

## **Quantitation of Bovine Cytokine mRNA in Milk Somatic Cells and Peripheral Blood Mononuclear Cells of Dairy Cattle with High Somatic Cell Count**

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**Purpose:** Cytokines play a critical role in the prevention or progression of diseases. The aim of this study is to survey the cytokine profiles of the cattle with high somatic cell count (SCC) in milk.

**Materials and Methods:** Cytokine genes (IL-1b, IL-4, IL-6, IL-7, IL-8, IL-10, IL-12p40, IL-13, IL-18, IFN-g, GM-CSF, TNF-b, TGF-b) and the GAPDH gene as an internal control were analysed using real-time PCR with the double-stranded DNA-binding dye SYBR Green I in milk cells and peripheral blood mononuclear cells (PBMC). PBMC of healthy dairy cow was used for calibrator.

**Results:** IL-8, IL-18, GM-CSF mRNA expressions in milk somatic cells and IL-12p40, IL-18 mRNA expressions in PBMC were increased. The cytokine mRNA expressions were different between milk somatic cells and PBMC.

**Conclusion:** This result suggests the upregulation of cell-mediated immune functions, although the mRNA expressions were different between milk somatic cells and PBMC. IFN-g is known as upregulated interferon by IL-12 and IL-18 secretions, but it was downregulated in this study. Understanding the inflammatory responses elicited in mastitis patient is fundamental to developing the specific preventive and therapeutic strategies.

Key words: bovine, cytokines, quantitation, PBMC, SCC

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