25
JAN.
2024

de 13h à 14h

SÉMINAIRE

Introducing the ERC Consolidator Award: "MicroRescue: Resolving mechanisms of microbiome rescue to promote resilience to climate change"

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Earth's climate crisis threatens to disrupt ecosystem services and destabilize food security. Communities of microorganisms, called microbiomes, provide critical functions that feedback on climate and support soil and plant health. I propose a new framework,Microbiome Rescue, to recover microbial populations and lost functions after disturbances. With critical knowledge about the ecology of microbiomes and their contributions to creating resilient systems, I propose that we can achieve a paradigm shift in ecosystemmanagement via directed microbiome interventions. Here, I focus on elaborating rescue strategies that leverage the selective reactivation of dormant microbes. Because microbial dormancy is extensive in soil and the rhizosphere, reactivation offers access tountapped biodiversity and provides immediate solutions for maintaining functions in ecosystems affected by climate change. My first objective is to understand and predict the capacity of dormant soil microorganisms to rescue microbiomes in a changing climateand discover reactivated bacteria that facilitate resilience. My second objective is to investigate and develop bacterial reactivation for rescue-based microbiome management to support plant resilience to climate change stressors and preserve plant-soil feedback.To achieve these goals, I will execute three multi-factor experiments to reactivate the dormant microbiome from soil and plant systems after exposure to heat and moisture stress. First I will perform a heat and moisture experiment for European soils, assessrisk, and curate microbial collections that support functional rescue. Next I will perform two practical rescue experiments for the microbiomes of legumes exposed to heat and moisture stress: customized microbiological amendments and host-microbiome engineering.This work will provide unprecedented insights into microbiome rescue and identify targets for biological interventions to support soil and crop resilience to climate change.