

# Innovative, simple treatment to combat the *Candida Albicans* fungus

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*Candida albicans*. Credit: University of the Basque Country

A study led by the UPV/EHU has developed an innovative, simple

treatment based on uterine stem cells to combat the *Candida albicans* fungus, responsible for vaginal candidiasis. Despite not being life-threatening, this disease, which is very widespread among women, reduces patient life quality owing to its symptoms (itching and stinging). This research has been published in *Frontiers in Microbiology*.

The research was led by Guillermo Quindós, professor of microbiology at the UPV/EHU's Faculty of Medicine. This study opens up an alternative for treating vaginal [candidiasis](#).

Nearly one in five women who suffer a bout of vaginal candidiasis becomes a chronic carrier of the *Candida* fungus, and goes on to suffer fresh bouts of this unpleasant infection. These repeat bouts of candidiasis tend to be resistant to the usual treatments, and this research could provide hope for [patients](#).

The conditioned medium of uterine stem [cells](#) (hUCESC-CM) inhibits the growth of various sensitive strains of *Candida* isolated from the vagina, but it also inhibits the growth of *Candida albicans* in nearly 80 percent of cases in patients with treatment-resistant chronic vaginal candidiasis. *Candida albicans* is responsible for over 80 percent of cases of vaginal candidiasis.

Yet uterine stem cells also inhibit the growth of *Candida albicans* originating in the blood of immunosuppressed patients. Sepsis (blood infections) by fungi are a significant cause of death in this group of patients, especially when they become resistant to the few medical treatments currently available to combat them.

The reason why this particular strain of human uterine cervical stromal stem cells (hUCESCs) is more active in combating *Candida albicans* may be found in its origin. Uterine stem cells come from a very specific area known as the "transformation zone of the uterine cervix," which is

biologically highly vulnerable, and is in permanent contact with the vaginal medium and the threats harboured by the latter: fungi, bacteria, viruses, plus all the pathogenic microbes entering from outside, generally through sexual intercourse. Throughout [human evolution](#), the mesenchymal stem cells of the uterine cervix have been developed powerful defence mechanisms in the form of a cocktail of molecular factors that are released into the external medium for the purpose of combating all these potential threats and preserving the species.

The possible use of the conditioned medium of hUCESC-CMs as an innovative means of antimicrobial [treatment](#) is important not only from the conceptual point of view, but also from the practical point of view, since it does not entail the difficulty of treatments based on the use of stem cells themselves.

Uterine stem cells or mesenchymal stem cells of the uterine cervix are obtained in a fairly non-invasive way using cervical brushing like that used in routine gynaecological examinations. In addition, the researchers have provided evidence in previous studies that its secretome/conditioned medium (set of molecules secreted by these cells) has an anti-tumour potential in breast cancer, a regenerative one in corneal injuries, plus a potential immunoregulator.

**More information:** José Schneider et al. Antifungal Activity of the Human Uterine Cervical Stem Cells Conditioned Medium (hUCESC-CM) Against *Candida albicans* and Other Medically Relevant Species of *Candida*, *Frontiers in Microbiology* (2018). [DOI: 10.3389/fmicb.2018.02818](#)

Provided by University of the Basque Country

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