# *New Investigator Accomplishments: August 2021 - January 2022*

**New Grant Award**

- Joana Almaca, PhD
  - Pilot Award from the Helmsley Charitable Trust George Eisenbarth Award for nPOD. Project title: "Changes in islet pericyte phenotype and function during type 1 diabetes"

- Leonardo Ferreira, PhD
  - American Cancer Society Institutional Research Grant (ACS IRG)
  - Diabetes Research Connection (DRC)

- Jing Hughes, PhD
  - Doris Duke Foundation

- Karla Leavens, MD, PhD
  - NIH NIDDK K08 Grant "Dissecting the mechanisms behind biphasic β-cell disease caused by mutations in HNF1α"

- Holger Russ, PhD
  - Second Tranche funding, Grubstake Grubstake Award, CU Innovations

# *New Investigator Accomplishments: August 2021 - January 2022*

**New Grant Award**

- Alok Joglekar, Ph.D.
  - dkNET New Investigator Pilot Program in Bioinformatics
    Project title: “Systems analyses of T cell repertoires in Type 1 Diabetes”

- Rafael Arrojo e Drigo, Ph.D.
  - dkNET New Investigator Pilot Program in Bioinformatics
    Project title: “Dissecting the Heterogeneity of Human Islet Cells with Single Cell Technologies”

# *New Investigator Accomplishments: August 2021 - January 2022*

**Research Accomplishment**

- Jing Hughes, PhD: We have recruited two new lab members and are expanding research operations. New projects maturing into papers and grant applications in 2022

- Vira Kravets, PhD: “Postdoc of the month” (January 2022) by the Postdoctoral Association of the University of Colorado, Anschutz Medical Campus.

- Amelia Linnemann, PhD
  - Named Editorial Board member for Diabetes (term 2022-2024)
  - Graduated a PhD student, Dr. Charanya Muralidharan, who is now pursuing postdoctoral studies with Dr. Raghu Mirmira

- Holger Russ, PhD
  - Session Chair, “Islets Organoids from pluripotent and adult stem cells”, IPITA 2021 Virtual Congress
  - Session Chair, “Emerging Technologies” JDRF nPOD 2022 Investigator Meeting

# *New Investigator Accomplishments: August 2021 - January 2022*

**Scientific Presentations:**

- Sangeeta Dhawan, PhD
  - 81st Annual Scientific Sessions of the American Diabetes Association (June 2021)

- Abdel El Ouaamari, PhD
  - Rutgers Robert Wood Johnson Medical School. Endocrine Division Seminar Series. Sensory Neuromodulation of Pancreatic β Cells. (Dec 2021)
  - Texas Tech University Health Sciences Center. Sensory Neuromodulation of Pancreatic β Cells. (January 2021)

- Hirotake Komatsu, PhD
  - Special Seminar at the Department of Biomedical Engineering, University of Cincinnati (November 2021). “The effect and methods of oxygenation for islet transplantation in the treatment of diabetes”
  - Caltech Medical Engineering Seminar Series (October). “Bridging between clinic and engineering: development of oxygen-transporting mesh for cell transplantation”

- Vira Kravets, PhD
  - Oral Presentation at Western Region Islet Study Group (WRISG): "Spatial Organization of First Phase Calcium Response to Glucose in Mouse and Human Pancreatic Islets"

# *New Investigator Accomplishments: August 2021 - January 2022*

**Scientific Presentations:**

- Amelia Linnemann, PhD
  - Larry Hillblom Islet Research Center at University of California Los Angeles Seminar (May 2021)
  - 81st Annual Scientific Sessions of the American Diabetes Association (June 2021)
  - University of Colorado Denver, Barbara Davis Center Research In Progress Seminar (September 2021)
  - University of British Columbia, BC Children's Hospital Research Institute Seminar (November 2021)
  - 4th Edition of the Montpellier Diabetes Day, Montpelier, France (November 2021)
  - Diabetes Canada, Let's End Diabetes 2021 Professional Conference (November 2021)
  - Vanderbilt University Medical Center, DRTC Seminar (January 2022)

- Robert Sharp, PhD
  - Pediatrics Science Day (Univ. of Florida, June 2021) (Oral/Poster Presentation, Top 4 Posters). “Disruption of the Signal Regulatory Protein Gamma (SIRPγ) and CD47 Signaling Pathway in CD8+ T cells Results in an Augmented Effector Phenotype”
  - Federation of Clinical Immunology (FOCIS) Virtual Annual Meeting (June 2021, Virtual Poster Session (Poster). “Disruption of the Signal Regulatory Protein Gamma (SIRPγ) and CD47 Signaling Pathway in CD8+ T cells Results in an Augmented Effector Phenotype”

# *New Investigator Accomplishments: August 2021 - January 2022*

**Scientific Presentations:**

- Holger Russ, PhD
  - Physiology Department Seminar Series, University of Toronto, Canada (virtual)
  - Advanced Therapies Congress (virtual)
  - UCSF Diabetes Seminar Series, UCSF, CA (virtual)
  - MOLBIO Retreat, Winterpark, CO
  - Western Regional Islet Study Group Meeting, Stevenson, WA

