Perelman School of Medicine
University of Pennsylvania

NIDDK P30 Center for Molecular Studies in Digestive and Liver Diseases

Research Seminar

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"The Ying and the Yang of ß-cell Programming"

Thursday, October 5, 2023
12:00 – 1:00 PM EST
901 Biomedical Research Building
Lunch is provided, all are invited.

901 Biomedical Research Building or https://pennmedicine.zoom.us/j/92006253598

Intrauterine growth restriction (IUGR) is a common complication of pregnancy and increases the risk of the offspring developing type 2 diabetes mellitus (T2DM) later in life. Alterations in the immune system are implicated in the pathogenesis of IUGR-induced T2DM. The fetal immune system is susceptible to an altered intrauterine milieu caused by maternal and placental inflammatory mediators or secondary to nutrient and oxygen deprivation. Pancreatic-resident macrophages populate the pancreas during fetal development, and their phenotype is dynamic through the neonatal period. Furthermore, macrophages in the islets are instrumental in islet development as they influence β-cell proliferation and islet neogenesis. In addition, cytokines, derived from β-cells and macrophages, are important to islet homeostasis in the fetus and adult and, when perturbed, can cause islet dysfunction. Several activated immune pathways have been identified in the islets of people who experienced IUGR, with alternations in the levels of IL-1β and IL-4 as well as changes in TGFβ signaling. Immunomodulation has shown therapeutic benefit in T2DM and might be particularly useful in IUGR-induced T2DM.

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