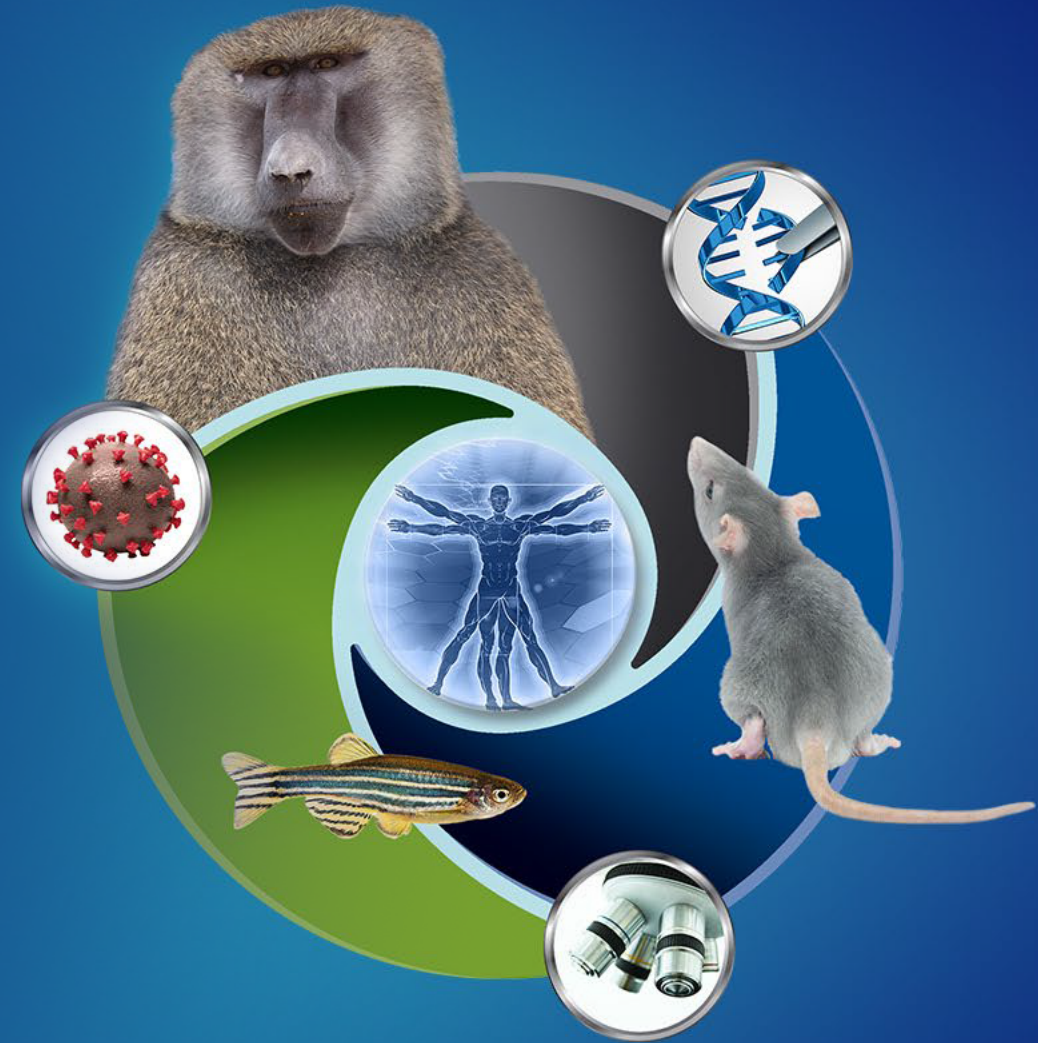


# Reissue of Resource-Related Research Projects for Development of Animal Models and Related Materials

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# ORIP

**Concept Clearance:** Reissue

## **Resource-Related Research Projects for Development of Animal Models and Related Materials (R24 Clinical Trial Not Allowed)**

**Objective:** Encourage grant applications to develop, characterize or improve animal models of human diseases; develop or improve technologies and methods that aim to enhance rigor and reproducibility of research with animal models; improve access to information about or generated from the use of animal models of human disease; or improve diagnosis and control of diseases of laboratory animals

