



SSPA's Biobank Research Services Catalogue



Junta de Andalucía
Consejería de Salud y Familias
Biobanco del Sistema Sanitario
Público de Andalucía



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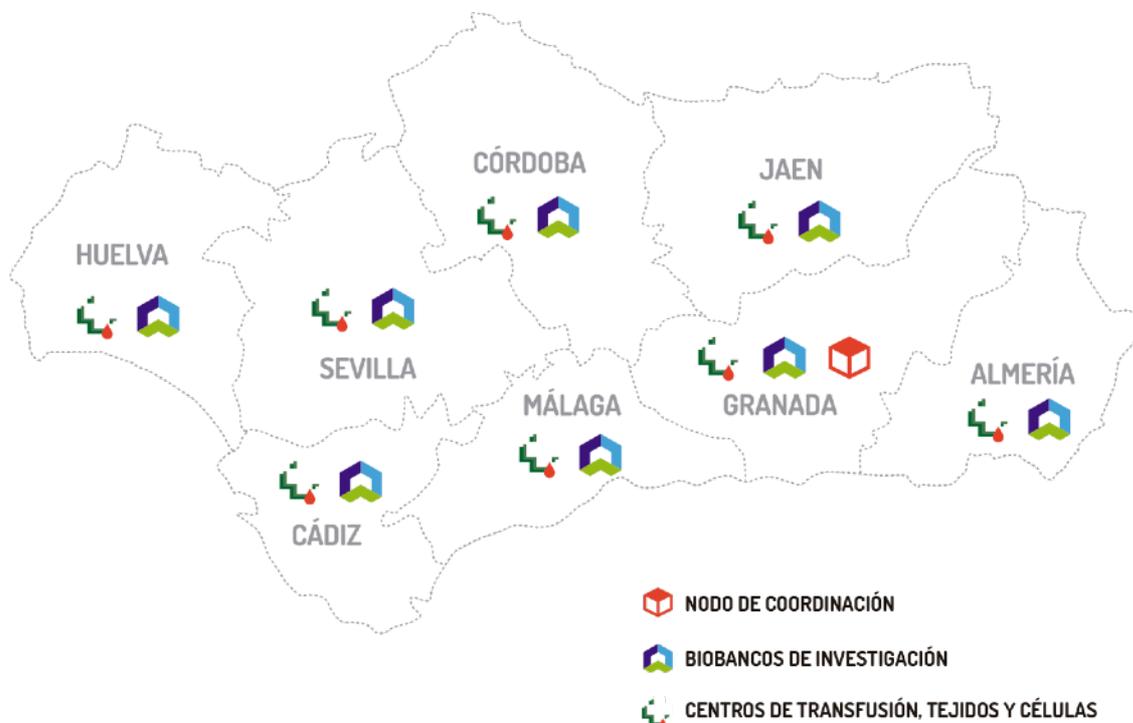
1. WHO ARE WE?

The Biobank of the Public Health System of Andalusia (SSPA) is a network of resources that supports biomedical research and the scientific community within a common ethical and legal framework.

It is integrated into the existing organisational structures and units of public health centres, cell line banks, and other public centres that are authorised to obtain, process, and preserve biological samples and associated data for clinical or research use. Such centres are called nodes of the Biobank.

The internal organisation of the Biobank is divided into two functional areas: (i) a Research Area and (ii) a Care Area, thereby creating a so-called 'Mixed Biobank', which enjoys remarkable potential in our country. The close link that the Biobank maintains with the Public Health System of Andalusia enables its unique value and potential to efficiently distribute samples and data from health centres, including the Centres for Transfusion, Tissue, and Cells, which also provide an essential activity for the functioning of the whole of the Public Health System of Andalusia.

To this end, the Biobank performs different lines of work and is run by a multidisciplinary team of professionals who are specialised in their tasks and possess a great deal of experience.





2. HOW DO WE WORK?

The Biobank is an organisation that is committed to our society, a code of ethics, and donors' rights whilst providing a service that is governed by the principles of quality, transparency, collaboration, and transfer of knowledge within the biomedical scientific community.

