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Generation of High Throughput Expression Clone Set of Human Cancer Genes

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The 2067 multi-purpose expression clones for the 326 candidate genes related to human cancers were constructed using the Gateway system. These clones can be expressed as His, GST or EGFP fusion proteins in *E. coli*, insect cells or mammalian cells. For the 246 *E. coli* expression clones, the GST fusion proteins had greater expression efficiency and solubility than the His fusion proteins. Approximately 20% of the expressed proteins had unexpected molecular weights. A detailed sequence analysis of these clones revealed frameshift mutations resulting from insertion, deletion or substitution of nucleotides. The results indicate that these changes in the candidate genes may affect the occurrence of gastric or liver cancers. In addition, when 105 proteins, which were expressed in *E. coli* at very low or undetectable levels, were expressed in insect cells, 76% of the proteins were expressed very well and most were soluble. We also found that most of the 30 proteins prepared using EGFP mammalian expression clones were localized to cellular compartments expected by GO and this localization was unaffected if the EGFP-fusion was at the N-terminal or C-terminal region of the protein. These studies provide a valuable resource for developing a better understanding of the molecular mechanism of carcinogenesis in human cancers. This work was supported by the technology-innovation-development project of the Small and Medium Business Administration in Korea.

Key words: Highthroughput expression, human cancers, Gateway system, functional study

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In vitro Inhibition on Lipoxygenase and Acetylcholinesterase Activity of *Alnus* sp.

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In the present work, we report the results of a study at evaluating the lipoxygenase(Lox), acetylcholinesterase (AChE), activity and antioxidant activity of the solvent extracts from *Alnus* sp. The EtOAc extract of *Alnus* sp. showed the highest antioxidant activity. The plant of methanol, n-hexane, CH₂Cl₂, EtOAc and n-buOH extracts were caused concentration-dependent inhibition of soybean Lox and AChE activity. The results indicate that the extracts of *Alnus* sp. containing these compounds inhibit Lox and AChE activity. Thus, these compounds or extracts containing them may be beneficial for the treatment of inflammatory conditions and Alzheimer's disease.

Key words: *Alnus* sp., acetylcholinesterase (AChE), lipoxygenase(Lox)