

Study identifies a new way to prevent deadly fungal infection spreading to the brain

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Research at the University of Sheffield has identified how the behaviour of an infection can be changed to prevent serious disease.

Cryptococcus neoformans is one of the most significant infections associated with HIV/AIDS. Infection with Cryptococcus causes hundreds of thousands of deaths each year worldwide and can also cause disease in people with impaired immune systems, such as solid transplant patients.

Using models of human fungal infection in zebrafish, Dr Simon Johnston and colleagues have discovered that the behaviour of Cryptococcus can be altered so it cannot spread within the body.

Dr Johnston, whose team is part of the University of Sheffield's Bateson Centre and Florey Institute, which exist to identify new ways to treat infectious diseases, said: "We found that the drug identified by our colleagues at the University of Birmingham, who led the study, prevented Cryptococcus from using the [immune system](#) to spread during infection."

He added: "This research is important because it identifies alternatives to antibiotic treatment for infectious disease. We are using the zebrafish as a model of human immunity to understand how infections can be prevented and treated, especially in people who have damaged immune systems. This research gives us a better understanding of how infections cause disease and will enable us to better pursue alternatives to [antibiotic](#)

[treatment](#)".

Professor Simon Foster, Director of the Florey Institute at the University of Sheffield, said: "This exciting discovery, involving a member of the Florey Institute, highlights how interdisciplinary approaches are reaping rewards in our ability to understand disease and to propose novel interventions."

Professor Stephen Renshaw, Director of the University's Bateson Centre, added: "This research highlights how the zebrafish model can allow new insights into human disease. Ultimately, this will lead to much needed treatments for fungal disease."

The findings of the study, carried out in collaboration with the Universities of Dundee and Manchester in the U.K., as well as the University of Leuven in Belgium and Harvard Medical School in the U.S., are published in the journal *Science Advances*.

Provided by University of Sheffield

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