

Using stem cells to boost immunity against *Candida albicans* infections

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Researchers from the Universitat de València (UV) and the Cedar Sinai Medical Center in Los Angeles have partnered to describe a biological mechanism that generates cells better equipped to fight off serious infections caused by the *Candida albicans* fungus.

The fungus, which is often found in innocuous form in the mouth, vagina and gastrointestinal tract, can cause superficial skin and mucus infections in healthy people. It can also cause serious internal or [invasive infections](#) in immunodepressed patients and is as such considered an opportunistic pathogenic fungus.

The research, published in *Microbes and Infection*, analyses the interaction between hematopoietic progenitor and stem cells with this fungus. María Luisa Gil, professor of microbiology at the University of Valencia, explains: "When [stem cells](#) interact directly with the *Candida albicans* microorganism, this leads quickly to the conversion of these cells into mature myeloid cells -neutrophil, monocyte, macrophages and [dendritic cells](#)-, which are what fuel our natural immune system, our first defense against infections."

Stem cell interactions with the *C. albicans* microorganism are significant because until now, it was thought that only [mature cells](#) recognised and responded directly to microorganisms and derivatives. The study shows that this interaction can lead to the generation of cells that are functionally better prepared to fight off an infection.

Indeed, the discovery of this new host/pathogen interaction mechanism and its consequences in the modulation of immune response may provide a new target for intervention in the fight against serious infections.

More information: Javier Megías et al. TLR2, TLR4 and Dectin-1 signalling in hematopoietic stem and progenitor cells determines the antifungal phenotype of the macrophages they produce, *Microbes and Infection* (2016). [DOI: 10.1016/j.micinf.2016.01.005](https://doi.org/10.1016/j.micinf.2016.01.005)

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