Catalysts of Change

CRISTIÁN HERNÁNDEZ CUEVAS

Reflections on Science and Business for Latin American Bio-Entrepreneurs

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Prologue: A Broader View of Biotech

Biotechnology is often defined as the use of biological systems—or their derivatives—to develop or manufacture products and processes that help improve our lives. But this definition barely scratches the surface. The future of biotech lies not just in singular breakthroughs like gene therapies or novel vaccines; it's in the transversal application of biotech processes and tools across diverse human endeavors. From climate-resilient crops and aquaculture innovations to AI-driven health diagnostics, biotech's unifying thread is the harnessing of living systems and molecular processes for transformative, cross-sector impact.

In Latin America, we are already seeing this broader definition take shape. Fisheries, agriculture, mining, and pharmaceuticals increasingly rely on biotech innovations to operate more sustainably and effectively. In this book, we will explore how these breakthroughs converge, why Latin America is poised to lead, and how we can build an environment that nurtures entrepreneurs and investors willing to shape the biotech of tomorrow.

1_
The Future of Biotech
Tools, Processes, and Transversal Impact

Redefining Biotech for the 21st Century

Biotechnology has long been associated with flashy areas like gene editing, biological drugs, and cell therapies. Indeed, CAR-T cell therapies are transforming cancer treatment, and RNA-based vaccines proved pivotal during the COVID-19 crisis. Yet biotech is evolving into a multi-disciplinary, transversal force that underpins various sectors—healthcare, agriculture, energy, the environment, and beyond. Recent global data shows biotech startups occupying over 60% of the deep tech category in Latin America. This broad "bio" wave connects AI platforms, automation, and omics. Instead of seeing biotech as a narrow field, we should view it as a suite of methods and processes—from molecular diagnostics to continuous fermentation—that can be integrated into multiple industries, reshaping the way we feed, heal, and build the planet.

Latin America's Moment in Numbers

Between 2023 and 2024, deep tech investment in Latin America reached USD 2 billion, a remarkable 600% jump from 2019. Within this deep tech surge, biotech remains dominant at 61%. Approximately 340 regional deep tech startups (collectively valued at USD 8 billion) have attracted institutional capital, reflecting a shift in investor perception that biotech in emerging markets can yield substantial returns if supported by robust ecosystems and strategic thinking.

2_ Why Latin America? Potential and Promise

Unleashing Regional Strengths

Latin America is leveraging:

- Abundant Scientific Talent: Argentina, Brazil, and Chile boast globally recognized research institutions and produce thousands of STEM graduates annually.
- Rich Biodiversity: The Amazon, the Andes, and the coastal ecosystems hold untapped genetic resources for innovative compounds and agricultural resilience.
- Increasing R&D Funding: Public agencies (e.g., BNDES, FINEP, FAPESP in Brazil, CORFO in Chile, IDB region-wide) channel billions into biotech. For instance, FAPESP approved 56 proposals worth USD 184.4 million in large-scale research equipment in 2023.

Data confirms the trajectory: as of mid-2024, Latin American startups collectively raised USD 1.1 billion in capital—despite a 63% drop in deal volume from the previous year, underscoring how investments are now concentrating on more mature or high-potential ventures.

When local resources and global capital unite, transformative solutions emerge. For example, Insud Group (mAbxience) in Argentina co-produced AstraZeneca's COVID-19 vaccine for the region; NotCo in Chile reached unicorn status with AI-driven plant-based foods; Axenya in Brazil is deploying AI and digital platforms to modernize a novel longitudinal healthcare navigation service. This service integrates advanced technology with health insurance to enhance chronic disease care.

The question is no longer, "Why Latin America?" but rather, "Why haven't we invested more?"

3_
Building an Ecosystem of Trust

Gratitude, Collaboration, and Narrative

The Power of Narrative

I have learned firsthand that data informs, but narratives inspire. In biotech, bridging the gap between molecular complexity and real-world impact requires compelling storytelling. When founders effectively illustrate how a platform can revolutionize a patient's life or enhance crop resilience for small farmers, they ignite empathy and confidence among stakeholders—from venture capitalists to regulators.

It is one thing to say you are developing a new veterinary vaccine, but it is entirely different to clearly explain a new category of self-antigen vaccine treatment that could permanently relieve neurogenic pain in companion animals. I have witnessed how the expressions of regulators, potential investors, and prospective clients change when they are asked, "How do you think the world would change if a vaccine for pain existed?" This is exactly what **Xeptiva Therapeutics** is doing in **Montevideo, Uruguay**.

BioGratitude: Cultivating Trust

A simple introduction or timely piece of advice can catalyze entire networks of opportunity. By proactively cultivating a "giving is receiving" mindset, we collectively elevate the ecosystem. Over time, these acts of generosity—what we playfully call BioGratitude—create trust-based circles where founders, mentors, and investors share resources, reduce risks, and propel each other forward.

We have seen this firsthand at Zentynel. On several occasions, we have encountered talented founders with compelling science but found they were not an exact fit for our fund's mandate or investment stage. Instead of walking away, we chose to help. For example, **ZEV Biotech in Argentina** approached us with an innovative molecular diagnostic platform that didn't perfectly align with our portfolio focus. Rather than simply decline, we connected them with international investors and potential industry partners. A similar situation occurred with **Bialtec in Colombia**, where we introduced them to a network of contacts within the animal nutrition and biotech value chain.

Although we didn't gain any immediate financial returns from these introductions, we built valuable relationships and trust that continue to grow. These experiences demonstrate the essence of BioGratitude—helping others succeed ultimately strengthens the entire ecosystem.

Collaboration as an Engine of Progress

Cross-border alliances have supercharged Latin American biotech. **Berking Biotech (Chile/Germany)** paired with **Nalca Bioscience (Chile)** on nanobodies and continuous fermentation. **Xeptiva (Uruguay)** teamed up with **ATGen** and Merck's emerging biotech group to bolster recombinant protein-based vaccine manufacturing. Meanwhile, several companies from Brazil, Argentina and Chile collaborate with global forestry giant CMPC on speed breeding and genetic programs, underscoring how corporate-startup partnerships can rapidly scale R&D. Such joint ventures confirm that synergy, not isolation, moves biotech forward.

4_
A Regional Perspective on Biotech Leadership

Latin America's biotech landscape is rapidly evolving, fueled by strategic public investments, private innovation hubs, and dynamic public-private collaborations. While historically overshadowed by North America and Europe, the region is proving that it has the talent, infrastructure, and scientific depth to compete on the global stage. Each country is leveraging its unique strengths to create a cohesive, high-impact biotech ecosystem:

- Argentina leads in biopharmaceuticals and startup acceleration.
- Brazil harnesses its biodiversity and public investment to drive advanced research.
- Chile exemplifies decentralized collaboration, bridging academia with industry.
- Uruguay and Costa Rica are becoming specialized hubs in biotech manufacturing and medical devices.

These efforts are collectively positioning Latin America as a biotech powerhouse, with the potential to influence global healthcare, agriculture, and industrial biotech markets.

Argentina: A Leader in Biopharmaceuticals and Startup Acceleration

Argentina has long been a regional leader in biopharmaceutical development, supported by a thriving startup ecosystem and strong public-private partnerships.

- Key players like Sinergium Biotech specialize in vaccine and biopharmaceutical production, leveraging strategic alliances with global laboratories.

- mAbxience (part of Insud Pharma) became a global leader in biosimilars and vaccine manufacturing, playing a critical role during the COVID-19 pandemic.
- Startup builders like Loci Labs, GridX, CITES, and SF500 are fostering deep-tech ventures, having supported over 90 biotech startups in the last decade.
- The Cámara Argentina de Biotecnología works closely with the government to improve competitiveness, resulting in biotech accounting for 37% of all local startups.

With its strong institutional support, world-class scientific talent, and increasing global collaborations, Argentina is not only scaling biotech locally but also securing a global footprint.

Brazil: Leveraging Biodiversity and Public Investment for Biotech Growth

Brazil, home to one of the world's richest biodiversity reserves, is strategically investing in biotech R&D to harness its natural resources for pharmaceuticals, agriculture, and environmental sustainability.

