

## **Expression of genes influencing the calcium oscillation in pig oocytes**

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The aim of this study was to observe the changes in the expression of four genes SERCA2 (NM\_213865.1), Orai2 (FD639141.1), STIM2 (BP167477) and STX5 (BP159925) in different development stages of the pig oocytes.

We collected the oocytes with the follicular fluid. The in vitro maturation took 44 hours in TCM completed with LH, FSH and EGF. The GV stage oocytes were used right after collection, the MI stage after 22 hours and MII phase after 44 hours of maturation.

The experiments were carried out 3 times with all groups and repeated the RT-PCR twice. 93 GV, 92 MI and 92 MII oocytes in the first, 70 of each group in the second and 80 in the third experiment were used. After mRNA extraction the transcribed cDNA was used for the RT-PCR reaction containing the primers for the four genes, a control gene and a negative control.

With the help of Delta Delta Ct method we compared our genes to a control gene: YWHAG (C094522). The statistical analyzes was carried out with the help of SAS program (Tukey's Test).

The expression of two observed genes (Orai2 and STX5) reduced significantly ( $p < 0,05$ ). SERCA2 and STIM2 did not change significantly.

The reduction of the expression of STX5 is necessary as its protein bounds to polycistin-2 and blocks the  $Ca^{2+}$  flow through the ER membrane.

The protein of SERCA2 is an important molecule of other membrane transport processes so the expression of its gene should be constant.

The proper ratio of STIM2 and Orai2 is essential of the  $Ca^{2+}$  oscillation in the oocytes so if the expression of Orai2 reduces STIM2 should stay at the same level.

This project was supported by TAMOP 4.2.1/B