

lab nodes organize your lab | share your data

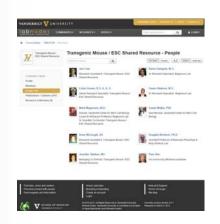
Solutions for Core Facilities

Jean-Philippe Cartailler March 26, 2013

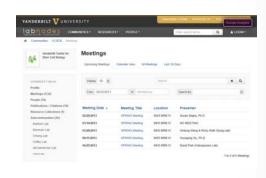
Labnodes – What is it?

- It is a web-based information management system designed to support laboratories, cores, centers and departments.
- It is also a work in progress that, in time, will transform how laboratories are managed and information is shared at Vanderbilt.

Labnodes can do many useful things







Meetings

Individual staff profiles

Citations



And best of all, its FREE!

Resource catalogs

How is the TMESCSR using it?

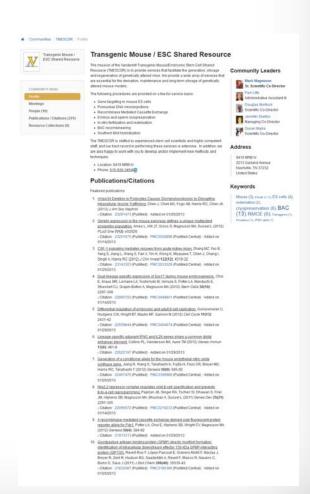
The "transgenic core" has been using it for 3 years.

- Service forms & descriptions
- User education
 Protocols
- User guidelines

- Policies
 - Prices

 - Monthly meeting archive

http://labnodes.vanderbilt.edu/tmescsr



Service Descriptions

 ★ / Communities / TMESCSR / Collections / Mouse Services

Transgenic Mouse /

ESC Shared Resource

Transgenic Mouse /

Collection *

BAC Services 🏖

Educational &

Guidelines 🍲

Policies &

Prices 🎓

Protocols &

Service Forms 🏖

Mouse Services 🏠

Provided below is a list of all collect

Collections Resources COMMUNITY MENU Profile Display 20 ▼ Meetings People (10)

Own

Trans

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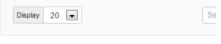
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Publications / Citations (291) Resource Collections (8)

Mouse Services

All Vanderbilt investigators are eligible to use all of the se come first serve basis. Should demand for services exce Investigators who are members of the Research Centers Ingram Cancer Center, the Diabetes Research and Traini

Resources



Resource 1

Assisted reproduction technologies

Cryopreservation of mouse embryos

ES cell microinjection service

Gene targeting

Karyotyping

Pronuclear DNA microinjection

RMCE (Recombinase Mediated Casette Exchange)

Sperm cryopreservation

Gene targeting

This procedure enables specific genetic modifications such as conditional, knock-in or null alleles to be introduced into the mouse genome

Keywords: gene targeting

This procedure enables specific genetic modifications such as conditional, knock-in or null alleles to be introduced into the mouse genome. A gene targeting experiment is a multistep undertaking that requires coordination and cooperation between the