- BNDES and EMBRAPII have allocated over R$3 billion to R&D centers, supporting deep-tech expansion.
- Biomm and Libbs have pioneered biosimilar production, helping reduce Brazil's dependence on imported pharmaceuticals.
- Nintx, a leader in translational research, secured an international pharma partnership in 2024, advancing biome-derived therapies.
- The Amazon and Cerrado biomes are driving synthetic biology

research, leading to novel plant-based medicines and bioactive compounds.

Brazil's investment in biotech infrastructure, regulatory efficiency, and biodiversity-driven R&D is positioning it as a global biotech research and commercialization hub.

Chile: Decentralized Collaboration and the Puerto Varas Biotech Hub

Chile's biotech ecosystem is characterized by strong academic-industry partnerships, regional innovation hubs, and a decentralized approach to R&D. Two key areas are shaping its leadership: Santiago's biotech networks and Puerto Varas' emerging Patagonia Biotech Hub.

Santiago: Bridging Academia with Industry

Santiago's biotech growth is anchored by **Fundación Ciencia & Vida**, a driving force in linking scientific discovery with commercialization. Founded by Dr. Pablo Valenzuela (co-discoverer of the hepatitis C virus), Bernardita Méndez, and Dr. Mario Rosemblatt, it has:

- Secured over 100 biotech patents.
- Incubated globally successful biotech startups.
- Trained a new generation of biotech entrepreneurs, fostering an ecosystem where scientists are encouraged to become founders.

Through nearly three decades of public-private collaboration, Chile has built a foundation for scaling biotech innovations globally.

Puerto Varas: A New Biotech Innovation Oasis

Few could have predicted that a small city in Chile's Los Lagos Region would emerge as a beacon for biotech. Yet, in mid-2024, Puerto Varas hosted 100 biotech leaders, culminating in the launch of the Patagonia Biotech Hub.

- Supported by the Chilean Economic Development Agency (CORFO), the local municipality, and entrepreneurs behind Kura Biotech, the hub is attracting startups in aquaculture, enzyme production, and forestry innovation.
- Kura Biotech transforms marine waste into high-value enzymes, inspiring the creation of scientific coworking spaces with lab containers.
- Nalca Biotech joined the ecosystem, pioneering continuous fermentation technologies for industrial use.
- Regional partnerships with The Ganesha Lab, Endeavor Patagonia, and corporate players are fueling expansion.

Puerto Varas is proof that biotech innovation does not need to be confined to major capitals. If successful, this model could be replicated across Latin America, decentralizing biotech growth while integrating environmental stewardship and industrial applications.

Uruguay & Costa Rica: Emerging Hubs in Biotech Manufacturing & Medical Devices

While historically smaller players in biotech R&D, Uruguay and Costa Rica are rapidly becoming go-to destinations for biotech manufacturing and medtech innovation.

Uruguay: Strength in GMP Biomanufacturing
Uruguay's Good Manufacturing Practices (GMP) infrastructure has made it a preferred site for biotech production:

- ATGen leads in biopharmaceutical manufacturing, ensuring high-quality, globally competitive biotech products.
- The country's regulatory predictability and stable business environment attract international biotech firms seeking efficient production.
- Montevideo is emerging as a specialized biotech manufacturing hub, reinforcing Uruguay's role in global biotech supply chains.

Costa Rica: Medtech & Life Sciences Leadership
Costa Rica has established itself as a top-tier medical device manufacturer, with global biotech firms setting up operations:

- Establishment Labs, valued at USD 1.8 billion, specializes in next-generation breast implant technology.
- The country's skilled workforce and business-friendly regulations continue to attract major medical device manufacturers.
- Its proximity to North American markets makes it a strategic location for biotech and medtech exportation.

Latin America's Global Biotech Future

Across Argentina, Brazil, Chile, Uruguay, and Costa Rica, biotech is no longer an emerging industry—it is an accelerating force. Public-private investments are closing funding gaps. Startups are scaling beyond local markets and gaining global traction. Cross-border

collaborations are uniting Latin America into a regional biotech powerhouse.

> The question is no longer if Latin America can lead in biotech—the question is how fast it will get there.

Mexico and Colombia both have undeniable potential to become key players in this space within Latin America. However, in our experience over the past few years, the emergence of biotechnology companies in these countries has been low or nearly nonexistent. The reasons behind this stagnation extend beyond the scope of this book, but it is clear that the most promising opportunities either migrate early to the United States or take an exceptionally long time to mature due to a lack of domestic support.

The next decade will determine Latin America's role on the global biotech stage. With its scientific depth, investment growth, and industrial applications, the region is poised to transition from a promising player to a global leader in biotech innovation.

5_
The Value Chain Mindset and Hidden Angles in Biotech Investing

Seeing the Bigger Picture

Biotech value doesn't hinge solely on a single discovery; it emerges from an integrated chain—R&D, IP, regulatory, manufacturing, reimbursement and distribution. A small tweak in production or an alternate market application can unlock new revenue streams.

Case in point:

- **Biomakers** is an Argentine biotech venture that transforms genomic data into therapeutic decisions, specializing in personalized treatments through advanced genomic testing. By forging partnerships with healthcare providers and pharmaceutical firms, the company streamlines access to complex drugs across Latin America, helping clinicians tailor therapies to individual patient profiles and thereby improving treatment outcomes at scale.

- **Asclepii** is a Mexican/Chilean/Argentine research and development startup focused on scaling regenerative medicine through its product Artemis, an adaptable and versatile tissue regeneration matrix. The company aims to transform costly cell therapies into accessible solutions, reducing treatments from $30,000 to $300 standing out in the medical device and tissue engineering industries.

Often, the biggest breakthroughs are right under our noses.

- **ViewMind** in Argentina began as an early Alzheimer's detection startup but found greater success in broader cognitive diagnostics. What seemed obvious was initially overlooked by

those narrowly focused on Alzheimer's alone. Today, ViewMind is on track to own one of the world's most comprehensive normative datasets on cerebral cognitive function, positioning it as a leader in cognitive health diagnostics.

- **Axenya** realized that its care navigation and healthcare insurance model needed to integrate into a value chain of Care, Cure, and Insure. What started as a digital platform and medical devices for chronic disease management is now transforming into a game-changer for large-scale (longitudinal) healthcare access and delivery. By leveraging data-driven insights and integrating more effective and affordable health insurance solutions, Axenya is redefining the future of healthcare in Latin America.

6_ Regulatory Pathways in Latin America

Navigating ANVISA, COFEPRIS, INVIMA, ISP and ANMAT

The Complex Landscape

For biotech companies aiming to penetrate the Latin American market, understanding the diverse regulatory environments is crucial. Each country operates under its own set of rules and timelines, making the navigation process both challenging and essential for success.

- **Brazil (ANVISA):** Historically, drug approvals have taken between 1.5 to 2 years after the final application submission, posing significant delays for companies eager to enter the market. Recognizing this bottleneck, recent regulatory reforms aim to accelerate approvals to a range of 120 to 365 days, particularly for innovative therapies. However, it's important to note that obtaining Brazilian Good Manufacturing Practices (GMP) certification remains a separate, often lengthy process, potentially adding months to the overall timeline.

- **Mexico (COFEPRIS):** Officially, approvals via equivalence for drugs already approved by agencies like the FDA or EMA should take between 5 to 60 days. In reality, companies often face backlogs extending approvals to 1–2 years, leading some to resort to legal action to expedite processes. While COFEPRIS has initiated steps toward regulatory modernization, companies should approach the Mexican market with a well-defined strategy, ensuring comprehensive documentation and considering local legal representation to navigate potential challenges.

- **Colombia (INVIMA):** Typically, approvals are granted within 12 to 18 months. Colombia's regulatory body is noted for its flexibility, often relying on foreign data, which benefits companies that

have already pursued approvals in North America or Europe. Additionally, INVIMA offers incentives for small and medium-sized enterprises (SMEs), facilitating smoother market entry for emerging biotech firms.

