

CHICAGO BIOMEDICAL CONSORTIUM

The University of Chicago
University of Illinois at Chicago
Northwestern University

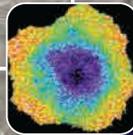
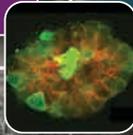


2017 Perspectives

**NORTHWESTERN UNIVERSITY
EVANSTON CAMPUS**

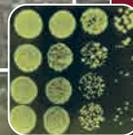


**NORTHWESTERN UNIVERSITY
CHICAGO CAMPUS**



**UNIVERSITY OF ILLINOIS
AT CHICAGO**

**THE UNIVERSITY
OF CHICAGO**



CBC Phase 2 Mission

Since entering Phase 2 in January 2017, CBC has embraced a newly refined and focused mission:

The mission of the Chicago Biomedical Consortium (CBC) is to stimulate collaboration among scientists at Northwestern University, The University of Chicago, the University of Illinois at Chicago and others to accelerate discovery that will transform biomedical research and improve the health of humankind.

The CBC will:

- **Stimulate research and education that bridge institutional boundaries,**
- **Enable collaborative and interdisciplinary research that is beyond the range of a single institution,**
- **Mentor and develop a strong cadre of biomedical leaders, researchers, and entrepreneurs in Chicago,**
- **Enhance and promote the development of the biomedical ecosystem in Chicago,**
- **Facilitate development of therapeutics that will, over the long term, improve the health of citizens of Chicago and beyond.**

CBC Leadership

Lucy Godley, MD, PhD

Scientific Director

Professor, Department of Medicine
Section of Hematology/Oncology
The University of Chicago

Brian Kay, PhD

Scientific Director

Professor, Department of Biological Sciences
University of Illinois at Chicago

Richard Morimoto, PhD

Scientific Director

Bill and Gayle Cook Professor of Biology
Director, Rice Institute for Biomedical Research
Department of Molecular Biosciences
Northwestern University

CBC Executive Directors and Staff

Kathryn Stallcup, PhD

Outgoing Executive Director (until September, 2017)

James Audia, PhD

Incoming Executive Director (since August, 2017)

Karen Snapp, DDS, PhD

Senior Associate Director

Kimberly Corn

Associate Director, Business Operations and Finance

Jola Glotzer, MD

Communications Director

Corinna Kitcharoen, MBA

Program Coordinator

Front Cover

Scientific images overlaid on a Google earth (© Google) image of the Chicago area.

CBC-affiliated researchers contributed the scientific images:

North: Northwestern University, Evanston campus (Vadim Backman),
East: Northwestern University, Chicago campus (Hiroaki Kiyokawa),
West: University of Illinois at Chicago (Preston Snee),
South: The University of Chicago (Michael Gebhardt / Howard Shuman).

Credits

Photographs: CBC, or as indicated in the legends.

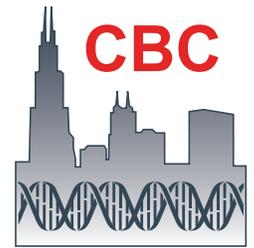
Written by: Kathryn Stallcup and Jim Audia, CBC.
Design and layout: Jola Glotzer, CBC.

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2017 Perspectives

Looking Back, Looking Forward

The CBC was inaugurated in 2006 with a generous grant of \$5 million per year from the Searle Funds at The Chicago Community Trust. To date, \$55 million has been invested in the CBC. As the CBC embarks on its Phase 2, efforts will continue to leverage the strong foundation that has been established and intensify the focus on translational research and entrepreneurship.

