

## Ovarian Surface Epithelium Receptors during Pregnancy and Estrus Cycle of Rats with Emphasis on Steroids and Gonadotropins Fluctuation

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**Abstract :** The present study is designed to demonstrate the Ovarian Surface Epithelial cells (OSE) Estrogen Receptor  $\alpha$  (ER $\alpha$ ) and Progesterone Receptor (PR) during pregnancy and estrous cycle in rat. Moreover, determination of the levels of plasma progesterone, estradiol, FSH and LH were also made. The levels of plasma progesterone, estradiol, FSH and LH concentrations were determined on days 7 (n=5), 14 (n=5), and 21(n=5) of pregnancy in three groups of rats and during the estrous cycle (n=5) using ELISA kit. Immunohistochemical method for PR and ER $\alpha$  expression was also made on the ovary. During pregnancy, FSH and LH remained low except at term when LH levels began to increase from 16 ng/ml to 47 ng/ml. Progesterone levels significantly exceeded estradiol values in all pregnant rats with a peak value of 202 ng/ml on day 14. Elevated progesterone levels were associated negatively with LH and estradiol levels during pregnancy. The levels of estradiol surged significantly on day 21. Immunohistochemistry of the ovary showed low levels of OSE cells staining positive for ER $\alpha$  expression. ER $\alpha$  positive cells were absent on day 7 and 14 of pregnancy, only day 21 recorded a very low percentage of immunostaining (0.5%) within the nuclei of OSE cells. On the contrary, immunostaining of PR was not observed within the nuclei of OSE cells in all groups of study. In conclusions, these results may suggest that progesterone effect during pregnancy seems to be overriding the positive effect of estrogens on OSE cells. High progesterone levels may have a direct negative effect on gonadotropin production and thereby it might inhibit events leading to both follicular development and OSE proliferation. Understanding the factors affecting OSE proliferation may help elucidating the mechanism(s) of assisted diseases such as ovarian cancer.

**Keywords :** ovarian surface, pregnancy, gonadotropins, steroids

**Conference Title :** ICCMB 2014 : International Conference on Cellular and Molecular Bioengineering

**Conference Location :** Osaka, Japan

**Conference Dates :** October 12-13, 2014