By Astrid Haakonstad
UCUCA

I love Mickey Mouse more than any woman I have ever known.
--Walt Disney (1901-1966)

We all know what a mouse is. At the most basic level, a mouse is a small, furry quadruped with a long, hairless tail and big ears. Although there are 38 different species of mice (genus *Mus*), the species we are most familiar with is the common house or laboratory mouse (*Mus musculus*), a ubiquitous little rodent that appears everywhere from the laboratory to cartoons to the inside of our walls. But what is a mouse? What lies beneath the fuzzy exterior, the sharp eyes, and the twitching nose? What is it about mice that contains so much power over the workings of the human race? How can such a tiny, shy little creature influence us so much, for better or for worse?

To truly understand the mouse and its mysterious inner workings, we should begin with the species name itself, *Mus musculus*. The word *mus*, which means “mouse” in Latin, has a double meaning in Old English; it stands for both “small rodent” and “muscle.” Similarly, *musculus* in Latin means “muscle” and also “little mouse!” In Greek, the word *mys* means both “mouse” and “muscle” as well, and gives us the origin of the prefix *myo-*, which in medical terminology refers to “muscle.” What is the rationale behind the seemingly bizarre association between mice and musculature? Apparently it arose from the thought that certain muscles resembled mice in shape and movement! Another theory places the origin of *mus* as deriving from the old Sanskrit term *mush*, which means “to steal,” as mice are wont to do when they happen across a store of grain. Thus, mice are in name “little thieving muscles!”

*Continued on page 5...*
NEW AND NOTEWORTHY: A PLETHORA OF POLICIES

By Dawn O’Connor  
UCUCA

Recently, The University Committee On Use and Care of Animals (UCUCA) has been busy creating new policies pertaining to the humane use and care of research animals. These new policies are described below and can be found by visiting our website (www.ucuca.umich.edu).

UCUCA POLICY ON ANALGESIC USE IN ANIMALS UNDERGOING SURGERY

The purpose of the policy is to provide guidance on the use of analgesics in various surgical procedures. The document lists surgical procedures in which analgesics are required or recommended. If a PI chooses not to give analgesics for a procedure, then justification must be provided in the animal use application.

TUMOR BURDEN SCORING SYSTEM

This guideline was established by the ULAM Clinical Management Team as a tumor burden scoring system to be used for animals that are inoculated with neoplastic cells or toxic agents. This document provides specific criteria to help aid research personnel with the appropriate monitoring of animals that will develop tumors.

UCUCA POLICY ON THE USE OF EXPIRED MEDICAL MATERIALS AND NON-PHARMACEUTICAL-GRADE COMPOUNDS

This policy provides guidance on what types of procedures (i.e., recovery vs. non-recovery) with which expired medical materials and drugs may be safely used. By NO MEANS should drugs administered to relieve pain or distress (i.e., anesthetic, analgesic, and euthanasia agents) be used for any experimental or veterinary procedure once they are past the expiration date.

UCUCA REQUIREMENTS FOR INDEPENDENT SATELLITE ANIMAL HOUSING FACILITIES

This requirement is for researchers requesting housing outside of the approved animal housing facilities. In order to get approval for this from UCUCA, researchers must complete and submit the New Animal Housing Facility Commissioning form. These guidelines will help to ensure that animal housing facilities meet regulatory requirements.

UM PROGRAM FOR MONITORING SANITATION PRACTICES OF ANIMAL HOUSING ROOMS ON REVERSE LIGHT CYCLES

This policy is intended to focus on the efficacy of sanitation practices for animal housing rooms that are on reverse light cycles. This policy provides guidance to research and husbandry personnel on appropriate methods for assuring that sanitation of these rooms is monitored effectively.

If you have any questions about the policies or guidelines listed above, please contact the UCUCA Office at (734) 763-8028 or email ucuca.office@umich.edu.
THE PROTOCOL REVIEW PROCESS:
WHY DOES IT TAKE SO-O-O LONG?

