

My project this summer focused on locating the protein Pin3 in the opportunistic fungal pathogen *Coccidioides immitis* in order to elucidate Pin3's function in

to a more virulent, elongated hyphal form¹. In baker's yeast, a related organism, Pin3 induces protein aggregations, which may be helpful to the cell under stress conditions. We wanted to see whether Pin3 might perform a similar role in *C. immitis* and whether its location in the cell could impact this role. A previous member of the McBride lab found that Pin3 notably co-purifies with the protein *slr1-mut*². We were curious if this mutant protein and Pin3 would be localized similarly. Fluorescence microscopy was used to visualize the

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to GFP-tagged Pin3 protein in transformed *C. immitis* cells. Pin3 was expected to be located toward the budding tip of the hyphae, as seen in baker's yeast³. After confirming localization of Pin3-GFP, we observed that Pin3-GFP localization was similar to *slr1-mut* localization. Fluorescence

produced at normal levels, it tends to be dispersed throughout the cytoplasm (Fig.2). In cells with and without Pin3-GFP, *slr1-mut* was observed in the nucleus, though the tagged protein appeared brighter in cells without fluorescent Pin3 (Fig.3), meaning *slr1-mut* may be more concentrated in those cells. These results were consistent with localization observed in hyphal-form cells, with Pin3 being observed in bright foci at the hyphal tip in *C. immitis* and *slr1-mut* (Figs4) at similar levels.

1. Ariyachet C., Solis N.V., Liu Y., Prasadarao N.V., Filler S.G., McBride A.E. SR-like RNA-binding protein Slr1 affects filamentation and virulence. . 2013 Apr; (4), 1267-76. doi: 10.1128/IAI.00864-12. Epub 2013 Feb 4. PMID: 23381995; PMCID: PMC3639594.

2,4. Pholcharee T. Exploring mechanisms of mRNA localization through the identification of RNA-binding protein complexes in the pathogenic fungus [Honors Paper for the Department of Biology]. Brunswick, ME: Bowdoin College; 2018. u
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