

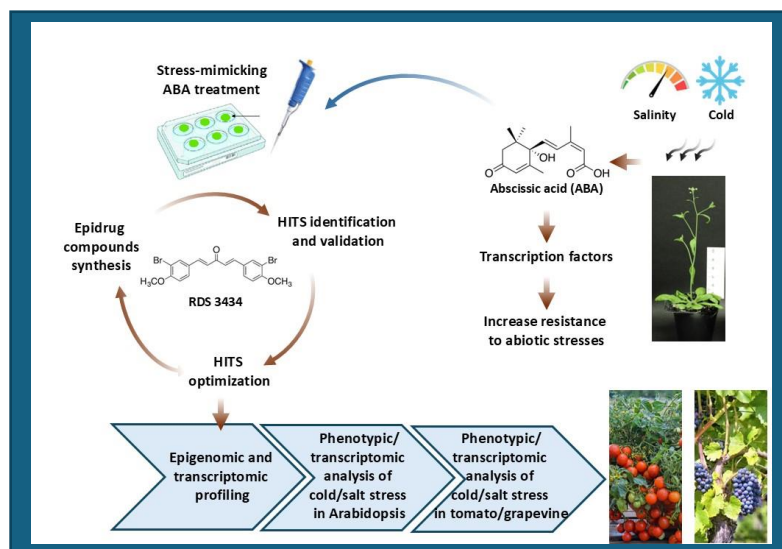
## Project title: Improving plant resilience to adverse environments: identification of novel potential epigenetic drugs using an abiotic-stress-based screening in plants

**Acronym:** 20228Z8TXN

### Partners:

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### Description:

This project aims to identify new drug compounds able to affect the epigenetic molecular mechanisms underlying the control of abscissic acid (ABA)-mediated responses to abiotic stresses (i.e. cold, salt). An experimental setup designed to monitor these responses will be used to screen a library of chemical compounds developed against various epigenetic markers, previously synthesized and tested for efficacy and specificity in human cells. The hit compounds identified will be optimized, through a rational drug design approach. The effects of the new epidrug on the epigenomic landscape of Arabidopsis, tomato and grapevine plants under a stress-mimicking ABA treatment will be assessed at physiological and transcriptomic level.

### Aims:

Aim of the project is to improve plant responses to abiotic stresses by altering the epigenetic control of these molecular processes. We aim to identify elicitors or inhibiting compounds that interfere with one of the epigenetic mechanisms underlying plant response to cold and/or salt stress. To this end, we will use a chemical - based approach through screening of a library of drug compounds on Arabidopsis thaliana and will apply of the most effective compounds on tomato and grapevine.

### Expected results:

This research project will result in i) new epigenetic knowledge on the responses of Arabidopsis to cold and salt stress. Ii) identification of new epidrug compounds and their effects on the epigenomic landscape of plants under a stress-mimicking ABA treatment. Iii) phenotypic and transcriptomic characterization of the effects of epigenetic compounds in response to cold and salt stress in tomato and grapevine.