

# [ TRANSFER TO TRANSFORM ]

Cultivating Discovery for Ohio and Beyond



OFFICE OF  
TECHNOLOGY  
COMMERCIALIZATION  
AT NATIONWIDE  
CHILDREN'S HOSPITAL


2023



NATIONWIDE  
CHILDREN'S®

*When your child needs a hospital, everything matters.*





A HOSPITAL ENVIRONMENT IS A FERTILE ECOSYSTEM FOR NEW IDEAS. INNOVATORS FROM EVERY CORNER OF THE ORGANIZATION — FROM SURGEONS, DOCTORS AND NURSES TO RESEARCH STAFF — HAVE UNIQUE PERSPECTIVES ON WHAT CAN HELP A PATIENT OR A FELLOW CLINICIAN OR SCIENTIST.



## MESSAGE FROM LEADERSHIP: SEEDING THE FUTURE

Each year, Nationwide Children's Hospital hosts more than 1 million patient visits from around the world. Some of the children who receive care here have diseases that are difficult to diagnose and treat. Some have no effective treatments available at all.

Luckily, new ideas and innovations with the power to transform pediatric care — better surgical instruments, enhanced data analysis tools and infectious disease mitigation platforms, to name a few — emerge from every corner of our organization every day. The novel solutions invented and discovered by our doctors, nurses, researchers and other staff members improve the care, safety and lives of our patients.

However, we don't stop there. At Nationwide Children's, we are also passionate about making a difference in the lives of children everywhere. By bringing impactful innovations to market, our office ensures novel technologies find their way beyond our walls. Innovation starts here, and it changes lives everywhere.

This commercialization also drives economic development. As central Ohio has evolved as an up-and-coming biotechnology hub, our pioneering work in the areas of cell and gene therapy has been critical to this growth. But it's more than our research and discovery that makes us a critical partner in the region's continued growth. We have played a part in every step and aspect of this development, from creating jobs and attracting leading talent and biotech companies to the region to driving innovation and investment in manufacturing. If our discoveries are the seeds that grow business, Nationwide Children's has also helped build a foundation of soil rich with knowledge and potential where those seeds can be planted, watered them so they can flourish and harvested the fruits of that labor for the continued benefit of the community. Nationwide Children's has transformed how we understand the role of a pediatric academic health center in moving discoveries along the development pathway.

This would not be possible without the expertise of our Office of Technology Commercialization. Our dedicated team of licensing associates and other professionals has helped facilitate the transfer of innovative technologies and research ranging from first-of-its-kind gene therapy Zolgensma®, an FDA-approved treatment for spinal muscular atrophy, to the Comfort Collar, a surgical innovation designed to prevent pressure wounds around tracheostomy tubes, to outside partners to benefit patients around the world. It is an honor to look back on the transformative accomplishments and growth apparent at Nationwide Children's and across Ohio over the last decade knowing our part in them.

This year marks my 10th leading this office and its incredible team. I am honored to work with such a dedicated group of professionals, and I am humbled to be a part of an organization that demonstrates its passion through its actions, invests in the best people and programs, and is willing to take a few risks to do the right thing.

**Matthew McFarland, RPh, PhD**

*Vice President of Commercialization and Industry Relations | Nationwide Children's Hospital*



### LEADERSHIP



**Matthew McFarland, RPh, PhD, Vice President of Commercialization and Industry Relations**

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Matthew McFarland, RPh, PhD, joined Nationwide Children's Hospital in 2012. During his tenure, the OTC has experienced an increase in annual deal flow by 900%. Novel deal structures with licensing partners have also brought additional development resources to the institution. Dr. McFarland has been key to the recruitment and establishment of industrial partners in Columbus, Ohio, and brokering strategic partnerships for Nationwide Children's.



**Margaret Barkett, PhD, Director of Licensing**

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Margaret Barkett, PhD, joined Nationwide Children's in 2010. Dr. Barkett was instrumental in negotiating deals that led to the hospital's first gene therapy startups. She currently oversees the OTC's licensing efforts, managing an integrated team of licensing professionals, agreements specialists and an alliance manager.



**Susannah Wolman, Operations and Business Manager**

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Susannah joined Nationwide Children's in July 2016. She manages the team of professionals who handle disclosures, federal reporting and other reporting efforts, intellectual property, marketing efforts, events, internal and external gap funding, and the financial transactions of the office.

[Learn more about our team](#)





**Matthew McFarland, RPh, PhD**  
*Vice President of Commercialization and Industry Relations*

**Margaret Barkett, PhD**  
*Director of Licensing*

**Susannah Wolman**  
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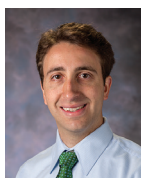
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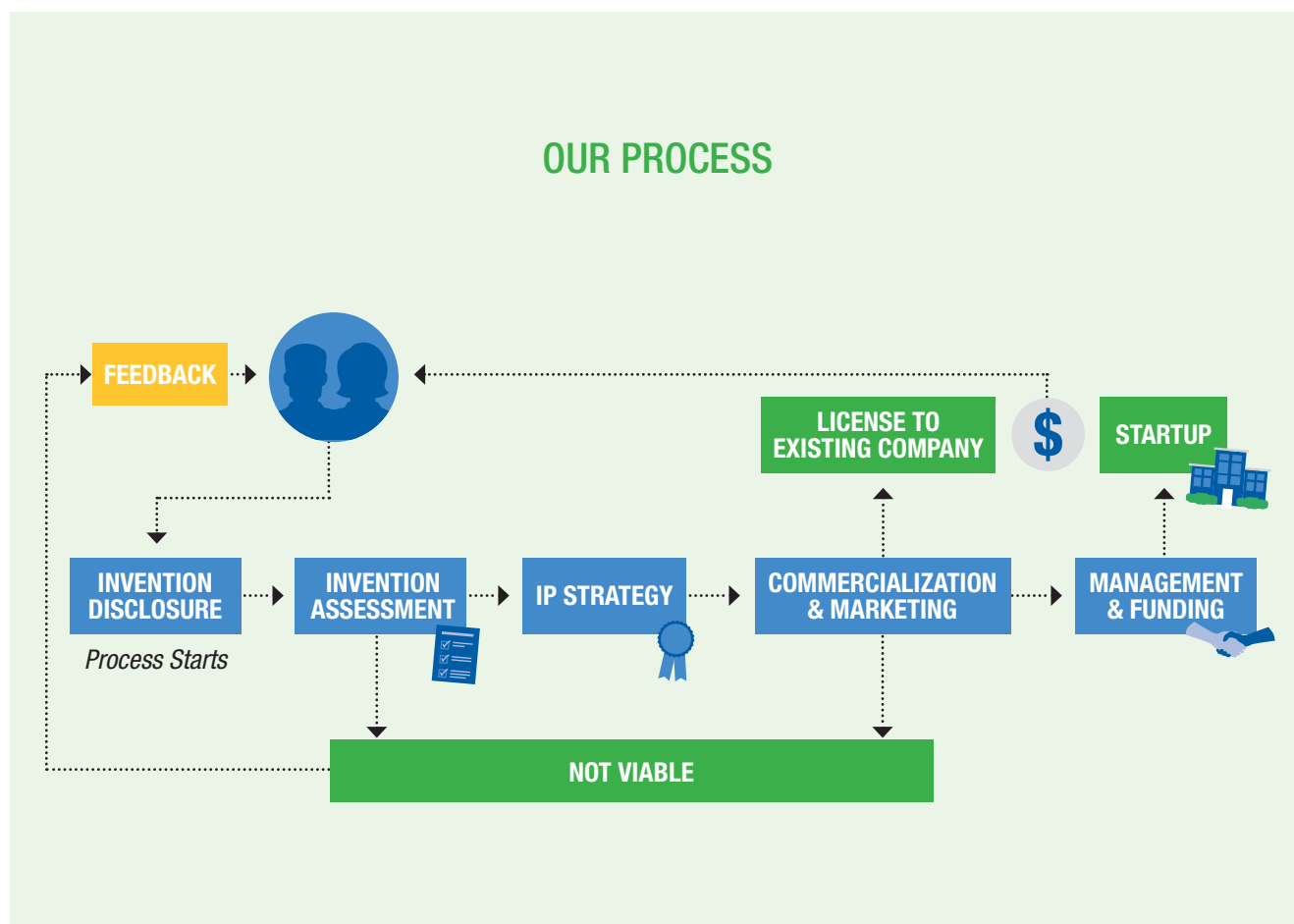
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OUR MISSION: TRANSFER. TRANSFORM. TOGETHER.

