



POLITÉCNICA



AGRONÓMICA,

BIOSISTEMAS

E.T.S. DE INGENIERÍA

ALIMENTARIA Y DE

MASTER THESIS OFFER OF CEPLAS (FOR COMPUTATIONAL MASTER STUDENTS FROM TECHNICAL UNIVERSITY OF MADRID, UPM)

Title of Master Thesis

Characterization of organelles-associated RNAs alterations in FUS mutant human motoneurons

Description of student's tasks

- * Analysis of RNA sequencing based on direct proximity labeling of RNA using the peroxidase enzyme APEX2
- * Differential gene expression analysis with multifactor design matrix using DESeq2 and edgeR
- * Bioinformatic functional characterization of RNAs using over representation analysis with Gene Ontology categories
- * Bioinformatic characterization of RBP-RNA interactions using Motif enrichment analysis and eCLIP published data
- * Sequence composition analysis using k-mer frequencies
- * Bioinformatic prediction of RNA-RNA interactions

Prerequisites: *(languages, informatics skills, bioinformatic skills, other knowledge, etc)*

PROFICIENT ENGLISH COMMUNICATION SKILLS
DATA ANALYSIS AND STATISTICAL TOOLS
PRIOR RNA-SEQ KNOWLEDGE
R AND PYTHON AND BASH AVERAGE PROGRAMMING KNOWLEDGE



Training Project

EXTERNAL PRACTICES and MASTER THESIS. The fundamental goal of the external practices is to guide the student in applying his previously acquired knowledge to real tasks in a group work environment the realistically represents the work conditions the students will

encounter in their future roles. In this way, the student will be able to get familiar with a working environment (work schedule, responsibility, attitude, organization, etc.), and with the adequate working methodology in professional reality, contrasting and

Activities that will be performed in the academic internship/ Master Thesis:

- active participation to lab-meeting and seminars**
- training in data analysis from biological source**
- training in molecular biology techniques for RNA study**
- Training in how to develop a detailed analysis aimed to a publication**

Nº of positions offered:	1
Has the student dealings with underage persons?	No
Starting date:	20/01/2023
Fecha de fin: (End date)	20/06/2023
Horas semanales: (Weekly hours)	35
Horario jornada laboral: (Working hours)	9:00 - 13:00 14:00 - 18:00



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Importe Ayuda/Bolsa de estudio: (Amount of fellowship / remuneration)	€/mes
Tutor académico: (Academic tutor (UPM)) Email: joaquin.giner@upm.es	Prof: Joaquin Giner Lamia
Departamento tutor académico: (Dept. of academic tutor)	BIOTECNOLOGÍA - BIOLOGÍA VEGETAL (N)
Tutor empresa: (External tutor)	Prof. Irene Bozzoni
Email tutor empresa: (Email external tutor)	
Departamento tutor empresa: (Dept. of external tutor)	Dip. biology and biotechnology Charles Darwin - Rome
Ubicación de la estancia de las practicas (Location of the internship)	Rome
ENTIDAD COLABORADORA: (Collaborating Entity)	La Sapienza University of Rome

A cumplimentar por Oficina Prácticas ETSIAAB:

Créditos a reconocer (Nº ECTS):