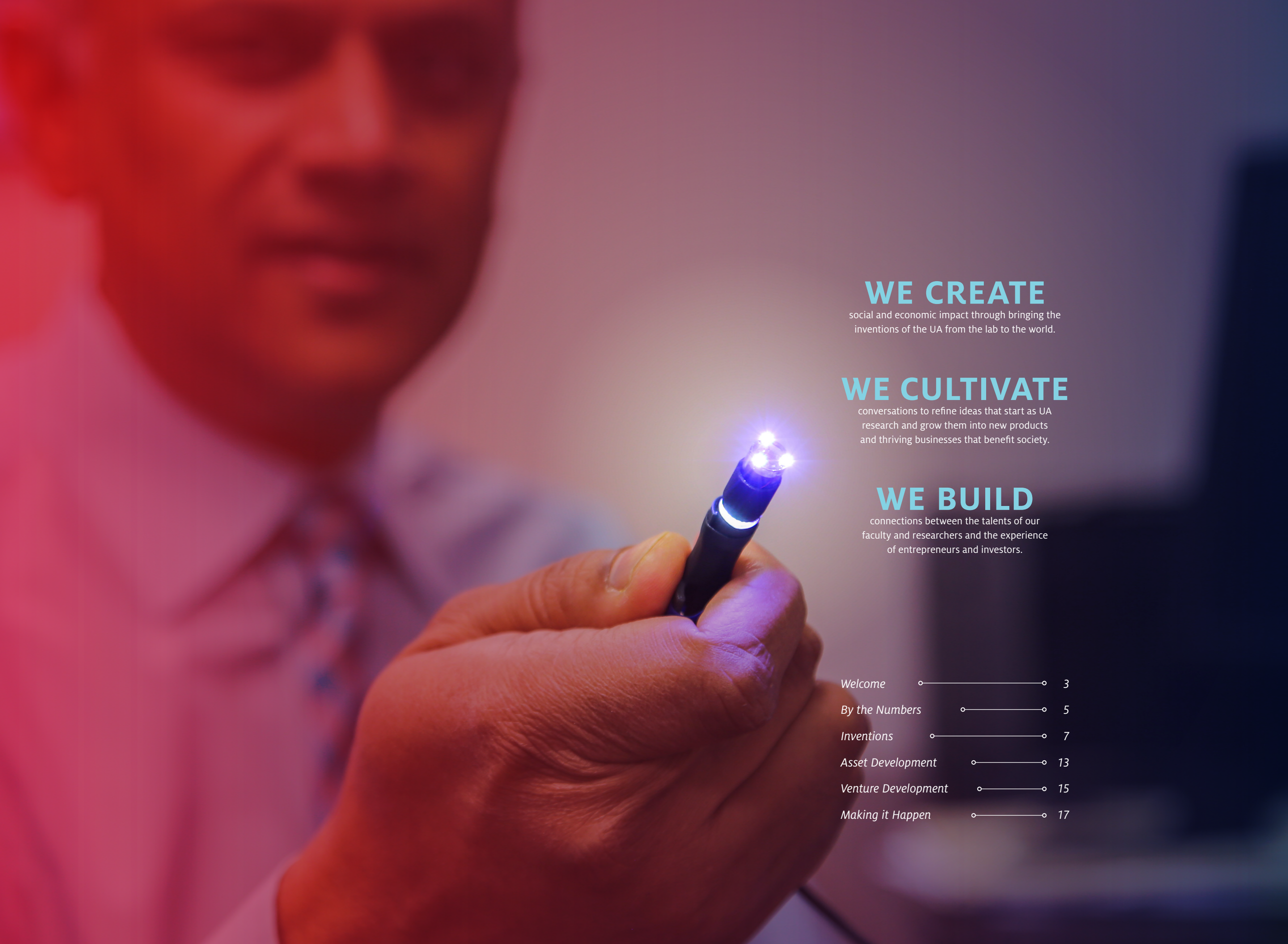
THE UNIVERSITY OF ARIZONA

TECH LAUNCH ARIZONA

ANNUAL REPORT FY2018

MAKING IT HAPPEN



WE CREATE

social and economic impact through bringing the inventions of the UA from the lab to the world.

WE CULTIVATE

conversations to refine ideas that start as UA research and grow them into new products and thriving businesses that benefit society.

WE BUILD

connections between the talents of our faculty and researchers and the experience of entrepreneurs and investors.

Our mission:

TECH LAUNCH ARIZONA WILL COLLABORATE INTERNALLY WITH THE UNIVERSITY OF ARIZONA COMMUNITY AND EXTERNALLY WITH REGIONAL ORGANIZATIONS TO SIGNIFICANTLY ENHANCE THE IMPACT OF UA RESEARCH AND TECHNOLOGICAL INNOVATION THROUGH LICENSING, CREATING STARTUPS AND GROWING THE REGIONAL INNOVATION ECOSYSTEM.

WELCOME.

When TLA was launched in FY13, we laid out a road map to set our direction and measure our progress. Through hard work and a results-oriented focus, we accomplished our goals, with many metrics increasing faster than anticipated.

We've grown technology commercialization throughout the University of Arizona. We've expanded from patent management and licensing and now provide expertise and support for copyright and software protection, startup formation, asset development funding, innovation and ecosystem support. With a two-pronged focus on commercializing UA inventions and fostering the growth and development of our ecosystem, we are looking for new ways to engage with the UA community and the region to expand our impact.

As we consider new programs and work closely with our advisory board, we are developing new ways to expand faculty engagement and more effectively bring students into our processes. We are investigating new investment models and how we can form stronger bonds with our external communities.

We have an incredible team and seemingly endless ideas, but our focus is always impact—not activity.

UA PRESIDENT ROBERT C. ROBBINS

There is so much incredible work being done at the UA that can enrich and improve the lives of people in our region, across the nation, and around the world. Tech Launch Arizona provides a crucial link that delivers those ideas and advancements to those who most need it.

