Introduction. *Aspergillus fumigatus* is a saprophytic fungus and a major opportunistic pathogen in immunosuppressed patients. Mitochondrial activity has great importance in fungus germination and development of host disease. Mitochondria of *A. fumigatus* possess classical and alternative electron transport chain. In addition, it presents a nicotinamide adenine dinucleotide carrier (Ndt1). NAD⁺ and its derivatives have a central role in cellular energy metabolism. Entrance of NAD⁺/NADH from cytosol into mitochondria has been assigned as a form of microorganism resistance to hostile conditions. The aim of this study was to express *A. fumigatus* Ndt1 protein in *S. cerevisiae*, evaluate whether this protein would affect levels of reactive oxygen production (ROS) and determine its subcellular localization in the yeast.

Methods. The constructed *pYES2/ndt1* was used to transform a *S. cerevisiae Δndt1 Δndt2* strain. After induction of expression of Ndt1 protein in *S. cerevisiae*, we checked the ROS production. Spheroplasts were subjected to labeling with two fluorescent dyes: CM-H₂DCFDA and *MitoSox Red*. We also evaluated a carbonylated proteins levels after reaction with dinitrophenylhydrazone and western-blot using anti-DNP antibody. To confirm the cellular localization of the Ndt1 protein, spheroplasts of *S. cerevisiae* were subjected to confocal microscopy using fluorescent probes *MitoTracker®*, anti-Ndt1 and Alexa Fluor® 488 and DAPI. Results. Both experiments for determination of ROS production showed no significant difference between the strain expressing Ndt1 protein and control strain. No significant difference in carbonylated proteins levels was found in mitochondrial fraction derived from transformed and control strains. Confocal microscopy evidenced the co-location of Ndt1 protein with mitochondria in *S. cerevisiae*. The same profile was not observed in control strain. Conclusions. In this study we determined the cellular localization of Ndt1 protein in *S. cerevisiae* by confocal microscopy and verified that its expression do not increase ROS production.

Key words: mitochondria; NAD⁺/NADH carrier and metabolism.

Supported by FAPESP, CNPq and CAPES.