

UCLA Technology Development Group  
INNOVATION MAGAZINE

JULY 2018 | V. 02



A Campus-wide  
Gateway to  
*Innovation*  
Research and  
*Entrepreneurship*



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## A MESSAGE FROM THE ASSOCIATE VICE CHANCELLOR, CEO & PRESIDENT

**WELCOME** to the second Innovation Magazine from the **UCLA Technology Development Group**. In this issue we highlight UCLA TDG accomplishments in recent months! Our many projects are fully under way and we have established partnerships at multiple levels within the UC ecosystem, investors and with industry professionals. Featured in this issue of the magazine is storytelling and background on the TDG team, our recent deal making, what we do and how we've arrived at our success and growth.

The team is committed to high quality of service and has been hard at work launching several initiatives for researchers, students, faculty, investors and industry professionals. As you read through the magazine, you will learn about our recent activities, such as the launch of our newly redesigned website, the success of the inaugural UCLA Biomedical and Life Science Innovation Day and various deal successes.

There is exciting news with the Technology Development Corporation Board of Directors. I'm pleased to announce that William (Bill) Mitchell has been appointed Chairman of the TDC Board in succession to Tom Unterman, who retired as Chair but will remain on the Board. Mr. Mitchell is the founder and partner of Sequel Venture Partners, LLC, formed in January 2010 to invest in managed IT services companies utilizing venture capital, private equity and other investment vehicles. Mr. Mitchell will be acting Chair as of July 12.

At UCLA TDG we strive to serve as a campus-wide gateway to **Innovation, Research** and **Entrepreneurship**. Please contact us at [info@tdg.ucla.edu](mailto:info@tdg.ucla.edu) to learn how we can help you with patents, licensing, collaborations and startups.



Sincerely,

A handwritten signature in blue ink, appearing to read 'Amir Naiberg'.

Amir Naiberg  
Associate Vice Chancellor, CEO and President

## NOTE FROM THE EDITOR

**ELIZABETH BAZARKO**

*Marketing Manager*  
UCLA TDG

**CONTACT INFORMATION**

[elizabeth.bazarko@tdg.ucla.edu](mailto:elizabeth.bazarko@tdg.ucla.edu)  
310.794.7481



Elizabeth Bazarko joined UCLA TDG in June 2017. In her role as the Marketing Manager, Elizabeth is responsible for the marketing business strategy, brand identity, digital management, internal and external communications, graphic design, advertising and media relations for the TDG division. She brings over a decade of marketing and communications experience, having previously worked in the Healthcare, Financial and Real Estate industries in various expanding roles at Wellspect HealthCare, PricewaterhouseCoopers LLP and Cushman & Wakefield. Elizabeth holds a B.A. from California State University, Fullerton in Communications with an emphasis in Public Relations.

I'm pleased to invite you to our summer edition of the UCLA TDG biannual Innovation magazine. This electronic magazine is not only a way for us to continue the UCLA Green Initiatives, but also to share UCLA TDG news, info and success stories with you.

With the goal of providing a sound resource for our readers, we are excited about some of the changes from our initial publication (December 2017). You will notice new design elements and a shift in tone & content. We've elected to close out the year by providing UCLA TDG metrics and analytics in our winter edition, and shift the focus of our summer edition to human interest stories, helpful resources and staff highlights & updates.

We are proud of the support we provide to the greater UCLA ecosystem and industry professionals. This newsletter allows us to share some of those successes and highlight the team making it all happen.

Inside this summer update, I invite you to:

- **Celebrate the success** of our colleagues' accomplishments & awards
- **Read about** the process behind the **new UCLA TDG website**
- **Celebrate the success** of the **inaugural UCLA Biomedical & Life Science Innovation Day**, the **Pearl Cohen Poster Competition award winners** and the **Amgen Early Innovator award winners**
- **Learn about** recent **UCLA TDC** and **UCLA TDG Tech Fellow** updates

We value you staying connected with us, and I hope this is another means for you to keep in touch with the latest UCLA TDG news. We welcome your feedback on this communications piece, as well as any additional information you'd like to share.

Thank you for taking the time to read through the UCLA TDG Magazine - July publication and providing us with your thoughts! I wish everyone a most wonderful 4th of July holiday and summer!

*- Elizabeth Bazarko*



# refresh

## Introducing a brand new TDG.UCLA.EDU



### WEBSITE FEATURES

- Interactive & SMART available technologies sort feature
- Logical roadmap & clear navigation
- Resourceful links & content
- Responsive design

UCLA TECHNOLOGY DEVELOPMENT GROUP  
10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095  
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\*Images not scaled to size and may differ on electronic devices



## UCLA TECHNOLOGY DEVELOPMENT CORPORATION - UCLA TDG BOARD OF DIRECTORS -

**The Technology Development Corporation (TDC)** is the UCLA TDG Board of Directors, comprised of distinguished UCLA faculty and executives from a range of industries, including biopharmaceuticals, engineering, finance, private equity and venture capital. Board members provide guidance in making strategic investment decisions, oversight and direction to TDG's activities.

This July Mr. Tom Unterman will retire as Chairman of the Board, a role he assumed in 2014 with the creation of the UCLA Technology Development Corporation. While acting Chair, Mr. Unterman's expertise and commitment led TDC to make significant progress in creating economic value to support the UCLA mission. Mr. Unterman will remain on the Board for the next year before fully retiring from the TDC.

Please join us in thanking Mr. Unterman for his years of guidance and expertise and wishing him a wonderful retirement as Chairman.



**Mr. Tom Unterman**  
TDC Retiring Chairman

### **ROGER WAKIMOTO**

Vice Chancellor for  
Research

*Mr. Unterman's service as Chair of the UCLA Technology Development Corporation has significantly enhanced the strategic financial foundation of UCLA's research development and commercialization efforts.*

### **TIM GRAUERHOLZ**

CFO & COO

*Tom... You are one of the main foundations to TDG's success over the past several years. Your leadership and guidance have been an inspiration to all of us that have had the privilege to work with you, and the contributions that you have imparted to TDG are invaluable. Congratulations on your retirement as Chairman!*

### **AMIR NAIBERG**

Associate Vice Chancellor,  
CEO & President

*Tom, as you step down this July as the first TDC Chairman, we will all reflect on your tremendous leadership of UCLA campus innovation development. Your direct oversight with complex situations such as the Xtandi, Kybella and Medivation transactions were a huge impact in bringing UCLA TDG to where it is today. I hope that your work here adds some fun "war stories" to your extensive experience. We thank you for your unwavering guidance over the past 4 years and look forward to your continued involvement with the TDC Board of Directors.*

### **EMILY LOUGHRAN**

Sr. Director of Licensing &  
Strategic Alliances

*To say Tom has made a mark on UCLA would be an understatement in so many ways. Most notably, Tom did something I thought was not possible—monetization. How wrong I was!!*

*Notwithstanding some intense drama, Tom led the process for Xtandi in the most precise, rapid and well choreographed fashion. It was awe inspiring and ultimately prescient. Thank you Tom!!*



# TDG BOARD OF DIRECTORS



**William Mitchell**  
Chairman\*



**Norman Abrams**



**Fabrizio Bonanni**



**Michael J. Cleare**



**Michael Dal Bello\*\***



**Judy Gasson**



**David Gilman\*\***



**Shannon Hansen**



**Paul Hudson**



**Christoph Hüls**



**Ava Jakobovits**



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**John T. Mapes**



**Judy D. Olian**



**Robert Pacifici**



**Mathew Pendo\*\***



**Barbara Sosnowski**



**Stephen Yslas**



**Tom Unterman**

\* Active July 12, 2018

\*\* New Board Member



## UCLA TECHNOLOGY DEVELOPMENT GROUP (TDG)

# Gateway to Innovation, Research and Entrepreneurship

TDG supports UCLA's research, education and service mission. Working with TDG is a complementary approach to traditional publishing that can facilitate the translation of UCLA discoveries into new products and services that have the potential to broadly benefit the public. Our office manages a large portfolio of technologies and active license agreements, and TDG has a rich history of startup company formation that we continue to build upon.

**PATENTS**

•

**LICENSING**

•

**COLLABORATIONS**

•

**STARTUPS**

•

**INVESTMENTS**

To learn more about the Technology Development Group, please visit: **TDG.UCLA.EDU**

10889 Wilshire Blvd., Suite 920, Los Angeles, CA 90095  
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## ACCOMPLISHMENTS &amp; AWARDS

**RAGAN ROBERTSON**  
 2018 Bayh-Dole Award


Ragan Robertson, Business Development & Information Systems Officer for the UCLA Technology Development Group, has been recognized by the Association of University Technology Managers (AUTM) with the 2018 Bayh-Dole Award.

The Bayh-Dole Award is given in recognition of the recipient's efforts to foster

and promote intellectual property activities on behalf of the university and nonprofit community.

To learn more, please visit the [UCLA TDG website](#) and social channels, the [UCLA Newsroom - Faculty + Staff page](#) or the [AUTM website](#).

Tom Lipkin, Head of New Ventures for the UCLA Technology Development Group, and Professor Aydogan Ozcan, UCLA Chancellor's Professor of Electrical Engineering and Bioengineering and an Associate Director of the California NanoSystems Institute, have been recognized by Biocom

with Life Science Catalyst Awards!

To learn more, please visit the [UCLA TDG website](#) and social channels, the [UCLA Newsroom - Faculty + Staff page](#) or the [Biocom website](#).

**TOM LIPKIN**  
 2017 Life Science Catalyst Award


## 18 UCLA RESEARCHERS AND SCIENTISTS RECEIVE AWARDS FROM UCLA INNOVATION FUND

Eighteen professors, researchers and clinicians at UCLA have been named recipients of awards from the 2017 UCLA Innovation Fund Biomedical Competition, which was established to quickly move technologies from idea to the marketplace and bridge the gap between academia and industry-investor interest to provide benefit to patients and the public.