After a year as President of the University of Arizona, I am even more impressed with TLA's ability to translate the incredible discoveries of the UA's outstanding faculty and researchers into innovations that will benefit the many communities we serve. In 2018, TLA continued its strong record of commercializing vital new inventions, and it is an important reason why the UA is well on our way to realizing our vision of becoming a leading university in the Fourth Industrial Revolution.

2018 also brought the retirement of David Allen. David's leadership was transformational, and I thank him for his far-reaching vision and leadership. He leaves a strong legacy for Doug Hockstad to build upon. I look forward to seeing all that TLA can accomplish in the years to come, and to seeing how the inventions, technologies and products created at the UA can improve the social, cultural, and physical health of communities around the world.

OUR VISION FOR TECH LAUNCH ARIZONA IS TO BE RECOGNIZED AMONG THE TOP UNIVERSITIES FOR ITS BEST PRACTICES & SUCCESS IN CREATING IMPACT THROUGH THE COMMERCIALIZATION OF INTELLECTUAL PROPERTY.

DOUGLAS HOCKSTAD, ASSISTANT VICE PRESIDENT, TECH LAUNCH ARIZONA

Whatever we undertake, our goals will be based on generating measurable, impactful results.

So what's next? Where do we want to be in five years?

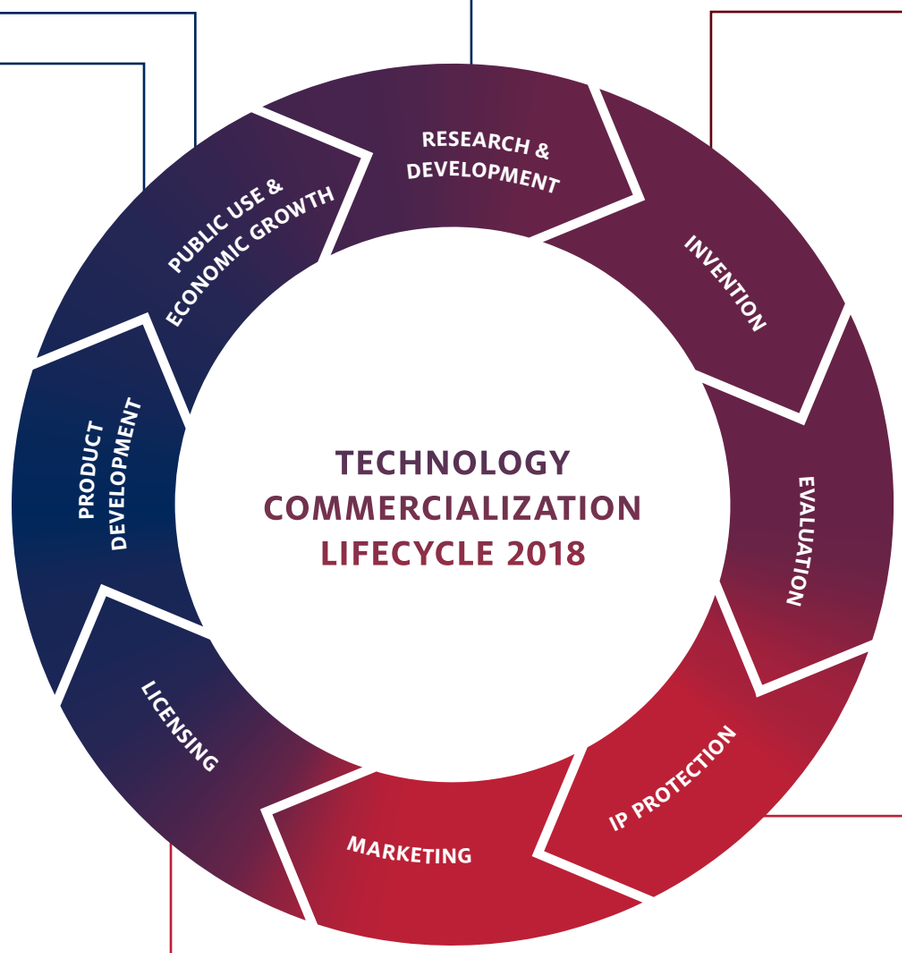
Like any startup, our first five years focused on rapid growth. In many respects, we have reached a level among the top of our peers when normalized by research expenditures. Since maintaining that level of growth is likely to be unsustainable, we are taking this moment to consider our goals and aspirations, and refocus our programs and strategies to deliver sustainable levels of output and growth, all while maintaining the highest quality outcomes. At the same time, we are considering new ways to grow the innnovation ecosystem and spur greater levels of impact.

Finally, on behalf of the entire TLA team, I want to recognize and thank David Allen, who retired this year from his position as TLA Vice President. We can't say enough about the vision, education and leadership that he brought to the project of building one of the leading public university technology commercialization programs in the nation. I am humbled and honored to be working with UA President Bobby Robbins and the entire University of Arizona community as we take our vision forward.

By the Numbers

EVERY YEAR, UA RESEARCH YIELDS INVENTIONS WITH COMMERCIAL POTENTIAL.

TLA shepherds ideas from the lab to the marketplace – from evaluating and protecting discoveries to commercializing the inventions through new and existing companies.



$622M
RESEARCH EXPENDITURES

$646k
16 ASSET DEVELOPMENT PROJECTS AWARDED

275
INVENTION DISCLOSURES

349
PATENTS FILED

36
PATENTS ISSUED

112
LICENSES & OPTIONS

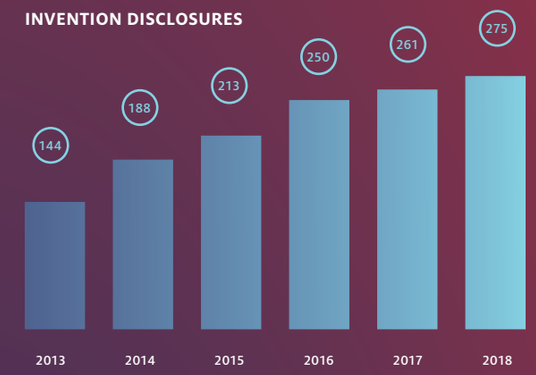
16
STARTUPS FORMED

$4.1M
OF ROYALTIES & OTHER INCOME

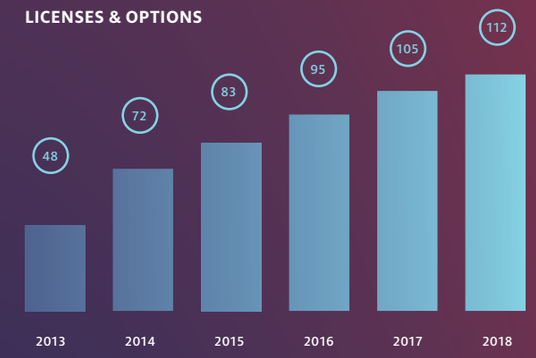
FY15 — $3.9M: $1.6M royalties; $2.3M one-time settlement

