BIOTECHNOLOGY IN THE SUSTAINABLE DEVELOPMENT GOALS

ASEBIO
Asociación Española de Bioempresas

We improve people's lives and the planet's sustainability

It's now been six years since 193 countries, including Spain, made a commitment to the Sustainable Development Goals (SDG) of the 2030 Agenda.

The United Nations Organisation estimates that the world population will reach 10,000 million by the year 2050, and therefore progressing towards the SDG will require the improvement of tools and policies, among which biotechnology is key, without a doubt.

The curing of diseases, better responses to health crises, food safety, the reduction of greenhouse gases and solutions to bring an end to hunger will find solutions in the biotechnology sector.

We are a highly innovative sector which has made science the driver of sustainable economic growth and social well-being. Investments in R+D+I enable the biotechnology sector to meet the big economic and social challenges and contribute directly to 11 of the 17 SDGs of the 2030 Agenda.

Today more than ever before, with the 2030 Agenda on the horizon, we can say that those of us who work in biotechnology do so to improve the lives of millions of people and to provide solutions to the planet's sustainability challenges.

Discover the impact biotechnology is having on the planet's sustainable development!

ASEBIO
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Plataforma de Mercados Biotecnológicos
(Spanish Biotech Platform)

SDG 2

ZERO HUNGER

End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Thanks to biotechnology, we can help end hunger by making crops more efficient and nutritional using techniques like genetic engineering. Plus, by adding probiotics and prebiotics to foods, biotechnology helps make them even healthier. Furthermore, biotechnology techniques can be used to detect toxins and contaminants in food, helping ensure food safety.

Biotechnology solutions:

- Gene editing tools like CRISPR for sustainable agriculture
- Personalised nutrition for better diets that guarantee optimal health
- Probiotics and prebiotics in foods to improve their nutritional properties
- Biosensors and biotechnology techniques to guarantee food safety
- Feeds and probiotics and treatments and disease detection for healthier livestock production

SDG 3

GOOD HEALTH AND WELL-BEING

Ensure healthy lives and promote well-being for all at all ages.

Some 350 million people benefit from biotechnology therapies, and 69% of all drugs being developed in the world use biotechnology. Nearly half of all biotech firms focus on human health.

The biotech sector continues to fight diseases like Alzheimer and cancer, producing biodrugs, detecting and diagnosing illnesses more quickly and precisely, producing vaccines and using other biotechnology tools to prevent diseases and contain infectious diseases.

1. PERSONALISED PRECISION MEDICINE AND DIAGNOSIS

Biotechnical solutions

Personalised precision medicine and diagnosis are the key features of future medicine since they allow medical treatments to be adapted to the individual characteristics of each patient.

Precision personalised medicine by means of genomic, epigenetic medicine, or cell analysis represents a paradigm shift in the way health care is provided, incorporates more effective and safe diagnosis and treatment strategies, and provides solutions to ensure the sustainability of health systems.

- In the immunotherapies area, the genetic editing techniques improve the immune system's response against cancer
- The key biomarkers in the diagnosis and treatment of the different diseases
- In autoimmune diseases, biomarkers make it possible to anticipate the patient's immune response and analyse their response to the immunosuppressive treatments they receive
- Diagnosis through the combination of antibodies and the precision of isotopes

Personalised precision medicine and diagnosis against Covid-19

Personalised precision medicine in Spain during the pandemic has increased by 40% in the last year due to the diagnostic efforts made to fight against Covid-19

2. ADVANCED THERAPIES

Biotechnical solutions

Advanced therapies are a new generation of innovative medicines based on genes, cells or tissues. These disruptive and innovative therapies have great therapeutic potential, allowing us to treat degenerative and genetic diseases, including certain types of cancer, that could not be treated through other types of approaches.

GENE THERAPY

- It transfers genetic material into patient cells to correct a genetic defect or obtain a certain effect.
- It has great potential to treat, prevent, or cure a wide variety of inherited conditions.

CELL THERAPY

- It uses cells as therapeutic material to treat or prevent diseases.
- The cells can come from the patient themselves or from a donor.

