

LUTEINIZING HORMONE INCREASES PROTEIN C INHIBITOR GENE EXPRESSION IN HUMAN LUTEAL-GRANULOSA CELLS

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Introduction: Protein C inhibitor (PCI) is a member of the serine protease inhibitor (serpin) family that inactivates serine proteases by forming stable, enzymatically inactive 1:1 enzyme inhibitor complexes. PCI was originally described in plasma as an inhibitor of the anticoagulant serine protease activated protein C. In general, PCI seems to be synthesized in most epithelia, however, the function is completely unknown at the moment. The aim of this study was to investigate if luteinizing hormone (LH) or FSH regulates the gene expressions of Protease nexin-1 (PN-1) and PN-1 in human granulosa cells.

Methods: Human luteal-granulosa cells were obtained in 18 women undergoing IVF treatment. The cultured human luteal-granulosa cells were treated with or without recombinant LH or FSH. After culture for 48 hours, the transcript levels of PN-1 and PCI gene with LH or FSH treatment were compared with culture without LH or FSH (control group).

Results: The data of real-time RT PCR showed that the levels of PCI messenger RNA (mRNA) increased significantly by 10.4-fold in the culture treated with LH compared to those of the control group. The mRNA expression levels of PN-1 in luteal-granulosa cells were also increased 2-fold after 48 hours culture with LH treatment. However, the difference was not significant.

Conclusions: Luteinizing hormone significantly increases PCI gene expression in human luteal-granulosa cells.