FY18 — $4.1M: $2.9M royalties; $1.2M one-time equity income for CampusLogic ($185K) and SinfoníaRx ($1.03M)

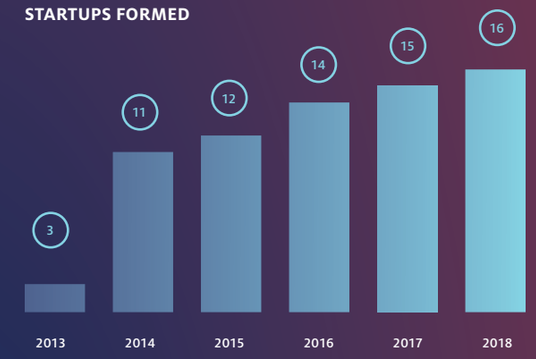
INVENTION DISCLOSURES



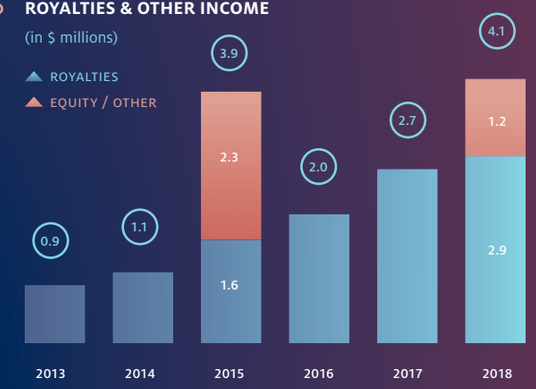
LICENSES & OPTIONS



STARTUPS FORMED



ROYALTIES & OTHER INCOME
(in $ millions)



Inventions

IN FY2018, UA INVENTORS REPORTED THESE 275 INNOVATIVE IDEAS FOR A BETTER WORLD.

LICENSING MANAGERS: HELPING RESEARCHERS EXPAND THE IMPACT OF THEIR WORK.

Under the leadership of Licensing Director Rakhi Gibbons, our team of licensing managers (LMs) – with specialized expertise in scientific domains, IP law and business – collaborate with UA faculty, researchers, graduate students and staff to identify inventions stemming from their investigations and innovative work. LMs advise these UA colleagues through the intellectual property protection process, and work with them to map out the most impactful commercial pathway for each technology.

WHAT DO THE INVENTORS THINK?

While our results show progress, what do our constituents think of our work? This year initiated an annual survey of UA inventors to get perspective on what we're doing well and where we need to improve. Based on a 20% response rate, here's what we learned.

RECOMMENDATIONS

78%

SAID THEY WOULD RECOMMEND TLA TO THEIR COLLEAGUES

OVERALL INTERACTION

75%

SAID THEY WERE EXTREMELY OR VERY SATISFIED WITH TLA ON OUR RESPONSIVENESS, HELPFULNESS, QUALITY OF COMMUNICATIONS AND EXPERTISE

OVERALL EXPERIENCE

68%

ARE EXTREMELY SATISFIED OR VERY SATISFIED WITH THE OVERALL TLA EXPERIENCE

ACTUAL COMMENTS FROM THE ANNUAL SURVEY

"VERY PLEASED WITH TLA. IT'S HIGH FUNCTIONING AS COMPARED TO SIMILAR GROUPS AT ALL OF MY PREVIOUS INSTITUTIONS." "I HAVE FOUND TLA STAFF TO BE WONDERFUL TO WORK WITH AND VERY HELPFUL." "I APPRECIATED HAVING THE SUPPORT OF TLA!" "KNOWLEDGEABLE STAFF WITH GOOD ADVICE." "U GUIZ R GREAT!" "IT'S GREAT TLA GET TO SEE OVER THE BETTER YEARS. LAST FIVE GOING!" KEEP IT ABSOLUTELY "ABSO EXPERIENCE.TLA IS SOMESUPERB THING I CONSIDER TO BE A STRENGTH AT UA." "THE STAFF WERE EXTREMELY PROFESSIONAL AND WERE ABLE TO DEAL WITH A HIGH LEVEL OF COMPLEXITY." "WOW - TLA IS AMAZING!"

