

Diabetes Research Centers (DRC)



Volume 17 Issue

December 21, 2017



Director: Alan Saltiel, PhD

A WORD FROM THE DIRECTOR

Welcome to the UCSD/UCLA DRC newsletter for 2017. Our DRC was formed 15 years ago, with the goal of leveraging the combined resources of five of the nation's leading institutions, UCSD and the Salk Institute in San Diego, with UCLA, LA Biomed and Cedars Sinai Medical Center in Los Angeles, to create a vibrant networked organization devoted to supporting research into the treatment and prevention of diabetes and associated metabolic disorders. The participating institutions constitute an unprecedented wealth of expertise and experience, promoting cross-disciplinary collaborations and generating new diabetes-related programs by expanding opportunities for regional interactions and scientific exchange. Our Biomedical Research Cores provide a broad range of services, covering a variety of technologies in a coordinated and highly interactive system that responds flexibly to the needs of the faculty. The Enrichment Program promotes scientific exchange to enhance interactions between diabetes researchers and investigators from other fields. The P&F Program provides crucial financial and mentoring support to young investigators at the most critical stage of their career, and also funds promising, high-risk translational projects. Together we provide both formal and informal mentorship for young investigators, and promote the translation of basic laboratory insights into advances in the clinic, leading to new strategies for the prevention or treatment of these devastating disorders. Please check out news on the P&F program, updates on Cores, and the agenda for our upcoming retreat at UCLA.

If you are receiving this newsletter directly, you are already subscribed. If you would like to subscribe, please email smatranga@ucsd.edu. This is a moderated listserv, so messages will be prescreened such that only relevant and important messages will reach you.

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Listserv for DRC Members

Send announcements, communications, requests, etc., to your DRC colleagues:

DRC-L@UCSD.EDU

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OUR WEBSITE

DRC.UCSD.EDU

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Please remember to cite the DRC Grant in all papers that utilize DRC Cores or are supported by the Pilot and Feasibility Awards:

“Our research utilized Core (or Research) support from the UCSD/UCLA NIDDK Diabetes Research Center P30 DK063491

Diabetes Research Center Cores**Transgenic and Knockout Mouse CORE:**

Core Director: Pamela Mellon, PhD

Transgenic Mice

Jun Zhao

858-822-3270

juzhao@ucsd.edu

Gene Targeting (Embryonic Stem Cells and Blastocyst Injection)

Ella Kothari

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Metabolic and Molecular Physiology CORE:

Core Director: Andrea Hevener, PhD

Mouse Phenotyping

Andrea Hevener

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ahevener@mednet.ucla.edu

Mitochondrial Function

Karen Reue

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Luminex Analyses

Rima Boyadjian

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rboyadjian@mednet.ucla.edu

Genomics & Epigenetics CORE:

Core Director: Chris Glass, MD, PhD

Core Co-Director: Kristen Jepsen, PhD

(858) 822-2754

kjepsen@ucsd.edu

IGM Core Facility

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Check out our [MEMBERSHIP DIRECTORY](#) at: drc.ucsd.edu/about/membership

Did you get an AWARD? Please let us know and we will post it on our AWARDS PAGE at drc.ucsd.edu/research/awards

Any corrections? Contact: smatranga@ucsd.edu

Please remember to cite the DRC Grant in all papers that utilize DRC Cores or are supported by the Pilot and Feasibility Awards:

“Our research utilized Core (or Research) support from the UCSD/UCLA NIDDK Diabetes Research Center P30 DK063491

Diabetes Research Center Cores

Genomics & Epigenetics CORE continued:

IGM Core

Study Design
Sample QC
Covaris Shearing
Infinium Genotyping
Infinium Methylation
Sequencing Library Preparation
Illumina Sequencing
PacBio RS II SMRT Sequencing
(858) 822-4231
gmsamplesubmission@ucsd.edu

Human Genetics Core:

Core Director: Jerome I. Rotter, MD
Core Co-Director: Mark O. Goodarzi, MD, PhD
<http://igm.ucsd.edu/genomics/>
Core Contact:
Kaye Roll, RN
Core Contact
(310) 423-6976
kathryn.roll@cshs.org

Targeted Pathway Analysis Core:

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Lipidomics Sub-Core:

Core Director: Osvald Quehenberger, PhD
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Please visit our web site for a complete list of the DRC leadership at drc.ucsd.edu/about/leadership, or for a complete list of our members at drc.ucsd.edu/about/membership.

2017 DRC P&F Grants Awarded

Pilot and Feasibility Projects in Endocrinology & Diabetes

Pilot & Feasibility Program, Director: Peter Tontonoz

On behalf of the UCSD/UCLA Diabetes Research Center Pilot and Feasibility Grant Committee, the UCSD/UCLA DRC Center is delighted to announce that we have awarded 6 outstanding projects for seed funding in 2017 out of 17 superb applications. The number and quality of the applications is clear evidence for the remarkable scientific environment that exists in our universities for supporting diabetes research especially among promising young scientists. The UCSD/UCLA DRC funds four grantees per year at approximately \$40,000-\$50,000.

