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## Functional analysis of gmwi33 encoding soyasaponin biosyntheses in soybean

Seon-Young Chung, Kee-Young Kim, Hye-jeong Lee, Chang-Woo Cho, In-Su Kim, Seong-Whan Park and Jai-Heon Lee\*

Faculty of Natural Resources and Life Science, Dong-A University

### Introduction

Saponins have been found to possess many biological properties, including hypocholesterolemic, immune-stimulatory, and anti-tumorigenic activity. Aglycons of soyasaponins are derivatives of  $\beta$ -amyryn, a kind of triterpene. In this study, gmwi33 encoding soyasaponin biosyntheses is investigated.

### Materials and Methods

Materials : Plant - *Glycin max* cv. sinpaldal2; for SSH, 3~4 weeks-old plants; for northern blotting, 5 day-old, dark grown seedlings were used.

Methods : Wounding treatment: punching all expanded leaves by 2-3 holes; SSH; RACE; southern blot; northern blot analysis; fluorescence in situ hybridization

### Results and discussions

From SSH clones, a cDNA clone (gmwi33) showing high homology with  $\beta$ -amyryn synthases was identified. Using RACE PCR, full-length cDNA of gmwi33, designated *GmAMS1* was isolated. *GmAMS1* was 2416 bp in length and had an ORF composed of 739 amino acids. Northern analysis showed that *GmAMS1* was highly induced by light and weakly induced by methyl jasmonate

and low temperature, whereas it was not induced by elicitor or UV-B treatment (Fig. 1). Fluorescence in situ hybridization and northern blot analysis showed that soybean genome carry two copy of *GmAMS1* gene (Fig. 2).

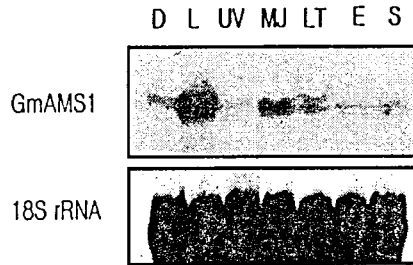


Fig. 1. Northern analysis of *GmAMS1* in dark-grown seedling.

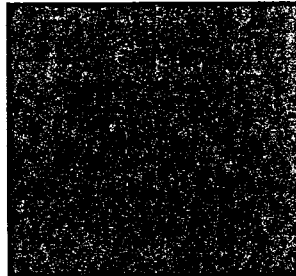


Fig. 2. Chromosome location of *GmAMS1* using FISH.

\* Corresponding author - Tel: 051-200-7592, E-mail: [jhnlee@donga.ac.kr](mailto:jhnlee@donga.ac.kr)