- **Chile (ISP):** Chile boasts a relatively predictable regulatory environment, with review periods ranging from 6 to 8 months. While the country's market size is limited, many companies utilize Chile as a strategic entry point, securing approvals here before expanding to larger Latin American markets. The nation's stability and regulatory transparency make it an attractive initial market, especially for companies specializing in biologics, diagnostics, and precision medicine.

- **Argentina (ANMAT):** Has evolved into a recognized health agency, both nationally and internationally. In 2017, ANMAT implemented regulations to expedite the evaluation process for clinical trials, reducing timelines from 160 business days to 70 days or fewer. However, despite these improvements, companies may still encounter delays, particularly if documentation is incomplete or does not meet specific requirements.

Common Pitfalls and Strategies for Success

Even with extensive regulatory experience in regions like North America or Europe, companies can find Latin America's approval processes uniquely challenging. Anticipating potential obstacles is key to a successful market entry.

- **Underestimating Timelines:** Despite the existence of "fast-track" pathways, backlogs in countries like Brazil and Mexico can extend timelines to two years or more. Companies must integrate regulatory strategy into their clinical development plans from the outset, rather than treating it as a subsequent step.

- **Incomplete Dossiers:** Each regulatory agency has distinct formatting, documentation, and translation requirements. A dossier prepared for the FDA or EMA may require significant modifications to meet Latin American standards. Ensuring that all submissions are tailored to each agency's specifications is crucial to avoid delays.

- **Mandatory Local Representation:** In many Latin American countries, having a local legal entity or representative is not just beneficial but required for submitting applications. These local partners play a vital role in navigating informal challenges, liaising with regulators, and expediting the approval process.

- **Parallel Submissions:** Staggering regulatory filings—seeking approval in one country before moving to the next—can result in unnecessary delays. Implementing a parallel submission strategy across multiple markets can streamline timelines, allowing companies to secure approvals simultaneously rather than sequentially.

Navigating the regulatory landscape in Latin America is complex, but with thorough preparation and a strategic approach, companies can effectively bring their biotech innovations to these emerging markets.

7_ Business Models in Biotech

Product, Platform, Services, and Hybrids

1. Therapeutic Product Model:

Latin American biotech companies are embracing the high-risk, high-reward model in drug development, targeting complex diseases with innovative therapies. For example:

- **Autem Therapeutics (Brazil):** Focuses on bioelectric cancer treatments that modulate electromagnetic frequencies to target cancer cell metabolism.
- **MirScience (Brazil):** Develops microRNA-based therapies to modulate gene expression in neurodegenerative diseases.
- **Ayuvant (Argentina):** Specializes in immuno-oncology with personalized therapeutic vaccines that enhance the immune system's response to cancer.

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2. Platform Technology Model

- **PhageLab (Chile)** has developed a proprietary microbial bioinformatics platform that utilizes artificial intelligence to design customized bacteriophage treatments, effectively controlling bacterial pathogens in livestock and reducing reliance on antibiotics. Its AI-driven approach to bacteriophage therapy serves as a robust R&D platform, blending innovation with practical application.

- **ISA Lab (Brazil)** is a digital and in person health services platform that modernizes traditional healthcare delivery by providing easy and secure solutions for patients wherever they are. It offers services such as diagnostic tests, screenings, and vaccinations, operating across São Paulo and six other Brazilian states.

3. Contract Research/Service Model

Contract Research Organizations (CROs) and specialized service providers in Latin America offer a stable revenue model by delivering comprehensive R&D solutions to both emerging biotech firms and established pharmaceutical companies. These organizations mitigate market volatility by diversifying their service offerings across various projects and clients.

- **ACTIVA CRO**, a full-service expert CRO operating since 2003 with a presence in Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Uruguay.

- **Cohortias**, based in Mexico, is another notable CRO offering full-service clinical research solutions across Latin America.

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4. Hybrid Models

Some startups juggle both product development and external services.

Stämm is an **Argentinian** biotech startup that utilizes a hybrid business model, balancing in-house product development with external service offerings. This dual approach diversifies revenue streams and accelerates innovation.

- Product Development focuses on advanced biomanufacturing solutions, notably a continuous bioreactor that enhances antibody productivity by up to 30 times, tested successfully

in Europe and the Americas. This device automates and optimizes biologics production, providing a scalable and efficient manufacturing alternative.

- External Services focuses on providing comprehensive solutions for developing cell lines for clinical and commercial use. By balancing internal innovation with strategic external collaborations, Stämm is positioning itself as a key player in both the local and international biotech landscape.

8_
Long Timelines and Strategic Exits

The Dynamics of Biotech Investment

The 5–10 Year (or More) Reality

Unlike digital startups that can pivot and scale within months, biotech ventures face long development cycles, including multi-year clinical trials and rigorous regulatory reviews. This extended timeline requires patient capital and strategic exit planning.

To navigate these challenges, several investment funds in Latin America are actively supporting biotech startups:

- **SP Ventures (Brazil):** One of the most active venture capital firms in the region, focusing on agritech and biotech innovations that leverage Brazil's biodiversity.
- **Pitanga (Brazil):** Invests in high-impact biotech startups across health, agriculture, and environmental sustainability, emphasizing disruptive technologies.
- **LifeLink Ventures (Spain with LATAM Ties):** Specializes in early-stage investments in health and biotech, supporting innovative medicines and health solutions.
- **ND Latam (Uruguay):** Invests in deep tech and biotech startups across Latin America, bridging scientific discovery with commercial viability.
- **Südlich Capital (Chile):** Focuses on long-term investments in health and life sciences, employing rigorous due diligence and operational discipline.
- **SkyHigh Ventures (Argentina):** A biotech-specialized fund redefining the frontiers of science and technology, supporting startups from early stages to market leadership.

These funds play a crucial role in fueling Latin America's biotech ecosystem, providing the strategic guidance and patient capital

needed to navigate the long timelines and complex exit pathways unique to biotech investment.

Integration with Big Pharma

Large pharmaceutical companies outsource early R&D to smaller biotechs, acquiring or licensing successful assets. This is pivotal in Latin America, where local heroes like mAbxience, Nintx or Autem Therapeutics could secure major deals after reaching clinical milestones—delivering earlier exits for investors than waiting for final product approvals.

9_
Leadership, Mentorship, and Operational Discipline

Visionary Thinking Meets Disciplined Execution

In biotech, breakthrough science alone is not enough—operational discipline often determines success. Many startups fail not due to flawed science but because of internal mismanagement, weak execution, or an inability to navigate complex regulatory and financial landscapes.

Strong project management, clearly defined roles, and tight financial controls are non-negotiable. Founders must balance scientific creativity with business rigor, ensuring that their company progresses from lab discovery to marketable innovation without losing momentum.

Biotech's long timelines demand meticulous milestone planning, financial resilience, and adaptable leadership that can shift strategies based on regulatory hurdles, clinical results, or market shifts. Companies that survive and scale typically have leaders who combine scientific vision with operational discipline, ensuring steady progress despite the sector's inherent volatility.

Mentorship as a Strategic Asset

Access to experienced mentorship is often the defining factor between biotech startups that scale and those that struggle. Institutions like Fundación Ciencia & Vida in Chile and Endeavor Patagonia connect scientists with seasoned entrepreneurs and investors, transferring critical operational know-how—everything from regulatory navigation and clinical trial design to supply-chain optimization and investor relations.

Mentorship also plays a key role in company pivots and strategic realignments. Many successful biotech companies refine their business models after receiving guidance from experienced mentors who help them see alternative pathways to scale. For example:

> Sometimes, the most valuable guidance isn't visionary—it's practical process discipline.

Multiplai (Argentina) initially faced significant hurdles in securing U.S. reimbursements for its cardiometabolic risk test. However, after an investor linked them to key insurers, they pivoted to a risk analytics model for managing chronic diseases, turning a long wait for reimbursement codes into a soon-to-be profitable venture. This case highlights how trust-based mentorship and introductions can unlock new business models that founders may not initially consider.

Trust-Based Networks: The Power of Strategic Introductions

Biotech ecosystems thrive on strategic connections and trust-based networks. Unlike other industries, biotech companies cannot operate in isolation—they depend on partnerships with regulators, manufacturers, insurers, and investors to bring products to market.

