

life sciences

Gathered at an International Symposium in Washington, D.C.,
of the Institute of Laboratory Animal Resources

LEUKEMIA

Guinea pigs recommended for research

Mice have been used extensively for leukemia research, but Dr. Stanley R. Opler of Stanford University School of Medicine, Palo Alto, Calif., believes that strains of guinea pigs are also good models.

He reports that spontaneous leukemia has been found in both random-bred and inbred guinea pig colonies. Although the true occurrence of leukemia in guinea pigs is obscured by lack of complete studies when they die, the Stanford investigators, through autopsies, studied the bone marrow and blood and arrived at a figure of 2.5 percent of their dead guinea pigs with spontaneous leukemia.

Researchers at Stanford have identified a virus related to this guinea pig leukemia. Historically, the guinea pig has had value in laboratory investigations related to other human disease, including diphtheria, tuberculosis, Rocky Mountain spotted fever, polio, typhus and scurvy.

DOGS

Radiation effects studied

The beagle is not only a companion to man, he responds similarly to environmental stresses, including radiation exposure.

Dr. D. H. McKelvie, associate professor of veterinary medicine at Colorado State University at Fort Collins, says beagle studies have helped to set safe exposure limits for people working with potentially toxic radioactive agents.

The Atomic Energy Commission and the Public Health Service are the largest users of beagles for health research.

The AEC has beagle colonies at the University of California in Davis, at the University of Utah in Salt Lake City and at the Lovelace Foundation at Albuquerque, N.M. The PHS maintains a colony of 1,300 beagles at Colorado State University.

Used more than any other pure-bred dog in biomedical research, the beagle has afforded more than 18 years of data on bone, bone marrow, blood, aging and radiation exposure. Research is also aimed at finding the cause and possible cure for sclerosis of the kidney and leukemia originating from the bone marrow.

Reasons for using the beagle in research include their medium size, good-natured temperament, genetic stability and low ratio of bone tumor and lung tumor.

NUTRITION

Food metabolism

Rats, like humans, vary in their nutritional requirements. Two strains of these animals differ in their fat metabolism, for example, and this may be due to a number of possible metabolic defects, most of which can be found in some people.

Mary W. Marshall of the U.S. Department of Agricul-

ture's human nutrition research division says that two rat strains have been maintained under identical conditions for more than 10 years at the Agricultural Research Service Laboratory at Beltsville, Md. Nutritional experience with the strains, she says, makes possible a correct interpretation of research results, on which many laboratory-derived conclusions depend.

GENETICS

The color of cats

Surveys of cats in various parts of the world show that those that live in urban areas are darker than country cats, Dr. Neil B. Todd, head of the Carnivore Genetics Research Center, Newtonville, Mass., has found.

Reviewing his own research and that of other scientists, Dr. Todd says the city cats have apparently achieved a protective coloration so they can defend their established territories from other cats. He says that in this one domesticated animal, at least, the urban environment has brought about dramatic genetic changes.

Domestic cats were brought from Europe to North America only 400 years ago, so even the dark cats are lighter than the ones in London and Paris.

But a comparison of Parisian and London cats to those of a French rural district midway between the two cities shows, despite geography, that the cats in urban centers resemble each other more closely than either resembles the rural group.

Since urbanization is bringing about these large-scale and ever-increasing changes in cats, Dr. Todd wonders what may be happening to human populations that share the same environment.

TRANQUILIZERS

Noise sends mice into convulsions

The full effect of noise on man is still undecided, but laboratory mice go into convulsions when they hear explosive noises such as hammering, bell ringing and the banging of metal cages.

Dr. W. B. Itturian of the University of Georgia's School of Pharmacy says faulty evaluation of new drugs intended for use as tranquilizers could result when tested in animals affected by noise.

Mice have an acute sense of hearing; noise in their breeding rooms is harmful. More than 90 percent of genetically susceptible inbred strains exhibit seizures when first subjected to noise, provided they are over 15 days and less than 40 days old. Death often follows severe seizures.

In his experiments, the researcher uses a covered glass jar containing an electric doorbell that can be regulated while reactions of mice in the jar are recorded.

Hammering metal, or various noises such as barking dogs, are most effective in prolonging seizure susceptibility even though they may be brief in duration. An electric drill or banging of a garbage-can lid can cause seizures in 90 percent of the tested mice.