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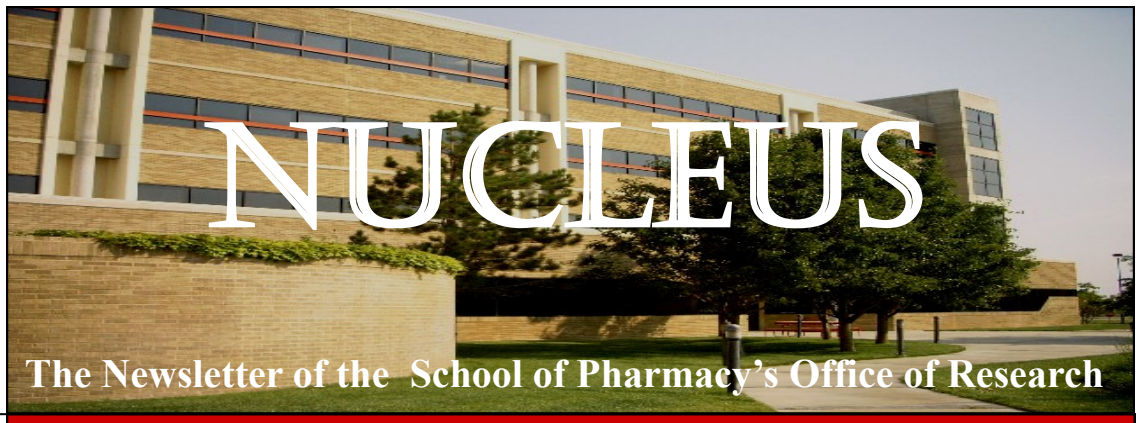

NUCLEUS

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

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DATES TO REMEMBER

- April 9: ABRI applications due
- April 11: Travel due for those traveling for Research Days
- April 17: CATALYST Seminar: Dr. Jim Stoll
- May 9: Abstracts due to Office of Research
- May 16: Posters due to Information Technology
- June 4-6: Research Days
- June 4: Marsh Lecture

Mission of the Office of Research

The Mission of the Office of the Associate Dean for Research is to promote and facilitate both clinical and basic science research for the faculty of the School of Pharmacy (SOP) in conjunction with the School of Medicine, School of Nursing, School of Allied Health, and other health professionals through all phases of research design, procurement of funding, managing the research process, and dissemination of results to the professional community.

Cancer Biology Endowed Chair Received New NIH Funding

Ming-Hai Wang, Ph.D., Professor of Pharmaceutical Sciences, recently received funding through the National Institute of Health for his project titled "RON receptor in the invasive growth of colon cancer." This project is based around Colorectal Cancer (CRC) which is a malignant disease that affects millions of people around the world. The major cause of patient death is by tumor metastasis. Thus, studying CRC metastasis is critically important not only for understanding mechanisms of tumor malignancy, but also for developing tools for early diagnosis and effective treatment. Metastasis of CRC emerges from multiple genetic alterations and cellular disorganization. It occurs in a phase of tumor progression by metastatic variant cells that possess invasive activities characterized by increased cell migration, tissue invasion, and organ colonization. Despite intensive studies, any knowledge about the nature of invasive cells and the mechanisms underlying their origination is still limited. Recent studies using DNA microarray analysis has revealed that the proclivity of CRC metastasis is acquired early during multistage tumorigenesis. It is manifested only at late stages aided with additional genetic aberrations or cellular disorganization. During the study of CRC progression towards malignancy, Dr. Wang found that splicing variants of the RON receptor tyrosine kinase, such as oncogenic RON160, play a critical role in priming CRC cells with invasive capability. Increased RON160 expression in colonic cells not only mediates cell transformation, but also promotes malignant metastasis. Thus, RON160 seems to act as a regulated invasiveness-promoting switch in CRC cells. *(Continues on pg 3)*

A Collaborative Success Story

David Fike, PharmD, and **Paul Lockman**, PhD, were recently awarded a $338,000 grant from the Texas High Education Coordinating Board's Minority Research and Education Grant Program. The purpose of this grant program is to provide funding to eligible institutions of higher education to conduct research and educational projects on public health issues affecting one or more minority groups in Texas. Dr. Fike and Dr. Lockman's project is titled "Innovations in Competency Education: Strengthening the Pipeline" and focuses on competency learning in pharmacy education in minority groups using the Keller method. The Keller method originated in 1968 in which students are broken into modules that cater to each students abilities and external time constraints.

Lectures, demonstrations and repeated testing are used to reinforce competency of the material. This project will show that "innovative instructions and assessment approaches are needed to improve student outcomes for those in the pipeline to health careers." ♦♦♦

Dr. Srivenugopal Receives Two Grants

Kalkunte Srivenugopal, Ph.D. Associate Professor, Department of Pharmaceutical Sciences was recently awarded two grants to pursue his research on MGMT and cancer chemotherapy which has been his long term interest. MGMT is a DNA repair protein that normally protects the human genome against endogenous and exogenous alkylating agernts. Paradoxically, MGMT is highly expressed in human cancers and its protective action against the anticancer alkylating agents is a major reason for therapy failure. Dr. Srivenugopal's recent research suggests that MGMT has repair-independent functions and it can be exploited for reducing cancer risk as well.

