Tulane Cancer Center Faculty Compete Successfully for Grant Funding Despite Steep Competition

According to the National Institutes of Health, only 13.8% of research project grant applications submitted to the National Cancer Institute in fiscal year 2011 were funded. That means 86 out of every one hundred applications submitted were unsuccessful! Unfortunately, that's not likely to change much any time soon.

Today’s scientific investigators face unprecedented competition for every research dollar, and that’s one of the reasons we celebrate our grant funding success stories. Several Tulane Cancer Center members were awarded major research grants recently, as follows:

Meet Hua Lu, M.D., Ph.D., Reynolds-Ryan Families Chair in Translational Cancer Research

Tulane Cancer Center welcomes Hua Lu, M.D., Ph.D., new chair of the Department of Biochemistry and Molecular Biology and the Reynolds-Ryan Families Chair in Translational Cancer Research. Dr. Lu comes to Tulane from Indiana University, where he had been a professor of biochemistry and molecular biology and the Daniel and Lori Efryomonson Chair of Oncology since 2007.

Dr. Lu has expertise in the fields of protein chemistry, molecular biology, and translational cancer research. More specifically, he and his team are investigating the cellular proteins p53, which plays a role in tumor suppression, and c-Myc (see-mik), an oncoprotein essential for the growth of tumors. His research has led to the identification of several important cell signaling pathways and regulators of both proteins that could become targets for anti-cancer drug development.

In fact, that’s one of the reasons Dr. Lu was attracted to New Orleans and to Tulane.
Deciphering New PSA Screening Guidelines: What’s A Fellow To Do?

The U.S. Preventive Services Task Force recently issued new recommendations against the routine use of PSA (prostate specific antigen) blood tests to screen for prostate cancer in healthy men, regardless of their age.

An independent panel of experts authorized by Congress to make these types of recommendations, the USPSTF argues that the harms of PSA testing outweigh its benefits for men who have not been diagnosed with prostate cancer. These harms include:

- False-positives leading to additional testing, including biopsies, which can have adverse side effects, including discomfort, bleeding or infection
- Detection and over-treatment of slow-growing prostate cancers that might never have needed treatment in the first place
- Serious long-term adverse events related to unnecessary surgery, radiation, or hormone therapy treatment, including incontinence, sexual dysfunction, impotence, bowel dysfunction or even death.

These new guidelines can be confusing for many healthy men who were under the impression that annual PSA testing was a pro-active approach to maintaining good health. And adding to their confusion is the fact that several prominent organizations within the prostate cancer community—the American Urological Association, the Society of Urologic Oncologists, the American Society of Radiation Oncology, the Prostate Cancer Research Institute, and the American Cancer Society, among others—disagree to varying degrees with the new guidelines. So what’s a fellow to do?

“The first thing to remember is that these new guidelines have nothing to do with men who have already been diagnosed with prostate cancer,” said Oliver Sartor, M.D., Tulane’s Laborde Professor of Cancer Research and the only medical oncologist specializing in prostate cancer in the state of Louisiana. “There is no controversy regarding the use of regular PSA testing to monitor the progress of current prostate cancer patients.”

The second thing to take into account, according to Dr. Sartor, is that prostate cancer is an extremely heterogeneous disease, with many factors impacting its occurrence and severity. “There is no average prostate cancer patient,” said Sartor, “so sweeping statements regarding screening guidelines are not at all beneficial in my opinion.”

According to Dr. Sartor, the mistake that this task force is making is that they’re equating over-diagnosis with overtreatment. “And that’s not necessarily the case,” he says. “Many physicians across the U.S. are favoring active surveillance to treatment for many of their lower risk patients.”

Personalized decision-making is key. “If a PSA test comes back elevated, the patient and the physician together need to put on the brakes, take a look at other impacting factors—age, life expectancy, co-morbidities, risk factors, family history, Gleason score and biopsy results, and very importantly, patient preference—and use that data to make the best decision about whether treatment is needed and if so, which type.” And this should only be done after a frank discussion regarding the possible risks and side effects of the treatments being considered, according to Dr. Sartor.

