2016

U-M TECH TRANSFER
IMPACT REPORT

UNIVERSITY OF
MICHIGAN

Tech Transfer Impact

University of Michigan researchers provided the fuel for another robust year of tech transfer activity. In fiscal year 2016, researchers from across campus provided us with 428 new inventions, the second highest number of record. This strong activity was aided by the engagement activities of our school/college innovation partners, our Digital Discovery program for apps and software, and the outreach and services of our tech transfer professionals. Our staff filed 176 new patent applications, completed a record-setting 173 option and license agreements and helped to launch 12 new business startups. The University of Michigan has established a track record of achievement that is recognized as among the top 10 of all universities. This level of achievement is a testament to the high quality of work by our researchers, the commitment of the University and the support from our business, venture, government and community partners.

This report documents the impact of tech transfer with stories that describe the contributions of our technology, people and partners to the economic vitality and quality of life of our region, and beyond. We hope these stories will provide another dimension of the impact of the University of Michigan and inspire you to support our contributions to our community, our state and our nation.

Ken Nisbet

ASSOCIATE VICE PRESIDENT
U-M Tech Transfer

The U-M Tech Transfer executive team (from left): Rick Brandon, Ken Nisbet, Bryce Pilz, Drew Bennett, Jack Miner

"Being a source of innovation and entrepreneurship is a core element of our contribution to society as a world-class public research university. U-M's strengths in research across many academic disciplines result in a capacity for innovation that has enormous potential for economic and societal impact."

MARK S. SCHLISSEL | PRESIDENT, UNIVERSITY OF MICHIGAN

"Through technology transfer, U-M actively engages industry, venture, and community partners in the transformation of discoveries into new products, processes, and services that help society realize the promise of university research."

S. JACK HU | U-M VICE PRESIDENT FOR RESEARCH

Innovation + Entrepreneurship

Innovation and entrepreneurship are part of the fabric of a great research university. Innovation transforms the university's discoveries and ideas into new products and services that enrich our lives and revitalize our economies. Entrepreneurship extends some innovations into exciting new startup ventures that can influence entire industries. Our technologies, whether licensed to existing companies or to entirely new business startups, provide opportunity and resources for our state and our nation.

Tech transfer plays a key role in our University's efforts to foster innovation and entrepreneurship. Our licensing professionals work with faculty to encourage innovation and develop these opportunities for our business partners. Our Tech Transfer Venture Center acts as a one-stop hub for entrepreneurs and investors interested in U-M startup opportunities. And our activities help connect faculty and students to real-world research, educational, and business opportunities that support the core missions of the University.

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Neurable

Setting a New Standard in Brain-Computer Interaction

Ramses Alcaide was just eight years old when his uncle Margarito lost both his legs in a car crash. That tragedy affected Alcaide deeply. Seeing his physically altered uncle, Alcaide was awed by his courage and mental fortitude. "He refused to give up," Alcaide says when asked of his uncle's influence. "He defied the odds and learned to walk again. And he inspired the passion I've dedicated my life to: creating technology that allows people to control mechanical objects with their brains and level the playing field for the disabled."

This was the impetus that drove Alcaide to pursue a degree in electrical engineering with the hope of advancing prosthetic design and function. However, after graduating, Alcaide realized that, if he was really going to effect change, he could not just develop technology—he needed to understand the brain.

That's when he joined the U-M Direct Brain Interface (UM-DBI) Laboratory. There, working alongside Dan Ferris, Ph.D., and lab co-founders Jane Huggins, Ph.D., and Seth Warschausky, Ph.D., Alcaide developed algorithms and artificial intelligence software for a revolutionary computer-brain interface that makes it possible for human beings to control objects with their thoughts.

Working with U-M Tech Transfer staff, the UM-DBI team applied for a patent and laid the groundwork for Neurable with a two-phase business plan. During the

Seen above, the newest generation of the Neurable computer-brain interface uses dry sensor technology to detect and interpret P300 brain waves within 500 milliseconds, thereby enabling users to move three-dimensional objects with their brain activity. By providing a natural, fluid and easy way for humans to control Virtual Reality and Augmented Reality applications, this technology could well become the standard for brain-computer interaction.

first phase, they would direct their efforts toward the growing augmented and virtual reality markets. Then, once established in the consumer market, the Neurable team would create a cognitive assessment tool for patients with cerebral palsy and introduce a suite of assistive products for the disabled.

The team has gone from one success to another, starting with the prestigious Rice Business Plan Competition in Houston, where they captured a $50,000 second-place prize plus more than $300,000 in funding from the Owl Investment Group. That event was followed by high-level discussions with corporate giants Disney, Sony, LEGO, and Samsung. Neurable's first round of seed funding, totaling $1.5 million, will be used to develop a software application development kit for virtual and augmented reality programmers.

