Lectin from *Canavalia brasiliensis* (ConBr) Modulates Neurotransmission Increasing the CREB Phosphorylation in Mice Hippocampus.

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Lectins are carbohydrate-binding proteins that may recognize glycoconjugates on cell surface regulating cell function. The brain displays a variety of receptors, ion channels and neurotransmitter transporters that are glycosylated and may interact with endogenous lectins. Nevertheless, the regulation of neural function by lectins is not well known. We demonstrated previously that ConBr, a lectin isolated from *Canavalia braziliensis* seeds, display an antidepressant-like effect in the forced swimming test in mice by a mechanism dependent of monoaminergic system activation and glutamatergic system and L-arginine-nitric oxide (NO)/cGMP pathway. In the present work it was investigated the modulation of the transcription factor CREB by ConBr. The lectin was administered centrally and after 21 min the hippocampus and frontal cortex were isolated. The total content and phosphorylation of CREB and ERK1/2 were analyzed by western blotting. The results showed that ConBr (10 µg/site, i.c.v.) stimulated significantly the CREB phosphorylation in the hippocampus without changes in the total content of the protein. This effect was similar that produced by fluoxetin (1.0 nmol/site, i.c.v.). ConBr did not modified CREB phosphorylation in frontal cortex and it did not change the activity of ERK1/2 in both regions analyzed. Therefore, ConBr may regulate the monoaminergic and glutamatergic systems and modulate the CREB activity in a manner independent of ERK1/2. Our findings indicate that lectins are interesting candidates to modulate neurotransmitters systems and signaling pathways involved in events of neuroplasticity.

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