

## ISME18

### **Abstract title:**

Fengycin and the amyloid TasA of *Bacillus subtilis* stimulates the growth and immunization of plants by targeting the seed storages

### **Category:**

Plant microbial ecology

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### **Abstract:**

Beneficial microbes are known to stimulate the germination of the seeds; however, the exact mechanisms mediating these interactions are only beginning. *Bacillus subtilis* is a commonly detected member of the plant holobiont and provides multifaceted traits to the plant health. In this work, we demonstrated that *B. subtilis* triggered genetic and physiological responses in seeds that resulted in changes in the metabolic and developmental status of adult plants.

A multidisciplinary approach based on microscopy, transcriptomics and metabolomics demonstrated that the chemically diverse extracellular matrix of *Bacillus* structurally cooperate in bacterial colonization of the seed storage tissues. The amyloid protein TasA and fengycin, two components of the extracellular matrix differentially stimulated levels of ROS inside seeds after imbibition and targeted the oil bodies of the seed endosperm, provoking specific changes in lipid metabolism or accumulation of glutathione-related molecules that resulted in two different plant growth programs: the development of seed radicles or major growth and immunization of adult plants. Our findings prove the versatility of the bacterial ECM in establishing a mutualistic interaction with plants.