**Funds Available and Anticipated Number of Awards:** Contingent upon NIH appropriations and the submission of highly meritorious applications

**Award Project Period:** 4 years

**Council Action:** Vote for approval of reissuance of the concept for “Resource-Related Research Projects for Development of Animal Models and Related Materials (R24 Clinical Trial Not Allowed)”



# Background

- **Animal Models R24 Program was established by NCCR and has continued to evolve under ORIP's administration since 2012**
- **Meets demand for animal models that are more predictable and accessible for biomedical research**
- **Addresses the need for a broad array of animal models that mimic the various pathogenic events leading to various diseases**
- **Aligns with ORIP's mission: "ORIP awards grants to support research resources, such as animal models of human disease...."**

FOA	Time Period	# of Applications	# of Awards	Award Rate
RFA-OD-19-027	09/2019 to 09/2022	81	19	23%



# Purpose

- **ORIP Strategic Plan 2021-2025**
  - “To facilitate the development and ensure the availability of the highest quality and most useful animal models and related resources for the advancement of research on human disease.... ORIP seeks to improve and disseminate the best models for human conditions and diseases that are of interest to multiple NIH ICs.”
- **Animal Models R24 Program encourages resource-related research to:**
  - Develop, characterize or improve animal models of human diseases
  - Develop or improve technologies and methods that aim to enhance rigor and reproducibility of research with animal models
  - Improve access to information about or generated from the use of animal models of human diseases
  - Improve diagnosis and control of diseases in laboratory animals
- **To align with ORIP’s NIH-wide mission, proposed projects must:**
  - Have broad application to multiple NIH Institutes and Centers
  - Explore multiple organ systems or evaluate diseases that impact multiple organ systems

