Journal of Andrology, Vol 19, Issue 4 420-427, Copyright © 1998 by The American Society of Andrology

JOURNAL ARTICLE

FSH does not directly influence testicular macrophages

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We have previously demonstrated that conditioned medium from testicular macrophages stimulates testosterone production by Leydig cells. It was also reported that conditioned medium from macrophages treated with follicle-stimulating hormone (FSH) had an even greater amount of Leydig cell-stimulating activity than medium from untreated macrophages, indicating that this factor is under the regulation of FSH. However, most other laboratories have been unable to reproduce this effect of FSH. We have recently purified and partially characterized the stimulatory factor from macrophage-conditioned medium that stimulates Leydig cells. The purpose of the present investigation was to reinvestigate the effect of FSH by determining whether it regulates the production of this purified factor and by determining whether macrophages have mRNA for the FSH receptor. Testicular macrophages were isolated from adult rats and incubated 24 hours with human recombinant FSH (20 units/ml), ovine FSH (200 ng/ml), fetal bovine serum (2%), or dibutyryl cyclic adenosine monophosphate (1 mM). The macrophage-derived factor (MDF) was then purified from conditioned medium of the various treatment groups and added to Leydig cells. The concentration of testosterone in the Leydig cell medium was then measured after 16 hours. It was found that serum significantly stimulated production of the MDF. However, FSH had no effect on production of the MDF in the presence or absence of serum. Dibutyryl cyclic adenosine monophosphate exerted a slight inhibitory effect on production of the macrophage-derived factor. Most importantly, testicular macrophages did not express detectable levels of FSH receptor mRNA, either in vivo or in vitro, when evaluated using either in situ hybridization or northern analysis, under identical conditions that clearly demonstrated FSH receptor mRNA in Sertoli cells. We conclude that testicular macrophages are not a direct target for FSH.

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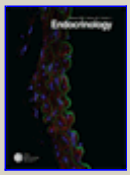

M. H. Abel, P. J. Baker, H. M. Charlton, A. Monteiro, G. Verhoeven, K. De Gendt, F. Guillou, and P. J. O'Shaughnessy
Spermatogenesis and Sertoli Cell Activity in Mice Lacking Sertoli Cell Receptors for Follicle-Stimulating Hormone and Androgen
Endocrinology, July 1, 2008; 149(7): 3279 - 3285.

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