DBT - AIST International Laboratory for Advanced Biomedicine

Classroom for Advanced & Frontier Education

LABO - Lab Orientation

and

JUKU (Join Universities for Kindering Youth) Series #12
Title: When and how was the Nrf2-regulated antioxidant system found?

We now know that transcription factor Nrf2 (nuclear factor-E2-related factor 2) is the master regulator for defense against oxidative stress. Nrf2 positively regulates expression of a large number of genes involved in detoxification, glutathione and glucose metabolism, and elimination of reactive oxygen species. This study was initiated in 1990s at the University of Tsukuba, Japan. Professor Masayuki Yamamoto was studying Nrf2 deficient mice, but failed to detect any defects in erythropoiesis in them. In the next laboratory, I was struggling to clone stress-induced membrane cystine transporter by a differential screening method. It was unsuccessful but I picked up stress-inducible other genes encoding hemeoxygenase-1, peroxiredoxin 1, sequestosome-1/p62 and CD36. However, I had no idea about the transcription factor that regulates expression of these genes. One day, Prof. Yamamoto and his student Ken Itoh knocked on our door asking me to collaborate using their Nrf2-KO mice. It was a happy coincidence to open a novel research field of Nrf2!
LAB Orientation (LABO) for students from Tsukuba Life Science Innovation, Tsukuba University, Japan, and POster Presentations (POP)

JUKU Series #12

Debijit Mahanta
Introduction of the Upcoming DBT-APSC&ST Center of Excellence in Arunachal Pradesh, India