Summer 2015 Research Internship Participants

Ryan Barr (2017) and Tyler Dodd (2017) are working with Dr. Riggs to discover novel antibiotics derived from soil bacteria that would inhibit growth of S aureus, E. Faceium, E. Faecalis, and E. Coli. The soil was sampled from local areas and assayed in lab using various microbiology techniques.

Katie Greenhill (2018), Ethan Walker (2018), and Rachel Roberts (2017) are working with Dr. Gorman to investigate various herbal products and individual their components on their ability to biomodulate the metabolic pathways of chemotherapeutic prodrugs used to treat breast (tamoxifen) and colon cancer (irinotecan). Active herals and components are further evaluated to determine their ability to function as aromatase and cyclooxygenase II inhibitors as related to breast and colorectal cancers, respectively.

Adam Bishop (2017) and Courtney Bishop (2017) are working with Dr. Chang to investigate parameters that have a direct impact on healthcare costs of patients with uterine cancer in the United States.

Joe Burns (2017) is working with Dr. Arnold investigating the release of topically applied pain medications from various transdermal bases and the impact on the various bases by the various combinations of pain medications.

Dima Huneidi (2017) and Alexis Stevens (2017) are working with Dr. Change to analyze the 2011 Medical Expenditure Panel Survey (MEPS) to determine the association of co-morbid anxiety and mood disorders with health related quality of life among breast cancer survivors.

Jake Thompson (2017) is working with Dr. Wang on the development and use of an iodide based realtime efflux assay for drug discovery in HEK 239 cells expressing CFTR.

Adam Ambrosetti (2018) is working with Dr. Wang using biochemical methods to assess CFTR protein expression in cells treated with small molecules. Currently we are testing the efficacy of certain investigational anti-cancer drugs and evaluating their potential use as small-molecule correctors of F508-del CFTR.

Brooke Ellard (2017) is working with Dr. D’Sousa to determine release profile of Imiquimod from various formulations prepared in microparticles.

Shon Long (2017) is working with Dr. Arnold to determine tetracycline release from a variety of polymers in order to produce a have a sustained release product to inject into the eye to treat trachoma.

Kaera McCracken (2018) is working with Drs. D’Sousa and Bumgarner on targeting dendritic cells using microparticles to identify the best antigen delivery system/immunostimulant as a vaccine for tumors.
Neil Schenk (2018) worked with Dr. Burkes where he cultured dendritic cells in conditions modeling the hyperglycemic and hyperinsulinemic physiological environment of type-2-diabetic patients and stimulated them with lipopolysaccharides (LPS) to mimic a bacterial challenge. The goal is to characterize the effect of diabetes on both overall dendritic cell health and the ability of cells in these conditions to up-regulate certain cell surface proteins associated with a healthy immune response.

**Summer 2014 Research Internship Participants**

Rebekah Bradford (2016) is working with Drs. Gorman and Cruthirds in establishing in vitro and kit-based assays for cyclooxygenase 1 and 2 selectivity and inhibition. Compounds to be evaluated will be active components in herbal supplements which have been previously shown by our research group to have favorable interactions with prodrug activation.

Rachel Roberts (2017), Fran Grape (2016) are working with Dr. Gorman this summer to evaluate the metabolic impact of various active components of herbal supplements on activation of tamoxifen and irinotecan, two chemotherapeutic prodrugs used to treat breast and colon cancer.

Michael Montgomery (2016) is working with Dr. Arnold on a formulation based project to treat trachoma which is a major public health concern and is currently the leading cause of preventable blindness in the world. The World Health Organization (WHO) estimates that eight million worldwide are blind due to trachoma and more than 84 million people with active disease in need of treatment. The purpose of this project is to design and evaluate biodegradable tetracycline-load microspheres intended for subconjunctival injection in the eye. These microspheres are intended to provide sustained ocular tissue concentrations of tetracycline and improve the overall efficacy trachoma treatment regimens.

Jessica Carver (2016), Jacob Thompson (2017), Ashley Heard (2016) are working with Dr. Wang this summer and will assess the impact of a number of small-molecule compounds on the processing, stability and channel activity of F508del CFTR in a number of cell lines. The influence of cellular chaperone machinery on the chemical correction of F508del CFTR will also be evaluated.

Chelsea Pittman (2017) is working with Dr. Gorman this summer on adapting a 96-well plate based CYP450 screening assays to devise a standardized inhibition strategy for metabolic screening of herbals supplements related to drug-herbal metabolic interactions.

Ankita Patel (2017) is working with Drs. Bumgarner and D’Sousa who’s research will be focused on targeting antigen presenting cells (APCs) using novel microparticles prepared directly from tumor associated antigens using spray dryer technology. This antigen delivery system, combined with immunostimulants (adjuvants), will be evaluated in vitro, using various adjuvants and antigen delivery system formulations, for targeting and activating dendritic cells and macrophages, using cell culture techniques. Analytical techniques will include nitric oxide assays, ELISA, flow cytometry and
fluorescence imaging studies. Our ultimate goal of this research is to use the most promising antigen delivery system formulation/immunostimulant combination as a tumor vaccine in vivo.

Daniel Sokolowski (2016) is working under the direction of Dr. Riggs in synthesizing new compounds for use as antimicrobials and anticancer agents.

Summer 2013 Research Internship Participants

Emily Kirby (2015) working under the direction of Dr. Wang, is studying the effects of small molecule compounds on the functional expression of F508del CFTR in epithelial cells.

Ashley Heard (2016) is working under the direction of Dr. Wang and studying the impact of heat shock proteins on the rescue of CFTR misfolding in Cystic Fibrosis

Courtney Hebert (2015) is working with Drs. Bumgarner and D'Souza in applying cell culture techniques in developing a microparticulate vaccine, utilizing spray drying technology, for the treatment of melanoma.

Fran Grape (2016) is working with Dr. Gorman to study the impact of over-the-counter herbal supplements on the CYP450 activated biotransformation of the chemotherapeutic prodrug tamoxifen which is used to treat ER+ breast cancer.

Rebekah Bradford (2016) is working with Dr. Gorman in conducting metabolic phenotyping and enzyme kinetic studies on Danshen, an herbal Chinese medicine used to treat various conditions including stroke, angina and chronic liver diseases.

Sim Sokom (2016) working under the direction of Dr. Arnold is synthesizing new compounds for use as antimicrobials and anticancer agents.

Michael Montgomery (2016) is working with Dr. Arnold in developing sustained release tetracycline loaded microsphere for the treatment of trachoma.

Joni Baker (2015) working under the direction of Dr. Riggs is synthesizing new compounds for use as antimicrobials and anticancer agents.

Judd Steele (2016) is working with Dr. Gorman and Dr. Lampkins in conducting in vitro metabolic stability studies of 7 second generation leucine based gamma-lactone prodrugs for the treatment of Alzheimer’s disease.

Gwen Nance (2015) is working with Dr. Gorman to study the impact of over-the-counter herbal supplements on the carboxyesterase and CYP450 activated biotransformation of the chemotherapeutic prodrug irinotecan which is used to treat colorectal cancer.
Sarah Worth (2015) is working with Drs. Bumgarner and D'Souza in applying cell culture techniques in developing a microparticulate vaccine, utilizing spray drying technology, for the treatment of melanoma.