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★当研究室の平成２８年度卒業生「國場祥太君」の研究成果が神経科学の専門誌“Neuroscience Research”に掲載されました!!!

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Systemic administration of the dietary constituent resveratrol inhibits the nociceptive jaw-opening reflex in rats *via* the endogenous opioid system

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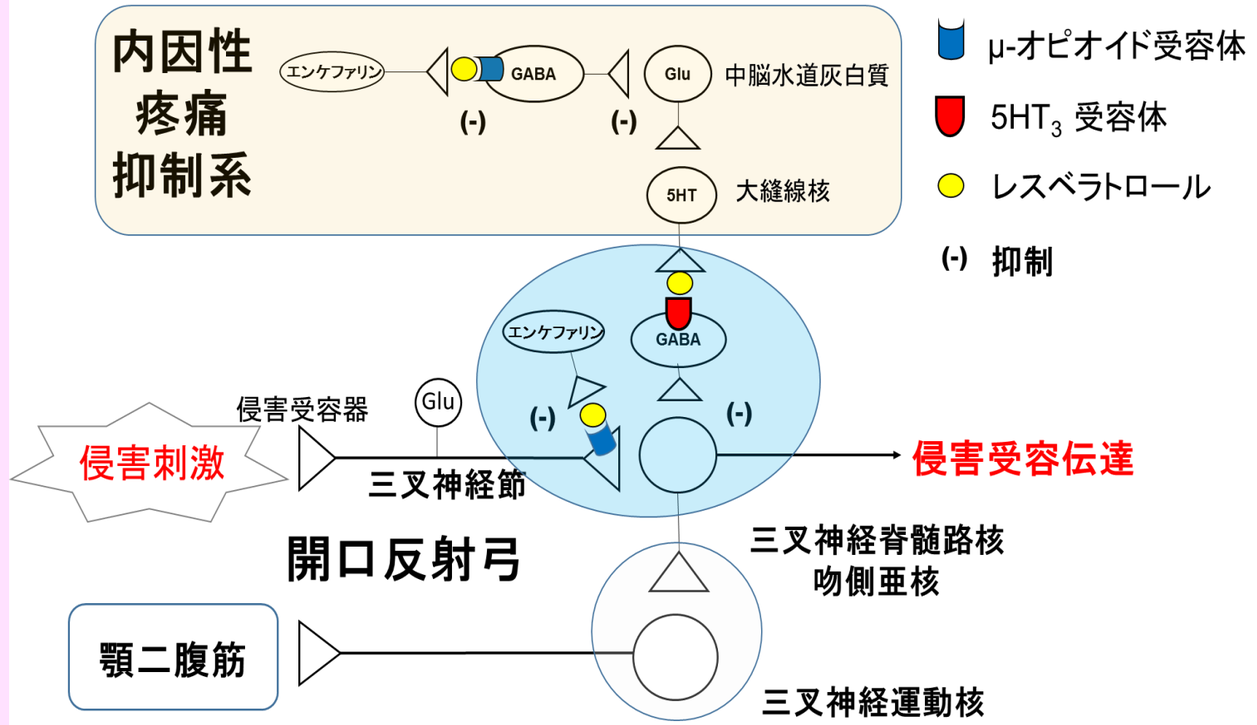
ABSTRACT

The aim of the present study was to investigate whether, under *in vivo* conditions, systemic administration of resveratrol could attenuate the rat nociceptive jaw-opening reflex (JOR) *via* the endogenous opioid system. The JOR evoked by electrical stimulation of the tongue was recorded as digastric muscle electromyograms (dEMG) in pentobarbital-anesthetized rats. The amplitude of the dEMG increased significantly in proportion to the intensity of electrical stimulation (from 1 × to 5 × threshold for the JOR). dEMG amplitude in response to 3 × threshold electrical stimulation of the tongue was dose-dependently inhibited by intravenous administration of resveratrol (0.5–2 mg/kg). Maximum inhibition of dEMG amplitude was seen within approximately 10 min. These inhibitory effects were reversible, with dEMG responses returning to control levels after approximately 20 min. Pretreatment of rats with naloxone resulted in significant, dose-dependent attenuation of the inhibitory effects of resveratrol on dEMG amplitude compared with control. These findings suggest that resveratrol inhibits the nociceptive JOR *via* the endogenous opioid system. Further, the findings of the present study strongly support the idea that resveratrol, which is not known to have any toxic side effects, combined with an opioid could be a potential therapeutic agent for the prevention of acute trigeminal nociception.

ハイライト：　赤ワインの成分で知られるレスベラトロールによる疼痛抑制効果の一部は内因性疼痛抑制系：オピオイド受容体を介して生じることが、*in vivo*の条件下において侵害受容性開口反射を用いた実験により判明しました。したがって、食品成分であるレスベラトロールはオピオイド受容体を介する鎮痛の補助する可能性が示唆され、癌性疼痛に使用されるモルヒネの副作用を軽減する薬物として補完代替医療の分野に貢献することが期待されます。

レスベラトロールの作用部位



【レスベラトロールによるオピオイド受容体を介した疼痛抑制効果発現】
（１）侵害受容性三叉神経節ニューロンのシナプス前膜のμ-オピオイド受容体に作用し、神経伝達物質グルタミン酸の放出を抑制することで三叉神経脊髄路吻側亜核ニューロンの興奮性シナプス伝達を阻害する可能性；（２）中脳水道灰白質内のμ-オピオイド受容体に作用しGABA作動性の脱抑制を介した中脳水道灰白質ニューロン活動を増加させ内因性オピオイド系を活性化する可能性；（３）GABA作動性ニューロン活動をセロトニンの受容体である5HT₃受容体に作用して三叉神経脊髄路吻側亜核ニューロンの興奮性シナプス伝達を阻害することがシナプス伝達を抑制する可能性が考えられます。