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Environment: A key role player in predisposition to disorders at macro and microscale

Archana Swami Harvard School of Public Health, USA

Our environment (macro- and micro- scale) transmits the signals that integrate at the tissue and cellular level to govern the general health and predisposition to disorders. In cells, the regulation of gene expression by DNA methylation and histone acetylation is an important example to reflect the significance of environment over genotype. A better understanding of the mechanism of this translation will be advantageous in speculation of disease predisposition and creating better treatment options. For example, studying the impact of noise exposure in occupational setting to induce hearing loss is significant concerning the public health. Furthermore, it is important to understand how at tissue level, the modulation of the cellular microenvironment impacts the disease progression. In another example, we studied the role of bone microenvironment in cancer progression. As tested in multiple myeloma in mice model, where bone targeted nanoparticles strengthened the bone tissue to make the bone tissue resistant to homing of cancer cells.

Biography

Archana Swami completed her PhD in Biotechnology at Institute of Genomics and Integrative Biology, Council of Scientific and Industrial Research (CSIR), India and was honored the degree of PhD from Department of Biotechnology, University of Pune, India (2009), with a prestigious fellowship for 5 years (Research Fellow, CSIR, India). Thereafter, she worked as a Postdoctoral fellow at Brigham and Women's Hospital with the groups of Dr. Omid Farokhzad, at Harvard Medical School and, Robert Langer, at The David H. Koch Institute for Integrative Cancer Research, MIT. Her long term goal is to make use of the skill sets obtained in past, to serve the community and give her part in creating better understanding of disease mechanism, giving novel therapeutic targets. Currently, she is working at Harvard School of Public Health, and is studying to resolve the understanding on how environmental exposure impacts health outcome and this information is translated in the genes.

mukherjee.archana@gmail.com