

# 10 Structures and Expression Patterns of Two cDNA Clones Encoding S-Adenosyl-L-Methionine Synthetase from the Root Nodule of *Elaeagnus umbellata*

Sang-ho Lee\*, and Chung-sun An

Department of Biology, Seoul National University

Two S-adenosyl-L-methionine synthetase (SAMS) cDNA clones were isolated by screening a cDNA library constructed from root nodule mRNAs of *Elaeagnus umbellata*, and their structures and expression patterns were investigated. Both SAMS had 75-84% identity at the nucleotide level and 85-95% identity at the amino acid level with the other type I plant SAMS. Genomic Southern hybridization revealed the presence of at least one additional SAMS genes, and these results are consistent with the previous notions that SAMS genes are encoded by a small gene family. RT-PCR analyses showed both SAMS genes were also expressed at high level in both leaves and roots. In root nodules, both SAMS expressions were increased during nodule development with highest level at week 6 and week 8 after inoculation, and decreased suddenly thereafter. It is the first report on SAMS genes from any root-nodule forming plants.

---

Keywords: *Elaeagnus umbellata*, S-adenosyl-L-methionine synthetase (SAMS), genomic Southern hybridization, RT-PCR, nodule development