- **Cross-border collaboration:** Startups benefit immensely from global networks that provide access to international investors, regulatory advisors, and commercialization partners.

- **Investor-founder alignment:** Beyond funding, biotech investors play a key role in helping startups establish governance structures, secure key talent, and refine exit strategies.
- **Corporate partnerships:** Collaborations with big pharma, biotech hubs, and CROs can accelerate product development and market entry. For example:

Xeptiva (Uruguay) strengthened its intellectual property strategy, corporate governance, and global partnerships after being introduced to high-level international advisors through investor networks. This reinforced the company's global positioning and regulatory preparedness, ensuring a more competitive and scalable business model.

10_ Rethinking Venture Capital for Biotech

Is the 10-Year Fund Model Still Relevant?

Traditional venture capital structures—typically 10-year fund cycles—often fail to align with the long and uncertain timelines of biotech innovation. Unlike software startups, which can iterate and generate revenue within months, biotech ventures must navigate preclinical research, clinical trials, regulatory approvals, and manufacturing hurdles, all of which can extend beyond a decade before generating significant returns.

To address this fundamental mismatch, investors and biotech entrepreneurs are exploring alternative funding models that better align capital deployment with biotech's patient timeline:

- **Evergreen Funds:** Funds with no fixed expiration date, allowing long-term capital recycling and reinvestment in portfolio companies at different stages.
- **Milestone-Based Liquidity:** Instead of waiting for an IPO or acquisition, structured financing tied to scientific and regulatory milestones enables early investors to realize returns gradually.
- **Royalty or Revenue-Sharing Models:** Investors receive a percentage of future revenues from commercialized biotech innovations, reducing dependence on binary exit events.
- **Philanthropic-Public-Private Consortia:** Blending capital from government agencies, NGOs, and private investors to de-risk early-stage biotech projects while ensuring sustained financial backing.
- **Hybrid Venture Models:** Some biotech funds are experimenting with a mix of traditional VC, private equity, and impact investment structures, allowing for flexible exit strategies.

Biotech Investment in LATAM: Navigating Structural Challenges

Latin America's biotech industry is gaining momentum, yet it faces additional challenges related to access to capital and fund structures. Unlike the U.S. or Europe, where biotech-dedicated funds are more common, most LATAM VC firms operate under generalist mandates, with limited appetite for long-term biotech investments.

This lack of specialized biotech capital means that startups must often seek funding abroad, slowing down regional industry growth. It also increases pressure on local investors to adapt—either by forming biotech-dedicated funds or by adopting longer-term investment strategies that reflect the realities of biotech development.

Five Key Questions for Investors and Founders

To ensure that biotech capital strategies match longer timelines and risk profiles, investors and entrepreneurs should consider:

1. How do we align LP expectations with biotech's extended journey?

a. Are blended investment vehicles (mixing VC, PE, and public grants) viable for biotech in LATAM?
b. Could longer fund horizons (15+ years) better serve biotech's growth cycles?

2. **Can partial exits or revenue-sharing offset the wait for final approvals?**

a. Are structured secondary sales a solution to provide liquidity before traditional exits?

b. Could royalty-based investment models create predictable early returns?

3. **Which capital deployment strategies sustain multiple value inflections?**

a. Are follow-on investment tranches key to sustaining biotech ventures at critical regulatory junctures?

b. How can LPs and investors secure capital recycling within a single fund?

4. **What role can government agencies and philanthropic actors play in de-risking?**

a. Could public-private partnerships make early-stage biotech more attractive for investors?

b. How do government innovation grants (e.g., BNDES in Brazil, CORFO in Chile) complement private biotech investments?

5. **Could consortium funding unify local and international investors to share risk?**

a. How can LATAM biotech startups tap into global biotech VC networks?

b. Would a LATAM biotech investment alliance help de-risk capital and attract institutional investors?

The Future of Biotech VC: Will LATAM Adapt?

The next decade will determine whether Latin American biotech investment evolves beyond traditional models. The region has all the scientific talent, biodiversity, and emerging regulatory infrastructure necessary to be a global biotech player—but without patient capital, many promising startups will either fail to scale or relocate to markets with more mature investment ecosystems.

The question is not whether biotech in Latin America can succeed—it already has. The question is whether investors will shift their mindset to match the industry's realities.

Will LATAM adopt investment structures that recognize the long arc of biotech development?

If local funds continue following traditional VC models with short horizons, they risk missing out on the sector's true potential. But if they embrace alternative models, aligning with biotech's long development cycles, they can position Latin America as a leader in emerging-market biotech—not just a follower.

The most successful biotech investors in LATAM will be those who understand that true breakthroughs require time, resilience, and capital structures that work with—not against—science's timeline.

11_
Ethics, Inclusion, and Real Impact

Putting People First

Biotech is not just about technological advancement—it directly affects human lives. The ethical implications of innovation, from gene editing and data privacy to informed consent and equitable access, are as crucial as the scientific breakthroughs themselves.

For biotech companies to build lasting credibility and public trust, they must integrate strong ethical frameworks into their development processes. This means:

- Ensuring informed consent in clinical trials, particularly in regions with vulnerable populations.
- Addressing data security and privacy concerns, especially as AI and genomics become more central to healthcare.
- Navigating the moral and regulatory complexities of genetic modifications, CRISPR, and synthetic biology.
- Avoiding biotech monopolization, ensuring that innovations reach the people who need them most—not just the highest-paying markets.

Governments and regulatory agencies play a key role in setting and enforcing ethical standards, but responsibility also lies with founders, investors, and scientists to ensure that biotech advances benefit society as a whole.

Inclusive Innovation: Expanding Access and Opportunity

In Latin America, the promise of biotech must extend beyond elite institutions and premium markets. Innovation that is inclusive—

not just in terms of access but also in participation—can be a powerful tool for economic and social mobility.

For example, **Samay (Colombia)** is leveraging AI-driven analysis of lung sounds to predict and prevent COPD exacerbations, expanding access to respiratory health monitoring for patients in underserved regions.

> Ethical, inclusive innovation isn't just right—it's good business and better science.

These types of companies demonstrate that ethical and inclusive biotech is not just a moral obligation—it's also a sound business strategy. Markets once considered "too small" or "too complex" are now proving to be high-impact, scalable opportunities.

Beyond Product Access: Inclusion in Biotech Talent and Investment

Ensuring biotech's transformative power reaches all communities means not just expanding access to products, but also opening pathways for more diverse talent and capital.

Talent Diversity in Biotech

Biotech in Latin America still struggles with limited diversity in leadership and research teams. More investment is needed in:

- Women-led biotech ventures, as female founders remain underrepresented in the sector.

- Programs that train local talent in biotech R&D, reducing dependence on international expertise.
- Bridging academia and industry, ensuring scientists with high-impact ideas have pathways to commercialization.
- Greater inclusion of LGBTQ+ professionals and other historically marginalized groups in biotech leadership and decision-making roles.

The Future of Ethical and Inclusive Biotech

As Latin America's biotech sector grows, it must answer one fundamental question: Are we building an industry that serves only the privileged few, or one that truly transforms lives across all socioeconomic levels?

> The future of biotech is not just about the next big discovery—it's about who gets to benefit from it.

Companies that adopt ethical, inclusive innovation models will outlast and outperform those that do not. Regulatory agencies, investors, and entrepreneurs must align to ensure that biotech's full potential is realized—not just in cutting-edge labs, but in real-world healthcare, food security, and environmental solutions.

12_
Quality over Quantity
Defining Real Biotech Leadership

Redefining Leadership Metrics

The success of a biotech ecosystem is not measured by the sheer number of startups it produces, but by the global significance of each breakthrough. One transformative innovation can redefine an industry, as seen with Chiron Corporation, co-founded by Pablo Valenzuela, one of our GPs, which developed the first recombinant hepatitis B vaccine, or BioNTech, founded by Turkish researchers, which played a pivotal role in the development of mRNA vaccines.

If these developments had occurred in their countries of origin, the impact would have been monumental, inspiring societal change through a wave of motivation and admiration. The fact that they identify with Chile and Turkey respectively illustrates the potential of emerging markets to lead global biotech revolutions.

