Δ^9−Tetrahydrocannabinol Treatment Enhances the Immobility Time during the Forced Swimming Test in Mice

Shozo Chidori[1], Nobuaki Egasira[2], Tomomi Matsuda[2],
Emi Koushi[2], Hiroshi Nagai[1], Michiko Matsushita[1],
Naoki Uchida[1], Kenichi Mishima[2], Katsunori Iwasaki[2],
Michihiro Fujiwara[2] and Ryoji Nishimura[1]

[1] *Department of Psychiatry, Fukuoka University School of Medicine, Fukuoka University*
[2] *Department of Neuropharmacology, Faculty of Pharmaceutical Sciences, Fukuoka University*

Abstract : In the present study, we examined the effect of Δ^9−tetrahydrocannabinol (THC), the principal psychoactive component of marihuana, on the immobility time during the forced swimming test (FST), a test with a high predictivity of antidepressant efficacy in human depression, in mice. THC enhanced the immobility time in the FST at doses of 0.3, 1, 3, and 6 mg/kg (i.p.). On the other hand, cannabinol (CBN) and cannabidiol (CBD), the major nonpsychoactive components of marihuana, had no effect on the immobility time in the FST. Moreover, we also found that THC (6 mg/kg i.p.) had no effect on the motor function such as the locomotor activity or motor coordination in both open−field and rota−rod tests. SR141716, a CB_1 receptor antagonist, reversed the THC (6 mg/kg i.p.) induced enhancement of the immobility time in the FST at a dose of 3 mg/kg (i.p.). These findings therefore suggest that THC enhances the immobility time in the FST through CB_1 receptor.