



A CATALYTIC STATE FOR

LIFE SCIENCES

A life-changing treatment for bone diseases developed by researchers at the Indiana University School of Medicine received U.S. Food & Drug Administration approval, at the same time as the Medical School received one of the largest NIH awards in history for the Indiana Clinical and Translational Sciences Institute; Cook Regentec's "collaboratory" expansion at the south side of 16 Tech opened; Elanco was spun out from Eli Lilly and Company through a highly successful initial public offering; Endocyte entered into an agreement to be acquired by Novartis for \$2.1 billion; and BioCrossroads' third seed fund installment, Indiana Seed Fund III, launched and began to make new investments to fuel Indiana's most promising life sciences start-ups. These were just some of the many notable developments in Indiana's dynamic life sciences industry in 2018.

2018

\$79_B

state economic
impact

\$10.2_B

life sciences
exports

2nd

highest
in the U.S.



2018 SUCCESS HIGHLIGHTS

- There were \$153 million in capital expenditures for 2018 by Indiana life sciences company expansions



\$153M
capital expenditures

- Indiana's life sciences industry boasted another active year with the largest venture capital investment amounts ever with \$115 million

- Eli Lilly and Company will have a Diabetes Center of Excellence at the Indiana Biosciences Research Institute in connection with the Indiana University School of Medicine
- Indiana Clinical and Translational Sciences Institute was awarded a grant of \$33 million from the National Institutes of Health

\$115M
venture capital funding



INVESTING IN THE NEXT GENERATION OF INNOVATION

As a result of the success of Indiana Seed Fund II, one of the most noteworthy developments of 2018 was the launch of BioCrossroads' third seed fund, Indiana Seed Fund III, a \$9 million early-stage fund focused on identifying, creating and developing the next generation of Indiana-based life sciences, health IT, and agbiosciences companies.

Investors in Indiana Seed Fund III include Eli Lilly and Company, Richard M. Fairbanks Foundation, Regenstrief Foundation, Walther Foundation, Indiana University, the University of Notre Dame and BCI, the for-profit affiliate of BioCrossroads which also manages the fund.

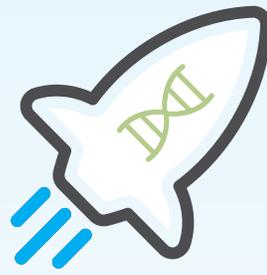
The new fund has already made two investments in promising Indiana start-up companies: \$600,000 to Scioto Biosciences, which is developing a platform technology to deliver microbiome therapies, and \$250,000 to Animated Dynamics, a Purdue-based start-up which is developing a diagnostic test for chemotherapy sensitivity.

Seeking even earlier start-up companies to bolster, BioCrossroads' sixth annual New Venture Competition featured entries from all over the state and included innovations both affiliated with Indiana research universities and entrepreneurs working on privately-developed technologies.

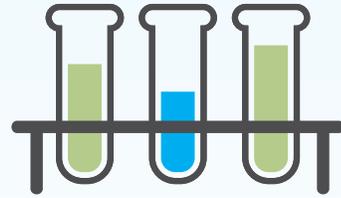
To date, the previous 23 winners of the New Venture Competition have secured more than **\$36 million** in follow-on funding.



In this competition, the University of Notre Dame's SalvePeds won the top prize of \$25,000. It is an early-stage pharmaceutical company offering a novel drug as a topical therapy for the treatment of diabetic foot ulcers. Second-place recipient OmniVis and third-place recipient Novosteo are both start-ups from Purdue University. OmniVis' patented technology uses a revolutionary sensing technique to quantify and analyze pathogens, like cholera, directly at the source through the use of hand-held devices. Novosteo is a drug discovery company that has designed a series of fracture-targeted drugs that accelerate bone regeneration specifically at the fracture site.



