



β -casein gene expression by *in vitro* cultured bovine mammary epithelial cells derived from developing mammary glands

P.S. Monzani, F.F. Bressan, L.G. Mesquita, J.R. Sangalli and
F.V. Meirelles

Faculdade de Zootecnia e Engenharia de Alimentos da Universidade de São Paulo,
Pirassununga, SP, Brasil

Corresponding author: P.S. Monzani
E-mail: monzani.paulo@gmail.com

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ABSTRACT. Epithelial cells from mammary gland tissue that are cultured *in vitro* are able to maintain specific functions of this gland, such as cellular differentiation and milk protein synthesis. These characteristics make these cells a useful model to study mammary gland physiology, development and differentiation; they can also be used for production of exogenous proteins of pharmaceutical interest. Bovine mammary epithelial cells were cultured *in vitro* after isolation from mammary gland tissue of animals at different stages of development. The cells were plated on Petri dishes and isolated from fibroblasts using saline/EDTA treatment, followed by trypsinization. Cells isolated on plastic were capable of differentiating into alveolus-like structures; however, only cells derived from non-pregnant and non-lactating animals expressed β -casein. Real-time qPCR and epifluorescence microscopy analyses revealed that alveolus-like structures were competent at expressing Emerald green fluorescent protein (EmGFP) driven by the β -casein promoter, independent of β -casein expression.

Key words: Mammary epithelial cell; *In vitro* culture; β -casein; GFP; Cellular differentiation