

Protein Kinase Cascade Involved in Rapid ABA-signaling in Guard Cells of *Vicia faba*

Takuya Furuichi^{a,*}, Izumi C. Mori^b, and (the late) Shoshi Muto^c

^a Graduate School of Medicine, Nagoya University, Tsurumai-cho 65, Showa-ku, Nagoya 466-8550, Japan. Fax: +81(0)52-744-2058. E-mail: furuichi@med.nagoya-u.ac.jp

^b Research Institute for Biosciences, Okayama University, Kurashiki 710-0046, Japan

^c Graduate School of Agricultural Science, Nagoya University, Furo-cho, Chikusa-ku, Nagoya 464-8601, Japan

* Author for correspondence and reprint requests

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Protein kinases are involved in signal transduction for environmental stress responses. In response to drought and salinity, a 48-kDa protein kinase (AAPK; abscisic acid-activated protein kinase (AAPK) in guard cells is activated by abscisic acid (ABA) and phosphorylates several targets such as the carboxy-terminus of inward-rectifying K⁺ channel and heterogeneous mRNA binding protein to adapt to the changing environment. The AAPK expressed specifically in guard cells, and recombinant AAPK was phosphorylated only with the extract from ABA-treated guard cells but not from untreated cells. This indicates the presence of an AAPK kinase (AAPKK), which is activated by ABA and phosphorylates AAPK preceding the activation of AAPK. Both AAPK and AAPKK are involved in the protein kinase cascade for the rapid ABA-signaling.

Key words: Abscisic Acid (ABA), Protein Kinase, Kinase Cascade