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JOURNAL ARTICLE

Expression of apolipoprotein E mRNA in the epithelium and interstitium of the testis and the epididymis

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Apolipoprotein E (apo E) is an important constituent of plasma lipoproteins and is believed to be involved in the regulation of lipid transport and distribution between tissues. The production of this apolipoprotein in extra-hepatic tissues such as the testis and epididymis could facilitate specific local functions. Apo E mRNA was detected in testis, epididymis, seminal vesicles, and prostate. In the epididymis, apo E was detected using in situ hybridization in epithelial cells and in some cells in the interstitium throughout the organ (i.e., caput, corpus, and cauda). Northern blot analysis showed that apo E mRNA is present in Sertoli cells and germ cells, but not peritubular myoid cells. Interstitial cells of the testis displayed the most intense signal for apo E message using in situ hybridization. Messenger RNA for apo E was also detected in the interstitium of rat testes at 3 and 6 days after animals were treated with ethylene dimethanesulfonate (EDS) to eliminate Leydig cells. Thus, in addition to Leydig cells, other cell types within the interstitium are capable of producing apo E message. Levels of testicular apo E mRNA increased between 30 and 60 days pc during which the germ cell population is increasing. As determined by northern blot analysis of RNA from stage synchronized testes, the levels of apo E mRNA fluctuate in relation to the cycle of the seminiferous epithelium. The cells responsible for this stage-specific variation in message could not be identified by in situ hybridization. Apolipoprotein AI (apo AI) mRNA was also found to be expressed in the epididymis but not in the testis of adult rats. The role of apolipoproteins in spermatogenesis and sperm maturation has not been elucidated. The results of this study demonstrate the specific tissues and cells types which play a role in the production and possible regulation of apo E mRNA in the male reproductive tract. These data will help in the elucidation of the function of apo E in spermatogenesis and sperm maturation.

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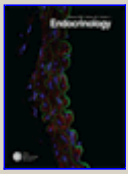
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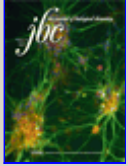
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