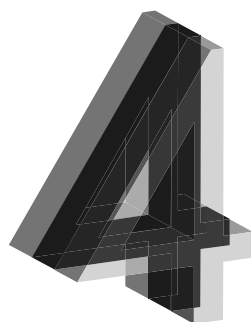


4<sup>TH</sup> MEETING OF  
MEDICINAL  
BIOTECHNOLOGY

BOOK OF  
**ABSTRACTS**



4<sup>TH</sup> MEETING OF  
MEDICINAL  
BIOTECHNOLOGY

17 DE MAIO DE 2019


ESCOLA SUPERIOR DE SAÚDE  
POLITÉCNICO DO PORTO





# 4<sup>TH</sup> MEETING OF MEDICINAL BIOTECHNOLOGY

## **ORGANIZING COMMITTEE**



Ana Rita Costa  
Ana Rita Dias  
Cristina Prudêncio  
Cristina Borges  
Dulce Teixeira  
Joana Almeida  
Mónica Vieira  
Pedro Coelho  
Ricardo Ferraz  
Sofia Cunha

## **SCIENTIFIC COMMITTEE**



Cristina Prudêncio  
Mónica Vieira  
Pedro Coelho  
Ricardo Ferraz



## Modulation of oxidative stress with Vitamin E in *Sacharomyces cerevisiae*

ALVES M.<sup>1</sup>; CUNHA, S.<sup>2</sup>; COSTA, A.<sup>2</sup>; NASCIMENTO, A.<sup>3</sup>; VIEIRA, M.<sup>2,4</sup>; PRUDÊNCIO, C.<sup>2,4</sup>

1 - Mestrado Bioquímica em Saúde, ESS-P.PORTO

2 - Ciências Químicas e das Biomoléculas, CISA, ESS-P.PORTO

3 - Biomatemática, Bioestatística e Bioinformática, ESS-P.PORTO 4 - i3S, Universidade do Porto

Neurodegenerative diseases, such as Parkinson's Disease or Alzheimer's Disease, are characterized by the death of a subset of neurons over long periods of time. These age-related diseases are becoming more prevalent with the generalized increase of life expectancy and have been linked by many authors with increased oxidative stress levels. Indeed, oxidative stress effects can be accounted as cumulative damage, which associates well with the delayed onset and progressive nature of these conditions. Moreover, various results on life extension research strongly support the hypothesis that enhancing the cell protective systems against oxidative stress can extend life span. In view of this, the present study aimed at evaluating the role of the antioxidant  $\alpha$ -tocopherol (vitamin E) on induced oxidative stress conditions.  $\alpha$ -tocopherol (vitamin E) was chosen for its principal role in scavenging lipid peroxy radicals, at lipoproteins and cell membranes, hence breaking the chain of lipid peroxidation initiated by ROS. The toxic effect of hydrogen peroxide ( $H_2O_2$ ) and the antioxidant role of vitamin E were investigated using *Saccharomyces cerevisiae* as a model for cell viability. A High-Performance Liquid Chromatography analysis was also performed to assess 3-nitrotyrosine and GSH/GSSG production levels, due to their relevance as oxidative stress biomarkers. Altogether, the results presented here demonstrated that  $H_2O_2$  exposure decreased yeast cells viability equally, independent of dose, and that the adverse effects were, at least, partially rescued by the combined exposure with vitamin E. The results from redox biomarkers were, however, shown to be inconclusive. This preliminary study helped to understand the dual nature of vitamin E, under the conditions tested. However, future studies should be able to further explore vitamin E antioxidant role in pathological models of neurodegenerative diseases.

**Keywords:** neurodegenerative diseases, oxidative stress, *S. cerevisiae*, vitamin E.