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JOURNAL ARTICLE

Localization of cellular retinol-binding protein and cellular retinoic acid-binding protein in the rat testis and epididymis

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The distribution of cellular retinol-binding protein (CRBP) and cellular retinoic acid-binding protein (CRABP) in rat testis and epididymis was examined by the peroxidase-antiperoxidase immunolocalization technique. In the testis, cellular retinol-binding protein was localized exclusively in the Sertoli cells. Staining varied with the stages of the seminiferous epithelium cycle and was maximal prior to the maturation divisions. Cellular retinoic acid-binding protein was localized exclusively in the germinal cells in the adluminal compartment. The results suggest that retinoic acid may be the retinoid form used by the germinal cells, and that Sertoli cells may use the cellular retinol-binding protein to transfer retinol from the basal to the adluminal compartment. In the epididymis, cellular retinol-binding protein was localized in the cytoplasm and stereocilia of the principal cells in the proximal caput epididymidis, while cellular retinoic acid-binding protein was localized in the spermatozoa and the stereocilia of the principal cells throughout the epididymis and in the epithelial cells of the distal vas deferens. Sperm staining intensity decreased from the initial segment to the cauda. The presence of high levels of cellular retinol-binding protein in the epithelial cells and high levels of cellular retinoic acid-binding protein in the spermatozoa of the caput epididymidis, known to be involved in the synthesis and secretion of factors necessary for sperm maturation, suggests that vitamin A may have a role in this process.