



BioHealth InnovationSM
Maryland's Commercialization Collaborative

U3 Workshop

Innovation and Commercialization: Focus on Biohealth Opportunities in Montgomery County

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President & CEO
BioHealth Innovation, Inc.
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BioHealth Market Opportunities in Montgomery County

- Regional Assets: 75% of Maryland's Biotech Companies are in MoCo
- Key Montgomery County Biotech Assets: Federal Labs & Private Industry
- BHI: Innovation Intermediary Connecting Bio R&D Assets to the Market
- Implications for Johns Hopkins in Montgomery County:
 - Potential for expanding Johns Hopkins Ventures linked to feds and industry in MoCo
 - BHI can act as the “go to” intermediary between Hopkins and feds and industry in MoCo
 - Biotech Developers like Alexandria and BioMed Realty can work with JHU & BHI at Belward and MCC

Montgomery County Bio Assets

33

FEDERAL LABS
AND AGENCIES

6,000

PhDs

300+

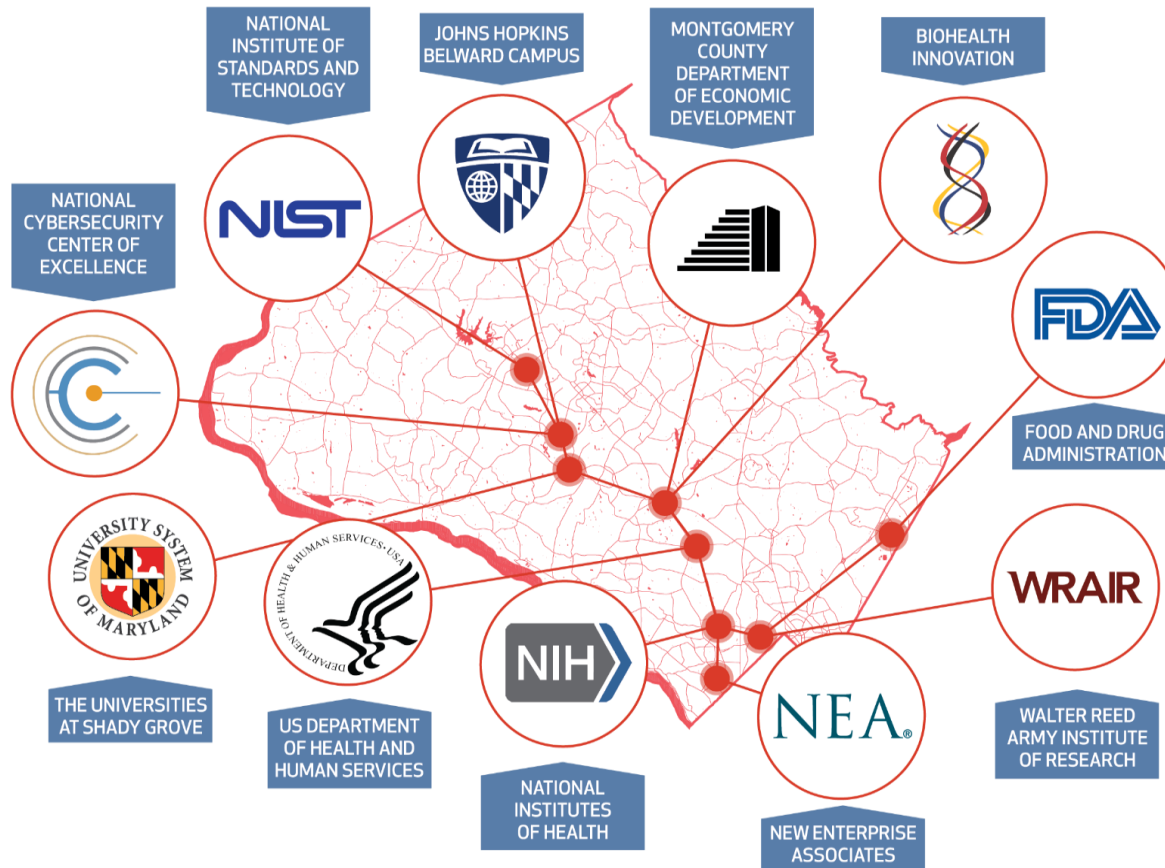
BIOTECH
COMPANIES

75%

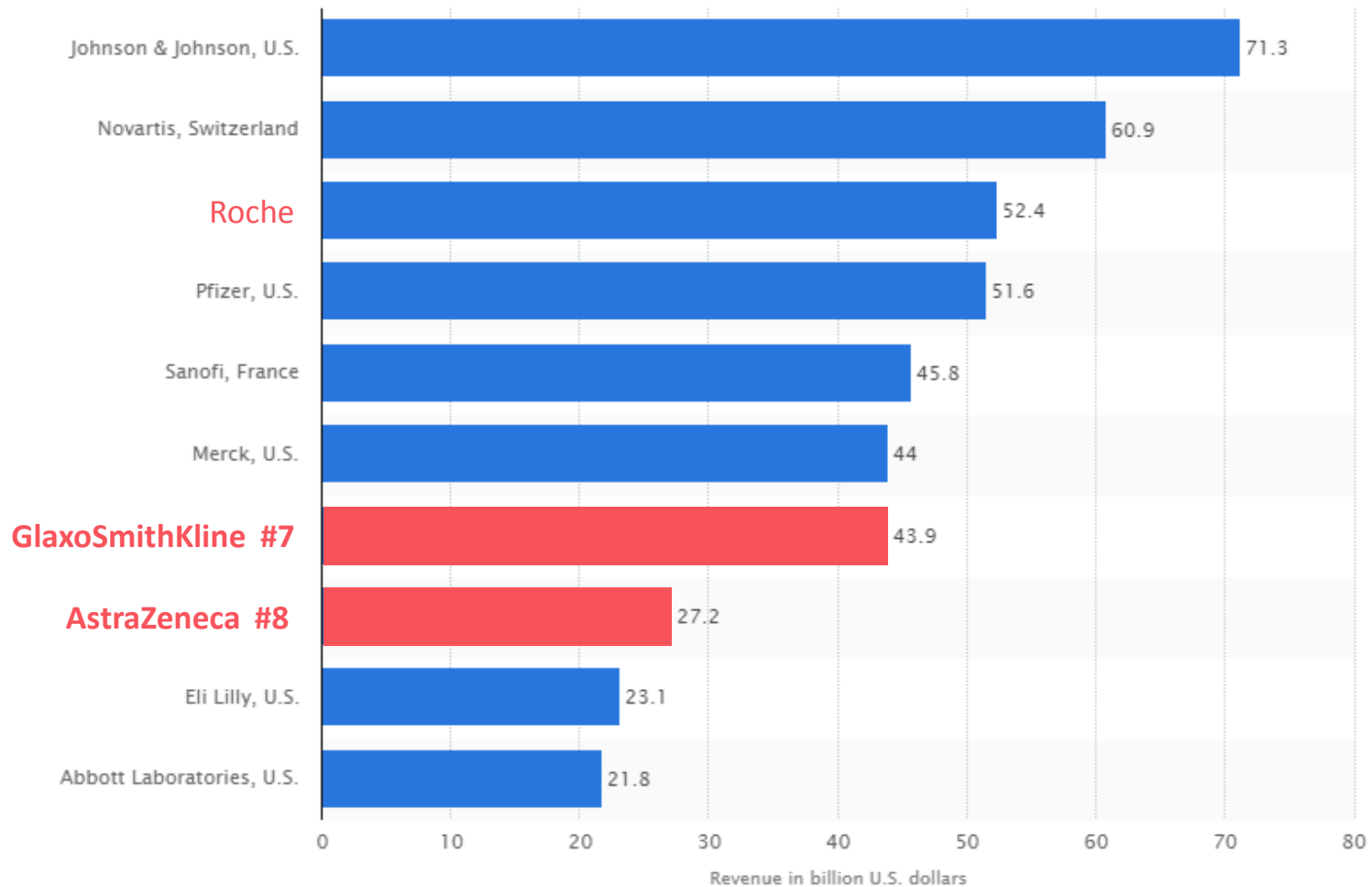
OF MARYLAND LIFE
SCIENCE INDUSTRY

10,000

BIOTECH
WORKERS



Big Pharma in Montgomery County: 2 of World's Top 10 Expanding in MoCo



Source: Statista

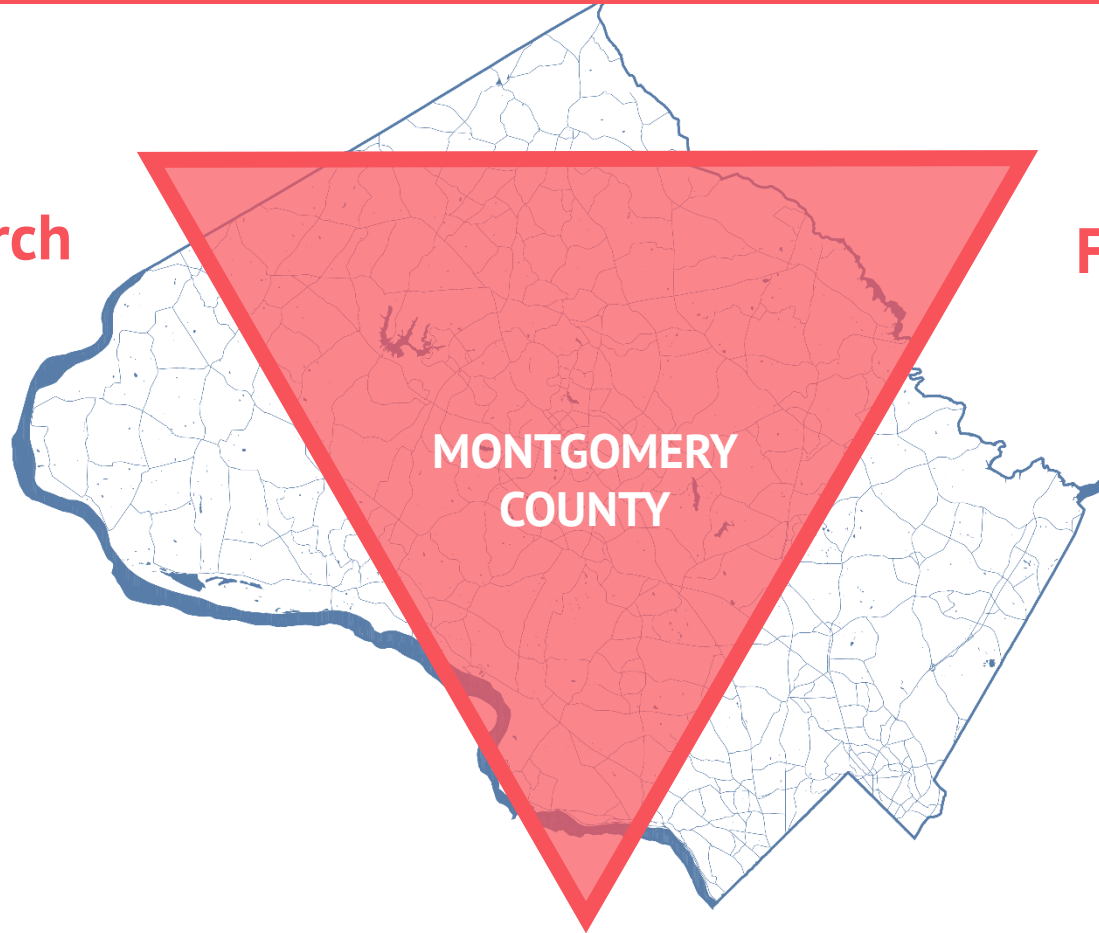
Top 24 of Montgomery County 300 + Bio Companies: 75% of Maryland's BioTech Companies are in MoCo

Amgen	Sanaria
BioReliance	Sucampo
Fisher Bioservices	Supernus
GlycoMimetics	United Therapeutics
Intrexon	Vaxin
Macrogenics	MedImmune
Maxcyte	Qiagen
Neuralstem	Emergent BioSolutions
Northwest Biotherapeutics	Sigma-Tau
Novavax	Noble Life Sciences
OpGen	GenVec
Origene	Rexahn

THE MONTGOMERY COUNTY INNOVATION TRIANGLE:

Montgomery County is More than Bio: Also Health IT and Cyber

**BIO/
NIH Research**



**CYBER/NIST
FDA Regulatory**

**IT/
HHS Public Policy**

Role of BioHealth Innovation – Connecting R&D to Market



BHI: Regional Biohealth Ecosystem Connector



What BHI Does

Industry

- > Therapeutics
- > Diagnostics
- > Medical Devices
- > Healthcare Services
- > E-Health
- > Mobile Health
- > Electronic Medical Records
- > Health Informatics
- > BioHealth Cyber Security