The UCSD/UCLA DRC is Proud to Announce the 2017 P&F Awardees:

2017 Junior Faculty Developmental Award winner:

Wenxian Fu, PhD, UCSD, for the proposal "Role of interleukin 2 receptor signaling in type 1 diabetes."

P&F awardees:

Steven Bensinger, VMD, PhD, UCLA, for the proposal "Determining the impact of SREBP signaling in macrophages on type I IFN-mediated inflammation and diabetes."

Wei Ying, PhD, UCSD, and LIAI, for the proposal "Adipose tissue macrophages secrete exosomal miRNAs as paracrine molecules to directly modulate insulin target cell function in response to obesity."

Marc Liesa-Roig, PhD, UCLA, for the proposal "A novel mitochondrial target determining hepatic insulin sensitivity in the obese."

Jorge F. Giani, PhD, CEDARS-SINAI, for the proposal "The role of ACE on interleukin-1 beta production by renal tubular epithelial cells."

Ju Youn Kim, PhD, UCSD, for the proposal "New Role of Caspase 2 in SREBP activation and de novo Lipid Synthesis via S1P cleavage."

Philip Gordts, PhD, UCSD for the proposal "Genetic Analysis of adipocyte-associated Proteoglycans in type-2 diabetes and obesity."

Please join us in congratulating these promising young investigators!

See a full history of our P&F awardees at: drc.ucsd.edu/pf/award-history

Final Report and Presentation at the Annual Retreat

A report on each pilot and feasibility study conducted will be provided at the end of the study period and an update will be provided yearly for four years after the completion of the award. These brief reports will contain professional career status at the time of the award and at the time of the report; an overview of the project including its significance and salient results; a list of resulting publications; and peer-reviewed subsequent funding in the same or related areas. Funded P&F investigators will attend the annual DRC retreat as well as a meeting of Regional P&F awardees, and present the results of their work in the year immediately following their award. Travel to these meetings will be charged to the individual P&F awards.

ALL PAPERS MUST CITE **P30 DK063491**

DRC Genomics and Epigenetics Core

Director: Chris Glass, MD, PhD and Co-Director: Kristen Jepsen, PhD

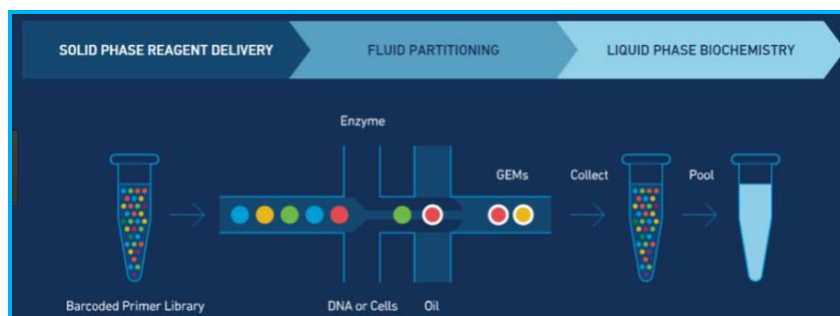
The DRC Genomics and Epigenetics Core is a state-of-the-art facility that facilitates high-throughput genomic approaches. High-throughput sequencing, data acquisition and analysis require expensive instrumentation and reagents and a highly skilled team of individuals who are experts in specific components of the overall procedure. These technologies therefore lie beyond the scope of most individual laboratories. The DRC Genomics and Epigenetics Core has been instrumental in providing DRC investigators access to these technologies. Their value in discovery research enables investigators to identify signal transduction pathways, uncover new targets for therapeutic intervention, and reveal biomarkers for disease detection and prognosis.

The Genomics and Epigenetics Core offers full services for genomics research, including:

1. Assay design consultation
2. Sequencing library preparation (DNA/RNA/smallRNA/targeted sequencing)
3. Single cell RNA sequencing (highlighted below)
4. Illumina platform sequencing (MiSeq, HiSeq2500 and HiSeq4000),
5. PacBio SMRT sequencing
6. Illumina genotyping and methylation arrays
7. Analytical services

For more information, visit our website: <http://igm.ucsd.edu/genomics/>

DRC Genomics New Technology Alert! The Genomics and Epigenetics Core now has 10X Genomics Chromium Controller. The 10X GemCode Technology partitions cells or arbitrarily long DNA molecules (including >100 kb) and prepares sequencing libraries in parallel such that all fragments produced within a partition share a common barcode. Libraries are then sequenced on Illumina sequencing instruments.