The money, up to \$200,000 in some instances, is intended to advance projects toward project-specific milestones, which further enables these technologies to be licensed to an existing company or a startup. These funds support commercialization activities that would not usually be supported by basic research grants, allowing researchers to develop their technologies to a point where the chances of success are greatly increased. Importantly, all awarded projects receive consultations from an outside industry and investor advisor panel that provides technical and commercial feedback key to technology development.

The UCLA Innovation Fund was established by the UCLA Technology Development Group in conjunction with UCLA Health, the David Geffen School of Medicine at UCLA, the UCLA Samueli School of Engineering, the School of Dentistry and the UCLA College's divisions of life sciences and physical sciences.

"The collaboration between David Geffen School of Medicine, the Technology Development Group and other schools allowed UCLA's Innovation Fund to become a leading effort in bridging the gap between academia and an investable opportunity," said Amir Naiberg, Associate Vice Chancellor, and President and CEO of UCLA Technology Development Corporation, who leads the UCLA Technology Development Group.

The applicants were evaluated on novelty, significance and potential public benefit, as well as the status of the intellectual property and other factors relating to the importance and relevance of the project.

"The combined expertise in scientific reviews conducted by faculty in the schools and business reviews conducted by TDG added to the success of the program," said Dr. Kelsey Martin, Dean of the medical school.

There were three tracks in the 2017 biomedical cycle: Therapeutics, Medical Device or Diagnostics and Digital Health.

### RECIPIENTS FOR WORK IN THE THERAPEUTICS TRACK:

- Assistant professor of radiology Holden Wu and distinguished professor of chemistry Jeffery Zink were recognized for their work with a novel nanoparticle platform to control where and when cancer drugs are released to fight disease within a patient, with the hope of limiting damage to healthy tissue.
- Dr. Thomas Carmichael, Professor of Neurology, and Tatiana Segura, Professor of Chemical and Biomolecular Engineering, were awarded funds for their study of biomaterials for brain repair to aid in stroke recovery.



## RECIPIENTS FOR WORK IN THE THERAPEUTICS TRACK (CONT.):

- Ren Sun, Professor of Pharmacology and Bioengineering, was honored for his research on rational Influenza vaccine design.
- William Lowry, Professor of Molecular, Cellular and Developmental Biology, and Associate Professor of Biological Chemistry Heather Christofk and Distinguished Professor of Chemistry Mike Jung were recognized for their work on stimulating hair growth in hair follicle stem cells.
- Jung and Dr. Richard Pietras received their award for their study of drug resistance within ER-positive breast cancer.

## RECIPIENTS FOR WORK IN THE MEDICAL DEVICES OR DIAGNOSTICS TRACK:

- Segura and pediatric surgeon Dr. Nicholas Bernthal were awarded for their work on a novel antimicrobial coating to limit infections associated with orthopedic implants.
- Mona Jarrahi, Professor of Electrical Engineering, was recognized for her project on terahertz imaging to improve quality control processes for dental patient products
- Dr. Brian Koos of UCLA Health was honored for his research about non-invasive screening for gestational diabetes in the first trimester of pregnancy.
- Professor of Cardiology and Radiology Dr. Kalyanam Shivkumar and Cardiologist Dr. Olcay Aksoy were honored for their progress on the creation of an artificial cord for minimally invasive mitral valve repair in the heart.

## RECIPIENTS FOR WORK IN THE DIGITAL HEALTH TRACK:

- Assistant Professor of Neurosurgery and Orthopedics Dr. Luke Macyszyn and neurological researcher Bilwaj Gaonkar were awarded for their work with computer-aided diagnosis of spinal disease.
- Computer science researcher Navid Amini and ophthalmologist Dr. Kouros Nouri-Mahdavi were recognized for their project using head-mounted displays to compensate for neurological vision loss and enhance patients' field of view."

UCLA Newsroom. (2018). 18 UCLA researchers and scientists receive awards from UCLA Innovation Fund. Retrieved from: <http://newsroom.ucla.edu/dept/faculty/18-ucla-researchers-and-scientists-receive-awards-from-technology-development-group>

# UCLA INNOVATION FUND FIRST CAMPUS-WIDE COMPUTER SCIENCE COMPETITION

The UCLA Innovation Fund partnered with Bow Capital and Osage University Partners to launch the first campus-wide computer science competition held on May 17th at the California NanoSystems Institute (CNSI) at UCLA. The event was hosted by the UCLA Technology Development Group (TDG) with support from the UCLA Henry Samueli School of Engineering and Applied Science and CNSI.

The goal of the UCLA Innovation Fund's Computer Science Competition is to further develop early-stage software created at UCLA to the point of startup company formation. The competition consisted of an online application, and finalists were invited to publicly pitch to an external panel of VC judges. First and second place winners received investment capital, preferred services through UCLA's Startup in a Box program, and co-working space in Magnify, the CNSI Incubator.

David Shadpour, CEO of Social Native, was the keynote speaker at the inaugural event. Prof. Bahram Jalali, Prof. Alexander Hoffmann, Dr. Cejo Konuparamban Lonappan, and Ms. Madhuri Suthar were awarded first place for their company, Cytolive. Their company will further develop an automated live cell imaging software tool for analyzing time lapse microscopy videos for commercial and research applications. Prof. Louis Bouchard, Dr. Khalid Youssef, and Mr. Joseph Noor were runners-up for their company, MLX, which will provide deep neural network 2nd order training capabilities for machine learning tasks with big data applications.

To learn more about the Innovation Fund Computer Science Competition, please visit the [UCLA TDG website](#).

## 2018 INAUGURAL COMPUTER SCIENCE COMPETITION ANNOUNCEMENT

January 22, 2018  
Newsroom  
Article

### ***Calling all aspiring software company founders.***

Are you a UCLA faculty member, staff member or undergraduate or graduate student with an early-stage software idea that you believe could propel a successful start-up company? If so, a new campus-wide computer science competition might be your ticket to entrepreneurship.

The first-place winner of the competition will receive \$75,000 in investments to support commercialization activities. Similarly, the second-place winner will receive \$50,000 in

investments to support commercialization activities.

Applications must be received by March 2, 2018. Finalists will be announced March 30 and pitch presentations will be held May 17, 2018. The competition is sponsored by the UCLA Innovation Fund in partnership with Bow Capital and Osage University Partners.

###

UCLA Newsroom. (2018). Calling all aspiring software company founders. Retrieved from: <http://newsroom.ucla.edu/dept/faculty/calling-all-aspiring-software-company-founders>



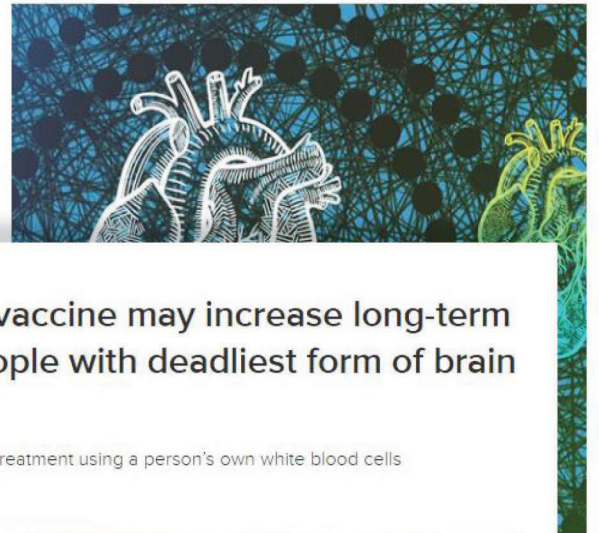
# We have UCLA research news covered

## SCIENCE + TECHNOLOGY

### New algorithm more accurately predicts life expectancy after heart failure

help health care providers make better use of life-saving resources

UCLA | May 17, 2018

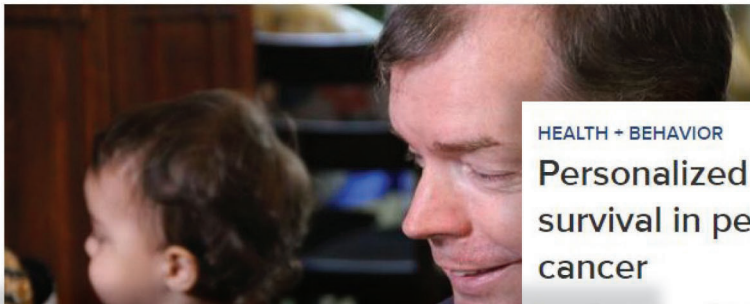


## HEALTH + BEHAVIOR

### App helps new and deaf parents know when and why their baby is crying

Chatterbaby uses artificial intelligence to help determine if baby is hungry, fussy or in pain

