

# Office of Technology Management (OTM)

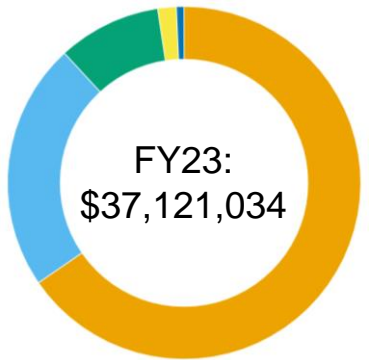
Igniting Innovation and  
Commercialization

# WIC

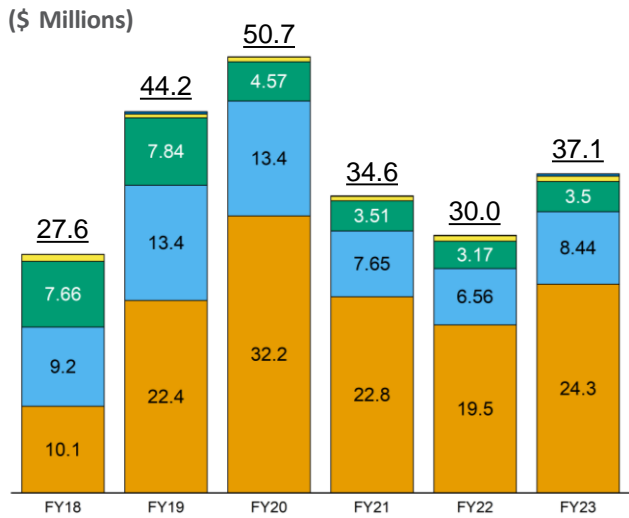
## Impact Report FY23

July 2022 - June 2023

# FY 23 License Income: \$37,121,034



University Share	\$24,268,580
Creator Share	\$8,438,594
Unit/College Share	\$3,502,318
Patent Reimbursent	\$630,552
Collaborator Share	\$261,189



Note: Distributions may not match license income received due to the time lag between the date income is received and the date distributed.

## Top 3 Innovations by License Income

### Shingrix®

A new, shingles vaccine with 90% effectiveness

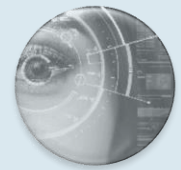
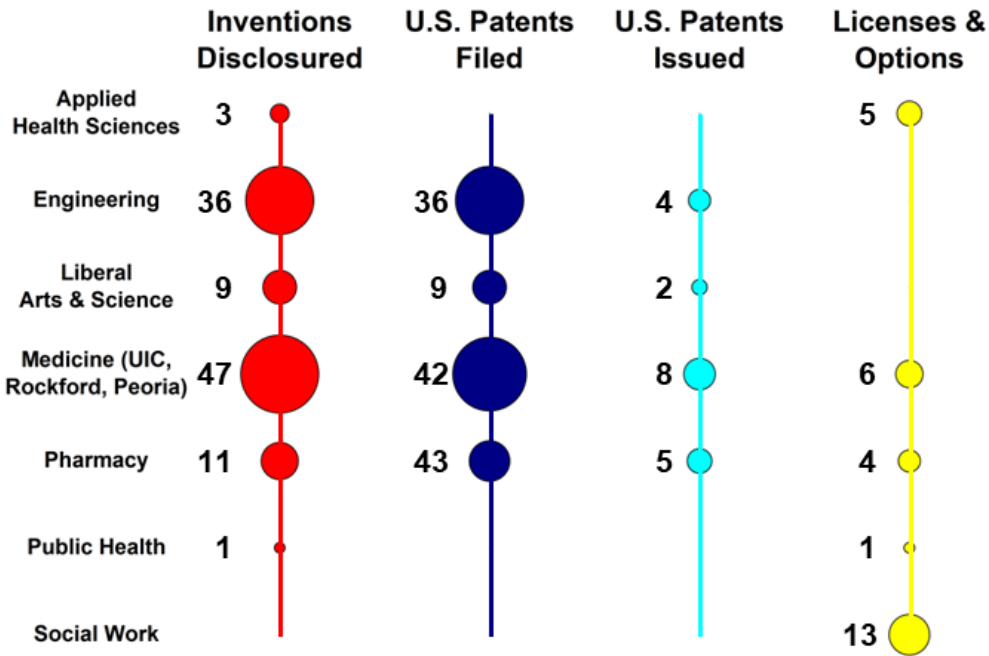
### Tice BCG®