Intelligent Vision Systems

State-of-the-Art Ice Detection Technology

Climate and Space Science Professor Nilton Renno loves solving problems. And as he readily admits, "I'm always looking for problems related to my research interests that are fun to work on and can have a significant impact on society."

Renno's first startup, Electric Field Solutions, was based on electric field detection technology he developed for NASA's missions to Mars. Some years later, NASA's planned landing in Mars' polar region piqued his interest in ice detection. As a private pilot, he was keenly aware of icing problems and their potentially deadly consequences. "One winter day," he recalls, "I found my plane frozen on the taxiway and I thought: icing is a problem worth working on."

Within a year, Renno had filed an invention report describing a technology for detecting the presence of ice, super-cooled water and snow. U-M Tech Transfer helped him file three patent applications for monitoring ice detection in clouds; on aircraft components; across other modes of transportation; and on roads, bridges, runways, and other surfaces. Working with U-M Tech Transfer staff, an approach to commercialize his ideas was constructed and developed.

In 2016, Renno launched Intelligent Vision Systems (IVS) in collaboration with Dexter Research, a local Michigan firm. IVS is working with several leading aerospace and automotive manufacturers and automotive suppliers to better understand the integration of ice detection technology with their products.

Renno credits U-M Tech Transfer with playing a central role in bringing the technology to market. "Transforming a research discovery into a marketable product is not easy," he says. "U-M Tech Transfer provided me the encouragement and resources, from mentoring to intellectual property protection to development funding. It's great to have these resources and expertise to help transfer my ideas to market."

Professor Nilton Renno, seen below, invented the IVS ice detection technology to detect black ice and activate traction control and braking systems for individual vehicles. It can function as an infrastructure warning system on roads, bridges, runways, and parking lots. It can also alert pilots to the presence and size of super-cooled water droplets that cause airplane icing.
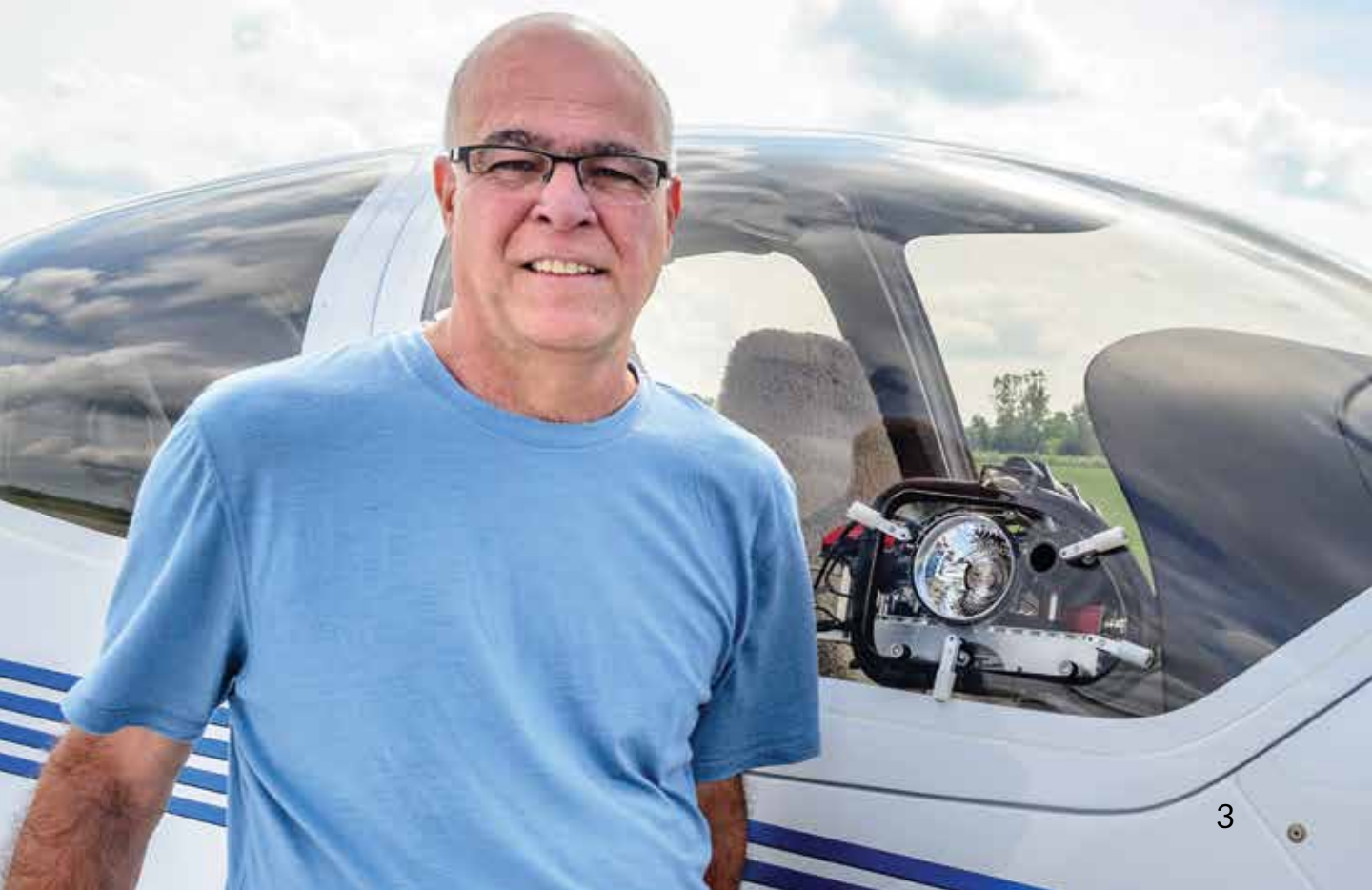
FlexDex Surgical