It is true that a certain volume of startups is necessary to create a self-sustaining biotech ecosystem, but this will be a natural consequence—a domino effect—triggered by the success stories of a few pioneering, high-quality startups that set the foundation. Simply launching 200 biotech startups will not guarantee success if they lack funding, infrastructure, human capital, and a suitable regulatory framework.

In regions where resources are scarce, creating the right enabling conditions for biotech success is not trivial. This is why we should not be misled by easy-to-measure metrics, such as the total number of companies. Instead, we must consider deeper dimensions, like the ones outlined below, which truly define the long-term viability of a biotech ecosystem.

Five Key Metrics for Biotech Leadership in LATAM

1. **Scientific and Intellectual Property Strength**. Strong biotech ecosystems are built on patentable discoveries and defensible intellectual property (IP).

a. How many granted patents or pending applications does a company have?

b. Does the startup have a clear IP strategy that protects core innovations while allowing for regional expansion?

c. Has the company licensed or collaborated with leading research institutions or global pharma players?

A biotech startup in LATAM cannot rely solely on first-mover advantage—it must ensure that its core technology is both protected and internationally competitive.

2. **Talent Density and Multidisciplinary Leadership.** A high-impact biotech company is only as strong as its team. The most successful biotech ventures combine:

a. World-class scientists with proven research credentials.

b. Regulatory and clinical experts who can navigate approval pathways in both LATAM and global markets.

c. Commercial and business leaders with the experience to scale innovations beyond research labs.

One way to measure this is by tracking the ratio of scientific vs. business leaders in a biotech startup. A lack of commercial leadership often leads to groundbreaking research that never reaches the market.

Additionally, diversity within leadership teams matters. Companies with inclusive leadership are better positioned to understand diverse market needs and secure global partnerships.

3. **Capital Efficiency and Long-Term Financial Resilience.** Many LATAM biotech companies struggle to secure Series B and beyond, leading to early-stage stagnation or relocation to North America or Europe. To ensure financial resilience:

a. How much non-dilutive capital (grants, subsidies, research funding) has a startup secured?
b. What is its burn rate and runway, and how effectively is capital deployed in R&D vs. operations?
c. Does the company have access to LATAM-specific funding mechanisms, such as BNDES (Brazil), CORFO (Chile), or international biotech consortia?

Strong biotech companies align their capital strategy with their development roadmap, ensuring they can sustain long R&D cycles without compromising innovation.

4. **Regulatory and Market Readiness.** LATAM biotech startups often underestimate regulatory challenges, assuming that obtaining local approvals (ANVISA, COFEPRIS, INVIMA, ISP) is enough. Global biotech leadership, however, demands:

a. Parallel regulatory submissions in major markets (FDA, EMA, PMDA).
b. A well-defined go-to-market strategy, including pricing, reimbursement, and market adoption plans.
c. Early engagement with public health agencies and insurers, ensuring that innovations are not just approved, but also accessible and commercially viable.

Market leaders think beyond scientific validation—they build pathways for rapid adoption and scalability.

5. **International Collaboration and Scaling Potential.** For biotech in Latin America to be globally relevant, companies must actively pursue international collaborations and scaling opportunities.

a. How many global partnerships (universities, pharma, research labs) does the company have?

b. Is it leveraging international accelerators (IndieBio, Y Combinator, JLABS) or bilateral innovation agreements?

c. Does the startup have a cross-border operational strategy, balancing local R&D with international commercialization?

Successful LATAM biotech startups are those that establish themselves in global value chains, rather than remaining confined to regional markets.

A Smarter Approach to Biotech Growth in LATAM

Latin America has the scientific talent and natural resources to become a biotech powerhouse, but funding constraints, regulatory bottlenecks, and market fragmentation slow down progress.

Rather than trying to increase the sheer number of startups, stakeholders—including governments, investors, and founders—should focus on:

1. Strengthening IP and scientific output.
2. Building multidisciplinary teams with strong leadership diversity.
3. Ensuring capital efficiency and long-term financial planning.

4. Addressing regulatory barriers early to enable international scaling.
5. Embedding global collaboration strategies from the start.

If Latin America adopts these quality-first biotech metrics, it can create globally competitive biotech companies that go beyond regional success and drive true scientific and commercial impact at a worldwide level.

13_
Bridging Funding Gaps
From Series A to Series B and Beyond

The Series B Chasm

Early-stage biotech startups in Latin America often manage to secure seed and Series A funding from angel investors, government grants, and local venture capital funds. These rounds, typically in the range of USD 1–5 million, are sufficient to finance proof-of-concept studies, early preclinical trials, and initial regulatory navigation.

However, when startups reach Series B (USD 10–30 million)—the stage where they need funding for clinical trials, regulatory submissions, and manufacturing scale-up—they face significant barriers. The scarcity of growth-stage investors in Latin America forces many companies to:

- Relocate operations to the United States or Europe, where biotech capital is more abundant.
- Pursue foreign venture capital, which often requires changing governance structures or granting significant control to international investors.
- Slow down or stall due to lack of sufficient capital to continue development.

Without local Series B and later-stage investors, many of Latin America's most promising biotech companies risk being acquired prematurely or moving abroad, leading to talent drain and limited regional impact.

Three Strategies to Close the Funding Gap

1. Expanding Local Investment Vehicles: Growth-Stage Biotech Funds

One of the most direct ways to solve the Series B problem is to establish larger, specialized biotech investment funds in Latin America. While early-stage funding sources exist, very few local firms have the capacity to:

- Deploy USD 10–30 million in a single round.
- Participate in follow-on rounds alongside international investors.
- Provide long-term, patient capital that matches biotech's extended development timelines.

For this to happen, governments, institutional investors, and pension funds must recognize biotech as a strategic industry and encourage capital allocation toward growth-stage funds. Some potential solutions include:

- Public-private co-investment models, where governments match private capital investment in biotech startups to reduce risk.
- Longer-horizon funds (15+ years), avoiding traditional VC constraints that often do not align with biotech's development cycle.
- Incentives for local institutional investors (such as pension funds and sovereign wealth funds) to allocate a percentage of their portfolios to biotech and deep tech.

This is exactly what we are aiming to do with the successive funds we are raising at Zentynel. By expanding regional capital availability, we can retain homegrown biotech innovations instead of seeing them relocate due to funding shortages.

2. Leveraging Strategic Partnerships and Corporate Venture Capital

Latin American biotech startups often underutilize one of the most powerful funding sources: corporate venture capital (CVC) and strategic partnerships with multinational pharmaceutical companies.

In many cases, big pharma and large industrial players are looking for regional R&D opportunities, licensing agreements, and co-development deals. These partnerships can provide:

- Equity investments from corporate-backed funds.
- R&D collaborations where startups receive funding in exchange for product co-development.
- Licensing deals that generate non-dilutive funding while allowing startups to retain their core IP.

To better access these funding opportunities, LATAM biotech founders should:

- Actively engage with global pharma networks, presenting their innovations at industry conferences and investor roadshows.
- Structure their business models to make corporate partnerships viable—ensuring that their IP strategy, regulatory approach, and R&D roadmaps align with the needs of multinational firms.
- Develop regional biomanufacturing capacity, so that global pharma sees Latin America as not just a research hub, but a potential production and distribution partner.

By strategically positioning themselves within global value chains, LATAM biotech startups can tap into non-traditional capital sources that go beyond VC funding.

3. Creating Cross-Border Investment Frameworks

Since Series B funding is limited in Latin America, one solution is to facilitate structured cross-border investment agreements that connect LATAM startups with global biotech investors while allowing them to remain rooted in the region.

Some ways to achieve this include:

- Dual Headquarters or Hybrid Structures: Some biotech startups establish a legal presence in both Latin America and North America/Europe, enabling them to access international funds without fully relocating.
- Bilateral Innovation Agreements: Governments can create funding programs that encourage cross-border co-investments, such as Brazil's collaborations with European biotech accelerators or Mexico's partnerships with U.S. biotech hubs.
- Syndicated Investment Rounds: LATAM VCs can syndicate Series B rounds with U.S. and European funds, ensuring that startups secure global capital while keeping operations and intellectual property in the region.

