



Nucleus

The newsletter of the School of Pharmacy's Office of Research

Volume 3, Issue 1

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This year looks to be a promising one for **Jochen Klein, Ph.D.** Associate Professor of Pharmaceutical Sciences. Dr. Klein has been with the Department of Pharmaceutical Sciences at Texas Tech School of Pharmacy since 2002. He came to

Tech from the Johannes Gutenberg University of Mainz School of Medicine (Germany). His general research interest include areas such as *in vivo*-microdialysis to evaluate the central cholinergic system, and to follow metabolic consequences of ischemia and stroke.

Recently, the NIH/NCCAM funded Dr. Klein's project titled "Anti-edema and neuroprotective effects of Ginkgo extract

EGb761 and bilobalide." The proposal stems from the hypothesis that Ginkgo extract, and their constituents, have neuroprotective properties in acute models of brain ischemia. The use of *in vitro*-studies in brain slices will determine any edema formation and anti-edema effects of the extract, and its constituent, bilobalide. Dr. Klein and his group will monitor metabolic parameters of ischemia through microdialysis in combination with stroke. These experiments will investigate the potential clinical utility of the neuroprotective effects of the widely used Ginkgo extract and define the role of bilobalide for the neuroprotective effect of Ginkgo extract EGb761. This NIH R21 grant for \$371,250 has been assigned as a 2 year project.

Dr. Klein was also awarded a grant for his project titled "Inhibition of acetylcholi-

Another Excellent Year for SOP Research!

The School of Pharmacy continues to excel. With the research program constantly growing, it is not surprise the number of grant successes. This year has proven to be the most successful one that we have ever seen. This year the School of Pharmacy had \$ 4,563,624 total grant funding! This is \$1.5 million more than last year. In 2006, twenty-six grants were awarded to seventeen of the faculty. Of these grants 11 were from the NIH alone. We had nine RO1s, one RO3, one R15, and two R21s. In addition to NIH support, several other agencies and organizations supported our research program. 13 of the faculty were

awarded grants from organizations like the Department of Defense, Epilepsy Foundation, UT Southwestern Scholar Program, Marie Hall Community Health, and the American Heart Association Texas Affiliated. Drs. Jaramillo, Klein, Lockman, Rao, Smith, Thekkumkara, and Weis all received more than one grant last year.

Our research program is developing and studying some very exciting areas and it has not gone unnoticed. Congratulations to all the grant recipients. Keep up all the hard work! ■

Names in the News



Logan LaRue

The Office of Research has a new Administrator. Ms. Logan LaRue, a graduate of West Texas A&M University, is no stranger to the Tech family. While attending college, she worked as a student assistant in the Harrington Library of Health Sciences as well as in Information Technology Department.

ABRI Program to begin in May

It is time again for the Amarillo Biomedical Research Internships (ABRI). This program promotes interest in the Texas Tech School of Pharmacy Pharmaceutical Sciences Graduate Program. Students will complete a 10 week research training giving them the opportunity to learn research skills while conducting laboratory studies. To be eligible, students must have completed at least the first year toward a bachelors degree OR the first year toward a professional degree, and have future interest in biomedical research careers. Selected candidates will complete the necessary safety training, as well as an investigator-initiated research project. Students will have the honor of participating in the Annual Research Days of the School of Pharmacy, where they will be allowed to present their own findings. All selected candidates will receive a stipend of \$3,300.

Last year, the school hosted 8 students. Those who are interested can contact the Office of Research for more information or go to the Office of Research web page at <http://www.ttuhschool.edu/sop/research>. All applications are due by Wednesday March 14, 2007 before 5 p.m. for the 2007 summer program. ■



Last years ABRI student, Aruna Rao at the SOP Annual Research Days.

Pharmaceutical Science Graduate Program

The Texas Tech University Health Sciences Center School of Pharmacy has many things to be proud of; one of which is its' extremely successful Graduate Program of Pharmaceutical Sciences. Established in July of 1999, the program has admitted 58 students, both of domestic and international backgrounds. The program was the vision of Department Chair Dr. Quentin Smith. After much work with the Texas Higher Education Coordinating Board, The program was approved and the Pharmaceutical Sciences program admitted its first 3 students that fall. Under the umbrella of the Graduate School of Biomedical Sciences, this program has trained a number of students for careers in academia, industry and governmental agencies.

