**DR. T’S CORNER**

**NIH to Reduce Significantly the use of Chimpanzees in Research**

For many years, experiments using chimpanzees have been instrumental in advancing scientific knowledge and have led to new medicines to prevent life-threatening and debilitating diseases. However, recent advances in alternate research tools have rendered chimpanzees unnecessary as research subjects. At the request of the NIH and in response to congressional inquiry, the Institute of Medicine (IOM), in collaboration with the National Research Council, conducted an in-depth analysis of the scientific necessity of chimpanzees for NIH-funded biomedical and behavioral research. The committee evaluated ongoing biomedical and behavioral research to determine whether chimpanzees are necessary for research discoveries. The committee described chimpanzees' unique attributes in order to determine when to use chimpanzees in biomedical and behavioral research.

The National Institutes of Health plans to substantially reduce the use of chimpanzees in NIH-funded biomedical research and designate for retirement most of the chimpanzees it currently owns or supports. NIH accepted most of the recommendations made by the IOM for implementing a set of principles and criteria defined by the Institute of Medicine for the use of chimpanzees in NIH-funded research.

NIH plans to retain but not breed up to 50 chimpanzees for future biomedical research. The chimpanzees that will remain available for research will be selected based on research projects that meet the IOM’s principles and criteria for NIH funding. The chimpanzees designated for retirement could eventually join more than 150 other chimpanzees already in the Federal Sanctuary System. The Federal Sanctuary System was established in 2002 by the Chimpanzee Health Improvement, Maintenance and Protection (CHIMP) Act and Chimp Haven operates the Federal Sanctuary System, which is overseen by NIH.

Americans have benefitted greatly from the chimpanzees' service to biomedical research, but new scientific methods and technologies have rendered their use in research largely unnecessary. Their likeness to humans has made them uniquely valuable for certain types of research, but also demands greater justification for their use.

In accepting the recommendations, NIH plans to:

- retain but not breed a small fraction of chimpanzees for future research that meets the IOM principles and criteria
- provide ethologically appropriate facilities (i.e., as would occur in their natural environment) for those chimpanzees as defined by NIH based on the advisory council recommendations and with space requirements yet to be determined
- establish a review panel to consider research projects proposing the use of chimpanzees with the IOM principles and criteria after projects have cleared the NIH peer review process
- wind down research projects using NIH-owned or -supported chimpanzees that do not meet the IOM principles and criteria in a way that preserves the research and minimizes the impact on the animals
- retire the majority of the NIH-owned chimpanzees deemed unnecessary for biomedical research to the Federal Sanctuary System contingent upon resources and space availability in the sanctuary system
- Some technical changes in NIH’s legal authority are needed to retire additional chimpanzees to the Federal Sanctuary System. NIH will continue working with Congress to remedy a provision that currently limits the amount of financial resources NIH may put toward retiring chimpanzees and caring for them in the Federal Sanctuary System.

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**OFFICE OF LABORATORY ANIMAL RESOURCES (OLAR)**

The Office of Laboratory Animal Resources would like to welcome our newest Clinical Veterinarian, Derek Fong. Derek most recently was the interim attending veterinarian and director at National Jewish Health. While he is another California to Colorado transplant, he has lived across the country and is happy to be settled in Denver. He performed his undergraduate at Yale University, his veterinary school at the University of Pennsylvania, and his residency at the University of Washington. He has a background in immunology research and an interest in global and public health. Derek’s wife, Andrea, is an Aurora native and clinical psychologist at Presbyterian St. Luke’s Hospital. He also has a 10 month old son, Jordan, and two cats and a dog to keep him busy. When not working, Derek enjoys hiking (5 14ers down, 48 to go!), backpacking, playing and watching any sport, reading, photography, food, traveling, and spending time with his family. He is excited to be joining the University of Colorado Denver and the OLAR team, and looks forward to meeting and working with everybody in the future.
RESEARCH CORNER

