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**MICROBIOLOGY & MOLECULAR GENETICS**

**Departmental Journal Club**

**MICR 6120**

**Monday**

**September 19th, 2016**

11:30am-12:20pm

RM 122 Classroom Bldg.

Presented by

Rawan Eleshy

PHD Student

Title:    The absence of microbiota delays the inflammatory response to Cryptococcus gattii

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The inflammatory response plays a crucial role in infectious diseases, and the intestinal microbiota islinked to maturation of the immune system. However, the association between microbiota and theresponse against fungal infections has not been elucidated. Our aim was to evaluate the influence of micro-biota on Cryptococcus gattii infection. Germ-free (GF), conventional (CV), conventionalized (CVN—micethat received feces from conventional animals), and LPS-stimulated mice were infected with C. gattii.GF mice were more susceptible to infection, showing lower survival, higher fungal burden in the lungsand brain, increased behavioral changes, reduced levels of IFN- \_, IL-1 \_ and IL-17, and lower NF \_Bp65phosphorylation compared to CV mice. Low expression of inflammatory cytokines was associated withsmaller yeast cells and polysaccharide capsules (the main virulence factor of C. gattii) in the lungs, andless tissue damage. Furthermore, macrophages from GF mice showed reduced ability to engulf, produceROS, and kill C. gattii. Restoration of microbiota (CVN mice) or LPS administration made GF mice moreresponsive to infection, which was associated with increased survival and higher levels of inflammatorymediators. This study is the first to demonstrate the influence of microbiota in the host response againstC. gattii