

# Researchers report new treatment for mucormycosis, the deadly 'black fungus'

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The Lundquist Institute spinoff start-up company Vitalex Biosciences, founded by researcher Dr. Ashraf Ibrahim, is producing an antibody that stems the spread of mucormycosis, a deadly fungal infection with an overall mortality rate of 50% and higher. Mucormycosis is an emerging infection caused by exposure to mucor, a mold commonly found in soil, plants, manure and decaying fruits and vegetables. It affects the sinuses, the brain and the lungs and is life-threatening in diabetic or severely immunocompromised individuals such as cancer patients. Mortality is greater than 50% and extremely disfiguring surgery is often needed to remove necrotic tissues.

Dr. Ibrahim says, "Once the immune system is compromised, such as in diabetics and [cancer patients](#) who lack [white blood cells](#) due to chemotherapy, or patients receiving [corticosteroid therapy](#) as, for example, in transplantation patients to prevent organ rejection, the fungus turns deadly with the ability to rapidly invade tissues and cause severe necrosis, which is why it is called the black fungus. In the era of COVID-19, steroid treatments

such as dexamethasone have emerged as a useful treatment to lower the deadly, over-exuberant inflammatory response. However, reducing the inflammatory response affects the ability to fight opportunistic infections such as mucormycosis. Reports have emerged of fungal infections, including mucormycosis, in these patients.

"Specifically, the use of corticosteroids in diabetic patients with poorly controlled diabetes represents a perfect storm for a disease like mucormycosis because poorly controlled [blood sugar](#) and steroid treatment are known to predispose patients to mucormycosis. For example, what used to be a six-case disease over one year at a hospital in Mumbai is now 24 cases in two months among COVID-19 patients."

Additionally, recent news reports have provided more details on how the fungus is particularly attacking COVID patients in India.

"Our laboratory has discovered a molecule that allows the fungus to invade [human cells](#)," says Dr. Ibrahim. "Our [preclinical studies](#) indicated that a mouse antibody targeting this molecule is highly protective against mucormycosis, especially when given combined with antifungal drugs. A humanized version of this antibody is currently in manufacturing by Vitalex Biosciences. It is hoped that this antibody will improve the outcome of the disease and save lives from mucormycosis including those with COVID-19."

Provided by The Lundquist Institute

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