



Research Project Proposal

Academic year 2018-2019

Project Nº 20

Title: *Study of the mechanism of lncRNA function in cancer cells*

Department/ Laboratory *Regulation of Gene Expression and Gene Therapy department of CIMA/
Laboratory of lncRNAs and genome regulation in cancer*

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Codirector: -

Contact: -

Summary Short summary of the project with a maximum extension of 250 words, including the goals and the methodology that will be used.

The postgenomic era has revealed that mammalian cells encode thousands of mysterious long RNA molecules that lack protein-coding capacity. Although thousands of these long noncoding RNAs (lncRNAs) exist, only few of them have been functionally characterized. The few that have show biological roles as regulators of gene expression, often through epigenetic mechanisms. Our laboratory has identified several lncRNAs that may play important roles in human cancer. In this project the student will investigate the mechanisms of gene regulation that result in pathogenesis controlled by lncRNAs. To do that, he/she will apply techniques for RNA imaging, gene editing and perturbation by CRISPR/Cas9 as well as other molecular biology techniques for RNA and chromatin study. Additionally, he/she will perform in vivo and in vitro studies to determine the role of the lncRNAs in the development of tumors. Together, these experiments will help gain insight into the mechanisms involved in cancer progression, creating new opportunities for therapeutic intervention.

Bibliography:

- Marchese FP, Raimondi I, **Huarte M.**(2017) The multidimensional mechanisms of long noncoding RNA function. Genome Biol. 2017 Oct 31;18(1):206
- **Huarte M** (2015) *The emerging roles of lncRNAs in cancer.* Nat Med. 2015 Nov;21(11):1253-61

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

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