Center Line

Bowles Center for Alcohol Studies
School of Medicine, University of North Carolina at Chapel Hill

Our mission is to conduct, coordinate, and promote basic and clinical research on the causes, prevention, and treatment of alcoholism and alcoholic disease.

ISSN 0738-6567

Volume 14, Number 3, September 2003

Marking a Milestone: Skipper Bowles Center for Alcohol Studies Renews NIAAA-Funded Alcohol Research Center Grant "Molecular and Cellular Pathogenesis in Alcoholism"

The University of North Carolina's Skipper Bowles Center for Alcohol Studies has reason to celebrate. The Center was recently awarded the renewal of its National Institutes of Health Alcohol Research Center Grant, which was first awarded in 1997. The renewal extends through 2007. As the research proposed in the grant involves nearly every Bowles Center employee to one extent or another and constitutes the largest single source of salaries, everyone at the Center is talking. Although support from the State of North Carolina has steadily declined across all of UNC due to the State fiscal problems, the Center's NIH grant support has grown and the renewal of the Alcohol Research Center (ARC) grant has everyone smiling.

Skipper Bowles Center faculty, staff, postdoctoral fellows and students

The application upon which the NIAAA based its decision to renew the ARC grant is a 500-page tome that describes seven research components directed at elucidating the biological and behavioral underpinnings of alcoholism and alcoholic pathology, along with three key cores that provide unique expertise in animal models, imaging, molecular techniques and education. The proposed research employs a dizzying array of techniques, such as behavioral monitoring, high-resolution imaging, gene delivery, and use of transgenic mouse models (mice that have had specific genes modified), to study a range of alcohol-related pathologies including fetal alcohol syndrome, liver disease, alcohol dependence and brain-cell degeneration. The seven research components are linked by the common thread of studying molecular and cellular pathology using modern techniques to determine how alcohol causes tissue and behavioral disease. The ARC grant involves collaborations among more than 30 researchers and their teams, each bringing their unique technical and scientific expertise to bear on the effort to shed light on the molecular and cellular basis of alcoholism. Their research ultimately could pave the way for identification and development of means to prevent or reverse alcohol-associated pathology. Says Bowles Center Director Dr. Fulton Crews, "We are seeking to understand the molecular and cellular mechanisms that cause excessive amounts of alcohol to wreak havoc on organs such as the liver, brain and pancreas and to cause physical and behavioral abnormalities. In addition to tissue pathology, we are keenly interested in behavioral pathology. After all, addiction to alcohol is fundamentally a behavioral pathology. We know that pathological behaviors related to alcohol ultimately can be linked to molecular and cellular changes in the brain. Our researchers are working to discover those links. Once we know the mechanisms, we can prevent and treat the diseases in better, more effective ways."

As the awarding of the competitive renewal of the Center grant signifies, the

Continued on next page

Bowles Center has made significant progress on these fronts even before undertaking the new research proposed in the renewal application. The first time a grant is submitted to a granting agency such as the NIAAA, the grant is funded based on the soundness and importance of proposed future research. UNC's Center grant overcame that hurdle in 1997 when the ARC grant was first awarded. The competitive renewal recently granted to the Center is based on a more comprehensive evaluation that considers not only the merits of proposed future research, but also the Center's scientific discoveries during the previous funding period. In considering a center for competitive renewal, the NIAAA evaluates the center's track record and compares its progress to what it initially proposed the first time the grant was submitted. Associate Director Dr. A. Leslie Morrow speaks enthusiastically of the Center's accomplishments and potential: "Our faculty made several significant discoveries during the previous funding period. We're closer to understanding exactly how alcohol causes brain and liver cells to malfunction and eventually die and how it damages the fetal brain when consumed by pregnant females. In addition, we've identified certain molecular changes that are common across different types of tissue after alcohol exposure. The specific molecular changes occur in both brain cells and liver cells, for example—two very distinct cell types. We also know much more now about the complex determinants of why alcoholics lose control over their drinking and what causes relapse to drinking when they are trying to abstain. Our proposal for future research builds on these discoveries. We believe our research will lead to new treatments for alcoholism in our lifetime."

With this competitive renewal, the Bowles Center becomes one of a handful of Comprehensive Alcohol Research Centers in the United States. Comprehensive Alcohol Centers, an elite group, are defined in part by their educational outreach initiatives that complement clinical and basic research efforts. The educational outreach initiatives are intended to improve awareness, prevention and treatment of alcoholism. The Bowles Center has been extremely active in educational outreach in recent years with activities such as spearheading an annual Research-to-Practice continuing medical education (CME) forum that educates health care professionals and students about alcoholism research and treatment, developing a fetal alcohol syndrome web site, hosting an international symposium on genes and gene delivery in alcoholism, and helping to establish the University of North Carolina Health Care's Alcohol and Substance Abuse Program, a center for intensive outpatient treatment of chemical dependency and substance abuse.