Creating a Breakthrough in Laparoscopic Instruments

The introduction of minimally invasive surgery in the early 1980s marked a new era in medicine. Also known as laparoscopic surgery, this technique of performing operations through small incisions results in fewer complications, shorter procedures and faster recovery times.

But for more than two decades, laparoscopy was hindered by available technology. The choices? Rigid instruments that—while affordable—were awkward and limited in dexterity. Or room-sized robotic devices that were intuitive and flexible, but cost millions and required extensive support and training.

Mechanical Engineering professor Shorya Awtar and Surgery professor James Geiger (seen below) joined forces with medical industry entrepreneur Greg Bowles to create a new startup company, FlexDex Surgical, to develop minimally invasive tools.

With help from U-M Tech Transfer and working with U-M students, Awtar and Geiger overcame several technical challenges and developed highly functional prototypes. And Bowles provided the industry experience to enter this complex surgical care market.

"My firsthand experience selling surgical robots convinced me they bring tremendous clinical value to patients. However, hospitals, surgeons and nurses desperately needed a simple solution that doesn't burden their system with unsustainable costs or complexity," said Bowles.

FlexDex was awarded a Small Business Innovation Research Phase II grant from the National Science Foundation in 2014 and closed a Series A private investment at the same time. After appointing CEO Tom Davison, a serial entrepreneur with numerous successful medical device startups, FlexDex secured another $5 million in Series B funding in 2016 and is rolling out its first product: an articulating needle driver for suturing and knot-tying. The company employs more than a dozen people, including several U-M graduates, and operates out of an engineering and manufacturing facility in Brighton, Michigan.

FlexDex is closing in on its goal of building the best, most affordable and intuitive suite of laparoscopic and endoscopic devices on the market.

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FlexDex offers a product that combines the simplicity and affordability of hand-held instruments with the intuitive dexterity of multimillion-dollar robotic devices. The product uses a Virtual Center™ and Three-axis Gimbal™ mounting on the wrist that allows users to transmit hand movements directly to the end point of the surgical device, and an Infinity Handle™ that offers a natural feel and comfortable ergonomics.

MITIGATIUM

Protecting Athletes from Traumatic Brain Injury

With a grant from the U.S. Navy, Mechanical Engineering professor Ellen Arruda has been exploring ways to diminish the effect of impact blast, with the goal of creating a material that dissipates energy before it can damage delicate body structures. Following preliminary work on an advanced combat helmet, Arruda turned her attention to football helmets, which have not changed significantly since the 1960s.

Each year, sports and recreational injuries result in as many as 380,000 cases of Traumatic Brain Injury (TBI) in the U.S. alone. In 2012, young athletes accounted for nearly half of those injuries. The National Football League (NFL) has acknowledged that brain trauma affects approximately one-third of all retired players.

"The modern helmet is designed solely to prevent skull fracture, something it does well," Arruda notes. "The new concern is preventing TBI, which is caused not only by force, but also by the transmission of impulse energy through a helmet."

Since 2015, Arruda and colleagues Professor Michael Thouless and graduate student Tanaz Rahimzadeh have been participating in Head Health Challenge III. Funded by the NFL, General Electric, the National Institute for Standards and Technology, and Under

Current football helmets only protect against skull fractures caused by stress waves. But MITIGATIUM, a new compound developed by U-M Professor Ellen Arruda (seen above) and her team, uses a combination of elastic layers to modulate the stress waves and visco-elastic layers that protect against TBI by dissipating the energy before it reaches the brain.

Armour, the competition challenges research scientists to develop a material that will optimally absorb impact in applications such as football helmets, thereby reducing the likelihood of TBI.

