



STEM CELL SOCIETY
SINGAPORE

STEM CELL SOCIETY SEMINAR

Wednesday 8 June 2011 • Aspiration Theatre, Matrix Building Level 2M,
30 Biopolis Street, Singapore 138671

PROGRAMME

4.30 - 5.00pm

Dr Vaijayanti P. Kale

Senior Scientist, National Centre for Cell Science, India

“Stromal Cell Biology: Creation of in vitro niche (IVN) to Modulate Stem Cell Functions”

5.00 - 5.30pm

Dr Prabha Sampath

Principal Investigator, Institute of Medical Biology, Singapore

“Targeting Glioblastoma Stem Cells by Sequence-specific Functional Inhibition of Pro-survival OncomiR”

5.30pm onwards

Network Social

Provided by Stem Cell Society Singapore

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 Vivek Tanavde

Principal Investigator, Bioinformatics Institute, Singapore

SPEAKER

Dr Vaijayanti P. Kale

Stromal Cell Biology: Creation of In Vitro Niche (IVN) to Modulate Stem Cell Functions



Abstract

Hematopoietic stem cells are regulated by intrinsic as well as extrinsic mechanisms. The principal extrinsic elements that are operative in this process emanate from the stromal compartment in the form of active signaling processes that are evoked as a consequence of either direct cell-cell contact, cell-ECM contact or via soluble mediators. However, the system is so complex and several features are so overlapping that it becomes almost impossible to correlate any specific niche-signal with its effect on the HSC function(s) on "one to one basis".

The research program in my lab is focussed on stromal cell-mediated regulation of HSC fate. Our data indicate that it is possible to modulate the stem cell functions by creating specialised in vitro niches (IVNs) using various approaches. These IVNs provide physiologically relevant cellular platform to study the HSC-niche interactions

Biography

Dr. Mrs. Vaijayanti P. Kale is a senior scientist in National Center for Cell Science (NCC) – a premier institute funded by the Department of Biotechnology, Government of India. Dr Kale completed her doctoral degree from the University of Mumbai through Cancer research institute, Mumbai. After completing her post doctoral work in CDC/MSM, Atlanta, USA, she joined NCCS as a stem cell researcher in 1989.

Dr. Kale's research is focused on identifying intrinsic as well as extrinsic mechanisms that are involved in the regulation of stem cell fate. She has developed an in vitro system to create artificial bone marrow-like environments (ABME) that can be used to positively regulate stem cell functions for their downstream applications. An international patent has been filed on this system in several countries including Singapore. Using hydrogel-based three dimensional cultures of mesenchymal stem cells she has developed equivalents of HSC-niche in vitro (IVNs) to study niche-function in vitro.

Dr. Kale has several publications in the field of stem cell research. She is an associate editor of the international journals "Stem Cells and Development" and "InSciences journal". She is a recognized guide for Ph.D. in Biotechnology from the University of Pune and also an active member of international stem cell societies like ISSCR and ISEH.

SPEAKER

Dr Prabha Sampath



Targeting Glioblastoma Stem Cells by Sequence-specific Functional Inhibition of Pro-survival OncomiR

Abstract

Glioblastoma is an aggressive and diffusely infiltrating brain tumor. Glioblastoma stem cells (GSCs) are a sub-population of cells in the tumor that are intrinsically resistant to therapy and are suggested to be critical for glioma invasiveness. Alteration in microRNA expression is linked to initiation and progression of glioblastoma. Sequence-specific functional inhibition of microRNA signature of GSCs impedes GSC survival and tumor growth. This microRNA promotes gliomagenesis by targeting transcriptional repressors, pro-apoptotic genes and tumor suppressors acting as a potential pro-survival oncomiR. Elevated expression of pro-survival oncomiR suggests that, it is not only a biomarker, but also a promising therapeutic target for glioblastoma treatment.

Biography

Trained at the Lerner Research Institute, Cleveland Clinic Foundation in United States, Prabha Sampath studied gene regulation during inflammation. She elucidated RNA and protein factors comprising major pathways in inflammation. At the Center for Cardiovascular and Regenerative Medicine, University of Washington, she investigated how a network of translational regulators, control global and selective protein synthesis during stem cell differentiation. This line of study has led to new insights into translational control and stem cell differentiation.

Dr. Sampath is currently pursuing research into post-transcriptional regulation of stem cell differentiation, with a particular focus on its relevance to neuronal and cardiac development. Dr. Sampath is committed to cutting-edge biomedical research and her innovative work is highly recognized as evidenced by outstanding publications and multiple awards.

Dr. Sampath is the recipient of a prestigious A*STAR Investigator award (2007), and she joined the IMB to set up her own research group in May 2008.