TISSUE THERAPY

- It restores or replaces tissues through the combination of cells and active molecules.
- This therapy allows a tissue or organ to develop and regenerate in the patient.

In the last 12 years the European Medicines Agency has approved eight advanced therapy medicines that are helping patients in therapeutic areas such as ophthalmology, immunology, haematology, oncology and hepatology.

Spain is leading in research in advanced therapies

- We are fifth in the world in the production of scientific knowledge on advanced therapies
- Our country has the most clinical trials in all types of advanced therapies, with more than one hundred clinical trials per year.
- Pioneers with the first approved allogeneic cell therapy in the European Union (Alofisel)

3. DEVELOPMENT OF INNOVATIVE MEDICINES

Biotechnical solutions

Biotechnology leads research and development efforts to find innovative solutions that improve our health. R+D investment in biotechnology has increased to reach €940 million in the companies of the sector in 2019.

Our R&D efforts have led to 69% of medicines being biotechnological.

According to the AseBio pipeline, our entities have 145 research projects in innovative drugs, of which 28% are aimed at treating diseases of the central nervous system and 26% at cancer treatments.

4. BIOTECHNOLOGY AGAINST EMERGING DISEASES LIKE COVID-19

Since the alarms went off for the health emergency caused by Sars-Cov-2 over a year ago, the biotechnology sector has worked against the clock to find solutions in the form of vaccines, treatments and diagnostic solutions.

One year after the health emergency began, thanks to the biotechnology sector`s commitment to science and innovation:

... Globally, we have seven vaccines approved and over 300 under clinical and pre-clinical investigation.

... 64 AseBio members are working on almost 130 solutions against the Coronavirus and many of them have done so by participating in the global vaccine production chain.

... Spain produces more than ten million PCR tests per week, one and a half million antibody tests and two million rapid antigen tests.

SDG 5

GENDER EQUALITY

5 GENDER EQUALITY

Achieve gender equality and empower all women and girls.

Biotechnology has great female researchers, executives and entrepreneurs. The biotechnology sector has had the highest number of women working in R&D for over a decade.

In companies in the biotechnology sector, nearly 60% of staff in R+D are women, while the average in Spain is 30.7%.

Women represent 24.4% of executive teams of biotechnology companies, well over the 2.9% in IBEX-35 companies.

SDG 6

CLEAN WATER AND SANITATION

Ensure availability and sustainable management of water and sanitation for all.

Biotechnology helps promote more sustainable water use with production processes and crops that help reduce demand for water. It also ensures water is available and clean by purifying wastewater and identifying contaminants.

Biotechnology solutions:

- Biotechnology uses microorganisms, microalgae or cyanobacteria to purify and remove chemical contaminants from water.
- Through genetic editing we obtain drought-resistant crops.

IN 20 YEARS OF CORN CULTIVATION IN SPAIN, 1,042 M3 OF WATER HAS BEEN SAVED.

SDG 7

AFFORDABLE AND CLEAN ENERGY

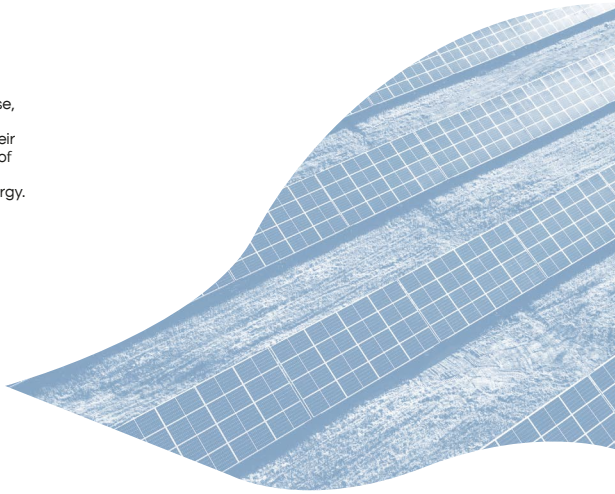
7 AFFORDABLE AND CLEAN ENERGY

Ensure access to affordable, reliable, sustainable and modern energy for all.

