



BioScience Industry in Puerto Rico



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Letter from the CEO

Hola from Puerto Rico!

The Island's BioScience industry is a world-class hub, producing many of the market's top medicines and medical devices. With national and global recognition for excellence and process efficiency, our 60 years of experience is evident in all areas of skill competency.

Today, Puerto Rico is poised to claim the undisputed throne in securing the nation's life critical supply chains. With recent global disruption caused by COVID-19, the wheels have been set in motion to capitalize on our legacy, our strengths, experience, and expertise. Our infrastructure, our people, our ecosystem are all primed to support pharma's tradition of innovation and leadership.

The time is ripe, as Invest Puerto Rico has been spearheading efforts focused on attracting companies with overseas operations whose production aligns with local capacity, skills, and facilities.

I encourage you to learn more about all that Puerto Rico has to offer.



Rodrick Miller
Chief Executive Officer
Invest Puerto Rico



Introduction

Puerto Rico's decades of experience in the BioScience industry make the Island uniquely qualified to quickly and efficiently reshore the nation's BioScience production. Despite recent press coverage, Puerto Rico's sophisticated pharmaceutical and medical device manufacturing sector is strong and prepared to solve the national security concerns currently facing the nation.

Puerto Rico has long dedicated resources to developing exceptional talent, specialized manufacturing infrastructure, and the cultural commitment of the population, multigenerational U.S. citizens, to serve this vital function. Puerto Rico is the United States' leader in pharmaceutical production and concentration of talent in the industry, and with attractive cost efficiencies for producers.

Reading about Puerto Rico is compelling, but seeing it puts into perspective the elevated immediate value the Island can provide to the country. With state-of-the-art facilities ready to open lines within weeks, and capabilities to produce vaccines, antibody reactants, aseptic filling and packaging, and active pharmaceutical ingredients (APIs), Puerto Rico needs to be activated immediately to serve as the solution to America's current strategic need.

When you visit Puerto Rico, you will clearly see for yourself the caliber of the local BioScience landscape.

Accelerated timeline for BioScience reshoring:

When Section 936 ended, pharma manufacturers left behind turnkey facilities in excellent condition. With a portfolio of these assets and local CMOs, Puerto Rico can help get companies get up and running in a matter of weeks, giving the Island a speed advantage not found in other BioScience jurisdictions in the U.S.

Labor and skill advantages balanced by an attractive cost structure:

Puerto Rico has the 6th highest concentration of scientists and engineers in the world and leads the nation in the concentration of pharmaceutical and medical device experts. Considering that average Puerto Rican wages are about 40% lower than the averages on the mainland, Puerto Rico offers the most cost-effective talent out of anywhere in the country.

A legacy of 'clean room' and sterile manufacturing:

Given Puerto Rico's legacy in medical device and pharmaceutical manufacturing, the technicalities of BioScience work are ingrained in Puerto Rican industry standards. Whether it is workforce know-how or industry support that can design and construct a "clean room" to any specifications, Puerto Rico sets the standard in sterile manufacturing with over 30 years of experience and expertise in compliance with national and international industry regulations.

Capabilities:

The Island has a history of manufacturing excellence across a wide range of pharmaceutical and medical device products, giving the local industry the flexibility to pivot and expand into new products and production styles.

Supportive ecosystem:

The Island features myriad world-class industry support organizations that empower the sector by leveraging resources to help companies scale globally. Superb support ranges from logistics, ICT, energy, federal compliance, and mechanical contractors. For example, local experts are responsible for building out pharmaceutical excellence in Singapore and Ireland.

Highlights

A legacy of 60+ years in the making

The BioScience industry is the backbone of Puerto Rico's economy. It is responsible for transitioning the Island from a 19th century agricultural economy to a sophisticated 21st century industrialized science hub. For over 60 years, companies from overseas have established operations in Puerto Rico in recognition of the Island's unique advantages that make it an ideal investment destination.

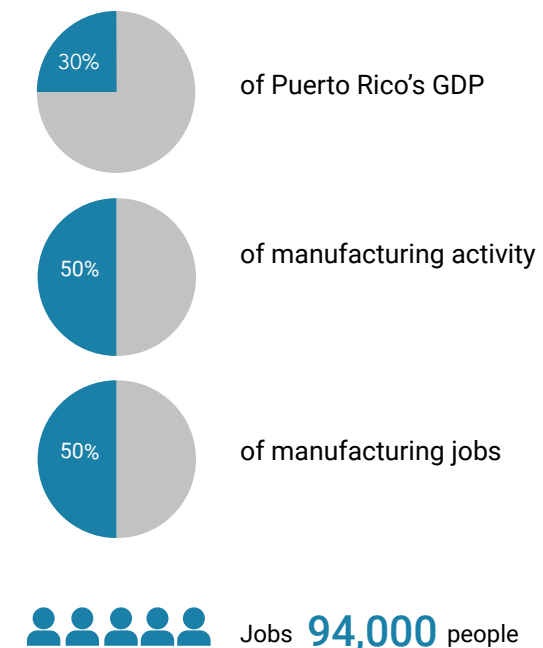
Puerto Rico stands out for its highly skilled workforce, competitive cost structure, strategic location, and legacy of growth.

Additionally, local BioScience companies benefit from a friendly business ecosystem, attractive incentives, and well-established infrastructure, all within the security of the U.S. legal and financial systems.

Puerto Rico's priority is to continue moving forward with a well-defined strategy for attracting new BioScience companies and investments to the Island.

Experience and Economic Impact

The Island's current BioScience industry plays a vital role in its socioeconomic development:



Specialized Strengths in BioScience Subsectors

Drugs & Pharmaceuticals



12 of the world's 20 top pharmaceutical companies have operations in Puerto Rico

Medical Devices & Supplies



7 of the world's 10 top medical device companies have operations in Puerto Rico

Agricultural Biotechnology



Nearly 85% of all seeds used in agbio research pass through Puerto Rico at some point in their development

Puerto Rico is home to

2 of the 5

continuous manufacturing operations with FDA approval



the 6th

highest concentration of scientists and engineers

in the world

Distribution & Logistics



Industry excellence and tropical weather have ensured local supply chain mastery in handling, storing, and shipping time- and temperature-sensitive materials to over 85 countries around the world

Highlights

Business Environment

The Island has what it takes to be a true industry player in the global stage:

Workforce & Talent



Puerto Rico leads the nation in concentration of subsector experts with

8.6x and 5.5x

more than the national average for pharmaceutical and medical device talent, respectively.

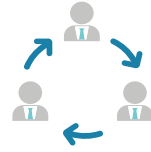
Academics & Education



About 60%

of graduates are in the STEM or health fields, almost 6x the next highest states.

Organizational Support



In 2019,
PRiMEX was rated the **#1 NIST MEP** in the United States.

Real Estate



Puerto Rico has move-in ready BioScience facilities, as well as on-island expertise necessary to build a new one.

Air Transshipment Hub



Puerto Rico has global reach, connecting companies to customers through lower cost supply chains.

Quality of Place

Puerto Rico embodies the essence of 'work hard, play hard'.



Average temperature of 85°F
200 days of sunshine.



Beaches are among the best in the world.



International hotspot for surfing, snorkeling, diving, fishing, biking, running, and more.



'Golf capital' of the Caribbean with nearly 30 courses.



