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Semiallogenic vaccines for the treatment of cancer and neurological disorders

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Recently, interest in semiallogeneic vaccines has been increasing, as shown by the publication of successful preclinical and clinical studies by us and others that validate this immunotherapeutic approach to cancer, viral diseases such as the acquired immunodeficiency syndrome and neurological diseases. These reports indicate that treatment with semiallogeneic vaccines can induce a specific immune response against various tumors and against the human immunodeficiency virus. Experimental studies using inbred mice and their syngeneic tumors initially established that 1) inoculation of semiallogeneic cell hybrids (derived from the fusion of syngeneic tumor cells with an allogeneic cell line) protects the animal host from subsequent lethal challenges with unmodified syngeneic tumor cells; 2) adoptive transfer of immunity required T lymphocytes; and 3) the enhanced immunity was not the result of an allogeneic effect per se, because the tumor-associated antigens and alloantigens needed to be on the same cell (the hybrid). Human studies with semiallogeneic cell hybrids have focused on the use of therapeutic vaccines for cancer. Because of the many technical problems associated with obtaining sufficient amounts of autologous tumor cells for the preparation of patient-specific cancer vaccines, and because of evidence that allogeneic effects may enhance the antitumor immune response, it seemed reasonable to combine the best of both approaches (autologous and allogeneic), because semiallogeneic hybrids focus allorecognition and major histocompatibility complex self-restricted recognition on the same cell and, therefore, in the same microenvironment. Our studies demonstrate the feasibility of using semiallogenic vaccines to treat a variety of tumors and neurological disease.

Biography

Dr. Kindy received his Ph.D. from Boston University School of Medicine in Biochemistry and was a post-doctoral scholar at the Salk Institute in La Jolla in molecular biology and virology. He is a professor of neurosciences at the Medical University of South Carolina and Career Research Scientist at the Ralph H. Johnson VA Medical Center. He has published over 130 papers in excellent journals and serves on several editorial boards and study sections.