Biotechnology offers up alternatives to produce clean energy and ensure more efficient power use, as well as reusing urban and forestry waste and by-products from certain industries, reducing their impact on the environment. Alternative sources of biomass, from forestry and agriculture, are used more and more to produce clean, renewable energy.

Biotechnology solutions:

- Biofuels and biomass from waste or by-products.



SDG 9

INDUSTRY, INNOVATION AND INFRASTUCTURE

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Build resilient infrastructure, promote sustainable industrialisation and foster innovation.

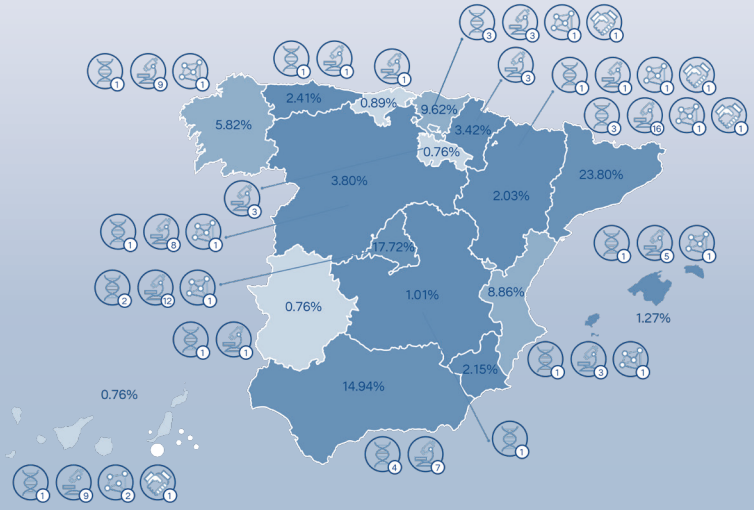
The biotechnology sector is highly innovative and each of the activities by biotechnology companies involves innovation.

Furthermore, the number of companies increases year after year and there are now nearly **800 biotech companies in Spain.**

51% are micro-SMEs with less than 10 employees, and 45% are SMEs. Catalonia, Madrid and Andalusia account for the major part of biotech companies. The sector has **brilliant talent** and helps generate **quality jobs.**

At 19 of the 24 public universities that offer biotechnology, this degree is among the **10 with the highest admission scores required.**

The average **productivity of biotech companies** exceeds €400,000 per employee, compared to just over €121,000 on average for the Spanish economy as a whole.



SDG 9

INDUSTRY, INNOVATION AND INFRASTUCTURE

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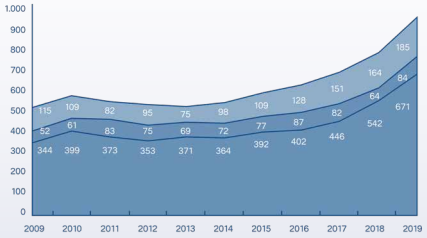
Build resilient infrastructure, promote sustainable industrialisation and foster innovation.

The biotech sector is one of the sectors with the most R+D investment compared to its production.

R+D investment in biotechnology **has increased** to reach **€940 million** in the company sector in 2019.



