Journal of Andrology, Vol 8, Issue 6 383-387, Copyright © 1987 by The American Society of Andrology

JOURNAL ARTICLE

Inhibition of ornithine decarboxylase activity by follicle stimulating hormone in primary culture of rat Sertoli cells

R. Madhubala, S. Shubhada, A. Steinberger and Y. H. Tsai
Department of Obstetrics, Gynecology and Reproductive Sciences, University of Texas Medical School, Houston.

The effect of follicle stimulating hormone on the activity of ornithine decarboxylase (ODC) was determined in primary culture of rat Sertoli cells. Three different FSH preparations (NIH oFSH-S-15, S-16, and eFSH) inhibited ODC activity in rat Sertoli cells under different media conditions. The inhibition was both time- and dose-dependent. The mechanism of the FSH inhibitory effect was studied using dibutyryl cyclic adenosine monophosphate (dbcAMP), 1-methyl-3-isobutylxanthine (MIX), forskolin, and isoproterenol. All of these agents, known to elevate cellular cAMP levels, inhibited ODC activity in cultured rat Sertoli cells. The combined effect of each of these substances plus FSH was either greater than, or equal to, that of FSH alone, and was not additive. Dibutyryl cyclic guanosine monophosphate had no effect on the ODC activity. These findings suggest that FSH inhibition of ODC activity in the rat Sertoli cell may be mediated by cAMP.