

FUNCTIONAL CHARACTERIZATION OF THE *ASPERGILLUS FUMIGATUS* PHO80 HOMOLOGUE

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Aspergillus fumigatus is an aggressive opportunistic pathogen of humans. Environmental sensing and retrieval of nutrients from the environment are metabolic traits associated with growth of this fungus in inhospitable environments. Inorganic phosphate is one of the essential nutrients for all organisms required in most metabolic processes. Its homeostasis is regulated by a signaling pathway (PHO), which upon expression allows a cellular response and adaptation to changes in availability of phosphate. Here, we report the molecular characterization of the *A. fumigatus* cyclin *phoA*^{PHO80}. The $\Delta phoA$ ^{PHO80} strain showed delayed radial growth in both complete and minimal media. The mutant strain also presented delayed nuclear division kinetics and defects in polarized growth. Acid phosphatase activity assays revealed that the mutant strain presents greater enzyme activity in comparison to the wild type strain in the same growth conditions. Microarray hybridizations comparing the mutant and the wild type strains after 6 and 10 hours growth revealed several putative genes involved in phosphate acquisition as more expressed in the mutant. The $\Delta phoA$ ^{PHO80} mutant also showed significantly reduced virulence in the *Galleria mellonella* model system ($p < 0.001$). These results indicate that the *phoA*^{PHO80} is involved in the regulation of the PHO pathway and virulence in *A. fumigatus*. Financial support by FAPESP and CNPq, Brazil.