



Minimally Invasive Surgery Centre
Jesús Usón - Spain

PROMOTIONAL PROFILE

Francisco Miguel Sánchez Margallo
(Scientific Director)

Research and Innovation Activities:

- **CCMIJU** is a public and multidisciplinary institution devoted to research, innovation, training and technology transfer in the field of Minimally Invasive Surgery (MIS) and health care. It promotes innovation and medical training in collaboration with hospitals and medical companies.
- The CCMIJU scientific programme is structured around **4 main strategic areas**: Minimally Invasive Surgery, Cell Therapy, Bioengineering and Health Technologies; and Assisted Reproduction. Within these areas, the centre conducts research in fields such as surgical robotics, cardiovascular research, biomaterials and medical device validation, **3D bioprinting for regenerative medicine**, cell therapy and personalised medicine, and assisted reproduction techniques.
- With previous experience in **international projects**, its scientific units provide knowledge and experience in the development of new devices, bioprinting techniques and biomaterials, cell culture and characterization and in-vitro/ in-vivo assays.



Preclinical Studies:

Among others, CCMIJU is certified for:

- Conducting studies of in vivo toxicity, tolerance and pharmacodynamics of new molecules, dosing of test substances and non-clinical specimen drawing, and biocompatibility studies of medical devices, both in human and veterinary medicine under GLP Compliance.
- Design, production and characterization of bio- and nanomaterials, body tissues, medical devices and systems, from a physico-chemical, functional, toxicological and biological perspective.
- "Design of Applied Research Projects and for Theoretical and Practical Training in Minimally Invasive Surgical Techniques" by AENOR quality assurance.

*The institution acts as a **CRO** focused on "in vivo" preclinical services, for the pharmaceutical, medical devices and biotechnology industries, either via cooperation or under contract.



Available Infrastructures and Resources:

The current CCMIJU facility: **Animal Housing, Experimental Operating Rooms, Cell Therapy, Animal Modelling, Medical Imaging and Medical Bioprinting Laboratory** is recognised as a Singular Scientific Technological Infrastructure (ICTS) by the Spanish Government, along with the staff and expertise necessary for GLP regulatory preclinical studies.



HORIZON-HLTH-2027-03-TOOL-02: Advancing bio-printing of living cells for regenerative medicine

Expected Outcomes

- Biomedical scientists from academia and industry will gain access to entire bio-printing units designed to regenerate human tissue.
- Healthcare professionals acquire information on the safe and effective use of equipment enabling advanced therapies with bio-printed human tissue.
- Healthcare providers dispose of tools enabling them to treat conditions of unmet medical need.
- Individual patients will benefit from a personalised approach to their respective medical condition thanks to the bio-printed regenerative medicine solution.

Our contribution

- By combining multidisciplinary expertise with ICTS-recognised facilities and state-of-the-art equipment, we will provide biomedical scientists from academia and industry with access to fully integrated bio-printing environments capable of generating clinically relevant tissue constructs under stringent quality standards and full GLP compliance; significantly accelerating the translation of this proposal towards clinical implementation.

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Scope

- The bio-printing of cell constructs that comprise native tissue-like cell densities may facilitate repair and/or regeneration of defective complex tissues or internal organs. For such **approaches meticulous engineering of the bio-printing equipment is necessary, involving sophisticated micro-surgical instrumentation and medical imaging platforms.**

Our contribution

- Our integrated structure — combining basic research laboratories, medical imaging, bioengineering unit, and highly specialized surgical research teams — enables the development and validation of complex bio-printed cell constructs with tissue-like cellular densities.
- We provide a unique environment where meticulous engineering of bio-printing systems can be coupled with advanced medical imaging platforms and micro-surgical expertise, ensuring precise fabrication, functional characterization, and in vivo performance assessment of engineered tissues.
- The Stem Cell Therapy Unit supports comprehensive in vitro and in vivo evaluation of stem cell-based therapies, while the Bioengineering Unit conducts physicochemical, functional, toxicological, and biological characterization of bio-/nanomaterials, tissues, and medical devices up to regulatory-oriented preclinical validation.

Through our role as a translational research and preclinical validation infrastructure, we contribute direct access to **healthcare professionals, surgical specialists and biomedical researchers** who will act as end users of advanced bio-printing technologies. Our facilities enable early validation, safety assessment, and usability testing, bridging technology developers with clinical implementation environments.

Networks & Main Partners

- ▶ Cooperative Research Network Oriented to Health Challenges in Advanced-Therapies (RICORS-TERAV)
- ▶ National Network Consortium for the development of Advanced Therapy Medicinal Products (CERTERA)
- ▶ Thematic Network for the Development and Validation of AI-Based Decision Support Systems for Colorectal Cancer Diagnosis (AI4polypNET)
- ▶ Infrastructure for the production and Characterization of Nanomaterials, Biomaterials and Systems in Biomedicine (NANBIOSIS)



Centro de Cirugía de Mínima Invasión
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Thank you

FOR YOUR ATTENTION



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