1967 and 1973, in recognition of the research work of Prof. S. Takahara *et al.* on acatalasemia, 3 strains of acatalasemic mice CS strains were received from the Argonne National Laboratory by the Courtesy of Dr. R. N. Feinstein with the permission of the U. S. Atomic Energy Commission. In June, 1979, strains of C3H/CS<sup>b</sup>, C3H/CS<sup>c</sup>, and C3H/CS<sup>a</sup>, which had been produced by introducing genes CS<sup>b</sup>, CS<sup>c</sup> and CS<sup>a</sup> into C3H mice, were donated.

We now have a total of 20 strains on hand. At present breeding is managed by Mrs. S. Ariyoshi and Miss N. Yokomizo.

#### *List of Strains Being Maintained at Okayama University Medical School.*

|                     |                                                                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| A/Ok                | Genet.: aacc, H-2 <sup>a</sup><br>Origin: Strong—Kirschbaum (1944)—Ok (1958)<br>Charac: Some mammary cancer and hepatoma<br>Inbreeding: F? + 62 |
| CS <sup>b</sup> /Ok | Origin: Argonne Nat. Lab., I11.—Ok (1967)<br>Charac: acatalasemic<br>Inbreeding: F? + 49                                                        |
| CS <sup>f</sup> /Ok | Origin: Argonne Nat. Lab. I11.—Ok (1973)<br>Charac: hypocatalasemia<br>Inbreeding: F? + 24                                                      |
| CS <sup>a</sup> /Ok | Origin: Argonne Nat. Lab. I11.—Ok (1967)<br>Charac: normocatalasemic mice<br>Inbreeding: F? + 48                                                |

|                     |                                                                                                                                                                                                    |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AKR/Ok              | Genet.: aabbcc, H-2 <sup>k</sup><br>Origin: NIH—Kirschbaum (1956)—Ok (1958)<br>Charac: high incidence of lymphatic leukemia declined to low at present<br>Inbreeding: F? + 68                      |
| BALB/c/Ok           | Genet.: bbcc, H-2 <sup>d</sup><br>Origin: Bittner—Kirschbaum (1952)—Ok (1958)<br>Inbreeding: F65 + ? + 63                                                                                          |
| CBA/St/Ok           | Genet.: +, H-2 <sup>k</sup><br>Origin: Strong probably—Kirschbaum (1941)—Ok (1965)<br>Charac: low incidence of mammary cancer, leukemia and hepatoma<br>Inbreeding: F? + 46                        |
| C3H/CS <sup>b</sup> | Origin: Argonne Nat. Lab.—Ok (1979)<br>Charac: acatalasemic<br>Inbreeding: F? + 10                                                                                                                 |
| C3H/CS <sup>c</sup> | Origin: Argonne Nat. Lab.—Ok (1979)<br>Charac: hypocatalasemic<br>Inbreeding: F? + 10                                                                                                              |
| C3H/CS <sup>a</sup> | Origin: Argonne Nat. Lab.—Ok (1979)<br>Inbreeding: F? + 10                                                                                                                                         |
| C3H/He/Ok           | Genet.: +, H-2 <sup>k</sup><br>Origin: Strong—Andervont (1930)—Heston (1941)—Ms—Ok (1958)<br>Charac: high incidence of mammary cancer<br>Inbreeding: F? + 35 + ? + ? + 70                          |
| C3Hf/Ok             | Origin: Bittner—Kirschbaum (1956)—Ok (1958)<br>Charac: low incidence of hepatoma.<br>Endogenous oncogenic viruses are activated by adenovirus carcinogenesis.<br>Inbreeding: F83 + ? + 63          |
| C57BL/Ok            | Genet.: aa, H-2 <sup>b</sup><br>Origin: Bittner—Kirschbaum (1951)—Ok (1958)<br>Charac: mammary cancer 0% in breeding females, low incidence of reticular tissue neoplasms and a some hydrocephalus |
| C58/Ok              | Genet.: aa<br>Origin: Bittner—Kirschbaum (1950)—Ok (1958)<br>Charac: high incidence of lymphatic leukemia<br>Inbreeding: F? + 60                                                                   |

