THE GRADUATE COLLEGE OF THE
UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CENTER

ANNOUNCES THE FINAL EXAMINATION OF

Christa DeVette

FOR THE DEFENSE OF THE DOCTOR OF PHILOSOPHY DEGREE
GRADUATE COLLEGE
Department of Microbiology & Immunology

Monday, July 17, 2017, 1:00 p.m.
Biomedical Research Center, Room 109, OUHSC

Evaluating Anti-Tumor Immunity in Murine Models of Breast Cancer

COMMITTEE IN CHARGE: William Hildebrand, PhD (co-chair), Alana Welm, PhD (co-chair), Doris Benbrook, PhD, Zachary Dalebroux, PhD, Lauren Zenewicz, PhD

ABSTRACT: Breast cancer affects millions of patients in North American, and the prospect of developing novel tumor-specific immunotherapies and vaccines for these individuals is becoming a reality. Numerous studies have shown that host cytotoxic T lymphocytes can recognize tumor antigens. These antigens are presented to CD8+ T cells as peptides bound to the Major Histocompatibility Complex (MHC) Class I. The antigenic landscape of breast carcinomas has been difficult to study for several reasons 1) an inability to acquire enough tissue, and 2) a lack of immunologic tools in a clinically relevant mouse model. Here, we circumvented these limitations by conducting MHC tumor antigen discovery in the MMTV-PyMT spontaneous metastasis model. We will study the peptide repertoire of Class I MHC by conducting proof-of-concept studies with PyMT as the model antigen. Aim 1 has generated a prediction tool (NetH2pan) for MMTV-PyMT tumor cells and screened for candidate peptide antigens. Aim 2 has validated these peptides in a vaccine setting that is effective against MMTV-PyMT tumors. Finally, we have directly eluted peptides from MMTV-PyMT tumors and evaluated the presence of PyMT peptides on these tumors. Together, these studies provide tools for evaluating tumor-host crosstalk in murine breast cancer models.