UC Riverside has grown tremendously with over 900 faculty, almost 23,000 students, and an expanding campus infrastructure to support the pioneering research in our 7 Schools and Colleges. As a testament to our high-caliber faculty, UCR has the most NSF Career Awards active on any public university in California with 8 new awards this year alone.

Over the past five years, the Office of Research and Economic Development (RED) has made great strides in increasing funding for faculty research through federal and corporate sources and supporting the innovation ecosystem. Some accomplishments include:

- Creating a Collaborative Seed Grant program to encourage faculty from different fields to generate joint preliminary results to make center grants credible.
- Advocating for updated and expanded research instrumentation and facilities, including organizing joint matching on federal requests with Deans.
- Streamlining processes for proposals and increasing grant writing support for increased opportunities and success.

Additionally, UCR has had key successes in:

- Creating a partnership with the California citrus industry that has resulted in funding for the construction of an $8M facility for research on a citrus disease (HLB) that has decimated Florida’s citrus population and is threatening California production. The BSL3 facility is planned to come on-line at the end of 2017.
- Increasing international visibility by having UCR’s name placed on every carton of licensed citrus in Europe.
- Partnering with the city, county, and chamber of commerce to convince the California Air Resources Board to build a $350M facility in Riverside to house 400 employees.
- Relaunching ExCITE, in partnership with the city, county and state funding from AB 2664, to provide high tech, high growth startups with comprehensive support, a workspace, and business training.
- Creating a clinical IRB to support UCR’s increased clinical research.

The Office of Technology Partnerships supports both our research and economic development objectives by facilitating funding avenues through partnerships with federal, state, and industry as well as supporting campus and local innovators in creating companies, licensing technology, and securing new partnership opportunities. In the past year, OTP has accomplished an impressive amount in a short period of time by fostering stronger relationships with community and industry partners, launching new programs and initiatives, and supporting the innovation ecosystem in Riverside through training and new funding opportunities. The staff have been laying the groundwork for an even greater impact that will transform Riverside into a major center of corporate R&D and innovation sector.

We look forward to continuing the momentum that has been built over the past year in RED and OTP to increase funding, collaboration, partnership, and commercialization opportunities for the UCR community.
This has been an exciting and busy year of building the UC Riverside’s Office of Technology Partnerships’ research and innovation support system. Being the only research university in the region and one of the most diverse in the nation, the Office of Technology Partnerships is perfectly positioned to connect the high-impact research coming from the university with the growing need for innovative technology and a well-trained industry workforce.

Our vision is to establish UC Riverside as the partner of choice connecting the university, industry and the community. To accomplish this we have built the framework to support the growing entrepreneurial ecosystem at UC Riverside and have worked to integrate the operation of our corporate and strategic partners and technology commercialization teams.

With the support from internal funds and grants from the Economic Development Administration and State Funds through the AB 2664 allocation, we have launched a regional Entrepreneurial Proof of Concept Center (EPIC), partnered with the UCR Library to launch a maker space for our students (Creat’R Lab) and supported the launch of the Center for Molecular and Translational Medicine (MolMed). One million dollars have been allocated to support a wet lab incubator at the MRB1 building and $600,000 have been secured from federal and state funds to support our citrus research capabilities.

To support our entrepreneurship activities, we launched the Startups for Innovators Workshops and have already recruited 11 Entrepreneurs in Residence and mentors for our classes. Our Economic Development mission is reflected through our support of the region in the form of entrepreneurship workshops for the community, the revamping of the ExCITE incubator in partnership with the city and the county and the launch of the first regional early stage venture capital fund in Riverside County. The Highlander Venture Fund will provide early stage financing to qualified startups affiliated with UC Riverside and the region.

The enthusiasm and participation of UC Riverside and the community are reflected in the active participation in these programs. Over 46 teams have been trained through our workshops, 100 opportunities are being reviewed by our EPIC program and 12 startups have been recruited at ExCITE.

In the upcoming year, our efforts will be devoted to strengthening these nascent organizations, increase our communication and transparency with our stakeholders and achieve sustainability of these programs.

Faculty, students and staff now have access to the resources needed to receive individualized support to accomplish their goals, whether it be to protect their discoveries, partner with a company to support advancement of their research, or start their own company.

We value all the support we have received from the UCR and Riverside communities and look forward to continuing to grow the innovation ecosystem!

Sincerely,

ROSIBEL OCHOA
UCR OFFICE OF TECHNOLOGY PARTNERSHIPS MISSION AND VISION

The Office of Technology Partnerships (OTP) facilitates the development and commercialization of ideas emanating from UCR and the community for the benefit of society.

We aim to establish UCR as the partner of choice and easiest university to work with, connecting the university, industry, and the community.

