

A Role For Galanin N-Terminal Fragment (1-15) In Anxiety And Depression in rats

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Galanin (GAL) is involved in several functions including mood regulation. The GAL N-terminal fragment (1-15) [GAL(1-15)] also participates at central level and a differential role of GAL(1-15) compared with GAL has been proposed. In this work we have analysed if GAL(1-15) contributes to depression- and anxiety-related behaviours using the forced swimming test, tail suspension test, open field and light/dark test. We tested the involvement of the GAL receptor 2 (GALR2) in GAL(1-15) effects with the GAL receptor antagonist M871 and with an in vivo model of siRNA GALR2 knockdown rats. The proximity of GALR1 and GALR2 was also examined with the proximity ligation assay (PLA). GAL(1-15) induced strong depression-like and anxiogenic-like effects in all the tests. The involvement of the GALR2 was demonstrated with M871 and with the siRNA GALR2 knockdown rats. The PLA indicated the existence of GALR1-GALR2 heteroreceptor complexes in the dorsal hippocampus and especially in the dorsal raphe nucleus. Our results indicate that GAL(1-15) exerts strong depression-related and anxiogenic-like effects and may give the basis for the development of drugs targeting GALR1-GALR2 heteroreceptor complexes in the raphe-limbic system for the treatment of depression and anxiety.

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