

Quorum sensing by farnesol revisited.

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Abstract

Quorum sensing, a form of molecular communication in microbial communities, is relatively well studied in bacterial species, but poorly understood in fungi. Farnesol, a quorum sensing molecule secreted by the opportunistic human pathogenic fungus *Candida albicans*, was the first quorum sensing molecule described in a eukaryotic organism. However, despite considerable research efforts and advances in recent years, the mechanisms behind its action remain largely elusive. Only recently, we showed that deletion of the *C. albicans* gene *EED1* (*eed1*Δ), which is essential for hyphal maintenance, resulted in both increased farnesol production and hypersensitivity to farnesol, providing a link between farnesol signaling and elongated hyphal growth. This finding raised several questions concerning farnesol signaling. In this short review we use the unique phenotype of the *eed1*Δ mutant to summarize current hypotheses and to speculate on possible mechanisms of quorum sensing in *C. albicans* and its implication in fungus-host interaction, by drawing comparisons to comparatively well-studied quorum sensing systems in bacteria.

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