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New drug target emerges for a dangerous fungal pathogen

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Cryptococcus neoformans is a fungal pathogen usually affecting immunocompromised patients, particularly AIDS and organ transplant patients, and is one that can be lethal. Current treatments against cryptococcosis are often not effective. Now a team of researchers led by Stony Brook University scientists Mansa Munshi and Maurizio Del Poeta in the Department of Molecular Genetics & Microbiology, have discovered a novel gene that helps understand the mechanism of survival of this pathogen in various host conditions.

Their finding, published in *Cell Reports* , may help pave the way for more effective and innovative treatments against cryptococcosis.

When C. neoformans survives in a host, disease results. In the paper, the team details how they uncovered that ceramides (a class of lipid molecules) play a role in the pathogenicity of C. neoformans. They identified a new gene within this process, called Cer1, which synthesizes ceremides. By targeting Cer1, pathogenicity in the host is altered.

Munshi and colleagues delete Cer1 from the pathogen, and a mutant form of C. neoformans is created that is completely disabled and unable to cause disease. These results have led the team to theorize that Cer1 may be a new drug target in the search for better treatments of cryptococcosis.

More information: The Role of Ceramide Synthases in the Pathogenicity of Cryptococcus neoformans. *Cell Reports*. DOI:

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