

PURCHASE DESCRIPTION

1. Statement of Need and Purpose:

Our ability to modify the genome of various species has led to the development of new animal models to study human disease. These models have advanced our understanding of a disease's origin, its progression, and possible intervention strategies. Rodents have been the species of choice for these models, secondary to their availability, ease of manipulation, and defined genetics. Over the past decade, a few institutions, including the National Institute of Mental Health (NIMH), have made advancements in developing a transgenic primate model using the marmoset. The anatomy and physiology of the marmoset are closer to that of humans than rodents. In addition, they also display similar complex behaviors in social groups, making them an ideal model for many human neurophysiology and behavioral studies. Therefore, over the past decade, the NIMH Division of Intramural Research (DIR) has invested time and resources in developing a transgenic marmoset research and breeding program to support the requirements of several investigators.

Common marmosets (*Callithrix jacchus*), also called white-tufted marmosets or white-tufted-ear marmosets, a New World primate, are banned from exportation out of their home country of Brazil, and marmosets bred outside Brazil are in limited supply.

Our NIMH colony was founded using animals procured from limited sources. Now that the colony is well established, the NIH recognizes that it is critical for the survival of our program to infuse the colony with more diverse bloodlines. In addition, to meet the requirements of new research initiatives, knowledge of the pedigree lines going back four or more generations on all breeders is required to correlate specific gene modifications with animal behavior and neurophysiology. Therefore, the purpose of this procurement is to:

- a) Expand the genetic diversity of our current marmoset breeding colony by inducing highbred vigor and concurrently meet the evolving research requirements of our program, by introducing up to twelve (12) breeding pairs of marmosets with known pedigree lines spanning four or more generations [up to twelve (12) Breeder Females & twelve (12) Breeder Males].
- b) Provide for the preparation of up to twenty-four (24) marmosets for shipment by providing veterinary and technician services, as well administrative support.

2. Background Information and Objective:

The Veterinary Medicine and Resources Branch (VMRB) operates the Marmoset Breeding Core as a shared resource breeding animals for internal use by the investigators at the NIMH DIR. Critical to the mission of the NIMH is conducting research on the development, experiential, and environmental factors that lead to psychiatric, psychologic, and neurologic disorders with the hope of understanding risk factors, methods of promoting resilience, and preventing or treating these disorders. As such breeding of animals is absolutely essential to allow researchers to study animals from a very early age and even to investigate pre-natal factors. An essential characteristic of common marmosets is that they breed and rear young in extended family groups (similar to human family structures) and that they represent an outbred population with genetic variability similar to the human population, making them an ideal model for study. In

order to prevent our colony from becoming inbred and limiting the future utility of the colony as a model for the human population, NIMH is seeking to acquire up to 24 animals with parentage and genetic characteristics distinct from those of our current breeding animals, to help us to achieve and maintain a colony with adequate genetic diversity to prevent the accumulation of deleterious recessive mutations.

3. Generic Name of Product:

Common marmosets (*Callithrix jacchus*) are also called white-tufted marmosets or white-tufted-ear marmosets.

4. Purchase Description:

Common marmosets (*Callithrix jacchus*) also called white-tufted marmoset or white-tufted-ear marmosets: up to twenty-four (24) – twelve (12) male and twelve (12) female.

5. Salient Characteristics:

Contractor shall provide up to twenty-four (24) common marmosets (12 male and 12 female) for use as breeding animals

Contractor shall provide animals that meet or exceed the following salient characteristics:

- a. All animals shall be between 18 months and 7 years of age upon arrival at the NIH.
- b. All animals must have parentage and genetic characteristics distinct from those of our current breeding animals, to help us to achieve and maintain a colony with adequate genetic diversity to prevent the accumulation of deleterious recessive mutations. Attachment 2: List of NIMH Current Breeding Animals provides a list of NIMH current breeding animal IDs.
- c. All animals must allow NIMH to maintain a coefficient of inbreeding (COI) of about 5% with a COI of 10% or greater being unacceptable. For example, mating of first cousins results in a COI of 6.25%, thus NIMH seeks to breed animals that are more distantly related than first cousins (ie: animals to be bred must not share great-grandparents in common). To meet this need, NIMH requires that animals not share a common ancestor with any of the current NIMH breeding animals (see Attachment 2).
- d. For all animals, complete pedigree information going back at least 3 generations – including at least the dam, sire, 4 grandparents and 8 great-grandparents --- must be provided. If animals offered for sale are full or half-siblings, that information must be easily discernable from the pedigree information provided. NIH shall have unlimited rights to use the genetic data delivered under this contract, in accordance with FAR clause 52.227-14 Rights in Data-General (May 2014), which is hereby incorporated by reference.
- e. All animals must be available for use as breeding stock with no restrictions on the future experimental or breeding use of these animals (ie: NIMH must be able to use these animals to produce future generations of animals for use in research and the animals themselves may not have undergone any previous major

