〔J. Biol. Chem., **267**, 9911-9916 (1992)〕 [Lab. of Biology]

Mitogen-induced Tyrosine-phosphorylated 41- and 43-kDa Proteins Are Family Members of Extracellular Signal-regulated Kinases/ Microtubule-associated Protein 2 Kinases.

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We have raised two antisera, one against the peptide 307-327 and the other against the C92 peptide of the deduced amino acid sequence of ERK1. Using these antibodies, we have clearly identified that the 41- and 43-kDa proteins, the increased tyrosine phosphorylation of which we and others had originally described in various mitogen-stimulated cells, are family members of ERKs/MAP2 kinases which are activated by phosphorylation both on tyrosine and threonine residues.

〔Biochem. Biophys. Res. Commun., **185**, 860-866 (1992)〕 [Lab. of Biology]

Hepatocyte Growth Factor Rapidly Induces the Tyrosine Phosphorylation of 41-kDa and 43-kDa Proteins in Mouse Keratinocytes.

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We have examined the hepatocyte growth factor (HGF)-mediated changes in protein-tyrosine phosphorylation in mouse keratinocytes (PAM-212) and canine kidney epithelial cells (MDCK). In PAM-212 cells HGF and epidermal growth factor, both of which stimulated the DNA synthesis, rapidly induced the tyrosine phosphorylation of two 41-kDa and two 43-kDa proteins : increased tyrosine phosphorylation of those proteins has been commonly observed when quiecsent fibroblasts are stimulated with a variety of mitogenic agents. In contrast, HGF did not stimulate the DNA synthesis but induced cell dissociation in MDCK cells.

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Biphasic Activation of Two Mitogen-activated Protein Kinases during the Cell Cycle in Mammalian Cells.

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We studied mitogen-activated protein kinase (MAPK) activities during the cell cycle of Chinese hamster ovary (CHO) cells using site-specific antibodies against extracellular signal-regulated kinase-1, a 44-kDa MAPK. These antibodies detected two distinct MAPKs (44- and 42-kDa MAPKs) in CHO cells. CHO cells were arrested at metaphase in the M phase by treatment with nocodazole, and activities of MAPKs were analysed at specific time points after release from arrest.