2025

Life Sciences Workforce Trends

Evaluating Industry Talent Dynamics Amid Slower
Growth and Rapid Technology Advances

Prepared for: Life Sciences Workforce Collaborative (LSWC)
Prepared by: TEConomy Partners, LLC

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Introduction

The nation's life sciences industry has long represented a resilient, high-growth, advanced industry driven by a primary focus on innovation and the deployment of a high-skilled, STEM-intensive workforce across R&D establishments, advanced manufacturing operations, and complex distribution networks throughout the U.S.

Numerous elements of the nation's innovation ecosystem support and enable the industry's growth, its innovative products, and its global competitiveness. Arguably the most important of these is the industry's talented workforce, with an impressive blend of education, training, and skills that power this leading innovation and advanced manufacturing sector of the nation's economy.

Recently, however, the industry has experienced a more difficult economic plight impacted by inflation, investment and fundraising challenges, global economic and geopolitical uncertainties, and other dynamics that have resulted in slower growth and lower overall hiring volumes. These headwinds have resulted in vastly different labor market dynamics from those reported in the previous edition of this biennial report. At the same time, the industry is investing heavily in technology solutions ranging from AI and machine learning to advanced industrial automation, with major implications for workforce and talent demands, including an increasing need for continuous and ongoing skills development.

Recognizing these shifting dynamics, this seventh edition of the *Life Sciences Workforce Trends* report takes the pulse of the industry's demand for talent, using both data-driven, quantitative perspectives, as well as direct insights from industry executives leading highly innovative R&D and advanced manufacturing operations across the nation.

TEConomy Partners, LLC (TEConomy) has again collaborated with the Life Sciences Workforce Collaborative (LSWC, formerly the Coalition of State Bioscience Institutes, or CSBI) to assess the industry's demand for talent and related themes that have emerged over the last two years. The LSWC represents the collaboration and coming together of life sciences industry associations and institutes from across the United States and Puerto Rico who share a common mission of "building a competitive life sciences workforce" that will "ensure the United States' leadership in life science innovation."[1] As conduits to large networks of industry, academic, and other key stakeholders, the LSWC is well positioned to advance workforce solutions by tracking evolving talent needs, promoting career pathways that build scientific aptitude and interest, facilitating robust workforce partnerships, convening national conversations on key workforce issues, and informing policies that strengthen the life sciences talent pipeline.

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1   See: https://LifeSciencesWorkforce.org.

The findings presented in this report leverage intelligence from three primary sources, supplemented with other data-driven insights:

- A national life sciences industry hiring survey, with responses received from 30 states and Puerto Rico from late 2024 through the first quarter of 2025 and completed by more than 500 companies. The survey was designed to capture data and information on recent and anticipated hiring and related workforce dynamics; wage and salary increases; difficult-to-fill positions; future hiring plans; remote work dynamics; occupational insights, and more.[2]

- Interviews with more than 200 life sciences industry executives across 22 states and Puerto Rico, conducted from late 2024 through the first quarter of 2025. The interview questions were designed to capture high-level perspectives from corporate leaders on a similar set of talent demand dynamics and related issues addressed in the industry hiring survey, but also addressing strategic elements such as industry-academic collaborations and emerging technologies and their implications for talent needs.[3]

- Details from 2.9 million unique (non-duplicative) U.S. job postings from life sciences companies over the last four years.[4]

The report is organized across the following four trends and themes that have emerged from these inputs and this latest assessment:

1. The U.S. Life Sciences industry is experiencing lower hiring volumes and a modest overall contraction, though the situation remains mixed across companies, with segments of the industry continuing to grow and announcing major new investments. Implications of slower growth and changing demand dynamics include a focus on strategic hires, targeted cost reductions, and investments in existing employees' skills and career development as well as automation. Companies are reporting greater ease in filling key roles.

2. AI, machine learning, and industrial automation are creating both disruptive opportunities and challenges for the industry, with significant implications for workforce and talent. Large and leading life sciences companies are more widely integrating these technologies, ahead of their small- and mid-sized counterparts.

3. Companies are placing a major emphasis on incumbent worker upskilling, reskilling, and other skills training and development in response to ongoing digital transformations and regulatory changes across and throughout the industry's value chain spanning R&D, production, and distribution.

4. Companies are placing a major and increasing emphasis on engaging students early, supporting STEM education programming, and informing career pathways and connections at all student levels. Work-based learning plays a central role in employer-student connections at postsecondary levels.

This report has been produced in collaboration with and support from InnovATEBIO, the National Science Foundation-supported National Biotech Education Center.

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2   For more detailed information on the industry hiring survey, see Appendix B to this report.
3   For more detailed information on the executive interviews, see Appendix B to this report.
4   Job postings data used in this report are sourced from Lightcast, which develops and maintains a detailed database of industry job postings.

Defining the Life Sciences Industry

TEConomy's Principals have worked closely in partnership with the Biotechnology Innovation Organization (BIO) for two decades to produce biennial reports on the state of the bioscience/life sciences industry. These efforts have yielded an accepted, comparable definition of the life sciences industry using federal NAICS industrial classifications to include the following five major industry subsectors:

Agricultural Feedstock & Industrial Biosciences	Pharmaceuticals	Medical Devices & Equipment	Research, Testing & Medical Laboratories	Bioscience-Related Distribution

The data collection and analysis in this report—both quantitative and qualitative—align with the industry's established definition. For a list of detailed industries that make up each subsector, see Appendix A to this report.

This report uses the "life sciences" industry terminology reflecting the preferences of LSWC and its state partner organizations. This terminology is synonymous with the "biosciences" terminology used by TEConomy/BIO in its biennial national reports.

Theme 1:

The U.S. Life Sciences industry is experiencing lower hiring volumes and a modest overall contraction, though the situation remains mixed across companies, with segments of the industry continuing to grow and announce major new investments. Implications of slower growth and changing demand dynamics include a focus on strategic hires, targeted cost reductions, and investments in existing employees' skills and career development as well as automation. Companies are reporting greater ease in filling key roles.

After a period of steady long-term employment growth, which is a hallmark of the sector's resilience, the U.S. life sciences industry has seen a leveling-off in the last two years (Figure 1). In 2023, industry growth slowed significantly, with net job increases reaching just 1.2% after averaging 4.5% annual growth over the preceding five years. In 2024, U.S. life sciences employers shed a modest number of jobs with industry employment down by 0.3% over the year. Industry job declines in 2024 have spanned medical device manufacturing (-1.7%), research, testing, and medical labs (-0.9%), and the agricultural biosciences (-0.6%). These have been partially offset by modest net job gains in 2024 in pharmaceutical manufacturing (0.3% growth) and in life science-related distribution (1.1% growth).

Figure 1: Employment Trends in the U.S. Life Sciences Industry
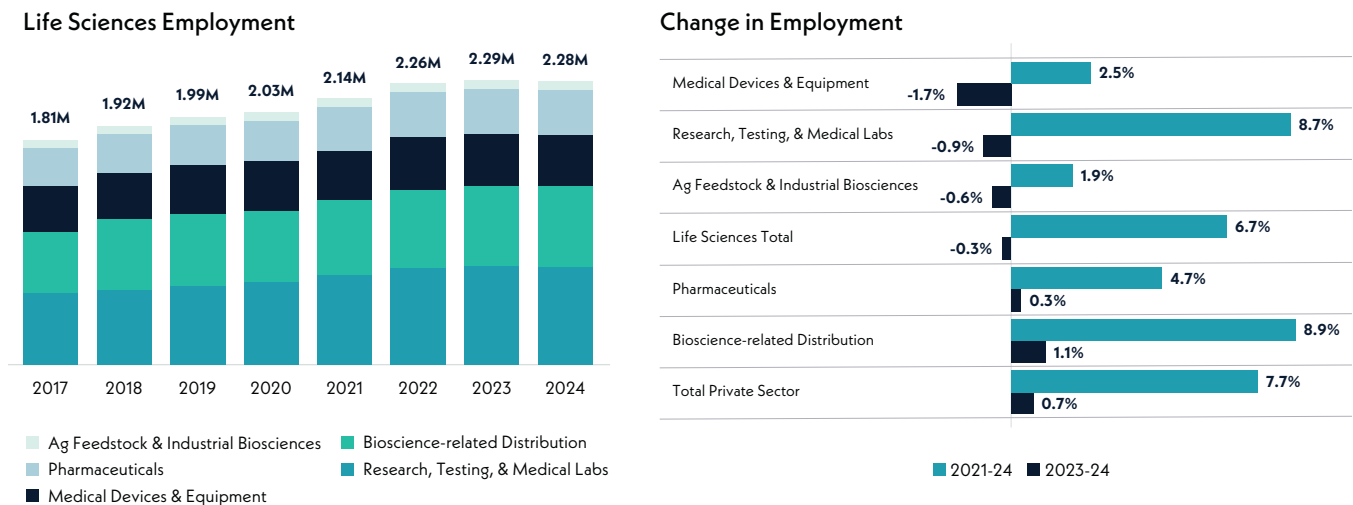
Note: 2024 employment estimates are derived from BLS data releases for Quarters 1 through 3. At the time of analysis, full-year estimates were not available. Due to suppression of BLS data when the number of establishments in some industry codes is small, Lightcast estimates are used to ensure consistent tracking of the industry over time.

Source: TEConomy Partners' analysis of Bureau of Labor Statistics' QCEW data and Lightcast (Datarun 2025.1).

The tempered growth and hiring activity seen over the last two years is further evidenced by significant reductions in life sciences industry job postings. Job postings offer insights into the industry's large hiring volumes for both replacement and new growth openings, highlighting the full account of job and employment "churn" that is consistently ongoing beneath the surface of top-line industry employment totals.

Figure 2 shows the declines in national life sciences industry job postings from their peak in 2022, both in sheer volume and as a share of total industries. In 2024, life sciences job postings represented 1.9% of all postings across the country, just exceeding the industry's share of total private sector employment overall (1.7%). In terms of individual life sciences subsectors, all five have shown a similar trend, with job postings peaking in 2022 and significantly decreasing by 2024, though to varying degrees.[5]

In an average month in 2023-24, life sciences companies published 52,422 unique U.S. job postings, down from a monthly average of 68,581 in 2021-22.

Figure 2: Trends in Life Sciences Industry Job Postings—Totals and as a Share of All Industries, 2021-24
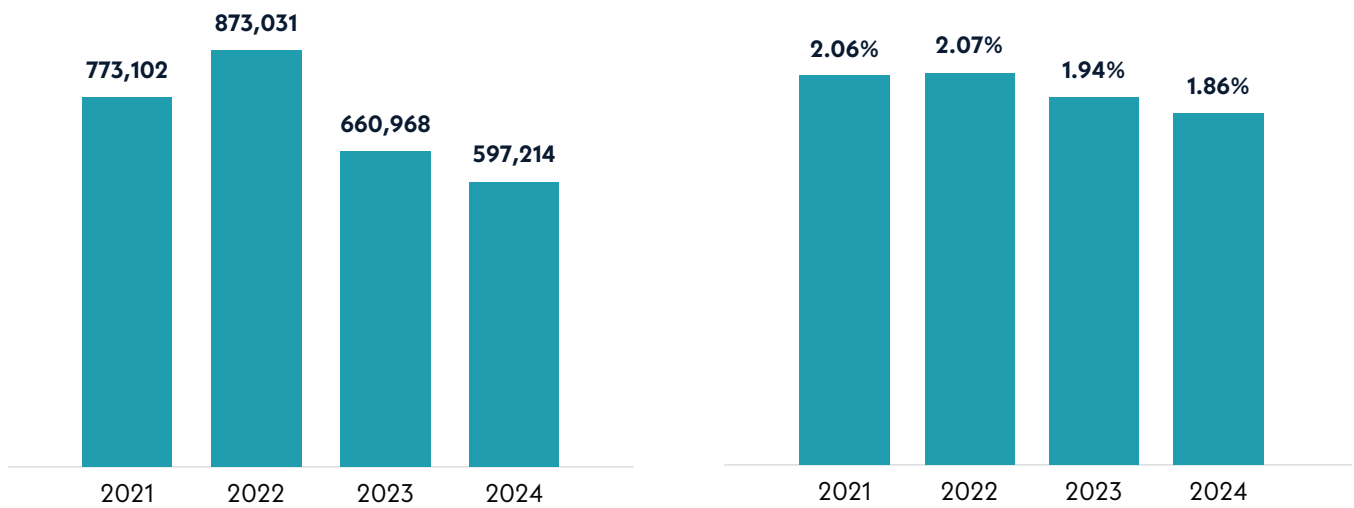
Note: Data for overlapping years presented in prior CSBI reports will not match due to methodological changes and updates.
Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

The hiring survey conducted for this report finds that the industry has clearly continued to hire over the last two years, though there are indications of diminished volume. Eighty-seven percent of companies surveyed have hired employees at some level during the last two years. However, recent hires represent a smaller share of total corporate employment compared to the previous survey, with one-third of companies reporting new hires as less than 20% of their total workforce. This is two times greater than the share in the survey conducted two years ago when larger shares of companies reported recent hiring totals representing 40% to 100% of their total employment base. These recent hires are driven by the demand created from both new and replacement job openings and are therefore impacted by both corporate growth and employee turnover dynamics.

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5   Appendix A to this report includes a "Talent Demand Snapshot" for each of the five life sciences subsectors including trends in overall job posting activity, leading hiring employers, and leading job titles.

Significant wage increases, on average, have moderated in the latest year. The share of companies reporting wage increases of 10% or greater has declined from 37% of firms in the 2023 survey to 16% in the 2025 survey. Where significant wage increases have occurred, inflation and competition for talent remain the most important factors driving those increases.

Suffice it to say that the overall hiring position and trajectory of the industry is starkly different from that reported in this publication two years ago. At that time, employers were in a fierce "war for talent" where signing bonuses, fast-rising wages and compensation packages, and far-reaching rapid hiring was occurring across the industry and its varied subsectors.[6]

The industry's mixed employment situation has followed that period of aggressive expansion and rapid hiring during and coming out of the pandemic, which drove rapid investments and innovations in vaccines, diagnostics, and therapeutics, as well as increasing investments in emerging technology areas including AI and other advanced digital health and MedTech. Beginning in 2022, rising inflation and interest rates, market downturns, and a more cautious economic and investment environment contributed to hiring slowdowns and industry layoffs in 2023 and into 2024. Fierce Biotech actively tracks layoffs in biopharmaceuticals, citing 187 workforce reduction announcements in 2023 and 192 in 2024, significant increases over those seen in prior years.[7]

Slower growth and modest industry contractions have shifted the focus of employers significantly in terms of their hiring stance and associated investments. When asked in interviews how their hiring dynamics have been impacted by macro-economic forces and industry developments, life sciences executives cite several contributing factors and implications of the lower hiring volumes and other shifts in workforce dynamics:

- **Inflation** is significantly affecting compensation expectations, profit margins, and supply costs, and creating other market and competitiveness challenges and financial pressures.

- **General global economic uncertainties are impacting hiring plans and investment outlooks,** fueled by the introduction of new tariffs on trade; federal research grant and other funding cuts; geopolitical challenges; difficulties obtaining visas for researchers, etc.

- **Investment funding and fundraising difficulties** are cited as a major current challenge, particularly for small emerging biotech companies who are working toward R&D and commercialization milestones. Higher interest rates are affecting companies' ability to build new facilities and to access debt-financing more generally.

- **Lower volumes of employee turnover and greater retention amid a softening industry labor market,** representing a dramatic shift from the high-turnover dynamics of the prior survey period.

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6   CSBI and TEConomy Partners, LLC, 2023 Life Sciences Workforce Trends Report: A Rapidly Evolving Industry and its Impact on Talent Dynamics, June 2023. See: https://www.lifesciencesworkforce.org/national-workforce-trends
7   Fierce Biotech, see: https://www.fiercebiotech.com/biotech/big-pharma-layoff-rounds-jump-281-24-while-total-biopharma-staff-cuts-similar-23

Life Sciences Industry Executives on Macroeconomic Forces and Other Industry Developments and Implications for Talent and Skills Demand

Tempered Growth Amidst Financial Challenges: The industry is facing market challenges driven by a difficult funding environment and economic volatility, prompting companies to conserve resources and prioritize cost efficiency.

> *"We have been very restrained in spending. We have not expanded the team, we have not hired people and, for some positions, we don't have full-time employees. Instead, we hire consultants."*

> *"Post pandemic, there's been a lot more reservation on capital that's being invested into some of these early-stage programs. That's not just a symptom of the cell and gene business, but across the pharma business. We're seeing that macroeconomic capital isn't as free flowing as it once was. That's causing a shift from less preclinical-clinical work to more Phase 3 commercial work that we're seeing in the market."*

> *"Small biotech companies like ours have been tremendously impacted by the state of venture capital and public markets. Investors in the biotech sector need an exit strategy, typically through IPOs or acquisitions. Over the past few years, however, these opportunities have significantly decreased, which means funding has become much harder to secure."*

> *"While supply chains have largely stabilized, inflation has increased costs, leading to a focus on cost reduction and automation to maintain quality."*

Lower-Volume Hiring and Impacts on Retention: Hiring has moderated and become more strategic due to inflation and market uncertainty, with reduced turnover and increased employee retention.

