

IMCB Invited Speaker



Speaker : **Prof. Jinrong Peng**
College of Animal Sciences, Zhejiang University, China

Date : 1 August 2012 (Wednesday)

Time : 11:00AM - 12:00PM

Venue : Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Host : Prof. Wanjin Hong

Seminar :

Digestive organ expansion factor: a nucleolar modulator of the p53- Δ 113p53 pathway

Def (Digestive organ expansion factor) is a novel nucleolar protein. Loss-of-function of Def (*def*^{-/-} mutant) leads to underdevelopment of the liver, exocrine pancreas and intestine in zebrafish due to cell cycle arrest rather than increased cell apoptosis. During the course of studying the molecular mechanism responsible for the *def*^{-/-} phenotype we identified the p53 isoform Δ 113p53 whose expression is aberrantly elevated in the *def*^{-/-} mutant. Detailed molecular characterization revealed that Δ 113p53 expression is directly regulated by p53 and Δ 113p53 specifically antagonizes the p53 apoptotic activity. Δ 113p53 is a counterpart of human p53 isoform Δ 133p53, suggesting that Δ 133p53 likely plays a fundamental role in the p53 pathway in human. In view of the facts that Δ 113p53 transcript level rather than p53 transcript level is highly elevated in the *def*^{-/-} mutant and Δ 113p53 expression is totally p53-dependent, two key questions need to be addressed: 1) what is the biochemical relationship between Def and p53? And 2) does Def function alone or by forming a complex with other proteins during digestive system development in zebrafish? Thus far, we have performed yeast two-hybrid screen and identified 16 putative Def-interacting proteins. Whole-mount in situ hybridization showed that expression of 15 of these genes is, as of the *def* gene, enriched in one or more digestive organs. Functional analysis of five genes via morpholino-mediated gene expression knockdown approach showed that morphants in all cases were defective in the development of the digestive system and exhibited a phenotype similar to the *def*^{-/-} mutant. Some of these Def-interacting factors (e.g RYBP) are known to be involved in the p53 pathway, therefore, we are in the process to link Def, p53 and Δ 113p53 for their function during digestive organ development in zebrafish.

About the Speaker :

Prof. Peng Jinrong earned his Bachelor Degree in Sichuan University, China in 1984 and Masters degree from Shanghai Institute of Biochemistry, Chinese Academy of Sciences in 1987. In 1990, he joined Department of Biochemistry, Fudan University as Assistant lecturer and researcher. He obtained his Ph.D. in 1993 from Molecular Genetics department of Cambridge Lab, John Innes Centre, UK and continued as a Higher Scientific Officer till 1999. He then moved to Functional Genomics Lab in Institute of Molecular Agrobiolgy, National University of Singapore and Institute of Molecular & Cell Biology as a Principal Investigator till 2008. He has been a Professor at College of Animal Sciences in Zhejiang University since 2009.