

# CAR NEWS & PHARM REPORT

Pharmacology & Toxicology and Center for Addiction Research  
April 2009 No. 2

## Chair's Message



Dear Faculty, Staff, Postdoctoral and Graduate Fellows:

Spring has sprung and the faculty, staff and students of the Pharmacology and Toxicology department and the Center for Addiction research have been very busy. Faculty are in full scale grant mode as deadlines for Stimulus Supplements and Challenge Grants near. Many faculty are also submitting "Ike Supplements" to help replace equipment and lab supplies lost in Ike.

The Center for Addiction Research hosted the first advisory board meeting for the Translational Center on Serotonin and Stimulant Addiction on March 27-28. The meeting was a success and the advisory board members were especially complimentary of our trainees who represented the Center and the department with great enthusiasm.

The Graduate Program will graduate three students this year—Noelle Anastasio, Chang won Kang and Maria Fe Lanfranco. You can read more about their dissertation projects in the Graduate Program section. Commencement for the Graduate School of Biomedical Sciences will take place on Saturday, May 2<sup>nd</sup> at 10am in Levin Hall. We invite you all to join the festivities. We wish them the best of luck on their postdoctoral adventure.

Please help us keep apprised of your activities, and submit your successes as they happen. In addition, if you would like to contribute a piece or make an announcement in an upcoming newsletter, please send that information to our editor Caley Satterfield at [casatter@utmb.edu](mailto:casatter@utmb.edu) by the 15<sup>th</sup> of each month. We also welcome your comments and suggestions.

Cheers,

Kathryn A. Cunningham, Ph.D.  
Interim Chairman

**NAME THAT NEWSLETTER!!!**



Congratulations to **Dr. Kenneth Johnson**. Dr. Johnson's newsletter title suggestion, *CAR News and PHARM Report*, was chosen to be the title of our new newsletter.

## Cheng Named Vice Chairman *ad Interim* of Pharmacology



Dr. Xiaodong Cheng has been named Vice Chairman *ad Interim* of the Pharmacology and Toxicology department. Dr. Cheng will assist Chairman *ad Interim*, Kathryn Cunningham with administrative business of the department.

### Cheng promoted to Professor

Dr. Xiaodong Cheng was recently promoted to full professor by the UTMB Appointment Promotion and Tenure (APT) committee. Dr. Cheng's lab and office space are in room 3.212 in Building 17.



## Current Events



May 01	Andrew McCreary Seminar
May 02	Commencement (10am)
May 25	Memorial Day Holiday

For more information on seminars, please visit the Pharm/Tox website: <http://www.utmb.edu/phtox/events.asp>

# SPOTLIGHT!



## Nicole Bjorklund, Ph.D. Receives Travel Award from NIDA

Postdoctoral fellow, Nicole Bjorklund received a travel award for \$750 to travel to the Annual APA Convention in Toronto in August. Dr. Bjorklund is a postdoctoral fellow in Dr. Jose Moron-Concepcion's lab. Her work focuses on analyzing the synaptic mechanisms underlying the neuroadaptations initiated by repeated morphine administration which drive dynamic changes in the expression and composition of GluR subunits (GluR1/2/3) of AMPA glutamate receptors at hippocampal synapses and determine their correlation with long-term behavioral sensitization. When joining the lab, Dr. Bjorklund first worked on method development to adapt receptor crosslinking and quantitative co-immunoprecipitations to the mouse hippocampus. Using these techniques along with subcellular fractionation, she has already begun to do experiments examining changes in AMPA glutamate receptor expression, synaptic location, and composition in the hippocampus in mice treated with a morphine in a dosing paradigm which has been shown to cause behavioral sensitization to a morphine challenge. Dr. Bjorklund has done some preliminary experiments crosslinking surface AMPA receptors in the hippocampus in samples taken at different time points after morphine administration to look at the time course of the changes. The changes in surface expression visualized by immunoblotting correlate well with previous studies in the lab looking at fractionated samples. She is currently working on the quantitative co-immunoprecipitations and combining crosslinking with subcellular fractionation as well as examining receptor composition using quantitative co-immunoprecipitation and immunoblotting. Future studies will focus on the proteins involved in changes in AMPA receptor location, expression. In addition, Dr. Bjorklund is a second author on a recent manuscript submission from the laboratory which is reporting that repeated administration of morphine was found to increase GluR2-lacking AMPA receptors in the hippocampus which may modulate synaptic plasticity.

