



JOHNS HOPKINS  
UNIVERSITY

# Johns Hopkins Technology Ventures: Converting our groundbreaking research to products

October 2016

# Johns Hopkins University + Hospital



**\$1.95B+**

national leader in NIH  
research funding

**36**

Nobel laureates

**39**

Lasker Award recipients  
the “American Nobel”

**54**

members of the  
Institute of Medicine

**Pioneered**

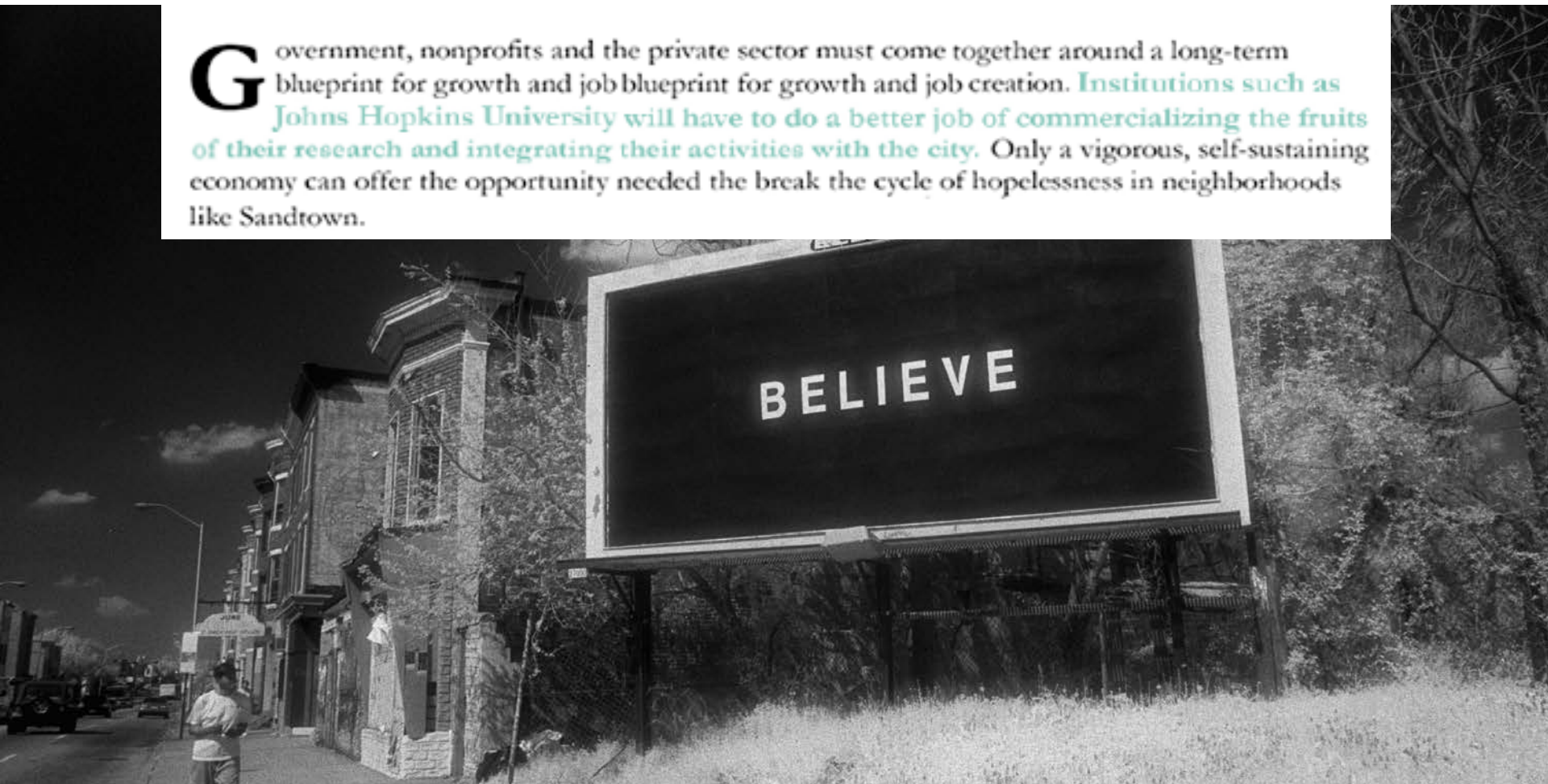
approaches to breast cancer,  
dialysis, open heart surgery,  
CPR, chemotherapy,  
restriction enzymes

# THE WALL STREET JOURNAL.

MAY 5, 2015

## Pittsburgh's Revival Lesson for Baltimore

**G**overnment, nonprofits and the private sector must come together around a long-term blueprint for growth and job creation. **Institutions such as Johns Hopkins University will have to do a better job of commercializing the fruits of their research and integrating their activities with the city.** Only a vigorous, self-sustaining economy can offer the opportunity needed to break the cycle of hopelessness in neighborhoods like Sandtown.