We provide fast, transparent, efficient, and individualized support for the development, funding, commercialization, validation, and incubation of ideas.

We develop the entrepreneurial ecosystem in our region.

2016-2017 Office of Technology Partnerships Accomplishments:

- 70 Partnerships with Industry
- 75 Submitted Disclosures
- $10 Million Executed Corporate Sponsored Research Agreements
- $2.2 Million Received in State Funding to Support Innovation and Entrepreneurship

2016:
- October: LAUNCHED EPIC
- 2017:
- March: LAUNCHED STARTUP FOR INNOVATORS
- MOLMED LAUNCHED
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207 Active Licenses
46 Trained Teams in Entrepreneurship
$1 Million Awarded in EDA Grants to Support Innovation
$10 Million Launched Highlander Venture Fund

April
CREAT’R LAB LAUNCHED

June
ExCITE ACCELERATOR RE-LAUNCHED
HIGHLANDER FUND CREATED
The Office of Technology Partnerships

Reporting to the Vice Chancellor of Research and Economic Development, the Office of Technology Partnerships encompasses 3 areas:

- **Technology Commercialization**
- **Corporate Strategic Partnerships**
- **Innovation and Entrepreneurship**

Our integrated approach helps us provide fast, transparent, efficient, and individualized support for the development, validation, and incubation of ideas.

**Entrepreneurial Proof of Concept and Innovation Center (EPIC)**
EPIC provides faculty, staff, students and local innovators valuable resources and tools to support their entrepreneurial journey. EPIC is a complete path-to-market platform for innovators to validate their ideas, build their team, and launch their company.

**Startup Accelerator ExCITE**
ExCITE is a unique accelerator that is a partnership between UCR, Riverside County, and the city of Riverside providing startup residents facilities, workshops, and community support to accelerate their companies’ success.

**Creat’R Lab**
Creat’R Lab drives innovation by providing a makers space where students, faculty, and staff are able to explore and develop their ideas.

**Technology Commercialization (TC)**
The Technology Commercialization team protects and helps to commercialize the cutting-edge research developed at UCR. From filing disclosures to licensing technologies, the TC team provides faculty, students, and staff full-service support in protecting and commercializing their UCR intellectual property.

**Corporate Strategic Partnerships (CSP)**
The Corporate Strategic Partnership team facilitates collaborations between faculty and industry. The team provides specialized company access to the pioneering research, faculty, students, and infrastructure at UCR.

**Industry Contracts (IC)**
The Industry Contracts office assists faculty members advance their research by negotiating industry agreements and providing grant proposal support.
The Office of Technology Partnerships helps individuals in the UCR and the Riverside communities who have ideas or technology they want to develop, protect, fund, or commercialize. OTP’s team of experts in commercialization, research collaboration, and entrepreneurial education use a personalized approach to help individuals and teams identify and achieve their goals.

Starting with the idea or technology, the OTP team works with the faculty, student, staff, or community member to determine the stage of the idea, goals, desired outcomes, and the steps needed to move forward in the process. They will be connected with an appropriate OTP staff member who will guide them throughout their journey and facilitate collaborations with the other OTP teams.

### Commercialization Guidance

#### Partnering
For partnerships with industry, the **Corporate Strategic Partnerships** team works with faculty to identify potential collaboration opportunities or facilitates the process if an industry partner has already been selected. CSP also works with companies interested in partnering with UCR departments, faculty, labs, or research centers of excellence.

#### Licensing Technology
The experienced **Technology Commercialization** team guide faculty, students, and staff through the process of filing an invention disclosure, patent protection, and licensing. They are also experts in working with companies, entrepreneurs, and startups to license UCR’s diverse portfolio of available intellectual property.

#### Startup Formation
**EPIC** has the tools and resources for faculty, students, staff, and the community to receive support for starting their own companies. Entrepreneurs in Residence, EPIC instructors, and community mentors provide coaching, startup formation support, and preparation for funding.

#### Acceleration
**ExCITE** accelerates the success of UCR and community startup companies by providing facilities, workshops, and seminars from industry experts and access to partnerships with attorneys, accountants, marketing firms, etc.

#### Seed Funding
**The Highlander Fund** provides seed funding to qualified opportunities from UCR and the Riverside Community.

### Innovation Space
**Creat’R Lab** is open to UCR students, faculty, and staff to explore their ideas in a practical way. With access to 3-D printers, electronic equipment, and sewing machines, the UCR community can experiment and innovate.

### Entrepreneurial Education
- **NSF I-CORPS Startups for Innovators Workshops**
  **EPIC** provides workshops, trainings, and courses for students, faculty, staff, and the community to learn about entrepreneurship and what it takes to start a company. As an NSF I-Corps site, EPIC’s Startups for Innovators program helps teams validate their ideas through customer discovery and product-market fit.
Corporate Strategic Partnerships & Industry Contracts

The Corporate Strategic Partnerships (CSP) team knows how to help industry solve its challenges -- whether it is technological or workforce related. With a growing faculty base and a breadth of research areas, the CSP team works with faculty and companies to identify and facilitate beneficial partnerships.

