Universidad de Navarra | FACULTAD DE CIENCIAS

# RESEARCH LINES (2022-2023)

## BIOMEDICINE AND HEALTH

- Modulation of the activity of the complement system for the potentiation of antitumor immune responses.
- New predictive markers of response to targeted therapy and immunotherapy in ovarian cancer.
- Computational chemistry and biology approaches for the discovery of novel pharmaceutical drugs.
- Design of innovative biological therapeutics and advanced cell therapies.
- Role of myocardial fibrosis in cardiac remodelling and heart failure. Novel diagnostic and therapeutic insights.
- Characterization and biological functions of extracellular vesicles (EVs) in cardiovascular disease.
- Development of tumor on-a-chip microfluid-based-systems: study of the role of extracellular matrix composition in tumor progression and resistance to anticancer treatments.
- Development of machine learning algorithms to study the role of the microenvironment in cancer progression.
- Design and fabrication of human cardiac engineered tissues.
- Genetic and pharmacological strategies to treat KRAS-driven tumors: from the bench to the bedside.
- Epigenetic mechanisms and targets in liver disease and carcinogenesis.

## CHEMISTRY

- Biomethanation of organic waste optimization.
- Physicochemical and mineralogical characterization of 13$^{th}$ century glazed ceramics: Identification of techniques and raw materials.
- Sustainable matrices based on polysaccharides for the sorption of phenolic compounds.
- Didactics of Chemistry and popular science projects.
- Development of titania based photocatalysts and their application to water treatment.
- High efficiency multifunctional nano coatings for decontamination of volatiles and protection of porous substrates.
- New lime mortars with admixtures and microencapsulated phase change material to improve energy efficiency and thermal comfort of the architectural heritage.
- Assessment of atmospheric pollution and its effects in ecosystems.
- Multifunctional sprayable wound dressings obtained by solution blow spinning for the treatment of skin diseases.
- Design, synthesis and biological evaluation of novel organoselenium compounds as bioactive agents.

## ENVIRONMENTAL BIOLOGY

- Response of grapevine to climate change (June-September)
- Arthropoda sampling in the MSS from Navarra Pyrenees

## PHISYCS

- Analysis of physiological data with R/RStudio