# Follicle-stimulating hormone activates mitogen-activated protein kinase in preneoplastic and neoplastic ovarian surface epithelial cells

戴承杰

Choi KC;Kang SK;Tai CJ;Auersperg N;Leung PC

摘要

**Abstract**

To investigate the role of FSH in ovarian cancer development, the present study examined the expression of FSH receptor (FSH-R) and the effect of FSH on proliferation of normal, preneoplastic, and neoplastic ovarian surface epithelium (OSE) cells. Recently, immortalized OSE (IOSE) cell lines, including IOSE-29 (preneoplastic) and IOSE-29EC (neoplastic), were used. Our results indicated that FSH-R mRNA was expressed and that FSH exerted a growth stimulatory effect in normal, preneoplastic, and neoplastic OSE cells. To investigate the mechanism of the growth stimulatory effect, the activation of MAPKs by FSH was examined in preneoplastic and neoplastic OSE cells. Treatment with FSH resulted in MAPK activation of IOSE-29 and IOSE-29EC cells, whereas the stimulatory effect of FSH on cellular proliferation and MAPK activation was completely abolished in the presence of PD98059, a MAPK kinase inhibitor, suggesting that the growth stimulatory effect of FSH is mediated through MAPK activationin these OSE cells. In a time-dependent study, FSH significantly increased MAPK activity at 5-10 min in IOSE-29 cells. The activated MAPK declined to the control level after 20 min in these cells. Similarly, treatment with FSH significantly induced MAPK activation after 5 min and sustained it for 60 min in IOSE-29EC cells. In addition, treatment with FSH resulted in substantial phosphorylation of Elk-1, confirming that FSH action is mediated via activation of MAPK. In conclusion, we have demonstrated that FSH-R was expressed, and FSH induced growth stimulation in normal, preneoplastic, and neoplastic OSE cells. Furthermore, treatment with FSH stimulated activation of the MAPK cascade and phosphorylated Elk-1 in neoplastic OSE cells. These results suggest that the MAPK cascade may be

involved in cellular functions such as growth stimulation in response to FSH in preneoplastic and neoplastic OSE cells.