

RESEARCH ON LOCALIZATION AND QUANTIFICATION OF LEPTIN AND ITS LONG FORM RECEPTOR IN MOUSE MAMMARY GLAND BY LASER SCANNING CONFOCAL MICROSCOPY

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ABSTRACT: As cytokine, leptin and its long form receptor (OB-Rb) were expressed in many tissues including mammary gland. To elucidate the expression location and relative expression quantity of leptin and OB-Rb in mouse mammary gland different development stage, explore the relationship between leptin and OB-Rb expression and lactation function, mice mammary glands on virgin, pregnancy, lactation and involution were taken and frozen sections (8 μm thick) were made. The expression and localization of leptin and OB-Rb were detected by indirect immunofluorescence and laser scanning confocal microscopy. The images required were analyzed by Image Pro 5.0 Plus and the quantification of leptin and OB-Rb were represented by gray value. The results showed that in virgin and early pregnancy, leptin was detected in mammary fat pad, ductal epithelial cells and basement membrane, OB-Rb was existed in adipocytes and ductal epithelial cells. In late pregnancy and lactation, leptin was detected in acini epithelial cells near the basement membranes and extracellular matrix, OB-Rb was located on basal surface of acini. After offspring withdrew, mammary gland began involution. Leptin and OB-Rb were detected in adipocytes and ductal epithelial cells again (Figure 1). The expression variations of leptin and OB-Rb were highest in virgin, and then decreased in pregnancy. In lactation, the expression of leptin and OB-Rb were lower. After offspring withdrew, the expression of leptin and OB-Rb increased and recovered to the original level about virgin. The expression quantity of leptin was a little higher than OB-Rb in the whole development cycle. Correlative analysis showed that there was a positive correlation between the expression of leptin and OB-Rb ($r=0.941$, $P\leq 0.01$).

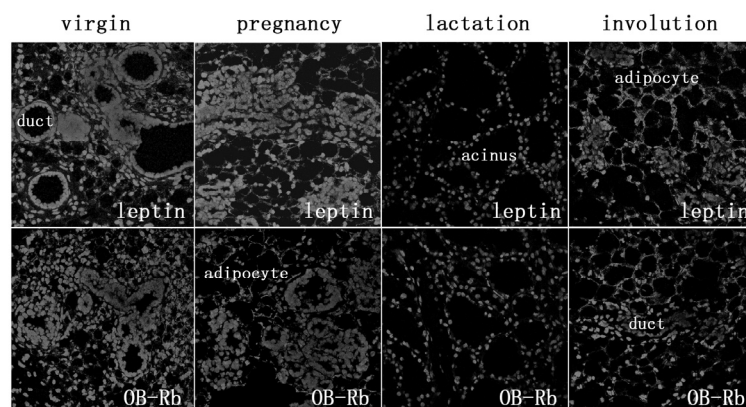


Figure 1: The expression of leptin and OB-Rb in mouse mammary gland (400 \times)

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