Lactoferrin mRNA expression in mouse mammary glands during pregnancy and lactation


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ABSTRACT. Lactoferrin (Lf) is an iron-binding glycoprotein that is produced by mucosal epithelial cells in mammals. Lf has non-immune natural defense functions and biological functions in addition to and distinct from its role in regulating inflammatory responses. Lf also improved some physiological and immunological parameters. Lf is a biomarker for monitoring medical treatment in inflammatory bowel diseases. Current LF research focuses on iron absorption, antimicrobial activity, and the modulation of iron metabolism during inflammation. No systematic research about Lf expression levels in mouse mammary glands during pregnancy and lactation exists. We investigated Lf mRNA expression levels in mouse mammary glands by collecting samples on days 1, 6, 12, and 18 of pregnancy and lactation (six mice per group). The expression levels of Lf mRNA were measured by semi-quantitative reverse transcription polymerase chain reaction using GAPDH as an internal control. Lf mRNA was not expressed in mammary glands on...
days 1, 6, and 12 of pregnancy, but it was expressed on day 18 (IOD: integrated optical density; Lf_{IOD}/GAPDH_{IOD} = 0.46). Lf expression levels were higher during lactation stages than during pregnancy stages, and it stabilized at 0.71-0.73 (Lf_{IOD}/GAPDH_{IOD}) from day 1 to 12 of lactation; however, the difference was not significant (P > 0.05). At day 18 of lactation, Lf expression began to decline (Lf_{IOD}/GAPDH_{IOD} = 0.61), but the difference was not significant (P > 0.05). Based on these results, the variation in Lf expression levels during developmental stages may be related to its regulatory role in mouse mammary gland immunity.

**Key words:** Lactoferrin; Mouse; Mammary gland; Pregnancy; Lactation