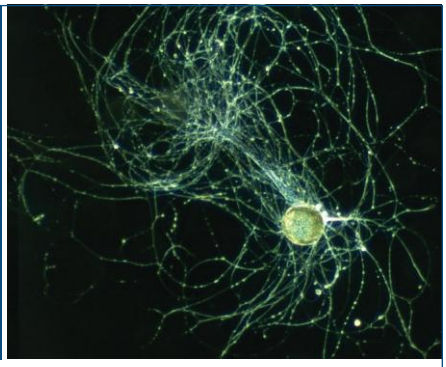
# Progress Toward Cures

*The Continued Need for Non-Human Primates in Neuroscience Research*



## Introduction

The ethical and responsible use of animal models, including non-human primates (NHP), remains irreplaceable in biomedical research. Discoveries based on research with animal models have been pivotal to nearly every major scientific breakthrough in neuroscience and medical advances improving human health and well-being. Researchers use NHPs to explore the behavior, physiology, and neurobiology of species much closer to humans than other laboratory animals and alternative models, holding higher promise of translational breakthroughs for society.

***Deep Brain Stimulation***

Deep Brain Stimulation (DBS) is a groundbreaking treatment for Parkinson's Disease (PD), a progressive, neurodegenerative movement disorder that can cause severe tremors and problems with balance. Scientists discovered that DBS, which involves implanting devices in the brain to regulate neural signals, can improve motor symptoms for individuals with PD. This research relied on NHP models because their neural anatomy is closest to the human brain. After decades of research with NHPs, DBS is delivering life-changing results to patients with PD and other diseases. More than 160,000 patients across the globe have used DBS to treat PD and other ailments.[1]

## Evidence for continued use of primates in research

As recently as May 2023, an expert report from the National Academies of Science, Engineering, and Medicine (NASEM) analyzed the landscape of NHP research and shared conclusions on its continued role in biomedical research. This study was requested by the National Institutes of Health (NIH) at the direction of Congress. The NASEM report stated there are currently no alternative approaches that can replace NHP models to answer research questions that require complete multiorgan interactions and integrated biology. The report also states that specific domains of research (including neurodegeneration, motor and cognitive function, neurodevelopmental conditions, and social and behavioral effects on health) will likely require increased involvement of NHPs in the future for continued biomedical progress.

***Alzheimer's Disease***

Researchers have used rhesus macaque monkeys as a model to study early-stage Alzheimer's disease. These primate models better mimic the complexity and progression of Alzheimer's disease as compared to other models. Using this NHP model, scientists tracked how abnormal brain proteins spread before extensive neuron loss and dementia occur, discovering a two-to-six-month window during which disease progression can be measured and interventions targeting the proteins can be implemented before serious symptoms develop.[2]

## In conclusion

Without critical research using animal models and NHPs, understanding of the brain would be limited and progress in developing treatments for human brain disorders would be stalled. The ethical use of animal models for critical research is essential to advancing our knowledge of basic neuroscience processes and working toward curing disease.

[1]Jessen, L., & Bailey, M. R. (2024, August 24). *Deep brain stimulation offers Parkinson's patients new hope*. Foundation for Biomedical Research. https://fbresearch.org/animal-research-unlocking-medical-miracles/deep-brain-stimulation-offers-parkinson-s-patients-new-hope

[2]*Nonhuman Primate Research offers hope for early Alzheimer's interventions*. National Primate Research Centers. (2024, August 14). https://nprc.org/research/nonhuman-primate-research-offers-hope-for-early-alzheimers-interventions/

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