The first grant he recently received is an NIH RO3 award entitled "Induction of MGMT as a Strategy for Chemoprevention" - MGMT is expressed at very low levels in brain, bone marrow, lung and other tissues. The objective of this pilot project is to increase MGMT levels in human normal tissues through a dietary approach. A non-toxic cysteine prodrug and specific antioxidants found in plants will be tested in animal studies for their ability to augment MGMT levels. Regular intake of such compounds is hypothesized to increase DNA repair and prevent oncogenic mutations.

Dr. Srivenugopal's second grant is entitled " DNA Repair Based Therapeutic Strategies for BRCA1 Mutant Breast Cancers" was funded by the Laura Bush Institute for Women's Health of the Permian Basin. This project addresses the MGMT deficiency in hereditary breast cancers and its relevance for selective therapy using alkylating agents. Drs. Brian Pruitt (Harrington Breast Cancer Center, Amarillo) and Kyron Tamar (Dept. of Surgery at TTUHSC, Odessa) serve as co-investigators on this project which will investigate the expression of MGMT and other DNA repair proteins in the lymphocytes from women with mutations in the breast cancer susceptibility genes. ♦♦♦

Topping Out Ceremony

January 30, 2008 was an eventful day on the Amarillo TTUHSC campus. Faculty, staff and students all came to see the "Topping Out Ceremony for the Coulter Research Building." Observers were encouraged to sign the final structural beam before it was added to the building. There were several speakers there to recognize the TTUHSC system and all that is being accomplished by the programs research efforts. Regional Dean, Dr. Richard Jordan, and Dean of the School of Medicine, Dr. Steven Berk, were both excited about the opportunities the new research building bringing for nationally recognized research to Amarillo. President John Baldwin spoke of the responsibility of Texas Tech to be involved in research in order to better the future of medicine. Representative David Swinford, Representative John Smithee, and Mayor Debra McCartt were equally impressed with the efforts of the TTUHSC TTUHSC system to bring such a high standard of research to the Amarillo area. Associate Dean for Research at the School of Pharmacy, Dr. Thomas Thekkumkara, informed attendees that the research faculty are eager to raise their research to another level and the new Coulter Research Building will hold several collaborative opportunities to this institution. Afterward, everyone was invited to a reception in the atrium of the SOM. ♦♦♦

Mayor Debra McCartt

Names in the News

Quentin Smith, Ph.D. Chair & Professor, Department of Pharmaceutical Sciences will co-chair a minisymposium entitled "New Targets for the Therapy of Metastasis" at the American Association for Cancer Research Annual Meeting 2008 in San Diego, California, April 12-16 2008. The objective of the minisymposium is to provide participants with an overview of developments in timely and significant areas of cancer research. ♦♦♦

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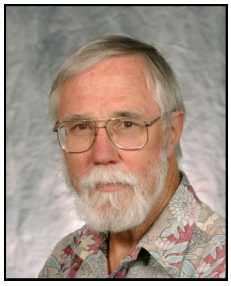
The goal of this project is to determine the signaling mechanisms by which oncogenic RON variants regulate invasive phenotypes of CRC cells. Dr. Wang believes that invasiveness acquired by metastatic variants of CRC cells is determined by metastasis-related proteins including oncogenic RON160. He hypothesized that splicing RON variants, such as oncogenic RON160, has the priming effect on CRC cells resulting in increased metastatic capabilities. In other words, invasive potentials of CRC cells is driven by oncogenic RON variants that initiate and activate cellular motile/invasive machinery leading to metastatic processes. This work is important for the following reasons. First, it will help to determine the importance of RON160 in the progression of CRC cells towards malignancy. Second, it will facilitate the understanding of mechanisms underlying CRC metastasis. Finally, this work may identify novel drug targets for the treatment of metastatic CRC. ♦♦♦

This Year's Marsh Lecturer is…..



The eleventh annual Wendy & Stanley Marsh 3 Endowed Lectureship in Pharmacology & Neurochemistry of Substance Abuse/Addiction will be held Wednesday, June 4, 2008 in the Amarillo SOP Harrington Lecture Hall at 4:00p.m. This year's nominated lecturer is John Crabbe, Ph.D., Professor of Pharmacology & Behavioral Neuroscience from the Oregon Health and Science University. Dr. Crabbe is currently director of the NIH Portland Alcohol Research Center where he studies individual differences in behavioral susceptibility of drugs of abuse, particularly alcohol, and their neurobiological and genetic bases. His most recent endeavors are selectively breeding mouse lines that voluntarily drink alcohol until they become intoxicated. This year's lecture is titled, "Finding Genes that Influence Risk for Alcoholism." As with previous years, there will be a reception after the presentation. Dr. Crabbe will also be the keynote speaker for the 2008 Research Days. ♦♦♦

