



# NAVARRA IS HEALTH

# ABOUT

Navarra is located in northern Spain at the western end of the Pyrenees and shares a 163-kilometer border with France.

Its population is 640,356 in an area covering 10,391 square kilometres. Its capital, Pamplona-Iruña accounts for 340,000 inhabitants.



# 1<sup>o</sup>

Navarra is home to the pharmaceutical company Laboratorios Cinfa, Spanish leader in terms of sales of generic drugs. (CINFA)

# +30

More than 30 companies in the biomedical field

Navarra stands out as a European region providing healthcare services and at its health and wellness Research and innovation capabilities. Navarra is a reference region for all those seeking the highest quality of care and the most innovative ecosystem. To accomplish this, Navarra is committed to promoting research, mostly looking for the world wide positioning of the region in five priority areas: personalized medicine, medical technology, e-health and data science for healthcare digitalization, biopharmacy and active and healthy ageing.

Navarra benefits from a comprehensive health R&I ecosystem all along the value chain, with a relevant strategic and financial back up from the Government of Navarra, with two universities, with a long academic tradition, and a prestigious public-private healthcare system that is strongly linked to the industrial stakeholders to promote translational and applied research. Navarra has been awarded with

numerous recognitions. Amongst others, Navarra has been honored with the Best Practice in Personalized Medicine by the International Consortium for Personalized Medicine (ICPerMed), as well as by the Spanish Ministry of Health in the field of Rare Diseases. Navarra has also been awarded as the Spanish region with the best public healthcare system following a number of quantifiable indicators proposed by the WHO and Clínica Universitaria de Navarra is the private hospital with the best reputation in Spain following independent studies. Navarra's Integrated Chronic Care Strategy (ICCS) has been awarded with the European Public Sector Award-EPSA and has been selected as a reference site by the European Innovation Partnership on Active and Healthy Ageing (EIP-AHA).

Therefore, health and wellness innovation, development and deployment is part of our DNA, creating the perfect environment for an excellent healthcare service that is constantly improving.

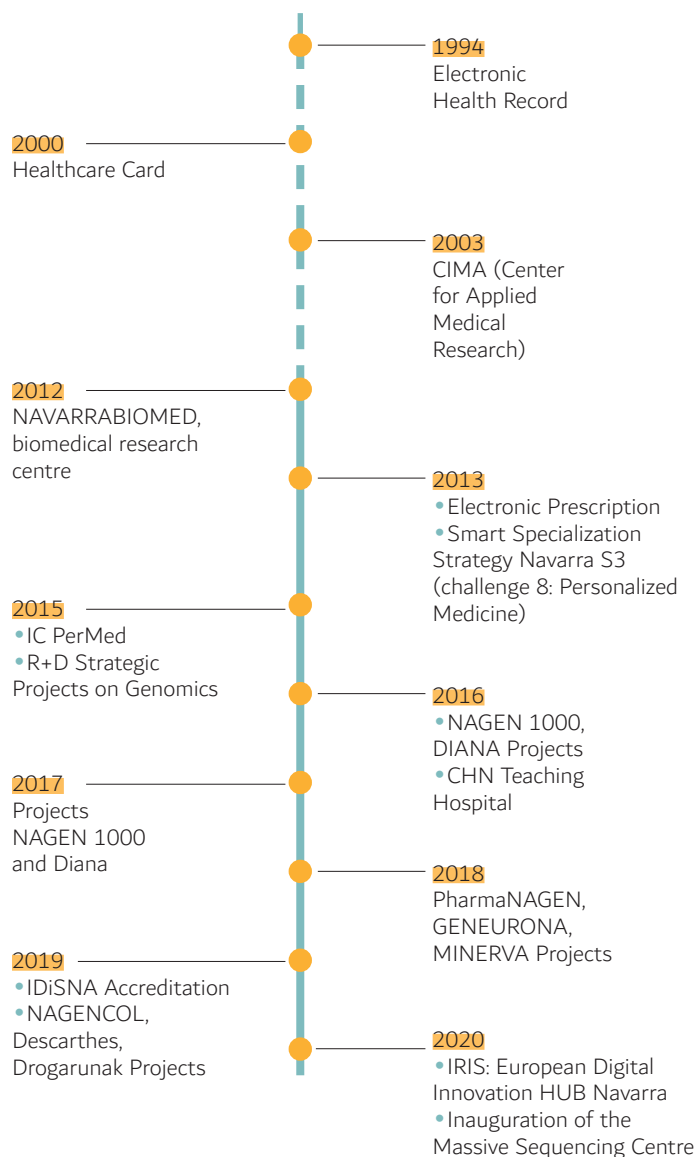
# 1,16

Biotechnology business intensity in Navarra is the highest in Spain, with 1.16 biotech companies per 1,000, according to the Spanish Bioindustry Association (AseBio)

# 2

universities and two recognised hospitals in the region

# MILESTONES



# 5 THEMATIC PRIORITIES

Navarra is ground-breaking in five priority areas: personalized medicine, bio-pharmacy, medical technology, data science for healthcare digitalization, and active and healthy ageing.

