Same brain cells active during sleep and exploration in mice

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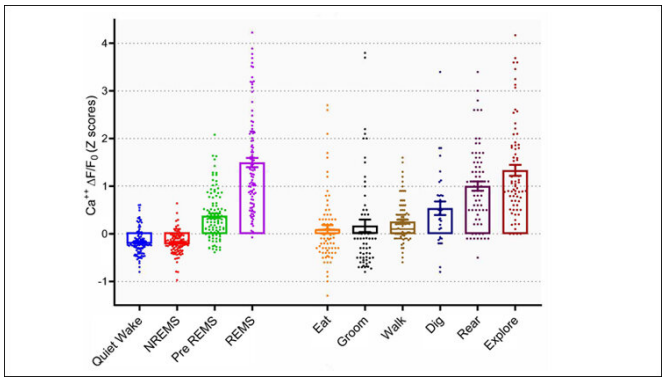

Average fluorescence in MCH neurons is highest during REM sleep and exploratory behavior. Credit: Blanco-Centurion *et al., JNeurosci* (2019)

More information: *JNeurosci* (2019). DOI: 10.1523/JNEUROSCI.0305-19.2019

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Researchers have mapped the activity of individual neurons deep in the brain during sleep and exploration of novel objects in male and female mice. The study, published in *JNeurosci*, suggests these cells may facilitate memory formation.

Melanin-concentrating hormone (MCH) neurons are active during rapid-eye movement (REM) sleep, when dreaming—and perhaps memory consolidation—occurs. Carlos Blanco, Priyattam Shiromani, and colleagues at the Medical University of South Carolina and Yale University School of Medicine report 70 percent of MCH neurons that were strongly activated during REM sleep were also active when mice explored interesting objects like a binder clip or a bottle cap.

By recording the activity of pairs of MCH neurons, the researchers revealed a pattern of single -cell activity that could be used to compare the function of this network across different states of health and disease. Additionally, because all vertebrates have these cells, future studies of MCH neurons in animals beyond mammals and birds may identify REM sleep in diverse species.