

Bet-hedging in plants - multi level analysis of seed dormancy variability - from single cell to population.

Since the initial observation of Charles Darwin of seeds that could germinate many years after their been buried deep in the soil – so called soil seed banks, it is clear that part of plants successful survival mechanism is entrance of some but not all of seeds produced by the mother plant into a dormant state. This is part of a plants strategy to hedge their bets on survival by spreading their offspring germination time. This partially achieved by variability of seed dormancy strength. Although initially described many years ago the phenomena have not been extensively studied.

Here we will use a variety of methods, to investigate the molecular, physiological and evolutionary aspects of bet-hedging in plants. This project combines open-end approaches to look for highly variable genes between individual seed by single-seed-RNA-sequencing with single gene centred approach including single molecule RNA FISH analysis.

This project aims to take advantage of my leading position in the field of *DOG1* expression regulation, a number of preliminary data and offers to deliver a major breakthrough in seed dormancy research. Eventually this project by combining this multilevel analysis will contribute to future food security by testing some of the paths toward more alike seed dormancy, leading to more uniform germination in the field.