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Steroidal Regulation of Galectin-1 Gene Expression in the Adult Ovariectomized Mouse Uterus

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Galectin-1(gal-1) is involved in intercellular recognition and/or extracellular matrix mediation and plays a role in cell differentiation or maintenance of tissue architecture. The expression pattern of gal-1 in reproductive organs and its functional role during peri-implantation development remain to be explored. In the present study, we examined the steroidal regulation of gal-1 gene expression in mouse uterus. Gal-1 mRNA is very abundant in uterine tissue (100pg/1ug total RNA) of diestrus stage as determined by competitive reverse-transcriptase polymerase chain reaction. Gal-1 mRNA levels also varied with estrous cycle stages. A single or coinjection of 17β-estradiol(100ng) and progesterone(1mg) to ovariectomized(>10days) mice evidently increased gal-1 mRNA levels in uterus. Administration of RU486(a potent progesterone receptor antagonist) clearly down-regulates progesterone-induced gal-1 mRNA level, whereas administration of LY117018 or tamoxifen(a potent estrogen receptor antagonists) failed to do so. When the normal operative window of implantation was delayed by way of ovariectomy in the morning of day 4 (vaginal plug=day 0) prior to preimplantation estrogen secretion, gal-1 mRNA levels were sustained low and then substantially increased about 7 times 18hr after the windows was open by acute 17β-estradiol. This expression pattern was parallel with embryonic implantation schedule in normal physiological state. In summary, gal-1 expression is regulated by gonadal steroid milieu and may participate in embryonic implantation process.

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Differentiation of Male Accessory Sex Glands during Posteclosion Period in *Drosophila melanogaster*

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Male accessory sex glands of *Drosophila melanogaster* consists of accessory gland (paragonia), ejaculatory duct, and ejaculatory bulb. Products of these glands are transferred to female and mediate stereotyped physiological and behavioral changes in the mated female. But the details of differentiation of the glands during the early stage of adult life were not elucidated. This study was aimed to elucidate morphological and biochemical changes of the accessory glands during posteclosion period. On the other hand, transcriptional activities in the paragonial cells were genetically analyzed using P-element mediated enhancer detector line (EDL)s. Organization of main- and secondary cells into circle shaped cluster becomes evident in the paragonia during posteclosion period. It accompanied changes of protein profile and increase of protein quantities of luminal fluid and gland tissue. Merocrine and apocrine secretion were observed in the paragonia and the ejaculatory bulb, respectively. Mating increased protein synthesis by 3.3 folds in the paragonia and ejaculatory duct. *LacZ* expression in some of paragonia-EDLs was increased during posteclosion period and after mating. Differentiation of paragonia may be related with sexual maturation of male fly.