GALANIN N-TERMİNAL FRAGMENT (1-15) MODIFIES THE 5-HT\textsubscript{1A} RECEPTOR AGONIST \([H^3]-8\text{-OH-DPAT}\) BINDING IN THE DORSAL RAPHE AND HIPPOCAMPUS OF THE RAT.


We have described that Galanin N-terminal fragment (1-15) [GAL(1-15)] is associated with depressive effects and also modulates the antidepressant effects induced by the 5-HT\textsubscript{1A} receptor (5-HT1AR) agonist 8-OH-DPAT. The aim of this study is to analyze the ability of GAL(1-15) to modulate 5-HT1AR at the autoreceptor and postsynaptic receptor level in rats by using quantitative autoradiography.

We analyzed the effect of intracerebroventricular GAL(1-15)-3nmol (n=6) or aCSF (n=6), 10 minutes, 2 and 5 hours after the injection, on the binding characteristics of the 5-HT1AR agonist \([H^3]-8\text{-OH-DPAT}\) in sections of the Dorsal Raphe (DR) and Dorsal Hippocampus, specifically CA1 and Dentate Gyrus (DG). Student’s \(t\)-test was used to compare the experimental groups.

GAL(1-15) produced a time-dependent effect on the binding of \([H^3]-8\text{-OH-DPAT}\). In CA1 and DG, a significant increase in the \(K_D\) and Bmax was observed, by 90\%(p<0.05), at 10 minutes and 2 hours after injection. However, 5 hours after GAL(1-15) the only significant change remaining was the increase in Bmax at the DG.

The coinjection of the GALR2 antagonist M871 blocked significantly the effects induced by GAL(1-15) in both areas.

In DR, 2 hours after injection GAL(1-15) only produced a decrease in the Bmax by 20\%(p<0.05).

These results indicate that GAL(1-15) interacts with 5-HT1AR at the receptor level in DR and Dorsal Hippocampus. Therapeutic strategies based on these results could be developed for the treatment of depression disorders.

This work has been supported by Junta de Andalucía CVI646 and Spanish Ministry of Economy PSI2013-44901-P.