(05-1-52)

# Expression of human serum albumin (HSA) in transgenic tobacco chloroplasts

**Hyun Chul Kim, Je Wook Woo, Jang Ryol Liu[1] and Suk Min Ko***

Eugentech Inc. 52-Oun Dong, Yusung, Dajeon 305-333, Korea

1 Korea Research Institute of Bioscience and Biotechnology (KRIBB), Dajeon 305-333, Korea

## Objectives

This study attempts to develop an efficient system of recombinant HSA production with the chloroplast genetic engineering of tobacco.

## Materials and Methods

1. Material

Plant *Nicotiana tabacum* L. cv. Samsun

2. Methods

Particle bombardment, Genomic PCR, Southern/Northern/Western blot assay

## Results and Discussion

Human Serum Albumin (HSA), which is the most abundant protein in blood serum, is the most widely used intravenous protein in a number of human therapies. However, HSA is currently extracted only from human plasma because of the lack of commercially feasible recombinant expression system.

This study attempts to develop an efficient system of recombinant HSA production with vectors introduced various expression regulatory sequences. Northern and western blot assays revealed that hyper-expression and increasing stability of recombinant proteins were achieved by modification of regulatory sequences using the *psb*5'UTRs in combination with the sequence for the 14 N-terminal amino acids of GFP and FLAG tag. In contrast, without either of these elements, recombinant proteins were not accumulated in the tobacco chloroplast. FLAG tag sequence introduced in vectors will be able to facilitate purification of recombinant HSA proteins from chloroplast transgenic tobacco.

* *Corresponding author* : Suk Min Ko, TEL: 042-863-2051, E-mail: smko@eugentech.com