To scale globally while staying rooted, companies must think beyond local investors and actively engage with international capital markets. A future with larger local funds and cross-border investment agreements could transform Series B from a "mission impossible" into a pivotal growth stage that keeps companies thriving in the region.

Bridging the Gap Requires Action

Latin America cannot afford to lose its most promising biotech startups due to lack of later-stage funding. While early-stage support has improved, Series B remains a critical bottleneck. The region needs:

> Series B is the missing link. It's time to close the gap.

1. Larger, specialized biotech funds that provide patient capital for growth-stage companies (as we are building at Zentynel).
2. Corporate venture partnerships that leverage pharma and industrial investment.
3. Cross-border investment frameworks that allow LATAM startups to access global capital while staying locally anchored.

By addressing these structural challenges, Latin America can build a resilient biotech ecosystem, ensuring that its innovations do not just survive—but thrive—on a global scale.

14_ Reflections of a First-Time Fund Manager

Trust, Narrative Building, and Resilience

Becoming a General Partner at Zentynel Frontier Investments has been a journey of trust-building, strategic narrative building, and resilience. Biotech investing is not just financial—it is about shaping the future. Unlike other industries where iteration and feedback loops happen quickly, biotech requires deep conviction, patience, and the ability to navigate uncertainty for years before success materializes.

Venture capital, especially in biotech, is often misunderstood. It's not simply a financial operation—it's closer to an art, or even a philosophy. It is about seeing the world not as it is, but as it could be. Investing in biotech means backing technologies that may take a decade or more to prove themselves. It means believing in scientists, entrepreneurs, and breakthrough ideas long before the world recognizes their value. It means accepting that bad news comes early and often, while transformative successes emerge later—but when they do, they change everything.

In this industry, trust is everything—not just between investors and founders, but across the entire ecosystem. A single regulatory approval or a strong international partnership can change the trajectory of a company overnight, but none of that happens without years of careful preparation, persistence, and the ability to see past short-term setbacks.

Lessons Learned

1. Biotech Investing is About Playing the Long Game

Most industries reward quick iterations and fail-fast strategies.

Biotech does not work that way. A breakthrough in oncology, precision medicine, or synthetic biology doesn't follow the same trajectory as a consumer tech startup. Success is measured in scientific validation, regulatory approvals, and eventual patient outcomes—not in viral adoption curves.

We must stop applying short-term VC thinking to biotech. The world's biggest biotech companies—Genentech, Moderna, BioNTech—were once long-shot bets that took years to build. Many of their early investors waited 15 to 20 years before seeing returns. This is the nature of biotech: it takes time, but the impact is exponential.

At Zentynel, we understand that our success will not be measured in quarterly returns, but in the biotech giants we help create over the next decade.

2. Specialization is Our Competitive Advantage

Not all venture capital is the same. There is a huge difference between a generalist investor looking for the next hot startup and a specialized biotech fund that understands scientific validation, regulatory pathways, and industry scalability.

At Zentynel, we don't just deploy capital—we provide deep sector expertise. We know that a great scientific discovery alone is not enough. It must be paired with the right regulatory approach, the right market entry strategy, and the right international partnerships. Many generalist investors hesitate to back biotech because they lack the technical knowledge to evaluate risk correctly. This is where we have an edge.

A big lesson for me has been realizing that we don't need to invest in everything—we need to invest in the right things and be exceptional at

it. The best biotech funds in the world don't chase trends; they identify, build, and scale industry-defining companies.

3. The Power Law Applies to Biotech More Than Any Other Sector

The Power Law—where a small handful of investments generate the majority of returns—is even more extreme in biotech. The vast majority of biotech startups will never reach commercialization, but the ones that succeed will redefine entire industries.

As a fund manager, this means two things:

First, we must be disciplined in how we choose investments. It's not about spreading bets across many companies; it's about identifying the few that can truly scale and change the game.

Second, we must recognize when an investment is not working and let go early. It's easy to fall into the sunk cost fallacy, but in biotech, holding onto failing companies can drain resources that should be redirected to those with real potential.

4. Investing is More Than Money—It's About Building the Right Ecosystem

A biotech startup cannot succeed in isolation. Unlike software companies, which can launch with minimal infrastructure, biotech companies depend on regulatory bodies, clinical trial networks, manufacturing partners, and global investors. The role of a fund like Zentynel is not just to provide capital, but to build an entire support system around our companies.

- We connect founders to world-class regulatory advisors to ensure smooth approvals.
- We introduce companies to strategic pharma partners who can accelerate market entry.
- We guide them through capital-efficient scaling strategies, ensuring they don't burn through funding before reaching key milestones.

Being an investor in biotech is not just about capital deployment—it's about actively shaping an industry. This has been one of my greatest realizations: venture capital is not just about picking winners; it's about creating the conditions for winners to emerge.

5. The Best Investors Focus on Narrative Building, Not Just Numbers

One of the most underestimated aspects of biotech investing is the power of narrative building. Facts alone don't move hearts—or wallets. Investors, regulators, and partners must not only understand the science but also feel the urgency and potential impact of what a company is building.

Many of the best biotech founders I've worked with started off struggling to articulate their vision beyond the lab. The difference between a company that stalls and one that secures major partnerships and funding rounds is often how well they can translate complex science into a compelling, clear narrative.
At Zentynel, one of our key roles is helping founders refine their narratives. It's not just about what they're building—it's about why it matters and how it fits into the bigger picture of healthcare, agriculture, and global biotech innovation.

Stepping Into the Unknown

Of course, frustrations abound: uncertain regulatory timelines, incomplete data, and constant capital needs. Yet, I am convinced that Latin American biotech sits on the cusp of global prominence. The region has world-class scientific talent, a wealth of untapped biodiversity, and emerging regulatory frameworks that, if shaped correctly, could position LATAM as a global leader in biotech innovation.

But for that to happen, we must address one major gap: long-term patient capital. Too many promising biotech startups in LATAM stall at Series B because the region lacks funds willing to support them beyond the early stages.

This is exactly what we are working to build. If Latin America wants to play a meaningful role in the future of biotech, it needs investors who understand that real breakthroughs take time—but when they happen, they change the world.

Biotech is not for the impatient. It is not for those looking for quick returns. It is for those willing to bet on the extraordinary, to back the scientists and entrepreneurs whose work will shape the next century.

At Zentynel, we are not just investing in companies. We are investing in the future of Latin America as a global biotech powerhouse.

This is the long game we are playing—and we're just getting started.