> *"While supply chains have stabilized, inflation and cost pressures have made hiring more strategic. We haven't seen a major contraction, but the hiring pace has slowed a bit as we've focused on securing the right talent for key roles."*

> *"The company has shifted from focusing on volume hiring to more strategic hiring due to changes in market dynamics."*

> *"[We are seeing] lower voluntary turnover due to economic uncertainty. Pre-COVID, three or four years ago, the turnover rate was pretty rapid across the industry as people were jumping around."*

> *"We have found it easier to hire highly qualified candidates over the past year-and-a-half, reducing reliance on recruitment agencies and lowering hiring costs. Additionally, turnover has decreased as there are fewer job opportunities elsewhere due to industry-wide slowdowns and layoffs."*

> *"In the last couple of years, inflation, the cost of living, and salary expectations [have affected us] as a small company. We are starting to get priced out of some of the positions."*

> *"The inflationary environment has made it more challenging to maintain competitive compensation packages, especially in attracting high-demand skill sets such as translational researchers, clinical experts, and data scientists. While we have not seen a major contraction in hiring, we are operating more strategically, emphasizing specific skill areas such as regulatory expertise, clinical trial management, and advanced research techniques. This allows us to continue advancing our research initiatives despite broader industry shifts."*

Global Economic Uncertainties Impacting Hiring Plans and Investment Outlooks: Fueled by the introduction of new tariffs on trade, federal research grant and other funding cuts, and emerging geopolitical challenges.

> *"Beginning in 2022, the biotech industry experienced challenges, partially due to the success of 2020 and 2021, when biotech played a key role in responding to COVID-19. However, there was a market correction and pullback that we didn't anticipate lasting this long. On top of that, macroeconomic factors like tariffs on China have increased volatility. To navigate these challenges, we focus on being careful with our cash, ensuring we are well-capitalized, and understanding our risks. This means being cautious with hiring so that we don't have to resort to layoffs if conditions worsen."*

> *"Another component is the geopolitical aspect of China. There are some supply chain risk mitigation factors that a lot of companies have had to endure by severing ties with entities in Asia, and in doing so, that will inflate the cost and the overall burden to do business because the cost goes up for the materials."*

> *"There are some pretty important unknowns. One that's important for us is what's going to happen with visas for researchers. How hard will it be to get a visa, and how will the visa process change with respect to great scientists and researchers? I think tariffs are another question, and just in terms of uncertainty, inflation effects."*

> *"One area of concern is our partnerships with CROs globally. While this isn't directly a hiring issue, policies such as the Biosecure Act or new tariffs create uncertainty around whether we can continue these relationships in the same way."*

Facing these shifting dynamics, industry executives and hiring managers cite several implications for workforce and talent demand, summarized here and in Figure 3.

- Financial pressures and general economic uncertainties are resulting in more strategic hiring considerations—companies are focused on filling critical roles while putting holds on a broader expansion of headcounts.

- Some employers are finding it difficult to hire full-time employees due to cost and compensation concerns and instead are utilizing contractors and consultants, in lieu of FTE hires.

- Companies remain focused on cost reduction, including through investments in automation to enhance productivity and potentially lower labor costs.

- With improved employee retention and lower turnover, executives are consistently emphasizing investments in upskilling and continuous learning opportunities for their existing employees. This is profiled in theme three.

- Executives report that it is becoming easier to hire for some specialized roles. While challenges persist among selected high-skilled roles, companies are finding it less challenging to source and hire quality candidates in recent years.

  - The occupations most frequently reported as being "very difficult" to find and hire quality candidates in 2023-24 include regulatory affairs/compliance, computational biology/statistics, research scientists/R&D positions, and engineers (Figure 4). However, the shares of companies citing these as very difficult have *significantly* declined from the 2021-22 period covered in the 2023 survey.

Figure 3: Implications of Changing Industry Dynamics for Workforce and Talent Demand, Based on Executive Interviews and Survey Findings

Narrower Emphasis on "Strategic" Hires

Utilizing Contractors, Consultants

Targeting Cost Reductions, Including via Automation Investments

Investing More in Existing Employees' Development, Upskilling

Less Challenging to Hire for Key Roles

Figure 4: Share of Life Sciences Companies Rating "Very Difficult" to Hire in Selected Occupations, 2023 vs. 2025 Survey Results

Occupation	2025 survey	2023 survey
Regulatory Affairs/Compliance	9.3%	31.9%
Computational Biology/Statistics	8.1%	30.3%
Research Scientists (Nonclinical) or R&D positions more broadly	7.9%	18.7%
Engineering - Product and/or Process Development	6.8%	26.1%
Quality Control or Assurance	5.6%	18.9%
Clinical Research Professionals	4.3%	13.6%
Manufacturing and Production	4.3%	12.2%
Engineering Technician	4.1%	16.4%
Lab Technician	2.7%	9.5%
Logistics and Distribution	2.5%	9.0%

Source: LSWC and TEConomy Partners Life Sciences Industry Hiring Survey 2023 and 2025.

Looking forward, the long-term outlook and projections for the industry remain positive. Importantly, not all companies or life sciences subsectors are contracting. In fact, many are announcing and implementing long-term investment commitments and expansions in U.S. manufacturing and other operations, with a sampling of recent announcements highlighted below in Table 1.[8] These significant commitments to domestic production and growth of the industry's physical and geographic footprint are reflective of an ongoing trend toward strategic industrial "reshoring" as well as the industry's long-term growth outlook.

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8   The announcements highlighted herein are not intended to be exhaustive of the entire industry and are drawn from those made by industry companies primarily during the early months of 2025. Additional descriptions of these investments are summarized in Appendix C.

Table 1: Examples of Recent Investment Announcements in U.S. Life Sciences Industry Manufacturing, R&D, and Other Operations, Early 2025*

Company	Investment Amount	Timeline	Facility Types	Known Location(s)	Technical Areas	Jobs Expected
AbbVie	$10 billion	10 years	Manufacturing	TBA	obesity drugs, pharmaceutical ingredients	
Amgen	$900 million		Manufacturing	OH	product assembly and packaging	750
	$1 billion		Manufacturing	NC	drug substances	370
Bristol Myers Squibb	$40 billion	5 years	Manufacturing, R&D	TBA	radiopharmaceuticals, AI/ML	
Eli Lilly & Co.	$27 billion	5 years	Manufacturing	TBA	active ingredients, injectables	3,000
Genentech (Roche)	$700 million		Manufacturing	NC	obesity	420
Gilead Sciences	$11 billion	5 years	Manufacturing, R&D	TBA		800
Johnson & Johnson	$55 billion	4 years	Manufacturing	NC	biologics	500
			R&D	TBA	includes oncology, neuroscience, immunology, cardiovascular disease, and robotic surgery	
Merck	$1 billion	opened recently	Manufacturing	NC	HPV vaccines	1,000
	$1 billion	5 years	Manufacturing	DE	biologics	500
Novartis	$23 billion	5 years	Manufacturing, R&D	CA, FL, IN, NJ, TX, others TBA	biologics, medical devices, and radioligand therapy	1,000
Regeneron	$7 billion	10 years	Manufacturing, R&D	NC, NY	biologics	1,000
Roche	$50 billion	5 years	Manufacturing, R&D	AZ, CA, KY, IN, MA, NJ, OR, PA	diagnostics, gene therapy, obesity, glucose monitoring, and AI research	1,000
Sanofi	$20 billion	5 years	Manufacturing, R&D	TBA		
Thermo Fisher Scientific	$2 billion	4 years	Manufacturing, R&D	TBA		

*Note: This table contains descriptions of announced investments available at the time of writing. All details may be subject to change.

TBA = To be announced.

BUILDING THE BIOTECHNOLOGY WORKFORCE OF THE FUTURE

From the National Security Commission on Emerging Biotechnology (NSCEB) Report:
Charting the Future of Biotechnology: An Action Plan for American Security and Prosperity

"We stand at the edge of a new industrial revolution, one that depends on our ability to engineer biology. Emerging biotechnology, coupled with artificial intelligence, will transform everything from the way we defend and build our nation to how we nourish and provide care for Americans." So begins the recently released final report by the bipartisan National Security Commission on Emerging Biotechnology (NSCEB).[1] Emphasizing that the "Biotechnology Revolution" will reshape national security, the economy, and everyday life, the report urges swift adoption of a comprehensive set of actions over the next three years, including investments to build a world-class biotechnology workforce and education system. The NSCEB warns that without urgent investment, the U.S. risks ceding biotechnology dominance to China, which has strategically invested in the sector for over two decades.

The need for talented biotechnology workers has never been more urgent. Tomorrow's biotechnology workforce will be comprised of people of all backgrounds, experiences, and skillsets. The [U.S. will] need scientists, researchers, and ... technicians, educators, policymakers, business leaders, and innovators at every level. It is these problem-solvers and creative thinkers who will lead the charge into a healthier, more secure, and more prosperous future. (p.122)

Workforce Development & STEM Education: Key Recommendations[2]

Noting that the U.S. lacks both the necessary talent and education infrastructure to meet the sector's growing workforce demand - losing ground to China in the "global race for biotechnology talent" - the report poses several detailed concrete workforce and education recommendations, broadly summarized below:

1 Build a National Biotechnology Workforce of the Future

- **Bridge Workforce Gaps:** Address the urgent talent shortages in federal agencies, the broader U.S. workforce, and the pipeline for global talent attraction.

- **Develop a National Biotechnology Workforce Framework**, led by the National Institute of Standards and Technology (NIST) - in partnership with academia, nonprofits, and federal agencies - to define biotech jobs, skills gaps, and training needs.

- **Equip the Federal Workforce:** Direct the Office of Personnel Management (OPM) to provide cross-agency training programs in biotechnology, AI and other critical emerging technologies.

2 Invest in Domestic Talent Pipelines

- **Scale and Maximize Impact of Biomanufacturing Workforce Training Programs:** Fund expansion of successful federally supported workforce initiatives by BioMADE, NIIMBL, BioFabUSA, NSF and InnovATEBIO to augment reach to high schools, community colleges, vocational tech schools, 4-year institutions and community-based workforce training programs.

- **Standardize Biomanufacturing Training Credentials:** Create nationally recognized accreditation and competency models, including microcredentials, for high-demand biomanufacturing skills to improve job readiness and employer confidence.

3 Expand Access to STEM and Biotech Education

- **Modernize STEM Education:** Advocate for a "National Defense Education Act 2.0" to strengthen STEM and bioliteracy as national security imperatives.

- **Support Career Pathways:** Establish a new NSF grant program to enable coordination and seamless transitions (including the transfer of relevant credentials, certificates, degrees and apprenticeships) across high school, two-year, and four-year biotechnology programs.

- **Launch a Biotechnology for All High School Students Initiative** to advance biotech educational pathways, offering teacher professional development and nationwide STEM curriculum expansion.

- **Create a Biotechnology Scholarship for Service Program** that offers financial incentives and clear pathways for undergraduate and graduate students to pursue biotechnology-related fields of study for public service roles across federal and state agencies.

"These policies supporting talent development will expose people at all stages of learning, from our youngest learners to our countries leaders, to cutting edge STEM technologies and their potentials."
Commissioner Angela Belcher

To learn more and to download a full copy of the report, visit:
https://www.biotech.senate.gov/final-report/chapters/

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1   The NSCEB was established in 2022 with Congressionally-appointed members of the Senate and House of Representatives, as well as experts from industry, academia and government, and charged with developing recommendations to advance U.S. leadership in biotechnology.

2   The NSCEB report's Pillar 5 elaborates a set of recommendations to build tomorrow's biotechnology workforce and advance bioliteracy.

Theme 2:

AI, machine learning, and industrial automation are creating both disruptive opportunities and challenges for the life sciences industry, with significant implications for workforce and talent. Large and leading life sciences companies are more widely integrating these technologies, ahead of their small- and mid-sized counterparts.

When asked which technologies or business practices are emerging in their respective life sciences subsectors and companies, and how these technologies will impact near-term workforce and talent needs, industry executives were clear and overwhelmingly consistent in their identification of two leading areas—artificial intelligence (AI) and the automation and broader digital transformation of manufacturing and business operations—areas that are in many respects highly interrelated and coupled. The adoption and integration of AI and machine learning was the most highly mentioned and consistent theme and was emphasized in some manner across the vast majority of executive interviews. Both AI and advanced industrial and business process automation have significant implications for talent and skill demand dynamics.

Executives emphasize significant interest in—and ongoing work to integrate and leverage—AI tools and capabilities across numerous business functions including R&D, manufacturing processes, regulatory documentation, and data analytics. The life sciences industry offers numerous use cases and examples of how AI and machine learning are being applied to address a variety of innovation-centric and business/operational functions. Figure 5 presents a set of ongoing and emerging use cases as well as industry application areas for technology integration that were mentioned most frequently by life sciences industry executives.

Today, AI is beginning to decipher the patterns that govern the behavior of biological systems. Thanks to AI's tremendous modeling power, in the future we will no longer need to know (or expend the human effort and time determining) exactly how a biological system works in order to harness it. Instead, we will be able to program cells as we program computers, accurately and precisely engineering biology in order to achieve desired results.... AI is well-suited for biology; once models can become as fluent in DNA and other biological molecules as they now are in human language, the results will be profound. Soon, decades of biotechnology breakthroughs will happen in mere years.

From NSCEB report Charting the Future of Biotechnology, An action plan for American security and prosperity, April 2025, pps. 18-19.

Figure 5: Industry Application Areas, Use Cases for AI Tools Cited by Life Sciences Industry Executives

Automation in Manufacturing and Operational Processes

AI is enabling the automation of manufacturing processes, including the transition from manual to digital systems for recording and managing batch records, environmental monitoring, and quality control testing. Enhanced automation helps in streamlining operations, reducing human errors, and improving GMP compliance.

Data Analytics and Decision Making

AI is being leveraged for analytics to synthesize large datasets, which is critical in areas like drug discovery and development, quality assurance, and market analysis. AI aids in making data driven decisions, optimizing processes, and enhancing productivity.

Drug Discovery and Development

AI is being used to accelerate drug discovery processes through better target identification, predictive analytics for clinical trials, and safety evaluations. This technological integration helps in speeding up the time-to-market for new therapeutic solutions and enhancing the effectiveness of research and development.

Regulatory Compliance and Quality Control

AI tools are implemented to aid in complying with stringent industry regulations and quality standards. AI facilitates better documentation, tracking, and reporting processes, thereby ensuring compliance and enhancing the integrity of manufacturing and research operations.

Clinical Support

AI applications are used to automate patient monitoring and deliver personalized medicine. These include automated patient data analysis for tailored treatments, and support in clinical decision-making.

Customer Support

AI applications are leveraged to enhance customer interaction and support, including the use of AI-driven interfaces.

Supply Chain and Logistics Optimization

AI is utilized to optimize supply chain processes, forecast demand, manage inventory, and ensure a seamless flow of goods and services across the life sciences value chain.

Recruitment and Talent Management

AI tools are used in HR processes, from screening candidates to improving the efficiency of the recruitment process. AI helps in managing large volumes of applications and supports fair, efficient hiring practices.

Source: TEConomy Partners' analysis of Life Sciences Executive Interviews.

Interviewed industry executives emphasized the following, with regard to the impacts and implications of emerging AI and machine learning technologies on specific roles within life sciences firms:

AI and Machine Learning Specialists
Demand for AI proficiency and adaptability is paramount as companies assess candidates' ability to leverage AI tools for analytics, business process automation, and innovation.

Data Scientists and Analysts
Need is increasing for skills in data analysis, management, and interpretation to enhance productivity, decision-making, and regulatory compliance.

Biomanufacturing and Automation Engineers
As automation and AI integrate into manufacturing processes, there is a rising need for engineers proficient in these areas to manage and optimize operations.

IT and Cybersecurity Experts
With AI integration, there is a growing demand for IT infrastructure and cybersecurity expertise to ensure systems are efficient, compliant, and secure.

Regulatory and Quality Assurance Professionals
Companies are placing increased emphasis on managing AI within regulatory frameworks and maintaining high-quality standards in product development.

R&D Scientists with AI skills
There is a need for traditional research roles with an added proficiency in AI to facilitate innovative drug discovery and development.

Software Developers and Engineers
As software becomes more critical in operational processes, demand for skilled developers to build AI-driven applications rises.

Bioinformatics Specialists
These roles are crucial for managing large datasets and integrating complex biological information with AI tools to advance medical research.

Technical Support for AI Tools
Technical support roles are vital for maintaining AI systems, assisting with user issues, and ensuring seamless integration within existing tech stacks.

Project Management with AI Integration
Project managers skilled in AI project integration and management are vital as more projects incorporate AI and machine learning to streamline processes.

There is a clear and significant shift toward AI integration across many roles in life sciences organizations, emphasizing the need for AI fluency in both technological and traditional life sciences-specific roles. Upskilling current employees and attracting new talent with hybrid skill sets are keys to staying competitive in this evolving landscape.

Examinations of industry job postings find AI and related skills and competencies to be among the leading "hot" skills areas referenced in company postings, particularly among firms in the biopharmaceutical and research, testing, and medical lab subsectors (profiled in the next section). With that said, firms across the life sciences are prioritizing the use and integration of AI. When considering AI-specific and AI-intensive roles within the life sciences industry broadly, the specialized skills shown in Figure 6 represent those from recent industry job postings that are leaders in both their share of total job postings, but also in their projected skills growth.

Figure 6: Leading Specialized Skills in Life Sciences Industry Job Postings for AI- and Data Sciences-Specific Roles—Leaders in Both Share of Total Postings and Projected Skill Growth

Python (Programming Language)	**Data Visualization**
Data Sciences	**PyTorch (Machine Learning Library)**
Machine Learning	**Automation**
R (Programming Language)	**TensorFlow**
Artificial Intelligence	**Scikit-Learn (Python Package)**
Algorithms	**Microsoft Azure**
SQL (Programming Language)	**Tableau (Business Intelligence Software)**

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Currently, some industry executives voice concerns around the potential of AI to replace certain job roles, though this is often countered by the belief that the technology is changing the nature of jobs in a complementary manner as well as creating new roles that require and leverage advanced technical skills. At least a few executives interviewed note that an exception to this complementary shift has been a reduction in administrative assistant roles, and some others are acknowledging a diminished general need for employees due to realized or potential AI efficiencies.

