Candida albicans Hap43 domains are required under iron starvation but not excess.

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Details

Abstract

Iron availability is a central factor in infections, since iron is a critical micronutrient for all living organisms. The host employs both iron limitation and toxicity strategies to control microbial growth, and successful pathogens are able to tightly coordinate iron homeostasis in response to changing iron levels. As a commensal and opportunistic pathogen, Candida albicans copes with both iron deficiency and excess via the precise regulation of iron acquisition, consumption and storage. The C. albicans transcription factor Hap43 is known to be required for the iron starvation response, while specific domains of its ortholog, HapX, in Aspergillus fumigatus, were recently shown to regulate iron uptake and consumptions genes under both low and high iron levels. Therefore, we investigated the contribution of C. albicans Hap43 domains in response to changing iron levels. We found the C-terminus of Hap43 to be essential for the activation of iron uptake genes during iron starvation, whereas, in contrast to A. fumigatus, Hap43 was not required in mediating adaptation to iron resistance. These data indicate that the generally conserved metal acquisition systems in fungal pathogens can show individual adaptations to the host environment.

Involved units

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