



## Translocation of *Magnaporthe oryzae* effectors into rice cells and subsequent cell-to-cell movement

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Résumé en anglais

Knowledge remains limited about how fungal pathogens that colonize living plant cells translocate effector proteins inside host cells to regulate cellular processes and neutralize defense responses. To cause the globally important rice blast disease, specialized invasive hyphae (IH) invade successive living rice (*Oryza sativa*) cells while enclosed in host-derived extracellular hyphal membrane. Using live-cell imaging, we identified a highly localized structure, the biotrophic interfacial complex (BIC), which accumulates fluorescently labeled effectors secreted by IH. In each newly entered rice cell, effectors were first secreted into BICs at the tips of the initially filamentous hyphae in the cell. These tip BICs were left behind beside the first-differentiated bulbous IH cells as the fungus continued to colonize the host cell. Fluorescence recovery after photobleaching experiments showed that the effector protein PWL2 (for prevents pathogenicity toward weeping lovegrass [*Eragrostis curvula*]) continued to accumulate in BICs after IH were growing elsewhere. PWL2 and BAS1 (for biotrophy-associated secreted protein 1), BIC-localized secreted proteins, were translocated into the rice cytoplasm. By contrast, BAS4, which uniformly outlines the IH, was not translocated into the host cytoplasm. Fluorescent PWL2 and BAS1 proteins that reached the rice cytoplasm moved into uninvaded neighbors, presumably preparing host cells before invasion. We report robust assays for elucidating the molecular mechanisms that underpin effector secretion into BICs, translocation to the rice cytoplasm, and cell-to-cell movement in rice.

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### **Liens**

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