

**Oferta Trabajo Fin de Master (TFM):**

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Título: Determinar el papel de los fondos genéticos del genoma mitocondrial en oncogenesis.

Breve resumen del trabajo (< 100 palabras):

Our lab studies nuclear-mitochondrial crosstalk using functional genomics approaches. Our recent data has shown that mtDNA variants induce different cellular responses involving key pathways, such as mTORC1, HIF1a and ISR while modifying the risk of several cancers. Mechanistic analysis confirmed that these pathways act as a rheostat regulating mitochondrial biogenesis, function and dynamics, cytoplasmic ROS as well as carcinogenesis and metastasis capacity “in vivo” and cell migration “in vitro”. This can potentially explain the variability of response to cancer between individuals. We aim carry a comprehensive analysis to understand how mtDNA population variants impact oncogenesis and drug sensitivity, which is sorely lacking from our current body of knowledge.

Actividades a desarrollar:

We will use a combination of genomic (NGS, pyrosequencing and single cell), cell biology (cell culture, qPCR, WB, microscopy), as well as bioinformatic analysis on cancer tissues and cell models. In addition to their own research, there will be opportunities for training and career development.