The top non-invasive bladder cancer treatment and prophylaxis

### EpiDestiny

A novel epigenetic treatment for cancer, sickle cell disease and beta-thalassemia

## Innovation Snapshot by College (FY23)



114

Disclosures



103

U.S. Patents Filed



20

U.S. Patents Issued

690 Total  
279 US  
411 Foreign



29

Licenses & Options

282 Active

## Inventors of the Year

### Michael Caffrey, PhD

Associate Professor, Department of Biochemistry and Molecular Genetics, College of Medicine

### Igor Paprotny, PhD

Associate Professor, Department of Electrical and Computer Engineering, College of Engineering

### Automated Air quality monitoring sensor

## Deep

UIC OTM expanded its initiatives to develop a social entrepreneurial ecosystem within UIC to support high social impact endeavors across the campus. This was done by supporting social entrepreneurship workshops and non-exclusively licensing our social impact programs to community organizations, non-profits, community & regional hospitals, strategic partners, and startups. In FY22 UIC OTM took over the management of The Diabetes Empowerment Education Program™ (DEEP™). DEEP™ is currently licensed to over 200 organizations, the majority of which are community-based organizations, community hospitals, and insurance organizations and continues to grow. At one point DEEP™ had programs across all 50 states, two US territories and several countries, simply through word of mouth. OTM plans to continue to support UIC social impact programs by providing faculty with the resources to scale up and make their social impact programs and curriculum self-sustaining. In June 2023, UIC's School of Public Health and OTM were awarded a \$5M / 5-year CDC cooperative agreement to advance health equity for priority populations with or at risk for diabetes. This cooperative agreement will address diabetes inequalities and social determinants of health for priority populations within the sphere of diabetes self-management education and support services, improving the sustainability of community health workers and their capacity to address factors related to social determinants of health.

## West Loop

Under Deerfield's exploratory biologics initiative, West Loop Innovations will facilitate work conducted in the lab of Dr. Bellur Prabhakar in UIC College of Medicine. The project is focused on the development of a novel antibody that targets both OX40 and Notch3 as a safe approach that can cause selective expansion of Tregs with sustained suppressive function to confer long-term protection against autoimmune diseases, including Systemic Lupus Erythematosus (SLE), Type-1 Diabetes and Hashimoto's Thyroiditis.

## UIC Engineering News

UIC and Braskem America announce a pioneering new initiative aimed at combating climate change through cutting edge carbon capture and CO2 reduction technologies out of Dr. Meenesh Singh's Lab at UIC. This ambitious project represents a significant step towards our commitment to sustainability and environmental responsibility. As part of this ambitious project, Dr. Singh's lab will work closely with Braskem America to implement this technology in a pilot stage, and if successful, this technology will be implemented throughout Braskem. Braskem is the largest thermoplastic resin producer in the Americas with operations in more than 70 countries.

Professor Reza Shahbazian-Yassar, of Mechanical and Industrial Engineering at UIC is developing lithium batteries that will make electric vehicles safer, more efficient, and able to travel for longer distances between charges. Dr. Shahbazian-Yassar has been focusing on adding functionality to the separator, by adding a graphene oxide coating on separators to control the deposition of lithium, preventing needle-like dendrites that can lead to failure and fires. This development enhances battery safety as well as potentially reducing battery pack weight by 20% to 30% and adding hundreds of miles to EV range. Dr. Shahbazian-Yassar and his team is now moving toward commercializing their technology, having met with battery manufacturers and scaled up their coating process. They see their innovation as transformative not only for EVs but also for various industries, including consumer electronics, aerospace, renewable energy, and medical equipment.

