

Testing the Importance of a Possible mRNA Transport Protein for Hyphal Growth in the Pathogenic Fungus *Candida albicans*

Avione Williams, Class of 2020

Candida albicans is a common fungus that lives in humans and can lead to disease in people with compromised immune systems. *C. albicans* has two major forms known as spherical yeast cells and elongated filamentous hyphal cells (Sudbury 2011). The yeast form allows *C. albicans* to travel in the hosts' bloodstream. The hyphal form expresses protein at the hyphal tip that aids in host cell attachment and host-tissue invasion (Sudbury 2011). In the hyphal form, proteins are concentrated at the hyphal tip through mRNA transport. She3 is the major transport protein acting in this system. She3 moves messenger RNA from the mother cell to an extended and invasive "hypha" (Elson et al, 2009). Messenger RNA (mRNA) carries a copy of the genetic information for a specific protein of interest. This She3 complex is then transported to the hyphal tip to begin the production of select proteins important for hyphal function and virulence (Elson et al, 2009). By understanding the mRNA transport system, including other proteins that work with She3, we can understand how these proteins contribute to the formation of *C.albicans* invasive hyphal tip.

A study showed the deletion of She3 led to hyphal defects and reduction in invasive growth which suggests that the She3-mediated transport system impacts the filamentation of *C.albicans* (Elson et al, 2009). Previously, the McBride lab purified SHE3 and identified proteins bound that copurified with SHE3 (Pholcharee et al., 2018) One of the

References