



Yan Zhang, PhD

Biological Chemist · Researcher · Cook



1 What do you do at Michigan Medicine?

I run a research group in the Department of Biological Chemistry. We work on a bacterial RNA-guided adaptive immune system called CRISPR that is widespread in microbes. CRISPRs can help their hosts to fend off invaders such as bacteriophages and plasmids. We try to understand the diverse biological roles CRISPRs play in microbes, and also attempt to develop CRISPR-based technological tools to engineer the mammalian genomes.

2 Why is this interesting to you?

I am fascinated by both the biology and the applications of CRISPRs. Microbes have a formidable arsenal of defense weapons; CRISPR represents an upgrade to acquired immunity. The bacterial hosts can memorize past invaders by capturing their DNA snippets into the hosts' own CRISPRs and these new memories will license future defense against the same or a very similar enemy. In recent years, researchers have also developed the bacterial CRISPRs into "molecular scissors" that can help us to engineer the genomes of higher eukaryotes including humans.



CRISPR-based biotechnology has revolutionized biomedical research and holds great promise for precision medicine.

3 When you're not working, what do you do?

Jogging, cooking, chatting with my parents on the phone, and exploring Ann Arbor with my husband.

4 What moment in the lab stands out as the most memorable?

I was told that setting up a new lab could be very exciting and daunting at the same time. Luckily, we have had no daunting moments so far, only exciting ones. The most memorable is when the lab members showed me an unexpected phenotype that started to connect a few dots and might open up a new direction for our intellectual pursuits.

5 Who had the greatest influence on your career path?

Three great mentors: Erik Sontheimer, Ph.D., Craig Mello, Ph.D., and Hank Seifert, Ph.D. I have had the privilege of doing my postdoc with Erik Sontheimer, an extremely supportive, patient and encouraging advisor who would genuinely cheer for my

accomplishments. Craig Mello has given me enlightening career advice throughout the years, and his passion for RNA is contagious. Last but not least, Hank Seifert is a very generous collaborator and supportive mentor, without whom my fun journey with Neisseria CRISPR would not have been possible. Being a part-timer in Hank's lab for three happy years, I learned so much about Neisseria and bacterial genetics.

6 What's the best advice you've ever received?

"Stop worrying and go for it!"

7 What are you currently reading?

"Academic Scientists at Work – Navigating the Biomedical Research Career" by Jeremy M. Boss and Susan H. Eckert. This book is an amusing, yet informative, guide for trainees and junior faculty.

8 What was the best meal you've ever had?

All the meals my mom and I cooked together. Living thousands of miles away from my parents (who live in Beijing, China) is not easy. Whenever my parents visit me, or I visit them, the meals we cook together are hands down the most delicious.