SDG12

RESPONSIBLE CONSUMPTION AND PRODUCTION

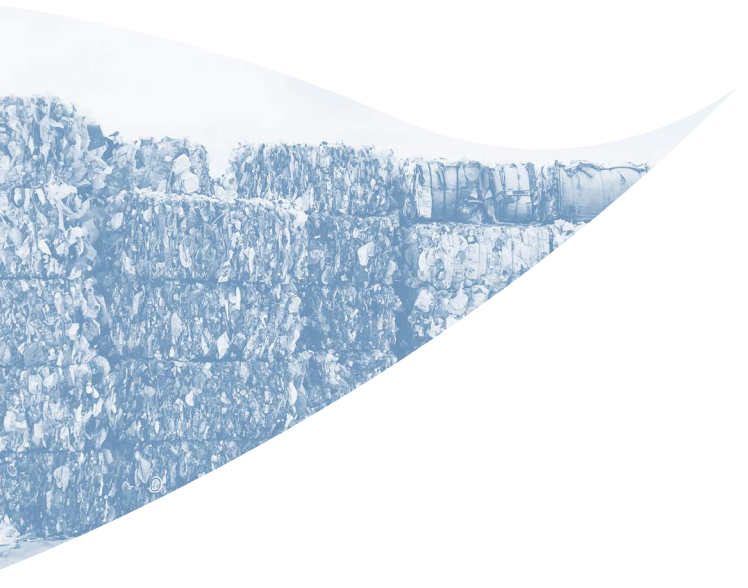
12 RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns.

Biotechnology applications promote responsible consumption and production. Biological products are reused, recycled, turned into energy or can be composted, thus contributing to the circular economy.

Biotechnology solutions:

- Biotechnology revalues waste to produce new materials such as bioplastics, biomaterials, functional food or sustainable cosmetics.



SDG 13

CLIMATE ACTION

13 CLIMATE ACTION

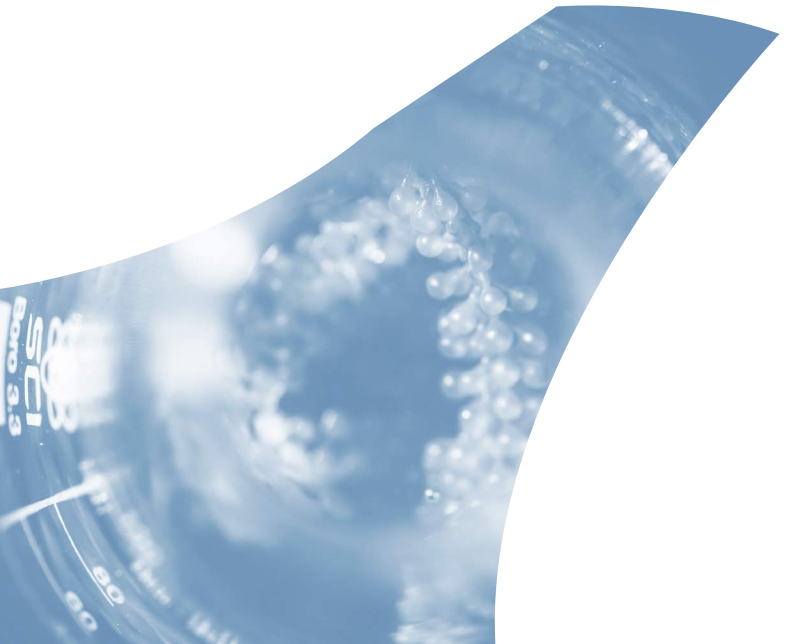
Take urgent action to combat climate change and its impacts.

Biotechnology helps mitigate the effects of climate change by replacing materials based on fossil fuels with biological ones, such as bioplastics or biopesticides, with the resulting reduction in CO2 emissions.

Biotechnology solutions:

- Bio-based products that reduce CO2 emissions.
- Microalgae that mitigate greenhouse gas emissions.

BIOPRODUCTS REDUCE GREENHOUSE GAS EMISSIONS BY UP TO 65%.