By Kate Wiklanski
UCUCA

“Four to six (4-6) weeks!!? Even for a modification? Why so long?” This question is routinely asked of the UCUCA staff, sometimes more than once on any given day. In comparison to other research facilities of similar size, this is not an unreasonable turn-around time. Consider the process:

WEEK 1 The application is submitted to the UCUCA Office through eSirius and an administrative review is performed to ensure that the application has been adequately completed for Committee review. If additional information is required from the PI, the application is held until the information is obtained.

WEEKS 2 AND 3 The Committee has one week to review the application and forward their questions to the UCUCA Office. The ULAM veterinarians review the applications concurrently. They have two weeks to complete their review; a veterinary resident and a ULAM faculty veterinarian have one week each to review the protocol.

WEEK 4 If there are no questions generated during the review process, an approval date is assigned, data entry is completed, and approval letters are generated. If there are questions or concerns from Committee members or the veterinary staff, these questions are consolidated and communicated to the PI.

WEEKS 5 AND 6 Once the PI responds to the review questions, the response is sent to the designated reviewers. They have one week to indicate if the response is satisfactory or if they have any follow-up questions. Once all issues are resolved, the application is approved and processed as indicated in week 4 above.

Although this is a thorough review process, here are a couple of pointers to make it run more smoothly:

✦ If your application is well written and comprehensive, it may be ready for Committee review immediately following submission, thereby eliminating the need for administrative review questions.
✦ If you have any questions while filling out the application, or if you have problems with eSirius, call the UCUCA Office at (734) 763-8028 or email ucuca.office@umich.edu for advice.
✦ Check your email regularly. eSirius sends automated messages concerning your protocol and its status to your email address.

ANIMAL CONCERN HOTLINE: (734) 763-8028

The University of Michigan is strongly committed to the humane care and use of animals in research. The Animal Concern Hotline (763-8028) provides a mechanism for U-M staff members and the public at large to report any matter of concern about humane aspects of laboratory animal care and use. You also have the option of submitting an anonymous complaint form online at ucuca.umich.edu. The University Committee on Use and Care of Animals (UCUCA) will promptly investigate any report submitted and will maintain confidentiality, within University guidelines, regarding the source of information it receives.

IF YOU SEE ANYTHING THAT TROUBLES YOU, PLEASE DO NOT HESITATE TO CALL!
ESIRIUS TIPS AND TRICKS: COMPLETING ANIMAL USE APPLICATIONS

By Jessica Kanitz
UCUCA

The UCUCA’s new online animal use application system (eSirius) can seem a bit arduous when compared to the old paper application (Form 8225), thanks to the addition of several new questions. However, there is good reason for having the new questions: with eSirius, all of the protocol details are captured in separate pages with headings such as: 11.E.8. Procedures, 11.E.9. Surgeries, 11.E.11. Anesthetics and Analgesics, and 11.E.13. Euthanasia Methods. The benefits of this change in format are in the Procedure Description page (11.E.14). This procedure description can be written in narrative format, listing the procedure(s) being conducted on the animals without having to provide extra details (i.e., how the animal is prepped for surgery, the volume of blood collected, or the amount of each injection). In theory, the procedure description can read more like a story, with many of the details supplied in other sections.

While completing the online application, it is important to not repeat the detailed information throughout the application. Although tempting, the more places information is repeated, the more places it will have to be changed if there are recommendations or suggestions from the UCUCA Committee. For example, if you are injecting an anesthetic agent, the dose should only be listed on the Anesthetics and Analgesics page (11.E.11) where it is required. It should not be listed on the Procedure List page (11.E.8.), the Surgery page (11.E.9.), or the Procedure Description page (11.E.14). Doing so can lead to inconsistencies within the application, which means a longer review process with more rounds of Committee questions.

As always, if there are ever any questions about how to complete the application or any problems with the application process, please do not hesitate to contact the UCUCA Office at (734) 763-8028 or email ucuca.office@umich.edu.