Geography



Central
Maryland



USA



Global



- Private
- Government
- Academia
- NGO

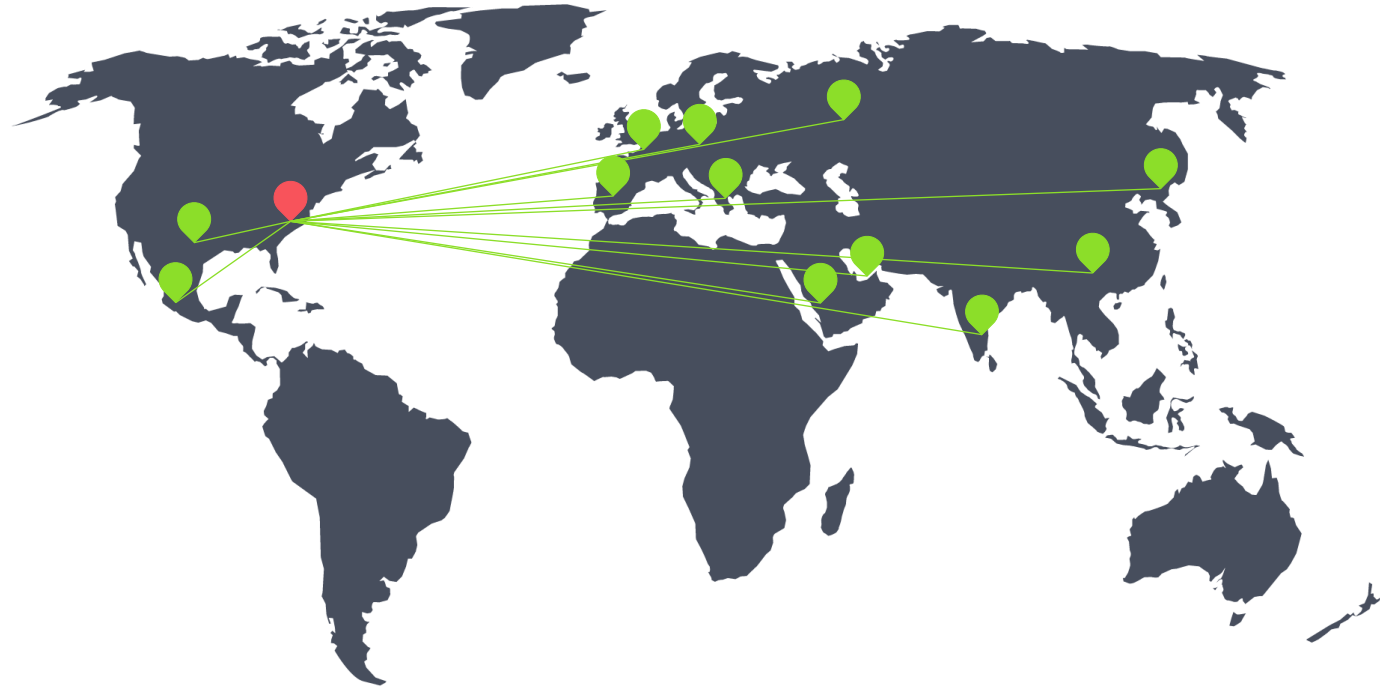
BHI is a private public partnership governed and managed by the private sector. Our mission as an innovation intermediary is to:

- 1 Advance Technologies**
- 2 Accelerate Innovation**
- 3 Globally Connect**

BHI: Creating Opportunities For Collaboration

Connections

- > Regional
- > National
- > Global
- > Partners
- > Board Members
- > Collaborators



BHI Clients receive **FULL** Network Access

BHI Founding Board Member: Johns Hopkins President Ron Daniels






















- Founding BHI board and executive committee member
- On BHI Board since 2012
- Focused on building the relationship between Montgomery County and Baltimore



Christy Wyskiel

- Senior Advisor to the President at JHU
- JHU/BHI Liaison
- Working Partner with BHI

BHI Board: Industry Leaders

	Daniel J. Abdun-Nabi CEO, Emergent BioSolutions		Judith Dunn VP, Global Head of Clinical Dev. Roche		Douglas Liu Senior VP of GO Qiagen
	Michael J. Baader, Esq. General Counsel Greenspring Associates		Jens Eckstein President SR One (GSK)		Charles Morton Partner Venable LLP
	Richard A. Bendis President & CEO BioHealth Innovation, Inc.		David M. Gillece (Secretary) Regional Managing Principal Cassidy Turley		David Mott General Partner New Enterprise Associates
	Kenneth Carter Chair Noble Life Sciences		Rick Ivey Vice President R&D BD Diagnostics		John A. Sackett President Shady Grove Adventist Hospital
	Dave Lemus CEO Sigma-Tau Pharmaceuticals		Joel Marcus CEO & Founder Alexandria Real Estate		J. Thomas Sadowski President & CEO EAGB
	Chris Callaghan Group VP, Healthcare Banking M&T Bank		Beth Meagher Principal Deloitte Consulting LLP		Reginald Seeto VP, Partnering and Strategy MedImmune
	Ronald J. Daniels President Johns Hopkins University		William E. Kirwan Chancellor University System of MD		Thomas Street ACAO MoCo Government

BHI Linkages to Federal and University R&D: EIRs

NIH Partnership Intermediary (PIA) **between BHI and NIH's Office of Technology Transfer (OTT)** that supports the 27 NIH institutes' \$3 billion intramural research

Entrepreneur-in-Residence Program

1

Experienced Entrepreneurs, Venture Capitalists and Industry business developers managing a commercially relevant biohealth portfolio.



