Massachusetts Life Sciences Workforce Conference
June 8, 2022 | 8:30 am - 3:30 pm
Framingham State University
MassBioEd | Mission

Our mission is to build a sustainable life sciences workforce in the region through educational programs that engage and excite teachers, inspire and propel students, and illuminate the pathway from the classroom to career with a focus on expansion, opportunity and diversity.
MassBioEd | Programs

**BioTeach**
- Curriculum
- Teacher Training
- Equipment Grants
- ACCESS Program

**BioTalent**
- Career Exploration
- Professional Training
- Labor Market Information
- Apprenticeship Program
MassBioEd | 2021 Impact

12,000 students served in biotechnology lab and career awareness experiences

100% ACCESS schools reached were economically disadvantaged or high-need

480 professionals obtained new skills through professional development course

175 teachers received hands-on training in leading authentic biotechnology lab explorations

450+ people accessed the annual Mass. Life Sciences Employment Outlook Report

97% of apprentices transitioned to on-the-job training at employer partner companies
60% of apprentices are People of Color
<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:40 am</td>
<td>Understanding How Life Sciences Can Access the Current Labor Market *Forum</td>
</tr>
<tr>
<td>10:35 am</td>
<td>Networking Break *Cafeteria &amp; Annex</td>
</tr>
<tr>
<td>11:10 am</td>
<td>What Life Sciences Can Learn From How MA Overcame Vaccine Hesitancy in Diverse Communities *Annex</td>
</tr>
<tr>
<td></td>
<td>Community Awareness Roundtable Discussions</td>
</tr>
<tr>
<td>12:20 pm</td>
<td>Lunch and Networking *Cafeteria &amp; Annex</td>
</tr>
<tr>
<td>1:20 pm</td>
<td>MassBio’s 2022 MA Life Sciences Workforce Analysis Report *Forum</td>
</tr>
<tr>
<td>1:50 pm</td>
<td>Remarks from MassBioEd CEO *Forum</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>Breakout Sessions</td>
</tr>
<tr>
<td></td>
<td>Topic A</td>
</tr>
<tr>
<td></td>
<td>Topic B</td>
</tr>
<tr>
<td>3:00 pm</td>
<td>Dessert Reception *Cafeteria &amp; Annex</td>
</tr>
</tbody>
</table>
2022 Massachusetts Life Sciences Employment Outlook | Labor Supply Dilemma

John Brothers
Senior Director of Workforce Development Strategy
MassBioEd
Labor Supply Dilemma

Big Picture
1. Redefining Life Science Sector employment in MA
2. Hiring Demand Trends & Comparisons

Talent Solutions
3. Who Are the Life Science Employees of the Future?
Redefining Life Science Sector Employment in MA

- **Biopharmaceutical** research and manufacturing
- **Medical device** and equipment production
- Clinical, scientific, and R&D activities at **Hospitals**
- Life Sciences R&D activities at **Colleges and Universities**
MA Life Science Employment Trends, 2010-2021
Over the last decade, Massachusetts’ Life Sciences industry has:
Grown its employment base by 50% to exceed 121,000 jobs.
When the Location Quotient is significantly above average, 1.20 or greater, the state is said to have a “specialization” in the industry.
MA Jobs contraction vs. expansion, 2019-2021: a 11.9% differential

-6.5% Total Private Sector
5.4% Life Sciences Industry
MA Life Science Industry Employment Trends, by Major Subsector, 2018-2021

- Total Private Sector: -7% MA, -4% U.S. Total
- Total Life Sciences, all segments: 13% MA, 8% U.S. Total
- Life Sciences (Biopharma): 20% MA, 13% U.S. Total
- Medical Devices & Equipment: 2% MA, 4% U.S. Total
- Clinical & Research Hospitals: -6% MA, -2% U.S. Total
- Colleges & Universities: -14% MA, -22% U.S. Total

MA: Massachusetts; U.S. Total: United States Total
MA Life Science Industry Employment Trends, by Major Subsector, 2018-2021

- **MA**
  - Low Skills: 8%
  - Middle Skills: 16%
  - High Skills: 76%

- **US**
  - Low Skills: 12%
  - Middle Skills: 30%
  - High Skills: 58%
Comparative Talent Advantages