Puerto Rico's vibrancy derives from more than 500 years of rich history.



Trails, picture-perfect waterfalls, and several local plant and animal species.



Nearly 80 museums and cultural centers, including over 50 certified historic landmarks like the famous Castillo San Felipe del Morro.



Eclectic restaurant scene, featuring everything from unique casual fare to sublime fine dining experiences.

Reshoring Opportunity

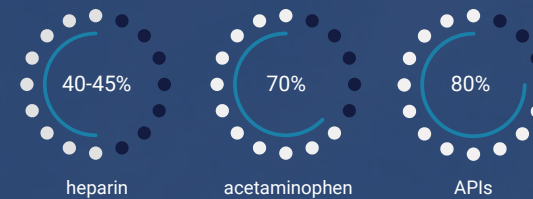
Why reshoring?

Why Puerto Rico?

Why now?

With disruptions to global supply chains, irregularities in foreign regulation, and the associated risks that are posed to the American people, the United States is preparing to bring critical BioSciences manufacturing back to the U.S.

Currently, the U.S. is heavily dependent on Chinese production of critical materials, such as:



According to the Coalition for a Prosperous America, reshoring even half of U.S. BioSciences imports would mean 804k jobs in pharmaceuticals and 302k jobs in medical devices. It would also mean \$200 billion in pharmaceutical production and \$54 billion in medical device production, and that's just in the first year.

When it comes to reshoring BioSciences, Puerto Rico is prepared to answer the call, swiftly and strategically.

Reshoring Opportunity

Puerto Rico is positioned to help the United States immediately [secure critical supply chains](#) and offers the [most competitive assets in the country](#) to foreign BioScience manufacturers.

Puerto Rico Supports National Security in 5 Key Areas

Timely

Puerto Rico has move-in ready facilities that can start producing critical materials now!

Qualified

The Island has the workforce and experience to supply fresh demand.

Supportive

Decades of experience in specialized manufacturing and industry support are ingrained in the culture, helping get companies of all sizes and activities up and running cost-effectively and with an eye towards quality.

Prepared

Because of changes to federal tax policy in the early 2000s, some BioScience companies left Puerto Rico for global destinations. Puerto Rico is ready to welcome them back and recapture lost production, jobs, and economic activity.

Specialized

Puerto Rico has the broadest set of pharmaceutical and medical device core competencies in the U.S., with specializations in each subsector of the BioScience industry.

Puerto Rico Supports Foreign Manufacturers with Strengths in 5 Core Competencies

Talent

Puerto Rico has the 6th highest concentration of scientists and engineers in the world and ranks 1st in the U.S. in concentration of pharma and medical device experts.

Additionally, average Puerto Rican wages are around 40% below the national average.

Low-Cost Supply Chains

Expansive Foreign Trade Zones (FTZs) support cost-effective global business practices. Combined with the three international transshipment hubs, global companies benefit from proximity to lower cost supply chains.

Available Real Estate

Quick availability of CMOs, turnkey facilities, and greenfield sites. Excellent industry support can also help companies customize their facilities to accommodate all types of operations.

Location

Geography and culture give companies access to the Americas and a bilingual local workforce.

High Value Networks

The integration of academia, research facilities, manufacturing facilities, and transshipment hubs means that companies in Puerto Rico benefit from consolidated supply chains.

Exciting Growth Opportunity

Puerto Rico's BioScience strengths lie in highly specialized fields. Significant expertise exists in the research, development, technology transfer and manufacturing of monoclonal antibodies in Puerto Rico. Blockbuster products such as etanercept (Enbrel), adalimumab (Humira), inflectra (Remicade) to treat rheumatoid arthritis and other related ailments are produced at Puerto Rican plants.

The Island has experience in antibody and vaccine development, and continues to see these as exciting areas for opportunity and growth.

Across the Island, targeted novel therapies are being advanced simultaneously by private industry and the School of Pharmacy at the University of Puerto Rico Medical Sciences Campus.

CDI Labs is just one company that uses cutting-edge technologies to identify monoclonal antibodies and protein arrays that help diagnose patients with viruses and diseases. They combined proprietary proteomic libraries with a deep expertise in synthetic biology to create Monomabs, the first proteome-validated monospecific monoclonal antibodies, and Antygen, the multi-dimensional immunoprofiling service. Their newest product helps scientists uncover new immune responses to COVID that can help advance clinical trials of treatments and vaccines. Similar work is being done by Amgen, most of whose profile in Puerto Rico is based in identifying antibody reagents and developing gene therapies. Thermo Fisher Scientific is another such company; it has developed influenza antibodies for the swine flu that swept the world in 2009.

At the UPR's School of Pharmacy, researchers in the upcoming Drug Discovery Labs, the Biotech and Cell Therapies Labs, and the Operations Technologies Research Labs will advance pharmaceutical discovery, development, and manufacturing, including viral vector transformation and CAR T-Cell therapy.

Additionally, researchers at UPR's Molecular Sciences and Research Center in San Juan are collaborating with the NIH to improve the drug development pipeline to optimize the production of HIV glycoproteins as vaccine candidates. They are accelerating the development of a protein-based HIV vaccine toward clinical trials. The UPR contribution will have a tremendous impact in the global fight to control the spread of HIV/AIDS.

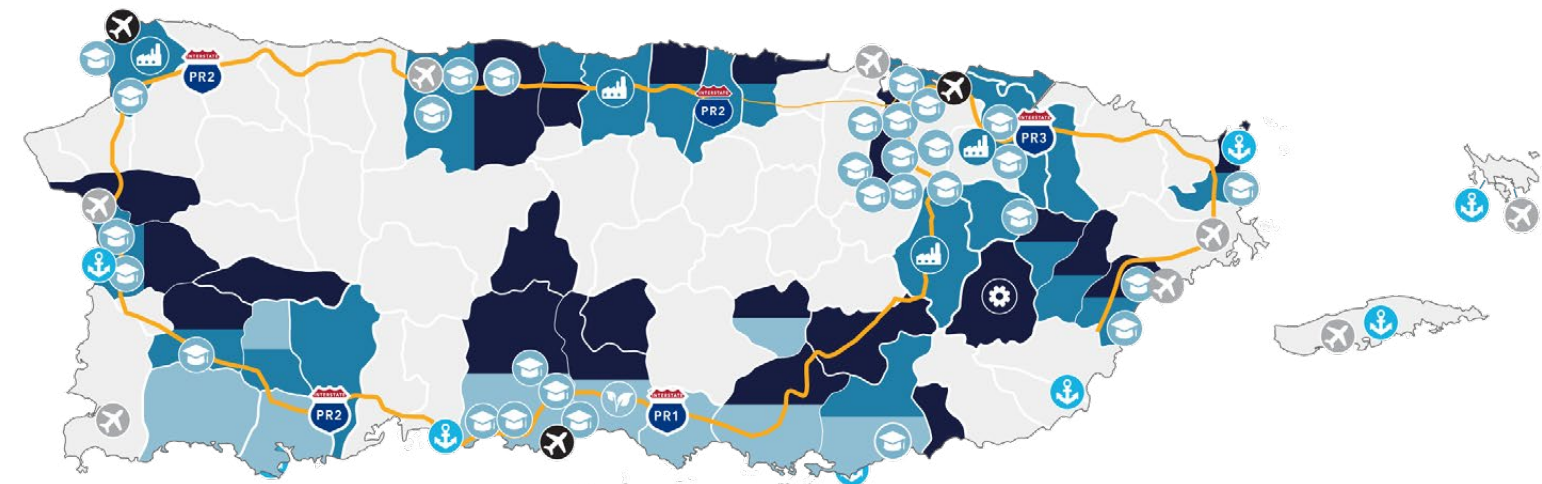
Reshoring just half of pharmaceutical and medical device production to the U.S. would boost Puerto Rico's GDP by \$1.2 billion in the first year and create 7,300 high paying jobs, growing Puerto Rico's BioScience industry employment by 8%.*

* Estimates derived from the Coalition for a Prosperous America.



