



## Unravelling the role of a key enzyme family in the pathogenicity of *Candida albicans*

### Project Coordinator



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### Project Description

Yeast from the *Candida* genus are harmless inhabitants of the human body, frequently found in the mouth, the gut or the stomach. A fully functioning immune system and a balanced microbial flora are normally sufficient to protect individuals from *Candida* infections. However, under certain conditions, such as extensive antibacterial treatment or immune system dysfunction, this fungus can become a dangerous pathogen. If *Candida albicans* penetrates into tissue and enters the bloodstream, the fungus can invade virtually all areas of the body, including the organs, which often results in life-threatening systemic infections. The ability of *Candida albicans* to survive and proliferate in radically changing environments and to resist the constant surveillance of the immune system is critical for its success as a pathogen.

These adaptive capacities require a range of signalling pathways, virtually all of which include protein kinases and phosphatases. These two protein families are now the focus of three academic groups from three different countries, which have come together under the roof of the *ERA-NET Pathogenomics*. Together, they are setting up a consortium, whose goal is to shed light on the role of the most important enzyme family to have an effect on the pathogenicity of *Candida albicans*. Based on the completed, annotated *Candida albicans*' genome sequence, these scientists will systematically analyze all 150 kinases and phosphatases for functions in a range of cellular processes in response to different environmental conditions. Following this initial screening, the most promising candidates will be further examined at the molecular level using a range of genetic techniques to determine their specific roles. A deeper understanding of the regulatory and adaptive pathways in this fungal pathogen should identify novel anti-fungal targets that will be critical in combating this pathogen.