Simi Singer | May 22, 2018

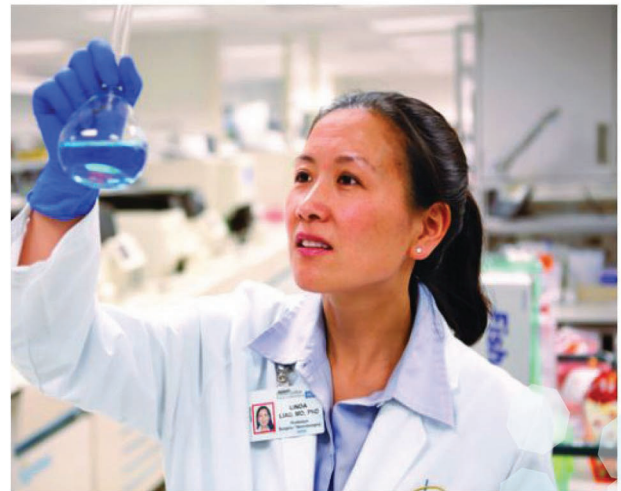


## HEALTH + BEHAVIOR

### Personalized vaccine may increase long-term survival in people with deadliest form of brain cancer

evaluates treatment using a person's own white blood cells

UCLA | May 05, 2018



UCLA Jonsson Comprehensive Cancer Center

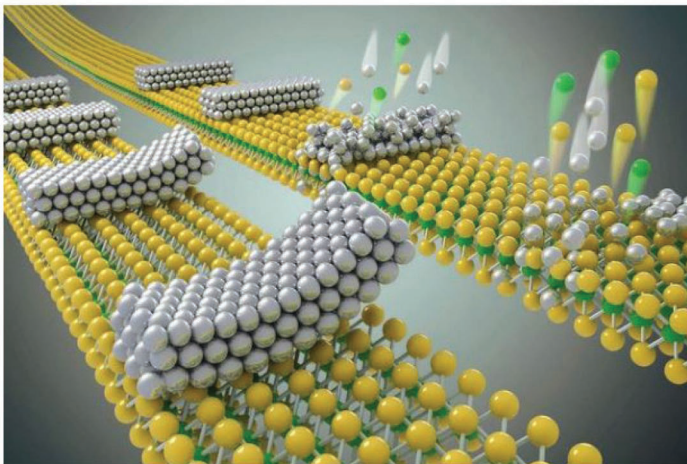
the study's lead author; said the treatment uses the patient's own tumor to make the vaccine.

## SCIENCE + TECHNOLOGY

### Tiny defects in semiconductors created 'speed bumps' for electrons. UCLA researchers cleared the path

New technique could improve electronics' energy efficiency by removing the microscopic flaws usually formed during manufacturing

Matthew Chin | June 08, 2018



UCLA

The new technique (left, foreground) prevents tiny defects from forming by laminating a thin sheet of metal (silver spheres) to the semiconductor layer (yellow), creating a better fit than the current process (right, background).

**UCLA** Newsroom

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# FDA CLEARS SENSYDIA'S CARDIAC PERFORMANCE SYSTEM



***The Sensydia Cardiac Performance System (CPS) is the first patient-worn system to provide Ejection Fraction information to clinicians for evaluation of cardiac function for diagnosis and management of heart disease and abnormal heart function***

Los Angeles CA—The Food and Drug Administration (FDA) has cleared Sensydia Corporation’s revolutionary Cardiac Performance System (CPS), a non-invasive, patient-worn, device for automated measurement of Ejection Fraction. Sensydia has developed CPS to solve an unmet need for convenient and accurate direct measurement of cardiac Ejection Fraction, which is a primary factor in diagnosis and management of patients with heart disease and abnormal heart function. CPS is a non-invasive, patient-worn device that allows clinicians to measure and analyze Ejection Fraction without operator interpretation to provide fast information about heart health.

The Sensydia CPS was developed through a combination of cardiac physiology insight, extensive clinical trials, and the introduction of novel machine learning methods for development of device analytics. CPS provides validated Ejection Fraction measurements using a new, low cost sensing technology that incorporates disposable sensors and signal processing algorithms.

CPS has been proven in clinical trials to be equivalent in accuracy to echocardiography measurement of cardiac ejection fraction. “The development of CPS is a result of a multi-disciplinary medical and engineering approach to solving the most critical problems facing healthcare—heart diseases including heart failure,” said Aman Mahajan MD, Sensydia’s Chief Medical Officer. “We have developed a patient-centered solution that provides a convenient assessment capability for measuring cardiac ejection fraction in patients anywhere, with no operator technical challenges nor errors related to operator interpretation. Our clinical trials confirm that we can deliver a low cost, easy to use solution that delivers precise and reliable results.” Integrating CPS into patient care also addresses three critical issues in healthcare today: the transition to

patient-centered treatment; risk management in healthcare delivery; and the trend from centralized hospitals to networks including satellite clinics. “CPS generates data that can be easily used to manage cardiac risk in the healthcare delivery system,” said Tom Bruggere, CEO. “In addition, CPS is perfect for the emerging trend in healthcare delivery from centralized hospitals to networks including satellite clinics—this low cost, patient worn, and easy to use system does not require large investments in capital or training.”

CPS sensing and analytics technology is immediately available to enhance and to integrate with current patient care monitor systems. “CPS relies on a series of unprecedented breakthroughs based on cardiac physiology principles and exploiting fundamental sensing and analytics technology advances. CPS is immediately available to enhance standard patient care technology everywhere” said William Kaiser, PhD, Chief Technology Officer. “We designed CPS for immediate application in patient assessment in accordance with healthcare best practices.”

“Colle Capital backed and actively support a team with an incredible vision and deep domain expertise. We are thrilled with the progress Sensydia has made and excited for the future product roadmap. What excites me the most is the reach of this technology beyond immediate applications. I envision this approach to extend beyond patient evaluation for heart function, with future applications to provide comprehensive diagnostic and monitoring capabilities for heart health. It can potentially save an enormous number of lives and significantly reduce overall cost associated with cardiac care,” said Victoria Grace, founder of Colle Capital and Board member of Sensydia.

For more information contact:  
Sensydia Corporation  
info@sensydia.com

####

Sensydia. (2018). FDA Clears Sensydia’s Cardiac Performance System. Retrieved from: <https://www.sensydia.com/fda-approves>

BDO: Emily Waldron Loughran  
Lead Inventor: Aman Mahajan & Bill Kaiser  
School: UCLA Schools of Medicine and Engineering

## DISCOVERY OF 4 SUBTYPES OF MELANOMA POINTS TO NEW TREATMENT APPROACHES

**Researchers compared melanoma cells' gene expression patterns to information in public genetics databases to identify four subtypes of melanomas with different drug sensitivities**

### FINDINGS

Melanoma, a relatively rare but deadly skin cancer, has been shown to switch differentiation states — that is, to regress to an earlier stage of development — which can lead it to become resistant to treatment. Now, UCLA researchers have found that melanomas can be divided into four distinct subtypes according to their stages of differentiation. Cell subtypes that de-differentiated — meaning that they reverted back to a less-mature cell — showed sensitivity to a type of self-inflicted cell death called ferroptosis.

The research also showed that certain subtypes of melanoma cells could be successfully treated using multiple cancer therapies in combination with ferroptosis-inducing drugs.

### BACKGROUND

Melanoma arises from melanocytes, cells that produce pigments. Although targeted therapies and a greater understanding of cancer immunology have significantly improved survival, many patients either relapse or do not respond to treatment.

### METHOD

The UCLA team, led by Dr. Thomas Graeber, analyzed the gene expressions of melanoma cells and compared them to information in public genetics databases to identify the four different subtypes of melanoma with different drug sensitivities. The team organized the melanoma cells according to characteristic patterns of genes they had turned on. Comparing the gene expression patterns to data from stem cells induced to differentiate to melanocytes, they discovered that melanomas can be found in four different differentiation states.

"This refined characterization improves our understanding of the progressive changes that occur in melanoma cells during dedifferentiation, which can help develop better strategies to target this form of therapy resistance," said Jennifer Tsoi, who was a member of the research team as a UCLA graduate student and now is a postdoctoral fellow at UCLA.

The investigators then searched pharmacogenomics databases for compounds that could best be used to treat melanomas characterized by the dedifferentiation expression pattern, either individually or in combination with other drugs.

### IMPACT

The study introduces a new area of therapeutic possibilities for melanoma, because it is the first to link ferroptosis to melanoma differentiation states. It also more precisely defines

different subtypes of melanoma based on specific gene expression and metabolic profiles that characterize four steps along a trajectory taken by melanoma cells as they respond to exogenous stresses such as drug treatments. The approach for targeting dedifferentiated melanomas could complement existing standard-of-care therapies, since kinase inhibitors and immunotherapy do not target de-differentiated cells as effectively as they target differentiated cells.

"Furthermore, these standard-of-care therapies can induce dedifferentiation, and thus in a co-treatment setting, ferroptosis induction can potentially block melanoma cells attempting to take this escape route," Graeber said.

### AUTHORS

Graeber is a professor of molecular and medical pharmacology at the [David Geffen School of Medicine at UCLA](#) and a member of the [UCLA Jonsson Comprehensive Cancer Center](#). Tsoi is the first author. Other authors, also of UCLA, are Dr. Lidia Robert, Kim Paraiso, Carlos Galvan, Katherine Sheu, Johnson Lay, Dr. Deborah Wong, Mohammad Atefi, Roksana Shirazi, Xiaoyan Wang, Daniel Braas, Catherine Grasso, Dr. Nicolaos Palaskas and Dr. Antoni Ribas.

### JOURNAL

The research is published online in [Cancer Cell](#).

### FUNDING

The research was supported by grants from the National Cancer Institute, the American Cancer Society, the Melanoma Research Alliance, the Concern Foundation, the Parker Institute for Cancer Immunotherapy, the Dr. Robert Vigen Memorial Fund, the Garcia-Corsini Family Fund, the Ressler Family Fund, and the Grimaldi Family Fund, the V Foundation–Gil Nickel Family Endowed Fellowship, the UCLA Clinical and Translational Science Institute and the Spanish Society of Medical Oncology for Translational Research in Reference Centers.

In collaboration with Graeber, the [UCLA Technology Development Group](#) has filed a provisional patent application based on this research.

Learn more about the [Metabolism Research Theme](#) at UCLA.

