

Personalized Therapy in Oncology: Progress, Challenges and Opportunities

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Despite significant increases in the numbers of people surviving cancer, there yet exists a vast rift in the number who die each year despite treatment. It remains one of the most challenging diseases to treat, in part, due to the heterogeneity of the malady.

Most cancers originate as a single cell, and thus monoclonal in origin, however, due to innate genetic instability of subsequent cell generations, new characteristics create a heterogenic disease well-defined by genetic clonal expansion epigenetic changes.

However, tumors cells are not the only contributors to tumor heterogeneity. There exists a reciprocal and dynamic interaction between the microenvironment constituents, such as infiltrating cells, and juxtapositioned matrices and cells, to produce a distinct individualistic tumor phenotype.

The clinical relevance is that this tumor heterogeneity contributes significantly to the efficacy of drug therapy and therefore imparts considerable inter-individual variation in pharmacotherapy and clinical response to a myriad of medications. Thus, this divergence underscores the necessity to *personalize* therapeutic regimens.

This oration, tersely, but-to-the-point, edifies the progress, challenges and opportunities for personalized medicine in oncology.

Biography:

Dr. Sherry Bradford attended undergraduate school at SUNY at Buffalo and was awarded a full tuition scholarship to pursue her PhD graduate degree (Biochemistry) from the University of Buffalo/ Roswell Park Cancer Institute Division of SUNY at Buffalo School of Medical and Biomedical Sciences.

During her clinical laboratory vocation, she was solicited by the Chief of Surgery at Millard Fillmore Hospital, Buffalo, NY, to direct the Surgical Research laboratory. There she successfully led the research on the use of human microvascular umbilical cord endothelium for lining stents. She was further awarded the "1st Place - Award for Excellence in Research" from the American Federation for Clinical Research, and the "1st Place - Award for Excellence in Research" – SUNY at Buffalo, Roswell Park Cancer Institute Research Forum.

In 2008, Dr Bradford and colleagues form AccuTheranostics and the idea of Oncology Personalized Medicine (PM) based on the specific patient's own biochemical and genetic profile to administer personalized treatment regimens. An in vitro chemosensitivity test on tumor cells, using flow cytometric methodologies, was developed and is currently being evaluated by the NYS-DOH for clinical utility. At present, the research division of AccuTheranostics is in the throgs of developing at least 3 novel PM assays for translation into clinical status.

Dr. Bradford sits on the EDITORIAL BOARD of the *International Journal of Medical and Health Sciences Research*; on the EDITORIAL BOARD of *Insights in Cancer Research*, Editorial Board Member (Editor-in-Chief) for the Scientific Federation of Oncology & Cancer: Editorial Board Member of the Journal of Biomolecular Research and Therapy; and has authored and co-authored a number of scientific peer-reviewed manuscripts.

She is also a member of many professional organizations including (but not limited to): International Metabolic Cancer Group, AACR, ASCO, and GLIFCA.

She has been and will be an invited speaker at various domestic and international scientific meetings including: Invited Speaker: Proceedings of the 6th Int'l Conf on Frontiers of Polymers and Adv Materials, Recife, Brazil, March 2001; Key Note Speaker: Cancer Science 3rd World Congress Oct. 21, 2013 – San Francisco, CA; Plenary Speaker, Cancer Science 4th World Congress: Valencia, Spain, Sept. 1-3, 2015; International Expert and Key Note Speaker: INDO-GLOBAL HEALTHCARE SUMMIT & EXPO 2014, Hyderabad, India from July 23-26, 2015; Key Note Speaker: Dubai, United Arab Emirates, Aug 27-29, 2015; Keynote Speaker Gynecologic Oncology, May 19-21, 2016, San Antonio, Tx. This Year (2017) Keynote Speaker in Rome, Portugal, Dubai, Chicago, San Francisco and Philadelphia.

Dr. Bradford also holds one patent: U.S. Patent No. 6485714, Published Patent - Serial No./Application No. 10/340,858, and 3 – patents pending (2017).