Characterization of an ecto-phosphatase activity in *Candida albicans.*

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Epidemiological studies have shown an increasing incidence of bloodstream infection by yeasts of the genus *Candida,* given their colonization ability and opportunism and the therapeutic challenges arising from the development of resistance to some antifungal agents. In this context, Candida *albicans* is the species most frequently found in clinical samples. Ecto-enzymes have been described in other fungal cells as well as the relation of these enzymes with virulence. This work proposes the characterization of an ecto-phosphatase activity present in living cells of *C. albicans* which are able to hydrolyze the artificial substrate *p*-nitrophenylphosphate (*p*-NPP). Intact yeasts hydrolyzed *p*-NPP at a rate of 6,02 ± 0,31 nmol *p*-NP/ h x 10^7 cells and the enzymatic activity was increased with the cell density variation. A finding compatible with an acid phosphatase was detected when activity was decreased at alkaline pH range and inhibited in a dose-dependent manner by classical inhibitors of this kind of enzymes, such as sodium orthovanadate 0,3 ± 0,03 mM, sodium fluoride 1,67 ± 0,03 mM and ammonium molybdate 0,024 ± 0,001 mM. The inhibition of enzyme activity caused by sodium orthovanadate (1mM) has been shown to be irreversible. This activity was also inhibited in a dose dependent manner by exogenous inorganic phosphate (Pi). The influence of divalent metal ions was verified. According to results, the addition of EGTA, a quelant of metals, was not capable to modulate the ecto-phosphatase activity. On the other hand, the activity was remarkably stimulated by $MgCl_2$. Taken together, our findings suggest an ecto-phosphatase activity on *C. albicans* surface.

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