



**MÁSTER EN INVESTIGACIÓN BIOMÉDICA**

**Research Project Proposal**

Academic year 2022-2023

**Project Nº 38**

**Title:** *Nanoparticles for RNA cancer therapy*

**Department/ Laboratory** *Laboratory where the project will be carried out indicating Department, Area, Faculty, CUN, CIMA etc.*

Departamento de Tecnología y Química Farmacéuticas – Facultad de Farmacia y Nutrición

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**Summary**

siRNA-based gene therapy requires therapeutic RNA to function inside target cells without eliciting unwanted immune responses. Indeed, the most significant hurdle to be overcome if exogenous small interfering RNAs (siRNA) is to be used therapeutically is the specific, effective, nontoxic delivery of siRNA to its intracellular site of action. To enter the cells, a RNA delivery system is necessary.

In this project we propose the development and characterization of lipid nanoparticles encapsulating siRNA for the treatment of paediatric cancers. The nanoparticles will be developed using different methods (multiple emulsion, microfluidics...) and physico-chemically characterized in terms of size, surface charge and siRNA entrapment. Once developed, the nanoparticles will be tested in cancer cells as a single-agent therapeutic and in combination with classically anti-cancer drugs.

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|-----|-------------------------------------|
| yes | <input type="checkbox"/>            |
| no  | <input checked="" type="checkbox"/> |

Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?