Dr. Bjorklund joined the department of Pharmacology and Toxicology and Center for Addiction Research in September 2008. Nicole is supported on the NIDA T32 Training Grant (DA007287) which is directed by Dr. Kenneth M. Johnson.

## Elferink Named Director of NIEHS Center in Environmental Toxicology



Dr. Cornelis "Kees" Elferink was named the Director of the NIEHS Center in Environmental Toxicology at UTMB. "The NIEHS Center in Environmental Toxicology at the University of Texas Medical Branch is a scientific research center of the highest intellectual standards, dedicated to the study of environmental health science problems, as well as to the education of our community about solutions to these problems. Our overarching theme is the role of oxidative stress in mediating the health effects of exposure to environmental factors." For more information on the NIEHS Center in Environmental Toxicology, please visit their website at <http://www.utmb.edu/niehs/default.htm>

## Grant Awards



Dr. Kelly T. Dineley received a grant from the American Health Assistance Foundation to study the CNS PPARgamma as an important mediator of cognitive function in Alzheimer's disease. Dr. Dineley says "Our preliminary studies show that the PPARgamma, agonist, RTZ, hippocampus-dependent memory impairment in Tg2576 mice, increased hippocampal PPARgamma DNA binding activity, decreased phosphorylation-dependent inhibition of PPARgamma, ameliorated dysregulation of the insulin signaling axis and of PPARg itself, and reversed hyperinsulinemia. These observations support the hypothesis that CNS PPARgamma activity is important for cognitive function under conditions of excess Ab due to overexpression of mutant human APP. Currently, little is known about the regulation of CNS PPARgamma or the molecular mechanisms mediating RTZ-induced PPARgamma activity in the CNS. This project will utilize cognitive and

behavioral testing in conjunction with pharmacological and biochemical tools to delineate the CNS PPARg signaling axis that underlies learning and memory performance in AD [Alzheimer's disease]."

## TCSSA Hosts Inaugural Advisory Board Meeting



The Translational Center on Serotonin and Stimulant Addiction (TCSSA) hosted the inaugural meeting of the Center's Advisory Board on March 27-28, 2009. The four-person Advisory Board includes Dr. Randy Blakely (Vanderbilt), Dr. Dorothy Hatsukami (Univ. of Minnesota), Dr. Donna Huryn (Univ. of Pennsylvania), and Dr. Perry Renshaw (Univ. of Utah). The Advisory Board met with TCSSA leadership, Dr. Kathryn Cunningham, Dr. F. Gerard Moeller (UTHSC-Houston), Dr. Scott Gilbertson, and Dr. Cheryl Watson for guided group discussion on improving the center and future directions for the center. The Advisory Board also met with Center for Addiction Research trainees to discuss working in industry and career paths for working in academia. Also featured at the meeting was a poster session from trainees and faculty with work related to the Center's mission.

## Graduate Program News



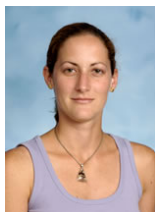
Pictures from  
Candidacy/Graduation  
Celebration  
3/28/2009

### Anastasio Defends Dissertation



Pharmacology and Toxicology graduate student, Noelle C. Anastasio successfully defended her dissertation project on March 6, 2009. Dr. Anastasio's dissertation project is entitled *Effects of Perinatal PCP Treatment on Neuronal Viability, NMDA Receptor Regulation and Schizophrenic-like Behaviors*. Dr. Anastasio's committee includes Chair, Dr. Kenneth M. Johnson (UTMB), Dr. Kathryn A. Cunningham, Dr. Kelly T. Dineley, Dr. Joel P. Gallagher (Retired—UTMB), and Dr. Geoffrey Swanson (Northwestern). Dr. Anastasio will begin work as a postdoctoral fellow in the lab of Dr. Kathryn A. Cunningham in April.

