

## DO YEAST Ca<sup>2+</sup>-ATPases TRANSPORT Mn<sup>2+</sup>?

Silva F.E.; Ribeiro C.C.; Okorokova-Façanha A.L.; Okorokov L.A.

Lab. de Fisiologia e Bioquímica de Microrganismos, CBB, Universidade Estadual do Norte Fluminense Darcy Ribeiro, Campos dos Goytacazes-RJ, Brasil.

It is widely accepted that the yeast/fungi PMR1 ATPase of Golgi can transport both Ca<sup>2+</sup> and Mn<sup>2+</sup>. We therefore asked whether other Ca<sup>2+</sup> pumps of the yeast secretory pathway could transport Mn<sup>2+</sup>. To this end we have verified the effect of Mn<sup>2+</sup> on the <sup>45</sup>Ca<sup>2+</sup> uptake by membranes of wild type *Saccharomyces cerevisiae* yeast AA-255 and X-2180. Surprisingly, Ca<sup>2+</sup> uptake by total membranes of both strains was not effected by 10-50 fold higher concentration of Mn<sup>2+</sup> than Ca<sup>2+</sup>. Calcium pumps of membrane vesicles derived from different compartments of secretory pathway (endoplasmic reticulum, vacuoles and plasma membrane) and separated in sucrose density gradient also did not present sensitivity to 10 fold higher level of Mn<sup>2+</sup>. Only the Golgi membranes showed weak inhibition of Ca<sup>2+</sup> uptake, up to 15%, by 10-fold higher concentration of Mn<sup>2+</sup>. Since our experiments were carried out with 1 μM of free Ca<sup>2+</sup> which is at least 10 fold lower of its physiological concentration and since the physiological concentration of free Mn<sup>2+</sup> is even less we conclude that *in vivo* the Ca<sup>2+</sup> pumps of the yeast secretory pathway do not transport Mn<sup>2+</sup> at normal conditions.

Key words: yeast, secretory pathway, Ca<sup>2+</sup>-ATPases, manganese. Supported by CAPES, CNPq, FAPERJ.