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## Characterization of $\alpha$ -Galactosidase gene from *Leuconostoc mesenteroides* SY1

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*Leuconostoc mesenteroides* SY1, an isolate from kimchi, is able to ferment  $\alpha$ -galactosides, such as melibiose and raffinose.  $\alpha$ -galactosidase activity is higher in melibiose, and raffinose-grown cells than galactose, sucrose and fructose-grown cells.  $\alpha$ -galactosidase activity was not detected in glucose-grown cells, indicating the operation of carbon catabolite repression. SDS-PAGE analysis showed that  $\alpha$ -galactosidase of 80 kDa in size was produced when SY1 was grown on media containing melibiose and raffinose. 6 kb DNA fragment was PCR amplified by using a primer set that contained an *EcoR* I site, cloned into a pUC19, and then sequenced. Nucleotide sequencing confirmed the presence of genes involved in galactosides utilization; *galR* (transcriptional regulator), *aga* ( $\alpha$ -galactosidase), *galK* (galactokinase), and *galT* (galactose 1-phosphate). Northern blotting experiment revealed that *aga*, *galK*, *galT* formed an operon and the transcription of the operon was induced by galactosides, such as melibiose, raffinose. 2.3kb DNA fragment containing *aga* was PCR amplified by using a primer set, and then cloned into a pET26b(+). *aga* gene was overexpressed in *E.coli*BL21(DE3) harboring the recombinant plasmid when IPTG was added (1mM). SDS-PAGE confirmed the overproduction of 80 kDa  $\alpha$ -galactosidase in induced cells.