Life Sciences Executives on the Use and Integration of AI into their Business Operations and Implications for Talent and Skills Demand

Shifting and Enhancing Roles: AI and automation are changing how work gets done, but not necessarily eliminating jobs—many companies see these tools as workforce enhancers rather than replacements.

> *"Machine learning and AI are rapidly becoming valuable tools in the industry, and I expect these technologies to be incorporated into our business. However, I don't anticipate AI significantly altering the composition of our workforce. Instead of hiring large numbers of computer scientists, we expect our existing workforce—across all levels—to integrate these tools into their daily work. For example, a PhD scientist might conduct fewer hands-on experiments and instead use AI-driven models to analyze data, while certain operator tasks may be automated."*

> *"We have been integrating AI models for customer support, technical support, legal work, and tax consultancy. While AI has helped optimize certain processes, our jobs remain highly hands-on, whether in the lab, sales, or other departments. AI currently functions as an assistant rather than a replacement. It frees up work hours, allowing our team to focus on more complex tasks. While AI's role may evolve, for now, it complements our workforce rather than reducing the need for skilled professionals."*

> *"Our company is looking at AI not to reduce headcount, but as a limitless resource to talent."*

> *"While the broader industry has seen a slowdown in hiring and some contraction, we have focused on optimizing workforce efficiency rather than increasing or decreasing headcount drastically. Additionally, as automation continues to shape manufacturing, we have placed greater emphasis on upskilling employees and adapting roles to meet evolving operational needs."*

New Skill Demands and Talent Gaps: Companies are responding to tech integration by rethinking skills, training, and job design, emphasizing upskilling and digital fluency.

> *"The mechanic of a generation ago used a wrench. Mechanics and technicians today use a laptop for troubleshooting on our equipment—it is much less mechanical. You're plugged into the equipment, and you're troubleshooting that way. Same thing with our operators. You go back a generation, they were filling up a piece of equipment with leaflets or bottles or tablets. Now they're also running much more technically advanced equipment. They need to have higher level skills across the full digital range."*

> *"The biggest emerging technology for us is AI. It's becoming more relevant across different functions—whether it's regulatory, quality, or R&D. AI is helping enhance productivity in these areas by improving testing, modeling, and even commercial efforts like marketing and messaging. We are also investing in upskilling efforts to ensure employees are equipped with AI tools."*

> *"We will need more equipment technicians and other support functions with higher technical skill sets. Specifically, we need individuals trained in automation equipment, diagnosing computer systems, and controllers."*

> *"Probably the most dramatic change we're seeing is AI and machine learning—how it will affect healthcare delivery, diagnosis, treatment, workforce issues in hospitals, and everything in between. But at the same time, AI is creating new opportunities that require new skills. We've definitely had to step up our game in hiring for technology-focused roles—not just in AI itself, but in everything that supports it—from IT infrastructure to data interoperability. Because we have massive amounts of data—clinical data, regulatory data, GMP data—unless that data is well-structured, consistently captured, and usable, we won't be able to take full advantage of these new technologies. It's changing everything."*

"The use of AI is expected to significantly improve productivity within the company once employees are trained on how to effectively use it. In the short term, there will be a focus on selecting the right AI tools and ensuring that the workforce is equipped with the necessary skills."

Cross-Enterprise Integration of Technology: AI and automation are reshaping R&D and manufacturing, but their impact extends beyond this, transforming business operations, regulatory functions, customer engagement, and supply chain strategy.

"We are using AI to discover targets and reducing the need for wet labs—all to increase early hit rates."

"I'm excited about the potential for AI to enhance business operations, not just for drug development, but for improving efficiency in areas like financial reporting, document generation, and administrative tasks."

"In our sector, the integration of AI and other advanced technologies has been a key focus, significantly improving our operational efficiency and decision-making processes. At our company, AI has allowed us to streamline various workflows, enhance data analysis, and automate routine tasks, making processes more convenient and reducing manual workload. As a result, we foresee these technological advancements creating a shift in the types of skills we require within our workforce."

"Advanced data analytics—often categorized under AI—is becoming more significant. As these tools become commoditized and more user-friendly, they are no longer limited to PhDs in bioinformatics. We now have systems that allow even non-coders like myself to run complex algorithms with simple drag-and-drop functionality. We are implementing predictive analytics in maintenance, which allows us to identify failures before they happen, preventing costly downtime. Recently, we used this approach to anticipate and address an issue before it led to a batch failure, saving us the equivalent cost of the repair itself. Additionally, improved analytics in customer order patterns will help us optimize our supply chain, increase efficiency, and enhance transparency in transactions."

"AI is becoming more relevant across different functions—whether it's regulatory, quality, or R&D. AI is helping enhance productivity in these areas by improving testing, modeling, and even commercial efforts like marketing and messaging."

Job Displacement and Elimination of Select Roles: While many employers focus on augmentation and retraining, some roles are disappearing altogether.

"Some roles are disappearing due to automation and changing workplace dynamics. For example, administrative assistant roles are nearly obsolete. We no longer need employees to schedule appointments or manage emails manually."

"The rise of AI is creating efficiencies, allowing us to offset the need for full-time employees in certain areas."

Organizational Readiness and Infrastructure Needs: To make AI and automation work, companies need more than just tools—they need the right infrastructure, skilled people, and internal systems to support them.

"Probably the most dramatic change we're seeing is AI and machine learning… We've definitely had to step up our game in hiring for technology-focused roles—not just in AI itself, but in everything that supports it—from IT infrastructure to data interoperability."

"We are finding challenges, mainly in automation. Our facility is state-of-the-art when it comes to automation, and we want to eliminate, or at least significantly reduce, manual interactions in our core processes. It has been difficult to find automation specialists in IT, and the market is highly competitive with the demand from big tech companies."

MANUFACTURING USA

Launched just over a decade ago by the U.S. government to rejuvenate American manufacturing, Manufacturing USA is a network of innovation institutes sponsored by the U.S. Departments of Commerce (specifically, NIST, the National Institute of Standards and Technology), Defense (DoD) and Energy (DOE). The institutes bring together stakeholders from industry, academia and government to work on "transformational projects related to technologies, supply chains, and education and workforce development." Two of these institutes are highlighted below:

 The National Institute for Innovation in Manufacturing Biopharmaceuticals

 BioMADE

NIIMBL:

Strengthening the U.S. Biopharmaceutical Workforce

Launched in 2017, the National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) strengthens U.S. competitiveness in the biopharmaceutical manufacturing sector. With more than 200 members and partners – including companies, academic institutions, and government agencies – NIIMBL invests in projects that advance biopharmaceutical manufacturing innovation, solve industry challenges, and develop the skilled workforce of the future.

NIIMBL strives to build national capacity to meet the talent acquisition, training, and workforce development needs of the biopharmaceutical manufacturing industrial base by catalyzing collaboration, partnership, and utilization of education and training resources.

NIIMBL's workforce development initiatives aim to:

- Increase interest in biopharmaceutical manufacturing careers
- Grow the biopharmaceutical industrial base
- Advance novel career pathways
- Develop online and in-person training programs
- Catalyze cross-regional collaboration

Connect with Us
Learn more about how NIIMBL is building the biopharmaceutical workforce of the future. Visit NIIMBL.org.

BioMADE:

Securing America's future through bioindustrial manufacturing innovation, education, and collaboration

By supporting the research and development of biomanufacturing technologies, BioMADE and its network of more than 335 members across 39 states are strengthening American competitiveness, creating a more resilient supply chain, re-shoring manufacturing jobs, and producing biobased products without relying on foreign sources. BioMADE is also building a globally competitive STEM workforce to ensure American workers are prepared and ready to fill new jobs within this rapidly growing industry.

BioMADE is building a national network of pilot- and demonstration-scale bioindustrial manufacturing facilities, with its first two announced sites in California and Minnesota. The facilities will focus on building domestic supply chains for key defense capabilities and consumer products, with additional on-site education and hands-on training for incumbent workers and students at the Minnesota facility.

Every job in the industrial bioeconomy generates an additional 11 jobs in the U.S. In addition to bringing well-paying manufacturing jobs back to the U.S., BioMADE is building the workforce of the future by working with K-12 schools, community colleges, universities, and professional development organizations to ensure that the bioindustrial manufacturing sector has a trained and prepared workforce poised to meet the sector's projected significant growth in the coming decade.

BioMADE was catalyzed by the U.S. Department of Defense in October of 2020 and is a proud member of Manufacturing USA®.

Connect with Us
Learn more about how BioMADE is building the bioindustrial manufacturing workforce of the future at www.biomade.org.

Theme 3:

Companies are placing a major emphasis on incumbent worker upskilling, reskilling, and other skills training and development in response to ongoing digital transformations and regulatory changes across and throughout the industry's value chain spanning R&D, production, and distribution.

The life sciences industry is among the most innovative, science- and R&D-driven advanced industries globally. This status alone would necessitate continual and regular skills training and evolutions, and it does; however, as an advanced manufacturing sector operating in the age of digital transformation and AI, the rapid pace of technological change and innovation has reinforced this emphasis. In surveys and interviews, life sciences industry leaders are placing a major emphasis on the need for employees to adapt and engage in ongoing skills development to meet the evolving needs of the industry, particularly in light of technological advancements and changing market dynamics.

The last two years have seen lower levels of employee turnover and greater retention rates in the life sciences. As a result, industry executives are consistently emphasizing talent development and investments in existing employees in terms of upskilling and continuous learning.

The last two years have seen lower levels of employee turnover and greater retention rates in the life sciences. As a result, industry executives are consistently emphasizing talent development and investments in existing employees in terms of upskilling and continuous learning. These leaders cite numerous drivers and needs for this strategic imperative, including:

- **Regulatory changes and shifts**, which are fueling the need for new training and for maintaining expertise across organizations.

- **Manufacturing automation and digital integration**, which represent major drivers of the need to upskill and adapt skills of the existing incumbent workforce for changing roles, as well as additional demand for numerous roles.

- **AI implementation and adoption,** which drives a strong focus on the need for reskilling workers as AI and automation change job functions. Skills in data governance, machine learning, digital literacy, and automation are increasingly crucial. Operational roles are shifting toward more sophisticated, technology-driven tasks requiring continuous learning and adaptation.

- **Leveraging data capture and advanced analytics** across and throughout organizations, creates intelligence that can be harnessed for data-driven decision-making, optimizing processes, predictive capabilities, and enhancing productivity.

Demonstrated Skills & Competencies Remain Key for Entry-Level Technician, Production Hires

When it comes to hiring entry-level technicians and skilled production workers, human resources executives and senior hiring managers surveyed for this report continue to emphasize the critical importance of candidates' demonstrated competencies and skills. This remains the most critical qualification with nearly 80% of respondents citing this as "very important" (see Figure 7), followed by prior work experience in a related field (63%). For workers operating in advanced manufacturing and lab environments, skills and experience represent the bottom-line criteria for hiring managers, prioritized over college degrees.

In executive interviews, industry leaders discuss strategies to broaden their hiring criteria beyond traditional degrees to include candidates with demonstrable skills and relevant experience. This includes implementing targeted recruitment campaigns and expanding their talent pool outreach.

Figure 7: Share of Companies Surveyed Ranking Various Qualifications as "Very Important" When Hiring Entry-Level Technical Positions (E.g., Lab or Engineering Technicians, Skilled Production Workers)
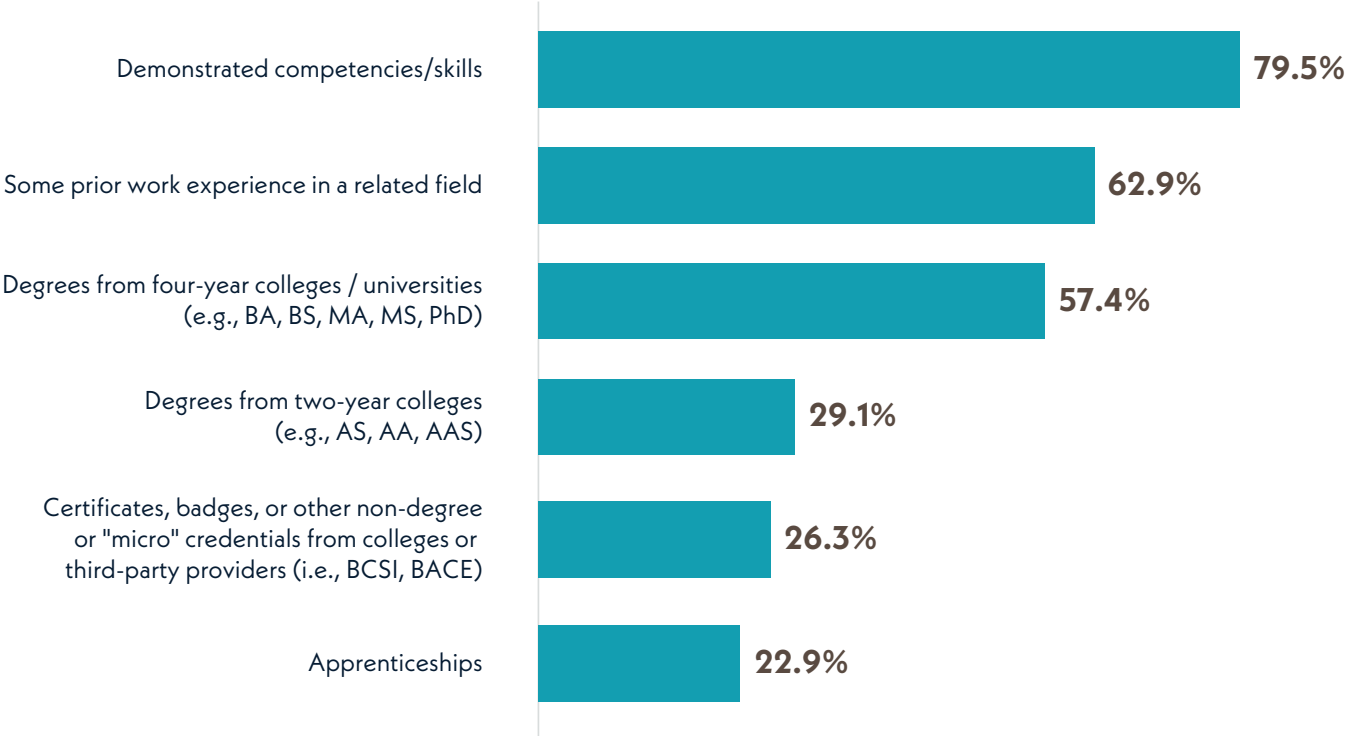
BCSI
BIOSCIENCE CORE SKILLS INSTITUTE

MICROCREDENTIALS DEVELOP JOB-READY CANDIDATES

Microcredentials are gaining traction in the life sciences industry because they offer a flexible, targeted way to validate real skills. Microcredentials are becoming important to employers who are seeking to identify qualified job candidates and to learners who want to quickly gain and validate skills that are in high demand.

Developed with industry employers and focused on practical application, these credentials are the best signal of hiring-readiness for candidates and allow individuals to demonstrate competencies that are a direct match with employers' needs. Whether upskilling on the job, adding tangible skills post-graduation, or transitioning into life sciences from another field, learners can build a clear portfolio of verified skills to secure a career in life sciences research labs or bioproduction.

Solving Workforce Readiness Gaps with Performance-Based Credentialing

The **Bioscience Core Skills Institute (BCSI)** is a national nonprofit organization addressing a critical challenge in the biotechnology and biomanufacturing sectors: verifying real-world, hands-on competency in laboratory skills. While many job applicants hold degrees or course certificates, employers consistently report gaps in demonstrated lab readiness and applied proficiency.

BCSI bridges this gap through third-party, performance-based microcredentials that validate practical skill mastery—ensuring candidates are truly prepared for the workforce.

To date, BCSI has tested over **2,000 students across more than 30 states**, offering a **scalable, standards-aligned credentialing system** that assesses essential competencies, including:
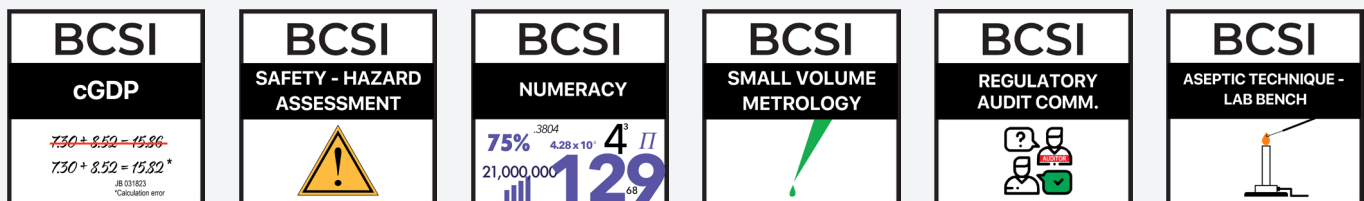
Unlike many programs that rely on online multiple-choice tests, Bioscience Core Skills Institute (BCSI) microcredentials are earned through performance-based assessments that confirm what individuals can do in a lab, not just what they know. Evaluations are conducted on-site or through remote proctoring via a secure platform and result in **digital credentials** portable to LinkedIn, SmartResume, and HR platforms.

