37th Stem Cell Club Meeting

(Organised by the Stem Cells Research Singapore Website Committee http://www.stemcell.edu.sg)

Date: July, 17th, 2008 (**Thursday**)
Time: 5:30 pm
Venue: Breakthrough, Level 4, Matrix

Host: Robert Zweigerdt

Time	Title	Speaker
5:30-6:30	**Myocardial restoration using stem cells and tissue engineering technology: from vision to mission**	***Theo Kofidis*** *Department of Surgery, NUS, NUH*
6:30 -	**Wine and Cheese (at Invitrogen facilities, 4th floor Chromos)**	

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Myocardial restoration using stem cells and tissue engineering technology: from vision to mission

A/Prof. Theo Kofidis, MD, PhD, FRCS(CT, Sg), FAHA, NUS, NUH

Myocardial restoration aims at support of heart structure and function by means of stem cell- and bioartificial tissue transfer. However, the exact mechanisms of graft integration in the diseased myocardium are not understood and mostly speculated upon. In this presentation we will address the initial vision of myocardial restoration and ways to redefine and adjust its mission, in more precise and evidence-based steps.

The original hype around stem cells and myocardial restoration is viewed with caution today, due to unclear issues, such as post-implantation cell death, stem cell- related complications (arrhythmia and tumor formation), unknown immunology response and neglect of the unique geometry of the heart. There is uncertainty pertaining to the optimal type of cell and route of administration. Furthermore most bioartifical tissues constructed for heart muscle replacement do not reproduce nature with the highest possible fidelity, since they are symmetric, isotropic and too thin to adapt to the requirements posed by the diseased left ventricular wall. Embryonic stem cells, albeit regenerative, seem to induce and immune response (which will be strongly addressed here) which has to be addressed therapeutically. Structural aspects of myocardial restoration will be addressed and unpublished data on impact of restorative grafts on myocardial mechanics will be discussed.
Finally latest developments will be addressed; such implications of nanotechnology, drug delivery systems in conjunction with myocardial restoration, and novel inventions with dual (viability- and structure-support to the target myocardium and other organs) will be put to discussion.