Aging Pathobiology and Therapeutics 2025; 7(4): 243-244 ***243***
DOI: 10.31491/APT.2025.12.190

LETTER

An aged rodent tissue bank fills unmet needs for biomedical research on aging

Warren Ladiges[a, b, *]

[a] *Department of Comparative Medicine, Department of Medicine, School of Medicine, University of Washington, Seattle, WA, USA.*
[b] *Division of Gerontology and Geriatric Medicine, Department of Medicine, School of Medicine, University of Washington, Seattle, WA, USA.*

Abstract

Biomedical research on aging has made large numbers of life-changing discoveries using animal models. That includes studies to enhance healthy aging and prevent development of chronic disease conditions which depend for the most part on the availability of animal models for preclinical investigations. The introduction of new approach methodologies complements the use of live animals with studies that can be conducted *in silico*, *in vitro*, and *in chemico*, alleviating the need for very large numbers of animals. The United States National Institute on Aging has developed an Aged Rodent Tissue Bank that provides tissues collected from barrier maintained specific pathogen free mice and rats. These tissues are stored in a frozen state, or as formalin fixed paraffin embedded unstained histology slides or tissue microarrays. Major organs from multiple age groups are available. Use of these archived specimens in many cases removes the need to support and maintain live animals and helps generate rigorous and reproducible research results while reducing the number of animals.
Keywords: Aged mice, aged rats, aged rodent tissue bank, aging research, new approach methodologies

Biomedical research using animal models has been a cornerstone for large numbers of life-changing discoveries over the years. These have been of benefit to public health in many ways. Recent technological advances have made available new approach methodologies (NAMs) including *in silico*, *in vitro* and *in chemico* models that complement live animal models and allow improved research of translational relevance. Therefore, NAMs contribute to reducing the need for large numbers of live animals albeit not replacing them completely especially in studies to enhance healthy aging and prevent development of chronic disease conditions. Justified by the expense and ethical considerations, the National Institute on Aging (NIA) within the United States National Institutes of Health had the vision a number of years ago of providing aged rats and mice in barrier-maintained and specific pathogen-free colonies for research studies on aging. Rodents, specifically rats and mice, are excellent models of aging by enabling scientists to ask biological questions regarding genetics, anatomy, physiology, pathology, and disease comorbidity, and how gerotherapeutic approaches such as diet, physical exercise, and FDA approved drugs can intervene in aging pathways.

In a more recent development, the NIA had the additional vision of leveraging the aged rodent colony by establishing an aged rodent tissue bank (ARTB). Tissues are collected from mice and rats and stored in a frozen state, or as formalin fixed paraffin embedded unstained histology slides or tissue microarrays representing all major organs from multiple age groups including juvenile, young adults, middle-aged adults, and geriatric adults. Rodents are shipped from the holding facilities to the ARTB processing location and allowed to acclimatize for five days after arrival. Tissues are collected in a rigorous standardized manner to ensure high quality materials for scientific use. Strains represented in the bank for mice include C57BL/6JN (C57BL6), BALB/cByJNIA (BALBc), and BALBc × C57BL6 F1 (CB6 F1). Strains represented for rats include Fisher F344-cdf (F344), and F344 x Brown Norway BN/crl F1 (FBN F1). Occasionally the ARTB may be able to collect non-standard biospecimens and ages in addition to those routinely collected. Requests can be made by accessing the NIA ARTB website.

* Corresponding author: Warren Ladiges
Mailing address: Department of Comparative Medicine, School of Medicine, University of Washington, Seattle, WA
Email: wladiges@uw.edu
Received: 25 December 2025Accepted: 26 December 2025
Published: 30 December 2025

The ARTB and the aged rodent colony provide access to animals and tissues that otherwise would not be available to many researchers conducting investigations into mechanisms of aging and development of new therapeutic targets for clinical studies. Use of these archived specimens removes the need to support and maintain live animals depending on the study design. These valuable resources help to ensure the availability of tissues from aged rodents while reducing the number of animals required to generate rigorous and reproducible research results.

Declarations

Availability of data and materials: Not applicable.

Financial support and sponsorship: Supported by United States NIH National Institute on Aging contract 75N95021C00008.

Conflicts of interest: Warren Ladiges is a member of the editorial board of *Aging Pathobiology and Therapeutics*. The authors declare that they have no conflicts and were not involved in the journal's review or decision regarding this manuscript.

Cite this article as: Ladiges W. An aged rodent tissue bank fills unmet needs for biomedical research on aging. *Aging Pathobiol Ther*, 2025, 7(4): 243-244. doi: 10.31491/APT.12.190