Summaries of **UW ICTR Basic & Clinical Pilot Awards, 2012**

**PI: Lara Collier, PhD,** UW School of Pharmacy
Collaborator: Jamey Weichert, UW SMPH Co-funding: UW Carbone Cancer Center
**Title***: Investigations of NM404 in hematopoietic malignancy*
**Summary**
There is tremendous need for less systemically toxic drugs and subsequent methods to assess early therapy response in the treatment of T cell acute lymphoblastic leukemia (T-ALL). The study will investigate the ability of a novel tumor-cell homing drug, NM404, to show preferential uptake and retention in leukemia cells compared with normal cells. If so, the drug may have potential to act as both a tracer of T-ALL and therefore monitor therapy response, and to deliver radiotherapy to leukemia cells.

**PI: Kenneth Lee, MD,** UW SMPH
Collaborators: Ray Vanderby, UW SMPH & College of Engineering; John J Wilson, UW SMPH; Darryl Thelen, UW College of Engineering
**Title:** *Platelet-rich plasma injection therapy for Achilles tendinopathy: Correlating novel radiological outcome measures*
**Summary**
To date, there is no consensus non-surgical treatment for chronic Achilles tendinopathy (AT), which is a common debilitating overuse injury. Using novel ultrasound techniques, the team will develop a new non-invasive tool to quantify soft tissue pathology and monitor changes during healing. Moreover, they will use the new tool to objectively measure outcomes related to platelet-rich plasma therapy for AT.

**PI: Rajesh Chowdhary, PhD**, MCRF
Collaborators: Richard Berg, James Burmester, John Schmelzer, Steven Yale, Joseph Mazza, Michael Caldwell, Shreyas Karnik, MCRF Co-funding: MCRF
**Title:** *Warfarin dose prediction using machine learning*
**Summary**
A common oral anticoagulant, warfarin is nonetheless difficult to use because of its narrow therapeutic index and individual variability in dose. Machine language technology will be employed as a means to improve currently existing warfarin dosing algorithms by identifying additional phenotypic factors; such algorithms currently account for only about 56% of the variation in warfarin dose. Additional factors will be validated and then used to inform the Marshfield Warfarin Dosing Model.

**PI: Michelle Kimple, PhD,** UW SMPH
Collaborator: Luis Fernandez, UW SMPH
**Title:** *Plasma PGE2 as biomarker for human beta-cell function*
**Summary**
Preliminary animal data suggest binding of a specific pancreatic β-islet cell PGE2 receptor, the EP3 isoform, to inhibitory G proteins negatively impacts β-cell function (blocking insulin secretion) in Type 2 diabetes (T2D). Treatment with an antagonist of the EP3 isoform restores insulin secretion. This project aims to study whether plasma levels of PGE2 and EP3 receptor function also correlate with human T2D, and evaluate the utility of plasma PGE2 levels to serve as a biomarker for patient response to an antagonist of the EP3 receptor.

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**PI: Gillian McLellan, PhD,** UW Schools of Veterinary Medicine and SMPH
Collaborators: Michael Nork, Robert Nickells, UW SMPH
**Title:** *Structure, function, and gene expression in cat glaucoma*
Summary
Using a feline model of authentic human primary congenital glaucoma, the team will characterize the nature and location of early cellular changes in the optic nerve head. Such work may identify important new therapeutic targets in human glaucoma, as well as provide an accessible model to evaluate the response of optic nerve cells to disease.

**PI: Steven Schrodi, PhD,** MCRF
Collaborator: Jennifer Meece, MCRF Co-funding: MCRF
**Title:** *Genomics of Il-23/Il17-mediated chronic inflammation*
**Summary**
Chronic inflammation is widely implicated in the development of human disease. The proposed research will utilize a large set of population-based samples from the Marshfield Clinic Personalized Medicine Research Project to link genotypic variation with the expression of two specific proinflammatory cytokines. The study aims to cluster individuals based on their genotypic/phenotypic profiles and clinical data extracted from their electronic medical health records. This is a crucial step to developing targeted therapeutics to address dysfunctional cytokine signaling.

**PI: Eneida Mendonça, MD, PhD**, UW SMPH
Collaborator: Karen Hansen, UW SMPH
**Title:** *Glucocorticoid-induced fracture in children (GIFIC)*
**Summary**
Glucocorticoid-induced osteoporosis (GIO) is the most common form of drug induced osteoporosis. The clinical ramification of long-term glucocorticoid use in children is largely unknown. This study will investigate the risk of clinical fractures among children receiving oral glucocorticoid therapy at both the UW and Marshfield Clinic, and evaluate the dose dependency of the risk. In addition, the team will also measure the impact of glucocorticoid use on bone mineral density. Findings will guide treatment to preserve skeletal integrity.

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