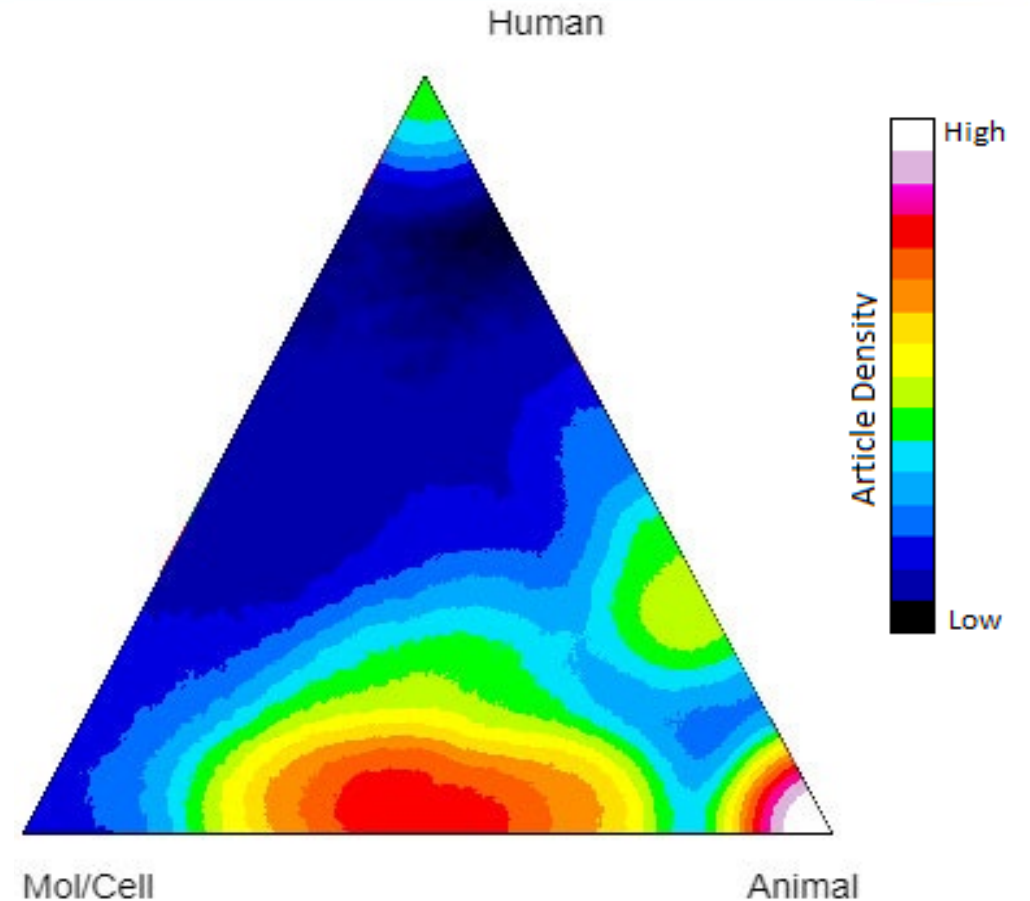




# Progress and Impacts

## For the three most recently issued FOAs (2013-Present):

- Since 2014, percentage of awards with publication(s) is ~83%
- 74 awards have led to 915 publications with 23,067 citations
- In terms of translation, publications cluster primarily between animal oriented research and molecular/cellular research