####

UCLA Newsroom (2018). Discovery of 4 subtypes of melanoma points to new treatment approaches. Retrieved from: <http://newsroom.ucla.edu/releases/differentiation-melanoma-treatment-graeber-tsoi>

BDO: Ragan Robertson  
Lead Inventor: Thomas Graeber  
School: UCLA School of Medicine



# BLOOM SCIENCE LAUNCHES TO DEVELOP NEUROPROTECTIVE EPILEPSY TREATMENTS IN ORPHAN INDICATIONS WITH EXCLUSIVE TECHNOLOGY LICENSE FROM UCLA

**Study published in Cell demonstrates causal link between seizure susceptibility and the microbiome, identifies gut bacteria that confer anti-seizure effects**

SAN DIEGO, May 24, 2018 /PRNewswire/ -- Bloom Science, a biotechnology company accelerating the development of a new class of neuroprotective medicines, today announced that it has secured an exclusive technology license around preclinical research demonstrating that gut bacteria play a critical role in the anti-seizure effects of the ketogenic diet. The research was published today in the peer-reviewed journal Cell in an article titled "The gut microbiota mediates the anti-seizure effects of the ketogenic diet in mouse models of refractory epilepsy." On behalf of the Regents of the University of California, the UCLA Technology Development Group has filed a patent on the technology that mimics the ketogenic diet to provide seizure protection and has exclusively licensed it to Bloom Science, which will explore potential clinical applications.

The ketogenic diet, developed in the 1920s to treat epilepsy, has been proven to manage seizures in rare types of epilepsy and in patients who don't respond to other forms of treatment, but compliance with the low-carb/high-fat diet is extremely challenging. New technologies to interrogate the relationship between the gut microbiome and the brain now explain why it works.

Senior author of the Cell publication, Elaine Hsiao, Ph.D., assistant professor, Department of Integrative Biology and Physiology in the Life Sciences Division of the UCLA College, and the UCLA David Geffen School of Medicine, led the research that showed in two preclinical mouse models that the ketogenic diet increases the abundance of certain gut bacteria, and those specific strains of bacteria are both necessary and

sufficient to confer seizure protection. The bacteria work together to regulate circulating metabolites that fuel neurotransmitters in the brain – specifically gamma-aminobutyric acid (GABA), a neurotransmitter that is responsible for counterbalancing the excitation of neurons by glutamate. Bloom Science is developing proprietary products from these microbes that aim to modulate GABA, thereby re-establishing the delicate balance of GABA and glutamate and delivering a neuroprotective effect for patients with epilepsy.

"Despite the introduction of 20 new anti-epilepsy drugs in recent decades, a third of patients with epilepsy never achieve seizure control, and half of those who respond to treatment report negative side effects that limit compliance and negatively impact their quality of life," said Anthony Colasin, CEO of Bloom Science. "New and better approaches to managing epilepsy are urgently needed. At Bloom we are addressing that need by hacking the ketogenic diet to identify microbes with therapeutic potential, and then leveraging a unique business model to develop those microbes as neuroprotective therapies for orphan epilepsy indications in an accelerated time frame."

More than 65 million people globally have epilepsy. Uncontrolled epilepsy can lead to poor outcomes for patients, including problems with memory and cognition, depression, anxiety or development issues, as well as risk of sudden death.

"The human body is comprised of trillions of resident microbes that are important for normal biology, including brain health," said Dr. Hsiao, a co-founder of Bloom Science. "This discovery has the potential to impact the many conditions that are associated with alterations in GABA and shown to be modified by the ketogenic diet, such as epilepsy, Alzheimer's disease,

Parkinson's disease, autism, anxiety and schizophrenia."

Chris Reyes, Ph.D., Bloom's chief scientific officer, who co-founded the company with Dr. Hsiao and Mr. Colasin added, "The ketogenic diet provides a clear roadmap for the orphan epilepsy syndromes that we will pursue. Our hope is to deliver safe, well-tolerated neuroprotective treatment approaches to patients who otherwise have few options for controlling their seizures."

Bloom Science has closed a seed round with industry insiders to initiate operations and has plans for R&D activities up through filing an investigational new drug (IND) application for its live biotherapeutic product (LBP) with the U.S. FDA. In parallel with its therapeutic development activities, Bloom is also developing a medical food that leverages GRAS (generally regarded as safe) designation to establish safety, enabling the company to transition directly into a proof-of-concept trial in patients.

Contact: Heidi Chokeir, Ph.D.  
Managing Director  
Canale Communications  
heidi@canalecomm.com

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CISION PR Newswire. (2018). Bloom Science Launches to Develop Neuroprotective Epilepsy Treatments in Orphan Indications with Exclusive Technology License from UCLA. Retrieved from: [https://www.prnewswire.com/news-releases/bloom-science-launches-to-develop-neuroprotective-epilepsy-treatments-in-orphan-indications-with-exclusive-technology-license-from-ucla-300654112.html?tc=eml\\_cleartime](https://www.prnewswire.com/news-releases/bloom-science-launches-to-develop-neuroprotective-epilepsy-treatments-in-orphan-indications-with-exclusive-technology-license-from-ucla-300654112.html?tc=eml_cleartime)

BDO: Earl Weinstein  
Lead Inventor: Elaine Hsiao  
School: Life Science Division

## GUT BACTERIA PLAY CRITICAL ROLE IN ANTI-SEIZURE EFFECTS OF KETOGENIC DIET, UCLA SCIENTISTS REPORT

UCLA scientists have identified specific gut bacteria that play an essential role in the anti-seizure effects of the high-fat, low-carbohydrate ketogenic diet. The study, published today in the journal *Cell*, is the first to establish a causal link between seizure susceptibility and the gut microbiota — the 100 trillion or so bacteria and other microbes that reside in the human body's intestines.

The ketogenic diet has numerous health benefits, including fewer seizures for children with epilepsy who do not respond to anti-epileptic medications, said Elaine Hsiao, UCLA assistant professor of integrative biology and physiology in the UCLA College, and senior author of the study. However, there has been no clear explanation for exactly how the diet aids children with epilepsy.

Researchers in Hsiao's laboratory hypothesized that the gut microbiota is altered through the ketogenic diet and is important for the diet's anti-seizure effects. Hsiao's research team conducted a comprehensive investigation into whether the microbiota influences the ability of the diet to protect against seizures and if so, how the microbiota achieves these effects.

In a study of mice as a model to more thoroughly understand epilepsy, the researchers found that the diet substantially altered the gut microbiota in fewer than four days, and mice on the diet had significantly fewer seizures.

To test whether the microbiota is important for protection against seizures, the researchers analyzed the effects of the ketogenic diet on two types of mice: those reared as germ-free in a sterile laboratory environment and mice treated with antibiotics to deplete gut microbes. "In both cases, we found the ketogenic

diet was no longer effective in protecting against seizures," said lead author Christine Olson, a UCLA graduate student in Hsiao's laboratory. "This suggests that the gut microbiota is required for the diet to effectively reduce seizures."

The biologists identified the precise order of organic molecules known as nucleotides from the DNA of gut microbiota to determine which bacteria were present and at what levels after the diet was administered. They identified two types of bacteria that were elevated by the diet and play a key role in providing this protection: *Akkermansia muciniphila* and *Parabacteroides* species.

With this new knowledge, they studied germ-free mice that were given these bacteria.

"We found we could restore seizure protection if we gave these particular types of bacteria together," Olson said. "If we gave either species alone, the bacteria did not protect against seizures; this suggests that these different bacteria perform a unique function when they are together."

The researchers measured levels of hundreds of biochemicals in the gut, blood and hippocampus, a region of the brain that plays an important role in spreading seizures in the brain. They found that the bacteria that were elevated by the ketogenic diet alter levels of biochemicals in the gut and the blood in ways that affect neurotransmitters in the hippocampus.

How do the bacteria do this? "The bacteria increased brain levels of GABA — a neurotransmitter that silences neurons — relative to brain levels of glutamate, a neurotransmitter that activates neurons to fire," said co-author Helen Vuong, a postdoctoral scholar in Hsiao's laboratory.

"This study inspires us to study whether similar roles for gut microbes are seen in people that are on the ketogenic diet," Vuong said.

"The implications for health and disease are promising, but much more research needs to be done to test whether discoveries in mice also apply to humans," said Hsiao, who is also an assistant professor of medicine in the David Geffen School of Medicine at UCLA.

On behalf of the Regents of the University of California, the UCLA Technology Development Group has filed a patent on Hsiao's technology that mimics the ketogenic diet to provide seizure protection. It has exclusively licensed it to a startup company Hsiao has helped to launch that will examine the potential clinical applications of her laboratory's findings.

Other co-authors of the study are Jessica Yano, a former UCLA staff research associate; Qingxing Liang, a UCLA undergraduate student; and David Nusbaum, a former UCLA staff research associate.

The research is supported by funding from the UCLA department of integrative biology and physiology and division of life sciences; Alfred P. Sloan Foundation; Edward Mallinckrodt Jr. Foundation; and Army Research Office of the U.S. Department of Defense.

###

UCLA Newsroom. (2018). Gut bacteria play critical role in anti-seizure effects of ketogenic diet, UCLA scientists report from: <http://newsroom.ucla.edu/releases/gut-bacteria-play-critical-role-in-anti-seizure-effects-of-ketogenic-diet-ucla-scientists-report>

## FALCON COMPUTING SOLUTIONS AND UCLA COLLABORATE FOR GENOMICS ACCELERATION



***Collaboration will accelerate innovation and adoption of cloud-based genomics sequencing solutions***

Falcon Computing Solutions and the UCLA Center for Precision Medicine today announced a collaboration that will accelerate innovation and the adoption of cloud-based genomics sequencing solutions. Falcon is conducting initial product testing, benchmarking and optimization at UCLA based on the industry standard GATK best practices pipeline, and is receiving valuable feedback from the UCLA researchers and scientists that allow for product optimization. The joint activity builds upon an existing relationship between UCLA and Falcon – a UCLA spinout co-founded by Dr. Jason Cong, Chancellor’s Professor and the Director of the Center for Domain Specific Computing (CDSC) at UCLA.