• Best in world, Higher Education institutions
• Best in world, teaching hospitals
• Public support for education of Massachusetts public school students through the Massachusetts Life Sciences Initiative
Massachusetts is the leading global hub for life sciences research, development, and innovation.
Management occupations:
- finance,
- marketing,
- scientific leadership,
- data science,
- information technology,
remain a major attribute of the state’s job mix. They experienced more than **35% growth** over the last three years.
Occupational Employment in the MA Life Sciences Industry, 2010-2021
## 2022 Massachusetts Life Sciences Employment Outlook

<table>
<thead>
<tr>
<th>Real Estate Pipeline</th>
<th>Full Pipeline (square feet)</th>
<th>Pipeline Underway (square feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D (Lab)</td>
<td>29.3 M</td>
<td>14.5 M</td>
</tr>
<tr>
<td>GMP</td>
<td>2.9 M</td>
<td>2.5 M</td>
</tr>
<tr>
<td><strong>Total (R&amp;D + GMP)</strong></td>
<td><strong>32.2 M</strong></td>
<td><strong>17 M</strong></td>
</tr>
</tbody>
</table>

Source: JLL
Potential Life Sciences Real Estate Pipeline, 2022 - 2025

Map showing the location of potential life sciences real estate projects with markers color-coded by use (R&D, GMP, TBD) and lab size: > 586,600, 450,000, 300,000, 150,000, < 1.

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JLL
Demand & Supply

*Talent Gaps in Scientific and Technician Workforces*

- deficits for *life scientists*: 7,000 total over 5 years
- deficits for *technicians*: 4,300 positions over 5 years
Take Home Message

The Life Sciences Industry is a vital - and still growing - part of the Massachusetts economy.
Its products make people healthier and improve quality of life for patients and families.
The industry has an outsized effect on the overall health and vitality of the Massachusetts economy.
Industry and its partners must take extraordinary measures!
Understanding How Life Sciences Can Access the Current Labor Market

- Secretary Rosalin Acosta *Moderator*
- Emily Greenhagen
  *Head of Deployment, Ginkgo Bioworks*
- Alicia Sasser Modestino, Ph.D.
  *Associate Professor, School of Public Policy & Urban Affairs and Department of Economics; Research Director, Dukakis Center for Urban and Regional Policy, Northeastern University*
HISTORICALLY TIGHT LABOR DEMAND IN KEY INDUSTRIES....

Job Openings Rates by Industry Sectors, U.S.

BUT NOT EVERYONE IS BENEFITTING EQUALLY....

Unemployment Rates by Race/Ethnicity, Massachusetts
12 month moving average, January 2019-April 2022

Source: Massachusetts Department of Unemployment Assistance.
# Industry Strength: Stable, High-Paying Jobs

## Table 1: Earnings Percentiles for Life Science Workers by Industry

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Pharma Manufacturing</th>
<th>Sci RnD</th>
<th>Medical test labs</th>
<th>Hospitals</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>$83,000</td>
<td>$48,870</td>
<td>$32,373</td>
<td>$47,941</td>
<td>$43,164</td>
</tr>
<tr>
<td>50%</td>
<td>$122,174</td>
<td>$74,576</td>
<td>$60,000</td>
<td>$59,051</td>
<td>$50,072</td>
</tr>
<tr>
<td>75%</td>
<td>$172,657</td>
<td>$130,000</td>
<td>$89,797</td>
<td>$86,540</td>
<td>$64,000</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau, 2015-2019 American Community Survey, IPUMS, BPDA Research Division Analysis

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**High School & Certificate/Experience**
- Phlebotomist ($30-$32k)
- Animal Caretaker ($30-$32k)
- Metrology Technician ($37K-$39k)
- Apprenticeship
- Laboratory Technician ($32-$36k)
- Clinical Trial Associate ($33-$36k)
- Biomanufacturing Technician ($38K-$45k)

**Associate Degree**
- Lab Technologist ($48K-$52K)
- Research Associate ($42K-$61K)
- Clinical Data Management ($44K-$48K)
- Quality Assurance Specialist ($52K-$68K)
- Manufacturing Associate ($60K-$77K)

**Bachelor's Degree**
- Clinical Data Management ($48K-$52K)
- Supply Chain Specialist ($49K-$69K)
- Research Associate ($50K-$90K)
- Associate Scientist ($50K-$90K)
- Clinical Trial Manager ($130K-$160K)
INDUSTRY WEAKNESS: OVER-RELIANCE ON HIGHLY EDUCATED WORKERS

Share of Biopharma Job Postings
Open to Workers without a Bachelor’s Degree, 2021

Types of Biopharma Job Postings
Open to Workers without a Bachelor’s Degree, 2021

