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Natriuretic peptide type C (NPPC) activation of the guanylyl cyclase-linked natriuretic peptide receptor 2 (NPR2) maintains oocyte meiotic arrest. Luteinizing hormone (LH)-dependent epidermal growth factor (EGF) receptor signaling elevates calcium of cumulus cells to inactivate NPR2, resulting in meiotic resumption. This study investigated the regulatory mechanism of calcium on NPR2 inactivation. In mouse ovarian follicles, LH, through the activation of EGF receptor, significantly elevated calcium levels in cumulus cells, but decreased the binding affinity of NPR2 for NPPC. In cultured cumulus-oocyte complexes (COCs), the activation of EGF receptor by EGF mobilized intracellular calcium of cumulus cells to decrease NPR2 affinity and cyclic guanosine monophosphate (cGMP) levels, resulting in meiotic resumption. However, hormone treatments had not changed NPR2 protein levels. In addition, the removal of magnesium ions from the medium decreased the binding affinity of NPR2 for NPPC, resulting in cGMP levels decrease and meiotic resumption. It is concluded that magnesium ions are required to maintain functional NPR2, and LH-dependent EGF receptor signaling mobilizes intracellular calcium of cumulus cells to reduce NPPC-NPR2 interaction that is required for meiotic resumption.

Key words: Epidermal growth factor; Calcium; Natriuretic peptide receptor 2; Affinity

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P8-8: Changes in Sexual Behavior of Orchidectomized Rats under Influence of Allograft Transplantation of Testicular Interstitial Cell Suspension

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Transplantation of hormone producing cells is an experimental endocrine dysfunction treatment. The

present study investigated the effects of orchidectomy and transplantation of interstitial cell suspension (ICS) on the parameters of rat sexual behavior. Adult experimental animals were divided into two populations. One of these populations had sexual experience before the experiment, another did not have one. Each population was divided into three groups: control group and two orchidectomized groups. One of the orchidectomized groups was treated with transplantation of ICS, another one was sham operated. The changes in the sexual behavior were investigated on the following parameters: mount latency (ML), intromission latency (IL), ejaculation latency (EL), mount frequency (MF), intromission frequency (MF), copulatory efficacy (CE) and IF/EL ratio. The investigation of the change in the parameters lasted four weeks after ICS transplantation. The seminal vesicles of each group were weighed at the end of the experiment. The parameters of the sexual behavior reflected a decrease in sexual function after orchidectomy at the beginning of the observation, especially for the animals that did not have a sexual experience. However, it was shown that sexual activity increased in the following 4 weeks. We have indicated that the loss of gonads attenuated the capacity to the acquisition of sexual experience. Although it did not mean that the animals did not have the capacity. Transplantation of ICS facilitated the maintenance of male sexual behavior after orchidectomy and fractionally enlarged the size of regressed seminal vesicles of the animals. Thus, the transplantation of ICS can have a positive effect on the restoration of the sexual behavior after orchidectomy. Due to these facts, the ICS can be considered as a temporal source of androgens, which facilitates a restoration of sexual activity.

Keywords: sexual behavior, androgen level, orchidectomy, testis transplantation

P8-9: NBCn1 represents a novel mechanism for HCO_3^- absorption in endometrial epithelium

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