Todd Chappell (NIH)



Ram Aiyar (NHLBI)



Ken Malone (USM)



Albine Martin (JHU)



Ethel Rubin (NHLBI)



Steve Wolpe (NHLBI)



Additional NIH EIRs

BHI Scouting Clients



BHI Partners

BHI Partners: Region's Top Business, Feds, University & NGOs

Private Sector



Government



Academia



NGOs



BHI Portfolio: 31 Companies - 126 FTEs*

TIER

A
4

3DBioWorks

UMB / UMCP 3 Ken Malone

3DBioWorks grows cord stem cells in 3D printed bioreactors.

Mimetas US

Netherlands 1 Todd Chappell

Mimetas is developing and marketing Organ-on-a-Chip solutions for the pharmaceutical industry.

Tertius Analytics

UMD 1 Ethan Byler

Tertius Analytics provides analytical tools for network modeling of regional industry clusters.

Asulon Pharma

UMD 2 Ken Malone

Asulon is developing small molecule therapeutics for rapid acting anti-depressants.

B
4

Magnifygen

Montgomery County 1 Todd Chappell

Magnifygen is developing novel immunotoxins for the treatment of solid and liquid tumors.

Intravenous Solutions

Stony Brook, NYC to MD 1 Ram Aiyar

IVS is a medical device company redefining infusion pump systems.

MDLogix

Baltimore 20 Ken Malone

MD Logix has fully commercialized a mental health assessment tool.

MockV Solutions

Montgomery County 1 Todd Chappell

MockV Solutions is developing novel kits to make biotherapeutic process development cost efficient.

C
6

BWell America

Montgomery County 4 Ken Malone

BWell America, Inc. is a data analytics driven wellness company providing employer groups, healthcare payers and exchanges with real time wellness analytics.

Nanovir

Kalamazoo, MI 2 Ram Aiyar

Nanovir is developing small molecule anti-viral cures for Hepatitis and Human Papilloma Virus.

Paradigm Shift Therapeutics

UMB/NIH 3 Ram Aiyar

Paradigm Shift Therapeutics is developing small molecule therapeutics to support counter-terrorism and radiation oncology products.

Tissue Analytics

NIH 5 Ken Malone

Tissue Analytics is developing a sophisticated platform for remotely evaluating chronic wounds using a smartphone.

VLP Therapeutics

Montgomery County 8 Todd Chappell

Developing a platform vaccine like particle technology that has the potential to be used for various diseases including cancer.

Corvidia

Boston 1 Ram Aiyar

Corvidia is a large molecule therapeutics company focused on cardiometabolic syndromes that redefine the precision health for cardiology.

D
17

Benevir

Montgomery County 5

Perceptive Navigation

JHU 2

Appian Medical

Montgomery County 3

N5 Sensors

UMCP & NIST 5

Avhana

DreamIt 1 7

Cognuse

DreamIt 1 5

Emocha

DreamIt 1 6

Protenus

DreamIt 1 6

Quantified Care

DreamIt 1 4

Aegle

DreamIt 1 3

Patientfeed

DreamIt 1 4

Baton

DreamIt 2 4

Decisive Health

DreamIt 2 2

InsightMedi

DreamIt 2 4

Real Dietitian

DreamIt 2 3

Sisu Global Health

DreamIt 2 3

Redox

DreamIt 2 7

* Numbers do not reflect BHI employees, company consultants and full-time equivalents at each of the portfolio companies.

Perceptive Navigation: A BHI Client



- **Ted Abraham**, MD Associate Professor of Medicine - Division of Cardiology and Associate Dean for Research in Capital Region
- Perceptive Navigation is developing medical devices related to image-guided, minimally-invasive niche markets.
- **Todd Chappell**
Original BHI EIR who supported Perceptive Navigation and is now becoming its CEO
- Currently hoping to close a Series A Venture Capital Financing this Summer



Implications for Johns Hopkins in Montgomery County

- Potential for expanding Johns Hopkins Ventures
Linked to linked to Federal Labs & Private Industry
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Hopkins and both Federal Labs & Private Industry
in Montgomery County
- Biotech Real Estate Developers like Alexandria and
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and MCC