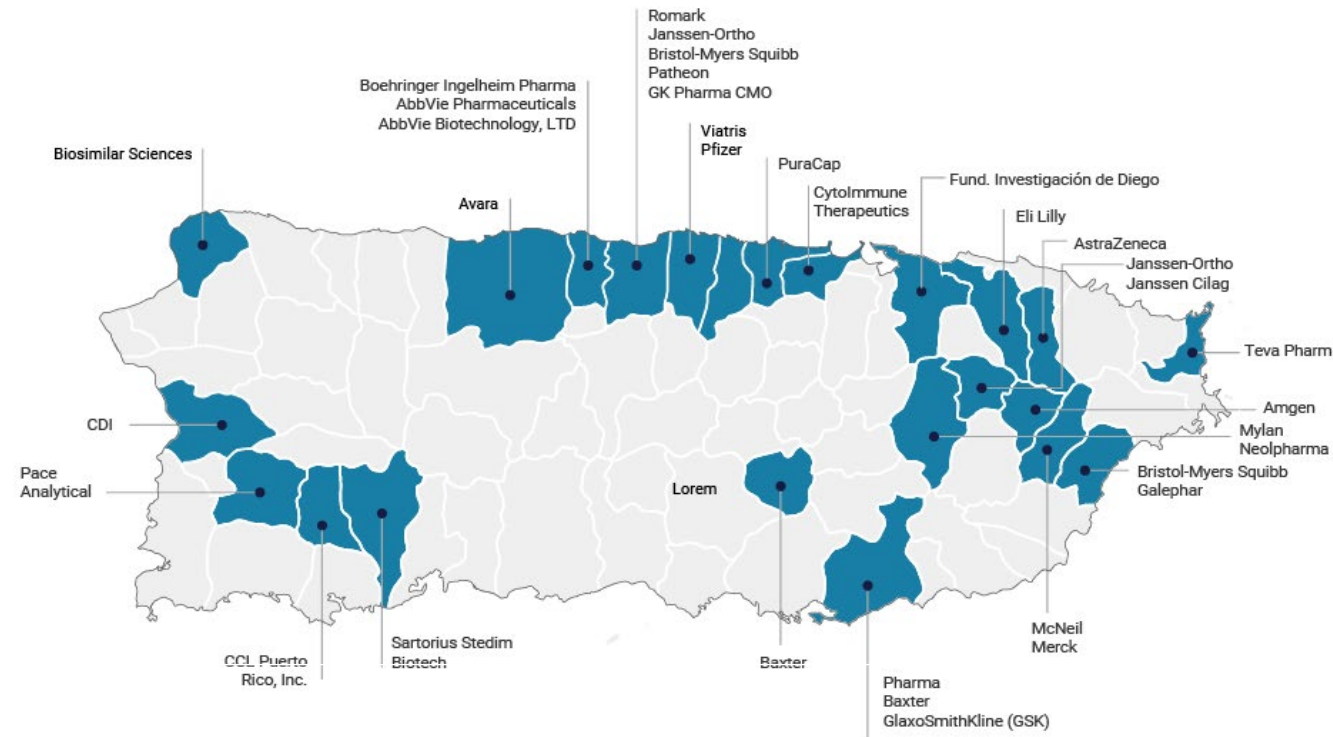
BioScience Subsectors in Puerto Rico

- Drugs & Pharmaceuticals
- Medical Devices & Supplies
- Agricultural Biotechnology
- Research & Development
- Distribution & Logistics



BioScience Subsectors in Puerto Rico

Puerto Rico has unique strengths in all five subsectors of the BioSciences industry: drugs and pharmaceuticals, medical devices and supplies, agricultural biotechnology, R&D, and logistics. While each subsector represents an individual strong point for Puerto Rico, the strength across the entire industry sets the Island apart from its closest competitors.



Strength in Numbers

A quick x-ray of Puerto Rico's local subsector reveals:

- ▮ 53 entities
- ▮ 46 FDA-approved plants
- ▮ 14,000 direct jobs
- ▮ 8.6x more pharmaceutical experts than the national average
- ▮ Home to 12 of the top 20 pharmaceutical companies in the world
- ▮ Produces 8 of the 15 top selling biopharmaceutical products
- ▮ Average industry wage of \$63,232, among the lowest in the country
- ▮ 10% of all U.S. drug and pharmaceutical expenditures are on products manufactured locally

Supporting Success

The local manufacturing extension, PRiMEX, helps companies like Janssen establish and improve product development processes. In 2017, with the support of the University of Puerto Rico, Janssen was granted the first FDA approval for fully continuous product manufacturing of Prezista. Industry support from PRiMEX and research centers allows companies to optimize manufacturing and testing cycle times, reduce waste and environmental impact, and lower process risk.

More industry support comes from the Pharmaceutical Industry Association (PIA), Industry University Research Center (INDUNIV), and the Puerto Rico Consortium for Clinical Investigation (PRCCI), which is funded by the PR Science, Technology, & Research Trust.

The Pharmacy School at the UPR Medical Sciences Campus will house the Drug Discovery Labs, the Biotech and Cell Therapies Labs, and the Operations Technologies Research Labs, all of which will advance pharmaceutical discovery, development, and manufacturing.

The EDA granted \$1.25 million the UPR at Mayagüez for process analytical technology (PAT) and continuous manufacturing training for pharma and engineering services companies.

The UPR at Rio Piedras was granted \$297k to run a 9-week program for undergraduates to engage in exploratory efforts in new biomolecular applications, including drug design and delivery methods.

The UPR at Mayagüez was granted \$300k by the NSF to formulate renewable sources of acids used in pharmaceutical products.