“UCLA is a critical partner of Falcon Computing and we highly value the ongoing relationship as we build the company,” noted Falcon CEO Bradley Howe. “The early partnership and ability to receive critical feedback on accelerated genomics solutions has been invaluable to Falcon and we look forward to a sustained engagement.”

“UCLA continues to be a leader and innovator in Precision Medicine and are aggressively driving new capabilities to revolutionize the use of genomics in mainstream medicine,” said Dr. Dan Geschwind, senior associate dean and associate vice chancellor of precision medicine in the

UCLA Health System and David Geffen School of Medicine. “We are pleased to be working with Falcon Computing and have seen significant gains over our previous pipelines.”

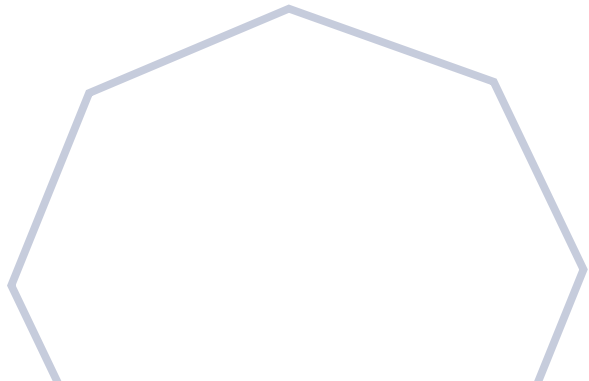
“We see rapidly increasing demands for sequencing and data analysis,” said Dr. Xinmin Li, Director of UCLA Technology Center for Genomics & Bioinformatics (TCGB). “Our experiences with Falcon and use of their genomics appliance are excellent. This system can process NGS data 3-4X faster than our previous system by automation and fast data processing.”

“It is always exciting to see UCLA spinouts emerge in the marketplace with promising new technologies,” said Amir Naiberg, associate vice chancellor and CEO of UCLA Technology Development Corporation. “We look forward to UCLA continuing to work with Falcon as they advance the custom computing solutions to power Precision Medicine.”

###

Falcon Computing. (2017). Falcon Computing Solutions and UCLA Collaborate for Genomics Acceleration from <https://www.falcon-computing.com/falcon-computing-solutions-and-ucla-collaborate-for-genomics-acceleration/>

BDO: Emily Waldron Loughran  
Lead Inventor: Jason Cong  
School: UCLA Engineering





## RESEARCH REVEALS HOW DIABETES IN PREGNANCY AFFECTS BABY'S HEART

### ***UCLA scientists show that high levels of glucose keep heart cells from maturing normally***

Researchers at the **Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research at UCLA** have discovered how high glucose levels — whether caused by diabetes or other factors — keep heart cells from maturing normally. Their findings help explain why babies born to women with diabetes are more likely to develop congenital heart disease.

**The study**, which was led by Atsushi “Austin” Nakano, a UCLA associate professor of molecular, cell, and developmental biology and member of the Broad Stem Cell Research Center, was published today in the journal *eLife*.

When developing heart cells are exposed to high levels of glucose, the researchers found, the cells generate more building blocks of DNA than usual, which leads the cells to continue reproducing rather than mature.

“High blood sugar levels are not only unhealthy for adults; they’re unhealthy for developing fetuses,” Nakano said. “Understanding the mechanism by which high blood sugar levels cause disease in the fetus may eventually lead to new therapies.”

Although genetics plays a large role in the development of congenital heart disease, the leading non-genetic risk factor for the disease is a mother having diabetes during pregnancy. Babies born to women with high levels of glucose in their blood during pregnancy are two to five times more likely to develop the disorder than other babies. However, researchers have never been able to define the precise effect of glucose on the developing fetus.

Nakano and his colleagues used human embryonic stem cells to grow heart muscle cells, or cardiomyocytes, in the lab and then exposed them to varying levels of glucose. Cells that were exposed to small amounts of glucose matured normally. But cardiomyocytes that had been mixed with high levels of glucose matured late or failed to mature altogether, and instead generated more immature cells.

The researchers discovered that, when exposed to extra glucose, the cardiomyocytes over-activated the pentose phosphate pathway — a cellular process that, among other things, generates nucleotides, the building blocks of DNA. In cells with high glucose levels, the pentose phosphate

pathway made more nucleotides than usual. The scientists showed that the excess of building blocks kept the cells from maturing.

“More nutrition is generally thought to be better for cells, but here we see the exact opposite,” Nakano said. “By depleting glucose at the right point in development, we can limit the proliferation of the cells, which coaxes them to mature and makes the heart muscle stronger.”

Nakano’s group observed the same thing at work in pregnant mice with diabetes: The heart cells of fetuses divided quickly but matured slowly.

Nakano said the finding could lead to better methods of making cardiomyocytes from stem cells. Today, most protocols for generating cardiomyocytes in the lab lead to immature cells, but targeting the pentose phosphate pathway could help generate more mature cells for regenerating heart cells or for research purposes.

Congenital heart disease affects nearly 1 in 100 children born in the U.S., making it the most common birth defect. The severity of the symptoms it causes varies, ranging from a slightly weakened heart muscle and no symptoms to severe heart deformations that require surgery.

The pentose phosphate pathway as a target for cardiac maturation is covered by a provisional patent application filed by the **UCLA Technology Development Group** on behalf of the Regents of the University of California, with Austin Nakano and Haruko Nakano, a UCLA assistant researcher, as inventors.

The research was supported by grants from the Oppenheimer Foundation, the National Institutes of Health, the National Center for Research Resources and the Chinese Scholarship Council of Chemistry and Chemical Engineering, as well as funding from the **Center for Duchenne Muscular Dystrophy** at UCLA and the Broad Stem Cell Research Center.

###

UCLA Newsroom. (2017). Research reveals how diabetes in pregnancy affects baby’s heart. Retrieved from: <https://stemcell.ucla.edu/news/research-reveals-how-diabetes-pregnancy-affects-baby%E2%80%99s-heart>

BDO: Ragan Robertson  
Lead Inventor: Austin Nakano  
School: Broad Stem Cell Research Center & UCLA Life Science Division

## UCLA BIOMEDICAL & LIFE SCIENCE INNOVATION DAY

The inaugural **UCLA Biomedical & Life Science Innovation Day**, hosted by the **UCLA Technology Development Group**, took place on Wednesday, June 13 at the UCLA Meyer & Renee Luskin Conference Center. The day's program began promptly at 8:30am and concluded at 5pm, followed by a reception for all attendees on the outdoor terrace of the UCLA Luskin Conference Center.

The event's intention was to promote awareness of the growing life science entrepreneurial ecosystem at UCLA and to foster partnerships with the biotechnology and life science industry. There was an additional focus of showcasing leading UCLA life science translational research programs and start-ups where UCLA has significant expertise, pioneering research and resource commitments for innovative solutions of important unmet medical needs. "We're

trying to position L.A. as a hub for biotech innovations," said Amir Naiberg, Associate Vice Chancellor, UCLA Technology Development Group and CEO & President, UCLA Technology Development Corporation.

Senior Partner & Chair of the New York Life Sciences Practice Group of Pearl Cohen, Mark Cohen, announced the winners of the Pearl Cohen, Pioneering Translational Research Poster competition. There was a first (\$750) and a second (\$250) place award given to each of the seven Research Themes (Cardiovascular; Cancer; Immunity; Inflammation; Infection & Transplantation (I3T); Metabolism; Neuroscience; Precision Medicine and Regenerative Medicine).

Distinguished Professors Daniel Geschwind and Mike Jung were the co-awardees of the

### SPONSORS

The UCLA Biomedical & Life Science Innovation Day would not be possible if it was not for the generous support of our sponsors and event partners. We are extremely grateful for their help in making the event possible!

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PEARL COHEN



#### PARTNER SPONSORS



#### EVENT PARTNERS





Amgen Early Innovator Award – supporting translation of promising academic research into technologies that benefit patients – for their project titled “Activation of a Tau Regulator in Alzheimer’s Disease”. The team will use the \$75,000 award to further the research conducted in Geschwind’s laboratory. The award was announced by David Piacquad, Senior Vice President of Amgen Business Development.

Over 500 research scientists, biotech industry professionals, financiers and students engaged in the various panel discussions and poster viewing sessions. Los Angeles Business Journal staff reporter, Dana Bartholomew, was in attendance and noted the event as having **“staked the Westwood campus as a cornerstone for L.A.’s emerging biosciences sector.”**

Event emcee Victoria Niklas,  
Chief Medical & Scientific  
Officer ProLacta Bioscience Inc;  
Department of Pediatrics at  
the UCLA David Geffen School  
of Medicine



UCLA TDG’s (left to right) Mark Wisniewski, Sr.  
Director Biopharmaceuticals; Elizabeth Bazarko,  
Marketing Manager and Amir Naiberg, Associate  
Vice Chancellor, CEO & President

10 LOS ANGELES BUSINESS JOURNAL

JUNE 26, 2018

## UCLA Stakes Claim on Inaugural Innovation Day

Unifies researchers across various disciplines under tech development group

**I**t wasn't enough for UCLA professor and biochemist Michael Jung to help invent a cancer drug, a leading prostate cancer drug whose results right now are \$1.14 billion.

Jung then cracked out another prostate cancer drug – Erlada, now owned by Johnson & Johnson – approved for sale early this year. It could turn out to be another biotech blockbuster.

With all good science, eventually you need a product at the end,” the chemist, who has spent 44 years at UCLA, said June 13 to more than 500 research scientists, biotech industry professionals, financiers and students who turned out for an inaugural UCLA Biomedical and Life Sciences Innovation Day.