The quality of the management of the services that the SSPA Biobank provides is guaranteed since its Quality Management System is certified by the **ISO 9001:2015 Standard** regarding the scope of its operations, including:

- Services for the provision, custody, and processing of blood or derivative products, tissues, substances or biological samples of human origin, and embryonic and adult human stem cell lines for use in research and teaching.
- Coordination of the Biobank of the Public Health System of Andalusia in its research area.
- Provision of technical advice on human sample management for research purposes and the design and delivery of training in the area of biomedical research.
- Registration of donors of biological samples for use in biomedical research.

The SSPA Biobank also participates in external quality assurance programs that promote the standardisation of procedures.

Furthermore, the samples and services that are requested from the Biobank are managed by an information system that has been developed in conjunction with other biobank professionals. This complete and innovative system that the Biobank operates allows for the comprehensive monitoring and coding of samples and associated data, donors, research projects, and service requests that are directed towards the Biobank with all the necessary quality and safety guarantees in place.





3. WHAT DO WE DO?

The Biobank provides support and active participation in the planning, execution, and monitoring of biomedical research projects in order to achieve set objectives. The Biobank also offers its know-how to researchers and makes itself available as a partner or collaborator in research projects.

RESEARCH AREA: SERVICES

1. Biological samples

1.1. Provision of samples and associated clinical data

The SSPA Biobank offers all types of biological samples and their associated data for research projects. Such samples are selected according to the clinical and diagnostic criteria that the researcher specifies and in the format requested by the researcher.

The supply services offered by the Biobank include: (i) fresh tissue samples, (ii) paraffin-fixed tissue samples, (iii) frozen tissue samples, (iv) blood or blood derivative samples, (v) body fluids or faeces, (vi) nucleic acids, (vii) cell lines, and (viii) clinical data registered in the Biobank and SSPA information systems or ad hoc data obtained through surveys conducted for a specific purpose.

Currently, the Biobank possesses a large stock of biological samples and associated data from donors with various pathologies (including metabolic alterations and cardiovascular, respiratory, digestive, neuromuscular, mental, infectious, and oncological diseases). The Biobank also holds healthy control samples.

When biological samples and their associated data are not immediately available, the Biobank can obtain the requested samples by means of:

- The Andalusian Register of Samples for Biomedical Research (REDMI)
- Prospective collection rounds



1.2. Processing

Sample Stabilisation Unit

- ❖ The processing of tissue and/or cell samples in paraffin: inclusion and formation of the paraffin block.
- ❖ The processing of tissue samples by freezing: in cryomolds and in tubes.
- ❖ Liquid sample processing: using cyto centrifugation (cytospin).
- ❖ Fractionation of biological fluids, blood, and blood derivatives. Obtaining derivatives.
- ❖ Aliquots in different formats of blood and blood derivatives, biological fluids, and nucleic acids (DNA, RNA).



