Universidad de Navarra
Facultad de Ciencias

**MÁSTER EN INVESTIGACIÓN BIOMÉDICA**
**Research Project Proposal**
Academic year 2026-2027

**Project Nº** 25

**Title:** *Harnessing nonsense -mediated mRNA decay (NMD) for cancer therapy*

**Department/ Laboratory**
Aptamer lab, Therapeutic Innovation Program, CIMA

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**Summary**

Tumors continuously adapt to survive the relentless pressure imposed by the immune system and anticancer therapies. This adaptability is fueled by their remarkable genomic and transcriptomic plasticity. Paradoxically, as tumors accumulate mutations that drive their progression, they also generate new antigens that could, in principle, expose them to immune attack. Yet, cancers often remain undetected.

Why does this happen? In our lab, we explore the idea that tumors actively rewire their RNA landscape to escape immune recognition. We hypothesize that an RNA surveillance mechanism, nonsense mediated mRNA decay (NMD); play a key role in this process by preventing the expression of immunogenic neoantigens. In doing so, tumors hide in plain sight, adding an additional and largely unexplored layer of immune evasion.

In this Master's project, the student will combine different experimental approaches to uncover how RNA regulation shapes tumor immunogenicity. Using a range of in vitro and in vivo assays, we will dissect how (NMD) influence immune responses against cancer.

The project takes place in a dynamic and multidisciplinary environment at the intersection of immunology, RNA biology, and cancer research. It offers the opportunity to gain hands-on experience with modern molecular biology tools (including CRISPR and RNA-based technologies), animal models, and advanced immunological techniques such as flow cytometry and cytokine profiling.

This is an ideal project for a motivated student interested in understanding how tumors evade the immune system and in contributing to the development of new strategies in cancer immunotherapy.

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| yes | x |
| no | |

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