



TRANSGENIC ANIMAL MODEL CORE

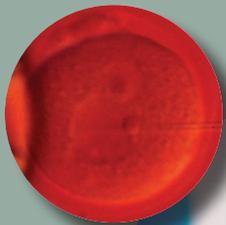
UNIVERSITY OF MICHIGAN MEDICAL SCHOOL

The Transgenic Animal Model Core at the University of Michigan was established in 1989 in response to the need for transgenic technology by university investigators. The mission of the Transgenic Core is to provide access to transgenic animal technology in an efficient, effective manner.

The Transgenic Animal Model Core guarantees that at least three transgenic founder mice will be produced for each DNA construct. The overall average is 10 founders. Since 1989 over 14,000 mouse transgenic founders were produced from more than 1,400 plasmid and BAC transgenes. Nearly 1,000 transgenic rat founders have been produced, including BAC transgenic rat strains. Over 200 new mutant mouse models were produced by the electroporation of mouse ES cells with targeting vectors and another 60-odd strains were produced from ES cell clones obtained from the International Knockout Mouse Consortium. Over 200 gene knockout rats have been produced with nine zinc finger nucleases. A number of these mouse and rat models have been published.

Services Include:

- **Production of transgenic mice and rats:** The Transgenic Core will produce transgenic mice or rats from cloned DNA provided by the investigator. The Core will purify DNA for microinjection from a restriction digest provided by the investigator. A minimum of three transgenic founder animals will be produced for each DNA construct. The Core will also purify bacterial artificial chromosome (BAC) DNA for microinjection.
- **Production of zinc finger nuclease gene knockout and knockin rats:** The Transgenic Core will microinject zinc finger nuclease mRNA into fertilized rat eggs to produce gene knockout rats. The Core will co-inject donor plasmids to produce gene knockin rats.
- **Production of gene-targeted mouse embryonic stem (ES) cells for mouse knockout, knockin, and conditional gene models:** This service produces embryonic stem cells with mutations induced by homologous recombination with a targeting vector provided by the investigator. The cells can be used to generate germline ES cell-mouse chimeras and mice with novel mutations. ES cells may be used to conduct in vitro differentiation studies. This service allows investigators to focus on the molecular biology of the gene in question while the Core focuses on generating pluripotent embryonic stem cells with the targeted mutation. This collaborative approach emphasizes the strengths of each partner and obviates the need for laboratory personnel to master the fastidious technique that is necessary to culture pluripotent mouse embryonic stem cells.
- **Production of ES cell-mouse chimeras for mouse knockout models:** The Transgenic Core will microinject a minimum of 60 blastocysts with ES cells. Albino C57BL/6 blastocysts are used with C57BL/6 ES cells and mixed C57BL/6 and DBA/2 blastocysts are used with 129 mouse derived ES cells.



Transgenic Animal Model Core
Biomedical Research Core Facilities
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“Internationally recognized in the transgenic animal field, TAMC collaborates closely with U-M investigators and is proud to have been offering top-quality, efficient expertise for over 20 years.”

– Thomas Saunders, Ph.D., Director, Transgenic Animal Model Core



Consultation and Training

Researchers can use Transgenic Core laboratory space and resources side-by-side with staff members. Consultation is freely available in all phases of transgenic and gene targeting research from experimental design to breeding.

The Transgenic Animal Model Core offers training courses:

- Embryonic Stem Cell Culture Training
- Pronuclear Microinjection Training
- Blastocyst Microinjection Training
- Mouse Embryo Transfer Training

For detailed course descriptions or to download a syllabus, please visit: medicine.umich.edu/tamc (the training page).

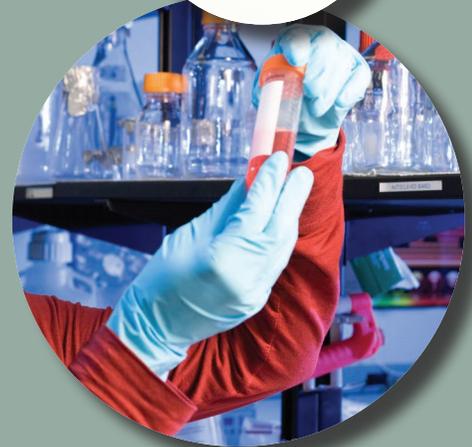
Cost Estimates and Fees

A list of services with current, competitive pricing is available at our website: medicine.umich.edu/tamc

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About the BRCF

The Transgenic Animal Model Core has been a part of the Biomedical Research Core Facilities (BRCF) since 1989. The BRCF, part of the University of Michigan Medical School Office of Research, is a collection of centralized labs and services offering state-of-the-art instruments, resources and expertise to biomedical researchers, investigators and educators.

For more information on the BRCF, visit medicine.umich.edu/brcf

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