Names in the News

Paul Lockman, Ph.D., Assistant Professor in the Department of Pharmaceutical Sciences, was invited by the Michael J Fox Foundation to speak at their workshop in San Francisco January 15-16, 2008. His presentation was titled "Setting the stage: How do we get through or around the BBB." ♦♦♦

2008 Research Days

The Office of Research announced that the seventh annual Research Days event will be held June 4th, 5th, and 6th. This year's event will be coupled with the eleventh annual Wendy & Stanley Marsh 3 Endowed Lectureship in Pharmacology & Neurochemistry of Substance Abuse/Addiction. Events will begin on Wednesday, June 4, 2008 with opening ceremonies followed by group 1 poster presentations. At 4:00p.m., Dr. John Crabbe, this year's nominated Marsh Lecturer, will present, "Finding Genes that Influence Risk for Alcoholism." Thursday, June 5, 2008 will begin with Faculty from Pharmaceutical Sciences as well as faculty from Pharmacy Practice presenting research during podium presentations followed by Dr. Crabbe presentation "Mice that Drink too Much: a New Genetic Animal Model." That afternoon, groups 2 and 3 will present posters while the vendor show, sponsored by VWR, is being held being held in room 210. That evening will be the annual Research Days dinner. On Friday, June 6, 2008, attendees will be invited to podium presentations followed by group 4 poster presentation. Closing and award ceremonies will begin at noon.

If you are traveling to Amarillo for Research Days, all travel must be turned in by April 11th. Poster abstracts are due to the Office of Research by May 9th. Finally, posters are due to Amarillo.poster@ttuhsc.edu by May 16th. If you have any questions or concerns, feel free to contact to Office of Research. We hope to see you there! ♦♦♦

ABRI Mentors Needed

It is time again for the Amarillo Biomedical Research Internships (ABRI) and the Office of Research is in search of PIs wanting to mentor these bright young kids. The mission of the ABRI program is to attract promising and gifted students interested in the graduate program in Pharmaceutical Sciences at the TTUHSC SOP. This year's 10 week program will begin on May 27, 2008 and run through August 1, 2008. During this time, students will develop and conduct an investigator initiated research project in consultation with their faculty mentor and other lab personnel. At the end of the internship, each student will have the opportunity to present their project findings. Faculty mentors and students will be invited to a weekly lunch in which alternating mentors will give short, informal introductions to the research in their lab. If you are interested in sponsoring a student or if you have any questions, please feel free to contact Logan LaRue (356-4000 x 326 OR logan.larue@ttuhsc.edu). ♦♦♦

Seminars

Nathan Bailey, Graduate Student/Research Assistant. Monday, January 28, 2008. SOP Room 107. "First evidence for the transcriptional enhancement of human MGMT by estrogen and antioxidant compounds"

Fancy Thomas, Graduate Student/Research Assistant. Monday, February 11, 2008. SOP Room 107. "A novel strategy for CNS delivery of anticancer drugs."

Jiukuan Hao, Graduate Student/Research Assistant. Monday, February 18, 2008. SOP Room 107. "Targeting Transcription Factor-NFkB for Therapy of Stroke."

Shuhua Bai, Graduate Student/Research Assistant. Monday, February 18, 2008. SOP Room 107. "Influence of Positive Charge on the Liposomal Formulation of Low Molecular Weight Heparin for Pulmonary Delivery."

Sharanya Vemula, Graduate Student/Research Assistant. Monday, March, 3, 2008. SOP Room 107. "In vivo characterization of sodium glucose cotransporter at the blood-brain barrier."

Ridhi Parasrampuria, Graduate Student/Research Assistant. Monday, March, 3, 2008. SOP Room 107. "Effect of Nitric Oxide on Hepatobiliary Disposition of Rhodamine 123."

Majid Moridani, PharmD, PhD, Thursday, March 6, 2008. SOM Research Seminar Room 4713, "Tyrosinase Prodrug Bioactivation as a Strategy to Develop Selective Melanoma Targeted Drug Therapy."

Lloyd Alfonso, Graduate Student/Research Assistant. Monday, March, 10, 2008. SOP Room 107. "Aspirin Modulates p21 Expression in MDA-MB-231 Cells."

Imam Shaik, Graduate Student/Research Assistant. Monday, March, 10, 2008. SOP Room 107. "Pharmacological Approaches to reduce Hepatic Ischemia-Reperfusion Injury."

Kun Zhang, Ph.D., Post-Doctoral Fellow, Monday, March 17, 2008. SOP room 107. "RON Receptor Tyrosine Kinase Involved in Tumor Progression and Metastasis in Breast Cancer." ♦♦♦

The Agonist

On January 30, 2008, the Graduate Program in Pharmaceutical Sciences released its first issue of Agonist. This newsletter is dedicated to the events, activities, and news of the TTUHSC School of Pharmacy Graduate Program. It will highlight the achievements and contact information of GSPS students and alumni. Look for issues of this informative circular at the beginning of the spring and fall semesters. If you have information you would like in the next issue of Agonist, contact Merlin Morris at (806)356-4015 ext 227 OR merlin.morris@ttushc.edu. ♦♦♦

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Publications

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To include information in the next edition of this newsletter, please submit materials to the Office of Research
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