UC Irvine 趙 Chao Family Comprehensive Cancer Center

Transgenic Mouse Facility

Shimako Kawauchi, PhD

2026 Scientific Retreat

November 5, 2026

Mission and Leadership

MISSION

Facilitate use of the mouse as a mammalian experimental system to investigate mechanisms of oncogenesis and testing of cancer therapeutics

- Advises investigators wishing to use genetically engineered mouse models (GEMMs) in their research program about experimental design and analysis, helps write grant proposals and manuscripts, and provides letters of support.
- Provides access to specialized expertise and equipment to develop GEMMs, provides technical support, and sources additional reagents required to manipulate the mouse genome and analyze the consequences thereof.
- Communicates awareness of novel mouse-related resources via workshops, seminars, e-mail or the TMF Shared Resource website, facilitates their acquisition for Cancer Center members, and provides practical assistance with their use.
- Assists researchers by importing, or helping to develop, new experimental approaches necessary to address specific experimental questions in their research.

LEADERSHIP



Grant MacGregor, Dphil

Director



Shimako Kawauchi, PhD

Manager

Services

Services cover design, development, re-derivation, cryopreservation, and re-animation of GEMMs in an efficient and cost-effective manner, including:

- Consultation, at no cost to PI, on strategies to engineer the mouse genome.
- Design and targeted engineering of loci in mouse zygotes via CRISPR (>300 projects completed to date).
- Targeted transgenesis at the Hipp11 and ROSA26 loci.
- Targeted engineering of endogenous loci in mES cells including CRISPR-mediated humanized gene replacement.
- Southern analysis of targeted loci in ES cells and animals, including PFGE.
- Insertion of conventional multi-copy transgenes and bacterial artificial chromosomes (BAC) at random loci via pronuclear injection of DNA.
- Assist deeper characterization of transgenic line, using data from Transnetyx's genetic monitoring service.
- Cryopreservation, import, export, rederivation or reanimation of GEMMs via IVF or embryo transfer.
- Breeding and genotyping of GEMMs.
- Development of RT-PCR-based genotyping assays.
- High-throughput analysis of standard PCR assays using Fragment Analyzer.
- Production of large cohorts of genetically defined mice for studies, by IVF and embryo transfer.
- Annual lecture and workshops on genome engineering methods.
- Provision of language and figures for grant proposals and manuscripts, plus letters of support, at no cost to PI.

More information regarding all services can be found at: https://transgenic.uci.edu/

Services

CURRENT HIGH-DEMAND AND NEW SERVICES

Services cover design, development, re-derivation, cryopreservation, and re-animation of GEMMs in an efficient and cost-effective manner, including:

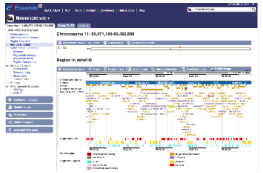
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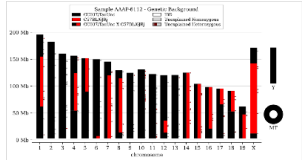
NEW

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Key Equipment & Technologies





Bioinformatic analyses of mouse and human genomics to facilitate strategies for genome engineering



TaqMan, rhAMP based genotyping via two Bio-Rad RT-PCR systems



High-throughput (3 x 96-well tray) analysis of standard PCR reactions using Agilent capillary array Fragment Analyzers (two instruments)



Microinjection, electroporation and culture of zygotes / preimplantation embryos (two systems)



Culture and cryogenic storage of sperm, embryos, mES cell lines

Assisting PIs for importation and exportation logistics of genetic materials

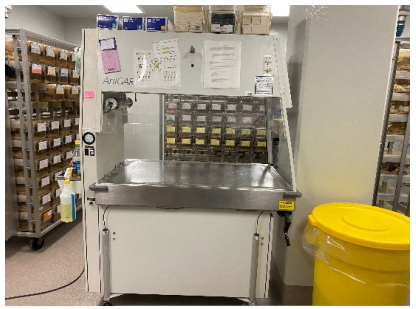


PFGE and Southern analysis using Bio-Rad CHEF Mapper

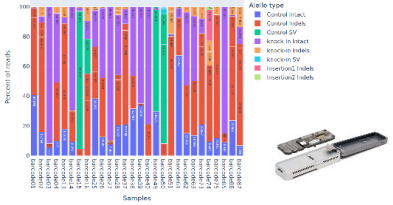




IVF-based mouse production (multiple incubators)



Multiple animal holding rooms with ventilated cage racks and sterile caging.



Deeper and faster CRIPSR modification analysis with ONT sequencing

Tissue culture suite with incubators, hoods and electroporation apparatus for ES cell culture (not shown)

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Questions? Contact us!

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