CBC

CHICAGO BIOMEDICAL CONSORTIUM

THE UNIVERSITY OF CHICAGO
UNIVERSITY OF ILLINOIS AT CHICAGO
NORTHWESTERN UNIVERSITY

CBC Accelerator Network (CBCAN)

presents

CBC Accelerator Awardees' Presentations: Progress to Date & Pitch for Year 2 Funding

Friday, September 13, 2019
4:00 - 7:00 PM

Discovery Partners Institute
200 South Wacker Drive
Fourth Floor
Chicago, IL 60606

DPI DISCOVERY PARTNERS INSTITUTE

CBCAN
CBC Accelerator Network

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Program

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Part I	PROGRAM	4th Floor, Classroom C

4:00 PM — Participants' Self-Introduction

4:10 PM — Introductory Remarks

Jim Audia, Executive Director, CBC
and **Nancy Tyrrell,** Associate Director for Translational Activities, CBC

Presentations

Presentations will be for 20 minutes; and 10 minutes for Q & A.

4:15 PM — **Chuan He** (UChicago)
A Highly Sensitive and Robust Test for Early Colorectal Cancer Diagnosis

4:45 PM — **Yulia Komarova** (UIC)
Development of Novel Treatment for Age-Related Macular Degeneration

5:15 PM — **Arnon Lavie** (UIC)
Increasing the in vivo Stability of L-asparaginase through Interactions with HSA

5:45 PM — **Brian Layden** (UIC)
Novel FFA3 Antagonist Development for Type 2 Diabetes

Part II	NETWORKING	4th Floor, Discovery Room

6:15 PM — Networking Reception

7:00 PM — Adjourn

CBC Accelerator Awards' Abstracts

Chuan He (UChicago)

A Highly Sensitive and Robust Test for Early Colorectal Cancer Diagnosis

Colorectal cancer (CRC) is a major cause of cancer-related deaths in the US. CRC patients with unresectable metastasis have less than 15% five-year survival, whereas cure rates for colon cancers diagnosed at earlier stages are higher. Early detection and prevention, using colonoscopy, is still a challenge since compliance for eligible individuals remains below 50%. DNA cytosine modification is a well-established epigenetic mechanism that affects global gene expression and is extensively remodeled during cancer development and progression. DNA 5-methylcytosine (5mC) and 5-hydroxymethylcytosine (5hmC) serve as promising disease markers as aberrant patterns in their genomic locations and abundances correlate with disease development and progression. We have developed a blood-based assay that uses a highly sensitive and selective chemical labeling technology to capture 5hmC/5mC in cell-free DNA, followed by next generation sequencing to map their distributions. Our test compares favorably to other available assays at a lower cost with anticipated much higher and friendlier patient compliance.

Yulia Komarova (UIC)

Development of Novel Treatment for Age-Related Macular Degeneration

Age related macular degeneration (AMD) is a leading cause of vision loss in older patients. The leading current therapy required frequent injections into the eye, which is highly burdensome to the patients and healthcare providers. Therefore, there is a great need for the development of novel therapies targeting the underlying causes of AMD that decrease this burden and remain highly effective. We have designed a novel therapy, named EBIN, that has shown to be effective via eyedrop in treating the underlying causes of AMD when tested in rodent models. However, as only non-human primates have eye structure closely related to humans, we need to understand whether EBIN works well in treating the underlying causes of AMD in the non-human primate retina in order to bring EBIN to future clinical trials. This Accelerator Award would aid us in funding these critical translational experiments.

Arnon Lavie (UIC)

Increasing the in vivo Stability of L-asparaginase through Interactions with HSA

L-asparaginase (ASNase) is a cancer drug with a unique mode of action, and copious preclinical data predicts the efficacy of this drug against diverse cancers. However, due to unacceptable side effects, its use is largely limited to acute lymphoblastic leukemia (ALL). The goal of the proposed work is to develop a safer ASNase variant, providing a clinical advantage for use in ALL and other cancers such as pancreatic cancer. To achieve the increased safety profile, we are developing a mammalian ASNase that is predicted to be less immunogenic compared to today's bacterial enzymes. Our humanized variant of the guinea pig ASNase (GpAhum) is devoid of L-glutaminase (GLNase) co-activity. This is crucial, as this co-activity is implicated in many of the drug's toxic side effects. Here we will append a short peptide sequence that, by binding to human serum albumin, will endow the biologic with increased stability and blood circulation time.

Brian Layden (UIC)

Novel FFA3 Antagonist Development for Type 2 Diabetes

New approaches to treat type 2 diabetes (T2D) are needed. We have shown that the free fatty acid receptor-3 (FFA3) mediates insulin secretion, an important mechanism in the adaption of pancreatic beta (β) cells to insulin resistance. We also have shown that FFA3 signaling negatively mediates glucose stimulated insulin secretion (GSIS) using a variety of genetic and pharmacological methods, collectively suggesting that receptor antagonists will be useful as potential T2D therapeutics. In this proposal, we will carry out a high-throughput screen of a drug-like small molecule library to identify novel FFA3 antagonists. These hits will be thoroughly validated in a series of secondary assays to demonstrate their potential as FFA3-directed T2D agents amenable for further lead optimization. Future work will develop these hits into lead compounds that are suitable for pre-clinical and clinical studies.

CBC 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

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