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ECR SPOTLIGHT

ECR Spotlight – Liqiu Tang

ECR Spotlight is a series of interviews with early-career authors from a selection of papers published in Journal of Experimental Biology and aims to promote not only the diversity of early-career researchers (ECRs) working in experimental biology but also the huge variety of animals and physiological systems that are essential for the 'comparative' approach. Liqiu Tang is an author on 'Gut microbiota are involved in leptin-induced thermoregulation in the Mongolian gerbil (*Meriones unguiculatus*)', published in JEB. Liqiu is a PhD student in the lab of Dehua Wang at the State Key Laboratory of Integrated Management of Pest Insects and Rodents, Institute of Zoology, Chinese Academy of Sciences, Beijing, China, investigating physiological ecology of small mammals.

Liqiu Tang

How did you become interested in biology?

When I was young, I particularly liked to watch nature documentaries with my younger brother, such as 'Animal World'. Since then, I have been very interested in biology. Later, I chose biology as my major in university. I think what attracts me most in the animal world is their language and social style, which are different from that of human society. All this fascinates me. I want to understand the behavior of animals, understand their language and become their friend.

Describe your scientific journey and your current research focus

During my graduate study, I mainly focused on a kind of gerbil distributed on the border of China, Mongolia and Russia – the Mongolian gerbil. It has many special physiological characteristics: it has storage behavior, and it can not only withstand high temperature environments, but also adapt to extreme low temperature environments. Most importantly, it is a non-hibernating species. So, we are very curious about its physiological function of adapting to the environment. At present, I mainly focus on the physiological characteristics and molecular mechanisms of rodents adapting to different living environments.

How would you explain the main findings of your paper to a member of the public?

In recent years, weight loss has become a hot topic in people's mouths, and there is a protein called leptin. This protein is secreted by fat tissue and, true to its name, has the function of making individuals lean; specifically, it can reduce an individual's food intake and increase energy expenditure. There are many ways to expend energy, and increasing heat production is one of them. Interestingly, in the Mongolian gerbil, we found that leptin levels are higher than those of other sympatrically distributed species. Furthermore, its habitat is subject to extreme cold temperature in the winter, so we wondered whether high leptin levels in this species might promote energy expenditure through increased heat production, and help them adapt to low temperature environments. What we found was that in Mongolian gerbils, leptin increased their body temperature to adapt to low temperatures, and this was related to other physiological factors such as the gut microbiota.

Why did you choose JEB to publish your paper?

First of all, JEB is highly influential and authoritative in the academic world, and its professionalism and rigor have been widely recognized. I chose JEB because it can provide a high-level platform for my research results. Secondly, the scope of JEB is highly consistent with my research direction, and I believe that the papers published here will be recognized and valued by peers. Last but not least, it is very important to me that JEB's editorial department works efficiently, has a logical review cycle, and provides excellent support and service to authors.

What do you enjoy most about research, and why?

I like the two stages of research best. The first stage is the stage of searching for problems. I think this stage is brainstorming, I need to think and read, which makes me feel meaningful, and finding a problem that can be researched makes me excited. The second stage is the stage of experiment; in the process of the experiment, I put my whole heart into it. At this time, I need to be meticulous and rigorous. My brain can also get a little relaxation, and I can also get the experimental results like opening a blind box at the end, which makes me very excited.

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Huddling behavior in small rodents due to a poorly developed thermoregulatory system after birth.

What is the hardest challenge you have faced in the course of your research and how did you overcome it?

I think the biggest challenge I encountered during the research was not knowing how to move forward when the project was not going well. Now it seems that the best way to solve this problem is to communicate with your principal investigator or other colleagues. Communicating with others about our research progress allows us to think outside our own box and gain unexpected perspectives, which can sometimes play an important role in enlightening us to solve problems.

Do you have a top tip for others just starting out at your career stage?

Focus on the journey, not the destination. At the beginning of a research career, the most important thing is to find the research direction that you are really interested in. There is no need to rush in this matter, and you can take your time. But in the meantime, you can learn all the experimental skills you can while thinking about your research direction. The best way to learn a skill is to first understand the whole procedure of the experiment, and then follow the person who has mastered the method to begin to perform it, and after three times you can become a skilled person too.

Reference

Tang, L., Lv, J., Zhang, X., Wang, C.-Z. and Wang, D. (2024). Gut microbiota are involved in leptin-induced thermoregulation in the Mongolian gerbil (*Meriones unguiculatus*). *J. Exp. Biol.* **227**, jeb249264. doi:10.1242/jeb.249264