Molecular Mechanisms that Control Metabolism
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Q&A

What are your research interests?
Broadly speaking, I am interested in the molecular mechanisms that control metabolism under normal conditions and in the setting of disease. I am particularly focused on the regulation of gene expression, by further understanding proteins that directly bind to DNA and control transcription. To this end, I like to combine approaches that range from physiological analysis in mouse models to cutting-edge methods in genomics.

What is the ultimate goal of your research?
I hope to advance the understanding of obesity-related disorders including type 2 diabetes mellitus and atherosclerosis. Ideally, some of our basic investigations may identify new therapeutic targets for these conditions.

How did you become interested in this area of research?
My interest in transcriptional regulation dates back to my research as a medical student, when I studied signal transduction. As I progressed through my clinical training and decided to become an endocrinologist, I pursued work in nuclear hormone receptor biology as a postdoctoral fellow. This superfamily of transcription factors is key in the transcriptional regulation of endocrine and metabolic pathways. I continue some work on nuclear hormone receptors but have also branched out into work on other transcriptional regulators of metabolism.

Who makes up your research team?
I have a small lab that consists of three graduate students and a technician. Each student has an independent project and focuses on a different cell or tissue type. Madhavi Senagolage is a fourth-year student in the Driskill Graduate Program in Life Sciences (DGP) studying adipose tissue and macrophages, Meredith Sommars is a third-year DGP student studying the liver and Krithika Ramachandran is a third year DGP student studying muscle. Amanda Allred, our technician, is a recent college graduate and helps to support each of the graduate students in their various projects.

Which honors are you most proud of and why?
As a medical student, I applied and was selected as a Howard Hughes Medical Institute – NIH Research Scholar. This experience was the most important one of my career, as I developed a passion for basic biomedical research during that time, and this shaped my course through medicine thereafter. At that time, I was exposed to some of the most preeminent scientists of the late twentieth century in small group meetings and lectures, which was incredibly inspiring. I also interacted with a number of like-minded contemporaries from all over the country, many of whom are now faculty members at various academic institutions.

What do you enjoy about teaching and mentoring young scientists in the lab?
I enjoy giving my trainees the tools that they need not only to carry out original experiments but also to take the intellectual reigns for their project. It is incredibly gratifying to see young people in their twenties making significant discoveries. I have been in research long enough to know how tough it can be to make advances. There is no cookbook or roadmap for this undertaking, unfortunately. So I try to stay positive and keep trainees feeling positive, because what they are doing is hard. As my trainees continue along, I am learning a lot from them in terms of both techniques and subject matter, which is also quite gratifying to me.