The event staked the Westwood campus as a cornerstone for L.A.’s emerging biosciences sector.

“How did this all get started?” With a question: “How do we position L.A. as a hub for biotech innovation?” said Amir Naiberg, executive vice chancellor and chief executive of UCLA Technology Development Group, which hosted the day as part of its mission to promote campus research, patents, commercialization and startups.

This event is all about building an ecosystem,” Naiberg added.

The university, which files more than 400 scientific disclosures a year, stressed a culture of collaboration among scientists who bump shoulders on the smaller footprint of all these UC campuses.

UCLA now aims to spur more innovation by unifying researchers across multiple disciplines under six major research themes – cardiovascular,



Liaw Lead author on UCLA medical school's international study of glioblastoma.

metabolism, cancer, neuroscience, precision health, regenerative medicine and IT, short for immunology, inflammation, infection and transplantation.

Research scientists were moved beginning in May to UCLA's newly renovated South Tower, a former hospital converted into a 443,000-square-foot medical research lab.

“The discoveries made on our campus have impacted health worldwide... from Hepatitis to Glaucoma, from PET technology to curing ‘huckle berry’ disease,” UCLA David Geffen School of Medicine Dean Kahney Martin said to the audience June 13. “You go to us to try to bring new discoveries and innovations to the marketplace for the betterment of humanity.”

Jung and Daniel Geschwind, a professor in neurology, received an Amgen Early Innovator Award for advancing research into Alzheimer’s disease.

Jung, in return, turned to a room full of drug financiers and drug makers from Amgen Inc. to

Kite, a Glaxo Co.

“Come and talk to us,” said Jung, with a touch of a native New Orleans twang, as he ran down dozens of compounds UCLA is developing to treat chronic illness. “Let’s get together, and let’s make drugs for fun and profit, legally.”

### Glioblastoma Study

An international study led by UCLA researchers found that a personalized vaccine may help extend the lives of people suffering from glioblastoma, the deadliest form of brain cancer.

The vaccine, known as DCVax-L, harnesses a patient’s own white blood cells to help activate the immune system to fight cancer. Nearly a third of those involved in the ongoing trial have survived at least three years – compared to an average life span of up to 17 months for people diagnosed with the disease.

The research was funded by Northwest Biosciences Inc. of Bethesda, Md., and the National Cancer Institute.



HEALTH CARE & BIOTECH  
DANA BARTHOLOMEW

“The survival rate is quite remarkable compared to what would be expected for glioblastoma,” said lead author Dr. Liaw Liaw, professor of neurosurgery at UCLA’s medical school and a member of the UCLA Jonsson Comprehensive Cancer Center.

The glioblastoma works by combining brain tumor tissue proteins removed during surgery with dendritic immune cells generated from a patient’s own blood. The dendritic immune cells are activated in the lab to turn against the tumor cells, then injected back into the patient – activating his or her T cells to attack the tumor.

“The unique thing about the DCVax-L vaccine is that it doesn’t target a single antigen,” Liaw said. “This treatment actually uses a patient’s own tumor specimens to make the vaccine.”

### CPR Palooza

UCLA also drew more than 700 adults and children from across Los Angeles this month for a first-ever CPR Palooza on how to help victims of cardiac arrest.

The free training in hands-on CPR skills, hosted by UCLA Health and the Los Angeles Lakers, filled the UCLA Health Training Center June 2 at the home of the National Basketball Association team in El Segundo.

Staff reporter Dana Bartholomew can be reached at [dbartholomew@labusinessjournal.com](mailto:dbartholomew@labusinessjournal.com) or (323) 356-8333.

Los Angeles Business Journal. (2018). UCLA Stakes Claim on Inaugural Innovation Day. Author: Health care and biotech staff reporter, Dana Bartholomew

## Advancing Science, Fostering Partnerships

Photo credit: **Richard Luu Photo**



# PEARL COHEN PIONEERING TRANSLATIONAL RESEARCH POSTER COMPETITION

**The Pearl Cohen Poster Competition at the UCLA Biomedical & Life Science Innovation Day is an educational activity for the conference attendees and also provides the benefit of driving engagement between the academic author(s) and pharma/biotech scientific counterparts.**

## The Best Poster Award Guidelines are:

1. Clarity of study goal and hypothesis
2. Clearly outlined scientific and/or health related significance
3. Strength of the research approach
4. Presentation of the data

Overall, the awards will focus on the quality of the science, the presentation format and the capacity of the poster content to concisely convey its significance. First prize is \$750 and second prize is \$250. Two poster winners will be awarded per Research Theme:

- Cancer
- Cardiovascular
- Immunity, Inflammation, Infection, & Transplantation (I3T)
- Metabolism
- Neuroscience
- Precision Medicine
- Regenerative Medicine

## CARDIOVASCULAR

### 1<sup>st</sup> Place: Tzung Hsiai lab

Integrating 4-D Light Sheet Imaging with Interactive Virtual Reality to Recapitulate Developmental Cardiac Mechanics and Physiology

### 2<sup>nd</sup> Place: Riccardo Olcese lab

The Antirhythmic Potential of Drugs Targeting the Late L-type Calcium Current

## METABOLISM

### 1<sup>st</sup> Place: Yibin Wang lab

Branched Chain Amino Acid Catabolism as a Novel Therapeutic Target for Cardiac and Metabolic Diseases

### 2<sup>nd</sup> Place: Orian Shirihai lab

Pharmacological Inhibition of the Mitochondrial Permeability Transition Pore to Ameliorate Fasting Hyperinsulinemia in Metabolic Disease

## CANCER

### 1<sup>st</sup> Place: Mike Jung lab

Androgen Receptor Degradation and Signaling Axis Inhibitors Targeting Castration-Resistant Prostate Cancer

### 2<sup>nd</sup> Place: Hsian-Rong Tseng lab

Bioorthogonal Ligation and Disulfide Cleavage Enable Effective Purification of Circulating Tumor Cells by Click Chips: Towards Non-Invasive Detection of ALK/ROS1 Rearrangements in Non-Small Cell Lung Cancer

## NEUROSCIENCE

### 1<sup>st</sup> Place: Giovanni Coppola lab

Establishment of A Human Induced Pluripotent Stem Cell Derived Neuromuscular Co-Culture System Under Optogenetic Control

### 2<sup>nd</sup> Place: Baljit Khakh lab

The Other Half: Understanding and Exploiting Astrocytes to Treat Brain Disorders

## PRECISION MEDICINE

### 1<sup>st</sup> Place: Marlena Fejzo lab

Development of a Diagnostic Tool for Hyperemesis Gravidarum

### 2<sup>nd</sup> Place: Jessica Li lab

scImpute: Accurate Imputation for Single Cell RNA-seq Data

## I3T

### 1<sup>st</sup> Place: Yvonne Chen lab

Engineering Self-Regulating T Cells to Modulate Cytokine Release Syndrome in Adoptive T-cell Therapy

### 2<sup>nd</sup> Place: Robert Prins lab

Influence of PD-1 Blockade on the Tumor Microenvironment in Patients with Recurrent Glioblastoma

## REGENERATIVE MEDICINE

### 1<sup>st</sup> Place: Karen Lyons lab

TGF $\beta$  Type I Receptor Alk5 Protects Cartilage by Inhibiting BMP Signaling

### 2<sup>nd</sup> Place: Brigitte Gomperts lab

Modeling Progressing Fibrosis with Induced Pluripotent Stem Cells

Mr. Mark Cohen, Pearl Cohen Senior Partner & Chair, Life Sciences Practice Group | New York, presenting the Pearl Cohen Poster Award Winners at the inaugural UCLA Biomedical & Life Science Innovation Day, June 13, 2018

Photo credit: Richard Luu Photo



***Distinguished Professors Daniel Geschwind and Mike Jung, recipients of the Amgen Early Innovator Award at the UCLA Biomedical & Life Science Innovation Day 2018***

The award was presented to Geschwind, a Distinguished Professor of Neurology and Psychiatry at the UCLA David Geffen School of Medicine, and his co-awardee Michael Jung, a Distinguished Professor of Chemistry, for their project titled “Activation of a Tau Regulator in Alzheimer’s Disease”. The team will use the \$75,000 award to further the research conducted in Geschwind’s laboratory.

The award supports the translation of promising academic research into technologies that benefit patients, and this year’s recipients were selected based on a combination of unmet medical need, technical strength and competitive differentiation.

David Piacquad, Senior Vice President of Amgen Business Development, announced the Amgen Early Innovator Award at the UCLA Biomedical & Life

Science Innovation Day on June 13, 2018.

Jung and Geschwind are partners on a joint collaborative project seeking to develop an effective drug to treat Alzheimer’s patients. (Today there are no drugs that effectively stop the progression of the disease.) Geshwind’s group is carrying out the biological testing portion of the research, and Jung’s group is determining the structure–activity relationship (SAR) for Geschwind’s lead molecules using organic chemistry methods.

“Amgen recognizes the value of cultivating early-state innovation with top institutions like UCLA” said Piacquad. “The Amgen Early Innovation Award, which supports the translation of promising academic research into technologies that benefit patients, is one example of how we work with organizations of all kinds to advance innovation.”

*Penny Jennings, UCLA Department of Chemistry & Biochemistry and David Drasin, UCLA TDG. Distinguished Professors Daniel Geschwind and Mike Jung, recipients of the Amgen Early Innovator Award at the UCLA Biomedical & Life Science Innovation Day 2018. June 2018*

## AMGEN EARLY INNOVATOR AWARD



**Mr. David Piacquad**, Senior Vice President of Amgen Business Development, with the Amgen Early Innovator Award recipients **Daniel Geschwind**, distinguished professor of neurology and psychiatry at the UCLA David Geffen School of Medicine, and **Michael Jung**, a distinguished professor of chemistry, at the inaugural UCLA Biomedical & Life Science Innovation Day, June 13, 2018.

