

## TECHNOLOGY MANAGEMENT & CORPORATE RELATIONS

2014 - 15

RESEARCH ENGAGED

**UCDAVIS**  
OFFICE OF RESEARCH



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# Welcome

**I am delighted to share this report, which celebrates the impact the Technology Management & Corporate Relations division of the Office of Research has had on innovation, new venture formation and corporate engagement at UC Davis over the past year.** As part of this report, we highlight some of our campus innovators, because they are the ultimate drivers of the innovation and industry engagement that we support. We have also included a description of the framework within which we empower these innovators to fulfill one of the university's primary goals: translating discovery and innovation into benefit for our global community.

Our mission in Technology Management & Corporate Relations is closely aligned with Chancellor Linda P.B. Katehi's vision of creating an ecosystem for discovery and innovation that encourages trailblazing research and collaborations. It also follows UC President Janet Napolitano's declaration that we should steer our discoveries through our labs and into the world economy.

Over the fiscal year 2014-15, we continued to build momentum with several key technology commercialization initiatives and launched several new programs. Notable UC Davis accomplishments enabled by us over the year include 13 new startups, securing a record level of corporate-funding for research, opening the first life science startup incubator in the Davis-Sacramento region, launching the Innovation Institute for Food and Health in collaboration with Mars Inc., and helping to establish a transformative neurobiology resource for researchers worldwide at the UC Davis MIND Institute.

In the year ahead, our team looks forward to building upon past successes through continued effective engagement with our partners (internal and external), alumni, friends and colleagues. I encourage you to contact me or anyone on our team with questions, opportunities, or if you want to engage with innovation and technology commercialization at UC Davis.

Sincerely,

**DUSHYANT PATHAK**

Associate Vice Chancellor

Technology Management & Corporate Relations



*By engaging exciting university discoveries, inventors and innovations with the dedicated support provided by our team, we have continued to effectively enable technology commercialization along a trajectory to achieve strong societal impact.*

# Technology Management & Corporate



*“At UC Davis, we are creating a new culture of innovation that reaches from the classroom to the boardroom. No other university is as uniquely positioned to complete the innovation cycle and achieve the full potential of its research to benefit humankind.”*

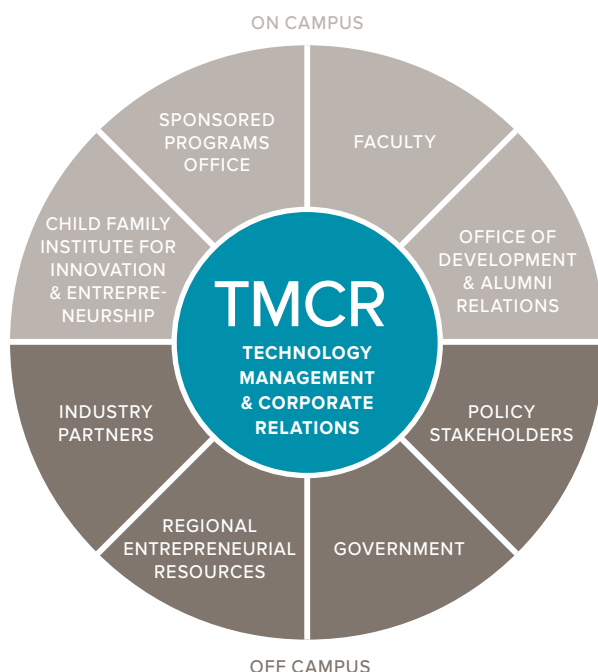
– **Harris Lewin**  
Vice Chancellor for Research

**The mission of the Technology Management & Corporate Relations (TMCR) division at UC Davis** is to help transform today’s research and development into the foundation for tomorrow’s successful businesses. TMCR ensures that nascent technologies emerging from campus research will seed new products and services that can drive economic development and address the needs of the region, state and global community.

To best support this mission, TMCR is organized in three units that work collaboratively to cultivate innovation, propel venture formation and energize corporate collaboration.

Guided by the belief that successful commercial translation of university research depends on a rich ecosystem of innovation and entrepreneurship, TMCR works closely with several entities within and outside the campus. On campus, TMCR works collaboratively with faculty, the Sponsored Programs Office, the university’s Child Family Institute for Innovation & Entrepreneurship, and the Office of Development & Alumni Relations. Externally, TMCR engages with industry partners, regional entrepreneurial resources, and government and policy stakeholders.

TMCR is one of three divisions within the Office of Research at UC Davis. Led by Vice Chancellor for Research Harris Lewin, the office is responsible for catalyzing research at the university and facilitating the translation of its innovations to benefit the public. Ranked as one of the top public research universities in the nation, UC Davis received \$786 million in extramural funding for research last fiscal year.





# Relations at UC Davis



# Fueling Innovation

## AGREEMENTS

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## INVENTIONS/PATENTS

Records of Invention.....	229
U.S. Patents Filed.....	149
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Foreign Patents Issued.....	48

At UC Davis, our bold and imaginative researchers are leading the way in discovery and innovation to address the world’s most important challenges.

The university includes four colleges (encompassing agricultural and environmental sciences; biological sciences; engineering; and letters and science) and six professional schools (education, law, management, medicine, nursing, and veterinary medicine), making it one of the most comprehensive universities in the world. Our scientists thrive on finding solutions at the frontiers and intersections of academic disciplines. In fact, UC Davis had more inventions included in the top 25 revenue-generating inventions than any other campus within the UC system last fiscal year.

