

Complete genome sequence of *Burkholderia rhizoxinica*, an Endosymbiont of *Rhizopus microsporus*.

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Projects

The genome of the endofungal bacterium *Burkholderia rhizoxinica*
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Abstract

Burkholderia rhizoxinica is an intracellular symbiont of the phytopathogenic fungus *Rhizopus microsporus*. The vertically transmitted endosymbiont not only delivers the antimitotic macrolide rhizoxin to its host but is also essential for vegetative spore formation of the fungus. To shed light on the genetic equipment of this model organism, we sequenced the whole genome of *B. rhizoxinica* HKI 0454, thus providing the first genomic insight into an intracellular mutualist of a fungal species. The 3.75-Mb genome consists of a chromosome and two strain-specific plasmids. The primary metabolism appears to be specialized for the uptake of fungal metabolites. Besides the rhizoxin biosynthesis gene cluster, there are 14 loci coding for nonribosomal peptide synthetase (NRPS) assembly lines, which represent novel targets for genomic mining of cryptic natural products. Furthermore, the endosymbionts are equipped with a repertoire of virulence-related factors, which can now be studied to elucidate molecular mechanisms underlying bacterial-fungal interaction.

Identifier

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