# Our work will help our city to build the pipeline of future jobs and growth

Infuse new ideas into  
our market

Attract and retain  
talent

Generate outside  
investment

Promote regional  
economic  
development



# Our Mission Statement



## JOHNS HOPKINS TECHNOLOGY VENTURES

The Johns Hopkins Technology Ventures' mission is to maximize the impact of JHU excellence in research by facilitating the translation and commercialization of discoveries into accessible technologies, products, and services for the benefit of society.

# JHTV is the focal point for technology commercialization at Johns Hopkins

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## **CORPORATE PARTNERSHIPS**

- Strategic corporate partnerships/alliances with targeted focus
- Sponsored research, philanthropy, in-kind
- Active examples: Bayer, Medimmune, Toshiba, Celgene

## **TECH TRANSFER**

- Over 500 invention disclosures per year and 2,500 active issued patents
- Licenses and options
- Non-disclosure agreements & material transfer agreements

## **FASTFORWARD**

- 19 startup companies currently in-residence
- Support JHU licensed, student, and DreamIt startups among others
- Mentorship, space, funding, and other key resources

# Technology Transfer FY 16 Results

# \$58

Million in licensing revenue.

# 501

Invention disclosures  
received in FY 2016.

# 1,100

Active technologies  
with U.S. issued patents.

# 2,454

Active issued patent - Active,  
issued U.S. and foreign patents.

# 153

New U.S. patents issued.

# 8%

Increase over FY 2015  
issued patents.

JOHNS HOPKINS TECHNOLOGY VENTURES

# Fast Facts

FY16

# 4,306

Material Transfer  
Agreements completed.

# 22

Newly created  
startup companies.

# 162

New agreements,  
including options.

# JHTV's Commitment to You

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<b>2 Days</b>	<b>2 Weeks</b>	<b>2 Months</b>
<p>JHTV will contact you within <b>2 business days</b> of receiving your disclosure.</p>	<p>JHTV will confer with you regarding your disclosure within <b>2 weeks</b>.</p>	<p>JHTV will provide a written decision on your disclosure within <b>2 months</b>.</p>



# Recent successes in commercialization of Johns Hopkins discoveries



- JHU IP: Immune system modulation
- Acquired by MedImmune in 2013
- Guaranteed \$225M, deferred consideration up to \$275M



- JHU IP: Cardiovascular therapeutics
- Acquired by Bristol-Myers Squibb in 2015
- Up-front near term milestones up to \$300M; deferred consideration up to \$1.775B



- JHU IP: Technology to improve DNA vaccines
- Immunomic originally licensed IP in 2006 and proceeded into clinical trials for allergy indication
- Astellas deal with Immunomic in Oct 2015 for \$300M



# Corporate Partnerships



Advancing translational capabilities to impact human health

abbvie



LUMINOX   
Get Better.

 Microsoft



Mitsubishi Tanabe Pharma

sweetch



Centers for Therapeutic Innovation  
A Pfizer-supported collaboration

 MedImmune

A member of the AstraZeneca Group

*mi*DIAGNOSTICS



novo nordisk

**TOSHIBA**  
Leading Innovation >>>

# JHU + Celgene Collaboration With Other Universities

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**JOHNS HOPKINS**  
UNIVERSITY



**Mount  
Sinai**



**Penn**  
UNIVERSITY of PENNSYLVANIA

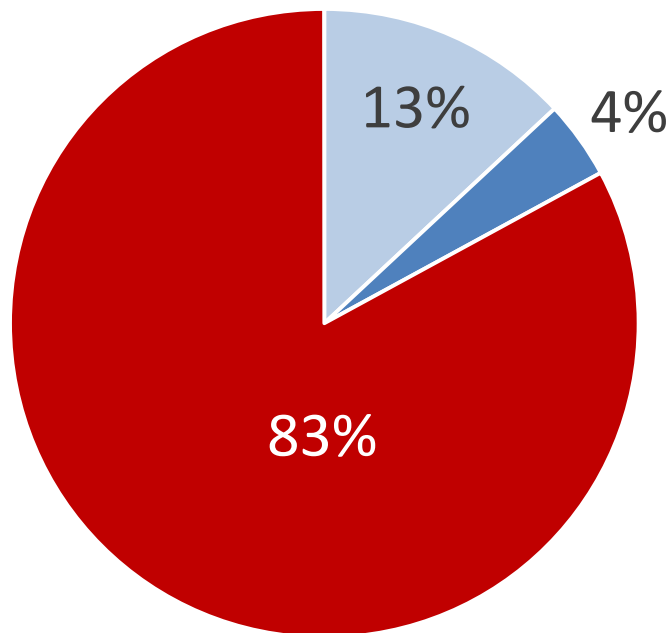


# Collaboration With Government



## We want to **change** this picture

Funding of Startups: last 5 years (\$1.1b)



■ % to Baltimore   ■ % to Maryland   ■ Other

- Companies founded on JHU technology have raised >\$1.1b since 2012
- But less than 15% of that has stayed in Baltimore

