

# Tissue Engineering, Stem Cells and Regenerative Medicine

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### Matrix microenvironment mediated fate determination of stem cells


Adult stem cells are a promising cell source for tissue regeneration. Due to the limited size of biopsy which provides small amount of stem cells, *ex vivo* expansion is necessary for acquiring a large quantity of stem cells with differentiation capacity. Unfortunately, *in vitro* expansion in 2D renders the cells senescent. Recently, decellularized extracellular matrix provides a 3D matrix microenvironment to efficiently expand tissue-specific stem cells for tissue engineering and regeneration. This matrix microenvironment can not only promote stem cell proliferation capacity but also determine lineage preference of adult stem cells. Despite the

necessity for further in-depth investigation, this 3D matrix might bring the potential for future tissue engineering and regeneration.

#### Speaker Biography

Ming Pei completed his PhD from Beijing University, China and postdoc training from Harvard-MIT Division of Health Sciences and Technology, USA. Currently, he is a tenured professor and director of stem cell and tissue engineering laboratory in the Department of Orthopaedics, West Virginia University, USA. He has over 100 publications that have been cited over 3100 times and his publication h-index is 32 and has been serving as an editorial board member of reputed Journals.

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