As an example, Givaudan Flavors Corporation has been a strong financial supporter of UCR’s Citrus Variety Collection (CVC) since 2006. Givaudan has conducted multiple yearly visits to collect citrus samples from the CVC used to develop flavors and fragrances from the over 1,000 different citrus varieties. Givaudan is also aggressively partnering with UC Riverside to offer internships in Givaudan’s research groups in science and technology. This is a model which UCR cherishes as a broad and deeply engaged relationship benefiting the resources, faculty, and students of UCR.

Agricultural technology and science has recently accelerated with the convergence of data analytics, computational science, and advances in engineering which has led to the development of precision agriculture. UCR has been at the forefront of these advances with agricultural research projects which increasingly involve collaboration between the College of Natural & Agricultural Sciences and the Bourns College of Engineering. Recently, the Corporate and Strategic Partnerships team visited with the Climate Corporation, a digital agriculture company that examines weather, soil, and field data to help farmers determine potential yield-limiting factors in their fields. UCR’s research faculty in navigation, nanosensors, computational sciences, and other fields which align with The Climate Corporation have enticed the company to visit UC Riverside. The Climate Corporation will not only be investigating research opportunities but will be looking at the potential for hiring UCR graduates.

CSP Facilitates Industry Support for Faculty Research

The Industry Contracts office works with UCR faculty and industry to streamline the process of entering into an agreement, research collaboration, or submitting proposals.

Collaborating with industry contributes to many successful partnerships at UCR. One such partnership has been Vantage Advanced Technology, a new venture with a local company to develop cutting edge battery technology. Longtime faculty of the Bourns College of Engineering, Professors Mihri and Cengiz Ozkan, have been working on sponsored research projects with Vantage totaling over 1.5 million dollars. New battery architecture and material has been developed as a result of the sponsored research and is currently in the process of being validated by a third party.
Pioneering research and technology increases the need to ensure UCR discoveries are protected through disclosures and patents. The Technology Commercialization (TC) team works with faculty, students and staff on the invention disclosure process to preserve the ability for patent protection before publishing or presenting any research. UCR transfers its developed technologies through the education of students, publication of research, and the development of inventions which are transformed by the commercial marketplace into products and services that are available to the public. The university maintains an active patenting and patent licensing program to help facilitate this activity on behalf of the university.

This vital step enables increased opportunities for faculty to engage in partnerships, collaborations, or receive royalties through the licensing process.

Agrobiomics is an example of a company started by a faculty member who developed and licensed UCR technology. They produce a sealant called CropSeal developed by UCR’s Philippe Rolshausen that growers can apply to pruning wounds to protect them from fungal diseases. Agrobiomics worked with the OTC group to protect and license the technology for Rolshausen’s Temecula-based start-up company.

## Technology Spotlight

**Bourns College of Engineering (BCOE)**
Professor Zak Kassas’s team at BCOE has developed a navigation system that could be used to meet system requirements for fully autonomous vehicles (like cars and drones) that use environmental signals like cellular and Wi-Fi instead of GPS.

For more information, contact Jade Sche: Jade.Sche@ucr.edu

**School of Medicine (SOM)**
Professor Maurizio Pellecchia’s group developed several powerful approaches and strategies to ligand design that are particularly suited for tackling challenging drug targets, such as those involved in protein-protein interactions.

For more information, contact Grace Yee: Grace.Yee@ucr.edu

**College of Natural & Agricultural Sciences (CNAS)**
Professor Dong-Hwan Choe’s lab has developed an inexpensive, biodegradable, seaweed-based ant bait that kills invasive ants to use in urban and agricultural environments.

For more information, contact Joyce Patrona: Joyce.Patrona@ucr.edu

## OTC Protects UCR Discoveries

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**Patent Portfolio**

- 634 Active Intellectual Property
- 5 Startup Licenses
- 58% US Patents Licensed
- 207 Active Licenses

**46%** Increase in Patents Filed

**59%** Increase in Patents Awarded

**52%** Increase in Provisional Patents Filed
Entrepreneurial Proof of Concept and Innovation Center (EPIC)

Innovation and entrepreneurship starts with people who have ideas they want to develop and commercialize. **EPIC** is the next step in the process, providing education, coaching, and funding for entrepreneurial success.

Funded by an i6 EDA grant and State funding **AB 2664**, EPIC supports UCR students, faculty, and staff, as well as the greater Riverside County, and is already making an impact.