Inventions: 275

SPACE EXPLORATION & OPTICAL SOLUTIONS

- Fast and Scalable Fabrication of Microscopic Optical Surfaces and its Application for Optical Interconnect Devices
- A Broadly Tunable Laser Source Using a Parametric Oscillator
- High-Throughput Manufacturing for Pic Polymer Waveguide Using Multiple Exposures
- Calibration Technique for Smartphone Spectroradiometer
- Silicon Photonic Devices with Tunable Temperature Dependence
- Disaggregated Computing Systems and Methods
- Imaging Method and Apparatus Using Circularly Polarized Light
- Multi-Field Miniaturized Microscope
- Method to Translate a Non-Collimated Optical Beam
- Photonics Interposer Optoelectronics
- Adaptive Multi-Bit Sigma-Delta Modulation Digitizer for Pulsed Waveforms
- Polishing Protocol for Zirconium Diboride-Based Ceramics to be Implemented into Optical Systems
- Label-Free Single Molecule Spectroscopy and Detection
- Polarization Preserving Bidirectional Isolator
- Bidirectional Self-Starting Ultrafast Fiber Laser
- Imageguide for Head-Mounted Display
- Single-Chip ASLM
- Field Steering ASLM
- Flexible Curved Optics Elements with Laminate
- Digital Fringe Projection and Multi-Spectral Polarization Imaging for Rapid 3D Reconstruction
- A Locking Clamp that Enables High Thermal and Vibrational Stability for Kinematic Optical Mounts
- 3D Printing Contact Lens
- Method for Detection of Defects in Semiconductors Using a Novel Multiphoton Microscope
- Narrow-Linewidth Vertical External Cavity Surface Emitting Laser
- Fabrication of Polymer Waveguide Interconnect Between Chips with a Gap/Step Using Flexible Polymer Dry Film Resist for Photonic Integrated Circuits (PICs)
- Amplification of the Incidence Angles of a Light Beam to Cover up to 4Pi Steradians
- Method of Rapid Nanophotonic Design and a Nanophotonic Waveguide to Fiber Coupler
- Polygon X-Prism for Imaging and Display Applications
- Calibration Method for Photon Counting Detectors
- Optical Gating of Electron Pulses for Femtosecond and Attosecond Electron Microscopy and Diffraction Imaging Applications
- Techniques for the Rejection of Daylight to Enhance Daytime Satellite Detection
- Fabrication of Diffractive Patterns On Aspheric Mirror Substrates
- Low-Cost, Compact Chromatic Confocal Microscope
- Methods for Rendering Light Field Images for Integral-Imaging-Based Light Field Display
- Identification and Control of Myopic Progression Using Distortion
- Attomicroscopy: Attosecond Electron Microscopy and Diffraction
- Snapshot Interferometer with Multiple Wavelength Sources of Different Coherence Lengths
- Methods for Simple in Vivo Microscopic Imaging Devices
- Implementing Multiplication and Division in Optics
- Rotationally Shift-Invariant and Multi-Layered Microlens Array
- Technique for Replication of Volume Holographic Optical Elements
- Exact Raytracing Algorithm for Spherical Harmonics
- Double Cavity all-Optical Control of Pseudo-Spin Texture
- Integrated Optical I/O Port Combiner
- Rotationally Shift-InvariAnt and Shell-Structured Optical System
- Hybrid Mod-Enmat Lens
- Light Field Display with Distorted Grating
- Inexpensive External Cavity Diode Laser
- Mathematica Code for Inferring the Likely Interior Structure of the Moon
- Globally Optimal Multi-Objective Planner
- Photoresponsive Chalcogenide Hybrid Organic/Inorganic Polymers Film
- Osiris Rex: Countdown to Launch
- Software-Defined Networking (SDN) Control System for Multi-Domain Optical Networks
- Asteroids: Fact vs Fiction
- What Are Near-Earth Objects?
- How Do We Find Asteroids?
- What Are Asteroids Made Of?
- What Is the Yarkovsky Effect?
- Asteroids vs Comets
- Satellite-Based Lightning Location Accuracy Improvement Method

