



# Institute for Clinical and Translational Science



**UCI ICTS 2022 Pilot Awards Program  
Evaluation Summary Report**

Produced February 2023



National Center  
for Advancing  
Translational Sciences



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This report summarizes the components of the UCI ICTS Pilot Awards Program by highlighting its accomplishments and overall impact.

## **UC Irvine ICTS**

The UC Irvine Institute for Clinical and Translational Science (ICTS) is a member of a consortium of over 60 Clinical and Translational Science Awards (CTSAs) housed at academic medical centers throughout the United States. The consortium is funded by the National Institute for Advancing Translational Sciences within the National Institutes of Health., with the mandate to “develop innovative solutions that will improve the efficiency, quality and impact of the process for turning observations in the laboratory, clinic and community into interventions that improve the health of individuals and the public” (<https://ncats.nih.gov/ctsa>).

## **The UCI Pilot Awards Program**

Guided by the Leadership of **Dr. Eric Vilain**, Director of the ICTS, the Pilot Awards Program supports local cutting-edge research in the early phases with the goal of nurturing these projects as they plan for larger, externally-funded studies.

ICTS pilot grants are designed specifically to support exceptionally innovative and/or unconventional research projects that have the potential to create or overturn fundamental paradigms.

## **The ICTS Pilot Awards Program seeks to support studies that will advance the goals of the CTSA Awards Program:**

- **Train and cultivate the translational science workforce;**
- **Engage patients and communities in every phase of the translational process;**
- **Promote the integration of diverse and under-resourced populations in translational research across the human lifespan;**
- **Innovate processes to increase the quality and efficiency of translational research, particularly of multisite trials; and**
- **Advance the use of cutting-edge informatics.**



## Pilot Awards Program Success

### Calls for Proposals

The ICTS releases a call for proposals once each year, with proposals due in the fall. Each proposal is reviewed by at least 3 experienced and expert investigators, one of whom is external to UCI and one of whom is from the non-academic community.



**CEREC** - A unique feature of our review process is our participation in the CTSA External Reviewers Exchange Consortium (CEREC), which affords us access to reviewers at 8 partner CTSA's so that we can recruit the best experts and also avoid conflict of interest in the review process. Our CEREC partners include:

- ⇒ University of Washington
- ⇒ Ohio State University
- ⇒ Medical College of Wisconsin
- ⇒ University of Alabama at Birmingham
- ⇒ University of Arkansas Medical Sciences
- ⇒ Harvard Catalyst
- ⇒ University of Southern California
- ⇒ Virginia Commonwealth University

### Awards

Each year the UCI ICTS supports up to 8 awardees with approximately \$25,000 in direct funds. The goal of the program is to promote collaborations among faculty members on relatively short-term projects, "high-risk/high-yield" pilot research investigations, and research which may lead to further discoveries and/or large-scale extramural funding.

### Research Acceleration and Facilitation Team (RAFT)

Our support of the research process does not end when we transfer the funds. Throughout the one-year period of active funding, our RAFT team reaches out proactively to our awardees to ensure that we assist them with overcoming the many small hurdles that can delay research: regulatory processes (for example, the Institutional Review Board and the Institutional Animal Care and Use Committee); difficulties with obtaining chemical assays or biological materials; and challenges with recruiting study participants in human studies.

