

# Author's Accepted Manuscript

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PII: S0014-2999(17)30782-3  
DOI: <http://dx.doi.org/10.1016/j.ejphar.2017.11.047>  
Reference: EJP71543

To appear in: *European Journal of Pharmacology*

Received date: 11 September 2017  
Revised date: 31 October 2017  
Accepted date: 30 November 2017

Cite this article as: Ryo Hirao, Tsugumi Fujita, Aiko Sakai and Eiichi Kumamoto, Compound action potential inhibition produced by various antidepressants in the frog sciatic nerve, *European Journal of Pharmacology* <http://dx.doi.org/10.1016/j.ejphar.2017.11.047>

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Compound action potential inhibition produced by various antidepressants  
in the frog sciatic nerve

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**ABSTRACT**

Although an inhibition of action potential conduction in nerve fibers possibly contributes to at least a part of antinociception produced by analgesics and the adjuvants, it has not been fully examined yet how the conduction inhibition differs in extent among their drugs. We investigated the effects of various antidepressants used as analgesic adjuvants on compound action potentials (CAPs) recorded from the frog sciatic nerve by using the air-gap method. The results were compared with those of the other adjuvants that were reported previously. Antidepressants, duloxetine (serotonin and noradrenaline reuptake inhibitor, SNRI), fluoxetine (selective serotonin reuptake inhibitor, SSRI), amitriptyline (tricyclic tertiary amine), desipramine (tricyclic secondary amine) and maprotiline (tetracyclic secondary amine), reduced the peak amplitude of the CAP with half-maximal inhibitory concentration ( $IC_{50}$ ) values of 0.23, 1.5, 0.26, 1.6 and 0.95 mM, respectively. Trazodone (non-SNRI, -SSRI, -tricyclic and -tetracyclic antidepressant) at 1.0 mM reduced CAP amplitude by about 50%. The duloxetine and amitriptyline values were comparable to those of lamotrigine and

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