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JOURNAL ARTICLE

Stage and region-specific localization of lipocalin-type prostaglandin D synthase in the adult murine testis and epididymis

R. L. Gerena, N. Eguchi, Y. Urade and G. J. Killian
Department of Dairy and Animal Science, J.O. Almquist Research Center,
Pennsylvania State University, University Park 16802, USA.

Lipocalin-type prostaglandin D synthase in semen has been associated with male fertility, although this relationship is not well defined. To gain insight into potential mechanisms, the objective of the present study was to immunocytochemically localize lipocalin-type prostaglandin D synthase within the testis, efferent ducts, and 4 segments of mouse epididymis. In the testis, immunoperoxidase staining was localized within the Sertoli cells only at stages VI-VIII of the spermatogenic cycle, which is just prior to spermiation. Intense staining was also evident throughout the interstitial tissue, including Leydig cells. The entire epithelium of the efferent ducts, including ciliated and nonciliated cells, was immunoreactive. A distinct pattern of immunostaining for lipocalin-type prostaglandin D synthase was observed in different regions of epididymis, suggesting a possible role in sperm maturation. Staining for lipocalin-type prostaglandin D synthase was strikingly absent in the initial segment. In caput epididymidis, staining was evident throughout the cell cytoplasm of principal cells with some cells more intensely stained than adjacent ones. In the corpus region, overall staining intensity decreased and appeared to be concentrated in the apical region of principal cells, but some cells were completely unreactive. Reaction product in the cauda region was heavily concentrated on microvilli and within the epididymal lumen. In all epididymal regions, expression of lipocalin-type prostaglandin D synthase was specific to epithelial principal cells; no immunoreactivity was apparent in other cell types. The specific localization of lipocalin-type prostaglandin D synthase within the testicular interstitial tissue, Sertoli cells, and principal cells of caput epididymidis strongly suggests that this protein plays an integral role in both the development and maturation of sperm.

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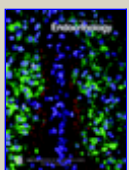


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Gene and Protein Expression in the Epididymis of Infertile c-ros
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