

# Biotech: Latin America's Edge in Transforming Production Systems

**Biotechnology refers to the use of biological systems to develop or improve products and processes.** It was once synonymous with pharmaceutical research — a field marked by long timelines and high capital requirements. But today, a new generation of biotech companies is emerging, equipped with radically different toolkits that are reshaping how we understand and engineer living systems. DNA sequencing costs, for example, have plummeted from US\$95 million in 2001 to US\$200 today<sup>1</sup> — and continue to drop. Tools like CRISPR and high-throughput screening have democratized genetic editing. Meanwhile, cloud biology platforms and lab automation now allow startups to prototype biological solutions with a fraction of the capital once required.

**As a result, biotech is no longer confined to pharma.** It's becoming a foundational layer across multiple production systems — from agriculture to materials to energy. Over the past decade, this shift has fueled the rise of a global biotech startup ecosystem, applying biological innovation far beyond healthcare. In sectors like food and materials, for instance, bioengineered alternatives are already achieving carbon footprints 30 to 70% lower than their fossil-based counterparts — a critical shift given that AFOLU (Agriculture, Forestry, and Other Land Use) remains one of the primary drivers of planetary boundary transgressions. It's permeating most production systems.<sup>2</sup>

**This “new biotech” is not just a scientific breakthrough — it's a production paradigm shift.** One that replaces extractive, fossil-based systems with regenerative, biology-based ones. LAC is uniquely positioned to lead this new mode of production, based on two structural advantages: scientific talent and biological richness.

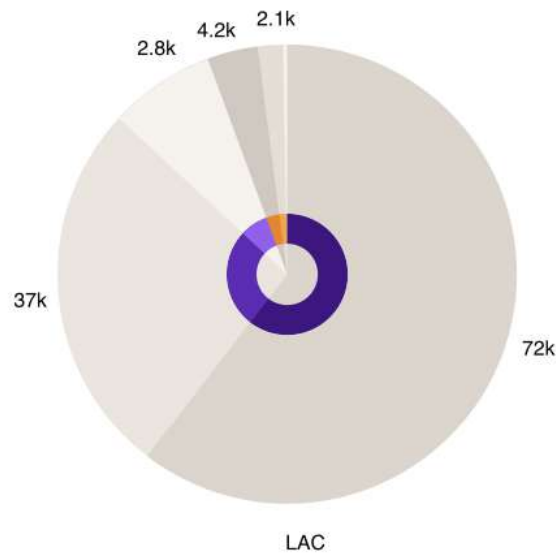
## Scientific talent and cost-effective R&D

**Nearly 200,000 researchers in Latin America specialize in life sciences — roughly 65% of the region's total scientific workforce.** GRIDX has mapped over 6,000 research projects across the region; more than 60% could directly contribute to climate and environmental solutions. If that ratio holds, the region counts on over 120,000 scientists — enough critical mass to project a new generation of biotech startups in Latin America. The region also offers significant R&D cost advantages: biotech startups in Latin America can operate at 30–50% lower cost than in the U.S. or Europe, particularly in early-stage experimentation and hiring.<sup>3</sup> This ecosystem is growing at approximately 20% annually and is projected to generate a US\$4–5 billion funding opportunity over the next 6 to 7 years.

# GRIDX

GridX is the leading venture capital fund for biotech start-ups in Latin America. Over the past eight years, through a company-building process, it has made investments in projects originating in Argentina, Brazil, Mexico, Costa Rica, Colombia, Chile, and Uruguay.





## Scientific capabilities mapped by GRIDX related to:

### Regenerative Land, Water and Oceans

- 60.5% Regenerative agriculture; Precision agriculture; Agroforestry; Low-carbon fertilizers; Soil carbon sequestration; Reforestation and afforestation
- 31.5% Alternative proteins; Animal feed and additives
- 2.4% Sustainable aquaculture

### Sustainable Industry and Infrastructure

- 3.6% Alternative materials; Decarbonizing heavy industry; Additive manufacturing; Resource-efficient industrial processes; Waste valorization; Recycling

### Market Infrastructure for Nature & Climate

- 1.8% Carbon dioxide removal and utilization; Point-source carbon capture; Nature & biodiversity markets

### Mobility and Energy Systems

- 0.3% Fuel efficiency; Renewable energy; Alternative fuels and hydrogen

Figure 1: Scientific capabilities mapped by GridX

## Biological richness and functional diversity

**LAC is the most biodiverse region on Earth — and one of the most studied.** National research institutes such as INPA (Brazil), Embrapa, and CONICET (Argentina) collectively manage hundreds of thousands of microbial strains, genetic libraries, and ecological datasets. These samples come from extreme environments — high-altitude salt flats, tropical forests, low-pH soils — that have driven unique evolutionary adaptations. The result is a repository of biological traits with direct industrial applications: microbes that fix nitrogen in degraded soils, fungi that synthesize stable natural pigments, viruses that target specific bacterial pathogens.



Figure 2: Map of Central and South America richspots. [a] Biodiversity hotspots; [b] Terrestrial Global 200 ecoregions; [c] Freshwater Global 200 ecoregion<sup>4</sup>

**Some of LAC's most promising biotech ventures are already drawing on this foundation:**

- **Puna Bio** (Argentina) leverages extremophile microbes from high-altitude salt flats in the Puna region to restore soil fertility in degraded farmland without synthetic inputs.
- **Polymera** (Uruguay / Argentina) harnesses the adaptive mechanisms of an Antarctic bacterium to develop biodegradable biopolymers with exceptional superabsorbent properties.
- **Michroma** (Argentina) uses filamentous fungi engineered via CRISPR to produce food-grade dyes that outperform petroleum-based synthetics on heat stability and cost-efficiency.
- **BioPlaster** (Mexico) transforms sargassum from the Caribbean Sea into advanced biodegradable materials via a proprietary biorefinery process. The company develops cutting-edge biomaterials that serve as industrial feedstocks.

**These startups aren't extracting value from biodiversity — they're building with it.** Each one turns biological insight into scalable industrial technology.

**In the coming decade, biology will redefine how we produce materials, grow food, and manage planetary systems. Latin America has the scientific talent and biological richness to lead this transformation — not just by conserving biodiversity, but by advancing how it's studied, applied, and scaled.**