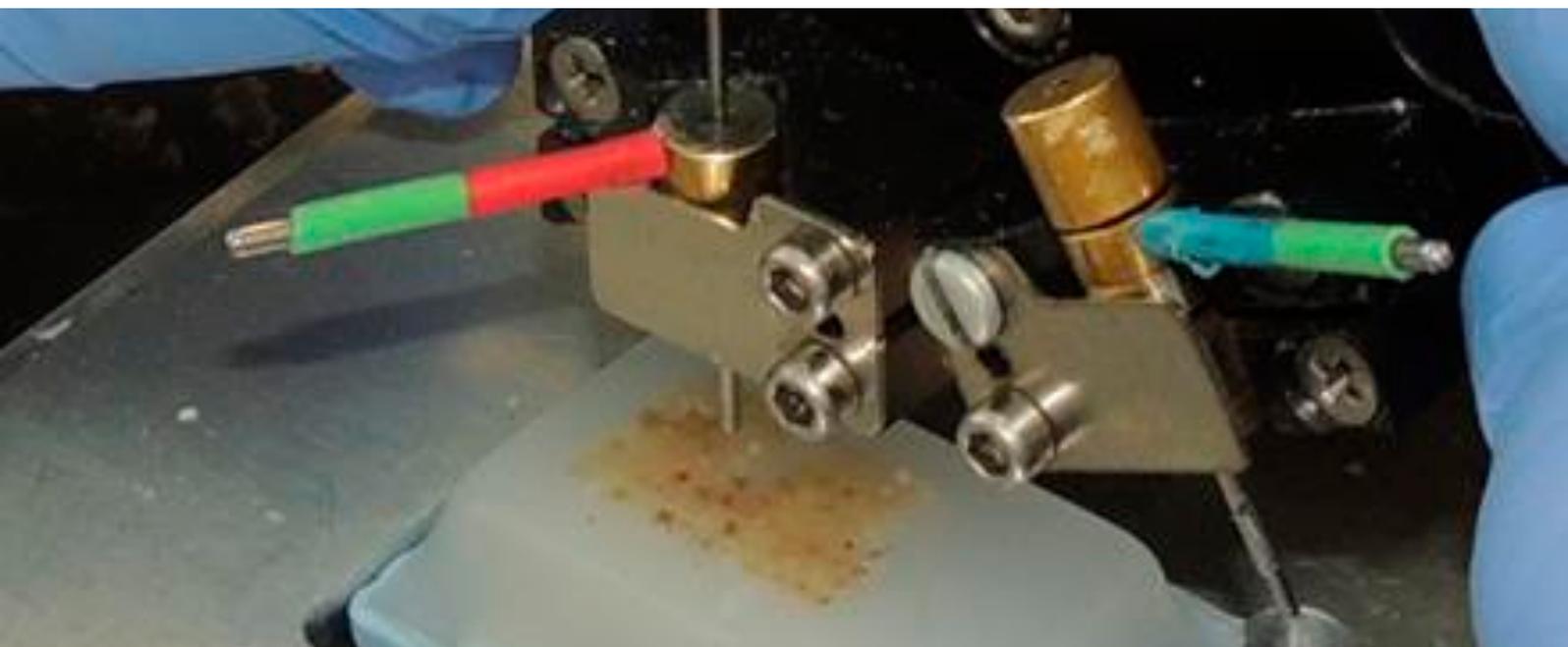
Cell Line Unit

- ❖ Generation, maintenance, and expansion of different types of cell lines.
- ❖ Freezing of cell lines.
- ❖ Generation of conditioned media.
- ❖ Adaptation of cell lines to different cell supports, culture media, and supplements.
- ❖ Manual and automated control of cell viability.
- ❖ Generation of embryoid bodies (EBs).
- ❖ In vivo differentiation.
- ❖ Maintenance of human pluripotent stem cell deposits (hPSC) and their quality as part of the Biobank's role as a node of the National Bank of Cell Lines (attached to the ISCIII), which guarantees the availability of human pluripotent cell lines at the national level. The expansion, preservation, and banking of these lines.



Histological Quality Control Unit

- ❖ Processing of tissue and/or cell samples in paraffin and in a frozen state.
- ❖ Histological sections from paraffin samples or included at OCT (*Optimal Cutting Temperature*).
- ❖ Design and manufacture of Tissue MicroArrays and Cell MicroArrays.
- ❖ Routine and on-demand histochemical stains.
- ❖ Immunohistochemistry.
- ❖ Morphological and/or phenotypic assessment of sections.
- ❖ The digitalisation of digital preparations in different planes. Clear field, direct fluorescence (No FISH).
- ❖ Manual segmentation of areas of interest in digital preparations (cancer, inflammation, cell subtypes).
- ❖ Quantification using automated image analysis of immunohistochemical expressions of nuclear and membrane expression biomarkers.



Genetic quality control and biomarkers unit

- ❖ Detection of mycoplasma in cell cultures.
- ❖ Análisis de STRs (huella genética).
- ❖ Conventional cytogenetics in cell cultures, bone marrow, and blood.
- ❖ Conventional cytogenetics in murines.
- ❖ Molecular cytogenetics: SKY spectral karyotype (human and murine) and fluorescent in situ hybridisation (FISH) from frozen cells and tissues.
- ❖ Manual and robotic extraction of DNA and RNA from blood and derivatives, cells, tissues (paraffin, fresh, or frozen), or saliva.
- ❖ Extraction of circulating nucleic acids.
- ❖ Quantification of DNA and RNA using different methodologies.
- ❖ DNA and RNA integrity control by use of on-chip capillary electrophoresis.
- ❖ Quantitative gene amplification.
- ❖ Back-transcription.
- ❖ DNA functionality analysis by PCR.
- ❖ Gene expression assays.