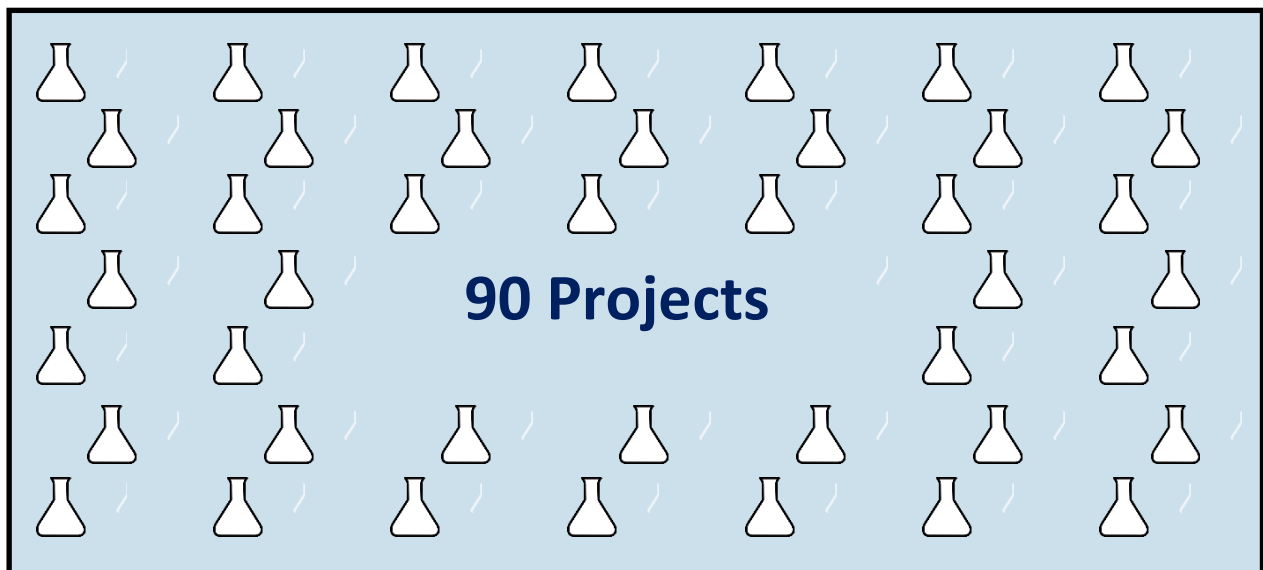
***"Having an active interest from the ICTS made it feel like there was someone else who cared about whether the project was moving forward. Made it feel like I was on top of things."***

***–ICTS Investigator***

## Pilot Awards Program Outcomes



**12 Years (2010-2021)**  
**80 Principal Investigators**  
**42 Departments**  
**\$2,456,727 Invested**



**365 Publications**  
**441 Extramural Grants**  
**\$141,282,856 Extramural Funds**  
**\$29,720,275 Extramural Funds Directly**  
**Related to the Pilot Award**





## Return on Investment (ROI) for ICTS Pilot Studies Awards

$$\text{ROI} = \frac{(\text{Funds returned} - \text{Funds invested})}{\text{Funds invested}}$$

**Total ROI = 70.19**  
**Related ROI\*\* = 13.97**

For every dollar invested, there have been approximately \$70 returned in total extramural grant funding. Of this amount, \$13.97 was for projects directly related to the Pilot funding.

### Percent of Pilot Studies with at Least One Subsequent Grant

**43%**

### Percent of Pilot Studies with at Least One Subsequent Publication

**61%**

For comparison, the median percent of pilot studies across the entire CTSA national network that yielded at least one grant was 33% and the median percent of pilot studies across the CTSA national network that yielded a least one publication was 43% (2018 data).



## AWARDEES

### 2010

**Leslie Lock:** Normalizing the mutation that causes FSH muscular dystrophy in FSH induced pluripotent stem cells

**Albert Cerussi:** Development of metabolic imaging probes embedded into standard minimally invasive clinical instruments for improving critical care patient outcomes

**Anand Ganesan:** RhoJ- a novel regulator of melanoma invasion and chemoresistance

**Edwin Monuki:** Accelerating the translation of a laboratory finding into clinical applications using choroid plexus epithelial cells (CPECs)

**David Nolan:** To determine whether oral betaine at 4 grams/day, 8g/d or 12g/d improves homeostasis model assessment of insulin resistance (HOMA-IR) in patients with impaired fasting glucose

**Annabel Wang:** Predictors of phenotype in patients with spinal muscular atrophy and calf hypertrophy

**Xiaolin Zi:** Inhibition of pro-invasive effects of anti-VEGF therapy by secreted Wnt antagonists

### 2011

**Elliot Botvinick:** Bloodless laparoscopic cutting tool

**Elizabeth Chao:** Early detection of prostate cancer by profiling nucleosome phase profiling in peripheral samples

**Gregory Evans:** Reprogramming of adipose derived stem cells (ADSCs) to iPS and further differentiation to neuronal cells for the treatment of peripheral neuropathy