The Office of Technology Commercialization at Nationwide Children's Hospital facilitates the transfer of new technologies, research and innovations to outside partners to benefit pediatric care, our community and the general public.



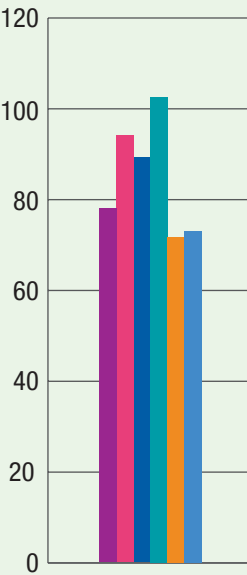
“The OTC is made up of a group of professionals who all share the same goal of moving technologies from bench to bedside and helping the world’s pediatric population. Under Matt’s strategic vision, we have built an incredible team, and it continues to grow.”

– *Susannah Wolman, Office of Technology Commercialization Operations and Business Manager*



# OUR OUTPUT

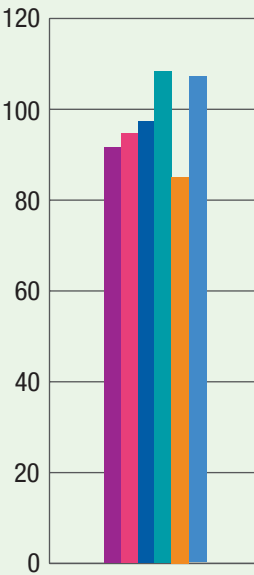
## DISCLOSURES



2017 2018

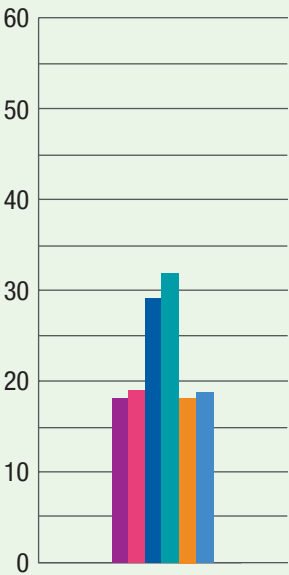
## CONTRIBUTORS

*A contributor is any Nationwide Children's faculty or staff member who submitted one or more invention disclosures.*

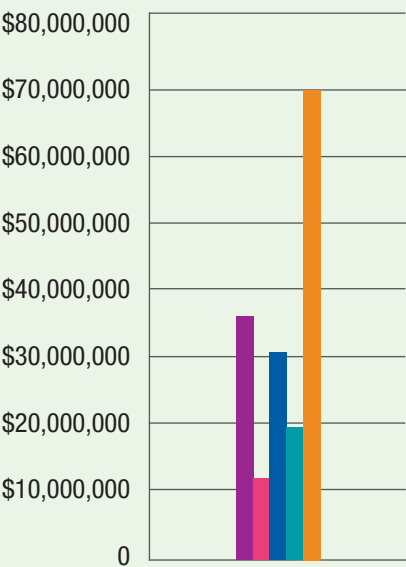


2019 2020 2021 2022

## NEW DEALS

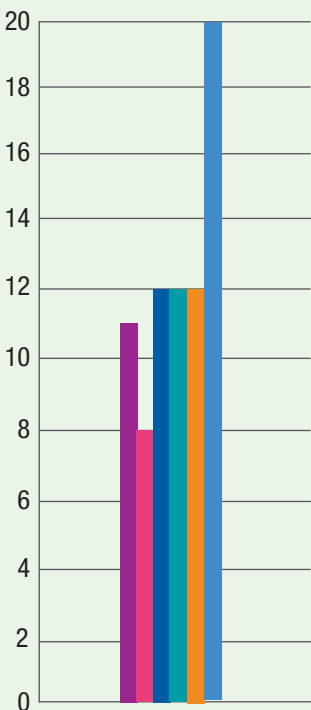


## TOTAL REVENUE\*

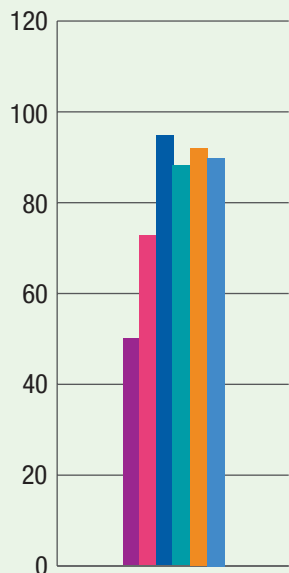


*\*2022 revenue unavailable at time of print.*

## U.S. PATENTS ISSUED



## U.S. PATENT APPLICATIONS FILED



## 2022 INNOVATOR OF THE YEAR: Steven Goodman, PhD

Biofilms are treatment-resistant colonies of disease-causing bacteria that adhere to each other and to the body's inner surfaces and fuel chronic and recurrent infections, such as those of the middle ears, sinuses and urinary tract. The organisms erect protective matrices of extracellular DNA that shield them from the immune system and antibiotics.