34
companies
funded



85 new products
approved by
the FDA



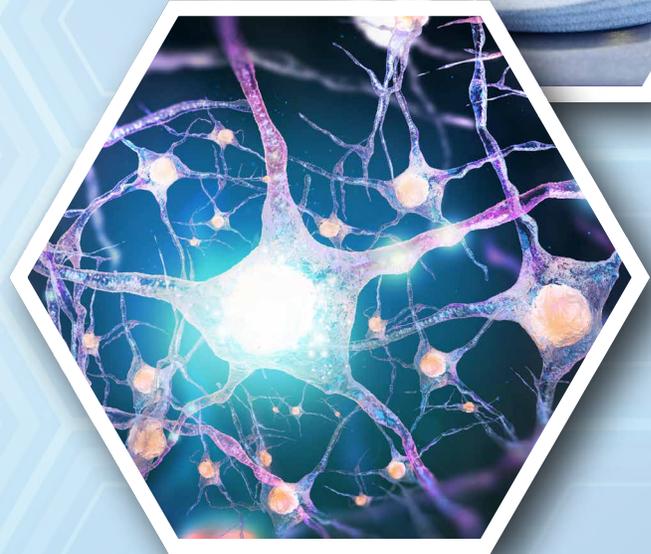
MARKET KNOWLEDGE AND EDUCATION

By all measures, 2018 was a record-breaking year for BioCrossroads with the most attendees and educational events in history, including eight Framework sessions, which covered:

- Regenstrief Institute - Creating Pathways for Better, More Efficient Healthcare
- The Impact of Policy on Life Sciences and Innovation
- Meeting Talent Needs in the Life Sciences
- 16 Tech Innovation District
- Demystifying Artificial Intelligence in the Life Sciences
- Biopharma Drug Development
- Digital Biomarkers (Scientific Session)
- Indiana's Diabetes Business & Innovation Impact (Scientific Session)

At the fifteenth annual Indiana Life Sciences Summit, the focus was on the integration of digital and disruptive technologies into the life sciences and included speakers from Eli Lilly and Company, Roche Diagnostics, the National Institutes of Health, MATTERHealth and LifeOmic. The Summit's Scientific Session was expanded to include a full day of content on metabolic diseases, with speakers from industry and academia discussing their latest research and innovation.

Also at the Summit, the BioCrossroads Board of Directors recognized esteemed researcher, educator and entrepreneur



Anantha Shekhar, M.D., Ph.D., executive associate dean for research affairs at the Indiana University School of Medicine, as the 2018 recipient of the August M. Watanabe Life Sciences Champion of the Year Award. Dr. Shekhar serves in several leadership roles at IU School of Medicine and IU Health. Under Dr. Shekhar's leadership, IU School of Medicine's total research funding has surged to \$339 million. He is the founding director of the nationally recognized Indiana Clinical and Translational Sciences Institute, a results-driven partnership among Indiana University, Purdue University and the University of Notre Dame, created

LEADERSHIP TRANSITION

In December, BioCrossroads said farewell to its longtime President and CEO **David L. Johnson**. Johnson led the organization for 14 years, but announced his move to full-time responsibilities as president and CEO of the Central Indiana Corporate Partnership (CICP), the “holding company” for the collaborative activities of BioCrossroads and other regional technology-intensive initiatives. Johnson was elected president and CEO of CICP and led both organizations in shared capacities since December 2012. Johnson is responsible for several game-changing contributions to the Indiana life sciences industry, including raising nearly \$400 million for Indiana’s life sciences opportunities, organizing and spearheading the Indiana Biosciences Research Institute and 16 Tech Innovation District development, and forging unique collaborations that have ensured the sector’s statewide and national prominence.

Nora Doherty, BioCrossroads senior vice president and managing director of the Indiana Seed Fund, is serving as interim president and CEO until a permanent president and CEO is selected through a national search process later in 2019.



to improve health in Indiana through outcome-driven research. He also serves on the NIH's National Center for Advancing Translational Sciences Advisory Council and the Cures Acceleration Network Review Board.

