NIH-AG-00-10

STATEMENT OF WORK FOR SOLICITATION PURPOSES

1. Background

The National Institute on Aging (NIA) supports through contracts several colonies of aged rats and mice for use in research on aging. Some investigators do not need live animals, but simply collect specific tissue from the animals for their experiments. The purpose of this contract is to provide a source of fresh-frozen tissue, suitable for multiple experimental protocols, from the NIA colonies of aged rats and mice. This will allow multiple investigators to make use of different tissues from the same animals, and will lower the cost of tissue for those investigators. In addition, the investigators will not need to deal with receiving live animals into their facilities.

2. Objective(s)

The objective is to provide a mechanism whereby investigators can purchase specific tissues from the animals in our aged rodent colonies. The tissue will be unfixed and flash-frozen, rendering it suitable for most molecular biology protocols and many histological and cytochemical protocols. The Project Officer can direct the Contractor to formalin- or ethanol-fix tissues to meet the specific needs of NIA funded investigators.

3. Work to be performed

Independently, and not as an agent of the Government, the Contractor shall provide all the necessary services, qualified personnel, material, equipment, and services (except for those to be furnished by the government as specified elsewhere in this contract) to perform the work required by this contract as set forth below.

Specifically, the Contractor shall:

I. Receive mice and rats selected by the Project Officer from the NIA colonies and shipped at no cost to the Contractor, and shall upon receipt of the animals assign an identification number to each animal, record vital statistics, and collect, flash-freeze, package, label and store tissues. The number of animals to be sent for tissue collection each year is dependent on need. The tissue bank shall start out with tissues from F344 and F344BN F1 rat strains, C57BL6 mice and at least one hybrid mouse strain. Upon the direction of the Project Officer, additional animals will be sent for tissue collection to replace tissues sold or to meet the needs of specific NIA-funded projects. It is estimated that 160 animals per year shall be received by the Contractor. The Project Officer shall determine the specific strain, age and gender of the animals to be sent, as well as the schedule for submission of animals for tissue collection. Specifically, the Contractor shall:

a. Upon receipt of the animals, maintain them for three days under conditions where they will not be exposed to disease or other animals. Animals shall be observed during these three days and any animals that exhibit signs of illness shall not be used for tissue collection but shall be euthanized. Animals shall be maintained in filtered cages, no more than 3 rats or 5 mice per cage, with ad libitum food and water, a temperature range of 70-75^{o}F and a 12/12 hour light/dark cycle. NIH31 laboratory diet shall be autoclaved, water shall be autoclaved, and cage bedding shall be autoclaved. Cages shall meet ILAR minimum floor space requirements per animals and population size as stated in NIH publication No. 85-23 entitled “Guide for the Care and Use of Laboratory Animals” (text available at http://www.nap.edu/readingroom/books/labrats/). Necropsy shall be

performed within a consistent 4 hour window of time (ex. between 9:00 AM and 1:00 PM) on the 3rd day after receipt of the animals.

b. Record on the Vital Statistics Information Sheet the date of accession, strain, gender, age, weight, barrier of origin, special notes such as caloric restricted, and general condition including visible lesions. The identification number is assigned at this time, so that at any time in the future, the ID number can be linked to the Vital Statistics Information Sheet for that animal. Identification numbers are assigned according to the format presented in Attachment 6.

c. Euthanize each animal individually by CO2 asphyxiation and immediately collect, freeze and store the following tissues:
- serum, stored in 200 ul aliquots at –70 to –80ºC
- brain, whole, flash-frozen in Liquid Nitrogen (LN_2) and stored at –70 to –80ºC
- cervical spinal cord, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- eyes, pair, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- sciatic nerves, pair, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- heart, whole, rinsed in Phosphate Buffered Saline, flash-frozen in LN_2 and stored at –70 to –80ºC
- lungs, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- liver, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- spleen, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- ovary or testes, pair, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- prostate (M), pair, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- muscle – thigh, individually, flash-frozen in LN_2 and stored at –70 to –80ºC
- skin, shaved, from flank, 1 x 1 cm square, flash-frozen in LN_2 and stored at –70 to –80ºC
- kidneys, pair, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- adrenal gland, pair, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- white adipose tissue, subcutaneous, flash-frozen in LN_2 and stored at –70 to –80ºC
- brown adipose tissue, flash-frozen in LN_2 and stored at –70 to –80ºC
- thymus, whole, flash-frozen in LN_2 and stored at –70 to –80ºC
- bone, femur, individually, whole, flash-frozen in LN_2 and stored at –70 to –80ºC

Smaller subsets of tissues from submitted animals shall be collected and frozen at the direction of the Project Officer.

d. Maintain tissues in two freezers, each of which is equipped with an independent alarm system and back-up generator. Approximately half of each sample cohort of tissue (same strain, age, gender) shall be maintained in each freezer. The Contractor shall use an appropriate mechanism for inventory control, incorporating the identification numbers as described in Attachment 6.

e. Flash freeze in LN_2 any tumors found and store individually at –70 to –80ºC, note the type and location of the tumor on the animals' Vital Statistics Information Sheet, and append the suffix "TMR" on the animals identification number.

f. Use packaging materials and labels for the tissue that are able to withstand storage at –80ºC and shipping on dry ice without loss of integrity or labels. Packaging and labeling materials shall be approved by the Project Officer prior to use.

g. Provide immersion fixation of tissues with ethanol or formalin for special cases designated by the Project Officer in order to meet the needs of NIA-funded projects. These tissues would be stored at room temperature or at 4ºC and shipped to the investigator in the fixative.

h. Ship tissues to investigators at the direction of the Project Officer. A copy of the Vital Statistics Information Sheet for each animal shall be included in each shipment. All tissue shall be shipped on dry ice by overnight

mail unless otherwise specified. The Contractor shall invoice the investigator for the cost of shipping the tissue and a nominal fee, currently $5.00 per individual tissue. All proceeds from the sale of tissues shall be used to offset the total estimated cost of the contract. Proceeds from the sales of tissues shall be shown on a separate line on the monthly invoices.

i. Dispose of unsold tissue only with the consent of the Project Officer.

II. Required Reports/Deliverables

a. A weekly inventory indicating the number on hand of each tissue type by strain, gender and age, the number of each tissue type entered that week, the total number of each tissue type entered to date, the number of each tissue type shipped to investigators, and the number of each tissue type currently available. The inventory shall be an Excel spreadsheet, the format to be supplied by the Project Officer, and submitted electronically to the Project Officer no later than 7 calendar days after the inventory date.

b. A copy of the vital statistics information sheet for each animal used for tissue collection shall be delivered to the Project Officer within 7 calendar days of tissue collection. The information sheets shall be in Microsoft Word format and delivered electronically to the Project Officer.

c. Semi-annual progress reports shall be delivered to the Project Officer within 30 calendar days of the end of each six month period of the contract. The initial report shall be submitted for the first full six months of the contract performance including any fractional part of the initial month. Thereafter, the reporting period shall consist of six full calendar months. A semi-annual report shall not be required for the period when the final report is due. Progress reports shall detail the number, gender, strains and ages of animals received for tissue banking, the number of orders filled, and the number of each tissue type delivered. The number of animals with tumors and the number of animals culled due to illness shall also be included.

d. A final report shall be submitted upon of completion of this contract. The final report shall include a summation of the work performed under the entire contract period of performance, including number of tissue collected and number of tissues shipped to investigators.