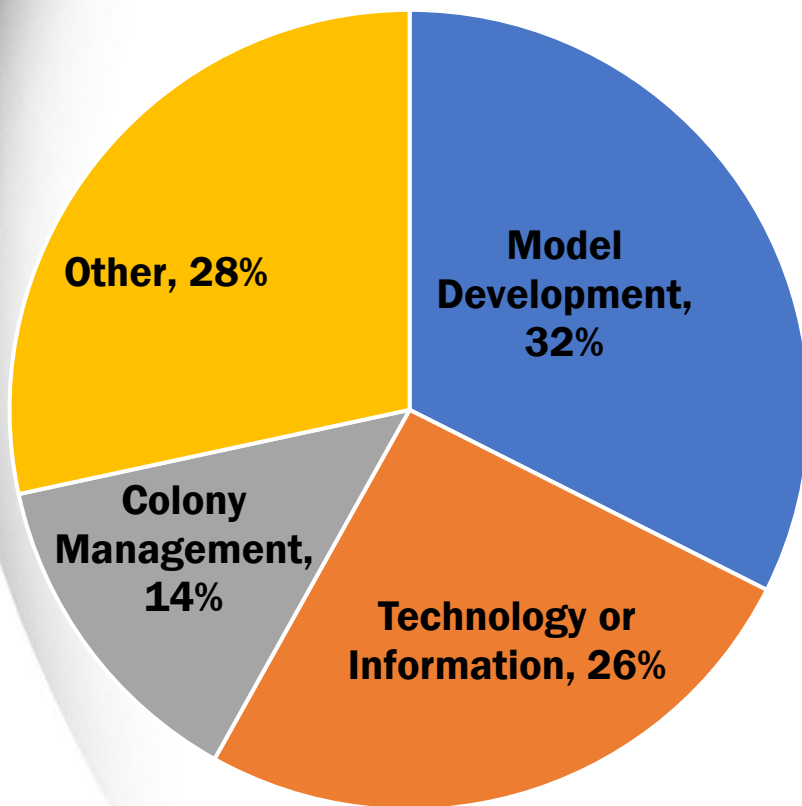
2014 to July 2022



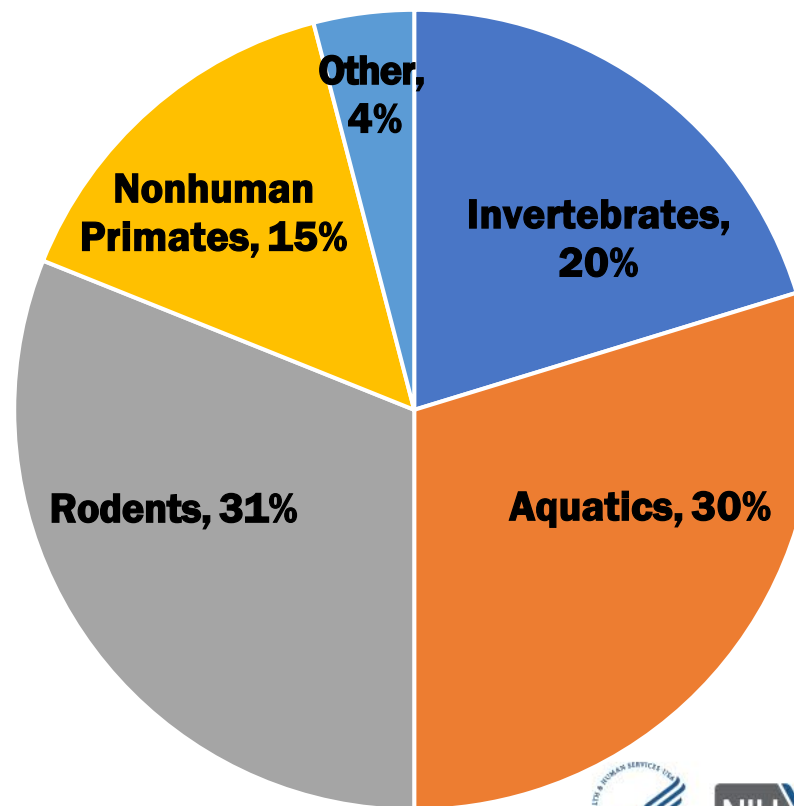
# Progress and Impacts

## Awards from the three most recently issued FOAs (2013-Present)

### Topics



### Animal Models



# Summary

## **Animal Models R24 Program has generated:**

- **Large number of new animal model resources and related materials**
  - Transgenic animals
  - Molecular reagents
- **Vast amount of detailed information related to animal models**
  - Validated information on animal stocks
  - Atlases
- **New and improved technologies**
  - Imaging
  - Genetic engineering
  - Cryopreservation
- **Resources and information are widely used or accessed by the research community**



# Concept Clearance

***Vote for approval of reissuance of the concept for  
“Resource-Related Research Projects for  
Development of Animal Models and Related  
Materials (R24 Clinical Trial Not Allowed)”***





# Background



# Examples of Areas of Interest

- Generation of mutant or transgenic animal models
- Generation of antibodies or other reagents
- Development of information resources for generating novel hypotheses and improving the utilization of animals in biomedical research
- Informatics tools or systems biology approaches, especially artificial intelligence or machine learning tools, that integrate various types of data, including genomic, proteomic, metabolomic, imaging, or phenotypic data
- Genetic resources at the genome scale, including DNA or viral vector libraries, for gene editing of cell lines, germplasm, or somatic cells
- Methods or tools for improving cryopreservation, or other long-term preservation approaches, of animal cells, germplasm, embryos, or genetic stocks
- Diagnostic, preventive, or treatment methods for emerging or potential pathogens in animal resource facilities
- Animal resources, including genetically engineered animal models, for supporting NIH-wide initiatives, including HIV/AIDS related research



# Examples of Projects That Are Not Suitable

- Primary focus on husbandry and management of animal colonies
- Primary focus on genomic sequencing of model organisms
- Primary focus on creating, expanding, or maintaining genomic or other types of databases
- Create or maintain individual model organism databases
- Develop or distribute wild-type animals and related biospecimens treated with diet, drug, toxin, infectious agents, or other environmental factors
- Develop or distribute wild-type animals and related biospecimens subjected to physical or surgical manipulations
- Involve threatened or endangered species
- Develop, expand, or maintain repositories of specific tissues and related biospecimens from model organisms
- Primary focus involves human subjects, human cell lines, or related biological materials



# Examples of Supported R24 Projects

## **Center for *Caenorhabditis elegans* Anatomy**

- Anatomic information of the nematode in the form of annotated electron microscopy and light micrographs and graphical illustrations

## **A Comprehensive Human cDNA Library For Functional Gene Replacement in Drosophila**

- A toolkit, including transgenic flies with human cDNA, for functional annotation of human genes using Drosophila genetic studies

## **Groundwork for a Synchrotron MicroCT Imaging Resource for Biology**

- 3D form of histology by customized X-ray microtomography (micro-CT) of fixed and stained, millimeter-scale, whole organisms and tissue samples in zebrafish

## **CRE Driver Strain Resources**

- Develops and distributes comprehensive Cre strain resources and information for interrogating gene function through precise deletion in mice

## **Resource for Nonhuman Primate Immune Reagents**

- Develops and distributes customized nonhuman primate reagents that are not commercially available, including cytokines, PET probes, and monoclonal antibodies

