University of South Florida

The Department of Cell Biology, Microbiology and Molecular Biology

Announces a seminar by

Sasanka Ramanadham, Ph.D.

Professor, Department of Cell, Developmental, and Integrative Biology
Comprehensive Diabetes Center
University of Alabama at Birmingham

on January 4th, 2018
at 3:15pm in ISA 2023

"Altering Lipid Signaling in Immune Cells and Islet Beta-cells to Mitigate Type 1 Diabetes Development"

Type 1 diabetes (T1D) is a consequence of autoimmune destruction of β-cells, involving activation of cellular immunity leading to leukocyte infiltration of islets. An understudied area is the role lipid signals play in this process. We find that the Ca^{2+}-independent phospholipase $A_2\beta$ ($iPLA_2\beta$) is induced under a diabetic milieu and the mitigation of $iPLA_2\beta$ attenuates β-cell death. The $iPLA_2\beta$, a member of the PLA_2 family, hydrolyzes the *sn*-2 substituent from glycerophospholipid substrates to yield a free fatty acid, which can be metabolized to bioactive lipids. The focus of our lab is to identify the role of lipid signaling originating from immune cells and beta-cells in promoting beta-cell death, leading to T1D. We utilize beta-cell lines to examine specific mechanisms (i.e., ER stress, mitochondrial processes, alternate splicing) and mouse models (spontaneous diabetes-resistant and spontaneous diabetes-prone) to identify the impact of $iPLA_2\beta$-derived lipids on beta-cell death. Recent studies have identified a link between $iPLA_2\beta$ activation and T1D incidence, in association with alterations in select lipids. Our long-term goal is to identify specific signaling pathways that involve $iPLA_2\beta$-derived lipids and assess their feasibility for intervention to counter T1D development.

THE PUBLIC IS INVITED.
FOR DISABILITY ACCOMODATIONS, PLEASE CALL (813) 974-4071

ResearchOne
ONE UNIVERSITY : ONE COMMUNITY : ONE VISION