PAWS FOR THOUGHT

The best laid schemes o’ Mice an’ Men,
Gang aft agley,
An’ lea’e us nought but grief an’ pain,
For promis’d joy!
(The best laid schemes of Mice and Men
oft go awry,
And leave us nothing but grief and pain,
For promised joy!)
—Robert Burns, To a Mouse (Poem, November, 1785)

No act of kindness, no matter how small, is ever wasted.
—Aesop, The Lion and the Mouse

A crust eaten in peace is better than a banquet partaken in anxiety.
—Aesop, The Town Mouse and the Country Mouse
...Mouse, continued from page 1

The predisposition to pilfering actually works in the mouse’s favor. Mice are very resourceful creatures; mammalian ancestors to mice most likely survived the cataclysmic event that wiped out the dinosaurs and much of the plant life on Earth by surviving on a diet of hardy seeds. Mice first appeared about ten thousand years ago in southeastern Asia and India, and about four thousand years ago, they took advantage of the development of human agriculture, surviving off of stolen grains and other stored foods. As human populations migrated to other parts of the world, mice went along with them as stowaways. It is mainly due to the commensal nature of the mouse’s life with human beings that different species of mice were able to spread to all four corners of the globe. In some ways we can track the movement of our ancestors based on the species of mouse that has colonized a certain geographical area.

Mice belong to the order Rodentia (rodents), a group of mammals that are characterized by upper and lower incisors that continue to grow throughout the animal’s lifetime. Eating seeds and hard, pelleted rodent chow helps wear down the teeth so they do not grow too long. Mice are classic omnivores; they can and do eat almost anything, a trait that has allowed them to survive in any environment, on any continent. Grains, seeds, bread, dandelion heads, fruit, vegetables, worms, grasshoppers, and spiders have all filled the belly of the hungry mouse. Mice may also exhibit cannibalistic behavior, feasting on the carcasses of other dead mice or stillborn pups, or consuming their own tails if facing starvation. They don’t, however, enjoy cheese more than other foods; the stereotype of the cheese-glutton mouse arose because cheese was frequently used as bait for mousetraps, due to its soft and smelly nature.

Of course, when it comes to a mouse’s teeth, most of us are concerned with whether or not those teeth are going to pierce through our skin. Mice don’t generally bite; if you ran into a mouse, its first response would be flight rather than fight. Of course, there are times when you may be bitten; a mouse may bite if it is cornered and feels threatened, if you are handling it roughly, or if it is protecting its pups. If you handle mice gently and carefully and get them accustomed to being handled from an early age, they are far less likely to bite you than your average pet hamster. It is interesting, though, to note that you will find more cases of people being afraid of mice than of hamsters.

Musophobia, or fear of mice, is a common affliction. Housewives have long suffered the stereotype of being so afraid of mice that the mere sight of one running across the floor would induce a chair-hopping, broom-wielding panic. Elephants have also been unfairly singled out as being afraid of mice, a fallacy that arguably originated in Pliny the Elder’s Naturalis Historia. Instead of focusing on who is afraid of mice, we should ask why we are afraid of them in the first place. Are we afraid of them because of what they are, the harm they cause, or simply because they surprise us when they appear out of context, like in our pantry as opposed to running around the woods?

Whether you are afraid of mice or not, it is always a good idea not to handle feral mice or their droppings. According to the Centers for Disease Control and Prevention (CDC), mice can carry several zoonotic diseases, such as leptospirosis, tularemia, salmonellosis, and hantavirus. Mouse-to-human disease transmission can occur as a result of a bite wound, direct contact with mouse urine or feces, inhalation of aerosolized fecal material, and contact with urine-contaminated water. Mice can also indirectly transmit diseases such as Rocky Mountain spotted fever and Lyme disease to humans by way of an intervening insect vector. Mice kept in captivity, especially in the laboratory setting, pose much less of a risk for zoonotic disease transmission. Laboratory mice can be kept in controlled environments, rendering them specific pathogen free (SPF) or germ-free.
BEHIND THE SPECIES: MOUSE (CONTINUED)