We believe our research will lead to new treatments for alcoholism in our lifetime.

Dr. Crews describes exciting new educational initiatives that will begin now that the ARC grant has been renewed. For example, the Center will organize a forum, Science-Based Practice, intended to educate health professionals, including primary care providers, who are on the front line in treating patients with alcoholism, about how the newest, cutting-edge scientific and medical findings can be applied to treating those with alcoholism. Highlights of the forum will be made available to the health care community via CD-ROM teaching modules and the Internet so that those who cannot attend the forum can also benefit from the information. By completing the teaching modules, health care providers will be able to obtain CME credit. "The educational outreach is all about translating our basic science research to efforts of prevention and treatment of alcoholism," Crews asserts. "It's gratifying when we see health professionals excited about the latest research and to hear them speak of how they will apply what they've learned. It shows us that our research really does make a difference to alcoholics and the clinicians who work with them. With the renewal of our Center funding through 2007, we look forward to many more discoveries and more opportunities to see our science translated to clinical practice."

History

The Bowles Center for Alcohol Studies has a history rooted in dedication to the research and treatment of alcoholism and alcoholic disease. The Center was founded in 1970 through the efforts of Dr. John A. Ewing, who served as director for thirteen years and created the CAGE questionnaire (test for identifying alcoholics), and Hargrove "Skipper" Bowles, the businessman and politician who advocated to make a dream become a reality. The dream was to establish a research center to bring a critical mass of scientists together under one roof to study alcoholism and alcoholic disease. Bowles understood that a great alcohol research team needed to be in close proximity to achieve better treatments. He wanted to make sure they were all under one roof. Today, their vision and commitment has resulted in a comprehensive Center conducting vital research, lifesaving treatment and high-quality education that are beginning to reduce the heartbreaking statistics and problems associated with the abuse of alcohol.

The Director's Column

Fulton T. Crews, Ph.D.
Director,
Bowles Center for Alcohol Studies

One of the key elements of our Alcohol Research Center Grant that helps tie faculty together are the cores. Drs. Mike Wheeler, Clyde Hodge, Leslie Morrow and David Overstreet each contribute greatly to the administration of our animal core. This many folks contributing to the core effort facilitates interactions and collaborations through the ARC. The core is responsible for breeding and genotyping the transgenic animals that are being used increasingly by numerous faculty. Faculty are creating, mostly through breeding, unique transgenic animals that report and/or alter gene expression. Many components share interests in specific genes. Each month ARC faculty and staff meet to review the status of animals, treatments and research progress. Reviewing progress and availability of gene reporter mice and transgenic mice is stimulating new hypothesis that promote collaboration and scientific advances.

The Animal Core is linked with the ARC Molecular Core, which includes genotyping and viral vector preparation. The molecular core is headed by Drs. Richard Rippe and Leslie Morrow. Gene delivery and genotyping work great for a core due to the unique expertise required that often differs from the expertise needed to investigate mechanisms of behavioral or tissue pathology. Having the expertise available brings all the laboratories together in common efforts at using new and modern molecular methods.

The ARC Imaging Core is fortunate to have Dr. John Lemasters who has a passion for imaging and cell biological processes that lead to cell death. Confocal microscopy is being used increasingly to establish cellular location and molecular association among proteins. The ability to use these expensive core microscopes and receive expert training is a tremendous resource not possible without the ARC.

The administrative core that I direct goes by the motto "Good administration should be invisible." The ARC Administrative core contributes to support a variety of people who allow faculty and students to focus on science, because that is all they need to do. The seminar program, fiscal, supply, equipment and personnel activity all contribute to the success of the ARC. The Center for Alcohol Studies clearly owes a big THANKS to the NIAAA for providing the ARC that makes it so much more fun to do science at UNC.

Alcohol & Substance Abuse Treatment Education Conference

September 20, 2003

The Bowles Center for Alcohol Studies will hold a one-day conference at the Ida and William Friday Center for Continuing Education entitled "Understanding and Treating the Spectrum of Alcohol and Substance Abuse Problems." The program is designed for clinicians practicing in North Carolina, including primary care physicians, emergency physicians, psychiatrists, nurse practitioners, physicians' assistants, social workers and substance abuse counselors. The faculty for the conference include national and local experts.