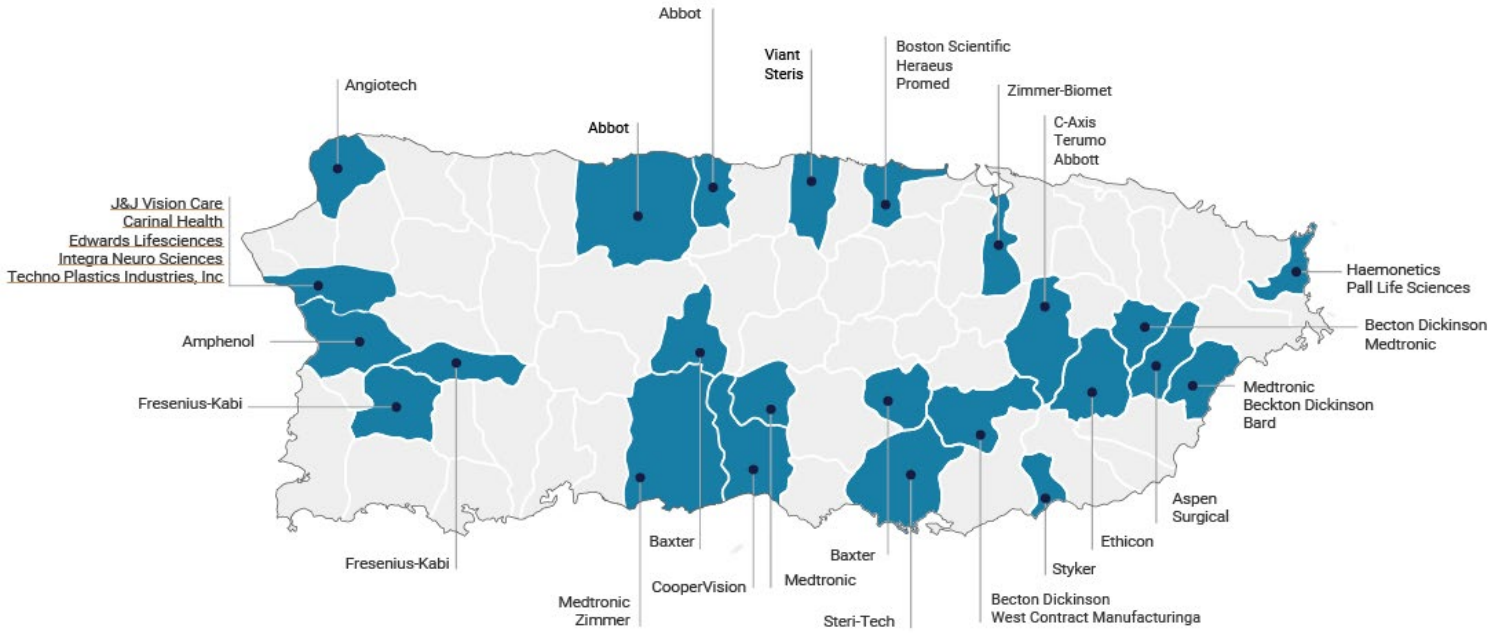
The UPR at Mayagüez was granted \$165k to use machine learning to discover and identify new catalysts in chemical and pharmaceutical applications.



Types of drugs and pharmaceuticals made in Puerto Rico

- ▮ Branded and generic oral solid dosage
- ▮ Over the counter drugs
- ▮ Biologics
- ▮ Active pharmaceutical ingredients (APIs)
- ▮ And more!

Medical Devices & Supplies



The local medical device sector is globally important for its contribution of over 2,500 products, many of which are life critical. Driving this essential production is talent. Puerto Rico has the highest concentration of medical device expertise in the country, with 5.5x more subsector employees than the national average, while enjoying the lowest comparative subsector wages in the U.S. Across 70+ plants from more than 30 companies, the medical device subsector is responsible for over 20,000 direct jobs, making it the number one job generator in local manufacturing.

Seven of the world's top 10 medical device companies have operations in Puerto Rico and 15 of the top 20 Class 3 manufacturers operate locally, underscoring regulatory compliance that characterizes the medical device subsector. 90% of the world's pacemakers are made in Puerto Rico, as well as hundreds of millions of soft contact lenses.

Support for the industry comes from INDUNIV, the industry research consortium, and the Medical Device Cluster, as well as federally and locally funded research performed at local universities and research centers. The medical device subsector is also supported by the 26,500 STEM graduates from local universities, many of whom specialize in industrial and biomedical engineering. Local research at these institutes, as well as organizational support from PRIMEX and the Puerto Rico Consortium for Clinical Investigation, ensures that industry partners are equipped with top-notch talent, tools, and processes.

Research in Puerto Rico also drives process improvement in medical devices and supplies.

The Island boasts 2 of the 5 fully continuous manufacturing processes in the world, including the first approved for use by the FDA.

Medical Devices & Supplies

The Center for the Advancement of Wearable Technology received a \$3.7 million grant from the NSF to research devices that sense and monitor health conditions.

The UPR-PENN Partnership for Research and Education in Materials (PREM) was awarded over \$3.2 million to advance knowledge in materials science to develop more efficient devices for health applications, among others.

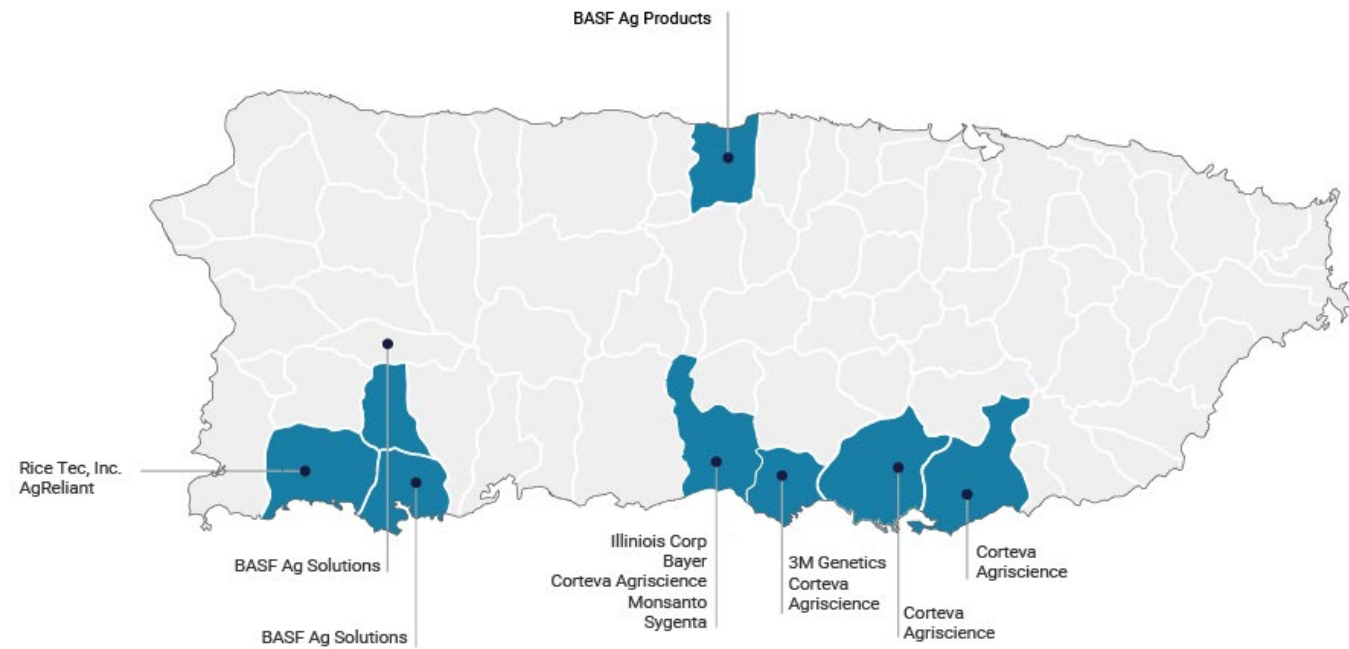
The UPR at Mayagüez received over \$225k from the NSF to research fluid dynamics essential to many biomedical device applications.



