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PERSONALIZING CANCER TUMOUR ANTIGENS

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Immune system can react to cancer cells in two ways, by reacting against tumor-specific antigens, molecules which are unique to cancer cells or against tumor-associated antigens; molecules are expressed differently by cancer cells and normal cells. Immunity to carcinogen-induced tumors in mice is directed against the products of unique mutations of normal cellular genes. These mutant proteins are tumor-specific antigens. Tumors caused by viruses display viral antigens that serve as tumor antigens. Examples are the products of the *E6* and *E7* genes of the human papillomavirus, the causative agent of cervical carcinoma, and EBNA-1. Most recently, we have developed evidence for a powerful immunodominance effect that occurs between different tumor antigens and have identified what appears to be a unique mechanism by which at least some forms of immunotherapy induce tumor specific destruction. Tumors of unknown cause which account for most human tumors express antigens that the immune system can recognize remained in doubt until the development of methods for detecting and isolating them. The advent of hybridism technology led to the development of monoclonal antibodies from mice that were immunized with human tumors. Monoclonal antibodies that reacted specifically with tumor cells were then used to characterize putative human tumor antigens. However, there were doubts that the tumor-specific antigens that mouse monoclonal antibodies could detect would perceived by the human immune system. The evolution of methods to cultivate human T cells, and in particular tumor-specific T cells from patients with cancer, led to an important breakthrough, the identification of *MAGE-1*, a melanoma-specific antigen that stimulates human T cells *in vitro*. With antigen-specific T cells as a reagent, it was possible to clone the *MAGE-1* gene. The *MAGE-1*studies showed that the human immune system can respond to tumor antigens, and the findings stimulated a productive effort to discover tumor antigens. The result is a long and still-growing list of antigens from a variety of tumors that could serve as targets for treatment.

Biography

George Kunudji has attained his PhD from the University of Ghana, Legon and Postdoctoral studies from University of Ghana Medical School. He is the Director of Bikbok Herbal Centre, a reputable herbal organisation that is dispensing services across the country, Ghana and currently discovered herbal antidote to the treatment of cancer tumour. Moreover, he has been serving as the Chairman of the health advocacy group of Asuboa Traditional Council and Nifahene (Nifa chief) of Asuboa Traditional Area.

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