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Validating Origins of Replication in Candida albicans

Candida albicans is an opportunistic fungal pathogen that causes the disease candidiasis. Almost everyone carries *C. albicans* in their gastrointestinal tract and on their skin as part of their natural flora. If the immune system is weakened or competing flora eliminated, *C. albicans* can infect host tissues.
Three sequences have been described to function as autonomously replicating sequences, or ARSs, in *Candida albicans*. ARSs are specific sequences that allow an extrachromosmal element, such as a plasmid to be replicated independently of genomic DNA. None of the current ARSs are capable of maintaining a plasmid without high rates of integration. Additionally, these ARS sequences have not been shown to function as origins of replication, or ORIs in the *Candida albicans* genome. ORIs are specific sequences of DNA where replication initiates. If the ARSs are true ORIs, a replication bubble will be present during S-phase when the chromosomal DNA is replicated. This project utilizes two-dimensional agarose gel electrophoresis along with Southern blotting to detect the presence of replication bubbles in the known *C. albicans* ARSs and at certain locations in the genome predicted to function as ORIs. Successful detection of an ORI will be useful for creating non-integrative plasmids for *Candida albicans.*

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