As of July 2017, the CBC has supported:

- **Discovery and cutting-edge research** in many areas – including antibiotic resistance, cancer, heart disease, drug development, mental health and neurological disorders, and diabetes – through **251 Awards** to faculty members, postdoctoral fellows, and graduate students;
- **Recruitment of 8 outstanding senior and junior faculty members** who have gone on to receive numerous national awards;
- **Acquisition of state-of-the-art instruments** to enable ground-breaking investigations of key biomedical questions;
- **Professional development programs** for graduate students and postdoctoral fellows;
- **Mentoring assistance** for researchers interested in commercializing discoveries;
- **Fourteen Annual Symposia** and over 30 other events showcasing research supported by the CBC and high-end technologies available at CBC universities.

Notable outcomes of CBC support include:

- Publication of over **1770 peer-reviewed articles** based on CBC-funded research;
- Establishment of **six national research centers** at CBC universities;
- Encouragement of a broad array of inter-institutional collaborations, including the **Open Access Initiative**.

Projects launched by the CBC have gone on to earn well over **\$500 million** in additional funding, with a total estimated economic input approaching **\$2 billion** for the Chicago economy overall.

The Searle Funds
at The Chicago Community Trust



UIC
UNIVERSITY
OF ILLINOIS
AT CHICAGO

Master Drug Hunter Continues the Chase



Richard Silverman (NU) spent decades developing the molecule pregabalin, which became Pfizer's blockbuster drug **Lyrica**. As a medicinal chemist, Prof. Silverman is interested in the translation of basic science into useful therapeutics. Recently, a molecule developed in his lab has entered clinical trials to treat certain forms of epilepsy. Potential treatments for Parkinson's disease, Amyotrophic Lateral Sclerosis (ALS), and cerebral palsy are also being pursued. Prof. Silverman and colleagues won a **CBC High Throughput Screening Award** in 2015 to study protein sequestration inhibitors as a treatment for ALS, and Prof. Silverman has been an active member of the CBC community as a **speaker** at the **2013 and 2017 CBC Annual Symposia**, and the **2012 CBC Tech Day**.



Photo: After many years of research, Prof. **Richard Silverman** developed pregabalin, the chemical that Pfizer now markets as Lyrica. Credit: NU Office for Research.

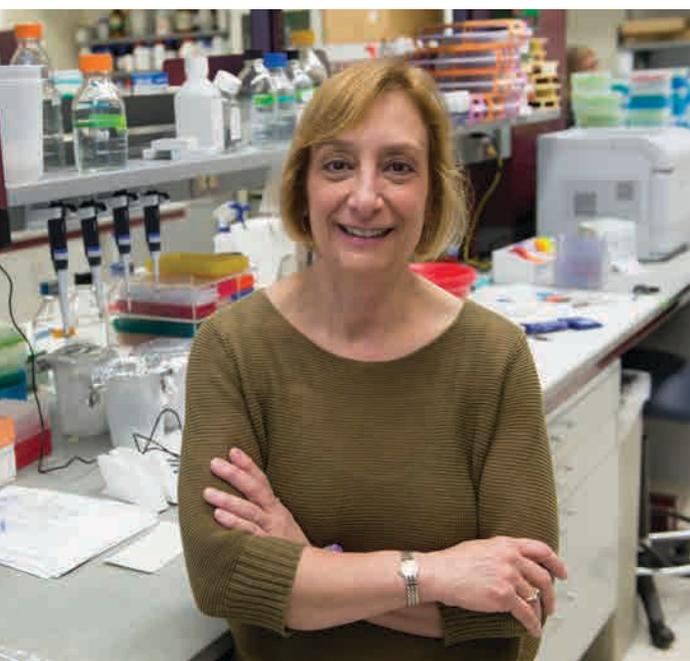


Photo: Prof. **Cathryn Nagler** in her lab at UChicago. Credit: The University of Chicago Medicine / Comer Children's Hospital website.



