New Investigator Accomplishments: February – July 2022

Career

- Vira Kravets, PhD
  - Accepted an Assistant Professor position at the University of California San Diego. Jointly appointed to the Department of Bioengineering and Department of Pediatrics. Starting November 2022.

- Amelia Linnemann, PhD
  - Promoted to Associate Professor (with Tenure) at Indiana University. (July 1, 2022)
  - Elected to the Indiana University School of Medicine Faculty Steering Committee
  - Appointed to the Indiana Clinical and Translational Sciences Biomedical Research Committee

New Investigator Accomplishments: February – July 2022

New Grants/Funding

- Joana Almaça, PhD
  - Recipient of a 2022 Stanley J. Glaser Foundation Research Award

- Abdelfattah El Ouaamari, PhD
  - Co-Inv. of a NIH NIDDK Award: “Synaptic and circuit mechanisms of central GLP-1 signaling in energy balance”

- Leonardo Ferreira, PhD
  - Recipient of a South Carolina Clinical and Translational Research (SCTR) Pilot Project Discovery Grant
  - Recipient of a Diabetes Research Connection (DRC) Award
  - Recipient of an Integrated Islet Distribution Program (IIDP) Islet Award
  - Recipient of a NIH NIDDK Small Business Innovation Research (SBIR) Grant

- Eddie James, PhD
  - Co-Inv. of a NIH NIDDK Award: “Harnessing engineered T regulatory cells to promote beta cell health in T1D”

- Holger Russ, PhD
  - Co-Principal Inv. of a NIH NIDDK Award: “Localized Immune modulation for Beta Cell Replacement Therapy in type 1 diabetes”

New Investigator Accomplishments: February – July 2022

Presentations

- Joana Almaça, PhD
  - Invited Speaker at the Islet Research Group Seminar Series, "Physiological and pathophysiological roles of islet pericytes". (April 2022)
  - Invited Speaker at the Endocrine Society Meeting (Endo 2022), Symposium on "Molecular aspects of COVID-19 and diabetes". "Effects of COVID infection on the islet vasculature and function". (June 2022)
  - 82nd American Diabetes Association (New Orleans, LA). Professional Interest Group discussion on "Islet biology, development and function". "Islet vasculature, ECM and pericytes in islet fibrosis". (June 2022)

- Juan Alvarez, PhD
  - National Academy of Sciences Kavli Frontiers of Science Symposium (Irvine, CA). "Maturation of Stem-cell Derived Islets for Diabetes Replacement Therapy". (April 2022)
  - International Society for Stem Cell Research Annual Meeting (San Francisco, CA). "Advances in Beta Cell Stem Cell Therapies". (June 2022)
  - 82nd American Diabetes Association (New Orleans, LA). "Circadian Entrainment Triggers In Vitro Maturation of Stem-Cell Derived Islets". (June 2022)

New Investigator Accomplishments: February – July 2022

Presentations

- Leonardo Ferreira, PhD
  - Invited Speaker at the 4th Treg Directed Therapies Summit (Boston, MA). “Engineering CAR-Tregs to home to the site of disease and prevent adverse effects”
  - Invited Speaker at Innovation Endeavors Curiosity Camp (Cazadero, CA). “Can we tap into the immune system to live forever?” (June 2022)

- Jing Hughes, MD, PhD
  - 82nd American Diabetes Association (New Orleans, LA). “Primary Cilia in Islet Paracrine Interactions” (June 2022)

- Alok Joglekar,
  - HIRN/dkNET Webinar
  - HIRN Webinar Series "A Library of Diabetes Resources: Opportunities and Applications for your Lab" a brief talk entitled "Highlighting Resources to Enable Antigen Specific Studies“ (August 2022)

New Investigator Accomplishments: February – July 2022

Presentations

- Sangeeta Dhawan, PhD
  - Invited Speaker: Early Developmental Epigenetic patterning and the Functional beta cell phenotype. Islet Research Seminar Group (Co-hosted by UCLA, COH, Mayo, Wash U) (May 2022)(Virtual)
  - 82nd American Diabetes Association (New Orleans, LA). “Early de novo DNA methylation patterning regulates adult beta cell function and survival programs”. (June 2022)

- Abdelfattah El Ouaamari, PhD
  - Invited Speaker: New York Medical College, “Sensory neuromodulation of Pancreatic β Cells”
  - Invited Speaker: Howard University (Washington DC), “Sensory neuromodulation of Pancreatic β Cells”
  - Invited Speaker: NIH/NIDDK Workshop on Pancreas-Endocrine Crosstalk (Bethesda, MD). “Sensory neuromodulation of Pancreatic β Cells”
  - 82nd American Diabetes Association (New Orleans, LA): “Sensory Neuromodulation of Pancreatic β-Cell Function.
  - Invited Speaker: Organ Crosstalk in Pancreatic Beta-Cell Regeneration and Function, Université Mohammed VI Polytechnique, Ben-Guerir, Morocco. (April 2022)