IMPROVING HEALTH

- Sensors for Iron Detection by Photoacoustic Bioimaging
- Applications of PWR Spectroscopy Molecular Interactions
- Fet-Protein Fusions as a Marker of Sensitivity to Transcription Inhibitors and Cyclin-Dependent Kinase Inhibitors
- Transcription Inhibition Targeted Therapy
- Triazabutadienes with Drug-Like Properties
- Alamandine Glycosides as Non-Narcotic Pain Relievers
- Triazabutadiene Drug and Ligand Conjugates for Identifying Protein-Protein Interactions
- Urinalysis Test for a Compromised Gastrointestinal Tract
- Selective T-Cell Removal for Transplants
- Custom Chimeric Antigen Receptor (Car) T-Cell Therapy for Antigen Attack of Cancer Cells
- DNA/RNA Based Cell Sorting
- Identification of Mosquito-Selective Protein Targets for Vector Control
- New Class of Mosquitocides and Uses Thereof
- New Monocyclic Class of Mosquitocides
- New Class of Natural Product Derived Mosquitocides
- Multi-Ring Fused Mosquitocides
- Anti-aging Via Haao Blockers
- Anti-aging Via Kynurenine Pathway Interventions
- Optimal You
- Fractal Analysis Linking Physical Activity Patterns, Health, and Mortality
- Artificial Neural Network-Based Sleep Disordered Breathing Screening
- Wellness Analytics, Tracking and Coaching for Health Hub
- System and Methods for Sleep Optimization
- Electronically Activated Recorder (EAR): A Method for the Naturalistic Observation of Daily Social Behavior
- Cognitive Readiness Test (CRT)
- Self-adjusting Controllers for Force Assistance Systems in Surgical Robotics
- Hypknowledge Sleep Management Platform: Algorithm and Messaging Components
- Advanced Engineered Formulations of TMP/Ligustrazine and Microparticle/Nanoparticle Formulations for Inhalation Drug Delivery for Lung Vascular, Interstitial and Airway Diseases
- Advanced Engineered Formulations of Simvastatin and L-Carnitine Microparticle/Nanoparticle Formulations for Inhalation Drug Delivery for Respiratory and Pulmonary Vascular Diseases and Applications Therein
- PVAD: A Linear, Pulsatile, Peristaltic Ventricular Assist Device Mechanism
- Advanced Engineered Formulations of Rho/Rock Kinase Inhibitor (Fasudil) Microparticle/Nanoparticle Formulations for Inhalation Drug Delivery for Respiratory and Pulmonary Vascular Diseases and Applications Therein
- Left Ventricular Transapical Dual Lumen Cannula
- Dual Chamber Atrio-Ventricular Cannula
- Universal Left Ventricular Apical Ring
- "Known Depth-of-Cut" Cylindrical Knife
- Pneumococcal Fluorescence Reporter System
- A Cut and Paste Method for Modification of CMYBP-C in Muscle Sarcomeres
- Novel Surrogate Co-Receptors for Redirected T-Cell Therapy
- An Inhibitor Targets C-Kit Mutations for Cancer Therapy
- Disposable Mouse Restraint: D-Mouse Wrap
- Novel Anti-Obesity Peptides
- Predictive Network Models for Computational Systems Biology and Drug Target Discovery
- Primary Antibody for Assessing Cardiomyopathy Risk
- Methods to Use Hdaci to Generate Antigen-Specific Memory T-Cell Responses for Durable ImmunoTherapy
- Development of a Locally-Acting and Long-Lasting Analgesic for Accute and Chronic Pain
- Fiberoptic Infrared Guided Percutaneous Tracheostomy (PT)
- Diagnostic Tool for Estrogen Receptor Positive Breast Cancer Patient Stratification
- A Compound that Synergizes with Copper to Kill Streptococcus Pneumoniae
- Intronic Promoters as Target to Inhibit CMV Reactivation
- "Pseudo" Golden Angle Ratio Reordering Algorithm for Flexible and Efficient Radial TSE and T2 Mapping
- Improved Inferior Vena Cava Filter
- A Chaperone Protein-Based Therapy for the Reduction of Alpha Synuclein Toxicity in Parkinson's Disease
- Tubular Propulsion System
- Specialized Chromosome Design for Mouse Genetic Research
- 3D Printed HDR Vaginal Cylinder Applicator for Varisource to Improve Dose Distribution
- Flexible Method of Pressurizing and Depressurizing Mechanical Circulation Support
- Members of the WNT Signaling Pathway as Predictive Markers and Therapeutic Targets in Glioblastoma Multiforme
- The Use of Cyclodextrins to Treat the Chronic Inflammatory Response to Stroke
- The Use of Club Cell Secretory Protein (CCSP Or CC16) as a Potential Therapeutic for Lung Disease
- Workstation for Automated Control of an In Vitro System
- Devices, System and Method for Evaluation of Body and Appendage Volume/Girth
- Biomarker Pathway Analysis
- Discovery of T-Type Calcium Channel Antagonist from Multicomponent Reactions and their Application in Paclitaxel-Induced Peripheral Neuropathy
- Protective Epitope Polypeptide Bacterial Vaccines
- Proteins from Asthma-Protective Amish Farm Dust
- Advanced Engineered Formulations of Suramin Microparticles and Nanoparticles for Drug Delivery and Applications Therein
- Chassis for Biofeedback and Light Stimulation During Sleep
- Biobanking and Me (Tabolomics)
- Broad-Spectrum Influenza Antiviral
- PDL-1 as a Biomarker of Risk for Skin Cancer Development
- Concurrent Injection of Biomaterial Improves Efficacy of TMR Therapy
- Method and System for Identifying Microorganisms in a Complex Sample
- Compositions and Treatments for Haemophilus Influenzae
- Pertussis Vaccine
- Libra: Comparative Metagenomics with Mapreduce
- Drug Metabolite as a Non-Invasive Biomarker for Nonalcoholic Steatohepatitis (NASH)
- Targeted Therapeutic Delivery in Nonalcoholic Steatohepatitis (NASH)
- Inhibitors of DYRK1A for Alzheimer's Disease
- Integrated Device for Self-Collecting and Automated Pre-Processing of Biological Fluids for Multiple Analyses
- "Digital Reflexes": Quantitation and Signatures of Superficial Reflexes via Stretchable Electronic Wearable Sensors
- Prodrugs of Allopregnanolone and Related Compounds
- PAR 2 Inhibitors
- Acoustic Detection of Activated Ultrasound Phase-Change Contrast Agents
- Anahaler (Anaphylaxis Nasal Inhaler)
- Effect of Mas Agonists on Cognition after Transaortic Constriction
- Method and System for Biological Information Pattern Storage and Readout
- Novel Formulations for Neurosteroids
- Method for Treating Cftr-Mediated Chronic Sinusitis
- The Method for Identification and Characterization of a Hybrid Hairpin/C-Quadruplex in Promoter Elements of Genes with Therapeutic Significance and Identification of Small Molecules that Target These Structures
- Biomarker Signatures of Platelet Activation
- New Application of an FDA-Approved Antiviral Agent for the Treatment of Human Cancer
- A Novel DNA-Based Antimicrobial Compound for Treating Infections Caused by Neisseria Gonorrhoeae and Neisseria Meningitidis
- Automated Damage Scoring of Zebrafish Neuromast Images
- Genetically Engineered Smart Biopolymer to Combat a Broad Range of Microbial Infections
- Noninvasive Real-Time Patient-Specific Assessment of Stroke Severity
- Room Scale Virtual/Hybrid Reality Endoscopic Surgery Simulation System Using and Synchronized Patient-Specific Anatomy Virtual and Physical Models
- Endoscope with Haptic Feedback and VR Controllers for Virtual Reality Surgical Training System
- 3D Rendering and Endoscope Tracking Software for Virtual Reality Surgical Training System with Haptic Feedback
- Methods of Training Human Brain and Body to Walk Using Modular Unpowered Exoskeleton
- Radial Streaking Artifact Reduction Using Phased Array Beamforming
- Antibody Test for Coccidioidomycosis
- Measuring Skeletal Muscle Metabolic Rate to Determine Feed Efficiency of HomeoTherms
- Glycopeptide and Classical Drug Design
- Method for Treating Arrhythmias - 3DFC
- Therapy of ERalpha-Negative Breast Tumors with Dietary Agents
- A Safe, Tolerable, Non-Antibiotic Agent to Prevent or Treat Clostridium Difficile Infection
- Scaffold for Cardiac Applications
- Modulating Hepatic Gaba Production or Release to Alter Food Intake in Monogastric Species
- Semi-Synthetic 17Beta-Hydroxywithanolides (17-Bhws) Promote Caspase-8 Dependent Apoptosis in Renal Carcinoma and Melanoma and Specifically Inhibit Human Prostate Cancer Cell Proliferation
- Flow Cytometric Disease Diagnostics Based On Biopsies
- Rodent Holder Tube
- Clinical ECG Parameters from a Bioengineered Human Cardiac Tissue
- New PCR and qPCR Methods for NHP Detection
- Methods for the Detection of Enterocytozoon Hepatopenaei (EHP) and Thereof
- Detection of EMS and EHP
- A Natural Mouse Model that Enables the Discovery and Characterization of Bacterial and Host Factors that Mediate Neisseria Colonization and Persistence, and Targets for Vaccines and Antimicrobials
- An Oral Vaccine-Based Strategy to Prevent Bacterial Infectious Diarrhea