The solution developed by Arruda's team is known as MITIGATIUM. Their composite material combines elastic and visco-elastic layers that protect against fractures and TBI by reducing both pressure and impulse during impact.

Now, as one of five finalists in the challenge, the team has a $250,000 grant to develop a prototype helmet. Working with U-M Tech Transfer, they are collaborating with helmet manufacturers to create customized, protective material combinations for specific helmet shells. Looking ahead, they hope to use their design to improve everything from automotive bumpers and playground surfaces to packaging materials.

2016

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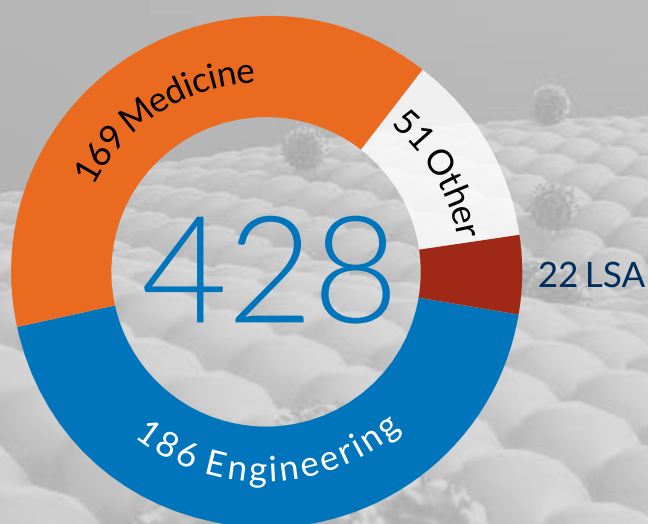
Invention Reports

135
Patents Issued

12
New Business Startups

$23
Million
in Revenue

Invention Reports

Year	Value
2011	322
2012	368
2013	422
2014	440
2015	425
2016	430

500
400
300
200

2011 2012 2013 2014 2015 2016
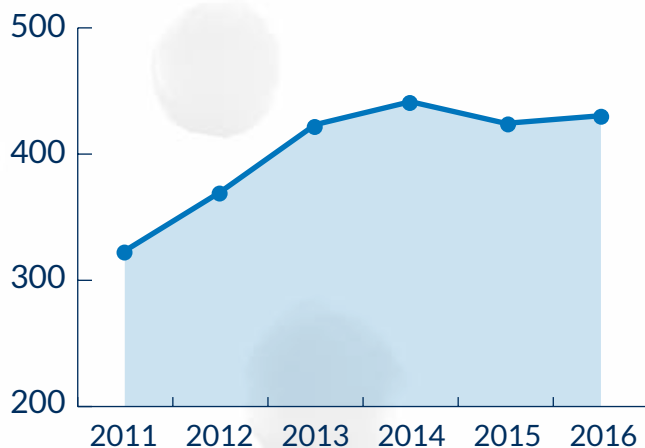
15
Companies
Housed in
U-M Venture
Accelerator

License Agreements

200
150
100
50

■ to startups
■ to established companies

2011 2012 2013 2014 2015 2016
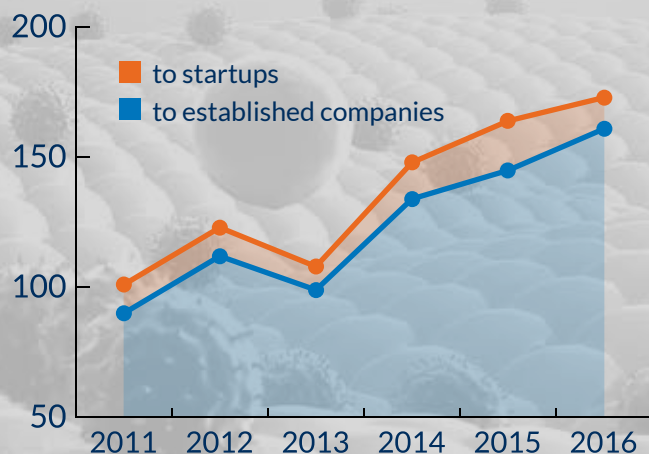
2000+
Jobs Created
Since 2000

License Revenue

80
60
40
20
0

■ equity/paid-up royalties
■ royalties

2011 2012 2013 2014 2015 2016
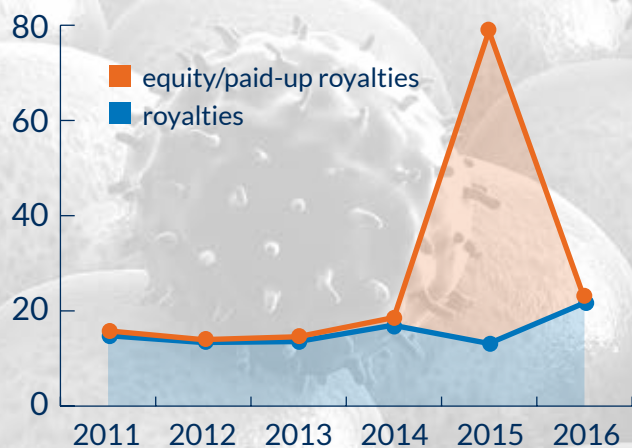
AEROSPACE ENGINEERING

