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## **UT Metroplex institutions to collaborate on biomedical research**

DALLAS – April 4, 2007 – Researchers from the three University of Texas campuses in the Dallas-Fort Worth metropolitan area are combining their expertise in biomedical science, engineering and physical sciences on projects aimed at solving real-world medical problems.

Thirteen interdisciplinary research teams of faculty from UT Southwestern Medical Center, UT Arlington and UT Dallas have received grants totaling about \$1.3 million to pursue collaborative projects, with the goal of stimulating efforts at the interface between biology, chemistry, physics, engineering, computer science and mathematics.

Each team includes faculty from UT Southwestern and either UT Arlington or UT Dallas. Funding for the projects comes from state and philanthropic sources.

Teams receive up to \$100,000 for their respective projects, which program leaders say will allow the researchers to attract additional external funding from conventional sources, such as federal agencies.

“These projects have the potential to have enormous impact on the science and practice of medicine,” said Dr. Alfred Gilman, executive vice president for academic affairs, provost and dean of UT Southwestern Medical School. “This program is another step forward in expanding collaborations among the UT institutions in the Metroplex and exploring the interdisciplinary topics that are driving advances in medical care.”

A large committee comprising representatives from each institution chose the projects from among more than 80 submissions.

“Only the top tier was approved,” said Dr. Ron Elsenbaumer, vice president for research at UT Arlington. “There were many, many meritorious proposals we looked at. I wish we could have funded more.”

Dr. Bruce Gnade, vice president for research at UT Dallas, said: “Collaboration and research are natural cohorts, and joint studies with our sister institutions are an exciting – and expected – result of that partnership. We hope these projects are the beginning of many great discoveries that could lead to additional research and, ultimately, solutions to better people’s lives.”

Funded projects involving faculty from UT Southwestern and UT Arlington are:

- “Development of a novel biodegradable stent” – Dr. Emmanouil Brikalis, assistant professor of internal medicine at UT Southwestern, and Dr. Jian Yang, assistant professor of bioengineering at UTA. The goal of this project is to design and test biodegradable coronary

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## UT Metroplex grants – 2

artery stents composed of nanocomposite materials.

- “Quantification of in vivo protein dynamics at the single molecule level” – Dr. Georgios Alexandrakakis, assistant professor of bioengineering at UTA, and Dr. David Chen, professor of radiation oncology at UT Southwestern. This study will examine the proteins and enzymes involved in DNA repair, leading to a better understanding of cancer onset and progression.
- “Toward a model of the average heart with the normal and abnormal variations” – Dr. Heng Huang, assistant professor of computer science and engineering at UTA, and Dr. Roderick McColl, associate professor of radiology at UT Southwestern. This study will compare mathematical models of the heart with data from thousands of participants in the Dallas Heart Study in order to determine risk factors for heart disease and evaluate potential therapies.
- “Neuropathic pain mechanisms in myelination disorders” – Dr. Perry Fuchs, associate professor of pathology at UTA, and Dr. Qing Lu, assistant professor of developmental biology at UT Southwestern. This project examines new approaches to the prevention and treatment of pain in multiple sclerosis patients.
- “Adjustment to lung cancer” – Dr. Angela Liegey Dougall, assistant professor of psychology at UTA, and Dr. Joan Schiller, professor of internal medicine at UT Southwestern. This study examines the links between depression and other negative emotions felt by patients with lung cancer and their treatment outcomes.
- “Genetic, molecular and neurological bases of sexual discrimination in *Drosophila*” – Dr. Pawel Michalak, assistant professor of biology at UTA, and Dr. Dean Smith, associate professor of pharmacology at UT Southwestern. This project focuses on understanding how genes influence sexuality and mating preference.
- “DNA methyltransferases in neuronal signaling and resulting behavioral output” – Dr. Lisa Monteggia, assistant professor of psychiatry at UT Southwestern, and Dr. Linda Perrotti, senior research scientist in psychology at UTA. This study investigates how changes in DNA expression can result in behavioral alterations mimicking debilitating diseases such as schizophrenia and autism spectrum disorder.

Funded projects involving faculty from UT Southwestern and UT Dallas are:

- “Attachment of magnetic particles to kidney stone fragments for improved retrieval” – Dr. Jeffery Cadeddu, professor of urology at UT Southwestern, and Dr. Bruce Gnade, professor of electrical engineering and chemistry at UT Dallas. This study investigates the development of technology to assist in the retrieval of kidney stone fragments.

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- “Pilot study for in-vivo 1H magnetic resonance spectroscopy of radiofrequency ablation for renal cell carcinomas” – Dr. Larry P. Ammann, professor of statistics at UT Dallas, and Dr. Matthew Merritt, assistant professor, Advanced Imaging Research Center at UT Southwestern. This project aims to develop non-invasive diagnostic techniques for renal cell carcinomas using magnetic resonance spectroscopy.
- “The role of prefrontal cortex and amygdala in self-harming behavior among depressed youth” – Dr. John Hart, medical science director, Center for BrainHealth at UT Dallas, and Dr. Rongrong Tao, assistant professor of psychiatry at UT Southwestern. This project explores the neurobiological basis for self-harming behaviors among depressed pediatric patients.
- “Fabrication and evaluation of a combined near infrared fluorescence and hyperspectral imaging system for carbon nanotube vectors” – Dr. Harold “Skip” Garner, professor of internal medicine and biochemistry at UT Southwestern, and Dr. Paul Pantano, associate professor of chemistry at UT Dallas. This project relates to the use of carbon nanotubes as sensors within living cells as well as their potential use in targeted cancer therapies.
- “A pattern-based analysis of neural mediators of working memory deficits in autism” – Dr. Greg Allen, assistant professor of psychiatry at UT Southwestern, and Dr. Bart Rypma, associate professor of behavioral and brain sciences at UT Dallas. This study aims to further the understanding of working memory impairments associated with autism spectrum disorder.
- “Non-charge-balanced electrical stimulation for biofilm removal on cochlear implant: in vivo and in vitro studies” – Dr. Hoi Lee, assistant professor of electrical engineering at UT Dallas, and Dr. Karen Pawlowski, assistant professor of otolaryngology/head and neck surgery at UT Southwestern. This project focuses on methods to remove bacterial biofilm from cochlear implant surfaces without the use of antibiotics.

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