



Institute for Clinical and Translational Science



UCI ICTS 2020 Pilot Awards Program Evaluation Summary Report

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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. Dan Cooper, Principal Investigator for 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 2-3 experienced and expert investigators, who score the proposed project for criteria such as feasibility, innovation, and translational potential.



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.

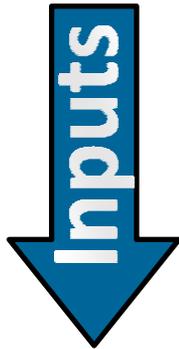
Research Acceleration and Facilitation Team (RAFT)

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.

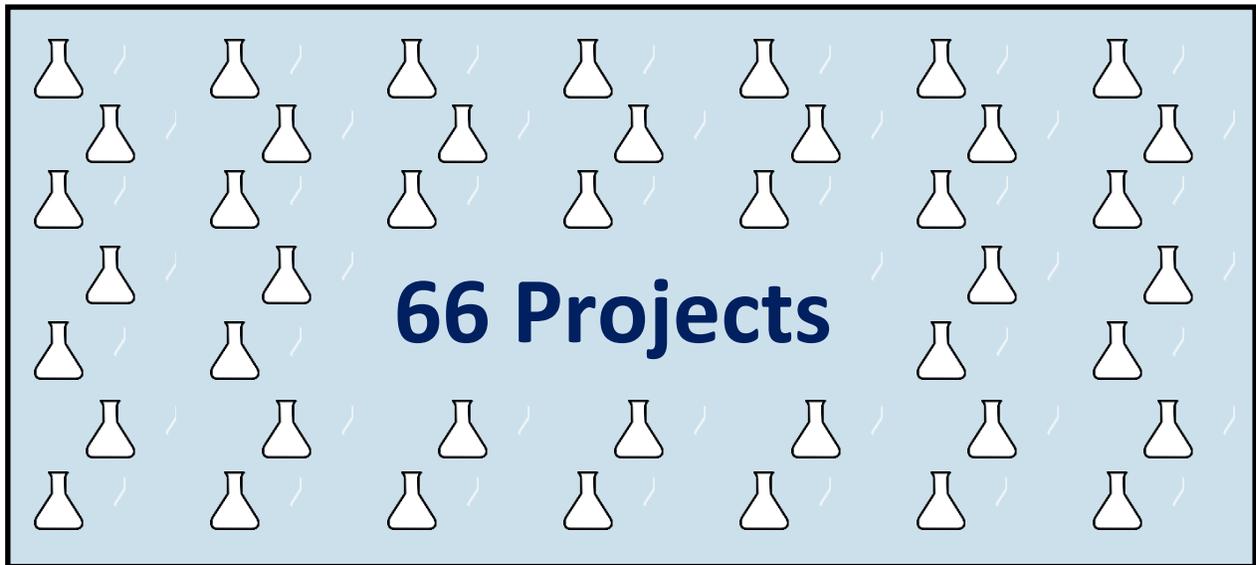
"Having an active interest from the ICTS made it feel like there was someone else who cared about whether the project was moving forward. Made it feel like I was on top of things."

–ICTS Investigator

Pilot Awards Program Outcomes



10 Years (2010-2019)
62 Principal Investigators
40 Departments
\$1,777,735 Invested



286 Publications
339 Extramural Grants
\$106,792,168 Extramural Funds



Return on Investment (ROI) for ICTS Pilot Studies Awards

$$\begin{aligned} \text{ROI} &= \\ &\frac{(\text{Funds returned} - \text{Funds invested})}{\text{Funds invested}} \\ &= 59.07 \end{aligned}$$

For every dollar invested, there have been approximately 59 dollars returned in extramural grant funding.

Percent of Pilot Studies with at Least One Subsequent Grant

43%

Percent of Pilot Studies with at Least One Subsequent Publication

56%

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 (H₂S) 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

Koyoko 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

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

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 Ca²⁺ 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

Munjal 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

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 2010-2019 and include extramural funding received through November 2020.

Demographic Information: The Evaluation Unit tracks the annual cohort of Pilot Awardees each year, including the demographic information shown in this report such as the awardee's respective department and the annual funds invested by the ICTS.

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. 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 are part of the Common Metrics Initiative from the Center for Leading Innovation & Collaboration (CLIC). As a participating Clinical and Translational Science Award (CTSA) site, the ICTS participates in sharing data that all CTSA sites must report to the National Center for Advancing Translational Science (NCATS), known as the Common Metrics Initiative. These percentages are reported to NCATS annually and calculated using a formula and worksheet distributed by CLIC.

* These awardees received institutional funds, rather than NCATS funds, and therefore were not included in the metrics above.

**Report Produced by the Evaluation Unit of the Institute for Clinical
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