WATER, ENVIRONMENTAL & ENERGY SOLUTIONS

- Deuterium as a Quantitative Tracer of Enhanced Microbial Coalbed Methane Production
- Enhanced Water Splitting with Protic Buffer/Electrolyte Cocatalysts
- Electrocatalytic Systems for the Generation of Molecular Hydrogen from Aqueous Feedstocks
- Chromium Oxide for Enhanced Magnetic Tunnel Junctions
- Glyonic Liquids
- The Tumamoc Tour
- VGS- Vegetation GIS Data System
- Federal Excess Property Management Web Application
- Degradation of Organic Compounds Using a Unique Multiple Transducer and Dual Frequency-Based Sonochemical Reactor
- Fullerene Assemblies with Tunable Shapes and Electrical and Ionic Conductivity for Use as Battery Electrolytes and Other Applications
- Low-Cost Desalination by Solar Thermal Evaporation and Radiative Cooling
- Producing Environmentally Benign Materials from Mine Tailings Using Hydrocarbon Polymerization
- Water Meter Pressure Monitoring for Water Distribution Control and Detecting and Locating Pipe Leaks and Breaks
- High Strength Geo-Foam
- Powerdown (TM) Electric Value Indicator
- Layout-Based Grafting Resource Optimizer
- Inorganic and Organic Proton-Conducting Polymer Electrolyte Membrane
- Electrochemical Hydrogen Compressor
- Metallic Bipolar Plate
- High Temperature Fuel Cell System
- Catalyst for Auto-Thermal Reforming of Hydrocarbon Fuels Making Hydrogen
- Plastic Pollution Cleanup in the Ocean
- Glycolipid and Mixed Micelle Characterization Via Diffusion-Ordered Spectroscopy
- Borehole Diffusive Flux Apparatus
- Transgenic Resistance to Cotton Leaf Curl Disease in Cotton
- Axial Dispersion Bioreactor (ADBR) for Production of Microalgae and other Microorganisms
- Air Stirred Tank Reactor (ASTR) for Production of Microorganisms and Cell Cultures
- Increasing Salt Tolerance in Arabidopsis Thaliana
- Phymatotrichopsis Root Rot Management in Alfalfa
- Artificial Intelligence to Assist Aquaculture
- Soil-Borne Disease Roadmap

NATIONAL DEFENSE & SECURITY SYSTEMS

- Stochastic Bag Generator (SBG)
- Membrane Optical Element
- Smallsat SSA Station
- AVATAR Software
- Multi-Static/VLBI Imaging Radar For Characterizing Space Objects
- System and Method for Inferring Unauthorized Data Access Through Human-Computer Interaction Movement and Behavioral Data
- Asynchronous Behavioral Analysis
- Runtime Adaptive Risk Assessment and Automated Mitigation

OTHER

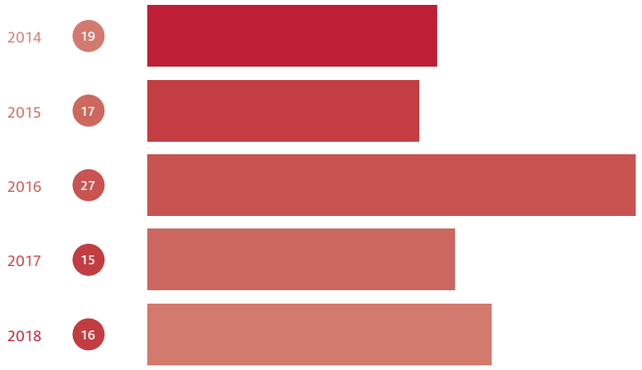
- Reliable Determination of Contact Angle From the Height, and Volume of Asymmetric Sessile Drops
- Petahertz Electronic Switch Nanocircuits
- Processor Design Tool
- Scanning Tunneling Thermometer
- Plasmonic Amplifier and Transistor Architecture Based on Nonlinear Plasmonic Structures
- Polymers with New Properties
- Anti-Reflective Coating for Photonic Materials as Devices Using Chalcogenide Hybrid Organic/Inorganic Polymers
- Broadband Reflective Coatings for the Near and Shortwave Infrared Using Solution-Processable Chalcogenide Hybrid Organic/Inorganic Polymers
- Chalcogenide Hybrid Organic/Inorganic (Chips) and Nanocomposites for Long-Wave Infrared Imaging and Optical Applications
- Educational Science Kits for Use in Traditional, Underserved, Small, or Remote Classrooms
- Community Interactive: Stories From the Border
- Barrios and Barriers: The Tucson Civil Rights Era
- Level One Trauma
- Optics Adventures Comic Book
- Arizona Week: Logging In When You're Locked Up - Tablets In Jail
- Mt. Lemmon Science Tour App
- For Kids, By Kids
- UAgenda
- Behind the Scenes at Antiques Roadshow in Tucson: The Navajo Blanket
- Guide on the Side Rebranding and Revitalized to Sidecar Learning
- Eller Student Management System (ESMS) V2
- A System and Method for Image-To-Text Conversion
- A Pashto-English Dictionary
- Not Broken
- ESMS Kiosk
- Arizona & Title Vietnam War: Stories of Service, Arizona & the Vietnam War: Jungle Warfare, Arizona & the Vietnam War: Air Combat
- University Track Pathways Program
- Mspe Manager
- Virtual Reality Dance Analysis Application
- Global 360 Video Production Technique
- UA Travel: Dynamic Survey Engine
- UA Passports Kiosk
- UAexpertise Tracker
- UA Travel: Collaboration Finder
- UA Global Qr Code Reader/Maker
- UA Travel: Dynamic Trip Builder
- UA Travel: Impacted Traveler Finder
- Copper Leaching from its Ores and Concentrates Using Methane Sulfonic Acid (MSA)
- Phononic System to Achieve Quantum-Analogue Phase-Based Unitary Operations
- Recrystallization of Ceramics
- A System to Record and Generate an Individual Human's Self-Consciousness in Daily Life to Achieve Digital Immortality
- A System to Generate an Animated Hologram of 3D Human Face with a Fixed 3D Human Face
- A System to Trigger, Record, Organize, and Retrieve an Individual Human's Episodic Memory Including Life Events with Personal Privacy Protected
- Tank Material Selection Spreadsheet
- Injectable Protein-Based Hydrogels with Ligand-Mediated Reinforcement for Long-Term in Vivo Applications
- Drone Signal Transmission Jamming System
- Chip-to-Chip Switched-Beam Antenna Array with Integrated Feed Network
- Elastic Waves with Correlated Directional and Orbital Angular Momentum Degrees of Freedom: a Method for Creating Bell States Using Elastic Waves
- A Method for Fast Beam Scanning and Device Discovery in 5G Millimeter Wave Systems
- Direct Gold Leaching from Sulfidic Refractory Ores or Concentrates
- Improved Fused Filament Deposition 3D Printing Using Filaments Coated with Thermoreversible Thermosets
- Organoboranylsiloxanes and Silsesquioxanes as Thermal- and Uv Photo- Cross-Linking Resin Precursors
- Thermally Curable Silsesquioxanes for Direct Write, Laser Inscription of Optics or 3D Printing
- Photo-Curable Liquid Acrylate and Methacrylate Modified Silsesquioxane Oligomers with Built-In Radical Initiators for Additive Manufacturing
- Mechanical Device Exhibiting Hidden Order (Reminiscent of Topological Order)
- Laser Sintering of Metal Sulfide Metathesis for 3D Printing
- Additive Manufacturing Using Laser Reactive Sintering of Mixtures of Metallic Powders and Sulfur
- Electrodeposition of Silicon
- Cathodic Protection of Metal Surface Inside Pipe Filled with Molten Salt

