

Enhancing the Impact of Research Through Interdisciplinary Collaboration

Fei Chen, Driskill Graduate Program in Life Sciences



Fei Chen, a fifth-year student in the Driskill Graduate Program in Life Sciences (DGP), studies the structure and function of proteins that shape the landscape of chromatin in the laboratory of [Ali Shilatifard, PhD](#), chair of the [Department of Biochemistry and Molecular Genetics](#).

Chen earned his undergraduate degree from Shandong

University and a master's degree from Fudan University. After graduating, Chen plans to complete a postdoctoral fellowship at Memorial Sloan Kettering Cancer Center.

Q&A

Where is your hometown?

I am from China. I grew up in a small town at the foot of Huangshan Mountain, one of the most beautiful mountains in China.

What are your research interests?

I have been fascinated by the complex regulation of our genome since high school, where I learned that there are around 20,000 genes within the human genome and each cell type in our body has its own gene expression network and signature, with its perturbation associated with various diseases. This curiosity drove me to my initial focus in studying the structure and function of proteins that shape the landscape of chromatin — the template whereby our genes are expressed. Now I have extended my research interests toward studying the machineries that directly talk to the genome in order to produce messenger RNA, the template used for protein synthesis, in both physiological and malignant conditions.

What exciting projects are you working on?

Since joining the laboratory of Ali Shilatifard, PhD, I have been focusing on the elucidation of the mystery of pausing control during transcription elongation. After characterizing the dynamics of pausing on genome-wide scale (*Genes & Development*, 2015), we identified that a factor called Pol II-associated factor 1 (PAF1) is essential for the maintenance of pausing

thousands of genes (*Cell*, 2015). Recently, our follow-up studies revealed a surprising connection between a PAF1-dependent release of pausing and the activation of enhancer, a distal regulatory element of gene expression that is highly mutated in numerous diseases (*Science*, 2017). Currently, I am working with my colleagues to explore the detailed mechanisms of this regulation, hoping to provide therapeutic strategies in targeting enhancer-related diseases, especially cancers.

What attracted you to the PhD program?

I had always thought that being a PhD student meant dedication to a narrow and specialized research field. After joining DGP, I immediately realized that Northwestern not only allows for in-depth research into important and challenging questions, but also cultivates an interdisciplinary collaboration that vastly leverages the impact of our research and broadens our vision in science.

What has been your best experience at Feinberg?

Our lab is a big family with more than 20 people. Most of us have collaborated with other scientists from different departments at Feinberg. It is really fun to discuss science with these people and make friends with them!

How would you describe the faculty at Feinberg?

Most of the faculty I am familiar with at Feinberg are extremely friendly and supportive. I occasionally ask them, especially Dr. John Crispino and Dr. Jindan Yu, for advice on my projects and future plans, and I really benefit from their insight.

What do you do in your free time?

I play soccer once a week. My favorite team is Barcelona.

What are your plans for after graduation?

I am planning to graduate at the beginning of next year and then I will join Dr. Joan Massague's lab at Memorial Sloan Kettering Cancer Center for postdoctoral training. Through my research, I hope to decrypt the misregulation of epigenetics in cancer and come up with novel therapeutic strategies targeting cancers.

Connect with Fei on [LinkedIn](#).