...Mouse, continued from page 5

In spite of everything, people still find it in their hearts to admire the little fellow, even allowing him into their homes as a pet. Pet mice have been around in Europe and Asia for thousands of years, dating back at least as far as ancient Greece and Rome. Asian mouse fanciers (hobbyists) began to experiment with selective breeding, aiming for the development of new and different coat colors. The British eventually jumped on the breeding bandwagon with the Americans soon to follow; the now-defunct American Mouse Club, which was the first fancy mouse association in the United States, formed in the 1950s. Mouse clubs operate much in the same way as dog or cat fancy clubs; they set standards for breeding and conformation and sponsor purebred mouse shows.

Though we most often think of the agouti wild mouse or white lab mouse as being standard representations of mice, they do come in a whole assortment of coat colors and patterns, from white to gray to bluish to black, speckled and spotted, tricolor and brindle. Coats are most often smooth and shorthaired, though some purebreds have long coats, curly coats, or no coat at all! Many exotic coat phenotypes are characteristic of purebred or genetically engineered strains, though you’ll still see some variety in conventional mice.

Historically, mouse fanciers and laboratories have benefited mutually from breeding and trading mice with unique traits; the fanciers would obtain unique purebred (fancy) mice to show and the researchers would gain models with certain genetic traits for study. In fact, several common laboratory strains used today, such as C57BL/6 and C57BL/10, can trace their ancestry back to turn-of-the-century schoolteacher Abbie Lathrop, a mouse fancier and breeder who supplied scientists with purebred mice. Clarence Cook Little, a Harvard University scientist who later became president of the University of Michigan (1925-1929) and founder of Jackson Labs in Maine, began the practice of inbreeding to produce genetically identical mice, which involves mating sibling pairs for at least 20 generations. Nowadays most laboratory mice come from specialist companies or labs that maintain huge, complex breeding colonies. You can get conventional mice, germ-free mice, nude mice, knockout mice, and a whole host of other variations.

Early geneticists such as Cuenot and William Ernest Castle used fancy mice in their studies of Mendelian genetics, thus applying Mendel’s theories on plant genetics to mammals. While fruit flies and nematodes have eclipsed the mouse in research into genetic variation over the years, the mouse is still a useful model for studying how genetic traits affect cancer and the immune system, as well as for studying traits that are purely mammalian. In the last 20 years mice have climbed to the top of the list of most-used laboratory animal species. This is partly due to the development of recombinant DNA technology and genetic engineering, which allows for practices like genetic manipulation on the embryonic level, creation of chimeras, and the “knocking out” of specific genes.

Since mice from inbred strains are virtually identical to each other, scientists can easily eliminate unwanted variables and produce data that are consistent and easy to reproduce. Of course, inbred animals of any species will show certain defects and odd characteristics that are not found in normal breeding populations, mainly due to the expression of recessive alleles that normally would be masked by dominant genes from a mate that is genetically different. These strange traits, which can include anything from a head tilt to a completely nude body to immunity against a certain disease, are helpful in studying the disease process and how the body reacts to it. The drawback to using genetically engineered or inbred strains is that it is not necessarily representative of the traits manifested in wild or “normal” mice or in mammals as a whole.

Continued on page 7...
BEHIND THE SPECIES:
MOUSE (CONTINUED)

...Mouse, continued from page 6

In general, mice are ideal laboratory animals. As mammals, they are genetically related to humans, but unlike larger species they are relatively low-maintenance, require much less space and food, and scientists can breed many generations in a relatively short period of time. Mice typically have 8-12 pups per litter; one breeding pair and its progeny can produce up to 5,000 mice by the time the year is out! Mouse group dynamics also make for relatively easy breeding colony management. Mice raised together can cohabit quite peacefully, especially if they are all females, though males that were not raised together may fight if housed with each other. Breeding pairs can remain together even after the birth of the pups. But before they produce one big, happy family, there is the old-fashioned courtship; the University of Washington recently discovered that male mice create high-frequency song-like vocalizations in order to “serenade” their intended ladyloves!

