

Regenerative Medicine and Tissue Bioengineering

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DESCRIPTION

BTB research lines can be divided into five blocks: amniotic membrane bank, cardiovascular bank, skin bank, ocular bank, and musculoskeletal bank. At the same time, these lines can be divided into three different sections: (1) new preservation techniques, (2) new processing technologies, and (3) therapeutic innovations.

Over the last few years, part of the effort has been invested in developing techniques to improve the methods and preservation times of processed tissues, making them available for clinical practice. Moreover, new processing methodologies such as decellularisation have been addressed.

MAIN LINES OF RESEARCH

- Tissue obtaining, clinical application, ethics and regulation. (Fariñas Barbera, Oscar; Savio López, Andrés).
- Preservation of living tissue. (Castells Sala, Cristina).
- Tissue decellularisation. (Castells Sala, Cristina).
- Medical products of advanced therapies through the recellularisation of decellularised tissues. (Castells Sala, Cristina).
- SoHo bioinks for 3D printing. (Fariñas Barbera, Oscar).
- Processing and product improvement. (Castells Sala, Cristina).
- Technical innovation for tissue processing. (Tabera Fernández, Jaime).

- Extension of clinical indications of the grafts. (Fariñas Barbera, Oscar).
- Cellular therapy for eye diseases. (Castells Sala, Cristina).

SCIENTIFIC CHALLENGES

- Improvement and optimisations of the process related to the donor and tissue processing in clean rooms
- Advances in the development of criteria, regulation and ethics for donors and tissues.
- Technical excellence related to the processing of cells, tissues and advanced therapy medical products (ATMP).
- Development of new approaches and medical products for advanced therapies in regenerative medicine.

ACTIVE & AWARDED GRANTS

- Castells Sala, Cristina. Lesiones graves de nervio periférico: desarrollo de aloinjertos descelularizados de gran calibre y recelularización con células mesenquimales. PI24/01715. Instituto de Salud Carlos III (ISCIII). Duration: 2025-2027. 252.500,00 €
- Castells Sala, Cristina. Nuevo injerto humano vascular descelularizado y re-endotelizado producido mediante ingeniería de tejidos para su uso en derivación de arteria coronaria. VASCRAFT. CPP2021-008438. Agencia Estatal de Investigación. Duration: 2022-2025. 588.460,40 € (BST)
- Fariñas Barbera, Oscar. Desarrollo de un protocolo de producción de nervio descelularizado de gran calibre para su uso clínico en regeneración de nervios. SLT036/24/000013. Departament de Salut Generalitat de Catalunya. Duration: 2025-2026. 190.574,73 €
- Fariñas Barbera, Oscar. 3DCartibone: Desarrollo de biotintas formuladas con sustancias de origen humano para su uso en bioimpresión-3D osteocondral. CPP2023-010646. Agencia Estatal de Investigación. Duration: 2024-2027. 1.317.968,47 € (BST)

SCIENTIFIC PRODUCTION

- López P, Martínez J, Castells C, López L, Ruiz L, Fariñas O, Vilarrodona A. Pericardium decellularization in a one-day, two-step protocol. MOLECULAR AND CELLULAR BIOCHEMISTRY. 2024; DOI:10.1007/s11010-024-05086-x. PMID:39251464. IF:3,500 (Q3/6D). Document type: Article.
- Vila M, Xiberta P, Ruiz M, Bermudo R, Leivas D, Fariñas O, Vilarrodona A, Boada I. BeST-Graft viewer, a new system to improve the bone allograft-recipient matching process. Comput Biol Med. 2024; 176:108553. DOI:10.1016/j.compbimed.2024.108553. PMID:38723397. IF:7,000 (Q1/1D). Document type: Article.