

Sugar-Induced Activation of Plasma Membrane ATPase from *Saccharomyces cerevisiae*: The Roles Played by Yvc1p and Calcium Carriers.

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The plasma membrane H⁺-ATPase of *Saccharomyces cerevisiae* is a very important enzyme, regulated at post-translational level by two main factors: sugars and acid pH. Furthermore, by pumping protons out of the cell, it contributes for the control of the intracellular pH and it also creates an electrochemical gradient that is essential for nutrient uptake. Previous work from our lab demonstrated that the sugar-induced activation of plasma membrane H⁺-ATPase in *Saccharomyces cerevisiae* is dependent of calcium metabolism. In this work, we measured the TECC (transient elevation of cytosolic calcium) response in different mutants and the profile of response was compared with the levels of activation of the H⁺-ATPase. Our results suggest that calcium signaling, and consequently the sugar-induced activation of plasma membrane ATPase, is independent of the activity of the proteins claimed to be involved in calcium uptake in yeast cells. Finally, by using a yeast strain presenting a deletion of gene *YVC1*, that codify for a channel that release calcium from the vacuole to the cytosol, we demonstrated that in spite of the fact that an internal IP₃ receptor has not been identified up to now in yeast cells, this channel is essential for the sugar induced-activation of the enzyme. Our results point out for the existence of a connection between IP₃ and Yvc1 p activity.

Palavras-chave: yeast, glucose, calcium and ATPase.

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