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Analysis of Porcine β-casein Gene Promoter by Site-directed Mutagenesis

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Promoters for milk proteins have been used for producing transgenic animals due to their temporal and spatial expression patterns. β-casein, a calcium-sensitive casein, is a major milk protein that corresponds *ca.* 30 *per cent* of total milk protein. Expression of β-casein is controlled by lactogenic hormones such as prolactin (PRL), composite response elements (CoREs) and transcription factors. CoREs are clusters of transcription factor binding sites containing both positive and negative regulatory elements. β-casein gene promoter contains various regions (CoREs) for gene transcription. We analyzed the promoter region by mutagenesis using exonuclease Ⅲ and linker-scanning. Transcription control elements usually are positioned in 5'-flanking region of the gene. However, in some cases, these elements are located in other regions such as intron 1. The nucleotide sequences of β-casein promoter region has been reported (E12614). However, the properties of the promoter is not yet clear. In this study, we plan to investigate the properties of *cis*-regulating elements of porcine β-casein by mutation analysis and expression analysis using dual-luciferase repoter assay system.

Key words) ***porcine beta casein promoter, linker-scanning, luciferase assay***