

## IN VITRO BISPHENOL A EFFECT ON TFAM AND SIRT1 GENE EXPRESSION IN PORCINE OOCYTE MITOCHONDRIA

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### Abstract

Mitochondria are the main cellular organelle responsible for energy production, having an essential role in maintaining cellular homeostasis. In this study, the gene expression of *TFAM* (Transcription Factor A Mitochondrial) and *SIRT1* (Silent Information Regulator) in sow oocytes cultured in vitro was assessed using the RT-qPCR reaction. The primers were tailored after our own design. The groups were: V1 (matured oocytes, control group), V2 (matured oocytes with hormones), V3 (medium supplemented with Bisphenol A), V4 (medium supplemented with Bisphenol A and hormones). Our findings reveal a reduction in *SIRT1* activity following maturation in all experimental groups, while *TFAM* activity displayed more elevated levels, seemingly independent of the *SIRT1* gene expression. The highest values of gene expression for *TFAM* and *SIRT1* were obtained in V2 (supplemented with FSH and LH, - 0.277 and 0.010) and V4 (FSH, LH and bisphenol A - 0.272 and 0.015) without significant differences ( $p=0.941$ ). Bisphenol A alone generated low values, presumably due to its endocrine disruptor action. We concluded that FSH/LH addition might rescue some of the *TFAM* expression during bisphenol treatment, but the mechanism might be independent of *SIRT1*.

**Key words:** sow oocyte mitochondria, *TFAM* and *SIRT1* expression, bisphenol A

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