This past summer, Dr. Thomas Abbruscato was appointed the Graduate Program Advisor. According to him, the potential for a

strong graduate program was one of the major reasons he chose Texas Tech School of Pharmacy as his first Faculty position in 2000. He has since then served on 9 Ph.D. Committees, 2 of which as a Major Advisor. Dr. Abbruscato is currently a NIH funded investigator primarily interested in stroke research. He also sits on the Graduate Committee for the Graduate Program of Pharmaceutical Sciences. In his time on the board, he has seen 7 students graduate. "The Graduate Program is an integral component of the research program and academic environment at the School of Pharmacy," Dr. Abbruscato stated. "In addition to their didactic course requirements, graduate students spend long hours conducting research. Our students have made truly remarkable work produced in their research labs and many present these findings in scientific meetings and are

[Continues on Page 4]

2007 Marsh Lecturer Nominated!



The 10th Annual Wendy & Stanly Marsh 3 Endowed Lectureship in Pharmacology and Neurochemistry of Substance Abuse/Addiction

is fast approaching. This year's lecturer is **Dr. Michael Kuhar** of Emory University in Atlanta Georgia. Dr. Kuhar is currently Chief of the Neuroscience Division for the Yerkes National Primate Research Center. He received his Ph.D. from The Johns Hopkins University in 1970, where he worked as an Associate Professor until 1980. Dr. Kuhar has been with Yerkes National Primate Research Center since 1996. His main focus of study has been drug re-

ceptors and neurotransmitters, particularly their involvement in therapeutics and disease. Dr. Kuhar's laboratory has several different areas of interest but particularly the CART (cocaine- and amphetamine-regulated transcription factors) peptides in limbic areas of the brain.

Currently Dr. Kuhar and his team are studying how the CART peptides modulate limbic dopamine and play a role in the action of drugs. They also hope to identify the molecular mechanisms that increase vulnerability to drug addiction based on maternal separation. After several studies, a mathematical modeling of protein synthesis with the hypothesis that protein synthesis is rate limiting in the process of drug addiction and other behaviors have been

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Another Biotech Collaboration

Dr. Kalkunte Srivenugopal has entered into a research collaboration with Chemicon International, Temecula, CA (a Division of Millipore Company) for production of a unique 'p53glutathionylation-specific antibody' based on his p53 research. This will be the first time that such an antibody is being produced. Under this



agreement, Chemicon would synthesize a unique peptide, generate an affinity-purified antibody entirely at their cost, and provide adequate amounts of Dr. Srivenugopal's research. The company has also provided a \$6,000 grant to the investigator for

intellectual property rights. ■

Dr. Klein Receives Funding for Stroke Research

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butyrylcholinesterase by rivastigmine and donepezil." This trial agreement set for \$103,892 may stem a long term relationship with Novartis Co. The work will focus on a new hypothesis that suggests to treat Alzheimer's disease with inhibitors of butyrylcholinesterase rather than with inhibitors of acetylcholinesterase as is currently done. The Klein group will use mice that are deficient in acetylcholinesterase to test inhibitors of both enzymes, and they will monitor release of the neurotransmitter acetylcholine in the mouse brain. The results will may have immediate con-

sequences for the use of cholinergic drugs in dementia

Their Pharmaceutical Division of Novartis Co. is one of the world's most influential drug research programs. They have more than 40 key market products such as Diovan/Co-Diovan, Gleevec/Glivec, and Lotrel. Novartis Co. formed in 1996 when the two world renowned chemical/life sciences companies, Sandoz and Ciba-Geigy, merged. Today, research and development of new technologies are constantly being pursued. Congratulations to Dr. Klein on these achievements! ■

Names in the News



Dr. Karin Borges received a \$50,000 research grant from the Epilepsy Foundation for her project titled "Effects of the ketogenic diet on brain extracellular fluid composition." The grant runs from January 1 to December 31, 2007. Congratulations Dr. Borges and good luck!

Names in the News



Dr. Anthony Busti

In December of 2006, Dr. Busti was appointed a member of the Board of Governors the Accreditation Council for Clinical Lipidology. (ACCL). Dr. Busti was also the concept expert in both "Pediatric Advanced Life Support. Course Guide for Professionals," as well as "Pediatric Advanced Life Support" authored by Ralston M, Hazinski MF, Zaritsky AL, Schexayder SM, Kleinman ME, eds.