Now that we know real mice “sing” to each other, the idea of the operatically inclined superhero crooner Mighty Mouse is not that far off base. What is interesting about Mighty Mouse and other fictional mice is the fact that they often dominate the environment and situations that they are in, and they often possess a very intelligent, brave, and self-assured air about them. Who could forget the plucky warrior Reepicheep and his little sword from The Chronicles of Narnia? Mice in cartoons seem to always remain one step ahead of cats, brooms, mousetraps, and other obstacles, relying on speed and cunning to carry them through any ordeal unharmed. Jerry from Tom and Jerry and Speedy Gonzales from the Looney Tunes cartoons always came out on top, leaving their feline adversaries suffering the humiliation of defeat.

A little field mouse is said to have inspired Robert Burns to write his ode To A Mouse as an apology for having disturbed its nest. And who would have guessed that a tiny little creature running around Walt Disney’s studio inspired him to create Mickey Mouse, arguably the most beloved and well known cartoon character of all time? Walt Disney imagined the possibilities, and so began the creation of his magical world and our love affair with all things Mickey. In a lot of ways these anthropomorphic characters embody the hope we all have for ourselves, that the little guy, the regular Joe, can triumph and accomplish great things in spite of all the roadblocks life throws at us.

Mice have inspired us in more bizarre ways than as larger-than-life fictional characters. They also figure in quack medicine, folktales, and urban legends. Are you going bald? Why not try a tonic made from horse teeth, bear grease, burnt mice, and deer marrow? Cleopatra tried it on Julius Caesar, although it failed to produce the intended result. Another use for a dead mouse is to change the weather. All you have to do is throw it in the direction you want the winds to blow. As you lay sleeping, do not let the mouse creep into your dream consciousness. Dreaming of mice is said to be indicative of trouble at home, at work, and with your friends. And if a mouse has crept into your home, call an expert to humanely trap and remove it rather than resorting to drastic measures like the man who, according to urban legend, tossed his little uninvited guest into a pile of burning leaves. The poor creature then ran, ablaze, back to the house, setting it on fire.

Continued on page 8...
Human beings and mice have a very unique, special relationship. We love them and loathe them, fear them and foster them. They take from us our food and stow away in our homes, delivering diseases to us in return for our inadvertent hospitality. Yet the little freeloaders endlessly amuse us and provide us with artistic inspiration. We invite them into our homes as pets, honoring them with human names, and become their voluntary caretakers. We proudly display them, resplendent in their purebred coats, in mouse shows and fairs. They use us and we use them; it is hard to imagine mice without human interactions. In some ways we give them life, whether we are willing or even conscious of it, by supplying them with food and shelter and immortalizing them in art. And they may just save our lives; one day we may cure cancer and other diseases, and the little lab mouse will have been an integral part of it all.

MOUSE-IN-A-BOX

Body Temperature: 96.4-99.7 °F (35.8-37.6 °C)
Heart Rate: 328-780 bpm
Respiration Rate: 90-220 rpm
Weight: 25-40 g
Lifespan: 1-6 years (captive), 3 months (wild)
Age At Weaning: 21 days
Sexual Maturity: 40-60 days

THE STOREHOUSE OF KNOWLEDGE

The following web pages and sites contained a wealth of information and research for this article:

- London & Southern Counties Mouse & Rat Club (UK): http://www.miceandrats.com
- Rat & Mouse Club of America: http://www.rmca.org/
- American Fancy Rat & Mouse Association: http://www.afrma.org/
- Centers for Disease Control and Prevention, “Diseases from Rodents:” http://www.cdc.gov/rodents/diseases/index.htm
NEWS FROM NIH:
MORE KNOCKOUT MICE

NIH LAUNCHES EFFORT TO PLACE MORE KNOCKOUT MICE IN PUBLIC REPOSITORIES

CALIFORNIA, MISSOURI CENTERS RECEIVE FUNDING TO EXPAND ACCESS TO MOUSE MODELS OF HUMAN DISEASE

Public release date: 6/12/06
Contact: Geoff Spencer (spencerg@mail.nih.gov)
(301) 451-8325
NIH/National Human Genome Research Institute

BETHESDA, Md. – As part of its ongoing effort to build a public, genome-wide library of "knockout" mouse models for the study of human disease, the National Institutes of Health (NIH) today awarded $800,000 to two public mouse repositories to acquire genetically engineered mouse lines not yet widely accessible to researchers.