**Lisa Flanagan:** Developing a novel cell sorting technology to purify cells for transplantation

**Arash Kheradvar:** Development of a novel self-expandable bioprosthetic heart valve for percutaneous delivery and implantation

**Dara Sorkin:** Unidas por la Vida: United for Life



## AWARDEES

### 2012

**David Fruman:** mTOR kinase inhibitors: cancer therapeutics repurposed for treatment of autoimmune disease

**Kim Green:** Treating traumatic brain injuries via a novel method of brain microglia elimination

**Jung-Ah Lee:** A technology driven safety intervention for older adults new to anticoagulation therapy

**Hannah Park:** Quantitative analysis of potential plasma methylation markers for breast cancer

**Leslie Thompson:** ZFN-mediated knockdown of mutant Htt in patient-derived iPS cells

**Michael Zaragoza:** Mitochondrial and nuclear DNA “double mutations” in the progression of cardiomyopathy to end-stage heart failure

### 2013

**Hak Lee:** Quantitative assessment of the effects of hydrogen sulfide (H<sub>2</sub>S) in renal ischemic and reperfusion injury for partial nephrectomy in a porcine model using spatial frequency domain imaging (SFDI)

**Roxanne Silver:** A gene-environment study of coping among an Indonesian sample exposed to repeated natural disasters

**Kyoko Yokomori:** Development of a novel ChIP-based diagnostic assay for FSHD

**Young Kwon:** Reversing tamoxifen resistance in breast cancer

**Hiroshi Yoshioka:** Study of knee cartilage degeneration by novel orientation/thickness dependent T2 and T1rho mapping approach

**Bogi Anderson:** Cell type-specific analysis of epigenetic marks in human tissues



## AWARDEES

### 2014

**John Billimek:** The Empathy Toolkit: A prototype software application to help low-income diabetes patients overcome barriers to medication adherence

**Hye-Won Shin:** A novel noninvasive approach for inhaled corticosteroids compliance: quantification of aerosol hydrofluoroalkane elimination kinetics in the exhaled breath of asthmatics

**Bernard Choi:** Objective measure of anastomotic blood flow after gastrointestinal surgery using laser speckle imaging

**Alan Widgerow:** Signaling profile of thermal trauma (SPoTT) - exudate (fluid) analysis in acute burn patients - a diagnostic test and device with therapeutic potential

**Xiaolin Zi:** A novel mechanism of targeting LEF1 for treatment of castration-resistant prostate cancer

**Arash Kheradvar:** Development of a bio-inspired transcatheter mitral valve for transapical implantation

**Wendy Liu:** Immunomodulatory materials for bioabsorbable stents





## AWARDEES

### 2015

**Aileen Anderson:** Inhibition of neutrophil infiltration to improve donor human neural stem cell-driven motor and sensory function after spinal cord injury

**Daniela Bota:** An old drug with a new potential use: n-acetylcysteine preclinical testing as a treatment for chemotherapy-related cognitive impairment

**Lisa Flanagan:** Stem cell scaffolds to treat brain trauma

**David Fruman:** Efficacy and selectivity of a novel drug combination in aggressive lymphoma

**Harrison Lin:** Chronic implantation of the auditory nerve: a successor to the cochlear implant

**Hartmut Luecke:** Understanding how lead compounds reactivate p53 cancer mutant function using novel biochemical and biophysical techniques

**Wayne Poon:** Genetics of Sporadic AD: The Identification of Endophenotypes as Potential Diagnostic Biomarkers

**Jing Yang:** Evaluation of Retinal Progenitor Cells (RPCs) as Therapeutic Candidate for Retinopathy of Prematurity (ROP)



## AWARDEES

### 2016

**Munjal Acharya:** Adenosine kinase inhibition therapy for radiation-induced cognitive dysfunction

**G.P. Li:** Determining optimal pain medication for postoperative outpatient surgical pain using an innovative oral patient controlled analgesia device