*Photo credit: Richard Luu Photo*

***The Amgen Early Innovator Award*** supports the translation of promising academic research into technologies that benefit patients. \$75K in funding has been made available to UCLA faculty projects to facilitate this aim. Amgen’s generous award contains no commercial obligations.

**This year’s recipient** was selected based on a combination of unmet medical need, technical strength and competitive differentiation. Opportunities were evaluated across the UCLA DGSOM Unified Research Themes:

- Cancer
- Cardiovascular
- Immunity/Inflammation/Infection/Transplantation (I3T)
- Metabolism
- Neuroscience
- Regenerative Medicine



UCLA BIOMEDICAL & LIFE SCIENCE  
INNOVATION DAY EVENT PHOTOS



Photo credit: [Richard Luu Photo](#)





## LUNCH & LEARN

**JULY**  
**20**

Speakers: Shahin Farshchi of Lux Capital and Sri Kosuri of UCLA Chemistry and Biochemistry  
Topic: *Commercializing and Funding a University Startup – Presented by Square 1 Bank*  
Time: 12:30 - 1:30pm  
Venue: CNSI



## FIRST FRIDAY

**AUG**  
**3**

Speaker: Dan Yarbrough from Knobbe Martens  
Topic: *Understanding IP for Startups*  
Time: 9:00-10:30am  
Venue: Conference Room Suite 820-20, 10889 Wilshire Blvd.



## FIRST FRIDAY

**SEPT**  
**7**

Speaker: George Colindres of Perkins Coie LLP  
Topic: *TBD*  
Time: 9:00-10:30am  
Venue: Conference Room Suite 820-20, 10889 Wilshire Blvd.

# 2018 UCLA MEDTECH PARTNERING CONFERENCE

The UCLA Technology Development Group (TDG) hosted its 6th annual UCLA MedTech Partnering Conference on Tuesday, March 6. In efforts to continue our commitment to quality, this year was marked with a few exciting updates. We rebranded the conference from the Medical Device Partnering Conference to the MedTech Partnering Conference, and we introduced an automated online partnering software.

The UCLA MedTech Partnering Conference provides a unique opportunity for UCLA

inventors, investors, and industry executives to establish new relationships for furthering innovation. The conference features industry panels and showcases recent developments from some of Southern California’s leading research institutions, as well as provide ample time for networking.

*Make sure to mark your calendar for the 2019 event taking place on Tuesday, March 5!*

## SPONSORS

The UCLA Technology Development Group (TDG) would like to acknowledge our Industry Advisors for their guidance and support.

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# SAVE THE DATE

Tuesday,  
March 5, 2019

INDUSTRY  
INVENTORS  
INVESTORS

7<sup>TH</sup> Annual  
**MedTech**  
PARTNERING CONFERENCE

UCLA



TECHNOLOGY  
DEVELOPMENT  
GROUP



## A BRIEF LOOK AT THE SCIENCE OF WEB DESIGN & DEVELOPMENT

# UCLA Technology Development Group has launched

**HAILEY WHISLER**  
*Content Specialist*



Gravity Works  
Design + Development

a new website to improve the online experience for users as part of a year-long marketing initiative. UCLA TDG worked with Gravity Works—a team of web experts based in Michigan—to build a website with a key goal in mind: bringing technology and people together.

What is the science behind launching a successful website? Gravity Works explains how **STRATEGY**, **RESEARCH** and **CREATIVITY** play an important role in web projects, including the new TDG website.

## STRATEGY

Great websites are built with purpose. Before the design or development begins, ask some critical questions:

- Why do I want this website?
- What problems does it need to solve?
- Who does it need to serve?

The UCLA TDG website began with a creative brief, which asked the project team to brainstorm as well as clarify project objectives. The team defined three main goals:

1. Helps users quickly find relevant information about technology
2. Drive engagement with key audience groups
3. Provide guidance to internal users

This initial “discovery” phase gives the web team valuable insight to guide the project in the right direction. Websites can be more than a virtual space to display information; if built strategically, websites can help solve business problems.

## RESEARCH & TESTING

The best websites are supported with validation, researching and testing with real users. For the UCLA TDG website, we conducted exercises with the internal team and actual users to understand the effectiveness of the site structure and design. UCLA TDG has participated or will participate in multiple studies, such as:

- **Reverse Card Sorting:** users saw a proposed sitemap, and a specific task. The user then selects which page in that structure they would use to complete the task. This test shows if the page titles as well as hierarchy is clear to real users.
- **Click Testing:** users will see a screen of the website design, as well as a particular task. Their responses—where they would click to complete the task—will create heat maps to show results. A click test reveals if other elements on the screen distracts users during important tasks.

We use these tools to refine websites, resolve issues, and strengthen the user experience.

## CREATIVITY

There's a critical component to this process that we haven't mentioned yet, but the influence of art and ingenuity can't be understated. This is the core difference between building a good website and crafting a great web experience that solves real business needs. Redesigning the UCLA TDG website was first, and foremost, a creative endeavor. We needed to create a web presence that reflected TDG's innovative, research-based personality within the larger UCLA brand.

Our team took an artistic approach to help TDG reimagine what their website could be: a valuable resource to help entrepreneurs, faculty, and the public accomplish great things. We think that's worth putting in the extra effort. In short, Gravity Works believes businesses shouldn't settle for templates and out-of-the-box software. Work with a team of experts that will do the job right.

The new **UCLA TDG website** launched Thursday, June 21. We invite you to take a few minutes to explore the new website, and help us create an even better experience by submitting feedback to UCLA TDG Marketing Manager Elizabeth Bazarko at [elizabeth.bazarko@tdg.ucla.edu](mailto:elizabeth.bazarko@tdg.ucla.edu).

For more information on **GRAVITY WORKS DESIGN + DEVELOPMENT**, or to find out how they can expand your web presence, visit our [website](#), or call 517-481-2218.



## UCLA TDG TECH FELLOWS PROGRAM

**The Technology Fellows Program** at UCLA Technology Development Group is designed to expose UCLA graduate students to the business of technology transfer and intellectual property management. Participation in the Technology Fellows Program is a unique educational experience that gives students the opportunity to contribute to the commercialization of UCLA technologies.

This program provides students with in-depth, hands-on experience in:

- Technology Evaluation
- Marketing & Business Development
- Tech Commercialization

Fellows work with UCLA TDG Business Development Officers and staff on a part-time basis and are paid a competitive hourly rate.

### FELLOWS PROGRAM UPDATES

After reviewing the program's organization and deliverables, we elected to implement a hierarchy structure to the Fellows program with the addition of two Senior Tech Fellow positions.

By utilizing the new structure we allow the identified Sr. Tech Fellows the opportunity to strengthen their skill set further by taking on additional responsibilities and assisting with larger scale assignments.

We are excited to share that Alex Mendoza and Janice Lin accepted the Senior Tech Fellow roles this past April and have been doing a great job.

Please join in **CONGRATULATING** both **Alex** and **Janice**!



**Alexandra Mendoza,**  
**Sr. Tech Fellow**  
Materials Chemistry  
Advisor: Paul Weiss



**Janice Lin,**  
**Sr. Tech Fellow**  
Chemistry & Biochemistry  
Advisor: Ken Houk





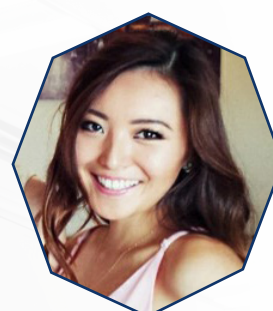
**Bakari Hassan\***  
Electrical Engineering



**Travis Holloway\***  
Pharmacology  
Advisor: Sam Chow



**Elliot Horlick\***  
Law



**Dian Huang**  
Bioengineering  
Advisor: Michael Teitell



**Diane Kim**  
Bioengineering  
Advisor: Michael Teitell



**Michael Liu\***  
Molecular Biology  
Advisor: Zhilin Qu



**Ariella Machness**  
Materials Science &  
Engineering  
Advisor: Mark Goorsky



**Shuin Park\***  
Molecular, Cellular &  
Integrative Physiology  
Advisor: Reza Ardehali



**Emma Pelegri-O'Day**  
Chemistry & Biochemistry  
Advisor: Heather Maynard



**Nathan Pham**  
Bioengineering  
Advisor: Reggie Edgerton



**Sue Tsui**  
Chemistry & Biochemistry  
Advisor: Catherine Clark



**Elaine Wang\***  
Bioengineering  
Advisor: Dino Di Carlo



**Yan Yan**  
Chemistry & Biochemistry  
Advisor: Sarah Tolbert



## UCLA ENTREPRENEUR GROUPS

### ANDERSON VENTURE ACCELERATOR

**Open to:** UCLA students and alumni from the school of business, engineering, medicine and life sciences, and undergrads in the entrepreneurship minor.

**Highlights:** 10,000 square feet of active learning space (featuring the Jim Freedman Pitch Deck room, 6 call rooms, 8 large conference rooms, 4 small conference rooms, a kitchen area for receptions, and 4,000 square feet of co-working space). Offers a three-tiered program supporting the development of student led startups, connecting ventures with Anderson alumni and mentors, and collaborating with industry and media partners. Six month programming slate (including monthly mentor meet-ups, weekly speaker workshops, Entrepreneur in Residence weekly office hours, and daily connecting to the Anderson community). Provide Launchpad for student and alumni startup companies and for Business Creation Option students.

### BIOTECH CONNECTION LOS ANGELES

**Open to:** Everyone

**Highlights:** Part of Community Partners project. Run by academics and biotech professionals from all over LA. Organize educational events and networking events to connect scientists and entrepreneurs.

