〔J. Clin. Biochem. Nutr., **12**, 1-7 (1992)〕 [Lab. of Molecular Biology]

Two forms of Microtuble-Associated Protein Kinase Are Commonly Involved in Signal Transduction Pathways Induced by Various Growth Factors.

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To compare MAP kinases detected in PC-12 cells with growth factor-sensitive MAP kinases in other cells, a number of tissue culture cells were treated with various growth factors such as NGF, EGF, platelet-derived growth factor (PDGF), basic fibroblast growth factor (bFGF), and endothelical cell growth factor (ECGF) ; and lysates of the cells were assayed for MAP kinase activity. Cells transfected with the NGF receptor gene (CHO-1Q) and those overexpressing the EGF receptor (A-431) had a high background level of MAP kinase activities. On the other hand, overexpression of tyrosine activities causes the down regulation and the desensitization of the growth factor responses in SR-3Y1 and trk-3T3 cells.

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Bombesin/GRP Stimulates a Protein Kinase in Swiss 3T3 Cells That phosphorylates Microtuble-Associated Protein Kinase.

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Both MAP kinases I and II were activated by bombesin/gastrin-releasing peptide (GRP) in Swiss 3T3 cells, and the peak of activation in response to GRP occured earlier than that observed with EGF. In this work, we confirmed the results reported by Bierman *et al.* (J. Cell Phys., *142*, 441-448). Since the cDNA for the bombesin/GRP receptor indicated that this receptor has a transmembrane topology like that of other G-protein-coupled receptors, an alternative signal transduction pathway may mediate the activation of MAP kinase by bombesin/GRP. The activation of two forms of MAP kinase is commonly involved in signal transduction induced by various growth factors.

〔J. Natural Toxins, **1**, 33-44 (1992)〕 [Lab. of Molecular Biology]

Solid-Phase Neurotoxin Binding Assay for Nicotinic Acetylcholine Receptor…Changes of the Binding Ability of the Receptor with Various Treatments.

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A simple and useful procedure to evaluate the activity of nicotinic acetylcholine receptor (AChR) was developed. Although the activity of AChR is useful assessed using radio-labelled neurotoxins, these methods are troublesome because of the use of isotopes. Our method is convenient in particular to examine changes of the binding activity of AChR treated with various reagents or to survey substances which inhibit α-bungarotoxin binding to AChR. In this report we examined effects of some denaturing reagents on the binding ability of the receptor and inhibition of α-bungarotoxin binding by various antisera against AChR.