In partnership with **employers, workforce boards, and academic institutions**, BCSI has become a trusted certification partner by helping organizations:

- Identify truly job-ready candidates
- Customize talent development strategies
- Upskill existing employees
- Retain institutional knowledge and transfer skills effectively

BCSI credentials are recognized as **Industry-Recognized Credentials (IRCs)** in several states. By emphasizing measurable, demonstrated competence, BCSI is accelerating workforce pipelines and enhancing hiring confidence across the life sciences sector.

LEARN MORE ABOUT BCSI

Life Sciences Industry Executives on the Need and Context for Employee Upskilling and Other Continuous Skills Training

> *"We've strategically maintained a steady approach [to hiring], prioritizing critical roles and internal development. We've leaned into upskilling initiatives, ensuring that current employees can take on evolving responsibilities instead of relying solely on external hires."*

> *"While the broader industry has seen a slowdown in hiring and some contraction, we have focused on optimizing workforce efficiency rather than increasing or decreasing headcount drastically. Additionally, as automation continues to shape manufacturing, we have placed greater emphasis on upskilling employees and adapting roles to meet evolving operational needs."*

> *"[Our firm] used a hiring pause to invest in the current talent. We provided developmental opportunities, cross-training, and focused on enhancing the skills needed for future projects, ensuring the workforce remained strong and capable."*

> *"Emerging technology across all functions are impacting our talent, creating a need for upskilling and recruiting new skillsets typically found in other industries. Integrating AI into our daily business tasks and operations will require broad-based upskilling and potentially create capacity and the need to decrease or redeploy talent."*

> *"Additionally, advanced manufacturing technologies such as continuous manufacturing, automation, and digitized quality systems are transforming the way we produce medicines. In alignment with the technology, our utmost focus is to prepare our workforce to meet the current and near future demand, becoming an upskilled labor force with knowledge in advanced analytics, power BI, digital manufacturing, data analytics, and process automation, among others."*

> *"Digital integration involves adopting and integrating digital technologies across all areas of a business, fundamentally changing how the company operates and delivers value to customers. This process requires a significant upgrade in the skills of the workforce to ensure that employees can efficiently use these new digital tools and systems. Upskilling the workforce means providing training and development opportunities that enable employees to acquire new competencies, ranging from basic computer literacy to advanced data analytics and cybersecurity skills."*

In addition to executive interviews that highlight strategic areas of technology implementation and integration that are driving ongoing skills training needs, industry job postings offer specific insights into "hot" skill areas that are increasingly in-demand among life sciences employers. Leading skills and expertise areas shown in Figure 8 highlight the increasing importance of digital skills and specialized expertise that are on the rise throughout the industry. The skills shown across the industry's major subsectors are ordered by the increase in their use and reference in industry job postings since 2021.

Figure 8: Leading Specialized Skills in Life Sciences Industry Job Postings Ranked by Increase in Use/ Reference from 2021 to 2024, by Major Industry Subsector

Ag Feedstock & Industrial Biosciences	Medical Devices & Equipment	Pharmaceuticals	Research, Testing, & Medical Labs
Good Manufacturing Practices	Data Management	Project Portfolio Management	R (Programming Language)
Systems Engineering	Data Governance	Artificial Intelligence	Continuous Improvement Process
Quality Control	Python (Programming Language)	Clinical Trials	Root Cause Analysis
Process Control	SQL (Programming Language)	Data Science	Continuous Integration/ Continuous Delivery
Product Quality (QA/QC)	Data Architecture	Good Clinical Practices (GCP)	Patient Safety
Process Engineering	Data Warehousing	Continuous Improvement Process	Artificial Intelligence
Predictive Maintenance	Microsoft Azure	Cross-Functional Collaboration	PostgreSQL
Power BI			SAP Applications
Systems Design			

Source: TEConomy Partners' analysis of job postings data via Lightcast (Datarun 2025.1).

Companies are increasingly investing in in-house training and collaborating with educational institutions to meet the skills training imperative and to ensure their workforce can efficiently use these new technologies. They are also emphasizing work-based learning engagements with students, including internships, co-ops, and apprenticeships, where industry-relevant skills training and experiences are the focus.

To meet these emerging skill needs, more colleges, universities, and workforce training organizations will need to offer employer partners a robust array of relevant and flexible skills training programs, including short-term, quick-hit and customized training for their incumbent workforce.

Theme 4:

Companies are placing a major and increasing emphasis on engaging students early, supporting STEM education programming, and informing career pathways and connections at all student levels. Work-based learning plays a central role in employer-student connections at postsecondary levels.

Life sciences companies are targeting U.S. students at all levels for meaningful engagements that support STEM education, work-based learning, and life sciences industry career awareness, pathways and connections. These findings are supported by evidence from the hiring survey of life sciences employers, executive interviews, and other independent studies.

The hiring survey finds a significantly greater level of involvement from life sciences employers in STEM education and talent pipelines. **Compared with the 2023 survey, senior human resources and hiring managers for life sciences companies indicate much greater levels of involvement in student-focused STEM pipeline initiatives**, particularly with respect to K-8 and high school students, including classroom engagement, mentorships, and other initiatives. Figure 9 shows the current shares of companies by types of STEM-focused initiatives.

Figure 9: Share of Life Sciences Companies Surveyed with Initiatives to Seek and Develop a STEM Talent Pipeline, by Education Level and Type of Initiative
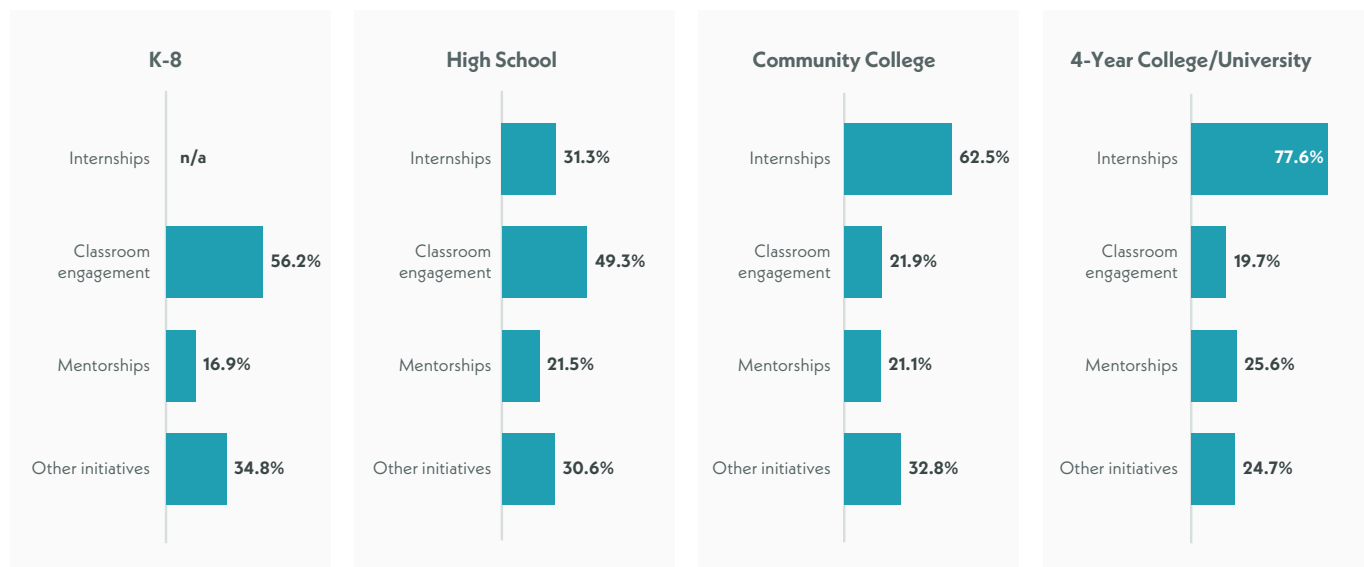
Source: LSWC and TEConomy Partners Life Sciences Industry Hiring Survey 2025.

A comparison of these results with those from the 2023 survey finds rising levels of company involvement:

- Classroom engagement by life sciences companies has increased from 12% to 56% at the K-8 level and from 16% to 49% in U.S. high schools. This can take the form of guest lectures and career awareness days via classroom visits, support for science fairs and after-school STEM programming, and other activities.

- Mentorships of students by corporate professionals have increased significantly at K-12 levels—among K-8 students, rising from 5% in the prior survey to nearly 17% of companies in 2025; and among high school students, increasing from 12% to nearly 22% over this same period.

- Beyond classroom activities and mentorships, approximately one-third of life sciences companies are involved in other initiatives to engage and connect with students at K-12 levels. Survey responses, interviews with executives, and other research conducted by TEConomy emphasize activities such as company visits and tours, career days, science-focused summer camps and similar programs, scholarships, and more.

While it is likely that the relatively lower involvement of companies with students reported in the early 2023 survey was impacted by the COVID Pandemic, the increases in coordinated activities found in this latest industry survey remain significant and impressive.

Figure 10: Growth in Life Sciences Company Efforts to Develop STEM Talent Pipelines—2023 to 2025 Industry Hiring Survey Comparison

3 to 4X	Classroom Engagement at K-12 Levels
2 to 3X	Student Mentorships
4X	Other Initiatives*

*Based on interviews with industry Executives and other research conducted by TEConomy Partners, these typically include initiatives and support for students spanning scholarships, research collaborations, summer camps and afterschool learning programs, science fairs and competitions, etc.

Source: LSWC and TEConomy Partners Life Sciences Industry Hiring Survey 2025.

Industry's involvement with postsecondary students is predominantly through internships and co-op programs. Nearly eight in ten companies reported hiring interns from four-year colleges and universities, and nearly two in three companies report hiring interns from community colleges in the latest industry hiring survey. In interview discussions with industry executives, both internships and co-op experiences were the most commonly cited forms of engagement with academic institutions for student talent. Employers prefer these types of work-based learning models as they allow students to gain real-world experience and allow companies to evaluate potential future employees. This reinforces the value and "win-win" nature of practical, on-the-job training and early exposure to industry settings.

Some companies and regional industry development organizations are exploring or have implemented (pre-) apprenticeship programs aimed at providing detailed, hands-on training in specific roles within companies. These programs often focus on operational, mechanical, or technical roles and include both theoretical and practical training components. The 2027 report will break these engagements out as separate categories given their growing prominence across the country.

Other assessments of industry support for U.S. STEM education confirm these findings of significant life sciences industry engagement on a meaningful scale. TEConomy has partnered with PhRMA since 2015 to conduct periodic assessments of the biopharmaceutical industry's support for and leadership in partnering with K-12 schools, postsecondary institutions, and other private, non-profit entities to support and advance U.S. STEM education programs. The latest assessment, published in 2024, found that PhRMA member companies were impacting 111 million participating U.S. students and nearly 183,000 teachers at all education levels, through their 37 industry-supported U.S. STEM education programs over the latest five-year period.[9]

Forms of academic partnerships supported by life sciences companies to develop and connect with talented U.S. students at all academic levels include:

- Scholarship programs
- Internships, mentorships, co-op programs, and other career connections
- Guest lectures, classroom visits, science fairs and STEM events, career awareness
- Curriculum design and input
- Senior capstone and design projects
- Research collaborations
- (Pre-)Apprenticeship programs
- Teacher professional development

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9   TEConomy Partners, LLC and PhRMA, "The Biopharmaceutical Industry's Sustained Commitment to Enhancing the Nation's STEM Education and Workforce," 2024.

MEETING DEMAND AND DEVELOPING CAREERS THROUGH REGISTERED APPRENTICESHIP PROGRAMS

A growing number of biotech companies are looking to Registered Apprenticeship programs (RAs) to address their need for skilled workers. These programs typically combine theoretical knowledge with hands-on, practical skill development and work experience and - when designed as career pathways - create a structured approach for individuals to advance their careers through a variety of biotech roles, including laboratory technicians, research associates, and quality control specialists. The use of registered apprenticeship programs allows individuals to progress through different career levels by demonstrating mastery of specific skills and knowledge, often through certifications or other forms of assessment. This structured approach provides employers with a merit-based model for advancing employees through documented achievement of competencies and a defined plan for advancement.

While a number of life sciences companies have developed such programs in-house and/or in partnership with academic institutions, a new national initiative is working to scale registered apprenticeship programs across the country. Based on a decade of successful workforce development for the high-tech industry, Apprenti is now developing national standards for the life sciences.

APPRENTi. Empowering Workforce Innovation

Consistency meets flexibility with **Apprenti's Life Sciences Technician Registered Apprenticeship Programs**. This innovative framework enables regional training providers to cater to local employer needs while aligning to national standards. With a decade of success scaling registered apprenticeships in tech, we're now bringing our expertise to the life sciences industry. Together with the Life Science Workforce Collaborative, InnovATEBIO, and other national and regional partners, we are designing a robust infrastructure to **support the growth of a skilled workforce** and **increase the availability of talent within your industry**.

Apprenti Brings:

▶ Curated, turnkey curriculum and competency assessments aligned with your talent needs
▶ Partnerships with local educators and training centers
▶ Access to a pre-screened pool of motivated candidates
▶ Reduced time-to-productivity with work-ready apprentices
▶ Enhanced retention through structured learning and advancement pathways
▶ Increased ROI - Apprenti identifies and pursues funding from multiple sources

32
Average age

350+
Employers

5,000+
Apprentices

Learn more about Apprenti's Life Science RA Program

Medical Device Manufacturing Technician
Bio-manufacturing Cybersecurity Analyst
Facilities Technician
Biomanufacturing Technician
Quality Control / Quality Assurance
Maintenance Technician
Bioinformatics & Data Analysis
Metrology Technician
Production Technician
Biofabrication Technician
Pharmaceutical Fill & Finish Technician
Laboratory Technician
Clinical Trial Associate
Lab Animal Care Technician
Cell & Gene Therapy Technician
Sterile Processing Technician
Histology Technician
Clinical Research Coordinator
Medical Technician
Radiology Technician

◆ **Advanced Manufacturing**
◆ **Biotech**
◆ **Healthcare**

Life Sciences Industry Executives on Support for Local and Regional STEM Education and Other Targeted Workforce Development Efforts

> *"We partner with a number of academic institutions to offer internship and full-time job opportunities, as well as capstone and senior project partnerships. Through these project-based learnings, students have the opportunity to gain hands-on experience, engage with experts in their field of interest and explore how they can apply the skills they learn in the classroom in an industry setting."*

> *"We support high schools and post-secondary institutions through internships, co-ops, and community college partnerships. Historically, most of our focus has been on higher education, but we're exploring ways to engage with secondary schools. It's trickier in a regulated manufacturing environment, but we're working on it."*

> *"We have turned challenges into strategic opportunities by developing a biotech summer experience program through [our state Bioscience Association]. We have now offered this program for three consecutive years, providing paid internships to help prepare the next generation of the workforce. We also invest over $200,000 annually to support [a local public school Health and Medical Sciences Academy], helping students advance their laboratory techniques."*

> *"We bring in a lot of summer students, interns, and co-op participants. I personally push for co-op programs because I believe they are our future. It's our way of building a talent pipeline while also giving back to the community by providing young professionals with real-world experience."*

> *"We've supported curriculum development at [our local high school]. We participate in the apprenticeship program with [our state bioscience association]."*

> *"This is the first year we have more of an aligned approach to early career that includes the apprenticeship program with [state industry institute], and it seems like it's been a big success getting people trained. We want to do more of that going forward."*

BOZ LIFE SCIENCE RESEARCH AND TEACHING INSTITUTE: REAL RESEARCH, EARLY ENGAGEMENT

The Boz Life Science Research and Teaching Institute (Boz) engages high school, college, and graduate students in hands-on, inquiry-based original research that builds real-world skills and confidence—well before most traditional programs begin. **Designed to involve students early and deeply, Boz programs emphasize foundational and emerging life science skills—from "omics" and analytical chemistry to computational biology, including online bioinformatics training using R programming.**

In partnership with UC San Diego Division of Extended Studies, pre-college students—particularly those in the lab-based programs—work in small teams to:

- conduct research on topics such as neurobiology, environmental toxicology, and molecular ecology
- critically evaluate peer-reviewed scientific literature
- culture and maintain organisms
- help design and execute experiments
- manage and analyze data, interpret results, and present their findings to scientists and industry leaders

Boz also partners directly with industry to ensure students are gaining the technical, analytical and communication skills employers are seeking in the next generation of scientists and technicians.

Student reflections highlight the program's academic and personal impact:

> I got lots of hands-on lab experience at Boz, which I did not really get in high school—it helped me solidify the fact that I want to study STEM in college

> I realized that science is always evolving and there will forever be new ways to think about complex ideas... I was able to think about science concepts more holistically, rather than as isolated processes like RNA extraction

> The experience enabled me to think more critically when problem-solving.

Impact to Date

- Over 1,300 students (1,200 from high school)
- 22 states
- 23 countries
- 450 scholarships

Participation in Boz's research program significantly improves scientific reasoning and strengthens science-related attitudes among high school students. Students consistently show measurable gains in experimental design, analysis of molecular assays, and positive shifts in their perceptions of scientists and STEM careers.

These results are backed by published, peer-reviewed assessment.

By meeting students where they are—with engaging, rigorous, and authentic research-driven experiences—Boz helps fuel long-term student success in STEM and strengthens the bioscience workforce pipeline.

Learn more: www.bozinstitute.org

BIOSCOPE: REAL-WORLD LEARNING, EARLY INSPIRATION

BioSCOPE (Bioscience Supply Chain Operations Projects for Education) is a hands-on learning model that brings industry practices - including Quality and Good Manufacturing Practices (GMP) - into the classroom. Community college (CC) students produce biotech lab kits for local high school (HS) and CC science classes. Students learn to plan, produce, and deliver products while developing critical skills in operations, such as inventory management, documentation, labeling, storage, and customer service.

