Global Regulator of Morphogenesis and Pathogenicity in Dimorphic Fungi

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in strains of dimorphic fungi that do not become virulent.

OVERVIEW

Dimorphic fungi are soil-dwelling microorganisms that are harmless in their usual mold form, but once inhaled by a mammal, transform into virulent yeast and cause life threatening illnesses, such as pneumonia and meningitis. Organisms in this class of fungi include Blastomyces dermatitidis, Histoplasma capsulatum, Coccidioides immitis, Paracoccidioides brasiliensis, Sporothrix schenckii and Penicillium marneffei. People with compromised immune systems or who are often in close contact with soil, such as military personnel, farm workers and construction crews, as well as many companion animals, including dogs and horses, are at especially high risk of infection with these molds.

THE INVENTION

UW-Madison researchers have identified strains of dimorphic fungi that are useful in vaccine development because they do not become virulent, along with a method of identifying compounds that prevent dimorphic fungi from becoming virulent. The researchers discovered that the fungal histidine kinase is responsible for the transformation of these organisms into virulent yeast. Knocking out or otherwise inactivating the histidine kinase gene results in a fungal strain that does not become virulent.

To determine if a test compound may be useful as an anti-fungal therapeutic, it is exposed to the fungal histidine kinase. Because histidine kinases play a key role in the ability of many fungi to sense and respond to environmental changes, compounds that reduce the activity of the kinase may be used to prevent or treat infection with pathogenic fungi, including dimorphic fungi.

APPLICATIONS

• Prevention and treatment for infection with dimorphic fungi
KEY BENEFITS

• Provides a means of identifying specific, potent therapeutics against these pathogens
• May provide a treatment for infection with other polymorphic fungi
• Enables the creation of new vaccines against dimorphic fungi

ADDITIONAL INFORMATION

Publications

Tech Fields
Drug Discovery - Targets
Pharmaceuticals & Vitamin D - Vaccines

CONTACT INFORMATION

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