Dr. Danielle Soranno is a pediatric nephrologist who recently returned to Children's after having completed her pediatric residency here in 2010, and finishing her nephrology fellowship at the Children's Hospital of Philadelphia this past June. She has joined the Department of Pediatrics with most of her time devoted to her research, which is in the field of bioengineering. Danielle received her BSE in 2003 from Case Western Reserve University and her MD from Case in 2007. She uses injectable biomaterials for targeted drug delivery to the kidney in mouse models of kidney disease. The biomaterials are loaded with therapeutic agents, injected under the kidney capsule, and the drug is then released as the biomaterial degrades. The biomaterials can be tuned to release their encapsulated drugs quickly or slowly. Her goal is to abate the progression of inflammation and fibrosis related to kidney injury that results in chronic kidney disease. Her prior research project used a mouse model of chronic kidney disease and studied the effect of targeted delivery of IL-10 to abate the inflammatory cascade of kidney injury. Now that she has started at Children's, her lab is in RC2 and she is being mentored by Dr. Sarah Faubel, a nephrologist in the internal medicine department who studies the systemic effects of acute kidney injury. Danielle will now study both the local renal, and systemic effects of targeted drug delivery on a mouse model of acute kidney injury. Dr. Kristi Anseth, a distinguished chemical engineering professor at the Boulder campus, will also serve as a co-mentor with regards to biomaterials.

INSTITUTIONAL BIOSAFETY COMMITTEE TO GO ELECTRONIC

In an effort to ease regulatory burden, assist customer service, and aid the process, we have been given the go ahead to purchase an electronic protocol writing, submission and review program for the Institutional Biosafety Committee (IBC). We are aware that the IBC protocol and process can be cumbersome, and it is our hope that using the TOPAZ IBC module will ease the process of writing, submitting and reviewing IBC protocols.

We are in the process of reviewing the quote and scope of work from TOPAZ. It is our hope that we will be able to roll out the new program at the beginning of the new year. As many of you know, we have been using the IACUC module in TOPAZ for as many years. Our hope is that the new IBC module will be as successful as the IACUC module.

The IBC provides review of all recombinant DNA research conducted at UC Denver | Anschutz Medical Campus. This includes the use of recombinant DNA materials in Human Gene Transfer and DNA vaccine clinical trials. The IBC is also charged with the review of all Select Agents Research conducted by UC Denver | Anschutz Medical Campus.

If you have any questions, please do not hesitate to contact Mark Douse, PhD at mark.douse@ucdenver.edu.

MRI DEVELOPMENT OF A FAST P3D-STED MICROSCOPE

An NSF MRI Development Grant award was made to a collaborative team of physicists, engineers, and neuroscientists at the University of Colorado Denver to further develop the capabilities of Stimulated Emission Depletion (STED) microscopy. The goal of the project is to develop a FAST P3D-STED microscope (fast acquisition, photoactivation, 3-dimensional enhanced resolution STED microscope). Historically, light microscopy has been limited in its resolution by the Diffraction Barrier - a fundamental physical limit due to the property of photons of spreading out when they pass by an edge, such as the aperture in a microscope. In the past decade, several methods have emerged that can "break" the diffraction barrier, causing a revolution in the field of biological imaging and opening a major window of opportunity for studies that heretofore have been impossible. STimulated Emission Depletion (STED) microscopy, invented by Stefan Hell, is one such super-resolution technique, allowing fluorescence imaging at resolutions of tens of nanometers. With continuing improvements in the technology, STED is now able to be utilized with a wide range of fluorescent dyes and genetically encoded fluorophores and has advantages for fast, live cell, and in vivo imaging. The investigators will further push the current capabilities of STED microscopy by developing a new STED microscope to allow high speed, sub-diffraction limit imaging combined with photoactivation capabilities. This microscope will allow researchers to not only observe small objects with sub-diffraction resolution, but also enable control of dynamic processes and observation in real time.

The projects enabled by the instrument include studies of the dynamic organization of protein complexes in synapses upon control of neural plasticity, studies of the molecular-level mechanisms of odor transduction by direct stimulation of the transduction pathway, and methods for writing/reading bits at sub-diffraction dimensions in high density data storage materials. The potential societal impacts of this research include improved treatment of neurological disorders and advances in information handling and storage. The FAST P3D STED microscope will be housed in the Advanced Light Microscopy Core (ALMC) facility at the University of Colorado Denver, a successful shared user facility that has personnel and resources to train new users and operate and maintain the instrument. Researchers, postdoctoral trainees, and students from a variety of science and engineering departments at the University of Colorado Denver, University of Colorado Boulder and other universities will be able to utilize the microscope for their research. Outreach to new users will be accomplished through seminars put on by the ALMC and research presentations at scientific meetings. The investigators are particularly committed to promoting student training and advancing participation of under-represented minorities in science as evidenced by their involvement in the Building Research Achievement in Neuroscience (BRAIN) program, a summer program designed to help meet the challenge to reduce the Neuroscience research participation gap by preparing diverse undergraduates in the Rocky Mountain and Southwest Region for successful entry to Neuroscience Ph.D. programs. The capability of the STED microscope to see the inner workings of cells at unprecedented resolution captures the imagination of these future scientists.