TMCR plays a critical role in enabling this innovation by supporting entrepreneurship, cultivating intellectual property and establishing connections to the marketplace. InnovationAccess works in

close collaboration with the Sponsored Programs Office and the Office of Corporate Relations, and engages with researchers at the earliest phases of their endeavors to identify and protect intellectual property and encourage consideration of commercial opportunities. During the last fiscal year, 229 new records of invention were filed and 210 patent applications were submitted.

TMCR also facilitates the translation of university-generated technology into commercial applications by providing financial and mentor support to enable researchers to demonstrate commercial feasibility for innovations with strong market potential. Led by the Venture Catalyst unit within TMCR, the Science Translation and Innovative Research (STAIR™) grant program awarded four \$50,000 proof-of-concept grants for promising technologies in the last fiscal year. Typically, external funding to prove commercial feasibility at this

### DISTRIBUTION OF RECORDS OF INVENTION BY INDUSTRY SECTOR





*Currently, the largest source of licensing revenue at UC Davis comes from the university's world-renowned international strawberry breeding program.*

early stage of development is difficult to obtain, creating a gap between cutting-edge academic research and commercial applications.

InnovationAccess works with established companies and startups seeking technologies aligned with their market strategy. Currently, the largest source of licensing revenue at UC Davis comes from the university's world-renowned international straw-

berry breeding program. It results in annual royalties and fees of over \$8.2 million and is among the most successful of all licensing programs within the UC system. Strawberry varieties from UC Davis account for roughly 70 percent of the strawberries produced commercially in California, and 90 to 95 percent of strawberries produced commercially in certain foreign markets.

#### THE 2013-14 STAIR GRANT AWARDEES WERE:

**KYRIA BOUNDY-MILLS**, research specialist, Department of Food Science and Technology: "Structure and activities of biosurfactants produced through a renewable, yeast-based, reduced-cost process"

**CHARLES HUNT**, professor, Department of Electrical and Computer Engineering: "Low-cost, high-quality energy-efficient light sources using field-emission lighting"

**MARK MASCAL**, professor, Department of Chemistry: "Simple, high-yield production of gasoline and renewable polymers from biomass"

**JARED SHAW**, associate professor, Department of Chemistry: "A new class of antibiotics for treating infections resistant to current therapies"



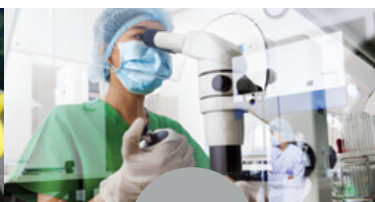
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ENERGY



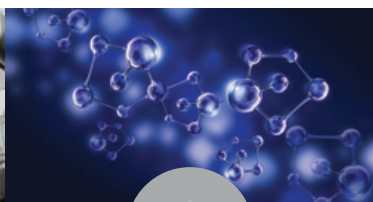
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MATERIALS



# Developing Solutions to Feed a Growing Population

**Pamela Ronald is the faculty director of the Institute for Food and Agricultural Literacy at UC Davis.** She is professor in the Department of Plant Pathology and the Genome Center at UC Davis, and also serves as the director of grass genetics at the Joint Bioenergy Institute in Emeryville, California.

Producing food more efficiently and feeding the growing population without further destroying the environment are among the greatest challenges facing the world. Ronald and her team are conducting research to accelerate the development of staple food crops that are resistant to disease and tolerant of environmental stress.

Ronald's laboratory has engineered rice for resistance to disease and tolerance to flooding, factors that seriously threaten crops in Asia and Africa. Ronald led the isolation of the rice XA21 immune receptor and later collaborated with colleagues to isolate the rice Sub1A submergence tolerance transcription factor.

In 2014, Ronald and her team developed a synthetic polypeptide that, upon exposure to a plant that expresses XA21, is capable of stimulating the XA21 pathway, thus enhancing disease resistance (UC Davis Case 2014-882). Once exposed to the peptide, a plant

will have a more robust immune response upon contact with naturally occurring pathogens, which cause bacterial blight. Additionally, target plants can be engineered to constitutively express XA21 and induce expression of the defense response using the novel peptide. The exciting consequence of this work is the ability to engineer plants with resistance to a wide variety of potential pathogens.

## RONALD'S OTHER INVENTIONS INCLUDE:

**UC CASE 2010-074:** Energy crops engineered for increased sugar extraction through inhibition of *snl6* expression

**UC CASE 2012-162:** Improved saccharification efficiency by inhibiting a xylosyltransferase

**UC CASE 2010-786:** Regulated overexpression of *nh3* driven by its own promoter enhances disease resistance in plants

**UC CASE 2010-975:** Improved xylan extraction







*Wang has focused his research on the development of novel technologies that combine stem cell and biomaterial engineering to promote tissue regeneration and wound healing.*

## Healing through Science

**Aijun Wang is an assistant professor in the Department of Surgery and co-director of the Surgical Bioengineering Laboratory at the UC Davis School of Medicine.**

A productive researcher and a prolific inventor, Wang has focused his research on the development of novel technologies that combine stem cell and biomaterial engineering to promote tissue regeneration and wound healing.

A primary challenge of organ and tissue transplantation is the unfavorable immune response of the recipient to the antigens that reside in the cells from the donor. Wang's primary interest is in the use of decellularized tissue in which the immunogenic antigens have been removed from placental amniotic membrane to create extracellular matrix scaffolds. These scaffolds have multiple applications including providing the framework for tissue and organ

regeneration when seeded with the appropriate stem cells. They can be processed to create sheets, hydrogels or powder.

