

FIRST PERSON

First person – Shun Kato

First Person is a series of interviews with the first authors of a selection of papers published in Journal of Cell Science, helping early-career researchers promote themselves alongside their papers. Shun Kato is first author on 'Syntaxin 17, an ancient SNARE paralogue, plays different and conserved roles in different organisms', published in JCS. Shun is a master's student in the lab of Mitsuo Tagaya at the School of Life Sciences, Tokyo University of Pharmacy and Life Sciences, Japan, investigating organelle communication in mammalian cells.

How would you explain the main findings of your paper in lay terms?

Eukaryotic cells possess membrane-bound compartments called organelles. Organelles communicate with each other, which is important for cells to survive, proliferate and differentiate. Syntaxin 17 (Stx17), which I am studying, is a SNARE protein that is involved in membrane fusion in cells. However, recent studies by us and others have revealed that mammalian Stx17 also localizes to the interface of the endoplasmic reticulum and mitochondria, and participates as a scaffold protein in various biological processes such as mitochondrial fission, autophagy and lipid droplet formation. In our paper, we showed that Stx17 plays different roles in different organisms (human, nematode and fly). The C-terminal tail, which differs between species, is critical for the localization and function of Stx17.

Were there any specific challenges associated with this project? If so, how did you overcome them?

Overcoming several experimental and other challenges was necessary for the preparation of this paper. I needed to analyze insect cells, although my laboratory had no experience in using insect cells, so it was very difficult to set up an experimental system. I read many papers and tried to find the optimal conditions through repeated trial and error.

Why did you choose Journal of Cell Science for your paper?

Journal of Cell Science is a prestigious journal in cell biology and has published interesting results obtained using different organisms.

What motivated you to pursue a career in science, and what have been the most interesting moments on the path that led you to where you are now?

While studying as an undergraduate, I became fascinated by molecular cell biology – which is the basis for understanding diseases and physiological phenomena – and knocked on the door of my current laboratory. With the enthusiastic guidance of my professor, I have become even more fascinated with the subject throughout my time in research. Among other things, I was strongly impressed when I saw organelles by immunofluorescence

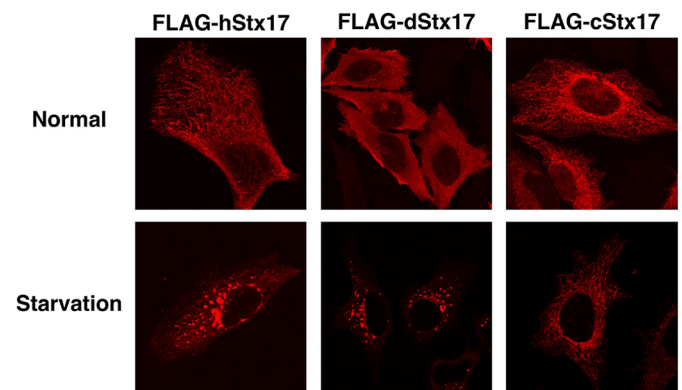


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microscopy for the first time, which I had only previously seen in textbooks. I could feel that what I had learned in class is actually happening in the body, and this motivated me to study and research more. Even now, I'm elated when I can connect my knowledge with actual phenomena in my research activities.

Who are your role models in science? Why?

For me, all the researchers around me are good role models. Some of them are from different fields, and by discussing with



Immunofluorescence images showing localization of FLAG-tagged human, *Drosophila* and *C. elegans* Stx17 (hStx17, dStx17 and cStx17, respectively) under different nutritional conditions in HeLa cells. Under normal conditions, hStx17 and cStx17 exhibit mitochondria-like localization, whereas dStx17 is predominantly present in the cytosol. Upon nutrient deprivation, hStx17 and dStx17 translocate to autophagic puncta, whereas the mitochondrial-like localization of cStx17 is not changed.

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those people, I can broaden my perspective and come up with new ideas.

What's next for you?

After graduating from my master's program, I would like to continue on to a doctoral program to deepen my understanding of molecular cell biology. In the doctoral program, I would like to learn from my supervisor the skills that I will need as a researcher in the future. I would like to continue to be involved in research even after receiving a PhD.

Tell us something interesting about yourself that wouldn't be on your CV

A hobby of mine is muscle training. Training helps me clear my head and relieves stress when I'm stuck. In a sense, muscle training is similar to research: in order to reach a big goal, you have to set a small goal and achieve it, and accumulation of daily activities leads to positive results.

Reference

Kato, S., Arasaki, K., Tokutomi, N., Imai, Y., Inoshita, T., Hattori, N., Sasaki, T., Sato, M., Wakana, Y., Inoue, H. et al. (2021). Syntaxin 17, an ancient SNARE paralog, plays different and conserved roles in different organisms. *J. Cell Sci.* **134**, jcs258699. doi:10.1242/jcs.258699