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Educations

1997 B.S., Chonnam National University, Gwangju, Korea
1999 M.S., Korea University, Seoul, Korea
2005 Ph.D., Chonnam National University, Gwangju, Korea

Professional Background

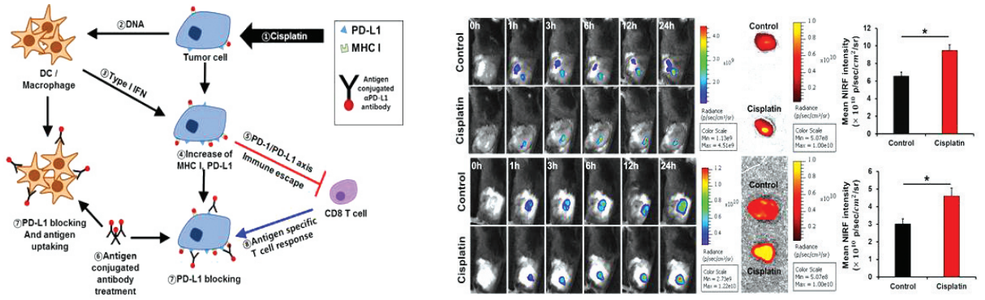
2013-Present Assistant Professor: School of Medicine Konkuk University
2008-2013 Post doctoral fellow: School of Medicine Johns Hopkins University.
2006-2008 Research Assistant professor: School of Medicine Korea University
2005-2006 Post doctoral fellow: School of Medicine Korea University

Top 5 Publications

- **Kang TH**, Kim YS, Kim S, Yang B, Lee JJ, Lee HJ, Lee J, Jung ID, Han HD, Lee SH, Koh SS, Wu TC, Park YM. Pancreatic adenocarcinoma upregulated factor serves as adjuvant by activating dendritic cells through stimulation of TLR4. Oncotarget. 2015 Sep 29;6(29):27751-62
- **Kang TH**, Mao CP, Lee SY, Chen A, Lee JH, Kim TW, Alvarez RD, Roden RB, Pardoll D, Hung CF, Wu TC. Chemotherapy acts as an adjuvant to convert the tumor microenvironment into a highly permissive state for vaccination-induced antitumor immunity. Cancer Res. 2013 Apr 15;73(8):2493-504
- **Kang TH**, Ma B, Wang C, Wu TC, Hung CF. Targeted coating with antigenic peptide renders tumor cells susceptible to CD8(+) T cell-mediated killing. Mol Ther. 2013 Mar;21(3):542-53
- **Kang TH**, Noh KH, Kim JH, Bae HC, Lin KY, Monie A, Pai SI, Hung CF, Wu TC, Kim TW. Ectopic expression of X-linked lymphocyte-regulated protein pM1 renders tumor cells resistant to antitumor immunity. Cancer Res. 2010 Apr 15;70(8):3062-70
- **Kang TH**, Lee JH, Song CK, Han HD, Shin BC, Pai SI, Hung CF, Trimble C, Lim JS, Kim TW, Wu TC. Epigallocatechin-3-gallate enhances CD8+ T cell-mediated antitumor immunity induced by DNA vaccination. Cancer Res. 2007 Jan 15;67(2):802-11

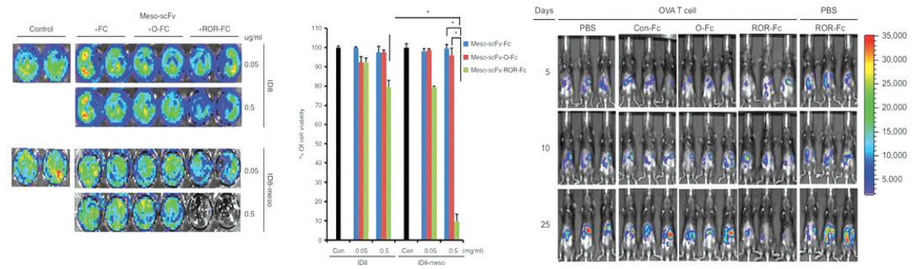
RESEARCH INTERESTS

1. Conversion of Tumor Microenvironment into a Permissive State for Antitumor Immunity



Multiple classes of pharmacological agents have the potential to induce the expression and release of pro-inflammatory factors from dying tumor cells. Consequently, these cells can theoretically elicit an immune response through various defined mechanisms to eradicate disseminated cancer.
However, the impact of chemotherapy on the tumor-specific immune response in the tumor microenvironment is largely unknown. Within the tumor microenvironment, the immune response, promoted by chemotherapy, is antagonized by an immune-suppressive milieu; the balance between these opposing forces dictates the clinical course of the disease. We have studied strategies for converting the tumor microenvironment into a permissive state and have developed simple approaches for cancer therapy by combining chemotherapy and vaccination that may be widely applicable.

2. Development of New Cancer Immunotherapy Technology



The potency of immunotherapies targeting endogenous tumor antigens is hindered by immune tolerance. We created a therapeutic agent comprising a tumor-homing module fused to a functional domain capable of selectively rendering tumor cells sensitive to foreign antigen-specific CD8+ T cell-mediated immune attack, and thereby, circumventing concerns of immune tolerance. The tumor-homing module comprises a single-chain variable fragment (scFv) that specifically binds to mesothelin (Meso), which is commonly overexpressed in human cancers, including ovarian tumors. The functional domain comprises the Fc portion of the IgG2a protein and a foreign immunogenic CD8+ T cell epitope flanked by furin cleavage sites (R), enabling its recognition and cleavage by furin, which is highly expressed in the tumor microenvironment. We show that our therapeutic protein specifically loaded the antigenic epitope onto the surface of mesothelin-expressing tumor cells, rendering these tumors cells susceptible to antigen-specific cytotoxic CD8+ T lymphocytes (CTL)-mediated killing in vitro and in vivo.