



Macaques

Macaca mulatta (rhesus macaque)

Macaca fascicularis (cynomolgus macaque)

The Wisconsin National Primate Research Center is home to about 1,100 rhesus monkeys and 200 cynomolgus monkeys. The genus *Macaca* has 12 species and about 46 subspecies. Its range includes North Africa, Gibraltar, Asia from Afghanistan to China and Japan and all of Southeast Asia and India.

These Old World monkeys are medium to large, heavily built, and range in color through various shades of brown to black. Macaques can live up to 30 or 40 years in captivity, far less in the wild. The cynomolgus macaque is also known as the crab-eating or long-tailed macaque.

Our macaque colonies

Our center has several breeding colonies, a colony of older monkeys for studies related to aging, and a general research colony for other projects. All research is conducted under strict compliance with the Animal Welfare Act and USDA Guidelines for the Humane Care and Use of Laboratory Animals.

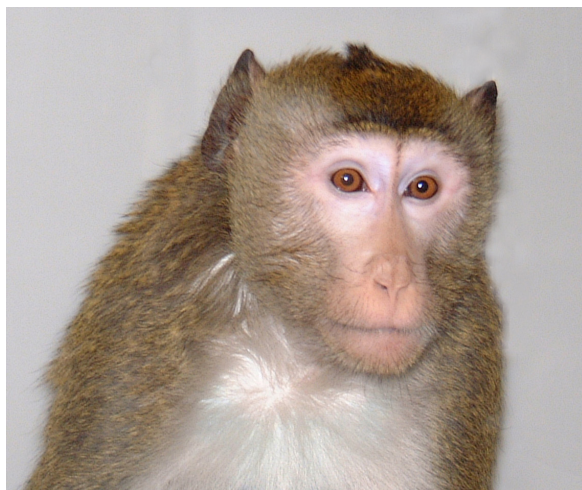
Why use macaques?

Macaques are genetically similar to humans and especially share similar neurology, immune, and reproduction and development systems with us. Rhesus and cynomolgus macaques also adapt well to captive housing. Research with these and other nonhuman primates teaches us a great deal about primate biology. Animal studies can often be better controlled and garner more consistent results than human studies. They are often precursors to human clinical trials for testing new medicines, surgeries, vaccines and other therapies.

Scientists are always developing alternatives to using monkeys and other animals in research. Computer models are highly useful research tools, for example. In many cases, however, neither a computer nor a

lab dish of cells can take the place of a living, complex biological organism when examining a disease, or testing a vaccine or other therapy for effectiveness, safety and side effects.

Adult male rhesus macaque (*below top*) and adult female cynomolgus macaque. (*J. Lenon photos*)



Frequently asked questions

How is the monkeys' care regulated?

Regulations governing research animal care and use are very strict. Our animal care practices meet or exceed the requirements of the Federal Animal Welfare Act and comply with the USDA and Public Health Service's Guidelines for the Humane Care and Use of Laboratory Animals. Research projects and animal care policies are regularly reviewed by center personnel, university committees and federal government officials during site visits, including unannounced inspections. The center must also provide annual reports of all activities to the National Institutes of Health and United States Congress. The center is regularly reviewed and accredited by the Association for the Assessment and Accreditation of Laboratory and Animal Care - International (AAALAC-I).

Does the research hurt the monkeys?

Most of our center's research is noninvasive—it does not harm the animal physically or psychologically. Typical procedures include ultrasound, blood draws, urine collection, tissue biopsies and noninvasive brain imaging such as fMRI—just as humans are tested in clinical settings. Such testing helps us not only learn more about the animals' basic biological processes for research purposes, but also helps us take better care of the monkeys themselves. Animal caretakers work patiently with the monkeys to train them to cooperate for procedures, and the monkeys get fruit rewards or other treats afterwards.

The monkeys must be treated humanely at all times. If they undergo invasive surgery—to remove a tumor, deliver an infant by Cesarean section, or test a new therapy, for instance—anesthesia is always used, just as it is for human surgeries. In addition, if an animal is terminally ill, a center veterinarian will do everything possible to make the animal comfortable, yet also has the responsibility to euthanize the animal before it begins to suffer from chronic pain or severe physical deterioration.

A monkey may also be humanely euthanized to meet a critical research need; for example, to more closely examine the pathology of a novel virus such as Zika in various tissues and organs, or to evaluate the effects of a vaccine or other research intervention on all tissues and organs in the animal.

A Day In The Life...

A typical day for a macaque at the Wisconsin National Primate Research Center consists of:

°Regular meals of monkey chow, plus snacks of apples, grapes, bananas and other fruit.

°Grooming: The monkeys, most of which are housed in pairs or groups, groom one another throughout the day. Grooming and social interaction are the main requirements of most captively housed monkeys.

°Ongoing enrichment activities: These include foraging opportunities, frozen treats, chew toys, mirrors, hammocks, swings, swimming pools and other engaging objects.

°Health care: The monkeys undergo routine physical examinations, regular dental care, pre- and perinatal care for mothers, and post natal care for infants.

Can I see the monkeys?

Public access to our animal housing areas is restricted. The animals know and trust their caretakers, but too many strangers in the animal areas can stress the monkeys, affect their health, and impede both animal care activities and research data collection. In addition, rhesus monkeys and humans can carry illnesses that, while often dormant or easily treatable in the carrier, can be extremely dangerous, even fatal if contracted by the other species. Our center veterinarians and animal caretakers are highly trained to prevent both themselves and the monkeys from transmitting such diseases.

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