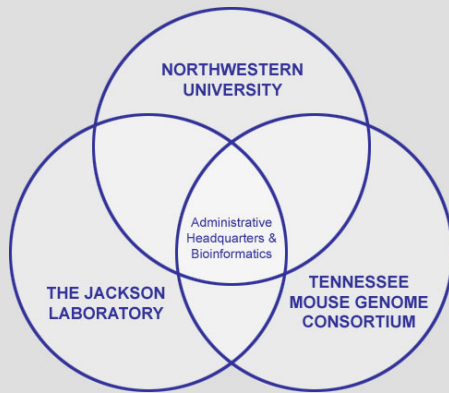




Benefit from the Power of Three

Three mutagenesis and phenotypic screening facilities combine their knowledge, resources and efforts to maintain, characterize and distribute mice with ENU-induced mutations.



A Trans-NIH Initiative

Neuromice.org and the Neurogenomics Project at Northwestern University are supported by a co-operative agreement (U01MH 61915) from the following Institutes of the National Institutes of Health:

- National Institute of Mental Health (NIMH)
- National Institute on Drug Abuse (NIDA)
- National Institute on Deafness and Other Communication Disorder (NIDCD)
- National Institute of Neurological Disorders and Stroke (NINDS)
- National Institute on Aging (NIA)
- National Eye Institute (NEI)
- National Institute on Alcohol Abuse and Alcoholism (NIAAA).



A Proven Approach to Functional Gene Identification

The laboratory mouse has become an increasingly important model organism for biologists in the post-genomic era. Research on mice has been critical to identifying mammalian gene function. Studies of mouse mutations and their phenotypic consequences have provided insights into the functions of thousands of genes. Yet, as many as a third of mammalian genes have not begun to be functionally characterized by any means, and the genetic bases of neural function and complex behaviors are still poorly understood. A powerful approach to bridge this gap is to combine random genome-wide chemical mutagenesis with screens to detect phenotypic alterations in progeny of mutagen-treated mice. Altered phenotypes lead to the identification of mutants, hence this is characterized as a phenotype-driven, or forward genetic, approach. This strategy requires no *a priori* assumptions of the nature of underlying genes or pathways. The mutagen *N*-Ethyl-*N*-Nitrosourea (ENU) has been demonstrated to produce a high forward mutation rate in the mouse, and has become the mutagen of choice for such studies. ENU typically leads to point mutations rather than chromosomal rearrangements.



The Importance of Distribution

While identification of new neuroscience mutations is important, these mouse lines truly gain scientific value through their description from a variety of biological perspectives. It is only by broadly distributing these mice to interested scientists that this can be achieved.



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Developing and Distributing New Mouse Models for Neuroscience Research



We provide genetic models for neuroscience research—mice with mutations that alter the nervous system or behavior.

We are a not-for-profit consortium sponsored by NIH to provide research resources.

Visit www.neuromice.org for mutant mouse lines ready for distribution, online order entry, and links to other mouse databases.

www.neuromice.org

Your Virtual Storefront For Mutant Mice



72 Mouse Lines Currently Available for Distribution

- ENU-induced mutations
- Screened and phenotyped
- Proven heritability
- Alterations in nervous system function
- Alterations in behavior



Online Order Entry Makes Ordering Easy

- Order mice from all three research centers on one site:
www.neuromice.org
- Order live mice or cryopreserved lines



Search/Browse Feature Permits Customization

- Perform complex searches using Keyword, Status, Domain or Assay



Login Feature Allows for Personalization

- Save your searches
- Run automatic complex searches
- Receive new data via email

Participating Research Centers



The Neurogenomics Project at Northwestern University

The NIH Neurogenomics Project at Northwestern University is directed by Dr. Joseph S. Takahashi, who also acts as the Director of the Neuromice consortium. The Project at Northwestern is using a three-generation breeding scheme to produce homozygous mutants and will thus recover both recessive and dominant mutations. Phenotypic screens focus on five primary domains: learning and memory, neuroendocrine and behavioral responses to stress, responses to psychostimulants, circadian rhythmicity, and vision.



The Neuroscience Mutagenesis Facility at The Jackson Laboratory

The Neuroscience Mutagenesis Facility at The Jackson Laboratory is directed by Dr. Wayne N. Frankel. The Facility is using a three-generation backcross breeding scheme in predominantly C57BL/6J mice to recover dominant, semidominant, and recessive mutations. In addition, some mutagenesis is being done in ES cells followed by two generations of breeding. Phenotypic screens focus on identifying mutations affecting: motor function, seizure threshold, hearing, vision, and taste.



The Neuromutagenesis Project of the Tennessee Mouse Genome Consortium

The Neuromutagenesis Project of the Tennessee Mouse Genome Consortium (TMGC) involves researchers throughout the state of Tennessee, under the direction of Dr. Daniel Goldowitz, Ph.D., at the University of Tennessee Health Science Center, Memphis. The TMGC also includes researchers at Oak Ridge National Laboratory, Vanderbilt University, Meharry Medical College, University of Tennessee-Knoxville, St. Jude Children's Research Hospital, and the University of Memphis. The Project is using regional mutagenesis, covering regions on chromosomes 10, 14, 15, 19, and X, thus including approximately 20% of the genome in the screened region. Phenotypic screens include: motor and sensory function, learning and memory, neurohistology, aging, alcohol response, abused drug response, visual function, epilepsy, and social behavior.

New Mouse Lines Available

Name	Description	Phenotypic Domain
part-time	Significantly shortened free-running circadian period. Heritable as an autosomal recessive mutation.	Circadian Rhythmicity
Noerg1	Abnormal grainy fundus appearance, no Electroretinogram response at any illuminance of light. Heritable as an autosomal dominant mutation.	Vision and Eye
NMF15	The mutants become visibly obese by 12 weeks of age.	Growth and Development
NMF31	The mutants show a high threshold to electroconvulsive minimal clonic seizures.	Epilepsy
6TNK	Homozygous mutants display juvenile lethality with balance abnormalities and abnormal cerebellar foliation.	Visible Mutants
44TNJ	Homozygous mutants display a retinal degenerative phenotype, possessing intraretinal microflecks reminiscent of retinitis punctata albescens, and an abnormal ERG suggestive of disruption at the photoreceptor to bipolar cell synapse or at the post-receptor level.	Vision and Eye



Visit www.neuromice.org for additional mouse lines and online order entry.