Asset Development

FUNDING FOR THE NEXT GENERATION OF INVENTIONS.

This past year, TLA provided $646,072 in new awards for 16 projects, with an additional $160,668 going toward ongoing projects from the previous year. Through Asset Development funds, we provide resources to move early-stage inventions toward being licensable, market-ready projects.

NEW PROJECT AWARDS FUNDED



$646k

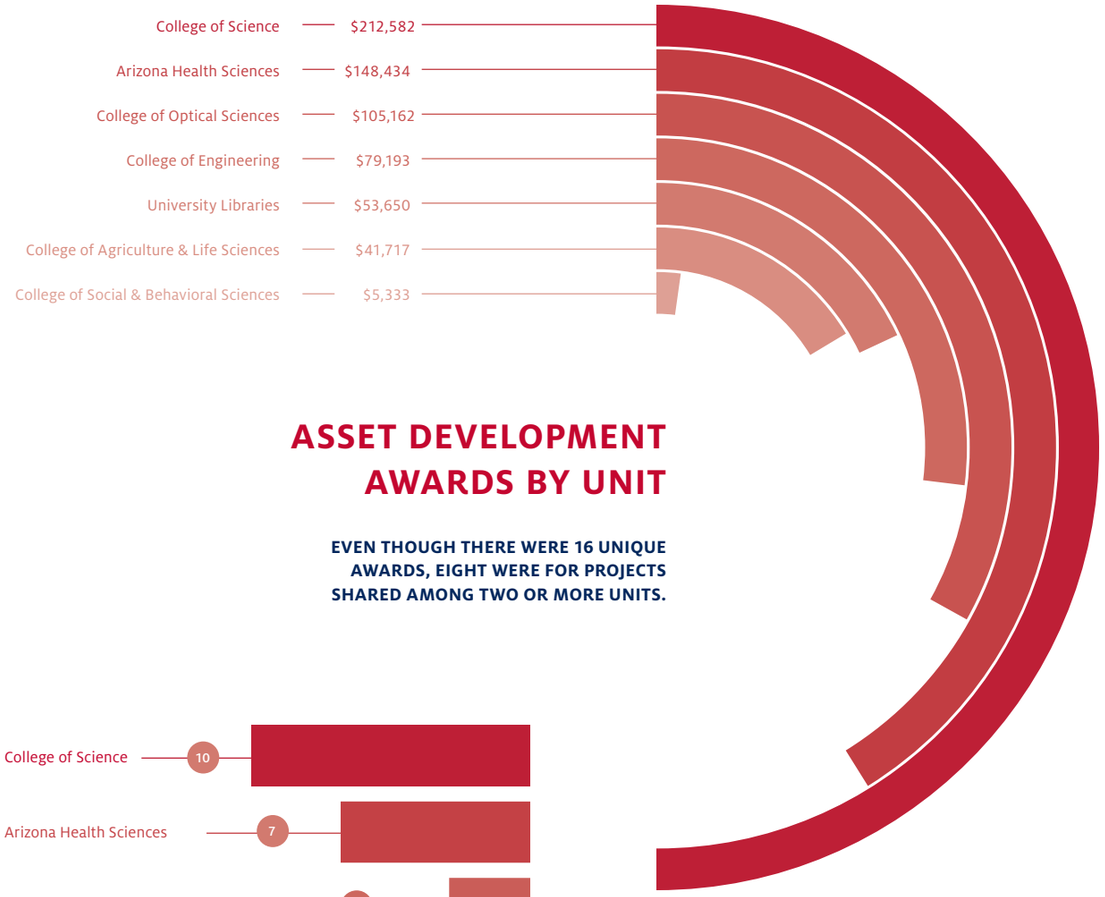
PROVIDED BY TLA TO BRING TECHNOLOGIES CLOSER TO MARKET-READINESS

$160k

PROVIDED FOR ONGOING PROJECTS FROM FY17

16

NEW PROJECT AWARDS



ASSET DEVELOPMENT AWARDS BY UNIT

EVEN THOUGH THERE WERE 16 UNIQUE AWARDS, EIGHT WERE FOR PROJECTS SHARED AMONG TWO OR MORE UNITS.

