

Introductory Talks by New Researchers @ BioSyM 10 Oct 2016 – 19 Dec 2016

Demystifying Adipogenesis: Role of the microenvironment in stem cell differentiation

Dr. Vipra GUNETA



Date: 07th November 2016, Monday
Time: 12 pm to 1 pm
Venue: Perseverance Room, Enterprise Level 5

Abstract

Injury signals in the body mobilize the stem cells from their niche, which in turn bring about regeneration. At this point, the stem cells can undergo self-renewal, differentiation, quiescence or apoptosis as a result of their interactions with the extracellular matrix (ECM), neighbouring cells and various soluble factors. The cells in turn secrete, degrade and remodel the ECM around them to regenerate tissues. This two-way relationship between the stem cell fate and ECM is explored in our studies. Plastic surgery waste adipose tissue was studied in terms of their stem cell population, i.e. adipose tissue-derived mesenchymal stem cells (ASCs) and the native microenvironment or ECM of the tissue itself. Mesenchymal stem cells that are commonly derived from the bone marrow are capable of self-renewal and differentiation into the adipogenic, osteogenic and chondrogenic lineages. Cells from the adipose tissue were explored in terms of their properties and applications in soft tissue engineering.

Short Biography

Vipra joined SMART-BioSym in September 2016 as a postdoctoral associate in Krystyn's group. She has recently graduated from the School of Material Science and Engineering at Nanyang Technological University, Singapore. Her research interests include mesenchymal stem cells and their niche, tissue engineering, cell-material interactions and the extracellular matrix. Her current work in SMART involves studies of the heterogeneity in bone marrow mesenchymal stem cell populations.