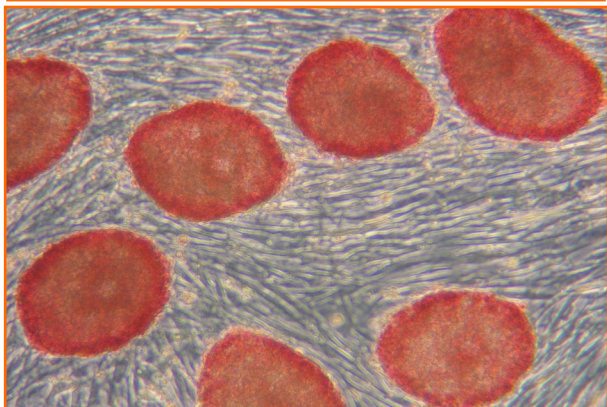


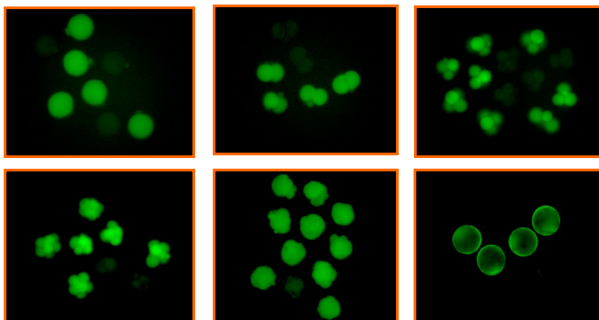
Pluripotent ESC Line Derivation



PMEF Prep from Mutant Embryo



Isolation of 0.5-3.5 dpc Embryos



Mission

GEMM's mission is to support animal model research endeavors, to advance genetic and reproductive technologies for model creation and preservation, and to serve as a resource for design, development and derivation of customized animal models.

Service

- CRISPR genome editing
- Targeted and random transgenics
- Knockouts and knock-ins
- ES cell line & PMEF derivation
- ES cell line & PMEF derivation
- Germplasm cryopreservation
- Mutant line rederivation
- Mouse assisted reproduction
- CRISPR & transgenic workshop

UVa Genetically Engineered Murine Model Core (GEMM)

PO Box 800734
1340 Jefferson Park Avenue
Charlottesville, VA 22908

Phone: 434-982-3990
Fax: 434-982-1071
E-mail: wx8n@virginia.edu

Building a Better Mouse

Genome
Engineer

Mouse
Maker

GEMM



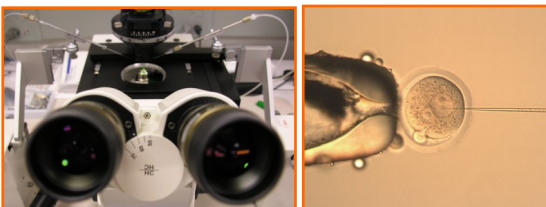
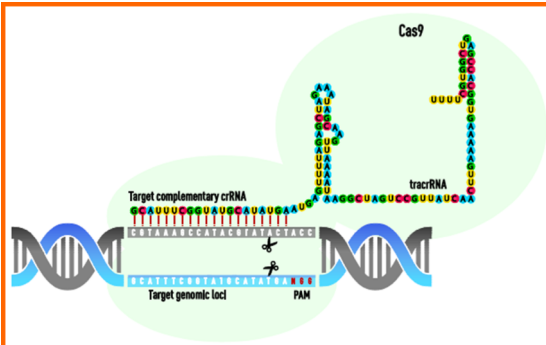
University of Virginia

**Genetically Engineered
Murine Model (GEMM)
Core**

[https://med.virginia.edu/
genetically-engineered-murine-
model-core/](https://med.virginia.edu/genetically-engineered-murine-model-core/)

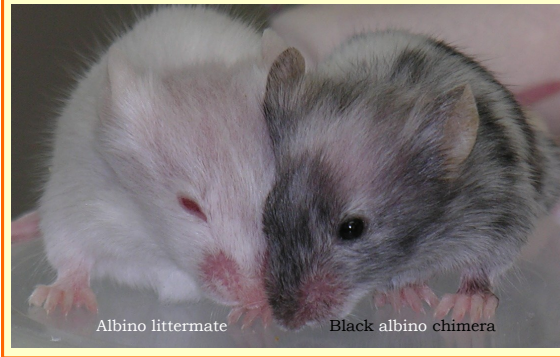
CRISPR Genome Editing

- CRISPR – Cluster regularly inter-spaced short palindromic repeats
- Cas9 – CRISPR associated endonuclease 9 from *Streptococcus pyogenes* (~163 kD)
- crRNA – crispr RNA containing 20 bases unique sequence (spacer) that base-pairs with target DNA sequence (protospacer)
- tracrRNA – trans-activating crRNA
- PAM – Protospacer Adjacent Motif (NGG at the 3' side of the protospacer)
- SCR7 pyrazine – Ligase IV inhibitor deters NHEJ thereby augmenting HDR
- Deletion – regulatory element, UTR, exon, isomer, frameshift
- Insertion – epitope tag, loxP, attP, PDZ, GFP11, GFP
- Substitution – Thr-Ala, Thr-Glu, Asp-Ala, Asn-Gly, premature stop codon

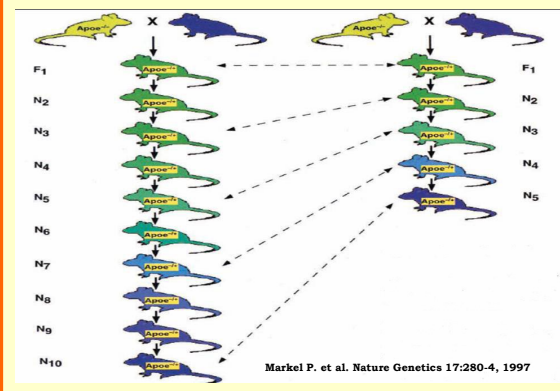


Advancing Genetic Technologies

Chimera Production



Speed Congenics Assistance



Polarity-Reversible Poring & Transfer Pulse Electroporator

- In vitro transfection into primary cells, stem cells, adherent cells, any cell lines w/o special buffer.
- In vivo transfection into mouse/rat brain, eye, muscle, skin, liver, kidney, testis...
- In utero transfection into mouse/rat embryos, cerebral cortex, hippocampus, spinal cord...
- In ovo transfection into chick embryos, neural tube, limb bud, digestive organ...
- Ex-vivo transfection into explants,

