

Testimony of Melvin L. Billingsley, PhD
President & CEO, Life Sciences Greenhouse of Central Pennsylvania
PA House Finance Committee
April 23, 2013

Good Morning Chairman Benninghoff, Chairman Mundy, distinguished members of the committee, and guests. On behalf of Pennsylvania's three regional Life Sciences Greenhouses, it is my honor to appear before you today to offer some remarks regarding the critical role of seed and venture capital in stimulating the life sciences industry, a well-recognized and important source of jobs, innovation and wealth creation within the Commonwealth.

As home to more than 2200 life sciences establishments, ranging from start-ups to large multi-nationals, Pennsylvania is the envy of many parts of the globe, providing nearly 80,000 diverse, high-quality jobs that generate roughly \$8.15 billion in total annual wages. In addition to large numbers of knowledge-based jobs that help keep PA competitive, the industry is responsible for stimulating growth in complementary businesses. This "multiplier effect" has been estimated at 6ⁱ

But employment tells only part of the story. Every day, Pennsylvania life sciences companies produce the cures, devices and tools upon which countless clinicians and patients rely. Just as importantly, they generate hope. Through their

R&D and commercialization efforts, Pennsylvania companies are striving to find relief for those suffering from conditions for which there are only imperfect treatments, or no treatments at all.

Pittsburgh-based ALung Technologies, Inc., for example, is negating the need for a ventilator in certain situations with a respiratory assist system that simultaneously extracts carbon dioxide and administers oxygen. Avid Radiopharmaceuticals, a startup with origins in the University of Pennsylvania, developed the first FDA-approved imaging test for Alzheimers Disease. INRange Systems, headquartered in Altoona, has developed EMMA[®], the only FDA-approved device to enable remote management of medications by clinicians. Each of these companies received funding and other types of assistance from catalyst organizations that are the subject of the legislation under consideration today.

Often it's young, small companies such as those described above that are commercializing technologies and generating jobs at the fastest pace. What they typically don't generate at the earliest stage, however, is profits. Only after considerable product development has already occurred do startups become eligible for industry partnerships, the public markets, and the types of financing provided by banks and other such institutions. Innovation at the early stages is

typically funded by a combination of federal grants, the entrepreneurs' personal resources, angel investors, and venture capital.

A steady supply of venture capital is absolutely essential to ensuring that Pennsylvania's life sciences industry continues to thrive, and because proximity to capital is extremely important to young companies, a meaningful proportion of it must come from within Pennsylvania. In the absence of such initiatives, emerging companies are increasingly likely to gravitate to other states. Bills such as "Innovate PA" offer one solution to help develop new sources of venture funding for high-growth companies.

Unfortunately, a recent report from Fenwick & West, LLPⁱⁱ, confirms what we industry participants already knew, that "capital to fund life science startups is in increasingly short supply, despite indications that long-run demand for life science innovation will remain strong. [Fenwick & West, LLP] estimate that the percentage of VC fundraising allocable to life sciences has declined from 19% of funds raised in 2009 to 12.5% of funds raised in 2012. In absolute dollar terms, [Fenwick & West, LLP] estimate that fundraising has fallen from an average of \$7.8 billion/year in 2007 and 2008 to \$2.5 billion in 2012." This occurred despite the fact that 2012 M&A activity was robust, and Nasdaq healthcare and biotech stocks significantly outperformed the broader market indexes last year. Indeed, this shortage comes at precisely the time that the healthcare system demands novel

solutions, and many larger companies look to startups for promising new technologies to drive revenue growth.

As a consequence of this tight funding environment, emerging companies are increasingly reliant upon organizations like Pennsylvania's Life Sciences Greenhouses and the Ben Franklin Technology Partners. These organizations fill the void left by venture funds that are investing less and gravitating toward later-stage companies. The Greenhouses, in particular, provide deep industry expertise, allowing them to deliver targeted business development services in addition to capital. Delivered at precisely the right moments in a company's life cycle, the capital and services provided by the Greenhouses stimulate substantial follow-on funding. As of March, the Life Sciences Greenhouses had attracted more than \$2.7 billionⁱⁱⁱ in follow-on funding, leverage of 40:1.

In sum, we encourage your support of initiatives like "Innovate PA" that specifically address the needs of early stage, innovation-based companies that are growing in Pennsylvania. "Although the economy is still fragile," write the authors of the Milken Institute's *State Technology and Science Index: Enduring Lessons for the Intangible Economy*, "the science and tech sectors are storming back and will likely lead any economic renaissance."^{iv} We agree, and leave you with the assurance that investing in the life sciences today is an investment in the future of

healthcare, as well as the economic health of the Commonwealth for years to come. Thank you.

ⁱ Milken Institute. *The Greater Philadelphia Life Science Cluster 2009: An Economic and Comparative Assessment*, May 2009, pg 43. (Editor's note: Average of multiplier effect for pharmaceuticals, biotech, and R&D. Excludes healthcare services.)

ⁱⁱ Fenwick & West, LLP. "Trends in Terms of U.S. Life Sciences Venture Financings: Full Year 2012," published 2013.

ⁱⁱⁱ Includes federal funding, debt financing, private investment, and M&A activity.

^{iv} Klowden, Kevin and Michael Wolfe. *2012 State Technology and Science Index: Enduring Lessons for the Intangible Economy*, Milken Institute, April 2013.

The Pennsylvania LIFE SCIENCES GREENHOUSE Initiative

A national model for the commercialization of innovative healthcare solutions.

