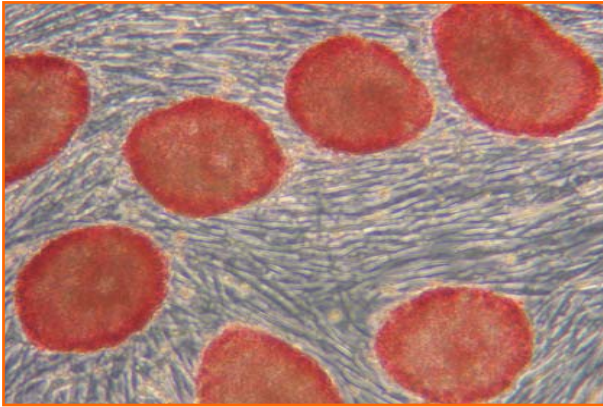


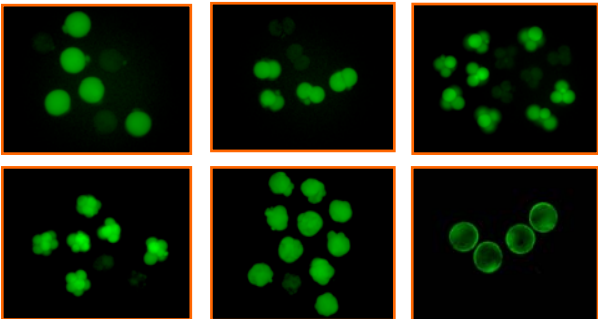
AP Staining of Pluripotent ESCs



MEF Prep from Mutant Embryos



Isolation of 0.5-3.5 dpc Embryos



Mission

GTTF's mission is to support transgenic and gene targeting research endeavors, to advance genetic technologies for germline and embryonic stem cell manipulations, and to serve as a resource for design, development and derivation of customized mouse strains.

Service

- Transgenic mouse production
- Knockout mouse production
- Conditional gene targeting
- Rosa26 knock-in
- Mouse ES cell line derivation
- Speed congenic mouse derivation
- Embryo cryopreservation
- Mouse assisted reproduction
- Transgenic method workshop

UVa Gene Targeting & Transgenic Facility (GTTF)

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Charlottesville, VA 22908

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Building a Better Mouse

Transgenics

Gene Targeting

Speed Congenics
Cryopreservation



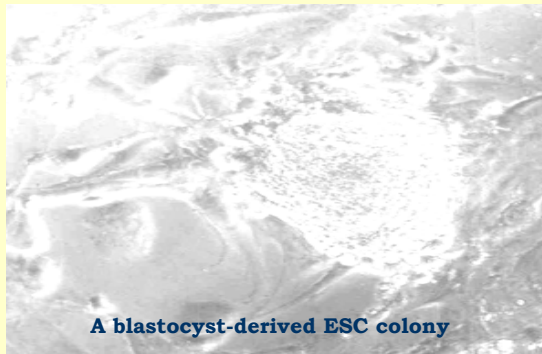
University of Virginia

Gene Targeting & Transgenic Facility (GTTF)

www.healthsystem.virginia.edu/internet/transgenic-mouse/

Advancing Transgenic Technologies

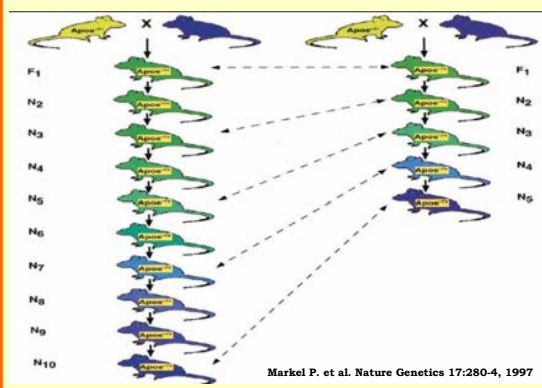
De Novo ES Cell Line Derivation



Deriving ES Cell Lines for Gene Targeting Directly onto the Desired Genetic Background

We have derived multiple ES cell lines from several mouse strains, thus making it possible to improve the targeting efficiency and to manipulate genes in strains with desired genetic background.

Speed Congenics



Gene Targeting with C57BL/6

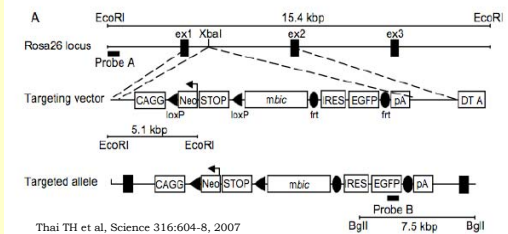


Gene targeting in mice has been accomplished traditionally with embryonic stem cells derived from 129 strains. Because of their genetic variability, poor reproductive performance and abnormal behaviors, the 129 knockout mice are therefore preferably backcrossed to C57BL/6 mice. C57BL/6 is a reference strain of the mouse genome, many mutants are maintained on this background and widely used in genetic, immunological and behavioral studies, which provide significant advantages of producing knockout mice directly in the C57BL/6 strain. GTTF has derived C57BL/6 and C57BL/6J-Tyrc-2J ES cell lines. We injected black B6 ES cells into albino B6 host blastocysts and created the above black albino chimera.



ROSA26 Knock-in

- ROSA - Reverse Orientation with Splice Acceptor
- pGEN-ROSA βgeo (pSAβgeo) - a promoter-less retroviral gene trap vector with neo in reverse orientation
- First ROSA mouse in 1991 (Friedrich and Soriano)
- First LoxP-STOP-LoxP Lac Z gene targeted to ROSA26 locus in 1999 (Soriano)
- Reporter mouse lines (LacZ, Luc, EGFP, EYFP, PAP)
- Deleter mouse lines (Cre, CreERT, CreErt2, Flp, Flpe)
- Transgene knock-in mouse lines (Ubiquitin, DTA, Wnt1, rtTA, smoM2, transposase, Notch1, Hdh, Gpnb5 etc.)



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