

The histaminergic tuberomammillary nucleus is critical for motivated arousal

Valdés, José Luis

Sánchez, Cristián

Riveros, María Eugenia

Blandina, Patrizio

Contreras, Marco

Farías, Paula

Torrealba, Fernando

Obtaining food, shelter or water, or finding a mating partner are examples of motivated behaviors, which are essential to preserve the species. The full expression of such behaviors requires a high but optimal arousal state. We tested the idea that tuberomammillary nucleus (TMN) histamine neurons are crucial to generate such motivated arousal, using a model of the appetitive phase of feeding behavior. Hungry rats enticed with food within a wire mesh box showed intense goal-directed motor activity aimed at opening the box, an increase in core temperature, a fast histamine release in the hypothalamus and an early increase in Fos immunoreactivity in TMN and cortical neurons. Enticing with stronger-tasting food induced stronger motor, temperature and Fos immunoreactivity brain responses than ordinary food pellets. TMN lesion greatly decreased all of those responses. We conclude that histamine neurons increase arousal and vegetative activity, allowing the normal unfolding of voluntary, goal