ABSTRACT

TITLE:	In Vivo Combination Therapy Against 4T1 Mouse Breast Cancer Cells Using Doxorubicin and CTLA-4 Blockade
AUTHOR(S):	Espinoza, Veronica; Harman, Stephen; Blake , David
PRESENTED AT:	2015 Undergraduate Research and Creative Activities Symposium, Fort Lewis College

ABSTRACT: Breast cancer is one of the leading causes of death for women worldwide. However, with current treatments there is a 20% chance of local recurrence within ten years, even when cancer is diagnosed in the early stages (Stage I and II). Treatments with a higher efficacy rate are needed to further decrease the likelihood of cancer recurrence. Our specific study used a combination of chemotherapy and immunotherapy: this combination boosts the effectiveness of both treatments. Combination therapy can also help minimize the unwanted side effects from chemotherapy by boosting the immune system, while the immune system is being suppressed by the effects of the chemotherapeutic drugs. We hypothesized this combination treatment would show the greatest reduction in tumor mass and in the number of metastatic cancer cells found in the liver. The chemotherapeutic drug used was doxorubicin, and the immunotherapeutic drug used was anti-CTLA-4. The BALB/c mice were inoculated with 4T1 cancer cells; 4T1 is a mouse-model for human breast cancer. There were 15 total mice separated into 5 different treatment groups. One group had only cancer, one group was not given cancer or any treatment, one group was given immunotherapy and cancer, one group was given cancer and chemotherapy, and the final group was given a combination of cancer, immunotherapy, and chemotherapy. Overall, it was found the combination of immunotherapy with chemotherapy was the most effective at reducing tumor size and the number of metastatic cancer cells.