Wang's other research areas include stem cell involvement in vascular disease development and stem cell engineering for disease treatments. Recently, his team created VasoFlo, an artificial arterial graft designed to address the complications that plague existing artificial vascular grafts (UC Case 2014-877). The graft attaches to vessel walls without sutures and protects against turbulent blood flow, thrombosis and intimal hyperplasia.

His team also developed a clinically feasible, stem cell-based method to treat Spina Bifida and other spinal cord injuries (UC Case 2013-977). Delivered directly to the injured spinal cord tissue, stem cells protect the neurons and support motor functional recovery.

## Sensing What Ails Us

**Cristina Davis is a professor of mechanical and aerospace engineering and director of the Bioinstrumentation and BioMEMS (bio-microelectromechanical systems) Laboratory.** Her main research interests are chemical and biological sensing applications, use of technology to speed biomarker discovery, novel bioMEMS devices, and bioinformatics interpretation of sensor output.

### DAVIS' OTHER INVENTIONS INCLUDE:

**UC CASE 2014-381:** a novel synthetic chemical lure for the Asian citrus psyllid, *Diaphorina citri*, a vector for the bacterial pathogens that cause citrus greening and are a serious threat to citriculture worldwide and within the U.S.

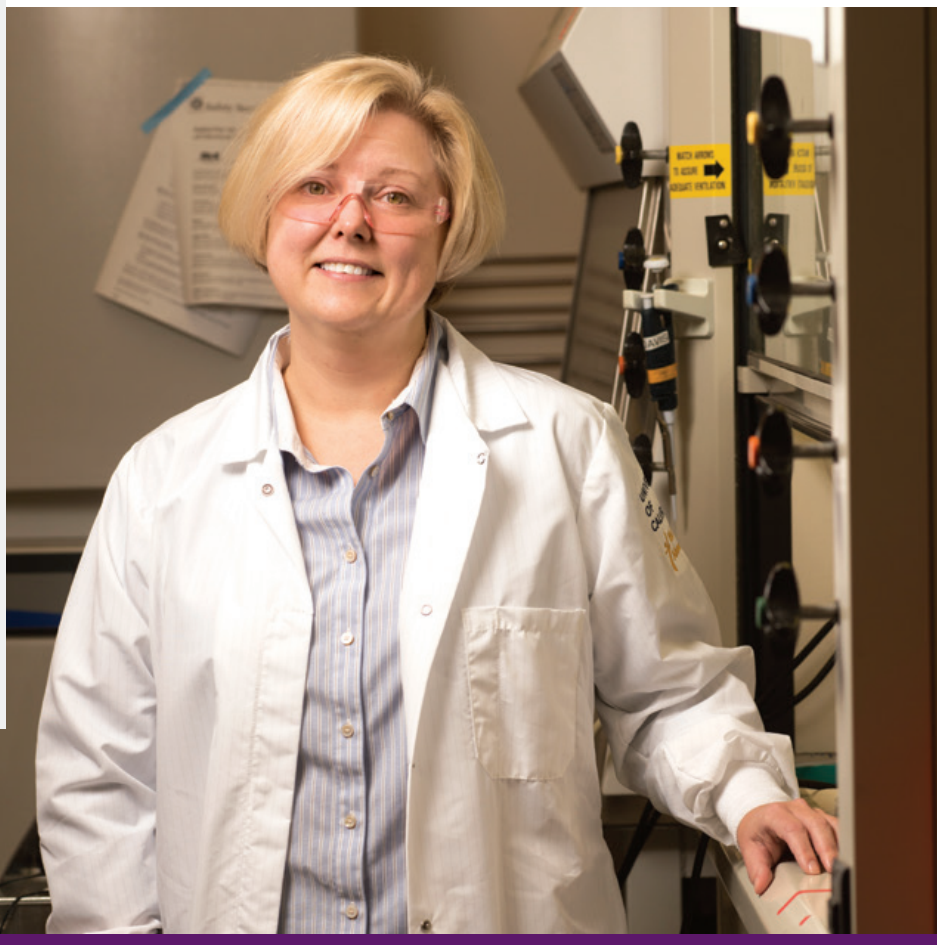
**UC CASE 2012-849:** a portable device to measure various lung function biometrics, including flow rate, peak expiratory flow, and concentrations of various chemical species in human breath.

**UC CASE 2011-241:** a non-destructive method for early disease detection in plants via induced volatile organic compound analysis.

Davis' group is currently developing new sensor systems for rapid diagnosis of various human, animal and agriculture diseases and can be further applied toward early detection of chemical and biological agents. Drawing parallels in metabolite and chemical detection for use in clinical and defense applications enables the development of "dual-use" sensors that are both less expensive and applicable to a wide spectrum of problems.

Davis also recently developed a human breath sampler for use in diag-

nostic testing (UC Case 2015-064). Breath tests offer non-invasive ways to assess general health and potentially diagnose certain illnesses, such as liver dysfunction or certain cancers. The technology is a hand-held, easy-to-use device for collecting breath samples from human patients. The device condenses breath, forming an exhaled breath condensate sample for evaluation. It also allows for rapid collection of uncontaminated samples as well as quick removal and storage.





*To help provide optimal ventilator support for pediatric patients, Johnson has developed a device that monitors various parameters, including ventilation rate and tidal volume, and provides audio and/or visual feedback to rescuers.*

## Supplying Precious Breath

**Dr. Austin Johnson is a physician in the Department of Emergency Medicine and a current scholar in the Mentored Clinical Research Training Program at the UC Davis Clinical and Translational Science Center (CTSC).**

In 2015, Johnson invented a device that will improve the ability of emergency personnel to properly ventilate pediatric patients (UC Case 2015-841).