According to the Centers for Disease Control and Prevention (CDC), bacteria in this biofilm state are responsible for approximately 80% of human bacterial infections and up to 1,000 times more resistant to antibiotics than those that are “free-living.”

Biofilms often need to be collapsed before the bacteria within them can be completely cleared from the body.

Steven Goodman, PhD, a principal investigator in the Center for Microbial Pathogenesis at Nationwide Children's Hospital, has been studying biofilms — investigating how proteins and DNA create the extracellular structures that protect bacteria and identifying ways to help the body dismantle them — for more than a decade. His research has led to the creation of innovative technologies with the potential to transform care.

A biofilm-disrupting technology developed by Dr. Goodman and his collaborators is licensed by Clarametx Biosciences. In October 2022, Clarametx announced that the U.S. Food and Drug Administration (FDA) accepted its Investigational New Drug (IND) application for a phase I clinical trial of its CMTX-101 antibody therapy. Dr. Goodman serves as co-chair of the Scientific Advisory Board for Nationwide Children's startup Clarametx.

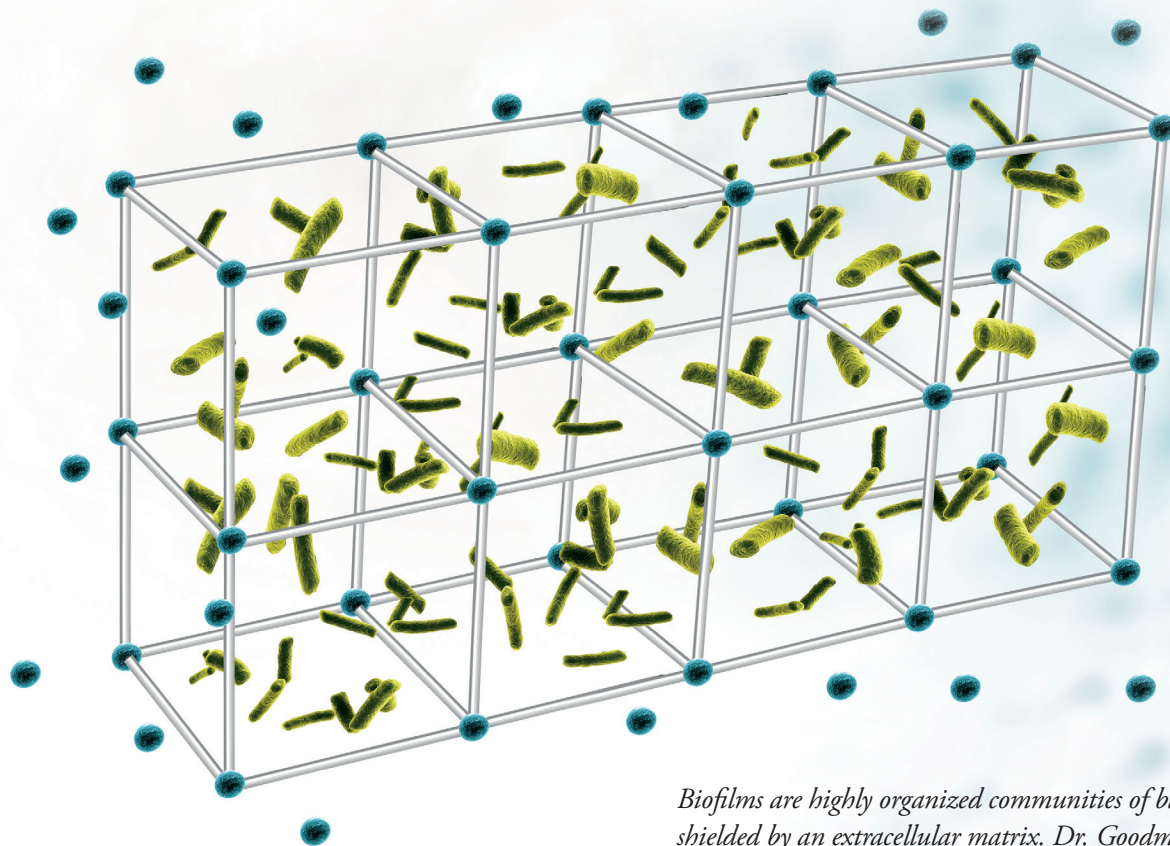
Another area of Dr. Goodman's research aims to capitalize on the staying power of biofilms. He helped develop a proprietary Activated Bacterial Therapeutics (ABT) platform technology, which focuses on enhancing biofilm production by beneficial bacteria to advance healing for a variety of diseases. It was licensed by Nationwide Children's startup Scioto Biosciences, a clinical-stage biotech company devoted to innovative research and discovery in the microbiome therapeutics field for which Dr. Goodman was scientific founder. In May 2022, Scioto announced positive results in its phase Ib trial of lead asset SB-121 in patients with autism spectrum disorder, including treatment-associated improvements in behavioral assessments.

Dr. Goodman's collaborative research embodies the spirit of innovation and discovery. To recognize his dedication, creativity and impact, on behalf of the

*Dr. Goodman and his lab were among the innovators recognized by research leadership for their achievements at the OTC's Excellence in Innovation reception in January 2023.*







*Biofilms are highly organized communities of bacterial cells shielded by an extracellular matrix. Dr. Goodman's work focuses on ways to disrupt biofilms and their protection of harmful bacteria — and ways to use the protective power of biofilms for good.*

OTC, Abigail Wexner Research Institute President Dennis Durbin, MD, presented Dr. Goodman with the 2022 Excellence in Innovation Award during the AWRI Annual Research Retreat on Nov. 16, 2022. He was also honored at the OTC's annual Excellence in Innovation Awards Ceremony and Reception on Jan. 10, 2023.

**Learn more about Dr. Goodman and his research:**



**Patents are an integral component of technology commercialization. Nationwide Children's innovators who have successfully patented new inventions in the United States between October 2021 and September 2022 include:**

**Michael Bailey, PhD**  
Number of patents: 1

**Lauren Bakaletz, PhD**  
Number of patents: 3

**Gail Besner, MD**  
Number of patents: 1

**David Brigstock, PhD**  
Number of patents: 2

**Charles Elmaraghy, MD**  
Number of patents: 1

**Steven Goodman, PhD**  
Number of patents: 3

**Scott Q Harper, PhD**  
Number of patents: 2

**Kris Jatana, MD**  
Number of patents: 1

**Jerry Mendell, MD**  
Number of patents: 3

**William Ray, PhD**  
Number of patents: 1

**Nicolas Wein, PhD**  
Number of patents: 1

### HELP TODAY'S DISCOVERIES BECOME TOMORROW'S INNOVATIONS

Our portfolio of over 130 available technologies developed by our innovative researchers and clinicians is diverse and ever-growing. They span a wide array of research fields and categories of market applications and range from early-stage innovations to market-ready products.

