

Falling Walls Lab Singapore 2019

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Breaking the Wall of Lengthy, Costly Drug Development



FALLING WALLS LAB



You delivered the winning performance at the Falling Walls Lab competition in Singapore? What is your innovative idea?

Thank you! It was a very competitive field of 26 presentations, so we are honoured to receive this recognition. In the competition, I shared our approach to accelerate and de-risk vaccine development, which leverages our team's unique ability to uncover the changes in molecular pathways that underlie our bodies' responses to vaccines. Using this platform, our team generated a safe, effective Zika vaccine candidate in just six weeks, instead of months and years with the traditional process. This was made possible because of the close researcher-clinician

partnership between Prof Ooi Eng Eong at the Duke-NUS Medical School and Dr Jenny Low at the Singapore General Hospital.

Why should people pay attention to your research project?

I strongly believe that this work is able to transform the vaccine industry, which has been underfunded due to the stereotype that vaccine development is lengthy, costly and risky. Even today, vaccine development still involves a high degree of guesswork without proper understanding of the molecular changes. Our approach is guided by the molecular changes in our body in response to the Yellow Fever vaccine, a highly effective one-shot vaccine that confers life-long protection. Not only are we able to speed up development, our vaccine candidates are superior in the safety and efficacy aspects.

How did you win over the audience?

With a lot of practice! I have to thank Ms Yee Shiran from NTU who offered open pitching sessions where we received feedback on how to improve our presentation. I also think that most of the audience and judges appreciate the important role that vaccines play in public health. With infectious disease

outbreaks becoming more common, it is crucial to adopt new approaches to vaccine development.

You will be representing Singapore in the global Falling Walls Lab Finals in Berlin this November? How are you preparing for the event?

I am grateful for the opportunity and aim to make Singapore look good on a global stage. I have been watching videos of the Falling Walls Lab event in previous years, and the Singapore winners from 2017 and 2018 have given me tips too.

You are also the winner of the EURAXESS Prize 2019 to visit a research lab anywhere in the EU. What are your plans?

This prize will definitely help us seek out potential research and clinical partners to generate more data to validate our platform. We have shown the ability to take the vaccine-related molecular responses to speed up the process of selecting for Zika and Dengue live attenuated virus strains that are ideal for vaccines, and are confident of developing the same for other infectious disease agents.

What are you most looking forward to?

Sharing our accelerated vaccine generation platform with the world and brainstorming with the delegates the best strategy to disrupt vaccine development with this technology.

Where do you see yourself in 10 years in terms of your research career?

I hope to be out of a job in 10 years since that would mean we have eradicated cancer and infectious diseases.

Thanks so much and good luck in Berlin!

Poh Weijie, PhD aspires to be a successful bio-entrepreneur who advances scientific discoveries from the lab into solutions that tackle healthcare challenges. Since returning back to Singapore in 2018, Dr. Poh has been working with the Centre for Technology and Development (CTeD) at the Duke-NUS Medical School to commercialize breakthrough innovations. Dr. Poh has a diverse research background in cancer biology, having received his undergraduate degree from the National University of Singapore, PhD degree from the Johns Hopkins University where he worked on uncovering epigenetic biomarkers in preleukemic patients, and postdoctoral training on genetic predisposition to leukemia at the Dana-Farber Cancer Research Institute. During this time, Dr. Poh co-founded PathoVax to commercialize the world's first universal human papillomavirus (HPV) vaccine. Spun out from Johns Hopkins, PathoVax is funded by angel

investors and US federal agencies to develop its HPV vaccine candidate to human trials in 2020.