Research Lab Spawns a Drug Development Company

As many as 15 million individuals suffer from food allergies. **Cathryn Nagler** has spent some 30 years studying these allergies and recently found that gut "microbiome" bacteria can prevent trigger foods from reaching the bloodstream and provoking allergic reactions. A postdoc in Nagler's lab, Aly Azeem Khan, was supported by funds from the **CCSB/CBC Fellows Program**, part of the first (2008) **CBC Lever Award** to the **Chicago Center for Systems Biology (CCSB)**. Khan's work provided crucial data supporting the importance of the microbiome. Although Nagler had not been particularly entrepreneurial, she was keen to build her discoveries into treatments that could prevent or cure food allergies. The start-up company **ClostraBio** was founded in the fall of 2016. With two co-founders and the active support of **UChicago's Polsky Center for Entrepreneurship and Innovation**, ClostraBio has gotten off to a fast start as a new drug development company.



Photo: Prof. Joanna Burdette looks through a microscope as Prof. **Hyunyoung Jeong** looks on; College of Pharmacy (UIC) lab. Credit: UIC website.



Gut Bacteria and Acetaminophen

Hunyoung Jeong (UIC) and **Eugene Chang** (UChicago) received a **CBC Catalyst Award** in 2015 to investigate the role of the intestinal microbiome in drug efficacy and toxicity. Their work focuses on liver damage caused by acetaminophen: overdoses of acetaminophen represent one of the most common pharmaceutical product poisonings in the United States and can be fatal. The Catalyst award brings together Prof. Jeong's pioneering work on the regulation of drug metabolism enzymes with Prof. Chang's expertise in studying the variety of ways that intestinal bacterial influence the body. Prof. Jeong recently received an **Early Career Achievement Award** from the American Society for Pharmacology and Experimental Therapeutics. Their work may lead to a better understanding of individual differences in sensitivity to acetaminophen overdose.



New Findings May Yield Hope for Cancer Patients

Genetic mutations in the RAS protein are found in 30% of all cancers and nearly 90% of pancreatic cancers. A 2012 Catalyst Award to **John O'Bryan** (UIC) and **Shohei Koide** (UChicago) supported basic research on the structure of the RAS protein using newly developed synthetic proteins called 'monobodies.' While O'Bryan and Koide were "not looking for a drug or specifically an inhibitor," they identified a monobody that binds to and blocks a previously unknown part of RAS that is important for its cancer-causing activity. Prof. O'Bryan says "**we hope that the findings with the monobodies will allow us to develop new, potent small molecule inhibitors to RAS.**" Such inhibitors could provide much-needed medications for many types of cancers that are currently very difficult to treat.



Photo: Prof. **John O'Bryan** (UIC) and CBC Scientific Director Lucy Godley (UChicago) at the inaugural CBCAN meeting at the Gleacher Center, March 30, 2017.

Jim Audia becomes CBC Executive Director as Katie Stallcup Retires

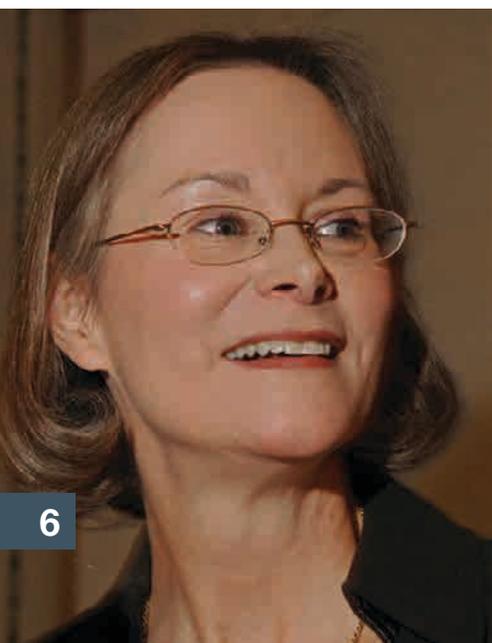
James E. (Jim) Audia, PhD joined the CBC as **Executive Director** on August 1, 2017. Jim (*right*) has had a long and distinguished career in the pharmaceutical industry. After earning a PhD from the University of South Carolina and completing a postdoctoral fellowship at Yale University, Jim joined **Eli Lilly** in 1987 where he served in a variety of research and management positions for 24 years, playing a central role in Lilly's R&D portfolio governance for more than a decade. Jim retired in 2010 as a **Distinguished Lilly Scholar**, the highest rung of the scientific career ladder at Lilly and at that time was among the most prolific inventors in the company's history, with more than 90 issued US patents (now exceeding 100). In 2011 he joined the Cambridge-based **Constellation Pharmaceuticals**. Under Jim's leadership, Constellation translated its basic science expertise in transcriptional control into a robust portfolio of candidate drugs to treat a variety of cancers. Jim now serves on **Constellation's Board of Directors** and as a special scientific advisor. Additionally, Jim remains a member of the Chemistry Advisory Board of **SAGE Therapeutics**, and the Scientific Advisory Boards of the **Tau Consortium** of the Rainwater Charitable Foundation, and **Ribon Therapeutics**.



