

# Research Involving Nonhuman Primates

Nonhuman primates account for just one-half of one percent of animals currently involved in health research. However, they play a critical role in several areas including infectious disease studies, neuroscience and behavioral research. Monkey and human immune systems are similar, as are our reproductive systems, brain structures and many of our behaviors. Furthermore, humans and nonhuman primates are genetically similar, sharing more than 90 percent of our genes.



Photo credit: Kathy West/California National Primate Research Center

## Examples of Diseases, Disorders and Developments Studied in Nonhuman Primates

- Alzheimer's disease, Parkinson's disease, other neurological diseases
- Alcoholism
- Brain development, developmental health
- Contraception
- Drug abuse and addiction
- Drug development
- Fertility issues/reproductive health
- Genetic diseases
- Heart disease
- Infectious disease threats, including Ebola, Zika
- Macular degeneration and other visual disorders
- Neonatal diseases
- Obesity
- Organ transplants
- Preterm birth
- Stem cell therapies
- Vaccine development

## Select Health Breakthroughs Involving Nonhuman Primates

Over the past several decades, there have been countless major breakthroughs stemming from research involving nonhuman primates. Below are just a few:

- Strategies for restoring lost motor function following spinal cord injury
- The development of an innovative surgical procedure called deep brain stimulation to combat the effects of Parkinson's disease
- A cure for Hepatitis C infection
- The development of an Ebola vaccine, which is currently being tested in humans
- Stem cell therapies, which are being developed and tested to combat several diseases including macular degeneration, spinal cord injury, heart disease and ALS
- Gene therapy advancements for mitochondrial-linked disorders which can cause diabetes, deafness, blindness, dementia or epilepsy
- Information on the impacts of Zika infection and new approaches for combatting the disease
- New approaches for combatting HIV infection through the study of SIV and SHIV (the primate versions of HIV)
- Research that led to the successful human clinical trials and FDA approval of belatacept, the first new transplant drug since 1999
- Gene therapy advancements for combatting Huntington's disease
- New genetic findings related to alcohol dependence
- New avenues for the treatment of obesity, including childhood obesity
- Hormone therapy for cognitive issues related to aging

### Resources:

The National Primate Research Centers: [nprc.org](http://nprc.org)

The Critical Role of Nonhuman Primates in Medical Research, Foundation for Biomedical Research

(<https://fbresearch.org/wp-content/uploads/2016/08/NHP-White-Paper-Print-08-22-16.pdf>)



Researchers perform a fetal ultrasound on a pregnant rhesus monkey

Photo credit: Wisconsin National Primate Research Center/University of Wisconsin-Madison

## Nobel Prize Winning Research Involving Nonhuman Primates

**1928: Pathogenesis of typhus**

**1951: Development of yellow fever vaccine**

**1954: Culture of poliovirus that led to development of vaccine**

**1975: Interaction between tumor viruses and genetic material**

**1976: New mechanisms for the origin and dissemination of diseases**

**1981: Processing of visual information by the brain**

**1988: Discoveries of important principles for drug treatment**

**2003: Discoveries concerning magnetic resonance imaging (MRI)**

**2008: Discovery of human immunodeficiency virus (HIV)**

**2015: Development of drugs used to treat malaria and roundworm parasites**

Source: *Animal Roles in Medical Discoveries*, the American Association for Laboratory Animal Science Foundation (<https://www.aalasfoundation.org>)

## Nonhuman Primate Research Improves Animal Welfare

In addition to addressing serious health challenges, research in nonhuman primates improves animal welfare and promotes natural behaviors in captive animals.

This research includes:

- Environmental enrichment research
- Studies focused on the psychological well-being of animals
- The development of housing structures and animal management strategies to promote pair housing or group housing



Photo credit: Oregon National Primate Research Center/OHSU