Types of medical devices made in Puerto Rico

- ▮ Pacemakers
- ▮ Defibrillators and pulmonary artery catheters
- ▮ Hemodynamic monitoring catheters
- ▮ Diagnostics
- ▮ Bandages
- ▮ Insulin pumps
- ▮ Hernia patches implants
- ▮ Contact lenses
- ▮ Stents
- ▮ Glucose monitors
- ▮ Blood collection systems
- ▮ IV saline bags
- ▮ And more!

Agricultural Biotechnology



Puerto Rico is the ideal location for agricultural biotechnology development with a year-round growing season, local expertise, and favorable R&D incentives to support growth.

With over 2,500 experts in 10 agbio stations concentrated mostly along the southern coast, Puerto Rico's agbio ecosystem features some of the most prominent seed and ag research companies in the world. Eighty five percent of all seeds used in agbio development globally pass through Puerto Rico at some point, making the Island a critical link in international agbio supply and value chains.

Puerto Rico is uniquely positioned to help agbio companies excel, with continuous farming, drought-resistant aquifers that extend throughout the South, and tropical research centers that distinguish the Island from other USDA research facilities around the country. Two hundred days of sunshine provide opportunities for continuous farming, allowing companies 5x more crops than in temperate climates.

With over 30 years of experience, Puerto Rico's agbio subsector is the #1 employer in the southern part of the island. The sector is supported by the Puerto Rico Agricultural Biotechnology Industry Association (PRABIA), whose member companies account for over 20% of agriculture jobs in Puerto Rico. Together, these companies contribute about \$135 million in economic activity each year while providing the raw materials for all types of product development. Corn hybrids developed in Puerto Rico, for instance, are used in over 400 products, including antibiotics, batteries, and fiberglass insulation. Similarly, soybeans grown in Puerto Rico are used in paint, baby food, and anticorrosive agents, among many other important products.

The local industry is supported by research centers and university degree programs that promote agbio research, training, mechanization, operations, and sustainability. PRABIA's member companies support university collaboration that exposes more university students to agbio research and work opportunities.

Agricultural Biotechnology

The UPR at Mayagüez and the University of South Carolina are studying how to best address the food-energy-water nexus in agricultural production.

The UPR at Rio Piedras and Mississippi State University are studying butterfly genomics to show biological resilience to natural disasters.

The Center for Agricultural Biotech Research and Training (CEIBA) at the Pontifical Catholic University of Puerto Rico in Ponce has 22k sq. ft. for interdisciplinary public agbio research.

The UPR at Mayagüez has over a dozen research centers, stations, and laboratories that advance agbio research across many different fields, including water quality, food innovation, and disease diagnostics.



Types of agbio activities in Puerto Rico

- Pyramiding and trait integration
- Field trials
- Crop breeding and advancing generations of corn, soy, cotton, sorghum, sunflower, and many more
- Yield trials
- Pre-commercial seed production
- Genetic base expansion
- Aquaponic systems

Research & Development

Puerto Rico has a highly experienced research sector knowledgeable in CGMP, FDA, and other global regulations.

The proximity to local industry means that research performed in Puerto Rico is linked directly with development, helping companies improve processes and products.

Many of the research institutes focus explicitly on applied sciences, which is why Puerto Rico is ranked 3rd in highest value manufacturing per capita in the world.

Across the Island, nationally recognized institutes perform cutting-edge research to advance every subsector of the BioSciences industry. Many are funded by the National Science Foundation (NSF) and the National Institutes of Health (NIH). While these organizations only provided \$83 million in funding in 2019, local researchers were able to link funds with academies to further developments in areas like pharmaceutical chromatography, tropical biodiversity, materials research, and reducing disparities in Hispanic health outcomes.

As a sign of excellence, Puerto Rico leads the nation in density of medical and diagnostic laboratories, with 3.4x the national average, as well as the lowest average sector wages.

Research in Puerto Rico is conducted across a wide variety of institutes. Many private plants also have their own micro and materials labs that serve to support BioScience R&D.

Among the Island's sophisticated R&D centers:

- | Puerto Rico Science, Technology, & Research Trust's island-wide Science District
- | Molecular Science Research Center (MSRC) at the UPR
- | Center for Pharmaceutical Engineering Development and Learning (CPEDaL)
- | Puerto Rico Clinical and Translational Research Consortium
- | Bioprocess Development and Training Center (BDTC) in Mayaguez
- | Caribbean Genomic Center at UPR Mayagüez
- | Pharmaceutical Engineering Research and Training Center
- | Technoeconomic Corridor and the Guanajibo Research and Innovation Park (GRIP)
- | Tropical Agricultural Research Station at UPR-M
- | Food Innovation Hub
- | Animal Molecular Biotechnology Laboratory
- | Nanotechnology Center for Biomedical Environmental and Sustainability Applications

" Puerto Rico has a solid ecosystem with the required talent, knowledge and service providers present on the Island to implement successful projects... We are the right place for companies that want to manufacture products for the world in a sustainable, competitive, and quality-oriented manner."

Carlos Ceinos, President of Principia

Distribution & Logistics



- INTL. AIR TRANSFER HUBS
- SEAPORTS
- AIRPORTS

Puerto Rico has an extensive logistics industry that connects local businesses with the rest of the world through three international air hubs and 12 harbors and ports.

We excel at handling, storing, and shipping time- and temperature-sensitive materials such as pharmaceuticals, medical devices, seeds, food, and chemicals. Our cold chain extends throughout the Island, including cold storage and vapor lock transfer systems to manage vulnerable products that require concise climate-controlled environments. These capabilities are reinforced with strong highway and road infrastructure that connects the international air and seaports with local companies.

Direct flights to major U.S. cities, Colombia, Spain, and Germany ensure that local and global companies can connect to international customers and supply chain partners. Conveniently, Puerto Rico is geographically positioned between the Americas and Europe, and with new air transfer hub regulations the

Island can serve more global trade and travel between these locations.

Currently, 1,730 companies, or 57% of the Island's GDP, depend on air cargo. About 90% of all air cargo leaving Puerto Rico are BioScience products. These two facts, in conjunction with the 60+ years of experience in BioScience, mean that Puerto Rico is already a global logistics leader.

On top of serving as the highest volume port system in the Caribbean, in 2020, Puerto Rico became the first and only location in the U.S. to receive a waiver for an international cargo and passenger transfer hub. This positions the Island to leverage its logistics expertise, establish new international travel and commercial routes, and help companies cut costs, reduce shipping times, and ensure top quality handling of any product. This new status helps companies and individuals from all industries navigate the post-COVID landscape.

International Airport Profiles

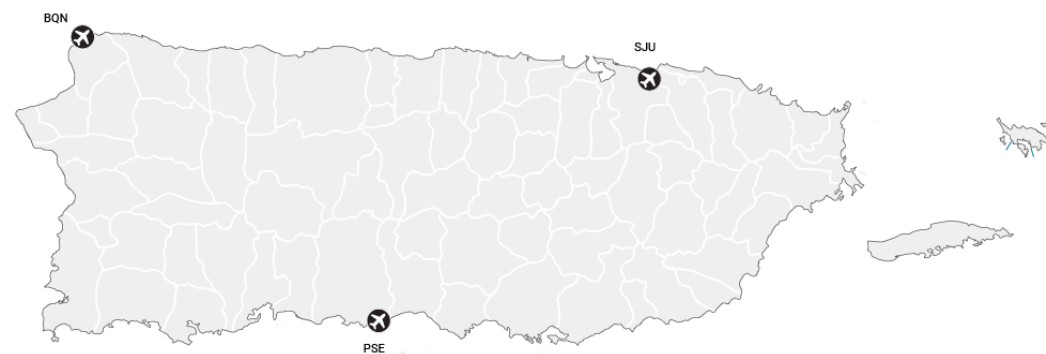
Puerto Rico's 3 international airports were granted transfer waivers by the U.S. Department of Transportation in May, 2020, giving the Island unique flexibility in global transport of cargo and passengers.