Toolkit for the Analysis of Composite Structures

Energy Harvesting for Leadless Pacemakers

Software for Lifetime Prediction of Composite Materials

Hypersonic Vehicle Simulation Code

Adaptive Input Estimation for Enhanced Tracking of Maneuvering Targets

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Retrospective Cost Adaptive with Concurrent Model Identification

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Methods and Apparatus for Assessing Tire Health Through Monitoring Effective Rolling Radius

Magnetic Nozzle Thrust Vectoring

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Synthetic Three-Dimensional Fibrous Structures Formed from Oppositely-Charged Macromolecules

Nanoparticles for the Induction of Immunological Tolerance

Liquid Tunable Ring Resonators on Chip, Their Design, Fabrication, and Application

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SecondLook Musculoskeletal Anatomy Mobile Application

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Formation of High-Molecular Weight Polyethylene from a Sterically Unencumbered Iron-Based Catalyst

High-Confidence Single-Molecule Detection of DNA Biomarkers Using SIMREPS and Dcas9-Guided Melting

Mercaptopurine Hemihydrate

Process for Selective Methane C-H Borylation

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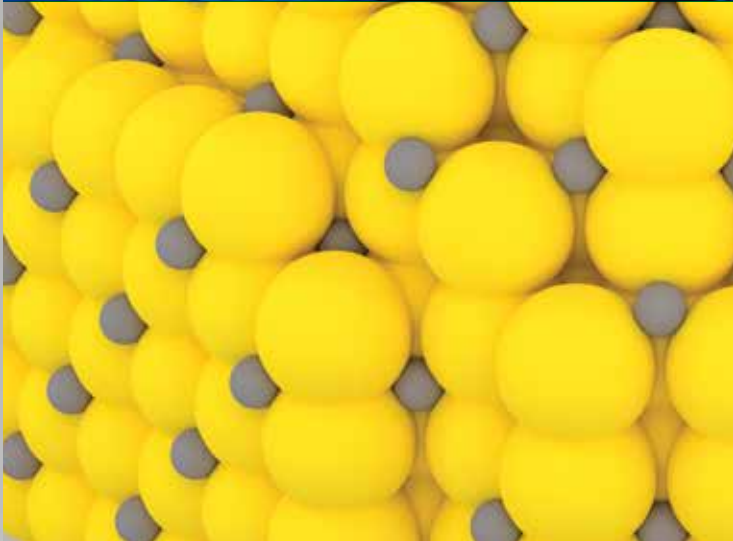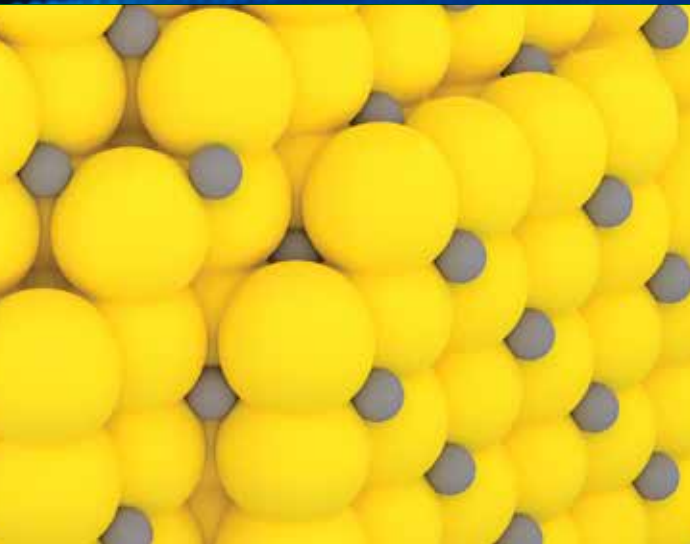
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Small-Molecule Degraders of MDM2 Protein

Small-Molecule Degraders of BET Bromodomain Proteins

Small-Molecule Degraders of BET Bromodomain Proteins Containing Diazepine

Small-Molecule Degraders of BET Bromodomain Proteins Containing Benzodiazepine

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Synthetic Lethal Targeting of TP53 Mutant Cancers

Markov-Assisted Textural Classification Heuristic

Non-Inflammatory Retinoids for the Treatment of Skin and Promyelocytic Leukemia

Vector Invariant Pattern Recognition

Anatomic Pathology Tissue Block Imager

Gross Examination Automation of Biopsy Specimens in the Anatomic Pathology Laboratory

