All Projects funded by LaunchPad for Diabetes Program
Updated Jan. 2023

2022
(Renewal) Voxelated 3D Bioprinting of Multiscale Porous Scaffolds for Islet Transplantation
Liheng Cai PhD, Material Science and Chemical Engineering
Yong Wang MD, Surgery
Jose Oberholzer MD, Surgery

(Renewal) Lacritin 'N-104' for the Reversal of Type 1 Diabetes
Gordon Laurie, PhD, Cell Biology
Ken Brayman, MD, Surgery

Unwinding a 3’UTR to treat diabetes
Jianjie Ma, PhD, Surgery
Philip Bourne, PhD, School of Data Science

Identification of biomarkers that predict myocardial perfusion and dysfunction in Type 1 Diabetes
Zhenqi Liu, MD, Endocrinology and Metabolism
Kaitlin Love, MD, Endocrinology and Metabolism

Dual immunomodulatory scaffold to improve beta cell suspension survival by reducing local acute inflammation and promoting tolerogenic Foxp3+ T cells
Don Griffin, PhD, BME
Ken Brayman MD, Surgery

T Regulatory Cells (TREGs) In Type 1 Diabetes (T1D) Patients
Larry Lum, MD, Hematology and Oncology
David Repaske, MD, Pediatric Endocrinology
John Zheng Fu, PhD, Pharmacology
Archana Thakur, PhD, Hematology and Oncology

Crosstalk between circulating glucose, pancreatic insulin and glucagon during insulin-induced hypoglycemia in healthy people at risk for type 1 diabetes (Ignite)
Leon S Farhy, PhD, Endocrinology and Metabolism

2021
Algorithmic Development, Prototyping, and Pilot Clinical Testing of a Therapy Optimization Platform to Support Healthcare Providers in the Management of Type 2 Diabetes
Chiara Fabris, PhD, Psychiatry/Neurobehavioral Science and Center for Diabetes Technology
Patricio Colmegna, PhD, Psychiatry/Neurobehavioral Science, Center for Diabetes Technology
Sue Brown, MD, Endocrinology
Ralf Nass, MD, Endocrinology

Using Closed-Loop Artificial Pancreas Technology to Reduce Glycemic Variability and Subsequently Improve Cardiovascular Health in Type 1 Diabetes
William Horton, MD, Endocrinology
Boris Kovatchev, PhD, Psychiatry/Neurobehavioral Science, Center for Diabetes Technology

Renewal: Lacritin 'N-104' for the Reversal of Type 1 Diabetes
Renewal: Analytics for Detection and Early Warning of Hypoglycemia in Intensive Care Units
William Horton, MD, Endocrinology
Randall Moorman, MD, Cardiovascular Medicine

Renewal: Voxelated 3D Bioprinting of Multiscale Porous Scaffolds for Islet Transplantation
Liheng Cai, PhD, Material Science and Chemical Engineering
Yong Wang, MD, Surgery
Jose Oberholzer, MD, Surgery

Development and Testing of Conversion Algorithms for a More Rapidly Acting Insulin in an Artificial Pancreas System in Adolescents with T1D
Mark DeBoer MD, Endocrinology-Pediatrics
Marc Breton, PhD, PhD, Psychiatry/Neurobehavioral Science, Center for Diabetes Technology
Patricio Colmegna, PhD, Psychiatry/Neurobehavioral Science, Center for Diabetes Technology

Urinary extracellular vesicle analysis to assess early diabetic kidney disease phenotypes as a novel precision medicine tool (Ignite)
Uta Erdbrügger, MD, Medicine/Nephrology
Julia Scialla, MD, Medicine/Nephrology

Formulation of nervonic acid delivery system for complications of diabetes mellitus (Ignite)
Mark Kester, PhD, Pharmacology
Todd Fox, PhD, Pharmacology

Quantifying the heterogeneity of immune cell activation from islet transplantation and drug induced immunomodulation (Ignite)
Nathan Swami, PhD, Electrical and Computer Engineering
José Oberholzer, MD, Surgery

