**H\(^+\) Transport and Auxin Signaling during *Yarrowia lipolytica* Morphogenesis**

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The transition from yeast-to-hypha is a determinant of pathogenicity and virulence of several fungi. Different effectors involved in the dimorphic transition have been described including the carbon and nitrogen source, serum and extracellular pH. In the present study we used the non-conventional yeast *Yarrowia lipolytica* to determine how auxin influences dimorphic transition. We show that low concentrations of auxin and its precursor, tryptophan (10 pM and 40 µg/mL, respectively), stimulated the morphogenesis. An inhibitor of auxin signaling, PCIB, and auxin transport inhibitor TIBA (both at 100 µM) reduced the filamentation by 2.5-fold. The activity of plasmalemma H\(^+\)-ATPase were examined as a component of auxin-signaling cascade. Cells grown in the presence of auxin/tryptophan exhibited stimulation of H\(^+\) transport by 2-fold while PCIB exposure caused a 3-fold reduction. These data indicate an existence of the auxin-dependent activation of plasma membrane H\(^+\) pump underlying cell elongation and hyphal development. We also observed the changes in ambient pH in the presence of IAA/Trp and PCIB, correlating the transition with the concomitant alkalinization. It has been demonstrated that polyamines are involved in auxin transport. In fact, 0.1-1 mM of spermine was found to be a strong regulator of *Y. lipolytica* filamentation. We further analyzed the effect of MAPK inhibitor and an intermediate in the PKA pathway, cAMP. MAPK inhibitor diminished (100 µM) the dimorphic transition by ~2-fold while cAMP (25 mM) stimulated the hyphae formation by 1.5-fold. These data provide some insights into the signaling pathways triggered by IAA.

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