Based on a need to deliver the correct volume of air at the required rate, his solution will be particularly helpful with neonatal and pediatric patients, who are much more sensitive to deviations from optimal ventilation rates and volumes than adults.

To help provide optimal ventilator support for pediatric patients, Johnson has developed a device that monitors

various parameters, including ventilation rate and tidal volume, and provides audio and/or visual feedback to rescuers. The device is intended to be used by first responders as well as hospital staff. It also integrates with a widely used color coding system that allows rescuers to quickly derive optimal equipment sizes and drug dosages based upon a patient's height.

## Identifying New Leads for Antibiotics

**Jared Shaw is an associate professor of chemistry at UC Davis,** where he leads a team of researchers focused on studying modulators that control cell division in bacteria in order to identify new lead molecules for the development of antibiotics.

Resistance to commonly used antibiotics presents a significant challenge for treating patients with bacterial infections. With the increasing prevalence of antibiotic-resistant bacterial strains caused by wide-spread misuse of antibiotics, some antibiotics (for example, fluoroquinolone) lose effectiveness due to development of resistance by the

bacteria, while others are not active against specific bacterial strains.

In 2014, Shaw was awarded a STAIR grant from the Office of Research, providing funding for proof-of-concept work for the rapid development of a library of new analogs of bacterial gyrase inhibitors. His team, along with researchers at the University of Wisconsin–Madison, have since shown that several of these analogs exhibit strong inhibition of the target (DNA gyrase) and potent antimicrobial activity. Moving forward, Shaw's research will pursue preclinical studies to demonstrate commercial potential of novel drug candidates.





# Guiding New Ventures

**UC Davis is known worldwide for its leadership in research.** Each year, this research generates new technologies and inventions that are translated into commercial applications, often becoming the foundation of startup companies. In order to facilitate this process, the Office of Research, under the aegis of Chancellor Linda P.B. Katehi, established Venture Catalyst in mid-2013 to provide campus entrepreneurs the resources and support needed to successfully form and grow new ventures based on university research. Venture Catalyst was launched in close collaboration with

YEAR	NUMBER OF START-UPS
2014-15 .....	13
2013-14 .....	14
2012-13 .....	8
2011-12 .....	2
2010-11.....	5

the University’s Child Family Institute for Innovation & Entrepreneurship.

Venture Catalyst guides entrepreneurial researchers through the formation of startup companies, including the process of establishing the appropriate corporate structure, applying for patents and making essential connections within the commercial sphere. This approach is already showing signs of impact, with 13 startups recorded last fiscal year.



In 2014, Venture Catalyst launched the Smart Toolkit for Accelerated Research Translation (START™) program based on the philosophy that the successful translation of technology into a viable company requires developing a strong ecosystem of resources, support and mentoring for campus entrepreneurs. The suite of START services includes deferment of patent expenses (Inventor Advantage™ program), incorporation and early legal support (LegalNet™), access to networks of experienced industry professionals and

mentors (MentorNet™), a selection of contract and other service providers (VentureNet™), grant submission workshops, and sponsorship and support for participation in the Institute for Innovation & Entrepreneurship’s academies.

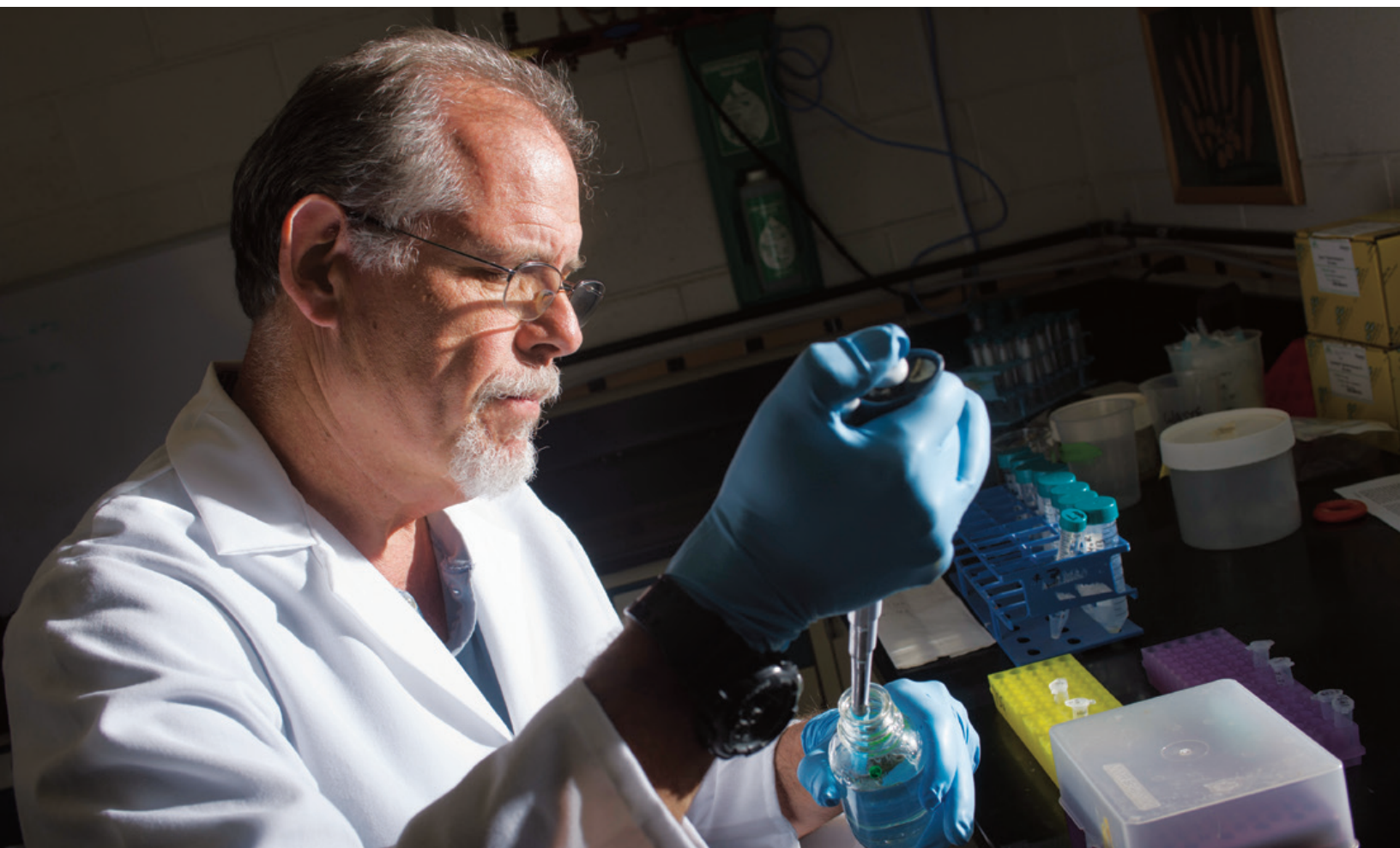
In addition, Venture Catalyst has developed the Distributed Research Incubation and Venture Engine (DRIVE™) program, which enables access to a network of lean, thematically oriented startup incubators both on and off campus. The DRIVE program provides university-affiliated startups affordable business space and administrative services.

