



STEM CELL SOCIETY
SINGAPORE

STEM CELL SOCIETY SEMINAR

22 November 2012, Thursday, Exploration Theatre, Matrix Building Level 4
30 Biopolis Street, Singapore 138671

PROGRAMME

5.00 - 6.00pm

Dr In-Hyun Park

Asst Prof, Dept of Genetics, Yale Stem Cell Center, Yale University School of Medicine

" Stepping Stones towards Pluripotency "

6.00pm onwards

Network Social (for Society members only)

Host

Jonathan Loh

ExCo Member, Stem Cell Society and Principal Investigator, Institute of Molecular and Cell Biology



SPEAKER

Dr. In-Hyun Park, *Asst Prof, Yale University*

Stepping Stones towards Pluripotency

Abstract

Embryonic stem cells (ESCs) have unique features of pluripotency and self-renewal. These features allow the potential use in regenerative medicine, study in development and drug screening. Many attempts have been made to generate ESC-like cells, which include cell fusion, nuclear transfer, use of germ-line cells and factor-based reprogramming. The recent Nobel Prize in Physiology and Medicine awarded to Dr. John Gurdon and Dr. Shinya Yamanaka emphasizes the importance of reprogramming in biomedical research. Dr. Gurdon's nuclear transfer research on frog showed a proof of principle that vertebrate genomes are maintained intact through developmental process and it is possible to convert the genomic state in differentiated cells into that in early embryo. Dr. Yamanaka's group ingeniously screened and found a combination of transcription factors that induce pluripotency in differentiated cells.

Cells produced in this manner are called induced pluripotent stem cells (iPSC). Since Dr. Yamanaka's seminal report of murine iPSCs in 2006, the competition in deriving first human iPSCs was very intense. Within a year or so, three labs reported human iPSCs simultaneously including Dr. Yamanaka's, Dr. Thomson's, and Dr. Daley's group in 2007. The simplicity in deriving iPSCs and a huge potential in using iPSCs in biomedicine caused an explosion of iPSC research. Deriving patient's specific iPSCs, modeling diseases using iPSCs, developing new methods of safe iPSCs, and investigating molecular mechanism of reprogramming have been performed by labs around the world.

Biography

Dr. Park received his B.S from Seoul National University at Korea, and Ph.D from University of Illinois at Urbana-Champaign in the field of Cell and Structural Biology. During his Ph.D training, he studied mTOR pathways regulating cell growth, and myogenic differentiation. He continued his research as a Post-doc fellow in Dr. George Daley's lab in Children's Hospital Boston, where he isolated one of the first human induced pluripotent stem cells (iPSCs) and investigated the epigenetic change during reprogramming process. He is now an Assistant Professor of Genetics and Yale Stem Cell Center at Yale University. As an independent investigator, he studies the basic molecular mechanism of reprogramming and investigates neurodevelopmental disorders using human iPSCs.