### TYPES OF INNOVATIONS



**Biomarkers:** Detect and measure normal biological processes, pathogenic processes or responses to interventions.



**End User Innovations:** Improve clinical or business practices and patient outcomes with improved/novel medical devices and software.



**Gene Therapies:** Deliver new genetic material to replace impaired or harmful genetic material to treat various conditions.



**Therapeutics:** Prevent or treat diseases.



**Tissue Engineering Innovations:** Combine scaffolding, seeded cells and biologically active molecules into functional tissues, allowing a patient's own cells to be used to grow new tissue or organs for repair.



**Research and Clinical Tools:** Enhance therapeutic or research activities.

### Technology Showcase

Each March, the OTC highlights new inventions and startup companies generated through innovation at Nationwide Children's through its flagship Technology Showcase event.

In addition to presentations about impactful Nationwide Children's technologies and an update by our licensee, Sarepta Therapeutics, the 2023 event featured a keynote presentation from Peter Marks, MD, PhD, director of the Center for Biologics Evaluation and Research of the U.S. Food and Drug Administration (FDA), on the role of the FDA in accelerating gene and cell therapy innovation to benefit patients.



To learn more and find the right licensing opportunity for you, visit **NationwideChildrens.org/AvailableTechnologies** and access our highlighted technologies database.



### **CAYUSE INVENTIONS**

- Search our entire catalog of licensable technologies by disease, disorder or technology type.
- Learn more about the technologies available in each category and the inventors behind them.
- Connect with the licensing associates who manage our technologies.

To license a technology or get assistance with your search, please call **(614) 355-1850** or email [Tech.Commercialization@NationwideChildrens.org](mailto:Tech.Commercialization@NationwideChildrens.org).

Not ready to begin the licensing process? Our team can help you stay informed about all new and available technologies developed at Nationwide Children's.

View the recording and register for the next event to learn more about our new technologies that are available to license and the inventions already transforming care:  
**NationwideChildrens.org/OTC-Events**



Peter Marks, MD, PhD

# The Role of a Children's Hospital in Central Ohio's Biotech Boom

Nationwide Children's Hospital is at the front of the pack among top National Institutes of Health (NIH) funded children's hospitals when it comes to developing novel gene therapies and commercializing intellectual property. Achieving this level of commercial activity is a testament to the organization's groundbreaking investments in infrastructure, unique approaches to engaging with industry and determination to bring transformative innovations in care to children everywhere.

The result? Technology transfer by Nationwide Children's has been a key driver of explosive life sciences industry growth in the region and attracted national attention. And there are no signs of the activity slowing down.

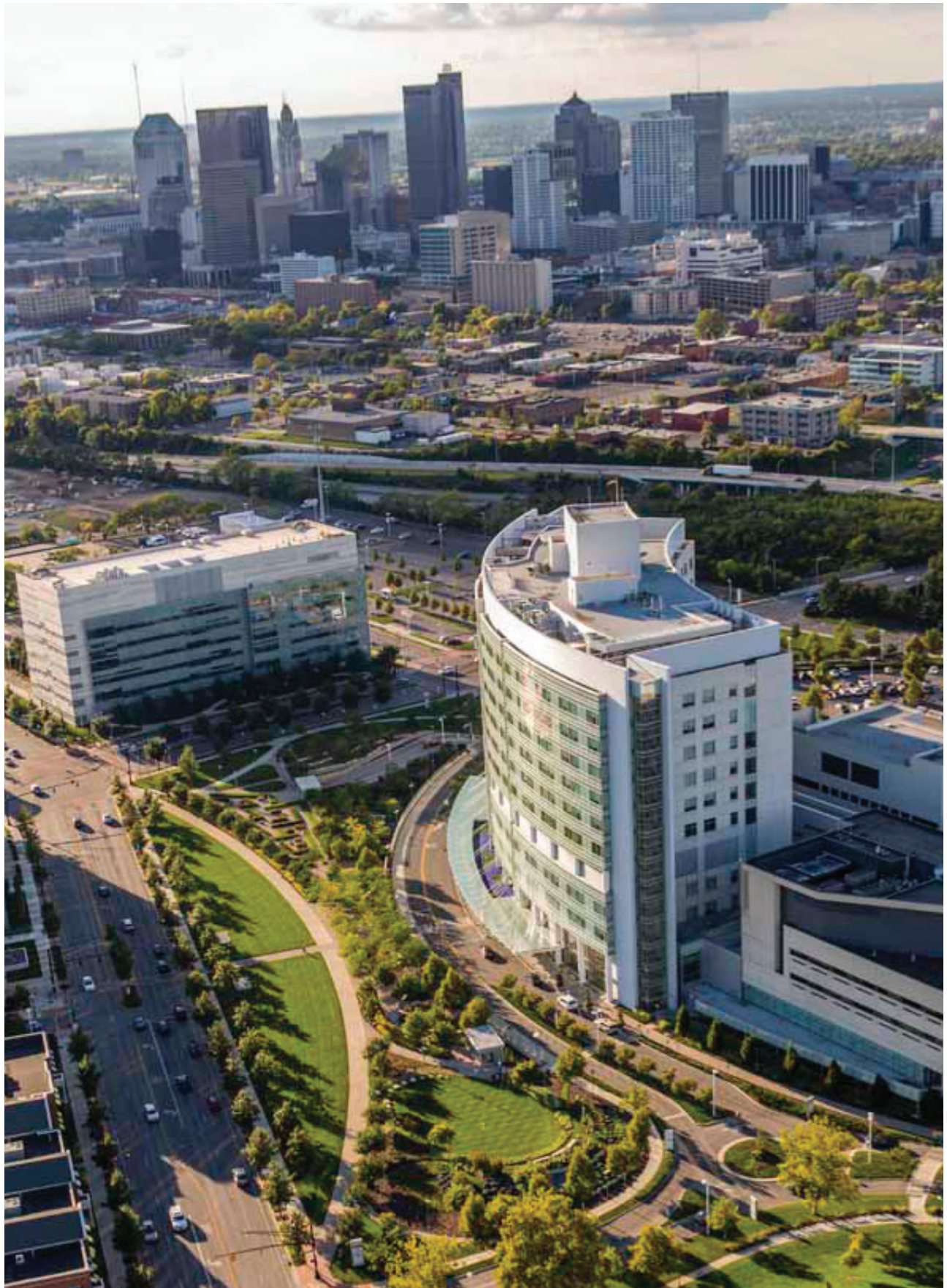
Over the past 20 years, central Ohio has matured into the Midwest's biotech hub, ranking among the nation's fastest-growing and most productive tech-focused areas. This growth has been nurtured by multidirectional relationships among the local community and governments, established companies, leading startups, venture capital funding firms, universities and research institutions. Nationwide Children's has been an integral leader in this flourishing life sciences ecosystem, creating jobs and attracting talent that drive innovation and investment in manufacturing in the region.



