DHEA reduces the palmitate-induced apoptosis in L6 myotubes

Vitor Felitti, Gabriela Moreira, Caio Jordão, Carla R. Carvalho

Department of physiology & biophysics Biomedical Sciences Institute University of São Paulo

Introduction

Dehydroepiandrosterone (DHEA) and its sulfated form (DHEAS) are the most abundant steroid in humans, produced mainly by the adrenal cortex, converted to androgens and estrogens in peripheral tissues by tissue-specific steroidogenic enzymes.

There are experimental evidences indicating DHEA anti-obesity, anti-inflammatory, and anti-oxidative effects in cell lines, animal models, and human.

Objectives

The aim of this study was analyze the protective effect of DHEA in the skeletal muscle cell line, L6 myotubes, treated with palmitate toward the AKT, mTORC1/p70S6k, and ATF4/GADD34 pathways.

Methods

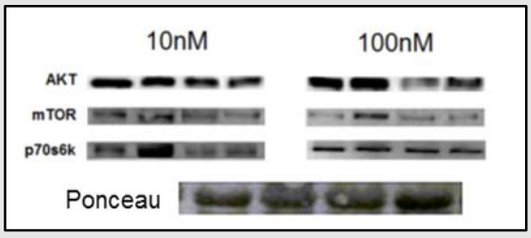
Differenciated L6 myotubes were incubated with DHEA10nM or 100nM for 36 hours plus 0.5mM palmitate incubation for the last 12h.

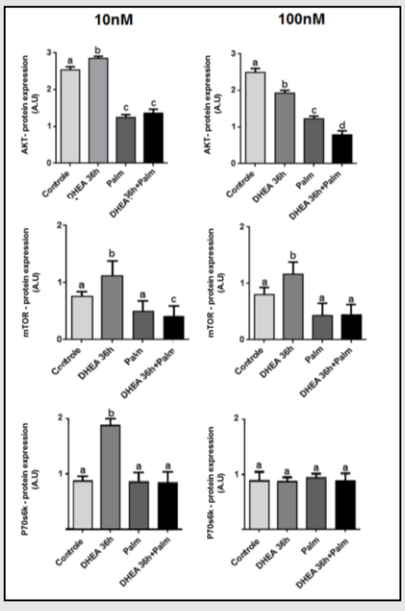
The samples were used for typical immunoblotting with antibodies against the mentioned proteins above, and morphological analysis of cell death.

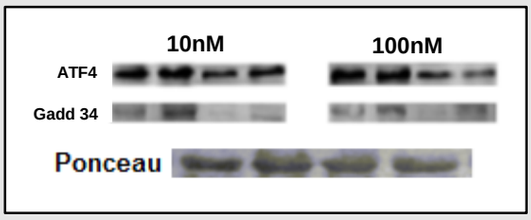
Data are represented as mean±error.

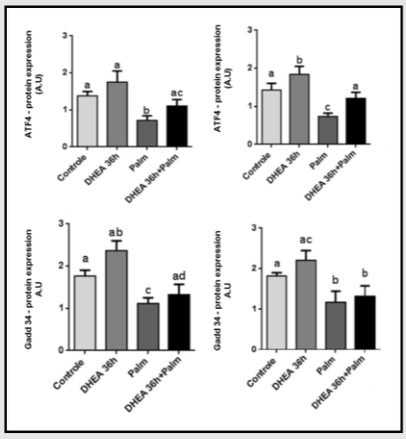
Statistical analyzes were performed using one-way ANOVA ($p<0.05$).

Results

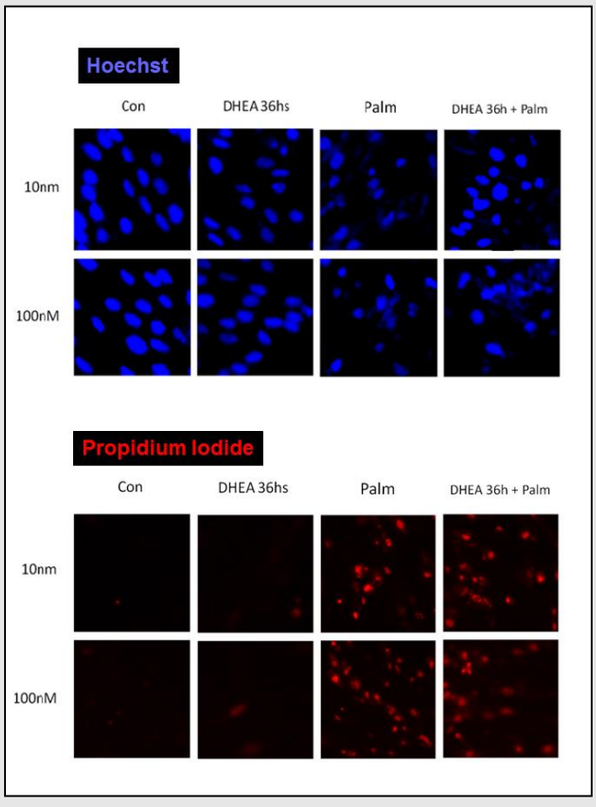








Morphological analysis of cell death



Conclusion

The physiological DHEA concentration was able to increase the expression of proteins involved in the both protein synthesis and UPR pathways.

It was also able to have a protective effect upon lipotoxicity.

Acknowledgment

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