Project Proposal

Title
Systems biology modelling of the role of DNA damage repair and autophagy in cancer

Project Description
Our research team has a long-standing tradition in Molecular Genetics and its applications to Molecular Oncology. Currently, we are implementing genomic strategies and cellular methodologies as diagnostic tools to correlate DNA damage lesions and cell death, in particular autophagy and senescence. Specifically, the research team uses cellular systems and omics approaches to analyze the intertwined relationship between autophagy and DNA damage repair pathways. Systems biology modelling of the role of autophagy and DNA damage repair in cancer resistance to therapies will be used to assess the clinical relevance of autophagy in resistance to therapy by in vivo tumor phenotyping experiments, for the identification of effectors candidates and biomarkers.
The identification of specific tumor types and biomarkers that facilitate our understanding and rationale of the intertwined relationship between autophagy and DNA Damage, is expected to produce novel, practical outputs of future benefit to patients with difficult-to-treat malignancies.
The ideal candidate should have a background in data analysis, machine learning techniques along with interest and/or knowledge of molecular cellular methodologies.
She/He will work within collaborations with our current partners in Italy, EU and USA.

Supervisor(s), Lab/Group details, other additional info.
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