In the two decades since recombinant DNA technology was first used to produce lines of mice in which specific genes have been disrupted, or "knocked out," such mice have proven to be one of the most powerful tools available to study the function of genes and to create animal models of human disease. Researchers have generated knockout mice to serve as useful models of human diseases such as cancer, heart disease, neurological disorders and even obesity.

"NIH is committed to making knockout mouse models more widely accessible to the biomedical research community," said National Institute on Deafness and Other Communication Disorders (NIDCD) Director James Battey, M.D., Ph.D., who is chairman of the Trans-NIH Mouse Initiative. "Getting these valuable models into the hands of a wide range of researchers will serve to accelerate our efforts to develop new strategies for understanding and treating human disease."

Once researchers publish papers describing their work, NIH policy requires that mouse lines created through NIH-funded research be made available to the scientific community. However, the obligation to maintain mouse lines and supply them to others can be burdensome for small laboratories and individual researchers. To facilitate sharing, the National Center for Research Resources (NCRR) supports a network of public repositories that archive and distribute mouse strains. The network includes the Mutant Mouse Regional Resource Centers (MMRRC) at the University of California, Davis; the University of Missouri/Harlan facility in Columbia; the University of North Carolina, Chapel Hill; and the Jackson Laboratory in Bar Harbor, Maine.

Depositing mice in centralized repositories ensures ready availability of lines at a reasonable cost, standardizes the animals' health status and guarantees long-term preservation of lines. However, more than 3,000 of the approximately 4,000 knockout mouse lines described in the scientific literature have not yet been placed in public repositories. To increase the availability of these mouse models, the NIH Knockout Mouse Project has initiated an effort to encourage more NIH-supported researchers to place their knockout mouse lines into public repositories.

Using funds supplied by the NIH Neuroscience Blueprint and the National Institute of Allergy and Infectious Diseases (NIAID), the NCRR today awarded a total of $800,000 for deposition of existing knockout mice to MMRRC at the University of California, Davis and the University of Missouri/Harlan facility. Additionally, all of the NCRR-supported mouse repositories will use their existing capacity to further increase the number of existing mice that can be deposited. In total, NIH anticipates that more than 300 existing mouse mutants will be deposited and made available to the research community over the next two years.

Continued on page 10...
...NIH, continued from page 9

NIH currently is working with the research community to develop a prioritized list of mice that can be collected under this program. Drawing upon that list, the researchers will be asked to submit the mouse lines to the repositories, which will maintain and replenish them, and distribute the lines to the biomedical research community upon request.

“We are very pleased that the NCRR’s network of mouse repositories will be working together to carry out this effort. The network has an excellent track record of acquiring, maintaining and distributing mutant mouse lines. By leveraging existing infrastructure and resources, we will be able to make these mice available to researchers in a timely, cost-effective manner,” said NCRR Acting Director Barbara M. Alving, M.D.

The Knockout Mouse Project is a trans-NIH initiative that aims to produce, in the next five years, a comprehensive resource of mouse mutants in which each of the approximately 20,000 genes in the mouse genome has been knocked out. The resource will greatly enhance the already considerable value of the mouse in the study of human health and disease.

