DR. BRENDAN LEE ELECTED TO INSTITUTE OF MEDICINE

Dr. Brendan Lee, Professor in the Department of Molecular and Human Genetics at Baylor College of Medicine and Howard Hughes Medical Institute investigator, has been elected to membership in the Institute of Medicine.

Lee is Co-Director of the Rolanette and Berdon Lawrence Bone Disease Program of Texas, a collaboration of BCM, The University of Texas MD Anderson Cancer Center and the newly established Center for Skeletal Medicine and Biology at BCM. He holds the Robert and Janice McNair Endowed Chair in Molecular and Human Genetics and is the founder and director of the Skeletal Dysplasia Clinic at Texas Children’s Hospital.

He is one of 70 new members and 10 foreign associates named to the institute today. BCM now has 13 IOM members.

Dr. Lee represents the best of translational research. Along with pursuing groundbreaking research that leads to improved patient care, he trains new scientists and physicians and improves the quality of education at the school. His work and his character are

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TWO NEW McNAIR SCHOLARS NAMED AT BCM

The newest McNair Scholars at Baylor College of Medicine have been named: Dr. Chenghang Zong, Assistant Professor of Molecular and Human Genetics, and Dr. Xaq Pitkow, Assistant Professor of Computational Neuroscience.

The McNair Scholar program at BCM identifies rising stars in four areas of biomedical research—breast cancer, pancreatic cancer, juvenile diabetes and neuroscience. It is supported by the Robert and Janice McNair Foundation and managed by the McNair Medical Institute.

Dr. Chenghang Zong

Zong joined BCM in 2013, bringing with him expertise in single cell analyses for tumorigenesis and stem cell differentiation as well as a background in the interface between novel single cell technologies and quantitative biology. His lab focuses on pancreatic cancer in particular but his work has wide application to tumor-related research.

His lab examines the genome at single cell resolution, in contrast to the genome averaged from an ensemble of cells. He and his colleagues will study genomic variations between individual cancer cells, working to detect early events that drive tumorigenesis as well as the early stage of tumor heterogeneity that will influence later tumor development. In addition to the genome, his research interests also include developing novel methods for single cell transcriptional and epigenetic profiling to capture the development in action, particularly adult stem cell differentiation.

He will also actively pursue clinical applications of single cell technologies, including prenatal genetic testing as well as early cancer diagnosis.

Zong earned his Ph.D. in Chemistry from the University of California, San Diego after completing his undergraduate degree in physical chemistry from the University of Science and Technology of China.

He began his postdoctoral research fellowship in the Department of Physics at the University of Illinois, Urbana-Champaign where his mentor was Dr. Ido Golding, associate professor in the Verna and Marrs McLean Department of Biochemistry and Molecular Biology at BCM. His next postdoctoral research fellowship was completed in Dr. Sunney Xie’s lab in the department of chemistry and chemical biology at Harvard University.

Zong has had numerous publications in scientific journals and also has been an invited speaker to conferences and society meetings.

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STUDENT CORNER
Hannah Rogers
Second-year physician assistant student

Hannah Rogers, a second-year physician assistant student, spent several weeks in Haiti this summer doing volunteer work at a clinic with the organization Real Hope for Haiti. She has been there several times, with each trip providing different experiences.

On the latest trip, she and another volunteer were responsible for the malnourished and premature babies that came to the clinic. Their main duties revolved around two patients—a newborn that weighed just over 2 pounds and a 2 month-old who weighed 4 pounds. Their main goal was to help these infants gain weight and maintain their blood glucose levels. They provided 24 hour care for both of them, feeding them from nasogastric tubes, maintaining their hydration and providing for their basic needs. Unfortunately, despite their care, the two-month old baby died. However, the newborn successfully doubled her weight under Hannah’s care and was thriving when Hannah left Haiti to return to Houston to start her clinical year.

Real Hope for Haiti provides many different services to the community. They have a clinic three days a week that treats about 200 people a week. They also have a Rescue Center, an inpatient treatment center for malnutrition (mainly kwashiorkor), and cholera treatment center that has successfully treated about 7,500 patients since the cholera epidemic broke out in the fall of 2010.

Zong and Pitkow join the other six McNair Scholars announced since the program’s first recruit in 2010, Dr. Ben Arenkiel. He was followed by Dr. Xiang Zhang, Dr. Jake Kushner, Dr. Melissa Bondy, Dr. Malgorzata Borowiak and Dr. Russell Ray.

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Dr. Xaq Pitkow

As a computational neuroscientist, Pitkow’s research consists of developing theories of the computational function of neural networks, with the goal of explaining how humans use uncertain sensory information to construct coherent perceptions of the world.

Pitkow’s research explores the hypothesis that the brain exploits prior knowledge about the world and the structure of its own sensory representations to select the most probable interpretations of new sense data from a multitude of improbable ones.

His research proceeds by mathematizing perceptual tasks and useful strategies for performing them, and then deducing key predictions about behavior and neural mechanisms. These predictions identify properties of behavior or circuit function that are essential for the computational model to work correctly. As a theorist, he collaborates with experimentalists to test these predictions in animal brains.

Pitkow’s research is focused primarily on vision and how the brain transforms low-level visual features like oriented edges into higher-level representations of object properties. This work will have broader implication on other sensory systems, how neural representations are learned and transformed, and whether those representations are efficient in a quantifiable sense.

Pitkow joined BCM in 2013 and holds a joint appointment at Rice University as an assistant professor in the electrical and computer engineering department. He earned his Ph.D. in biophysics from Harvard University after completing his bachelor of arts degree in physics from Princeton University. He completed postdoctoral research fellowships at Columbia University’s Center for Theoretical Neuroscience and at the University of Rochester in the Department of Brain and Cognitive Sciences. While at Harvard he was also a teaching fellow.

He has published his research in numerous scientific journals and has been an invited guest lecturer at university events.

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Lee is known as a mentor and founded and directs the Medical Student Research Track at BCM that gives medical students who do not want to pursue a Ph.D. the chance to do research in the laboratory. He is also currently a member of the Faculty Operating Committee of the Medical Students Training program (M.D./Ph.D.)

Lee is a member of the graduate programs in the Departments of Genetics, Cell and Molecular Biology, Developmental Biology and Translational Biology and Molecular Medicine at BCM. Lee serves on multiple national advisory boards and currently chairs the National Institute of Dental and Craniofacial Research Board of Scientific Counselors (BSC).

A well-recognized scientist, he is the author of more than 170 articles in peer-reviewed journals.

He is interested in understanding how gene mutations affect skeletal development. He combines studies in the laboratory that focus on mammalian tissue and organ development with clinical research involving patients with skeletal problems.

He is also interested in disorders of metabolism or energy regulation. For example, he is studying people with urea cycle disorders who cannot remove nitrogen from their blood. By focusing on the relationship between these disorders and nitric oxygen, he hopes to find better treatments, perhaps using the molecule itself or employing gene therapy.