AWARD COUNT PER UNIT

NEW IDEAS BECOMING NEW REALITIES.

Venture Development

MAKING SUCCESS POSSIBLE.

Led by Senior Director Joann MacMaster, the Venture Development team consists of our Mentors-in-Residence and Commercialization Network teams, all of whom collaborate closely to maximize the success of UA startups.

STARTUP COHORT 2018

AQUALUNG THERAPEUTICS CORP.

Developing a therapeutic antibody to reduce inflammation in acute and chronic lung diseases.

College of Medicine – Tucson

BIO5 Institute | UA Cancer Center

BOTANISOL ANALYTICS

Develops molecular detection instrumentation for use in forensic, pharmaceutical, agricultural, manufacturing, threat detection, bioproduction and clinical diagnostic applications.

College of Optical Sciences

DISCERN SCIENCE INTERNATIONAL, INC.

Offering an automated interviewing and deception detection technology for use in security.

Eller College of Management

D3SCIENCES, INC.

Developing tools for improved tissue sampling to expand cancer diagnosis, therapy specificity and research.

College of Medicine – Tucson

Banner – University Medical Center Tucson

NORCON TECHNOLOGIES

Commercializing techniques and elements for flexible curved reflectors.

College of Optical Sciences

REGULONIX

Developing non-opioid based small molecule therapeutics for chronic pain relief.

College of Medicine - Tucson

BIO5 Institute

OMNISCIENT

Developing a novel dual-view imaging technology that captures simultaneous forward and 360-degree backwards views in a single image for applications in medicine and other industries.

College of Medicine – Tucson

College of Optical Sciences

TRIANGLE BIOTECHNOLOGY, INC.

Developing a nanodroplet technology with applications in medical imaging, diagnostics and clinical therapy.

College of Medicine - Tucson

REGLAGENE

Applying quadruplex master switch technology to discover new medicines that control gene expression to address diseases like cancer.

College of Pharmacy | BIO5 Institute

URBIX RESOURCES

A premier provider of refined graphite powders, pristine graphene and specialty graphite products.

College of Optical Sciences

FREEFALL AEROSPACE

Developing revolutionary antenna systems for 5G, satellite and ground based communications.

College of Science

GENETIRATE

Commercializing assays to predict growth rate in aquatic animals.

College of Agriculture and Life Sciences

BIO5 Institute

GUIA

Commercializing the System for Managing Advanced Response Technology (SMART™) to monitor worker health in the context of the work environment.

College of Science

Lowell Institute for Mineral Resources

ILUMINOS THERAPEUTICS

Creating small molecule approaches for the treatment of Alzheimer's disease and other neurodegenerative and cognitive diseases.

College of Pharmacy | BIO5 Institute

INTUITIVE MEASUREMENT SYSTEMS

Offering a portable device to automate and standardize the collection of respiratory rates in sedated laboratory animals.

College of Medicine — Tucson

College of Science

MCR THERAPEUTICS

Developing novel options for skin cancer prevention, detection and treatment.

College of Medicine - Tucson

College of Science

BIO5 Institute | UA Cancer Center

NSF I-CORPS

As an NSF I-Corps Site, TLA offers individual project grants up to $3,000 to university-related entrepreneurial teams looking to bring innovative technologies to market, with those funds going towards customer discovery. Teams typically consist of an inventor/academic lead, an entrepreneurial lead, and a business mentor.

39

TEAMS SERVED IN TOTAL IN FY2018

84

TEAMS SERVED SINCE TLA WAS DESIGNATED AN I-CORPS SITE IN 2016

COMMERCIALIZATION NETWORK

Through volunteering their expertise, TLA Commercialization Network members play a vital role in helping to ensure that UA inventions go forward to create meaningful impact on people's lives.

1,500

COMMERCIALIZATION NETWORK MEMBERS WHO VOLUNTEER THEIR EXPERTISE TO HELP COMMERCIALIZE UA INVENTIONS

30

COMMERCIALIZATION PARTNERS WHO'VE EXPRESSED INTEREST IN INCREASING THEIR ENGAGEMENT WITH TLA AND UA STARTUPS

4

MENTORS-IN-RESIDENCE, ALL SEASONED TECHNOLOGY ENTREPRENEURS, HELP STARTUP TEAMS GROW TECHNOLOGIES INTO SUCCESSFUL VENTURES

12

NETWORK MEMBERS HAVE BEEN PLACED INTO STARTUP LEADERSHIP POSITIONS THIS YEAR AS A RESULT OF THEIR ENGAGEMENT WITH TLA

56

SHORT-TERM ENGAGEMENTS (2 MONTHS OR LESS)

Making It Happen

AS WE LOOK FORWARD TO FY2019, OUR FOCUS STAYS THE SAME: TO BRING THE GREAT INVENTIONS OF THE UNIVERSITY OF ARIZONA TO THE PUBLIC FOR A BETTER WORLD.

Last year, we set continued growth of the UA's IP and license portfolios in accordance with the ABOR metrics and TLA targets as a primary goal. As we begin FY2019 and the UA Strategic Plan takes shape under the leadership of President Robbins, we will continue to develop and align the TLA strategic plan to support the greater UA vision, setting the highest standards of performance and excellence for ourselves and for the entire UA technology commercialization ecosystem.

INVENTORS

We will continue to more effectively engage inventors, maximize their participation, and ensure their satisfaction.

ENGAGEMENT

We will increase engagement among students, faculty and constituents across the ecosystem.

MARKETING

We will focus on technology marketing to broaden our pool of licensees.

SERVICE

We will establish responsive structures and processes to make it easier for all parties — from inventors to advisors to ecosystem members — to make impactful contributions through working with TLA.

STARTUPS

We will grow our programs to position startups for success, both pre- and post-license.

PROGRESS

We will continue to build TLA as an innovative, dynamic place to work.

GRACE RATJE
Manager, Finance & Administration

RAKHI GIBBONS
Director of Licensing

JOANN MACMASTER
Senior Director, Venture Development

DOUG HOCKSTAD
Assistant Vice President

PAUL TUMARKIN
Senior Manager, Marketing & Communications

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