



Uncovering Fungal-Mediated Mobility: Genomic and Structural Insights Into *Kaistia defluvii* sp. nov.

Abstract



Understanding microbial dispersal in the rhizosphere is key to unraveling plant-microbe interactions. While fungi are known to form extensive mycelial networks that support bacterial movement, little is known about how non-motile bacteria exploit these interactions. In this presentation, we describe the isolation and characterization of *Kaistia defluvii* sp. nov., a non-motile bacterium isolated from the rhizosphere of *Lupinus luteus* using in situ cultivation approach via the fungal highway systems.

First, we present genomic insights obtained through hybrid Nanopore and Illumina sequencing, which revealed a conserved gene cluster linked to succinoglycan biosynthesis—an exopolysaccharide known to mediate bacterial-plant interactions. Second, we use scanning and transmission electron microscopy (SEM and TEM) to demonstrate *Kaistia* ability to physically associate with fungal hyphae of *Absidia* sp., enabling sliding movement in the absence of flagella or pili.

Third, we discuss the potential functional role of succinoglycan in facilitating this interaction and its broader ecological relevance in rhizosphere colonization. This study expands our understanding of microbial mobility mechanisms and offers novel perspectives on the physical and biochemical strategies used by non-motile bacteria to disperse and colonize complex environments.

Finally, a current view of the ecological and biotechnological implications of fungal-bacterial networks in sustainable agriculture will be discussed.

Date

2025
9/16
Tuesday

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16:00 ▶ 17:00

Language : English

Venue



Hiroshima University, Graduate
School of Advanced Science of
Matter Build A, 6F Seminar
room601-(2)



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