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FIRST PERSON

First person – Kan Etoh

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. Kan Etoh is first author on 'Rab10 regulates tubular endosome formation through KIF13A and KIF13B motors', published in JCS. Kan is a PhD student in the lab of Mitsunori Fukuda at Laboratory of Membrane Trafficking Mechanisms, Tohoku University, Japan, investigating the molecular mechanisms of organelle biogenesis.

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

Organelles are specialized membranous compartments within a cell, and each organelle has specific functions that are essential for maintaining the cellular homeostasis that underlies fundamental biological activities. I focused on the tubular endosome, which is a striking tubular-shaped organelle that has been recently discovered. However, the precise mechanism and biological significance of the tubular endosome remain largely unknown. In our paper, we tried to dissect the mechanism of formation of tubular endosomes and identified Rab10 as an essential factor for the tubular endosome formation. Furthermore, we found that Rab10 interacts with KIF13A and KIF13B (KIF13A/B) motors, which move along microtubules that serve as highways within a cell. Our results suggest that the Rab10–KIF13A complex regulates tubular endosome formation through its motor activity along microtubules. We believe that our findings will greatly accelerate our understanding of the biological significance of tubular endosomes in the near future.

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

The biggest challenge of this study was to identify Rab10-interacting proteins that are essential for the tubular endosome formation. I first tested whether the known Rab10-interacting proteins are required for tubular endosome formation through RNAi screening, but no good candidate was obtained. Next, I tried to identify novel Rab10-interacting proteins by GST pulldown assays, but the attempt was again unsuccessful. Finally, I performed *in silico* screening and succeeded in identifying KIF13A/B motors.

When doing the research, did you have a particular result or 'eureka' moment that has stuck with you?

My 'eureka' moment was the first time I saw Rab10-KO cells immunostained with antibody against MICAL-L1. I found that none of the cells had tubular endosomes. I was so excited about the very clear phenotype.

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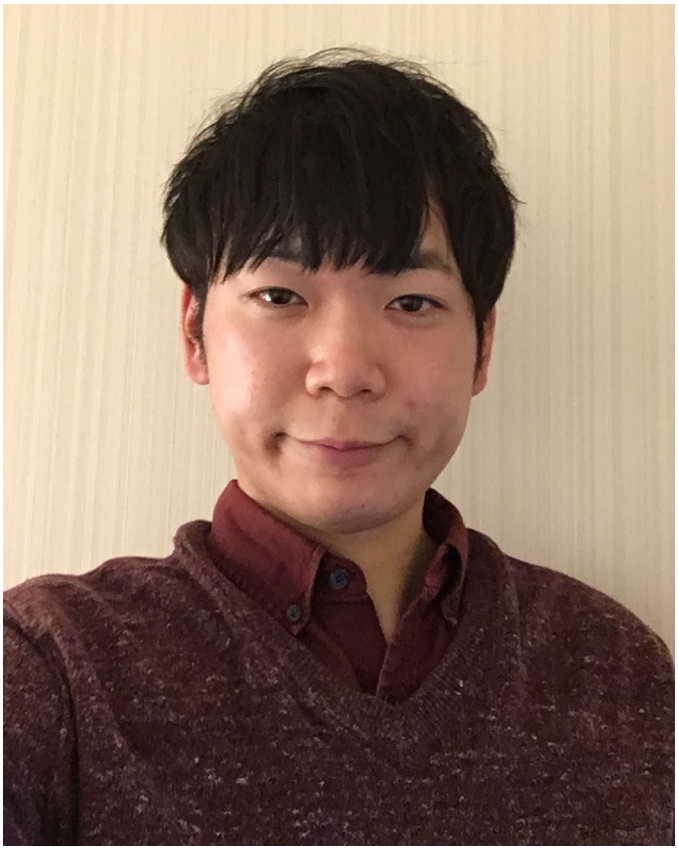
Kan Etoh's contact details: Laboratory of Membrane Trafficking Mechanisms, Department of Integrative Life Sciences, Graduate School of Life Sciences, Tohoku University, Aoba 6-3, Aoba-ku, Sendai, Miyagi 980-8578, Japan.
E-mail: kan.etoh.r4@dc.tohoku.ac.jp



Kan Etoh

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

Journal of Cell Science publishes high-quality research in the field of cell biology and has a good reputation. I therefore think that Journal of Cell Science makes our research widely known to general readers in the cell biology field.

Have you had any significant mentors who have helped you beyond supervision in the lab? How was their guidance special?

I started to work at Dr Mitsunori Fukuda's lab when I was an undergraduate student. Since then, for 6 years, he has been teaching me a lot of the skills required for being a scientist. He kindly and patiently taught me how to do experiments, how to interpret data, how to give a presentation and how to write papers. Dr Naonobu Fujita also taught me the scientific mindset to be a good scientist. I really appreciate their guidance.

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?

All steps of the research process such as reading papers, designing research, performing experiments and uncovering unknown mechanisms, are exciting for me. I also feel that the discussion about science is really fun. Therefore, I decided to be a scientist in academia, and I would like to open up a frontier in cell biology.

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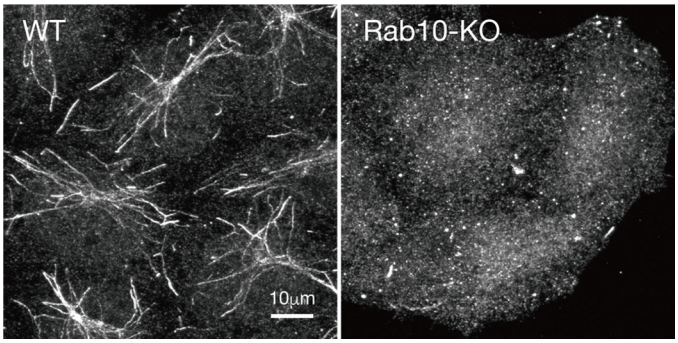

Tubular endosomes in wild-type (WT) cells (left) and Rab10-knockout (KO) cells (right). Both cells were immunostained with antibody against MICAL-L1, which is a tubular endosome marker. Rab10-KO completely disrupted the tubular endosome structure.

What's next for you?

I am going to get my PhD degree this winter and will join Dr Mitsuyoshi Nakao's lab at the Institute of Molecular Embryology and Genetics in Japan as a postdoctoral fellow.

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

I am good at playing Kendama, which is a traditional Japanese skill toy. I also like playing table tennis.

Reference

Etoh, K. and Fukuda, M. (2019). Rab10 regulates tubular endosome formation through KIF13A and KIF13B motors. *J. Cell Sci.* **132**, jcs226977.