1.3. Preservation and biorepository

The Biobank has facilities for preserving and conserving biological samples with the necessary infrastructure and control systems that guarantee their integrity, safety, and traceability.

The equipment that is available for the storage of samples includes: liquid nitrogen tanks at -196°C , controlled freezing ramp equipment for cell lines, deep freezers at -80°C , and storage at 4°C , 20°C , and ambient temperature.

1.4. The management and logistics of sample collection and distribution

The Biobank provides support for multi-centre projects through the development of protocols, the preparation of sample collection and processing kits with the optimal materials for the subsequent analysis of the samples, and the management of the shipping and traceability of biological samples. The Biobank is also responsible for preparing the necessary documentation in compliance with current legislation.

2. Training

The biomedical sector is constantly evolving, thereby changing the practice of medicine through innovative ways to diagnose, treat, and prevent disease. With the aim of contributing to change, the Biobank has created a series of training programs and activities to promote the competitive development of biomedicine and health research professionals.

The teaching staff at the Biobank is highly specialised and has extensive professional and teaching experience. The range of training offered by the Biobank ranges from the management and organisation of biobanks to specific methodological competencies related to biomedicine and health research.

Las necesidades de los proyectos de investigación pueden variar enormemente. Cada proyecto es único, por ello, el Biobanco es capaz de **adaptar** los servicios a esas necesidades.

Please check our training catalogue via the following link,
<https://www.juntadeandalucia.es/un-banco-para-formar>





3. Advice

- The Biobank can provide advice regarding the ethical-legal aspects of biomedical research projects involving human biological samples and associated data. The primary objective of the Biobank is to ensure that the ethical principles and basic rights of patients and donors are respected.
- Management of requests.
- Techniques and methods of obtaining, treating, characterising, controlling the quality, preserving, and storing biological samples in a manner that is optimal for the development of the objectives of the research project. The Biobank can also advise on the suitability of the necessary sample types.

4. Personalised services

The needs of research projects can vary greatly since each project is unique. Therefore, the SSPA Biobank is able to adapt its services to the research project's needs.

The network structure within which the Biobank is embedded and its qualified personnel allow the Biobank to respond to its users' demands, guaranteeing an optimal level of quality and flexibility.

If the Biobank is requested to perform a service that is not described here, the Biobank will study each specific request and issue a feasibility report regarding the request.



4. WHAT SETS US APART? ADDED VALUE

The Biobank is part of a decentralised but interconnected network

The Biobank is a networked organisation, performing decentralised activities through its nodes in each province of Andalusia, but it possesses a great advantage by being interconnected and interrelated with all the member nodes through the adherence to a set of common procedures. Consequently, the Biobank can provide optimised solutions to the challenges faced by researchers, especially in its role as a link between donors and the research community.

Experience and quality

The Biobank is a strategic partner for biomedical research that is supported by an extensive history of working in this field. Its work is augmented by the different organisations, including the Andalusian Stem Cell Bank, the Network of Tumour Banks of Andalusia, and the Human DNA Bank of Andalusia, which are all part of a network that includes the SSPA Biobank. The Biobank employs a large team of professionals who specialise in different areas (e.g., the management of biological samples, cell cultures, cytogenetics, molecular biology, and so on).

One of the main objectives of the Biobank is to provide the best solutions to the questions that researchers may have about bioresources, associated data, and related techniques. The Biobank can provide rapid and orderly access to quality information regarding bioresources, associated data, and related techniques.

Innovation and cutting-edge technology

The Biobank remains at the forefront of biomedical research by adapting to new technologies. However, above all, its esteemed position in the field can be attributed to the close work that it performs with the research community, academic experts, clinicians, and industry to support biomedical research. At all times, the Biobank provides support to the development and growth of the biomedical sector through collaboration and continuous improvement, thereby accelerating the process of discovery and innovation in this field.

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