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Poster Sessions

Antidepressant-like effect of captopril via hippocampal angiotensin (1-7) / MAS1 pathway in olfactory bulbectomized mice.

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Olfactory bulbectomized (OBX) mice shows neurochemical and behavioral changes similar to those observed in individuals with depressive disorders. Some studies indicate that renin-angiotensin system inhibitors might relieve depression, however the mechanism of action is not well understood. The present study performed a series of experiments using biochemical assays, immunohistochemistry, and behavior techniques to examine the effect and mechanism of captopril (CAP) on depressive-like behaviors in OBX mice.

We examined the neurobehavioral effects of CAP on the endophenotypes of depression such as despair in the tail-suspension test and self-care in the splash test in OBX mice. Intraperitoneal administration of CAP for one week showed antidepressant-like effects in OBX mice. Previous study revealed that CAP treatment increased angiotensin (1-7) [Ang (1-7)] levels in rat brain. OBX mice showed reduced hippocampal Ang (1-7) levels and cell proliferation. Interestingly, these changes were reversed by CAP administration. Further, antidepressant-like effect of CAP was abolished by the co-administration of an antagonist for Ang (1-7) receptor MAS1.

These results suggest that CAP-induced antidepressant-like effects may be associated with enhanced hippocampal cell proliferation via Ang (1-7) / MAS1 signaling pathway.