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## Recent Prizes in Mycology

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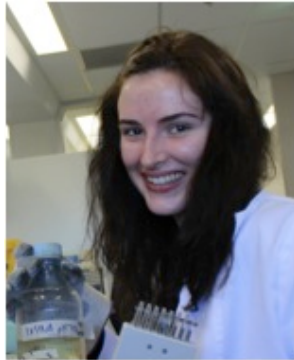
### AMS 2013 Student Prize (Awarded at the AMS Scientific Meeting, Adelaide, 10-12 July)

**The Jack Warcup prize is awarded to the student member giving the best presentation on their research.**

#### Christine Dwyer, School of Molecular Bioscience, University of Sydney.

Virulence-related phenotypic traits of *Cryptococcus gattii* genotypes. C. Dwyer, L. Campbell, D. Carter

Christine commenced a Bachelor of Medical Science (Microbiology, Immunology) at Sydney University in 2010. She was first introduced to research during an advanced 3rd year project when she worked with *Cryptococcus* in Dee Carter's lab. She enjoyed it so much she decided to stay on for



her honours year. Christine's project involves investigating major virulence related-phenotypes in *Cryptococcus gattii*. *C. gattii* is a yeast pathogen capable of causing pulmonary and cerebral infection. Epidemiological studies indicate it has a complex genetic structure with four major molecular genotypes globally, designated VGI, VGII, VGIII and VGIV. Christine is investigating how these vary with respect to certain virulence properties. Her conference presentation primarily focused on the polysaccharide capsule, which is the major virulence factor of *C. gattii*. Mutants without a capsule are avirulent, and capsule size increases dramatically during infection. Christine showed capsule size induced in vitro differed significantly between the *C. gattii* genotypes. Interestingly VGII, considered a more virulent genotype as it has been found to cause outbreaks, had a significantly smaller induced capsule than VGI and VGIV. The largest capsule was seen in the VGI genotype. This was contrary to expectations and, suggests capsule may reduce infectivity and/or virulence. In addition a large proportion of VGIII

isolates showed an elongated, irregular morphological phenotype, similar to phenotypes associated with cell wall defects. Christine also investigated temperature tolerance, finding VGII to be the most thermal tolerant, VGI second, VGIII third and VGIV the least thermal tolerant. She will complete her honours project by investigating the extent of capsule shedding by *C. gattii*, and by examining the cytokine profiles of macrophages infected with the different *C. gattii*. Her findings will improve our knowledge of how virulence factors influence the pathogenicity of *Cryptococcus*.

After finishing her honour year Christine hopes to continue work with medically important fungi, either as a clinician or researcher. She is undecided which at the moment, however, one thing she does know is that *Cryptococcus* is her number 1 fungus!