



Research Project Proposal
Academic year 2017-2018

Project Nº 21
Title: Investigating the dark matter of the cancer genome
Department/ Laboratory Laboratory of Long noncoding RNA and gene regulation in cancer. Department of Gene Therapy and Regulation of Gene Expression, Center for Applied Medical Research (CIMA).
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<p>Summary A very significant fraction of the human genome does not contain the classical genes. Instead, it produces long RNA molecules that do not encode for any protein. These molecules are named long noncoding RNAs (lncRNAs), and are very poorly studied. In our lab we want to understand the function of the lncRNAs in cancer. The project consist in applying novel methodologies such as CRISPR/Cas9 in order to develop new tools that will allow as (i) modify the sequences of lncRNAs (ii) change their expression at will, or (iii) visualize their gene products. Such tools will be used to manipulate the expression and sequence of the lncRNAs in cancer cells, to understand how they contribute to their malignancy.</p> <p>References:</p> <ul style="list-style-type: none">• Marchese FP, Grossi E, Marín-Béjar O, Bharti SK, Raimondi I, González J, Martínez-Herrera DJ, Athie A , Amadoz A, Brosh RM and Huarte M (2016). A lncRNA regulates sister chromatid cohesion. <u>Mol Cell</u>. Aug 4;63(3):397-407.• Huarte M (2015) The emerging roles of lncRNAs in cancer. <u>Nat Med</u>. 2015 Nov;21(11):1253-61• Grossi E, Sánchez Y, Huarte M. (2016) Expanding the p53 regulatory network: LncRNAs take up the challenge. <u>Biochim Biophys Acta</u>. Jan;1859(1):200-8.