



Gray mouse lemurs (*Microcebus murinus*): A novel animal model in research



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What are mouse lemurs?

- Mouse lemurs (*Microcebus spp.*) contain the smallest primates in the world
- Prosimians (primates of the Strepsirrhine group)
- Gray mouse lemur (*Microcebus murinus*) is 80-100 grams in body weight.
- ~24 species in genus
- Cryptic species (similar morphology but different genetics)



A captive gray mouse lemur resting on a researcher's hand at Stanford University.

Characteristics

- Nocturnal (active at night)
- Omnivorous
- Solitary foragers (search for food resources alone)
- Seasonal breeders
- Influenced by photoperiod
 - Longer daylight hours in summer = breeding
 - Shorter daylight hours in winter = torpor

In the WILD

A wild mouse lemur in its natural environment in Madagascar.



- Native to Madagascar in west and south coast regions
- Hot and tropical climate
- Arboreal (live in trees)
- Live in various environments:
 - Dry deciduous trees
 - Rain forests
 - Spiny deserts
 - Thornbushes
- Eat fruits, flowers, invertebrates, small vertebrates, gum/sap

Why mouse lemurs?

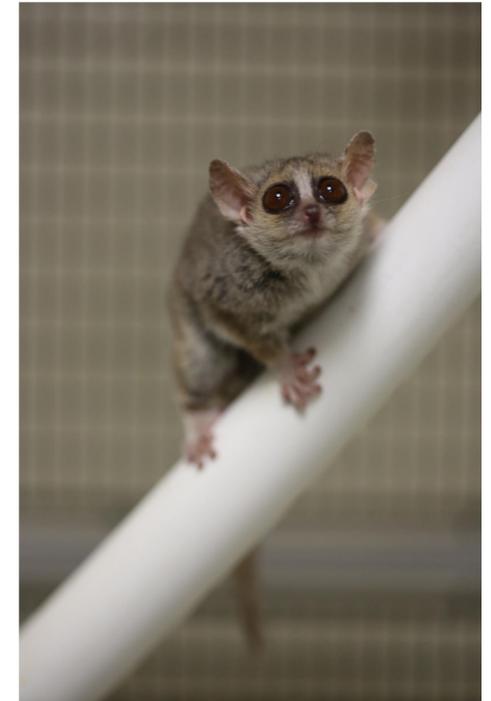
- Compared with mice:
 - Longer lifespan
 - More closely related to humans
- Compared with monkeys:
 - Smaller body size
 - Shorter gestation
 - More offspring
 - Shorter sexual maturity

In CAPTIVITY

- Follow the *Guide for the Care and Use of Laboratory Animals* and Animal Welfare Act
- Temperature condition: 74-80°F
- Humidity condition: 44-65% (dependent on season)
- Food: fruit, vegetables, primate biscuits, meal worms
- Caging: Marmoset housing cages (Britz & Company)
 - Single housing
 - Group housing
- Enrichment provided:
 - Sanded down PVC pipes
 - External and cardboard nest boxes
 - Fleece blankets



(Above) Mouse lemur in external nest box (left) and cardboard nest box (right). (Bottom) Mouse lemur next to food bowl on the ground of its cage.



A captive mouse lemur resting on perch in its cage at Stanford University.

Research Uses

- Research in animal's biological and physiological characteristics
 - Reproductive biology
 - Torpor, food restriction
 - Manipulation of photoperiod
 - Sex differences with behavior
 - Metabolism
 - Genetic variation
- Research in translational applications
 - Aging studies
 - Age-related neurodegenerative diseases (ex: Alzheimer's disease)
 - Genetics

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