

P1. Evidence that melatonin increases inhibin beta-A and follistatin gene expression pinealectomized rat ovaries

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CONTEXT. Melatonin, a pineal secretory product, is known to be associated with the modulation of circadian rhythms of many biological and seasonal reproductive functions.

It also plays important role in the regulation of ovarian function, including the maturation of oocytes indifferent mammalian species. Although many studies indicate that melatonin has an impact on the function of cells in various ovary cells, its mechanism of action is not clearly understood. **OBJECTIVE.** Our aim was to analyze the expression of genes related to steroidogenesis in the ovary of pinealectomized rats. **METHODS.** Forty-five female rats were randomly distributed between three groups: Group 1 (GSh), Sham operated Controls receiving vehicle; Group 2 (GPx), pinealectomized animal receiving vehicle; and Group 3 (GPxMe), pinealectomized animals receiving replacement melatonin (1.0 mg/kg body weight /night per animal) for 60 consecutive days. After treatment, the ovaries were collected for cDNA microarray analyses using Gene Chip to examine changes expression of gene expression by qRT-PCR and immunohistochemical analyses. **RESULTS.** Treatment with melatonin resulted in the upregulation of inhibin beta A and follistatin genes in the ovarian tissue of GPxMe Group compared to those of GSh and GPx Groups. These findings were than confirmed by analyzing the expression of inhibin beta-A and follistatin mRNA by qRT-PCR. Similarly, immunohistochemical analyses revealed higher immunoreactivity of inhibin beta-A and follistatin in GPxMe Groups in the follicular cells compared to GSh and GPx groups. **CONCLUSIONS.** In conclusion, melatonin increases the expression of inhibin beta-A and follistatin in the ovaries of pinealectomized female rats.

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