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JOURNAL ARTICLE

Differential effects of FSH on the activities of S-adenosyl-L-methionine decarboxylase and ornithine decarboxylase in Rat sertoli cells

S. Shubhada and Y. H. Tsai
Department of Obstetrics, Gynecology and Reproductive Sciences, The University of Texas Medical School, Houston.

Follicle stimulating hormone (FSH) modulates testicular function via Sertoli cells. The effect of FSH on S-adenosyl-L-methionine decarboxylase (AdoMetDC) activity was investigated in cultured Sertoli cells isolated from 18-day-old rats. In contrast to our previous finding that FSH inhibited Sertoli cell ornithine decarboxylase (ODC) activity, FSH stimulated AdoMetDC activity 160 to 300% above the level of the control cells during the initial 2 to 6 hours of treatment. The stimulated enzyme activity declined to 20 to 30% below the control values by 12 hours of exposure to FSH, and then rebounded to 120 to 125% of control values. To determine whether or not the initial opposite effects of FSH on AdoMetDC and on ODC activities are mediated by the same mechanism, various agents which increase intracellular cAMP level were used. All agents studied stimulated Sertoli cell AdoMetDC activity at 5 hours after their inclusion while they significantly inhibited ODC activity. In the presence of FSH, the stimulatory effect of these agents on AdoMetDC was either equal to or slightly greater than that caused by FSH or either agent alone. The combination of dbcGMP with FSH or with dbcAMP resulted in a synergistic or additive effect on AdoMetDC, as well as ODC, activity. The data suggest that the action of FSH on AdoMetDC activity in Sertoli cells is also mediated through cAMP, as concluded previously for ODC activity. Regardless of the effects of FSH on both enzymes, ODC always exhibited a relatively greater activity than did AdoMetDC in cultured rat Sertoli cells.

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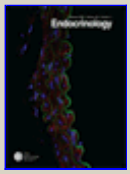

T.-H. Lai, Y.-F. Lin, F.-C. Wu, and Y.-H. Tsai
Follicle-Stimulating Hormone-Induced G{alpha}h/Phospholipase C-{delta}1 Signaling Mediating a Noncapacitative Ca2+ Influx through T-Type Ca2+ Channels in Rat Sertoli Cells
Endocrinology, March 1, 2008; 149(3): 1031 - 1037.
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A Novel Follicle-Stimulating Hormone-Induced G{alpha} h/Phospholipase C-{delta}1 Signaling Pathway Mediating Rat Sertoli Cell Ca2+-Influx

Mol. Endocrinol., October 1, 2006; 20(10): 2514 - 2527.

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