BioSCOPE in Action

Celebrating Onizuka Space Science Day 2025, El Camino College (Torrance, CA) biotech students planned and delivered a BioSCOPE project as part of a campus-wide outreach event for visiting high school (HS) and middle school students.

In preparation for the event, the students addressed key concepts such as lab safety, staffing needs, project deadlines, branding and marketing (see logo), and materials and equipment management. This included budgeting, tracking costs, understanding lead times, placing orders, ensuring proper storage (refrigeration and climate control), and logging supplies.

El Camino students then guided HS and middle school students through extracting and separating dyes from Skittles candies, explaining underlying scientific concepts and delivering lab lectures, providing younger students with an engaging hands-on learning experience, and fostering meaningful connections between older and younger students. Such connections help strengthen awareness of accessible biotechnology pathways and empower CC students to own and apply their learning.

El Camino students lead middle-/high-school students in candy dye extraction & separation using their prepared lab kits

Why BioSCOPE Matters

- **Students** gain industry-relevant work-based learning experiences that deepen technical and professional aptitude.

- **Educators** incorporate authentic industry workflows into their teaching, including ready-to-use templates, planning tools, and implementation guidance.

- **Bioscience educational/career pathways** are strengthened, bolstering the next generation of biotech students.

- **Industry** benefits from a scalable model for early talent engagement and development.

Biotechnology logo designed by El Camino students, placed on lab kits and lab coats

BioScope QR Code

Identifying High-Demand Occupations in the Life Sciences Industry

In addition to highlighting major themes emerging from the data analyses and qualitative insights shared by industry leaders, this report aims to inform the demand for specific occupations and skills within the life sciences industry and its major subsectors.

This section of the report leverages several sources and analyses to provide insights on both recent and anticipated occupational and skill areas of high demand across the nation's life sciences industry, including:

- **Industry "staffing patterns"**—examining the occupational makeup of the industry and how that is evolving, including for high-demand growth occupations across the industry's major subsectors.

- **Industry job posting activity**—shedding light on recent demand for key roles and occupations based on the job postings of life sciences companies.

- **The LSWC industry hiring survey**—providing forward-looking insights into future demand over the next year, as well as occupations for which companies have particular challenges and difficulty hiring.

Industry staffing patterns

The graphic in Figure 11 brings together three key occupational employment metrics illustrating the detailed dynamics within the nation's life sciences industry overall—the **current employment level** within the industry (size of each bubble), the **concentration in life sciences relative to all other industries** (location quotient on the vertical axis—where a value greater than 1.0 indicates a greater concentration relative to the national average/all industries), and the **recent employment trend for each occupation** within the life sciences industry (horizontal axis). This is limited to those larger occupational groups that comprise at least 0.5% of total employees in the U.S. industry.

In the last two years, the life sciences industry has seen strong, significant hiring activity and high levels of industry concentration among:

- **IT/Tech occupations,** including rapid growth among software developers, systems analysts, software QA testers, and information security analysts. These roles signify continued strong demand for tech development, cybersecurity expertise, and enhanced data sciences, industrial automation, and AI capabilities.

- **Life Scientists,** including strong double-digit growth rates in the industry for medical scientists, biological scientists, and microbiologists.

- **Skilled production positions,** in which two roles have increased rapidly—computer numerically controlled (CNC) tool programmers and chemical plant and system operators. These roles are vital in modern advanced manufacturing operations and increasingly require updated digital skills aligned with Industry 4.0 technology deployment. In addition, assemblers and fabricators continue to be in high demand with strong hiring trends since 2022.

- **Data Scientist roles,** which are nearly two times as concentrated within the life sciences industry relative to national industry averages—jobs have grown by 22% since 2022 among life sciences companies.

- **Materials Scientists,** which, while relatively modest in overall size, were among the fastest-growing occupations, reflective of broad-based innovations in medical devices and equipment and other subsectors.

- **Bioengineering roles,** which have increased rapidly—nearly 21%—since 2022. By contrast, the broader engineering field has not seen rapid growth over these two years, though there continues to be more modest, steady growth among industrial engineering and industrial engineering technicians, as well as materials engineers.

Figure 11: Employment Position and Performance of Detailed Occupations within the U.S. Life Sciences Industry—Employment Levels (Size of Bubble), Concentration (Location Quotient), and Recent Growth
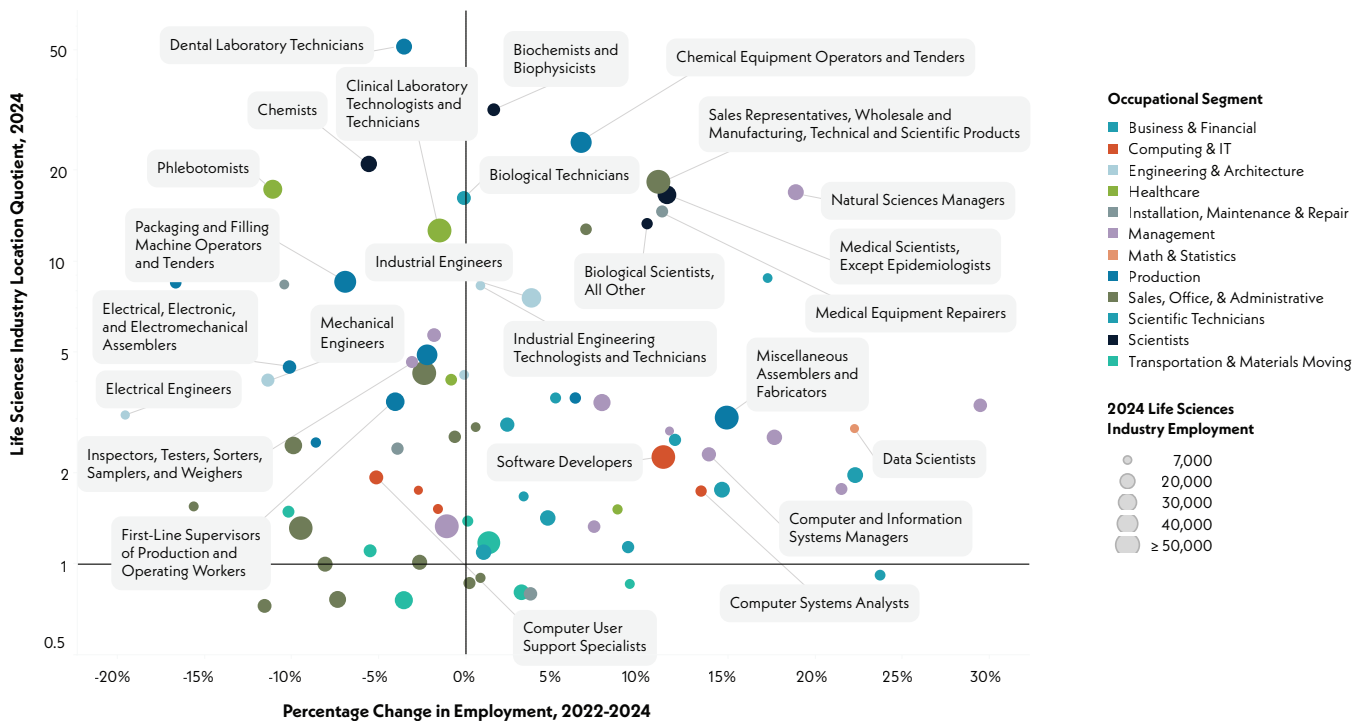
Source: TEConomy Partners' analysis of Lightcast Industry Staffing Patterns Data, 2025.1.

Among the life sciences' major subsectors, there exists both a cross-cutting, as well as a more unique demand for key roles, highlighted in Figure 12. Each of these occupations has a significant employment base within their respective subsectors today, accounting for at least 0.5% of total subsector employment, and have demonstrated the fastest growth within the sector since 2022, typically at double-digit growth rates. Highlights and key themes seen across the subsectors:

- **Several occupations, skills, and job functions cross-cut multiple industry subsectors** including bioengineers, data scientists, logisticians, and compliance officers, which reflect the critical regulatory affairs emphasis unique across the life sciences industry. IT and tech talent stands out across varied functions spanning software development, systems analysts, and information security/cybersecurity roles. In addition, management talent in various capacities and subject matter areas has risen to the forefront spanning project management, IT managers, and industrial production managers.

- **Examples of the more unique context of industry subsectors' high-demand roles include:**
  - Pharmaceutical manufacturing, seeking microbiologists and chemical plant and system operators.

  - Medical device production, seeking assemblers and fabricators and industrial machinery mechanics, as well as bioengineers and industrial production managers.

  - Research, testing, and medical labs, hiring for medical scientists as well as a breadth of tech occupations including software development, software QA testing, information security, computer and IT management, and data scientists. This subsector includes emerging, pre-commercial biotech companies in addition to contract research organizations (CROs), who are clearly investing in tech capabilities for data sciences, drug development, and other advanced analytics and AI applications.

  - Agricultural feedstock and industrial biosciences, seeking skilled production operators for extruding and drawing, packaging and filling, and crushing, grinding, and polishing, and engineering professionals in mechanical and chemical engineering, as well as chemical technicians.

  - Bioscience-related distribution, hiring for analysts and a breadth of technical talent, as well as more unique areas such as buyers and purchasing agents.

Figure 12: High-Demand Occupations by Life Sciences Industry Subsector—Based on Job Growth, 2022-24

Agbiosciences	Pharmaceuticals	Medical Devices	Research, Testing, & Medical Labs	Bio-Related Distribution
Packers and Packagers, Hand	Bioengineers and Biomedical Engineers	Assemblers and Fabricators	Software Quality Assurance Analysts and Testers	Management Analysts
Extruding and Drawing Machine Setters, Operators, Metal and Plastic	Chemical Plant and System Operators	Bioengineers and Biomedical Engineers	Chief Executives	Computer Systems Analysts
Logisticians	Production Workers, General	Computer Occupations, All Other	Natural Sciences Managers	Computer and Information Systems Managers
Occupational Health and Safety Specialists	Life Science Technicians, All Other	Industrial Machinery Mechanics	Data Scientists	Software Developers
Packaging and Filling Machine Operators	Project Management Specialists	Compliance Officers	Information Security Analysts	Maintenance and Repair Workers, General
Crushing, Grinding, and Polishing Machine Setters, and Operators	Natural Sciences Managers	Industrial Production Managers	Medical Scientists, Except Epidemiologists	Project Management Specialists
Maintenance and Repair Workers, General	Data Scientists	Computer and Information Systems Managers	Compliance Officers	Medical Equipment Repairers
Chemical Technicians	Logisticians	Logisticians	Software Developers	Buyers and Purchasing Agents
Mechanical Engineers	Compliance Officers		Project Management Specialists	
Chemical Engineers	Microbiologists		Computer and Information Systems Managers	

Source: TEConomy Partners' analysis of Lightcast Industry Staffing Patterns Data, 2025.1.

Industry Job Posting Activity

Job postings by life sciences employers offer an alternative to the formal and sometimes dated "Standard Occupational Classifications" (SOC) used in federal statistics and the preceding staffing patterns analyses, and instead offer insights into specific job titles used in the marketplace. With that acknowledged, given the sheer number of national industry job postings and the different ways in which employers title similar positions, Figure 13 utilizes groupings of leading job titles for summary purposes.

Life sciences firms have published 2.9 million unique (non-duplicative) job postings during the last four years. The firms leading this talent demand activity are highlighted in the sidebar and reflect the diversity of subsectors and innovation focus in the life sciences, from biopharmaceuticals (e.g., Johnson & Johnson, Merck, Pfizer) to medical devices and equipment (e.g., Thermo Fisher Scientific, Medtronic, Stryker), medical labs (e.g., Quest Diagnostics, Labcorp, Eurofins), CROs (e.g., IQVIA) and distribution (e.g., Cardinal Health).

The leading job roles and titles from these postings are limited to technical and production-related functions, with the latest year highlighted for gauging more recent employer demand. While job posting activity has significantly moderated in the last two years, there remains a strong and steady demand for key positions:

- **Medical Technicians,** including an ongoing, large demand across the nation for phlebotomists, primarily among medical lab operations focused on diagnostic testing, but also among biopharmaceutical companies focused in blood plasma-based products. Other leading titles include medical lab technicians and histotechnicians who prepare tissue samples.

  - *Example job titles:* Phlebotomist, Mobile Phlebotomist, Plasma Processing Technicians, Medical Lab Technicians, Histotechnicians.

- **Quality Assurance (QA) and Quality Control (QC)** represent distinct but complementary roles that ensure products are safe, effective, and compliant with regulations. QA is process-oriented and focuses on preventing defects by ensuring that proper processes and systems, such as SOPs, are in place throughout the product lifecycle, including: ensuring regulatory compliance, overseeing GMP adherence, investigating deviations, etc. QC is product-oriented and focuses on detecting defects by testing and inspecting products to ensure they meet specifications. These roles are utilized across every life sciences subsector.

  - *Example job titles:* Quality Engineers, QA Specialists, QA Managers, QC Analysts, QC Technicians.

- A varied set of **Life and Physical Scientists** are driving R&D, innovation, commercialization, and product development, and are informing production across the industry, including medical scientists, chemists, and a wide range of postings broadly for scientific talent. Medical Scientists includes an array of specializations focused on varied disease and human health areas engaged in clinical investigations and R&D. Scientists are employed throughout the industry, though most concentrated in pharmaceuticals and in research, testing, and medical lab subsectors.

  - *Example job titles:* Principal Scientists, Research Scientists, Process Development Scientists, Chemists, Medical Scientists, Pharmacologists, Immunologists, Infectious Disease Specialists, Oncologists, Neuroscientists, Toxicologists, and Diagnosticians.

- In the life sciences industry, **Data Scientists** play a critical role in unlocking insights from complex biological, clinical, and operational data to drive innovation, improve patient outcomes, and optimize business performance. These roles span domains such as: drug discovery and development; clinical trials, including design, recruitment, and predictive analytics; real-world evidence and epidemiology analyzing data from Electronic Health Records (EHRs) and supporting post-market surveillance and pharmacovigilance; manufacturing and quality; harnessing and analyzing data from MedTech devices and digital health platforms; and informing commercial and market insights. Job postings for Data Scientists have been combined to cover the range of ways in which employers refer to these professionals and their expertise.

  - *Example job titles:* Data Scientists, Biostatisticians, Statistical Programmers, Bioinformatics Scientists, Computational Biologists.

Figure 13: Leading Technical and Production-Related Job Titles in Life Science Industry Job Postings*, 2021-24
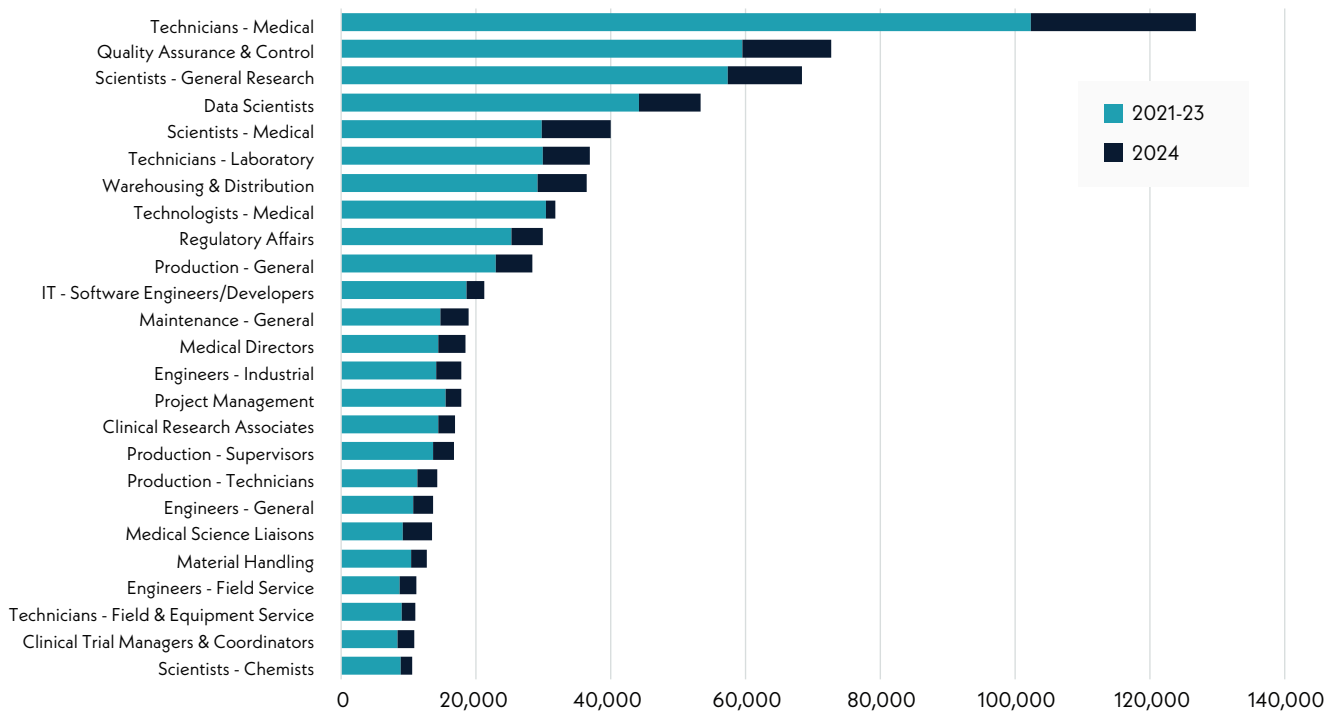
Note: Lightcast limits information on job titles and corresponding numbers of postings to the top 1,000, limiting the ability to provide comprehensive totals by categories.

