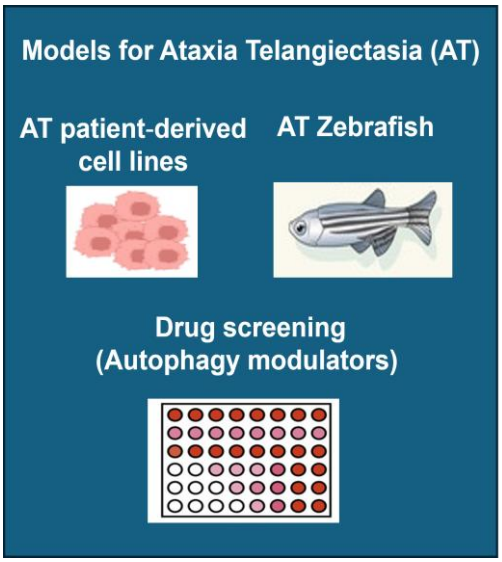
Project title: Investigating new in vivo models and unexplored molecular pathways underlying the Ataxia Telangiectasia disease



Partners:

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Description:

Ataxia Telangiectasia (AT) is a childhood disease with an incident of 1:40,000–1:200,000 live births in worldwide each year. The identification of ATM as the gene whose mutations are responsible for AT pathogenesis, gave impulse to extensive research to determine the functions of its multifaceted protein product. Our preliminary data demonstrated that ATM sustains the expression of the autophagic gene ATG4 in response to oxidative stress. The goal of this project is to investigate the role of ATM-dependent regulation of autophagy in AT, integrating the well-established *in vitro* model of AT patients-derived lines with an *in vivo* approach based on zebrafish.

Aims:

The objectives of the project are:
TASK 1. In vivo resembling of ATM loss of function using Zebrafish: exploring the impact on autophagy
TASK 2. To investigate the role of ATG4 in AT pathogenesis
TASK 3. Generation of cellular in vitro models and assay to test autophagy –regulating compounds for AT treatment

Expected results:

The study of the involvement of ATM dependent regulation of autophagy and the use of zebrafish as an *in vivo* platform for high-throughput screening should allow to find out new therapeutic strategies for AT. In addition, the further validation of zebrafish as a proof-of-concept model to study the molecular mechanism underlining human diseases could reduce the costs and the ethical impact of experimental approaches based on the use of animal models.

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