Venture Catalyst, in collaboration with InnovationAccess and the Office of Corporate Relations, launched the UC Davis-HM.CLAUSE Life Science Innovation Center, the first of a network of startup incubators outside the university. It is anticipated that the success of DRIVE will enable and stimulate regional entrepreneurial activity, powered by technologies developed at UC Davis.

## UC DAVIS AFFILIATED STARTUP COMPANIES FOR FISCAL YEAR 2014-15

Cardiac Motion	 CHIRP MICROSYSTEMS	 DToR	ENCAPSOLUTIONS	IMMUNOTESS, INC.	INNOVANUTRA
Wearable, long-term ultra-wide-band radar monitor for cardiac arrhythmia	Extremely low power, ultrasonic 3D-sensing solutions for consumer electronics	Platform technology to customize transcription control sequences and optimize gene expression for agriculturally significant traits in crop plants & livestock	Nanoparticle capsules for photonic crystal color display in magnetic field	Novel compounds for immuno-modulation and inhibition of inflammation for enhancing the efficacy of immunotherapy	Encapsulation technology for bioactive compounds for applications in food, nutraceuticals and cosmetics





*Venture Catalyst, in collaboration with InnovationAccess and the Office of Corporate Relations, launched the UC Davis–HM.CLAUSE Life Science Innovation Center, the first of a network of startup incubators outside the university.*



Use of tobacco plants as a manufacturing platform for rapid, scalable, and cost-effective production of therapeutics for rare (orphan) diseases



Novel method and device for directing cell migration to heal damaged neurological tissue

**Pandomedx**

Identification of potential therapeutic targets for prostate cancer



Developing life-changing therapies to treat rare central nervous system (CNS) disorders including debilitating epileptic seizures

**Tahoe Institute for Rural Health Research**

Sampling device for personal blood tests

## Partnering to Incubate New Businesses

**UC Davis and HM.CLAUSE, a global leader in the production and sale of vegetable seeds,** have partnered to launch a business incubator intended to advance regional innovation in the life sciences. This joint venture builds on a long-standing partnership between the university and HM.CLAUSE and provides facilities and support needed to advance successful technology businesses. The shared goal of UC Davis and HM.CLAUSE is to create an environment that breeds innovation, fosters

creativity and inspires synergy.

The UC Davis-HM.CLAUSE Life Science Innovation Center is the first off-campus member of the university's DRIVE network. It offers 3,100-sq.-ft. of biochemistry, molecular biology and chemistry lab space, as well as an on-site greenhouse. The facility is available to entrepreneurs who want to form companies based on technology developed at the university. Lab space is leased by HM.CLAUSE at an affordable rate, with lease durations ranging from

six months to two years. The center has already attracted several startups, each in a different phase of development and representing a range of market segments and industry needs.

Each company accepted into the DRIVE program has full access to the support resources offered by Venture Catalyst, including a suite of services provided through the START program, a specialized set of resources designed specifically to help grow robust technology startups.



*The UC Davis-HM.CLAUSE Life Science Innovation Center is the first off-campus member of the university's DRIVE network. It offers 3,100-sq.-ft. of biochemistry, molecular biology and chemistry lab space, as well as an on-site greenhouse.*





#### ROGAWSKI'S OTHER INVENTIONS INCLUDE:

**UC CASE 2010-847:** Intrapulmonary administration of midazolam to rapidly treat seizures

**UC CASE 2012-017:** Use of edible oils to enhance the absorption of orally administered steroids including neurosteroids

*Research from Michael Rogawski's laboratory has led to the discovery and advancement of several promising drugs that are at different stages of development, including the FDA-approved perampanel for the control of partial-onset epileptic seizures.*

## Joining Forces to Stop Seizures

**Dr. Michael Rogawski, professor of neurology and director of the Institute for Neurotherapeutics**, is internationally renowned as an innovative thinker on the development of treatments for neurological disorders, including epilepsy. He was recently awarded the 2015 Neuroendocrine Research Award at the 67th Annual American Academy of Neurology meeting in Washington, D.C.

