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JOURNAL ARTICLE

Stereological evaluation of mouse prostate development

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A stereological study of the development of the mouse prostate was undertaken between the second week of postnatal life and maturity. The aim was to quantify the progressive changes in the size and areal density of the ventral prostate gland components during development. Male mice were studied at weekly intervals from days of life 15 to 49 for organ and body weights, ductal branching, diameters of ventral prostate ducts and lumen and volume densities of epithelium, lumen, and stroma. Ductal branch-tip numbers were maximal at 35 days of age, while prostate weights increased linearly with age and did not reach a plateau at 49 days. Prostatic glandular and luminal diameters both showed a continuous increase until day 49. At 5 weeks of age, there was a decrease in the volume density of prostatic epithelium accompanied by a simultaneous increase in the volume density of the lumen. This study indicates that prostate-branching morphogenesis is complete by the fifth week in mice but that further growth of the prostate continues due to the increase in ductal dimensions. Qualitatively, the ventral prostate in mice is fully mature by 5 weeks, and this histological maturity coincides with the completion of branching morphogenesis.

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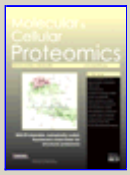

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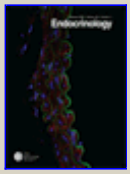

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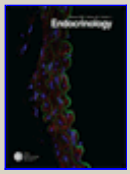

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