SDG14 LIFE BELOW WATER

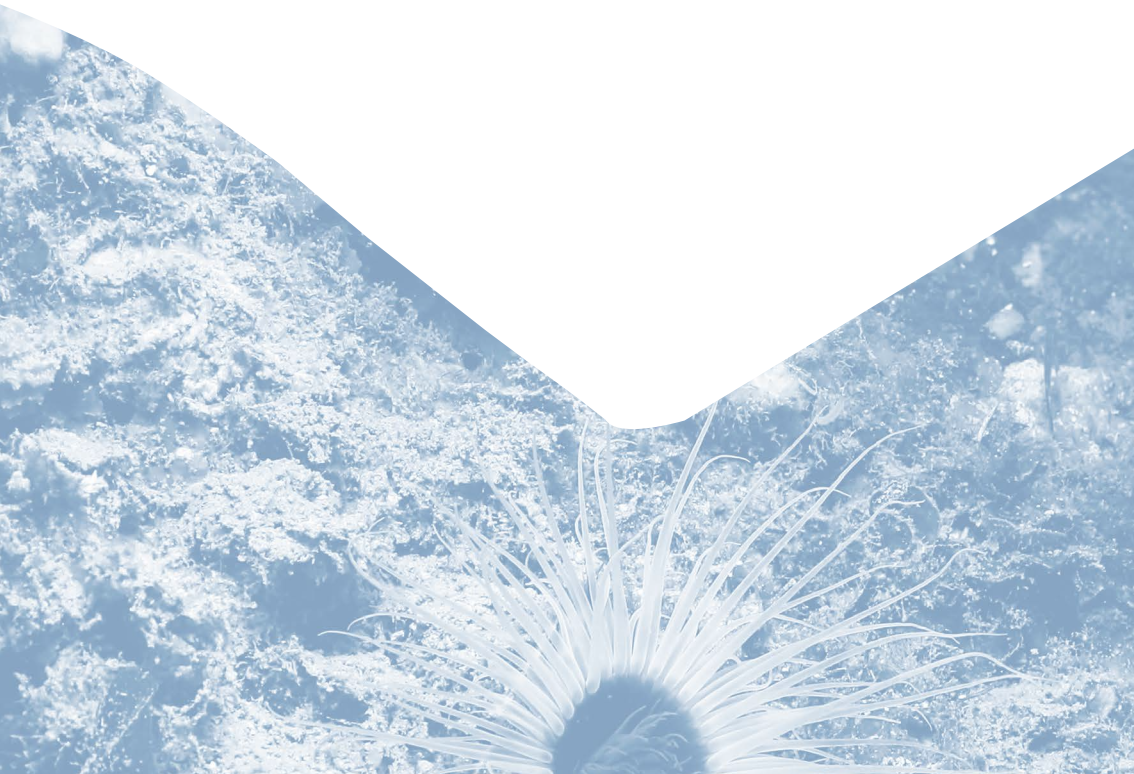
14 LIFE BELOW WATER

Conserve and sustainably use the oceans, sea and marine resources for sustainable development.

Biotechnology helps preserve marine ecosystems by using techniques to monitor marine habitats and cleaning contaminated water through microorganisms, microalgae and cyanobacteria.

Biotechnology solutions:

- Bioremediation uses living organisms to clean up and break down pollutants like plastics in the oceans.
- Biotechnology applied to fish farming improves fish health and production.



SDG15

LIFE ON LAND

Sustainably manage forests, combat desertification, halt and reverse land degradation and halt biodiversity loss.

Biotechnology products are helping preserve life on earth and slow the loss of biodiversity. In fact, according to data from the ISAAA, 231 million hectares of land have been saved in recent decades thanks to biotechnology crops and the environmental impact quotient has dropped 18.4%.

Biotechnology solutions:

- Biotechnological crops that reduce soil erosion.
- More sustainable crops that reduce the need for arable land.

IN RECENT DECADES, THANKS TO BIOTECH CROPS, 231 MILLION HECTARES OF LAND HAVE BEEN SAVED, AND THE ENVIRONMENTAL IMPACT QUOTIENT HAS BEEN REDUCED BY 18.4%.

SDG17 PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development.

The Sustainable Development Goals require complex solutions, which makes it essential to forge alliances with other stakeholders in the system.

Public-private partnership and international aspirations have allowed biotechnology to have a huge social, environmental and economic impact for decades now.

In 2020, our companies established 246 partnerships for R&D, clinical development, field trials or product distribution. Plus, this year most of those partnerships were to join forces to tackle the Covid-19 pandemic. Plus, this year, most of those partnerships were to join forces to tackle the Covid-19 pandemic. Nearly half of those partnerships were with an entity from the public sector, a foundation or technology centre, 88 with another biotechnology company and 54 with a company that uses biotechnology..