

CELL SIGNALING PATHWAYS INDUCED BY *C. ALBICANS* IN THE PRESENCE OR ABSENCE OF PROTECTIVE ANTIBODIES - IMPLICATIONS FOR THERAPY

NEELAM PANDEY (INDIA)

Professor A. Vechiarelli, University of Perugia (Italy)

What if a commensal turns into a pathogen? For example, the fungus *Candida albicans* normally dwells in the oral and genital tracts as harmless microflora. It becomes pathogenic and even causes systemic infections if the balance of the normal flora is disrupted or the immune defences are compromised. In its pathogenic form, candida has a diverse armoury to cause infection, such as phenotype switching, adhesins, secreted aspartic proteases, phospholipases etc. which facilitate adhesion, invasion of immune cells and infection by overriding the host immune response.

Among these virulence factors, the secretion of aspartyl proteases (Saps) has long been recognized as a virulence-associated trait of *C. albicans*. We therefore analysed the inflammatory response of human immune cells following interaction with candida Saps. We have observed that recombinant Saps have differing abilities to induce pro-inflammatory cytokine secretion by human monocytes. Individual Saps can induce an inflammatory response which is independent from the pH of a specific host niche and from Sap enzymatic activity. Saps stimulate inflammasome complexes, which catalyses the maturation and secretion of pro-inflammatory cytokines from immune cells. These cytokines further attract other immune cells to the infection sites, where they engulf the pathogenic cells and/or produce antibodies against them.

Saps' ability to induce a pro-inflammatory effect in the host makes them important candidates for immunotherapeutic studies. More research is needed to investigate the immune response to candida Saps in vivo. This will further enhance our knowledge for developing vaccine strategies against candida.