



**UNIVERSITY:**

**University of Navarra**

**WIT AREA:**

- Automotive, Mechatronics and Advance Manufacture**
- Health**
- Energy**
- IA**

**WIT PROGRAMME'S RESEARCH LINE NAME: Cardiology**

Ingeniería de tejidos y fabricación aditiva

**DOCTORAL PROGRAMME:**

DOCTORAL PROGRAM OF APPLIED MEDICINE AND BIOMEDICINE

**COMPLETE DESCRIPTION OF THE LINE** (max. 1000 characters)

Human myocardium cannot heal. It both lacks the capacity and is subjected to injuries so large, such as myocardial infarction, that their endogenous capacity is overwhelmed. The aim of our research is to employ multidisciplinary technology and expertise to fabricate human tissues in the lab. To do so, we employ the latest knowledge in stem cells, biomaterials and biofabrication (3D printing), trying to go beyond the state-of-the-art. Added to this, we are starting to apply the advanced genomics technology to delve into the mechanisms of tissue formation and disease. Our interests lay in 2 areas: cardiac regeneration and in vitro models. For the former, we aim to develop large-scale processes to fabricate tissues apt for therapy, whereas for the later, we rely on small scale tissues to study the effects of drugs or genetic diseases as recapitulated by



human induced pluripotent stem cell-derived cells. Our work is internationally connected through ongoing projects (projectbrave.eu).

**RESEARCH GROUP NAME:**

**Ingeniería de tejidos y fabricación aditiva**

**COORDINATOR:**

- Last and first name; link to the “Portal of scientific production”:  
Manuel M Mazo Vega  
<https://scholar.google.es/citations?user=RPXL9FoAAAAJ&hl=es>
- Department: Regenerative Medicine
- Email: [mmazoveg@unav.es](mailto:mmazoveg@unav.es)
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**MEMBERS OF THE LINE RESEARCH:**

OLALLA IGLESIAS GARCIA (PhD)

JUAN JOSÉ GAVIRA GÓMEZ (MD, PhD)

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MARIA FLANDES IPARRAGUIRRE

PILAR MONTERO CALLE

MARIA PEREZ ARALUCE

ANDREA SANCHEZ BUENO

GLORIA ABIZANDA SARASA

ELENA IGLESIAS LOPEZ

EDUARDO LAREQUI ARDANAZ

**ANOTHER RESEARCH LINES OF THE GROUP:** list of them

Cardiac biofabrication

Cardiac amyloidosis

Cardio oncology

- Entities involved in research lines and contact person:
  - ✓ Academic entities:
    - Clínica Universidad de Navarra
    - Cima Universidad de Navarra
  - ✓ Industrial entities:
- Joint supervision of doctoral thesis with international universities or non-academic institutions:
  - Ms Annabelle Fricker, University of Sheffield (UK, main supervisor: Prof Ipsita Roy)
  - Mr Julio Vacacela, Denmark Technical University (DTU, Denmark, main supervisor: Assoc. Prof Alireza Dolatshahi-Pirouz)
  - Ms María Pérez Araluce, University of Navarra (co-supervisor: Assoc. Prof Tomasz Jüngst, Universitätsklinikum Würzburg, Germany)
- Brief group overview (max. 1000 characters)

Our group was established in 2018, in order to promote a continuity in the Program of Regenerative Medicine, which had been traditionally focused on cell therapy. At present, our team is composed of 1 senior postdoc, 1 postdoc bioinformatician, 4 PhD students and 2 lab technicians. We also count with the help of a veterinary surgeon and her assistant for the animal work. Currently, our ongoing projects focus on building human-scale engineered myocardium for therapeutic purposes and small scale ones, through different technologies such as 3D printing or microfabrication, to develop models and drug testbeds.



We have a strong connection with clinicians at the Clínica Universidad de Navarra and have ongoing ties with collaborators in several EU countries (Portugal, France, Belgium, the Netherlands, UK, Ireland, Denmark or Germany) and beyond (Australia). Since this 2022, we are expanding towards the application of advanced genomics and bioinformatic analysis, in order to gather more relevant data from our experiments.

- Link of the group to the “Portal of scientific production”  
<https://cima.cun.es/en/research/research-programs/research-programs-regenerative-medicine>  
[https://pubmed.ncbi.nlm.nih.gov/?sort=date&term=Mazo+MM&cauthor\\_id=36007502](https://pubmed.ncbi.nlm.nih.gov/?sort=date&term=Mazo+MM&cauthor_id=36007502)
- Pictures, links... to academic or industrial partners (if any)  
Involvement in ongoing projects:
  - EBERS Medical Technology, VISCOFAN, AE Medicalis, PNO, Boston Scientific (BRAV3 H2020 project)
  - NADETECH (CARDIOPRINT and BIOHEART projects)
  - COCCUS (IMPRIMED)Ongoing joint doctorate supervision:
  - Ms Teresa Zúñiga (VISCOFAN)

### **ACADEMIC REQUIREMENTS:**

The candidate must be in possession of a Degree in Biomedical sciences, including for example Biology, Biochemistry, Chemistry, Pharmacy, Biomedicine; Students from Engineering backgrounds will fit very well in our team.

### **ADDITIONAL REQUIREMENTS:**

Candidates must be organized, self-motivated, capable of independent working but compliant with supervision and social.