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ACDS Featured Scientist

Professor Hiroyasu Nakano

August newsletter changes a bit its feat scientist format to share a short essay written by Prof. Hiroyasu Nakano entitled:

A Long and Winding Road to Become a Cell Death Researcher.

Ever since I was a bookish person, my life has always been influenced by many books. In elementary school, when I read the autobiography of Hideki Yukawa, a renowned physicist and Nobel laureate, I aspired to become a scientist in the future. Being particularly proficient in math during my junior and senior high school years, I entertained the idea of becoming a mathematician. However, I came across an article in the newspaper stating that most students, except for the exceptionally gifted, ended up as high school teachers. Doubting my own abilities in math, I abandoned the idea of pursuing a career as a mathematician and instead decided to become a medical doctor.

After graduating from medical school, I embarked on my journey as a physician and eventually specialized in chest medicine. I thoroughly enjoyed my life as a doctor, seeing and treating patients on a daily basis. However, amidst the hectic life of a clinician, while reading research papers, I began to feel a strong desire to engage in research myself. To pursue my interest in research, I decided to work as a research fellow at the renowned Research Institute for Tuberculosis, specializing in pulmonary pathology, for two years. Unfortunately, during that time, my experience merely solidified the conviction that "I cannot grasp the true essence of diseases solely through immunohistochemistry and autopsy pathology in this setting." Frustrated by this realization, I ultimately concluded that to overcome this impasse, I needed to pursue graduate studies and engage in fundamental research.

After obtaining my PhD, I joined the lab of Professor Ko Okumura, a renowned scientist known for his discovery of perforin and CD86, at Juntendo University Graduate School of Medicine in April 1995. Professor Okumura granted me to initiate my independent project focusing on the signaling pathway through the TNF receptor superfamily. Fortunately, just two months after joining the lab, I successfully identified a cDNA fragment of a novel member of the TRAF family, designated as TRAF5, and published a paper on it in 1996.

I made the decision in 2009 to shift our project's focus towards murine disease models. During the analysis of these disease models in mice, the knowledge and skills I acquired during the two years I spent at the Research Institute for Tuberculosis, where I learned about immunohistochemistry and the fundamentals of pathology, suddenly resurfaced. It was in that moment that I truly understood the essence of what Steve Jobs had said: "You can't connect the dots looking forward; you can only connect them looking backward." This realization highlights the significance of embracing each day and recognizing that **nothing in life is truly wasted, as every experience has the potential to be valuable as long as we give our best in every moment.**

In 2014, upon joining Toho University, I attained a fully independent position and took the lead in a team dedicated to cell death research, not focusing on the signal transduction pathways leading to cell death, but rather on biological responses initiated by dying cells.

Three most significant publications: 1. Nishina T, [...], Nakano H. Interleukin-11-expressing fibroblasts have a unique gene signature correlated with poor prognosis of colorectal cancer. **Nat Commun.** 2021;12(1):2281. **2.** Murai S, [...], Nakano H. A FRET biosensor for necroptosis uncovers two different modes of the release of DAMPs. **Nat Commun.** 2018;9(1):4457. **3.** Sakon S, [...], Nakano H. NF-kappaB inhibits TNF-induced accumulation of ROS that mediate prolonged MAPK activation and necrotic cell death. **EMBO J**. 2003;22(15):3898-909.

We asked Prof. Hiroyasu Nakano a few questions.

1. What motivates you to get into the lab?
I believe the driving force for research is the prospect of encountering unexpected findings.

2. What aspects of working in Japan have benefited your research?
I am relatively satisfied with the scientific environment in Japan, especially easy-to-obtain reagents and utilizing state-of-the-art equipment, though their costs are relatively high. However, I like the open and frank atmosphere that exists within scientific communities abroad, such as in the United States or Australia. Hence, I would like to take a sabbatical and undertake research overseas before my retirement in the near future.

3. What is your favourite cell death-related protein or process and why?
cFLIP, because this protein has been one of the main projects in our lab. We are quite a unique lab that still continues to work on cFLIP among cell death research field.

4. What do you like to do for fun/in your spare time?
Apart from reading books, I find great joy in watching Shogi, the Japanese style of chess, and table tennis. My wife and daughter jokingly refer to my hobbies as something akin to being an Otaku.

Upcoming Events

ACDS Seminar

Wednesday 6th September at 12pm AEST, we will host **Dr. Charis Teh** from WEHI, and **Sven Engel** from the Peter Doherty Institute.

Join us on zoom: https://latrobe.zoom.us/j/89804445019

Speaker applications for our regular **ACDS seminars** are currently open.
Apply here.