San Juan's international airport Luis Muñoz Marín (SJU) has a total load factor of 87.14, higher than the national average of 86.42. Load factor refers to "passenger-mile" as a proportion of available seat-miles as a percent. It indicates an airports ability to generate revenue.

Aguadilla's international airport, Rafael Hernández (BQN), has a 20,000 sqft advanced aircraft maintenance, repair, & overhaul (MRO) facility in operation and is home to the longest runway in the Caribbean. Built on a former U.S. Air Force Strategic Command Base, BQN has advanced aerial facilities and around 1,500 acres available for greenfield development. Currently, the Puerto Rico Ports Authority is constructing a \$100 million new runway

and other infrastructure and development projects are in the planning phase. The airport is also in the heart of Puerto Rico's aerospace cluster, where companies like Honeywell, Lockheed Martin, and Lufthansa are supported by UPR's Aeronautical and Aerospace Institute of Puerto Rico (AAIPR).

Ponce Health Sciences University (PHSU) in Ponce, and the Ponce Research Institute (PRI), are breaking ground in August 2020 on a \$172 million dollar biosciences research campus, medical school, and healthcare facility. With this historic private investment, the Southern region of Puerto Rico will see a net gain of over 1,000 jobs and will make the Ponce region an economic hub for healthcare and research, particularly to underserved communities, not only in Puerto Rico, but the Caribbean and mainland United States. The school will eventually accommodate over 3,000 students, making it one of the largest biosciences and medical campuses not only in the region, but in the United States.



	SJU Luis Muñoz Marín Intl. Airport - Carolina, PR	BQN Rafael Hernández Intl. Airport - Aguadilla, PR	PSE Mercedita Intl. Airport - Ponce, PR
Passengers	8.4 million	> 472,000	> 168,000
Inbound (lbs.)	301.5 million	69.4 million	342,700
Outbound (lbs.)	170.9 million	58.3 million	2,720

Competitive Business Profile

- Workforce & Talent
- Academics & Education
- Air Transshipment Hub
- Real Estate
- Industry Support
- Organizational Support
- Tax Incentives



Workforce & Talent

Puerto Rico is the highest producer of bio-related engineering talent in the U.S. and is a world leader in exporting bio process excellence and skills.

The Island is home to the highest concentration of pharmaceutical and medical device experts in the country, with 8.6x more pharmaceutical jobs than the national average and 5.5x more medical device jobs than the national average.

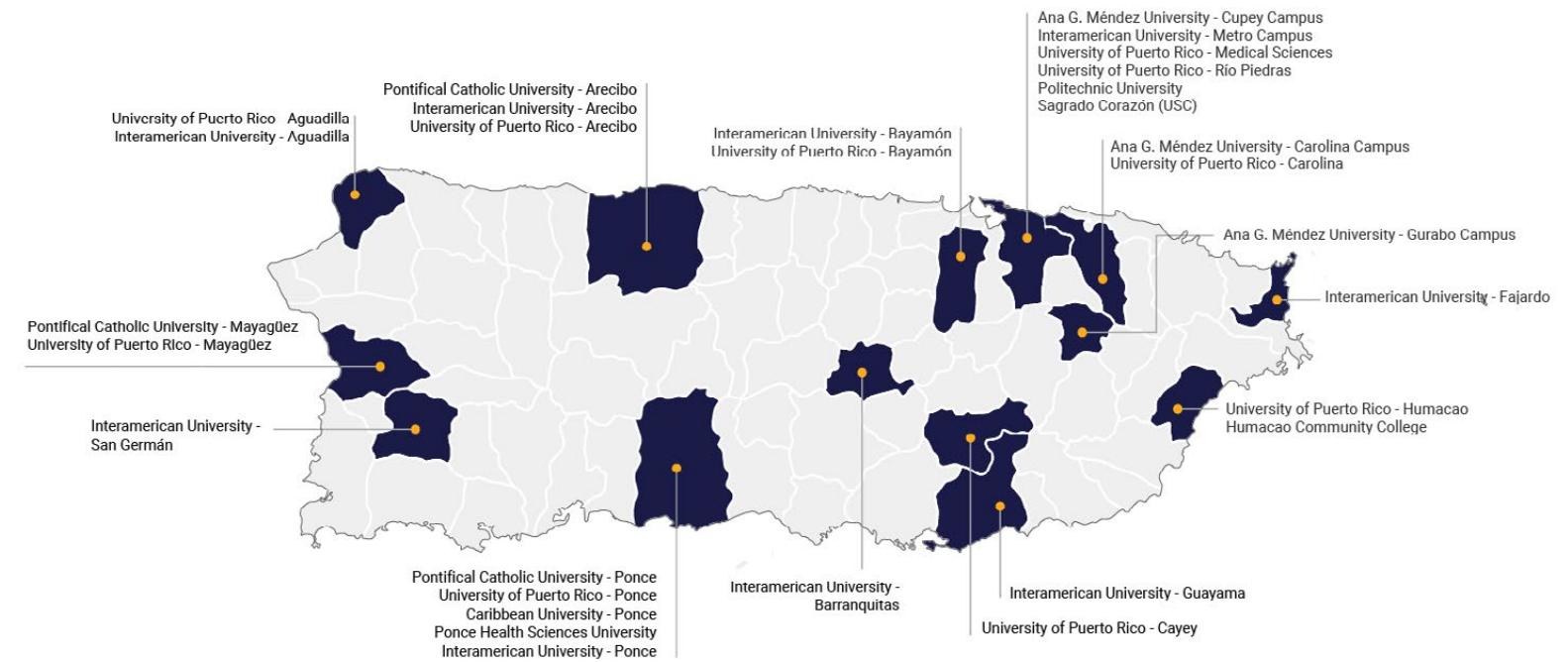
Moreover, Puerto Rico is ranked 6th globally in availability of scientists and engineers, 1st in Latin America and the Caribbean in rates of higher education and training, and 2nd in

Latin America and the Caribbean in rates of digital skills amongst the population. On top of this, the local workforce of multigenerational U.S. citizens is bilingual in English and Spanish, giving local companies the perfect opportunity to tap into global markets.

While there exists an incredibly high prevalence of technical skills in Puerto Rico, wages are 40% lower than the national average. This gives companies the opportunity to take advantage of the best talent in the world while operating cost-effectively.

"The level of excellence in pharmaceutical and biopharmaceutical manufacturing can also be attributed to the top notch talent developed at our high class local universities..."

Victor Cruz, VP of Manufacturing in PR and Brazil, Eli Lilly



Academics & Education

Puerto Rico is home to nearly 80 centers of higher education with main and branch campuses across the island. In 2019, nearly 200,000 students filled these universities and more than 45,000 graduated. Whereas the highest-ranking states have roughly 10% of graduates in STEM fields, Puerto Rico has nearly 60% graduating in STEM fields.

