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Comparative C_{19}-Radiosteroid Metabolism in Primary Monolayer Cultures of Epithelial Cells and Fibroblasts from Rat Ventral Prostate, Canine Prostate, and Rat Lung

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Stromal-epithelial cell interactions may be important for the regulation of normal and abnormal prostatic growth. While androgen transformation by rat ventral prostate and canine prostate has been investigated *in vivo* and in organ culture, little is known about metabolic pathways in cultures of epithelial cells and fibroblasts. Metabolism of radioisotope-labeled 17β-hydroxy C_{19}-steroids was studied in primary cultures of highly-enriched rat ventral prostate and canine prostate epithelial cells and fibroblasts isolated by selectiveattachment procedures. The fibroblasts contained little testosterone 5α-reductase in contrast to high activity in epithelial cells. We found high levels of 5α-androstane-3α,17β-diol (3α-diol) dehydrogenase and the terminal 5α-androstane-3β,17β-diol (3β-diol) hydroxylases in both cell types; 3α-diol was a more effective precursor of 5α-dihydrotestosterone than was testosterone. For prostatic fibroblasts these pathways seem to be differentiated functions, since rat-lung fibroblasts converted 3β-diol to 5α-dihydrotestosterone and 3αdiol. We conclude that epithelial cells and fibroblasts make interactive contributions to prostatic androgen metabolism.

Key words: rat ventral prostate, canine prostate, epithelial cells, fibroblasts, primary cell culture, testosterone 5α-reductase, 3α-hydroxysteroid oxidoreductase, 3β-hydroxy 5α-C_{19}-steroid hydroxylases

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