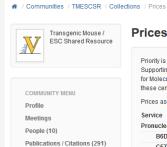
- 1. First, the PI must design, assemble and correctly annotate a gene targeting vector that will achieve the desired experimental objectives. This should be done in a manner compliant with our guidelines for the Design and Assembly of Targeting Vectors. An essential part of the design phase is to identify and test restriction sites and Southern blot probes that will be used to identify the mouse embryonic stem cells (mESCs) that have undergone homologous recombination. When the PI is certain that the vector has been correctly assembled and documented, and that the screening strategy is certain to work, s/he should then submit a Gene Targeting Service Form containing all requested information.
- 2. The completed form will then be reviewed by both the Managing and Scientific Directors of the resource to ensure that the strategy is solid and the vector has been correctly documented. If the experiment is judged to be adequately designed and documented it will be scheduled and started as soon as possible.
- 3. Upon approval of the project, linear DNA provided by the investigator is electroporated into mESCs. Procedures for the targeting vector DNA prep are available on our website. The cells are then cultured under appropriate selection (hygromycin-B, G418, puromycin, and/or gancyclovir). Surviving colonies are picked and grown in triplicate. One set of $colonies is placed in short term storage at -70 ^{\circ}\text{C}, and DNA is isolated from the other two plates. DNA from one of these two plates are two plates and the plate of the plates are two plates are the plates are the two plates are the two plates are two p$ plates is used for Southern blot analysis. The other serves as a back-up source of DNA. Southern blots may either be prepared by the personnel of this resource, or by the investigator. The primary screen of the mESC clone DNAs must be completed within 4 months to assure that cells remain viable
- 4. After screening results are reviewed, and both the PI and Managing Director agree on which clones are potential positives, clones are thawed, expanded and frozen in liquid nitrogen. Additional DNA is prepared from these clones, and given to the PI who is then responsible for confirming that the gene targeting event is correct by performing additional Southern blot hybridizations and DNA PCR analysis. Because cells are frozen in 96 well dishes, they cannot be thawed and refrozen. For this reason all non-desired clones from that 96-well plate are discarded.
- 5. Upon confirmation of correct homologous recombination, at least one mESC clone is chosen for microinjection into blastocysts derived from timed matings of C57Bl/6 mice. Chimeric males resulting from the blastocyst microinjection experiments are provided to the investigator following serology testing by the Division of Animal Care. This usually occurs at about 7 weeks of age. The PI is then responsible for mating these animals and reporting back to the resource the number of pups generated from each chimera and germ line transmission results.

- 1. PI submits DNA and appropriate service form to TMESCSR for electroporation
- Service forms are reviewed and approved by the Co-Directors of the resource
- DNA is prepared by the PLs laboratory and submitted to the resource. Note . because this is linear DNA, it should be frozen at -20oC and delivered to the TMESCSR on dry ice.
- 4. Electroporation is scheduled, cells are prepared for the experiment
- 5. Electroporation performed, cells are under selection for ~7 days before picking of individual colonies
- Colonies are picked, grown in triplicate
- Southern analysis of clone DNA
- 8. Pl identifies correctly targeted clones
- 9. Targeted clones are grown and expanded and frozen back in LN2
- 10. Additional clone DNA is provided to the investigator for rescreening
- 11. PI confirms correctly targeted clones and requests ES cell microinjections

Attachment(s)

gene_targeting_form_0810.pdf - Added on August 10, 2010 at 10:55 AM by Jennifer Skelton

Prices



Resource Collections (8)

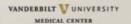
Prices

Priority is given to Vanderbilt Investigators who are members of the Research Centers that subsidize this facility. These Supporting Centers include the Vanderbilt-Ingram Cancer Center, the Diabetes Research and Training Center, the Center for Molecular Neuroscience, and the Center for Stem Cell Biology, Vanderbilt investigators who are not members of one of these centers are also eligible to use all of the services of this resource