In October 2005, NIH laid the foundation for the project with contracts that provided NIH and the research community access to a set of very well-characterized knockout mouse lines created by Deltagen, Inc. of San Carlos, Calif., and Lexicon Genetics Incorporated of The Woodlands, Texas. As part of this procurement, NIH also obtained a great deal of data on the observable characteristics, or phenotype, of each of the mouse lines. In the first year of the three-year contract, NIH has expended about $11 million to acquire about 250 lines of these well-characterized knockout mice. Researchers can obtain information on what lines are available and how to order them at http://www.nih.gov/science/models/mouse/deltagenlexicon/list.html.

Later this summer, through the National Human Genome Research Institute (NHGRI), the trans-NIH initiative will award a set of cooperative agreements to support the central component of the Knockout Mouse Project. These cooperative agreements, which will total up to $50 million over 5 years, will be aimed at making maximum progress toward the completion of a comprehensive resource of knockout mice lines representing all genes in the mouse genome. Awardees will use a variety of techniques, such as gene targeting, gene trapping or transposon-mediated mutagenesis, to systematically create new knockout mouse lines for the thousands of genes not included in the effort to deposit existing knockout mouse lines or the contracts with Deltagen and Lexicon. For more details on the techniques used to make knockout mice, visit http://www.genome.gov/12514551.

"It will take an enormous amount of work to build this knockout mouse resource, but we are confident the effort will be well worth it. This resource will enable many, many more researchers to tap into the power of knockout mice for exploring gene function, which in turn will speed our efforts to improve human health,” said NHGRI Director Francis S. Collins, M.D., Ph.D. "It is exciting that so many different components of NIH have pulled together to support this important project.”

Continued on page 11...
GOT FEEDBACK?

Do you have questions, comments, corrections, or suggestions about The Backbone? Is there a topic you would like to see covered in a future issue? We want to hear from you! Email us at ucuca.office@umich.edu or call (734) 763-8028 and tell us about it!

GET A BACKBONE!

Readers wishing to receive future issues of The Backbone can be included on the mailing list by completing and returning the request form on the back page of the newsletter. Additional copies of The Backbone are also available from the UCUCA office.

SNAIL MAIL

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3502 ARF
Ann Arbor, MI 48109-0614

BONE FRAGMENTS

JUST MARRIED!

UCUCA’s Jessica Kanitz is now Jessica Durkin! Congratulations!

...NIH, continued from page 10

The 19 NIH institutes, centers and offices contributing to the Knockout Mouse Project are: National Center for Complementary and Alternative Medicine, NCRR, National Eye Institute, NHGRI, National Heart, Lung and Blood Institute, National Institute on Aging, National Institute of Alcohol Abuse and Alcoholism, NIAID, National Institute of Arthritis and Musculoskeletal and Skin Diseases, National Institute of Child Health and Human Development, NIDCD, National Institute of Dental and Craniofacial Research, National Institute on Drug Abuse, National Institute of Environmental Health Sciences, National Institute of General Medical Sciences, National Institute of Mental Health, National Institute of Neurological Disorders and Stroke, National Institute of Nursing Research, and the Office of AIDS Research.


NCRR provides laboratory scientists and clinical researchers with the environments and tools they need to understand, detect, treat and prevent a wide range of diseases. For more, visit www.ncrr.nih.gov.

NHGRI supports the development of resources and technology that will accelerate genome research and its application to human health. For more, visit www.genome.gov.

The NIH Neuroscience Blueprint provides a framework for enhancing cooperation among 15 NIH Institutes and Centers, with an emphasis on supporting and making broadly available tools and resources for the neuroscience research community. For more, visit http://neuroscienceblueprint.nih.gov.

The National Institutes of Health – "The Nation’s Medical Research Agency" – includes 27 institutes and centers, and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more, visit http://www.nih.gov.
Please complete and return to the University Committee on Use and Care of Animals (UCUCA).

Name ______________________________ Department ______________________________
Telephone __________________ Fax __________________ Address __________________
Principal Investigator __________________ E-mail Address __________________

Topics/areas of interest you would like to see explored in future issues: __________________

☐ Add my name to your mailing list.
☐ Send me _____ additional copies of The Backbone ____________________ (Month/Year).

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