STEM CELL SOCIETY
SINGAPORE

STEM CELL SOCIETY SEMINAR

Wednesday, 01 June 2011

Aspiration Theatrette, Matrix Building Level 2M, 30 Biopolis Street, Singapore 138671

PROGRAMME

4.30 – 5.30pm

Dr Karl Tryggvason
Professor of Medical Chemistry, Karolinska Institute, Sweden

"Laminins as Extracellular Modulators of Cellular Behavior: Expansion of Pluripotent hES/iPS Cells from Single Cell Suspensions on Laminin Matrices"

5.30pm onwards

Network Social
Provided by Stem Cell Society Singapore

Network Social is only for Members of Stem Cell Society Singapore.
Non-members who wish to attend Network Social are welcome to sign up for membership at www.stemcell.org.sg/scss_membership.php.

Hosted By

Dr Steve Oh
Principal Scientist, Bioprocessing Technology Institute

STEM CELL SOCIETY
SINGAPORE

Dr Karl Tryggvason

"Laminins as Extracellular Modulators of Cellular Behavior: Expansion of Pluripotent hES/iPS Cells from Single Cell Suspensions on Laminin Matrices"

ABSTRACT

The laminins are a family of large basement membrane proteins that influence cell differentiation, adhesion, migration, and phenotype stability. They are trimeric glycoproteins that exist in at least 15 different chain combinations of a, b and g chains. Recently we showed that laminin-511 (a5:b1:g1), that is expressed by pluripotent human stem (hES) cells, alone can support long-term self-renewal of hES and iPS (hES/iPS) cells in a xeno-free cell culture environment (Rodin et al, Nat. Biotechnol. 2010). However, laminin-511 failed to permit stable survival of the cells after replating from single cell suspension. Recently, we have produced and characterized, recombinant human laminin-521, another laminin isoform expressed by pluripotent hES cells and a part of their natural niche. Laminin-521 was also shown to support self-renewal of hES cells in a completely defined, feeder-free and xeno-free cell culture system using TeSR2™ medium. Importantly, however, this laminin isoform allowed survival and expansion of pluripotent hES cells after plating from single cell suspension, and subsequent long-term self-renewal. The effects of laminin are mediated by interaction with integrin a6b1 via the PI3K/Akt signaling pathway.

BIOGRAPHY

Dr Karl Tryggvason, a specialist in clinical chemistry, received his MD and PhD at the University of Oulu in Finland. He spent 4 years as postdoctoral fellow and visiting professor in the USA, and was Professor of biochemistry at the University of Oulu prior to his move to Karolinska Institute in 1994, where he is presently a Professor of medical chemistry at the Department of Medical Chemistry and Biophysics. He is a member of the Nobel Assembly for Physiology or Medicine, and the Nobel Foundation Board of Trustees. Dr Tryggvason has made broad contributions to the characterization of the structure and biology of basement membranes and has identified the molecular basis of five genetic diseases, two of which are kidney diseases. He received the Kaitera Prize, Finland, in 1995, the Anders Jahre Prize, Oslo, in 1998, the Homer W. Smith Award from the American Society of Nephrology in 2000, and the Louis Jeantet Prize in Medicine, Geneva, in 2002. Dr. Tryggvason has authored or co-authored over 300 papers, and has more than 30 patents filed under his name. He is also the co-founder of BioStratum Inc. and NephroGenex Inc.