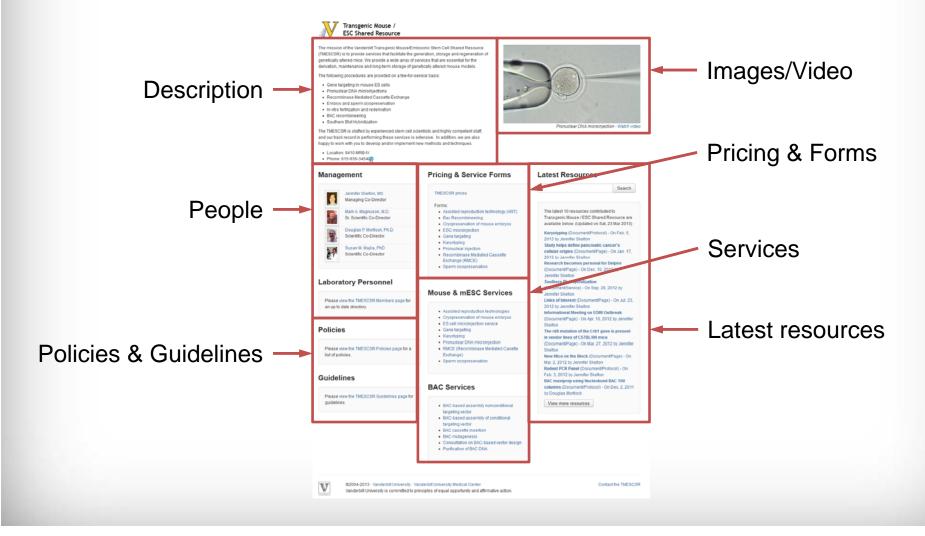
	August 1	

Service	Pric	е	Unit
Pronuclear DNA Microinjections			
B6D2	\$	1,400.00	per day
C57BI6	\$	1,500.00	per day
Other Strains	\$	2,000.00	by negotiation
Transient Tg B6D2	\$	1,300.00	per day
Transient Tg C57BI6	\$	1,400.00	per day
ES Cell Microinjections (C57BI6 blastocysts)			
Prepping of ES cells for injection	\$	450.00	per day
C57BI6	\$	1,600.00	per day
Albino C57BI6	\$	2,200.00	per day
Rederivations/ART			
Embryo Transfer Only	\$	1,250.00	per day
Embryo Retrieval and Transfer	\$	1,900.00	per day + cost of mice
IVF	\$	2,200.00	per day + cost of mice
Embryo Cryopreservation	\$	2,600.00	per line + cost of mice
After IVF	\$	1,100.00	per line
Sperm Cryopreservation	\$	1,300.00	per line (2 males)
Retailing	\$	50.00	per cage
Cryo Storage	\$	1.75	per straw or vial
Gene Targeting	\$		per electroporation + picking 2 plates
Additional electroporations	\$		per electroporation + picking 2 plates
Picking additional colonies	\$	1,000.00	per plate

- Prices can be updated at any time by core staff
- Set up multiple pricing lists, by service or by internal vs. external pricing



The TMESCSR website draws content directly from Labnodes

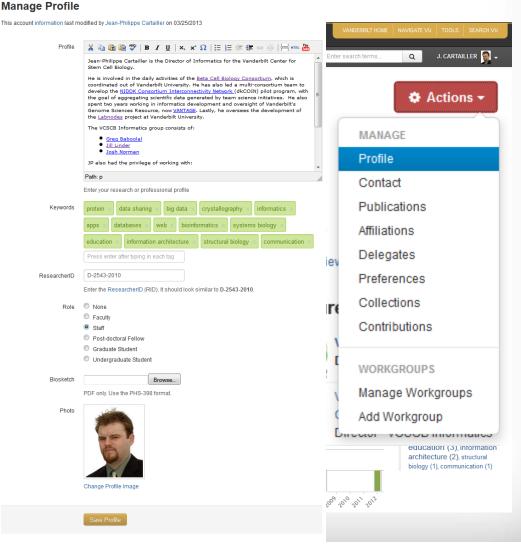


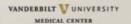


All content is user-managed

- Managed via a web browser
- All edits are done through an Actions button:

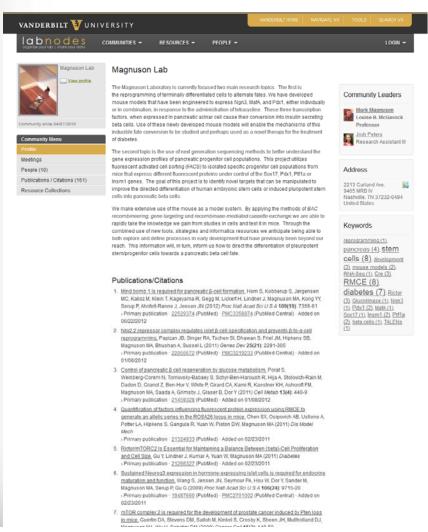




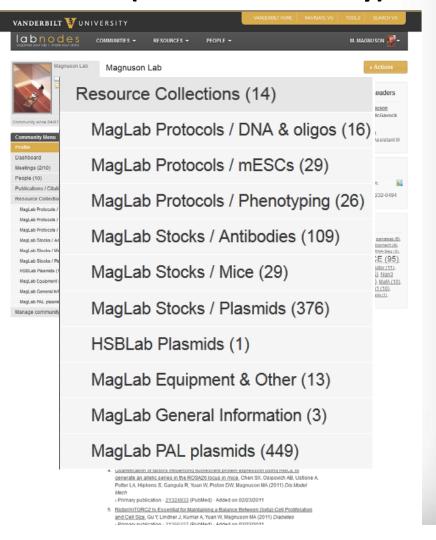


Public versus Private views

Public



Private (lab members only)



Staff Management



Anna Osipovich, PhD
Research Instructor, Magnuson Lab



Jennifer Stancill, B.S Graduate student, Magnuson Lab



Pedro Vianna, B.A
Research Assistant I, Magnuson Lab

- Maintain profiles of lab members including contact information, bibliographies and research interests.
- Each person can manage their own profile - or delegate the task to an administrator.
- Add and remove lab members at any time.

Service & Resource Inventories



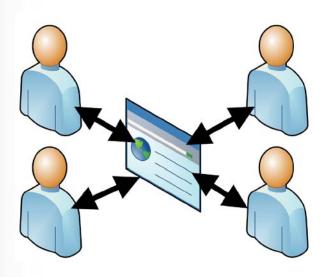
- Catalog your services and pricing.
- Catalog your antibodies, plasmids, BACs, mouse strains, and protocols.
- Organize information and associated documents.
- Connect and share with collaborators, students and staff.

Schedule and Organize Meetings



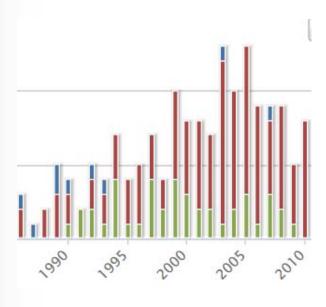
- Maintain a master calendar for laboratory or other meetings.
- Upload and share your lab presentations, agendas, documents and more.
- Archive previous meetings and track progress.

Share and Secure Documents



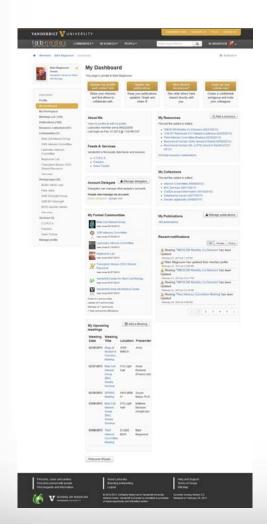
- Maintain a consistent set of documents under controlled access.
- Collaborate on projects, both at Vanderbilt and beyond.

Citation Lists and Impact



- Feature your citations for the world to see.
- PubMed and PubMed Central.

A customizable user dashboard is under development



- Your meetings
- Your resources
- Your communities
- Your publications
- Your CORES expenditures
- Your grant information
- Your space and equipment
- Your financial balances
- Your IACUC protocol status

Summary

- Website application/database choose what is private, public or shared to specific groups or individuals.
- You have direct control of the content.
- No web developer necessary
- Training is available.
- Data migration assistance available.
- Can support custom URLs.
- Can retrieve data from external databases/APIs.

Upcoming features

- New resource types
- Electronic Lab Notebook
- Custom forms for service/order submissions (for TMESCSR)
- Increased integration with C.O.R.E.S., Coeus, LabAlert and others

Thank you for your time!

<u>labnodes@vanderbilt.edu</u>
http://labnodes.vanderbilt.edu/help

Acknowledgements



Jill Lindner



Mark Magnuson



J.-P. Cartailler



Greg Baboolal