

## **Tse1 mobilized by T6SS of *Pseudomonas* induces sporulation of *Bacillus* via $\sigma^W$**

Pérez-Lorente, A.I.<sup>1</sup>, Molina-Santiago, C.<sup>1</sup>, de Vicente, A.<sup>1</sup> and Romero, D.<sup>1</sup>

<sup>1</sup> Instituto de Hortofruticultura Subtropical y Mediterránea "La Mayora", Universidad de Málaga-Consejo Superior de Investigaciones Científicas (IHSM-UMA-CSIC), Departamento de Microbiología, Universidad de Málaga, Bulevar Louis Pasteur 31 (Campus Universitario de teatinos), 29071, Málaga, Spain.

**Topic/category:** Molecular aspects of microbes-microbes - microbes-host interactions

The extracellular matrix and sporulation are defensive mechanisms used by *Bacillus* cells when they interact with *Pseudomonas* strains expressing a type VI secretion system (T6SS). Here, we define Tse1 as the main toxin mobilized by the *Pseudomonas* T6SS that triggers sporulation in *Bacillus*. We characterize Tse1 as a peptidoglycan hydrolase and electron microscopy analysis and the use of diverse chemical probes, let us visualize malfunction of the *Bacillus* cell membrane. By performing RNA-seq and immunocytochemistry analyses, we also delineate the response of *Bacillus* cells to Tse1, which through the coordinated actions of the extracellular sigma factor  $\sigma^W$  and the cytoplasmic histidine kinases KinA and KinB, culminates in activation of the sporulation cascade. We propose that this cellular developmental response is conserved in *Bacilli* to defend against the toxicity of T6SS-mobilized Tse1 effector.