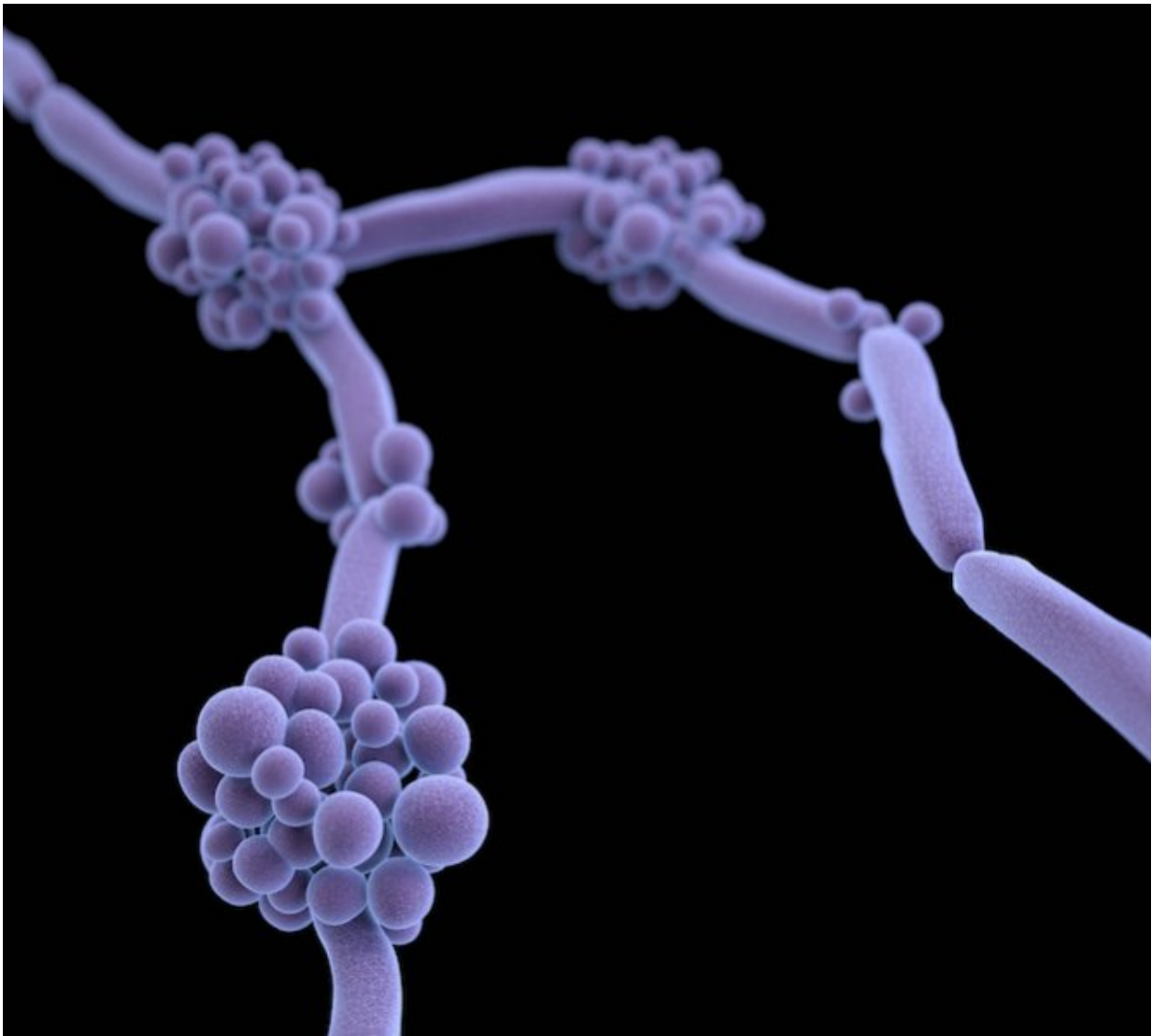


Drug-resistant fungus is on the rise worldwide, says molecular biologist

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Candida albicans, which is related to *Candida auris*. Credit: CDC

The *Candida auris* fungus is spreading across the globe at an "alarming" speed. This species of fungus, which can cause fatal infections in risk groups and was first discovered only 10 years ago, can now be found all over the world. In nearly all cases, infections are contracted in hospitals, and the fungus has become resistant to all current drugs. Molecular biologist Auke de Jong, who is conducting research to try to understand the fungus, will be defending his Ph.D. thesis on 22 December in the Agnietenkapel in Amsterdam.

From superficial eczema to fatal bloodstream infections—each year, more than 1 billion people contract a [fungal infection](#), and 1.6 million people die as a result. According to De Jong, whose research mainly focuses on disease-causing *Candida* fungi, there has been "a dramatic increase over a period of 10 years."

"We are seeing a shift away from infections caused by *Candida* species that are easily treatable towards drug-resistant species that pose a threat, with *Candida auris* being one of the most notorious of these infectious fungi species."

The origins of the [fungus](#) are still shrouded in mystery. De Jong is looking for clues in the DNA and behavior of *Candida auris*. "We suspect that seawater plays a key role," he says. "Because this fungus has a very high tolerance for salt, which is a substance many fungi cannot cope with. The sea could be a plausible route for the global spread of *Candida auris*; it may have been spread across the globe by the currents."

According to De Jong, its spread is alarming. "The fungus causes an exceptionally high death rate among risk groups and cannot be properly treated. It's a robust and highly adaptable fungus. For example, in addition to its high tolerance for salt, it can also easily survive relatively high temperatures and commonly used disinfectants."

Nearly all infections with the fungus are contracted in hospitals. "Operations present an opportunity for the fungus to enter the body." It is unknown where the patients first came in contact with the fungus. "Hospitals are unlikely to be the [original source](#); patients probably already carried the fungus with them for some time."

However, there are explanations for its fast spread. "It is mainly due to the huge medical advances made in recent decades. There is now a whole group of people who continue to live with diseases from which people used to die more quickly. The downside of that is that this group often has a severely weakened immune system, which makes them much more vulnerable to infections."

According to De Jong, there is therefore an urgent need to work on being able to detect and fight the fungus early on. "My research is mapping the unique characteristics of this *Candida* species. We are currently seeing many misdiagnoses in hospitals, leading to incorrect or belated treatment of fungal infections. To be able to reduce that, we first need to identify and understand the fungus better."

Actions of mankind have accelerated the fungus' adaptive capacity

The fact that species of fungi are adapting to the substances with which we fight them is not exactly a [new development](#). "It is similar to the capacity of all living organisms to slowly adapt to their changing environment. But what is new is that, through our actions, such as the large-scale use of fungicides in agriculture, we (mankind) have accelerated the process in this fungus. In this way, we are contributing to the development of a fungus that is even more quickly building an increasingly stronger resistance to the substances with which we fight it."

Auke de Jong will defend the [dissertation](#) "Fungal Pathogens Exposed. Novel insights into *Candida auris* and emerging relatives of the *Candida haemulonii* [species](#) complex" on 22 December in the Agnietenkapel in Amsterdam.

Provided by University of Amsterdam

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