ALL PAPERS MUST CITE **P30 DK063491**

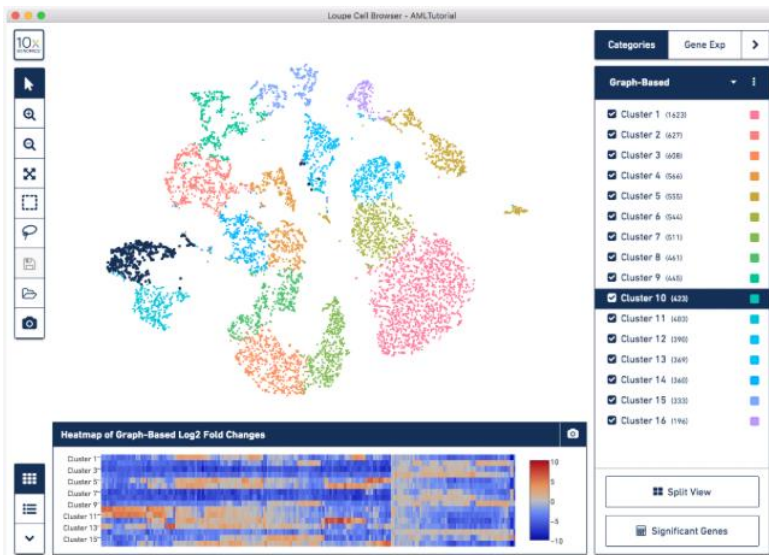
DRC Genomics and Epigenetics Core Continued

Director: Chris Glass, MD, PhD and Co-Director: Kristen Jepsen, PhD

Current applications include:

1. Single Cell RNA sequencing
2. Single Cell V(D)J profiling combined with RNA sequencing
3. Whole genome sequencing with linked reads
4. Exome sequencing with linked reads

Long Ranger and Cell Ranger pipelines are used to analyze data, and the Loupe browser allows data visualization.



To date, the Genomics and Epigenetics Core has completed RNA sequencing on over 2 million single cells!

Contact us for more information
kjepsen@ucsd.edu

Loupe Cell Browser can be used to visualize data and accelerate analyses.

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UCSD-UCLA Diabetes Research Center Retreat

February 27, 2018

Luskin Conference Center, UCLA



Junior Faculty Workshop (9:00 am – 11:30am) Laureate Room

Coffee and morning refreshments served from 8:30-9:30 am

- 9:00-9:30am Navigating the NIH System – how to generate a competitive new investigator R01**
- 9:30-10:15am Publishing Impact Science – panel discussion including top journal editors**
- Sarah Jackson – JCI
 - Nikla Emambokus - Cell Metabolism
 - Paula Kiberstis - Science
- 10:15-11:15am Beyond the Academy – the job market and finding the right science profession**
- Ron Margolis, PhD – Former NIH NIDDK Program Officer - Big Data Science Initiatives
 - Thomas Gus Gustafson, PhD - VP - Scientific Innovation - CVM , Johnson & Johnson Innovation Center
 - Cindy Hong, PhD - Senior Manager CVMED External Opportunities, Pfizer – Academia/Industry Collaborations
 - Amy Wang, PhD, MBA - MDB Capital Group, Managing Director Investment Banking – Biotech startups

11:15-11:30am Questions, Answers, Discussion

11:30am-12:30pm LUNCH – *Plateia Restaurant* – Luskin Conference Center

DRC P&F Speakers and Invited Guests (12:30 am – 5:00pm) Laureate Room

12:30-12:40pm Welcome and Introduction Alan Saltiel, PhD (PI)

12:40-12:45pm The State of the DRC P & F Peter Tontonoz, MD PhD

12:45-1:45pm Keynote Address - Bruce Spiegelman, PhD - Stanley J. Korsmeyer Professor of Cell Biology and Medicine Dana-Farber Cancer Institute, Harvard Medical School

Title: *Brown and Beige Fat: Basic Science and Therapeutic Potential*

1:45-2:05pm Philip Gordts, PhD (UCSD) – P&F Award - *Genetic analysis of apoC-III in remnant lipoprotein clearance and atherosclerosis.*

2:05-2:25pm Wenxian Fu, PhD (UCSD) - P&F Award - *IL-2/IL-15Rb blockade restores immune tolerance in type 1 diabetes*

2:25-2:45pm Jorge Giani, PhD (CSMC) - P&F Award - *The role of angiotensin-converting enzyme in renal inflammation and sodium retention during diabetic nephropathy*



UCSD-UCLA Diabetes Research Center Retreat

February 27, 2018

Luskin Conference Center, UCLA



2:45-3:00pm Coffee Break

3:00-3:20pm Ju-Youn Kim, PhD (UCSD) - P&F Award - *ER stress drives lipogenesis and steatohepatitis via Caspase-2 activation of S1P*

