

# Ashley Bolden, Biology

Year in School: Junior

Faculty Mentor: Dr. Cheryl Rosenfeld, Veterinary Biomedical Sciences

## Non medicinal treatments for breast cancer prevention

Black cohosh is an herbal supplement that can alleviate the symptoms of estrogen related ailments. How black cohosh works is not yet known. Contradicting studies suggest that black cohosh has an estrogenic effect; where as other studies find that black cohosh has little estrogenic effect. What is known is that many plants contain plant estrogens which can be beneficial in the preventative and post treatments of breast cancer. Estrogen regulates cell division in many estrogen sensitive cells. The rate at which cells divide is dependent upon the strength of estrogen. The faster the rate of cell division increases the risk that the cell will make a mistake in dividing and become cancerous. Plant estrogens are less powerful than human estrogen so the rate of cell division is decreased. In breast cancer, there are groups of cells in the mammary glands known as terminal end buds; this is where estrogen-stimulated cell division occurs. There is some evidence that links the number of terminal end buds to the risk of cancer because of the high rate of cell division and its dependency of estrogen. We hypothesize that dietary black cohosh fed to pre-pubertal female mice would slow the mammary gland development, resulting in fewer terminal end buds. To determine if dietary black cohosh would alter development of the mammary glands, eight female mice weighed and fed daily for 25 days on a black cohosh diet, while another eight were fed a control diet. At completion of the dietary period, the mammary glands were excised and the he number and size of the terminal end buds were counted and analyzed for comparison. Our data showed that on average there were more terminal end buds in the black cohosh than in the control. The size of the terminal end bud on average was smaller in the black cohosh in the control. Based on the data, our hypothesis was incorrect. There was no significant difference in number or size of the terminal end buds in either group. Further study is warranted using younger mice and/or a longer feeding period to determine if black cohosh has an influence on mammary gland development.