"Nationwide Children's leadership has had the willingness to take risks and make investments. That has truly made a difference. I consider the hospital and research institute critical engines of continued industry growth, creating a flywheel effect that will sustain a robust life sciences industry here in central Ohio."

— Eddie Pauline, MBA, OhioCED, President and CEO of Ohio Life Sciences (formerly BioOhio)





## Building the Culture and Infrastructure to Support Innovation

More than a decade ago, the hospital initiated a concerted technology commercialization effort, developing core capabilities — regulatory affairs, animal resources, clinical research services, high-end computing and more — in-house and steadily investing in the technical and administrative support necessary to bring inventions to market.

The cornerstone of the hospital's commercialization success, however, has been the Office of Technology Commercialization (OTC).

“People might not intuitively think of a nonprofit hospital like Nationwide Children's as a hotbed for technology commercialization, but they should,” says Matthew McFarland, RPh, PhD, vice president of commercialization and industry relations at Nationwide Children's. “We make substantial investments in the commercialization of new discoveries and create job-producing startup companies. Even more importantly, we're able to expand the benefits of innovation to improve the care and lives of children who may never set foot in our hospital.”

The OTC helps the world-class researchers and clinicians at Nationwide Children's develop promising new ideas and facilitates their transfer to external partners, including existing companies and entrepreneurial partners ready to establish new ventures.

“The experts conducting the research at Nationwide Children's generate a robust pipeline of novel ideas and insights, and that's where our office comes in,” says Jocelyn Eidahl, PhD, senior licensing associate in the OTC. “As a group, we try to engage with these researchers very early about considering commercialization.”

The hospital's investment in building this culture of innovation and commercialization has paid off. The number of active licensing agreements grew from seven active deals in 2012 to 87 active deals at the end of 2022. In 2022, the OTC assessed 73 new invention

disclosures, filed over 160 patent applications, and completed 18 licensing deals.

“Nationwide Children's had an entrepreneurial vision and invested heavily in infrastructure to create something that didn't exist 15 years ago,” says Brian Kaspar, PhD, who is chief scientific officer of the gene therapy division of a publicly traded company based in San Diego, California. While a principal investigator in the Center for Gene Therapy at Nationwide Children's, Dr. Kaspar developed therapies licensed to spinoffs AveXis, Celenex (later acquired by Amicus Therapeutics in 2018) and Milo Biotechnology.

Additionally, in the early 2000s, Nationwide Children's became one of the first children's hospitals to have its own GMP (Good Manufacturing Practice) facility, a pioneering move that enabled early gene therapy research and has since proven essential to paving the way for the recent explosion of life sciences industry growth in the region.

Jerry Mendell, MD, a principal investigator in the Center for Gene Therapy at Nationwide Children's, and other scientists at Nationwide Children's collaborated with hospital and research institute leadership to launch the small facility. In 2017, Nationwide Children's opened a larger facility, and with the support of the OTC, its gene therapy manufacturing efforts ultimately grew into the Nationwide Children's spinoff, Andelyn Biosciences, in 2020.

Andelyn currently employs approximately 200 employees and expects to grow to more than 400 in 2024. The company opened a 42,000 square foot laboratory in Dublin, Ohio in 2021 to house all preclinical and development services under one roof. It is also finishing construction of a 250,000-square-foot commercial manufacturing facility in The Ohio State University Innovation District to further consolidate operations.

### Integrated Regulatory Support in Action

Read about the coordinated effort that enabled clinical trial enrollment for a therapy for a deadly neuro degenerative disease in record time.





## The Support to Grow

Through the OTC, Nationwide Children's funds and fast-tracks pivotal proof-of-concept/validation work, prototype development, and pre-clinical and clinical development to make technologies more attractive to potential licensing partners and advance them along the commercialization pathway.

### Technology Development Fund (TDF)

The TDF, established in 2010, has greatly enhanced the OTC's ability to license developed technologies. There are two award cycles per year, with up to \$100,000 total funding awarded to multiple Nationwide Children's inventors each cycle. Awardees work actively with the OTC to develop their projects and transfer their inventions to the private sector.

### Ohio Third Frontier Technology Validation and Start-up Fund (TVSF)

Beginning in 2017, the OTC began leveraging TVSF funding awarded by the Ohio Development Services Agency to augment TDF support. Nationwide Children's was recently awarded its fourth TVSF grant.

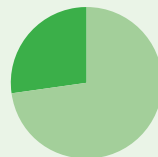


## By Spring 2023

### Applications

**149** total TDF applications, including

**18** for TVSF grant funding, by  
Nationwide Children's inventors



**27%** by inventors from 23 clinical areas

**73%** from 16 Abigail Wexner Research  
Institute Centers of Emphasis and Cores

### Funded Projects: **62**

#### Investment

**\$37,000**

average TDF Award

**\$94,114**

average TVSF Award

**\$2.1M**

in institutional investment

**\$470,570**

in state funding leveraged

### Results of Completed Projects

**61** issued patents; 160  
pending patent applications

**39%** have generated  
licensing revenue

**11** startups formed (8 active)

**2** medical devices  
receiving royalties

**19%** are available  
to potential partners

### Investment to Nurture Development

Learn more about the TDF:





## Supporting Research and Seeding the Future

“In my mind, Nationwide Children’s has essentially built an internal biotech company within the hospital. They can advance their technologies to a point that they are attractive to venture capitalists, entrepreneurs and pharmaceutical companies,” says Michael Triplett, PhD, who has helped found and lead multiple Nationwide Children’s spinoffs and serves as chairman of the board of Ohio Life Sciences.

“As investigators, we conduct early translational studies, and our OTC does an unbelievable job of finding potential ways to commercialize based on that work, including helping us secure funding and identify biotech partners who can carry the ball across the finish line,” says Kevin Cassady, MD, a principal investigator in the Center for Childhood Cancer at Nationwide Children’s who has worked extensively with the OTC.

Thanks to this commercialization infrastructure, established players have been drawn to the region with increasing frequency.

In 2019, global biotech company Sarepta Therapeutics, Inc., acquired Myonexus Therapeutics, a Nationwide Children’s spinoff developing the first gene therapies for five types of limb-girdle muscular dystrophy. They are based on work conducted by Louise Rodino-Klapac, PhD — now Sarepta’s Columbus-based executive vice president, chief scientific officer and head of research and development — Dr. Mendell and other colleagues at Nationwide Children’s that began over a decade ago. Researchers at Nationwide Children’s have also led their clinical trials.

The Cambridge, Massachusetts-based company subsequently opened its main research and development center, the Genetic Therapies Center of Excellence, in Columbus in October 2021. Upon opening, the 85,000 square foot center had 70 employees. Sarepta aims to grow that number to 240 by 2026.

