This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under Marie-Sklodowska Curie grant agreement No 101034285

UNIVERSITY: University of Navarre (UNAV)

WIT PROGRAMME´S RESEARCH LINE NAME: Study of the role of long noncoding RNAs as regulators of genomic stability and cancer.

DOCTORAL PROGRAMME: Doctoral program of applied medicine and biomedicine https://en.unav.edu/web/doctoral-program-of-applied-medicine-and-biomedicine

COMPLETE DESCRIPTION OF THE LINE

Our conception of how the genome is expressed and regulated has undergone a major change in recent years. It is now obvious that most transcripts do not code for proteins, despite which they may have important cellular functions. Our laboratory investigates the biological functions and molecular mechanisms of RNA in general and lncRNAs in particular, to understand how they influence cancer development.

The proposed research will focus on the study of some lncRNAs, long RNA molecules that do not produce proteins, which we have identified as regulators of cell division and genomic stability. We will apply a combination of experimental and genomic techniques to understand how they affect cancer development. We will use novel approaches of spatial transcriptomics to identify lncRNAs associated with different subcellular compartments, CRISPR techniques adapted to lncRNA, RNA-protein interactions, as well as the latest methodology for the functional study of lncRNA in cancer.

RESEARCH GROUP NAME:

Long RNAs and Cancer Genome

Wit
Welcoming
International
Talent

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COORDINATOR:

- Last and first name; link to the "Portal of scientific production":
  Huarte, Maite

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Pubmed: https://pubmed.ncbi.nlm.nih.gov/?term=maite+huarte&sort=date

- Department: Gene Therapy and Regulation of Gene Expression
- Email: maitehuarte@unav.es
- Telephone number: 948 194700 ext. 4000

MEMBERS OF THE LINE RESEARCH:

Luisa Statello, PhD
Aina María Mas, PhD
Daniel Elvira
Alvaro Sejas
Marta Montes, PhD
Enrique Goñi
Jovanna González
José Miguel Fernandez, PhD

ANOTHER RESEARCH LINES OF THE GROUP:

• *Study of the role of RNA in the initiation of DNA replication*

Brief description: We investigate how RNA, both coding and non-coding, influences the selection and activation of the origins of replication in human cells.

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Entity involved and responsible person: CIMA of the University of Navarra, Maite Huarte

• *Role of lncRNAs in the response to replicative stress in colorectal cancer*

Brief description: We investigate the relationship of lncRNAs with the response to replicative stress, and dissect their mechanisms of action with single molecule resolution using biophysical and structural biology techniques.

Entities involved and responsible persons: CIMA of the University of Navarra, Maite Huarte. National Center for Oncological Research (CNIO), Oscar Llorca. National Center for Biotechnology (CNB), Fernando Moreno Herrero

• *Study of RNA modifications in the response to p53 in lung cancer.*

We determine the role of RNA modifying proteins in the p53 response and the response to DNA damage in lung cancer.

Entities involved and responsible persons: CIMA of the University of Navarra, Maite Huarte. New York Genome Center, Ivan Raimondi.

- Entities involved in research lines and contact person:

✓ Academic entities:
CIMA, University of Navarra (Spain), Maite Huarte
Weizmann Institute of Sciences (Israel), Igor Ulitsky
National Center for Cancer Research (CNIO), Oscar Llorca
National Center for Biotechnology (CNB), Fernando Moreno Herrero

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- Joint supervision of doctoral thesis with international universities or non academic institutions:

  Giulia Maglieri, University of Copenhagen
  "Identification and characterization of long non-coding RNAs in oncogene-induced senescence and cancer"

  Morvarid Saeinasab. Ferdowsi University of Mashhad, Iran
  "Role of long noncoding RNAs in colorectal cancer"

- Group review

The group of *long RNAs and Cancer Genome*, directed by Dr. Maite Huarte, focuses in deciphering the role of the long noncoding transcriptome in cancer development. They apply functional genomics and experimental biology approaches for translational research. They have shown that some lncRNAs are components of important cancer pathways, such as p53's, and regulate the expression and stability of the human genome. Their results have been published in high impact journals such as Cell, Mol Cell, Nat Comm and Genome Biol.
The lab is composed of 9 members of multiple nationalities, and holds an active network of collaborators, including the participants of the *European RNA training network Marie Curie ITN.* The group's research in lncRNA, chromatin and cancer has been funded by prestigious grants, including the first position nation-wide in the*Ramon y Cajal* Spanish Research Contracts (BFU panel), *LaCaixa Research, Worldwide Cancer Research*, *ERC Starting* and *ERC Consolidator Grants***.**

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- Link of the group to the "Portal of scientific production"

Código Orcid: 0000-0003-3753-6493

Pubmed: https://pubmed.ncbi.nlm.nih.gov/?term=maite+huarte&sort=date

- Pictures, links… to academic or industrial partners (if any)

- https://cima.cun.es/investigacion/programas-investigacion/programa-investigacion-terapia-genica/grupo-arns-largos-no-codificante-regulacion-cancer
- http://www.weizmann.ac.il/Biological_Regulation/IgorUlitsky/