Research from his laboratory has led to the discovery and advancement of several promising drugs that are at different stages of development, including the FDA-approved perampanel for the control of partial-onset epileptic seizures.

Rogawski, a frequent collaborator with industry, worked with TMCR to license some of the technologies that he developed to SAGE Therapeutics. Founded in

2010, SAGE focuses on the discovery and development of life-changing therapies to treat rare central nervous system disorders. In 2014, SAGE raised over \$90 million as part of its initial public offering. The company has developed a candidate therapeutic, SAGE-547, which is in clinical trials for super-refractory status epilepticus, a condition where seizures can persist for 24 hours or more. In 2015, SAGE initiated a phase 3 clinical trial of SAGE-547 for status epilepticus, aimed at providing treatment within 5-30 minutes after the onset of a seizure. SAGE Therapeutics has entered into two foundational license agreements with UC Davis, which include rights to the UC Davis IND, GMP-grade Allopregnanolone, and rights to UC Davis patent applications on certain combination therapies.

## Producing Plant-Based Medical Treatments

**Karen McDonald is a professor in the Department of Chemical Engineering and Materials Science at UC Davis.**

Her research, which uses plants to produce recombinant proteins, has the potential to revolutionize how biofuels, vaccines and pharmaceuticals are manufactured.

McDonald has demonstrated that plant-based production is an attractive alternative manufacturing platform for biopharmaceuticals. Advantages for large-scale protein production include lower production costs, scalability, and low risk of contamination by mammalian viruses, pathogens, or bacterial toxins.

As an example, her team is transforming tobacco plants into living factories for making new vaccines and medical treatments. The technology can be easily customized to produce not only vaccines, but other high-value proteins, including therapeutics for rare (orphan) diseases. McDonald has received technology commercialization grants from the National Science Foundation and VentureWell.

In 2013, she cofounded Inserogen, whose name is derived from the Latin for “to plant a gene,” with Lucas Arzola, who was a doctoral candidate at the time. Together, they plan to commer-

cialize the use of tobacco plants as a rapid, scalable, and cost-effective manufacturing platform for production of therapeutics for rare diseases. Inserogen won first prize in the 2010 Big Bang! business plan competition at UC Davis. The company was selected in 2014 to be one of the first members of the UC Davis-HM.CLAUSE Life Science Innovation Center through the Venture Catalyst DRIVE program.

### MCDONALD'S OTHER INVENTIONS INCLUDE:

**UC CASE 2001-083:** Process for scaled-up production of recombinant proteins using transgenic plant suspension cultures

**UC CASE 2006-640:** A chemically inducible cucumber mosaic virus amplicon system for expression of heterologous proteins in plant tissues







*Chiao-Jung Kao, assistant adjunct professor in the Department of Obstetrics and Gynecology, has spent several years testing small-molecule drug candidates for their ability to boost the immune system. Such drug modulators may enhance the effectiveness of cancer immunotherapy.*

## Transforming Breakthroughs to Startups

### **UC Davis researchers are exploring novel immunotherapy strategies**

with the goal of developing targeted treatment for cancer patients and turning their discoveries into a platform for a new company.

Chiao-Jung Kao, assistant adjunct professor in the Department of Obstetrics and Gynecology, has spent several years testing small-molecule drug candidates for their ability to boost the immune system. Such drug modulators may enhance the effectiveness of cancer immunotherapy. Recently, Kao and her team have discovered a proprietary compound that has shown promising activity in both in vitro and in vivo preclinical studies.

Kao is part of a research team led by Michael DeGregorio, professor of

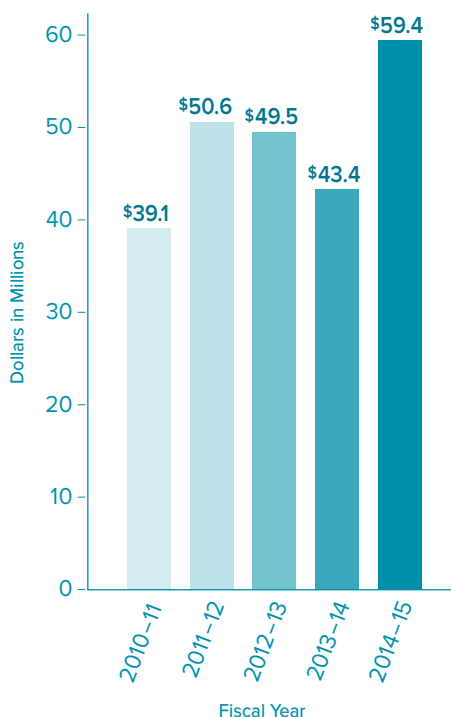
medicine in the Division of Hematology and Oncology Research within the Department of Internal Medicine at UC Davis. The same team made news last year with a potential lung cancer vaccine that shows promise for boosting immune response and reducing the number of tumors in mice with lung cancer. They now believe a drug modulator they are developing could improve the vaccine's effect.

With the discovery of this therapeutic approach, DeGregorio and his team formed a startup focused on commercializing the therapy. (DeGregorio and Kao are scientific advisors to the new venture.) The company, called ImmunoTess, was founded in May and has already raised more than \$1 million and licensed one patent from UC Davis.

DeGregorio has more than 30 years of experience in drug development research and is one of the inventors of two drugs approved by the U.S. Food and Drug Administration. Most notably, he developed Ospheña, which was approved by the FDA in 2013, to treat dyspareunia, pain during sexual intercourse most often associated with menopause. It was approved by the European Medicines Agency in 2015 for treatment of vulvar and vaginal atrophy in postmenopausal women. The drug also has potential use in breast cancer for preventing bone loss and treating quality-of-life issues in breast cancer survivors.

