• 系統編號	RN9406-0585
• 計畫中文名稱	Vanilloid 第一型受器之內生性活化物造成肺迷走 C 纖維感覺神經敏感化之作用機轉
• 計畫英文名稱	Mechanisms Underlying Sensitization of Vagal Bronchopulmonary C-Fiber Afferents Induced by an Endogenous Activator of Vanilloid Type 1 Receptors
• 主管機關	行政院國家科學委員會
• 計畫編號	NSC92-2320-B038-023
• 執行機構	臺北醫學大學生理學科
• 本期期間	9208 ~ 9307
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• 使用語言	英文
• 研究人員	林佑穗 Lin, Y. S.
• 中文關鍵字	香草精第一類受器；肺化學反射； 敏感度
• 英文關鍵字	Vanilloid type 1 receptor; Pulmonary chemoreflex; Sensitivity
• 中文摘要	Anandamide 是種花生四烯酸的衍生物，起初被認定是 cannabinoid (CB) receptor 的內生性作用物，近來被認爲是 Vanilloid type 1 receptor (VR1 receptor)的內生性作用物。本實驗是利用麻醉的 SD 大白鼠來探討：是否 anandamide 可增加強肺化學反射。給予低劑量的 Phenyl biguanide（PBG；一種 C-fiber 的選擇性刺激物）作爲刺激時，會引發輕微的呼吸暫停和心跳及血壓下降的反應。但在 anandamide 灌注時，給予相同 劑量的 PBG，卻引發長時間的呼吸暫停，且同時伴隨著強烈的心跳減緩及血壓降低。相同地，以 adenosine 及 lactic acid 作爲刺激物所引發的肺化學反射，亦可被 anandamide 所增強。 在 VR1 receptor 的拮抗劑-capsazepine 前處理後，增強的反應則完全被阻斷；但這種阻斷的效應在 CB1 receptor 的拮抗劑-AM-281 的前處理後卻沒有出現。根據以上的結果我們推論， anandamide 可以增加肺化學反射的反應，且這反應是經由 VR1 receptor 的活化所產生。
• 英文摘要	Anandamide, an unstable arachidonate derivative, is originally identified as an endogenous ligand of cannabinoid receptor (CB) and, recently, is suggested to act as an endogenous ligand of vanilloid type 1 receptor (VR1 receptors). This study was carried out in anesthetized Sprague-Dawley rats to determine whether the pulmonary chemoreflex was altered by anandamide, Phenyl biguanide (PBG, 2-6 .mu.g/kg i.v.), a selective stimulant of C fibers, injected at a dose just above the stimulation threshold elicited a mild respiratory and cardiovascular depression. In sharp contrast, during a constant infusion of anandamide (0.5 mg/kg/min i.v.), the same dose of PBG triggered a long apnea, accompanied by intense bradycardia and hypotension. Similarly, the pulmonary chemoreflex response elicited by a bolus injection of adenosine and lactic acid was also greatly

augmented by anandamide. These enhanced responses were completely abolished, by a pretreatment of capsazepine, a selective antagonist of VR1 receptors, but not that by AM281, a selective antagonist of CB1 receptors. Based upon these results, our conclusion is that the anandamide enhances the pulmonary chemoreflex responses, this effect seems mediated through the activation of VR1 receptors.