

Bankhead-Coley Cancer Research Program

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*Cancer Biology
Mayo Clinic*

*2009 Program
Florida Research Challenge
(2-year project)*

Project Title: New Thyroid Cancer Cell Lines–Comprehensive Molecular Characterization

Project Summary: The scientific community needs a set of well-defined human thyroid cancer cell lines developed from patient thyroid cancer tissues removed at the time of surgery. These cell lines are key to identifying new drugs effective against the four major types of thyroid cancer. Because cancer cell lines are immortal and can continually grow forever, they are replicated and used around the scientific world to study thyroid cancer in efforts to better understand the disease and develop new treatments. Thyroid cancer cell lines do exist but a recent publication, in which we are co-authors, showed that 17 thyroid cancer cell lines (42.5 percent) were identified incorrectly, and the origin of others are poorly characterized. Thus, the data derived from studies using these cell lines and hundreds of publications may be incorrect related to thyroid cancer. This is cause for alarm. In this grant, we will develop new thyroid cancer cell lines from surgical tissues and characterize each new thyroid cancer cell line. The novelty will include molecular and genomic characterization of the parent tumor tissue and its cell line. Thus at any time, years from now, a cell line can be matched to its original tumor tissue. Completion of this project will lead to new, well-characterized cell lines for thyroid cancer. The broad impact will improve the diagnosis, treatment, and prognosis of thyroid cancer from new research using these lines.