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IDENTIFICATION OF PHOSPHOPROTEINS MODIFIED BY PLANT MITOGEN-ACTIVATED PROTEIN KINASES

Su-Nam Kwak, Sang-Yeol Seo and In-Soo Kim*

Division of Life Science and Biotechnology, College of Natural Science, Kyungpook National University, Daegu 702-701, South Korea

Plant growth and development continually respond to environmental stimuli, such as light, pathogens, temperature, salinity and drought. The responses are cross-talked through signal transduction pathways so as to be properly adapted to the environment by plants. In that signal transduction, MAP kinases play important roles by phosphorylating down-stream signaling components.

We cloned and expressed several MAP kinases into soluble forms that respond to the environmental stimili. The down-stream proteins that were phosphorylated by the purified MAP kinases were tentatively identified by two-dimensional gel electrophoresis, chromatographic and MALDI-TOF techniques. Possible roles of the phosphoproteins modified by the kinases in the adaptation to environmental stimuli were discussed.