SIgN Immunology Seminar



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Deconstructing immune resistance and tolerance to fungi

Host
Prof Paola Castagnoli
Singapore Immunology Network, A*Star

Date
Tuesday,
6 November 2012

Time
10am – 11am

Venue
SIgN Seminar Room,
Immunos Building
Level 4
Biopolis

The ability of fungi to interact with humans in symbiotic, commensal, latent or pathogenic relationships is dependent on the ability to survive within the human host environment. The capacity to successfully survive and proliferate in specific microniches via exploitation of the available resources may have provided fungi with training grounds for rapid adaptation to many hostile environments. However, although invading fungi must contend with extreme abiotic stresses, the host immune system is often considered the primary obstacle to fungal colonization. In the case of commensals, such as *Candida albicans*, the constant intertwining with the mammalian immune mechanisms would predict a contingency-based system during co-evolution to guarantee persistence in an inflammatory host environment. This implies that fungi themselves might possess specialized systems that in turn sense and respond to host immune activation. Recent progress in our understanding of how fungal signaling circuits operate molecularly in sensing environmental factors suggests that this process is much more complex than previously appreciated. It appears that fungi have evolved a means of sensing host innate immunity to ensure their own persistence in an immunologically dynamic environment in which a three-way interaction between host, fungi, and microbiota dictates the types of host-fungus relationship.