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|            |                                                                                                                                                                                        |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CFW/Ok     | Genet.: cc<br>Origin: Carwoth Farms—Jms—?—Jah—Ok (1970)<br>Inbreeding: F? + 46                                                                                                         |
| Dbal2f/Ok  | Genet.: aabbdd, H-2 <sup>d</sup><br>Origin: Bittner—Kirschbaum—Ok (1958)<br>Charac: low incidence of mammary cancer and leukemia.<br>ultrasound sensitive<br>Inbreeding: F? + 57       |
| D103/Ok    | Genet.: cc<br>Origin: Germany—?—Hokkaido Univ. (1945)—Ms<br>(1951)—Ok (1960)<br>Inbreeding: F? + 66                                                                                    |
| RIII/An/Ok | Genet.: cc<br>Origin: Andervont—Kirschbaum (1954)—Ok (1958)<br>Charac: high incidence of mammary cancer (declined to<br>low at present)<br>ultrasound sensitive<br>Inbreeding: F? + 62 |
| RF/Ok      | Genet.: cc, H-2 <sup>k</sup> , Hbb <sup>d</sup><br>Origin: Rockefeller Inst.—Furth (1928)—Oak Ridge—Jax<br>—Ok (1966)<br>Charac: some leukemia<br>Inbreeding: F? + 43                  |
| Swiss/Ok   | Genet.: cc<br>Origin: Swiss—?—Ms—Ok (1961)<br>Charac: some mammary cancer<br>Inbreeding: F? + 62                                                                                       |

Ok: Strain Preservation Section, Experimental Animal Center,  
Okayama University Medical School, Okayama 700, Japan  
April, 1981

### *Quality Examination of a Mouse*

- (1) Coat color allele  
A(agouti) locus  
B(black) locus  
C(colored) locus  
D(dilution) locus

By Cross-mating with tester mice DBA/2.

### Results

Mouse strain

A/Ok

AKR/Ok

Coat color allele

ccaaBBDD

ccaabbDD

|           |                |
|-----------|----------------|
| BALB/c/Ok | ccAAbbDD?      |
|           | Not determined |
| D103/Ok   | ccAABBDD       |
| RIII/Ok   | ccAABBDD       |
| RF/Ok     | ccAABBDD       |
| Swiss/Ok  | ccAABBDD       |

## (2) Biochemical allele

|       |                                       |
|-------|---------------------------------------|
| Idh-1 | (isocitrate dehydrogenase)            |
| Pep-3 | (dipeptidase)                         |
| Car-2 | (carbonic anhydrase)                  |
| Mup-1 | (major urinary protein)               |
| Gpd-1 | (glucose-6-phosphatase dehydrogenase) |
| Pgm-1 | (phosphoglucomutase)                  |
| Gpi-1 | (glucose phosphatic isomelase)        |
| Hbb   | (hemoglobin-chain)                    |
| Es-1  | (esterase-1)                          |
| Es-2  | (esterase-2)                          |
| Es-3  | (esterase-3)                          |
| Mod-1 | (malic enzyme, supernatant)           |
| Ce-2  | (kidney catalase-2)                   |
| Hc    | (hemolytic complement)                |
| Ldr-1 | (lactate dehydrogenase regulator)     |
| H-2   | (histocompatibility-2)                |

Each allele was examined by electrophoresis.