Jim's wealth of experience in both large and small pharma is the ideal qualification to lead the CBC into Phase 2, with its increased emphasis on developing therapeutics and encouraging entrepreneurship. CBC Scientific Directors, Rick Morimoto (NU), Brian Kay (UIC) and Lucy Godley (UChicago), jointly and enthusiastically affirmed:

"We are delighted and excited to have Jim come on board as the new CBC Executive Director. Jim brings expertise and deep knowledge of drug discovery, as well as connections to an outstanding network of relationships with the pharma, biotech, and biotech investment communities. In addition to his scientific credentials, Jim has a deep commitment to strengthening and expanding the Chicago biomedical ecosystem. We have every confidence that Jim will continue his track record of success and will provide excellent leadership as the CBC pursues its ambitious goals for Phase 2."

Jim succeeds **Kathryn C. (Katie) Stallcup**, PhD, who retired in September. Katie (*left*) has served as Executive Director since the CBC's launch in 2006. Her work on CBC actually started prior to the CBC's launch; as Director of Foundation Relations at NU, she participated in the development of the CBC concept and helped write the proposal that led to Phase 1 funding. In the ensuing years, she has guided the organization as the "CBC Family" has grown to include hundreds of researchers and administrators at the CBC universities working together in a variety of collaborative endeavors.



"We are so thankful to Katie for her graceful stewardship of this organization during its first 10 years," said Lucy Godley. **"Katie has positioned the CBC to be a critical entity for faculty and trainees at the three academic institutions, and Jim will be able to use that infrastructure to expand the programming to increase applications of the exciting basic research findings being discovered at each of our respective institutions."**

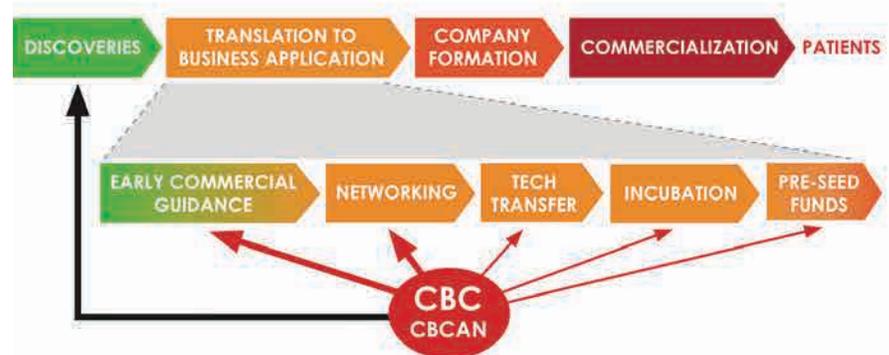
CBC Phase 2, New Initiatives

CBC's **second phase** builds on the strong foundation from Phase 1, retaining the Catalyst Award Program, now completing Round 24 this fall. Phase 2 brings on 3 new programs: the **CBC Accelerator Network (CBCAN)**, the **Accelerator Award** program and the **Entrepreneurial Fellows (EF) Award** program.

