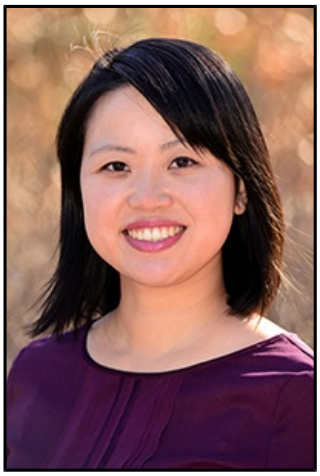
Two tenure-track researchers join NIEHS

By Kelly Lenox

With January announcements, Scientific Director Darryl Zeldin, M.D., officially welcomed two tenure-track scientists to NIEHS to lead new in-house laboratory research groups.

Shanshan Zhao, Ph.D., who moved from the Fred Hutchinson Cancer Center in Seattle, is head of the Applied Statistics Group. Guohong Cui, M.D., Ph.D., a former fellow at the National Institute on Alcohol Abuse and Alcoholism, leads the In Vivo Neurobiology Group.



Zhao enjoys helping researchers convert their research concerns into mathematical questions. "I am like a bridge between the pure mathematics and the clinicians and biologists," she said. (Photo courtesy of Steve McCaw)

The other side of methylation

While at Fred Hutchinson, Zhao helped cancer epidemiologists answer research questions using statistical methods. For example, one study involved evaluating how methylation patterns differ in men who had recurrence of prostate cancer versus those who did not.

Although her first academic focus was mathematics, Zhao knew early on that pure mathematics would not be her field. "I wanted my work to be related to life, so I switched to statistics," she explained. "Public health interested me, and it needs contributions from statisticians."

Both the collaborative environment she saw at NIEHS and the focus on environmental factors drew Zhao to the institute. "I had worked on methylation related to cancer, but here, scientists focus on the other side of methylation — studying how environmental factors connect to epigenetic methylation patterns."

"I'm interested in causal pathway analysis," Zhao said. "Methylation seems to be a mediator in this pathway, and there are rich data sets here that can help me to understand the pathway and develop statistical methods for this type of study."

Focus on research

Cui's research at NIEHS builds on his postgraduate work with brain circuits, specifically, studying the ways in which malfunctions in the brain's basal ganglia lead to motor symptoms, such as those present in Parkinson's disease. He was drawn to NIEHS both for its in-house research environment and the opportunity to continue exploring factors related to Parkinson's.

Two questions in particular drive Cui's research agenda at NIEHS. The first relates to how dopamine impacts the basal ganglia circuits to facilitate voluntary movement. "We have hypotheses, but so far, no direct evidence," he said. The second is how the progressive loss of dopamine neurons might be slowed. "I have some ideas from my earlier research, and all the resources necessary to test them are available here at NIEHS."

Long before attending Beijing Medical University, Cui set his career sights on becoming a surgeon. While the course of his studies led him into research instead, his fundamental goal is unchanged. "I'm excited to be working for better treatments, and to help cure disease," he said.

Cui's research aims include the study of the pathophysiology of Parkinson's disease. (Photo courtesy of Steve McCaw)

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