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Histological analysis for local effects of porcine relaxin on mammary parenchyma

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This study was to determine the histological characteristics of pig mammary gland by local administration of purified porcine relaxin. Three cycling cross-bred gilts were bilaterally ovariectomized on day 0 of the experiment. Beginning on day 15 and continuing through day 29 post-surgery, the gilt received an im. injection of estradiol benzoate at 12-hr intervals. Beginning on day 22 post-surgery, highly purified porcine relaxin was administered (1ug/hr) into the left fourth mammary gland from the anterior end via miniature osmotic pump. Physiological saline was administered to the right fourth mammary gland. The gilt was sacrificed on day 29 post-surgery and histological characteristics of the mammary parenchyma were examined. The mammary glands treated locally with saline showed little, if any, lobulo-alveolar development, whereas the mammary glands treated with relaxin showed not only marked lobulo-alveolar development but also prominent secretions in the alveoli. The saline-treated glands was characterized by relatively dense and highly organized collagen fiber bundles. Whereas, in the relaxin-treated mammary glands, collagen fiber bundles were dispersed and loosely organized. In conclusion, relaxin may act directly on the pig mammary gland to promote development of the alveoli and remodeling of the extracellular matrix.