Sarepta recently submitted a Biologics License Application (BLA) for its Duchenne muscular dystrophy (DMD) gene therapy SRP-9001, invented by Drs. Rodino-Klapac and Mendell, to the FDA. The therapy is one of nine the company licenses from Nationwide Children’s.

### A Decade of Growth

**900%**

GROWTH IN OUT-LICENSING  
OF TECHNOLOGIES

**over 70%**

OF THE HOSPITAL’S PATENT  
PORTFOLIO IS LICENSED

**28**

LICENSED TECHNOLOGIES  
CURRENTLY IN CLINICAL TRIALS

**7**

ACTIVE DEALS  
IN 2012

**87**

ACTIVE DEALS  
AT END OF 2022

NATIONWIDE CHILDREN’S  
CONSISTENTLY RANKED A

**top earner**

IN OHIO FOR GROSS REVENUE AMONG  
INSTITUTIONS LICENSING THEIR TECHNOLOGIES

“If approved, it would be the first gene therapy for DMD,” says Dr. Triplett, who co-founded and previously served as president and chief executive officer of Myonexus. “The research and innovation largely took place here in Columbus, with truly transformative work at Nationwide Children’s under the visionary leadership of Dr. Jerry Mendell. The institutional support for these programs is going to deeply benefit the DMD patient community. This area is now one of the key hubs in the world for gene therapy.”

The success of Nationwide Children’s startups, especially in the area of gene therapy, is key to its role as a significant contributor to job creation and economic development in central Ohio.

One of Nationwide Children’s most clinically impactful startups, AveXis, was acquired by Novartis for \$8.7 billion in 2018. The company’s gene therapy product for spinal muscular atrophy, Zolgensma®, which was approved in 2019 by the U.S. Food & Drug Administration (FDA) as the first-ever intravenous gene therapy, was developed based upon discoveries made in Dr. Kaspar’s lab. Additionally, Dr. Mendell

was instrumental in designing and leading the product’s clinical trial.

“I think this showed the local clinical and scientific community the complexities involved in taking a promising potential therapeutic from bench to bedside and the amount of capital and talent required,” says Dr. Kaspar.

“Organizations like Nationwide Children’s attract research and business expertise and fuel the whole workforce and talent pipeline. Its launch of Andelyn Biociences and Sarepta’s acquisition of Myonexus are great examples of the impact the innovation occurring at Nationwide Children’s and how important it is for us to work collectively to create a healthy environment for these companies to grow and succeed here. This doesn’t happen by accident,” says Pauline.

### Elite performance of the hospital’s licensing portfolio significantly supports sustainability of its growing research enterprise.

Nationwide Children’s revenue production among all institutions reporting to the national AUTM Licensing Activity Survey:

**2017**

**15th** (193 reported institutions)

**2018**

**40th** (187 reported institutions)

**2019**

**21st** (171 reported institutions)

**2020**

**31st** (197 reported institutions)

**2021**

**14th** (151 reported institutions)



## Connecting With Investors and Funders

The hospital's commercialization success is also a testament to its relationships with investors and its role in encouraging clinicians and researchers to apply for technology commercialization-focused grants awarded by the state government.

Hospital leadership has partnered with Rev1 Ventures, a Columbus-based startup studio that has invested in over 130 startups and greatly contributed to the growth of the regional biotech industry. In 2016, the hospital and Rev1 launched the Life Sciences Fund to support the development of additional spinoffs from Nationwide Children's. The \$5.5 million fund was also supported by the Ohio Third Frontier Pre-Seed/Seed Plus Fund Capitalization Program, which provided a \$2.75 million loan.

"The research and intellectual talent at both Nationwide Children's and Ohio State represents a tremendous opportunity for the community and

the state, and we wanted to create a mechanism to anchor biotech growth in central Ohio," says Wayne Embree, executive vice president at Rev1 Ventures and long-time partner of the OTC. "That desire ultimately led to the creation of the investment funds that we have with both institutions. Rev1 not only invests early money into those opportunities but also recruits the management teams to begin the validation work to move a promising technology or potential therapy from the lab to the market."

Supporting the commercialization of discoveries promotes a cycle of progressive growth and innovation, wherein success stories and robust resources attract world-class researchers, inventors and bold thinkers who make further discoveries. Bringing those discoveries to market through spinoffs and licensing deals generates revenue that's reinvested back into the organization, its people and its pipeline. With additional support from and partnership with investors, the hospital can fuel the next generation of novel advancements. The potential for growth is exponential.



## Affiliations



Nationwide Children's is a sustaining member of Rev1 Ventures, an organization created to accelerate innovation, business growth, job creation and prosperity in the 15-county region of central Ohio. Rev1 Ventures works to create new companies, strengthen existing businesses, open doors to technology resources and support the attraction and retention of technology-based businesses.

Scan the QR code to learn more about Rev1 Ventures.



Ohio Life Sciences

As Ohio's bioscience, health and life sciences membership and development organization, Ohio Life Sciences (formerly BioOhio) is focused on convening the state's outstanding assets to accelerate the growth of its globally competitive bioscience ecosystem. High on this list of assets is pediatric research, in which Nationwide Children's exhibits excellence every day. Nationwide Children's has been an OLS Leadership member for nearly 25 years.

Scan the QR code to learn more about OLS.



OhioX is Ohio's statewide technology and innovation partnership dedicated to helping make Ohio a leading tech hub. OhioX powers connections, tells impactful stories, and advocates for growth on behalf of Ohio technology and innovation. As a founding member of OhioX, Nationwide Children's joins industry-leading organizations across Ohio in building the future.

Scan the QR code to learn more about OhioX.





## Continued Growth and Diversification

A common vision that Nationwide Children's, its partners and affiliates, and the local government share is one of continued growth while retaining local talent.

"States are embracing the idea that our academic centers and intellectual capital is something that we should harness and can develop industries around," says Dr. Cassidy.

"This is a region that endorses growth," says Andrew Corris, PharmD, JD, a senior licensing associate in the OTC. "We have a diverse city with a manageable cost of living, and with the availability of funds through partnerships, such as those between Nationwide Children's and Rev1, entrepreneurs, researchers and innovators from the local talent pool are more likely to stay in the area."

The region is on the cutting-edge of innovation in the life sciences industry, as evidenced by the influx of

additional spinoffs and firms clamoring to get in on the action. Notable examples include Columbus-based Battelle's launch of AmplifyBio, the founding of gene therapy development firm Forge Biologics in 2020 followed by their announcement of \$130 million series B financing, and the expansion of biotech leader Amgen to New Albany, Ohio, where it is investing \$365 million and expects to create 400 new jobs.