Topics include:

- risks and benefits of alcohol consumption
- adolescence and risks for addiction
- office intervention with risky drinkers
- medical and psychiatric problems caused by alcohol
- medication used to treat alcohol dependence

The conference will take place in September, which is "Recovery Month." There will be a reception immediately after the conference to celebrate recovery from addiction.

For more information, visit www.med.unc.edu/alcohol or contact the UNC - Chapel Hill Center for Continuing Medical Education at 919-962-8886 or deedra_donley@med.unc.edu.

Celebration of Health & Recovery

Saturday, September 20, 2003

5:30 p.m. - 7:30 p.m.
Friday Center Lobby
Chapel Hill, NC

Everyone is invited! Bring children, parents, grandparents and friends to a celebration filled with rock & roll, children's activities and a wall signing.

Center Participates in 2003 RSA Annual Scientific Meeting

The Bowles Center for Alcohol Studies faculty, postdoctoral fellows, and graduate students were highly involved with the 2003 Research Society on Alcoholism's Annual Scientific Meeting held in Fort Lauderdale, Florida. The RSA conference is one of the most prominent alcohol research meetings in the world. Our members contributed to the success of the conference by organizing and chairing symposia and sessions and presenting seminars and posters. These contributions added to the wealth of knowledge, innovation, and fellowship shared at the meeting where thousands of alcohol researchers from all over the globe gather each year.

Kim Nixon, Ph.D.

Dr. Fulton Crews chaired the Ron Thurman Symposium, which is held at each meeting to honor the late Dr. Thurman's groundbreaking accomplishments in alcohol and liver research. Dr. Thurman was a researcher at our Center until his passing in 2001. Drs. John Lemasters and Michael Wheeler, faculty of our Center and collaborators and friends of Dr. Thurman, made presentations on alcoholic liver disease.

As the secretary/treasurer for the Fetal Alcohol Syndrome Study Group, Dr. Kathy Sulik helped to organize the annual satellite meeting. Well attended by both clinical and basic scientists, this meeting featured brief research presentations by the membership, talks by several scientists and updates by federal agencies that sponsor FAS research and prevention efforts.

Most of our faculty, postdoctoral fellows and graduate students made presentations at the meeting. These presentations covered a wide range of alcohol research areas including neuroscience, pharmacology, genetics, fetal toxicology, hepatobiology, gastrointestinal biology and treatment. Three sessions were chaired by our faculty: "Alcohol Induced Neurodegeneration: When, Where and Why?" (Dr. Fulton Crews), "Ethanol Effects on Cell Signaling Mechanisms" (Dr. A. Leslie Morrow), and "The Role of Ingestive Neuropeptides in the Regulation of Alcohol Self-Administration" (Dr. Todd E. Thiele). Drs. Fulton Crews, Clyde Hodge, Darin Knapp, Todd Thiele and Sandeep Kumar presented lectures during various sessions. One of our past postdoctoral fellows, Douglas B. Matthews, Ph.D., delivered the Young Investigator Award Symposia. Dr. Kim Nixon's poster, "Ethanol Withdrawal Disrupts Adult Neural Stem Cell Proliferation and Neurogenesis," was the 2003 Gordis Award recipient in the postdoctoral category. The award is presented to a postdoctoral fellow and a graduate student each year to acknowledge their research accomplishments and professional integrity.

In total, five graduate students, five post-docs and four faculty were the primary authors of poster presentations at the meeting. All researchers in the Bowles Center are encouraged to participate in the meeting and benefit from the opportunity to learn about the latest advances in our field.

The Bowles Center for Alcohol Studies

Tel. (919) 966-5678
Fax. (919) 966-5679

To become involved in our mission, call Elizabeth Amend at (919) 843-6204 or email amend@unc.edu.

For treatment information call UNC Health Care's Alcohol and Substance Abuse Program at (919) 402-1644.

www.med.unc.edu/alcohol

Center Line, Vol. 14 No. 3 *Published quarterly to bring greater understanding of alcoholism research and the Center's mission.*
Fulton T. Crews, Ph.D., Guest Editor-in-Chief; Angela D. Farrior, Managing Editor; Jane Saiers, Science Writer

UNC Bowles Center for Alcohol Studies
CB# 7178, Thurston-Bowles Building
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina 27599-7178

Non-Profit Organization
US Postage
PAID
Permit No. 177
Chapel Hill, NC 27599-1800

This document is supported by subscriptions and donations to the Bowles Center for Alcohol Studies.