Days tested Sept. 14, 1979

## The distribution of alleles at 16 loci in 7 strains of our mouse colony

| CHROMOSOME | 1     | 1     | 2  | 3     | 4     | 4     | 5     | 6     | 7     | 7   | 8    | 8    | 9     | 11   | 16   | 17  |
|------------|-------|-------|----|-------|-------|-------|-------|-------|-------|-----|------|------|-------|------|------|-----|
| LOCUS      | Idh-1 | Pep-3 | Hc | Car-2 | Mup-1 | Gpd-1 | Psm-1 | Ldr-1 | Gpi-1 | Hbb | Es-1 | Es-2 | Mod-1 | Es-3 | Ce-2 | H-2 |
| Strain     |       |       |    |       |       |       |       |       |       |     |      |      |       |      |      |     |
| A/Ok       | a     | b     | 0  | b     | a     | b     | a     | a     | a     | d   | b    | b    | a     | c    | a    | a   |
| AKR/Ok     | b     | a     | 0  | a     | a     | b     | a     | a     | a     | d   | b    | b    | a     | c    | b    | k   |
| C57BL/Ok   | a     | c     | 1  | a     | b     | a     | a     | a     | b     | a   | a    | b    | b     | a    | a    | b   |
| BALB/c/Ok  | a     | a     | 1  | b     | a     | b     | a     | a     | a     | d   | b    | b    | a     | a    | a    | d   |
| C3H/He/Ok  | a     | b     | 1  | b     | a     | b     | b     | a     | b     | d   | b    | b    | a     | c    | b    | k   |
| CBA/Ok     | b     | b     | 1  | a     | a     | b     | a     | a     | b     | d   | b    | b    | b     | c    | b    | k   |
| DBA/2f/Ok  | b     | b     | 0  | b     | a     | b     | b     | a     | a     | d   | b    | b    | a     | c    | a    | d   |

Results of microbial analysis in 7 strains consisting of 6 mice in each strain.

AKR: *Pasteurella pneumotropica* was detected in 2/6 mice; *Syphacia obvelata* in 2/6 mice. C3H/He: *Pasteurella pneumotropica* in 2/6 mice; *Syphacia obvelata* in 1/6 mice. BALB/c: *Giardia muris* in 3/6 mice; *Hexamita muris* in 4/6 mice; *Syphacia obvelata* in 1/6 mice. DBA/2f: *Pasteurella pneumotropica* in 2/6 mice, *Hexamita muris* in 4/6 mice, and *Syphacia obvelata* in 2/6 mice.

A: it was absent in every item.

C57BL: Mouse hepatitis virus antibody was detected in 1/6 of mice.

## (3) Microbial tests

| Microbe or<br>Parasite    | Test items and methods |                      |                         |
|---------------------------|------------------------|----------------------|-------------------------|
|                           | Test methods           |                      |                         |
|                           | Culture                | Antibody<br>analysis | Microscopic<br>analysis |
| <b>Virus</b>              |                        |                      |                         |
| Mouse hepatitis virus     |                        | +                    |                         |
| Sendai virus (HVJ)        |                        | +                    |                         |
| Ectromelia virus          |                        | +                    |                         |
| <b>Mycoplasma</b>         |                        |                      |                         |
| Mycoplasma pulmonis       | +                      | +                    |                         |
| <b>Bacilli</b>            |                        |                      |                         |
| Bordetella bronchiseptica | +                      |                      |                         |
| Corynebacterium kutscheri | +                      | +                    |                         |
| Diplococcus pneumoniae    | +                      |                      |                         |
| E. coli 0-115 a. c        | +                      | +                    |                         |
| Pasteurella pneumotropica | +                      |                      |                         |
| Pseudomonas aeruginosa    | +                      |                      |                         |
| Salmonella spp.           | +                      | +                    |                         |
| Tyzzer's organisms        |                        | +                    |                         |
| <b>Fungi</b>              |                        |                      |                         |
| Dermatophytes             |                        | +                    |                         |
| <b>Protozoa</b>           |                        |                      |                         |
| Giardia muris             |                        |                      | +                       |
| Hexamita muris            |                        |                      | +                       |
| <b>Helminthes</b>         |                        |                      |                         |
| Syphacia spp.             |                        |                      | +                       |

Giardia muris was detected in 2/6 and Syphacia obvelata in 2/6 of mice.

CBA: Syphacia obvelata was detected in 3/6 of mice.

The above study was conducted to establish the quality standard of experimental animals as well as to formulate examination methods, with support from Scientific Research Funds of the Education Ministry (Sept. 1979-March 1980), and collaboration of Dr. Tatsuji Nomura as a representative.

