

2010 PSTA WINNER CITATIONS

PRESIDENT'S SCIENCE AWARD 2010



Professor Yoshiaki Ito
Cancer Science Institute of Singapore
Institute of Molecular and Cell Biology, A*STAR

“For his breakthrough discovery of the tumor suppressor roles of RUNX3 in gastric and colon cancers”

Prior to his move to Singapore, Professor Yoshiaki Ito was hailed as one of the famed discoverers of the RUNX “family” of genes in 1993. His team identified RUNX genes as developmental regulator genes deeply involved in carcinogenesis because the malfunction of such genes often induced cancer. In particular, RUNX1 was identified as having the function to protect hematopoietic stem cells from oncogenic insult and leukemogenesis, and RUNX2 as an essential gene for skeletal development.

Professor Ito’s research on RUNX genes continued to yield much fruit even after his move from Kyoto to Singapore in 2002. Building on his earlier findings, Professor Ito identified RUNX3 as a gatekeeper in colon and gastric cancer, and showed that the disruption of RUNX3 in gastrointestinal tract could induce a pre-cancerous state in the intestine and stomach. This landmark discovery proved that RUNX3 was an attenuator of Wnt signaling pathway, which was a well-known major oncogenic pathway that drove colon cancer development. As the mechanism of the attenuation, Professor Ito found that RUNX3 inhibited the DNA binding of TCF4/ β -catenin complex. The TCF4/ β -catenin complex was regulated by Wnt signaling and usually bound to DNA to activate its target genes to stimulate cell growth. His admirable work in cancer research has put Singapore firmly on the map.

Even so, Professor Ito’s contributions to cancer research in Singapore and the development of the country’s biomedical research scene are no less significant. His work in Oncology Research Institute (ORI) in National University of Singapore (NUS) Yong Loo Lin School of Medicine as the founding director helped to lay a solid foundation for the establishment of Cancer Science Institute of Singapore (CSI), a Research Centre of Excellence (RCE). Professor Ito also played an important role as one of the programme leaders in the Singapore Gastric Cancer Consortium, which was awarded the Translational and Clinical Research (TCR) Flagship Programme.

For his breakthrough discovery of the tumor suppressor roles of RUNX3 in gastric and colon cancers, Professor Yoshiaki Ito from the Cancer Science Institute of Singapore and Institute of Molecular and Cell Biology, A*STAR, is awarded the 2010 President’s Science Award.