2nd World Congress on

Bio Summit & Molecular Biology Expo

October 10-12, 2016 Dubai, UAE

Keynote Forum

(Day 1)

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Renata Pasqualini
University of New Mexico Health Sciences Center, USA

Ligand-directed targeting and molecular imaging based on vascular zip codes revealed by *in vivo* phage display

We have developed in vivo phage display, a functional peptide and antibody screening established in animal models and later in patients, to isolate homing ligands and enable subsequent identification of tissue-specific receptors. Systematic implementation of this strategy advanced the construction of a comprehensive map of vascular markers in each organ, tissue or disease. Indeed, our pioneering discoveries of tissue-specific and angiogenesis-related receptors (vascular "ZIP codes") may lead to a new ligand-directed pharmacology. Over the last few years our efforts have been focused on characterizing the vascular diversity associated with individual cancer patients using antibody-based drug discovery in a precision medicine context and optimizing targeted nanoparticles for drug delivery without off-target toxicity. These new programs represent fertile ground for discovery and drug development.

Biography

Renata Pasqualini is the Professor of Medicine and Cancer Experimental Therapeutics, Associate Director for Translational Research and Chief of the Division of Molecular Medicine at the University of New Mexico Comprehensive Cancer Center. She has received her PhD from the Ludwig Institute for Cancer Research and did Postdoctoral training at Harvard Medical School and at the Burnham Institute in La Jolla, CA. In addition to her activities as the Principal Investigator and Head of a large research laboratory, first at the University of Texas MD Anderson Cancer Center and presently at the University of New Mexico Health Sciences Center, she serves as a Board Member, Reviewer and Chair in multiple review panels for the National Institutes of Health, the Department of Defense, the Department of Energy along with several other American, Asian and European Foundations that support basic and clinical research. She is a Referee for several top journals featuring cutting edge research and technology and has published over 200 papers.

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Giuseppe Mucci
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Mesenchymal Stem Cells from potential risk of tumor to specific anti-tumor therapy

The use of expanded mesenchymal stem cells followed a path of its own, peculiar but not unique in medical history. Over less than ten years, it went from being negatively labelled as potentially tumorigenic, to being positively hailed as a candidate for new antitumor therapies in the near future. Mesenchymal stem cells (MSC) are indeed among the main candidates for the treatment of specific malignant tumors thanks to their intrinsic immunomodulation and antitumor capabilities. One of their most interesting features is the tropism directed against the tumor itself, supporting the transport of antitumor agents and genes directly into the tumor site. Before the scientific community officially acknowledged such capabilities and their potential in anticancer therapies, over the last decade several researchers have doubted the biological safety of expanded MSC. New studies later confirmed the antitumor effectiveness of MSC, which is particularly significant against specific tumors. Such feature, which obviously requires further investigation, depends on the source of origin of MSC, on the dose used, on the stage and on the nature of the tumor itself Obviously, identifying and selecting the tumors more responsive to MSC treatments is the key for a successful cellular therapy. Genetic studies have recently shown the existence of tumor-specific markers which can be used to identify the types of tumors that can be treated with MSC. Some genetic markers can be used to effectively monitor the response to some treatments (EGFR, BRAF, KRAS, NRAS, BRCA2, melanoma, lung, breast and colon-rectal cancer) and the potential onset of post-therapy resistance, thus allowing the development of specific antitumor therapies through stem cells.Besides, MSC can be modified to express or release multiple antitumor agents, thus overcoming the limitations linked to the half-life and the biological transformation typical of many chemotherapy drugs. This is why MSC have been tested as vectors for a more selective delivery of therapeutic agents such as p53 gene, oncolytic viruses, chemotherapy drugs or specific cellular factors, such as pigment epithelium-derived factors, *interleukin* 12 and interferon beta. Many of these therapies release substances and induce the death of the vector cell, thus reducing complications linked to stem cells mutation. If the death of the cell can not be induced, it is possible to introduce suicide genes which will cause the cell to kill itself. Even if details still need to be fully defined, the tropism of MSC against tumors clearly involves multiple chemokine-receptor pairs. So, MSC can suppress metastasis and inhibit tumor progression by regulating the expression of cancer suppressor genes, inducing cell cycle arrest, inhibiting angiogenesis, and stimulating the action of Natural Killer cells and of the molecules controlling cellular renewal and differentiation.

Biography

Giuseppe Mucci has graduated in Movement Science at Faculty of Medicine in Urbino, Italy. He is a Professor of Bio-Economy at the University of Lugano, Switzerland and Advisory Board Member of the University Roma Tor Vergata. He has established Bioscience Institute in San Marin, Italy in 2006 and Bioscience Clinic in Dubai UAE in 2013, those facilities are Regenerative Medicine compound (Cell Factory and Clinic) specialized in autologous Stem Cells Therapies. In 2014 he created the University spin-off Bioscience Genomics in Milan and Rome.

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Mark G Bloom
Sidra Medical and Research Center, Qatar

Academic Technology Transfer in the Middle East: A Focus on Open Innovation

Over the past two decades, biomedical knowledge has grown exponentially, giving us completely new insights into how life works. Astonishing advances in genomics, bioinformatics, imaging and stem cell medicine are offering up possibilities that were unimaginable just a few years ago. New tools that will allow us not only to heal disease but to also predict it and prevent it are finally within our reach. This is more than just a revolution in science and health care; it is a revolution in the human condition. However, because of regional and international economic changes and uncertainties, core systemic financial support for basic research is decreasing or becoming more competitive to obtain, especially for younger researchers at a time when the pace of biomedical innovation and its concurrent translational development and adoption should be increasing to address unmet health care needs. What can we do in view of this new (fiscal) reality? Expertise, experience, resources, and technology must be cross-linked in entirely new ways to establish even more efficient and effective collaborative public-private partnerships to accelerate the advancement of biomedical science. The adoption of "open innovation" programs and platforms could be an important step in attaining this goal, while such an initiative would be especially useful in the MENA Region given its unique characteristics. The benefits and various key challenges of adopting an "open innovation" project in an academic medical center setting will be discussed in this presentation.

Biography

Mark G Bloom is the Director of the Office of Technology Transfer and is responsible for leading the long-term growth of Sidra's technology transfer program. In addition to the traditional duties of overseeing Sidra's intellectual property rights portfolio, he is responsible for developing technology transfer and intellectual property rights management strategies that support Sidra's mission to become a world-class academic health center focusing on women's and children's health. Sidra expects to become a regional leader in moving innovation and research to the commercial marketplace and is looking to its Office of Technology Transfer to play a leading role in realizing that goal.

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