What’s the bottom line? “I do get my PSA test, and I get one every year,” says Sartor. “In my opinion, PSA testing does more good than harm, and there are good clinical trials that prove it saves lives.”
The film, called The City Dark by Wicked Delicate Films, is an award-winning feature documentary about light pollution and the disappearing night sky. It premiered in competition at the 2011 South by Southwest Film Festival, where it won the Jury Prize for Best Score/Music. Since then, it has amassed several other awards, including the Grand Jury Prize for Best Feature at the Environmental Film Festival at Yale, Best Professional Documentary at the Reel to Reel Film Festival, Best Documentary at the Hardacre Film Festival, and the Audience Award at the Kandy International Film Festival in Sri Lanka, among others. It has also been featured in special screenings at venues throughout the world, including the Zeitgeist Multi-Disciplinary Arts Center here in New Orleans earlier this year.

The City Dark chronicles the disappearance of darkness. The film follows filmmaker Ian Cheney, who moves to New York City from Maine and discovers an urban sky almost completely devoid of stars. Posing a deceptively simple question—“What do we lose when we lose the night?”—he attempts to unravel the myriad implications to ecosystems and organisms of a globe glittering with lights, including increased breast cancer rates from exposure to light at night. You can catch The City Dark when it airs on the PBS documentary series POV on July 5.

“It’s very exciting that this area of research is beginning to attract more attention,” said Blask. “We hope that this documentary and other efforts to shed light (no pun intended) on this issue will help people to realize that the data suggest a strong link between exposure to light at night and some cancers and that lifestyle changes could help to reduce one’s risk.”

The Blask team will also be featured in a second documentary set to be released this fall.
Hope-Colored Glasses Fundraiser to Benefit Arts In Medicine Program

On Thursday, July 12, Tulane Cancer Center will host Hope-Colored Glasses, a fundraiser benefiting Tulane’s Arts in Medicine Program (AIM). Wine glasses that have been hand-painted by Tulane Medical Center patients, caregivers, and staff will be sold or auctioned off through the event in an effort to raise vital funds for AIM.

Tickets cost $25, and each provides entry to the cocktail event, featuring hors d’oeuvres and beverages, as well as a voucher for one of the hand-painted wine glasses. Glasses will be distributed on a first-come, first-served basis. There are approximately 160 glasses from which to choose, and all will be on display at the event.

Additionally, selected glasses will be auctioned to the highest bidder via an online silent auction. To learn more about the silent auction or to purchase your tickets to Hope-Colored Glasses, please visit:

http://tulane.edu/som/cancer/hopecoloredglasses.cfm

Tulane’s Arts in Medicine Program got its start in Tulane Cancer Center’s Patricia Trost Friedler Center for Psychosocial Oncology. Since its implementation in the Cancer Center, AIM has grown tremendously, and is now offered to patients across Tulane Medical Center. The program recognizes the integral role of the arts in healing the spirit and transforming the hospital experience. AIM’s goal is to provide arts-related workshops, activities, events and performances to all Tulane patients, caregivers and families.

“Arts in Medicine offers our patients and their caregivers relief from stress and anxiety. It allows them to forget their illness for a few minutes and to share experiences in a healing community,” said Becki Kula, AIM coordinator. “It’s about picking up where medicine leaves off and truly helping our patients’ spirits to heal.”

A Sampling of Current Arts In Medicine Programming

- **Arts On Call** – Patients schedule art appointments and choose from 40 projects that cover a broad range of mediums and techniques.
- **Music Therapy Sessions** – Music students work with patients to offer performances, sing-alongs, play-alongs and songwriting.
- **Infused With Creativity** – Infusion patients and their caregivers enjoy art projects and musical performances during their visit to the infusion unit.
- **Pediatric Playroom Activities** – Involves organized group art projects or activities in the pediatric playroom, inpatient rooms and Pediatric ICU.
- **Art Packs** – These bedside packs include a sketchbook or journal, pencils, erasers, scissors, glue sticks, and activity ideas.
- **Patient Library Workshops** – These pre-planned activities are for projects that require more time, space, materials, and hands-on instruction/demonstration. Examples include silk painting, jewelry-making, creative writing, photography, bookbinding, etc.
- **Radiation Oncology Music** – An AIM musician provides beautiful, soothing background music for patients and staff in the Radiation Oncology unit.

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- Becki Kula
AIM Coordinator
Janarthanan Jayawickramarajah, Ph.D.
Assistant Professor, Department of Chemistry
Tulane Cancer Center Program Member

The Jayawickramarajah group is using the principles of supramolecular chemistry, a field that focuses on controlling the recognition and assembly events of molecules, to develop new ways to treat cancer more effectively and with fewer serious adverse effects.