<table>
<thead>
<tr>
<th>Job Titles</th>
<th>Number of Biopharma Jobs Posted</th>
<th>Share Open to Non-BA Workers</th>
<th>Entry Level Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phlebotomists</td>
<td>353</td>
<td>94.6%</td>
<td>$31,972</td>
</tr>
<tr>
<td>Nonfarm Animal Caretakers</td>
<td>84</td>
<td>76.4%</td>
<td>$32,202</td>
</tr>
<tr>
<td>Laboratory Technicians</td>
<td>757</td>
<td>53.6%</td>
<td>$35,528</td>
</tr>
<tr>
<td>Metrology Technician</td>
<td>188</td>
<td>55.6%</td>
<td>$36,644</td>
</tr>
<tr>
<td>Biomanufacturing Technicians</td>
<td>323</td>
<td>58.3%</td>
<td>$37,510</td>
</tr>
<tr>
<td>Clinical Trial Associate</td>
<td>168</td>
<td>37.8%</td>
<td>$35,109</td>
</tr>
<tr>
<td>Medical Technologists</td>
<td>126</td>
<td>39.0%</td>
<td>$47,965</td>
</tr>
<tr>
<td>Chemical Technicians</td>
<td>77</td>
<td>16.8%</td>
<td>$40,468</td>
</tr>
<tr>
<td>Biological Technicians</td>
<td>147</td>
<td>16.9%</td>
<td>$45,145</td>
</tr>
<tr>
<td>Quality Assurance Specialist</td>
<td>95</td>
<td>9.7%</td>
<td>$38,285</td>
</tr>
</tbody>
</table>

Source: Author’s calculations using data from Emsi Burning Glass.

Note: Salary report used Burning Glass mean market salary for postings requesting 0-2 years experience, with a high school, vocational or Associate degree.
Why expand bio-manufacturing in Massachusetts?

- Accelerate innovation and reduce the “Valley of Death” by co-locating R&D with manufacturing

- Meet the demand for new cell and gene therapy drug products through distributed manufacturing model near hospitals/clinics

- Diversify the workforce and the geographical footprint of the industry to build pipeline

- Make the region’s economy more resilient to future pandemics or other sudden and severe economic dislocations.

Source: BPDA Research Division Analysis.
INDUSTRY CHALLENGE: NEED BOTH SCALE AND SCOPE TO MEET DEMAND

Provide on/off-ramps for workers across the career pathway pipeline

Co-create an industry-aligned curriculum to build relevant skills & link opportunities

Expand Learn & Earn options to keep skills current & support learners

Remove barriers for marginalized workers to improve DEI
Partners will leverage the power of the coalition to grow the New England biotechnology corridor by bringing to bear the strengths of each region.

This work will create an intentional network that supports inclusive economic growth of the life sciences sector for all, “from K to grey”, by investing in workforce, prototyping equipment and expertise, fostering entrepreneurship, and supporting diversity, equity, and inclusion.
Ginkgo Bioworks: DEI and scale in the synbio workforce

Emily Greenhagen
June 2022
GINKGO BIOWORKS

Leading horizontal platform for cell programming

Founded in 2008

In 2021, began trading publicly on the NYSE ($DNA) after raising $1.6 billion

Headquartered in Boston with labs in Emeryville and the Netherlands
**Our platform allows us to leverage biology for diverse applications**

<table>
<thead>
<tr>
<th>Foundry</th>
<th>Codebase</th>
<th>Our people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our automated facility</td>
<td>Our accumulated knowledge</td>
<td>The power behind the platform</td>
</tr>
</tbody>
</table>

**CAPABILITIES & ASSETS**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully-automated experimental workflows</td>
<td>Proprietary chassis, promoters, and cellular components</td>
</tr>
<tr>
<td>In-house DNA design, synthesis, assembly, and editing</td>
<td>Billions of DNA &amp; protein sequences across comprehensive databases</td>
</tr>
<tr>
<td>Massively high throughput strain engineering and testing</td>
<td>Custom software for scalable design of biology</td>
</tr>
<tr>
<td>High-throughput fermentation capabilities</td>
<td>Computational discovery and refining of proteins, pathways, and cells</td>
</tr>
<tr>
<td>Partnerships for scale-up and industrial manufacturing</td>
<td></td>
</tr>
</tbody>
</table>