## Chancellor's Translational Research Initiative (CTRI)

### Alexander Adibekian

Discovery and Characterization of a Mitochondrial E3 Ligase Recruiter for Targeted Protein Degradation

### Yu Gao

Acoustic Levitation Device for Highly Sensitive Multi-omics Measurements

### Azadeh Haghighi

Beamformed Additive Manufacturing

### Subramanian Sankaranarayanan

AI4MIND: AI for materials inverse design

### Mathew Mathew

A Low-cost and Sensitive Diagnostic Tool to Detect the Earliest Signs of Pancreatic Cancer

### Richard Novak

Preventing human influenza and coronaviral replication synergism by small molecule inhibitor

### Thomas Park

Targeting CCL26-CX3CR1 pathway to modulate allergic lung inflammation

### Inigo Sanz-Pena

Modular personalized wearable ankle robot for mobility assistance

### Meenesh Singh

Modular Direct Air Capture Unit for Residential and Commercial Spaces

### Snehal Sonawane

Tumorcare Board: An Application for Streamlined Tumor Board Discussions

## UIC Chancellor's Innovation Fund

### Proof of Concept (POC)

#### Phase I

#### Ramaswamy Kalyanasundaram & Justin Richner

Developing a novel mRNA vaccine for lymphatic filariasis and testing it in cell lines and in a mouse model

#### Sangil Kim

Development of Prototype Pouch Cells for High-Performance, Long-Lasting All-Solid-State Batteries Based on Zwitterionic Polyurethane Electrolytes

#### John Monaghan

Spatial and Temporal Modeling of Aircraft Crash Survivor Behavior

#### Terry Moore & Dustin Fraidenburg

Non-covalent NRF2 activators for pulmonary arterial hypertension

#### Pavel Petukhov

Novel inhibitors of thioredoxin glutathione reductase (TGR) for the treatment of schistosomiasis

#### Bellur Prabhakar

Diabodies to Treat Autoimmune Diseases

#### Phase II

#### Deepak Shukla

DECON: A New Technology to Treat Herpes

#### Meenesh Singh

Fully automated robotic system for effective screening of drug substance

## Chicago Biomedical Consortium (CBC)

### Vinay Aakalu

Corneal wound healing drops

### Bin He

Engineered HSV for oncolytic immunotherapy

### Fatemeh Khalili (UIC), Christopher Weber (UChicago), & Le Shen (UChicago)

Development of novel drugs to treat colitis

### Andrius Kazlauskas & Papanasi

#### Subbaiah

Prevention and treatment of diabetic retinopathy with LPC-DHA

### Paul Goldspink

Novel target for cardiac myopathy

### Terry Moore

NRF2 for ophthalmologic indications

### Richard Minshall & Laura Bloem

Development of small molecule inhibitors of Ga12 /  $\alpha$ -SNAP-dependent vWF secretion

## UIC Licensees Making a Splash in the Clinic in 2023

Selagine, Inc., a UIC spinout by Dr. Sandeep Jain (COM/Ophthalmology faculty), partnered with Grifols to develop an immunoglobulin eye drop for the treatment of Dry Eye Disease. Grifols committed funding towards the development of immunoglobulin eye drops through FDA approval and will commercialize the product. Grifols and Selagine will collaboratively manage all aspects of the project including clinical development, manufacturing and regulatory activities. Under the agreement, Selagine will receive upfront and annual fees, commercial milestone payments and royalties based on Grifols sales, of which a portion will be shared with UIC. (selagine.com)

FDA Approves First Cellular Therapy to Treat Patients with Type 1 Diabetes. The FDA granted approval of Lantidra to CellTrans Inc. on June 28, 2023. CellTrans is a faculty start-up company launched out of Dr. José Oberholzer's scientific research group at UIC. (celltransinc.com)