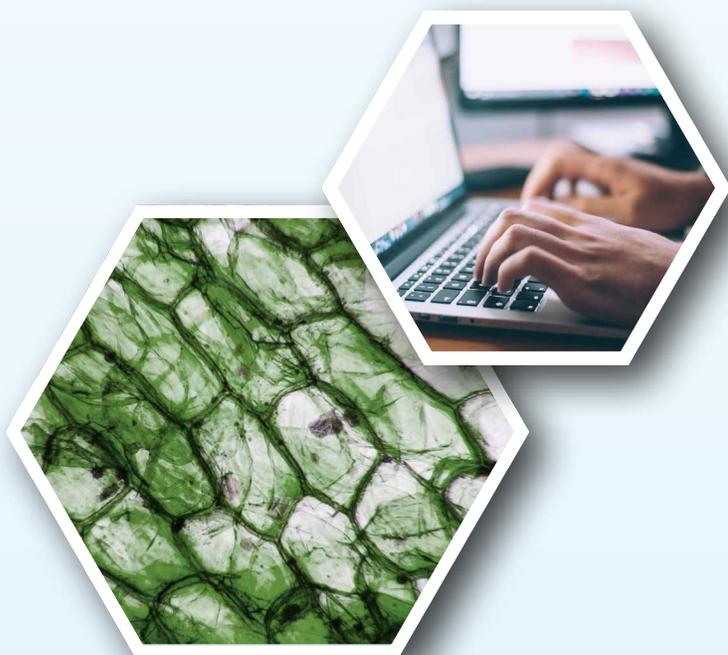
Adding to its library of publications and reports, BioCrossroads, in collaboration with TEconomy Partners, released two major pieces of research in 2018. One is a significant follow-up study to the 2017 report, *The Importance of Major Research Universities*.

The original study looked at the Indiana impact of the state's three major research universities (Indiana University, Purdue University and the University of Notre Dame) — with collective annual research expenditures of nearly \$1.3 billion—in the areas of knowledge expansion and innovation; economic development; the enhanced capabilities of human capital; and societal well-being and quality of

life. This earlier report found substantial contributions by our state's research universities to nearly every aspect of Hoosier life. However, it also showed that federal sources represent just 41 percent of the total annual research expenditures for Indiana's universities, compared to 55 percent on average for research universities in other states that receive federal grants and contracts.

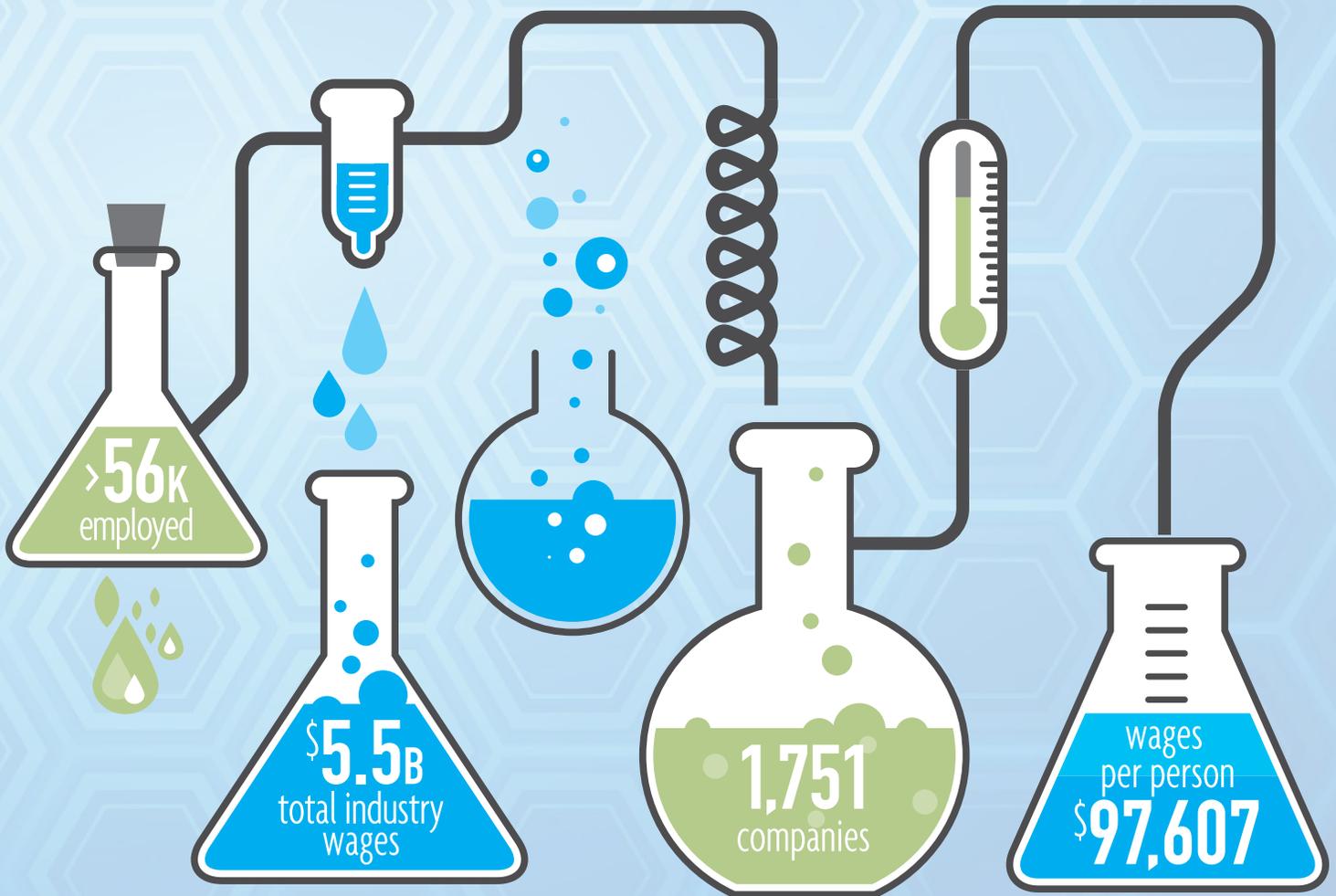
The new study, *Assessing R&D Funding Across Indiana's Major Research Universities*, reviews the universities' research and development funding to understand that differential, recognizing that Indiana University and Purdue University are in the top quartile for federal research dollars. It also compares Indiana institutions to the top universities in the U.S.; identifies how investments made by the institutions themselves affect federal funding percentages; raises observations relating to the type and sources of R&D funding; and makes recommendations for improvements. Overall, each of these universities increased the size of its annual R&D portfolio by \$120 million or more over the last decade—a level of combined growth that is outpacing the U.S.

