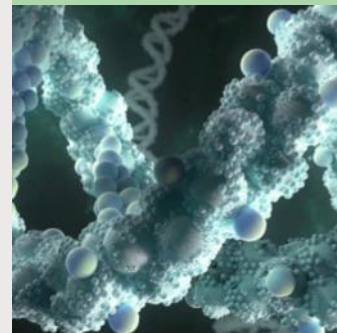




## Next Generation Researchers Initiative

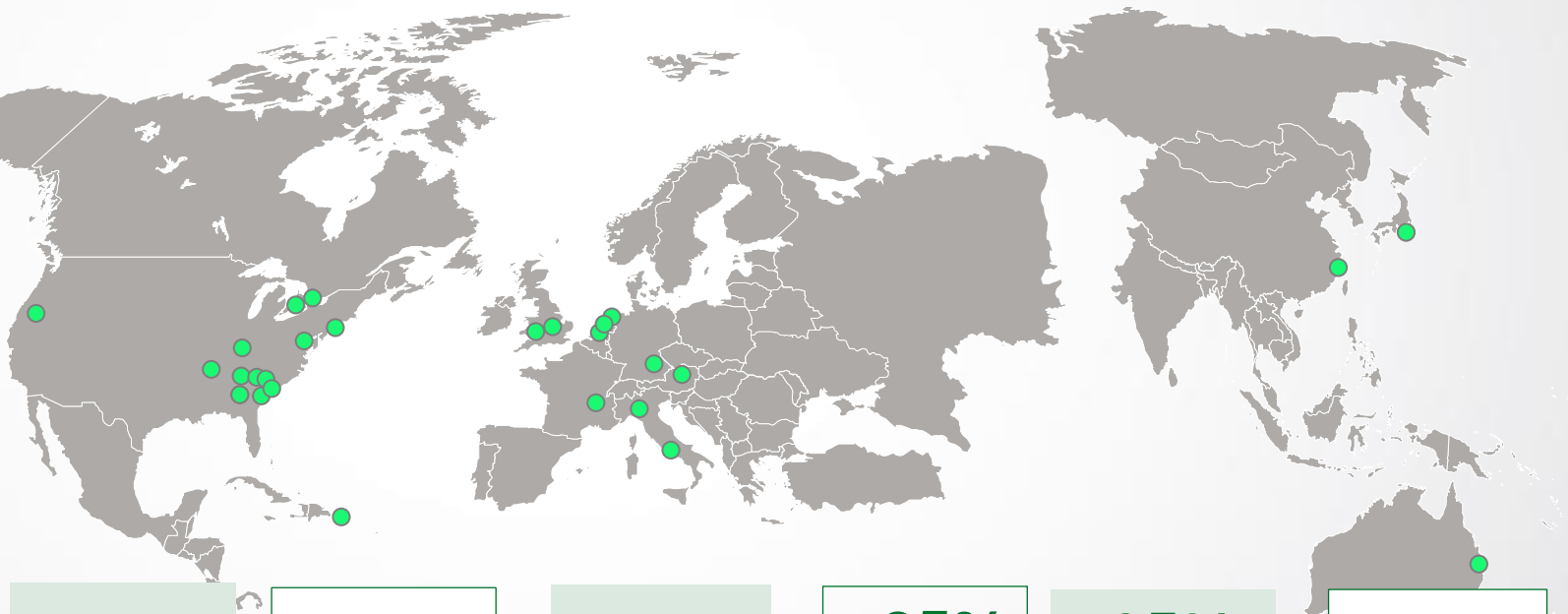
*Jim Mullen, CEO*  
*July 13, 2017*



# Overview

- Introduction
- Employment Landscape for PhDs in Life Sciences
- Factors Driving Development of a Career in Industry
- Recommendations for Consideration

# Patheon: A Leading Global Contract Development & Manufacturing Organization (CDMO)



**\$1.9B**

Revenue, 2016

**~700**

Products

**~400**

Clients

**600+**

Scientists and Technicians

**~25%**

Of Top 100 Drugs  
(Developed or Manufactured)

**25%**

Of All Outsourced  
FDA Approvals  
Over Last Decade

**25+**

Locations  
Serving  
70+ Countries

# Varying Data on the Employment Landscape for PhDs

## Number of U.S. doctorates in life sciences increasing

- **~12,500 in 2015; ~9,300 in 2005**
  - National Science Foundation, National Center for Science and Engineering Statistics. Doctorate Recipients from U.S. Universities: 2015 (2017)

## Many PhDs drawn to academia

- **78% of doctorates likely to pursue a research career in academia**
  - Woolston, Graduate survey: Uncertain futures, Nature 526: 597-600 (2015)

