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The practical influence of tumor genomic heterogeneity on active specific immunotherapy

At the cellular level it is clear that cancer is a genetic disease arising as a clone that expands and grows in an unregulated manner. While it has always been presumed that neoplasia is a consequence of somatic cell mutations, only in the last few years has the magnitude and diversity of these mutations been elucidated by modern DNA sequencing technology. Immunotherapy is the premier biological approach to targeted therapy. Targeted therapies require targets. In this case the targets are tumor specific or associated antigens, the proteins expressed from these somatic cell mutations. While the immunotherapeutic approach to eliminating cancer was launched with the assumption that cancer cells were homogeneous, the recent genomic understanding of tumor cells indicates that there is both inter- and intra-tumoral heterogeneity. You cannot treat a heterogeneous disease with a hemogeneous treatment. This presentation will discuss the consequences of this new knowledge of tumor cell biology to the immunotherapeutic approach to treating cancer.

Biography

Michael G Hanna is a co-founder of Vaccinogen, Inc., the discoverer and developer of OncoVAX, Vaccinogen's lead project, and a pioneer in the field of cancer vaccines. He also developed and obtained FDA approval for TICE BCG for treatment of carcinoma in situ ("CIS") bladder cancer which remains the standard of care for prophylaxis of recurrence of superficial bladder cancer and therapy of CIS. He has not only proven his capabilities as discoverer and developer of clinically beneficial biotherapeutics, but also has raised over $300 million for the final clinical development of OncoVAX. As the Director of the National Cancer Institutes, Frederick Cancer Research Center, between 1975-1983, he created a center of research excellence and managed over 2, 000 technologists consisting of hundreds of MDs and PhDs. He previously served as Chairman (Emeritus) and Chief Scientific Officer of Intracel Resources, an integrated biopharmaceutical company that developed cancer vaccines and immunotherapeutic and diagnostic products for both cancers and infectious diseases. He also served as President and Chief Executive Officer of PerImmune, Inc. before it and Intracel Corp. merged in 1998. From 1985 to 1994, he was the Chief Operating Officer of Organon Teknika Biotechnology Research Institute and Senior Vice President of Organon Teknika Corporation, a subsidiary of Akzo Nobel, N.V., The Netherlands. Prior to that, he was Director of the National Cancer Institute, Frederick Cancer Research Center. He received a Doctoral degree in experimental pathology and immunology from the University of Tennessee. He has over 225 publications to his credit, has 10 patents in immunotherapy and has been the recipient of numerous honors.

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