*Note: This figure reflects leading job titles in technical and production and distribution-related roles in the life sciences job postings. It excludes large segments of the industry workforce in managerial, sales, and other business functions to focus on more actionable intelligence for life sciences-specific education and workforce development.

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Industry Hiring Survey

The industry hiring survey asked human resource professionals and hiring managers to anticipate their hiring expectations over the coming year across a set of selected occupational areas. Figure 14 presents this by the number of companies reporting hiring plans within a set of "banded" hiring levels or counts that offer ranges for expected hiring. The survey was designed in this manner so as not to overburden respondents with tracking down highly specific expected hiring levels. Most companies plan to hire, on some level, over the next year—78% plan to hire at least one worker.

Similar to findings from the 2023 hiring survey, life science companies **anticipate hiring large numbers of manufacturing and production workers over the next year** (Figure 14). Twenty-eight companies estimate they plan to hire 30 or more workers in these roles, with an additional 10 companies anticipating between 21 to 30 hires. Significant expectations for hiring production roles are reported across industry subsectors. The companies with plans to hire at significant levels for these roles are primarily among the large (between 500 and 1,000 total employees) or very large (greater than 1,000 total employees) biopharmaceutical and medical device manufacturers, as well as a smaller number of companies operating in the research, testing, and medical labs subsector.

The following roles also have a strong hiring outlook according to industry HR executives:

- **Lab Technicians**, with 15 companies planning to hire more than 30 in the coming year.
- **Quality Control or Quality Assurance**, with 14 companies planning to hire more than 30 in the coming year.
- **Engineers**, with 11 companies planning to hire more than 30 in the coming year.
- Several occupational areas, including **research scientists, clinical research professionals, regulatory affairs and compliance, and engineering technicians** are reported as planned hires of more than 30 by 9 companies.

Figure 14: Anticipated Hires Over Next 12 Months by Number of Hires (Range) and Number of Life Sciences Companies
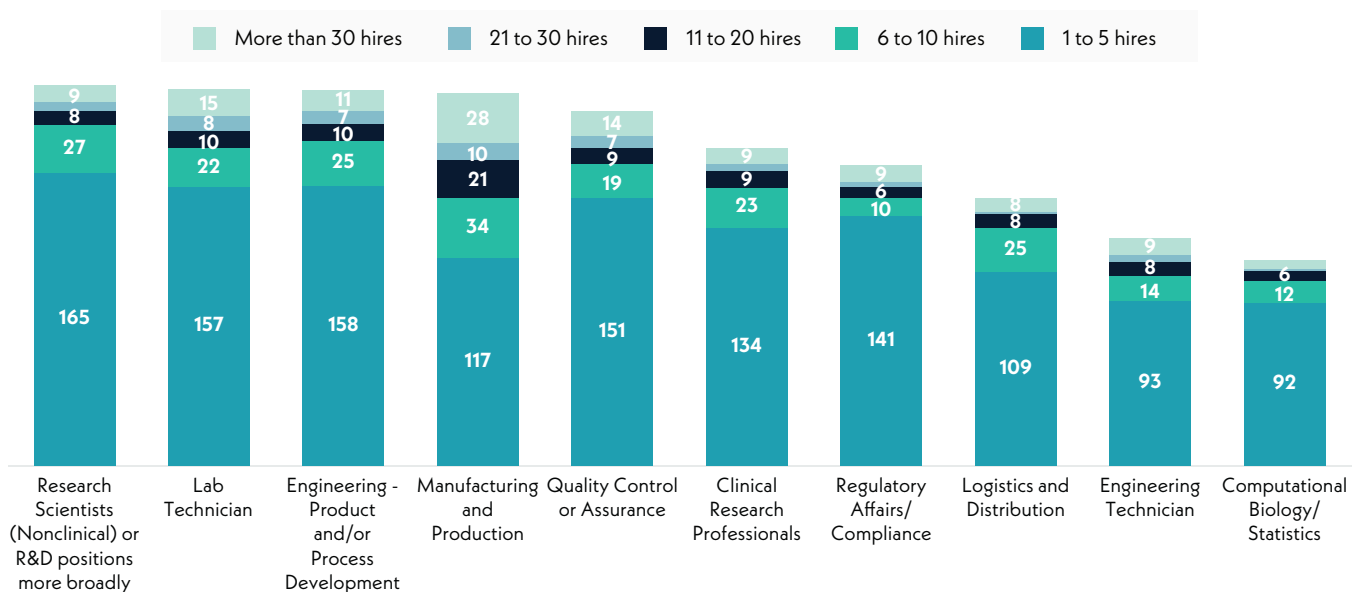
Source: LSWC and TEConomy Partners Life Sciences Industry Hiring Survey 2025.

Considering each of the inputs to the demand analyses for life sciences industry workforce and talent, several high-demand occupational areas consistently emerge, which demonstrate characteristics spanning strong recent growth within the industry, strong demand evident from corporate job postings, and anticipation of hiring over the next year. These occupations are summarized at a high level in Table 2 and should serve as a guide to industry stakeholders, LSWC leadership, educational and training institutions, and workforce development partners as areas of near-term priority for meeting the talent needs of the life sciences industry.

Most roles meet significant, high-demand thresholds across at least one or two of the analyses presented within this section (signaled by a dark, fully shaded symbol), and just one occupational group—Quality Assurance and Quality Control—has a significant level for all three. While all of these occupations are exhibiting strong demand overall, those with two or three designations across the high-demand thresholds can be considered among the highest-demand and greatest priority among life sciences firms, including:

- **Life Scientists**
- **Skilled Production & Maintenance**
- **Data Scientists**
- **Regulatory Affairs & Compliance**
- **Lab Technicians**
- **Quality Assurance and Control**
- **Project Management**

Table 2: Summary of High-Demand Occupations in the Life Sciences Industry

Occupation or Occupational Grouping	Among High-Growth Leaders or Expectations for Highest-Growth			Industry Subsectors Driving Demand
	Industry Staffing Patterns, Recent Growth	Industry Job Posting Activity	Industry Hiring Expectations (Hiring Survey)	
Life Scientists, including medical scientists, biological scientists, microbiologists	●	●	○	Pharmaceuticals; Research, Testing, & Medical Labs
Physical Scientists, including chemists, materials scientists	○	○	○	All, cross-cutting
Skilled Production & Maintenance	●	○	●	All, cross-cutting
Data Scientists	●	●	○	All, cross-cutting
Engineers, including bioengineers, industrial, and materials	●	○	○	Medical Devices; Pharmaceuticals
Regulatory Affairs, Compliance	●	●	○	All, cross-cutting
IT/Tech Professionals	○	○	n/a	All, cross-cutting
Medical Technicians	--	●	n/a	Research, Testing, & Medical Labs; Pharmaceuticals
Lab Technicians	○	●	●	All, cross-cutting
Quality Assurance and Quality Control	●	●	●	All, cross-cutting
Project Management	●	●	n/a	All, cross-cutting

Note: Dark, fully shaded circles represent more significant growth rates, job posting volumes, and hiring expectations relative to open, non-shaded circles, which still represent significant demand indicators, though to a lesser degree or volume.

Source: TEConomy Partners' analyses.

Life Sciences Industry Executives on In-Demand Occupations, Skill Sets and Challenges with Sourcing and Hiring Qualified Candidates

"Technical roles have remained a challenge, so anything where you have higher-end technical skills, or even the production equivalent of tradespeople ... our mechanics, our technicians, automation controls experts. These types of roles are in short supply, have been for a while."

"One of the main critiques we've heard throughout the years is a lack of manufacturing operators."

"Bioinformatics is a key area of focus due to the large amounts of data we generate. We anticipate a need for experts in specific scientific areas and therapeutic disease areas, including expertise in pre-clinical models."

"We do face challenges filling certain roles-especially higher-level process automation engineers."

"As it relates to specific labor categories, there's an acute shortage of trained biostatisticians and data scientists. That labor category is not being created enough by our [State] institutions. And when they are trained and developed - like PhDs - they're oftentimes migrating towards the tech sector, and away from the biotech sector."

"AI and digital skills are a top priority, also 'bilingual' scientists bridging digital and life sciences, are in high demand."

Conclusion

The nation's life sciences industry is facing a set of relatively unique, converging challenges that are slowing overall employment growth, even as talent needs in biopharmaceutical manufacturing and other segments of the industry continue to expand. These dynamics highlight the ongoing imperative to invest in skilled workforce development—both to improve efficiency and to position the industry for future growth.

Today's challenges span the full innovation cycle, including: moderated investments in new firms and discoveries; corporate "right-sizing" in the wake of pandemic-related hiring surges; rapid adoption and integration of AI, advanced automation and other emerging technologies; and a prevailing sense of "uncertainty" as the industry and its extended ecosystem navigate the implementation of tariffs, federal cuts to biomedical and other related grant funding, changes in the Food and Drug Administration, and the potential for drug price controls.

The findings and major themes elevated in this report represent a snapshot in time as these dynamics continue to evolve. However, as it did with the recent pandemic and prior economic contractions, the life sciences industry has long demonstrated its resilience and a continued emphasis on innovation and significant forward-looking investments in manufacturing and R&D capabilities, all of which have implications for workforce development and talent demand.

Life sciences employers must continue to make strong investments in academic and other training partnerships to ensure the development of a strong domestic talent pipeline, one poised to adopt and integrate new digital and emerging technologies. These investments range from early exposure and career awareness initiatives with younger students, to hands-on, work-based experience for the developing workforce. Today's life sciences employers may increasingly choose from a growing menu of short-term, flexible, customized and credentialed training options to meet their evolving talent needs for both new and incumbent workers.

Academic and other workforce training organizations must continue to listen and respond to employers' shifting skill needs and offer an array of relevant and flexible skills training programs, including short-term, quick-hit and customized training for developing and current employees.

Policymakers now have in their hands a comprehensive blueprint for meeting the workforce imperatives of the current Biotechnology Revolution. The recent report by the bipartisan National Security Commission on Emerging Biotechnology (NSCEB) provides a set of far-reaching recommendations that will ensure U.S. national security and its leadership in the global race for biotechnology talent.

Appendix A:

Defining the Industry and Subsector Talent Demand Profiles

Table A-1: Defining the Life Sciences Industry—TEConomy Partners/BIO NAICS-Based Industry Definition

Life Sciences Industry Subsector	NAICS Code	NAICS Description
Agricultural Feedstock & Industrial Biosciences	311221	Wet Corn Milling
	311224	Soybean and Other Oilseed Processing
	325193	Ethyl Alcohol Manufacturing
	325311	Nitrogenous Fertilizer Manufacturing
	325312	Phosphatic Fertilizer Manufacturing
	325314	Fertilizer (Mixing Only) Manufacturing
	325315	Compost Manufacturing
	325320	Pesticide and Other Agricultural Chemical Manufacturing
Bioscience-related Distribution	423450*	Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers
	424210*	Drugs and Druggists' Sundries Merchant Wholesalers
	424910*	Farm Supplies Merchant Wholesalers
Medical Devices & Equipment	334510	Electromedical and Electrotherapeutic Apparatus Manufacturing
	334516	Analytical Laboratory Instrument Manufacturing
	334517	Irradiation Apparatus Manufacturing
	339112	Surgical and Medical Instrument Manufacturing
	339113	Surgical Appliance and Supplies Manufacturing
	339114	Dental Equipment and Supplies Manufacturing
Pharmaceuticals	325411	Medicinal and Botanical Manufacturing
	325412	Pharmaceutical Preparation Manufacturing
	325413	In-Vitro Diagnostic Substance Manufacturing
	325414	Biological Product (except Diagnostic) Manufacturing
Research, Testing, & Medical Laboratories	541380*	Testing Laboratories
	541713*	Research and Development in Nanotechnology
	541714	Research and Development in Biotechnology (except Nanobiotechnology)
	541715*	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
	621511	Medical Laboratories

*Note: Includes only the portion of these industries engaged in relevant life sciences activities

Subsector Talent Demand Snapshot: Agricultural Feedstock & Industrial Biosciences

Figure A-1: Trend in Industry Job Postings, 2021-24

20,274 — 2021
21,634 — 2022
20,209 — 2023
14,404 — 2024
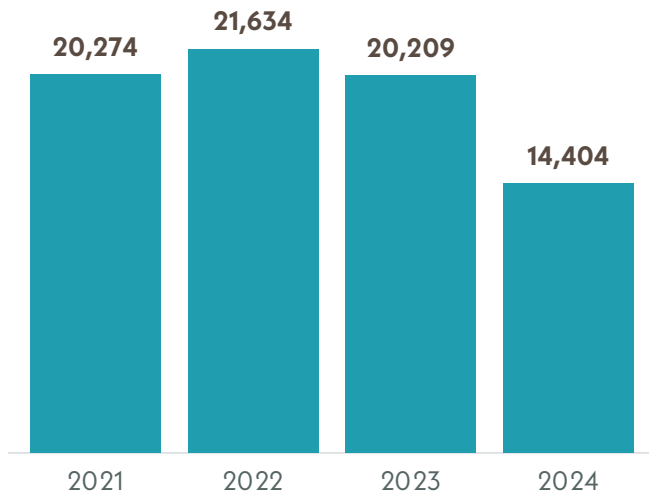
Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Figure A-2: Leading Hiring Companies, 2021-24

Agbiosciences

Top Companies in Descending Order of Unique Job Postings

- Nutrien
- J.R. Simplot Company
- Wilbur-Ellis
- Corteva
- The Mosaic Company
- Ingredion
- MFA Incorporated
- CF Industries
- Green Plains
- FMC Corporation

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Figure A-3: Leading Technical and Production-Related Job Titles in Agbiosciences Industry Job Postings*, 2021-24

Management - General
Warehousing & Distribution
Production - General
Crop Consultants
Maintenance - General
Quality Assurance & Control
IT - Software Engineers/Developers
Technicians - Field & Equipment Service
Production - Supervisors
Production - Technicians
Material Handling
Data Scientists
Engineers - Industrial
Engineers - General
Technicians - Laboratory

Legend: 2021-23 / 2024

Note: Lightcast limits information on job titles and corresponding numbers of postings to the top 1,000, limiting the ability to provide comprehensive totals by categories.

***Note:** This figure reflects leading job titles in technical and production and distribution-related roles in the life sciences job postings, it excludes large segments of the industry workforce in sales and other business functions to focus on more actionable intelligence for life sciences-specific education and workforce development.

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Subsector Talent Demand Snapshot: Bioscience-Related Distribution

Figure A-4: Trend in Industry Job Postings, 2021-24

- 2021: 111,431
- 2022: 113,358
- 2023: 96,491
- 2024: 103,040
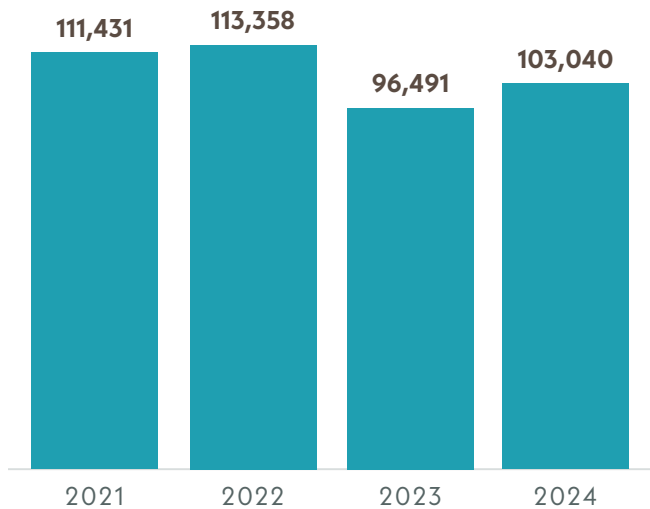
Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.
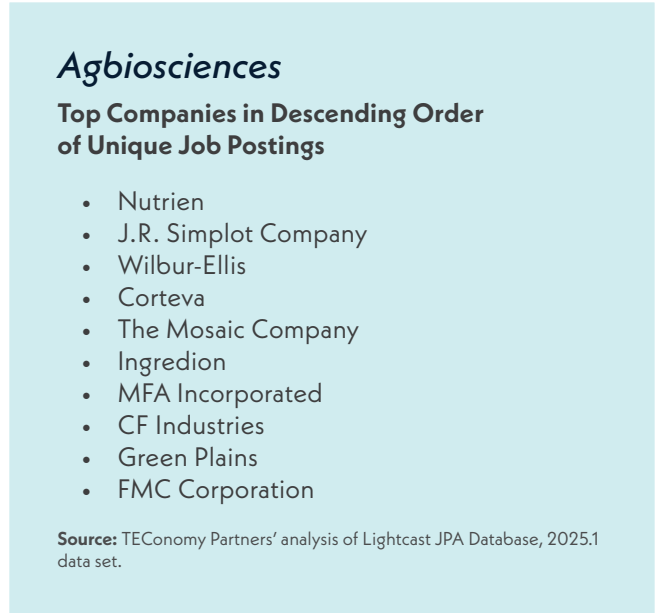
Figure A-5: Leading Hiring Companies, 2021-24

Bioscience-related Distribution

Top Companies in Descending Order of Unique Job Postings

- Cardinal Health
- Stryker
- McKesson
- Cencora
- AdaptHealth
- Patterson Companies
- Boehringer Ingelheim International
- Canon Medical Systems USA
- ZOLL Medical Corporation
- Cepheid