2020 (Renewal) AAV-mediated gene therapy for diabetes
Edward Perez-Reyes, PhD, Pharmacology
Jennifer Kirby, MD, Endocrinology and Metabolism
Thurl Harris, PhD, Pharmacology

A Biochip to Model Personalized Inflammatory Responses in Cell-Based Therapy for Diabetes
Jose Oberholzer, MD, Surgery
Huiwang Ai, PhD, Molecular Physiology and Biophysics
Melur Ramasubramanian, PhD, Vice President for Research
Yong Wang, MD, Surgery

Renewal Lacritin 'N-104' for the Reversal of Type 1 Diabetes
Gordon Laurie, PhD, Cell Biology
Ken Brayman, MD, Surgery
Predictive Analytics for Detection and Early Warning of Hypoglycemia in Intensive Care Units
William Horton, MD, Endocrinology
Randall Moorman, MD, Cardiovascular Medicine

Voxelated 3D Bioprinting of Multiscale Porous Scaffolds for Islet Transplantation
Liheng Cai, PhD, Material Science and Chemical Engineering
Yong Wang, PhD, Surgery
Jose Oberholzer, MD, Surgery

T Regulatory Cells Suppress Autoreactive B Cells from Type 1 Diabetes Patients
Larry Lum, MD, Hematology and Oncology
David Repaske, MD, Pediatric Endocrinology
John Fu, PhD, Pharmacology

Proximity of adipocytes to endothelial cells influences metabolism in type 2 diabetes (Ignite)
Brant Isakson, PhD, Molecular Physiology and Biophysics

Topical ophthalmological drug delivery of a glucosylceramide synthase inhibitor for diabetic retinopathy (Ignite)
Mark Kester, PhD, Pharmacology
Todd Fox, PhD, Pharmacology
Michael Cusick, MD, Ophthalmology

Single-cell biophysical metrics for selection of ß-like cells to construct stem cell-derived islets (Ignite)
Nathan Swami, PhD, Electrical and Computer Engineering
José Oberholzer, MD, Surgery

Development of an Injectable Microporous Pancreatic Islet Niche (Ignite)
Donald Griffin, PhD, Biomedical Engineering
Kenneth Brayman, MD, PhD, Surgery

NanoPlatyx: a Stent-Free Solution for Peripheral Arterial Disease (PAD) and PostIntervention Management in Diabetic Population (Ignite)
Bowen Wang, PhD, Surgery
K. Craig Kent, MD, EVP for Health Affairs
Lian-Wang Guo, PhD, Surgery

Automated Meal Detection & Appropriate Insulin Delivery for Adolescents with Type 1 Diabetes: Connecting the Klue Watch & UVa Artificial Pancreas System (revised after Medtronic purchased Klue)
Mark DeBoer, MD, Pediatric Endocrinology
Marc Breton, PhD, Psychiatry and Neurobehavioral Sciences

Exploration of LacripepTM Inspired 'Tearpep3/C-6' for the Reversal of Type 1 Diabetes
Gordon Laurie, PhD, Cell Biology
Ken Brayman, MD, Surgery
**Bispecific Antibody Targeted T Regulatory Cells (TREGs) for Type 1 Diabetes**
Larry Lum, MD, Hematology and Oncology
David Repaske, MD, Pediatric Endocrinology
Archana Thakur, PhD, Hematology and Oncology
Udai Singh, PhD, Hematology and Oncology

**(Renewal) Novel Cytokine Therapy for Type 1 Diabetes**
Rahul Sharma, PhD, Center for Inflammation and Regeneration
Mark Okusa, MD, Nephrology

**(Renewal) AAV mediated gene therapy for diabetes**
Edward Perez-Reyes, PhD, Pharmacology
Jennifer Kirby, MD, Endocrinology and Metabolism
Thurl Harris, PhD, Pharmacology

**A scaleable microfluidic approach for controlled manufacturing of microcapsulated human islets for transplantation in T1D therapy**
Melur Ramasubramanian, PhD, Vice President for Research
Jose Oberholzer, MD, Surgery
Yong Wang, PhD, Surgery

**2018**

**(Renewal) Novel Cytokine Therapy for Type 1 Diabetes**
Rahul Sharma, PhD, Center for Inflammation and Regeneration
Mark Okusa, MD, Nephrology

**(Renewal) AAV mediated gene therapy for diabetes**
Edward Perez-Reyes, PhD-Pharmacology
Jennifer Kirby MD Endocrinology and Metabolism
Thurl Harris, PhD, Pharmacology.

