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Candida albicans and the epithelium: Scratching the surface

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학력

2001 PhD Immunology and infection, Imperial College London

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Abstract

The mucosal surfaces of the human body are challenged by millions of microbes on a daily basis. Co-evolution with these microbes has led to the development of plastic mechanisms in both host and microorganisms that regulate the balance between preserving beneficial microbes and clearing pathogens. Candida albicans is a fungal pathobiont present in the oral cavity of at least 80% of healthy individuals that, under certain circumstances, can become pathogenic, causing everything from mild superficial mucosal infections to life-threatening systemic diseases. The last decade has seen a paradigm shift in our understanding of the role played by epithelial cells in protecting these surfaces from microbial infection. No longer seen as merely a passive barrier, we now know that they play an essential part in the innate immunity at mucosal sites. These cells initiate complex immune responses that discriminate between commensal and pathogenic microbes, including C. albicans, as well as altering the readiness of the host to respond to infection. These responses have a significant impact on host-microbiome interactions, as well as governing physiological and pathological processes that either affect or drive disease. Determining how the host mucosal surfaces can discriminate commensal from pathogen and the subsequent mechanisms and responses will enable the development of therapies that will enable us to gain the maximum benefit from our ever-increasing knowledge of the microbiome.