

New research offers hope for vaccine and therapies for deadly infections

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Mucormycosis is a deadly infection that strikes people with weakened immune systems when certain types of fungi, called Mucorales, invade the patients' cells. A novel protein on the surface of the Mucorales cells, called CotH, makes this invasion possible.

In a finding that could lead to the development of a vaccine and therapies for mucormycosis, a research team at Los Angeles Biomedical Research Institute (LA BioMed) reported today in an online, ahead-of-print study in the *Journal of Clinical Investigation* that they can prevent human cell invasion and successfully treat mucormycosis in disease models using antibodies that block the CotH protein.

"There are no vaccines or effective therapies available today to halt the highly fatal mucormycosis infection, and there is an urgent need for these strategies to protect patients with [weakened immune systems](#)," said Ashraf S. Ibrahim, PhD, an LA BioMed lead researcher and corresponding author for the study. "Our research lays the groundwork for developing the antibodies to prevent and treat mucormycosis in high-risk patients. These findings also could lead to diagnostic tests for the disease."

Patients with weakened immune systems, malnutrition or acidosis (hyperglycemia or diabetic ketoacidosis) are at increased risk of infection. Dr Ibrahim's group found treatment with anti-CotH antibodies or CotH-targeted RNAi blocked the [cell invasion](#) and protected against mucormycosis. In a commentary accompanying the research, J. Andrew

Alspaugh, MD, professor, Department of Medicine, Division of Infectious Diseases at Duke University Medical Center, discusses how these findings could contribute to the development of mucormycosis therapies.

More information: CotH3 mediates fungal invasion of host cells during mucormycosis, *J Clin Invest.* doi:10.1172/JCI71349
Hostile takeover: fungal protein promotes host cell invasion, *J Clin Invest.* 2014;124(1):74–76. doi:10.1172/JCI73585

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