Also in 2018, BioCrossroads released another significant report, updating economic impact and jobs projections for the 16 Tech Innovation District: *Economic Impact Update for 16 Tech Innovation District Development -- Data and Findings*. A data-rich analysis, the report provides detailed estimates of 16 Tech's Phase I construction



WORKFORCE & WAGES

1,751 companies working in the areas of drugs and pharmaceuticals, medical devices and equipment, agricultural chemicals and feedstock, medical, research and testing laboratories and biologistics.



\$97,607 wages per person in life sciences; \$46,424 per person in private sector.

type and square footage, employment categories and numbers of jobs, and overall economic impact.

Throughout the year, BioCrossroads also continued to work with many stakeholder-driven collaborations like the Indiana Health Information Exchange, OrthoWorx, the Datalys Center, the Indiana Clinical and Translational Sciences Institute, and the Indiana Biosciences Research Institute as well as talent-related activities with 16 Tech and STEM-related initiatives. And, in November, the Richard M. Fairbanks Foundation funded a new two-year, \$1.48 million grant to BioCrossroads to continue to advance the strength and opportunities of these collaborative and educational initiatives across Indiana's life sciences and healthcare sectors.

Even though the life sciences industry is ever-evolving, as evidenced by the acquisitions, mergers, spin-outs and expansions that Indiana experienced in 2018, the sector continued to thrive in 2018. Disruptive technologies and other factors will continue to influence this important economic and innovation sector. BioCrossroads is poised to meet those challenges and drive new thinking as it continues its mission to advance the industry through its forward-focused investment strategy, market knowledge, and catalyzation of collaborations and opportunities for innovation.





BOARD OF DIRECTORS

2018 BioCrossroads Board of Directors represent the state's industry, academic and government sectors. The senior leaders on the Board are essential to BioCrossroads' success, and they are united in their common commitment to find even more ways to collaborate, sustain investments and build upon the energy and assets Indiana already has.

Darren J. Carroll is the Chairman of the Board of BioCrossroads.

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Community Health Network

300 N. Meridian St., Suite 950
Indianapolis, IN 46204
317-238-2450

Data used in graphics are the most recent available, and were compiled by the Indiana Business Research Center at the Indiana University Kelley School of Business and BioCrossroads.

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