*Representative strain being maintained*

(1) CS<sup>b</sup> (acatalasemic mouse)

Days tested: June 5, 1979

| Items tested              | Microbiological profile of inbred mice |           |           |           |      |          |         |
|---------------------------|----------------------------------------|-----------|-----------|-----------|------|----------|---------|
|                           | AKR/Ok                                 | C3H/He/Ok | BALB/c/Ok | DBA/2f/Ok | A/Ok | C57BL/Ok | CBA/Ok  |
| Ectromelia virus          | —                                      | —         | —         | —         | —    | —        | —       |
| Mouse hepatitis virus     | —                                      | —         | —         | —         | —    | + (1/6)  | —       |
| Sendai virus              | —                                      | —         | —         | —         | —    | —        | —       |
| Mycoplasma pulmonis       | —                                      | —         | —         | —         | —    | —        | —       |
| Corynebacterium kutscheri | —                                      | —         | —         | —         | —    | —        | —       |
| Escherichia coli 0-115a,c | —                                      | —         | —         | —         | —    | —        | —       |
| Pasteurella pneumotropica | + (2/6)                                | + (2/6)   | —         | + (2/6)   | —    | —        | —       |
| Pseudomonas aeruginosa    | —                                      | —         | —         | —         | —    | —        | —       |
| Salmonella spp.           | —                                      | —         | —         | —         | —    | —        | —       |
| Tyzzer's organisms        | —                                      | —         | —         | —         | —    | —        | —       |
| Dermatophytes             | —                                      | —         | —         | —         | —    | —        | —       |
| Giardia muris             | —                                      | —         | + (3/6)   | —         | —    | + (2/6)  | —       |
| Hexamita muris            | —                                      | —         | + (4/6)   | + (4/6)   | —    | —        | —       |
| Syphacia obvelata         | + (2/6)                                | + (1/6)   | + (3/6)   | + (2/6)   | —    | + (2/6)  | + (3/6) |

In an ordinary mouse, the catalase activity is about 1/2 that of human, but in CS<sup>b</sup> the blood catalase activity is 2.5% of the normal value. This mutant strain was selected out by Dr. R. N. Feinstein from irradiated mice. This mouse serves as the model of human acatalasemia discovered in 1948 by Professor S. Takahara.

(2) CS' (hypocatalasemic mouse)

This is the strain that has 20% activity of normal level.

(3) CS<sup>a</sup> is of the same strain as the above having normal catalase activity. The mice so far described are very impure in terms of their genetic background. By repeating backcross-breeding later with inbred mouse and a mouse of each CS strain, the genelocalized locus involved in the catalase biosynthesis can be introduced into the inbred mouse and the following strains have been obtained by Dr. R. N. Feinstein.

(4) C3H/CS<sup>b</sup> (acatalasemic mouse)

(5) C3H/CS<sup>c</sup> (hypocatalasemic mouse)

(6) C3H/CS<sup>a</sup> (a mouse with normal blood catalase activity)

*Significance and Characteristics of Strain Preservation*

The inbred strain mouse colony, at the time of its establishment in 1958, was unique in Japan and its contribution of supplying several tens of thousands of mice to many universities and laboratories over a long period of time is indeed significant. The acatalasemic mice, CS strain mice, are also the sole strain in Japan. As to the other strains received from the U. S., some have been lost in accidents in the U. S. whereas we still have them on hand here. We have been communicating with the mouse colony (of Dr. A. G. Liebelt) from which we received mice from the very beginning of our mouse colony and are exchanging information even today.

