NMDA Receptors in Noradrenergic Neurons Regulate Tonic Activity of Locus Coeruleus and Facilitate Attentional Set-Shifting in Mice

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Inactivation of NMDA receptors caused an increase in spontaneous activity of tonically active neurons, without affecting activity of phasic (bursting) neurons in locus coeruleus.

Increased tonic activity was associated with higher impulsivity, decreased ability to discriminate signals in the go/no-go task and facilitated attentional set-shifting.

Loss of NMDA receptor-dependent signaling had no effect on locomotor activity, anxiety-like behavior or response to novelty, but decreased propensity for exploration.