Oncogenic Role of THOR, a Conserved Cancer/Testis Long Noncoding RNA

Bridged Bicyclic Inhibitors of Menin-MLL and Methods of Use

Substituted Inhibitors of Menin-MLL and Methods of Use

ASH1L Inhibitors and Methods of Treatment Therewith

Generation and Characterization of Ovgp1-iCreERT2 Mice

Identification and Use of Intestinal Resident Bacteria that Mediate Protection Against Enteric Pathogens

Alpha-Smooth Muscle Actin Promoter Constructs

Inhibitors for Mixed Lineage Leukemia

PEDIATRICS

Concussion Education Online Modules: Parent and Coach

Bioresorbable Zinc-Aluminum Alloy Stents for Structural and Congenital Heart Disease

Changing the Colors of the Gomo Clamp to Improve Patient Safety

MiGenE Family History Application

PHARMACOLOGY

Prevention of Platelet Function and Thrombosis

Selective Inhibition of Cytochrome P450 17A1 (CYP17A1) Lyase Activity to Treat Prostate Cancer

PHARMACY

Humanized PEPT1 Knockin Mice

Drug Discovery to Inhibit PRC2 to Alter Epigenetics for Cancer Therapy

Identification of Non-Reported Bupropion Metabolites in Human Plasma

IMassFrag: Web Application-Assisted Mass Spectral Interpretation and Annotation for Drug Metabolite Identification

Peripheral Neuropathy Mobile App

Targeted Absolute Quantitative Proteomics Assay

Coated PLGA Implants for Long-Term Controlled Release of Antibody Therapeutics

Modification of Cell Membrane Vesicles for Drug Delivery Applications

The Use of Synthetic High Density Lipoproteins as Nanocarriers for Adjuvant Delivery

PHYSICAL MEDICINE & REHABILITATION

Digital Activity Importance Measure

Sensory Awareness Vest

The P300-Certainty Algorithm: Quantifying the Accuracy of Brain-Computer Interface Selections

Remote Control for Oxygen Concentrators

PHYSICS

Steerable THz

Composite Reflective/Absorptive IR-Blocking Filters Embedded in Metamaterial Anti-Reflection Coated Silicon

Frequency Comb Based Multidimensional Coherent Spectroscopy

PROFESSIONAL TRAINING

How Hospital Security Professionals Can Contribute Directly to Optimal Patient Outcomes

PSYCHIATRY

Systems and Methods for the Identification of Pharmacoepigenomic Variants and Drug Epigenome Networks

Stress Gym

Learn Psych Podcast

Smartphone Application to Monitor Mood, Cognition and Functioning

PSYCHOLOGY

Individualized Self-Management Training for Adolescent Recipients of Transplantation (iSTART)

RADIATION ONCOLOGY

Disclosure of Small Molecules that Selectively Degrade Mutant KRAS

Treatment of Cancer with DNAPK Inhibitors

Display and Algorithm Tools for Incorporating Analysis of "Big Data" into Clinical Practice

Quantum-Based Clinical Decision Support System

An Inhibitor of the DNA Damage Response Pathway

RADIOLOGY

Biodegradable Hydrogel for Tissue Expansion

Copper-Catalyzed Radiofluorination of Boronic Acids

Classification of Tissue Heterogeneity Based on Voxel Analysis of Registered Medical Images

In Vivo Photoacoustic Biopsy for Characterizing Intestinal Strictures in Crohn's Disease

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Treatment of KRAS and BRAF Mutated Cancers with Dual PI3K/EGFR Inhibitors in Combination with MAPK Pathway Inhibitors

Computer-Aided Detection of Retained Surgical Items

Method and Apparatus for Removing Microvessels

Ultrasound-Guided Liver Biopsy Simulator

3D Ultrasound/Photoacoustic Method for Measuring Brain Perfusion and Oxygen Consumption

Bifunctional MEK/PI3K Inhibitors for Therapeutic Application

Late Stage Copper Mediated Fluorination of Aryl Stannanes

Sonographic Flap Manipulation

Water in Perfluorocarbon Emulsions for Intrapulmonary Drug Delivery

Strain and Strain Rate Measurement for Local Lung Ventilation Estimation

SOFTWARE

U-M Signature Generator Tool

Findcare; Website Utility Connecting Uninsured Patients with Outpatient Medical Clinics that Can Take Them

Ontology and Semantic Web-Based Adverse Event Case Reporting and Analysis System

Epic Clarity - Oracle Data Extract Tool Flow

Milk Room Inventory Database

SURGERY

A Molecular Adjuvant for Cancer Immunotherapy

Use of Short-Term Gene Therapy to Decrease Host Susceptibility to Pneumonia, Sepsis and Acute Respiratory Distress Syndrome After Lung Contusion