**Melanie Cocco:** Blocking nogo to promote neuronal regeneration

**Susan Huang\*:** Improving C difficile infection CDI diagnosis, reporting, and treatment: a UC Team Science approach

**Bert Semler:** Discovery of inhibitors of a novel host activity required for human rhinovirus replication

**Leslie Thompson:** Fenofibrate as a treatment for Huntington's disease

**Lorraine Evangelista:** Informatics: transitional care using supportive techniques for advanced heart failure (TRUST)

### 2017

**Kelly Biegler:** Mi Vida, Mi Salud: A mobile health intervention for the development of personal rules promoting weight loss, symptom management, and reduction in proinflammatory biomarkers in Latina breast cancer survivors

**Daniela Bota:** Preclinical development of coumarinic compounds as a novel, mitochondrial-targeted therapy for glioblastoma

**Aimee Edinger:** Evaluation of sphingolipid-inspired small molecules as calorie restriction mimetics

**Robert Spitale\*:** Constructing the in-brain transcriptional landscape of transplanted stem cells during rescue of cognitive impairment due to radiotherapy damage

**Angela Fleischman:** SMAC mimetics as a therapeutic approach in myeloproliferative neoplasm

**Felicia Lane:** Determination of LOXL1 and Fibulin 5 levels in the vaginal secretions of women with and without pelvic organ prolapse

**Jeremiah Tao:** A digital prosthetic eye with functional eye mimicry

**Armando Villalta:** Regulatory T-cell responses in muscle degenerative disorders

**Mark Warschauer:** Telepresence robots for virtual academic inclusion and improved well-being, health, and social outcomes for homebound pediatric patients.

**Jean Gehricke\*:** The efficacy of a brief career development program for young adults with autism



## AWARDEES

### 2018

**Chris Hughes:** Validation of a microfluidic device to study patient-derived colon cancer cells and determine clinical predictive value

**Hamid Moradi:** Safety and efficacy of 2-arachidonoyl-sn-glycerol in treatment of end stage renal disease (ESRD)-related cachexia

**Kate Kuhlman:** Neuroendocrine and inflammatory mechanisms of cognitive and affective processes in adolescents exposed to childhood adversity.

**Michelle Khine:** Conformal wearable electronics to monitor congestive heart failure

**Wendy Liu:** Immunomodulatory biomaterials for skin regeneration

**Yama Akbari:** A novel, prognostic EEG signal during cardiac arrest with therapeutic potential

**William Karnes:** Robust real-time polyp detection and classification during colonoscopy using deep learning

### 2019

**Ariel Neikrug:** Interacting mechanisms of sleep and fitness: implications for health in the growing child

**Autumn Ivy:** Early-life exercise may rescue cognitive impairments after chronic early-life stress: epigenetic mechanisms in preclinical models

**Dongbao Chen:** Molecular signatures of serum endothelial exosomes in pregnant women with placenta accrete

**Hamid Djalilian\*:** Randomized clinical trial of migraine medications in treatment of tinnitus

**Ichiro Yuki:** New generation liquid embolic material for the use of endovascular treatment: An organic polymer composite activated by the Ca<sup>2+</sup> in the blood

**Jered Haun:** Microfluidic device platform for processing human fat for autologous therapies

**Michael Hoyt:** A biobehavioral intervention for young men with testicular cancer

**Shahrdad Lotfipour:** Molecular neurobiology of nicotine use

**Shahrdad Lotfipour\*:** Gut-brain axis interactions in opioid use

**Terrye Peterson\*:** Comparison study of hypoglycemia in pregnancy among women with no complications and women with diabetes



## AWARDEES

### 2020

**Brittany Morey:** Neighborhood risk and resilience for Asian American, Native Hawaiian, and Pacific Islander respiratory health disparities

**Edward Kuan:** Electrochemical point-of-care cerebrospinal fluid detection

**Lee Bardwell:** Novel inhibitors of phosphoinositide 3-kinase (PI3K) that target scaffold protein-mediated interactions