- Hirotake Komatsu, PhD
  - Invited Speaker: City of Hope - Yamaguchi University Biomedical Research Partnership Symposium. “Transplanting insulin-secreting cells to cure diabetes” (February 2022)

New Investigator Accomplishments: February – July 2022

Presentations

- Eddie James, PhD
  - Presentation at FOCIS meeting (San Francisco, CA). “Antigen Specific T Cell Phenotypes Distinguish Type 1 Diabetes Patients with High or Low Residual C-peptide" (June 2022)
  - Poster Presentation at FOCIS meeting (San Francisco CA). "Identification of Novel DRB1*01:01-restricted T Cell Epitopes in Rheumatoid Arthritis“ (June 2022)
  - 82nd American Diabetes Association (New Orleans, LA). Co-chaired session on Immune and Metabolic Insights into Type 1 Diabetes (June 2022)
  - Invited Speaker in HIRN Webinar Series "A Library of Diabetes Resources: Opportunities and Applications for your Lab" a brief talk entitled "Highlighting Resources to Enable Antigen Specific Studies“ (August 2022)

- Amelia Linnemann, PhD
  - Invited Speaker:, MSTP Pipeline Program Seminar. University of Michigan, Hanover College, Department of Pharmacology Seminar (May 2022)

New Investigator Accomplishments: February – July 2022

Presentations

- Vira Kravets, PhD
  - Invited Speaker: Molecular Biology Symposium, University of Colorado. "Beta Cell Networks In Pancreatic Islets"
  - Invited Speaker: Slovenian Physiological Society Meeting (Ljubljana, Slovenia). “"Beta-cell first responders”
  - Invited Speaker: University of Bordeaux (Bordeaux, France). "Beta cell networks in healthy and diabetic islets of Langerhans"

- Holger Russ, PhD
  - Invited Speaker: Sackler School of Medicine, Tel Aviv University, Israel. “Using stem cell technology to interrogate and treat human autoimmune diabetes Sackler School of Medicine”
  - Invited Speaker: Eli Lilly, Indianapolis, IN. “Using stem cell technology in conjugation with genome editing to interrogate aspects of human autoimmune diabetes”
  - Invited Speaker: Cell Replacement Therapies for Diabetes, NIH/JDRF workshop, NIH, Bethesda, MD. “Senescent pancreatic beta cells increase upon transplantation and display increased immunogenicity”
  - Invited Speaker: Department of Pharmacology & Therapeutics, University of Florida, Gainesville, FL. “Interrogating and treating human autoimmune diabetes using stem cell technology”
  - Invited Speaker: Gates Center Seminar Series, Gates Center, Aurora, CO. “State of cell replacement therapy for diabetes”

New Investigator Accomplishments: February – July 2022

Publications

- Joana Almaça, PhD
  - Pericyte control of blood flow in intraocular islet grafts impacts glucose homeostasis in mice. Diabetes, in press.
  - Novel roles of mTORC2 in regulation of insulin secretion by actin filament remodeling. Am J Physiol Endocrinol Metab, in press.

- Sangeeta Dhawan, PhD
  - Editorial: Epigenetics of Glucose Homeostasis. Front Endocrinol (Lausanne). 2022 Apr. eCollection 2022.
  - Polycomb Repressive Complexes: Shaping Pancreatic Beta-Cell Destiny in Development and Metabolic Disease. Front Cell Dev Biol. 2022 May 4. eCollection 2022.
  - LGR4, a G Protein-Coupled Receptor With a Systemic Role: From Development to Metabolic Regulation. Front Endocrinol (Lausanne). 2022 May 30. eCollection 2022.

- Jing Hughes, MD, PhD
  - "Cilia action in islets: lessons from mouse models," Frontiers in Endocrinology, 2022.
  - "Islet primary cilia motility controls insulin secretion." Science Advances, accepted / in press. 2022.

New Investigator Accomplishments: February – July 2022

Publications

- Eddie James, PhD
  - Isolation of HLA-DR-naturally presented peptides identifies T-cell epitopes for rheumatoid arthritis. Ann Rheum Dis. 2022 Aug;81(8):1096-1105/
  - Citrullination of glucokinase is linked to autoimmune diabetes. Nat Commun. 2022 Apr 6;13(1):1870.
  - HLA autoimmune risk alleles restrict the hypervariable region of T cell receptors. Nat Genet. 2022 Apr;54(4):393-402.
  - T-Cell Receptor/HLA Humanized Mice Reveal Reduced Tolerance and Increased Immunogenicity of Post-translationally Modified GAD65 Epitope. Diabetes. 2022 May 1;71(5):1012-1022.