- Rafael Arrojo e Drigo, PhD
  - October 2021: Virtual Visiting Professor Islet Research program – Organized by Wash Univeristy, UCLA, Mayo Clinic and City of Hope
  - Jan 2022: nPOD meeting, session: Cutting Edge Seminar I: Islet Cell Biology and Implications for Type 1 Diabetes

# *New Investigator Accomplishments: August 2021 - January 2022*

**Research Publications:**

- Joana Almaca, PhD
  - Heterogeneity of Diabetes: β-Cells, Phenotypes, and Precision Medicine: Proceedings of an International Symposium of the Canadian Institutes of Health Research's Institute of Nutrition, Metabolism and Diabetes and the U.S. National Institutes of Health's National Institute of Diabetes and Digestive and Kidney Diseases (2021), Diabetes, doi: 10.2337/db21-0777. William T Cefalu et. al. PMID 34957490

- Juan Alvarez, PhD
  - Cell Maturation: Hallmarks, Triggers, and Manipulation. Cell (2022). *185,* 235-249. PMID: 34995481.
  - An adipose lncRAP2 - Igf2bp2 complex enhances adipogenesis and energy expenditure by stabilizing target mRNAs. iScience (2021) *25,* 103680. PMID: 35036870

- Rafael Arrojo e Drigo, PhD (contributing author)
  - Identification of long-lived proteins in the mitochondria reveals increased stability of the electron transport chain. Dev Cell 2021
  - Single-Cell Transcriptomics Reveals a Conserved Metaplasia Program in Pancreatic Injury. Gastro 2022
  - Heterogenous impairment of α cell function in type 2 diabetes is linked to cell maturation state. Cell Metab 2022

# *New Investigator Accomplishments: August 2021 - January 2022*

**Research Publications:**

- Sangeeta Dhawan, PhD
  - DNA Methylation Patterning and the Regulation of Beta Cell Homeostasis. Parveen N, Dhawan S. (2021) Front Endocrinol (Lausanne). 2021 May 7;12:651258. doi: 10.3389/fendo.2021.651258. eCollection 2021.

- Leonardo Ferreira, PhD
  - Precision Engineering of an Anti-HLA-A2 Chimeric Antigen Receptor in Regulatory T Cells for Transplant Immune Tolerance, Front Immunol 2021
  - CAR T-Cell Therapy: Is CD28-CAR Heterodimerization Its Achilles' Heel? Front Immunol 2021
  - IL-6 and TNFα Drive Extensive Proliferation of Human Tregs Without Compromising Their Lineage Stability or Function, Front Immunol 2021
  - Modeling Human T1D-Associated Autoimmune Processes. Molecular Metabolism, 12/2021; 101417., DOI: 10.1016

- Eddie James, PhD
  - Guidelines for standardizing T cell cytometry assays to link biomarkers, mechanisms, and disease outcomes in type 1 diabetes. Immunology of Diabetes Society T Cell Cytometry Group. Eur J Immunol. 2022 Jan 13. doi: 10.1002/eji.202049067. Online ahead of print. PMID: 35025103
  - Impaired HA-specific T follicular helper cell and antibody responses to influenza vaccination are linked to inflammation in humans. Elife. 2021 Nov 2;10:e70554. doi: 10.7554/eLife.70554. PMID: 34726156

# *New Investigator Accomplishments: August 2021 - January 2022*

**Research Publications:**

- Hirotake Komatsu, PhD
  - "A Multiparametric Assessment of Human Islets Predicts Transplant Outcomes in Diabetic Mice" in Cell Transplantation, 2021

- Vira Kravets, PhD
  - "The physiological role of β-cell heterogeneity in pancreatic islet function", RKP Benninger and V Kravets, Nature Reviews Endocrinology, 2022

- Amelia Linnemann, PhD
  - "Editorial: Pancreas Imaging Across the Spectrum" in Frontiers in Endocrinology. 2022 by Linnemann, Poitout, and Rutter.

# *New Investigator Accomplishments: August 2021 - January 2022*

**Research Publications:**

- Holger Russ, PhD
  - Found in Translation: Novel Insights Into Type 1 Diabetes and β-Cell Biology. Diabetes. 2021 Oct;70(10):2185-2186.
  - Use of Induced Pluripotent Stem Cells to Build Isogenic Systems and Investigate Type 1 Diabetes. Front Endocrinol (Lausanne). 2021 Nov 9;12:737276.
  - Generation of thymic cells from pluripotent stem cells for basic research and cell therapy. Translational Immunology Book, Vol. 2
  - From the dish to humans: A stem cell recipe for success. In press, Cell Metabolism, February issue.

- Robert Sharp, PhD
  - The Immunoregulatory Role of the Signal Regulatory Protein Family and CD47 Signaling Pathway in Type 1 Diabetes. Frontiers in Immunology, 9/2021; 12., DOI: 10.3389/fimmu.2021.739048
  - Modeling Human T1D-Associated Autoimmune Processes. Molecular Metabolism, 12/2021; 101417., DOI: 10.1016

# *New Investigator Accomplishments: August 2021 - January 2022*

**Additional Update(s)**

- Leonardo Ferreira, PhD: Online Video: Reprogramming human regulatory T cell specificity with a novel anti-HLA-A2 chimeric antigen receptor (December 2021)