### Lanfranco Defends Dissertation



Pharmacology and Toxicology graduate student, Maria Fe Lanfranco successfully defended her dissertation project on March 17, 2009. Dr. Lanfranco's dissertation project is entitled *The Serotonin (5-HT) 2C Receptor (5HT-2CR) and its Downstream Signaling Components: Distinct Adaptations in Cortical Circuits Associated with Cocaine Exposure*. Dr. Lanfranco's committee includes Chair, Dr. Kathryn A. Cunningham (UTMB), Dr. Kenneth M. Johnson (UTMB), Dr. Xiaodong Cheng (UTMB), Dr. Cheryl Watson (UTMB), and Dr. William Clarke (UTHSC-San Antonio). Dr. Lanfranco has accepted a postdoctoral fellow position at the University of California, San Francisco.

### Bryant Enters Candidacy



Vashti Bryant successfully defended her dissertation proposal on March 10, 2009. Ms. Bryant's project is entitled *Synthesis and Evaluation of Macrocyclic Diarylether Heptanoids as NF- $\kappa$ B Inhibitors*. Vashti's committee consists of Chair—Dr. Amanath Natarajan (UTMB), Dr. Xiaodong Cheng, (UTMB), Dr. Cornelis Elferink (UTMB), Dr. Allan R. Brasier (UTMB), and Dr. Vasanthi Jayaraman (UTHSC-Houston).

**Congratulations and Good Luck to our Graduating Students!!!**



**Noelle C. Anastasio**  
**Chang won Kang** (*featured in previous edition*)  
**Maria Fe Lanfranco**

### Important Dates

May 1 <sup>st</sup>	Last Day to Register w/out Late Fees
May 2 <sup>nd</sup>	Commencement (10am)
May 4 <sup>th</sup>	First Day of Summer Classes
May 8 <sup>th</sup>	Last Day to Drop 1 <sup>st</sup> Block Classes
May 18 <sup>th</sup>	Last Day to Drop Full-Term Courses
May 25 <sup>th</sup>	Memorial Day Holiday



## Recent Publications

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Russo, S. J., Wilkinson, M., Mazei-Robison, M., Dietz, D. M., Maze, I., Krishnan, V., Robison, B., Renthal, W., Graham, A., Birnbaum, S. G., **Green, T. A.**, Lesselyong, A., Perotti, L. I., Bolanos, C. A., Kumar, A., Clark, M. S., Neumaier, J. F., Neve, R. L., Bhakar, A. L., Barker, P. A., Nestler, E. J. (2009) NFKappaB signaling regulates neuronal morphology and cocaine reward. *J Neurosci* (in press).

Winstanley, C. A., Bachtell, R. K., Theobald, D. E. H., Laali, S., **Green, T. A.**, Kumar, A., Chakravarty, S., Self, D. W., Nestler, E. J. (2009) Increased FosB $\Delta$ impulsivity during withdrawal from cocaine self-administration: Role for in the orbitofrontal cortex. *Cerebral Cortex*. 19(2):435-44.

Wallace, D. L., Han, M. H., Graham, D. L., **Green, T. A.**, Vialou, V., Iniguez, S., Cao, J. L., Chakravarty, S., Kumar, A., Kirk, A., Krishnan, V., Neve, R. L., Cooper, D., Bolanos-Guzman, C. A., Barrot, M., McClung, C. A., Nestler, E. J. (2009) CREB regulation of nucleus accumbens excitability mediates social isolation-induced behavioral deficits. *Nat Neurosci* 12(2):200-9.

Wallace, D. L., Vialou, V., Rios, L., Carle-Florence, T. L., Chakravarty, S., Kumar, A., Graham, D., **Green, T. A.**, Kirk, A., Iniguez, S. D., Perotti, L. I., Barrot, M., DiLeone, R. J., Nestler, E. J., Bolanos, C. A. (2008) The influence FosB in the nucleus accumbens on natural reward-related behavior. *J Neurosci*. 28(41): 10272-10277.

**Green, T. A.**, Alibhai, I. N., Unterberg, S., Ghose, S., Tamminga, C. A., Neve, R. L., Nestler, E. J. (2008) Induction of activating transcription factor 2 (ATF2), ATF3 and ATF4 in the nucleus accumbens and effects on behavior related to addiction, anxiety and depression. *J Neurosci*. 28(9):2025-32.

Ji Z., **Mei F.C.**, Lory PL, **Gilbertson S.R.**, Chen Y., **Cheng X.** (2009) Chemical genetic screening of KRAS-based synthetic lethal inhibitors for pancreatic cancer. *Front Biosci*. 2009 Jan 1;14:2904-10