Companies from other complementary business sectors have been drawn to the region as well, including Facebook, Amazon, and Intel, which announced it will build two chip factories outside of the city that will provide 3,000 company jobs and many more thousand indirect jobs.

Bold thinkers from across industries and around the world are increasingly coming to Central Ohio to take advantage of the region's robust capacity to support their success. By launching job-producing startups and brokering valuable new partnerships, the Office of Technology Commercialization continues to support the region's growth.

### Columbus: Rich in Opportunity

# #1

GROWING CITY FOR STARTUPS  
IN THE UNITED STATES (*Forbes*)

# 14th

LARGEST CITY WITH A POPULATION OF ABOUT 1 MILLION & A  
METRO AREA POPULATION OF OVER 2 MILLION (*U.S. Census*)

# Top 10

METRO AREA IN THE  
UNITED STATES FOR  
CONCENTRATION OF  
YOUNG PROFESSIONALS  
(AGE 25-34)  
(*One Columbus*)

# Top 10

PLACE FOR MILLENIALS  
TO LIVE AND WORK  
(*New York Times*)

# 134,000+

STUDENTS  
(*One Columbus*)

# 11,000+

BIOSCIENCE DEGREES  
COMPLETED EACH YEAR  
(*Site Selection*)

# 35.9

MEDIAN AGE  
(*One Columbus*)

## In recent years, biotech companies of all sizes have been betting big on the Columbus region.

Why? The city once known as “Cow Town” for its agricultural heritage is fertile ground at the forefront of the industries of tomorrow. From seed to harvest, Columbus has the land companies need to build and expand and the resources and talent to thrive and evolve. And as the region grows and attracts more business, it fuels a progressive cycle of innovation and further development.

Nearly two decades ago, groundbreaking gene therapy research conducted at Nationwide Children’s planted the seed for the growth in cell and gene therapy in Columbus today that’s given the region visibility on a national stage.

In 2018, Forbes named Columbus, Ohio the top rising city for startups in the United States. It had the highest number of new VC funds per capita of any large city Forbes analyzed and scored highly for its entrepreneurship rates, college presence, education levels, working age population growth, and low costs of business and living.

Sure enough, through meaningful partnerships between academic health centers, government, corporate incumbents and startups, Columbus is experiencing unprecedented economic growth and has established one of the most impactful bioscience markets in the world today.

Chicago VC firm M25 continues to rank Columbus one of the best places for startups in the Midwest, based on key factors like availability of government support, proximity to an airport and even quality of internet access.

Columbus boasts the greatest market access of any major city and is a global logistics hub that supports some of the world’s largest brands and top logistics service providers.

Across Ohio, more than 81,000 people employed in health care work in the field of bioscience innovation. Medical research giants in Columbus, including The Ohio State University and Nationwide Children’s Hospital, are at the center.

**45%**  
OF THE U.S. POPULATION &  
**48%**  
OF HEADQUARTERS  
OPERATIONS ARE WITHIN  
A 10-HR DRIVE  
(One Columbus)

**36%**  
OF ALL RESIDENTS OVER 25 &  
**42%**  
OF NEW RESIDENTS  
HOLD A BACHELOR’S  
DEGREE OR HIGHER



### IN GOOD COMPANY

Dozens of startups, which have been critical to advancing new, early-stage therapies to the point of FDA approval, commercial viability and even global distribution, have launched since the Office of Technology Commercialization was formed in 2008. One such startup, Andelyn Biosciences, an affiliate company dedicated to the manufacture of gene therapy products for biotechnology and pharmaceutical industries, has enabled Nationwide Children's to be one of the only pediatric hospitals in the world that can offer gene therapy clinical trials for infants and children.

As Nationwide Children's innovators connect with entrepreneurial partners to launch new ventures, the OTC seamlessly guides them every step of the way.



Learn more about  
our startups



“Our startup portfolio is broad, covering areas in cancer, microbial infections, neuromuscular, metabolic and kidney diseases, and the provision of health care in general. Spanning gene and cell therapy, therapeutics, medical devices and software, it also reflects the diversity of our science and technologies.”

– Margaret Barkett, PhD, Office of Technology Commercialization Director of Licensing





## Nationwide Children's is a preeminent leader in innovative pediatric health care — a place that pushes the envelope to improve the lives of children everywhere.

In 2021, Nationwide Children's announced the most ambitious strategic plan in its 129-year history: *Leading the Journey to Best Outcomes for Children Everywhere*, a five-year \$3.3 billion commitment to transform health outcomes for all children. At the heart of this plan is a focus on integrating and investing in the highest-quality clinical care and cutting-edge research.

Cultivating an organization where research drives clinical care and clinical care drives research ensures children receive the most advanced therapies possible for their conditions. It also brings together bright minds from every corner of the organization dedicated to solving the problems affecting pediatric health.

More than 1,000 faculty work in over 100 subspecialties and 14 research centers. Researchers make discoveries about disease processes and potential therapeutic agents. Clinicians invent devices to address challenges they face in everyday practice. Many doctors, nurses, surgeons and scientists didn't begin their careers expecting to be inventors, but they're all driven by the desire to improve delivery and outcomes, and they all have a hand in innovation.

Luckily, there's no business experience needed. The Office of Technology Commercialization helps creative employees translate novel discoveries to the bedside and bring new ideas to fruition and to market by walking them through every step of the process — from patent searches and prototypes to licensing or launching startups.

More than ever, Nationwide Children's innovators are driving the future of pediatric care.

**Learn more about the innovative clinical and research programs across Nationwide Children's and the unique ways they're working together in the 2021 – 2022 Annual Report.**