### BLACKSTONE LAUNCHPAD

**Open to:** All students, staff, and alumni

**Highlights:** Provide free, confidential mentorship for individuals and startups at any stage in any industry. Connect students with experienced entrepreneurs, lawyers, accountants, venture capitalists and provide support and assistance bringing business to market.

### BRUIN ENTREPRENEURS

**Open to:** Undergraduate students

**Highlights:** Organize Hackathons including LA Hacks and hackTECH, Business Incubator, Startup Labs, and Creative Labs every year. Host entrepreneurial-related networking events, workshops, and speaker nights every week.

### BRUIN MEDICAL ENTREPRENEURS

**Open to:** Undergrads

**Highlights:** Student-run network that aims to expose students to entrepreneurial principles and to catalyze healthcare innovations.

### CALIFORNIA NANOSYSTEMS INSTITUTE

**Open to:** Undergrads, Grads and PostDocs

**Highlights:** Provides leading-edge R&D infrastructure and professional services to provide a competitive edge for UC-affiliated researchers and startups in the discovery, development, and application of transformative technologies.

### EASTON TECHNOLOGY LEADERSHIP PROGRAM

**Open to:** Anderson FEMBA, EMBA, and MBA students

**Highlights:** Easton Technology Leadership Certificate.

### ENTREPRENEUR ASSOCIATION

**Open to:** Anderson students (other students can make a special request to join), membership fee required

**Highlights:** EA Conference (i.e. CREATE conference), Knapp Venture Competition, and Developer's Contest.

### HEALTHCARE BUSINESS ASSOCIATION

**Open to:** Anderson students

**Highlights:** Networking night, Career night, Days on the job, Healthcare conference & Healthcare case competition, Healthcare interview prep.

### INSTITUTE FOR TECHNOLOGY ADVANCEMENT

**Open to:** All UCLA faculty, staff, and students

**Highlights:** Commercialization feasibility assessment of technology; Guidance and assistance in: Business plans, Investor pitches, connecting with Entrepreneurs, Investors, Mentors and Industry advisors.

### LOWELL MILKEN INSTITUTE FOR BUSINESS LAW & POLICY

**Open to:** UCLA law student

**Highlights:** Business plan competition (Lowell Milken Institute-Sandler Prize for New Entrepreneurs).

### NET IMPACT UCLA

**Open to:** Undergrads, Grads, Professional students

**Highlights:** Impact Week, Tea speaker series, internship/full-time job opportunities, conferences and social events.

### PRICE CENTER FOR ENTREPRENEURIAL STUDIES

**Open to:** Anderson students

**Highlights:** Entrepreneurship Bootcamp for Veterans, Management Development, Steinbeck Family Business Seminar, Johnson & Johnson Programs.

### STARTUP UCLA

**Open to:** All UCLA students

**Highlights:** Interactive shared space, guest speaker series, summer accelerator program.

### TEC BRUIN

**Open to:** Undergrads and Grads, specifically targeting engineering students

**Highlights:** Provide mentors from the business community, and a pro bono, in-house counsel program. Provide guidance to transform technologies to startup companies.

### UCLA BUSINESS OF SCIENCE CENTER

**Open to:** All UCLA faculty, staff, and students

**Highlights:** Venture Teams, Venture Competition, Advancing Bioengineering Innovations.

### UCLA TECHNOLOGY DEVELOPMENT GROUP

**Open to:** All UCLA faculty, staff, and students

**Highlights:** IP Management, Filing Patents & Trademarks, Technology Licensing, Industry Sponsored Research, Material Transfers, University Spin-Outs and Start-Ups.

### UCLA VENTURE CAPITAL FUND

**Open to:** Faculty students and alumni

**Highlights:** Membership program, investments, UCLA VC Fund Fellows Program.



## UCLA TECHNOLOGY DEVELOPMENT GROUP STAFF

We invite you to get to know our staff and the work that we do to help facilitate collaborations with industry, and build new startups

### EXECUTIVE

**Amir Naiberg**

Associate Vice Chancellor, CEO  
& President, UCLA Technology  
Development Corporation  
amir.naiberg@tdg.ucla.edu

**Nancy Levitan**

Executive Assistant to the Associate  
Vice Chancellor Amir Naiberg  
nancy.levitan@tdg.ucla.edu

### LICENSING AND TECHNOLOGY TRANSFER

**Emily Loughran, MBA**

Sr. Director Licensing & Strategic Alliances  
eloughran@tdg.ucla.edu

**Mark Wisniewski, MS, MBA**

Sr. Director, Biopharmaceuticals  
mark.wisniewski@tdg.ucla.edu

**Angela Kujak, JD**

Director of Contracts  
angela.kujak@tdg.ucla.edu

**Joel Kehle**

Business Development Officer  
joel.kehle@tdg.ucla.edu

**Earl Weinstein, PhD**

Business Development Associate Dir.  
eweinstein@tdg.ucla.edu

**Dan Mayhew**

Sr. Licensing Support Analyst  
dmayhew@tdg.ucla.edu

**Tariq Arif, JD, MBA, MSc**

Business Development Officer  
tariq.arif@tdg.ucla.edu

**Lukasz Kowalik, PhD**

Business Development Officer  
lukasz.kowalik@tdg.ucla.edu

**Griselda Ocampo**

Licensing Support Analyst  
griselda.ocampo@tdg.ucla.edu

**Ed Beres, MS**

Business Development Officer  
edward.beres@tdg.ucla.edu

**Ragan Robertson, PhD**

Business Development & Information  
Systems Officer  
ragan.robertson@tdg.ucla.edu

**Carol Thompson**

Licensing Support Analyst  
cthompson@tdg.ucla.edu

**Scott Davis\***

Business Development Officer  
scott.davis@tdg.ucla.edu

**Guy Rosenthal, PhD**

Business Development Officer  
guy.rosenthal@tdg.ucla.edu

**Greg Markiewicz**

Business Development Officer  
greg.markiewicz@tdg.ucla.edu

### PATENT PROSECUTION

**Charan Arora, JD, PhD**

Chief Intellectual Property Officer  
charanjit.arora@tdg.ucla.edu

**Shemekia Brown**

Patent Prosecution Analyst  
shemekia.brown@tdg.ucla.edu

**Lily Yu**

Patent Prosecution Analyst  
lily.yu@tdg.ucla.edu

**Tamara Alcaraz**

Patent Prosecution Analyst  
tamara.alcaraz@tdg.ucla.edu

**Deb Kowshik, JD**

Patent Prosecution Analyst  
debolina.kowshik@tdg.ucla.edu

\* Currently on leave

## INDUSTRY SPONSORED RESEARCH AND MATERIAL TRANSFER

**Brian Roe, JD**

Dir. Industry Research & Material Transfer  
broe@tdg.ucla.edu

**Amy Warder, JD**

ISR-MTA Officer  
amy.warder@tdg.ucla.edu

**Karla Bernal**

ISR-MTA Coordinator  
kbernal@tdg.ucla.edu

**Karla Zepeda, MS**

Associate Director ISR-MTA  
kzepeda@tdg.ucla.edu

**Kathy Wrobel, MA**

ISR-MTA Officer  
kwrobel@tdg.ucla.edu

**Iris Heredia**

ISR-MTA Coordinator  
iris.heredia@tdg.ucla.edu

**Tara Davidoff-Kamin, JD**

ISR-MTA Officer  
tara.davidoff@tdg.ucla.edu

**Chris Tomera**

ISR-MTA Sr. Associate  
ctomera@tdg.ucla.edu

**Darin Riggs**

ISR-MTA Coordinator  
darin.riggs@tdg.ucla.edu

**Elaine Tom, JD**

ISR-MTA Officer  
elaine.tom@tdg.ucla.edu

**Emilio Gancayco, JD, MBA**

ISR-MTA Associate  
emilio.gancayco@tdg.ucla.edu

## NEW VENTURES

**Thomas Lipkin, PhD**

Dir. of Entrepreneurship & New Ventures  
thomas.lipkin@tdg.ucla.edu

## OPERATIONS

**Tim Grauerholz, MBA**

CFO & COO  
tim.grauerholz@tdg.ucla.edu

**Laura Van Nostrand**

Dir. Human Resources  
lauravn@tdg.ucla.edu

**David Drasin, PhD**

New Ventures Principal  
david.drasin@tdg.ucla.edu

**Kristen Robertson**

Sr. Financial Analyst  
kristen.robertson@tdg.ucla.edu

**Carol Lopez**

Operations & HR Analyst  
carol.lopez@tdg.ucla.edu

**Dave Harrison, MD, MBA**

Sr. Associate, New Ventures  
david.harrison@tdg.ucla.edu

**Mary Trachta**

Sr. Patent Prosecution & Financial Analyst  
mtrachta@tdg.ucla.edu

**Jude Anchang**

Operations Support Analyst  
jude.anchang@tdg.ucla.edu

## MARKETING

**Elizabeth Bazarko**

Marketing Manager  
elizabeth.bazarko@tdg.ucla.edu

## GENERAL INQUIRIES

**UCLA Technology Development Group**

310.794.0558  
info@tdg.ucla.edu  
TDG.UCLA.EDU

**Heather Felix, MS, MBA**

Campus Relations Manager  
heather.felix@tdg.ucla.edu

**Liz Peek, PhD**

Technology Transfer Associate  
liz.peek@tdg.ucla.edu







UCLA Technology Development Group (TDG) promotes UCLA innovation, research, education, and entrepreneurship to benefit society. Working with UCLA TDG helps facilitate the translation of UCLA discoveries into new products and services that create economic value to support UCLA's scholarly and educational missions. The UCLA TDG office manages a large portfolio of technologies and license agreements, and has a rich history of startup company formation.

For more information, please visit:  
**TDG.UCLA.EDU**