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Figure A-6: Leading Technical and Production-Related Job Titles in Bioscience Distribution Industry Job Postings*, 2021-24
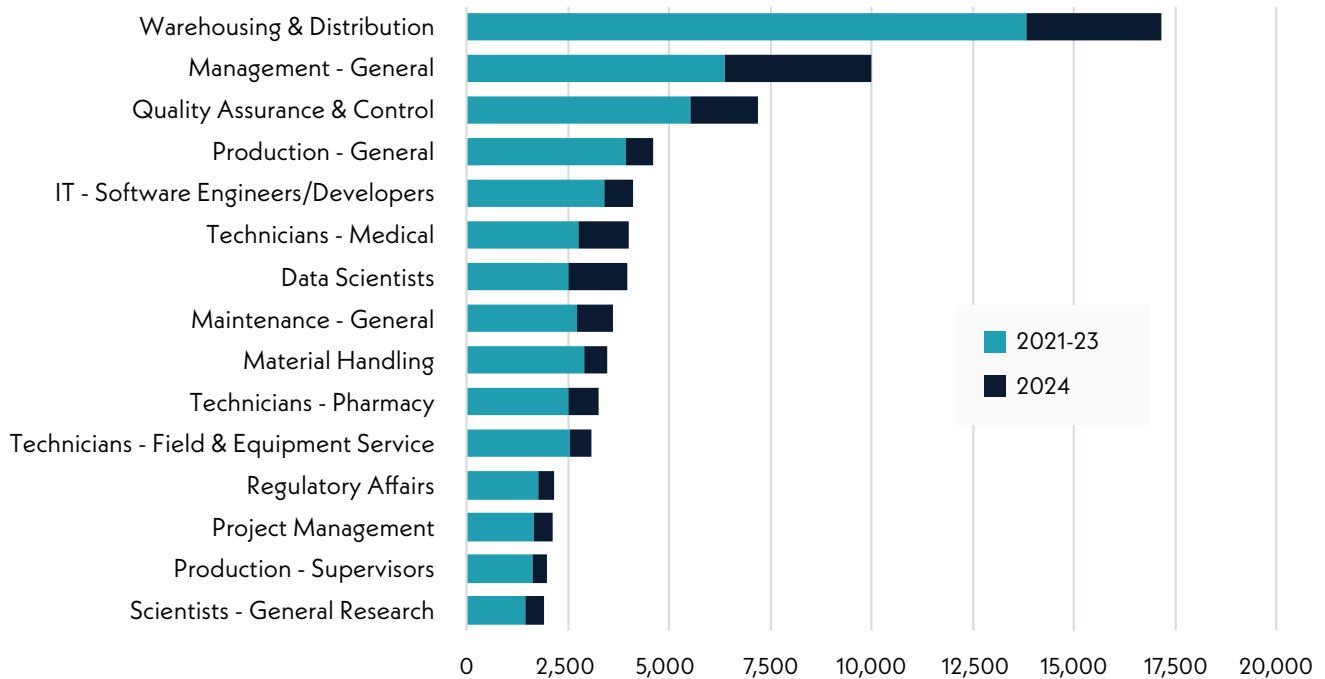
Legend: 2021-23, 2024

Categories (top to bottom):
- Warehousing & Distribution
- Management - General
- Quality Assurance & Control
- Production - General
- IT - Software Engineers/Developers
- Technicians - Medical
- Data Scientists
- Maintenance - General
- Material Handling
- Technicians - Pharmacy
- Technicians - Field & Equipment Service
- Regulatory Affairs
- Project Management
- Production - Supervisors
- Scientists - General Research

Note: Lightcast limits information on job titles and corresponding numbers of postings to the top 1,000, limiting the ability to provide comprehensive totals by categories.

*Note: This figure reflects leading job titles in technical and production and distribution-related roles in the life sciences job postings, it excludes large segments of the industry workforce in sales and other business functions to focus on more actionable intelligence for life sciences-specific education and workforce development.

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Subsector Talent Demand Snapshot: Medical Devices & Equipment

Figure A-7: Trend in Industry Job Postings, 2021-24

200,536 205,155 138,186 134,553

2021 2022 2023 2024
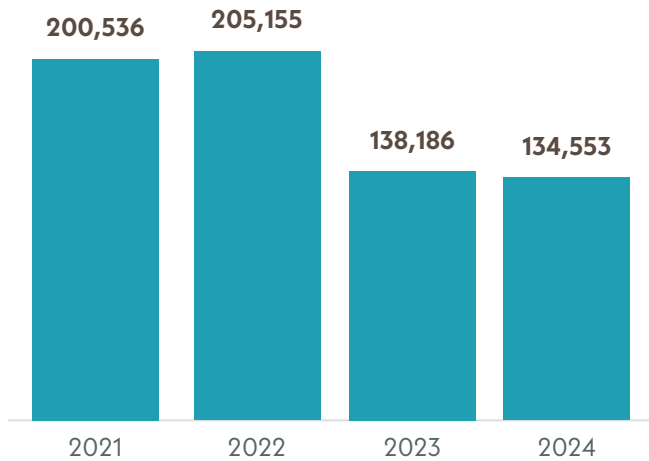
Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Figure A-8: Leading Hiring Companies, 2021-24

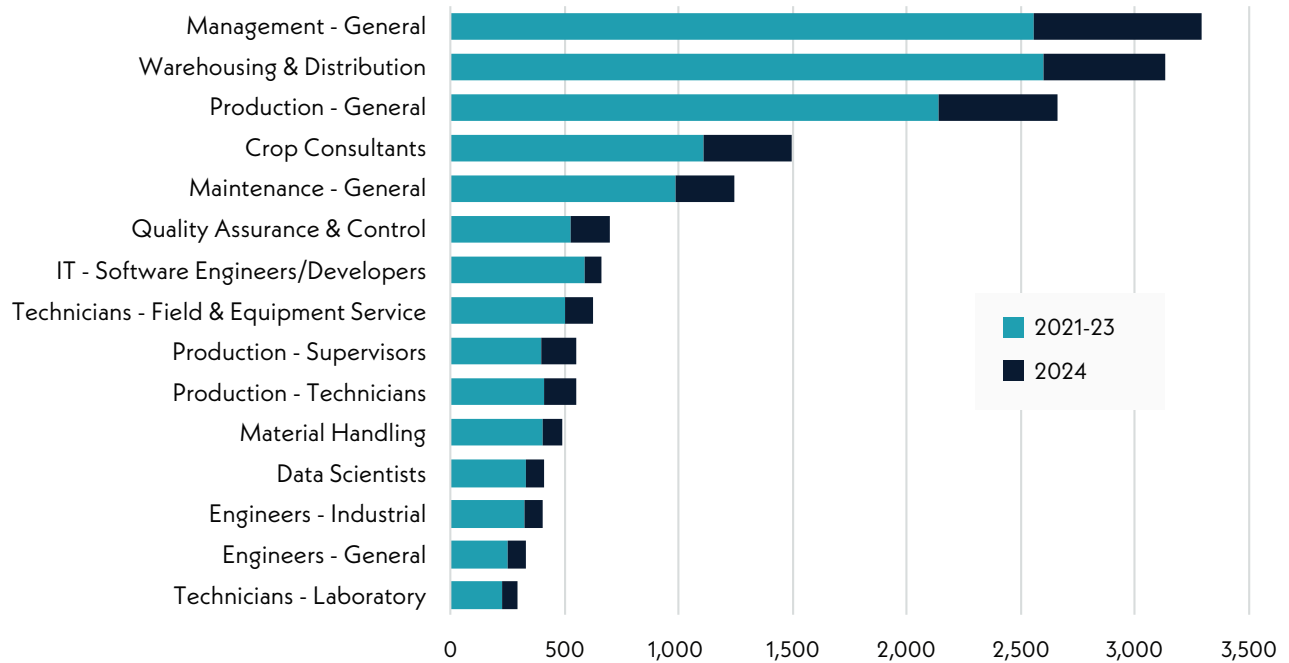## *Medical Devices & Equipment*

Top Companies in Descending Order of Unique Job Postings

- Thermo Fisher Scientific
- Danaher
- Abbott Laboratories
- Medtronic
- Siemens Healthineers
- Medline Industries
- Baxter International
- BD
- Boston Scientific
- Steris Corporation

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Figure A-9: Leading Technical and Production-Related Job Titles in Medical Devices & Equipment Job Postings*, 2021-24

Management - General
Technologists - Medical
Quality Assurance & Control
IT - Software Engineers/Developers
Scientists - General Research
Warehousing & Distribution
Engineers - Industrial
Engineers - Field Service
Production - General
Data Scientists
Production - Supervisors
Material Handling
Maintenance - General
Regulatory Affairs
Technicians - Field & Equipment Service

■ 2021-23
■ 2024

0   5,000   10,000   15,000   20,000   25,000   30,000

Note: Lightcast limits information on job titles and corresponding numbers of postings to the top 1,000, limiting the ability to provide comprehensive totals by categories.

*Note: This figure reflects leading job titles in technical and production and distribution-related roles in the life sciences job postings, it excludes large segments of the industry workforce in sales and other business functions to focus on more actionable intelligence for life sciences-specific education and workforce development.

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Subsector Talent Demand Snapshot: Pharmaceuticals

Figure A-10: Trend in Industry Job Postings, 2021-24

211,020 (2021)
284,466 (2022)
230,935 (2023)
215,539 (2024)

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.
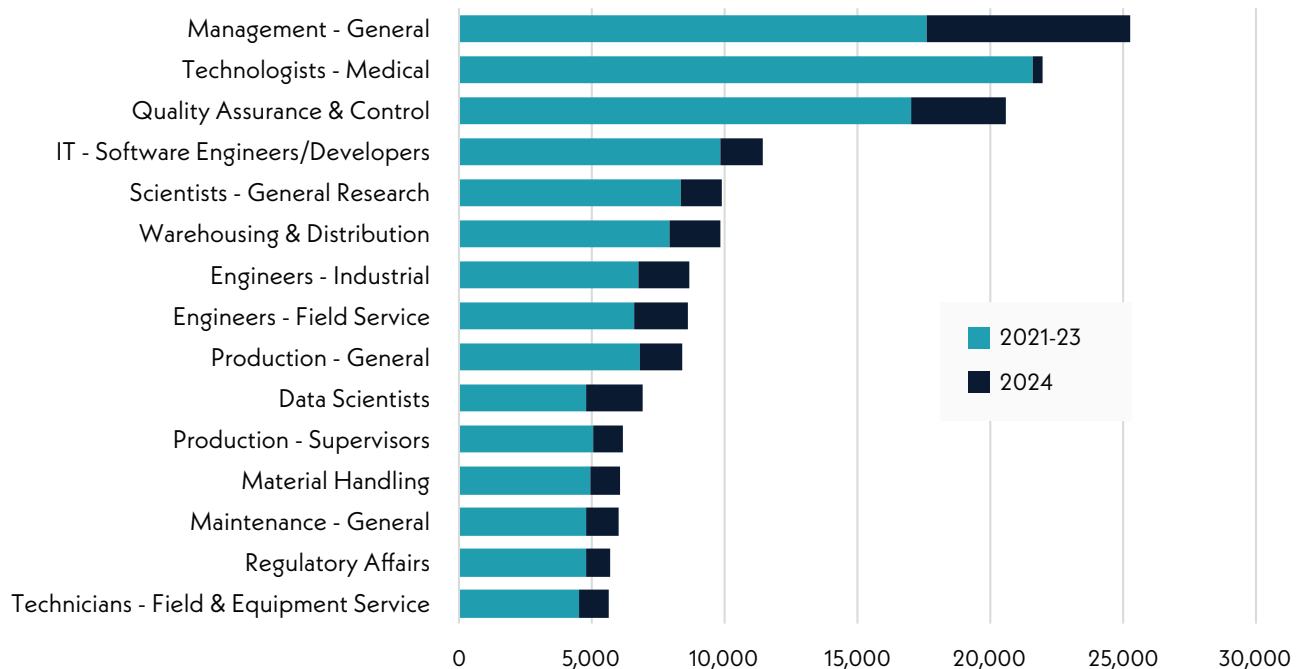
Figure A-11: Leading Hiring Companies, 2021-24

Pharmaceuticals

Top Companies in Descending Order of Unique Job Postings

- Johnson & Johnson
- Merck & Co.
- Pfizer
- Takeda Pharmaceutical Company
- CSL
- Bausch Health
- Grifols
- Bristol-Myers Squibb
- Sanofi
- AbbVie

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Figure A-12: Leading Technical and Production-Related Job Titles in Pharmaceutical Manufacturing Job Postings*, 2021-24

Legend: 2021-23, 2024

Job titles (top to bottom): Management - General, Scientists - General Research, Quality Assurance & Control, Scientists - Medical, Technicians - Medical, Data Scientists, Regulatory Affairs, Medical Directors, Medical Science Liaisons, Production - General, Production - Supervisors, Engineers - Industrial, Production - Technicians, Maintenance - General, Engineers - General
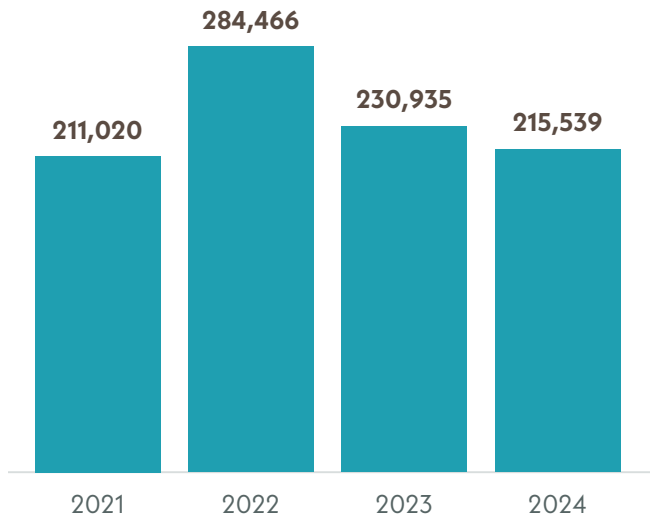
Note: Lightcast limits information on job titles and corresponding numbers of postings to the top 1,000, limiting the ability to provide comprehensive totals by categories.

***Note:** This figure reflects leading job titles in technical and production and distribution-related roles in the life sciences job postings, it excludes large segments of the industry workforce in sales and other business functions to focus on more actionable intelligence for life sciences-specific education and workforce development.

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Subsector Talent Demand Snapshot: Research, Testing, & Medical Labs

Figure A-13: Trend in Industry Job Postings, 2021-24

229,841
248,418
175,147
129,678

2021
2022
2023
2024

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.
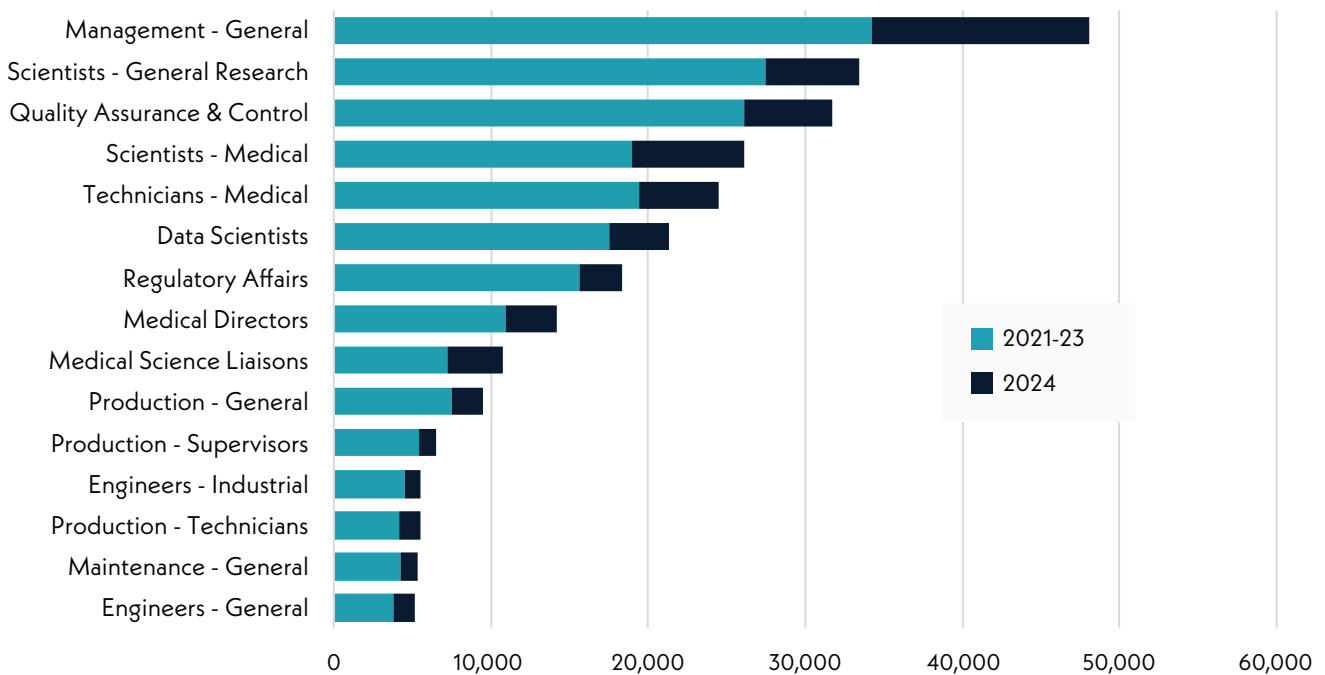
Figure A-14: Leading Hiring Companies, 2021-24

Research, Testing, & Medical Labs

Top Companies in Descending Order of Unique Job Postings

- Quest Diagnostics
- Labcorp
- IQVIA
- Eurofins
- ICON
- Charles River Laboratories
- Parexel
- Syneos Health
- Fortrea Inc.

