

# Baker's yeast protects against fatal infections

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Injecting mice with simple baker's yeast protects against the fatal fungal infection, aspergillosis, according to research published in the *Journal of Medical Microbiology*. The work could lead to the development of a human vaccine that protects immunocompromised people against a range of life-threatening fungal infections, for which current therapy often fails.

Researchers from the California Institute for Medical Research, Santa Clara Valley Medical Center and Stanford University gave mice three injections of killed *Saccharomyces* (baker's yeast), one week apart. Vaccinated mice were able to survive high doses of *Aspergillus* – the fungus that causes aspergillosis. Mice that survived also showed a reduced infection load in their organs.

Aspergillosis is the leading fungal killer among immunocompromised individuals. It is an invasive infection that attacks the lungs, can disseminate to other organs, such as the brain, and can lead to kidney and liver failure. The disease currently has very high mortality as the current available therapy has a high failure rate.

The research team used a simple yeast preparation as a vaccine against *Aspergillus* in [mice](#). They found that unmodified yeast gave just as much protection against the development of aspergillosis as yeasts that had been engineered to display *Aspergillus* surface proteins. Dr. David A. Stevens, from Santa Clara Valley Medical Center, in whose laboratory the studies were performed, said, "Our results suggest that the protective component of the yeast is in the cell wall. What's more, the simple

preparation we used has been shown by us to also protect against infection due to three other fungi that cause human disease – *Candida*, *Cryptococcus* and *Coccidioides*."

Baker's yeast is being studied by other groups in human clinical trials for other purposes and appears to be safe. "Research to date, including our study, supports the development of a [yeast](#) vaccine against all pathogenic fungi that infect humans. Such a 'panfungal' vaccine would further reduce mortality in immunocompromised individuals," explained Dr. Stevens. "While vaccinating all individuals with impaired immune systems would be a formidable challenge, there are certain patient groups that might be the initial target of a [vaccine](#) effort. These include transplant candidates, leukemics following induction therapy and also patients diagnosed with solid tumours."

Provided by Society for General Microbiology

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