PROVEN MODEL FOR SMALL BUSINESS SUCCESS

This year's budget calls for a level funding of \$3M in the aggregate for the **Life Sciences Greenhouses (LSGs)**, an initiative that has been a proven model for economic stimulus, medical innovation, jobs and wealth creation for Pennsylvania.

The LSGs guide researchers, entrepreneurs and emerging companies through the many challenges faced during the early stages of company development. We work with them to **build** sustainable business models, we invest critical seed-stage capital, and we help them **secure** follow-on funding. We make it possible for Pennsylvania companies to deliver medical innovation, jobs and economic growth more successfully and efficiently than they ever could alone.

The LSGs have efficiently transformed state dollars into a thriving generation of companies that are making a difference. Companies and products born here in Pennsylvania are being developed to treat the world's most debilitating diseases.

40:1 LEVERAGE of state dollars;

\$64.5M invested in

195 companies, which has LEVERAGED

\$2.7B in additional dollars

HIGH DEMAND FOR LSG INVESTMENT

Number of Requests Received for Funding **1654**

Amount Requested **\$1.7B**

Percentage of Requests Funded **17%**

LSGS CREATE HIGH-QUALITY PA JOBS

LSGs created more than **3400 jobs** in Pennsylvania.

Average LS salary \$90,267 – 2X average Pennsylvania private sector wage of about \$45,348.

For every one LS job created, **6.3 additional state jobs** are impacted.

LSG FUNDED. FDA APPROVED.

AdaptDx™	Infrascanner
Amyvid™	LumenVu Catheter Guidance System
BoneVue™	SmartSponge System™
DialiSorb™	SleepWeaver®
EMMA™	M29™ Midterm Catheter System
QSP-7™	Matched Flicker
Stork™	

GROWING LIFE SCIENCES COMPANIES STIMULATE ECONOMIC ACTIVITY AND CREATE WEALTH. LSG INVESTMENTS HAVE RESULTED IN HIGH-IMPACT EXITS.



412-201-7370 | www.plsg.com



717-635-2100 | www.lsgpa.com



215-966-6214 | www.bioadvance.com

Driving Healthcare Innovation in Pennsylvania: Examples from the Portfolios of the Life Sciences Greenhouses

Pennsylvania's Life Sciences Greenhouses (LSGs) have efficiently transformed state dollars into a thriving generation of companies that are making a difference. Companies and products born here in Pennsylvania are being developed to treat every part of the human body – from head to toe. For example, here are companies in the LSGs portfolio focused on diseases of the brain.

Avid Radiopharmaceuticals, Inc., (a wholly-owned subsidiary of Eli Lilly and Company)

Avid Radiopharmaceuticals, Inc., was founded to develop new molecular imaging agents capable of identifying the first stages of pathological change. Avid's lead product, Amyvid™, is a radiolabeled compound for the imaging of beta-amyloid in living patients who have cognitive symptoms that could be Alzheimer's disease. After filing a New Drug Application in November 2010, the company was acquired by Eli Lilly and Company in December 2010. The U.S. Food and Drug Administration (FDA) approved Amyvid for marketing in April 2012.

Azevan Pharmaceuticals, Inc.

Azevan is a clinical-stage small molecule drug development company developing novel therapeutics to treat disorders of stress, mood, and behavior. The Phase I clinical trial for the company's first new drug candidate, SRX251, was completed in 2008, and the Phase I trial for second clinical candidate, SRX246, was completed in 2010.

Cognition Therapeutics, Inc.

Cognition Therapeutics (CogRx) is a drug discovery company focused on therapeutics that can prevent, stabilize or reverse the course of Alzheimer's disease and related neurodegenerative diseases. CogRx's drug candidates, which have been found to be effective at both prevention and treatment in animal models of Alzheimer's disease, are expected to both improve cognition and block/reverse disease progression. With assistance from the Pittsburgh Life Sciences Greenhouse, CogRX relocated to PA from California.

InfraScan, Inc.

InfraScan Inc. is a medical device company that has developed a patented, Near Infrared (NIR) technology for detecting brain hematomas. The Infrascanner is a handheld device that enables clinicians to conveniently and accurately detect intracranial bleeding in patients with head trauma, allowing clinicians to identify patients who would most benefit from immediate referral to a CT scan and neurosurgical intervention. The company received a CE mark for the Infrascanner Model 1000 in December 2008 and received FDA clearance to market the product in the United States in December 2011. The Infrascanner™ Model 2000, developed in partnership with the U.S. Navy and Marine Corps., received FDA approval in January 2013.

INRange Systems, Inc.

INRange has developed EMMA®, an FDA-cleared device that sorts, selects and delivers dangerous medications such as narcotics, anti-depressants, sleeping pills and other controlled substances. Of particular use to victims of traumatic brain injury, the system is placed in the home but linked directly via internet or wireless to clinicians, allowing medication changes, to be remotely programmed by a physician, pharmacist, or nurse.

Medrobotics

Currently, there are limited minimally invasive surgery (MIS) options available to treat patients with advanced head and neck disease. Medrobotics has developed a unique flexible robot platform that enables surgeons to perform minimally invasive surgery in difficult-to-reach areas of the anatomy – not just the head and neck, but in portions of the chest and abdomen as well.

To learn about other debilitating conditions being addressed by LSG portfolio companies, please
visit our web sites.

BioAdvance: www.bioadvance.com

Life Sciences Greenhouse of Central Pennsylvania (www.LSGPA.com)

Pittsburgh Life Sciences Greenhouse (www.PLSG.com)