New Amarillo SOP Building

After much anticipation, the Coulter Research Building has reached the final drawing stages. This two story building will house several of the current laboratories while giving the research program room to grow. The building is set to have 46,555 square feet, of which close to 40,000 is dedicated directly to laboratory space. The basement floor will be devoted mainly to animal holding facilities, while the first and

second floor will house primarily laboratories. A number of offices will be accessible for faculty and staff on both floors.

It will be placed on south side of the School of Medicine, angled akin to the School of Pharmacy. With the new building, TTUHSC SOP will have the research laboratory space it has been longing for. ■



Pharmaceutical Science Graduate Program

[Continues from Page 2] published in high ranking journals. Any faculty of the School of Pharmacy can see the excitement of discovery happening in our own building by attending the Graduate Seminars held on Mondays from 12:00-1:00 p.m. in room 107. Dr. Abbruscato coordinated this aspect of the graduate education during his first 6 years as a faculty. It is really exciting to see new data and discoveries that the graduate students present as well as the growth and maturity of the students as scientists as they prepare to defend

their thesis. The Graduate Students also carry out crucial teaching assistant responsibilities within the School of Pharmacy assisting in Case Studies I, Drug Delivery Systems Labs and Physiology.

The Program currently has 33 students admitted with 5 additional students to join in the fall. The Graduate Program of Pharmaceutical Sciences is constantly and consistently growing. ■

Bond & Raehl Receive Research Award



Dr. CA Bond and Dr. Cindy Raehl received the 2006 Research Award for Achievement in Pharmacy Practice Research from the American Society of Health System Pharmacists Research and Education Foundation. The

honor was presented for their article in the

American Journal of Health System Pharmacy titled "Clinical and Economic Outcomes of Pharmacist Provided Aminoglycoside/Vancomycin Management in Hospitalized Medicare Patients." Congratulations to these two very prestigious faculty members. ■



2007 Marsh Lecturer Nominated!

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demonstrated as reasonable. With all the information that they have accumulated, several cocaine analogs are being considered for medications.

Along with his Marsh Lectureship presentation "CART - a gene for addiction and appetite", he will be conducting Grand Rounds "Medications for Psychostimulant addicts - Efforts of a Basic Scientist."

School of Pharmacy faculty and students will have the privilege to attend a luncheon where they will be allowed a Q&A session with Dr. Kuhar. His lecture will be on Tuesday, March 27th in the Harrington Lecture Center at 4 p.m. with a reception to follow, and Grand Rounds will be Wednesday the 28th. If you have further questions, please contact the Office of Research. ■

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wards B16-F0 melanoma cells. *Cancer Lett*. 2006 Nov 18;243(2):235-45.

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Wang Z, Zhang J, Zhang Y, **Srivenugopal KS**, Lim SH. SPAN-XB core promoter sequence is regulated in myeloma cells by specific CpG dinucleotides associated with the MeCP2 protein. *Int J Cancer*. 2006 Oct 11;119(12):2878-2884.

Van der Schyf CJ, Geldenhuys WJ, Youdim MB. Multifunctional drugs with different CNS targets for neuropsychiatric disorders. *J Neurochem*. 2006 Oct 18.

Invited Talks

Dr. Youngro Byun. *Pegylation of Pancreatic Islets for Protecting Immune Reactions.* School of Pharmacy Korea Pharmaceutics. November 3, 2006.

Dr. Ajay Rana. Associate Professor Texas A&M University. November 13, 2006.

Dr. Artur J Ulmer. *Toll-like receptor 2 polymers and their lipopeptide ligands.* Head of the Division of Cellular Immunology, Department of Immunology & Cell Biology, Research Center Borstel, Germany.

November 14, 2006.

Dr. Keykavous Parang. *Chemistry and Biology of Phosphorylation: Applications in Drug Discovery, Chemical Toxicology, and Organic Chemistry.* Pharmacy Rhode Island Med Chem. November 20, 2006.

Dr. Brandy McGinnis. *The Role of pharmacist in the Disease State Management.* Cardiology Specialist with Kaiser Permanent. November 29, 2006. ■

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Niture SK, **Rao US, Srivenugopal KS.** Chemopreventative strategies targeting the MGMT repair protein: augmented expression in human lymphocytes and tumor cells by ethanolic and aqueous extracts of several Indian medicinal plants. *Int J Oncol.* 2006

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