Every year, local universities provide an expanding talent base for the BioSciences industry and other knowledge- and health-based sectors of the economy.

The crown jewel of Puerto Rico's education system is the island-wide University of Puerto Rico, with 11 branches, including a Medical Sciences Campus and the nationally recognized research institutes at Rio Piedras and Mayagüez. Rio Piedras in San Juan is its largest campus with about 15,000 students.

The Mayagüez campus, which ranks 1st in the U.S. in graduating Hispanic engineers, 1st in graduating

chemical engineers, and 2nd in graduating women engineers, has 13,224 students and is the best ranked university in Puerto Rico and the Caribbean. Its graduates focus on engineering, biological and biomedical sciences, and nursing. The School of Pharmacy at the Medical Sciences Campus ranks 9th out of 130 U.S. schools based on how many graduates passed NAPLEX on their first attempt. The Medical Sciences Campus saw an astounding 97.5% passing rate.

There are also private universities, including the Polytechnic University in San Juan, which ranks 12th nationally in concentration of chemical engineers, and Interamerican University, with nine campuses, which ranks 7th for concentration of general engineering students, 3rd in computer engineering, and 9th in mechanical engineering. Pontifical Catholic University, with 3 campuses, is also nationally ranked for its concentration of BioScience degrees.

Quality of life in Puerto Rico is second to none:

An attractive cost of living, along with recruitment incentives, means that a salary goes further in Puerto Rico

	Puerto Rico	Atlanta	Miami	Boston	San Francisco	New York City
Salary	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000
Income Tax (Federal, State, Local)	-\$37,635	-\$45,917	-\$37,545	-\$44,971	-\$48,339	-\$51,748
Sales Tax	-\$4,848	-\$2,640	-\$2,848	-\$3,357	-\$3,318	-\$3,220
Property Tax (on \$500k residence)	-\$1,300	-\$2,663	-\$2,789	-\$2,010	-\$1,665	-\$4,813
Incentive (Difficult to Recruit Pros)	\$16,500	Incentive for Difficult to Recruit Professionals (included in Act 60-2019) exempts from income tax all saalary in excess of \$100,000/year for qualified individuals who move to Puerto Rico to work full-time				
Take Home Pay	\$122,717	\$98,780	\$106,818	\$99,662	\$96,678	\$90,219
Cost of Living Adjustment	Baseline	-4%	-15%	-36%	-52%	-60%
Relative value of Take-Home Pay	\$122,717	\$94,829	\$90,795	\$63,784	\$46,405	\$36,088

Real Estate

Puerto Rico has real estate options available for any type of BioScience company.

Whether a company is looking for a CMO or seeks to build its own highly specialized plant, the Island has something to offer to help get operations up and running as quickly as possible.

The Department of Economic Development and Commerce (DEDC) controls over 1,500 public commercial properties, many of them eligible for subsidies and cash grants. There are three Foreign Trade Zones in Puerto Rico, including the largest non-contiguous zone in the U.S. with 714 designated facilities and 19.5 million square feet just around the Island. FTZs lower the costs for companies engaged in international trade and help them to be as competitive as possible on a global scale.

While there are CMOs available for small molecular development, API manufacturing, formulation, filling, finishing, packaging, and storing, Puerto Rico is also home to some of the most sophisticated industry support networks in the world that can help a new company renovate or start from scratch highly specialized and regulated facilities. Companies in Puerto Rico can help for every step along the way, from planning and designing, to construction and management, to make sure that every facility is tailored to a company's custom needs. Leading this charge is the local Mechanical Contractors Association, which represents the technical construction and installation companies responsible for providing state of the art facilities for new-coming BioScience companies.

In addition to industrial real estate, San Juan offers the lowest cost per square foot Class A office space compared with similarly sized cities in the U.S. In offering this asset, Puerto Rico is perfect for both manufacturing and back office operations.

Contact our Business Development team or check out our page on Statebook to identify your next real estate solution.

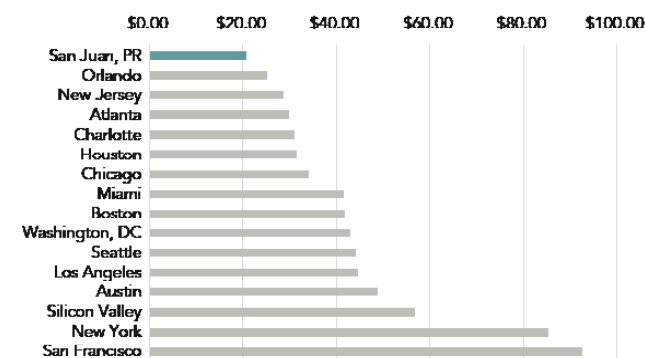
Puerto Rico's real estate assets are enhanced by island-wide ICT infrastructure, including 5G rollouts by AT&T, T-Mobile, and Claro. High speed internet and broadband can be accessed anywhere in Puerto Rico with additional enhancements underway by the FCC and ICT service providers. The following map shows that every municipality in Puerto Rico has LTE coverage and most have 5G capabilities:



Companies in Puerto Rico also benefit from the energy transformation that is currently underway. With so many facilities depending on constant and cost-effective electricity to maintain their operations, Puerto Rico is home to some of the most innovative energy solutions, with industry partners that can help design and implement generation and distribution systems to cost effectively ensure that companies maintain continuous operation.

Class A Office Space

(Average Rents - \$ PSF)



Source: JLL Market Research Services, Dec. 2019.

Air Transshipment Hub

Puerto Rico is a global logistics leader, serving as the highest volume port system in the Caribbean. In 2020, Puerto Rico became the first and only location in the U.S. to receive a DOT waiver allowing for international cargo and passenger transfers. This gives the Island the perfect opportunity to leverage its logistics expertise, establish new international travel and commercial routes, and help companies cut costs, reduce shipping times, and ensure top quality handling of any product. This new status helps companies in every sector navigate the post-COVID landscape more efficiently.

- Puerto Rico is at the center of air routes between the Americas and Europe, making it the perfect pit stop for international flights.
- Local pharmaceutical companies rely on the cold chain excellence of Puerto Rico's logistics industry; with existing infrastructure that ensures temperature sensitive products go from the plant to the customer without disruption.
- BioScience products currently represent about 90% of all air cargo leaving Puerto Rico. The new cargo regulations enable PR to manufacture even more and distribute critical materials to the U.S. and the rest of the world.
- Currently, 1,730 companies, representing 57% of Puerto Rico's GDP, rely on air cargo. Annually \$53B worth of pharmaceuticals leave the Island, and companies currently using sea transport express a desire to transition to air cargo for temperature-sensitive goods.

This opportunity has four key quadrants with a central nexus of opportunity for the island. Biotech, as with other knowledge-based sectors, depends on robust logistics networks.

COVID-19 and the contraction of the airline industry necessitate restructuring passenger routes to maximize high-value belly cargo. Puerto Rico's geographic location and expansive FTZ designations are assets with high immediate availability and regional cost-reducing supply chain options.

Puerto Rico's unique legal jurisdiction with U.S. protections and local policy allows it to be the only location in the U.S. with international banking expertise and flexibility, a highly attractive asset to multi-national companies contemplating a U.S. location.