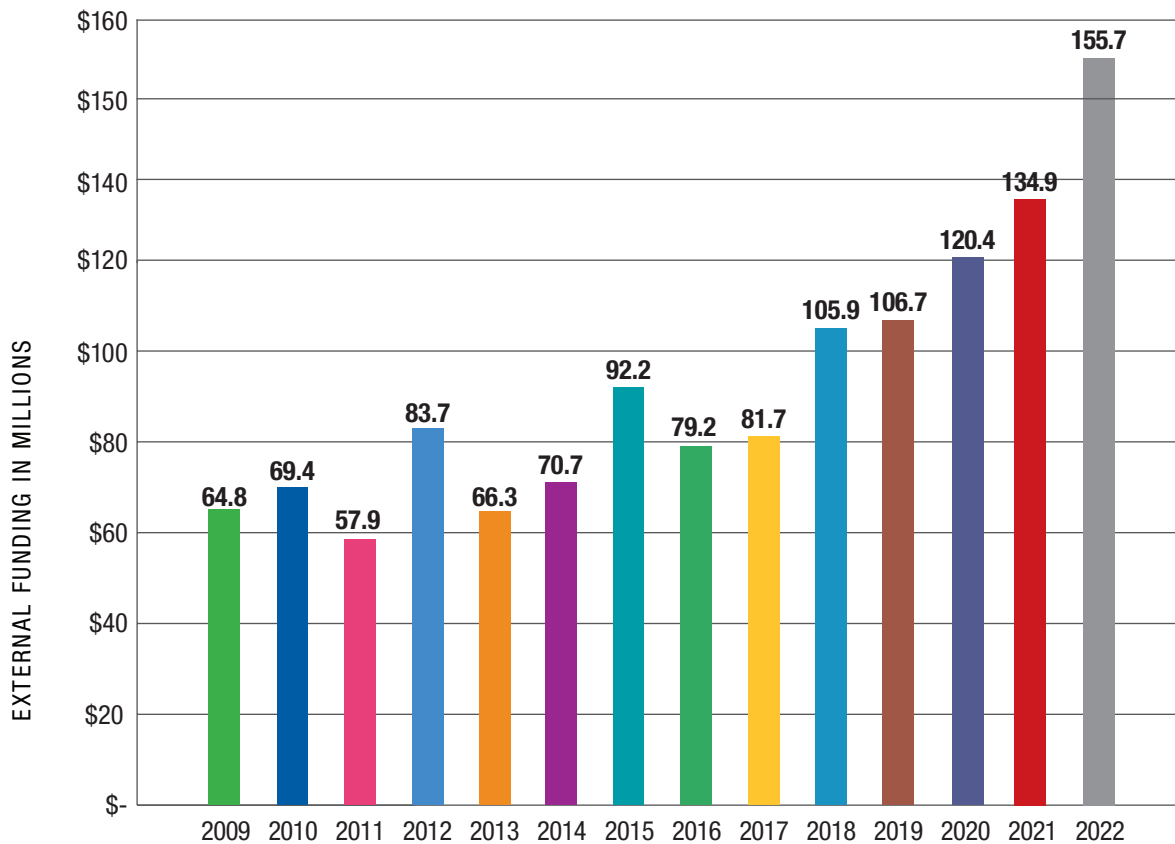


### RESEARCH CENTERS OF EMPHASIS

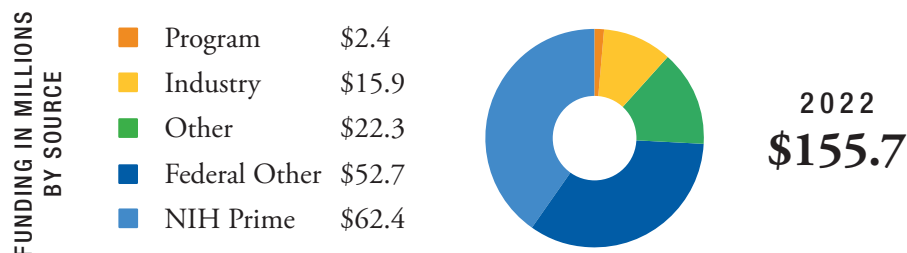
Areas of research in the Abigail Wexner Research Institute at Nationwide Children's transcend traditional academic boundaries, which facilitates interdisciplinary team science and catalyzes discovery.

- Biopathology Center
- Center for Biobehavioral Health
- Center for Cardiovascular Research
- Center for Child Health Equity and Outcomes Research
- Center for Childhood Cancer
- Center for Clinical and Translational Research
- Center for Gene Therapy
- Center for Injury Research and Policy
- Center for Microbial Pathogenesis
- Center for Perinatal Research
- Center for Regenerative Medicine
- Center for Suicide Prevention and Research
- Center for Vaccines and Immunity
- Institute for Mental and Behavioral Health Research
- Kidney and Urinary Tract Center
- Steve and Cindy Rasmussen Institute for Genomic Medicine

## RESEARCH GROWTH AT NATIONWIDE CHILDREN'S



### 2022 EXTERNAL AWARDS



### RESEARCH BY THE NUMBERS

	2020	2021	2022
Principal Investigators*	208	223*	249
Research Fellows	71	92	78
Graduate Students	42	57	61
Employees	1534**	1460	1613
Publications	1600	1633	1740

\*Includes faculty from the Abigail Wexner Research Institute and faculty from Nationwide Children's Hospital with \$50,000 or more in research funding support.

\*\*In 2020, Andelyn Biosciences became a separate entity, resulting in approximately 100 employees moving from Nationwide Children's to Andelyn Biosciences.

## OUR SPACE: WORLD-CLASS FACILITIES FOR LIFE-CHANGING DISCOVERY



### RESEARCH FACILITY HIGHLIGHTS

Research Building I (the Wexner Institute for Pediatric Research) contains 136,580 square feet of dedicated research space contiguous with Nationwide Children's clinical facilities.

Research Building II provides 164,016 square feet of additional space, including a 200-seat amphitheater, that is also contiguous with the clinical facilities.

Research Building III is 238,914 square feet and includes a 75-seat conference facility. Research Building III is certified by the U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) program for sustainable building design.

### MAIN CAMPUS HIGHLIGHTS

- 1,563,577 square feet of inpatient space.
- 406,751 square feet of outpatient space.
- 759,447 square feet of education and support areas.
- Largest neonatal network and provider of inpatient pediatric surgeries in the United States.\*

*\*Most recent data from CHA-member pediatric hospitals, based on highest number of ICU beds and inpatient surgeries.*





## ROOM TO GROW: RESEARCH BUILDING IV OPENING IN MAY 2023

The new Research Building IV serves as a companion to Research Building III. The buildings function as one complex, connected on each floor and by a common entry atrium and central staircase.

With the addition of Research Building IV's 285,000 square feet, Nationwide Children's boasts over 800,000 square feet of dedicated research space across campus.

### RESEARCH BUILDING IV HIGHLIGHTS

- **Support for interdisciplinary collaboration and changing research needs.**  
Lab, office and support modules are planned in "neighborhoods" and designed to be adaptable with movable tables. A dry lab hub is centrally located between and adjacent to wet labs. A central staircase and elevator also provide fluid access to all floors and areas.
- **Flexible space for effective meetings of any size.**  
Research Building IV is equipped with a variety of

high-tech conference rooms, huddle areas, workspaces and break areas.

- **Inclusive design to welcome everyone.**  
Gender-neutral, single-stall restrooms are located throughout the building, and ablution rooms are available for performing cleansing rituals before prayers.
- **New campus green space where employees can flourish.**  
An open, multiuse lawn framed by tree-lined walking paths is accessible from Research Building III, Research Building IV and the Conference Center. A large, covered entry-way, outdoor dining area and power-equipped food truck parking space all face the expansive new "quad" — along with windows throughout the building.
- **Resources for spreading important news and highlighting accomplishments.**  
A video wall in the lobby showcases the research institute's story, and digital displays on each floor share updates for all research employees and for each center.





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**NATIONWIDE  
CHILDREN'S®**

*When your child needs a hospital, everything matters.*