## SCIENTIFIC SEMINAR



Francisco J. Planes

University of Navarra

## Advances in network-based algorithms to predict metabolic vulnerabilities in cancer

Cancer cells undergo metabolic reprogramming to meet their high energy demands and biosynthetic needs. Understanding these adjustments can provide novel targeted therapies that could disrupt and impair proliferation of cancerous cells. Genome-scale metabolic models (GEMs) constitute a relevant strategy to address this problem. Based on GEMs, we introduced the genetic Minimal Cut Set (gMCS) approach (Apaolaza et al. 2017) and, more recently, gmctool (Valcarcel et al. 2024), a computational tool that exploits the concept of synthetic lethality to predict metabolic vulnerabilities in cancer based on transcriptomics data. In this talk, we summarize the gMCS approach and the capabilities of gmctool, including their application to multiple myeloma and supportive experimental validation. Moreover, we present new research areas and extensions of gmctool to consider nutritional perturbations and regulatory pathways.





Friday January 31 <u>Atrio 800</u> <u>12.00H</u>

