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WORKSHOP

Debabrata (Dev)Mukhopadhyay, Clin Pharmacol Biopharm 2018, Volume:7
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Debabrata (Dev) Mukhopadhyay
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Anti-angiogenesis therapy and Immune crosstalk: Clinical conundrums and optimisms

Angiogenesis, the formation of new capillaries, is an essential process in many physiological and pathological events. In cancers, new vasculature promotes tumor growth and metastasis. Vascular permeability factor/vascular endothelial growth factor (VPF/VEGF) has been implicated in the new vessel development found in most tumors including GI related tumors, renal cell carcinoma, brain cancer and also hematological malignancies. Several groups including ours have been investigating decades regarding the regulatory role of VPF/VEGF to elucidate the mechanisms by which this important pro-angiogenesis cytokine functions in a variety of tumor models. Based on those studies there are several anti-angiogenesis drugs are now in clinics to treat cancer patients and other vascular diseases. However, our recent experiences in clinics and also results from different laboratories suggest that therapy with anti-angiogenesis drugs frequently does not extend survival of cancer patients for more than months, because tumors elicit elusive resistance. In addition, some reports propose that VEGF inhibitors reduce primary tumor growth but promote tumor invasiveness and metastasis. On the other hand, like angiogenesis, escaping immune destruction is also an important hallmark for cancer progression and metastasis. Currently several immune checkpoint inhibitors have been approved by FDA to treat different type of cancer patients however there are several gaps need to fill in related to the basic understanding of those inhibitors' function that might improve the overall clinical outcome. Recent works suggest that VEGF is one of the factors playing a key role of the success of the immune therapy. In this regard, the current lecture will focus how immune therapy can cross talk with VEGF pathways and some thoughts regarding new direction of anti-angiogenesis therapy and anti-tumor immune escape and selective targeting to best treat cancer patients in the near future.

Biography

Debabrata Mukhopadhyay is a Professor of Biochemistry and Molecular Biology, Mayo Clinic, Rochester, MN, has a joint appointment with the Department of Physiology and Biomedical Engineering and Associate Director of Mayo Clinic Comprehensive Cancer Center for Global Alliances. He has a broad background in tumor microenvironment, with specific training and expertise in key research areas including Cancer, Cardiovascular Diseases, and Diabetes. As a Post-doctoral fellow, later as an Independent Investigator followed by as an Associate Professor at Harvard Medical School, Boston, he carried out angiogenesis and tumor microenvironment related research. After moving to Mayo Clinic as a Professor and also as Directors of both Tumor Microenvironment and Nanomedicine programs, he has been supervising additional research areas including stellate cell biology, new drug delivery systems and trained several young investigators who are now independent faculties in different institutes. Recently, he has received a Tumor Microenvironment Training Grant (T32) from National Cancer Institute. Additionally, he has initiated the biannual Mayo Clinic Angiogenesis and Tumor Microenvironment Symposium, which has been widely attended by international and national scientists and also Mayo Clinic and University of Minnesota Nanotechnology workshops. He has been serving as reviewer for several study sections in NIH, and also international funding agencies and also participating as Editorial Board Member of well received journals including *Cancer Research and Nanomedicine*

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SCIENTIFIC TRACKS & ABSTRACTS

DAY 1

Hetal Thakkar, Clin Pharmacol Biopharm 2018, Volume:7
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Hetal Thakkar
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Microneedles: A painless approach for enhancement of transdermal drug delivery

Microneedles may be defined as needles that are 10-2000 microns in height and 10-50 microns in width. They are available in the form of an array, which consists of a plurality of micron-sized projections typically assembled on one side of a supporting base or patch. Microneedles are the sharp and short needles used for enhancement of transdermal permeation of drugs. Due to their short length, upon application, they do not touch the nerve endings and hence are devoid of pain. Different types of microneedles reported to enhance the transdermal permeation are solid MN, coated MN, hollow MN and dissolving MN. Various materials ranging from metal, silicon, glass, sugars and polymers-biodegradable and non-biodegradable have been used for fabrication of microneedles. The present paper aims to highlight the importance and application of various types of microneedles in transdermal drug delivery. The advantages and disadvantages of the different types of microneedles would be discussed. Depending upon the material used for fabrication, microneedles may be employed for rapid release or sustained release of drug. Microneedles are particularly useful for delivery of biopharmaceuticals like hormones, peptide and protein delivery. A case study involving the use of microneedles for enhancement of transdermal penetration of a drug will be presented.

Biography

Hetal Thakkar is currently working as Assistant Professor at The Maharaja Sayajirao University of Baroda.

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