About the Author

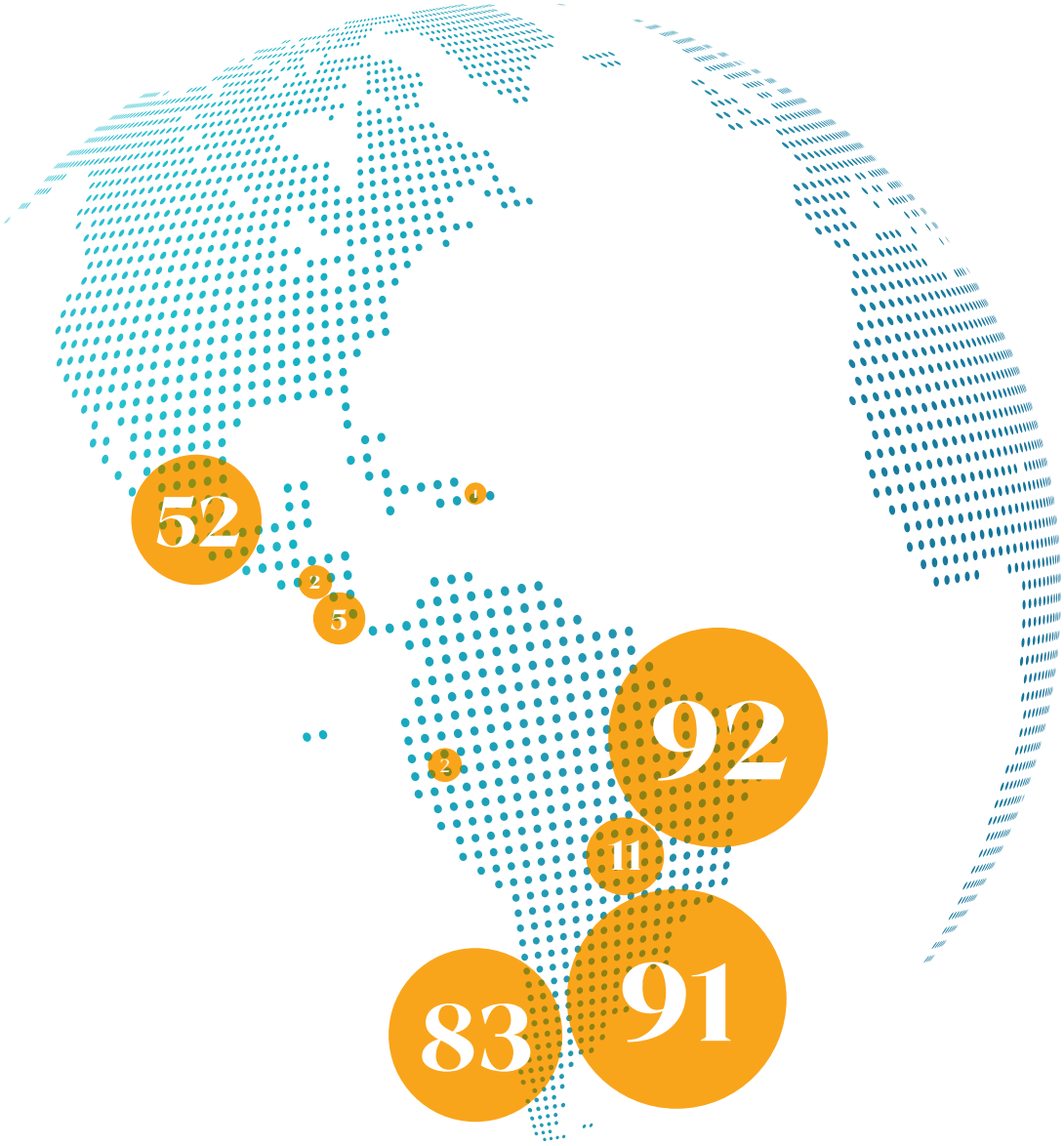
Cristián Hernández Cuevas

Cristián Hernández Cuevas has dedicated 30 years to shaping the biotech industry across Latin America, the United States and Europe, contributing as a scientist, entrepreneur, and investor. His career is a testament to the power of resilience, cross-border collaboration, and the ability to bridge science with business. From early research in molecular biology to founding and scaling biotech startups, to now deploying capital and strategic support as a venture investor, he has worked at every level of the innovation chain—learning from both successes and failures.

A Molecular Biotechnology Engineer from the Universidad de Chile, Cristián later earned a Master's in Bioscience Enterprise from the University of Cambridge, where he gained a global perspective on biotech commercialization. This unique blend of deep scientific training and business acumen has allowed him to translate groundbreaking research into scalable businesses, securing patents, funding, and partnerships across continents. Today, he is the General Partner at Zentynel Frontier Investments, where he leads efforts to bridge capital gaps and position Latin America as a key player in the global biotech landscape.

As an advisor and early investor in startups spanning next-generation therapies, synthetic biology, digital health, and deep tech, Cristián has played a key role in shaping Latin America's next generation of biotech leaders. He has guided companies from early concept to global partnerships, helping them navigate fundraising, regulatory strategy, and commercialization.

Appendix A



A Snapshot of Latin America's Biotechnology Startups (2024)

Here is a brief overview of some of the biotechnology startups I came across in Latin America during 2024. It by no means represents an exhaustive catalog of all emerging companies in the region; rather, it provides a glimpse of the vibrant activity taking place throughout the continent. It is also important to note that some of these companies may have undergone rebranding, changed their names, or no longer exist, as this record was compiled at a particular point in time and may now be partially outdated. Nonetheless, this list serves as a snapshot of the dynamic and rapidly evolving biotech ecosystem in Latin America.

Argentina:

1. Algaebio+
2. Alytix
3. Aplife
4. Ardan Pharma SAS
5. ArgenTag
6. Beeflow
7. Bioeutectics
8. BioHeuris
9. Biomakers
10. Bionirs
11. BioSynaptica
12. Bitgenia
13. Brainmart
14. BTL BioControl
15. Calice Biotech
16. Caligenia
17. Caspr
18. Cellfarm
19. Ckapur
20. Cryiosmetics
21. Dharma Bioscience
22. ECG GREEN S.A
23. Einsted
24. Elytron
25. EntelAI
26. Enteria
27. Epiliquid
28. Ergo Bioscience
29. FeedVax
30. Food4YOU
31. Future Biome
32. GAMEET
33. Gisens
34. Hiamet
35. Inbioar
36. Infira
37. Keclon
38. Kresko
39. Laba
40. Laurus
41. Life SI
42. Limay
43. MamoTest
44. metaBIX Biotech
45. Michroma
46. Microgenesis
47. MultiplAI
48. MZP
49. Nanotransfer
50. NeuroAcoustics
51. New Organs
52. NUME
53. OncoPrecision
54. Panarum Corporation
55. Phylumtech
56. Puna Bio
57. Qumir Nano
58. Radbio
59. Reset
60. Selectivity
61. SphereBio
62. STAMM
63. Syocin

64. Taxon Bioinformatics
65. TELL
66. Tomorrow Foods
67. Ubique Biotech
68. Ultraschall SA
69. Unibaio
70. Vexxel Biotech
71. Viewmind
72. WhatGen
73. WINIM
74. WITMO Technologies
75. XTERROIR
76. ZEV Biotech
77. Giraffe Bio
78. Feedvax
79. PANARUM
80. aiGEN
81. ARGENOMICS
82. INMUNOVA
83. METON
84. PILLAR
85. ZOINGEN
86. Auba Multiservicios
87. New Organs Biotech
89. Eureka Nanobioengineering
90. Semion
91. Elytron Biotech

Brazil

1. Acuamark
2. Agro.Club Inc
3. APEXzymes
4. APOENA
5. Aptah bio, Inc.
6. Auddas
7. Autem Therapeutics
8. Beep Saúde
9. Bemagro
10. Beone
11. Beone Technologies
12. Bioaptamers
13. Biocelltis
14. Biolinker (updated)
15. Biologix
16. Bioma4me
17. BioNK-c
18. Biotimize
19. BLS Biothermal Logistics Solutions
20. Brightmed
21. Carefry
22. Cell Praxis Bioengenharia
23. Cellavita
24. Celluris
25. Cellvax
26. CNOGA Medical
27. Cor.sync
28. Cryo for life
29. Decoy
30. Earnest Agriculture
31. Gen-T Science
32. Genial Care
33. Génica
34. GestaoDs
35. Glic
36. GnTech
37. Harmony
38. Hilab
39. Immunoterapeutica
40. In9ve
41. InmunoScov19
42. InmunoTera
43. IntuitiveCare
44. Isa Lab
45. Kaiima
46. Kidopi
47. Livance
48. Lizar Bio
49. Mais Autonomia
50. MedRoom
51. Medway
52. MeMed
53. miRscience Therapeutics
54. N2B
55. Neomed
56. NeuronUp
57. Nilo Saude
58. Oli Saúde
59. OncoTag
60. OneSkin
61. Ori biotech
62. OrienteME
63. Pickcells
64. Pipo Saúde
65. Pocket Clinic
66. Power Seed
67. Quoretech
68. Radiolife
69. Rapicare
70. Reddot. Bio
71. Rheabiotech
72. Salú
73. Sami
74. Sante Science
75. SENAI CIMATEC
76. SkinSoul
77. Tismoo

78. Tissue Labs
79. Typcal
80. Varstation
81. Vyro Therapeutics
82. Wecancer
82. ImunoTera
83. AI Pathology Tech
84. Mirscience
85. DASA GENOMICA
86. INSILICALL
87. NEURALMED
88. PEPTIDUS
89. Future Cow
90. Beeotec
91. E62 Bio
92. Axenya