**1** Navarra is drawing up a **Personalised Medicine Strategy**, whose mission is to promote the comprehensive development of a new citizen-centred medical model based on the study of the human genome. In order to place Navarra at the forefront of Personalised Medicine, in 2019 the Government of Navarra provided new infrastructures and a complete and automated laboratory with state-of-the-art equipment for specific massive sequencing services such as whole-genome or whole-exome sequencing. It also has a supercomputing centre, which has recently incorporated into the Spanish Supercomputing Network (RES) with its Urederra Cluster. This infrastructure has been designed with flexibility criteria to cover general computing intensive workloads, specific processing Deep Learning and AI frameworks, and providing cutting-edge capability for processing the huge amount of data generated in the massive sequencing services. All of which is coordinated by a company belonging to the Government of Navarra, NAsERTIC (Navarra Services and Technologies), under the new Personalized Medicine and Laboratories leadership.



2 Fed by this robust health ecosystem and the prominent trends, the **biopharmaceutical sector** has also been established as a great scientific - technological priority for Navarra, with a very high specialization index of 265 and 227 (out of 100, that it is the European average) in biotechnology and pharmaceutical products respectively, and with a distribution of patents between 2008 and 2014 of 8.3% and 9.7% of the total patents respectively (second patenting sector).

3 In the same line, Navarra has a dozen of companies specialized in the manufacture of **medical equipment and healthcare technology**. The sector has a growing export potential, providing the 3.7% of patents between 2008 and 2014 in the region, with an increase of 19% in the period.

4 Navarra is a pioneer in Spain in fields such as computerized medical records or the integration of health data for monitoring and evaluation of health outcomes, a public initiative supported by local IT companies. The HPC cluster located in NASERTIC provides the processing capability for **massive data analysis in the healthcare area**. So, different programming languages and frameworks based on Deep Learning and AI could be provided to make predictive models in the area of healthcare. Mindful of the importance of the data and the value that can be obtained from them, NASERTIC provides the infrastructure (logical and physical layers) for processing, parallelize and distribute huge amounts of data.

5 Basic, traslational and clinical researchers develop comprehensive research on diverse **active and healthy ageing** areas such as multimorbidity and polifarmacy, currently addressed in the Optimage Interreg POCTEFA project. One main research line in Navarre is the development of strategies for disability prevention, in the context of the Vivifrail model which is a consolidated tool known and employed internationally. Multidisciplinary research on sarcopenia and frailty is conducted in a fully equipped physical activity laboratory located in Navarrabiomed research center near the Hospital of Navarre, mostly focused on pathologies generating high disability rates such as neuromuscular or metabolic diseases.

## SUCCESS CASES

• **In-Demand:** innovation support programme leading to the co-development of innovative digital solutions responding to healthcare challenges. Navarra replicates the inDemand methodology tested on a Horizon 2020 funded project.

• **NAGEN Program:** the Navarra Genome Program, led by Navarrabiomed, is a strategic initiative to implement genome analysis in clinical practice of the Navarra Health Service - Osasunbidea. Since 2016 4 initiatives were launched: NAGEN 1000, PHARMANAGEN, NAGENCOL and NAGEN PEDIATRICS.

• **NonChroRep:** investigating the role of the long non-coding transcriptome in chromatin replication.

• **Tumor Treg Targeting:** training Network for the education of the next generation scientist in targeting the suppressive capacity of regulatory T-cells specifically within tumours.

• **CardioPatch:** network of Excellence for the development of Advanced Therapies of Myocardial Infarction Treatment based on Regenerative Medicine and 3D Printing.

• **RefBio:** a cross-border cooperation network for biomedical research, involving 9 institutions from 6 regions on both sides of the Pyrenees. It was created in 2012 and funded by Interreg POCTEFA in two consecutive programmes.



Rue du Pascale, 16  
B1000 Brussels - Belgium

---

