Projecte:

- *NOM DE PROJECTE: Design and development of ASOs for metastatic cancer treatment*

- VACANT: Master's Student

- RESUM: ASOs are short, synthetic, single-stranded oligodeoxynucleotides that interact with RNA with high specificity to reduce, restore, or modify protein expression through several distinct mechanisms. They present several advantages over short RNAs (like siRNA or miRNA), the most important one being the enhanced stability of DNA compared to RNA. Matrix metallopeptidase 9 (MMP-9) is overexpressed mainly in metastatic cancer cells, but not healthy cells, with the exception of neutrophils, macrophages and fibroblasts under certain conditions. Hence, they are an attractive option for achieving high levels of selectivity to cancer cells, alongside therapeutic benefits like gene downregulation. Moreover, previous studies have also demonstrated that inhibiting MMP-9 prior to chemotherapy enhances drug toxicity, potentially enabling treatments with lower doses. We have computationally identified 6 potential ASO sequences against MMP-9, which require characterisation of their silencing potential and synergistic effects in combination with drugs. The objective of the project is to identify the optimal ASO sequence that silences MMP-9 in metastatic cancer cells and study the synergistic effects of ASO silencing and chemotherapy in cancer cells.

- PERSONA DE CONTACTE: Dr. Núria Oliva nuria.oliva@iqs.url.edu