

Research Group: Biochemistry and Pathobiology of Cells and Matrix

Research Staff

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Main Scientific Directions

Cardiovascular disease (CVD)

- Dissecting the biological and pathological functions of apolipoproteins and lipoproteins in relation to atherosclerosis, with particular emphasis on the study of structure, function and metabolism of high density lipoproteins (HDL).

Current studies are funded by the Action "Research-Create Innovate"- 2nd call (2020-2023) " New therapies aiming to improve the atheroprotective and immunomodulatory properties of high density lipoprotein (HDL) for the treatment of autoimmune and cardiovascular diseases " ([code T2EDK-02361](#)), coordinated by our laboratory.

- Identification of risk factors and biomarkers of cardiovascular disease

Alzheimer's Disease

- Understanding the molecular mechanisms by which apolipoprotein E4 (apoE4) increases the risk of Alzheimer's disease
- Pursue of therapeutic strategies targeting apoE4's detrimental effects in Alzheimer's disease
- Study of cell survival mechanisms in Alzheimer's Disease
- The role of MMP-9 in Alzheimer's disease and the potential for enzyme administration as a viable option for therapeutic purposes

Diabetes mellitus and Diabetic Nephropathy

- Effects of glucotoxicity on pancreatic β -cell survival signaling: Mechanism(s) of islet β -cell degeneration in diabetic conditions and the protective effect of GLP-1 agonists
- Identification of novel proteins involved in pancreatic β -cell survival signaling to unravel new (additional) drug targets for preventing β -cell apoptosis observed in type 2 diabetes
- Evaluation of the protective function of secreted conditioned media as an approach for

cell therapy applications regarding Diabetic Nephropathy