

## **Expression of Human Type II Collagen Regulated by 1.7 kb and/or 3.1 kb $\beta$ -Casein Promoter Sequences in Transgenic Mice**

Kenji Naruse<sup>1</sup>, Seung Kwon Yoo<sup>2</sup>, Yoon Jae Choi<sup>3</sup> and Dong Il Jin<sup>1\*</sup>

<sup>1</sup>*Research Center for Transgenic and Cloned Pigs,  
Chungnam National University*

<sup>2</sup>*Division of Biotechnology and Genetic Engineering, Korea University*

<sup>3</sup>*Department of Animal Science & Technology, Seoul National University*

To analyze the ability of 1.7 kb or 3.1 kb bovine  $\beta$ -casein promoter sequences for the expression regulation of transgene *in vivo*, transgenic mice were produced with human type II collagen gene fused with 1.7 kb and 3.1 kb of bovine  $\beta$ -casein promoter by DNA microinjection in this experiment. When mRNA expression of human type II collagen gene was analyzed in lactating transgenic females by RT-PCR and Northern blot analysis, the level of transgene mRNA in mammary gland of the transgenic mice was not significantly different between the 1.7kb and 3.1kb promoter sequences but tissue-wide leaking of expressions occurred in 1.7kb promoter lines. And Western blot analysis of the transgenic milk showed more type II collagen milk in p3.1kb transgenic mice than in p1.7kb transgenic mice. Thus, 3.1kb bovine  $\beta$ -casein promoter direct a high-level expression of reporter gene to the lactating mammary glands of transgenic mice in a tissue-specific manner.

Key words) *bovine  $\beta$ -casein promoter; transgenic mice; gene expression; mouse milk; human type II collagen gene*