

Hope College

Biology and Chemistry Seminar

*Hosted by Alpha Epsilon Delta
(The Premedical Honor Society)*

CD137 Co-stimulation in Tumor Immunity

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Abstract

Treatment of advanced, poorly immunogenic tumors in animal models, considered the closest simulation available thus far for conditions observed in cancer patients, remains a major challenge for cancer immunotherapy. We reported previously that established tumors in mice receiving an agonistic mAb to the T cell costimulatory molecule 4-1BB (CD137) regress due to enhanced tumor antigen-specific cytotoxic T lymphocyte responses. In this study, we demonstrate that several poorly immunogenic tumors, including C3 tumor, TC-1 lung carcinoma, and B16-F10 melanoma, once established as solid tumors or metastases, are refractory to treatment by anti-4-1BB mAb. We provide evidence that immunological ignorance, rather than anergy or deletion, of tumor antigen-specific CTLs during the progressive growth of tumors prevents costimulation by anti-4-1BB mAb. Breaking CTL ignorance by immunization with a tumor antigen-derived peptide, although insufficient to stimulate a curative CTL response, is necessary for anti-4-1BB mAb to induce a CTL response leading to the regression of established tumors. Our results suggest a new approach for immunotherapy of human cancers.

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Biography

Dr. Ryan Wilcox is presently a Fellow in Hematology/Oncology at Mayo Graduate School of Medical Education. He received his MD and PhD degrees from Mayo Medical School in 2004. His work focuses on the activation of the immune system in the treatment of cancer. Dr. Wilcox received his B.S. Biology, B.A. in Chemistry and a B.A. history from **Hope College** in 1996! He is a recipient of numerous honors and awards both from Hope and from Mayo. While at Hope College, Dr. Wilcox was the president of the premedical society, did undergraduate research with Professor Hledin, and served as a TA in Biology and Chemistry classes. Ryan's wife, Abbie-Jo is also a Hope College Graduate.