Prevention and Treatment of Traumatic Heterotopic Ossification and Fibrodysplasia Ossifans Progressiva

Pressure Ulcer Prevention Device

Targeted Gene Correction for Treatment of Fibrodysplasia Ossificans Progressiva Using the CRISPR/Cas9 Gene Editing Tool

SURGERY, CARDIAC

Method of Creating Blood Vessels in Engineered and Native Tissues

SURGERY, GENERAL

Melanoma Ally

3D Printed Microfluidic Artificial Lungs

SURGERY, ORTHOPAEDIC

Physical Therapy Digital Band

Automated Assessment of the Severity of Knee Arthritis

Mobile App and Backend for Knee Replacement Peri-Operative Care

SURGERY, PLASTIC

Angiogenic Nanotechnologies for Bone Repair and Regeneration

Treatment for Heterotopic Ossification Targeting Connective Tissue Pathologic Healing

SURGERY, UROLOGY

Bladder Cancer Videos

SURGERY, VASCULAR

Endovascular Skills for Trauma and Resuscitative Surgery - Curriculum

TRANSPORTATION RESEARCH INSTITUTE

Universal Countermeasure for Motion Sickness in Vehicles

Device and Task Independent Universal Countermeasure for Motion Sickness in Vehicles and Autonomous Driving

Enhanced Vehicle Cyber Security Through Improvements to Vehicle Bus Message Arbitration and Authentication

Sensor Based Parking Occupation Detection and Communication Network

Mentors-in-Residence Make an Impact

Since 2009, the Mentors-in-Residence program has provided the expertise of seasoned entrepreneurs for tech transfer activities and programs. Mentors-in-Residence (MiRs) are part-time employees working within U-M Tech Transfer to help assess new opportunities and provide hands-on assistance and mentoring for new startup projects. Their work has enhanced our ability to help launch exciting new startups based on U-M faculty inventions. The success of the MiR program has led to its use by other Michigan universities through the Tech Transfer Talent Network, funded by the Michigan Economic Development Corporation.

Here are three of our MiRs.

MEERA VIJAN has over 30 years of experience in the advanced battery and flat-panel display industry. She was president of Ovonic Battery Company and was plant manager for A123 Systems, setting up the largest lithium-ion battery plant in the United States. As an MiR, Meera has provided early startup projects with advice on competitive technology evaluation as well as market entry strategies based on her knowledge and contacts in the industry.

BRUCE AUERBACH has worked over 25 years in pharmaceutical drug discovery and early clinical development. He was co-founder and president of AlphaCore Pharma that was acquired by MedImmune. Prior to starting AlphaCore, he was a researcher at Pfizer. Bruce applies his technical background along with his industry and venture experience to assess and model a wide variety of our life science proposals into high-potential licensing and new startup opportunities.

MIKE KLEIN is a serial CEO with over 20 years of experience developing, building and growing high tech, software, and IT companies. Mike launched his first startup, Steeplechase Software, and sold it to Schneider Automation in 2000. Mike led a turnaround for a venture-backed network security software company, and then joined Online Tech as co-CEO in 2008, growing the company 500% over the next seven years. Mike has provided mentoring to a multitude of U-M networking, software, and data startup opportunities. Mike is now rotating off the MiR program to lead 2015 U-M startup Genomenon as its CEO.

2016 Startup Class

Arbor Medical Innovations
Automated sensory assessment technologies

Freezer Nanny
Environmental monitoring platform for laboratory freezers, animal rooms and other research environments

Intelligent Vision Systems
Ice detection technology for transportation systems

Iris Messaging
HIPAA-compliant communication system for primary care physicians

Kalyspo
Microfabricated surgical instrument tag and detection algorithms

MedigenixBio
Small molecules and biologics for treating pulmonary inflammation and fibrosis

Melius
Frontline quality measures, clinical intelligence, and targeted implementation guidance to improve perioperative care and outcomes

Movellus
Re-architecting semiconductors for the cloud

MoxyTech
Tools for precision pain care, objective tracking, and analysis

Prenovo
Risk assessment and prehabilitation for improved surgical outcomes

Resonant
Platform for rapid discovery of novel targets and anti-tumor antibodies

ViewPoint Therapeutics
Non-surgical treatment and prevention of cataracts and presbyopia

ViewPoint Therapeutics

Eye Drops for Cataract Disease

Cataracts are an inevitable part of aging. Sooner or later, every adult who lives long enough will likely be a candidate for cataract surgery. Untreated cataracts are the leading cause of blindness—afflicting hundreds of millions of people. This is especially true in the developing world, where surgery is out of reach for most.