**A Multiparametric Biosensor Assay for Standardized Characterization of Islets**
Huiwang Ai, PhD, Molecular Physiology & Biological Physics
Jose Oberholzer, MD and Yong Wang, PhD Transplant Surgery

**2017**

**Novel Cytokine Therapy for Type 1 Diabetes**
Rahul Sharma, PhD, Center for Inflammation and Regeneration
Mark Okusa, MD, Nephrology

**Microfluidic Selection of Functional Islets for Transplantation in Diabetes**
Shayn Peirce-Cottler, PhD, BME
Nathan Swami, PhD, Electrical and Computer Engineering
Ken Brayman, MD, Surgery.

**Improve islet transplant outcomes for Type 1 diabetes by minimizing rapamycin immunotoxicity**
Jose Oberholzer, MD, Chief of Transplant and Director of Transplant Center
Yong Wang, PhD, Transplant Surgery

**AAV mediated gene therapy for diabetes**
Edward Perez-Reyes, PhD, Pharmacology
Jennifer Kirby, MD, Endocrinology and Metabolism
Thurl Harris, PhD, Pharmacology.
Enhancement of glucagon counterregulation in type 1 diabetes by basel amylin replacement
Leon Farhi, PhD, Endocrinology and Metabolism
Stacy Anderson, MD, Medical Director of the Center for Diabetes Technology.

2016
RENEWAL: Targeting adipose tissue lipolysis to prevent postoperative hyperglycemia and improve recovery in rodent model of T1DM
Thurl Harris PhD, Pharmacology
Alex Kadl MD, Pulmonary and Critical Care Medicine

Microfluidic Selection of Functional Islets for Transplantation in Diabetes
Shayn Peirce-Cottler, PhD, Biomedical Engineering
Nathan Swami, PhD, Electrical Engineering

Novel Cytokine Therapy for Type-1 Diabetes
Rahul Sharma, PhD, Nephrology
Mark Okusa, MD, Nephrology

Role of Extracellular Vesicle for Vascular Health in Adults with Prediabetes
Steven Malin, PhD, Kinesiology
Uta Erdbrugger, MD, Nephrology

Modulating Diacylglycerol Kinase Activity to Enhance Insulin Secretion in Type 2 Diabetes (pilot project)
Ken Hsu, PhD, Chemistry & Pharmacology

Application of Machine Learning to Identify Diabetic Patients at Risk for High Atherosclerotic Burden in Coronary Arteries (pilot project)
Coleen McNamara, MD, Cardiovascular Medicine
Michael Lawrence, PhD, Biomedical Engineering

2015
Development of Dendritic cell (DC) therapeutic intervention for type 1 Diabetes (T1D)
Amandeep Bajwa PhD, Nephrology
Mark Okusa MD, Nephrology

Design and Testing of a Closed-Loop System for Control of Type 1 Diabetes in Young Children 5-8 years old
Mark DeBoer MD, Pediatrics-Division of Pediatric Endocrinology & Diabetes
Daniel Chernavvsky MD, Psychiatry and NB Sciences

Treatment of diabetic retinopathy with microRNA-let-7b inhibitor
Bijan Dey PhD, Biochemistry and Molecular Genetics
Paul Yates MD, Ophthalmology

Targeting adipose tissue lipolysis to prevent postoperative hyperglycemia and improve recovery in rodent model of T1DM
Thurl Harris PhD, Pharmacology
Alex Kadl MD, Pulmonary and Critical Care Medicine

2014
Oral-Insulin: IN VIVO Pharmacokinetics and Pharmacodynamics
Mark Kester, PhD, Pharmacology and Biomedical Engineering Director of the NanoSTAR Institute