# Companies who have recently raised money and are located in Baltimore

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- Founded in 2010 and initially located in Rangos
- Focused on cancer genetics
- Raised \$21mm from NEA



- Founded in 2016
- Focused on immuno-oncology
- Raised \$10mm from Domain



- Founded in 2011; research ops remain in Baltimore
- Focused on ophthalmic drug delivery
- Raised \$44mm from Deerfield, Orbimed, Clarus & Hatteras

# New accelerator program specializing in Digital Health

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We are partnering with Village Capital to launch an accelerator program that will support entrepreneurs and empower our innovation ecosystem by:

- Enabling ecosystem leaders to build effective training programs for entrepreneurs solving real world problems
- Connecting leaders worldwide to share best practices in building peer groups of entrepreneurs and supporting great businesses
- Giving investors the tools to make peer-selected investments in their own focus sectors and/or geographies

## Program Overview

- 4 month curriculum based program, supporting 10 companies
- Access to FastForward resources and network
- Opportunity to connect with Johns Hopkins Healthcare leaders
- Two Startups selected for investment from Village Capital, followed by Demo Day inviting other investors
- Emphasis on financial inclusion for women and minority founders



*FastForward* provides resources to catalyze technology development and commercialization

**FASTFORWARD** 

## Education

Programs, services and access to knowledgeable faculty, staff and industry partners

## Mentorship

From experienced industry, startup, and funding veterans

## Services

Basic legal, accounting, business strategy, IT infrastructure, and equipment

## Space

Affordable and flexible locations with lab and office space





*FastForward is home to an exciting group of technology-based startups*

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# Programs to support the JHU Entrepreneur

# Services: Mentors in Residence

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- 15 mentors for 2016
- Help solve the “commercial relevance” question
- MIRs work with students, faculty, and JHTV staff and bring deep domain expertise to help accelerate the path of promising JHU technologies and startups
- MIRs develop close ties with our inventors, entrepreneurs, and our licensing team to help further these technologies and shift JHU towards an entrepreneurial culture
- MIRs open their vast network of experts and experience to JHU inventors, faculty and students
- Areas of expertise include:
  - Life Sciences, Computational Discovery, Software, Medical Device, Engineering, Angel/Venture Investment, IP Strategy, Finance, General Business

# Social Innovation Lab

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**Accelerating ventures that create change and expand opportunity in Baltimore and beyond.**

SIL works by providing seed funding, mentorship, office space, and personalized trainings, to help innovative non-profits, mission-driven companies, and disruptive technologies transform novel ideas into thriving ventures that make a measurable impact.

## **Ventures in the cohort receive:**

- **\$1,000 in unrestricted funding** for the venture upon selection, and the potential to receive additional funding based on progress of the venture during the program year
- **Office and event space** at Impact Hub Baltimore and JHU locations
- **Dedicated mentors** and access to an extensive network of mentors including issue experts, experienced entrepreneurs, and connections within the Johns Hopkins ecosystem
- **Curated workshops and sessions** where venture leaders learn from experienced entrepreneurs and social sector leaders
- **Opportunity to pitch potential funders and supporters** at SIL events including the annual Impact+Innovation Forum

# Funding/Services: I-Corps Program for Startup Training

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- I-Corps to date (JHU joined DC-node in June 2014)
  - JHU I-Corps has put 50 teams through the local and regional program since 2014
  - 26 JHU went through Regional I-Corps cohorts in FY 2016 (representing SOM and WSE)
  - 3 JHU companies went through the National NIH I-Corps; received \$50k award
- Both programs provide real world, hands-on training on how to successfully incorporate innovations into successful products.
- Benefit: Helps teams make a go/no-go decision by validating their technology's market potential and identifying a solid *product-market fit* and building a viable *business model*.

## Funding: Maryland Innovation Initiative - a TEDCO (State of Maryland) Program

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- 3 dedicated 'site miners' who serve as industry mentors to faculty with a focus on commercial relevance of the invention
- 93 Awards to date; average grant size ~\$120k
- Funded projects/companies representing SOM, WSE, JHSPH, Peabody including many joint SOM/WSE collaborations
- 13 funded projects are now Maryland based startups
- **Total JHU funding for PIs and companies ~ \$9.3M since 2012**

## Services: Commercialization Academy

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- Supports diverse science career training
- Supports needs of analytics group within JHTV: reviewing 500+ disclosures received annually across JHU
- Responsibilities include assessing market value proposition, IP position, competition, and development risk
- Current Verticals
  - Oncology, general molecular biology, medical imaging technology, robotics, novel materials, novel compounds

# Student Entrepreneurship

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- Student Venture Coordinator
  - 1 on 1 support
  - Events: Hackathons, Speaker Series, Workshops
  - Programs
  
- Summer Entrepreneurship Award
  - Opportunity for 1 student team to work on their startup full time over the summer with support from JHTV
  - Grant of \$10,000 for undergraduate team
  - Entrepreneurial Mentorship
  - Office space in FastForward



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# Thank you!

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