

## From Vertical Sector to Critical Technology: Biotechnology at the Epicenter of the New Global Geopolitical Map

- AseBio presents at BIOSPAIN 2025 the report “The new geopolitics of biotechnology”, which analyzes the global race of the sector and Spain’s strategic role in the new balance of power among the United States, Europe, and China.
- The United States leads biotechnology, but its hegemony is being challenged by China’s rapid rise in patents and research. Europe, positioned between the two, remains relevant but must narrow its innovation gap to remain competitive.
- The Spanish model has shown strength in R&D, but it must transform into commercial success, job creation, and economic leadership.
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**Tuesday, October 7, Barcelona, Spain.** – The Covid-19 pandemic and the subsequent supply crises were not isolated episodes, but a true paradigm shift. These events exposed **the fragility of global supply chains and forced European governments to rethink their position in the world.** Since then, one concept has gained central weight in any strategic discussion: **geopolitics.** The race for technological leadership is no longer merely an economic competition; today it is also a matter of power, influence, and national security.

In this new era, **biotechnology** is no longer seen as a vertical sector but is revealed for what it truly is: a critical technology for the European Union’s economic security and strategic autonomy. Aware of this, **AseBio** recognized the need to provide the sector with a tool to help interpret this new reality. Thus was born the document “**The new geopolitics of biotechnology: emerging**



**powers and established hegemonies”,** presented at BIOSPAIN 2025. It is an interactive map that analyzes Spain’s position within the European context and compares the global geopolitical landscape of biotechnology with its main competitors: the United States, Europe, and China.

## The Global Biotechnology Sector is Undergoing a Major Geopolitical Transformation

**The United States maintains its dominant role,** but its hegemony is being challenged by China’s rapid and strategic rise, shaping an increasingly multipolar scenario. Europe, caught between these two giants, struggles to remain competitive in the global race.

The analysis confirms that U.S. leadership rests on three fundamental pillars: **market dominance**, with most of the world’s top 100 biotech companies by capitalization; **massive investment in R&D**, with €120 billion in 2023 compared to €11.8 billion from Chinese companies; and a **dynamic financial ecosystem**, where venture capital drives start-ups to pursue disruptive innovation rather than immediate profitability.

Against this, **China represents the most disruptive trend.** In just a decade, its global share of biotech patents grew by 317%, reaching 14.2% of the total and quickly approaching the U.S. (37.2%) and Europe (22.7%). The Asian giant has also surpassed the West in scientific publications, with 21,080 in 2024, and leads in the number of top universities in biotech research, generating regional clusters with strong potential for future discoveries.

**Europe** (the EU, UK, and Switzerland combined) **continues to be a key player, but its position is weakening.** Its share of patents fell by 27% between 2010 and 2021, a direct reflection of China’s rise. While its universities still attract international talent, the continent must close its innovation gap if it does not want to lose the race for technological sovereignty.



## Uneven Landscape in Europe, with Spain Emerging as a New Innovation Hub

The analysis also reveals an uneven landscape within Europe. **The biotech epicenter lies in Switzerland, Germany, the UK, and France**, where historic companies such as Novo Nordisk, Novartis, Sanofi, and Bayer concentrate turnover, R&D investment, and job creation. In 2022 alone, the sector created over 913,000 jobs in Europe and contributed €38.1 billion to GDP.

In this context, **Spain is emerging as a new innovation hub**. Although it lacks large dominant corporations, its ecosystem of small companies and R&D-focused start-ups is vibrant and dense. The country has consolidated itself in the early stages of the value chain—discovery, research, and specialized development—and Barcelona is positioning itself as a regional reference hub, on par with Cambridge and alongside emerging centers like Leiden.

The data supports this trend: the sector accounted for 1.5% of national GDP in 2022 and reached a historic record in investment in 2023, with more than €228 million. Spain ranks ninth worldwide in biotech scientific output, with 21% more citations than the global average, and is a leader in clinical trials.

The challenge, however, is scalability. **The Spanish model has demonstrated strength in R&D, but it must transform into commercial success, job creation, and economic leadership**. To achieve this, the country faces three key challenges: raising its R&D investment, which at 1.49% of GDP remains below the European average (2.22%); ensuring sufficient financing so SMEs and start-ups can grow and compete globally; and establishing a regulatory framework that is agile, predictable, and pro-innovation, aligned with the EU, to facilitate the market entry of new technologies.





In short, the pandemic and supply crises have highlighted Europe's vulnerability and external dependence on critical products such as medicines. **Biotechnology thus becomes a first-order strategic sector, essential to ensuring the European Union's economic security and autonomy.** Spain has the necessary elements to become a leading hub, but it must overcome significant challenges to consolidate its position on the global stage.

**\*\*\*The map will be shared later.**

#### About AseBio

AseBio brings together 300 entities and represents the entire Spanish biotechnology sector. Its mission is to lead the transformation of the country by positioning science, innovation, and especially biotechnology as drivers of economic growth and social well-being. Among its members are companies, associations, foundations, universities, technology centers, and research institutions that directly or indirectly engage in biotechnology-related activities in Spain.

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