**Reversal of Conduit Artery Stiffness in Type 1 Diabetes by Mineralocorticoid Receptor Blockade**
Gene Barrett, MD, Medicine - Endocrinology and Metabolism and Pediatrics

**Vesicular Nucleotide Transporter as a Marker for Mature Functional Pancreatic Beta-cells**
Chein Li, PhD, Pharmacology
Arazdordi Toumadje, PhD, Biochemistry and Molecular Genetics

**Development of a Comprehensive AP Training Curriculum for Adults:**
Sue Brown, MD, Center for Diabetes Technology

**Maternal Autoantibody and Neonatal NK-1 Cells in Type 1 Diabetes**
Kenneth Tung, MD, Pathology and Microbiology
Michael Brown, PhD, Michael Brown, PhD, Nephrology

**2013**

**Maternal Autoantibody and Neonatal NK-1 Cells in Type 1 Diabetes**
Kenneth Tung, MD, Pathology and Microbiology
Michael Brown, PhD, Medicine-Nephrology

**Evaluation of Novel Sphingosine Kinase 2 Inhibitor for the Treatment of Diabetic Nephropathy**
Kevin Lynch, PhD, Pharmacology

**Optimizing Closed-Loop Control of Type 1 Diabetes Mellitus in Adolescents**
Mark DeBoer MD, Pediatrics-Division of Pediatric Endocrinology & Diabetes
Daniel Chernavsky MD, Psychiatry and NB Sciences
Mark Breton, PhD, Psychiatry and Neurobehavioral Sciences
Boris Kovatchev, PhD, Director University of Virginia Center for Diabetes Technology

**Novel Hybrid Cytokine for Therapy of Type 1 Diabetes**
Mark Okusa, MD, Medicine- Nephrology
Rahul Sharma, PhD, Medicine- Nephrology

**2012**

**Development of an advisory system to improve glycemic control during the menstrual cycle in women with Type1DM**
Michael Brown, PhD, Medicine-Nephrology
Marc Breton, PhD, Psychiatry and Neurobehavioral Sciences

**Enhanced Artificial - Pancreas Program**
Anthony McCall, MD, Internal Medicine
Leon Farhy, PhD, Medicine- Endocrinology and Metabolism

**RENEWAL: Treatment of diabetic retinopathy with adipose-derived stem cells**
Shayn Peirce-Cottler, PhD, Biomedical Engineering
Paul Yates, MD, Ophthalmology and Biomedical Engineering
2011

**Biomarker development for management of diabetic chronic wounds**
Adam Katz, MD, Plastic Surgery

**Targeted Contrast-enhanced MRI of Pancreatic Cells in Type 1 Diabetes Mellitus**
Kim Kelly, PhD, Biomedical Engineering
Fred Epstein, PhD, Biomedical Engineering

**Sphingosine 1-phosphate type 1 Receptor Antagonists and T1DM**
Kevin Lynch, PhD, Pharmacology

**RENEWAL: Treatment of diabetic retinopathy with adipose-derived stem cells**
Shayn Peirce-Cottler, PhD, Biomedical Engineering
Paul Yates, MD, Ophthalmology and Biomedical Engineering

2009-2010

**Modulation of the vascular endothelial growth factor ligand-receptor family to facilitate islet cell transplantation**
Brian Annex, MD, Cardiovascular Medicine and Biomedical Engineering
Ayotunde Dokun, M.D. Medicine-Endocrinology and Metabolism

**Bioengineering strategies to improve islet cell transplantation**
Ed Botchwey, PhD, Biomedical Engineering
Kenneth L. Brayman, MD, PhD Surgery

**Identification of novel energy expenditure agonists for the treatment of diabetes**
Kevin Lynch, PhD, Pharmacology
Kyle L. Hoehn, PhD, Pharmacology

**Treatment of diabetic retinopathy with adipose-derived stem cells**
Shayn Peirce-Cottler, PhD, Biomedical Engineering
Paul Yates, MD, Ophthalmology and Biomedical Engineering

**Use of Rho-kinase inhibitors for treatment of peripheral diabetic neuropathy**
James Mandell, MD, PhD, Pathology
Slobodan M. Todorovic, MD, PhD, Anesthesiology