Cataracts occur when a protein called alpha-crystallin misfolds and then aggregates in the lens of the eye, creating a milky white opacity. Until now, surgery has been the only treatment option. That could change, thanks to a discovery by former U-M research scientists Jason Gestwicki, Ph.D., and Leah Makely, Ph.D., and the new business startup ViewPoint Therapeutics.

In 2011, Gestwicki and Makely discovered a small molecule called VP1-001 that could modulate the alpha-crystallin protein structure in the eye and cause mutant "misfolded" proteins to refold and return to their original, normal state. Subsequent experiments with mice and human cataract tissue demonstrated that this molecule, in the form of eye drops, could reverse both genetic and age-related forms of cataract disease. More recent research also suggests that VP1-001 may prevent and correct such common disorders as presbyopia, the age-related inability of the eye to focus.

With ViewPoint's eye drop concentrate based on the VP1-001 small molecule, cataracts could become a thing of the past—and millions of people could be spared the tragedy of cataract-related blindness. In experiments to date, the VP1-001 has demonstrated its potential for reversing and preventing cataracts.

In 2014, a group of venture capital investors led by biotech entrepreneur Ed Hurwitz launched ViewPoint Therapeutics to develop a VP1-001-based formula for human and possibly veterinary use. In April 2016, the company closed a $4M Series A financing.

As Hurwitz notes, "We are working to see if we can formulate the lead molecule in a way that is safe and effectively penetrates the lens. If that happens, we're optimistic that VP1-001 will work in human and veterinary applications and that ViewPoint will be able to attract a corporate partner or additional investors to move this potentially transformational drug into the human trial phase."

National Advisory Board

The U-M Tech Transfer National Advisory Board (NAB) provides advice and connections to enhance our impact and performance. Composed of industry, venture, government, university, and community leaders, the NAB has played a role in several influential initiatives including the creation of Ann Arbor SPARK, the Venture Center and Accelerator, and the Catalyst Talent Network.

The NAB's latest initiative is the Tech Transfer Impact Fund with the goal of raising $10 million from donors and foundations to provide additional resources to assess, develop, and launch promising U-M technologies and startups. These additional resources will enhance and accelerate our work in transferring opportunities to our business and venture partners. For more information, contact techtransfer@umich.edu.

National Advisory Board Members

Bill Brinkerhoff
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Lilly Research Lab and
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& Tech Transfer
Cold Spring Harbor
Laboratory
Cold Spring Harbor, NY

Partnerships

Partners assist us in our efforts to commercialize discoveries from U-M research, contributing to their value and enhancing the climate for innovation and entrepreneurship.

ANN ARBOR SPARK, our regional economic development partner, provides business attraction, talent development and early-stage funding programs that attract business partners and provide critical resources for our startups. The University and SPARK work closely on strategic economic development initiatives for our region.

The statewide **MICHIGAN ECONOMIC DEVELOPMENT CORPORATION** (MEDC) provides generous financial support for a variety of programs. MEDC resources have enabled gap funds, translational research funds, talent programs, business engagement, and pre-seed, angel, and venture capital support.

Enhancing the climate for faculty innovation and entrepreneurship and providing translational research funds for promising projects are partnerships among many University organizations. Some examples include the **CENTER FOR ENTREPRENEURSHIP** in the College of Engineering, **FAST FORWARD MEDICAL INNOVATION** in the Medical School, the **ZELL-LURIE INSTITUTE** in the Ross School of Business, and the **CENTER FOR INNOVATION AND SOCIAL ENTREPRENEURSHIP** in the School of Public Health.

U-M Tech Transfer benefits from a close relationship with several venture funding organizations. The **MICHIGAN VENTURE CAPITAL ASSOCIATION** develops, grows, and sustains a vibrant venture capital community in Michigan. The **U-M MINTS** program, part of the U-M Investment Office, provides venture funding for U-M startups with other qualified venture partners. U-M is also one of the original university partners of **OSAGE UNIVERSITY PARTNERS,** which invest exclusively in university startups.

Our **U-M BUSINESS ENGAGEMENT CENTER** and partner corporate relations units in the College of Engineering and Medical School work with us to enhance the University's engagement with industry and other organizations. Together we connect University opportunities to businesses that can benefit from sponsored research, inventions, regional initiatives, student talent, and more.

![University of Michigan Tech Transfer logo] **TECH TRANSFER**
UNIVERSITY OF MICHIGAN

Contact Us!

The U-M Tech Transfer team is ready to introduce you to your next big opportunity.

Contact us at 734.763.0614, techtransfer@umich.edu or www.techtransfer.umich.edu.

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Row 4: Luana King, Laura Charlick, Tara Hartman
Row 5: Jessica Soulliere, Ken Nisbet, Dave Repp
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Row 7: Joohee Kim, Drew Bennett, Greg Choiniere
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