*Institutions Where our Strains Have Been Donated*

| Institutions                                          | Strains                                                           |
|-------------------------------------------------------|-------------------------------------------------------------------|
| Nagoya University                                     | A, RIII, C3H, C57BL, BALB/c, C3H/f, D103, Swiss, AKR, C58, DBA/2f |
| Kochi Medical School                                  | BALB/c                                                            |
| Kumamoto University                                   | A, C57BL, CBA                                                     |
| Gumma University                                      | RF                                                                |
| National Cancer Center                                | RIII                                                              |
| Kyoto Municipal Medical College                       | C3H/f                                                             |
| Aichi Cancer Center                                   | RIII                                                              |
| Toneyama National Hospital                            | C57BL                                                             |
| Kawasaki Medical School                               | C57BL, Swiss, C3H, CBA, AKR, DBA/2f, RF, CFW                      |
| Osaka University                                      | Swiss, C3H, AKR, C58                                              |
| Gifu Medical College                                  | Swiss                                                             |
| Tottori University                                    | C58                                                               |
| Kyoto University                                      | AKR                                                               |
| Mie Medical College                                   | C57BL, AKR, DBA/2f, C3H/f                                         |
| Yamaguchi University                                  | C57BL, DBA/2f, Swiss                                              |
| Toyo Engineering Co. Hospital                         | C57BL, BALB/c, Swiss, C3H, AKR, DBA/2f, RIII                      |
| Hiroshima University                                  | BALB/c                                                            |
| Tokai University                                      | RF                                                                |
| Kurashiki Adult-disease Center                        | C3H/f                                                             |
| Mimasaka College                                      | AKR                                                               |
| Hiroshima Sanes-Giken                                 | A, D103, C58, C3H, AKR, RF, RIII                                  |
| Japanese Research Institute for Photosensitizing Dyes | A, D103, Swiss, AKR, DBA/2f                                       |
| Hayashibara Research Institute                        | RIII                                                              |
| Fukuyama-Daimon Hospital                              | CBA                                                               |
| Okayama Prefectural Research Institute of Hygiene     | D103                                                              |
| Retina Foundation, Boston                             | C57BL, A, D103, Swiss, AKR, RIII, DBA/2f, CBA, C58, BALB/c        |
| Saiseikai General Hospital                            | C3H/f                                                             |
| Azabu Veterinary College                              | C3H/f, D103                                                       |
| National Institute of Genetics, Japan                 | BALB/c                                                            |
|                                                       | D103                                                              |

*The origin of the Kirschbaum Memorial Laboratory of Inbred Strains*

The origin of inbred strain mice in Kirschbaum Memorial Laboratory has its beginning about 40 years ago (1940) when Dr. A. Kirschbaum acquired M.

D. and Ph. D. degrees at Minnesota University and Yale University. These strains were used since 1936 when Dr. A. Kirschbaum conducted the research work in cooperation of Drs. Strong, Gardner, Bittner, and Kaplan. Of the mice, the strains, A, CBA, C57BL, C58, and DBA/2f had been maintained before 1952 when Dr. A. Kirschbaum studied at Yale and Minnesota Universities, and the strains BALB/c and C3H were added in the period 1952-1954 in University of Illinois Medical School. AKR, RIII, and C3Hf were added in the period (1954-1958) when he was at Baylor College of Medicine, Houston. At the passing of Dr. A. Kirschbaum in 1958, Dr. Robert Liebelt took charge of the mouse colony. This is the time when some mice were donated to Okayama University.

*The Present State of Kirschbaum Memorial Laboratory*

Kirschbaum Memorial Laboratory was transferred to the Medical College of Georgia, Augusta, in 1971 when Dr. R. Liebelt moved there as provost (next to president). At the time several strains were left at the Baylor College of Medicine. At the time Dr. Annabel G. Liebelt, Assoc. Professor, Dr. R. Liebelt's wife, assumed the post of director of the Kirschbaum Mouse Colony.

Later at the Medical College of Georgia due to leakage of the steam used for warming the laboratory, strains C58 and RIII became extinct. In 1974 on the occasion of constructing a new Northeastern Ohio Universities College of Medicine, Kent, Ohio, Dr. R. Liebelt assumed the post of Dean and with this the mouse colony was transferred. However, a part of the colony was left at the Medical College of Georgia. During the construction period, the mouse colony was temporarily kept at one corner of Akron General Medical Center, but it was moved to the university campus in April 1978 when the basic science building was completed.

There are 17 strains being maintained now, of which Dr. Annabel G. Liebelt, Professor of Anatomy, Kirschbaum Memorial Laboratory, Northeastern Ohio Universities, College of Medicine, is in charge.

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