Aguadilla's and San Juan's international airports are two of the most efficiently operated airports compared to their peer group on the East Coast, and their excellence of Puerto Rico's logistic industry performance evidences substantial room for growth.

Looking just at the eastern seaboard in 2018, SJU ranked 5th (behind Miami, JFK, Newark, and Philadelphia) and BQN ranked 14th in total landed weight.

Among Eastern Seaboard airports, BQN and SJU rank 1st and 2nd in total load factor. This metric measures the capacity utilization of airport facilities and it is used to assess how efficiently an airport fills seats and generates revenue.



Industry Support

Historic industry expertise in pharmaceutical, medical device, and agbio has also inspired a world-class industry support network in linked sectors. Excellence in Puerto Rico's BioScience industry support includes:

- | Compliance certification
- | Facility design, construction, and management
- | Equipment calibration
- | Water testing and purification
- | Material testing
- | Legal support
- | Quality assurance

Puerto Rico-based BioScience companies are well-versed in compliance requirements, ensuring that big and small operations produce high-quality products. Likewise, support companies are strengthened by industry associations such as the Mechanical Contractors Association (MCAPR), which represents companies with specialized expertise in constructing highly specific BioScience facilities, including clean rooms and laboratories.

Although the Island features move-in ready facilities, comprehensive industry support enables companies to design and build world-class customized BioScience plants. Highly experienced architects, designers, developers

and plant managers cater to the needs of globally relevant BioScience researchers and manufacturers. There are also contract manufacturing operations that serve as a temporary fix for a company that wants to be operational immediately while construction for a new plant is underway. These enterprises offer cost-effective services, making Puerto Rico the most competitive location to open a new facility in the United States.

Public research facilities also help create a broad and deep ecosystem that fuels Puerto Rico's BioSciences sector. The Materials Characterization Center, for example, offers industry partners a variety of specialized services that strengthen industrial activity, such as nuclear magnetic resonance, confocal microscopy, spectroscopy, and mass spectrometry. Their efforts are supported by the Puerto Rico Science, Technology, & Research Trust, INDUNIV, and PIA, and leverages local expertise in everything from clean room architecture to pharma-specific legal support.

A testament to Puerto Rico's industry excellence is the fact that the Island's sector experience and industry support services have helped set up other BioScience hubs around the world, fueling growth in international markets. Because of all this and more, Puerto Rico is uniquely capable of welcoming companies at any stage of development and ensuring that the process of opening a local operation is as seamless and cost-effective as possible.

Organizational Support

Companies in Puerto Rico benefit from a wide network of organizational and industry support. In fact, Puerto Rico is home to some of the world's most prestigious professional organizations and networks focused on furthering and defending the BioScience industry's best interests and establishing best practices in research, manufacturing, and logistics. Due to local organizational support, in 2018, Puerto Rico led the Americas and placed third in the world (behind Ireland and Switzerland) for highest value-added manufacturing per capita, according to World Development Indicators.

For newer companies and startups, there is also an extensive network of over 20 incubators, accelerators, and coworking spaces that provide the tools and resources that young enterprises need to be successful.

Among the support organizations that make Puerto Rico the best BioScience destination:

PRiMEX The Puerto Rico Manufacturing Extension supports the needs of small and mid-sized companies by helping improve everyday business practices. PRiMEX is part of the Manufacturing Extension Partnership (MEP) national network and was ranked best in the nation in delivery of process improvement support.

PRMA The Puerto Rico Manufacturers Association advances the mutual interests of all Puerto Rico's manufacturers and service industries to improve the competitiveness of Puerto Rico's economy.

MCAPR The Mechanical Contractors Association represents technical construction and installation companies in Puerto Rico. It connects the public and private sectors with education and networking assets to ensure that the contracting industry is of highest quality.

PRSA The Puerto Rico Shipping Association focuses on promoting port productivity, reducing operating costs, and maintaining San Juan as the premier port in the Caribbean. The group provides a forum for legislation and industry advancement.

PIA The Pharmaceutical Industry Association represents the biopharma industry and works in the public and private sectors to enhance the sector's global competitiveness and improve healthcare outcomes through networks, social capital, and job growth.

Medical Device Cluster The Medical Device Cluster helps local medtech companies grow and excel through focusing on regulatory

compliance, supply chain development, product and process improvement, and industry benchmarking.

PRABIA The Puerto Rico AgBio Industry Association brings local agbio companies together to advocate for a stronger local business ecosystem, enhanced educational opportunities in agricultural biotechnology, and more jobs in science and agronomy.

INDUNIV The Industry University Research Center represents industry, government, and academia engaged in science and technology. INDUNIV is also the local affiliate of Biotechnology Innovation Organization (BIO), connecting local companies with a national network of life science promoters.

PRSTRT The Puerto Rico Science, Technology, & Research Trust is dedicated to investing, facilitating, and building capacity to advance innovation-based business growth throughout Puerto Rico. It funds a wide range of activities from testing labs to STEM education.

PRCCI The Puerto Rico Consortium for Clinical Investigation enhances private and academic clinical research through world-class research facilities and strategic partnerships. It was developed by the PRSTRT to further advance the knowledge economy.

APHIS and FDA Puerto Rico has local APHIS and FDA offices that help agbio and biotech companies meet regulatory standards, bring products to market, and manage their import and export of sensitive materials.

Tax Incentives

Puerto Rico offers some of the most attractive incentives in the market, and nearly every type of business activity is eligible for benefits.

In 2020, the incentives code was simplified to offer a base level of benefits with each tax decree:

- 4% corporate income tax
- 0% rate on dividends distribution
- 75% property tax exemption
- 75% construction tax exemption
- 50% municipal license tax exemption
- 50% exemption on other municipal taxes

Eligible activities include R&D, including hiring hard-to-locate professionals, using novel pioneer technologies, and projects of strategic importance; manufacturing; exports of goods and services; agroindustry; green energy; infrastructure; and finance, investment, and insurance.

In addition to simplifying the incentives code, the new incentives act centralized all incentives activity under the Incentive Office at the Department of Economic Development and Commerce (DEDC). Decrees are now available for 15 years, after which deals can be renegotiated and extended for an additional 15 years.

Competitive Across All Jurisdictions

Jurisdiction	Local Corporate Income Tax Rate	Federal Corporate Income Tax Rate	Total BioScience Employment	Average BioScience Employee Annual Wage	Export Production of Pharmaceuticals (2018)
Puerto Rico	4%	0%	94,320	\$49,633	\$13.2 billion
Indiana	8.5%	10%-37%	129,420	\$68,365	6.98 billion
North Carolina	6.9%	10%-37%	216,430	\$79,094	\$4.1 billion
Pennsylvania	9.99%	10%-37%	242,320	\$76,197	\$3.76 billion
Massachusetts	8%	10%-37%	329,840	\$88,812	\$1.85 billion
New Jersey	9%	10%-37%	248,980	\$91,519	\$1.65 billion
Maryland	8.25%	10%-37%	150,700	\$91,228	\$1.04 billion

Note: 4% tax rate assumes qualified business income with incentive under Act 60 in PR. Federal rate in Puerto Rico is on locally-sourced income. Export production numbers refer exclusively to products leaving U.S. jurisdiction. Total employment includes direct and indirect employees and comes from the Bureau of Labor Statistics (2018), along with the annual average wage data.