CBCAN

The **CBCAN program** is envisioned as a community, bringing together industry experts, university tech transfer officers, and researchers with discoveries that may have commercial potential. The aim is to move promising discoveries into and forward in the pipeline towards commercialization, providing the **early commercial guidance** that universities and university-based researchers need (*see graphic*).

- CBCAN meetings have begun and will take place at least quarterly.
- Meetings will feature presentations of basic research that may have commercial potential and will provide opportunities for networking.
- The CBCAN program is central to and fully integrated with other CBC Phase 2 initiatives.



Accelerator Award

The **Accelerator Award program** will support **translational research** and provide university researchers with **early commercial guidance**. The program is designed to encourage interactions between academic researchers and industry/pharmaceutical experts early in the development of projects.

- Accelerators aim to support the initial, highest risk stage of **commercially-directed research**.
- **Letter of Intent (LOI)** will be required and evaluated by a team of reviewers including industry scientists.
- **Selected LOIs** will be **invited** to give an oral presentation at a CBCAN meeting.
- **Invited full proposals** must discuss commercial potential, including milestones and deliverables.
- Accelerators are projected for **\$100,000 for one year** and projects that have met proposed milestones may be invited to apply for a **second year of funding (\$150,000)**.
- Award recipients will be **mentored** by faculty, industry experts, tech transfer officers and CBC personnel.
- Regular project updates are expected to be given by Accelerator awardees at CBCAN meetings.
- **Applicants must be faculty with research programs at the CBC universities.**
- Projects involving multi-institutional **collaborative teams will be given strong preference**, although collaboration is not required. Collaborations could involve faculty scientists at any Chicago-area university, but all institutions receiving CBC funding must agree to waive indirect cost recovery.

Entrepreneurial Fellows (EF) Award

The **EF Award program** will identify and support a cohort of **postdoctoral fellows** who are keen to work in the biotech start-up space of Chicago.

- **Applications must be jointly submitted by a CBC university faculty member and a postdoctoral fellow candidate.**
- Projects must be related to **biomedicine**, preferably pertaining to development of therapeutics or diagnostics and have clear **translational milestones**.
- Applications will be evaluated on the basis of both **scientific merit** and potential **commercial value**.
- The faculty mentor must agree for the fellow to have significant time available for **professional development** activities.
- Fellowship awards will be for **12 months**. If proposed milestones have been met and reasonable next steps are proposed, fellows may apply for a second year of funding.
- EF Awards are projected for up to **\$90,000 per year**, to cover a salary of up to \$65,000 and benefits.

Gaining National Recognition

Top 10 U.S. Biopharma Clusters

GEN's Annual Ranking Counts Down the Nation's Most Nurturing Regions

by Alex Philippidis, June 5, 2017

According to the Genetic Engineering & Biotechnology News (GEN), the **Chicago area ranked 10th among top 10 US Biopharma Clusters in 2017**. Chicagoland has maintained the 10th position on GEN's list for several years (2016, 2015, 2014). In the 2017 report, the **CBC** and its new **Executive Director, Jim Audia**, are prominently featured:

"Improving the region's biopharma ecosystem will be among the priorities of **James E. Audia**, CSO of Constellation Pharmaceuticals, who on May 25 was named the new executive director of the **Chicago Biomedical Consortium**, effective August 1. The consortium was formed to stoke collaboration among researchers at Northwestern University, The University of Chicago, the University of Illinois at Chicago, and other institutions."

Honoring the Philanthropy of the Searle Funds at The Chicago Community Trust

The Six Largest Gifts from Individuals to Healthcare Organizations in 2017

Searle Funds pledge to the CBC is the third most generous nationwide

by Alia Paavola, June 13, 2017

According to Becker's Healthcare Report, the **\$21 million Searle Funds gift to the CBC** was the **third largest** to hospitals or healthcare organizations in 2017 (to date).

The CBC is honored to be funded by the Searle Funds at The Chicago Community Trust.