

FIRST PERSON

First person – Wei Sheng Yap

First Person is a series of interviews with the first authors of a selection of papers published Journal of Cell Science, helping early-career researchers promote themselves alongside their papers. Wei Sheng Yap is first author on 'The yeast *FIT2* homologs are necessary to maintain cellular proteostasis and membrane lipid homeostasis', published in JCS. Wei Sheng works in the lab of Guillaume Thibault in the School of Biological Sciences, Nanyang Technological University, Singapore, studying the interplay between the proteostasis network and lipid homeostasis.

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

Apart from lipid storage, lipid droplet (LD) organelles are known to partake in a myriad of intracellular signaling pathways. Owing to their significant role in energy metabolism and signaling events, an aberration phenotype of LDs is commonly observed in many diseases, such as cancer, diabetes mellitus and fatty liver disease. It was exciting when we identified that one of the fat storage-inducing transmembrane 2 (*FIT2*) homologs, *Scs3* in budding yeast, was essential for cell viability during endoplasmic reticulum (ER) stress or in cells devoid of functional unfolded protein response (UPR).

The defective phenotype in the *scs3Δ*-knockout mutant was exacerbated through manipulation of the phospholipid bilayer composition, which points to the notion that *Scs3* regulates phospholipid metabolism, as also reported by another group. Without *Scs3*, cells struggle to maintain a balanced phospholipid bilayer composition, leading to abnormal LD formation and/or maturation, which undermines the cell's ability to cope with stress. Our data unveiled the central role of *Scs3* in mediating proteostasis and lipid homeostasis, emphasizing the importance of this protein in the regulation of the ER stress response.

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

Although budding yeast is supposed to be one of the simplest model organisms to work with, I struggled initially just to achieve a reproducible cycloheximide chase assay result owing to the overwhelming number of samples (at least for a rookie like me) and the time-sensitive nature of the experiment. Through practice and by making mistakes, that hurdle, which seemed intimidating at first, is no longer a concern to me now.

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

Dr Lim Chooi Ling mentored me during my undergraduate study at the International Medical University, Malaysia. She was very supportive and helped me to liaise with other laboratories so I can engage in research work overseas.

To fulfill the credits required for my undergraduate research-based module, I joined Dr Prakash Arumugam's laboratory at the



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Bioinformatics Institute (BII), a subsidiary of A*STAR, Singapore. He was my supervisor during my short internship placement at his laboratory, specialized in chemical genomics. Dr Prakash and his team taught me with patience despite how clueless I was. It was an extraordinary experience with extraordinary people in a foreign land.

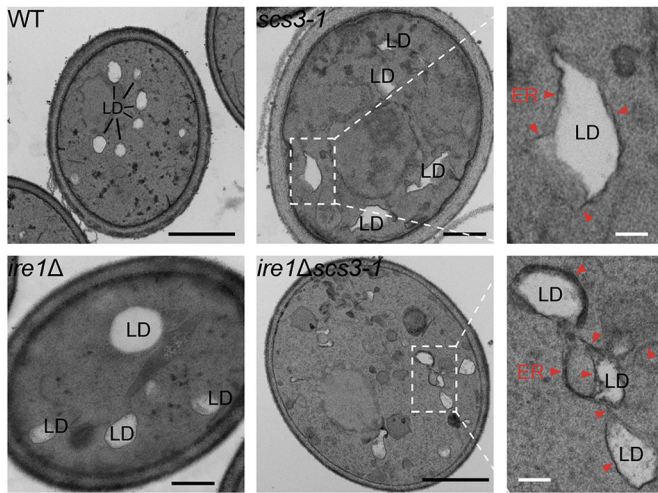
Asst. Prof. Thibault is my present supervisor in my current laboratory. Apart from his input in my laboratory work, he has also connected me to various people in my research field. The regular scientific discussions I have with him have also been helpful in developing my critical thinking skills.

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?

It all started when I was a kid, as I flipped through an encyclopedia (a physical one, there were no e-books then), every page was filled with beautiful illustrations and explanatory notes that captivated me. The book was also filled with something else – an enormous room for imagination. The ephemeral experience of excitement flowed through all my veins as the mysteries were being unveiled. I enjoyed every moment of discovery.

As I grew older, I shifted my attention to biology to answer one of my greatest questions: what is the meaning of death when we have a full control of cellular manipulation? Full control of cellular manipulation is a fantasy, but it also serves as a vision for me to

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Scs3 is required to maintain ER morphology. Yeast mutants harboring the conditional mutation *scs3-1* displayed abnormally elongated LDs embedded in the ER (indicated by red arrowheads). Images were taken using a transmission electron microscope.

work toward this goal and getting closer to the answer. Therefore, I joined a laboratory working with a yeast model, which is extensively used in genetic study, and dissecting molecular mechanisms. Even now, I am actively solving various research questions that are very puzzling, such as cell ageing.

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

I like to be close with animals and nature, which helps to maintain my spiritual and mental wellbeing. Although, at times, I enjoy thrilling activities such as performing a backflip.

Reference

Yap, W. S., Shyu, P., Jr., Gaspar, M. L., Jesch, S. A., Marvalim, C., Prinz, W. A., Henry, S. A. and Thibault, G. (2020). The yeast *FIT2* homologs are necessary to maintain cellular proteostasis and membrane lipid homeostasis. *J. Cell Sci.* **133**, jcs248526. doi:10.1242/jcs.248526