Actuate Therapeutics has currently completed Phase II clinical trials for elraglusib, a GSK-3 $\beta$ , glycogen synthase kinase-3 $\beta$  enzyme. Elraglusib has shown tremendous potential in the treatment of many different cancers, including glioblastoma, neuroblastoma, refractory cancers, and pancreatic cancer. On August 1, 2023, Actuate announced that the U.S. Food and Drug Administration (FDA) has granted Orphan Drug Designation for Elraglusib for treatment of patients with pancreatic cancer. Elraglusib was first discovered by Drs. Alan Kozikowski and Irina Gaisina from UIC's College of Pharmacy and licensed to Actuate Therapeutics. (actuatetherapeutics.com)

The FDA granted orphan drug designation to AVS100 for the treatment of stage IIB through

stage IV melanoma to Avstera Therapeutics. Developed by Sida Shen from the Kozikowski lab at UIC College of Pharmacy, AVS100 is a novel, highly specific HDAC6 inhibitor shown in preclinical animal models to reduce tumor growth and improve OS. Orphan drug designation is granted by the FDA to novel drugs and biologics that are intended for the safe and effective treatment, diagnosis or prevention of rare diseases or disorders that affect fewer than 200,000 people in the United States. The designation allows manufacturers to qualify for various incentives, including 7 years of market exclusivity upon regulatory approval. Avstera completed a seed round raise of \$4.55M to enable the IND filing by the end of 2023 for a Phase Ia/b targeting locally advanced or metastatic solid tumors including an expansion arm with anti-PD1. (avstera.com)

EpiDestiny was founded in 2015 by Yogen Saunthararajah, a physician-scientist and former UIC faculty in the College of Medicine. EpiDestiny is a clinical-stage company developing non-cytotoxic epigenetic treatments that repair cancer-causing processes to produce healthy cell fates, thus avoiding the toxicities and other problems with conventional cancer treatments oriented to cell death. These epigenetic therapeutics also repair the root pathophysiological cause of sickle cell disease and beta-thalassemias. Accordingly, in a Research Collaboration Agreement with Novo Nordisk valued at ~\$400M, EpiDestiny's lead therapeutic is in global Phase 2 clinical trials to treat Sickle Cell Disease (epidlife.com).

Dystrogen Therapeutics is a clinical-stage life sciences company currently focused on testing dystrophin expressing chimeric (DEC) cells, cell-based therapy for the treatment of

Duchenne muscular dystrophy (DMD). In March of 2023, Dystrogen published the results of their pilot first-in-human study with 6 months of follow up on 3 patients with DMD and have demonstrated safety and preliminary efficacy. Dystrogen was founded based on the pioneering work of Dr. Maria Siemionow from UIC's College of Medicine. (dystrogen.com)

In collaboration with researchers Caius Radu and Michael Jung at University of California Los Angeles, Arnon Lavie, UIC COM faculty in the Department of Biochemistry and Molecular Genetics, laid the groundwork for the discovery of TRE-515 that has been licensed and is in development by Trethera Corporation. TRE-515 is an orally delivered, first-in-class deoxycytidine kinase (dCK) inhibitor, the key enzyme in the nucleoside salvage pathway, playing a pivotal role in limiting the rapid cell proliferation of cancer cells and aberrant activated lymphocytes. Trethera is currently conducting a Phase 1 study to look at dose-escalation, safety, tolerability, and PK of TRE-515 in patients with solid tumors. (trethera.com)

Bright Minds Biosciences announced positive topline data for its First-in-Human Phase 1 Study of lead compound, BMB-101, a highly selective and potent biased 5-HT2C agonist being developed for the treatment of refractory epilepsies and other indications, such as psychosis, addiction, and impulse control disorders. The study evaluated the safety, tolerability, pharmacokinetic (PK), and food effect in healthy volunteers. Bright Minds Biosciences licensed a series of 5-HT2C agonists developed by Jianjun Cheng in the lab of Dr. Alan Kozikowski from UIC's College of Pharmacy. (brightmindsbio.com)