As of January 2022
## Over 100 programs with partners across industries

### FOOD & WELLNESS

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Animal Products</td>
<td>Developing new sources of non-animal protein and ingredients</td>
</tr>
<tr>
<td>Plant Bioactives</td>
<td>Producing cannabinoid, nutraceutical, and therapeutic small molecules</td>
</tr>
<tr>
<td>Rare Natural Products</td>
<td>Production of rare flavors &amp; fragrances</td>
</tr>
<tr>
<td>Microbiome</td>
<td>Discovery, design, and engineering of targeted prebiotics and probiotics as well as therapeutics</td>
</tr>
<tr>
<td>Oligosaccharides</td>
<td>Optimizing and scaling the production of human milk oligosaccharides</td>
</tr>
<tr>
<td>Chemicals</td>
<td>More sustainable bio-based chemicals for multiple industries</td>
</tr>
</tbody>
</table>

### AGRICULTURE

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crop Biologics</td>
<td>Crop-colonizing microbes for sustainable agriculture</td>
</tr>
<tr>
<td>Crop Protectants</td>
<td>Engineering of strains to produce protectants</td>
</tr>
<tr>
<td>Animal Feed &amp; Nutrition</td>
<td>Strain engineering and improvement for bulk and specialty ingredients</td>
</tr>
</tbody>
</table>

### PROCESSING

<table>
<thead>
<tr>
<th>Area</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Enzymes</td>
<td>Enzymes for the food industry</td>
</tr>
<tr>
<td>Processing Aids</td>
<td>Biocatalysts that seamlessly fit into manufacturing flows to reduce costs</td>
</tr>
<tr>
<td>Process Improvement &amp; Scale Up</td>
<td>Process optimization for production of key ingredient</td>
</tr>
</tbody>
</table>
Leveraging partnerships to increase accessibility
Supporting SynBio awareness and opportunities across MA

BioBuilder
The BioBuilder Learning Lab @ Ginkgo supports open-access curricula and hands-on training

MassBioEd
Hiring 3 apprentices from the second class of Apprentices for roles in Process Dev & Lab Ops

The Bridge Program
Bioworkers taught classes for underrepresented minority communities in 8th-12th grade
Supporting development of A.S. talent pipelines

As the bioeconomy grows, we have found that many roles won’t require advanced degrees or even Bachelor’s for employees to be successful. **Associate’s degrees are far more accessible and are well suited to meeting our industry’s needs.**

Ginkgo has partnered with Benjamin Franklin Cummings Institute of Technology (BFCIT), providing support for the process of creating an Associate’s of Science in Biotechnology Manufacturing.
Cultivating STEM leadership among Black undergraduates

In fulfillment of our $1 Million commitment in 2020 to work toward mitigating the impact of the historic marginalization of Black scientists in STEM, we have launched the Cultivate Fellowship.

We want to reduce the historical marginalization of Black students in STEM, and to provide networking and support opportunities for Black students in these fields.
John Brothers
Senior Director of Workforce Development
Strategy
MassBioEd
Labor Supply Dilemma

Big Picture
1. Redefining Life Science Sector employment in MA
2. Hiring Demand Trends & Comparisons

Talent Solutions
3. Who Are the Life Science Employees of the Future?
MA Schools Continue To Out-Perform The Rest Of The Country In Producing Life Scientists
Massachusetts Higher Education Enrollment

2022: Enrollment dropped by 5% from 2021.

2022: Enrollment in two year schools dropped by 15% from 2021.
In Massachusetts in 2020, 6% of life sciences graduates were Black & 9% of graduates were Hispanic.

Shares are well below the state’s share of the total population (9% and 12%).
Share of Black or African Americans Completing A Life Sciences Degree

- 2015: MA 5%, U.S. 7%
- 2018: MA 6%, U.S. 7%
- 2020: MA 6%, U.S. 7%
Massachusetts Higher Education

The state’s life sciences talent supply tends to be oriented more towards specialized fields.

Even so, 41% of degree completions are still in general biological science degrees.
Leading Life Sciences Degree Fields in Massachusetts 2018-2020
The K-12 Pipeline needs support!

- # of AP students taking exams fell by nearly 11% in 2020-2021 in biology
- # of AP students taking exams fell by nearly 13% in 2020-2021 in chemistry.
Talent Solutions

Expand existing talent generation, retention, attraction efforts across the board.

• Build more collaborative partnerships.
• Create a statewide Career Awareness campaign.
• Promote DEI in the entire pipeline with intentionality.
• Renew the Massachusetts Life Sciences Initiative (MLSI).
• Greatly expand Apprenticeships for technicians.
Career Awareness Statewide

Higher Ed and Industry MUST partner to encourage students to pursue education and careers in Life Sciences.

