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A key to the back door of the castle: The clinical ramifications of immunoediting driven by antigenic competition

Over the last decade, the field of cancer biology has gained considerable data on genomic heterogeneity. This situation creates challenges and possible opportunities for cancer treatment. The evolution of the tumor at all stages also requires the growing malignancy to confront and avoid the immune system. What we describe here is the interaction of two immune phenomena that work together to change the characteristics of the tumor, i.e., antigenic competition and immune editing. These two systems are mutually functional and their interaction is capable of altering the characteristics of the tumor for protection and survival in an immune competent host as well as restricting the diversity of the tumor clones. Therefore, the final outcome of these interactions can also become the key to the back door of the castle. Through an additional immune manipulation, autologous tumor cell immunization, we can achieve prevention of disease recurrence after surgical resection and by analyzing induced human monoclonal antibodies to the neoantigens, gain in site into the restriction of the diversity of the mutant clones. These findings may also open the door for a pathway to the immune prevention of 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. A special committee of the National Cancer Advisory Board selected him for the above responsibilities. 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, NV, 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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