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## JOURNAL ARTICLE

# Development of male urogenital epithelia elicited by soluble mesenchymal factors

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Androgen-dependent development of male secondary sexual glands is mediated by paracrine mesenchymal-epithelial interactions that regulate a complex array of biological events such as epithelial morphogenesis, growth, and cytodifferentiation. It is not known whether the action of mesenchyme on epithelial development in the male genital tract requires cell-cell contact or whether soluble, diffusible mediators are involved. To examine paracrine effects of urogenital sinus mesenchyme (UGM) on epithelial development, conditioned media (CM) from embryonic mouse UGM of normal (wild-type) and androgen-insensitive Tfm (testicular feminization) mice were tested for growth and morphogenetic effects on heterotypic tissue recombinants composed of rat or mouse bladder mesenchyme plus neonatal mouse seminal vesicle epithelium (BLM+SVE) or rat or mouse bladder mesenchyme plus neonatal mouse bulbourethral gland epithelium (BLM+BUG-E). Addition of a concentrate of CM from wild-type UGM grown in the presence of dihydrotestosterone (DHT) induced epithelial growth and complex epithelial morphogenesis in BLM+SVE recombinants, whereas CM from DHT-treated Tfm UGM or a saline control were without effect. CM from wild-type UGM elicited similar trophic effects in BLM+BUG-E recombinants, but in addition induced precocious mucous epithelial differentiation in BLM+BUG-E recombinants. These results suggest that the normally androgen-dependent epithelial growth and branching morphogenesis in developing male urogenital organs is elicited by soluble mesenchymal factors. Two-dimensional gel electrophoresis of proteins synthesized and secreted by wild-type UGM revealed several androgen-dependent proteins with molecular weights of approximately 30 kDa that are absent in CM of Tfm UGM either in the presence or absence of DHT. (ABSTRACT TRUNCATED AT 250 WORDS)

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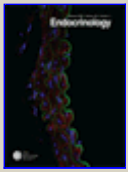


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