**Maya Hatch:** A novel balance assessment outcome for individuals with spinal cord injury

**Munjai Acharya:** Targeting complement signaling in glioblastoma

**Natasha Mesinkovska:** Collective mechanism of hair regrowth during Alopecia Areata resolution

**Olga Razorenova:** Dissecting the mechanism of mitochondrial fatty acid oxidation dysregulation in breast cancer

**Virginia Kimonis:** Modulation of heat shock proteins B8 by colchicine: example for neurodegenerative diseases therapy



## AWARDEES

### 2021

**Alexander Brandt:** Quantitative MRI of myelin integrity in a mouse model of toxic demyelination

**Alexandre Chan:** Augmentation of BDNF levels to prevent cancer-related cognitive impairment (ABC Study)

**Brent Yeung:** Cannabis use's effect on the endocannabinoid system and anesthetic management in patients undergoing traumatic orthopedic surgery

**Daniel Epstein:** A feasibility study of an innovative informatics application that facilitates tapering of psychiatric medications through patient-reported outcomes and shared decision-making

**Jaime Landman:** Aptamer-based urinary biosensor for bladder cancer detection and surveillance

**Joyce Lee:** Evaluating the receptiveness to wear a flash glucose monitoring system in people with prediabetes: a feasibility and acceptability study

**Peter Kaiser:** Structure function analyses of p53 cancer mutants with corrector drug leads

**Ruiming Zhao:** A trial of suppression of SARS-CoV-2-associated acute respiratory distress syndrome (ARDS) with the hHv1 blocker C6



## AWARDEES

### 2022

**Elizabeth Thomas:** Salivary Cytokines as Indicators of Early Cognitive Decline

**Hamid Djalilian:** A Novel Therapeutic Strategy of Mitochondrial Transplantation into Inner Ear for the Treatment of Hearing Loss

**Helen Ma:** Outcomes from the National Database of Lymphoid Malignancies in US Veterans Using Data from the Veterans Health Administration

**Maheswari Senthil:** Plasma Levels of Exosomal PD-L1 and Gene Expression as Predictors of Response to Immune Checkpoint Inhibitors in Gastrointestinal Cancers

**Michael Hicks:** A Combined Cell and Gene Therapy for Retrograde Delivery of Neurotrophic Payloads for Neuromuscular Disease

**Shahrdad Lotfipour:** Post-Translational Mechanisms of a 3' UTR Alpha6 Nicotinic Receptor Polymorphism in Adolescent Substance Use

**Wenqi Wang:** Developing a Small Peptide Modulator of the Hippo-YAP Pathway for Cancer Treatment



## **Notes on Data Presented in this Report**

The data and metrics displayed on pages 4 and 5 were calculated in a variety of ways, further detailed below, using internal ICTS Evaluation databases and resources. Note that outputs and ROI refer to the impact of awards conferred from 2011-2021 and include extramural funding received through December 2022.

**Program Outputs:** The number of publications is calculated by tracking all publications associated with each Pilot Awardee's original Pilot project. The cumulative total for extramural grants is tracked through the UC Irvine Data Warehouse and totals the cost of all extramural NIH grant funds received by each awardee.

**\*\*Return on Investment (ROI):** The formula for ROI is included on page 5. Related ROI refers to funds returned by the PI that are directly related to the initial research funding topic and are not counted toward the ROI if the funds result from another topic of research led by the PI. Total ROI includes any funds returned by the PI, regardless of its relation to the initial research funding topic. The values for funds returned and funds invested are shown on page 4.

**Common Metrics Initiative:** The percentages for Pilot Awardees with at least one subsequent grant and Pilot Awardees with at least one subsequent publication were calculated using the guidelines of the Common Metrics Initiative established by the National Center for Advancing Translational Science (NCATS). No longer mandated by NCATS, we continue to track these metrics for comparison over time.

\* These awardees received institutional funds, rather than NCATS funds. The metrics on Page 4 and Page 5 include both NCATS funded awardees and non-NCATS funded awardees.



# Institute for Clinical & Translational Science

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