- Guide high school students on the paths to great jobs in higher ed and vocational training
- Engage 1st and 2nd year undergrads early and often with industry touchpoints and career coaching
Career Awareness Statewide

Industry, education, and other workforce development leaders should consider:

Enhancing life sciences industry awareness among Massachusetts’ postsecondary computer science and data sciences students and others in key “secondary” fields by engaging students in internships, mentorships, coops, capstones, and major projects.
Career Awareness Statewide

Workforce Development, Industry and Government must train and support job seekers to succeed in Life Sciences.

• Build credibility of career pathways in underserved communities
• Expand training programs for working adults including paid experiential learning
Career Awareness Statewide
Short-Term Workforce Development Programs

Just A Start
Middlesex Community College
Quincy College/JVS
Gloucester Marine Genomics Institute
LabCentral Ignite
Benjamin Franklin Institute of Technology (2024)
MassBioEd
MassBioEd Apprenticeship Program

Three Problems

• Demand for talent is far greater than the supply
• Our industry is seeking innovative ways to diversify the workforce
• Many individuals could succeed, yet lack a pathway to entry

One Solution

• MassBioEd has created the Life Sciences Apprenticeship Program.
• In 2021 we launched with two pilot programs, one for Biomanufacturing Technicians, one for Clinical Trial Associates.
• In 2022 we are expanding in volume and in regional impact.
MassBioEd Apprenticeship Program Fundamentals

- Recruitment - MassBioEd staff reach out to local communities
- Assessment of candidates prior to employer introduction
- Final selection of apprentices by future employer; Job Offer
- Intensive, accelerated education, including a $1,000/month stipend provided by the employer
- Industry-informed curriculum enhanced with soft skills training
- A full year of on-the-job training at the employer partner with increasing salary and full corporate benefits
- Ongoing mentoring
# MassBioEd Apprenticeship Program Results

<table>
<thead>
<tr>
<th>2021:</th>
<th>2022 to date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 Apprentices</td>
<td>37 Biomanufacturing Technicians</td>
</tr>
<tr>
<td>19 Biomanufacturing Technicians</td>
<td>19 in Greater Boston</td>
</tr>
<tr>
<td>11 Clinical Trial Associates</td>
<td>18 in Central Massachusetts</td>
</tr>
<tr>
<td>60% are People of Color</td>
<td>70% are People of Color</td>
</tr>
<tr>
<td>Age range: 19-63; Average = 33</td>
<td>Age range: 19-57; Average = 32</td>
</tr>
<tr>
<td>47% were unemployed</td>
<td>54% were unemployed</td>
</tr>
<tr>
<td>At mid-year of OJT, 83% of the original cohorts are successfully on the job (25/30)</td>
<td>We have plans for a third 2022 Biomanufacturing Program, a CTA program, and are developing a third career pathway</td>
</tr>
</tbody>
</table>
What Life Sciences Can Learn From How Massachusetts Overcame Vaccine Hesitancy in Diverse Communities

- Gretchen Cook-Anderson  *Moderator
  *Executive Director, Ignite, LabCentral
- Thea James, M.D.
  *Vice President of Mission and Associate Chief Medical Officer,
  Boston Medical Center
- Petrina Martin Cherry
  *Vice President of Community Engagement and External Affairs,
  Boston Medical Center
- Lily Vautour
  *Director, Brand Engagement, Boston Medical Center
Roundtable Discussions

1) What did we learn from Dr. James and the panel about outreach to BIPOC communities to overcome vaccine hesitancy and what do we need to change to in our approach to outreach to underserved communities about life sciences education and careers statewide?
   a) Are there specific steps each of the following can take to work with others?
      • Industry
      • K-12 schools including vocational schools
      • Higher Education
      • Other stakeholders

2) Are there best practices that you’ve seen for life sciences career awareness to underserved communities that we should think about improving, expanding, or replicating?

3) What are the challenges to making this successful at scale and what will it take to overcome them?
   a) Resources, time, and funding
   b) Coordination

4) Are there new innovative ideas to reach underserved communities with information about the opportunities in the life sciences?
2022 Massachusetts Life Sciences Workforce Analysis Report

Joe Boncore
Chief Executive Officer
MassBio
MassBio’s Workforce Analysis Report

June 8, 2022
Over **21.6 million** square feet of lab space has been built in Massachusetts over the last 10 years, an increase of **117%**.

