

**The George Washington University
Institute for Biomedical Engineering**

**Colloquium
March 26th, 2008 at 12:30pm
Room 736 Academic Center**

Engineering Vaccines and Immunotherapies for Cancer

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Cancer vaccines represent a long sought after fourth therapeutic modality for the treatment of cancer. Advantages of cancer vaccines include low toxicity, lack of vulnerability to drug resistance, and long term immunologic memory to maintain durable responses. Unfortunately, no current therapeutic cancer vaccine can consistently control tumors or improve patient survival.

Despite recent advances in cancer vaccine research regarding tumor-associated antigen discovery, immune assay development and tumor escape mechanisms, the development of novel delivery systems has been largely neglected. The underlying hypothesis of our research is that appropriately engineered cancer vaccine and immunotherapy delivery platforms can control the immunological context and distribution of vaccines in order to achieve robust anti-tumor responses.

By using biomedical engineering concepts in transport phenomena, biomaterials, nanotechnology and drug delivery, we have developed two novel, translatable cancer vaccine and immunotherapy delivery platforms. The efficacy of these platforms in multiple models of cancer will be discussed. In addition, the application of engineering principles in translational cancer immunotherapy will be highlighted.

BIO: Dr. Zaharoff received his B.S. in Mechanical Engineering from the University of Illinois-Urbana-Champaign and his Ph.D. in Biomedical Engineering from Duke University. Presently, he is Ruth L. Kirschstein Postdoctoral Fellow in the Laboratory of Tumor Immunology and Biology at the National Cancer Institute. Dr. Zaharoff conducts interdisciplinary research on the development of translatable cancer vaccine and immunotherapy delivery systems.

A pizza lunch will be provided.