Identifying calcium signaling mechanisms in a human fungal pathogen

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Video Byte

Keywords: Candida, C. albicans, Candida albicans, yeast, Crz1, transcription, calcium, signaling, cell biology, eukaryotes, stress, infectious disease, candidiasis

Posted Date: February 14th, 2020

DOI: <https://doi.org/10.21203/rs.2.23783/v1>

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Abstract

Calcium signaling is critical to cellular processes in a wide variety of cells, making it important for human health and disease. Now, researchers have uncovered one of the mechanisms underlying this process in a pathogenic fungus. *Candida albicans* is one of the most important human yeast pathogens, causing illness in immunocompromised patients. In yeasts and lower eukaryotes, calcium signaling is tightly regulated by the transcription factor Crz1, which travels to the nucleus following calcium stress. *C. albicans* genes contain potential Crz1-binding motifs, but Crz1 binding has not been shown in the laboratory. Using new RNA sequencing technology, researchers discovered a novel consensus binding motif in the promoters of Crz1 target genes. They also identified hundreds of genes that are controlled by Crz1 and uncovered a potential mechanism whereby Crz1 regulates its own transcription. Further understanding this critical signaling process in yeasts will help to target these pathways in human infectious disease.