# Energizing Corporate Engagement

## INDUSTRY FUNDING OVER THE LAST FIVE YEARS



### Developing strong relationships

**with industry partners** is central to the university's commitment to education and its ability to prepare the workforce of the future. Partnering with industry enables the translation of breakthrough discoveries into commercial impact, thus advancing the economic prosperity of California and our region. These collaborations enable unique opportunities for technology development at UC Davis by bringing together otherwise uncoupled, yet synergistic resources and expertise.

The Office of Corporate Relations serves as the university's front door for industry, linking campus resources to specific business needs and opportunities. This unit works closely with faculty, staff and campus leadership, taking a holistic approach to building

strategic partnerships with industry for mutual benefit.

University-industry partnerships can be broad in scope, providing impact far beyond sponsored research projects. The Office of Corporate Relations, in collaboration with other campus units, engages with industry members to develop new technologies, connect them with students and faculty, form centers of excellence, and create programs that drive intellectual exchange.

The Office of Corporate Relations manages an extensive network of corporate relationships, with over 80 active partnerships — including 30 initiated last year. UC Davis was recently ranked in the top 20 universities in the nation for industry-sponsored research funding.

## HIGHLIGHTS FROM LAST FISCAL YEAR INCLUDE:



Facilitated Master Sponsored Research Agreement negotiations and provided broad relationship stewardship leading to the creation of the Innovation Institute for Food and Health with Mars Inc., resulting in \$40 million in research support to UC Davis over ten years.



Collaborated with academic units to generate \$1.5 million to fund joint research ventures as part of the Plant and Seed Science Corporate Affiliate Partnership Program.

## Comprehensive Corporate Engagement

### Students



Career Opportunities

Internships

Recruitment of graduate students

Fellowships

### Research



Sponsored Research

Research Gifts

Joint federal grant submissions

VISTR Program

### Science and Innovation



Licensing

Scientific Meetings

Startup Formation

Adjunct/visiting professor appointments

### Services and Contracts



Clinical Trial Agreements

Purchasing and Business Contracts

Core Facility Services



Launched the UC Davis Visiting International Scholar Training and Research (VISTR™) program, which provides an opportunity for employees of international companies to conduct research in UC Davis laboratories alongside a faculty mentor.



Partnered with the Office of Development and Alumni Relations to increase philanthropic support from industry sources to \$39.1 million, a 30 percent increase compared to the previous year.



Hosted the 2015 annual leadership conference of the Network of Academic Corporate Relations Officers (NACRO).



## Engaging the Region's Seed Industry Cluster

**UC Davis is uniquely positioned to revolutionize how the world manages to feed a growing population**, thanks to its No. 1 ranked agricultural research program, access to some of the most fertile land on the planet, and partnerships across a strong network of growers and industry partners.

In recognition of this opportunity, non-profit Seed Central partnered with the Office of Corporate Relations, the Sponsored Programs Office, and the Seed Biotechnology Center to spur collaboration and innovation within the

region's seed industry. Together, they formed the Plant and Seed Sciences Corporate Affiliates Partnership Program (CAPP). This program offers an opportunity for two or more corporate entities to pool funds for joint projects and share the outcomes within a defined framework. Since its inception in 2012, the Plant and Seed Sciences CAPP has facilitated over \$3 million in collaborative research funding.

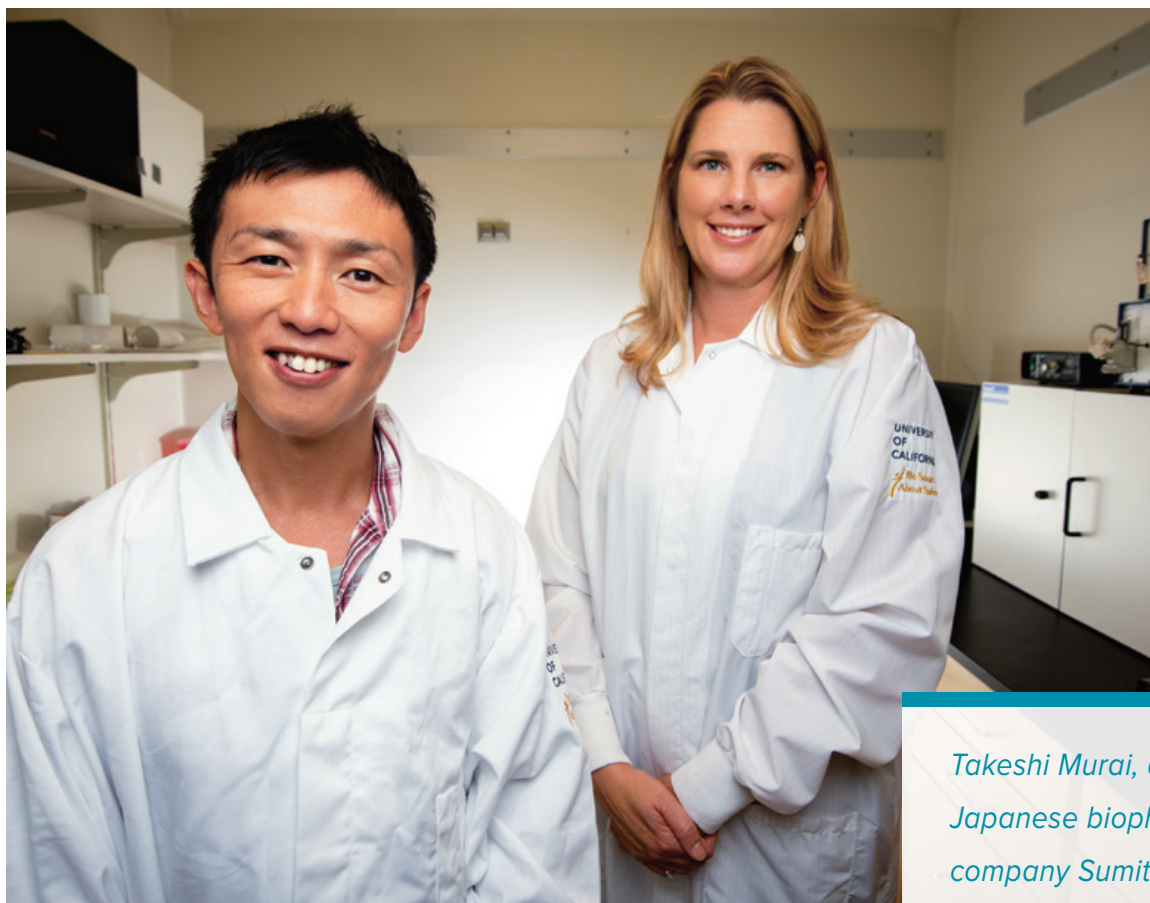
A recent joint research project organized under the CAPP program explored Targeting Induced Local Lesions in