The impetus for these projects comes from a major drawback of traditional chemotherapy—systemic toxicity caused by drug activity on healthy tissues and organs. The primary reason for this problem is the lack of effective mechanisms to selectively activate drug molecules only in cancerous cells.

To tackle this issue, the Jayawickramajah group recently received an NIH R01 grant ($1,429,750 total, 5/5/12-2/28/17) to develop synthetic agents that will selectively inhibit the function of cell survival proteins in cancer cells. The team is collaborating with Tulane Cancer Center researchers Erik Flemington, Ph.D., and Bin Shan, M.D., Ph.D., on this project.

In a second project, Jayawickramajah’s team obtained National Science Foundation funding ($360,000 total, 9/1/11-8/31/14) to construct microscopic particles composed of photoactive or light-sensitive molecules. Such particles are of interest since they can be triggered by light to kill cancer cells.

Dr. Zhang recently received two major grants, both in the area of prostate cancer research. The first, a Department of Defense Prostate Cancer Research Program Award entitled Dual-Targeting of AR and Akt Pathways by Berberine in Castration-Resistant Prostate Cancer is for $564,306 (7/1/12-6/30/15). The objectives of this project are to understand how berberine, a plant-derived natural compound, exerts its inhibitory effects on prostate cancer cells and to determine the pre-clinical efficacy of berberine in the treatment of advanced prostate cancer.

The second grant, a Louisiana Board of Regents Research Competitiveness Subprogram Award, aims to better understand why castration-resistant prostate cancer responds poorly to docetaxel chemotherapy and to develop new therapeutic strategies to improve the efficacy of docetaxel. Entitled Sustained Androgen Receptor Signaling and Chemoresistance in Castration-Resistant Prostate Cancer, this grant totals $188,830 (7/1/12-6/30/15).

Welcome Hua Lu, M.D., Ph.D.
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Through its partnership in the Louisiana Cancer Research Consortium (LCRC), Tulane Cancer Center faculty are able to easily collaborate with cancer research colleagues at the other LCRC partner institutions—LSU, Xavier and Ochsner. “Tulane Cancer Center provided me with an interactive, inter-institutional scientific community with whom I could quickly join forces,” said Lu.

And he has. Dr. Lu is already working with Xavier University’s Tarun Mandal, Ph.D., and his team on a possible nanoparticle delivery system for anti-cancer drugs, or small RNAs called microRNAs, that can either “turn on” p53 or “turn off” c-Myc. “Of course, there is much work still to be done,” said Lu, “but we hope to begin offering clinical trials to test possible new drugs and drug delivery systems within five to 10 years.”

This is a prime example of translational cancer research, through which discoveries in basic research laboratories are “translated” into new treatment options for cancer patients. That was the intent of the Reynolds and Ryan families when they endowed the chair that Dr. Lu now holds. In fact, he is the inaugural holder of this chair.

Dr. Lu brought nine research staff/faculty members and 3 NIH R01 grants totaling $811,000 annually with him when he came to New Orleans in January 2012. He hopes in the coming year or two to hire five to six additional junior-level to senior faculty members in Biochemistry and Molecular Biology, who will bring additional cancer research funding with them. His laboratory team will be moving to the Louisiana Cancer Research Center, the LCRC’s state-of-the-art cancer research facility, in the coming months.
Aline Betancourt, Ph.D.
Research Associate Professor, Department of Medicine &
Tulane Center for Stem Cell Research and Regenerative Medicine,
Tulane Cancer Center Program Member

Dr. Betancourt’s application to the Department of Defense Ovarian Cancer Research Program was one of only five awards of its type recommended for funding earlier this year.

She will use the award, which totals $484,000 over two years, to investigate the role of adult mesenchymal stem cells (MSCs) in the ovarian cancer microenvironment. Her lab recently described a new paradigm-shifting, patent pending methodology for MSCs whereby they can be induced into a pro-inflammatory phenotype—MSC1—or an anti-inflammatory phenotype—MSC2. The grant is based on her previous observation that the MSC2 phenotype supports tumor growth, while MSC1 has antitumor effects. She hypothesizes that MSC1, when injected into tumor-bearing mice, will alter the tumor microenvironment from a tumor-promoting to a tumor-inhibiting condition, resulting in antitumor activity. Her first goal is to focus on determining the effect of MSC-based therapies on ovarian tumor growth and spread, and her second is to evaluate the mechanisms through which MSC1 suppresses tumor progression.