**2011**: 18.4 million square feet

**2020**: 35.2 million square feet

**2021**: 40.0 million square feet

Sources: Colliers and CBRE
Based on conservative estimates (2 employees per 1,000 square feet), Massachusetts may need nearly 40,000 net-new employees by 2024.

### Statewide Projections

<table>
<thead>
<tr>
<th>TYPE</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMP</td>
<td>1,524,109</td>
</tr>
<tr>
<td>R&amp;D</td>
<td>18,316,461</td>
</tr>
<tr>
<td>Grand Total</td>
<td>19,840,570</td>
</tr>
</tbody>
</table>

### Significant Developments by Municipality

<table>
<thead>
<tr>
<th>CITY</th>
<th>SIZE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boston</td>
<td>7,155,834</td>
</tr>
<tr>
<td>Cambridge</td>
<td>4,254,679</td>
</tr>
<tr>
<td>Somerville</td>
<td>2,202,533</td>
</tr>
<tr>
<td>Watertown</td>
<td>1,744,146</td>
</tr>
<tr>
<td>Waltham</td>
<td>1,646,359</td>
</tr>
<tr>
<td>Bedford</td>
<td>354,000</td>
</tr>
<tr>
<td>Lexington</td>
<td>326,744</td>
</tr>
</tbody>
</table>

Source: JLL
Industry Survey

• Between January and April 2022, MassBio surveyed 129 of our biopharma members, and conducted 28 one-on-one interviews

• Primary Objectives
  • Understand hiring expectations and challenges for life sciences businesses in Massachusetts
  • Identify specific skillsets, certifications, experience, and degree outcomes that are required and preferred by life sciences employers
  • Highlight opportunities for partnership or program development
EMPLOYER DEMAND
Hiring Difficulty

• Companies reported difficulty hiring for all positions but especially for non-entry level roles

• Major reasons for difficulty cited include:
  • A small applicant pool
  • Lack of experience or industry-specific knowledge
  • Competition from other life sciences
  • Insufficient non-technical skills, such as problem-solving, critical thinking, communication, teamwork, and adaptability
Most Difficult Roles to Fill

- The most difficult entry-level positions to fill
  - Research associates (52.5%)
  - Manufacturing technicians (19.7%)
  - Scientist (16.4%)

- The most difficult non-entry-level roles to fill
  - Senior scientists (34.2%)
  - Direct level or higher managerial positions (26.6%)
  - Regulatory affairs (15.2%)
Most Companies Plan on Hiring Up

• Just over three-quarters of surveyed firms indicated that they expect to hire more employees over the next 12 months
TALENT PIPELINE ASSEMENT
“Traditional channels will be unable to meet the supply gap for Massachusetts’ life sciences industry”
WHERE DO WE GO FROM HERE?
Collective Action – Academia/Non-Profit

• Expand career awareness programs starting in middle school
• Scale up short-term, customized certification programs that align with employer needs
• Increase laboratory / hands-on experience in educational settings
• Grow role-specific certification programs (e.g., regulatory)
• Add contextualized biopharma-specific modules to existing four-year degree programs
Collective Action - Employers

• Rethink the talent development pipeline beyond traditional four-year degree pathways
• Align job postings with actual credential and skill-set necessary for role instead of employer hiring preferences
Hiring Requirements & Preferences

- Required education levels are often lower compared to employers’ preferred educational attainment for entry-level positions.
- Though 45% of firms reported that they are “not at all likely” to hire an applicant for an entry-level position with less than a Bachelor’s degree.

7 in 10 employers indicated that they would like their entry-level candidates to have a Bachelor’s degree.

Only 58.8% of employers actually require a Bachelor’s degree of entry-level candidates.
Collective Action - Employers

• Further develop partnerships with Minority Serving Institutions (MSIs) to train and recruit talent
• Expand internship & apprenticeship programs with life science companies
• Centralize workforce development efforts to facilitate best practices, and shared objectives
• Advocate for broader range of public policy that will encourage talent to stay in Massachusetts and people to move here for jobs
Collective Action - Government

• Reauthorize the Life Sciences Initiative
• Identify successful, government funded life sciences workforce development efforts in other states
• Fund successful workforce programs to bring them to scale
MassBioEd CEO

Sunny Schwartz

Chief Executive Officer
MassBioEd
2:00 pm | Breakout Sessions

Topic A | Inclusion, Retention, and Advancement (Forum Room)

Topic B | Recruitment: Education to Training to Industry (Annex Room)

3:00 pm | Dessert Reception