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JOURNAL ARTICLE

Appearance of alpha-smooth muscle actin in peritubular cells of monkey testes is induced by androgens, modulated by follicle-stimulating hormone, and maintained after hormonal withdrawal

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This study analyzed the hormonal requirements necessary for the development of primate testicular peritubular cells. Alpha-smooth muscle actin, as a specific differentiation marker for peritubular cells, was immunohistochemically detected in the testes of immature rhesus and adult rhesus and cynomolgus monkeys. Positive staining was localized in the wall of blood vessels and in peritubular myoid cells of adult animals. In the testis of vehicle-treated immature monkeys no positive staining could be detected in peritubular cells. Following follicle-stimulating hormone (FSH) or testosterone treatment, immunostaining for alpha-smooth muscle actin appeared in peritubular cells of immature animals. In comparison to FSH, testosterone was more effective in inducing the differentiation of peritubular cells. The most intense label for alpha-smooth muscle actin was, however, obtained after combined treatment with FSH and testosterone. A computer-assisted image analysis system was used to evaluate semiquantitative data for the alpha-smooth muscle actin positive area; this confirmed a significantly higher expression of alpha-smooth muscle actin in peritubular cells of immature monkeys after treatment with testosterone plus FSH in comparison to controls. These data present evidence that the differentiation of primate peritubular cells during pubertal sexual development is a hormone-dependent process, which may be predominantly regulated by androgens. FSH exerted additive effects on the androgen-induced differentiation of peritubular cells, suggesting that paracrine communication between peritubular cells and Sertoli cells existed. Maintenance of peritubular cell differentiation after withdrawal of hormonal stimuli in adult monkeys may be a possible explanation for different hormonal requirements during reinitiation of spermatogenesis after testicular involution.

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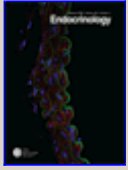
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Endocrinology, July 1, 2007; 148(7): 3185 - 3195.

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M. Welsh, P. T. K. Saunders, N. I. Marchetti, and R. M. Sharpe
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and Their Perturbation by Flutamide

Endocrinology, October 1, 2006; 147(10): 4820 - 4830.

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E. Denolet, K. De Gendt, J. Allemeersch, K. Engelen, K. Marchal, P. Van
Hummelen, K. A. L. Tan, R. M. Sharpe, P. T. K. Saunders, J. V. Swinnen,
et al.

The Effect of a Sertoli Cell-Selective Knockout of the Androgen
Receptor on Testicular Gene Expression in Prepubertal Mice

Mol. Endocrinol., February 1, 2006; 20(2): 321 - 334.

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S. Schlatt, A. Honaramooz, J. Ehmcke, P.J. Goebell, H. Rubben, R. Dhir, I.
Dobrinski, and P. Patrizio

Limited survival of adult human testicular tissue as ectopic
xenograft

Hum. Reprod., February 1, 2006; 21(2): 384 - 389.

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K. Koga, Y. Osuga, T. Yano, Y. Ikezuki, O. Yoshino, Y. Hirota, T. Hirata, S.
Horie, T. Ayabe, O. Tsutsumi, *et al.*

Evidence for the Presence of Angiogenin in Human Testis

J Androl, May 1, 2004; 25(3): 369 - 374.

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utero exposure of the rat to dibutyl phthalate

Hum. Reprod., July 1, 2003; 18(7): 1383 - 1394.

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L. D. Russell

Cimetidine (Tagamet) Is a Reproductive Toxicant in Male Rats
Affecting Peritubular Cells

Biol Reprod, November 1, 2000; 63(5): 1403 - 1412.

[\[Abstract\]](#) [\[Full Text\]](#)



T. Z. Kahsai, G. C. Enders, S. Gunwar, C. Brunmark, J. Wieslander, R. Kalluri, J. Zhou, M. E. Noelken, and B. G. Hudson
Seminiferous Tubule Basement Membrane. COMPOSITION AND ORGANIZATION OF TYPE IV COLLAGEN CHAINS, AND THE LINKAGE OF alpha 3(IV) AND alpha 5(IV) CHAINS
J. Biol. Chem., July 4, 1997; 272(27): 17023 - 17032.
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