



Propuesta de Trabajo Fin de Máster

Año académico 2026-2027

MÁSTER EN CIENCIAS DE DATOS PARA CIENCIAS EXPERIMENTALES

Proyecto Nº 24
Título: Inteligencia Artificial aplicada a la traducción de proteínas no canónicas
Departamento/ Laboratorio: Programa Biología y Terapias de ARN
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Resumen: <p>Molecular biology has traditionally overlooked the relevance of small cellular factors. Some years ago, the scientific community was surprised to find that thousands of small RNAs or microRNAs exist in the cell that regulate gene expression. Now is the time for microproteins. The existence of microproteins has been ignored until very recently. The reason for this is that their small size complicates the traditional protocols for protein studies and the identification of microprotein genes in the genome. This has been changed with ribosome profiling studies. In our laboratory, we have performed multiomic analyses, including RNA Seq and ribosome profiling studies, in different cancer cell lines and tumor tissues. In addition, we have evaluated the cellular transcriptome and translome under different stress conditions designed to alter canonical translation. All these studies have provided enormous amount of data revealing what part of the transcriptome is translated into proteins and which is not. This information can be used to understand the rules that govern canonical and non-canonical translation with tailored tools and neural networks. The outcome will be the initial steps into the code that links transcriptomes with translomes.</p>

OPTATIVAS RECOMENDADAS <ol style="list-style-type: none">1. Análisis e interpretación de datos de alto rendimiento.2. Advance topics in Machine learning3. Análisis de secuencias y bioinformática estructural4.
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