survival surgery – as defined by USDA and the Guide for the Care and Use of Laboratory Animals). Further, the offspring of these animals or their genetic material must be able to be used by other Institutes or Centers (ICs) in the NIH Division of Intramural Research or to be shared or exchanged with collaborating institutions both within and outside of NIH in the service of the mission of NIH.

- f. Females must not be on pregnant for shipping.

Contractor shall prepare marmosets for shipment by providing the following veterinary and technician services, as well administrative support, and Contractor shall provide reports documenting these activities as requested by the Contracting Officer's Representative (COR):

- a. All animals shall have a health record demonstrating a minimum of three (3) consecutive negative intradermal tuberculin tests, or an industry excepted equivalent test, over the lifetime of the animal or colony health records demonstrating that the source colony is free of *Mycobacterium tuberculosis* for the past 3 years.
- b. All animals must receive an intradermal tuberculin skin test or an industry equivalent test no sooner than ten (10) calendar days prior to shipping and this test must be negative.
- c. All animals shall be negative for common pathogenic helminth and protozoal parasites on fecal exam performed within 30 days of delivery.
- d. All animals must have no visible evidence of external parasites (e.g., lice, ticks, mites, ringworm, etc.).
- e. All animals shall be in good health to include well-fleshed and in good physical condition and be free of clinical signs of disease (i.e., cardiovascular, respiratory, intestinal, internal/external parasitism, no history of chronic diarrhea (lasting longer than 2 weeks), inflammatory bowel disease, wasting syndrome, etc.).
- f. All animals shall exhibit no obvious behavioral problems (the animal does not exhibit any stereotypic maladaptive behavior such as self-clasping, self-biting, or consistent circling and there is no physical evidence such as bite wounds or alopecia secondary to excessive self-grooming, that indicates that the animal is exhibiting these behaviors).
- g. All animals shall have a veterinary exam indicating each animal is healthy enough to withstand the rigors of travel. If international transport is required, this exam shall be performed within 10 days of shipment.
- h. All animals shall be between 180-600 grams body weight, with a body condition score of 2.5-4.5 with 1 begin emaciated and 5 being obese.
- i. All animals shall be negative for *Salmonella*, *Shigella* on two (2) rectal cultures performed two (2) days in a row within 30 days prior to delivery.

- j. Additionally, all animals shall be tested one (1) time via rectal culture and found negative for *Klebsiella pneumoniae*, hypermucoviscous phenotype, within 30 days prior to delivery. Following rectal swab culture, the lab can conduct a string test on any *Klebsiella pneumoniae* strains identified (hypermucoviscous would be string test positive).
- k. Detailed medical records for all animals shall be provided electronically for review and approval prior to shipment of the animals.
- l. All animals shall be handled, prepared for shipment, and shipped in accordance with the Guide for Care and Use of Laboratory Animals.
- m. Contractor shall maintain an Animal Welfare Assurance from the Office of Extramural Research (OER), Office of Laboratory Animal Welfare (OLAW), Office of the Director, NIH, as required by Section I-43-30 of the Public Health Service Policy on Humane Care and Use of Laboratory Animals.
- n. Contractor shall maintain accreditation by the Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) International.

Contractor shall deliver animals to the NIH main campus in Bethesda, Maryland.

- a. Contractor shall coordinate delivery details with the NIMH COR prior to release of shipment.

6. Quantity:

Common marmosets (*Callithrix jacchus*) also called white-tufted marmoset or white-tufted-ear marmosets: up to twenty-four (24) – twelve (12) males and twelve (12) females.

7. Delivery Date:

The NIMH has an urgent need for these animals to meet the established timelines for current ongoing research programs.

8. Period of Performance:

Not applicable.

9. Option(s):

None