



Circadian regulation of daily rhythms in orexinergic neurons in diurnal and nocturnal rodents [

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text (article)

Analítica

The work presented here focuses on the differential regulation of circadian rhythmicity by the central nervous systems of the diurnal *Arvicanthis niloticus* (or grass rat) and the nocturnal *Rattus norvegicus* (or lab rat). In grass rats, neurons expressing orexin (ORX) showed a significant daily endogenous rhythm in the expression of Fos that correlated with the rhythm in sleep and wakefulness, and was reversed when compared to that seen in lab rats. In grass rats ORX-positive neurons received substantial projections from vasoactive intestinal polypeptide (VIP) neurons of the suprachiasmatic nucleus (SCN). In contrast few VIP positive fibers were seen adjacent to ORX-positive neurons in lab rats. This species difference suggests a direct control by the SCN on neurons expressing ORX in grass rats and a more indirect regulation in lab rats. These results are consistent with the hypothesis that differences between diurnal and nocturnal species are due to differences in the functions of targets of the SCN such as the ORX neurons and the dorsomedial hypothalamus (DMH)

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