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.
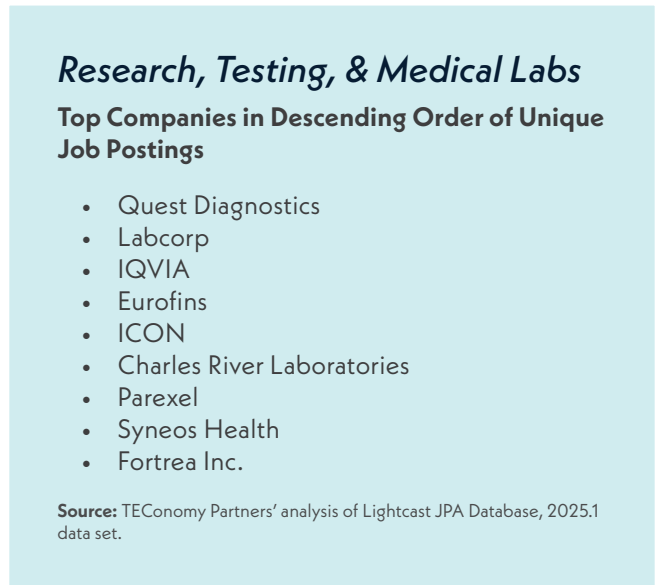
Figure A-15: Leading Technical and Production-Related Job Titles in Research, Testing, & Medical Labs Job Postings*, 2021-24
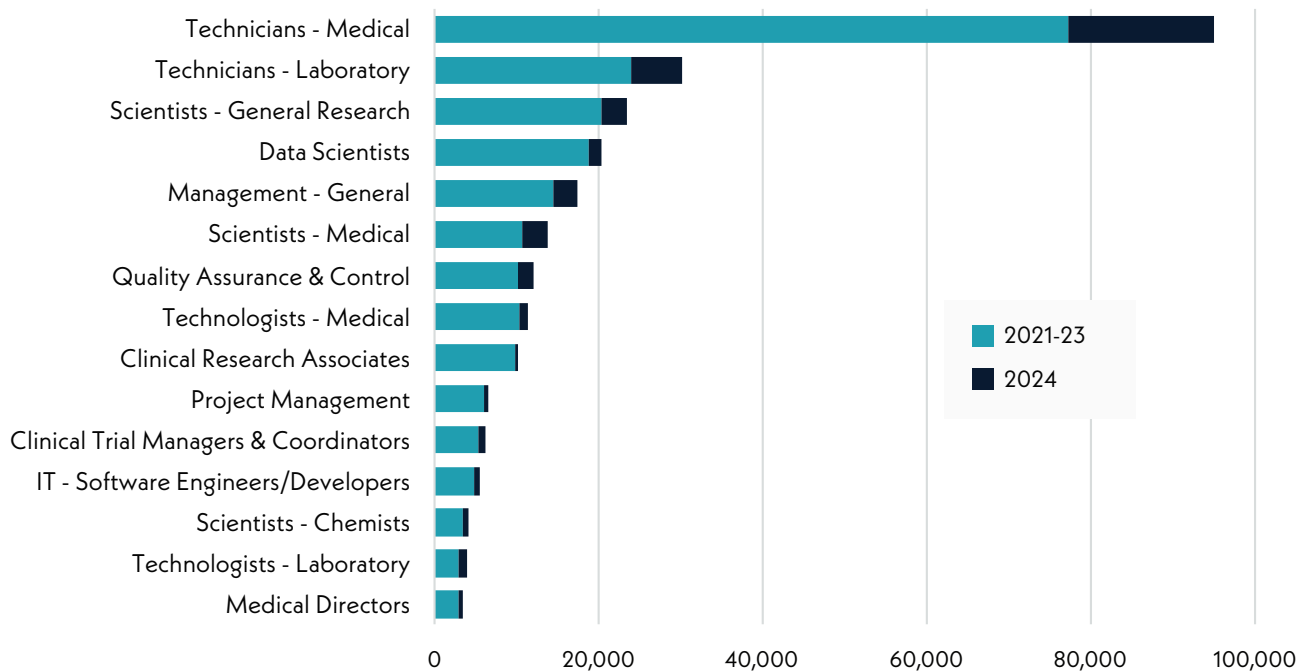
Technicians - Medical
Technicians - Laboratory
Scientists - General Research
Data Scientists
Management - General
Scientists - Medical
Quality Assurance & Control
Technologists - Medical
Clinical Research Associates
Project Management
Clinical Trial Managers & Coordinators
IT - Software Engineers/Developers
Scientists - Chemists
Technologists - Laboratory
Medical Directors

Legend:
- 2021-23
- 2024

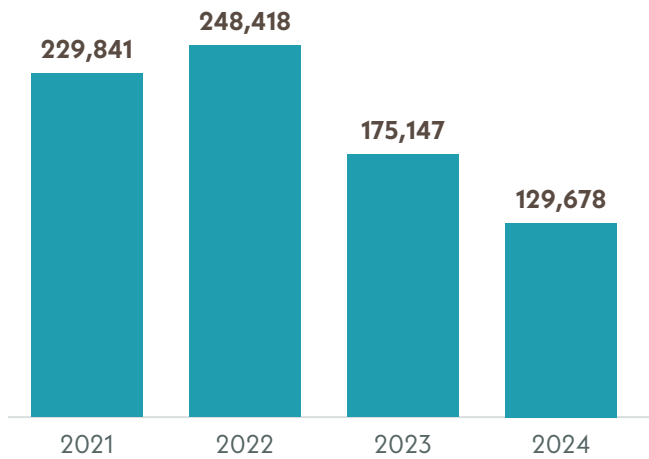0   20,000   40,000   60,000   80,000   100,000

Note: Lightcast limits information on job titles and corresponding numbers of postings to the top 1,000, limiting the ability to provide comprehensive totals by categories.

***Note:** This figure reflects leading job titles in technical and production and distribution-related roles in the life sciences job postings, it excludes large segments of the industry workforce in sales and other business functions to focus on more actionable intelligence for life sciences-specific education and workforce development.

Source: TEConomy Partners' analysis of Lightcast JPA Database, 2025.1 data set.

Appendix B:

Methodology

The following provides an overview of both the survey and interview efforts used to gather input from industry leaders on life sciences workforce trends across the nation, as well as report summary information on respondents. It is important to recognize the significant macroeconomic, domestic policy, and global geopolitical shifts underway during the information collection period relative to the timing of the input received from corporate leaders. The survey dissemination and one-on-one interviews began in November 2024 and concluded at the end of March 2025. That acknowledged, the vast majority of input submitted was in the late January through March 2025 period. As the industry and innovation landscape for the life sciences continues to evolve with the implementation of tariffs; federal cuts to biomedical and other life sciences grants from NIH, NSF, and others; staff reductions and shifting priorities at the FDA; and the potential for drug price controls, it is impossible to know how responses may have changed in this light, though most pointed to a current climate of "uncertainty", the implications of which for talent may not fully be known.

Industry Hiring Survey

A national life sciences industry hiring survey was conducted across 30 states and Puerto Rico from late 2024 through early 2025 and completed by more than 500 companies. The survey was designed to capture data and information on recent and anticipated hiring and related workforce dynamics; wage and salary increases; remote work policies; difficult-to-fill positions; future hiring plans; and more. The survey instrument was designed for data collection from human resource representatives and hiring managers at each company. Representatives from state and regional industry associations and institutes distributed the survey on behalf of LSWC and TEConomy. Responses were received across the breadth of life sciences industry subsectors and company sizes (Tables A-2 and A-3).

Table A-2: Industry Hiring Survey – Count of Respondents by Major Life Sciences Industry Subsector

Industry Subsector	# of Companies	% of Companies
Research, Testing, and Medical Laboratories	135	25.8%
Pharmaceuticals	128	24.5%
Medical Devices and Equipment	120	22.9%
Industrial Biotech	35	6.7%
Cell & Gene Therapy	31	5.9%
Agricultural Feedstock and Chemicals	16	3.1%
Bioscience-Related Distribution	16	3.1%
Other Life Sciences	42	8.0%
Total	**523**	**100.0%**

Table A-3: Industry Hiring Survey – Count of Respondents by Employment Size

Employment Size	# of Companies	% of Companies
1 to 25	225	43.0%
26 to 50	60	11.5%
51 to 150	68	13.0%
151 to 500	62	11.9%
501 to 1,000	22	4.2%
1,001 or more	72	13.8%
Don't Know/No Response	14	2.7%
Total	**523**	**100.0%**

Life Sciences Executive Interviews

The executive interview process was designed to capture high-level perspectives from executives on similar items and topics addressed in the Industry Hiring Survey. Interviews were conducted by state and regional industry associations/institutes and partner organizations on behalf of LSWC and TEConomy from late 2024 through early 2025. The interviewers collected notes or transcripts from each session and uploaded them to an online reporting tool to simplify and organize the information for analysis. Responses were received from more than 200 organizations (Tables A-4 and A-5).

Table A-4: Industry Executive Interviews – Count of Respondents by Major Life Sciences Industry Subsector

Industry Subsector	# of Companies	% of Companies
Pharmaceuticals	79	38.5%
Research, Testing, & Medical Laboratories	71	34.6%
Medical Devices & Equipment	38	18.5%
Agricultural & Industrial Biosciences	5	2.4%
Bioscience-related Distribution	4	2.0%
Other Life Sciences	8	3.9%
Total	**205**	**100.0%**

Table A-5: Industry Executive Interviews – Count of Respondents by Employment Size

Employment Size	# of Companies	% of Companies
1 to 25	42	20.5%
26 to 50	21	10.2%
51 to 150	37	18.0%
151 to 500	28	13.7%
501 to 1,000	16	7.8%
1,001 or more	60	29.3%
No Response	1	0.5%
Total	**205**	**100.0%**

For both instruments, individual responses have been maintained as confidential. Details provided by interviewees and respondents were used to distill broader themes raised across the U.S. related to industry talent dynamics. Any specific quotations included in this report have been de-identified to protect the confidentiality promised to each responding company.

LSWC State and Regional Partner Organizations Participating in this Effort

Table A-6: LSWC State and Regional Partner Organizations Participating* in This Effort

State/Territory	Partner Organization
Arizona	Arizona Bioindustry Association (AZBio)
Arkansas	BIOArkansas
California	Biocom California Institute
	California Life Sciences (CLS)
	Southern California Biomedical Council (SoCalBio)
Colorado	Colorado BioScience Institute
Delaware	Delaware BioScience Association (Delaware Bio)
Florida	BioFlorida
Georgia	Georgia Life Sciences (GLS)
Illinois	Illinois Biotechnology Innovation Organization (iBio)
Kansas	BioKansas
Maryland	BioHub Maryland
Massachusetts	Massachusetts Biotechnology Education Foundation (MassBioEd)
Michigan	MichBio
Missouri	Missouri Biotechnology Association (MOBIO)
Montana	Montana Bioscience Alliance (MBA)
Nebraska	Bio Nebraska Life Sciences Association (Bio Nebraska)
New Jersey	BioNJ
New York	New York Biotechnology Association (NewYorkBIO)
North Carolina	North Carolina Life Sciences Organization (NCLifeSci)
Ohio	Ohio Life Sciences (OLS)
Oklahoma	Life Science Oklahoma
Oregon	Oregon Bioscience Association (Oregon Bio)
Puerto Rico	Industry University Research Center, Inc. (INDUNIV)
Rhode Island	RI Bio
South Dakota	South Dakota Biotech Association (South Dakota Biotech)
Tennessee	Life Science Tennessee Foundation
Texas	Texas Healthcare & Bioscience Institute (THBI)
Utah	BioUtah
Virginia	Virginia Biotechnology Association (Virginia Bio)
Washington	Life Science Washington (LSW)

*Not all industry associations/institutes participated in both the interview and survey data collection.

Appendix C:

Summary of Recent New Growth or Expansion Announcements by Life Sciences Industry Companies in U.S. Manufacturing, R&D, and Other Operations

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AbbVie announced plans to invest over $10 billion in U.S. manufacturing over the next decade to enhance current capabilities and expand into new areas such as obesity. This includes the construction of four new plants to support production of active pharmaceutical ingredients (APIs), peptides, and devices.

Amgen is expanding its U.S. manufacturing footprint with significant investments in Ohio and North Carolina. The company announced a $900 million expansion of its Ohio biomanufacturing facility, which is expected to create 750 jobs, building upon the facility's initial opening in early 2024. This follows the earlier announcement of a $1 billion plan to construct another manufacturing plant in North Carolina, expected to generate 370 new jobs.

Bristol Myers Squibb has announced a $40 billion investment in its U.S. operations over the next five years, focusing on expanding R&D operations and manufacturing capacity. The plan includes scaling up radiopharmaceutical production and integrating artificial intelligence and machine learning to accelerate innovation.

Eli Lilly and Company announced a $27 billion investment for building four new drug manufacturing facilities in the U.S. Three of these plants will make active ingredients for medications to fill gaps in the supply chain. The fourth will support fill/finish manufacturing for injectable treatments, including diabetes and obesity drugs, due to their rapidly increasing demand. The project is expected to create about 3,000 skilled, full-time jobs and support 10,000 construction jobs. Lilly has not specified locations for the new plants but has initiated negotiations with several states. The new sites will be formally announced in late 2025 and are expected to open within five years.

Genentech, a subsidiary of Roche, has announced plans to invest $700 million in construction of a 600,000 square-feet fill/finish facility in North Carolina. This project, part of Roche's $50 billion U.S. investment, is expected to create 420 manufacturing jobs and will support production of the company's obesity medicines. Genentech has also stated that their domestic investment may expand based on future federal policy changes.

Gilead Sciences has announced an additional $11 billion investment in U.S. manufacturing and research, bringing its total planned domestic investment to $32 billion through 2030. The funds will be used to construct three new facilities, upgrade three existing ones, and implement advanced technologies to enhance production capabilities. This expansion is expected to create at least 800 direct jobs and over 2,200 indirect jobs by 2028.

Johnson & Johnson has announced plans to invest over $55 billion in U.S. manufacturing and R&D over the next four years—a 25% increase from its investment levels over the previous four-year period. The initiative includes building three new advanced manufacturing facilities, along with the previously announced $2 billion biologics plant in Wilson, North Carolina, which is expected to support 5,000 construction jobs and create over 500 permanent positions. Additionally, the company intends to expand existing sites and boost R&D efforts in areas such as oncology, neuroscience, immunology, cardiovascular disease, and robotic surgery.

Merck recently opened a new $1 billion vaccine manufacturing facility in Durham, North Carolina to support production of its HPV vaccines, with output expected to ramp up in 2026. The site currently employs over 1,000 people and is anticipated to create more jobs as production scales up. This facility utilizes advanced technologies such as data analytics, generative AI, and 3D printing as well as digital twin technology, which simulates process changes before implementation and assists in employee training. The company is also currently overseeing construction of a $1 billion biologics center in Delaware, creating more than 500 full-time positions and supporting 4,000 construction jobs. Merck has announced an additional $8 billion in planned investments by 2028.

Novartis has announced a $23 billion investment for expansion of its U.S. manufacturing and research operations over the next five years. The plan includes building seven new facilities: a $1.1 billion biomedical research hub in San Diego to open between 2028 and 2029; four manufacturing plants for biologics, chemical drugs, and medical devices; and two radioligand therapy (RLT) sites in Florida and Texas. The company will also expand existing RLT facilities in Indiana, New Jersey, and California. This initiative is expected to create approximately 1,000 new jobs at Novartis and support an additional 4,000 indirect jobs.

Pfizer has indicated its readiness to reshore drug manufacturing to its 13 U.S. facilities if the proposed biopharmaceutical tariffs are enacted. The company emphasized that its current domestic infrastructure is capable of absorbing additional manufacturing to mitigate potential tariff impacts.

Regeneron is investing over $7 billion to expand its U.S. manufacturing capabilities. This includes a $3.6 billion expansion of its New York State campus, which will create approximately 1,000 new high-skill jobs and enhance research, preclinical manufacturing, and support facilities. This investment will also support the building of a new state-of-the-art fill/finish manufacturing facility in the state. Additionally, the company has entered a 10-year, $3 billion agreement with **Fujifilm Diosynth Biotechnologies** to produce biologic medicines at a new facility in North Carolina, nearly doubling Regeneron's large-scale U.S. manufacturing capacity.

Roche has announced a $50 billion investment in U.S. manufacturing and research across eight states over the next five years, aiming to create over 12,000 jobs, including 1,000 at Roche and approximately 11,000 in support of expanded U.S. manufacturing capacity. The investment includes expanded and upgraded manufacturing and distribution for medicines and diagnostics in Kentucky, Indiana, New Jersey, Oregon, and California; a state-of-the-art gene therapy manufacturing plant in Pennsylvania; a new manufacturing plant for continuous glucose monitoring in Indiana; an R&D center in Massachusetts focused on AI research and dedicated to cardiovascular, renal, and metabolism research; and upgrades and expansions of existing R&D centers in Arizona, California, and Indiana.

Sanofi has announced plans to invest at least $20 billion in its U.S. operations through 2030, focusing on expanding manufacturing capacity and boosting R&D efforts. The company intends to expand its U.S. manufacturing capacity through direct investments in its production sites and partnerships with other domestic manufacturers.

Thermo Fisher Scientific has announced a $2 billion investment over the next four years to bolster its U.S. manufacturing and research operations. The plan allocates $1.5 billion for enhancing and expanding manufacturing capabilities as well as $500 million to support R&D.

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*Reflects organizations that comprised LSWC at report release. For a full list of LSWC Collaborators, visit www.LifeSciencesWorkforce.org