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Transcriptional Regulation of the *Drosophila* p38b gene by the DRE/DREF system

Joung-Sun Park, Young-Shin Kim, So-Young Park and Mi-Ae Yoo

Department of Molecular Biology, Pusan National University,
Busan 609-735, Korea
Institute of Genetic engineering, Pusan National University

Two *Drosophila* p38 MAPKs, Dp38a and Dp38b, may be involved in insect immunity, as well as the response to environmental stresses. In the upstream region (-11 to -4 with respect to the transcription initiation site) of the Dp38b gene, we found a sequence identical to the DNA replication-related element (DRE; 5' -TATCGATA) which is commonly required for transcription of genes related to DNA replication and cell proliferation. Transient expression assays with the reporter plasmid Dp38b-*Luc* were carried out to examine the function of the DRE sequence of the Dp38b gene. Base substitution mutations resulted in an extensive reduction in the Dp38b promoter activity. Electrophoretic Mobility Shift Assay (EMSA) with monoclonal antibodies against DRE binding factor (DREF) demonstrated that the factor binding to DRE-containing fragment was DREF. Moreover stimulation of mbn cells with LPS induced a binding complex of DREF to the oligonucleotide from Dp38b. These results indicate that the Dp38b gene is under the control of a DRE/DREF system.