New Investigator Accomplishments: February – July 2022

Publications

- Hirotake Komatsu, PhD
  - Biodistribution of Intra-Arterial and Intravenous Delivery of Human Umbilical Cord Mesenchymal Stem Cell-Derived Extracellular Vesicles in a Rat Model to Guide Delivery Strategies for Diabetes Therapies. Pharmaceuticals (Basel). 2022 May 12;15(5):595.
  - Critical Considerations in Bioluminescence Imaging of Transplanted Islets: Dynamic Signal Change in Early Posttransplant Phase and Signal Absorption by Tissues. Pancreas. 2022 Mar 1;51(3):234-242.

- Vira Kravets, PhD
  - Functional architecture of pancreatic islets identifies a population of first responder cells that drive the first-phase calcium response. - accepted to PLOS Biology, July, 2022.

- Holger Russ, PhD
  - From the Dish to Humans: A Stem Cell Recipe for Success. Cell Metab. 2022 Feb 1;34(2):193-196
  - Emerging Diabetes Therapies: Bringing Back the β-cells. Mol Metab. 2022 Jun;60:101477

New Investigator Accomplishments: February – July 2022

Publications

- Amelia Linnemann, PhD
  - IL-9 is required for multi-cytokine producing tissue-resident memory CD4+ T cell-dependent allergic airway recall responses. (2022) Science Immunology. Mar 18;7(69):eabg9296.
  - Stabilization Protects Islet Integrity during Respirometry in the Oroboros Oxygraph-2K Analyzer. (2022) Islets. Dec 31;14(1):128-138.
  - An expanded LUXendin color palette for GLP1R detection and visualization in vitro and in vivo. (2022) JACS Au. Apr 4;2(4):1007-1017.
  - Mitofusins Mfn1 and Mfn2 are Required to Preserve Glucose- but not Incretin-Stimulated b-Cell Connectivity and Insulin Secretion. (2022) Diabetes. Jul 1;71(7):1472-1489.

- Jao Pedro Saar Werneck de Castro, PhD
  - The Transcription Factor YY1 is Essential for Normal DNA Repair and Cell Cycle in Human and Mouse β-cells. Diabetes. 2022 May 20:db210908. Online ahead of print.
  - Nutrient Sensor mTORC1 Regulates Insulin Secretion by Modulating β-Cell Autophagy. Diabetes. 2022 Mar 1;71(3):453-469.
  - Novel roles of mTORC2 in regulation of insulin secretion by actin filament remodeling. Am J Physiol Endocrinol Metab. 2022 Aug 1;323(2):E133-E144. doi: 10.1152/ajpendo.00076.2022. Epub 2022 Jun 20.

New Investigator Accomplishments: February – July 2022

Additional Updates

- Joana Almaça, PhD
  - Invited to serve as an Editorial Board Member of “Diabetes” (2022-2024)

- Leonardo Ferreira, PhD
  - Review Editor, Immunological Tolerance and Regulation, Frontiers in Immunology, 2022
  - Associate Editor, Immunological Tolerance and Regulation, Frontiers in Immunology, 2022
  - Guest editor, Nutrition and Gut Microbiota-Immune System interplay in Chronic Diseases special issue, Nutrients, 2022
  - Guest editor, Repurposing Cancer therapeutics in Autoimmune Conditions article collection, Frontiers in Immunology, 2022
  - Patent filed: Specifically, CD19 CAR modified T-regs for treating AML. Ferreira, L.M.R., 63336137, April 28 2022 (Medical University of South Carolina)
  - Two graduate students joined the lab to carry out their PhD thesis work: Lucas Bialousow and Russell Cochrane (Medical University of South Carolina Biomedical Sciences PhD Program)

New Investigator Accomplishments: February – July 2022

Additional Updates

- Amelia Linnemann, PhD
  - Linnemann Lab Graduate Student awarded an F31 Grant. “Mechanisms and Targeted Control of Pancreatic Beta-cell Antioxidant Response”

- Baoyu Liu, PhD
  - Submitted an RO1 to NIH NIDDK in this June cycle titled "Beta-cell self-antigen recognition by diabetogenic CD8 T cells".
  - Submitted a career development award to JDRF titled "Beta-cell self-antigen recognition by diabetogenic CD8 T cells".