• 系統編號	RC8705-0546
• 計畫中文名稱	安非他命及檳榔主成份在中樞神經的作用機制－重覆使用安非他命及檳榔後腦內之神經化學變化
• 計畫英文名稱	Neurochemical Events Mediated by Repeated Administration of Amphetamine and Areca Nut Extracts
• 主管機關	行政院國家科學委員會
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• 執行機構	台北醫學院醫事技術系
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• 研究人員	李宏謨 Lee, Horng-Mo
• 中文關鍵字	安非他命；檳榔鹼；蛋白質磷酸化；訊息傳遞；蛋白激？；神經調節蛋白
• 英文關鍵字	Amphetamine；Arecoline；Protein phosphorylation；Signal transduction；Protein kinase；Neuromodulin
• 中文摘要	查無中文摘要
• 英文摘要	1. Roles of protein kinases: (1) Effects of amphetamine administration on protein kinase C activities in cultured cortical neurons: Activation of protein kinase C activity plays an important role in mediating long term potentiation (LTP). Because amphetamine induced-behavioral sensitization can be considered as LTP we tested whether amphetamine treatment can stimulate PKC activation. We found that activation of NMDA receptors resulted in protein kinase C translocation in primary culture of cortical neurons. Interestingly, amphetamine exposure also resulted in protein kinase C translocation. (2) Effects of repeated amphetamine administration on Ca/sup 2+//calmodulin dependent protein kinase II activities: Activation of Ca/sup 2+//calmodulin dependent protein kinase II also induces LTP. We next examine the effects of amphetamine and NMDA on Ca/sup 2+//calmodulin dependent protein kinase II activities. We found that additions of either NMDA or amphetamine stimulated Ca/sup 2+//calmodulin dependent protein kinase II translocation in primary culture of cortical neurons. We are now attempting to work out whether the amphetamine effect on both PKC and Ca/sup 2+//calmodulin dependent protein kinase II can be blocked by addition of MK-801, a specific NMDA associated channel antagonist. If this is true, amphetamine may interact with NMDA receptor. 2. Gene expression patterns after repeated amphetamine administration: It is thought that long term memory required gene expression. It has also been shown that amphetamine induces immediate early gene expression in striatal neurons. In order to identified the genes that were expressed after repeated intermittent amphetamine treatment, we examined the different gene expression patterns in hippocampus and striatum between the

control rats and the amphetamine treated rats using differential display. We have identified 6 DNA fragments that were differentially expressed after intermittent repeated amphetamine treatment. We are now using northern blot analysis to verify the gene expression patterns. If the gene expression pattern can be reproduced, we will clone those genes using these PCR amplified oligonucleotide fragments as probes.