Genomes (TILLING), a means of generating non-genetically modified organism mutations in plants. Led by UC Davis professor Luca Comai, the program joined forces with three companies to provide over \$489,000 to support a sponsored research project to analyze tomato populations. This award builds on an existing project funded by the U.S. Department of Agriculture, providing an extensive non-genetically modified organism resource for variation in important traits, both for basic researchers as well as applied scientists and breeders.



*Since its inception in 2012, the Plant and Seed Sciences CAPP has facilitated over \$3 million in collaborative research funding.*





*Takeshi Murai, a scientist from Japanese biopharmaceutical company Sumitomo Dainippon, began a postdoctoral position with Professor Melissa Bauman this past spring through the VISTR program.*

## Collaborating with International Pharmaceutical Scientists

### **The Office of Corporate Relations launched the UC Davis Visiting International Scholar Training and Research (VISTR™) program**

to enable researchers employed by companies located outside of the United States to conduct research in a UC Davis laboratory alongside a faculty mentor for up to two years. The faculty mentor provides training and research opportunities within the context of a defined research program that is supported in part by the scholar's company and by UC Davis grants, when available. While at UC Davis, the visiting scholar has the opportunity to network with other faculty and researchers.

Takeshi Murai, a scientist from Japanese biopharmaceutical company Sumitomo Dainippon, began a postdoctoral position with Professor Melissa Bauman this past spring through the VISTR program. Murai is taking advantage of a fellowship program within his company to train on several aspects of behavioral modeling in non-human primates. His work has applications in drug discovery for neuropsychiatric indication of importance to his sponsoring company in Japan.

## Connecting our Students to Industry

**One of TMCR's most rewarding programs has less to do with research and a lot more to do with the future of UC Davis students.**

Both InnovationAccess and the Office of Corporate Relations offer coveted internship opportunities that provide exposure and training in intellectual property protection and industry engagement. InnovationAccess also offers an externship for law students with an interest in obtaining real-world applications of patent law and intellectual property doctrine. Together, these units have provided practical experience to over 60 students over the last nine years.

Kristen Beck, a PhD candidate in biochemistry, molecular, cellular and developmental biology, recently completed her internship in the Office of Corporate Relations in 2015. In addition to working on building relationships with pharmaceutical companies, Beck developed a mobile app for corporate visitors. She has since joined IBM in its Almaden facility in San Jose, California, where she is utilizing the skills learned through her internship.

Meenu Padmanabhan, PhD, an assistant project scientist in the Department of Plant Biology, completed an internship with InnovationAccess, learning about intellectual property and technology transfer. During her internship, she conducted patentability analyses, prior art searches, reviewed



*Kristen Beck, a PhD candidate in biochemistry, molecular, cellular and developmental biology, recently completed her internship in the Office of Corporate Relations in 2015.*

legal obligations, and drafted marketing campaigns. Her experience inspired her to pursue opportunities at the intersection of molecular biology and commercialization. Padmanabhan

is currently applying for industry positions that would allow her to create innovative biological products to improve the health and yield of field crops.

# UC Davis Office of Research: Technology Management & Corporate Relations Staff

## TMCR LEADERSHIP

Harris A. Lewin, PhD	Vice Chancellor for Research Distinguished Professor of Evolution and Ecology Robert and Rosabel Osborne Endowed Chair	Dushyant Pathak, PhD, MBA	Associate Vice Chancellor, Technology Management & Corporate Relations
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## OFFICE OF CORPORATE RELATIONS

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Jamie Shattuck, PhD	Manager	Kristen Farrand	Analyst
		Joyce Jones	Analyst

## INNOVATIONACCESS

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### LIFE SCIENCES AND INTELLECTUAL PROPERTY SERVICES

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Byron Roberts, PhD	Intellectual Property Officer
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Sharron Thompson	Sr. Intellectual Property Analyst
Nancy Ogiyara, PhD	Intellectual Property Marketing Analyst

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### STRAWBERRY LICENSING PROGRAM

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Kendra O'Neal Smith, PhD	Intellectual Property Analyst

### MATERIAL TRANSFER AGREEMENTS (MTAS) AND COPYRIGHT

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Maria Thomsen	Administrative Assistant
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## VENTURE CATALYST

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