3:20-3:40pm Marc Liesa-Roig, PhD (UCLA) - P&F Award - *The mitochondrial transporter ABCB10 in liver drives hyperglycemia and steatosis in obesity*

3:40-4:40pm Invited DRC Speaker - Chris Glass, MD PhD – UCSD, Department of Cellular and Molecular Medicine – Director, Genomics and Epigenetics Core. Title: *Nature and Nurture of Tissue Resident Macrophages*

4:40-5:00pm Closing Remarks and Instructions for Poster Session

5:00-7:00pm Poster Session – Wine & Cheese Reception

DRC P&F Grants Announcement Updates

2018 Pilot and Feasibility Projects in Endocrinology & Diabetes

As part of the mission of our UCSD/UCLA Diabetes Research Center (DRC) grant, the Pilot and Feasibility grant program will support grantees at approximately \$40,000-50,000 direct costs (with additional ~55% indirect costs) in 2018.

Applications DUE: **March 1st, 2018, to Dr. Peter Tontonoz at ptontonoz@mednet.ucla.edu**

The DRC P&F mechanism will fund innovative new projects that will explore the feasibility of novel testable concepts and enhance the endocrine/diabetes research scope within the institutions. A special emphasis on promoting promising junior faculty involved with diabetes research is key to the UCSD/UCLA P&F mission. It is expected that P&F studies will generate preliminary data that will be used by these investigators in diabetes/endocrinology-related R01 applications in the years following their award.

The DRC is also pleased to partner with the CTSIs at UCLA, Cedars and UCSD to specifically support clinical and/or translational research relevant to diabetes. The DRC strongly encourages submission of pilot and feasibility proposals in this area.

P&F grant format

Failure to meet the formatting requirements will lead to an administrative disqualification of the proposal. The P&F grant applications should include:

- (a) Face page with the title of the grant, the name, email, academic title, department, and institution of the PI, the names of additional personnel and collaborators and a 200-word abstract.
- (b) Biosketches for the PI and other key personnel (standard 5-page NIH format).
- (c) The scientific proposal (5-page limit).
- (d) References.

The entire grant **must be submitted** as a single emailed pdf file less than 2 MB in size. If the grant includes high-resolution images, these must be reduced to meet the size requirement. Failure to provide a single pdf file or a file that is too big will result in disqualification. No budget is required, but the scope of the work should be appropriate for a 1-year project and the funds cannot be used for PI salary.

Eligibility

All eligible investigators must have faculty appointments at UCLA, Salk, Cedars, or UCSD, and be independent investigators. To be eligible for a P&F grant you need to be eligible to submit an R01 as a PI at the end of the one-year grant period. A joint appointment at an affiliated institution is allowed. Post-doctoral fellows may submit a grant if they provide a letter from their Chair stating that they are about to be appointed to the faculty. Investigators eligible for pilot and feasibility funding generally will be expected to fall into three categories:

DRC P&F Grants Announcement Updates Continued

(Category 1) New investigators without current or past non-mentored NIH research support as a principal investigator (current or past support from other sources being modest).

(Category 2) Established investigators with no previous work in diabetes that wish to apply their expertise to a problem in this area.

(Category 3) Established investigators in diabetes/endocrinology research who propose testing innovative ideas that represent clear departure from ongoing research interests.

Emphasis is placed on Category 1 applicants.

Interactions with other DRC components

It is expected that junior faculty will be able to rely on the advice and support of a senior DRC investigators and will have a priority access to DRC Cores, including an opportunity to discuss their projects in depth with the core directors in order to receive maximum benefits from their services. Similarly, investigators with no previous experience in diabetes/endocrinology research will be expected to have a DRC collaborator. P&F grantees will be encouraged and expected to utilize DRC core resources. However, the award is given only to the designated PI and not to collaborators.

Final report and presentation at the annual retreat

A report on each pilot and feasibility study conducted will be due at the end of the study period and an update will be requested yearly for at least four years after the completion of the award. These brief reports will contain professional career status at the time of the award and at the time of the report; an overview of the project including its significance and salient results; a list of resulting publications; and peer-reviewed subsequent funding in the same or related areas. Funded P&F investigators will be expected to attend the annual DRC retreats alternating between Los Angeles and La Jolla, and present the results of their work in the year immediately following their award and continue to attend the annual meetings for at least three years thereafter. Travel to these meetings can be charged to the individual P&F awards.

ALL PAPERS MUST CITE P30 DK063491 and obtain a PMCID number from NCBI for all publications.

Notification procedure:

After approval of the funding decisions by the DRC executive committee, funded and unfunded investigators will be notified and, when appropriate, a brief summary of the reviews will be sent to them by email (not a detailed critique). The expected activation date is 5/1/2018.