Colombia

1. Bialtec
2. Bioprocol
3. Coffee Kreis
4. Dreembio
5. EcoHome (BioIntropic)
6. Enthos
7. Entopro
8. FOTORTEC INC.
9. Galy
10. LifeFactors
11. Rambuhealth
12. Rivanima Therapeutics
14. Samay
15. Simahealth
16. VaxThera
17. Salva Health
28. Ecoflora

Chile

1. AGRO-DNA- KIT SpA
2. Aictive
3. AndesAg
4. Antartina
5. ArcomedLab
6. Avo Solutions
7. Bifidice
8. Bio-Ind Solutions
9. Biofiltro
10. Biotecnologia del Sur
11. Bitua
12. BluRemin
13. Botanical Solutions
14. Bybug INC
15. Candel Medical Company
16. CELL FOR CELLS
17. Chalkotex
18. Codebreaker Bioscience
19. CODI
20. Connectómica
21. CORPUSLAB 3D
22. Elqui Global Energy
23. ENVIRON
24. Evonik Industries
25. Exacta BioScience
26. ExoBrain
27. Exponential Healthtech
28. FarmaLoop
29. Frankles
30. GenePro Dx
31. Genodata
32. Grace
33. IctioBiotic
34. Ilicogenetics
35. Inmers
36. Iris Human
37. Keiron
38. LiveMatrix Biotech
39. Manna Botanics
40. Medical Sapiens
41. Medzyme
42. Meki
43. MiDoctor
44. Muon Vision
45. Naturannova
46. Nerbio
47. NeuroHit
48. NIDO biotech
49. No Pain & Beyond
50. Nova Mineralis
51. Nutrix
52. Pannex
53. Photio
54. Phytoria

55. Polynatural
56. Prime Tech
57. Proteus
58. Rarus Health
59. Refoods
60. Rhino
61. Rubisco Biotechnology
62. Salmokine
63. Simbio2
64. DataRoot
65. Snabb
66. Soleit
67. Sticta Biologicals
68. SymbiOx
69. Teledx
70. Thani
71. Tharos
72. Therakles
73. TrainFES
74. uMOV
75. Veintis
76. VETRO+
77. VRX Medical
78. COPPER 3D
79. ECLO PHARMA
80. KADEWASH
81. LIVA
82. Morchella
83. Phage Labs

Mexico

1. Actipulse Neuroscience
2. Ainnova Tech
3. Algal Tech
4. AliBio
5. ALIS Algae
6. ANNIT
7. Anti Bone Breaking
8. Asclepii
9. Biointellectus
10. BIOSORRA
11. Bitmec
12. BlepsVision
13. BreakPET
14. CellARTs, Inc.
15. Delee
16. Forma Foods
17. GLOBAL BIOTHERAPEUTICS
18. HABITS AI
19. HEDROS BIOTECHNOLOGY
20. Hera Diagnostics
21. inMateriis
22. InstaPAP
23. KeyZell
24. Meddi
25. Medikit
26. Microendo
27. Micromeat
28. Microterra
29. Narval
30. Nomad Genetics
31. Pangea Botanica
32. Pharmalink
33. Proteo Biotech
34. SFG
35. Somos
36. Stemtrix
37. The Earth Says
38. Tierra Foods
39. TIMSER
40. Ubique Biotech
41. Verde Compacto
42. CHOIZ
43. NOVAGENIC
44. PRELU
45. Hadosbiotec
46. BIONAG SAPI DE CV
47. BioPlaster Research Inc.
48. Creative Food Labs
49. Grape.ag
50. GSE Biomedical
51. Solena
52. ELYSIANBIO

Costa Rica

1. Ainnova Tech
2. Bio insumos San Lorenzo
3. Gota Blanca
4. Speratum Biopharma, Inc.
5. Establishment Labs

Ecuador

1. Fast Farma
2. Awa Nutrition

Peru

1. Inspirall Solutions
2. Shasqi

Puerto Rico

1. Abartys Health

Uruguay

1. DNAzyme
2. Enteria
3. Eywa Biotech
5. Kinzbio
7. MetaBIX Biotech
8. Nanogrow
9. TerraFlos
10. VacusBots
11. Xeptiva Therapeutics

Panamá

1. Pana Sea
2. Theracann Beyond Farming

Appendix B

Resources for Biotech Entrepreneurs

This appendix provides a comprehensive list of resources for biotech entrepreneurs and investors. It includes funding opportunities, mentorship programs, regulatory support, books, tools, news sources, podcasts, research databases, and additional resources that can be valuable for anyone looking to enter the biotech space.

1. **Funding Opportunities:**

- **Zentynel Frontier Investments**
  Venture capital firm focusing on early-stage biotech startups.
- **GRIDX**
  Accelerator providing funding and support to biotech entrepreneurs in Latin America.
- **SP Ventures**
  VC firm investing in innovative biotech companies in emerging markets.
- **The Yield Lab**
  Accelerator offering funding and mentorship to agtech and biotech startups.
- **Greenrock**
  Investment firm focusing on sustainable biotech solutions.
- **SF500**
  Leading accelerator in Argentina supporting biotech startups.

2. Mentorship and Accelerators:

- **The Ganesha Lab**
  Accelerator providing mentorship and resources to biotech entrepreneurs.
- **CITES**
  Technology incubator offering support to biotech startups in Latin America.
- **Nucleate**
  Non-profit organization offering mentorship to academic biotech entrepreneurs.
- **I-TEAMS**
  Program connecting scientists with mentors to commercialize biotech innovations.

3. Regulatory Support:

- **ANVISA (Brazil)**
  Brazilian Health Regulatory Agency overseeing biotech product approvals.
- **COFEPRIS (Mexico)**
  Mexican regulatory authority for health products, including biotech innovations.
- **INVIMA (Colombia)**
  Colombian agency regulating biotech products and pharmaceuticals.
- **ANMAT (Argentina)**
  Argentina's National Administration of Drugs, Food, and Medical Technology, regulating biotech and pharmaceutical products.
- **ISP (Chile)**
  Chile's Institute of Public Health, overseeing biotechnology and pharmaceuticals.

4. Books:

- **The Gene**
  An Intimate History by Siddhartha Mukherjee.
- **Genome**: **The Autobiography of a Species in 23 Chapters**
  by Matt Ridley.
- **Healthcare Investing**
  by Les Funtleyder.
- **Building Backwards to Biotech**
  by Stephanie Wisner.

5. Tools and Platforms:

- **Benchling**
  Digital platform for managing biotech research and data.
- **Labster**
  Virtual lab simulations for biotech education and training.

6. Blogs and News:

- **BioTechniques**
  Peer-reviewed articles on laboratory methods.
- **FierceBiotech**
  Breaking news and analysis on biotech companies and trends.

- **GEN News**
  Covers the latest in genetic engineering and biotech.
- **BioSpace**
  Features news and careers in the biotech and pharmaceutical industries.
- **ScienceDaily: Biotechnology News**
  Aggregates news on the latest biotech research.
- **In the Pipeline**
  Insights into drug discovery and development processes.

7. Podcasts:

- **Nature Biotechnology**
  Discusses the latest biotech research and industry news.
- **The Long Run with Luke Timmerman**
  Interviews with biotech leaders.
- **Biotech 2050 Podcast**
  Explores the future of biotech and healthcare.
- **The Bio Report**
  Covers conversations on biotech innovations.

8. Databases and Research Tools:

- **PubMed**
  Comprehensive database of biomedical literature.
- **NCBI**
  Access to biotech databases and tools.
- **ClinicalTrials.gov**
  Registry of clinical trials in biotech and medicine.

- **The Lens**
  Patent and scholarly search for biotech innovations.
- **EMBL-EBI**
  Provides bioinformatics data and services.

9. Additional Resources:

- **Kolabtree Blog**
  Guides on biotech startup funding and investment strategies.
- **Online Courses**
  Platforms like Coursera, edX, and Khan Academy offer biotech and entrepreneurship courses.
- **Fundación Ciencia & Vida**
  Chilean non-profit organization dedicated to biotech research and entrepreneurship.
- **Rapport Bio**
  A digital platform connecting biotech professionals, investors, and startups.

Catalysts of Change