Over the past year, EPIC has hosted 7 cohorts of their NSF I-Corps Startups for Innovators (SFI) workshops, training 46 local entrepreneurial teams in the lean launchpad methodology, validating their ideas through customer discovery and developing a commercialization plan with guidance from experienced entrepreneurial mentors.

Recruiting a team of 9 EIRs, 2 instructors, and several local mentors with over 150 years of collective entrepreneurial and senior business experience, EPIC provides valuable guidance for aspiring entrepreneurs and those who are in a new startup journey.

In August, **UCR became an official NSF I-Corps site, securing funding to train UCR teams for the next 5 years!**

Innovation Month

Supporting the innovation ecosystem is at the forefront of EPIC’s goals and activities. In April 2017, EPIC partnered with the County of Riverside Economic Development Agency to organize over 60 different activities around the county. EPIC led with a kickoff event, worked with each city to host local quick pitch competitions and workshops, and closed with a Finale Quick Pitch competition where 11 teams competed for 2 prizes worth $10,000 in services. 150 attendees and judges including angel investors and CEOs from around the region attended the event, enhancing the innovation movement in the Inland Southern California area.

Proof of Concept Awards

As part of EPIC’s commercialization process, Proof of Concept funding is provided to faculty to validate the commercial viability of their idea. Funded by the Office of Research and Economic Development as well as the Center for Molecular and Translational Medicine, faculty proposals were selected through a competition to receive up to $50,000 in funding to validate their idea.

**Proof of Concept Awardees for 2016-2017:**

- **Sika Zheng** *(School of Medicine)*
  Professor Zheng is tackling novel therapies for ALS and myelodysplastic syndromes

- **Rong Hai & Jikui Song** *(Plant Pathology & Biochemistry)*
  Professors Hai and Song are identifying small molecule inhibitors of Zika virus infection.

- **Maurizio Pellecchia** *(Biomedical Sciences)*
  Professor Pellecchia is creating innovative kinase inhibitors for the treatment of neurodegenerative disorders such as Parkinson’s and Alzheimer’s diseases.

- **Nosang Myung** *(Bourns College of Engineering)*
  Professor Myung is creating low-cost nanofiber water filters that quickly remove contaminants prevalent in household pipes, such as lead.

- **Chan Seung Park** *(Bourns College Of Engineering)*
  Dr. Park is creating a fuel contaminant sensor to reduce vehicle emissions and improve air quality.
ExCITE Accelerator

ExCITE re-launched in April 2017 as the premier accelerator program in Riverside County and is one of the only accelerators in the nation with a direct partnership to a city, a county, the private sector, and a world-class research university. With state funding through AB 2664, Taj Eldridge came on board as the director of ExCITE to help accelerate high tech, high growth science and technology companies by providing space, networking, workshops, and access to mentors. The unique partnership between UCR and the City and County of Riverside brings together campus and community resources to position companies for success. ExCITE looks to develop and recruit startup companies for the region and provide job opportunities within the Inland Southern California region.

Creat’R Lab

In partnership with the Orbach Science Library, the Creat’R lab was created to provide an innovation space where new technologies, scientific curiosity, and entrepreneurship come together across disciplines. This student-run space is open to the UCR community where they can experiment, build, break, and explore with like-minded individuals or teams. Funds from AB 2664 were used to furnish the space with equipment including 3D printers, 3D scanners, software, and electronics for prototyping for idea generation and testing.

MolMed

In partnership with the School of Medicine and funded by AB 2664, the Center for Molecular and Translational Medicine (MolMed) was launched to provide a forum to enhance collaboration among faculty whose research is devoted to the translation of basic sciences into potential therapeutics or diagnostics. By providing Proof-of-Concept grants of $50,000 to faculty, MolMed hopes to bridge the gap between basic sciences and clinical studies.

Highlander Fund

The first venture capital fund in the Riverside area, The Highlander Fund, was launched in 2017 to provide seed capital and early-stage investments to qualified opportunities from UCR and Riverside County, typically at the $100,000 to $500,000 level.

The launch of this fund was an essential piece of supporting the innovation ecosystem that the Office of Technology Partnerships is building. UC Riverside partnered with Vertical Venture Partners, UCR Foundation, and the University of California Office of the President to help accelerate commercialization of technologies and create new jobs in Riverside County by providing the early-stage funding needed to get products to market.

In June of 2017, the first close of the fund was completed with $4.75 Million raised. Over the next six months, the EPIC team will be actively reaching out to potential investors who would be interested in investing into the fund. EPIC EIRs have been able to review over 100 opportunities and coach qualified teams to present to the Highlander Fund investment committee. Teams that have pitched to the Highlander Fund include: FarmSense, Sensorygen, Sutro, Wisely, Blue, Terra manta, Evince, and Security in Bits.