## Postdocs expectations not matching reality

- **56% expected to secure tenure-track position, while only 21% did in 2012, down from 37% in 2010**
  - Powell, The Postdoc Experience: High Expectations, Grounded in Reality, Science 337: 992-996 (2012)

## Bioscience industry is a growing economic engine

- **~1.66 million jobs; Mass. biopharma companies expected to add 11,600 jobs by 2022**
  - TEconomy/BIO, The Value of Bioscience Innovation in Growing Jobs and Improving Quality of Life, 2016; MassBio, 2017 Annual Job Trends Forecast

## Graduate degree not required

- **15% of life sciences job postings in 2015 required a graduate/professional degree**
  - Coalition of State Bioscience Institutes, 2016 Life Science Workforce Trends Report

# Factors Influencing Development of Career in Industry



## Barriers

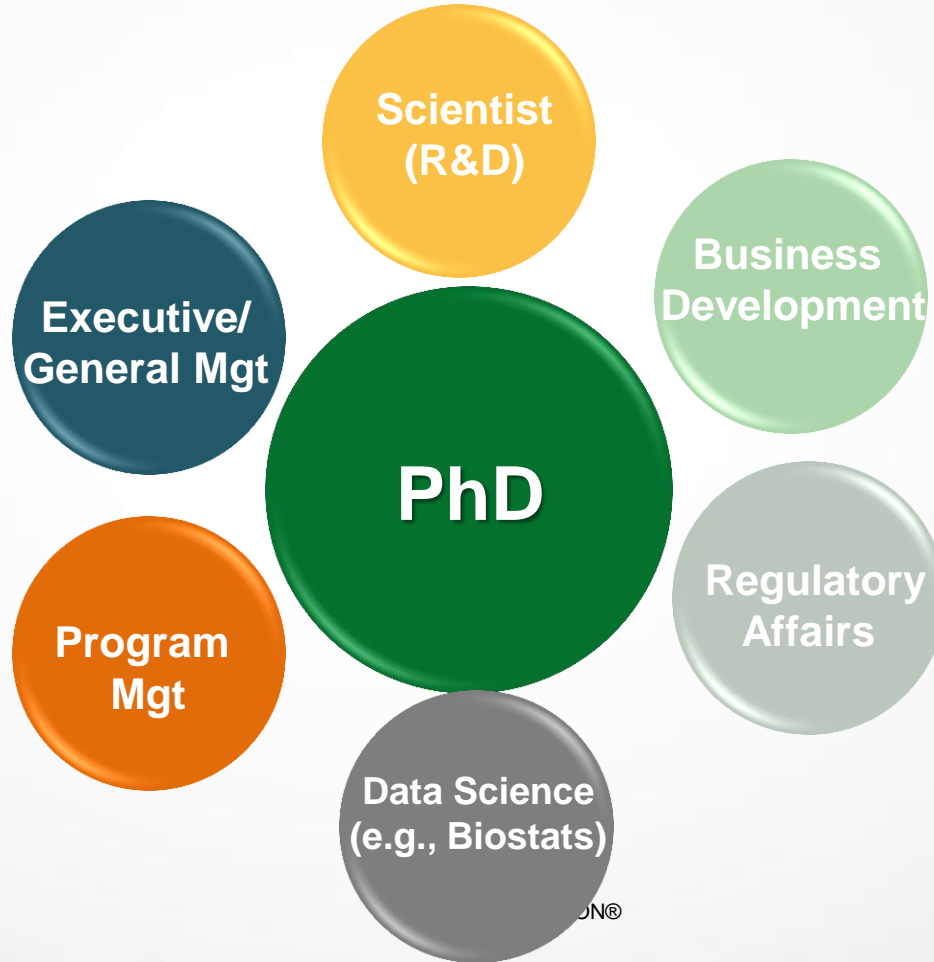
- Awareness of opportunities outside academia
- Draw of academic position
- Continued hope of an academic post delays entry into industry
- Expectations of career advancement
- Lack of essential skills and experience in corporate environment



## Drivers

- Pace of innovation is high (e.g., importance of demonstrating value in new medicines)
- Industry investment in R&D vs. NIH, academic funding
- New and growing funding sources available
- Supply of PhDs and postdocs exceeds demand for faculty positions
- Higher wage jobs and opportunity to apply scientific expertise in other areas

# Career Opportunities Extend Beyond Traditional Research



## Recommendations for Consideration

- Continue to reinforce partnerships between universities and companies that provide real-world experience (internships, fellowships, job shadows)
- Engage students earlier in awareness of career opportunities outside academia and how to pursue them
- Coaching for postdoc advisors and managers on importance of development
- Explore incorporating into PhD programs training in business & skills required such as communication, influencing others, management, collaboration and enterprise perspective
- Utilize programs that provide role models and real world career advice
- Focus early on development and onboarding of employees